1

PRELIMINARY HYDROLOGY STUDY

MAJESTIC FREEWAY BUSINESS CENTER

BUILDING No. 18

RIVERSIDE COUNTY, CA

PREPARED FOR:

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

Prepared under the supervision of:

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APPENDICES

Background and Purpose

Majestic Freeway Business Center, LLC is proposing to develop one logistics industrial building on approximately 16.8 acres of land in the County of Riverside. The property is located west of Harvill Avenue, north of Nance Street, and south of Oleander Avenue. The property is vacant and unimproved. The natural drainage pattern flows west to east toward Harvill Ave where there are 2 existing catch basins that collect surface flows and are conveyed in RCFCD Line F-4 to an existing detention basin near the 215 Freeway and Commerce Center Drive.

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 along with all tributary offsite areas. 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.

Project Location

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 post-development 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. The basin is sized to ensure the developed runoff does not exceed the pre-developed condition.

Hydrology Model Assumptions

Existing Condition:

Runoff Index = 86 – See RI Calc on Hyd Map
Soils Type = A & C – 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 = 65 – See RI Calc on Hyd Map
Soils Type = A & C – 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 controlling outlet flows in the basin connect to an existing detention basin located east 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.

Preliminary Hydrology Results

EXISTING CONDITION

	1 HR/100 YR	3 HR/100 YR	6 HR/100 YR	24 HR/100 YR	TOTAL VOLUME
SUBAREA	**CFS**	**CFS**	**CFS**	**CFS**	**24 HR (AC-FT)**
1	53.5	29.4	24.6	10.0	3.8

DEVELOPED CONDITION
TRIBUTARY TO DETENTION BASIN

	1 HR/100 YR	3 HR/100 YR	6 HR/100 YR	24 HR/100 YR	TOTAL VOLUME
SUBAREA	**CFS**	**CFS**	**CFS**	**CFS**	**24 HR (AC-FT)**
1	47.8	27.1	24.1	9.4	5.3

OUTFLOW to LATERAL F-3

	1 HR/100 YR	3 HR/100 YR	6 HR/100 YR	24 HR/100 YR	TOTAL VOLUME
SUBAREA	**CFS**	**CFS**	**CFS**	**CFS**	**24 HR (AC-FT)**
1	6.7	20.2	21.1	9.3	5.3

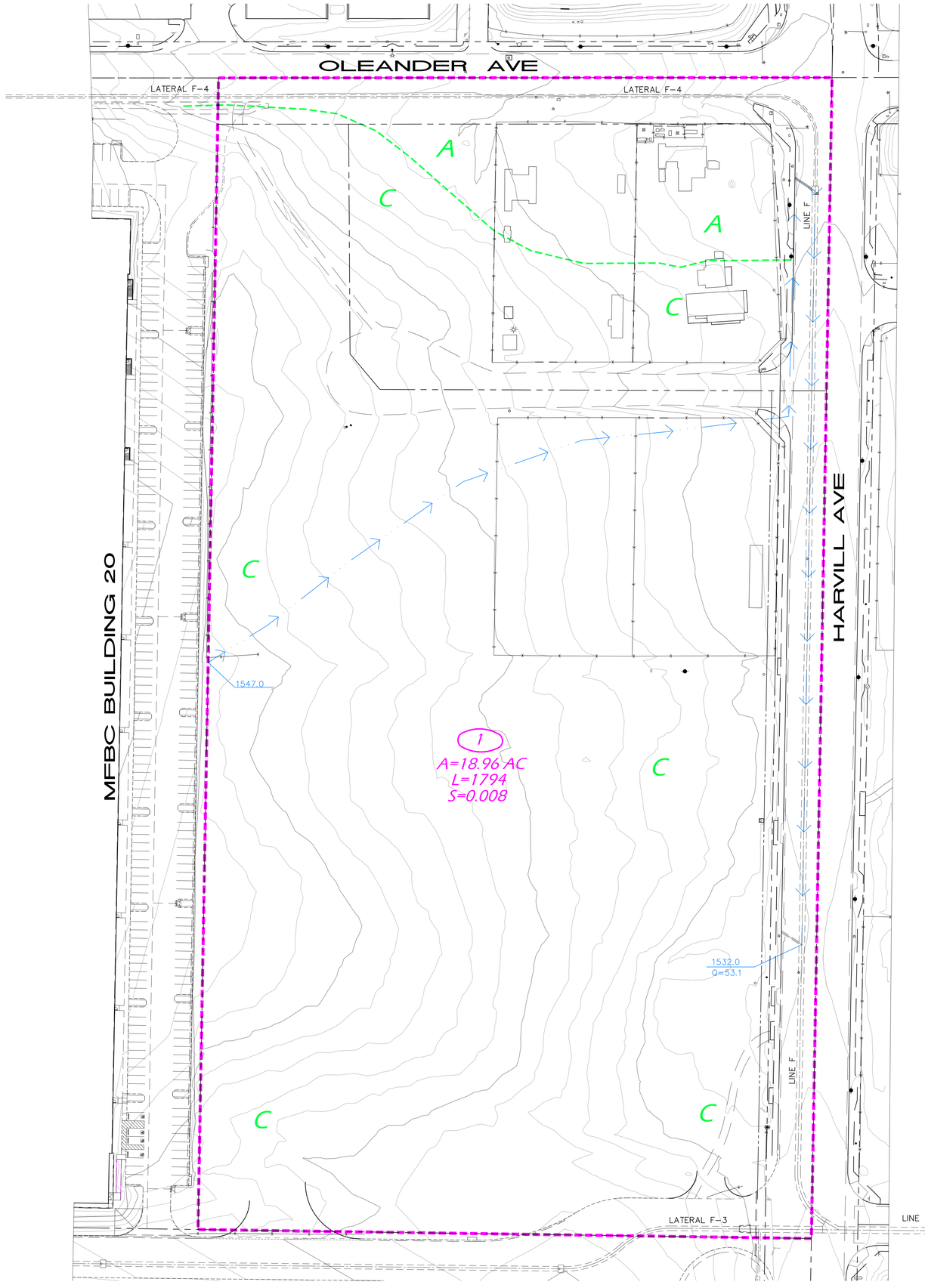
Conclusion

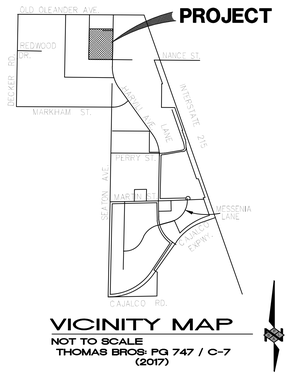
This study and the related calculations indicated that the proposed development design flows can be conveyed to the existing storm drain system without danger of site flooding. Additionally, the detention basins are properly sized to attenuate the difference between pre-development runoff and runoff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





VICINITY MAP

NOT TO SCALE
THOMAS BROS: PG 747 / C-7
(2017)

RUNOFF INDEX CALCULATION

SOIL TYPE A = 12% – RI=71
SOIL TYPE C = 88% – RI=88
COMPOSITE RI = 86

HYDROLOGY SUMMARY

100 YR / 1 HR = 53.5
100 YR / 3 HR = 29.4
100 YR / 6 HR = 24.4
100 YR / 24 HR = 10.0

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

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

TOPOGRAPHY DATE: 3-7-05

UNIT HYDROGRAPH MAP EXISTING CONDITION MFBC-BUILDING 18

Oct 31 2021

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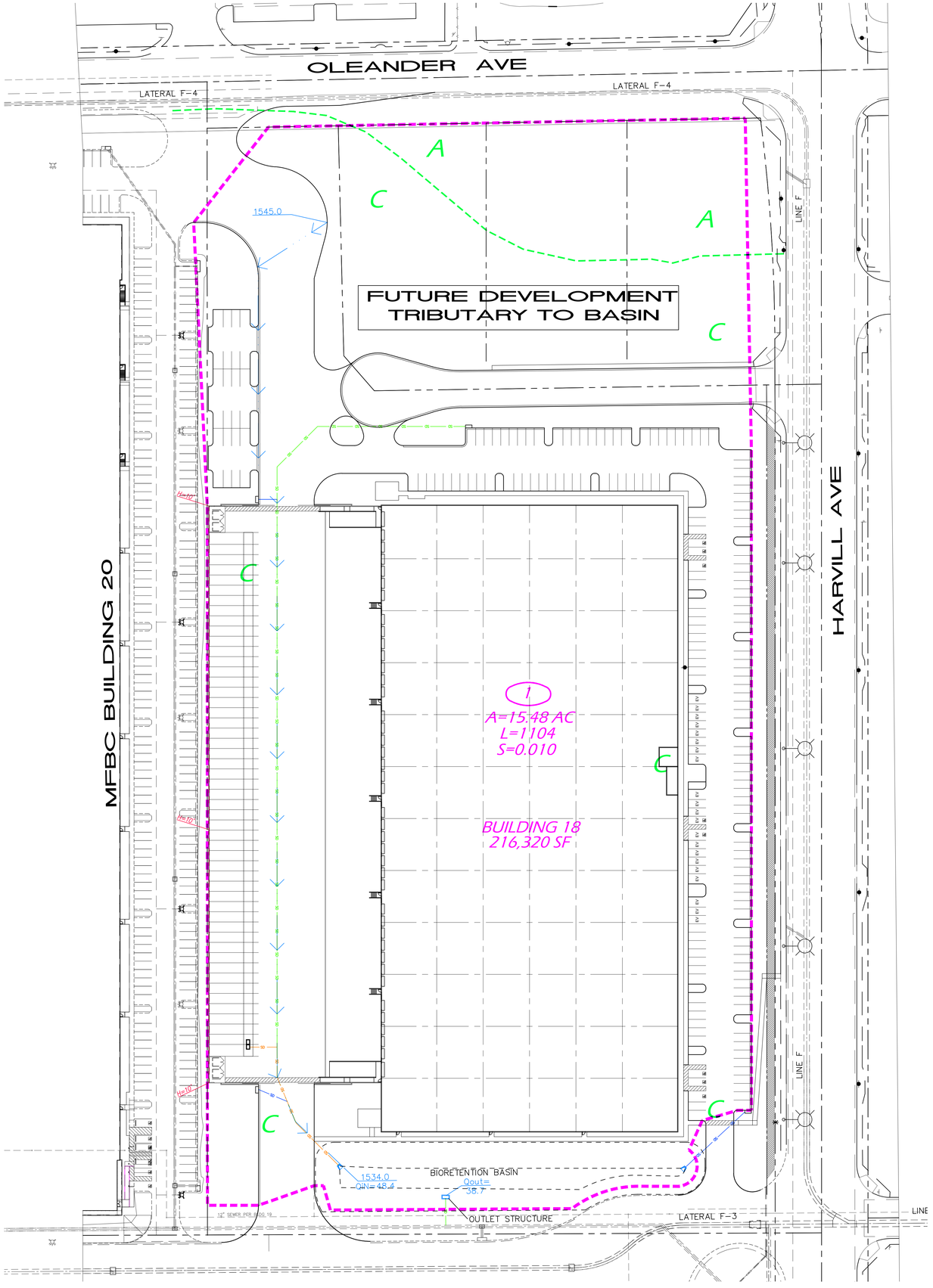
DATE	BY	REVISION
	SDL	1st Release

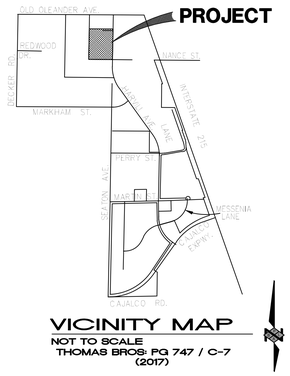
WO 100-104

Sht. 1 of 1

APPENDIX B

HYDROLOGY MAP – DEVELOPED CONDITION





VICINITY MAP

NOT TO SCALE
THOMAS BROS: PG 747 / C-7
(2017)

RUNOFF INDEX CALCULATION

SOIL TYPE A = 12% – RI=32
SOIL TYPE C = 88% – RI=69
COMPOSITE RI = 65

HYDROLOGY SUMMARY

INFLOW TO BASIN	OUTFLOW TO LATERAL F-2
100 YR / 1 HR = 47.8	100 YR / 1 HR = 6.7
100 YR / 3 HR = 27.1	100 YR / 3 HR = 20.2
100 YR / 6 HR = 24.1	100 YR / 6 HR = 21.1
100 YR / 24 HR = 9.4	100 YR / 24 HR = 9.3

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

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

TOPOGRAPHY DATE: 3-7-05

Oct 31 2021

UNIT HYDROGRAPH MAP DEVELOPED CONDITION MFBC-BUILDING 18

PREPARED FOR:

COMMERCE CONSTRUCTION CO., LP.
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Sht. 1 of 1

APPENDIX C

UNIT HYDROGRAPH HYDROLOGY

EXISTING CONDITION

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

Study date 10/31/21 File: 100104EXUH1100.out

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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 - BLD 18
EXIST CONDITION UNIT HYDROGRAPH
100104EXUH

Drainage Area = 18.96(Ac.) = 0.030 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 18.96(Ac.) = 0.030 Sq. Mi.
Length along longest watercourse = 1794.00(Ft.)
Length along longest watercourse measured to centroid = 500.00(Ft.)
Length along longest watercourse = 0.340 Mi.
Length along longest watercourse measured to centroid = 0.095 Mi.
Difference in elevation = 15.00(Ft.)
Slope along watercourse = 44.1472 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.095 Hr.
Lag time = 5.70 Min.
25% of lag time = 1.42 Min.
40% of lag time = 2.28 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]
18.96	0.46	8.66

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
18.96	1.35	25.60

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 = 99.98 %

Adjusted average point rain = 1.350(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
18.960	86.00	0.100

Total Area Entered = 18.96(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
86.0	86.0	0.176	0.100	0.160	1.000	0.160
					Sum (F) =	0.160

Area averaged mean soil loss (F) (In/Hr) = 0.160
Minimum soil loss rate ((In/Hr)) = 0.080
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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 (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	87.732	15.511	2.964
2	0.167	175.464	46.613	8.907
3	0.250	263.196	17.922	3.425
4	0.333	350.928	7.773	1.485
5	0.417	438.660	4.550	0.869
6	0.500	526.392	2.874	0.549
7	0.583	614.125	2.005	0.383
8	0.667	701.857	1.303	0.249
9	0.750	789.589	0.907	0.173
10	0.833	877.321	0.543	0.104
		Sum = 100.000	Sum=	19.108

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	4.20	0.680	0.160	(0.612)	0.520
2	0.17	4.30	0.696	0.160	(0.627)	0.537
3	0.25	5.00	0.810	0.160	(0.729)	0.650
4	0.33	5.00	0.810	0.160	(0.729)	0.650
5	0.42	5.80	0.939	0.160	(0.845)	0.780
6	0.50	6.50	1.053	0.160	(0.948)	0.893
7	0.58	7.40	1.199	0.160	(1.079)	1.039
8	0.67	8.60	1.393	0.160	(1.254)	1.233
9	0.75	12.30	1.992	0.160	(1.793)	1.832
10	0.83	29.10	4.713	0.160	(4.242)	4.554
11	0.92	6.80	1.101	0.160	(0.991)	0.942
12	1.00	5.00	0.810	0.160	(0.729)	0.650
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	14.3

Flood volume = Effective rainfall 1.19(In)
times area 19.0(Ac.)/[(In)/(Ft.)] = 1.9(Ac.Ft)
Total soil loss = 0.16(In)
Total soil loss = 0.252(Ac.Ft)
Total rainfall = 1.35(In)

Flood volume = 81899.6 Cubic Feet
Total soil loss = 10997.9 Cubic Feet

Peak flow rate of this hydrograph = 53.506(CFS)

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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	15.0	30.0	45.0	60.0
0+ 5	0.0106	1.54	VQ				
0+10	0.0535	6.23	V Q				
0+15	0.1120	8.49	V Q				
0+20	0.1832	10.33	V Q				
0+25	0.2630	11.58	V Q				
0+30	0.3562	13.54	V Q				
0+35	0.4646	15.74	VQ				
0+40	0.5913	18.39	Q				
0+45	0.7484	22.82	Q				
0+50	1.0057	37.37			V Q		
0+55	1.3742	53.51				V Q	
1+ 0	1.5878	31.00			Q	V	
1+ 5	1.7178	18.88	Q			V	
1+10	1.7837	9.56	Q			V	
1+15	1.8220	5.57	Q			V	
1+20	1.8468	3.61	Q			V	
1+25	1.8627	2.30	Q			V	
1+30	1.8727	1.46	Q			V	
1+35	1.8782	0.80	Q			V	
1+40	1.8797	0.21	Q			V	
1+45	1.8802	0.07	Q			V	

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

Study date 10/31/21 File: 100104EXUH3100.out

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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 - BLD 18
EXIST CONDITION UNIT HYDROGRAPH
100104EXUH

Drainage Area = 18.96(Ac.) = 0.030 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 18.96(Ac.) = 0.030 Sq. Mi.
Length along longest watercourse = 1794.00(Ft.)
Length along longest watercourse measured to centroid = 500.00(Ft.)
Length along longest watercourse = 0.340 Mi.
Length along longest watercourse measured to centroid = 0.095 Mi.
Difference in elevation = 15.00(Ft.)
Slope along watercourse = 44.1472 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.095 Hr.
Lag time = 5.70 Min.
25% of lag time = 1.42 Min.
40% of lag time = 2.28 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]
18.96	0.80	15.13

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
18.96	2.01	38.11

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 %
18.960	86.00	0.100

Total Area Entered = 18.96(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
86.0	86.0	0.176	0.100	0.160	1.000	0.160
					Sum (F) =	0.160

Area averaged mean soil loss (F) (In/Hr) = 0.160
Minimum soil loss rate ((In/Hr)) = 0.080
(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	87.732	15.511	2.964
2	0.167	175.464	46.613	8.907
3	0.250	263.196	17.922	3.425
4	0.333	350.928	7.773	1.485
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7	0.583	614.125	2.005	0.383
8	0.667	701.857	1.303	0.249
9	0.750	789.589	0.907	0.173
10	0.833	877.321	0.543	0.104
		Sum = 100.000	Sum=	19.108

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	0.314	0.160	(0.282)	0.154
2	0.17	1.30	0.314	0.160	(0.282)	0.154
3	0.25	1.10	0.265	0.160	(0.239)	0.106
4	0.33	1.50	0.362	0.160	(0.326)	0.202
5	0.42	1.50	0.362	0.160	(0.326)	0.202
6	0.50	1.80	0.434	0.160	(0.391)	0.274
7	0.58	1.50	0.362	0.160	(0.326)	0.202
8	0.67	1.80	0.434	0.160	(0.391)	0.274
9	0.75	1.80	0.434	0.160	(0.391)	0.274
10	0.83	1.50	0.362	0.160	(0.326)	0.202
11	0.92	1.60	0.386	0.160	(0.347)	0.226
12	1.00	1.80	0.434	0.160	(0.391)	0.274
13	1.08	2.20	0.531	0.160	(0.478)	0.371
14	1.17	2.20	0.531	0.160	(0.478)	0.371
15	1.25	2.20	0.531	0.160	(0.478)	0.371
16	1.33	2.00	0.482	0.160	(0.434)	0.323
17	1.42	2.60	0.627	0.160	(0.564)	0.467
18	1.50	2.70	0.651	0.160	(0.586)	0.491
19	1.58	2.40	0.579	0.160	(0.521)	0.419
20	1.67	2.70	0.651	0.160	(0.586)	0.491

21	1.75	3.30	0.796	0.160	(0.716)	0.636
22	1.83	3.10	0.748	0.160	(0.673)	0.588
23	1.92	2.90	0.699	0.160	(0.629)	0.540
24	2.00	3.00	0.724	0.160	(0.651)	0.564
25	2.08	3.10	0.748	0.160	(0.673)	0.588
26	2.17	4.20	1.013	0.160	(0.912)	0.853
27	2.25	5.00	1.206	0.160	(1.085)	1.046
28	2.33	3.50	0.844	0.160	(0.760)	0.684
29	2.42	6.80	1.640	0.160	(1.476)	1.480
30	2.50	7.30	1.761	0.160	(1.585)	1.601
31	2.58	8.20	1.978	0.160	(1.780)	1.818
32	2.67	5.90	1.423	0.160	(1.281)	1.263
33	2.75	2.00	0.482	0.160	(0.434)	0.323
34	2.83	1.80	0.434	0.160	(0.391)	0.274
35	2.92	1.80	0.434	0.160	(0.391)	0.274
36	3.00	0.60	0.145	(0.160)	0.130	0.014

(Loss Rate Not Used)

Sum = 100.0 Sum = 18.4

Flood volume = Effective rainfall 1.53(In)
times area 19.0(Ac.)/[(In)/(Ft.)] = 2.4(Ac.Ft)
Total soil loss = 0.48(In)
Total soil loss = 0.754(Ac.Ft)
Total rainfall = 2.01(In)
Flood volume = 105502.1 Cubic Feet
Total soil loss = 32824.3 Cubic Feet

Peak flow rate of this hydrograph = 29.427(CFS)

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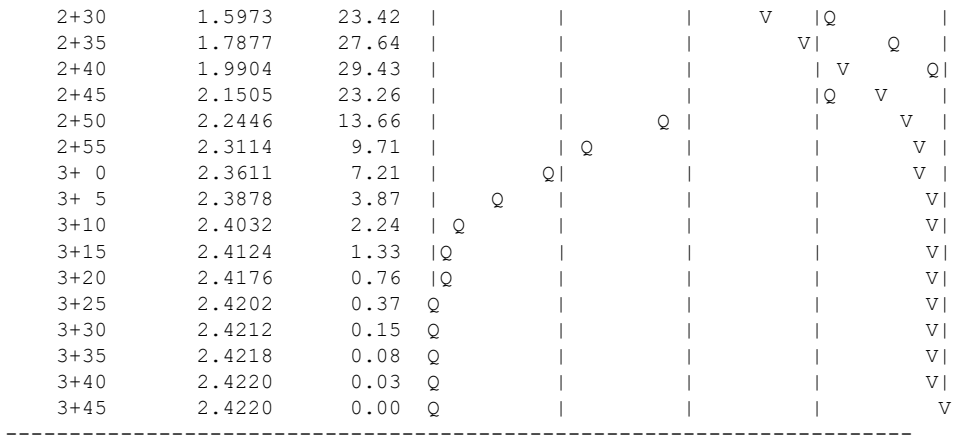
3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

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	0.0031	0.46	Q				
0+10	0.0157	1.83	V Q				
0+15	0.0309	2.21	V Q				
0+20	0.0467	2.29	V Q				
0+25	0.0682	3.12	V Q				
0+30	0.0936	3.68	V Q				
0+35	0.1230	4.27	V Q				
0+40	0.1518	4.18	V Q				
0+45	0.1845	4.75	V Q				
0+50	0.2174	4.78	V Q				
0+55	0.2471	4.31	VQ				
1+ 0	0.2780	4.48	VQ				
1+ 5	0.3138	5.21	VQ				
1+10	0.3567	6.23	V Q				
1+15	0.4024	6.63	V Q				
1+20	0.4482	6.66	VQ				
1+25	0.4949	6.77	VQ				
1+30	0.5501	8.03	VQ				
1+35	0.6087	8.50	VQ				
1+40	0.6663	8.36	Q				
1+45	0.7306	9.34	Q				
1+50	0.8044	10.72	VQ				
1+55	0.8784	10.75	Q				
2+ 0	0.9507	10.50	Q V				
2+ 5	1.0245	10.71	Q V				
2+10	1.1057	11.79	Q V				
2+15	1.2079	14.84	Q				
2+20	1.3212	16.45	Q				
2+25	1.4360	16.68	QV				


2+30 1.5973 23.42
2+35 1.7877 27.64
2+40 1.9904 29.43
2+45 2.1505 23.26
2+50 2.2446 13.66
2+55 2.3114 9.71
3+ 0 2.3611 7.21
3+ 5 2.3878 3.87
3+10 2.4032 2.24
3+15 2.4124 1.33
3+20 2.4176 0.76
3+25 2.4202 0.37
3+30 2.4212 0.15
3+35 2.4218 0.08
3+40 2.4220 0.03
3+45 2.4220 0.00

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

Study date 10/31/21 File: 100104EXUH6100.out

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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 - BLD 18
EXIST CONDITION UNIT HYDROGRAPH
100104EXUH

Drainage Area = 18.96(Ac.) = 0.030 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 18.96(Ac.) = 0.030 Sq. Mi.
Length along longest watercourse = 1794.00(Ft.)
Length along longest watercourse measured to centroid = 500.00(Ft.)
Length along longest watercourse = 0.340 Mi.
Length along longest watercourse measured to centroid = 0.095 Mi.
Difference in elevation = 15.00(Ft.)
Slope along watercourse = 44.1472 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.095 Hr.
Lag time = 5.70 Min.
25% of lag time = 1.42 Min.
40% of lag time = 2.28 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]
18.96	1.11	21.05

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
18.96	2.69	51.00

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 %
18.960	86.00	0.100

Total Area Entered = 18.96(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
86.0	86.0	0.176	0.100	0.160	1.000	0.160
					Sum (F) =	0.160

Area averaged mean soil loss (F) (In/Hr) = 0.160
Minimum soil loss rate ((In/Hr)) = 0.080
(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	87.732	15.511	2.964
2	0.167	175.464	46.613	8.907
3	0.250	263.196	17.922	3.425
4	0.333	350.928	7.773	1.485
5	0.417	438.660	4.550	0.869
6	0.500	526.392	2.874	0.549
7	0.583	614.125	2.005	0.383
8	0.667	701.857	1.303	0.249
9	0.750	789.589	0.907	0.173
10	0.833	877.321	0.543	0.104
		Sum = 100.000	Sum=	19.108

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	0.50	0.161	(0.160)		0.145	0.016
2	0.17	0.60	0.194	0.160	(	0.174)	0.034
3	0.25	0.60	0.194	0.160	(	0.174)	0.034
4	0.33	0.60	0.194	0.160	(	0.174)	0.034
5	0.42	0.60	0.194	0.160	(	0.174)	0.034
6	0.50	0.70	0.226	0.160	(	0.203)	0.066
7	0.58	0.70	0.226	0.160	(	0.203)	0.066
8	0.67	0.70	0.226	0.160	(	0.203)	0.066
9	0.75	0.70	0.226	0.160	(	0.203)	0.066
10	0.83	0.70	0.226	0.160	(	0.203)	0.066
11	0.92	0.70	0.226	0.160	(	0.203)	0.066
12	1.00	0.80	0.258	0.160	(	0.232)	0.098
13	1.08	0.80	0.258	0.160	(	0.232)	0.098
14	1.17	0.80	0.258	0.160	(	0.232)	0.098
15	1.25	0.80	0.258	0.160	(	0.232)	0.098
16	1.33	0.80	0.258	0.160	(	0.232)	0.098
17	1.42	0.80	0.258	0.160	(	0.232)	0.098
18	1.50	0.80	0.258	0.160	(	0.232)	0.098
19	1.58	0.80	0.258	0.160	(	0.232)	0.098
20	1.67	0.80	0.258	0.160	(	0.232)	0.098
21	1.75	0.80	0.258	0.160	(	0.232)	0.098

