

MEXIN WINERY

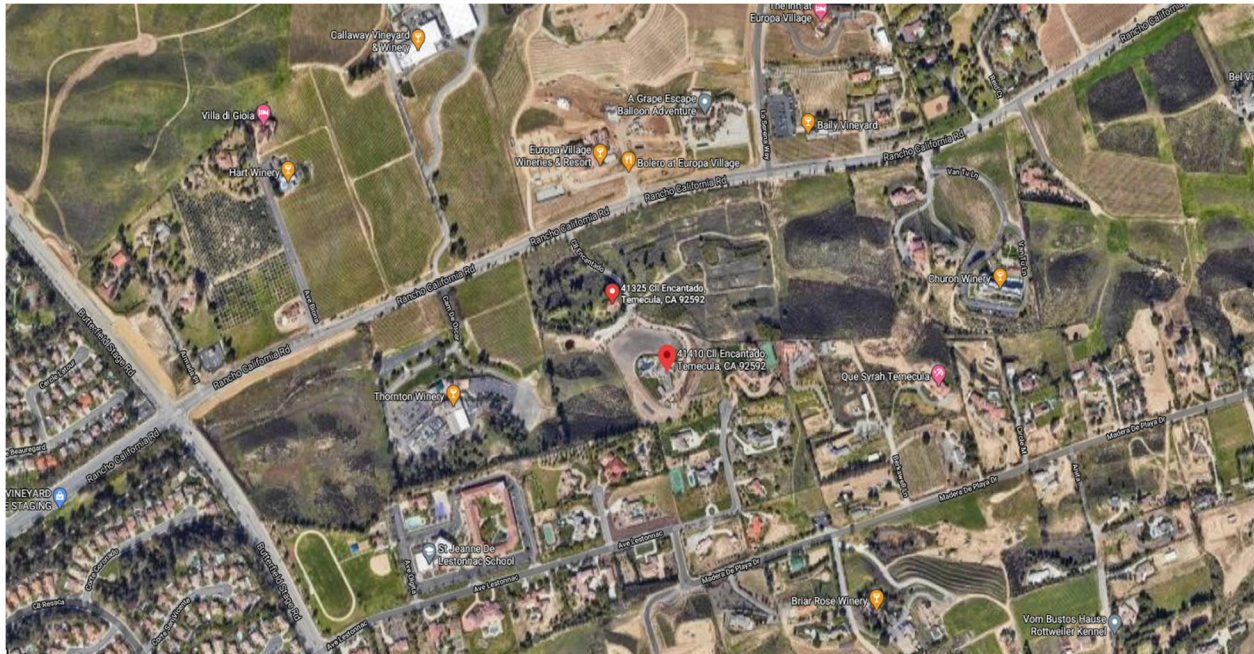
New Development - Vineyard

41325 Calle Encantado

Temecula, CA

APNs : 951-020-001, 951-020-002, 951-060-001, 951-060-002

Hydrology Study



February 2021

Revised:

Revised:

This report has been prepared under the direction of the following Registered Civil Engineer. The undersigned attests to the technical information contained herein and the qualifications of any technical specialist providing engineering data upon which recommendations, conclusions, and decisions are based:

Registered Civil Engineer

Submitted by
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APPENDIX

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1.0 INTRODUCTION

Mexin Teme Agriculture Development, Inc proposes to develop 3.77 acres (164,027 square feet) of existing vacant land located in the City of Temecula, CA. This development is located near the intersection of Rancho California and Calle Encantado in the unincorporated portion of the County Riverside. The site location is bounded by Calle Encantado Street on the west, Rancho California Road on the north, commercial on the north and vacant land on the south. The project proposes the construction of a building and underground chambers for water quality treatment. Other improvements will include parking lot, landscape, and curbs.

2.0 PURPOSE

The purpose of the study is to quantify the peak flow for the 2-year, 10-year and 100-year storm event for the pre-developed and post-developed conditions. The unit hydrograph was calculated for the 24-hour duration in the 2-year, 10-year storm events and 1-hour duration in the 100-year storm event. This study will demonstrate that the proposed on-site drainage plan is adequately sized to mitigate the proposed development impacts by controlling the outlet from the basin to match or be lower than pre-developed flows for the 10-year, 24-hour storm event. The rational method and unit hydrograph calculations are presented in Appendix C of this report.

3.0 METHODOLOGY

The analysis was performed in accordance with the Riverside County Hydrology Manual. This includes the determination of soil cover and subarea breakdowns. CivilDesign software by Bonadiman was used to perform rational method calculations, synthetic unit hydrograph calculations and basin routing calculations. The 10-year, 24-hr storm event and AMC II was used to simulate the developed hydrology condition, as recommended by the Riverside County Hydrology Manual. These methods were combined to understand how pre-developed and post-developed stormwater will flow.

4.0 SITE DESCRIPTION

Existing site conditions include exposed native earth with fair vegetated cover. Pictures of the existing condition can be seen in Appendix A of this report. Site hydrologic soils group classification was determined to be Hydrologic Soil Group "C" through WebSoilSurvey. determines the soil characteristics and infiltration capacity of the underlying soils for this site. The project site is estimated as having an infiltration rate of 0.2 in/hr. This soils investigation can be seen in Appendix B of this report.

Existing Drainage Condition

Existing runoff at the site is delineated into two subareas. The subarea A1 is located on the east of Rancho California Road (See the "Existing Hydrology Map" in Appendix G of this report). The

site generally drains from southeast to northwest with average grades of 1% to 3%. Stormwater sheet flows across the undeveloped land and is released at northerly points where eventually infiltrated through the existing native pervious surface. The subarea B1 is located on the west of the site. The site generally drains from south to north with average grades of 1% to 3%. Stormwater sheet flows across the undeveloped land and is released at the northerly points where eventually infiltrated through the existing native pervious surface. The existing site consists of ground cover that can be described as undeveloped fair cover.

Proposed Drainage Condition

The proposed on-site watershed is broken down into three drainage areas Subarea A, Subarea B and Subarea C (See the “Post -developed Hydrology Map” in Appendix G of this report for the proposed drainage areas). Subarea A consist of the northerly portion of the proposed development and southeasterly portion of the off-site. Stormwater from this subarea will begin at a high point and drains northerly. Subarea B consists of the northwesterly portion of the site. Runoff from this area will drain into the proposed storm drain pipe and release into a the outlet pipe to release stormwater into the street.

Subarea C include the roof, parking lots, driveway, PCC hardscape and landscape. The runoff from these subareas will be collected in an underground chamber which is sized for 2-year, 24-hour storm to comply with HCOC Management to filter the stormwater runoff. The proposed underground chambers provide sufficient volume to treat for water quality purposes and mitigate for increased runoff for 2-year 24-hour, 10-year 24-hour and 100-year 1-hour storm durations. After being treated, stormwater will be released into a proposed Manhole with the outlet pipe to release stormwater into the street. The proposed flow pattern from these subareas can be seen on the proposed hydrology map in Section D.

5.0 RESULTS

The following table summarizes the data and results for the 2-year, 10-year and 100-year storm events for the pre-developed and post-developed condition. Rational method calculations used to determine flows can be found in Appendix C of this report, respectively.

Pre-developed Hydrology – Rational Method							
		Frequency					
Existing Subareas	ACRE	Q ₂ (cfs)	Confluent Q ₂ (cfs)	Q ₁₀ (cfs)	Confluent Q ₁₀ (cfs)	Q ₁₀₀ (cfs)	Confluent Q ₁₀₀ (cfs)
A1	2.376	3.418		6.903		11.502	
A2	1.751	2.358	5.773	4.843	11.741	8.132	19.635
B1	0.996	1.484		2.984		4.966	
B2	2.027	2.754	4.238	5.667	8.651	9.528	14.494
Total	7.150	10.014		20.397		34.128	

Post-developed Hydrology – Rational Method							
		Frequency					
Proposed Subareas	ACRE	Q ₂ (cfs)	Confluent Q ₂ (cfs)	Q ₁₀ (cfs)	Confluent Q ₁₀ (cfs)	Q ₁₀₀ (cfs)	Confluent Q ₁₀₀ (cfs)
Subarea A1	2.376	4.932		8.594		13.789	
Subarea A2	0.034	0.064		0.113		0.184	
Subarea A3	0.639	1.327	6.202	2.311	10.841	3.708	17.434
Subarea B1	0.995	1.487		2.989		4.973	
Subarea B2	0.175	0.314	1.801	0.548	3.537	0.881	5.854
Subarea C1	1.682	2.454		4.293		6.910	
Subarea C2	0.661	0.977		1.709		2.750	
Subarea C3	0.586	1.169	4.232	2.038	7.410	3.271	11.930
Total	7.148						

In order to determine the impacts associated with the 100-year, 1-hour storm duration, a unit hydrograph was performed for the 100-year, 1-hour pre-project and post project conditions. The results indicate that the flows for the 100-year storm event will require mitigation for 1.125 ft³/s. The table below summarizes the unit hydrograph hydrology results:

Pre-Developed Unit Hydrograph Summary									
	2-Year, 24-Hour Stormevent			10-Year, 24-Hour Stormevent			100-Year, 1-Hour Stormevent		
	Q (cfs)	V (ac.ft)	V (cu.ft)	Q (cfs)	V (ac.ft)	V (cu.ft)	Q (cfs)	V (ac.ft)	V (cu.ft)
Subarea - A	0.268	0.095	4143.7	1.818	0.628	27361.3	17.516	0.542	23615.7
Subarea - B	0.195	0.069	3023.7	1.327	0.458	19965.5	13.762	0.396	17232.5
Total	0.463	0.164	7167.4	3.145	1.086	47326.8	31.278	0.938	40848.2

Post-Developed Unit Hydrograph Summary									
	2-Year, 24-Hour Stormevent			10-Year, 24-Hour Stormevent			100-Year, 1-Hour Stormevent		
	Q (cfs)	V (ac.ft)	V (cu.ft)	Q (cfs)	V (ac.ft)	V (cu.ft)	Q (cfs)	V (ac.ft)	V (cu.ft)
Subarea - A	0.160	0.097	4233.8	1.193	0.292	12716.1	20.322	0.5361	23351.9
Subarea - B	0.806	0.490	21342.8	1.443	0.821	35779.3	12.081	0.3651	15904
Total	0.966	0.587	25576.6	2.635	1.113	48495.4	32.403	0.9012	39255.9

Based upon the unit hydrograph hydrology results, 1.125 ft³/s will be mitigated in the post-project condition so that the post-project flow rates do not exceed 31.278 ft³/s. The project site

will incorporate Underground Chambers that will be used to treat the onsite flows for water quality purposes and mitigate for increased runoff. The required mitigation volume was determined by taking the difference between pre-developed and post-developed unit hydrograph volumes for both storm durations (2-year, 24-hour and 10-year, 24-hour). The larger delta difference was then utilized as the required mitigation storage volume. Since this is a preliminary study, without detailed basin routing calculations, the required mitigation volume was multiplied by a factor of 1.5 to ensure that the basins design volume will be sufficient for mitigation.

Post Developed – Pre Developed		Post Developed – Pre Developed w/ Safety Factor	
2-YR, 24-HR	10-YR, 24-HR	2-YR, 24-HR	10-YR, 24-HR
0.423 ac-ft	0.027 ac-ft	0.635 ac-ft	0.0405 ac-ft

The volume required to be stored in order to mitigate for increased runoff is 0.635 ac-ft (27,661 ft³). This volume will be stored within the underground chambers. It should be noted that the 10-year, 24-hour storm duration does not require mitigation for increased runoff since the pre-project flow rate is 3.145 ft³/s and the post-project flow rate is 2.635 ft³/s. Therefore, only the 2-year, 24-hour storm duration will be routed during final engineering.

The 100-Year, 1-Hour storm durations resulted in a higher flow rate for the post-project condition, however, the volume for the post-project condition decreased when compared to the pre-project condition, as shown in the table below:

	100-Year, 1-Hour Flow Rate	100-Year, 1-Hour Volume
Pre-Developed	31.278 cfs	0.938 ac-ft
Post-Developed	32.403 cfs	0.901 ac-ft

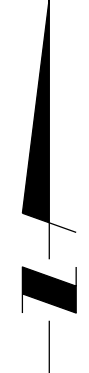
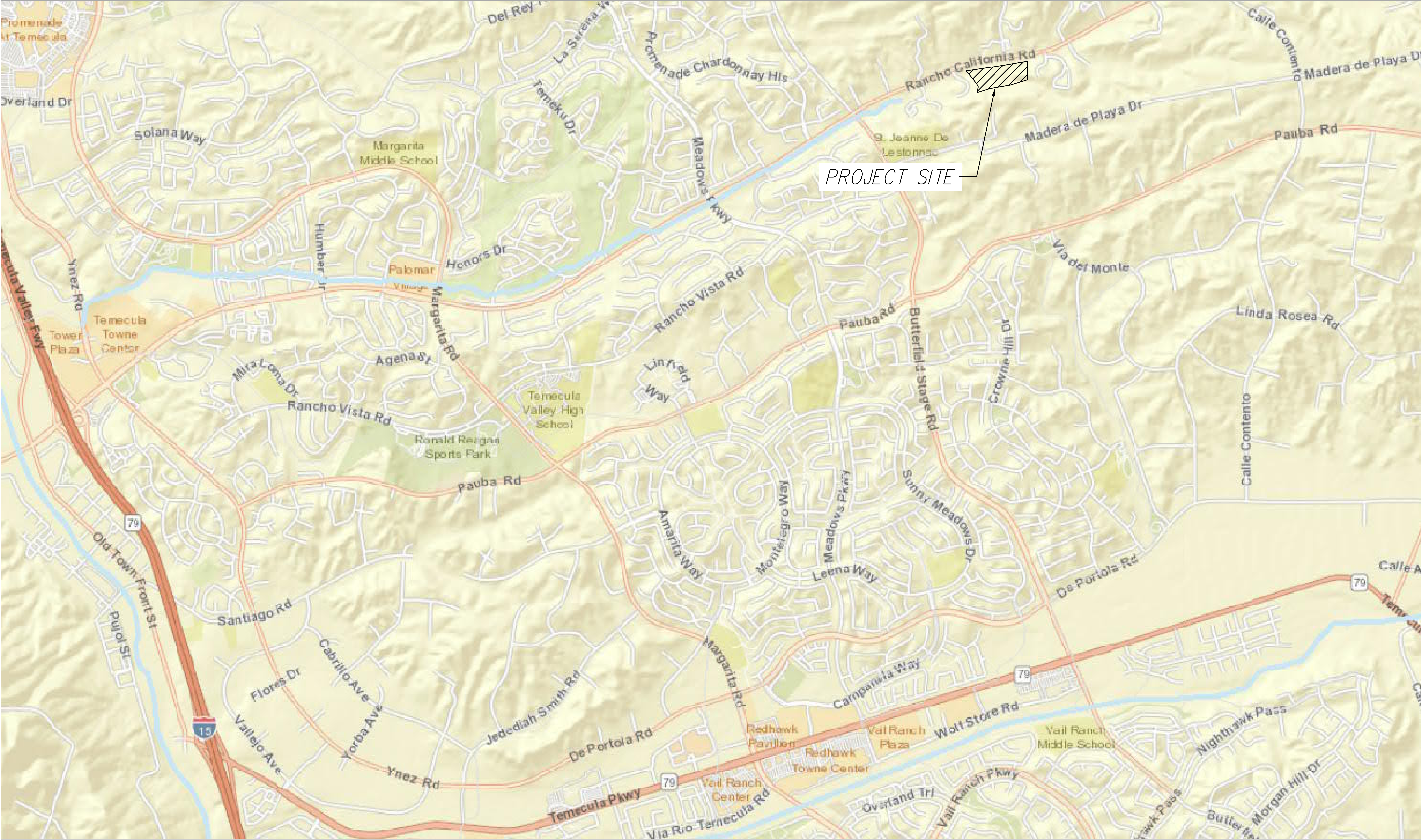
Since the post-developed volume is less than the pre-developed volume, the methodology used to determine the required mitigation volume for the 2-year, 24-hour storm duration cannot be utilized. A total of 1.125 ft³/s must be mitigated in the post-developed condition for the 100-year, 1-hour storm duration. Since DMA “A” is the open space area, DMA “B” (on-site area) will be mitigated. DMA “A” will have a maximum allowable outflow of 10.956 ft³/s which is 1.125 ft³/s less than the 12.081 ft³/s indicated from the post-developed unit hydrograph.

APPENDIX "A"

REFERENCE MATERIALS:

VICINITY MAP
POINT PRECIPITATION FREQUENCY ESTIMATES
SUBAREA BREAKDOWN
SOIL CLASSIFICATION MAP
SOIL COVER TYPE
PRE-DEVELOPED SITE CONDITIONS

VICINITY MAP



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DATE: FEBRUARY 2021

PREPARED BY:
REVIEWED BY:

CITY OF TEMECULA

VICINITY MAP
MEXIN WINERY
PM 5506

FOR: MEXIN WINERY

W.O.



NOAA Atlas 14, Volume 6, Version 2
Location name: Temecula, California, USA*
Latitude: 33.5214°, Longitude: -117.0857°
Elevation: 1300.04 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

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

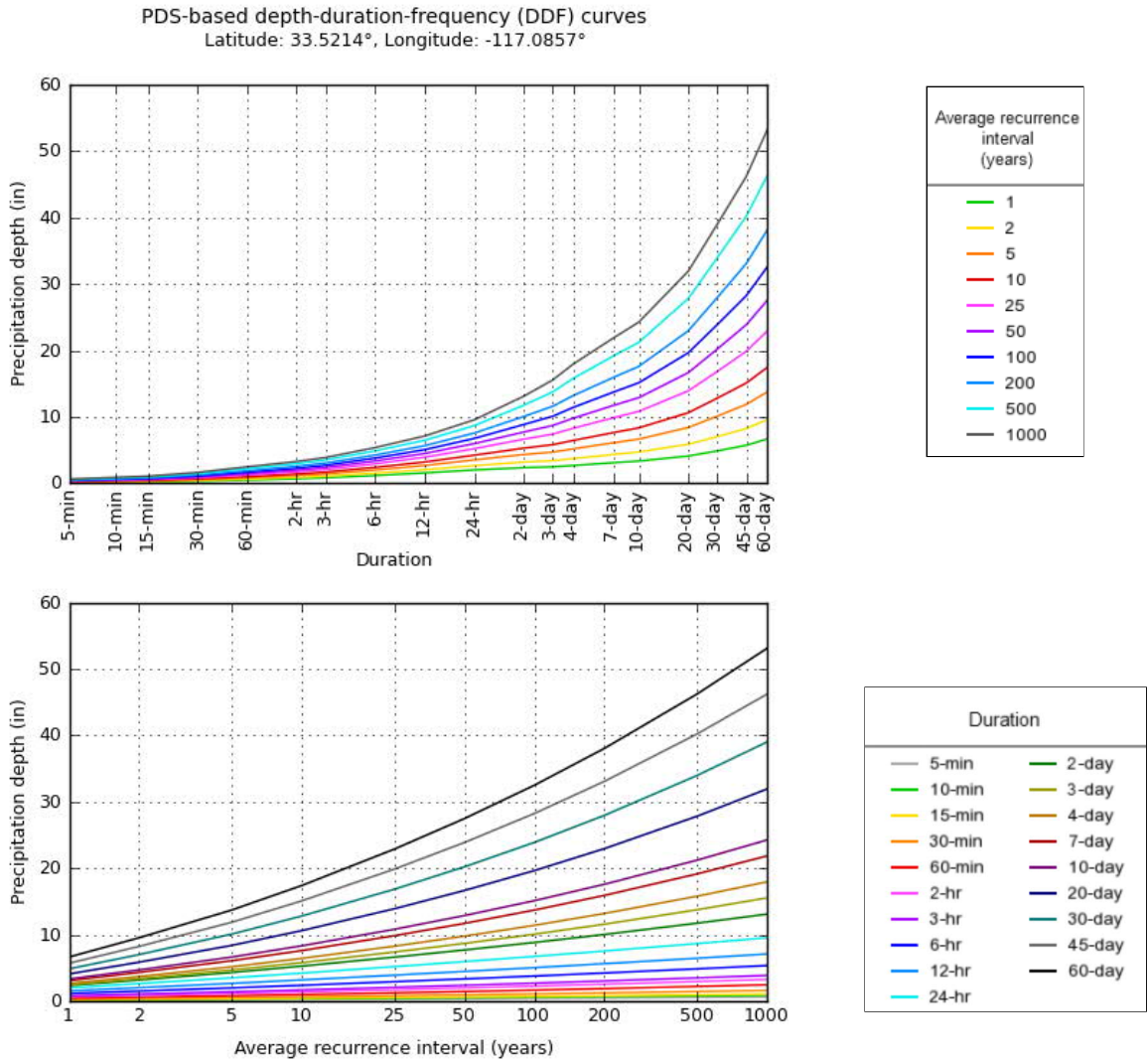
PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.114 (0.095-0.137)	0.151 (0.126-0.182)	0.202 (0.168-0.244)	0.245 (0.203-0.298)	0.306 (0.245-0.387)	0.356 (0.278-0.460)	0.408 (0.311-0.541)	0.465 (0.344-0.634)	0.544 (0.385-0.776)	0.608 (0.415-0.900)
10-min	0.163 (0.137-0.196)	0.216 (0.181-0.260)	0.289 (0.241-0.349)	0.351 (0.291-0.428)	0.439 (0.351-0.555)	0.510 (0.399-0.659)	0.585 (0.446-0.776)	0.666 (0.493-0.909)	0.780 (0.552-1.11)	0.872 (0.595-1.29)
15-min	0.197 (0.165-0.237)	0.261 (0.219-0.315)	0.349 (0.292-0.422)	0.424 (0.352-0.517)	0.531 (0.425-0.671)	0.617 (0.483-0.797)	0.708 (0.540-0.938)	0.805 (0.596-1.10)	0.943 (0.668-1.35)	1.05 (0.720-1.56)
30-min	0.302 (0.253-0.363)	0.400 (0.335-0.482)	0.535 (0.447-0.646)	0.650 (0.538-0.792)	0.813 (0.651-1.03)	0.945 (0.739-1.22)	1.08 (0.826-1.44)	1.23 (0.912-1.68)	1.44 (1.02-2.06)	1.61 (1.10-2.39)
60-min	0.460 (0.386-0.554)	0.610 (0.511-0.735)	0.816 (0.682-0.986)	0.991 (0.821-1.21)	1.24 (0.992-1.57)	1.44 (1.13-1.86)	1.65 (1.26-2.19)	1.88 (1.39-2.57)	2.20 (1.56-3.14)	2.46 (1.68-3.64)
2-hr	0.663 (0.557-0.798)	0.871 (0.731-1.05)	1.15 (0.964-1.39)	1.39 (1.15-1.69)	1.72 (1.38-2.17)	1.98 (1.55-2.56)	2.25 (1.72-2.99)	2.54 (1.88-3.47)	2.94 (2.08-4.20)	3.26 (2.23-4.83)
3-hr	0.811 (0.681-0.976)	1.06 (0.891-1.28)	1.40 (1.17-1.69)	1.68 (1.39-2.05)	2.07 (1.66-2.62)	2.38 (1.86-3.07)	2.70 (2.06-3.58)	3.03 (2.24-4.14)	3.50 (2.48-4.99)	3.86 (2.64-5.72)
6-hr	1.16 (0.972-1.39)	1.51 (1.27-1.82)	1.99 (1.66-2.40)	2.38 (1.97-2.90)	2.92 (2.33-3.69)	3.34 (2.61-4.31)	3.78 (2.88-5.00)	4.23 (3.13-5.77)	4.86 (3.44-6.93)	5.35 (3.65-7.91)
12-hr	1.54 (1.30-1.86)	2.02 (1.70-2.44)	2.66 (2.23-3.22)	3.19 (2.64-3.88)	3.90 (3.12-4.93)	4.46 (3.49-5.76)	5.04 (3.84-6.68)	5.63 (4.17-7.69)	6.45 (4.57-9.20)	7.09 (4.84-10.5)
24-hr	1.99 (1.76-2.29)	2.64 (2.33-3.05)	3.50 (3.08-4.06)	4.21 (3.68-4.92)	5.19 (4.39-6.25)	5.95 (4.93-7.32)	6.73 (5.45-8.47)	7.54 (5.95-9.75)	8.66 (6.56-11.7)	9.53 (6.99-13.3)
2-day	2.34 (2.06-2.70)	3.17 (2.80-3.67)	4.31 (3.80-5.00)	5.27 (4.60-6.16)	6.62 (5.60-7.98)	7.70 (6.39-9.47)	8.83 (7.15-11.1)	10.0 (7.92-13.0)	11.7 (8.89-15.8)	13.1 (9.61-18.2)
3-day	2.46 (2.17-2.84)	3.39 (2.99-3.92)	4.68 (4.12-5.42)	5.79 (5.06-6.76)	7.38 (6.25-8.90)	8.68 (7.20-10.7)	10.1 (8.16-12.7)	11.6 (9.13-15.0)	13.7 (10.4-18.5)	15.5 (11.4-21.6)
4-day	2.66 (2.35-3.07)	3.70 (3.27-4.28)	5.17 (4.55-5.99)	6.43 (5.62-7.51)	8.27 (7.00-9.97)	9.78 (8.11-12.0)	11.4 (9.24-14.4)	13.2 (10.4-17.1)	15.8 (12.0-21.2)	18.0 (13.2-25.0)
7-day	3.08 (2.72-3.56)	4.32 (3.82-5.00)	6.08 (5.35-7.04)	7.61 (6.64-8.88)	9.84 (8.33-11.9)	11.7 (9.70-14.4)	13.7 (11.1-17.3)	15.9 (12.6-20.6)	19.1 (14.5-25.8)	21.9 (16.0-30.4)
10-day	3.33 (2.94-3.84)	4.69 (4.14-5.43)	6.63 (5.84-7.69)	8.32 (7.27-9.72)	10.8 (9.15-13.0)	12.9 (10.7-15.8)	15.1 (12.3-19.0)	17.6 (13.9-22.7)	21.2 (16.1-28.6)	24.3 (17.8-33.7)
20-day	4.09 (3.61-4.72)	5.86 (5.17-6.77)	8.39 (7.38-9.72)	10.6 (9.27-12.4)	13.9 (11.8-16.8)	16.7 (13.8-20.5)	19.6 (15.9-24.7)	23.0 (18.1-29.7)	27.8 (21.1-37.5)	31.9 (23.4-44.4)
30-day	4.86 (4.29-5.61)	7.01 (6.18-8.10)	10.1 (8.88-11.7)	12.8 (11.2-15.0)	16.8 (14.2-20.3)	20.2 (16.8-24.9)	23.9 (19.4-30.1)	28.0 (22.1-36.2)	34.0 (25.8-45.7)	39.0 (28.6-54.3)
45-day	5.70 (5.04-6.59)	8.24 (7.27-9.52)	11.9 (10.5-13.8)	15.1 (13.2-17.6)	19.9 (16.8-24.0)	23.9 (19.8-29.4)	28.2 (22.9-35.6)	33.1 (26.1-42.8)	40.2 (30.5-54.1)	46.2 (33.9-64.3)
60-day	6.64 (5.86-7.66)	9.54 (8.42-11.0)	13.7 (12.1-15.9)	17.4 (15.2-20.3)	22.9 (19.4-27.6)	27.5 (22.8-33.8)	32.5 (26.3-40.9)	38.1 (30.0-49.2)	46.2 (35.1-62.2)	53.1 (39.0-73.9)

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

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PF graphical

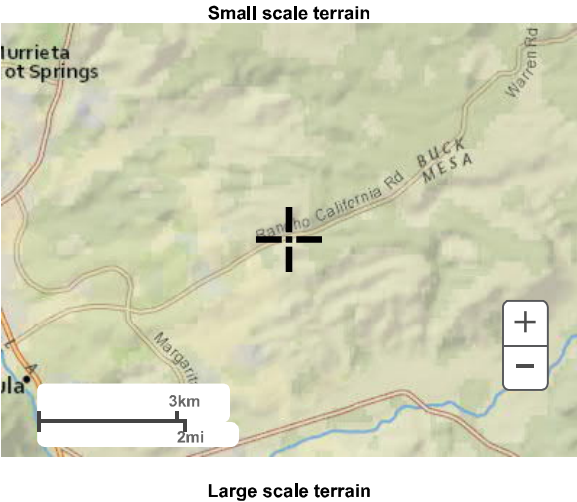


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Maps & aerals





Large scale map

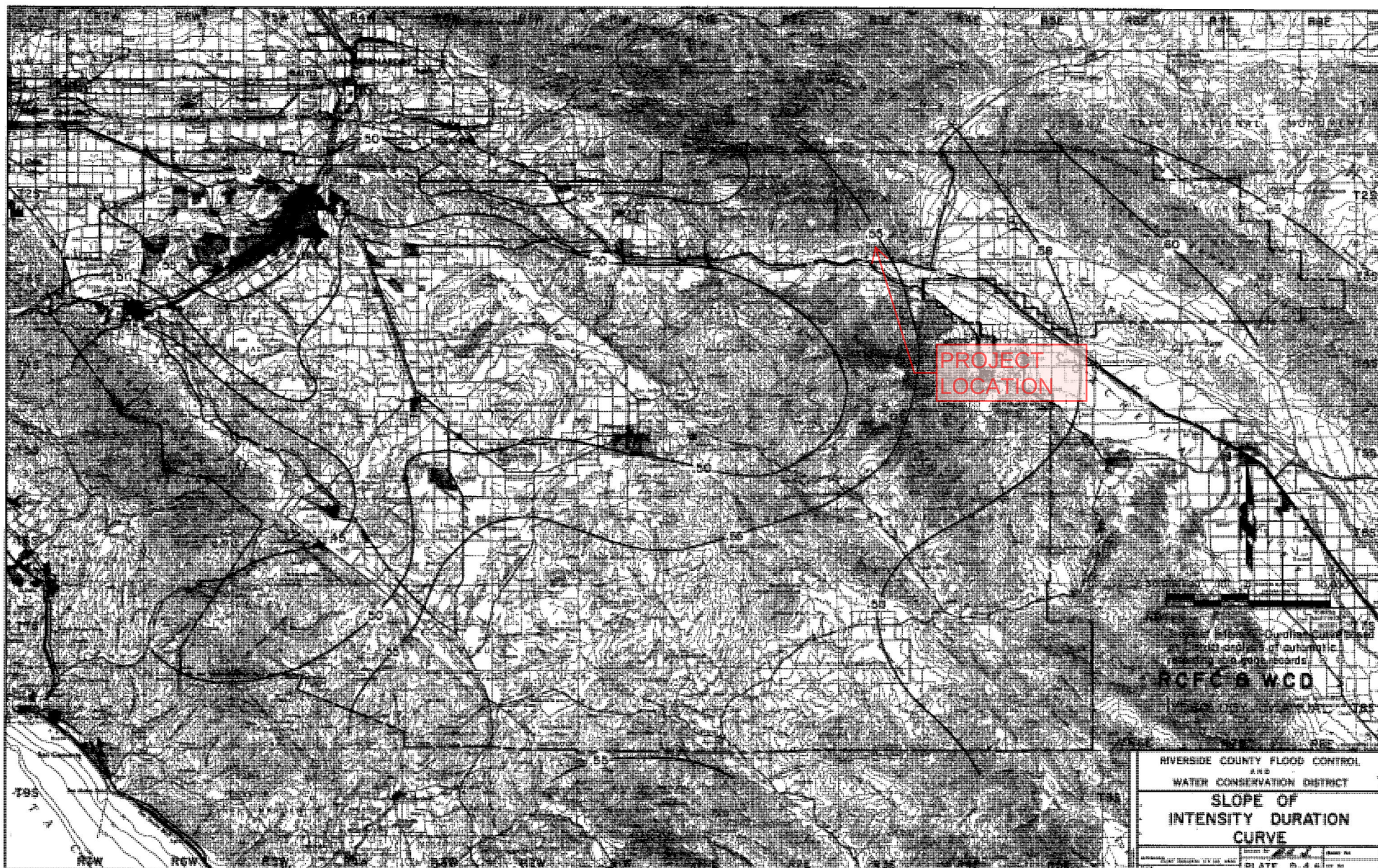


Large scale aerial

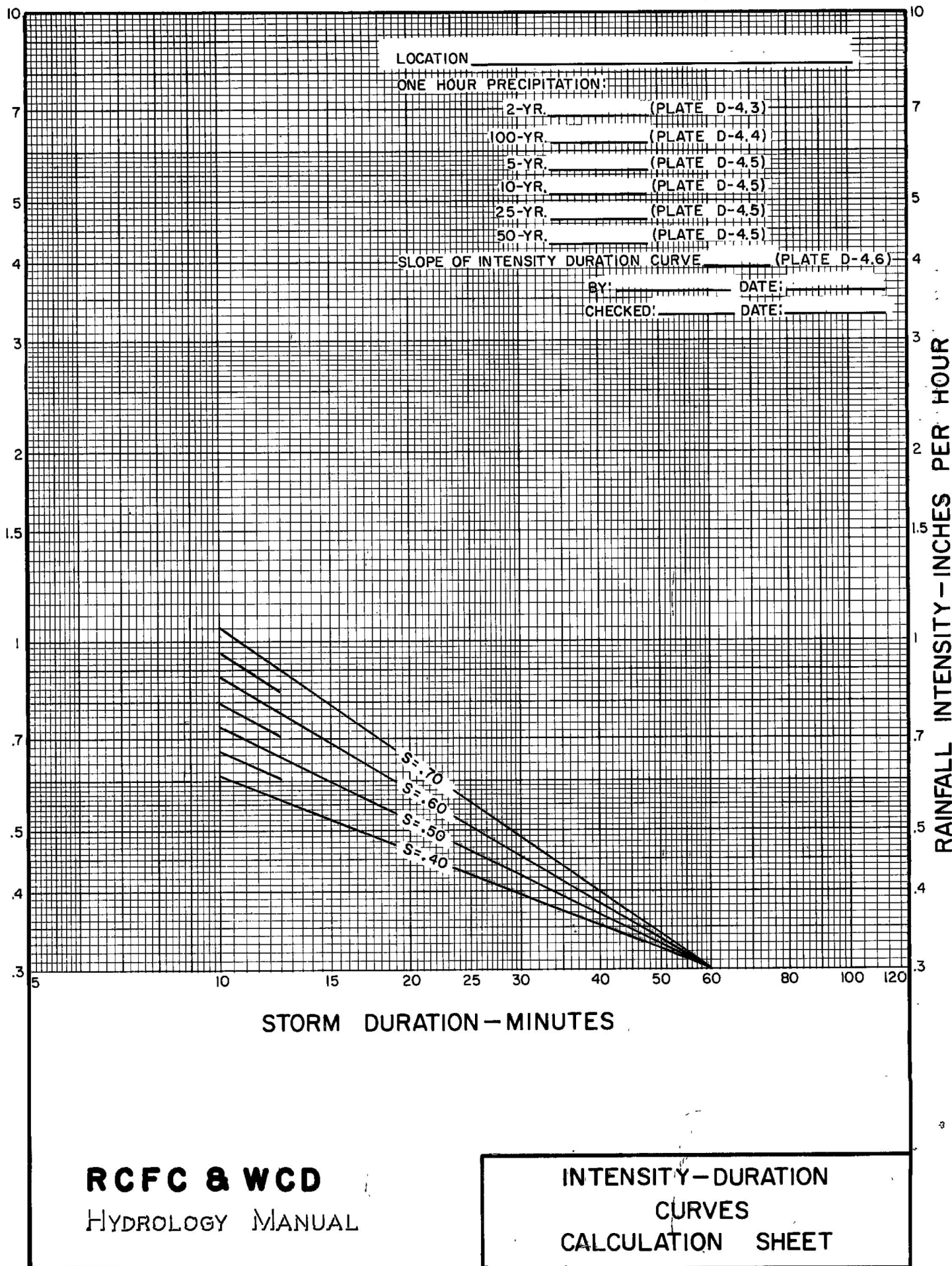
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1162004 HYDROLOGY - MEXIN WINERY					
		FT ²	AC	%	DESCRIPTION
Pre Developed CONDITION	A _T =	311421.00	7.149	---	UNDEVELOPED - LANDSCAPING
	A _{LS} =	311421.00	7.149	100.00%	
	A _{IMP} =	0.00	0.000	0.00%	
OFF-SITE	A _T =	146853.00	3.371	---	
	A _{LS} =	146853.00	3.371	100.00%	
	A _{IMP} =	0.00	0.000	0.00%	
DMA A1	A _T =	103483.00	2.376	---	
	A _{LS} =	103483.00	2.376	100.00%	
	A _{IMP} =	0.00	0.000	0.00%	
DMA B1	A _T =	43370.00	0.996	---	
	A _{LS} =	43370.00	0.996	100.00%	
	A _{IMP} =	0.00	0.000	0.00%	
ON-SITE	A _T =	164568.00	3.778	---	
	A _{LS} =	164568.00	3.778	100.00%	
	A _{IMP} =	0.00	0.000	0.00%	
DMA A2	A _T =	76267.50	1.751	---	
	A _{LS} =	76267.50	1.751	100.00%	
	A _{IMP} =	0.00	0.000	0.00%	
DMA B2	A _T =	88300.50	2.027	---	
	A _{LS} =	88300.50	2.027	100.00%	
	A _{IMP} =	0.00	0.000	0.00%	
PROPOSED CONDITION	A _T =	311421.00	7.149	---	BUILDING, LANDSCAPING, PCC - DEVELOPED
	A _{LS} =	229373.00	5.266	73.65%	
	A _{IMP} =	82048.00	1.884	26.35%	
OFF-SITE	A _T =	183826.00	4.220	---	
	A _{LS} =	183826.00	4.220	100.00%	
	A _{IMP} =	0.00	0.000	0.00%	
A1, A2 & A3	A _T =	132820.00	3.049	---	
	A _{LS} =	132820.00	3.049	100.00%	
	A _{IMP} =	0.00	0.000	0.00%	
C1 & C2	A _T =	51006.00	1.171	---	
	A _{LS} =	51006.00	1.171	100.00%	
	A _{IMP} =	0.00	0.000	0.00%	
ON-SITE	A _T =	102071.00	2.343	---	
	A _{LS} =	45547.00	1.046	44.62%	
	A _{IMP} =	82048.00	1.884	80.38%	
B1	A _T =	73289.00	1.682	---	
	A _{LS} =	28539.00	0.655	38.94%	
	A _{IMP} =	44750.00	1.027	61.06%	
B2	A _T =	28782.00	0.661	---	
	A _{LS} =	8691.00	0.200	30.20%	
	A _{IMP} =	20091.00	0.461	69.80%	
B3	A _T =	25524.00	0.586	---	
	A _{LS} =	8317.00	0.191	28.90%	
	A _{IMP} =	17207.00	0.395	59.78%	



COVER TYPE DESCRIPTIONS

NATURAL COVERS -

Barren - Areas with 15 percent or less of the ground surface covered by plants or litter. It includes rockland, eroded land, and shaped or graded land. Barren land does not include fallow land.

Chaparral, Broadleaf - Areas on which the principal vegetation consists of evergreen shrubs with broad, hard, stiff leaves such as manzonita, ceanothus and scrub oak. The brush cover is usually dense or moderately dense.

Chaparral, Narrowleaf - Land on which the principal vegetation consists of diffusely branched evergreen shrubs with fine needle-like leaves such as chamise and redshank. The shrubs are usually widely spaced and low in growth. If the narrowleaf chaparral shrubs are dense and high; the land should be included with broadleaf chaparral cover.

Grass, Annual - Land on which the principal vegetation consists of annual grasses and weeds such as annual bromes, wild barley, soft chess, ryegrass and filaree.

Grass, Perennial - Areas on which the principal vegetation consists of perennial grass, either native or introduced, and which grows under normal dryland conditions. Examples are Stipa or needle grass, Harding grass and wheat grass. It does not include irrigated and meadow grasses.

Meadow - Land areas with seasonally high water table, often called cienegas. Principal vegetation consists of sod-forming grasses interspersed with other plants.

Open Brush - Principal vegetation consists of soft wood shrubs, usually grayish in color. Examples include California buckwheat, California sagebrush, black sage, white sage and purple sage. It also includes vegetation on desert facing slopes where broadleaf chaparral predominate in an open shrub cover.

Woodland - Areas on which coniferous or broadleaf trees predominate. The crown or canopy density, the amount of ground surface shaded at high noon, is at least 50 percent. Open areas may have a cover of annual or perennial grasses or of brush. Plant cover under the trees is usually sparse because of leaf or needle litter accumulation.

Woodland, Grass - Areas with an open cover of broadleaf or coniferous trees usually live oak and pines, with the intervening ground space occupied by annual grasses or weeds. The trees may occur singly or in small clumps. Canopy density, the amount of ground surface shaded at high noon, is from 20 to 50 percent.

URBAN COVERS -

Residential or Commercial Landscaping - The pervious portions of commercial establishments, single and multiple family dwellings, trailer parks and schools where the predominant land cover is lawn, shrubbery and trees.

RCFC & WCD
HYDROLOGY MANUAL

COVER TYPE
DESCRIPTIONS

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

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

RCFC & WCD
HYDROLOGY MANUAL

**RUNOFF INDEX NUMBERS
FOR
PERVIOUS AREA**

APPENDIX "B"

SOILS REPORTS: INFILTRATION REPORT



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Western Riverside Area, California

Mexin Winery



February 5, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 13, May 27, 2020

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

Date(s) aerial images were photographed: May 15, 2018—Jun 25, 2018

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AtD2	Arlington and Greenfield fine sandy loams, 8 to 15 percent slopes, eroded	0.3	8.0%
RnE3	Ramona and Buren loams, 5 to 25 percent slopes, severely eroded	3.1	81.3%
RuF	Rough broken land	0.4	10.7%
Totals for Area of Interest		3.8	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Western Riverside Area, California

AtD2—Arlington and Greenfield fine sandy loams, 8 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: hcr6
Elevation: 100 to 3,500 feet
Mean annual precipitation: 9 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 320 days
Farmland classification: Not prime farmland

Map Unit Composition

Arlington and similar soils: 40 percent
Greenfield and similar soils: 30 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arlington

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 11 inches: fine sandy loam
H2 - 11 to 24 inches: sandy loam
H3 - 24 to 36 inches: cemented
H4 - 36 to 47 inches: coarse sandy loam, loamy coarse sand
H4 - 36 to 47 inches:

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 24 to 40 inches to duripan
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R019XD029CA
Hydric soil rating: No

Description of Greenfield

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 26 inches: fine sandy loam
H2 - 26 to 43 inches: fine sandy loam
H3 - 43 to 60 inches: loam
H4 - 60 to 70 inches: stratified loamy sand to sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R019XD029CA
Hydric soil rating: No

Minor Components

Unnamed, severely eroded

Percent of map unit: 20 percent
Hydric soil rating: No

Greenfield

Percent of map unit: 10 percent
Hydric soil rating: No

RnE3—Ramona and Buren loams, 5 to 25 percent slopes, severely eroded

Map Unit Setting

National map unit symbol: hcyl
Elevation: 250 to 3,500 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 230 to 320 days
Farmland classification: Not prime farmland

Map Unit Composition

Ramona and similar soils: 55 percent
Buren and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ramona

Setting

Landform: Alluvial fans, terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Convex, linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 17 inches: fine sandy loam
H3 - 17 to 68 inches: sandy clay loam
H4 - 68 to 74 inches: gravelly sandy loam

Properties and qualities

Slope: 5 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water capacity: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e

Custom Soil Resource Report

Hydrologic Soil Group: C
Ecological site: R019XD029CA
Hydric soil rating: No

Description of Buren

Setting

Landform: Alluvial fans, terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex, linear
Parent material: Alluvium

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 28 inches: loam
H3 - 28 to 37 inches: loam
H4 - 37 to 52 inches: cemented

Properties and qualities

Slope: 5 to 25 percent
Depth to restrictive feature: 37 to 40 inches to duripan
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water capacity: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R019XD060CA - SHALLOW LOAMY (1975)
Hydric soil rating: No

Minor Components

Buren

Percent of map unit: 4 percent
Hydric soil rating: No

Ramona

Percent of map unit: 4 percent
Hydric soil rating: No

Hanford

Percent of map unit: 2 percent
Hydric soil rating: No

RuF—Rough broken land

Map Unit Composition

Rough broken land: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rough Broken Land

Setting

Down-slope shape: Concave

Across-slope shape: Convex

Parent material: Residuum derived from mixed sources

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 50 percent

Depth to restrictive feature: 0 to 3 inches to paralithic bedrock

Runoff class: Very high

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Physical Properties

Soil Physical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Saturated Hydraulic Conductivity (Ksat)

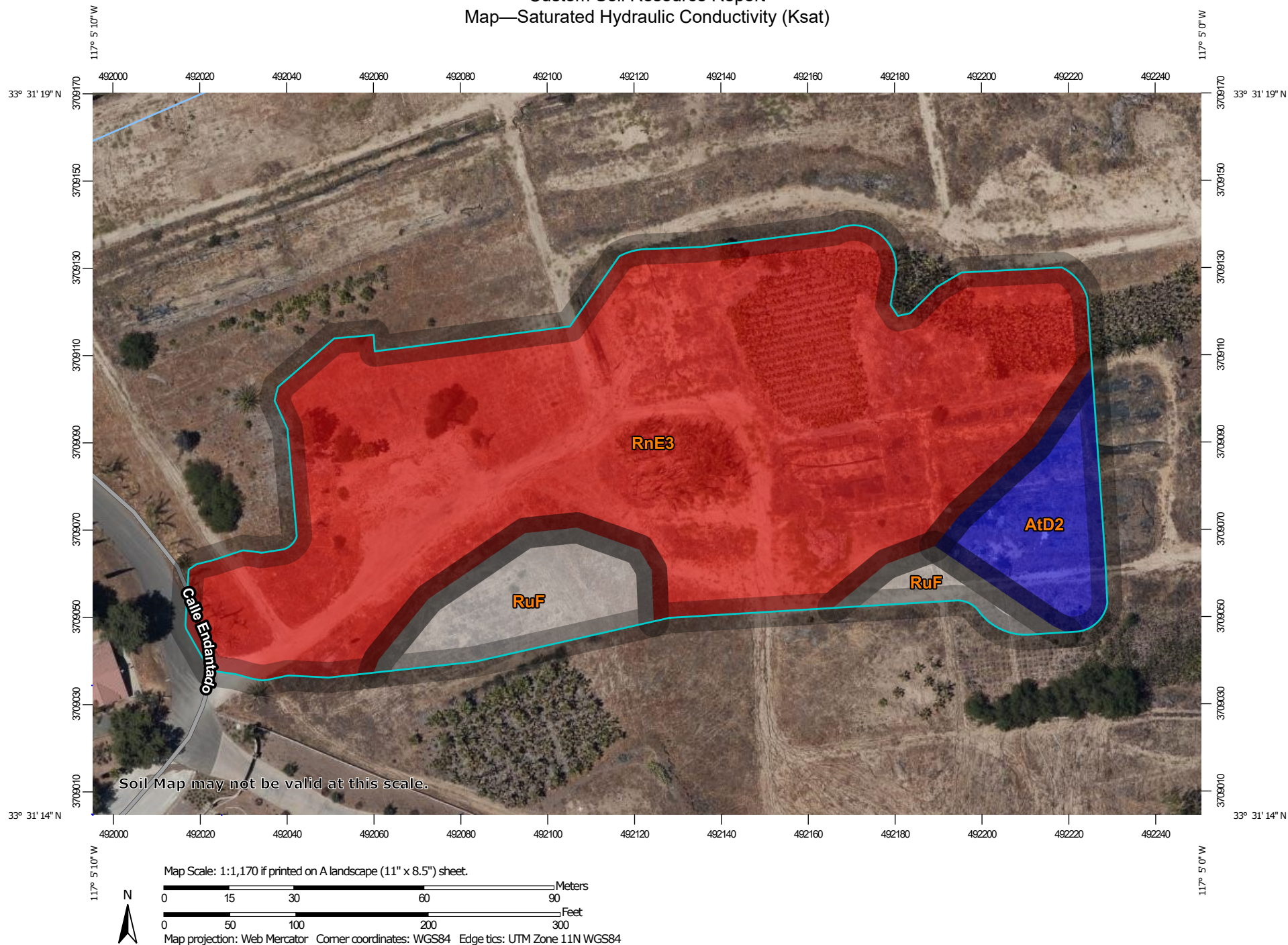
Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Custom Soil Resource Report

Map—Saturated Hydraulic Conductivity (Ksat)



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 ≤ 3.2353
 > 3.2353 and ≤ 32.3854
 Not rated or not available

Soil Rating Lines

 ≤ 3.2353
 > 3.2353 and ≤ 32.3854
 Not rated or not available

Soil Rating Points

 ≤ 3.2353
 > 3.2353 and ≤ 32.3854
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Western Riverside Area, California
 Survey Area Data: Version 13, May 27, 2020

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

Date(s) aerial images were photographed: May 15, 2018—Jun 25, 2018

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

Table—Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
AtD2	Arlington and Greenfield fine sandy loams, 8 to 15 percent slopes, eroded	32.3854	0.3	8.0%
RnE3	Ramona and Buren loams, 5 to 25 percent slopes, severely eroded	3.2353	3.1	81.3%
RuF	Rough broken land		0.4	10.7%
Totals for Area of Interest			3.8	100.0%

Rating Options—Saturated Hydraulic Conductivity (Ksat)

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 12

Bottom Depth: 72

Units of Measure: Inches

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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

Custom Soil Resource Report

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

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

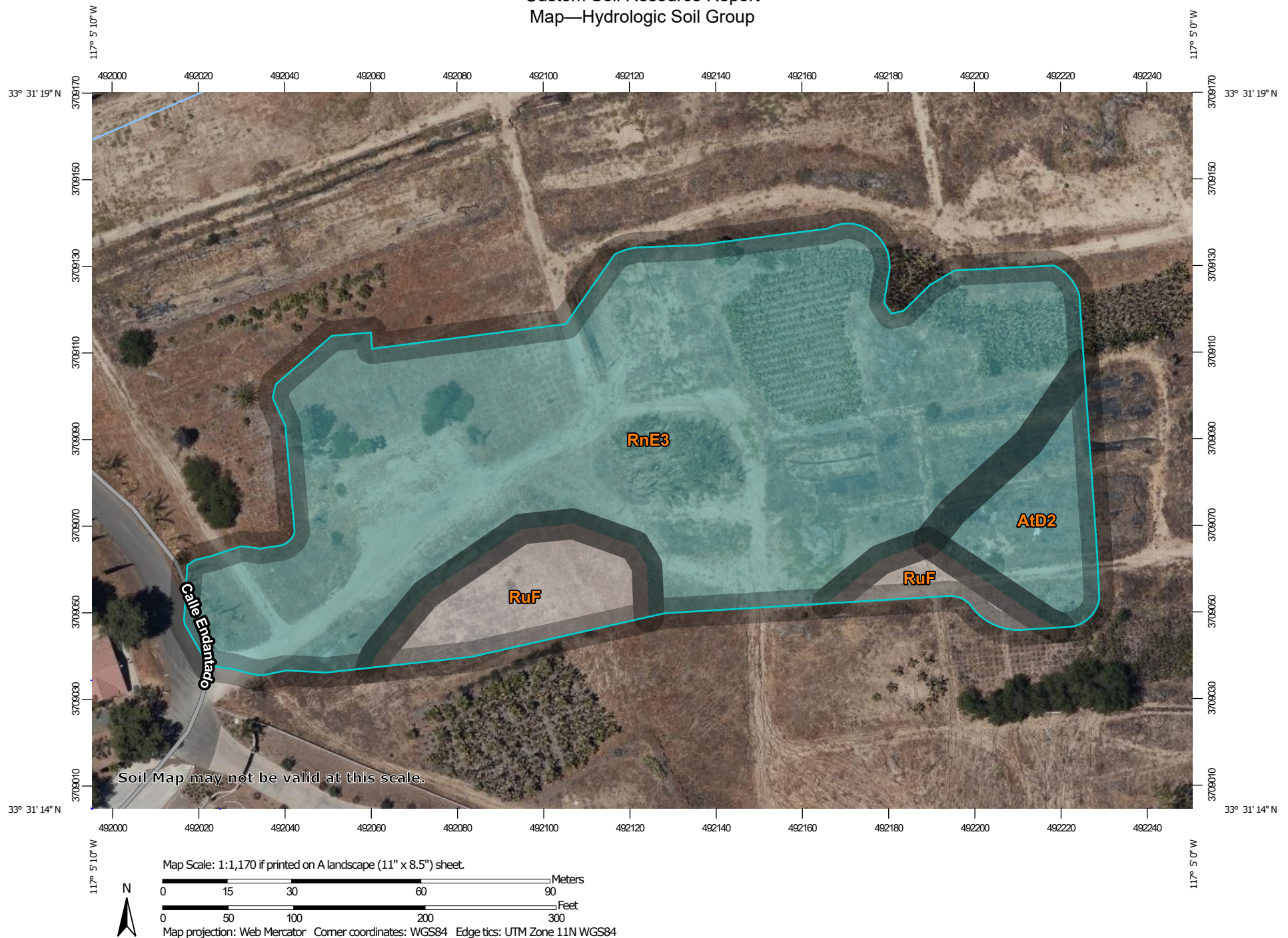
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

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

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

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

Custom Soil Resource Report Map—Hydrologic Soil Group



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 13, May 27, 2020

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

Date(s) aerial images were photographed: May 15, 2018—Jun 25, 2018

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

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AtD2	Arlington and Greenfield fine sandy loams, 8 to 15 percent slopes, eroded	C	0.3	8.0%
RnE3	Ramona and Buren loams, 5 to 25 percent slopes, severely eroded	C	3.1	81.3%
RuF	Rough broken land		0.4	10.7%
Totals for Area of Interest			3.8	100.0%

Rating Options—Hydrologic Soil Group*Aggregation Method:* Dominant Condition*Component Percent Cutoff:* None Specified*Tie-break Rule:* Higher

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Custom Soil Resource Report

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APPENDIX "C"

RATIONAL METHOD:

OFF-SITE PRE-DEVELOPED CONDITION Q_2 , Q_{10} & Q_{100}

PRE-DEVELOPED CONDITION Q_2 , Q_{10} & Q_{100}

POST-DEVELOPED CONDITION Q_2 , Q_{10} & Q_{100}

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 05/05/21

File:11620040FF2YR.out

VALUED ENGINEERING, INC
PRE-DEVELOPED, OFF-SITE
MEXIN WINERY
2-YEAR STORMEVENT

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6335

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 2.00 Antecedent Moisture Condition = 1

2 year, 1 hour precipitation = 0.610(In.)

