

***PRELIMINARY
HYDROLOGY STUDY***

***MAJESTIC FREEWAY
BUSINESS CENTER***

BUILDING No. 13

RIVERSIDE COUNTY, CA

PREPARED FOR:

**Majestic Freeway Business Center, LLC
13191 Crossroads Parkway North
6th Floor
Industry, California 91746
*Preparation Date: December, 2021***



Prepared under the supervision of:

Steve Levisee, P.E.

Date

TABLE OF CONTENTS

Background and Purpose..... 1

Project Scope 1

Flood Designation 1

Project Location 2

Design Criteria and Methods..... 3

Hydrology Model Assumptions..... 3

Basin Outlet Structures 3

Preliminary Results..... 4

Conclusion..... 4

APPENDICES

Hydrology Map – Existing Condition.....A

Hydrology Map – Developed Condition.....B

Unit Hydrograph Hydrology – Existing Condition.....C

Unit Hydrograph Hydrology – Developed Condition.....D

Detention Basin Volume CalculationsE

Detention Basin Outflow Calculations..... F

Flood Routing Calculations..... G

Riverside County Hydrology Reference DataH

P B L A E N G I N E E R I N G , I N C .

Background and Purpose

Majestic Freeway Business Center, LLC is proposing to develop a single logistics industrial building on approximately 17.6 acres of land in the County of Riverside. The property is located west of Harvill Avenue, north of Martin Street and Perry Street. The property is vacant and unimproved. The natural drainage pattern flows towards the intersection of Perry and Harvill at the north east corner of the site. An existing inlet headwall & apron drains the site into existing storm drain that directs flows toward the east.

The purpose of this report is to establish the basis for final design of flood protection and drainage conveyance elements, ensure that these elements can be sized properly, and to ensure the development can comply with County of Riverside requirements when constructed.

Project Scope

This study contemplates the entire project site, and both the existing pre-developed condition of the site and the post-developed proposed condition are analyzed for comparison to ensure compliance with current drainage policies and regulations. The analyses are based on comparing the total flows of the existing site & the proposed flows that gather in a basin on the southeast corner of the site.

The Hydrology Maps for both the existing condition and proposed condition are given in Appendix A & B respectively.

Flood Designation

The property described on this survey lies within Zone "X" of the Flood Insurance Rate Map identified as Community Panel No. 1410 of 3805, map number 06065C1410G bearing an effective date of August 28, 2008.

Zone "X" is defined as areas outside the 0.2% annual chance floodplain.

PBLA ENGINEERING, INC.

1809 E. Dyer Rd., Suite 301
Santa Ana, CA 92705
(888)714-9642

981 Corporate Center Drive, Suite 150
Pomona, CA 91768
(626) 512-4934

1481 Ford Street, Suite 201
Redlands, CA 92373
(714) 620-4960

Project Location



PBLA ENGINEERING, INC.

1809 E. Dyer Rd., Suite 301
Santa Ana, CA 92705
(888)714-9642

981 Corporate Center Drive, Suite 150
Pomona, CA 91768
(626) 512-4934

1481 Ford Street, Suite 201
Redlands, CA 92373
(714) 620-4960

Design Criteria and Methods

The runoff calculations presented in this study are produced using the Unit Hydrograph method as detailed in the current Riverside County Hydrology Manual. Because this is a preliminary study to determine feasibility, multiple recurrence interval storms were not produced as would be required on a final report. This study presents multiple storm events for the 100 year recurrence interval.

The County requires that any increased runoff does not exceed pre-development runoff.

The proposed detention basin is sized for the worst case 100 year storm event. Rainfall data, soil loss, and SCS curve numbers are based on the County Manual. No volume reduction is taken for infiltration, although the basins will incorporate under-drain systems to evacuate standing water. Detention basin volume and outflow calculations are produced with a spreadsheet program.

Hydrology Model Assumptions

Existing Condition:

Runoff Index = 76 – See exist Hydrology map for composite RI Calculation

Soils Type = A & B – Soil map included.

Rainfall Data – NOAA Atlas 14 per SB County requirements.

AMC = 2 - Typical for studies of this nature.

Unit Hydrograph Lag Time – Calculated by Hydrology program based on physical properties.

Base Flow = 0 – There are no existing watercourses in the study catchment.

Proposed Condition:

Runoff Index = 44 – See exist Hydrology map for composite RI Calculation

Soils Type = A & B – Soil map included.

Rainfall Data – NOAA Atlas 14 per SB County requirements.

AMC = 2 - Typical for studies of this nature.

Unit Hydrograph Lag Time – Calculated by Hydrology program based on physical properties.

Base Flow = 0 – There are no existing watercourses in the study catchment.

Basin Outlet Structures

The proposed structure will control outlet flows in the existing storm drain system located at the north east corner of the site. The basin outlet structure restricts flows to ensure proper Water Quality treatment volumes and outlet times are retained, ensure peak inflow attenuation, and safely outlet design storm flows to the existing storm drain systems.

PBLA ENGINEERING, INC.

1809 E. Dyer Rd., Suite 301
Santa Ana, CA 92705
(888)714-9642

981 Corporate Center Drive, Suite 150
Pomona, CA 91768
(626) 512-4934

1481 Ford Street, Suite 201
Redlands, CA 92373
(714) 620-4960

Preliminary Hydrology Results

EXISTING CONDITION -SITE

RUNOFF (cfs)

	1 HR	3 HR	6 HR	24 HR	24 HR TOTAL VOLUME (AC-FT)
100 YR	45.2	24.4	20.3	7.1	2.1

DEVELOPED CONDITION - AREA 1

BASIN INFLOW (cfs)

	1 HR	3 HR	6 HR	24 HR	24 HR TOTAL VOLUME (AC-FT)
100 YR	45.7	26.7	23.7	9.2	5.5

DEVELOPED CONDITION - AREA 2

BASIN INFLOW (cfs)

	1 HR	3 HR	6 HR	24 HR	24 HR TOTAL VOLUME (AC-FT)
100 YR	3.7	2.1	1.8	0.6	0.2

FLOOD ROUTING RESULTS - AREA 1/BASIN B1

BASIN OUTFLOW (cfs)

	1 HR	3 HR	6 HR	24 HR	24 HR TOTAL VOLUME (AC-FT)
100 YR	6.0	9.3	12.7	5.9	5.4

Conclusion

This study and the related calculations indicated that the proposed development design flows can be conveyed to the existing storm drain system without danger of site flooding. Additionally, the detention basins are properly sized to attenuate the difference between pre-development runoff and runoff from the completed development.

Note that a final Hydrology and Hydraulics study will be required to accompany final construction documents to analyze final basin geometry, provide conveyance element hydraulics for proper pipe sizing, surface drainage facilities and energy dissipation.

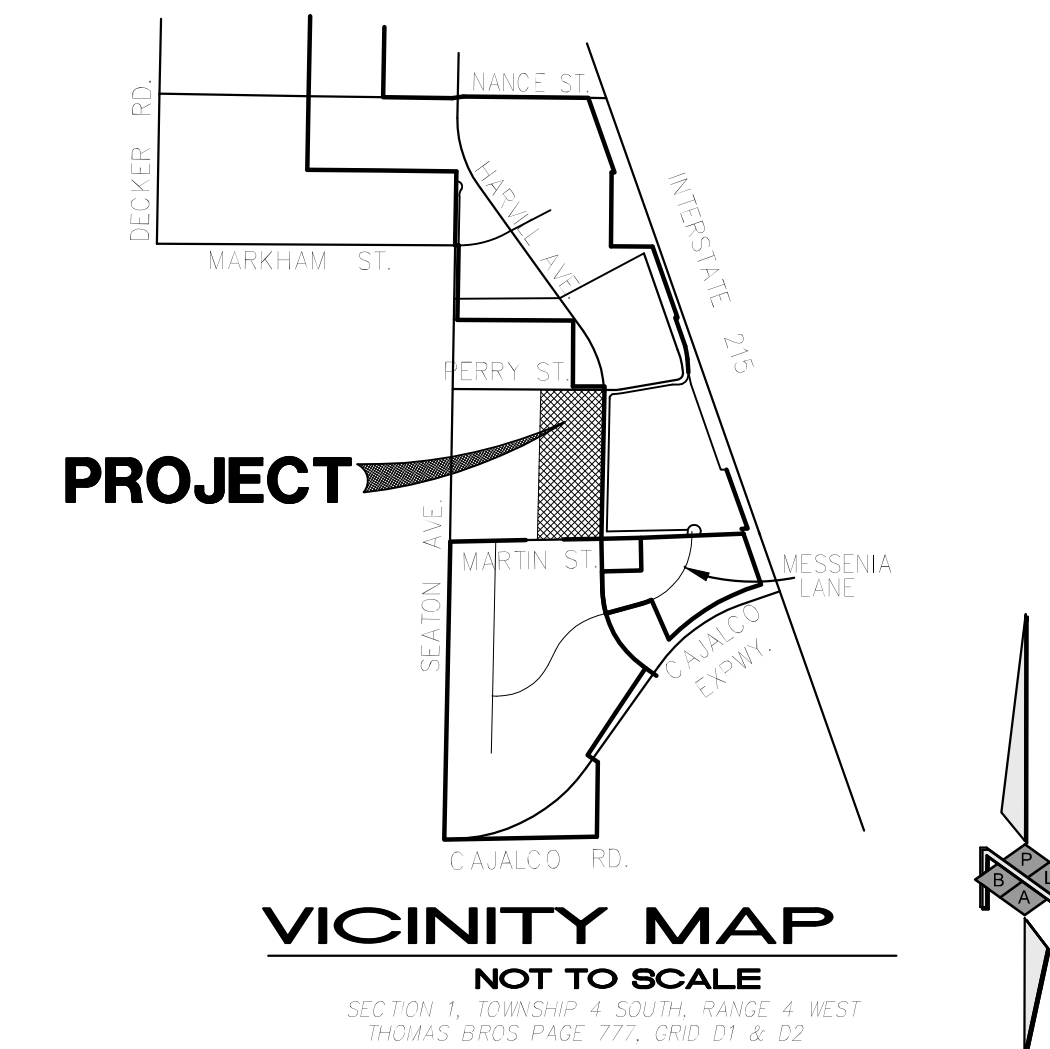
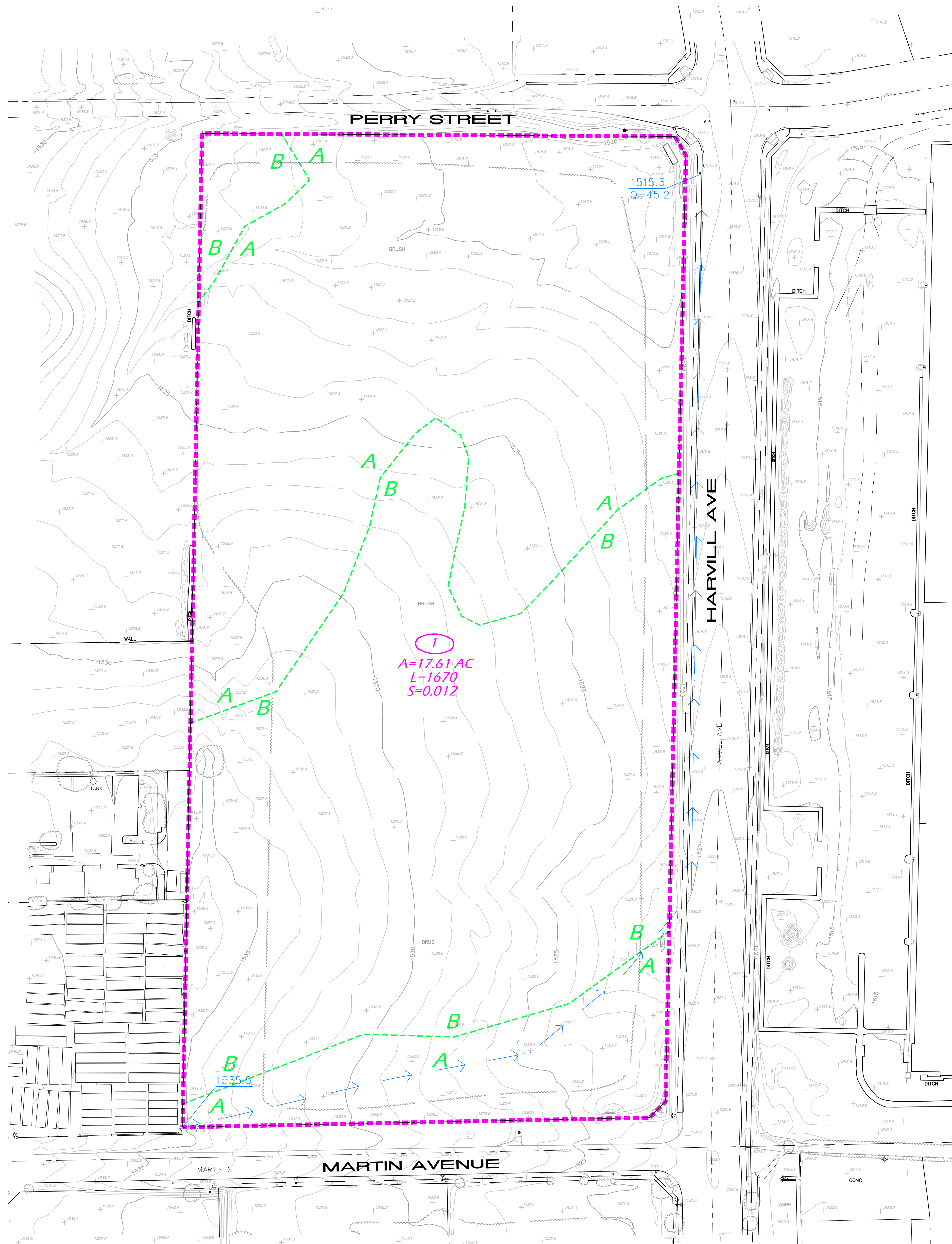
APPENDIX A
HYDROLOGY MAP – EXISTING CONDITION

PBLA ENGINEERING, INC.

1809 E. Dyer Rd., Suite 301
Santa Ana, CA 92705
(888)714-9642

981 Corporate Center Drive, Suite 150
Pomona, CA 91768
(626) 512-4934

1481 Ford Street, Suite 201
Redlands, CA 92373
(714) 620-4960



RUNOFF INDEX CALCULATION

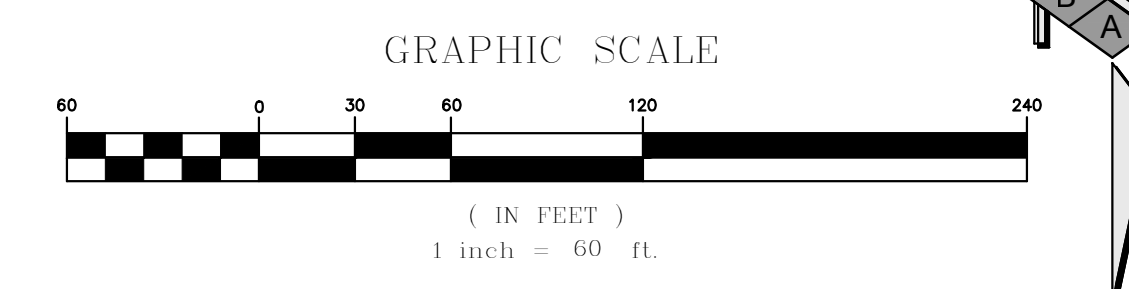
SOIL TYPE A = 9.12 AC (52%) - RI=71
 SOIL TYPE B = 8.49 AC (48%) - RI=82
 COMPOSITE RI = 76

HYDROLOGY SUMMARY

100 YR / 1 HR = 45.2
 100 YR / 3 HR = 24.4
 100 YR / 6 HR = 20.3
 100 YR / 24 HR = 7.1

LEGEND

- A — SUBAREA DESIGNATION
- SUBAREA BOUNDARY
- FLOWPATH THROUGH SUBAREA
- Q=10.0 — RUNOFF FROM SUBAREA (100 YEAR, 1 HOUR STORM)
- SOIL TYPE BOUNDARY
- A — SOIL TYPE



UNIT HYDROGRAPH MAP EXISTING CONDITION MFBC-BUILDING 13

Dec 06 2021

PREPARED FOR: COMMERCE CONSTRUCTION CO., LP. <small>13191 Crossroads Parkway North 2nd Floor City of Industry, California 91746-3487 Telephone: (626) 899-0453 License No. 723302</small>	PREPARED BY:  PBLA ENGINEERING, INC. <small>Planning • Engineering • Surveying 1809 E. DYER ROAD, SUITE 301 SANTA ANA, CALIF. 92705 (888) 714-9642 • (714)389-9191 FAX</small>	DATE	BY	REVISION	WO
					100-101
		SDL		1st Release	Sht. 1 of 1

TOPOGRAPHY DATE: 3-7-05

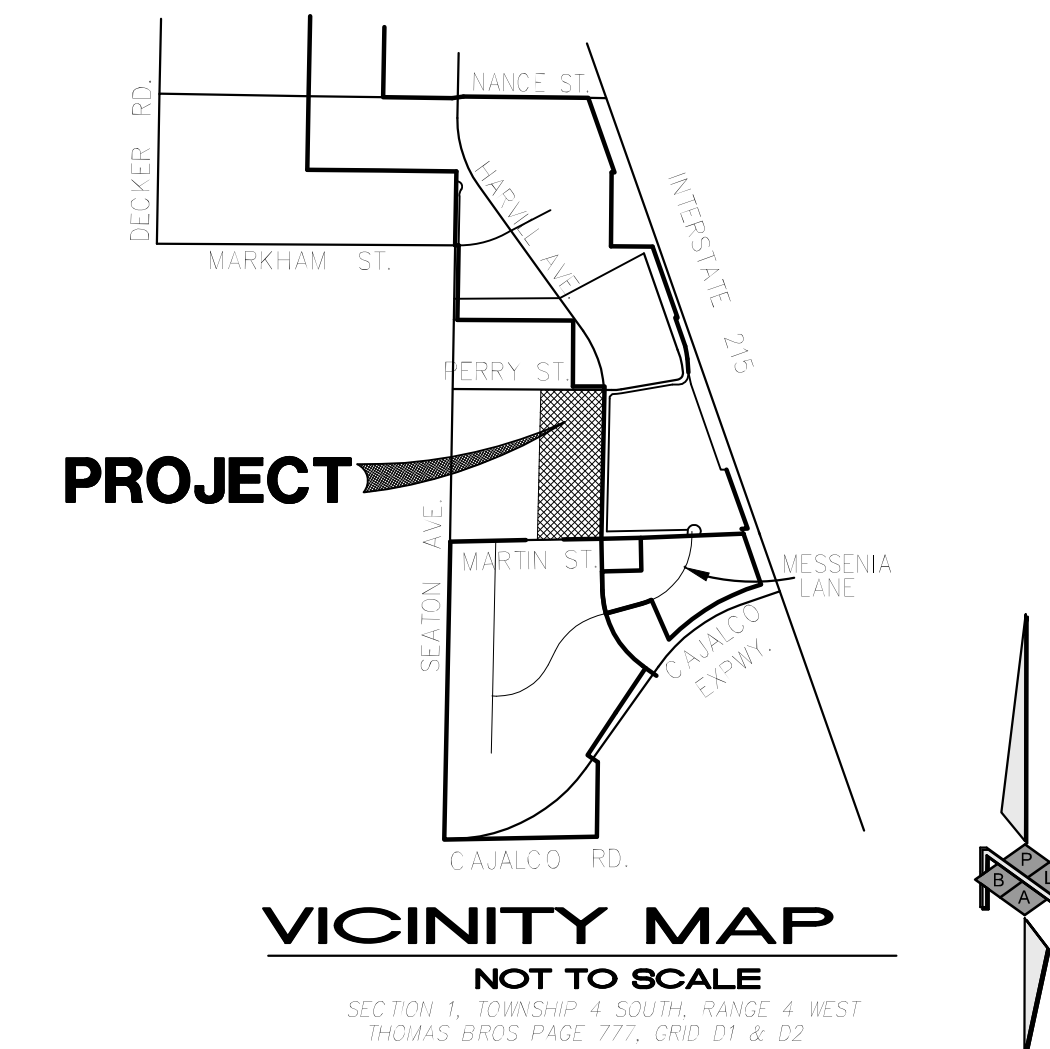
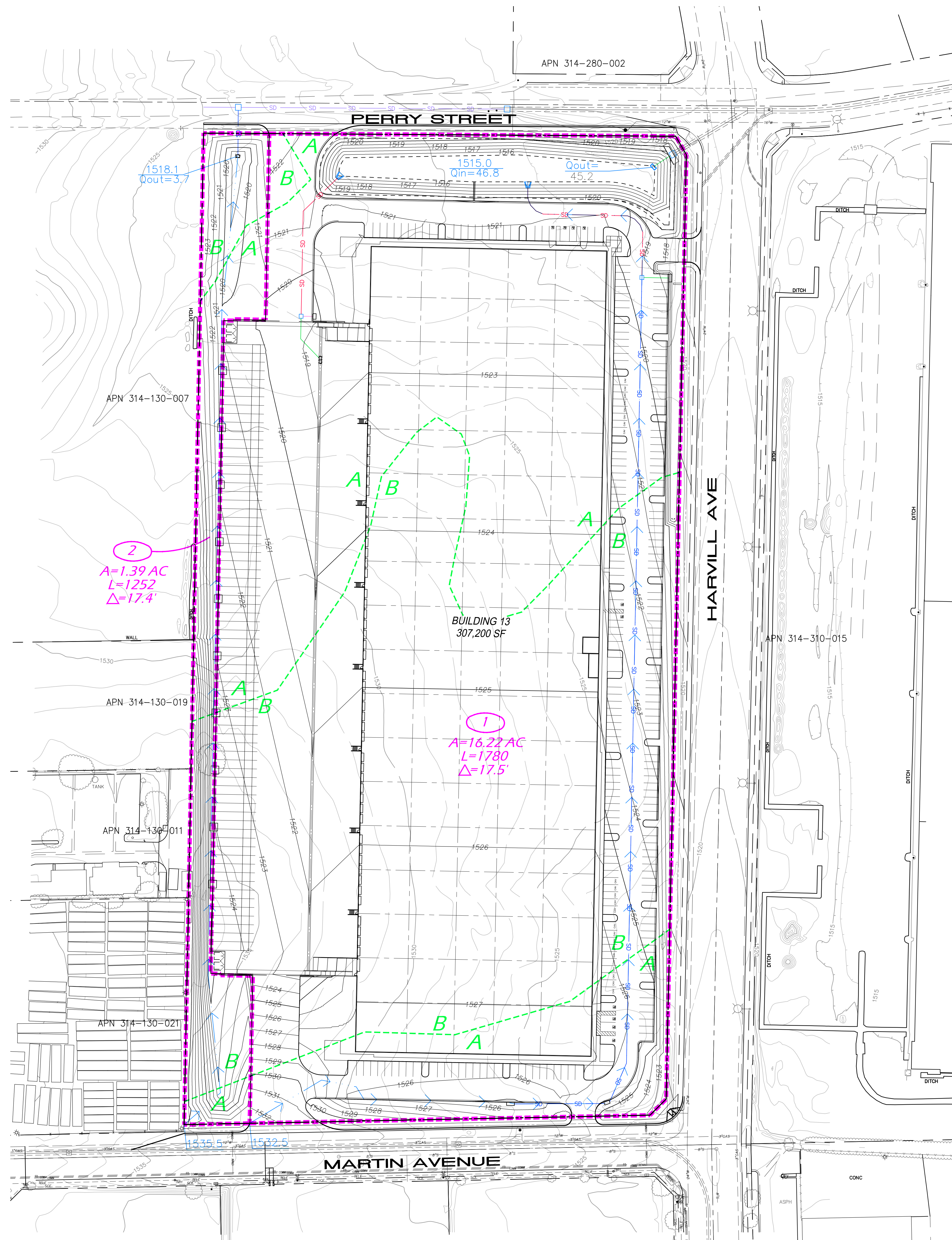
APPENDIX B
HYDROLOGY MAP – DEVELOPED CONDITION

P B L A E N G I N E E R I N G , I N C .

1809 E. Dyer Rd., Suite 301
Santa Ana, CA 92705
(888)714-9642

981 Corporate Center Drive, Suite 150
Pomona, CA 91768
(626) 512-4934

1481 Ford Street, Suite 201
Redlands, CA 92373
(714) 620-4960



RUNOFF INDEX CALCULATION

SOIL TYPE A = 9.12 AC (52%) - RI=32
 SOIL TYPE B = 8.49 AC (48%) - RI=56
 COMPOSITE RI = 44

HYDROLOGY SUMMARY

DEVELOPED CONDITION - AREA 1

BASIN INFLOW (cfs)

	1 HR	3 HR	6 HR	24 HR	24 HR TOTAL VOLUME (AC-FT)
100 YR	45.7	26.7	23.7	9.2	5.5

DEVELOPED CONDITION - AREA 2

BASIN INFLOW (cfs)

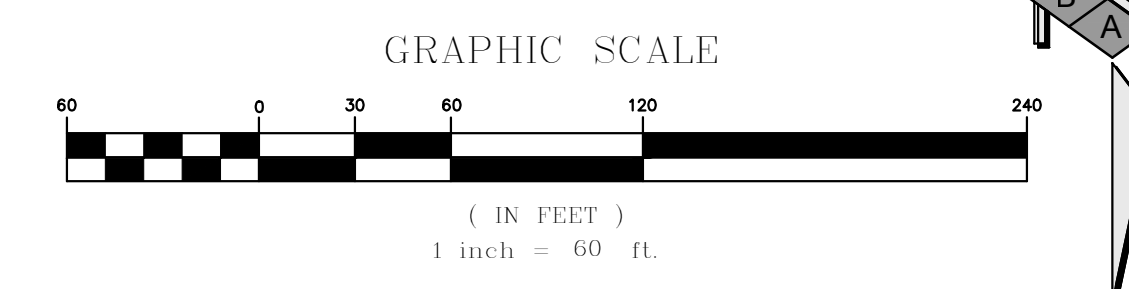
	1 HR	3 HR	6 HR	24 HR	24 HR TOTAL VOLUME (AC-FT)
100 YR	3.7	2.1	1.8	0.6	0.2

FLOOD ROUTING RESULTS - AREA 1/BASIN B1

BASIN OUTFLOW (cfs)

	1 HR	3 HR	6 HR	24 HR	24 HR TOTAL VOLUME (AC-FT)
100 YR	6.0	9.3	12.7	5.9	5.4

- LEGEND**
- (A) — SUBAREA DESIGNATION
 - — SUBAREA BOUNDARY
 - — FLOWPATH THROUGH SUBAREA
 - Q=10.0 — RUNOFF FROM SUBAREA (100 YEAR, 1 HOUR STORM)
 - — SOIL TYPE BOUNDARY
 - A — SOIL TYPE



Dec 06 2021

<p>PREPARED FOR:</p> <p>COMMERCE CONSTRUCTION CO., LP. <small>13191 Crossroads Parkway North 2nd Floor City of Industry, California 91746-3497 Telephone: (626) 899-0453 License No. 723302</small></p>	<p>PREPARED BY:</p> <p>PBLA ENGINEERING, INC. <small>Planning • Engineering • Surveying 1809 E. DYER ROAD, SUITE 301 SANTA ANA, CALIF. 92705 (888) 714-9642 • (714) 389-9191 FAX</small></p>	DATE	BY	REVISION					
		TOPOGRAPHY DATE: 3-7-05							
<p>UNIT HYDROGRAPH MAP DEVELOPED CONDITION MFBC-BUILDING 13</p>					WO	100-101			
					SDL	1st Release	<p>Sh. 1 of 1</p>		

APPENDIX C
UNIT HYDROGRAPH HYDROLOGY
EXISTING CONDITION

PBLA ENGINEERING, INC.

1809 E. Dyer Rd., Suite 301
Santa Ana, CA 92705
(888)714-9642

981 Corporate Center Drive, Suite 150
Pomona, CA 91768
(626) 512-4934

1481 Ford Street, Suite 201
Redlands, CA 92373
(714) 620-4960

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 11/29/21 File: 100101EXUH1100.out

+++++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6490

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

MFBC - BUILDING 13
EXISTING CONDITION
100 YEAR STORMS
100101EXUH

Drainage Area = 17.61(Ac.) = 0.028 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 17.61(Ac.) = 0.028 Sq. Mi.
Length along longest watercourse = 1670.00(Ft.)
Length along longest watercourse measured to centroid = 860.00(Ft.)
Length along longest watercourse = 0.316 Mi.
Length along longest watercourse measured to centroid = 0.163 Mi.
Difference in elevation = 20.20(Ft.)
Slope along watercourse = 63.8659 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.106 Hr.
Lag time = 6.35 Min.
25% of lag time = 1.59 Min.
40% of lag time = 2.54 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
17.61	0.46	8.03

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
17.61	1.33	23.42

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.456(In)
Area Averaged 100-Year Rainfall = 1.330(In)

Point rain (area averaged) = 1.330(In)

Total soil loss = 0.427(Ac.Ft)
 Total rainfall = 1.33(In)
 Flood volume = 66391.0 Cubic Feet
 Total soil loss = 18614.8 Cubic Feet

 Peak flow rate of this hydrograph = 45.227(CFS)

+++++

1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	12.5	25.0	37.5	50.0
0+ 5	0.0060	0.87	Q				
0+10	0.0326	3.87	V Q				
0+15	0.0713	5.61	V Q				
0+20	0.1202	7.10	V Q				
0+25	0.1764	8.16	V Q				
0+30	0.2440	9.81	VQ				
0+35	0.3248	11.73	VQ				
0+40	0.4216	14.06	Q				
0+45	0.5444	17.83	Q				
0+50	0.7494	29.76	V Q				
0+55	1.0609	45.23	V Q				
1+ 0	1.2516	27.69	Q		V		
1+ 5	1.3629	16.17	Q		V		
1+10	1.4234	8.79	Q		V		
1+15	1.4595	5.23	Q		V		
1+20	1.4838	3.53	Q		V		
1+25	1.5002	2.39	Q		V		
1+30	1.5112	1.60	Q		V		
1+35	1.5186	1.07	Q		V		
1+40	1.5228	0.61	Q		V		
1+45	1.5238	0.15	Q		V		
1+50	1.5241	0.05	Q		V		

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 11/29/21 File: 100101EXUH3100.out

+++++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6490

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

MFBC - BUILDING 13
EXISTING CONDITION
100 YEAR STORMS
100101EXUH

Drainage Area = 17.61(Ac.) = 0.028 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 17.61(Ac.) = 0.028 Sq. Mi.
Length along longest watercourse = 1670.00(Ft.)
Length along longest watercourse measured to centroid = 860.00(Ft.)
Length along longest watercourse = 0.316 Mi.
Length along longest watercourse measured to centroid = 0.163 Mi.
Difference in elevation = 20.20(Ft.)
Slope along watercourse = 63.8659 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.106 Hr.
Lag time = 6.35 Min.
25% of lag time = 1.59 Min.
40% of lag time = 2.54 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
17.61	0.79	13.98

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
17.61	1.99	35.04

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.794(In)
Area Averaged 100-Year Rainfall = 1.990(In)

Point rain (area averaged) = 1.990(In)

Areal adjustment factor = 99.99 %
 Adjusted average point rain = 1.990 (In)

Sub-Area Data:

Area (Ac.) Runoff Index Impervious %
 17.610 76.00 0.000
 Total Area Entered = 17.61 (Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
76.0	76.0	0.291	0.000	0.291	1.000	0.291
						Sum (F) = 0.291

Area averaged mean soil loss (F) (In/Hr) = 0.291

Minimum soil loss rate ((In/Hr)) = 0.146

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.900

 U n i t H y d r o g r a p h
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	78.695	12.938
2	0.167	157.390	43.957
3	0.250	236.085	20.318
4	0.333	314.780	8.333
5	0.417	393.475	5.010
6	0.500	472.170	3.185
7	0.583	550.865	2.273
8	0.667	629.560	1.588
9	0.750	708.255	1.077
10	0.833	786.951	0.798
11	0.917	865.646	0.524
Sum = 100.000			Sum= 17.748

 The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate (In./Hr)		Effective (In/Hr)
			Max	Low	
1	0.08	1.30	0.310	(0.291) 0.279	0.031
2	0.17	1.30	0.310	(0.291) 0.279	0.031
3	0.25	1.10	0.263	(0.291) 0.236	0.026
4	0.33	1.50	0.358	0.291 (0.322)	0.067
5	0.42	1.50	0.358	0.291 (0.322)	0.067
6	0.50	1.80	0.430	0.291 (0.387)	0.139
7	0.58	1.50	0.358	0.291 (0.322)	0.067
8	0.67	1.80	0.430	0.291 (0.387)	0.139
9	0.75	1.80	0.430	0.291 (0.387)	0.139
10	0.83	1.50	0.358	0.291 (0.322)	0.067
11	0.92	1.60	0.382	0.291 (0.344)	0.091
12	1.00	1.80	0.430	0.291 (0.387)	0.139
13	1.08	2.20	0.525	0.291 (0.473)	0.234
14	1.17	2.20	0.525	0.291 (0.473)	0.234
15	1.25	2.20	0.525	0.291 (0.473)	0.234
16	1.33	2.00	0.478	0.291 (0.430)	0.186
17	1.42	2.60	0.621	0.291 (0.559)	0.330
18	1.50	2.70	0.645	0.291 (0.580)	0.354
19	1.58	2.40	0.573	0.291 (0.516)	0.282

