

Preliminary Hydrology Study

68th Street Self-Storage

68th Street

Jurupa Valley, CA 91752

March 6, 2024

This Hydrology Study has been prepared by, and under the direction of, the undersigned, a duly Registered Civil Engineer in the State of California. Except as noted, the undersigned attests to the technical information contained herein, and has judged to be acceptable the qualifications of any technical specialists providing engineering data for this report, upon which findings, conclusions, and recommendations are based.



A handwritten signature in black ink, appearing to read "Wai Chen", written over a horizontal line.

Wai Chen, PE

Registered Civil Engineer No. C83487

Exp.: 03/31/2025

Prepared for:

Prepared by:

Steve Galvez

20 Paseo Verde

San Clemente, CA 92673

Phone: 951-297-8120



W.H. Engineering Group

548 Wald

Irvine, CA 92618

Phone: 949-229-1413

Table Of Contents

Section 1	Project Description.....	1
Section 2	Purpose.....	1
Section 3	Design Criteria and Methodology.....	1
Section 4	Hydrology Analysis	2
Section 5	FEMA Flood Zone	3
Section 6	Conclusion.....	3
References		4
Vicinity Map		5

Appendices

Hydrology Calculations

Hydrology Maps

SECTION 1 – PROJECT DESCRIPTION

The project proposes to develop a 14.27-acre vacant land to a storage unit lot with RV parking. The lot is located at 68th Street along the east side of I-15 freeway in the City of Jurupa Valley. The project is surrounded by existing residential building storage facilities to the north and northeast, I-15 freeway to the west and Santa Ana River to the South and Southeast.

The general topography of the site is with a average slope of 2% grade from the north to the south toward Santa Ana River. The project site falls within the Riverside County Flood Control District. In the existing condition, water from the lot sheet flow south toward the Santa Ana River.

The proposed project design is to collect storm water within the project area with curb and gutter along the parking lot and access road area. Which will then diverted to the detention basin located under the parking structure. All the retained water will be pumped offside at 85% of existing condition at 1.912 cfs.

SECTION 2 - PURPOSE

The purpose of this study is to determine the flow volume generate for project site post development 100-year 3-hr storm event and design the infiltration basin able to store all the flow volume. 10-year and 100-year 24-hr storm events are analyzed to determine whether the basin will be able to mitigate the impact of development on downstream outflow.

SECTION 3 – DESIGN CRITERIA AND METHODOLOGY

Hydrology for the project was based upon the Riverside County Flood Control District Hydrology Manual (Ref.1) and uses Civil Design software for calculation various flow rates and hydrograph of project site. (Ref. 2, 3, 4, 5).

UNIT HYDROGRAPH INPUT DATA SUMMARY									
	Lag Time Calculation Input								
DMA	Longest Watercourse	Lca	ΔH	Manning N	Computed Lag Time	Sub Area	Impervious Fraction	Intensity Slope	Runoff Index
	ft	ft	ft		hr	acre	%		
E1	2760	360	50	0.200	0.568	14.27	0%	0.55	30
P1	2510	355	50	0.015	0.040	14.27	51%	0.55	32

Precipitation from Hydrology Manual				
	1-hr	3-hr	6-hr	24-hr
2-year	0.5	0.8	1.2	2.0
100-year	1.2	2.0	3.0	6.0

SECTION 4 - HYDROLOGY ANALYSIS

See Appendix for detail calculations.

ASSUMPTIONS

- Unit Hydrograph method is used to determine the total flow generated from the proposed project site.

HYDROLOGY RESULT SUMMARY

UNIT HYDROGRAPH RESULT SUMMARY						
DMA	EXISTING		PROPOSED		PROPOSED ROUTED	
	Q = CFS	V = CU-FT	Q = CFS	V = CU-FT	Q = CFS	V = CU-FT
10-YR 3HR	2.249	10,585	11.071	30,603	1.912	0
10-YR 24HR	0.618	18,884	3.624	92,909	1.912	0
100-YR 24HR	3.148	48,014	8.050	169,385	1.912	0

Post-development Storm Water Volume: $V_{100\text{yr}24\text{hr}}$ = 169,385 cu-ft

Basin Design Storage Volume: V_{basin} = 122,230 cu-ft

Post-development Storm Water Outflow Volume: $V_{\text{mitigated}}$ = 47,155 cu-ft

Depth Vs Storage Capacity Table			
Elevation	Depth	Storage	Note
	ft	cu-ft	
591.00	0	0	-
592.00	1.00	13,390	-
592.50	1.50	23,896	
592.67	1.67	27,706	Pump Start
593.00	2.00	35,666	-
594.00	3.00	61,115	-
595.00	4.00	86,564	-
596.00	5.00	108,840	-
597.00	6.00	122,230	Top of Basin

SECTION 5 – FEMA Flood Zone

The project is located in the FEMA flood zone at an elevation of 607 feet above sea level (BFE). A HEC-RES study was conducted on the river using the HEC-RES model provided by the County Flood Control District for the TTM 36391 project. The river stations 6130 and 6629 were revised to show the borrowed basin and the elevated PAD area. By comparing the pre- and post-development conditions, the upstream water elevation reduces by 0.05 feet, which accounts for reduces floor level by 0.6 inches. The raised pad increases the project area flood elevation by 0.07 feet, which accounts for 0.84 inches. The change is insufficient; hence, there is no major impact on the existing flood zone.

HYDRAULKIC IMPACT COMPARISION			
STA	EX WSE	PROPOSE WSE	DIFFERENCE
7410	609.98	609.94	-0.04
7013	609.46	609.41	-0.05
6629	609.01	609.08	0.07
6130	608.57	608.59	0.02
5743	608.32	608.32	0
5257	607.94	607.94	0

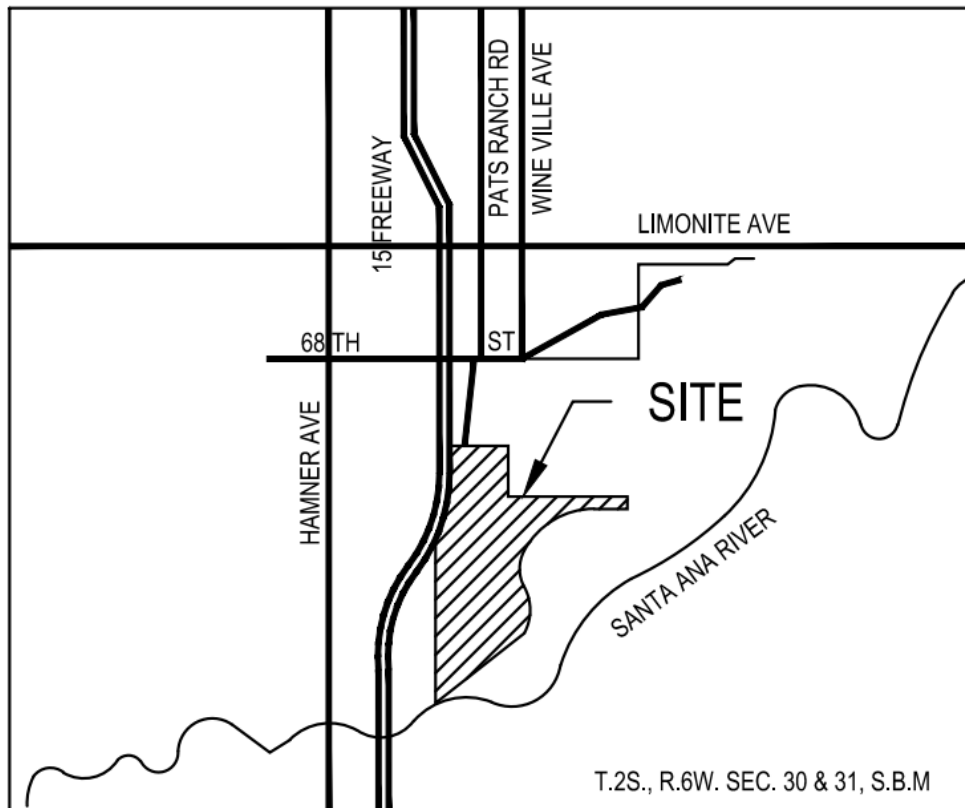
SECTION 6 - CONCLUSION

The proposed basin retains additional flow generated because of the development. The proposed development will have no impact on the downstream storm water system.

Impact to Existing System				
Final Hydrology		Pre	Post	% Change
100-year Event	Q	3.148 cfs	1.912 cfs	-39%
	V	48,014 cu-ft	47,155 cu-ft	-1.7%

REFERENCES

1. Riverside County Hydrology Manual, Riverside County Flood Control and Water Conservation District, April 1978.
2. Riverside County Rational Hydrology Program, CIVILDESIGN Engineering Software, 2018 Version 9.
3. Riverside County Unit Hydrograph Analysis, CIVILDESIGN Engineering Software, 2018 Version 9.
4. Riverside County Unit Hydrograph Analysis, CIVILDESIGN Engineering Software, 2018 Version 9.
5. Flood Hydrograph Routing Program, CIVILDESIGN Engineering Software, 2018 Version 9.



VICINITY MAP

N.T.S.

Vicinity Map

Not to Scale

APPENDICES

HYDROLOGY CALCULATION

UNIT HYDROGRAPH INPUT DATA SUMMARY									
	Lag Time Calculation Input								
DMA	Longest Watercourse	Lca	ΔH	Manning N	Computed Lag Time	Sub Area	Impervious Fraction	Intensity Slope	Runoff Index
	ft	ft	ft		hr	acre	%		
E1	2760	360	50	0.200	0.568	14.27	0%	0.55	30
P1	2510	355	50	0.015	0.040	14.27	51%	0.55	32

Precipitation from Hydrology Manual				
	1-hr	3-hr	6-hr	24-hr
2-year	0.5	0.8	1.2	2.0
100-year	1.2	2.0	3.0	6.0

UNIT HYDROGRAPH RESULT SUMMARY						
DMA	EXISTING		PROPOSED		PROPOSED ROUTED	
	Q = CFS	V = CU-FT	Q = CFS	V = CU-FT	Q = CFS	V = CU-FT
10-YR 3HR	2.249	10,585	11.071	30,603	1.912	0
10-YR 24HR	0.618	18,884	3.624	92,909	1.912	0
100-YR 24HR	3.148	48,014	8.050	169,385	1.912	0

Depth Vs Storage Capacity Table			
Elevation	Depth	Storage	Note
	ft	cu-ft	
591.00	0	0	-
592.00	1.00	13,390	-
592.50	1.50	23,896	
592.67	1.67	27,706	Pump Start
593.00	2.00	35,666	-
594.00	3.00	61,115	-
595.00	4.00	86,564	-
596.00	5.00	108,840	-
597.00	6.00	122,230	Top of Basin

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 09/21/23 File: UHE1010310.out

+++++

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

Program License Serial Number 6450

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

English Units used in output format

68th Street Storage
10 Year Storm Event
Predevelopment Condition

Drainage Area = 14.27 (Ac.) = 0.022 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 14.27 (Ac.) = 0.022 Sq. Mi.
Length along longest watercourse = 2760.00 (Ft.)
Length along longest watercourse measured to centroid = 360.00 (Ft.)
Length along longest watercourse = 0.523 Mi.
Length along longest watercourse measured to centroid = 0.068 Mi.
Difference in elevation = 50.00 (Ft.)
Slope along watercourse = 95.6522 Ft./Mi.
Average Manning's 'N' = 0.200
Lag time = 0.568 Hr.
Lag time = 34.10 Min.
25% of lag time = 8.53 Min.
40% of lag time = 13.64 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]
14.27	0.80	11.42

100 YEAR Area rainfall data:

Area (Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
14.27	2.00	28.54

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 0.800(In)
 Area Averaged 100-Year Rainfall = 2.000(In)

Point rain (area averaged) = 1.294(In)
 Areal adjustment factor = 99.99 %
 Adjusted average point rain = 1.294(In)

Sub-Area Data:

Area (Ac.)	Runoff Index	Impervious %
14.270	30.00	0.000
Total Area Entered = 14.27 (Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec. %)	(In/Hr)	(Dec. %)	(In/Hr)
30.0	30.0	0.760	0.000	0.760	1.000	0.760
Sum (F) =						0.760

Area averaged mean soil loss (F) (In/Hr) = 0.760
 Minimum soil loss rate ((In/Hr)) = 0.380
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	14.661	1.271
2	0.167	29.322	3.084
3	0.250	43.984	5.116
4	0.333	58.645	7.076
5	0.417	73.306	9.228
6	0.500	87.967	10.286
7	0.583	102.629	10.509
8	0.667	117.290	8.655
9	0.750	131.951	6.472
10	0.833	146.612	4.799
11	0.917	161.274	3.794
12	1.000	175.935	2.905
13	1.083	190.596	2.329
14	1.167	205.257	2.143
15	1.250	219.919	1.844
16	1.333	234.580	1.697
17	1.417	249.241	1.484
18	1.500	263.902	1.387
19	1.583	278.564	1.283

20	1.667	293.225	1.123	0.161
21	1.750	307.886	1.030	0.148
22	1.833	322.547	0.898	0.129
23	1.917	337.209	0.880	0.127
24	2.000	351.870	0.878	0.126
25	2.083	366.531	0.734	0.106
26	2.167	381.192	0.645	0.093
27	2.250	395.854	0.645	0.093
28	2.333	410.515	0.600	0.086
29	2.417	425.176	0.476	0.068
30	2.500	439.837	0.469	0.067
31	2.583	454.499	0.468	0.067
32	2.667	469.160	0.447	0.064
33	2.750	483.821	0.440	0.063
34	2.833	498.482	0.440	0.063
35	2.917	513.144	0.393	0.056
36	3.000	527.805	0.323	0.046
37	3.083	542.466	0.323	0.046
38	3.167	557.127	0.316	0.045
39	3.250	571.789	0.272	0.039
40	3.333	586.450	0.264	0.038
41	3.417	601.111	0.264	0.038
42	3.500	615.772	0.230	0.033
43	3.583	630.434	0.205	0.030
44	3.667	645.095	0.205	0.030
45	3.750	659.756	0.192	0.028
46	3.833	674.417	0.150	0.022
47	3.917	689.079	0.147	0.021
48	4.000	703.740	0.147	0.021
49	4.083	718.401	0.147	0.021
50	4.167	733.062	0.147	0.021
51	4.250	747.724	0.147	0.021
52	4.333	762.385	0.147	0.021
53	4.417	777.046	0.147	0.021
54	4.500	791.707	0.147	0.021
55	4.583	806.369	0.156	0.022
Sum = 100.000			Sum=	14.381

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	1.30	0.202	(0.760)	0.182	0.020
2	0.17	1.30	0.202	(0.760)	0.182	0.020
3	0.25	1.10	0.171	(0.760)	0.154	0.017
4	0.33	1.50	0.233	(0.760)	0.210	0.023
5	0.42	1.50	0.233	(0.760)	0.210	0.023
6	0.50	1.80	0.279	(0.760)	0.251	0.028
7	0.58	1.50	0.233	(0.760)	0.210	0.023
8	0.67	1.80	0.279	(0.760)	0.251	0.028
9	0.75	1.80	0.279	(0.760)	0.251	0.028
10	0.83	1.50	0.233	(0.760)	0.210	0.023

11	0.92	1.60	0.248	(0.760)	0.224	0.025
12	1.00	1.80	0.279	(0.760)	0.251	0.028
13	1.08	2.20	0.342	(0.760)	0.307	0.034
14	1.17	2.20	0.342	(0.760)	0.307	0.034
15	1.25	2.20	0.342	(0.760)	0.307	0.034
16	1.33	2.00	0.310	(0.760)	0.279	0.031
17	1.42	2.60	0.404	(0.760)	0.363	0.040
18	1.50	2.70	0.419	(0.760)	0.377	0.042
19	1.58	2.40	0.373	(0.760)	0.335	0.037
20	1.67	2.70	0.419	(0.760)	0.377	0.042
21	1.75	3.30	0.512	(0.760)	0.461	0.051
22	1.83	3.10	0.481	(0.760)	0.433	0.048
23	1.92	2.90	0.450	(0.760)	0.405	0.045
24	2.00	3.00	0.466	(0.760)	0.419	0.047
25	2.08	3.10	0.481	(0.760)	0.433	0.048
26	2.17	4.20	0.652	(0.760)	0.587	0.065
27	2.25	5.00	0.776	(0.760)	0.699	0.078
28	2.33	3.50	0.543	(0.760)	0.489	0.054
29	2.42	6.80	1.056	0.760 (0.950)		0.296
30	2.50	7.30	1.133	0.760 (1.020)		0.373
31	2.58	8.20	1.273	0.760 (1.146)		0.513
32	2.67	5.90	0.916	0.760 (0.824)		0.156
33	2.75	2.00	0.310	(0.760)	0.279	0.031
34	2.83	1.80	0.279	(0.760)	0.251	0.028
35	2.92	1.80	0.279	(0.760)	0.251	0.028
36	3.00	0.60	0.093	(0.760)	0.084	0.009

(Loss Rate Not Used)

Sum = 100.0 Sum = 2.5

Flood volume = Effective rainfall 0.20(In)
times area 14.3(Ac.)/[(In)/(Ft.)] = 0.2(Ac. Ft)

Total soil loss = 1.09(In)

Total soil loss = 1.295(Ac. Ft)

Total rainfall = 1.29(In)

Flood volume = 10585.1 Cubic Feet

Total soil loss = 56424.0 Cubic Feet

Peak flow rate of this hydrograph = 2.249(CFS)

+++++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0001	0.01	Q				
0+15	0.0003	0.03	Q				
0+20	0.0006	0.05	Q				
0+25	0.0011	0.07	Q				
0+30	0.0019	0.11	Q				
0+35	0.0028	0.14	Q				
0+40	0.0040	0.17	Q				

0+45	0.0054	0.20	Q					
0+50	0.0069	0.22	QV					
0+55	0.0086	0.24	QV					
1+ 0	0.0103	0.26	Q					
1+ 5	0.0122	0.27	QV					
1+10	0.0142	0.29	QV					
1+15	0.0163	0.30	QV					
1+20	0.0184	0.32	Q V					
1+25	0.0207	0.33	Q V					
1+30	0.0231	0.35	Q V					
1+35	0.0257	0.37	Q V					
1+40	0.0284	0.39	Q V					
1+45	0.0313	0.42	Q V					
1+50	0.0343	0.44	Q V					
1+55	0.0375	0.46	Q V					
2+ 0	0.0409	0.49	Q V					
2+ 5	0.0444	0.51	Q V					
2+10	0.0480	0.53	Q V					
2+15	0.0519	0.56	Q V					
2+20	0.0560	0.59	Q V					
2+25	0.0605	0.66	Q V					
2+30	0.0661	0.81	Q V					
2+35	0.0736	1.08	Q V					
2+40	0.0832	1.40	Q V					
2+45	0.0951	1.73	Q V					
2+50	0.1091	2.02	Q V					
2+55	0.1244	2.23	Q V					
3+ 0	0.1399	2.25	Q V					
3+ 5	0.1542	2.08	Q V					
3+10	0.1662	1.75	Q V					
3+15	0.1759	1.40	Q V					
3+20	0.1836	1.12	Q V					
3+25	0.1898	0.91	Q V					
3+30	0.1949	0.74	Q V					
3+35	0.1992	0.62	Q V					
3+40	0.2030	0.55	Q V					
3+45	0.2063	0.48	Q V					
3+50	0.2093	0.43	Q V					
3+55	0.2120	0.39	Q V					
4+ 0	0.2145	0.36	Q V					
4+ 5	0.2167	0.33	Q V					
4+10	0.2188	0.29	Q V					
4+15	0.2206	0.27	Q V					
4+20	0.2223	0.25	Q V					
4+25	0.2239	0.23	Q V					
4+30	0.2254	0.22	Q V					
4+35	0.2268	0.20	Q V					
4+40	0.2280	0.18	Q V					
4+45	0.2292	0.17	Q V					
4+50	0.2303	0.15	Q V					
4+55	0.2312	0.14	Q V					
5+ 0	0.2321	0.13	Q V					
5+ 5	0.2330	0.13	Q V					
5+10	0.2339	0.12	Q V					
5+15	0.2347	0.12	Q V					

5+20	0.2354	0.11	Q				V	
5+25	0.2361	0.10	Q				V	
5+30	0.2367	0.09	Q				V	
5+35	0.2373	0.09	Q				V	
5+40	0.2378	0.08	Q				V	
5+45	0.2384	0.07	Q				V	
5+50	0.2388	0.07	Q				V	
5+55	0.2393	0.06	Q				V	
6+ 0	0.2397	0.06	Q				V	
6+ 5	0.2400	0.05	Q				V	
6+10	0.2404	0.05	Q				V	
6+15	0.2407	0.05	Q				V	
6+20	0.2410	0.04	Q				V	
6+25	0.2413	0.04	Q				V	
6+30	0.2415	0.04	Q				V	
6+35	0.2418	0.04	Q				V	
6+40	0.2420	0.03	Q				V	
6+45	0.2422	0.03	Q				V	
6+50	0.2424	0.03	Q				V	
6+55	0.2426	0.03	Q				V	
7+ 0	0.2428	0.02	Q				V	
7+ 5	0.2429	0.02	Q				V	
7+10	0.2430	0.01	Q				V	
7+15	0.2430	0.00	Q				V	
7+20	0.2430	0.00	Q				V	
7+25	0.2430	0.00	Q				V	
7+30	0.2430	0.00	Q				V	

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0

Study date 09/21/23 File: UHE10102410.out

+++++

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

Program License Serial Number 6450

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

English Units used in output format

68th Street Storage
10 Year Storm Event
Predevelopment Condition

Drainage Area = 14.27 (Ac.) = 0.022 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 14.27 (Ac.) = 0.022 Sq. Mi.
Length along longest watercourse = 2760.00 (Ft.)
Length along longest watercourse measured to centroid = 360.00 (Ft.)
Length along longest watercourse = 0.523 Mi.
Length along longest watercourse measured to centroid = 0.068 Mi.
Difference in elevation = 50.00 (Ft.)
Slope along watercourse = 95.6522 Ft./Mi.
Average Manning's 'N' = 0.200
Lag time = 0.568 Hr.
Lag time = 34.10 Min.
25% of lag time = 8.53 Min.
40% of lag time = 13.64 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]
14.27	2.00	28.54

100 YEAR Area rainfall data:

Area (Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
14.27	6.00	85.62

STORM EVENT (YEAR) = 10.00
 Area Averaged 2-Year Rainfall = 2.000 (In)
 Area Averaged 100-Year Rainfall = 6.000 (In)

Point rain (area averaged) = 3.646 (In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 3.646 (In)

Sub-Area Data:

Area (Ac.)	Runoff Index	Impervious %
14.270	30.00	0.000
Total Area Entered = 14.27 (Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec. %)	(In/Hr)	(Dec. %)	(In/Hr)
30.0	30.0	0.760	0.000	0.760	1.000	0.760
Sum (F) =						0.760

Area averaged mean soil loss (F) (In/Hr) = 0.760
 Minimum soil loss rate ((In/Hr)) = 0.380
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	14.661	1.271
2	0.167	29.322	3.084
3	0.250	43.984	5.116
4	0.333	58.645	7.076
5	0.417	73.306	9.228
6	0.500	87.967	10.286
7	0.583	102.629	10.509
8	0.667	117.290	8.655
9	0.750	131.951	6.472
10	0.833	146.612	4.799
11	0.917	161.274	3.794
12	1.000	175.935	2.905
13	1.083	190.596	2.329
14	1.167	205.257	2.143
15	1.250	219.919	1.844
16	1.333	234.580	1.697
17	1.417	249.241	1.484
18	1.500	263.902	1.387

19	1.583	278.564	1.283	0.185
20	1.667	293.225	1.123	0.161
21	1.750	307.886	1.030	0.148
22	1.833	322.547	0.898	0.129
23	1.917	337.209	0.880	0.127
24	2.000	351.870	0.878	0.126
25	2.083	366.531	0.734	0.106
26	2.167	381.192	0.645	0.093
27	2.250	395.854	0.645	0.093
28	2.333	410.515	0.600	0.086
29	2.417	425.176	0.476	0.068
30	2.500	439.837	0.469	0.067
31	2.583	454.499	0.468	0.067
32	2.667	469.160	0.447	0.064
33	2.750	483.821	0.440	0.063
34	2.833	498.482	0.440	0.063
35	2.917	513.144	0.393	0.056
36	3.000	527.805	0.323	0.046
37	3.083	542.466	0.323	0.046
38	3.167	557.127	0.316	0.045
39	3.250	571.789	0.272	0.039
40	3.333	586.450	0.264	0.038
41	3.417	601.111	0.264	0.038
42	3.500	615.772	0.230	0.033
43	3.583	630.434	0.205	0.030
44	3.667	645.095	0.205	0.030
45	3.750	659.756	0.192	0.028
46	3.833	674.417	0.150	0.022
47	3.917	689.079	0.147	0.021
48	4.000	703.740	0.147	0.021
49	4.083	718.401	0.147	0.021
50	4.167	733.062	0.147	0.021
51	4.250	747.724	0.147	0.021
52	4.333	762.385	0.147	0.021
53	4.417	777.046	0.147	0.021
54	4.500	791.707	0.147	0.021
55	4.583	806.369	0.156	0.022
Sum = 100.000			Sum=	14.381

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
				Max	Low	
1	0.08	0.07	0.029	(1.347)	0.026	0.003
2	0.17	0.07	0.029	(1.342)	0.026	0.003
3	0.25	0.07	0.029	(1.337)	0.026	0.003
4	0.33	0.10	0.044	(1.332)	0.039	0.004
5	0.42	0.10	0.044	(1.326)	0.039	0.004
6	0.50	0.10	0.044	(1.321)	0.039	0.004
7	0.58	0.10	0.044	(1.316)	0.039	0.004
8	0.67	0.10	0.044	(1.311)	0.039	0.004
9	0.75	0.10	0.044	(1.306)	0.039	0.004

10	0.83	0.13	0.058	(1.301)	0.052	0.006
11	0.92	0.13	0.058	(1.296)	0.052	0.006
12	1.00	0.13	0.058	(1.291)	0.052	0.006
13	1.08	0.10	0.044	(1.285)	0.039	0.004
14	1.17	0.10	0.044	(1.280)	0.039	0.004
15	1.25	0.10	0.044	(1.275)	0.039	0.004
16	1.33	0.10	0.044	(1.270)	0.039	0.004
17	1.42	0.10	0.044	(1.265)	0.039	0.004
18	1.50	0.10	0.044	(1.260)	0.039	0.004
19	1.58	0.10	0.044	(1.255)	0.039	0.004
20	1.67	0.10	0.044	(1.250)	0.039	0.004
21	1.75	0.10	0.044	(1.245)	0.039	0.004
22	1.83	0.13	0.058	(1.240)	0.052	0.006
23	1.92	0.13	0.058	(1.235)	0.052	0.006
24	2.00	0.13	0.058	(1.230)	0.052	0.006
25	2.08	0.13	0.058	(1.225)	0.052	0.006
26	2.17	0.13	0.058	(1.220)	0.052	0.006
27	2.25	0.13	0.058	(1.215)	0.052	0.006
28	2.33	0.13	0.058	(1.210)	0.052	0.006
29	2.42	0.13	0.058	(1.205)	0.052	0.006
30	2.50	0.13	0.058	(1.200)	0.052	0.006
31	2.58	0.17	0.073	(1.195)	0.066	0.007
32	2.67	0.17	0.073	(1.190)	0.066	0.007
33	2.75	0.17	0.073	(1.186)	0.066	0.007
34	2.83	0.17	0.073	(1.181)	0.066	0.007
35	2.92	0.17	0.073	(1.176)	0.066	0.007
36	3.00	0.17	0.073	(1.171)	0.066	0.007
37	3.08	0.17	0.073	(1.166)	0.066	0.007
38	3.17	0.17	0.073	(1.161)	0.066	0.007
39	3.25	0.17	0.073	(1.156)	0.066	0.007
40	3.33	0.17	0.073	(1.152)	0.066	0.007
41	3.42	0.17	0.073	(1.147)	0.066	0.007
42	3.50	0.17	0.073	(1.142)	0.066	0.007
43	3.58	0.17	0.073	(1.137)	0.066	0.007
44	3.67	0.17	0.073	(1.132)	0.066	0.007
45	3.75	0.17	0.073	(1.128)	0.066	0.007
46	3.83	0.20	0.087	(1.123)	0.079	0.009
47	3.92	0.20	0.087	(1.118)	0.079	0.009
48	4.00	0.20	0.087	(1.113)	0.079	0.009
49	4.08	0.20	0.087	(1.109)	0.079	0.009
50	4.17	0.20	0.087	(1.104)	0.079	0.009
51	4.25	0.20	0.087	(1.099)	0.079	0.009
52	4.33	0.23	0.102	(1.095)	0.092	0.010
53	4.42	0.23	0.102	(1.090)	0.092	0.010
54	4.50	0.23	0.102	(1.085)	0.092	0.010
55	4.58	0.23	0.102	(1.081)	0.092	0.010
56	4.67	0.23	0.102	(1.076)	0.092	0.010
57	4.75	0.23	0.102	(1.071)	0.092	0.010
58	4.83	0.27	0.117	(1.067)	0.105	0.012
59	4.92	0.27	0.117	(1.062)	0.105	0.012
60	5.00	0.27	0.117	(1.058)	0.105	0.012
61	5.08	0.20	0.087	(1.053)	0.079	0.009
62	5.17	0.20	0.087	(1.048)	0.079	0.009
63	5.25	0.20	0.087	(1.044)	0.079	0.009
64	5.33	0.23	0.102	(1.039)	0.092	0.010