100 year, 1 hour precipitation = 1.650(In.)

Storm event year = 2.0

Calculated rainfall intensity data:

1 hour intensity = 0.610(In/Hr)

Slope of intensity duration curve = 0.5000

++++
Process from Point/Station 10.000 to Point/Station 11.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 1000.000(Ft.)

Top (of initial area) elevation = 1455.000(Ft.)

Bottom (of initial area) elevation = 1400.000(Ft.)

Difference in elevation = 55.000(Ft.)

Slope = 0.05500 s(percent)= 5.50

TC = $k(0.530)^*[(\text{length}^3)/(\text{elevation change})]^{0.2}$

Initial area time of concentration = 15.004 min.
 Rainfall intensity = 1.220(In/Hr) for a 2.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.628
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 1) = 71.60
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Initial subarea runoff = 7.470(CFS)
 Total initial stream area = 9.754(Ac.)
 Pervious area fraction = 1.000

++++++
 Process from Point/Station 11.000 to Point/Station 12.000
 **** SUBAREA FLOW ADDITION ****

UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.628
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 1) = 71.60
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Time of concentration = 15.00 min.
 Rainfall intensity = 1.220(In/Hr) for a 2.0 year storm
 Subarea runoff = 122.996(CFS) for 160.605(Ac.)
 Total runoff = 130.466(CFS) Total area = 170.359(Ac.)
 End of computations, total study area = 170.36 (Ac.)
 The following figures may
 be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
 Area averaged RI index number = 86.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 05/05/21

File:11620040FF2YR.out

VALUED ENGINEERING, INC
PRE-DEVELOPED, OFF-SITE
MEXIN WINERY
10-YEAR STORMEVENT

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6335

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 10.00 Antecedent Moisture Condition = 2

2 year, 1 hour precipitation = 0.610(In.)

100 year, 1 hour precipitation = 1.650(In.)

Storm event year = 10.0

Calculated rainfall intensity data:

1 hour intensity = 1.038(In/Hr)

Slope of intensity duration curve = 0.5000

++++
Process from Point/Station 10.000 to Point/Station 11.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 1000.000(Ft.)

Top (of initial area) elevation = 1455.000(Ft.)

Bottom (of initial area) elevation = 1400.000(Ft.)

Difference in elevation = 55.000(Ft.)

Slope = 0.05500 s(percent)= 5.50

TC = $k(0.530)^*[(\text{length}^3)/(\text{elevation change})]^{0.2}$

Initial area time of concentration = 15.004 min.
Rainfall intensity = 2.075(In/Hr) for a 10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.815
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 86.00
Pervious area fraction = 1.000; Impervious fraction = 0.000
Initial subarea runoff = 16.495(CFS)
Total initial stream area = 9.754(Ac.)
Pervious area fraction = 1.000

+++++
Process from Point/Station 11.000 to Point/Station 12.000
**** SUBAREA FLOW ADDITION ****

UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.815
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 86.00
Pervious area fraction = 1.000; Impervious fraction = 0.000
Time of concentration = 15.00 min.
Rainfall intensity = 2.075(In/Hr) for a 10.0 year storm
Subarea runoff = 271.593(CFS) for 160.605(Ac.)
Total runoff = 288.088(CFS) Total area = 170.359(Ac.)
End of computations, total study area = 170.36 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number = 86.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 05/05/21

File:11620040FF2YR.out

VALUED ENGINEERING, INC
PRE-DEVELOPED, OFF-SITE
MEXIN WINERY
100-YEAR STORMEVENT

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6335

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

2 year, 1 hour precipitation = 0.610(In.)
100 year, 1 hour precipitation = 1.650(In.)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.650(In/Hr)
Slope of intensity duration curve = 0.5000

++++
Process from Point/Station 10.000 to Point/Station 11.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 1000.000(Ft.)
Top (of initial area) elevation = 1455.000(Ft.)
Bottom (of initial area) elevation = 1400.000(Ft.)
Difference in elevation = 55.000(Ft.)
Slope = 0.05500 s(percent)= 5.50
 $TC = k(0.530)*[(length^3)/(elevation\ change)]^{0.2}$

Initial area time of concentration = 15.004 min.
Rainfall intensity = 3.300(In/Hr) for a 100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.879
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 94.40
Pervious area fraction = 1.000; Impervious fraction = 0.000
Initial subarea runoff = 28.288(CFS)
Total initial stream area = 9.754(Ac.)
Pervious area fraction = 1.000

+++++
Process from Point/Station 11.000 to Point/Station 12.000
**** SUBAREA FLOW ADDITION ****

UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.879
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 94.40
Pervious area fraction = 1.000; Impervious fraction = 0.000
Time of concentration = 15.00 min.
Rainfall intensity = 3.300(In/Hr) for a 100.0 year storm
Subarea runoff = 465.770(CFS) for 160.605(Ac.)
Total runoff = 494.058(CFS) Total area = 170.359(Ac.)
End of computations, total study area = 170.36 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number = 86.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 02/25/21

File:1162004EX2.out

VALUED ENGINEERING, INC
PRE-DEVELOPED
MEXIN WINERY
2-YEAR STORMEVENT

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6335

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 2.00 Antecedent Moisture Condition = 1

2 year, 1 hour precipitation = 0.610(In.)

100 year, 1 hour precipitation = 1.650(In.)

Storm event year = 2.0

Calculated rainfall intensity data:

1 hour intensity = 0.610(In/Hr)

Slope of intensity duration curve = 0.5500

++++
Process from Point/Station 1.000 to Point/Station 1.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 284.000(Ft.)

Top (of initial area) elevation = 1390.000(Ft.)

Bottom (of initial area) elevation = 1325.000(Ft.)

Difference in elevation = 65.000(Ft.)

Slope = 0.22887 s(percent)= 22.89

TC = $k(0.530)^*[(\text{length}^3)/(\text{elevation change})]^{0.2}$

Initial area time of concentration = 6.818 min.
Rainfall intensity = 2.017(In/Hr) for a 2.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.713
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 1) = 71.60
Pervious area fraction = 1.000; Impervious fraction = 0.000
Initial subarea runoff = 3.418(CFS)
Total initial stream area = 2.376(Ac.)
Pervious area fraction = 1.000

+++++
Process from Point/Station 1.100 to Point/Station 1.200
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1325.000(Ft.)
End of natural channel elevation = 1293.000(Ft.)
Length of natural channel = 293.000(Ft.)
Estimated mean flow rate at midpoint of channel = 4.677(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
Velocity(ft/s) = $(7 + 8(q(\text{English Units})^{.352})(\text{slope}^{.5}))$
Velocity using mean channel flow = 6.86(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
Normal channel slope = 0.1092
Corrected/adjusted channel slope = 0.1092
Travel time = 0.71 min. TC = 7.53 min.

Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.705
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 1) = 71.60
Pervious area fraction = 1.000; Impervious fraction = 0.000
Rainfall intensity = 1.910(In/Hr) for a 2.0 year storm
Subarea runoff = 2.358(CFS) for 1.751(Ac.)
Total runoff = 5.775(CFS) Total area = 4.127(Ac.)

+++++
Process from Point/Station 1.100 to Point/Station 1.200
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 4.127(Ac.)
Runoff from this stream = 5.775(CFS)
Time of concentration = 7.53 min.
Rainfall intensity = 1.910(In/Hr)

++++
Process from Point/Station 2.000 to Point/Station 2.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 230.000(Ft.)
Top (of initial area) elevation = 1370.000(Ft.)
Bottom (of initial area) elevation = 1325.000(Ft.)
Difference in elevation = 45.000(Ft.)
Slope = 0.19565 s(percent)= 19.57
TC = $k(0.530)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 6.467 min.
Rainfall intensity = 2.077(In/Hr) for a 2.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.717
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 1) = 71.60
Pervious area fraction = 1.000; Impervious fraction = 0.000
Initial subarea runoff = 1.484(CFS)
Total initial stream area = 0.996(Ac.)
Pervious area fraction = 1.000

++++
Process from Point/Station 2.100 to Point/Station 2.200
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1325.000(Ft.)
End of natural channel elevation = 1292.000(Ft.)
Length of natural channel = 338.000(Ft.)
Estimated mean flow rate at midpoint of channel = 2.994(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
Velocity(ft/s) = $(7 + 8(q(\text{English Units})^{.352})(\text{slope}^{0.5}))$
Velocity using mean channel flow = 5.86(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
Normal channel slope = 0.0976
Corrected/adjusted channel slope = 0.0976
Travel time = 0.96 min. TC = 7.43 min.

Adding area flow to channel

UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.706
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 1) = 71.60
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Rainfall intensity = 1.925(In/Hr) for a 2.0 year storm
 Subarea runoff = 2.754(CFS) for 2.027(Ac.)
 Total runoff = 4.238(CFS) Total area = 3.023(Ac.)

++++++
 Process from Point/Station 2.100 to Point/Station 2.200
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
 Stream flow area = 3.023(Ac.)
 Runoff from this stream = 4.238(CFS)
 Time of concentration = 7.43 min.
 Rainfall intensity = 1.925(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	5.775	7.53	1.910
2	4.238	7.43	1.925

Largest stream flow has longer time of concentration

$Q_p = 5.775 + \text{sum of}$
 $Q_b \quad I_a/I_b$
 $4.238 * 0.992 = 4.206$
 $Q_p = 9.982$

Total of 2 streams to confluence:

Flow rates before confluence point:

5.775 4.238

Area of streams before confluence:

4.127 3.023

Results of confluence:

Total flow rate = 9.982(CFS)

Time of concentration = 7.530 min.

Effective stream area after confluence = 7.150(Ac.)

End of computations, total study area = 7.15 (Ac.)

The following figures may

be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 1.000

Area averaged RI index number = 86.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 02/25/21

File:1162004EX2.out

VALUED ENGINEERING, INC
PRE-DEVELOPED
MEXIN WINERY
10-YEAR STORMEVENT

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6335

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 10.00 Antecedent Moisture Condition = 2

2 year, 1 hour precipitation = 0.610(In.)
100 year, 1 hour precipitation = 1.650(In.)

Storm event year = 10.0
Calculated rainfall intensity data:
1 hour intensity = 1.038(In/Hr)
Slope of intensity duration curve = 0.5500

↑

+++++
Process from Point/Station 1.000 to Point/Station 1.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 284.000(Ft.)
Top (of initial area) elevation = 1390.000(Ft.)
Bottom (of initial area) elevation = 1325.000(Ft.)
Difference in elevation = 65.000(Ft.)
Slope = 0.22887 s(percent)= 22.89

$TC = k(0.530)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 6.818 min.
 Rainfall intensity = 3.432(In/Hr) for a 10.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.846
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 86.00
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Initial subarea runoff = 6.903(CFS)
 Total initial stream area = 2.376(Ac.)
 Pervious area fraction = 1.000

↑

++++++
 Process from Point/Station 1.100 to Point/Station 1.200
 ***** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION *****

Top of natural channel elevation = 1325.000(Ft.)
 End of natural channel elevation = 1293.000(Ft.)
 Length of natural channel = 293.000(Ft.)
 Estimated mean flow rate at midpoint of channel = 9.447(CFS)

Natural valley channel type used
 L.A. County flood control district formula for channel velocity:
 $Velocity(ft/s) = (7 + 8(q(English\ Units)^{.352})(slope^{0.5}))$
 Velocity using mean channel flow = 8.14(Ft/s)

Correction to map slope used on extremely rugged channels with
 drops and waterfalls (Plate D-6.2)
 Normal channel slope = 0.1092
 Corrected/adjusted channel slope = 0.1092
 Travel time = 0.60 min. TC = 7.42 min.

Adding area flow to channel
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.844
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 86.00
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Rainfall intensity = 3.277(In/Hr) for a 10.0 year storm
 Subarea runoff = 4.843(CFS) for 1.751(Ac.)
 Total runoff = 11.747(CFS) Total area = 4.127(Ac.)

↑

+++++

Process from Point/Station 1.100 to Point/Station 1.200
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 4.127(Ac.)
Runoff from this stream = 11.747(CFS)
Time of concentration = 7.42 min.
Rainfall intensity = 3.277(In/Hr)

Process from Point/Station 2.000 to Point/Station 2.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 230.000(Ft.)
Top (of initial area) elevation = 1370.000(Ft.)
Bottom (of initial area) elevation = 1325.000(Ft.)
Difference in elevation = 45.000(Ft.)
Slope = 0.19565 s(percent)= 19.57
TC = $k(0.530)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 6.467 min.
Rainfall intensity = 3.534(In/Hr) for a 10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.848
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 86.00
Pervious area fraction = 1.000; Impervious fraction = 0.000
Initial subarea runoff = 2.984(CFS)
Total initial stream area = 0.996(Ac.)
Pervious area fraction = 1.000

Process from Point/Station 2.100 to Point/Station 2.200
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1325.000(Ft.)
End of natural channel elevation = 1292.000(Ft.)
Length of natural channel = 338.000(Ft.)
Estimated mean flow rate at midpoint of channel = 6.021(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
Velocity(ft/s) = $(7 + 8(q(\text{English Units})^{0.352})(\text{slope}^{0.5}))$
Velocity using mean channel flow = 6.89(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
Normal channel slope = 0.0976

Corrected/adjusted channel slope = 0.0976
 Travel time = 0.82 min. TC = 7.28 min.

Adding area flow to channel
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.845
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 86.00
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Rainfall intensity = 3.310(In/Hr) for a 10.0 year storm
 Subarea runoff = 5.667(CFS) for 2.027(Ac.)
 Total runoff = 8.651(CFS) Total area = 3.023(Ac.)

↑

+++++
 Process from Point/Station 2.100 to Point/Station 2.200
 ***** CONFLUENCE OF MINOR STREAMS *****

Along Main Stream number: 1 in normal stream number 2
 Stream flow area = 3.023(Ac.)
 Runoff from this stream = 8.651(CFS)
 Time of concentration = 7.28 min.
 Rainfall intensity = 3.310(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	11.747	7.42	3.277
2	8.651	7.28	3.310

Largest stream flow has longer time of concentration

Qp = 11.747 + sum of

$$Q_b \quad I_a/I_b$$

$$8.651 * 0.990 = 8.565$$

Qp = 20.311

Total of 2 streams to confluence:
 Flow rates before confluence point:

11.747 8.651

Area of streams before confluence:
 4.127 3.023

Results of confluence:

Total flow rate = 20.311(CFS)

Time of concentration = 7.418 min.

Effective stream area after confluence = 7.150(Ac.)

End of computations, total study area = 7.15 (Ac.)

The following figures may

be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 1.000
Area averaged RI index number = 86.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 02/25/21

File:1162004EX2.out

VALUED ENGINEERING, INC
PRE-DEVELOPED
MEXIN WINERY
100-YEAR STORMEVENT

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6335

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

2 year, 1 hour precipitation = 0.610(In.)
100 year, 1 hour precipitation = 1.650(In.)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.650(In/Hr)
Slope of intensity duration curve = 0.5500

++++
Process from Point/Station 1.000 to Point/Station 1.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 284.000(Ft.)
Top (of initial area) elevation = 1390.000(Ft.)
Bottom (of initial area) elevation = 1325.000(Ft.)
Difference in elevation = 65.000(Ft.)
Slope = 0.22887 s(percent)= 22.89
TC = $k(0.530)*[(length^3)/(elevation\ change)]^{0.2}$

Initial area time of concentration = 6.818 min.
Rainfall intensity = 5.457(In/Hr) for a 100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.887
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 94.40
Pervious area fraction = 1.000; Impervious fraction = 0.000
Initial subarea runoff = 11.502(CFS)
Total initial stream area = 2.376(Ac.)
Pervious area fraction = 1.000

+++++
Process from Point/Station 1.100 to Point/Station 1.200
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1325.000(Ft.)
End of natural channel elevation = 1293.000(Ft.)
Length of natural channel = 293.000(Ft.)
Estimated mean flow rate at midpoint of channel = 15.740(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
Velocity(ft/s) = $(7 + 8(q(\text{English Units})^{.352})(\text{slope}^{.5}))$
Velocity using mean channel flow = 9.29(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
Normal channel slope = 0.1092
Corrected/adjusted channel slope = 0.1092
Travel time = 0.53 min. TC = 7.34 min.

Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.887
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 94.40
Pervious area fraction = 1.000; Impervious fraction = 0.000
Rainfall intensity = 5.238(In/Hr) for a 100.0 year storm
Subarea runoff = 8.132(CFS) for 1.751(Ac.)
Total runoff = 19.635(CFS) Total area = 4.127(Ac.)

+++++
Process from Point/Station 1.100 to Point/Station 1.200
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 4.127(Ac.)
Runoff from this stream = 19.635(CFS)
Time of concentration = 7.34 min.
Rainfall intensity = 5.238(In/Hr)

+++++
Process from Point/Station 2.000 to Point/Station 2.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 230.000(Ft.)
Top (of initial area) elevation = 1370.000(Ft.)
Bottom (of initial area) elevation = 1325.000(Ft.)
Difference in elevation = 45.000(Ft.)
Slope = 0.19565 s(percent)= 19.57
TC = $k(0.530)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 6.467 min.
Rainfall intensity = 5.618(In/Hr) for a 100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 94.40
Pervious area fraction = 1.000; Impervious fraction = 0.000
Initial subarea runoff = 4.966(CFS)
Total initial stream area = 0.996(Ac.)
Pervious area fraction = 1.000

+++++
Process from Point/Station 2.100 to Point/Station 2.200
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****

Top of natural channel elevation = 1325.000(Ft.)
End of natural channel elevation = 1292.000(Ft.)
Length of natural channel = 338.000(Ft.)
Estimated mean flow rate at midpoint of channel = 10.020(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
Velocity(ft/s) = $(7 + 8(q(\text{English Units})^{.352})(\text{slope}^{0.5}))$
Velocity using mean channel flow = 7.81(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
Normal channel slope = 0.0976
Corrected/adjusted channel slope = 0.0976
Travel time = 0.72 min. TC = 7.19 min.

Adding area flow to channel

UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.887
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 94.40
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Rainfall intensity = 5.301(In/Hr) for a 100.0 year storm
 Subarea runoff = 9.528(CFS) for 2.027(Ac.)
 Total runoff = 14.494(CFS) Total area = 3.023(Ac.)

++++++
 Process from Point/Station 2.100 to Point/Station 2.200
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
 Stream flow area = 3.023(Ac.)
 Runoff from this stream = 14.494(CFS)
 Time of concentration = 7.19 min.
 Rainfall intensity = 5.301(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	19.635	7.34	5.238
2	14.494	7.19	5.301

Largest stream flow has longer time of concentration

$Q_p = 19.635 + \text{sum of}$
 $\frac{Q_b}{I_a/I_b}$
 $14.494 * 0.988 = 14.324$
 $Q_p = 33.958$

Total of 2 streams to confluence:

Flow rates before confluence point:

19.635 14.494

Area of streams before confluence:

4.127 3.023

Results of confluence:

Total flow rate = 33.958(CFS)

Time of concentration = 7.344 min.

Effective stream area after confluence = 7.150(Ac.)

End of computations, total study area = 7.15 (Ac.)

The following figures may

be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 1.000

Area averaged RI index number = 86.0

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 02/25/21

File:1162004PR2.out

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
POST-DEVELOPED
2-YEAR STORMEVENT, RATIONAL METHOD

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6335

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 2.00 Antecedent Moisture Condition = 1

2 year, 1 hour precipitation = 0.610(In.)
100 year, 1 hour precipitation = 1.650(In.)

Storm event year = 2.0
Calculated rainfall intensity data:
1 hour intensity = 0.610(In/Hr)
Slope of intensity duration curve = 0.5500

+++++
Process from Point/Station 1.000 to Point/Station 1.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 282.000(Ft.)
Top (of initial area) elevation = 1390.000(Ft.)
Bottom (of initial area) elevation = 1316.000(Ft.)
Difference in elevation = 74.000(Ft.)
Slope = 0.26241 s(percent)= 26.24
 $TC = k(0.300)^*[(length^3)/(elevation\ change)]^{0.2}$

Warning: TC computed to be less than 5 min.; program is assuming the time of concentration is 5 minutes.

Initial area time of concentration = 5.000 min.

Rainfall intensity = 2.393(In/Hr) for a 2.0 year storm

COMMERCIAL subarea type

Runoff Coefficient = 0.868

Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000

Decimal fraction soil group C = 1.000

Decimal fraction soil group D = 0.000

RI index for soil(AMC 1) = 49.80

Pervious area fraction = 0.100; Impervious fraction = 0.900

Initial subarea runoff = 4.932(CFS)

Total initial stream area = 2.376(Ac.)

Pervious area fraction = 0.100

+++++
Process from Point/Station 1.100 to Point/Station 1.200
**** IMPROVED CHANNEL TRAVEL TIME ****

Upstream point elevation = 1319.000(Ft.)

Downstream point elevation = 1315.500(Ft.)

Channel length thru subarea = 272.000(Ft.)

Channel base width = 3.000(Ft.)

Slope or 'Z' of left channel bank = 0.500

Slope or 'Z' of right channel bank = 0.500

Estimated mean flow rate at midpoint of channel = 4.968(CFS)

Manning's 'N' = 0.015

Maximum depth of channel = 1.000(Ft.)

Flow(q) thru subarea = 4.968(CFS)

Depth of flow = 0.328(Ft.), Average velocity = 4.787(Ft/s)

Channel flow top width = 3.328(Ft.)

Flow Velocity = 4.79(Ft/s)

Travel time = 0.95 min.

Time of concentration = 5.95 min.

Sub-Channel No. 1 Critical depth = 0.430(Ft.)

' ' ' Critical flow top width = 3.430(Ft.)

' ' ' Critical flow velocity = 3.596(Ft/s)

' ' ' Critical flow area = 1.381(Sq.Ft)

Adding area flow to channel

COMMERCIAL subarea type

Runoff Coefficient = 0.866

Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000

Decimal fraction soil group C = 1.000

Decimal fraction soil group D = 0.000

RI index for soil(AMC 1) = 49.80

Pervious area fraction = 0.100; Impervious fraction = 0.900

Rainfall intensity = 2.175(In/Hr) for a 2.0 year storm

Subarea runoff = 0.064(CFS) for 0.034(Ac.)

Total runoff = 4.996(CFS) Total area = 2.410(Ac.)

Depth of flow = 0.329(Ft.), Average velocity = 4.796(Ft/s)

Sub-Channel No. 1 Critical depth = 0.430(Ft.)
' ' ' Critical flow top width = 3.430(Ft.)
' ' ' Critical flow velocity= 3.617(Ft/s)
' ' ' Critical flow area = 1.381(Sq.Ft)

++++
Process from Point/Station 1.100 to Point/Station 1.200
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 2.410(Ac.)
Runoff from this stream = 4.996(CFS)
Time of concentration = 5.95 min.
Rainfall intensity = 2.175(In/Hr)

++++
Process from Point/Station 1.300 to Point/Station 1.400
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 42.000(Ft.)
Top (of initial area) elevation = 1314.000(Ft.)
Bottom (of initial area) elevation = 1292.000(Ft.)
Difference in elevation = 22.000(Ft.)
Slope = 0.52381 s(percent)= 52.38
TC = $k(0.300)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration = 5.000 min.
Rainfall intensity = 2.393(In/Hr) for a 2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.868
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 1) = 49.80
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 1.327(CFS)
Total initial stream area = 0.639(Ac.)
Pervious area fraction = 0.100

++++
Process from Point/Station 1.300 to Point/Station 1.400
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 0.639(Ac.)
Runoff from this stream = 1.327(CFS)

Time of concentration = 5.00 min.
 Rainfall intensity = 2.393(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	4.996	5.95	2.175
2	1.327	5.00	2.393

Largest stream flow has longer time of concentration

Qp = 4.996 + sum of
 Qb Ia/Ib
 1.327 * 0.909 = 1.206
 Qp = 6.202

Total of 2 streams to confluence:

Flow rates before confluence point:

4.996 1.327

Area of streams before confluence:

2.410 0.639

Results of confluence:

Total flow rate = 6.202(CFS)

Time of concentration = 5.947 min.

Effective stream area after confluence = 3.049(Ac.)

+++++
 Process from Point/Station 2.000 to Point/Station 2.100
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 230.000(Ft.)
 Top (of initial area) elevation = 1370.000(Ft.)
 Bottom (of initial area) elevation = 1324.000(Ft.)
 Difference in elevation = 46.000(Ft.)
 Slope = 0.20000 s(percent)= 20.00
 $TC = k(0.530)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 6.438 min.
 Rainfall intensity = 2.082(In/Hr) for a 2.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.718
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 1) = 71.60
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Initial subarea runoff = 1.487(CFS)
 Total initial stream area = 0.995(Ac.)
 Pervious area fraction = 1.000

+++++
 Process from Point/Station 2.100 to Point/Station 2.200

**** IMPROVED CHANNEL TRAVEL TIME ****

Upstream point elevation = 1324.000(Ft.)
Downstream point elevation = 1312.000(Ft.)
Channel length thru subarea = 28.000(Ft.)
Channel base width = 3.000(Ft.)
Slope or 'Z' of left channel bank = 0.500
Slope or 'Z' of right channel bank = 0.500
Estimated mean flow rate at midpoint of channel = 1.618(CFS)
Manning's 'N' = 0.015
Maximum depth of channel = 1.000(Ft.)
Flow(q) thru subarea = 1.618(CFS)
Depth of flow = 0.057(Ft.), Average velocity = 9.389(Ft/s)
Channel flow top width = 3.057(Ft.)
Flow Velocity = 9.39(Ft/s)
Travel time = 0.05 min.
Time of concentration = 6.49 min.

Sub-Channel No. 1 Critical depth = 0.207(Ft.)
' ' ' Critical flow top width = 3.207(Ft.)
' ' ' Critical flow velocity = 2.518(Ft/s)
' ' ' Critical flow area = 0.643(Sq.Ft)

Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.865
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 1) = 49.80
Pervious area fraction = 0.100; Impervious fraction = 0.900
Rainfall intensity = 2.073(In/Hr) for a 2.0 year storm
Subarea runoff = 0.314(CFS) for 0.175(Ac.)
Total runoff = 1.801(CFS) Total area = 1.170(Ac.)
Depth of flow = 0.061(Ft.), Average velocity = 9.790(Ft/s)

Sub-Channel No. 1 Critical depth = 0.221(Ft.)
' ' ' Critical flow top width = 3.221(Ft.)
' ' ' Critical flow velocity = 2.623(Ft/s)
' ' ' Critical flow area = 0.686(Sq.Ft)

+++++
Process from Point/Station 2.200 to Point/Station 2.300
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1312.000(Ft.)
Downstream point/station elevation = 1303.500(Ft.)
Pipe length = 230.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 1.801(CFS)
Nearest computed pipe diameter = 9.00(In.)
Calculated individual pipe flow = 1.801(CFS)

Normal flow depth in pipe = 4.85(In.)
Flow top width inside pipe = 8.97(In.)
Critical Depth = 7.38(In.)
Pipe flow velocity = 7.42(Ft/s)
Travel time through pipe = 0.52 min.
Time of concentration (TC) = 7.00 min.

++++
Process from Point/Station 2.200 to Point/Station 2.300
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 1.170(Ac.)
Runoff from this stream = 1.801(CFS)
Time of concentration = 7.00 min.
Rainfall intensity = 1.988(In/Hr)
Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	1.801	7.00	1.988

Largest stream flow has longer time of concentration
Qp = 1.801 + sum of
Qp = 1.801

Total of 1 streams to confluence:
Flow rates before confluence point:
1.801
Area of streams before confluence:
1.170
Results of confluence:
Total flow rate = 1.801(CFS)
Time of concentration = 7.004 min.
Effective stream area after confluence = 1.170(Ac.)

++++
Process from Point/Station 3.000 to Point/Station 3.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 400.000(Ft.)
Top (of initial area) elevation = 1315.800(Ft.)
Bottom (of initial area) elevation = 1313.620(Ft.)
Difference in elevation = 2.180(Ft.)
Slope = 0.00545 s(percent)= 0.55
TC = $k(0.300)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 9.347 min.
Rainfall intensity = 1.696(In/Hr) for a 2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.860
Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 1) = 49.80
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 2.454(CFS)
Total initial stream area = 1.682(Ac.)
Pervious area fraction = 0.100

+++++
Process from Point/Station 3.100 to Point/Station 3.200
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1313.620(Ft.)
Downstream point/station elevation = 1310.400(Ft.)
Pipe length = 312.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 2.454(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 2.454(CFS)
Normal flow depth in pipe = 7.24(In.)
Flow top width inside pipe = 11.74(In.)
Critical Depth = 8.05(In.)
Pipe flow velocity = 4.95(Ft/s)
Travel time through pipe = 1.05 min.
Time of concentration (TC) = 10.40 min.

+++++
Process from Point/Station 3.100 to Point/Station 3.200
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 1.682(Ac.)
Runoff from this stream = 2.454(CFS)
Time of concentration = 10.40 min.
Rainfall intensity = 1.600(In/Hr)

+++++
Process from Point/Station 3.300 to Point/Station 3.400
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 506.000(Ft.)
Top (of initial area) elevation = 1315.460(Ft.)
Bottom (of initial area) elevation = 1310.510(Ft.)
Difference in elevation = 4.950(Ft.)
Slope = 0.00978 s(percent)= 0.98
TC = $k(0.300)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 9.135 min.
Rainfall intensity = 1.718(In/Hr) for a 2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.860
Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 1) = 49.80
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 0.977(CFS)
Total initial stream area = 0.661(Ac.)
Pervious area fraction = 0.100

+++++
Process from Point/Station 3.400 to Point/Station 3.200
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1310.510(Ft.)
Downstream point/station elevation = 1310.400(Ft.)
Pipe length = 31.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 0.977(CFS)
Nearest computed pipe diameter = 9.00(In.)
Calculated individual pipe flow = 0.977(CFS)
Normal flow depth in pipe = 7.31(In.)
Flow top width inside pipe = 7.03(In.)
Critical Depth = 5.44(In.)
Pipe flow velocity = 2.54(Ft/s)
Travel time through pipe = 0.20 min.
Time of concentration (TC) = 9.34 min.

+++++
Process from Point/Station 3.400 to Point/Station 3.200
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 0.661(Ac.)
Runoff from this stream = 0.977(CFS)
Time of concentration = 9.34 min.
Rainfall intensity = 1.697(In/Hr)

+++++
Process from Point/Station 3.500 to Point/Station 3.600
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 130.000(Ft.)
Top (of initial area) elevation = 1312.100(Ft.)
Bottom (of initial area) elevation = 1310.900(Ft.)
Difference in elevation = 1.200(Ft.)
Slope = 0.00923 s(percent)= 0.92
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 5.366 min.
Rainfall intensity = 2.301(In/Hr) for a 2.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.867
Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 1) = 49.80
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 1.169(CFS)
 Total initial stream area = 0.586(Ac.)
 Pervious area fraction = 0.100

++++++
 Process from Point/Station 3.600 to Point/Station 3.200
 ***** PIPEFLOW TRAVEL TIME (Program estimated size) *****

Upstream point/station elevation = 1310.900(Ft.)
 Downstream point/station elevation = 1310.400(Ft.)
 Pipe length = 103.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 1.169(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 1.169(CFS)
 Normal flow depth in pipe = 5.79(In.)
 Flow top width inside pipe = 11.99(In.)
 Critical Depth = 5.47(In.)
 Pipe flow velocity = 3.11(Ft/s)
 Travel time through pipe = 0.55 min.
 Time of concentration (TC) = 5.92 min.

++++++
 Process from Point/Station 3.600 to Point/Station 3.200
 ***** CONFLUENCE OF MINOR STREAMS *****

Along Main Stream number: 1 in normal stream number 3
 Stream flow area = 0.586(Ac.)
 Runoff from this stream = 1.169(CFS)
 Time of concentration = 5.92 min.
 Rainfall intensity = 2.181(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	2.454	10.40	1.600
2	0.977	9.34	1.697
3	1.169	5.92	2.181

Largest stream flow has longer time of concentration

Qp = 2.454 + sum of
 Qb Ia/Ib
 0.977 * 0.943 = 0.921
 Qb Ia/Ib
 1.169 * 0.733 = 0.857
 Qp = 4.232

Total of 3 streams to confluence:

Flow rates before confluence point:

2.454 0.977 1.169

Area of streams before confluence:

1.682 0.661 0.586

Results of confluence:

Total flow rate = 4.232(CFS)

Time of concentration = 10.397 min.

Effective stream area after confluence = 2.929(Ac.)

End of computations, total study area = 7.15 (Ac.)

The following figures may

be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 0.225

Area averaged RI index number = 71.4

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 02/25/21

File:1162004PR2.out

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
POST-DEVELOPED
10-YEAR STORMEVENT

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6335

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 10.00 Antecedent Moisture Condition = 2

2 year, 1 hour precipitation = 0.610(In.)

100 year, 1 hour precipitation = 1.650(In.)

Storm event year = 10.0

Calculated rainfall intensity data:

1 hour intensity = 1.038(In/Hr)

Slope of intensity duration curve = 0.5500

++++
Process from Point/Station 1.000 to Point/Station 1.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 282.000(Ft.)

Top (of initial area) elevation = 1390.000(Ft.)

Bottom (of initial area) elevation = 1316.000(Ft.)

Difference in elevation = 74.000(Ft.)

Slope = 0.26241 s(percent)= 26.24

TC = $k(0.300)^*[(\text{length}^3)/(\text{elevation change})]^{0.2}$

Warning: TC computed to be less than 5 min.; program is assuming the time of concentration is 5 minutes.

Initial area time of concentration = 5.000 min.

Rainfall intensity = 4.071(In/Hr) for a 10.0 year storm

COMMERCIAL subarea type

Runoff Coefficient = 0.888

Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000

Decimal fraction soil group C = 1.000

Decimal fraction soil group D = 0.000

RI index for soil(AMC 2) = 69.00

Pervious area fraction = 0.100; Impervious fraction = 0.900

Initial subarea runoff = 8.594(CFS)

Total initial stream area = 2.376(Ac.)

Pervious area fraction = 0.100

+++++
Process from Point/Station 1.100 to Point/Station 1.200
**** IMPROVED CHANNEL TRAVEL TIME ****

Upstream point elevation = 1319.000(Ft.)

Downstream point elevation = 1315.500(Ft.)

Channel length thru subarea = 272.000(Ft.)

Channel base width = 3.000(Ft.)

Slope or 'Z' of left channel bank = 0.500

Slope or 'Z' of right channel bank = 0.500

Estimated mean flow rate at midpoint of channel = 8.655(CFS)

Manning's 'N' = 0.015

Maximum depth of channel = 1.000(Ft.)

Flow(q) thru subarea = 8.655(CFS)

Depth of flow = 0.462(Ft.), Average velocity = 5.795(Ft/s)

Channel flow top width = 3.462(Ft.)

Flow Velocity = 5.79(Ft/s)

Travel time = 0.78 min.

Time of concentration = 5.78 min.

Sub-Channel No. 1 Critical depth = 0.617(Ft.)

' ' ' Critical flow top width = 3.617(Ft.)

' ' ' Critical flow velocity = 4.238(Ft/s)

' ' ' Critical flow area = 2.042(Sq.Ft)

Adding area flow to channel

COMMERCIAL subarea type

Runoff Coefficient = 0.888

Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000

Decimal fraction soil group C = 1.000

Decimal fraction soil group D = 0.000

RI index for soil(AMC 2) = 69.00

Pervious area fraction = 0.100; Impervious fraction = 0.900

Rainfall intensity = 3.758(In/Hr) for a 10.0 year storm

Subarea runoff = 0.113(CFS) for 0.034(Ac.)

Total runoff = 8.707(CFS) Total area = 2.410(Ac.)

Depth of flow = 0.464(Ft.), Average velocity = 5.806(Ft/s)

Sub-Channel No. 1 Critical depth = 0.617(Ft.)
' ' ' Critical flow top width = 3.617(Ft.)
' ' ' Critical flow velocity= 4.264(Ft/s)
' ' ' Critical flow area = 2.042(Sq.Ft)

++++
Process from Point/Station 1.100 to Point/Station 1.200
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 2.410(Ac.)
Runoff from this stream = 8.707(CFS)
Time of concentration = 5.78 min.
Rainfall intensity = 3.758(In/Hr)

++++
Process from Point/Station 1.300 to Point/Station 1.400
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 42.000(Ft.)
Top (of initial area) elevation = 1314.000(Ft.)
Bottom (of initial area) elevation = 1292.000(Ft.)
Difference in elevation = 22.000(Ft.)
Slope = 0.52381 s(percent)= 52.38
TC = $k(0.300)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration = 5.000 min.
Rainfall intensity = 4.071(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 69.00
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 2.311(CFS)
Total initial stream area = 0.639(Ac.)
Pervious area fraction = 0.100

++++
Process from Point/Station 1.300 to Point/Station 1.400
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 0.639(Ac.)
Runoff from this stream = 2.311(CFS)

Time of concentration = 5.00 min.
 Rainfall intensity = 4.071(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	8.707	5.78	3.758
2	2.311	5.00	4.071

Largest stream flow has longer time of concentration

Qp = 8.707 + sum of
 Qb Ia/Ib
 2.311 * 0.923 = 2.134

Qp = 10.841

Total of 2 streams to confluence:

Flow rates before confluence point:

8.707 2.311

Area of streams before confluence:

2.410 0.639

Results of confluence:

Total flow rate = 10.841(CFS)

Time of concentration = 5.782 min.

Effective stream area after confluence = 3.049(Ac.)

+++++
 Process from Point/Station 2.000 to Point/Station 2.100
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 230.000(Ft.)
 Top (of initial area) elevation = 1370.000(Ft.)
 Bottom (of initial area) elevation = 1324.000(Ft.)
 Difference in elevation = 46.000(Ft.)
 Slope = 0.20000 s(percent)= 20.00
 $TC = k(0.530)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 6.438 min.
 Rainfall intensity = 3.542(In/Hr) for a 10.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.848
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 86.00
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Initial subarea runoff = 2.989(CFS)
 Total initial stream area = 0.995(Ac.)
 Pervious area fraction = 1.000

+++++
 Process from Point/Station 2.100 to Point/Station 2.200

**** IMPROVED CHANNEL TRAVEL TIME ****

Upstream point elevation = 1324.000(Ft.)
 Downstream point elevation = 1312.000(Ft.)
 Channel length thru subarea = 28.000(Ft.)
 Channel base width = 3.000(Ft.)
 Slope or 'Z' of left channel bank = 0.500
 Slope or 'Z' of right channel bank = 0.500
 Estimated mean flow rate at midpoint of channel = 3.252(CFS)
 Manning's 'N' = 0.015
 Maximum depth of channel = 1.000(Ft.)
 Flow(q) thru subarea = 3.252(CFS)
 Depth of flow = 0.087(Ft.), Average velocity = 12.311(Ft/s)
 Channel flow top width = 3.087(Ft.)
 Flow Velocity = 12.31(Ft/s)
 Travel time = 0.04 min.
 Time of concentration = 6.48 min.

Sub-Channel No. 1 Critical depth = 0.324(Ft.)
 ' ' ' Critical flow top width = 3.324(Ft.)
 ' ' ' Critical flow velocity = 3.172(Ft/s)
 ' ' ' Critical flow area = 1.025(Sq.Ft)

Adding area flow to channel
 COMMERCIAL subarea type
 Runoff Coefficient = 0.887
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 69.00
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Rainfall intensity = 3.531(In/Hr) for a 10.0 year storm
 Subarea runoff = 0.548(CFS) for 0.175(Ac.)
 Total runoff = 3.537(CFS) Total area = 1.170(Ac.)
 Depth of flow = 0.091(Ft.), Average velocity = 12.715(Ft/s)

Sub-Channel No. 1 Critical depth = 0.344(Ft.)
 ' ' ' Critical flow top width = 3.344(Ft.)
 ' ' ' Critical flow velocity = 3.244(Ft/s)
 ' ' ' Critical flow area = 1.090(Sq.Ft)

+++++
 Process from Point/Station 2.200 to Point/Station 2.300
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1312.000(Ft.)
 Downstream point/station elevation = 1303.500(Ft.)
 Pipe length = 230.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 3.537(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 3.537(CFS)

Normal flow depth in pipe = 6.12(In.)
Flow top width inside pipe = 12.00(In.)
Critical Depth = 9.64(In.)
Pipe flow velocity = 8.79(Ft/s)
Travel time through pipe = 0.44 min.
Time of concentration (TC) = 6.91 min.

++++
Process from Point/Station 2.200 to Point/Station 2.300
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 1.170(Ac.)
Runoff from this stream = 3.537(CFS)
Time of concentration = 6.91 min.
Rainfall intensity = 3.407(In/Hr)
Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	3.537	6.91	3.407

Largest stream flow has longer time of concentration
Qp = 3.537 + sum of
Qp = 3.537

Total of 1 streams to confluence:
Flow rates before confluence point:
3.537
Area of streams before confluence:
1.170
Results of confluence:
Total flow rate = 3.537(CFS)
Time of concentration = 6.912 min.
Effective stream area after confluence = 1.170(Ac.)

++++
Process from Point/Station 3.000 to Point/Station 3.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 400.000(Ft.)
Top (of initial area) elevation = 1315.800(Ft.)
Bottom (of initial area) elevation = 1313.620(Ft.)
Difference in elevation = 2.180(Ft.)
Slope = 0.00545 s(percent)= 0.55
TC = $k(0.300)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 9.347 min.
Rainfall intensity = 2.886(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.885
Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 69.00
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 4.293(CFS)
Total initial stream area = 1.682(Ac.)
Pervious area fraction = 0.100

+++++
Process from Point/Station 3.100 to Point/Station 3.200
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1313.620(Ft.)
Downstream point/station elevation = 1310.400(Ft.)
Pipe length = 312.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 4.293(CFS)
Nearest computed pipe diameter = 15.00(In.)
Calculated individual pipe flow = 4.293(CFS)
Normal flow depth in pipe = 8.85(In.)
Flow top width inside pipe = 14.76(In.)
Critical Depth = 10.07(In.)
Pipe flow velocity = 5.70(Ft/s)
Travel time through pipe = 0.91 min.
Time of concentration (TC) = 10.26 min.

+++++
Process from Point/Station 3.100 to Point/Station 3.200
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 1.682(Ac.)
Runoff from this stream = 4.293(CFS)
Time of concentration = 10.26 min.
Rainfall intensity = 2.742(In/Hr)

+++++
Process from Point/Station 3.300 to Point/Station 3.400
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 506.000(Ft.)
Top (of initial area) elevation = 1315.460(Ft.)
Bottom (of initial area) elevation = 1310.510(Ft.)
Difference in elevation = 4.950(Ft.)
Slope = 0.00978 s(percent)= 0.98
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
Initial area time of concentration = 9.135 min.
Rainfall intensity = 2.922(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.885
Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 69.00
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 1.709(CFS)
Total initial stream area = 0.661(Ac.)
Pervious area fraction = 0.100

+++++
Process from Point/Station 3.400 to Point/Station 3.200
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1310.510(Ft.)
Downstream point/station elevation = 1310.400(Ft.)
Pipe length = 31.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 1.709(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 1.709(CFS)
Normal flow depth in pipe = 8.16(In.)
Flow top width inside pipe = 11.20(In.)
Critical Depth = 6.67(In.)
Pipe flow velocity = 3.01(Ft/s)
Travel time through pipe = 0.17 min.
Time of concentration (TC) = 9.31 min.

+++++
Process from Point/Station 3.400 to Point/Station 3.200
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 0.661(Ac.)
Runoff from this stream = 1.709(CFS)
Time of concentration = 9.31 min.
Rainfall intensity = 2.893(In/Hr)

+++++
Process from Point/Station 3.500 to Point/Station 3.600
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 130.000(Ft.)
Top (of initial area) elevation = 1312.100(Ft.)
Bottom (of initial area) elevation = 1310.900(Ft.)
Difference in elevation = 1.200(Ft.)
Slope = 0.00923 s(percent)= 0.92
TC = $k(0.300)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 5.366 min.
Rainfall intensity = 3.916(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 2) = 69.00
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 2.038(CFS)
 Total initial stream area = 0.586(Ac.)
 Pervious area fraction = 0.100

++++++
 Process from Point/Station 3.600 to Point/Station 3.200
 ***** PIPEFLOW TRAVEL TIME (Program estimated size) *****

Upstream point/station elevation = 1310.900(Ft.)
 Downstream point/station elevation = 1310.400(Ft.)
 Pipe length = 103.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 2.038(CFS)
 Nearest computed pipe diameter = 12.00(In.)
 Calculated individual pipe flow = 2.038(CFS)
 Normal flow depth in pipe = 8.27(In.)
 Flow top width inside pipe = 11.11(In.)
 Critical Depth = 7.31(In.)
 Pipe flow velocity = 3.53(Ft/s)
 Travel time through pipe = 0.49 min.
 Time of concentration (TC) = 5.85 min.

++++++
 Process from Point/Station 3.600 to Point/Station 3.200
 ***** CONFLUENCE OF MINOR STREAMS *****

Along Main Stream number: 1 in normal stream number 3
 Stream flow area = 0.586(Ac.)
 Runoff from this stream = 2.038(CFS)
 Time of concentration = 5.85 min.
 Rainfall intensity = 3.733(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	4.293	10.26	2.742
2	1.709	9.31	2.893
3	2.038	5.85	3.733

Largest stream flow has longer time of concentration

Qp = 4.293 + sum of
 Qb Ia/Ib
 1.709 * 0.948 = 1.620
 Qb Ia/Ib
 2.038 * 0.734 = 1.497
 Qp = 7.410

Total of 3 streams to confluence:

Flow rates before confluence point:

4.293 1.709 2.038

Area of streams before confluence:

1.682 0.661 0.586

Results of confluence:

Total flow rate = 7.410(CFS)

Time of concentration = 10.259 min.

Effective stream area after confluence = 2.929(Ac.)

End of computations, total study area = 7.15 (Ac.)

The following figures may

be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 0.225

Area averaged RI index number = 71.4

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989 - 2014 Version 9.0
Rational Hydrology Study Date: 02/25/21

File:1162004PR2.out

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
POST-DEVELOPED
10-YEAR STORMEVENT

***** Hydrology Study Control Information *****

English (in-lb) Units used in input data file

Program License Serial Number 6335

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

2 year, 1 hour precipitation = 0.610(In.)

100 year, 1 hour precipitation = 1.650(In.)

Storm event year = 100.0

Calculated rainfall intensity data:

1 hour intensity = 1.650(In/Hr)

Slope of intensity duration curve = 0.5500

++++
Process from Point/Station 1.000 to Point/Station 1.100
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 282.000(Ft.)

Top (of initial area) elevation = 1390.000(Ft.)

Bottom (of initial area) elevation = 1316.000(Ft.)

Difference in elevation = 74.000(Ft.)

Slope = 0.26241 s(percent)= 26.24

TC = $k(0.300)^*[(\text{length}^3)/(\text{elevation change})]^{0.2}$

Warning: TC computed to be less than 5 min.; program is assuming the time of concentration is 5 minutes.

Initial area time of concentration = 5.000 min.

Rainfall intensity = 6.472(In/Hr) for a 100.0 year storm

COMMERCIAL subarea type

Runoff Coefficient = 0.897

Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000

Decimal fraction soil group C = 1.000

Decimal fraction soil group D = 0.000

RI index for soil(AMC 3) = 84.40

Pervious area fraction = 0.100; Impervious fraction = 0.900

Initial subarea runoff = 13.789(CFS)

Total initial stream area = 2.376(Ac.)

Pervious area fraction = 0.100

+++++
Process from Point/Station 1.100 to Point/Station 1.200
**** IMPROVED CHANNEL TRAVEL TIME ****

Upstream point elevation = 1319.000(Ft.)

Downstream point elevation = 1315.500(Ft.)

Channel length thru subarea = 272.000(Ft.)

Channel base width = 3.000(Ft.)

Slope or 'Z' of left channel bank = 0.500

Slope or 'Z' of right channel bank = 0.500

Estimated mean flow rate at midpoint of channel = 13.887(CFS)

Manning's 'N' = 0.015

Maximum depth of channel = 1.000(Ft.)

Flow(q) thru subarea = 13.887(CFS)

Depth of flow = 0.620(Ft.), Average velocity = 6.771(Ft/s)

Channel flow top width = 3.620(Ft.)

Flow Velocity = 6.77(Ft/s)

Travel time = 0.67 min.

Time of concentration = 5.67 min.

Sub-Channel No. 1 Critical depth = 0.828(Ft.)

' ' ' Critical flow top width = 3.828(Ft.)

' ' ' Critical flow velocity = 4.912(Ft/s)

' ' ' Critical flow area = 2.827(Sq.Ft)

Adding area flow to channel

COMMERCIAL subarea type

Runoff Coefficient = 0.896

Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000

Decimal fraction soil group C = 1.000

Decimal fraction soil group D = 0.000

RI index for soil(AMC 3) = 84.40

Pervious area fraction = 0.100; Impervious fraction = 0.900

Rainfall intensity = 6.040(In/Hr) for a 100.0 year storm

Subarea runoff = 0.184(CFS) for 0.034(Ac.)

Total runoff = 13.973(CFS) Total area = 2.410(Ac.)

Depth of flow = 0.622(Ft.), Average velocity = 6.784(Ft/s)

Sub-Channel No. 1 Critical depth = 0.836(Ft.)
' ' ' Critical flow top width = 3.836(Ft.)
' ' ' Critical flow velocity= 4.890(Ft/s)
' ' ' Critical flow area = 2.857(Sq.Ft)

++++
Process from Point/Station 1.100 to Point/Station 1.200
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 2.410(Ac.)
Runoff from this stream = 13.973(CFS)
Time of concentration = 5.67 min.
Rainfall intensity = 6.040(In/Hr)

++++
Process from Point/Station 1.300 to Point/Station 1.400
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 42.000(Ft.)
Top (of initial area) elevation = 1314.000(Ft.)
Bottom (of initial area) elevation = 1292.000(Ft.)
Difference in elevation = 22.000(Ft.)
Slope = 0.52381 s(percent)= 52.38
TC = $k(0.300)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Warning: TC computed to be less than 5 min.; program is assuming the
time of concentration is 5 minutes.
Initial area time of concentration = 5.000 min.
Rainfall intensity = 6.472(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.897
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 84.40
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 3.708(CFS)
Total initial stream area = 0.639(Ac.)
Pervious area fraction = 0.100

++++
Process from Point/Station 1.300 to Point/Station 1.400
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 0.639(Ac.)
Runoff from this stream = 3.708(CFS)

Time of concentration = 5.00 min.
 Rainfall intensity = 6.472(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	13.973	5.67	6.040
2	3.708	5.00	6.472

Largest stream flow has longer time of concentration

Qp = 13.973 + sum of
 Qb Ia/Ib
 3.708 * 0.933 = 3.461

Qp = 17.434

Total of 2 streams to confluence:

Flow rates before confluence point:

13.973 3.708

Area of streams before confluence:

2.410 0.639

Results of confluence:

Total flow rate = 17.434(CFS)

Time of concentration = 5.670 min.

Effective stream area after confluence = 3.049(Ac.)