20	1.67	2.70	0.645	0.291	(0.580)	0.354
21	1.75	3.30	0.788	0.291	(0.709)	0.497
22	1.83	3.10	0.740	0.291	(0.666)	0.449
23	1.92	2.90	0.692	0.291	(0.623)	0.401
24	2.00	3.00	0.716	0.291	(0.645)	0.425
25	2.08	3.10	0.740	0.291	(0.666)	0.449
26	2.17	4.20	1.003	0.291	(0.903)	0.712
27	2.25	5.00	1.194	0.291	(1.075)	0.903
28	2.33	3.50	0.836	0.291	(0.752)	0.545
29	2.42	6.80	1.624	0.291	(1.461)	1.333
30	2.50	7.30	1.743	0.291	(1.569)	1.452
31	2.58	8.20	1.958	0.291	(1.762)	1.667
32	2.67	5.90	1.409	0.291	(1.268)	1.118
33	2.75	2.00	0.478	0.291	(0.430)	0.186
34	2.83	1.80	0.430	0.291	(0.387)	0.139
35	2.92	1.80	0.430	0.291	(0.387)	0.139
36	3.00	0.60	0.143	(0.291)	0.129	0.014

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.6

Flood volume = Effective rainfall 1.14(In)
times area 17.6(Ac.)/[(In)/(Ft.)] = 1.7(Ac.Ft)
Total soil loss = 0.85(In)
Total soil loss = 1.253(Ac.Ft)
Total rainfall = 1.99(In)
Flood volume = 72637.6 Cubic Feet
Total soil loss = 54562.0 Cubic Feet

Peak flow rate of this hydrograph = 24.376(CFS)

+++++
3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	7.5	15.0	22.5	30.0
0+ 5	0.0005	0.07	Q				
0+10	0.0027	0.31	Q				
0+15	0.0055	0.41	Q				
0+20	0.0091	0.52	Q				
0+25	0.0149	0.84	VQ				
0+30	0.0229	1.17	VQ				
0+35	0.0341	1.63	V Q				
0+40	0.0447	1.54	VQ				
0+45	0.0583	1.97	VQ				
0+50	0.0723	2.04	VQ				
0+55	0.0836	1.63	Q				
1+ 0	0.0955	1.73	Q				
1+ 5	0.1116	2.34	VQ				
1+10	0.1340	3.25	VQ				
1+15	0.1593	3.67	VQ				
1+20	0.1850	3.74	Q				
1+25	0.2112	3.80	Q				
1+30	0.2447	4.87	VQ				
1+35	0.2818	5.39	VQ				
1+40	0.3182	5.28	Q				
1+45	0.3600	6.07	Q				
1+50	0.4105	7.33	Q				
1+55	0.4620	7.48	Q V				
2+ 0	0.5120	7.26	Q V				
2+ 5	0.5632	7.43	Q V				
2+10	0.6204	8.30	Q V				
2+15	0.6956	10.92	Q V				
2+20	0.7824	12.60	Q V				

2+25	0.8700	12.72			Q	V			
2+30	0.9967	18.40					VQ		
2+35	1.1514	22.47					V	Q	
2+40	1.3193	24.38						VQ	
2+45	1.4540	19.56					Q		V
2+50	1.5299	11.03			Q				V
2+55	1.5784	7.04		Q					V
3+ 0	1.6134	5.09		Q					V
3+ 5	1.6349	3.11		Q					V
3+10	1.6481	1.92		Q					V
3+15	1.6568	1.26		Q					V
3+20	1.6622	0.78		Q					V
3+25	1.6653	0.45	Q						V
3+30	1.6667	0.20	Q						V
3+35	1.6672	0.07	Q						V
3+40	1.6674	0.04	Q						V
3+45	1.6675	0.01	Q						V
3+50	1.6675	0.00	Q						V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 11/29/21 File: 100101EXUH6100.out

+++++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6490

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

MFBC - BUILDING 13
EXISTING CONDITION
100 YEAR STORMS
100101EXUH

Drainage Area = 17.61(Ac.) = 0.028 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 17.61(Ac.) = 0.028 Sq. Mi.
Length along longest watercourse = 1670.00(Ft.)
Length along longest watercourse measured to centroid = 860.00(Ft.)
Length along longest watercourse = 0.316 Mi.
Length along longest watercourse measured to centroid = 0.163 Mi.
Difference in elevation = 20.20(Ft.)
Slope along watercourse = 63.8659 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.106 Hr.
Lag time = 6.35 Min.
25% of lag time = 1.59 Min.
40% of lag time = 2.54 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
17.61	1.10	19.37

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
17.61	2.66	46.84

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.100(In)
Area Averaged 100-Year Rainfall = 2.660(In)

Point rain (area averaged) = 2.660(In)
Areal adjustment factor = 99.99 %

Adjusted average point rain = 2.660(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 17.610 76.00 0.000
 Total Area Entered = 17.61(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
76.0	76.0	0.291	0.000	0.291	1.000	0.291
						Sum (F) = 0.291

Area averaged mean soil loss (F) (In/Hr) = 0.291

Minimum soil loss rate ((In/Hr)) = 0.146

(for 24 hour storm duration)

Soil loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	78.695	12.938
2	0.167	157.390	43.957
3	0.250	236.085	20.318
4	0.333	314.780	8.333
5	0.417	393.475	5.010
6	0.500	472.170	3.185
7	0.583	550.865	2.273
8	0.667	629.560	1.588
9	0.750	708.255	1.077
10	0.833	786.951	0.798
11	0.917	865.646	0.524
Sum = 100.000			Sum= 17.748

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
			Max	Low	
1	0.08	0.50	(0.291)	0.144	0.016
2	0.17	0.60	(0.291)	0.172	0.019
3	0.25	0.60	(0.291)	0.172	0.019
4	0.33	0.60	(0.291)	0.172	0.019
5	0.42	0.60	(0.291)	0.172	0.019
6	0.50	0.70	(0.291)	0.201	0.022
7	0.58	0.70	(0.291)	0.201	0.022
8	0.67	0.70	(0.291)	0.201	0.022
9	0.75	0.70	(0.291)	0.201	0.022
10	0.83	0.70	(0.291)	0.201	0.022
11	0.92	0.70	(0.291)	0.201	0.022
12	1.00	0.80	(0.291)	0.230	0.026
13	1.08	0.80	(0.291)	0.230	0.026
14	1.17	0.80	(0.291)	0.230	0.026
15	1.25	0.80	(0.291)	0.230	0.026
16	1.33	0.80	(0.291)	0.230	0.026
17	1.42	0.80	(0.291)	0.230	0.026
18	1.50	0.80	(0.291)	0.230	0.026
19	1.58	0.80	(0.291)	0.230	0.026
20	1.67	0.80	(0.291)	0.230	0.026

21	1.75	0.80	0.255	(0.291)	0.230	0.026
22	1.83	0.80	0.255	(0.291)	0.230	0.026
23	1.92	0.80	0.255	(0.291)	0.230	0.026
24	2.00	0.90	0.287	(0.291)	0.259	0.029
25	2.08	0.80	0.255	(0.291)	0.230	0.026
26	2.17	0.90	0.287	(0.291)	0.259	0.029
27	2.25	0.90	0.287	(0.291)	0.259	0.029
28	2.33	0.90	0.287	(0.291)	0.259	0.029
29	2.42	0.90	0.287	(0.291)	0.259	0.029
30	2.50	0.90	0.287	(0.291)	0.259	0.029
31	2.58	0.90	0.287	(0.291)	0.259	0.029
32	2.67	0.90	0.287	(0.291)	0.259	0.029
33	2.75	1.00	0.319	(0.291)	0.287	0.032
34	2.83	1.00	0.319	(0.291)	0.287	0.032
35	2.92	1.00	0.319	(0.291)	0.287	0.032
36	3.00	1.00	0.319	(0.291)	0.287	0.032
37	3.08	1.00	0.319	(0.291)	0.287	0.032
38	3.17	1.10	0.351	0.291 (0.316)		0.060
39	3.25	1.10	0.351	0.291 (0.316)		0.060
40	3.33	1.10	0.351	0.291 (0.316)		0.060
41	3.42	1.20	0.383	0.291 (0.345)		0.092
42	3.50	1.30	0.415	0.291 (0.373)		0.124
43	3.58	1.40	0.447	0.291 (0.402)		0.156
44	3.67	1.40	0.447	0.291 (0.402)		0.156
45	3.75	1.50	0.479	0.291 (0.431)		0.188
46	3.83	1.50	0.479	0.291 (0.431)		0.188
47	3.92	1.60	0.511	0.291 (0.460)		0.219
48	4.00	1.60	0.511	0.291 (0.460)		0.219
49	4.08	1.70	0.543	0.291 (0.488)		0.251
50	4.17	1.80	0.575	0.291 (0.517)		0.283
51	4.25	1.90	0.606	0.291 (0.546)		0.315
52	4.33	2.00	0.638	0.291 (0.575)		0.347
53	4.42	2.10	0.670	0.291 (0.603)		0.379
54	4.50	2.10	0.670	0.291 (0.603)		0.379
55	4.58	2.20	0.702	0.291 (0.632)		0.411
56	4.67	2.30	0.734	0.291 (0.661)		0.443
57	4.75	2.40	0.766	0.291 (0.689)		0.475
58	4.83	2.40	0.766	0.291 (0.689)		0.475
59	4.92	2.50	0.798	0.291 (0.718)		0.507
60	5.00	2.60	0.830	0.291 (0.747)		0.539
61	5.08	3.10	0.989	0.291 (0.891)		0.698
62	5.17	3.60	1.149	0.291 (1.034)		0.858
63	5.25	3.90	1.245	0.291 (1.120)		0.954
64	5.33	4.20	1.341	0.291 (1.207)		1.049
65	5.42	4.70	1.500	0.291 (1.350)		1.209
66	5.50	5.60	1.787	0.291 (1.609)		1.496
67	5.58	1.90	0.606	0.291 (0.546)		0.315
68	5.67	0.90	0.287	(0.291)	0.259	0.029
69	5.75	0.60	0.192	(0.291)	0.172	0.019
70	5.83	0.50	0.160	(0.291)	0.144	0.016
71	5.92	0.30	0.096	(0.291)	0.086	0.010
72	6.00	0.20	0.064	(0.291)	0.057	0.006

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.9

Flood volume = Effective rainfall 1.16(In)
times area 17.6(Ac.)/[(In)/(Ft.)] = 1.7(Ac.Ft)
Total soil loss = 1.50(In)
Total soil loss = 2.200(Ac.Ft)
Total rainfall = 2.66(In)
Flood volume = 74217.2 Cubic Feet
Total soil loss = 95811.1 Cubic Feet

Peak flow rate of this hydrograph = 20.293(CFS)

+++++

6 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q(CFS)	0	7.5	15.0	22.5	30.0
0+ 5	0.0003	0.04	Q				
0+10	0.0014	0.17	Q				
0+15	0.0031	0.25	Q				
0+20	0.0051	0.29	Q				
0+25	0.0072	0.31	Q				
0+30	0.0094	0.32	Q				
0+35	0.0119	0.36	Q				
0+40	0.0145	0.37	Q				
0+45	0.0171	0.38	Q				
0+50	0.0198	0.39	Q				
0+55	0.0225	0.39	Q				
1+ 0	0.0253	0.40	Q				
1+ 5	0.0282	0.43	Q				
1+10	0.0313	0.44	Q				
1+15	0.0343	0.44	Q				
1+20	0.0374	0.45	Q				
1+25	0.0405	0.45	Q				
1+30	0.0436	0.45	QV				
1+35	0.0467	0.45	QV				
1+40	0.0498	0.45	QV				
1+45	0.0530	0.45	QV				
1+50	0.0561	0.45	QV				
1+55	0.0592	0.45	QV				
2+ 0	0.0624	0.46	QV				
2+ 5	0.0657	0.48	QV				
2+10	0.0689	0.47	QV				
2+15	0.0723	0.49	QV				
2+20	0.0758	0.50	QV				
2+25	0.0792	0.50	QV				
2+30	0.0827	0.51	QV				
2+35	0.0862	0.51	Q V				
2+40	0.0897	0.51	Q V				
2+45	0.0933	0.52	Q V				
2+50	0.0970	0.54	Q V				
2+55	0.1008	0.55	Q V				
3+ 0	0.1046	0.56	Q V				
3+ 5	0.1085	0.56	Q V				
3+10	0.1128	0.63	Q V				
3+15	0.1187	0.85	QV				
3+20	0.1252	0.95	QV				
3+25	0.1325	1.06	Q V				
3+30	0.1423	1.41	Q V				
3+35	0.1551	1.87	QV				
3+40	0.1709	2.29	QV				
3+45	0.1885	2.56	QV				
3+50	0.2085	2.91	QV				
3+55	0.2303	3.16	QV				
4+ 0	0.2544	3.50	QV				
4+ 5	0.2802	3.74	Q V				
4+10	0.3088	4.15	Q V				
4+15	0.3408	4.64	Q V				
4+20	0.3763	5.16	Q V				
4+25	0.4156	5.70	Q V				
4+30	0.4581	6.17	Q V				
4+35	0.5027	6.47	Q V				
4+40	0.5503	6.92	Q V				
4+45	0.6015	7.43	Q V				
4+50	0.6559	7.89	Q V				
4+55	0.7123	8.19	Q V				

5+ 0	0.7717	8.63		Q	v			
5+ 5	0.8367	9.44		Q	v			
5+10	0.9143	11.26			Q	v		
5+15	1.0066	13.41			Q	v		
5+20	1.1116	15.25			Q	v		
5+25	1.2296	17.13				Q v		
5+30	1.3659	19.79				Q	v	
5+35	1.5057	20.29				Q	v	
5+40	1.5880	11.95		Q			v	
5+45	1.6305	6.17		Q			v	
5+50	1.6565	3.78		Q			v	
5+55	1.6740	2.54		Q			v	
6+ 0	1.6859	1.74		Q			v	
6+ 5	1.6939	1.16		Q			v	
6+10	1.6989	0.72		Q			v	
6+15	1.7018	0.43		Q			v	
6+20	1.7033	0.21		Q			v	
6+25	1.7036	0.05		Q			v	
6+30	1.7037	0.01		Q			v	
6+35	1.7037	0.01		Q			v	
6+40	1.7038	0.00		Q			v	
6+45	1.7038	0.00		Q			v	
6+50	1.7038	0.00		Q			v	

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 11/29/21 File: 100101EXUH24100.out

+++++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6490

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

MFBC - BUILDING 13
EXISTING CONDITION
100 YEAR STORMS
100101EXUH

Drainage Area = 17.61(Ac.) = 0.028 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 17.61(Ac.) = 0.028 Sq. Mi.
Length along longest watercourse = 1670.00(Ft.)
Length along longest watercourse measured to centroid = 860.00(Ft.)
Length along longest watercourse = 0.316 Mi.
Length along longest watercourse measured to centroid = 0.163 Mi.
Difference in elevation = 20.20(Ft.)
Slope along watercourse = 63.8659 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.106 Hr.
Lag time = 6.35 Min.
25% of lag time = 1.59 Min.
40% of lag time = 2.54 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
17.61	1.91	33.64

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
17.61	4.84	85.23

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.910(In)
Area Averaged 100-Year Rainfall = 4.840(In)

Point rain (area averaged) = 4.840(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.840(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 17.610 76.00 0.000
 Total Area Entered = 17.61(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
76.0	76.0	0.291	0.000	0.291	1.000	0.291
						Sum (F) = 0.291

Area averaged mean soil loss (F) (In/Hr) = 0.291
 Minimum soil loss rate ((In/Hr)) = 0.146
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 U n i t H y d r o g r a p h
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	78.695	12.938
2	0.167	157.390	43.957
3	0.250	236.085	20.318
4	0.333	314.780	8.333
5	0.417	393.475	5.010
6	0.500	472.170	3.185
7	0.583	550.865	2.273
8	0.667	629.560	1.588
9	0.750	708.255	1.077
10	0.833	786.951	0.798
11	0.917	865.646	0.524
Sum = 100.000			Sum= 17.748

 The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max Low	Effective (In/Hr)
1	0.08	0.039	(0.516) 0.035	0.004
2	0.17	0.039	(0.514) 0.035	0.004
3	0.25	0.039	(0.512) 0.035	0.004
4	0.33	0.058	(0.510) 0.052	0.006
5	0.42	0.058	(0.508) 0.052	0.006
6	0.50	0.058	(0.506) 0.052	0.006
7	0.58	0.058	(0.504) 0.052	0.006
8	0.67	0.058	(0.502) 0.052	0.006
9	0.75	0.058	(0.500) 0.052	0.006
10	0.83	0.077	(0.498) 0.070	0.008
11	0.92	0.077	(0.496) 0.070	0.008
12	1.00	0.077	(0.494) 0.070	0.008
13	1.08	0.058	(0.493) 0.052	0.006
14	1.17	0.058	(0.491) 0.052	0.006
15	1.25	0.058	(0.489) 0.052	0.006
16	1.33	0.058	(0.487) 0.052	0.006
17	1.42	0.058	(0.485) 0.052	0.006
18	1.50	0.058	(0.483) 0.052	0.006
19	1.58	0.058	(0.481) 0.052	0.006
20	1.67	0.058	(0.479) 0.052	0.006
21	1.75	0.058	(0.477) 0.052	0.006

22	1.83	0.13	0.077	(0.475)	0.070	0.008
23	1.92	0.13	0.077	(0.473)	0.070	0.008
24	2.00	0.13	0.077	(0.471)	0.070	0.008
25	2.08	0.13	0.077	(0.469)	0.070	0.008
26	2.17	0.13	0.077	(0.467)	0.070	0.008
27	2.25	0.13	0.077	(0.466)	0.070	0.008
28	2.33	0.13	0.077	(0.464)	0.070	0.008
29	2.42	0.13	0.077	(0.462)	0.070	0.008
30	2.50	0.13	0.077	(0.460)	0.070	0.008
31	2.58	0.17	0.097	(0.458)	0.087	0.010
32	2.67	0.17	0.097	(0.456)	0.087	0.010
33	2.75	0.17	0.097	(0.454)	0.087	0.010
34	2.83	0.17	0.097	(0.452)	0.087	0.010
35	2.92	0.17	0.097	(0.451)	0.087	0.010
36	3.00	0.17	0.097	(0.449)	0.087	0.010
37	3.08	0.17	0.097	(0.447)	0.087	0.010
38	3.17	0.17	0.097	(0.445)	0.087	0.010
39	3.25	0.17	0.097	(0.443)	0.087	0.010
40	3.33	0.17	0.097	(0.441)	0.087	0.010
41	3.42	0.17	0.097	(0.439)	0.087	0.010
42	3.50	0.17	0.097	(0.438)	0.087	0.010
43	3.58	0.17	0.097	(0.436)	0.087	0.010
44	3.67	0.17	0.097	(0.434)	0.087	0.010
45	3.75	0.17	0.097	(0.432)	0.087	0.010
46	3.83	0.20	0.116	(0.430)	0.105	0.012
47	3.92	0.20	0.116	(0.428)	0.105	0.012
48	4.00	0.20	0.116	(0.427)	0.105	0.012
49	4.08	0.20	0.116	(0.425)	0.105	0.012
50	4.17	0.20	0.116	(0.423)	0.105	0.012
51	4.25	0.20	0.116	(0.421)	0.105	0.012
52	4.33	0.23	0.136	(0.419)	0.122	0.014
53	4.42	0.23	0.136	(0.418)	0.122	0.014
54	4.50	0.23	0.136	(0.416)	0.122	0.014
55	4.58	0.23	0.136	(0.414)	0.122	0.014
56	4.67	0.23	0.136	(0.412)	0.122	0.014
57	4.75	0.23	0.136	(0.411)	0.122	0.014
58	4.83	0.27	0.155	(0.409)	0.139	0.015
59	4.92	0.27	0.155	(0.407)	0.139	0.015
60	5.00	0.27	0.155	(0.405)	0.139	0.015
61	5.08	0.20	0.116	(0.403)	0.105	0.012
62	5.17	0.20	0.116	(0.402)	0.105	0.012
63	5.25	0.20	0.116	(0.400)	0.105	0.012
64	5.33	0.23	0.136	(0.398)	0.122	0.014
65	5.42	0.23	0.136	(0.396)	0.122	0.014
66	5.50	0.23	0.136	(0.395)	0.122	0.014
67	5.58	0.27	0.155	(0.393)	0.139	0.015
68	5.67	0.27	0.155	(0.391)	0.139	0.015
69	5.75	0.27	0.155	(0.390)	0.139	0.015
70	5.83	0.27	0.155	(0.388)	0.139	0.015
71	5.92	0.27	0.155	(0.386)	0.139	0.015
72	6.00	0.27	0.155	(0.384)	0.139	0.015
73	6.08	0.30	0.174	(0.383)	0.157	0.017
74	6.17	0.30	0.174	(0.381)	0.157	0.017
75	6.25	0.30	0.174	(0.379)	0.157	0.017
76	6.33	0.30	0.174	(0.378)	0.157	0.017
77	6.42	0.30	0.174	(0.376)	0.157	0.017
78	6.50	0.30	0.174	(0.374)	0.157	0.017
79	6.58	0.33	0.194	(0.373)	0.174	0.019
80	6.67	0.33	0.194	(0.371)	0.174	0.019
81	6.75	0.33	0.194	(0.369)	0.174	0.019
82	6.83	0.33	0.194	(0.368)	0.174	0.019
83	6.92	0.33	0.194	(0.366)	0.174	0.019
84	7.00	0.33	0.194	(0.364)	0.174	0.019
85	7.08	0.33	0.194	(0.363)	0.174	0.019
86	7.17	0.33	0.194	(0.361)	0.174	0.019
87	7.25	0.33	0.194	(0.359)	0.174	0.019

88	7.33	0.37	0.213	(0.358)	0.192	0.021
89	7.42	0.37	0.213	(0.356)	0.192	0.021
90	7.50	0.37	0.213	(0.354)	0.192	0.021
91	7.58	0.40	0.232	(0.353)	0.209	0.023
92	7.67	0.40	0.232	(0.351)	0.209	0.023
93	7.75	0.40	0.232	(0.349)	0.209	0.023
94	7.83	0.43	0.252	(0.348)	0.227	0.025
95	7.92	0.43	0.252	(0.346)	0.227	0.025
96	8.00	0.43	0.252	(0.345)	0.227	0.025
97	8.08	0.50	0.290	(0.343)	0.261	0.029
98	8.17	0.50	0.290	(0.341)	0.261	0.029
99	8.25	0.50	0.290	(0.340)	0.261	0.029
100	8.33	0.50	0.290	(0.338)	0.261	0.029
101	8.42	0.50	0.290	(0.337)	0.261	0.029
102	8.50	0.50	0.290	(0.335)	0.261	0.029
103	8.58	0.53	0.310	(0.334)	0.279	0.031
104	8.67	0.53	0.310	(0.332)	0.279	0.031
105	8.75	0.53	0.310	(0.330)	0.279	0.031
106	8.83	0.57	0.329	(0.329)	0.296	0.033
107	8.92	0.57	0.329	(0.327)	0.296	0.033
108	9.00	0.57	0.329	(0.326)	0.296	0.033
109	9.08	0.63	0.368	0.324	(0.331)	0.044
110	9.17	0.63	0.368	0.323	(0.331)	0.045
111	9.25	0.63	0.368	0.321	(0.331)	0.047
112	9.33	0.67	0.387	0.320	(0.348)	0.068
113	9.42	0.67	0.387	0.318	(0.348)	0.069
114	9.50	0.67	0.387	0.317	(0.348)	0.071
115	9.58	0.70	0.407	0.315	(0.366)	0.092
116	9.67	0.70	0.407	0.314	(0.366)	0.093
117	9.75	0.70	0.407	0.312	(0.366)	0.095
118	9.83	0.73	0.426	0.310	(0.383)	0.115
119	9.92	0.73	0.426	0.309	(0.383)	0.117
120	10.00	0.73	0.426	0.308	(0.383)	0.118
121	10.08	0.50	0.290	(0.306)	0.261	0.029
122	10.17	0.50	0.290	(0.305)	0.261	0.029
123	10.25	0.50	0.290	(0.303)	0.261	0.029
124	10.33	0.50	0.290	(0.302)	0.261	0.029
125	10.42	0.50	0.290	(0.300)	0.261	0.029
126	10.50	0.50	0.290	(0.299)	0.261	0.029
127	10.58	0.67	0.387	0.297	(0.348)	0.090
128	10.67	0.67	0.387	0.296	(0.348)	0.091
129	10.75	0.67	0.387	0.294	(0.348)	0.093
130	10.83	0.67	0.387	0.293	(0.348)	0.094
131	10.92	0.67	0.387	0.291	(0.348)	0.096
132	11.00	0.67	0.387	0.290	(0.348)	0.097
133	11.08	0.63	0.368	0.289	(0.331)	0.079
134	11.17	0.63	0.368	0.287	(0.331)	0.081
135	11.25	0.63	0.368	0.286	(0.331)	0.082
136	11.33	0.63	0.368	0.284	(0.331)	0.084
137	11.42	0.63	0.368	0.283	(0.331)	0.085
138	11.50	0.63	0.368	0.281	(0.331)	0.086
139	11.58	0.57	0.329	0.280	(0.296)	0.049
140	11.67	0.57	0.329	0.279	(0.296)	0.050
141	11.75	0.57	0.329	0.277	(0.296)	0.052
142	11.83	0.60	0.348	0.276	(0.314)	0.073
143	11.92	0.60	0.348	0.275	(0.314)	0.074
144	12.00	0.60	0.348	0.273	(0.314)	0.075
145	12.08	0.83	0.484	0.272	(0.436)	0.212
146	12.17	0.83	0.484	0.270	(0.436)	0.214
147	12.25	0.83	0.484	0.269	(0.436)	0.215
148	12.33	0.87	0.503	0.268	(0.453)	0.236
149	12.42	0.87	0.503	0.266	(0.453)	0.237
150	12.50	0.87	0.503	0.265	(0.453)	0.238
151	12.58	0.93	0.542	0.264	(0.488)	0.278
152	12.67	0.93	0.542	0.262	(0.488)	0.280
153	12.75	0.93	0.542	0.261	(0.488)	0.281

154	12.83	0.97	0.561	0.260	(0.505)	0.302
155	12.92	0.97	0.561	0.258	(0.505)	0.303
156	13.00	0.97	0.561	0.257	(0.505)	0.304
157	13.08	1.13	0.658	0.256	(0.592)	0.402
158	13.17	1.13	0.658	0.255	(0.592)	0.404
159	13.25	1.13	0.658	0.253	(0.592)	0.405
160	13.33	1.13	0.658	0.252	(0.592)	0.406
161	13.42	1.13	0.658	0.251	(0.592)	0.408
162	13.50	1.13	0.658	0.249	(0.592)	0.409
163	13.58	0.77	0.445	0.248	(0.401)	0.197
164	13.67	0.77	0.445	0.247	(0.401)	0.198
165	13.75	0.77	0.445	0.246	(0.401)	0.200
166	13.83	0.77	0.445	0.244	(0.401)	0.201
167	13.92	0.77	0.445	0.243	(0.401)	0.202
168	14.00	0.77	0.445	0.242	(0.401)	0.203
169	14.08	0.90	0.523	0.241	(0.470)	0.282
170	14.17	0.90	0.523	0.239	(0.470)	0.283
171	14.25	0.90	0.523	0.238	(0.470)	0.285
172	14.33	0.87	0.503	0.237	(0.453)	0.266
173	14.42	0.87	0.503	0.236	(0.453)	0.268
174	14.50	0.87	0.503	0.235	(0.453)	0.269
175	14.58	0.87	0.503	0.233	(0.453)	0.270
176	14.67	0.87	0.503	0.232	(0.453)	0.271
177	14.75	0.87	0.503	0.231	(0.453)	0.272
178	14.83	0.83	0.484	0.230	(0.436)	0.254
179	14.92	0.83	0.484	0.229	(0.436)	0.255
180	15.00	0.83	0.484	0.227	(0.436)	0.257
181	15.08	0.80	0.465	0.226	(0.418)	0.238
182	15.17	0.80	0.465	0.225	(0.418)	0.240
183	15.25	0.80	0.465	0.224	(0.418)	0.241
184	15.33	0.77	0.445	0.223	(0.401)	0.222
185	15.42	0.77	0.445	0.222	(0.401)	0.224
186	15.50	0.77	0.445	0.221	(0.401)	0.225
187	15.58	0.63	0.368	0.219	(0.331)	0.148
188	15.67	0.63	0.368	0.218	(0.331)	0.150
189	15.75	0.63	0.368	0.217	(0.331)	0.151
190	15.83	0.63	0.368	0.216	(0.331)	0.152
191	15.92	0.63	0.368	0.215	(0.331)	0.153
192	16.00	0.63	0.368	0.214	(0.331)	0.154
193	16.08	0.13	0.077	(0.213)	0.070	0.008
194	16.17	0.13	0.077	(0.212)	0.070	0.008
195	16.25	0.13	0.077	(0.211)	0.070	0.008
196	16.33	0.13	0.077	(0.210)	0.070	0.008
197	16.42	0.13	0.077	(0.208)	0.070	0.008
198	16.50	0.13	0.077	(0.207)	0.070	0.008
199	16.58	0.10	0.058	(0.206)	0.052	0.006
200	16.67	0.10	0.058	(0.205)	0.052	0.006
201	16.75	0.10	0.058	(0.204)	0.052	0.006
202	16.83	0.10	0.058	(0.203)	0.052	0.006
203	16.92	0.10	0.058	(0.202)	0.052	0.006
204	17.00	0.10	0.058	(0.201)	0.052	0.006
205	17.08	0.17	0.097	(0.200)	0.087	0.010
206	17.17	0.17	0.097	(0.199)	0.087	0.010
207	17.25	0.17	0.097	(0.198)	0.087	0.010
208	17.33	0.17	0.097	(0.197)	0.087	0.010
209	17.42	0.17	0.097	(0.196)	0.087	0.010
210	17.50	0.17	0.097	(0.195)	0.087	0.010
211	17.58	0.17	0.097	(0.194)	0.087	0.010
212	17.67	0.17	0.097	(0.193)	0.087	0.010
213	17.75	0.17	0.097	(0.192)	0.087	0.010
214	17.83	0.13	0.077	(0.191)	0.070	0.008
215	17.92	0.13	0.077	(0.190)	0.070	0.008
216	18.00	0.13	0.077	(0.189)	0.070	0.008
217	18.08	0.13	0.077	(0.188)	0.070	0.008
218	18.17	0.13	0.077	(0.188)	0.070	0.008
219	18.25	0.13	0.077	(0.187)	0.070	0.008

220	18.33	0.13	0.077	(0.186)	0.070	0.008
221	18.42	0.13	0.077	(0.185)	0.070	0.008
222	18.50	0.13	0.077	(0.184)	0.070	0.008
223	18.58	0.10	0.058	(0.183)	0.052	0.006
224	18.67	0.10	0.058	(0.182)	0.052	0.006
225	18.75	0.10	0.058	(0.181)	0.052	0.006
226	18.83	0.07	0.039	(0.180)	0.035	0.004
227	18.92	0.07	0.039	(0.180)	0.035	0.004
228	19.00	0.07	0.039	(0.179)	0.035	0.004
229	19.08	0.10	0.058	(0.178)	0.052	0.006
230	19.17	0.10	0.058	(0.177)	0.052	0.006
231	19.25	0.10	0.058	(0.176)	0.052	0.006
232	19.33	0.13	0.077	(0.175)	0.070	0.008
233	19.42	0.13	0.077	(0.175)	0.070	0.008
234	19.50	0.13	0.077	(0.174)	0.070	0.008
235	19.58	0.10	0.058	(0.173)	0.052	0.006
236	19.67	0.10	0.058	(0.172)	0.052	0.006
237	19.75	0.10	0.058	(0.171)	0.052	0.006
238	19.83	0.07	0.039	(0.171)	0.035	0.004
239	19.92	0.07	0.039	(0.170)	0.035	0.004
240	20.00	0.07	0.039	(0.169)	0.035	0.004
241	20.08	0.10	0.058	(0.168)	0.052	0.006
242	20.17	0.10	0.058	(0.168)	0.052	0.006
243	20.25	0.10	0.058	(0.167)	0.052	0.006
244	20.33	0.10	0.058	(0.166)	0.052	0.006
245	20.42	0.10	0.058	(0.165)	0.052	0.006
246	20.50	0.10	0.058	(0.165)	0.052	0.006
247	20.58	0.10	0.058	(0.164)	0.052	0.006
248	20.67	0.10	0.058	(0.163)	0.052	0.006
249	20.75	0.10	0.058	(0.163)	0.052	0.006
250	20.83	0.07	0.039	(0.162)	0.035	0.004
251	20.92	0.07	0.039	(0.161)	0.035	0.004
252	21.00	0.07	0.039	(0.161)	0.035	0.004
253	21.08	0.10	0.058	(0.160)	0.052	0.006
254	21.17	0.10	0.058	(0.159)	0.052	0.006
255	21.25	0.10	0.058	(0.159)	0.052	0.006
256	21.33	0.07	0.039	(0.158)	0.035	0.004
257	21.42	0.07	0.039	(0.158)	0.035	0.004
258	21.50	0.07	0.039	(0.157)	0.035	0.004
259	21.58	0.10	0.058	(0.156)	0.052	0.006
260	21.67	0.10	0.058	(0.156)	0.052	0.006
261	21.75	0.10	0.058	(0.155)	0.052	0.006
262	21.83	0.07	0.039	(0.155)	0.035	0.004
263	21.92	0.07	0.039	(0.154)	0.035	0.004
264	22.00	0.07	0.039	(0.154)	0.035	0.004
265	22.08	0.10	0.058	(0.153)	0.052	0.006
266	22.17	0.10	0.058	(0.153)	0.052	0.006
267	22.25	0.10	0.058	(0.152)	0.052	0.006
268	22.33	0.07	0.039	(0.152)	0.035	0.004
269	22.42	0.07	0.039	(0.151)	0.035	0.004
270	22.50	0.07	0.039	(0.151)	0.035	0.004
271	22.58	0.07	0.039	(0.150)	0.035	0.004
272	22.67	0.07	0.039	(0.150)	0.035	0.004
273	22.75	0.07	0.039	(0.150)	0.035	0.004
274	22.83	0.07	0.039	(0.149)	0.035	0.004
275	22.92	0.07	0.039	(0.149)	0.035	0.004
276	23.00	0.07	0.039	(0.148)	0.035	0.004
277	23.08	0.07	0.039	(0.148)	0.035	0.004
278	23.17	0.07	0.039	(0.148)	0.035	0.004
279	23.25	0.07	0.039	(0.147)	0.035	0.004
280	23.33	0.07	0.039	(0.147)	0.035	0.004
281	23.42	0.07	0.039	(0.147)	0.035	0.004
282	23.50	0.07	0.039	(0.147)	0.035	0.004
283	23.58	0.07	0.039	(0.146)	0.035	0.004
284	23.67	0.07	0.039	(0.146)	0.035	0.004
285	23.75	0.07	0.039	(0.146)	0.035	0.004