65	5.42	0.23	0.102	(1.035)	0.092	0.010
66	5.50	0.23	0.102	(1.030)	0.092	0.010
67	5.58	0.27	0.117	(1.026)	0.105	0.012
68	5.67	0.27	0.117	(1.021)	0.105	0.012
69	5.75	0.27	0.117	(1.017)	0.105	0.012
70	5.83	0.27	0.117	(1.012)	0.105	0.012
71	5.92	0.27	0.117	(1.008)	0.105	0.012
72	6.00	0.27	0.117	(1.003)	0.105	0.012
73	6.08	0.30	0.131	(0.999)	0.118	0.013
74	6.17	0.30	0.131	(0.994)	0.118	0.013
75	6.25	0.30	0.131	(0.990)	0.118	0.013
76	6.33	0.30	0.131	(0.985)	0.118	0.013
77	6.42	0.30	0.131	(0.981)	0.118	0.013
78	6.50	0.30	0.131	(0.977)	0.118	0.013
79	6.58	0.33	0.146	(0.972)	0.131	0.015
80	6.67	0.33	0.146	(0.968)	0.131	0.015
81	6.75	0.33	0.146	(0.963)	0.131	0.015
82	6.83	0.33	0.146	(0.959)	0.131	0.015
83	6.92	0.33	0.146	(0.955)	0.131	0.015
84	7.00	0.33	0.146	(0.950)	0.131	0.015
85	7.08	0.33	0.146	(0.946)	0.131	0.015
86	7.17	0.33	0.146	(0.942)	0.131	0.015
87	7.25	0.33	0.146	(0.938)	0.131	0.015
88	7.33	0.37	0.160	(0.933)	0.144	0.016
89	7.42	0.37	0.160	(0.929)	0.144	0.016
90	7.50	0.37	0.160	(0.925)	0.144	0.016
91	7.58	0.40	0.175	(0.920)	0.157	0.017
92	7.67	0.40	0.175	(0.916)	0.157	0.017
93	7.75	0.40	0.175	(0.912)	0.157	0.017
94	7.83	0.43	0.190	(0.908)	0.171	0.019
95	7.92	0.43	0.190	(0.904)	0.171	0.019
96	8.00	0.43	0.190	(0.899)	0.171	0.019
97	8.08	0.50	0.219	(0.895)	0.197	0.022
98	8.17	0.50	0.219	(0.891)	0.197	0.022
99	8.25	0.50	0.219	(0.887)	0.197	0.022
100	8.33	0.50	0.219	(0.883)	0.197	0.022
101	8.42	0.50	0.219	(0.879)	0.197	0.022
102	8.50	0.50	0.219	(0.875)	0.197	0.022
103	8.58	0.53	0.233	(0.870)	0.210	0.023
104	8.67	0.53	0.233	(0.866)	0.210	0.023
105	8.75	0.53	0.233	(0.862)	0.210	0.023
106	8.83	0.57	0.248	(0.858)	0.223	0.025
107	8.92	0.57	0.248	(0.854)	0.223	0.025
108	9.00	0.57	0.248	(0.850)	0.223	0.025
109	9.08	0.63	0.277	(0.846)	0.249	0.028
110	9.17	0.63	0.277	(0.842)	0.249	0.028
111	9.25	0.63	0.277	(0.838)	0.249	0.028
112	9.33	0.67	0.292	(0.834)	0.262	0.029
113	9.42	0.67	0.292	(0.830)	0.262	0.029
114	9.50	0.67	0.292	(0.826)	0.262	0.029
115	9.58	0.70	0.306	(0.822)	0.276	0.031
116	9.67	0.70	0.306	(0.818)	0.276	0.031
117	9.75	0.70	0.306	(0.814)	0.276	0.031
118	9.83	0.73	0.321	(0.810)	0.289	0.032
119	9.92	0.73	0.321	(0.806)	0.289	0.032

120	10.00	0.73	0.321	(0.803)	0.289	0.032
121	10.08	0.50	0.219	(0.799)	0.197	0.022
122	10.17	0.50	0.219	(0.795)	0.197	0.022
123	10.25	0.50	0.219	(0.791)	0.197	0.022
124	10.33	0.50	0.219	(0.787)	0.197	0.022
125	10.42	0.50	0.219	(0.783)	0.197	0.022
126	10.50	0.50	0.219	(0.779)	0.197	0.022
127	10.58	0.67	0.292	(0.776)	0.262	0.029
128	10.67	0.67	0.292	(0.772)	0.262	0.029
129	10.75	0.67	0.292	(0.768)	0.262	0.029
130	10.83	0.67	0.292	(0.764)	0.262	0.029
131	10.92	0.67	0.292	(0.761)	0.262	0.029
132	11.00	0.67	0.292	(0.757)	0.262	0.029
133	11.08	0.63	0.277	(0.753)	0.249	0.028
134	11.17	0.63	0.277	(0.749)	0.249	0.028
135	11.25	0.63	0.277	(0.746)	0.249	0.028
136	11.33	0.63	0.277	(0.742)	0.249	0.028
137	11.42	0.63	0.277	(0.738)	0.249	0.028
138	11.50	0.63	0.277	(0.735)	0.249	0.028
139	11.58	0.57	0.248	(0.731)	0.223	0.025
140	11.67	0.57	0.248	(0.727)	0.223	0.025
141	11.75	0.57	0.248	(0.724)	0.223	0.025
142	11.83	0.60	0.262	(0.720)	0.236	0.026
143	11.92	0.60	0.262	(0.717)	0.236	0.026
144	12.00	0.60	0.262	(0.713)	0.236	0.026
145	12.08	0.83	0.365	(0.709)	0.328	0.036
146	12.17	0.83	0.365	(0.706)	0.328	0.036
147	12.25	0.83	0.365	(0.702)	0.328	0.036
148	12.33	0.87	0.379	(0.699)	0.341	0.038
149	12.42	0.87	0.379	(0.695)	0.341	0.038
150	12.50	0.87	0.379	(0.692)	0.341	0.038
151	12.58	0.93	0.408	(0.688)	0.367	0.041
152	12.67	0.93	0.408	(0.685)	0.367	0.041
153	12.75	0.93	0.408	(0.681)	0.367	0.041
154	12.83	0.97	0.423	(0.678)	0.381	0.042
155	12.92	0.97	0.423	(0.675)	0.381	0.042
156	13.00	0.97	0.423	(0.671)	0.381	0.042
157	13.08	1.13	0.496	(0.668)	0.446	0.050
158	13.17	1.13	0.496	(0.664)	0.446	0.050
159	13.25	1.13	0.496	(0.661)	0.446	0.050
160	13.33	1.13	0.496	(0.658)	0.446	0.050
161	13.42	1.13	0.496	(0.654)	0.446	0.050
162	13.50	1.13	0.496	(0.651)	0.446	0.050
163	13.58	0.77	0.335	(0.648)	0.302	0.034
164	13.67	0.77	0.335	(0.644)	0.302	0.034
165	13.75	0.77	0.335	(0.641)	0.302	0.034
166	13.83	0.77	0.335	(0.638)	0.302	0.034
167	13.92	0.77	0.335	(0.635)	0.302	0.034
168	14.00	0.77	0.335	(0.631)	0.302	0.034
169	14.08	0.90	0.394	(0.628)	0.354	0.039
170	14.17	0.90	0.394	(0.625)	0.354	0.039
171	14.25	0.90	0.394	(0.622)	0.354	0.039
172	14.33	0.87	0.379	(0.618)	0.341	0.038
173	14.42	0.87	0.379	(0.615)	0.341	0.038
174	14.50	0.87	0.379	(0.612)	0.341	0.038

175	14.58	0.87	0.379	(0.609)	0.341	0.038
176	14.67	0.87	0.379	(0.606)	0.341	0.038
177	14.75	0.87	0.379	(0.603)	0.341	0.038
178	14.83	0.83	0.365	(0.600)	0.328	0.036
179	14.92	0.83	0.365	(0.597)	0.328	0.036
180	15.00	0.83	0.365	(0.594)	0.328	0.036
181	15.08	0.80	0.350	(0.591)	0.315	0.035
182	15.17	0.80	0.350	(0.588)	0.315	0.035
183	15.25	0.80	0.350	(0.585)	0.315	0.035
184	15.33	0.77	0.335	(0.582)	0.302	0.034
185	15.42	0.77	0.335	(0.579)	0.302	0.034
186	15.50	0.77	0.335	(0.576)	0.302	0.034
187	15.58	0.63	0.277	(0.573)	0.249	0.028
188	15.67	0.63	0.277	(0.570)	0.249	0.028
189	15.75	0.63	0.277	(0.567)	0.249	0.028
190	15.83	0.63	0.277	(0.564)	0.249	0.028
191	15.92	0.63	0.277	(0.561)	0.249	0.028
192	16.00	0.63	0.277	(0.558)	0.249	0.028
193	16.08	0.13	0.058	(0.555)	0.052	0.006
194	16.17	0.13	0.058	(0.552)	0.052	0.006
195	16.25	0.13	0.058	(0.550)	0.052	0.006
196	16.33	0.13	0.058	(0.547)	0.052	0.006
197	16.42	0.13	0.058	(0.544)	0.052	0.006
198	16.50	0.13	0.058	(0.541)	0.052	0.006
199	16.58	0.10	0.044	(0.538)	0.039	0.004
200	16.67	0.10	0.044	(0.536)	0.039	0.004
201	16.75	0.10	0.044	(0.533)	0.039	0.004
202	16.83	0.10	0.044	(0.530)	0.039	0.004
203	16.92	0.10	0.044	(0.528)	0.039	0.004
204	17.00	0.10	0.044	(0.525)	0.039	0.004
205	17.08	0.17	0.073	(0.522)	0.066	0.007
206	17.17	0.17	0.073	(0.520)	0.066	0.007
207	17.25	0.17	0.073	(0.517)	0.066	0.007
208	17.33	0.17	0.073	(0.514)	0.066	0.007
209	17.42	0.17	0.073	(0.512)	0.066	0.007
210	17.50	0.17	0.073	(0.509)	0.066	0.007
211	17.58	0.17	0.073	(0.507)	0.066	0.007
212	17.67	0.17	0.073	(0.504)	0.066	0.007
213	17.75	0.17	0.073	(0.502)	0.066	0.007
214	17.83	0.13	0.058	(0.499)	0.052	0.006
215	17.92	0.13	0.058	(0.497)	0.052	0.006
216	18.00	0.13	0.058	(0.494)	0.052	0.006
217	18.08	0.13	0.058	(0.492)	0.052	0.006
218	18.17	0.13	0.058	(0.489)	0.052	0.006
219	18.25	0.13	0.058	(0.487)	0.052	0.006
220	18.33	0.13	0.058	(0.485)	0.052	0.006
221	18.42	0.13	0.058	(0.482)	0.052	0.006
222	18.50	0.13	0.058	(0.480)	0.052	0.006
223	18.58	0.10	0.044	(0.478)	0.039	0.004
224	18.67	0.10	0.044	(0.475)	0.039	0.004
225	18.75	0.10	0.044	(0.473)	0.039	0.004
226	18.83	0.07	0.029	(0.471)	0.026	0.003
227	18.92	0.07	0.029	(0.469)	0.026	0.003
228	19.00	0.07	0.029	(0.466)	0.026	0.003
229	19.08	0.10	0.044	(0.464)	0.039	0.004

230	19.17	0.10	0.044	(0.462)	0.039	0.004
231	19.25	0.10	0.044	(0.460)	0.039	0.004
232	19.33	0.13	0.058	(0.458)	0.052	0.006
233	19.42	0.13	0.058	(0.456)	0.052	0.006
234	19.50	0.13	0.058	(0.453)	0.052	0.006
235	19.58	0.10	0.044	(0.451)	0.039	0.004
236	19.67	0.10	0.044	(0.449)	0.039	0.004
237	19.75	0.10	0.044	(0.447)	0.039	0.004
238	19.83	0.07	0.029	(0.445)	0.026	0.003
239	19.92	0.07	0.029	(0.443)	0.026	0.003
240	20.00	0.07	0.029	(0.441)	0.026	0.003
241	20.08	0.10	0.044	(0.439)	0.039	0.004
242	20.17	0.10	0.044	(0.437)	0.039	0.004
243	20.25	0.10	0.044	(0.436)	0.039	0.004
244	20.33	0.10	0.044	(0.434)	0.039	0.004
245	20.42	0.10	0.044	(0.432)	0.039	0.004
246	20.50	0.10	0.044	(0.430)	0.039	0.004
247	20.58	0.10	0.044	(0.428)	0.039	0.004
248	20.67	0.10	0.044	(0.426)	0.039	0.004
249	20.75	0.10	0.044	(0.425)	0.039	0.004
250	20.83	0.07	0.029	(0.423)	0.026	0.003
251	20.92	0.07	0.029	(0.421)	0.026	0.003
252	21.00	0.07	0.029	(0.419)	0.026	0.003
253	21.08	0.10	0.044	(0.418)	0.039	0.004
254	21.17	0.10	0.044	(0.416)	0.039	0.004
255	21.25	0.10	0.044	(0.415)	0.039	0.004
256	21.33	0.07	0.029	(0.413)	0.026	0.003
257	21.42	0.07	0.029	(0.411)	0.026	0.003
258	21.50	0.07	0.029	(0.410)	0.026	0.003
259	21.58	0.10	0.044	(0.408)	0.039	0.004
260	21.67	0.10	0.044	(0.407)	0.039	0.004
261	21.75	0.10	0.044	(0.405)	0.039	0.004
262	21.83	0.07	0.029	(0.404)	0.026	0.003
263	21.92	0.07	0.029	(0.403)	0.026	0.003
264	22.00	0.07	0.029	(0.401)	0.026	0.003
265	22.08	0.10	0.044	(0.400)	0.039	0.004
266	22.17	0.10	0.044	(0.399)	0.039	0.004
267	22.25	0.10	0.044	(0.397)	0.039	0.004
268	22.33	0.07	0.029	(0.396)	0.026	0.003
269	22.42	0.07	0.029	(0.395)	0.026	0.003
270	22.50	0.07	0.029	(0.394)	0.026	0.003
271	22.58	0.07	0.029	(0.393)	0.026	0.003
272	22.67	0.07	0.029	(0.392)	0.026	0.003
273	22.75	0.07	0.029	(0.390)	0.026	0.003
274	22.83	0.07	0.029	(0.389)	0.026	0.003
275	22.92	0.07	0.029	(0.388)	0.026	0.003
276	23.00	0.07	0.029	(0.387)	0.026	0.003
277	23.08	0.07	0.029	(0.387)	0.026	0.003
278	23.17	0.07	0.029	(0.386)	0.026	0.003
279	23.25	0.07	0.029	(0.385)	0.026	0.003
280	23.33	0.07	0.029	(0.384)	0.026	0.003
281	23.42	0.07	0.029	(0.383)	0.026	0.003
282	23.50	0.07	0.029	(0.383)	0.026	0.003
283	23.58	0.07	0.029	(0.382)	0.026	0.003
284	23.67	0.07	0.029	(0.382)	0.026	0.003

285	23.75	0.07	0.029	(0.381)	0.026	0.003
286	23.83	0.07	0.029	(0.381)	0.026	0.003
287	23.92	0.07	0.029	(0.380)	0.026	0.003
288	24.00	0.07	0.029	(0.380)	0.026	0.003

(Loss Rate Not Used)

Sum = 100.0 Sum = 4.4

Flood volume = Effective rainfall 0.36(In)
times area 14.3(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)
Total soil loss = 3.28(In)
Total soil loss = 3.902(Ac.Ft)
Total rainfall = 3.65(In)
Flood volume = 18883.9 Cubic Feet
Total soil loss = 169955.0 Cubic Feet

Peak flow rate of this hydrograph = 0.618(CFS)

+++++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q					
0+10	0.0000	0.00	Q					
0+15	0.0000	0.00	Q					
0+20	0.0001	0.01	Q					
0+25	0.0002	0.01	Q					
0+30	0.0003	0.02	Q					
0+35	0.0005	0.02	Q					
0+40	0.0006	0.03	Q					
0+45	0.0009	0.03	Q					
0+50	0.0011	0.04	Q					
0+55	0.0014	0.04	Q					
1+ 0	0.0017	0.05	Q					
1+ 5	0.0021	0.05	Q					
1+10	0.0024	0.05	Q					
1+15	0.0028	0.05	Q					
1+20	0.0032	0.06	Q					
1+25	0.0036	0.06	Q					
1+30	0.0040	0.06	Q					
1+35	0.0044	0.06	Q					
1+40	0.0048	0.06	Q					
1+45	0.0052	0.06	Q					
1+50	0.0056	0.06	Q					
1+55	0.0060	0.06	Q					
2+ 0	0.0064	0.06	Q					
2+ 5	0.0068	0.06	Q					
2+10	0.0072	0.06	Q					
2+15	0.0077	0.07	Q					
2+20	0.0082	0.07	Q					
2+25	0.0086	0.07	Q					
2+30	0.0091	0.07	Q					

2+35	0.0096	0.07	Q				
2+40	0.0102	0.08	Q				
2+45	0.0107	0.08	Q				
2+50	0.0113	0.08	QV				
2+55	0.0118	0.08	QV				
3+ 0	0.0124	0.09	QV				
3+ 5	0.0130	0.09	QV				
3+10	0.0136	0.09	QV				
3+15	0.0143	0.09	QV				
3+20	0.0149	0.09	QV				
3+25	0.0156	0.09	QV				
3+30	0.0162	0.10	QV				
3+35	0.0169	0.10	QV				
3+40	0.0175	0.10	QV				
3+45	0.0182	0.10	QV				
3+50	0.0189	0.10	QV				
3+55	0.0196	0.10	QV				
4+ 0	0.0203	0.10	QV				
4+ 5	0.0210	0.10	QV				
4+10	0.0217	0.11	Q V				
4+15	0.0225	0.11	Q V				
4+20	0.0232	0.11	Q V				
4+25	0.0240	0.11	Q V				
4+30	0.0248	0.12	Q V				
4+35	0.0256	0.12	Q V				
4+40	0.0265	0.12	Q V				
4+45	0.0273	0.13	Q V				
4+50	0.0282	0.13	Q V				
4+55	0.0291	0.13	Q V				
5+ 0	0.0301	0.13	Q V				
5+ 5	0.0310	0.14	Q V				
5+10	0.0320	0.14	Q V				
5+15	0.0329	0.14	Q V				
5+20	0.0339	0.14	Q V				
5+25	0.0349	0.14	Q V				
5+30	0.0358	0.14	Q V				
5+35	0.0368	0.14	Q V				
5+40	0.0377	0.14	Q V				
5+45	0.0387	0.14	Q V				
5+50	0.0397	0.14	Q V				
5+55	0.0407	0.15	Q V				
6+ 0	0.0417	0.15	Q V				
6+ 5	0.0427	0.15	Q V				
6+10	0.0438	0.15	Q V				
6+15	0.0449	0.16	Q V				
6+20	0.0460	0.16	Q V				
6+25	0.0471	0.16	Q V				
6+30	0.0483	0.17	Q V				
6+35	0.0494	0.17	Q V				
6+40	0.0506	0.17	Q V				
6+45	0.0518	0.18	Q V				
6+50	0.0531	0.18	Q V				
6+55	0.0543	0.18	Q V				
7+ 0	0.0556	0.19	Q V				
7+ 5	0.0569	0.19	Q V				

7+10	0.0582	0.19	Q	V							
7+15	0.0596	0.19	Q	V							
7+20	0.0609	0.20	Q	V							
7+25	0.0623	0.20	Q	V							
7+30	0.0636	0.20	Q	V							
7+35	0.0650	0.20	Q	V							
7+40	0.0665	0.21	Q	V							
7+45	0.0679	0.21	Q	V							
7+50	0.0694	0.21	Q	V							
7+55	0.0709	0.22	Q	V							
8+ 0	0.0725	0.23	Q	V							
8+ 5	0.0740	0.23	Q	V							
8+10	0.0757	0.24	Q	V							
8+15	0.0774	0.24	Q	V							
8+20	0.0791	0.25	Q	V							
8+25	0.0809	0.26	Q	V							
8+30	0.0827	0.27	Q	V							
8+35	0.0846	0.27	Q	V							
8+40	0.0865	0.28	Q	V							
8+45	0.0885	0.28	Q	V							
8+50	0.0904	0.29	Q	V							
8+55	0.0925	0.29	Q	V							
9+ 0	0.0945	0.30	Q	V							
9+ 5	0.0967	0.31	Q	V							
9+10	0.0988	0.31	Q	V							
9+15	0.1010	0.32	Q	V							
9+20	0.1033	0.33	Q	V							
9+25	0.1056	0.34	Q	V							
9+30	0.1080	0.35	Q	V							
9+35	0.1104	0.35	Q	V							
9+40	0.1129	0.36	Q	V							
9+45	0.1155	0.37	Q	V							
9+50	0.1181	0.38	Q	V							
9+55	0.1207	0.39	Q	V							
10+ 0	0.1235	0.39	Q	V							
10+ 5	0.1262	0.40	Q	V							
10+10	0.1290	0.40	Q	V							
10+15	0.1317	0.40	Q	V							
10+20	0.1344	0.39	Q	V							
10+25	0.1371	0.39	Q	V							
10+30	0.1397	0.37	Q	V							
10+35	0.1422	0.36	Q	V							
10+40	0.1446	0.36	Q	V							
10+45	0.1471	0.35	Q	V							
10+50	0.1495	0.36	Q	V							
10+55	0.1520	0.36	Q	V							
11+ 0	0.1546	0.37	Q	V							
11+ 5	0.1572	0.38	Q	V							
11+10	0.1599	0.39	Q	V							
11+15	0.1626	0.39	Q	V							
11+20	0.1653	0.39	Q	V							
11+25	0.1680	0.40	Q	V							
11+30	0.1707	0.40	Q	V							
11+35	0.1734	0.39	Q	V							
11+40	0.1761	0.39	Q	V							

11+45	0.1788	0.39	Q		V			
11+50	0.1815	0.39	Q		V			
11+55	0.1841	0.38	Q		V			
12+ 0	0.1868	0.38	Q		V			
12+ 5	0.1894	0.38	Q		V			
12+10	0.1920	0.38	Q		V			
12+15	0.1947	0.39	Q		V			
12+20	0.1975	0.40	Q		V			
12+25	0.2004	0.42	Q		V			
12+30	0.2034	0.43	Q		V			
12+35	0.2065	0.45	Q		V			
12+40	0.2097	0.47	Q		V			
12+45	0.2130	0.48	Q		V			
12+50	0.2164	0.49	Q		V			
12+55	0.2199	0.51	Q		V			
13+ 0	0.2235	0.52	Q		V			
13+ 5	0.2271	0.53	Q		V			
13+10	0.2308	0.54	Q		V			
13+15	0.2347	0.55	Q		V			
13+20	0.2386	0.57	Q		V			
13+25	0.2426	0.58	Q		V			
13+30	0.2467	0.60	Q		V			
13+35	0.2510	0.61	Q		V			
13+40	0.2552	0.62	Q		V			
13+45	0.2595	0.62	Q		V			
13+50	0.2637	0.61	Q		V			
13+55	0.2677	0.59	Q		V			
14+ 0	0.2717	0.57	Q		V			
14+ 5	0.2755	0.56	Q		V			
14+10	0.2793	0.54	Q		V			
14+15	0.2830	0.54	Q		V			
14+20	0.2866	0.53	Q		V			
14+25	0.2903	0.54	Q		V			
14+30	0.2940	0.54	Q		V			
14+35	0.2978	0.54	Q		V			
14+40	0.3015	0.55	Q		V			
14+45	0.3053	0.55	Q		V			
14+50	0.3091	0.55	Q		V			
14+55	0.3128	0.55	Q		V			
15+ 0	0.3166	0.55	Q		V			
15+ 5	0.3203	0.54	Q		V			
15+10	0.3240	0.54	Q		V			
15+15	0.3277	0.54	Q		V			
15+20	0.3314	0.53	Q		V			
15+25	0.3351	0.53	Q		V			
15+30	0.3387	0.52	Q		V			
15+35	0.3422	0.52	Q		V			
15+40	0.3458	0.51	Q		V			
15+45	0.3492	0.50	Q		V			
15+50	0.3526	0.49	Q		V			
15+55	0.3559	0.48	Q		V			
16+ 0	0.3592	0.47	Q		V			
16+ 5	0.3623	0.46	Q		V			
16+10	0.3654	0.44	Q		V			
16+15	0.3682	0.42	Q		V			

16+20	0.3709	0.39	Q				V	
16+25	0.3733	0.36	Q				V	
16+30	0.3755	0.32	Q				V	
16+35	0.3775	0.28	Q				V	
16+40	0.3792	0.25	Q				V	
16+45	0.3808	0.23	Q				V	
16+50	0.3823	0.21	Q				V	
16+55	0.3836	0.19	Q				V	
17+ 0	0.3849	0.18	Q				V	
17+ 5	0.3860	0.17	Q				V	
17+10	0.3872	0.16	Q				V	
17+15	0.3882	0.16	Q				V	
17+20	0.3893	0.15	Q				V	
17+25	0.3903	0.15	Q				V	
17+30	0.3913	0.15	Q				V	
17+35	0.3923	0.15	Q				V	
17+40	0.3933	0.14	Q				V	
17+45	0.3943	0.14	Q				V	
17+50	0.3953	0.14	Q				V	
17+55	0.3962	0.14	Q				V	
18+ 0	0.3971	0.13	Q				V	
18+ 5	0.3980	0.13	Q				V	
18+10	0.3989	0.13	Q				V	
18+15	0.3997	0.12	Q				V	
18+20	0.4005	0.12	Q				V	
18+25	0.4013	0.11	Q				V	
18+30	0.4021	0.11	Q				V	
18+35	0.4028	0.11	Q				V	
18+40	0.4036	0.11	Q				V	
18+45	0.4043	0.10	Q				V	
18+50	0.4050	0.10	Q				V	
18+55	0.4056	0.09	Q				V	
19+ 0	0.4062	0.09	Q				V	
19+ 5	0.4068	0.09	Q				V	
19+10	0.4074	0.08	Q				V	
19+15	0.4079	0.08	Q				V	
19+20	0.4084	0.07	Q				V	
19+25	0.4089	0.07	Q				V	
19+30	0.4094	0.07	Q				V	
19+35	0.4100	0.07	Q				V	
19+40	0.4105	0.08	Q				V	
19+45	0.4110	0.08	Q				V	
19+50	0.4115	0.08	Q				V	
19+55	0.4120	0.07	Q				V	
20+ 0	0.4125	0.07	Q				V	
20+ 5	0.4130	0.07	Q				V	
20+10	0.4135	0.07	Q				V	
20+15	0.4139	0.06	Q				V	
20+20	0.4143	0.06	Q				V	
20+25	0.4148	0.06	Q				V	
20+30	0.4152	0.06	Q				V	
20+35	0.4156	0.06	Q				V	
20+40	0.4160	0.06	Q				V	
20+45	0.4165	0.06	Q				V	
20+50	0.4169	0.06	Q				V	