+++++
 Process from Point/Station 2.000 to Point/Station 2.100
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 230.000(Ft.)
 Top (of initial area) elevation = 1370.000(Ft.)
 Bottom (of initial area) elevation = 1324.000(Ft.)
 Difference in elevation = 46.000(Ft.)
 Slope = 0.20000 s(percent)= 20.00
 $TC = k(0.530)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 6.438 min.
 Rainfall intensity = 5.632(In/Hr) for a 100.0 year storm
 UNDEVELOPED (poor cover) subarea
 Runoff Coefficient = 0.888
 Decimal fraction soil group A = 0.000
 Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 94.40
 Pervious area fraction = 1.000; Impervious fraction = 0.000
 Initial subarea runoff = 4.973(CFS)
 Total initial stream area = 0.995(Ac.)
 Pervious area fraction = 1.000

+++++
 Process from Point/Station 2.100 to Point/Station 2.200

**** IMPROVED CHANNEL TRAVEL TIME ****

Upstream point elevation = 1324.000(Ft.)
Downstream point elevation = 1312.000(Ft.)
Channel length thru subarea = 28.000(Ft.)
Channel base width = 3.000(Ft.)
Slope or 'Z' of left channel bank = 0.500
Slope or 'Z' of right channel bank = 0.500
Estimated mean flow rate at midpoint of channel = 5.411(CFS)
Manning's 'N' = 0.015
Maximum depth of channel = 1.000(Ft.)
Flow(q) thru subarea = 5.411(CFS)
Depth of flow = 0.118(Ft.), Average velocity = 14.960(Ft/s)
Channel flow top width = 3.118(Ft.)
Flow Velocity = 14.96(Ft/s)
Travel time = 0.03 min.
Time of concentration = 6.47 min.

Sub-Channel No. 1 Critical depth = 0.453(Ft.)
' ' ' Critical flow top width = 3.453(Ft.)
' ' ' Critical flow velocity = 3.701(Ft/s)
' ' ' Critical flow area = 1.462(Sq.Ft)

Adding area flow to channel
COMMERCIAL subarea type
Runoff Coefficient = 0.896
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 84.40
Pervious area fraction = 0.100; Impervious fraction = 0.900
Rainfall intensity = 5.617(In/Hr) for a 100.0 year storm
Subarea runoff = 0.881(CFS) for 0.175(Ac.)
Total runoff = 5.854(CFS) Total area = 1.170(Ac.)
Depth of flow = 0.124(Ft.), Average velocity = 15.415(Ft/s)

Sub-Channel No. 1 Critical depth = 0.477(Ft.)
' ' ' Critical flow top width = 3.477(Ft.)
' ' ' Critical flow velocity = 3.794(Ft/s)
' ' ' Critical flow area = 1.543(Sq.Ft)

+++++
Process from Point/Station 2.200 to Point/Station 2.300
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1312.000(Ft.)
Downstream point/station elevation = 1303.500(Ft.)
Pipe length = 230.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 5.854(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 5.854(CFS)

Normal flow depth in pipe = 8.53(In.)
 Flow top width inside pipe = 10.88(In.)
 Critical depth could not be calculated.
 Pipe flow velocity = 9.80(Ft/s)
 Travel time through pipe = 0.39 min.
 Time of concentration (TC) = 6.86 min.

++++++
 Process from Point/Station 2.200 to Point/Station 2.300
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
 Stream flow area = 1.170(Ac.)
 Runoff from this stream = 5.854(CFS)
 Time of concentration = 6.86 min.
 Rainfall intensity = 5.438(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	5.854	6.86	5.438

Largest stream flow has longer time of concentration
 Qp = 5.854 + sum of
 Qp = 5.854

Total of 1 streams to confluence:
 Flow rates before confluence point:
 5.854
 Area of streams before confluence:
 1.170
 Results of confluence:
 Total flow rate = 5.854(CFS)
 Time of concentration = 6.861 min.
 Effective stream area after confluence = 1.170(Ac.)

++++++
 Process from Point/Station 3.000 to Point/Station 3.100
 **** INITIAL AREA EVALUATION ****

Initial area flow distance = 400.000(Ft.)
 Top (of initial area) elevation = 1315.800(Ft.)
 Bottom (of initial area) elevation = 1313.620(Ft.)
 Difference in elevation = 2.180(Ft.)
 Slope = 0.00545 s(percent)= 0.55
 $TC = k(0.300)*[(length^3)/(elevation\ change)]^{0.2}$
 Initial area time of concentration = 9.347 min.
 Rainfall intensity = 4.588(In/Hr) for a 100.0 year storm
 COMMERCIAL subarea type
 Runoff Coefficient = 0.895
 Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 84.40
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 6.910(CFS)
Total initial stream area = 1.682(Ac.)
Pervious area fraction = 0.100

+++++
Process from Point/Station 3.100 to Point/Station 3.200
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1313.620(Ft.)
Downstream point/station elevation = 1310.400(Ft.)
Pipe length = 312.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 6.910(CFS)
Nearest computed pipe diameter = 18.00(In.)
Calculated individual pipe flow = 6.910(CFS)
Normal flow depth in pipe = 10.55(In.)
Flow top width inside pipe = 17.73(In.)
Critical Depth = 12.21(In.)
Pipe flow velocity = 6.42(Ft/s)
Travel time through pipe = 0.81 min.
Time of concentration (TC) = 10.16 min.

+++++
Process from Point/Station 3.100 to Point/Station 3.200
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 1
Stream flow area = 1.682(Ac.)
Runoff from this stream = 6.910(CFS)
Time of concentration = 10.16 min.
Rainfall intensity = 4.383(In/Hr)

+++++
Process from Point/Station 3.300 to Point/Station 3.400
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 506.000(Ft.)
Top (of initial area) elevation = 1315.460(Ft.)
Bottom (of initial area) elevation = 1310.510(Ft.)
Difference in elevation = 4.950(Ft.)
Slope = 0.00978 s(percent)= 0.98
TC = $k(0.300)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 9.135 min.
Rainfall intensity = 4.646(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.895
Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 84.40
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 2.750(CFS)
Total initial stream area = 0.661(Ac.)
Pervious area fraction = 0.100

+++++
Process from Point/Station 3.400 to Point/Station 3.200
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1310.510(Ft.)
Downstream point/station elevation = 1310.400(Ft.)
Pipe length = 31.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 2.750(CFS)
Nearest computed pipe diameter = 15.00(In.)
Calculated individual pipe flow = 2.750(CFS)
Normal flow depth in pipe = 9.38(In.)
Flow top width inside pipe = 14.52(In.)
Critical Depth = 7.98(In.)
Pipe flow velocity = 3.41(Ft/s)
Travel time through pipe = 0.15 min.
Time of concentration (TC) = 9.29 min.

+++++
Process from Point/Station 3.400 to Point/Station 3.200
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 0.661(Ac.)
Runoff from this stream = 2.750(CFS)
Time of concentration = 9.29 min.
Rainfall intensity = 4.604(In/Hr)

+++++
Process from Point/Station 3.500 to Point/Station 3.600
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 130.000(Ft.)
Top (of initial area) elevation = 1312.100(Ft.)
Bottom (of initial area) elevation = 1310.900(Ft.)
Difference in elevation = 1.200(Ft.)
Slope = 0.00923 s(percent)= 0.92
TC = $k(0.300)*[(\text{length}^3)/(\text{elevation change})]^{0.2}$
Initial area time of concentration = 5.366 min.
Rainfall intensity = 6.225(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.897
Decimal fraction soil group A = 0.000

Decimal fraction soil group B = 0.000
 Decimal fraction soil group C = 1.000
 Decimal fraction soil group D = 0.000
 RI index for soil(AMC 3) = 84.40
 Pervious area fraction = 0.100; Impervious fraction = 0.900
 Initial subarea runoff = 3.271(CFS)
 Total initial stream area = 0.586(Ac.)
 Pervious area fraction = 0.100

++++++
 Process from Point/Station 3.600 to Point/Station 3.200
 **** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1310.900(Ft.)
 Downstream point/station elevation = 1310.400(Ft.)
 Pipe length = 103.00(Ft.) Manning's N = 0.013
 No. of pipes = 1 Required pipe flow = 3.271(CFS)
 Nearest computed pipe diameter = 15.00(In.)
 Calculated individual pipe flow = 3.271(CFS)
 Normal flow depth in pipe = 9.48(In.)
 Flow top width inside pipe = 14.47(In.)
 Critical Depth = 8.74(In.)
 Pipe flow velocity = 4.00(Ft/s)
 Travel time through pipe = 0.43 min.
 Time of concentration (TC) = 5.80 min.

++++++
 Process from Point/Station 3.600 to Point/Station 3.200
 **** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 3
 Stream flow area = 0.586(Ac.)
 Runoff from this stream = 3.271(CFS)
 Time of concentration = 5.80 min.
 Rainfall intensity = 5.967(In/Hr)
 Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
------------	-----------------	----------	----------------------------

1	6.910	10.16	4.383
2	2.750	9.29	4.604
3	3.271	5.80	5.967

Largest stream flow has longer time of concentration

Qp = 6.910 + sum of
 Qb Ia/Ib
 2.750 * 0.952 = 2.618
 Qb Ia/Ib
 3.271 * 0.734 = 2.402
 Qp = 11.930

Total of 3 streams to confluence:

Flow rates before confluence point:

6.910 2.750 3.271

Area of streams before confluence:

1.682 0.661 0.586

Results of confluence:

Total flow rate = 11.930(CFS)

Time of concentration = 10.156 min.

Effective stream area after confluence = 2.929(Ac.)

End of computations, total study area = 7.15 (Ac.)

The following figures may

be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(A_p) = 0.225

Area averaged RI index number = 71.4

APPENDIX “D”

SYNTHETIC UNIT HYDROGRAPH METHOD

PRE-DEVELOPED 1-HR/24-HR, (2-YEAR, 10-YEAR & 100-YEAR)
POST-DEVELOPED 1-HR/24-HR, (2-YEAR, 10-YEAR & 100-YEAR)

Unit Hydrograph Analysis

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014, Version 9.0
Study date 02/19/21 File: 1162004EXUH242.out

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

Program License Serial Number 6335

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

English Units used in output format

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
PRE-DEVELOPED, UNIT-HYDROGRAPH
2-YEAR, 24-HOUR STORMEVENT, DMA-A

Drainage Area = 4.13(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.13(Ac.) =
0.006 Sq. Mi.
Length along longest watercourse = 576.00(Ft.)
Length along longest watercourse measured to centroid =
269.00(Ft.)
Length along longest watercourse = 0.109 Mi.
Length along longest watercourse measured to centroid = 0.051 Mi.
Difference in elevation = 97.00(Ft.)
Slope along watercourse = 889.1667 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.028 Hr.
Lag time = 1.65 Min.
25% of lag time = 0.41 Min.
40% of lag time = 0.66 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]
4.13	2.64	10.89

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.13	6.73	27.76

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.640(In)
Area Averaged 100-Year Rainfall = 6.730(In)

Point rain (area averaged) = 2.640(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.640(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.125	86.00	0.000

Total Area Entered = 4.13(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
86.0	71.6	0.343	0.000	0.343	1.000	0.343
Sum (F) =						0.343

Area averaged mean soil loss (F) (In/Hr) = 0.343
Minimum soil loss rate ((In/Hr)) = 0.172
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Unit Hydrograph VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	302.502	56.936	2.367
2 0.167	605.004	36.991	1.538
3 0.250	907.506	6.073	0.252
Sum = 100.000		Sum=	4.157

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
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	(Hr.)	Percent	(In/Hr)	Max		Low	(In/Hr)
1	0.08	0.07	0.021	(0.608)		0.019	0.002
2	0.17	0.07	0.021	(0.606)		0.019	0.002
3	0.25	0.07	0.021	(0.604)		0.019	0.002
4	0.33	0.10	0.032	(0.601)		0.029	0.003
5	0.42	0.10	0.032	(0.599)		0.029	0.003
6	0.50	0.10	0.032	(0.597)		0.029	0.003
7	0.58	0.10	0.032	(0.594)		0.029	0.003
8	0.67	0.10	0.032	(0.592)		0.029	0.003
9	0.75	0.10	0.032	(0.590)		0.029	0.003
10	0.83	0.13	0.042	(0.587)		0.038	0.004
11	0.92	0.13	0.042	(0.585)		0.038	0.004
12	1.00	0.13	0.042	(0.583)		0.038	0.004
13	1.08	0.10	0.032	(0.580)		0.029	0.003
14	1.17	0.10	0.032	(0.578)		0.029	0.003
15	1.25	0.10	0.032	(0.576)		0.029	0.003
16	1.33	0.10	0.032	(0.573)		0.029	0.003
17	1.42	0.10	0.032	(0.571)		0.029	0.003
18	1.50	0.10	0.032	(0.569)		0.029	0.003
19	1.58	0.10	0.032	(0.567)		0.029	0.003
20	1.67	0.10	0.032	(0.564)		0.029	0.003
21	1.75	0.10	0.032	(0.562)		0.029	0.003
22	1.83	0.13	0.042	(0.560)		0.038	0.004
23	1.92	0.13	0.042	(0.558)		0.038	0.004
24	2.00	0.13	0.042	(0.555)		0.038	0.004
25	2.08	0.13	0.042	(0.553)		0.038	0.004
26	2.17	0.13	0.042	(0.551)		0.038	0.004
27	2.25	0.13	0.042	(0.549)		0.038	0.004
28	2.33	0.13	0.042	(0.546)		0.038	0.004
29	2.42	0.13	0.042	(0.544)		0.038	0.004
30	2.50	0.13	0.042	(0.542)		0.038	0.004
31	2.58	0.17	0.053	(0.540)		0.048	0.005
32	2.67	0.17	0.053	(0.537)		0.048	0.005
33	2.75	0.17	0.053	(0.535)		0.048	0.005
34	2.83	0.17	0.053	(0.533)		0.048	0.005
35	2.92	0.17	0.053	(0.531)		0.048	0.005
36	3.00	0.17	0.053	(0.529)		0.048	0.005
37	3.08	0.17	0.053	(0.526)		0.048	0.005
38	3.17	0.17	0.053	(0.524)		0.048	0.005
39	3.25	0.17	0.053	(0.522)		0.048	0.005
40	3.33	0.17	0.053	(0.520)		0.048	0.005
41	3.42	0.17	0.053	(0.518)		0.048	0.005
42	3.50	0.17	0.053	(0.516)		0.048	0.005
43	3.58	0.17	0.053	(0.513)		0.048	0.005
44	3.67	0.17	0.053	(0.511)		0.048	0.005
45	3.75	0.17	0.053	(0.509)		0.048	0.005
46	3.83	0.20	0.063	(0.507)		0.057	0.006
47	3.92	0.20	0.063	(0.505)		0.057	0.006
48	4.00	0.20	0.063	(0.503)		0.057	0.006
49	4.08	0.20	0.063	(0.501)		0.057	0.006
50	4.17	0.20	0.063	(0.498)		0.057	0.006
51	4.25	0.20	0.063	(0.496)		0.057	0.006
52	4.33	0.23	0.074	(0.494)		0.067	0.007
53	4.42	0.23	0.074	(0.492)		0.067	0.007

54	4.50	0.23	0.074	(0.490)	0.067	0.007
55	4.58	0.23	0.074	(0.488)	0.067	0.007
56	4.67	0.23	0.074	(0.486)	0.067	0.007
57	4.75	0.23	0.074	(0.484)	0.067	0.007
58	4.83	0.27	0.084	(0.482)	0.076	0.008
59	4.92	0.27	0.084	(0.480)	0.076	0.008
60	5.00	0.27	0.084	(0.477)	0.076	0.008
61	5.08	0.20	0.063	(0.475)	0.057	0.006
62	5.17	0.20	0.063	(0.473)	0.057	0.006
63	5.25	0.20	0.063	(0.471)	0.057	0.006
64	5.33	0.23	0.074	(0.469)	0.067	0.007
65	5.42	0.23	0.074	(0.467)	0.067	0.007
66	5.50	0.23	0.074	(0.465)	0.067	0.007
67	5.58	0.27	0.084	(0.463)	0.076	0.008
68	5.67	0.27	0.084	(0.461)	0.076	0.008
69	5.75	0.27	0.084	(0.459)	0.076	0.008
70	5.83	0.27	0.084	(0.457)	0.076	0.008
71	5.92	0.27	0.084	(0.455)	0.076	0.008
72	6.00	0.27	0.084	(0.453)	0.076	0.008
73	6.08	0.30	0.095	(0.451)	0.086	0.010
74	6.17	0.30	0.095	(0.449)	0.086	0.010
75	6.25	0.30	0.095	(0.447)	0.086	0.010
76	6.33	0.30	0.095	(0.445)	0.086	0.010
77	6.42	0.30	0.095	(0.443)	0.086	0.010
78	6.50	0.30	0.095	(0.441)	0.086	0.010
79	6.58	0.33	0.106	(0.439)	0.095	0.011
80	6.67	0.33	0.106	(0.437)	0.095	0.011
81	6.75	0.33	0.106	(0.435)	0.095	0.011
82	6.83	0.33	0.106	(0.433)	0.095	0.011
83	6.92	0.33	0.106	(0.431)	0.095	0.011
84	7.00	0.33	0.106	(0.429)	0.095	0.011
85	7.08	0.33	0.106	(0.427)	0.095	0.011
86	7.17	0.33	0.106	(0.425)	0.095	0.011
87	7.25	0.33	0.106	(0.423)	0.095	0.011
88	7.33	0.37	0.116	(0.421)	0.105	0.012
89	7.42	0.37	0.116	(0.419)	0.105	0.012
90	7.50	0.37	0.116	(0.417)	0.105	0.012
91	7.58	0.40	0.127	(0.416)	0.114	0.013
92	7.67	0.40	0.127	(0.414)	0.114	0.013
93	7.75	0.40	0.127	(0.412)	0.114	0.013
94	7.83	0.43	0.137	(0.410)	0.124	0.014
95	7.92	0.43	0.137	(0.408)	0.124	0.014
96	8.00	0.43	0.137	(0.406)	0.124	0.014
97	8.08	0.50	0.158	(0.404)	0.143	0.016
98	8.17	0.50	0.158	(0.402)	0.143	0.016
99	8.25	0.50	0.158	(0.400)	0.143	0.016
100	8.33	0.50	0.158	(0.399)	0.143	0.016
101	8.42	0.50	0.158	(0.397)	0.143	0.016
102	8.50	0.50	0.158	(0.395)	0.143	0.016
103	8.58	0.53	0.169	(0.393)	0.152	0.017
104	8.67	0.53	0.169	(0.391)	0.152	0.017
105	8.75	0.53	0.169	(0.389)	0.152	0.017
106	8.83	0.57	0.180	(0.387)	0.162	0.018
107	8.92	0.57	0.180	(0.386)	0.162	0.018

108	9.00	0.57	0.180	(0.384)	0.162	0.018
109	9.08	0.63	0.201	(0.382)	0.181	0.020
110	9.17	0.63	0.201	(0.380)	0.181	0.020
111	9.25	0.63	0.201	(0.378)	0.181	0.020
112	9.33	0.67	0.211	(0.377)	0.190	0.021
113	9.42	0.67	0.211	(0.375)	0.190	0.021
114	9.50	0.67	0.211	(0.373)	0.190	0.021
115	9.58	0.70	0.222	(0.371)	0.200	0.022
116	9.67	0.70	0.222	(0.369)	0.200	0.022
117	9.75	0.70	0.222	(0.368)	0.200	0.022
118	9.83	0.73	0.232	(0.366)	0.209	0.023
119	9.92	0.73	0.232	(0.364)	0.209	0.023
120	10.00	0.73	0.232	(0.362)	0.209	0.023
121	10.08	0.50	0.158	(0.361)	0.143	0.016
122	10.17	0.50	0.158	(0.359)	0.143	0.016
123	10.25	0.50	0.158	(0.357)	0.143	0.016
124	10.33	0.50	0.158	(0.355)	0.143	0.016
125	10.42	0.50	0.158	(0.354)	0.143	0.016
126	10.50	0.50	0.158	(0.352)	0.143	0.016
127	10.58	0.67	0.211	(0.350)	0.190	0.021
128	10.67	0.67	0.211	(0.348)	0.190	0.021
129	10.75	0.67	0.211	(0.347)	0.190	0.021
130	10.83	0.67	0.211	(0.345)	0.190	0.021
131	10.92	0.67	0.211	(0.343)	0.190	0.021
132	11.00	0.67	0.211	(0.342)	0.190	0.021
133	11.08	0.63	0.201	(0.340)	0.181	0.020
134	11.17	0.63	0.201	(0.338)	0.181	0.020
135	11.25	0.63	0.201	(0.337)	0.181	0.020
136	11.33	0.63	0.201	(0.335)	0.181	0.020
137	11.42	0.63	0.201	(0.333)	0.181	0.020
138	11.50	0.63	0.201	(0.332)	0.181	0.020
139	11.58	0.57	0.180	(0.330)	0.162	0.018
140	11.67	0.57	0.180	(0.328)	0.162	0.018
141	11.75	0.57	0.180	(0.327)	0.162	0.018
142	11.83	0.60	0.190	(0.325)	0.171	0.019
143	11.92	0.60	0.190	(0.324)	0.171	0.019
144	12.00	0.60	0.190	(0.322)	0.171	0.019
145	12.08	0.83	0.264	(0.320)	0.238	0.026
146	12.17	0.83	0.264	(0.319)	0.238	0.026
147	12.25	0.83	0.264	(0.317)	0.238	0.026
148	12.33	0.87	0.275	(0.316)	0.247	0.027
149	12.42	0.87	0.275	(0.314)	0.247	0.027
150	12.50	0.87	0.275	(0.312)	0.247	0.027
151	12.58	0.93	0.296	(0.311)	0.266	0.030
152	12.67	0.93	0.296	(0.309)	0.266	0.030
153	12.75	0.93	0.296	(0.308)	0.266	0.030
154	12.83	0.97	0.306	(0.306)	0.276	0.031
155	12.92	0.97	0.306	(0.305)	0.276	0.031
156	13.00	0.97	0.306	(0.303)	0.276	0.031
157	13.08	1.13	0.359	0.301 (0.323)		0.058
158	13.17	1.13	0.359	0.300 (0.323)		0.059
159	13.25	1.13	0.359	0.298 (0.323)		0.061
160	13.33	1.13	0.359	0.297 (0.323)		0.062
161	13.42	1.13	0.359	0.295 (0.323)		0.064

162	13.50	1.13	0.359	0.294	(0.323)	0.065
163	13.58	0.77	0.243	(0.292)	0.219	0.024
164	13.67	0.77	0.243	(0.291)	0.219	0.024
165	13.75	0.77	0.243	(0.289)	0.219	0.024
166	13.83	0.77	0.243	(0.288)	0.219	0.024
167	13.92	0.77	0.243	(0.286)	0.219	0.024
168	14.00	0.77	0.243	(0.285)	0.219	0.024
169	14.08	0.90	0.285	(0.284)	0.257	0.029
170	14.17	0.90	0.285	(0.282)	0.257	0.029
171	14.25	0.90	0.285	(0.281)	0.257	0.029
172	14.33	0.87	0.275	(0.279)	0.247	0.027
173	14.42	0.87	0.275	(0.278)	0.247	0.027
174	14.50	0.87	0.275	(0.276)	0.247	0.027
175	14.58	0.87	0.275	(0.275)	0.247	0.027
176	14.67	0.87	0.275	(0.274)	0.247	0.027
177	14.75	0.87	0.275	(0.272)	0.247	0.027
178	14.83	0.83	0.264	(0.271)	0.238	0.026
179	14.92	0.83	0.264	(0.269)	0.238	0.026
180	15.00	0.83	0.264	(0.268)	0.238	0.026
181	15.08	0.80	0.253	(0.267)	0.228	0.025
182	15.17	0.80	0.253	(0.265)	0.228	0.025
183	15.25	0.80	0.253	(0.264)	0.228	0.025
184	15.33	0.77	0.243	(0.263)	0.219	0.024
185	15.42	0.77	0.243	(0.261)	0.219	0.024
186	15.50	0.77	0.243	(0.260)	0.219	0.024
187	15.58	0.63	0.201	(0.259)	0.181	0.020
188	15.67	0.63	0.201	(0.257)	0.181	0.020
189	15.75	0.63	0.201	(0.256)	0.181	0.020
190	15.83	0.63	0.201	(0.255)	0.181	0.020
191	15.92	0.63	0.201	(0.253)	0.181	0.020
192	16.00	0.63	0.201	(0.252)	0.181	0.020
193	16.08	0.13	0.042	(0.251)	0.038	0.004
194	16.17	0.13	0.042	(0.249)	0.038	0.004
195	16.25	0.13	0.042	(0.248)	0.038	0.004
196	16.33	0.13	0.042	(0.247)	0.038	0.004
197	16.42	0.13	0.042	(0.246)	0.038	0.004
198	16.50	0.13	0.042	(0.244)	0.038	0.004
199	16.58	0.10	0.032	(0.243)	0.029	0.003
200	16.67	0.10	0.032	(0.242)	0.029	0.003
201	16.75	0.10	0.032	(0.241)	0.029	0.003
202	16.83	0.10	0.032	(0.239)	0.029	0.003
203	16.92	0.10	0.032	(0.238)	0.029	0.003
204	17.00	0.10	0.032	(0.237)	0.029	0.003
205	17.08	0.17	0.053	(0.236)	0.048	0.005
206	17.17	0.17	0.053	(0.235)	0.048	0.005
207	17.25	0.17	0.053	(0.233)	0.048	0.005
208	17.33	0.17	0.053	(0.232)	0.048	0.005
209	17.42	0.17	0.053	(0.231)	0.048	0.005
210	17.50	0.17	0.053	(0.230)	0.048	0.005
211	17.58	0.17	0.053	(0.229)	0.048	0.005
212	17.67	0.17	0.053	(0.228)	0.048	0.005
213	17.75	0.17	0.053	(0.227)	0.048	0.005
214	17.83	0.13	0.042	(0.225)	0.038	0.004
215	17.92	0.13	0.042	(0.224)	0.038	0.004

216	18.00	0.13	0.042	(0.223)	0.038	0.004
217	18.08	0.13	0.042	(0.222)	0.038	0.004
218	18.17	0.13	0.042	(0.221)	0.038	0.004
219	18.25	0.13	0.042	(0.220)	0.038	0.004
220	18.33	0.13	0.042	(0.219)	0.038	0.004
221	18.42	0.13	0.042	(0.218)	0.038	0.004
222	18.50	0.13	0.042	(0.217)	0.038	0.004
223	18.58	0.10	0.032	(0.216)	0.029	0.003
224	18.67	0.10	0.032	(0.215)	0.029	0.003
225	18.75	0.10	0.032	(0.214)	0.029	0.003
226	18.83	0.07	0.021	(0.213)	0.019	0.002
227	18.92	0.07	0.021	(0.212)	0.019	0.002
228	19.00	0.07	0.021	(0.211)	0.019	0.002
229	19.08	0.10	0.032	(0.210)	0.029	0.003
230	19.17	0.10	0.032	(0.209)	0.029	0.003
231	19.25	0.10	0.032	(0.208)	0.029	0.003
232	19.33	0.13	0.042	(0.207)	0.038	0.004
233	19.42	0.13	0.042	(0.206)	0.038	0.004
234	19.50	0.13	0.042	(0.205)	0.038	0.004
235	19.58	0.10	0.032	(0.204)	0.029	0.003
236	19.67	0.10	0.032	(0.203)	0.029	0.003
237	19.75	0.10	0.032	(0.202)	0.029	0.003
238	19.83	0.07	0.021	(0.201)	0.019	0.002
239	19.92	0.07	0.021	(0.200)	0.019	0.002
240	20.00	0.07	0.021	(0.199)	0.019	0.002
241	20.08	0.10	0.032	(0.198)	0.029	0.003
242	20.17	0.10	0.032	(0.197)	0.029	0.003
243	20.25	0.10	0.032	(0.197)	0.029	0.003
244	20.33	0.10	0.032	(0.196)	0.029	0.003
245	20.42	0.10	0.032	(0.195)	0.029	0.003
246	20.50	0.10	0.032	(0.194)	0.029	0.003
247	20.58	0.10	0.032	(0.193)	0.029	0.003
248	20.67	0.10	0.032	(0.192)	0.029	0.003
249	20.75	0.10	0.032	(0.192)	0.029	0.003
250	20.83	0.07	0.021	(0.191)	0.019	0.002
251	20.92	0.07	0.021	(0.190)	0.019	0.002
252	21.00	0.07	0.021	(0.189)	0.019	0.002
253	21.08	0.10	0.032	(0.189)	0.029	0.003
254	21.17	0.10	0.032	(0.188)	0.029	0.003
255	21.25	0.10	0.032	(0.187)	0.029	0.003
256	21.33	0.07	0.021	(0.186)	0.019	0.002
257	21.42	0.07	0.021	(0.186)	0.019	0.002
258	21.50	0.07	0.021	(0.185)	0.019	0.002
259	21.58	0.10	0.032	(0.184)	0.029	0.003
260	21.67	0.10	0.032	(0.184)	0.029	0.003
261	21.75	0.10	0.032	(0.183)	0.029	0.003
262	21.83	0.07	0.021	(0.182)	0.019	0.002
263	21.92	0.07	0.021	(0.182)	0.019	0.002
264	22.00	0.07	0.021	(0.181)	0.019	0.002
265	22.08	0.10	0.032	(0.181)	0.029	0.003
266	22.17	0.10	0.032	(0.180)	0.029	0.003
267	22.25	0.10	0.032	(0.179)	0.029	0.003
268	22.33	0.07	0.021	(0.179)	0.019	0.002
269	22.42	0.07	0.021	(0.178)	0.019	0.002

270	22.50	0.07	0.021	(0.178)	0.019	0.002
271	22.58	0.07	0.021	(0.177)	0.019	0.002
272	22.67	0.07	0.021	(0.177)	0.019	0.002
273	22.75	0.07	0.021	(0.176)	0.019	0.002
274	22.83	0.07	0.021	(0.176)	0.019	0.002
275	22.92	0.07	0.021	(0.175)	0.019	0.002
276	23.00	0.07	0.021	(0.175)	0.019	0.002
277	23.08	0.07	0.021	(0.175)	0.019	0.002
278	23.17	0.07	0.021	(0.174)	0.019	0.002
279	23.25	0.07	0.021	(0.174)	0.019	0.002
280	23.33	0.07	0.021	(0.173)	0.019	0.002
281	23.42	0.07	0.021	(0.173)	0.019	0.002
282	23.50	0.07	0.021	(0.173)	0.019	0.002
283	23.58	0.07	0.021	(0.173)	0.019	0.002
284	23.67	0.07	0.021	(0.172)	0.019	0.002
285	23.75	0.07	0.021	(0.172)	0.019	0.002
286	23.83	0.07	0.021	(0.172)	0.019	0.002
287	23.92	0.07	0.021	(0.172)	0.019	0.002
288	24.00	0.07	0.021	(0.172)	0.019	0.002

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.3

Flood volume = Effective rainfall 0.28(In)
times area 4.1(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 2.36(In)
Total soil loss = 0.812(Ac.Ft)
Total rainfall = 2.64(In)
Flood volume = 4143.7 Cubic Feet
Total soil loss = 35386.7 Cubic Feet

Peak flow rate of this hydrograph = 0.268(CFS)

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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	0.01	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0002	0.01	Q				
0+25	0.0003	0.01	Q				
0+30	0.0004	0.01	Q				
0+35	0.0005	0.01	Q				
0+40	0.0006	0.01	Q				
0+45	0.0007	0.01	Q				
0+50	0.0008	0.02	Q				
0+55	0.0009	0.02	Q				
1+ 0	0.0010	0.02	Q				
1+ 5	0.0011	0.02	Q				
1+10	0.0012	0.01	Q				

1+15	0.0013	0.01	Q				
1+20	0.0014	0.01	Q				
1+25	0.0015	0.01	Q				
1+30	0.0016	0.01	Q				
1+35	0.0017	0.01	Q				
1+40	0.0018	0.01	Q				
1+45	0.0019	0.01	Q				
1+50	0.0020	0.02	Q				
1+55	0.0021	0.02	Q				
2+ 0	0.0022	0.02	Q				
2+ 5	0.0023	0.02	Q				
2+10	0.0025	0.02	QV				
2+15	0.0026	0.02	QV				
2+20	0.0027	0.02	QV				
2+25	0.0028	0.02	QV				
2+30	0.0029	0.02	QV				
2+35	0.0031	0.02	QV				
2+40	0.0032	0.02	QV				
2+45	0.0034	0.02	QV				
2+50	0.0035	0.02	QV				
2+55	0.0037	0.02	QV				
3+ 0	0.0038	0.02	QV				
3+ 5	0.0040	0.02	QV				
3+10	0.0041	0.02	QV				
3+15	0.0043	0.02	QV				
3+20	0.0044	0.02	QV				
3+25	0.0046	0.02	QV				
3+30	0.0047	0.02	QV				
3+35	0.0049	0.02	Q V				
3+40	0.0050	0.02	Q V				
3+45	0.0052	0.02	Q V				
3+50	0.0054	0.02	Q V				
3+55	0.0055	0.03	Q V				
4+ 0	0.0057	0.03	Q V				
4+ 5	0.0059	0.03	Q V				
4+10	0.0061	0.03	Q V				
4+15	0.0063	0.03	Q V				
4+20	0.0065	0.03	Q V				
4+25	0.0067	0.03	Q V				
4+30	0.0069	0.03	Q V				
4+35	0.0071	0.03	Q V				
4+40	0.0073	0.03	Q V				
4+45	0.0075	0.03	Q V				
4+50	0.0077	0.03	Q V				
4+55	0.0080	0.03	Q V				
5+ 0	0.0082	0.04	Q V				
5+ 5	0.0084	0.03	Q V				
5+10	0.0086	0.03	Q V				
5+15	0.0088	0.03	Q V				
5+20	0.0090	0.03	Q V				
5+25	0.0092	0.03	Q V				
5+30	0.0094	0.03	Q V				
5+35	0.0097	0.03	Q V				
5+40	0.0099	0.03	Q V				

5+45	0.0101	0.04	Q	V				
5+50	0.0104	0.04	Q	V				
5+55	0.0106	0.04	Q	V				
6+ 0	0.0109	0.04	Q	V				
6+ 5	0.0111	0.04	Q	V				
6+10	0.0114	0.04	Q	V				
6+15	0.0117	0.04	Q	V				
6+20	0.0119	0.04	Q	V				
6+25	0.0122	0.04	Q	V				
6+30	0.0125	0.04	Q	V				
6+35	0.0128	0.04	Q	V				
6+40	0.0131	0.04	Q	V				
6+45	0.0134	0.04	Q	V				
6+50	0.0137	0.04	Q	V				
6+55	0.0140	0.04	Q	V				
7+ 0	0.0143	0.04	Q	V				
7+ 5	0.0146	0.04	Q	V				
7+10	0.0149	0.04	Q	V				
7+15	0.0152	0.04	Q	V				
7+20	0.0155	0.05	Q	V				
7+25	0.0158	0.05	Q	V				
7+30	0.0162	0.05	Q	V				
7+35	0.0165	0.05	Q	V				
7+40	0.0169	0.05	Q	V				
7+45	0.0172	0.05	Q	V				
7+50	0.0176	0.06	Q	V				
7+55	0.0180	0.06	Q	V				
8+ 0	0.0184	0.06	Q	V				
8+ 5	0.0188	0.06	Q	V				
8+10	0.0193	0.07	Q	V				
8+15	0.0197	0.07	Q	V				
8+20	0.0202	0.07	Q	V				
8+25	0.0206	0.07	Q	V				
8+30	0.0211	0.07	Q	V				
8+35	0.0216	0.07	Q	V				
8+40	0.0221	0.07	Q	V				
8+45	0.0225	0.07	Q	V				
8+50	0.0230	0.07	Q	V				
8+55	0.0236	0.07	Q	V				
9+ 0	0.0241	0.07	Q	V				
9+ 5	0.0246	0.08	Q	V				
9+10	0.0252	0.08	Q	V				
9+15	0.0258	0.08	Q	V				
9+20	0.0264	0.09	Q	V				
9+25	0.0270	0.09	Q	V				
9+30	0.0276	0.09	Q	V				
9+35	0.0282	0.09	Q	V				
9+40	0.0288	0.09	Q	V				
9+45	0.0295	0.09	Q	V				
9+50	0.0301	0.09	Q	V				
9+55	0.0308	0.10	Q	V				
10+ 0	0.0314	0.10	Q	V				
10+ 5	0.0320	0.08	Q	V				
10+10	0.0324	0.07	Q	V				

10+15	0.0329	0.07	Q	V			
10+20	0.0334	0.07	Q	V			
10+25	0.0338	0.07	Q	V			
10+30	0.0343	0.07	Q	V			
10+35	0.0348	0.08	Q	V			
10+40	0.0354	0.09	Q	V			
10+45	0.0360	0.09	Q	V			
10+50	0.0366	0.09	Q	V			
10+55	0.0372	0.09	Q	V			
11+ 0	0.0378	0.09	Q	V			
11+ 5	0.0384	0.09	Q	V			
11+10	0.0390	0.08	Q	V			
11+15	0.0396	0.08	Q	V			
11+20	0.0401	0.08	Q	V			
11+25	0.0407	0.08	Q	V			
11+30	0.0413	0.08	Q	V			
11+35	0.0418	0.08	Q	V			
11+40	0.0423	0.08	Q	V			
11+45	0.0429	0.07	Q	V			
11+50	0.0434	0.08	Q	V			
11+55	0.0439	0.08	Q	V			
12+ 0	0.0445	0.08	Q	V			
12+ 5	0.0451	0.10	Q	V			
12+10	0.0459	0.11	Q	V			
12+15	0.0466	0.11	Q	V			
12+20	0.0474	0.11	Q	V			
12+25	0.0482	0.11	Q	V			
12+30	0.0490	0.11	Q	V			
12+35	0.0498	0.12	Q	V			
12+40	0.0506	0.12	Q	V			
12+45	0.0515	0.12	Q	V			
12+50	0.0524	0.13	Q	V			
12+55	0.0532	0.13	Q	V			
13+ 0	0.0541	0.13	Q	V			
13+ 5	0.0554	0.19	Q	V			
13+10	0.0571	0.24	Q	V			
13+15	0.0588	0.25	Q	V			
13+20	0.0605	0.26	Q	V			
13+25	0.0623	0.26	Q	V			
13+30	0.0642	0.27	Q	V			
13+35	0.0654	0.17	Q	V			
13+40	0.0661	0.11	Q	V			
13+45	0.0668	0.10	Q	V			
13+50	0.0675	0.10	Q	V			
13+55	0.0682	0.10	Q	V			
14+ 0	0.0689	0.10	Q	V			
14+ 5	0.0697	0.11	Q	V			
14+10	0.0705	0.12	Q	V			
14+15	0.0713	0.12	Q	V			
14+20	0.0721	0.12	Q	V			
14+25	0.0729	0.11	Q	V			
14+30	0.0737	0.11	Q	V			
14+35	0.0745	0.11	Q	V			
14+40	0.0753	0.11	Q	V			

14+45	0.0760	0.11	Q			V	
14+50	0.0768	0.11	Q			V	
14+55	0.0776	0.11	Q			V	
15+ 0	0.0783	0.11	Q			V	
15+ 5	0.0791	0.11	Q			V	
15+10	0.0798	0.11	Q			V	
15+15	0.0805	0.11	Q			V	
15+20	0.0812	0.10	Q			V	
15+25	0.0819	0.10	Q			V	
15+30	0.0826	0.10	Q			V	
15+35	0.0833	0.09	Q			V	
15+40	0.0838	0.08	Q			V	
15+45	0.0844	0.08	Q			V	
15+50	0.0850	0.08	Q			V	
15+55	0.0856	0.08	Q			V	
16+ 0	0.0861	0.08	Q			V	
16+ 5	0.0864	0.05	Q			V	
16+10	0.0866	0.02	Q			V	
16+15	0.0867	0.02	Q			V	
16+20	0.0868	0.02	Q			V	
16+25	0.0870	0.02	Q			V	
16+30	0.0871	0.02	Q			V	
16+35	0.0872	0.02	Q			V	
16+40	0.0873	0.01	Q			V	
16+45	0.0874	0.01	Q			V	
16+50	0.0875	0.01	Q			V	
16+55	0.0875	0.01	Q			V	
17+ 0	0.0876	0.01	Q			V	
17+ 5	0.0878	0.02	Q			V	
17+10	0.0879	0.02	Q			V	
17+15	0.0881	0.02	Q			V	
17+20	0.0882	0.02	Q			V	
17+25	0.0884	0.02	Q			V	
17+30	0.0885	0.02	Q			V	
17+35	0.0887	0.02	Q			V	
17+40	0.0888	0.02	Q			V	
17+45	0.0890	0.02	Q			V	
17+50	0.0891	0.02	Q			V	
17+55	0.0892	0.02	Q			V	
18+ 0	0.0893	0.02	Q			V	
18+ 5	0.0895	0.02	Q			V	
18+10	0.0896	0.02	Q			V	
18+15	0.0897	0.02	Q			V	
18+20	0.0898	0.02	Q			V	
18+25	0.0900	0.02	Q			V	
18+30	0.0901	0.02	Q			V	
18+35	0.0902	0.02	Q			V	
18+40	0.0903	0.01	Q			V	
18+45	0.0904	0.01	Q			V	
18+50	0.0904	0.01	Q			V	
18+55	0.0905	0.01	Q			V	
19+ 0	0.0906	0.01	Q			V	
19+ 5	0.0906	0.01	Q			V	
19+10	0.0907	0.01	Q			V	

19+15	0.0908	0.01	Q				V
19+20	0.0909	0.02	Q				V
19+25	0.0910	0.02	Q				V
19+30	0.0912	0.02	Q				V
19+35	0.0913	0.02	Q				V
19+40	0.0914	0.01	Q				V
19+45	0.0915	0.01	Q				V
19+50	0.0915	0.01	Q				V
19+55	0.0916	0.01	Q				V
20+ 0	0.0916	0.01	Q				V
20+ 5	0.0917	0.01	Q				V
20+10	0.0918	0.01	Q				V
20+15	0.0919	0.01	Q				V
20+20	0.0920	0.01	Q				V
20+25	0.0921	0.01	Q				V
20+30	0.0922	0.01	Q				V
20+35	0.0923	0.01	Q				V
20+40	0.0924	0.01	Q				V
20+45	0.0925	0.01	Q				V
20+50	0.0925	0.01	Q				V
20+55	0.0926	0.01	Q				V
21+ 0	0.0926	0.01	Q				V
21+ 5	0.0927	0.01	Q				V
21+10	0.0928	0.01	Q				V
21+15	0.0929	0.01	Q				V
21+20	0.0930	0.01	Q				V
21+25	0.0930	0.01	Q				V
21+30	0.0931	0.01	Q				V
21+35	0.0932	0.01	Q				V
21+40	0.0933	0.01	Q				V
21+45	0.0934	0.01	Q				V
21+50	0.0934	0.01	Q				V
21+55	0.0935	0.01	Q				V
22+ 0	0.0936	0.01	Q				V
22+ 5	0.0936	0.01	Q				V
22+10	0.0937	0.01	Q				V
22+15	0.0938	0.01	Q				V
22+20	0.0939	0.01	Q				V
22+25	0.0939	0.01	Q				V
22+30	0.0940	0.01	Q				V
22+35	0.0941	0.01	Q				V
22+40	0.0941	0.01	Q				V
22+45	0.0942	0.01	Q				V
22+50	0.0942	0.01	Q				V
22+55	0.0943	0.01	Q				V
23+ 0	0.0944	0.01	Q				V
23+ 5	0.0944	0.01	Q				V
23+10	0.0945	0.01	Q				V
23+15	0.0946	0.01	Q				V
23+20	0.0946	0.01	Q				V
23+25	0.0947	0.01	Q				V
23+30	0.0947	0.01	Q				V
23+35	0.0948	0.01	Q				V
23+40	0.0949	0.01	Q				V

23+45	0.0949	0.01	Q				V
23+50	0.0950	0.01	Q				V
23+55	0.0950	0.01	Q				V
24+ 0	0.0951	0.01	Q				V
24+ 5	0.0951	0.00	Q				V
24+10	0.0951	0.00	Q				V

Unit Hydrograph Analysis

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Study date 02/19/21 File: 1162004EXUHA2410.out

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

Program License Serial Number 6335

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

English Units used in output format

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
PRE-DEVELOPED, DMA-A
10-YEAR, 24-HOUR STORMEVENT

Drainage Area = 4.13(Ac.) = 0.006 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.13(Ac.) =
0.006 Sq. Mi.
Length along longest watercourse = 576.00(Ft.)
Length along longest watercourse measured to centroid =
269.00(Ft.)
Length along longest watercourse = 0.109 Mi.
Length along longest watercourse measured to centroid = 0.051 Mi.
Difference in elevation = 97.00(Ft.)
Slope along watercourse = 889.1667 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.028 Hr.
Lag time = 1.65 Min.
25% of lag time = 0.41 Min.
40% of lag time = 0.66 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]
4.13	2.64	10.89

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.13	6.73	27.76

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 2.640(In)
Area Averaged 100-Year Rainfall = 6.730(In)

Point rain (area averaged) = 4.323(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.323(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.125	86.00	0.000

Total Area Entered = 4.13(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
86.0	86.0	0.176	0.000	0.176	1.000	0.176
Sum (F) =						0.176

Area averaged mean soil loss (F) (In/Hr) = 0.176
Minimum soil loss rate ((In/Hr)) = 0.088
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Unit Hydrograph VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	302.502	56.936	2.367
2 0.167	605.004	36.991	1.538
3 0.250	907.506	6.073	0.252
Sum = 100.000		Sum=	4.157

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
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	(Hr.)	Percent	(In/Hr)	Max		Low	(In/Hr)
1	0.08	0.07	0.035	(0.311)		0.031	0.003
2	0.17	0.07	0.035	(0.310)		0.031	0.003
3	0.25	0.07	0.035	(0.309)		0.031	0.003
4	0.33	0.10	0.052	(0.308)		0.047	0.005
5	0.42	0.10	0.052	(0.306)		0.047	0.005
6	0.50	0.10	0.052	(0.305)		0.047	0.005
7	0.58	0.10	0.052	(0.304)		0.047	0.005
8	0.67	0.10	0.052	(0.303)		0.047	0.005
9	0.75	0.10	0.052	(0.302)		0.047	0.005
10	0.83	0.13	0.069	(0.301)		0.062	0.007
11	0.92	0.13	0.069	(0.299)		0.062	0.007
12	1.00	0.13	0.069	(0.298)		0.062	0.007
13	1.08	0.10	0.052	(0.297)		0.047	0.005
14	1.17	0.10	0.052	(0.296)		0.047	0.005
15	1.25	0.10	0.052	(0.295)		0.047	0.005
16	1.33	0.10	0.052	(0.293)		0.047	0.005
17	1.42	0.10	0.052	(0.292)		0.047	0.005
18	1.50	0.10	0.052	(0.291)		0.047	0.005
19	1.58	0.10	0.052	(0.290)		0.047	0.005
20	1.67	0.10	0.052	(0.289)		0.047	0.005
21	1.75	0.10	0.052	(0.288)		0.047	0.005
22	1.83	0.13	0.069	(0.287)		0.062	0.007
23	1.92	0.13	0.069	(0.285)		0.062	0.007
24	2.00	0.13	0.069	(0.284)		0.062	0.007
25	2.08	0.13	0.069	(0.283)		0.062	0.007
26	2.17	0.13	0.069	(0.282)		0.062	0.007
27	2.25	0.13	0.069	(0.281)		0.062	0.007
28	2.33	0.13	0.069	(0.280)		0.062	0.007
29	2.42	0.13	0.069	(0.278)		0.062	0.007
30	2.50	0.13	0.069	(0.277)		0.062	0.007
31	2.58	0.17	0.086	(0.276)		0.078	0.009
32	2.67	0.17	0.086	(0.275)		0.078	0.009
33	2.75	0.17	0.086	(0.274)		0.078	0.009
34	2.83	0.17	0.086	(0.273)		0.078	0.009
35	2.92	0.17	0.086	(0.272)		0.078	0.009
36	3.00	0.17	0.086	(0.271)		0.078	0.009
37	3.08	0.17	0.086	(0.269)		0.078	0.009
38	3.17	0.17	0.086	(0.268)		0.078	0.009
39	3.25	0.17	0.086	(0.267)		0.078	0.009
40	3.33	0.17	0.086	(0.266)		0.078	0.009
41	3.42	0.17	0.086	(0.265)		0.078	0.009
42	3.50	0.17	0.086	(0.264)		0.078	0.009
43	3.58	0.17	0.086	(0.263)		0.078	0.009
44	3.67	0.17	0.086	(0.262)		0.078	0.009
45	3.75	0.17	0.086	(0.261)		0.078	0.009
46	3.83	0.20	0.104	(0.259)		0.093	0.010
47	3.92	0.20	0.104	(0.258)		0.093	0.010
48	4.00	0.20	0.104	(0.257)		0.093	0.010
49	4.08	0.20	0.104	(0.256)		0.093	0.010
50	4.17	0.20	0.104	(0.255)		0.093	0.010
51	4.25	0.20	0.104	(0.254)		0.093	0.010
52	4.33	0.23	0.121	(0.253)		0.109	0.012
53	4.42	0.23	0.121	(0.252)		0.109	0.012

54	4.50	0.23	0.121	(0.251)	0.109	0.012
55	4.58	0.23	0.121	(0.250)	0.109	0.012
56	4.67	0.23	0.121	(0.249)	0.109	0.012
57	4.75	0.23	0.121	(0.248)	0.109	0.012
58	4.83	0.27	0.138	(0.246)	0.124	0.014
59	4.92	0.27	0.138	(0.245)	0.124	0.014
60	5.00	0.27	0.138	(0.244)	0.124	0.014
61	5.08	0.20	0.104	(0.243)	0.093	0.010
62	5.17	0.20	0.104	(0.242)	0.093	0.010
63	5.25	0.20	0.104	(0.241)	0.093	0.010
64	5.33	0.23	0.121	(0.240)	0.109	0.012
65	5.42	0.23	0.121	(0.239)	0.109	0.012
66	5.50	0.23	0.121	(0.238)	0.109	0.012
67	5.58	0.27	0.138	(0.237)	0.124	0.014
68	5.67	0.27	0.138	(0.236)	0.124	0.014
69	5.75	0.27	0.138	(0.235)	0.124	0.014
70	5.83	0.27	0.138	(0.234)	0.124	0.014
71	5.92	0.27	0.138	(0.233)	0.124	0.014
72	6.00	0.27	0.138	(0.232)	0.124	0.014
73	6.08	0.30	0.156	(0.231)	0.140	0.016
74	6.17	0.30	0.156	(0.230)	0.140	0.016
75	6.25	0.30	0.156	(0.229)	0.140	0.016
76	6.33	0.30	0.156	(0.228)	0.140	0.016
77	6.42	0.30	0.156	(0.227)	0.140	0.016
78	6.50	0.30	0.156	(0.226)	0.140	0.016
79	6.58	0.33	0.173	(0.225)	0.156	0.017
80	6.67	0.33	0.173	(0.224)	0.156	0.017
81	6.75	0.33	0.173	(0.223)	0.156	0.017
82	6.83	0.33	0.173	(0.222)	0.156	0.017
83	6.92	0.33	0.173	(0.221)	0.156	0.017
84	7.00	0.33	0.173	(0.220)	0.156	0.017
85	7.08	0.33	0.173	(0.219)	0.156	0.017
86	7.17	0.33	0.173	(0.218)	0.156	0.017
87	7.25	0.33	0.173	(0.217)	0.156	0.017
88	7.33	0.37	0.190	(0.216)	0.171	0.019
89	7.42	0.37	0.190	(0.215)	0.171	0.019
90	7.50	0.37	0.190	(0.214)	0.171	0.019
91	7.58	0.40	0.207	(0.213)	0.187	0.021
92	7.67	0.40	0.207	(0.212)	0.187	0.021
93	7.75	0.40	0.207	(0.211)	0.187	0.021
94	7.83	0.43	0.225	(0.210)	0.202	0.022
95	7.92	0.43	0.225	(0.209)	0.202	0.022
96	8.00	0.43	0.225	(0.208)	0.202	0.022
97	8.08	0.50	0.259	0.207 (0.233)		0.053
98	8.17	0.50	0.259	0.206 (0.233)		0.053
99	8.25	0.50	0.259	0.205 (0.233)		0.054
100	8.33	0.50	0.259	0.204 (0.233)		0.055
101	8.42	0.50	0.259	0.203 (0.233)		0.056
102	8.50	0.50	0.259	0.202 (0.233)		0.057
103	8.58	0.53	0.277	0.201 (0.249)		0.076
104	8.67	0.53	0.277	0.200 (0.249)		0.076
105	8.75	0.53	0.277	0.199 (0.249)		0.077
106	8.83	0.57	0.294	0.198 (0.265)		0.096
107	8.92	0.57	0.294	0.197 (0.265)		0.097