286 23.83 0.07 0.039 (0.146) 0.035 0.004
 287 23.92 0.07 0.039 (0.146) 0.035 0.004
 288 24.00 0.07 0.039 (0.146) 0.035 0.004

(Loss Rate Not Used)

Sum = 100.0 Sum = 17.0

Flood volume = Effective rainfall 1.41(In)
 times area 17.6(Ac.)/[(In)/(Ft.)] = 2.1(Ac.Ft)
 Total soil loss = 3.43(In)
 Total soil loss = 5.029(Ac.Ft)
 Total rainfall = 4.84(In)
 Flood volume = 90322.1 Cubic Feet
 Total soil loss = 219060.9 Cubic Feet

 Peak flow rate of this hydrograph = 7.103(CFS)

+++++

24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0003	0.04	Q				
0+15	0.0007	0.05	Q				
0+20	0.0011	0.06	Q				
0+25	0.0017	0.08	Q				
0+30	0.0023	0.09	Q				
0+35	0.0030	0.10	Q				
0+40	0.0037	0.10	Q				
0+45	0.0043	0.10	Q				
0+50	0.0051	0.11	Q				
0+55	0.0059	0.12	Q				
1+ 0	0.0068	0.13	Q				
1+ 5	0.0077	0.13	Q				
1+10	0.0085	0.11	Q				
1+15	0.0092	0.11	Q				
1+20	0.0100	0.11	Q				
1+25	0.0107	0.11	Q				
1+30	0.0114	0.10	Q				
1+35	0.0121	0.10	Q				
1+40	0.0128	0.10	Q				
1+45	0.0136	0.10	Q				
1+50	0.0143	0.11	Q				
1+55	0.0151	0.12	Q				
2+ 0	0.0160	0.13	Q				
2+ 5	0.0169	0.13	Q				
2+10	0.0179	0.13	Q				
2+15	0.0188	0.14	Q				
2+20	0.0197	0.14	Q				
2+25	0.0207	0.14	Q				
2+30	0.0216	0.14	Q				
2+35	0.0226	0.14	Q				
2+40	0.0237	0.16	Q				
2+45	0.0248	0.16	Q				
2+50	0.0260	0.17	Q				
2+55	0.0271	0.17	Q				
3+ 0	0.0283	0.17	Q				
3+ 5	0.0295	0.17	Q				
3+10	0.0306	0.17	Q				
3+15	0.0318	0.17	Q				
3+20	0.0330	0.17	Q				
3+25	0.0342	0.17	Q				
3+30	0.0354	0.17	Q				

3+35	0.0366	0.17	Q				
3+40	0.0377	0.17	Q				
3+45	0.0389	0.17	Q				
3+50	0.0401	0.18	Q				
3+55	0.0415	0.19	Q				
4+ 0	0.0428	0.20	Q				
4+ 5	0.0442	0.20	Q				
4+10	0.0456	0.20	Q				
4+15	0.0470	0.20	Q				
4+20	0.0485	0.21	Q				
4+25	0.0500	0.22	Q				
4+30	0.0516	0.23	Q				
4+35	0.0532	0.24	QV				
4+40	0.0549	0.24	QV				
4+45	0.0565	0.24	QV				
4+50	0.0582	0.24	QV				
4+55	0.0600	0.26	IQ				
5+ 0	0.0618	0.27	IQ				
5+ 5	0.0636	0.26	IQ				
5+10	0.0652	0.23	QV				
5+15	0.0667	0.22	QV				
5+20	0.0682	0.22	QV				
5+25	0.0698	0.23	QV				
5+30	0.0715	0.24	QV				
5+35	0.0731	0.24	QV				
5+40	0.0749	0.26	IQ				
5+45	0.0767	0.27	IQ				
5+50	0.0786	0.27	IQ				
5+55	0.0805	0.27	IQ				
6+ 0	0.0823	0.27	IQ				
6+ 5	0.0843	0.28	IQ				
6+10	0.0863	0.29	IQ				
6+15	0.0883	0.30	IQ				
6+20	0.0904	0.30	IQ				
6+25	0.0926	0.31	IQ				
6+30	0.0947	0.31	IQ				
6+35	0.0968	0.31	IQ				
6+40	0.0991	0.33	IQ				
6+45	0.1014	0.34	IQ				
6+50	0.1037	0.34	IQV				
6+55	0.1061	0.34	IQV				
7+ 0	0.1084	0.34	IQV				
7+ 5	0.1108	0.34	IQV				
7+10	0.1131	0.34	IQV				
7+15	0.1155	0.34	IQV				
7+20	0.1179	0.35	IQV				
7+25	0.1204	0.36	IQV				
7+30	0.1230	0.37	IQV				
7+35	0.1256	0.38	IQV				
7+40	0.1283	0.39	IQV				
7+45	0.1310	0.40	IQV				
7+50	0.1339	0.41	IQV				
7+55	0.1368	0.43	IQV				
8+ 0	0.1398	0.44	IQV				
8+ 5	0.1429	0.45	IQV				
8+10	0.1462	0.48	IQV				
8+15	0.1497	0.50	IQV				
8+20	0.1531	0.50	Q				
8+25	0.1566	0.51	IQV				
8+30	0.1602	0.51	IQV				
8+35	0.1637	0.52	IQV				
8+40	0.1674	0.53	IQV				
8+45	0.1711	0.54	IQV				
8+50	0.1749	0.55	IQV				
8+55	0.1788	0.57	IQV				
9+ 0	0.1828	0.57	IQV				

9+ 5	0.1869	0.60	QV				
9+10	0.1917	0.69	QV				
9+15	0.1968	0.75	QV				
9+20	0.2025	0.83	Q				
9+25	0.2095	1.02	Q				
9+30	0.2172	1.12	Q				
9+35	0.2256	1.22	Q				
9+40	0.2354	1.42	VQ				
9+45	0.2459	1.53	V Q				
9+50	0.2571	1.63	V Q				
9+55	0.2698	1.84	V Q				
10+ 0	0.2832	1.95	V Q				
10+ 5	0.2956	1.80	V Q				
10+10	0.3035	1.14	QV				
10+15	0.3093	0.84	Q V				
10+20	0.3143	0.72	Q V				
10+25	0.3188	0.65	Q V				
10+30	0.3229	0.61	Q V				
10+35	0.3279	0.72	Q V				
10+40	0.3360	1.17	Q V				
10+45	0.3455	1.39	QV				
10+50	0.3558	1.49	QV				
10+55	0.3665	1.56	QV				
11+ 0	0.3776	1.61	QV				
11+ 5	0.3887	1.62	QV				
11+10	0.3991	1.51	QV				
11+15	0.4093	1.47	Q V				
11+20	0.4194	1.48	Q V				
11+25	0.4297	1.49	Q V				
11+30	0.4401	1.51	Q V				
11+35	0.4500	1.43	Q V				
11+40	0.4579	1.15	Q V				
11+45	0.4650	1.03	Q V				
11+50	0.4722	1.04	Q V				
11+55	0.4804	1.18	Q V				
12+ 0	0.4890	1.25	Q V				
12+ 5	0.5000	1.60	Q V				
12+10	0.5186	2.69	Q				
12+15	0.5407	3.21	V Q				
12+20	0.5646	3.48	V Q				
12+25	0.5907	3.78	V Q				
12+30	0.6179	3.95	V Q				
12+35	0.6465	4.15	V Q				
12+40	0.6777	4.53	V Q				
12+45	0.7103	4.73	V Q				
12+50	0.7439	4.89	V Q				
12+55	0.7791	5.11	V Q				
13+ 0	0.8152	5.23	V Q				
13+ 5	0.8532	5.52	V Q				
13+10	0.8969	6.33	V Q				
13+15	0.9432	6.72	V Q				
13+20	0.9907	6.90	V Q				
13+25	1.0391	7.02	V Q				
13+30	1.0880	7.10	V Q				
13+35	1.1340	6.68	V Q				
13+40	1.1689	5.07	V Q				
13+45	1.1988	4.34	V Q				
13+50	1.2268	4.06	V Q				
13+55	1.2536	3.90	V Q				
14+ 0	1.2799	3.81	V Q				
14+ 5	1.3069	3.92	V Q				
14+10	1.3377	4.49	V Q				
14+15	1.3704	4.75	V Q				
14+20	1.4036	4.81	V Q				
14+25	1.4361	4.73	V Q				
14+30	1.4686	4.72	V Q				

14+35	1.5013	4.75			Q		V		
14+40	1.5342	4.77			Q		V		
14+45	1.5673	4.80			Q		V		
14+50	1.6002	4.78			Q		V		
14+55	1.6322	4.65			Q		V		
15+ 0	1.6639	4.60			Q		V		
15+ 5	1.6952	4.54			Q		V		
15+10	1.7254	4.39			Q		V		
15+15	1.7553	4.33			Q		V		
15+20	1.7847	4.27			Q		V		
15+25	1.8131	4.12			Q		V		
15+30	1.8410	4.06			Q		V		
15+35	1.8676	3.86			Q		V		
15+40	1.8900	3.25		Q			V		
15+45	1.9105	2.98		Q			V		
15+50	1.9303	2.87		Q			V		
15+55	1.9497	2.82		Q			V		
16+ 0	1.9689	2.79		Q			V		
16+ 5	1.9856	2.43		Q			V		
16+10	1.9944	1.28		Q			V		
16+15	1.9995	0.74		Q			V		
16+20	2.0031	0.52		Q			V		
16+25	2.0057	0.38		Q			V		
16+30	2.0077	0.30		Q			V		
16+35	2.0094	0.24		Q			V		
16+40	2.0106	0.18		Q			V		
16+45	2.0116	0.15		Q			V		
16+50	2.0124	0.12		Q			V		
16+55	2.0132	0.11		Q			V		
17+ 0	2.0139	0.11		Q			V		
17+ 5	2.0147	0.11		Q			V		
17+10	2.0157	0.14		Q			V		
17+15	2.0167	0.16		Q			V		
17+20	2.0179	0.16		Q			V		
17+25	2.0190	0.17		Q			V		
17+30	2.0201	0.17		Q			V		
17+35	2.0213	0.17		Q			V		
17+40	2.0225	0.17		Q			V		
17+45	2.0237	0.17		Q			V		
17+50	2.0248	0.17		Q			V		
17+55	2.0259	0.15		Q			V		
18+ 0	2.0269	0.15		Q			V		
18+ 5	2.0278	0.14		Q			V		
18+10	2.0288	0.14		Q			V		
18+15	2.0298	0.14		Q			V		
18+20	2.0307	0.14		Q			V		
18+25	2.0317	0.14		Q			V		
18+30	2.0326	0.14		Q			V		
18+35	2.0336	0.13		Q			V		
18+40	2.0344	0.12		Q			V		
18+45	2.0351	0.11		Q			V		
18+50	2.0358	0.10		Q			V		
18+55	2.0364	0.09		Q			V		
19+ 0	2.0370	0.08		Q			V		
19+ 5	2.0375	0.08		Q			V		
19+10	2.0382	0.09		Q			V		
19+15	2.0388	0.10		Q			V		
19+20	2.0396	0.10		Q			V		
19+25	2.0404	0.12		Q			V		
19+30	2.0413	0.13		Q			V		
19+35	2.0421	0.13		Q			V		
19+40	2.0429	0.11		Q			V		
19+45	2.0437	0.11		Q			V		
19+50	2.0444	0.10		Q			V		
19+55	2.0450	0.09		Q			V		
20+ 0	2.0455	0.08		Q			V		

20+ 5	2.0461	0.08	Q				V
20+10	2.0467	0.09	Q				V
20+15	2.0474	0.10	Q				V
20+20	2.0480	0.10	Q				V
20+25	2.0487	0.10	Q				V
20+30	2.0494	0.10	Q				V
20+35	2.0501	0.10	Q				V
20+40	2.0508	0.10	Q				V
20+45	2.0516	0.10	Q				V
20+50	2.0522	0.10	Q				V
20+55	2.0528	0.08	Q				V
21+ 0	2.0533	0.08	Q				V
21+ 5	2.0539	0.08	Q				V
21+10	2.0545	0.09	Q				V
21+15	2.0552	0.10	Q				V
21+20	2.0558	0.10	Q				V
21+25	2.0564	0.08	Q				V
21+30	2.0569	0.07	Q				V
21+35	2.0574	0.08	Q				V
21+40	2.0581	0.09	Q				V
21+45	2.0587	0.10	Q				V
21+50	2.0594	0.09	Q				V
21+55	2.0599	0.08	Q				V
22+ 0	2.0605	0.07	Q				V
22+ 5	2.0610	0.08	Q				V
22+10	2.0616	0.09	Q				V
22+15	2.0623	0.10	Q				V
22+20	2.0629	0.09	Q				V
22+25	2.0635	0.08	Q				V
22+30	2.0640	0.07	Q				V
22+35	2.0645	0.07	Q				V
22+40	2.0650	0.07	Q				V
22+45	2.0655	0.07	Q				V
22+50	2.0660	0.07	Q				V
22+55	2.0664	0.07	Q				V
23+ 0	2.0669	0.07	Q				V
23+ 5	2.0674	0.07	Q				V
23+10	2.0679	0.07	Q				V
23+15	2.0683	0.07	Q				V
23+20	2.0688	0.07	Q				V
23+25	2.0693	0.07	Q				V
23+30	2.0698	0.07	Q				V
23+35	2.0702	0.07	Q				V
23+40	2.0707	0.07	Q				V
23+45	2.0712	0.07	Q				V
23+50	2.0717	0.07	Q				V
23+55	2.0721	0.07	Q				V
24+ 0	2.0726	0.07	Q				V
24+ 5	2.0730	0.06	Q				V
24+10	2.0732	0.03	Q				V
24+15	2.0733	0.02	Q				V
24+20	2.0734	0.01	Q				V
24+25	2.0734	0.01	Q				V
24+30	2.0735	0.00	Q				V
24+35	2.0735	0.00	Q				V
24+40	2.0735	0.00	Q				V
24+45	2.0735	0.00	Q				V
24+50	2.0735	0.00	Q				V

APPENDIX D
UNIT HYDROGRAPH HYDROLOGY
DEVELOPED CONDITION

PBLA ENGINEERING, INC.

1809 E. Dyer Rd., Suite 301
Santa Ana, CA 92705
(888)714-9642

981 Corporate Center Drive, Suite 150
Pomona, CA 91768
(626) 512-4934

1481 Ford Street, Suite 201
Redlands, CA 92373
(714) 620-4960

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 12/06/21 File: 100101PRUH11100.out

+++++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6490

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

MFBC BUILDING 13
INFLOW HYDROGRAPH - DEVELOPED
AREA 1
100101PRUH1

Drainage Area = 16.22(Ac.) = 0.025 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 16.22(Ac.) = 0.025 Sq. Mi.
Length along longest watercourse = 1780.00(Ft.)
Length along longest watercourse measured to centroid = 820.00(Ft.)
Length along longest watercourse = 0.337 Mi.
Length along longest watercourse measured to centroid = 0.155 Mi.
Difference in elevation = 17.50(Ft.)
Slope along watercourse = 51.9101 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.055 Hr.
Lag time = 3.32 Min.
25% of lag time = 0.83 Min.
40% of lag time = 1.33 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
16.22	0.46	7.41

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
16.22	1.35	21.90

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.457(In)
Area Averaged 100-Year Rainfall = 1.350(In)

Point rain (area averaged) = 1.350(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 1.350(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 16.220 44.00 0.900
 Total Area Entered = 16.22(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
44.0	44.0	0.631	0.900	0.120	1.000	0.120
						Sum (F) = 0.120

Area averaged mean soil loss (F) (In/Hr) = 0.120
 Minimum soil loss rate ((In/Hr)) = 0.060
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.180

 Slope of intensity-duration curve for a 1 hour storm =0.5000

U n i t H y d r o g r a p h
 VALLEY S-Curve

 Unit Hydrograph Data

Unit time period	Time	% of lag	Distribution	Unit Hydrograph
(hrs)			Graph %	(CFS)
1	0.083	150.386	33.268	5.438
2	0.167	300.772	46.982	7.680
3	0.250	451.158	11.159	1.824
4	0.333	601.543	4.872	0.796
5	0.417	751.929	2.455	0.401
6	0.500	902.315	1.264	0.207
			Sum = 100.000	Sum= 16.347

 The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)		Effective
(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	4.20	0.680	(0.122)	0.560
2	0.17	4.30	0.696	(0.125)	0.577
3	0.25	5.00	0.810	(0.146)	0.690
4	0.33	5.00	0.810	(0.146)	0.690
5	0.42	5.80	0.939	(0.169)	0.820
6	0.50	6.50	1.053	(0.190)	0.933
7	0.58	7.40	1.199	(0.216)	1.079
8	0.67	8.60	1.393	(0.251)	1.273
9	0.75	12.30	1.992	(0.359)	1.872
10	0.83	29.10	4.714	(0.848)	4.594
11	0.92	6.80	1.101	(0.198)	0.982
12	1.00	5.00	0.810	(0.146)	0.690
(Loss Rate Not Used)					
Sum =	100.0				Sum = 14.8

Flood volume = Effective rainfall 1.23(In)
 times area 16.2(Ac.)/[(In)/(Ft.)] = 1.7(Ac.Ft)
 Total soil loss = 0.12(In)
 Total soil loss = 0.162(Ac.Ft)
 Total rainfall = 1.35(In)
 Flood volume = 72417.7 Cubic Feet
 Total soil loss = 7056.7 Cubic Feet

 Peak flow rate of this hydrograph = 45.696(CFS)

+++++

1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	12.5	25.0	37.5	50.0
0+ 5	0.0210	3.05	V Q				
0+10	0.0723	7.44	V Q				
0+15	0.1357	9.21	V Q				
0+20	0.2084	10.56	V Q				
0+25	0.2890	11.71	V Q				
0+30	0.3822	13.53	VQ				
0+35	0.4888	15.48	VQ				
0+40	0.6127	17.99	Q				
0+45	0.7722	23.15	Q				
0+50	1.0691	43.11	V			Q	
0+55	1.3838	45.70	V Q				
1+ 0	1.5347	21.91	Q			V	
1+ 5	1.6157	11.77	Q			V	
1+10	1.6452	4.27	Q			V	
1+15	1.6582	1.89	Q			V	
1+20	1.6615	0.48	Q			V	
1+25	1.6625	0.14	Q			V	

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 12/06/21 File: 100101PRUH13100.out

+++++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6490

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

MFBC BUILDING 13
INFLOW HYDROGRAPH - DEVELOPED
AREA 1
100101PRUH1

Drainage Area = 16.22(Ac.) = 0.025 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 16.22(Ac.) = 0.025 Sq. Mi.
Length along longest watercourse = 1780.00(Ft.)
Length along longest watercourse measured to centroid = 820.00(Ft.)
Length along longest watercourse = 0.337 Mi.
Length along longest watercourse measured to centroid = 0.155 Mi.
Difference in elevation = 17.50(Ft.)
Slope along watercourse = 51.9101 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.055 Hr.
Lag time = 3.32 Min.
25% of lag time = 0.83 Min.
40% of lag time = 1.33 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
16.22	0.80	12.94

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
16.22	2.01	32.60

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.798(In)
Area Averaged 100-Year Rainfall = 2.010(In)

Point rain (area averaged) = 2.010(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 2.010(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 16.220 44.00 0.900
 Total Area Entered = 16.22(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
44.0	44.0	0.631	0.900	0.120	1.000	0.120
						Sum (F) = 0.120

Area averaged mean soil loss (F) (In/Hr) = 0.120
 Minimum soil loss rate ((In/Hr)) = 0.060
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.180

 U n i t H y d r o g r a p h
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	150.386	5.438
2	0.167	300.772	7.680
3	0.250	451.158	1.824
4	0.333	601.543	0.796
5	0.417	751.929	0.401
6	0.500	902.315	0.207
		Sum = 100.000	Sum= 16.347

 The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max Low	Effective (In/Hr)
1	0.08	1.30	(0.120) 0.056	0.257
2	0.17	1.30	(0.120) 0.056	0.257
3	0.25	1.10	(0.120) 0.048	0.218
4	0.33	1.50	(0.120) 0.065	0.297
5	0.42	1.50	(0.120) 0.065	0.297
6	0.50	1.80	(0.120) 0.078	0.356
7	0.58	1.50	(0.120) 0.065	0.297
8	0.67	1.80	(0.120) 0.078	0.356
9	0.75	1.80	(0.120) 0.078	0.356
10	0.83	1.50	(0.120) 0.065	0.297
11	0.92	1.60	(0.120) 0.069	0.316
12	1.00	1.80	(0.120) 0.078	0.356
13	1.08	2.20	(0.120) 0.096	0.435
14	1.17	2.20	(0.120) 0.096	0.435
15	1.25	2.20	(0.120) 0.096	0.435
16	1.33	2.00	(0.120) 0.087	0.396
17	1.42	2.60	(0.120) 0.113	0.514
18	1.50	2.70	(0.120) 0.117	0.534
19	1.58	2.40	(0.120) 0.104	0.475
20	1.67	2.70	(0.120) 0.117	0.534
21	1.75	3.30	0.120 (0.143)	0.676
22	1.83	3.10	0.120 (0.135)	0.628
23	1.92	2.90	0.120 (0.126)	0.580
24	2.00	3.00	0.120 (0.130)	0.604
25	2.08	3.10	0.120 (0.135)	0.628
26	2.17	4.20	0.120 (0.182)	0.893

3+ 0	2.3172	5.25		Q				V
3+ 5	2.3328	2.27		Q				V
3+10	2.3378	0.72	Q					V
3+15	2.3400	0.31	Q					V
3+20	2.3408	0.12	Q					V
3+25	2.3410	0.02	Q					V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 12/06/21 File: 100101PRUH16100.out

+++++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6490

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

MFBC BUILDING 13
INFLOW HYDROGRAPH - DEVELOPED
AREA 1
100101PRUH1

Drainage Area = 16.22(Ac.) = 0.025 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 16.22(Ac.) = 0.025 Sq. Mi.
Length along longest watercourse = 1780.00(Ft.)
Length along longest watercourse measured to centroid = 820.00(Ft.)
Length along longest watercourse = 0.337 Mi.
Length along longest watercourse measured to centroid = 0.155 Mi.
Difference in elevation = 17.50(Ft.)
Slope along watercourse = 51.9101 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.055 Hr.
Lag time = 3.32 Min.
25% of lag time = 0.83 Min.
40% of lag time = 1.33 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
16.22	1.11	18.00

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
16.22	2.69	43.63

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.110(In)
Area Averaged 100-Year Rainfall = 2.690(In)

Point rain (area averaged) = 2.690(In)

Areal adjustment factor = 99.99 %
 Adjusted average point rain = 2.690 (In)

Sub-Area Data:

Area (Ac.) Runoff Index Impervious %
 16.220 44.00 0.900
 Total Area Entered = 16.22 (Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
44.0	44.0	0.631	0.900	0.120	1.000	0.120
						Sum (F) = 0.120

Area averaged mean soil loss (F) (In/Hr) = 0.120
 Minimum soil loss rate ((In/Hr)) = 0.060
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.180

 U n i t H y d r o g r a p h
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period	Time	% of lag	Distribution	Unit Hydrograph
(hrs)			Graph %	(CFS)
1	0.083	150.386	33.268	5.438
2	0.167	300.772	46.982	7.680
3	0.250	451.158	11.159	1.824
4	0.333	601.543	4.872	0.796
5	0.417	751.929	2.455	0.401
6	0.500	902.315	1.264	0.207
			Sum = 100.000	Sum= 16.347

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time	Pattern	Storm Rain	Loss rate (In./Hr)		Effective
				Max	Low	
	(Hr.)	Percent	(In/Hr)			(In/Hr)
1	0.08	0.50	0.161	(0.120)	0.029	0.132
2	0.17	0.60	0.194	(0.120)	0.035	0.159
3	0.25	0.60	0.194	(0.120)	0.035	0.159
4	0.33	0.60	0.194	(0.120)	0.035	0.159
5	0.42	0.60	0.194	(0.120)	0.035	0.159
6	0.50	0.70	0.226	(0.120)	0.041	0.185
7	0.58	0.70	0.226	(0.120)	0.041	0.185
8	0.67	0.70	0.226	(0.120)	0.041	0.185
9	0.75	0.70	0.226	(0.120)	0.041	0.185
10	0.83	0.70	0.226	(0.120)	0.041	0.185
11	0.92	0.70	0.226	(0.120)	0.041	0.185
12	1.00	0.80	0.258	(0.120)	0.046	0.212
13	1.08	0.80	0.258	(0.120)	0.046	0.212
14	1.17	0.80	0.258	(0.120)	0.046	0.212
15	1.25	0.80	0.258	(0.120)	0.046	0.212
16	1.33	0.80	0.258	(0.120)	0.046	0.212
17	1.42	0.80	0.258	(0.120)	0.046	0.212
18	1.50	0.80	0.258	(0.120)	0.046	0.212
19	1.58	0.80	0.258	(0.120)	0.046	0.212
20	1.67	0.80	0.258	(0.120)	0.046	0.212
21	1.75	0.80	0.258	(0.120)	0.046	0.212
22	1.83	0.80	0.258	(0.120)	0.046	0.212
23	1.92	0.80	0.258	(0.120)	0.046	0.212
24	2.00	0.90	0.291	(0.120)	0.052	0.238

Time (h+m)	Volume	Ac.Ft	Q (CFS)	0	7.5	15.0	22.5	30.0
0+ 5	0.0050	0.72	Q					
0+10	0.0179	1.88	V Q					
0+15	0.0339	2.33	V Q					
0+20	0.0510	2.48	V Q					
0+25	0.0686	2.55	V Q					
0+30	0.0874	2.74	V Q					
0+35	0.1077	2.94	V Q					
0+40	0.1283	2.99	V Q					
0+45	0.1491	3.01	V Q					
0+50	0.1699	3.02	V Q					
0+55	0.1908	3.03	V Q					
1+ 0	0.2127	3.17	V Q					
1+ 5	0.2359	3.38	VQ					
1+10	0.2595	3.43	VQ					
1+15	0.2833	3.45	VQ					
1+20	0.3071	3.46	VQ					
1+25	0.3309	3.46	Q					
1+30	0.3548	3.46	Q					
1+35	0.3786	3.46	Q					
1+40	0.4025	3.46	QV					
1+45	0.4263	3.46	QV					
1+50	0.4502	3.46	QV					
1+55	0.4740	3.46	Q V					
2+ 0	0.4989	3.61	Q V					
2+ 5	0.5241	3.67	Q V					
2+10	0.5493	3.66	Q V					
2+15	0.5757	3.83	Q V					
2+20	0.6023	3.87	Q V					
2+25	0.6291	3.89	Q V					
2+30	0.6559	3.89	Q V					
2+35	0.6827	3.90	Q V					
2+40	0.7095	3.90	Q V					
2+45	0.7374	4.04	Q V					
2+50	0.7666	4.24	Q V					
2+55	0.7961	4.29	Q V					
3+ 0	0.8259	4.31	Q V					
3+ 5	0.8556	4.32	Q V					
3+10	0.8864	4.47	Q V					
3+15	0.9186	4.68	Q V					
3+20	0.9512	4.72	Q V					
3+25	0.9849	4.89	Q V					
3+30	1.0210	5.25	Q V					
3+35	1.0599	5.65	Q V					
3+40	1.1007	5.92	Q V					
3+45	1.1430	6.15	Q V					
3+50	1.1870	6.39	Q V					
3+55	1.2324	6.59	Q V					
4+ 0	1.2794	6.82	Q V					
4+ 5	1.3278	7.03	Q V					
4+10	1.3788	7.40	Q V					
4+15	1.4326	7.81	Q V					
4+20	1.4892	8.23	Q V					
4+25	1.5489	8.67	Q V					
4+30	1.6108	8.97	Q V					
4+35	1.6744	9.24	Q V					
4+40	1.7412	9.70	Q V					
4+45	1.8115	10.20	Q V					
4+50	1.8841	10.54	Q V					
4+55	1.9585	10.81	Q V					
5+ 0	2.0362	11.28	Q V					
5+ 5	2.1222	12.49	Q V					
5+10	2.2235	14.70	Q V					
5+15	2.3392	16.80	Q V					

5+20	2.4666	18.51				Q		V	
5+25	2.6079	20.51					Q		V
5+30	2.7710	23.68							V
5+35	2.9081	19.91					Q		V
5+40	2.9776	10.09			Q				V
5+45	3.0174	5.77			Q				V
5+50	3.0431	3.74			Q				V
5+55	3.0602	2.48			Q				V
6+ 0	3.0703	1.47			Q				V
6+ 5	3.0756	0.77			Q				V
6+10	3.0773	0.25	Q						V
6+15	3.0780	0.10	Q						V
6+20	3.0783	0.04	Q						V
6+25	3.0783	0.01	Q						V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 12/06/21 File: 100101PRUH124100.out

+++++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6490

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

MFBC BUILDING 13
INFLOW HYDROGRAPH - DEVELOPED
AREA 1
100101PRUH1

Drainage Area = 16.22(Ac.) = 0.025 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 16.22(Ac.) = 0.025 Sq. Mi.
Length along longest watercourse = 1780.00(Ft.)
Length along longest watercourse measured to centroid = 820.00(Ft.)
Length along longest watercourse = 0.337 Mi.
Length along longest watercourse measured to centroid = 0.155 Mi.
Difference in elevation = 17.50(Ft.)
Slope along watercourse = 51.9101 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.055 Hr.
Lag time = 3.32 Min.
25% of lag time = 0.83 Min.
40% of lag time = 1.33 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
16.22	1.94	31.47

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
16.22	4.91	79.64

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.940(In)
Area Averaged 100-Year Rainfall = 4.910(In)

Point rain (area averaged) = 4.910(In)
Areal adjustment factor = 100.00 %

Adjusted average point rain = 4.910(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 16.220 44.00 0.900
 Total Area Entered = 16.22(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
44.0	44.0	0.631	0.900	0.120	1.000	0.120
						Sum (F) = 0.120

Area averaged mean soil loss (F) (In/Hr) = 0.120

Minimum soil loss rate ((In/Hr)) = 0.060

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.180

 U n i t H y d r o g r a p h
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period	Time % of lag	Distribution	Unit Hydrograph
(hrs)		Graph %	(CFS)
1	0.083	150.386	5.438
2	0.167	300.772	7.680
3	0.250	451.158	1.824
4	0.333	601.543	0.796
5	0.417	751.929	0.401
6	0.500	902.315	0.207
		Sum = 100.000	Sum= 16.347

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)		Effective
			Max	Low	
1	0.08	0.07	0.039	(0.212)	0.007
2	0.17	0.07	0.039	(0.212)	0.007
3	0.25	0.07	0.039	(0.211)	0.007
4	0.33	0.10	0.059	(0.210)	0.011
5	0.42	0.10	0.059	(0.209)	0.011
6	0.50	0.10	0.059	(0.208)	0.011
7	0.58	0.10	0.059	(0.208)	0.011
8	0.67	0.10	0.059	(0.207)	0.011
9	0.75	0.10	0.059	(0.206)	0.011
10	0.83	0.13	0.079	(0.205)	0.014
11	0.92	0.13	0.079	(0.204)	0.014
12	1.00	0.13	0.079	(0.204)	0.014
13	1.08	0.10	0.059	(0.203)	0.011
14	1.17	0.10	0.059	(0.202)	0.011
15	1.25	0.10	0.059	(0.201)	0.011
16	1.33	0.10	0.059	(0.200)	0.011
17	1.42	0.10	0.059	(0.200)	0.011
18	1.50	0.10	0.059	(0.199)	0.011
19	1.58	0.10	0.059	(0.198)	0.011
20	1.67	0.10	0.059	(0.197)	0.011
21	1.75	0.10	0.059	(0.196)	0.011
22	1.83	0.13	0.079	(0.196)	0.014
23	1.92	0.13	0.079	(0.195)	0.014
24	2.00	0.13	0.079	(0.194)	0.014
25	2.08	0.13	0.079	(0.193)	0.014