22	1.83	0.80	0.258	0.160	(	0.232)	0.098
23	1.92	0.80	0.258	0.160	(	0.232)	0.098
24	2.00	0.90	0.291	0.160	(	0.261)	0.131
25	2.08	0.80	0.258	0.160	(	0.232)	0.098
26	2.17	0.90	0.291	0.160	(	0.261)	0.131
27	2.25	0.90	0.291	0.160	(	0.261)	0.131
28	2.33	0.90	0.291	0.160	(	0.261)	0.131
29	2.42	0.90	0.291	0.160	(	0.261)	0.131
30	2.50	0.90	0.291	0.160	(	0.261)	0.131
31	2.58	0.90	0.291	0.160	(	0.261)	0.131
32	2.67	0.90	0.291	0.160	(	0.261)	0.131
33	2.75	1.00	0.323	0.160	(	0.291)	0.163
34	2.83	1.00	0.323	0.160	(	0.291)	0.163
35	2.92	1.00	0.323	0.160	(	0.291)	0.163
36	3.00	1.00	0.323	0.160	(	0.291)	0.163
37	3.08	1.00	0.323	0.160	(	0.291)	0.163
38	3.17	1.10	0.355	0.160	(	0.320)	0.195
39	3.25	1.10	0.355	0.160	(	0.320)	0.195
40	3.33	1.10	0.355	0.160	(	0.320)	0.195
41	3.42	1.20	0.387	0.160	(	0.349)	0.228
42	3.50	1.30	0.420	0.160	(	0.378)	0.260
43	3.58	1.40	0.452	0.160	(	0.407)	0.292
44	3.67	1.40	0.452	0.160	(	0.407)	0.292
45	3.75	1.50	0.484	0.160	(	0.436)	0.324
46	3.83	1.50	0.484	0.160	(	0.436)	0.324
47	3.92	1.60	0.516	0.160	(	0.465)	0.357
48	4.00	1.60	0.516	0.160	(	0.465)	0.357
49	4.08	1.70	0.549	0.160	(	0.494)	0.389
50	4.17	1.80	0.581	0.160	(	0.523)	0.421
51	4.25	1.90	0.613	0.160	(	0.552)	0.453
52	4.33	2.00	0.646	0.160	(	0.581)	0.486
53	4.42	2.10	0.678	0.160	(	0.610)	0.518
54	4.50	2.10	0.678	0.160	(	0.610)	0.518
55	4.58	2.20	0.710	0.160	(	0.639)	0.550
56	4.67	2.30	0.742	0.160	(	0.668)	0.583
57	4.75	2.40	0.775	0.160	(	0.697)	0.615
58	4.83	2.40	0.775	0.160	(	0.697)	0.615
59	4.92	2.50	0.807	0.160	(	0.726)	0.647
60	5.00	2.60	0.839	0.160	(	0.755)	0.679
61	5.08	3.10	1.001	0.160	(	0.901)	0.841
62	5.17	3.60	1.162	0.160	(	1.046)	1.002
63	5.25	3.90	1.259	0.160	(	1.133)	1.099
64	5.33	4.20	1.356	0.160	(	1.220)	1.196
65	5.42	4.70	1.517	0.160	(	1.365)	1.357
66	5.50	5.60	1.808	0.160	(	1.627)	1.648
67	5.58	1.90	0.613	0.160	(	0.552)	0.453
68	5.67	0.90	0.291	0.160	(	0.261)	0.131
69	5.75	0.60	0.194	0.160	(	0.174)	0.034
70	5.83	0.50	0.161	(0.160)		0.145	0.016
71	5.92	0.30	0.097	(0.160)		0.087	0.010
72	6.00	0.20	0.065	(0.160)		0.058	0.006

(Loss Rate Not Used)

Sum = 100.0 Sum = 21.0

Flood volume = Effective rainfall 1.75(In)
times area 19.0(Ac.)/[(In)/(Ft.)] = 2.8(Ac.Ft)
Total soil loss = 0.94(In)
Total soil loss = 1.488(Ac.Ft)
Total rainfall = 2.69(In)
Flood volume = 120305.8 Cubic Feet
Total soil loss = 64820.8 Cubic Feet

Peak flow rate of this hydrograph = 24.638(CFS)

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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	0.05	Q | | | |
0+10	0.0020	0.24	Q | | | |
0+15	0.0052	0.46	Q | | | |
0+20	0.0089	0.54	Q | | | |
0+25	0.0129	0.58	Q | | | |
0+30	0.0178	0.70	Q | | | |
0+35	0.0247	1.01	VQ | | | |
0+40	0.0324	1.13	VQ | | | |
0+45	0.0406	1.18	VQ | | | |
0+50	0.0490	1.22	VQ | | | |
0+55	0.0575	1.24	VQ | | | |
1+ 0	0.0667	1.34	VQ | | | |
1+ 5	0.0780	1.64	|VQ | | | |
1+10	0.0901	1.76	|VQ | | | |
1+15	0.1025	1.81	|VQ | | | |
1+20	0.1152	1.83	|VQ | | | |
1+25	0.1279	1.85	|VQ | | | |
1+30	0.1408	1.86	| Q | | | |
1+35	0.1537	1.87	| Q | | | |
1+40	0.1666	1.88	| Q | | | |
1+45	0.1796	1.88	| Q | | | |
1+50	0.1925	1.88	| Q | | | |
1+55	0.2055	1.88	| Q | | | |
2+ 0	0.2191	1.98	| QV | | | |
2+ 5	0.2341	2.17	| QV | | | |
2+10	0.2484	2.09	| QV | | | |
2+15	0.2644	2.31	| Q | | | |
2+20	0.2809	2.40	| QV | | | |
2+25	0.2977	2.44	| QV | | | |
2+30	0.3147	2.46	| QV | | | |
2+35	0.3318	2.48	| QV | | | |
2+40	0.3489	2.49	| Q V | | | |
2+45	0.3667	2.59	| Q V | | | |
2+50	0.3866	2.88	| Q V | | | |
2+55	0.4072	2.99	| Q V | | | |
3+ 0	0.4281	3.04	| Q V | | | |
3+ 5	0.4492	3.07	| Q V | | | |
3+10	0.4712	3.18	| Q V | | | |
3+15	0.4951	3.48	| Q V | | | |
3+20	0.5199	3.60	| Q V | | | |
3+25	0.5458	3.75	| Q V | | | |
3+30	0.5745	4.16	| Q V | | | |
3+35	0.6067	4.68	| Q V | | | |
3+40	0.6420	5.14	| Q V| | | |
3+45	0.6794	5.43	| Q V| | | |
3+50	0.7194	5.81	| Q V | | |
3+55	0.7613	6.08	| Q |V | | |
4+ 0	0.8058	6.45	| Q |V | | |
4+ 5	0.8520	6.71	| Q | V | | |
4+10	0.9015	7.18	| Q| V | | |
4+15	0.9546	7.72	| Q V | | |
4+20	1.0118	8.30	| |Q V | | |
4+25	1.0730	8.88	| |Q V | | |
4+30	1.1376	9.39	| | Q V | | |
4+35	1.2044	9.70	| | Q V | | |
4+40	1.2747	10.21	| | Q V | | |
4+45	1.3489	10.77	| | Q V| | |
4+50	1.4265	11.26	| | Q V | |
4+55	1.5062	11.58	| | Q |V | |
5+ 0	1.5893	12.07	| | Q | V | |

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    5+ 5       1.6790     13.01  |          |       Q  |   V      |          |
    5+10       1.7832     15.13  |          |          Q    V     |          |
    5+15       1.9038     17.51  |          |          |  Q   V   |          |
    5+20       2.0382     19.52  |          |          |     Q  V |          |
    5+25       2.1870     21.61  |          |          |       Q  |V         |
    5+30       2.3567     24.64  |          |          |          | Q V      |
    5+35       2.5263     24.63  |          |          |          | Q   V    |
    5+40       2.6263     14.51  |          |         Q|          |        V |
    5+45       2.6813      7.99  |          Q          |          |        V |
    5+50       2.7133      4.64  |     Q    |          |          |         V|
    5+55       2.7333      2.90  |  Q       |          |          |         V|
    6+ 0       2.7461      1.86  | Q        |          |          |         V|
    6+ 5       2.7541      1.16  |Q         |          |          |         V|
    6+10       2.7586      0.66  Q          |          |          |         V|
    6+15       2.7608      0.32  Q          |          |          |         V|
    6+20       2.7615      0.10  Q          |          |          |         V|
    6+25       2.7617      0.03  Q          |          |          |         V|
    6+30       2.7618      0.01  Q          |          |          |         V|
    6+35       2.7618      0.00  Q          |          |          |         V|
    6+40       2.7618      0.00  Q          |          |          |         V|
    6+45       2.7618      0.00  Q          |          |          |         V|
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U n i t H y d r o g r a p h A n a l y s i s

Study date 10/31/21 File: 100104EXUH24100.out

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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 - BLD 18
EXIST CONDITION UNIT HYDROGRAPH
100104EXUH

Drainage Area = 18.96(Ac.) = 0.030 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 18.96(Ac.) = 0.030 Sq. Mi.
Length along longest watercourse = 1794.00(Ft.)
Length along longest watercourse measured to centroid = 500.00(Ft.)
Length along longest watercourse = 0.340 Mi.
Length along longest watercourse measured to centroid = 0.095 Mi.
Difference in elevation = 15.00(Ft.)
Slope along watercourse = 44.1472 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.095 Hr.
Lag time = 5.70 Min.
25% of lag time = 1.42 Min.
40% of lag time = 2.28 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]
18.96	1.94	36.78

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
18.96	4.91	93.09

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 %
18.960	86.00	0.100

Total Area Entered = 18.96(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
86.0	86.0	0.176	0.100	0.160	1.000	0.160
					Sum (F) =	0.160

Area averaged mean soil loss (F) (In/Hr) = 0.160
Minimum soil loss rate ((In/Hr)) = 0.080
(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	87.732	15.511	2.964
2	0.167	175.464	46.613	8.907
3	0.250	263.196	17.922	3.425
4	0.333	350.928	7.773	1.485
5	0.417	438.660	4.550	0.869
6	0.500	526.392	2.874	0.549
7	0.583	614.125	2.005	0.383
8	0.667	701.857	1.303	0.249
9	0.750	789.589	0.907	0.173
10	0.833	877.321	0.543	0.104
			Sum = 100.000 Sum=	19.108

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	0.07	0.039	(0.283)	0.035	0.004
2	0.17	0.07	0.039	(0.282)	0.035	0.004
3	0.25	0.07	0.039	(0.281)	0.035	0.004
4	0.33	0.10	0.059	(0.280)	0.053	0.006
5	0.42	0.10	0.059	(0.279)	0.053	0.006
6	0.50	0.10	0.059	(0.278)	0.053	0.006
7	0.58	0.10	0.059	(0.277)	0.053	0.006
8	0.67	0.10	0.059	(0.276)	0.053	0.006
9	0.75	0.10	0.059	(0.275)	0.053	0.006
10	0.83	0.13	0.079	(0.273)	0.071	0.008
11	0.92	0.13	0.079	(0.272)	0.071	0.008
12	1.00	0.13	0.079	(0.271)	0.071	0.008
13	1.08	0.10	0.059	(0.270)	0.053	0.006
14	1.17	0.10	0.059	(0.269)	0.053	0.006
15	1.25	0.10	0.059	(0.268)	0.053	0.006
16	1.33	0.10	0.059	(0.267)	0.053	0.006
17	1.42	0.10	0.059	(0.266)	0.053	0.006
18	1.50	0.10	0.059	(0.265)	0.053	0.006
19	1.58	0.10	0.059	(0.264)	0.053	0.006
20	1.67	0.10	0.059	(0.263)	0.053	0.006
21	1.75	0.10	0.059	(0.262)	0.053	0.006
22	1.83	0.13	0.079	(0.261)	0.071	0.008

23	1.92	0.13	0.079	(0.260)	0.071	0.008
24	2.00	0.13	0.079	(0.259)	0.071	0.008
25	2.08	0.13	0.079	(0.258)	0.071	0.008
26	2.17	0.13	0.079	(0.257)	0.071	0.008
27	2.25	0.13	0.079	(0.255)	0.071	0.008
28	2.33	0.13	0.079	(0.254)	0.071	0.008
29	2.42	0.13	0.079	(0.253)	0.071	0.008
30	2.50	0.13	0.079	(0.252)	0.071	0.008
31	2.58	0.17	0.098	(0.251)	0.088	0.010
32	2.67	0.17	0.098	(0.250)	0.088	0.010
33	2.75	0.17	0.098	(0.249)	0.088	0.010
34	2.83	0.17	0.098	(0.248)	0.088	0.010
35	2.92	0.17	0.098	(0.247)	0.088	0.010
36	3.00	0.17	0.098	(0.246)	0.088	0.010
37	3.08	0.17	0.098	(0.245)	0.088	0.010
38	3.17	0.17	0.098	(0.244)	0.088	0.010
39	3.25	0.17	0.098	(0.243)	0.088	0.010
40	3.33	0.17	0.098	(0.242)	0.088	0.010
41	3.42	0.17	0.098	(0.241)	0.088	0.010
42	3.50	0.17	0.098	(0.240)	0.088	0.010
43	3.58	0.17	0.098	(0.239)	0.088	0.010
44	3.67	0.17	0.098	(0.238)	0.088	0.010
45	3.75	0.17	0.098	(0.237)	0.088	0.010
46	3.83	0.20	0.118	(0.236)	0.106	0.012
47	3.92	0.20	0.118	(0.235)	0.106	0.012
48	4.00	0.20	0.118	(0.234)	0.106	0.012
49	4.08	0.20	0.118	(0.233)	0.106	0.012
50	4.17	0.20	0.118	(0.232)	0.106	0.012
51	4.25	0.20	0.118	(0.231)	0.106	0.012
52	4.33	0.23	0.137	(0.230)	0.124	0.014
53	4.42	0.23	0.137	(0.229)	0.124	0.014
54	4.50	0.23	0.137	(0.228)	0.124	0.014
55	4.58	0.23	0.137	(0.227)	0.124	0.014
56	4.67	0.23	0.137	(0.226)	0.124	0.014
57	4.75	0.23	0.137	(0.225)	0.124	0.014
58	4.83	0.27	0.157	(0.224)	0.141	0.016
59	4.92	0.27	0.157	(0.223)	0.141	0.016
60	5.00	0.27	0.157	(0.222)	0.141	0.016
61	5.08	0.20	0.118	(0.221)	0.106	0.012
62	5.17	0.20	0.118	(0.220)	0.106	0.012
63	5.25	0.20	0.118	(0.219)	0.106	0.012
64	5.33	0.23	0.137	(0.219)	0.124	0.014
65	5.42	0.23	0.137	(0.218)	0.124	0.014
66	5.50	0.23	0.137	(0.217)	0.124	0.014
67	5.58	0.27	0.157	(0.216)	0.141	0.016
68	5.67	0.27	0.157	(0.215)	0.141	0.016
69	5.75	0.27	0.157	(0.214)	0.141	0.016
70	5.83	0.27	0.157	(0.213)	0.141	0.016
71	5.92	0.27	0.157	(0.212)	0.141	0.016
72	6.00	0.27	0.157	(0.211)	0.141	0.016
73	6.08	0.30	0.177	(0.210)	0.159	0.018
74	6.17	0.30	0.177	(0.209)	0.159	0.018
75	6.25	0.30	0.177	(0.208)	0.159	0.018
76	6.33	0.30	0.177	(0.207)	0.159	0.018
77	6.42	0.30	0.177	(0.206)	0.159	0.018
78	6.50	0.30	0.177	(0.205)	0.159	0.018
79	6.58	0.33	0.196	(0.204)	0.177	0.020
80	6.67	0.33	0.196	(0.204)	0.177	0.020
81	6.75	0.33	0.196	(0.203)	0.177	0.020
82	6.83	0.33	0.196	(0.202)	0.177	0.020
83	6.92	0.33	0.196	(0.201)	0.177	0.020
84	7.00	0.33	0.196	(0.200)	0.177	0.020
85	7.08	0.33	0.196	(0.199)	0.177	0.020
86	7.17	0.33	0.196	(0.198)	0.177	0.020
87	7.25	0.33	0.196	(0.197)	0.177	0.020
88	7.33	0.37	0.216	(0.196)	0.194	0.022

89	7.42	0.37	0.216	(	0.195)		0.194	0.022
90	7.50	0.37	0.216	(	0.194)		0.194	0.022
91	7.58	0.40	0.236		0.194	(	0.212)	0.042
92	7.67	0.40	0.236		0.193	(	0.212)	0.043
93	7.75	0.40	0.236		0.192	(	0.212)	0.044
94	7.83	0.43	0.255		0.191	(	0.230)	0.064
95	7.92	0.43	0.255		0.190	(	0.230)	0.065
96	8.00	0.43	0.255		0.189	(	0.230)	0.066
97	8.08	0.50	0.295		0.188	(	0.265)	0.106
98	8.17	0.50	0.295		0.187	(	0.265)	0.107
99	8.25	0.50	0.295		0.186	(	0.265)	0.108
100	8.33	0.50	0.295		0.186	(	0.265)	0.109
101	8.42	0.50	0.295		0.185	(	0.265)	0.110
102	8.50	0.50	0.295		0.184	(	0.265)	0.111
103	8.58	0.53	0.314		0.183	(	0.283)	0.131
104	8.67	0.53	0.314		0.182	(	0.283)	0.132
105	8.75	0.53	0.314		0.181	(	0.283)	0.133
106	8.83	0.57	0.334		0.180	(	0.300)	0.153
107	8.92	0.57	0.334		0.180	(	0.300)	0.154
108	9.00	0.57	0.334		0.179	(	0.300)	0.155
109	9.08	0.63	0.373		0.178	(	0.336)	0.195
110	9.17	0.63	0.373		0.177	(	0.336)	0.196
111	9.25	0.63	0.373		0.176	(	0.336)	0.197
112	9.33	0.67	0.393		0.175	(	0.354)	0.217
113	9.42	0.67	0.393		0.175	(	0.354)	0.218
114	9.50	0.67	0.393		0.174	(	0.354)	0.219
115	9.58	0.70	0.412		0.173	(	0.371)	0.240
116	9.67	0.70	0.412		0.172	(	0.371)	0.240
117	9.75	0.70	0.412		0.171	(	0.371)	0.241
118	9.83	0.73	0.432		0.170	(	0.389)	0.262
119	9.92	0.73	0.432		0.170	(	0.389)	0.263
120	10.00	0.73	0.432		0.169	(	0.389)	0.263
121	10.08	0.50	0.295		0.168	(	0.265)	0.127
122	10.17	0.50	0.295		0.167	(	0.265)	0.127
123	10.25	0.50	0.295		0.166	(	0.265)	0.128
124	10.33	0.50	0.295		0.165	(	0.265)	0.129
125	10.42	0.50	0.295		0.165	(	0.265)	0.130
126	10.50	0.50	0.295		0.164	(	0.265)	0.131
127	10.58	0.67	0.393		0.163	(	0.354)	0.230
128	10.67	0.67	0.393		0.162	(	0.354)	0.230
129	10.75	0.67	0.393		0.161	(	0.354)	0.231
130	10.83	0.67	0.393		0.161	(	0.354)	0.232
131	10.92	0.67	0.393		0.160	(	0.354)	0.233
132	11.00	0.67	0.393		0.159	(	0.354)	0.234
133	11.08	0.63	0.373		0.158	(	0.336)	0.215
134	11.17	0.63	0.373		0.158	(	0.336)	0.216
135	11.25	0.63	0.373		0.157	(	0.336)	0.216
136	11.33	0.63	0.373		0.156	(	0.336)	0.217
137	11.42	0.63	0.373		0.155	(	0.336)	0.218
138	11.50	0.63	0.373		0.154	(	0.336)	0.219
139	11.58	0.57	0.334		0.154	(	0.300)	0.180
140	11.67	0.57	0.334		0.153	(	0.300)	0.181
141	11.75	0.57	0.334		0.152	(	0.300)	0.182
142	11.83	0.60	0.354		0.151	(	0.318)	0.202
143	11.92	0.60	0.354		0.151	(	0.318)	0.203
144	12.00	0.60	0.354		0.150	(	0.318)	0.204
145	12.08	0.83	0.491		0.149	(	0.442)	0.342
146	12.17	0.83	0.491		0.148	(	0.442)	0.343
147	12.25	0.83	0.491		0.148	(	0.442)	0.343
148	12.33	0.87	0.511		0.147	(	0.460)	0.364
149	12.42	0.87	0.511		0.146	(	0.460)	0.364
150	12.50	0.87	0.511		0.145	(	0.460)	0.365
151	12.58	0.93	0.550		0.145	(	0.495)	0.405
152	12.67	0.93	0.550		0.144	(	0.495)	0.406
153	12.75	0.93	0.550		0.143	(	0.495)	0.407
154	12.83	0.97	0.570		0.143	(	0.513)	0.427

155	12.92	0.97	0.570		0.142	(0.513)	0.428
156	13.00	0.97	0.570		0.141	(0.513)	0.428
157	13.08	1.13	0.668		0.140	(0.601)	0.527
158	13.17	1.13	0.668		0.140	(0.601)	0.528
159	13.25	1.13	0.668		0.139	(0.601)	0.529
160	13.33	1.13	0.668		0.138	(0.601)	0.529
161	13.42	1.13	0.668		0.138	(0.601)	0.530
162	13.50	1.13	0.668		0.137	(0.601)	0.531
163	13.58	0.77	0.452		0.136	(0.407)	0.316
164	13.67	0.77	0.452		0.135	(0.407)	0.316
165	13.75	0.77	0.452		0.135	(0.407)	0.317
166	13.83	0.77	0.452		0.134	(0.407)	0.318
167	13.92	0.77	0.452		0.133	(0.407)	0.318
168	14.00	0.77	0.452		0.133	(0.407)	0.319
169	14.08	0.90	0.530		0.132	(0.477)	0.398
170	14.17	0.90	0.530		0.131	(0.477)	0.399
171	14.25	0.90	0.530		0.131	(0.477)	0.400
172	14.33	0.87	0.511		0.130	(0.460)	0.381
173	14.42	0.87	0.511		0.129	(0.460)	0.381
174	14.50	0.87	0.511		0.129	(0.460)	0.382
175	14.58	0.87	0.511		0.128	(0.460)	0.383
176	14.67	0.87	0.511		0.127	(0.460)	0.383
177	14.75	0.87	0.511		0.127	(0.460)	0.384
178	14.83	0.83	0.491		0.126	(0.442)	0.365
179	14.92	0.83	0.491		0.125	(0.442)	0.366
180	15.00	0.83	0.491		0.125	(0.442)	0.366
181	15.08	0.80	0.471		0.124	(0.424)	0.347
182	15.17	0.80	0.471		0.124	(0.424)	0.348
183	15.25	0.80	0.471		0.123	(0.424)	0.348
184	15.33	0.77	0.452		0.122	(0.407)	0.329
185	15.42	0.77	0.452		0.122	(0.407)	0.330
186	15.50	0.77	0.452		0.121	(0.407)	0.331
187	15.58	0.63	0.373		0.120	(0.336)	0.253
188	15.67	0.63	0.373		0.120	(0.336)	0.253
189	15.75	0.63	0.373		0.119	(0.336)	0.254
190	15.83	0.63	0.373		0.119	(0.336)	0.255
191	15.92	0.63	0.373		0.118	(0.336)	0.255
192	16.00	0.63	0.373		0.117	(0.336)	0.256
193	16.08	0.13	0.079	(	0.117)	0.071	0.008
194	16.17	0.13	0.079	(	0.116)	0.071	0.008
195	16.25	0.13	0.079	(	0.116)	0.071	0.008
196	16.33	0.13	0.079	(	0.115)	0.071	0.008
197	16.42	0.13	0.079	(	0.114)	0.071	0.008
198	16.50	0.13	0.079	(	0.114)	0.071	0.008
199	16.58	0.10	0.059	(	0.113)	0.053	0.006
200	16.67	0.10	0.059	(	0.113)	0.053	0.006
201	16.75	0.10	0.059	(	0.112)	0.053	0.006
202	16.83	0.10	0.059	(	0.112)	0.053	0.006
203	16.92	0.10	0.059	(	0.111)	0.053	0.006
204	17.00	0.10	0.059	(	0.110)	0.053	0.006
205	17.08	0.17	0.098	(	0.110)	0.088	0.010
206	17.17	0.17	0.098	(	0.109)	0.088	0.010
207	17.25	0.17	0.098	(	0.109)	0.088	0.010
208	17.33	0.17	0.098	(	0.108)	0.088	0.010
209	17.42	0.17	0.098	(	0.108)	0.088	0.010
210	17.50	0.17	0.098	(	0.107)	0.088	0.010
211	17.58	0.17	0.098	(	0.107)	0.088	0.010
212	17.67	0.17	0.098	(	0.106)	0.088	0.010
213	17.75	0.17	0.098	(	0.105)	0.088	0.010
214	17.83	0.13	0.079	(	0.105)	0.071	0.008
215	17.92	0.13	0.079	(	0.104)	0.071	0.008
216	18.00	0.13	0.079	(	0.104)	0.071	0.008
217	18.08	0.13	0.079	(	0.103)	0.071	0.008
218	18.17	0.13	0.079	(	0.103)	0.071	0.008
219	18.25	0.13	0.079	(	0.102)	0.071	0.008
220	18.33	0.13	0.079	(	0.102)	0.071	0.008

221	18.42	0.13	0.079	(0.101)	0.071	0.008
222	18.50	0.13	0.079	(0.101)	0.071	0.008
223	18.58	0.10	0.059	(0.100)	0.053	0.006
224	18.67	0.10	0.059	(0.100)	0.053	0.006
225	18.75	0.10	0.059	(0.099)	0.053	0.006
226	18.83	0.07	0.039	(0.099)	0.035	0.004
227	18.92	0.07	0.039	(0.099)	0.035	0.004
228	19.00	0.07	0.039	(0.098)	0.035	0.004
229	19.08	0.10	0.059	(0.098)	0.053	0.006
230	19.17	0.10	0.059	(0.097)	0.053	0.006
231	19.25	0.10	0.059	(0.097)	0.053	0.006
232	19.33	0.13	0.079	(0.096)	0.071	0.008
233	19.42	0.13	0.079	(0.096)	0.071	0.008
234	19.50	0.13	0.079	(0.095)	0.071	0.008
235	19.58	0.10	0.059	(0.095)	0.053	0.006
236	19.67	0.10	0.059	(0.094)	0.053	0.006
237	19.75	0.10	0.059	(0.094)	0.053	0.006
238	19.83	0.07	0.039	(0.094)	0.035	0.004
239	19.92	0.07	0.039	(0.093)	0.035	0.004
240	20.00	0.07	0.039	(0.093)	0.035	0.004
241	20.08	0.10	0.059	(0.092)	0.053	0.006
242	20.17	0.10	0.059	(0.092)	0.053	0.006
243	20.25	0.10	0.059	(0.092)	0.053	0.006
244	20.33	0.10	0.059	(0.091)	0.053	0.006
245	20.42	0.10	0.059	(0.091)	0.053	0.006
246	20.50	0.10	0.059	(0.090)	0.053	0.006
247	20.58	0.10	0.059	(0.090)	0.053	0.006
248	20.67	0.10	0.059	(0.090)	0.053	0.006
249	20.75	0.10	0.059	(0.089)	0.053	0.006
250	20.83	0.07	0.039	(0.089)	0.035	0.004
251	20.92	0.07	0.039	(0.089)	0.035	0.004
252	21.00	0.07	0.039	(0.088)	0.035	0.004
253	21.08	0.10	0.059	(0.088)	0.053	0.006
254	21.17	0.10	0.059	(0.088)	0.053	0.006
255	21.25	0.10	0.059	(0.087)	0.053	0.006
256	21.33	0.07	0.039	(0.087)	0.035	0.004
257	21.42	0.07	0.039	(0.087)	0.035	0.004
258	21.50	0.07	0.039	(0.086)	0.035	0.004
259	21.58	0.10	0.059	(0.086)	0.053	0.006
260	21.67	0.10	0.059	(0.086)	0.053	0.006
261	21.75	0.10	0.059	(0.085)	0.053	0.006
262	21.83	0.07	0.039	(0.085)	0.035	0.004
263	21.92	0.07	0.039	(0.085)	0.035	0.004
264	22.00	0.07	0.039	(0.084)	0.035	0.004
265	22.08	0.10	0.059	(0.084)	0.053	0.006
266	22.17	0.10	0.059	(0.084)	0.053	0.006
267	22.25	0.10	0.059	(0.084)	0.053	0.006
268	22.33	0.07	0.039	(0.083)	0.035	0.004
269	22.42	0.07	0.039	(0.083)	0.035	0.004
270	22.50	0.07	0.039	(0.083)	0.035	0.004
271	22.58	0.07	0.039	(0.083)	0.035	0.004
272	22.67	0.07	0.039	(0.082)	0.035	0.004
273	22.75	0.07	0.039	(0.082)	0.035	0.004
274	22.83	0.07	0.039	(0.082)	0.035	0.004
275	22.92	0.07	0.039	(0.082)	0.035	0.004
276	23.00	0.07	0.039	(0.081)	0.035	0.004
277	23.08	0.07	0.039	(0.081)	0.035	0.004
278	23.17	0.07	0.039	(0.081)	0.035	0.004
279	23.25	0.07	0.039	(0.081)	0.035	0.004
280	23.33	0.07	0.039	(0.081)	0.035	0.004
281	23.42	0.07	0.039	(0.081)	0.035	0.004
282	23.50	0.07	0.039	(0.080)	0.035	0.004
283	23.58	0.07	0.039	(0.080)	0.035	0.004
284	23.67	0.07	0.039	(0.080)	0.035	0.004
285	23.75	0.07	0.039	(0.080)	0.035	0.004
286	23.83	0.07	0.039	(0.080)	0.035	0.004