108	9.00	0.57	0.294	0.196	(0.265)	0.098
109	9.08	0.63	0.329	0.195	(0.296)	0.133
110	9.17	0.63	0.329	0.195	(0.296)	0.134
111	9.25	0.63	0.329	0.194	(0.296)	0.135
112	9.33	0.67	0.346	0.193	(0.311)	0.153
113	9.42	0.67	0.346	0.192	(0.311)	0.154
114	9.50	0.67	0.346	0.191	(0.311)	0.155
115	9.58	0.70	0.363	0.190	(0.327)	0.173
116	9.67	0.70	0.363	0.189	(0.327)	0.174
117	9.75	0.70	0.363	0.188	(0.327)	0.175
118	9.83	0.73	0.380	0.187	(0.342)	0.193
119	9.92	0.73	0.380	0.186	(0.342)	0.194
120	10.00	0.73	0.380	0.185	(0.342)	0.195
121	10.08	0.50	0.259	0.185	(0.233)	0.075
122	10.17	0.50	0.259	0.184	(0.233)	0.076
123	10.25	0.50	0.259	0.183	(0.233)	0.077
124	10.33	0.50	0.259	0.182	(0.233)	0.077
125	10.42	0.50	0.259	0.181	(0.233)	0.078
126	10.50	0.50	0.259	0.180	(0.233)	0.079
127	10.58	0.67	0.346	0.179	(0.311)	0.167
128	10.67	0.67	0.346	0.178	(0.311)	0.167
129	10.75	0.67	0.346	0.177	(0.311)	0.168
130	10.83	0.67	0.346	0.177	(0.311)	0.169
131	10.92	0.67	0.346	0.176	(0.311)	0.170
132	11.00	0.67	0.346	0.175	(0.311)	0.171
133	11.08	0.63	0.329	0.174	(0.296)	0.155
134	11.17	0.63	0.329	0.173	(0.296)	0.155
135	11.25	0.63	0.329	0.172	(0.296)	0.156
136	11.33	0.63	0.329	0.171	(0.296)	0.157
137	11.42	0.63	0.329	0.171	(0.296)	0.158
138	11.50	0.63	0.329	0.170	(0.296)	0.159
139	11.58	0.57	0.294	0.169	(0.265)	0.125
140	11.67	0.57	0.294	0.168	(0.265)	0.126
141	11.75	0.57	0.294	0.167	(0.265)	0.127
142	11.83	0.60	0.311	0.166	(0.280)	0.145
143	11.92	0.60	0.311	0.166	(0.280)	0.146
144	12.00	0.60	0.311	0.165	(0.280)	0.146
145	12.08	0.83	0.432	0.164	(0.389)	0.268
146	12.17	0.83	0.432	0.163	(0.389)	0.269
147	12.25	0.83	0.432	0.162	(0.389)	0.270
148	12.33	0.87	0.450	0.161	(0.405)	0.288
149	12.42	0.87	0.450	0.161	(0.405)	0.289
150	12.50	0.87	0.450	0.160	(0.405)	0.290
151	12.58	0.93	0.484	0.159	(0.436)	0.325
152	12.67	0.93	0.484	0.158	(0.436)	0.326
153	12.75	0.93	0.484	0.157	(0.436)	0.327
154	12.83	0.97	0.501	0.157	(0.451)	0.345
155	12.92	0.97	0.501	0.156	(0.451)	0.346
156	13.00	0.97	0.501	0.155	(0.451)	0.346
157	13.08	1.13	0.588	0.154	(0.529)	0.434
158	13.17	1.13	0.588	0.154	(0.529)	0.434
159	13.25	1.13	0.588	0.153	(0.529)	0.435
160	13.33	1.13	0.588	0.152	(0.529)	0.436
161	13.42	1.13	0.588	0.151	(0.529)	0.437

162	13.50	1.13	0.588	0.150	(0.529)	0.437
163	13.58	0.77	0.398	0.150	(0.358)	0.248
164	13.67	0.77	0.398	0.149	(0.358)	0.249
165	13.75	0.77	0.398	0.148	(0.358)	0.250
166	13.83	0.77	0.398	0.147	(0.358)	0.250
167	13.92	0.77	0.398	0.147	(0.358)	0.251
168	14.00	0.77	0.398	0.146	(0.358)	0.252
169	14.08	0.90	0.467	0.145	(0.420)	0.322
170	14.17	0.90	0.467	0.144	(0.420)	0.322
171	14.25	0.90	0.467	0.144	(0.420)	0.323
172	14.33	0.87	0.450	0.143	(0.405)	0.307
173	14.42	0.87	0.450	0.142	(0.405)	0.307
174	14.50	0.87	0.450	0.141	(0.405)	0.308
175	14.58	0.87	0.450	0.141	(0.405)	0.309
176	14.67	0.87	0.450	0.140	(0.405)	0.310
177	14.75	0.87	0.450	0.139	(0.405)	0.310
178	14.83	0.83	0.432	0.139	(0.389)	0.294
179	14.92	0.83	0.432	0.138	(0.389)	0.294
180	15.00	0.83	0.432	0.137	(0.389)	0.295
181	15.08	0.80	0.415	0.136	(0.373)	0.279
182	15.17	0.80	0.415	0.136	(0.373)	0.279
183	15.25	0.80	0.415	0.135	(0.373)	0.280
184	15.33	0.77	0.398	0.134	(0.358)	0.263
185	15.42	0.77	0.398	0.134	(0.358)	0.264
186	15.50	0.77	0.398	0.133	(0.358)	0.265
187	15.58	0.63	0.329	0.132	(0.296)	0.196
188	15.67	0.63	0.329	0.132	(0.296)	0.197
189	15.75	0.63	0.329	0.131	(0.296)	0.198
190	15.83	0.63	0.329	0.130	(0.296)	0.198
191	15.92	0.63	0.329	0.130	(0.296)	0.199
192	16.00	0.63	0.329	0.129	(0.296)	0.200
193	16.08	0.13	0.069	(0.128)	0.062	0.007
194	16.17	0.13	0.069	(0.128)	0.062	0.007
195	16.25	0.13	0.069	(0.127)	0.062	0.007
196	16.33	0.13	0.069	(0.126)	0.062	0.007
197	16.42	0.13	0.069	(0.126)	0.062	0.007
198	16.50	0.13	0.069	(0.125)	0.062	0.007
199	16.58	0.10	0.052	(0.124)	0.047	0.005
200	16.67	0.10	0.052	(0.124)	0.047	0.005
201	16.75	0.10	0.052	(0.123)	0.047	0.005
202	16.83	0.10	0.052	(0.123)	0.047	0.005
203	16.92	0.10	0.052	(0.122)	0.047	0.005
204	17.00	0.10	0.052	(0.121)	0.047	0.005
205	17.08	0.17	0.086	(0.121)	0.078	0.009
206	17.17	0.17	0.086	(0.120)	0.078	0.009
207	17.25	0.17	0.086	(0.119)	0.078	0.009
208	17.33	0.17	0.086	(0.119)	0.078	0.009
209	17.42	0.17	0.086	(0.118)	0.078	0.009
210	17.50	0.17	0.086	(0.118)	0.078	0.009
211	17.58	0.17	0.086	(0.117)	0.078	0.009
212	17.67	0.17	0.086	(0.117)	0.078	0.009
213	17.75	0.17	0.086	(0.116)	0.078	0.009
214	17.83	0.13	0.069	(0.115)	0.062	0.007
215	17.92	0.13	0.069	(0.115)	0.062	0.007

216	18.00	0.13	0.069	(0.114)	0.062	0.007
217	18.08	0.13	0.069	(0.114)	0.062	0.007
218	18.17	0.13	0.069	(0.113)	0.062	0.007
219	18.25	0.13	0.069	(0.113)	0.062	0.007
220	18.33	0.13	0.069	(0.112)	0.062	0.007
221	18.42	0.13	0.069	(0.111)	0.062	0.007
222	18.50	0.13	0.069	(0.111)	0.062	0.007
223	18.58	0.10	0.052	(0.110)	0.047	0.005
224	18.67	0.10	0.052	(0.110)	0.047	0.005
225	18.75	0.10	0.052	(0.109)	0.047	0.005
226	18.83	0.07	0.035	(0.109)	0.031	0.003
227	18.92	0.07	0.035	(0.108)	0.031	0.003
228	19.00	0.07	0.035	(0.108)	0.031	0.003
229	19.08	0.10	0.052	(0.107)	0.047	0.005
230	19.17	0.10	0.052	(0.107)	0.047	0.005
231	19.25	0.10	0.052	(0.106)	0.047	0.005
232	19.33	0.13	0.069	(0.106)	0.062	0.007
233	19.42	0.13	0.069	(0.105)	0.062	0.007
234	19.50	0.13	0.069	(0.105)	0.062	0.007
235	19.58	0.10	0.052	(0.104)	0.047	0.005
236	19.67	0.10	0.052	(0.104)	0.047	0.005
237	19.75	0.10	0.052	(0.103)	0.047	0.005
238	19.83	0.07	0.035	(0.103)	0.031	0.003
239	19.92	0.07	0.035	(0.102)	0.031	0.003
240	20.00	0.07	0.035	(0.102)	0.031	0.003
241	20.08	0.10	0.052	(0.102)	0.047	0.005
242	20.17	0.10	0.052	(0.101)	0.047	0.005
243	20.25	0.10	0.052	(0.101)	0.047	0.005
244	20.33	0.10	0.052	(0.100)	0.047	0.005
245	20.42	0.10	0.052	(0.100)	0.047	0.005
246	20.50	0.10	0.052	(0.099)	0.047	0.005
247	20.58	0.10	0.052	(0.099)	0.047	0.005
248	20.67	0.10	0.052	(0.099)	0.047	0.005
249	20.75	0.10	0.052	(0.098)	0.047	0.005
250	20.83	0.07	0.035	(0.098)	0.031	0.003
251	20.92	0.07	0.035	(0.097)	0.031	0.003
252	21.00	0.07	0.035	(0.097)	0.031	0.003
253	21.08	0.10	0.052	(0.097)	0.047	0.005
254	21.17	0.10	0.052	(0.096)	0.047	0.005
255	21.25	0.10	0.052	(0.096)	0.047	0.005
256	21.33	0.07	0.035	(0.095)	0.031	0.003
257	21.42	0.07	0.035	(0.095)	0.031	0.003
258	21.50	0.07	0.035	(0.095)	0.031	0.003
259	21.58	0.10	0.052	(0.094)	0.047	0.005
260	21.67	0.10	0.052	(0.094)	0.047	0.005
261	21.75	0.10	0.052	(0.094)	0.047	0.005
262	21.83	0.07	0.035	(0.093)	0.031	0.003
263	21.92	0.07	0.035	(0.093)	0.031	0.003
264	22.00	0.07	0.035	(0.093)	0.031	0.003
265	22.08	0.10	0.052	(0.092)	0.047	0.005
266	22.17	0.10	0.052	(0.092)	0.047	0.005
267	22.25	0.10	0.052	(0.092)	0.047	0.005
268	22.33	0.07	0.035	(0.092)	0.031	0.003
269	22.42	0.07	0.035	(0.091)	0.031	0.003

270	22.50	0.07	0.035	(0.091)	0.031	0.003
271	22.58	0.07	0.035	(0.091)	0.031	0.003
272	22.67	0.07	0.035	(0.090)	0.031	0.003
273	22.75	0.07	0.035	(0.090)	0.031	0.003
274	22.83	0.07	0.035	(0.090)	0.031	0.003
275	22.92	0.07	0.035	(0.090)	0.031	0.003
276	23.00	0.07	0.035	(0.090)	0.031	0.003
277	23.08	0.07	0.035	(0.089)	0.031	0.003
278	23.17	0.07	0.035	(0.089)	0.031	0.003
279	23.25	0.07	0.035	(0.089)	0.031	0.003
280	23.33	0.07	0.035	(0.089)	0.031	0.003
281	23.42	0.07	0.035	(0.089)	0.031	0.003
282	23.50	0.07	0.035	(0.088)	0.031	0.003
283	23.58	0.07	0.035	(0.088)	0.031	0.003
284	23.67	0.07	0.035	(0.088)	0.031	0.003
285	23.75	0.07	0.035	(0.088)	0.031	0.003
286	23.83	0.07	0.035	(0.088)	0.031	0.003
287	23.92	0.07	0.035	(0.088)	0.031	0.003
288	24.00	0.07	0.035	(0.088)	0.031	0.003

(Loss Rate Not Used)

Sum = 100.0 Sum = 21.9

Flood volume = Effective rainfall 1.83(In)
times area 4.1(Ac.)/[(In)/(Ft.)] = 0.6(Ac.Ft)

Total soil loss = 2.50(In)

Total soil loss = 0.858(Ac.Ft)

Total rainfall = 4.32(In)

Flood volume = 27361.3 Cubic Feet

Total soil loss = 37364.6 Cubic Feet

Peak flow rate of this hydrograph = 1.818(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0004	0.02	Q				
0+25	0.0005	0.02	Q				
0+30	0.0007	0.02	Q				
0+35	0.0008	0.02	Q				
0+40	0.0010	0.02	Q				
0+45	0.0011	0.02	Q				
0+50	0.0013	0.03	Q				
0+55	0.0015	0.03	Q				
1+ 0	0.0017	0.03	Q				
1+ 5	0.0019	0.02	Q				
1+10	0.0020	0.02	Q				

1+15	0.0022	0.02	Q
1+20	0.0023	0.02	Q
1+25	0.0025	0.02	Q
1+30	0.0026	0.02	Q
1+35	0.0028	0.02	Q
1+40	0.0029	0.02	Q
1+45	0.0030	0.02	Q
1+50	0.0032	0.03	Q
1+55	0.0034	0.03	Q
2+ 0	0.0036	0.03	Q
2+ 5	0.0038	0.03	Q
2+10	0.0040	0.03	Q
2+15	0.0042	0.03	Q
2+20	0.0044	0.03	Q
2+25	0.0046	0.03	Q
2+30	0.0048	0.03	Q
2+35	0.0050	0.03	Q
2+40	0.0053	0.04	Q
2+45	0.0055	0.04	Q
2+50	0.0058	0.04	Q
2+55	0.0060	0.04	Q
3+ 0	0.0063	0.04	Q
3+ 5	0.0065	0.04	Q
3+10	0.0068	0.04	Q
3+15	0.0070	0.04	Q
3+20	0.0073	0.04	Q
3+25	0.0075	0.04	Q
3+30	0.0078	0.04	Q
3+35	0.0080	0.04	Q
3+40	0.0082	0.04	Q
3+45	0.0085	0.04	Q
3+50	0.0088	0.04	Q
3+55	0.0091	0.04	Q
4+ 0	0.0094	0.04	Q
4+ 5	0.0097	0.04	Q
4+10	0.0100	0.04	Q
4+15	0.0103	0.04	Q
4+20	0.0106	0.05	Q
4+25	0.0109	0.05	Q
4+30	0.0113	0.05	Q
4+35	0.0116	0.05	Q
4+40	0.0120	0.05	Q
4+45	0.0123	0.05	Q
4+50	0.0127	0.05	Q
4+55	0.0131	0.06	Q
5+ 0	0.0135	0.06	Q
5+ 5	0.0138	0.05	Q
5+10	0.0141	0.04	Q
5+15	0.0144	0.04	Q
5+20	0.0147	0.05	Q
5+25	0.0151	0.05	Q
5+30	0.0154	0.05	Q
5+35	0.0158	0.05	QV
5+40	0.0162	0.06	QV

5+45	0.0166	0.06	QV				
5+50	0.0170	0.06	QV				
5+55	0.0174	0.06	QV				
6+ 0	0.0178	0.06	QV				
6+ 5	0.0182	0.06	QV				
6+10	0.0187	0.06	QV				
6+15	0.0191	0.06	QV				
6+20	0.0195	0.06	QV				
6+25	0.0200	0.06	QV				
6+30	0.0204	0.06	QV				
6+35	0.0209	0.07	QV				
6+40	0.0214	0.07	QV				
6+45	0.0219	0.07	QV				
6+50	0.0224	0.07	QV				
6+55	0.0229	0.07	QV				
7+ 0	0.0234	0.07	QV				
7+ 5	0.0239	0.07	QV				
7+10	0.0244	0.07	QV				
7+15	0.0249	0.07	QV				
7+20	0.0254	0.08	QV				
7+25	0.0259	0.08	QV				
7+30	0.0265	0.08	QV				
7+35	0.0271	0.08	QV				
7+40	0.0276	0.09	QV				
7+45	0.0282	0.09	QV				
7+50	0.0289	0.09	QV				
7+55	0.0295	0.09	QV				
8+ 0	0.0301	0.09	QV				
8+ 5	0.0313	0.16	QV				
8+10	0.0327	0.21	Q V				
8+15	0.0343	0.22	Q V				
8+20	0.0359	0.23	Q V				
8+25	0.0375	0.23	Q V				
8+30	0.0391	0.24	Q V				
8+35	0.0410	0.28	QV				
8+40	0.0432	0.31	QV				
8+45	0.0454	0.32	QV				
8+50	0.0479	0.36	Q V				
8+55	0.0506	0.40	Q V				
9+ 0	0.0534	0.40	Q V				
9+ 5	0.0568	0.49	Q V				
9+10	0.0605	0.55	QV				
9+15	0.0644	0.56	Q V				
9+20	0.0685	0.60	Q V				
9+25	0.0729	0.63	Q V				
9+30	0.0773	0.64	Q V				
9+35	0.0821	0.69	Q V				
9+40	0.0870	0.72	Q V				
9+45	0.0920	0.73	Q V				
9+50	0.0973	0.77	Q V				
9+55	0.1028	0.80	Q V				
10+ 0	0.1084	0.81	Q V				
10+ 5	0.1120	0.53	Q V				
10+10	0.1144	0.34	Q V				

10+15	0.1166	0.32	Q	V				
10+20	0.1188	0.32	Q	V				
10+25	0.1210	0.32	Q	V				
10+30	0.1233	0.33	Q	V				
10+35	0.1270	0.54	Q	V				
10+40	0.1316	0.67	Q	V				
10+45	0.1364	0.70	Q	V				
10+50	0.1413	0.70	Q	V				
10+55	0.1461	0.71	Q	V				
11+ 0	0.1510	0.71	Q	V				
11+ 5	0.1556	0.67	Q	V				
11+10	0.1601	0.65	Q	V				
11+15	0.1646	0.65	Q	V				
11+20	0.1690	0.65	Q	V				
11+25	0.1736	0.66	Q	V				
11+30	0.1781	0.66	Q	V				
11+35	0.1821	0.58	Q	V				
11+40	0.1857	0.53	Q	V				
11+45	0.1894	0.53	Q	V				
11+50	0.1933	0.57	Q	V				
11+55	0.1974	0.60	Q	V				
12+ 0	0.2016	0.61	Q	V				
12+ 5	0.2078	0.90	Q	V				
12+10	0.2153	1.09	Q	V				
12+15	0.2230	1.12	Q	V				
12+20	0.2310	1.17	Q	V				
12+25	0.2393	1.20	Q	V				
12+30	0.2475	1.20	Q	V				
12+35	0.2564	1.29	Q	V				
12+40	0.2657	1.35	Q	V				
12+45	0.2750	1.36	Q	V				
12+50	0.2847	1.40	Q	V				
12+55	0.2945	1.43	Q	V				
13+ 0	0.3044	1.44	Q	V				
13+ 5	0.3158	1.65	Q	V				
13+10	0.3281	1.78	Q	V				
13+15	0.3405	1.81	Q	V				
13+20	0.3530	1.81	Q	V				
13+25	0.3655	1.81	Q	V				
13+30	0.3780	1.82	Q	V				
13+35	0.3875	1.37	Q	V				
13+40	0.3949	1.08	Q	V				
13+45	0.4020	1.04	Q	V				
13+50	0.4092	1.04	Q	V				
13+55	0.4164	1.04	Q	V				
14+ 0	0.4236	1.05	Q	V				
14+ 5	0.4319	1.21	Q	V				
14+10	0.4411	1.32	Q	V				
14+15	0.4503	1.34	Q	V				
14+20	0.4593	1.30	Q	V				
14+25	0.4681	1.28	Q	V				
14+30	0.4769	1.28	Q	V				
14+35	0.4858	1.28	Q	V				
14+40	0.4946	1.29	Q	V				

14+45	0.5035	1.29		Q				V	
14+50	0.5121	1.25		Q				V	
14+55	0.5206	1.23		Q				V	
15+ 0	0.5290	1.23		Q				V	
15+ 5	0.5372	1.19		Q				V	
15+10	0.5452	1.16		Q				V	
15+15	0.5532	1.16		Q				V	
15+20	0.5610	1.12		Q				V	
15+25	0.5686	1.10		Q				V	
15+30	0.5761	1.10		Q				V	
15+35	0.5826	0.94		Q				V	
15+40	0.5883	0.84		Q				V	
15+45	0.5940	0.82		Q				V	
15+50	0.5997	0.82		Q				V	
15+55	0.6053	0.83		Q				V	
16+ 0	0.6111	0.83		Q				V	
16+ 5	0.6136	0.37		Q				V	
16+10	0.6142	0.08	Q					V	
16+15	0.6144	0.03	Q					V	
16+20	0.6146	0.03	Q					V	
16+25	0.6148	0.03	Q					V	
16+30	0.6150	0.03	Q					V	
16+35	0.6151	0.02	Q					V	
16+40	0.6153	0.02	Q					V	
16+45	0.6154	0.02	Q					V	
16+50	0.6156	0.02	Q					V	
16+55	0.6157	0.02	Q					V	
17+ 0	0.6159	0.02	Q					V	
17+ 5	0.6161	0.03	Q					V	
17+10	0.6163	0.04	Q					V	
17+15	0.6166	0.04	Q					V	
17+20	0.6168	0.04	Q					V	
17+25	0.6171	0.04	Q					V	
17+30	0.6173	0.04	Q					V	
17+35	0.6176	0.04	Q					V	
17+40	0.6178	0.04	Q					V	
17+45	0.6181	0.04	Q					V	
17+50	0.6183	0.03	Q					V	
17+55	0.6185	0.03	Q					V	
18+ 0	0.6187	0.03	Q					V	
18+ 5	0.6189	0.03	Q					V	
18+10	0.6191	0.03	Q					V	
18+15	0.6193	0.03	Q					V	
18+20	0.6195	0.03	Q					V	
18+25	0.6197	0.03	Q					V	
18+30	0.6199	0.03	Q					V	
18+35	0.6200	0.02	Q					V	
18+40	0.6202	0.02	Q					V	
18+45	0.6203	0.02	Q					V	
18+50	0.6204	0.02	Q					V	
18+55	0.6206	0.01	Q					V	
19+ 0	0.6207	0.01	Q					V	
19+ 5	0.6208	0.02	Q					V	
19+10	0.6209	0.02	Q					V	

19+15	0.6211	0.02	Q				V
19+20	0.6212	0.03	Q				V
19+25	0.6214	0.03	Q				V
19+30	0.6216	0.03	Q				V
19+35	0.6218	0.02	Q				V
19+40	0.6220	0.02	Q				V
19+45	0.6221	0.02	Q				V
19+50	0.6222	0.02	Q				V
19+55	0.6223	0.01	Q				V
20+ 0	0.6224	0.01	Q				V
20+ 5	0.6226	0.02	Q				V
20+10	0.6227	0.02	Q				V
20+15	0.6229	0.02	Q				V
20+20	0.6230	0.02	Q				V
20+25	0.6232	0.02	Q				V
20+30	0.6233	0.02	Q				V
20+35	0.6234	0.02	Q				V
20+40	0.6236	0.02	Q				V
20+45	0.6237	0.02	Q				V
20+50	0.6239	0.02	Q				V
20+55	0.6240	0.01	Q				V
21+ 0	0.6241	0.01	Q				V
21+ 5	0.6242	0.02	Q				V
21+10	0.6243	0.02	Q				V
21+15	0.6245	0.02	Q				V
21+20	0.6246	0.02	Q				V
21+25	0.6247	0.01	Q				V
21+30	0.6248	0.01	Q				V
21+35	0.6249	0.02	Q				V
21+40	0.6251	0.02	Q				V
21+45	0.6252	0.02	Q				V
21+50	0.6254	0.02	Q				V
21+55	0.6255	0.01	Q				V
22+ 0	0.6256	0.01	Q				V
22+ 5	0.6257	0.02	Q				V
22+10	0.6258	0.02	Q				V
22+15	0.6260	0.02	Q				V
22+20	0.6261	0.02	Q				V
22+25	0.6262	0.01	Q				V
22+30	0.6263	0.01	Q				V
22+35	0.6264	0.01	Q				V
22+40	0.6265	0.01	Q				V
22+45	0.6266	0.01	Q				V
22+50	0.6267	0.01	Q				V
22+55	0.6268	0.01	Q				V
23+ 0	0.6269	0.01	Q				V
23+ 5	0.6270	0.01	Q				V
23+10	0.6271	0.01	Q				V
23+15	0.6272	0.01	Q				V
23+20	0.6273	0.01	Q				V
23+25	0.6274	0.01	Q				V
23+30	0.6275	0.01	Q				V
23+35	0.6276	0.01	Q				V
23+40	0.6277	0.01	Q				V

23+45	0.6278	0.01	Q				V
23+50	0.6279	0.01	Q				V
23+55	0.6280	0.01	Q				V
24+ 0	0.6281	0.01	Q				V
24+ 5	0.6281	0.01	Q				V
24+10	0.6281	0.00	Q				V

Unit Hydrograph Analysis

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Study date 02/19/21 File: 1162004EXUHB242.out

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

Program License Serial Number 6335

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

English Units used in output format

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
PRE-DEVELOPED, UNIT-HYDROGRAPH
2-YEAR, 24-HOUR STORMEVENT, DMA-B

Drainage Area = 3.01(Ac.) = 0.005 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 3.01(Ac.) =
0.005 Sq. Mi.
Length along longest watercourse = 567.00(Ft.)
Length along longest watercourse measured to centroid =
279.00(Ft.)
Length along longest watercourse = 0.107 Mi.
Length along longest watercourse measured to centroid = 0.053 Mi.
Difference in elevation = 78.00(Ft.)
Slope along watercourse = 726.3492 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.029 Hr.
Lag time = 1.73 Min.
25% of lag time = 0.43 Min.
40% of lag time = 0.69 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]
3.01	2.64	7.95

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
3.01	6.73	20.26

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.640(In)
Area Averaged 100-Year Rainfall = 6.730(In)

Point rain (area averaged) = 2.640(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.640(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
3.010	86.00	0.000

Total Area Entered = 3.01(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
86.0	71.6	0.343	0.000	0.343	1.000	0.343
Sum (F) =						0.343

Area averaged mean soil loss (F) (In/Hr) = 0.343
Minimum soil loss rate ((In/Hr)) = 0.172
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Unit Hydrograph VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	288.812	55.502	1.684
2 0.167	577.623	37.753	1.145
3 0.250	866.435	6.745	0.205
Sum = 100.000		Sum=	3.034

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
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	(Hr.)	Percent	(In/Hr)	Max		Low	(In/Hr)
1	0.08	0.07	0.021	(0.608)		0.019	0.002
2	0.17	0.07	0.021	(0.606)		0.019	0.002
3	0.25	0.07	0.021	(0.604)		0.019	0.002
4	0.33	0.10	0.032	(0.601)		0.029	0.003
5	0.42	0.10	0.032	(0.599)		0.029	0.003
6	0.50	0.10	0.032	(0.597)		0.029	0.003
7	0.58	0.10	0.032	(0.594)		0.029	0.003
8	0.67	0.10	0.032	(0.592)		0.029	0.003
9	0.75	0.10	0.032	(0.590)		0.029	0.003
10	0.83	0.13	0.042	(0.587)		0.038	0.004
11	0.92	0.13	0.042	(0.585)		0.038	0.004
12	1.00	0.13	0.042	(0.583)		0.038	0.004
13	1.08	0.10	0.032	(0.580)		0.029	0.003
14	1.17	0.10	0.032	(0.578)		0.029	0.003
15	1.25	0.10	0.032	(0.576)		0.029	0.003
16	1.33	0.10	0.032	(0.573)		0.029	0.003
17	1.42	0.10	0.032	(0.571)		0.029	0.003
18	1.50	0.10	0.032	(0.569)		0.029	0.003
19	1.58	0.10	0.032	(0.567)		0.029	0.003
20	1.67	0.10	0.032	(0.564)		0.029	0.003
21	1.75	0.10	0.032	(0.562)		0.029	0.003
22	1.83	0.13	0.042	(0.560)		0.038	0.004
23	1.92	0.13	0.042	(0.558)		0.038	0.004
24	2.00	0.13	0.042	(0.555)		0.038	0.004
25	2.08	0.13	0.042	(0.553)		0.038	0.004
26	2.17	0.13	0.042	(0.551)		0.038	0.004
27	2.25	0.13	0.042	(0.549)		0.038	0.004
28	2.33	0.13	0.042	(0.546)		0.038	0.004
29	2.42	0.13	0.042	(0.544)		0.038	0.004
30	2.50	0.13	0.042	(0.542)		0.038	0.004
31	2.58	0.17	0.053	(0.540)		0.048	0.005
32	2.67	0.17	0.053	(0.537)		0.048	0.005
33	2.75	0.17	0.053	(0.535)		0.048	0.005
34	2.83	0.17	0.053	(0.533)		0.048	0.005
35	2.92	0.17	0.053	(0.531)		0.048	0.005
36	3.00	0.17	0.053	(0.529)		0.048	0.005
37	3.08	0.17	0.053	(0.526)		0.048	0.005
38	3.17	0.17	0.053	(0.524)		0.048	0.005
39	3.25	0.17	0.053	(0.522)		0.048	0.005
40	3.33	0.17	0.053	(0.520)		0.048	0.005
41	3.42	0.17	0.053	(0.518)		0.048	0.005
42	3.50	0.17	0.053	(0.516)		0.048	0.005
43	3.58	0.17	0.053	(0.513)		0.048	0.005
44	3.67	0.17	0.053	(0.511)		0.048	0.005
45	3.75	0.17	0.053	(0.509)		0.048	0.005
46	3.83	0.20	0.063	(0.507)		0.057	0.006
47	3.92	0.20	0.063	(0.505)		0.057	0.006
48	4.00	0.20	0.063	(0.503)		0.057	0.006
49	4.08	0.20	0.063	(0.501)		0.057	0.006
50	4.17	0.20	0.063	(0.498)		0.057	0.006
51	4.25	0.20	0.063	(0.496)		0.057	0.006
52	4.33	0.23	0.074	(0.494)		0.067	0.007
53	4.42	0.23	0.074	(0.492)		0.067	0.007

54	4.50	0.23	0.074	(0.490)	0.067	0.007
55	4.58	0.23	0.074	(0.488)	0.067	0.007
56	4.67	0.23	0.074	(0.486)	0.067	0.007
57	4.75	0.23	0.074	(0.484)	0.067	0.007
58	4.83	0.27	0.084	(0.482)	0.076	0.008
59	4.92	0.27	0.084	(0.480)	0.076	0.008
60	5.00	0.27	0.084	(0.477)	0.076	0.008
61	5.08	0.20	0.063	(0.475)	0.057	0.006
62	5.17	0.20	0.063	(0.473)	0.057	0.006
63	5.25	0.20	0.063	(0.471)	0.057	0.006
64	5.33	0.23	0.074	(0.469)	0.067	0.007
65	5.42	0.23	0.074	(0.467)	0.067	0.007
66	5.50	0.23	0.074	(0.465)	0.067	0.007
67	5.58	0.27	0.084	(0.463)	0.076	0.008
68	5.67	0.27	0.084	(0.461)	0.076	0.008
69	5.75	0.27	0.084	(0.459)	0.076	0.008
70	5.83	0.27	0.084	(0.457)	0.076	0.008
71	5.92	0.27	0.084	(0.455)	0.076	0.008
72	6.00	0.27	0.084	(0.453)	0.076	0.008
73	6.08	0.30	0.095	(0.451)	0.086	0.010
74	6.17	0.30	0.095	(0.449)	0.086	0.010
75	6.25	0.30	0.095	(0.447)	0.086	0.010
76	6.33	0.30	0.095	(0.445)	0.086	0.010
77	6.42	0.30	0.095	(0.443)	0.086	0.010
78	6.50	0.30	0.095	(0.441)	0.086	0.010
79	6.58	0.33	0.106	(0.439)	0.095	0.011
80	6.67	0.33	0.106	(0.437)	0.095	0.011
81	6.75	0.33	0.106	(0.435)	0.095	0.011
82	6.83	0.33	0.106	(0.433)	0.095	0.011
83	6.92	0.33	0.106	(0.431)	0.095	0.011
84	7.00	0.33	0.106	(0.429)	0.095	0.011
85	7.08	0.33	0.106	(0.427)	0.095	0.011
86	7.17	0.33	0.106	(0.425)	0.095	0.011
87	7.25	0.33	0.106	(0.423)	0.095	0.011
88	7.33	0.37	0.116	(0.421)	0.105	0.012
89	7.42	0.37	0.116	(0.419)	0.105	0.012
90	7.50	0.37	0.116	(0.417)	0.105	0.012
91	7.58	0.40	0.127	(0.416)	0.114	0.013
92	7.67	0.40	0.127	(0.414)	0.114	0.013
93	7.75	0.40	0.127	(0.412)	0.114	0.013
94	7.83	0.43	0.137	(0.410)	0.124	0.014
95	7.92	0.43	0.137	(0.408)	0.124	0.014
96	8.00	0.43	0.137	(0.406)	0.124	0.014
97	8.08	0.50	0.158	(0.404)	0.143	0.016
98	8.17	0.50	0.158	(0.402)	0.143	0.016
99	8.25	0.50	0.158	(0.400)	0.143	0.016
100	8.33	0.50	0.158	(0.399)	0.143	0.016
101	8.42	0.50	0.158	(0.397)	0.143	0.016
102	8.50	0.50	0.158	(0.395)	0.143	0.016
103	8.58	0.53	0.169	(0.393)	0.152	0.017
104	8.67	0.53	0.169	(0.391)	0.152	0.017
105	8.75	0.53	0.169	(0.389)	0.152	0.017
106	8.83	0.57	0.180	(0.387)	0.162	0.018
107	8.92	0.57	0.180	(0.386)	0.162	0.018

108	9.00	0.57	0.180	(0.384)	0.162	0.018
109	9.08	0.63	0.201	(0.382)	0.181	0.020
110	9.17	0.63	0.201	(0.380)	0.181	0.020
111	9.25	0.63	0.201	(0.378)	0.181	0.020
112	9.33	0.67	0.211	(0.377)	0.190	0.021
113	9.42	0.67	0.211	(0.375)	0.190	0.021
114	9.50	0.67	0.211	(0.373)	0.190	0.021
115	9.58	0.70	0.222	(0.371)	0.200	0.022
116	9.67	0.70	0.222	(0.369)	0.200	0.022
117	9.75	0.70	0.222	(0.368)	0.200	0.022
118	9.83	0.73	0.232	(0.366)	0.209	0.023
119	9.92	0.73	0.232	(0.364)	0.209	0.023
120	10.00	0.73	0.232	(0.362)	0.209	0.023
121	10.08	0.50	0.158	(0.361)	0.143	0.016
122	10.17	0.50	0.158	(0.359)	0.143	0.016
123	10.25	0.50	0.158	(0.357)	0.143	0.016
124	10.33	0.50	0.158	(0.355)	0.143	0.016
125	10.42	0.50	0.158	(0.354)	0.143	0.016
126	10.50	0.50	0.158	(0.352)	0.143	0.016
127	10.58	0.67	0.211	(0.350)	0.190	0.021
128	10.67	0.67	0.211	(0.348)	0.190	0.021
129	10.75	0.67	0.211	(0.347)	0.190	0.021
130	10.83	0.67	0.211	(0.345)	0.190	0.021
131	10.92	0.67	0.211	(0.343)	0.190	0.021
132	11.00	0.67	0.211	(0.342)	0.190	0.021
133	11.08	0.63	0.201	(0.340)	0.181	0.020
134	11.17	0.63	0.201	(0.338)	0.181	0.020
135	11.25	0.63	0.201	(0.337)	0.181	0.020
136	11.33	0.63	0.201	(0.335)	0.181	0.020
137	11.42	0.63	0.201	(0.333)	0.181	0.020
138	11.50	0.63	0.201	(0.332)	0.181	0.020
139	11.58	0.57	0.180	(0.330)	0.162	0.018
140	11.67	0.57	0.180	(0.328)	0.162	0.018
141	11.75	0.57	0.180	(0.327)	0.162	0.018
142	11.83	0.60	0.190	(0.325)	0.171	0.019
143	11.92	0.60	0.190	(0.324)	0.171	0.019
144	12.00	0.60	0.190	(0.322)	0.171	0.019
145	12.08	0.83	0.264	(0.320)	0.238	0.026
146	12.17	0.83	0.264	(0.319)	0.238	0.026
147	12.25	0.83	0.264	(0.317)	0.238	0.026
148	12.33	0.87	0.275	(0.316)	0.247	0.027
149	12.42	0.87	0.275	(0.314)	0.247	0.027
150	12.50	0.87	0.275	(0.312)	0.247	0.027
151	12.58	0.93	0.296	(0.311)	0.266	0.030
152	12.67	0.93	0.296	(0.309)	0.266	0.030
153	12.75	0.93	0.296	(0.308)	0.266	0.030
154	12.83	0.97	0.306	(0.306)	0.276	0.031
155	12.92	0.97	0.306	(0.305)	0.276	0.031
156	13.00	0.97	0.306	(0.303)	0.276	0.031
157	13.08	1.13	0.359	0.301 (0.323)		0.058
158	13.17	1.13	0.359	0.300 (0.323)		0.059
159	13.25	1.13	0.359	0.298 (0.323)		0.061
160	13.33	1.13	0.359	0.297 (0.323)		0.062
161	13.42	1.13	0.359	0.295 (0.323)		0.064

162	13.50	1.13	0.359	0.294	(0.323)	0.065
163	13.58	0.77	0.243	(0.292)	0.219	0.024
164	13.67	0.77	0.243	(0.291)	0.219	0.024
165	13.75	0.77	0.243	(0.289)	0.219	0.024
166	13.83	0.77	0.243	(0.288)	0.219	0.024
167	13.92	0.77	0.243	(0.286)	0.219	0.024
168	14.00	0.77	0.243	(0.285)	0.219	0.024
169	14.08	0.90	0.285	(0.284)	0.257	0.029
170	14.17	0.90	0.285	(0.282)	0.257	0.029
171	14.25	0.90	0.285	(0.281)	0.257	0.029
172	14.33	0.87	0.275	(0.279)	0.247	0.027
173	14.42	0.87	0.275	(0.278)	0.247	0.027
174	14.50	0.87	0.275	(0.276)	0.247	0.027
175	14.58	0.87	0.275	(0.275)	0.247	0.027
176	14.67	0.87	0.275	(0.274)	0.247	0.027
177	14.75	0.87	0.275	(0.272)	0.247	0.027
178	14.83	0.83	0.264	(0.271)	0.238	0.026
179	14.92	0.83	0.264	(0.269)	0.238	0.026
180	15.00	0.83	0.264	(0.268)	0.238	0.026
181	15.08	0.80	0.253	(0.267)	0.228	0.025
182	15.17	0.80	0.253	(0.265)	0.228	0.025
183	15.25	0.80	0.253	(0.264)	0.228	0.025
184	15.33	0.77	0.243	(0.263)	0.219	0.024
185	15.42	0.77	0.243	(0.261)	0.219	0.024
186	15.50	0.77	0.243	(0.260)	0.219	0.024
187	15.58	0.63	0.201	(0.259)	0.181	0.020
188	15.67	0.63	0.201	(0.257)	0.181	0.020
189	15.75	0.63	0.201	(0.256)	0.181	0.020
190	15.83	0.63	0.201	(0.255)	0.181	0.020
191	15.92	0.63	0.201	(0.253)	0.181	0.020
192	16.00	0.63	0.201	(0.252)	0.181	0.020
193	16.08	0.13	0.042	(0.251)	0.038	0.004
194	16.17	0.13	0.042	(0.249)	0.038	0.004
195	16.25	0.13	0.042	(0.248)	0.038	0.004
196	16.33	0.13	0.042	(0.247)	0.038	0.004
197	16.42	0.13	0.042	(0.246)	0.038	0.004
198	16.50	0.13	0.042	(0.244)	0.038	0.004
199	16.58	0.10	0.032	(0.243)	0.029	0.003
200	16.67	0.10	0.032	(0.242)	0.029	0.003
201	16.75	0.10	0.032	(0.241)	0.029	0.003
202	16.83	0.10	0.032	(0.239)	0.029	0.003
203	16.92	0.10	0.032	(0.238)	0.029	0.003
204	17.00	0.10	0.032	(0.237)	0.029	0.003
205	17.08	0.17	0.053	(0.236)	0.048	0.005
206	17.17	0.17	0.053	(0.235)	0.048	0.005
207	17.25	0.17	0.053	(0.233)	0.048	0.005
208	17.33	0.17	0.053	(0.232)	0.048	0.005
209	17.42	0.17	0.053	(0.231)	0.048	0.005
210	17.50	0.17	0.053	(0.230)	0.048	0.005
211	17.58	0.17	0.053	(0.229)	0.048	0.005
212	17.67	0.17	0.053	(0.228)	0.048	0.005
213	17.75	0.17	0.053	(0.227)	0.048	0.005
214	17.83	0.13	0.042	(0.225)	0.038	0.004
215	17.92	0.13	0.042	(0.224)	0.038	0.004

216	18.00	0.13	0.042	(0.223)	0.038	0.004
217	18.08	0.13	0.042	(0.222)	0.038	0.004
218	18.17	0.13	0.042	(0.221)	0.038	0.004
219	18.25	0.13	0.042	(0.220)	0.038	0.004
220	18.33	0.13	0.042	(0.219)	0.038	0.004
221	18.42	0.13	0.042	(0.218)	0.038	0.004
222	18.50	0.13	0.042	(0.217)	0.038	0.004
223	18.58	0.10	0.032	(0.216)	0.029	0.003
224	18.67	0.10	0.032	(0.215)	0.029	0.003
225	18.75	0.10	0.032	(0.214)	0.029	0.003
226	18.83	0.07	0.021	(0.213)	0.019	0.002
227	18.92	0.07	0.021	(0.212)	0.019	0.002
228	19.00	0.07	0.021	(0.211)	0.019	0.002
229	19.08	0.10	0.032	(0.210)	0.029	0.003
230	19.17	0.10	0.032	(0.209)	0.029	0.003
231	19.25	0.10	0.032	(0.208)	0.029	0.003
232	19.33	0.13	0.042	(0.207)	0.038	0.004
233	19.42	0.13	0.042	(0.206)	0.038	0.004
234	19.50	0.13	0.042	(0.205)	0.038	0.004
235	19.58	0.10	0.032	(0.204)	0.029	0.003
236	19.67	0.10	0.032	(0.203)	0.029	0.003
237	19.75	0.10	0.032	(0.202)	0.029	0.003
238	19.83	0.07	0.021	(0.201)	0.019	0.002
239	19.92	0.07	0.021	(0.200)	0.019	0.002
240	20.00	0.07	0.021	(0.199)	0.019	0.002
241	20.08	0.10	0.032	(0.198)	0.029	0.003
242	20.17	0.10	0.032	(0.197)	0.029	0.003
243	20.25	0.10	0.032	(0.197)	0.029	0.003
244	20.33	0.10	0.032	(0.196)	0.029	0.003
245	20.42	0.10	0.032	(0.195)	0.029	0.003
246	20.50	0.10	0.032	(0.194)	0.029	0.003
247	20.58	0.10	0.032	(0.193)	0.029	0.003
248	20.67	0.10	0.032	(0.192)	0.029	0.003
249	20.75	0.10	0.032	(0.192)	0.029	0.003
250	20.83	0.07	0.021	(0.191)	0.019	0.002
251	20.92	0.07	0.021	(0.190)	0.019	0.002
252	21.00	0.07	0.021	(0.189)	0.019	0.002
253	21.08	0.10	0.032	(0.189)	0.029	0.003
254	21.17	0.10	0.032	(0.188)	0.029	0.003
255	21.25	0.10	0.032	(0.187)	0.029	0.003
256	21.33	0.07	0.021	(0.186)	0.019	0.002
257	21.42	0.07	0.021	(0.186)	0.019	0.002
258	21.50	0.07	0.021	(0.185)	0.019	0.002
259	21.58	0.10	0.032	(0.184)	0.029	0.003
260	21.67	0.10	0.032	(0.184)	0.029	0.003
261	21.75	0.10	0.032	(0.183)	0.029	0.003
262	21.83	0.07	0.021	(0.182)	0.019	0.002
263	21.92	0.07	0.021	(0.182)	0.019	0.002
264	22.00	0.07	0.021	(0.181)	0.019	0.002
265	22.08	0.10	0.032	(0.181)	0.029	0.003
266	22.17	0.10	0.032	(0.180)	0.029	0.003
267	22.25	0.10	0.032	(0.179)	0.029	0.003
268	22.33	0.07	0.021	(0.179)	0.019	0.002
269	22.42	0.07	0.021	(0.178)	0.019	0.002

270	22.50	0.07	0.021	(0.178)	0.019	0.002
271	22.58	0.07	0.021	(0.177)	0.019	0.002
272	22.67	0.07	0.021	(0.177)	0.019	0.002
273	22.75	0.07	0.021	(0.176)	0.019	0.002
274	22.83	0.07	0.021	(0.176)	0.019	0.002
275	22.92	0.07	0.021	(0.175)	0.019	0.002
276	23.00	0.07	0.021	(0.175)	0.019	0.002
277	23.08	0.07	0.021	(0.175)	0.019	0.002
278	23.17	0.07	0.021	(0.174)	0.019	0.002
279	23.25	0.07	0.021	(0.174)	0.019	0.002
280	23.33	0.07	0.021	(0.173)	0.019	0.002
281	23.42	0.07	0.021	(0.173)	0.019	0.002
282	23.50	0.07	0.021	(0.173)	0.019	0.002
283	23.58	0.07	0.021	(0.173)	0.019	0.002
284	23.67	0.07	0.021	(0.172)	0.019	0.002
285	23.75	0.07	0.021	(0.172)	0.019	0.002
286	23.83	0.07	0.021	(0.172)	0.019	0.002
287	23.92	0.07	0.021	(0.172)	0.019	0.002
288	24.00	0.07	0.021	(0.172)	0.019	0.002

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.3

Flood volume = Effective rainfall 0.28(In)
times area 3.0(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 2.36(In)
Total soil loss = 0.593(Ac.Ft)
Total rainfall = 2.64(In)
Flood volume = 3023.7 Cubic Feet
Total soil loss = 25821.6 Cubic Feet

Peak flow rate of this hydrograph = 0.195(CFS)

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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	0.0001	0.01	Q				
0+15	0.0001	0.01	Q				
0+20	0.0002	0.01	Q				
0+25	0.0002	0.01	Q				
0+30	0.0003	0.01	Q				
0+35	0.0004	0.01	Q				
0+40	0.0004	0.01	Q				
0+45	0.0005	0.01	Q				
0+50	0.0006	0.01	Q				
0+55	0.0007	0.01	Q				
1+ 0	0.0007	0.01	Q				
1+ 5	0.0008	0.01	Q				
1+10	0.0009	0.01	Q				

1+15	0.0010	0.01	Q				
1+20	0.0010	0.01	Q				
1+25	0.0011	0.01	Q				
1+30	0.0012	0.01	Q				
1+35	0.0012	0.01	Q				
1+40	0.0013	0.01	Q				
1+45	0.0014	0.01	Q				
1+50	0.0014	0.01	Q				
1+55	0.0015	0.01	Q				
2+ 0	0.0016	0.01	Q				
2+ 5	0.0017	0.01	Q				
2+10	0.0018	0.01	QV				
2+15	0.0019	0.01	QV				
2+20	0.0020	0.01	QV				
2+25	0.0021	0.01	QV				
2+30	0.0021	0.01	QV				
2+35	0.0022	0.01	QV				
2+40	0.0023	0.02	QV				
2+45	0.0025	0.02	QV				
2+50	0.0026	0.02	QV				
2+55	0.0027	0.02	QV				
3+ 0	0.0028	0.02	QV				
3+ 5	0.0029	0.02	QV				
3+10	0.0030	0.02	QV				
3+15	0.0031	0.02	QV				
3+20	0.0032	0.02	QV				
3+25	0.0033	0.02	QV				
3+30	0.0035	0.02	QV				
3+35	0.0036	0.02	Q V				
3+40	0.0037	0.02	Q V				
3+45	0.0038	0.02	Q V				
3+50	0.0039	0.02	Q V				
3+55	0.0040	0.02	Q V				
4+ 0	0.0042	0.02	Q V				
4+ 5	0.0043	0.02	Q V				
4+10	0.0044	0.02	Q V				
4+15	0.0046	0.02	Q V				
4+20	0.0047	0.02	Q V				
4+25	0.0049	0.02	Q V				
4+30	0.0050	0.02	Q V				
4+35	0.0052	0.02	Q V				
4+40	0.0053	0.02	Q V				
4+45	0.0055	0.02	Q V				
4+50	0.0057	0.02	Q V				
4+55	0.0058	0.03	Q V				
5+ 0	0.0060	0.03	Q V				
5+ 5	0.0062	0.02	Q V				
5+10	0.0063	0.02	Q V				
5+15	0.0064	0.02	Q V				
5+20	0.0066	0.02	Q V				
5+25	0.0067	0.02	Q V				
5+30	0.0069	0.02	Q V				
5+35	0.0070	0.02	Q V				
5+40	0.0072	0.03	Q V				

5+45	0.0074	0.03	Q	V					
5+50	0.0076	0.03	Q	V					
5+55	0.0077	0.03	Q	V					
6+ 0	0.0079	0.03	Q	V					
6+ 5	0.0081	0.03	Q	V					
6+10	0.0083	0.03	Q	V					
6+15	0.0085	0.03	Q	V					
6+20	0.0087	0.03	Q	V					
6+25	0.0089	0.03	Q	V					
6+30	0.0091	0.03	Q	V					
6+35	0.0093	0.03	Q	V					
6+40	0.0095	0.03	Q	V					
6+45	0.0098	0.03	Q	V					
6+50	0.0100	0.03	Q	V					
6+55	0.0102	0.03	Q	V					
7+ 0	0.0104	0.03	Q	V					
7+ 5	0.0106	0.03	Q	V					
7+10	0.0109	0.03	Q	V					
7+15	0.0111	0.03	Q	V					
7+20	0.0113	0.03	Q	V					
7+25	0.0116	0.04	Q	V					
7+30	0.0118	0.04	Q	V					
7+35	0.0121	0.04	Q	V					
7+40	0.0123	0.04	Q	V					
7+45	0.0126	0.04	Q	V					
7+50	0.0129	0.04	Q	V					
7+55	0.0131	0.04	Q	V					
8+ 0	0.0134	0.04	Q	V					
8+ 5	0.0137	0.05	Q	V					
8+10	0.0141	0.05	Q	V					
8+15	0.0144	0.05	Q	V					
8+20	0.0147	0.05	Q	V					
8+25	0.0151	0.05	Q	V					
8+30	0.0154	0.05	Q	V					
8+35	0.0157	0.05	Q	V					
8+40	0.0161	0.05	Q	V					
8+45	0.0164	0.05	Q	V					
8+50	0.0168	0.05	Q	V					
8+55	0.0172	0.05	Q	V					
9+ 0	0.0176	0.05	Q	V					
9+ 5	0.0180	0.06	Q	V					
9+10	0.0184	0.06	Q	V					
9+15	0.0188	0.06	Q	V					
9+20	0.0192	0.06	Q	V					
9+25	0.0197	0.06	Q	V					
9+30	0.0201	0.06	Q	V					
9+35	0.0206	0.07	Q	V					
9+40	0.0210	0.07	Q	V					
9+45	0.0215	0.07	Q	V					
9+50	0.0220	0.07	Q	V					
9+55	0.0224	0.07	Q	V					
10+ 0	0.0229	0.07	Q	V					
10+ 5	0.0233	0.06	Q	V					
10+10	0.0237	0.05	Q	V					