26	2.17	0.13	0.079	(0.192)	0.014	0.064
27	2.25	0.13	0.079	(0.192)	0.014	0.064
28	2.33	0.13	0.079	(0.191)	0.014	0.064
29	2.42	0.13	0.079	(0.190)	0.014	0.064
30	2.50	0.13	0.079	(0.189)	0.014	0.064
31	2.58	0.17	0.098	(0.189)	0.018	0.081
32	2.67	0.17	0.098	(0.188)	0.018	0.081
33	2.75	0.17	0.098	(0.187)	0.018	0.081
34	2.83	0.17	0.098	(0.186)	0.018	0.081
35	2.92	0.17	0.098	(0.185)	0.018	0.081
36	3.00	0.17	0.098	(0.185)	0.018	0.081
37	3.08	0.17	0.098	(0.184)	0.018	0.081
38	3.17	0.17	0.098	(0.183)	0.018	0.081
39	3.25	0.17	0.098	(0.182)	0.018	0.081
40	3.33	0.17	0.098	(0.182)	0.018	0.081
41	3.42	0.17	0.098	(0.181)	0.018	0.081
42	3.50	0.17	0.098	(0.180)	0.018	0.081
43	3.58	0.17	0.098	(0.179)	0.018	0.081
44	3.67	0.17	0.098	(0.179)	0.018	0.081
45	3.75	0.17	0.098	(0.178)	0.018	0.081
46	3.83	0.20	0.118	(0.177)	0.021	0.097
47	3.92	0.20	0.118	(0.176)	0.021	0.097
48	4.00	0.20	0.118	(0.176)	0.021	0.097
49	4.08	0.20	0.118	(0.175)	0.021	0.097
50	4.17	0.20	0.118	(0.174)	0.021	0.097
51	4.25	0.20	0.118	(0.173)	0.021	0.097
52	4.33	0.23	0.137	(0.173)	0.025	0.113
53	4.42	0.23	0.137	(0.172)	0.025	0.113
54	4.50	0.23	0.137	(0.171)	0.025	0.113
55	4.58	0.23	0.137	(0.170)	0.025	0.113
56	4.67	0.23	0.137	(0.170)	0.025	0.113
57	4.75	0.23	0.137	(0.169)	0.025	0.113
58	4.83	0.27	0.157	(0.168)	0.028	0.129
59	4.92	0.27	0.157	(0.167)	0.028	0.129
60	5.00	0.27	0.157	(0.167)	0.028	0.129
61	5.08	0.20	0.118	(0.166)	0.021	0.097
62	5.17	0.20	0.118	(0.165)	0.021	0.097
63	5.25	0.20	0.118	(0.165)	0.021	0.097
64	5.33	0.23	0.137	(0.164)	0.025	0.113
65	5.42	0.23	0.137	(0.163)	0.025	0.113
66	5.50	0.23	0.137	(0.162)	0.025	0.113
67	5.58	0.27	0.157	(0.162)	0.028	0.129
68	5.67	0.27	0.157	(0.161)	0.028	0.129
69	5.75	0.27	0.157	(0.160)	0.028	0.129
70	5.83	0.27	0.157	(0.160)	0.028	0.129
71	5.92	0.27	0.157	(0.159)	0.028	0.129
72	6.00	0.27	0.157	(0.158)	0.028	0.129
73	6.08	0.30	0.177	(0.157)	0.032	0.145
74	6.17	0.30	0.177	(0.157)	0.032	0.145
75	6.25	0.30	0.177	(0.156)	0.032	0.145
76	6.33	0.30	0.177	(0.155)	0.032	0.145
77	6.42	0.30	0.177	(0.155)	0.032	0.145
78	6.50	0.30	0.177	(0.154)	0.032	0.145
79	6.58	0.33	0.196	(0.153)	0.035	0.161
80	6.67	0.33	0.196	(0.153)	0.035	0.161
81	6.75	0.33	0.196	(0.152)	0.035	0.161
82	6.83	0.33	0.196	(0.151)	0.035	0.161
83	6.92	0.33	0.196	(0.151)	0.035	0.161
84	7.00	0.33	0.196	(0.150)	0.035	0.161
85	7.08	0.33	0.196	(0.149)	0.035	0.161
86	7.17	0.33	0.196	(0.149)	0.035	0.161
87	7.25	0.33	0.196	(0.148)	0.035	0.161
88	7.33	0.37	0.216	(0.147)	0.039	0.177
89	7.42	0.37	0.216	(0.147)	0.039	0.177
90	7.50	0.37	0.216	(0.146)	0.039	0.177
91	7.58	0.40	0.236	(0.145)	0.042	0.193

92	7.67	0.40	0.236	(0.144)	0.042	0.193
93	7.75	0.40	0.236	(0.144)	0.042	0.193
94	7.83	0.43	0.255	(0.143)	0.046	0.209
95	7.92	0.43	0.255	(0.143)	0.046	0.209
96	8.00	0.43	0.255	(0.142)	0.046	0.209
97	8.08	0.50	0.295	(0.141)	0.053	0.242
98	8.17	0.50	0.295	(0.141)	0.053	0.242
99	8.25	0.50	0.295	(0.140)	0.053	0.242
100	8.33	0.50	0.295	(0.139)	0.053	0.242
101	8.42	0.50	0.295	(0.139)	0.053	0.242
102	8.50	0.50	0.295	(0.138)	0.053	0.242
103	8.58	0.53	0.314	(0.137)	0.057	0.258
104	8.67	0.53	0.314	(0.137)	0.057	0.258
105	8.75	0.53	0.314	(0.136)	0.057	0.258
106	8.83	0.57	0.334	(0.135)	0.060	0.274
107	8.92	0.57	0.334	(0.135)	0.060	0.274
108	9.00	0.57	0.334	(0.134)	0.060	0.274
109	9.08	0.63	0.373	(0.133)	0.067	0.306
110	9.17	0.63	0.373	(0.133)	0.067	0.306
111	9.25	0.63	0.373	(0.132)	0.067	0.306
112	9.33	0.67	0.393	(0.132)	0.071	0.322
113	9.42	0.67	0.393	(0.131)	0.071	0.322
114	9.50	0.67	0.393	(0.130)	0.071	0.322
115	9.58	0.70	0.412	(0.130)	0.074	0.338
116	9.67	0.70	0.412	(0.129)	0.074	0.338
117	9.75	0.70	0.412	(0.128)	0.074	0.338
118	9.83	0.73	0.432	(0.128)	0.078	0.354
119	9.92	0.73	0.432	(0.127)	0.078	0.354
120	10.00	0.73	0.432	(0.127)	0.078	0.354
121	10.08	0.50	0.295	(0.126)	0.053	0.242
122	10.17	0.50	0.295	(0.125)	0.053	0.242
123	10.25	0.50	0.295	(0.125)	0.053	0.242
124	10.33	0.50	0.295	(0.124)	0.053	0.242
125	10.42	0.50	0.295	(0.124)	0.053	0.242
126	10.50	0.50	0.295	(0.123)	0.053	0.242
127	10.58	0.67	0.393	(0.122)	0.071	0.322
128	10.67	0.67	0.393	(0.122)	0.071	0.322
129	10.75	0.67	0.393	(0.121)	0.071	0.322
130	10.83	0.67	0.393	(0.121)	0.071	0.322
131	10.92	0.67	0.393	(0.120)	0.071	0.322
132	11.00	0.67	0.393	(0.119)	0.071	0.322
133	11.08	0.63	0.373	(0.119)	0.067	0.306
134	11.17	0.63	0.373	(0.118)	0.067	0.306
135	11.25	0.63	0.373	(0.118)	0.067	0.306
136	11.33	0.63	0.373	(0.117)	0.067	0.306
137	11.42	0.63	0.373	(0.116)	0.067	0.306
138	11.50	0.63	0.373	(0.116)	0.067	0.306
139	11.58	0.57	0.334	(0.115)	0.060	0.274
140	11.67	0.57	0.334	(0.115)	0.060	0.274
141	11.75	0.57	0.334	(0.114)	0.060	0.274
142	11.83	0.60	0.354	(0.114)	0.064	0.290
143	11.92	0.60	0.354	(0.113)	0.064	0.290
144	12.00	0.60	0.354	(0.112)	0.064	0.290
145	12.08	0.83	0.491	(0.112)	0.088	0.403
146	12.17	0.83	0.491	(0.111)	0.088	0.403
147	12.25	0.83	0.491	(0.111)	0.088	0.403
148	12.33	0.87	0.511	(0.110)	0.092	0.419
149	12.42	0.87	0.511	(0.110)	0.092	0.419
150	12.50	0.87	0.511	(0.109)	0.092	0.419
151	12.58	0.93	0.550	(0.109)	0.099	0.451
152	12.67	0.93	0.550	(0.108)	0.099	0.451
153	12.75	0.93	0.550	(0.107)	0.099	0.451
154	12.83	0.97	0.570	(0.107)	0.103	0.467
155	12.92	0.97	0.570	(0.106)	0.103	0.467
156	13.00	0.97	0.570	(0.106)	0.103	0.467
157	13.08	1.13	0.668	0.105 (0.120)		0.562

158	13.17	1.13	0.668	0.105	(0.120)	0.563
159	13.25	1.13	0.668	0.104	(0.120)	0.564
160	13.33	1.13	0.668	0.104	(0.120)	0.564
161	13.42	1.13	0.668	0.103	(0.120)	0.565
162	13.50	1.13	0.668	0.103	(0.120)	0.565
163	13.58	0.77	0.452	(0.102)	0.081	0.370
164	13.67	0.77	0.452	(0.102)	0.081	0.370
165	13.75	0.77	0.452	(0.101)	0.081	0.370
166	13.83	0.77	0.452	(0.101)	0.081	0.370
167	13.92	0.77	0.452	(0.100)	0.081	0.370
168	14.00	0.77	0.452	(0.100)	0.081	0.370
169	14.08	0.90	0.530	(0.099)	0.095	0.435
170	14.17	0.90	0.530	(0.099)	0.095	0.435
171	14.25	0.90	0.530	(0.098)	0.095	0.435
172	14.33	0.87	0.511	(0.098)	0.092	0.419
173	14.42	0.87	0.511	(0.097)	0.092	0.419
174	14.50	0.87	0.511	(0.097)	0.092	0.419
175	14.58	0.87	0.511	(0.096)	0.092	0.419
176	14.67	0.87	0.511	(0.096)	0.092	0.419
177	14.75	0.87	0.511	(0.095)	0.092	0.419
178	14.83	0.83	0.491	(0.095)	0.088	0.403
179	14.92	0.83	0.491	(0.094)	0.088	0.403
180	15.00	0.83	0.491	(0.094)	0.088	0.403
181	15.08	0.80	0.471	(0.093)	0.085	0.387
182	15.17	0.80	0.471	(0.093)	0.085	0.387
183	15.25	0.80	0.471	(0.092)	0.085	0.387
184	15.33	0.77	0.452	(0.092)	0.081	0.370
185	15.42	0.77	0.452	(0.091)	0.081	0.370
186	15.50	0.77	0.452	(0.091)	0.081	0.370
187	15.58	0.63	0.373	(0.090)	0.067	0.306
188	15.67	0.63	0.373	(0.090)	0.067	0.306
189	15.75	0.63	0.373	(0.089)	0.067	0.306
190	15.83	0.63	0.373	(0.089)	0.067	0.306
191	15.92	0.63	0.373	(0.088)	0.067	0.306
192	16.00	0.63	0.373	(0.088)	0.067	0.306
193	16.08	0.13	0.079	(0.088)	0.014	0.064
194	16.17	0.13	0.079	(0.087)	0.014	0.064
195	16.25	0.13	0.079	(0.087)	0.014	0.064
196	16.33	0.13	0.079	(0.086)	0.014	0.064
197	16.42	0.13	0.079	(0.086)	0.014	0.064
198	16.50	0.13	0.079	(0.085)	0.014	0.064
199	16.58	0.10	0.059	(0.085)	0.011	0.048
200	16.67	0.10	0.059	(0.084)	0.011	0.048
201	16.75	0.10	0.059	(0.084)	0.011	0.048
202	16.83	0.10	0.059	(0.084)	0.011	0.048
203	16.92	0.10	0.059	(0.083)	0.011	0.048
204	17.00	0.10	0.059	(0.083)	0.011	0.048
205	17.08	0.17	0.098	(0.082)	0.018	0.081
206	17.17	0.17	0.098	(0.082)	0.018	0.081
207	17.25	0.17	0.098	(0.082)	0.018	0.081
208	17.33	0.17	0.098	(0.081)	0.018	0.081
209	17.42	0.17	0.098	(0.081)	0.018	0.081
210	17.50	0.17	0.098	(0.080)	0.018	0.081
211	17.58	0.17	0.098	(0.080)	0.018	0.081
212	17.67	0.17	0.098	(0.080)	0.018	0.081
213	17.75	0.17	0.098	(0.079)	0.018	0.081
214	17.83	0.13	0.079	(0.079)	0.014	0.064
215	17.92	0.13	0.079	(0.078)	0.014	0.064
216	18.00	0.13	0.079	(0.078)	0.014	0.064
217	18.08	0.13	0.079	(0.078)	0.014	0.064
218	18.17	0.13	0.079	(0.077)	0.014	0.064
219	18.25	0.13	0.079	(0.077)	0.014	0.064
220	18.33	0.13	0.079	(0.076)	0.014	0.064
221	18.42	0.13	0.079	(0.076)	0.014	0.064
222	18.50	0.13	0.079	(0.076)	0.014	0.064
223	18.58	0.10	0.059	(0.075)	0.011	0.048

224	18.67	0.10	0.059	(0.075)	0.011	0.048
225	18.75	0.10	0.059	(0.075)	0.011	0.048
226	18.83	0.07	0.039	(0.074)	0.007	0.032
227	18.92	0.07	0.039	(0.074)	0.007	0.032
228	19.00	0.07	0.039	(0.074)	0.007	0.032
229	19.08	0.10	0.059	(0.073)	0.011	0.048
230	19.17	0.10	0.059	(0.073)	0.011	0.048
231	19.25	0.10	0.059	(0.073)	0.011	0.048
232	19.33	0.13	0.079	(0.072)	0.014	0.064
233	19.42	0.13	0.079	(0.072)	0.014	0.064
234	19.50	0.13	0.079	(0.072)	0.014	0.064
235	19.58	0.10	0.059	(0.071)	0.011	0.048
236	19.67	0.10	0.059	(0.071)	0.011	0.048
237	19.75	0.10	0.059	(0.071)	0.011	0.048
238	19.83	0.07	0.039	(0.070)	0.007	0.032
239	19.92	0.07	0.039	(0.070)	0.007	0.032
240	20.00	0.07	0.039	(0.070)	0.007	0.032
241	20.08	0.10	0.059	(0.069)	0.011	0.048
242	20.17	0.10	0.059	(0.069)	0.011	0.048
243	20.25	0.10	0.059	(0.069)	0.011	0.048
244	20.33	0.10	0.059	(0.068)	0.011	0.048
245	20.42	0.10	0.059	(0.068)	0.011	0.048
246	20.50	0.10	0.059	(0.068)	0.011	0.048
247	20.58	0.10	0.059	(0.068)	0.011	0.048
248	20.67	0.10	0.059	(0.067)	0.011	0.048
249	20.75	0.10	0.059	(0.067)	0.011	0.048
250	20.83	0.07	0.039	(0.067)	0.007	0.032
251	20.92	0.07	0.039	(0.066)	0.007	0.032
252	21.00	0.07	0.039	(0.066)	0.007	0.032
253	21.08	0.10	0.059	(0.066)	0.011	0.048
254	21.17	0.10	0.059	(0.066)	0.011	0.048
255	21.25	0.10	0.059	(0.065)	0.011	0.048
256	21.33	0.07	0.039	(0.065)	0.007	0.032
257	21.42	0.07	0.039	(0.065)	0.007	0.032
258	21.50	0.07	0.039	(0.065)	0.007	0.032
259	21.58	0.10	0.059	(0.064)	0.011	0.048
260	21.67	0.10	0.059	(0.064)	0.011	0.048
261	21.75	0.10	0.059	(0.064)	0.011	0.048
262	21.83	0.07	0.039	(0.064)	0.007	0.032
263	21.92	0.07	0.039	(0.063)	0.007	0.032
264	22.00	0.07	0.039	(0.063)	0.007	0.032
265	22.08	0.10	0.059	(0.063)	0.011	0.048
266	22.17	0.10	0.059	(0.063)	0.011	0.048
267	22.25	0.10	0.059	(0.063)	0.011	0.048
268	22.33	0.07	0.039	(0.062)	0.007	0.032
269	22.42	0.07	0.039	(0.062)	0.007	0.032
270	22.50	0.07	0.039	(0.062)	0.007	0.032
271	22.58	0.07	0.039	(0.062)	0.007	0.032
272	22.67	0.07	0.039	(0.062)	0.007	0.032
273	22.75	0.07	0.039	(0.062)	0.007	0.032
274	22.83	0.07	0.039	(0.061)	0.007	0.032
275	22.92	0.07	0.039	(0.061)	0.007	0.032
276	23.00	0.07	0.039	(0.061)	0.007	0.032
277	23.08	0.07	0.039	(0.061)	0.007	0.032
278	23.17	0.07	0.039	(0.061)	0.007	0.032
279	23.25	0.07	0.039	(0.061)	0.007	0.032
280	23.33	0.07	0.039	(0.061)	0.007	0.032
281	23.42	0.07	0.039	(0.060)	0.007	0.032
282	23.50	0.07	0.039	(0.060)	0.007	0.032
283	23.58	0.07	0.039	(0.060)	0.007	0.032
284	23.67	0.07	0.039	(0.060)	0.007	0.032
285	23.75	0.07	0.039	(0.060)	0.007	0.032
286	23.83	0.07	0.039	(0.060)	0.007	0.032
287	23.92	0.07	0.039	(0.060)	0.007	0.032
288	24.00	0.07	0.039	(0.060)	0.007	0.032

(Loss Rate Not Used)

Sum = 100.0 Sum = 48.4
 Flood volume = Effective rainfall 4.03(In)
 times area 16.2(Ac.)/[(In)/(Ft.)] = 5.5(Ac.Ft)
 Total soil loss = 0.88(In)
 Total soil loss = 1.184(Ac.Ft)
 Total rainfall = 4.91(In)
 Flood volume = 237527.0 Cubic Feet
 Total soil loss = 51557.8 Cubic Feet

 Peak flow rate of this hydrograph = 9.233(CFS)

+++++

24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0012	0.18	Q				
0+10	0.0041	0.42	VQ				
0+15	0.0074	0.48	VQ				
0+20	0.0115	0.59	V Q				
0+25	0.0166	0.73	V Q				
0+30	0.0219	0.77	V Q				
0+35	0.0272	0.78	V Q				
0+40	0.0326	0.79	V Q				
0+45	0.0381	0.79	V Q				
0+50	0.0441	0.88	V Q				
0+55	0.0510	1.00	V Q				
1+ 0	0.0581	1.03	V Q				
1+ 5	0.0647	0.96	V Q				
1+10	0.0705	0.84	V Q				
1+15	0.0761	0.81	V Q				
1+20	0.0816	0.80	V Q				
1+25	0.0871	0.79	V Q				
1+30	0.0925	0.79	V Q				
1+35	0.0980	0.79	V Q				
1+40	0.1034	0.79	V Q				
1+45	0.1088	0.79	V Q				
1+50	0.1149	0.88	V Q				
1+55	0.1218	1.00	V Q				
2+ 0	0.1289	1.03	V Q				
2+ 5	0.1361	1.04	V Q				
2+10	0.1433	1.05	V Q				
2+15	0.1506	1.05	V Q				
2+20	0.1578	1.05	V Q				
2+25	0.1651	1.05	V Q				
2+30	0.1723	1.05	V Q				
2+35	0.1802	1.14	V Q				
2+40	0.1889	1.26	V Q				
2+45	0.1978	1.29	V Q				
2+50	0.2068	1.31	V Q				
2+55	0.2159	1.31	V Q				
3+ 0	0.2249	1.32	V Q				
3+ 5	0.2340	1.32	V Q				
3+10	0.2431	1.32	V Q				
3+15	0.2521	1.32	V Q				
3+20	0.2612	1.32	V Q				
3+25	0.2703	1.32	V Q				
3+30	0.2793	1.32	V Q				
3+35	0.2884	1.32	V Q				
3+40	0.2975	1.32	V Q				
3+45	0.3066	1.32	V Q				
3+50	0.3162	1.40	V Q				

3+55	0.3268	1.53		V	Q						
4+ 0	0.3375	1.56		V	Q						
4+ 5	0.3483	1.57		V	Q						
4+10	0.3592	1.58		V	Q						
4+15	0.3700	1.58		V	Q						
4+20	0.3815	1.67		V	Q						
4+25	0.3939	1.79		V	Q						
4+30	0.4064	1.82		V	Q						
4+35	0.4190	1.83		V	Q						
4+40	0.4317	1.84		V	Q						
4+45	0.4444	1.84		V	Q						
4+50	0.4577	1.93		V	Q						
4+55	0.4719	2.06		V	Q						
5+ 0	0.4862	2.08		V	Q						
5+ 5	0.4995	1.92		V	Q						
5+10	0.5110	1.68		V	Q						
5+15	0.5222	1.63		V	Q						
5+20	0.5339	1.69		V	Q						
5+25	0.5462	1.80		V	Q						
5+30	0.5588	1.82		V	Q						
5+35	0.5720	1.92		V	Q						
5+40	0.5862	2.05		V	Q						
5+45	0.6005	2.08		V	Q						
5+50	0.6150	2.10		V	Q						
5+55	0.6294	2.10		V	Q						
6+ 0	0.6440	2.11		V	Q						
6+ 5	0.6591	2.19		V	Q						
6+10	0.6750	2.32		V	Q						
6+15	0.6912	2.35		V	Q						
6+20	0.7075	2.36		V	Q						
6+25	0.7238	2.37		V	Q						
6+30	0.7401	2.37		V	Q						
6+35	0.7570	2.46		V	Q						
6+40	0.7748	2.58		V	Q						
6+45	0.7928	2.61		V	Q						
6+50	0.8109	2.62		V	Q						
6+55	0.8290	2.63		V	Q						
7+ 0	0.8471	2.63		V	Q						
7+ 5	0.8653	2.63		V	Q						
7+10	0.8834	2.63		V	Q						
7+15	0.9015	2.63		V	Q						
7+20	0.9203	2.72		V	Q						
7+25	0.9399	2.85		V	Q						
7+30	0.9597	2.87		V	Q						
7+35	0.9802	2.98		V	Q						
7+40	1.0015	3.11		V	Q						
7+45	1.0232	3.14		V	Q						
7+50	1.0455	3.24		V	Q						
7+55	1.0687	3.37		V	Q						
8+ 0	1.0921	3.40		V	Q						
8+ 5	1.1168	3.59		V	Q						
8+10	1.1433	3.84		V	Q						
8+15	1.1702	3.91		V	Q						
8+20	1.1973	3.93		V	Q						
8+25	1.2244	3.94		V	Q						
8+30	1.2516	3.95		V	Q						
8+35	1.2794	4.04		V	Q						
8+40	1.3081	4.16		V	Q						
8+45	1.3370	4.19		V	Q						
8+50	1.3665	4.29		V	Q						
8+55	1.3970	4.42		V	Q						
9+ 0	1.4277	4.45		V	Q						
9+ 5	1.4596	4.64		V	Q						
9+10	1.4934	4.90		V	Q						
9+15	1.5275	4.96		V	Q						
9+20	1.5625	5.07		V	Q						

9+25	1.5983	5.21	V	Q					
9+30	1.6345	5.25	V	Q					
9+35	1.6713	5.35	V	Q					
9+40	1.7090	5.48	V	Q					
9+45	1.7469	5.51	V	Q					
9+50	1.7856	5.61	V	Q					
9+55	1.8251	5.74	V	Q					
10+ 0	1.8648	5.77	V	Q	Q				
10+ 5	1.9004	5.17	V	Q					
10+10	1.9301	4.31	V	Q					
10+15	1.9584	4.11	V	Q					
10+20	1.9861	4.02	V	Q					
10+25	2.0135	3.97	V	Q					
10+30	2.0407	3.95	V	Q					
10+35	2.0709	4.39	V	Q					
10+40	2.1054	5.01	V	Q					
10+45	2.1409	5.15	V	Q					
10+50	2.1769	5.22	V	Q					
10+55	2.2130	5.25	V	Q					
11+ 0	2.2493	5.27	V	Q					
11+ 5	2.2850	5.18	V	Q					
11+10	2.3198	5.06	V	Q					
11+15	2.3544	5.03	V	Q					
11+20	2.3890	5.01	V	Q					
11+25	2.4234	5.01	V	Q					
11+30	2.4579	5.00	V	Q					
11+35	2.4912	4.83	V	Q					
11+40	2.5227	4.58	Q						
11+45	2.5539	4.52	Q						
11+50	2.5854	4.58	Q						
11+55	2.6178	4.70	Q						
12+ 0	2.6503	4.72	Q						
12+ 5	2.6871	5.34	V	Q					
12+10	2.7299	6.22	V	Q					
12+15	2.7742	6.43	V	Q					
12+20	2.8196	6.60	V	Q					
12+25	2.8663	6.77	V	Q					
12+30	2.9133	6.83	V	Q					
12+35	2.9616	7.01	V	Q					
12+40	3.0117	7.27	V	Q					
12+45	3.0621	7.33	V	Q					
12+50	3.1134	7.44	V	Q					
12+55	3.1656	7.58	V	Q					
13+ 0	3.2180	7.62	V	Q					
13+ 5	3.2742	8.15	V		Q				
13+10	3.3354	8.89	V			Q			
13+15	3.3979	9.07	V				Q		
13+20	3.4610	9.16	V					Q	
13+25	3.5244	9.21	V						Q
13+30	3.5879	9.23	V						Q
13+35	3.6443	8.18	V		Q				
13+40	3.6903	6.69	Q	V					
13+45	3.7339	6.33	Q	V					
13+50	3.7765	6.18	Q	V					
13+55	3.8185	6.10	Q	V					
14+ 0	3.8602	6.06	Q	V					
14+ 5	3.9043	6.41	Q	V					
14+10	3.9519	6.90	Q	V					
14+15	4.0002	7.02	Q	V					
14+20	4.0483	6.98	Q	V					
14+25	4.0957	6.89	Q	V					
14+30	4.1431	6.87	Q	V					
14+35	4.1903	6.86	Q	V					
14+40	4.2375	6.85	Q	V					
14+45	4.2846	6.85	Q	V					
14+50	4.3312	6.76	Q	V					

14+55	4.3769	6.64				Q	V
15+ 0	4.4224	6.61				Q	V
15+ 5	4.4672	6.51				Q	V
15+10	4.5111	6.38				Q	V
15+15	4.5548	6.34				Q	V
15+20	4.5978	6.24				Q	V
15+25	4.6399	6.11				Q	V
15+30	4.6818	6.08				Q	V
15+35	4.7212	5.72				Q	V
15+40	4.7571	5.22				Q	V
15+45	4.7922	5.09				Q	V
15+50	4.8269	5.04				Q	V
15+55	4.8615	5.02				Q	V
16+ 0	4.8960	5.00				Q	V
16+ 5	4.9214	3.69			Q		V
16+10	4.9340	1.83		Q			V
16+15	4.9436	1.39		Q			V
16+20	4.9519	1.20		Q			V
16+25	4.9595	1.10		Q			V
16+30	4.9667	1.05		Q			V
16+35	4.9734	0.97		Q			V
16+40	4.9792	0.84		Q			V
16+45	4.9848	0.81		Q			V
16+50	4.9903	0.80		Q			V
16+55	4.9957	0.79		Q			V
17+ 0	5.0012	0.79		Q			V
17+ 5	5.0078	0.97		Q			V
17+10	5.0162	1.21		Q			V
17+15	5.0249	1.27		Q			V
17+20	5.0339	1.30		Q			V
17+25	5.0429	1.31		Q			V
17+30	5.0520	1.32		Q			V
17+35	5.0610	1.32		Q			V
17+40	5.0701	1.32		Q			V
17+45	5.0792	1.32		Q			V
17+50	5.0877	1.23		Q			V
17+55	5.0953	1.11		Q			V
18+ 0	5.1027	1.08		Q			V
18+ 5	5.1100	1.06		Q			V
18+10	5.1173	1.06		Q			V
18+15	5.1245	1.05		Q			V
18+20	5.1318	1.05		Q			V
18+25	5.1390	1.05		Q			V
18+30	5.1463	1.05		Q			V
18+35	5.1530	0.97		Q			V
18+40	5.1588	0.84		Q			V
18+45	5.1644	0.81		Q			V
18+50	5.1693	0.71		Q			V
18+55	5.1733	0.58		Q			V
19+ 0	5.1771	0.55		Q			V
19+ 5	5.1814	0.62		Q			V
19+10	5.1865	0.74		Q			V
19+15	5.1917	0.77		Q			V
19+20	5.1977	0.87		Q			V
19+25	5.2046	1.00		Q			V
19+30	5.2117	1.03		Q			V
19+35	5.2183	0.96		Q			V
19+40	5.2241	0.84		Q			V
19+45	5.2297	0.81		Q			V
19+50	5.2346	0.71		Q			V
19+55	5.2386	0.58		Q			V
20+ 0	5.2424	0.55		Q			V
20+ 5	5.2467	0.62		Q			V
20+10	5.2518	0.74		Q			V
20+15	5.2570	0.77		Q			V
20+20	5.2624	0.78		Q			V

20+25	5.2678	0.79	Q				V
20+30	5.2733	0.79	Q				V
20+35	5.2787	0.79	Q				V
20+40	5.2842	0.79	Q				V
20+45	5.2896	0.79	Q				V
20+50	5.2944	0.70	Q				V
20+55	5.2984	0.58	Q				V
21+ 0	5.3022	0.55	Q				V
21+ 5	5.3065	0.62	Q				V
21+10	5.3116	0.74	Q				V
21+15	5.3169	0.77	Q				V
21+20	5.3217	0.69	Q				V
21+25	5.3256	0.58	Q				V
21+30	5.3294	0.55	Q				V
21+35	5.3337	0.62	Q				V
21+40	5.3388	0.74	Q				V
21+45	5.3441	0.77	Q				V
21+50	5.3489	0.69	Q				V
21+55	5.3529	0.58	Q				V
22+ 0	5.3566	0.55	Q				V
22+ 5	5.3609	0.62	Q				V
22+10	5.3660	0.74	Q				V
22+15	5.3713	0.77	Q				V
22+20	5.3761	0.69	Q				V
22+25	5.3801	0.58	Q				V
22+30	5.3838	0.55	Q				V
22+35	5.3875	0.54	Q				V
22+40	5.3912	0.53	Q				V
22+45	5.3948	0.53	Q				V
22+50	5.3984	0.53	Q				V
22+55	5.4021	0.53	Q				V
23+ 0	5.4057	0.53	Q				V
23+ 5	5.4093	0.53	Q				V
23+10	5.4130	0.53	Q				V
23+15	5.4166	0.53	Q				V
23+20	5.4202	0.53	Q				V
23+25	5.4238	0.53	Q				V
23+30	5.4275	0.53	Q				V
23+35	5.4311	0.53	Q				V
23+40	5.4347	0.53	Q				V
23+45	5.4384	0.53	Q				V
23+50	5.4420	0.53	Q				V
23+55	5.4456	0.53	Q				V
24+ 0	5.4492	0.53	Q				V
24+ 5	5.4517	0.35	Q				V
24+10	5.4524	0.10	Q				V
24+15	5.4527	0.05	Q				V
24+20	5.4528	0.02	Q				V
24+25	5.4529	0.01	Q				V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 12/05/21 File: 100101PRUH21100.out

+++++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6490

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

MFBC - BUILDING 13
INFLOW HYDROGRAPH - DEVELOPED
AREA 2
100101PRUH2

Drainage Area = 1.39(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.39(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 1252.00(Ft.)
Length along longest watercourse measured to centroid = 625.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.118 Mi.
Difference in elevation = 17.40(Ft.)
Slope along watercourse = 73.3802 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.055 Hr.
Lag time = 3.28 Min.
25% of lag time = 0.82 Min.
40% of lag time = 1.31 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.39	0.46	0.64

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.39	1.35	1.88

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.457(In)
Area Averaged 100-Year Rainfall = 1.350(In)

Point rain (area averaged) = 1.350(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.350(In)