20+55	0.4173	0.06	Q				V	
21+ 0	0.4177	0.06	Q				V	
21+ 5	0.4182	0.06	Q				V	
21+10	0.4186	0.06	Q				V	
21+15	0.4190	0.06	Q				V	
21+20	0.4194	0.06	Q				V	
21+25	0.4197	0.06	Q				V	
21+30	0.4201	0.06	Q				V	
21+35	0.4205	0.06	Q				V	
21+40	0.4209	0.06	Q				V	
21+45	0.4213	0.06	Q				V	
21+50	0.4217	0.05	Q				V	
21+55	0.4220	0.05	Q				V	
22+ 0	0.4224	0.05	Q				V	
22+ 5	0.4228	0.05	Q				V	
22+10	0.4232	0.05	Q				V	
22+15	0.4235	0.05	Q				V	
22+20	0.4239	0.05	Q				V	
22+25	0.4243	0.05	Q				V	
22+30	0.4246	0.05	Q				V	
22+35	0.4250	0.05	Q				V	
22+40	0.4254	0.05	Q				V	
22+45	0.4257	0.05	Q				V	
22+50	0.4261	0.05	Q				V	
22+55	0.4264	0.05	Q				V	
23+ 0	0.4267	0.05	Q				V	
23+ 5	0.4270	0.05	Q				V	
23+10	0.4274	0.05	Q				V	
23+15	0.4277	0.05	Q				V	
23+20	0.4280	0.05	Q				V	
23+25	0.4283	0.04	Q				V	
23+30	0.4286	0.04	Q				V	
23+35	0.4289	0.04	Q				V	
23+40	0.4292	0.04	Q				V	
23+45	0.4295	0.04	Q				V	
23+50	0.4298	0.04	Q				V	
23+55	0.4301	0.04	Q				V	
24+ 0	0.4304	0.04	Q				V	
24+ 5	0.4307	0.04	Q				V	
24+10	0.4310	0.04	Q				V	
24+15	0.4313	0.04	Q				V	
24+20	0.4315	0.04	Q				V	
24+25	0.4318	0.03	Q				V	
24+30	0.4319	0.03	Q				V	
24+35	0.4321	0.02	Q				V	
24+40	0.4322	0.02	Q				V	
24+45	0.4324	0.02	Q				V	
24+50	0.4325	0.01	Q				V	
24+55	0.4325	0.01	Q				V	
25+ 0	0.4326	0.01	Q				V	
25+ 5	0.4327	0.01	Q				V	
25+10	0.4328	0.01	Q				V	
25+15	0.4328	0.01	Q				V	
25+20	0.4329	0.01	Q				V	
25+25	0.4329	0.01	Q				V	

25+30	0.4330	0.01	Q				V
25+35	0.4330	0.01	Q				V
25+40	0.4331	0.01	Q				V
25+45	0.4331	0.01	Q				V
25+50	0.4332	0.01	Q				V
25+55	0.4332	0.00	Q				V
26+ 0	0.4332	0.00	Q				V
26+ 5	0.4332	0.00	Q				V
26+10	0.4333	0.00	Q				V
26+15	0.4333	0.00	Q				V
26+20	0.4333	0.00	Q				V
26+25	0.4333	0.00	Q				V
26+30	0.4334	0.00	Q				V
26+35	0.4334	0.00	Q				V
26+40	0.4334	0.00	Q				V
26+45	0.4334	0.00	Q				V
26+50	0.4334	0.00	Q				V
26+55	0.4334	0.00	Q				V
27+ 0	0.4334	0.00	Q				V
27+ 5	0.4334	0.00	Q				V
27+10	0.4335	0.00	Q				V
27+15	0.4335	0.00	Q				V
27+20	0.4335	0.00	Q				V
27+25	0.4335	0.00	Q				V
27+30	0.4335	0.00	Q				V
27+35	0.4335	0.00	Q				V
27+40	0.4335	0.00	Q				V
27+45	0.4335	0.00	Q				V
27+50	0.4335	0.00	Q				V
27+55	0.4335	0.00	Q				V
28+ 0	0.4335	0.00	Q				V
28+ 5	0.4335	0.00	Q				V
28+10	0.4335	0.00	Q				V
28+15	0.4335	0.00	Q				V
28+20	0.4335	0.00	Q				V
28+25	0.4335	0.00	Q				V
28+30	0.4335	0.00	Q				V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0

Study date 09/21/23 File: UHE110024100.out

+++++

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

Program License Serial Number 6450

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

English Units used in output format

68th Street Storage
100 Year Storm Event
Predevelopment Condition

Drainage Area = 14.27 (Ac.) = 0.022 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 14.27 (Ac.) = 0.022 Sq. Mi.
Length along longest watercourse = 2760.00 (Ft.)
Length along longest watercourse measured to centroid = 360.00 (Ft.)
Length along longest watercourse = 0.523 Mi.
Length along longest watercourse measured to centroid = 0.068 Mi.
Difference in elevation = 50.00 (Ft.)
Slope along watercourse = 95.6522 Ft./Mi.
Average Manning's 'N' = 0.200
Lag time = 0.568 Hr.
Lag time = 34.10 Min.
25% of lag time = 8.53 Min.
40% of lag time = 13.64 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]
14.27	2.00	28.54

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
14.27	6.00	85.62

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 2.000(In)
 Area Averaged 100-Year Rainfall = 6.000(In)

Point rain (area averaged) = 6.000(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 6.000(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
14.270	30.00	0.000
Total Area Entered = 14.27 (Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-3	(In/Hr)	(Dec. %)	(In/Hr)	(Dec. %)	(In/Hr)
30.0	50.0	0.572	0.000	0.572	1.000	0.572
Sum (F) =						0.572

Area averaged mean soil loss (F) (In/Hr) = 0.572
 Minimum soil loss rate ((In/Hr)) = 0.286
 (for 24 hour storm duration)
 Soil loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	14.661	1.271
2	0.167	29.322	3.084
3	0.250	43.984	5.116
4	0.333	58.645	7.076
5	0.417	73.306	9.228
6	0.500	87.967	10.286
7	0.583	102.629	10.509
8	0.667	117.290	8.655
9	0.750	131.951	6.472
10	0.833	146.612	4.799
11	0.917	161.274	3.794
12	1.000	175.935	2.905
13	1.083	190.596	2.329
14	1.167	205.257	2.143
15	1.250	219.919	1.844
16	1.333	234.580	1.697
17	1.417	249.241	1.484
18	1.500	263.902	1.387

19	1.583	278.564	1.283	0.185
20	1.667	293.225	1.123	0.161
21	1.750	307.886	1.030	0.148
22	1.833	322.547	0.898	0.129
23	1.917	337.209	0.880	0.127
24	2.000	351.870	0.878	0.126
25	2.083	366.531	0.734	0.106
26	2.167	381.192	0.645	0.093
27	2.250	395.854	0.645	0.093
28	2.333	410.515	0.600	0.086
29	2.417	425.176	0.476	0.068
30	2.500	439.837	0.469	0.067
31	2.583	454.499	0.468	0.067
32	2.667	469.160	0.447	0.064
33	2.750	483.821	0.440	0.063
34	2.833	498.482	0.440	0.063
35	2.917	513.144	0.393	0.056
36	3.000	527.805	0.323	0.046
37	3.083	542.466	0.323	0.046
38	3.167	557.127	0.316	0.045
39	3.250	571.789	0.272	0.039
40	3.333	586.450	0.264	0.038
41	3.417	601.111	0.264	0.038
42	3.500	615.772	0.230	0.033
43	3.583	630.434	0.205	0.030
44	3.667	645.095	0.205	0.030
45	3.750	659.756	0.192	0.028
46	3.833	674.417	0.150	0.022
47	3.917	689.079	0.147	0.021
48	4.000	703.740	0.147	0.021
49	4.083	718.401	0.147	0.021
50	4.167	733.062	0.147	0.021
51	4.250	747.724	0.147	0.021
52	4.333	762.385	0.147	0.021
53	4.417	777.046	0.147	0.021
54	4.500	791.707	0.147	0.021
55	4.583	806.369	0.156	0.022
Sum = 100.000			Sum=	14.381

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

Unit	Time	Pattern	Storm Rain	Loss rate(In./Hr)		Effective
	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.07	0.048	(1.014)	0.043	0.005
2	0.17	0.07	0.048	(1.010)	0.043	0.005
3	0.25	0.07	0.048	(1.006)	0.043	0.005
4	0.33	0.10	0.072	(1.002)	0.065	0.007
5	0.42	0.10	0.072	(0.998)	0.065	0.007
6	0.50	0.10	0.072	(0.994)	0.065	0.007
7	0.58	0.10	0.072	(0.991)	0.065	0.007
8	0.67	0.10	0.072	(0.987)	0.065	0.007
9	0.75	0.10	0.072	(0.983)	0.065	0.007

10	0.83	0.13	0.096	(0.979)	0.086	0.010
11	0.92	0.13	0.096	(0.975)	0.086	0.010
12	1.00	0.13	0.096	(0.971)	0.086	0.010
13	1.08	0.10	0.072	(0.967)	0.065	0.007
14	1.17	0.10	0.072	(0.964)	0.065	0.007
15	1.25	0.10	0.072	(0.960)	0.065	0.007
16	1.33	0.10	0.072	(0.956)	0.065	0.007
17	1.42	0.10	0.072	(0.952)	0.065	0.007
18	1.50	0.10	0.072	(0.948)	0.065	0.007
19	1.58	0.10	0.072	(0.945)	0.065	0.007
20	1.67	0.10	0.072	(0.941)	0.065	0.007
21	1.75	0.10	0.072	(0.937)	0.065	0.007
22	1.83	0.13	0.096	(0.933)	0.086	0.010
23	1.92	0.13	0.096	(0.929)	0.086	0.010
24	2.00	0.13	0.096	(0.926)	0.086	0.010
25	2.08	0.13	0.096	(0.922)	0.086	0.010
26	2.17	0.13	0.096	(0.918)	0.086	0.010
27	2.25	0.13	0.096	(0.915)	0.086	0.010
28	2.33	0.13	0.096	(0.911)	0.086	0.010
29	2.42	0.13	0.096	(0.907)	0.086	0.010
30	2.50	0.13	0.096	(0.903)	0.086	0.010
31	2.58	0.17	0.120	(0.900)	0.108	0.012
32	2.67	0.17	0.120	(0.896)	0.108	0.012
33	2.75	0.17	0.120	(0.892)	0.108	0.012
34	2.83	0.17	0.120	(0.889)	0.108	0.012
35	2.92	0.17	0.120	(0.885)	0.108	0.012
36	3.00	0.17	0.120	(0.881)	0.108	0.012
37	3.08	0.17	0.120	(0.878)	0.108	0.012
38	3.17	0.17	0.120	(0.874)	0.108	0.012
39	3.25	0.17	0.120	(0.870)	0.108	0.012
40	3.33	0.17	0.120	(0.867)	0.108	0.012
41	3.42	0.17	0.120	(0.863)	0.108	0.012
42	3.50	0.17	0.120	(0.860)	0.108	0.012
43	3.58	0.17	0.120	(0.856)	0.108	0.012
44	3.67	0.17	0.120	(0.852)	0.108	0.012
45	3.75	0.17	0.120	(0.849)	0.108	0.012
46	3.83	0.20	0.144	(0.845)	0.130	0.014
47	3.92	0.20	0.144	(0.842)	0.130	0.014
48	4.00	0.20	0.144	(0.838)	0.130	0.014
49	4.08	0.20	0.144	(0.834)	0.130	0.014
50	4.17	0.20	0.144	(0.831)	0.130	0.014
51	4.25	0.20	0.144	(0.827)	0.130	0.014
52	4.33	0.23	0.168	(0.824)	0.151	0.017
53	4.42	0.23	0.168	(0.820)	0.151	0.017
54	4.50	0.23	0.168	(0.817)	0.151	0.017
55	4.58	0.23	0.168	(0.813)	0.151	0.017
56	4.67	0.23	0.168	(0.810)	0.151	0.017
57	4.75	0.23	0.168	(0.806)	0.151	0.017
58	4.83	0.27	0.192	(0.803)	0.173	0.019
59	4.92	0.27	0.192	(0.799)	0.173	0.019
60	5.00	0.27	0.192	(0.796)	0.173	0.019
61	5.08	0.20	0.144	(0.792)	0.130	0.014
62	5.17	0.20	0.144	(0.789)	0.130	0.014
63	5.25	0.20	0.144	(0.786)	0.130	0.014
64	5.33	0.23	0.168	(0.782)	0.151	0.017

65	5.42	0.23	0.168	(0.779)	0.151	0.017
66	5.50	0.23	0.168	(0.775)	0.151	0.017
67	5.58	0.27	0.192	(0.772)	0.173	0.019
68	5.67	0.27	0.192	(0.769)	0.173	0.019
69	5.75	0.27	0.192	(0.765)	0.173	0.019
70	5.83	0.27	0.192	(0.762)	0.173	0.019
71	5.92	0.27	0.192	(0.758)	0.173	0.019
72	6.00	0.27	0.192	(0.755)	0.173	0.019
73	6.08	0.30	0.216	(0.752)	0.194	0.022
74	6.17	0.30	0.216	(0.748)	0.194	0.022
75	6.25	0.30	0.216	(0.745)	0.194	0.022
76	6.33	0.30	0.216	(0.742)	0.194	0.022
77	6.42	0.30	0.216	(0.738)	0.194	0.022
78	6.50	0.30	0.216	(0.735)	0.194	0.022
79	6.58	0.33	0.240	(0.732)	0.216	0.024
80	6.67	0.33	0.240	(0.728)	0.216	0.024
81	6.75	0.33	0.240	(0.725)	0.216	0.024
82	6.83	0.33	0.240	(0.722)	0.216	0.024
83	6.92	0.33	0.240	(0.719)	0.216	0.024
84	7.00	0.33	0.240	(0.715)	0.216	0.024
85	7.08	0.33	0.240	(0.712)	0.216	0.024
86	7.17	0.33	0.240	(0.709)	0.216	0.024
87	7.25	0.33	0.240	(0.706)	0.216	0.024
88	7.33	0.37	0.264	(0.702)	0.238	0.026
89	7.42	0.37	0.264	(0.699)	0.238	0.026
90	7.50	0.37	0.264	(0.696)	0.238	0.026
91	7.58	0.40	0.288	(0.693)	0.259	0.029
92	7.67	0.40	0.288	(0.690)	0.259	0.029
93	7.75	0.40	0.288	(0.686)	0.259	0.029
94	7.83	0.43	0.312	(0.683)	0.281	0.031
95	7.92	0.43	0.312	(0.680)	0.281	0.031
96	8.00	0.43	0.312	(0.677)	0.281	0.031
97	8.08	0.50	0.360	(0.674)	0.324	0.036
98	8.17	0.50	0.360	(0.671)	0.324	0.036
99	8.25	0.50	0.360	(0.668)	0.324	0.036
100	8.33	0.50	0.360	(0.664)	0.324	0.036
101	8.42	0.50	0.360	(0.661)	0.324	0.036
102	8.50	0.50	0.360	(0.658)	0.324	0.036
103	8.58	0.53	0.384	(0.655)	0.346	0.038
104	8.67	0.53	0.384	(0.652)	0.346	0.038
105	8.75	0.53	0.384	(0.649)	0.346	0.038
106	8.83	0.57	0.408	(0.646)	0.367	0.041
107	8.92	0.57	0.408	(0.643)	0.367	0.041
108	9.00	0.57	0.408	(0.640)	0.367	0.041
109	9.08	0.63	0.456	(0.637)	0.410	0.046
110	9.17	0.63	0.456	(0.634)	0.410	0.046
111	9.25	0.63	0.456	(0.631)	0.410	0.046
112	9.33	0.67	0.480	(0.628)	0.432	0.048
113	9.42	0.67	0.480	(0.625)	0.432	0.048
114	9.50	0.67	0.480	(0.622)	0.432	0.048
115	9.58	0.70	0.504	(0.619)	0.454	0.050
116	9.67	0.70	0.504	(0.616)	0.454	0.050
117	9.75	0.70	0.504	(0.613)	0.454	0.050
118	9.83	0.73	0.528	(0.610)	0.475	0.053
119	9.92	0.73	0.528	(0.607)	0.475	0.053

120	10.00	0.73	0.528	(0.604)	0.475	0.053
121	10.08	0.50	0.360	(0.601)	0.324	0.036
122	10.17	0.50	0.360	(0.598)	0.324	0.036
123	10.25	0.50	0.360	(0.595)	0.324	0.036
124	10.33	0.50	0.360	(0.592)	0.324	0.036
125	10.42	0.50	0.360	(0.590)	0.324	0.036
126	10.50	0.50	0.360	(0.587)	0.324	0.036
127	10.58	0.67	0.480	(0.584)	0.432	0.048
128	10.67	0.67	0.480	(0.581)	0.432	0.048
129	10.75	0.67	0.480	(0.578)	0.432	0.048
130	10.83	0.67	0.480	(0.575)	0.432	0.048
131	10.92	0.67	0.480	(0.572)	0.432	0.048
132	11.00	0.67	0.480	(0.570)	0.432	0.048
133	11.08	0.63	0.456	(0.567)	0.410	0.046
134	11.17	0.63	0.456	(0.564)	0.410	0.046
135	11.25	0.63	0.456	(0.561)	0.410	0.046
136	11.33	0.63	0.456	(0.558)	0.410	0.046
137	11.42	0.63	0.456	(0.556)	0.410	0.046
138	11.50	0.63	0.456	(0.553)	0.410	0.046
139	11.58	0.57	0.408	(0.550)	0.367	0.041
140	11.67	0.57	0.408	(0.547)	0.367	0.041
141	11.75	0.57	0.408	(0.545)	0.367	0.041
142	11.83	0.60	0.432	(0.542)	0.389	0.043
143	11.92	0.60	0.432	(0.539)	0.389	0.043
144	12.00	0.60	0.432	(0.537)	0.389	0.043
145	12.08	0.83	0.600	0.534	(0.540)	0.066
146	12.17	0.83	0.600	0.531	(0.540)	0.069
147	12.25	0.83	0.600	0.529	(0.540)	0.071
148	12.33	0.87	0.624	0.526	(0.562)	0.098
149	12.42	0.87	0.624	0.523	(0.562)	0.101
150	12.50	0.87	0.624	0.521	(0.562)	0.103
151	12.58	0.93	0.672	0.518	(0.605)	0.154
152	12.67	0.93	0.672	0.515	(0.605)	0.157
153	12.75	0.93	0.672	0.513	(0.605)	0.159
154	12.83	0.97	0.696	0.510	(0.626)	0.186
155	12.92	0.97	0.696	0.508	(0.626)	0.188
156	13.00	0.97	0.696	0.505	(0.626)	0.191
157	13.08	1.13	0.816	0.503	(0.734)	0.313
158	13.17	1.13	0.816	0.500	(0.734)	0.316
159	13.25	1.13	0.816	0.497	(0.734)	0.319
160	13.33	1.13	0.816	0.495	(0.734)	0.321
161	13.42	1.13	0.816	0.492	(0.734)	0.324
162	13.50	1.13	0.816	0.490	(0.734)	0.326
163	13.58	0.77	0.552	0.487	(0.497)	0.065
164	13.67	0.77	0.552	0.485	(0.497)	0.067
165	13.75	0.77	0.552	0.482	(0.497)	0.070
166	13.83	0.77	0.552	0.480	(0.497)	0.072
167	13.92	0.77	0.552	0.478	(0.497)	0.074
168	14.00	0.77	0.552	0.475	(0.497)	0.077
169	14.08	0.90	0.648	0.473	(0.583)	0.175
170	14.17	0.90	0.648	0.470	(0.583)	0.178
171	14.25	0.90	0.648	0.468	(0.583)	0.180
172	14.33	0.87	0.624	0.465	(0.562)	0.158
173	14.42	0.87	0.624	0.463	(0.562)	0.161
174	14.50	0.87	0.624	0.461	(0.562)	0.163

175	14.58	0.87	0.624	0.458	(0.562)	0.166
176	14.67	0.87	0.624	0.456	(0.562)	0.168
177	14.75	0.87	0.624	0.454	(0.562)	0.170
178	14.83	0.83	0.600	0.451	(0.540)	0.149
179	14.92	0.83	0.600	0.449	(0.540)	0.151
180	15.00	0.83	0.600	0.447	(0.540)	0.153
181	15.08	0.80	0.576	0.444	(0.518)	0.132
182	15.17	0.80	0.576	0.442	(0.518)	0.134
183	15.25	0.80	0.576	0.440	(0.518)	0.136
184	15.33	0.77	0.552	0.438	(0.497)	0.114
185	15.42	0.77	0.552	0.435	(0.497)	0.117
186	15.50	0.77	0.552	0.433	(0.497)	0.119
187	15.58	0.63	0.456	(0.431)	0.410	0.046
188	15.67	0.63	0.456	(0.429)	0.410	0.046
189	15.75	0.63	0.456	(0.427)	0.410	0.046
190	15.83	0.63	0.456	(0.424)	0.410	0.046
191	15.92	0.63	0.456	(0.422)	0.410	0.046
192	16.00	0.63	0.456	(0.420)	0.410	0.046
193	16.08	0.13	0.096	(0.418)	0.086	0.010
194	16.17	0.13	0.096	(0.416)	0.086	0.010
195	16.25	0.13	0.096	(0.414)	0.086	0.010
196	16.33	0.13	0.096	(0.412)	0.086	0.010
197	16.42	0.13	0.096	(0.409)	0.086	0.010
198	16.50	0.13	0.096	(0.407)	0.086	0.010
199	16.58	0.10	0.072	(0.405)	0.065	0.007
200	16.67	0.10	0.072	(0.403)	0.065	0.007
201	16.75	0.10	0.072	(0.401)	0.065	0.007
202	16.83	0.10	0.072	(0.399)	0.065	0.007
203	16.92	0.10	0.072	(0.397)	0.065	0.007
204	17.00	0.10	0.072	(0.395)	0.065	0.007
205	17.08	0.17	0.120	(0.393)	0.108	0.012
206	17.17	0.17	0.120	(0.391)	0.108	0.012
207	17.25	0.17	0.120	(0.389)	0.108	0.012
208	17.33	0.17	0.120	(0.387)	0.108	0.012
209	17.42	0.17	0.120	(0.385)	0.108	0.012
210	17.50	0.17	0.120	(0.383)	0.108	0.012
211	17.58	0.17	0.120	(0.381)	0.108	0.012
212	17.67	0.17	0.120	(0.380)	0.108	0.012
213	17.75	0.17	0.120	(0.378)	0.108	0.012
214	17.83	0.13	0.096	(0.376)	0.086	0.010
215	17.92	0.13	0.096	(0.374)	0.086	0.010
216	18.00	0.13	0.096	(0.372)	0.086	0.010
217	18.08	0.13	0.096	(0.370)	0.086	0.010
218	18.17	0.13	0.096	(0.368)	0.086	0.010
219	18.25	0.13	0.096	(0.367)	0.086	0.010
220	18.33	0.13	0.096	(0.365)	0.086	0.010
221	18.42	0.13	0.096	(0.363)	0.086	0.010
222	18.50	0.13	0.096	(0.361)	0.086	0.010
223	18.58	0.10	0.072	(0.360)	0.065	0.007
224	18.67	0.10	0.072	(0.358)	0.065	0.007
225	18.75	0.10	0.072	(0.356)	0.065	0.007
226	18.83	0.07	0.048	(0.354)	0.043	0.005
227	18.92	0.07	0.048	(0.353)	0.043	0.005
228	19.00	0.07	0.048	(0.351)	0.043	0.005
229	19.08	0.10	0.072	(0.349)	0.065	0.007

230	19.17	0.10	0.072	(0.348)	0.065	0.007
231	19.25	0.10	0.072	(0.346)	0.065	0.007
232	19.33	0.13	0.096	(0.344)	0.086	0.010
233	19.42	0.13	0.096	(0.343)	0.086	0.010
234	19.50	0.13	0.096	(0.341)	0.086	0.010
235	19.58	0.10	0.072	(0.340)	0.065	0.007
236	19.67	0.10	0.072	(0.338)	0.065	0.007
237	19.75	0.10	0.072	(0.337)	0.065	0.007
238	19.83	0.07	0.048	(0.335)	0.043	0.005
239	19.92	0.07	0.048	(0.334)	0.043	0.005
240	20.00	0.07	0.048	(0.332)	0.043	0.005
241	20.08	0.10	0.072	(0.331)	0.065	0.007
242	20.17	0.10	0.072	(0.329)	0.065	0.007
243	20.25	0.10	0.072	(0.328)	0.065	0.007
244	20.33	0.10	0.072	(0.326)	0.065	0.007
245	20.42	0.10	0.072	(0.325)	0.065	0.007
246	20.50	0.10	0.072	(0.324)	0.065	0.007
247	20.58	0.10	0.072	(0.322)	0.065	0.007
248	20.67	0.10	0.072	(0.321)	0.065	0.007
249	20.75	0.10	0.072	(0.320)	0.065	0.007
250	20.83	0.07	0.048	(0.318)	0.043	0.005
251	20.92	0.07	0.048	(0.317)	0.043	0.005
252	21.00	0.07	0.048	(0.316)	0.043	0.005
253	21.08	0.10	0.072	(0.314)	0.065	0.007
254	21.17	0.10	0.072	(0.313)	0.065	0.007
255	21.25	0.10	0.072	(0.312)	0.065	0.007
256	21.33	0.07	0.048	(0.311)	0.043	0.005
257	21.42	0.07	0.048	(0.310)	0.043	0.005
258	21.50	0.07	0.048	(0.308)	0.043	0.005
259	21.58	0.10	0.072	(0.307)	0.065	0.007
260	21.67	0.10	0.072	(0.306)	0.065	0.007
261	21.75	0.10	0.072	(0.305)	0.065	0.007
262	21.83	0.07	0.048	(0.304)	0.043	0.005
263	21.92	0.07	0.048	(0.303)	0.043	0.005
264	22.00	0.07	0.048	(0.302)	0.043	0.005
265	22.08	0.10	0.072	(0.301)	0.065	0.007
266	22.17	0.10	0.072	(0.300)	0.065	0.007
267	22.25	0.10	0.072	(0.299)	0.065	0.007
268	22.33	0.07	0.048	(0.298)	0.043	0.005
269	22.42	0.07	0.048	(0.297)	0.043	0.005
270	22.50	0.07	0.048	(0.296)	0.043	0.005
271	22.58	0.07	0.048	(0.296)	0.043	0.005
272	22.67	0.07	0.048	(0.295)	0.043	0.005
273	22.75	0.07	0.048	(0.294)	0.043	0.005
274	22.83	0.07	0.048	(0.293)	0.043	0.005
275	22.92	0.07	0.048	(0.292)	0.043	0.005
276	23.00	0.07	0.048	(0.292)	0.043	0.005
277	23.08	0.07	0.048	(0.291)	0.043	0.005
278	23.17	0.07	0.048	(0.290)	0.043	0.005
279	23.25	0.07	0.048	(0.290)	0.043	0.005
280	23.33	0.07	0.048	(0.289)	0.043	0.005
281	23.42	0.07	0.048	(0.289)	0.043	0.005
282	23.50	0.07	0.048	(0.288)	0.043	0.005
283	23.58	0.07	0.048	(0.288)	0.043	0.005
284	23.67	0.07	0.048	(0.287)	0.043	0.005

285	23.75	0.07	0.048	(0.287)	0.043	0.005
286	23.83	0.07	0.048	(0.286)	0.043	0.005
287	23.92	0.07	0.048	(0.286)	0.043	0.005
288	24.00	0.07	0.048	(0.286)	0.043	0.005

(Loss Rate Not Used)

Sum = 100.0 Sum = 11.1

Flood volume = Effective rainfall 0.93(In)
times area 14.3(Ac.)/[(In)/(Ft.)] = 1.1(Ac. Ft)
Total soil loss = 5.07(In)
Total soil loss = 6.033(Ac. Ft)
Total rainfall = 6.00(In)
Flood volume = 48014.3 Cubic Feet
Total soil loss = 262777.6 Cubic Feet

Peak flow rate of this hydrograph = 3.148(CFS)

+++++

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

Hydrograph in 5 Minute intervals ((CFS))

Time (h+m)	Volume Ac. Ft	Q (CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0000	0.00	Q				
0+15	0.0001	0.01	Q				
0+20	0.0002	0.01	Q				
0+25	0.0003	0.02	Q				
0+30	0.0005	0.03	Q				
0+35	0.0007	0.04	Q				
0+40	0.0011	0.05	Q				
0+45	0.0014	0.06	Q				
0+50	0.0019	0.06	Q				
0+55	0.0024	0.07	Q				
1+ 0	0.0029	0.08	Q				
1+ 5	0.0034	0.08	Q				
1+10	0.0040	0.09	Q				
1+15	0.0046	0.09	Q				
1+20	0.0053	0.09	Q				
1+25	0.0059	0.09	Q				
1+30	0.0066	0.09	Q				
1+35	0.0072	0.09	Q				
1+40	0.0079	0.09	Q				
1+45	0.0085	0.09	Q				
1+50	0.0091	0.09	Q				
1+55	0.0098	0.10	Q				
2+ 0	0.0105	0.10	Q				
2+ 5	0.0112	0.10	Q				
2+10	0.0119	0.10	Q				
2+15	0.0126	0.11	Q				
2+20	0.0134	0.11	Q				
2+25	0.0142	0.12	Q				
2+30	0.0150	0.12	Q				