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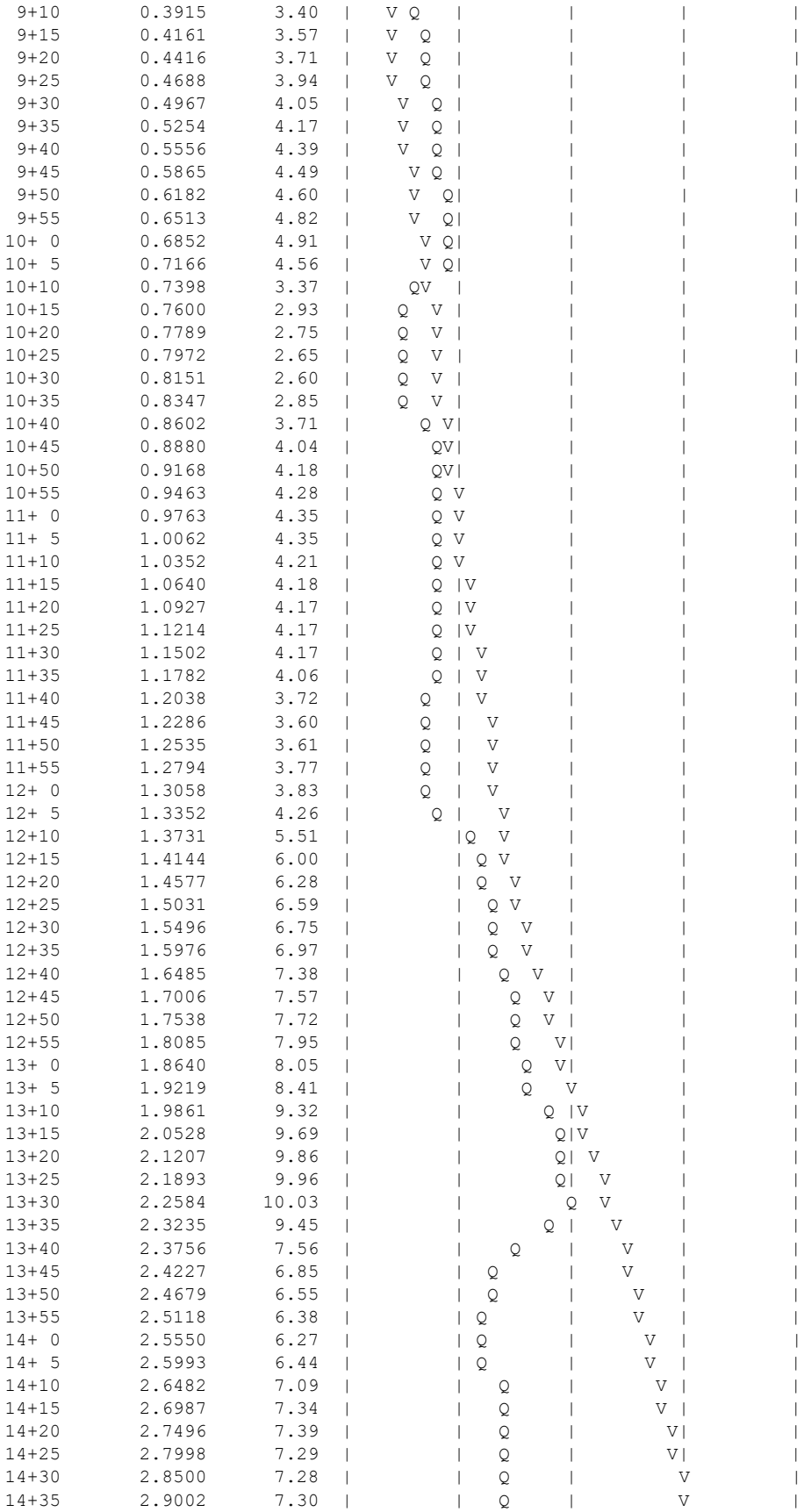
287  23.92     0.07      0.039       (  0.080)       0.035        0.004
288  24.00     0.07      0.039       (  0.080)       0.035        0.004
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    28.7
      Flood volume = Effective rainfall      2.39(In)
       times area      19.0(Ac.)/[(In)/(Ft.)] =       3.8(Ac.Ft)
      Total soil loss =      2.52(In)
      Total soil loss =     3.982(Ac.Ft)
      Total rainfall =      4.91(In)
      Flood volume =      164450.6 Cubic Feet
      Total soil loss =      173466.7 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     10.035(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        5.0      10.0      15.0      20.0
 ----------------------------------------------------------------------------
   0+ 5       0.0001      0.01  Q         |         |         |         |
   0+10       0.0004      0.05  Q         |         |         |         |
   0+15       0.0008      0.06  Q         |         |         |         |
   0+20       0.0013      0.07  Q         |         |         |         |
   0+25       0.0019      0.09  Q         |         |         |         |
   0+30       0.0026      0.10  Q         |         |         |         |
   0+35       0.0034      0.11  Q         |         |         |         |
   0+40       0.0041      0.11  Q         |         |         |         |
   0+45       0.0049      0.11  Q         |         |         |         |
   0+50       0.0057      0.12  Q         |         |         |         |
   0+55       0.0066      0.14  Q         |         |         |         |
   1+ 0       0.0076      0.14  Q         |         |         |         |
   1+ 5       0.0086      0.14  Q         |         |         |         |
   1+10       0.0094      0.12  Q         |         |         |         |
   1+15       0.0102      0.12  Q         |         |         |         |
   1+20       0.0110      0.12  Q         |         |         |         |
   1+25       0.0118      0.11  Q         |         |         |         |
   1+30       0.0126      0.11  Q         |         |         |         |
   1+35       0.0134      0.11  Q         |         |         |         |
   1+40       0.0142      0.11  Q         |         |         |         |
   1+45       0.0150      0.11  Q         |         |         |         |
   1+50       0.0158      0.12  Q         |         |         |         |
   1+55       0.0167      0.14  Q         |         |         |         |
   2+ 0       0.0177      0.14  Q         |         |         |         |
   2+ 5       0.0187      0.15  Q         |         |         |         |
   2+10       0.0197      0.15  Q         |         |         |         |
   2+15       0.0207      0.15  Q         |         |         |         |
   2+20       0.0218      0.15  Q         |         |         |         |
   2+25       0.0228      0.15  Q         |         |         |         |
   2+30       0.0238      0.15  Q         |         |         |         |
   2+35       0.0249      0.16  Q         |         |         |         |
   2+40       0.0261      0.17  Q         |         |         |         |
   2+45       0.0273      0.18  Q         |         |         |         |
   2+50       0.0286      0.18  Q         |         |         |         |
   2+55       0.0299      0.18  Q         |         |         |         |
   3+ 0       0.0312      0.19  Q         |         |         |         |
   3+ 5       0.0324      0.19  Q         |         |         |         |
   3+10       0.0337      0.19  Q         |         |         |         |
   3+15       0.0350      0.19  Q         |         |         |         |
   3+20       0.0363      0.19  Q         |         |         |         |
   3+25       0.0376      0.19  Q         |         |         |         |
   3+30       0.0389      0.19  Q         |         |         |         |
   3+35       0.0402      0.19  Q         |         |         |         |
```

3+40	0.0415	0.19	Q	|	|	|	|
3+45	0.0428	0.19	Q	|	|	|	|
3+50	0.0441	0.19	Q	|	|	|	|
3+55	0.0456	0.21	Q	|	|	|	|
4+ 0	0.0471	0.22	Q	|	|	|	|
4+ 5	0.0486	0.22	Q	|	|	|	|
4+10	0.0501	0.22	Q	|	|	|	|
4+15	0.0517	0.22	Q	|	|	|	|
4+20	0.0532	0.23	Q	|	|	|	|
4+25	0.0549	0.25	Q	|	|	|	|
4+30	0.0567	0.26	Q	|	|	|	|
4+35	0.0585	0.26	Q	|	|	|	|
4+40	0.0603	0.26	Q	|	|	|	|
4+45	0.0621	0.26	Q	|	|	|	|
4+50	0.0639	0.27	Q	|	|	|	|
4+55	0.0659	0.29	Q	|	|	|	|
5+ 0	0.0679	0.29	Q	|	|	|	|
5+ 5	0.0699	0.28	Q	|	|	|	|
5+10	0.0716	0.25	Q	|	|	|	|
5+15	0.0732	0.24	Q	|	|	|	|
5+20	0.0749	0.24	Q	|	|	|	|
5+25	0.0766	0.25	Q	|	|	|	|
5+30	0.0784	0.26	Q	|	|	|	|
5+35	0.0802	0.27	Q	|	|	|	|
5+40	0.0822	0.28	Q	|	|	|	|
5+45	0.0842	0.29	Q	|	|	|	|
5+50	0.0862	0.29	Q	|	|	|	|
5+55	0.0883	0.30	Q	|	|	|	|
6+ 0	0.0903	0.30	Q	|	|	|	|
6+ 5	0.0924	0.31	Q	|	|	|	|
6+10	0.0947	0.32	QV	|	|	|	|
6+15	0.0969	0.33	QV	|	|	|	|
6+20	0.0992	0.33	QV	|	|	|	|
6+25	0.1015	0.34	QV	|	|	|	|
6+30	0.1038	0.34	QV	|	|	|	|
6+35	0.1062	0.34	QV	|	|	|	|
6+40	0.1087	0.36	QV	|	|	|	|
6+45	0.1112	0.37	QV	|	|	|	|
6+50	0.1138	0.37	QV	|	|	|	|
6+55	0.1163	0.37	QV	|	|	|	|
7+ 0	0.1189	0.37	QV	|	|	|	|
7+ 5	0.1215	0.37	QV	|	|	|	|
7+10	0.1241	0.37	QV	|	|	|	|
7+15	0.1267	0.38	QV	|	|	|	|
7+20	0.1293	0.38	QV	|	|	|	|
7+25	0.1320	0.40	QV	|	|	|	|
7+30	0.1348	0.41	QV	|	|	|	|
7+35	0.1381	0.47	QV	|	|	|	|
7+40	0.1426	0.66	|Q	|	|	|	|
7+45	0.1477	0.74	|Q	|	|	|	|
7+50	0.1535	0.84	|Q	|	|	|	|
7+55	0.1607	1.05	|VQ	|	|	|	|
8+ 0	0.1686	1.14	|VQ	|	|	|	|
8+ 5	0.1776	1.31	|VQ	|	|	|	|
8+10	0.1894	1.70	| VQ	|	|	|	|
8+15	0.2022	1.87	| VQ	|	|	|	|
8+20	0.2157	1.95	| VQ	|	|	|	|
8+25	0.2295	2.01	| V Q	|	|	|	|
8+30	0.2436	2.05	| V Q	|	|	|	|
8+35	0.2584	2.14	| V Q	|	|	|	|
8+40	0.2745	2.34	| V Q	|	|	|	|
8+45	0.2913	2.43	| VQ	|	|	|	|
8+50	0.3088	2.54	| V Q	|	|	|	|
8+55	0.3277	2.75	| V Q	|	|	|	|
9+ 0	0.3473	2.84	| V Q	|	|	|	|
9+ 5	0.3681	3.01	| V Q	|	|	|	|



14+40	2.9506	7.31	| Q |	|	V |
14+45	3.0011	7.33	| Q |	|	V |
14+50	3.0512	7.28	| Q |	| V |	
14+55	3.1002	7.11	| Q |	| V |	
15+ 0	3.1488	7.06	| Q |	| V |	
15+ 5	3.1969	6.98	| Q |	| V |	
15+10	3.2437	6.80	| Q |	| V |	
15+15	3.2901	6.73	| Q |	| V |	
15+20	3.3359	6.65	| Q |	| V |	
15+25	3.3804	6.47	| Q |	| V |	
15+30	3.4245	6.40	| Q |	| V |	
15+35	3.4667	6.14	| Q |	| V |	
15+40	3.5041	5.43	| Q |	| V |	
15+45	3.5396	5.15	| Q |	| V |	
15+50	3.5743	5.04	| Q |	| V |	
15+55	3.6086	4.98	| Q |	| V |	
16+ 0	3.6427	4.94	| Q |	| V |	
16+ 5	3.6715	4.19	| Q |	| V |	
16+10	3.6850	1.96	| Q |	| V |	
16+15	3.6926	1.10	| Q |	| V |	
16+20	3.6976	0.73	| Q |	| V |	
16+25	3.7011	0.51	| Q |	| V |	
16+30	3.7037	0.38	Q |	| V |	
16+35	3.7056	0.27	Q |	| V |	
16+40	3.7069	0.20	Q |	| V |	
16+45	3.7079	0.15	Q |	| V |	
16+50	3.7087	0.12	Q |	| V |	
16+55	3.7095	0.12	Q |	| V |	
17+ 0	3.7103	0.11	Q |	| V |	
17+ 5	3.7112	0.13	Q |	| V |	
17+10	3.7123	0.16	Q |	| V |	
17+15	3.7135	0.17	Q |	| V |	
17+20	3.7147	0.18	Q |	| V |	
17+25	3.7159	0.18	Q |	| V |	
17+30	3.7172	0.18	Q |	| V |	
17+35	3.7185	0.19	Q |	| V |	
17+40	3.7198	0.19	Q |	| V |	
17+45	3.7211	0.19	Q |	| V |	
17+50	3.7223	0.18	Q |	| V |	
17+55	3.7235	0.16	Q |	| V |	
18+ 0	3.7245	0.16	Q |	| V |	
18+ 5	3.7256	0.15	Q |	| V |	
18+10	3.7267	0.15	Q |	| V |	
18+15	3.7277	0.15	Q |	| V |	
18+20	3.7288	0.15	Q |	| V |	
18+25	3.7298	0.15	Q |	| V |	
18+30	3.7308	0.15	Q |	| V |	
18+35	3.7318	0.14	Q |	| V |	
18+40	3.7327	0.13	Q |	| V |	
18+45	3.7335	0.12	Q |	| V |	
18+50	3.7343	0.11	Q |	| V |	
18+55	3.7349	0.09	Q |	| V |	
19+ 0	3.7355	0.08	Q |	| V |	
19+ 5	3.7361	0.09	Q |	| V |	
19+10	3.7368	0.10	Q |	| V |	
19+15	3.7375	0.11	Q |	| V |	
19+20	3.7383	0.11	Q |	| V |	
19+25	3.7392	0.13	Q |	| V |	
19+30	3.7402	0.14	Q |	| V |	
19+35	3.7412	0.14	Q |	| V |	
19+40	3.7420	0.12	Q |	| V |	
19+45	3.7428	0.12	Q |	| V |	
19+50	3.7436	0.11	Q |	| V |	
19+55	3.7442	0.09	Q |	| V |	
20+ 0	3.7448	0.08	Q |	| V |	
20+ 5	3.7454	0.09	Q |	| V |	

20+10	3.7461	0.10	Q	|	|	|	V|
20+15	3.7468	0.11	Q	|	|	|	V|
20+20	3.7476	0.11	Q	|	|	|	V|
20+25	3.7484	0.11	Q	|	|	|	V|
20+30	3.7491	0.11	Q	|	|	|	V|
20+35	3.7499	0.11	Q	|	|	|	V|
20+40	3.7507	0.11	Q	|	|	|	V|
20+45	3.7514	0.11	Q	|	|	|	V|
20+50	3.7522	0.11	Q	|	|	|	V|
20+55	3.7528	0.09	Q	|	|	|	V|
21+ 0	3.7534	0.08	Q	|	|	|	V|
21+ 5	3.7539	0.09	Q	|	|	|	V|
21+10	3.7546	0.10	Q	|	|	|	V|
21+15	3.7554	0.11	Q	|	|	|	V|
21+20	3.7561	0.10	Q	|	|	|	V|
21+25	3.7567	0.09	Q	|	|	|	V|
21+30	3.7572	0.08	Q	|	|	|	V|
21+35	3.7578	0.08	Q	|	|	|	V|
21+40	3.7585	0.10	Q	|	|	|	V|
21+45	3.7593	0.11	Q	|	|	|	V|
21+50	3.7600	0.10	Q	|	|	|	V|
21+55	3.7606	0.09	Q	|	|	|	V|
22+ 0	3.7611	0.08	Q	|	|	|	V|
22+ 5	3.7617	0.08	Q	|	|	|	V|
22+10	3.7624	0.10	Q	|	|	|	V|
22+15	3.7631	0.11	Q	|	|	|	V|
22+20	3.7638	0.10	Q	|	|	|	V|
22+25	3.7644	0.09	Q	|	|	|	V|
22+30	3.7650	0.08	Q	|	|	|	V|
22+35	3.7655	0.08	Q	|	|	|	V|
22+40	3.7661	0.08	Q	|	|	|	V|
22+45	3.7666	0.08	Q	|	|	|	V|
22+50	3.7671	0.08	Q	|	|	|	V|
22+55	3.7677	0.08	Q	|	|	|	V|
23+ 0	3.7682	0.08	Q	|	|	|	V|
23+ 5	3.7687	0.08	Q	|	|	|	V|
23+10	3.7692	0.08	Q	|	|	|	V|
23+15	3.7697	0.08	Q	|	|	|	V|
23+20	3.7702	0.08	Q	|	|	|	V|
23+25	3.7708	0.08	Q	|	|	|	V|
23+30	3.7713	0.08	Q	|	|	|	V|
23+35	3.7718	0.08	Q	|	|	|	V|
23+40	3.7723	0.08	Q	|	|	|	V|
23+45	3.7728	0.08	Q	|	|	|	V|
23+50	3.7733	0.08	Q	|	|	|	V|
23+55	3.7739	0.08	Q	|	|	|	V|
24+ 0	3.7744	0.08	Q	|	|	|	V|
24+ 5	3.7748	0.06	Q	|	|	|	V|
24+10	3.7750	0.03	Q	|	|	|	V|
24+15	3.7751	0.01	Q	|	|	|	V|
24+20	3.7752	0.01	Q	|	|	|	V|
24+25	3.7752	0.01	Q	|	|	|	V|
24+30	3.7752	0.00	Q	|	|	|	V|
24+35	3.7753	0.00	Q	|	|	|	V|
24+40	3.7753	0.00	Q	|	|	|	V|
24+45	3.7753	0.00	Q	|	|	|	V

APPENDIX D

UNIT HYDROGRAPH HYDROLOGY

DEVELOPED CONDITION

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

Study date 10/31/21 File: 100104PRUH1100.out

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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 18
DEVELOPED CONDITION UNIT HYDROGRAPH
100104PRUH

Drainage Area = 15.48(Ac.) = 0.024 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 15.48(Ac.) = 0.024 Sq. Mi.
Length along longest watercourse = 1104.00(Ft.)
Length along longest watercourse measured to centroid = 550.00(Ft.)
Length along longest watercourse = 0.209 Mi.
Length along longest watercourse measured to centroid = 0.104 Mi.
Difference in elevation = 11.00(Ft.)
Slope along watercourse = 52.6087 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.040 Hr.
Lag time = 2.38 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.95 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]
15.48	0.46	7.07

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
15.48	1.35	20.90

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 %
15.480	65.00	0.900

Total Area Entered = 15.48(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
65.0	65.0	0.416	0.900	0.079	1.000	0.079
					Sum (F) =	0.079

Area averaged mean soil loss (F) (In/Hr) = 0.079
Minimum soil loss rate ((In/Hr)) = 0.040
(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 (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	210.403	45.143	7.043
2	0.167	420.807	42.648	6.653
3	0.250	631.210	8.386	1.308
4	0.333	841.614	3.823	0.596
			Sum = 100.000	Sum= 15.601

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	4.20	0.680	0.079	(	0.122)	0.601
2	0.17	4.30	0.697	0.079	(	0.125)	0.617
3	0.25	5.00	0.810	0.079	(	0.146)	0.731
4	0.33	5.00	0.810	0.079	(	0.146)	0.731
5	0.42	5.80	0.939	0.079	(	0.169)	0.860
6	0.50	6.50	1.053	0.079	(	0.190)	0.974
7	0.58	7.40	1.199	0.079	(	0.216)	1.120
8	0.67	8.60	1.393	0.079	(	0.251)	1.314
9	0.75	12.30	1.992	0.079	(	0.359)	1.913
10	0.83	29.10	4.714	0.079	(	0.848)	4.634
11	0.92	6.80	1.101	0.079	(	0.198)	1.022
12	1.00	5.00	0.810	0.079	(	0.146)	0.731
		(Loss Rate Not Used)					
Sum =		100.0				Sum =	15.2

Flood volume = Effective rainfall 1.27(In)
times area 15.5(Ac.)/[(In)/(Ft.)] = 1.6(Ac.Ft)
Total soil loss = 0.08(In)
Total soil loss = 0.102(Ac.Ft)
Total rainfall = 1.35(In)
Flood volume = 71407.7 Cubic Feet
Total soil loss = 4441.4 Cubic Feet

Peak flow rate of this hydrograph = 47.781(CFS)

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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	0.0292	4.24	V Q				
0+10	0.0867	8.35	V Q				
0+15	0.1559	10.05	V Q				
0+20	0.2329	11.18	V Q				
0+25	0.3173	12.25	V Q				
0+30	0.4136	13.98	VQ				
0+35	0.5233	15.93	Q				
0+40	0.6508	18.50	QV				
0+45	0.8179	24.28	Q				
0+50	1.1470	47.78			V		Q
0+55	1.4317	41.34				QV	
1+ 0	1.5637	19.16		Q			V
1+ 5	1.6255	8.97	Q				V
1+10	1.6363	1.57	Q				V
1+15	1.6393	0.44	Q				V

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

Study date 10/31/21 File: 100104PRUH3100.out

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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 18
DEVELOPED CONDITION UNIT HYDROGRAPH
100104PRUH

Drainage Area = 15.48(Ac.) = 0.024 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 15.48(Ac.) = 0.024 Sq. Mi.
Length along longest watercourse = 1104.00(Ft.)
Length along longest watercourse measured to centroid = 550.00(Ft.)
Length along longest watercourse = 0.209 Mi.
Length along longest watercourse measured to centroid = 0.104 Mi.
Difference in elevation = 11.00(Ft.)
Slope along watercourse = 52.6087 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.040 Hr.
Lag time = 2.38 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.95 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]
15.48	0.80	12.35

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
15.48	2.01	31.11

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 %
15.480	65.00	0.900

Total Area Entered = 15.48(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
65.0	65.0	0.416	0.900	0.079	1.000	0.079
					Sum (F) =	0.079

Area averaged mean soil loss (F) (In/Hr) = 0.079
Minimum soil loss rate ((In/Hr)) = 0.040
(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	210.403	45.143	7.043
2	0.167	420.807	42.648	6.653
3	0.250	631.210	8.386	1.308
4	0.333	841.614	3.823	0.596
			Sum = 100.000	Sum= 15.601

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	0.314	(0.079)		0.056	0.257
2	0.17	1.30	0.314	(0.079)		0.056	0.257
3	0.25	1.10	0.265	(0.079)		0.048	0.218
4	0.33	1.50	0.362	(0.079)		0.065	0.297
5	0.42	1.50	0.362	(0.079)		0.065	0.297
6	0.50	1.80	0.434	(0.079)		0.078	0.356
7	0.58	1.50	0.362	(0.079)		0.065	0.297
8	0.67	1.80	0.434	(0.079)		0.078	0.356
9	0.75	1.80	0.434	(0.079)		0.078	0.356
10	0.83	1.50	0.362	(0.079)		0.065	0.297
11	0.92	1.60	0.386	(0.079)		0.069	0.316
12	1.00	1.80	0.434	(0.079)		0.078	0.356
13	1.08	2.20	0.531	0.079	(	0.096)	0.452
14	1.17	2.20	0.531	0.079	(	0.096)	0.452
15	1.25	2.20	0.531	0.079	(	0.096)	0.452
16	1.33	2.00	0.482	0.079	(	0.087)	0.403
17	1.42	2.60	0.627	0.079	(	0.113)	0.548
18	1.50	2.70	0.651	0.079	(	0.117)	0.572
19	1.58	2.40	0.579	0.079	(	0.104)	0.500
20	1.67	2.70	0.651	0.079	(	0.117)	0.572
21	1.75	3.30	0.796	0.079	(	0.143)	0.717
22	1.83	3.10	0.748	0.079	(	0.135)	0.669
23	1.92	2.90	0.699	0.079	(	0.126)	0.620
24	2.00	3.00	0.724	0.079	(	0.130)	0.645
25	2.08	3.10	0.748	0.079	(	0.135)	0.669
26	2.17	4.20	1.013	0.079	(	0.182)	0.934

27	2.25	5.00	1.206	0.079	(0.217)		1.127
28	2.33	3.50	0.844	0.079	(0.152)		0.765
29	2.42	6.80	1.640	0.079	(0.295)		1.561
30	2.50	7.30	1.761	0.079	(0.317)		1.682
31	2.58	8.20	1.978	0.079	(0.356)		1.899
32	2.67	5.90	1.423	0.079	(0.256)		1.344
33	2.75	2.00	0.482	0.079	(0.087)		0.403
34	2.83	1.80	0.434	(0.079)		0.078	0.356
35	2.92	1.80	0.434	(0.079)		0.078	0.356
36	3.00	0.60	0.145	(0.079)		0.026	0.119

(Loss Rate Not Used)

Sum = 100.0 Sum = 21.5

Flood volume = Effective rainfall 1.79(In)
times area 15.5(Ac.)/[(In)/(Ft.)] = 2.3(Ac.Ft)
Total soil loss = 0.22(In)
Total soil loss = 0.284(Ac.Ft)
Total rainfall = 2.01(In)
Flood volume = 100551.9 Cubic Feet
Total soil loss = 12387.2 Cubic Feet

Peak flow rate of this hydrograph = 27.073(CFS)

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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	0.0125	1.81	V Q				
0+10	0.0367	3.52	V Q				
0+15	0.0614	3.58	V Q				
0+20	0.0891	4.03	V Q				
0+25	0.1202	4.50	V Q				
0+30	0.1546	5.00	V Q				
0+35	0.1892	5.03	V Q				
0+40	0.2245	5.13	V Q				
0+45	0.2623	5.48	V Q				
0+50	0.2974	5.10	VQ				
0+55	0.3310	4.88	VQ				
1+ 0	0.3670	5.22	Q				
1+ 5	0.4093	6.14	VQ				
1+10	0.4564	6.84	V Q				
1+15	0.5045	6.99	VQ				
1+20	0.5507	6.71	QV				
1+25	0.6017	7.41	QV				
1+30	0.6601	8.48	Q				
1+35	0.7172	8.29	QV				
1+40	0.7753	8.43	Q V				
1+45	0.8432	9.86	QV				
1+50	0.9157	10.53	QV				
1+55	0.9853	10.10	Q V				
2+ 0	1.0540	9.97	Q V				
2+ 5	1.1243	10.21	Q V				
2+10	1.2087	12.25	Q V				
2+15	1.3148	15.42	Q V				
2+20	1.4148	14.51	Q V				
2+25	1.5396	18.13	Q V				
2+30	1.7043	23.91	V Q				
2+35	1.8908	27.07	V Q				
2+40	2.0646	25.24	Q V				
2+45	2.1698	15.28	Q V				
2+50	2.2255	8.09	Q V				
2+55	2.2683	6.21	Q V				

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    3+ 0       2.2952      3.91  |    Q    |         |         |        V|
    3+ 5       2.3053      1.47  |Q        |         |         |        V|
    3+10       2.3079      0.37  Q         |         |         |        V|
    3+15       2.3084      0.07  Q         |         |         |         V
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U n i t H y d r o g r a p h A n a l y s i s

Study date 10/31/21 File: 100104PRUH6100.out

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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 18
DEVELOPED CONDITION UNIT HYDROGRAPH
100104PRUH

Drainage Area = 15.48(Ac.) = 0.024 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 15.48(Ac.) = 0.024 Sq. Mi.
Length along longest watercourse = 1104.00(Ft.)
Length along longest watercourse measured to centroid = 550.00(Ft.)
Length along longest watercourse = 0.209 Mi.
Length along longest watercourse measured to centroid = 0.104 Mi.
Difference in elevation = 11.00(Ft.)
Slope along watercourse = 52.6087 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.040 Hr.
Lag time = 2.38 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.95 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]
15.48	1.11	17.18

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
15.48	2.69	41.64

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 %