+++++

1 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac.Ft	Q (CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0013	0.18	Q				
0+10	0.0044	0.45	Q				
0+15	0.0083	0.57	Q				
0+20	0.0129	0.68	Q V				
0+25	0.0182	0.77	Q V				
0+30	0.0246	0.92	Q V				
0+35	0.0321	1.09	Q V				
0+40	0.0411	1.30	Q V				
0+45	0.0531	1.75	Q V				
0+50	0.0771	3.48	Q V				
0+55	0.1023	3.67	Q V				
1+ 0	0.1135	1.63	Q V				
1+ 5	0.1193	0.84	Q				
1+10	0.1215	0.31	Q				
1+15	0.1224	0.13	Q				
1+20	0.1226	0.03	Q				
1+25	0.1226	0.01	Q				

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 12/05/21 File: 100101PRUH23100.out

+++++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6490

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

MFBC - BUILDING 13
INFLOW HYDROGRAPH - DEVELOPED
AREA 2
100101PRUH2

Drainage Area = 1.39(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.39(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 1252.00(Ft.)
Length along longest watercourse measured to centroid = 625.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.118 Mi.
Difference in elevation = 17.40(Ft.)
Slope along watercourse = 73.3802 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.055 Hr.
Lag time = 3.28 Min.
25% of lag time = 0.82 Min.
40% of lag time = 1.31 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.39	0.80	1.11

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.39	2.01	2.79

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.798(In)
Area Averaged 100-Year Rainfall = 2.010(In)

Point rain (area averaged) = 2.010(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.010(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 1.390 76.00 0.000
 Total Area Entered = 1.39(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
76.0	76.0	0.291	0.000	0.291	1.000	0.291
						Sum (F) = 0.291

Area averaged mean soil loss (F) (In/Hr) = 0.291
 Minimum soil loss rate ((In/Hr)) = 0.146
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 U n i t H y d r o g r a p h
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	152.656	0.474
2	0.167	305.313	0.656
3	0.250	457.969	0.154
4	0.333	610.626	0.067
5	0.417	763.282	0.033
6	0.500	915.939	0.016
		Sum = 100.000	Sum= 1.401

 The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max Low	Effective (In/Hr)
1	0.08	1.30	(0.291) 0.282	0.031
2	0.17	1.30	(0.291) 0.282	0.031
3	0.25	1.10	(0.291) 0.239	0.027
4	0.33	1.50	0.291 (0.326)	0.071
5	0.42	1.50	0.291 (0.326)	0.071
6	0.50	1.80	0.291 (0.391)	0.143
7	0.58	1.50	0.291 (0.326)	0.071
8	0.67	1.80	0.291 (0.391)	0.143
9	0.75	1.80	0.291 (0.391)	0.143
10	0.83	1.50	0.291 (0.326)	0.071
11	0.92	1.60	0.291 (0.347)	0.095
12	1.00	1.80	0.291 (0.391)	0.143
13	1.08	2.20	0.291 (0.478)	0.239
14	1.17	2.20	0.291 (0.478)	0.239
15	1.25	2.20	0.291 (0.478)	0.239
16	1.33	2.00	0.291 (0.434)	0.191
17	1.42	2.60	0.291 (0.564)	0.336
18	1.50	2.70	0.291 (0.586)	0.360
19	1.58	2.40	0.291 (0.521)	0.288
20	1.67	2.70	0.291 (0.586)	0.360
21	1.75	3.30	0.291 (0.716)	0.505
22	1.83	3.10	0.291 (0.673)	0.457
23	1.92	2.90	0.291 (0.630)	0.408
24	2.00	3.00	0.291 (0.651)	0.432
25	2.08	3.10	0.291 (0.673)	0.457
26	2.17	4.20	0.291 (0.912)	0.722

27	2.25	5.00	1.206	0.291	(1.085)	0.915
28	2.33	3.50	0.844	0.291	(0.760)	0.553
29	2.42	6.80	1.640	0.291	(1.476)	1.349
30	2.50	7.30	1.761	0.291	(1.585)	1.470
31	2.58	8.20	1.978	0.291	(1.780)	1.687
32	2.67	5.90	1.423	0.291	(1.281)	1.132
33	2.75	2.00	0.482	0.291	(0.434)	0.191
34	2.83	1.80	0.434	0.291	(0.391)	0.143
35	2.92	1.80	0.434	0.291	(0.391)	0.143
36	3.00	0.60	0.145	(0.291)	0.130	0.014

(Loss Rate Not Used)

Sum = 100.0 Sum = 13.9

Flood volume = Effective rainfall 1.16(In)
times area 1.4(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 0.85(In)
Total soil loss = 0.099(Ac.Ft)
Total rainfall = 2.01(In)
Flood volume = 5831.2 Cubic Feet
Total soil loss = 4310.6 Cubic Feet

Peak flow rate of this hydrograph = 2.052(CFS)

+++++

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0003	0.04	Q				
0+15	0.0006	0.04	Q				
0+20	0.0010	0.06	Q				
0+25	0.0016	0.09	Q				
0+30	0.0025	0.13	Q				
0+35	0.0035	0.14	QV				
0+40	0.0045	0.14	QV				
0+45	0.0058	0.19	QV				
0+50	0.0069	0.16	Q V				
0+55	0.0077	0.13	Q V				
1+ 0	0.0088	0.16	Q V				
1+ 5	0.0104	0.23	Q V				
1+10	0.0125	0.30	Q V				
1+15	0.0147	0.32	Q V				
1+20	0.0168	0.31	Q V				
1+25	0.0192	0.35	Q V				
1+30	0.0223	0.45	Q V				
1+35	0.0254	0.45	Q V				
1+40	0.0285	0.45	Q V				
1+45	0.0324	0.56	Q V				
1+50	0.0368	0.64	Q V				
1+55	0.0410	0.61	Q V				
2+ 0	0.0451	0.59	Q V				
2+ 5	0.0493	0.62	Q V				
2+10	0.0545	0.76	Q V				
2+15	0.0616	1.03	Q V				
2+20	0.0687	1.03	Q V				
2+25	0.0770	1.21	Q V				
2+30	0.0892	1.76	Q V				
2+35	0.1033	2.05	Q V				
2+40	0.1170	1.99	Q V				
2+45	0.1256	1.25	Q V				
2+50	0.1294	0.55	Q V				
2+55	0.1318	0.35	Q V				

3+ 0	0.1332	0.20	Q				V
3+ 5	0.1337	0.07	Q				V
3+10	0.1338	0.02	Q				V
3+15	0.1338	0.01	Q				V
3+20	0.1339	0.00	Q				V
3+25	0.1339	0.00	Q				V

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 12/05/21 File: 100101PRUH26100.out

+++++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6490

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

MFBC - BUILDING 13
INFLOW HYDROGRAPH - DEVELOPED
AREA 2
100101PRUH2

Drainage Area = 1.39(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.39(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 1252.00(Ft.)
Length along longest watercourse measured to centroid = 625.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.118 Mi.
Difference in elevation = 17.40(Ft.)
Slope along watercourse = 73.3802 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.055 Hr.
Lag time = 3.28 Min.
25% of lag time = 0.82 Min.
40% of lag time = 1.31 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.39	1.11	1.54

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.39	2.69	3.74

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.110(In)
Area Averaged 100-Year Rainfall = 2.690(In)

Point rain (area averaged) = 2.690(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.690(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 1.390 76.00 0.000
 Total Area Entered = 1.39(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
76.0	76.0	0.291	0.000	0.291	1.000	0.291
						Sum (F) = 0.291

Area averaged mean soil loss (F) (In/Hr) = 0.291
 Minimum soil loss rate ((In/Hr)) = 0.146
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 U n i t H y d r o g r a p h
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	152.656	0.474
2	0.167	305.313	0.656
3	0.250	457.969	0.154
4	0.333	610.626	0.067
5	0.417	763.282	0.033
6	0.500	915.939	0.016
		Sum = 100.000	Sum= 1.401

 The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max Low	Effective (In/Hr)
1	0.08	0.161	(0.291) 0.145	0.016
2	0.17	0.194	(0.291) 0.174	0.019
3	0.25	0.194	(0.291) 0.174	0.019
4	0.33	0.194	(0.291) 0.174	0.019
5	0.42	0.194	(0.291) 0.174	0.019
6	0.50	0.226	(0.291) 0.203	0.023
7	0.58	0.226	(0.291) 0.203	0.023
8	0.67	0.226	(0.291) 0.203	0.023
9	0.75	0.226	(0.291) 0.203	0.023
10	0.83	0.226	(0.291) 0.203	0.023
11	0.92	0.226	(0.291) 0.203	0.023
12	1.00	0.258	(0.291) 0.232	0.026
13	1.08	0.258	(0.291) 0.232	0.026
14	1.17	0.258	(0.291) 0.232	0.026
15	1.25	0.258	(0.291) 0.232	0.026
16	1.33	0.258	(0.291) 0.232	0.026
17	1.42	0.258	(0.291) 0.232	0.026
18	1.50	0.258	(0.291) 0.232	0.026
19	1.58	0.258	(0.291) 0.232	0.026
20	1.67	0.258	(0.291) 0.232	0.026
21	1.75	0.258	(0.291) 0.232	0.026
22	1.83	0.258	(0.291) 0.232	0.026
23	1.92	0.258	(0.291) 0.232	0.026
24	2.00	0.291	(0.291) 0.261	0.029
25	2.08	0.258	(0.291) 0.232	0.026
26	2.17	0.291	(0.291) 0.261	0.029

0+ 5	0.0001	0.01	Q						
0+10	0.0002	0.02	Q						
0+15	0.0004	0.02	Q						
0+20	0.0005	0.03	Q						
0+25	0.0007	0.03	Q						
0+30	0.0009	0.03	Q						
0+35	0.0011	0.03	Q						
0+40	0.0013	0.03	Q						
0+45	0.0016	0.03	Q						
0+50	0.0018	0.03	Q						
0+55	0.0020	0.03	Q						
1+ 0	0.0022	0.03	Q						
1+ 5	0.0025	0.04	Q						
1+10	0.0027	0.04	Q						
1+15	0.0030	0.04	Q						
1+20	0.0032	0.04	Q						
1+25	0.0035	0.04	QV						
1+30	0.0037	0.04	QV						
1+35	0.0040	0.04	QV						
1+40	0.0042	0.04	QV						
1+45	0.0045	0.04	QV						
1+50	0.0047	0.04	QV						
1+55	0.0050	0.04	QV						
2+ 0	0.0052	0.04	QV						
2+ 5	0.0055	0.04	QV						
2+10	0.0057	0.04	QV						
2+15	0.0060	0.04	QV						
2+20	0.0063	0.04	QV						
2+25	0.0066	0.04	QV						
2+30	0.0069	0.04	Q V						
2+35	0.0071	0.04	Q V						
2+40	0.0074	0.04	Q V						
2+45	0.0077	0.04	Q V						
2+50	0.0080	0.04	Q V						
2+55	0.0083	0.04	Q V						
3+ 0	0.0086	0.05	Q V						
3+ 5	0.0089	0.05	Q V						
3+10	0.0094	0.06	Q V						
3+15	0.0099	0.08	Q V						
3+20	0.0105	0.09	Q V						
3+25	0.0112	0.10	Q V						
3+30	0.0122	0.14	Q V						
3+35	0.0134	0.18	Q V						
3+40	0.0149	0.21	Q V						
3+45	0.0165	0.23	Q V						
3+50	0.0183	0.26	Q V						
3+55	0.0202	0.28	Q V						
4+ 0	0.0223	0.31	Q V						
4+ 5	0.0246	0.33	Q V						
4+10	0.0271	0.37	Q V						
4+15	0.0299	0.41	Q V						
4+20	0.0331	0.45	Q V						
4+25	0.0365	0.50	Q V						
4+30	0.0401	0.53	Q V						
4+35	0.0439	0.55	Q V						
4+40	0.0480	0.59	Q V						
4+45	0.0524	0.63	Q V						
4+50	0.0569	0.66	Q V						
4+55	0.0617	0.69	Q V						
5+ 0	0.0667	0.73	Q V						
5+ 5	0.0724	0.83	Q V						
5+10	0.0794	1.02	Q V						
5+15	0.0877	1.20	Q V						
5+20	0.0970	1.35	Q V						
5+25	0.1075	1.52	Q V						

5+30	0.1198	1.79		Q				V	
5+35	0.1298	1.46		Q				V	
5+40	0.1339	0.59		Q				V	
5+45	0.1356	0.24	Q					V	
5+50	0.1364	0.12	Q					V	
5+55	0.1367	0.06	Q					V	
6+ 0	0.1369	0.02	Q					V	
6+ 5	0.1369	0.01	Q					V	
6+10	0.1370	0.00	Q					V	
6+15	0.1370	0.00	Q					V	
6+20	0.1370	0.00	Q					V	
6+25	0.1370	0.00	Q					V	

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 12/05/21 File: 100101PRUH224100.out

+++++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6490

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

MFBC - BUILDING 13
INFLOW HYDROGRAPH - DEVELOPED
AREA 2
100101PRUH2

Drainage Area = 1.39(Ac.) = 0.002 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 1.39(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 1252.00(Ft.)
Length along longest watercourse measured to centroid = 625.00(Ft.)
Length along longest watercourse = 0.237 Mi.
Length along longest watercourse measured to centroid = 0.118 Mi.
Difference in elevation = 17.40(Ft.)
Slope along watercourse = 73.3802 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.055 Hr.
Lag time = 3.28 Min.
25% of lag time = 0.82 Min.
40% of lag time = 1.31 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.39	1.94	2.70

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
1.39	4.91	6.82

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.940(In)
Area Averaged 100-Year Rainfall = 4.910(In)

Point rain (area averaged) = 4.910(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.910(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
 1.390 76.00 0.000
 Total Area Entered = 1.39(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
76.0	76.0	0.291	0.000	0.291	1.000	0.291
						Sum (F) = 0.291

Area averaged mean soil loss (F) (In/Hr) = 0.291
 Minimum soil loss rate ((In/Hr)) = 0.146
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

 U n i t H y d r o g r a p h
 VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	152.656	33.812
2	0.167	305.313	46.814
3	0.250	457.969	11.029
4	0.333	610.626	4.804
5	0.417	763.282	2.391
6	0.500	915.939	1.151
Sum = 100.000			Sum= 1.401

 The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max Low	Effective (In/Hr)
1	0.08	0.039	(0.516)	0.035
2	0.17	0.039	(0.514)	0.035
3	0.25	0.039	(0.512)	0.035
4	0.33	0.059	(0.510)	0.053
5	0.42	0.059	(0.508)	0.053
6	0.50	0.059	(0.506)	0.053
7	0.58	0.059	(0.504)	0.053
8	0.67	0.059	(0.502)	0.053
9	0.75	0.059	(0.500)	0.053
10	0.83	0.079	(0.498)	0.071
11	0.92	0.079	(0.496)	0.071
12	1.00	0.079	(0.494)	0.071
13	1.08	0.059	(0.493)	0.053
14	1.17	0.059	(0.491)	0.053
15	1.25	0.059	(0.489)	0.053
16	1.33	0.059	(0.487)	0.053
17	1.42	0.059	(0.485)	0.053
18	1.50	0.059	(0.483)	0.053
19	1.58	0.059	(0.481)	0.053
20	1.67	0.059	(0.479)	0.053
21	1.75	0.059	(0.477)	0.053
22	1.83	0.079	(0.475)	0.071
23	1.92	0.079	(0.473)	0.071
24	2.00	0.079	(0.471)	0.071
25	2.08	0.079	(0.469)	0.071
26	2.17	0.079	(0.467)	0.071

27	2.25	0.13	0.079	(0.466)	0.071	0.008
28	2.33	0.13	0.079	(0.464)	0.071	0.008
29	2.42	0.13	0.079	(0.462)	0.071	0.008
30	2.50	0.13	0.079	(0.460)	0.071	0.008
31	2.58	0.17	0.098	(0.458)	0.088	0.010
32	2.67	0.17	0.098	(0.456)	0.088	0.010
33	2.75	0.17	0.098	(0.454)	0.088	0.010
34	2.83	0.17	0.098	(0.452)	0.088	0.010
35	2.92	0.17	0.098	(0.451)	0.088	0.010
36	3.00	0.17	0.098	(0.449)	0.088	0.010
37	3.08	0.17	0.098	(0.447)	0.088	0.010
38	3.17	0.17	0.098	(0.445)	0.088	0.010
39	3.25	0.17	0.098	(0.443)	0.088	0.010
40	3.33	0.17	0.098	(0.441)	0.088	0.010
41	3.42	0.17	0.098	(0.439)	0.088	0.010
42	3.50	0.17	0.098	(0.438)	0.088	0.010
43	3.58	0.17	0.098	(0.436)	0.088	0.010
44	3.67	0.17	0.098	(0.434)	0.088	0.010
45	3.75	0.17	0.098	(0.432)	0.088	0.010
46	3.83	0.20	0.118	(0.430)	0.106	0.012
47	3.92	0.20	0.118	(0.428)	0.106	0.012
48	4.00	0.20	0.118	(0.427)	0.106	0.012
49	4.08	0.20	0.118	(0.425)	0.106	0.012
50	4.17	0.20	0.118	(0.423)	0.106	0.012
51	4.25	0.20	0.118	(0.421)	0.106	0.012
52	4.33	0.23	0.137	(0.419)	0.124	0.014
53	4.42	0.23	0.137	(0.418)	0.124	0.014
54	4.50	0.23	0.137	(0.416)	0.124	0.014
55	4.58	0.23	0.137	(0.414)	0.124	0.014
56	4.67	0.23	0.137	(0.412)	0.124	0.014
57	4.75	0.23	0.137	(0.411)	0.124	0.014
58	4.83	0.27	0.157	(0.409)	0.141	0.016
59	4.92	0.27	0.157	(0.407)	0.141	0.016
60	5.00	0.27	0.157	(0.405)	0.141	0.016
61	5.08	0.20	0.118	(0.403)	0.106	0.012
62	5.17	0.20	0.118	(0.402)	0.106	0.012
63	5.25	0.20	0.118	(0.400)	0.106	0.012
64	5.33	0.23	0.137	(0.398)	0.124	0.014
65	5.42	0.23	0.137	(0.396)	0.124	0.014
66	5.50	0.23	0.137	(0.395)	0.124	0.014
67	5.58	0.27	0.157	(0.393)	0.141	0.016
68	5.67	0.27	0.157	(0.391)	0.141	0.016
69	5.75	0.27	0.157	(0.390)	0.141	0.016
70	5.83	0.27	0.157	(0.388)	0.141	0.016
71	5.92	0.27	0.157	(0.386)	0.141	0.016
72	6.00	0.27	0.157	(0.384)	0.141	0.016
73	6.08	0.30	0.177	(0.383)	0.159	0.018
74	6.17	0.30	0.177	(0.381)	0.159	0.018
75	6.25	0.30	0.177	(0.379)	0.159	0.018
76	6.33	0.30	0.177	(0.378)	0.159	0.018
77	6.42	0.30	0.177	(0.376)	0.159	0.018
78	6.50	0.30	0.177	(0.374)	0.159	0.018
79	6.58	0.33	0.196	(0.373)	0.177	0.020
80	6.67	0.33	0.196	(0.371)	0.177	0.020
81	6.75	0.33	0.196	(0.369)	0.177	0.020
82	6.83	0.33	0.196	(0.368)	0.177	0.020
83	6.92	0.33	0.196	(0.366)	0.177	0.020
84	7.00	0.33	0.196	(0.364)	0.177	0.020
85	7.08	0.33	0.196	(0.363)	0.177	0.020
86	7.17	0.33	0.196	(0.361)	0.177	0.020
87	7.25	0.33	0.196	(0.359)	0.177	0.020
88	7.33	0.37	0.216	(0.358)	0.194	0.022
89	7.42	0.37	0.216	(0.356)	0.194	0.022
90	7.50	0.37	0.216	(0.354)	0.194	0.022
91	7.58	0.40	0.236	(0.353)	0.212	0.024
92	7.67	0.40	0.236	(0.351)	0.212	0.024

93	7.75	0.40	0.236	(0.349)	0.212	0.024
94	7.83	0.43	0.255	(0.348)	0.230	0.026
95	7.92	0.43	0.255	(0.346)	0.230	0.026
96	8.00	0.43	0.255	(0.345)	0.230	0.026
97	8.08	0.50	0.295	(0.343)	0.265	0.029
98	8.17	0.50	0.295	(0.341)	0.265	0.029
99	8.25	0.50	0.295	(0.340)	0.265	0.029
100	8.33	0.50	0.295	(0.338)	0.265	0.029
101	8.42	0.50	0.295	(0.337)	0.265	0.029
102	8.50	0.50	0.295	(0.335)	0.265	0.029
103	8.58	0.53	0.314	(0.334)	0.283	0.031
104	8.67	0.53	0.314	(0.332)	0.283	0.031
105	8.75	0.53	0.314	(0.330)	0.283	0.031
106	8.83	0.57	0.334	(0.329)	0.300	0.033
107	8.92	0.57	0.334	(0.327)	0.300	0.033
108	9.00	0.57	0.334	(0.326)	0.300	0.033
109	9.08	0.63	0.373	0.324	(0.336)	0.049
110	9.17	0.63	0.373	0.323	(0.336)	0.051
111	9.25	0.63	0.373	0.321	(0.336)	0.052
112	9.33	0.67	0.393	0.320	(0.354)	0.073
113	9.42	0.67	0.393	0.318	(0.354)	0.075
114	9.50	0.67	0.393	0.317	(0.354)	0.076
115	9.58	0.70	0.412	0.315	(0.371)	0.097
116	9.67	0.70	0.412	0.314	(0.371)	0.099
117	9.75	0.70	0.412	0.312	(0.371)	0.100
118	9.83	0.73	0.432	0.310	(0.389)	0.122
119	9.92	0.73	0.432	0.309	(0.389)	0.123
120	10.00	0.73	0.432	0.308	(0.389)	0.125
121	10.08	0.50	0.295	(0.306)	0.265	0.029
122	10.17	0.50	0.295	(0.305)	0.265	0.029
123	10.25	0.50	0.295	(0.303)	0.265	0.029
124	10.33	0.50	0.295	(0.302)	0.265	0.029
125	10.42	0.50	0.295	(0.300)	0.265	0.029
126	10.50	0.50	0.295	(0.299)	0.265	0.029
127	10.58	0.67	0.393	0.297	(0.354)	0.096
128	10.67	0.67	0.393	0.296	(0.354)	0.097
129	10.75	0.67	0.393	0.294	(0.354)	0.098
130	10.83	0.67	0.393	0.293	(0.354)	0.100
131	10.92	0.67	0.393	0.291	(0.354)	0.101
132	11.00	0.67	0.393	0.290	(0.354)	0.103
133	11.08	0.63	0.373	0.289	(0.336)	0.085
134	11.17	0.63	0.373	0.287	(0.336)	0.086
135	11.25	0.63	0.373	0.286	(0.336)	0.087
136	11.33	0.63	0.373	0.284	(0.336)	0.089
137	11.42	0.63	0.373	0.283	(0.336)	0.090
138	11.50	0.63	0.373	0.281	(0.336)	0.092
139	11.58	0.57	0.334	0.280	(0.300)	0.054
140	11.67	0.57	0.334	0.279	(0.300)	0.055
141	11.75	0.57	0.334	0.277	(0.300)	0.057
142	11.83	0.60	0.354	0.276	(0.318)	0.078
143	11.92	0.60	0.354	0.275	(0.318)	0.079
144	12.00	0.60	0.354	0.273	(0.318)	0.080
145	12.08	0.83	0.491	0.272	(0.442)	0.219
146	12.17	0.83	0.491	0.270	(0.442)	0.221
147	12.25	0.83	0.491	0.269	(0.442)	0.222
148	12.33	0.87	0.511	0.268	(0.460)	0.243
149	12.42	0.87	0.511	0.266	(0.460)	0.244
150	12.50	0.87	0.511	0.265	(0.460)	0.246
151	12.58	0.93	0.550	0.264	(0.495)	0.286
152	12.67	0.93	0.550	0.262	(0.495)	0.288
153	12.75	0.93	0.550	0.261	(0.495)	0.289
154	12.83	0.97	0.570	0.260	(0.513)	0.310
155	12.92	0.97	0.570	0.258	(0.513)	0.311
156	13.00	0.97	0.570	0.257	(0.513)	0.312
157	13.08	1.13	0.668	0.256	(0.601)	0.412
158	13.17	1.13	0.668	0.255	(0.601)	0.413

159	13.25	1.13	0.668	0.253	(0.601)	0.414
160	13.33	1.13	0.668	0.252	(0.601)	0.416
161	13.42	1.13	0.668	0.251	(0.601)	0.417
162	13.50	1.13	0.668	0.249	(0.601)	0.418
163	13.58	0.77	0.452	0.248	(0.407)	0.204
164	13.67	0.77	0.452	0.247	(0.407)	0.205
165	13.75	0.77	0.452	0.246	(0.407)	0.206
166	13.83	0.77	0.452	0.244	(0.407)	0.207
167	13.92	0.77	0.452	0.243	(0.407)	0.209
168	14.00	0.77	0.452	0.242	(0.407)	0.210
169	14.08	0.90	0.530	0.241	(0.477)	0.290
170	14.17	0.90	0.530	0.239	(0.477)	0.291
171	14.25	0.90	0.530	0.238	(0.477)	0.292
172	14.33	0.87	0.511	0.237	(0.460)	0.274
173	14.42	0.87	0.511	0.236	(0.460)	0.275
174	14.50	0.87	0.511	0.235	(0.460)	0.276
175	14.58	0.87	0.511	0.233	(0.460)	0.277
176	14.67	0.87	0.511	0.232	(0.460)	0.278
177	14.75	0.87	0.511	0.231	(0.460)	0.280
178	14.83	0.83	0.491	0.230	(0.442)	0.261
179	14.92	0.83	0.491	0.229	(0.442)	0.262
180	15.00	0.83	0.491	0.227	(0.442)	0.264
181	15.08	0.80	0.471	0.226	(0.424)	0.245
182	15.17	0.80	0.471	0.225	(0.424)	0.246
183	15.25	0.80	0.471	0.224	(0.424)	0.247
184	15.33	0.77	0.452	0.223	(0.407)	0.229
185	15.42	0.77	0.452	0.222	(0.407)	0.230
186	15.50	0.77	0.452	0.221	(0.407)	0.231
187	15.58	0.63	0.373	0.219	(0.336)	0.154
188	15.67	0.63	0.373	0.218	(0.336)	0.155
189	15.75	0.63	0.373	0.217	(0.336)	0.156
190	15.83	0.63	0.373	0.216	(0.336)	0.157
191	15.92	0.63	0.373	0.215	(0.336)	0.158
192	16.00	0.63	0.373	0.214	(0.336)	0.159
193	16.08	0.13	0.079	(0.213)	0.071	0.008
194	16.17	0.13	0.079	(0.212)	0.071	0.008
195	16.25	0.13	0.079	(0.211)	0.071	0.008
196	16.33	0.13	0.079	(0.210)	0.071	0.008
197	16.42	0.13	0.079	(0.208)	0.071	0.008
198	16.50	0.13	0.079	(0.207)	0.071	0.008
199	16.58	0.10	0.059	(0.206)	0.053	0.006
200	16.67	0.10	0.059	(0.205)	0.053	0.006
201	16.75	0.10	0.059	(0.204)	0.053	0.006
202	16.83	0.10	0.059	(0.203)	0.053	0.006
203	16.92	0.10	0.059	(0.202)	0.053	0.006
204	17.00	0.10	0.059	(0.201)	0.053	0.006
205	17.08	0.17	0.098	(0.200)	0.088	0.010
206	17.17	0.17	0.098	(0.199)	0.088	0.010
207	17.25	0.17	0.098	(0.198)	0.088	0.010
208	17.33	0.17	0.098	(0.197)	0.088	0.010
209	17.42	0.17	0.098	(0.196)	0.088	0.010
210	17.50	0.17	0.098	(0.195)	0.088	0.010
211	17.58	0.17	0.098	(0.194)	0.088	0.010
212	17.67	0.17	0.098	(0.193)	0.088	0.010
213	17.75	0.17	0.098	(0.192)	0.088	0.010
214	17.83	0.13	0.079	(0.191)	0.071	0.008
215	17.92	0.13	0.079	(0.190)	0.071	0.008
216	18.00	0.13	0.079	(0.189)	0.071	0.008
217	18.08	0.13	0.079	(0.188)	0.071	0.008
218	18.17	0.13	0.079	(0.188)	0.071	0.008
219	18.25	0.13	0.079	(0.187)	0.071	0.008
220	18.33	0.13	0.079	(0.186)	0.071	0.008
221	18.42	0.13	0.079	(0.185)	0.071	0.008
222	18.50	0.13	0.079	(0.184)	0.071	0.008
223	18.58	0.10	0.059	(0.183)	0.053	0.006
224	18.67	0.10	0.059	(0.182)	0.053	0.006

225	18.75	0.10	0.059	(0.181)	0.053	0.006
226	18.83	0.07	0.039	(0.180)	0.035	0.004
227	18.92	0.07	0.039	(0.180)	0.035	0.004
228	19.00	0.07	0.039	(0.179)	0.035	0.004
229	19.08	0.10	0.059	(0.178)	0.053	0.006
230	19.17	0.10	0.059	(0.177)	0.053	0.006
231	19.25	0.10	0.059	(0.176)	0.053	0.006
232	19.33	0.13	0.079	(0.175)	0.071	0.008
233	19.42	0.13	0.079	(0.175)	0.071	0.008
234	19.50	0.13	0.079	(0.174)	0.071	0.008
235	19.58	0.10	0.059	(0.173)	0.053	0.006
236	19.67	0.10	0.059	(0.172)	0.053	0.006
237	19.75	0.10	0.059	(0.171)	0.053	0.006
238	19.83	0.07	0.039	(0.171)	0.035	0.004
239	19.92	0.07	0.039	(0.170)	0.035	0.004
240	20.00	0.07	0.039	(0.169)	0.035	0.004
241	20.08	0.10	0.059	(0.168)	0.053	0.006
242	20.17	0.10	0.059	(0.168)	0.053	0.006
243	20.25	0.10	0.059	(0.167)	0.053	0.006
244	20.33	0.10	0.059	(0.166)	0.053	0.006
245	20.42	0.10	0.059	(0.165)	0.053	0.006
246	20.50	0.10	0.059	(0.165)	0.053	0.006
247	20.58	0.10	0.059	(0.164)	0.053	0.006
248	20.67	0.10	0.059	(0.163)	0.053	0.006
249	20.75	0.10	0.059	(0.163)	0.053	0.006
250	20.83	0.07	0.039	(0.162)	0.035	0.004
251	20.92	0.07	0.039	(0.161)	0.035	0.004
252	21.00	0.07	0.039	(0.161)	0.035	0.004
253	21.08	0.10	0.059	(0.160)	0.053	0.006
254	21.17	0.10	0.059	(0.159)	0.053	0.006
255	21.25	0.10	0.059	(0.159)	0.053	0.006
256	21.33	0.07	0.039	(0.158)	0.035	0.004
257	21.42	0.07	0.039	(0.158)	0.035	0.004
258	21.50	0.07	0.039	(0.157)	0.035	0.004
259	21.58	0.10	0.059	(0.156)	0.053	0.006
260	21.67	0.10	0.059	(0.156)	0.053	0.006
261	21.75	0.10	0.059	(0.155)	0.053	0.006
262	21.83	0.07	0.039	(0.155)	0.035	0.004
263	21.92	0.07	0.039	(0.154)	0.035	0.004
264	22.00	0.07	0.039	(0.154)	0.035	0.004
265	22.08	0.10	0.059	(0.153)	0.053	0.006
266	22.17	0.10	0.059	(0.153)	0.053	0.006
267	22.25	0.10	0.059	(0.152)	0.053	0.006
268	22.33	0.07	0.039	(0.152)	0.035	0.004
269	22.42	0.07	0.039	(0.151)	0.035	0.004
270	22.50	0.07	0.039	(0.151)	0.035	0.004
271	22.58	0.07	0.039	(0.150)	0.035	0.004
272	22.67	0.07	0.039	(0.150)	0.035	0.004
273	22.75	0.07	0.039	(0.150)	0.035	0.004
274	22.83	0.07	0.039	(0.149)	0.035	0.004
275	22.92	0.07	0.039	(0.149)	0.035	0.004
276	23.00	0.07	0.039	(0.148)	0.035	0.004
277	23.08	0.07	0.039	(0.148)	0.035	0.004
278	23.17	0.07	0.039	(0.148)	0.035	0.004
279	23.25	0.07	0.039	(0.147)	0.035	0.004
280	23.33	0.07	0.039	(0.147)	0.035	0.004
281	23.42	0.07	0.039	(0.147)	0.035	0.004
282	23.50	0.07	0.039	(0.147)	0.035	0.004
283	23.58	0.07	0.039	(0.146)	0.035	0.004
284	23.67	0.07	0.039	(0.146)	0.035	0.004
285	23.75	0.07	0.039	(0.146)	0.035	0.004
286	23.83	0.07	0.039	(0.146)	0.035	0.004
287	23.92	0.07	0.039	(0.146)	0.035	0.004
288	24.00	0.07	0.039	(0.146)	0.035	0.004

(Loss Rate Not Used)