2+35	0.0159	0.12	Q				
2+40	0.0167	0.12	Q				
2+45	0.0176	0.13	Q				
2+50	0.0185	0.13	Q				
2+55	0.0194	0.14	Q				
3+ 0	0.0204	0.14	Q				
3+ 5	0.0214	0.14	Q				
3+10	0.0224	0.15	Q				
3+15	0.0235	0.15	Q				
3+20	0.0245	0.15	Q				
3+25	0.0256	0.16	Q				
3+30	0.0267	0.16	Q				
3+35	0.0278	0.16	QV				
3+40	0.0289	0.16	QV				
3+45	0.0300	0.16	QV				
3+50	0.0311	0.16	QV				
3+55	0.0322	0.16	QV				
4+ 0	0.0334	0.17	QV				
4+ 5	0.0345	0.17	QV				
4+10	0.0357	0.17	QV				
4+15	0.0370	0.18	QV				
4+20	0.0382	0.18	QV				
4+25	0.0395	0.19	QV				
4+30	0.0408	0.19	QV				
4+35	0.0422	0.20	QV				
4+40	0.0436	0.20	QV				
4+45	0.0450	0.21	QV				
4+50	0.0465	0.21	QV				
4+55	0.0480	0.22	QV				
5+ 0	0.0495	0.22	QV				
5+ 5	0.0510	0.23	QV				
5+10	0.0526	0.23	QV				
5+15	0.0542	0.23	QV				
5+20	0.0558	0.23	Q V				
5+25	0.0574	0.23	Q V				
5+30	0.0590	0.23	Q V				
5+35	0.0605	0.23	Q V				
5+40	0.0621	0.23	Q V				
5+45	0.0637	0.23	Q V				
5+50	0.0653	0.23	Q V				
5+55	0.0669	0.24	Q V				
6+ 0	0.0686	0.24	Q V				
6+ 5	0.0703	0.25	Q V				
6+10	0.0721	0.25	QV				
6+15	0.0739	0.26	QV				
6+20	0.0757	0.26	QV				
6+25	0.0776	0.27	QV				
6+30	0.0794	0.27	QV				
6+35	0.0814	0.28	QV				
6+40	0.0833	0.28	Q V				
6+45	0.0853	0.29	Q V				
6+50	0.0874	0.29	Q V				
6+55	0.0894	0.30	Q V				
7+ 0	0.0915	0.31	Q V				
7+ 5	0.0937	0.31	Q V				

7+10	0.0958	0.32	Q V				
7+15	0.0980	0.32	Q V				
7+20	0.1002	0.32	Q V				
7+25	0.1025	0.33	Q V				
7+30	0.1047	0.33	Q V				
7+35	0.1070	0.33	Q V				
7+40	0.1094	0.34	Q V				
7+45	0.1118	0.35	Q V				
7+50	0.1142	0.35	Q V				
7+55	0.1167	0.36	Q V				
8+ 0	0.1192	0.37	Q V				
8+ 5	0.1219	0.38	Q V				
8+10	0.1245	0.39	Q V				
8+15	0.1273	0.40	Q V				
8+20	0.1302	0.41	Q V				
8+25	0.1331	0.43	Q V				
8+30	0.1361	0.44	Q V				
8+35	0.1392	0.45	Q V				
8+40	0.1424	0.46	Q V				
8+45	0.1456	0.47	Q V				
8+50	0.1489	0.48	Q V				
8+55	0.1522	0.48	Q V				
9+ 0	0.1556	0.49	Q V				
9+ 5	0.1591	0.50	Q V				
9+10	0.1626	0.52	Q V				
9+15	0.1663	0.53	Q V				
9+20	0.1700	0.54	Q V				
9+25	0.1738	0.55	Q V				
9+30	0.1777	0.57	Q V				
9+35	0.1817	0.58	Q V				
9+40	0.1858	0.60	Q V				
9+45	0.1901	0.61	Q V				
9+50	0.1943	0.62	Q V				
9+55	0.1987	0.64	Q V				
10+ 0	0.2032	0.65	Q V				
10+ 5	0.2077	0.66	Q V				
10+10	0.2122	0.66	Q V				
10+15	0.2168	0.66	Q V				
10+20	0.2212	0.65	Q V				
10+25	0.2256	0.63	Q V				
10+30	0.2298	0.62	Q V				
10+35	0.2340	0.60	Q V				
10+40	0.2380	0.59	Q V				
10+45	0.2420	0.58	Q V				
10+50	0.2461	0.59	Q V				
10+55	0.2502	0.60	Q V				
11+ 0	0.2544	0.61	Q V				
11+ 5	0.2587	0.63	Q V				
11+10	0.2631	0.64	Q V				
11+15	0.2675	0.64	Q V				
11+20	0.2720	0.65	Q V				
11+25	0.2765	0.65	Q V				
11+30	0.2810	0.65	Q V				
11+35	0.2854	0.65	Q V				
11+40	0.2899	0.65	Q V				

11+45	0.2943	0.64	Q	V			
11+50	0.2987	0.64	Q	V			
11+55	0.3031	0.63	Q	V			
12+ 0	0.3074	0.63	Q	V			
12+ 5	0.3117	0.63	Q	V			
12+10	0.3161	0.64	Q	V			
12+15	0.3206	0.65	Q	V			
12+20	0.3253	0.69	Q	V			
12+25	0.3304	0.74	Q	V			
12+30	0.3359	0.80	Q	V			
12+35	0.3419	0.88	Q	V			
12+40	0.3487	0.98	Q	V			
12+45	0.3562	1.09	Q	V			
12+50	0.3646	1.22	Q	V			
12+55	0.3740	1.36	Q	V			
13+ 0	0.3844	1.51	Q	V			
13+ 5	0.3960	1.68	Q	V			
13+10	0.4089	1.87	Q	V			
13+15	0.4232	2.09	Q	V			
13+20	0.4392	2.32	Q	V			
13+25	0.4570	2.58	Q	V			
13+30	0.4765	2.84	Q	V			
13+35	0.4975	3.05	Q	V			
13+40	0.5192	3.15	Q	V			
13+45	0.5408	3.13	Q	V			
13+50	0.5614	3.00	Q	V			
13+55	0.5805	2.77	Q	V			
14+ 0	0.5976	2.49	Q	V			
14+ 5	0.6128	2.20	Q	V			
14+10	0.6266	2.00	Q	V			
14+15	0.6397	1.91	Q	V			
14+20	0.6527	1.89	Q	V			
14+25	0.6661	1.94	Q	V			
14+30	0.6800	2.02	Q	V			
14+35	0.6946	2.12	Q	V			
14+40	0.7097	2.19	Q	V			
14+45	0.7251	2.24	Q	V			
14+50	0.7407	2.26	Q	V			
14+55	0.7563	2.27	Q	V			
15+ 0	0.7719	2.27	Q	V			
15+ 5	0.7875	2.26	Q	V			
15+10	0.8030	2.25	Q	V			
15+15	0.8183	2.22	Q	V			
15+20	0.8334	2.19	Q	V			
15+25	0.8481	2.14	Q	V			
15+30	0.8625	2.09	Q	V			
15+35	0.8765	2.03	Q	V			
15+40	0.8900	1.95	Q	V			
15+45	0.9028	1.86	Q	V			
15+50	0.9148	1.75	Q	V			
15+55	0.9260	1.62	Q	V			
16+ 0	0.9363	1.50	Q	V			
16+ 5	0.9457	1.37	Q	V			
16+10	0.9543	1.25	Q	V			
16+15	0.9622	1.14	Q	V			

16+20	0.9693	1.04	Q					V	
16+25	0.9758	0.94	Q					V	
16+30	0.9817	0.85	Q					V	
16+35	0.9870	0.77	Q					V	
16+40	0.9918	0.69	Q					V	
16+45	0.9961	0.63	Q					V	
16+50	1.0001	0.58	Q					V	
16+55	1.0039	0.54	Q					V	
17+ 0	1.0073	0.50	Q					V	
17+ 5	1.0105	0.47	Q					V	
17+10	1.0136	0.44	Q					V	
17+15	1.0164	0.42	Q					V	
17+20	1.0192	0.40	Q					V	
17+25	1.0219	0.39	Q					V	
17+30	1.0244	0.37	Q					V	
17+35	1.0269	0.36	Q					V	
17+40	1.0293	0.35	Q					V	
17+45	1.0316	0.34	Q					V	
17+50	1.0338	0.32	Q					V	
17+55	1.0360	0.31	Q					V	
18+ 0	1.0380	0.29	Q					V	
18+ 5	1.0399	0.27	Q					V	
18+10	1.0417	0.26	Q					V	
18+15	1.0434	0.25	Q					V	
18+20	1.0451	0.24	Q					V	
18+25	1.0467	0.24	Q					V	
18+30	1.0483	0.23	Q					V	
18+35	1.0498	0.22	Q					V	
18+40	1.0513	0.21	Q					V	
18+45	1.0527	0.20	Q					V	
18+50	1.0540	0.19	Q					V	
18+55	1.0553	0.18	Q					V	
19+ 0	1.0565	0.17	Q					V	
19+ 5	1.0576	0.16	Q					V	
19+10	1.0587	0.15	Q					V	
19+15	1.0597	0.14	Q					V	
19+20	1.0606	0.14	Q					V	
19+25	1.0615	0.13	Q					V	
19+30	1.0624	0.13	Q					V	
19+35	1.0633	0.13	Q					V	
19+40	1.0642	0.13	Q					V	
19+45	1.0651	0.13	Q					V	
19+50	1.0660	0.13	Q					V	
19+55	1.0669	0.13	Q					V	
20+ 0	1.0677	0.12	Q					V	
20+ 5	1.0685	0.11	Q					V	
20+10	1.0693	0.11	Q					V	
20+15	1.0700	0.10	Q					V	
20+20	1.0707	0.10	Q					V	
20+25	1.0714	0.10	Q					V	
20+30	1.0721	0.10	Q					V	
20+35	1.0728	0.10	Q					V	
20+40	1.0735	0.10	Q					V	
20+45	1.0742	0.10	Q					V	
20+50	1.0749	0.10	Q					V	

20+55	1.0756	0.10	Q				V	
21+ 0	1.0763	0.10	Q				V	
21+ 5	1.0770	0.10	Q				V	
21+10	1.0777	0.10	Q				V	
21+15	1.0783	0.10	Q				V	
21+20	1.0790	0.09	Q				V	
21+25	1.0796	0.09	Q				V	
21+30	1.0802	0.09	Q				V	
21+35	1.0809	0.09	Q				V	
21+40	1.0815	0.09	Q				V	
21+45	1.0821	0.09	Q				V	
21+50	1.0827	0.09	Q				V	
21+55	1.0834	0.09	Q				V	
22+ 0	1.0840	0.09	Q				V	
22+ 5	1.0846	0.09	Q				V	
22+10	1.0852	0.09	Q				V	
22+15	1.0858	0.09	Q				V	
22+20	1.0864	0.09	Q				V	
22+25	1.0870	0.09	Q				V	
22+30	1.0876	0.09	Q				V	
22+35	1.0883	0.09	Q				V	
22+40	1.0888	0.09	Q				V	
22+45	1.0894	0.08	Q				V	
22+50	1.0900	0.08	Q				V	
22+55	1.0905	0.08	Q				V	
23+ 0	1.0911	0.08	Q				V	
23+ 5	1.0916	0.08	Q				V	
23+10	1.0921	0.08	Q				V	
23+15	1.0927	0.08	Q				V	
23+20	1.0932	0.07	Q				V	
23+25	1.0937	0.07	Q				V	
23+30	1.0942	0.07	Q				V	
23+35	1.0947	0.07	Q				V	
23+40	1.0952	0.07	Q				V	
23+45	1.0957	0.07	Q				V	
23+50	1.0962	0.07	Q				V	
23+55	1.0967	0.07	Q				V	
24+ 0	1.0972	0.07	Q				V	
24+ 5	1.0977	0.07	Q				V	
24+10	1.0981	0.07	Q				V	
24+15	1.0986	0.06	Q				V	
24+20	1.0990	0.06	Q				V	
24+25	1.0994	0.05	Q				V	
24+30	1.0997	0.05	Q				V	
24+35	1.0999	0.04	Q				V	
24+40	1.1002	0.03	Q				V	
24+45	1.1004	0.03	Q				V	
24+50	1.1005	0.02	Q				V	
24+55	1.1007	0.02	Q				V	
25+ 0	1.1008	0.02	Q				V	
25+ 5	1.1009	0.02	Q				V	
25+10	1.1010	0.02	Q				V	
25+15	1.1011	0.01	Q				V	
25+20	1.1012	0.01	Q				V	
25+25	1.1013	0.01	Q				V	

25+30	1. 1014	0. 01	Q				V
25+35	1. 1015	0. 01	Q				V
25+40	1. 1015	0. 01	Q				V
25+45	1. 1016	0. 01	Q				V
25+50	1. 1017	0. 01	Q				V
25+55	1. 1017	0. 01	Q				V
26+ 0	1. 1018	0. 01	Q				V
26+ 5	1. 1018	0. 01	Q				V
26+10	1. 1018	0. 01	Q				V
26+15	1. 1019	0. 01	Q				V
26+20	1. 1019	0. 01	Q				V
26+25	1. 1020	0. 00	Q				V
26+30	1. 1020	0. 00	Q				V
26+35	1. 1020	0. 00	Q				V
26+40	1. 1020	0. 00	Q				V
26+45	1. 1021	0. 00	Q				V
26+50	1. 1021	0. 00	Q				V
26+55	1. 1021	0. 00	Q				V
27+ 0	1. 1021	0. 00	Q				V
27+ 5	1. 1021	0. 00	Q				V
27+10	1. 1022	0. 00	Q				V
27+15	1. 1022	0. 00	Q				V
27+20	1. 1022	0. 00	Q				V
27+25	1. 1022	0. 00	Q				V
27+30	1. 1022	0. 00	Q				V
27+35	1. 1022	0. 00	Q				V
27+40	1. 1022	0. 00	Q				V
27+45	1. 1022	0. 00	Q				V
27+50	1. 1022	0. 00	Q				V
27+55	1. 1022	0. 00	Q				V
28+ 0	1. 1022	0. 00	Q				V
28+ 5	1. 1022	0. 00	Q				V
28+10	1. 1023	0. 00	Q				V
28+15	1. 1023	0. 00	Q				V
28+20	1. 1023	0. 00	Q				V
28+25	1. 1023	0. 00	Q				V
28+30	1. 1023	0. 00	Q				V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0

Study date 09/21/23 File: UHP1010310.out

+++++

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

Program License Serial Number 6450

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

English Units used in output format

68th Street Storage
10 Year Storm Event
Post Development Condition

Drainage Area = 14.27 (Ac.) = 0.022 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 14.27 (Ac.) = 0.022 Sq. Mi.
Length along longest watercourse = 2510.00 (Ft.)
Length along longest watercourse measured to centroid = 355.00 (Ft.)
Length along longest watercourse = 0.475 Mi.
Length along longest watercourse measured to centroid = 0.067 Mi.
Difference in elevation = 50.00 (Ft.)
Slope along watercourse = 105.1793 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.040 Hr.
Lag time = 2.41 Min.
25% of lag time = 0.60 Min.
40% of lag time = 0.96 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]
14.27	0.80	11.42

100 YEAR Area rainfall data:

Area (Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
14.27	2.00	28.54

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 2.000(In)

Point rain (area averaged) = 1.294(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.294(In)

Sub-Area Data:

Area (Ac.)	Runoff Index	Impervious %
14.270	32.00	0.510
Total Area Entered = 14.27 (Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec. %)	(In/Hr)	(Dec.)	(In/Hr)
32.0	32.0	0.742	0.510	0.401	1.000	0.401
Sum (F) =						0.401

Area averaged mean soil loss (F) (In/Hr) = 0.401
Minimum soil loss rate ((In/Hr)) = 0.201
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.492

Unit Hydrograph VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	207.454	44.660	6.423
2 0.167	414.908	42.851	6.163
3 0.250	622.362	8.498	1.222
4 0.333	829.816	3.991	0.574
Sum = 100.000		Sum=	14.381

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	0.202	(0.401) 0.099	0.103
2 0.17	1.30	0.202	(0.401) 0.099	0.103
3 0.25	1.10	0.171	(0.401) 0.084	0.087
4 0.33	1.50	0.233	(0.401) 0.115	0.118
5 0.42	1.50	0.233	(0.401) 0.115	0.118

6	0.50	1.80	0.279	(0.401)	0.137	0.142
7	0.58	1.50	0.233	(0.401)	0.115	0.118
8	0.67	1.80	0.279	(0.401)	0.137	0.142
9	0.75	1.80	0.279	(0.401)	0.137	0.142
10	0.83	1.50	0.233	(0.401)	0.115	0.118
11	0.92	1.60	0.248	(0.401)	0.122	0.126
12	1.00	1.80	0.279	(0.401)	0.137	0.142
13	1.08	2.20	0.342	(0.401)	0.168	0.173
14	1.17	2.20	0.342	(0.401)	0.168	0.173
15	1.25	2.20	0.342	(0.401)	0.168	0.173
16	1.33	2.00	0.310	(0.401)	0.153	0.158
17	1.42	2.60	0.404	(0.401)	0.199	0.205
18	1.50	2.70	0.419	(0.401)	0.206	0.213
19	1.58	2.40	0.373	(0.401)	0.183	0.189
20	1.67	2.70	0.419	(0.401)	0.206	0.213
21	1.75	3.30	0.512	(0.401)	0.252	0.260
22	1.83	3.10	0.481	(0.401)	0.237	0.244
23	1.92	2.90	0.450	(0.401)	0.221	0.229
24	2.00	3.00	0.466	(0.401)	0.229	0.237
25	2.08	3.10	0.481	(0.401)	0.237	0.244
26	2.17	4.20	0.652	(0.401)	0.321	0.331
27	2.25	5.00	0.776	(0.401)	0.382	0.394
28	2.33	3.50	0.543	(0.401)	0.267	0.276
29	2.42	6.80	1.056	0.401	(0.519)	0.654
30	2.50	7.30	1.133	0.401	(0.558)	0.732
31	2.58	8.20	1.273	0.401	(0.626)	0.871
32	2.67	5.90	0.916	0.401	(0.451)	0.514
33	2.75	2.00	0.310	(0.401)	0.153	0.158
34	2.83	1.80	0.279	(0.401)	0.137	0.142
35	2.92	1.80	0.279	(0.401)	0.137	0.142
36	3.00	0.60	0.093	(0.401)	0.046	0.047

(Loss Rate Not Used)

Sum = 100.0 Sum = 8.4

Flood volume = Effective rainfall 0.70(In)
times area 14.3(Ac.)/[(In)/(Ft.)] = 0.8(Ac. Ft)

Total soil loss = 0.59(In)

Total soil loss = 0.703(Ac. Ft)

Total rainfall = 1.29(In)

Flood volume = 36406.5 Cubic Feet

Total soil loss = 30602.6 Cubic Feet

Peak flow rate of this hydrograph = 11.071(CFS)

+++++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume	Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0045	0.66	VQ					
0+10	0.0134	1.29	V Q					
0+15	0.0225	1.31	VQ					

0+20	0.0327	1.48	VQ				
0+25	0.0441	1.65	VQ				
0+30	0.0567	1.84	VQ				
0+35	0.0694	1.85	Q				
0+40	0.0824	1.88	Q				
0+45	0.0963	2.01	Q				
0+50	0.1092	1.88	Q V				
0+55	0.1216	1.80	Q V				
1+ 0	0.1348	1.92	Q V				
1+ 5	0.1500	2.21	Q V				
1+10	0.1667	2.43	Q V				
1+15	0.1838	2.48	Q V				
1+20	0.2003	2.39	Q V				
1+25	0.2182	2.60	Q V				
1+30	0.2384	2.92	Q V				
1+35	0.2581	2.87	Q V				
1+40	0.2782	2.91	Q V				
1+45	0.3012	3.34	Q V				
1+50	0.3256	3.54	Q V				
1+55	0.3491	3.42	Q V				
2+ 0	0.3724	3.38	Q V				
2+ 5	0.3962	3.45	Q V				
2+10	0.4241	4.06	Q V				
2+15	0.4586	5.01	Q V				
2+20	0.4913	4.75	Q V				
2+25	0.5366	6.58	Q V				
2+30	0.6007	9.30	Q V				
2+35	0.6769	11.07	Q V				
2+40	0.7454	9.95	Q V				
2+45	0.7845	5.67	Q V				
2+50	0.8053	3.01	Q V				
2+55	0.8209	2.28	Q V				
3+ 0	0.8309	1.44	Q V				
3+ 5	0.8346	0.55	Q V				
3+10	0.8356	0.14	Q V				
3+15	0.8358	0.03	Q V				

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 09/21/23 File: UHP10102410.out

+++++

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

Program License Serial Number 6450

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

English Units used in output format

68th Street Storage
10 Year Storm Event
Post Development Condition

Drainage Area = 14.27 (Ac.) = 0.022 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 14.27 (Ac.) = 0.022 Sq. Mi.
Length along longest watercourse = 2510.00 (Ft.)
Length along longest watercourse measured to centroid = 355.00 (Ft.)
Length along longest watercourse = 0.475 Mi.
Length along longest watercourse measured to centroid = 0.067 Mi.
Difference in elevation = 50.00 (Ft.)
Slope along watercourse = 105.1793 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.040 Hr.
Lag time = 2.41 Min.
25% of lag time = 0.60 Min.
40% of lag time = 0.96 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]
14.27	2.00	28.54

100 YEAR Area rainfall data:

Area(Ac.) [1]	Rainfall(In) [2]	Weighting[1*2]
14.27	6.00	85.62

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 2.000(In)
Area Averaged 100-Year Rainfall = 6.000(In)

Point rain (area averaged) = 3.646(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.646(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
14.270	32.00	0.510
Total Area Entered = 14.27 (Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec. %)	(In/Hr)	(Dec.)	(In/Hr)
32.0	32.0	0.742	0.510	0.401	1.000	0.401
Sum (F) =						0.401

Area averaged mean soil loss (F) (In/Hr) = 0.401
Minimum soil loss rate ((In/Hr)) = 0.201
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.492

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	207.454	44.660	6.423
2 0.167	414.908	42.851	6.163
3 0.250	622.362	8.498	1.222
4 0.333	829.816	3.991	0.574
Sum = 100.000		Sum=	14.381

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	0.029	(0.712) 0.014	0.015
2 0.17	0.07	0.029	(0.709) 0.014	0.015
3 0.25	0.07	0.029	(0.706) 0.014	0.015
4 0.33	0.10	0.044	(0.703) 0.022	0.022

5	0.42	0.10	0.044	(0.701)	0.022	0.022
6	0.50	0.10	0.044	(0.698)	0.022	0.022
7	0.58	0.10	0.044	(0.695)	0.022	0.022
8	0.67	0.10	0.044	(0.692)	0.022	0.022
9	0.75	0.10	0.044	(0.690)	0.022	0.022
10	0.83	0.13	0.058	(0.687)	0.029	0.030
11	0.92	0.13	0.058	(0.684)	0.029	0.030
12	1.00	0.13	0.058	(0.682)	0.029	0.030
13	1.08	0.10	0.044	(0.679)	0.022	0.022
14	1.17	0.10	0.044	(0.676)	0.022	0.022
15	1.25	0.10	0.044	(0.674)	0.022	0.022
16	1.33	0.10	0.044	(0.671)	0.022	0.022
17	1.42	0.10	0.044	(0.668)	0.022	0.022
18	1.50	0.10	0.044	(0.666)	0.022	0.022
19	1.58	0.10	0.044	(0.663)	0.022	0.022
20	1.67	0.10	0.044	(0.660)	0.022	0.022
21	1.75	0.10	0.044	(0.658)	0.022	0.022
22	1.83	0.13	0.058	(0.655)	0.029	0.030
23	1.92	0.13	0.058	(0.652)	0.029	0.030
24	2.00	0.13	0.058	(0.650)	0.029	0.030
25	2.08	0.13	0.058	(0.647)	0.029	0.030
26	2.17	0.13	0.058	(0.644)	0.029	0.030
27	2.25	0.13	0.058	(0.642)	0.029	0.030
28	2.33	0.13	0.058	(0.639)	0.029	0.030
29	2.42	0.13	0.058	(0.637)	0.029	0.030
30	2.50	0.13	0.058	(0.634)	0.029	0.030
31	2.58	0.17	0.073	(0.631)	0.036	0.037
32	2.67	0.17	0.073	(0.629)	0.036	0.037
33	2.75	0.17	0.073	(0.626)	0.036	0.037
34	2.83	0.17	0.073	(0.624)	0.036	0.037
35	2.92	0.17	0.073	(0.621)	0.036	0.037
36	3.00	0.17	0.073	(0.618)	0.036	0.037
37	3.08	0.17	0.073	(0.616)	0.036	0.037
38	3.17	0.17	0.073	(0.613)	0.036	0.037
39	3.25	0.17	0.073	(0.611)	0.036	0.037
40	3.33	0.17	0.073	(0.608)	0.036	0.037
41	3.42	0.17	0.073	(0.606)	0.036	0.037
42	3.50	0.17	0.073	(0.603)	0.036	0.037
43	3.58	0.17	0.073	(0.601)	0.036	0.037
44	3.67	0.17	0.073	(0.598)	0.036	0.037
45	3.75	0.17	0.073	(0.596)	0.036	0.037
46	3.83	0.20	0.087	(0.593)	0.043	0.044
47	3.92	0.20	0.087	(0.591)	0.043	0.044
48	4.00	0.20	0.087	(0.588)	0.043	0.044
49	4.08	0.20	0.087	(0.586)	0.043	0.044
50	4.17	0.20	0.087	(0.583)	0.043	0.044
51	4.25	0.20	0.087	(0.581)	0.043	0.044
52	4.33	0.23	0.102	(0.578)	0.050	0.052
53	4.42	0.23	0.102	(0.576)	0.050	0.052
54	4.50	0.23	0.102	(0.573)	0.050	0.052
55	4.58	0.23	0.102	(0.571)	0.050	0.052
56	4.67	0.23	0.102	(0.568)	0.050	0.052
57	4.75	0.23	0.102	(0.566)	0.050	0.052
58	4.83	0.27	0.117	(0.563)	0.057	0.059
59	4.92	0.27	0.117	(0.561)	0.057	0.059

60	5.00	0.27	0.117	(0.559)	0.057	0.059
61	5.08	0.20	0.087	(0.556)	0.043	0.044
62	5.17	0.20	0.087	(0.554)	0.043	0.044
63	5.25	0.20	0.087	(0.551)	0.043	0.044
64	5.33	0.23	0.102	(0.549)	0.050	0.052
65	5.42	0.23	0.102	(0.547)	0.050	0.052
66	5.50	0.23	0.102	(0.544)	0.050	0.052
67	5.58	0.27	0.117	(0.542)	0.057	0.059
68	5.67	0.27	0.117	(0.539)	0.057	0.059
69	5.75	0.27	0.117	(0.537)	0.057	0.059
70	5.83	0.27	0.117	(0.535)	0.057	0.059
71	5.92	0.27	0.117	(0.532)	0.057	0.059
72	6.00	0.27	0.117	(0.530)	0.057	0.059
73	6.08	0.30	0.131	(0.528)	0.065	0.067
74	6.17	0.30	0.131	(0.525)	0.065	0.067
75	6.25	0.30	0.131	(0.523)	0.065	0.067
76	6.33	0.30	0.131	(0.520)	0.065	0.067
77	6.42	0.30	0.131	(0.518)	0.065	0.067
78	6.50	0.30	0.131	(0.516)	0.065	0.067
79	6.58	0.33	0.146	(0.514)	0.072	0.074
80	6.67	0.33	0.146	(0.511)	0.072	0.074
81	6.75	0.33	0.146	(0.509)	0.072	0.074
82	6.83	0.33	0.146	(0.507)	0.072	0.074
83	6.92	0.33	0.146	(0.504)	0.072	0.074
84	7.00	0.33	0.146	(0.502)	0.072	0.074
85	7.08	0.33	0.146	(0.500)	0.072	0.074
86	7.17	0.33	0.146	(0.497)	0.072	0.074
87	7.25	0.33	0.146	(0.495)	0.072	0.074
88	7.33	0.37	0.160	(0.493)	0.079	0.081
89	7.42	0.37	0.160	(0.491)	0.079	0.081
90	7.50	0.37	0.160	(0.488)	0.079	0.081
91	7.58	0.40	0.175	(0.486)	0.086	0.089
92	7.67	0.40	0.175	(0.484)	0.086	0.089
93	7.75	0.40	0.175	(0.482)	0.086	0.089
94	7.83	0.43	0.190	(0.479)	0.093	0.096
95	7.92	0.43	0.190	(0.477)	0.093	0.096
96	8.00	0.43	0.190	(0.475)	0.093	0.096
97	8.08	0.50	0.219	(0.473)	0.108	0.111
98	8.17	0.50	0.219	(0.471)	0.108	0.111
99	8.25	0.50	0.219	(0.468)	0.108	0.111
100	8.33	0.50	0.219	(0.466)	0.108	0.111
101	8.42	0.50	0.219	(0.464)	0.108	0.111
102	8.50	0.50	0.219	(0.462)	0.108	0.111
103	8.58	0.53	0.233	(0.460)	0.115	0.119
104	8.67	0.53	0.233	(0.458)	0.115	0.119
105	8.75	0.53	0.233	(0.455)	0.115	0.119
106	8.83	0.57	0.248	(0.453)	0.122	0.126
107	8.92	0.57	0.248	(0.451)	0.122	0.126
108	9.00	0.57	0.248	(0.449)	0.122	0.126
109	9.08	0.63	0.277	(0.447)	0.136	0.141
110	9.17	0.63	0.277	(0.445)	0.136	0.141
111	9.25	0.63	0.277	(0.443)	0.136	0.141
112	9.33	0.67	0.292	(0.441)	0.143	0.148
113	9.42	0.67	0.292	(0.438)	0.143	0.148
114	9.50	0.67	0.292	(0.436)	0.143	0.148