15.480	65.00	0.900

Total Area Entered = 15.48(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
65.0	65.0	0.416	0.900	0.079	1.000	0.079
					Sum (F) =	0.079

Area averaged mean soil loss (F) (In/Hr) = 0.079
Minimum soil loss rate ((In/Hr)) = 0.040
(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	210.403	45.143	7.043
2	0.167	420.807	42.648	6.653
3	0.250	631.210	8.386	1.308
4	0.333	841.614	3.823	0.596
			Sum = 100.000	Sum= 15.601

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	0.50	0.161	(0.079)		0.029	0.132
2	0.17	0.60	0.194	(0.079)		0.035	0.159
3	0.25	0.60	0.194	(0.079)		0.035	0.159
4	0.33	0.60	0.194	(0.079)		0.035	0.159
5	0.42	0.60	0.194	(0.079)		0.035	0.159
6	0.50	0.70	0.226	(0.079)		0.041	0.185
7	0.58	0.70	0.226	(0.079)		0.041	0.185
8	0.67	0.70	0.226	(0.079)		0.041	0.185
9	0.75	0.70	0.226	(0.079)		0.041	0.185
10	0.83	0.70	0.226	(0.079)		0.041	0.185
11	0.92	0.70	0.226	(0.079)		0.041	0.185
12	1.00	0.80	0.258	(0.079)		0.046	0.212
13	1.08	0.80	0.258	(0.079)		0.046	0.212
14	1.17	0.80	0.258	(0.079)		0.046	0.212
15	1.25	0.80	0.258	(0.079)		0.046	0.212
16	1.33	0.80	0.258	(0.079)		0.046	0.212
17	1.42	0.80	0.258	(0.079)		0.046	0.212
18	1.50	0.80	0.258	(0.079)		0.046	0.212
19	1.58	0.80	0.258	(0.079)		0.046	0.212
20	1.67	0.80	0.258	(0.079)		0.046	0.212
21	1.75	0.80	0.258	(0.079)		0.046	0.212
22	1.83	0.80	0.258	(0.079)		0.046	0.212
23	1.92	0.80	0.258	(0.079)		0.046	0.212
24	2.00	0.90	0.291	(0.079)		0.052	0.238
25	2.08	0.80	0.258	(0.079)		0.046	0.212
26	2.17	0.90	0.291	(0.079)		0.052	0.238

27	2.25	0.90	0.291	(0.079)	0.052	0.238	
28	2.33	0.90	0.291	(0.079)	0.052	0.238	
29	2.42	0.90	0.291	(0.079)	0.052	0.238	
30	2.50	0.90	0.291	(0.079)	0.052	0.238	
31	2.58	0.90	0.291	(0.079)	0.052	0.238	
32	2.67	0.90	0.291	(0.079)	0.052	0.238	
33	2.75	1.00	0.323	(0.079)	0.058	0.265	
34	2.83	1.00	0.323	(0.079)	0.058	0.265	
35	2.92	1.00	0.323	(0.079)	0.058	0.265	
36	3.00	1.00	0.323	(0.079)	0.058	0.265	
37	3.08	1.00	0.323	(0.079)	0.058	0.265	
38	3.17	1.10	0.355	(0.079)	0.064	0.291	
39	3.25	1.10	0.355	(0.079)	0.064	0.291	
40	3.33	1.10	0.355	(0.079)	0.064	0.291	
41	3.42	1.20	0.387	(0.079)	0.070	0.318	
42	3.50	1.30	0.420	(0.079)	0.076	0.344	
43	3.58	1.40	0.452	0.079	(0.081)	0.373	
44	3.67	1.40	0.452	0.079	(0.081)	0.373	
45	3.75	1.50	0.484	0.079	(0.087)	0.405	
46	3.83	1.50	0.484	0.079	(0.087)	0.405	
47	3.92	1.60	0.516	0.079	(0.093)	0.437	
48	4.00	1.60	0.516	0.079	(0.093)	0.437	
49	4.08	1.70	0.549	0.079	(0.099)	0.470	
50	4.17	1.80	0.581	0.079	(0.105)	0.502	
51	4.25	1.90	0.613	0.079	(0.110)	0.534	
52	4.33	2.00	0.646	0.079	(0.116)	0.567	
53	4.42	2.10	0.678	0.079	(0.122)	0.599	
54	4.50	2.10	0.678	0.079	(0.122)	0.599	
55	4.58	2.20	0.710	0.079	(0.128)	0.631	
56	4.67	2.30	0.742	0.079	(0.134)	0.663	
57	4.75	2.40	0.775	0.079	(0.139)	0.696	
58	4.83	2.40	0.775	0.079	(0.139)	0.696	
59	4.92	2.50	0.807	0.079	(0.145)	0.728	
60	5.00	2.60	0.839	0.079	(0.151)	0.760	
61	5.08	3.10	1.001	0.079	(0.180)	0.922	
62	5.17	3.60	1.162	0.079	(0.209)	1.083	
63	5.25	3.90	1.259	0.079	(0.227)	1.180	
64	5.33	4.20	1.356	0.079	(0.244)	1.277	
65	5.42	4.70	1.517	0.079	(0.273)	1.438	
66	5.50	5.60	1.808	0.079	(0.325)	1.729	
67	5.58	1.90	0.613	0.079	(0.110)	0.534	
68	5.67	0.90	0.291	(0.079)	0.052	0.238	
69	5.75	0.60	0.194	(0.079)	0.035	0.159	
70	5.83	0.50	0.161	(0.079)	0.029	0.132	
71	5.92	0.30	0.097	(0.079)	0.017	0.079	
72	6.00	0.20	0.065	(0.079)	0.012	0.053	

(Loss Rate Not Used)

Sum = 100.0 Sum = 28.1

Flood volume = Effective rainfall 2.34(In)
times area 15.5(Ac.)/[(In)/(Ft.)] = 3.0(Ac.Ft)
Total soil loss = 0.35(In)
Total soil loss = 0.450(Ac.Ft)
Total rainfall = 2.69(In)
Flood volume = 131557.9 Cubic Feet
Total soil loss = 19591.6 Cubic Feet

Peak flow rate of this hydrograph = 24.128(CFS)

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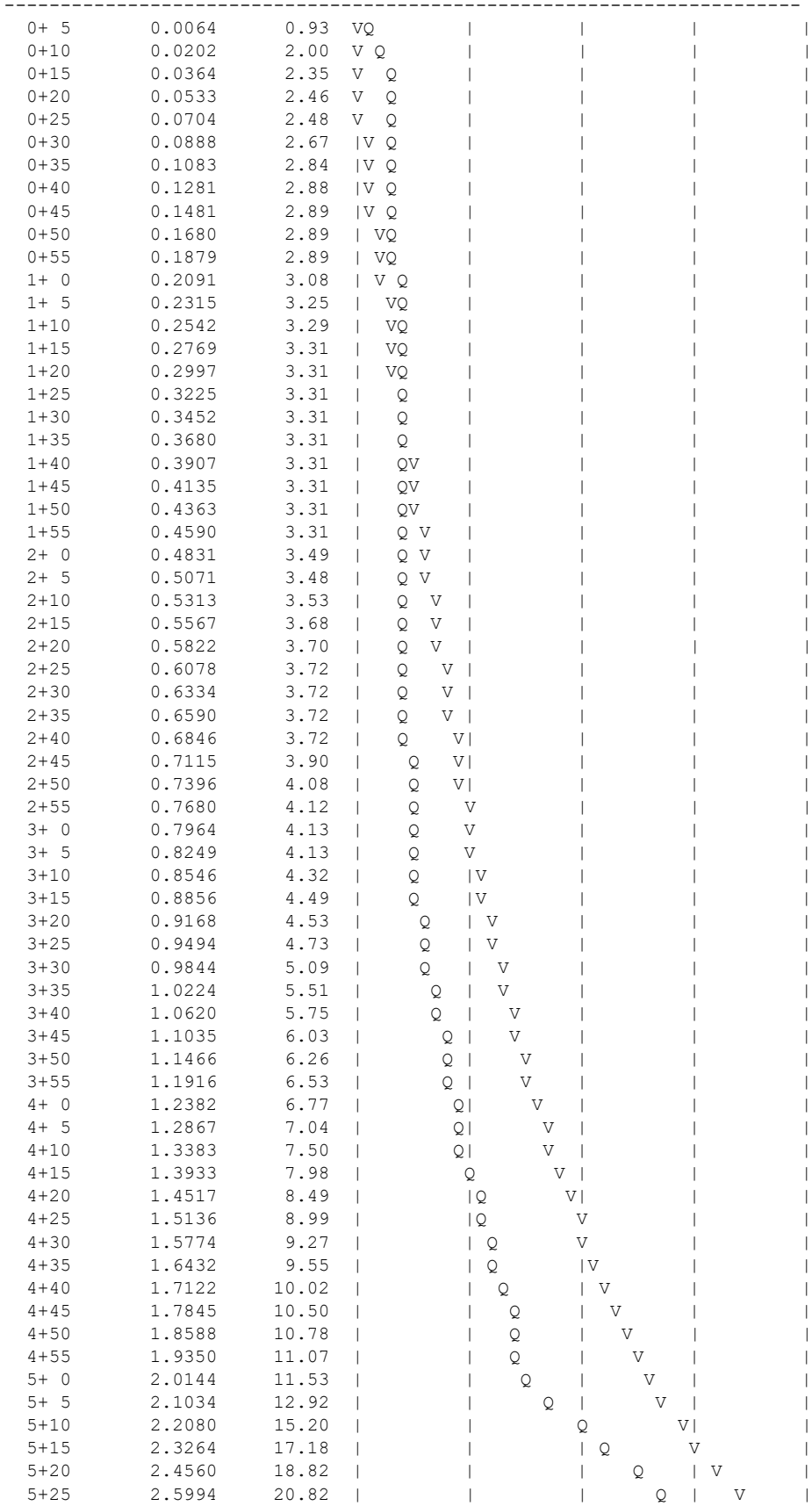
6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	7.5	15.0	22.5	30.0



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    5+30       2.7655     24.13  |         |         |         | Q   V   |
    5+35       2.8889     17.92  |         |         |  Q      |       V |
    5+40       2.9465      8.36  |         |Q        |         |        V|
    5+45       2.9770      4.44  |    Q    |         |         |        V|
    5+50       2.9951      2.62  |  Q      |         |         |        V|
    5+55       3.0074      1.79  | Q       |         |         |        V|
    6+ 0       3.0154      1.17  |Q        |         |         |        V|
    6+ 5       3.0191      0.54  Q         |         |         |        V|
    6+10       3.0199      0.12  Q         |         |         |        V|
    6+15       3.0202      0.03  Q         |         |         |        V|
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U n i t H y d r o g r a p h A n a l y s i s

Study date 10/31/21 File: 100104PRUH24100.out

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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 18
DEVELOPED CONDITION UNIT HYDROGRAPH
100104PRUH

Drainage Area = 15.48(Ac.) = 0.024 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 15.48(Ac.) = 0.024 Sq. Mi.
Length along longest watercourse = 1104.00(Ft.)
Length along longest watercourse measured to centroid = 550.00(Ft.)
Length along longest watercourse = 0.209 Mi.
Length along longest watercourse measured to centroid = 0.104 Mi.
Difference in elevation = 11.00(Ft.)
Slope along watercourse = 52.6087 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.040 Hr.
Lag time = 2.38 Min.
25% of lag time = 0.59 Min.
40% of lag time = 0.95 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]
15.48	1.94	30.03

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
15.48	4.91	76.01

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 %
15.480	65.00	0.900

Total Area Entered = 15.48(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
65.0	65.0	0.416	0.900	0.079	1.000	0.079
					Sum (F) =	0.079

Area averaged mean soil loss (F) (In/Hr) = 0.079
Minimum soil loss rate ((In/Hr)) = 0.040
(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	210.403	45.143	7.043
2	0.167	420.807	42.648	6.653
3	0.250	631.210	8.386	1.308
4	0.333	841.614	3.823	0.596
			Sum = 100.000	Sum= 15.601

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	0.07	0.039	(0.140)		0.007	0.032
2	0.17	0.07	0.039	(0.140)		0.007	0.032
3	0.25	0.07	0.039	(0.139)		0.007	0.032
4	0.33	0.10	0.059	(0.138)		0.011	0.048
5	0.42	0.10	0.059	(0.138)		0.011	0.048
6	0.50	0.10	0.059	(0.137)		0.011	0.048
7	0.58	0.10	0.059	(0.137)		0.011	0.048
8	0.67	0.10	0.059	(0.136)		0.011	0.048
9	0.75	0.10	0.059	(0.136)		0.011	0.048
10	0.83	0.13	0.079	(0.135)		0.014	0.064
11	0.92	0.13	0.079	(0.135)		0.014	0.064
12	1.00	0.13	0.079	(0.134)		0.014	0.064
13	1.08	0.10	0.059	(0.134)		0.011	0.048
14	1.17	0.10	0.059	(0.133)		0.011	0.048
15	1.25	0.10	0.059	(0.133)		0.011	0.048
16	1.33	0.10	0.059	(0.132)		0.011	0.048
17	1.42	0.10	0.059	(0.132)		0.011	0.048
18	1.50	0.10	0.059	(0.131)		0.011	0.048
19	1.58	0.10	0.059	(0.131)		0.011	0.048
20	1.67	0.10	0.059	(0.130)		0.011	0.048
21	1.75	0.10	0.059	(0.129)		0.011	0.048
22	1.83	0.13	0.079	(0.129)		0.014	0.064
23	1.92	0.13	0.079	(0.128)		0.014	0.064
24	2.00	0.13	0.079	(0.128)		0.014	0.064
25	2.08	0.13	0.079	(0.127)		0.014	0.064
26	2.17	0.13	0.079	(0.127)		0.014	0.064

27	2.25	0.13	0.079	(0.126)	0.014	0.064
28	2.33	0.13	0.079	(0.126)	0.014	0.064
29	2.42	0.13	0.079	(0.125)	0.014	0.064
30	2.50	0.13	0.079	(0.125)	0.014	0.064
31	2.58	0.17	0.098	(0.124)	0.018	0.081
32	2.67	0.17	0.098	(0.124)	0.018	0.081
33	2.75	0.17	0.098	(0.123)	0.018	0.081
34	2.83	0.17	0.098	(0.123)	0.018	0.081
35	2.92	0.17	0.098	(0.122)	0.018	0.081
36	3.00	0.17	0.098	(0.122)	0.018	0.081
37	3.08	0.17	0.098	(0.121)	0.018	0.081
38	3.17	0.17	0.098	(0.121)	0.018	0.081
39	3.25	0.17	0.098	(0.120)	0.018	0.081
40	3.33	0.17	0.098	(0.120)	0.018	0.081
41	3.42	0.17	0.098	(0.119)	0.018	0.081
42	3.50	0.17	0.098	(0.119)	0.018	0.081
43	3.58	0.17	0.098	(0.118)	0.018	0.081
44	3.67	0.17	0.098	(0.118)	0.018	0.081
45	3.75	0.17	0.098	(0.117)	0.018	0.081
46	3.83	0.20	0.118	(0.117)	0.021	0.097
47	3.92	0.20	0.118	(0.116)	0.021	0.097
48	4.00	0.20	0.118	(0.116)	0.021	0.097
49	4.08	0.20	0.118	(0.115)	0.021	0.097
50	4.17	0.20	0.118	(0.115)	0.021	0.097
51	4.25	0.20	0.118	(0.114)	0.021	0.097
52	4.33	0.23	0.137	(0.114)	0.025	0.113
53	4.42	0.23	0.137	(0.113)	0.025	0.113
54	4.50	0.23	0.137	(0.113)	0.025	0.113
55	4.58	0.23	0.137	(0.112)	0.025	0.113
56	4.67	0.23	0.137	(0.112)	0.025	0.113
57	4.75	0.23	0.137	(0.111)	0.025	0.113
58	4.83	0.27	0.157	(0.111)	0.028	0.129
59	4.92	0.27	0.157	(0.110)	0.028	0.129
60	5.00	0.27	0.157	(0.110)	0.028	0.129
61	5.08	0.20	0.118	(0.110)	0.021	0.097
62	5.17	0.20	0.118	(0.109)	0.021	0.097
63	5.25	0.20	0.118	(0.109)	0.021	0.097
64	5.33	0.23	0.137	(0.108)	0.025	0.113
65	5.42	0.23	0.137	(0.108)	0.025	0.113
66	5.50	0.23	0.137	(0.107)	0.025	0.113
67	5.58	0.27	0.157	(0.107)	0.028	0.129
68	5.67	0.27	0.157	(0.106)	0.028	0.129
69	5.75	0.27	0.157	(0.106)	0.028	0.129
70	5.83	0.27	0.157	(0.105)	0.028	0.129
71	5.92	0.27	0.157	(0.105)	0.028	0.129
72	6.00	0.27	0.157	(0.104)	0.028	0.129
73	6.08	0.30	0.177	(0.104)	0.032	0.145
74	6.17	0.30	0.177	(0.103)	0.032	0.145
75	6.25	0.30	0.177	(0.103)	0.032	0.145
76	6.33	0.30	0.177	(0.102)	0.032	0.145
77	6.42	0.30	0.177	(0.102)	0.032	0.145
78	6.50	0.30	0.177	(0.102)	0.032	0.145
79	6.58	0.33	0.196	(0.101)	0.035	0.161
80	6.67	0.33	0.196	(0.101)	0.035	0.161
81	6.75	0.33	0.196	(0.100)	0.035	0.161
82	6.83	0.33	0.196	(0.100)	0.035	0.161
83	6.92	0.33	0.196	(0.099)	0.035	0.161
84	7.00	0.33	0.196	(0.099)	0.035	0.161
85	7.08	0.33	0.196	(0.098)	0.035	0.161
86	7.17	0.33	0.196	(0.098)	0.035	0.161
87	7.25	0.33	0.196	(0.098)	0.035	0.161
88	7.33	0.37	0.216	(0.097)	0.039	0.177
89	7.42	0.37	0.216	(0.097)	0.039	0.177
90	7.50	0.37	0.216	(0.096)	0.039	0.177
91	7.58	0.40	0.236	(0.096)	0.042	0.193
92	7.67	0.40	0.236	(0.095)	0.042	0.193

93	7.75	0.40	0.236	(0.095)	0.042	0.193
94	7.83	0.43	0.255	(0.094)	0.046	0.209
95	7.92	0.43	0.255	(0.094)	0.046	0.209
96	8.00	0.43	0.255	(0.094)	0.046	0.209
97	8.08	0.50	0.295	(0.093)	0.053	0.242
98	8.17	0.50	0.295	(0.093)	0.053	0.242
99	8.25	0.50	0.295	(0.092)	0.053	0.242
100	8.33	0.50	0.295	(0.092)	0.053	0.242
101	8.42	0.50	0.295	(0.091)	0.053	0.242
102	8.50	0.50	0.295	(0.091)	0.053	0.242
103	8.58	0.53	0.314	(0.091)	0.057	0.258
104	8.67	0.53	0.314	(0.090)	0.057	0.258
105	8.75	0.53	0.314	(0.090)	0.057	0.258
106	8.83	0.57	0.334	(0.089)	0.060	0.274
107	8.92	0.57	0.334	(0.089)	0.060	0.274
108	9.00	0.57	0.334	(0.088)	0.060	0.274
109	9.08	0.63	0.373	(0.088)	0.067	0.306
110	9.17	0.63	0.373	(0.088)	0.067	0.306
111	9.25	0.63	0.373	(0.087)	0.067	0.306
112	9.33	0.67	0.393	(0.087)	0.071	0.322
113	9.42	0.67	0.393	(0.086)	0.071	0.322
114	9.50	0.67	0.393	(0.086)	0.071	0.322
115	9.58	0.70	0.412	(0.086)	0.074	0.338
116	9.67	0.70	0.412	(0.085)	0.074	0.338
117	9.75	0.70	0.412	(0.085)	0.074	0.338
118	9.83	0.73	0.432	(0.084)	0.078	0.354
119	9.92	0.73	0.432	(0.084)	0.078	0.354
120	10.00	0.73	0.432	(0.083)	0.078	0.354
121	10.08	0.50	0.295	(0.083)	0.053	0.242
122	10.17	0.50	0.295	(0.083)	0.053	0.242
123	10.25	0.50	0.295	(0.082)	0.053	0.242
124	10.33	0.50	0.295	(0.082)	0.053	0.242
125	10.42	0.50	0.295	(0.081)	0.053	0.242
126	10.50	0.50	0.295	(0.081)	0.053	0.242
127	10.58	0.67	0.393	(0.081)	0.071	0.322
128	10.67	0.67	0.393	(0.080)	0.071	0.322
129	10.75	0.67	0.393	(0.080)	0.071	0.322
130	10.83	0.67	0.393	(0.079)	0.071	0.322
131	10.92	0.67	0.393	(0.079)	0.071	0.322
132	11.00	0.67	0.393	(0.079)	0.071	0.322
133	11.08	0.63	0.373	(0.078)	0.067	0.306
134	11.17	0.63	0.373	(0.078)	0.067	0.306
135	11.25	0.63	0.373	(0.078)	0.067	0.306
136	11.33	0.63	0.373	(0.077)	0.067	0.306
137	11.42	0.63	0.373	(0.077)	0.067	0.306
138	11.50	0.63	0.373	(0.076)	0.067	0.306
139	11.58	0.57	0.334	(0.076)	0.060	0.274
140	11.67	0.57	0.334	(0.076)	0.060	0.274
141	11.75	0.57	0.334	(0.075)	0.060	0.274
142	11.83	0.60	0.354	(0.075)	0.064	0.290
143	11.92	0.60	0.354	(0.075)	0.064	0.290
144	12.00	0.60	0.354	(0.074)	0.064	0.290
145	12.08	0.83	0.491	0.074	(0.088)	0.417
146	12.17	0.83	0.491	0.073	(0.088)	0.418
147	12.25	0.83	0.491	0.073	(0.088)	0.418
148	12.33	0.87	0.511	0.073	(0.092)	0.438
149	12.42	0.87	0.511	0.072	(0.092)	0.438
150	12.50	0.87	0.511	0.072	(0.092)	0.439
151	12.58	0.93	0.550	0.072	(0.099)	0.478
152	12.67	0.93	0.550	0.071	(0.099)	0.479
153	12.75	0.93	0.550	0.071	(0.099)	0.479
154	12.83	0.97	0.570	0.071	(0.103)	0.499
155	12.92	0.97	0.570	0.070	(0.103)	0.499
156	13.00	0.97	0.570	0.070	(0.103)	0.500
157	13.08	1.13	0.668	0.069	(0.120)	0.598
158	13.17	1.13	0.668	0.069	(0.120)	0.599

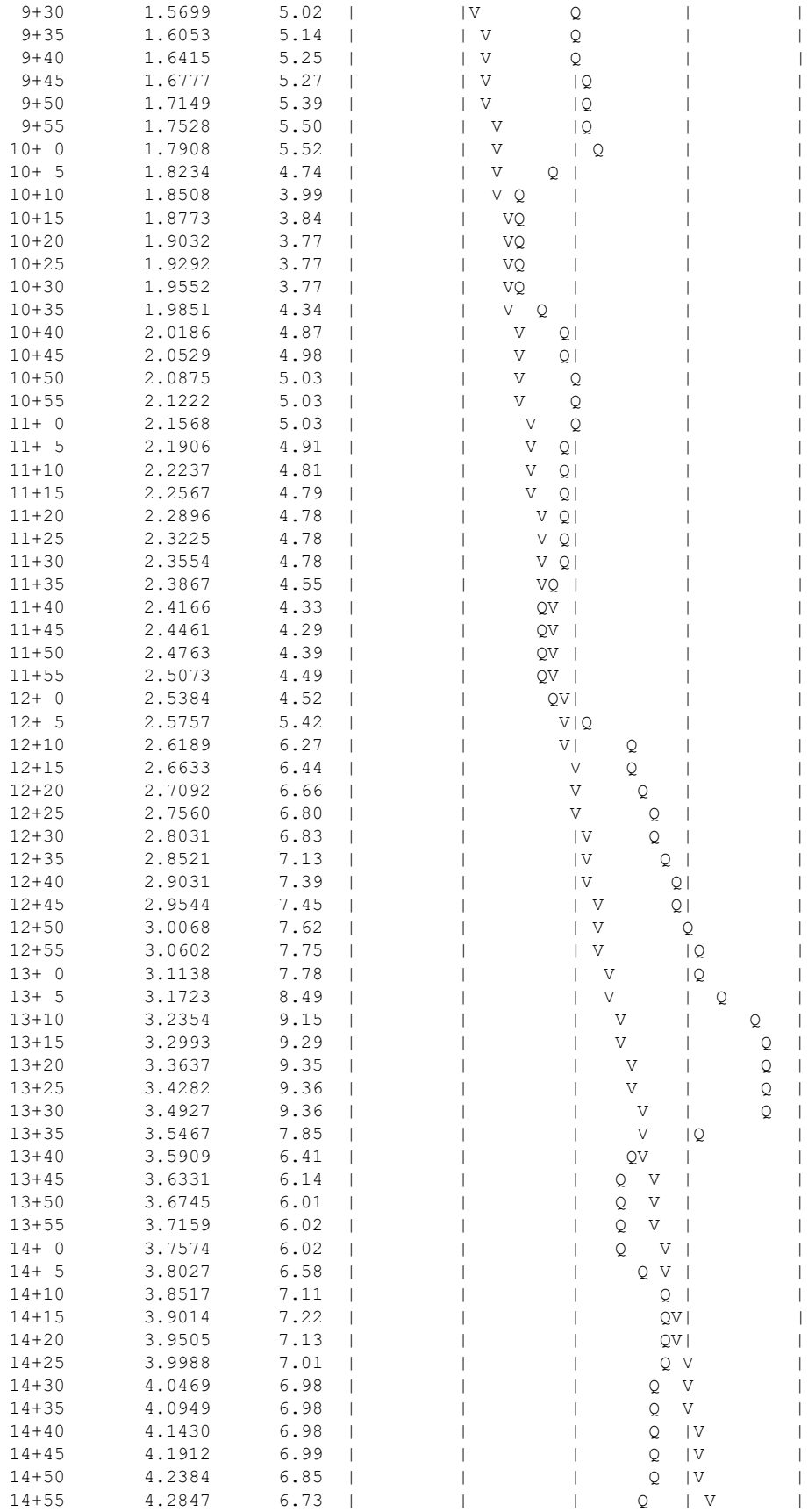
159	13.25	1.13	0.668		0.069	(0.120)	0.599
160	13.33	1.13	0.668		0.068	(0.120)	0.599
161	13.42	1.13	0.668		0.068	(0.120)	0.600
162	13.50	1.13	0.668		0.068	(0.120)	0.600
163	13.58	0.77	0.452		0.067	(0.081)	0.384
164	13.67	0.77	0.452		0.067	(0.081)	0.385
165	13.75	0.77	0.452		0.067	(0.081)	0.385
166	13.83	0.77	0.452		0.066	(0.081)	0.385
167	13.92	0.77	0.452		0.066	(0.081)	0.386
168	14.00	0.77	0.452		0.066	(0.081)	0.386
169	14.08	0.90	0.530		0.065	(0.095)	0.465
170	14.17	0.90	0.530		0.065	(0.095)	0.465
171	14.25	0.90	0.530		0.065	(0.095)	0.466
172	14.33	0.87	0.511		0.064	(0.092)	0.446
173	14.42	0.87	0.511		0.064	(0.092)	0.447
174	14.50	0.87	0.511		0.064	(0.092)	0.447
175	14.58	0.87	0.511		0.063	(0.092)	0.447
176	14.67	0.87	0.511		0.063	(0.092)	0.448
177	14.75	0.87	0.511		0.063	(0.092)	0.448
178	14.83	0.83	0.491		0.062	(0.088)	0.429
179	14.92	0.83	0.491		0.062	(0.088)	0.429
180	15.00	0.83	0.491		0.062	(0.088)	0.429
181	15.08	0.80	0.471		0.061	(0.085)	0.410
182	15.17	0.80	0.471		0.061	(0.085)	0.410
183	15.25	0.80	0.471		0.061	(0.085)	0.411
184	15.33	0.77	0.452		0.060	(0.081)	0.391
185	15.42	0.77	0.452		0.060	(0.081)	0.392
186	15.50	0.77	0.452		0.060	(0.081)	0.392
187	15.58	0.63	0.373		0.060	(0.067)	0.314
188	15.67	0.63	0.373		0.059	(0.067)	0.314
189	15.75	0.63	0.373		0.059	(0.067)	0.314
190	15.83	0.63	0.373		0.059	(0.067)	0.315
191	15.92	0.63	0.373		0.058	(0.067)	0.315
192	16.00	0.63	0.373		0.058	(0.067)	0.315
193	16.08	0.13	0.079	(0.058)		0.014	0.064
194	16.17	0.13	0.079	(0.057)		0.014	0.064
195	16.25	0.13	0.079	(0.057)		0.014	0.064
196	16.33	0.13	0.079	(0.057)		0.014	0.064
197	16.42	0.13	0.079	(0.057)		0.014	0.064
198	16.50	0.13	0.079	(0.056)		0.014	0.064
199	16.58	0.10	0.059	(0.056)		0.011	0.048
200	16.67	0.10	0.059	(0.056)		0.011	0.048
201	16.75	0.10	0.059	(0.055)		0.011	0.048
202	16.83	0.10	0.059	(0.055)		0.011	0.048
203	16.92	0.10	0.059	(0.055)		0.011	0.048
204	17.00	0.10	0.059	(0.055)		0.011	0.048
205	17.08	0.17	0.098	(0.054)		0.018	0.081
206	17.17	0.17	0.098	(0.054)		0.018	0.081
207	17.25	0.17	0.098	(0.054)		0.018	0.081
208	17.33	0.17	0.098	(0.054)		0.018	0.081
209	17.42	0.17	0.098	(0.053)		0.018	0.081
210	17.50	0.17	0.098	(0.053)		0.018	0.081
211	17.58	0.17	0.098	(0.053)		0.018	0.081
212	17.67	0.17	0.098	(0.052)		0.018	0.081
213	17.75	0.17	0.098	(0.052)		0.018	0.081
214	17.83	0.13	0.079	(0.052)		0.014	0.064
215	17.92	0.13	0.079	(0.052)		0.014	0.064
216	18.00	0.13	0.079	(0.051)		0.014	0.064
217	18.08	0.13	0.079	(0.051)		0.014	0.064
218	18.17	0.13	0.079	(0.051)		0.014	0.064
219	18.25	0.13	0.079	(0.051)		0.014	0.064
220	18.33	0.13	0.079	(0.050)		0.014	0.064
221	18.42	0.13	0.079	(0.050)		0.014	0.064
222	18.50	0.13	0.079	(0.050)		0.014	0.064
223	18.58	0.10	0.059	(0.050)		0.011	0.048
224	18.67	0.10	0.059	(0.049)		0.011	0.048

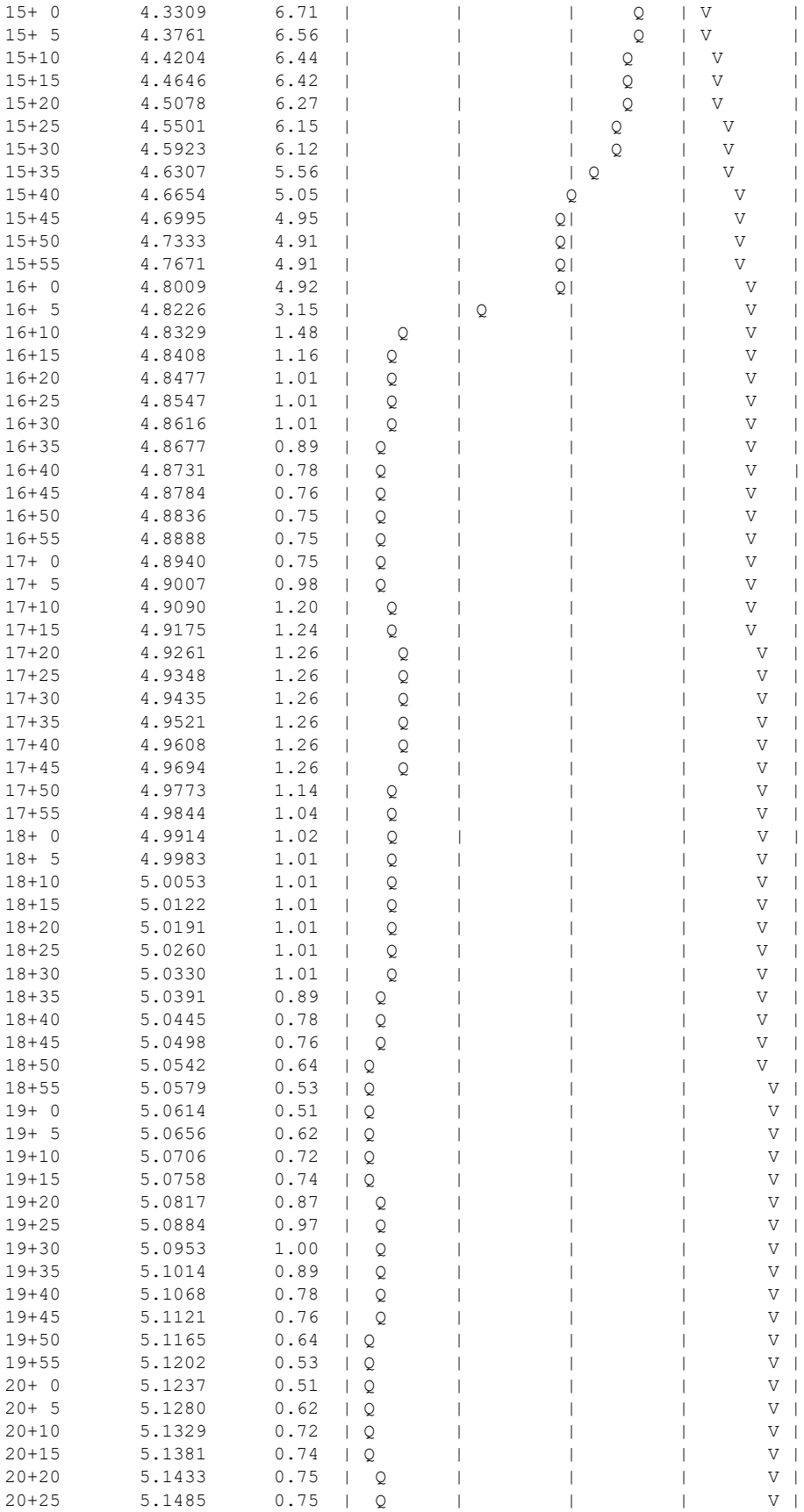
225	18.75	0.10	0.059	(0.049)	0.011	0.048
226	18.83	0.07	0.039	(0.049)	0.007	0.032
227	18.92	0.07	0.039	(0.049)	0.007	0.032
228	19.00	0.07	0.039	(0.049)	0.007	0.032
229	19.08	0.10	0.059	(0.048)	0.011	0.048
230	19.17	0.10	0.059	(0.048)	0.011	0.048
231	19.25	0.10	0.059	(0.048)	0.011	0.048
232	19.33	0.13	0.079	(0.048)	0.014	0.064
233	19.42	0.13	0.079	(0.047)	0.014	0.064
234	19.50	0.13	0.079	(0.047)	0.014	0.064
235	19.58	0.10	0.059	(0.047)	0.011	0.048
236	19.67	0.10	0.059	(0.047)	0.011	0.048
237	19.75	0.10	0.059	(0.047)	0.011	0.048
238	19.83	0.07	0.039	(0.046)	0.007	0.032
239	19.92	0.07	0.039	(0.046)	0.007	0.032
240	20.00	0.07	0.039	(0.046)	0.007	0.032
241	20.08	0.10	0.059	(0.046)	0.011	0.048
242	20.17	0.10	0.059	(0.045)	0.011	0.048
243	20.25	0.10	0.059	(0.045)	0.011	0.048
244	20.33	0.10	0.059	(0.045)	0.011	0.048
245	20.42	0.10	0.059	(0.045)	0.011	0.048
246	20.50	0.10	0.059	(0.045)	0.011	0.048
247	20.58	0.10	0.059	(0.045)	0.011	0.048
248	20.67	0.10	0.059	(0.044)	0.011	0.048
249	20.75	0.10	0.059	(0.044)	0.011	0.048
250	20.83	0.07	0.039	(0.044)	0.007	0.032
251	20.92	0.07	0.039	(0.044)	0.007	0.032
252	21.00	0.07	0.039	(0.044)	0.007	0.032
253	21.08	0.10	0.059	(0.043)	0.011	0.048
254	21.17	0.10	0.059	(0.043)	0.011	0.048
255	21.25	0.10	0.059	(0.043)	0.011	0.048
256	21.33	0.07	0.039	(0.043)	0.007	0.032
257	21.42	0.07	0.039	(0.043)	0.007	0.032
258	21.50	0.07	0.039	(0.043)	0.007	0.032
259	21.58	0.10	0.059	(0.042)	0.011	0.048
260	21.67	0.10	0.059	(0.042)	0.011	0.048
261	21.75	0.10	0.059	(0.042)	0.011	0.048
262	21.83	0.07	0.039	(0.042)	0.007	0.032
263	21.92	0.07	0.039	(0.042)	0.007	0.032
264	22.00	0.07	0.039	(0.042)	0.007	0.032
265	22.08	0.10	0.059	(0.042)	0.011	0.048
266	22.17	0.10	0.059	(0.041)	0.011	0.048
267	22.25	0.10	0.059	(0.041)	0.011	0.048
268	22.33	0.07	0.039	(0.041)	0.007	0.032
269	22.42	0.07	0.039	(0.041)	0.007	0.032
270	22.50	0.07	0.039	(0.041)	0.007	0.032
271	22.58	0.07	0.039	(0.041)	0.007	0.032
272	22.67	0.07	0.039	(0.041)	0.007	0.032
273	22.75	0.07	0.039	(0.041)	0.007	0.032
274	22.83	0.07	0.039	(0.041)	0.007	0.032
275	22.92	0.07	0.039	(0.040)	0.007	0.032
276	23.00	0.07	0.039	(0.040)	0.007	0.032
277	23.08	0.07	0.039	(0.040)	0.007	0.032
278	23.17	0.07	0.039	(0.040)	0.007	0.032
279	23.25	0.07	0.039	(0.040)	0.007	0.032
280	23.33	0.07	0.039	(0.040)	0.007	0.032
281	23.42	0.07	0.039	(0.040)	0.007	0.032
282	23.50	0.07	0.039	(0.040)	0.007	0.032
283	23.58	0.07	0.039	(0.040)	0.007	0.032
284	23.67	0.07	0.039	(0.040)	0.007	0.032
285	23.75	0.07	0.039	(0.040)	0.007	0.032
286	23.83	0.07	0.039	(0.040)	0.007	0.032
287	23.92	0.07	0.039	(0.040)	0.007	0.032
288	24.00	0.07	0.039	(0.040)	0.007	0.032
		(Loss Rate Not Used)				
	Sum =	100.0			Sum =	49.5

