Hydrology Study

For:

TPM 20192

APN(S): 0257-101-01

Prepared for:

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Site Description and Purpose

The property herein described Is located in a portion of the Northeast Quarter of the Northwest Quarter of Section 27 in Township 1 South Range 5 West, San Bernardino Base and Meridian. The property is further described as the West half of Lot 380 according to the Map Showing Subdivision of Lands Belonging to the Semi-Tropic Land and Water Company, In the County of San Bernardino, State of California, as per Plat Recorded in Book 11, Page 12 of Maps, Records of said County. The site is bordered by Santa Avenue on the North and Cedar Avenue on the West, vacant fallow farmland on the East, and vacant fallow farmland on the South and Southwest. The site is currently vacant fallow farmland. The site is in the middle of the unincorporated San Bernardino County community of Bloomington, California. The proposed development will consist of a commercial development to include the following elements: a gas station/convenience store/truck stop, two quick-serve restaurants, a traditional sit-down restaurant, a passenger car type car-wash, and an automated tractor/trailer truck-wash.

The purpose of this hydrology report is to determine the volume of retention needed to meet the county drainage mitigation goal of 90% pre-development runoff flows and demonstrate the negative drainage impact on the surrounding community resulting from this development project. This report has been prepared in accordance with the San Bernardino County Hydrology Manual to meet the San Bernardino County Land Use Services Department requirements for new development. The proposed project TPM 20192 covers 8.57 acres in Bloomington CA, which is a unincorporated community of San Bernardino County. This following report includes the identification of existing and proposed condition drainage areas, peak flow rates and proposed mitigation

Reference Materials

The plans and documents used to prepare this report are listed below.

- San Bernardino County Hydrology Manual, Dated: August 1986
- USDA Natural Resources Conservation Service (NRCS) Soils Web Survey (https://websoilsurvey.sc.egov.usda.gov/)
- Aerial Topography by Aerotech Mapping, Inc., Dated August 21, 2019
- Tentative Parcel Map 20192 by Black Gold Engineering, Inc., Dated December 12, 2019

Watershed Information

In accordance with the Section B of the San Bernardino County Hydrology Manual, The isohyetal maps included in the manual were used for this study. The rainfall values for the site have been listed in the table below. See attachment one for isohyetal maps.

Isohyetal Maps from Hydrology Manual	
Storm Event	Rainfall (Inches)
2 Year – 6 Hour	1.55
2 Year – 24 Hour	2.90
10 Year – 1 Hour	0.88
100 Year – 1 Hour	1.25
100 Year – 6 Hour	3.25
100 Year – 24 Hour	6.90

The USDA Natural Resources Conservation Service (NRCS) Soils Web Survey system was used to obtain information about the underlying soil in the project area. The NRCS data was used in place of the Hydrologic Soils

Group Maps in Section C of the Hydrology Manual because it is believed that the NRCS data is more accurate. Below is a list of the curve numbers used for this study. See attachment two for soils data.

Soils Data from Hydrology Manual	
Cover Type	AMC II Value
Perennial Grass (Fair)	50
Commercial Landscaping (Good)	32
Impervious	98

The off-site conditions were determined using the aerial topographic survey and a site visit on March 8th, 2020. To the north is Santa Ana Avenue and there is a mobile home park across the street. To the east and south are vacant lots and to the west is Cedar Avenue with a vacant lot and some commercial use buildings. Based on the existing street improvements and earthen berms on Santa Ana Avenue, there is no significant source of off-site tributary area. The photos below show the existing street improvements near the project site. Post Construction flows will overflow to Cedar Avenue which is improved with curb and gutter

Northeast Corner looking west

Southwest corner looking north

The project site is currently vacant with perennial grass cover. The site has two main drainage areas. A portion of the site drains to the southwest down an existing slope. The remainder of the site drains south. See attachment three for the existing conditions exhibit and attachment four for the proposed conditions exhibit.

Northwest corner looking southeast

Rational Calculations

The input information from the hydrology exhibit is tabulated below. The output information from the hydrology software is also shown below. The supporting calculations are included in attachment five.

Existing Condition Input Data

Drainage Area	Acreage	Cover Type	Soils Group	SCS Number	Pervious Percent	Upstream Elevation (Feet)	Downstream Elevation (Feet)	Flow Path (Feet)
E1	4.61	Perennial Grass	A	50	1.00	1036.0	1021.5	742
E2	3.96	Perennial Grass	A	50	1.00	1036.5	1026.5	634

Existing Condition Output Data

Drainage Area	Q10-1 (CFS)	Q25-1 (CFS)	Q100-1 (CFS)	Time of Concentration (Min.)
E1	2.25	3.19	5.76	29.36
E2	1.99	2.81	5.03	28.77
Total	4.24	6.00	10.79	~

Proposed Condition Input Data

Drainage Area	Acreage	Cover Type	Soils Group	SCS Number	Pervious Percent	Upstream Elevation (Feet)	Downstream Elevation (Feet)	Flow Path (Feet)
P1	1.00	Commercial Landscaping	A	32	0.05	1034.8	1027.8	435
P2	5.17	Commercial Landscaping	A	32	0.04	1035.9	1024.5	824
P3	2.40	Commercial Landscaping	A	32	0.09	1033.2	1024.5	759

Proposed Condition Output Data

Drainage Area	Q10-1 (CFS)	Q25-1 (CFS)	Q100-1 (CFS)	Time of Concentration (Min.)
P1	2.73	3.19	3.90	7.44
P2	11.95	13.98	17.09	9.82
P3	5.28	6.20	7.62	10.29
Total	19.96	23.37	28.61	~

Unit Hydrograph Calculations

The input information from the hydrology exhibit is tabulated below. The output information from the hydrology software is also shown below. The supporting calculations are included in attachment six.

Existing Condition Input Data				
Drainage Area	**Acreage**	**SCS Number**	**Pervious Percent**	**Time of Concentration (Hr.)**
E1	4.61	50	1.00	0.489
E2	3.96	50	1.00	0.479
Total	8.57			

Existing Condition Output Data						
Drainage Area	**Q10-24 (CFS)**	**V10-24 (AF)**	**Q25-24 (CFS)**	**V25-24 (AF)**	**Q100-24 (CFS)**	**V100-24 (AF)**
E1	2.62	0.292	3.37	0.457	5.60	1.439
E2	2.27	0.251	2.92	0.392	4.85	1.236
Total	4.89	0.543	6.29	0.849	10.45	2.675

Proposed Condition Input Data				
Drainage Area	**Acreage**	**SCS Number**	**Pervious Percent**	**Time of Concentration (Hr.)**
P1	1.00	32	0.05	0.124
P2	5.17	32	0.04	0.164
P3	2.40	32	0.09	0.172
Total	8.57		~	

Proposed Condition Output Data						
Drainage Area	**Q10-24 (CFS)**	**V10-24 (AF)**	**Q25-24 (CFS)**	**V25-24 (AF)**	**Q100-24 (CFS)**	**V100-24 (AF)**
P1	2.60	0.345	3.05	0.419	3.73	0.539
P2	11.15	1.799	13.04	2.189	15.96	2.806
P3	4.85	0.794	5.69	0.967	7.01	1.255
Total	18.60	2.938	21.78	3.575	26.70	4.600

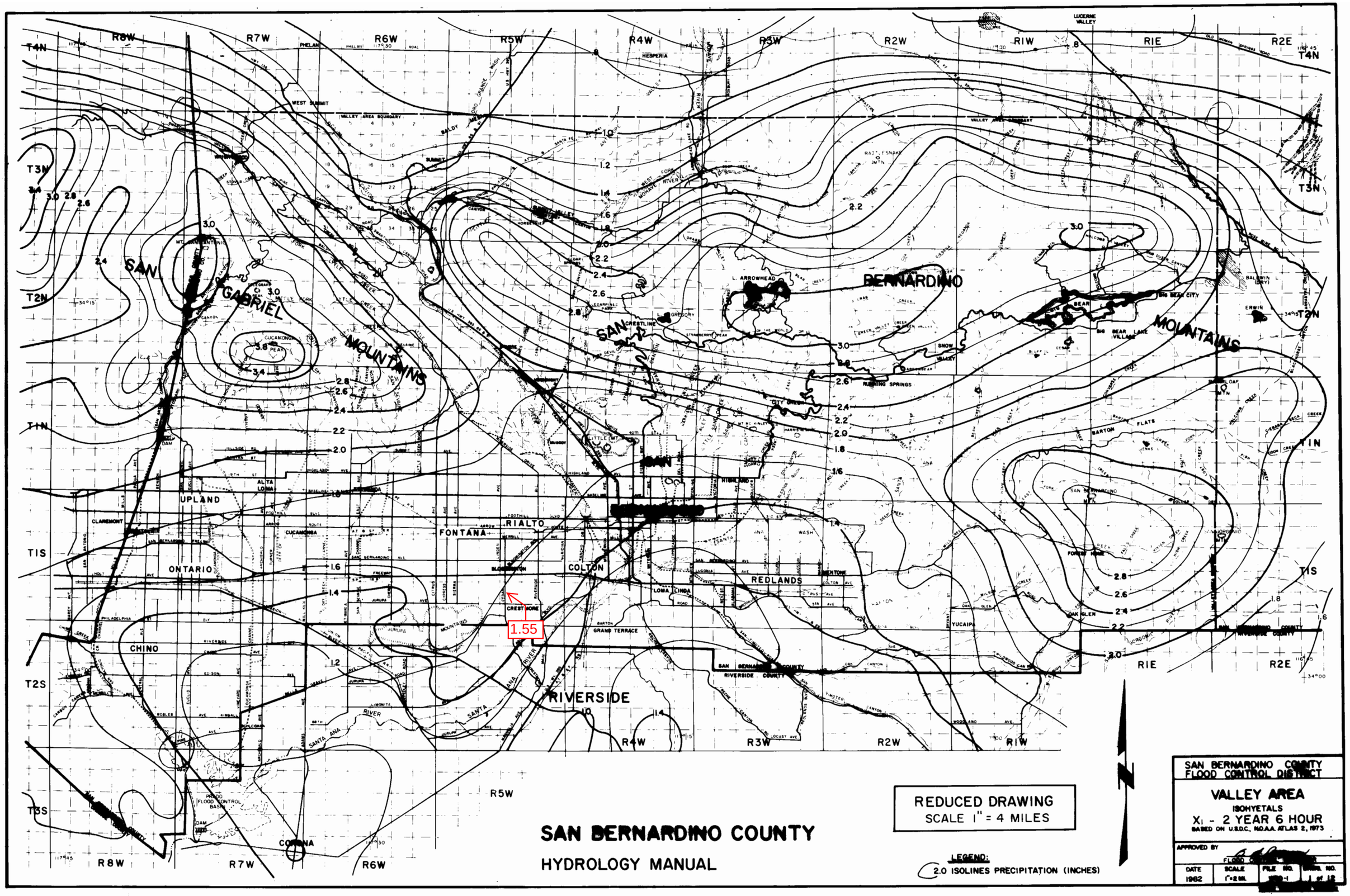
Summary & Conclusion

The proposed project will direct all drainage to Cedar Avenue in the post construction condition. The table below has a summary of the unit hydrograph calculations and the total allowable post construction discharge.

Unit Hydrograph and Mitigation Data						
Drainage Area	**Existing**	**Proposed**	**Allowable (90% Existing)**	**Adjusted**		
Q10-24	4.89	18.60	4.40			
Q25-24	6.29	21.78	5.66			
Q100-24	10.45	26.70	9.41			
Total						

Attachment 1

Isohyetal Maps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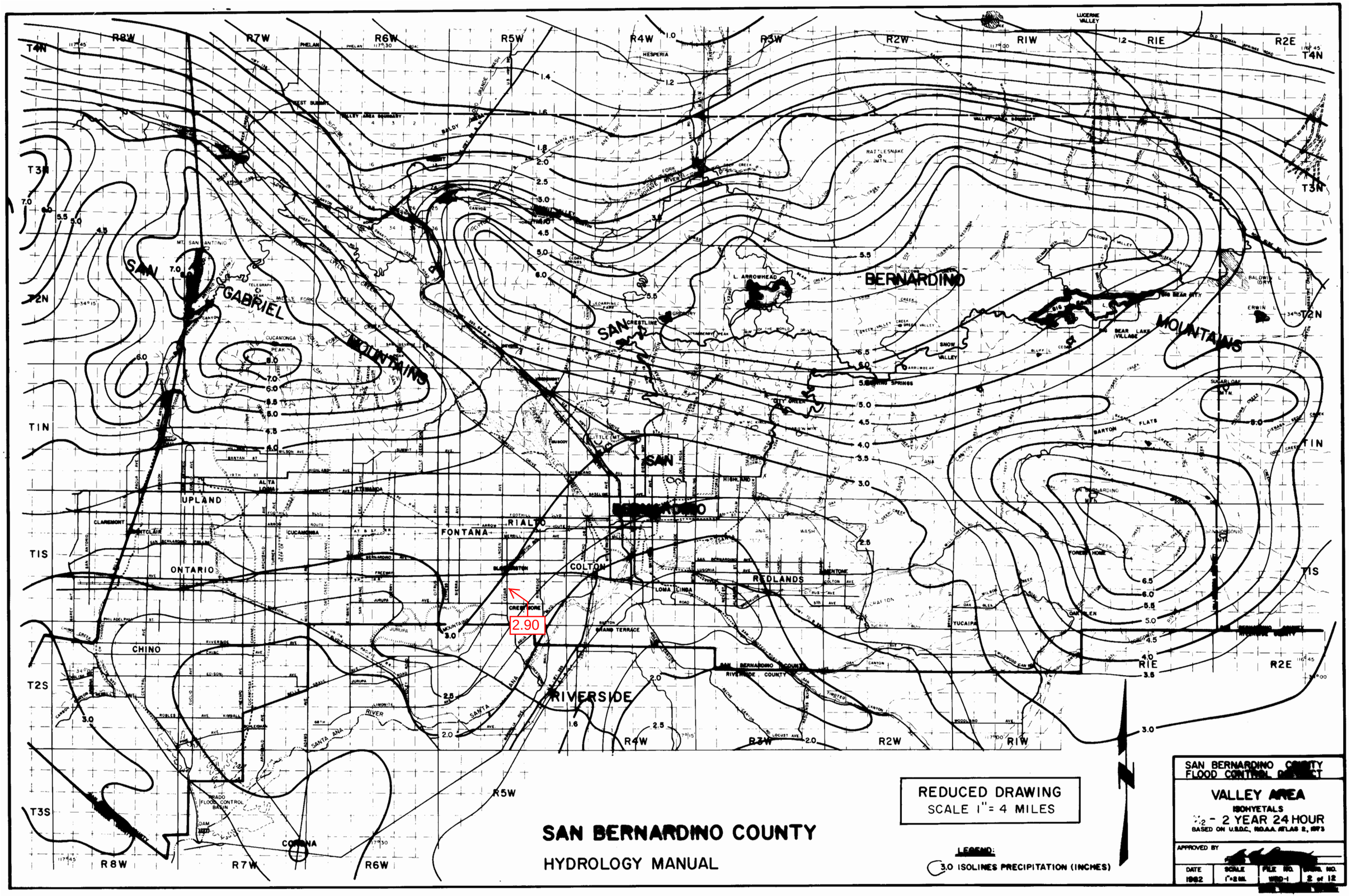
SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT
VALLEY AREA
ISOHYETALS
X1 - 2 YEAR 6 HOUR
BASED ON U.S.D.C., N.O.A.A. ATLAS 2, 1973
APPROVED BY
DATE 1962
SCALE 1"=2 MI.
FILE NO.
DWG. NO.
1 of 12
SAN GABRIEL MOUNTAINS
SAN BERNARDINO MOUNTAINS
UPLAND
ONTARIO
CHINO
FONTANA
RIALTO
COLTON
REDLANDS
RIVERSIDE
CORONA
1.55

FIGURE B-1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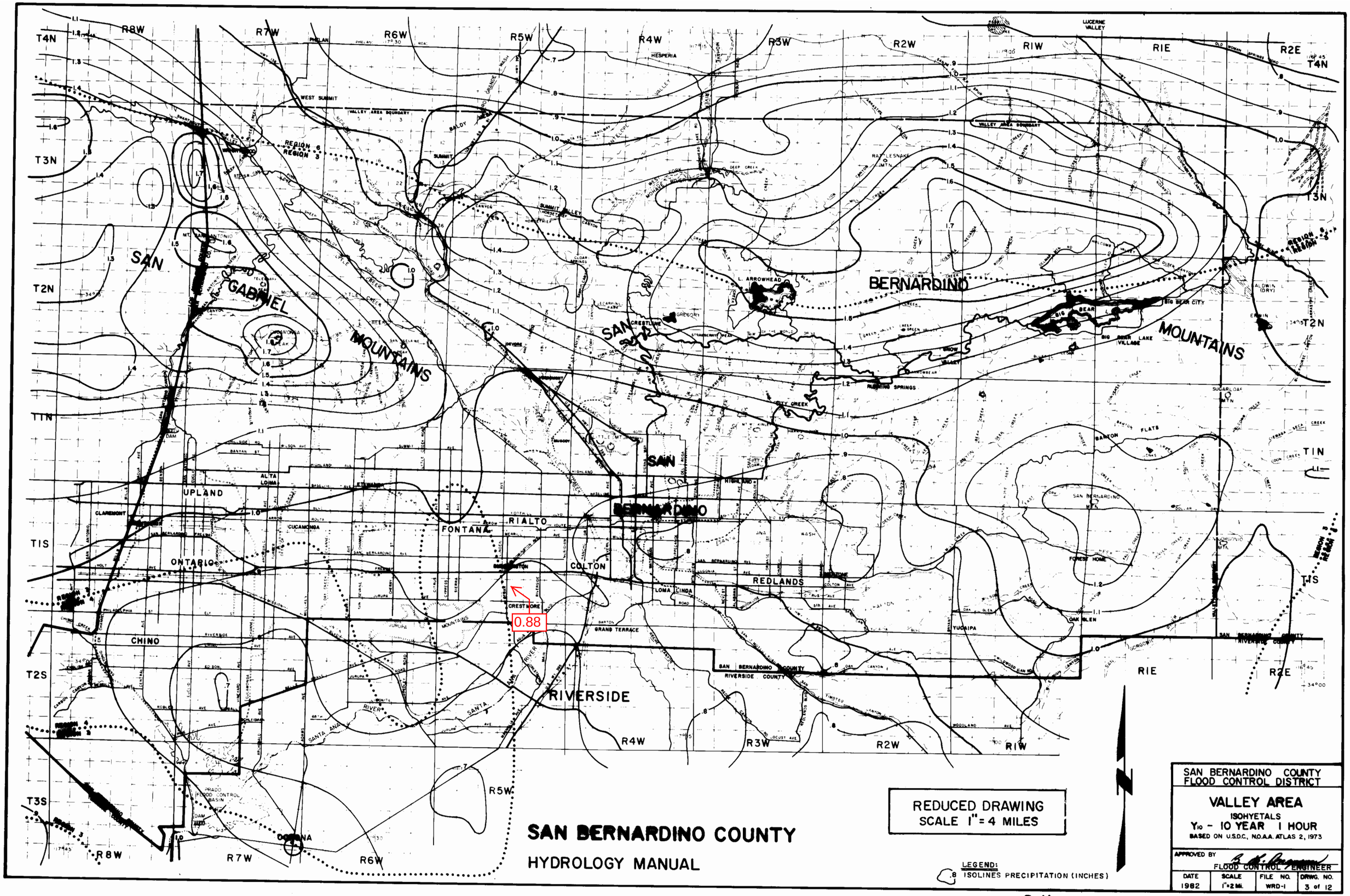
VALLEY AREA
ISOHYETALS
1/2 - 2 YEAR 24 HOUR
BASED ON U.S.D.C., N.O.A.A. ATLAS 2, 1973
APPROVED BY
DATE 1982
SCALE 1"=2 MI.
FILE NO. WRD-1
DWG. NO. 2 of 12
2.90
SAN GABRIEL MOUNTAINS
SAN BERNARDINO MOUNTAINS
SAN BERNARDINO
RIVERSIDE
UPLAND
ONTARIO
CHINO
FONTANA
RIALTO
COLTON
REDLANDS
LOMA LINDA
YUCAIPA
CORONA
R8W
R7W
R6W
R5W
R4W
R3W
R2W
R1W
R1E
R2E
T4N
T3N
T2N
T1N
T1S
T2S
T3S

FIGURE B-2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HYDROLOGY MANUAL
REDUCED DRAWING
SCALE 1" = 4 MILES
LEGEND:
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SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT
VALLEY AREA
ISOHYETALS
Y10 - 10 YEAR 1 HOUR
BASED ON U.S.D.C., N.O.A.A. ATLAS 2, 1973
APPROVED BY
FLOOD CONTROL ENGINEER
DATE 1982
SCALE 1"=2 MI.
FILE NO. WRD-1
DRWG. NO. 3 of 12
0.88
CREST MORE
SAN GABRIEL MOUNTAINS
SAN BERNARDINO MOUNTAINS
SAN BERNARDINO
RIVERSIDE
UPLAND
ONTARIO
CHINO
FONTANA
RIALTO
COLTON
REDLANDS
LOMA LINDA
YUCAIPA
CUCAMONGA
ALTA LOMA
CLAREMONT
GRAND TERRACE
BIG BEAR
BIG BEAR CITY
BIG BEAR LAKE VILLAGE
ARROWHEAD
HESPERIA
LUCERNE VALLEY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
T4N
T3N
T2N
T1N
T1S
T2S
T3S
R8W
R7W
R6W
R5W
R4W
R3W
R2W
R1W
R1E
R2E

FIGURE B-3

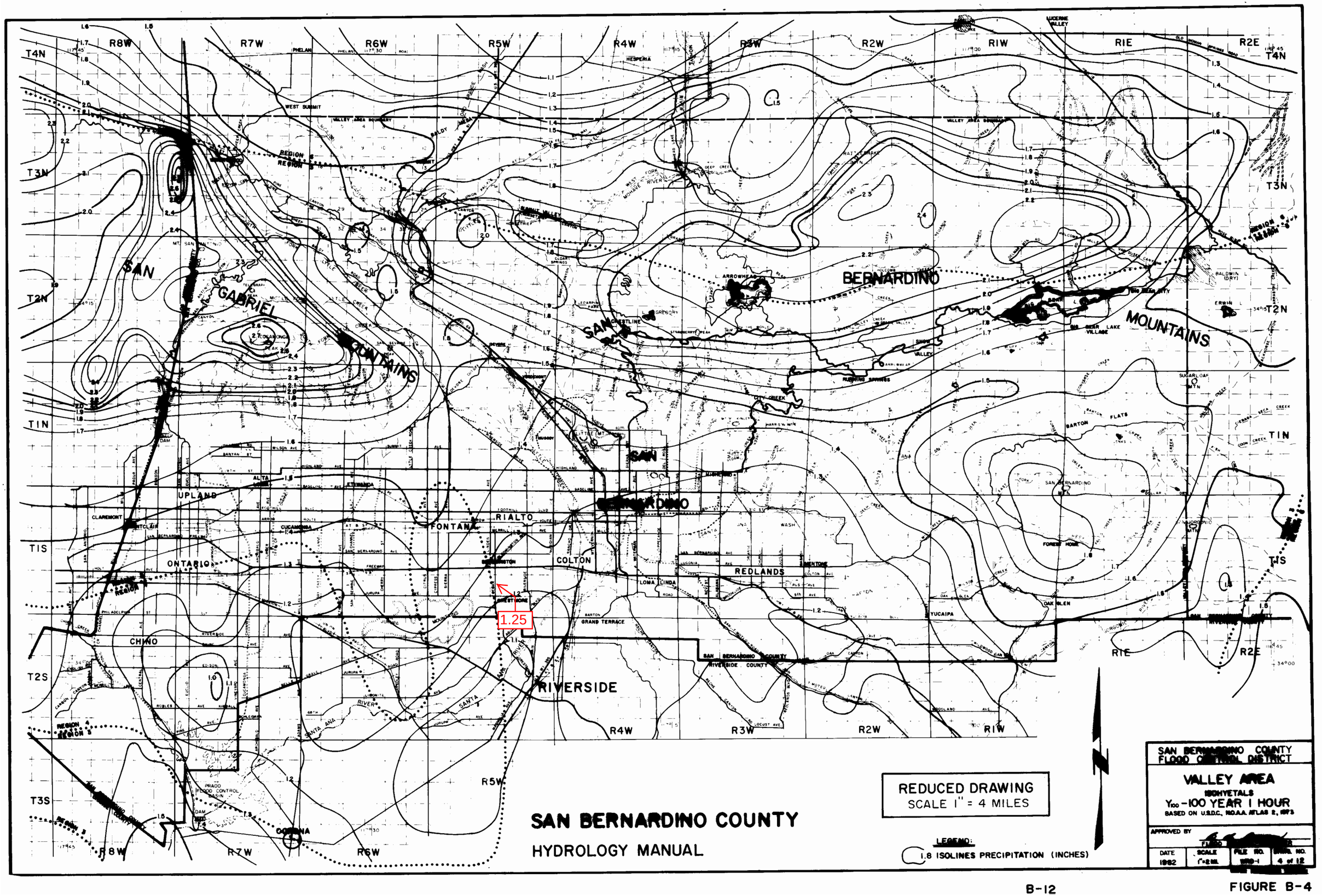

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL
REDUCED DRAWING
SCALE 1" = 4 MILES
LEGEND:
1.8 ISOLINES PRECIPITATION (INCHES)
1.25
SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT
VALLEY AREA
ISOHYETALS
Y100 -100 YEAR 1 HOUR
BASED ON U.S.D.C., NOAA ATLAS 2, 1973
APPROVED BY
DATE
1982
SCALE
1"=2 MI.
FILE NO.
SHEET NO.
4 of 12
SAN GABRIEL MOUNTAINS
SAN BERNARDINO MOUNTAINS
UPLAND
ONTARIO
CHINO
CLAREMONT
FONTANA
RIALTO
COLTON
REDLANDS
LOMA LINDA
RIVERSIDE
YUCAIPA
GRAND TERRACE
OAK GLEN
FOREST HOME
BIG BEAR LAKE VILLAGE
SNOW VALLEY
RUNNING SPRINGS
ARROWHEAD
HESPERIA
LUCERNE VALLEY
PHELAN
WEST SUMMIT
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
PRADO FLOOD CONTROL BASIN
CORONA
T4N
T3N
T2N
T1N
T1S
T2S
T3S
R8W
R7W
R6W
R5W
R4W
R3W
R2W
R1W
R1E
R2E

FIGURE B-4

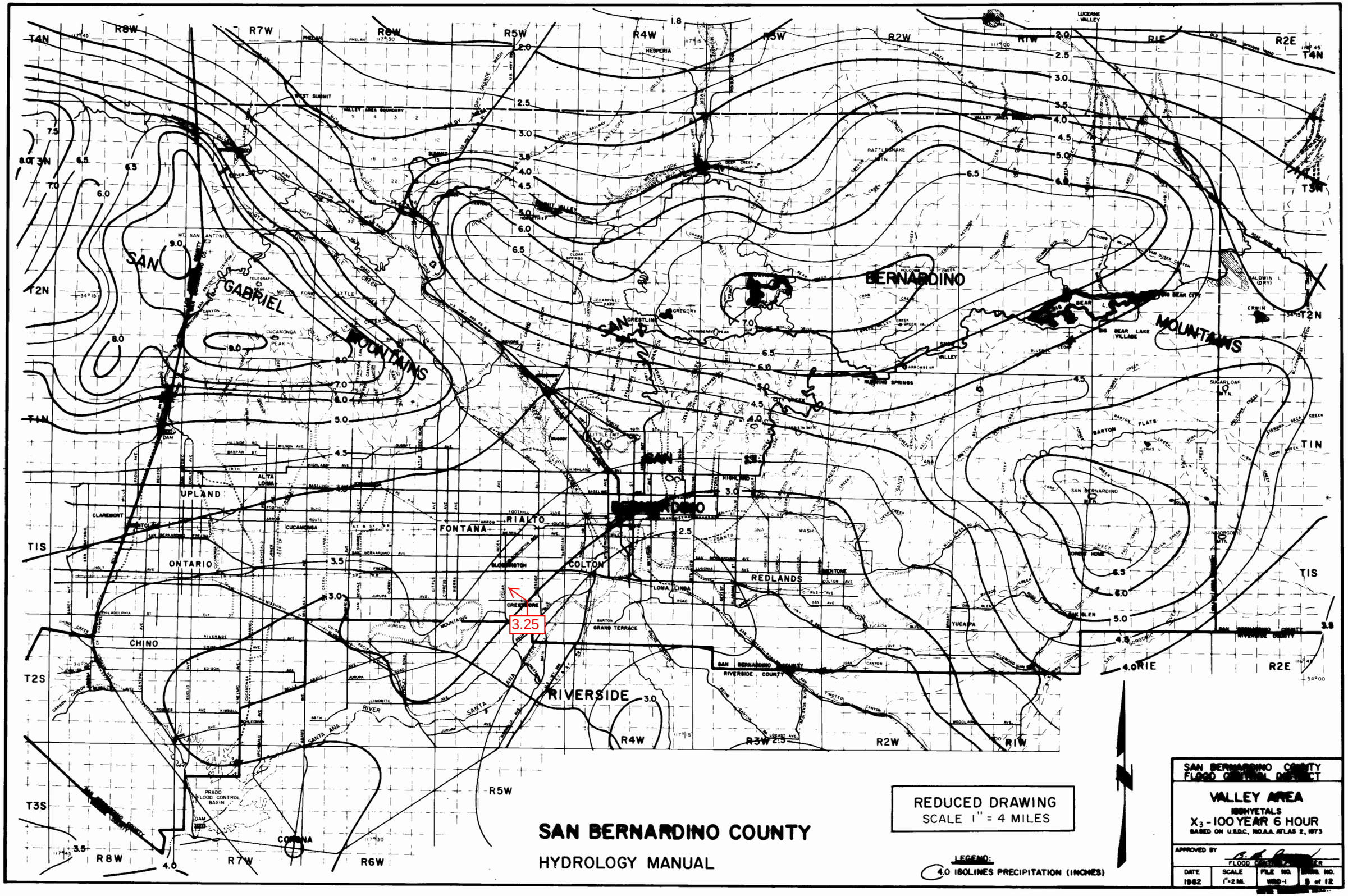

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL
REDUCED DRAWING
SCALE 1" = 4 MILES
LEGEND:
4.0 ISOLINES PRECIPITATION (INCHES)
SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT
VALLEY AREA
ISOHYETALS
X3 - 100 YEAR 6 HOUR
BASED ON U.S.D.C., NOAA ATLAS 2, 1973
APPROVED BY
FLOOD CONTROL ENGINEER
DATE 1982
SCALE 1"=2 MI.
FILE NO. WRD-1
SHEET NO. 8 of 12
SAN GABRIEL MOUNTAINS
SAN BERNARDINO MOUNTAINS
SAN BERNARDINO
RIVERSIDE
UPLAND
ONTARIO
CHINO
FONTANA
RIALTO
COLTON
REDLANDS
CORONA
CREEPER RIDGE
3.25
R8W
R7W
R6W
R5W
R4W
R3W
R2W
R1W
R1E
R2E
T4N
T3N
T2N
T1N
T1S
T2S
T3S

FIGURE B-5

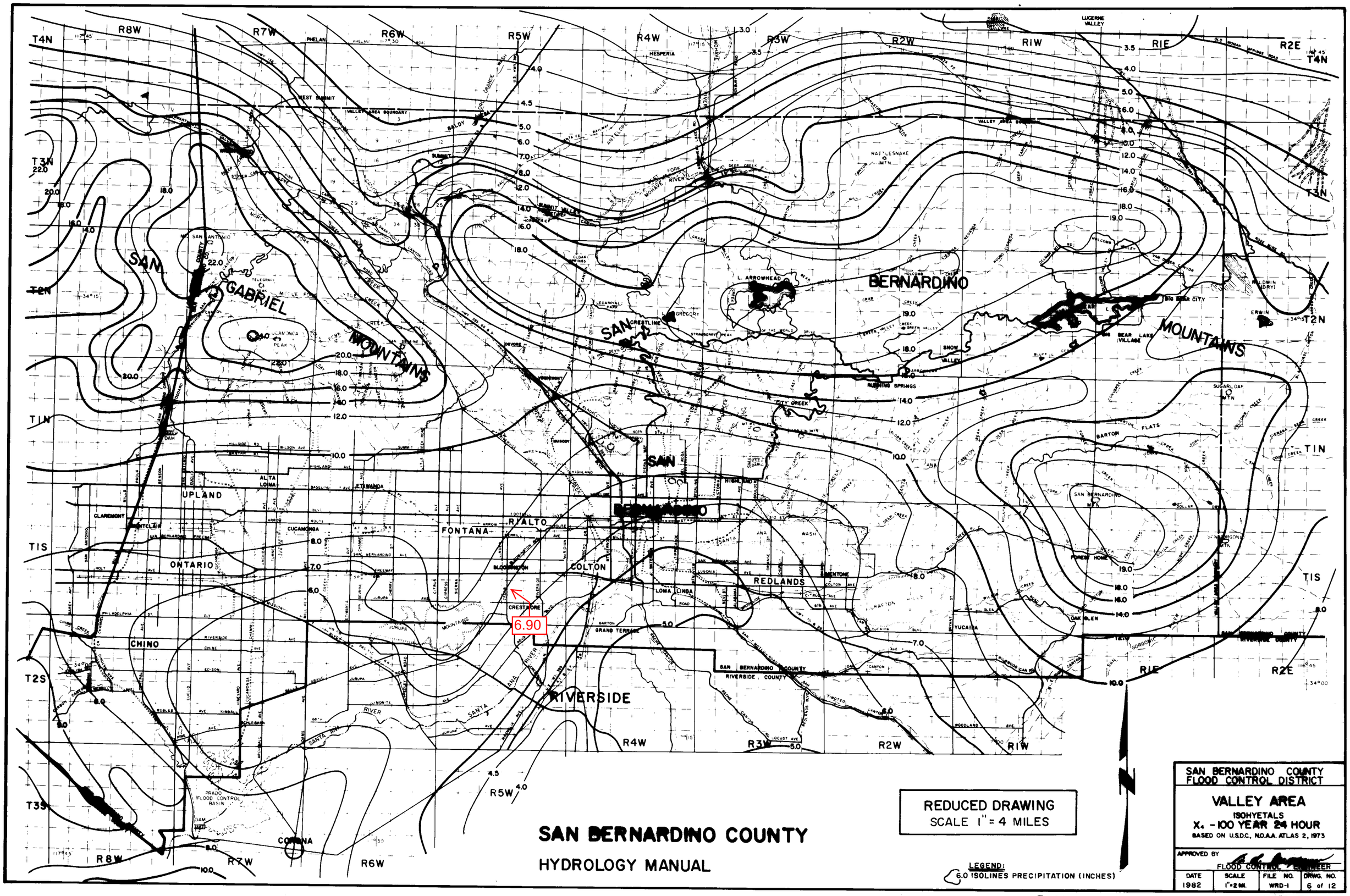

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL
REDUCED DRAWING
SCALE 1" = 4 MILES
LEGEND:
6.0 ISOLINES PRECIPITATION (INCHES)
SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT
VALLEY AREA
ISOHYETALS
X4 - 100 YEAR 24 HOUR
BASED ON U.S.D.C., N.O.A.A. ATLAS 2, 1973
APPROVED BY
FLOOD CONTROL ENGINEER
DATE 1982
SCALE 1"=2 MI.
FILE NO. WRD-1
DRWG. NO. 6 of 12
6.90
SAN GABRIEL MOUNTAINS
SAN BERNARDINO MOUNTAINS
SAN BERNARDINO
RIVERSIDE
UPLAND
ONTARIO
CHINO
FONTANA
RIALTO
COLTON
REDLANDS
CRESTLINE
L. ARROWHEAD
BIG BEAR CITY
BIG BEAR LAKE VILLAGE
YUCAIPA
CORONA
PRADO FLOOD CONTROL BASIN
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
T4N
T3N
T2N
T1N
T1S
T2S
T3S
R8W
R7W
R6W
R5W
R4W
R3W
R2W
R1W
R1E
R2E

FIGURE B-6

Attachment 2

Soils Information

Residential Landscaping (Lawn, Shrubs, etc.) - 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.

Row Crops - Lettuce, tomatoes, beets, tulips or any field crop planted in rows far enough apart that most of the soil surface is exposed to rainfall impact throughout the growing season. At plowing, planting and harvest times it is equivalent to fallow.

Small Grain - Wheat, oats, barley, flax, etc. planted in rows close enough that the soil surface is not exposed except during planting and shortly thereafter.

Legumes - Alfalfa, sweetclover, timothy, etc. and combinations are either planted in close rows or broadcast.

Fallow - Fallow land is land plowed but not yet seeded or tilled.

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.

Woodland - Areas on which coniferous or broadleaf trees predominate. The canopy density is at least 50 percent. Open areas may have a cover of annual or perennial grasses or of brush. Herbaceous plant cover under the trees is usually sparse because of leaf or needle litter accumulation.

Chaparral - Land 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. Diffusely branched evergreen shrubs with fine needle-like leaves, such as chamise and redchank, with dense high growth are also included in this soil cover.

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

Irrigated Pasture - Irrigated land planted to perennial grasses and legumes for production of forage and which is cultivated only to establish or renew the stand of plants. Dry land pasture is considered as annual grass.

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

Orchard (Deciduous) - Land planted to such deciduous trees as apples, apricots, pears, walnuts, and almonds.

Orchard (Evergreen) - Land planted to evergreen trees which include citrus and avocados and coniferous plantings.

Turf - Golf courses, parks and similar lands where the predominant cover is irrigated mowed close-grown turf grass. Parks in which trees are dense may be classified as woodland.

POOR: Heavily grazed or regularly burned areas. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.

FAIR: Moderate cover with 50 percent to 75 percent of the ground surface protected by vegetation.

GOOD: Heavy or dense cover with more than 75 percent of the ground surface protected by vegetation.

In most cases, watershed existing conditions cover type and quality can be readily determined by a field review of a watershed. In ultimate planned open spaces, the soil cover condition shall be considered as "good." Figure C-3 provides the CN values for various types and quality of ground cover. Impervious areas shall be assigned a CN of 98. It is noted that for ultimately developed conditions, the CN for urban landscaping (turf) is provided in Figure C-3.

C.4. WATERSHED DEVELOPMENT CONDITIONS

Ultimate development of the watershed should normally be assumed since watershed urbanization is reasonably likely within the expected life of most hydraulic facilities. Long range master plans for the County and incorporated cities should be reviewed to insure that reasonable land use assumptions are made for the ultimate development of the watershed. A field review shall also be made to confirm existing use and drainage patterns. Particular attention shall be paid to existing and proposed landscape practices, as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. Appropriate actual impervious percentages can then be selected from Figure C-4. It should be noted that the recommended values from these figures are for average conditions and, therefore, some adjustment for particular applications may be required.

Curve (1) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparral, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparral, 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	71	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	25	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		77	86	91	94

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

CURVE NUMBERS FOR PERVIOUS AREAS

Figure C-3 (1 of 2)

Curve (1) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
AGRICULTURAL COVERS (Continued)					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87

Notes:

1. All curve numbers are for Antecedent Moisture Condition (AMC) II.
2. Quality of cover definitions:

   Poor-Heavily grazed, regularly burned areas, or areas of high burn potential. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.

   Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.

   Good-Heavy or dense cover with more than 75 percent of the ground surface protected.
3. See Figure C-2 for definition of cover types.

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

CURVE NUMBERS FOR PERVIOUS AREAS

Figure C-3 (2 of 2)

27

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent (2)
Natural or Agriculture	0 - 0	0
Public Park	10 - 25	15
School	30 - 50	40
Single Family Residential: (3)		
2.5 acre lots	5 - 15	10
1 acre lots	10 - 25	20
2 dwellings/acre	20 - 40	30
3-4 dwellings/acre	30 - 50	40
5-7 dwellings/acre	35 - 55	50
8-10 dwellings/acre	50 - 70	60
More than 10 dwellings/acre	65 - 90	80
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 - 100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.

2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area shall always be made, and a review of aerial photos, where available, may assist in estimating the percentage of impervious cover in developed areas.

3. For typical equestrian subdivisions increase impervious area 5 percent over the values recommended in the table above.

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

ACTUAL IMPERVIOUS COVER FOR DEVELOPED AREAS

Figure C-4

C.5. ANTECEDENT MOISTURE CONDITION (AMC)

The definitions for the AMC classifications are:

AMC I: Lowest runoff potential. The watershed soils are dry enough to allow satisfactory grading or cultivation to take place.

AMC II: Moderate runoff potential; an average study condition.

AMC III: Highest runoff potential. The watershed is practically saturated from antecedent rains. Heavy rainfall or light rainfall and low temperatures have occurred within the last five days.

For runoff hydrograph studies based on this manual it is assumed that a low AMC index (high loss rates) will be used in developing short return period storms, and a moderate to high AMC index (low loss rates) will be used in developing longer return period storms (e.g., 100 year). For the purposes of design hydrology, AMC I will be used for the 2- and 5-year return frequency storms. For the case of 10-, 25-, 50-year return frequency design storms, AMC II will be used. For 100-year storm analysis, AMC III shall be used. In detention basin design studies, AMC III conditions shall be considered in order to identify any downstream flooding potential.

C.5.1. Adjustment of Curve Numbers (CN) for AMC

The CN values selected for a particular soil cover type and quality also depend upon the AMC condition assumed. The CN values listed in Figure C-3 correspond to AMC II and require adjustment in order to represent either AMC I or AMC III. Table C.1 provides the necessary CN adjustments to account for AMC changes for hydrologic studies in San Bernardino County.

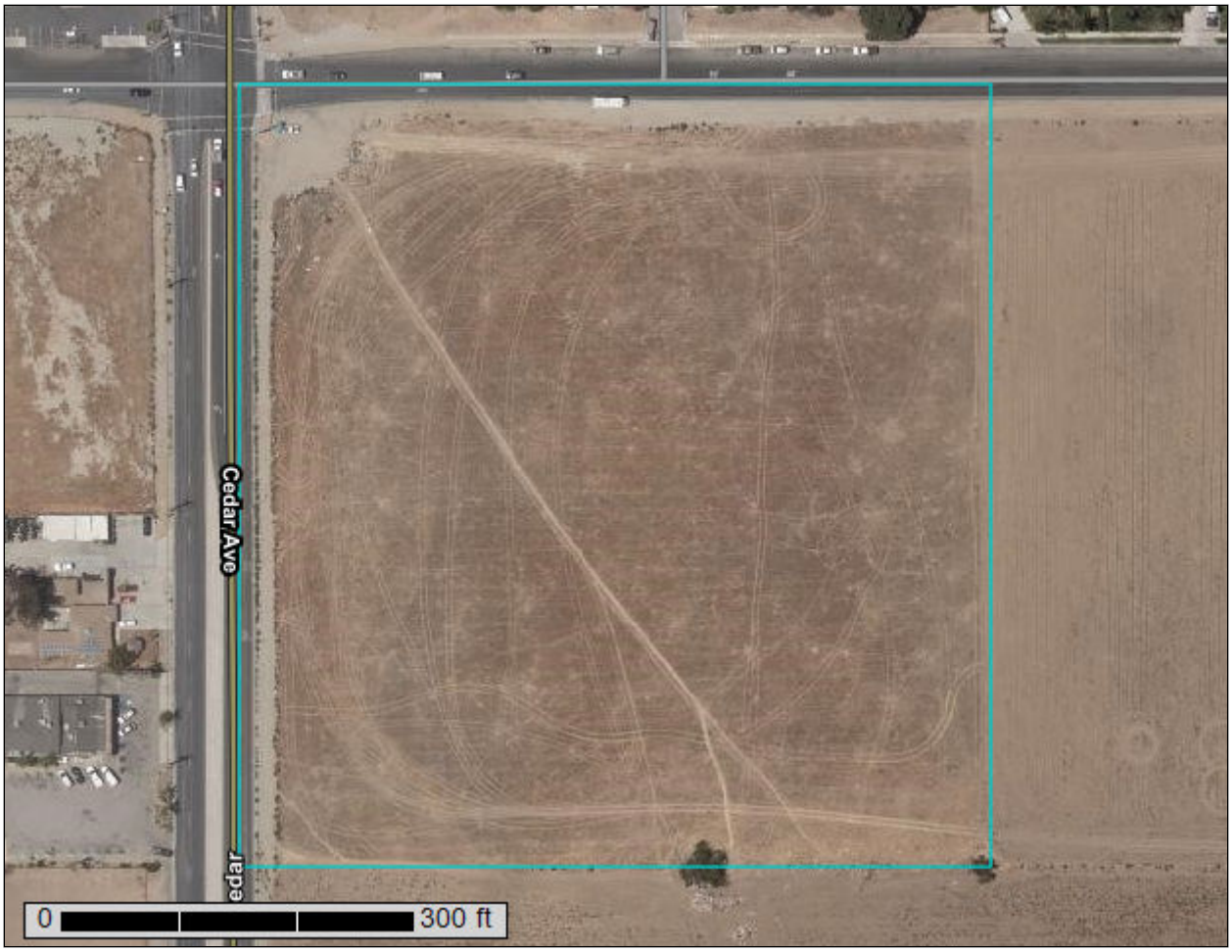
United States Department of Agriculture

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 San Bernardino County Southwestern Part, California

Bloomington Site



March 10, 2020

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.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

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

Map Scale: 1:1,510 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil 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 1:24,000.

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: San Bernardino County Southwestern Part, California
Survey Area Data: Version 11, Sep 16, 2019

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

Date(s) aerial images were photographed: Apr 1, 2018—Jun 30, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

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
HaC	Hanford coarse sandy loam, 2 to 9 percent slopes	5.4	55.8%
TuB	Tujunga loamy sand, 0 to 5 percent slopes	0.1	0.9%
TvC	Tujunga gravelly loamy sand, 0 to 9 percent slopes	4.2	43.3%
Totals for Area of Interest		**9.8**	**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.

San Bernardino County Southwestern Part, California

HaC—Hanford coarse sandy loam, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hck3
Elevation: 150 to 900 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 250 to 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Hanford and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hanford

Setting

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

Typical profile

H1 - 0 to 12 inches: sandy loam
H2 - 12 to 60 inches: fine sandy loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Greenfield, sandy loam

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

Tujunga, loamy sand

Percent of map unit: 5 percent
Hydric soil rating: No

TuB—Tujunga loamy sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2sx6y
Elevation: 650 to 3,110 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 62 to 65 degrees F
Frost-free period: 325 to 365 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Tujunga, loamy sand, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tujunga, Loamy Sand

Setting

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

Typical profile

A - 0 to 6 inches: loamy sand
C1 - 6 to 18 inches: loamy sand
C2 - 18 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Tujunga, gravelly loamy sand

Percent of map unit: 10 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hanford, sandy loam

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

TvC—Tujunga gravelly loamy sand, 0 to 9 percent slopes

Map Unit Setting

National map unit symbol: hcl2
Elevation: 10 to 1,500 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 250 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Tujunga and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tujunga

Setting

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

Typical profile

H1 - 0 to 36 inches: gravelly loamy sand
H2 - 36 to 60 inches: gravelly sand

Properties and qualities

Slope: 0 to 9 percent
Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water storage in profile: Low (about 3.8 inches)

Interpretive groups
Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Unnamed
Percent of map unit: 5 percent
Landform: Drainageways
Hydric soil rating: Yes

Soboba, gravelly loamy sand
Percent of map unit: 5 percent
Hydric soil rating: No

Delhi, fine sand
Percent of map unit: 5 percent
Hydric soil rating: No

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Attachment 3

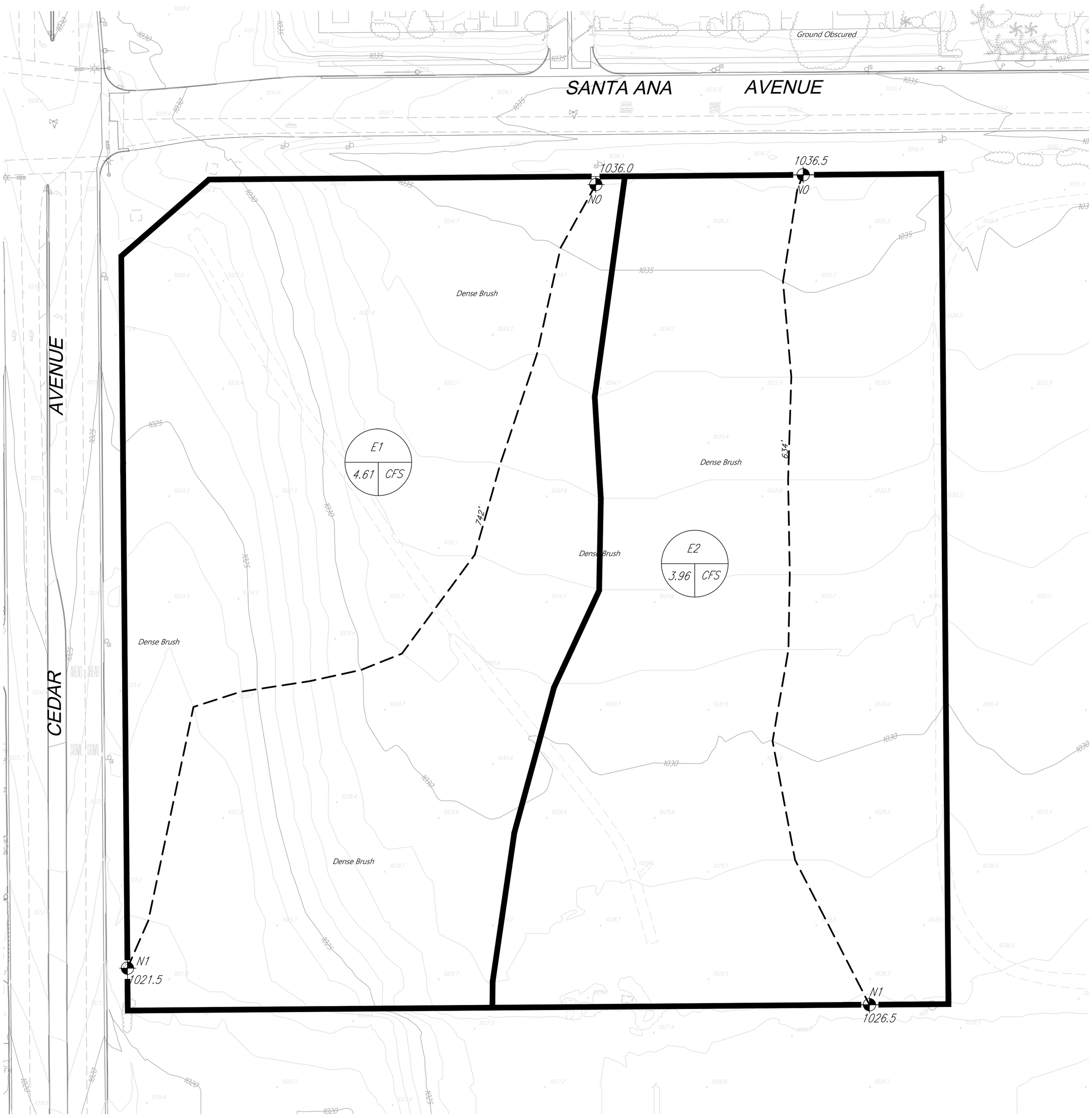
Existing Conditions Exhibit

HYDROLOGY MAP – PRE-DEVELOPMENT CONDITIONS

TENTATIVE PARCEL MAP No. 20192

IN THE UNINCORPORATED COMMUNITY OF BLOOMINGTON, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA

BEING A SUBDIVISION OF THE WEST ½ OF LOT 380, ACCORDING TO MAP SHOWING SUBDIVISION OF LANDS BELONGING TO THE SEMI-TROPIC LAND AND WATER COMPANY, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 11,PAGE 12 OF MAPS, RECORDS OF SAID COUNTY.



Black Gold Engineering INC
ENGINEERING • LAND SURVEY • DESIGN
42270 SPECTRUM STREET, INDIO, CALIFORNIA, 92203

SCALE: 1"= 40'

0 40 80 120 160

LEGEND:

E1 — SUBAREA DESIGNATION
AC — AREA
CFS — Q_{100}
SUB-AREA BOUNDARY
N1 — NODE DESIGNATION
A — SOIL GROUP DESIGNATION
1,300' — FLOWLINE/DISTANCE

Attachment 4

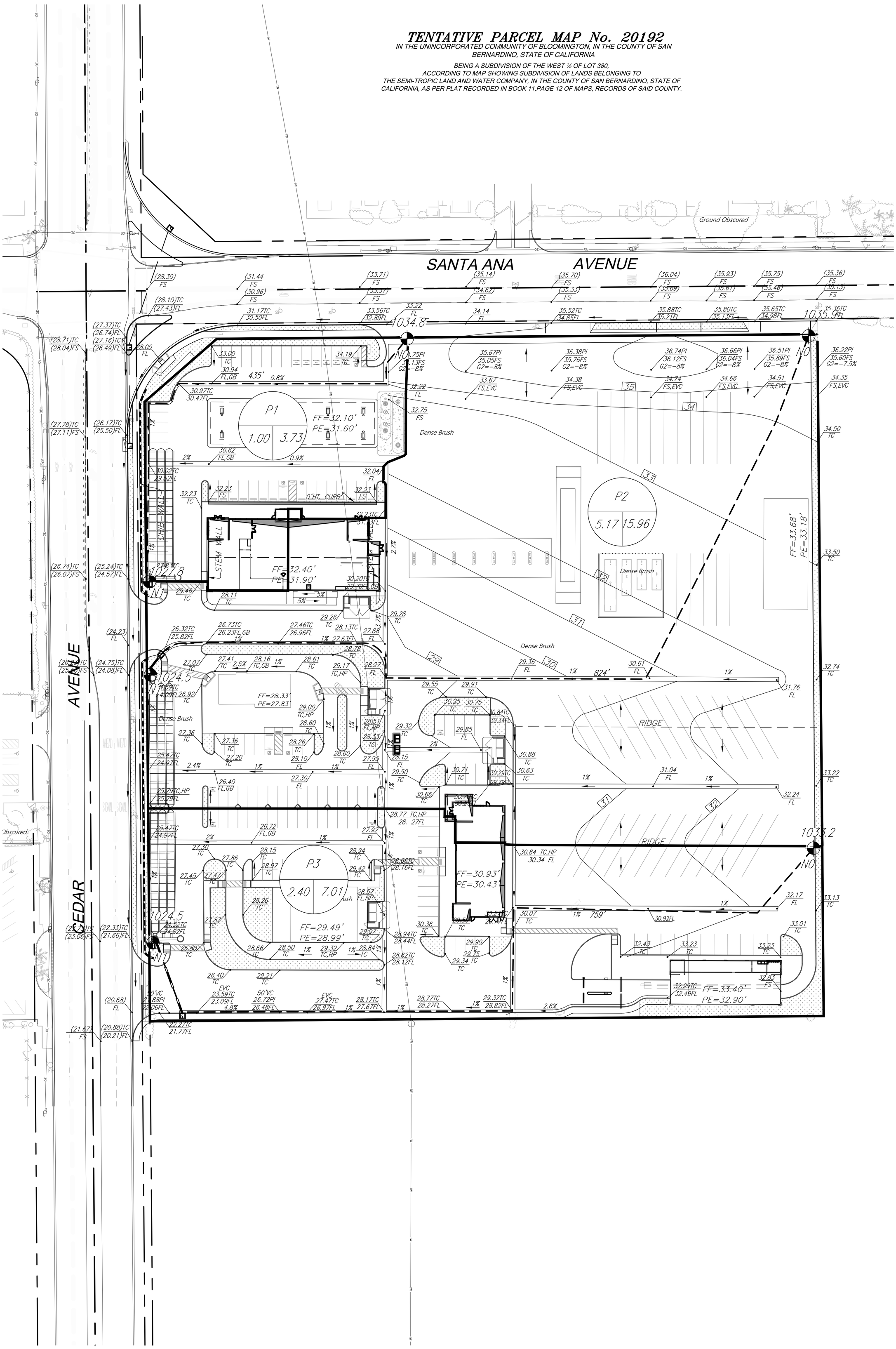
Proposed Conditions Exhibit

HYDROLOGY MAP – POST DEVELOPMENT CONDITIONS

TENTATIVE PARCEL MAP No. 20192

IN THE UNINCORPORATED COMMUNITY OF BLOOMINGTON, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA

BEING A SUBDIVISION OF THE WEST ½ OF LOT 380, ACCORDING TO MAP SHOWING SUBDIVISION OF LANDS BELONGING TO THE SEMI-TROPIC LAND AND WATER COMPANY, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 11,PAGE 12 OF MAPS, RECORDS OF SAID COUNTY.