Sum = 100.0

Sum = 17.5

Flood volume = Effective rainfall 1.46(In)
 times area 1.4(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
 Total soil loss = 3.45(In)
 Total soil loss = 0.400(Ac.Ft)
 Total rainfall = 4.91(In)
 Flood volume = 7357.8 Cubic Feet
 Total soil loss = 17416.5 Cubic Feet

 Peak flow rate of this hydrograph = 0.585(CFS)

+++++

24 - H O U R S T O R M
 R u n o f f H y d r o g r a p h

 Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0000	0.00	Q				
0+15	0.0001	0.01	Q				
0+20	0.0001	0.01	Q				
0+25	0.0002	0.01	Q				
0+30	0.0002	0.01	Q				
0+35	0.0003	0.01	Q				
0+40	0.0003	0.01	Q				
0+45	0.0004	0.01	Q				
0+50	0.0005	0.01	Q				
0+55	0.0005	0.01	Q				
1+ 0	0.0006	0.01	Q				
1+ 5	0.0007	0.01	Q				
1+10	0.0007	0.01	Q				
1+15	0.0008	0.01	Q				
1+20	0.0009	0.01	Q				
1+25	0.0009	0.01	Q				
1+30	0.0010	0.01	Q				
1+35	0.0010	0.01	Q				
1+40	0.0011	0.01	Q				
1+45	0.0011	0.01	Q				
1+50	0.0012	0.01	Q				
1+55	0.0013	0.01	Q				
2+ 0	0.0013	0.01	Q				
2+ 5	0.0014	0.01	Q				
2+10	0.0015	0.01	Q				
2+15	0.0016	0.01	Q				
2+20	0.0017	0.01	Q				
2+25	0.0017	0.01	Q				
2+30	0.0018	0.01	Q				
2+35	0.0019	0.01	Q				
2+40	0.0020	0.01	Q				
2+45	0.0021	0.01	Q				
2+50	0.0022	0.01	Q				
2+55	0.0023	0.01	Q				
3+ 0	0.0024	0.01	Q				
3+ 5	0.0024	0.01	Q				
3+10	0.0025	0.01	Q				
3+15	0.0026	0.01	Q				
3+20	0.0027	0.01	Q				
3+25	0.0028	0.01	Q				
3+30	0.0029	0.01	Q				
3+35	0.0030	0.01	Q				
3+40	0.0031	0.01	Q				
3+45	0.0032	0.01	Q				
3+50	0.0033	0.01	Q				
3+55	0.0034	0.02	Q				

4+ 0	0.0035	0.02	Q				
4+ 5	0.0036	0.02	Q				
4+10	0.0038	0.02	Q				
4+15	0.0039	0.02	Q				
4+20	0.0040	0.02	Q				
4+25	0.0041	0.02	Q				
4+30	0.0042	0.02	QV				
4+35	0.0044	0.02	QV				
4+40	0.0045	0.02	QV				
4+45	0.0046	0.02	QV				
4+50	0.0048	0.02	QV				
4+55	0.0049	0.02	QV				
5+ 0	0.0051	0.02	QV				
5+ 5	0.0052	0.02	QV				
5+10	0.0053	0.02	QV				
5+15	0.0055	0.02	QV				
5+20	0.0056	0.02	QV				
5+25	0.0057	0.02	QV				
5+30	0.0058	0.02	QV				
5+35	0.0060	0.02	QV				
5+40	0.0061	0.02	QV				
5+45	0.0063	0.02	QV				
5+50	0.0064	0.02	QV				
5+55	0.0066	0.02	QV				
6+ 0	0.0067	0.02	QV				
6+ 5	0.0069	0.02	QV				
6+10	0.0071	0.02	QV				
6+15	0.0072	0.02	QV				
6+20	0.0074	0.02	QV				
6+25	0.0076	0.02	QV				
6+30	0.0077	0.02	QV				
6+35	0.0079	0.03	QV				
6+40	0.0081	0.03	QV				
6+45	0.0083	0.03	QV				
6+50	0.0085	0.03	Q V				
6+55	0.0087	0.03	Q V				
7+ 0	0.0089	0.03	Q V				
7+ 5	0.0090	0.03	Q V				
7+10	0.0092	0.03	Q V				
7+15	0.0094	0.03	Q V				
7+20	0.0096	0.03	Q V				
7+25	0.0098	0.03	Q V				
7+30	0.0100	0.03	Q V				
7+35	0.0102	0.03	Q V				
7+40	0.0105	0.03	Q V				
7+45	0.0107	0.03	Q V				
7+50	0.0109	0.03	Q V				
7+55	0.0112	0.04	Q V				
8+ 0	0.0114	0.04	Q V				
8+ 5	0.0117	0.04	Q V				
8+10	0.0120	0.04	Q V				
8+15	0.0122	0.04	Q V				
8+20	0.0125	0.04	Q V				
8+25	0.0128	0.04	Q V				
8+30	0.0131	0.04	Q V				
8+35	0.0134	0.04	Q V				
8+40	0.0137	0.04	Q V				
8+45	0.0140	0.04	Q V				
8+50	0.0143	0.04	Q V				
8+55	0.0146	0.05	Q V				
9+ 0	0.0149	0.05	Q V				
9+ 5	0.0153	0.05	Q V				
9+10	0.0157	0.07	Q V				
9+15	0.0162	0.07	Q V				
9+20	0.0168	0.08	Q V				
9+25	0.0175	0.10	Q V				

9+30	0.0182	0.10	Q	V						
9+35	0.0190	0.12	Q	V						
9+40	0.0199	0.13	Q	V						
9+45	0.0208	0.14	Q	V						
9+50	0.0218	0.15	Q	V						
9+55	0.0230	0.16	Q	V						
10+ 0	0.0241	0.17	Q	V						
10+ 5	0.0250	0.13	Q	V						
10+10	0.0255	0.07	Q	V						
10+15	0.0258	0.05	Q	V						
10+20	0.0261	0.05	Q	V						
10+25	0.0264	0.04	Q	V						
10+30	0.0267	0.04	Q	V						
10+35	0.0272	0.07	Q	V						
10+40	0.0280	0.12	Q	V						
10+45	0.0289	0.13	Q	V						
10+50	0.0298	0.13	Q	V						
10+55	0.0308	0.14	Q	V						
11+ 0	0.0318	0.14	Q	V						
11+ 5	0.0327	0.13	Q	V						
11+10	0.0336	0.12	Q	V						
11+15	0.0344	0.12	Q	V						
11+20	0.0353	0.12	Q	V						
11+25	0.0361	0.12	Q	V						
11+30	0.0370	0.13	Q	V						
11+35	0.0377	0.11	Q	V						
11+40	0.0383	0.09	Q	V						
11+45	0.0389	0.08	Q	V						
11+50	0.0395	0.09	Q	V						
11+55	0.0402	0.10	Q	V						
12+ 0	0.0410	0.11	Q	V						
12+ 5	0.0422	0.18	Q	V						
12+10	0.0441	0.27	Q	V						
12+15	0.0461	0.29	Q	V						
12+20	0.0482	0.31	Q	V						
12+25	0.0505	0.33	Q	V						
12+30	0.0529	0.34	Q	V						
12+35	0.0554	0.36	Q	V						
12+40	0.0581	0.39	Q	V						
12+45	0.0608	0.40	Q	V						
12+50	0.0636	0.41	Q	V						
12+55	0.0666	0.43	Q	V						
13+ 0	0.0696	0.43	Q	V						
13+ 5	0.0729	0.48	Q	V						
13+10	0.0767	0.55	Q	V						
13+15	0.0806	0.57	Q	V						
13+20	0.0846	0.58	Q	V						
13+25	0.0886	0.58	Q	V						
13+30	0.0926	0.58	Q	V						
13+35	0.0959	0.48	Q	V						
13+40	0.0983	0.34	Q	V						
13+45	0.1005	0.31	Q	V						
13+50	0.1025	0.30	Q	V						
13+55	0.1045	0.29	Q	V						
14+ 0	0.1066	0.29	Q	V						
14+ 5	0.1088	0.33	Q	V						
14+10	0.1115	0.38	Q	V						
14+15	0.1142	0.40	Q	V						
14+20	0.1170	0.40	Q	V						
14+25	0.1196	0.39	Q	V						
14+30	0.1223	0.39	Q	V						
14+35	0.1250	0.39	Q	V						
14+40	0.1277	0.39	Q	V						
14+45	0.1303	0.39	Q	V						
14+50	0.1330	0.38	Q	V						
14+55	0.1355	0.37	Q	V						

15+ 0	0.1381	0.37	IQ				V	
15+ 5	0.1406	0.36	IQ				V	
15+10	0.1430	0.35	IQ				V	
15+15	0.1454	0.35	IQ				V	
15+20	0.1477	0.34	IQ				V	
15+25	0.1499	0.33	IQ				V	
15+30	0.1522	0.32	IQ				V	
15+35	0.1542	0.29	IQ				V	
15+40	0.1558	0.24	Q				V	
15+45	0.1574	0.23	Q				V	
15+50	0.1589	0.22	Q				V	
15+55	0.1604	0.22	Q				V	
16+ 0	0.1619	0.22	Q				V	
16+ 5	0.1630	0.15	Q				V	
16+10	0.1633	0.05	Q				V	
16+15	0.1635	0.03	Q				V	
16+20	0.1637	0.02	Q				V	
16+25	0.1638	0.01	Q				V	
16+30	0.1638	0.01	Q				V	
16+35	0.1639	0.01	Q				V	
16+40	0.1640	0.01	Q				V	
16+45	0.1640	0.01	Q				V	
16+50	0.1641	0.01	Q				V	
16+55	0.1641	0.01	Q				V	
17+ 0	0.1642	0.01	Q				V	
17+ 5	0.1643	0.01	Q				V	
17+10	0.1643	0.01	Q				V	
17+15	0.1644	0.01	Q				V	
17+20	0.1645	0.01	Q				V	
17+25	0.1646	0.01	Q				V	
17+30	0.1647	0.01	Q				V	
17+35	0.1648	0.01	Q				V	
17+40	0.1649	0.01	Q				V	
17+45	0.1650	0.01	Q				V	
17+50	0.1651	0.01	Q				V	
17+55	0.1652	0.01	Q				V	
18+ 0	0.1653	0.01	Q				V	
18+ 5	0.1653	0.01	Q				V	
18+10	0.1654	0.01	Q				V	
18+15	0.1655	0.01	Q				V	
18+20	0.1656	0.01	Q				V	
18+25	0.1656	0.01	Q				V	
18+30	0.1657	0.01	Q				V	
18+35	0.1658	0.01	Q				V	
18+40	0.1658	0.01	Q				V	
18+45	0.1659	0.01	Q				V	
18+50	0.1659	0.01	Q				V	
18+55	0.1660	0.01	Q				V	
19+ 0	0.1660	0.01	Q				V	
19+ 5	0.1661	0.01	Q				V	
19+10	0.1661	0.01	Q				V	
19+15	0.1662	0.01	Q				V	
19+20	0.1662	0.01	Q				V	
19+25	0.1663	0.01	Q				V	
19+30	0.1664	0.01	Q				V	
19+35	0.1665	0.01	Q				V	
19+40	0.1665	0.01	Q				V	
19+45	0.1666	0.01	Q				V	
19+50	0.1666	0.01	Q				V	
19+55	0.1667	0.01	Q				V	
20+ 0	0.1667	0.01	Q				V	
20+ 5	0.1668	0.01	Q				V	
20+10	0.1668	0.01	Q				V	
20+15	0.1669	0.01	Q				V	
20+20	0.1669	0.01	Q				V	
20+25	0.1670	0.01	Q				V	

20+30	0.1670	0.01	Q				V
20+35	0.1671	0.01	Q				V
20+40	0.1671	0.01	Q				V
20+45	0.1672	0.01	Q				V
20+50	0.1673	0.01	Q				V
20+55	0.1673	0.01	Q				V
21+ 0	0.1673	0.01	Q				V
21+ 5	0.1674	0.01	Q				V
21+10	0.1674	0.01	Q				V
21+15	0.1675	0.01	Q				V
21+20	0.1675	0.01	Q				V
21+25	0.1676	0.01	Q				V
21+30	0.1676	0.01	Q				V
21+35	0.1677	0.01	Q				V
21+40	0.1677	0.01	Q				V
21+45	0.1678	0.01	Q				V
21+50	0.1678	0.01	Q				V
21+55	0.1679	0.01	Q				V
22+ 0	0.1679	0.01	Q				V
22+ 5	0.1680	0.01	Q				V
22+10	0.1680	0.01	Q				V
22+15	0.1681	0.01	Q				V
22+20	0.1681	0.01	Q				V
22+25	0.1682	0.01	Q				V
22+30	0.1682	0.01	Q				V
22+35	0.1682	0.01	Q				V
22+40	0.1683	0.01	Q				V
22+45	0.1683	0.01	Q				V
22+50	0.1683	0.01	Q				V
22+55	0.1684	0.01	Q				V
23+ 0	0.1684	0.01	Q				V
23+ 5	0.1685	0.01	Q				V
23+10	0.1685	0.01	Q				V
23+15	0.1685	0.01	Q				V
23+20	0.1686	0.01	Q				V
23+25	0.1686	0.01	Q				V
23+30	0.1686	0.01	Q				V
23+35	0.1687	0.01	Q				V
23+40	0.1687	0.01	Q				V
23+45	0.1688	0.01	Q				V
23+50	0.1688	0.01	Q				V
23+55	0.1688	0.01	Q				V
24+ 0	0.1689	0.01	Q				V
24+ 5	0.1689	0.00	Q				V
24+10	0.1689	0.00	Q				V
24+15	0.1689	0.00	Q				V
24+20	0.1689	0.00	Q				V
24+25	0.1689	0.00	Q				V

APPENDIX E
DETENTION BASIN VOLUME CALCULATIONS

PBLA ENGINEERING, INC.

1809 E. Dyer Rd., Suite 301
Santa Ana, CA 92705
(888)714-9642

981 Corporate Center Drive, Suite 150
Pomona, CA 91768
(626) 512-4934

1481 Ford Street, Suite 201
Redlands, CA 92373
(714) 620-4960

DETENTION BASIN DESIGN

MAJESTIC FREEWAY BUSINESS CENTER - BUILDING 13

BASIN VOLUMES BY ELEVATION

BASIN B1

<u>ELEVATION</u>	<u>AREA</u>	<u>AREA</u>	<u>VOLUME</u>	<u>CUMULATIVE</u>	<u>CUMULATIVE</u>	BIO- RETENTION LAYERS
(FT)	(SF)	(AC)	(ACRE-FT)	(ACRE-FT)	(CU-FT)	
1512	11,728	0.27	0.00	0	0	
1513	11,728	0.27	0.11	0.11	4,691	
1514	11,728	0.27	0.11	0.22	9,382	
1515	11,728	0.27	0.11	0.32	14,074	
1516	15,196	0.35	0.31	0.63	27,536	
1517	18,809	0.43	0.39	1.02	44,538	
1518	22,533	0.52	0.47	1.50	65,209	
1519	26,367	0.61	0.56	2.06	89,659	
1520	30,334	0.70	0.65	2.71	118,010	

APPENDIX F
DETENTION BASIN OUTFLOW CALCULATIONS

PBLA ENGINEERING, INC.

1809 E. Dyer Rd., Suite 301
Santa Ana, CA 92705
(888)714-9642

981 Corporate Center Drive, Suite 150
Pomona, CA 91768
(626) 512-4934

1481 Ford Street, Suite 201
Redlands, CA 92373
(714) 620-4960

BASIN OUTFLOW CALCULATIONS
DETENTION BASIN DESIGN
MAJESTIC FREEWAY BUSINESS CENTER - BUILDING 13

BASIN B1

OUTFLOW THROUGH CIRCULAR HOLE IN STRUCTURE

FROM KING'S HANDBOOK, (4-3)

$Q=Ca(2gh)^{1/2}$

WHERE:

Q= DISCHARGE (CFS)

a= TOTAL AREA OF 2- 8" HOLES (SF) =0.698

h = HEAD AT ORIFICE (FT)

C= DISCHARGE COEFFICIENT (KING'S 4-10) = 0.610

BIOTREATMENT FLOW = BOTTOM AREA x 4 IN/HR

11,728 SF x 4"/HR = 1.09 CFS

OUTFLOW PER WATER SURFACE ELEVATION

W/S ELEV	DEPTH	HEAD (h)	AREA (a)	Q (cfs)	TOTAL (cfs)
1512	0	0	--		0.00
1513	0	0	--		1.09
1514	0	0	--		1.09
1515	0	0	0.698	0.00	1.09
1516	1.00	0.33	0.698	1.96	3.05
1517	2.00	1.33	0.698	3.94	5.03
1518	3.00	2.33	0.698	5.22	6.31
1519	4.00	2.83	0.698	5.75	6.84

BIO-RETENTION
LAYERS

TIME REQUIRED TO EMPTY BASIN

ASSUMES CONSTANT HEAD BETWEEN STAGES

DELTA W/S ELEVS	HEAD (FT)	VOL (AC-FT)	VOLUME (C.F.)	Q out (CFS)	TIME (HRS)	CUMULATIVE (HRS)
1519.00	7.00	2.06	89,659	6.84	3.64	3.6
1518.00	6.00	1.50	65,209	6.31	2.87	6.5
1517.00	5.00	1.02	44,538	5.03	2.46	9.0
1516.00	4.00	0.00	27,538	1.09	7.02	16.0
1515.00	3.00	0.00	14,074	1.09	3.59	19.6
1514.00	2.00	0.00	9,282	1.09	2.37	21.9
1513.00	1.00	0.00	4,691	1.09	1.20	23.1

OUTFLOW THROUGH TOP OF STRUCTURE

SHARP EDGED WEIR ABOVE WATER QUALITY SCREEN

$Q=CLH^{3/2}$

WHERE:

C=WEIR COEFFICIENT (3.087)

L=WEIR LENGTH (21.33' FOR THIS STRUCTURE)

H=HEAD (FT)

W/S ELEV	DEPTH	HEAD (h)	Q (cfs)
1518.5	3.50	0.00	0.00
1519	4.00	0.50	23.28
1520	5.00	1.50	120.97

APPENDIX G
FLOOD ROUTING CALCULATIONS

P B L A E N G I N E E R I N G , I N C .

1809 E. Dyer Rd., Suite 301
Santa Ana, CA 92705
(888)714-9642

981 Corporate Center Drive, Suite 150
Pomona, CA 91768
(626) 512-4934

1481 Ford Street, Suite 201
Redlands, CA 92373
(714) 620-4960

FLOOD HYDROGRAPH ROUTING PROGRAM
 Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018
 Study date: 12/06/21

 MFBC BUILDING 13
 BASIN FLOOD ROUTING
 100 YE - 1 HR STORM
 100101RTE

Program License Serial Number 6490

 ***** HYDROGRAPH INFORMATION *****

From study/file name: 100101PRUH11100.rte
 *****HYDROGRAPH DATA*****
 Number of intervals = 17
 Time interval = 5.0 (Min.)
 Maximum/Peak flow rate = 45.696 (CFS)
 Total volume = 1.662 (Ac.Ft)
 Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

+++++
 Process from Point/Station 1.000 to Point/Station 2.000
 **** RETARDING BASIN ROUTING ****

 User entry of depth-outflow-storage data

 Total number of inflow hydrograph intervals = 17
 Hydrograph time unit = 5.000 (Min.)
 Initial depth in storage basin = 0.00 (Ft.)

 Initial basin depth = 0.00 (Ft.)
 Initial basin storage = 0.00 (Ac.Ft)
 Initial basin outflow = 0.00 (CFS)

 Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.110	1.090	0.106	0.114
2.000	0.220	1.090	0.216	0.224
3.000	0.320	1.090	0.316	0.324
4.000	0.630	3.050	0.619	0.641
5.000	1.020	5.030	1.003	1.037
6.000	1.500	6.310	1.478	1.522
7.000	2.060	30.120	1.956	2.164
8.000	2.710	121.000	2.293	3.127

 Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)		11.4	22.85	34.27	45.70	Depth (Ft.)
0.083	3.05	0.10	0.010	O I					0.09
0.167	7.44	0.44	0.044	O I					0.40
0.250	9.21	0.96	0.097	O I					0.88
0.333	10.56	1.09	0.158	O I					1.44
0.417	11.71	1.09	0.227	O I					2.07
0.500	13.53	1.09	0.306	O I					2.86
0.583	15.48	1.58	0.397	O I					3.25
0.667	17.99	2.22	0.499	O I					3.58
0.750	23.15	3.01	0.623	O I					3.98
0.833	43.11	4.05	0.827	O I				I	4.50
0.917	45.70	5.25	1.101	O I				I	5.17
1.000	21.91	5.76	1.296	O I		I			5.57
1.083	11.77	5.97	1.371	O I					5.73
1.167	4.27	6.00	1.385	O I					5.76
1.250	1.89	5.95	1.365	O I					5.72
1.333	0.48	5.86	1.333	O I					5.65
1.417	0.14	5.76	1.295	O I					5.57
1.500	0.00	5.66	1.256	O I					5.49
1.583	0.00	5.56	1.217	O I					5.41
1.667	0.00	5.46	1.179	O I					5.33
1.750	0.00	5.36	1.142	O I					5.25
1.833	0.00	5.26	1.106	O I					5.18
1.917	0.00	5.16	1.070	O I					5.10
2.000	0.00	5.07	1.035	O I					5.03
2.083	0.00	4.93	1.000	O I					4.95
2.167	0.00	4.76	0.967	O I					4.86
2.250	0.00	4.60	0.935	O I					4.78
2.333	0.00	4.44	0.903	O I					4.70
2.417	0.00	4.29	0.873	O I					4.62
2.500	0.00	4.14	0.844	O I					4.55
2.583	0.00	4.00	0.816	O I					4.48
2.667	0.00	3.86	0.789	O I					4.41
2.750	0.00	3.73	0.763	O I					4.34
2.833	0.00	3.60	0.738	O I					4.28
2.917	0.00	3.47	0.714	O I					4.21
3.000	0.00	3.36	0.690	O I					4.15
3.083	0.00	3.24	0.667	O I					4.10
3.167	0.00	3.13	0.645	O I					4.04
3.250	0.00	3.01	0.624	O I					3.98
3.333	0.00	2.89	0.604	O I					3.92
3.417	0.00	2.76	0.585	O I					3.85
3.500	0.00	2.65	0.566	O I					3.79
3.583	0.00	2.53	0.548	O I					3.74
3.667	0.00	2.42	0.531	O I					3.68
3.750	0.00	2.32	0.515	O I					3.63
3.833	0.00	2.22	0.499	O I					3.58
3.917	0.00	2.13	0.484	O I					3.53
4.000	0.00	2.04	0.470	O I					3.48
4.083	0.00	1.95	0.456	O I					3.44
4.167	0.00	1.87	0.443	O I					3.40
4.250	0.00	1.79	0.430	O I					3.36
4.333	0.00	1.71	0.418	O I					3.32
4.417	0.00	1.64	0.407	O I					3.28
4.500	0.00	1.57	0.396	O I					3.24
4.583	0.00	1.50	0.385	O I					3.21
4.667	0.00	1.44	0.375	O I					3.18
4.750	0.00	1.38	0.365	O I					3.15
4.833	0.00	1.32	0.356	O I					3.12

4.917	0.00	1.26	0.347	0					3.09
5.000	0.00	1.21	0.339	0					3.06
5.083	0.00	1.16	0.330	0					3.03
5.167	0.00	1.11	0.323	0					3.01
5.250	0.00	1.09	0.315	0					2.95
5.333	0.00	1.09	0.308	0					2.88
5.417	0.00	1.09	0.300	0					2.80
5.500	0.00	1.09	0.293	0					2.73
5.583	0.00	1.09	0.285	0					2.65
5.667	0.00	1.09	0.278	0					2.58
5.750	0.00	1.09	0.270	0					2.50
5.833	0.00	1.09	0.263	0					2.43
5.917	0.00	1.09	0.255	0					2.35
6.000	0.00	1.09	0.248	0					2.28
6.083	0.00	1.09	0.240	0					2.20
6.167	0.00	1.09	0.233	0					2.13
6.250	0.00	1.09	0.225	0					2.05
6.333	0.00	1.09	0.218	0					1.98
6.417	0.00	1.09	0.210	0					1.91
6.500	0.00	1.09	0.203	0					1.84
6.583	0.00	1.09	0.195	0					1.77
6.667	0.00	1.09	0.188	0					1.70
6.750	0.00	1.09	0.180	0					1.64
6.833	0.00	1.09	0.172	0					1.57
6.917	0.00	1.09	0.165	0					1.50
7.000	0.00	1.09	0.157	0					1.43
7.083	0.00	1.09	0.150	0					1.36
7.167	0.00	1.09	0.142	0					1.30
7.250	0.00	1.09	0.135	0					1.23
7.333	0.00	1.09	0.127	0					1.16
7.417	0.00	1.09	0.120	0					1.09
7.500	0.00	1.09	0.112	0					1.02
7.583	0.00	1.04	0.105	0					0.96
7.667	0.00	0.97	0.098	0					0.89
7.750	0.00	0.91	0.092	0					0.83
7.833	0.00	0.85	0.086	0					0.78
7.917	0.00	0.79	0.080	0					0.73
8.000	0.00	0.74	0.075	0					0.68
8.083	0.00	0.69	0.070	0					0.63
8.167	0.00	0.65	0.065	0					0.59
8.250	0.00	0.60	0.061	0					0.55
8.333	0.00	0.56	0.057	0					0.52
8.417	0.00	0.53	0.053	0					0.48
8.500	0.00	0.49	0.050	0					0.45
8.583	0.00	0.46	0.046	0					0.42
8.667	0.00	0.43	0.043	0					0.39
8.750	0.00	0.40	0.040	0					0.37
8.833	0.00	0.37	0.038	0					0.34
8.917	0.00	0.35	0.035	0					0.32
9.000	0.00	0.33	0.033	0					0.30
9.083	0.00	0.30	0.031	0					0.28
9.167	0.00	0.28	0.029	0					0.26
9.250	0.00	0.27	0.027	0					0.24
9.333	0.00	0.25	0.025	0					0.23
9.417	0.00	0.23	0.023	0					0.21
9.500	0.00	0.22	0.022	0					0.20
9.583	0.00	0.20	0.020	0					0.19
9.667	0.00	0.19	0.019	0					0.17
9.750	0.00	0.18	0.018	0					0.16
9.833	0.00	0.16	0.017	0					0.15
9.917	0.00	0.15	0.016	0					0.14
10.000	0.00	0.14	0.015	0					0.13
10.083	0.00	0.13	0.014	0					0.12
10.167	0.00	0.13	0.013	0					0.12
10.250	0.00	0.12	0.012	0					0.11
10.333	0.00	0.11	0.011	0					0.10

10.417	0.00	0.10	0.010	0					0.09
10.500	0.00	0.10	0.010	0					0.09
10.583	0.00	0.09	0.009	0					0.08
10.667	0.00	0.08	0.008	0					0.08
10.750	0.00	0.08	0.008	0					0.07
10.833	0.00	0.07	0.007	0					0.07
10.917	0.00	0.07	0.007	0					0.06
11.000	0.00	0.06	0.006	0					0.06
11.083	0.00	0.06	0.006	0					0.05
11.167	0.00	0.06	0.006	0					0.05
11.250	0.00	0.05	0.005	0					0.05
11.333	0.00	0.05	0.005	0					0.04
11.417	0.00	0.05	0.005	0					0.04
11.500	0.00	0.04	0.004	0					0.04
11.583	0.00	0.04	0.004	0					0.04
11.667	0.00	0.04	0.004	0					0.03
11.750	0.00	0.03	0.003	0					0.03
11.833	0.00	0.03	0.003	0					0.03
11.917	0.00	0.03	0.003	0					0.03
12.000	0.00	0.03	0.003	0					0.03
12.083	0.00	0.03	0.003	0					0.02
12.167	0.00	0.02	0.002	0					0.02
12.250	0.00	0.02	0.002	0					0.02
12.333	0.00	0.02	0.002	0					0.02
12.417	0.00	0.02	0.002	0					0.02
12.500	0.00	0.02	0.002	0					0.02
12.583	0.00	0.02	0.002	0					0.02
12.667	0.00	0.02	0.002	0					0.01
12.750	0.00	0.02	0.002	0					0.01
12.833	0.00	0.01	0.001	0					0.01
12.917	0.00	0.01	0.001	0					0.01
13.000	0.00	0.01	0.001	0					0.01
13.083	0.00	0.01	0.001	0					0.01
13.167	0.00	0.01	0.001	0					0.01
13.250	0.00	0.01	0.001	0					0.01
13.333	0.00	0.01	0.001	0					0.01
13.417	0.00	0.01	0.001	0					0.01
13.500	0.00	0.01	0.001	0					0.01
13.583	0.00	0.01	0.001	0					0.01
13.667	0.00	0.01	0.001	0					0.01
13.750	0.00	0.01	0.001	0					0.01
13.833	0.00	0.01	0.001	0					0.01
13.917	0.00	0.01	0.001	0					0.01
14.000	0.00	0.01	0.001	0					0.00
14.083	0.00	0.01	0.001	0					0.00
14.167	0.00	0.00	0.000	0					0.00
14.250	0.00	0.00	0.000	0					0.00
14.333	0.00	0.00	0.000	0					0.00
14.417	0.00	0.00	0.000	0					0.00
14.500	0.00	0.00	0.000	0					0.00
14.583	0.00	0.00	0.000	0					0.00
14.667	0.00	0.00	0.000	0					0.00
14.750	0.00	0.00	0.000	0					0.00
14.833	0.00	0.00	0.000	0					0.00
14.917	0.00	0.00	0.000	0					0.00
15.000	0.00	0.00	0.000	0					0.00
15.083	0.00	0.00	0.000	0					0.00
15.167	0.00	0.00	0.000	0					0.00
15.250	0.00	0.00	0.000	0					0.00
15.333	0.00	0.00	0.000	0					0.00
15.417	0.00	0.00	0.000	0					0.00
15.500	0.00	0.00	0.000	0					0.00
15.583	0.00	0.00	0.000	0					0.00
15.667	0.00	0.00	0.000	0					0.00
15.750	0.00	0.00	0.000	0					0.00
15.833	0.00	0.00	0.000	0					0.00

15.917	0.00	0.00	0.000	o					0.00
16.000	0.00	0.00	0.000	o					0.00

*****HYDROGRAPH DATA*****

Number of intervals = 192
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 6.004 (CFS)
Total volume = 1.662 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

FLOOD HYDROGRAPH ROUTING PROGRAM
 Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018
 Study date: 12/06/21

 MFBC BUILDING 13
 BASIN FLOOD ROUTING
 100 YR - 3 HR STORM
 100101RTE

Program License Serial Number 6490

 ***** HYDROGRAPH INFORMATION *****

From study/file name: 100101PRUH13100.rte
 *****HYDROGRAPH DATA*****
 Number of intervals = 41
 Time interval = 5.0 (Min.)
 Maximum/Peak flow rate = 26.689 (CFS)
 Total volume = 2.341 (Ac.Ft)
 Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

+++++
 Process from Point/Station 1.000 to Point/Station 2.000
 **** RETARDING BASIN ROUTING ****

 User entry of depth-outflow-storage data

 Total number of inflow hydrograph intervals = 41
 Hydrograph time unit = 5.000 (Min.)
 Initial depth in storage basin = 0.00 (Ft.)