```
      Flood volume = Effective rainfall      4.13(In)
       times area      15.5(Ac.)/[(In)/(Ft.)] =       5.3(Ac.Ft)
      Total soil loss =      0.78(In)
      Total soil loss =     1.010(Ac.Ft)
      Total rainfall =      4.91(In)
      Flood volume =      231893.1 Cubic Feet
      Total soil loss =       44003.2 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      9.362(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       0.0016      0.23  Q          |         |         |         |
  0+10       0.0046      0.44  VQ         |         |         |         |
  0+15       0.0079      0.48  VQ         |         |         |         |
  0+20       0.0122      0.62  V Q        |         |         |         |
  0+25       0.0172      0.72  V Q        |         |         |         |
  0+30       0.0223      0.74  V Q        |         |         |         |
  0+35       0.0275      0.75  V  Q       |         |         |         |
  0+40       0.0327      0.75  V  Q       |         |         |         |
  0+45       0.0379      0.75  V  Q       |         |         |         |
  0+50       0.0438      0.87  V  Q       |         |         |         |
  0+55       0.0506      0.97  V  Q       |         |         |         |
  1+ 0       0.0574      1.00  V  Q       |         |         |         |
  1+ 5       0.0636      0.89  V  Q       |         |         |         |
  1+10       0.0690      0.78  V  Q       |         |         |         |
  1+15       0.0742      0.76  V  Q       |         |         |         |
  1+20       0.0794      0.75  V  Q       |         |         |         |
  1+25       0.0846      0.75  V  Q       |         |         |         |
  1+30       0.0898      0.75  V  Q       |         |         |         |
  1+35       0.0950      0.75  V  Q       |         |         |         |
  1+40       0.1002      0.75  V  Q       |         |         |         |
  1+45       0.1054      0.75  V  Q       |         |         |         |
  1+50       0.1114      0.87  V  Q       |         |         |         |
  1+55       0.1181      0.97  V  Q       |         |         |         |
  2+ 0       0.1249      1.00  V  Q       |         |         |         |
  2+ 5       0.1319      1.01  V   Q      |         |         |         |
  2+10       0.1388      1.01  |V  Q      |         |         |         |
  2+15       0.1457      1.01  |V  Q      |         |         |         |
  2+20       0.1526      1.01  |V  Q      |         |         |         |
  2+25       0.1596      1.01  |V  Q      |         |         |         |
  2+30       0.1665      1.01  |V  Q      |         |         |         |
  2+35       0.1742      1.12  |V  Q      |         |         |         |
  2+40       0.1826      1.23  |V  Q      |         |         |         |
  2+45       0.1912      1.25  |V  Q      |         |         |         |
  2+50       0.1999      1.26  |V   Q     |         |         |         |
  2+55       0.2085      1.26  |V   Q     |         |         |         |
  3+ 0       0.2172      1.26  |V   Q     |         |         |         |
  3+ 5       0.2258      1.26  |V   Q     |         |         |         |
  3+10       0.2345      1.26  |V   Q     |         |         |         |
  3+15       0.2432      1.26  |V   Q     |         |         |         |
  3+20       0.2518      1.26  |V   Q     |         |         |         |
  3+25       0.2605      1.26  |V   Q     |         |         |         |
  3+30       0.2691      1.26  | V  Q     |         |         |         |
  3+35       0.2778      1.26  | V  Q     |         |         |         |
  3+40       0.2864      1.26  | V  Q     |         |         |         |
  3+45       0.2951      1.26  | V  Q     |         |         |         |
  3+50       0.3045      1.37  | V  Q     |         |         |         |
  3+55       0.3147      1.48  | V  Q     |         |         |         |
```

4+ 0	0.3250	1.50	V Q			
4+ 5	0.3354	1.51	V Q			
4+10	0.3458	1.51	V Q			
4+15	0.3562	1.51	V Q			
4+20	0.3674	1.62	V Q			
4+25	0.3793	1.73	V Q			
4+30	0.3913	1.75	V Q			
4+35	0.4034	1.76	V Q			
4+40	0.4156	1.76	V Q			
4+45	0.4277	1.76	V Q			
4+50	0.4406	1.87	V Q			
4+55	0.4542	1.98	V Q			
5+ 0	0.4680	2.00	V Q			
5+ 5	0.4803	1.78	V Q			
5+10	0.4911	1.57	V Q			
5+15	0.5016	1.53	V Q			
5+20	0.5128	1.62	V Q			
5+25	0.5247	1.73	V Q			
5+30	0.5367	1.75	V Q			
5+35	0.5496	1.87	V Q			
5+40	0.5633	1.98	V Q			
5+45	0.5771	2.00	V Q			
5+50	0.5909	2.01	V Q			
5+55	0.6048	2.01	V Q			
6+ 0	0.6186	2.01	V Q			
6+ 5	0.6332	2.12	V Q			
6+10	0.6486	2.23	V Q			
6+15	0.6641	2.25	V Q			
6+20	0.6797	2.26	V Q			
6+25	0.6953	2.26	V Q			
6+30	0.7109	2.26	V Q			
6+35	0.7272	2.38	V Q			
6+40	0.7443	2.48	V Q			
6+45	0.7616	2.50	V Q			
6+50	0.7789	2.51	V Q			
6+55	0.7962	2.51	V Q			
7+ 0	0.8135	2.51	V Q			
7+ 5	0.8308	2.51	V Q			
7+10	0.8481	2.51	V Q			
7+15	0.8655	2.51	V Q			
7+20	0.8835	2.63	V Q			
7+25	0.9024	2.73	V Q			
7+30	0.9214	2.76	V Q			
7+35	0.9412	2.88	V Q			
7+40	0.9617	2.99	V Q			
7+45	0.9825	3.01	V Q			
7+50	1.0040	3.13	V Q			
7+55	1.0263	3.24	V Q			
8+ 0	1.0487	3.26	V Q			
8+ 5	1.0728	3.49	V Q			
8+10	1.0984	3.71	V Q			
8+15	1.1242	3.75	V Q			
8+20	1.1502	3.77	V Q			
8+25	1.1761	3.77	V Q			
8+30	1.2021	3.77	V Q			
8+35	1.2288	3.88	V Q			
8+40	1.2563	3.99	V Q			
8+45	1.2840	4.01	V Q			
8+50	1.3124	4.14	V Q			
8+55	1.3417	4.24	V Q			
9+ 0	1.3710	4.26	V Q			
9+ 5	1.4020	4.50	V Q			
9+10	1.4345	4.71	V Q			
9+15	1.4673	4.76	V Q			
9+20	1.5009	4.89	V Q			
9+25	1.5353	5.00	V Q			





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  20+30       5.1537      0.75  |  Q      |         |         |       V |
  20+35       5.1588      0.75  |  Q      |         |         |       V |
  20+40       5.1640      0.75  |  Q      |         |         |       V |
  20+45       5.1692      0.75  |  Q      |         |         |       V |
  20+50       5.1736      0.64  | Q       |         |         |       V |
  20+55       5.1773      0.53  | Q       |         |         |       V |
  21+ 0       5.1809      0.51  | Q       |         |         |       V |
  21+ 5       5.1851      0.62  | Q       |         |         |       V |
  21+10       5.1901      0.72  | Q       |         |         |       V |
  21+15       5.1952      0.74  | Q       |         |         |        V|
  21+20       5.1996      0.64  | Q       |         |         |        V|
  21+25       5.2033      0.53  | Q       |         |         |        V|
  21+30       5.2068      0.51  | Q       |         |         |        V|
  21+35       5.2111      0.62  | Q       |         |         |        V|
  21+40       5.2160      0.72  | Q       |         |         |        V|
  21+45       5.2212      0.74  | Q       |         |         |        V|
  21+50       5.2256      0.64  | Q       |         |         |        V|
  21+55       5.2293      0.53  | Q       |         |         |        V|
  22+ 0       5.2328      0.51  | Q       |         |         |        V|
  22+ 5       5.2370      0.62  | Q       |         |         |        V|
  22+10       5.2420      0.72  | Q       |         |         |        V|
  22+15       5.2471      0.74  | Q       |         |         |        V|
  22+20       5.2516      0.64  | Q       |         |         |        V|
  22+25       5.2552      0.53  | Q       |         |         |        V|
  22+30       5.2588      0.51  | Q       |         |         |        V|
  22+35       5.2622      0.50  | Q       |         |         |        V|
  22+40       5.2657      0.50  | Q       |         |         |        V|
  22+45       5.2691      0.50  | Q       |         |         |        V|
  22+50       5.2726      0.50  | Q       |         |         |        V|
  22+55       5.2761      0.50  | Q       |         |         |        V|
  23+ 0       5.2795      0.50  | Q       |         |         |        V|
  23+ 5       5.2830      0.50  | Q       |         |         |        V|
  23+10       5.2865      0.50  | Q       |         |         |        V|
  23+15       5.2899      0.50  | Q       |         |         |        V|
  23+20       5.2934      0.50  | Q       |         |         |        V|
  23+25       5.2968      0.50  | Q       |         |         |        V|
  23+30       5.3003      0.50  | Q       |         |         |        V|
  23+35       5.3038      0.50  | Q       |         |         |        V|
  23+40       5.3072      0.50  | Q       |         |         |        V|
  23+45       5.3107      0.50  | Q       |         |         |        V|
  23+50       5.3142      0.50  | Q       |         |         |        V|
  23+55       5.3176      0.50  | Q       |         |         |        V|
  24+ 0       5.3211      0.50  | Q       |         |         |        V|
  24+ 5       5.3230      0.28  |Q        |         |         |        V|
  24+10       5.3234      0.06  Q         |         |         |        V|
  24+15       5.3235      0.02  Q         |         |         |        V|
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APPENDIX E

DETENTION BASIN VOLUME CALCULATIONS

DETENTION BASIN DESIGN

MAJESTIC FREEWAY BUSINESS CENTER - BUILDING 18

BASIN VOLUMES BY ELEVATION

BASIN B1

ELEVATION	***AREA***	***AREA***	***VOLUME***	***CUMULATIVE***	***CUMULATIVE***	
(FT)	(SF)	(AC)	(ACRE-FT)	(ACRE-FT)	(CU-FT)	
1529	6,870	0.16	0.00	0	0	BIO-RETENTION LAYERS
1530	6,870	0.16	0.06	0.06	2,748	
1531	6,870	0.16	0.06	0.13	5,496	
1532	6,870	0.16	0.06	0.19	8,244	
1533	10,023	0.23	0.19	0.38	16,691	
1534	13,282	0.30	0.27	0.65	28,343	
1535	16,653	0.38	0.34	0.99	43,311	
1536	20,134	0.46	0.42	1.42	61,704	
1537	21,945	0.50	0.48	1.90	82,744	

APPENDIX F

DETENTION BASIN OUTFLOW CALCULATIONS

BASIN OUTFLOW CALCULATIONS
DETENTION BASIN DESIGN
MAJESTIC FREEWAY BUSINESS CENTER - BUILDING 18

BASIN B1

BIOTREATMENT FLOW = BOTTOM AREA x 4 IN/HR
16,000 SF = 1.48

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)
1537.00	5.50	1.90	82,744	1.48	15.51	15.5
1536.00	4.50	1.42	61,704	1.48	11.57	27.1
1535.00	3.50	0.99	43,311	1.48	8.12	35.2
1534.00	2.50	0.00	28,343	1.48	5.31	40.5
1533.00	1.50	0.00	16,691	1.48	3.13	43.6
1532.00	0.50	0.00	8,244	1.48	1.55	45.2
1531.00	0.50	0.00	5,496	1.48	1.03	46.2
1530.00	0.50	0.00	2,748	1.48	0.52	46.7

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)
1536	2.00	0.00	0.00
1537	3.00	1.00	65.85

APPENDIX G

FLOOD ROUTING CALCULATIONS

FLOOD HYDROGRAPH ROUTING PROGRAM

Study date: 10/31/21

MFBC BUILDING 18
FLOOD ROUTING
100 YR - 6 HR
100104RTE

Program License Serial Number 6490

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

From study/file name: 100104PRUH1100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 15
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 47.781 (CFS)
Total volume = 1.639 (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

****

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Process from Point/Station 1.000 to Point/Station 2.000
**** RETARDING BASIN ROUTING ****
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User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 15
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	0.060	1.480	0.055	0.065
2.000	0.130	1.480	0.125	0.135
3.000	0.190	1.480	0.185	0.195
4.000	0.380	1.480	0.375	0.385
5.000	0.650	1.480	0.645	0.655
6.000	0.990	1.480	0.985	0.995
6.001	1.420	1.480	1.415	1.425

7.000 1.900 66.900 1.670 2.130

Hydrograph Detention Basin Routing

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

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 11.9 23.89 35.84 47.78	Depth (Ft.)
0.083	4.24	0.33	0.013	O I	0.22
0.167	8.35	1.27	0.051	O I	0.86
0.250	10.05	1.48	0.105	O I	1.65
0.333	11.18	1.48	0.168	O I	2.64
0.417	12.25	1.48	0.239	O I	3.26
0.500	13.98	1.48	0.319	O I	3.68
0.583	15.93	1.48	0.412	O I	4.12
0.667	18.50	1.48	0.520	O I	4.52
0.750	24.28	1.48	0.657	O I	5.02
0.833	47.78	1.48	0.895	O I	5.72
0.917	41.34	1.48	1.192	O I	6.00
1.000	19.16	1.48	1.390	O I	6.00
1.083	8.97	6.73	1.459	O I	6.08
1.167	1.57	5.80	1.452	I O	6.07
1.250	0.44	2.73	1.429	IO	6.02
1.333	0.00	1.48	1.416	O	6.00
1.417	0.00	1.48	1.406	O	6.00
1.500	0.00	1.48	1.396	O	6.00
1.583	0.00	1.48	1.386	O	6.00
1.667	0.00	1.48	1.375	O	6.00
1.750	0.00	1.48	1.365	O	6.00
1.833	0.00	1.48	1.355	O	6.00
1.917	0.00	1.48	1.345	O	6.00
2.000	0.00	1.48	1.335	O	6.00
2.083	0.00	1.48	1.324	O	6.00
2.167	0.00	1.48	1.314	O	6.00
2.250	0.00	1.48	1.304	O	6.00
2.333	0.00	1.48	1.294	O	6.00
2.417	0.00	1.48	1.284	O	6.00
2.500	0.00	1.48	1.273	O	6.00
2.583	0.00	1.48	1.263	O	6.00
2.667	0.00	1.48	1.253	O	6.00
2.750	0.00	1.48	1.243	O	6.00
2.833	0.00	1.48	1.233	O	6.00
2.917	0.00	1.48	1.223	O	6.00
3.000	0.00	1.48	1.212	O	6.00
3.083	0.00	1.48	1.202	O	6.00
3.167	0.00	1.48	1.192	O	6.00
3.250	0.00	1.48	1.182	O	6.00
3.333	0.00	1.48	1.172	O	6.00
3.417	0.00	1.48	1.161	O	6.00
3.500	0.00	1.48	1.151	O	6.00
3.583	0.00	1.48	1.141	O	6.00
3.667	0.00	1.48	1.131	O	6.00
3.750	0.00	1.48	1.121	O	6.00
3.833	0.00	1.48	1.110	O	6.00
3.917	0.00	1.48	1.100	O	6.00
4.000	0.00	1.48	1.090	O	6.00
4.083	0.00	1.48	1.080	O	6.00
4.167	0.00	1.48	1.070	O	6.00
4.250	0.00	1.48	1.059	O	6.00
4.333	0.00	1.48	1.049	O	6.00
4.417	0.00	1.48	1.039	O	6.00
4.500	0.00	1.48	1.029	O	6.00
4.583	0.00	1.48	1.019	O	6.00
4.667	0.00	1.48	1.008	O	6.00
4.750	0.00	1.48	0.998	O	6.00

4.833	0.00	1.48	0.988	O	|	|	|	|	5.99
4.917	0.00	1.48	0.978	O	|	|	|	|	5.96
5.000	0.00	1.48	0.968	O	|	|	|	|	5.93
5.083	0.00	1.48	0.958	O	|	|	|	|	5.90
5.167	0.00	1.48	0.947	O	|	|	|	|	5.87
5.250	0.00	1.48	0.937	O	|	|	|	|	5.84
5.333	0.00	1.48	0.927	O	|	|	|	|	5.81
5.417	0.00	1.48	0.917	O	|	|	|	|	5.78
5.500	0.00	1.48	0.907	O	|	|	|	|	5.75
5.583	0.00	1.48	0.896	O	|	|	|	|	5.72
5.667	0.00	1.48	0.886	O	|	|	|	|	5.69
5.750	0.00	1.48	0.876	O	|	|	|	|	5.66
5.833	0.00	1.48	0.866	O	|	|	|	|	5.63
5.917	0.00	1.48	0.856	O	|	|	|	|	5.60
6.000	0.00	1.48	0.845	O	|	|	|	|	5.57
6.083	0.00	1.48	0.835	O	|	|	|	|	5.54
6.167	0.00	1.48	0.825	O	|	|	|	|	5.51
6.250	0.00	1.48	0.815	O	|	|	|	|	5.48
6.333	0.00	1.48	0.805	O	|	|	|	|	5.45
6.417	0.00	1.48	0.794	O	|	|	|	|	5.42
6.500	0.00	1.48	0.784	O	|	|	|	|	5.39
6.583	0.00	1.48	0.774	O	|	|	|	|	5.36
6.667	0.00	1.48	0.764	O	|	|	|	|	5.33
6.750	0.00	1.48	0.754	O	|	|	|	|	5.30
6.833	0.00	1.48	0.743	O	|	|	|	|	5.27
6.917	0.00	1.48	0.733	O	|	|	|	|	5.24
7.000	0.00	1.48	0.723	O	|	|	|	|	5.21
7.083	0.00	1.48	0.713	O	|	|	|	|	5.18
7.167	0.00	1.48	0.703	O	|	|	|	|	5.15
7.250	0.00	1.48	0.692	O	|	|	|	|	5.12
7.333	0.00	1.48	0.682	O	|	|	|	|	5.10
7.417	0.00	1.48	0.672	O	|	|	|	|	5.07
7.500	0.00	1.48	0.662	O	|	|	|	|	5.04
7.583	0.00	1.48	0.652	O	|	|	|	|	5.01
7.667	0.00	1.48	0.642	O	|	|	|	|	4.97
7.750	0.00	1.48	0.631	O	|	|	|	|	4.93
7.833	0.00	1.48	0.621	O	|	|	|	|	4.89
7.917	0.00	1.48	0.611	O	|	|	|	|	4.86
8.000	0.00	1.48	0.601	O	|	|	|	|	4.82
8.083	0.00	1.48	0.591	O	|	|	|	|	4.78
8.167	0.00	1.48	0.580	O	|	|	|	|	4.74
8.250	0.00	1.48	0.570	O	|	|	|	|	4.70
8.333	0.00	1.48	0.560	O	|	|	|	|	4.67
8.417	0.00	1.48	0.550	O	|	|	|	|	4.63
8.500	0.00	1.48	0.540	O	|	|	|	|	4.59
8.583	0.00	1.48	0.529	O	|	|	|	|	4.55
8.667	0.00	1.48	0.519	O	|	|	|	|	4.52
8.750	0.00	1.48	0.509	O	|	|	|	|	4.48
8.833	0.00	1.48	0.499	O	|	|	|	|	4.44
8.917	0.00	1.48	0.489	O	|	|	|	|	4.40
9.000	0.00	1.48	0.478	O	|	|	|	|	4.36
9.083	0.00	1.48	0.468	O	|	|	|	|	4.33
9.167	0.00	1.48	0.458	O	|	|	|	|	4.29
9.250	0.00	1.48	0.448	O	|	|	|	|	4.25
9.333	0.00	1.48	0.438	O	|	|	|	|	4.21
9.417	0.00	1.48	0.427	O	|	|	|	|	4.18
9.500	0.00	1.48	0.417	O	|	|	|	|	4.14
9.583	0.00	1.48	0.407	O	|	|	|	|	4.10
9.667	0.00	1.48	0.397	O	|	|	|	|	4.06
9.750	0.00	1.48	0.387	O	|	|	|	|	4.02