Black Gold Engineering
INC.
ENGINEERING • LAND SURVEY • DESIGN
42270 SPECTRUM STREET, INDIO, CALIFORNIA, 92203

SCALE: 1"= 40'

0 40 80 120 160

LEGEND:

E1 — SUBAREA DESIGNATION
AC — AREA
CFS — Q_{100}
SUB-AREA BOUNDARY
N1 — NODE DESIGNATION
A — SOIL GROUP DESIGNATION
1,300' — FLOWLINE/DISTANCE

Attachment 5

Rational Method Calculations

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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Existing Conditions
Area E1

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

----------------------------------------------------------------------
Rational hydrology study storm event year is    10.0
Computed rainfall intensity:
Storm year =    10.00   1 hour rainfall =     0.880 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 50.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.810(In/Hr)
Initial subarea data:
Initial area flow distance =   742.000(Ft.)
Top (of initial area) elevation =  1036.000(Ft.)
Bottom (of initial area) elevation =  1021.500(Ft.)
Difference in elevation =    14.500(Ft.)
Slope =    0.01954  s(%)=       1.95
TC = k(0.950)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   29.356 min.
Rainfall intensity =      1.351(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.361
Subarea runoff =      2.248(CFS)
Total initial stream area =        4.610(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.810(In/Hr)
End of computations, Total Study Area =            4.61 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  50.0
```

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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Existing Conditions
Area E1

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

----------------------------------------------------------------------
Rational hydrology study storm event year is    25.0
   10 Year storm 1 hour rainfall  =      0.880(In.)
  100 Year storm 1 hour rainfall  =      1.250(In.)
Computed rainfall intensity:
Storm year =    25.00   1 hour rainfall =     1.027 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 50.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.810(In/Hr)
Initial subarea data:
Initial area flow distance =   742.000(Ft.)
Top (of initial area) elevation =  1036.000(Ft.)
Bottom (of initial area) elevation =  1021.500(Ft.)
Difference in elevation =    14.500(Ft.)
Slope =    0.01954  s(%)=       1.95
TC = k(0.950)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   29.356 min.
Rainfall intensity =      1.577(In/Hr) for a    25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.438
Subarea runoff =      3.186(CFS)
Total initial stream area =        4.610(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.810(In/Hr)
End of computations, Total Study Area =            4.61 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  50.0
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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Existing Conditions
Area E1

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

----------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
   10 Year storm 1 hour rainfall  =      0.880(In.)
  100 Year storm 1 hour rainfall  =      1.250(In.)
Computed rainfall intensity:
Storm year =   100.00   1 hour rainfall =     1.250 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 3


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   742.000(Ft.)
Top (of initial area) elevation =  1036.000(Ft.)
Bottom (of initial area) elevation =  1021.500(Ft.)
Difference in elevation =    14.500(Ft.)
Slope =    0.01954  s(%)=       1.95
TC = k(0.950)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   29.356 min.
Rainfall intensity =      1.919(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.650
Subarea runoff =      5.755(CFS)
Total initial stream area =        4.610(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
End of computations, Total Study Area =            4.61 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  50.0
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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Existing Conditions
Area E2

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

----------------------------------------------------------------------
Rational hydrology study storm event year is    10.0
Computed rainfall intensity:
Storm year =    10.00   1 hour rainfall =     0.880 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 50.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.810(In/Hr)
Initial subarea data:
Initial area flow distance =   634.000(Ft.)
Top (of initial area) elevation =  1036.500(Ft.)
Bottom (of initial area) elevation =  1026.500(Ft.)
Difference in elevation =    10.000(Ft.)
Slope =    0.01577  s(%)=       1.58
TC = k(0.950)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   28.772 min.
Rainfall intensity =      1.368(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.367
Subarea runoff =      1.989(CFS)
Total initial stream area =        3.960(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.810(In/Hr)
End of computations, Total Study Area =            3.96 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  50.0
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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Existing Conditions
Area E2

----------------------------------------------------------------------
Rational hydrology study storm event year is    25.0
   10 Year storm 1 hour rainfall  =      0.880(In.)
  100 Year storm 1 hour rainfall  =      1.250(In.)
Computed rainfall intensity:
Storm year =    25.00   1 hour rainfall =     1.027 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 50.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.810(In/Hr)
Initial subarea data:
Initial area flow distance =   634.000(Ft.)
Top (of initial area) elevation =  1036.500(Ft.)
Bottom (of initial area) elevation =  1026.500(Ft.)
Difference in elevation =    10.000(Ft.)
Slope =    0.01577  s(%)=       1.58
TC = k(0.950)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   28.772 min.
Rainfall intensity =      1.597(In/Hr) for a    25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.444
Subarea runoff =      2.805(CFS)
Total initial stream area =        3.960(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.810(In/Hr)
End of computations, Total Study Area =            3.96 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  50.0
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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Existing Conditions
Area E2

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

----------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
   10 Year storm 1 hour rainfall  =      0.880(In.)
  100 Year storm 1 hour rainfall  =      1.250(In.)
Computed rainfall intensity:
Storm year =   100.00   1 hour rainfall =     1.250 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 3


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Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 50.00
Adjusted SCS curve number for AMC 3 = 70.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.532(In/Hr)
Initial subarea data:
Initial area flow distance =   634.000(Ft.)
Top (of initial area) elevation =  1036.500(Ft.)
Bottom (of initial area) elevation =  1026.500(Ft.)
Difference in elevation =    10.000(Ft.)
Slope =    0.01577  s(%)=       1.58
TC = k(0.950)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   28.772 min.
Rainfall intensity =      1.943(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.653
Subarea runoff =      5.026(CFS)
Total initial stream area =        3.960(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.532(In/Hr)
End of computations, Total Study Area =            3.96 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number =  50.0
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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Proposed Condition
Area P1

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

----------------------------------------------------------------------
Rational hydrology study storm event year is    10.0
Computed rainfall intensity:
Storm year =    10.00   1 hour rainfall =     0.880 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.0500     Max loss rate(Fm)=     0.049(In/Hr)
Initial subarea data:
Initial area flow distance =   435.000(Ft.)
Top (of initial area) elevation =  1034.800(Ft.)
Bottom (of initial area) elevation =  1027.800(Ft.)
Difference in elevation =     7.000(Ft.)
Slope =    0.01609  s(%)=       1.61
TC = k(0.287)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.442 min.
Rainfall intensity =      3.079(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.886
Subarea runoff =      2.727(CFS)
Total initial stream area =        1.000(Ac.)
Pervious area fraction = 0.050
Initial area Fm value =    0.049(In/Hr)
End of computations, Total Study Area =            1.00 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.050
Area averaged SCS curve number =  32.0
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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Proposed Condition
Area P1
----------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

----------------------------------------------------------------------
Rational hydrology study storm event year is    25.0
   10 Year storm 1 hour rainfall  =      0.880(In.)
  100 Year storm 1 hour rainfall  =      1.250(In.)
Computed rainfall intensity:
Storm year =    25.00   1 hour rainfall =     1.027 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.0500     Max loss rate(Fm)=     0.049(In/Hr)
Initial subarea data:
Initial area flow distance =   435.000(Ft.)
Top (of initial area) elevation =  1034.800(Ft.)
Bottom (of initial area) elevation =  1027.800(Ft.)
Difference in elevation =     7.000(Ft.)
Slope =    0.01609  s(%)=       1.61
TC = k(0.287)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.442 min.
Rainfall intensity =      3.594(In/Hr) for a    25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.888
Subarea runoff =      3.190(CFS)
Total initial stream area =        1.000(Ac.)
Pervious area fraction = 0.050
Initial area Fm value =    0.049(In/Hr)
End of computations, Total Study Area =            1.00 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.050
Area averaged SCS curve number =  32.0
```

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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Proposed Condition
Area P1

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

----------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
   10 Year storm 1 hour rainfall  =      0.880(In.)
  100 Year storm 1 hour rainfall  =      1.250(In.)
Computed rainfall intensity:
Storm year =   100.00   1 hour rainfall =     1.250 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 3


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.0500     Max loss rate(Fm)=     0.039(In/Hr)
Initial subarea data:
Initial area flow distance =   435.000(Ft.)
Top (of initial area) elevation =  1034.800(Ft.)
Bottom (of initial area) elevation =  1027.800(Ft.)
Difference in elevation =     7.000(Ft.)
Slope =    0.01609  s(%)=       1.61
TC = k(0.287)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.442 min.
Rainfall intensity =      4.373(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.892
Subarea runoff =      3.900(CFS)
Total initial stream area =        1.000(Ac.)
Pervious area fraction = 0.050
Initial area Fm value =    0.039(In/Hr)
End of computations, Total Study Area =            1.00 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.050
Area averaged SCS curve number =  32.0
```

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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Proposed Condition
Area P2

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

----------------------------------------------------------------------
Rational hydrology study storm event year is    10.0
Computed rainfall intensity:
Storm year =    10.00   1 hour rainfall =     0.880 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.0400     Max loss rate(Fm)=     0.039(In/Hr)
Initial subarea data:
Initial area flow distance =   824.000(Ft.)
Top (of initial area) elevation =  1035.900(Ft.)
Bottom (of initial area) elevation =  1024.500(Ft.)
Difference in elevation =    11.400(Ft.)
Slope =    0.01383  s(%)=       1.38
TC = k(0.284)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.819 min.
Rainfall intensity =      2.607(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.886
Subarea runoff =     11.948(CFS)
Total initial stream area =        5.170(Ac.)
Pervious area fraction = 0.040
Initial area Fm value =    0.039(In/Hr)
End of computations, Total Study Area =            5.17 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.040
Area averaged SCS curve number =  32.0
```

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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Proposed Condition
Area P2

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

----------------------------------------------------------------------
Rational hydrology study storm event year is    25.0
   10 Year storm 1 hour rainfall  =      0.880(In.)
  100 Year storm 1 hour rainfall  =      1.250(In.)
Computed rainfall intensity:
Storm year =    25.00   1 hour rainfall =     1.027 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.0400     Max loss rate(Fm)=     0.039(In/Hr)
Initial subarea data:
Initial area flow distance =   824.000(Ft.)
Top (of initial area) elevation =  1035.900(Ft.)
Bottom (of initial area) elevation =  1024.500(Ft.)
Difference in elevation =    11.400(Ft.)
Slope =    0.01383  s(%)=       1.38
TC = k(0.284)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.819 min.
Rainfall intensity =      3.043(In/Hr) for a    25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.888
Subarea runoff =     13.978(CFS)
Total initial stream area =        5.170(Ac.)
Pervious area fraction = 0.040
Initial area Fm value =    0.039(In/Hr)
End of computations, Total Study Area =            5.17 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.040
Area averaged SCS curve number =  32.0
```

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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Proposed Condition
Area P2

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

----------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
   10 Year storm 1 hour rainfall  =      0.880(In.)
  100 Year storm 1 hour rainfall  =      1.250(In.)
Computed rainfall intensity:
Storm year =   100.00   1 hour rainfall =     1.250 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 3


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.0400     Max loss rate(Fm)=     0.031(In/Hr)
Initial subarea data:
Initial area flow distance =   824.000(Ft.)
Top (of initial area) elevation =  1035.900(Ft.)
Bottom (of initial area) elevation =  1024.500(Ft.)
Difference in elevation =    11.400(Ft.)
Slope =    0.01383  s(%)=       1.38
TC = k(0.284)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.819 min.
Rainfall intensity =      3.703(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.892
Subarea runoff =     17.085(CFS)
Total initial stream area =        5.170(Ac.)
Pervious area fraction = 0.040
Initial area Fm value =    0.031(In/Hr)
End of computations, Total Study Area =            5.17 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.040
Area averaged SCS curve number =  32.0
```

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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Proposed Condition
Area P3

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

----------------------------------------------------------------------
Rational hydrology study storm event year is    10.0
Computed rainfall intensity:
Storm year =    10.00   1 hour rainfall =     0.880 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.0900     Max loss rate(Fm)=     0.088(In/Hr)
Initial subarea data:
Initial area flow distance =   759.000(Ft.)
Top (of initial area) elevation =  1033.200(Ft.)
Bottom (of initial area) elevation =  1024.500(Ft.)
Difference in elevation =     8.700(Ft.)
Slope =    0.01146  s(%)=       1.15
TC = k(0.297)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.293 min.
Rainfall intensity =      2.534(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.869
Subarea runoff =      5.284(CFS)
Total initial stream area =        2.400(Ac.)
Pervious area fraction = 0.090
Initial area Fm value =    0.088(In/Hr)
End of computations, Total Study Area =            2.40 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.090
Area averaged SCS curve number =  32.0
```

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                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Proposed Condition
Area P3

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

----------------------------------------------------------------------
Rational hydrology study storm event year is    25.0
   10 Year storm 1 hour rainfall  =      0.880(In.)
  100 Year storm 1 hour rainfall  =      1.250(In.)
Computed rainfall intensity:
Storm year =    25.00   1 hour rainfall =     1.027 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 32.00
Pervious ratio(Ap) = 0.0900     Max loss rate(Fm)=     0.088(In/Hr)
Initial subarea data:
Initial area flow distance =   759.000(Ft.)
Top (of initial area) elevation =  1033.200(Ft.)
Bottom (of initial area) elevation =  1024.500(Ft.)
Difference in elevation =     8.700(Ft.)
Slope =    0.01146  s(%)=       1.15
TC = k(0.297)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.293 min.
Rainfall intensity =      2.958(In/Hr) for a    25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.873
Subarea runoff =      6.200(CFS)
Total initial stream area =        2.400(Ac.)
Pervious area fraction = 0.090
Initial area Fm value =    0.088(In/Hr)
End of computations, Total Study Area =            2.40 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.090
Area averaged SCS curve number =  32.0
```

```
                San Bernardino County Rational Hydrology Program

                    (Hydrology Manual Date - August 1986)

 CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1989-2012 Version 7.2
        Rational Hydrology Study        Date: 03/09/20
----------------------------------------------------------------------
Proposed Condition
Area P3

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

----------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
   10 Year storm 1 hour rainfall  =      0.880(In.)
  100 Year storm 1 hour rainfall  =      1.250(In.)
Computed rainfall intensity:
Storm year =   100.00   1 hour rainfall =     1.250 (In.)
Slope used for rainfall intensity curve b =  0.6000
Soil antecedent moisture condition (AMC) = 3


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        0.000 to Point/Station        1.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Soil classification AP and SCS  values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2)  = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.0900     Max loss rate(Fm)=     0.071(In/Hr)
Initial subarea data:
Initial area flow distance =   759.000(Ft.)
Top (of initial area) elevation =  1033.200(Ft.)
Bottom (of initial area) elevation =  1024.500(Ft.)
Difference in elevation =     8.700(Ft.)
Slope =    0.01146  s(%)=       1.15
TC = k(0.297)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.293 min.
Rainfall intensity =      3.600(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.882
Subarea runoff =      7.623(CFS)
Total initial stream area =        2.400(Ac.)
Pervious area fraction = 0.090
Initial area Fm value =    0.071(In/Hr)
End of computations, Total Study Area =            2.40 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.090
Area averaged SCS curve number =  32.0
```

Attachment 6

Unit Hydrograph Method Calculations

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

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Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Existing Conditions
Area E1

Storm Event Year = 10

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
4.61	1	0.88
Rainfall data for year 2		
4.61	6	1.55
Rainfall data for year 2		
4.61	24	2.90
Rainfall data for year 100		
4.61	1	1.25
Rainfall data for year 100		
4.61	6	3.25
Rainfall data for year 100		
4.61	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 2)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
50.0	50.0	4.61	1.000	0.810	1.000	0.810

Area-averaged adjusted loss rate Fm (In/Hr) = 0.810

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
4.61	1.000	50.0	50.0	10.00	0.114

Area-averaged catchment yield fraction, Y = 0.114
Area-averaged low loss fraction, Yb = 0.886
User entry of time of concentration = 0.489 (hours)
++
Watershed area = 4.61(Ac.)
Catchment Lag time = 0.391 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 21.3020
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.810(In/Hr)
Average low loss rate fraction (Yb) = 0.886 (decimal)
VALLEY UNDEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.326(In)
Computed peak 30-minute rainfall = 0.667(In)
Specified peak 1-hour rainfall = 0.880(In)
Computed peak 3-hour rainfall = 1.565(In)
Specified peak 6-hour rainfall = 2.249(In)
Specified peak 24-hour rainfall = 4.546(In)

Rainfall depth area reduction factors:
Using a total area of 4.61(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.326(In)
30-minute factor = 1.000 Adjusted rainfall = 0.667(In)
1-hour factor = 1.000 Adjusted rainfall = 0.880(In)
3-hour factor = 1.000 Adjusted rainfall = 1.565(In)
6-hour factor = 1.000 Adjusted rainfall = 2.249(In)
24-hour factor = 1.000 Adjusted rainfall = 4.546(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 55.75 (CFS))	
1	1.908	1.064
2	7.677	3.216
3	17.784	5.635
4	31.741	7.781
5	46.826	8.410
6	58.572	6.549
7	66.211	4.259
8	71.492	2.944
9	75.187	2.060
10	78.239	1.702
11	80.800	1.428
12	82.988	1.220
13	84.931	1.083
14	86.606	0.934

15	88.032	0.795
16	89.311	0.713
17	90.534	0.682
18	91.503	0.540
19	92.433	0.519
20	93.192	0.423
21	93.874	0.380
22	94.539	0.371
23	95.179	0.356
24	95.794	0.343
25	96.282	0.272
26	96.749	0.261
27	97.161	0.230
28	97.544	0.214
29	97.898	0.197
30	98.198	0.167
31	98.486	0.161
32	98.710	0.125
33	98.923	0.119
34	99.136	0.119
35	99.349	0.119
36	99.562	0.119
37	99.775	0.119
38	100.000	0.059

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.3256	0.3256
2	0.4297	0.1040
3	0.5053	0.0757
4	0.5669	0.0616
5	0.6199	0.0529
6	0.6668	0.0469
7	0.7092	0.0424
8	0.7481	0.0389
9	0.7842	0.0361
10	0.8179	0.0338
11	0.8497	0.0318
12	0.8798	0.0301
13	0.9175	0.0377
14	0.9538	0.0363
15	0.9889	0.0351
16	1.0229	0.0340
17	1.0560	0.0330
18	1.0881	0.0321
19	1.1193	0.0313
20	1.1498	0.0305
21	1.1796	0.0298
22	1.2087	0.0291
23	1.2372	0.0285
24	1.2651	0.0279
25	1.2924	0.0273
26	1.3193	0.0268
27	1.3456	0.0263
28	1.3715	0.0259
29	1.3969	0.0254
30	1.4220	0.0250
31	1.4466	0.0246
32	1.4709	0.0243
33	1.4948	0.0239
34	1.5184	0.0236
35	1.5416	0.0232
36	1.5645	0.0229

37	1.5871	0.0226
38	1.6095	0.0223
39	1.6315	0.0220
40	1.6533	0.0218
41	1.6748	0.0215
42	1.6961	0.0213
43	1.7171	0.0210
44	1.7379	0.0208
45	1.7585	0.0206
46	1.7789	0.0204
47	1.7990	0.0202
48	1.8190	0.0199
49	1.8387	0.0198
50	1.8583	0.0196
51	1.8776	0.0194
52	1.8968	0.0192
53	1.9159	0.0190
54	1.9347	0.0189
55	1.9534	0.0187
56	1.9719	0.0185
57	1.9903	0.0184
58	2.0085	0.0182
59	2.0266	0.0181
60	2.0445	0.0179
61	2.0623	0.0178
62	2.0799	0.0176
63	2.0974	0.0175
64	2.1148	0.0174
65	2.1320	0.0172
66	2.1491	0.0171
67	2.1661	0.0170
68	2.1830	0.0169
69	2.1998	0.0168
70	2.2164	0.0166
71	2.2329	0.0165
72	2.2494	0.0164
73	2.2652	0.0158
74	2.2809	0.0157
75	2.2964	0.0156
76	2.3119	0.0155
77	2.3273	0.0154
78	2.3426	0.0153
79	2.3578	0.0152
80	2.3729	0.0151
81	2.3879	0.0150
82	2.4028	0.0149
83	2.4177	0.0148
84	2.4324	0.0147
85	2.4470	0.0147
86	2.4616	0.0146
87	2.4761	0.0145
88	2.4905	0.0144
89	2.5048	0.0143
90	2.5191	0.0142
91	2.5332	0.0142
92	2.5473	0.0141
93	2.5613	0.0140
94	2.5753	0.0139
95	2.5891	0.0139
96	2.6029	0.0138
97	2.6167	0.0137
98	2.6303	0.0137
99	2.6439	0.0136

100	2.6574	0.0135
101	2.6709	0.0135
102	2.6843	0.0134
103	2.6976	0.0133
104	2.7108	0.0133
105	2.7240	0.0132
106	2.7372	0.0131
107	2.7502	0.0131
108	2.7633	0.0130
109	2.7762	0.0130
110	2.7891	0.0129
111	2.8019	0.0128
112	2.8147	0.0128
113	2.8275	0.0127
114	2.8401	0.0127
115	2.8527	0.0126
116	2.8653	0.0126
117	2.8778	0.0125
118	2.8903	0.0125
119	2.9027	0.0124
120	2.9150	0.0124
121	2.9273	0.0123
122	2.9396	0.0123
123	2.9518	0.0122
124	2.9639	0.0122
125	2.9760	0.0121
126	2.9881	0.0121
127	3.0001	0.0120
128	3.0121	0.0120
129	3.0240	0.0119
130	3.0359	0.0119
131	3.0477	0.0118
132	3.0595	0.0118
133	3.0712	0.0117
134	3.0829	0.0117
135	3.0946	0.0117
136	3.1062	0.0116
137	3.1178	0.0116
138	3.1293	0.0115
139	3.1408	0.0115
140	3.1522	0.0114
141	3.1636	0.0114
142	3.1750	0.0114
143	3.1863	0.0113
144	3.1976	0.0113
145	3.2089	0.0112
146	3.2201	0.0112
147	3.2312	0.0112
148	3.2424	0.0111
149	3.2535	0.0111
150	3.2645	0.0111
151	3.2756	0.0110
152	3.2866	0.0110
153	3.2975	0.0110
154	3.3084	0.0109
155	3.3193	0.0109
156	3.3302	0.0109
157	3.3410	0.0108
158	3.3518	0.0108
159	3.3625	0.0107
160	3.3732	0.0107
161	3.3839	0.0107
162	3.3946	0.0106

163	3.4052	0.0106
164	3.4158	0.0106
165	3.4263	0.0106
166	3.4368	0.0105
167	3.4473	0.0105
168	3.4578	0.0105
169	3.4682	0.0104
170	3.4786	0.0104
171	3.4890	0.0104
172	3.4993	0.0103
173	3.5096	0.0103
174	3.5199	0.0103
175	3.5302	0.0103
176	3.5404	0.0102
177	3.5506	0.0102
178	3.5608	0.0102
179	3.5709	0.0101
180	3.5810	0.0101
181	3.5911	0.0101
182	3.6011	0.0101
183	3.6112	0.0100
184	3.6212	0.0100
185	3.6311	0.0100
186	3.6411	0.0099
187	3.6510	0.0099
188	3.6609	0.0099
189	3.6708	0.0099
190	3.6806	0.0098
191	3.6904	0.0098
192	3.7002	0.0098
193	3.7100	0.0098
194	3.7197	0.0097
195	3.7295	0.0097
196	3.7392	0.0097
197	3.7488	0.0097
198	3.7585	0.0096
199	3.7681	0.0096
200	3.7777	0.0096
201	3.7873	0.0096
202	3.7968	0.0096
203	3.8063	0.0095
204	3.8158	0.0095
205	3.8253	0.0095
206	3.8348	0.0095
207	3.8442	0.0094
208	3.8536	0.0094
209	3.8630	0.0094
210	3.8724	0.0094
211	3.8817	0.0093
212	3.8911	0.0093
213	3.9004	0.0093
214	3.9096	0.0093
215	3.9189	0.0093
216	3.9282	0.0092
217	3.9374	0.0092
218	3.9466	0.0092
219	3.9557	0.0092
220	3.9649	0.0092
221	3.9740	0.0091
222	3.9832	0.0091
223	3.9922	0.0091
224	4.0013	0.0091
225	4.0104	0.0091

226	4.0194	0.0090
227	4.0284	0.0090
228	4.0374	0.0090
229	4.0464	0.0090
230	4.0554	0.0090
231	4.0643	0.0089
232	4.0732	0.0089
233	4.0821	0.0089
234	4.0910	0.0089
235	4.0999	0.0089
236	4.1087	0.0088
237	4.1175	0.0088
238	4.1263	0.0088
239	4.1351	0.0088
240	4.1439	0.0088
241	4.1527	0.0088
242	4.1614	0.0087
243	4.1701	0.0087
244	4.1788	0.0087
245	4.1875	0.0087
246	4.1962	0.0087
247	4.2048	0.0086
248	4.2134	0.0086
249	4.2220	0.0086
250	4.2306	0.0086
251	4.2392	0.0086
252	4.2478	0.0086
253	4.2563	0.0085
254	4.2649	0.0085
255	4.2734	0.0085
256	4.2819	0.0085
257	4.2903	0.0085
258	4.2988	0.0085
259	4.3073	0.0084
260	4.3157	0.0084
261	4.3241	0.0084
262	4.3325	0.0084
263	4.3409	0.0084
264	4.3493	0.0084
265	4.3576	0.0084
266	4.3659	0.0083
267	4.3743	0.0083
268	4.3826	0.0083
269	4.3909	0.0083
270	4.3991	0.0083
271	4.4074	0.0083
272	4.4156	0.0082
273	4.4239	0.0082
274	4.4321	0.0082
275	4.4403	0.0082
276	4.4485	0.0082
277	4.4567	0.0082
278	4.4648	0.0082
279	4.4730	0.0081
280	4.4811	0.0081
281	4.4892	0.0081
282	4.4973	0.0081
283	4.5054	0.0081
284	4.5135	0.0081
285	4.5215	0.0081
286	4.5296	0.0080
287	4.5376	0.0080
288	4.5456	0.0080

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0080	0.0071	0.0009
2	0.0080	0.0071	0.0009
3	0.0081	0.0071	0.0009
4	0.0081	0.0072	0.0009
5	0.0081	0.0072	0.0009
6	0.0081	0.0072	0.0009
7	0.0081	0.0072	0.0009
8	0.0082	0.0072	0.0009
9	0.0082	0.0073	0.0009
10	0.0082	0.0073	0.0009
11	0.0082	0.0073	0.0009
12	0.0082	0.0073	0.0009
13	0.0083	0.0073	0.0009
14	0.0083	0.0073	0.0009
15	0.0083	0.0074	0.0009
16	0.0083	0.0074	0.0009
17	0.0084	0.0074	0.0010
18	0.0084	0.0074	0.0010
19	0.0084	0.0075	0.0010
20	0.0084	0.0075	0.0010
21	0.0085	0.0075	0.0010
22	0.0085	0.0075	0.0010
23	0.0085	0.0075	0.0010
24	0.0085	0.0076	0.0010
25	0.0086	0.0076	0.0010
26	0.0086	0.0076	0.0010
27	0.0086	0.0076	0.0010
28	0.0086	0.0076	0.0010
29	0.0087	0.0077	0.0010
30	0.0087	0.0077	0.0010
31	0.0087	0.0077	0.0010
32	0.0087	0.0077	0.0010
33	0.0088	0.0078	0.0010
34	0.0088	0.0078	0.0010
35	0.0088	0.0078	0.0010
36	0.0088	0.0078	0.0010
37	0.0089	0.0079	0.0010
38	0.0089	0.0079	0.0010
39	0.0089	0.0079	0.0010
40	0.0090	0.0079	0.0010
41	0.0090	0.0080	0.0010
42	0.0090	0.0080	0.0010
43	0.0091	0.0080	0.0010
44	0.0091	0.0080	0.0010
45	0.0091	0.0081	0.0010
46	0.0091	0.0081	0.0010
47	0.0092	0.0081	0.0010
48	0.0092	0.0082	0.0010
49	0.0092	0.0082	0.0010
50	0.0093	0.0082	0.0011
51	0.0093	0.0082	0.0011
52	0.0093	0.0083	0.0011
53	0.0094	0.0083	0.0011
54	0.0094	0.0083	0.0011
55	0.0094	0.0084	0.0011
56	0.0095	0.0084	0.0011
57	0.0095	0.0084	0.0011
58	0.0095	0.0084	0.0011

59	0.0096	0.0085	0.0011
60	0.0096	0.0085	0.0011
61	0.0096	0.0085	0.0011
62	0.0097	0.0086	0.0011
63	0.0097	0.0086	0.0011
64	0.0097	0.0086	0.0011
65	0.0098	0.0087	0.0011
66	0.0098	0.0087	0.0011
67	0.0099	0.0087	0.0011
68	0.0099	0.0088	0.0011
69	0.0099	0.0088	0.0011
70	0.0100	0.0088	0.0011
71	0.0100	0.0089	0.0011
72	0.0101	0.0089	0.0011
73	0.0101	0.0090	0.0011
74	0.0101	0.0090	0.0012
75	0.0102	0.0090	0.0012
76	0.0102	0.0091	0.0012
77	0.0103	0.0091	0.0012
78	0.0103	0.0091	0.0012
79	0.0104	0.0092	0.0012
80	0.0104	0.0092	0.0012
81	0.0105	0.0093	0.0012
82	0.0105	0.0093	0.0012
83	0.0106	0.0094	0.0012
84	0.0106	0.0094	0.0012
85	0.0106	0.0094	0.0012
86	0.0107	0.0095	0.0012
87	0.0107	0.0095	0.0012
88	0.0108	0.0096	0.0012
89	0.0109	0.0096	0.0012
90	0.0109	0.0096	0.0012
91	0.0110	0.0097	0.0012
92	0.0110	0.0097	0.0012
93	0.0111	0.0098	0.0013
94	0.0111	0.0098	0.0013
95	0.0112	0.0099	0.0013
96	0.0112	0.0099	0.0013
97	0.0113	0.0100	0.0013
98	0.0113	0.0100	0.0013
99	0.0114	0.0101	0.0013
100	0.0114	0.0101	0.0013
101	0.0115	0.0102	0.0013
102	0.0116	0.0103	0.0013
103	0.0117	0.0103	0.0013
104	0.0117	0.0104	0.0013
105	0.0118	0.0104	0.0013
106	0.0118	0.0105	0.0013
107	0.0119	0.0106	0.0014
108	0.0120	0.0106	0.0014
109	0.0121	0.0107	0.0014
110	0.0121	0.0107	0.0014
111	0.0122	0.0108	0.0014
112	0.0123	0.0109	0.0014
113	0.0124	0.0109	0.0014
114	0.0124	0.0110	0.0014
115	0.0125	0.0111	0.0014
116	0.0126	0.0111	0.0014
117	0.0127	0.0112	0.0014
118	0.0127	0.0113	0.0014
119	0.0128	0.0114	0.0015
120	0.0129	0.0114	0.0015
121	0.0130	0.0115	0.0015

122	0.0131	0.0116	0.0015
123	0.0132	0.0117	0.0015
124	0.0133	0.0118	0.0015
125	0.0134	0.0119	0.0015
126	0.0135	0.0119	0.0015
127	0.0136	0.0120	0.0015
128	0.0137	0.0121	0.0016
129	0.0138	0.0122	0.0016
130	0.0139	0.0123	0.0016
131	0.0140	0.0124	0.0016
132	0.0141	0.0125	0.0016
133	0.0142	0.0126	0.0016
134	0.0143	0.0127	0.0016
135	0.0145	0.0128	0.0016
136	0.0146	0.0129	0.0017
137	0.0147	0.0131	0.0017
138	0.0148	0.0131	0.0017
139	0.0150	0.0133	0.0017
140	0.0151	0.0134	0.0017
141	0.0153	0.0136	0.0017
142	0.0154	0.0136	0.0017
143	0.0156	0.0138	0.0018
144	0.0157	0.0139	0.0018
145	0.0164	0.0146	0.0019
146	0.0165	0.0147	0.0019
147	0.0168	0.0149	0.0019
148	0.0169	0.0150	0.0019
149	0.0171	0.0152	0.0019
150	0.0172	0.0153	0.0020
151	0.0175	0.0155	0.0020
152	0.0176	0.0156	0.0020
153	0.0179	0.0159	0.0020
154	0.0181	0.0160	0.0021
155	0.0184	0.0163	0.0021
156	0.0185	0.0164	0.0021
157	0.0189	0.0167	0.0021
158	0.0190	0.0169	0.0022
159	0.0194	0.0172	0.0022
160	0.0196	0.0173	0.0022
161	0.0199	0.0177	0.0023
162	0.0202	0.0179	0.0023
163	0.0206	0.0182	0.0023
164	0.0208	0.0184	0.0024
165	0.0213	0.0189	0.0024
166	0.0215	0.0191	0.0024
167	0.0220	0.0195	0.0025
168	0.0223	0.0198	0.0025
169	0.0229	0.0203	0.0026
170	0.0232	0.0206	0.0026
171	0.0239	0.0212	0.0027
172	0.0243	0.0215	0.0028
173	0.0250	0.0222	0.0028
174	0.0254	0.0226	0.0029
175	0.0263	0.0234	0.0030
176	0.0268	0.0238	0.0030
177	0.0279	0.0247	0.0032
178	0.0285	0.0252	0.0032
179	0.0298	0.0264	0.0034
180	0.0305	0.0270	0.0035
181	0.0321	0.0285	0.0036
182	0.0330	0.0293	0.0038
183	0.0351	0.0311	0.0040
184	0.0363	0.0322	0.0041

185	0.0301	0.0267	0.0034
186	0.0318	0.0282	0.0036
187	0.0361	0.0320	0.0041
188	0.0389	0.0345	0.0044
189	0.0469	0.0416	0.0053
190	0.0529	0.0469	0.0060
191	0.0757	0.0671	0.0086
192	0.1040	0.0675	0.0366
193	0.3256	0.0675	0.2582
194	0.0616	0.0546	0.0070
195	0.0424	0.0376	0.0048
196	0.0338	0.0299	0.0038
197	0.0377	0.0334	0.0043
198	0.0340	0.0301	0.0039
199	0.0313	0.0277	0.0036
200	0.0291	0.0258	0.0033
201	0.0273	0.0242	0.0031
202	0.0259	0.0229	0.0029
203	0.0246	0.0218	0.0028
204	0.0236	0.0209	0.0027
205	0.0226	0.0200	0.0026
206	0.0218	0.0193	0.0025
207	0.0210	0.0186	0.0024
208	0.0204	0.0180	0.0023
209	0.0198	0.0175	0.0022
210	0.0192	0.0170	0.0022
211	0.0187	0.0166	0.0021
212	0.0182	0.0161	0.0021
213	0.0178	0.0158	0.0020
214	0.0174	0.0154	0.0020
215	0.0170	0.0151	0.0019
216	0.0166	0.0148	0.0019
217	0.0158	0.0140	0.0018
218	0.0155	0.0137	0.0018
219	0.0152	0.0135	0.0017
220	0.0149	0.0132	0.0017
221	0.0147	0.0130	0.0017
222	0.0144	0.0128	0.0016
223	0.0142	0.0126	0.0016
224	0.0139	0.0124	0.0016
225	0.0137	0.0122	0.0016
226	0.0135	0.0120	0.0015
227	0.0133	0.0118	0.0015
228	0.0131	0.0116	0.0015
229	0.0130	0.0115	0.0015
230	0.0128	0.0113	0.0015
231	0.0126	0.0112	0.0014
232	0.0125	0.0110	0.0014
233	0.0123	0.0109	0.0014
234	0.0122	0.0108	0.0014
235	0.0120	0.0106	0.0014
236	0.0119	0.0105	0.0013
237	0.0117	0.0104	0.0013
238	0.0116	0.0103	0.0013
239	0.0115	0.0102	0.0013
240	0.0114	0.0101	0.0013
241	0.0112	0.0100	0.0013
242	0.0111	0.0099	0.0013
243	0.0110	0.0098	0.0013
244	0.0109	0.0097	0.0012
245	0.0108	0.0096	0.0012
246	0.0107	0.0095	0.0012
247	0.0106	0.0094	0.0012

248	0.0105	0.0093	0.0012
249	0.0104	0.0092	0.0012
250	0.0103	0.0092	0.0012
251	0.0103	0.0091	0.0012
252	0.0102	0.0090	0.0012
253	0.0101	0.0089	0.0011
254	0.0100	0.0089	0.0011
255	0.0099	0.0088	0.0011
256	0.0098	0.0087	0.0011
257	0.0098	0.0087	0.0011
258	0.0097	0.0086	0.0011
259	0.0096	0.0085	0.0011
260	0.0096	0.0085	0.0011
261	0.0095	0.0084	0.0011
262	0.0094	0.0083	0.0011
263	0.0093	0.0083	0.0011
264	0.0093	0.0082	0.0011
265	0.0092	0.0082	0.0010
266	0.0092	0.0081	0.0010
267	0.0091	0.0081	0.0010
268	0.0090	0.0080	0.0010
269	0.0090	0.0080	0.0010
270	0.0089	0.0079	0.0010
271	0.0089	0.0079	0.0010
272	0.0088	0.0078	0.0010
273	0.0088	0.0078	0.0010
274	0.0087	0.0077	0.0010
275	0.0086	0.0077	0.0010
276	0.0086	0.0076	0.0010
277	0.0085	0.0076	0.0010
278	0.0085	0.0075	0.0010
279	0.0084	0.0075	0.0010
280	0.0084	0.0074	0.0010
281	0.0084	0.0074	0.0009
282	0.0083	0.0074	0.0009
283	0.0083	0.0073	0.0009
284	0.0082	0.0073	0.0009
285	0.0082	0.0072	0.0009
286	0.0081	0.0072	0.0009
287	0.0081	0.0072	0.0009
288	0.0080	0.0071	0.0009

Total soil rain loss = 3.78(In)
Total effective rainfall = 0.76(In)
Peak flow rate in flood hydrograph = 2.62(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       0.0000      0.00  Q         |         |         |         |
  0+15       0.0001      0.01  Q         |         |         |         |
  0+20       0.0002      0.02  Q         |         |         |         |
  0+25       0.0004      0.02  Q         |         |         |         |
  0+30       0.0006      0.03  Q         |         |         |         |
  0+35       0.0008      0.03  Q         |         |         |         |
```

```
0+40        0.0011      0.04  Q          |          |          |          |
0+45        0.0013      0.04  Q          |          |          |          |
0+50        0.0016      0.04  Q          |          |          |          |
0+55        0.0019      0.04  Q          |          |          |          |
1+ 0        0.0022      0.04  Q          |          |          |          |
1+ 5        0.0025      0.04  Q          |          |          |          |
1+10        0.0028      0.04  Q          |          |          |          |
1+15        0.0031      0.05  Q          |          |          |          |
1+20        0.0034      0.05  Q          |          |          |          |
1+25        0.0038      0.05  Q          |          |          |          |
1+30        0.0041      0.05  Q          |          |          |          |
1+35        0.0044      0.05  Q          |          |          |          |
1+40        0.0048      0.05  Q          |          |          |          |
1+45        0.0051      0.05  Q          |          |          |          |
1+50        0.0054      0.05  Q          |          |          |          |
1+55        0.0058      0.05  Q          |          |          |          |
2+ 0        0.0061      0.05  Q          |          |          |          |
2+ 5        0.0065      0.05  Q          |          |          |          |
2+10        0.0069      0.05  Q          |          |          |          |
2+15        0.0072      0.05  Q          |          |          |          |
2+20        0.0076      0.05  QV         |          |          |          |
2+25        0.0079      0.05  QV         |          |          |          |
2+30        0.0083      0.05  QV         |          |          |          |
2+35        0.0087      0.05  QV         |          |          |          |
2+40        0.0090      0.05  QV         |          |          |          |
2+45        0.0094      0.05  QV         |          |          |          |
2+50        0.0098      0.05  QV         |          |          |          |
2+55        0.0102      0.05  QV         |          |          |          |
3+ 0        0.0105      0.05  QV         |          |          |          |
3+ 5        0.0109      0.05  QV         |          |          |          |
3+10        0.0113      0.06  QV         |          |          |          |
3+15        0.0117      0.06  QV         |          |          |          |
3+20        0.0121      0.06  QV         |          |          |          |
3+25        0.0124      0.06  QV         |          |          |          |
3+30        0.0128      0.06  QV         |          |          |          |
3+35        0.0132      0.06  QV         |          |          |          |
3+40        0.0136      0.06  QV         |          |          |          |
3+45        0.0140      0.06  QV         |          |          |          |
3+50        0.0144      0.06  QV         |          |          |          |
3+55        0.0148      0.06  Q V        |          |          |          |
4+ 0        0.0152      0.06  Q V        |          |          |          |
4+ 5        0.0155      0.06  Q V        |          |          |          |
4+10        0.0159      0.06  Q V        |          |          |          |
4+15        0.0163      0.06  Q V        |          |          |          |
4+20        0.0167      0.06  Q V        |          |          |          |
4+25        0.0171      0.06  Q V        |          |          |          |
4+30        0.0175      0.06  Q V        |          |          |          |
4+35        0.0179      0.06  Q V        |          |          |          |
4+40        0.0183      0.06  Q V        |          |          |          |
4+45        0.0187      0.06  Q V        |          |          |          |
4+50        0.0191      0.06  Q V        |          |          |          |
4+55        0.0196      0.06  Q V        |          |          |          |
5+ 0        0.0200      0.06  Q V        |          |          |          |
5+ 5        0.0204      0.06  Q V        |          |          |          |
5+10        0.0208      0.06  Q V        |          |          |          |
5+15        0.0212      0.06  Q V        |          |          |          |
5+20        0.0216      0.06  Q V        |          |          |          |
5+25        0.0220      0.06  Q  V       |          |          |          |
5+30        0.0224      0.06  Q  V       |          |          |          |
5+35        0.0229      0.06  Q  V       |          |          |          |
5+40        0.0233      0.06  Q  V       |          |          |          |
5+45        0.0237      0.06  Q  V       |          |          |          |
5+50        0.0241      0.06  Q  V       |          |          |          |
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 5+55       0.0246      0.06  Q  V       |          |          |          |
 6+ 0       0.0250      0.06  Q  V       |          |          |          |
 6+ 5       0.0254      0.06  Q  V       |          |          |          |
 6+10       0.0258      0.06  Q  V       |          |          |          |
 6+15       0.0263      0.06  Q  V       |          |          |          |
 6+20       0.0267      0.06  Q  V       |          |          |          |
 6+25       0.0271      0.06  Q  V       |          |          |          |
 6+30       0.0276      0.06  Q  V       |          |          |          |
 6+35       0.0280      0.06  Q  V       |          |          |          |
 6+40       0.0285      0.06  Q  V       |          |          |          |
 6+45       0.0289      0.06  Q  V       |          |          |          |
 6+50       0.0293      0.06  Q   V      |          |          |          |
 6+55       0.0298      0.06  Q   V      |          |          |          |
 7+ 0       0.0302      0.07  Q   V      |          |          |          |
 7+ 5       0.0307      0.07  Q   V      |          |          |          |
 7+10       0.0311      0.07  Q   V      |          |          |          |
 7+15       0.0316      0.07  Q   V      |          |          |          |
 7+20       0.0321      0.07  Q   V      |          |          |          |
 7+25       0.0325      0.07  Q   V      |          |          |          |
 7+30       0.0330      0.07  Q   V      |          |          |          |
 7+35       0.0334      0.07  Q   V      |          |          |          |
 7+40       0.0339      0.07  Q   V      |          |          |          |
 7+45       0.0344      0.07  Q   V      |          |          |          |
 7+50       0.0348      0.07  Q   V      |          |          |          |
 7+55       0.0353      0.07  Q   V      |          |          |          |
 8+ 0       0.0358      0.07  Q   V      |          |          |          |
 8+ 5       0.0362      0.07  Q   V      |          |          |          |
 8+10       0.0367      0.07  Q    V     |          |          |          |
 8+15       0.0372      0.07  Q    V     |          |          |          |
 8+20       0.0377      0.07  Q    V     |          |          |          |
 8+25       0.0382      0.07  Q    V     |          |          |          |
 8+30       0.0387      0.07  Q    V     |          |          |          |
 8+35       0.0392      0.07  Q    V     |          |          |          |
 8+40       0.0396      0.07  Q    V     |          |          |          |
 8+45       0.0401      0.07  Q    V     |          |          |          |
 8+50       0.0406      0.07  Q    V     |          |          |          |
 8+55       0.0411      0.07  Q    V     |          |          |          |
 9+ 0       0.0416      0.07  Q    V     |          |          |          |
 9+ 5       0.0421      0.07  Q    V     |          |          |          |
 9+10       0.0427      0.07  Q    V     |          |          |          |
 9+15       0.0432      0.07  Q    V     |          |          |          |
 9+20       0.0437      0.07  Q    V     |          |          |          |
 9+25       0.0442      0.08  Q     V    |          |          |          |
 9+30       0.0447      0.08  Q     V    |          |          |          |
 9+35       0.0452      0.08  Q     V    |          |          |          |
 9+40       0.0458      0.08  Q     V    |          |          |          |
 9+45       0.0463      0.08  Q     V    |          |          |          |
 9+50       0.0468      0.08  Q     V    |          |          |          |
 9+55       0.0474      0.08  Q     V    |          |          |          |
10+ 0       0.0479      0.08  Q     V    |          |          |          |
10+ 5       0.0484      0.08  Q     V    |          |          |          |
10+10       0.0490      0.08  Q     V    |          |          |          |
10+15       0.0495      0.08  Q     V    |          |          |          |
10+20       0.0501      0.08  Q     V    |          |          |          |
10+25       0.0506      0.08  Q     V    |          |          |          |
10+30       0.0512      0.08  Q      V   |          |          |          |
10+35       0.0518      0.08  Q      V   |          |          |          |
10+40       0.0523      0.08  Q      V   |          |          |          |
10+45       0.0529      0.08  Q      V   |          |          |          |
10+50       0.0535      0.08  Q      V   |          |          |          |
10+55       0.0541      0.08  Q      V   |          |          |          |
11+ 0       0.0546      0.08  Q      V   |          |          |          |
11+ 5       0.0552      0.09  Q      V   |          |          |          |
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11+10       0.0558      0.09  Q      V  |          |          |          |
11+15       0.0564      0.09  Q      V  |          |          |          |
11+20       0.0570      0.09  Q      V  |          |          |          |
11+25       0.0576      0.09  Q      V  |          |          |          |
11+30       0.0582      0.09  Q      V  |          |          |          |
11+35       0.0589      0.09  Q       V |          |          |          |
11+40       0.0595      0.09  Q       V |          |          |          |
11+45       0.0601      0.09  Q       V |          |          |          |
11+50       0.0607      0.09  Q       V |          |          |          |
11+55       0.0614      0.09  Q       V |          |          |          |
12+ 0       0.0620      0.09  Q       V |          |          |          |
12+ 5       0.0627      0.09  Q       V |          |          |          |
12+10       0.0633      0.10  Q       V |          |          |          |
12+15       0.0640      0.10  Q       V |          |          |          |
12+20       0.0647      0.10  Q       V |          |          |          |
12+25       0.0654      0.10  Q       V |          |          |          |
12+30       0.0661      0.10  Q        V|          |          |          |
12+35       0.0668      0.10  Q        V|          |          |          |
12+40       0.0675      0.10  Q        V|          |          |          |
12+45       0.0682      0.10  Q        V|          |          |          |
12+50       0.0689      0.11  Q        V|          |          |          |
12+55       0.0697      0.11  Q        V|          |          |          |
13+ 0       0.0704      0.11  Q        V|          |          |          |
13+ 5       0.0712      0.11  Q        V|          |          |          |
13+10       0.0719      0.11  Q        V|          |          |          |
13+15       0.0727      0.11  Q        V|          |          |          |
13+20       0.0735      0.11  Q         V          |          |          |
13+25       0.0743      0.12  Q         V          |          |          |
13+30       0.0751      0.12  Q         V          |          |          |
13+35       0.0759      0.12  Q         V          |          |          |
13+40       0.0767      0.12  Q         V          |          |          |
13+45       0.0776      0.12  Q         V          |          |          |
13+50       0.0784      0.12  Q         V          |          |          |
13+55       0.0793      0.13  Q         V          |          |          |
14+ 0       0.0801      0.13  Q         V          |          |          |
14+ 5       0.0810      0.13  Q         |V         |          |          |
14+10       0.0819      0.13  Q         |V         |          |          |
14+15       0.0829      0.13  Q         |V         |          |          |
14+20       0.0838      0.14  Q         |V         |          |          |
14+25       0.0848      0.14  Q         |V         |          |          |
14+30       0.0857      0.14  Q         |V         |          |          |
14+35       0.0867      0.14  Q         |V         |          |          |
14+40       0.0877      0.15  Q         | V        |          |          |
14+45       0.0888      0.15  Q         | V        |          |          |
14+50       0.0898      0.15  Q         | V        |          |          |
14+55       0.0909      0.16  Q         | V        |          |          |
15+ 0       0.0920      0.16  Q         | V        |          |          |
15+ 5       0.0932      0.17  Q         | V        |          |          |
15+10       0.0944      0.17  Q         | V        |          |          |
15+15       0.0956      0.18  Q         |  V       |          |          |
15+20       0.0968      0.18  Q         |  V       |          |          |
15+25       0.0981      0.19  Q         |  V       |          |          |
15+30       0.0995      0.19  Q         |  V       |          |          |
15+35       0.1008      0.20  Q         |  V       |          |          |
15+40       0.1022      0.20  Q         |  V       |          |          |
15+45       0.1036      0.20  Q         |   V      |          |          |
15+50       0.1051      0.21  Q         |   V      |          |          |
15+55       0.1066      0.23  Q         |   V      |          |          |
16+ 0       0.1086      0.28  |Q        |   V      |          |          |
16+ 5       0.1130      0.64  | Q       |    V     |          |          |
16+10       0.1218      1.28  |    Q    |     V    |          |          |
16+15       0.1354      1.97  |      Q  |       V  |          |          |
16+20       0.1528      2.53  |         Q         V          |          |
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16+25       0.1709      2.62  |          Q          |  V       |          |
16+30       0.1851      2.07  |        Q |          |    V     |          |
16+35       0.1950      1.44  |     Q    |          |     V    |          |
16+40       0.2023      1.06  |    Q     |          |      V   |          |
16+45       0.2080      0.82  |   Q      |          |       V  |          |
16+50       0.2128      0.70  | Q        |          |        V|          |
16+55       0.2171      0.62  | Q        |          |        V|          |
17+ 0       0.2209      0.55  | Q        |          |         V          |
17+ 5       0.2243      0.50  | Q        |          |         V          |
17+10       0.2274      0.45  |Q         |          |         |V         |
17+15       0.2302      0.41  |Q         |          |         |V         |
17+20       0.2328      0.38  |Q         |          |         |V         |
17+25       0.2353      0.36  |Q         |          |         | V        |
17+30       0.2375      0.32  |Q         |          |         | V        |
17+35       0.2396      0.30  |Q         |          |         | V        |
17+40       0.2414      0.27  |Q         |          |         |  V       |
17+45       0.2432      0.25  |Q         |          |         |  V       |
17+50       0.2449      0.25  Q          |          |         |  V       |
17+55       0.2465      0.24  Q          |          |         |  V       |
18+ 0       0.2481      0.23  Q          |          |         |  V       |
18+ 5       0.2495      0.21  Q          |          |         |   V      |
18+10       0.2509      0.20  Q          |          |         |   V      |
18+15       0.2522      0.19  Q          |          |         |   V      |
18+20       0.2535      0.18  Q          |          |         |   V      |
18+25       0.2546      0.17  Q          |          |         |   V      |
18+30       0.2557      0.16  Q          |          |         |   V      |
18+35       0.2568      0.15  Q          |          |         |    V     |
18+40       0.2578      0.14  Q          |          |         |    V     |
18+45       0.2587      0.14  Q          |          |         |    V     |
18+50       0.2597      0.14  Q          |          |         |    V     |
18+55       0.2606      0.13  Q          |          |         |    V     |
19+ 0       0.2615      0.13  Q          |          |         |    V     |
19+ 5       0.2624      0.13  Q          |          |         |    V     |
19+10       0.2631      0.11  Q          |          |         |    V     |
19+15       0.2638      0.09  Q          |          |         |     V    |
19+20       0.2644      0.09  Q          |          |         |     V    |
19+25       0.2650      0.09  Q          |          |         |     V    |
19+30       0.2656      0.09  Q          |          |         |     V    |
19+35       0.2662      0.09  Q          |          |         |     V    |
19+40       0.2668      0.08  Q          |          |         |     V    |
19+45       0.2673      0.08  Q          |          |         |     V    |
19+50       0.2679      0.08  Q          |          |         |     V    |
19+55       0.2685      0.08  Q          |          |         |     V    |
20+ 0       0.2690      0.08  Q          |          |         |     V    |
20+ 5       0.2695      0.08  Q          |          |         |     V    |
20+10       0.2701      0.08  Q          |          |         |     V    |
20+15       0.2706      0.08  Q          |          |         |      V   |
20+20       0.2711      0.08  Q          |          |         |      V   |
20+25       0.2716      0.07  Q          |          |         |      V   |
20+30       0.2721      0.07  Q          |          |         |      V   |
20+35       0.2726      0.07  Q          |          |         |      V   |
20+40       0.2731      0.07  Q          |          |         |      V   |
20+45       0.2736      0.07  Q          |          |         |      V   |
20+50       0.2741      0.07  Q          |          |         |      V   |
20+55       0.2746      0.07  Q          |          |         |      V   |
21+ 0       0.2751      0.07  Q          |          |         |      V   |
21+ 5       0.2755      0.07  Q          |          |         |      V   |
21+10       0.2760      0.07  Q          |          |         |      V   |
21+15       0.2765      0.07  Q          |          |         |      V   |
21+20       0.2769      0.07  Q          |          |         |      V   |
21+25       0.2774      0.07  Q          |          |         |      V   |
21+30       0.2778      0.07  Q          |          |         |       V  |
21+35       0.2783      0.06  Q          |          |         |       V  |
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21+40       0.2787      0.06  Q          |          |          |        V |
21+45       0.2791      0.06  Q          |          |          |        V |
21+50       0.2796      0.06  Q          |          |          |        V |
21+55       0.2800      0.06  Q          |          |          |        V |
22+ 0       0.2804      0.06  Q          |          |          |        V |
22+ 5       0.2809      0.06  Q          |          |          |        V |
22+10       0.2813      0.06  Q          |          |          |        V |
22+15       0.2817      0.06  Q          |          |          |        V |
22+20       0.2821      0.06  Q          |          |          |        V |
22+25       0.2825      0.06  Q          |          |          |        V |
22+30       0.2829      0.06  Q          |          |          |        V |
22+35       0.2833      0.06  Q          |          |          |        V |
22+40       0.2837      0.06  Q          |          |          |        V |
22+45       0.2841      0.06  Q          |          |          |        V |
22+50       0.2845      0.06  Q          |          |          |        V |
22+55       0.2849      0.06  Q          |          |          |        V |
23+ 0       0.2853      0.06  Q          |          |          |         V|
23+ 5       0.2857      0.06  Q          |          |          |         V|
23+10       0.2861      0.06  Q          |          |          |         V|
23+15       0.2865      0.06  Q          |          |          |         V|
23+20       0.2869      0.06  Q          |          |          |         V|
23+25       0.2873      0.06  Q          |          |          |         V|
23+30       0.2876      0.05  Q          |          |          |         V|
23+35       0.2880      0.05  Q          |          |          |         V|
23+40       0.2884      0.05  Q          |          |          |         V|
23+45       0.2888      0.05  Q          |          |          |         V|
23+50       0.2891      0.05  Q          |          |          |         V|
23+55       0.2895      0.05  Q          |          |          |         V|
24+ 0       0.2899      0.05  Q          |          |          |         V|
24+ 5       0.2902      0.05  Q          |          |          |         V|
24+10       0.2905      0.05  Q          |          |          |         V|
24+15       0.2908      0.04  Q          |          |          |         V|
24+20       0.2911      0.04  Q          |          |          |         V|
24+25       0.2913      0.03  Q          |          |          |         V|
24+30       0.2914      0.02  Q          |          |          |         V|
24+35       0.2916      0.02  Q          |          |          |         V|
24+40       0.2917      0.02  Q          |          |          |         V|
24+45       0.2918      0.01  Q          |          |          |         V|
24+50       0.2918      0.01  Q          |          |          |         V|
24+55       0.2919      0.01  Q          |          |          |         V|
25+ 0       0.2920      0.01  Q          |          |          |         V|
25+ 5       0.2920      0.01  Q          |          |          |         V|
25+10       0.2921      0.01  Q          |          |          |         V|
25+15       0.2921      0.01  Q          |          |          |         V|
25+20       0.2921      0.01  Q          |          |          |         V|
25+25       0.2922      0.00  Q          |          |          |         V|
25+30       0.2922      0.00  Q          |          |          |         V|
25+35       0.2922      0.00  Q          |          |          |         V|
25+40       0.2923      0.00  Q          |          |          |         V|
25+45       0.2923      0.00  Q          |          |          |         V|
25+50       0.2923      0.00  Q          |          |          |         V|
25+55       0.2923      0.00  Q          |          |          |         V|
26+ 0       0.2923      0.00  Q          |          |          |         V|
26+ 5       0.2923      0.00  Q          |          |          |         V|
26+10       0.2924      0.00  Q          |          |          |         V|
26+15       0.2924      0.00  Q          |          |          |         V|
26+20       0.2924      0.00  Q          |          |          |         V|
26+25       0.2924      0.00  Q          |          |          |         V|
26+30       0.2924      0.00  Q          |          |          |         V|
26+35       0.2924      0.00  Q          |          |          |         V|
26+40       0.2924      0.00  Q          |          |          |         V|
26+45       0.2924      0.00  Q          |          |          |         V|
26+50       0.2924      0.00  Q          |          |          |         V|
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   26+55       0.2924      0.00  Q          |          |          |         V|
   27+ 0       0.2924      0.00  Q          |          |          |         V|
   27+ 5       0.2924      0.00  Q          |          |          |          V
-----------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Existing Conditions
Area E1

Storm Event Year = 25

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
4.61	1	0.88
Rainfall data for year 2		
4.61	6	1.55
Rainfall data for year 2		
4.61	24	2.90
Rainfall data for year 100		
4.61	1	1.25
Rainfall data for year 100		
4.61	6	3.25
Rainfall data for year 100		
4.61	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 2)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
50.0	50.0	4.61	1.000	0.810	1.000	0.810

Area-averaged adjusted loss rate Fm (In/Hr) = 0.810

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
4.61	1.000	50.0	50.0	10.00	0.164

Area-averaged catchment yield fraction, Y = 0.164
Area-averaged low loss fraction, Yb = 0.836
User entry of time of concentration = 0.489 (hours)
++
Watershed area = 4.61(Ac.)
Catchment Lag time = 0.391 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 21.3020
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.810(In/Hr)
Average low loss rate fraction (Yb) = 0.836 (decimal)
VALLEY UNDEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.380(In)
Computed peak 30-minute rainfall = 0.779(In)
Specified peak 1-hour rainfall = 1.027(In)
Computed peak 3-hour rainfall = 1.836(In)
Specified peak 6-hour rainfall = 2.648(In)
Specified peak 24-hour rainfall = 5.483(In)

Rainfall depth area reduction factors:
Using a total area of 4.61(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.380(In)
30-minute factor = 1.000 Adjusted rainfall = 0.778(In)
1-hour factor = 1.000 Adjusted rainfall = 1.027(In)
3-hour factor = 1.000 Adjusted rainfall = 1.836(In)
6-hour factor = 1.000 Adjusted rainfall = 2.648(In)
24-hour factor = 1.000 Adjusted rainfall = 5.482(In)

U n i t H y d r o g r a p h
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Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 55.75 (CFS))	
1	1.908	1.064
2	7.677	3.216
3	17.784	5.635
4	31.741	7.781
5	46.826	8.410
6	58.572	6.549
7	66.211	4.259
8	71.492	2.944
9	75.187	2.060
10	78.239	1.702
11	80.800	1.428
12	82.988	1.220
13	84.931	1.083
14	86.606	0.934

15	88.032	0.795
16	89.311	0.713
17	90.534	0.682
18	91.503	0.540
19	92.433	0.519
20	93.192	0.423
21	93.874	0.380
22	94.539	0.371
23	95.179	0.356
24	95.794	0.343
25	96.282	0.272
26	96.749	0.261
27	97.161	0.230
28	97.544	0.214
29	97.898	0.197
30	98.198	0.167
31	98.486	0.161
32	98.710	0.125
33	98.923	0.119
34	99.136	0.119
35	99.349	0.119
36	99.562	0.119
37	99.775	0.119
38	100.000	0.059

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.3801	0.3801
2	0.5016	0.1214
3	0.5899	0.0883
4	0.6618	0.0719
5	0.7236	0.0618
6	0.7783	0.0547
7	0.8278	0.0495
8	0.8733	0.0454
9	0.9154	0.0421
10	0.9548	0.0394
11	0.9919	0.0371
12	1.0270	0.0351
13	1.0714	0.0444
14	1.1142	0.0428
15	1.1556	0.0414
16	1.1957	0.0401
17	1.2346	0.0389
18	1.2725	0.0379
19	1.3094	0.0369
20	1.3454	0.0360
21	1.3805	0.0351
22	1.4149	0.0344
23	1.4485	0.0336
24	1.4815	0.0330
25	1.5138	0.0323
26	1.5455	0.0317
27	1.5766	0.0311
28	1.6072	0.0306
29	1.6373	0.0301
30	1.6669	0.0296
31	1.6961	0.0291
32	1.7248	0.0287
33	1.7531	0.0283
34	1.7809	0.0279
35	1.8084	0.0275
36	1.8356	0.0271

37	1.8623	0.0268
38	1.8888	0.0264
39	1.9149	0.0261
40	1.9407	0.0258
41	1.9662	0.0255
42	1.9913	0.0252
43	2.0163	0.0249
44	2.0409	0.0246
45	2.0653	0.0244
46	2.0894	0.0241
47	2.1133	0.0239
48	2.1369	0.0236
49	2.1603	0.0234
50	2.1835	0.0232
51	2.2065	0.0230
52	2.2293	0.0228
53	2.2518	0.0226
54	2.2742	0.0224
55	2.2963	0.0222
56	2.3183	0.0220
57	2.3401	0.0218
58	2.3617	0.0216
59	2.3831	0.0214
60	2.4044	0.0213
61	2.4255	0.0211
62	2.4464	0.0209
63	2.4672	0.0208
64	2.4878	0.0206
65	2.5082	0.0205
66	2.5286	0.0203
67	2.5487	0.0202
68	2.5688	0.0200
69	2.5887	0.0199
70	2.6084	0.0198
71	2.6280	0.0196
72	2.6475	0.0195
73	2.6668	0.0192
74	2.6859	0.0191
75	2.7049	0.0190
76	2.7238	0.0189
77	2.7425	0.0188
78	2.7612	0.0186
79	2.7797	0.0185
80	2.7981	0.0184
81	2.8164	0.0183
82	2.8347	0.0182
83	2.8528	0.0181
84	2.8707	0.0180
85	2.8886	0.0179
86	2.9064	0.0178
87	2.9241	0.0177
88	2.9417	0.0176
89	2.9592	0.0175
90	2.9767	0.0174
91	2.9940	0.0173
92	3.0112	0.0172
93	3.0284	0.0171
94	3.0454	0.0171
95	3.0624	0.0170
96	3.0793	0.0169
97	3.0961	0.0168
98	3.1128	0.0167
99	3.1294	0.0166

100	3.1460	0.0166
101	3.1625	0.0165
102	3.1789	0.0164
103	3.1952	0.0163
104	3.2114	0.0163
105	3.2276	0.0162
106	3.2437	0.0161
107	3.2598	0.0160
108	3.2757	0.0160
109	3.2916	0.0159
110	3.3074	0.0158
111	3.3232	0.0158
112	3.3389	0.0157
113	3.3545	0.0156
114	3.3700	0.0156
115	3.3855	0.0155
116	3.4010	0.0154
117	3.4163	0.0154
118	3.4316	0.0153
119	3.4469	0.0152
120	3.4620	0.0152
121	3.4772	0.0151
122	3.4922	0.0151
123	3.5072	0.0150
124	3.5222	0.0149
125	3.5371	0.0149
126	3.5519	0.0148
127	3.5667	0.0148
128	3.5814	0.0147
129	3.5960	0.0147
130	3.6107	0.0146
131	3.6252	0.0146
132	3.6397	0.0145
133	3.6542	0.0145
134	3.6686	0.0144
135	3.6829	0.0144
136	3.6972	0.0143
137	3.7115	0.0143
138	3.7257	0.0142
139	3.7398	0.0142
140	3.7539	0.0141
141	3.7680	0.0141
142	3.7820	0.0140
143	3.7960	0.0140
144	3.8099	0.0139
145	3.8237	0.0139
146	3.8376	0.0138
147	3.8513	0.0138
148	3.8651	0.0137
149	3.8788	0.0137
150	3.8924	0.0136
151	3.9060	0.0136
152	3.9196	0.0136
153	3.9331	0.0135
154	3.9466	0.0135
155	3.9600	0.0134
156	3.9734	0.0134
157	3.9868	0.0134
158	4.0001	0.0133
159	4.0134	0.0133
160	4.0266	0.0132
161	4.0398	0.0132
162	4.0529	0.0132

163	4.0661	0.0131
164	4.0791	0.0131
165	4.0922	0.0130
166	4.1052	0.0130
167	4.1181	0.0130
168	4.1311	0.0129
169	4.1440	0.0129
170	4.1568	0.0129
171	4.1697	0.0128
172	4.1824	0.0128
173	4.1952	0.0128
174	4.2079	0.0127
175	4.2206	0.0127
176	4.2332	0.0126
177	4.2458	0.0126
178	4.2584	0.0126
179	4.2710	0.0125
180	4.2835	0.0125
181	4.2960	0.0125
182	4.3084	0.0124
183	4.3208	0.0124
184	4.3332	0.0124
185	4.3456	0.0123
186	4.3579	0.0123
187	4.3702	0.0123
188	4.3824	0.0123
189	4.3946	0.0122
190	4.4068	0.0122
191	4.4190	0.0122
192	4.4311	0.0121
193	4.4432	0.0121
194	4.4553	0.0121
195	4.4674	0.0120
196	4.4794	0.0120
197	4.4914	0.0120
198	4.5033	0.0120
199	4.5152	0.0119
200	4.5271	0.0119
201	4.5390	0.0119
202	4.5509	0.0118
203	4.5627	0.0118
204	4.5745	0.0118
205	4.5862	0.0118
206	4.5980	0.0117
207	4.6097	0.0117
208	4.6213	0.0117
209	4.6330	0.0117
210	4.6446	0.0116
211	4.6562	0.0116
212	4.6678	0.0116
213	4.6793	0.0115
214	4.6909	0.0115
215	4.7024	0.0115
216	4.7138	0.0115
217	4.7253	0.0114
218	4.7367	0.0114
219	4.7481	0.0114
220	4.7595	0.0114
221	4.7708	0.0113
222	4.7821	0.0113
223	4.7934	0.0113
224	4.8047	0.0113
225	4.8160	0.0113