10+15	0.0240	0.05	Q	V			
10+20	0.0243	0.05	Q	V			
10+25	0.0247	0.05	Q	V			
10+30	0.0250	0.05	Q	V			
10+35	0.0254	0.06	Q	V			
10+40	0.0258	0.06	Q	V			
10+45	0.0263	0.06	Q	V			
10+50	0.0267	0.06	Q	V			
10+55	0.0271	0.06	Q	V			
11+ 0	0.0276	0.06	Q	V			
11+ 5	0.0280	0.06	Q	V			
11+10	0.0284	0.06	Q	V			
11+15	0.0289	0.06	Q	V			
11+20	0.0293	0.06	Q	V			
11+25	0.0297	0.06	Q	V			
11+30	0.0301	0.06	Q	V			
11+35	0.0305	0.06	Q	V			
11+40	0.0309	0.05	Q	V			
11+45	0.0313	0.05	Q	V			
11+50	0.0316	0.06	Q	V			
11+55	0.0320	0.06	Q	V			
12+ 0	0.0324	0.06	Q	V			
12+ 5	0.0329	0.07	Q	V			
12+10	0.0335	0.08	Q	V			
12+15	0.0340	0.08	Q	V			
12+20	0.0346	0.08	Q	V			
12+25	0.0352	0.08	Q	V			
12+30	0.0357	0.08	Q	V			
12+35	0.0363	0.09	Q	V			
12+40	0.0369	0.09	Q	V			
12+45	0.0376	0.09	Q	V			
12+50	0.0382	0.09	Q	V			
12+55	0.0388	0.09	Q	V			
13+ 0	0.0395	0.09	Q	V			
13+ 5	0.0404	0.14	Q	V			
13+10	0.0416	0.17	Q	V			
13+15	0.0429	0.18	Q	V			
13+20	0.0441	0.19	Q	V			
13+25	0.0455	0.19	Q	V			
13+30	0.0468	0.20	Q	V			
13+35	0.0477	0.13	Q	V			
13+40	0.0483	0.08	Q	V			
13+45	0.0488	0.07	Q	V			
13+50	0.0493	0.07	Q	V			
13+55	0.0498	0.07	Q	V			
14+ 0	0.0503	0.07	Q	V			
14+ 5	0.0508	0.08	Q	V			
14+10	0.0514	0.09	Q	V			
14+15	0.0520	0.09	Q	V			
14+20	0.0526	0.08	Q	V			
14+25	0.0532	0.08	Q	V			
14+30	0.0538	0.08	Q	V			
14+35	0.0543	0.08	Q	V			
14+40	0.0549	0.08	Q	V			

14+45	0.0555	0.08	Q			V	
14+50	0.0560	0.08	Q			V	
14+55	0.0566	0.08	Q			V	
15+ 0	0.0571	0.08	Q			V	
15+ 5	0.0577	0.08	Q			V	
15+10	0.0582	0.08	Q			V	
15+15	0.0587	0.08	Q			V	
15+20	0.0593	0.08	Q			V	
15+25	0.0598	0.07	Q			V	
15+30	0.0603	0.07	Q			V	
15+35	0.0607	0.07	Q			V	
15+40	0.0612	0.06	Q			V	
15+45	0.0616	0.06	Q			V	
15+50	0.0620	0.06	Q			V	
15+55	0.0624	0.06	Q			V	
16+ 0	0.0628	0.06	Q			V	
16+ 5	0.0631	0.03	Q			V	
16+10	0.0632	0.02	Q			V	
16+15	0.0633	0.01	Q			V	
16+20	0.0634	0.01	Q			V	
16+25	0.0635	0.01	Q			V	
16+30	0.0635	0.01	Q			V	
16+35	0.0636	0.01	Q			V	
16+40	0.0637	0.01	Q			V	
16+45	0.0638	0.01	Q			V	
16+50	0.0638	0.01	Q			V	
16+55	0.0639	0.01	Q			V	
17+ 0	0.0639	0.01	Q			V	
17+ 5	0.0640	0.01	Q			V	
17+10	0.0641	0.02	Q			V	
17+15	0.0643	0.02	Q			V	
17+20	0.0644	0.02	Q			V	
17+25	0.0645	0.02	Q			V	
17+30	0.0646	0.02	Q			V	
17+35	0.0647	0.02	Q			V	
17+40	0.0648	0.02	Q			V	
17+45	0.0649	0.02	Q			V	
17+50	0.0650	0.01	Q			V	
17+55	0.0651	0.01	Q			V	
18+ 0	0.0652	0.01	Q			V	
18+ 5	0.0653	0.01	Q			V	
18+10	0.0654	0.01	Q			V	
18+15	0.0655	0.01	Q			V	
18+20	0.0655	0.01	Q			V	
18+25	0.0656	0.01	Q			V	
18+30	0.0657	0.01	Q			V	
18+35	0.0658	0.01	Q			V	
18+40	0.0659	0.01	Q			V	
18+45	0.0659	0.01	Q			V	
18+50	0.0660	0.01	Q			V	
18+55	0.0660	0.01	Q			V	
19+ 0	0.0661	0.01	Q			V	
19+ 5	0.0661	0.01	Q			V	
19+10	0.0662	0.01	Q			V	

19+15	0.0663	0.01	Q				V
19+20	0.0663	0.01	Q				V
19+25	0.0664	0.01	Q				V
19+30	0.0665	0.01	Q				V
19+35	0.0666	0.01	Q				V
19+40	0.0667	0.01	Q				V
19+45	0.0667	0.01	Q				V
19+50	0.0668	0.01	Q				V
19+55	0.0668	0.01	Q				V
20+ 0	0.0669	0.01	Q				V
20+ 5	0.0669	0.01	Q				V
20+10	0.0670	0.01	Q				V
20+15	0.0671	0.01	Q				V
20+20	0.0671	0.01	Q				V
20+25	0.0672	0.01	Q				V
20+30	0.0673	0.01	Q				V
20+35	0.0673	0.01	Q				V
20+40	0.0674	0.01	Q				V
20+45	0.0675	0.01	Q				V
20+50	0.0675	0.01	Q				V
20+55	0.0676	0.01	Q				V
21+ 0	0.0676	0.01	Q				V
21+ 5	0.0677	0.01	Q				V
21+10	0.0677	0.01	Q				V
21+15	0.0678	0.01	Q				V
21+20	0.0678	0.01	Q				V
21+25	0.0679	0.01	Q				V
21+30	0.0679	0.01	Q				V
21+35	0.0680	0.01	Q				V
21+40	0.0681	0.01	Q				V
21+45	0.0681	0.01	Q				V
21+50	0.0682	0.01	Q				V
21+55	0.0682	0.01	Q				V
22+ 0	0.0683	0.01	Q				V
22+ 5	0.0683	0.01	Q				V
22+10	0.0684	0.01	Q				V
22+15	0.0685	0.01	Q				V
22+20	0.0685	0.01	Q				V
22+25	0.0686	0.01	Q				V
22+30	0.0686	0.01	Q				V
22+35	0.0686	0.01	Q				V
22+40	0.0687	0.01	Q				V
22+45	0.0687	0.01	Q				V
22+50	0.0688	0.01	Q				V
22+55	0.0688	0.01	Q				V
23+ 0	0.0689	0.01	Q				V
23+ 5	0.0689	0.01	Q				V
23+10	0.0689	0.01	Q				V
23+15	0.0690	0.01	Q				V
23+20	0.0690	0.01	Q				V
23+25	0.0691	0.01	Q				V
23+30	0.0691	0.01	Q				V
23+35	0.0692	0.01	Q				V
23+40	0.0692	0.01	Q				V

23+45	0.0693	0.01	Q				V
23+50	0.0693	0.01	Q				V
23+55	0.0693	0.01	Q				V
24+ 0	0.0694	0.01	Q				V
24+ 5	0.0694	0.00	Q				V
24+10	0.0694	0.00	Q				V

Unit Hydrograph Analysis

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Study date 02/19/21 File: 1162004EXUHB2410.out

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

Program License Serial Number 6335

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

English Units used in output format

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
PRE-DEVELOPED, UNIT-HYDROGRAPH
10-YEAR, 24-HOUR STORMEVENT, DMA-B

Drainage Area = 3.01(Ac.) = 0.005 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 3.01(Ac.) =
0.005 Sq. Mi.
Length along longest watercourse = 567.00(Ft.)
Length along longest watercourse measured to centroid =
279.00(Ft.)
Length along longest watercourse = 0.107 Mi.
Length along longest watercourse measured to centroid = 0.053 Mi.
Difference in elevation = 78.00(Ft.)
Slope along watercourse = 726.3492 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.029 Hr.
Lag time = 1.73 Min.
25% of lag time = 0.43 Min.
40% of lag time = 0.69 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]
3.01	2.64	7.95

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
3.01	6.73	20.26

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 2.640(In)
Area Averaged 100-Year Rainfall = 6.730(In)

Point rain (area averaged) = 4.323(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.323(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
3.010	86.00	0.000

Total Area Entered = 3.01(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
86.0	86.0	0.176	0.000	0.176	1.000	0.176
Sum (F) =						0.176

Area averaged mean soil loss (F) (In/Hr) = 0.176
Minimum soil loss rate ((In/Hr)) = 0.088
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Unit Hydrograph VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	288.812	55.502	1.684
2 0.167	577.623	37.753	1.145
3 0.250	866.435	6.745	0.205
Sum = 100.000		Sum=	3.034

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
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	(Hr.)	Percent	(In/Hr)	Max		Low	(In/Hr)
1	0.08	0.07	0.035	(0.311)		0.031	0.003
2	0.17	0.07	0.035	(0.310)		0.031	0.003
3	0.25	0.07	0.035	(0.309)		0.031	0.003
4	0.33	0.10	0.052	(0.308)		0.047	0.005
5	0.42	0.10	0.052	(0.306)		0.047	0.005
6	0.50	0.10	0.052	(0.305)		0.047	0.005
7	0.58	0.10	0.052	(0.304)		0.047	0.005
8	0.67	0.10	0.052	(0.303)		0.047	0.005
9	0.75	0.10	0.052	(0.302)		0.047	0.005
10	0.83	0.13	0.069	(0.301)		0.062	0.007
11	0.92	0.13	0.069	(0.299)		0.062	0.007
12	1.00	0.13	0.069	(0.298)		0.062	0.007
13	1.08	0.10	0.052	(0.297)		0.047	0.005
14	1.17	0.10	0.052	(0.296)		0.047	0.005
15	1.25	0.10	0.052	(0.295)		0.047	0.005
16	1.33	0.10	0.052	(0.293)		0.047	0.005
17	1.42	0.10	0.052	(0.292)		0.047	0.005
18	1.50	0.10	0.052	(0.291)		0.047	0.005
19	1.58	0.10	0.052	(0.290)		0.047	0.005
20	1.67	0.10	0.052	(0.289)		0.047	0.005
21	1.75	0.10	0.052	(0.288)		0.047	0.005
22	1.83	0.13	0.069	(0.287)		0.062	0.007
23	1.92	0.13	0.069	(0.285)		0.062	0.007
24	2.00	0.13	0.069	(0.284)		0.062	0.007
25	2.08	0.13	0.069	(0.283)		0.062	0.007
26	2.17	0.13	0.069	(0.282)		0.062	0.007
27	2.25	0.13	0.069	(0.281)		0.062	0.007
28	2.33	0.13	0.069	(0.280)		0.062	0.007
29	2.42	0.13	0.069	(0.278)		0.062	0.007
30	2.50	0.13	0.069	(0.277)		0.062	0.007
31	2.58	0.17	0.086	(0.276)		0.078	0.009
32	2.67	0.17	0.086	(0.275)		0.078	0.009
33	2.75	0.17	0.086	(0.274)		0.078	0.009
34	2.83	0.17	0.086	(0.273)		0.078	0.009
35	2.92	0.17	0.086	(0.272)		0.078	0.009
36	3.00	0.17	0.086	(0.271)		0.078	0.009
37	3.08	0.17	0.086	(0.269)		0.078	0.009
38	3.17	0.17	0.086	(0.268)		0.078	0.009
39	3.25	0.17	0.086	(0.267)		0.078	0.009
40	3.33	0.17	0.086	(0.266)		0.078	0.009
41	3.42	0.17	0.086	(0.265)		0.078	0.009
42	3.50	0.17	0.086	(0.264)		0.078	0.009
43	3.58	0.17	0.086	(0.263)		0.078	0.009
44	3.67	0.17	0.086	(0.262)		0.078	0.009
45	3.75	0.17	0.086	(0.261)		0.078	0.009
46	3.83	0.20	0.104	(0.259)		0.093	0.010
47	3.92	0.20	0.104	(0.258)		0.093	0.010
48	4.00	0.20	0.104	(0.257)		0.093	0.010
49	4.08	0.20	0.104	(0.256)		0.093	0.010
50	4.17	0.20	0.104	(0.255)		0.093	0.010
51	4.25	0.20	0.104	(0.254)		0.093	0.010
52	4.33	0.23	0.121	(0.253)		0.109	0.012
53	4.42	0.23	0.121	(0.252)		0.109	0.012

54	4.50	0.23	0.121	(0.251)	0.109	0.012
55	4.58	0.23	0.121	(0.250)	0.109	0.012
56	4.67	0.23	0.121	(0.249)	0.109	0.012
57	4.75	0.23	0.121	(0.248)	0.109	0.012
58	4.83	0.27	0.138	(0.246)	0.124	0.014
59	4.92	0.27	0.138	(0.245)	0.124	0.014
60	5.00	0.27	0.138	(0.244)	0.124	0.014
61	5.08	0.20	0.104	(0.243)	0.093	0.010
62	5.17	0.20	0.104	(0.242)	0.093	0.010
63	5.25	0.20	0.104	(0.241)	0.093	0.010
64	5.33	0.23	0.121	(0.240)	0.109	0.012
65	5.42	0.23	0.121	(0.239)	0.109	0.012
66	5.50	0.23	0.121	(0.238)	0.109	0.012
67	5.58	0.27	0.138	(0.237)	0.124	0.014
68	5.67	0.27	0.138	(0.236)	0.124	0.014
69	5.75	0.27	0.138	(0.235)	0.124	0.014
70	5.83	0.27	0.138	(0.234)	0.124	0.014
71	5.92	0.27	0.138	(0.233)	0.124	0.014
72	6.00	0.27	0.138	(0.232)	0.124	0.014
73	6.08	0.30	0.156	(0.231)	0.140	0.016
74	6.17	0.30	0.156	(0.230)	0.140	0.016
75	6.25	0.30	0.156	(0.229)	0.140	0.016
76	6.33	0.30	0.156	(0.228)	0.140	0.016
77	6.42	0.30	0.156	(0.227)	0.140	0.016
78	6.50	0.30	0.156	(0.226)	0.140	0.016
79	6.58	0.33	0.173	(0.225)	0.156	0.017
80	6.67	0.33	0.173	(0.224)	0.156	0.017
81	6.75	0.33	0.173	(0.223)	0.156	0.017
82	6.83	0.33	0.173	(0.222)	0.156	0.017
83	6.92	0.33	0.173	(0.221)	0.156	0.017
84	7.00	0.33	0.173	(0.220)	0.156	0.017
85	7.08	0.33	0.173	(0.219)	0.156	0.017
86	7.17	0.33	0.173	(0.218)	0.156	0.017
87	7.25	0.33	0.173	(0.217)	0.156	0.017
88	7.33	0.37	0.190	(0.216)	0.171	0.019
89	7.42	0.37	0.190	(0.215)	0.171	0.019
90	7.50	0.37	0.190	(0.214)	0.171	0.019
91	7.58	0.40	0.207	(0.213)	0.187	0.021
92	7.67	0.40	0.207	(0.212)	0.187	0.021
93	7.75	0.40	0.207	(0.211)	0.187	0.021
94	7.83	0.43	0.225	(0.210)	0.202	0.022
95	7.92	0.43	0.225	(0.209)	0.202	0.022
96	8.00	0.43	0.225	(0.208)	0.202	0.022
97	8.08	0.50	0.259	0.207 (0.233)		0.053
98	8.17	0.50	0.259	0.206 (0.233)		0.053
99	8.25	0.50	0.259	0.205 (0.233)		0.054
100	8.33	0.50	0.259	0.204 (0.233)		0.055
101	8.42	0.50	0.259	0.203 (0.233)		0.056
102	8.50	0.50	0.259	0.202 (0.233)		0.057
103	8.58	0.53	0.277	0.201 (0.249)		0.076
104	8.67	0.53	0.277	0.200 (0.249)		0.076
105	8.75	0.53	0.277	0.199 (0.249)		0.077
106	8.83	0.57	0.294	0.198 (0.265)		0.096
107	8.92	0.57	0.294	0.197 (0.265)		0.097

108	9.00	0.57	0.294	0.196	(0.265)	0.098
109	9.08	0.63	0.329	0.195	(0.296)	0.133
110	9.17	0.63	0.329	0.195	(0.296)	0.134
111	9.25	0.63	0.329	0.194	(0.296)	0.135
112	9.33	0.67	0.346	0.193	(0.311)	0.153
113	9.42	0.67	0.346	0.192	(0.311)	0.154
114	9.50	0.67	0.346	0.191	(0.311)	0.155
115	9.58	0.70	0.363	0.190	(0.327)	0.173
116	9.67	0.70	0.363	0.189	(0.327)	0.174
117	9.75	0.70	0.363	0.188	(0.327)	0.175
118	9.83	0.73	0.380	0.187	(0.342)	0.193
119	9.92	0.73	0.380	0.186	(0.342)	0.194
120	10.00	0.73	0.380	0.185	(0.342)	0.195
121	10.08	0.50	0.259	0.185	(0.233)	0.075
122	10.17	0.50	0.259	0.184	(0.233)	0.076
123	10.25	0.50	0.259	0.183	(0.233)	0.077
124	10.33	0.50	0.259	0.182	(0.233)	0.077
125	10.42	0.50	0.259	0.181	(0.233)	0.078
126	10.50	0.50	0.259	0.180	(0.233)	0.079
127	10.58	0.67	0.346	0.179	(0.311)	0.167
128	10.67	0.67	0.346	0.178	(0.311)	0.167
129	10.75	0.67	0.346	0.177	(0.311)	0.168
130	10.83	0.67	0.346	0.177	(0.311)	0.169
131	10.92	0.67	0.346	0.176	(0.311)	0.170
132	11.00	0.67	0.346	0.175	(0.311)	0.171
133	11.08	0.63	0.329	0.174	(0.296)	0.155
134	11.17	0.63	0.329	0.173	(0.296)	0.155
135	11.25	0.63	0.329	0.172	(0.296)	0.156
136	11.33	0.63	0.329	0.171	(0.296)	0.157
137	11.42	0.63	0.329	0.171	(0.296)	0.158
138	11.50	0.63	0.329	0.170	(0.296)	0.159
139	11.58	0.57	0.294	0.169	(0.265)	0.125
140	11.67	0.57	0.294	0.168	(0.265)	0.126
141	11.75	0.57	0.294	0.167	(0.265)	0.127
142	11.83	0.60	0.311	0.166	(0.280)	0.145
143	11.92	0.60	0.311	0.166	(0.280)	0.146
144	12.00	0.60	0.311	0.165	(0.280)	0.146
145	12.08	0.83	0.432	0.164	(0.389)	0.268
146	12.17	0.83	0.432	0.163	(0.389)	0.269
147	12.25	0.83	0.432	0.162	(0.389)	0.270
148	12.33	0.87	0.450	0.161	(0.405)	0.288
149	12.42	0.87	0.450	0.161	(0.405)	0.289
150	12.50	0.87	0.450	0.160	(0.405)	0.290
151	12.58	0.93	0.484	0.159	(0.436)	0.325
152	12.67	0.93	0.484	0.158	(0.436)	0.326
153	12.75	0.93	0.484	0.157	(0.436)	0.327
154	12.83	0.97	0.501	0.157	(0.451)	0.345
155	12.92	0.97	0.501	0.156	(0.451)	0.346
156	13.00	0.97	0.501	0.155	(0.451)	0.346
157	13.08	1.13	0.588	0.154	(0.529)	0.434
158	13.17	1.13	0.588	0.154	(0.529)	0.434
159	13.25	1.13	0.588	0.153	(0.529)	0.435
160	13.33	1.13	0.588	0.152	(0.529)	0.436
161	13.42	1.13	0.588	0.151	(0.529)	0.437

162	13.50	1.13	0.588	0.150	(0.529)	0.437
163	13.58	0.77	0.398	0.150	(0.358)	0.248
164	13.67	0.77	0.398	0.149	(0.358)	0.249
165	13.75	0.77	0.398	0.148	(0.358)	0.250
166	13.83	0.77	0.398	0.147	(0.358)	0.250
167	13.92	0.77	0.398	0.147	(0.358)	0.251
168	14.00	0.77	0.398	0.146	(0.358)	0.252
169	14.08	0.90	0.467	0.145	(0.420)	0.322
170	14.17	0.90	0.467	0.144	(0.420)	0.322
171	14.25	0.90	0.467	0.144	(0.420)	0.323
172	14.33	0.87	0.450	0.143	(0.405)	0.307
173	14.42	0.87	0.450	0.142	(0.405)	0.307
174	14.50	0.87	0.450	0.141	(0.405)	0.308
175	14.58	0.87	0.450	0.141	(0.405)	0.309
176	14.67	0.87	0.450	0.140	(0.405)	0.310
177	14.75	0.87	0.450	0.139	(0.405)	0.310
178	14.83	0.83	0.432	0.139	(0.389)	0.294
179	14.92	0.83	0.432	0.138	(0.389)	0.294
180	15.00	0.83	0.432	0.137	(0.389)	0.295
181	15.08	0.80	0.415	0.136	(0.373)	0.279
182	15.17	0.80	0.415	0.136	(0.373)	0.279
183	15.25	0.80	0.415	0.135	(0.373)	0.280
184	15.33	0.77	0.398	0.134	(0.358)	0.263
185	15.42	0.77	0.398	0.134	(0.358)	0.264
186	15.50	0.77	0.398	0.133	(0.358)	0.265
187	15.58	0.63	0.329	0.132	(0.296)	0.196
188	15.67	0.63	0.329	0.132	(0.296)	0.197
189	15.75	0.63	0.329	0.131	(0.296)	0.198
190	15.83	0.63	0.329	0.130	(0.296)	0.198
191	15.92	0.63	0.329	0.130	(0.296)	0.199
192	16.00	0.63	0.329	0.129	(0.296)	0.200
193	16.08	0.13	0.069	(0.128)	0.062	0.007
194	16.17	0.13	0.069	(0.128)	0.062	0.007
195	16.25	0.13	0.069	(0.127)	0.062	0.007
196	16.33	0.13	0.069	(0.126)	0.062	0.007
197	16.42	0.13	0.069	(0.126)	0.062	0.007
198	16.50	0.13	0.069	(0.125)	0.062	0.007
199	16.58	0.10	0.052	(0.124)	0.047	0.005
200	16.67	0.10	0.052	(0.124)	0.047	0.005
201	16.75	0.10	0.052	(0.123)	0.047	0.005
202	16.83	0.10	0.052	(0.123)	0.047	0.005
203	16.92	0.10	0.052	(0.122)	0.047	0.005
204	17.00	0.10	0.052	(0.121)	0.047	0.005
205	17.08	0.17	0.086	(0.121)	0.078	0.009
206	17.17	0.17	0.086	(0.120)	0.078	0.009
207	17.25	0.17	0.086	(0.119)	0.078	0.009
208	17.33	0.17	0.086	(0.119)	0.078	0.009
209	17.42	0.17	0.086	(0.118)	0.078	0.009
210	17.50	0.17	0.086	(0.118)	0.078	0.009
211	17.58	0.17	0.086	(0.117)	0.078	0.009
212	17.67	0.17	0.086	(0.117)	0.078	0.009
213	17.75	0.17	0.086	(0.116)	0.078	0.009
214	17.83	0.13	0.069	(0.115)	0.062	0.007
215	17.92	0.13	0.069	(0.115)	0.062	0.007

216	18.00	0.13	0.069	(0.114)	0.062	0.007
217	18.08	0.13	0.069	(0.114)	0.062	0.007
218	18.17	0.13	0.069	(0.113)	0.062	0.007
219	18.25	0.13	0.069	(0.113)	0.062	0.007
220	18.33	0.13	0.069	(0.112)	0.062	0.007
221	18.42	0.13	0.069	(0.111)	0.062	0.007
222	18.50	0.13	0.069	(0.111)	0.062	0.007
223	18.58	0.10	0.052	(0.110)	0.047	0.005
224	18.67	0.10	0.052	(0.110)	0.047	0.005
225	18.75	0.10	0.052	(0.109)	0.047	0.005
226	18.83	0.07	0.035	(0.109)	0.031	0.003
227	18.92	0.07	0.035	(0.108)	0.031	0.003
228	19.00	0.07	0.035	(0.108)	0.031	0.003
229	19.08	0.10	0.052	(0.107)	0.047	0.005
230	19.17	0.10	0.052	(0.107)	0.047	0.005
231	19.25	0.10	0.052	(0.106)	0.047	0.005
232	19.33	0.13	0.069	(0.106)	0.062	0.007
233	19.42	0.13	0.069	(0.105)	0.062	0.007
234	19.50	0.13	0.069	(0.105)	0.062	0.007
235	19.58	0.10	0.052	(0.104)	0.047	0.005
236	19.67	0.10	0.052	(0.104)	0.047	0.005
237	19.75	0.10	0.052	(0.103)	0.047	0.005
238	19.83	0.07	0.035	(0.103)	0.031	0.003
239	19.92	0.07	0.035	(0.102)	0.031	0.003
240	20.00	0.07	0.035	(0.102)	0.031	0.003
241	20.08	0.10	0.052	(0.102)	0.047	0.005
242	20.17	0.10	0.052	(0.101)	0.047	0.005
243	20.25	0.10	0.052	(0.101)	0.047	0.005
244	20.33	0.10	0.052	(0.100)	0.047	0.005
245	20.42	0.10	0.052	(0.100)	0.047	0.005
246	20.50	0.10	0.052	(0.099)	0.047	0.005
247	20.58	0.10	0.052	(0.099)	0.047	0.005
248	20.67	0.10	0.052	(0.099)	0.047	0.005
249	20.75	0.10	0.052	(0.098)	0.047	0.005
250	20.83	0.07	0.035	(0.098)	0.031	0.003
251	20.92	0.07	0.035	(0.097)	0.031	0.003
252	21.00	0.07	0.035	(0.097)	0.031	0.003
253	21.08	0.10	0.052	(0.097)	0.047	0.005
254	21.17	0.10	0.052	(0.096)	0.047	0.005
255	21.25	0.10	0.052	(0.096)	0.047	0.005
256	21.33	0.07	0.035	(0.095)	0.031	0.003
257	21.42	0.07	0.035	(0.095)	0.031	0.003
258	21.50	0.07	0.035	(0.095)	0.031	0.003
259	21.58	0.10	0.052	(0.094)	0.047	0.005
260	21.67	0.10	0.052	(0.094)	0.047	0.005
261	21.75	0.10	0.052	(0.094)	0.047	0.005
262	21.83	0.07	0.035	(0.093)	0.031	0.003
263	21.92	0.07	0.035	(0.093)	0.031	0.003
264	22.00	0.07	0.035	(0.093)	0.031	0.003
265	22.08	0.10	0.052	(0.092)	0.047	0.005
266	22.17	0.10	0.052	(0.092)	0.047	0.005
267	22.25	0.10	0.052	(0.092)	0.047	0.005
268	22.33	0.07	0.035	(0.092)	0.031	0.003
269	22.42	0.07	0.035	(0.091)	0.031	0.003

270	22.50	0.07	0.035	(0.091)	0.031	0.003
271	22.58	0.07	0.035	(0.091)	0.031	0.003
272	22.67	0.07	0.035	(0.090)	0.031	0.003
273	22.75	0.07	0.035	(0.090)	0.031	0.003
274	22.83	0.07	0.035	(0.090)	0.031	0.003
275	22.92	0.07	0.035	(0.090)	0.031	0.003
276	23.00	0.07	0.035	(0.090)	0.031	0.003
277	23.08	0.07	0.035	(0.089)	0.031	0.003
278	23.17	0.07	0.035	(0.089)	0.031	0.003
279	23.25	0.07	0.035	(0.089)	0.031	0.003
280	23.33	0.07	0.035	(0.089)	0.031	0.003
281	23.42	0.07	0.035	(0.089)	0.031	0.003
282	23.50	0.07	0.035	(0.088)	0.031	0.003
283	23.58	0.07	0.035	(0.088)	0.031	0.003
284	23.67	0.07	0.035	(0.088)	0.031	0.003
285	23.75	0.07	0.035	(0.088)	0.031	0.003
286	23.83	0.07	0.035	(0.088)	0.031	0.003
287	23.92	0.07	0.035	(0.088)	0.031	0.003
288	24.00	0.07	0.035	(0.088)	0.031	0.003

(Loss Rate Not Used)

Sum = 100.0

Sum = 21.9

Flood volume = Effective rainfall 1.83(In)

times area 3.0(Ac.)/[(In)/(Ft.)] = 0.5(Ac.Ft)

Total soil loss = 2.50(In)

Total soil loss = 0.626(Ac.Ft)

Total rainfall = 4.32(In)

Flood volume = 19965.5 Cubic Feet

Total soil loss = 27264.9 Cubic Feet

Peak flow rate of this hydrograph = 1.327(CFS)

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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	0.01	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0003	0.01	Q				
0+25	0.0004	0.02	Q				
0+30	0.0005	0.02	Q				
0+35	0.0006	0.02	Q				
0+40	0.0007	0.02	Q				
0+45	0.0008	0.02	Q				
0+50	0.0009	0.02	Q				
0+55	0.0011	0.02	Q				
1+ 0	0.0012	0.02	Q				
1+ 5	0.0014	0.02	Q				
1+10	0.0015	0.02	Q				

1+15	0.0016	0.02	Q
1+20	0.0017	0.02	Q
1+25	0.0018	0.02	Q
1+30	0.0019	0.02	Q
1+35	0.0020	0.02	Q
1+40	0.0021	0.02	Q
1+45	0.0022	0.02	Q
1+50	0.0023	0.02	Q
1+55	0.0025	0.02	Q
2+ 0	0.0026	0.02	Q
2+ 5	0.0028	0.02	Q
2+10	0.0029	0.02	Q
2+15	0.0031	0.02	Q
2+20	0.0032	0.02	Q
2+25	0.0034	0.02	Q
2+30	0.0035	0.02	Q
2+35	0.0037	0.02	Q
2+40	0.0038	0.03	Q
2+45	0.0040	0.03	Q
2+50	0.0042	0.03	Q
2+55	0.0044	0.03	Q
3+ 0	0.0046	0.03	Q
3+ 5	0.0048	0.03	Q
3+10	0.0049	0.03	Q
3+15	0.0051	0.03	Q
3+20	0.0053	0.03	Q
3+25	0.0055	0.03	Q
3+30	0.0057	0.03	Q
3+35	0.0058	0.03	Q
3+40	0.0060	0.03	Q
3+45	0.0062	0.03	Q
3+50	0.0064	0.03	Q
3+55	0.0066	0.03	Q
4+ 0	0.0068	0.03	Q
4+ 5	0.0070	0.03	Q
4+10	0.0073	0.03	Q
4+15	0.0075	0.03	Q
4+20	0.0077	0.03	Q
4+25	0.0080	0.04	Q
4+30	0.0082	0.04	Q
4+35	0.0085	0.04	Q
4+40	0.0087	0.04	Q
4+45	0.0090	0.04	Q
4+50	0.0093	0.04	Q
4+55	0.0095	0.04	Q
5+ 0	0.0098	0.04	Q
5+ 5	0.0101	0.04	Q
5+10	0.0103	0.03	Q
5+15	0.0105	0.03	Q
5+20	0.0108	0.03	Q
5+25	0.0110	0.04	Q
5+30	0.0113	0.04	Q
5+35	0.0115	0.04	QV
5+40	0.0118	0.04	QV

5+45	0.0121	0.04	QV				
5+50	0.0124	0.04	QV				
5+55	0.0127	0.04	QV				
6+ 0	0.0130	0.04	QV				
6+ 5	0.0133	0.04	QV				
6+10	0.0136	0.05	QV				
6+15	0.0139	0.05	QV				
6+20	0.0143	0.05	QV				
6+25	0.0146	0.05	QV				
6+30	0.0149	0.05	QV				
6+35	0.0152	0.05	QV				
6+40	0.0156	0.05	QV				
6+45	0.0160	0.05	QV				
6+50	0.0163	0.05	QV				
6+55	0.0167	0.05	QV				
7+ 0	0.0171	0.05	QV				
7+ 5	0.0174	0.05	QV				
7+10	0.0178	0.05	QV				
7+15	0.0181	0.05	QV				
7+20	0.0185	0.06	QV				
7+25	0.0189	0.06	QV				
7+30	0.0193	0.06	QV				
7+35	0.0197	0.06	QV				
7+40	0.0202	0.06	QV				
7+45	0.0206	0.06	QV				
7+50	0.0210	0.07	QV				
7+55	0.0215	0.07	QV				
8+ 0	0.0220	0.07	QV				
8+ 5	0.0228	0.12	QV				
8+10	0.0239	0.15	Q V				
8+15	0.0250	0.16	Q V				
8+20	0.0261	0.17	Q V				
8+25	0.0273	0.17	Q V				
8+30	0.0285	0.17	Q V				
8+35	0.0299	0.20	Q V				
8+40	0.0315	0.23	Q V				
8+45	0.0331	0.23	Q V				
8+50	0.0349	0.27	Q V				
8+55	0.0369	0.29	Q V				
9+ 0	0.0389	0.29	Q V				
9+ 5	0.0414	0.36	Q V				
9+10	0.0441	0.40	Q V				
9+15	0.0469	0.41	Q V				
9+20	0.0500	0.44	Q V				
9+25	0.0531	0.46	Q V				
9+30	0.0564	0.47	Q V				
9+35	0.0598	0.50	Q V				
9+40	0.0634	0.52	Q V				
9+45	0.0671	0.53	Q V				
9+50	0.0709	0.56	Q V				
9+55	0.0750	0.58	Q V				
10+ 0	0.0790	0.59	Q V				
10+ 5	0.0817	0.39	Q V				
10+10	0.0834	0.25	Q V				

10+15	0.0850	0.23	Q	V					
10+20	0.0866	0.23	Q	V					
10+25	0.0883	0.24	Q	V					
10+30	0.0899	0.24	Q	V					
10+35	0.0926	0.39	Q	V					
10+40	0.0960	0.49	Q	V					
10+45	0.0995	0.51	Q	V					
10+50	0.1030	0.51	Q	V					
10+55	0.1065	0.51	Q	V					
11+ 0	0.1101	0.52	Q	V					
11+ 5	0.1135	0.49	Q	V					
11+10	0.1168	0.47	Q	V					
11+15	0.1200	0.47	Q	V					
11+20	0.1233	0.48	Q	V					
11+25	0.1266	0.48	Q	V					
11+30	0.1299	0.48	Q	V					
11+35	0.1328	0.42	Q	V					
11+40	0.1355	0.39	Q	V					
11+45	0.1381	0.38	Q	V					
11+50	0.1410	0.41	Q	V					
11+55	0.1440	0.44	Q	V					
12+ 0	0.1470	0.44	Q	V					
12+ 5	0.1515	0.65	Q	V					
12+10	0.1570	0.79	Q	V					
12+15	0.1626	0.82	Q	V					
12+20	0.1685	0.85	Q	V					
12+25	0.1745	0.87	Q	V					
12+30	0.1805	0.88	Q	V					
12+35	0.1870	0.94	Q	V					
12+40	0.1937	0.98	Q	V					
12+45	0.2005	0.99	Q	V					
12+50	0.2076	1.02	Q	V					
12+55	0.2148	1.04	Q	V					
13+ 0	0.2220	1.05	Q	V					
13+ 5	0.2303	1.20	Q	V					
13+10	0.2392	1.30	Q	V					
13+15	0.2483	1.32	Q	V					
13+20	0.2574	1.32	Q	V					
13+25	0.2665	1.32	Q	V					
13+30	0.2757	1.33	Q	V					
13+35	0.2826	1.01	Q	V					
13+40	0.2881	0.79	Q	V					
13+45	0.2933	0.76	Q	V					
13+50	0.2985	0.76	Q	V					
13+55	0.3037	0.76	Q	V					
14+ 0	0.3090	0.76	Q	V					
14+ 5	0.3151	0.88	Q	V					
14+10	0.3217	0.96	Q	V					
14+15	0.3284	0.98	Q	V					
14+20	0.3350	0.95	Q	V					
14+25	0.3414	0.94	Q	V					
14+30	0.3479	0.93	Q	V					
14+35	0.3543	0.94	Q	V					
14+40	0.3608	0.94	Q	V					

14+45	0.3673	0.94		Q				V	
14+50	0.3736	0.91		Q				V	
14+55	0.3797	0.90		Q				V	
15+ 0	0.3859	0.89		Q				V	
15+ 5	0.3919	0.87		Q				V	
15+10	0.3977	0.85		Q				V	
15+15	0.4036	0.85		Q				V	
15+20	0.4092	0.82		Q				V	
15+25	0.4148	0.80		Q				V	
15+30	0.4203	0.80		Q				V	
15+35	0.4250	0.69		Q				V	
15+40	0.4292	0.61		Q				V	
15+45	0.4333	0.60		Q				V	
15+50	0.4375	0.60		Q				V	
15+55	0.4416	0.60		Q				V	
16+ 0	0.4458	0.60		Q				V	
16+ 5	0.4477	0.28		Q				V	
16+10	0.4482	0.06	Q					V	
16+15	0.4483	0.02	Q					V	
16+20	0.4484	0.02	Q					V	
16+25	0.4486	0.02	Q					V	
16+30	0.4487	0.02	Q					V	
16+35	0.4489	0.02	Q					V	
16+40	0.4490	0.02	Q					V	
16+45	0.4491	0.02	Q					V	
16+50	0.4492	0.02	Q					V	
16+55	0.4493	0.02	Q					V	
17+ 0	0.4494	0.02	Q					V	
17+ 5	0.4495	0.02	Q					V	
17+10	0.4497	0.03	Q					V	
17+15	0.4499	0.03	Q					V	
17+20	0.4501	0.03	Q					V	
17+25	0.4503	0.03	Q					V	
17+30	0.4504	0.03	Q					V	
17+35	0.4506	0.03	Q					V	
17+40	0.4508	0.03	Q					V	
17+45	0.4510	0.03	Q					V	
17+50	0.4511	0.02	Q					V	
17+55	0.4513	0.02	Q					V	
18+ 0	0.4514	0.02	Q					V	
18+ 5	0.4516	0.02	Q					V	
18+10	0.4517	0.02	Q					V	
18+15	0.4519	0.02	Q					V	
18+20	0.4520	0.02	Q					V	
18+25	0.4522	0.02	Q					V	
18+30	0.4523	0.02	Q					V	
18+35	0.4524	0.02	Q					V	
18+40	0.4525	0.02	Q					V	
18+45	0.4527	0.02	Q					V	
18+50	0.4527	0.01	Q					V	
18+55	0.4528	0.01	Q					V	
19+ 0	0.4529	0.01	Q					V	
19+ 5	0.4530	0.01	Q					V	
19+10	0.4531	0.02	Q					V	

19+15	0.4532	0.02	Q				V
19+20	0.4533	0.02	Q				V
19+25	0.4535	0.02	Q				V
19+30	0.4536	0.02	Q				V
19+35	0.4537	0.02	Q				V
19+40	0.4538	0.02	Q				V
19+45	0.4540	0.02	Q				V
19+50	0.4540	0.01	Q				V
19+55	0.4541	0.01	Q				V
20+ 0	0.4542	0.01	Q				V
20+ 5	0.4543	0.01	Q				V
20+10	0.4544	0.02	Q				V
20+15	0.4545	0.02	Q				V
20+20	0.4546	0.02	Q				V
20+25	0.4547	0.02	Q				V
20+30	0.4548	0.02	Q				V
20+35	0.4549	0.02	Q				V
20+40	0.4550	0.02	Q				V
20+45	0.4551	0.02	Q				V
20+50	0.4552	0.01	Q				V
20+55	0.4553	0.01	Q				V
21+ 0	0.4554	0.01	Q				V
21+ 5	0.4555	0.01	Q				V
21+10	0.4556	0.02	Q				V
21+15	0.4557	0.02	Q				V
21+20	0.4558	0.01	Q				V
21+25	0.4559	0.01	Q				V
21+30	0.4559	0.01	Q				V
21+35	0.4560	0.01	Q				V
21+40	0.4561	0.02	Q				V
21+45	0.4562	0.02	Q				V
21+50	0.4563	0.01	Q				V
21+55	0.4564	0.01	Q				V
22+ 0	0.4565	0.01	Q				V
22+ 5	0.4566	0.01	Q				V
22+10	0.4567	0.02	Q				V
22+15	0.4568	0.02	Q				V
22+20	0.4569	0.01	Q				V
22+25	0.4569	0.01	Q				V
22+30	0.4570	0.01	Q				V
22+35	0.4571	0.01	Q				V
22+40	0.4572	0.01	Q				V
22+45	0.4572	0.01	Q				V
22+50	0.4573	0.01	Q				V
22+55	0.4574	0.01	Q				V
23+ 0	0.4574	0.01	Q				V
23+ 5	0.4575	0.01	Q				V
23+10	0.4576	0.01	Q				V
23+15	0.4577	0.01	Q				V
23+20	0.4577	0.01	Q				V
23+25	0.4578	0.01	Q				V
23+30	0.4579	0.01	Q				V
23+35	0.4579	0.01	Q				V
23+40	0.4580	0.01	Q				V

23+45	0.4581	0.01	Q				V
23+50	0.4582	0.01	Q				V
23+55	0.4582	0.01	Q				V
24+ 0	0.4583	0.01	Q				V
24+ 5	0.4583	0.00	Q				V
24+10	0.4583	0.00	Q				V

Unit Hydrograph Analysis

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Study date 02/19/21 File: 1162004EXUHB1100.out

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

Program License Serial Number 6335

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

English Units used in output format

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
PRE-DEVELOPED, UNIT-HYDROGRAPH
100-YEAR, 1-HOUR STORMEVENT, DMA-B

Drainage Area = 3.01(Ac.) = 0.005 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 3.01(Ac.) =
0.005 Sq. Mi.
Length along longest watercourse = 567.00(Ft.)
Length along longest watercourse measured to centroid =
279.00(Ft.)
Length along longest watercourse = 0.107 Mi.
Length along longest watercourse measured to centroid = 0.053 Mi.
Difference in elevation = 78.00(Ft.)
Slope along watercourse = 726.3492 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.029 Hr.
Lag time = 1.73 Min.
25% of lag time = 0.43 Min.
40% of lag time = 0.69 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
3.01	0.61	1.84

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
3.01	1.65	4.97

STORM EVENT (YEAR) = 100.00

Area Averaged 2-Year Rainfall = 0.610(In)

Area Averaged 100-Year Rainfall = 1.650(In)

Point rain (area averaged) = 1.650(In)

Areal adjustment factor = 100.00 %

Adjusted average point rain = 1.650(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
3.010	86.00	0.000

Total Area Entered = 3.01(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
86.0	94.4	0.073	0.000	0.073	1.000	0.073
Sum (F) =						0.073

Area averaged mean soil loss (F) (In/Hr) = 0.073

Minimum soil loss rate ((In/Hr)) = 0.036

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

Unit Hydrograph VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	288.812	1.684
2	0.167	577.623	1.145
3	0.250	866.435	0.205
		Sum = 100.000	Sum= 3.034

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	3.30	0.653	0.073	(0.588)	0.581
2	0.17	4.20	0.832	0.073	(0.748)	0.759
3	0.25	4.40	0.871	0.073	(0.784)	0.798
4	0.33	4.80	0.950	0.073	(0.855)	0.878
5	0.42	5.20	1.030	0.073	(0.927)	0.957
6	0.50	6.20	1.228	0.073	(1.105)	1.155
7	0.58	6.80	1.346	0.073	(1.212)	1.274
8	0.67	8.80	1.742	0.073	(1.568)	1.670
9	0.75	13.90	2.752	0.073	(2.477)	2.679
10	0.83	31.40	6.217	0.073	(5.595)	6.144
11	0.92	7.20	1.426	0.073	(1.283)	1.353
12	1.00	3.80	0.752	0.073	(0.677)	0.680

(Loss Rate Not Used)

Sum = 100.0

Sum = 18.9

Flood volume = Effective rainfall 1.58(In)
times area 3.0(Ac.)/[(In)/(Ft.)) = 0.4(Ac.Ft)
Total soil loss = 0.07(In)
Total soil loss = 0.018(Ac.Ft)
Total rainfall = 1.65(In)
Flood volume = 17232.5 Cubic Feet
Total soil loss = 795.4 Cubic Feet

Peak flow rate of this hydrograph = 13.762(CFS)

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1 - 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	5.0	10.0	15.0	20.0
0+ 5	0.0067	0.98	VQ				
0+10	0.0201	1.94	VQ				
0+15	0.0362	2.33	VQ				
0+20	0.0537	2.55	Q				
0+25	0.0729	2.78	Q V				
0+30	0.0951	3.22	Q V				
0+35	0.1203	3.66	Q	V			
0+40	0.1514	4.51	Q	V			
0+45	0.1974	6.69		Q	V		
0+50	0.2922	13.76				Q V	
0+55	0.3602	9.87			Q		V
1+ 0	0.3874	3.95		Q			V
1+ 5	0.3946	1.06	Q				V
1+10	0.3956	0.14	Q				V

Unit Hydrograph Analysis

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Study date 02/19/21 File: 1162004PROUHA242.out

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

Program License Serial Number 6335

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

English Units used in output format

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
POST-DEVELOPED, DMA-A
2-YEAR, 24-HOUR STORMEVENT

Drainage Area = 4.42(Ac.) = 0.007 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.42(Ac.) =
0.007 Sq. Mi.
Length along longest watercourse = 868.00(Ft.)
Length along longest watercourse measured to centroid =
355.00(Ft.)
Length along longest watercourse = 0.164 Mi.
Length along longest watercourse measured to centroid = 0.067 Mi.
Difference in elevation = 103.00(Ft.)
Slope along watercourse = 626.5438 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.025 Hr.
Lag time = 1.53 Min.
25% of lag time = 0.38 Min.
40% of lag time = 0.61 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]
4.42	2.64	11.66

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.42	6.73	29.73

STORM EVENT (YEAR) = 2.00
 Area Averaged 2-Year Rainfall = 2.640(In)
 Area Averaged 100-Year Rainfall = 6.730(In)

Point rain (area averaged) = 2.640(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.640(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.418	69.00	0.000

Total Area Entered = 4.42(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
69.0	49.8	0.574	0.000	0.574	1.000	0.574
Sum (F) =						0.574

Area averaged mean soil loss (F) (In/Hr) = 0.574
 Minimum soil loss rate ((In/Hr)) = 0.287
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.900

Unit Hydrograph VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	326.946	59.287	2.640
2 0.167	653.892	35.695	1.589
3 0.250	980.837	5.018	0.223
Sum = 100.000		Sum=	4.453

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
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	(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.07	0.021	(1.017)	0.019	0.002
2	0.17	0.07	0.021	(1.014)	0.019	0.002
3	0.25	0.07	0.021	(1.010)	0.019	0.002
4	0.33	0.10	0.032	(1.006)	0.029	0.003
5	0.42	0.10	0.032	(1.002)	0.029	0.003
6	0.50	0.10	0.032	(0.998)	0.029	0.003
7	0.58	0.10	0.032	(0.994)	0.029	0.003
8	0.67	0.10	0.032	(0.990)	0.029	0.003
9	0.75	0.10	0.032	(0.986)	0.029	0.003
10	0.83	0.13	0.042	(0.982)	0.038	0.004
11	0.92	0.13	0.042	(0.978)	0.038	0.004
12	1.00	0.13	0.042	(0.975)	0.038	0.004
13	1.08	0.10	0.032	(0.971)	0.029	0.003
14	1.17	0.10	0.032	(0.967)	0.029	0.003
15	1.25	0.10	0.032	(0.963)	0.029	0.003
16	1.33	0.10	0.032	(0.959)	0.029	0.003
17	1.42	0.10	0.032	(0.955)	0.029	0.003
18	1.50	0.10	0.032	(0.952)	0.029	0.003
19	1.58	0.10	0.032	(0.948)	0.029	0.003
20	1.67	0.10	0.032	(0.944)	0.029	0.003
21	1.75	0.10	0.032	(0.940)	0.029	0.003
22	1.83	0.13	0.042	(0.936)	0.038	0.004
23	1.92	0.13	0.042	(0.933)	0.038	0.004
24	2.00	0.13	0.042	(0.929)	0.038	0.004
25	2.08	0.13	0.042	(0.925)	0.038	0.004
26	2.17	0.13	0.042	(0.921)	0.038	0.004
27	2.25	0.13	0.042	(0.918)	0.038	0.004
28	2.33	0.13	0.042	(0.914)	0.038	0.004
29	2.42	0.13	0.042	(0.910)	0.038	0.004
30	2.50	0.13	0.042	(0.906)	0.038	0.004
31	2.58	0.17	0.053	(0.903)	0.048	0.005
32	2.67	0.17	0.053	(0.899)	0.048	0.005
33	2.75	0.17	0.053	(0.895)	0.048	0.005
34	2.83	0.17	0.053	(0.892)	0.048	0.005
35	2.92	0.17	0.053	(0.888)	0.048	0.005
36	3.00	0.17	0.053	(0.884)	0.048	0.005
37	3.08	0.17	0.053	(0.881)	0.048	0.005
38	3.17	0.17	0.053	(0.877)	0.048	0.005
39	3.25	0.17	0.053	(0.873)	0.048	0.005
40	3.33	0.17	0.053	(0.870)	0.048	0.005
41	3.42	0.17	0.053	(0.866)	0.048	0.005
42	3.50	0.17	0.053	(0.862)	0.048	0.005
43	3.58	0.17	0.053	(0.859)	0.048	0.005
44	3.67	0.17	0.053	(0.855)	0.048	0.005
45	3.75	0.17	0.053	(0.852)	0.048	0.005
46	3.83	0.20	0.063	(0.848)	0.057	0.006
47	3.92	0.20	0.063	(0.844)	0.057	0.006
48	4.00	0.20	0.063	(0.841)	0.057	0.006
49	4.08	0.20	0.063	(0.837)	0.057	0.006
50	4.17	0.20	0.063	(0.834)	0.057	0.006
51	4.25	0.20	0.063	(0.830)	0.057	0.006
52	4.33	0.23	0.074	(0.827)	0.067	0.007
53	4.42	0.23	0.074	(0.823)	0.067	0.007

54	4.50	0.23	0.074	(0.820)	0.067	0.007
55	4.58	0.23	0.074	(0.816)	0.067	0.007
56	4.67	0.23	0.074	(0.813)	0.067	0.007
57	4.75	0.23	0.074	(0.809)	0.067	0.007
58	4.83	0.27	0.084	(0.806)	0.076	0.008
59	4.92	0.27	0.084	(0.802)	0.076	0.008
60	5.00	0.27	0.084	(0.799)	0.076	0.008
61	5.08	0.20	0.063	(0.795)	0.057	0.006
62	5.17	0.20	0.063	(0.792)	0.057	0.006
63	5.25	0.20	0.063	(0.788)	0.057	0.006
64	5.33	0.23	0.074	(0.785)	0.067	0.007
65	5.42	0.23	0.074	(0.781)	0.067	0.007
66	5.50	0.23	0.074	(0.778)	0.067	0.007
67	5.58	0.27	0.084	(0.775)	0.076	0.008
68	5.67	0.27	0.084	(0.771)	0.076	0.008
69	5.75	0.27	0.084	(0.768)	0.076	0.008
70	5.83	0.27	0.084	(0.764)	0.076	0.008
71	5.92	0.27	0.084	(0.761)	0.076	0.008
72	6.00	0.27	0.084	(0.758)	0.076	0.008
73	6.08	0.30	0.095	(0.754)	0.086	0.010
74	6.17	0.30	0.095	(0.751)	0.086	0.010
75	6.25	0.30	0.095	(0.748)	0.086	0.010
76	6.33	0.30	0.095	(0.744)	0.086	0.010
77	6.42	0.30	0.095	(0.741)	0.086	0.010
78	6.50	0.30	0.095	(0.738)	0.086	0.010
79	6.58	0.33	0.106	(0.734)	0.095	0.011
80	6.67	0.33	0.106	(0.731)	0.095	0.011
81	6.75	0.33	0.106	(0.728)	0.095	0.011
82	6.83	0.33	0.106	(0.724)	0.095	0.011
83	6.92	0.33	0.106	(0.721)	0.095	0.011
84	7.00	0.33	0.106	(0.718)	0.095	0.011
85	7.08	0.33	0.106	(0.715)	0.095	0.011
86	7.17	0.33	0.106	(0.711)	0.095	0.011
87	7.25	0.33	0.106	(0.708)	0.095	0.011
88	7.33	0.37	0.116	(0.705)	0.105	0.012
89	7.42	0.37	0.116	(0.702)	0.105	0.012
90	7.50	0.37	0.116	(0.698)	0.105	0.012
91	7.58	0.40	0.127	(0.695)	0.114	0.013
92	7.67	0.40	0.127	(0.692)	0.114	0.013
93	7.75	0.40	0.127	(0.689)	0.114	0.013
94	7.83	0.43	0.137	(0.686)	0.124	0.014
95	7.92	0.43	0.137	(0.682)	0.124	0.014
96	8.00	0.43	0.137	(0.679)	0.124	0.014
97	8.08	0.50	0.158	(0.676)	0.143	0.016
98	8.17	0.50	0.158	(0.673)	0.143	0.016
99	8.25	0.50	0.158	(0.670)	0.143	0.016
100	8.33	0.50	0.158	(0.667)	0.143	0.016
101	8.42	0.50	0.158	(0.664)	0.143	0.016
102	8.50	0.50	0.158	(0.660)	0.143	0.016
103	8.58	0.53	0.169	(0.657)	0.152	0.017
104	8.67	0.53	0.169	(0.654)	0.152	0.017
105	8.75	0.53	0.169	(0.651)	0.152	0.017
106	8.83	0.57	0.180	(0.648)	0.162	0.018
107	8.92	0.57	0.180	(0.645)	0.162	0.018