9.833	0.00	1.48	0.377	O	|	|	|	|	3.98
9.917	0.00	1.48	0.366	O	|	|	|	|	3.93
10.000	0.00	1.48	0.356	O	|	|	|	|	3.87
10.083	0.00	1.48	0.346	O	|	|	|	|	3.82
10.167	0.00	1.48	0.336	O	|	|	|	|	3.77
10.250	0.00	1.48	0.326	O	|	|	|	|	3.71

10.333	0.00	1.48	0.315	O	|	|	|	|	3.66
10.417	0.00	1.48	0.305	O	|	|	|	|	3.61
10.500	0.00	1.48	0.295	O	|	|	|	|	3.55
10.583	0.00	1.48	0.285	O	|	|	|	|	3.50
10.667	0.00	1.48	0.275	O	|	|	|	|	3.45
10.750	0.00	1.48	0.264	O	|	|	|	|	3.39
10.833	0.00	1.48	0.254	O	|	|	|	|	3.34
10.917	0.00	1.48	0.244	O	|	|	|	|	3.28
11.000	0.00	1.48	0.234	O	|	|	|	|	3.23
11.083	0.00	1.48	0.224	O	|	|	|	|	3.18
11.167	0.00	1.48	0.213	O	|	|	|	|	3.12
11.250	0.00	1.48	0.203	O	|	|	|	|	3.07
11.333	0.00	1.48	0.193	O	|	|	|	|	3.02
11.417	0.00	1.48	0.183	O	|	|	|	|	2.88
11.500	0.00	1.48	0.173	O	|	|	|	|	2.71
11.583	0.00	1.48	0.162	O	|	|	|	|	2.54
11.667	0.00	1.48	0.152	O	|	|	|	|	2.37
11.750	0.00	1.48	0.142	O	|	|	|	|	2.20
11.833	0.00	1.48	0.132	O	|	|	|	|	2.03
11.917	0.00	1.48	0.122	O	|	|	|	|	1.88
12.000	0.00	1.48	0.112	O	|	|	|	|	1.74
12.083	0.00	1.48	0.101	O	|	|	|	|	1.59
12.167	0.00	1.48	0.091	O	|	|	|	|	1.44
12.250	0.00	1.48	0.081	O	|	|	|	|	1.30
12.333	0.00	1.48	0.071	O	|	|	|	|	1.15
12.417	0.00	1.48	0.061	O	|	|	|	|	1.01
12.500	0.00	1.26	0.051	O	|	|	|	|	0.85
12.583	0.00	1.06	0.043	O	|	|	|	|	0.72
12.667	0.00	0.90	0.036	O	|	|	|	|	0.61
12.750	0.00	0.76	0.031	O	|	|	|	|	0.51
12.833	0.00	0.64	0.026	O	|	|	|	|	0.43
12.917	0.00	0.54	0.022	O	|	|	|	|	0.36
13.000	0.00	0.45	0.018	O	|	|	|	|	0.31
13.083	0.00	0.38	0.016	O	|	|	|	|	0.26
13.167	0.00	0.32	0.013	O	|	|	|	|	0.22
13.250	0.00	0.27	0.011	O	|	|	|	|	0.18
13.333	0.00	0.23	0.009	O	|	|	|	|	0.16
13.417	0.00	0.19	0.008	O	|	|	|	|	0.13
13.500	0.00	0.16	0.007	O	|	|	|	|	0.11
13.583	0.00	0.14	0.006	O	|	|	|	|	0.09
13.667	0.00	0.12	0.005	O	|	|	|	|	0.08
13.750	0.00	0.10	0.004	O	|	|	|	|	0.07
13.833	0.00	0.08	0.003	O	|	|	|	|	0.06
13.917	0.00	0.07	0.003	O	|	|	|	|	0.05
14.000	0.00	0.06	0.002	O	|	|	|	|	0.04
14.083	0.00	0.05	0.002	O	|	|	|	|	0.03
14.167	0.00	0.04	0.002	O	|	|	|	|	0.03
14.250	0.00	0.04	0.001	O	|	|	|	|	0.02
14.333	0.00	0.03	0.001	O	|	|	|	|	0.02
14.417	0.00	0.03	0.001	O	|	|	|	|	0.02
14.500	0.00	0.02	0.001	O	|	|	|	|	0.01
14.583	0.00	0.02	0.001	O	|	|	|	|	0.01
14.667	0.00	0.02	0.001	O	|	|	|	|	0.01
14.750	0.00	0.01	0.001	O	|	|	|	|	0.01
14.833	0.00	0.01	0.000	O	|	|	|	|	0.01
14.917	0.00	0.01	0.000	O	|	|	|	|	0.01
15.000	0.00	0.01	0.000	O	|	|	|	|	0.01
15.083	0.00	0.01	0.000	O	|	|	|	|	0.00
15.167	0.00	0.01	0.000	O	|	|	|	|	0.00
15.250	0.00	0.00	0.000	O	|	|	|	|	0.00
15.333	0.00	0.00	0.000	O	|	|	|	|	0.00
15.417	0.00	0.00	0.000	O	|	|	|	|	0.00
15.500	0.00	0.00	0.000	O	|	|	|	|	0.00
15.583	0.00	0.00	0.000	O	|	|	|	|	0.00
15.667	0.00	0.00	0.000	O	|	|	|	|	0.00
15.750	0.00	0.00	0.000	O	|	|	|	|	0.00

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15.833    0.00    0.00      0.000  O       |       |       |       |     0.00

      ****************************HYDROGRAPH DATA****************************
                    Number of intervals =   190
                    Time interval =    5.0 (Min.)
                    Maximum/Peak flow rate =        6.729 (CFS)
                    Total volume =       1.639 (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
      ***********************************************************************

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FLOOD HYDROGRAPH ROUTING PROGRAM

Study date: 10/31/21

MFBC BUILDING 18
FLOOD ROUTING
100 YR - 3 HR
100104RTE

Program License Serial Number 6490

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

From study/file name: 100104PRUH3100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 39
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 27.073 (CFS)
Total volume = 2.308 (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

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Process from Point/Station 1.000 to Point/Station 2.000
**** RETARDING BASIN ROUTING ****
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User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 39
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	0.060	1.480	0.055	0.065
2.000	0.130	1.480	0.125	0.135
3.000	0.190	1.480	0.185	0.195
4.000	0.380	1.480	0.375	0.385
5.000	0.650	1.480	0.645	0.655
6.000	0.990	1.480	0.985	0.995

6.001	1.420	1.480	1.415	1.425
7.000	1.900	66.900	1.670	2.130

Hydrograph Detention Basin Routing

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

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 6.8 13.54 20.30 27.07	Depth (Ft.)
0.083	1.81	0.14	0.006	O I | | | | |	0.10
0.167	3.52	0.54	0.022	O I | | | | |	0.36
0.250	3.58	1.01	0.041	|O I | | | | |	0.68
0.333	4.03	1.45	0.059	|O I | | | | |	0.98
0.417	4.50	1.48	0.078	|O I | | | | |	1.26
0.500	5.00	1.48	0.101	|O I | | | | |	1.58
0.583	5.03	1.48	0.125	|O I | | | | |	1.93
0.667	5.13	1.48	0.150	|O I | | | | |	2.33
0.750	5.48	1.48	0.176	|O I | | | | |	2.77
0.833	5.10	1.48	0.202	|O I | | | | |	3.06
0.917	4.88	1.48	0.226	|O I | | | | |	3.19
1.000	5.22	1.48	0.251	|O I | | | | |	3.32
1.083	6.14	1.48	0.280	|O I| | | | |	3.47
1.167	6.84	1.48	0.314	|O I | | | | |	3.65
1.250	6.99	1.48	0.352	|O I | | | | |	3.85
1.333	6.71	1.48	0.389	|O I| | | | |	4.03
1.417	7.41	1.48	0.427	|O I | | | | |	4.17
1.500	8.48	1.48	0.472	|O | I | | | |	4.34
1.583	8.29	1.48	0.519	|O |I | | | |	4.52
1.667	8.43	1.48	0.567	|O |I | | | |	4.69
1.750	9.86	1.48	0.619	|O | I | | | |	4.89
1.833	10.53	1.48	0.679	|O | I | | | |	5.09
1.917	10.10	1.48	0.740	|O | I | | | |	5.27
2.000	9.97	1.48	0.799	|O | I | | | |	5.44
2.083	10.21	1.48	0.859	|O | I | | | |	5.61
2.167	12.25	1.48	0.926	|O | I | | | |	5.81
2.250	15.42	1.48	1.011	|O | | I | | |	6.00
2.333	14.51	1.48	1.104	|O | |I | | |	6.00
2.417	18.13	1.48	1.206	|O | | | I | |	6.00
2.500	23.91	1.48	1.340	|O | | | | I |	6.00
2.583	27.07	9.44	1.478	| | O | | | I	6.12
2.667	25.24	20.12	1.557	| | | | O| I |	6.29
2.750	15.28	20.21	1.557	| | | I O| | |	6.29
2.833	8.09	14.76	1.517	| |I |O | | |	6.20
2.917	6.21	9.90	1.482	| |I O | | |	6.13
3.000	3.91	6.81	1.459	| I O | | | |	6.08
3.083	1.47	4.18	1.440	|I O | | | |	6.04
3.167	0.37	2.10	1.425	I O | | | |	6.01
3.250	0.07	1.48	1.414	IO | | | |	6.00
3.333	0.00	1.48	1.404	IO | | | |	6.00
3.417	0.00	1.48	1.394	IO | | | |	6.00
3.500	0.00	1.48	1.383	IO | | | |	6.00
3.583	0.00	1.48	1.373	IO | | | |	6.00
3.667	0.00	1.48	1.363	IO | | | |	6.00
3.750	0.00	1.48	1.353	IO | | | |	6.00
3.833	0.00	1.48	1.343	IO | | | |	6.00
3.917	0.00	1.48	1.332	IO | | | |	6.00
4.000	0.00	1.48	1.322	IO | | | |	6.00
4.083	0.00	1.48	1.312	IO | | | |	6.00
4.167	0.00	1.48	1.302	IO | | | |	6.00
4.250	0.00	1.48	1.292	IO | | | |	6.00
4.333	0.00	1.48	1.281	IO | | | |	6.00
4.417	0.00	1.48	1.271	IO | | | |	6.00
4.500	0.00	1.48	1.261	IO | | | |	6.00
4.583	0.00	1.48	1.251	IO | | | |	6.00
4.667	0.00	1.48	1.241	IO | | | |	6.00

4.750	0.00	1.48	1.230	IO				6.00
4.833	0.00	1.48	1.220	IO				6.00
4.917	0.00	1.48	1.210	IO				6.00
5.000	0.00	1.48	1.200	IO				6.00
5.083	0.00	1.48	1.190	IO				6.00
5.167	0.00	1.48	1.180	IO				6.00
5.250	0.00	1.48	1.169	IO				6.00
5.333	0.00	1.48	1.159	IO				6.00
5.417	0.00	1.48	1.149	IO				6.00
5.500	0.00	1.48	1.139	IO				6.00
5.583	0.00	1.48	1.129	IO				6.00
5.667	0.00	1.48	1.118	IO				6.00
5.750	0.00	1.48	1.108	IO				6.00
5.833	0.00	1.48	1.098	IO				6.00
5.917	0.00	1.48	1.088	IO				6.00
6.000	0.00	1.48	1.078	IO				6.00
6.083	0.00	1.48	1.067	IO				6.00
6.167	0.00	1.48	1.057	IO				6.00
6.250	0.00	1.48	1.047	IO				6.00
6.333	0.00	1.48	1.037	IO				6.00
6.417	0.00	1.48	1.027	IO				6.00
6.500	0.00	1.48	1.016	IO				6.00
6.583	0.00	1.48	1.006	IO				6.00
6.667	0.00	1.48	0.996	IO				6.00
6.750	0.00	1.48	0.986	IO				5.99
6.833	0.00	1.48	0.976	IO				5.96
6.917	0.00	1.48	0.965	IO				5.93
7.000	0.00	1.48	0.955	IO				5.90
7.083	0.00	1.48	0.945	IO				5.87
7.167	0.00	1.48	0.935	IO				5.84
7.250	0.00	1.48	0.925	IO				5.81
7.333	0.00	1.48	0.915	IO				5.78
7.417	0.00	1.48	0.904	IO				5.75
7.500	0.00	1.48	0.894	IO				5.72
7.583	0.00	1.48	0.884	IO				5.69
7.667	0.00	1.48	0.874	IO				5.66
7.750	0.00	1.48	0.864	IO				5.63
7.833	0.00	1.48	0.853	IO				5.60
7.917	0.00	1.48	0.843	IO				5.57
8.000	0.00	1.48	0.833	IO				5.54
8.083	0.00	1.48	0.823	IO				5.51
8.167	0.00	1.48	0.813	IO				5.48
8.250	0.00	1.48	0.802	IO				5.45
8.333	0.00	1.48	0.792	IO				5.42
8.417	0.00	1.48	0.782	IO				5.39
8.500	0.00	1.48	0.772	IO				5.36
8.583	0.00	1.48	0.762	IO				5.33
8.667	0.00	1.48	0.751	IO				5.30
8.750	0.00	1.48	0.741	IO				5.27
8.833	0.00	1.48	0.731	IO				5.24
8.917	0.00	1.48	0.721	IO				5.21
9.000	0.00	1.48	0.711	IO				5.18
9.083	0.00	1.48	0.700	IO				5.15
9.167	0.00	1.48	0.690	IO				5.12
9.250	0.00	1.48	0.680	IO				5.09
9.333	0.00	1.48	0.670	IO				5.06
9.417	0.00	1.48	0.660	IO				5.03
9.500	0.00	1.48	0.649	IO				5.00
9.583	0.00	1.48	0.639	IO				4.96
9.667	0.00	1.48	0.629	IO				4.92
9.750	0.00	1.48	0.619	IO				4.88
9.833	0.00	1.48	0.609	IO				4.85
9.917	0.00	1.48	0.599	IO				4.81
10.000	0.00	1.48	0.588	IO				4.77
10.083	0.00	1.48	0.578	IO				4.73
10.167	0.00	1.48	0.568	IO				4.70

10.250	0.00	1.48	0.558	IO				4.66
10.333	0.00	1.48	0.548	IO				4.62
10.417	0.00	1.48	0.537	IO				4.58
10.500	0.00	1.48	0.527	IO				4.55
10.583	0.00	1.48	0.517	IO				4.51
10.667	0.00	1.48	0.507	IO				4.47
10.750	0.00	1.48	0.497	IO				4.43
10.833	0.00	1.48	0.486	IO				4.39
10.917	0.00	1.48	0.476	IO				4.36
11.000	0.00	1.48	0.466	IO				4.32
11.083	0.00	1.48	0.456	IO				4.28
11.167	0.00	1.48	0.446	IO				4.24
11.250	0.00	1.48	0.435	IO				4.21
11.333	0.00	1.48	0.425	IO				4.17
11.417	0.00	1.48	0.415	IO				4.13
11.500	0.00	1.48	0.405	IO				4.09
11.583	0.00	1.48	0.395	IO				4.05
11.667	0.00	1.48	0.384	IO				4.02
11.750	0.00	1.48	0.374	IO				3.97
11.833	0.00	1.48	0.364	IO				3.92
11.917	0.00	1.48	0.354	IO				3.86
12.000	0.00	1.48	0.344	IO				3.81
12.083	0.00	1.48	0.334	IO				3.76
12.167	0.00	1.48	0.323	IO				3.70
12.250	0.00	1.48	0.313	IO				3.65
12.333	0.00	1.48	0.303	IO				3.59
12.417	0.00	1.48	0.293	IO				3.54
12.500	0.00	1.48	0.283	IO				3.49
12.583	0.00	1.48	0.272	IO				3.43
12.667	0.00	1.48	0.262	IO				3.38
12.750	0.00	1.48	0.252	IO				3.33
12.833	0.00	1.48	0.242	IO				3.27
12.917	0.00	1.48	0.232	IO				3.22
13.000	0.00	1.48	0.221	IO				3.17
13.083	0.00	1.48	0.211	IO				3.11
13.167	0.00	1.48	0.201	IO				3.06
13.250	0.00	1.48	0.191	IO				3.00
13.333	0.00	1.48	0.181	IO				2.84
13.417	0.00	1.48	0.170	IO				2.67
13.500	0.00	1.48	0.160	IO				2.50
13.583	0.00	1.48	0.150	IO				2.33
13.667	0.00	1.48	0.140	IO				2.16
13.750	0.00	1.48	0.130	IO				2.00
13.833	0.00	1.48	0.119	IO				1.85
13.917	0.00	1.48	0.109	IO				1.70
14.000	0.00	1.48	0.099	IO				1.56
14.083	0.00	1.48	0.089	IO				1.41
14.167	0.00	1.48	0.079	IO				1.27
14.250	0.00	1.48	0.069	IO				1.12
14.333	0.00	1.44	0.058	IO				0.97
14.417	0.00	1.22	0.049	IO				0.82
14.500	0.00	1.03	0.042	IO				0.69
14.583	0.00	0.86	0.035	IO				0.58
14.667	0.00	0.73	0.030	O				0.49
14.750	0.00	0.62	0.025	O				0.42
14.833	0.00	0.52	0.021	O				0.35
14.917	0.00	0.44	0.018	O				0.30
15.000	0.00	0.37	0.015	O				0.25
15.083	0.00	0.31	0.013	O				0.21
15.167	0.00	0.26	0.011	O				0.18
15.250	0.00	0.22	0.009	O				0.15
15.333	0.00	0.19	0.008	O				0.13
15.417	0.00	0.16	0.006	O				0.11
15.500	0.00	0.13	0.005	O				0.09
15.583	0.00	0.11	0.005	O				0.08
15.667	0.00	0.09	0.004	O				0.06

15.750	0.00	0.08	0.003	O	|	|	|	0.05
15.833	0.00	0.07	0.003	O	|	|	|	0.05
15.917	0.00	0.06	0.002	O	|	|	|	0.04
16.000	0.00	0.05	0.002	O	|	|	|	0.03
16.083	0.00	0.04	0.002	O	|	|	|	0.03
16.167	0.00	0.03	0.001	O	|	|	|	0.02
16.250	0.00	0.03	0.001	O	|	|	|	0.02
16.333	0.00	0.02	0.001	O	|	|	|	0.02
16.417	0.00	0.02	0.001	O	|	|	|	0.01
16.500	0.00	0.02	0.001	O	|	|	|	0.01
16.583	0.00	0.01	0.001	O	|	|	|	0.01
16.667	0.00	0.01	0.000	O	|	|	|	0.01
16.750	0.00	0.01	0.000	O	|	|	|	0.01
16.833	0.00	0.01	0.000	O	|	|	|	0.01
16.917	0.00	0.01	0.000	O	|	|	|	0.00
17.000	0.00	0.01	0.000	O	|	|	|	0.00
17.083	0.00	0.01	0.000	O	|	|	|	0.00
17.167	0.00	0.00	0.000	O	|	|	|	0.00
17.250	0.00	0.00	0.000	O	|	|	|	0.00
17.333	0.00	0.00	0.000	O	|	|	|	0.00
17.417	0.00	0.00	0.000	O	|	|	|	0.00
17.500	0.00	0.00	0.000	O	|	|	|	0.00
17.583	0.00	0.00	0.000	O	|	|	|	0.00
17.667	0.00	0.00	0.000	O	|	|	|	0.00
17.750	0.00	0.00	0.000	O	|	|	|	0.00

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

Number of intervals = 213
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 20.209 (CFS)
Total volume = 2.308 (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

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FLOOD HYDROGRAPH ROUTING PROGRAM

Study date: 10/31/21

MFBC BUILDING 18
FLOOD ROUTING
100 YR - 6 HR
100104RTE

Program License Serial Number 6490

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

From study/file name: 100104PRUH6100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 75
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 24.128 (CFS)
Total volume = 3.020 (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

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Process from Point/Station 1.000 to Point/Station 2.000
**** RETARDING BASIN ROUTING ****
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User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 75
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	0.060	1.480	0.055	0.065
2.000	0.130	1.480	0.125	0.135
3.000	0.190	1.480	0.185	0.195
4.000	0.380	1.480	0.375	0.385
5.000	0.650	1.480	0.645	0.655
6.000	0.990	1.480	0.985	0.995
6.001	1.420	1.480	1.415	1.425

7.000 1.900 66.900 1.670 2.130

Hydrograph Detention Basin Routing

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

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 6.0 12.06 18.10 24.13	Depth (Ft.)
0.083	0.93	0.07	0.003	OI	0.05
0.167	2.00	0.29	0.012	O I	0.20
0.250	2.35	0.59	0.024	O I	0.40
0.333	2.46	0.87	0.035	|O I	0.59
0.417	2.48	1.12	0.045	|O I	0.76
0.500	2.67	1.35	0.055	|O I	0.91
0.583	2.84	1.48	0.064	|O I	1.06
0.667	2.88	1.48	0.073	|O I	1.19
0.750	2.89	1.48	0.083	|O I	1.33
0.833	2.89	1.48	0.093	|O I	1.47
0.917	2.89	1.48	0.103	|O I	1.61
1.000	3.08	1.48	0.113	|O I	1.76
1.083	3.25	1.48	0.124	|O I	1.92
1.167	3.29	1.48	0.137	|O I	2.11
1.250	3.31	1.48	0.149	|O I	2.32
1.333	3.31	1.48	0.162	|O I	2.53
1.417	3.31	1.48	0.174	|O I	2.74
1.500	3.31	1.48	0.187	|O I	2.95
1.583	3.31	1.48	0.200	|O I	3.05
1.667	3.31	1.48	0.212	|O I	3.12
1.750	3.31	1.48	0.225	|O I	3.18
1.833	3.31	1.48	0.237	|O I	3.25
1.917	3.31	1.48	0.250	|O I	3.32
2.000	3.49	1.48	0.263	|O I	3.38
2.083	3.48	1.48	0.277	|O I	3.46
2.167	3.53	1.48	0.291	|O I	3.53
2.250	3.68	1.48	0.306	|O I	3.61
2.333	3.70	1.48	0.321	|O I	3.69
2.417	3.72	1.48	0.336	|O I	3.77
2.500	3.72	1.48	0.352	|O I	3.85
2.583	3.72	1.48	0.367	|O I	3.93
2.667	3.72	1.48	0.382	|O I	4.01
2.750	3.90	1.48	0.398	|O I	4.07
2.833	4.08	1.48	0.416	|O I	4.13
2.917	4.12	1.48	0.434	|O I	4.20
3.000	4.13	1.48	0.452	|O I	4.27
3.083	4.13	1.48	0.470	|O I	4.33
3.167	4.32	1.48	0.489	|O I	4.40
3.250	4.49	1.48	0.509	|O I	4.48
3.333	4.53	1.48	0.530	|O I	4.56
3.417	4.73	1.48	0.552	|O I	4.64
3.500	5.09	1.48	0.575	|O I	4.72
3.583	5.51	1.48	0.602	|O I	4.82
3.667	5.75	1.48	0.630	|O I	4.93
3.750	6.03	1.48	0.661	|O I	5.03
3.833	6.26	1.48	0.693	|O I	5.13
3.917	6.53	1.48	0.727	|O I	5.23
4.000	6.77	1.48	0.762	|O I	5.33
4.083	7.04	1.48	0.800	|O I	5.44
4.167	7.50	1.48	0.840	|O I	5.56
4.250	7.98	1.48	0.883	|O I	5.68
4.333	8.49	1.48	0.929	|O I	5.82
4.417	8.99	1.48	0.979	|O I	5.97
4.500	9.27	1.48	1.032	|O I	6.00
4.583	9.55	1.48	1.086	|O I	6.00
4.667	10.02	1.48	1.144	|O I	6.00
4.750	10.50	1.48	1.204	|O I	6.00

4.833	10.78	1.48	1.267	|O	|	I |	|	|	6.00