226	4.8272	0.0112
227	4.8384	0.0112
228	4.8496	0.0112
229	4.8607	0.0112
230	4.8719	0.0111
231	4.8830	0.0111
232	4.8941	0.0111
233	4.9051	0.0111
234	4.9162	0.0110
235	4.9272	0.0110
236	4.9382	0.0110
237	4.9492	0.0110
238	4.9601	0.0110
239	4.9711	0.0109
240	4.9820	0.0109
241	4.9929	0.0109
242	5.0037	0.0109
243	5.0146	0.0108
244	5.0254	0.0108
245	5.0362	0.0108
246	5.0470	0.0108
247	5.0577	0.0108
248	5.0685	0.0107
249	5.0792	0.0107
250	5.0899	0.0107
251	5.1006	0.0107
252	5.1113	0.0107
253	5.1219	0.0106
254	5.1325	0.0106
255	5.1431	0.0106
256	5.1537	0.0106
257	5.1643	0.0106
258	5.1748	0.0105
259	5.1853	0.0105
260	5.1958	0.0105
261	5.2063	0.0105
262	5.2168	0.0105
263	5.2272	0.0104
264	5.2376	0.0104
265	5.2481	0.0104
266	5.2584	0.0104
267	5.2688	0.0104
268	5.2792	0.0104
269	5.2895	0.0103
270	5.2998	0.0103
271	5.3101	0.0103
272	5.3204	0.0103
273	5.3307	0.0103
274	5.3409	0.0102
275	5.3511	0.0102
276	5.3613	0.0102
277	5.3715	0.0102
278	5.3817	0.0102
279	5.3919	0.0102
280	5.4020	0.0101
281	5.4121	0.0101
282	5.4222	0.0101
283	5.4323	0.0101
284	5.4424	0.0101
285	5.4524	0.0101
286	5.4625	0.0100
287	5.4725	0.0100
288	5.4825	0.0100

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0100	0.0084	0.0016
2	0.0100	0.0084	0.0016
3	0.0101	0.0084	0.0016
4	0.0101	0.0084	0.0017
5	0.0101	0.0084	0.0017
6	0.0101	0.0085	0.0017
7	0.0102	0.0085	0.0017
8	0.0102	0.0085	0.0017
9	0.0102	0.0085	0.0017
10	0.0102	0.0085	0.0017
11	0.0103	0.0086	0.0017
12	0.0103	0.0086	0.0017
13	0.0103	0.0086	0.0017
14	0.0103	0.0086	0.0017
15	0.0104	0.0087	0.0017
16	0.0104	0.0087	0.0017
17	0.0104	0.0087	0.0017
18	0.0104	0.0087	0.0017
19	0.0105	0.0088	0.0017
20	0.0105	0.0088	0.0017
21	0.0105	0.0088	0.0017
22	0.0106	0.0088	0.0017
23	0.0106	0.0089	0.0017
24	0.0106	0.0089	0.0017
25	0.0107	0.0089	0.0017
26	0.0107	0.0089	0.0018
27	0.0107	0.0090	0.0018
28	0.0107	0.0090	0.0018
29	0.0108	0.0090	0.0018
30	0.0108	0.0090	0.0018
31	0.0108	0.0091	0.0018
32	0.0109	0.0091	0.0018
33	0.0109	0.0091	0.0018
34	0.0109	0.0091	0.0018
35	0.0110	0.0092	0.0018
36	0.0110	0.0092	0.0018
37	0.0110	0.0092	0.0018
38	0.0111	0.0092	0.0018
39	0.0111	0.0093	0.0018
40	0.0111	0.0093	0.0018
41	0.0112	0.0093	0.0018
42	0.0112	0.0094	0.0018
43	0.0113	0.0094	0.0018
44	0.0113	0.0094	0.0018
45	0.0113	0.0095	0.0019
46	0.0113	0.0095	0.0019
47	0.0114	0.0095	0.0019
48	0.0114	0.0095	0.0019
49	0.0115	0.0096	0.0019
50	0.0115	0.0096	0.0019
51	0.0115	0.0097	0.0019
52	0.0116	0.0097	0.0019
53	0.0116	0.0097	0.0019
54	0.0117	0.0097	0.0019
55	0.0117	0.0098	0.0019
56	0.0117	0.0098	0.0019
57	0.0118	0.0099	0.0019
58	0.0118	0.0099	0.0019

59	0.0119	0.0099	0.0019
60	0.0119	0.0099	0.0020
61	0.0120	0.0100	0.0020
62	0.0120	0.0100	0.0020
63	0.0120	0.0101	0.0020
64	0.0121	0.0101	0.0020
65	0.0121	0.0101	0.0020
66	0.0122	0.0102	0.0020
67	0.0122	0.0102	0.0020
68	0.0123	0.0102	0.0020
69	0.0123	0.0103	0.0020
70	0.0123	0.0103	0.0020
71	0.0124	0.0104	0.0020
72	0.0124	0.0104	0.0020
73	0.0125	0.0105	0.0021
74	0.0125	0.0105	0.0021
75	0.0126	0.0105	0.0021
76	0.0126	0.0106	0.0021
77	0.0127	0.0106	0.0021
78	0.0128	0.0107	0.0021
79	0.0128	0.0107	0.0021
80	0.0129	0.0107	0.0021
81	0.0129	0.0108	0.0021
82	0.0130	0.0108	0.0021
83	0.0130	0.0109	0.0021
84	0.0131	0.0109	0.0021
85	0.0132	0.0110	0.0022
86	0.0132	0.0110	0.0022
87	0.0133	0.0111	0.0022
88	0.0133	0.0111	0.0022
89	0.0134	0.0112	0.0022
90	0.0134	0.0112	0.0022
91	0.0135	0.0113	0.0022
92	0.0136	0.0113	0.0022
93	0.0136	0.0114	0.0022
94	0.0137	0.0114	0.0022
95	0.0138	0.0115	0.0023
96	0.0138	0.0116	0.0023
97	0.0139	0.0116	0.0023
98	0.0140	0.0117	0.0023
99	0.0141	0.0117	0.0023
100	0.0141	0.0118	0.0023
101	0.0142	0.0119	0.0023
102	0.0143	0.0119	0.0023
103	0.0144	0.0120	0.0024
104	0.0144	0.0120	0.0024
105	0.0145	0.0121	0.0024
106	0.0146	0.0122	0.0024
107	0.0147	0.0123	0.0024
108	0.0147	0.0123	0.0024
109	0.0148	0.0124	0.0024
110	0.0149	0.0124	0.0024
111	0.0150	0.0125	0.0025
112	0.0151	0.0126	0.0025
113	0.0152	0.0127	0.0025
114	0.0152	0.0127	0.0025
115	0.0154	0.0128	0.0025
116	0.0154	0.0129	0.0025
117	0.0156	0.0130	0.0026
118	0.0156	0.0131	0.0026
119	0.0158	0.0132	0.0026
120	0.0158	0.0132	0.0026
121	0.0160	0.0133	0.0026

122	0.0160	0.0134	0.0026
123	0.0162	0.0135	0.0027
124	0.0163	0.0136	0.0027
125	0.0164	0.0137	0.0027
126	0.0165	0.0138	0.0027
127	0.0166	0.0139	0.0027
128	0.0167	0.0140	0.0027
129	0.0169	0.0141	0.0028
130	0.0170	0.0142	0.0028
131	0.0171	0.0143	0.0028
132	0.0172	0.0144	0.0028
133	0.0174	0.0146	0.0029
134	0.0175	0.0146	0.0029
135	0.0177	0.0148	0.0029
136	0.0178	0.0149	0.0029
137	0.0180	0.0150	0.0030
138	0.0181	0.0151	0.0030
139	0.0183	0.0153	0.0030
140	0.0184	0.0154	0.0030
141	0.0186	0.0156	0.0031
142	0.0188	0.0157	0.0031
143	0.0190	0.0159	0.0031
144	0.0191	0.0160	0.0031
145	0.0195	0.0163	0.0032
146	0.0196	0.0164	0.0032
147	0.0199	0.0166	0.0033
148	0.0200	0.0167	0.0033
149	0.0203	0.0170	0.0033
150	0.0205	0.0171	0.0034
151	0.0208	0.0174	0.0034
152	0.0209	0.0175	0.0034
153	0.0213	0.0178	0.0035
154	0.0214	0.0179	0.0035
155	0.0218	0.0182	0.0036
156	0.0220	0.0184	0.0036
157	0.0224	0.0187	0.0037
158	0.0226	0.0189	0.0037
159	0.0230	0.0192	0.0038
160	0.0232	0.0194	0.0038
161	0.0236	0.0198	0.0039
162	0.0239	0.0200	0.0039
163	0.0244	0.0204	0.0040
164	0.0246	0.0206	0.0040
165	0.0252	0.0211	0.0041
166	0.0255	0.0213	0.0042
167	0.0261	0.0218	0.0043
168	0.0264	0.0221	0.0043
169	0.0271	0.0227	0.0045
170	0.0275	0.0230	0.0045
171	0.0283	0.0236	0.0046
172	0.0287	0.0240	0.0047
173	0.0296	0.0247	0.0049
174	0.0301	0.0252	0.0049
175	0.0311	0.0260	0.0051
176	0.0317	0.0265	0.0052
177	0.0330	0.0275	0.0054
178	0.0336	0.0281	0.0055
179	0.0351	0.0294	0.0058
180	0.0360	0.0301	0.0059
181	0.0379	0.0317	0.0062
182	0.0389	0.0325	0.0064
183	0.0414	0.0346	0.0068
184	0.0428	0.0358	0.0070

185	0.0351	0.0294	0.0058
186	0.0371	0.0310	0.0061
187	0.0421	0.0352	0.0069
188	0.0454	0.0380	0.0075
189	0.0547	0.0458	0.0090
190	0.0618	0.0516	0.0101
191	0.0883	0.0675	0.0209
192	0.1214	0.0675	0.0540
193	0.3801	0.0675	0.3126
194	0.0719	0.0601	0.0118
195	0.0495	0.0414	0.0081
196	0.0394	0.0329	0.0065
197	0.0444	0.0371	0.0073
198	0.0401	0.0335	0.0066
199	0.0369	0.0308	0.0061
200	0.0344	0.0287	0.0056
201	0.0323	0.0270	0.0053
202	0.0306	0.0256	0.0050
203	0.0291	0.0244	0.0048
204	0.0279	0.0233	0.0046
205	0.0268	0.0224	0.0044
206	0.0258	0.0216	0.0042
207	0.0249	0.0208	0.0041
208	0.0241	0.0202	0.0040
209	0.0234	0.0196	0.0038
210	0.0228	0.0190	0.0037
211	0.0222	0.0185	0.0036
212	0.0216	0.0181	0.0035
213	0.0211	0.0176	0.0035
214	0.0206	0.0172	0.0034
215	0.0202	0.0169	0.0033
216	0.0198	0.0165	0.0032
217	0.0192	0.0161	0.0032
218	0.0189	0.0158	0.0031
219	0.0185	0.0155	0.0030
220	0.0182	0.0152	0.0030
221	0.0179	0.0150	0.0029
222	0.0176	0.0147	0.0029
223	0.0173	0.0145	0.0028
224	0.0171	0.0143	0.0028
225	0.0168	0.0140	0.0028
226	0.0166	0.0138	0.0027
227	0.0163	0.0136	0.0027
228	0.0161	0.0135	0.0026
229	0.0159	0.0133	0.0026
230	0.0157	0.0131	0.0026
231	0.0155	0.0129	0.0025
232	0.0153	0.0128	0.0025
233	0.0151	0.0126	0.0025
234	0.0149	0.0125	0.0025
235	0.0148	0.0124	0.0024
236	0.0146	0.0122	0.0024
237	0.0145	0.0121	0.0024
238	0.0143	0.0120	0.0023
239	0.0142	0.0118	0.0023
240	0.0140	0.0117	0.0023
241	0.0139	0.0116	0.0023
242	0.0137	0.0115	0.0023
243	0.0136	0.0114	0.0022
244	0.0135	0.0113	0.0022
245	0.0134	0.0112	0.0022
246	0.0132	0.0111	0.0022
247	0.0131	0.0110	0.0022

248	0.0130	0.0109	0.0021
249	0.0129	0.0108	0.0021
250	0.0128	0.0107	0.0021
251	0.0127	0.0106	0.0021
252	0.0126	0.0105	0.0021
253	0.0125	0.0104	0.0020
254	0.0124	0.0104	0.0020
255	0.0123	0.0103	0.0020
256	0.0122	0.0102	0.0020
257	0.0121	0.0101	0.0020
258	0.0120	0.0100	0.0020
259	0.0119	0.0100	0.0020
260	0.0118	0.0099	0.0019
261	0.0118	0.0098	0.0019
262	0.0117	0.0098	0.0019
263	0.0116	0.0097	0.0019
264	0.0115	0.0096	0.0019
265	0.0114	0.0096	0.0019
266	0.0114	0.0095	0.0019
267	0.0113	0.0094	0.0019
268	0.0112	0.0094	0.0018
269	0.0112	0.0093	0.0018
270	0.0111	0.0093	0.0018
271	0.0110	0.0092	0.0018
272	0.0110	0.0092	0.0018
273	0.0109	0.0091	0.0018
274	0.0108	0.0090	0.0018
275	0.0108	0.0090	0.0018
276	0.0107	0.0089	0.0018
277	0.0106	0.0089	0.0017
278	0.0106	0.0088	0.0017
279	0.0105	0.0088	0.0017
280	0.0105	0.0087	0.0017
281	0.0104	0.0087	0.0017
282	0.0104	0.0087	0.0017
283	0.0103	0.0086	0.0017
284	0.0102	0.0086	0.0017
285	0.0102	0.0085	0.0017
286	0.0101	0.0085	0.0017
287	0.0101	0.0084	0.0017
288	0.0100	0.0084	0.0016

Total soil rain loss = 4.29(In)
Total effective rainfall = 1.19(In)
Peak flow rate in flood hydrograph = 3.37(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))

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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       0.0002      0.02  Q         |         |         |         |
  0+20       0.0004      0.03  Q         |         |         |         |
  0+25       0.0007      0.04  Q         |         |         |         |
  0+30       0.0010      0.05  Q         |         |         |         |
  0+35       0.0015      0.06  Q         |         |         |         |
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0+40	0.0019	0.07	Q	|	|	|	|
0+45	0.0024	0.07	Q	|	|	|	|
0+50	0.0029	0.07	Q	|	|	|	|
0+55	0.0034	0.07	Q	|	|	|	|
1+ 0	0.0039	0.08	Q	|	|	|	|
1+ 5	0.0045	0.08	Q	|	|	|	|
1+10	0.0050	0.08	Q	|	|	|	|
1+15	0.0056	0.08	Q	|	|	|	|
1+20	0.0062	0.08	Q	|	|	|	|
1+25	0.0068	0.09	Q	|	|	|	|
1+30	0.0074	0.09	Q	|	|	|	|
1+35	0.0080	0.09	Q	|	|	|	|
1+40	0.0086	0.09	Q	|	|	|	|
1+45	0.0092	0.09	Q	|	|	|	|
1+50	0.0098	0.09	Q	|	|	|	|
1+55	0.0104	0.09	Q	|	|	|	|
2+ 0	0.0111	0.09	Q	|	|	|	|
2+ 5	0.0117	0.09	QV	|	|	|	|
2+10	0.0123	0.09	QV	|	|	|	|
2+15	0.0130	0.09	QV	|	|	|	|
2+20	0.0136	0.09	QV	|	|	|	|
2+25	0.0143	0.09	QV	|	|	|	|
2+30	0.0149	0.10	QV	|	|	|	|
2+35	0.0156	0.10	QV	|	|	|	|
2+40	0.0163	0.10	QV	|	|	|	|
2+45	0.0169	0.10	QV	|	|	|	|
2+50	0.0176	0.10	QV	|	|	|	|
2+55	0.0183	0.10	QV	|	|	|	|
3+ 0	0.0190	0.10	QV	|	|	|	|
3+ 5	0.0196	0.10	QV	|	|	|	|
3+10	0.0203	0.10	QV	|	|	|	|
3+15	0.0210	0.10	QV	|	|	|	|
3+20	0.0217	0.10	QV	|	|	|	|
3+25	0.0224	0.10	QV	|	|	|	|
3+30	0.0231	0.10	Q V	|	|	|	|
3+35	0.0238	0.10	Q V	|	|	|	|
3+40	0.0245	0.10	Q V	|	|	|	|
3+45	0.0251	0.10	Q V	|	|	|	|
3+50	0.0258	0.10	Q V	|	|	|	|
3+55	0.0265	0.10	Q V	|	|	|	|
4+ 0	0.0273	0.10	Q V	|	|	|	|
4+ 5	0.0280	0.10	Q V	|	|	|	|
4+10	0.0287	0.10	Q V	|	|	|	|
4+15	0.0294	0.10	Q V	|	|	|	|
4+20	0.0301	0.10	Q V	|	|	|	|
4+25	0.0308	0.10	Q V	|	|	|	|
4+30	0.0315	0.10	Q V	|	|	|	|
4+35	0.0322	0.10	Q V	|	|	|	|
4+40	0.0330	0.10	Q V	|	|	|	|
4+45	0.0337	0.11	Q V	|	|	|	|
4+50	0.0344	0.11	Q V	|	|	|	|
4+55	0.0351	0.11	Q V	|	|	|	|
5+ 0	0.0359	0.11	Q V	|	|	|	|
5+ 5	0.0366	0.11	Q V	|	|	|	|
5+10	0.0373	0.11	Q V	|	|	|	|
5+15	0.0381	0.11	Q V	|	|	|	|
5+20	0.0388	0.11	Q V	|	|	|	|
5+25	0.0396	0.11	Q V	|	|	|	|
5+30	0.0403	0.11	Q V	|	|	|	|
5+35	0.0411	0.11	Q V	|	|	|	|
5+40	0.0418	0.11	Q V	|	|	|	|
5+45	0.0426	0.11	Q V	|	|	|	|
5+50	0.0433	0.11	Q V	|	|	|	|

```
 5+55       0.0441      0.11  Q  V       |          |          |          |
 6+ 0       0.0449      0.11  Q  V       |          |          |          |
 6+ 5       0.0456      0.11  Q  V       |          |          |          |
 6+10       0.0464      0.11  Q   V      |          |          |          |
 6+15       0.0472      0.11  Q   V      |          |          |          |
 6+20       0.0479      0.11  Q   V      |          |          |          |
 6+25       0.0487      0.11  Q   V      |          |          |          |
 6+30       0.0495      0.11  Q   V      |          |          |          |
 6+35       0.0503      0.11  Q   V      |          |          |          |
 6+40       0.0511      0.11  Q   V      |          |          |          |
 6+45       0.0519      0.11  Q   V      |          |          |          |
 6+50       0.0527      0.12  Q   V      |          |          |          |
 6+55       0.0535      0.12  Q   V      |          |          |          |
 7+ 0       0.0543      0.12  Q   V      |          |          |          |
 7+ 5       0.0551      0.12  Q   V      |          |          |          |
 7+10       0.0559      0.12  Q   V      |          |          |          |
 7+15       0.0567      0.12  Q   V      |          |          |          |
 7+20       0.0575      0.12  Q    V     |          |          |          |
 7+25       0.0583      0.12  Q    V     |          |          |          |
 7+30       0.0591      0.12  Q    V     |          |          |          |
 7+35       0.0600      0.12  Q    V     |          |          |          |
 7+40       0.0608      0.12  Q    V     |          |          |          |
 7+45       0.0616      0.12  Q    V     |          |          |          |
 7+50       0.0624      0.12  Q    V     |          |          |          |
 7+55       0.0633      0.12  Q    V     |          |          |          |
 8+ 0       0.0641      0.12  Q    V     |          |          |          |
 8+ 5       0.0650      0.12  Q    V     |          |          |          |
 8+10       0.0658      0.12  Q    V     |          |          |          |
 8+15       0.0667      0.12  Q    V     |          |          |          |
 8+20       0.0675      0.12  Q    V     |          |          |          |
 8+25       0.0684      0.13  Q    V     |          |          |          |
 8+30       0.0693      0.13  Q     V    |          |          |          |
 8+35       0.0701      0.13  Q     V    |          |          |          |
 8+40       0.0710      0.13  Q     V    |          |          |          |
 8+45       0.0719      0.13  Q     V    |          |          |          |
 8+50       0.0728      0.13  Q     V    |          |          |          |
 8+55       0.0737      0.13  Q     V    |          |          |          |
 9+ 0       0.0746      0.13  Q     V    |          |          |          |
 9+ 5       0.0755      0.13  Q     V    |          |          |          |
 9+10       0.0764      0.13  Q     V    |          |          |          |
 9+15       0.0773      0.13  Q     V    |          |          |          |
 9+20       0.0782      0.13  Q     V    |          |          |          |
 9+25       0.0791      0.13  Q     V    |          |          |          |
 9+30       0.0800      0.13  Q      V   |          |          |          |
 9+35       0.0810      0.13  Q      V   |          |          |          |
 9+40       0.0819      0.14  Q      V   |          |          |          |
 9+45       0.0828      0.14  Q      V   |          |          |          |
 9+50       0.0838      0.14  Q      V   |          |          |          |
 9+55       0.0847      0.14  Q      V   |          |          |          |
10+ 0       0.0857      0.14  Q      V   |          |          |          |
10+ 5       0.0866      0.14  Q      V   |          |          |          |
10+10       0.0876      0.14  Q      V   |          |          |          |
10+15       0.0886      0.14  Q      V   |          |          |          |
10+20       0.0896      0.14  Q      V   |          |          |          |
10+25       0.0906      0.14  Q      V   |          |          |          |
10+30       0.0915      0.14  Q       V  |          |          |          |
10+35       0.0925      0.15  Q       V  |          |          |          |
10+40       0.0936      0.15  Q       V  |          |          |          |
10+45       0.0946      0.15  Q       V  |          |          |          |
10+50       0.0956      0.15  Q       V  |          |          |          |
10+55       0.0966      0.15  Q       V  |          |          |          |
11+ 0       0.0976      0.15  Q       V  |          |          |          |
11+ 5       0.0987      0.15  Q       V  |          |          |          |
```

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11+10       0.0997      0.15  Q       V |         |         |         |
11+15       0.1008      0.15  Q       V |         |         |         |
11+20       0.1019      0.15  Q       V |         |         |         |
11+25       0.1029      0.16  Q        V|         |         |         |
11+30       0.1040      0.16  Q        V|         |         |         |
11+35       0.1051      0.16  Q        V|         |         |         |
11+40       0.1062      0.16  Q        V|         |         |         |
11+45       0.1073      0.16  Q        V|         |         |         |
11+50       0.1084      0.16  Q        V|         |         |         |
11+55       0.1095      0.16  Q        V|         |         |         |
12+ 0       0.1107      0.16  Q        V|         |         |         |
12+ 5       0.1118      0.17  Q        V|         |         |         |
12+10       0.1130      0.17  Q        V|         |         |         |
12+15       0.1141      0.17  Q         V         |         |         |
12+20       0.1153      0.17  Q         V         |         |         |
12+25       0.1165      0.17  Q         V         |         |         |
12+30       0.1177      0.17  Q         V         |         |         |
12+35       0.1189      0.18  Q         V         |         |         |
12+40       0.1202      0.18  Q         V         |         |         |
12+45       0.1214      0.18  Q         V         |         |         |
12+50       0.1227      0.18  Q         V         |         |         |
12+55       0.1239      0.18  Q         V         |         |         |
13+ 0       0.1252      0.19  Q         V         |         |         |
13+ 5       0.1265      0.19  Q         |V        |         |         |
13+10       0.1278      0.19  Q         |V        |         |         |
13+15       0.1292      0.19  Q         |V        |         |         |
13+20       0.1305      0.20  Q         |V        |         |         |
13+25       0.1319      0.20  Q         |V        |         |         |
13+30       0.1332      0.20  Q         |V        |         |         |
13+35       0.1346      0.20  Q         |V        |         |         |
13+40       0.1360      0.21  Q         |V        |         |         |
13+45       0.1375      0.21  Q         | V       |         |         |
13+50       0.1389      0.21  Q         | V       |         |         |
13+55       0.1404      0.21  Q         | V       |         |         |
14+ 0       0.1419      0.22  Q         | V       |         |         |
14+ 5       0.1434      0.22  Q         | V       |         |         |
14+10       0.1450      0.22  Q         | V       |         |         |
14+15       0.1466      0.23  Q         | V       |         |         |
14+20       0.1482      0.23  Q         | V       |         |         |
14+25       0.1498      0.24  Q         |  V      |         |         |
14+30       0.1515      0.24  Q         |  V      |         |         |
14+35       0.1532      0.25  Q         |  V      |         |         |
14+40       0.1549      0.25  |Q        |  V      |         |         |
14+45       0.1567      0.26  |Q        |  V      |         |         |
14+50       0.1585      0.26  |Q        |  V      |         |         |
14+55       0.1603      0.27  |Q        |   V     |         |         |
15+ 0       0.1623      0.28  |Q        |   V     |         |         |
15+ 5       0.1642      0.28  |Q        |   V     |         |         |
15+10       0.1662      0.29  |Q        |   V     |         |         |
15+15       0.1683      0.30  |Q        |   V     |         |         |
15+20       0.1705      0.31  |Q        |   V     |         |         |
15+25       0.1727      0.32  |Q        |    V    |         |         |
15+30       0.1749      0.33  |Q        |    V    |         |         |
15+35       0.1772      0.33  |Q        |    V    |         |         |
15+40       0.1796      0.34  |Q        |    V    |         |         |
15+45       0.1819      0.34  |Q        |    V    |         |         |
15+50       0.1844      0.36  |Q        |     V   |         |         |
15+55       0.1871      0.39  |Q        |     V   |         |         |
16+ 0       0.1905      0.49  |Q        |     V   |         |         |
16+ 5       0.1971      0.96  |  Q      |      V  |         |         |
16+10       0.2093      1.77  |      Q  |       V |         |         |
16+15       0.2274      2.62  |         Q        V|         |         |
16+20       0.2500      3.29  |         |  Q      |V        |         |
```

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16+25       0.2732      3.37  |          |  Q       |  V       |          |
16+30       0.2917      2.68  |          Q          |    V     |          |
16+35       0.3047      1.89  |       Q  |          |      V   |          |
16+40       0.3145      1.43  |     Q    |          |       V  |          |
16+45       0.3222      1.12  |    Q     |          |        V |          |
16+50       0.3290      0.98  |   Q      |          |        V |          |
16+55       0.3349      0.87  |   Q      |          |         V|          |
17+ 0       0.3403      0.78  |   Q      |          |         V|          |
17+ 5       0.3452      0.71  | Q        |          |          V          |
17+10       0.3497      0.65  | Q        |          |          V          |
17+15       0.3538      0.59  | Q        |          |          V          |
17+20       0.3575      0.55  | Q        |          |          |V         |
17+25       0.3611      0.52  | Q        |          |          |V         |
17+30       0.3644      0.47  |Q         |          |          |V         |
17+35       0.3674      0.45  |Q         |          |          | V        |
17+40       0.3702      0.41  |Q         |          |          | V        |
17+45       0.3729      0.39  |Q         |          |          | V        |
17+50       0.3755      0.37  |Q         |          |          | V        |
17+55       0.3780      0.36  |Q         |          |          |  V       |
18+ 0       0.3804      0.35  |Q         |          |          |  V       |
18+ 5       0.3826      0.32  |Q         |          |          |  V       |
18+10       0.3847      0.31  |Q         |          |          |  V       |
18+15       0.3867      0.29  |Q         |          |          |  V       |
18+20       0.3886      0.28  |Q         |          |          |   V      |
18+25       0.3905      0.27  |Q         |          |          |   V      |
18+30       0.3923      0.25  |Q         |          |          |   V      |
18+35       0.3940      0.25  Q          |          |          |   V      |
18+40       0.3955      0.23  Q          |          |          |   V      |
18+45       0.3971      0.23  Q          |          |          |   V      |
18+50       0.3986      0.22  Q          |          |          |   V      |
18+55       0.4001      0.22  Q          |          |          |    V     |
19+ 0       0.4016      0.21  Q          |          |          |    V     |
19+ 5       0.4030      0.21  Q          |          |          |    V     |
19+10       0.4043      0.18  Q          |          |          |    V     |
19+15       0.4054      0.16  Q          |          |          |    V     |
19+20       0.4065      0.16  Q          |          |          |    V     |
19+25       0.4075      0.16  Q          |          |          |    V     |
19+30       0.4086      0.15  Q          |          |          |    V     |
19+35       0.4096      0.15  Q          |          |          |    V     |
19+40       0.4107      0.15  Q          |          |          |    V     |
19+45       0.4117      0.15  Q          |          |          |     V    |
19+50       0.4127      0.14  Q          |          |          |     V    |
19+55       0.4136      0.14  Q          |          |          |     V    |
20+ 0       0.4146      0.14  Q          |          |          |     V    |
20+ 5       0.4156      0.14  Q          |          |          |     V    |
20+10       0.4165      0.14  Q          |          |          |     V    |
20+15       0.4174      0.14  Q          |          |          |     V    |
20+20       0.4183      0.13  Q          |          |          |     V    |
20+25       0.4193      0.13  Q          |          |          |     V    |
20+30       0.4202      0.13  Q          |          |          |     V    |
20+35       0.4210      0.13  Q          |          |          |     V    |
20+40       0.4219      0.13  Q          |          |          |     V    |
20+45       0.4228      0.13  Q          |          |          |      V   |
20+50       0.4237      0.13  Q          |          |          |      V   |
20+55       0.4245      0.12  Q          |          |          |      V   |
21+ 0       0.4254      0.12  Q          |          |          |      V   |
21+ 5       0.4262      0.12  Q          |          |          |      V   |
21+10       0.4270      0.12  Q          |          |          |      V   |
21+15       0.4279      0.12  Q          |          |          |      V   |
21+20       0.4287      0.12  Q          |          |          |      V   |
21+25       0.4295      0.12  Q          |          |          |      V   |
21+30       0.4303      0.12  Q          |          |          |      V   |
21+35       0.4311      0.12  Q          |          |          |      V   |
```

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21+40       0.4319      0.11  Q          |          |          |       V  |
21+45       0.4327      0.11  Q          |          |          |       V  |
21+50       0.4334      0.11  Q          |          |          |       V  |
21+55       0.4342      0.11  Q          |          |          |        V |
22+ 0       0.4350      0.11  Q          |          |          |        V |
22+ 5       0.4357      0.11  Q          |          |          |        V |
22+10       0.4365      0.11  Q          |          |          |        V |
22+15       0.4372      0.11  Q          |          |          |        V |
22+20       0.4380      0.11  Q          |          |          |        V |
22+25       0.4387      0.11  Q          |          |          |        V |
22+30       0.4395      0.11  Q          |          |          |        V |
22+35       0.4402      0.11  Q          |          |          |        V |
22+40       0.4409      0.10  Q          |          |          |        V |
22+45       0.4416      0.10  Q          |          |          |        V |
22+50       0.4423      0.10  Q          |          |          |        V |
22+55       0.4430      0.10  Q          |          |          |        V |
23+ 0       0.4437      0.10  Q          |          |          |        V |
23+ 5       0.4444      0.10  Q          |          |          |        V |
23+10       0.4451      0.10  Q          |          |          |         V|
23+15       0.4458      0.10  Q          |          |          |         V|
23+20       0.4465      0.10  Q          |          |          |         V|
23+25       0.4472      0.10  Q          |          |          |         V|
23+30       0.4479      0.10  Q          |          |          |         V|
23+35       0.4486      0.10  Q          |          |          |         V|
23+40       0.4492      0.10  Q          |          |          |         V|
23+45       0.4499      0.10  Q          |          |          |         V|
23+50       0.4506      0.10  Q          |          |          |         V|
23+55       0.4512      0.10  Q          |          |          |         V|
24+ 0       0.4519      0.10  Q          |          |          |         V|
24+ 5       0.4525      0.09  Q          |          |          |         V|
24+10       0.4531      0.09  Q          |          |          |         V|
24+15       0.4537      0.08  Q          |          |          |         V|
24+20       0.4541      0.06  Q          |          |          |         V|
24+25       0.4544      0.05  Q          |          |          |         V|
24+30       0.4547      0.04  Q          |          |          |         V|
24+35       0.4549      0.03  Q          |          |          |         V|
24+40       0.4551      0.03  Q          |          |          |         V|
24+45       0.4553      0.02  Q          |          |          |         V|
24+50       0.4554      0.02  Q          |          |          |         V|
24+55       0.4556      0.02  Q          |          |          |         V|
25+ 0       0.4557      0.02  Q          |          |          |         V|
25+ 5       0.4558      0.01  Q          |          |          |         V|
25+10       0.4559      0.01  Q          |          |          |         V|
25+15       0.4559      0.01  Q          |          |          |         V|
25+20       0.4560      0.01  Q          |          |          |         V|
25+25       0.4561      0.01  Q          |          |          |         V|
25+30       0.4561      0.01  Q          |          |          |         V|
25+35       0.4562      0.01  Q          |          |          |         V|
25+40       0.4562      0.01  Q          |          |          |         V|
25+45       0.4562      0.01  Q          |          |          |         V|
25+50       0.4563      0.01  Q          |          |          |         V|
25+55       0.4563      0.00  Q          |          |          |         V|
26+ 0       0.4563      0.00  Q          |          |          |         V|
26+ 5       0.4564      0.00  Q          |          |          |         V|
26+10       0.4564      0.00  Q          |          |          |         V|
26+15       0.4564      0.00  Q          |          |          |         V|
26+20       0.4564      0.00  Q          |          |          |         V|
26+25       0.4564      0.00  Q          |          |          |         V|
26+30       0.4564      0.00  Q          |          |          |         V|
26+35       0.4564      0.00  Q          |          |          |         V|
26+40       0.4565      0.00  Q          |          |          |         V|
26+45       0.4565      0.00  Q          |          |          |         V|
26+50       0.4565      0.00  Q          |          |          |         V|
```

```
   26+55       0.4565      0.00  Q          |          |          |        V|
   27+ 0       0.4565      0.00  Q          |          |          |        V|
   27+ 5       0.4565      0.00  Q          |          |          |        V|
----------------------------------------------------------------------
```

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

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Study date 03/09/20

++

San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Existing Conditions
Area E1

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
4.61	1	0.88
Rainfall data for year 2		
4.61	6	1.55
Rainfall data for year 2		
4.61	24	2.90
Rainfall data for year 100		
4.61	1	1.25
Rainfall data for year 100		
4.61	6	3.25
Rainfall data for year 100		
4.61	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 3)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
50.0	70.0	4.61	1.000	0.532	1.000	0.532

Area-averaged adjusted loss rate Fm (In/Hr) = 0.532

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
4.61	1.000	50.0	70.0	4.29	0.512

Area-averaged catchment yield fraction, Y = 0.512
Area-averaged low loss fraction, Yb = 0.488
User entry of time of concentration = 0.489 (hours)
++
Watershed area = 4.61(Ac.)
Catchment Lag time = 0.391 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 21.3020
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.532(In/Hr)
Average low loss rate fraction (Yb) = 0.488 (decimal)
VALLEY UNDEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.463(In)
Computed peak 30-minute rainfall = 0.947(In)
Specified peak 1-hour rainfall = 1.250(In)
Computed peak 3-hour rainfall = 2.246(In)
Specified peak 6-hour rainfall = 3.250(In)
Specified peak 24-hour rainfall = 6.900(In)

Rainfall depth area reduction factors:
Using a total area of 4.61(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.463(In)
30-minute factor = 1.000 Adjusted rainfall = 0.947(In)
1-hour factor = 1.000 Adjusted rainfall = 1.250(In)
3-hour factor = 1.000 Adjusted rainfall = 2.246(In)
6-hour factor = 1.000 Adjusted rainfall = 3.250(In)
24-hour factor = 1.000 Adjusted rainfall = 6.900(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 55.75 (CFS))	
1	1.908	1.064
2	7.677	3.216
3	17.784	5.635
4	31.741	7.781
5	46.826	8.410
6	58.572	6.549
7	66.211	4.259
8	71.492	2.944
9	75.187	2.060
10	78.239	1.702
11	80.800	1.428
12	82.988	1.220
13	84.931	1.083
14	86.606	0.934

15	88.032	0.795
16	89.311	0.713
17	90.534	0.682
18	91.503	0.540
19	92.433	0.519
20	93.192	0.423
21	93.874	0.380
22	94.539	0.371
23	95.179	0.356
24	95.794	0.343
25	96.282	0.272
26	96.749	0.261
27	97.161	0.230
28	97.544	0.214
29	97.898	0.197
30	98.198	0.167
31	98.486	0.161
32	98.710	0.125
33	98.923	0.119
34	99.136	0.119
35	99.349	0.119
36	99.562	0.119
37	99.775	0.119
38	100.000	0.059

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.4625	0.4625
2	0.6103	0.1478
3	0.7178	0.1075
4	0.8053	0.0875
5	0.8805	0.0752
6	0.9471	0.0666
7	1.0074	0.0602
8	1.0626	0.0553
9	1.1139	0.0513
10	1.1618	0.0479
11	1.2070	0.0451
12	1.2497	0.0427
13	1.3042	0.0545
14	1.3568	0.0526
15	1.4077	0.0509
16	1.4570	0.0493
17	1.5049	0.0479
18	1.5515	0.0466
19	1.5969	0.0454
20	1.6412	0.0443
21	1.6845	0.0433
22	1.7268	0.0423
23	1.7682	0.0414
24	1.8088	0.0406
25	1.8487	0.0398
26	1.8878	0.0391
27	1.9261	0.0384
28	1.9639	0.0377
29	2.0010	0.0371
30	2.0375	0.0365
31	2.0735	0.0360
32	2.1089	0.0354
33	2.1438	0.0349
34	2.1782	0.0344
35	2.2121	0.0339
36	2.2456	0.0335

37	2.2787	0.0331
38	2.3113	0.0326
39	2.3436	0.0322
40	2.3754	0.0319
41	2.4069	0.0315
42	2.4380	0.0311
43	2.4688	0.0308
44	2.4993	0.0305
45	2.5294	0.0301
46	2.5592	0.0298
47	2.5888	0.0295
48	2.6180	0.0292
49	2.6469	0.0289
50	2.6756	0.0287
51	2.7040	0.0284
52	2.7322	0.0281
53	2.7601	0.0279
54	2.7877	0.0277
55	2.8151	0.0274
56	2.8423	0.0272
57	2.8693	0.0270
58	2.8960	0.0267
59	2.9225	0.0265
60	2.9488	0.0263
61	2.9749	0.0261
62	3.0008	0.0259
63	3.0266	0.0257
64	3.0521	0.0255
65	3.0774	0.0253
66	3.1026	0.0252
67	3.1276	0.0250
68	3.1524	0.0248
69	3.1770	0.0246
70	3.2015	0.0245
71	3.2258	0.0243
72	3.2500	0.0242
73	3.2744	0.0244
74	3.2987	0.0243
75	3.3228	0.0241
76	3.3468	0.0240
77	3.3706	0.0238
78	3.3943	0.0237
79	3.4179	0.0236
80	3.4413	0.0234
81	3.4646	0.0233
82	3.4878	0.0232
83	3.5108	0.0230
84	3.5337	0.0229
85	3.5565	0.0228
86	3.5792	0.0227
87	3.6017	0.0225
88	3.6242	0.0224
89	3.6465	0.0223
90	3.6687	0.0222
91	3.6907	0.0221
92	3.7127	0.0220
93	3.7346	0.0219
94	3.7563	0.0218
95	3.7780	0.0216
96	3.7995	0.0215
97	3.8210	0.0214
98	3.8423	0.0213
99	3.8636	0.0212

100	3.8847	0.0211
101	3.9058	0.0210
102	3.9267	0.0210
103	3.9476	0.0209
104	3.9683	0.0208
105	3.9890	0.0207
106	4.0096	0.0206
107	4.0301	0.0205
108	4.0505	0.0204
109	4.0708	0.0203
110	4.0911	0.0202
111	4.1112	0.0202
112	4.1313	0.0201
113	4.1513	0.0200
114	4.1712	0.0199
115	4.1910	0.0198
116	4.2108	0.0198
117	4.2305	0.0197
118	4.2501	0.0196
119	4.2696	0.0195
120	4.2890	0.0194
121	4.3084	0.0194
122	4.3277	0.0193
123	4.3469	0.0192
124	4.3661	0.0192
125	4.3852	0.0191
126	4.4042	0.0190
127	4.4232	0.0189
128	4.4420	0.0189
129	4.4608	0.0188
130	4.4796	0.0187
131	4.4983	0.0187
132	4.5169	0.0186
133	4.5354	0.0186
134	4.5539	0.0185
135	4.5724	0.0184
136	4.5907	0.0184
137	4.6090	0.0183
138	4.6273	0.0182
139	4.6454	0.0182
140	4.6636	0.0181
141	4.6816	0.0181
142	4.6996	0.0180
143	4.7176	0.0179
144	4.7355	0.0179
145	4.7533	0.0178
146	4.7711	0.0178
147	4.7888	0.0177
148	4.8064	0.0177
149	4.8241	0.0176
150	4.8416	0.0176
151	4.8591	0.0175
152	4.8766	0.0174
153	4.8940	0.0174
154	4.9113	0.0173
155	4.9286	0.0173
156	4.9458	0.0172
157	4.9630	0.0172
158	4.9802	0.0171
159	4.9973	0.0171
160	5.0143	0.0170
161	5.0313	0.0170
162	5.0483	0.0169

163	5.0652	0.0169
164	5.0820	0.0169
165	5.0988	0.0168
166	5.1156	0.0168
167	5.1323	0.0167
168	5.1490	0.0167
169	5.1656	0.0166
170	5.1822	0.0166
171	5.1987	0.0165
172	5.2152	0.0165
173	5.2316	0.0164
174	5.2480	0.0164
175	5.2644	0.0164
176	5.2807	0.0163
177	5.2970	0.0163
178	5.3132	0.0162
179	5.3294	0.0162
180	5.3455	0.0161
181	5.3617	0.0161
182	5.3777	0.0161
183	5.3937	0.0160
184	5.4097	0.0160
185	5.4257	0.0159
186	5.4416	0.0159
187	5.4575	0.0159
188	5.4733	0.0158
189	5.4891	0.0158
190	5.5048	0.0158
191	5.5206	0.0157
192	5.5362	0.0157
193	5.5519	0.0156
194	5.5675	0.0156
195	5.5830	0.0156
196	5.5986	0.0155
197	5.6141	0.0155
198	5.6295	0.0155
199	5.6450	0.0154
200	5.6603	0.0154
201	5.6757	0.0154
202	5.6910	0.0153
203	5.7063	0.0153
204	5.7215	0.0152
205	5.7368	0.0152
206	5.7519	0.0152
207	5.7671	0.0151
208	5.7822	0.0151
209	5.7973	0.0151
210	5.8123	0.0150
211	5.8273	0.0150
212	5.8423	0.0150
213	5.8573	0.0150
214	5.8722	0.0149
215	5.8871	0.0149
216	5.9019	0.0149
217	5.9168	0.0148
218	5.9315	0.0148
219	5.9463	0.0148
220	5.9610	0.0147
221	5.9757	0.0147
222	5.9904	0.0147
223	6.0050	0.0146
224	6.0197	0.0146
225	6.0342	0.0146

226	6.0488	0.0146
227	6.0633	0.0145
228	6.0778	0.0145
229	6.0923	0.0145
230	6.1067	0.0144
231	6.1211	0.0144
232	6.1355	0.0144
233	6.1498	0.0143
234	6.1641	0.0143
235	6.1784	0.0143
236	6.1927	0.0143
237	6.2069	0.0142
238	6.2212	0.0142
239	6.2353	0.0142
240	6.2495	0.0142
241	6.2636	0.0141
242	6.2777	0.0141
243	6.2918	0.0141
244	6.3058	0.0140
245	6.3199	0.0140
246	6.3339	0.0140
247	6.3478	0.0140
248	6.3618	0.0139
249	6.3757	0.0139
250	6.3896	0.0139
251	6.4035	0.0139
252	6.4173	0.0138
253	6.4311	0.0138
254	6.4449	0.0138
255	6.4587	0.0138
256	6.4724	0.0137
257	6.4861	0.0137
258	6.4998	0.0137
259	6.5135	0.0137
260	6.5271	0.0136
261	6.5408	0.0136
262	6.5544	0.0136
263	6.5679	0.0136
264	6.5815	0.0136
265	6.5950	0.0135
266	6.6085	0.0135
267	6.6220	0.0135
268	6.6355	0.0135
269	6.6489	0.0134
270	6.6623	0.0134
271	6.6757	0.0134
272	6.6891	0.0134
273	6.7024	0.0133
274	6.7157	0.0133
275	6.7290	0.0133
276	6.7423	0.0133
277	6.7556	0.0133
278	6.7688	0.0132
279	6.7820	0.0132
280	6.7952	0.0132
281	6.8084	0.0132
282	6.8215	0.0131
283	6.8346	0.0131
284	6.8477	0.0131
285	6.8608	0.0131
286	6.8739	0.0131
287	6.8869	0.0130
288	6.9000	0.0130

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0130	0.0063	0.0067
2	0.0130	0.0064	0.0067
3	0.0131	0.0064	0.0067
4	0.0131	0.0064	0.0067
5	0.0131	0.0064	0.0067
6	0.0132	0.0064	0.0067
7	0.0132	0.0064	0.0068
8	0.0132	0.0065	0.0068
9	0.0133	0.0065	0.0068
10	0.0133	0.0065	0.0068
11	0.0133	0.0065	0.0068
12	0.0134	0.0065	0.0068
13	0.0134	0.0065	0.0069
14	0.0134	0.0066	0.0069
15	0.0135	0.0066	0.0069
16	0.0135	0.0066	0.0069
17	0.0136	0.0066	0.0069
18	0.0136	0.0066	0.0070
19	0.0136	0.0066	0.0070
20	0.0136	0.0067	0.0070
21	0.0137	0.0067	0.0070
22	0.0137	0.0067	0.0070
23	0.0138	0.0067	0.0071
24	0.0138	0.0067	0.0071
25	0.0138	0.0067	0.0071
26	0.0139	0.0068	0.0071
27	0.0139	0.0068	0.0071
28	0.0139	0.0068	0.0071
29	0.0140	0.0068	0.0072
30	0.0140	0.0068	0.0072
31	0.0141	0.0069	0.0072
32	0.0141	0.0069	0.0072
33	0.0142	0.0069	0.0073
34	0.0142	0.0069	0.0073
35	0.0142	0.0069	0.0073
36	0.0143	0.0070	0.0073
37	0.0143	0.0070	0.0073
38	0.0143	0.0070	0.0074
39	0.0144	0.0070	0.0074
40	0.0144	0.0070	0.0074
41	0.0145	0.0071	0.0074
42	0.0145	0.0071	0.0074
43	0.0146	0.0071	0.0075
44	0.0146	0.0071	0.0075
45	0.0147	0.0072	0.0075
46	0.0147	0.0072	0.0075
47	0.0148	0.0072	0.0076
48	0.0148	0.0072	0.0076
49	0.0149	0.0072	0.0076
50	0.0149	0.0073	0.0076
51	0.0150	0.0073	0.0077
52	0.0150	0.0073	0.0077
53	0.0150	0.0073	0.0077
54	0.0151	0.0074	0.0077
55	0.0151	0.0074	0.0078
56	0.0152	0.0074	0.0078
57	0.0152	0.0074	0.0078
58	0.0153	0.0075	0.0078

59	0.0154	0.0075	0.0079
60	0.0154	0.0075	0.0079
61	0.0155	0.0075	0.0079
62	0.0155	0.0076	0.0079
63	0.0156	0.0076	0.0080
64	0.0156	0.0076	0.0080
65	0.0157	0.0076	0.0080
66	0.0157	0.0077	0.0081
67	0.0158	0.0077	0.0081
68	0.0158	0.0077	0.0081
69	0.0159	0.0078	0.0082
70	0.0159	0.0078	0.0082
71	0.0160	0.0078	0.0082
72	0.0161	0.0078	0.0082
73	0.0161	0.0079	0.0083
74	0.0162	0.0079	0.0083
75	0.0163	0.0079	0.0083
76	0.0163	0.0080	0.0084
77	0.0164	0.0080	0.0084
78	0.0164	0.0080	0.0084
79	0.0165	0.0081	0.0085
80	0.0166	0.0081	0.0085
81	0.0167	0.0081	0.0085
82	0.0167	0.0081	0.0086
83	0.0168	0.0082	0.0086
84	0.0169	0.0082	0.0086
85	0.0169	0.0083	0.0087
86	0.0170	0.0083	0.0087
87	0.0171	0.0083	0.0088
88	0.0171	0.0084	0.0088
89	0.0172	0.0084	0.0088
90	0.0173	0.0084	0.0089
91	0.0174	0.0085	0.0089
92	0.0174	0.0085	0.0089
93	0.0176	0.0086	0.0090
94	0.0176	0.0086	0.0090
95	0.0177	0.0086	0.0091
96	0.0178	0.0087	0.0091
97	0.0179	0.0087	0.0092
98	0.0179	0.0088	0.0092
99	0.0181	0.0088	0.0093
100	0.0181	0.0088	0.0093
101	0.0182	0.0089	0.0093
102	0.0183	0.0089	0.0094
103	0.0184	0.0090	0.0094
104	0.0185	0.0090	0.0095
105	0.0186	0.0091	0.0095
106	0.0187	0.0091	0.0096
107	0.0188	0.0092	0.0096
108	0.0189	0.0092	0.0097
109	0.0190	0.0093	0.0097
110	0.0191	0.0093	0.0098
111	0.0192	0.0094	0.0099
112	0.0193	0.0094	0.0099
113	0.0194	0.0095	0.0100
114	0.0195	0.0095	0.0100
115	0.0197	0.0096	0.0101
116	0.0198	0.0096	0.0101
117	0.0199	0.0097	0.0102
118	0.0200	0.0097	0.0102
119	0.0202	0.0098	0.0103
120	0.0202	0.0099	0.0104
121	0.0204	0.0100	0.0105

122	0.0205	0.0100	0.0105
123	0.0207	0.0101	0.0106
124	0.0208	0.0101	0.0106
125	0.0210	0.0102	0.0107
126	0.0210	0.0103	0.0108
127	0.0212	0.0104	0.0109
128	0.0213	0.0104	0.0109
129	0.0215	0.0105	0.0110
130	0.0216	0.0106	0.0111
131	0.0219	0.0107	0.0112
132	0.0220	0.0107	0.0113
133	0.0222	0.0108	0.0114
134	0.0223	0.0109	0.0114
135	0.0225	0.0110	0.0116
136	0.0227	0.0111	0.0116
137	0.0229	0.0112	0.0117
138	0.0230	0.0112	0.0118
139	0.0233	0.0114	0.0119
140	0.0234	0.0114	0.0120
141	0.0237	0.0116	0.0121
142	0.0238	0.0116	0.0122
143	0.0241	0.0118	0.0124
144	0.0243	0.0118	0.0124
145	0.0242	0.0118	0.0124
146	0.0243	0.0119	0.0125
147	0.0246	0.0120	0.0126
148	0.0248	0.0121	0.0127
149	0.0252	0.0123	0.0129
150	0.0253	0.0124	0.0130
151	0.0257	0.0125	0.0132
152	0.0259	0.0126	0.0133
153	0.0263	0.0128	0.0135
154	0.0265	0.0129	0.0136
155	0.0270	0.0131	0.0138
156	0.0272	0.0133	0.0139
157	0.0277	0.0135	0.0142
158	0.0279	0.0136	0.0143
159	0.0284	0.0139	0.0146
160	0.0287	0.0140	0.0147
161	0.0292	0.0143	0.0150
162	0.0295	0.0144	0.0151
163	0.0301	0.0147	0.0154
164	0.0305	0.0149	0.0156
165	0.0311	0.0152	0.0160
166	0.0315	0.0154	0.0161
167	0.0322	0.0157	0.0165
168	0.0326	0.0159	0.0167
169	0.0335	0.0163	0.0172
170	0.0339	0.0166	0.0174
171	0.0349	0.0170	0.0179
172	0.0354	0.0173	0.0181
173	0.0365	0.0178	0.0187
174	0.0371	0.0181	0.0190
175	0.0384	0.0187	0.0197
176	0.0391	0.0191	0.0200
177	0.0406	0.0198	0.0208
178	0.0414	0.0202	0.0212
179	0.0433	0.0211	0.0222
180	0.0443	0.0216	0.0227
181	0.0466	0.0227	0.0239
182	0.0479	0.0234	0.0245
183	0.0509	0.0248	0.0261
184	0.0526	0.0256	0.0269

185	0.0427	0.0208	0.0219
186	0.0451	0.0220	0.0231
187	0.0513	0.0250	0.0263
188	0.0553	0.0269	0.0283
189	0.0666	0.0325	0.0341
190	0.0752	0.0367	0.0385
191	0.1075	0.0444	0.0631
192	0.1478	0.0444	0.1034
193	0.4625	0.0444	0.4182
194	0.0875	0.0427	0.0449
195	0.0602	0.0294	0.0309
196	0.0479	0.0234	0.0246
197	0.0545	0.0266	0.0279
198	0.0493	0.0240	0.0253
199	0.0454	0.0221	0.0233
200	0.0423	0.0206	0.0217
201	0.0398	0.0194	0.0204
202	0.0377	0.0184	0.0193
203	0.0360	0.0175	0.0184
204	0.0344	0.0168	0.0176
205	0.0331	0.0161	0.0169
206	0.0319	0.0155	0.0163
207	0.0308	0.0150	0.0158
208	0.0298	0.0145	0.0153
209	0.0289	0.0141	0.0148
210	0.0281	0.0137	0.0144
211	0.0274	0.0134	0.0140
212	0.0267	0.0130	0.0137
213	0.0261	0.0127	0.0134
214	0.0255	0.0124	0.0131
215	0.0250	0.0122	0.0128
216	0.0245	0.0119	0.0125
217	0.0244	0.0119	0.0125
218	0.0240	0.0117	0.0123
219	0.0236	0.0115	0.0121
220	0.0232	0.0113	0.0119
221	0.0228	0.0111	0.0117
222	0.0224	0.0109	0.0115
223	0.0221	0.0108	0.0113
224	0.0218	0.0106	0.0111
225	0.0214	0.0105	0.0110
226	0.0211	0.0103	0.0108
227	0.0209	0.0102	0.0107
228	0.0206	0.0100	0.0105
229	0.0203	0.0099	0.0104
230	0.0201	0.0098	0.0103
231	0.0198	0.0097	0.0102
232	0.0196	0.0096	0.0100
233	0.0194	0.0094	0.0099
234	0.0192	0.0093	0.0098
235	0.0189	0.0092	0.0097
236	0.0187	0.0091	0.0096
237	0.0186	0.0090	0.0095
238	0.0184	0.0090	0.0094
239	0.0182	0.0089	0.0093
240	0.0180	0.0088	0.0092
241	0.0178	0.0087	0.0091
242	0.0177	0.0086	0.0091
243	0.0175	0.0085	0.0090
244	0.0173	0.0085	0.0089
245	0.0172	0.0084	0.0088
246	0.0170	0.0083	0.0087
247	0.0169	0.0082	0.0087

248	0.0168	0.0082	0.0086
249	0.0166	0.0081	0.0085
250	0.0165	0.0080	0.0084
251	0.0164	0.0080	0.0084
252	0.0162	0.0079	0.0083
253	0.0161	0.0079	0.0083
254	0.0160	0.0078	0.0082
255	0.0159	0.0077	0.0081
256	0.0158	0.0077	0.0081
257	0.0156	0.0076	0.0080
258	0.0155	0.0076	0.0080
259	0.0154	0.0075	0.0079
260	0.0153	0.0075	0.0078
261	0.0152	0.0074	0.0078
262	0.0151	0.0074	0.0077
263	0.0150	0.0073	0.0077
264	0.0149	0.0073	0.0076
265	0.0148	0.0072	0.0076
266	0.0147	0.0072	0.0075
267	0.0146	0.0071	0.0075
268	0.0146	0.0071	0.0075
269	0.0145	0.0071	0.0074
270	0.0144	0.0070	0.0074
271	0.0143	0.0070	0.0073
272	0.0142	0.0069	0.0073
273	0.0141	0.0069	0.0072
274	0.0140	0.0069	0.0072
275	0.0140	0.0068	0.0072
276	0.0139	0.0068	0.0071
277	0.0138	0.0067	0.0071
278	0.0137	0.0067	0.0070
279	0.0137	0.0067	0.0070
280	0.0136	0.0066	0.0070
281	0.0135	0.0066	0.0069
282	0.0135	0.0066	0.0069
283	0.0134	0.0065	0.0069
284	0.0133	0.0065	0.0068
285	0.0133	0.0065	0.0068
286	0.0132	0.0064	0.0068
287	0.0131	0.0064	0.0067
288	0.0131	0.0064	0.0067

Total soil rain loss = 3.15(In)
Total effective rainfall = 3.75(In)
Peak flow rate in flood hydrograph = 5.60(CFS)

++

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

Hydrograph in 5 Minute intervals ((CFS))

```
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
-----------------------------------------------------------------------
  0+ 5       0.0000      0.01  Q         |         |         |         |
  0+10       0.0002      0.03  Q         |         |         |         |
  0+15       0.0007      0.07  Q         |         |         |         |
  0+20       0.0015      0.12  Q         |         |         |         |
  0+25       0.0027      0.17  Q         |         |         |         |
  0+30       0.0042      0.22  Q         |         |         |         |
  0+35       0.0059      0.25  Q         |         |         |         |
```

```
0+40        0.0078      0.27  VQ         |          |          |          |
0+45        0.0097      0.28  VQ         |          |          |          |
0+50        0.0117      0.29  VQ         |          |          |          |
0+55        0.0138      0.30  VQ         |          |          |          |
1+ 0        0.0160      0.31  VQ         |          |          |          |
1+ 5        0.0182      0.32  VQ         |          |          |          |
1+10        0.0205      0.33  VQ         |          |          |          |
1+15        0.0228      0.33  VQ         |          |          |          |
1+20        0.0251      0.34  VQ         |          |          |          |
1+25        0.0275      0.35  VQ         |          |          |          |
1+30        0.0299      0.35  VQ         |          |          |          |
1+35        0.0324      0.35  VQ         |          |          |          |
1+40        0.0348      0.36  VQ         |          |          |          |
1+45        0.0373      0.36  |Q         |          |          |          |
1+50        0.0398      0.37  |Q         |          |          |          |
1+55        0.0424      0.37  |Q         |          |          |          |
2+ 0        0.0449      0.37  |Q         |          |          |          |
2+ 5        0.0475      0.37  |Q         |          |          |          |
2+10        0.0501      0.38  |Q         |          |          |          |
2+15        0.0527      0.38  |Q         |          |          |          |
2+20        0.0554      0.38  |Q         |          |          |          |
2+25        0.0580      0.38  |Q         |          |          |          |
2+30        0.0607      0.39  |Q         |          |          |          |
2+35        0.0633      0.39  |Q         |          |          |          |
2+40        0.0660      0.39  |Q         |          |          |          |
2+45        0.0687      0.39  |Q         |          |          |          |
2+50        0.0714      0.39  |Q         |          |          |          |
2+55        0.0742      0.40  |QV        |          |          |          |
3+ 0        0.0769      0.40  |QV        |          |          |          |
3+ 5        0.0797      0.40  |QV        |          |          |          |
3+10        0.0824      0.40  |QV        |          |          |          |
3+15        0.0852      0.40  |QV        |          |          |          |
3+20        0.0880      0.40  |QV        |          |          |          |
3+25        0.0908      0.41  |QV        |          |          |          |
3+30        0.0936      0.41  |QV        |          |          |          |
3+35        0.0964      0.41  |QV        |          |          |          |
3+40        0.0992      0.41  |QV        |          |          |          |
3+45        0.1020      0.41  |QV        |          |          |          |
3+50        0.1049      0.41  |QV        |          |          |          |
3+55        0.1077      0.41  |QV        |          |          |          |
4+ 0        0.1105      0.41  |Q V       |          |          |          |
4+ 5        0.1134      0.41  |Q V       |          |          |          |
4+10        0.1163      0.42  |Q V       |          |          |          |
4+15        0.1191      0.42  |Q V       |          |          |          |
4+20        0.1220      0.42  |Q V       |          |          |          |
4+25        0.1249      0.42  |Q V       |          |          |          |
4+30        0.1278      0.42  |Q V       |          |          |          |
4+35        0.1307      0.42  |Q V       |          |          |          |
4+40        0.1336      0.42  |Q V       |          |          |          |
4+45        0.1366      0.43  |Q V       |          |          |          |
4+50        0.1395      0.43  |Q V       |          |          |          |
4+55        0.1425      0.43  |Q V       |          |          |          |
5+ 0        0.1454      0.43  |Q  V      |          |          |          |
5+ 5        0.1484      0.43  |Q  V      |          |          |          |
5+10        0.1514      0.43  |Q  V      |          |          |          |
5+15        0.1543      0.43  |Q  V      |          |          |          |
5+20        0.1573      0.44  |Q  V      |          |          |          |
5+25        0.1603      0.44  |Q  V      |          |          |          |
5+30        0.1634      0.44  |Q  V      |          |          |          |
5+35        0.1664      0.44  |Q  V      |          |          |          |
5+40        0.1694      0.44  |Q  V      |          |          |          |
5+45        0.1725      0.44  |Q  V      |          |          |          |
5+50        0.1755      0.44  |Q  V      |          |          |          |
```