115	9.58	0.70	0.306	(0.434)	0.151	0.156
116	9.67	0.70	0.306	(0.432)	0.151	0.156
117	9.75	0.70	0.306	(0.430)	0.151	0.156
118	9.83	0.73	0.321	(0.428)	0.158	0.163
119	9.92	0.73	0.321	(0.426)	0.158	0.163
120	10.00	0.73	0.321	(0.424)	0.158	0.163
121	10.08	0.50	0.219	(0.422)	0.108	0.111
122	10.17	0.50	0.219	(0.420)	0.108	0.111
123	10.25	0.50	0.219	(0.418)	0.108	0.111
124	10.33	0.50	0.219	(0.416)	0.108	0.111
125	10.42	0.50	0.219	(0.414)	0.108	0.111
126	10.50	0.50	0.219	(0.412)	0.108	0.111
127	10.58	0.67	0.292	(0.410)	0.143	0.148
128	10.67	0.67	0.292	(0.408)	0.143	0.148
129	10.75	0.67	0.292	(0.406)	0.143	0.148
130	10.83	0.67	0.292	(0.404)	0.143	0.148
131	10.92	0.67	0.292	(0.402)	0.143	0.148
132	11.00	0.67	0.292	(0.400)	0.143	0.148
133	11.08	0.63	0.277	(0.398)	0.136	0.141
134	11.17	0.63	0.277	(0.396)	0.136	0.141
135	11.25	0.63	0.277	(0.394)	0.136	0.141
136	11.33	0.63	0.277	(0.392)	0.136	0.141
137	11.42	0.63	0.277	(0.390)	0.136	0.141
138	11.50	0.63	0.277	(0.388)	0.136	0.141
139	11.58	0.57	0.248	(0.386)	0.122	0.126
140	11.67	0.57	0.248	(0.384)	0.122	0.126
141	11.75	0.57	0.248	(0.382)	0.122	0.126
142	11.83	0.60	0.262	(0.380)	0.129	0.133
143	11.92	0.60	0.262	(0.378)	0.129	0.133
144	12.00	0.60	0.262	(0.377)	0.129	0.133
145	12.08	0.83	0.365	(0.375)	0.179	0.185
146	12.17	0.83	0.365	(0.373)	0.179	0.185
147	12.25	0.83	0.365	(0.371)	0.179	0.185
148	12.33	0.87	0.379	(0.369)	0.187	0.193
149	12.42	0.87	0.379	(0.367)	0.187	0.193
150	12.50	0.87	0.379	(0.365)	0.187	0.193
151	12.58	0.93	0.408	(0.364)	0.201	0.207
152	12.67	0.93	0.408	(0.362)	0.201	0.207
153	12.75	0.93	0.408	(0.360)	0.201	0.207
154	12.83	0.97	0.423	(0.358)	0.208	0.215
155	12.92	0.97	0.423	(0.356)	0.208	0.215
156	13.00	0.97	0.423	(0.354)	0.208	0.215
157	13.08	1.13	0.496	(0.353)	0.244	0.252
158	13.17	1.13	0.496	(0.351)	0.244	0.252
159	13.25	1.13	0.496	(0.349)	0.244	0.252
160	13.33	1.13	0.496	(0.347)	0.244	0.252
161	13.42	1.13	0.496	(0.346)	0.244	0.252
162	13.50	1.13	0.496	(0.344)	0.244	0.252
163	13.58	0.77	0.335	(0.342)	0.165	0.170
164	13.67	0.77	0.335	(0.340)	0.165	0.170
165	13.75	0.77	0.335	(0.339)	0.165	0.170
166	13.83	0.77	0.335	(0.337)	0.165	0.170
167	13.92	0.77	0.335	(0.335)	0.165	0.170
168	14.00	0.77	0.335	(0.333)	0.165	0.170
169	14.08	0.90	0.394	(0.332)	0.194	0.200

170	14.17	0.90	0.394	(0.330)	0.194	0.200
171	14.25	0.90	0.394	(0.328)	0.194	0.200
172	14.33	0.87	0.379	(0.327)	0.187	0.193
173	14.42	0.87	0.379	(0.325)	0.187	0.193
174	14.50	0.87	0.379	(0.323)	0.187	0.193
175	14.58	0.87	0.379	(0.322)	0.187	0.193
176	14.67	0.87	0.379	(0.320)	0.187	0.193
177	14.75	0.87	0.379	(0.318)	0.187	0.193
178	14.83	0.83	0.365	(0.317)	0.179	0.185
179	14.92	0.83	0.365	(0.315)	0.179	0.185
180	15.00	0.83	0.365	(0.314)	0.179	0.185
181	15.08	0.80	0.350	(0.312)	0.172	0.178
182	15.17	0.80	0.350	(0.310)	0.172	0.178
183	15.25	0.80	0.350	(0.309)	0.172	0.178
184	15.33	0.77	0.335	(0.307)	0.165	0.170
185	15.42	0.77	0.335	(0.306)	0.165	0.170
186	15.50	0.77	0.335	(0.304)	0.165	0.170
187	15.58	0.63	0.277	(0.302)	0.136	0.141
188	15.67	0.63	0.277	(0.301)	0.136	0.141
189	15.75	0.63	0.277	(0.299)	0.136	0.141
190	15.83	0.63	0.277	(0.298)	0.136	0.141
191	15.92	0.63	0.277	(0.296)	0.136	0.141
192	16.00	0.63	0.277	(0.295)	0.136	0.141
193	16.08	0.13	0.058	(0.293)	0.029	0.030
194	16.17	0.13	0.058	(0.292)	0.029	0.030
195	16.25	0.13	0.058	(0.290)	0.029	0.030
196	16.33	0.13	0.058	(0.289)	0.029	0.030
197	16.42	0.13	0.058	(0.287)	0.029	0.030
198	16.50	0.13	0.058	(0.286)	0.029	0.030
199	16.58	0.10	0.044	(0.284)	0.022	0.022
200	16.67	0.10	0.044	(0.283)	0.022	0.022
201	16.75	0.10	0.044	(0.282)	0.022	0.022
202	16.83	0.10	0.044	(0.280)	0.022	0.022
203	16.92	0.10	0.044	(0.279)	0.022	0.022
204	17.00	0.10	0.044	(0.277)	0.022	0.022
205	17.08	0.17	0.073	(0.276)	0.036	0.037
206	17.17	0.17	0.073	(0.274)	0.036	0.037
207	17.25	0.17	0.073	(0.273)	0.036	0.037
208	17.33	0.17	0.073	(0.272)	0.036	0.037
209	17.42	0.17	0.073	(0.270)	0.036	0.037
210	17.50	0.17	0.073	(0.269)	0.036	0.037
211	17.58	0.17	0.073	(0.268)	0.036	0.037
212	17.67	0.17	0.073	(0.266)	0.036	0.037
213	17.75	0.17	0.073	(0.265)	0.036	0.037
214	17.83	0.13	0.058	(0.264)	0.029	0.030
215	17.92	0.13	0.058	(0.262)	0.029	0.030
216	18.00	0.13	0.058	(0.261)	0.029	0.030
217	18.08	0.13	0.058	(0.260)	0.029	0.030
218	18.17	0.13	0.058	(0.259)	0.029	0.030
219	18.25	0.13	0.058	(0.257)	0.029	0.030
220	18.33	0.13	0.058	(0.256)	0.029	0.030
221	18.42	0.13	0.058	(0.255)	0.029	0.030
222	18.50	0.13	0.058	(0.254)	0.029	0.030
223	18.58	0.10	0.044	(0.252)	0.022	0.022
224	18.67	0.10	0.044	(0.251)	0.022	0.022

225	18.75	0.10	0.044	(0.250)	0.022	0.022
226	18.83	0.07	0.029	(0.249)	0.014	0.015
227	18.92	0.07	0.029	(0.248)	0.014	0.015
228	19.00	0.07	0.029	(0.246)	0.014	0.015
229	19.08	0.10	0.044	(0.245)	0.022	0.022
230	19.17	0.10	0.044	(0.244)	0.022	0.022
231	19.25	0.10	0.044	(0.243)	0.022	0.022
232	19.33	0.13	0.058	(0.242)	0.029	0.030
233	19.42	0.13	0.058	(0.241)	0.029	0.030
234	19.50	0.13	0.058	(0.240)	0.029	0.030
235	19.58	0.10	0.044	(0.238)	0.022	0.022
236	19.67	0.10	0.044	(0.237)	0.022	0.022
237	19.75	0.10	0.044	(0.236)	0.022	0.022
238	19.83	0.07	0.029	(0.235)	0.014	0.015
239	19.92	0.07	0.029	(0.234)	0.014	0.015
240	20.00	0.07	0.029	(0.233)	0.014	0.015
241	20.08	0.10	0.044	(0.232)	0.022	0.022
242	20.17	0.10	0.044	(0.231)	0.022	0.022
243	20.25	0.10	0.044	(0.230)	0.022	0.022
244	20.33	0.10	0.044	(0.229)	0.022	0.022
245	20.42	0.10	0.044	(0.228)	0.022	0.022
246	20.50	0.10	0.044	(0.227)	0.022	0.022
247	20.58	0.10	0.044	(0.226)	0.022	0.022
248	20.67	0.10	0.044	(0.225)	0.022	0.022
249	20.75	0.10	0.044	(0.224)	0.022	0.022
250	20.83	0.07	0.029	(0.223)	0.014	0.015
251	20.92	0.07	0.029	(0.222)	0.014	0.015
252	21.00	0.07	0.029	(0.222)	0.014	0.015
253	21.08	0.10	0.044	(0.221)	0.022	0.022
254	21.17	0.10	0.044	(0.220)	0.022	0.022
255	21.25	0.10	0.044	(0.219)	0.022	0.022
256	21.33	0.07	0.029	(0.218)	0.014	0.015
257	21.42	0.07	0.029	(0.217)	0.014	0.015
258	21.50	0.07	0.029	(0.216)	0.014	0.015
259	21.58	0.10	0.044	(0.216)	0.022	0.022
260	21.67	0.10	0.044	(0.215)	0.022	0.022
261	21.75	0.10	0.044	(0.214)	0.022	0.022
262	21.83	0.07	0.029	(0.213)	0.014	0.015
263	21.92	0.07	0.029	(0.213)	0.014	0.015
264	22.00	0.07	0.029	(0.212)	0.014	0.015
265	22.08	0.10	0.044	(0.211)	0.022	0.022
266	22.17	0.10	0.044	(0.211)	0.022	0.022
267	22.25	0.10	0.044	(0.210)	0.022	0.022
268	22.33	0.07	0.029	(0.209)	0.014	0.015
269	22.42	0.07	0.029	(0.209)	0.014	0.015
270	22.50	0.07	0.029	(0.208)	0.014	0.015
271	22.58	0.07	0.029	(0.207)	0.014	0.015
272	22.67	0.07	0.029	(0.207)	0.014	0.015
273	22.75	0.07	0.029	(0.206)	0.014	0.015
274	22.83	0.07	0.029	(0.206)	0.014	0.015
275	22.92	0.07	0.029	(0.205)	0.014	0.015
276	23.00	0.07	0.029	(0.205)	0.014	0.015
277	23.08	0.07	0.029	(0.204)	0.014	0.015
278	23.17	0.07	0.029	(0.204)	0.014	0.015
279	23.25	0.07	0.029	(0.203)	0.014	0.015

280	23.33	0.07	0.029	(0.203)	0.014	0.015
281	23.42	0.07	0.029	(0.203)	0.014	0.015
282	23.50	0.07	0.029	(0.202)	0.014	0.015
283	23.58	0.07	0.029	(0.202)	0.014	0.015
284	23.67	0.07	0.029	(0.202)	0.014	0.015
285	23.75	0.07	0.029	(0.201)	0.014	0.015
286	23.83	0.07	0.029	(0.201)	0.014	0.015
287	23.92	0.07	0.029	(0.201)	0.014	0.015
288	24.00	0.07	0.029	(0.201)	0.014	0.015

(Loss Rate Not Used)

Sum = 100.0 Sum = 22.2

Flood volume = Effective rainfall 1.85(In)
times area 14.3(Ac.)/[(In)/(Ft.)] = 2.2(Ac.Ft)
Total soil loss = 1.79(In)
Total soil loss = 2.133(Ac.Ft)
Total rainfall = 3.65(In)
Flood volume = 95930.1 Cubic Feet
Total soil loss = 92908.7 Cubic Feet

Peak flow rate of this hydrograph = 3.624(CFS)

+++++

24 - H O U R S T O R M
Run 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	0.0007	0.10	Q				
0+10	0.0019	0.19	Q				
0+15	0.0034	0.20	Q				
0+20	0.0051	0.26	VQ				
0+25	0.0073	0.31	VQ				
0+30	0.0094	0.32	VQ				
0+35	0.0116	0.32	VQ				
0+40	0.0138	0.32	VQ				
0+45	0.0160	0.32	VQ				
0+50	0.0186	0.37	VQ				
0+55	0.0214	0.41	VQ				
1+ 0	0.0243	0.42	VQ				
1+ 5	0.0269	0.38	VQ				
1+10	0.0292	0.33	VQ				
1+15	0.0315	0.32	VQ				
1+20	0.0337	0.32	VQ				
1+25	0.0359	0.32	VQ				
1+30	0.0381	0.32	VQ				
1+35	0.0403	0.32	VQ				
1+40	0.0425	0.32	VQ				
1+45	0.0447	0.32	VQ				
1+50	0.0472	0.37	VQ				
1+55	0.0500	0.41	VQ				
2+ 0	0.0529	0.42	VQ				
2+ 5	0.0559	0.43	Q				

2+10	0.0588	0.43	Q					
2+15	0.0618	0.43	Q					
2+20	0.0647	0.43	Q					
2+25	0.0676	0.43	Q					
2+30	0.0706	0.43	Q					
2+35	0.0738	0.47	Q					
2+40	0.0774	0.52	VQ					
2+45	0.0810	0.53	VQ					
2+50	0.0847	0.53	VQ					
2+55	0.0884	0.53	VQ					
3+ 0	0.0921	0.53	VQ					
3+ 5	0.0957	0.53	VQ					
3+10	0.0994	0.53	VQ					
3+15	0.1031	0.53	VQ					
3+20	0.1067	0.53	VQ					
3+25	0.1104	0.53	Q					
3+30	0.1141	0.53	Q					
3+35	0.1178	0.53	Q					
3+40	0.1214	0.53	Q					
3+45	0.1251	0.53	Q					
3+50	0.1291	0.58	Q					
3+55	0.1334	0.63	Q					
4+ 0	0.1378	0.64	Q					
4+ 5	0.1422	0.64	Q					
4+10	0.1466	0.64	Q					
4+15	0.1510	0.64	Q					
4+20	0.1557	0.69	Q					
4+25	0.1608	0.73	Q					
4+30	0.1659	0.74	QV					
4+35	0.1710	0.75	QV					
4+40	0.1762	0.75	QV					
4+45	0.1813	0.75	QV					
4+50	0.1868	0.79	Q					
4+55	0.1925	0.84	Q					
5+ 0	0.1984	0.85	Q					
5+ 5	0.2036	0.76	Q					
5+10	0.2082	0.67	QV					
5+15	0.2127	0.65	QV					
5+20	0.2174	0.69	QV					
5+25	0.2224	0.73	Q V					
5+30	0.2275	0.74	Q V					
5+35	0.2330	0.79	QV					
5+40	0.2388	0.84	QV					
5+45	0.2446	0.85	QV					
5+50	0.2505	0.85	QV					
5+55	0.2564	0.85	QV					
6+ 0	0.2623	0.85	QV					
6+ 5	0.2685	0.90	QV					
6+10	0.2750	0.95	QV					
6+15	0.2815	0.96	Q V					
6+20	0.2882	0.96	Q V					
6+25	0.2948	0.96	Q V					
6+30	0.3014	0.96	Q V					
6+35	0.3083	1.01	QV					
6+40	0.3156	1.05	QV					

6+45	0.3229	1.06	QV				
6+50	0.3302	1.07	QV				
6+55	0.3375	1.07	Q V				
7+ 0	0.3449	1.07	Q V				
7+ 5	0.3522	1.07	Q V				
7+10	0.3596	1.07	Q V				
7+15	0.3669	1.07	Q V				
7+20	0.3746	1.11	Q V				
7+25	0.3826	1.16	Q V				
7+30	0.3906	1.17	Q V				
7+35	0.3990	1.22	Q V				
7+40	0.4077	1.27	Q V				
7+45	0.4165	1.27	Q V				
7+50	0.4256	1.33	Q V				
7+55	0.4351	1.37	Q V				
8+ 0	0.4446	1.38	Q V				
8+ 5	0.4548	1.48	Q V				
8+10	0.4656	1.57	Q V				
8+15	0.4766	1.59	Q V				
8+20	0.4876	1.60	Q V				
8+25	0.4986	1.60	Q V				
8+30	0.5096	1.60	Q V				
8+35	0.5210	1.65	Q V				
8+40	0.5326	1.69	Q V				
8+45	0.5443	1.70	Q V				
8+50	0.5564	1.75	Q V				
8+55	0.5688	1.80	Q V				
9+ 0	0.5812	1.81	Q V				
9+ 5	0.5944	1.91	Q V				
9+10	0.6081	2.00	Q V				
9+15	0.6220	2.02	Q V				
9+20	0.6363	2.07	Q V				
9+25	0.6509	2.12	Q V				
9+30	0.6655	2.13	Q V				
9+35	0.6806	2.18	Q V				
9+40	0.6959	2.23	Q V				
9+45	0.7113	2.23	Q V				
9+50	0.7270	2.29	Q V				
9+55	0.7431	2.33	Q V				
10+ 0	0.7592	2.34	Q V				
10+ 5	0.7730	2.01	Q V				
10+10	0.7847	1.69	Q V				
10+15	0.7959	1.63	Q V				
10+20	0.8069	1.60	Q V				
10+25	0.8179	1.60	Q V				
10+30	0.8289	1.60	Q V				
10+35	0.8416	1.84	Q V				
10+40	0.8558	2.07	Q V				
10+45	0.8704	2.11	Q V				
10+50	0.8850	2.13	Q V				
10+55	0.8997	2.13	Q V				
11+ 0	0.9144	2.13	Q V				
11+ 5	0.9288	2.08	Q V				
11+10	0.9428	2.04	Q V				
11+15	0.9568	2.03	Q V				

11+20	0.9707	2.03	Q	V		
11+25	0.9847	2.03	Q	V		
11+30	0.9986	2.03	Q	V		
11+35	1.0119	1.93	Q	V		
11+40	1.0246	1.84	Q	V		
11+45	1.0371	1.82	Q	V		
11+50	1.0499	1.86	Q	V		
11+55	1.0630	1.91	Q	V		
12+ 0	1.0762	1.91	Q	V		
12+ 5	1.0917	2.25	Q	V		
12+10	1.1094	2.57	Q	V		
12+15	1.1276	2.63	Q	V		
12+20	1.1463	2.71	Q	V		
12+25	1.1653	2.76	Q	V		
12+30	1.1843	2.77	Q	V		
12+35	1.2041	2.87	Q	V		
12+40	1.2244	2.96	Q	V		
12+45	1.2449	2.98	Q	V		
12+50	1.2658	3.03	Q	V		
12+55	1.2870	3.08	Q	V		
13+ 0	1.3083	3.09	Q	V		
13+ 5	1.3312	3.33	Q	V		
13+10	1.3557	3.56	Q	V		
13+15	1.3805	3.60	Q	V		
13+20	1.4055	3.62	Q	V		
13+25	1.4304	3.62	Q	V		
13+30	1.4554	3.62	Q	V		
13+35	1.4767	3.10	Q	V		
13+40	1.4946	2.60	Q	V		
13+45	1.5118	2.50	Q	V		
13+50	1.5287	2.45	Q	V		
13+55	1.5456	2.45	Q	V		
14+ 0	1.5625	2.45	Q	V		
14+ 5	1.5807	2.64	Q	V		
14+10	1.6001	2.82	Q	V		
14+15	1.6198	2.86	Q	V		
14+20	1.6393	2.83	Q	V		
14+25	1.6585	2.78	Q	V		
14+30	1.6776	2.78	Q	V		
14+35	1.6967	2.77	Q	V		
14+40	1.7158	2.77	Q	V		
14+45	1.7349	2.77	Q	V		
14+50	1.7536	2.72	Q	V		
14+55	1.7721	2.68	Q	V		
15+ 0	1.7905	2.67	Q	V		
15+ 5	1.8085	2.62	Q	V		
15+10	1.8262	2.57	Q	V		
15+15	1.8438	2.56	Q	V		
15+20	1.8611	2.51	Q	V		
15+25	1.8781	2.46	Q	V		
15+30	1.8950	2.46	Q	V		
15+35	1.9106	2.26	Q	V		
15+40	1.9249	2.08	Q	V		
15+45	1.9390	2.04	Q	V		
15+50	1.9529	2.03	Q	V		

15+55	1.9669	2.03		Q			V
16+ 0	1.9808	2.03		Q			V
16+ 5	1.9898	1.31		Q			V
16+10	1.9942	0.63	Q				V
16+15	1.9975	0.49	Q				V
16+20	2.0005	0.43	Q				V
16+25	2.0034	0.43	Q				V
16+30	2.0063	0.43	Q				V
16+35	2.0090	0.38	Q				V
16+40	2.0112	0.33	Q				V
16+45	2.0135	0.32	Q				V
16+50	2.0157	0.32	Q				V
16+55	2.0179	0.32	Q				V
17+ 0	2.0201	0.32	Q				V
17+ 5	2.0229	0.41	Q				V
17+10	2.0264	0.51	Q				V
17+15	2.0300	0.52	Q				V
17+20	2.0337	0.53	Q				V
17+25	2.0374	0.53	Q				V
17+30	2.0411	0.53	Q				V
17+35	2.0447	0.53	Q				V
17+40	2.0484	0.53	Q				V
17+45	2.0521	0.53	Q				V
17+50	2.0554	0.49	Q				V
17+55	2.0584	0.44	Q				V
18+ 0	2.0614	0.43	Q				V
18+ 5	2.0643	0.43	Q				V
18+10	2.0673	0.43	Q				V
18+15	2.0702	0.43	Q				V
18+20	2.0731	0.43	Q				V
18+25	2.0761	0.43	Q				V
18+30	2.0790	0.43	Q				V
18+35	2.0816	0.38	Q				V
18+40	2.0839	0.33	Q				V
18+45	2.0862	0.32	Q				V
18+50	2.0880	0.27	Q				V
18+55	2.0896	0.23	Q				V
19+ 0	2.0911	0.22	Q				V
19+ 5	2.0929	0.26	Q				V
19+10	2.0950	0.31	Q				V
19+15	2.0972	0.32	Q				V
19+20	2.0997	0.37	Q				V
19+25	2.1025	0.41	Q				V
19+30	2.1054	0.42	Q				V
19+35	2.1081	0.38	Q				V
19+40	2.1103	0.33	Q				V
19+45	2.1126	0.32	Q				V
19+50	2.1145	0.27	Q				V
19+55	2.1160	0.23	Q				V
20+ 0	2.1175	0.22	Q				V
20+ 5	2.1193	0.26	Q				V
20+10	2.1214	0.31	Q				V
20+15	2.1236	0.32	Q				V
20+20	2.1258	0.32	Q				V
20+25	2.1280	0.32	Q				V

20+30	2. 1302	0. 32	Q				V
20+35	2. 1324	0. 32	Q				V
20+40	2. 1346	0. 32	Q				V
20+45	2. 1368	0. 32	Q				V
20+50	2. 1387	0. 27	Q				V
20+55	2. 1402	0. 23	Q				V
21+ 0	2. 1417	0. 22	Q				V
21+ 5	2. 1435	0. 26	Q				V
21+10	2. 1456	0. 31	Q				V
21+15	2. 1478	0. 32	Q				V
21+20	2. 1497	0. 27	Q				V
21+25	2. 1513	0. 23	Q				V
21+30	2. 1527	0. 22	Q				V
21+35	2. 1545	0. 26	Q				V
21+40	2. 1567	0. 31	Q				V
21+45	2. 1588	0. 32	Q				V
21+50	2. 1607	0. 27	Q				V
21+55	2. 1623	0. 23	Q				V
22+ 0	2. 1638	0. 22	Q				V
22+ 5	2. 1656	0. 26	Q				V
22+10	2. 1677	0. 31	Q				V
22+15	2. 1698	0. 32	Q				V
22+20	2. 1717	0. 27	Q				V
22+25	2. 1733	0. 23	Q				V
22+30	2. 1748	0. 22	Q				V
22+35	2. 1762	0. 21	Q				V
22+40	2. 1777	0. 21	Q				V
22+45	2. 1792	0. 21	Q				V
22+50	2. 1806	0. 21	Q				V
22+55	2. 1821	0. 21	Q				V
23+ 0	2. 1836	0. 21	Q				V
23+ 5	2. 1850	0. 21	Q				V
23+10	2. 1865	0. 21	Q				V
23+15	2. 1880	0. 21	Q				V
23+20	2. 1895	0. 21	Q				V
23+25	2. 1909	0. 21	Q				V
23+30	2. 1924	0. 21	Q				V
23+35	2. 1939	0. 21	Q				V
23+40	2. 1953	0. 21	Q				V
23+45	2. 1968	0. 21	Q				V
23+50	2. 1983	0. 21	Q				V
23+55	2. 1997	0. 21	Q				V
24+ 0	2. 2012	0. 21	Q				V
24+ 5	2. 2020	0. 12	Q				V
24+10	2. 2022	0. 03	Q				V
24+15	2. 2023	0. 01	Q				V

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2018, Version 9.0
Study date 09/21/23 File: UHP110024100.out

+++++

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

Program License Serial Number 6450

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

English Units used in output format

68th Street Storage
100 Year Storm Event
Post Development Condition

Drainage Area = 14.27 (Ac.) = 0.022 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 14.27 (Ac.) = 0.022 Sq. Mi.
Length along longest watercourse = 2510.00 (Ft.)
Length along longest watercourse measured to centroid = 355.00 (Ft.)
Length along longest watercourse = 0.475 Mi.
Length along longest watercourse measured to centroid = 0.067 Mi.
Difference in elevation = 50.00 (Ft.)
Slope along watercourse = 105.1793 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.040 Hr.
Lag time = 2.41 Min.
25% of lag time = 0.60 Min.
40% of lag time = 0.96 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]
14.27	2.00	28.54

100 YEAR Area rainfall data:

Area (Ac.) [1]	Rainfall (In) [2]	Weighting [1*2]
14.27	6.00	85.62

STORM EVENT (YEAR) = 100.00
 Area Averaged 2-Year Rainfall = 2.000(In)
 Area Averaged 100-Year Rainfall = 6.000(In)

Point rain (area averaged) = 6.000(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 6.000(In)

Sub-Area Data:

Area (Ac.)	Runoff Index	Impervious %
14.270	32.00	0.510
Total Area Entered = 14.27 (Ac.)		