4.917	11.07	1.48	1.332	|O	|	I |	|	|	6.00
5.000	11.53	1.48	1.400	|O	|	I|	|	|	6.00
5.083	12.92	6.47	1.457	|	O	|I	|	|	6.08
5.167	15.20	11.32	1.492	|	|	O| I	|	|	6.15
5.250	17.18	14.43	1.515	|	|	| O I	|	|	6.20
5.333	18.82	16.71	1.532	|	|	| O I	|	|	6.23
5.417	20.82	18.70	1.546	|	|	| O I	|	|	6.26
5.500	24.13	21.11	1.564	|	|	| | O	I	|	6.30
5.583	17.92	21.05	1.564	|	|	| I| O	|	|	6.30
5.667	8.36	16.00	1.527	|	| I	| O	|	|	6.22
5.750	4.44	9.86	1.482	| I	| O	|	|	|	6.13
5.833	2.62	5.82	1.452	| I O|	|	|	|	|	6.07
5.917	1.79	3.51	1.435	| I O	|	|	|	|	6.03
6.000	1.17	2.21	1.425	|IO	|	|	|	|	6.01
6.083	0.54	1.48	1.419	IO	|	|	|	|	6.00
6.167	0.12	1.48	1.411	IO	|	|	|	|	6.00
6.250	0.03	1.48	1.401	IO	|	|	|	|	6.00
6.333	0.00	1.48	1.391	IO	|	|	|	|	6.00
6.417	0.00	1.48	1.381	IO	|	|	|	|	6.00
6.500	0.00	1.48	1.370	IO	|	|	|	|	6.00
6.583	0.00	1.48	1.360	IO	|	|	|	|	6.00
6.667	0.00	1.48	1.350	IO	|	|	|	|	6.00
6.750	0.00	1.48	1.340	IO	|	|	|	|	6.00
6.833	0.00	1.48	1.330	IO	|	|	|	|	6.00
6.917	0.00	1.48	1.319	IO	|	|	|	|	6.00
7.000	0.00	1.48	1.309	IO	|	|	|	|	6.00
7.083	0.00	1.48	1.299	IO	|	|	|	|	6.00
7.167	0.00	1.48	1.289	IO	|	|	|	|	6.00
7.250	0.00	1.48	1.279	IO	|	|	|	|	6.00
7.333	0.00	1.48	1.269	IO	|	|	|	|	6.00
7.417	0.00	1.48	1.258	IO	|	|	|	|	6.00
7.500	0.00	1.48	1.248	IO	|	|	|	|	6.00
7.583	0.00	1.48	1.238	IO	|	|	|	|	6.00
7.667	0.00	1.48	1.228	IO	|	|	|	|	6.00
7.750	0.00	1.48	1.218	IO	|	|	|	|	6.00
7.833	0.00	1.48	1.207	IO	|	|	|	|	6.00
7.917	0.00	1.48	1.197	IO	|	|	|	|	6.00
8.000	0.00	1.48	1.187	IO	|	|	|	|	6.00
8.083	0.00	1.48	1.177	IO	|	|	|	|	6.00
8.167	0.00	1.48	1.167	IO	|	|	|	|	6.00
8.250	0.00	1.48	1.156	IO	|	|	|	|	6.00
8.333	0.00	1.48	1.146	IO	|	|	|	|	6.00
8.417	0.00	1.48	1.136	IO	|	|	|	|	6.00
8.500	0.00	1.48	1.126	IO	|	|	|	|	6.00
8.583	0.00	1.48	1.116	IO	|	|	|	|	6.00
8.667	0.00	1.48	1.105	IO	|	|	|	|	6.00
8.750	0.00	1.48	1.095	IO	|	|	|	|	6.00
8.833	0.00	1.48	1.085	IO	|	|	|	|	6.00
8.917	0.00	1.48	1.075	IO	|	|	|	|	6.00
9.000	0.00	1.48	1.065	IO	|	|	|	|	6.00
9.083	0.00	1.48	1.054	IO	|	|	|	|	6.00
9.167	0.00	1.48	1.044	IO	|	|	|	|	6.00
9.250	0.00	1.48	1.034	IO	|	|	|	|	6.00
9.333	0.00	1.48	1.024	IO	|	|	|	|	6.00
9.417	0.00	1.48	1.014	IO	|	|	|	|	6.00
9.500	0.00	1.48	1.003	IO	|	|	|	|	6.00
9.583	0.00	1.48	0.993	IO	|	|	|	|	6.00
9.667	0.00	1.48	0.983	IO	|	|	|	|	5.98
9.750	0.00	1.48	0.973	IO	|	|	|	|	5.95
9.833	0.00	1.48	0.963	IO	|	|	|	|	5.92
9.917	0.00	1.48	0.953	IO	|	|	|	|	5.89
10.000	0.00	1.48	0.942	IO	|	|	|	|	5.86
10.083	0.00	1.48	0.932	IO	|	|	|	|	5.83
10.167	0.00	1.48	0.922	IO	|	|	|	|	5.80
10.250	0.00	1.48	0.912	IO	|	|	|	|	5.77

10.333	0.00	1.48	0.902	IO				5.74
10.417	0.00	1.48	0.891	IO				5.71
10.500	0.00	1.48	0.881	IO				5.68
10.583	0.00	1.48	0.871	IO				5.65
10.667	0.00	1.48	0.861	IO				5.62
10.750	0.00	1.48	0.851	IO				5.59
10.833	0.00	1.48	0.840	IO				5.56
10.917	0.00	1.48	0.830	IO				5.53
11.000	0.00	1.48	0.820	IO				5.50
11.083	0.00	1.48	0.810	IO				5.47
11.167	0.00	1.48	0.800	IO				5.44
11.250	0.00	1.48	0.789	IO				5.41
11.333	0.00	1.48	0.779	IO				5.38
11.417	0.00	1.48	0.769	IO				5.35
11.500	0.00	1.48	0.759	IO				5.32
11.583	0.00	1.48	0.749	IO				5.29
11.667	0.00	1.48	0.738	IO				5.26
11.750	0.00	1.48	0.728	IO				5.23
11.833	0.00	1.48	0.718	IO				5.20
11.917	0.00	1.48	0.708	IO				5.17
12.000	0.00	1.48	0.698	IO				5.14
12.083	0.00	1.48	0.688	IO				5.11
12.167	0.00	1.48	0.677	IO				5.08
12.250	0.00	1.48	0.667	IO				5.05
12.333	0.00	1.48	0.657	IO				5.02
12.417	0.00	1.48	0.647	IO				4.99
12.500	0.00	1.48	0.637	IO				4.95
12.583	0.00	1.48	0.626	IO				4.91
12.667	0.00	1.48	0.616	IO				4.87
12.750	0.00	1.48	0.606	IO				4.84
12.833	0.00	1.48	0.596	IO				4.80
12.917	0.00	1.48	0.586	IO				4.76
13.000	0.00	1.48	0.575	IO				4.72
13.083	0.00	1.48	0.565	IO				4.69
13.167	0.00	1.48	0.555	IO				4.65
13.250	0.00	1.48	0.545	IO				4.61
13.333	0.00	1.48	0.535	IO				4.57
13.417	0.00	1.48	0.524	IO				4.53
13.500	0.00	1.48	0.514	IO				4.50
13.583	0.00	1.48	0.504	IO				4.46
13.667	0.00	1.48	0.494	IO				4.42
13.750	0.00	1.48	0.484	IO				4.38
13.833	0.00	1.48	0.473	IO				4.35
13.917	0.00	1.48	0.463	IO				4.31
14.000	0.00	1.48	0.453	IO				4.27
14.083	0.00	1.48	0.443	IO				4.23
14.167	0.00	1.48	0.433	IO				4.20
14.250	0.00	1.48	0.422	IO				4.16
14.333	0.00	1.48	0.412	IO				4.12
14.417	0.00	1.48	0.402	IO				4.08
14.500	0.00	1.48	0.392	IO				4.04
14.583	0.00	1.48	0.382	IO				4.01
14.667	0.00	1.48	0.372	IO				3.96
14.750	0.00	1.48	0.361	IO				3.90
14.833	0.00	1.48	0.351	IO				3.85
14.917	0.00	1.48	0.341	IO				3.79
15.000	0.00	1.48	0.331	IO				3.74
15.083	0.00	1.48	0.321	IO				3.69
15.167	0.00	1.48	0.310	IO				3.63
15.250	0.00	1.48	0.300	IO				3.58
15.333	0.00	1.48	0.290	IO				3.53
15.417	0.00	1.48	0.280	IO				3.47
15.500	0.00	1.48	0.270	IO				3.42
15.583	0.00	1.48	0.259	IO				3.37
15.667	0.00	1.48	0.249	IO				3.31
15.750	0.00	1.48	0.239	IO				3.26

15.833	0.00	1.48	0.229	IO	|	|	|	3.20
15.917	0.00	1.48	0.219	IO	|	|	|	3.15
16.000	0.00	1.48	0.208	IO	|	|	|	3.10
16.083	0.00	1.48	0.198	IO	|	|	|	3.04
16.167	0.00	1.48	0.188	IO	|	|	|	2.97
16.250	0.00	1.48	0.178	IO	|	|	|	2.80
16.333	0.00	1.48	0.168	IO	|	|	|	2.63
16.417	0.00	1.48	0.157	IO	|	|	|	2.46
16.500	0.00	1.48	0.147	IO	|	|	|	2.29
16.583	0.00	1.48	0.137	IO	|	|	|	2.12
16.667	0.00	1.48	0.127	IO	|	|	|	1.96
16.750	0.00	1.48	0.117	IO	|	|	|	1.81
16.833	0.00	1.48	0.107	IO	|	|	|	1.66
16.917	0.00	1.48	0.096	IO	|	|	|	1.52
17.000	0.00	1.48	0.086	IO	|	|	|	1.37
17.083	0.00	1.48	0.076	IO	|	|	|	1.23
17.167	0.00	1.48	0.066	IO	|	|	|	1.08
17.250	0.00	1.38	0.056	IO	|	|	|	0.93
17.333	0.00	1.16	0.047	IO	|	|	|	0.79
17.417	0.00	0.98	0.040	IO	|	|	|	0.66
17.500	0.00	0.83	0.034	IO	|	|	|	0.56
17.583	0.00	0.70	0.028	O	|	|	|	0.47
17.667	0.00	0.59	0.024	O	|	|	|	0.40
17.750	0.00	0.50	0.020	O	|	|	|	0.34
17.833	0.00	0.42	0.017	O	|	|	|	0.28
17.917	0.00	0.35	0.014	O	|	|	|	0.24
18.000	0.00	0.30	0.012	O	|	|	|	0.20
18.083	0.00	0.25	0.010	O	|	|	|	0.17
18.167	0.00	0.21	0.009	O	|	|	|	0.14
18.250	0.00	0.18	0.007	O	|	|	|	0.12
18.333	0.00	0.15	0.006	O	|	|	|	0.10
18.417	0.00	0.13	0.005	O	|	|	|	0.09
18.500	0.00	0.11	0.004	O	|	|	|	0.07
18.583	0.00	0.09	0.004	O	|	|	|	0.06
18.667	0.00	0.08	0.003	O	|	|	|	0.05
18.750	0.00	0.06	0.003	O	|	|	|	0.04
18.833	0.00	0.05	0.002	O	|	|	|	0.04
18.917	0.00	0.05	0.002	O	|	|	|	0.03
19.000	0.00	0.04	0.002	O	|	|	|	0.03
19.083	0.00	0.03	0.001	O	|	|	|	0.02
19.167	0.00	0.03	0.001	O	|	|	|	0.02
19.250	0.00	0.02	0.001	O	|	|	|	0.02
19.333	0.00	0.02	0.001	O	|	|	|	0.01
19.417	0.00	0.02	0.001	O	|	|	|	0.01
19.500	0.00	0.01	0.001	O	|	|	|	0.01
19.583	0.00	0.01	0.000	O	|	|	|	0.01
19.667	0.00	0.01	0.000	O	|	|	|	0.01
19.750	0.00	0.01	0.000	O	|	|	|	0.01
19.833	0.00	0.01	0.000	O	|	|	|	0.00
19.917	0.00	0.01	0.000	O	|	|	|	0.00
20.000	0.00	0.01	0.000	O	|	|	|	0.00
20.083	0.00	0.00	0.000	O	|	|	|	0.00
20.167	0.00	0.00	0.000	O	|	|	|	0.00
20.250	0.00	0.00	0.000	O	|	|	|	0.00
20.333	0.00	0.00	0.000	O	|	|	|	0.00
20.417	0.00	0.00	0.000	O	|	|	|	0.00
20.500	0.00	0.00	0.000	O	|	|	|	0.00
20.583	0.00	0.00	0.000	O	|	|	|	0.00
20.667	0.00	0.00	0.000	O	|	|	|	0.00

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

Number of intervals = 248
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 21.110 (CFS)
Total volume = 3.020 (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

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FLOOD HYDROGRAPH ROUTING PROGRAM

Study date: 10/31/21

MFBC BUILDING 18
FLOOD ROUTING
100 YR - 24 HR
100104RTE

Program License Serial Number 6490

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

From study/file name: 100104PRUH24100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 291
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 9.362 (CFS)
Total volume = 5.324 (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

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Process from Point/Station 1.000 to Point/Station 2.000
**** RETARDING BASIN ROUTING ****
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User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 291
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	0.060	1.480	0.055	0.065
2.000	0.130	1.480	0.125	0.135
3.000	0.190	1.480	0.185	0.195
4.000	0.380	1.480	0.375	0.385
5.000	0.650	1.480	0.645	0.655
6.000	0.990	1.480	0.985	0.995

6.001	1.420	1.480	1.415	1.425
7.000	1.900	66.900	1.670	2.130

Hydrograph Detention Basin Routing

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

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 2.3 4.68 7.02 9.36	Depth (Ft.)
0.083	0.23	0.02	0.001	O | | | |	0.01
0.167	0.44	0.07	0.003	OI | | | |	0.05
0.250	0.48	0.13	0.005	OI | | | |	0.09
0.333	0.62	0.20	0.008	O I | | | |	0.13
0.417	0.72	0.27	0.011	O I | | | |	0.18
0.500	0.74	0.34	0.014	|OI | | | |	0.23
0.583	0.75	0.41	0.016	|OI | | | |	0.27
0.667	0.75	0.46	0.019	|OI | | | |	0.31
0.750	0.75	0.51	0.021	|OI | | | |	0.34
0.833	0.87	0.55	0.022	|OI | | | |	0.37
0.917	0.97	0.61	0.025	| OI | | | |	0.41
1.000	1.00	0.67	0.027	| OI | | | |	0.45
1.083	0.89	0.71	0.029	| OI | | | |	0.48
1.167	0.78	0.73	0.030	| O | | | |	0.50
1.250	0.76	0.74	0.030	| O | | | |	0.50
1.333	0.75	0.74	0.030	| O | | | |	0.50
1.417	0.75	0.74	0.030	| O | | | |	0.50
1.500	0.75	0.75	0.030	| O | | | |	0.50
1.583	0.75	0.75	0.030	| O | | | |	0.50
1.667	0.75	0.75	0.030	| O | | | |	0.51
1.750	0.75	0.75	0.030	| O | | | |	0.51
1.833	0.87	0.76	0.031	| O | | | |	0.51
1.917	0.97	0.78	0.032	| OI | | | |	0.53
2.000	1.00	0.82	0.033	| OI | | | |	0.55
2.083	1.01	0.84	0.034	| OI | | | |	0.57
2.167	1.01	0.87	0.035	| OI | | | |	0.59
2.250	1.01	0.89	0.036	| O | | | |	0.60
2.333	1.01	0.91	0.037	| O | | | |	0.61
2.417	1.01	0.92	0.037	| O | | | |	0.62
2.500	1.01	0.94	0.038	| O | | | |	0.63
2.583	1.12	0.96	0.039	| O | | | |	0.65
2.667	1.23	0.99	0.040	| OI | | | |	0.67
2.750	1.25	1.03	0.042	| OI | | | |	0.70
2.833	1.26	1.06	0.043	| OI | | | |	0.72
2.917	1.26	1.09	0.044	| OI | | | |	0.74
3.000	1.26	1.12	0.045	| OI | | | |	0.76
3.083	1.26	1.14	0.046	| OI | | | |	0.77
3.167	1.26	1.16	0.047	| OI | | | |	0.78
3.250	1.26	1.17	0.048	| O | | | |	0.79
3.333	1.26	1.19	0.048	| O | | | |	0.80
3.417	1.26	1.20	0.049	| O | | | |	0.81
3.500	1.26	1.21	0.049	| O | | | |	0.82
3.583	1.26	1.22	0.049	| O | | | |	0.82
3.667	1.26	1.22	0.050	| O | | | |	0.83
3.750	1.26	1.23	0.050	| O | | | |	0.83
3.833	1.37	1.24	0.050	| O | | | |	0.84
3.917	1.48	1.27	0.051	| OI | | | |	0.86
4.000	1.50	1.30	0.053	| OI | | | |	0.88
4.083	1.51	1.33	0.054	| OI | | | |	0.90
4.167	1.51	1.36	0.055	| OI | | | |	0.92
4.250	1.51	1.38	0.056	| OI | | | |	0.94
4.333	1.62	1.41	0.057	| OI | | | |	0.95
4.417	1.73	1.45	0.059	| OI | | | |	0.98
4.500	1.75	1.48	0.061	| O | | | |	1.01
4.583	1.76	1.48	0.063	| OI | | | |	1.04
4.667	1.76	1.48	0.065	| OI | | | |	1.07

4.750	1.76	1.48	0.067	OI				1.09
4.833	1.87	1.48	0.069	OI				1.13
4.917	1.98	1.48	0.072	OI				1.17
5.000	2.00	1.48	0.075	OI				1.22
5.083	1.78	1.48	0.078	OI				1.26
5.167	1.57	1.48	0.080	O				1.28
5.250	1.53	1.48	0.080	O				1.29
5.333	1.62	1.48	0.081	O				1.30
5.417	1.73	1.48	0.082	O				1.32
5.500	1.75	1.48	0.084	O				1.34
5.583	1.87	1.48	0.086	OI				1.37
5.667	1.98	1.48	0.089	OI				1.42
5.750	2.00	1.48	0.093	OI				1.47
5.833	2.01	1.48	0.096	OI				1.52
5.917	2.01	1.48	0.100	OI				1.57
6.000	2.01	1.48	0.104	OI				1.63
6.083	2.12	1.48	0.108	O I				1.68
6.167	2.23	1.48	0.113	O I				1.75
6.250	2.25	1.48	0.118	O I				1.83
6.333	2.26	1.48	0.123	O I				1.90
6.417	2.26	1.48	0.129	O I				1.98
6.500	2.26	1.48	0.134	O I				2.07
6.583	2.38	1.48	0.140	O I				2.16
6.667	2.48	1.48	0.146	O I				2.27
6.750	2.50	1.48	0.153	O I				2.39
6.833	2.51	1.48	0.160	O I				2.51
6.917	2.51	1.48	0.167	O I				2.62
7.000	2.51	1.48	0.175	O I				2.74
7.083	2.51	1.48	0.182	O I				2.86
7.167	2.51	1.48	0.189	O I				2.98
7.250	2.51	1.48	0.196	O I				3.03
7.333	2.63	1.48	0.203	O I				3.07
7.417	2.73	1.48	0.212	O	I			3.11
7.500	2.76	1.48	0.220	O	I			3.16
7.583	2.88	1.48	0.230	O	I			3.21
7.667	2.99	1.48	0.240	O	I			3.26
7.750	3.01	1.48	0.250	O	I			3.32
7.833	3.13	1.48	0.261	O	I			3.37
7.917	3.24	1.48	0.273	O	I			3.44
8.000	3.26	1.48	0.285	O	I			3.50
8.083	3.49	1.48	0.298	O	I			3.57
8.167	3.71	1.48	0.313	O	I			3.65
8.250	3.75	1.48	0.328	O	I			3.73
8.333	3.77	1.48	0.344	O	I			3.81
8.417	3.77	1.48	0.360	O	I			3.89
8.500	3.77	1.48	0.375	O	I			3.98
8.583	3.88	1.48	0.392	O	I			4.04
8.667	3.99	1.48	0.408	O	I			4.11
8.750	4.01	1.48	0.426	O	I			4.17
8.833	4.14	1.48	0.444	O	I			4.24
8.917	4.24	1.48	0.462	O	I			4.31
9.000	4.26	1.48	0.481	O	I			4.38
9.083	4.50	1.48	0.501	O	I			4.45
9.167	4.71	1.48	0.523	O	I			4.53
9.250	4.76	1.48	0.545	O	I			4.61
9.333	4.89	1.48	0.568	O	I			4.70
9.417	5.00	1.48	0.592	O	I			4.79
9.500	5.02	1.48	0.617	O	I			4.88
9.583	5.14	1.48	0.641	O	I			4.97
9.667	5.25	1.48	0.667	O	I			5.05
9.750	5.27	1.48	0.693	O	I			5.13
9.833	5.39	1.48	0.720	O	I			5.20
9.917	5.50	1.48	0.747	O	I			5.28
10.000	5.52	1.48	0.775	O	I			5.37
10.083	4.74	1.48	0.800	O	I			5.44
10.167	3.99	1.48	0.820	O	I			5.50

10.250	3.84	1.48	0.836	|	O	| I |	|	|	5.55
10.333	3.77	1.48	0.852	|	O	| I |	|	|	5.59
10.417	3.77	1.48	0.868	|	O	| I |	|	|	5.64
10.500	3.77	1.48	0.884	|	O	| I |	|	|	5.69
10.583	4.34	1.48	0.902	|	O	| I |	|	|	5.74
10.667	4.87	1.48	0.923	|	O	| I |	|	|	5.80
10.750	4.98	1.48	0.947	|	O	| I |	|	|	5.87
10.833	5.03	1.48	0.971	|	O	| I |	|	|	5.94
10.917	5.03	1.48	0.996	|	O	| I |	|	|	6.00
11.000	5.03	1.48	1.020	|	O	| I |	|	|	6.00
11.083	4.91	1.48	1.044	|	O	| I |	|	|	6.00
11.167	4.81	1.48	1.067	|	O	| I |	|	|	6.00
11.250	4.79	1.48	1.090	|	O	| I |	|	|	6.00
11.333	4.78	1.48	1.113	|	O	| I |	|	|	6.00
11.417	4.78	1.48	1.136	|	O	| I |	|	|	6.00
11.500	4.78	1.48	1.158	|	O	| I |	|	|	6.00
11.583	4.55	1.48	1.180	|	O	| I |	|	|	6.00
11.667	4.33	1.48	1.201	|	O	| I |	|	|	6.00
11.750	4.29	1.48	1.220	|	O	| I |	|	|	6.00
11.833	4.39	1.48	1.240	|	O	| I |	|	|	6.00
11.917	4.49	1.48	1.260	|	O	| I |	|	|	6.00
12.000	4.52	1.48	1.281	|	O	| I |	|	|	6.00
12.083	5.42	1.48	1.305	|	O	| I |	|	|	6.00
12.167	6.27	1.48	1.335	|	O	| I |	|	|	6.00
12.250	6.44	1.48	1.369	|	O	| I |	|	|	6.00
12.333	6.66	1.48	1.404	|	O	| I |	|	|	6.00
12.417	6.80	3.32	1.433	|	|	O |	| I |	|	6.03
12.500	6.83	5.55	1.450	|	|	| O |	| I |	|	6.06
12.583	7.13	6.46	1.457	|	|	|	O I |	|	6.08
12.667	7.39	6.97	1.460	|	|	|	O | I |	|	6.08
12.750	7.45	7.26	1.462	|	|	|	O I |	|	6.09
12.833	7.62	7.43	1.464	|	|	|	| O I |	|	6.09
12.917	7.75	7.59	1.465	|	|	|	| O I |	|	6.09
13.000	7.78	7.71	1.466	|	|	|	| O |	|	6.10
13.083	8.49	7.98	1.468	|	|	|	| O I |	|	6.10
13.167	9.15	8.52	1.472	|	|	|	| O I |	|	6.11
13.250	9.29	8.97	1.475	|	|	|	| O I |	|	6.12
13.333	9.35	9.19	1.477	|	|	|	| O |	|	6.12
13.417	9.36	9.30	1.477	|	|	|	| O |	|	6.12
13.500	9.36	9.34	1.478	|	|	|	| O I |	|	6.12
13.583	7.85	8.87	1.474	|	|	|	| I O |	|	6.11
13.667	6.41	7.76	1.466	|	|	|	| I O |	|	6.10
13.750	6.14	6.81	1.459	|	|	|	| I O |	|	6.08
13.833	6.01	6.34	1.456	|	|	|	| I O |	|	6.08
13.917	6.02	6.13	1.454	|	|	|	| O |	|	6.07
14.000	6.02	6.06	1.454	|	|	|	| O |	|	6.07
14.083	6.58	6.21	1.455	|	|	|	| O I |	|	6.07
14.167	7.11	6.62	1.458	|	|	|	| O I |	|	6.08
14.250	7.22	6.97	1.460	|	|	|	| O I |	|	6.08
14.333	7.13	7.10	1.461	|	|	|	| O |	|	6.09
14.417	7.01	7.08	1.461	|	|	|	| I O |	|	6.09
14.500	6.98	7.03	1.461	|	|	|	| I O |	|	6.09
14.583	6.98	7.00	1.460	|	|	|	| O |	|	6.09
14.667	6.98	6.99	1.460	|	|	|	| O |	|	6.09
14.750	6.99	6.99	1.460	|	|	|	| O |	|	6.09
14.833	6.85	6.94	1.460	|	|	|	| O |	|	6.08
14.917	6.73	6.85	1.459	|	|	|	| O |	|	6.08
15.000	6.71	6.77	1.459	|	|	|	| I O |	|	6.08
15.083	6.56	6.68	1.458	|	|	|	| O |	|	6.08
15.167	6.44	6.57	1.457	|	|	|	| O |	|	6.08
15.250	6.42	6.48	1.457	|	|	|	| I O |	|	6.08
15.333	6.27	6.39	1.456	|	|	|	| O |	|	6.08