```
 5+55       0.1786      0.45  |Q  V     |         |         |         |
 6+ 0       0.1817      0.45  |Q   V    |         |         |         |
 6+ 5       0.1848      0.45  |Q   V    |         |         |         |
 6+10       0.1879      0.45  |Q   V    |         |         |         |
 6+15       0.1910      0.45  |Q   V    |         |         |         |
 6+20       0.1941      0.45  |Q   V    |         |         |         |
 6+25       0.1973      0.46  |Q   V    |         |         |         |
 6+30       0.2004      0.46  |Q   V    |         |         |         |
 6+35       0.2036      0.46  |Q   V    |         |         |         |
 6+40       0.2067      0.46  |Q   V    |         |         |         |
 6+45       0.2099      0.46  |Q   V    |         |         |         |
 6+50       0.2131      0.46  |Q   V    |         |         |         |
 6+55       0.2163      0.47  |Q    V   |         |         |         |
 7+ 0       0.2196      0.47  |Q    V   |         |         |         |
 7+ 5       0.2228      0.47  |Q    V   |         |         |         |
 7+10       0.2261      0.47  |Q    V   |         |         |         |
 7+15       0.2293      0.47  |Q    V   |         |         |         |
 7+20       0.2326      0.48  |Q    V   |         |         |         |
 7+25       0.2359      0.48  |Q    V   |         |         |         |
 7+30       0.2392      0.48  |Q    V   |         |         |         |
 7+35       0.2425      0.48  |Q    V   |         |         |         |
 7+40       0.2458      0.48  |Q    V   |         |         |         |
 7+45       0.2492      0.49  |Q    V   |         |         |         |
 7+50       0.2525      0.49  |Q     V  |         |         |         |
 7+55       0.2559      0.49  |Q     V  |         |         |         |
 8+ 0       0.2593      0.49  |Q     V  |         |         |         |
 8+ 5       0.2627      0.49  |Q     V  |         |         |         |
 8+10       0.2661      0.50  |Q     V  |         |         |         |
 8+15       0.2696      0.50  |Q     V  |         |         |         |
 8+20       0.2730      0.50  | Q    V  |         |         |         |
 8+25       0.2765      0.50  | Q    V  |         |         |         |
 8+30       0.2800      0.51  | Q    V  |         |         |         |
 8+35       0.2835      0.51  | Q    V  |         |         |         |
 8+40       0.2870      0.51  | Q    V  |         |         |         |
 8+45       0.2905      0.51  | Q     V |         |         |         |
 8+50       0.2941      0.52  | Q     V |         |         |         |
 8+55       0.2976      0.52  | Q     V |         |         |         |
 9+ 0       0.3012      0.52  | Q     V |         |         |         |
 9+ 5       0.3048      0.52  | Q     V |         |         |         |
 9+10       0.3084      0.53  | Q     V |         |         |         |
 9+15       0.3121      0.53  | Q     V |         |         |         |
 9+20       0.3157      0.53  | Q     V |         |         |         |
 9+25       0.3194      0.53  | Q     V |         |         |         |
 9+30       0.3231      0.54  | Q     V |         |         |         |
 9+35       0.3268      0.54  | Q      V|         |         |         |
 9+40       0.3306      0.54  | Q      V|         |         |         |
 9+45       0.3343      0.55  | Q      V|         |         |         |
 9+50       0.3381      0.55  | Q      V|         |         |         |
 9+55       0.3419      0.55  | Q      V|         |         |         |
10+ 0       0.3458      0.56  | Q      V|         |         |         |
10+ 5       0.3496      0.56  | Q      V|         |         |         |
10+10       0.3535      0.56  | Q      V|         |         |         |
10+15       0.3574      0.57  | Q      V|         |         |         |
10+20       0.3613      0.57  | Q       V         |         |         |
10+25       0.3652      0.57  | Q       V         |         |         |
10+30       0.3692      0.58  | Q       V         |         |         |
10+35       0.3732      0.58  | Q       V         |         |         |
10+40       0.3772      0.58  | Q       V         |         |         |
10+45       0.3812      0.59  | Q       V         |         |         |
10+50       0.3853      0.59  | Q       V         |         |         |
10+55       0.3894      0.59  | Q       V         |         |         |
11+ 0       0.3935      0.60  | Q       V         |         |         |
11+ 5       0.3977      0.60  | Q        |V        |         |         |
```

```
11+10       0.4019      0.61  | Q       |V        |         |         |
11+15       0.4061      0.61  | Q       |V        |         |         |
11+20       0.4103      0.62  | Q       |V        |         |         |
11+25       0.4146      0.62  | Q       |V        |         |         |
11+30       0.4189      0.62  | Q       |V        |         |         |
11+35       0.4232      0.63  | Q       |V        |         |         |
11+40       0.4276      0.63  | Q       |V        |         |         |
11+45       0.4320      0.64  | Q       | V       |         |         |
11+50       0.4364      0.64  | Q       | V       |         |         |
11+55       0.4409      0.65  | Q       | V       |         |         |
12+ 0       0.4454      0.66  | Q       | V       |         |         |
12+ 5       0.4500      0.66  | Q       | V       |         |         |
12+10       0.4546      0.67  | Q       | V       |         |         |
12+15       0.4592      0.67  | Q       | V       |         |         |
12+20       0.4638      0.67  | Q       | V       |         |         |
12+25       0.4685      0.68  | Q       |  V      |         |         |
12+30       0.4732      0.68  | Q       |  V      |         |         |
12+35       0.4779      0.69  | Q       |  V      |         |         |
12+40       0.4827      0.70  | Q       |  V      |         |         |
12+45       0.4876      0.70  | Q       |  V      |         |         |
12+50       0.4924      0.71  | Q       |  V      |         |         |
12+55       0.4974      0.72  | Q       |  V      |         |         |
13+ 0       0.5023      0.72  | Q       |  V      |         |         |
13+ 5       0.5074      0.73  | Q       |   V     |         |         |
13+10       0.5125      0.74  | Q       |   V     |         |         |
13+15       0.5176      0.75  | Q       |   V     |         |         |
13+20       0.5228      0.76  |  Q      |   V     |         |         |
13+25       0.5281      0.77  |  Q      |   V     |         |         |
13+30       0.5334      0.77  |  Q      |   V     |         |         |
13+35       0.5388      0.78  |  Q      |   V     |         |         |
13+40       0.5443      0.80  |  Q      |    V    |         |         |
13+45       0.5499      0.81  |  Q      |    V    |         |         |
13+50       0.5555      0.82  |  Q      |    V    |         |         |
13+55       0.5612      0.83  |  Q      |    V    |         |         |
14+ 0       0.5670      0.84  |  Q      |    V    |         |         |
14+ 5       0.5729      0.85  |  Q      |    V    |         |         |
14+10       0.5789      0.87  |  Q      |     V   |         |         |
14+15       0.5849      0.88  |  Q      |     V   |         |         |
14+20       0.5911      0.90  |  Q      |     V   |         |         |
14+25       0.5974      0.92  |  Q      |     V   |         |         |
14+30       0.6039      0.93  |  Q      |     V   |         |         |
14+35       0.6104      0.95  |  Q      |     V   |         |         |
14+40       0.6171      0.97  |  Q      |      V  |         |         |
14+45       0.6239      0.99  |  Q      |      V  |         |         |
14+50       0.6309      1.01  |   Q     |      V  |         |         |
14+55       0.6381      1.04  |   Q     |      V  |         |         |
15+ 0       0.6454      1.07  |   Q     |      V  |         |         |
15+ 5       0.6530      1.09  |   Q     |       V |         |         |
15+10       0.6607      1.13  |   Q     |       V |         |         |
15+15       0.6687      1.16  |   Q     |       V |         |         |
15+20       0.6770      1.20  |   Q     |       V |         |         |
15+25       0.6855      1.24  |   Q     |        V|         |         |
15+30       0.6942      1.26  |    Q    |        V|         |         |
15+35       0.7030      1.28  |    Q    |        V|         |         |
15+40       0.7119      1.29  |    Q    |        V|         |         |
15+45       0.7209      1.31  |    Q    |         V         |         |
15+50       0.7304      1.37  |    Q    |         V         |         |
15+55       0.7406      1.48  |    Q    |         V         |         |
16+ 0       0.7524      1.71  |     Q   |         V         |         |
16+ 5       0.7691      2.43  |        Q|         |V        |         |
16+10       0.7936      3.56  |         |   Q     | V       |         |
16+15       0.8260      4.70  |         |       Q | V       |         |
16+20       0.8642      5.55  |         |         | Q V     |         |
```

```
16+25       0.9027      5.60  |          |          | Q  V     |          |
16+30       0.9347      4.65  |          |        Q |    V     |          |
16+35       0.9594      3.58  |          |    Q     |     V    |          |
16+40       0.9795      2.92  |          |Q         |      V   |          |
16+45       0.9966      2.48  |        Q |          |      V   |          |
16+50       1.0122      2.25  |        Q |          |       V  |          |
16+55       1.0264      2.07  |       Q  |          |       V  |          |
17+ 0       1.0395      1.91  |      Q   |          |       V  |          |
17+ 5       1.0518      1.79  |      Q   |          |        V|          |
17+10       1.0633      1.66  |     Q    |          |        V|          |
17+15       1.0740      1.56  |     Q    |          |        V|          |
17+20       1.0842      1.47  |    Q     |          |         V          |
17+25       1.0939      1.41  |    Q     |          |         V          |
17+30       1.1029      1.31  |    Q     |          |         V          |
17+35       1.1116      1.26  |    Q     |          |         V          |
17+40       1.1198      1.19  |   Q      |          |         |V         |
17+45       1.1277      1.14  |   Q      |          |         |V         |
17+50       1.1353      1.11  |   Q      |          |         |V         |
17+55       1.1427      1.07  |   Q      |          |         |V         |
18+ 0       1.1498      1.04  |   Q      |          |         |V         |
18+ 5       1.1566      0.99  |  Q       |          |         | V        |
18+10       1.1632      0.96  |  Q       |          |         | V        |
18+15       1.1696      0.92  |  Q       |          |         | V        |
18+20       1.1758      0.90  |  Q       |          |         | V        |
18+25       1.1818      0.87  |  Q       |          |         | V        |
18+30       1.1876      0.84  |  Q       |          |         |  V       |
18+35       1.1933      0.82  |  Q       |          |         |  V       |
18+40       1.1987      0.79  |  Q       |          |         |  V       |
18+45       1.2041      0.78  |  Q       |          |         |  V       |
18+50       1.2093      0.76  |  Q       |          |         |  V       |
18+55       1.2144      0.75  | Q        |          |         |  V       |
19+ 0       1.2195      0.73  | Q        |          |         |  V       |
19+ 5       1.2244      0.71  | Q        |          |         |   V      |
19+10       1.2291      0.67  | Q        |          |         |   V      |
19+15       1.2335      0.64  | Q        |          |         |   V      |
19+20       1.2378      0.63  | Q        |          |         |   V      |
19+25       1.2420      0.62  | Q        |          |         |   V      |
19+30       1.2462      0.61  | Q        |          |         |   V      |
19+35       1.2504      0.60  | Q        |          |         |   V      |
19+40       1.2544      0.59  | Q        |          |         |   V      |
19+45       1.2584      0.58  | Q        |          |         |   V      |
19+50       1.2624      0.57  | Q        |          |         |    V     |
19+55       1.2663      0.57  | Q        |          |         |    V     |
20+ 0       1.2702      0.56  | Q        |          |         |    V     |
20+ 5       1.2740      0.55  | Q        |          |         |    V     |
20+10       1.2777      0.55  | Q        |          |         |    V     |
20+15       1.2815      0.54  | Q        |          |         |    V     |
20+20       1.2852      0.53  | Q        |          |         |    V     |
20+25       1.2888      0.53  | Q        |          |         |    V     |
20+30       1.2924      0.52  | Q        |          |         |    V     |
20+35       1.2960      0.52  | Q        |          |         |     V    |
20+40       1.2995      0.51  | Q        |          |         |     V    |
20+45       1.3030      0.51  | Q        |          |         |     V    |
20+50       1.3065      0.50  | Q        |          |         |     V    |
20+55       1.3099      0.50  |Q         |          |         |     V    |
21+ 0       1.3133      0.49  |Q         |          |         |     V    |
21+ 5       1.3167      0.49  |Q         |          |         |     V    |
21+10       1.3200      0.49  |Q         |          |         |     V    |
21+15       1.3233      0.48  |Q         |          |         |     V    |
21+20       1.3266      0.48  |Q         |          |         |     V    |
21+25       1.3299      0.47  |Q         |          |         |     V    |
21+30       1.3331      0.47  |Q         |          |         |      V   |
21+35       1.3363      0.47  |Q         |          |         |      V   |
```

```
21+40       1.3395      0.46  |Q         |          |          |       V  |
21+45       1.3427      0.46  |Q         |          |          |       V  |
21+50       1.3458      0.46  |Q         |          |          |       V  |
21+55       1.3489      0.45  |Q         |          |          |       V  |
22+ 0       1.3520      0.45  |Q         |          |          |       V  |
22+ 5       1.3551      0.45  |Q         |          |          |       V  |
22+10       1.3581      0.44  |Q         |          |          |       V  |
22+15       1.3611      0.44  |Q         |          |          |       V  |
22+20       1.3641      0.44  |Q         |          |          |       V  |
22+25       1.3671      0.43  |Q         |          |          |        V |
22+30       1.3701      0.43  |Q         |          |          |        V |
22+35       1.3730      0.43  |Q         |          |          |        V |
22+40       1.3759      0.42  |Q         |          |          |        V |
22+45       1.3789      0.42  |Q         |          |          |        V |
22+50       1.3817      0.42  |Q         |          |          |        V |
22+55       1.3846      0.42  |Q         |          |          |        V |
23+ 0       1.3875      0.41  |Q         |          |          |        V |
23+ 5       1.3903      0.41  |Q         |          |          |        V |
23+10       1.3931      0.41  |Q         |          |          |        V |
23+15       1.3959      0.41  |Q         |          |          |        V |
23+20       1.3987      0.40  |Q         |          |          |        V |
23+25       1.4015      0.40  |Q         |          |          |        V |
23+30       1.4042      0.40  |Q         |          |          |         V|
23+35       1.4070      0.40  |Q         |          |          |         V|
23+40       1.4097      0.40  |Q         |          |          |         V|
23+45       1.4124      0.39  |Q         |          |          |         V|
23+50       1.4151      0.39  |Q         |          |          |         V|
23+55       1.4178      0.39  |Q         |          |          |         V|
24+ 0       1.4204      0.39  |Q         |          |          |         V|
24+ 5       1.4230      0.38  |Q         |          |          |         V|
24+10       1.4255      0.35  |Q         |          |          |         V|
24+15       1.4276      0.32  |Q         |          |          |         V|
24+20       1.4294      0.26  |Q         |          |          |         V|
24+25       1.4308      0.20  Q          |          |          |         V|
24+30       1.4319      0.16  Q          |          |          |         V|
24+35       1.4328      0.13  Q          |          |          |         V|
24+40       1.4336      0.11  Q          |          |          |         V|
24+45       1.4343      0.10  Q          |          |          |         V|
24+50       1.4348      0.08  Q          |          |          |         V|
24+55       1.4353      0.07  Q          |          |          |         V|
25+ 0       1.4358      0.07  Q          |          |          |         V|
25+ 5       1.4362      0.06  Q          |          |          |         V|
25+10       1.4365      0.05  Q          |          |          |         V|
25+15       1.4369      0.05  Q          |          |          |         V|
25+20       1.4371      0.04  Q          |          |          |         V|
25+25       1.4374      0.04  Q          |          |          |         V|
25+30       1.4376      0.03  Q          |          |          |         V|
25+35       1.4378      0.03  Q          |          |          |         V|
25+40       1.4380      0.03  Q          |          |          |         V|
25+45       1.4382      0.02  Q          |          |          |         V|
25+50       1.4383      0.02  Q          |          |          |         V|
25+55       1.4384      0.02  Q          |          |          |         V|
26+ 0       1.4385      0.02  Q          |          |          |         V|
26+ 5       1.4386      0.01  Q          |          |          |         V|
26+10       1.4387      0.01  Q          |          |          |         V|
26+15       1.4388      0.01  Q          |          |          |         V|
26+20       1.4388      0.01  Q          |          |          |         V|
26+25       1.4389      0.01  Q          |          |          |         V|
26+30       1.4389      0.01  Q          |          |          |         V|
26+35       1.4390      0.01  Q          |          |          |         V|
26+40       1.4390      0.00  Q          |          |          |         V|
26+45       1.4390      0.00  Q          |          |          |         V|
26+50       1.4390      0.00  Q          |          |          |         V|
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   26+55       1.4391      0.00  Q         |         |         |        V|
   27+ 0       1.4391      0.00  Q         |         |         |        V|
   27+ 5       1.4391      0.00  Q         |         |         |        V|
----------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Existing Conditions
Area E2

Storm Event Year = 10

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
3.96	1	0.88
Rainfall data for year 2		
3.96	6	1.55
Rainfall data for year 2		
3.96	24	2.90
Rainfall data for year 100		
3.96	1	1.25
Rainfall data for year 100		
3.96	6	3.25
Rainfall data for year 100		
3.96	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 2)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
50.0	50.0	3.96	1.000	0.810	1.000	0.810

Area-averaged adjusted loss rate Fm (In/Hr) = 0.810

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
3.96	1.000	50.0	50.0	10.00	0.114

Area-averaged catchment yield fraction, Y = 0.114
Area-averaged low loss fraction, Yb = 0.886
User entry of time of concentration = 0.479 (hours)
++
Watershed area = 3.96(Ac.)
Catchment Lag time = 0.383 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 21.7467
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.810(In/Hr)
Average low loss rate fraction (Yb) = 0.886 (decimal)
VALLEY UNDEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.326(In)
Computed peak 30-minute rainfall = 0.667(In)
Specified peak 1-hour rainfall = 0.880(In)
Computed peak 3-hour rainfall = 1.565(In)
Specified peak 6-hour rainfall = 2.249(In)
Specified peak 24-hour rainfall = 4.546(In)

Rainfall depth area reduction factors:
Using a total area of 3.96(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.326(In)
30-minute factor = 1.000 Adjusted rainfall = 0.667(In)
1-hour factor = 1.000 Adjusted rainfall = 0.880(In)
3-hour factor = 1.000 Adjusted rainfall = 1.565(In)
6-hour factor = 1.000 Adjusted rainfall = 2.249(In)
24-hour factor = 1.000 Adjusted rainfall = 4.546(In)

U n i t H y d r o g r a p h
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Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 47.89 (CFS))	
1	1.954	0.936
2	7.938	2.866
3	18.434	5.027
4	32.845	6.902
5	48.120	7.315
6	59.621	5.508
7	67.054	3.560
8	72.139	2.435
9	75.757	1.732
10	78.779	1.448
11	81.308	1.211
12	83.476	1.038
13	85.400	0.921
14	87.032	0.782

15	88.420	0.664
16	89.724	0.625
17	90.887	0.557
18	91.845	0.459
19	92.754	0.435
20	93.470	0.343
21	94.164	0.332
22	94.827	0.317
23	95.479	0.312
24	96.043	0.270
25	96.521	0.229
26	96.978	0.219
27	97.373	0.189
28	97.757	0.184
29	98.077	0.153
30	98.381	0.146
31	98.633	0.121
32	98.850	0.104
33	99.068	0.104
34	99.285	0.104
35	99.503	0.104
36	99.720	0.104
37	100.000	0.052

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.3256	0.3256
2	0.4297	0.1040
3	0.5053	0.0757
4	0.5670	0.0616
5	0.6199	0.0529
6	0.6668	0.0469
7	0.7092	0.0424
8	0.7481	0.0389
9	0.7842	0.0361
10	0.8180	0.0338
11	0.8497	0.0318
12	0.8798	0.0301
13	0.9175	0.0377
14	0.9538	0.0363
15	0.9890	0.0351
16	1.0230	0.0340
17	1.0560	0.0330
18	1.0881	0.0321
19	1.1193	0.0313
20	1.1498	0.0305
21	1.1796	0.0298
22	1.2087	0.0291
23	1.2372	0.0285
24	1.2651	0.0279
25	1.2924	0.0273
26	1.3193	0.0268
27	1.3456	0.0263
28	1.3715	0.0259
29	1.3970	0.0254
30	1.4220	0.0250
31	1.4466	0.0246
32	1.4709	0.0243
33	1.4948	0.0239
34	1.5184	0.0236
35	1.5416	0.0232
36	1.5645	0.0229
37	1.5871	0.0226

38	1.6095	0.0223
39	1.6315	0.0220
40	1.6533	0.0218
41	1.6748	0.0215
42	1.6961	0.0213
43	1.7171	0.0210
44	1.7379	0.0208
45	1.7585	0.0206
46	1.7789	0.0204
47	1.7990	0.0202
48	1.8190	0.0199
49	1.8387	0.0198
50	1.8583	0.0196
51	1.8777	0.0194
52	1.8968	0.0192
53	1.9159	0.0190
54	1.9347	0.0189
55	1.9534	0.0187
56	1.9719	0.0185
57	1.9903	0.0184
58	2.0085	0.0182
59	2.0266	0.0181
60	2.0445	0.0179
61	2.0623	0.0178
62	2.0799	0.0176
63	2.0974	0.0175
64	2.1148	0.0174
65	2.1320	0.0172
66	2.1491	0.0171
67	2.1661	0.0170
68	2.1830	0.0169
69	2.1998	0.0168
70	2.2164	0.0166
71	2.2329	0.0165
72	2.2494	0.0164
73	2.2652	0.0158
74	2.2809	0.0157
75	2.2965	0.0156
76	2.3119	0.0155
77	2.3273	0.0154
78	2.3426	0.0153
79	2.3578	0.0152
80	2.3729	0.0151
81	2.3879	0.0150
82	2.4028	0.0149
83	2.4177	0.0148
84	2.4324	0.0147
85	2.4470	0.0147
86	2.4616	0.0146
87	2.4761	0.0145
88	2.4905	0.0144
89	2.5048	0.0143
90	2.5191	0.0142
91	2.5332	0.0142
92	2.5473	0.0141
93	2.5613	0.0140
94	2.5753	0.0139
95	2.5891	0.0139
96	2.6029	0.0138
97	2.6167	0.0137
98	2.6303	0.0137
99	2.6439	0.0136
100	2.6574	0.0135

101	2.6709	0.0135
102	2.6843	0.0134
103	2.6976	0.0133
104	2.7108	0.0133
105	2.7240	0.0132
106	2.7372	0.0131
107	2.7503	0.0131
108	2.7633	0.0130
109	2.7762	0.0130
110	2.7891	0.0129
111	2.8020	0.0128
112	2.8147	0.0128
113	2.8275	0.0127
114	2.8401	0.0127
115	2.8527	0.0126
116	2.8653	0.0126
117	2.8778	0.0125
118	2.8903	0.0125
119	2.9027	0.0124
120	2.9150	0.0124
121	2.9273	0.0123
122	2.9396	0.0123
123	2.9518	0.0122
124	2.9639	0.0122
125	2.9761	0.0121
126	2.9881	0.0121
127	3.0001	0.0120
128	3.0121	0.0120
129	3.0240	0.0119
130	3.0359	0.0119
131	3.0477	0.0118
132	3.0595	0.0118
133	3.0712	0.0117
134	3.0829	0.0117
135	3.0946	0.0117
136	3.1062	0.0116
137	3.1178	0.0116
138	3.1293	0.0115
139	3.1408	0.0115
140	3.1522	0.0114
141	3.1636	0.0114
142	3.1750	0.0114
143	3.1863	0.0113
144	3.1976	0.0113
145	3.2089	0.0112
146	3.2201	0.0112
147	3.2312	0.0112
148	3.2424	0.0111
149	3.2535	0.0111
150	3.2645	0.0111
151	3.2756	0.0110
152	3.2866	0.0110
153	3.2975	0.0110
154	3.3084	0.0109
155	3.3193	0.0109
156	3.3302	0.0109
157	3.3410	0.0108
158	3.3518	0.0108
159	3.3625	0.0107
160	3.3732	0.0107
161	3.3839	0.0107
162	3.3946	0.0106
163	3.4052	0.0106

164	3.4158	0.0106
165	3.4263	0.0106
166	3.4369	0.0105
167	3.4473	0.0105
168	3.4578	0.0105
169	3.4682	0.0104
170	3.4786	0.0104
171	3.4890	0.0104
172	3.4993	0.0103
173	3.5096	0.0103
174	3.5199	0.0103
175	3.5302	0.0103
176	3.5404	0.0102
177	3.5506	0.0102
178	3.5608	0.0102
179	3.5709	0.0101
180	3.5810	0.0101
181	3.5911	0.0101
182	3.6011	0.0101
183	3.6112	0.0100
184	3.6212	0.0100
185	3.6312	0.0100
186	3.6411	0.0099
187	3.6510	0.0099
188	3.6609	0.0099
189	3.6708	0.0099
190	3.6806	0.0098
191	3.6904	0.0098
192	3.7002	0.0098
193	3.7100	0.0098
194	3.7197	0.0097
195	3.7295	0.0097
196	3.7392	0.0097
197	3.7488	0.0097
198	3.7585	0.0096
199	3.7681	0.0096
200	3.7777	0.0096
201	3.7873	0.0096
202	3.7968	0.0096
203	3.8063	0.0095
204	3.8158	0.0095
205	3.8253	0.0095
206	3.8348	0.0095
207	3.8442	0.0094
208	3.8536	0.0094
209	3.8630	0.0094
210	3.8724	0.0094
211	3.8817	0.0093
212	3.8911	0.0093
213	3.9004	0.0093
214	3.9097	0.0093
215	3.9189	0.0093
216	3.9282	0.0092
217	3.9374	0.0092
218	3.9466	0.0092
219	3.9557	0.0092
220	3.9649	0.0092
221	3.9740	0.0091
222	3.9832	0.0091
223	3.9922	0.0091
224	4.0013	0.0091
225	4.0104	0.0091
226	4.0194	0.0090

227	4.0284	0.0090
228	4.0374	0.0090
229	4.0464	0.0090
230	4.0554	0.0090
231	4.0643	0.0089
232	4.0732	0.0089
233	4.0821	0.0089
234	4.0910	0.0089
235	4.0999	0.0089
236	4.1087	0.0088
237	4.1175	0.0088
238	4.1263	0.0088
239	4.1351	0.0088
240	4.1439	0.0088
241	4.1527	0.0088
242	4.1614	0.0087
243	4.1701	0.0087
244	4.1788	0.0087
245	4.1875	0.0087
246	4.1962	0.0087
247	4.2048	0.0086
248	4.2134	0.0086
249	4.2220	0.0086
250	4.2306	0.0086
251	4.2392	0.0086
252	4.2478	0.0086
253	4.2563	0.0085
254	4.2649	0.0085
255	4.2734	0.0085
256	4.2819	0.0085
257	4.2903	0.0085
258	4.2988	0.0085
259	4.3073	0.0084
260	4.3157	0.0084
261	4.3241	0.0084
262	4.3325	0.0084
263	4.3409	0.0084
264	4.3493	0.0084
265	4.3576	0.0084
266	4.3659	0.0083
267	4.3743	0.0083
268	4.3826	0.0083
269	4.3909	0.0083
270	4.3991	0.0083
271	4.4074	0.0083
272	4.4157	0.0082
273	4.4239	0.0082
274	4.4321	0.0082
275	4.4403	0.0082
276	4.4485	0.0082
277	4.4567	0.0082
278	4.4648	0.0082
279	4.4730	0.0081
280	4.4811	0.0081
281	4.4892	0.0081
282	4.4973	0.0081
283	4.5054	0.0081
284	4.5135	0.0081
285	4.5215	0.0081
286	4.5296	0.0080
287	4.5376	0.0080
288	4.5456	0.0080

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0080	0.0071	0.0009
2	0.0080	0.0071	0.0009
3	0.0081	0.0071	0.0009
4	0.0081	0.0072	0.0009
5	0.0081	0.0072	0.0009
6	0.0081	0.0072	0.0009
7	0.0081	0.0072	0.0009
8	0.0082	0.0072	0.0009
9	0.0082	0.0073	0.0009
10	0.0082	0.0073	0.0009
11	0.0082	0.0073	0.0009
12	0.0082	0.0073	0.0009
13	0.0083	0.0073	0.0009
14	0.0083	0.0073	0.0009
15	0.0083	0.0074	0.0009
16	0.0083	0.0074	0.0009
17	0.0084	0.0074	0.0010
18	0.0084	0.0074	0.0010
19	0.0084	0.0075	0.0010
20	0.0084	0.0075	0.0010
21	0.0085	0.0075	0.0010
22	0.0085	0.0075	0.0010
23	0.0085	0.0075	0.0010
24	0.0085	0.0076	0.0010
25	0.0086	0.0076	0.0010
26	0.0086	0.0076	0.0010
27	0.0086	0.0076	0.0010
28	0.0086	0.0076	0.0010
29	0.0087	0.0077	0.0010
30	0.0087	0.0077	0.0010
31	0.0087	0.0077	0.0010
32	0.0087	0.0077	0.0010
33	0.0088	0.0078	0.0010
34	0.0088	0.0078	0.0010
35	0.0088	0.0078	0.0010
36	0.0088	0.0078	0.0010
37	0.0089	0.0079	0.0010
38	0.0089	0.0079	0.0010
39	0.0089	0.0079	0.0010
40	0.0090	0.0079	0.0010
41	0.0090	0.0080	0.0010
42	0.0090	0.0080	0.0010
43	0.0091	0.0080	0.0010
44	0.0091	0.0080	0.0010
45	0.0091	0.0081	0.0010
46	0.0091	0.0081	0.0010
47	0.0092	0.0081	0.0010
48	0.0092	0.0082	0.0010
49	0.0092	0.0082	0.0010
50	0.0093	0.0082	0.0011
51	0.0093	0.0082	0.0011
52	0.0093	0.0083	0.0011
53	0.0094	0.0083	0.0011
54	0.0094	0.0083	0.0011
55	0.0094	0.0084	0.0011
56	0.0095	0.0084	0.0011
57	0.0095	0.0084	0.0011
58	0.0095	0.0084	0.0011
59	0.0096	0.0085	0.0011

60	0.0096	0.0085	0.0011
61	0.0096	0.0085	0.0011
62	0.0097	0.0086	0.0011
63	0.0097	0.0086	0.0011
64	0.0097	0.0086	0.0011
65	0.0098	0.0087	0.0011
66	0.0098	0.0087	0.0011
67	0.0099	0.0087	0.0011
68	0.0099	0.0088	0.0011
69	0.0099	0.0088	0.0011
70	0.0100	0.0088	0.0011
71	0.0100	0.0089	0.0011
72	0.0101	0.0089	0.0011
73	0.0101	0.0090	0.0011
74	0.0101	0.0090	0.0012
75	0.0102	0.0090	0.0012
76	0.0102	0.0091	0.0012
77	0.0103	0.0091	0.0012
78	0.0103	0.0091	0.0012
79	0.0104	0.0092	0.0012
80	0.0104	0.0092	0.0012
81	0.0105	0.0093	0.0012
82	0.0105	0.0093	0.0012
83	0.0106	0.0094	0.0012
84	0.0106	0.0094	0.0012
85	0.0106	0.0094	0.0012
86	0.0107	0.0095	0.0012
87	0.0107	0.0095	0.0012
88	0.0108	0.0096	0.0012
89	0.0109	0.0096	0.0012
90	0.0109	0.0096	0.0012
91	0.0110	0.0097	0.0012
92	0.0110	0.0097	0.0012
93	0.0111	0.0098	0.0013
94	0.0111	0.0098	0.0013
95	0.0112	0.0099	0.0013
96	0.0112	0.0099	0.0013
97	0.0113	0.0100	0.0013
98	0.0113	0.0100	0.0013
99	0.0114	0.0101	0.0013
100	0.0114	0.0101	0.0013
101	0.0115	0.0102	0.0013
102	0.0116	0.0103	0.0013
103	0.0117	0.0103	0.0013
104	0.0117	0.0104	0.0013
105	0.0118	0.0104	0.0013
106	0.0118	0.0105	0.0013
107	0.0119	0.0106	0.0014
108	0.0120	0.0106	0.0014
109	0.0121	0.0107	0.0014
110	0.0121	0.0107	0.0014
111	0.0122	0.0108	0.0014
112	0.0123	0.0109	0.0014
113	0.0124	0.0109	0.0014
114	0.0124	0.0110	0.0014
115	0.0125	0.0111	0.0014
116	0.0126	0.0111	0.0014
117	0.0127	0.0112	0.0014
118	0.0127	0.0113	0.0014
119	0.0128	0.0114	0.0015
120	0.0129	0.0114	0.0015
121	0.0130	0.0115	0.0015
122	0.0131	0.0116	0.0015

123	0.0132	0.0117	0.0015
124	0.0133	0.0118	0.0015
125	0.0134	0.0119	0.0015
126	0.0135	0.0119	0.0015
127	0.0136	0.0120	0.0015
128	0.0137	0.0121	0.0016
129	0.0138	0.0122	0.0016
130	0.0139	0.0123	0.0016
131	0.0140	0.0124	0.0016
132	0.0141	0.0125	0.0016
133	0.0142	0.0126	0.0016
134	0.0143	0.0127	0.0016
135	0.0145	0.0128	0.0016
136	0.0146	0.0129	0.0017
137	0.0147	0.0131	0.0017
138	0.0148	0.0131	0.0017
139	0.0150	0.0133	0.0017
140	0.0151	0.0134	0.0017
141	0.0153	0.0136	0.0017
142	0.0154	0.0136	0.0017
143	0.0156	0.0138	0.0018
144	0.0157	0.0139	0.0018
145	0.0164	0.0146	0.0019
146	0.0165	0.0147	0.0019
147	0.0168	0.0149	0.0019
148	0.0169	0.0150	0.0019
149	0.0171	0.0152	0.0019
150	0.0172	0.0153	0.0020
151	0.0175	0.0155	0.0020
152	0.0176	0.0156	0.0020
153	0.0179	0.0159	0.0020
154	0.0181	0.0160	0.0021
155	0.0184	0.0163	0.0021
156	0.0185	0.0164	0.0021
157	0.0189	0.0167	0.0021
158	0.0190	0.0169	0.0022
159	0.0194	0.0172	0.0022
160	0.0196	0.0173	0.0022
161	0.0199	0.0177	0.0023
162	0.0202	0.0179	0.0023
163	0.0206	0.0182	0.0023
164	0.0208	0.0184	0.0024
165	0.0213	0.0189	0.0024
166	0.0215	0.0191	0.0024
167	0.0220	0.0195	0.0025
168	0.0223	0.0198	0.0025
169	0.0229	0.0203	0.0026
170	0.0232	0.0206	0.0026
171	0.0239	0.0212	0.0027
172	0.0243	0.0215	0.0028
173	0.0250	0.0222	0.0028
174	0.0254	0.0226	0.0029
175	0.0263	0.0234	0.0030
176	0.0268	0.0238	0.0030
177	0.0279	0.0247	0.0032
178	0.0285	0.0252	0.0032
179	0.0298	0.0264	0.0034
180	0.0305	0.0270	0.0035
181	0.0321	0.0285	0.0036
182	0.0330	0.0293	0.0038
183	0.0351	0.0311	0.0040
184	0.0363	0.0322	0.0041
185	0.0301	0.0267	0.0034

186	0.0318	0.0282	0.0036
187	0.0361	0.0320	0.0041
188	0.0389	0.0345	0.0044
189	0.0469	0.0416	0.0053
190	0.0529	0.0469	0.0060
191	0.0757	0.0671	0.0086
192	0.1040	0.0675	0.0366
193	0.3256	0.0675	0.2582
194	0.0616	0.0546	0.0070
195	0.0424	0.0376	0.0048
196	0.0338	0.0299	0.0038
197	0.0377	0.0334	0.0043
198	0.0340	0.0301	0.0039
199	0.0313	0.0277	0.0036
200	0.0291	0.0258	0.0033
201	0.0273	0.0242	0.0031
202	0.0259	0.0229	0.0029
203	0.0246	0.0218	0.0028
204	0.0236	0.0209	0.0027
205	0.0226	0.0200	0.0026
206	0.0218	0.0193	0.0025
207	0.0210	0.0186	0.0024
208	0.0204	0.0180	0.0023
209	0.0198	0.0175	0.0022
210	0.0192	0.0170	0.0022
211	0.0187	0.0166	0.0021
212	0.0182	0.0161	0.0021
213	0.0178	0.0158	0.0020
214	0.0174	0.0154	0.0020
215	0.0170	0.0151	0.0019
216	0.0166	0.0148	0.0019
217	0.0158	0.0140	0.0018
218	0.0155	0.0137	0.0018
219	0.0152	0.0135	0.0017
220	0.0149	0.0132	0.0017
221	0.0147	0.0130	0.0017
222	0.0144	0.0128	0.0016
223	0.0142	0.0126	0.0016
224	0.0139	0.0124	0.0016
225	0.0137	0.0122	0.0016
226	0.0135	0.0120	0.0015
227	0.0133	0.0118	0.0015
228	0.0131	0.0116	0.0015
229	0.0130	0.0115	0.0015
230	0.0128	0.0113	0.0015
231	0.0126	0.0112	0.0014
232	0.0125	0.0110	0.0014
233	0.0123	0.0109	0.0014
234	0.0122	0.0108	0.0014
235	0.0120	0.0106	0.0014
236	0.0119	0.0105	0.0013
237	0.0117	0.0104	0.0013
238	0.0116	0.0103	0.0013
239	0.0115	0.0102	0.0013
240	0.0114	0.0101	0.0013
241	0.0112	0.0100	0.0013
242	0.0111	0.0099	0.0013
243	0.0110	0.0098	0.0013
244	0.0109	0.0097	0.0012
245	0.0108	0.0096	0.0012
246	0.0107	0.0095	0.0012
247	0.0106	0.0094	0.0012
248	0.0105	0.0093	0.0012

249	0.0104	0.0092	0.0012
250	0.0103	0.0092	0.0012
251	0.0103	0.0091	0.0012
252	0.0102	0.0090	0.0012
253	0.0101	0.0089	0.0011
254	0.0100	0.0089	0.0011
255	0.0099	0.0088	0.0011
256	0.0098	0.0087	0.0011
257	0.0098	0.0087	0.0011
258	0.0097	0.0086	0.0011
259	0.0096	0.0085	0.0011
260	0.0096	0.0085	0.0011
261	0.0095	0.0084	0.0011
262	0.0094	0.0083	0.0011
263	0.0093	0.0083	0.0011
264	0.0093	0.0082	0.0011
265	0.0092	0.0082	0.0010
266	0.0092	0.0081	0.0010
267	0.0091	0.0081	0.0010
268	0.0090	0.0080	0.0010
269	0.0090	0.0080	0.0010
270	0.0089	0.0079	0.0010
271	0.0089	0.0079	0.0010
272	0.0088	0.0078	0.0010
273	0.0088	0.0078	0.0010
274	0.0087	0.0077	0.0010
275	0.0086	0.0077	0.0010
276	0.0086	0.0076	0.0010
277	0.0085	0.0076	0.0010
278	0.0085	0.0075	0.0010
279	0.0084	0.0075	0.0010
280	0.0084	0.0074	0.0010
281	0.0084	0.0074	0.0009
282	0.0083	0.0074	0.0009
283	0.0083	0.0073	0.0009
284	0.0082	0.0073	0.0009
285	0.0082	0.0072	0.0009
286	0.0081	0.0072	0.0009
287	0.0081	0.0072	0.0009
288	0.0080	0.0071	0.0009

Total soil rain loss = 3.78(In)
Total effective rainfall = 0.76(In)
Peak flow rate in flood hydrograph = 2.27(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       0.0000      0.00  Q         |         |         |         |
  0+15       0.0001      0.01  Q         |         |         |         |
  0+20       0.0002      0.01  Q         |         |         |         |
  0+25       0.0003      0.02  Q         |         |         |         |
  0+30       0.0005      0.03  Q         |         |         |         |
  0+35       0.0007      0.03  Q         |         |         |         |
  0+40       0.0009      0.03  Q         |         |         |         |
```

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0+45        0.0012      0.03  Q          |          |          |          |
0+50        0.0014      0.03  Q          |          |          |          |
0+55        0.0016      0.04  Q          |          |          |          |
1+ 0        0.0019      0.04  Q          |          |          |          |
1+ 5        0.0022      0.04  Q          |          |          |          |
1+10        0.0024      0.04  Q          |          |          |          |
1+15        0.0027      0.04  Q          |          |          |          |
1+20        0.0030      0.04  Q          |          |          |          |
1+25        0.0033      0.04  Q          |          |          |          |
1+30        0.0035      0.04  Q          |          |          |          |
1+35        0.0038      0.04  Q          |          |          |          |
1+40        0.0041      0.04  Q          |          |          |          |
1+45        0.0044      0.04  Q          |          |          |          |
1+50        0.0047      0.04  Q          |          |          |          |
1+55        0.0050      0.04  Q          |          |          |          |
2+ 0        0.0053      0.04  Q          |          |          |          |
2+ 5        0.0056      0.04  Q          |          |          |          |
2+10        0.0059      0.04  Q          |          |          |          |
2+15        0.0062      0.04  Q          |          |          |          |
2+20        0.0065      0.05  QV         |          |          |          |
2+25        0.0069      0.05  QV         |          |          |          |
2+30        0.0072      0.05  QV         |          |          |          |
2+35        0.0075      0.05  QV         |          |          |          |
2+40        0.0078      0.05  QV         |          |          |          |
2+45        0.0081      0.05  QV         |          |          |          |
2+50        0.0084      0.05  QV         |          |          |          |
2+55        0.0088      0.05  QV         |          |          |          |
3+ 0        0.0091      0.05  QV         |          |          |          |
3+ 5        0.0094      0.05  QV         |          |          |          |
3+10        0.0097      0.05  QV         |          |          |          |
3+15        0.0101      0.05  QV         |          |          |          |
3+20        0.0104      0.05  QV         |          |          |          |
3+25        0.0107      0.05  QV         |          |          |          |
3+30        0.0111      0.05  QV         |          |          |          |
3+35        0.0114      0.05  QV         |          |          |          |
3+40        0.0117      0.05  QV         |          |          |          |
3+45        0.0121      0.05  QV         |          |          |          |
3+50        0.0124      0.05  QV         |          |          |          |
3+55        0.0127      0.05  Q V        |          |          |          |
4+ 0        0.0131      0.05  Q V        |          |          |          |
4+ 5        0.0134      0.05  Q V        |          |          |          |
4+10        0.0137      0.05  Q V        |          |          |          |
4+15        0.0141      0.05  Q V        |          |          |          |
4+20        0.0144      0.05  Q V        |          |          |          |
4+25        0.0148      0.05  Q V        |          |          |          |
4+30        0.0151      0.05  Q V        |          |          |          |
4+35        0.0155      0.05  Q V        |          |          |          |
4+40        0.0158      0.05  Q V        |          |          |          |
4+45        0.0161      0.05  Q V        |          |          |          |
4+50        0.0165      0.05  Q V        |          |          |          |
4+55        0.0168      0.05  Q V        |          |          |          |
5+ 0        0.0172      0.05  Q V        |          |          |          |
5+ 5        0.0175      0.05  Q V        |          |          |          |
5+10        0.0179      0.05  Q V        |          |          |          |
5+15        0.0183      0.05  Q V        |          |          |          |
5+20        0.0186      0.05  Q V        |          |          |          |
5+25        0.0190      0.05  Q  V       |          |          |          |
5+30        0.0193      0.05  Q  V       |          |          |          |
5+35        0.0197      0.05  Q  V       |          |          |          |
5+40        0.0200      0.05  Q  V       |          |          |          |
5+45        0.0204      0.05  Q  V       |          |          |          |
5+50        0.0208      0.05  Q  V       |          |          |          |
5+55        0.0211      0.05  Q  V       |          |          |          |
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 6+ 0       0.0215      0.05  Q  V       |          |          |          |
 6+ 5       0.0219      0.05  Q  V       |          |          |          |
 6+10       0.0222      0.05  Q  V       |          |          |          |
 6+15       0.0226      0.05  Q  V       |          |          |          |
 6+20       0.0230      0.05  Q  V       |          |          |          |
 6+25       0.0234      0.05  Q  V       |          |          |          |
 6+30       0.0237      0.05  Q  V       |          |          |          |
 6+35       0.0241      0.05  Q  V       |          |          |          |
 6+40       0.0245      0.05  Q  V       |          |          |          |
 6+45       0.0249      0.06  Q  V       |          |          |          |
 6+50       0.0253      0.06  Q   V      |          |          |          |
 6+55       0.0256      0.06  Q   V      |          |          |          |
 7+ 0       0.0260      0.06  Q   V      |          |          |          |
 7+ 5       0.0264      0.06  Q   V      |          |          |          |
 7+10       0.0268      0.06  Q   V      |          |          |          |
 7+15       0.0272      0.06  Q   V      |          |          |          |
 7+20       0.0276      0.06  Q   V      |          |          |          |
 7+25       0.0280      0.06  Q   V      |          |          |          |
 7+30       0.0284      0.06  Q   V      |          |          |          |
 7+35       0.0288      0.06  Q   V      |          |          |          |
 7+40       0.0292      0.06  Q   V      |          |          |          |
 7+45       0.0296      0.06  Q   V      |          |          |          |
 7+50       0.0300      0.06  Q   V      |          |          |          |
 7+55       0.0304      0.06  Q   V      |          |          |          |
 8+ 0       0.0308      0.06  Q   V      |          |          |          |
 8+ 5       0.0312      0.06  Q   V      |          |          |          |
 8+10       0.0316      0.06  Q    V     |          |          |          |
 8+15       0.0320      0.06  Q    V     |          |          |          |
 8+20       0.0324      0.06  Q    V     |          |          |          |
 8+25       0.0328      0.06  Q    V     |          |          |          |
 8+30       0.0333      0.06  Q    V     |          |          |          |
 8+35       0.0337      0.06  Q    V     |          |          |          |
 8+40       0.0341      0.06  Q    V     |          |          |          |
 8+45       0.0345      0.06  Q    V     |          |          |          |
 8+50       0.0350      0.06  Q    V     |          |          |          |
 8+55       0.0354      0.06  Q    V     |          |          |          |
 9+ 0       0.0358      0.06  Q    V     |          |          |          |
 9+ 5       0.0362      0.06  Q    V     |          |          |          |
 9+10       0.0367      0.06  Q    V     |          |          |          |
 9+15       0.0371      0.06  Q    V     |          |          |          |
 9+20       0.0376      0.06  Q    V     |          |          |          |
 9+25       0.0380      0.06  Q     V    |          |          |          |
 9+30       0.0385      0.06  Q     V    |          |          |          |
 9+35       0.0389      0.07  Q     V    |          |          |          |
 9+40       0.0394      0.07  Q     V    |          |          |          |
 9+45       0.0398      0.07  Q     V    |          |          |          |
 9+50       0.0403      0.07  Q     V    |          |          |          |
 9+55       0.0407      0.07  Q     V    |          |          |          |
10+ 0       0.0412      0.07  Q     V    |          |          |          |
10+ 5       0.0417      0.07  Q     V    |          |          |          |
10+10       0.0421      0.07  Q     V    |          |          |          |
10+15       0.0426      0.07  Q     V    |          |          |          |
10+20       0.0431      0.07  Q     V    |          |          |          |
10+25       0.0436      0.07  Q     V    |          |          |          |
10+30       0.0440      0.07  Q      V   |          |          |          |
10+35       0.0445      0.07  Q      V   |          |          |          |
10+40       0.0450      0.07  Q      V   |          |          |          |
10+45       0.0455      0.07  Q      V   |          |          |          |
10+50       0.0460      0.07  Q      V   |          |          |          |
10+55       0.0465      0.07  Q      V   |          |          |          |
11+ 0       0.0470      0.07  Q      V   |          |          |          |
11+ 5       0.0475      0.07  Q      V   |          |          |          |
11+10       0.0480      0.07  Q      V   |          |          |          |
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11+15       0.0485      0.07  Q      V  |          |          |          |
11+20       0.0490      0.08  Q      V  |          |          |          |
11+25       0.0496      0.08  Q      V  |          |          |          |
11+30       0.0501      0.08  Q      V  |          |          |          |
11+35       0.0506      0.08  Q       V |          |          |          |
11+40       0.0512      0.08  Q       V |          |          |          |
11+45       0.0517      0.08  Q       V |          |          |          |
11+50       0.0522      0.08  Q       V |          |          |          |
11+55       0.0528      0.08  Q       V |          |          |          |
12+ 0       0.0533      0.08  Q       V |          |          |          |
12+ 5       0.0539      0.08  Q       V |          |          |          |
12+10       0.0545      0.08  Q       V |          |          |          |
12+15       0.0550      0.08  Q       V |          |          |          |
12+20       0.0556      0.08  Q       V |          |          |          |
12+25       0.0562      0.09  Q       V |          |          |          |
12+30       0.0568      0.09  Q        V|          |          |          |
12+35       0.0574      0.09  Q        V|          |          |          |
12+40       0.0580      0.09  Q        V|          |          |          |
12+45       0.0586      0.09  Q        V|          |          |          |
12+50       0.0593      0.09  Q        V|          |          |          |
12+55       0.0599      0.09  Q        V|          |          |          |
13+ 0       0.0605      0.09  Q        V|          |          |          |
13+ 5       0.0612      0.09  Q        V|          |          |          |
13+10       0.0618      0.10  Q        V|          |          |          |
13+15       0.0625      0.10  Q        V|          |          |          |
13+20       0.0632      0.10  Q         V          |          |          |
13+25       0.0639      0.10  Q         V          |          |          |
13+30       0.0646      0.10  Q         V          |          |          |
13+35       0.0653      0.10  Q         V          |          |          |
13+40       0.0660      0.10  Q         V          |          |          |
13+45       0.0667      0.10  Q         V          |          |          |
13+50       0.0674      0.11  Q         V          |          |          |
13+55       0.0682      0.11  Q         V          |          |          |
14+ 0       0.0689      0.11  Q         V          |          |          |
14+ 5       0.0697      0.11  Q         |V         |          |          |
14+10       0.0705      0.11  Q         |V         |          |          |
14+15       0.0713      0.12  Q         |V         |          |          |
14+20       0.0721      0.12  Q         |V         |          |          |
14+25       0.0729      0.12  Q         |V         |          |          |
14+30       0.0737      0.12  Q         |V         |          |          |
14+35       0.0746      0.12  Q         |V         |          |          |
14+40       0.0754      0.13  Q         | V        |          |          |
14+45       0.0763      0.13  Q         | V        |          |          |
14+50       0.0773      0.13  Q         | V        |          |          |
14+55       0.0782      0.14  Q         | V        |          |          |
15+ 0       0.0792      0.14  Q         | V        |          |          |
15+ 5       0.0801      0.14  Q         | V        |          |          |
15+10       0.0812      0.15  Q         | V        |          |          |
15+15       0.0822      0.15  Q         |  V       |          |          |
15+20       0.0833      0.16  Q         |  V       |          |          |
15+25       0.0844      0.16  Q         |  V       |          |          |
15+30       0.0856      0.17  Q         |  V       |          |          |
15+35       0.0867      0.17  Q         |  V       |          |          |
15+40       0.0879      0.17  Q         |   V      |          |          |
15+45       0.0891      0.17  Q         |   V      |          |          |
15+50       0.0904      0.18  Q         |   V      |          |          |
15+55       0.0917      0.20  Q         |   V      |          |          |
16+ 0       0.0934      0.25  Q         |   V      |          |          |
16+ 5       0.0973      0.56  | Q       |    V     |          |          |
16+10       0.1051      1.13  |   Q     |     V    |          |          |
16+15       0.1171      1.75  |     Q   |       V  |          |          |
16+20       0.1325      2.23  |       Q |          |V         |          |
16+25       0.1481      2.27  |        Q|          |  V       |          |
```

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16+30       0.1602      1.75  |     Q    |          |    V     |          |
16+35       0.1685      1.21  |    Q     |          |     V    |          |
16+40       0.1746      0.89  |   Q      |          |      V   |          |
16+45       0.1793      0.69  |  Q       |          |       V  |          |
16+50       0.1835      0.60  |  Q       |          |        V|          |
16+55       0.1871      0.53  |  Q       |          |        V|          |
17+ 0       0.1903      0.47  |Q         |          |         V          |
17+ 5       0.1933      0.43  |Q         |          |         V          |
17+10       0.1959      0.38  |Q         |          |          |V        |
17+15       0.1983      0.34  |Q         |          |          |V        |
17+20       0.2005      0.33  |Q         |          |          |V        |
17+25       0.2026      0.30  |Q         |          |           V        |
17+30       0.2044      0.27  |Q         |          |           V        |
17+35       0.2062      0.26  |Q         |          |           V        |
17+40       0.2078      0.23  Q          |          |            V       |
17+45       0.2093      0.22  Q          |          |            V       |
17+50       0.2107      0.21  Q          |          |            V       |
17+55       0.2122      0.21  Q          |          |            V       |
18+ 0       0.2135      0.19  Q          |          |             V      |
18+ 5       0.2147      0.18  Q          |          |             V      |
18+10       0.2158      0.17  Q          |          |             V      |
18+15       0.2169      0.16  Q          |          |             V      |
18+20       0.2180      0.15  Q          |          |             V      |
18+25       0.2190      0.14  Q          |          |             V      |
18+30       0.2199      0.14  Q          |          |              V     |
18+35       0.2208      0.13  Q          |          |              V     |
18+40       0.2216      0.12  Q          |          |              V     |
18+45       0.2225      0.12  Q          |          |              V     |
18+50       0.2233      0.12  Q          |          |              V     |
18+55       0.2241      0.12  Q          |          |              V     |
19+ 0       0.2248      0.11  Q          |          |              V     |
19+ 5       0.2255      0.09  Q          |          |              V     |
19+10       0.2260      0.08  Q          |          |               V    |
19+15       0.2266      0.08  Q          |          |               V    |
19+20       0.2271      0.08  Q          |          |               V    |
19+25       0.2276      0.08  Q          |          |               V    |
19+30       0.2281      0.07  Q          |          |               V    |
19+35       0.2286      0.07  Q          |          |               V    |
19+40       0.2291      0.07  Q          |          |               V    |
19+45       0.2296      0.07  Q          |          |               V    |
19+50       0.2301      0.07  Q          |          |               V    |
19+55       0.2306      0.07  Q          |          |               V    |
20+ 0       0.2310      0.07  Q          |          |               V    |
20+ 5       0.2315      0.07  Q          |          |               V    |
20+10       0.2320      0.07  Q          |          |               V    |
20+15       0.2324      0.07  Q          |          |                V   |
20+20       0.2328      0.06  Q          |          |                V   |
20+25       0.2333      0.06  Q          |          |                V   |
20+30       0.2337      0.06  Q          |          |                V   |
20+35       0.2341      0.06  Q          |          |                V   |
20+40       0.2346      0.06  Q          |          |                V   |
20+45       0.2350      0.06  Q          |          |                V   |
20+50       0.2354      0.06  Q          |          |                V   |
20+55       0.2358      0.06  Q          |          |                V   |
21+ 0       0.2362      0.06  Q          |          |                V   |
21+ 5       0.2366      0.06  Q          |          |                V   |
21+10       0.2370      0.06  Q          |          |                V   |
21+15       0.2374      0.06  Q          |          |                V   |
21+20       0.2378      0.06  Q          |          |                V   |
21+25       0.2382      0.06  Q          |          |                V   |
21+30       0.2386      0.06  Q          |          |                 V  |
21+35       0.2390      0.06  Q          |          |                 V  |
21+40       0.2393      0.06  Q          |          |                 V  |
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21+45       0.2397      0.05  Q          |          |          |        V |
21+50       0.2401      0.05  Q          |          |          |        V |
21+55       0.2405      0.05  Q          |          |          |        V |
22+ 0       0.2408      0.05  Q          |          |          |        V |
22+ 5       0.2412      0.05  Q          |          |          |        V |
22+10       0.2416      0.05  Q          |          |          |        V |
22+15       0.2419      0.05  Q          |          |          |        V |
22+20       0.2423      0.05  Q          |          |          |        V |
22+25       0.2426      0.05  Q          |          |          |        V |
22+30       0.2430      0.05  Q          |          |          |        V |
22+35       0.2433      0.05  Q          |          |          |        V |
22+40       0.2437      0.05  Q          |          |          |        V |
22+45       0.2440      0.05  Q          |          |          |        V |
22+50       0.2444      0.05  Q          |          |          |        V |
22+55       0.2447      0.05  Q          |          |          |        V |
23+ 0       0.2450      0.05  Q          |          |          |         V|
23+ 5       0.2454      0.05  Q          |          |          |         V|
23+10       0.2457      0.05  Q          |          |          |         V|
23+15       0.2460      0.05  Q          |          |          |         V|
23+20       0.2464      0.05  Q          |          |          |         V|
23+25       0.2467      0.05  Q          |          |          |         V|
23+30       0.2470      0.05  Q          |          |          |         V|
23+35       0.2473      0.05  Q          |          |          |         V|
23+40       0.2476      0.05  Q          |          |          |         V|
23+45       0.2480      0.05  Q          |          |          |         V|
23+50       0.2483      0.05  Q          |          |          |         V|
23+55       0.2486      0.05  Q          |          |          |         V|
24+ 0       0.2489      0.05  Q          |          |          |         V|
24+ 5       0.2492      0.04  Q          |          |          |         V|
24+10       0.2495      0.04  Q          |          |          |         V|
24+15       0.2498      0.04  Q          |          |          |         V|
24+20       0.2500      0.03  Q          |          |          |         V|
24+25       0.2501      0.02  Q          |          |          |         V|
24+30       0.2503      0.02  Q          |          |          |         V|
24+35       0.2504      0.01  Q          |          |          |         V|
24+40       0.2504      0.01  Q          |          |          |         V|
24+45       0.2505      0.01  Q          |          |          |         V|
24+50       0.2506      0.01  Q          |          |          |         V|
24+55       0.2506      0.01  Q          |          |          |         V|
25+ 0       0.2507      0.01  Q          |          |          |         V|
25+ 5       0.2507      0.01  Q          |          |          |         V|
25+10       0.2508      0.01  Q          |          |          |         V|
25+15       0.2508      0.01  Q          |          |          |         V|
25+20       0.2508      0.00  Q          |          |          |         V|
25+25       0.2509      0.00  Q          |          |          |         V|
25+30       0.2509      0.00  Q          |          |          |         V|
25+35       0.2509      0.00  Q          |          |          |         V|
25+40       0.2509      0.00  Q          |          |          |         V|
25+45       0.2510      0.00  Q          |          |          |         V|
25+50       0.2510      0.00  Q          |          |          |         V|
25+55       0.2510      0.00  Q          |          |          |         V|
26+ 0       0.2510      0.00  Q          |          |          |         V|
26+ 5       0.2510      0.00  Q          |          |          |         V|
26+10       0.2510      0.00  Q          |          |          |         V|
26+15       0.2510      0.00  Q          |          |          |         V|
26+20       0.2510      0.00  Q          |          |          |         V|
26+25       0.2510      0.00  Q          |          |          |         V|
26+30       0.2510      0.00  Q          |          |          |         V|
26+35       0.2510      0.00  Q          |          |          |         V|
26+40       0.2510      0.00  Q          |          |          |         V|
26+45       0.2510      0.00  Q          |          |          |         V|
26+50       0.2511      0.00  Q          |          |          |         V|
26+55       0.2511      0.00  Q          |          |          |         V|
```