108	9.00	0.57	0.180	(0.642)	0.162	0.018
109	9.08	0.63	0.201	(0.639)	0.181	0.020
110	9.17	0.63	0.201	(0.636)	0.181	0.020
111	9.25	0.63	0.201	(0.633)	0.181	0.020
112	9.33	0.67	0.211	(0.630)	0.190	0.021
113	9.42	0.67	0.211	(0.627)	0.190	0.021
114	9.50	0.67	0.211	(0.624)	0.190	0.021
115	9.58	0.70	0.222	(0.621)	0.200	0.022
116	9.67	0.70	0.222	(0.618)	0.200	0.022
117	9.75	0.70	0.222	(0.615)	0.200	0.022
118	9.83	0.73	0.232	(0.612)	0.209	0.023
119	9.92	0.73	0.232	(0.609)	0.209	0.023
120	10.00	0.73	0.232	(0.606)	0.209	0.023
121	10.08	0.50	0.158	(0.603)	0.143	0.016
122	10.17	0.50	0.158	(0.600)	0.143	0.016
123	10.25	0.50	0.158	(0.597)	0.143	0.016
124	10.33	0.50	0.158	(0.594)	0.143	0.016
125	10.42	0.50	0.158	(0.592)	0.143	0.016
126	10.50	0.50	0.158	(0.589)	0.143	0.016
127	10.58	0.67	0.211	(0.586)	0.190	0.021
128	10.67	0.67	0.211	(0.583)	0.190	0.021
129	10.75	0.67	0.211	(0.580)	0.190	0.021
130	10.83	0.67	0.211	(0.577)	0.190	0.021
131	10.92	0.67	0.211	(0.574)	0.190	0.021
132	11.00	0.67	0.211	(0.572)	0.190	0.021
133	11.08	0.63	0.201	(0.569)	0.181	0.020
134	11.17	0.63	0.201	(0.566)	0.181	0.020
135	11.25	0.63	0.201	(0.563)	0.181	0.020
136	11.33	0.63	0.201	(0.560)	0.181	0.020
137	11.42	0.63	0.201	(0.558)	0.181	0.020
138	11.50	0.63	0.201	(0.555)	0.181	0.020
139	11.58	0.57	0.180	(0.552)	0.162	0.018
140	11.67	0.57	0.180	(0.549)	0.162	0.018
141	11.75	0.57	0.180	(0.547)	0.162	0.018
142	11.83	0.60	0.190	(0.544)	0.171	0.019
143	11.92	0.60	0.190	(0.541)	0.171	0.019
144	12.00	0.60	0.190	(0.538)	0.171	0.019
145	12.08	0.83	0.264	(0.536)	0.238	0.026
146	12.17	0.83	0.264	(0.533)	0.238	0.026
147	12.25	0.83	0.264	(0.530)	0.238	0.026
148	12.33	0.87	0.275	(0.528)	0.247	0.027
149	12.42	0.87	0.275	(0.525)	0.247	0.027
150	12.50	0.87	0.275	(0.522)	0.247	0.027
151	12.58	0.93	0.296	(0.520)	0.266	0.030
152	12.67	0.93	0.296	(0.517)	0.266	0.030
153	12.75	0.93	0.296	(0.515)	0.266	0.030
154	12.83	0.97	0.306	(0.512)	0.276	0.031
155	12.92	0.97	0.306	(0.509)	0.276	0.031
156	13.00	0.97	0.306	(0.507)	0.276	0.031
157	13.08	1.13	0.359	(0.504)	0.323	0.036
158	13.17	1.13	0.359	(0.502)	0.323	0.036
159	13.25	1.13	0.359	(0.499)	0.323	0.036
160	13.33	1.13	0.359	(0.497)	0.323	0.036
161	13.42	1.13	0.359	(0.494)	0.323	0.036

162	13.50	1.13	0.359	(0.492)	0.323	0.036
163	13.58	0.77	0.243	(0.489)	0.219	0.024
164	13.67	0.77	0.243	(0.487)	0.219	0.024
165	13.75	0.77	0.243	(0.484)	0.219	0.024
166	13.83	0.77	0.243	(0.482)	0.219	0.024
167	13.92	0.77	0.243	(0.479)	0.219	0.024
168	14.00	0.77	0.243	(0.477)	0.219	0.024
169	14.08	0.90	0.285	(0.474)	0.257	0.029
170	14.17	0.90	0.285	(0.472)	0.257	0.029
171	14.25	0.90	0.285	(0.469)	0.257	0.029
172	14.33	0.87	0.275	(0.467)	0.247	0.027
173	14.42	0.87	0.275	(0.465)	0.247	0.027
174	14.50	0.87	0.275	(0.462)	0.247	0.027
175	14.58	0.87	0.275	(0.460)	0.247	0.027
176	14.67	0.87	0.275	(0.458)	0.247	0.027
177	14.75	0.87	0.275	(0.455)	0.247	0.027
178	14.83	0.83	0.264	(0.453)	0.238	0.026
179	14.92	0.83	0.264	(0.451)	0.238	0.026
180	15.00	0.83	0.264	(0.448)	0.238	0.026
181	15.08	0.80	0.253	(0.446)	0.228	0.025
182	15.17	0.80	0.253	(0.444)	0.228	0.025
183	15.25	0.80	0.253	(0.441)	0.228	0.025
184	15.33	0.77	0.243	(0.439)	0.219	0.024
185	15.42	0.77	0.243	(0.437)	0.219	0.024
186	15.50	0.77	0.243	(0.435)	0.219	0.024
187	15.58	0.63	0.201	(0.432)	0.181	0.020
188	15.67	0.63	0.201	(0.430)	0.181	0.020
189	15.75	0.63	0.201	(0.428)	0.181	0.020
190	15.83	0.63	0.201	(0.426)	0.181	0.020
191	15.92	0.63	0.201	(0.424)	0.181	0.020
192	16.00	0.63	0.201	(0.421)	0.181	0.020
193	16.08	0.13	0.042	(0.419)	0.038	0.004
194	16.17	0.13	0.042	(0.417)	0.038	0.004
195	16.25	0.13	0.042	(0.415)	0.038	0.004
196	16.33	0.13	0.042	(0.413)	0.038	0.004
197	16.42	0.13	0.042	(0.411)	0.038	0.004
198	16.50	0.13	0.042	(0.409)	0.038	0.004
199	16.58	0.10	0.032	(0.407)	0.029	0.003
200	16.67	0.10	0.032	(0.405)	0.029	0.003
201	16.75	0.10	0.032	(0.403)	0.029	0.003
202	16.83	0.10	0.032	(0.401)	0.029	0.003
203	16.92	0.10	0.032	(0.398)	0.029	0.003
204	17.00	0.10	0.032	(0.396)	0.029	0.003
205	17.08	0.17	0.053	(0.394)	0.048	0.005
206	17.17	0.17	0.053	(0.392)	0.048	0.005
207	17.25	0.17	0.053	(0.390)	0.048	0.005
208	17.33	0.17	0.053	(0.389)	0.048	0.005
209	17.42	0.17	0.053	(0.387)	0.048	0.005
210	17.50	0.17	0.053	(0.385)	0.048	0.005
211	17.58	0.17	0.053	(0.383)	0.048	0.005
212	17.67	0.17	0.053	(0.381)	0.048	0.005
213	17.75	0.17	0.053	(0.379)	0.048	0.005
214	17.83	0.13	0.042	(0.377)	0.038	0.004
215	17.92	0.13	0.042	(0.375)	0.038	0.004

216	18.00	0.13	0.042	(0.373)	0.038	0.004
217	18.08	0.13	0.042	(0.371)	0.038	0.004
218	18.17	0.13	0.042	(0.370)	0.038	0.004
219	18.25	0.13	0.042	(0.368)	0.038	0.004
220	18.33	0.13	0.042	(0.366)	0.038	0.004
221	18.42	0.13	0.042	(0.364)	0.038	0.004
222	18.50	0.13	0.042	(0.363)	0.038	0.004
223	18.58	0.10	0.032	(0.361)	0.029	0.003
224	18.67	0.10	0.032	(0.359)	0.029	0.003
225	18.75	0.10	0.032	(0.357)	0.029	0.003
226	18.83	0.07	0.021	(0.356)	0.019	0.002
227	18.92	0.07	0.021	(0.354)	0.019	0.002
228	19.00	0.07	0.021	(0.352)	0.019	0.002
229	19.08	0.10	0.032	(0.351)	0.029	0.003
230	19.17	0.10	0.032	(0.349)	0.029	0.003
231	19.25	0.10	0.032	(0.347)	0.029	0.003
232	19.33	0.13	0.042	(0.346)	0.038	0.004
233	19.42	0.13	0.042	(0.344)	0.038	0.004
234	19.50	0.13	0.042	(0.342)	0.038	0.004
235	19.58	0.10	0.032	(0.341)	0.029	0.003
236	19.67	0.10	0.032	(0.339)	0.029	0.003
237	19.75	0.10	0.032	(0.338)	0.029	0.003
238	19.83	0.07	0.021	(0.336)	0.019	0.002
239	19.92	0.07	0.021	(0.335)	0.019	0.002
240	20.00	0.07	0.021	(0.333)	0.019	0.002
241	20.08	0.10	0.032	(0.332)	0.029	0.003
242	20.17	0.10	0.032	(0.330)	0.029	0.003
243	20.25	0.10	0.032	(0.329)	0.029	0.003
244	20.33	0.10	0.032	(0.328)	0.029	0.003
245	20.42	0.10	0.032	(0.326)	0.029	0.003
246	20.50	0.10	0.032	(0.325)	0.029	0.003
247	20.58	0.10	0.032	(0.323)	0.029	0.003
248	20.67	0.10	0.032	(0.322)	0.029	0.003
249	20.75	0.10	0.032	(0.321)	0.029	0.003
250	20.83	0.07	0.021	(0.319)	0.019	0.002
251	20.92	0.07	0.021	(0.318)	0.019	0.002
252	21.00	0.07	0.021	(0.317)	0.019	0.002
253	21.08	0.10	0.032	(0.316)	0.029	0.003
254	21.17	0.10	0.032	(0.314)	0.029	0.003
255	21.25	0.10	0.032	(0.313)	0.029	0.003
256	21.33	0.07	0.021	(0.312)	0.019	0.002
257	21.42	0.07	0.021	(0.311)	0.019	0.002
258	21.50	0.07	0.021	(0.310)	0.019	0.002
259	21.58	0.10	0.032	(0.308)	0.029	0.003
260	21.67	0.10	0.032	(0.307)	0.029	0.003
261	21.75	0.10	0.032	(0.306)	0.029	0.003
262	21.83	0.07	0.021	(0.305)	0.019	0.002
263	21.92	0.07	0.021	(0.304)	0.019	0.002
264	22.00	0.07	0.021	(0.303)	0.019	0.002
265	22.08	0.10	0.032	(0.302)	0.029	0.003
266	22.17	0.10	0.032	(0.301)	0.029	0.003
267	22.25	0.10	0.032	(0.300)	0.029	0.003
268	22.33	0.07	0.021	(0.299)	0.019	0.002
269	22.42	0.07	0.021	(0.298)	0.019	0.002

270	22.50	0.07	0.021	(0.297)	0.019	0.002
271	22.58	0.07	0.021	(0.297)	0.019	0.002
272	22.67	0.07	0.021	(0.296)	0.019	0.002
273	22.75	0.07	0.021	(0.295)	0.019	0.002
274	22.83	0.07	0.021	(0.294)	0.019	0.002
275	22.92	0.07	0.021	(0.293)	0.019	0.002
276	23.00	0.07	0.021	(0.293)	0.019	0.002
277	23.08	0.07	0.021	(0.292)	0.019	0.002
278	23.17	0.07	0.021	(0.291)	0.019	0.002
279	23.25	0.07	0.021	(0.291)	0.019	0.002
280	23.33	0.07	0.021	(0.290)	0.019	0.002
281	23.42	0.07	0.021	(0.290)	0.019	0.002
282	23.50	0.07	0.021	(0.289)	0.019	0.002
283	23.58	0.07	0.021	(0.289)	0.019	0.002
284	23.67	0.07	0.021	(0.288)	0.019	0.002
285	23.75	0.07	0.021	(0.288)	0.019	0.002
286	23.83	0.07	0.021	(0.287)	0.019	0.002
287	23.92	0.07	0.021	(0.287)	0.019	0.002
288	24.00	0.07	0.021	(0.287)	0.019	0.002

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.2

Flood volume = Effective rainfall 0.26(In)
times area 4.4(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 2.38(In)
Total soil loss = 0.875(Ac.Ft)
Total rainfall = 2.64(In)
Flood volume = 4233.8 Cubic Feet
Total soil loss = 38104.4 Cubic Feet

Peak flow rate of this hydrograph = 0.160(CFS)

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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	0.01	Q				
0+10	0.0001	0.01	Q				
0+15	0.0002	0.01	Q				
0+20	0.0002	0.01	Q				
0+25	0.0003	0.01	Q				
0+30	0.0004	0.01	Q				
0+35	0.0005	0.01	Q				
0+40	0.0006	0.01	Q				
0+45	0.0007	0.01	Q				
0+50	0.0008	0.02	Q				
0+55	0.0010	0.02	Q				
1+ 0	0.0011	0.02	Q				
1+ 5	0.0012	0.02	Q				
1+10	0.0013	0.01	Q				

1+15	0.0014	0.01	Q				
1+20	0.0015	0.01	Q				
1+25	0.0016	0.01	Q				
1+30	0.0017	0.01	Q				
1+35	0.0018	0.01	Q				
1+40	0.0019	0.01	Q				
1+45	0.0020	0.01	Q				
1+50	0.0021	0.02	Q				
1+55	0.0022	0.02	Q				
2+ 0	0.0024	0.02	Q				
2+ 5	0.0025	0.02	QV				
2+10	0.0026	0.02	QV				
2+15	0.0028	0.02	QV				
2+20	0.0029	0.02	QV				
2+25	0.0030	0.02	QV				
2+30	0.0031	0.02	QV				
2+35	0.0033	0.02	QV				
2+40	0.0035	0.02	QV				
2+45	0.0036	0.02	QV				
2+50	0.0038	0.02	QV				
2+55	0.0039	0.02	QV				
3+ 0	0.0041	0.02	QV				
3+ 5	0.0043	0.02	QV				
3+10	0.0044	0.02	QV				
3+15	0.0046	0.02	QV				
3+20	0.0048	0.02	QV				
3+25	0.0049	0.02	Q V				
3+30	0.0051	0.02	Q V				
3+35	0.0052	0.02	Q V				
3+40	0.0054	0.02	Q V				
3+45	0.0056	0.02	Q V				
3+50	0.0057	0.03	Q V				
3+55	0.0059	0.03	Q V				
4+ 0	0.0061	0.03	Q V				
4+ 5	0.0063	0.03	Q V				
4+10	0.0065	0.03	Q V				
4+15	0.0067	0.03	Q V				
4+20	0.0069	0.03	Q V				
4+25	0.0072	0.03	Q V				
4+30	0.0074	0.03	Q V				
4+35	0.0076	0.03	Q V				
4+40	0.0078	0.03	Q V				
4+45	0.0081	0.03	Q V				
4+50	0.0083	0.04	Q V				
4+55	0.0086	0.04	Q V				
5+ 0	0.0088	0.04	Q V				
5+ 5	0.0090	0.03	Q V				
5+10	0.0092	0.03	Q V				
5+15	0.0094	0.03	Q V				
5+20	0.0096	0.03	Q V				
5+25	0.0099	0.03	Q V				
5+30	0.0101	0.03	Q V				
5+35	0.0103	0.04	Q V				
5+40	0.0106	0.04	Q V				

5+45	0.0109	0.04	Q	V				
5+50	0.0111	0.04	Q	V				
5+55	0.0114	0.04	Q	V				
6+ 0	0.0116	0.04	Q	V				
6+ 5	0.0119	0.04	Q	V				
6+10	0.0122	0.04	Q	V				
6+15	0.0125	0.04	Q	V				
6+20	0.0128	0.04	Q	V				
6+25	0.0131	0.04	Q	V				
6+30	0.0134	0.04	Q	V				
6+35	0.0137	0.05	Q	V				
6+40	0.0140	0.05	Q	V				
6+45	0.0143	0.05	Q	V				
6+50	0.0147	0.05	Q	V				
6+55	0.0150	0.05	Q	V				
7+ 0	0.0153	0.05	Q	V				
7+ 5	0.0156	0.05	Q	V				
7+10	0.0160	0.05	Q	V				
7+15	0.0163	0.05	Q	V				
7+20	0.0166	0.05	Q	V				
7+25	0.0170	0.05	Q	V				
7+30	0.0173	0.05	Q	V				
7+35	0.0177	0.05	Q	V				
7+40	0.0181	0.06	Q	V				
7+45	0.0185	0.06	Q	V				
7+50	0.0189	0.06	Q	V				
7+55	0.0193	0.06	Q	V				
8+ 0	0.0197	0.06	Q	V				
8+ 5	0.0202	0.07	Q	V				
8+10	0.0207	0.07	Q	V				
8+15	0.0212	0.07	Q	V				
8+20	0.0216	0.07	Q	V				
8+25	0.0221	0.07	Q	V				
8+30	0.0226	0.07	Q	V				
8+35	0.0231	0.07	Q	V				
8+40	0.0236	0.08	Q	V				
8+45	0.0242	0.08	Q	V				
8+50	0.0247	0.08	Q	V				
8+55	0.0252	0.08	Q	V				
9+ 0	0.0258	0.08	Q	V				
9+ 5	0.0264	0.09	Q	V				
9+10	0.0270	0.09	Q	V				
9+15	0.0276	0.09	Q	V				
9+20	0.0282	0.09	Q	V				
9+25	0.0289	0.09	Q	V				
9+30	0.0295	0.09	Q	V				
9+35	0.0302	0.10	Q	V				
9+40	0.0309	0.10	Q	V				
9+45	0.0316	0.10	Q	V				
9+50	0.0323	0.10	Q	V				
9+55	0.0330	0.10	Q	V				
10+ 0	0.0337	0.10	Q	V				
10+ 5	0.0343	0.08	Q	V				
10+10	0.0348	0.07	Q	V				

10+15	0.0353	0.07	Q	V			
10+20	0.0357	0.07	Q	V			
10+25	0.0362	0.07	Q	V			
10+30	0.0367	0.07	Q	V			
10+35	0.0373	0.08	Q	V			
10+40	0.0379	0.09	Q	V			
10+45	0.0386	0.09	Q	V			
10+50	0.0392	0.09	Q	V			
10+55	0.0399	0.09	Q	V			
11+ 0	0.0405	0.09	Q	V			
11+ 5	0.0412	0.09	Q	V			
11+10	0.0418	0.09	Q	V			
11+15	0.0424	0.09	Q	V			
11+20	0.0430	0.09	Q	V			
11+25	0.0436	0.09	Q	V			
11+30	0.0442	0.09	Q	V			
11+35	0.0448	0.08	Q	V			
11+40	0.0454	0.08	Q	V			
11+45	0.0459	0.08	Q	V			
11+50	0.0465	0.08	Q	V			
11+55	0.0471	0.08	Q	V			
12+ 0	0.0477	0.08	Q	V			
12+ 5	0.0484	0.10	Q	V			
12+10	0.0492	0.12	Q	V			
12+15	0.0500	0.12	Q	V			
12+20	0.0508	0.12	Q	V			
12+25	0.0516	0.12	Q	V			
12+30	0.0525	0.12	Q	V			
12+35	0.0534	0.13	Q	V			
12+40	0.0543	0.13	Q	V			
12+45	0.0552	0.13	Q	V			
12+50	0.0561	0.13	Q	V			
12+55	0.0570	0.14	Q	V			
13+ 0	0.0580	0.14	Q	V			
13+ 5	0.0590	0.15	Q	V			
13+10	0.0601	0.16	Q	V			
13+15	0.0612	0.16	Q	V			
13+20	0.0623	0.16	Q	V			
13+25	0.0634	0.16	Q	V			
13+30	0.0645	0.16	Q	V			
13+35	0.0654	0.13	Q	V			
13+40	0.0662	0.11	Q	V			
13+45	0.0669	0.11	Q	V			
13+50	0.0677	0.11	Q	V			
13+55	0.0684	0.11	Q	V			
14+ 0	0.0692	0.11	Q	V			
14+ 5	0.0700	0.12	Q	V			
14+10	0.0708	0.13	Q	V			
14+15	0.0717	0.13	Q	V			
14+20	0.0726	0.12	Q	V			
14+25	0.0734	0.12	Q	V			
14+30	0.0743	0.12	Q	V			
14+35	0.0751	0.12	Q	V			
14+40	0.0759	0.12	Q	V			

14+45	0.0768	0.12	Q			V	
14+50	0.0776	0.12	Q			V	
14+55	0.0784	0.12	Q			V	
15+ 0	0.0792	0.12	Q			V	
15+ 5	0.0800	0.11	Q			V	
15+10	0.0808	0.11	Q			V	
15+15	0.0816	0.11	Q			V	
15+20	0.0823	0.11	Q			V	
15+25	0.0831	0.11	Q			V	
15+30	0.0838	0.11	Q			V	
15+35	0.0845	0.10	Q			V	
15+40	0.0851	0.09	Q			V	
15+45	0.0857	0.09	Q			V	
15+50	0.0864	0.09	Q			V	
15+55	0.0870	0.09	Q			V	
16+ 0	0.0876	0.09	Q			V	
16+ 5	0.0879	0.05	Q			V	
16+10	0.0881	0.02	Q			V	
16+15	0.0882	0.02	Q			V	
16+20	0.0883	0.02	Q			V	
16+25	0.0885	0.02	Q			V	
16+30	0.0886	0.02	Q			V	
16+35	0.0887	0.02	Q			V	
16+40	0.0888	0.01	Q			V	
16+45	0.0889	0.01	Q			V	
16+50	0.0890	0.01	Q			V	
16+55	0.0891	0.01	Q			V	
17+ 0	0.0892	0.01	Q			V	
17+ 5	0.0893	0.02	Q			V	
17+10	0.0895	0.02	Q			V	
17+15	0.0896	0.02	Q			V	
17+20	0.0898	0.02	Q			V	
17+25	0.0900	0.02	Q			V	
17+30	0.0901	0.02	Q			V	
17+35	0.0903	0.02	Q			V	
17+40	0.0904	0.02	Q			V	
17+45	0.0906	0.02	Q			V	
17+50	0.0908	0.02	Q			V	
17+55	0.0909	0.02	Q			V	
18+ 0	0.0910	0.02	Q			V	
18+ 5	0.0911	0.02	Q			V	
18+10	0.0913	0.02	Q			V	
18+15	0.0914	0.02	Q			V	
18+20	0.0915	0.02	Q			V	
18+25	0.0917	0.02	Q			V	
18+30	0.0918	0.02	Q			V	
18+35	0.0919	0.02	Q			V	
18+40	0.0920	0.01	Q			V	
18+45	0.0921	0.01	Q			V	
18+50	0.0922	0.01	Q			V	
18+55	0.0922	0.01	Q			V	
19+ 0	0.0923	0.01	Q			V	
19+ 5	0.0924	0.01	Q			V	
19+10	0.0925	0.01	Q			V	

19+15	0.0926	0.01	Q				V
19+20	0.0927	0.02	Q				V
19+25	0.0928	0.02	Q				V
19+30	0.0930	0.02	Q				V
19+35	0.0931	0.02	Q				V
19+40	0.0932	0.01	Q				V
19+45	0.0933	0.01	Q				V
19+50	0.0933	0.01	Q				V
19+55	0.0934	0.01	Q				V
20+ 0	0.0935	0.01	Q				V
20+ 5	0.0936	0.01	Q				V
20+10	0.0937	0.01	Q				V
20+15	0.0937	0.01	Q				V
20+20	0.0938	0.01	Q				V
20+25	0.0939	0.01	Q				V
20+30	0.0940	0.01	Q				V
20+35	0.0941	0.01	Q				V
20+40	0.0942	0.01	Q				V
20+45	0.0943	0.01	Q				V
20+50	0.0944	0.01	Q				V
20+55	0.0945	0.01	Q				V
21+ 0	0.0945	0.01	Q				V
21+ 5	0.0946	0.01	Q				V
21+10	0.0947	0.01	Q				V
21+15	0.0948	0.01	Q				V
21+20	0.0949	0.01	Q				V
21+25	0.0950	0.01	Q				V
21+30	0.0950	0.01	Q				V
21+35	0.0951	0.01	Q				V
21+40	0.0952	0.01	Q				V
21+45	0.0953	0.01	Q				V
21+50	0.0954	0.01	Q				V
21+55	0.0954	0.01	Q				V
22+ 0	0.0955	0.01	Q				V
22+ 5	0.0956	0.01	Q				V
22+10	0.0957	0.01	Q				V
22+15	0.0958	0.01	Q				V
22+20	0.0959	0.01	Q				V
22+25	0.0959	0.01	Q				V
22+30	0.0960	0.01	Q				V
22+35	0.0961	0.01	Q				V
22+40	0.0961	0.01	Q				V
22+45	0.0962	0.01	Q				V
22+50	0.0963	0.01	Q				V
22+55	0.0963	0.01	Q				V
23+ 0	0.0964	0.01	Q				V
23+ 5	0.0965	0.01	Q				V
23+10	0.0965	0.01	Q				V
23+15	0.0966	0.01	Q				V
23+20	0.0966	0.01	Q				V
23+25	0.0967	0.01	Q				V
23+30	0.0968	0.01	Q				V
23+35	0.0968	0.01	Q				V
23+40	0.0969	0.01	Q				V

23+45	0.0970	0.01	Q				V
23+50	0.0970	0.01	Q				V
23+55	0.0971	0.01	Q				V
24+ 0	0.0972	0.01	Q				V
24+ 5	0.0972	0.00	Q				V
24+10	0.0972	0.00	Q				V

Unit Hydrograph Analysis

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Study date 02/19/21 File: 1162004PROUHA2410.out

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

Program License Serial Number 6335

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

English Units used in output format

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
POST-DEVELOPED, DMA-A
10-YEAR, 24-HOUR STORMEVENT

Drainage Area = 4.42(Ac.) = 0.007 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.42(Ac.) =
0.007 Sq. Mi.
Length along longest watercourse = 868.00(Ft.)
Length along longest watercourse measured to centroid =
355.00(Ft.)
Length along longest watercourse = 0.164 Mi.
Length along longest watercourse measured to centroid = 0.067 Mi.
Difference in elevation = 103.00(Ft.)
Slope along watercourse = 626.5438 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.025 Hr.
Lag time = 1.53 Min.
25% of lag time = 0.38 Min.
40% of lag time = 0.61 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]
4.42	2.64	11.66

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.42	6.73	29.73

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 2.640(In)
Area Averaged 100-Year Rainfall = 6.730(In)

Point rain (area averaged) = 4.323(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.323(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.418	69.00	0.000

Total Area Entered = 4.42(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
69.0	69.0	0.373	0.000	0.373	1.000	0.373
Sum (F) =						0.373

Area averaged mean soil loss (F) (In/Hr) = 0.373
Minimum soil loss rate ((In/Hr)) = 0.186
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

Unit Hydrograph VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	326.946	59.287	2.640
2 0.167	653.892	35.695	1.589
3 0.250	980.837	5.018	0.223
Sum = 100.000		Sum=	4.453

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
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	(Hr.)	Percent	(In/Hr)	Max		Low	(In/Hr)
1	0.08	0.07	0.035	(0.661)		0.031	0.003
2	0.17	0.07	0.035	(0.658)		0.031	0.003
3	0.25	0.07	0.035	(0.656)		0.031	0.003
4	0.33	0.10	0.052	(0.653)		0.047	0.005
5	0.42	0.10	0.052	(0.651)		0.047	0.005
6	0.50	0.10	0.052	(0.648)		0.047	0.005
7	0.58	0.10	0.052	(0.646)		0.047	0.005
8	0.67	0.10	0.052	(0.643)		0.047	0.005
9	0.75	0.10	0.052	(0.641)		0.047	0.005
10	0.83	0.13	0.069	(0.638)		0.062	0.007
11	0.92	0.13	0.069	(0.636)		0.062	0.007
12	1.00	0.13	0.069	(0.633)		0.062	0.007
13	1.08	0.10	0.052	(0.631)		0.047	0.005
14	1.17	0.10	0.052	(0.628)		0.047	0.005
15	1.25	0.10	0.052	(0.626)		0.047	0.005
16	1.33	0.10	0.052	(0.623)		0.047	0.005
17	1.42	0.10	0.052	(0.621)		0.047	0.005
18	1.50	0.10	0.052	(0.618)		0.047	0.005
19	1.58	0.10	0.052	(0.616)		0.047	0.005
20	1.67	0.10	0.052	(0.613)		0.047	0.005
21	1.75	0.10	0.052	(0.611)		0.047	0.005
22	1.83	0.13	0.069	(0.608)		0.062	0.007
23	1.92	0.13	0.069	(0.606)		0.062	0.007
24	2.00	0.13	0.069	(0.603)		0.062	0.007
25	2.08	0.13	0.069	(0.601)		0.062	0.007
26	2.17	0.13	0.069	(0.598)		0.062	0.007
27	2.25	0.13	0.069	(0.596)		0.062	0.007
28	2.33	0.13	0.069	(0.594)		0.062	0.007
29	2.42	0.13	0.069	(0.591)		0.062	0.007
30	2.50	0.13	0.069	(0.589)		0.062	0.007
31	2.58	0.17	0.086	(0.586)		0.078	0.009
32	2.67	0.17	0.086	(0.584)		0.078	0.009
33	2.75	0.17	0.086	(0.582)		0.078	0.009
34	2.83	0.17	0.086	(0.579)		0.078	0.009
35	2.92	0.17	0.086	(0.577)		0.078	0.009
36	3.00	0.17	0.086	(0.574)		0.078	0.009
37	3.08	0.17	0.086	(0.572)		0.078	0.009
38	3.17	0.17	0.086	(0.570)		0.078	0.009
39	3.25	0.17	0.086	(0.567)		0.078	0.009
40	3.33	0.17	0.086	(0.565)		0.078	0.009
41	3.42	0.17	0.086	(0.563)		0.078	0.009
42	3.50	0.17	0.086	(0.560)		0.078	0.009
43	3.58	0.17	0.086	(0.558)		0.078	0.009
44	3.67	0.17	0.086	(0.556)		0.078	0.009
45	3.75	0.17	0.086	(0.553)		0.078	0.009
46	3.83	0.20	0.104	(0.551)		0.093	0.010
47	3.92	0.20	0.104	(0.549)		0.093	0.010
48	4.00	0.20	0.104	(0.546)		0.093	0.010
49	4.08	0.20	0.104	(0.544)		0.093	0.010
50	4.17	0.20	0.104	(0.542)		0.093	0.010
51	4.25	0.20	0.104	(0.539)		0.093	0.010
52	4.33	0.23	0.121	(0.537)		0.109	0.012
53	4.42	0.23	0.121	(0.535)		0.109	0.012

54	4.50	0.23	0.121	(0.532)	0.109	0.012
55	4.58	0.23	0.121	(0.530)	0.109	0.012
56	4.67	0.23	0.121	(0.528)	0.109	0.012
57	4.75	0.23	0.121	(0.526)	0.109	0.012
58	4.83	0.27	0.138	(0.523)	0.124	0.014
59	4.92	0.27	0.138	(0.521)	0.124	0.014
60	5.00	0.27	0.138	(0.519)	0.124	0.014
61	5.08	0.20	0.104	(0.516)	0.093	0.010
62	5.17	0.20	0.104	(0.514)	0.093	0.010
63	5.25	0.20	0.104	(0.512)	0.093	0.010
64	5.33	0.23	0.121	(0.510)	0.109	0.012
65	5.42	0.23	0.121	(0.508)	0.109	0.012
66	5.50	0.23	0.121	(0.505)	0.109	0.012
67	5.58	0.27	0.138	(0.503)	0.124	0.014
68	5.67	0.27	0.138	(0.501)	0.124	0.014
69	5.75	0.27	0.138	(0.499)	0.124	0.014
70	5.83	0.27	0.138	(0.496)	0.124	0.014
71	5.92	0.27	0.138	(0.494)	0.124	0.014
72	6.00	0.27	0.138	(0.492)	0.124	0.014
73	6.08	0.30	0.156	(0.490)	0.140	0.016
74	6.17	0.30	0.156	(0.488)	0.140	0.016
75	6.25	0.30	0.156	(0.486)	0.140	0.016
76	6.33	0.30	0.156	(0.483)	0.140	0.016
77	6.42	0.30	0.156	(0.481)	0.140	0.016
78	6.50	0.30	0.156	(0.479)	0.140	0.016
79	6.58	0.33	0.173	(0.477)	0.156	0.017
80	6.67	0.33	0.173	(0.475)	0.156	0.017
81	6.75	0.33	0.173	(0.473)	0.156	0.017
82	6.83	0.33	0.173	(0.470)	0.156	0.017
83	6.92	0.33	0.173	(0.468)	0.156	0.017
84	7.00	0.33	0.173	(0.466)	0.156	0.017
85	7.08	0.33	0.173	(0.464)	0.156	0.017
86	7.17	0.33	0.173	(0.462)	0.156	0.017
87	7.25	0.33	0.173	(0.460)	0.156	0.017
88	7.33	0.37	0.190	(0.458)	0.171	0.019
89	7.42	0.37	0.190	(0.456)	0.171	0.019
90	7.50	0.37	0.190	(0.454)	0.171	0.019
91	7.58	0.40	0.207	(0.452)	0.187	0.021
92	7.67	0.40	0.207	(0.449)	0.187	0.021
93	7.75	0.40	0.207	(0.447)	0.187	0.021
94	7.83	0.43	0.225	(0.445)	0.202	0.022
95	7.92	0.43	0.225	(0.443)	0.202	0.022
96	8.00	0.43	0.225	(0.441)	0.202	0.022
97	8.08	0.50	0.259	(0.439)	0.233	0.026
98	8.17	0.50	0.259	(0.437)	0.233	0.026
99	8.25	0.50	0.259	(0.435)	0.233	0.026
100	8.33	0.50	0.259	(0.433)	0.233	0.026
101	8.42	0.50	0.259	(0.431)	0.233	0.026
102	8.50	0.50	0.259	(0.429)	0.233	0.026
103	8.58	0.53	0.277	(0.427)	0.249	0.028
104	8.67	0.53	0.277	(0.425)	0.249	0.028
105	8.75	0.53	0.277	(0.423)	0.249	0.028
106	8.83	0.57	0.294	(0.421)	0.265	0.029
107	8.92	0.57	0.294	(0.419)	0.265	0.029

108	9.00	0.57	0.294	(0.417)	0.265	0.029
109	9.08	0.63	0.329	(0.415)	0.296	0.033
110	9.17	0.63	0.329	(0.413)	0.296	0.033
111	9.25	0.63	0.329	(0.411)	0.296	0.033
112	9.33	0.67	0.346	(0.409)	0.311	0.035
113	9.42	0.67	0.346	(0.407)	0.311	0.035
114	9.50	0.67	0.346	(0.405)	0.311	0.035
115	9.58	0.70	0.363	(0.403)	0.327	0.036
116	9.67	0.70	0.363	(0.401)	0.327	0.036
117	9.75	0.70	0.363	(0.399)	0.327	0.036
118	9.83	0.73	0.380	(0.398)	0.342	0.038
119	9.92	0.73	0.380	(0.396)	0.342	0.038
120	10.00	0.73	0.380	(0.394)	0.342	0.038
121	10.08	0.50	0.259	(0.392)	0.233	0.026
122	10.17	0.50	0.259	(0.390)	0.233	0.026
123	10.25	0.50	0.259	(0.388)	0.233	0.026
124	10.33	0.50	0.259	(0.386)	0.233	0.026
125	10.42	0.50	0.259	(0.384)	0.233	0.026
126	10.50	0.50	0.259	(0.382)	0.233	0.026
127	10.58	0.67	0.346	(0.380)	0.311	0.035
128	10.67	0.67	0.346	(0.379)	0.311	0.035
129	10.75	0.67	0.346	(0.377)	0.311	0.035
130	10.83	0.67	0.346	(0.375)	0.311	0.035
131	10.92	0.67	0.346	(0.373)	0.311	0.035
132	11.00	0.67	0.346	(0.371)	0.311	0.035
133	11.08	0.63	0.329	(0.369)	0.296	0.033
134	11.17	0.63	0.329	(0.368)	0.296	0.033
135	11.25	0.63	0.329	(0.366)	0.296	0.033
136	11.33	0.63	0.329	(0.364)	0.296	0.033
137	11.42	0.63	0.329	(0.362)	0.296	0.033
138	11.50	0.63	0.329	(0.360)	0.296	0.033
139	11.58	0.57	0.294	(0.359)	0.265	0.029
140	11.67	0.57	0.294	(0.357)	0.265	0.029
141	11.75	0.57	0.294	(0.355)	0.265	0.029
142	11.83	0.60	0.311	(0.353)	0.280	0.031
143	11.92	0.60	0.311	(0.352)	0.280	0.031
144	12.00	0.60	0.311	(0.350)	0.280	0.031
145	12.08	0.83	0.432	0.348 (0.389)		0.084
146	12.17	0.83	0.432	0.346 (0.389)		0.086
147	12.25	0.83	0.432	0.345 (0.389)		0.088
148	12.33	0.87	0.450	0.343 (0.405)		0.107
149	12.42	0.87	0.450	0.341 (0.405)		0.108
150	12.50	0.87	0.450	0.339 (0.405)		0.110
151	12.58	0.93	0.484	0.338 (0.436)		0.146
152	12.67	0.93	0.484	0.336 (0.436)		0.148
153	12.75	0.93	0.484	0.334 (0.436)		0.150
154	12.83	0.97	0.501	0.333 (0.451)		0.169
155	12.92	0.97	0.501	0.331 (0.451)		0.171
156	13.00	0.97	0.501	0.329 (0.451)		0.172
157	13.08	1.13	0.588	0.328 (0.529)		0.260
158	13.17	1.13	0.588	0.326 (0.529)		0.262
159	13.25	1.13	0.588	0.324 (0.529)		0.264
160	13.33	1.13	0.588	0.323 (0.529)		0.265
161	13.42	1.13	0.588	0.321 (0.529)		0.267

162	13.50	1.13	0.588	0.319	(0.529)	0.269
163	13.58	0.77	0.398	0.318	(0.358)	0.080
164	13.67	0.77	0.398	0.316	(0.358)	0.082
165	13.75	0.77	0.398	0.314	(0.358)	0.083
166	13.83	0.77	0.398	0.313	(0.358)	0.085
167	13.92	0.77	0.398	0.311	(0.358)	0.086
168	14.00	0.77	0.398	0.310	(0.358)	0.088
169	14.08	0.90	0.467	0.308	(0.420)	0.159
170	14.17	0.90	0.467	0.307	(0.420)	0.160
171	14.25	0.90	0.467	0.305	(0.420)	0.162
172	14.33	0.87	0.450	0.303	(0.405)	0.146
173	14.42	0.87	0.450	0.302	(0.405)	0.148
174	14.50	0.87	0.450	0.300	(0.405)	0.149
175	14.58	0.87	0.450	0.299	(0.405)	0.151
176	14.67	0.87	0.450	0.297	(0.405)	0.152
177	14.75	0.87	0.450	0.296	(0.405)	0.154
178	14.83	0.83	0.432	0.294	(0.389)	0.138
179	14.92	0.83	0.432	0.293	(0.389)	0.140
180	15.00	0.83	0.432	0.291	(0.389)	0.141
181	15.08	0.80	0.415	0.290	(0.373)	0.125
182	15.17	0.80	0.415	0.288	(0.373)	0.127
183	15.25	0.80	0.415	0.287	(0.373)	0.128
184	15.33	0.77	0.398	0.285	(0.358)	0.112
185	15.42	0.77	0.398	0.284	(0.358)	0.114
186	15.50	0.77	0.398	0.282	(0.358)	0.115
187	15.58	0.63	0.329	0.281	(0.296)	0.048
188	15.67	0.63	0.329	0.279	(0.296)	0.049
189	15.75	0.63	0.329	0.278	(0.296)	0.051
190	15.83	0.63	0.329	0.277	(0.296)	0.052
191	15.92	0.63	0.329	0.275	(0.296)	0.053
192	16.00	0.63	0.329	0.274	(0.296)	0.055
193	16.08	0.13	0.069	(0.272)	0.062	0.007
194	16.17	0.13	0.069	(0.271)	0.062	0.007
195	16.25	0.13	0.069	(0.270)	0.062	0.007
196	16.33	0.13	0.069	(0.268)	0.062	0.007
197	16.42	0.13	0.069	(0.267)	0.062	0.007
198	16.50	0.13	0.069	(0.265)	0.062	0.007
199	16.58	0.10	0.052	(0.264)	0.047	0.005
200	16.67	0.10	0.052	(0.263)	0.047	0.005
201	16.75	0.10	0.052	(0.261)	0.047	0.005
202	16.83	0.10	0.052	(0.260)	0.047	0.005
203	16.92	0.10	0.052	(0.259)	0.047	0.005
204	17.00	0.10	0.052	(0.258)	0.047	0.005
205	17.08	0.17	0.086	(0.256)	0.078	0.009
206	17.17	0.17	0.086	(0.255)	0.078	0.009
207	17.25	0.17	0.086	(0.254)	0.078	0.009
208	17.33	0.17	0.086	(0.252)	0.078	0.009
209	17.42	0.17	0.086	(0.251)	0.078	0.009
210	17.50	0.17	0.086	(0.250)	0.078	0.009
211	17.58	0.17	0.086	(0.249)	0.078	0.009
212	17.67	0.17	0.086	(0.247)	0.078	0.009
213	17.75	0.17	0.086	(0.246)	0.078	0.009
214	17.83	0.13	0.069	(0.245)	0.062	0.007
215	17.92	0.13	0.069	(0.244)	0.062	0.007

216	18.00	0.13	0.069	(0.242)	0.062	0.007
217	18.08	0.13	0.069	(0.241)	0.062	0.007
218	18.17	0.13	0.069	(0.240)	0.062	0.007
219	18.25	0.13	0.069	(0.239)	0.062	0.007
220	18.33	0.13	0.069	(0.238)	0.062	0.007
221	18.42	0.13	0.069	(0.237)	0.062	0.007
222	18.50	0.13	0.069	(0.235)	0.062	0.007
223	18.58	0.10	0.052	(0.234)	0.047	0.005
224	18.67	0.10	0.052	(0.233)	0.047	0.005
225	18.75	0.10	0.052	(0.232)	0.047	0.005
226	18.83	0.07	0.035	(0.231)	0.031	0.003
227	18.92	0.07	0.035	(0.230)	0.031	0.003
228	19.00	0.07	0.035	(0.229)	0.031	0.003
229	19.08	0.10	0.052	(0.228)	0.047	0.005
230	19.17	0.10	0.052	(0.227)	0.047	0.005
231	19.25	0.10	0.052	(0.226)	0.047	0.005
232	19.33	0.13	0.069	(0.225)	0.062	0.007
233	19.42	0.13	0.069	(0.223)	0.062	0.007
234	19.50	0.13	0.069	(0.222)	0.062	0.007
235	19.58	0.10	0.052	(0.221)	0.047	0.005
236	19.67	0.10	0.052	(0.220)	0.047	0.005
237	19.75	0.10	0.052	(0.219)	0.047	0.005
238	19.83	0.07	0.035	(0.218)	0.031	0.003
239	19.92	0.07	0.035	(0.217)	0.031	0.003
240	20.00	0.07	0.035	(0.216)	0.031	0.003
241	20.08	0.10	0.052	(0.216)	0.047	0.005
242	20.17	0.10	0.052	(0.215)	0.047	0.005
243	20.25	0.10	0.052	(0.214)	0.047	0.005
244	20.33	0.10	0.052	(0.213)	0.047	0.005
245	20.42	0.10	0.052	(0.212)	0.047	0.005
246	20.50	0.10	0.052	(0.211)	0.047	0.005
247	20.58	0.10	0.052	(0.210)	0.047	0.005
248	20.67	0.10	0.052	(0.209)	0.047	0.005
249	20.75	0.10	0.052	(0.208)	0.047	0.005
250	20.83	0.07	0.035	(0.207)	0.031	0.003
251	20.92	0.07	0.035	(0.207)	0.031	0.003
252	21.00	0.07	0.035	(0.206)	0.031	0.003
253	21.08	0.10	0.052	(0.205)	0.047	0.005
254	21.17	0.10	0.052	(0.204)	0.047	0.005
255	21.25	0.10	0.052	(0.203)	0.047	0.005
256	21.33	0.07	0.035	(0.203)	0.031	0.003
257	21.42	0.07	0.035	(0.202)	0.031	0.003
258	21.50	0.07	0.035	(0.201)	0.031	0.003
259	21.58	0.10	0.052	(0.200)	0.047	0.005
260	21.67	0.10	0.052	(0.200)	0.047	0.005
261	21.75	0.10	0.052	(0.199)	0.047	0.005
262	21.83	0.07	0.035	(0.198)	0.031	0.003
263	21.92	0.07	0.035	(0.198)	0.031	0.003
264	22.00	0.07	0.035	(0.197)	0.031	0.003
265	22.08	0.10	0.052	(0.196)	0.047	0.005
266	22.17	0.10	0.052	(0.196)	0.047	0.005
267	22.25	0.10	0.052	(0.195)	0.047	0.005
268	22.33	0.07	0.035	(0.194)	0.031	0.003
269	22.42	0.07	0.035	(0.194)	0.031	0.003

270	22.50	0.07	0.035	(0.193)	0.031	0.003
271	22.58	0.07	0.035	(0.193)	0.031	0.003
272	22.67	0.07	0.035	(0.192)	0.031	0.003
273	22.75	0.07	0.035	(0.192)	0.031	0.003
274	22.83	0.07	0.035	(0.191)	0.031	0.003
275	22.92	0.07	0.035	(0.191)	0.031	0.003
276	23.00	0.07	0.035	(0.190)	0.031	0.003
277	23.08	0.07	0.035	(0.190)	0.031	0.003
278	23.17	0.07	0.035	(0.189)	0.031	0.003
279	23.25	0.07	0.035	(0.189)	0.031	0.003
280	23.33	0.07	0.035	(0.188)	0.031	0.003
281	23.42	0.07	0.035	(0.188)	0.031	0.003
282	23.50	0.07	0.035	(0.188)	0.031	0.003
283	23.58	0.07	0.035	(0.187)	0.031	0.003
284	23.67	0.07	0.035	(0.187)	0.031	0.003
285	23.75	0.07	0.035	(0.187)	0.031	0.003
286	23.83	0.07	0.035	(0.187)	0.031	0.003
287	23.92	0.07	0.035	(0.187)	0.031	0.003
288	24.00	0.07	0.035	(0.186)	0.031	0.003

(Loss Rate Not Used)

Sum = 100.0 Sum = 9.5

Flood volume = Effective rainfall 0.79(In)
times area 4.4(Ac.)/[(In)/(Ft.)] = 0.3(Ac.Ft)

Total soil loss = 3.53(In)

Total soil loss = 1.300(Ac.Ft)

Total rainfall = 4.32(In)

Flood volume = 12716.1 Cubic Feet

Total soil loss = 56607.2 Cubic Feet

Peak flow rate of this hydrograph = 1.193(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0002	0.01	Q				
0+15	0.0003	0.02	Q				
0+20	0.0004	0.02	Q				
0+25	0.0006	0.02	Q				
0+30	0.0007	0.02	Q				
0+35	0.0009	0.02	Q				
0+40	0.0010	0.02	Q				
0+45	0.0012	0.02	Q				
0+50	0.0014	0.03	Q				
0+55	0.0016	0.03	Q				
1+ 0	0.0018	0.03	Q				
1+ 5	0.0020	0.03	Q				
1+10	0.0022	0.02	Q				

1+15	0.0023	0.02	Q
1+20	0.0025	0.02	Q
1+25	0.0026	0.02	Q
1+30	0.0028	0.02	Q
1+35	0.0030	0.02	Q
1+40	0.0031	0.02	Q
1+45	0.0033	0.02	Q
1+50	0.0035	0.03	Q
1+55	0.0037	0.03	Q
2+ 0	0.0039	0.03	Q
2+ 5	0.0041	0.03	Q
2+10	0.0043	0.03	Q
2+15	0.0045	0.03	Q
2+20	0.0047	0.03	Q
2+25	0.0049	0.03	Q
2+30	0.0052	0.03	Q
2+35	0.0054	0.04	Q
2+40	0.0057	0.04	Q
2+45	0.0059	0.04	Q
2+50	0.0062	0.04	Q
2+55	0.0065	0.04	Q
3+ 0	0.0067	0.04	Q
3+ 5	0.0070	0.04	Q
3+10	0.0073	0.04	Q
3+15	0.0075	0.04	QV
3+20	0.0078	0.04	QV
3+25	0.0080	0.04	QV
3+30	0.0083	0.04	QV
3+35	0.0086	0.04	QV
3+40	0.0088	0.04	QV
3+45	0.0091	0.04	QV
3+50	0.0094	0.04	QV
3+55	0.0097	0.05	QV
4+ 0	0.0100	0.05	QV
4+ 5	0.0104	0.05	QV
4+10	0.0107	0.05	QV
4+15	0.0110	0.05	QV
4+20	0.0113	0.05	QV
4+25	0.0117	0.05	QV
4+30	0.0121	0.05	QV
4+35	0.0125	0.05	QV
4+40	0.0128	0.05	QV
4+45	0.0132	0.05	QV
4+50	0.0136	0.06	QV
4+55	0.0140	0.06	QV
5+ 0	0.0144	0.06	QV
5+ 5	0.0148	0.05	Q V
5+10	0.0151	0.05	Q V
5+15	0.0155	0.05	Q V
5+20	0.0158	0.05	Q V
5+25	0.0162	0.05	Q V
5+30	0.0165	0.05	Q V
5+35	0.0169	0.06	Q V
5+40	0.0174	0.06	Q V

5+45	0.0178	0.06	Q	V				
5+50	0.0182	0.06	Q	V				
5+55	0.0186	0.06	Q	V				
6+ 0	0.0191	0.06	Q	V				
6+ 5	0.0195	0.07	Q	V				
6+10	0.0200	0.07	Q	V				
6+15	0.0205	0.07	Q	V				
6+20	0.0209	0.07	Q	V				
6+25	0.0214	0.07	Q	V				
6+30	0.0219	0.07	Q	V				
6+35	0.0224	0.07	Q	V				
6+40	0.0229	0.08	Q	V				
6+45	0.0235	0.08	Q	V				
6+50	0.0240	0.08	Q	V				
6+55	0.0245	0.08	Q	V				
7+ 0	0.0251	0.08	Q	V				
7+ 5	0.0256	0.08	Q	V				
7+10	0.0261	0.08	Q	V				
7+15	0.0267	0.08	Q	V				
7+20	0.0272	0.08	Q	V				
7+25	0.0278	0.08	Q	V				
7+30	0.0284	0.08	Q	V				
7+35	0.0290	0.09	Q	V				
7+40	0.0296	0.09	Q	V				
7+45	0.0303	0.09	Q	V				
7+50	0.0309	0.10	Q	V				
7+55	0.0316	0.10	Q	V				
8+ 0	0.0323	0.10	Q	V				
8+ 5	0.0331	0.11	Q	V				
8+10	0.0339	0.11	Q	V				
8+15	0.0346	0.12	Q	V				
8+20	0.0354	0.12	Q	V				
8+25	0.0362	0.12	Q	V				
8+30	0.0370	0.12	Q	V				
8+35	0.0379	0.12	Q	V				
8+40	0.0387	0.12	Q	V				
8+45	0.0396	0.12	Q	V				
8+50	0.0404	0.13	Q	V				
8+55	0.0413	0.13	Q	V				
9+ 0	0.0422	0.13	Q	V				
9+ 5	0.0432	0.14	Q	V				
9+10	0.0442	0.15	Q	V				
9+15	0.0452	0.15	Q	V				
9+20	0.0463	0.15	Q	V				
9+25	0.0473	0.15	Q	V				
9+30	0.0484	0.15	Q	V				
9+35	0.0495	0.16	Q	V				
9+40	0.0506	0.16	Q	V				
9+45	0.0517	0.16	Q	V				
9+50	0.0528	0.17	Q	V				
9+55	0.0540	0.17	Q	V				
10+ 0	0.0552	0.17	Q	V				
10+ 5	0.0561	0.14	Q	V				
10+10	0.0569	0.12	Q	V				