15.417	6.15	6.27	1.455	|	|	|	| O |	|	6.07
15.500	6.12	6.19	1.455	|	|	|	| I O |	|	6.07
15.583	5.56	5.97	1.453	|	|	|	| I O |	|	6.07
15.667	5.05	5.54	1.450	|	|	|	| I O |	|	6.06

15.750	4.95	5.19	1.447	|	|	IO	|	|	6.06
15.833	4.91	5.02	1.446	|	|	IO	|	|	6.06
15.917	4.91	4.95	1.445	|	|	O	|	|	6.05
16.000	4.92	4.93	1.445	|	|	O	|	|	6.05
16.083	3.15	4.36	1.441	|	| I O |		|	|	6.04
16.167	1.48	3.05	1.432	| I |	O	|	|	|	6.03
16.250	1.16	1.95	1.423	| I O |		|	|	|	6.01
16.333	1.01	1.48	1.419	| I O |		|	|	|	6.00
16.417	1.01	1.48	1.416	| I O |		|	|	|	6.00
16.500	1.01	1.48	1.413	| I O |		|	|	|	6.00
16.583	0.89	1.48	1.409	| I O |		|	|	|	6.00
16.667	0.78	1.48	1.404	| I O |		|	|	|	6.00
16.750	0.76	1.48	1.400	| I O |		|	|	|	6.00
16.833	0.75	1.48	1.395	| I O |		|	|	|	6.00
16.917	0.75	1.48	1.390	| I O |		|	|	|	6.00
17.000	0.75	1.48	1.385	| I O |		|	|	|	6.00
17.083	0.98	1.48	1.380	| I O |		|	|	|	6.00
17.167	1.20	1.48	1.378	| IO |		|	|	|	6.00
17.250	1.24	1.48	1.376	| IO |		|	|	|	6.00
17.333	1.26	1.48	1.374	| IO |		|	|	|	6.00
17.417	1.26	1.48	1.373	| IO |		|	|	|	6.00
17.500	1.26	1.48	1.371	| IO |		|	|	|	6.00
17.583	1.26	1.48	1.370	| IO |		|	|	|	6.00
17.667	1.26	1.48	1.368	| IO |		|	|	|	6.00
17.750	1.26	1.48	1.367	| IO |		|	|	|	6.00
17.833	1.14	1.48	1.365	| I O |		|	|	|	6.00
17.917	1.04	1.48	1.362	| I O |		|	|	|	6.00
18.000	1.02	1.48	1.359	| I O |		|	|	|	6.00
18.083	1.01	1.48	1.356	| I O |		|	|	|	6.00
18.167	1.01	1.48	1.352	| I O |		|	|	|	6.00
18.250	1.01	1.48	1.349	| I O |		|	|	|	6.00
18.333	1.01	1.48	1.346	| I O |		|	|	|	6.00
18.417	1.01	1.48	1.343	| I O |		|	|	|	6.00
18.500	1.01	1.48	1.339	| I O |		|	|	|	6.00
18.583	0.89	1.48	1.336	| I O |		|	|	|	6.00
18.667	0.78	1.48	1.331	| I O |		|	|	|	6.00
18.750	0.76	1.48	1.326	| I O |		|	|	|	6.00
18.833	0.64	1.48	1.321	| I O |		|	|	|	6.00
18.917	0.53	1.48	1.315	|I O |		|	|	|	6.00
19.000	0.51	1.48	1.308	|I O |		|	|	|	6.00
19.083	0.62	1.48	1.302	| I O |		|	|	|	6.00
19.167	0.72	1.48	1.296	| I O |		|	|	|	6.00
19.250	0.74	1.48	1.291	| I O |		|	|	|	6.00
19.333	0.87	1.48	1.287	| I O |		|	|	|	6.00
19.417	0.97	1.48	1.283	| I O |		|	|	|	6.00
19.500	1.00	1.48	1.279	| I O |		|	|	|	6.00
19.583	0.89	1.48	1.276	| I O |		|	|	|	6.00
19.667	0.78	1.48	1.271	| I O |		|	|	|	6.00
19.750	0.76	1.48	1.266	| I O |		|	|	|	6.00
19.833	0.64	1.48	1.261	| I O |		|	|	|	6.00
19.917	0.53	1.48	1.255	|I O |		|	|	|	6.00
20.000	0.51	1.48	1.248	|I O |		|	|	|	6.00
20.083	0.62	1.48	1.242	| I O |		|	|	|	6.00
20.167	0.72	1.48	1.236	| I O |		|	|	|	6.00
20.250	0.74	1.48	1.231	| I O |		|	|	|	6.00
20.333	0.75	1.48	1.226	| I O |		|	|	|	6.00
20.417	0.75	1.48	1.221	| I O |		|	|	|	6.00
20.500	0.75	1.48	1.216	| I O |		|	|	|	6.00
20.583	0.75	1.48	1.211	| I O |		|	|	|	6.00
20.667	0.75	1.48	1.206	| I O |		|	|	|	6.00
20.750	0.75	1.48	1.201	| I O |		|	|	|	6.00
20.833	0.64	1.48	1.196	| I O |		|	|	|	6.00
20.917	0.53	1.48	1.190	|I O |		|	|	|	6.00
21.000	0.51	1.48	1.183	|I O |		|	|	|	6.00
21.083	0.62	1.48	1.177	| I O |		|	|	|	6.00
21.167	0.72	1.48	1.171	| I O |		|	|	|	6.00

21.250	0.74	1.48	1.166	| I	O |	|	|	|	6.00
21.333	0.64	1.48	1.161	| I	O |	|	|	|	6.00
21.417	0.53	1.48	1.154	|I	O |	|	|	|	6.00
21.500	0.51	1.48	1.148	|I	O |	|	|	|	6.00
21.583	0.62	1.48	1.142	| I	O |	|	|	|	6.00
21.667	0.72	1.48	1.136	| I	O |	|	|	|	6.00
21.750	0.74	1.48	1.131	| I	O |	|	|	|	6.00
21.833	0.64	1.48	1.125	| I	O |	|	|	|	6.00
21.917	0.53	1.48	1.119	|I	O |	|	|	|	6.00
22.000	0.51	1.48	1.113	|I	O |	|	|	|	6.00
22.083	0.62	1.48	1.106	| I	O |	|	|	|	6.00
22.167	0.72	1.48	1.101	| I	O |	|	|	|	6.00
22.250	0.74	1.48	1.096	| I	O |	|	|	|	6.00
22.333	0.64	1.48	1.090	| I	O |	|	|	|	6.00
22.417	0.53	1.48	1.084	|I	O |	|	|	|	6.00
22.500	0.51	1.48	1.078	|I	O |	|	|	|	6.00
22.583	0.50	1.48	1.071	|I	O |	|	|	|	6.00
22.667	0.50	1.48	1.064	|I	O |	|	|	|	6.00
22.750	0.50	1.48	1.057	|I	O |	|	|	|	6.00
22.833	0.50	1.48	1.051	|I	O |	|	|	|	6.00
22.917	0.50	1.48	1.044	|I	O |	|	|	|	6.00
23.000	0.50	1.48	1.037	|I	O |	|	|	|	6.00
23.083	0.50	1.48	1.030	|I	O |	|	|	|	6.00
23.167	0.50	1.48	1.024	|I	O |	|	|	|	6.00
23.250	0.50	1.48	1.017	|I	O |	|	|	|	6.00
23.333	0.50	1.48	1.010	|I	O |	|	|	|	6.00
23.417	0.50	1.48	1.004	|I	O |	|	|	|	6.00
23.500	0.50	1.48	0.997	|I	O |	|	|	|	6.00
23.583	0.50	1.48	0.990	|I	O |	|	|	|	6.00
23.667	0.50	1.48	0.983	|I	O |	|	|	|	5.98
23.750	0.50	1.48	0.977	|I	O |	|	|	|	5.96
23.833	0.50	1.48	0.970	|I	O |	|	|	|	5.94
23.917	0.50	1.48	0.963	|I	O |	|	|	|	5.92
24.000	0.50	1.48	0.956	|I	O |	|	|	|	5.90
24.083	0.28	1.48	0.949	I	O |	|	|	|	5.88
24.167	0.06	1.48	0.940	I	O |	|	|	|	5.85
24.250	0.02	1.48	0.930	I	O |	|	|	|	5.82
24.333	0.00	1.48	0.920	I	O |	|	|	|	5.79
24.417	0.00	1.48	0.910	I	O |	|	|	|	5.76
24.500	0.00	1.48	0.899	I	O |	|	|	|	5.73
24.583	0.00	1.48	0.889	I	O |	|	|	|	5.70
24.667	0.00	1.48	0.879	I	O |	|	|	|	5.67
24.750	0.00	1.48	0.869	I	O |	|	|	|	5.64
24.833	0.00	1.48	0.859	I	O |	|	|	|	5.61
24.917	0.00	1.48	0.848	I	O |	|	|	|	5.58
25.000	0.00	1.48	0.838	I	O |	|	|	|	5.55
25.083	0.00	1.48	0.828	I	O |	|	|	|	5.52
25.167	0.00	1.48	0.818	I	O |	|	|	|	5.49
25.250	0.00	1.48	0.808	I	O |	|	|	|	5.46
25.333	0.00	1.48	0.797	I	O |	|	|	|	5.43
25.417	0.00	1.48	0.787	I	O |	|	|	|	5.40
25.500	0.00	1.48	0.777	I	O |	|	|	|	5.37
25.583	0.00	1.48	0.767	I	O |	|	|	|	5.34
25.667	0.00	1.48	0.757	I	O |	|	|	|	5.31
25.750	0.00	1.48	0.747	I	O |	|	|	|	5.28
25.833	0.00	1.48	0.736	I	O |	|	|	|	5.25
25.917	0.00	1.48	0.726	I	O |	|	|	|	5.22
26.000	0.00	1.48	0.716	I	O |	|	|	|	5.19
26.083	0.00	1.48	0.706	I	O |	|	|	|	5.16
26.167	0.00	1.48	0.696	I	O |	|	|	|	5.13
26.250	0.00	1.48	0.685	I	O |	|	|	|	5.10
26.333	0.00	1.48	0.675	I	O |	|	|	|	5.07
26.417	0.00	1.48	0.665	I	O |	|	|	|	5.04
26.500	0.00	1.48	0.655	I	O |	|	|	|	5.01
26.583	0.00	1.48	0.645	I	O |	|	|	|	4.98
26.667	0.00	1.48	0.634	I	O |	|	|	|	4.94

26.750	0.00	1.48	0.624	I	O	|	|	|	4.90
26.833	0.00	1.48	0.614	I	O	|	|	|	4.87
26.917	0.00	1.48	0.604	I	O	|	|	|	4.83
27.000	0.00	1.48	0.594	I	O	|	|	|	4.79
27.083	0.00	1.48	0.583	I	O	|	|	|	4.75
27.167	0.00	1.48	0.573	I	O	|	|	|	4.72
27.250	0.00	1.48	0.563	I	O	|	|	|	4.68
27.333	0.00	1.48	0.553	I	O	|	|	|	4.64
27.417	0.00	1.48	0.543	I	O	|	|	|	4.60
27.500	0.00	1.48	0.532	I	O	|	|	|	4.56
27.583	0.00	1.48	0.522	I	O	|	|	|	4.53
27.667	0.00	1.48	0.512	I	O	|	|	|	4.49
27.750	0.00	1.48	0.502	I	O	|	|	|	4.45
27.833	0.00	1.48	0.492	I	O	|	|	|	4.41
27.917	0.00	1.48	0.482	I	O	|	|	|	4.38
28.000	0.00	1.48	0.471	I	O	|	|	|	4.34
28.083	0.00	1.48	0.461	I	O	|	|	|	4.30
28.167	0.00	1.48	0.451	I	O	|	|	|	4.26
28.250	0.00	1.48	0.441	I	O	|	|	|	4.22
28.333	0.00	1.48	0.431	I	O	|	|	|	4.19
28.417	0.00	1.48	0.420	I	O	|	|	|	4.15
28.500	0.00	1.48	0.410	I	O	|	|	|	4.11
28.583	0.00	1.48	0.400	I	O	|	|	|	4.07
28.667	0.00	1.48	0.390	I	O	|	|	|	4.04
28.750	0.00	1.48	0.380	I	O	|	|	|	4.00
28.833	0.00	1.48	0.369	I	O	|	|	|	3.94
28.917	0.00	1.48	0.359	I	O	|	|	|	3.89
29.000	0.00	1.48	0.349	I	O	|	|	|	3.84
29.083	0.00	1.48	0.339	I	O	|	|	|	3.78
29.167	0.00	1.48	0.329	I	O	|	|	|	3.73
29.250	0.00	1.48	0.318	I	O	|	|	|	3.68
29.333	0.00	1.48	0.308	I	O	|	|	|	3.62
29.417	0.00	1.48	0.298	I	O	|	|	|	3.57
29.500	0.00	1.48	0.288	I	O	|	|	|	3.52
29.583	0.00	1.48	0.278	I	O	|	|	|	3.46
29.667	0.00	1.48	0.267	I	O	|	|	|	3.41
29.750	0.00	1.48	0.257	I	O	|	|	|	3.35
29.833	0.00	1.48	0.247	I	O	|	|	|	3.30
29.917	0.00	1.48	0.237	I	O	|	|	|	3.25
30.000	0.00	1.48	0.227	I	O	|	|	|	3.19
30.083	0.00	1.48	0.217	I	O	|	|	|	3.14
30.167	0.00	1.48	0.206	I	O	|	|	|	3.09
30.250	0.00	1.48	0.196	I	O	|	|	|	3.03
30.333	0.00	1.48	0.186	I	O	|	|	|	2.93
30.417	0.00	1.48	0.176	I	O	|	|	|	2.76
30.500	0.00	1.48	0.166	I	O	|	|	|	2.59
30.583	0.00	1.48	0.155	I	O	|	|	|	2.42
30.667	0.00	1.48	0.145	I	O	|	|	|	2.25
30.750	0.00	1.48	0.135	I	O	|	|	|	2.08
30.833	0.00	1.48	0.125	I	O	|	|	|	1.93
30.917	0.00	1.48	0.115	I	O	|	|	|	1.78
31.000	0.00	1.48	0.104	I	O	|	|	|	1.63
31.083	0.00	1.48	0.094	I	O	|	|	|	1.49
31.167	0.00	1.48	0.084	I	O	|	|	|	1.34
31.250	0.00	1.48	0.074	I	O	|	|	|	1.20
31.333	0.00	1.48	0.064	I	O	|	|	|	1.05
31.417	0.00	1.33	0.054	I	O	|	|	|	0.90
31.500	0.00	1.12	0.045	I	O	|	|	|	0.76
31.583	0.00	0.95	0.038	I	O	|	|	|	0.64
31.667	0.00	0.80	0.032	I	O	|	|	|	0.54
31.750	0.00	0.67	0.027	I	O	|	|	|	0.45
31.833	0.00	0.57	0.023	I	O	|	|	|	0.38
31.917	0.00	0.48	0.019	I	O	|	|	|	0.32
32.000	0.00	0.40	0.016	I	O	|	|	|	0.27
32.083	0.00	0.34	0.014	I	O	|	|	|	0.23
32.167	0.00	0.29	0.012	O		|	|	|	0.19

32.250	0.00	0.24	0.010	O	|	|	|	|	0.16
32.333	0.00	0.20	0.008	O	|	|	|	|	0.14
32.417	0.00	0.17	0.007	O	|	|	|	|	0.12
32.500	0.00	0.15	0.006	O	|	|	|	|	0.10
32.583	0.00	0.12	0.005	O	|	|	|	|	0.08
32.667	0.00	0.10	0.004	O	|	|	|	|	0.07
32.750	0.00	0.09	0.004	O	|	|	|	|	0.06
32.833	0.00	0.07	0.003	O	|	|	|	|	0.05
32.917	0.00	0.06	0.003	O	|	|	|	|	0.04
33.000	0.00	0.05	0.002	O	|	|	|	|	0.04
33.083	0.00	0.04	0.002	O	|	|	|	|	0.03
33.167	0.00	0.04	0.002	O	|	|	|	|	0.03
33.250	0.00	0.03	0.001	O	|	|	|	|	0.02
33.333	0.00	0.03	0.001	O	|	|	|	|	0.02
33.417	0.00	0.02	0.001	O	|	|	|	|	0.02
33.500	0.00	0.02	0.001	O	|	|	|	|	0.01
33.583	0.00	0.02	0.001	O	|	|	|	|	0.01
33.667	0.00	0.01	0.001	O	|	|	|	|	0.01
33.750	0.00	0.01	0.000	O	|	|	|	|	0.01
33.833	0.00	0.01	0.000	O	|	|	|	|	0.01
33.917	0.00	0.01	0.000	O	|	|	|	|	0.01
34.000	0.00	0.01	0.000	O	|	|	|	|	0.00
34.083	0.00	0.01	0.000	O	|	|	|	|	0.00
34.167	0.00	0.00	0.000	O	|	|	|	|	0.00
34.250	0.00	0.00	0.000	O	|	|	|	|	0.00
34.333	0.00	0.00	0.000	O	|	|	|	|	0.00
34.417	0.00	0.00	0.000	O	|	|	|	|	0.00
34.500	0.00	0.00	0.000	O	|	|	|	|	0.00
34.583	0.00	0.00	0.000	O	|	|	|	|	0.00
34.667	0.00	0.00	0.000	O	|	|	|	|	0.00
34.750	0.00	0.00	0.000	O	|	|	|	|	0.00

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

Number of intervals = 417
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 9.336 (CFS)
Total volume = 5.323 (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

NOAA Atlas 14, Volume 6, Version 2
Location name: Perris, California, US*
Coordinates: 33.8390, -117.2604
Elevation: 1549 ft*

* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

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

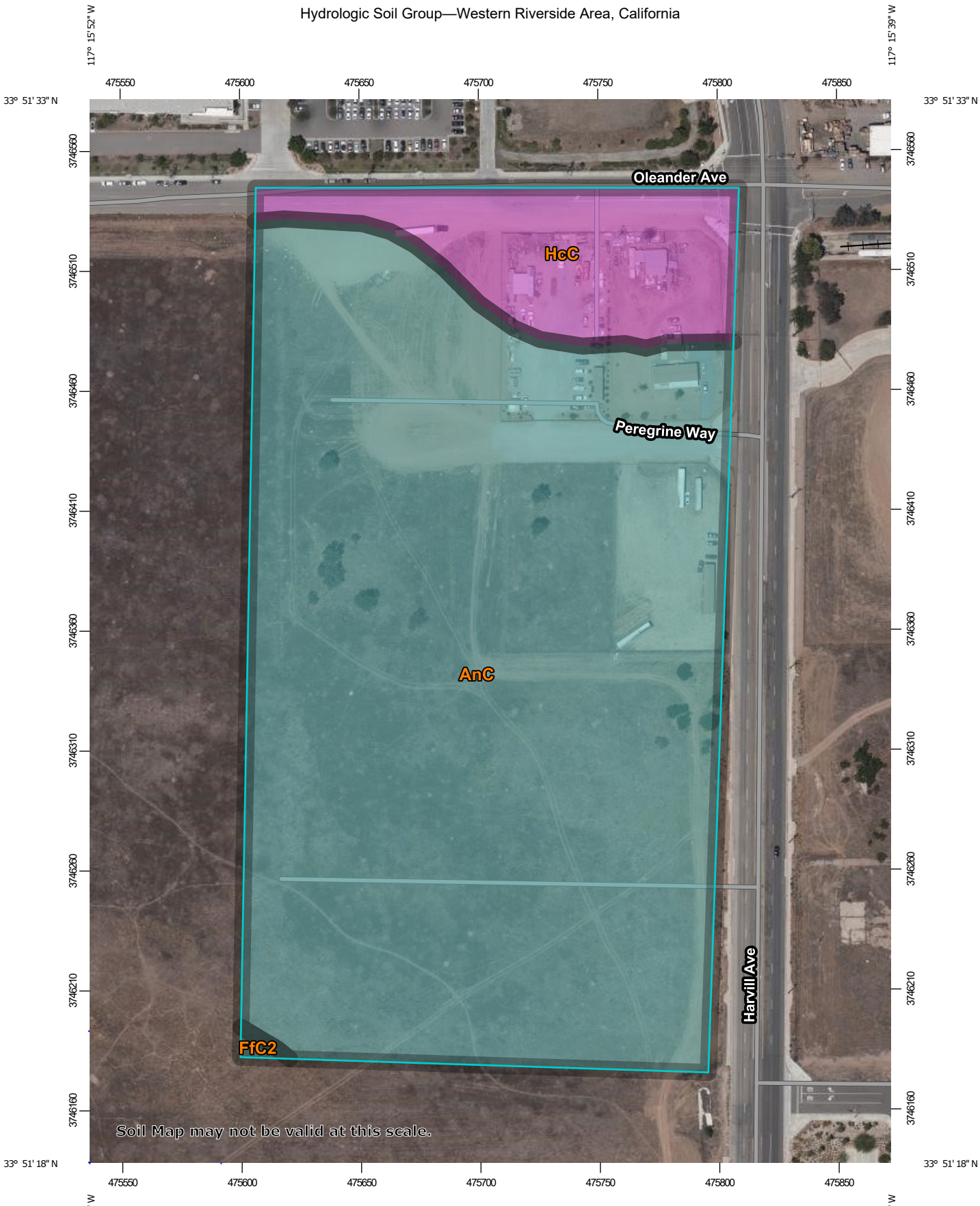
NOAA, National Weather Service, Silver Spring, Maryland

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 0.147)	**0.168** (0.140 0.204)	**0.208** (0.171 0.254)	**0.264** (0.211 0.335)	**0.310** (0.242 0.402)	**0.359** (0.273 0.477)	**0.411** (0.303 0.562)	**0.486** (0.343 0.694)	**0.547** (0.373 0.810)
10-min	**0.125** (0.104 0.151)	**0.174** (0.145 0.210)	**0.241** (0.200 0.292)	**0.298** (0.246 0.364)	**0.379** (0.302 0.480)	**0.444** (0.347 0.576)	**0.514** (0.391 0.683)	**0.589** (0.435 0.806)	**0.696** (0.492 0.995)	**0.784** (0.535 1.16)
15-min	**0.151** (0.126 0.182)	**0.210** (0.175 0.254)	**0.291** (0.242 0.353)	**0.360** (0.297 0.441)	**0.458** (0.365 0.581)	**0.538** (0.419 0.696)	**0.622** (0.472 0.826)	**0.712** (0.526 0.975)	**0.842** (0.595 1.20)	**0.948** (0.647 1.41)
30-min	**0.241** (0.202 0.292)	**0.336** (0.281 0.407)	**0.466** (0.388 0.565)	**0.576** (0.475 0.705)	**0.733** (0.584 0.929)	**0.860** (0.671 1.11)	**0.995** (0.756 1.32)	**1.14** (0.841 1.56)	**1.35** (0.952 1.93)	**1.52** (1.03 2.25)
60-min	**0.328** (0.274 0.397)	**0.457** (0.382 0.553)	**0.633** (0.527 0.768)	**0.783** (0.646 0.958)	**0.997** (0.794 1.26)	**1.17** (0.912 1.51)	**1.35** (1.03 1.80)	**1.55** (1.14 2.12)	**1.83** (1.29 2.62)	**2.06** (1.41 3.06)
2-hr	**0.492** (0.412 0.595)	**0.656** (0.547 0.793)	**0.875** (0.729 1.06)	**1.06** (0.874 1.30)	**1.31** (1.05 1.67)	**1.52** (1.18 1.97)	**1.73** (1.31 2.29)	**1.95** (1.44 2.67)	**2.26** (1.60 3.23)	**2.50** (1.71 3.71)
3-hr	**0.608** (0.508 0.734)	**0.798** (0.666 0.965)	**1.05** (0.875 1.27)	**1.26** (1.04 1.54)	**1.55** (1.24 1.97)	**1.78** (1.39 2.30)	**2.01** (1.53 2.67)	**2.26** (1.67 3.09)	**2.60** (1.83 3.71)	**2.86** (1.95 4.24)
6-hr	**0.856** (0.715 1.03)	**1.11** (0.927 1.34)	**1.45** (1.21 1.76)	**1.72** (1.42 2.11)	**2.10** (1.67 2.66)	**2.39** (1.87 3.10)	**2.69** (2.04 3.58)	**3.00** (2.21 4.11)	**3.42** (2.42 4.89)	**3.75** (2.56 5.56)
12-hr	**1.12** (0.938 1.36)	**1.47** (1.23 1.78)	**1.93** (1.60 2.33)	**2.30** (1.90 2.81)	**2.80** (2.23 3.55)	**3.19** (2.49 4.13)	**3.58** (2.72 4.76)	**3.99** (2.95 5.46)	**4.55** (3.21 6.50)	**4.98** (3.39 7.37)
24-hr	**1.46** (1.29 1.68)	**1.94** (1.72 2.25)	**2.58** (2.28 2.99)	**3.10** (2.71 3.62)	**3.81** (3.23 4.60)	**4.36** (3.62 5.36)	**4.91** (3.98 6.19)	**5.49** (4.33 7.10)	**6.26** (4.74 8.44)	**6.87** (5.03 9.57)
2-day	**1.69** (1.49 1.95)	**2.29** (2.03 2.65)	**3.10** (2.73 3.58)	**3.75** (3.28 4.38)	**4.65** (3.94 5.61)	**5.35** (4.44 6.58)	**6.07** (4.92 7.64)	**6.81** (5.37 8.81)	**7.83** (5.93 10.5)	**8.62** (6.32 12.0)
	1.80	**2.47**	**3.36**	**4.10**	**5.12**	**5.92**	**6.74**	**7.60**	**8.78**	**9.72**



Map Scale: 1:2,160 if printed on A portrait (8.5" x 11") sheet.

N

0 30 60 120 180 Meters

0 100 200 400 600 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

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
AnC	Arlington fine sandy loam, 2 to 8 percent slopes	C	15.9	87.8%
FfC2	Fallbrook fine sandy loam, 2 to 8 percent slopes, eroded	C	0.0	0.2%
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	A	2.2	12.0%
Totals for Area of Interest			**18.1**	**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

3-day	(1.59 2.07)	(2.18 2.85)	(2.96 3.89)	(3.59 4.79)	(4.34 6.17)	(4.91 7.28)	(5.46 8.49)	(5.99 9.84)	(6.65 11.8)	(7.12 13.5)
4-day	**1.93** (1.71 2.23)	**2.67** (2.36 3.09)	**3.67** (3.23 4.25)	**4.50** (3.93 5.25)	**5.64** (4.77 6.80)	**6.54** (5.42 8.04)	**7.46** (6.05 9.40)	**8.44** (6.65 10.9)	**9.78** (7.41 13.2)	**10.9** (7.95 15.1)
7-day	**2.10** (1.86 2.43)	**2.96** (2.62 3.42)	**4.11** (3.62 4.76)	**5.07** (4.43 5.92)	**6.40** (5.42 7.72)	**7.46** (6.18 9.17)	**8.55** (6.92 10.8)	**9.70** (7.64 12.5)	**11.3** (8.55 15.2)	**12.6** (9.20 17.5)
10-day	**2.18** (1.93 2.51)	**3.09** (2.73 3.57)	**4.33** (3.81 5.01)	**5.36** (4.69 6.26)	**6.81** (5.76 8.21)	**7.96** (6.60 9.79)	**9.15** (7.41 11.5)	**10.4** (8.21 13.5)	**12.2** (9.21 16.4)	**13.6** (9.94 18.9)
20-day	**2.51** (2.22 2.90)	**3.62** (3.19 4.18)	**5.14** (4.53 5.95)	**6.43** (5.62 7.51)	**8.28** (7.01 9.97)	**9.76** (8.10 12.0)	**11.3** (9.18 14.3)	**13.0** (10.3 16.8)	**15.4** (11.6 20.7)	**17.3** (12.7 24.1)
30-day	**2.87** (2.54 3.31)	**4.13** (3.65 4.77)	**5.90** (5.20 6.83)	**7.42** (6.49 8.66)	**9.62** (8.15 11.6)	**11.4** (9.47 14.0)	**13.3** (10.8 16.8)	**15.4** (12.2 20.0)	**18.4** (13.9 24.8)	**20.8** (15.3 29.0)
45-day	**3.34** (2.96 3.86)	**4.76** (4.21 5.50)	**6.79** (5.98 7.86)	**8.57** (7.49 10.0)	**11.2** (9.47 13.5)	**13.4** (11.1 16.4)	**15.7** (12.7 19.8)	**18.3** (14.4 23.7)	**22.1** (16.7 29.8)	**25.3** (18.5 35.2)
60-day	**3.79** (3.36 4.38)	**5.33** (4.71 6.15)	**7.55** (6.65 8.74)	**9.53** (8.33 11.1)	**12.5** (10.6 15.1)	**15.0** (12.4 18.4)	**17.7** (14.4 22.3)	**20.8** (16.4 26.9)	**25.3** (19.1 34.1)	**29.1** (21.3 40.6)

[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.

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
NATURAL COVERS -					
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
URBAN COVERS -					
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
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		76	85	90	92

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RUNOFF INDEX NUMBERS FOR PERVIOUS AREAS

PLATE E-6.1 (1 of 2)

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
AGRICULTURAL COVERS (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.

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.

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IMPERVIOUS COVER FOR DEVELOPED AREAS

PLATE D-5.6