```
   27+ 0       0.2511      0.00  Q          |          |          |        V|
-----------------------------------------------------------------------------
```

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

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Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Existing Conditions
Area E2

Storm Event Year = 25

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
3.96	1	0.88
Rainfall data for year 2		
3.96	6	1.55
Rainfall data for year 2		
3.96	24	2.90
Rainfall data for year 100		
3.96	1	1.25
Rainfall data for year 100		
3.96	6	3.25
Rainfall data for year 100		
3.96	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 2)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
50.0	50.0	3.96	1.000	0.810	1.000	0.810

Area-averaged adjusted loss rate Fm (In/Hr) = 0.810

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
3.96	1.000	50.0	50.0	10.00	0.164

Area-averaged catchment yield fraction, Y = 0.164
Area-averaged low loss fraction, Yb = 0.836
User entry of time of concentration = 0.479 (hours)
++
Watershed area = 3.96(Ac.)
Catchment Lag time = 0.383 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 21.7467
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.810(In/Hr)
Average low loss rate fraction (Yb) = 0.836 (decimal)
VALLEY UNDEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.380(In)
Computed peak 30-minute rainfall = 0.779(In)
Specified peak 1-hour rainfall = 1.027(In)
Computed peak 3-hour rainfall = 1.836(In)
Specified peak 6-hour rainfall = 2.648(In)
Specified peak 24-hour rainfall = 5.483(In)

Rainfall depth area reduction factors:
Using a total area of 3.96(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.380(In)
30-minute factor = 1.000 Adjusted rainfall = 0.778(In)
1-hour factor = 1.000 Adjusted rainfall = 1.027(In)
3-hour factor = 1.000 Adjusted rainfall = 1.836(In)
6-hour factor = 1.000 Adjusted rainfall = 2.648(In)
24-hour factor = 1.000 Adjusted rainfall = 5.483(In)

U n i t H y d r o g r a p h
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Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 47.89 (CFS))	
1	1.954	0.936
2	7.938	2.866
3	18.434	5.027
4	32.845	6.902
5	48.120	7.315
6	59.621	5.508
7	67.054	3.560
8	72.139	2.435
9	75.757	1.732
10	78.779	1.448
11	81.308	1.211
12	83.476	1.038
13	85.400	0.921
14	87.032	0.782

15	88.420	0.664
16	89.724	0.625
17	90.887	0.557
18	91.845	0.459
19	92.754	0.435
20	93.470	0.343
21	94.164	0.332
22	94.827	0.317
23	95.479	0.312
24	96.043	0.270
25	96.521	0.229
26	96.978	0.219
27	97.373	0.189
28	97.757	0.184
29	98.077	0.153
30	98.381	0.146
31	98.633	0.121
32	98.850	0.104
33	99.068	0.104
34	99.285	0.104
35	99.503	0.104
36	99.720	0.104
37	100.000	0.052

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.3801	0.3801
2	0.5016	0.1215
3	0.5899	0.0883
4	0.6618	0.0719
5	0.7236	0.0618
6	0.7784	0.0547
7	0.8279	0.0495
8	0.8733	0.0454
9	0.9154	0.0421
10	0.9548	0.0394
11	0.9919	0.0371
12	1.0270	0.0351
13	1.0714	0.0444
14	1.1142	0.0428
15	1.1556	0.0414
16	1.1957	0.0401
17	1.2346	0.0389
18	1.2725	0.0379
19	1.3094	0.0369
20	1.3454	0.0360
21	1.3805	0.0351
22	1.4149	0.0344
23	1.4485	0.0336
24	1.4815	0.0330
25	1.5138	0.0323
26	1.5455	0.0317
27	1.5767	0.0311
28	1.6073	0.0306
29	1.6373	0.0301
30	1.6669	0.0296
31	1.6961	0.0291
32	1.7248	0.0287
33	1.7531	0.0283
34	1.7810	0.0279
35	1.8084	0.0275
36	1.8356	0.0271
37	1.8623	0.0268

38	1.8888	0.0264
39	1.9149	0.0261
40	1.9407	0.0258
41	1.9662	0.0255
42	1.9914	0.0252
43	2.0163	0.0249
44	2.0409	0.0246
45	2.0653	0.0244
46	2.0894	0.0241
47	2.1133	0.0239
48	2.1369	0.0236
49	2.1604	0.0234
50	2.1835	0.0232
51	2.2065	0.0230
52	2.2293	0.0228
53	2.2518	0.0226
54	2.2742	0.0224
55	2.2963	0.0222
56	2.3183	0.0220
57	2.3401	0.0218
58	2.3617	0.0216
59	2.3831	0.0214
60	2.4044	0.0213
61	2.4255	0.0211
62	2.4464	0.0209
63	2.4672	0.0208
64	2.4878	0.0206
65	2.5083	0.0205
66	2.5286	0.0203
67	2.5487	0.0202
68	2.5688	0.0200
69	2.5887	0.0199
70	2.6084	0.0198
71	2.6280	0.0196
72	2.6475	0.0195
73	2.6668	0.0192
74	2.6859	0.0191
75	2.7049	0.0190
76	2.7238	0.0189
77	2.7425	0.0188
78	2.7612	0.0186
79	2.7797	0.0185
80	2.7981	0.0184
81	2.8165	0.0183
82	2.8347	0.0182
83	2.8528	0.0181
84	2.8708	0.0180
85	2.8886	0.0179
86	2.9064	0.0178
87	2.9241	0.0177
88	2.9417	0.0176
89	2.9592	0.0175
90	2.9767	0.0174
91	2.9940	0.0173
92	3.0112	0.0172
93	3.0284	0.0171
94	3.0454	0.0171
95	3.0624	0.0170
96	3.0793	0.0169
97	3.0961	0.0168
98	3.1128	0.0167
99	3.1294	0.0166
100	3.1460	0.0166

101	3.1625	0.0165
102	3.1789	0.0164
103	3.1952	0.0163
104	3.2114	0.0163
105	3.2276	0.0162
106	3.2437	0.0161
107	3.2598	0.0160
108	3.2757	0.0160
109	3.2916	0.0159
110	3.3074	0.0158
111	3.3232	0.0158
112	3.3389	0.0157
113	3.3545	0.0156
114	3.3701	0.0156
115	3.3855	0.0155
116	3.4010	0.0154
117	3.4163	0.0154
118	3.4316	0.0153
119	3.4469	0.0152
120	3.4621	0.0152
121	3.4772	0.0151
122	3.4922	0.0151
123	3.5072	0.0150
124	3.5222	0.0149
125	3.5371	0.0149
126	3.5519	0.0148
127	3.5667	0.0148
128	3.5814	0.0147
129	3.5961	0.0147
130	3.6107	0.0146
131	3.6252	0.0146
132	3.6397	0.0145
133	3.6542	0.0145
134	3.6686	0.0144
135	3.6829	0.0144
136	3.6972	0.0143
137	3.7115	0.0143
138	3.7257	0.0142
139	3.7398	0.0142
140	3.7539	0.0141
141	3.7680	0.0141
142	3.7820	0.0140
143	3.7960	0.0140
144	3.8099	0.0139
145	3.8237	0.0139
146	3.8376	0.0138
147	3.8513	0.0138
148	3.8651	0.0137
149	3.8788	0.0137
150	3.8924	0.0136
151	3.9060	0.0136
152	3.9196	0.0136
153	3.9331	0.0135
154	3.9466	0.0135
155	3.9600	0.0134
156	3.9734	0.0134
157	3.9868	0.0134
158	4.0001	0.0133
159	4.0134	0.0133
160	4.0266	0.0132
161	4.0398	0.0132
162	4.0529	0.0132
163	4.0661	0.0131

164	4.0791	0.0131
165	4.0922	0.0130
166	4.1052	0.0130
167	4.1182	0.0130
168	4.1311	0.0129
169	4.1440	0.0129
170	4.1568	0.0129
171	4.1697	0.0128
172	4.1824	0.0128
173	4.1952	0.0128
174	4.2079	0.0127
175	4.2206	0.0127
176	4.2332	0.0126
177	4.2458	0.0126
178	4.2584	0.0126
179	4.2710	0.0125
180	4.2835	0.0125
181	4.2960	0.0125
182	4.3084	0.0124
183	4.3208	0.0124
184	4.3332	0.0124
185	4.3456	0.0123
186	4.3579	0.0123
187	4.3702	0.0123
188	4.3824	0.0123
189	4.3946	0.0122
190	4.4068	0.0122
191	4.4190	0.0122
192	4.4311	0.0121
193	4.4432	0.0121
194	4.4553	0.0121
195	4.4674	0.0120
196	4.4794	0.0120
197	4.4914	0.0120
198	4.5033	0.0120
199	4.5152	0.0119
200	4.5271	0.0119
201	4.5390	0.0119
202	4.5509	0.0118
203	4.5627	0.0118
204	4.5745	0.0118
205	4.5862	0.0118
206	4.5980	0.0117
207	4.6097	0.0117
208	4.6213	0.0117
209	4.6330	0.0117
210	4.6446	0.0116
211	4.6562	0.0116
212	4.6678	0.0116
213	4.6793	0.0115
214	4.6909	0.0115
215	4.7024	0.0115
216	4.7138	0.0115
217	4.7253	0.0114
218	4.7367	0.0114
219	4.7481	0.0114
220	4.7595	0.0114
221	4.7708	0.0113
222	4.7821	0.0113
223	4.7934	0.0113
224	4.8047	0.0113
225	4.8160	0.0113
226	4.8272	0.0112

227	4.8384	0.0112
228	4.8496	0.0112
229	4.8607	0.0112
230	4.8719	0.0111
231	4.8830	0.0111
232	4.8941	0.0111
233	4.9051	0.0111
234	4.9162	0.0110
235	4.9272	0.0110
236	4.9382	0.0110
237	4.9492	0.0110
238	4.9601	0.0110
239	4.9711	0.0109
240	4.9820	0.0109
241	4.9929	0.0109
242	5.0037	0.0109
243	5.0146	0.0108
244	5.0254	0.0108
245	5.0362	0.0108
246	5.0470	0.0108
247	5.0578	0.0108
248	5.0685	0.0107
249	5.0792	0.0107
250	5.0899	0.0107
251	5.1006	0.0107
252	5.1113	0.0107
253	5.1219	0.0106
254	5.1325	0.0106
255	5.1431	0.0106
256	5.1537	0.0106
257	5.1643	0.0106
258	5.1748	0.0105
259	5.1853	0.0105
260	5.1958	0.0105
261	5.2063	0.0105
262	5.2168	0.0105
263	5.2272	0.0104
264	5.2376	0.0104
265	5.2481	0.0104
266	5.2584	0.0104
267	5.2688	0.0104
268	5.2792	0.0104
269	5.2895	0.0103
270	5.2998	0.0103
271	5.3101	0.0103
272	5.3204	0.0103
273	5.3307	0.0103
274	5.3409	0.0102
275	5.3511	0.0102
276	5.3613	0.0102
277	5.3715	0.0102
278	5.3817	0.0102
279	5.3919	0.0102
280	5.4020	0.0101
281	5.4121	0.0101
282	5.4222	0.0101
283	5.4323	0.0101
284	5.4424	0.0101
285	5.4524	0.0101
286	5.4625	0.0100
287	5.4725	0.0100
288	5.4825	0.0100

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0100	0.0084	0.0016
2	0.0100	0.0084	0.0016
3	0.0101	0.0084	0.0016
4	0.0101	0.0084	0.0017
5	0.0101	0.0084	0.0017
6	0.0101	0.0085	0.0017
7	0.0102	0.0085	0.0017
8	0.0102	0.0085	0.0017
9	0.0102	0.0085	0.0017
10	0.0102	0.0085	0.0017
11	0.0103	0.0086	0.0017
12	0.0103	0.0086	0.0017
13	0.0103	0.0086	0.0017
14	0.0103	0.0086	0.0017
15	0.0104	0.0087	0.0017
16	0.0104	0.0087	0.0017
17	0.0104	0.0087	0.0017
18	0.0104	0.0087	0.0017
19	0.0105	0.0088	0.0017
20	0.0105	0.0088	0.0017
21	0.0105	0.0088	0.0017
22	0.0106	0.0088	0.0017
23	0.0106	0.0089	0.0017
24	0.0106	0.0089	0.0017
25	0.0107	0.0089	0.0017
26	0.0107	0.0089	0.0018
27	0.0107	0.0090	0.0018
28	0.0107	0.0090	0.0018
29	0.0108	0.0090	0.0018
30	0.0108	0.0090	0.0018
31	0.0108	0.0091	0.0018
32	0.0109	0.0091	0.0018
33	0.0109	0.0091	0.0018
34	0.0109	0.0091	0.0018
35	0.0110	0.0092	0.0018
36	0.0110	0.0092	0.0018
37	0.0110	0.0092	0.0018
38	0.0111	0.0092	0.0018
39	0.0111	0.0093	0.0018
40	0.0111	0.0093	0.0018
41	0.0112	0.0093	0.0018
42	0.0112	0.0094	0.0018
43	0.0113	0.0094	0.0018
44	0.0113	0.0094	0.0018
45	0.0113	0.0095	0.0019
46	0.0113	0.0095	0.0019
47	0.0114	0.0095	0.0019
48	0.0114	0.0095	0.0019
49	0.0115	0.0096	0.0019
50	0.0115	0.0096	0.0019
51	0.0115	0.0097	0.0019
52	0.0116	0.0097	0.0019
53	0.0116	0.0097	0.0019
54	0.0117	0.0097	0.0019
55	0.0117	0.0098	0.0019
56	0.0117	0.0098	0.0019
57	0.0118	0.0099	0.0019
58	0.0118	0.0099	0.0019
59	0.0119	0.0099	0.0019

60	0.0119	0.0099	0.0020
61	0.0120	0.0100	0.0020
62	0.0120	0.0100	0.0020
63	0.0120	0.0101	0.0020
64	0.0121	0.0101	0.0020
65	0.0121	0.0101	0.0020
66	0.0122	0.0102	0.0020
67	0.0122	0.0102	0.0020
68	0.0123	0.0102	0.0020
69	0.0123	0.0103	0.0020
70	0.0123	0.0103	0.0020
71	0.0124	0.0104	0.0020
72	0.0124	0.0104	0.0020
73	0.0125	0.0105	0.0021
74	0.0125	0.0105	0.0021
75	0.0126	0.0105	0.0021
76	0.0126	0.0106	0.0021
77	0.0127	0.0106	0.0021
78	0.0128	0.0107	0.0021
79	0.0128	0.0107	0.0021
80	0.0129	0.0107	0.0021
81	0.0129	0.0108	0.0021
82	0.0130	0.0108	0.0021
83	0.0130	0.0109	0.0021
84	0.0131	0.0109	0.0021
85	0.0132	0.0110	0.0022
86	0.0132	0.0110	0.0022
87	0.0133	0.0111	0.0022
88	0.0133	0.0111	0.0022
89	0.0134	0.0112	0.0022
90	0.0134	0.0112	0.0022
91	0.0135	0.0113	0.0022
92	0.0136	0.0113	0.0022
93	0.0136	0.0114	0.0022
94	0.0137	0.0114	0.0022
95	0.0138	0.0115	0.0023
96	0.0138	0.0116	0.0023
97	0.0139	0.0116	0.0023
98	0.0140	0.0117	0.0023
99	0.0141	0.0117	0.0023
100	0.0141	0.0118	0.0023
101	0.0142	0.0119	0.0023
102	0.0143	0.0119	0.0023
103	0.0144	0.0120	0.0024
104	0.0144	0.0120	0.0024
105	0.0145	0.0121	0.0024
106	0.0146	0.0122	0.0024
107	0.0147	0.0123	0.0024
108	0.0147	0.0123	0.0024
109	0.0148	0.0124	0.0024
110	0.0149	0.0124	0.0024
111	0.0150	0.0125	0.0025
112	0.0151	0.0126	0.0025
113	0.0152	0.0127	0.0025
114	0.0152	0.0127	0.0025
115	0.0154	0.0128	0.0025
116	0.0154	0.0129	0.0025
117	0.0156	0.0130	0.0026
118	0.0156	0.0131	0.0026
119	0.0158	0.0132	0.0026
120	0.0158	0.0132	0.0026
121	0.0160	0.0133	0.0026
122	0.0160	0.0134	0.0026

123	0.0162	0.0135	0.0027
124	0.0163	0.0136	0.0027
125	0.0164	0.0137	0.0027
126	0.0165	0.0138	0.0027
127	0.0166	0.0139	0.0027
128	0.0167	0.0140	0.0027
129	0.0169	0.0141	0.0028
130	0.0170	0.0142	0.0028
131	0.0171	0.0143	0.0028
132	0.0172	0.0144	0.0028
133	0.0174	0.0146	0.0029
134	0.0175	0.0146	0.0029
135	0.0177	0.0148	0.0029
136	0.0178	0.0149	0.0029
137	0.0180	0.0150	0.0030
138	0.0181	0.0151	0.0030
139	0.0183	0.0153	0.0030
140	0.0184	0.0154	0.0030
141	0.0186	0.0156	0.0031
142	0.0188	0.0157	0.0031
143	0.0190	0.0159	0.0031
144	0.0191	0.0160	0.0031
145	0.0195	0.0163	0.0032
146	0.0196	0.0164	0.0032
147	0.0199	0.0166	0.0033
148	0.0200	0.0167	0.0033
149	0.0203	0.0170	0.0033
150	0.0205	0.0171	0.0034
151	0.0208	0.0174	0.0034
152	0.0209	0.0175	0.0034
153	0.0213	0.0178	0.0035
154	0.0214	0.0179	0.0035
155	0.0218	0.0182	0.0036
156	0.0220	0.0184	0.0036
157	0.0224	0.0187	0.0037
158	0.0226	0.0189	0.0037
159	0.0230	0.0192	0.0038
160	0.0232	0.0194	0.0038
161	0.0236	0.0198	0.0039
162	0.0239	0.0200	0.0039
163	0.0244	0.0204	0.0040
164	0.0246	0.0206	0.0040
165	0.0252	0.0211	0.0041
166	0.0255	0.0213	0.0042
167	0.0261	0.0218	0.0043
168	0.0264	0.0221	0.0043
169	0.0271	0.0227	0.0045
170	0.0275	0.0230	0.0045
171	0.0283	0.0236	0.0046
172	0.0287	0.0240	0.0047
173	0.0296	0.0247	0.0049
174	0.0301	0.0252	0.0049
175	0.0311	0.0260	0.0051
176	0.0317	0.0265	0.0052
177	0.0330	0.0275	0.0054
178	0.0336	0.0281	0.0055
179	0.0351	0.0294	0.0058
180	0.0360	0.0301	0.0059
181	0.0379	0.0317	0.0062
182	0.0389	0.0325	0.0064
183	0.0414	0.0346	0.0068
184	0.0428	0.0358	0.0070
185	0.0351	0.0294	0.0058

186	0.0371	0.0310	0.0061
187	0.0421	0.0352	0.0069
188	0.0454	0.0380	0.0075
189	0.0547	0.0458	0.0090
190	0.0618	0.0517	0.0101
191	0.0883	0.0675	0.0209
192	0.1215	0.0675	0.0540
193	0.3801	0.0675	0.3127
194	0.0719	0.0601	0.0118
195	0.0495	0.0414	0.0081
196	0.0394	0.0329	0.0065
197	0.0444	0.0371	0.0073
198	0.0401	0.0335	0.0066
199	0.0369	0.0308	0.0061
200	0.0344	0.0287	0.0056
201	0.0323	0.0270	0.0053
202	0.0306	0.0256	0.0050
203	0.0291	0.0244	0.0048
204	0.0279	0.0233	0.0046
205	0.0268	0.0224	0.0044
206	0.0258	0.0216	0.0042
207	0.0249	0.0208	0.0041
208	0.0241	0.0202	0.0040
209	0.0234	0.0196	0.0038
210	0.0228	0.0190	0.0037
211	0.0222	0.0185	0.0036
212	0.0216	0.0181	0.0035
213	0.0211	0.0176	0.0035
214	0.0206	0.0172	0.0034
215	0.0202	0.0169	0.0033
216	0.0198	0.0165	0.0032
217	0.0192	0.0161	0.0032
218	0.0189	0.0158	0.0031
219	0.0185	0.0155	0.0030
220	0.0182	0.0152	0.0030
221	0.0179	0.0150	0.0029
222	0.0176	0.0147	0.0029
223	0.0173	0.0145	0.0028
224	0.0171	0.0143	0.0028
225	0.0168	0.0140	0.0028
226	0.0166	0.0138	0.0027
227	0.0163	0.0136	0.0027
228	0.0161	0.0135	0.0026
229	0.0159	0.0133	0.0026
230	0.0157	0.0131	0.0026
231	0.0155	0.0129	0.0025
232	0.0153	0.0128	0.0025
233	0.0151	0.0126	0.0025
234	0.0149	0.0125	0.0025
235	0.0148	0.0124	0.0024
236	0.0146	0.0122	0.0024
237	0.0145	0.0121	0.0024
238	0.0143	0.0120	0.0023
239	0.0142	0.0118	0.0023
240	0.0140	0.0117	0.0023
241	0.0139	0.0116	0.0023
242	0.0137	0.0115	0.0023
243	0.0136	0.0114	0.0022
244	0.0135	0.0113	0.0022
245	0.0134	0.0112	0.0022
246	0.0132	0.0111	0.0022
247	0.0131	0.0110	0.0022
248	0.0130	0.0109	0.0021

249	0.0129	0.0108	0.0021
250	0.0128	0.0107	0.0021
251	0.0127	0.0106	0.0021
252	0.0126	0.0105	0.0021
253	0.0125	0.0104	0.0020
254	0.0124	0.0104	0.0020
255	0.0123	0.0103	0.0020
256	0.0122	0.0102	0.0020
257	0.0121	0.0101	0.0020
258	0.0120	0.0100	0.0020
259	0.0119	0.0100	0.0020
260	0.0118	0.0099	0.0019
261	0.0118	0.0098	0.0019
262	0.0117	0.0098	0.0019
263	0.0116	0.0097	0.0019
264	0.0115	0.0096	0.0019
265	0.0114	0.0096	0.0019
266	0.0114	0.0095	0.0019
267	0.0113	0.0094	0.0019
268	0.0112	0.0094	0.0018
269	0.0112	0.0093	0.0018
270	0.0111	0.0093	0.0018
271	0.0110	0.0092	0.0018
272	0.0110	0.0092	0.0018
273	0.0109	0.0091	0.0018
274	0.0108	0.0090	0.0018
275	0.0108	0.0090	0.0018
276	0.0107	0.0089	0.0018
277	0.0106	0.0089	0.0017
278	0.0106	0.0088	0.0017
279	0.0105	0.0088	0.0017
280	0.0105	0.0087	0.0017
281	0.0104	0.0087	0.0017
282	0.0104	0.0087	0.0017
283	0.0103	0.0086	0.0017
284	0.0102	0.0086	0.0017
285	0.0102	0.0085	0.0017
286	0.0101	0.0085	0.0017
287	0.0101	0.0084	0.0017
288	0.0100	0.0084	0.0016

Total soil rain loss = 4.29(In)
Total effective rainfall = 1.19(In)
Peak flow rate in flood hydrograph = 2.92(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       0.0002      0.01  Q         |         |         |         |
  0+20       0.0003      0.03  Q         |         |         |         |
  0+25       0.0006      0.04  Q         |         |         |         |
  0+30       0.0009      0.05  Q         |         |         |         |
  0+35       0.0013      0.05  Q         |         |         |         |
  0+40       0.0017      0.06  Q         |         |         |         |
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0+45        0.0021      0.06  Q          |          |          |          |
0+50        0.0025      0.06  Q          |          |          |          |
0+55        0.0030      0.06  Q          |          |          |          |
1+ 0        0.0034      0.07  Q          |          |          |          |
1+ 5        0.0039      0.07  Q          |          |          |          |
1+10        0.0044      0.07  Q          |          |          |          |
1+15        0.0049      0.07  Q          |          |          |          |
1+20        0.0054      0.07  Q          |          |          |          |
1+25        0.0059      0.07  Q          |          |          |          |
1+30        0.0064      0.07  Q          |          |          |          |
1+35        0.0069      0.08  Q          |          |          |          |
1+40        0.0074      0.08  Q          |          |          |          |
1+45        0.0080      0.08  Q          |          |          |          |
1+50        0.0085      0.08  Q          |          |          |          |
1+55        0.0090      0.08  Q          |          |          |          |
2+ 0        0.0096      0.08  Q          |          |          |          |
2+ 5        0.0101      0.08  QV         |          |          |          |
2+10        0.0107      0.08  QV         |          |          |          |
2+15        0.0112      0.08  QV         |          |          |          |
2+20        0.0118      0.08  QV         |          |          |          |
2+25        0.0123      0.08  QV         |          |          |          |
2+30        0.0129      0.08  QV         |          |          |          |
2+35        0.0135      0.08  QV         |          |          |          |
2+40        0.0140      0.08  QV         |          |          |          |
2+45        0.0146      0.08  QV         |          |          |          |
2+50        0.0152      0.08  QV         |          |          |          |
2+55        0.0158      0.08  QV         |          |          |          |
3+ 0        0.0164      0.08  QV         |          |          |          |
3+ 5        0.0169      0.08  QV         |          |          |          |
3+10        0.0175      0.09  QV         |          |          |          |
3+15        0.0181      0.09  QV         |          |          |          |
3+20        0.0187      0.09  QV         |          |          |          |
3+25        0.0193      0.09  QV         |          |          |          |
3+30        0.0199      0.09  Q V        |          |          |          |
3+35        0.0205      0.09  Q V        |          |          |          |
3+40        0.0211      0.09  Q V        |          |          |          |
3+45        0.0217      0.09  Q V        |          |          |          |
3+50        0.0223      0.09  Q V        |          |          |          |
3+55        0.0229      0.09  Q V        |          |          |          |
4+ 0        0.0235      0.09  Q V        |          |          |          |
4+ 5        0.0241      0.09  Q V        |          |          |          |
4+10        0.0247      0.09  Q V        |          |          |          |
4+15        0.0253      0.09  Q V        |          |          |          |
4+20        0.0259      0.09  Q V        |          |          |          |
4+25        0.0265      0.09  Q V        |          |          |          |
4+30        0.0272      0.09  Q V        |          |          |          |
4+35        0.0278      0.09  Q V        |          |          |          |
4+40        0.0284      0.09  Q V        |          |          |          |
4+45        0.0290      0.09  Q V        |          |          |          |
4+50        0.0296      0.09  Q  V       |          |          |          |
4+55        0.0303      0.09  Q  V       |          |          |          |
5+ 0        0.0309      0.09  Q  V       |          |          |          |
5+ 5        0.0315      0.09  Q  V       |          |          |          |
5+10        0.0322      0.09  Q  V       |          |          |          |
5+15        0.0328      0.09  Q  V       |          |          |          |
5+20        0.0334      0.09  Q  V       |          |          |          |
5+25        0.0341      0.09  Q  V       |          |          |          |
5+30        0.0347      0.09  Q  V       |          |          |          |
5+35        0.0354      0.09  Q  V       |          |          |          |
5+40        0.0360      0.09  Q  V       |          |          |          |
5+45        0.0367      0.09  Q  V       |          |          |          |
5+50        0.0373      0.09  Q  V       |          |          |          |
5+55        0.0380      0.09  Q  V       |          |          |          |
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 6+ 0       0.0386      0.10  Q  V       |          |          |          |
 6+ 5       0.0393      0.10  Q   V      |          |          |          |
 6+10       0.0399      0.10  Q   V      |          |          |          |
 6+15       0.0406      0.10  Q   V      |          |          |          |
 6+20       0.0413      0.10  Q   V      |          |          |          |
 6+25       0.0419      0.10  Q   V      |          |          |          |
 6+30       0.0426      0.10  Q   V      |          |          |          |
 6+35       0.0433      0.10  Q   V      |          |          |          |
 6+40       0.0440      0.10  Q   V      |          |          |          |
 6+45       0.0446      0.10  Q   V      |          |          |          |
 6+50       0.0453      0.10  Q   V      |          |          |          |
 6+55       0.0460      0.10  Q   V      |          |          |          |
 7+ 0       0.0467      0.10  Q   V      |          |          |          |
 7+ 5       0.0474      0.10  Q   V      |          |          |          |
 7+10       0.0481      0.10  Q   V      |          |          |          |
 7+15       0.0488      0.10  Q   V      |          |          |          |
 7+20       0.0495      0.10  Q    V     |          |          |          |
 7+25       0.0502      0.10  Q    V     |          |          |          |
 7+30       0.0509      0.10  Q    V     |          |          |          |
 7+35       0.0516      0.10  Q    V     |          |          |          |
 7+40       0.0523      0.10  Q    V     |          |          |          |
 7+45       0.0530      0.10  Q    V     |          |          |          |
 7+50       0.0537      0.10  Q    V     |          |          |          |
 7+55       0.0544      0.10  Q    V     |          |          |          |
 8+ 0       0.0552      0.11  Q    V     |          |          |          |
 8+ 5       0.0559      0.11  Q    V     |          |          |          |
 8+10       0.0566      0.11  Q    V     |          |          |          |
 8+15       0.0574      0.11  Q    V     |          |          |          |
 8+20       0.0581      0.11  Q    V     |          |          |          |
 8+25       0.0588      0.11  Q     V    |          |          |          |
 8+30       0.0596      0.11  Q     V    |          |          |          |
 8+35       0.0603      0.11  Q     V    |          |          |          |
 8+40       0.0611      0.11  Q     V    |          |          |          |
 8+45       0.0618      0.11  Q     V    |          |          |          |
 8+50       0.0626      0.11  Q     V    |          |          |          |
 8+55       0.0634      0.11  Q     V    |          |          |          |
 9+ 0       0.0641      0.11  Q     V    |          |          |          |
 9+ 5       0.0649      0.11  Q     V    |          |          |          |
 9+10       0.0657      0.11  Q     V    |          |          |          |
 9+15       0.0665      0.11  Q     V    |          |          |          |
 9+20       0.0673      0.11  Q     V    |          |          |          |
 9+25       0.0680      0.11  Q     V    |          |          |          |
 9+30       0.0688      0.12  Q      V   |          |          |          |
 9+35       0.0696      0.12  Q      V   |          |          |          |
 9+40       0.0704      0.12  Q      V   |          |          |          |
 9+45       0.0712      0.12  Q      V   |          |          |          |
 9+50       0.0721      0.12  Q      V   |          |          |          |
 9+55       0.0729      0.12  Q      V   |          |          |          |
10+ 0       0.0737      0.12  Q      V   |          |          |          |
10+ 5       0.0745      0.12  Q      V   |          |          |          |
10+10       0.0754      0.12  Q      V   |          |          |          |
10+15       0.0762      0.12  Q      V   |          |          |          |
10+20       0.0770      0.12  Q      V   |          |          |          |
10+25       0.0779      0.12  Q      V   |          |          |          |
10+30       0.0787      0.12  Q       V  |          |          |          |
10+35       0.0796      0.12  Q       V  |          |          |          |
10+40       0.0805      0.13  Q       V  |          |          |          |
10+45       0.0813      0.13  Q       V  |          |          |          |
10+50       0.0822      0.13  Q       V  |          |          |          |
10+55       0.0831      0.13  Q       V  |          |          |          |
11+ 0       0.0840      0.13  Q       V  |          |          |          |
11+ 5       0.0849      0.13  Q       V  |          |          |          |
11+10       0.0858      0.13  Q       V  |          |          |          |
```

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11+15       0.0867      0.13  Q       V |         |         |         |
11+20       0.0876      0.13  Q       V |         |         |         |
11+25       0.0885      0.13  Q        V|         |         |         |
11+30       0.0894      0.13  Q        V|         |         |         |
11+35       0.0904      0.14  Q        V|         |         |         |
11+40       0.0913      0.14  Q        V|         |         |         |
11+45       0.0923      0.14  Q        V|         |         |         |
11+50       0.0932      0.14  Q        V|         |         |         |
11+55       0.0942      0.14  Q        V|         |         |         |
12+ 0       0.0952      0.14  Q        V|         |         |         |
12+ 5       0.0962      0.14  Q        V|         |         |         |
12+10       0.0971      0.14  Q        V|         |         |         |
12+15       0.0982      0.15  Q         V         |         |         |
12+20       0.0992      0.15  Q         V         |         |         |
12+25       0.1002      0.15  Q         V         |         |         |
12+30       0.1012      0.15  Q         V         |         |         |
12+35       0.1023      0.15  Q         V         |         |         |
12+40       0.1033      0.15  Q         V         |         |         |
12+45       0.1044      0.16  Q         V         |         |         |
12+50       0.1055      0.16  Q         V         |         |         |
12+55       0.1066      0.16  Q         V         |         |         |
13+ 0       0.1077      0.16  Q         V         |         |         |
13+ 5       0.1088      0.16  Q         |V        |         |         |
13+10       0.1099      0.16  Q         |V        |         |         |
13+15       0.1111      0.17  Q         |V        |         |         |
13+20       0.1122      0.17  Q         |V        |         |         |
13+25       0.1134      0.17  Q         |V        |         |         |
13+30       0.1146      0.17  Q         |V        |         |         |
13+35       0.1158      0.17  Q         |V        |         |         |
13+40       0.1170      0.18  Q         |V        |         |         |
13+45       0.1182      0.18  Q         | V       |         |         |
13+50       0.1195      0.18  Q         | V       |         |         |
13+55       0.1207      0.18  Q         | V       |         |         |
14+ 0       0.1220      0.19  Q         | V       |         |         |
14+ 5       0.1233      0.19  Q         | V       |         |         |
14+10       0.1247      0.19  Q         | V       |         |         |
14+15       0.1260      0.20  Q         | V       |         |         |
14+20       0.1274      0.20  Q         |  V      |         |         |
14+25       0.1288      0.20  Q         |  V      |         |         |
14+30       0.1303      0.21  Q         |  V      |         |         |
14+35       0.1317      0.21  Q         |  V      |         |         |
14+40       0.1332      0.22  Q         |  V      |         |         |
14+45       0.1347      0.22  Q         |  V      |         |         |
14+50       0.1363      0.23  Q         |  V      |         |         |
14+55       0.1379      0.23  Q         |   V     |         |         |
15+ 0       0.1395      0.24  Q         |   V     |         |         |
15+ 5       0.1412      0.24  Q         |   V     |         |         |
15+10       0.1430      0.25  |Q        |   V     |         |         |
15+15       0.1447      0.26  |Q        |   V     |         |         |
15+20       0.1466      0.27  |Q        |   V     |         |         |
15+25       0.1485      0.28  |Q        |    V    |         |         |
15+30       0.1505      0.28  |Q        |    V    |         |         |
15+35       0.1524      0.29  |Q        |    V    |         |         |
15+40       0.1544      0.29  |Q        |    V    |         |         |
15+45       0.1565      0.30  |Q        |    V    |         |         |
15+50       0.1586      0.31  |Q        |     V   |         |         |
15+55       0.1609      0.34  |Q        |     V   |         |         |
16+ 0       0.1639      0.43  |Q        |     V   |         |         |
16+ 5       0.1697      0.84  |  Q      |      V  |         |         |
16+10       0.1805      1.57  |     Q   |       V |         |         |
16+15       0.1965      2.32  |        Q|        V         |         |
16+20       0.2164      2.89  |         |Q        | V       |         |
16+25       0.2365      2.92  |         |Q        |   V     |         |
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16+30       0.2520      2.26  |        Q|          |    V    |          |
16+35       0.2630      1.59  |     Q   |          |     V   |          |
16+40       0.2712      1.19  |   Q     |          |      V  |          |
16+45       0.2777      0.95  |  Q      |          |       V |          |
16+50       0.2835      0.83  |  Q      |          |       V |          |
16+55       0.2886      0.74  | Q       |          |        V|          |
17+ 0       0.2932      0.67  | Q       |          |        V|          |
17+ 5       0.2974      0.61  | Q       |          |         V          |
17+10       0.3011      0.55  | Q       |          |         V          |
17+15       0.3046      0.50  |Q        |          |         |V         |
17+20       0.3078      0.47  |Q        |          |         |V         |
17+25       0.3109      0.44  |Q        |          |         |V         |
17+30       0.3136      0.40  |Q        |          |         | V        |
17+35       0.3162      0.38  |Q        |          |         | V        |
17+40       0.3186      0.34  |Q        |          |         | V        |
17+45       0.3209      0.33  |Q        |          |         | V        |
17+50       0.3231      0.32  |Q        |          |         | V        |
17+55       0.3252      0.31  |Q        |          |         |  V       |
18+ 0       0.3272      0.29  |Q        |          |         |  V       |
18+ 5       0.3291      0.27  |Q        |          |         |  V       |
18+10       0.3309      0.26  |Q        |          |         |  V       |
18+15       0.3326      0.25  Q         |          |         |  V       |
18+20       0.3342      0.24  Q         |          |         |   V      |
18+25       0.3358      0.23  Q         |          |         |   V      |
18+30       0.3373      0.22  Q         |          |         |   V      |
18+35       0.3387      0.21  Q         |          |         |   V      |
18+40       0.3401      0.20  Q         |          |         |   V      |
18+45       0.3414      0.19  Q         |          |         |   V      |
18+50       0.3427      0.19  Q         |          |         |   V      |
18+55       0.3440      0.19  Q         |          |         |    V     |
19+ 0       0.3452      0.18  Q         |          |         |    V     |
19+ 5       0.3463      0.16  Q         |          |         |    V     |
19+10       0.3473      0.14  Q         |          |         |    V     |
19+15       0.3482      0.14  Q         |          |         |    V     |
19+20       0.3492      0.14  Q         |          |         |    V     |
19+25       0.3501      0.13  Q         |          |         |    V     |
19+30       0.3510      0.13  Q         |          |         |    V     |
19+35       0.3519      0.13  Q         |          |         |    V     |
19+40       0.3527      0.13  Q         |          |         |     V    |
19+45       0.3536      0.13  Q         |          |         |     V    |
19+50       0.3544      0.12  Q         |          |         |     V    |
19+55       0.3553      0.12  Q         |          |         |     V    |
20+ 0       0.3561      0.12  Q         |          |         |     V    |
20+ 5       0.3569      0.12  Q         |          |         |     V    |
20+10       0.3577      0.12  Q         |          |         |     V    |
20+15       0.3585      0.12  Q         |          |         |     V    |
20+20       0.3593      0.11  Q         |          |         |     V    |
20+25       0.3601      0.11  Q         |          |         |     V    |
20+30       0.3609      0.11  Q         |          |         |     V    |
20+35       0.3616      0.11  Q         |          |         |     V    |
20+40       0.3624      0.11  Q         |          |         |     V    |
20+45       0.3631      0.11  Q         |          |         |      V   |
20+50       0.3639      0.11  Q         |          |         |      V   |
20+55       0.3646      0.11  Q         |          |         |      V   |
21+ 0       0.3653      0.11  Q         |          |         |      V   |
21+ 5       0.3660      0.10  Q         |          |         |      V   |
21+10       0.3668      0.10  Q         |          |         |      V   |
21+15       0.3675      0.10  Q         |          |         |      V   |
21+20       0.3682      0.10  Q         |          |         |      V   |
21+25       0.3689      0.10  Q         |          |         |      V   |
21+30       0.3695      0.10  Q         |          |         |      V   |
21+35       0.3702      0.10  Q         |          |         |      V   |
21+40       0.3709      0.10  Q         |          |         |      V   |
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21+45       0.3716      0.10  Q          |          |          |       V  |
21+50       0.3722      0.10  Q          |          |          |       V  |
21+55       0.3729      0.10  Q          |          |          |        V |
22+ 0       0.3736      0.10  Q          |          |          |        V |
22+ 5       0.3742      0.09  Q          |          |          |        V |
22+10       0.3749      0.09  Q          |          |          |        V |
22+15       0.3755      0.09  Q          |          |          |        V |
22+20       0.3761      0.09  Q          |          |          |        V |
22+25       0.3768      0.09  Q          |          |          |        V |
22+30       0.3774      0.09  Q          |          |          |        V |
22+35       0.3780      0.09  Q          |          |          |        V |
22+40       0.3786      0.09  Q          |          |          |        V |
22+45       0.3793      0.09  Q          |          |          |        V |
22+50       0.3799      0.09  Q          |          |          |        V |
22+55       0.3805      0.09  Q          |          |          |        V |
23+ 0       0.3811      0.09  Q          |          |          |        V |
23+ 5       0.3817      0.09  Q          |          |          |        V |
23+10       0.3823      0.09  Q          |          |          |         V|
23+15       0.3829      0.09  Q          |          |          |         V|
23+20       0.3835      0.09  Q          |          |          |         V|
23+25       0.3840      0.09  Q          |          |          |         V|
23+30       0.3846      0.08  Q          |          |          |         V|
23+35       0.3852      0.08  Q          |          |          |         V|
23+40       0.3858      0.08  Q          |          |          |         V|
23+45       0.3864      0.08  Q          |          |          |         V|
23+50       0.3869      0.08  Q          |          |          |         V|
23+55       0.3875      0.08  Q          |          |          |         V|
24+ 0       0.3881      0.08  Q          |          |          |         V|
24+ 5       0.3886      0.08  Q          |          |          |         V|
24+10       0.3891      0.07  Q          |          |          |         V|
24+15       0.3896      0.07  Q          |          |          |         V|
24+20       0.3899      0.05  Q          |          |          |         V|
24+25       0.3902      0.04  Q          |          |          |         V|
24+30       0.3905      0.03  Q          |          |          |         V|
24+35       0.3907      0.03  Q          |          |          |         V|
24+40       0.3908      0.02  Q          |          |          |         V|
24+45       0.3909      0.02  Q          |          |          |         V|
24+50       0.3911      0.02  Q          |          |          |         V|
24+55       0.3912      0.02  Q          |          |          |         V|
25+ 0       0.3913      0.01  Q          |          |          |         V|
25+ 5       0.3913      0.01  Q          |          |          |         V|
25+10       0.3914      0.01  Q          |          |          |         V|
25+15       0.3915      0.01  Q          |          |          |         V|
25+20       0.3915      0.01  Q          |          |          |         V|
25+25       0.3916      0.01  Q          |          |          |         V|
25+30       0.3916      0.01  Q          |          |          |         V|
25+35       0.3917      0.01  Q          |          |          |         V|
25+40       0.3917      0.01  Q          |          |          |         V|
25+45       0.3917      0.00  Q          |          |          |         V|
25+50       0.3918      0.00  Q          |          |          |         V|
25+55       0.3918      0.00  Q          |          |          |         V|
26+ 0       0.3918      0.00  Q          |          |          |         V|
26+ 5       0.3918      0.00  Q          |          |          |         V|
26+10       0.3918      0.00  Q          |          |          |         V|
26+15       0.3919      0.00  Q          |          |          |         V|
26+20       0.3919      0.00  Q          |          |          |         V|
26+25       0.3919      0.00  Q          |          |          |         V|
26+30       0.3919      0.00  Q          |          |          |         V|
26+35       0.3919      0.00  Q          |          |          |         V|
26+40       0.3919      0.00  Q          |          |          |         V|
26+45       0.3919      0.00  Q          |          |          |         V|
26+50       0.3919      0.00  Q          |          |          |         V|
26+55       0.3919      0.00  Q          |          |          |         V|
```

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   27+ 0       0.3919      0.00  Q          |          |          |        V|
-----------------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Existing Conditions
Area E2

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
3.96	1	0.88
Rainfall data for year 2		
3.96	6	1.55
Rainfall data for year 2		
3.96	24	2.90
Rainfall data for year 100		
3.96	1	1.25
Rainfall data for year 100		
3.96	6	3.25
Rainfall data for year 100		
3.96	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 3)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
50.0	70.0	3.96	1.000	0.532	1.000	0.532

Area-averaged adjusted loss rate Fm (In/Hr) = 0.532

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
3.96	1.000	50.0	70.0	4.29	0.512

Area-averaged catchment yield fraction, Y = 0.512
Area-averaged low loss fraction, Yb = 0.488
User entry of time of concentration = 0.479 (hours)
++
Watershed area = 3.96(Ac.)
Catchment Lag time = 0.383 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 21.7467
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.532(In/Hr)
Average low loss rate fraction (Yb) = 0.488 (decimal)
VALLEY UNDEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.463(In)
Computed peak 30-minute rainfall = 0.947(In)
Specified peak 1-hour rainfall = 1.250(In)
Computed peak 3-hour rainfall = 2.246(In)
Specified peak 6-hour rainfall = 3.250(In)
Specified peak 24-hour rainfall = 6.900(In)

Rainfall depth area reduction factors:
Using a total area of 3.96(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.463(In)
30-minute factor = 1.000 Adjusted rainfall = 0.947(In)
1-hour factor = 1.000 Adjusted rainfall = 1.250(In)
3-hour factor = 1.000 Adjusted rainfall = 2.246(In)
6-hour factor = 1.000 Adjusted rainfall = 3.250(In)
24-hour factor = 1.000 Adjusted rainfall = 6.900(In)

U n i t H y d r o g r a p h
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Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 47.89 (CFS))	
1	1.954	0.936
2	7.938	2.866
3	18.434	5.027
4	32.845	6.902
5	48.120	7.315
6	59.621	5.508
7	67.054	3.560
8	72.139	2.435
9	75.757	1.732
10	78.779	1.448
11	81.308	1.211
12	83.476	1.038
13	85.400	0.921
14	87.032	0.782

15	88.420	0.664
16	89.724	0.625
17	90.887	0.557
18	91.845	0.459
19	92.754	0.435
20	93.470	0.343
21	94.164	0.332
22	94.827	0.317
23	95.479	0.312
24	96.043	0.270
25	96.521	0.229
26	96.978	0.219
27	97.373	0.189
28	97.757	0.184
29	98.077	0.153
30	98.381	0.146
31	98.633	0.121
32	98.850	0.104
33	99.068	0.104
34	99.285	0.104
35	99.503	0.104
36	99.720	0.104
37	100.000	0.052

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.4625	0.4625
2	0.6103	0.1478
3	0.7178	0.1075
4	0.8053	0.0875
5	0.8805	0.0752
6	0.9471	0.0666
7	1.0074	0.0602
8	1.0627	0.0553
9	1.1139	0.0513
10	1.1619	0.0479
11	1.2070	0.0452
12	1.2498	0.0427
13	1.3043	0.0545
14	1.3569	0.0526
15	1.4077	0.0509
16	1.4571	0.0493
17	1.5049	0.0479
18	1.5515	0.0466
19	1.5969	0.0454
20	1.6412	0.0443
21	1.6845	0.0433
22	1.7268	0.0423
23	1.7683	0.0414
24	1.8089	0.0406
25	1.8487	0.0398
26	1.8878	0.0391
27	1.9262	0.0384
28	1.9639	0.0377
29	2.0010	0.0371
30	2.0375	0.0365
31	2.0735	0.0360
32	2.1089	0.0354
33	2.1438	0.0349
34	2.1782	0.0344
35	2.2121	0.0339
36	2.2456	0.0335
37	2.2787	0.0331

38	2.3113	0.0326
39	2.3436	0.0322
40	2.3754	0.0319
41	2.4069	0.0315
42	2.4380	0.0311
43	2.4688	0.0308
44	2.4993	0.0305
45	2.5294	0.0301
46	2.5592	0.0298
47	2.5888	0.0295
48	2.6180	0.0292
49	2.6469	0.0289
50	2.6756	0.0287
51	2.7040	0.0284
52	2.7322	0.0281
53	2.7601	0.0279
54	2.7877	0.0277
55	2.8151	0.0274
56	2.8423	0.0272
57	2.8693	0.0270
58	2.8960	0.0267
59	2.9225	0.0265
60	2.9488	0.0263
61	2.9749	0.0261
62	3.0009	0.0259
63	3.0266	0.0257
64	3.0521	0.0255
65	3.0774	0.0253
66	3.1026	0.0252
67	3.1276	0.0250
68	3.1524	0.0248
69	3.1770	0.0246
70	3.2015	0.0245
71	3.2258	0.0243
72	3.2500	0.0242
73	3.2744	0.0244
74	3.2987	0.0243
75	3.3228	0.0241
76	3.3468	0.0240
77	3.3706	0.0238
78	3.3944	0.0237
79	3.4179	0.0236
80	3.4413	0.0234
81	3.4646	0.0233
82	3.4878	0.0232
83	3.5108	0.0230
84	3.5337	0.0229
85	3.5565	0.0228
86	3.5792	0.0227
87	3.6017	0.0225
88	3.6242	0.0224
89	3.6465	0.0223
90	3.6687	0.0222
91	3.6907	0.0221
92	3.7127	0.0220
93	3.7346	0.0219
94	3.7563	0.0218
95	3.7780	0.0216
96	3.7995	0.0215
97	3.8210	0.0214
98	3.8423	0.0213
99	3.8636	0.0212
100	3.8847	0.0211

101	3.9058	0.0210
102	3.9267	0.0210
103	3.9476	0.0209
104	3.9683	0.0208
105	3.9890	0.0207
106	4.0096	0.0206
107	4.0301	0.0205
108	4.0505	0.0204
109	4.0708	0.0203
110	4.0911	0.0202
111	4.1112	0.0202
112	4.1313	0.0201
113	4.1513	0.0200
114	4.1712	0.0199
115	4.1910	0.0198
116	4.2108	0.0198
117	4.2305	0.0197
118	4.2501	0.0196
119	4.2696	0.0195
120	4.2890	0.0194
121	4.3084	0.0194
122	4.3277	0.0193
123	4.3469	0.0192
124	4.3661	0.0192
125	4.3852	0.0191
126	4.4042	0.0190
127	4.4232	0.0189
128	4.4420	0.0189
129	4.4609	0.0188
130	4.4796	0.0187
131	4.4983	0.0187
132	4.5169	0.0186
133	4.5354	0.0186
134	4.5539	0.0185
135	4.5724	0.0184
136	4.5907	0.0184
137	4.6090	0.0183
138	4.6273	0.0182
139	4.6454	0.0182
140	4.6636	0.0181
141	4.6816	0.0181
142	4.6996	0.0180
143	4.7176	0.0179
144	4.7355	0.0179
145	4.7533	0.0178
146	4.7711	0.0178
147	4.7888	0.0177
148	4.8065	0.0177
149	4.8241	0.0176
150	4.8416	0.0176
151	4.8591	0.0175
152	4.8766	0.0174
153	4.8940	0.0174
154	4.9113	0.0173
155	4.9286	0.0173
156	4.9459	0.0172
157	4.9630	0.0172
158	4.9802	0.0171
159	4.9973	0.0171
160	5.0143	0.0170
161	5.0313	0.0170
162	5.0483	0.0169
163	5.0652	0.0169

164	5.0820	0.0169
165	5.0988	0.0168
166	5.1156	0.0168
167	5.1323	0.0167
168	5.1490	0.0167
169	5.1656	0.0166
170	5.1822	0.0166
171	5.1987	0.0165
172	5.2152	0.0165
173	5.2316	0.0164
174	5.2480	0.0164
175	5.2644	0.0164
176	5.2807	0.0163
177	5.2970	0.0163
178	5.3132	0.0162
179	5.3294	0.0162
180	5.3456	0.0161
181	5.3617	0.0161
182	5.3777	0.0161
183	5.3938	0.0160
184	5.4097	0.0160
185	5.4257	0.0159
186	5.4416	0.0159
187	5.4575	0.0159
188	5.4733	0.0158
189	5.4891	0.0158
190	5.5048	0.0158
191	5.5206	0.0157
192	5.5362	0.0157
193	5.5519	0.0156
194	5.5675	0.0156
195	5.5830	0.0156
196	5.5986	0.0155
197	5.6141	0.0155
198	5.6295	0.0155
199	5.6450	0.0154
200	5.6603	0.0154
201	5.6757	0.0154
202	5.6910	0.0153
203	5.7063	0.0153
204	5.7215	0.0152
205	5.7368	0.0152
206	5.7519	0.0152
207	5.7671	0.0151
208	5.7822	0.0151
209	5.7973	0.0151
210	5.8123	0.0150
211	5.8273	0.0150
212	5.8423	0.0150
213	5.8573	0.0150
214	5.8722	0.0149
215	5.8871	0.0149
216	5.9019	0.0149
217	5.9168	0.0148
218	5.9316	0.0148
219	5.9463	0.0148
220	5.9610	0.0147
221	5.9757	0.0147
222	5.9904	0.0147
223	6.0051	0.0146
224	6.0197	0.0146
225	6.0342	0.0146
226	6.0488	0.0146

227	6.0633	0.0145
228	6.0778	0.0145
229	6.0923	0.0145
230	6.1067	0.0144
231	6.1211	0.0144
232	6.1355	0.0144
233	6.1498	0.0143
234	6.1642	0.0143
235	6.1784	0.0143
236	6.1927	0.0143
237	6.2069	0.0142
238	6.2212	0.0142
239	6.2353	0.0142
240	6.2495	0.0142
241	6.2636	0.0141
242	6.2777	0.0141
243	6.2918	0.0141
244	6.3058	0.0140
245	6.3199	0.0140
246	6.3339	0.0140
247	6.3478	0.0140
248	6.3618	0.0139
249	6.3757	0.0139
250	6.3896	0.0139
251	6.4035	0.0139
252	6.4173	0.0138
253	6.4311	0.0138
254	6.4449	0.0138
255	6.4587	0.0138
256	6.4724	0.0137
257	6.4861	0.0137
258	6.4998	0.0137
259	6.5135	0.0137
260	6.5272	0.0136
261	6.5408	0.0136
262	6.5544	0.0136
263	6.5679	0.0136
264	6.5815	0.0136
265	6.5950	0.0135
266	6.6085	0.0135
267	6.6220	0.0135
268	6.6355	0.0135
269	6.6489	0.0134
270	6.6623	0.0134
271	6.6757	0.0134
272	6.6891	0.0134
273	6.7024	0.0133
274	6.7157	0.0133
275	6.7290	0.0133
276	6.7423	0.0133
277	6.7556	0.0133
278	6.7688	0.0132
279	6.7820	0.0132
280	6.7952	0.0132
281	6.8084	0.0132
282	6.8215	0.0131
283	6.8346	0.0131
284	6.8478	0.0131
285	6.8608	0.0131
286	6.8739	0.0131
287	6.8869	0.0130
288	6.9000	0.0130

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0130	0.0063	0.0067
2	0.0130	0.0064	0.0067
3	0.0131	0.0064	0.0067
4	0.0131	0.0064	0.0067
5	0.0131	0.0064	0.0067
6	0.0132	0.0064	0.0067
7	0.0132	0.0064	0.0068
8	0.0132	0.0065	0.0068
9	0.0133	0.0065	0.0068
10	0.0133	0.0065	0.0068
11	0.0133	0.0065	0.0068
12	0.0134	0.0065	0.0068
13	0.0134	0.0065	0.0069
14	0.0134	0.0066	0.0069
15	0.0135	0.0066	0.0069
16	0.0135	0.0066	0.0069
17	0.0136	0.0066	0.0069
18	0.0136	0.0066	0.0070
19	0.0136	0.0066	0.0070
20	0.0136	0.0067	0.0070
21	0.0137	0.0067	0.0070
22	0.0137	0.0067	0.0070
23	0.0138	0.0067	0.0071
24	0.0138	0.0067	0.0071
25	0.0138	0.0067	0.0071
26	0.0139	0.0068	0.0071
27	0.0139	0.0068	0.0071
28	0.0139	0.0068	0.0071
29	0.0140	0.0068	0.0072
30	0.0140	0.0068	0.0072
31	0.0141	0.0069	0.0072
32	0.0141	0.0069	0.0072
33	0.0142	0.0069	0.0073
34	0.0142	0.0069	0.0073
35	0.0142	0.0069	0.0073
36	0.0143	0.0070	0.0073
37	0.0143	0.0070	0.0073
38	0.0143	0.0070	0.0074
39	0.0144	0.0070	0.0074
40	0.0144	0.0070	0.0074
41	0.0145	0.0071	0.0074
42	0.0145	0.0071	0.0074
43	0.0146	0.0071	0.0075
44	0.0146	0.0071	0.0075
45	0.0147	0.0072	0.0075
46	0.0147	0.0072	0.0075
47	0.0148	0.0072	0.0076
48	0.0148	0.0072	0.0076
49	0.0149	0.0072	0.0076
50	0.0149	0.0073	0.0076
51	0.0150	0.0073	0.0077
52	0.0150	0.0073	0.0077
53	0.0150	0.0073	0.0077
54	0.0151	0.0074	0.0077
55	0.0151	0.0074	0.0078
56	0.0152	0.0074	0.0078
57	0.0152	0.0074	0.0078
58	0.0153	0.0075	0.0078
59	0.0154	0.0075	0.0079

60	0.0154	0.0075	0.0079
61	0.0155	0.0075	0.0079
62	0.0155	0.0076	0.0079
63	0.0156	0.0076	0.0080
64	0.0156	0.0076	0.0080
65	0.0157	0.0076	0.0080
66	0.0157	0.0077	0.0081
67	0.0158	0.0077	0.0081
68	0.0158	0.0077	0.0081
69	0.0159	0.0078	0.0082
70	0.0159	0.0078	0.0082
71	0.0160	0.0078	0.0082
72	0.0161	0.0078	0.0082
73	0.0161	0.0079	0.0083
74	0.0162	0.0079	0.0083
75	0.0163	0.0079	0.0083
76	0.0163	0.0080	0.0084
77	0.0164	0.0080	0.0084
78	0.0164	0.0080	0.0084
79	0.0165	0.0081	0.0085
80	0.0166	0.0081	0.0085
81	0.0167	0.0081	0.0085
82	0.0167	0.0081	0.0086
83	0.0168	0.0082	0.0086
84	0.0169	0.0082	0.0086
85	0.0169	0.0083	0.0087
86	0.0170	0.0083	0.0087
87	0.0171	0.0083	0.0088
88	0.0171	0.0084	0.0088
89	0.0172	0.0084	0.0088
90	0.0173	0.0084	0.0089
91	0.0174	0.0085	0.0089
92	0.0174	0.0085	0.0089
93	0.0176	0.0086	0.0090
94	0.0176	0.0086	0.0090
95	0.0177	0.0086	0.0091
96	0.0178	0.0087	0.0091
97	0.0179	0.0087	0.0092
98	0.0179	0.0088	0.0092
99	0.0181	0.0088	0.0093
100	0.0181	0.0088	0.0093
101	0.0182	0.0089	0.0093
102	0.0183	0.0089	0.0094
103	0.0184	0.0090	0.0094
104	0.0185	0.0090	0.0095
105	0.0186	0.0091	0.0095
106	0.0187	0.0091	0.0096
107	0.0188	0.0092	0.0096
108	0.0189	0.0092	0.0097
109	0.0190	0.0093	0.0097
110	0.0191	0.0093	0.0098
111	0.0192	0.0094	0.0099
112	0.0193	0.0094	0.0099
113	0.0194	0.0095	0.0100
114	0.0195	0.0095	0.0100
115	0.0197	0.0096	0.0101
116	0.0198	0.0096	0.0101
117	0.0199	0.0097	0.0102
118	0.0200	0.0097	0.0102
119	0.0202	0.0098	0.0103
120	0.0202	0.0099	0.0104
121	0.0204	0.0100	0.0105
122	0.0205	0.0100	0.0105

123	0.0207	0.0101	0.0106
124	0.0208	0.0101	0.0106
125	0.0210	0.0102	0.0107
126	0.0210	0.0103	0.0108
127	0.0212	0.0104	0.0109
128	0.0213	0.0104	0.0109
129	0.0215	0.0105	0.0110
130	0.0216	0.0106	0.0111
131	0.0219	0.0107	0.0112
132	0.0220	0.0107	0.0113
133	0.0222	0.0108	0.0114
134	0.0223	0.0109	0.0114
135	0.0225	0.0110	0.0116
136	0.0227	0.0111	0.0116
137	0.0229	0.0112	0.0117
138	0.0230	0.0112	0.0118
139	0.0233	0.0114	0.0119
140	0.0234	0.0114	0.0120
141	0.0237	0.0116	0.0121
142	0.0238	0.0116	0.0122
143	0.0241	0.0118	0.0124
144	0.0243	0.0118	0.0124
145	0.0242	0.0118	0.0124
146	0.0243	0.0119	0.0125
147	0.0246	0.0120	0.0126
148	0.0248	0.0121	0.0127
149	0.0252	0.0123	0.0129
150	0.0253	0.0124	0.0130
151	0.0257	0.0125	0.0132
152	0.0259	0.0126	0.0133
153	0.0263	0.0128	0.0135
154	0.0265	0.0129	0.0136
155	0.0270	0.0131	0.0138
156	0.0272	0.0133	0.0139
157	0.0277	0.0135	0.0142
158	0.0279	0.0136	0.0143
159	0.0284	0.0139	0.0146
160	0.0287	0.0140	0.0147
161	0.0292	0.0143	0.0150
162	0.0295	0.0144	0.0151
163	0.0301	0.0147	0.0154
164	0.0305	0.0149	0.0156
165	0.0311	0.0152	0.0160
166	0.0315	0.0154	0.0161
167	0.0322	0.0157	0.0165
168	0.0326	0.0159	0.0167
169	0.0335	0.0163	0.0172
170	0.0339	0.0166	0.0174
171	0.0349	0.0170	0.0179
172	0.0354	0.0173	0.0181
173	0.0365	0.0178	0.0187
174	0.0371	0.0181	0.0190
175	0.0384	0.0187	0.0197
176	0.0391	0.0191	0.0200
177	0.0406	0.0198	0.0208
178	0.0414	0.0202	0.0212
179	0.0433	0.0211	0.0222
180	0.0443	0.0216	0.0227
181	0.0466	0.0227	0.0239
182	0.0479	0.0234	0.0245
183	0.0509	0.0248	0.0261
184	0.0526	0.0256	0.0269
185	0.0427	0.0208	0.0219

186	0.0452	0.0220	0.0231
187	0.0513	0.0250	0.0263
188	0.0553	0.0270	0.0283
189	0.0666	0.0325	0.0341
190	0.0752	0.0367	0.0385
191	0.1075	0.0444	0.0631
192	0.1478	0.0444	0.1034
193	0.4625	0.0444	0.4182
194	0.0875	0.0427	0.0449
195	0.0602	0.0294	0.0309
196	0.0479	0.0234	0.0246
197	0.0545	0.0266	0.0279
198	0.0493	0.0240	0.0253
199	0.0454	0.0221	0.0233
200	0.0423	0.0206	0.0217
201	0.0398	0.0194	0.0204
202	0.0377	0.0184	0.0193
203	0.0360	0.0175	0.0184
204	0.0344	0.0168	0.0176
205	0.0331	0.0161	0.0169
206	0.0319	0.0155	0.0163
207	0.0308	0.0150	0.0158
208	0.0298	0.0145	0.0153
209	0.0289	0.0141	0.0148
210	0.0281	0.0137	0.0144
211	0.0274	0.0134	0.0140
212	0.0267	0.0130	0.0137
213	0.0261	0.0127	0.0134
214	0.0255	0.0124	0.0131
215	0.0250	0.0122	0.0128
216	0.0245	0.0119	0.0125
217	0.0244	0.0119	0.0125
218	0.0240	0.0117	0.0123
219	0.0236	0.0115	0.0121
220	0.0232	0.0113	0.0119
221	0.0228	0.0111	0.0117
222	0.0224	0.0109	0.0115
223	0.0221	0.0108	0.0113
224	0.0218	0.0106	0.0111
225	0.0214	0.0105	0.0110
226	0.0211	0.0103	0.0108
227	0.0209	0.0102	0.0107
228	0.0206	0.0100	0.0105
229	0.0203	0.0099	0.0104
230	0.0201	0.0098	0.0103
231	0.0198	0.0097	0.0102
232	0.0196	0.0096	0.0100
233	0.0194	0.0094	0.0099
234	0.0192	0.0093	0.0098
235	0.0189	0.0092	0.0097
236	0.0187	0.0091	0.0096
237	0.0186	0.0090	0.0095
238	0.0184	0.0090	0.0094
239	0.0182	0.0089	0.0093
240	0.0180	0.0088	0.0092
241	0.0178	0.0087	0.0091
242	0.0177	0.0086	0.0091
243	0.0175	0.0085	0.0090
244	0.0173	0.0085	0.0089
245	0.0172	0.0084	0.0088
246	0.0170	0.0083	0.0087
247	0.0169	0.0082	0.0087
248	0.0168	0.0082	0.0086

249	0.0166	0.0081	0.0085
250	0.0165	0.0080	0.0084
251	0.0164	0.0080	0.0084
252	0.0162	0.0079	0.0083
253	0.0161	0.0079	0.0083
254	0.0160	0.0078	0.0082
255	0.0159	0.0077	0.0081
256	0.0158	0.0077	0.0081
257	0.0156	0.0076	0.0080
258	0.0155	0.0076	0.0080
259	0.0154	0.0075	0.0079
260	0.0153	0.0075	0.0078
261	0.0152	0.0074	0.0078
262	0.0151	0.0074	0.0077
263	0.0150	0.0073	0.0077
264	0.0149	0.0073	0.0076
265	0.0148	0.0072	0.0076
266	0.0147	0.0072	0.0075
267	0.0146	0.0071	0.0075
268	0.0146	0.0071	0.0075
269	0.0145	0.0071	0.0074
270	0.0144	0.0070	0.0074
271	0.0143	0.0070	0.0073
272	0.0142	0.0069	0.0073
273	0.0141	0.0069	0.0072
274	0.0140	0.0069	0.0072
275	0.0140	0.0068	0.0072
276	0.0139	0.0068	0.0071
277	0.0138	0.0067	0.0071
278	0.0137	0.0067	0.0070
279	0.0137	0.0067	0.0070
280	0.0136	0.0066	0.0070
281	0.0135	0.0066	0.0069
282	0.0135	0.0066	0.0069
283	0.0134	0.0065	0.0069
284	0.0133	0.0065	0.0068
285	0.0133	0.0065	0.0068
286	0.0132	0.0064	0.0068
287	0.0131	0.0064	0.0067
288	0.0131	0.0064	0.0067

Total soil rain loss = 3.15(In)
Total effective rainfall = 3.75(In)
Peak flow rate in flood hydrograph = 4.85(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))

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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       0.0002      0.03  Q         |         |         |         |
  0+15       0.0006      0.06  Q         |         |         |         |
  0+20       0.0013      0.11  Q         |         |         |         |
  0+25       0.0024      0.15  Q         |         |         |         |
  0+30       0.0037      0.19  Q         |         |         |         |
  0+35       0.0052      0.22  Q         |         |         |         |
  0+40       0.0068      0.23  Q         |         |         |         |
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0+45        0.0085      0.24  Q          |          |          |          |
0+50        0.0102      0.25  VQ         |          |          |          |
0+55        0.0121      0.26  VQ         |          |          |          |
1+ 0        0.0139      0.27  VQ         |          |          |          |
1+ 5        0.0158      0.28  VQ         |          |          |          |
1+10        0.0178      0.28  VQ         |          |          |          |
1+15        0.0198      0.29  VQ         |          |          |          |
1+20        0.0218      0.29  VQ         |          |          |          |
1+25        0.0239      0.30  VQ         |          |          |          |
1+30        0.0259      0.30  VQ         |          |          |          |
1+35        0.0280      0.31  VQ         |          |          |          |
1+40        0.0302      0.31  VQ         |          |          |          |
1+45        0.0323      0.31  |Q         |          |          |          |
1+50        0.0345      0.31  |Q         |          |          |          |
1+55        0.0367      0.32  |Q         |          |          |          |
2+ 0        0.0389      0.32  |Q         |          |          |          |
2+ 5        0.0411      0.32  |Q         |          |          |          |
2+10        0.0433      0.32  |Q         |          |          |          |
2+15        0.0456      0.33  |Q         |          |          |          |
2+20        0.0478      0.33  |Q         |          |          |          |
2+25        0.0501      0.33  |Q         |          |          |          |
2+30        0.0524      0.33  |Q         |          |          |          |
2+35        0.0547      0.33  |Q         |          |          |          |
2+40        0.0570      0.34  |Q         |          |          |          |
2+45        0.0594      0.34  |Q         |          |          |          |
2+50        0.0617      0.34  |Q         |          |          |          |
2+55        0.0640      0.34  |QV        |          |          |          |
3+ 0        0.0664      0.34  |QV        |          |          |          |
3+ 5        0.0688      0.34  |QV        |          |          |          |
3+10        0.0712      0.34  |QV        |          |          |          |
3+15        0.0735      0.35  |QV        |          |          |          |
3+20        0.0759      0.35  |QV        |          |          |          |
3+25        0.0783      0.35  |QV        |          |          |          |
3+30        0.0807      0.35  |QV        |          |          |          |
3+35        0.0831      0.35  |QV        |          |          |          |
3+40        0.0855      0.35  |QV        |          |          |          |
3+45        0.0880      0.35  |QV        |          |          |          |
3+50        0.0904      0.35  |QV        |          |          |          |
3+55        0.0928      0.35  |Q V       |          |          |          |
4+ 0        0.0953      0.36  |Q V       |          |          |          |
4+ 5        0.0977      0.36  |Q V       |          |          |          |
4+10        0.1002      0.36  |Q V       |          |          |          |
4+15        0.1027      0.36  |Q V       |          |          |          |
4+20        0.1051      0.36  |Q V       |          |          |          |
4+25        0.1076      0.36  |Q V       |          |          |          |
4+30        0.1101      0.36  |Q V       |          |          |          |
4+35        0.1126      0.36  |Q V       |          |          |          |
4+40        0.1151      0.36  |Q V       |          |          |          |
4+45        0.1176      0.37  |Q V       |          |          |          |
4+50        0.1202      0.37  |Q V       |          |          |          |
4+55        0.1227      0.37  |Q V       |          |          |          |
5+ 0        0.1252      0.37  |Q  V      |          |          |          |
5+ 5        0.1278      0.37  |Q  V      |          |          |          |
5+10        0.1303      0.37  |Q  V      |          |          |          |
5+15        0.1329      0.37  |Q  V      |          |          |          |
5+20        0.1355      0.37  |Q  V      |          |          |          |
5+25        0.1381      0.38  |Q  V      |          |          |          |
5+30        0.1407      0.38  |Q  V      |          |          |          |
5+35        0.1433      0.38  |Q  V      |          |          |          |
5+40        0.1459      0.38  |Q  V      |          |          |          |
5+45        0.1485      0.38  |Q  V      |          |          |          |
5+50        0.1511      0.38  |Q  V      |          |          |          |
5+55        0.1538      0.38  |Q  V      |          |          |          |
```

```
 6+ 0       0.1564      0.38  |Q   V    |          |          |
 6+ 5       0.1591      0.39  |Q   V    |          |          |
 6+10       0.1617      0.39  |Q   V    |          |          |
 6+15       0.1644      0.39  |Q   V    |          |          |
 6+20       0.1671      0.39  |Q   V    |          |          |
 6+25       0.1698      0.39  |Q   V    |          |          |
 6+30       0.1725      0.39  |Q   V    |          |          |
 6+35       0.1752      0.39  |Q   V    |          |          |
 6+40       0.1779      0.40  |Q   V    |          |          |
 6+45       0.1807      0.40  |Q   V    |          |          |
 6+50       0.1834      0.40  |Q   V    |          |          |
 6+55       0.1862      0.40  |Q    V   |          |          |
 7+ 0       0.1889      0.40  |Q    V   |          |          |
 7+ 5       0.1917      0.40  |Q    V   |          |          |
 7+10       0.1945      0.41  |Q    V   |          |          |
 7+15       0.1973      0.41  |Q    V   |          |          |
 7+20       0.2001      0.41  |Q    V   |          |          |
 7+25       0.2030      0.41  |Q    V   |          |          |
 7+30       0.2058      0.41  |Q    V   |          |          |
 7+35       0.2086      0.41  |Q    V   |          |          |
 7+40       0.2115      0.42  |Q    V   |          |          |
 7+45       0.2144      0.42  |Q    V   |          |          |
 7+50       0.2173      0.42  |Q     V  |          |          |
 7+55       0.2202      0.42  |Q     V  |          |          |
 8+ 0       0.2231      0.42  |Q     V  |          |          |
 8+ 5       0.2260      0.42  |Q     V  |          |          |
 8+10       0.2289      0.43  |Q     V  |          |          |
 8+15       0.2319      0.43  |Q     V  |          |          |
 8+20       0.2349      0.43  |Q     V  |          |          |
 8+25       0.2378      0.43  |Q     V  |          |          |
 8+30       0.2408      0.43  |Q     V  |          |          |
 8+35       0.2438      0.44  |Q     V  |          |          |
 8+40       0.2469      0.44  |Q     V  |          |          |
 8+45       0.2499      0.44  |Q      V |          |          |
 8+50       0.2529      0.44  |Q      V |          |          |
 8+55       0.2560      0.45  |Q      V |          |          |
 9+ 0       0.2591      0.45  |Q      V |          |          |
 9+ 5       0.2622      0.45  |Q      V |          |          |
 9+10       0.2653      0.45  |Q      V |          |          |
 9+15       0.2684      0.45  |Q      V |          |          |
 9+20       0.2716      0.46  |Q      V |          |          |
 9+25       0.2747      0.46  |Q      V |          |          |
 9+30       0.2779      0.46  |Q      V |          |          |
 9+35       0.2811      0.46  |Q       V|          |          |
 9+40       0.2843      0.47  |Q       V|          |          |
 9+45       0.2876      0.47  |Q       V|          |          |
 9+50       0.2908      0.47  |Q       V|          |          |
 9+55       0.2941      0.47  |Q       V|          |          |
10+ 0       0.2974      0.48  |Q       V|          |          |
10+ 5       0.3007      0.48  |Q       V|          |          |
10+10       0.3040      0.48  |Q       V|          |          |
10+15       0.3073      0.49  |Q       V|          |          |
10+20       0.3107      0.49  |Q        V          |          |
10+25       0.3141      0.49  |Q        V          |          |
10+30       0.3175      0.49  |Q        V          |          |
10+35       0.3209      0.50  |Q        V          |          |
10+40       0.3244      0.50  | Q       V          |          |
10+45       0.3278      0.50  | Q       V          |          |
10+50       0.3313      0.51  | Q       V          |          |
10+55       0.3349      0.51  | Q       V          |          |
11+ 0       0.3384      0.51  | Q       V          |          |
11+ 5       0.3420      0.52  | Q       |V         |          |
11+10       0.3456      0.52  | Q       |V         |          |
```