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-3	(In/Hr)	(Dec. %)	(In/Hr)	(Dec.)	(In/Hr)
32.0	52.0	0.552	0.510	0.298	1.000	0.298
Sum (F) =						0.298

Area averaged mean soil loss (F) (In/Hr) = 0.298
 Minimum soil loss rate ((In/Hr)) = 0.149
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.492

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	207.454	44.660	6.423
2 0.167	414.908	42.851	6.163
3 0.250	622.362	8.498	1.222
4 0.333	829.816	3.991	0.574
Sum = 100.000		Sum=	14.381

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr)		Effective (In/Hr)
			Max	Low	
1 0.08	0.07	0.048	(0.529)	0.024	0.024
2 0.17	0.07	0.048	(0.527)	0.024	0.024
3 0.25	0.07	0.048	(0.525)	0.024	0.024
4 0.33	0.10	0.072	(0.523)	0.035	0.037
5 0.42	0.10	0.072	(0.521)	0.035	0.037
6 0.50	0.10	0.072	(0.519)	0.035	0.037

7	0.58	0.10	0.072	(0.517)	0.035	0.037
8	0.67	0.10	0.072	(0.515)	0.035	0.037
9	0.75	0.10	0.072	(0.513)	0.035	0.037
10	0.83	0.13	0.096	(0.511)	0.047	0.049
11	0.92	0.13	0.096	(0.509)	0.047	0.049
12	1.00	0.13	0.096	(0.507)	0.047	0.049
13	1.08	0.10	0.072	(0.505)	0.035	0.037
14	1.17	0.10	0.072	(0.503)	0.035	0.037
15	1.25	0.10	0.072	(0.501)	0.035	0.037
16	1.33	0.10	0.072	(0.499)	0.035	0.037
17	1.42	0.10	0.072	(0.497)	0.035	0.037
18	1.50	0.10	0.072	(0.495)	0.035	0.037
19	1.58	0.10	0.072	(0.493)	0.035	0.037
20	1.67	0.10	0.072	(0.491)	0.035	0.037
21	1.75	0.10	0.072	(0.489)	0.035	0.037
22	1.83	0.13	0.096	(0.487)	0.047	0.049
23	1.92	0.13	0.096	(0.485)	0.047	0.049
24	2.00	0.13	0.096	(0.483)	0.047	0.049
25	2.08	0.13	0.096	(0.481)	0.047	0.049
26	2.17	0.13	0.096	(0.479)	0.047	0.049
27	2.25	0.13	0.096	(0.477)	0.047	0.049
28	2.33	0.13	0.096	(0.475)	0.047	0.049
29	2.42	0.13	0.096	(0.473)	0.047	0.049
30	2.50	0.13	0.096	(0.471)	0.047	0.049
31	2.58	0.17	0.120	(0.469)	0.059	0.061
32	2.67	0.17	0.120	(0.467)	0.059	0.061
33	2.75	0.17	0.120	(0.466)	0.059	0.061
34	2.83	0.17	0.120	(0.464)	0.059	0.061
35	2.92	0.17	0.120	(0.462)	0.059	0.061
36	3.00	0.17	0.120	(0.460)	0.059	0.061
37	3.08	0.17	0.120	(0.458)	0.059	0.061
38	3.17	0.17	0.120	(0.456)	0.059	0.061
39	3.25	0.17	0.120	(0.454)	0.059	0.061
40	3.33	0.17	0.120	(0.452)	0.059	0.061
41	3.42	0.17	0.120	(0.450)	0.059	0.061
42	3.50	0.17	0.120	(0.448)	0.059	0.061
43	3.58	0.17	0.120	(0.447)	0.059	0.061
44	3.67	0.17	0.120	(0.445)	0.059	0.061
45	3.75	0.17	0.120	(0.443)	0.059	0.061
46	3.83	0.20	0.144	(0.441)	0.071	0.073
47	3.92	0.20	0.144	(0.439)	0.071	0.073
48	4.00	0.20	0.144	(0.437)	0.071	0.073
49	4.08	0.20	0.144	(0.435)	0.071	0.073
50	4.17	0.20	0.144	(0.434)	0.071	0.073
51	4.25	0.20	0.144	(0.432)	0.071	0.073
52	4.33	0.23	0.168	(0.430)	0.083	0.085
53	4.42	0.23	0.168	(0.428)	0.083	0.085
54	4.50	0.23	0.168	(0.426)	0.083	0.085
55	4.58	0.23	0.168	(0.424)	0.083	0.085
56	4.67	0.23	0.168	(0.422)	0.083	0.085
57	4.75	0.23	0.168	(0.421)	0.083	0.085
58	4.83	0.27	0.192	(0.419)	0.094	0.098
59	4.92	0.27	0.192	(0.417)	0.094	0.098
60	5.00	0.27	0.192	(0.415)	0.094	0.098
61	5.08	0.20	0.144	(0.413)	0.071	0.073

62	5.17	0.20	0.144	(0.412)	0.071	0.073
63	5.25	0.20	0.144	(0.410)	0.071	0.073
64	5.33	0.23	0.168	(0.408)	0.083	0.085
65	5.42	0.23	0.168	(0.406)	0.083	0.085
66	5.50	0.23	0.168	(0.404)	0.083	0.085
67	5.58	0.27	0.192	(0.403)	0.094	0.098
68	5.67	0.27	0.192	(0.401)	0.094	0.098
69	5.75	0.27	0.192	(0.399)	0.094	0.098
70	5.83	0.27	0.192	(0.397)	0.094	0.098
71	5.92	0.27	0.192	(0.396)	0.094	0.098
72	6.00	0.27	0.192	(0.394)	0.094	0.098
73	6.08	0.30	0.216	(0.392)	0.106	0.110
74	6.17	0.30	0.216	(0.390)	0.106	0.110
75	6.25	0.30	0.216	(0.389)	0.106	0.110
76	6.33	0.30	0.216	(0.387)	0.106	0.110
77	6.42	0.30	0.216	(0.385)	0.106	0.110
78	6.50	0.30	0.216	(0.383)	0.106	0.110
79	6.58	0.33	0.240	(0.382)	0.118	0.122
80	6.67	0.33	0.240	(0.380)	0.118	0.122
81	6.75	0.33	0.240	(0.378)	0.118	0.122
82	6.83	0.33	0.240	(0.377)	0.118	0.122
83	6.92	0.33	0.240	(0.375)	0.118	0.122
84	7.00	0.33	0.240	(0.373)	0.118	0.122
85	7.08	0.33	0.240	(0.372)	0.118	0.122
86	7.17	0.33	0.240	(0.370)	0.118	0.122
87	7.25	0.33	0.240	(0.368)	0.118	0.122
88	7.33	0.37	0.264	(0.366)	0.130	0.134
89	7.42	0.37	0.264	(0.365)	0.130	0.134
90	7.50	0.37	0.264	(0.363)	0.130	0.134
91	7.58	0.40	0.288	(0.361)	0.142	0.146
92	7.67	0.40	0.288	(0.360)	0.142	0.146
93	7.75	0.40	0.288	(0.358)	0.142	0.146
94	7.83	0.43	0.312	(0.356)	0.153	0.158
95	7.92	0.43	0.312	(0.355)	0.153	0.158
96	8.00	0.43	0.312	(0.353)	0.153	0.158
97	8.08	0.50	0.360	(0.352)	0.177	0.183
98	8.17	0.50	0.360	(0.350)	0.177	0.183
99	8.25	0.50	0.360	(0.348)	0.177	0.183
100	8.33	0.50	0.360	(0.347)	0.177	0.183
101	8.42	0.50	0.360	(0.345)	0.177	0.183
102	8.50	0.50	0.360	(0.343)	0.177	0.183
103	8.58	0.53	0.384	(0.342)	0.189	0.195
104	8.67	0.53	0.384	(0.340)	0.189	0.195
105	8.75	0.53	0.384	(0.339)	0.189	0.195
106	8.83	0.57	0.408	(0.337)	0.201	0.207
107	8.92	0.57	0.408	(0.335)	0.201	0.207
108	9.00	0.57	0.408	(0.334)	0.201	0.207
109	9.08	0.63	0.456	(0.332)	0.224	0.232
110	9.17	0.63	0.456	(0.331)	0.224	0.232
111	9.25	0.63	0.456	(0.329)	0.224	0.232
112	9.33	0.67	0.480	(0.327)	0.236	0.244
113	9.42	0.67	0.480	(0.326)	0.236	0.244
114	9.50	0.67	0.480	(0.324)	0.236	0.244
115	9.58	0.70	0.504	(0.323)	0.248	0.256
116	9.67	0.70	0.504	(0.321)	0.248	0.256

117	9.75	0.70	0.504	(0.320)	0.248	0.256
118	9.83	0.73	0.528	(0.318)	0.260	0.268
119	9.92	0.73	0.528	(0.317)	0.260	0.268
120	10.00	0.73	0.528	(0.315)	0.260	0.268
121	10.08	0.50	0.360	(0.314)	0.177	0.183
122	10.17	0.50	0.360	(0.312)	0.177	0.183
123	10.25	0.50	0.360	(0.311)	0.177	0.183
124	10.33	0.50	0.360	(0.309)	0.177	0.183
125	10.42	0.50	0.360	(0.308)	0.177	0.183
126	10.50	0.50	0.360	(0.306)	0.177	0.183
127	10.58	0.67	0.480	(0.305)	0.236	0.244
128	10.67	0.67	0.480	(0.303)	0.236	0.244
129	10.75	0.67	0.480	(0.302)	0.236	0.244
130	10.83	0.67	0.480	(0.300)	0.236	0.244
131	10.92	0.67	0.480	(0.299)	0.236	0.244
132	11.00	0.67	0.480	(0.297)	0.236	0.244
133	11.08	0.63	0.456	(0.296)	0.224	0.232
134	11.17	0.63	0.456	(0.294)	0.224	0.232
135	11.25	0.63	0.456	(0.293)	0.224	0.232
136	11.33	0.63	0.456	(0.291)	0.224	0.232
137	11.42	0.63	0.456	(0.290)	0.224	0.232
138	11.50	0.63	0.456	(0.288)	0.224	0.232
139	11.58	0.57	0.408	(0.287)	0.201	0.207
140	11.67	0.57	0.408	(0.286)	0.201	0.207
141	11.75	0.57	0.408	(0.284)	0.201	0.207
142	11.83	0.60	0.432	(0.283)	0.213	0.219
143	11.92	0.60	0.432	(0.281)	0.213	0.219
144	12.00	0.60	0.432	(0.280)	0.213	0.219
145	12.08	0.83	0.600	0.279	(0.295)	0.321
146	12.17	0.83	0.600	0.277	(0.295)	0.323
147	12.25	0.83	0.600	0.276	(0.295)	0.324
148	12.33	0.87	0.624	0.274	(0.307)	0.350
149	12.42	0.87	0.624	0.273	(0.307)	0.351
150	12.50	0.87	0.624	0.272	(0.307)	0.352
151	12.58	0.93	0.672	0.270	(0.331)	0.402
152	12.67	0.93	0.672	0.269	(0.331)	0.403
153	12.75	0.93	0.672	0.268	(0.331)	0.404
154	12.83	0.97	0.696	0.266	(0.342)	0.430
155	12.92	0.97	0.696	0.265	(0.342)	0.431
156	13.00	0.97	0.696	0.264	(0.342)	0.432
157	13.08	1.13	0.816	0.262	(0.401)	0.554
158	13.17	1.13	0.816	0.261	(0.401)	0.555
159	13.25	1.13	0.816	0.260	(0.401)	0.556
160	13.33	1.13	0.816	0.258	(0.401)	0.558
161	13.42	1.13	0.816	0.257	(0.401)	0.559
162	13.50	1.13	0.816	0.256	(0.401)	0.560
163	13.58	0.77	0.552	0.254	(0.272)	0.298
164	13.67	0.77	0.552	0.253	(0.272)	0.299
165	13.75	0.77	0.552	0.252	(0.272)	0.300
166	13.83	0.77	0.552	0.250	(0.272)	0.302
167	13.92	0.77	0.552	0.249	(0.272)	0.303
168	14.00	0.77	0.552	0.248	(0.272)	0.304
169	14.08	0.90	0.648	0.247	(0.319)	0.401
170	14.17	0.90	0.648	0.245	(0.319)	0.403
171	14.25	0.90	0.648	0.244	(0.319)	0.404

172	14.33	0.87	0.624	0.243	(0.307)	0.381
173	14.42	0.87	0.624	0.242	(0.307)	0.382
174	14.50	0.87	0.624	0.240	(0.307)	0.384
175	14.58	0.87	0.624	0.239	(0.307)	0.385
176	14.67	0.87	0.624	0.238	(0.307)	0.386
177	14.75	0.87	0.624	0.237	(0.307)	0.387
178	14.83	0.83	0.600	0.235	(0.295)	0.365
179	14.92	0.83	0.600	0.234	(0.295)	0.366
180	15.00	0.83	0.600	0.233	(0.295)	0.367
181	15.08	0.80	0.576	0.232	(0.283)	0.344
182	15.17	0.80	0.576	0.231	(0.283)	0.345
183	15.25	0.80	0.576	0.230	(0.283)	0.346
184	15.33	0.77	0.552	0.228	(0.272)	0.324
185	15.42	0.77	0.552	0.227	(0.272)	0.325
186	15.50	0.77	0.552	0.226	(0.272)	0.326
187	15.58	0.63	0.456	(0.225)	0.224	0.232
188	15.67	0.63	0.456	0.224	(0.224)	0.232
189	15.75	0.63	0.456	0.223	(0.224)	0.233
190	15.83	0.63	0.456	0.221	(0.224)	0.235
191	15.92	0.63	0.456	0.220	(0.224)	0.236
192	16.00	0.63	0.456	0.219	(0.224)	0.237
193	16.08	0.13	0.096	(0.218)	0.047	0.049
194	16.17	0.13	0.096	(0.217)	0.047	0.049
195	16.25	0.13	0.096	(0.216)	0.047	0.049
196	16.33	0.13	0.096	(0.215)	0.047	0.049
197	16.42	0.13	0.096	(0.214)	0.047	0.049
198	16.50	0.13	0.096	(0.213)	0.047	0.049
199	16.58	0.10	0.072	(0.211)	0.035	0.037
200	16.67	0.10	0.072	(0.210)	0.035	0.037
201	16.75	0.10	0.072	(0.209)	0.035	0.037
202	16.83	0.10	0.072	(0.208)	0.035	0.037
203	16.92	0.10	0.072	(0.207)	0.035	0.037
204	17.00	0.10	0.072	(0.206)	0.035	0.037
205	17.08	0.17	0.120	(0.205)	0.059	0.061
206	17.17	0.17	0.120	(0.204)	0.059	0.061
207	17.25	0.17	0.120	(0.203)	0.059	0.061
208	17.33	0.17	0.120	(0.202)	0.059	0.061
209	17.42	0.17	0.120	(0.201)	0.059	0.061
210	17.50	0.17	0.120	(0.200)	0.059	0.061
211	17.58	0.17	0.120	(0.199)	0.059	0.061
212	17.67	0.17	0.120	(0.198)	0.059	0.061
213	17.75	0.17	0.120	(0.197)	0.059	0.061
214	17.83	0.13	0.096	(0.196)	0.047	0.049
215	17.92	0.13	0.096	(0.195)	0.047	0.049
216	18.00	0.13	0.096	(0.194)	0.047	0.049
217	18.08	0.13	0.096	(0.193)	0.047	0.049
218	18.17	0.13	0.096	(0.192)	0.047	0.049
219	18.25	0.13	0.096	(0.191)	0.047	0.049
220	18.33	0.13	0.096	(0.190)	0.047	0.049
221	18.42	0.13	0.096	(0.189)	0.047	0.049
222	18.50	0.13	0.096	(0.188)	0.047	0.049
223	18.58	0.10	0.072	(0.188)	0.035	0.037
224	18.67	0.10	0.072	(0.187)	0.035	0.037
225	18.75	0.10	0.072	(0.186)	0.035	0.037
226	18.83	0.07	0.048	(0.185)	0.024	0.024

227	18.92	0.07	0.048	(0.184)	0.024	0.024
228	19.00	0.07	0.048	(0.183)	0.024	0.024
229	19.08	0.10	0.072	(0.182)	0.035	0.037
230	19.17	0.10	0.072	(0.181)	0.035	0.037
231	19.25	0.10	0.072	(0.181)	0.035	0.037
232	19.33	0.13	0.096	(0.180)	0.047	0.049
233	19.42	0.13	0.096	(0.179)	0.047	0.049
234	19.50	0.13	0.096	(0.178)	0.047	0.049
235	19.58	0.10	0.072	(0.177)	0.035	0.037
236	19.67	0.10	0.072	(0.176)	0.035	0.037
237	19.75	0.10	0.072	(0.176)	0.035	0.037
238	19.83	0.07	0.048	(0.175)	0.024	0.024
239	19.92	0.07	0.048	(0.174)	0.024	0.024
240	20.00	0.07	0.048	(0.173)	0.024	0.024
241	20.08	0.10	0.072	(0.173)	0.035	0.037
242	20.17	0.10	0.072	(0.172)	0.035	0.037
243	20.25	0.10	0.072	(0.171)	0.035	0.037
244	20.33	0.10	0.072	(0.170)	0.035	0.037
245	20.42	0.10	0.072	(0.170)	0.035	0.037
246	20.50	0.10	0.072	(0.169)	0.035	0.037
247	20.58	0.10	0.072	(0.168)	0.035	0.037
248	20.67	0.10	0.072	(0.167)	0.035	0.037
249	20.75	0.10	0.072	(0.167)	0.035	0.037
250	20.83	0.07	0.048	(0.166)	0.024	0.024
251	20.92	0.07	0.048	(0.165)	0.024	0.024
252	21.00	0.07	0.048	(0.165)	0.024	0.024
253	21.08	0.10	0.072	(0.164)	0.035	0.037
254	21.17	0.10	0.072	(0.163)	0.035	0.037
255	21.25	0.10	0.072	(0.163)	0.035	0.037
256	21.33	0.07	0.048	(0.162)	0.024	0.024
257	21.42	0.07	0.048	(0.162)	0.024	0.024
258	21.50	0.07	0.048	(0.161)	0.024	0.024
259	21.58	0.10	0.072	(0.160)	0.035	0.037
260	21.67	0.10	0.072	(0.160)	0.035	0.037
261	21.75	0.10	0.072	(0.159)	0.035	0.037
262	21.83	0.07	0.048	(0.159)	0.024	0.024
263	21.92	0.07	0.048	(0.158)	0.024	0.024
264	22.00	0.07	0.048	(0.158)	0.024	0.024
265	22.08	0.10	0.072	(0.157)	0.035	0.037
266	22.17	0.10	0.072	(0.157)	0.035	0.037
267	22.25	0.10	0.072	(0.156)	0.035	0.037
268	22.33	0.07	0.048	(0.156)	0.024	0.024
269	22.42	0.07	0.048	(0.155)	0.024	0.024
270	22.50	0.07	0.048	(0.155)	0.024	0.024
271	22.58	0.07	0.048	(0.154)	0.024	0.024
272	22.67	0.07	0.048	(0.154)	0.024	0.024
273	22.75	0.07	0.048	(0.153)	0.024	0.024
274	22.83	0.07	0.048	(0.153)	0.024	0.024
275	22.92	0.07	0.048	(0.153)	0.024	0.024
276	23.00	0.07	0.048	(0.152)	0.024	0.024
277	23.08	0.07	0.048	(0.152)	0.024	0.024
278	23.17	0.07	0.048	(0.151)	0.024	0.024
279	23.25	0.07	0.048	(0.151)	0.024	0.024
280	23.33	0.07	0.048	(0.151)	0.024	0.024
281	23.42	0.07	0.048	(0.151)	0.024	0.024

282	23.50	0.07	0.048	(0.150)	0.024	0.024
283	23.58	0.07	0.048	(0.150)	0.024	0.024
284	23.67	0.07	0.048	(0.150)	0.024	0.024
285	23.75	0.07	0.048	(0.150)	0.024	0.024
286	23.83	0.07	0.048	(0.149)	0.024	0.024
287	23.92	0.07	0.048	(0.149)	0.024	0.024
288	24.00	0.07	0.048	(0.149)	0.024	0.024

(Loss Rate Not Used)

Sum = 100.0 Sum = 39.2

Flood volume = Effective rainfall 3.27(In)
times area 14.3(Ac.)/[(In)/(Ft.)] = 3.9(Ac.Ft)
Total soil loss = 2.73(In)
Total soil loss = 3.246(Ac.Ft)
Total rainfall = 6.00(In)
Flood volume = 169385.1 Cubic Feet
Total soil loss = 141406.8 Cubic Feet

Peak flow rate of this hydrograph = 8.050(CFS)

+++++

24 - H O U R S T O R M
Run 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	0.0011	0.16	Q				
0+10	0.0032	0.31	VQ				
0+15	0.0055	0.34	VQ				
0+20	0.0085	0.43	VQ				
0+25	0.0119	0.50	V Q				
0+30	0.0155	0.52	V Q				
0+35	0.0191	0.53	V Q				
0+40	0.0228	0.53	V Q				
0+45	0.0264	0.53	V Q				
0+50	0.0306	0.60	V Q				
0+55	0.0352	0.68	V Q				
1+ 0	0.0400	0.69	V Q				
1+ 5	0.0443	0.62	V Q				
1+10	0.0481	0.55	V Q				
1+15	0.0518	0.53	V Q				
1+20	0.0554	0.53	V Q				
1+25	0.0590	0.53	V Q				
1+30	0.0626	0.53	V Q				
1+35	0.0663	0.53	V Q				
1+40	0.0699	0.53	V Q				
1+45	0.0735	0.53	V Q				
1+50	0.0777	0.60	V Q				
1+55	0.0824	0.68	V Q				
2+ 0	0.0871	0.69	V Q				
2+ 5	0.0920	0.70	V Q				
2+10	0.0968	0.70	V Q				
2+15	0.1016	0.70	VQ				

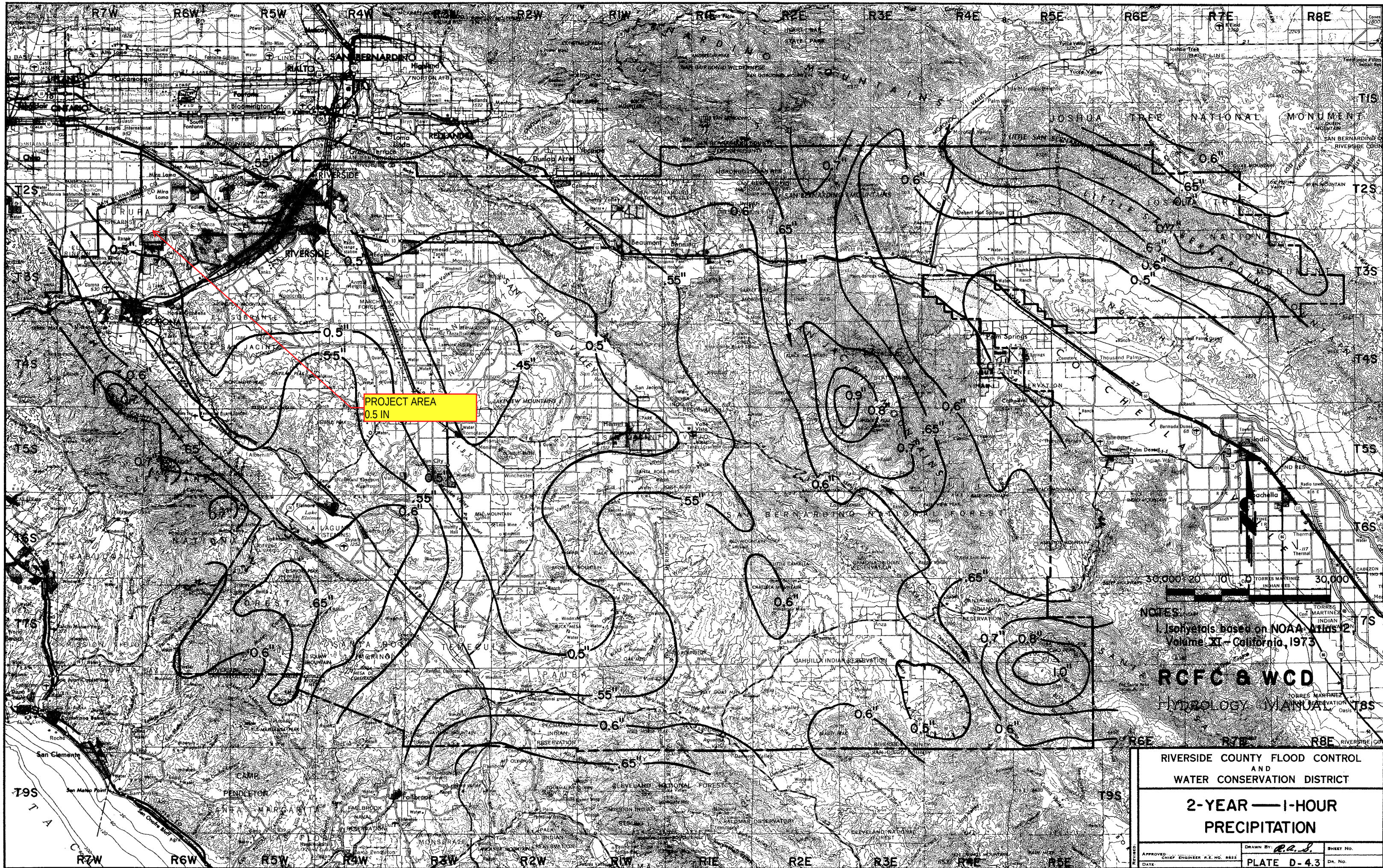
2+20	0.1065	0.70	VQ				
2+25	0.1113	0.70	VQ				
2+30	0.1161	0.70	VQ				
2+35	0.1215	0.78	V Q				
2+40	0.1274	0.86	V Q				
2+45	0.1334	0.87	V Q				
2+50	0.1394	0.88	V Q				
2+55	0.1455	0.88	V Q				
3+ 0	0.1515	0.88	V Q				
3+ 5	0.1576	0.88	V Q				
3+10	0.1636	0.88	V Q				
3+15	0.1696	0.88	V Q				
3+20	0.1757	0.88	V Q				
3+25	0.1817	0.88	V Q				
3+30	0.1878	0.88	V Q				
3+35	0.1938	0.88	V Q				
3+40	0.1998	0.88	VQ				
3+45	0.2059	0.88	VQ				
3+50	0.2125	0.96	VQ				
3+55	0.2196	1.03	V Q				
4+ 0	0.2268	1.05	V Q				
4+ 5	0.2340	1.05	V Q				
4+10	0.2413	1.05	V Q				
4+15	0.2485	1.05	V Q				
4+20	0.2563	1.13	V Q				
4+25	0.2646	1.21	V Q				
4+30	0.2730	1.22	V Q				
4+35	0.2815	1.23	V Q				
4+40	0.2899	1.23	V Q				
4+45	0.2984	1.23	VQ				
4+50	0.3074	1.31	V Q				
4+55	0.3169	1.38	V Q				
5+ 0	0.3265	1.40	V Q				
5+ 5	0.3351	1.25	VQ				
5+10	0.3426	1.10	VQ				
5+15	0.3500	1.07	VQ				
5+20	0.3578	1.13	VQ				
5+25	0.3661	1.21	VQ				
5+30	0.3745	1.22	VQ				
5+35	0.3835	1.31	V Q				
5+40	0.3930	1.38	VQ				
5+45	0.4026	1.40	VQ				
5+50	0.4123	1.40	VQ				
5+55	0.4220	1.40	VQ				
6+ 0	0.4316	1.40	VQ				
6+ 5	0.4418	1.48	VQ				
6+10	0.4525	1.56	V Q				
6+15	0.4634	1.57	V Q				
6+20	0.4742	1.58	V Q				
6+25	0.4851	1.58	V Q				
6+30	0.4960	1.58	VQ				
6+35	0.5074	1.66	VQ				
6+40	0.5193	1.73	VQ				
6+45	0.5314	1.75	VQ				
6+50	0.5435	1.75	V Q				