 Initial basin depth = 0.00 (Ft.)
 Initial basin storage = 0.00 (Ac.Ft)
 Initial basin outflow = 0.00 (CFS)

 Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.110	1.090	0.106	0.114
2.000	0.220	1.090	0.216	0.224
3.000	0.320	1.090	0.316	0.324
4.000	0.630	3.050	0.619	0.641
5.000	1.020	5.030	1.003	1.037
6.000	1.500	6.310	1.478	1.522
7.000	2.060	30.120	1.956	2.164

8.000 2.710 121.000 2.293 3.127

 Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)						Depth (Ft.)	
				.0		6.7	13.34	20.02	26.69	
0.083	1.40	0.05	0.005	O I						0.04
0.167	3.37	0.20	0.020	O I						0.18
0.250	3.63	0.42	0.042	O I						0.38
0.333	3.96	0.64	0.065	O I						0.59
0.417	4.60	0.88	0.089	O I						0.81
0.500	5.09	1.09	0.116	O I						1.05
0.583	5.27	1.09	0.144	O I						1.31
0.667	5.27	1.09	0.172	O I						1.57
0.750	5.68	1.09	0.203	O I						1.84
0.833	5.44	1.09	0.233	O I						2.13
0.917	5.13	1.09	0.262	O I						2.42
1.000	5.40	1.09	0.291	O I						2.71
1.083	6.13	1.11	0.323	O I						3.01
1.167	6.81	1.34	0.359	O I						3.13
1.250	6.98	1.57	0.397	O I						3.25
1.333	6.84	1.80	0.433	O I						3.36
1.417	7.23	2.03	0.468	O I						3.48
1.500	8.19	2.27	0.506	O I						3.60
1.583	8.20	2.52	0.546	O I						3.73
1.667	8.19	2.76	0.584	O I						3.85
1.750	9.36	3.02	0.625	O I		I				3.98
1.833	10.28	3.26	0.671	O I		I				4.11
1.917	9.94	3.49	0.717	O I		I				4.22
2.000	9.74	3.71	0.760	O I		I				4.33
2.083	9.99	3.92	0.802	O I		I				4.44
2.167	11.64	4.16	0.849	O I		I				4.56
2.250	14.76	4.47	0.910	O I		I				4.72
2.333	14.78	4.82	0.980	O I		I				4.90
2.417	16.91	5.12	1.054	O I		I				5.07
2.500	23.28	5.39	1.157	O I		I		I		5.28
2.583	26.69	5.75	1.290	O I		I		I		5.56
2.667	26.09	6.13	1.431	O I		I		I		5.86
2.750	17.62	7.75	1.534	O I		I		I		6.06
2.833	9.81	9.27	1.570	O I		O				6.12
2.917	7.52	9.12	1.566	O I		O				6.12
3.000	5.25	8.42	1.550	O I		O				6.09
3.083	2.27	7.23	1.522	O I		O				6.04
3.167	0.72	6.27	1.485	O I		O				5.97
3.250	0.31	6.17	1.446	O I		O				5.89
3.333	0.12	6.06	1.406	O I		O				5.80
3.417	0.02	5.95	1.365	O I		O				5.72
3.500	0.00	5.84	1.324	O I		O				5.63
3.583	0.00	5.74	1.284	O I		O				5.55
3.667	0.00	5.63	1.245	O I		O				5.47
3.750	0.00	5.53	1.207	O I		O				5.39
3.833	0.00	5.43	1.169	O I		O				5.31
3.917	0.00	5.33	1.132	O I		O				5.23
4.000	0.00	5.23	1.096	O I		O				5.16
4.083	0.00	5.14	1.060	O I		O				5.08
4.167	0.00	5.04	1.025	O I		O				5.01
4.250	0.00	4.88	0.991	O I		O				4.93
4.333	0.00	4.71	0.958	O I		O				4.84
4.417	0.00	4.55	0.926	O I		O				4.76
4.500	0.00	4.40	0.895	O I		O				4.68
4.583	0.00	4.24	0.865	O I		O				4.60
4.667	0.00	4.10	0.837	O I		O				4.53
4.750	0.00	3.96	0.809	O I		O				4.46

4.833	0.00	3.82	0.782	I	O					4.39
4.917	0.00	3.69	0.756	I	O					4.32
5.000	0.00	3.56	0.731	I	O					4.26
5.083	0.00	3.44	0.707	I	O					4.20
5.167	0.00	3.32	0.684	I	O					4.14
5.250	0.00	3.21	0.661	I	O					4.08
5.333	0.00	3.10	0.640	I	O					4.02
5.417	0.00	2.98	0.619	I	O					3.96
5.500	0.00	2.85	0.599	I	O					3.90
5.583	0.00	2.73	0.579	I	O					3.84
5.667	0.00	2.61	0.561	I	O					3.78
5.750	0.00	2.50	0.543	I	O					3.72
5.833	0.00	2.40	0.526	I	O					3.67
5.917	0.00	2.29	0.510	I	O					3.61
6.000	0.00	2.20	0.495	I	O					3.56
6.083	0.00	2.10	0.480	I	O					3.52
6.167	0.00	2.01	0.466	I	O					3.47
6.250	0.00	1.93	0.452	I	O					3.43
6.333	0.00	1.84	0.439	I	O					3.38
6.417	0.00	1.77	0.427	I	O					3.34
6.500	0.00	1.69	0.415	I	O					3.31
6.583	0.00	1.62	0.404	IO						3.27
6.667	0.00	1.55	0.393	IO						3.23
6.750	0.00	1.48	0.382	IO						3.20
6.833	0.00	1.42	0.372	IO						3.17
6.917	0.00	1.36	0.363	IO						3.14
7.000	0.00	1.30	0.353	IO						3.11
7.083	0.00	1.25	0.345	IO						3.08
7.167	0.00	1.19	0.336	IO						3.05
7.250	0.00	1.14	0.328	IO						3.03
7.333	0.00	1.09	0.321	IO						3.00
7.417	0.00	1.09	0.313	IO						2.93
7.500	0.00	1.09	0.306	IO						2.86
7.583	0.00	1.09	0.298	IO						2.78
7.667	0.00	1.09	0.291	IO						2.71
7.750	0.00	1.09	0.283	IO						2.63
7.833	0.00	1.09	0.276	IO						2.56
7.917	0.00	1.09	0.268	IO						2.48
8.000	0.00	1.09	0.261	IO						2.41
8.083	0.00	1.09	0.253	IO						2.33
8.167	0.00	1.09	0.246	IO						2.26
8.250	0.00	1.09	0.238	IO						2.18
8.333	0.00	1.09	0.230	IO						2.10
8.417	0.00	1.09	0.223	IO						2.03
8.500	0.00	1.09	0.215	IO						1.96
8.583	0.00	1.09	0.208	IO						1.89
8.667	0.00	1.09	0.200	IO						1.82
8.750	0.00	1.09	0.193	IO						1.75
8.833	0.00	1.09	0.185	IO						1.69
8.917	0.00	1.09	0.178	IO						1.62
9.000	0.00	1.09	0.170	IO						1.55
9.083	0.00	1.09	0.163	IO						1.48
9.167	0.00	1.09	0.155	IO						1.41
9.250	0.00	1.09	0.148	IO						1.34
9.333	0.00	1.09	0.140	IO						1.28
9.417	0.00	1.09	0.133	IO						1.21
9.500	0.00	1.09	0.125	IO						1.14
9.583	0.00	1.09	0.118	IO						1.07
9.667	0.00	1.09	0.110	IO						1.00
9.750	0.00	1.02	0.103	IO						0.94
9.833	0.00	0.95	0.096	IO						0.88
9.917	0.00	0.89	0.090	IO						0.82
10.000	0.00	0.83	0.084	O						0.76
10.083	0.00	0.78	0.078	O						0.71
10.167	0.00	0.73	0.073	O						0.67
10.250	0.00	0.68	0.068	O						0.62

10.333	0.00	0.63	0.064	0					0.58
10.417	0.00	0.59	0.060	0					0.54
10.500	0.00	0.55	0.056	0					0.51
10.583	0.00	0.52	0.052	0					0.47
10.667	0.00	0.48	0.049	0					0.44
10.750	0.00	0.45	0.045	0					0.41
10.833	0.00	0.42	0.042	0					0.39
10.917	0.00	0.39	0.040	0					0.36
11.000	0.00	0.37	0.037	0					0.34
11.083	0.00	0.34	0.035	0					0.31
11.167	0.00	0.32	0.032	0					0.29
11.250	0.00	0.30	0.030	0					0.27
11.333	0.00	0.28	0.028	0					0.26
11.417	0.00	0.26	0.026	0					0.24
11.500	0.00	0.24	0.025	0					0.22
11.583	0.00	0.23	0.023	0					0.21
11.667	0.00	0.21	0.021	0					0.19
11.750	0.00	0.20	0.020	0					0.18
11.833	0.00	0.19	0.019	0					0.17
11.917	0.00	0.17	0.017	0					0.16
12.000	0.00	0.16	0.016	0					0.15
12.083	0.00	0.15	0.015	0					0.14
12.167	0.00	0.14	0.014	0					0.13
12.250	0.00	0.13	0.013	0					0.12
12.333	0.00	0.12	0.012	0					0.11
12.417	0.00	0.11	0.012	0					0.11
12.500	0.00	0.11	0.011	0					0.10
12.583	0.00	0.10	0.010	0					0.09
12.667	0.00	0.09	0.009	0					0.09
12.750	0.00	0.09	0.009	0					0.08
12.833	0.00	0.08	0.008	0					0.07
12.917	0.00	0.08	0.008	0					0.07
13.000	0.00	0.07	0.007	0					0.07
13.083	0.00	0.07	0.007	0					0.06
13.167	0.00	0.06	0.006	0					0.06
13.250	0.00	0.06	0.006	0					0.05
13.333	0.00	0.05	0.005	0					0.05
13.417	0.00	0.05	0.005	0					0.05
13.500	0.00	0.05	0.005	0					0.04
13.583	0.00	0.04	0.004	0					0.04
13.667	0.00	0.04	0.004	0					0.04
13.750	0.00	0.04	0.004	0					0.04
13.833	0.00	0.04	0.004	0					0.03
13.917	0.00	0.03	0.003	0					0.03
14.000	0.00	0.03	0.003	0					0.03
14.083	0.00	0.03	0.003	0					0.03
14.167	0.00	0.03	0.003	0					0.03
14.250	0.00	0.03	0.003	0					0.02
14.333	0.00	0.02	0.002	0					0.02
14.417	0.00	0.02	0.002	0					0.02
14.500	0.00	0.02	0.002	0					0.02
14.583	0.00	0.02	0.002	0					0.02
14.667	0.00	0.02	0.002	0					0.02
14.750	0.00	0.02	0.002	0					0.02
14.833	0.00	0.02	0.002	0					0.01
14.917	0.00	0.01	0.001	0					0.01
15.000	0.00	0.01	0.001	0					0.01
15.083	0.00	0.01	0.001	0					0.01
15.167	0.00	0.01	0.001	0					0.01
15.250	0.00	0.01	0.001	0					0.01
15.333	0.00	0.01	0.001	0					0.01
15.417	0.00	0.01	0.001	0					0.01
15.500	0.00	0.01	0.001	0					0.01
15.583	0.00	0.01	0.001	0					0.01
15.667	0.00	0.01	0.001	0					0.01
15.750	0.00	0.01	0.001	0					0.01

15.833	0.00	0.01	0.001	0					0.01
15.917	0.00	0.01	0.001	0					0.01
16.000	0.00	0.01	0.001	0					0.01
16.083	0.00	0.01	0.001	0					0.01
16.167	0.00	0.01	0.001	0					0.00
16.250	0.00	0.00	0.001	0					0.00
16.333	0.00	0.00	0.000	0					0.00
16.417	0.00	0.00	0.000	0					0.00
16.500	0.00	0.00	0.000	0					0.00
16.583	0.00	0.00	0.000	0					0.00
16.667	0.00	0.00	0.000	0					0.00
16.750	0.00	0.00	0.000	0					0.00
16.833	0.00	0.00	0.000	0					0.00
16.917	0.00	0.00	0.000	0					0.00
17.000	0.00	0.00	0.000	0					0.00
17.083	0.00	0.00	0.000	0					0.00
17.167	0.00	0.00	0.000	0					0.00
17.250	0.00	0.00	0.000	0					0.00
17.333	0.00	0.00	0.000	0					0.00
17.417	0.00	0.00	0.000	0					0.00
17.500	0.00	0.00	0.000	0					0.00
17.583	0.00	0.00	0.000	0					0.00
17.667	0.00	0.00	0.000	0					0.00
17.750	0.00	0.00	0.000	0					0.00
17.833	0.00	0.00	0.000	0					0.00
17.917	0.00	0.00	0.000	0					0.00
18.000	0.00	0.00	0.000	0					0.00
18.083	0.00	0.00	0.000	0					0.00
18.167	0.00	0.00	0.000	0					0.00

*****HYDROGRAPH DATA*****

Number of intervals = 218
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 9.274 (CFS)
Total volume = 2.341 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018
Study date: 12/06/21

MFBC BUILDING 13
BASIN FLOOD ROUTING
100 YR - 6 HR STORM
100101RTE

Program License Serial Number 6490

***** HYDROGRAPH INFORMATION *****

From study/file name: 100101PRUH16100.rte
*****HYDROGRAPH DATA*****
Number of intervals = 77
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 23.683 (CFS)
Total volume = 3.078 (Ac.Ft)
Status of hydrographs being held in storage
Stream 1 Stream 2 Stream 3 Stream 4 Stream 5
Peak (CFS) 0.000 0.000 0.000 0.000 0.000
Vol (Ac.Ft) 0.000 0.000 0.000 0.000 0.000

+++++
Process from Point/Station 1.000 to Point/Station 2.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 77
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00 (Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.110	1.090	0.106	0.114
2.000	0.220	1.090	0.216	0.224
3.000	0.320	1.090	0.316	0.324
4.000	0.630	3.050	0.619	0.641
5.000	1.020	5.030	1.003	1.037
6.000	1.500	6.310	1.478	1.522
7.000	2.060	30.120	1.956	2.164

8.000 2.710 121.000 2.293 3.127

 Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)						Depth (Ft.)
0.083	0.72	0.02	0.002	O					0.02
0.167	1.88	0.11	0.011	O I					0.10
0.250	2.33	0.24	0.024	O I					0.22
0.333	2.48	0.38	0.039	O I					0.35
0.417	2.55	0.52	0.053	O I					0.48
0.500	2.74	0.66	0.067	O I					0.61
0.583	2.94	0.81	0.081	O I					0.74
0.667	2.99	0.95	0.096	O I					0.87
0.750	3.01	1.09	0.110	O I					1.00
0.833	3.02	1.09	0.123	O I					1.12
0.917	3.03	1.09	0.136	O I					1.24
1.000	3.17	1.09	0.150	O I					1.36
1.083	3.38	1.09	0.165	O I					1.50
1.167	3.43	1.09	0.181	O I					1.65
1.250	3.45	1.09	0.197	O I					1.79
1.333	3.46	1.09	0.213	O I					1.94
1.417	3.46	1.09	0.230	O I					2.10
1.500	3.46	1.09	0.246	O I					2.26
1.583	3.46	1.09	0.262	O I					2.42
1.667	3.46	1.09	0.279	O I					2.59
1.750	3.46	1.09	0.295	O I					2.75
1.833	3.46	1.09	0.311	O I					2.91
1.917	3.46	1.14	0.328	O I					3.02
2.000	3.61	1.24	0.344	O I					3.08
2.083	3.67	1.34	0.360	O I					3.13
2.167	3.66	1.44	0.376	O I					3.18
2.250	3.83	1.54	0.391	O I					3.23
2.333	3.87	1.64	0.407	O I					3.28
2.417	3.89	1.73	0.422	O I					3.33
2.500	3.89	1.83	0.436	O I					3.38
2.583	3.90	1.91	0.450	O I					3.42
2.667	3.90	2.00	0.464	O I					3.46
2.750	4.04	2.08	0.477	O I					3.51
2.833	4.24	2.17	0.491	O I					3.55
2.917	4.29	2.26	0.505	O I					3.60
3.000	4.31	2.35	0.519	O I					3.64
3.083	4.32	2.43	0.532	O I					3.68
3.167	4.47	2.51	0.545	O I					3.73
3.250	4.68	2.60	0.559	O I					3.77
3.333	4.72	2.69	0.573	O I					3.82
3.417	4.89	2.78	0.588	O I					3.86
3.500	5.25	2.88	0.603	O I					3.91
3.583	5.65	2.99	0.620	O I					3.97
3.667	5.92	3.10	0.639	O I					4.02
3.750	6.15	3.20	0.659	O I					4.07
3.833	6.39	3.30	0.680	O I					4.13
3.917	6.59	3.41	0.701	O I					4.18
4.000	6.82	3.53	0.724	O I					4.24
4.083	7.03	3.64	0.747	O I					4.30
4.167	7.40	3.77	0.771	O I					4.36
4.250	7.81	3.90	0.797	O I					4.43
4.333	8.23	4.04	0.825	O I					4.50
4.417	8.67	4.19	0.855	O I					4.58
4.500	8.97	4.35	0.886	O I					4.66
4.583	9.24	4.51	0.918	O I					4.74
4.667	9.70	4.68	0.952	O I					4.82
4.750	10.20	4.86	0.987	O I					4.92

4.833	10.54	5.04	1.025		O		I				5.01
4.917	10.81	5.15	1.063		O		I				5.09
5.000	11.28	5.25	1.103		O		I				5.17
5.083	12.49	5.37	1.149		O		I				5.27
5.167	14.70	5.52	1.205		O			I			5.39
5.250	16.80	5.71	1.275		O			I			5.53
5.333	18.51	5.93	1.356		O				I		5.70
5.417	20.51	6.17	1.449		O				I		5.89
5.500	23.68	8.46	1.551			O				I	6.09
5.583	19.91	11.87	1.631				O		I		6.23
5.667	10.09	12.67	1.650				I		O		6.27
5.750	5.77	11.46	1.621		I		O				6.22
5.833	3.74	9.75	1.581		I		O				6.14
5.917	2.48	8.05	1.541		I		O				6.07
6.000	1.47	6.50	1.504		I		O				6.01
6.083	0.77	6.23	1.468		I		O				5.93
6.167	0.25	6.12	1.429	I	O						5.85
6.250	0.10	6.01	1.389	I	O						5.77
6.333	0.04	5.91	1.348	I	O						5.68
6.417	0.01	5.80	1.308	I	O						5.60
6.500	0.00	5.69	1.268	I	O						5.52
6.583	0.00	5.59	1.230	I	O						5.44
6.667	0.00	5.49	1.191	I	O						5.36
6.750	0.00	5.39	1.154	I	O						5.28
6.833	0.00	5.29	1.117	I	O						5.20
6.917	0.00	5.19	1.081	I	O						5.13
7.000	0.00	5.10	1.046	I	O						5.05
7.083	0.00	4.98	1.011	I	O						4.98
7.167	0.00	4.81	0.977	I	O						4.89
7.250	0.00	4.65	0.945	I	O						4.81
7.333	0.00	4.49	0.913	I	O						4.73
7.417	0.00	4.33	0.883	I	O						4.65
7.500	0.00	4.18	0.854	I	O						4.57
7.583	0.00	4.04	0.825	I	O						4.50
7.667	0.00	3.90	0.798	I	O						4.43
7.750	0.00	3.77	0.771	I	O						4.36
7.833	0.00	3.64	0.746	I	O						4.30
7.917	0.00	3.51	0.721	I	O						4.23
8.000	0.00	3.39	0.698	I	O						4.17
8.083	0.00	3.28	0.675	I	O						4.11
8.167	0.00	3.16	0.652	I	O						4.06
8.250	0.00	3.05	0.631	I	O						4.00
8.333	0.00	2.93	0.610	I	O						3.94
8.417	0.00	2.80	0.591	I	O						3.87
8.500	0.00	2.68	0.572	I	O						3.81
8.583	0.00	2.57	0.554	I	O						3.75
8.667	0.00	2.46	0.536	I	O						3.70
8.750	0.00	2.35	0.520	I	O						3.64
8.833	0.00	2.25	0.504	I	O						3.59
8.917	0.00	2.16	0.489	I	O						3.54
9.000	0.00	2.07	0.474	I	O						3.50
9.083	0.00	1.98	0.460	I	O						3.45
9.167	0.00	1.89	0.447	I	O						3.41
9.250	0.00	1.81	0.434	I	O						3.37
9.333	0.00	1.73	0.422	I	O						3.33
9.417	0.00	1.66	0.410	I	O						3.29
9.500	0.00	1.59	0.399	I	O						3.26
9.583	0.00	1.52	0.388	I	O						3.22
9.667	0.00	1.46	0.378	IO							3.19
9.750	0.00	1.40	0.368	IO							3.16
9.833	0.00	1.34	0.359	IO							3.13
9.917	0.00	1.28	0.350	IO							3.10
10.000	0.00	1.22	0.341	IO							3.07
10.083	0.00	1.17	0.333	IO							3.04
10.167	0.00	1.12	0.325	IO							3.02
10.250	0.00	1.09	0.318	IO							2.98

10.333	0.00	1.09	0.310	IO					2.90
10.417	0.00	1.09	0.302	IO					2.82
10.500	0.00	1.09	0.295	IO					2.75
10.583	0.00	1.09	0.287	IO					2.67
10.667	0.00	1.09	0.280	IO					2.60
10.750	0.00	1.09	0.272	IO					2.52
10.833	0.00	1.09	0.265	IO					2.45
10.917	0.00	1.09	0.257	IO					2.37
11.000	0.00	1.09	0.250	IO					2.30
11.083	0.00	1.09	0.242	IO					2.22
11.167	0.00	1.09	0.235	IO					2.15
11.250	0.00	1.09	0.227	IO					2.07
11.333	0.00	1.09	0.220	IO					2.00
11.417	0.00	1.09	0.212	IO					1.93
11.500	0.00	1.09	0.205	IO					1.86
11.583	0.00	1.09	0.197	IO					1.79
11.667	0.00	1.09	0.190	IO					1.73
11.750	0.00	1.09	0.182	IO					1.66
11.833	0.00	1.09	0.175	IO					1.59
11.917	0.00	1.09	0.167	IO					1.52
12.000	0.00	1.09	0.160	IO					1.45
12.083	0.00	1.09	0.152	IO					1.39
12.167	0.00	1.09	0.145	IO					1.32
12.250	0.00	1.09	0.137	IO					1.25
12.333	0.00	1.09	0.130	IO					1.18
12.417	0.00	1.09	0.122	IO					1.11
12.500	0.00	1.09	0.115	IO					1.04
12.583	0.00	1.06	0.107	IO					0.98
12.667	0.00	0.99	0.100	IO					0.91
12.750	0.00	0.93	0.094	IO					0.85
12.833	0.00	0.87	0.088	IO					0.80
12.917	0.00	0.81	0.082	IO					0.74
13.000	0.00	0.76	0.076	IO					0.69
13.083	0.00	0.71	0.071	O					0.65
13.167	0.00	0.66	0.067	O					0.61
13.250	0.00	0.62	0.062	O					0.57
13.333	0.00	0.58	0.058	O					0.53
13.417	0.00	0.54	0.054	O					0.49
13.500	0.00	0.50	0.051	O					0.46
13.583	0.00	0.47	0.047	O					0.43
13.667	0.00	0.44	0.044	O					0.40
13.750	0.00	0.41	0.041	O					0.38
13.833	0.00	0.38	0.039	O					0.35
13.917	0.00	0.36	0.036	O					0.33
14.000	0.00	0.33	0.034	O					0.31
14.083	0.00	0.31	0.031	O					0.29
14.167	0.00	0.29	0.029	O					0.27
14.250	0.00	0.27	0.027	O					0.25
14.333	0.00	0.25	0.026	O					0.23
14.417	0.00	0.24	0.024	O					0.22
14.500	0.00	0.22	0.022	O					0.20
14.583	0.00	0.21	0.021	O					0.19
14.667	0.00	0.19	0.019	O					0.18
14.750	0.00	0.18	0.018	O					0.17
14.833	0.00	0.17	0.017	O					0.15
14.917	0.00	0.16	0.016	O					0.14
15.000	0.00	0.15	0.015	O					0.13
15.083	0.00	0.14	0.014	O					0.13
15.167	0.00	0.13	0.013	O					0.12
15.250	0.00	0.12	0.012	O					0.11
15.333	0.00	0.11	0.011	O					0.10
15.417	0.00	0.10	0.011	O					0.10
15.500	0.00	0.10	0.010	O					0.09
15.583	0.00	0.09	0.009	O					0.08
15.667	0.00	0.09	0.009	O					0.08
15.750	0.00	0.08	0.008	O					0.07

15.833	0.00	0.07	0.007	0					0.07
15.917	0.00	0.07	0.007	0					0.06
16.000	0.00	0.06	0.007	0					0.06
16.083	0.00	0.06	0.006	0					0.06
16.167	0.00	0.06	0.006	0					0.05
16.250	0.00	0.05	0.005	0					0.05
16.333	0.00	0.05	0.005	0					0.05
16.417	0.00	0.05	0.005	0					0.04
16.500	0.00	0.04	0.004	0					0.04
16.583	0.00	0.04	0.004	0					0.04
16.667	0.00	0.04	0.004	0					0.03
16.750	0.00	0.04	0.004	0					0.03
16.833	0.00	0.03	0.003	0					0.03
16.917	0.00	0.03	0.003	0					0.03
17.000	0.00	0.03	0.003	0					0.03
17.083	0.00	0.03	0.003	0					0.02
17.167	0.00	0.02	0.003	0					0.02
17.250	0.00	0.02	0.002	0					0.02
17.333	0.00	0.02	0.002	0					0.02
17.417	0.00	0.02	0.002	0					0.02
17.500	0.00	0.02	0.002	0					0.02
17.583	0.00	0.02	0.002	0					0.02
17.667	0.00	0.02	0.002	0					0.02
17.750	0.00	0.02	0.002	0					0.01
17.833	0.00	0.01	0.001	0					0.01
17.917	0.00	0.01	0.001	0					0.01
18.000	0.00	0.01	0.001	0					0.01
18.083	0.00	0.01	0.001	0					0.01
18.167	0.00	0.01	0.001	0					0.01
18.250	0.00	0.01	0.001	0					0.01
18.333	0.00	0.01	0.001	0					0.01
18.417	0.00	0.01	0.001	0					0.01
18.500	0.00	0.01	0.001	0					0.01
18.583	0.00	0.01	0.001	0					0.01
18.667	0.00	0.01	0.001	0					0.01
18.750	0.00	0.01	0.001	0					0.01
18.833	0.00	0.01	0.001	0					0.01
18.917	0.00	0.01	0.001	0					0.01
19.000	0.00	0.01	0.001	0					0.01
19.083	0.00	0.01	0.001	0					0.00
19.167	0.00	0.00	0.000	0					0.00
19.250	0.00	0.00	0.000	0					0.00
19.333	0.00	0.00	0.000	0					0.00
19.417	0.00	0.00	0.000	0					0.00
19.500	0.00	0.00	0.000	0					0.00
19.583	0.00	0.00	0.000	0					0.00
19.667	0.00	0.00	0.000	0					0.00
19.750	0.00	0.00	0.000	0					0.00
19.833	0.00	0.00	0.000	0					0.00
19.917	0.00	0.00	0.000	0					0.00
20.000	0.00	0.00	0.000	0					0.00
20.083	0.00	0.00	0.000	0					0.00
20.167	0.00	0.00	0.000	0					0.00
20.250	0.00	0.00	0.000	0					0.00
20.333	0.00	0.00	0.000	0					0.00
20.417	0.00	0.00	0.000	0					0.00
20.500	0.00	0.00	0.000	0					0.00
20.583	0.00	0.00	0.000	0					0.00
20.667	0.00	0.00	0.000	0					0.00
20.750	0.00	0.00	0.000	0					0.00
20.833	0.00	0.00	0.000	0					0.00
20.917	0.00	0.00	0.000	0					0.00
21.000	0.00	0.00	0.000	0					0.00

*****HYDROGRAPH DATA*****

Number of intervals = 252

Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 12.667 (CFS)
Total volume = 3.078 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

FLOOD HYDROGRAPH ROUTING PROGRAM
 Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018
 Study date: 12/06/21

 MFBC BUILDING 13
 BASIN FLOOD ROUTING
 100 YR - 24 HR STORM
 100101RTE

Program License Serial Number 6490

 ***** HYDROGRAPH INFORMATION *****

From study/file name: 100101PRUH124100.rte
 *****HYDROGRAPH DATA*****
 Number of intervals = 293
 Time interval = 5.0 (Min.)
 Maximum/Peak flow rate = 9.233 (CFS)
 Total volume = 5.453 (Ac.Ft)
 Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

+++++
 Process from Point/Station 1.000 to Point/Station 2.000
 **** RETARDING BASIN ROUTING ****

 User entry of depth-outflow-storage data

 Total number of inflow hydrograph intervals = 293
 Hydrograph time unit = 5.000 (Min.)
 Initial depth in storage basin = 0.00 (Ft.)

 Initial basin depth = 0.00 (Ft.)
 Initial basin storage = 0.00 (Ac.Ft)
 Initial basin outflow = 0.00 (CFS)

 Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.110	1.090	0.106	0.114
2.000	0.220	1.090	0.216	0.224
3.000	0.320	1.090	0.316	0.324
4.000	0.630	3.050	0.619	0.641
5.000	1.020	5.030	1.003	1.037
6.000	1.500	6.310	1.478	1.522
7.000	2.060	30.120	1.956	2.164

8.000 2.710 121.000 2.293 3.127

 Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)		2.3	4.62	6.93	9.23	Depth (Ft.)
0.083	0.18	0.01	0.001	O					0.01
0.167	0.42	0.03	0.003	O I					0.02
0.250	0.48	0.05	0.005	O I					0.05
0.333	0.59	0.09	0.009	O I					0.08
0.417	0.73	0.12	0.012	O I					0.11
0.500	0.77	0.16	0.017	O I					0.15
0.583	0.78	0.20	0.021	O I					0.19
0.667	0.79	0.24	0.025	O I					0.22
0.750	0.79	0.28	0.028	O I					0.26
0.833	0.88	0.32	0.032	O I					0.29
0.917	1.00	0.36	0.036	O I					0.33
1.000	1.03	0.40	0.040	O I					0.37
1.083	0.96	0.44	0.044	O I					0.40
1.167	0.84	0.47	0.047	O I					0.43
1.250	0.81	0.49	0.050	O I					0.45
1.333	0.80	0.51	0.052	O I					0.47
1.417	0.79	0.53	0.054	O I					0.49
1.500	0.79	0.55	0.055	O I					0.50
1.583	0.79	0.57	0.057	O I					0.52
1.667	0.79	0.58	0.059	O					0.53
1.750	0.79	0.59	0.060	O					0.55
1.833	0.88	0.61	0.062	O I					0.56
1.917	1.00	0.63	0.064	O I					0.58
2.000	1.03	0.66	0.066	O I					0.60
2.083	1.04	0.68	0.069	O I					0.63
2.167	1.05	0.71	0.071	O I					0.65
2.250	1.05	0.73	0.074	O I					0.67
2.333	1.05	0.75	0.076	O I					0.69
2.417	1.05	0.77	0.078	O I					0.71
2.500	1.05	0.79	0.080	O I					0.72
2.583	1.14	0.81	0.082	O I					0.74
2.667	1.26	0.84	0.084	O I					0.77
2.750	1.29	0.86	0.087	O I					0.79
2.833	1.31	0.89	0.090	O I					0.82
2.917	1.31	0.92	0.093	O I					0.85
3.000	1.32	0.95	0.096	O I					0.87
3.083	1.32	0.97	0.098	O I					0.89
3.167	1.32	0.99	0.100	O I					0.91
3.250	1.32	1.02	0.102	O I					0.93
3.333	1.32	1.04	0.104	O I					0.95
3.417	1.32	1.05	0.106	O I					0.97
3.500	1.32	1.07	0.108	O I					0.98
3.583	1.32	1.09	0.110	O I					1.00
3.667	1.32	1.09	0.111	O I					1.01
3.750	1.32	1.09	0.113	O I					1.03
3.833	1.40	1.09	0.115	O I					1.04
3.917	1.53	1.09	0.117	O I					1.07
4.000	1.56	1.09	0.120	O I					1.10
4.083	1.57	1.09	0.124	O I					1.12
4.167	1.58	1.09	0.127	O I					1.16
4.250	1.58	1.09	0.130	O I					1.19
4.333	1.67	1.09	0.134	O I					1.22
4.417	1.79	1.09	0.139	O I					1.26
4.500	1.82	1.09	0.143	O I					1.30
4.583	1.83	1.09	0.149	O I					1.35
4.667	1.84	1.09	0.154	O I					1.40
4.750	1.84	1.09	0.159	O I					1.44

4.833	1.93	1.09	0.164		O	I					1.49
4.917	2.06	1.09	0.171		O	I					1.55
5.000	2.08	1.09	0.177		O	I					1.61
5.083	1.92	1.09	0.184		O	I					1.67
5.167	1.68	1.09	0.189		O	I					1.71
5.250	1.63	1.09	0.192		O	I					1.75
5.333	1.69	1.09	0.196		O	I					1.78
5.417	1.80	1.09	0.201		O	I					1.83
5.500	1.82	1.09	0.206		O	I					1.87
5.583	1.92	1.09	0.211		O	I					1.92
5.667	2.05	1.09	0.217		O	I					1.98
5.750	2.08	1.09	0.224		O	I					2.04
5.833	2.10	1.09	0.231		O	I					2.11
5.917	2.10	1.09	0.238		O	I					2.18
6.000	2.11	1.09	0.245		O	I					2.25
6.083	2.19	1.09	0.252		O	I					2.32
6.167	2.32	1.09	0.260		O	I					2.40
6.250	2.35	1.09	0.269		O	I					2.49
6.333	2.36	1.09	0.277		O	I					2.57
6.417	2.37	1.09	0.286		O	I					2.66
6.500	2.37	1.09	0.295		O	I					2.75
6.583	2.46	1.09	0.304		O	I					2.84
6.667	2.58	1.09	0.314		O	I					2.94
6.750	2.61	1.12	0.324		O	I					3.01
6.833	2.62	1.18	0.334		O	I					3.05
6.917	2.63	1.24	0.344		O	I					3.08
7.000	2.63	1.30	0.354		O	I					3.11
7.083	2.63	1.36	0.363		O	I					3.14
7.167	2.63	1.41	0.371		O	I					3.16
7.250	2.63	1.47	0.379		O	I					3.19
7.333	2.72	1.52	0.388		O	I					3.22
7.417	2.85	1.57	0.396		O	I					3.25
7.500	2.87	1.63	0.405		O	I					3.27
7.583	2.98	1.68	0.414		O	I					3.30
7.667	3.11	1.74	0.423		O	I					3.33
7.750	3.14	1.80	0.432		O	I					3.36
7.833	3.24	1.86	0.441		O	I					3.39
7.917	3.37	1.92	0.451		O	I					3.42
8.000	3.40	1.98	0.461		O	I					3.45
8.083	3.59	2.05	0.471		O	I					3.49
8.167	3.84	2.12	0.482		O	I					3.52
8.250	3.91	2.19	0.494		O	I					3.56
8.333	3.93	2.27	0.506		O	I					3.60
8.417	3.94	2.34	0.517		O	I					3.64
8.500	3.95	2.41	0.528		O	I					3.67
8.583	4.04	2.47	0.539		O	I					3.71
8.667	4.16	2.54	0.550		O	I					3.74
8.750	4.19	2.61	0.561		O	I					3.78
8.833	4.29	2.68	0.572		O	I					3.81
8.917	4.42	2.75	0.583		O	I					3.85
9.000	4.45	2.82	0.594		O	I					3.89
9.083	4.64	2.90	0.606		O	I					3.92
9.167	4.90	2.98	0.619		O	I					3.96
9.250	4.96	3.06	0.632		O	I					4.00
9.333	5.07	3.13	0.645		O	I					4.04
9.417	5.21	3.20	0.659		O	I					4.07
9.500	5.25	3.27	0.672		O	I					4.11
9.583	5.35	3.34	0.686		O	I					4.14
9.667	5.48	3.41	0.700		O	I					4.18
9.750	5.51	3.48	0.714		O	I					4.22
9.833	5.61	3.55	0.728		O	I					4.25
9.917	5.74	3.62	0.743		O	I					4.29
10.000	5.77	3.70	0.757		O	I					4.33
10.083	5.17	3.76	0.769		O	I					4.36
10.167	4.31	3.79	0.776		O	I					4.37
10.250	4.11	3.81	0.779		O	I					4.38