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11+15       0.3492      0.53  | Q        |V         |          |          |
11+20       0.3528      0.53  | Q        |V         |          |          |
11+25       0.3565      0.53  | Q        |V         |          |          |
11+30       0.3602      0.54  | Q        |V         |          |          |
11+35       0.3639      0.54  | Q        |V         |          |          |
11+40       0.3677      0.55  | Q        |V         |          |          |
11+45       0.3715      0.55  | Q        | V        |          |          |
11+50       0.3753      0.55  | Q        | V        |          |          |
11+55       0.3791      0.56  | Q        | V        |          |          |
12+ 0       0.3830      0.56  | Q        | V        |          |          |
12+ 5       0.3869      0.57  | Q        | V        |          |          |
12+10       0.3909      0.57  | Q        | V        |          |          |
12+15       0.3948      0.58  | Q        | V        |          |          |
12+20       0.3988      0.58  | Q        | V        |          |          |
12+25       0.4028      0.58  | Q        |  V       |          |          |
12+30       0.4069      0.59  | Q        |  V       |          |          |
12+35       0.4109      0.59  | Q        |  V       |          |          |
12+40       0.4151      0.60  | Q        |  V       |          |          |
12+45       0.4192      0.60  | Q        |  V       |          |          |
12+50       0.4234      0.61  | Q        |  V       |          |          |
12+55       0.4276      0.62  | Q        |  V       |          |          |
13+ 0       0.4319      0.62  | Q        |  V       |          |          |
13+ 5       0.4363      0.63  | Q        |   V      |          |          |
13+10       0.4406      0.64  | Q        |   V      |          |          |
13+15       0.4451      0.64  | Q        |   V      |          |          |
13+20       0.4495      0.65  | Q        |   V      |          |          |
13+25       0.4541      0.66  | Q        |   V      |          |          |
13+30       0.4587      0.67  | Q        |   V      |          |          |
13+35       0.4633      0.67  | Q        |   V      |          |          |
13+40       0.4680      0.68  | Q        |    V     |          |          |
13+45       0.4728      0.69  | Q        |    V     |          |          |
13+50       0.4776      0.70  | Q        |    V     |          |          |
13+55       0.4825      0.71  | Q        |    V     |          |          |
14+ 0       0.4875      0.72  | Q        |    V     |          |          |
14+ 5       0.4926      0.74  | Q        |    V     |          |          |
14+10       0.4977      0.75  | Q        |     V    |          |          |
14+15       0.5030      0.76  |  Q       |     V    |          |          |
14+20       0.5083      0.77  |  Q       |     V    |          |          |
14+25       0.5137      0.79  |  Q       |     V    |          |          |
14+30       0.5192      0.80  |  Q       |     V    |          |          |
14+35       0.5249      0.82  |  Q       |     V    |          |          |
14+40       0.5306      0.84  |  Q       |      V   |          |          |
14+45       0.5365      0.85  |  Q       |      V   |          |          |
14+50       0.5425      0.87  |  Q       |      V   |          |          |
14+55       0.5487      0.89  |  Q       |      V   |          |          |
15+ 0       0.5550      0.92  |  Q       |      V   |          |          |
15+ 5       0.5615      0.94  |  Q       |       V  |          |          |
15+10       0.5682      0.97  |  Q       |       V  |          |          |
15+15       0.5751      1.00  |   Q      |       V  |          |          |
15+20       0.5822      1.03  |   Q      |       V  |          |          |
15+25       0.5895      1.07  |   Q      |        V|          |          |
15+30       0.5970      1.09  |   Q      |        V|          |          |
15+35       0.6046      1.10  |   Q      |        V|          |          |
15+40       0.6123      1.11  |   Q      |        V|          |          |
15+45       0.6201      1.13  |   Q      |         V          |          |
15+50       0.6282      1.18  |   Q      |         V          |          |
15+55       0.6370      1.28  |    Q     |         V          |          |
16+ 0       0.6472      1.48  |    Q     |         V          |          |
16+ 5       0.6618      2.11  |       Q  |         |V         |          |
16+10       0.6832      3.12  |          | Q       | V        |          |
16+15       0.7117      4.14  |          |     Q   |  V       |          |
16+20       0.7452      4.85  |          |        Q|   V      |          |
16+25       0.7785      4.83  |          |        Q|    V     |          |
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16+30       0.8056      3.94  |          |    Q     |     V   |         |
16+35       0.8265      3.03  |          | Q        |     V   |         |
16+40       0.8435      2.47  |        Q|          |      V  |         |
16+45       0.8580      2.11  |       Q |          |      V  |         |
16+50       0.8713      1.93  |      Q  |          |       V |         |
16+55       0.8834      1.76  |      Q  |          |       V |         |
17+ 0       0.8947      1.63  |     Q   |          |       V |         |
17+ 5       0.9052      1.52  |     Q   |          |        V|         |
17+10       0.9149      1.42  |    Q    |          |        V|         |
17+15       0.9241      1.32  |    Q    |          |        V|         |
17+20       0.9328      1.26  |    Q    |          |         V         |
17+25       0.9410      1.20  |   Q     |          |         V         |
17+30       0.9487      1.12  |   Q     |          |         V         |
17+35       0.9561      1.07  |   Q     |          |         V         |
17+40       0.9631      1.01  |   Q     |          |         |V        |
17+45       0.9698      0.98  |  Q      |          |         |V        |
17+50       0.9763      0.95  |  Q      |          |         |V        |
17+55       0.9827      0.92  |  Q      |          |         |V        |
18+ 0       0.9887      0.88  |  Q      |          |         | V       |
18+ 5       0.9945      0.84  |  Q      |          |         | V       |
18+10       1.0001      0.82  |  Q      |          |         | V       |
18+15       1.0056      0.79  |  Q      |          |         | V       |
18+20       1.0108      0.77  |  Q      |          |         | V       |
18+25       1.0159      0.74  | Q       |          |         | V       |
18+30       1.0209      0.72  | Q       |          |         |  V      |
18+35       1.0257      0.70  | Q       |          |         |  V      |
18+40       1.0303      0.68  | Q       |          |         |  V      |
18+45       1.0349      0.66  | Q       |          |         |  V      |
18+50       1.0394      0.65  | Q       |          |         |  V      |
18+55       1.0438      0.64  | Q       |          |         |  V      |
19+ 0       1.0481      0.62  | Q       |          |         |  V      |
19+ 5       1.0521      0.59  | Q       |          |         |   V     |
19+10       1.0559      0.56  | Q       |          |         |   V     |
19+15       1.0597      0.55  | Q       |          |         |   V     |
19+20       1.0634      0.54  | Q       |          |         |   V     |
19+25       1.0670      0.53  | Q       |          |         |   V     |
19+30       1.0706      0.52  | Q       |          |         |   V     |
19+35       1.0741      0.51  | Q       |          |         |   V     |
19+40       1.0776      0.51  | Q       |          |         |   V     |
19+45       1.0810      0.50  |Q        |          |         |   V     |
19+50       1.0844      0.49  |Q        |          |         |    V    |
19+55       1.0878      0.49  |Q        |          |         |    V    |
20+ 0       1.0911      0.48  |Q        |          |         |    V    |
20+ 5       1.0943      0.47  |Q        |          |         |    V    |
20+10       1.0976      0.47  |Q        |          |         |    V    |
20+15       1.1008      0.46  |Q        |          |         |    V    |
20+20       1.1039      0.46  |Q        |          |         |    V    |
20+25       1.1070      0.45  |Q        |          |         |    V    |
20+30       1.1101      0.45  |Q        |          |         |    V    |
20+35       1.1132      0.44  |Q        |          |         |     V   |
20+40       1.1162      0.44  |Q        |          |         |     V   |
20+45       1.1192      0.44  |Q        |          |         |     V   |
20+50       1.1222      0.43  |Q        |          |         |     V   |
20+55       1.1251      0.43  |Q        |          |         |     V   |
21+ 0       1.1280      0.42  |Q        |          |         |     V   |
21+ 5       1.1309      0.42  |Q        |          |         |     V   |
21+10       1.1338      0.42  |Q        |          |         |     V   |
21+15       1.1366      0.41  |Q        |          |         |     V   |
21+20       1.1395      0.41  |Q        |          |         |     V   |
21+25       1.1423      0.41  |Q        |          |         |     V   |
21+30       1.1450      0.40  |Q        |          |         |      V  |
21+35       1.1478      0.40  |Q        |          |         |      V  |
21+40       1.1505      0.40  |Q        |          |         |      V  |
```

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21+45       1.1532      0.39  |Q         |          |          |       V  |
21+50       1.1559      0.39  |Q         |          |          |       V  |
21+55       1.1586      0.39  |Q         |          |          |       V  |
22+ 0       1.1612      0.38  |Q         |          |          |       V  |
22+ 5       1.1638      0.38  |Q         |          |          |       V  |
22+10       1.1664      0.38  |Q         |          |          |       V  |
22+15       1.1690      0.38  |Q         |          |          |       V  |
22+20       1.1716      0.37  |Q         |          |          |       V  |
22+25       1.1742      0.37  |Q         |          |          |        V |
22+30       1.1767      0.37  |Q         |          |          |        V |
22+35       1.1792      0.37  |Q         |          |          |        V |
22+40       1.1817      0.36  |Q         |          |          |        V |
22+45       1.1842      0.36  |Q         |          |          |        V |
22+50       1.1867      0.36  |Q         |          |          |        V |
22+55       1.1892      0.36  |Q         |          |          |        V |
23+ 0       1.1916      0.36  |Q         |          |          |        V |
23+ 5       1.1940      0.35  |Q         |          |          |        V |
23+10       1.1965      0.35  |Q         |          |          |        V |
23+15       1.1989      0.35  |Q         |          |          |        V |
23+20       1.2012      0.35  |Q         |          |          |        V |
23+25       1.2036      0.34  |Q         |          |          |        V |
23+30       1.2060      0.34  |Q         |          |          |         V|
23+35       1.2083      0.34  |Q         |          |          |         V|
23+40       1.2107      0.34  |Q         |          |          |         V|
23+45       1.2130      0.34  |Q         |          |          |         V|
23+50       1.2153      0.34  |Q         |          |          |         V|
23+55       1.2176      0.33  |Q         |          |          |         V|
24+ 0       1.2199      0.33  |Q         |          |          |         V|
24+ 5       1.2221      0.32  |Q         |          |          |         V|
24+10       1.2242      0.30  |Q         |          |          |         V|
24+15       1.2260      0.27  |Q         |          |          |         V|
24+20       1.2276      0.22  Q          |          |          |         V|
24+25       1.2287      0.17  Q          |          |          |         V|
24+30       1.2297      0.13  Q          |          |          |         V|
24+35       1.2304      0.11  Q          |          |          |         V|
24+40       1.2310      0.09  Q          |          |          |         V|
24+45       1.2316      0.08  Q          |          |          |         V|
24+50       1.2321      0.07  Q          |          |          |         V|
24+55       1.2325      0.06  Q          |          |          |         V|
25+ 0       1.2329      0.05  Q          |          |          |         V|
25+ 5       1.2332      0.05  Q          |          |          |         V|
25+10       1.2335      0.04  Q          |          |          |         V|
25+15       1.2338      0.04  Q          |          |          |         V|
25+20       1.2340      0.03  Q          |          |          |         V|
25+25       1.2342      0.03  Q          |          |          |         V|
25+30       1.2344      0.03  Q          |          |          |         V|
25+35       1.2345      0.02  Q          |          |          |         V|
25+40       1.2347      0.02  Q          |          |          |         V|
25+45       1.2348      0.02  Q          |          |          |         V|
25+50       1.2349      0.02  Q          |          |          |         V|
25+55       1.2350      0.01  Q          |          |          |         V|
26+ 0       1.2351      0.01  Q          |          |          |         V|
26+ 5       1.2352      0.01  Q          |          |          |         V|
26+10       1.2352      0.01  Q          |          |          |         V|
26+15       1.2353      0.01  Q          |          |          |         V|
26+20       1.2354      0.01  Q          |          |          |         V|
26+25       1.2354      0.01  Q          |          |          |         V|
26+30       1.2354      0.00  Q          |          |          |         V|
26+35       1.2354      0.00  Q          |          |          |         V|
26+40       1.2355      0.00  Q          |          |          |         V|
26+45       1.2355      0.00  Q          |          |          |         V|
26+50       1.2355      0.00  Q          |          |          |         V|
26+55       1.2355      0.00  Q          |          |          |         V|
```

```
   27+ 0       1.2355      0.00  Q         |         |         |        V|
-----------------------------------------------------------------------
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p

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

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Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Proposed Conditions
Area P1

Storm Event Year = 10

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
1.00	1	0.88
Rainfall data for year 2		
1.00	6	1.55
Rainfall data for year 2		
1.00	24	2.90
Rainfall data for year 100		
1.00	1	1.25
Rainfall data for year 100		
1.00	6	3.25
Rainfall data for year 100		
1.00	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 2)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
32.0	32.0	1.00	1.000	0.978	0.050	0.049

Area-averaged adjusted loss rate Fm (In/Hr) = 0.049

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
0.05	0.050	32.0	32.0	21.25	0.001
0.95	0.950	98.0	98.0	0.20	0.948

Area-averaged catchment yield fraction, Y = 0.901
Area-averaged low loss fraction, Yb = 0.099
User entry of time of concentration = 0.124 (hours)
++
Watershed area = 1.00(Ac.)
Catchment Lag time = 0.099 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 84.0054
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.049(In/Hr)
Average low loss rate fraction (Yb) = 0.099 (decimal)
VALLEY DEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.326(In)
Computed peak 30-minute rainfall = 0.667(In)
Specified peak 1-hour rainfall = 0.880(In)
Computed peak 3-hour rainfall = 1.565(In)
Specified peak 6-hour rainfall = 2.249(In)
Specified peak 24-hour rainfall = 4.546(In)

Rainfall depth area reduction factors:
Using a total area of 1.00(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.326(In)
30-minute factor = 1.000 Adjusted rainfall = 0.667(In)
1-hour factor = 1.000 Adjusted rainfall = 0.880(In)
3-hour factor = 1.000 Adjusted rainfall = 1.565(In)
6-hour factor = 1.000 Adjusted rainfall = 2.249(In)
24-hour factor = 1.000 Adjusted rainfall = 4.546(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 12.09 (CFS))	
1	12.391	1.499
2	67.521	6.667
3	95.128	3.339
4	99.092	0.479
5	100.000	0.110

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.3257	0.3257
2	0.4297	0.1041
3	0.5054	0.0757
4	0.5670	0.0616
5	0.6200	0.0529

6	0.6669	0.0469
7	0.7093	0.0424
8	0.7482	0.0389
9	0.7843	0.0361
10	0.8181	0.0338
11	0.8499	0.0318
12	0.8800	0.0301
13	0.9176	0.0377
14	0.9540	0.0363
15	0.9891	0.0351
16	1.0231	0.0340
17	1.0561	0.0330
18	1.0882	0.0321
19	1.1194	0.0313
20	1.1499	0.0305
21	1.1797	0.0298
22	1.2088	0.0291
23	1.2373	0.0285
24	1.2652	0.0279
25	1.2925	0.0273
26	1.3193	0.0268
27	1.3457	0.0263
28	1.3716	0.0259
29	1.3970	0.0254
30	1.4220	0.0250
31	1.4467	0.0246
32	1.4709	0.0243
33	1.4948	0.0239
34	1.5184	0.0236
35	1.5416	0.0232
36	1.5645	0.0229
37	1.5872	0.0226
38	1.6095	0.0223
39	1.6315	0.0220
40	1.6533	0.0218
41	1.6748	0.0215
42	1.6961	0.0213
43	1.7171	0.0210
44	1.7379	0.0208
45	1.7585	0.0206
46	1.7789	0.0204
47	1.7990	0.0202
48	1.8190	0.0199
49	1.8387	0.0198
50	1.8583	0.0196
51	1.8777	0.0194
52	1.8969	0.0192
53	1.9159	0.0190
54	1.9347	0.0189
55	1.9534	0.0187
56	1.9719	0.0185
57	1.9903	0.0184
58	2.0085	0.0182
59	2.0266	0.0181
60	2.0445	0.0179
61	2.0623	0.0178
62	2.0799	0.0176
63	2.0974	0.0175
64	2.1148	0.0174
65	2.1321	0.0172
66	2.1492	0.0171
67	2.1662	0.0170
68	2.1830	0.0169

69	2.1998	0.0168
70	2.2164	0.0166
71	2.2330	0.0165
72	2.2494	0.0164
73	2.2652	0.0158
74	2.2809	0.0157
75	2.2965	0.0156
76	2.3120	0.0155
77	2.3273	0.0154
78	2.3426	0.0153
79	2.3578	0.0152
80	2.3729	0.0151
81	2.3879	0.0150
82	2.4029	0.0149
83	2.4177	0.0148
84	2.4324	0.0147
85	2.4471	0.0147
86	2.4616	0.0146
87	2.4761	0.0145
88	2.4905	0.0144
89	2.5048	0.0143
90	2.5191	0.0142
91	2.5333	0.0142
92	2.5473	0.0141
93	2.5614	0.0140
94	2.5753	0.0139
95	2.5892	0.0139
96	2.6030	0.0138
97	2.6167	0.0137
98	2.6303	0.0137
99	2.6439	0.0136
100	2.6574	0.0135
101	2.6709	0.0135
102	2.6843	0.0134
103	2.6976	0.0133
104	2.7109	0.0133
105	2.7241	0.0132
106	2.7372	0.0131
107	2.7503	0.0131
108	2.7633	0.0130
109	2.7762	0.0130
110	2.7891	0.0129
111	2.8020	0.0128
112	2.8148	0.0128
113	2.8275	0.0127
114	2.8402	0.0127
115	2.8528	0.0126
116	2.8653	0.0126
117	2.8778	0.0125
118	2.8903	0.0125
119	2.9027	0.0124
120	2.9151	0.0124
121	2.9274	0.0123
122	2.9396	0.0123
123	2.9518	0.0122
124	2.9640	0.0122
125	2.9761	0.0121
126	2.9881	0.0121
127	3.0001	0.0120
128	3.0121	0.0120
129	3.0240	0.0119
130	3.0359	0.0119
131	3.0477	0.0118

132	3.0595	0.0118
133	3.0713	0.0117
134	3.0830	0.0117
135	3.0946	0.0117
136	3.1062	0.0116
137	3.1178	0.0116
138	3.1293	0.0115
139	3.1408	0.0115
140	3.1522	0.0114
141	3.1637	0.0114
142	3.1750	0.0114
143	3.1863	0.0113
144	3.1976	0.0113
145	3.2089	0.0112
146	3.2201	0.0112
147	3.2313	0.0112
148	3.2424	0.0111
149	3.2535	0.0111
150	3.2646	0.0111
151	3.2756	0.0110
152	3.2866	0.0110
153	3.2975	0.0110
154	3.3085	0.0109
155	3.3193	0.0109
156	3.3302	0.0109
157	3.3410	0.0108
158	3.3518	0.0108
159	3.3625	0.0107
160	3.3733	0.0107
161	3.3839	0.0107
162	3.3946	0.0106
163	3.4052	0.0106
164	3.4158	0.0106
165	3.4263	0.0106
166	3.4369	0.0105
167	3.4474	0.0105
168	3.4578	0.0105
169	3.4683	0.0104
170	3.4787	0.0104
171	3.4890	0.0104
172	3.4994	0.0103
173	3.5097	0.0103
174	3.5200	0.0103
175	3.5302	0.0103
176	3.5404	0.0102
177	3.5506	0.0102
178	3.5608	0.0102
179	3.5709	0.0101
180	3.5810	0.0101
181	3.5911	0.0101
182	3.6012	0.0101
183	3.6112	0.0100
184	3.6212	0.0100
185	3.6312	0.0100
186	3.6411	0.0099
187	3.6510	0.0099
188	3.6609	0.0099
189	3.6708	0.0099
190	3.6806	0.0098
191	3.6905	0.0098
192	3.7003	0.0098
193	3.7100	0.0098
194	3.7198	0.0097

195	3.7295	0.0097
196	3.7392	0.0097
197	3.7488	0.0097
198	3.7585	0.0096
199	3.7681	0.0096
200	3.7777	0.0096
201	3.7873	0.0096
202	3.7968	0.0096
203	3.8064	0.0095
204	3.8159	0.0095
205	3.8253	0.0095
206	3.8348	0.0095
207	3.8442	0.0094
208	3.8537	0.0094
209	3.8630	0.0094
210	3.8724	0.0094
211	3.8818	0.0093
212	3.8911	0.0093
213	3.9004	0.0093
214	3.9097	0.0093
215	3.9189	0.0093
216	3.9282	0.0092
217	3.9374	0.0092
218	3.9466	0.0092
219	3.9558	0.0092
220	3.9649	0.0092
221	3.9741	0.0091
222	3.9832	0.0091
223	3.9923	0.0091
224	4.0013	0.0091
225	4.0104	0.0091
226	4.0194	0.0090
227	4.0284	0.0090
228	4.0374	0.0090
229	4.0464	0.0090
230	4.0554	0.0090
231	4.0643	0.0089
232	4.0732	0.0089
233	4.0821	0.0089
234	4.0910	0.0089
235	4.0999	0.0089
236	4.1087	0.0088
237	4.1176	0.0088
238	4.1264	0.0088
239	4.1351	0.0088
240	4.1439	0.0088
241	4.1527	0.0088
242	4.1614	0.0087
243	4.1701	0.0087
244	4.1788	0.0087
245	4.1875	0.0087
246	4.1962	0.0087
247	4.2048	0.0086
248	4.2135	0.0086
249	4.2221	0.0086
250	4.2307	0.0086
251	4.2392	0.0086
252	4.2478	0.0086
253	4.2563	0.0085
254	4.2649	0.0085
255	4.2734	0.0085
256	4.2819	0.0085
257	4.2904	0.0085

258	4.2988	0.0085
259	4.3073	0.0084
260	4.3157	0.0084
261	4.3241	0.0084
262	4.3325	0.0084
263	4.3409	0.0084
264	4.3493	0.0084
265	4.3576	0.0084
266	4.3660	0.0083
267	4.3743	0.0083
268	4.3826	0.0083
269	4.3909	0.0083
270	4.3992	0.0083
271	4.4074	0.0083
272	4.4157	0.0082
273	4.4239	0.0082
274	4.4321	0.0082
275	4.4403	0.0082
276	4.4485	0.0082
277	4.4567	0.0082
278	4.4648	0.0082
279	4.4730	0.0081
280	4.4811	0.0081
281	4.4892	0.0081
282	4.4973	0.0081
283	4.5054	0.0081
284	4.5135	0.0081
285	4.5215	0.0081
286	4.5296	0.0080
287	4.5376	0.0080
288	4.5456	0.0080

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0080	0.0008	0.0072
2	0.0080	0.0008	0.0072
3	0.0081	0.0008	0.0073
4	0.0081	0.0008	0.0073
5	0.0081	0.0008	0.0073
6	0.0081	0.0008	0.0073
7	0.0081	0.0008	0.0073
8	0.0082	0.0008	0.0073
9	0.0082	0.0008	0.0074
10	0.0082	0.0008	0.0074
11	0.0082	0.0008	0.0074
12	0.0082	0.0008	0.0074
13	0.0083	0.0008	0.0075
14	0.0083	0.0008	0.0075
15	0.0083	0.0008	0.0075
16	0.0083	0.0008	0.0075
17	0.0084	0.0008	0.0075
18	0.0084	0.0008	0.0076
19	0.0084	0.0008	0.0076
20	0.0084	0.0008	0.0076
21	0.0085	0.0008	0.0076
22	0.0085	0.0008	0.0076
23	0.0085	0.0008	0.0077
24	0.0085	0.0008	0.0077
25	0.0086	0.0009	0.0077
26	0.0086	0.0009	0.0077
27	0.0086	0.0009	0.0078

28	0.0086	0.0009	0.0078
29	0.0087	0.0009	0.0078
30	0.0087	0.0009	0.0078
31	0.0087	0.0009	0.0079
32	0.0087	0.0009	0.0079
33	0.0088	0.0009	0.0079
34	0.0088	0.0009	0.0079
35	0.0088	0.0009	0.0079
36	0.0088	0.0009	0.0080
37	0.0089	0.0009	0.0080
38	0.0089	0.0009	0.0080
39	0.0089	0.0009	0.0081
40	0.0090	0.0009	0.0081
41	0.0090	0.0009	0.0081
42	0.0090	0.0009	0.0081
43	0.0091	0.0009	0.0082
44	0.0091	0.0009	0.0082
45	0.0091	0.0009	0.0082
46	0.0091	0.0009	0.0082
47	0.0092	0.0009	0.0083
48	0.0092	0.0009	0.0083
49	0.0092	0.0009	0.0083
50	0.0093	0.0009	0.0083
51	0.0093	0.0009	0.0084
52	0.0093	0.0009	0.0084
53	0.0094	0.0009	0.0084
54	0.0094	0.0009	0.0085
55	0.0094	0.0009	0.0085
56	0.0095	0.0009	0.0085
57	0.0095	0.0009	0.0086
58	0.0095	0.0009	0.0086
59	0.0096	0.0010	0.0086
60	0.0096	0.0010	0.0086
61	0.0096	0.0010	0.0087
62	0.0097	0.0010	0.0087
63	0.0097	0.0010	0.0088
64	0.0097	0.0010	0.0088
65	0.0098	0.0010	0.0088
66	0.0098	0.0010	0.0088
67	0.0099	0.0010	0.0089
68	0.0099	0.0010	0.0089
69	0.0099	0.0010	0.0090
70	0.0100	0.0010	0.0090
71	0.0100	0.0010	0.0090
72	0.0101	0.0010	0.0091
73	0.0101	0.0010	0.0091
74	0.0101	0.0010	0.0091
75	0.0102	0.0010	0.0092
76	0.0102	0.0010	0.0092
77	0.0103	0.0010	0.0093
78	0.0103	0.0010	0.0093
79	0.0104	0.0010	0.0093
80	0.0104	0.0010	0.0094
81	0.0105	0.0010	0.0094
82	0.0105	0.0010	0.0094
83	0.0106	0.0010	0.0095
84	0.0106	0.0011	0.0095
85	0.0106	0.0011	0.0096
86	0.0107	0.0011	0.0096
87	0.0107	0.0011	0.0097
88	0.0108	0.0011	0.0097
89	0.0109	0.0011	0.0098
90	0.0109	0.0011	0.0098

91	0.0110	0.0011	0.0099
92	0.0110	0.0011	0.0099
93	0.0111	0.0011	0.0100
94	0.0111	0.0011	0.0100
95	0.0112	0.0011	0.0101
96	0.0112	0.0011	0.0101
97	0.0113	0.0011	0.0102
98	0.0113	0.0011	0.0102
99	0.0114	0.0011	0.0103
100	0.0114	0.0011	0.0103
101	0.0115	0.0011	0.0104
102	0.0116	0.0011	0.0104
103	0.0117	0.0012	0.0105
104	0.0117	0.0012	0.0105
105	0.0118	0.0012	0.0106
106	0.0118	0.0012	0.0107
107	0.0119	0.0012	0.0107
108	0.0120	0.0012	0.0108
109	0.0121	0.0012	0.0109
110	0.0121	0.0012	0.0109
111	0.0122	0.0012	0.0110
112	0.0123	0.0012	0.0110
113	0.0124	0.0012	0.0111
114	0.0124	0.0012	0.0112
115	0.0125	0.0012	0.0113
116	0.0126	0.0012	0.0113
117	0.0127	0.0013	0.0114
118	0.0127	0.0013	0.0115
119	0.0128	0.0013	0.0116
120	0.0129	0.0013	0.0116
121	0.0130	0.0013	0.0117
122	0.0131	0.0013	0.0118
123	0.0132	0.0013	0.0119
124	0.0133	0.0013	0.0119
125	0.0134	0.0013	0.0121
126	0.0135	0.0013	0.0121
127	0.0136	0.0013	0.0122
128	0.0137	0.0014	0.0123
129	0.0138	0.0014	0.0124
130	0.0139	0.0014	0.0125
131	0.0140	0.0014	0.0126
132	0.0141	0.0014	0.0127
133	0.0142	0.0014	0.0128
134	0.0143	0.0014	0.0129
135	0.0145	0.0014	0.0130
136	0.0146	0.0014	0.0131
137	0.0147	0.0015	0.0133
138	0.0148	0.0015	0.0134
139	0.0150	0.0015	0.0135
140	0.0151	0.0015	0.0136
141	0.0153	0.0015	0.0138
142	0.0154	0.0015	0.0139
143	0.0156	0.0015	0.0140
144	0.0157	0.0016	0.0141
145	0.0164	0.0016	0.0148
146	0.0165	0.0016	0.0149
147	0.0168	0.0017	0.0151
148	0.0169	0.0017	0.0152
149	0.0171	0.0017	0.0154
150	0.0172	0.0017	0.0155
151	0.0175	0.0017	0.0158
152	0.0176	0.0018	0.0159
153	0.0179	0.0018	0.0161

154	0.0181	0.0018	0.0163
155	0.0184	0.0018	0.0165
156	0.0185	0.0018	0.0167
157	0.0189	0.0019	0.0170
158	0.0190	0.0019	0.0171
159	0.0194	0.0019	0.0175
160	0.0196	0.0019	0.0176
161	0.0199	0.0020	0.0180
162	0.0202	0.0020	0.0182
163	0.0206	0.0020	0.0185
164	0.0208	0.0021	0.0187
165	0.0213	0.0021	0.0192
166	0.0215	0.0021	0.0194
167	0.0220	0.0022	0.0199
168	0.0223	0.0022	0.0201
169	0.0229	0.0023	0.0206
170	0.0232	0.0023	0.0209
171	0.0239	0.0024	0.0215
172	0.0243	0.0024	0.0219
173	0.0250	0.0025	0.0225
174	0.0254	0.0025	0.0229
175	0.0263	0.0026	0.0237
176	0.0268	0.0027	0.0242
177	0.0279	0.0028	0.0251
178	0.0285	0.0028	0.0256
179	0.0298	0.0030	0.0268
180	0.0305	0.0030	0.0275
181	0.0321	0.0032	0.0289
182	0.0330	0.0033	0.0297
183	0.0351	0.0035	0.0316
184	0.0363	0.0036	0.0327
185	0.0301	0.0030	0.0271
186	0.0318	0.0032	0.0286
187	0.0361	0.0036	0.0325
188	0.0389	0.0039	0.0351
189	0.0469	0.0041	0.0428
190	0.0529	0.0041	0.0489
191	0.0757	0.0041	0.0716
192	0.1041	0.0041	0.1000
193	0.3257	0.0041	0.3216
194	0.0616	0.0041	0.0576
195	0.0424	0.0041	0.0383
196	0.0338	0.0034	0.0304
197	0.0377	0.0037	0.0339
198	0.0340	0.0034	0.0306
199	0.0313	0.0031	0.0282
200	0.0291	0.0029	0.0262
201	0.0273	0.0027	0.0246
202	0.0259	0.0026	0.0233
203	0.0246	0.0024	0.0222
204	0.0236	0.0023	0.0212
205	0.0226	0.0022	0.0204
206	0.0218	0.0022	0.0196
207	0.0210	0.0021	0.0189
208	0.0204	0.0020	0.0183
209	0.0198	0.0020	0.0178
210	0.0192	0.0019	0.0173
211	0.0187	0.0019	0.0168
212	0.0182	0.0018	0.0164
213	0.0178	0.0018	0.0160
214	0.0174	0.0017	0.0156
215	0.0170	0.0017	0.0153
216	0.0166	0.0017	0.0150

217	0.0158	0.0016	0.0142
218	0.0155	0.0015	0.0140
219	0.0152	0.0015	0.0137
220	0.0149	0.0015	0.0134
221	0.0147	0.0015	0.0132
222	0.0144	0.0014	0.0130
223	0.0142	0.0014	0.0128
224	0.0139	0.0014	0.0126
225	0.0137	0.0014	0.0124
226	0.0135	0.0013	0.0122
227	0.0133	0.0013	0.0120
228	0.0131	0.0013	0.0118
229	0.0130	0.0013	0.0117
230	0.0128	0.0013	0.0115
231	0.0126	0.0013	0.0114
232	0.0125	0.0012	0.0112
233	0.0123	0.0012	0.0111
234	0.0122	0.0012	0.0109
235	0.0120	0.0012	0.0108
236	0.0119	0.0012	0.0107
237	0.0117	0.0012	0.0106
238	0.0116	0.0012	0.0105
239	0.0115	0.0011	0.0103
240	0.0114	0.0011	0.0102
241	0.0112	0.0011	0.0101
242	0.0111	0.0011	0.0100
243	0.0110	0.0011	0.0099
244	0.0109	0.0011	0.0098
245	0.0108	0.0011	0.0097
246	0.0107	0.0011	0.0097
247	0.0106	0.0011	0.0096
248	0.0105	0.0010	0.0095
249	0.0104	0.0010	0.0094
250	0.0103	0.0010	0.0093
251	0.0103	0.0010	0.0092
252	0.0102	0.0010	0.0092
253	0.0101	0.0010	0.0091
254	0.0100	0.0010	0.0090
255	0.0099	0.0010	0.0089
256	0.0098	0.0010	0.0089
257	0.0098	0.0010	0.0088
258	0.0097	0.0010	0.0087
259	0.0096	0.0010	0.0087
260	0.0096	0.0009	0.0086
261	0.0095	0.0009	0.0085
262	0.0094	0.0009	0.0085
263	0.0093	0.0009	0.0084
264	0.0093	0.0009	0.0084
265	0.0092	0.0009	0.0083
266	0.0092	0.0009	0.0082
267	0.0091	0.0009	0.0082
268	0.0090	0.0009	0.0081
269	0.0090	0.0009	0.0081
270	0.0089	0.0009	0.0080
271	0.0089	0.0009	0.0080
272	0.0088	0.0009	0.0079
273	0.0088	0.0009	0.0079
274	0.0087	0.0009	0.0078
275	0.0086	0.0009	0.0078
276	0.0086	0.0009	0.0077
277	0.0085	0.0008	0.0077
278	0.0085	0.0008	0.0077
279	0.0084	0.0008	0.0076

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280              0.0084           0.0008              0.0076
281              0.0084           0.0008              0.0075
282              0.0083           0.0008              0.0075
283              0.0083           0.0008              0.0074
284              0.0082           0.0008              0.0074
285              0.0082           0.0008              0.0074
286              0.0081           0.0008              0.0073
287              0.0081           0.0008              0.0073
288              0.0080           0.0008              0.0072
-------------------------------------------------------------------
-------------------------------------------------------------------
Total soil rain loss =      0.41(In)
Total effective rainfall =      4.14(In)
Peak flow rate in flood hydrograph =      2.60(CFS)
-----------------------------------------------------------------------
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R    S T O R M
                R u n o f f      H y d r o g r a p h
-------------------------------------------------------------------
            Hydrograph in   5   Minute intervals ((CFS))

-------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
-------------------------------------------------------------------
  0+ 5       0.0001      0.01  Q         |         |         |         |
  0+10       0.0005      0.06  Q         |         |         |         |
  0+15       0.0011      0.08  Q         |         |         |         |
  0+20       0.0017      0.09  Q         |         |         |         |
  0+25       0.0023      0.09  Q         |         |         |         |
  0+30       0.0029      0.09  Q         |         |         |         |
  0+35       0.0035      0.09  Q         |         |         |         |
  0+40       0.0041      0.09  Q         |         |         |         |
  0+45       0.0047      0.09  Q         |         |         |         |
  0+50       0.0053      0.09  Q         |         |         |         |
  0+55       0.0059      0.09  Q         |         |         |         |
  1+ 0       0.0065      0.09  Q         |         |         |         |
  1+ 5       0.0072      0.09  Q         |         |         |         |
  1+10       0.0078      0.09  Q         |         |         |         |
  1+15       0.0084      0.09  Q         |         |         |         |
  1+20       0.0090      0.09  QV        |         |         |         |
  1+25       0.0096      0.09  QV        |         |         |         |
  1+30       0.0103      0.09  QV        |         |         |         |
  1+35       0.0109      0.09  QV        |         |         |         |
  1+40       0.0115      0.09  QV        |         |         |         |
  1+45       0.0122      0.09  QV        |         |         |         |
  1+50       0.0128      0.09  QV        |         |         |         |
  1+55       0.0134      0.09  QV        |         |         |         |
  2+ 0       0.0141      0.09  QV        |         |         |         |
  2+ 5       0.0147      0.09  QV        |         |         |         |
  2+10       0.0154      0.09  QV        |         |         |         |
  2+15       0.0160      0.09  QV        |         |         |         |
  2+20       0.0166      0.09  QV        |         |         |         |
  2+25       0.0173      0.09  Q V       |         |         |         |
  2+30       0.0179      0.09  Q V       |         |         |         |
  2+35       0.0186      0.09  Q V       |         |         |         |
  2+40       0.0192      0.09  Q V       |         |         |         |
  2+45       0.0199      0.10  Q V       |         |         |         |
  2+50       0.0206      0.10  Q V       |         |         |         |
  2+55       0.0212      0.10  Q V       |         |         |         |
  3+ 0       0.0219      0.10  Q V       |         |         |         |
  3+ 5       0.0225      0.10  Q V       |         |         |         |
  3+10       0.0232      0.10  Q V       |         |         |         |
  3+15       0.0239      0.10  Q V       |         |         |         |
```

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3+20        0.0245      0.10  Q V        |          |          |
3+25        0.0252      0.10  Q V        |          |          |
3+30        0.0259      0.10  Q  V       |          |          |
3+35        0.0266      0.10  Q  V       |          |          |
3+40        0.0272      0.10  Q  V       |          |          |
3+45        0.0279      0.10  Q  V       |          |          |
3+50        0.0286      0.10  Q  V       |          |          |
3+55        0.0293      0.10  Q  V       |          |          |
4+ 0        0.0300      0.10  Q  V       |          |          |
4+ 5        0.0307      0.10  Q  V       |          |          |
4+10        0.0314      0.10  Q  V       |          |          |
4+15        0.0321      0.10  Q  V       |          |          |
4+20        0.0328      0.10  Q  V       |          |          |
4+25        0.0335      0.10  Q  V       |          |          |
4+30        0.0342      0.10  Q  V       |          |          |
4+35        0.0349      0.10  Q   V      |          |          |
4+40        0.0356      0.10  Q   V      |          |          |
4+45        0.0363      0.10  Q   V      |          |          |
4+50        0.0370      0.10  Q   V      |          |          |
4+55        0.0377      0.10  Q   V      |          |          |
5+ 0        0.0384      0.10  Q   V      |          |          |
5+ 5        0.0391      0.10  Q   V      |          |          |
5+10        0.0399      0.10  Q   V      |          |          |
5+15        0.0406      0.11  Q   V      |          |          |
5+20        0.0413      0.11  Q   V      |          |          |
5+25        0.0420      0.11  Q   V      |          |          |
5+30        0.0428      0.11  Q   V      |          |          |
5+35        0.0435      0.11  Q    V     |          |          |
5+40        0.0443      0.11  Q    V     |          |          |
5+45        0.0450      0.11  Q    V     |          |          |
5+50        0.0457      0.11  Q    V     |          |          |
5+55        0.0465      0.11  Q    V     |          |          |
6+ 0        0.0472      0.11  Q    V     |          |          |
6+ 5        0.0480      0.11  Q    V     |          |          |
6+10        0.0488      0.11  Q    V     |          |          |
6+15        0.0495      0.11  Q    V     |          |          |
6+20        0.0503      0.11  Q    V     |          |          |
6+25        0.0510      0.11  Q    V     |          |          |
6+30        0.0518      0.11  Q     V    |          |          |
6+35        0.0526      0.11  Q     V    |          |          |
6+40        0.0534      0.11  Q     V    |          |          |
6+45        0.0541      0.11  Q     V    |          |          |
6+50        0.0549      0.11  Q     V    |          |          |
6+55        0.0557      0.11  Q     V    |          |          |
7+ 0        0.0565      0.11  Q     V    |          |          |
7+ 5        0.0573      0.12  Q     V    |          |          |
7+10        0.0581      0.12  Q     V    |          |          |
7+15        0.0589      0.12  Q     V    |          |          |
7+20        0.0597      0.12  Q     V    |          |          |
7+25        0.0605      0.12  Q      V   |          |          |
7+30        0.0613      0.12  Q      V   |          |          |
7+35        0.0621      0.12  Q      V   |          |          |
7+40        0.0630      0.12  Q      V   |          |          |
7+45        0.0638      0.12  Q      V   |          |          |
7+50        0.0646      0.12  Q      V   |          |          |
7+55        0.0654      0.12  Q      V   |          |          |
8+ 0        0.0663      0.12  Q      V   |          |          |
8+ 5        0.0671      0.12  Q      V   |          |          |
8+10        0.0680      0.12  Q      V   |          |          |
8+15        0.0688      0.12  Q      V   |          |          |
8+20        0.0697      0.12  Q       V  |          |          |
8+25        0.0705      0.12  Q       V  |          |          |
8+30        0.0714      0.13  Q       V  |          |          |
```

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 8+35       0.0723      0.13  Q        V |          |          |          |
 8+40       0.0731      0.13  Q        V |          |          |          |
 8+45       0.0740      0.13  Q        V |          |          |          |
 8+50       0.0749      0.13  Q        V |          |          |          |
 8+55       0.0758      0.13  Q        V |          |          |          |
 9+ 0       0.0767      0.13  Q        V |          |          |          |
 9+ 5       0.0776      0.13  Q         V|          |          |          |
 9+10       0.0785      0.13  Q         V|          |          |          |
 9+15       0.0794      0.13  Q         V|          |          |          |
 9+20       0.0803      0.13  Q         V|          |          |          |
 9+25       0.0812      0.13  Q         V|          |          |          |
 9+30       0.0821      0.13  Q         V|          |          |          |
 9+35       0.0831      0.14  Q         V|          |          |          |
 9+40       0.0840      0.14  Q         V|          |          |          |
 9+45       0.0849      0.14  Q         V|          |          |          |
 9+50       0.0859      0.14  Q         V|          |          |          |
 9+55       0.0868      0.14  Q          V          |          |          |
10+ 0       0.0878      0.14  Q          V          |          |          |
10+ 5       0.0888      0.14  Q          V          |          |          |
10+10       0.0897      0.14  Q          V          |          |          |
10+15       0.0907      0.14  Q          V          |          |          |
10+20       0.0917      0.14  Q          V          |          |          |
10+25       0.0927      0.14  Q          V          |          |          |
10+30       0.0937      0.15  Q          V          |          |          |
10+35       0.0947      0.15  Q          V          |          |          |
10+40       0.0957      0.15  Q          |V         |          |          |
10+45       0.0968      0.15  Q          |V         |          |          |
10+50       0.0978      0.15  Q          |V         |          |          |
10+55       0.0988      0.15  Q          |V         |          |          |
11+ 0       0.0999      0.15  Q          |V         |          |          |
11+ 5       0.1009      0.15  Q          |V         |          |          |
11+10       0.1020      0.15  Q          |V         |          |          |
11+15       0.1031      0.16  Q          |V         |          |          |
11+20       0.1041      0.16  Q          | V        |          |          |
11+25       0.1052      0.16  Q          | V        |          |          |
11+30       0.1063      0.16  Q          | V        |          |          |
11+35       0.1075      0.16  Q          | V        |          |          |
11+40       0.1086      0.16  Q          | V        |          |          |
11+45       0.1097      0.16  Q          | V        |          |          |
11+50       0.1109      0.17  Q          | V        |          |          |
11+55       0.1120      0.17  Q          |  V       |          |          |
12+ 0       0.1132      0.17  Q          |  V       |          |          |
12+ 5       0.1143      0.17  Q          |  V       |          |          |
12+10       0.1156      0.18  Q          |  V       |          |          |
12+15       0.1168      0.18  Q          |  V       |          |          |
12+20       0.1181      0.18  Q          |  V       |          |          |
12+25       0.1193      0.18  Q          |  V       |          |          |
12+30       0.1206      0.19  Q          |   V      |          |          |
12+35       0.1219      0.19  Q          |   V      |          |          |
12+40       0.1232      0.19  Q          |   V      |          |          |
12+45       0.1245      0.19  Q          |   V      |          |          |
12+50       0.1259      0.19  Q          |   V      |          |          |
12+55       0.1272      0.20  Q          |   V      |          |          |
13+ 0       0.1286      0.20  Q          |   V      |          |          |
13+ 5       0.1300      0.20  Q          |    V     |          |          |
13+10       0.1314      0.20  Q          |    V     |          |          |
13+15       0.1328      0.21  Q          |    V     |          |          |
13+20       0.1342      0.21  Q          |    V     |          |          |
13+25       0.1357      0.21  Q          |    V     |          |          |
13+30       0.1372      0.22  Q          |    V     |          |          |
13+35       0.1387      0.22  Q          |     V    |          |          |
13+40       0.1402      0.22  Q          |     V    |          |          |
13+45       0.1418      0.23  Q          |     V    |          |          |
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13+50       0.1434      0.23  Q          |      V   |          |          |
13+55       0.1450      0.23  Q          |      V   |          |          |
14+ 0       0.1466      0.24  Q          |       V  |          |          |
14+ 5       0.1483      0.24  Q          |       V  |          |          |
14+10       0.1500      0.25  Q          |       V  |          |          |
14+15       0.1518      0.25  |Q         |       V  |          |          |
14+20       0.1535      0.26  |Q         |       V  |          |          |
14+25       0.1554      0.26  |Q         |        V |          |          |
14+30       0.1572      0.27  |Q         |        V |          |          |
14+35       0.1591      0.28  |Q         |        V |          |          |
14+40       0.1611      0.28  |Q         |        V |          |          |
14+45       0.1631      0.29  |Q         |        V |          |          |
14+50       0.1651      0.30  |Q         |         V|          |          |
14+55       0.1673      0.31  |Q         |         V|          |          |
15+ 0       0.1695      0.32  |Q         |         V|          |          |
15+ 5       0.1718      0.33  |Q         |         V|          |          |
15+10       0.1741      0.34  |Q         |          V          |          |
15+15       0.1766      0.36  |Q         |          V          |          |
15+20       0.1792      0.38  |Q         |          V          |          |
15+25       0.1818      0.38  |Q         |          |V         |          |
15+30       0.1842      0.35  |Q         |          |V         |          |
15+35       0.1866      0.35  |Q         |          |V         |          |
15+40       0.1893      0.38  |Q         |          |V         |          |
15+45       0.1922      0.42  |Q         |          | V        |          |
15+50       0.1956      0.49  |Q         |          | V        |          |
15+55       0.1997      0.60  | Q        |          |  V       |          |
16+ 0       0.2053      0.81  |  Q       |          |  V       |          |
16+ 5       0.2151      1.42  |    Q     |          |   V      |          |
16+10       0.2330      2.60  |        Q           |      V   |          |
16+15       0.2438      1.57  |      Q   |          |       V  |          |
16+20       0.2484      0.66  | Q        |          |       V  |          |
16+25       0.2514      0.44  |Q         |          |        V|          |
16+30       0.2542      0.40  |Q         |          |        V|          |
16+35       0.2568      0.38  |Q         |          |        V|          |
16+40       0.2592      0.35  |Q         |          |         V          |
16+45       0.2614      0.32  |Q         |          |         V          |
16+50       0.2635      0.30  |Q         |          |         V          |
16+55       0.2655      0.29  |Q         |          |         V          |
17+ 0       0.2673      0.27  |Q         |          |         |V         |
17+ 5       0.2691      0.26  |Q         |          |         |V         |
17+10       0.2708      0.25  Q          |          |         |V         |
17+15       0.2725      0.24  Q          |          |         |V         |
17+20       0.2741      0.23  Q          |          |         |V         |
17+25       0.2756      0.22  Q          |          |         | V        |
17+30       0.2771      0.22  Q          |          |         | V        |
17+35       0.2786      0.21  Q          |          |         | V        |
17+40       0.2800      0.21  Q          |          |         | V        |
17+45       0.2814      0.20  Q          |          |         | V        |
17+50       0.2827      0.19  Q          |          |         | V        |
17+55       0.2840      0.19  Q          |          |         | V        |
18+ 0       0.2853      0.19  Q          |          |         |  V       |
18+ 5       0.2866      0.18  Q          |          |         |  V       |
18+10       0.2878      0.17  Q          |          |         |  V       |
18+15       0.2889      0.17  Q          |          |         |  V       |
18+20       0.2901      0.17  Q          |          |         |  V       |
18+25       0.2912      0.16  Q          |          |         |  V       |
18+30       0.2923      0.16  Q          |          |         |  V       |
18+35       0.2934      0.16  Q          |          |         |   V      |
18+40       0.2945      0.15  Q          |          |         |   V      |
18+45       0.2955      0.15  Q          |          |         |   V      |
18+50       0.2965      0.15  Q          |          |         |   V      |
18+55       0.2976      0.15  Q          |          |         |   V      |
19+ 0       0.2986      0.15  Q          |          |         |   V      |
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19+ 5       0.2996      0.14  Q          |          |          |   V     |
19+10       0.3005      0.14  Q          |          |          |   V     |
19+15       0.3015      0.14  Q          |          |          |    V    |
19+20       0.3024      0.14  Q          |          |          |    V    |
19+25       0.3034      0.14  Q          |          |          |    V    |
19+30       0.3043      0.13  Q          |          |          |    V    |
19+35       0.3052      0.13  Q          |          |          |    V    |
19+40       0.3061      0.13  Q          |          |          |    V    |
19+45       0.3070      0.13  Q          |          |          |    V    |
19+50       0.3079      0.13  Q          |          |          |    V    |
19+55       0.3088      0.13  Q          |          |          |    V    |
20+ 0       0.3096      0.13  Q          |          |          |    V    |
20+ 5       0.3105      0.12  Q          |          |          |     V   |
20+10       0.3113      0.12  Q          |          |          |     V   |
20+15       0.3122      0.12  Q          |          |          |     V   |
20+20       0.3130      0.12  Q          |          |          |     V   |
20+25       0.3138      0.12  Q          |          |          |     V   |
20+30       0.3146      0.12  Q          |          |          |     V   |
20+35       0.3154      0.12  Q          |          |          |     V   |
20+40       0.3162      0.12  Q          |          |          |     V   |
20+45       0.3170      0.11  Q          |          |          |     V   |
20+50       0.3178      0.11  Q          |          |          |     V   |
20+55       0.3186      0.11  Q          |          |          |     V   |
21+ 0       0.3194      0.11  Q          |          |          |      V  |
21+ 5       0.3201      0.11  Q          |          |          |      V  |
21+10       0.3209      0.11  Q          |          |          |      V  |
21+15       0.3216      0.11  Q          |          |          |      V  |
21+20       0.3224      0.11  Q          |          |          |      V  |
21+25       0.3231      0.11  Q          |          |          |      V  |
21+30       0.3239      0.11  Q          |          |          |      V  |
21+35       0.3246      0.11  Q          |          |          |      V  |
21+40       0.3253      0.11  Q          |          |          |      V  |
21+45       0.3260      0.10  Q          |          |          |      V  |
21+50       0.3267      0.10  Q          |          |          |      V  |
21+55       0.3275      0.10  Q          |          |          |       V |
22+ 0       0.3282      0.10  Q          |          |          |       V |
22+ 5       0.3289      0.10  Q          |          |          |       V |
22+10       0.3295      0.10  Q          |          |          |       V |
22+15       0.3302      0.10  Q          |          |          |       V |
22+20       0.3309      0.10  Q          |          |          |       V |
22+25       0.3316      0.10  Q          |          |          |       V |
22+30       0.3323      0.10  Q          |          |          |       V |
22+35       0.3329      0.10  Q          |          |          |       V |
22+40       0.3336      0.10  Q          |          |          |       V |
22+45       0.3343      0.10  Q          |          |          |       V |
22+50       0.3349      0.10  Q          |          |          |       V |
22+55       0.3356      0.09  Q          |          |          |       V |
23+ 0       0.3362      0.09  Q          |          |          |        V|
23+ 5       0.3369      0.09  Q          |          |          |        V|
23+10       0.3375      0.09  Q          |          |          |        V|
23+15       0.3382      0.09  Q          |          |          |        V|
23+20       0.3388      0.09  Q          |          |          |        V|
23+25       0.3394      0.09  Q          |          |          |        V|
23+30       0.3401      0.09  Q          |          |          |        V|
23+35       0.3407      0.09  Q          |          |          |        V|
23+40       0.3413      0.09  Q          |          |          |        V|
23+45       0.3419      0.09  Q          |          |          |        V|
23+50       0.3425      0.09  Q          |          |          |        V|
23+55       0.3431      0.09  Q          |          |          |        V|
24+ 0       0.3437      0.09  Q          |          |          |        V|
24+ 5       0.3443      0.08  Q          |          |          |        V|
24+10       0.3445      0.03  Q          |          |          |        V|
24+15       0.3445      0.00  Q          |          |          |        V|
```