10+15	0.0577	0.12	Q	V					
10+20	0.0585	0.12	Q	V					
10+25	0.0593	0.12	Q	V					
10+30	0.0601	0.12	Q	V					
10+35	0.0611	0.14	Q	V					
10+40	0.0621	0.15	Q	V					
10+45	0.0632	0.15	Q	V					
10+50	0.0642	0.15	Q	V					
10+55	0.0653	0.15	Q	V					
11+ 0	0.0664	0.15	Q	V					
11+ 5	0.0674	0.15	Q	V					
11+10	0.0684	0.15	Q	V					
11+15	0.0694	0.15	Q	V					
11+20	0.0704	0.15	Q	V					
11+25	0.0714	0.15	Q	V					
11+30	0.0724	0.15	Q	V					
11+35	0.0734	0.14	Q	V					
11+40	0.0743	0.13	Q	V					
11+45	0.0752	0.13	Q	V					
11+50	0.0761	0.14	Q	V					
11+55	0.0771	0.14	Q	V					
12+ 0	0.0780	0.14	Q	V					
12+ 5	0.0799	0.28	Q	V					
12+10	0.0825	0.37	Q	V					
12+15	0.0851	0.39	Q	V					
12+20	0.0882	0.44	Q	V					
12+25	0.0915	0.48	Q	V					
12+30	0.0948	0.49	Q	V					
12+35	0.0989	0.59	Q	V					
12+40	0.1033	0.65	Q	V					
12+45	0.1079	0.66	Q	V					
12+50	0.1128	0.72	Q	V					
12+55	0.1180	0.75	Q	V					
13+ 0	0.1233	0.76	Q	V					
13+ 5	0.1302	1.00	Q	V					
13+10	0.1380	1.14	Q	V					
13+15	0.1461	1.17	Q	V					
13+20	0.1542	1.18	Q	V					
13+25	0.1624	1.19	Q	V					
13+30	0.1706	1.19	Q	V					
13+35	0.1754	0.70	Q	V					
13+40	0.1782	0.40	Q	V					
13+45	0.1807	0.37	Q	V					
13+50	0.1833	0.37	Q	V					
13+55	0.1859	0.38	Q	V					
14+ 0	0.1886	0.39	Q	V					
14+ 5	0.1926	0.58	Q	V					
14+10	0.1974	0.70	Q	V					
14+15	0.2023	0.72	Q	V					
14+20	0.2070	0.68	Q	V					
14+25	0.2115	0.66	Q	V					
14+30	0.2161	0.66	Q	V					
14+35	0.2207	0.67	Q	V					
14+40	0.2254	0.68	Q	V					

14+45	0.2301	0.68	Q				V	
14+50	0.2345	0.64	Q				V	
14+55	0.2388	0.62	Q				V	
15+ 0	0.2431	0.63	Q				V	
15+ 5	0.2471	0.59	Q				V	
15+10	0.2510	0.57	Q				V	
15+15	0.2549	0.57	Q				V	
15+20	0.2586	0.53	Q				V	
15+25	0.2621	0.51	Q				V	
15+30	0.2656	0.51	Q				V	
15+35	0.2679	0.33	Q				V	
15+40	0.2695	0.23	Q				V	
15+45	0.2710	0.22	Q				V	
15+50	0.2726	0.23	Q				V	
15+55	0.2742	0.23	Q				V	
16+ 0	0.2759	0.24	Q				V	
16+ 5	0.2767	0.12	Q				V	
16+10	0.2770	0.04	Q				V	
16+15	0.2772	0.03	Q				V	
16+20	0.2774	0.03	Q				V	
16+25	0.2776	0.03	Q				V	
16+30	0.2778	0.03	Q				V	
16+35	0.2780	0.03	Q				V	
16+40	0.2782	0.02	Q				V	
16+45	0.2783	0.02	Q				V	
16+50	0.2785	0.02	Q				V	
16+55	0.2786	0.02	Q				V	
17+ 0	0.2788	0.02	Q				V	
17+ 5	0.2790	0.03	Q				V	
17+10	0.2793	0.04	Q				V	
17+15	0.2795	0.04	Q				V	
17+20	0.2798	0.04	Q				V	
17+25	0.2801	0.04	Q				V	
17+30	0.2803	0.04	Q				V	
17+35	0.2806	0.04	Q				V	
17+40	0.2809	0.04	Q				V	
17+45	0.2811	0.04	Q				V	
17+50	0.2814	0.03	Q				V	
17+55	0.2816	0.03	Q				V	
18+ 0	0.2818	0.03	Q				V	
18+ 5	0.2820	0.03	Q				V	
18+10	0.2822	0.03	Q				V	
18+15	0.2824	0.03	Q				V	
18+20	0.2826	0.03	Q				V	
18+25	0.2829	0.03	Q				V	
18+30	0.2831	0.03	Q				V	
18+35	0.2833	0.03	Q				V	
18+40	0.2834	0.02	Q				V	
18+45	0.2836	0.02	Q				V	
18+50	0.2837	0.02	Q				V	
18+55	0.2838	0.02	Q				V	
19+ 0	0.2839	0.02	Q				V	
19+ 5	0.2841	0.02	Q				V	
19+10	0.2842	0.02	Q				V	

19+15	0.2844	0.02	Q				V
19+20	0.2846	0.03	Q				V
19+25	0.2848	0.03	Q				V
19+30	0.2850	0.03	Q				V
19+35	0.2852	0.03	Q				V
19+40	0.2853	0.02	Q				V
19+45	0.2855	0.02	Q				V
19+50	0.2856	0.02	Q				V
19+55	0.2857	0.02	Q				V
20+ 0	0.2858	0.02	Q				V
20+ 5	0.2860	0.02	Q				V
20+10	0.2861	0.02	Q				V
20+15	0.2863	0.02	Q				V
20+20	0.2864	0.02	Q				V
20+25	0.2866	0.02	Q				V
20+30	0.2868	0.02	Q				V
20+35	0.2869	0.02	Q				V
20+40	0.2871	0.02	Q				V
20+45	0.2872	0.02	Q				V
20+50	0.2874	0.02	Q				V
20+55	0.2875	0.02	Q				V
21+ 0	0.2876	0.02	Q				V
21+ 5	0.2877	0.02	Q				V
21+10	0.2879	0.02	Q				V
21+15	0.2880	0.02	Q				V
21+20	0.2882	0.02	Q				V
21+25	0.2883	0.02	Q				V
21+30	0.2884	0.02	Q				V
21+35	0.2885	0.02	Q				V
21+40	0.2887	0.02	Q				V
21+45	0.2888	0.02	Q				V
21+50	0.2890	0.02	Q				V
21+55	0.2891	0.02	Q				V
22+ 0	0.2892	0.02	Q				V
22+ 5	0.2893	0.02	Q				V
22+10	0.2895	0.02	Q				V
22+15	0.2896	0.02	Q				V
22+20	0.2897	0.02	Q				V
22+25	0.2899	0.02	Q				V
22+30	0.2900	0.02	Q				V
22+35	0.2901	0.02	Q				V
22+40	0.2902	0.02	Q				V
22+45	0.2903	0.02	Q				V
22+50	0.2904	0.02	Q				V
22+55	0.2905	0.02	Q				V
23+ 0	0.2906	0.02	Q				V
23+ 5	0.2907	0.02	Q				V
23+10	0.2908	0.02	Q				V
23+15	0.2909	0.02	Q				V
23+20	0.2910	0.02	Q				V
23+25	0.2911	0.02	Q				V
23+30	0.2912	0.02	Q				V
23+35	0.2913	0.02	Q				V
23+40	0.2914	0.02	Q				V

23+45	0.2916	0.02	Q				V
23+50	0.2917	0.02	Q				V
23+55	0.2918	0.02	Q				V
24+ 0	0.2919	0.02	Q				V
24+ 5	0.2919	0.01	Q				V
24+10	0.2919	0.00	Q				V

Unit Hydrograph Analysis

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Study date 02/19/21 File: 1162004PROUHA1100.out

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

Program License Serial Number 6335

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

English Units used in output format

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
POST-DEVELOPED, DMA-A
100-YEAR, 1-HOUR STORMEVENT

Drainage Area = 4.42(Ac.) = 0.007 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 4.42(Ac.) =
0.007 Sq. Mi.
Length along longest watercourse = 868.00(Ft.)
Length along longest watercourse measured to centroid =
355.00(Ft.)
Length along longest watercourse = 0.164 Mi.
Length along longest watercourse measured to centroid = 0.067 Mi.
Difference in elevation = 103.00(Ft.)
Slope along watercourse = 626.5438 Ft./Mi.
Average Manning's 'N' = 0.020
Lag time = 0.025 Hr.
Lag time = 1.53 Min.
25% of lag time = 0.38 Min.
40% of lag time = 0.61 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.42	0.61	2.69

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
4.42	1.65	7.29

STORM EVENT (YEAR) = 100.00

Area Averaged 2-Year Rainfall = 0.610(In)

Area Averaged 100-Year Rainfall = 1.650(In)

Point rain (area averaged) = 1.650(In)

Areal adjustment factor = 100.00 %

Adjusted average point rain = 1.650(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
4.418	69.00	0.000

Total Area Entered = 4.42(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
69.0	84.4	0.194	0.000	0.194	1.000	0.194
Sum (F) =						0.194

Area averaged mean soil loss (F) (In/Hr) = 0.194

Minimum soil loss rate ((In/Hr)) = 0.097

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.900

Slope of intensity-duration curve for a 1 hour storm =0.5500

Unit Hydrograph VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	326.946	59.287
2	0.167	653.892	35.695
3	0.250	980.837	5.018
		Sum = 100.000	Sum= 4.453

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	3.30	0.653	0.194	(0.588)	0.460
2	0.17	4.20	0.832	0.194	(0.748)	0.638
3	0.25	4.40	0.871	0.194	(0.784)	0.677
4	0.33	4.80	0.950	0.194	(0.855)	0.757
5	0.42	5.20	1.030	0.194	(0.927)	0.836
6	0.50	6.20	1.228	0.194	(1.105)	1.034
7	0.58	6.80	1.346	0.194	(1.212)	1.153
8	0.67	8.80	1.742	0.194	(1.568)	1.548
9	0.75	13.90	2.752	0.194	(2.477)	2.558
10	0.83	31.40	6.217	0.194	(5.595)	6.023
11	0.92	7.20	1.426	0.194	(1.283)	1.232
12	1.00	3.80	0.752	0.194	(0.677)	0.559

(Loss Rate Not Used)

Sum = 100.0 Sum = 17.5

Flood volume = Effective rainfall 1.46(In)
times area 4.4(Ac.)/[(In)/(Ft.)] = 0.5(Ac.Ft)

Total soil loss = 0.19(In)

Total soil loss = 0.071(Ac.Ft)

Total rainfall = 1.65(In)

Flood volume = 23351.9 Cubic Feet

Total soil loss = 3108.7 Cubic Feet

Peak flow rate of this hydrograph = 20.322(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	7.5	15.0	22.5	30.0
0+ 5	0.0084	1.21	VQ				
0+10	0.0250	2.42	V Q				
0+15	0.0450	2.91	Q				
0+20	0.0672	3.22	QV				
0+25	0.0917	3.56	Q V				
0+30	0.1208	4.23	Q V				
0+35	0.1544	4.87	Q	V			
0+40	0.1968	6.15	Q	V			
0+45	0.2620	9.48		Q	V		
0+50	0.4020	20.32				Q V	
0+55	0.4943	13.40			Q		V
1+ 0	0.5272	4.78		Q			V
1+ 5	0.5352	1.16	Q				V
1+10	0.5361	0.12	Q				V

Unit Hydrograph Analysis

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Study date 02/19/21 File: 1162004PROUHB242.out

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

Program License Serial Number 6335

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

English Units used in output format

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
POST-DEVELOPED, DMA-B
2-YEAR, 24-HOUR STORMEVENT

Drainage Area = 2.72(Ac.) = 0.004 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 2.72(Ac.) =
0.004 Sq. Mi.
Length along longest watercourse = 714.00(Ft.)
Length along longest watercourse measured to centroid =
442.00(Ft.)
Length along longest watercourse = 0.135 Mi.
Length along longest watercourse measured to centroid = 0.084 Mi.
Difference in elevation = 5.40(Ft.)
Slope along watercourse = 39.9328 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.033 Hr.
Lag time = 1.95 Min.
25% of lag time = 0.49 Min.
40% of lag time = 0.78 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]
2.72	2.64	7.17

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
2.72	6.73	18.28

STORM EVENT (YEAR) = 2.00
 Area Averaged 2-Year Rainfall = 2.640(In)
 Area Averaged 100-Year Rainfall = 6.730(In)

Point rain (area averaged) = 2.640(In)
 Areal adjustment factor = 100.00 %
 Adjusted average point rain = 2.640(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
2.716	69.00	0.900

Total Area Entered = 2.72(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-1	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
69.0	49.8	0.574	0.900	0.109	1.000	0.109
Sum (F) =						0.109

Area averaged mean soil loss (F) (In/Hr) = 0.109
 Minimum soil loss rate ((In/Hr)) = 0.055
 (for 24 hour storm duration)
 Soil low loss rate (decimal) = 0.180

Unit Hydrograph VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	256.038	51.671	1.414
2 0.167	512.077	39.683	1.086
3 0.250	768.115	6.826	0.187
4 0.333	1024.153	1.819	0.050
Sum = 100.000		Sum=	2.737

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	0.021	(0.193)	0.004	0.017
2	0.17	0.07	0.021	(0.193)	0.004	0.017
3	0.25	0.07	0.021	(0.192)	0.004	0.017
4	0.33	0.10	0.032	(0.191)	0.006	0.026
5	0.42	0.10	0.032	(0.190)	0.006	0.026
6	0.50	0.10	0.032	(0.190)	0.006	0.026
7	0.58	0.10	0.032	(0.189)	0.006	0.026
8	0.67	0.10	0.032	(0.188)	0.006	0.026
9	0.75	0.10	0.032	(0.187)	0.006	0.026
10	0.83	0.13	0.042	(0.187)	0.008	0.035
11	0.92	0.13	0.042	(0.186)	0.008	0.035
12	1.00	0.13	0.042	(0.185)	0.008	0.035
13	1.08	0.10	0.032	(0.184)	0.006	0.026
14	1.17	0.10	0.032	(0.184)	0.006	0.026
15	1.25	0.10	0.032	(0.183)	0.006	0.026
16	1.33	0.10	0.032	(0.182)	0.006	0.026
17	1.42	0.10	0.032	(0.182)	0.006	0.026
18	1.50	0.10	0.032	(0.181)	0.006	0.026
19	1.58	0.10	0.032	(0.180)	0.006	0.026
20	1.67	0.10	0.032	(0.179)	0.006	0.026
21	1.75	0.10	0.032	(0.179)	0.006	0.026
22	1.83	0.13	0.042	(0.178)	0.008	0.035
23	1.92	0.13	0.042	(0.177)	0.008	0.035
24	2.00	0.13	0.042	(0.176)	0.008	0.035
25	2.08	0.13	0.042	(0.176)	0.008	0.035
26	2.17	0.13	0.042	(0.175)	0.008	0.035
27	2.25	0.13	0.042	(0.174)	0.008	0.035
28	2.33	0.13	0.042	(0.174)	0.008	0.035
29	2.42	0.13	0.042	(0.173)	0.008	0.035
30	2.50	0.13	0.042	(0.172)	0.008	0.035
31	2.58	0.17	0.053	(0.172)	0.010	0.043
32	2.67	0.17	0.053	(0.171)	0.010	0.043
33	2.75	0.17	0.053	(0.170)	0.010	0.043
34	2.83	0.17	0.053	(0.169)	0.010	0.043
35	2.92	0.17	0.053	(0.169)	0.010	0.043
36	3.00	0.17	0.053	(0.168)	0.010	0.043
37	3.08	0.17	0.053	(0.167)	0.010	0.043
38	3.17	0.17	0.053	(0.167)	0.010	0.043
39	3.25	0.17	0.053	(0.166)	0.010	0.043
40	3.33	0.17	0.053	(0.165)	0.010	0.043
41	3.42	0.17	0.053	(0.165)	0.010	0.043
42	3.50	0.17	0.053	(0.164)	0.010	0.043
43	3.58	0.17	0.053	(0.163)	0.010	0.043
44	3.67	0.17	0.053	(0.162)	0.010	0.043
45	3.75	0.17	0.053	(0.162)	0.010	0.043
46	3.83	0.20	0.063	(0.161)	0.011	0.052
47	3.92	0.20	0.063	(0.160)	0.011	0.052
48	4.00	0.20	0.063	(0.160)	0.011	0.052
49	4.08	0.20	0.063	(0.159)	0.011	0.052
50	4.17	0.20	0.063	(0.158)	0.011	0.052
51	4.25	0.20	0.063	(0.158)	0.011	0.052
52	4.33	0.23	0.074	(0.157)	0.013	0.061

53	4.42	0.23	0.074	(0.156)	0.013	0.061
54	4.50	0.23	0.074	(0.156)	0.013	0.061
55	4.58	0.23	0.074	(0.155)	0.013	0.061
56	4.67	0.23	0.074	(0.154)	0.013	0.061
57	4.75	0.23	0.074	(0.154)	0.013	0.061
58	4.83	0.27	0.084	(0.153)	0.015	0.069
59	4.92	0.27	0.084	(0.152)	0.015	0.069
60	5.00	0.27	0.084	(0.152)	0.015	0.069
61	5.08	0.20	0.063	(0.151)	0.011	0.052
62	5.17	0.20	0.063	(0.150)	0.011	0.052
63	5.25	0.20	0.063	(0.150)	0.011	0.052
64	5.33	0.23	0.074	(0.149)	0.013	0.061
65	5.42	0.23	0.074	(0.148)	0.013	0.061
66	5.50	0.23	0.074	(0.148)	0.013	0.061
67	5.58	0.27	0.084	(0.147)	0.015	0.069
68	5.67	0.27	0.084	(0.147)	0.015	0.069
69	5.75	0.27	0.084	(0.146)	0.015	0.069
70	5.83	0.27	0.084	(0.145)	0.015	0.069
71	5.92	0.27	0.084	(0.145)	0.015	0.069
72	6.00	0.27	0.084	(0.144)	0.015	0.069
73	6.08	0.30	0.095	(0.143)	0.017	0.078
74	6.17	0.30	0.095	(0.143)	0.017	0.078
75	6.25	0.30	0.095	(0.142)	0.017	0.078
76	6.33	0.30	0.095	(0.141)	0.017	0.078
77	6.42	0.30	0.095	(0.141)	0.017	0.078
78	6.50	0.30	0.095	(0.140)	0.017	0.078
79	6.58	0.33	0.106	(0.140)	0.019	0.087
80	6.67	0.33	0.106	(0.139)	0.019	0.087
81	6.75	0.33	0.106	(0.138)	0.019	0.087
82	6.83	0.33	0.106	(0.138)	0.019	0.087
83	6.92	0.33	0.106	(0.137)	0.019	0.087
84	7.00	0.33	0.106	(0.136)	0.019	0.087
85	7.08	0.33	0.106	(0.136)	0.019	0.087
86	7.17	0.33	0.106	(0.135)	0.019	0.087
87	7.25	0.33	0.106	(0.135)	0.019	0.087
88	7.33	0.37	0.116	(0.134)	0.021	0.095
89	7.42	0.37	0.116	(0.133)	0.021	0.095
90	7.50	0.37	0.116	(0.133)	0.021	0.095
91	7.58	0.40	0.127	(0.132)	0.023	0.104
92	7.67	0.40	0.127	(0.131)	0.023	0.104
93	7.75	0.40	0.127	(0.131)	0.023	0.104
94	7.83	0.43	0.137	(0.130)	0.025	0.113
95	7.92	0.43	0.137	(0.130)	0.025	0.113
96	8.00	0.43	0.137	(0.129)	0.025	0.113
97	8.08	0.50	0.158	(0.128)	0.029	0.130
98	8.17	0.50	0.158	(0.128)	0.029	0.130
99	8.25	0.50	0.158	(0.127)	0.029	0.130
100	8.33	0.50	0.158	(0.127)	0.029	0.130
101	8.42	0.50	0.158	(0.126)	0.029	0.130
102	8.50	0.50	0.158	(0.125)	0.029	0.130
103	8.58	0.53	0.169	(0.125)	0.030	0.139
104	8.67	0.53	0.169	(0.124)	0.030	0.139
105	8.75	0.53	0.169	(0.124)	0.030	0.139
106	8.83	0.57	0.180	(0.123)	0.032	0.147

107	8.92	0.57	0.180	(0.123)	0.032	0.147
108	9.00	0.57	0.180	(0.122)	0.032	0.147
109	9.08	0.63	0.201	(0.121)	0.036	0.165
110	9.17	0.63	0.201	(0.121)	0.036	0.165
111	9.25	0.63	0.201	(0.120)	0.036	0.165
112	9.33	0.67	0.211	(0.120)	0.038	0.173
113	9.42	0.67	0.211	(0.119)	0.038	0.173
114	9.50	0.67	0.211	(0.119)	0.038	0.173
115	9.58	0.70	0.222	(0.118)	0.040	0.182
116	9.67	0.70	0.222	(0.117)	0.040	0.182
117	9.75	0.70	0.222	(0.117)	0.040	0.182
118	9.83	0.73	0.232	(0.116)	0.042	0.191
119	9.92	0.73	0.232	(0.116)	0.042	0.191
120	10.00	0.73	0.232	(0.115)	0.042	0.191
121	10.08	0.50	0.158	(0.115)	0.029	0.130
122	10.17	0.50	0.158	(0.114)	0.029	0.130
123	10.25	0.50	0.158	(0.113)	0.029	0.130
124	10.33	0.50	0.158	(0.113)	0.029	0.130
125	10.42	0.50	0.158	(0.112)	0.029	0.130
126	10.50	0.50	0.158	(0.112)	0.029	0.130
127	10.58	0.67	0.211	(0.111)	0.038	0.173
128	10.67	0.67	0.211	(0.111)	0.038	0.173
129	10.75	0.67	0.211	(0.110)	0.038	0.173
130	10.83	0.67	0.211	(0.110)	0.038	0.173
131	10.92	0.67	0.211	(0.109)	0.038	0.173
132	11.00	0.67	0.211	(0.109)	0.038	0.173
133	11.08	0.63	0.201	(0.108)	0.036	0.165
134	11.17	0.63	0.201	(0.108)	0.036	0.165
135	11.25	0.63	0.201	(0.107)	0.036	0.165
136	11.33	0.63	0.201	(0.106)	0.036	0.165
137	11.42	0.63	0.201	(0.106)	0.036	0.165
138	11.50	0.63	0.201	(0.105)	0.036	0.165
139	11.58	0.57	0.180	(0.105)	0.032	0.147
140	11.67	0.57	0.180	(0.104)	0.032	0.147
141	11.75	0.57	0.180	(0.104)	0.032	0.147
142	11.83	0.60	0.190	(0.103)	0.034	0.156
143	11.92	0.60	0.190	(0.103)	0.034	0.156
144	12.00	0.60	0.190	(0.102)	0.034	0.156
145	12.08	0.83	0.264	(0.102)	0.048	0.216
146	12.17	0.83	0.264	(0.101)	0.048	0.216
147	12.25	0.83	0.264	(0.101)	0.048	0.216
148	12.33	0.87	0.275	(0.100)	0.049	0.225
149	12.42	0.87	0.275	(0.100)	0.049	0.225
150	12.50	0.87	0.275	(0.099)	0.049	0.225
151	12.58	0.93	0.296	(0.099)	0.053	0.242
152	12.67	0.93	0.296	(0.098)	0.053	0.242
153	12.75	0.93	0.296	(0.098)	0.053	0.242
154	12.83	0.97	0.306	(0.097)	0.055	0.251
155	12.92	0.97	0.306	(0.097)	0.055	0.251
156	13.00	0.97	0.306	(0.096)	0.055	0.251
157	13.08	1.13	0.359	(0.096)	0.065	0.294
158	13.17	1.13	0.359	(0.095)	0.065	0.294
159	13.25	1.13	0.359	(0.095)	0.065	0.294
160	13.33	1.13	0.359	(0.094)	0.065	0.294

161	13.42	1.13	0.359	(0.094)	0.065	0.294
162	13.50	1.13	0.359	(0.093)	0.065	0.294
163	13.58	0.77	0.243	(0.093)	0.044	0.199
164	13.67	0.77	0.243	(0.092)	0.044	0.199
165	13.75	0.77	0.243	(0.092)	0.044	0.199
166	13.83	0.77	0.243	(0.092)	0.044	0.199
167	13.92	0.77	0.243	(0.091)	0.044	0.199
168	14.00	0.77	0.243	(0.091)	0.044	0.199
169	14.08	0.90	0.285	(0.090)	0.051	0.234
170	14.17	0.90	0.285	(0.090)	0.051	0.234
171	14.25	0.90	0.285	(0.089)	0.051	0.234
172	14.33	0.87	0.275	(0.089)	0.049	0.225
173	14.42	0.87	0.275	(0.088)	0.049	0.225
174	14.50	0.87	0.275	(0.088)	0.049	0.225
175	14.58	0.87	0.275	(0.087)	0.049	0.225
176	14.67	0.87	0.275	(0.087)	0.049	0.225
177	14.75	0.87	0.275	(0.086)	0.049	0.225
178	14.83	0.83	0.264	(0.086)	0.048	0.216
179	14.92	0.83	0.264	(0.086)	0.048	0.216
180	15.00	0.83	0.264	(0.085)	0.048	0.216
181	15.08	0.80	0.253	(0.085)	0.046	0.208
182	15.17	0.80	0.253	(0.084)	0.046	0.208
183	15.25	0.80	0.253	(0.084)	0.046	0.208
184	15.33	0.77	0.243	(0.083)	0.044	0.199
185	15.42	0.77	0.243	(0.083)	0.044	0.199
186	15.50	0.77	0.243	(0.083)	0.044	0.199
187	15.58	0.63	0.201	(0.082)	0.036	0.165
188	15.67	0.63	0.201	(0.082)	0.036	0.165
189	15.75	0.63	0.201	(0.081)	0.036	0.165
190	15.83	0.63	0.201	(0.081)	0.036	0.165
191	15.92	0.63	0.201	(0.080)	0.036	0.165
192	16.00	0.63	0.201	(0.080)	0.036	0.165
193	16.08	0.13	0.042	(0.080)	0.008	0.035
194	16.17	0.13	0.042	(0.079)	0.008	0.035
195	16.25	0.13	0.042	(0.079)	0.008	0.035
196	16.33	0.13	0.042	(0.078)	0.008	0.035
197	16.42	0.13	0.042	(0.078)	0.008	0.035
198	16.50	0.13	0.042	(0.078)	0.008	0.035
199	16.58	0.10	0.032	(0.077)	0.006	0.026
200	16.67	0.10	0.032	(0.077)	0.006	0.026
201	16.75	0.10	0.032	(0.076)	0.006	0.026
202	16.83	0.10	0.032	(0.076)	0.006	0.026
203	16.92	0.10	0.032	(0.076)	0.006	0.026
204	17.00	0.10	0.032	(0.075)	0.006	0.026
205	17.08	0.17	0.053	(0.075)	0.010	0.043
206	17.17	0.17	0.053	(0.075)	0.010	0.043
207	17.25	0.17	0.053	(0.074)	0.010	0.043
208	17.33	0.17	0.053	(0.074)	0.010	0.043
209	17.42	0.17	0.053	(0.073)	0.010	0.043
210	17.50	0.17	0.053	(0.073)	0.010	0.043
211	17.58	0.17	0.053	(0.073)	0.010	0.043
212	17.67	0.17	0.053	(0.072)	0.010	0.043
213	17.75	0.17	0.053	(0.072)	0.010	0.043
214	17.83	0.13	0.042	(0.072)	0.008	0.035

215	17.92	0.13	0.042	(0.071)	0.008	0.035
216	18.00	0.13	0.042	(0.071)	0.008	0.035
217	18.08	0.13	0.042	(0.071)	0.008	0.035
218	18.17	0.13	0.042	(0.070)	0.008	0.035
219	18.25	0.13	0.042	(0.070)	0.008	0.035
220	18.33	0.13	0.042	(0.070)	0.008	0.035
221	18.42	0.13	0.042	(0.069)	0.008	0.035
222	18.50	0.13	0.042	(0.069)	0.008	0.035
223	18.58	0.10	0.032	(0.069)	0.006	0.026
224	18.67	0.10	0.032	(0.068)	0.006	0.026
225	18.75	0.10	0.032	(0.068)	0.006	0.026
226	18.83	0.07	0.021	(0.068)	0.004	0.017
227	18.92	0.07	0.021	(0.067)	0.004	0.017
228	19.00	0.07	0.021	(0.067)	0.004	0.017
229	19.08	0.10	0.032	(0.067)	0.006	0.026
230	19.17	0.10	0.032	(0.066)	0.006	0.026
231	19.25	0.10	0.032	(0.066)	0.006	0.026
232	19.33	0.13	0.042	(0.066)	0.008	0.035
233	19.42	0.13	0.042	(0.065)	0.008	0.035
234	19.50	0.13	0.042	(0.065)	0.008	0.035
235	19.58	0.10	0.032	(0.065)	0.006	0.026
236	19.67	0.10	0.032	(0.064)	0.006	0.026
237	19.75	0.10	0.032	(0.064)	0.006	0.026
238	19.83	0.07	0.021	(0.064)	0.004	0.017
239	19.92	0.07	0.021	(0.064)	0.004	0.017
240	20.00	0.07	0.021	(0.063)	0.004	0.017
241	20.08	0.10	0.032	(0.063)	0.006	0.026
242	20.17	0.10	0.032	(0.063)	0.006	0.026
243	20.25	0.10	0.032	(0.062)	0.006	0.026
244	20.33	0.10	0.032	(0.062)	0.006	0.026
245	20.42	0.10	0.032	(0.062)	0.006	0.026
246	20.50	0.10	0.032	(0.062)	0.006	0.026
247	20.58	0.10	0.032	(0.061)	0.006	0.026
248	20.67	0.10	0.032	(0.061)	0.006	0.026
249	20.75	0.10	0.032	(0.061)	0.006	0.026
250	20.83	0.07	0.021	(0.061)	0.004	0.017
251	20.92	0.07	0.021	(0.060)	0.004	0.017
252	21.00	0.07	0.021	(0.060)	0.004	0.017
253	21.08	0.10	0.032	(0.060)	0.006	0.026
254	21.17	0.10	0.032	(0.060)	0.006	0.026
255	21.25	0.10	0.032	(0.059)	0.006	0.026
256	21.33	0.07	0.021	(0.059)	0.004	0.017
257	21.42	0.07	0.021	(0.059)	0.004	0.017
258	21.50	0.07	0.021	(0.059)	0.004	0.017
259	21.58	0.10	0.032	(0.059)	0.006	0.026
260	21.67	0.10	0.032	(0.058)	0.006	0.026
261	21.75	0.10	0.032	(0.058)	0.006	0.026
262	21.83	0.07	0.021	(0.058)	0.004	0.017
263	21.92	0.07	0.021	(0.058)	0.004	0.017
264	22.00	0.07	0.021	(0.058)	0.004	0.017
265	22.08	0.10	0.032	(0.057)	0.006	0.026
266	22.17	0.10	0.032	(0.057)	0.006	0.026
267	22.25	0.10	0.032	(0.057)	0.006	0.026
268	22.33	0.07	0.021	(0.057)	0.004	0.017

269	22.42	0.07	0.021	(0.057)	0.004	0.017
270	22.50	0.07	0.021	(0.057)	0.004	0.017
271	22.58	0.07	0.021	(0.056)	0.004	0.017
272	22.67	0.07	0.021	(0.056)	0.004	0.017
273	22.75	0.07	0.021	(0.056)	0.004	0.017
274	22.83	0.07	0.021	(0.056)	0.004	0.017
275	22.92	0.07	0.021	(0.056)	0.004	0.017
276	23.00	0.07	0.021	(0.056)	0.004	0.017
277	23.08	0.07	0.021	(0.055)	0.004	0.017
278	23.17	0.07	0.021	(0.055)	0.004	0.017
279	23.25	0.07	0.021	(0.055)	0.004	0.017
280	23.33	0.07	0.021	(0.055)	0.004	0.017
281	23.42	0.07	0.021	(0.055)	0.004	0.017
282	23.50	0.07	0.021	(0.055)	0.004	0.017
283	23.58	0.07	0.021	(0.055)	0.004	0.017
284	23.67	0.07	0.021	(0.055)	0.004	0.017
285	23.75	0.07	0.021	(0.055)	0.004	0.017
286	23.83	0.07	0.021	(0.055)	0.004	0.017
287	23.92	0.07	0.021	(0.055)	0.004	0.017
288	24.00	0.07	0.021	(0.055)	0.004	0.017

(Loss Rate Not Used)

Sum = 100.0 Sum = 26.0

Flood volume = Effective rainfall 2.16(In)
times area 2.7(Ac.)/[(In)/(Ft.)] = 0.5(Ac.Ft)
Total soil loss = 0.48(In)
Total soil loss = 0.108(Ac.Ft)
Total rainfall = 2.64(In)
Flood volume = 21342.8 Cubic Feet
Total soil loss = 4685.0 Cubic Feet

Peak flow rate of this hydrograph = 0.806(CFS)

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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	0.0002	0.02	Q					
0+10	0.0005	0.04	Q					
0+15	0.0008	0.05	Q					
0+20	0.0012	0.06	Q					
0+25	0.0017	0.07	Q					
0+30	0.0022	0.07	Q					
0+35	0.0027	0.07	Q					
0+40	0.0031	0.07	Q					
0+45	0.0036	0.07	Q					
0+50	0.0042	0.08	Q					
0+55	0.0048	0.09	Q					
1+ 0	0.0055	0.09	Q					
1+ 5	0.0061	0.08	Q					

1+10	0.0066	0.07	Q				
1+15	0.0071	0.07	Q				
1+20	0.0076	0.07	Q				
1+25	0.0080	0.07	Q				
1+30	0.0085	0.07	Q				
1+35	0.0090	0.07	Q				
1+40	0.0095	0.07	Q				
1+45	0.0100	0.07	Q				
1+50	0.0106	0.08	Q				
1+55	0.0112	0.09	Q				
2+ 0	0.0119	0.09	Q				
2+ 5	0.0125	0.09	QV				
2+10	0.0132	0.09	QV				
2+15	0.0138	0.09	QV				
2+20	0.0145	0.09	QV				
2+25	0.0151	0.09	QV				
2+30	0.0158	0.09	QV				
2+35	0.0165	0.11	QV				
2+40	0.0173	0.12	QV				
2+45	0.0181	0.12	QV				
2+50	0.0190	0.12	QV				
2+55	0.0198	0.12	QV				
3+ 0	0.0206	0.12	QV				
3+ 5	0.0214	0.12	QV				
3+10	0.0222	0.12	QV				
3+15	0.0230	0.12	QV				
3+20	0.0239	0.12	QV				
3+25	0.0247	0.12	Q V				
3+30	0.0255	0.12	Q V				
3+35	0.0263	0.12	Q V				
3+40	0.0271	0.12	Q V				
3+45	0.0279	0.12	Q V				
3+50	0.0288	0.13	Q V				
3+55	0.0298	0.14	Q V				
4+ 0	0.0308	0.14	Q V				
4+ 5	0.0318	0.14	Q V				
4+10	0.0327	0.14	Q V				
4+15	0.0337	0.14	Q V				
4+20	0.0348	0.15	Q V				
4+25	0.0359	0.16	Q V				
4+30	0.0371	0.17	Q V				
4+35	0.0382	0.17	Q V				
4+40	0.0393	0.17	Q V				
4+45	0.0405	0.17	Q V				
4+50	0.0417	0.18	Q V				
4+55	0.0430	0.19	Q V				
5+ 0	0.0443	0.19	Q V				
5+ 5	0.0454	0.17	Q V				
5+10	0.0465	0.15	Q V				
5+15	0.0474	0.14	Q V				
5+20	0.0485	0.15	Q V				
5+25	0.0496	0.16	Q V				
5+30	0.0508	0.17	Q V				
5+35	0.0520	0.18	Q V				

5+40	0.0533	0.19	Q	V				
5+45	0.0546	0.19	Q	V				
5+50	0.0559	0.19	Q	V				
5+55	0.0572	0.19	Q	V				
6+ 0	0.0585	0.19	Q	V				
6+ 5	0.0599	0.20	Q	V				
6+10	0.0614	0.21	Q	V				
6+15	0.0628	0.21	Q	V				
6+20	0.0643	0.21	Q	V				
6+25	0.0658	0.21	Q	V				
6+30	0.0672	0.21	Q	V				
6+35	0.0688	0.23	Q	V				
6+40	0.0704	0.24	Q	V				
6+45	0.0720	0.24	Q	V				
6+50	0.0737	0.24	Q	V				
6+55	0.0753	0.24	Q	V				
7+ 0	0.0769	0.24	Q	V				
7+ 5	0.0786	0.24	Q	V				
7+10	0.0802	0.24	Q	V				
7+15	0.0818	0.24	Q	V				
7+20	0.0836	0.25	Q	V				
7+25	0.0853	0.26	Q	V				
7+30	0.0871	0.26	Q	V				
7+35	0.0890	0.27	Q	V				
7+40	0.0910	0.28	Q	V				
7+45	0.0929	0.28	Q	V				
7+50	0.0950	0.30	Q	V				
7+55	0.0971	0.31	Q	V				
8+ 0	0.0992	0.31	Q	V				
8+ 5	0.1015	0.33	Q	V				
8+10	0.1039	0.35	Q	V				
8+15	0.1064	0.35	Q	V				
8+20	0.1088	0.36	Q	V				
8+25	0.1113	0.36	Q	V				
8+30	0.1137	0.36	Q	V				
8+35	0.1162	0.37	Q	V				
8+40	0.1188	0.38	Q	V				
8+45	0.1214	0.38	Q	V				
8+50	0.1241	0.39	Q	V				
8+55	0.1269	0.40	Q	V				
9+ 0	0.1297	0.40	Q	V				
9+ 5	0.1326	0.43	Q	V				
9+10	0.1357	0.45	Q	V				
9+15	0.1388	0.45	Q	V				
9+20	0.1420	0.46	Q	V				
9+25	0.1452	0.47	Q	V				
9+30	0.1485	0.47	Q	V				
9+35	0.1518	0.49	Q	V				
9+40	0.1553	0.50	Q	V				
9+45	0.1587	0.50	Q	V				
9+50	0.1622	0.51	Q	V				
9+55	0.1658	0.52	Q	V				
10+ 0	0.1694	0.52	Q	V				
10+ 5	0.1724	0.44	Q	V				

10+10	0.1749	0.37	Q		V			
10+15	0.1774	0.36	Q		V			
10+20	0.1798	0.36	Q		V			
10+25	0.1823	0.36	Q		V			
10+30	0.1847	0.36	Q		V			
10+35	0.1876	0.42	Q		V			
10+40	0.1908	0.46	Q		V			
10+45	0.1941	0.47	Q		V			
10+50	0.1973	0.47	Q		V			
10+55	0.2006	0.47	Q		V			
11+ 0	0.2039	0.47	Q		V			
11+ 5	0.2070	0.46	Q		V			
11+10	0.2102	0.45	Q		V			
11+15	0.2133	0.45	Q		V			
11+20	0.2164	0.45	Q		V			
11+25	0.2195	0.45	Q		V			
11+30	0.2226	0.45	Q		V			
11+35	0.2255	0.43	Q		V			
11+40	0.2283	0.41	Q		V			
11+45	0.2311	0.40	Q		V			
11+50	0.2340	0.42	Q		V			
11+55	0.2369	0.42	Q		V			
12+ 0	0.2398	0.43	Q		V			
12+ 5	0.2434	0.51	Q		V			
12+10	0.2473	0.58	Q		V			
12+15	0.2514	0.59	Q		V			
12+20	0.2556	0.61	Q		V			
12+25	0.2598	0.61	Q		V			
12+30	0.2640	0.62	Q		V			
12+35	0.2685	0.64	Q		V			
12+40	0.2730	0.66	Q		V			
12+45	0.2776	0.66	Q		V			
12+50	0.2822	0.68	Q		V			
12+55	0.2870	0.69	Q		V			
13+ 0	0.2917	0.69	Q		V			
13+ 5	0.2968	0.75	Q		V			
13+10	0.3023	0.80	Q		V			
13+15	0.3079	0.80	Q		V			
13+20	0.3134	0.81	Q		V			
13+25	0.3190	0.81	Q		V			
13+30	0.3245	0.81	Q		V			
13+35	0.3291	0.67	Q		V			
13+40	0.3331	0.57	Q		V			
13+45	0.3368	0.55	Q		V			
13+50	0.3406	0.55	Q		V			
13+55	0.3444	0.55	Q		V			
14+ 0	0.3481	0.55	Q		V			
14+ 5	0.3522	0.59	Q		V			
14+10	0.3566	0.63	Q		V			
14+15	0.3610	0.64	Q		V			
14+20	0.3653	0.63	Q		V			
14+25	0.3695	0.62	Q		V			
14+30	0.3738	0.62	Q		V			
14+35	0.3780	0.62	Q		V			

14+40	0.3823	0.62	Q			V	
14+45	0.3865	0.62	Q			V	
14+50	0.3907	0.60	Q			V	
14+55	0.3948	0.59	Q			V	
15+ 0	0.3989	0.59	Q			V	
15+ 5	0.4029	0.58	Q			V	
15+10	0.4068	0.57	Q			V	
15+15	0.4107	0.57	Q			V	
15+20	0.4146	0.56	Q			V	
15+25	0.4183	0.55	Q			V	
15+30	0.4221	0.55	Q			V	
15+35	0.4255	0.50	Q			V	
15+40	0.4287	0.46	Q			V	
15+45	0.4318	0.45	Q			V	
15+50	0.4349	0.45	Q			V	
15+55	0.4380	0.45	Q			V	
16+ 0	0.4411	0.45	Q			V	
16+ 5	0.4429	0.27	Q			V	
16+10	0.4438	0.13	Q			V	
16+15	0.4445	0.10	Q			V	
16+20	0.4452	0.09	Q			V	
16+25	0.4458	0.09	Q			V	
16+30	0.4465	0.09	Q			V	
16+35	0.4470	0.08	Q			V	
16+40	0.4475	0.07	Q			V	
16+45	0.4480	0.07	Q			V	
16+50	0.4485	0.07	Q			V	
16+55	0.4490	0.07	Q			V	
17+ 0	0.4495	0.07	Q			V	
17+ 5	0.4502	0.10	Q			V	
17+10	0.4509	0.11	Q			V	
17+15	0.4518	0.12	Q			V	
17+20	0.4526	0.12	Q			V	
17+25	0.4534	0.12	Q			V	
17+30	0.4542	0.12	Q			V	
17+35	0.4550	0.12	Q			V	
17+40	0.4558	0.12	Q			V	
17+45	0.4567	0.12	Q			V	
17+50	0.4574	0.11	Q			V	
17+55	0.4581	0.10	Q			V	
18+ 0	0.4587	0.10	Q			V	
18+ 5	0.4594	0.09	Q			V	
18+10	0.4600	0.09	Q			V	
18+15	0.4607	0.09	Q			V	
18+20	0.4613	0.09	Q			V	
18+25	0.4620	0.09	Q			V	
18+30	0.4626	0.09	Q			V	
18+35	0.4632	0.08	Q			V	
18+40	0.4637	0.07	Q			V	
18+45	0.4642	0.07	Q			V	
18+50	0.4646	0.06	Q			V	
18+55	0.4649	0.05	Q			V	
19+ 0	0.4653	0.05	Q			V	
19+ 5	0.4657	0.06	Q			V	

19+10	0.4662	0.07	Q				V
19+15	0.4666	0.07	Q				V
19+20	0.4672	0.08	Q				V
19+25	0.4679	0.09	Q				V
19+30	0.4685	0.09	Q				V
19+35	0.4691	0.08	Q				V
19+40	0.4696	0.07	Q				V
19+45	0.4701	0.07	Q				V
19+50	0.4705	0.06	Q				V
19+55	0.4708	0.05	Q				V
20+ 0	0.4712	0.05	Q				V
20+ 5	0.4716	0.06	Q				V
20+10	0.4720	0.07	Q				V
20+15	0.4725	0.07	Q				V
20+20	0.4730	0.07	Q				V
20+25	0.4735	0.07	Q				V
20+30	0.4740	0.07	Q				V
20+35	0.4745	0.07	Q				V
20+40	0.4750	0.07	Q				V
20+45	0.4755	0.07	Q				V
20+50	0.4759	0.06	Q				V
20+55	0.4762	0.05	Q				V
21+ 0	0.4765	0.05	Q				V
21+ 5	0.4770	0.06	Q				V
21+10	0.4774	0.07	Q				V
21+15	0.4779	0.07	Q				V
21+20	0.4783	0.06	Q				V
21+25	0.4787	0.05	Q				V
21+30	0.4790	0.05	Q				V
21+35	0.4794	0.06	Q				V
21+40	0.4799	0.07	Q				V
21+45	0.4804	0.07	Q				V
21+50	0.4808	0.06	Q				V
21+55	0.4811	0.05	Q				V
22+ 0	0.4814	0.05	Q				V
22+ 5	0.4819	0.06	Q				V
22+10	0.4823	0.07	Q				V
22+15	0.4828	0.07	Q				V
22+20	0.4832	0.06	Q				V
22+25	0.4836	0.05	Q				V
22+30	0.4839	0.05	Q				V
22+35	0.4842	0.05	Q				V
22+40	0.4845	0.05	Q				V
22+45	0.4849	0.05	Q				V
22+50	0.4852	0.05	Q				V
22+55	0.4855	0.05	Q				V
23+ 0	0.4859	0.05	Q				V
23+ 5	0.4862	0.05	Q				V
23+10	0.4865	0.05	Q				V
23+15	0.4868	0.05	Q				V
23+20	0.4872	0.05	Q				V
23+25	0.4875	0.05	Q				V
23+30	0.4878	0.05	Q				V
23+35	0.4881	0.05	Q				V

23+40	0.4885	0.05	Q				V
23+45	0.4888	0.05	Q				V
23+50	0.4891	0.05	Q				V
23+55	0.4894	0.05	Q				V
24+ 0	0.4898	0.05	Q				V
24+ 5	0.4899	0.02	Q				V
24+10	0.4900	0.00	Q				V
24+15	0.4900	0.00	Q				V

Unit Hydrograph Analysis

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Study date 02/19/21 File: 1162004PROUHB2410.out

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

Program License Serial Number 6335

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

English Units used in output format

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
POST-DEVELOPED, DMA-B
10-YEAR, 24-HOUR STORMEVENT

Drainage Area = 2.72(Ac.) = 0.004 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 2.72(Ac.) =
0.004 Sq. Mi.
Length along longest watercourse = 714.00(Ft.)
Length along longest watercourse measured to centroid =
442.00(Ft.)
Length along longest watercourse = 0.135 Mi.
Length along longest watercourse measured to centroid = 0.084 Mi.
Difference in elevation = 5.40(Ft.)
Slope along watercourse = 39.9328 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.033 Hr.
Lag time = 1.95 Min.
25% of lag time = 0.49 Min.
40% of lag time = 0.78 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]
2.72	2.64	7.17

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
2.72	6.73	18.28

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 2.640(In)
Area Averaged 100-Year Rainfall = 6.730(In)

Point rain (area averaged) = 4.323(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.323(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
2.716	69.00	0.900

Total Area Entered = 2.72(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-2	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
69.0	69.0	0.373	0.900	0.071	1.000	0.071
Sum (F) =						0.071

Area averaged mean soil loss (F) (In/Hr) = 0.071
Minimum soil loss rate ((In/Hr)) = 0.035
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.180

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	256.038	51.671	1.414
2 0.167	512.077	39.683	1.086
3 0.250	768.115	6.826	0.187
4 0.333	1024.153	1.819	0.050
Sum = 100.000		Sum=	2.737

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	0.035	(0.126)	0.006	0.028
2	0.17	0.07	0.035	(0.125)	0.006	0.028
3	0.25	0.07	0.035	(0.125)	0.006	0.028
4	0.33	0.10	0.052	(0.124)	0.009	0.043
5	0.42	0.10	0.052	(0.124)	0.009	0.043
6	0.50	0.10	0.052	(0.123)	0.009	0.043
7	0.58	0.10	0.052	(0.123)	0.009	0.043
8	0.67	0.10	0.052	(0.122)	0.009	0.043
9	0.75	0.10	0.052	(0.122)	0.009	0.043
10	0.83	0.13	0.069	(0.121)	0.012	0.057
11	0.92	0.13	0.069	(0.121)	0.012	0.057
12	1.00	0.13	0.069	(0.120)	0.012	0.057
13	1.08	0.10	0.052	(0.120)	0.009	0.043
14	1.17	0.10	0.052	(0.119)	0.009	0.043
15	1.25	0.10	0.052	(0.119)	0.009	0.043
16	1.33	0.10	0.052	(0.118)	0.009	0.043
17	1.42	0.10	0.052	(0.118)	0.009	0.043
18	1.50	0.10	0.052	(0.117)	0.009	0.043
19	1.58	0.10	0.052	(0.117)	0.009	0.043
20	1.67	0.10	0.052	(0.117)	0.009	0.043
21	1.75	0.10	0.052	(0.116)	0.009	0.043
22	1.83	0.13	0.069	(0.116)	0.012	0.057
23	1.92	0.13	0.069	(0.115)	0.012	0.057
24	2.00	0.13	0.069	(0.115)	0.012	0.057
25	2.08	0.13	0.069	(0.114)	0.012	0.057
26	2.17	0.13	0.069	(0.114)	0.012	0.057
27	2.25	0.13	0.069	(0.113)	0.012	0.057
28	2.33	0.13	0.069	(0.113)	0.012	0.057
29	2.42	0.13	0.069	(0.112)	0.012	0.057
30	2.50	0.13	0.069	(0.112)	0.012	0.057
31	2.58	0.17	0.086	(0.111)	0.016	0.071
32	2.67	0.17	0.086	(0.111)	0.016	0.071
33	2.75	0.17	0.086	(0.110)	0.016	0.071
34	2.83	0.17	0.086	(0.110)	0.016	0.071
35	2.92	0.17	0.086	(0.110)	0.016	0.071
36	3.00	0.17	0.086	(0.109)	0.016	0.071
37	3.08	0.17	0.086	(0.109)	0.016	0.071
38	3.17	0.17	0.086	(0.108)	0.016	0.071
39	3.25	0.17	0.086	(0.108)	0.016	0.071
40	3.33	0.17	0.086	(0.107)	0.016	0.071
41	3.42	0.17	0.086	(0.107)	0.016	0.071
42	3.50	0.17	0.086	(0.106)	0.016	0.071
43	3.58	0.17	0.086	(0.106)	0.016	0.071
44	3.67	0.17	0.086	(0.106)	0.016	0.071
45	3.75	0.17	0.086	(0.105)	0.016	0.071
46	3.83	0.20	0.104	(0.105)	0.019	0.085
47	3.92	0.20	0.104	(0.104)	0.019	0.085
48	4.00	0.20	0.104	(0.104)	0.019	0.085
49	4.08	0.20	0.104	(0.103)	0.019	0.085
50	4.17	0.20	0.104	(0.103)	0.019	0.085
51	4.25	0.20	0.104	(0.102)	0.019	0.085
52	4.33	0.23	0.121	(0.102)	0.022	0.099

53	4.42	0.23	0.121	(0.102)	0.022	0.099
54	4.50	0.23	0.121	(0.101)	0.022	0.099
55	4.58	0.23	0.121	(0.101)	0.022	0.099
56	4.67	0.23	0.121	(0.100)	0.022	0.099
57	4.75	0.23	0.121	(0.100)	0.022	0.099
58	4.83	0.27	0.138	(0.099)	0.025	0.113
59	4.92	0.27	0.138	(0.099)	0.025	0.113
60	5.00	0.27	0.138	(0.099)	0.025	0.113
61	5.08	0.20	0.104	(0.098)	0.019	0.085
62	5.17	0.20	0.104	(0.098)	0.019	0.085
63	5.25	0.20	0.104	(0.097)	0.019	0.085
64	5.33	0.23	0.121	(0.097)	0.022	0.099
65	5.42	0.23	0.121	(0.096)	0.022	0.099
66	5.50	0.23	0.121	(0.096)	0.022	0.099
67	5.58	0.27	0.138	(0.096)	0.025	0.113
68	5.67	0.27	0.138	(0.095)	0.025	0.113
69	5.75	0.27	0.138	(0.095)	0.025	0.113
70	5.83	0.27	0.138	(0.094)	0.025	0.113
71	5.92	0.27	0.138	(0.094)	0.025	0.113
72	6.00	0.27	0.138	(0.093)	0.025	0.113
73	6.08	0.30	0.156	(0.093)	0.028	0.128
74	6.17	0.30	0.156	(0.093)	0.028	0.128
75	6.25	0.30	0.156	(0.092)	0.028	0.128
76	6.33	0.30	0.156	(0.092)	0.028	0.128
77	6.42	0.30	0.156	(0.091)	0.028	0.128
78	6.50	0.30	0.156	(0.091)	0.028	0.128
79	6.58	0.33	0.173	(0.091)	0.031	0.142
80	6.67	0.33	0.173	(0.090)	0.031	0.142
81	6.75	0.33	0.173	(0.090)	0.031	0.142
82	6.83	0.33	0.173	(0.089)	0.031	0.142
83	6.92	0.33	0.173	(0.089)	0.031	0.142
84	7.00	0.33	0.173	(0.089)	0.031	0.142
85	7.08	0.33	0.173	(0.088)	0.031	0.142
86	7.17	0.33	0.173	(0.088)	0.031	0.142
87	7.25	0.33	0.173	(0.087)	0.031	0.142
88	7.33	0.37	0.190	(0.087)	0.034	0.156
89	7.42	0.37	0.190	(0.087)	0.034	0.156
90	7.50	0.37	0.190	(0.086)	0.034	0.156
91	7.58	0.40	0.207	(0.086)	0.037	0.170
92	7.67	0.40	0.207	(0.085)	0.037	0.170
93	7.75	0.40	0.207	(0.085)	0.037	0.170
94	7.83	0.43	0.225	(0.085)	0.040	0.184
95	7.92	0.43	0.225	(0.084)	0.040	0.184
96	8.00	0.43	0.225	(0.084)	0.040	0.184
97	8.08	0.50	0.259	(0.083)	0.047	0.213
98	8.17	0.50	0.259	(0.083)	0.047	0.213
99	8.25	0.50	0.259	(0.083)	0.047	0.213
100	8.33	0.50	0.259	(0.082)	0.047	0.213
101	8.42	0.50	0.259	(0.082)	0.047	0.213
102	8.50	0.50	0.259	(0.082)	0.047	0.213
103	8.58	0.53	0.277	(0.081)	0.050	0.227
104	8.67	0.53	0.277	(0.081)	0.050	0.227
105	8.75	0.53	0.277	(0.080)	0.050	0.227
106	8.83	0.57	0.294	(0.080)	0.053	0.241