10.333	4.02	3.81	0.780			O				4.39
10.417	3.97	3.82	0.782			O				4.39
10.500	3.95	3.83	0.783			O				4.39
10.583	4.39	3.84	0.785			O	I			4.40
10.667	5.01	3.87	0.791			O	I			4.41
10.750	5.15	3.91	0.799			O	I			4.43
10.833	5.22	3.95	0.808			O	I			4.46
10.917	5.25	4.00	0.816			O	I			4.48
11.000	5.27	4.04	0.825			O	I			4.50
11.083	5.18	4.08	0.833			O	I			4.52
11.167	5.06	4.12	0.840			O	I			4.54
11.250	5.03	4.15	0.846			O	I			4.55
11.333	5.01	4.18	0.852			O	I			4.57
11.417	5.01	4.21	0.858			O	I			4.58
11.500	5.00	4.23	0.863			O	I			4.60
11.583	4.83	4.26	0.868			O	I			4.61
11.667	4.58	4.27	0.871			O	I			4.62
11.750	4.52	4.28	0.873			O	I			4.62
11.833	4.58	4.29	0.875			O	I			4.63
11.917	4.70	4.30	0.877			O	I			4.63
12.000	4.72	4.32	0.880			O	I			4.64
12.083	5.34	4.34	0.885			O	I			4.65
12.167	6.22	4.39	0.894			O	I			4.68
12.250	6.43	4.46	0.907			O	I			4.71
12.333	6.60	4.53	0.921			O	I			4.75
12.417	6.77	4.60	0.936			O	I			4.78
12.500	6.83	4.68	0.951			O	I			4.82
12.583	7.01	4.76	0.966			O	I			4.86
12.667	7.27	4.84	0.982			O	I			4.90
12.750	7.33	4.92	0.999			O	I			4.95
12.833	7.44	5.01	1.015			O	I			4.99
12.917	7.58	5.06	1.032			O	I			5.03
13.000	7.62	5.11	1.050			O	I			5.06
13.083	8.15	5.16	1.069			O	I		I	5.10
13.167	8.89	5.22	1.092			O	I		I	5.15
13.250	9.07	5.29	1.117			O	I		I	5.20
13.333	9.16	5.36	1.143			O	I		I	5.26
13.417	9.21	5.43	1.169			O	I		I	5.31
13.500	9.23	5.50	1.195			O	I		I	5.37
13.583	8.18	5.56	1.217			O	I		I	5.41
13.667	6.69	5.59	1.230			O	I		I	5.44
13.750	6.33	5.61	1.236			O	I		I	5.45
13.833	6.18	5.62	1.241			O	I		I	5.46
13.917	6.10	5.63	1.244			O	I		I	5.47
14.000	6.06	5.64	1.247			O	I		I	5.47
14.083	6.41	5.65	1.251			O	I		I	5.48
14.167	6.90	5.67	1.258			O	I		I	5.50
14.250	7.02	5.69	1.267			O	I		I	5.51
14.333	6.98	5.71	1.276			O	I		I	5.53
14.417	6.89	5.74	1.284			O	I		I	5.55
14.500	6.87	5.76	1.292			O	I		I	5.57
14.583	6.86	5.78	1.300			O	I		I	5.58
14.667	6.85	5.80	1.307			O	I		I	5.60
14.750	6.85	5.81	1.314			O	I		I	5.61
14.833	6.76	5.83	1.321			O	I		I	5.63
14.917	6.64	5.85	1.327			O	I		I	5.64
15.000	6.61	5.86	1.332			O	I		I	5.65
15.083	6.51	5.88	1.337			O	I		I	5.66
15.167	6.38	5.89	1.341			O	I		I	5.67
15.250	6.34	5.89	1.344			O	I		I	5.68
15.333	6.24	5.90	1.347			O	I		I	5.68
15.417	6.11	5.91	1.349			O	I		I	5.68
15.500	6.08	5.91	1.350			O	I		I	5.69
15.583	5.72	5.91	1.350			O	I		I	5.69
15.667	5.22	5.90	1.347			O	I		I	5.68
15.750	5.09	5.89	1.342			O	I		I	5.67

15.833	5.04	5.87	1.336				I	O			5.66
15.917	5.02	5.86	1.331				I	O			5.65
16.000	5.00	5.84	1.325				I	O			5.63
16.083	3.69	5.82	1.315			I		O			5.61
16.167	1.83	5.76	1.294		I			O			5.57
16.250	1.39	5.68	1.265		I			O			5.51
16.333	1.20	5.60	1.235		I			O			5.45
16.417	1.10	5.52	1.205		I			O			5.39
16.500	1.05	5.44	1.175		I			O			5.32
16.583	0.97	5.36	1.144		I			O			5.26
16.667	0.84	5.28	1.114		I			O			5.20
16.750	0.81	5.20	1.084		I			O			5.13
16.833	0.80	5.12	1.054		I			O			5.07
16.917	0.79	5.04	1.024		I			O			5.01
17.000	0.79	4.91	0.995		I			O			4.94
17.083	0.97	4.77	0.968		I			O			4.87
17.167	1.21	4.64	0.943		I			O			4.80
17.250	1.27	4.52	0.920		I			O			4.74
17.333	1.30	4.41	0.898		I			O			4.69
17.417	1.31	4.31	0.877		I			O			4.63
17.500	1.32	4.20	0.857		I			O			4.58
17.583	1.32	4.10	0.837		I			O			4.53
17.667	1.32	4.01	0.819		I			O			4.48
17.750	1.32	3.92	0.800		I			O			4.44
17.833	1.23	3.82	0.783		I			O			4.39
17.917	1.11	3.73	0.765		I			O			4.34
18.000	1.08	3.64	0.747		I			O			4.30
18.083	1.06	3.55	0.729		I			O			4.25
18.167	1.06	3.47	0.712		I			O			4.21
18.250	1.05	3.39	0.696		I			O			4.17
18.333	1.05	3.31	0.680		I			O			4.13
18.417	1.05	3.23	0.665		I			O			4.09
18.500	1.05	3.15	0.650		I			O			4.05
18.583	0.97	3.08	0.636		I			O			4.01
18.667	0.84	2.99	0.621		I			O			3.97
18.750	0.81	2.90	0.607		I			O			3.92
18.833	0.71	2.81	0.592		I			O			3.88
18.917	0.58	2.72	0.578		I			O			3.83
19.000	0.55	2.63	0.563		I			O			3.78
19.083	0.62	2.54	0.549		I			O			3.74
19.167	0.74	2.46	0.537		I			O			3.70
19.250	0.77	2.39	0.525		I			O			3.66
19.333	0.87	2.32	0.515		I			O			3.63
19.417	1.00	2.26	0.505		I			O			3.60
19.500	1.03	2.21	0.497		I			O			3.57
19.583	0.96	2.16	0.489		I			O			3.54
19.667	0.84	2.10	0.480		I			O			3.52
19.750	0.81	2.05	0.472		I			O			3.49
19.833	0.71	1.99	0.463		I			O			3.46
19.917	0.58	1.94	0.454		I			O			3.43
20.000	0.55	1.88	0.445		I			O			3.40
20.083	0.62	1.82	0.436		I			O			3.37
20.167	0.74	1.77	0.428		I			O			3.35
20.250	0.77	1.73	0.421		I			O			3.33
20.333	0.78	1.69	0.415		I			O			3.31
20.417	0.79	1.65	0.409		I			O			3.29
20.500	0.79	1.61	0.403		I			O			3.27
20.583	0.79	1.58	0.397		I			O			3.25
20.667	0.79	1.55	0.392		I			O			3.23
20.750	0.79	1.51	0.387		I			O			3.22
20.833	0.70	1.48	0.382		I			O			3.20
20.917	0.58	1.45	0.376		I			O			3.18
21.000	0.55	1.41	0.370		I			O			3.16
21.083	0.62	1.37	0.365		I			O			3.14
21.167	0.74	1.34	0.360		I			O			3.13
21.250	0.77	1.32	0.356		I			O			3.12

21.333	0.69	1.29	0.352	I O				3.10
21.417	0.58	1.27	0.348	I O				3.09
21.500	0.55	1.24	0.343	I O				3.07
21.583	0.62	1.21	0.339	I O				3.06
21.667	0.74	1.19	0.335	I O				3.05
21.750	0.77	1.17	0.332	I O				3.04
21.833	0.69	1.15	0.329	IO				3.03
21.917	0.58	1.13	0.326	I O				3.02
22.000	0.55	1.10	0.322	I O				3.01
22.083	0.62	1.09	0.318	IO				2.98
22.167	0.74	1.09	0.316	IO				2.96
22.250	0.77	1.09	0.313	IO				2.93
22.333	0.69	1.09	0.311	IO				2.91
22.417	0.58	1.09	0.308	I O				2.88
22.500	0.55	1.09	0.304	I O				2.84
22.583	0.54	1.09	0.300	I O				2.80
22.667	0.53	1.09	0.296	I O				2.76
22.750	0.53	1.09	0.293	I O				2.73
22.833	0.53	1.09	0.289	I O				2.69
22.917	0.53	1.09	0.285	I O				2.65
23.000	0.53	1.09	0.281	I O				2.61
23.083	0.53	1.09	0.277	I O				2.57
23.167	0.53	1.09	0.273	I O				2.53
23.250	0.53	1.09	0.269	I O				2.49
23.333	0.53	1.09	0.265	I O				2.45
23.417	0.53	1.09	0.262	I O				2.42
23.500	0.53	1.09	0.258	I O				2.38
23.583	0.53	1.09	0.254	I O				2.34
23.667	0.53	1.09	0.250	I O				2.30
23.750	0.53	1.09	0.246	I O				2.26
23.833	0.53	1.09	0.242	I O				2.22
23.917	0.53	1.09	0.238	I O				2.18
24.000	0.53	1.09	0.234	I O				2.14
24.083	0.35	1.09	0.230	I O				2.10
24.167	0.10	1.09	0.224	I O				2.04
24.250	0.05	1.09	0.217	I O				1.97
24.333	0.02	1.09	0.210	I O				1.91
24.417	0.01	1.09	0.202	I O				1.84
24.500	0.00	1.09	0.195	I O				1.77
24.583	0.00	1.09	0.187	I O				1.70
24.667	0.00	1.09	0.180	I O				1.63
24.750	0.00	1.09	0.172	I O				1.57
24.833	0.00	1.09	0.165	I O				1.50
24.917	0.00	1.09	0.157	I O				1.43
25.000	0.00	1.09	0.150	I O				1.36
25.083	0.00	1.09	0.142	I O				1.29
25.167	0.00	1.09	0.135	I O				1.23
25.250	0.00	1.09	0.127	I O				1.16
25.333	0.00	1.09	0.120	I O				1.09
25.417	0.00	1.09	0.112	I O				1.02
25.500	0.00	1.04	0.105	I O				0.95
25.583	0.00	0.97	0.098	I O				0.89
25.667	0.00	0.91	0.092	I O				0.83
25.750	0.00	0.85	0.085	I O				0.78
25.833	0.00	0.79	0.080	I O				0.73
25.917	0.00	0.74	0.075	I O				0.68
26.000	0.00	0.69	0.070	I O				0.63
26.083	0.00	0.64	0.065	I O				0.59
26.167	0.00	0.60	0.061	I O				0.55
26.250	0.00	0.56	0.057	IO				0.52
26.333	0.00	0.53	0.053	IO				0.48
26.417	0.00	0.49	0.050	IO				0.45
26.500	0.00	0.46	0.046	IO				0.42
26.583	0.00	0.43	0.043	IO				0.39
26.667	0.00	0.40	0.040	IO				0.37
26.750	0.00	0.37	0.038	IO				0.34

26.833	0.00	0.35	0.035	IO					0.32
26.917	0.00	0.33	0.033	IO					0.30
27.000	0.00	0.30	0.031	IO					0.28
27.083	0.00	0.28	0.029	O					0.26
27.167	0.00	0.27	0.027	O					0.24
27.250	0.00	0.25	0.025	O					0.23
27.333	0.00	0.23	0.023	O					0.21
27.417	0.00	0.22	0.022	O					0.20
27.500	0.00	0.20	0.020	O					0.19
27.583	0.00	0.19	0.019	O					0.17
27.667	0.00	0.18	0.018	O					0.16
27.750	0.00	0.16	0.017	O					0.15
27.833	0.00	0.15	0.016	O					0.14
27.917	0.00	0.14	0.014	O					0.13
28.000	0.00	0.13	0.014	O					0.12
28.083	0.00	0.13	0.013	O					0.11
28.167	0.00	0.12	0.012	O					0.11
28.250	0.00	0.11	0.011	O					0.10
28.333	0.00	0.10	0.010	O					0.09
28.417	0.00	0.10	0.010	O					0.09
28.500	0.00	0.09	0.009	O					0.08
28.583	0.00	0.08	0.008	O					0.08
28.667	0.00	0.08	0.008	O					0.07
28.750	0.00	0.07	0.007	O					0.07
28.833	0.00	0.07	0.007	O					0.06
28.917	0.00	0.06	0.006	O					0.06
29.000	0.00	0.06	0.006	O					0.05
29.083	0.00	0.06	0.006	O					0.05
29.167	0.00	0.05	0.005	O					0.05
29.250	0.00	0.05	0.005	O					0.04
29.333	0.00	0.04	0.005	O					0.04
29.417	0.00	0.04	0.004	O					0.04
29.500	0.00	0.04	0.004	O					0.04
29.583	0.00	0.04	0.004	O					0.03
29.667	0.00	0.03	0.003	O					0.03
29.750	0.00	0.03	0.003	O					0.03
29.833	0.00	0.03	0.003	O					0.03
29.917	0.00	0.03	0.003	O					0.03
30.000	0.00	0.03	0.003	O					0.02
30.083	0.00	0.02	0.002	O					0.02
30.167	0.00	0.02	0.002	O					0.02
30.250	0.00	0.02	0.002	O					0.02
30.333	0.00	0.02	0.002	O					0.02
30.417	0.00	0.02	0.002	O					0.02
30.500	0.00	0.02	0.002	O					0.02
30.583	0.00	0.02	0.002	O					0.01
30.667	0.00	0.02	0.002	O					0.01
30.750	0.00	0.01	0.001	O					0.01
30.833	0.00	0.01	0.001	O					0.01
30.917	0.00	0.01	0.001	O					0.01
31.000	0.00	0.01	0.001	O					0.01
31.083	0.00	0.01	0.001	O					0.01
31.167	0.00	0.01	0.001	O					0.01
31.250	0.00	0.01	0.001	O					0.01
31.333	0.00	0.01	0.001	O					0.01
31.417	0.00	0.01	0.001	O					0.01
31.500	0.00	0.01	0.001	O					0.01
31.583	0.00	0.01	0.001	O					0.01
31.667	0.00	0.01	0.001	O					0.01
31.750	0.00	0.01	0.001	O					0.01
31.833	0.00	0.01	0.001	O					0.01
31.917	0.00	0.01	0.001	O					0.00
32.000	0.00	0.01	0.001	O					0.00
32.083	0.00	0.00	0.000	O					0.00
32.167	0.00	0.00	0.000	O					0.00
32.250	0.00	0.00	0.000	O					0.00

32.333	0.00	0.00	0.000	0					0.00
32.417	0.00	0.00	0.000	0					0.00
32.500	0.00	0.00	0.000	0					0.00
32.583	0.00	0.00	0.000	0					0.00
32.667	0.00	0.00	0.000	0					0.00
32.750	0.00	0.00	0.000	0					0.00
32.833	0.00	0.00	0.000	0					0.00
32.917	0.00	0.00	0.000	0					0.00
33.000	0.00	0.00	0.000	0					0.00
33.083	0.00	0.00	0.000	0					0.00
33.167	0.00	0.00	0.000	0					0.00
33.250	0.00	0.00	0.000	0					0.00
33.333	0.00	0.00	0.000	0					0.00
33.417	0.00	0.00	0.000	0					0.00
33.500	0.00	0.00	0.000	0					0.00
33.583	0.00	0.00	0.000	0					0.00
33.667	0.00	0.00	0.000	0					0.00
33.750	0.00	0.00	0.000	0					0.00
33.833	0.00	0.00	0.000	0					0.00
33.917	0.00	0.00	0.000	0					0.00

*****HYDROGRAPH DATA*****

Number of intervals = 407
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 5.910 (CFS)
Total volume = 5.453 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

APPENDIX H
RIVERSIDE COUNTY HYDROLOGY
REFERENCE DATA

PBLA ENGINEERING, INC.

1809 E. Dyer Rd., Suite 301
Santa Ana, CA 92705
(888)714-9642

981 Corporate Center Drive, Suite 150
Pomona, CA 91768
(626) 512-4934

1481 Ford Street, Suite 201
Redlands, CA 92373
(714) 620-4960



NOAA Atlas 14, Volume 6, Version 2
Location name: Perris, California, USA*
Latitude: 33.8466°, Longitude: -117.2582°
Elevation: m/ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Tryppaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.087 (0.073-0.105)	0.121 (0.101-0.146)	0.167 (0.139-0.203)	0.206 (0.170-0.252)	0.261 (0.208-0.331)	0.306 (0.239-0.396)	0.353 (0.268-0.469)	0.404 (0.298-0.552)	0.476 (0.336-0.680)	0.534 (0.364-0.792)
10-min	0.125 (0.104-0.151)	0.173 (0.144-0.209)	0.239 (0.199-0.290)	0.295 (0.244-0.361)	0.375 (0.299-0.475)	0.439 (0.342-0.568)	0.506 (0.385-0.673)	0.579 (0.427-0.792)	0.682 (0.482-0.974)	0.766 (0.522-1.14)
15-min	0.151 (0.126-0.182)	0.209 (0.175-0.253)	0.289 (0.241-0.351)	0.357 (0.295-0.437)	0.453 (0.361-0.574)	0.530 (0.413-0.687)	0.612 (0.465-0.814)	0.700 (0.516-0.958)	0.824 (0.583-1.18)	0.926 (0.631-1.37)
30-min	0.241 (0.202-0.292)	0.335 (0.280-0.406)	0.463 (0.386-0.562)	0.572 (0.472-0.700)	0.726 (0.578-0.920)	0.849 (0.662-1.10)	0.980 (0.745-1.30)	1.12 (0.827-1.53)	1.32 (0.933-1.89)	1.48 (1.01-2.20)
60-min	0.328 (0.275-0.397)	0.456 (0.381-0.552)	0.631 (0.525-0.765)	0.778 (0.642-0.953)	0.988 (0.787-1.25)	1.16 (0.901-1.50)	1.33 (1.01-1.77)	1.53 (1.13-2.09)	1.80 (1.27-2.57)	2.02 (1.38-2.99)
2-hr	0.492 (0.411-0.594)	0.653 (0.545-0.791)	0.870 (0.725-1.06)	1.05 (0.867-1.29)	1.30 (1.04-1.65)	1.50 (1.17-1.95)	1.71 (1.30-2.27)	1.92 (1.42-2.63)	2.22 (1.57-3.18)	2.46 (1.68-3.65)
3-hr	0.606 (0.507-0.733)	0.794 (0.663-0.961)	1.05 (0.869-1.27)	1.25 (1.03-1.53)	1.54 (1.23-1.95)	1.76 (1.37-2.28)	1.99 (1.51-2.65)	2.23 (1.65-3.05)	2.56 (1.81-3.66)	2.82 (1.92-4.18)
6-hr	0.851 (0.712-1.03)	1.10 (0.921-1.34)	1.44 (1.20-1.74)	1.71 (1.41-2.09)	2.08 (1.66-2.64)	2.37 (1.85-3.07)	2.66 (2.02-3.54)	2.97 (2.19-4.06)	3.38 (2.39-4.83)	3.71 (2.53-5.49)
12-hr	1.11 (0.927-1.34)	1.45 (1.21-1.76)	1.90 (1.58-2.31)	2.27 (1.87-2.78)	2.77 (2.21-3.51)	3.15 (2.46-4.08)	3.54 (2.69-4.70)	3.94 (2.91-5.39)	4.48 (3.17-6.41)	4.91 (3.35-7.27)
24-hr	1.43 (1.26-1.65)	1.91 (1.69-2.21)	2.54 (2.24-2.95)	3.06 (2.67-3.57)	3.76 (3.18-4.53)	4.29 (3.56-5.28)	4.84 (3.92-6.09)	5.40 (4.26-6.99)	6.16 (4.67-8.30)	6.75 (4.95-9.41)
2-day	1.66 (1.47-1.91)	2.26 (2.00-2.61)	3.05 (2.69-3.53)	3.69 (3.23-4.31)	4.58 (3.88-5.52)	5.26 (4.36-6.47)	5.96 (4.83-7.50)	6.68 (5.27-8.65)	7.67 (5.81-10.3)	8.44 (6.18-11.8)
3-day	1.76 (1.56-2.04)	2.43 (2.15-2.80)	3.31 (2.92-3.83)	4.04 (3.53-4.71)	5.03 (4.26-6.06)	5.81 (4.82-7.14)	6.60 (5.35-8.32)	7.43 (5.86-9.62)	8.57 (6.49-11.6)	9.47 (6.93-13.2)
4-day	1.90 (1.68-2.19)	2.64 (2.33-3.04)	3.62 (3.19-4.19)	4.43 (3.87-5.17)	5.55 (4.70-6.68)	6.42 (5.32-7.90)	7.32 (5.93-9.22)	8.26 (6.51-10.7)	9.56 (7.24-12.9)	10.6 (7.75-14.7)
7-day	2.06 (1.83-2.38)	2.91 (2.57-3.36)	4.05 (3.57-4.68)	4.99 (4.36-5.82)	6.30 (5.33-7.59)	7.32 (6.08-9.01)	8.39 (6.79-10.6)	9.50 (7.49-12.3)	11.0 (8.36-14.9)	12.3 (8.98-17.1)
10-day	2.12 (1.88-2.45)	3.03 (2.67-3.49)	4.24 (3.74-4.91)	5.26 (4.60-6.14)	6.68 (5.65-8.05)	7.80 (6.47-9.59)	8.96 (7.26-11.3)	10.2 (8.02-13.2)	11.9 (8.99-16.0)	13.2 (9.68-18.4)
20-day	2.43 (2.15-2.80)	3.51 (3.10-4.06)	5.00 (4.41-5.79)	6.27 (5.48-7.31)	8.07 (6.83-9.72)	9.51 (7.89-11.7)	11.0 (8.94-13.9)	12.7 (9.98-16.4)	14.9 (11.3-20.1)	16.8 (12.3-23.4)
30-day	2.76 (2.44-3.18)	3.99 (3.52-4.61)	5.71 (5.03-6.61)	7.19 (6.29-8.39)	9.33 (7.90-11.3)	11.1 (9.19-13.6)	12.9 (10.5-16.3)	14.9 (11.8-19.3)	17.8 (13.5-23.9)	20.1 (14.7-28.0)
45-day	3.20 (2.83-3.69)	4.58 (4.05-5.29)	6.55 (5.78-7.59)	8.28 (7.24-9.66)	10.8 (9.16-13.0)	12.9 (10.7-15.9)	15.2 (12.3-19.1)	17.7 (13.9-22.9)	21.3 (16.1-28.6)	24.2 (17.7-33.8)
60-day	3.62 (3.20-4.17)	5.10 (4.51-5.89)	7.26 (6.40-8.40)	9.17 (8.02-10.7)	12.0 (10.2-14.5)	14.4 (12.0-17.8)	17.1 (13.8-21.5)	20.0 (15.7-25.8)	24.2 (18.3-32.6)	27.8 (20.3-38.7)

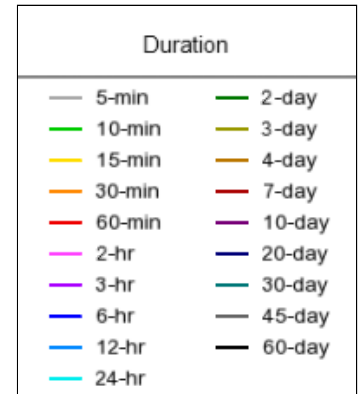
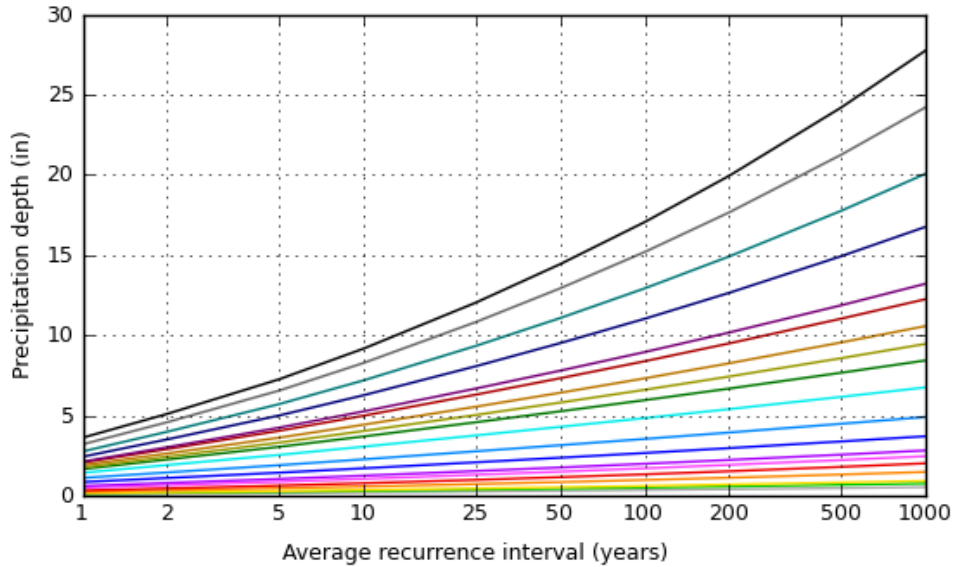
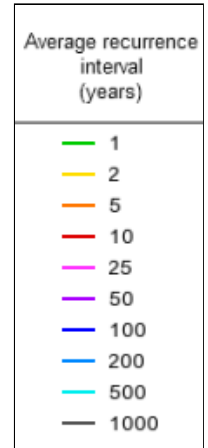
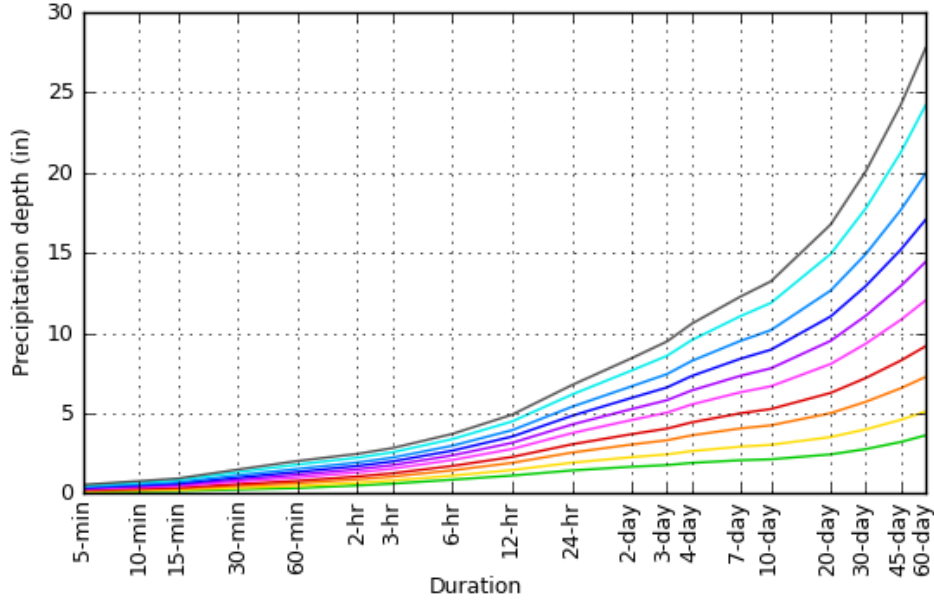
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

PF graphical

PDS-based depth-duration-frequency (DDF) curves

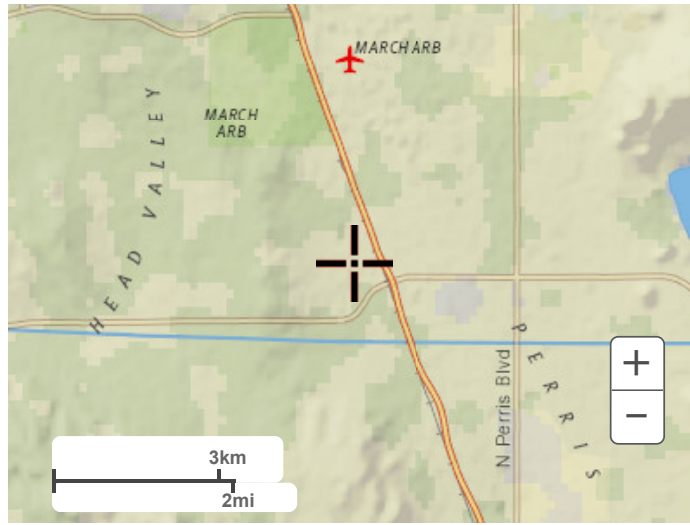
Latitude: 33.8466°, Longitude: -117.2582°



[Back to Top](#)

Maps & aeriels

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



[Back to Top](#)

[US Department of Commerce](#)
[National Oceanic and Atmospheric Administration](#)
[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

[Disclaimer](#)

Hydrologic Soil Group—Western Riverside Area, California



Map Scale: 1:2,450 if printed on A portrait (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines


 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points






 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available


Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California
 Survey Area Data: Version 14, Sep 13, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 25, 2019—Jun 25, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AoC	Arlington fine sandy loam, deep, 2 to 8 percent slopes	B	10.2	45.4%
EnC2	Exeter sandy loam, 2 to 8 percent slopes, eroded	C	0.2	0.9%
GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded	A	2.7	11.8%
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	A	9.4	41.9%
Totals for Area of Interest			22.5	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group			
		A	B	C	D
<u>NATURAL COVERS -</u>					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparrel, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparrel, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	72	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	28	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
<u>URBAN COVERS -</u>					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
<u>AGRICULTURAL COVERS -</u>					
Fallow (Land plowed but not tilled or seeded)		76	85	90	92

RCFC & WCD
HYDROLOGY MANUAL

**RUNOFF INDEX NUMBERS
FOR
PERVIOUS AREAS**

RUNOFF INDEX NUMBERS OF HYDROLOGIC SOIL-COVER COMPLEXES FOR PERVIOUS AREAS-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group			
		A	B	C	D
<u>AGRICULTURAL COVERS</u> (cont.) -					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Deciduous (Apples, apricots, pears, walnuts, etc.)	See Note 4				
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small Grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87
Vineyard	See Note 4				

Notes:

1. All runoff index (RI) numbers are for Antecedent Moisture Condition (AMC) II.
2. Quality of cover definitions:
 Poor-Heavily grazed or regularly burned areas. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.
 Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.
 Good-Heavy or dense cover with more than 75 percent of the ground surface protected.
3. See Plate C-2 for a detailed description of cover types.
4. Use runoff index numbers based on ground cover type. See discussion under "Cover Type Descriptions" on Plate C-2.
5. Reference Bibliography item 17.

RCFC & WCD
 HYDROLOGY MANUAL

**RUNOFF INDEX NUMBERS
 FOR
 PERVIOUS AREAS**

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent (2)
Natural or Agriculture	0 - 10	0
Single Family Residential: (3)		
40,000 S. F. (1 Acre) Lots	10 - 25	20
20,000 S. F. (½ Acre) Lots	30 - 45	40
7,200 - 10,000 S. F. Lots	45 - 55	50
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 -100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.
2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area should always be made, and a review of aerial photos, where available may assist in estimating the percentage of impervious cover in developed areas.
3. For typical horse ranch subdivisions increase impervious area 5 percent over the values recommended in the table above.

RCFC & WCD
HYDROLOGY MANUAL

**IMPERVIOUS COVER
FOR
DEVELOPED AREAS**