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   24+20        0.3445       0.00  Q          |          |          |         V|
-----------------------------------------------------------------------------------
```

Underground System
Capacity = 0.3795 Ac-ft

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

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Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Proposed Conditions
Area P1

Storm Event Year = 25

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
1.00	1	0.88
Rainfall data for year 2		
1.00	6	1.55
Rainfall data for year 2		
1.00	24	2.90
Rainfall data for year 100		
1.00	1	1.25
Rainfall data for year 100		
1.00	6	3.25
Rainfall data for year 100		
1.00	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 2)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
32.0	32.0	1.00	1.000	0.978	0.050	0.049

Area-averaged adjusted loss rate Fm (In/Hr) = 0.049

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
0.05	0.050	32.0	32.0	21.25	0.012
0.95	0.950	98.0	98.0	0.20	0.957

Area-averaged catchment yield fraction, Y = 0.909
Area-averaged low loss fraction, Yb = 0.091
User entry of time of concentration = 0.124 (hours)
++
Watershed area = 1.00(Ac.)
Catchment Lag time = 0.099 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 84.0054
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.049(In/Hr)
Average low loss rate fraction (Yb) = 0.091 (decimal)
VALLEY DEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.380(In)
Computed peak 30-minute rainfall = 0.779(In)
Specified peak 1-hour rainfall = 1.027(In)
Computed peak 3-hour rainfall = 1.836(In)
Specified peak 6-hour rainfall = 2.648(In)
Specified peak 24-hour rainfall = 5.483(In)

Rainfall depth area reduction factors:
Using a total area of 1.00(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.380(In)
30-minute factor = 1.000 Adjusted rainfall = 0.778(In)
1-hour factor = 1.000 Adjusted rainfall = 1.027(In)
3-hour factor = 1.000 Adjusted rainfall = 1.836(In)
6-hour factor = 1.000 Adjusted rainfall = 2.648(In)
24-hour factor = 1.000 Adjusted rainfall = 5.483(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 12.09 (CFS))	
1	12.391	1.499
2	67.521	6.667
3	95.128	3.339
4	99.092	0.479
5	100.000	0.110

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.3802	0.3802
2	0.5016	0.1215
3	0.5900	0.0883
4	0.6619	0.0719
5	0.7237	0.0618

6	0.7785	0.0548
7	0.8280	0.0495
8	0.8734	0.0454
9	0.9155	0.0421
10	0.9549	0.0394
11	0.9921	0.0371
12	1.0272	0.0351
13	1.0716	0.0444
14	1.1144	0.0428
15	1.1557	0.0414
16	1.1958	0.0401
17	1.2348	0.0389
18	1.2726	0.0379
19	1.3095	0.0369
20	1.3455	0.0360
21	1.3806	0.0351
22	1.4150	0.0344
23	1.4486	0.0336
24	1.4816	0.0329
25	1.5139	0.0323
26	1.5456	0.0317
27	1.5767	0.0311
28	1.6073	0.0306
29	1.6374	0.0301
30	1.6670	0.0296
31	1.6961	0.0291
32	1.7248	0.0287
33	1.7531	0.0283
34	1.7810	0.0279
35	1.8085	0.0275
36	1.8356	0.0271
37	1.8624	0.0268
38	1.8888	0.0264
39	1.9149	0.0261
40	1.9407	0.0258
41	1.9662	0.0255
42	1.9914	0.0252
43	2.0163	0.0249
44	2.0409	0.0246
45	2.0653	0.0244
46	2.0895	0.0241
47	2.1133	0.0239
48	2.1370	0.0236
49	2.1604	0.0234
50	2.1836	0.0232
51	2.2065	0.0230
52	2.2293	0.0228
53	2.2518	0.0226
54	2.2742	0.0224
55	2.2964	0.0222
56	2.3183	0.0220
57	2.3401	0.0218
58	2.3617	0.0216
59	2.3831	0.0214
60	2.4044	0.0213
61	2.4255	0.0211
62	2.4464	0.0209
63	2.4672	0.0208
64	2.4878	0.0206
65	2.5083	0.0205
66	2.5286	0.0203
67	2.5488	0.0202
68	2.5688	0.0200

69	2.5887	0.0199
70	2.6084	0.0198
71	2.6281	0.0196
72	2.6476	0.0195
73	2.6668	0.0192
74	2.6859	0.0191
75	2.7049	0.0190
76	2.7238	0.0189
77	2.7426	0.0188
78	2.7612	0.0186
79	2.7797	0.0185
80	2.7982	0.0184
81	2.8165	0.0183
82	2.8347	0.0182
83	2.8528	0.0181
84	2.8708	0.0180
85	2.8887	0.0179
86	2.9065	0.0178
87	2.9242	0.0177
88	2.9418	0.0176
89	2.9593	0.0175
90	2.9767	0.0174
91	2.9940	0.0173
92	3.0112	0.0172
93	3.0284	0.0171
94	3.0454	0.0171
95	3.0624	0.0170
96	3.0793	0.0169
97	3.0961	0.0168
98	3.1128	0.0167
99	3.1294	0.0166
100	3.1460	0.0166
101	3.1625	0.0165
102	3.1789	0.0164
103	3.1952	0.0163
104	3.2115	0.0163
105	3.2276	0.0162
106	3.2438	0.0161
107	3.2598	0.0160
108	3.2757	0.0160
109	3.2916	0.0159
110	3.3075	0.0158
111	3.3232	0.0158
112	3.3389	0.0157
113	3.3545	0.0156
114	3.3701	0.0156
115	3.3856	0.0155
116	3.4010	0.0154
117	3.4164	0.0154
118	3.4317	0.0153
119	3.4469	0.0152
120	3.4621	0.0152
121	3.4772	0.0151
122	3.4923	0.0151
123	3.5073	0.0150
124	3.5222	0.0149
125	3.5371	0.0149
126	3.5519	0.0148
127	3.5667	0.0148
128	3.5814	0.0147
129	3.5961	0.0147
130	3.6107	0.0146
131	3.6252	0.0146

132	3.6397	0.0145
133	3.6542	0.0145
134	3.6686	0.0144
135	3.6830	0.0144
136	3.6973	0.0143
137	3.7115	0.0142
138	3.7257	0.0142
139	3.7399	0.0142
140	3.7540	0.0141
141	3.7680	0.0141
142	3.7820	0.0140
143	3.7960	0.0140
144	3.8099	0.0139
145	3.8238	0.0139
146	3.8376	0.0138
147	3.8514	0.0138
148	3.8651	0.0137
149	3.8788	0.0137
150	3.8924	0.0136
151	3.9061	0.0136
152	3.9196	0.0136
153	3.9331	0.0135
154	3.9466	0.0135
155	3.9600	0.0134
156	3.9734	0.0134
157	3.9868	0.0134
158	4.0001	0.0133
159	4.0134	0.0133
160	4.0266	0.0132
161	4.0398	0.0132
162	4.0530	0.0132
163	4.0661	0.0131
164	4.0792	0.0131
165	4.0922	0.0130
166	4.1052	0.0130
167	4.1182	0.0130
168	4.1311	0.0129
169	4.1440	0.0129
170	4.1569	0.0129
171	4.1697	0.0128
172	4.1825	0.0128
173	4.1952	0.0128
174	4.2079	0.0127
175	4.2206	0.0127
176	4.2333	0.0126
177	4.2459	0.0126
178	4.2585	0.0126
179	4.2710	0.0125
180	4.2835	0.0125
181	4.2960	0.0125
182	4.3084	0.0124
183	4.3208	0.0124
184	4.3332	0.0124
185	4.3456	0.0123
186	4.3579	0.0123
187	4.3702	0.0123
188	4.3824	0.0123
189	4.3947	0.0122
190	4.4069	0.0122
191	4.4190	0.0122
192	4.4312	0.0121
193	4.4433	0.0121
194	4.4553	0.0121

195	4.4674	0.0120
196	4.4794	0.0120
197	4.4914	0.0120
198	4.5033	0.0120
199	4.5153	0.0119
200	4.5272	0.0119
201	4.5390	0.0119
202	4.5509	0.0118
203	4.5627	0.0118
204	4.5745	0.0118
205	4.5862	0.0118
206	4.5980	0.0117
207	4.6097	0.0117
208	4.6214	0.0117
209	4.6330	0.0117
210	4.6446	0.0116
211	4.6562	0.0116
212	4.6678	0.0116
213	4.6794	0.0115
214	4.6909	0.0115
215	4.7024	0.0115
216	4.7139	0.0115
217	4.7253	0.0114
218	4.7367	0.0114
219	4.7481	0.0114
220	4.7595	0.0114
221	4.7708	0.0113
222	4.7822	0.0113
223	4.7935	0.0113
224	4.8047	0.0113
225	4.8160	0.0113
226	4.8272	0.0112
227	4.8384	0.0112
228	4.8496	0.0112
229	4.8608	0.0112
230	4.8719	0.0111
231	4.8830	0.0111
232	4.8941	0.0111
233	4.9052	0.0111
234	4.9162	0.0110
235	4.9272	0.0110
236	4.9382	0.0110
237	4.9492	0.0110
238	4.9602	0.0110
239	4.9711	0.0109
240	4.9820	0.0109
241	4.9929	0.0109
242	5.0038	0.0109
243	5.0146	0.0108
244	5.0254	0.0108
245	5.0362	0.0108
246	5.0470	0.0108
247	5.0578	0.0108
248	5.0685	0.0107
249	5.0792	0.0107
250	5.0899	0.0107
251	5.1006	0.0107
252	5.1113	0.0107
253	5.1219	0.0106
254	5.1325	0.0106
255	5.1431	0.0106
256	5.1537	0.0106
257	5.1643	0.0106

258	5.1748	0.0105
259	5.1853	0.0105
260	5.1958	0.0105
261	5.2063	0.0105
262	5.2168	0.0105
263	5.2272	0.0104
264	5.2377	0.0104
265	5.2481	0.0104
266	5.2585	0.0104
267	5.2688	0.0104
268	5.2792	0.0104
269	5.2895	0.0103
270	5.2998	0.0103
271	5.3101	0.0103
272	5.3204	0.0103
273	5.3307	0.0103
274	5.3409	0.0102
275	5.3512	0.0102
276	5.3614	0.0102
277	5.3716	0.0102
278	5.3817	0.0102
279	5.3919	0.0102
280	5.4020	0.0101
281	5.4121	0.0101
282	5.4222	0.0101
283	5.4323	0.0101
284	5.4424	0.0101
285	5.4525	0.0101
286	5.4625	0.0100
287	5.4725	0.0100
288	5.4825	0.0100

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0100	0.0009	0.0091
2	0.0100	0.0009	0.0091
3	0.0101	0.0009	0.0091
4	0.0101	0.0009	0.0092
5	0.0101	0.0009	0.0092
6	0.0101	0.0009	0.0092
7	0.0102	0.0009	0.0092
8	0.0102	0.0009	0.0093
9	0.0102	0.0009	0.0093
10	0.0102	0.0009	0.0093
11	0.0103	0.0009	0.0093
12	0.0103	0.0009	0.0093
13	0.0103	0.0009	0.0094
14	0.0103	0.0009	0.0094
15	0.0104	0.0009	0.0094
16	0.0104	0.0009	0.0094
17	0.0104	0.0009	0.0095
18	0.0104	0.0009	0.0095
19	0.0105	0.0009	0.0095
20	0.0105	0.0010	0.0096
21	0.0105	0.0010	0.0096
22	0.0106	0.0010	0.0096
23	0.0106	0.0010	0.0096
24	0.0106	0.0010	0.0097
25	0.0107	0.0010	0.0097
26	0.0107	0.0010	0.0097
27	0.0107	0.0010	0.0098

28	0.0107	0.0010	0.0098
29	0.0108	0.0010	0.0098
30	0.0108	0.0010	0.0098
31	0.0108	0.0010	0.0099
32	0.0109	0.0010	0.0099
33	0.0109	0.0010	0.0099
34	0.0109	0.0010	0.0099
35	0.0110	0.0010	0.0100
36	0.0110	0.0010	0.0100
37	0.0110	0.0010	0.0100
38	0.0111	0.0010	0.0101
39	0.0111	0.0010	0.0101
40	0.0111	0.0010	0.0101
41	0.0112	0.0010	0.0102
42	0.0112	0.0010	0.0102
43	0.0113	0.0010	0.0102
44	0.0113	0.0010	0.0103
45	0.0113	0.0010	0.0103
46	0.0113	0.0010	0.0103
47	0.0114	0.0010	0.0104
48	0.0114	0.0010	0.0104
49	0.0115	0.0010	0.0104
50	0.0115	0.0010	0.0105
51	0.0115	0.0010	0.0105
52	0.0116	0.0010	0.0105
53	0.0116	0.0011	0.0106
54	0.0117	0.0011	0.0106
55	0.0117	0.0011	0.0106
56	0.0117	0.0011	0.0107
57	0.0118	0.0011	0.0107
58	0.0118	0.0011	0.0107
59	0.0119	0.0011	0.0108
60	0.0119	0.0011	0.0108
61	0.0120	0.0011	0.0109
62	0.0120	0.0011	0.0109
63	0.0120	0.0011	0.0110
64	0.0121	0.0011	0.0110
65	0.0121	0.0011	0.0110
66	0.0122	0.0011	0.0111
67	0.0122	0.0011	0.0111
68	0.0123	0.0011	0.0111
69	0.0123	0.0011	0.0112
70	0.0123	0.0011	0.0112
71	0.0124	0.0011	0.0113
72	0.0124	0.0011	0.0113
73	0.0125	0.0011	0.0114
74	0.0125	0.0011	0.0114
75	0.0126	0.0011	0.0115
76	0.0126	0.0011	0.0115
77	0.0127	0.0012	0.0116
78	0.0128	0.0012	0.0116
79	0.0128	0.0012	0.0117
80	0.0129	0.0012	0.0117
81	0.0129	0.0012	0.0118
82	0.0130	0.0012	0.0118
83	0.0130	0.0012	0.0119
84	0.0131	0.0012	0.0119
85	0.0132	0.0012	0.0120
86	0.0132	0.0012	0.0120
87	0.0133	0.0012	0.0121
88	0.0133	0.0012	0.0121
89	0.0134	0.0012	0.0122
90	0.0134	0.0012	0.0122

91	0.0135	0.0012	0.0123
92	0.0136	0.0012	0.0123
93	0.0136	0.0012	0.0124
94	0.0137	0.0012	0.0125
95	0.0138	0.0012	0.0125
96	0.0138	0.0013	0.0126
97	0.0139	0.0013	0.0127
98	0.0140	0.0013	0.0127
99	0.0141	0.0013	0.0128
100	0.0141	0.0013	0.0128
101	0.0142	0.0013	0.0129
102	0.0142	0.0013	0.0130
103	0.0144	0.0013	0.0131
104	0.0144	0.0013	0.0131
105	0.0145	0.0013	0.0132
106	0.0146	0.0013	0.0132
107	0.0147	0.0013	0.0133
108	0.0147	0.0013	0.0134
109	0.0148	0.0013	0.0135
110	0.0149	0.0013	0.0135
111	0.0150	0.0014	0.0136
112	0.0151	0.0014	0.0137
113	0.0152	0.0014	0.0138
114	0.0152	0.0014	0.0139
115	0.0154	0.0014	0.0140
116	0.0154	0.0014	0.0140
117	0.0156	0.0014	0.0141
118	0.0156	0.0014	0.0142
119	0.0158	0.0014	0.0143
120	0.0158	0.0014	0.0144
121	0.0160	0.0014	0.0145
122	0.0160	0.0015	0.0146
123	0.0162	0.0015	0.0147
124	0.0163	0.0015	0.0148
125	0.0164	0.0015	0.0149
126	0.0165	0.0015	0.0150
127	0.0166	0.0015	0.0151
128	0.0167	0.0015	0.0152
129	0.0169	0.0015	0.0154
130	0.0170	0.0015	0.0154
131	0.0171	0.0016	0.0156
132	0.0172	0.0016	0.0157
133	0.0174	0.0016	0.0158
134	0.0175	0.0016	0.0159
135	0.0177	0.0016	0.0161
136	0.0178	0.0016	0.0162
137	0.0180	0.0016	0.0164
138	0.0181	0.0016	0.0165
139	0.0183	0.0017	0.0167
140	0.0184	0.0017	0.0168
141	0.0186	0.0017	0.0170
142	0.0188	0.0017	0.0171
143	0.0190	0.0017	0.0173
144	0.0191	0.0017	0.0174
145	0.0195	0.0018	0.0177
146	0.0196	0.0018	0.0178
147	0.0199	0.0018	0.0181
148	0.0200	0.0018	0.0182
149	0.0203	0.0018	0.0185
150	0.0205	0.0019	0.0186
151	0.0208	0.0019	0.0189
152	0.0209	0.0019	0.0190
153	0.0213	0.0019	0.0193

154	0.0214	0.0019	0.0195
155	0.0218	0.0020	0.0198
156	0.0220	0.0020	0.0200
157	0.0224	0.0020	0.0203
158	0.0226	0.0020	0.0205
159	0.0230	0.0021	0.0209
160	0.0232	0.0021	0.0211
161	0.0236	0.0021	0.0215
162	0.0239	0.0022	0.0217
163	0.0244	0.0022	0.0222
164	0.0246	0.0022	0.0224
165	0.0252	0.0023	0.0229
166	0.0255	0.0023	0.0232
167	0.0261	0.0024	0.0237
168	0.0264	0.0024	0.0240
169	0.0271	0.0025	0.0247
170	0.0275	0.0025	0.0250
171	0.0283	0.0026	0.0257
172	0.0287	0.0026	0.0261
173	0.0296	0.0027	0.0269
174	0.0301	0.0027	0.0274
175	0.0311	0.0028	0.0283
176	0.0317	0.0029	0.0288
177	0.0329	0.0030	0.0300
178	0.0336	0.0030	0.0306
179	0.0351	0.0032	0.0320
180	0.0360	0.0033	0.0327
181	0.0379	0.0034	0.0344
182	0.0389	0.0035	0.0354
183	0.0414	0.0037	0.0376
184	0.0428	0.0039	0.0389
185	0.0351	0.0032	0.0320
186	0.0371	0.0034	0.0337
187	0.0421	0.0038	0.0383
188	0.0454	0.0041	0.0414
189	0.0548	0.0041	0.0507
190	0.0618	0.0041	0.0577
191	0.0883	0.0041	0.0843
192	0.1215	0.0041	0.1174
193	0.3802	0.0041	0.3761
194	0.0719	0.0041	0.0679
195	0.0495	0.0041	0.0454
196	0.0394	0.0036	0.0358
197	0.0444	0.0040	0.0404
198	0.0401	0.0036	0.0365
199	0.0369	0.0033	0.0335
200	0.0344	0.0031	0.0312
201	0.0323	0.0029	0.0294
202	0.0306	0.0028	0.0278
203	0.0291	0.0026	0.0265
204	0.0279	0.0025	0.0254
205	0.0268	0.0024	0.0243
206	0.0258	0.0023	0.0235
207	0.0249	0.0023	0.0227
208	0.0241	0.0022	0.0219
209	0.0234	0.0021	0.0213
210	0.0228	0.0021	0.0207
211	0.0222	0.0020	0.0202
212	0.0216	0.0020	0.0196
213	0.0211	0.0019	0.0192
214	0.0206	0.0019	0.0187
215	0.0202	0.0018	0.0183
216	0.0198	0.0018	0.0180

217	0.0192	0.0017	0.0175
218	0.0189	0.0017	0.0172
219	0.0185	0.0017	0.0169
220	0.0182	0.0016	0.0166
221	0.0179	0.0016	0.0163
222	0.0176	0.0016	0.0160
223	0.0173	0.0016	0.0158
224	0.0171	0.0015	0.0155
225	0.0168	0.0015	0.0153
226	0.0166	0.0015	0.0151
227	0.0163	0.0015	0.0148
228	0.0161	0.0015	0.0146
229	0.0159	0.0014	0.0145
230	0.0157	0.0014	0.0143
231	0.0155	0.0014	0.0141
232	0.0153	0.0014	0.0139
233	0.0151	0.0014	0.0138
234	0.0149	0.0014	0.0136
235	0.0148	0.0013	0.0134
236	0.0146	0.0013	0.0133
237	0.0145	0.0013	0.0131
238	0.0143	0.0013	0.0130
239	0.0142	0.0013	0.0129
240	0.0140	0.0013	0.0127
241	0.0139	0.0013	0.0126
242	0.0137	0.0012	0.0125
243	0.0136	0.0012	0.0124
244	0.0135	0.0012	0.0123
245	0.0134	0.0012	0.0121
246	0.0132	0.0012	0.0120
247	0.0131	0.0012	0.0119
248	0.0130	0.0012	0.0118
249	0.0129	0.0012	0.0117
250	0.0128	0.0012	0.0116
251	0.0127	0.0011	0.0115
252	0.0126	0.0011	0.0114
253	0.0125	0.0011	0.0113
254	0.0124	0.0011	0.0113
255	0.0123	0.0011	0.0112
256	0.0122	0.0011	0.0111
257	0.0121	0.0011	0.0110
258	0.0120	0.0011	0.0109
259	0.0119	0.0011	0.0108
260	0.0118	0.0011	0.0108
261	0.0118	0.0011	0.0107
262	0.0117	0.0011	0.0106
263	0.0116	0.0011	0.0106
264	0.0115	0.0010	0.0105
265	0.0114	0.0010	0.0104
266	0.0114	0.0010	0.0103
267	0.0113	0.0010	0.0103
268	0.0112	0.0010	0.0102
269	0.0112	0.0010	0.0101
270	0.0111	0.0010	0.0101
271	0.0110	0.0010	0.0100
272	0.0110	0.0010	0.0100
273	0.0109	0.0010	0.0099
274	0.0108	0.0010	0.0098
275	0.0108	0.0010	0.0098
276	0.0107	0.0010	0.0097
277	0.0106	0.0010	0.0097
278	0.0106	0.0010	0.0096
279	0.0105	0.0010	0.0096

280	0.0105	0.0009	0.0095
281	0.0104	0.0009	0.0095
282	0.0104	0.0009	0.0094
283	0.0103	0.0009	0.0094
284	0.0102	0.0009	0.0093
285	0.0102	0.0009	0.0093
286	0.0101	0.0009	0.0092
287	0.0101	0.0009	0.0092
288	0.0100	0.0009	0.0091

Total soil rain loss = 0.45(In)
Total effective rainfall = 5.03(In)
Peak flow rate in flood hydrograph = 3.05(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       0.0006      0.07  Q         |         |         |         |
  0+15       0.0013      0.10  Q         |         |         |         |
  0+20       0.0021      0.11  Q         |         |         |         |
  0+25       0.0028      0.11  Q         |         |         |         |
  0+30       0.0036      0.11  Q         |         |         |         |
  0+35       0.0044      0.11  Q         |         |         |         |
  0+40       0.0051      0.11  Q         |         |         |         |
  0+45       0.0059      0.11  Q         |         |         |         |
  0+50       0.0067      0.11  Q         |         |         |         |
  0+55       0.0075      0.11  Q         |         |         |         |
  1+ 0       0.0082      0.11  Q         |         |         |         |
  1+ 5       0.0090      0.11  Q         |         |         |         |
  1+10       0.0098      0.11  Q         |         |         |         |
  1+15       0.0106      0.11  QV        |         |         |         |
  1+20       0.0114      0.11  QV        |         |         |         |
  1+25       0.0122      0.11  QV        |         |         |         |
  1+30       0.0129      0.11  QV        |         |         |         |
  1+35       0.0137      0.11  QV        |         |         |         |
  1+40       0.0145      0.12  QV        |         |         |         |
  1+45       0.0153      0.12  QV        |         |         |         |
  1+50       0.0161      0.12  QV        |         |         |         |
  1+55       0.0169      0.12  QV        |         |         |         |
  2+ 0       0.0177      0.12  QV        |         |         |         |
  2+ 5       0.0185      0.12  QV        |         |         |         |
  2+10       0.0193      0.12  QV        |         |         |         |
  2+15       0.0201      0.12  QV        |         |         |         |
  2+20       0.0209      0.12  QV        |         |         |         |
  2+25       0.0218      0.12  Q V       |         |         |         |
  2+30       0.0226      0.12  Q V       |         |         |         |
  2+35       0.0234      0.12  Q V       |         |         |         |
  2+40       0.0242      0.12  Q V       |         |         |         |
  2+45       0.0250      0.12  Q V       |         |         |         |
  2+50       0.0259      0.12  Q V       |         |         |         |
  2+55       0.0267      0.12  Q V       |         |         |         |
  3+ 0       0.0275      0.12  Q V       |         |         |         |
  3+ 5       0.0284      0.12  Q V       |         |         |         |
  3+10       0.0292      0.12  Q V       |         |         |         |
  3+15       0.0300      0.12  Q V       |         |         |         |
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3+20        0.0309      0.12  Q V        |          |          |          |
3+25        0.0317      0.12  Q  V       |          |          |          |
3+30        0.0326      0.12  Q  V       |          |          |          |
3+35        0.0334      0.12  Q  V       |          |          |          |
3+40        0.0343      0.12  Q  V       |          |          |          |
3+45        0.0351      0.12  Q  V       |          |          |          |
3+50        0.0360      0.12  Q  V       |          |          |          |
3+55        0.0368      0.12  Q  V       |          |          |          |
4+ 0        0.0377      0.13  Q  V       |          |          |          |
4+ 5        0.0386      0.13  Q  V       |          |          |          |
4+10        0.0394      0.13  Q  V       |          |          |          |
4+15        0.0403      0.13  Q  V       |          |          |          |
4+20        0.0412      0.13  Q  V       |          |          |          |
4+25        0.0420      0.13  Q   V      |          |          |          |
4+30        0.0429      0.13  Q   V      |          |          |          |
4+35        0.0438      0.13  Q   V      |          |          |          |
4+40        0.0447      0.13  Q   V      |          |          |          |
4+45        0.0456      0.13  Q   V      |          |          |          |
4+50        0.0465      0.13  Q   V      |          |          |          |
4+55        0.0474      0.13  Q   V      |          |          |          |
5+ 0        0.0483      0.13  Q   V      |          |          |          |
5+ 5        0.0492      0.13  Q   V      |          |          |          |
5+10        0.0501      0.13  Q   V      |          |          |          |
5+15        0.0510      0.13  Q   V      |          |          |          |
5+20        0.0519      0.13  Q   V      |          |          |          |
5+25        0.0528      0.13  Q    V     |          |          |          |
5+30        0.0537      0.13  Q    V     |          |          |          |
5+35        0.0546      0.13  Q    V     |          |          |          |
5+40        0.0556      0.13  Q    V     |          |          |          |
5+45        0.0565      0.13  Q    V     |          |          |          |
5+50        0.0574      0.14  Q    V     |          |          |          |
5+55        0.0584      0.14  Q    V     |          |          |          |
6+ 0        0.0593      0.14  Q    V     |          |          |          |
6+ 5        0.0602      0.14  Q    V     |          |          |          |
6+10        0.0612      0.14  Q    V     |          |          |          |
6+15        0.0621      0.14  Q    V     |          |          |          |
6+20        0.0631      0.14  Q     V    |          |          |          |
6+25        0.0641      0.14  Q     V    |          |          |          |
6+30        0.0650      0.14  Q     V    |          |          |          |
6+35        0.0660      0.14  Q     V    |          |          |          |
6+40        0.0669      0.14  Q     V    |          |          |          |
6+45        0.0679      0.14  Q     V    |          |          |          |
6+50        0.0689      0.14  Q     V    |          |          |          |
6+55        0.0699      0.14  Q     V    |          |          |          |
7+ 0        0.0709      0.14  Q     V    |          |          |          |
7+ 5        0.0719      0.14  Q     V    |          |          |          |
7+10        0.0729      0.14  Q     V    |          |          |          |
7+15        0.0739      0.15  Q      V   |          |          |          |
7+20        0.0749      0.15  Q      V   |          |          |          |
7+25        0.0759      0.15  Q      V   |          |          |          |
7+30        0.0769      0.15  Q      V   |          |          |          |
7+35        0.0779      0.15  Q      V   |          |          |          |
7+40        0.0789      0.15  Q      V   |          |          |          |
7+45        0.0799      0.15  Q      V   |          |          |          |
7+50        0.0810      0.15  Q      V   |          |          |          |
7+55        0.0820      0.15  Q      V   |          |          |          |
8+ 0        0.0831      0.15  Q      V   |          |          |          |
8+ 5        0.0841      0.15  Q       V  |          |          |          |
8+10        0.0852      0.15  Q       V  |          |          |          |
8+15        0.0862      0.15  Q       V  |          |          |          |
8+20        0.0873      0.15  Q       V  |          |          |          |
8+25        0.0883      0.16  Q       V  |          |          |          |
8+30        0.0894      0.16  Q       V  |          |          |          |
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 8+35       0.0905      0.16  Q       V |          |          |          |
 8+40       0.0916      0.16  Q       V |          |          |          |
 8+45       0.0927      0.16  Q       V |          |          |          |
 8+50       0.0938      0.16  Q       V |          |          |          |
 8+55       0.0949      0.16  Q        V|          |          |          |
 9+ 0       0.0960      0.16  Q        V|          |          |          |
 9+ 5       0.0971      0.16  Q        V|          |          |          |
 9+10       0.0982      0.16  Q        V|          |          |          |
 9+15       0.0993      0.16  Q        V|          |          |          |
 9+20       0.1005      0.16  Q        V|          |          |          |
 9+25       0.1016      0.17  Q        V|          |          |          |
 9+30       0.1028      0.17  Q        V|          |          |          |
 9+35       0.1039      0.17  Q        V|          |          |          |
 9+40       0.1051      0.17  Q         V          |          |          |
 9+45       0.1062      0.17  Q         V          |          |          |
 9+50       0.1074      0.17  Q         V          |          |          |
 9+55       0.1086      0.17  Q         V          |          |          |
10+ 0       0.1098      0.17  Q         V          |          |          |
10+ 5       0.1110      0.17  Q         V          |          |          |
10+10       0.1122      0.18  Q         V          |          |          |
10+15       0.1134      0.18  Q         V          |          |          |
10+20       0.1146      0.18  Q         V          |          |          |
10+25       0.1159      0.18  Q         |V         |          |          |
10+30       0.1171      0.18  Q         |V         |          |          |
10+35       0.1183      0.18  Q         |V         |          |          |
10+40       0.1196      0.18  Q         |V         |          |          |
10+45       0.1209      0.18  Q         |V         |          |          |
10+50       0.1221      0.19  Q         |V         |          |          |
10+55       0.1234      0.19  Q         |V         |          |          |
11+ 0       0.1247      0.19  Q         |V         |          |          |
11+ 5       0.1260      0.19  Q         | V        |          |          |
11+10       0.1273      0.19  Q         | V        |          |          |
11+15       0.1287      0.19  Q         | V        |          |          |
11+20       0.1300      0.19  Q         | V        |          |          |
11+25       0.1313      0.20  Q         | V        |          |          |
11+30       0.1327      0.20  Q         | V        |          |          |
11+35       0.1341      0.20  Q         | V        |          |          |
11+40       0.1355      0.20  Q         | V        |          |          |
11+45       0.1368      0.20  Q         |  V       |          |          |
11+50       0.1383      0.20  Q         |  V       |          |          |
11+55       0.1397      0.21  Q         |  V       |          |          |
12+ 0       0.1411      0.21  Q         |  V       |          |          |
12+ 5       0.1426      0.21  Q         |  V       |          |          |
12+10       0.1440      0.21  Q         |  V       |          |          |
12+15       0.1455      0.22  Q         |  V       |          |          |
12+20       0.1470      0.22  Q         |   V      |          |          |
12+25       0.1485      0.22  Q         |   V      |          |          |
12+30       0.1501      0.22  Q         |   V      |          |          |
12+35       0.1516      0.22  Q         |   V      |          |          |
12+40       0.1532      0.23  Q         |   V      |          |          |
12+45       0.1548      0.23  Q         |   V      |          |          |
12+50       0.1564      0.23  Q         |   V      |          |          |
12+55       0.1580      0.24  Q         |    V     |          |          |
13+ 0       0.1596      0.24  Q         |    V     |          |          |
13+ 5       0.1613      0.24  Q         |    V     |          |          |
13+10       0.1630      0.24  Q         |    V     |          |          |
13+15       0.1647      0.25  Q         |    V     |          |          |
13+20       0.1664      0.25  |Q        |    V     |          |          |
13+25       0.1682      0.25  |Q        |     V    |          |          |
13+30       0.1699      0.26  |Q        |     V    |          |          |
13+35       0.1717      0.26  |Q        |     V    |          |          |
13+40       0.1736      0.27  |Q        |     V    |          |          |
13+45       0.1754      0.27  |Q        |     V    |          |          |
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13+50       0.1773      0.28  |Q         |      V   |          |          |
13+55       0.1793      0.28  |Q         |       V  |          |          |
14+ 0       0.1812      0.29  |Q         |       V  |          |          |
14+ 5       0.1832      0.29  |Q         |       V  |          |          |
14+10       0.1853      0.30  |Q         |       V  |          |          |
14+15       0.1873      0.30  |Q         |       V  |          |          |
14+20       0.1895      0.31  |Q         |        V |          |          |
14+25       0.1916      0.31  |Q         |        V |          |          |
14+30       0.1939      0.32  |Q         |        V |          |          |
14+35       0.1961      0.33  |Q         |        V |          |          |
14+40       0.1985      0.34  |Q         |        V |          |          |
14+45       0.2009      0.35  |Q         |         V|          |          |
14+50       0.2033      0.36  |Q         |         V|          |          |
14+55       0.2059      0.37  |Q         |         V|          |          |
15+ 0       0.2085      0.38  |Q         |         V|          |          |
15+ 5       0.2112      0.39  |Q         |          V          |          |
15+10       0.2141      0.41  |Q         |          V          |          |
15+15       0.2170      0.43  |Q         |          V          |          |
15+20       0.2201      0.45  |Q         |          |V         |          |
15+25       0.2232      0.45  |Q         |          |V         |          |
15+30       0.2261      0.42  |Q         |          |V         |          |
15+35       0.2289      0.41  |Q         |          |V         |          |
15+40       0.2320      0.45  |Q         |          | V        |          |
15+45       0.2354      0.50  |Q         |          | V        |          |
15+50       0.2395      0.58  | Q        |          | V        |          |
15+55       0.2443      0.70  | Q        |          |  V       |          |
16+ 0       0.2509      0.96  |  Q       |          |  V       |          |
16+ 5       0.2624      1.66  |     Q    |          |    V     |          |
16+10       0.2833      3.05  |          | Q        |      V   |          |
16+15       0.2960      1.84  |       Q  |          |       V  |          |
16+20       0.3014      0.78  |  Q       |          |       V  |          |
16+25       0.3050      0.52  | Q        |          |        V|          |
16+30       0.3082      0.47  |Q         |          |        V|          |
16+35       0.3113      0.45  |Q         |          |        V|          |
16+40       0.3142      0.42  |Q         |          |        V|          |
16+45       0.3169      0.39  |Q         |          |         V          |
16+50       0.3194      0.36  |Q         |          |         V          |
16+55       0.3217      0.34  |Q         |          |         V          |
17+ 0       0.3240      0.33  |Q         |          |         V          |
17+ 5       0.3261      0.31  |Q         |          |         |V         |
17+10       0.3281      0.30  |Q         |          |         |V         |
17+15       0.3301      0.29  |Q         |          |         |V         |
17+20       0.3320      0.28  |Q         |          |         |V         |
17+25       0.3339      0.27  |Q         |          |         |V         |
17+30       0.3357      0.26  |Q         |          |         | V        |
17+35       0.3374      0.25  |Q         |          |         | V        |
17+40       0.3391      0.25  Q          |          |         | V        |
17+45       0.3407      0.24  Q          |          |         | V        |
17+50       0.3423      0.23  Q          |          |         | V        |
17+55       0.3439      0.23  Q          |          |         | V        |
18+ 0       0.3455      0.22  Q          |          |         | V        |
18+ 5       0.3470      0.22  Q          |          |         |  V       |
18+10       0.3484      0.21  Q          |          |         |  V       |
18+15       0.3499      0.21  Q          |          |         |  V       |
18+20       0.3513      0.20  Q          |          |         |  V       |
18+25       0.3527      0.20  Q          |          |         |  V       |
18+30       0.3540      0.20  Q          |          |         |  V       |
18+35       0.3554      0.19  Q          |          |         |  V       |
18+40       0.3567      0.19  Q          |          |         |   V      |
18+45       0.3580      0.19  Q          |          |         |   V      |
18+50       0.3593      0.19  Q          |          |         |   V      |
18+55       0.3605      0.18  Q          |          |         |   V      |
19+ 0       0.3618      0.18  Q          |          |         |   V      |
```

```
19+ 5        0.3630       0.18  Q          |           |           |   V      |
19+10        0.3642       0.18  Q          |           |           |   V      |
19+15        0.3654       0.17  Q          |           |           |   V      |
19+20        0.3666       0.17  Q          |           |           |   V      |
19+25        0.3677       0.17  Q          |           |           |    V     |
19+30        0.3689       0.17  Q          |           |           |    V     |
19+35        0.3700       0.16  Q          |           |           |    V     |
19+40        0.3711       0.16  Q          |           |           |    V     |
19+45        0.3722       0.16  Q          |           |           |    V     |
19+50        0.3733       0.16  Q          |           |           |    V     |
19+55        0.3744       0.16  Q          |           |           |    V     |
20+ 0        0.3755       0.16  Q          |           |           |    V     |
20+ 5        0.3766       0.15  Q          |           |           |    V     |
20+10        0.3776       0.15  Q          |           |           |     V    |
20+15        0.3787       0.15  Q          |           |           |     V    |
20+20        0.3797       0.15  Q          |           |           |     V    |
20+25        0.3807       0.15  Q          |           |           |     V    |
20+30        0.3817       0.15  Q          |           |           |     V    |
20+35        0.3827       0.15  Q          |           |           |     V    |
20+40        0.3837       0.14  Q          |           |           |     V    |
20+45        0.3847       0.14  Q          |           |           |     V    |
20+50        0.3857       0.14  Q          |           |           |     V    |
20+55        0.3867       0.14  Q          |           |           |     V    |
21+ 0        0.3876       0.14  Q          |           |           |     V    |
21+ 5        0.3886       0.14  Q          |           |           |      V   |
21+10        0.3895       0.14  Q          |           |           |      V   |
21+15        0.3905       0.14  Q          |           |           |      V   |
21+20        0.3914       0.14  Q          |           |           |      V   |
21+25        0.3923       0.13  Q          |           |           |      V   |
21+30        0.3932       0.13  Q          |           |           |      V   |
21+35        0.3942       0.13  Q          |           |           |      V   |
21+40        0.3951       0.13  Q          |           |           |      V   |
21+45        0.3960       0.13  Q          |           |           |      V   |
21+50        0.3969       0.13  Q          |           |           |      V   |
21+55        0.3977       0.13  Q          |           |           |      V   |
22+ 0        0.3986       0.13  Q          |           |           |       V  |
22+ 5        0.3995       0.13  Q          |           |           |       V  |
22+10        0.4004       0.13  Q          |           |           |       V  |
22+15        0.4012       0.13  Q          |           |           |       V  |
22+20        0.4021       0.12  Q          |           |           |       V  |
22+25        0.4029       0.12  Q          |           |           |       V  |
22+30        0.4038       0.12  Q          |           |           |       V  |
22+35        0.4046       0.12  Q          |           |           |       V  |
22+40        0.4055       0.12  Q          |           |           |       V  |
22+45        0.4063       0.12  Q          |           |           |       V  |
22+50        0.4071       0.12  Q          |           |           |       V  |
22+55        0.4079       0.12  Q          |           |           |       V  |
23+ 0        0.4088       0.12  Q          |           |           |        V|
23+ 5        0.4096       0.12  Q          |           |           |        V|
23+10        0.4104       0.12  Q          |           |           |        V|
23+15        0.4112       0.12  Q          |           |           |        V|
23+20        0.4120       0.12  Q          |           |           |        V|
23+25        0.4128       0.12  Q          |           |           |        V|
23+30        0.4136       0.11  Q          |           |           |        V|
23+35        0.4143       0.11  Q          |           |           |        V|
23+40        0.4151       0.11  Q          |           |           |        V|
23+45        0.4159       0.11  Q          |           |           |        V|
23+50        0.4167       0.11  Q          |           |           |        V|
23+55        0.4174       0.11  Q          |           |           |        V|
24+ 0        0.4182       0.11  Q          |           |           |        V|
24+ 5        0.4189       0.10  Q          |           |           |        V|
24+10        0.4191       0.04  Q          |           |           |        V|
24+15        0.4192       0.01  Q          |           |           |        V|
```

Underground System Capacity = 0.3795 Ac-ft.

```
   24+20        0.4192      0.00  Q          |          |          |          V
-----------------------------------------------------------------------------
```

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

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Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Proposed Conditions
Area P1

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
1.00	1	0.88
Rainfall data for year 2		
1.00	6	1.55
Rainfall data for year 2		
1.00	24	2.90
Rainfall data for year 100		
1.00	1	1.25
Rainfall data for year 100		
1.00	6	3.25
Rainfall data for year 100		
1.00	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 3)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
32.0	52.0	1.00	1.000	0.785	0.050	0.039

Area-averaged adjusted loss rate Fm (In/Hr) = 0.039

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
0.05	0.050	32.0	52.0	9.23	0.259
0.95	0.950	98.0	98.0	0.20	0.965

Area-averaged catchment yield fraction, Y = 0.930
Area-averaged low loss fraction, Yb = 0.070
User entry of time of concentration = 0.124 (hours)
++
Watershed area = 1.00(Ac.)
Catchment Lag time = 0.099 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 84.0054
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.039(In/Hr)
Average low loss rate fraction (Yb) = 0.070 (decimal)
VALLEY DEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.463(In)
Computed peak 30-minute rainfall = 0.947(In)
Specified peak 1-hour rainfall = 1.250(In)
Computed peak 3-hour rainfall = 2.246(In)
Specified peak 6-hour rainfall = 3.250(In)
Specified peak 24-hour rainfall = 6.900(In)

Rainfall depth area reduction factors:
Using a total area of 1.00(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.463(In)
30-minute factor = 1.000 Adjusted rainfall = 0.947(In)
1-hour factor = 1.000 Adjusted rainfall = 1.250(In)
3-hour factor = 1.000 Adjusted rainfall = 2.246(In)
6-hour factor = 1.000 Adjusted rainfall = 3.250(In)
24-hour factor = 1.000 Adjusted rainfall = 6.900(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 12.09 (CFS))	
1	12.391	1.499
2	67.521	6.667
3	95.128	3.339
4	99.092	0.479
5	100.000	0.110

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.4626	0.4626
2	0.6104	0.1478
3	0.7179	0.1075
4	0.8055	0.0876
5	0.8807	0.0752

6	0.9473	0.0666
7	1.0075	0.0602
8	1.0628	0.0553
9	1.1141	0.0513
10	1.1620	0.0480
11	1.2072	0.0452
12	1.2499	0.0428
13	1.3045	0.0545
14	1.3570	0.0526
15	1.4079	0.0509
16	1.4572	0.0493
17	1.5051	0.0479
18	1.5517	0.0466
19	1.5971	0.0454
20	1.6414	0.0443
21	1.6846	0.0433
22	1.7270	0.0423
23	1.7684	0.0414
24	1.8090	0.0406
25	1.8488	0.0398
26	1.8879	0.0391
27	1.9263	0.0384
28	1.9640	0.0377
29	2.0011	0.0371
30	2.0376	0.0365
31	2.0735	0.0359
32	2.1090	0.0354
33	2.1438	0.0349
34	2.1783	0.0344
35	2.2122	0.0339
36	2.2457	0.0335
37	2.2787	0.0331
38	2.3114	0.0326
39	2.3436	0.0322
40	2.3755	0.0319
41	2.4070	0.0315
42	2.4381	0.0311
43	2.4689	0.0308
44	2.4993	0.0305
45	2.5295	0.0301
46	2.5593	0.0298
47	2.5888	0.0295
48	2.6180	0.0292
49	2.6470	0.0289
50	2.6757	0.0287
51	2.7041	0.0284
52	2.7322	0.0281
53	2.7601	0.0279
54	2.7878	0.0277
55	2.8152	0.0274
56	2.8423	0.0272
57	2.8693	0.0270
58	2.8960	0.0267
59	2.9226	0.0265
60	2.9489	0.0263
61	2.9750	0.0261
62	3.0009	0.0259
63	3.0266	0.0257
64	3.0521	0.0255
65	3.0775	0.0253
66	3.1026	0.0252
67	3.1276	0.0250
68	3.1524	0.0248

69	3.1771	0.0246
70	3.2015	0.0245
71	3.2258	0.0243
72	3.2500	0.0242
73	3.2744	0.0244
74	3.2987	0.0243
75	3.3228	0.0241
76	3.3468	0.0240
77	3.3707	0.0238
78	3.3944	0.0237
79	3.4179	0.0236
80	3.4414	0.0234
81	3.4647	0.0233
82	3.4878	0.0232
83	3.5109	0.0230
84	3.5338	0.0229
85	3.5566	0.0228
86	3.5792	0.0227
87	3.6018	0.0225
88	3.6242	0.0224
89	3.6465	0.0223
90	3.6687	0.0222
91	3.6908	0.0221
92	3.7128	0.0220
93	3.7346	0.0219
94	3.7564	0.0218
95	3.7780	0.0216
96	3.7996	0.0215
97	3.8210	0.0214
98	3.8423	0.0213
99	3.8636	0.0212
100	3.8847	0.0211
101	3.9058	0.0210
102	3.9267	0.0210
103	3.9476	0.0209
104	3.9684	0.0208
105	3.9890	0.0207
106	4.0096	0.0206
107	4.0301	0.0205
108	4.0505	0.0204
109	4.0709	0.0203
110	4.0911	0.0202
111	4.1113	0.0202
112	4.1313	0.0201
113	4.1513	0.0200
114	4.1712	0.0199
115	4.1911	0.0198
116	4.2108	0.0198
117	4.2305	0.0197
118	4.2501	0.0196
119	4.2696	0.0195
120	4.2891	0.0194
121	4.3084	0.0194
122	4.3277	0.0193
123	4.3470	0.0192
124	4.3661	0.0192
125	4.3852	0.0191
126	4.4042	0.0190
127	4.4232	0.0189
128	4.4421	0.0189
129	4.4609	0.0188
130	4.4796	0.0187
131	4.4983	0.0187

132	4.5169	0.0186
133	4.5355	0.0186
134	4.5540	0.0185
135	4.5724	0.0184
136	4.5908	0.0184
137	4.6091	0.0183
138	4.6273	0.0182
139	4.6455	0.0182
140	4.6636	0.0181
141	4.6817	0.0181
142	4.6997	0.0180
143	4.7176	0.0179
144	4.7355	0.0179
145	4.7533	0.0178
146	4.7711	0.0178
147	4.7888	0.0177
148	4.8065	0.0177
149	4.8241	0.0176
150	4.8417	0.0176
151	4.8592	0.0175
152	4.8766	0.0174
153	4.8940	0.0174
154	4.9113	0.0173
155	4.9286	0.0173
156	4.9459	0.0172
157	4.9631	0.0172
158	4.9802	0.0171
159	4.9973	0.0171
160	5.0144	0.0170
161	5.0314	0.0170
162	5.0483	0.0169
163	5.0652	0.0169
164	5.0821	0.0169
165	5.0989	0.0168
166	5.1156	0.0168
167	5.1323	0.0167
168	5.1490	0.0167
169	5.1656	0.0166
170	5.1822	0.0166
171	5.1987	0.0165
172	5.2152	0.0165
173	5.2317	0.0164
174	5.2481	0.0164
175	5.2644	0.0164
176	5.2807	0.0163
177	5.2970	0.0163
178	5.3132	0.0162
179	5.3294	0.0162
180	5.3456	0.0161
181	5.3617	0.0161
182	5.3778	0.0161
183	5.3938	0.0160
184	5.4098	0.0160
185	5.4257	0.0159
186	5.4416	0.0159
187	5.4575	0.0159
188	5.4733	0.0158
189	5.4891	0.0158
190	5.5049	0.0158
191	5.5206	0.0157
192	5.5363	0.0157
193	5.5519	0.0156
194	5.5675	0.0156

195	5.5831	0.0156
196	5.5986	0.0155
197	5.6141	0.0155
198	5.6296	0.0155
199	5.6450	0.0154
200	5.6604	0.0154
201	5.6757	0.0154
202	5.6910	0.0153
203	5.7063	0.0153
204	5.7216	0.0152
205	5.7368	0.0152
206	5.7520	0.0152
207	5.7671	0.0151
208	5.7822	0.0151
209	5.7973	0.0151
210	5.8124	0.0150
211	5.8274	0.0150
212	5.8424	0.0150
213	5.8573	0.0150
214	5.8722	0.0149
215	5.8871	0.0149
216	5.9020	0.0149
217	5.9168	0.0148
218	5.9316	0.0148
219	5.9463	0.0148
220	5.9611	0.0147
221	5.9758	0.0147
222	5.9904	0.0147
223	6.0051	0.0146
224	6.0197	0.0146
225	6.0343	0.0146
226	6.0488	0.0146
227	6.0633	0.0145
228	6.0778	0.0145
229	6.0923	0.0145
230	6.1067	0.0144
231	6.1211	0.0144
232	6.1355	0.0144
233	6.1499	0.0143
234	6.1642	0.0143
235	6.1785	0.0143
236	6.1927	0.0143
237	6.2070	0.0142
238	6.2212	0.0142
239	6.2354	0.0142
240	6.2495	0.0142
241	6.2637	0.0141
242	6.2778	0.0141
243	6.2918	0.0141
244	6.3059	0.0140
245	6.3199	0.0140
246	6.3339	0.0140
247	6.3479	0.0140
248	6.3618	0.0139
249	6.3757	0.0139
250	6.3896	0.0139
251	6.4035	0.0139
252	6.4173	0.0138
253	6.4311	0.0138
254	6.4449	0.0138
255	6.4587	0.0138
256	6.4724	0.0137
257	6.4862	0.0137

258	6.4999	0.0137
259	6.5135	0.0137
260	6.5272	0.0136
261	6.5408	0.0136
262	6.5544	0.0136
263	6.5680	0.0136
264	6.5815	0.0136
265	6.5950	0.0135
266	6.6086	0.0135
267	6.6220	0.0135
268	6.6355	0.0135
269	6.6489	0.0134
270	6.6623	0.0134
271	6.6757	0.0134
272	6.6891	0.0134
273	6.7024	0.0133
274	6.7158	0.0133
275	6.7291	0.0133
276	6.7423	0.0133
277	6.7556	0.0133
278	6.7688	0.0132
279	6.7820	0.0132
280	6.7952	0.0132
281	6.8084	0.0132
282	6.8215	0.0131
283	6.8347	0.0131
284	6.8478	0.0131
285	6.8609	0.0131
286	6.8739	0.0131
287	6.8870	0.0130
288	6.9000	0.0130

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0130	0.0009	0.0121
2	0.0130	0.0009	0.0121
3	0.0131	0.0009	0.0122
4	0.0131	0.0009	0.0122
5	0.0131	0.0009	0.0122
6	0.0132	0.0009	0.0122
7	0.0132	0.0009	0.0123
8	0.0132	0.0009	0.0123
9	0.0133	0.0009	0.0123
10	0.0133	0.0009	0.0124
11	0.0133	0.0009	0.0124
12	0.0134	0.0009	0.0124
13	0.0134	0.0009	0.0125
14	0.0134	0.0009	0.0125
15	0.0135	0.0009	0.0125
16	0.0135	0.0009	0.0126
17	0.0136	0.0009	0.0126
18	0.0136	0.0009	0.0126
19	0.0136	0.0010	0.0127
20	0.0136	0.0010	0.0127
21	0.0137	0.0010	0.0127
22	0.0137	0.0010	0.0128
23	0.0138	0.0010	0.0128
24	0.0138	0.0010	0.0128
25	0.0138	0.0010	0.0129
26	0.0139	0.0010	0.0129
27	0.0139	0.0010	0.0129

28	0.0139	0.0010	0.0130
29	0.0140	0.0010	0.0130
30	0.0140	0.0010	0.0130
31	0.0141	0.0010	0.0131
32	0.0141	0.0010	0.0131
33	0.0142	0.0010	0.0132
34	0.0142	0.0010	0.0132
35	0.0142	0.0010	0.0132
36	0.0143	0.0010	0.0133
37	0.0143	0.0010	0.0133
38	0.0143	0.0010	0.0133
39	0.0144	0.0010	0.0134
40	0.0144	0.0010	0.0134
41	0.0145	0.0010	0.0135
42	0.0145	0.0010	0.0135
43	0.0146	0.0010	0.0136
44	0.0146	0.0010	0.0136
45	0.0147	0.0010	0.0136
46	0.0147	0.0010	0.0137
47	0.0148	0.0010	0.0137
48	0.0148	0.0010	0.0138
49	0.0149	0.0010	0.0138
50	0.0149	0.0010	0.0138
51	0.0150	0.0010	0.0139
52	0.0150	0.0010	0.0139
53	0.0150	0.0011	0.0140
54	0.0151	0.0011	0.0140
55	0.0151	0.0011	0.0141
56	0.0152	0.0011	0.0141
57	0.0152	0.0011	0.0142
58	0.0153	0.0011	0.0142
59	0.0154	0.0011	0.0143
60	0.0154	0.0011	0.0143
61	0.0155	0.0011	0.0144
62	0.0155	0.0011	0.0144
63	0.0156	0.0011	0.0145
64	0.0156	0.0011	0.0145
65	0.0157	0.0011	0.0146
66	0.0157	0.0011	0.0146
67	0.0158	0.0011	0.0147
68	0.0158	0.0011	0.0147
69	0.0159	0.0011	0.0148
70	0.0159	0.0011	0.0148
71	0.0160	0.0011	0.0149
72	0.0161	0.0011	0.0149
73	0.0161	0.0011	0.0150
74	0.0162	0.0011	0.0151
75	0.0163	0.0011	0.0151
76	0.0163	0.0011	0.0152
77	0.0164	0.0011	0.0153
78	0.0164	0.0012	0.0153
79	0.0165	0.0012	0.0154
80	0.0166	0.0012	0.0154
81	0.0167	0.0012	0.0155
82	0.0167	0.0012	0.0155
83	0.0168	0.0012	0.0156
84	0.0169	0.0012	0.0157
85	0.0169	0.0012	0.0158
86	0.0170	0.0012	0.0158
87	0.0171	0.0012	0.0159
88	0.0171	0.0012	0.0159
89	0.0172	0.0012	0.0160
90	0.0173	0.0012	0.0161

91	0.0174	0.0012	0.0162
92	0.0174	0.0012	0.0162
93	0.0176	0.0012	0.0163
94	0.0176	0.0012	0.0164
95	0.0177	0.0012	0.0165
96	0.0178	0.0012	0.0165
97	0.0179	0.0013	0.0166
98	0.0179	0.0013	0.0167
99	0.0181	0.0013	0.0168
100	0.0181	0.0013	0.0169
101	0.0182	0.0013	0.0170
102	0.0183	0.0013	0.0170
103	0.0184	0.0013	0.0171
104	0.0185	0.0013	0.0172
105	0.0186	0.0013	0.0173
106	0.0187	0.0013	0.0174
107	0.0188	0.0013	0.0175
108	0.0189	0.0013	0.0176
109	0.0190	0.0013	0.0177
110	0.0191	0.0013	0.0178
111	0.0192	0.0013	0.0179
112	0.0193	0.0014	0.0180
113	0.0194	0.0014	0.0181
114	0.0195	0.0014	0.0182
115	0.0197	0.0014	0.0183
116	0.0198	0.0014	0.0184
117	0.0199	0.0014	0.0185
118	0.0200	0.0014	0.0186
119	0.0202	0.0014	0.0187
120	0.0202	0.0014	0.0188
121	0.0204	0.0014	0.0190
122	0.0205	0.0014	0.0191
123	0.0207	0.0014	0.0192
124	0.0208	0.0015	0.0193
125	0.0210	0.0015	0.0195
126	0.0210	0.0015	0.0196
127	0.0212	0.0015	0.0198
128	0.0213	0.0015	0.0198
129	0.0215	0.0015	0.0200
130	0.0216	0.0015	0.0201
131	0.0219	0.0015	0.0203
132	0.0220	0.0015	0.0204
133	0.0222	0.0016	0.0206
134	0.0223	0.0016	0.0207
135	0.0225	0.0016	0.0210
136	0.0227	0.0016	0.0211
137	0.0229	0.0016	0.0213
138	0.0230	0.0016	0.0214
139	0.0233	0.0016	0.0217
140	0.0234	0.0016	0.0218
141	0.0237	0.0017	0.0220
142	0.0238	0.0017	0.0222
143	0.0241	0.0017	0.0224
144	0.0243	0.0017	0.0226
145	0.0242	0.0017	0.0225
146	0.0243	0.0017	0.0226
147	0.0246	0.0017	0.0229
148	0.0248	0.0017	0.0231
149	0.0252	0.0018	0.0234
150	0.0253	0.0018	0.0236
151	0.0257	0.0018	0.0239
152	0.0259	0.0018	0.0241
153	0.0263	0.0018	0.0245

154	0.0265	0.0019	0.0247
155	0.0270	0.0019	0.0251
156	0.0272	0.0019	0.0253
157	0.0277	0.0019	0.0257
158	0.0279	0.0020	0.0259
159	0.0284	0.0020	0.0264
160	0.0287	0.0020	0.0267
161	0.0292	0.0020	0.0272
162	0.0295	0.0021	0.0275
163	0.0301	0.0021	0.0280
164	0.0305	0.0021	0.0283
165	0.0311	0.0022	0.0290
166	0.0315	0.0022	0.0293
167	0.0322	0.0023	0.0300
168	0.0326	0.0023	0.0304
169	0.0335	0.0023	0.0311
170	0.0339	0.0024	0.0316
171	0.0349	0.0024	0.0325
172	0.0354	0.0025	0.0329
173	0.0365	0.0026	0.0340
174	0.0371	0.0026	0.0345
175	0.0384	0.0027	0.0357
176	0.0391	0.0027	0.0363
177	0.0406	0.0028	0.0378
178	0.0414	0.0029	0.0385
179	0.0433	0.0030	0.0402
180	0.0443	0.0031	0.0412
181	0.0466	0.0033	0.0433
182	0.0479	0.0033	0.0446
183	0.0509	0.0033	0.0476
184	0.0526	0.0033	0.0493
185	0.0428	0.0030	0.0398
186	0.0452	0.0032	0.0420
187	0.0513	0.0033	0.0480
188	0.0553	0.0033	0.0520
189	0.0666	0.0033	0.0634
190	0.0752	0.0033	0.0719
191	0.1075	0.0033	0.1042
192	0.1478	0.0033	0.1445
193	0.4626	0.0033	0.4593
194	0.0876	0.0033	0.0843
195	0.0602	0.0033	0.0570
196	0.0480	0.0033	0.0447
197	0.0545	0.0033	0.0512
198	0.0493	0.0033	0.0460
199	0.0454	0.0032	0.0422
200	0.0423	0.0030	0.0394
201	0.0398	0.0028	0.0370
202	0.0377	0.0026	0.0351
203	0.0359	0.0025	0.0334
204	0.0344	0.0024	0.0320
205	0.0331	0.0023	0.0307
206	0.0319	0.0022	0.0296
207	0.0308	0.0022	0.0286
208	0.0298	0.0021	0.0277
209	0.0289	0.0020	0.0269
210	0.0281	0.0020	0.0262
211	0.0274	0.0019	0.0255
212	0.0267	0.0019	0.0249
213	0.0261	0.0018	0.0243
214	0.0255	0.0018	0.0237
215	0.0250	0.0017	0.0232
216	0.0245	0.0017	0.0228

217	0.0244	0.0017	0.0227
218	0.0240	0.0017	0.0223
219	0.0236	0.0016	0.0219
220	0.0232	0.0016	0.0215
221	0.0228	0.0016	0.0212
222	0.0224	0.0016	0.0209
223	0.0221	0.0015	0.0205
224	0.0218	0.0015	0.0202
225	0.0214	0.0015	0.0199
226	0.0211	0.0015	0.0197
227	0.0209	0.0015	0.0194
228	0.0206	0.0014	0.0191
229	0.0203	0.0014	0.0189
230	0.0201	0.0014	0.0187
231	0.0198	0.0014	0.0184
232	0.0196	0.0014	0.0182
233	0.0194	0.0014	0.0180
234	0.0192	0.0013	0.0178
235	0.0189	0.0013	0.0176
236	0.0187	0.0013	0.0174
237	0.0186	0.0013	0.0173
238	0.0184	0.0013	0.0171
239	0.0182	0.0013	0.0169
240	0.0180	0.0013	0.0167
241	0.0178	0.0012	0.0166
242	0.0177	0.0012	0.0164
243	0.0175	0.0012	0.0163
244	0.0173	0.0012	0.0161
245	0.0172	0.0012	0.0160
246	0.0170	0.0012	0.0159
247	0.0169	0.0012	0.0157
248	0.0168	0.0012	0.0156
249	0.0166	0.0012	0.0155
250	0.0165	0.0012	0.0153
251	0.0164	0.0011	0.0152
252	0.0162	0.0011	0.0151
253	0.0161	0.0011	0.0150
254	0.0160	0.0011	0.0149
255	0.0159	0.0011	0.0148
256	0.0158	0.0011	0.0147
257	0.0156	0.0011	0.0145
258	0.0155	0.0011	0.0144
259	0.0154	0.0011	0.0143
260	0.0153	0.0011	0.0142
261	0.0152	0.0011	0.0142
262	0.0151	0.0011	0.0141
263	0.0150	0.0011	0.0140
264	0.0149	0.0010	0.0139
265	0.0148	0.0010	0.0138
266	0.0147	0.0010	0.0137
267	0.0146	0.0010	0.0136
268	0.0146	0.0010	0.0135
269	0.0145	0.0010	0.0135
270	0.0144	0.0010	0.0134
271	0.0143	0.0010	0.0133
272	0.0142	0.0010	0.0132
273	0.0141	0.0010	0.0131
274	0.0140	0.0010	0.0131
275	0.0140	0.0010	0.0130
276	0.0139	0.0010	0.0129
277	0.0138	0.0010	0.0129
278	0.0137	0.0010	0.0128
279	0.0137	0.0010	0.0127

280	0.0136	0.0010	0.0126
281	0.0135	0.0009	0.0126
282	0.0135	0.0009	0.0125
283	0.0134	0.0009	0.0125
284	0.0133	0.0009	0.0124
285	0.0133	0.0009	0.0123
286	0.0132	0.0009	0.0123
287	0.0131	0.0009	0.0122
288	0.0131	0.0009	0.0121

Total soil rain loss = 0.43(In)
Total effective rainfall = 6.47(In)
Peak flow rate in flood hydrograph = 3.73(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	0.02	Q	|	|	|	|
0+10	0.0008	0.10	Q	|	|	|	|
0+15	0.0018	0.14	Q	|	|	|	|
0+20	0.0028	0.15	Q	|	|	|	|
0+25	0.0038	0.15	Q	|	|	|	|
0+30	0.0048	0.15	Q	|	|	|	|
0+35	0.0058	0.15	Q	|	|	|	|
0+40	0.0068	0.15	Q	|	|	|	|
0+45	0.0079	0.15	Q	|	|	|	|
0+50	0.0089	0.15	Q	|	|	|	|
0+55	0.0099	0.15	Q	|	|	|	|
1+ 0	0.0110	0.15	Q	|	|	|	|
1+ 5	0.0120	0.15	Q	|	|	|	|
1+10	0.0130	0.15	Q	|	|	|	|
1+15	0.0141	0.15	QV	|	|	|	|
1+20	0.0151	0.15	QV	|	|	|	|
1+25	0.0162	0.15	QV	|	|	|	|
1+30	0.0172	0.15	QV	|	|	|	|
1+35	0.0183	0.15	QV	|	|	|	|
1+40	0.0193	0.15	QV	|	|	|	|
1+45	0.0204	0.15	QV	|	|	|	|
1+50	0.0214	0.15	QV	|	|	|	|
1+55	0.0225	0.15	QV	|	|	|	|
2+ 0	0.0236	0.15	QV	|	|	|	|
2+ 5	0.0246	0.16	QV	|	|	|	|
2+10	0.0257	0.16	QV	|	|	|	|
2+15	0.0268	0.16	QV	|	|	|	|
2+20	0.0279	0.16	Q V	|	|	|	|
2+25	0.0289	0.16	Q V	|	|	|	|
2+30	0.0300	0.16	Q V	|	|	|	|
2+35	0.0311	0.16	Q V	|	|	|	|
2+40	0.0322	0.16	Q V	|	|	|	|
2+45	0.0333	0.16	Q V	|	|	|	|
2+50	0.0344	0.16	Q V	|	|	|	|
2+55	0.0355	0.16	Q V	|	|	|	|
3+ 0	0.0366	0.16	Q V	|	|	|	|
3+ 5	0.0377	0.16	Q V	|	|	|	|
3+10	0.0388	0.16	Q V	|	|	|	|
3+15	0.0399	0.16	Q V	|	|	|	|