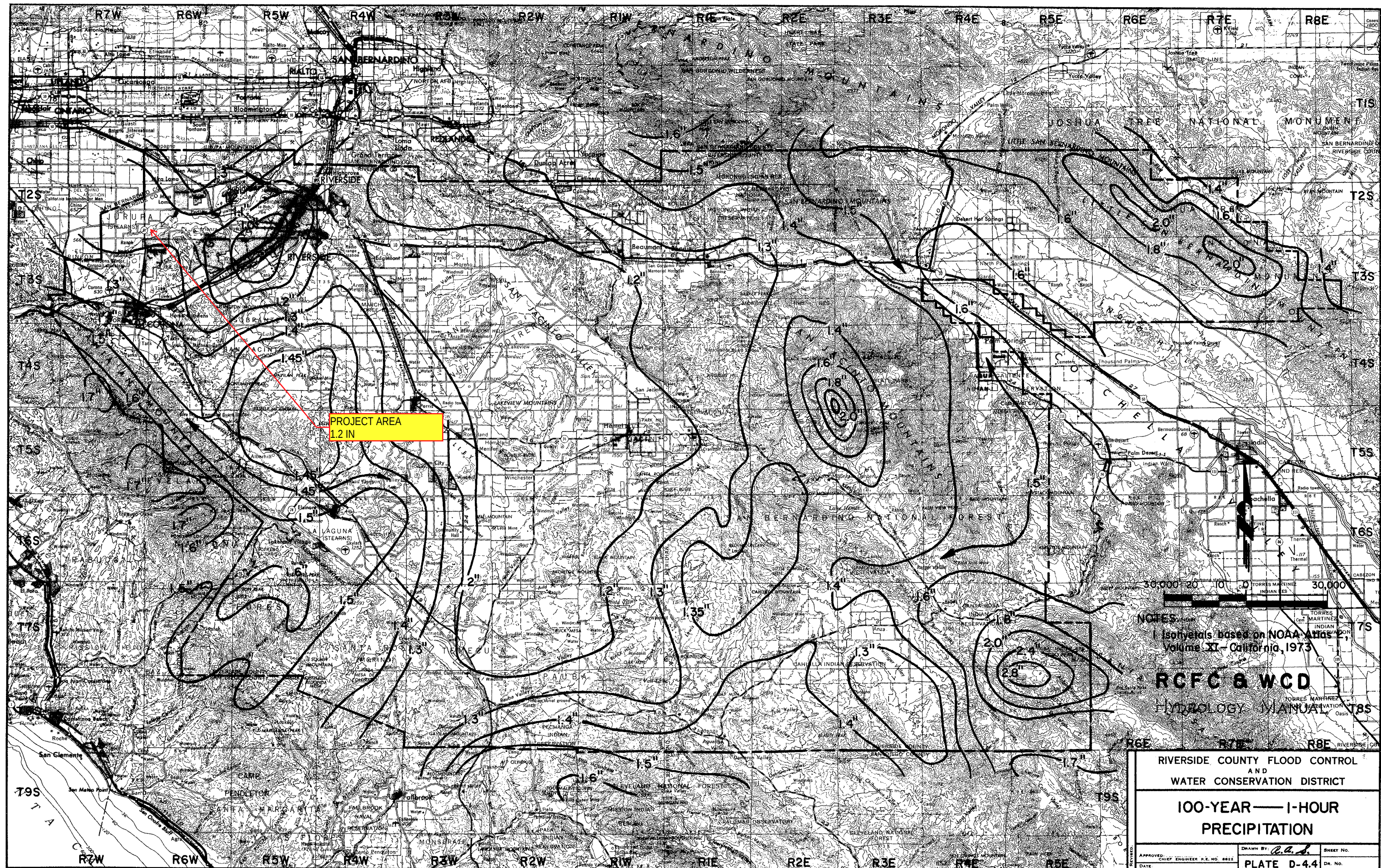
6+55	0.5555	1.75	V Q				
7+ 0	0.5676	1.75	V Q				
7+ 5	0.5797	1.75	V Q				
7+10	0.5918	1.75	VQ				
7+15	0.6039	1.75	VQ				
7+20	0.6165	1.83	VQ				
7+25	0.6296	1.91	VQ				
7+30	0.6429	1.92	VQ				
7+35	0.6567	2.01	V Q				
7+40	0.6710	2.08	V Q				
7+45	0.6855	2.10	VQ				
7+50	0.7005	2.18	VQ				
7+55	0.7161	2.26	V Q				
8+ 0	0.7317	2.27	V Q				
8+ 5	0.7485	2.44	V Q				
8+10	0.7663	2.59	V Q				
8+15	0.7844	2.62	V Q				
8+20	0.8025	2.63	V Q				
8+25	0.8206	2.63	V Q				
8+30	0.8387	2.63	V Q				
8+35	0.8574	2.71	V Q				
8+40	0.8766	2.78	V Q				
8+45	0.8959	2.80	V Q				
8+50	0.9157	2.89	V Q				
8+55	0.9361	2.96	V Q				
9+ 0	0.9566	2.98	V Q				
9+ 5	0.9782	3.14	V Q				
9+10	1.0009	3.29	V Q				
9+15	1.0237	3.32	V Q				
9+20	1.0472	3.41	V Q				
9+25	1.0712	3.49	V Q				
9+30	1.0954	3.50	V Q				
9+35	1.1201	3.59	V Q				
9+40	1.1453	3.66	V Q				
9+45	1.1706	3.68	V Q				
9+50	1.1965	3.76	V Q				
9+55	1.2229	3.84	V Q				
10+ 0	1.2495	3.85	V Q				
10+ 5	1.2723	3.31	Q				
10+10	1.2915	2.78	Q V				
10+15	1.3099	2.68	Q V				
10+20	1.3280	2.63	Q V				
10+25	1.3462	2.63	Q V				
10+30	1.3643	2.63	Q V				
10+35	1.3851	3.02	Q V				
10+40	1.4085	3.40	QV				
10+45	1.4324	3.47	QV				
10+50	1.4566	3.51	Q				
10+55	1.4808	3.51	QV				
11+ 0	1.5049	3.51	QV				
11+ 5	1.5286	3.43	Q V				
11+10	1.5517	3.35	Q V				
11+15	1.5747	3.34	Q V				
11+20	1.5976	3.33	Q V				
11+25	1.6206	3.33	Q V				

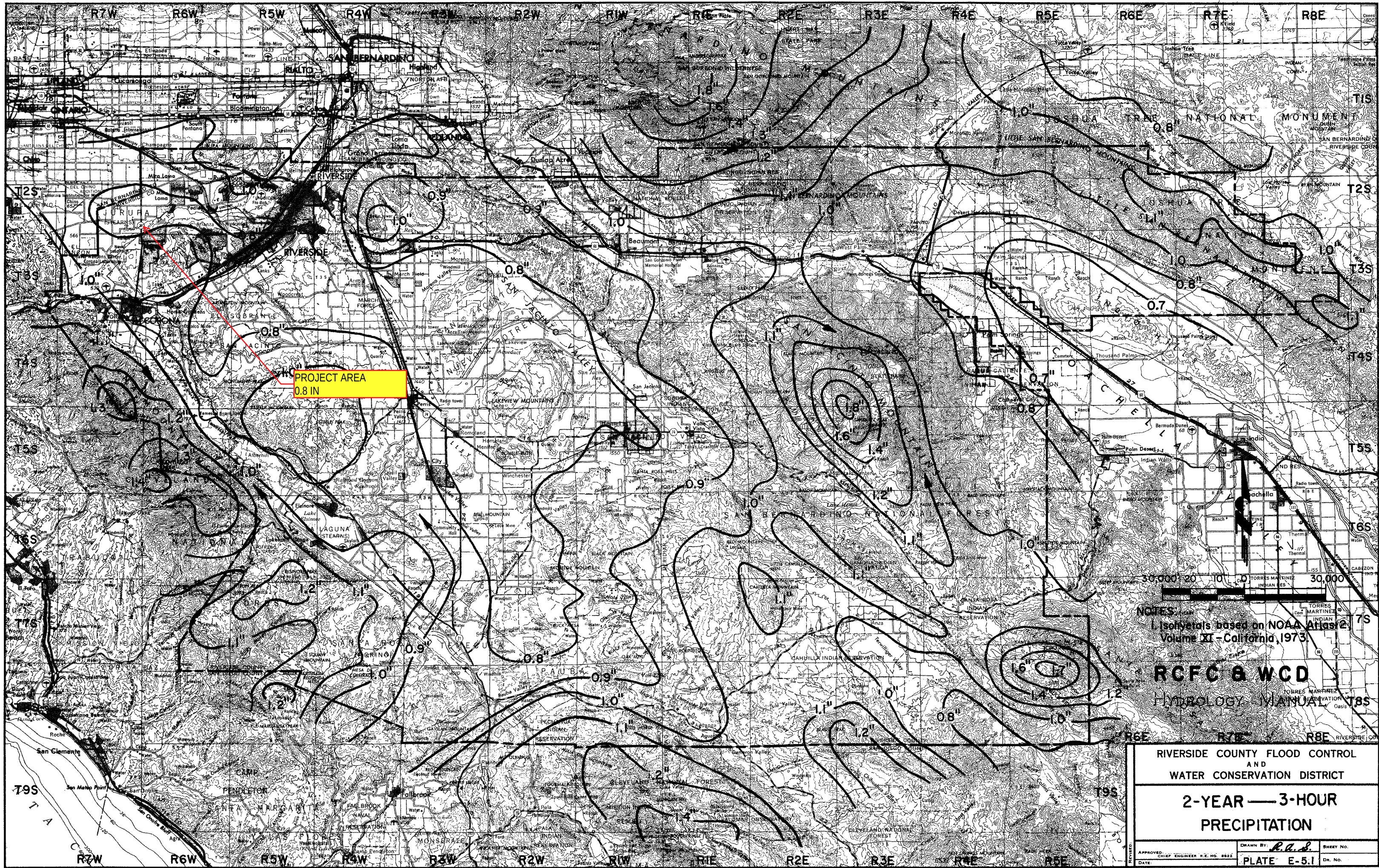
11+30	1.6435	3.33		Q	V				
11+35	1.6654	3.18		Q	V				
11+40	1.6862	3.03		Q	V				
11+45	1.7069	3.00		Q	V				
11+50	1.7280	3.06		Q	V				
11+55	1.7496	3.14		Q	V				
12+ 0	1.7712	3.15		Q	V				
12+ 5	1.7975	3.81			Q	V			
12+10	1.8282	4.45				QV			
12+15	1.8598	4.59					QV		
12+20	1.8930	4.82					Q		
12+25	1.9274	4.99					Q		
12+30	1.9621	5.04					Q		
12+35	1.9992	5.38					VQ		
12+40	2.0385	5.70					V	Q	
12+45	2.0782	5.78					V	Q	
12+50	2.1194	5.98					V	Q	
12+55	2.1618	6.15					V	Q	
13+ 0	2.2044	6.19					V	Q	
13+ 5	2.2526	7.00					V		Q
13+10	2.3061	7.76					V		Q
13+15	2.3606	7.92					V		Q
13+20	2.4158	8.01					V		Q
13+25	2.4711	8.03					V		Q
13+30	2.5266	8.05					V		Q
13+35	2.5704	6.37					QV		
13+40	2.6032	4.76				Q	V		
13+45	2.6339	4.46			Q		V		
13+50	2.6637	4.33			Q		V		
13+55	2.6937	4.34			Q		V		
14+ 0	2.7237	4.36			Q		V		
14+ 5	2.7581	5.00				Q	V		
14+10	2.7967	5.61					Q	V	
14+15	2.8363	5.74					Q	V	
14+20	2.8753	5.66					Q	V	
14+25	2.9134	5.53					Q	V	
14+30	2.9514	5.52					Q	V	
14+35	2.9895	5.52					Q	V	
14+40	3.0276	5.54					Q	V	
14+45	3.0659	5.56					Q	V	
14+50	3.1033	5.42					Q	V	
14+55	3.1397	5.29					Q	V	
15+ 0	3.1761	5.28					Q	V	
15+ 5	3.2114	5.13					Q	V	
15+10	3.2459	5.00					Q	V	
15+15	3.2802	4.99					Q	V	
15+20	3.3135	4.84					Q	V	
15+25	3.3459	4.70					Q	V	
15+30	3.3782	4.69					Q	V	
15+35	3.4063	4.08				Q		V	
15+40	3.4305	3.51				Q		V	
15+45	3.4539	3.40			Q			V	
15+50	3.4771	3.36			Q			V	
15+55	3.5004	3.38			Q			V	
16+ 0	3.5238	3.40			Q			V	

16+ 5	3.5389	2.20		Q				V	
16+10	3.5460	1.04		Q				V	
16+15	3.5516	0.81		Q				V	
16+20	3.5565	0.70		Q				V	
16+25	3.5613	0.70		Q				V	
16+30	3.5661	0.70		Q				V	
16+35	3.5704	0.62		Q				V	
16+40	3.5742	0.55		Q				V	
16+45	3.5779	0.53		Q				V	
16+50	3.5815	0.53		Q				V	
16+55	3.5851	0.53		Q				V	
17+ 0	3.5887	0.53		Q				V	
17+ 5	3.5934	0.68		Q				V	
17+10	3.5992	0.83		Q				V	
17+15	3.6051	0.86		Q				V	
17+20	3.6112	0.88		Q				V	
17+25	3.6172	0.88		Q				V	
17+30	3.6232	0.88		Q				V	
17+35	3.6293	0.88		Q				V	
17+40	3.6353	0.88		Q				V	
17+45	3.6414	0.88		Q				V	
17+50	3.6469	0.80		Q				V	
17+55	3.6519	0.72		Q				V	
18+ 0	3.6567	0.71		Q				V	
18+ 5	3.6616	0.70		Q				V	
18+10	3.6664	0.70		Q				V	
18+15	3.6712	0.70		Q				V	
18+20	3.6761	0.70		Q				V	
18+25	3.6809	0.70		Q				V	
18+30	3.6857	0.70		Q				V	
18+35	3.6900	0.62		Q				V	
18+40	3.6938	0.55		Q				V	
18+45	3.6975	0.53		Q				V	
18+50	3.7006	0.45		Q				V	
18+55	3.7031	0.37		Q				V	
19+ 0	3.7056	0.36		Q				V	
19+ 5	3.7085	0.43		Q				V	
19+10	3.7120	0.50		Q				V	
19+15	3.7156	0.52		Q				V	
19+20	3.7198	0.60		Q				V	
19+25	3.7244	0.68		Q				V	
19+30	3.7292	0.69		Q				V	
19+35	3.7335	0.62		Q				V	
19+40	3.7373	0.55		Q				V	
19+45	3.7410	0.53		Q				V	
19+50	3.7441	0.45		Q				V	
19+55	3.7466	0.37		Q				V	
20+ 0	3.7491	0.36		Q				V	
20+ 5	3.7520	0.43		Q				V	
20+10	3.7555	0.50		Q				V	
20+15	3.7591	0.52		Q				V	
20+20	3.7627	0.53		Q				V	
20+25	3.7663	0.53		Q				V	
20+30	3.7700	0.53		Q				V	
20+35	3.7736	0.53		Q				V	

20+40	3.7772	0.53	Q				V	
20+45	3.7808	0.53	Q				V	
20+50	3.7839	0.45	Q				V	
20+55	3.7865	0.37	Q				V	
21+ 0	3.7890	0.36	Q				V	
21+ 5	3.7919	0.43	Q				V	
21+10	3.7954	0.50	Q				V	
21+15	3.7990	0.52	Q				V	
21+20	3.8020	0.45	Q				V	
21+25	3.8046	0.37	Q				V	
21+30	3.8071	0.36	Q				V	
21+35	3.8100	0.43	Q				V	
21+40	3.8135	0.50	Q				V	
21+45	3.8171	0.52	Q				V	
21+50	3.8202	0.45	Q				V	
21+55	3.8227	0.37	Q				V	
22+ 0	3.8252	0.36	Q				V	
22+ 5	3.8282	0.43	Q				V	
22+10	3.8316	0.50	Q				V	
22+15	3.8352	0.52	Q				V	
22+20	3.8383	0.45	Q				V	
22+25	3.8409	0.37	Q				V	
22+30	3.8433	0.36	Q				V	
22+35	3.8457	0.35	Q				V	
22+40	3.8482	0.35	Q				V	
22+45	3.8506	0.35	Q				V	
22+50	3.8530	0.35	Q				V	
22+55	3.8554	0.35	Q				V	
23+ 0	3.8578	0.35	Q				V	
23+ 5	3.8602	0.35	Q				V	
23+10	3.8626	0.35	Q				V	
23+15	3.8651	0.35	Q				V	
23+20	3.8675	0.35	Q				V	
23+25	3.8699	0.35	Q				V	
23+30	3.8723	0.35	Q				V	
23+35	3.8747	0.35	Q				V	
23+40	3.8771	0.35	Q				V	
23+45	3.8796	0.35	Q				V	
23+50	3.8820	0.35	Q				V	
23+55	3.8844	0.35	Q				V	
24+ 0	3.8868	0.35	Q				V	
24+ 5	3.8881	0.19	Q				V	
24+10	3.8885	0.04	Q				V	
24+15	3.8885	0.01	Q				V	







PROJECT AREA
0.8 IN

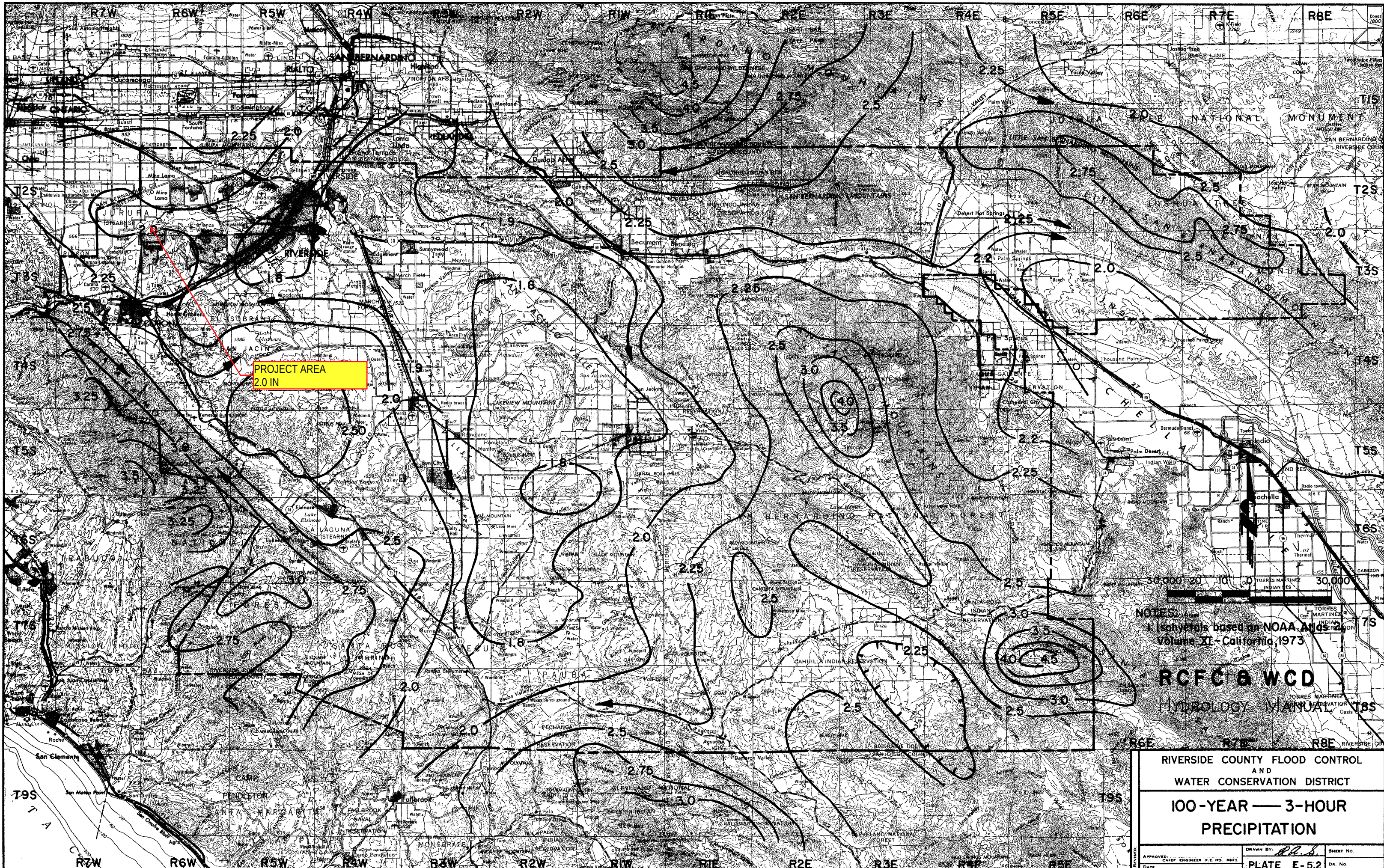
NOTES:
1. Isohyets based on NOAA Atlas 2,
Volume XI - California, 1973.

RCFC & WCD
HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

**2-YEAR — 3-HOUR
PRECIPITATION**

APPROVED: CHIEF ENGINEER R.E. NO. 8822	DRAWN BY: <i>R.A.B.</i>	SHEET NO.
DATE:	PLATE E-5.1	DR. NO.

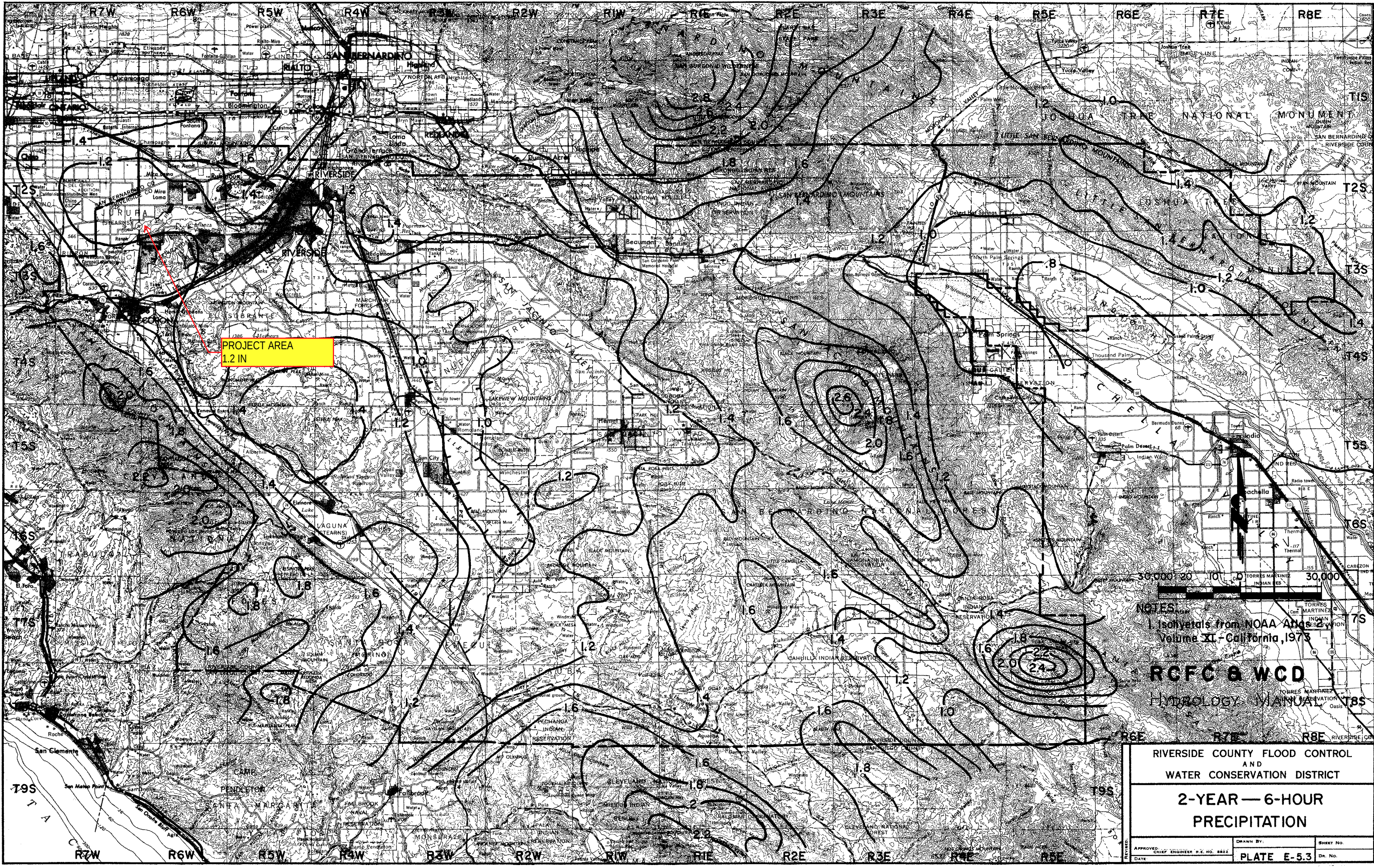


PROJECT AREA
2.0 IN

NOTES:
1 Isohyals based on NOAA Atlas 2
Volume XI - California, 1973

RCFC & WCD
HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT		
100-YEAR — 3-HOUR PRECIPITATION		
APPROVED: CHIEF ENGINEER R.E. NO. 8822	DRAWN BY: <i>RLB</i>	SHEET NO.
DATE	PLATE E-5.2	DR. NO.

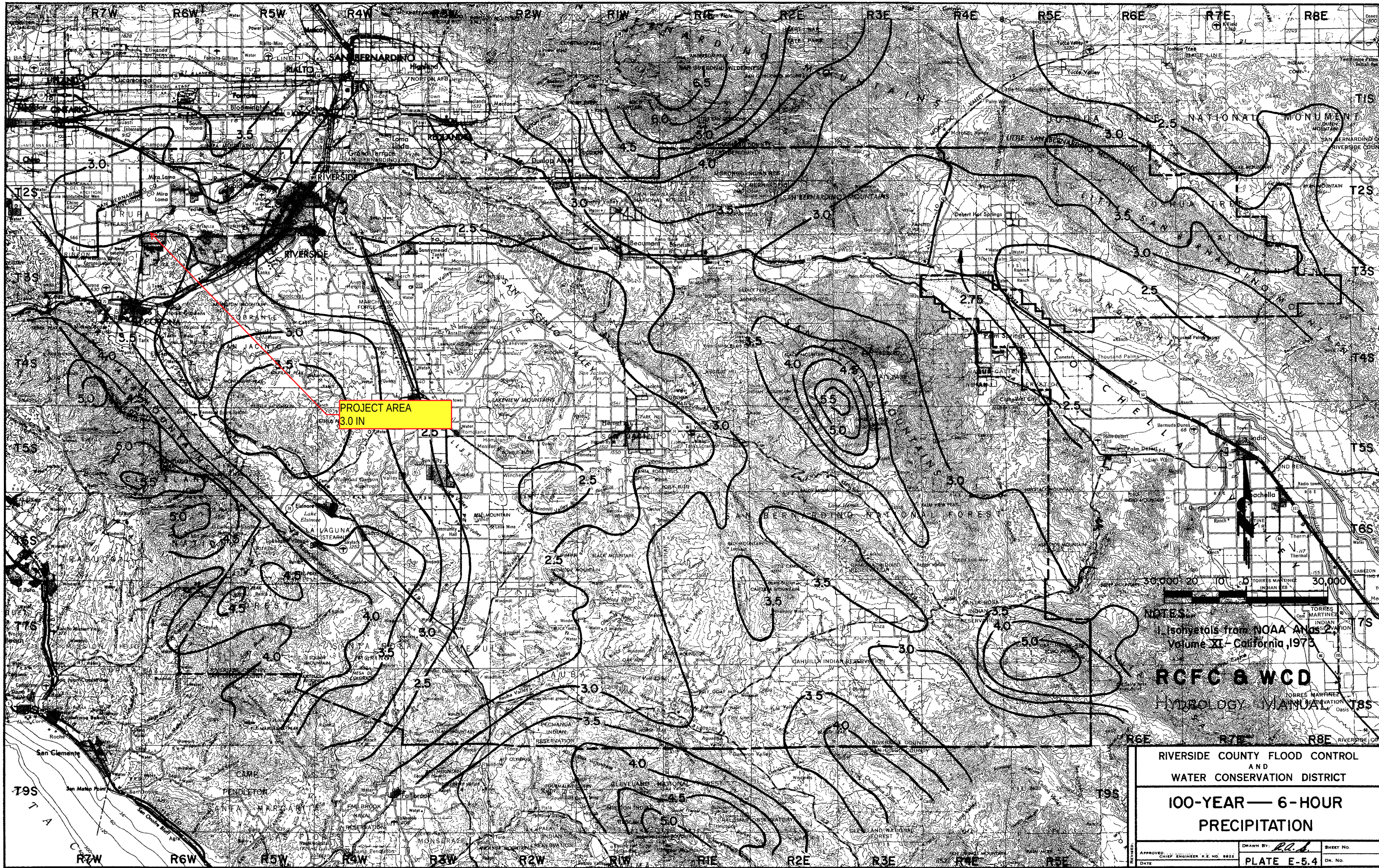


PROJECT AREA
1.2 IN

NOTES:
Isobets from NOAA Atlas
Volume XI - California, 1973

RCFC & WCD
HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT		
2-YEAR — 6-HOUR PRECIPITATION		
APPROVED: CHIEF ENGINEER, R.E. NO. 8822	DRAWN BY:	SHEET NO.
DATE:	PLATE E-5.3	DR. NO.