107	8.92	0.57	0.294	(0.080)	0.053	0.241
108	9.00	0.57	0.294	(0.079)	0.053	0.241
109	9.08	0.63	0.329	(0.079)	0.059	0.269
110	9.17	0.63	0.329	(0.078)	0.059	0.269
111	9.25	0.63	0.329	(0.078)	0.059	0.269
112	9.33	0.67	0.346	(0.078)	0.062	0.284
113	9.42	0.67	0.346	(0.077)	0.062	0.284
114	9.50	0.67	0.346	(0.077)	0.062	0.284
115	9.58	0.70	0.363	(0.077)	0.065	0.298
116	9.67	0.70	0.363	(0.076)	0.065	0.298
117	9.75	0.70	0.363	(0.076)	0.065	0.298
118	9.83	0.73	0.380	(0.076)	0.068	0.312
119	9.92	0.73	0.380	(0.075)	0.068	0.312
120	10.00	0.73	0.380	(0.075)	0.068	0.312
121	10.08	0.50	0.259	(0.074)	0.047	0.213
122	10.17	0.50	0.259	(0.074)	0.047	0.213
123	10.25	0.50	0.259	(0.074)	0.047	0.213
124	10.33	0.50	0.259	(0.073)	0.047	0.213
125	10.42	0.50	0.259	(0.073)	0.047	0.213
126	10.50	0.50	0.259	(0.073)	0.047	0.213
127	10.58	0.67	0.346	(0.072)	0.062	0.284
128	10.67	0.67	0.346	(0.072)	0.062	0.284
129	10.75	0.67	0.346	(0.072)	0.062	0.284
130	10.83	0.67	0.346	(0.071)	0.062	0.284
131	10.92	0.67	0.346	(0.071)	0.062	0.284
132	11.00	0.67	0.346	(0.071)	0.062	0.284
133	11.08	0.63	0.329	(0.070)	0.059	0.269
134	11.17	0.63	0.329	(0.070)	0.059	0.269
135	11.25	0.63	0.329	(0.069)	0.059	0.269
136	11.33	0.63	0.329	(0.069)	0.059	0.269
137	11.42	0.63	0.329	(0.069)	0.059	0.269
138	11.50	0.63	0.329	(0.068)	0.059	0.269
139	11.58	0.57	0.294	(0.068)	0.053	0.241
140	11.67	0.57	0.294	(0.068)	0.053	0.241
141	11.75	0.57	0.294	(0.067)	0.053	0.241
142	11.83	0.60	0.311	(0.067)	0.056	0.255
143	11.92	0.60	0.311	(0.067)	0.056	0.255
144	12.00	0.60	0.311	(0.066)	0.056	0.255
145	12.08	0.83	0.432	0.066 (0.078)		0.366
146	12.17	0.83	0.432	0.066 (0.078)		0.366
147	12.25	0.83	0.432	0.065 (0.078)		0.367
148	12.33	0.87	0.450	0.065 (0.081)		0.384
149	12.42	0.87	0.450	0.065 (0.081)		0.385
150	12.50	0.87	0.450	0.064 (0.081)		0.385
151	12.58	0.93	0.484	0.064 (0.087)		0.420
152	12.67	0.93	0.484	0.064 (0.087)		0.420
153	12.75	0.93	0.484	0.064 (0.087)		0.421
154	12.83	0.97	0.501	0.063 (0.090)		0.438
155	12.92	0.97	0.501	0.063 (0.090)		0.439
156	13.00	0.97	0.501	0.063 (0.090)		0.439
157	13.08	1.13	0.588	0.062 (0.106)		0.526
158	13.17	1.13	0.588	0.062 (0.106)		0.526
159	13.25	1.13	0.588	0.062 (0.106)		0.526
160	13.33	1.13	0.588	0.061 (0.106)		0.527

161	13.42	1.13	0.588	0.061	(0.106)	0.527
162	13.50	1.13	0.588	0.061	(0.106)	0.527
163	13.58	0.77	0.398	0.060	(0.072)	0.337
164	13.67	0.77	0.398	0.060	(0.072)	0.338
165	13.75	0.77	0.398	0.060	(0.072)	0.338
166	13.83	0.77	0.398	0.059	(0.072)	0.338
167	13.92	0.77	0.398	0.059	(0.072)	0.339
168	14.00	0.77	0.398	0.059	(0.072)	0.339
169	14.08	0.90	0.467	0.059	(0.084)	0.408
170	14.17	0.90	0.467	0.058	(0.084)	0.409
171	14.25	0.90	0.467	0.058	(0.084)	0.409
172	14.33	0.87	0.450	0.058	(0.081)	0.392
173	14.42	0.87	0.450	0.057	(0.081)	0.392
174	14.50	0.87	0.450	0.057	(0.081)	0.392
175	14.58	0.87	0.450	0.057	(0.081)	0.393
176	14.67	0.87	0.450	0.056	(0.081)	0.393
177	14.75	0.87	0.450	0.056	(0.081)	0.393
178	14.83	0.83	0.432	0.056	(0.078)	0.376
179	14.92	0.83	0.432	0.056	(0.078)	0.377
180	15.00	0.83	0.432	0.055	(0.078)	0.377
181	15.08	0.80	0.415	0.055	(0.075)	0.360
182	15.17	0.80	0.415	0.055	(0.075)	0.360
183	15.25	0.80	0.415	0.054	(0.075)	0.360
184	15.33	0.77	0.398	0.054	(0.072)	0.343
185	15.42	0.77	0.398	0.054	(0.072)	0.344
186	15.50	0.77	0.398	0.054	(0.072)	0.344
187	15.58	0.63	0.329	0.053	(0.059)	0.275
188	15.67	0.63	0.329	0.053	(0.059)	0.275
189	15.75	0.63	0.329	0.053	(0.059)	0.276
190	15.83	0.63	0.329	0.053	(0.059)	0.276
191	15.92	0.63	0.329	0.052	(0.059)	0.276
192	16.00	0.63	0.329	0.052	(0.059)	0.277
193	16.08	0.13	0.069	(0.052)	0.012	0.057
194	16.17	0.13	0.069	(0.051)	0.012	0.057
195	16.25	0.13	0.069	(0.051)	0.012	0.057
196	16.33	0.13	0.069	(0.051)	0.012	0.057
197	16.42	0.13	0.069	(0.051)	0.012	0.057
198	16.50	0.13	0.069	(0.050)	0.012	0.057
199	16.58	0.10	0.052	(0.050)	0.009	0.043
200	16.67	0.10	0.052	(0.050)	0.009	0.043
201	16.75	0.10	0.052	(0.050)	0.009	0.043
202	16.83	0.10	0.052	(0.049)	0.009	0.043
203	16.92	0.10	0.052	(0.049)	0.009	0.043
204	17.00	0.10	0.052	(0.049)	0.009	0.043
205	17.08	0.17	0.086	(0.049)	0.016	0.071
206	17.17	0.17	0.086	(0.048)	0.016	0.071
207	17.25	0.17	0.086	(0.048)	0.016	0.071
208	17.33	0.17	0.086	(0.048)	0.016	0.071
209	17.42	0.17	0.086	(0.048)	0.016	0.071
210	17.50	0.17	0.086	(0.047)	0.016	0.071
211	17.58	0.17	0.086	(0.047)	0.016	0.071
212	17.67	0.17	0.086	(0.047)	0.016	0.071
213	17.75	0.17	0.086	(0.047)	0.016	0.071
214	17.83	0.13	0.069	(0.047)	0.012	0.057

215	17.92	0.13	0.069	(0.046)	0.012	0.057
216	18.00	0.13	0.069	(0.046)	0.012	0.057
217	18.08	0.13	0.069	(0.046)	0.012	0.057
218	18.17	0.13	0.069	(0.046)	0.012	0.057
219	18.25	0.13	0.069	(0.045)	0.012	0.057
220	18.33	0.13	0.069	(0.045)	0.012	0.057
221	18.42	0.13	0.069	(0.045)	0.012	0.057
222	18.50	0.13	0.069	(0.045)	0.012	0.057
223	18.58	0.10	0.052	(0.045)	0.009	0.043
224	18.67	0.10	0.052	(0.044)	0.009	0.043
225	18.75	0.10	0.052	(0.044)	0.009	0.043
226	18.83	0.07	0.035	(0.044)	0.006	0.028
227	18.92	0.07	0.035	(0.044)	0.006	0.028
228	19.00	0.07	0.035	(0.043)	0.006	0.028
229	19.08	0.10	0.052	(0.043)	0.009	0.043
230	19.17	0.10	0.052	(0.043)	0.009	0.043
231	19.25	0.10	0.052	(0.043)	0.009	0.043
232	19.33	0.13	0.069	(0.043)	0.012	0.057
233	19.42	0.13	0.069	(0.042)	0.012	0.057
234	19.50	0.13	0.069	(0.042)	0.012	0.057
235	19.58	0.10	0.052	(0.042)	0.009	0.043
236	19.67	0.10	0.052	(0.042)	0.009	0.043
237	19.75	0.10	0.052	(0.042)	0.009	0.043
238	19.83	0.07	0.035	(0.041)	0.006	0.028
239	19.92	0.07	0.035	(0.041)	0.006	0.028
240	20.00	0.07	0.035	(0.041)	0.006	0.028
241	20.08	0.10	0.052	(0.041)	0.009	0.043
242	20.17	0.10	0.052	(0.041)	0.009	0.043
243	20.25	0.10	0.052	(0.041)	0.009	0.043
244	20.33	0.10	0.052	(0.040)	0.009	0.043
245	20.42	0.10	0.052	(0.040)	0.009	0.043
246	20.50	0.10	0.052	(0.040)	0.009	0.043
247	20.58	0.10	0.052	(0.040)	0.009	0.043
248	20.67	0.10	0.052	(0.040)	0.009	0.043
249	20.75	0.10	0.052	(0.040)	0.009	0.043
250	20.83	0.07	0.035	(0.039)	0.006	0.028
251	20.92	0.07	0.035	(0.039)	0.006	0.028
252	21.00	0.07	0.035	(0.039)	0.006	0.028
253	21.08	0.10	0.052	(0.039)	0.009	0.043
254	21.17	0.10	0.052	(0.039)	0.009	0.043
255	21.25	0.10	0.052	(0.039)	0.009	0.043
256	21.33	0.07	0.035	(0.038)	0.006	0.028
257	21.42	0.07	0.035	(0.038)	0.006	0.028
258	21.50	0.07	0.035	(0.038)	0.006	0.028
259	21.58	0.10	0.052	(0.038)	0.009	0.043
260	21.67	0.10	0.052	(0.038)	0.009	0.043
261	21.75	0.10	0.052	(0.038)	0.009	0.043
262	21.83	0.07	0.035	(0.038)	0.006	0.028
263	21.92	0.07	0.035	(0.038)	0.006	0.028
264	22.00	0.07	0.035	(0.037)	0.006	0.028
265	22.08	0.10	0.052	(0.037)	0.009	0.043
266	22.17	0.10	0.052	(0.037)	0.009	0.043
267	22.25	0.10	0.052	(0.037)	0.009	0.043
268	22.33	0.07	0.035	(0.037)	0.006	0.028

269	22.42	0.07	0.035	(0.037)	0.006	0.028
270	22.50	0.07	0.035	(0.037)	0.006	0.028
271	22.58	0.07	0.035	(0.037)	0.006	0.028
272	22.67	0.07	0.035	(0.036)	0.006	0.028
273	22.75	0.07	0.035	(0.036)	0.006	0.028
274	22.83	0.07	0.035	(0.036)	0.006	0.028
275	22.92	0.07	0.035	(0.036)	0.006	0.028
276	23.00	0.07	0.035	(0.036)	0.006	0.028
277	23.08	0.07	0.035	(0.036)	0.006	0.028
278	23.17	0.07	0.035	(0.036)	0.006	0.028
279	23.25	0.07	0.035	(0.036)	0.006	0.028
280	23.33	0.07	0.035	(0.036)	0.006	0.028
281	23.42	0.07	0.035	(0.036)	0.006	0.028
282	23.50	0.07	0.035	(0.036)	0.006	0.028
283	23.58	0.07	0.035	(0.036)	0.006	0.028
284	23.67	0.07	0.035	(0.036)	0.006	0.028
285	23.75	0.07	0.035	(0.036)	0.006	0.028
286	23.83	0.07	0.035	(0.035)	0.006	0.028
287	23.92	0.07	0.035	(0.035)	0.006	0.028
288	24.00	0.07	0.035	(0.035)	0.006	0.028

(Loss Rate Not Used)

Sum = 100.0 Sum = 43.5

Flood volume = Effective rainfall 3.63(In)
times area 2.7(Ac.)/[(In)/(Ft.)] = 0.8(Ac.Ft)
Total soil loss = 0.69(In)
Total soil loss = 0.157(Ac.Ft)
Total rainfall = 4.32(In)
Flood volume = 35779.3 Cubic Feet
Total soil loss = 6837.9 Cubic Feet

Peak flow rate of this hydrograph = 1.443(CFS)

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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	0.0003	0.04	Q					
0+10	0.0008	0.07	Q					
0+15	0.0013	0.08	Q					
0+20	0.0020	0.10	Q					
0+25	0.0027	0.11	Q					
0+30	0.0035	0.12	Q					
0+35	0.0043	0.12	Q					
0+40	0.0051	0.12	Q					
0+45	0.0059	0.12	Q					
0+50	0.0069	0.14	Q					
0+55	0.0079	0.15	Q					
1+ 0	0.0090	0.15	Q					
1+ 5	0.0099	0.14	Q					

1+10	0.0108	0.12	Q				
1+15	0.0116	0.12	Q				
1+20	0.0124	0.12	Q				
1+25	0.0132	0.12	Q				
1+30	0.0140	0.12	Q				
1+35	0.0148	0.12	Q				
1+40	0.0156	0.12	Q				
1+45	0.0164	0.12	Q				
1+50	0.0173	0.14	Q				
1+55	0.0184	0.15	Q				
2+ 0	0.0194	0.15	Q				
2+ 5	0.0205	0.16	Q				
2+10	0.0216	0.16	QV				
2+15	0.0226	0.16	QV				
2+20	0.0237	0.16	QV				
2+25	0.0248	0.16	QV				
2+30	0.0258	0.16	QV				
2+35	0.0271	0.18	QV				
2+40	0.0284	0.19	QV				
2+45	0.0297	0.19	QV				
2+50	0.0310	0.19	QV				
2+55	0.0324	0.19	QV				
3+ 0	0.0337	0.19	QV				
3+ 5	0.0350	0.19	QV				
3+10	0.0364	0.19	QV				
3+15	0.0377	0.19	QV				
3+20	0.0391	0.19	QV				
3+25	0.0404	0.19	QV				
3+30	0.0417	0.19	Q V				
3+35	0.0431	0.19	Q V				
3+40	0.0444	0.19	Q V				
3+45	0.0457	0.19	Q V				
3+50	0.0472	0.21	Q V				
3+55	0.0488	0.23	Q V				
4+ 0	0.0504	0.23	Q V				
4+ 5	0.0520	0.23	Q V				
4+10	0.0536	0.23	Q V				
4+15	0.0552	0.23	Q V				
4+20	0.0570	0.25	QV				
4+25	0.0588	0.27	QV				
4+30	0.0607	0.27	QV				
4+35	0.0625	0.27	Q V				
4+40	0.0644	0.27	Q V				
4+45	0.0663	0.27	Q V				
4+50	0.0683	0.29	Q V				
4+55	0.0704	0.31	Q V				
5+ 0	0.0725	0.31	Q V				
5+ 5	0.0744	0.27	Q V				
5+10	0.0761	0.24	Q V				
5+15	0.0777	0.23	Q V				
5+20	0.0794	0.25	Q V				
5+25	0.0813	0.27	Q V				
5+30	0.0831	0.27	Q V				
5+35	0.0851	0.29	Q V				

5+40	0.0873	0.31	Q	V				
5+45	0.0894	0.31	Q	V				
5+50	0.0915	0.31	Q	V				
5+55	0.0937	0.31	Q	V				
6+ 0	0.0958	0.31	Q	V				
6+ 5	0.0981	0.33	Q	V				
6+10	0.1005	0.35	Q	V				
6+15	0.1029	0.35	Q	V				
6+20	0.1053	0.35	Q	V				
6+25	0.1077	0.35	Q	V				
6+30	0.1101	0.35	Q	V				
6+35	0.1126	0.37	Q	V				
6+40	0.1153	0.38	Q	V				
6+45	0.1180	0.39	Q	V				
6+50	0.1206	0.39	Q	V				
6+55	0.1233	0.39	Q	V				
7+ 0	0.1260	0.39	Q	V				
7+ 5	0.1287	0.39	Q	V				
7+10	0.1313	0.39	Q	V				
7+15	0.1340	0.39	Q	V				
7+20	0.1368	0.41	Q	V				
7+25	0.1397	0.42	Q	V				
7+30	0.1427	0.43	Q	V				
7+35	0.1458	0.45	Q	V				
7+40	0.1489	0.46	Q	V				
7+45	0.1521	0.47	Q	V				
7+50	0.1555	0.49	Q	V				
7+55	0.1589	0.50	Q	V				
8+ 0	0.1624	0.50	Q	V				
8+ 5	0.1662	0.54	Q	V				
8+10	0.1701	0.58	Q	V				
8+15	0.1741	0.58	Q	V				
8+20	0.1781	0.58	Q	V				
8+25	0.1822	0.58	Q	V				
8+30	0.1862	0.58	Q	V				
8+35	0.1903	0.60	Q	V				
8+40	0.1946	0.62	Q	V				
8+45	0.1988	0.62	Q	V				
8+50	0.2033	0.64	Q	V				
8+55	0.2078	0.66	Q	V				
9+ 0	0.2123	0.66	Q	V				
9+ 5	0.2172	0.70	Q	V				
9+10	0.2222	0.73	Q	V				
9+15	0.2273	0.74	Q	V				
9+20	0.2325	0.76	Q	V				
9+25	0.2378	0.77	Q	V				
9+30	0.2431	0.78	Q	V				
9+35	0.2486	0.80	Q	V				
9+40	0.2542	0.81	Q	V				
9+45	0.2598	0.81	Q	V				
9+50	0.2656	0.84	Q	V				
9+55	0.2715	0.85	Q	V				
10+ 0	0.2773	0.85	Q	V				
10+ 5	0.2822	0.71	Q	V				

10+10	0.2864	0.61	Q	V			
10+15	0.2905	0.59	Q	V			
10+20	0.2945	0.58	Q	V			
10+25	0.2985	0.58	Q	V			
10+30	0.3025	0.58	Q	V			
10+35	0.3072	0.68	Q	V			
10+40	0.3124	0.76	Q	V			
10+45	0.3178	0.77	Q	V			
10+50	0.3231	0.78	Q	V			
10+55	0.3285	0.78	Q	V			
11+ 0	0.3338	0.78	Q	V			
11+ 5	0.3390	0.76	Q	V			
11+10	0.3441	0.74	Q	V			
11+15	0.3492	0.74	Q	V			
11+20	0.3543	0.74	Q	V			
11+25	0.3594	0.74	Q	V			
11+30	0.3644	0.74	Q	V			
11+35	0.3692	0.70	Q	V			
11+40	0.3738	0.67	Q	V			
11+45	0.3784	0.66	Q	V			
11+50	0.3831	0.68	Q	V			
11+55	0.3879	0.70	Q	V			
12+ 0	0.3927	0.70	Q	V			
12+ 5	0.3986	0.86	Q	V			
12+10	0.4053	0.98	Q	V			
12+15	0.4122	1.00	Q	V			
12+20	0.4193	1.03	Q	V			
12+25	0.4265	1.05	Q	V			
12+30	0.4337	1.05	Q	V			
12+35	0.4414	1.10	Q	V			
12+40	0.4492	1.14	Q	V			
12+45	0.4571	1.15	Q	V			
12+50	0.4652	1.18	Q	V			
12+55	0.4735	1.20	Q	V			
13+ 0	0.4817	1.20	Q	V			
13+ 5	0.4909	1.32	Q	V			
13+10	0.5006	1.42	Q	V			
13+15	0.5105	1.44	Q	V			
13+20	0.5205	1.44	Q	V			
13+25	0.5304	1.44	Q	V			
13+30	0.5403	1.44	Q	V			
13+35	0.5484	1.18	Q	V			
13+40	0.5551	0.97	Q	V			
13+45	0.5615	0.93	Q	V			
13+50	0.5679	0.93	Q	V			
13+55	0.5743	0.93	Q	V			
14+ 0	0.5807	0.93	Q	V			
14+ 5	0.5878	1.03	Q	V			
14+10	0.5954	1.10	Q	V			
14+15	0.6030	1.12	Q	V			
14+20	0.6106	1.10	Q	V			
14+25	0.6180	1.08	Q	V			
14+30	0.6254	1.08	Q	V			
14+35	0.6328	1.08	Q	V			

14+40	0.6402	1.08		Q				V	
14+45	0.6476	1.08		Q				V	
14+50	0.6549	1.05		Q				V	
14+55	0.6620	1.04		Q				V	
15+ 0	0.6691	1.03		Q				V	
15+ 5	0.6761	1.01		Q				V	
15+10	0.6829	0.99		Q				V	
15+15	0.6897	0.99		Q				V	
15+20	0.6963	0.96		Q				V	
15+25	0.7028	0.95		Q				V	
15+30	0.7093	0.94		Q				V	
15+35	0.7152	0.84		Q				V	
15+40	0.7205	0.77		Q				V	
15+45	0.7257	0.76		Q				V	
15+50	0.7309	0.76		Q				V	
15+55	0.7361	0.76		Q				V	
16+ 0	0.7413	0.76		Q				V	
16+ 5	0.7444	0.45		Q				V	
16+10	0.7458	0.21	Q					V	
16+15	0.7469	0.17	Q					V	
16+20	0.7480	0.16	Q					V	
16+25	0.7491	0.16	Q					V	
16+30	0.7502	0.16	Q					V	
16+35	0.7511	0.14	Q					V	
16+40	0.7519	0.12	Q					V	
16+45	0.7527	0.12	Q					V	
16+50	0.7535	0.12	Q					V	
16+55	0.7543	0.12	Q					V	
17+ 0	0.7551	0.12	Q					V	
17+ 5	0.7562	0.16	Q					V	
17+10	0.7575	0.19	Q					V	
17+15	0.7588	0.19	Q					V	
17+20	0.7602	0.19	Q					V	
17+25	0.7615	0.19	Q					V	
17+30	0.7628	0.19	Q					V	
17+35	0.7642	0.19	Q					V	
17+40	0.7655	0.19	Q					V	
17+45	0.7668	0.19	Q					V	
17+50	0.7680	0.17	Q					V	
17+55	0.7691	0.16	Q					V	
18+ 0	0.7702	0.16	Q					V	
18+ 5	0.7713	0.16	Q					V	
18+10	0.7723	0.16	Q					V	
18+15	0.7734	0.16	Q					V	
18+20	0.7745	0.16	Q					V	
18+25	0.7756	0.16	Q					V	
18+30	0.7766	0.16	Q					V	
18+35	0.7776	0.14	Q					V	
18+40	0.7784	0.12	Q					V	
18+45	0.7792	0.12	Q					V	
18+50	0.7799	0.10	Q					V	
18+55	0.7804	0.08	Q					V	
19+ 0	0.7810	0.08	Q					V	
19+ 5	0.7816	0.10	Q					V	

19+10	0.7824	0.11	Q				V
19+15	0.7832	0.12	Q				V
19+20	0.7841	0.14	Q				V
19+25	0.7852	0.15	Q				V
19+30	0.7863	0.15	Q				V
19+35	0.7872	0.14	Q				V
19+40	0.7880	0.12	Q				V
19+45	0.7888	0.12	Q				V
19+50	0.7895	0.10	Q				V
19+55	0.7900	0.08	Q				V
20+ 0	0.7906	0.08	Q				V
20+ 5	0.7913	0.10	Q				V
20+10	0.7920	0.11	Q				V
20+15	0.7928	0.12	Q				V
20+20	0.7936	0.12	Q				V
20+25	0.7944	0.12	Q				V
20+30	0.7952	0.12	Q				V
20+35	0.7960	0.12	Q				V
20+40	0.7968	0.12	Q				V
20+45	0.7976	0.12	Q				V
20+50	0.7983	0.10	Q				V
20+55	0.7989	0.08	Q				V
21+ 0	0.7994	0.08	Q				V
21+ 5	0.8001	0.10	Q				V
21+10	0.8009	0.11	Q				V
21+15	0.8017	0.12	Q				V
21+20	0.8023	0.10	Q				V
21+25	0.8029	0.08	Q				V
21+30	0.8034	0.08	Q				V
21+35	0.8041	0.10	Q				V
21+40	0.8049	0.11	Q				V
21+45	0.8057	0.12	Q				V
21+50	0.8063	0.10	Q				V
21+55	0.8069	0.08	Q				V
22+ 0	0.8074	0.08	Q				V
22+ 5	0.8081	0.10	Q				V
22+10	0.8089	0.11	Q				V
22+15	0.8097	0.12	Q				V
22+20	0.8103	0.10	Q				V
22+25	0.8109	0.08	Q				V
22+30	0.8114	0.08	Q				V
22+35	0.8120	0.08	Q				V
22+40	0.8125	0.08	Q				V
22+45	0.8130	0.08	Q				V
22+50	0.8136	0.08	Q				V
22+55	0.8141	0.08	Q				V
23+ 0	0.8146	0.08	Q				V
23+ 5	0.8152	0.08	Q				V
23+10	0.8157	0.08	Q				V
23+15	0.8163	0.08	Q				V
23+20	0.8168	0.08	Q				V
23+25	0.8173	0.08	Q				V
23+30	0.8179	0.08	Q				V
23+35	0.8184	0.08	Q				V

23+40	0.8189	0.08	Q				V
23+45	0.8195	0.08	Q				V
23+50	0.8200	0.08	Q				V
23+55	0.8205	0.08	Q				V
24+ 0	0.8211	0.08	Q				V
24+ 5	0.8213	0.04	Q				V
24+10	0.8214	0.01	Q				V
24+15	0.8214	0.00	Q				V

Unit Hydrograph Analysis

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Study date 02/19/21 File: 1162004PROUHB1100.out

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

Program License Serial Number 6335

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

English Units used in output format

VALUED ENGINEERING, INC
1162004 - MEXIN WINERY
POST-DEVELOPED, DMA-B
100-YEAR, 1-HOUR STORMEVENT

Drainage Area = 2.72(Ac.) = 0.004 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 2.72(Ac.) =
0.004 Sq. Mi.
Length along longest watercourse = 714.00(Ft.)
Length along longest watercourse measured to centroid =
442.00(Ft.)
Length along longest watercourse = 0.135 Mi.
Length along longest watercourse measured to centroid = 0.084 Mi.
Difference in elevation = 5.40(Ft.)
Slope along watercourse = 39.9328 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.033 Hr.
Lag time = 1.95 Min.
25% of lag time = 0.49 Min.
40% of lag time = 0.78 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
2.72	0.61	1.66

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
2.72	1.65	4.48

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.610(In)
Area Averaged 100-Year Rainfall = 1.650(In)

Point rain (area averaged) = 1.650(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.650(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
2.716	69.00	0.900

Total Area Entered = 2.72(Ac.)

RI	RI	Infil. Rate	Impervious	Adj. Infil. Rate	Area%	F
AMC2	AMC-3	(In/Hr)	(Dec.%)	(In/Hr)	(Dec.)	(In/Hr)
69.0	84.4	0.194	0.900	0.037	1.000	0.037
Sum (F) =						0.037

Area averaged mean soil loss (F) (In/Hr) = 0.037
Minimum soil loss rate ((In/Hr)) = 0.018
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.180

Slope of intensity-duration curve for a 1 hour storm =0.5500

Unit Hydrograph VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	256.038	1.414
2	0.167	512.077	1.086
3	0.250	768.115	0.187
4	0.333	1024.153	0.050
Sum = 100.000		Sum=	2.737

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	3.30	0.653	0.037	(0.118)	0.617
2	0.17	4.20	0.832	0.037	(0.150)	0.795
3	0.25	4.40	0.871	0.037	(0.157)	0.834
4	0.33	4.80	0.950	0.037	(0.171)	0.914
5	0.42	5.20	1.030	0.037	(0.185)	0.993
6	0.50	6.20	1.228	0.037	(0.221)	1.191
7	0.58	6.80	1.346	0.037	(0.242)	1.310
8	0.67	8.80	1.742	0.037	(0.314)	1.706
9	0.75	13.90	2.752	0.037	(0.495)	2.715
10	0.83	31.40	6.217	0.037	(1.119)	6.180
11	0.92	7.20	1.426	0.037	(0.257)	1.389
12	1.00	3.80	0.752	0.037	(0.135)	0.716

(Loss Rate Not Used)

Sum = 100.0 Sum = 19.4

Flood volume = Effective rainfall 1.61(In)
times area 2.7(Ac.)/[(In)/(Ft.)] = 0.4(Ac.Ft)

Total soil loss = 0.04(In)

Total soil loss = 0.008(Ac.Ft)

Total rainfall = 1.65(In)

Flood volume = 15904.0 Cubic Feet

Total soil loss = 363.1 Cubic Feet

Peak flow rate of this hydrograph = 12.081(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0060	0.87	VQ				
0+10	0.0184	1.79	VQ				
0+15	0.0332	2.16	VQ				
0+20	0.0496	2.38	QV				
0+25	0.0675	2.59	Q V				
0+30	0.0880	2.98	Q V				
0+35	0.1112	3.38	Q	V			
0+40	0.1395	4.11	Q	V			
0+45	0.1809	6.00		Q	V		
0+50	0.2641	12.08			Q	V	
0+55	0.3279	9.27			Q		V
1+ 0	0.3542	3.81		Q			V
1+ 5	0.3635	1.35	Q				V
1+10	0.3649	0.20	Q				V
1+15	0.3651	0.04	Q				V



LEGEND

978.61

8

DMA A

1.005 AC

FL=XXX'

LCA=XXX'

⊗

WATERSHED BOUNDARY

SURFACE ELEVATION
SUBAREA NODE

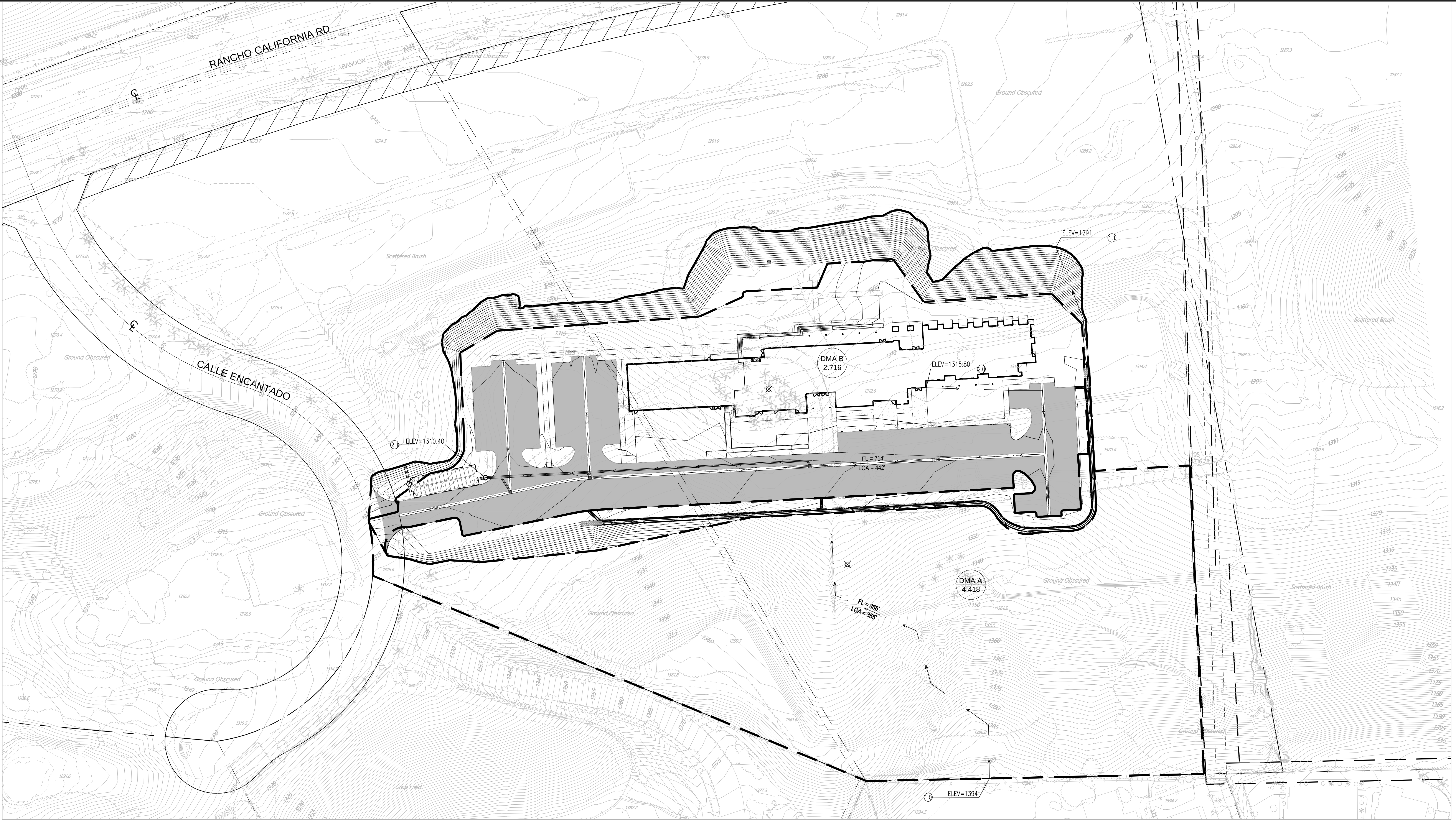
SUBAREA DESIGNATION
SUBAREA AREA (IN ACRE)

FLOW LENGTH
CENTROIDAL LENGTH

FLOW PATTERN

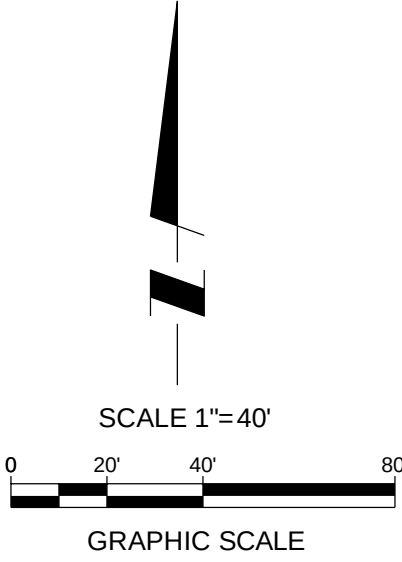
AREA CENTROID

 VALUED ENGINEERING, INC. CIVIL ENGINEERING • LAND SURVEYING • LAND PLANNING 600 N. MOUNTAIN AVE., STE C102, UPLAND, CA 91786 PHONE: (909) 982-4601	CITY OF TEMECULA		SHEET 1 OF 1
	PRE-DEVELOPED UNIT HYDROGRAPH MAP MEXIN WINERY 41325 CALLE ENCANTADO		
	DATE: MARCH 2021	PREPARED BY: DH REVIEWED BY: JDM	



LEGEND

- WATERSHED BOUNDARY
- SURFACE ELEVATION
- SUBAREA NODE
- SUBAREA DESIGNATION
- SUBAREA AREA (IN ACRE)
- FLOW LENGTH
- CENTROIDAL LENGTH
- FLOW PATTERN
- AREA CENTROID



DATE: MARCH 2021

PREPARED BY: DH
REVIEWED BY: JDM

COUNTY OF RIVERSIDE
PROPOSED DEVELOPED
UNIT HYDROGRAPH
PM 5506
MEXIN WINERY

FOR: MEXIN WINERY W.O.

SHEET
1
OF 1

APPENDIX “E”

BASIN ROUTING:

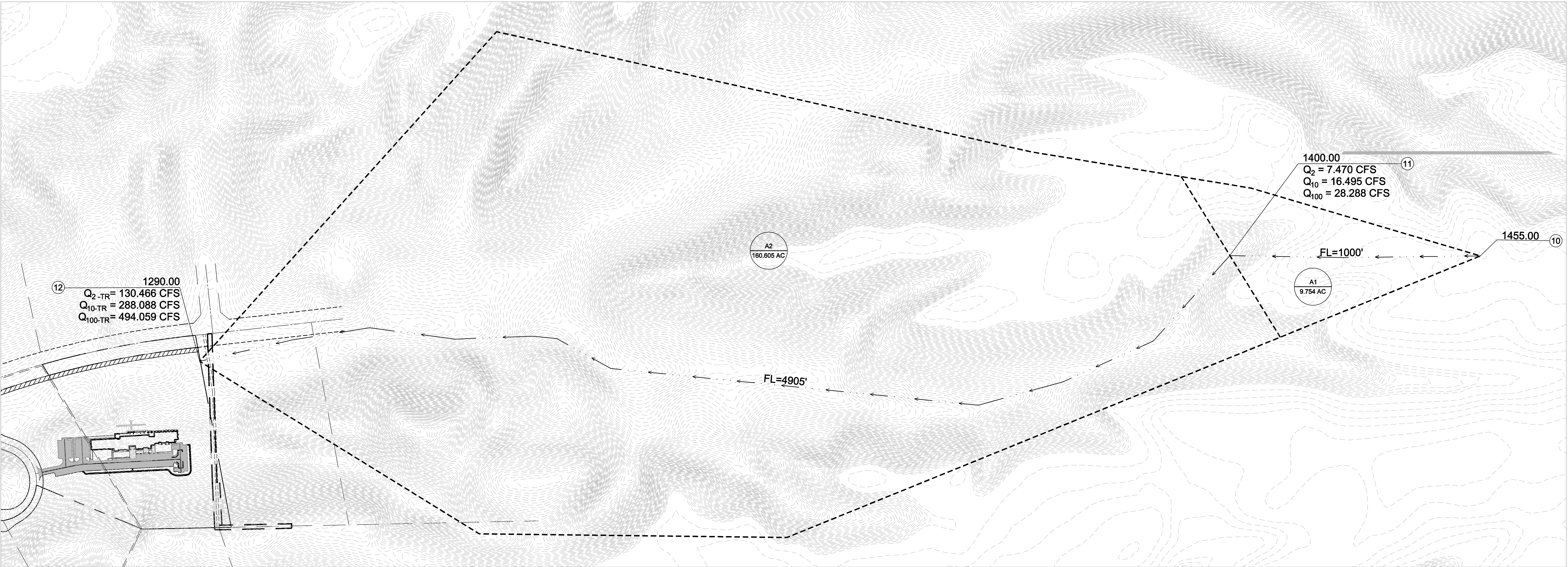
APPENDIX "F"

STORMDRAIN CAPACITY:

APPENDIX "G"

HYDROLOGY MAPS:

OFF-SITE PRE-DEVELOPED HYDROLOGY MAP
PRE-DEVELOPED HYDROLOGY MAP
POST-DEVELOPED HYDROLOGY MAP



LEGEND

978.61

Q_{100}

Q_{TR}

DMA A
1.005 AC

FL

A

→ · · · · · →

BASIN BOUNDARY

SURFACE ELEVATION

SUBAREA NODE

SUBAREA RUNOFF

CUMULATIVE SUBAREA RUNOFF

SUBAREA DESIGNATION

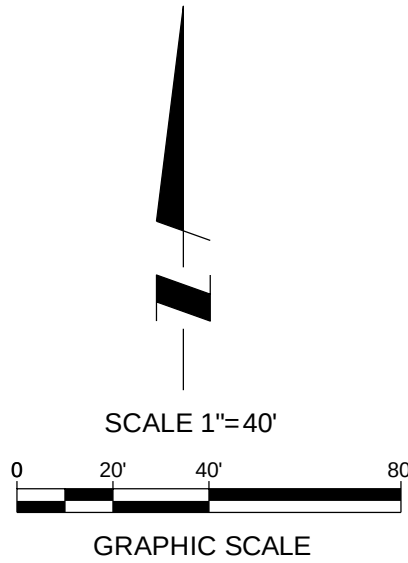
SUBAREA AREA (IN ACRE)

FLOW LENGTH

BASIN AREA

FLOW PATTERN

OFF SITE HYDROLOGY - RATIONAL METHOD							
SUBAREA	ACRE	Q_2	CONFLUENCED Q_{2-TR}	Q_{10}	CONFLUENCED Q_{10-TR}	Q_{100}	CONFLUENCED Q_{100-TR}
A1	9.754	7.470		16.495		28.288	
A2	160.605	122.996		271.593		465.770	
TOTAL	170.359		130.466		288.088		494.059



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CITY OF TEMECULA

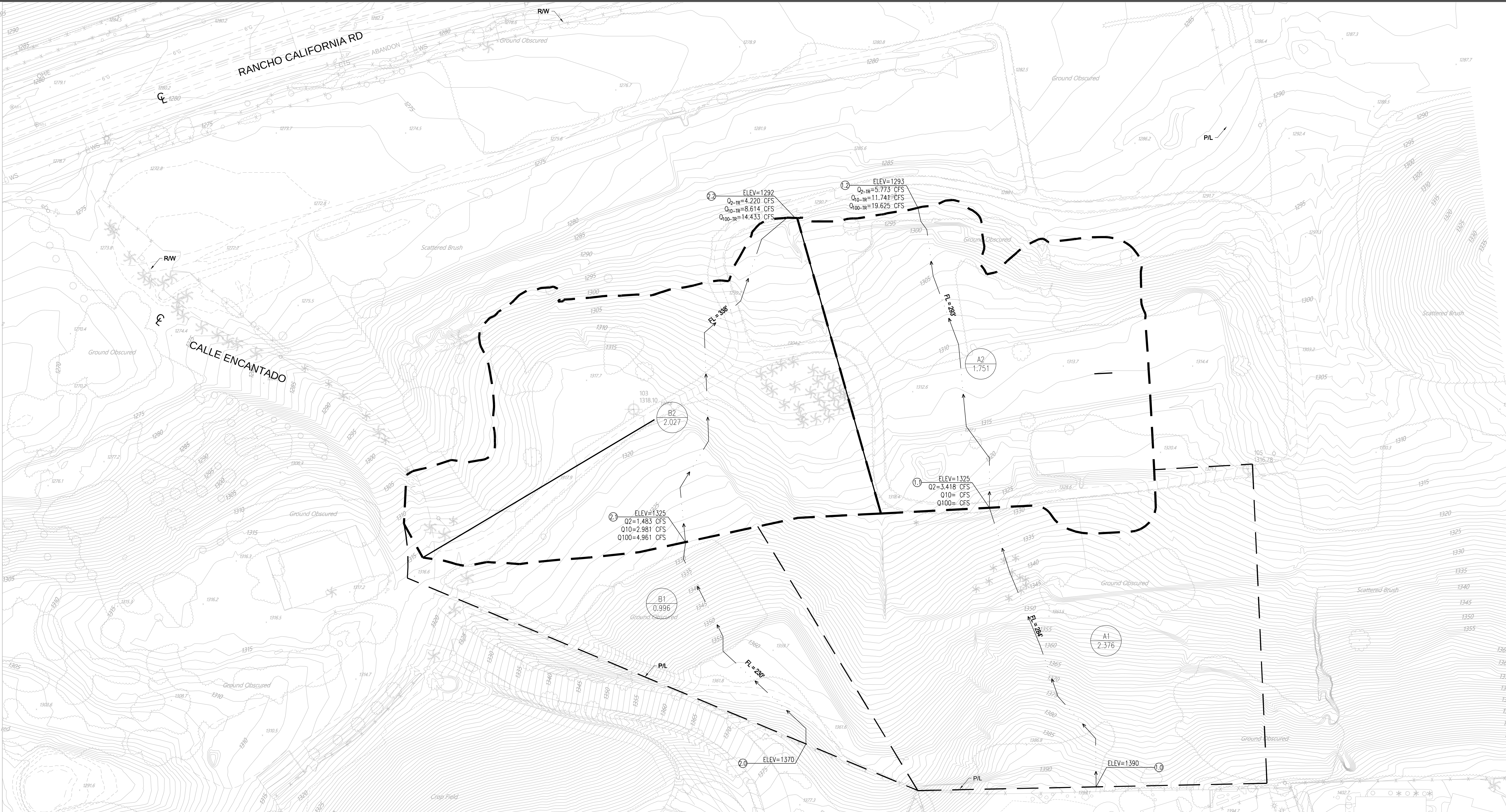
OFFSITE - PRE DEVELOPED
HYDROLOGY MAP
MEXIN WINERY
41325 CALLE ENCANTADO

FOR: MEXIN WINERY

SHEET

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OF 1

W.O.



PRE-DEVELOPED HYDROLOGY - RATIONAL METHOD

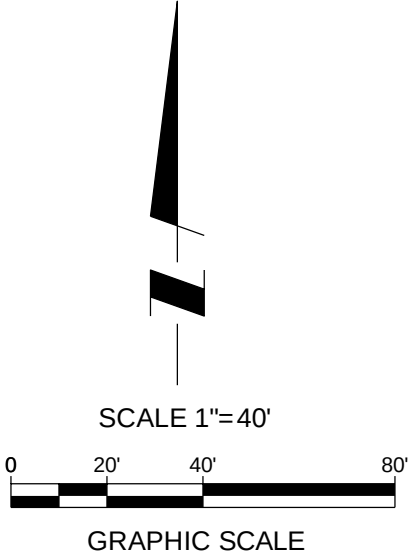
SUBAREA	ACRE	Q ₂	CONFLUENCED Q _{2-TR}	Q ₁₀	CONFLUENCED Q _{10-TR}	Q ₁₀₀	CONFLUENCED Q _{100-TR}
A1	2.376	3.418		6.903		11.502	
A2	1.751	2.358	5.775	4.843	11.747	8.132	19.635
B1	0.996	1.484		2.984		4.966	
B2	2.027	2.754	4.238	5.667	8.651	9.528	14.494
TOTAL	7.150		9.982		20.311		33.958

HYDRAULIC SOIL TYPES

HYDROLOGIC SOIL GROUP-C = 3.77 AC

LEGEND

- BASIN BOUNDARY
- SURFACE ELEVATION
- SUBAREA NODE
- SUBAREA RUNOFF
- CUMULATIVE SUBAREA RUNOFF
- SUBAREA DESIGNATION
- SUBAREA AREA (IN ACRE)
- FLOW LENGTH
- BASIN AREA
- FLOW PATTERN



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CITY OF TEMECULA

PRE-DEVELOPED
HYDROLOGY MAP

MEXIN WINERY
41325 CALLE ENCANTADO

DATE: MARCH 2021

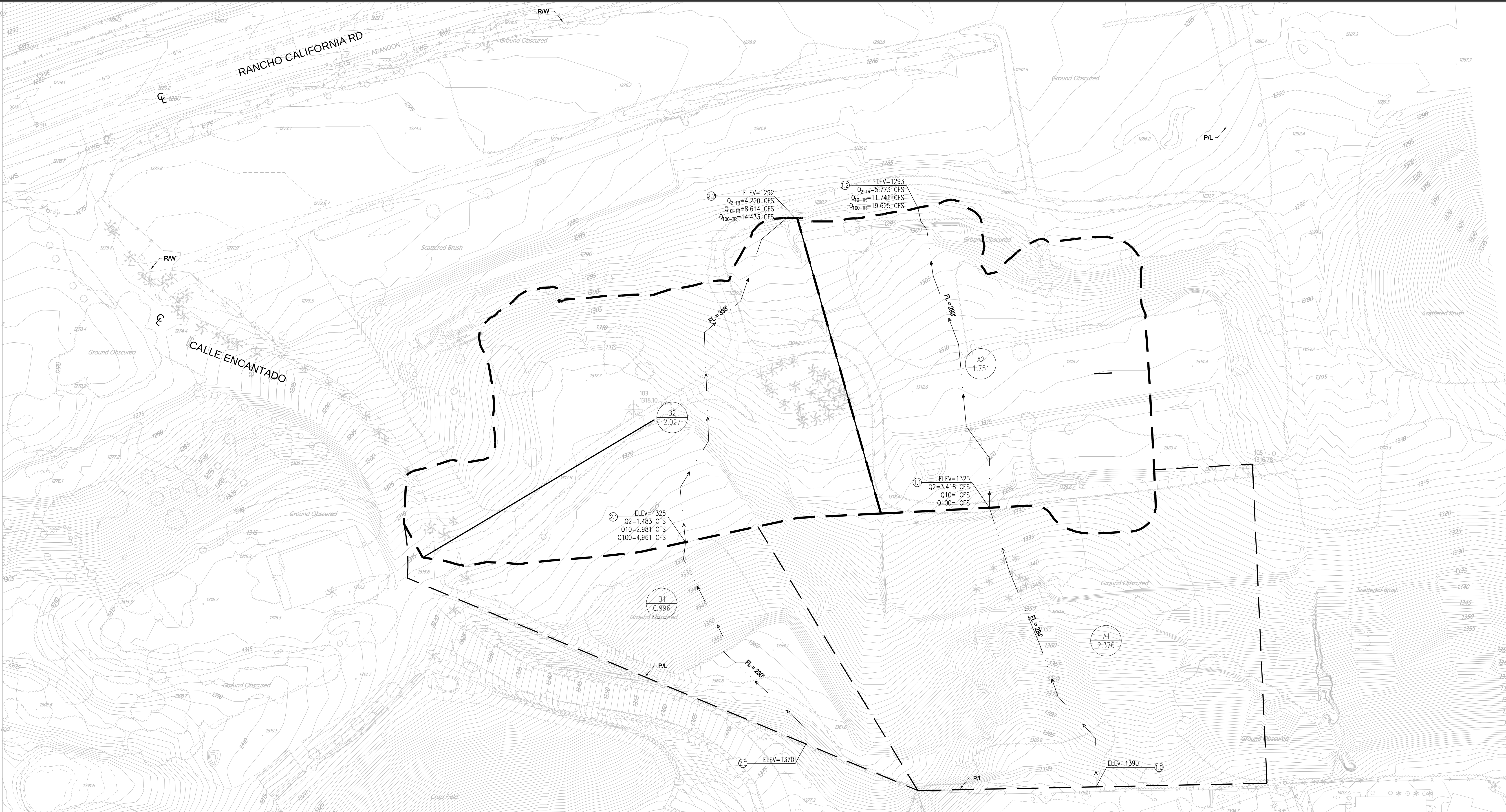
PREPARED BY: DH
REVIEWED BY: JDM

FOR: MEXIN WINERY

W.O.

SHEET

1
OF 1



PRE-DEVELOPED HYDROLOGY - RATIONAL METHOD

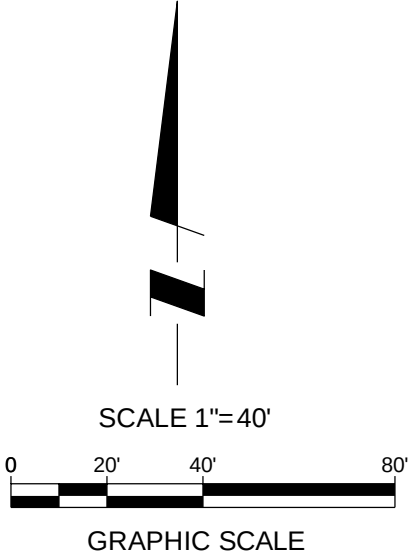
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HYDRAULIC SOIL TYPES

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LEGEND

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PRE-DEVELOPED
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