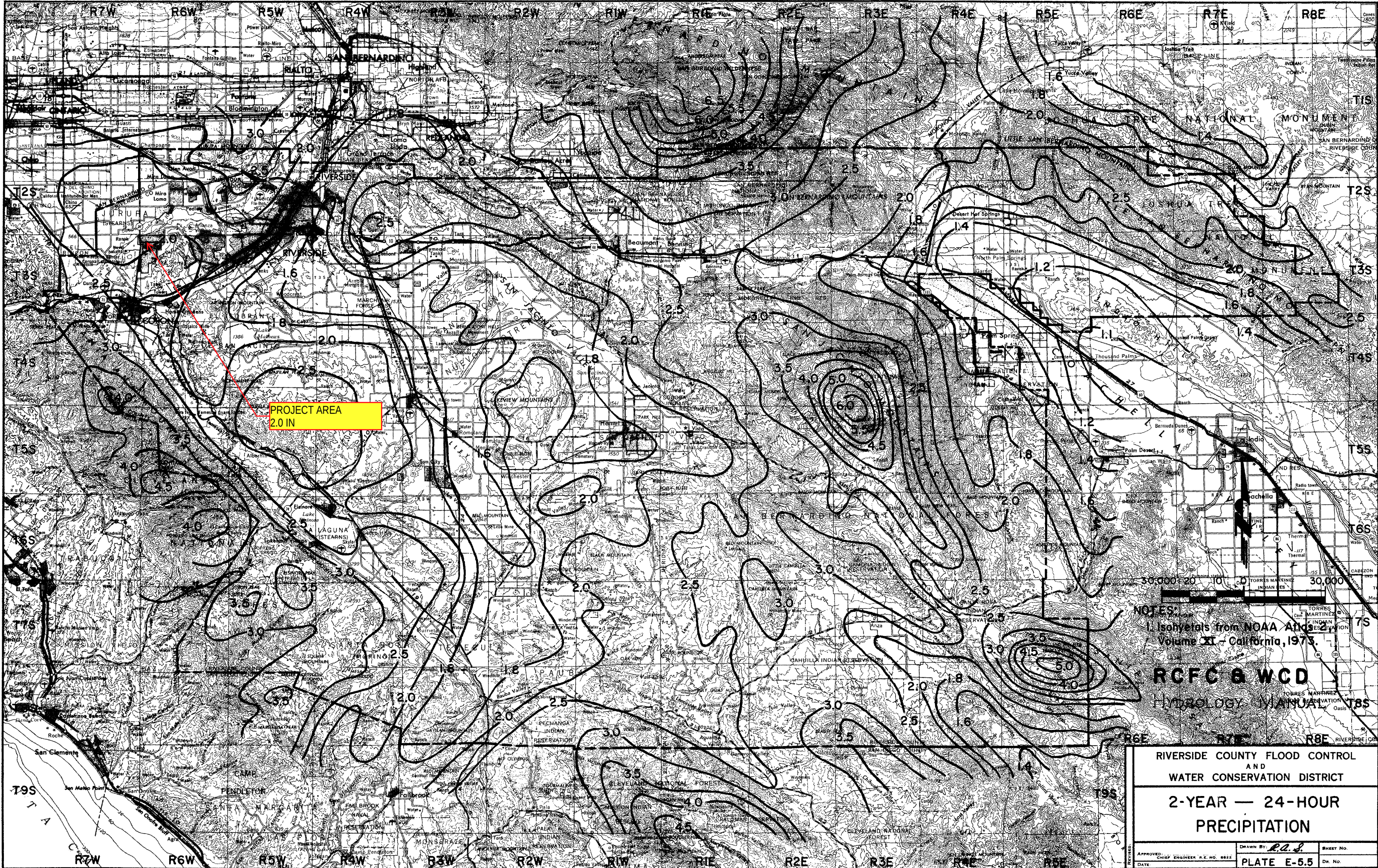
PROJECT AREA
3.0 IN

NOTES:
1. Isohyets from NOAA Atlas 2,
Volume XI - California, 1973

RCFC & WCD
Hydrology Manual

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
**100-YEAR — 6-HOUR
PRECIPITATION**

APPROVED	CHIEF ENGINEER R.E. NO. 8822	DRAWN BY <i>P.A.</i>	SHEET NO.
DATE		PLATE E-5.4	DR. NO.

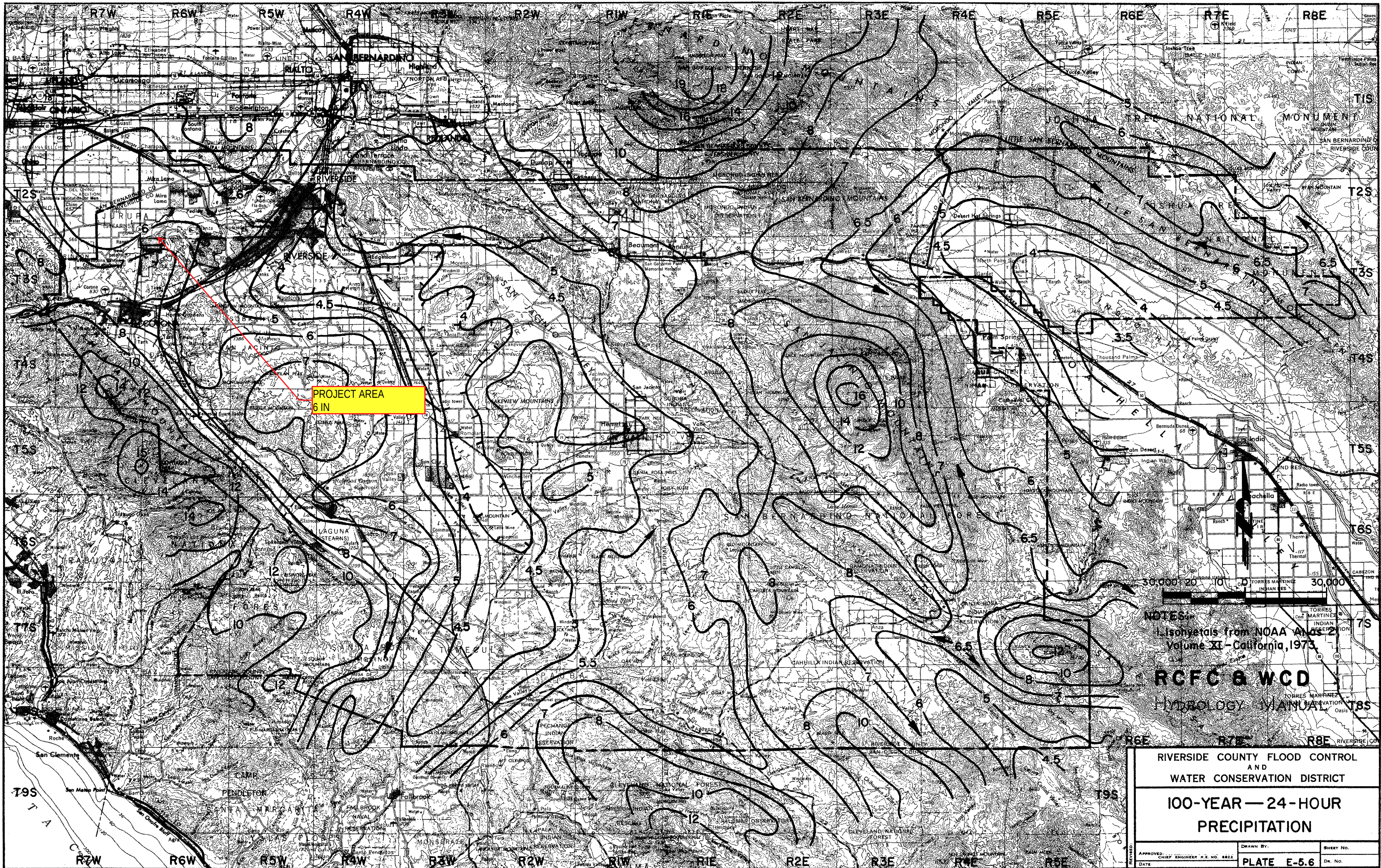


PROJECT AREA
2.0 IN

NOTES:
1. Isohyets from NOAA Atlas 2
Volume XI - California, 1973.

RCFC & WCD
HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT		
2-YEAR — 24-HOUR PRECIPITATION		
APPROVED: CHIEF ENGINEER R.E. NO. 8822	DRAWN BY: <i>L.A.J.</i>	SHEET NO.
DATE	PLATE E-5.5	DR. NO.



NOTES:
 1. Isohyets from NOAA Atlas 2,
 Volume XI - California, 1973.

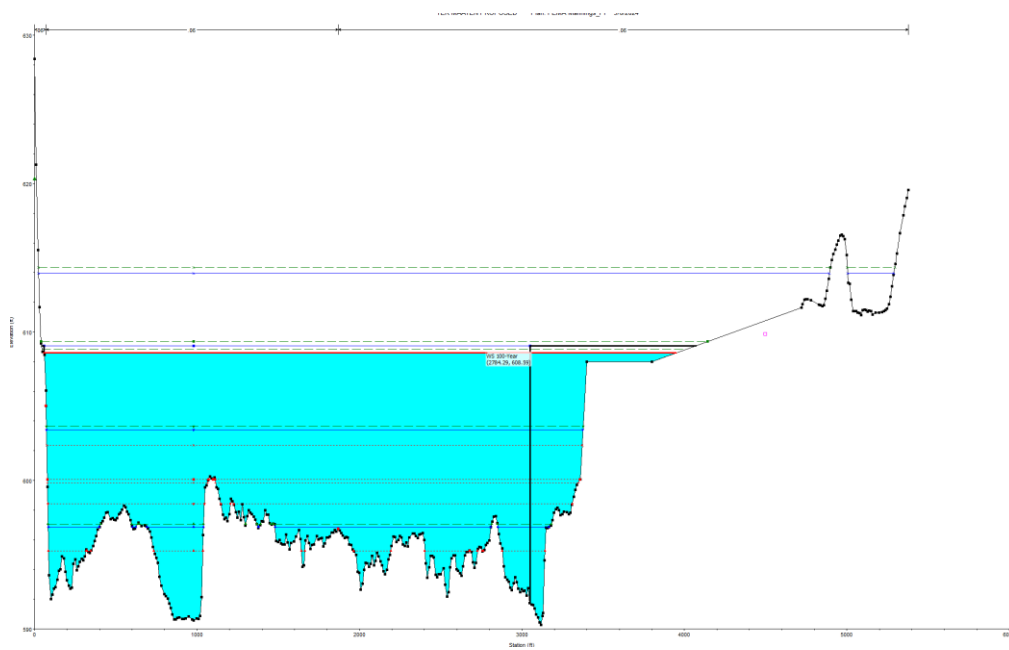
RCFC & WCD
 HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT		
100-YEAR — 24-HOUR PRECIPITATION		
APPROVED: CHIEF ENGINEER P.E. NO. 8822	DRAWN BY:	SHEET NO.
DATE	PLATE E-5.6	DR. NO.

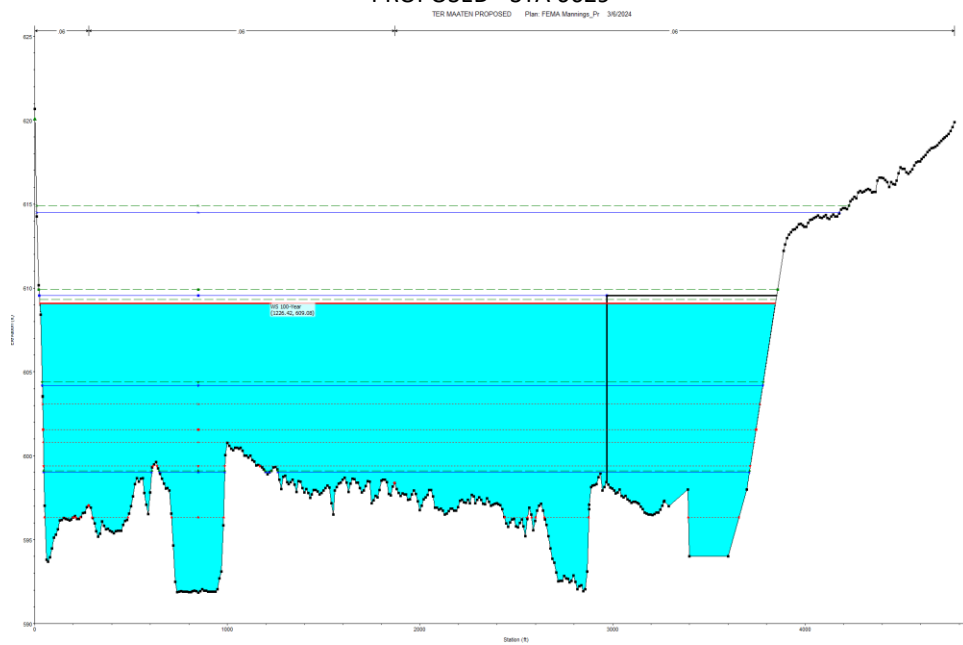
HEC-RES ANALYSIS



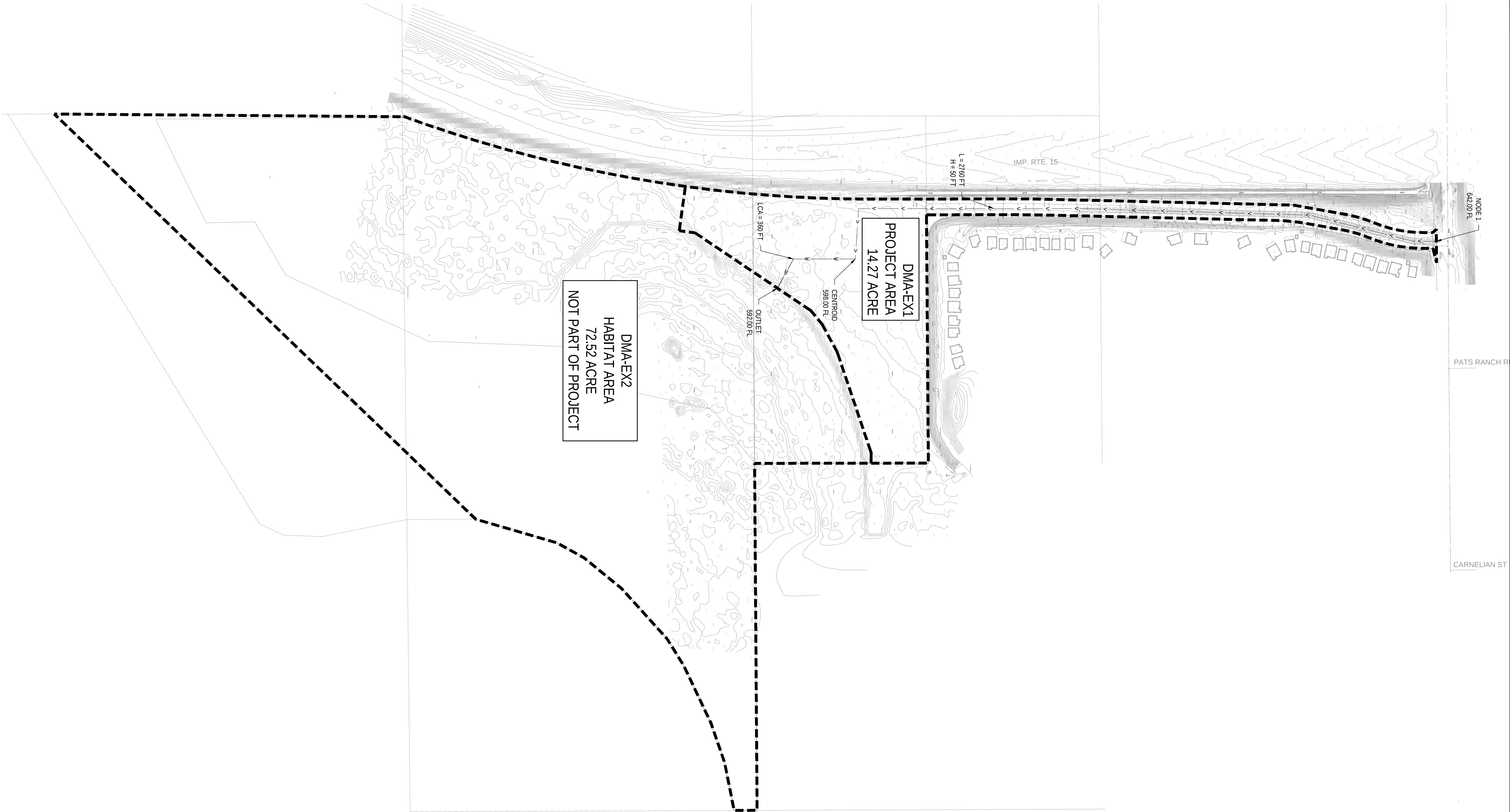
PROPOSED STA 6129



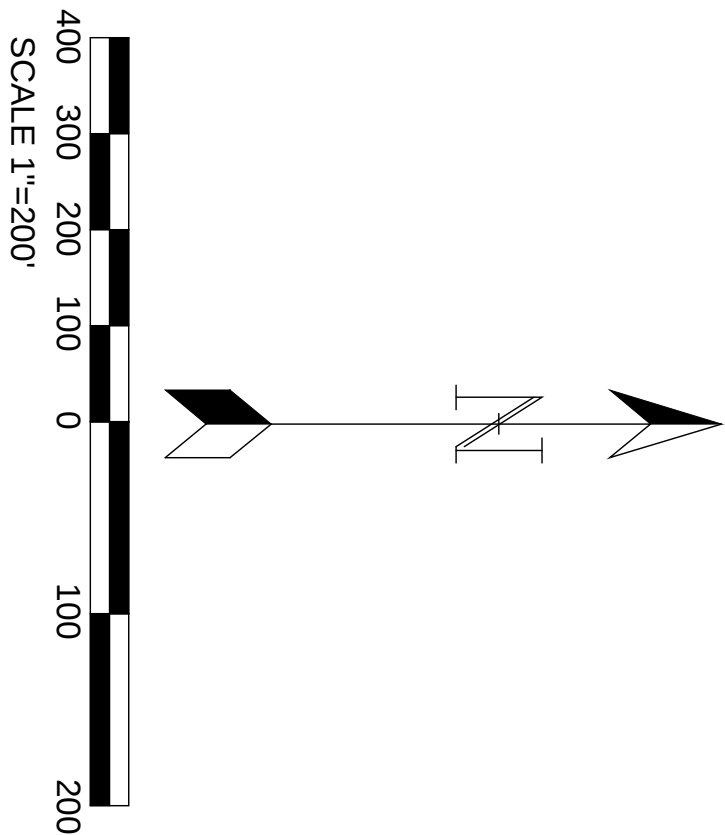
PROPOSED - STA 6629



HYDROLOGY MAPS



PRE-DEVELOPMENT HYDROLOGY MAP
SCALE: 1" = 200'



NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.
Underground Service Alert
Call: TOLL FREE 1-800-227-2600
TWO WORKING DAYS BEFORE YOU DIG



8930 LIMONITE AVE
JURUPA VALLEY, CA 92509
TEL: (951) 332-6464
EMAIL: ENGINEERING@JURUPAVALLEY.ORG

IMPORTANT NOTE:
THE GRADING AND/OR IMPROVEMENT PLANS ARE APPROVED FOR A PERIOD OF TWO (2) YEARS FROM THE DATE SIGNED BY THE CITY ENGINEER. AFTER THE TWO (2) YEAR PERIOD HAS LAPSED, THE ENGINEER OF RECORD MAY BE REQUIRED TO SUBMIT AND PROCESS FOR CITY ENGINEER APPROVAL, UPDATED PLANS THAT COMPLY WITH THE MOST CURRENT CITY STANDARDS, PRACTICES, AND POLICIES.

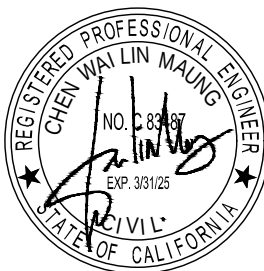
MARK	DATE	INITIAL	DESCRIPTION	REC.	APPR	DATE
		E.O.R.	REVISION			

BENCHMARK:
N.G.S. BM. NO. DX5476

PEDELEY, AT THE SOUTHWEST COUTHWEST CORNER OF VAN BUREN BL. AND LIMONITE AVE 233 FEET (71.0 M) WEST OF VAN BUREN BL. AND 68 FEET (20.7 M) SOUTH OF LIMONITE AVE AT ENTRANCE TO SHOPPING CENTER 2 FEET (0.6 M) EAST OF VONS SIGN IS 20 FEET (6.1 M) TALL A STANDARD RIV. CO SUR ALUMINUM DISK SET IN TOP OF CONCRETE POST.

ELEVATION: 718.88 (NAVD 1988)

BASIS OF BEARING:
CENTERLINE OF 68TH STREET N 89°34'04"E
AS PER TRACT MAP NO. 36391, M.B. 44990-115



PLANS PREPARED BY:



W.H. ENGINEERING GROUP
NORTH-CA:1590 OAKLAND RD., SUITE 112, SAN JOSE, CA 95131
SOUTH-CA: 548 WALD, IRVINE, CA 92618
INFO@WHENGINEERINGGROUP.COM
PHONE: 949-229-3357

WAI LIN MAUNG CHEN
R.C.E. CK0487 EXP. 3/31/2025

FOR:

W.O

CITY I.D. NO.

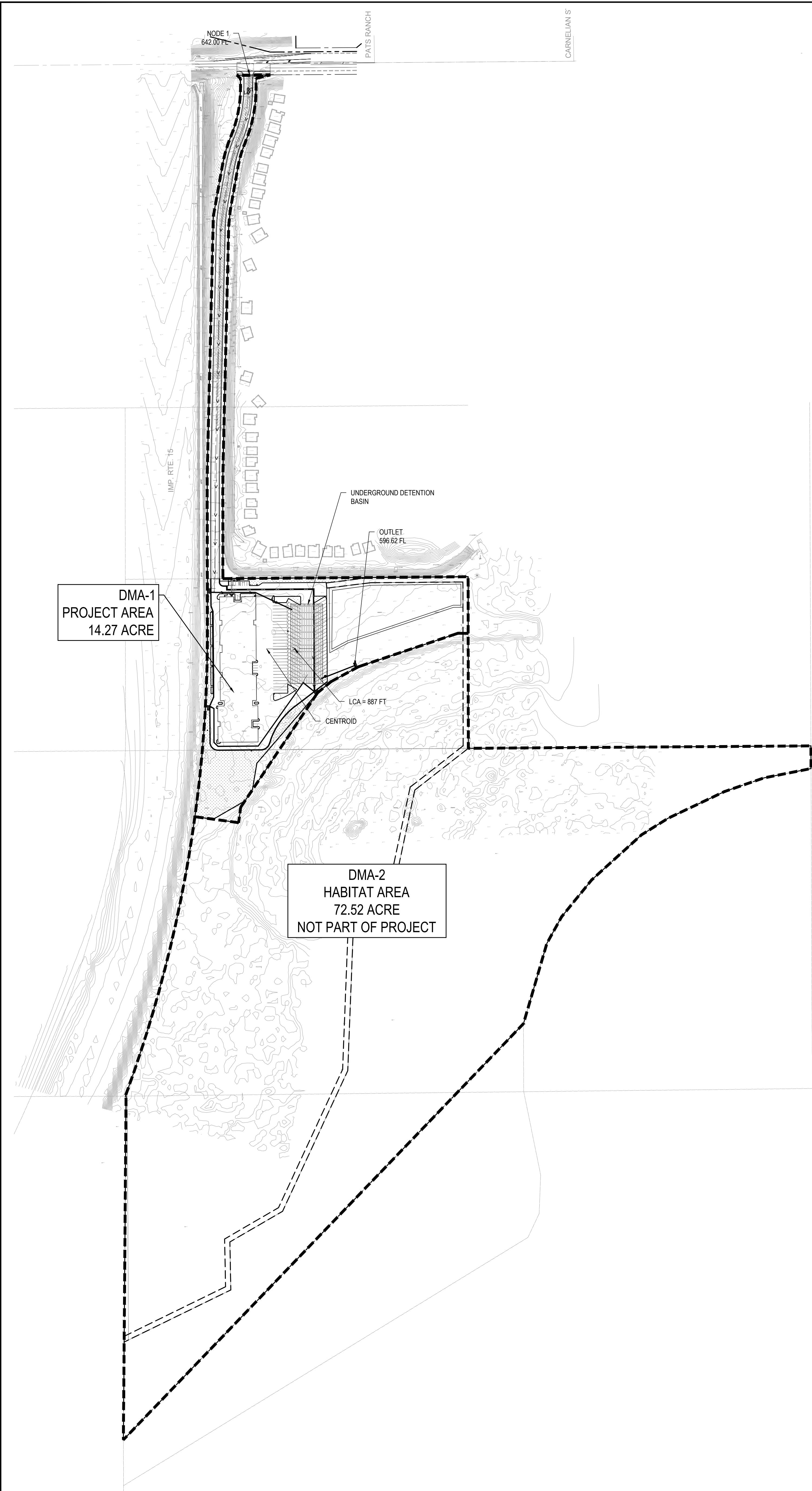
CITY OF JURUPA VALLEY

R.V. SELF-STORAGE FACILITY

VACANT LOTS (AT 68TH STREET AND I-15)
JURUPA VALEY, CA

ACCT. NO. 23G001

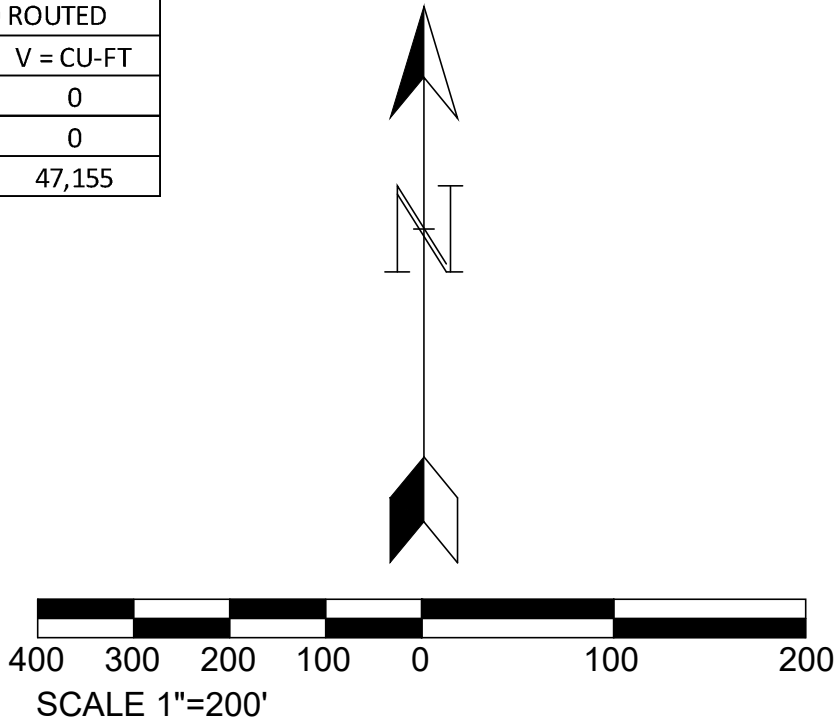
SHEET ____ OF ____



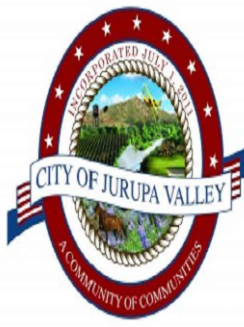
POST DEVELOPMENT HYDROLOGY MAP
SCALE: 1" = 200'

UNIT HYDROGRAPH RESULT SUMMARY	
	Flow Volume
100-YEAR	cu-ft
1-HR	46,694
3-HR	58,363
6-HR	72,267
24-HR	110,625

UNIT HYDROGRAPH RESULT SUMMARY					
DMA	EXISTING		PROPOSED		PROPOSED ROUTED
	Q = CFS	V = CU-FT	Q = CFS	V = CU-FT	
10-YR 3HR	2,249	10,585	11,071	30,603	1,912
10-YR 24HR	0.618	18,884	3.624	92,909	1,912
100-YR 24HR	3.148	48,014	8.050	169,385	1,912



NO WORK SHALL BE DONE ON THIS PROJECT WITHOUT THE OBTAINING OF A PERMIT TO GRADE OR EXCAVATE. Underground Service Alert. Call: TOLL FREE 1-800-227-2600



CITY OF JURUPA VALLEY
JURUPA VALLEY, CA 91799
TEL: (951) 332-5444
FAX: (951) 332-5444
EMAIL: ENGINEERING@JURUPAVALLEY.ORG

IMPORTANT NOTE:
THE GRADING AND/OR IMPROVEMENT PLANS ARE APPROVED FOR A PERIOD OF TWO (2) YEARS FROM THE DATE SIGNED BY THE CITY ENGINEER. AFTER THE TWO (2) YEAR PERIOD HAS LAPSED, THE ENGINEER OF RECORD MAY BE REQUIRED TO SUBMIT AND RECORD FOR CITY ENGINEER APPROVAL. THIS PROJECT IS SUBJECT TO THE MOST CURRENT CITY STANDARDS, PRACTICES, AND POLICIES.

MARK	DATE	INITIAL	DESCRIPTION	REVISION

REVISION

PLANS PREPARED BY:

W.H. ENGINEERING GROUP
NORTH-CA 1590 OAKLAND RD., SUITE 112, SAN JOSE, CA 95131
SOUTH-CA: 548 WALD, IRVINE, CA 92618
INFO@WHENGINEERINGGROUP.COM
PHONE: 949-229-5357

WALIN MAUNG CHEN
SCALE GRAPH: 1"=200'

DATE: 3/6/2024

CITY OF JURUPA VALLEY

R.V. SELF-STORAGE FACILITY
VACANT LOTS (AT 68TH STREET AND I-15)
JURUPA VALEY, CA

ACCT. NO. 23G001

SHEET ____ OF ____

FOR: _____ W/O: _____ CITY I.D. NO. _____