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3+20        0.0410      0.16  Q  V       |          |          |
3+25        0.0421      0.16  Q  V       |          |          |
3+30        0.0433      0.16  Q  V       |          |          |
3+35        0.0444      0.16  Q  V       |          |          |
3+40        0.0455      0.16  Q  V       |          |          |
3+45        0.0466      0.16  Q  V       |          |          |
3+50        0.0478      0.16  Q  V       |          |          |
3+55        0.0489      0.17  Q  V       |          |          |
4+ 0        0.0501      0.17  Q  V       |          |          |
4+ 5        0.0512      0.17  Q  V       |          |          |
4+10        0.0523      0.17  Q  V       |          |          |
4+15        0.0535      0.17  Q  V       |          |          |
4+20        0.0547      0.17  Q   V      |          |          |
4+25        0.0558      0.17  Q   V      |          |          |
4+30        0.0570      0.17  Q   V      |          |          |
4+35        0.0581      0.17  Q   V      |          |          |
4+40        0.0593      0.17  Q   V      |          |          |
4+45        0.0605      0.17  Q   V      |          |          |
4+50        0.0617      0.17  Q   V      |          |          |
4+55        0.0629      0.17  Q   V      |          |          |
5+ 0        0.0640      0.17  Q   V      |          |          |
5+ 5        0.0652      0.17  Q   V      |          |          |
5+10        0.0664      0.17  Q   V      |          |          |
5+15        0.0676      0.17  Q    V     |          |          |
5+20        0.0688      0.17  Q    V     |          |          |
5+25        0.0700      0.18  Q    V     |          |          |
5+30        0.0713      0.18  Q    V     |          |          |
5+35        0.0725      0.18  Q    V     |          |          |
5+40        0.0737      0.18  Q    V     |          |          |
5+45        0.0749      0.18  Q    V     |          |          |
5+50        0.0762      0.18  Q    V     |          |          |
5+55        0.0774      0.18  Q    V     |          |          |
6+ 0        0.0786      0.18  Q    V     |          |          |
6+ 5        0.0799      0.18  Q    V     |          |          |
6+10        0.0811      0.18  Q     V    |          |          |
6+15        0.0824      0.18  Q     V    |          |          |
6+20        0.0836      0.18  Q     V    |          |          |
6+25        0.0849      0.18  Q     V    |          |          |
6+30        0.0862      0.18  Q     V    |          |          |
6+35        0.0874      0.18  Q     V    |          |          |
6+40        0.0887      0.19  Q     V    |          |          |
6+45        0.0900      0.19  Q     V    |          |          |
6+50        0.0913      0.19  Q     V    |          |          |
6+55        0.0926      0.19  Q     V    |          |          |
7+ 0        0.0939      0.19  Q     V    |          |          |
7+ 5        0.0952      0.19  Q      V   |          |          |
7+10        0.0965      0.19  Q      V   |          |          |
7+15        0.0978      0.19  Q      V   |          |          |
7+20        0.0991      0.19  Q      V   |          |          |
7+25        0.1005      0.19  Q      V   |          |          |
7+30        0.1018      0.19  Q      V   |          |          |
7+35        0.1031      0.19  Q      V   |          |          |
7+40        0.1045      0.20  Q      V   |          |          |
7+45        0.1058      0.20  Q      V   |          |          |
7+50        0.1072      0.20  Q      V   |          |          |
7+55        0.1086      0.20  Q       V  |          |          |
8+ 0        0.1099      0.20  Q       V  |          |          |
8+ 5        0.1113      0.20  Q       V  |          |          |
8+10        0.1127      0.20  Q       V  |          |          |
8+15        0.1141      0.20  Q       V  |          |          |
8+20        0.1155      0.20  Q       V  |          |          |
8+25        0.1169      0.20  Q       V  |          |          |
8+30        0.1183      0.20  Q       V  |          |          |
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 8+35       0.1197      0.21  Q       V |          |          |          |
 8+40       0.1211      0.21  Q       V |          |          |          |
 8+45       0.1226      0.21  Q        V|          |          |          |
 8+50       0.1240      0.21  Q        V|          |          |          |
 8+55       0.1254      0.21  Q        V|          |          |          |
 9+ 0       0.1269      0.21  Q        V|          |          |          |
 9+ 5       0.1284      0.21  Q        V|          |          |          |
 9+10       0.1298      0.21  Q        V|          |          |          |
 9+15       0.1313      0.21  Q        V|          |          |          |
 9+20       0.1328      0.22  Q        V|          |          |          |
 9+25       0.1343      0.22  Q        V|          |          |          |
 9+30       0.1358      0.22  Q         V          |          |          |
 9+35       0.1373      0.22  Q         V          |          |          |
 9+40       0.1388      0.22  Q         V          |          |          |
 9+45       0.1403      0.22  Q         V          |          |          |
 9+50       0.1419      0.22  Q         V          |          |          |
 9+55       0.1434      0.22  Q         V          |          |          |
10+ 0       0.1450      0.23  Q         V          |          |          |
10+ 5       0.1466      0.23  Q         V          |          |          |
10+10       0.1481      0.23  Q         |V         |          |          |
10+15       0.1497      0.23  Q         |V         |          |          |
10+20       0.1513      0.23  Q         |V         |          |          |
10+25       0.1529      0.23  Q         |V         |          |          |
10+30       0.1545      0.24  Q         |V         |          |          |
10+35       0.1562      0.24  Q         |V         |          |          |
10+40       0.1578      0.24  Q         |V         |          |          |
10+45       0.1595      0.24  Q         |V         |          |          |
10+50       0.1611      0.24  Q         |V         |          |          |
10+55       0.1628      0.24  Q         | V        |          |          |
11+ 0       0.1645      0.25  Q         | V        |          |          |
11+ 5       0.1662      0.25  Q         | V        |          |          |
11+10       0.1679      0.25  Q         | V        |          |          |
11+15       0.1696      0.25  |Q        | V        |          |          |
11+20       0.1714      0.25  |Q        | V        |          |          |
11+25       0.1731      0.25  |Q        | V        |          |          |
11+30       0.1749      0.26  |Q        | V        |          |          |
11+35       0.1767      0.26  |Q        |  V       |          |          |
11+40       0.1785      0.26  |Q        |  V       |          |          |
11+45       0.1803      0.26  |Q        |  V       |          |          |
11+50       0.1821      0.27  |Q        |  V       |          |          |
11+55       0.1840      0.27  |Q        |  V       |          |          |
12+ 0       0.1858      0.27  |Q        |  V       |          |          |
12+ 5       0.1877      0.27  |Q        |  V       |          |          |
12+10       0.1896      0.27  |Q        |   V      |          |          |
12+15       0.1915      0.27  |Q        |   V      |          |          |
12+20       0.1934      0.28  |Q        |   V      |          |          |
12+25       0.1953      0.28  |Q        |   V      |          |          |
12+30       0.1972      0.28  |Q        |   V      |          |          |
12+35       0.1992      0.28  |Q        |   V      |          |          |
12+40       0.2012      0.29  |Q        |   V      |          |          |
12+45       0.2032      0.29  |Q        |    V     |          |          |
12+50       0.2052      0.29  |Q        |    V     |          |          |
12+55       0.2073      0.30  |Q        |    V     |          |          |
13+ 0       0.2093      0.30  |Q        |    V     |          |          |
13+ 5       0.2114      0.31  |Q        |    V     |          |          |
13+10       0.2136      0.31  |Q        |    V     |          |          |
13+15       0.2157      0.31  |Q        |     V    |          |          |
13+20       0.2179      0.32  |Q        |     V    |          |          |
13+25       0.2201      0.32  |Q        |     V    |          |          |
13+30       0.2224      0.33  |Q        |     V    |          |          |
13+35       0.2247      0.33  |Q        |     V    |          |          |
13+40       0.2270      0.34  |Q        |     V    |          |          |
13+45       0.2293      0.34  |Q        |      V   |          |          |
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13+50        0.2317       0.35  |Q          |        V  |           |           |
13+55        0.2342       0.35  |Q          |        V  |           |           |
14+ 0        0.2367       0.36  |Q          |        V  |           |           |
14+ 5        0.2392       0.37  |Q          |        V  |           |           |
14+10        0.2418       0.37  |Q          |        V  |           |           |
14+15        0.2444       0.38  |Q          |         V |           |           |
14+20        0.2471       0.39  |Q          |         V |           |           |
14+25        0.2498       0.40  |Q          |         V |           |           |
14+30        0.2526       0.41  |Q          |         V |           |           |
14+35        0.2555       0.42  |Q          |         V |           |           |
14+40        0.2584       0.43  |Q          |          V|           |           |
14+45        0.2614       0.44  |Q          |          V|           |           |
14+50        0.2645       0.45  |Q          |          V|           |           |
14+55        0.2677       0.46  |Q          |          V|           |           |
15+ 0        0.2711       0.48  |Q          |           V           |           |
15+ 5        0.2745       0.50  |Q          |           V           |           |
15+10        0.2780       0.52  | Q         |           V           |           |
15+15        0.2817       0.54  | Q         |           V           |           |
15+20        0.2856       0.57  | Q         |           |V          |           |
15+25        0.2896       0.57  | Q         |           |V          |           |
15+30        0.2932       0.52  | Q         |           |V          |           |
15+35        0.2967       0.51  | Q         |           | V         |           |
15+40        0.3006       0.56  | Q         |           | V         |           |
15+45        0.3049       0.63  | Q         |           |           |           |
15+50        0.3099       0.73  | Q         |           |           |           |
15+55        0.3160       0.88  |  Q        |           |           |           |
16+ 0        0.3242       1.19  |   Q       |           |           |           |
16+ 5        0.3382       2.04  |       Q   |           |           |           |
16+10        0.3639       3.73  |           |     Q     |       V   |           |
16+15        0.3795       2.26  |         Q|           |        V  |           |
16+20        0.3861       0.96  |  Q        |           |        V  |           |
16+25        0.3906       0.66  | Q         |           |         V|           |
16+30        0.3947       0.60  | Q         |           |         V|           |
16+35        0.3987       0.57  | Q         |           |         V|           |
16+40        0.4023       0.52  | Q         |           |         V|           |
16+45        0.4056       0.49  |Q          |           |          V           |
16+50        0.4088       0.46  |Q          |           |          V           |
16+55        0.4117       0.43  |Q          |           |          V           |
17+ 0        0.4145       0.41  |Q          |           |          V           |
17+ 5        0.4172       0.39  |Q          |           |          V           |
17+10        0.4198       0.38  |Q          |           |          |V          |
17+15        0.4223       0.36  |Q          |           |          |V          |
17+20        0.4247       0.35  |Q          |           |          |V          |
17+25        0.4271       0.34  |Q          |           |          |V          |
17+30        0.4293       0.33  |Q          |           |          |V          |
17+35        0.4315       0.32  |Q          |           |          | V         |
17+40        0.4337       0.31  |Q          |           |          | V         |
17+45        0.4358       0.30  |Q          |           |          | V         |
17+50        0.4378       0.30  |Q          |           |          | V         |
17+55        0.4398       0.29  |Q          |           |          | V         |
18+ 0        0.4417       0.28  |Q          |           |          | V         |
18+ 5        0.4436       0.28  |Q          |           |          | V         |
18+10        0.4455       0.27  |Q          |           |          |  V        |
18+15        0.4474       0.27  |Q          |           |          |  V        |
18+20        0.4492       0.27  |Q          |           |          |  V        |
18+25        0.4510       0.26  |Q          |           |          |  V        |
18+30        0.4528       0.26  |Q          |           |          |  V        |
18+35        0.4545       0.25  |Q          |           |          |  V        |
18+40        0.4563       0.25  Q           |           |          |  V        |
18+45        0.4580       0.25  Q           |           |          |   V       |
18+50        0.4596       0.24  Q           |           |          |   V       |
18+55        0.4613       0.24  Q           |           |          |   V       |
19+ 0        0.4629       0.24  Q           |           |          |   V       |
```

Underground System Capacity = 0.3795 Ac-ft.

```
19+ 5       0.4645      0.23  Q          |          |          |   V      |
19+10       0.4661      0.23  Q          |          |          |   V      |
19+15       0.4676      0.23  Q          |          |          |   V      |
19+20       0.4692      0.22  Q          |          |          |   V      |
19+25       0.4707      0.22  Q          |          |          |   V      |
19+30       0.4722      0.22  Q          |          |          |    V     |
19+35       0.4737      0.22  Q          |          |          |    V     |
19+40       0.4752      0.21  Q          |          |          |    V     |
19+45       0.4766      0.21  Q          |          |          |    V     |
19+50       0.4781      0.21  Q          |          |          |    V     |
19+55       0.4795      0.21  Q          |          |          |    V     |
20+ 0       0.4809      0.21  Q          |          |          |    V     |
20+ 5       0.4823      0.20  Q          |          |          |    V     |
20+10       0.4837      0.20  Q          |          |          |    V     |
20+15       0.4850      0.20  Q          |          |          |     V    |
20+20       0.4864      0.20  Q          |          |          |     V    |
20+25       0.4878      0.20  Q          |          |          |     V    |
20+30       0.4891      0.19  Q          |          |          |     V    |
20+35       0.4904      0.19  Q          |          |          |     V    |
20+40       0.4917      0.19  Q          |          |          |     V    |
20+45       0.4930      0.19  Q          |          |          |     V    |
20+50       0.4943      0.19  Q          |          |          |     V    |
20+55       0.4956      0.19  Q          |          |          |     V    |
21+ 0       0.4969      0.18  Q          |          |          |     V    |
21+ 5       0.4981      0.18  Q          |          |          |     V    |
21+10       0.4994      0.18  Q          |          |          |      V   |
21+15       0.5006      0.18  Q          |          |          |      V   |
21+20       0.5018      0.18  Q          |          |          |      V   |
21+25       0.5031      0.18  Q          |          |          |      V   |
21+30       0.5043      0.18  Q          |          |          |      V   |
21+35       0.5055      0.18  Q          |          |          |      V   |
21+40       0.5067      0.17  Q          |          |          |      V   |
21+45       0.5079      0.17  Q          |          |          |      V   |
21+50       0.5091      0.17  Q          |          |          |      V   |
21+55       0.5102      0.17  Q          |          |          |      V   |
22+ 0       0.5114      0.17  Q          |          |          |      V   |
22+ 5       0.5126      0.17  Q          |          |          |       V  |
22+10       0.5137      0.17  Q          |          |          |       V  |
22+15       0.5148      0.17  Q          |          |          |       V  |
22+20       0.5160      0.16  Q          |          |          |       V  |
22+25       0.5171      0.16  Q          |          |          |       V  |
22+30       0.5182      0.16  Q          |          |          |       V  |
22+35       0.5193      0.16  Q          |          |          |       V  |
22+40       0.5205      0.16  Q          |          |          |       V  |
22+45       0.5216      0.16  Q          |          |          |       V  |
22+50       0.5227      0.16  Q          |          |          |       V  |
22+55       0.5237      0.16  Q          |          |          |       V  |
23+ 0       0.5248      0.16  Q          |          |          |       V  |
23+ 5       0.5259      0.16  Q          |          |          |        V|
23+10       0.5270      0.16  Q          |          |          |        V|
23+15       0.5280      0.15  Q          |          |          |        V|
23+20       0.5291      0.15  Q          |          |          |        V|
23+25       0.5302      0.15  Q          |          |          |        V|
23+30       0.5312      0.15  Q          |          |          |        V|
23+35       0.5323      0.15  Q          |          |          |        V|
23+40       0.5333      0.15  Q          |          |          |        V|
23+45       0.5343      0.15  Q          |          |          |        V|
23+50       0.5354      0.15  Q          |          |          |        V|
23+55       0.5364      0.15  Q          |          |          |        V|
24+ 0       0.5374      0.15  Q          |          |          |        V|
24+ 5       0.5383      0.13  Q          |          |          |        V|
24+10       0.5386      0.05  Q          |          |          |        V|
24+15       0.5387      0.01  Q          |          |          |        V|
```

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   24+20       0.5387      0.00  Q          |          |          |        V|
-----------------------------------------------------------------------------
```

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

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Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Proposed Conditions
Area P2

Storm Event Year = 10

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
5.17	1	0.88
Rainfall data for year 2		
5.17	6	1.55
Rainfall data for year 2		
5.17	24	2.90
Rainfall data for year 100		
5.17	1	1.25
Rainfall data for year 100		
5.17	6	3.25
Rainfall data for year 100		
5.17	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 2)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
32.0	32.0	5.17	1.000	0.978	0.040	0.039

Area-averaged adjusted loss rate Fm (In/Hr) = 0.039

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
0.21	0.040	32.0	32.0	21.25	0.001
4.96	0.960	98.0	98.0	0.20	0.948

Area-averaged catchment yield fraction, Y = 0.910
Area-averaged low loss fraction, Yb = 0.090
User entry of time of concentration = 0.164 (hours)
++
Watershed area = 5.17(Ac.)
Catchment Lag time = 0.131 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 63.5163
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.039(In/Hr)
Average low loss rate fraction (Yb) = 0.090 (decimal)
VALLEY DEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.326(In)
Computed peak 30-minute rainfall = 0.667(In)
Specified peak 1-hour rainfall = 0.880(In)
Computed peak 3-hour rainfall = 1.565(In)
Specified peak 6-hour rainfall = 2.249(In)
Specified peak 24-hour rainfall = 4.546(In)

Rainfall depth area reduction factors:
Using a total area of 5.17(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.326(In)
30-minute factor = 1.000 Adjusted rainfall = 0.667(In)
1-hour factor = 1.000 Adjusted rainfall = 0.880(In)
3-hour factor = 1.000 Adjusted rainfall = 1.565(In)
6-hour factor = 1.000 Adjusted rainfall = 2.249(In)
24-hour factor = 1.000 Adjusted rainfall = 4.546(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 62.52 (CFS))	
1	7.278	4.550
2	45.958	24.185
3	84.780	24.274
4	96.661	7.428
5	98.945	1.428
6	100.000	0.660

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.3256	0.3256
2	0.4297	0.1040
3	0.5053	0.0757
4	0.5669	0.0616

5	0.6199	0.0529
6	0.6668	0.0469
7	0.7092	0.0424
8	0.7481	0.0389
9	0.7842	0.0361
10	0.8179	0.0338
11	0.8497	0.0318
12	0.8798	0.0301
13	0.9175	0.0377
14	0.9538	0.0363
15	0.9889	0.0351
16	1.0229	0.0340
17	1.0559	0.0330
18	1.0880	0.0321
19	1.1193	0.0313
20	1.1498	0.0305
21	1.1796	0.0298
22	1.2087	0.0291
23	1.2372	0.0285
24	1.2651	0.0279
25	1.2924	0.0274
26	1.3192	0.0268
27	1.3456	0.0263
28	1.3715	0.0259
29	1.3969	0.0255
30	1.4220	0.0250
31	1.4466	0.0246
32	1.4709	0.0243
33	1.4948	0.0239
34	1.5183	0.0236
35	1.5416	0.0232
36	1.5645	0.0229
37	1.5871	0.0226
38	1.6094	0.0223
39	1.6315	0.0220
40	1.6533	0.0218
41	1.6748	0.0215
42	1.6961	0.0213
43	1.7171	0.0210
44	1.7379	0.0208
45	1.7585	0.0206
46	1.7789	0.0204
47	1.7990	0.0202
48	1.8190	0.0199
49	1.8387	0.0198
50	1.8583	0.0196
51	1.8776	0.0194
52	1.8968	0.0192
53	1.9159	0.0190
54	1.9347	0.0189
55	1.9534	0.0187
56	1.9719	0.0185
57	1.9903	0.0184
58	2.0085	0.0182
59	2.0266	0.0181
60	2.0445	0.0179
61	2.0623	0.0178
62	2.0799	0.0176
63	2.0974	0.0175
64	2.1148	0.0174
65	2.1320	0.0172
66	2.1491	0.0171
67	2.1661	0.0170

68	2.1830	0.0169
69	2.1998	0.0168
70	2.2164	0.0166
71	2.2329	0.0165
72	2.2494	0.0164
73	2.2652	0.0158
74	2.2809	0.0157
75	2.2964	0.0156
76	2.3119	0.0155
77	2.3273	0.0154
78	2.3426	0.0153
79	2.3578	0.0152
80	2.3729	0.0151
81	2.3879	0.0150
82	2.4028	0.0149
83	2.4176	0.0148
84	2.4324	0.0147
85	2.4470	0.0147
86	2.4616	0.0146
87	2.4761	0.0145
88	2.4905	0.0144
89	2.5048	0.0143
90	2.5191	0.0142
91	2.5332	0.0142
92	2.5473	0.0141
93	2.5613	0.0140
94	2.5753	0.0139
95	2.5891	0.0139
96	2.6029	0.0138
97	2.6167	0.0137
98	2.6303	0.0137
99	2.6439	0.0136
100	2.6574	0.0135
101	2.6709	0.0135
102	2.6843	0.0134
103	2.6976	0.0133
104	2.7108	0.0133
105	2.7240	0.0132
106	2.7372	0.0131
107	2.7502	0.0131
108	2.7633	0.0130
109	2.7762	0.0130
110	2.7891	0.0129
111	2.8019	0.0128
112	2.8147	0.0128
113	2.8275	0.0127
114	2.8401	0.0127
115	2.8527	0.0126
116	2.8653	0.0126
117	2.8778	0.0125
118	2.8903	0.0125
119	2.9027	0.0124
120	2.9150	0.0124
121	2.9273	0.0123
122	2.9396	0.0123
123	2.9518	0.0122
124	2.9639	0.0122
125	2.9760	0.0121
126	2.9881	0.0121
127	3.0001	0.0120
128	3.0121	0.0120
129	3.0240	0.0119
130	3.0359	0.0119

131	3.0477	0.0118
132	3.0595	0.0118
133	3.0712	0.0117
134	3.0829	0.0117
135	3.0946	0.0117
136	3.1062	0.0116
137	3.1178	0.0116
138	3.1293	0.0115
139	3.1408	0.0115
140	3.1522	0.0114
141	3.1636	0.0114
142	3.1750	0.0114
143	3.1863	0.0113
144	3.1976	0.0113
145	3.2089	0.0112
146	3.2201	0.0112
147	3.2312	0.0112
148	3.2424	0.0111
149	3.2535	0.0111
150	3.2645	0.0111
151	3.2756	0.0110
152	3.2866	0.0110
153	3.2975	0.0110
154	3.3084	0.0109
155	3.3193	0.0109
156	3.3302	0.0109
157	3.3410	0.0108
158	3.3518	0.0108
159	3.3625	0.0107
160	3.3732	0.0107
161	3.3839	0.0107
162	3.3946	0.0106
163	3.4052	0.0106
164	3.4158	0.0106
165	3.4263	0.0106
166	3.4368	0.0105
167	3.4473	0.0105
168	3.4578	0.0105
169	3.4682	0.0104
170	3.4786	0.0104
171	3.4890	0.0104
172	3.4993	0.0103
173	3.5096	0.0103
174	3.5199	0.0103
175	3.5302	0.0103
176	3.5404	0.0102
177	3.5506	0.0102
178	3.5608	0.0102
179	3.5709	0.0101
180	3.5810	0.0101
181	3.5911	0.0101
182	3.6011	0.0101
183	3.6112	0.0100
184	3.6212	0.0100
185	3.6311	0.0100
186	3.6411	0.0099
187	3.6510	0.0099
188	3.6609	0.0099
189	3.6708	0.0099
190	3.6806	0.0098
191	3.6904	0.0098
192	3.7002	0.0098
193	3.7100	0.0098

194	3.7197	0.0097
195	3.7295	0.0097
196	3.7392	0.0097
197	3.7488	0.0097
198	3.7585	0.0096
199	3.7681	0.0096
200	3.7777	0.0096
201	3.7873	0.0096
202	3.7968	0.0096
203	3.8063	0.0095
204	3.8158	0.0095
205	3.8253	0.0095
206	3.8348	0.0095
207	3.8442	0.0094
208	3.8536	0.0094
209	3.8630	0.0094
210	3.8724	0.0094
211	3.8817	0.0093
212	3.8911	0.0093
213	3.9004	0.0093
214	3.9096	0.0093
215	3.9189	0.0093
216	3.9281	0.0092
217	3.9374	0.0092
218	3.9466	0.0092
219	3.9557	0.0092
220	3.9649	0.0092
221	3.9740	0.0091
222	3.9831	0.0091
223	3.9922	0.0091
224	4.0013	0.0091
225	4.0104	0.0091
226	4.0194	0.0090
227	4.0284	0.0090
228	4.0374	0.0090
229	4.0464	0.0090
230	4.0554	0.0090
231	4.0643	0.0089
232	4.0732	0.0089
233	4.0821	0.0089
234	4.0910	0.0089
235	4.0999	0.0089
236	4.1087	0.0088
237	4.1175	0.0088
238	4.1263	0.0088
239	4.1351	0.0088
240	4.1439	0.0088
241	4.1526	0.0088
242	4.1614	0.0087
243	4.1701	0.0087
244	4.1788	0.0087
245	4.1875	0.0087
246	4.1961	0.0087
247	4.2048	0.0086
248	4.2134	0.0086
249	4.2220	0.0086
250	4.2306	0.0086
251	4.2392	0.0086
252	4.2478	0.0086
253	4.2563	0.0085
254	4.2649	0.0085
255	4.2734	0.0085
256	4.2819	0.0085

257	4.2903	0.0085
258	4.2988	0.0085
259	4.3073	0.0084
260	4.3157	0.0084
261	4.3241	0.0084
262	4.3325	0.0084
263	4.3409	0.0084
264	4.3493	0.0084
265	4.3576	0.0084
266	4.3659	0.0083
267	4.3743	0.0083
268	4.3826	0.0083
269	4.3909	0.0083
270	4.3991	0.0083
271	4.4074	0.0083
272	4.4156	0.0082
273	4.4239	0.0082
274	4.4321	0.0082
275	4.4403	0.0082
276	4.4485	0.0082
277	4.4567	0.0082
278	4.4648	0.0082
279	4.4730	0.0081
280	4.4811	0.0081
281	4.4892	0.0081
282	4.4973	0.0081
283	4.5054	0.0081
284	4.5135	0.0081
285	4.5215	0.0081
286	4.5296	0.0080
287	4.5376	0.0080
288	4.5456	0.0080

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0080	0.0007	0.0073
2	0.0080	0.0007	0.0073
3	0.0081	0.0007	0.0073
4	0.0081	0.0007	0.0073
5	0.0081	0.0007	0.0074
6	0.0081	0.0007	0.0074
7	0.0081	0.0007	0.0074
8	0.0082	0.0007	0.0074
9	0.0082	0.0007	0.0075
10	0.0082	0.0007	0.0075
11	0.0082	0.0007	0.0075
12	0.0082	0.0007	0.0075
13	0.0083	0.0007	0.0075
14	0.0083	0.0007	0.0075
15	0.0083	0.0007	0.0076
16	0.0083	0.0007	0.0076
17	0.0084	0.0008	0.0076
18	0.0084	0.0008	0.0076
19	0.0084	0.0008	0.0077
20	0.0084	0.0008	0.0077
21	0.0085	0.0008	0.0077
22	0.0085	0.0008	0.0077
23	0.0085	0.0008	0.0077
24	0.0085	0.0008	0.0078
25	0.0086	0.0008	0.0078
26	0.0086	0.0008	0.0078

27	0.0086	0.0008	0.0078
28	0.0086	0.0008	0.0079
29	0.0087	0.0008	0.0079
30	0.0087	0.0008	0.0079
31	0.0087	0.0008	0.0079
32	0.0087	0.0008	0.0080
33	0.0088	0.0008	0.0080
34	0.0088	0.0008	0.0080
35	0.0088	0.0008	0.0080
36	0.0088	0.0008	0.0080
37	0.0089	0.0008	0.0081
38	0.0089	0.0008	0.0081
39	0.0089	0.0008	0.0081
40	0.0090	0.0008	0.0082
41	0.0090	0.0008	0.0082
42	0.0090	0.0008	0.0082
43	0.0091	0.0008	0.0082
44	0.0091	0.0008	0.0083
45	0.0091	0.0008	0.0083
46	0.0091	0.0008	0.0083
47	0.0092	0.0008	0.0084
48	0.0092	0.0008	0.0084
49	0.0092	0.0008	0.0084
50	0.0093	0.0008	0.0084
51	0.0093	0.0008	0.0085
52	0.0093	0.0008	0.0085
53	0.0094	0.0008	0.0085
54	0.0094	0.0008	0.0085
55	0.0094	0.0008	0.0086
56	0.0095	0.0008	0.0086
57	0.0095	0.0009	0.0087
58	0.0095	0.0009	0.0087
59	0.0096	0.0009	0.0087
60	0.0096	0.0009	0.0087
61	0.0096	0.0009	0.0088
62	0.0097	0.0009	0.0088
63	0.0097	0.0009	0.0088
64	0.0097	0.0009	0.0089
65	0.0098	0.0009	0.0089
66	0.0098	0.0009	0.0089
67	0.0099	0.0009	0.0090
68	0.0099	0.0009	0.0090
69	0.0099	0.0009	0.0091
70	0.0100	0.0009	0.0091
71	0.0100	0.0009	0.0091
72	0.0101	0.0009	0.0092
73	0.0101	0.0009	0.0092
74	0.0101	0.0009	0.0092
75	0.0102	0.0009	0.0093
76	0.0102	0.0009	0.0093
77	0.0103	0.0009	0.0094
78	0.0103	0.0009	0.0094
79	0.0104	0.0009	0.0094
80	0.0104	0.0009	0.0095
81	0.0105	0.0009	0.0095
82	0.0105	0.0009	0.0095
83	0.0106	0.0009	0.0096
84	0.0106	0.0010	0.0096
85	0.0106	0.0010	0.0097
86	0.0107	0.0010	0.0097
87	0.0107	0.0010	0.0098
88	0.0108	0.0010	0.0098
89	0.0109	0.0010	0.0099

90	0.0109	0.0010	0.0099
91	0.0110	0.0010	0.0100
92	0.0110	0.0010	0.0100
93	0.0111	0.0010	0.0101
94	0.0111	0.0010	0.0101
95	0.0112	0.0010	0.0102
96	0.0112	0.0010	0.0102
97	0.0113	0.0010	0.0103
98	0.0113	0.0010	0.0103
99	0.0114	0.0010	0.0104
100	0.0114	0.0010	0.0104
101	0.0115	0.0010	0.0105
102	0.0116	0.0010	0.0105
103	0.0117	0.0010	0.0106
104	0.0117	0.0011	0.0106
105	0.0118	0.0011	0.0107
106	0.0118	0.0011	0.0108
107	0.0119	0.0011	0.0108
108	0.0120	0.0011	0.0109
109	0.0121	0.0011	0.0110
110	0.0121	0.0011	0.0110
111	0.0122	0.0011	0.0111
112	0.0123	0.0011	0.0112
113	0.0124	0.0011	0.0112
114	0.0124	0.0011	0.0113
115	0.0125	0.0011	0.0114
116	0.0126	0.0011	0.0114
117	0.0127	0.0011	0.0115
118	0.0127	0.0011	0.0116
119	0.0128	0.0012	0.0117
120	0.0129	0.0012	0.0117
121	0.0130	0.0012	0.0118
122	0.0131	0.0012	0.0119
123	0.0132	0.0012	0.0120
124	0.0133	0.0012	0.0121
125	0.0134	0.0012	0.0122
126	0.0135	0.0012	0.0122
127	0.0136	0.0012	0.0124
128	0.0137	0.0012	0.0124
129	0.0138	0.0012	0.0126
130	0.0139	0.0012	0.0126
131	0.0140	0.0013	0.0128
132	0.0141	0.0013	0.0128
133	0.0142	0.0013	0.0130
134	0.0143	0.0013	0.0130
135	0.0145	0.0013	0.0132
136	0.0146	0.0013	0.0133
137	0.0147	0.0013	0.0134
138	0.0148	0.0013	0.0135
139	0.0150	0.0013	0.0137
140	0.0151	0.0014	0.0137
141	0.0153	0.0014	0.0139
142	0.0154	0.0014	0.0140
143	0.0156	0.0014	0.0142
144	0.0157	0.0014	0.0143
145	0.0164	0.0015	0.0149
146	0.0165	0.0015	0.0150
147	0.0168	0.0015	0.0153
148	0.0169	0.0015	0.0154
149	0.0171	0.0015	0.0156
150	0.0172	0.0015	0.0157
151	0.0175	0.0016	0.0159
152	0.0176	0.0016	0.0161

153	0.0179	0.0016	0.0163
154	0.0181	0.0016	0.0164
155	0.0184	0.0016	0.0167
156	0.0185	0.0017	0.0169
157	0.0189	0.0017	0.0172
158	0.0190	0.0017	0.0173
159	0.0194	0.0017	0.0176
160	0.0196	0.0018	0.0178
161	0.0199	0.0018	0.0182
162	0.0202	0.0018	0.0183
163	0.0206	0.0018	0.0187
164	0.0208	0.0019	0.0189
165	0.0213	0.0019	0.0194
166	0.0215	0.0019	0.0196
167	0.0220	0.0020	0.0201
168	0.0223	0.0020	0.0203
169	0.0229	0.0021	0.0209
170	0.0232	0.0021	0.0212
171	0.0239	0.0021	0.0218
172	0.0243	0.0022	0.0221
173	0.0250	0.0022	0.0228
174	0.0255	0.0023	0.0232
175	0.0263	0.0024	0.0240
176	0.0268	0.0024	0.0244
177	0.0279	0.0025	0.0254
178	0.0285	0.0026	0.0259
179	0.0298	0.0027	0.0271
180	0.0305	0.0027	0.0278
181	0.0321	0.0029	0.0292
182	0.0330	0.0030	0.0301
183	0.0351	0.0032	0.0320
184	0.0363	0.0033	0.0331
185	0.0301	0.0027	0.0274
186	0.0318	0.0029	0.0289
187	0.0361	0.0032	0.0328
188	0.0389	0.0033	0.0356
189	0.0469	0.0033	0.0436
190	0.0529	0.0033	0.0497
191	0.0757	0.0033	0.0724
192	0.1040	0.0033	0.1008
193	0.3256	0.0033	0.3224
194	0.0616	0.0033	0.0584
195	0.0424	0.0033	0.0391
196	0.0338	0.0030	0.0307
197	0.0377	0.0033	0.0344
198	0.0340	0.0031	0.0310
199	0.0313	0.0028	0.0285
200	0.0291	0.0026	0.0265
201	0.0274	0.0025	0.0249
202	0.0259	0.0023	0.0236
203	0.0246	0.0022	0.0224
204	0.0236	0.0021	0.0214
205	0.0226	0.0020	0.0206
206	0.0218	0.0020	0.0198
207	0.0210	0.0019	0.0191
208	0.0204	0.0018	0.0185
209	0.0198	0.0018	0.0180
210	0.0192	0.0017	0.0175
211	0.0187	0.0017	0.0170
212	0.0182	0.0016	0.0166
213	0.0178	0.0016	0.0162
214	0.0174	0.0016	0.0158
215	0.0170	0.0015	0.0155

216	0.0166	0.0015	0.0151
217	0.0158	0.0014	0.0144
218	0.0155	0.0014	0.0141
219	0.0152	0.0014	0.0138
220	0.0149	0.0013	0.0136
221	0.0147	0.0013	0.0133
222	0.0144	0.0013	0.0131
223	0.0142	0.0013	0.0129
224	0.0139	0.0013	0.0127
225	0.0137	0.0012	0.0125
226	0.0135	0.0012	0.0123
227	0.0133	0.0012	0.0121
228	0.0131	0.0012	0.0120
229	0.0130	0.0012	0.0118
230	0.0128	0.0011	0.0116
231	0.0126	0.0011	0.0115
232	0.0125	0.0011	0.0113
233	0.0123	0.0011	0.0112
234	0.0122	0.0011	0.0111
235	0.0120	0.0011	0.0109
236	0.0119	0.0011	0.0108
237	0.0117	0.0011	0.0107
238	0.0116	0.0010	0.0106
239	0.0115	0.0010	0.0105
240	0.0114	0.0010	0.0103
241	0.0112	0.0010	0.0102
242	0.0111	0.0010	0.0101
243	0.0110	0.0010	0.0100
244	0.0109	0.0010	0.0099
245	0.0108	0.0010	0.0098
246	0.0107	0.0010	0.0098
247	0.0106	0.0010	0.0097
248	0.0105	0.0009	0.0096
249	0.0104	0.0009	0.0095
250	0.0103	0.0009	0.0094
251	0.0103	0.0009	0.0093
252	0.0102	0.0009	0.0093
253	0.0101	0.0009	0.0092
254	0.0100	0.0009	0.0091
255	0.0099	0.0009	0.0090
256	0.0098	0.0009	0.0090
257	0.0098	0.0009	0.0089
258	0.0097	0.0009	0.0088
259	0.0096	0.0009	0.0088
260	0.0096	0.0009	0.0087
261	0.0095	0.0009	0.0086
262	0.0094	0.0008	0.0086
263	0.0093	0.0008	0.0085
264	0.0093	0.0008	0.0084
265	0.0092	0.0008	0.0084
266	0.0092	0.0008	0.0083
267	0.0091	0.0008	0.0083
268	0.0090	0.0008	0.0082
269	0.0090	0.0008	0.0082
270	0.0089	0.0008	0.0081
271	0.0089	0.0008	0.0081
272	0.0088	0.0008	0.0080
273	0.0088	0.0008	0.0080
274	0.0087	0.0008	0.0079
275	0.0086	0.0008	0.0079
276	0.0086	0.0008	0.0078
277	0.0085	0.0008	0.0078
278	0.0085	0.0008	0.0077

279	0.0084	0.0008	0.0077
280	0.0084	0.0008	0.0076
281	0.0084	0.0008	0.0076
282	0.0083	0.0007	0.0076
283	0.0083	0.0007	0.0075
284	0.0082	0.0007	0.0075
285	0.0082	0.0007	0.0074
286	0.0081	0.0007	0.0074
287	0.0081	0.0007	0.0074
288	0.0080	0.0007	0.0073

Total soil rain loss = 0.37(In)
Total effective rainfall = 4.18(In)
Peak flow rate in flood hydrograph = 11.15(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        5.0      10.0      15.0      20.0
-----------------------------------------------------------------------
  0+ 5       0.0002      0.03  Q         |         |         |         |
  0+10       0.0017      0.21  Q         |         |         |         |
  0+15       0.0043      0.39  Q         |         |         |         |
  0+20       0.0074      0.44  Q         |         |         |         |
  0+25       0.0105      0.45  Q         |         |         |         |
  0+30       0.0137      0.46  Q         |         |         |         |
  0+35       0.0169      0.46  Q         |         |         |         |
  0+40       0.0200      0.46  Q         |         |         |         |
  0+45       0.0232      0.46  Q         |         |         |         |
  0+50       0.0264      0.46  Q         |         |         |         |
  0+55       0.0296      0.47  Q         |         |         |         |
  1+ 0       0.0329      0.47  Q         |         |         |         |
  1+ 5       0.0361      0.47  Q         |         |         |         |
  1+10       0.0393      0.47  Q         |         |         |         |
  1+15       0.0426      0.47  Q         |         |         |         |
  1+20       0.0458      0.47  QV        |         |         |         |
  1+25       0.0491      0.47  QV        |         |         |         |
  1+30       0.0524      0.48  QV        |         |         |         |
  1+35       0.0556      0.48  QV        |         |         |         |
  1+40       0.0589      0.48  QV        |         |         |         |
  1+45       0.0622      0.48  QV        |         |         |         |
  1+50       0.0655      0.48  QV        |         |         |         |
  1+55       0.0689      0.48  QV        |         |         |         |
  2+ 0       0.0722      0.48  QV        |         |         |         |
  2+ 5       0.0755      0.48  QV        |         |         |         |
  2+10       0.0789      0.49  QV        |         |         |         |
  2+15       0.0822      0.49  QV        |         |         |         |
  2+20       0.0856      0.49  QV        |         |         |         |
  2+25       0.0890      0.49  QV        |         |         |         |
  2+30       0.0924      0.49  Q V       |         |         |         |
  2+35       0.0958      0.49  Q V       |         |         |         |
  2+40       0.0992      0.49  Q V       |         |         |         |
  2+45       0.1026      0.50  Q V       |         |         |         |
  2+50       0.1060      0.50  Q V       |         |         |         |
  2+55       0.1095      0.50  Q V       |         |         |         |
  3+ 0       0.1129      0.50  |QV       |         |         |         |
  3+ 5       0.1164      0.50  |QV       |         |         |         |
  3+10       0.1198      0.50  |QV       |         |         |         |
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3+15        0.1233      0.51  |QV        |         |         |         |
3+20        0.1268      0.51  |QV        |         |         |         |
3+25        0.1303      0.51  |QV        |         |         |         |
3+30        0.1338      0.51  |QV        |         |         |         |
3+35        0.1374      0.51  |Q V       |         |         |         |
3+40        0.1409      0.51  |Q V       |         |         |         |
3+45        0.1445      0.52  |Q V       |         |         |         |
3+50        0.1480      0.52  |Q V       |         |         |         |
3+55        0.1516      0.52  |Q V       |         |         |         |
4+ 0        0.1552      0.52  |Q V       |         |         |         |
4+ 5        0.1588      0.52  |Q V       |         |         |         |
4+10        0.1624      0.52  |Q V       |         |         |         |
4+15        0.1660      0.53  |Q V       |         |         |         |
4+20        0.1697      0.53  |Q V       |         |         |         |
4+25        0.1733      0.53  |Q V       |         |         |         |
4+30        0.1770      0.53  |Q V       |         |         |         |
4+35        0.1806      0.53  |Q  V      |         |         |         |
4+40        0.1843      0.54  |Q  V      |         |         |         |
4+45        0.1880      0.54  |Q  V      |         |         |         |
4+50        0.1917      0.54  |Q  V      |         |         |         |
4+55        0.1955      0.54  |Q  V      |         |         |         |
5+ 0        0.1992      0.54  |Q  V      |         |         |         |
5+ 5        0.2030      0.55  |Q  V      |         |         |         |
5+10        0.2067      0.55  |Q  V      |         |         |         |
5+15        0.2105      0.55  |Q  V      |         |         |         |
5+20        0.2143      0.55  |Q  V      |         |         |         |
5+25        0.2181      0.55  |Q  V      |         |         |         |
5+30        0.2220      0.56  |Q  V      |         |         |         |
5+35        0.2258      0.56  |Q   V     |         |         |         |
5+40        0.2296      0.56  |Q   V     |         |         |         |
5+45        0.2335      0.56  |Q   V     |         |         |         |
5+50        0.2374      0.56  |Q   V     |         |         |         |
5+55        0.2413      0.57  |Q   V     |         |         |         |
6+ 0        0.2452      0.57  |Q   V     |         |         |         |
6+ 5        0.2492      0.57  |Q   V     |         |         |         |
6+10        0.2531      0.57  |Q   V     |         |         |         |
6+15        0.2571      0.58  |Q   V     |         |         |         |
6+20        0.2611      0.58  |Q   V     |         |         |         |
6+25        0.2651      0.58  |Q   V     |         |         |         |
6+30        0.2691      0.58  |Q   V     |         |         |         |
6+35        0.2731      0.59  |Q    V    |         |         |         |
6+40        0.2771      0.59  |Q    V    |         |         |         |
6+45        0.2812      0.59  |Q    V    |         |         |         |
6+50        0.2853      0.59  |Q    V    |         |         |         |
6+55        0.2894      0.60  |Q    V    |         |         |         |
7+ 0        0.2935      0.60  |Q    V    |         |         |         |
7+ 5        0.2977      0.60  |Q    V    |         |         |         |
7+10        0.3018      0.60  |Q    V    |         |         |         |
7+15        0.3060      0.61  |Q    V    |         |         |         |
7+20        0.3102      0.61  |Q    V    |         |         |         |
7+25        0.3144      0.61  |Q    V    |         |         |         |
7+30        0.3186      0.62  |Q     V   |         |         |         |
7+35        0.3229      0.62  |Q     V   |         |         |         |
7+40        0.3272      0.62  |Q     V   |         |         |         |
7+45        0.3315      0.62  |Q     V   |         |         |         |
7+50        0.3358      0.63  |Q     V   |         |         |         |
7+55        0.3401      0.63  |Q     V   |         |         |         |
8+ 0        0.3445      0.63  |Q     V   |         |         |         |
8+ 5        0.3489      0.64  |Q     V   |         |         |         |
8+10        0.3533      0.64  |Q     V   |         |         |         |
8+15        0.3577      0.64  |Q     V   |         |         |         |
8+20        0.3622      0.65  |Q      V  |         |         |         |
8+25        0.3666      0.65  |Q      V  |         |         |         |
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 8+30       0.3711      0.65  |Q      V |         |         |         |
 8+35       0.3757      0.66  |Q      V |         |         |         |
 8+40       0.3802      0.66  |Q      V |         |         |         |
 8+45       0.3848      0.66  |Q      V |         |         |         |
 8+50       0.3894      0.67  |Q      V |         |         |         |
 8+55       0.3940      0.67  |Q      V |         |         |         |
 9+ 0       0.3987      0.68  |Q      V |         |         |         |
 9+ 5       0.4033      0.68  |Q      V |         |         |         |
 9+10       0.4080      0.68  |Q       V|         |         |         |
 9+15       0.4128      0.69  |Q       V|         |         |         |
 9+20       0.4175      0.69  |Q       V|         |         |         |
 9+25       0.4223      0.70  |Q       V|         |         |         |
 9+30       0.4271      0.70  |Q       V|         |         |         |
 9+35       0.4320      0.70  |Q       V|         |         |         |
 9+40       0.4369      0.71  |Q       V|         |         |         |
 9+45       0.4418      0.71  |Q       V|         |         |         |
 9+50       0.4467      0.72  |Q       V|         |         |         |
 9+55       0.4517      0.72  |Q        V         |         |         |
10+ 0       0.4567      0.73  |Q        V         |         |         |
10+ 5       0.4617      0.73  |Q        V         |         |         |
10+10       0.4668      0.74  |Q        V         |         |         |
10+15       0.4719      0.74  |Q        V         |         |         |
10+20       0.4770      0.75  |Q        V         |         |         |
10+25       0.4822      0.75  |Q        V         |         |         |
10+30       0.4874      0.76  |Q        V         |         |         |
10+35       0.4927      0.76  |Q        V         |         |         |
10+40       0.4980      0.77  |Q        |V         |         |         |
10+45       0.5033      0.77  |Q        |V         |         |         |
10+50       0.5087      0.78  |Q        |V         |         |         |
10+55       0.5141      0.79  |Q        |V         |         |         |
11+ 0       0.5196      0.79  |Q        |V         |         |         |
11+ 5       0.5251      0.80  |Q        |V         |         |         |
11+10       0.5306      0.81  |Q        |V         |         |         |
11+15       0.5362      0.81  |Q        |V         |         |         |
11+20       0.5418      0.82  |Q        | V        |         |         |
11+25       0.5475      0.83  |Q        | V        |         |         |
11+30       0.5532      0.83  |Q        | V        |         |         |
11+35       0.5590      0.84  |Q        | V        |         |         |
11+40       0.5649      0.85  |Q        | V        |         |         |
11+45       0.5708      0.86  |Q        | V        |         |         |
11+50       0.5767      0.86  |Q        | V        |         |         |
11+55       0.5827      0.87  |Q        | V        |         |         |
12+ 0       0.5888      0.88  |Q        |  V       |         |         |
12+ 5       0.5949      0.89  |Q        |  V       |         |         |
12+10       0.6012      0.91  |Q        |  V       |         |         |
12+15       0.6076      0.93  |Q        |  V       |         |         |
12+20       0.6141      0.94  |Q        |  V       |         |         |
12+25       0.6207      0.96  |Q        |  V       |         |         |
12+30       0.6273      0.97  |Q        |  V       |         |         |
12+35       0.6341      0.98  |Q        |   V      |         |         |
12+40       0.6409      0.99  |Q        |   V      |         |         |
12+45       0.6477      1.00  |Q        |   V      |         |         |
12+50       0.6547      1.01  | Q       |   V      |         |         |
12+55       0.6617      1.02  | Q       |   V      |         |         |
13+ 0       0.6689      1.03  | Q       |   V      |         |         |
13+ 5       0.6761      1.05  | Q       |    V     |         |         |
13+10       0.6834      1.06  | Q       |    V     |         |         |
13+15       0.6908      1.08  | Q       |    V     |         |         |
13+20       0.6983      1.09  | Q       |    V     |         |         |
13+25       0.7059      1.11  | Q       |    V     |         |         |
13+30       0.7136      1.12  | Q       |    V     |         |         |
13+35       0.7215      1.14  | Q       |     V    |         |         |
13+40       0.7294      1.16  | Q       |     V    |         |         |
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13+45       0.7375      1.17  | Q        |      V   |          |          |
13+50       0.7458      1.19  | Q        |      V   |          |          |
13+55       0.7541      1.21  | Q        |      V   |          |          |
14+ 0       0.7626      1.24  | Q        |      V   |          |          |
14+ 5       0.7713      1.26  | Q        |       V  |          |          |
14+10       0.7801      1.28  | Q        |       V  |          |          |
14+15       0.7892      1.31  | Q        |       V  |          |          |
14+20       0.7984      1.34  | Q        |       V  |          |          |
14+25       0.8078      1.37  | Q        |       V  |          |          |
14+30       0.8174      1.40  | Q        |        V |          |          |
14+35       0.8273      1.43  | Q        |        V |          |          |
14+40       0.8374      1.47  | Q        |        V |          |          |
14+45       0.8478      1.51  |  Q       |        V |          |          |
14+50       0.8585      1.55  |  Q       |         V|          |          |
14+55       0.8695      1.60  |  Q       |         V|          |          |
15+ 0       0.8808      1.65  |  Q       |         V|          |          |
15+ 5       0.8926      1.71  |  Q       |         V|          |          |
15+10       0.9048      1.77  |  Q       |          V          |          |
15+15       0.9175      1.84  |  Q       |          V          |          |
15+20       0.9308      1.93  |  Q       |          V          |          |
15+25       0.9444      1.98  |  Q       |          V          |          |
15+30       0.9575      1.90  |  Q       |          |V         |          |
15+35       0.9700      1.83  |  Q       |          |V         |          |
15+40       0.9833      1.93  |  Q       |          |V         |          |
15+45       0.9980      2.13  |   Q      |          | V        |          |
15+50       1.0149      2.45  |   Q      |          | V        |          |
15+55       1.0350      2.92  |    Q     |          |  V       |          |
16+ 0       1.0613      3.81  |      Q   |          |  V       |          |
16+ 5       1.1034      6.12  |        | Q         |   V      |          |
16+10       1.1802     11.15  |          |          | Q   V    |          |
16+15       1.2511     10.30  |          |          Q     V   |          |
16+20       1.2861      5.09  |         Q          |       V  |          |
16+25       1.3055      2.81  |    Q     |          |        V|          |
16+30       1.3214      2.31  |   Q      |          |        V|          |
16+35       1.3354      2.04  |   Q      |          |        V|          |
16+40       1.3484      1.89  |  Q       |          |        V|          |
16+45       1.3604      1.74  |  Q       |          |         V          |
16+50       1.3716      1.63  |  Q       |          |         V          |
16+55       1.3822      1.53  |  Q       |          |         V          |
17+ 0       1.3922      1.45  | Q        |          |         V          |
17+ 5       1.4017      1.38  | Q        |          |         |V         |
17+10       1.4109      1.33  | Q        |          |         |V         |
17+15       1.4196      1.27  | Q        |          |         |V         |
17+20       1.4281      1.23  | Q        |          |         |V         |
17+25       1.4362      1.19  | Q        |          |         |V         |
17+30       1.4442      1.15  | Q        |          |         | V        |
17+35       1.4518      1.11  | Q        |          |         | V        |
17+40       1.4593      1.08  | Q        |          |         | V        |
17+45       1.4666      1.06  | Q        |          |         | V        |
17+50       1.4736      1.03  | Q        |          |         | V        |
17+55       1.4806      1.00  | Q        |          |         | V        |
18+ 0       1.4873      0.98  |Q         |          |         |  V       |
18+ 5       1.4939      0.96  |Q         |          |         |  V       |
18+10       1.5003      0.93  |Q         |          |         |  V       |
18+15       1.5065      0.90  |Q         |          |         |  V       |
18+20       1.5125      0.88  |Q         |          |         |  V       |
18+25       1.5185      0.86  |Q         |          |         |  V       |
18+30       1.5243      0.84  |Q         |          |         |  V       |
18+35       1.5300      0.83  |Q         |          |         |   V      |
18+40       1.5356      0.82  |Q         |          |         |   V      |
18+45       1.5411      0.80  |Q         |          |         |   V      |
18+50       1.5466      0.79  |Q         |          |         |   V      |
18+55       1.5519      0.78  |Q         |          |         |   V      |
```

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19+ 0       1.5572      0.77  |Q         |          |          |   V     |
19+ 5       1.5624      0.75  |Q         |          |          |   V     |
19+10       1.5675      0.74  |Q         |          |          |   V     |
19+15       1.5726      0.73  |Q         |          |          |   V     |
19+20       1.5776      0.72  |Q         |          |          |    V    |
19+25       1.5825      0.72  |Q         |          |          |    V    |
19+30       1.5873      0.71  |Q         |          |          |    V    |
19+35       1.5922      0.70  |Q         |          |          |    V    |
19+40       1.5969      0.69  |Q         |          |          |    V    |
19+45       1.6016      0.68  |Q         |          |          |    V    |
19+50       1.6062      0.67  |Q         |          |          |    V    |
19+55       1.6108      0.67  |Q         |          |          |    V    |
20+ 0       1.6153      0.66  |Q         |          |          |    V    |
20+ 5       1.6198      0.65  |Q         |          |          |     V   |
20+10       1.6243      0.64  |Q         |          |          |     V   |
20+15       1.6287      0.64  |Q         |          |          |     V   |
20+20       1.6330      0.63  |Q         |          |          |     V   |
20+25       1.6373      0.63  |Q         |          |          |     V   |
20+30       1.6416      0.62  |Q         |          |          |     V   |
20+35       1.6458      0.61  |Q         |          |          |     V   |
20+40       1.6500      0.61  |Q         |          |          |     V   |
20+45       1.6542      0.60  |Q         |          |          |     V   |
20+50       1.6583      0.60  |Q         |          |          |     V   |
20+55       1.6623      0.59  |Q         |          |          |     V   |
21+ 0       1.6664      0.59  |Q         |          |          |      V  |
21+ 5       1.6704      0.58  |Q         |          |          |      V  |
21+10       1.6744      0.58  |Q         |          |          |      V  |
21+15       1.6783      0.57  |Q         |          |          |      V  |
21+20       1.6822      0.57  |Q         |          |          |      V  |
21+25       1.6861      0.56  |Q         |          |          |      V  |
21+30       1.6899      0.56  |Q         |          |          |      V  |
21+35       1.6938      0.55  |Q         |          |          |      V  |
21+40       1.6976      0.55  |Q         |          |          |      V  |
21+45       1.7013      0.55  |Q         |          |          |      V  |
21+50       1.7050      0.54  |Q         |          |          |      V  |
21+55       1.7088      0.54  |Q         |          |          |      V  |
22+ 0       1.7124      0.53  |Q         |          |          |       V |
22+ 5       1.7161      0.53  |Q         |          |          |       V |
22+10       1.7197      0.53  |Q         |          |          |       V |
22+15       1.7233      0.52  |Q         |          |          |       V |
22+20       1.7269      0.52  |Q         |          |          |       V |
22+25       1.7305      0.52  |Q         |          |          |       V |
22+30       1.7340      0.51  |Q         |          |          |       V |
22+35       1.7375      0.51  |Q         |          |          |       V |
22+40       1.7410      0.51  |Q         |          |          |       V |
22+45       1.7445      0.50  |Q         |          |          |       V |
22+50       1.7479      0.50  |Q         |          |          |       V |
22+55       1.7513      0.50  Q          |          |          |       V |
23+ 0       1.7547      0.49  Q          |          |          |        V|
23+ 5       1.7581      0.49  Q          |          |          |        V|
23+10       1.7615      0.49  Q          |          |          |        V|
23+15       1.7648      0.49  Q          |          |          |        V|
23+20       1.7681      0.48  Q          |          |          |        V|
23+25       1.7714      0.48  Q          |          |          |        V|
23+30       1.7747      0.48  Q          |          |          |        V|
23+35       1.7780      0.47  Q          |          |          |        V|
23+40       1.7813      0.47  Q          |          |          |        V|
23+45       1.7845      0.47  Q          |          |          |        V|
23+50       1.7877      0.47  Q          |          |          |        V|
23+55       1.7909      0.46  Q          |          |          |        V|
24+ 0       1.7941      0.46  Q          |          |          |        V|
24+ 5       1.7970      0.43  Q          |          |          |        V|
24+10       1.7987      0.25  Q          |          |          |        V|
```

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   24+15       1.7992      0.07  Q          |          |          |         V|
   24+20       1.7993      0.02  Q          |          |          |         V|
   24+25       1.7993      0.00  Q          |          |          |          V
-----------------------------------------------------------------------
```

Underground System
Capacity = 2.0473 Ac-ft.

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

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Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Proposed Conditions
Area P2

Storm Event Year = 25

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
5.17	1	0.88
Rainfall data for year 2		
5.17	6	1.55
Rainfall data for year 2		
5.17	24	2.90
Rainfall data for year 100		
5.17	1	1.25
Rainfall data for year 100		
5.17	6	3.25
Rainfall data for year 100		
5.17	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 2)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
32.0	32.0	5.17	1.000	0.978	0.040	0.039

Area-averaged adjusted loss rate Fm (In/Hr) = 0.039

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
0.21	0.040	32.0	32.0	21.25	0.012
4.96	0.960	98.0	98.0	0.20	0.957

Area-averaged catchment yield fraction, Y = 0.919
Area-averaged low loss fraction, Yb = 0.081
User entry of time of concentration = 0.164 (hours)
++
Watershed area = 5.17(Ac.)
Catchment Lag time = 0.131 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 63.5163
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.039(In/Hr)
Average low loss rate fraction (Yb) = 0.081 (decimal)
VALLEY DEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.380(In)
Computed peak 30-minute rainfall = 0.779(In)
Specified peak 1-hour rainfall = 1.027(In)
Computed peak 3-hour rainfall = 1.836(In)
Specified peak 6-hour rainfall = 2.648(In)
Specified peak 24-hour rainfall = 5.483(In)

Rainfall depth area reduction factors:
Using a total area of 5.17(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.380(In)
30-minute factor = 1.000 Adjusted rainfall = 0.778(In)
1-hour factor = 1.000 Adjusted rainfall = 1.027(In)
3-hour factor = 1.000 Adjusted rainfall = 1.836(In)
6-hour factor = 1.000 Adjusted rainfall = 2.648(In)
24-hour factor = 1.000 Adjusted rainfall = 5.482(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 62.52 (CFS))	
1	7.278	4.550
2	45.958	24.185
3	84.780	24.274
4	96.661	7.428
5	98.945	1.428
6	100.000	0.660

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.3801	0.3801
2	0.5015	0.1214
3	0.5899	0.0883
4	0.6618	0.0719

5	0.7236	0.0618
6	0.7783	0.0547
7	0.8278	0.0495
8	0.8732	0.0454
9	0.9154	0.0421
10	0.9548	0.0394
11	0.9919	0.0371
12	1.0270	0.0351
13	1.0714	0.0444
14	1.1142	0.0428
15	1.1556	0.0414
16	1.1957	0.0401
17	1.2346	0.0389
18	1.2725	0.0379
19	1.3094	0.0369
20	1.3453	0.0360
21	1.3805	0.0351
22	1.4149	0.0344
23	1.4485	0.0336
24	1.4815	0.0330
25	1.5138	0.0323
26	1.5455	0.0317
27	1.5766	0.0311
28	1.6072	0.0306
29	1.6373	0.0301
30	1.6669	0.0296
31	1.6961	0.0291
32	1.7248	0.0287
33	1.7531	0.0283
34	1.7809	0.0279
35	1.8084	0.0275
36	1.8356	0.0271
37	1.8623	0.0268
38	1.8888	0.0264
39	1.9149	0.0261
40	1.9407	0.0258
41	1.9661	0.0255
42	1.9913	0.0252
43	2.0163	0.0249
44	2.0409	0.0246
45	2.0653	0.0244
46	2.0894	0.0241
47	2.1133	0.0239
48	2.1369	0.0236
49	2.1603	0.0234
50	2.1835	0.0232
51	2.2065	0.0230
52	2.2293	0.0228
53	2.2518	0.0226
54	2.2742	0.0224
55	2.2963	0.0222
56	2.3183	0.0220
57	2.3401	0.0218
58	2.3617	0.0216
59	2.3831	0.0214
60	2.4044	0.0213
61	2.4255	0.0211
62	2.4464	0.0209
63	2.4672	0.0208
64	2.4878	0.0206
65	2.5082	0.0205
66	2.5286	0.0203
67	2.5487	0.0202

68	2.5688	0.0200
69	2.5887	0.0199
70	2.6084	0.0198
71	2.6280	0.0196
72	2.6475	0.0195
73	2.6668	0.0192
74	2.6859	0.0191
75	2.7049	0.0190
76	2.7238	0.0189
77	2.7425	0.0188
78	2.7612	0.0186
79	2.7797	0.0185
80	2.7981	0.0184
81	2.8164	0.0183
82	2.8346	0.0182
83	2.8527	0.0181
84	2.8707	0.0180
85	2.8886	0.0179
86	2.9064	0.0178
87	2.9241	0.0177
88	2.9417	0.0176
89	2.9592	0.0175
90	2.9767	0.0174
91	2.9940	0.0173
92	3.0112	0.0172
93	3.0283	0.0171
94	3.0454	0.0171
95	3.0624	0.0170
96	3.0793	0.0169
97	3.0961	0.0168
98	3.1128	0.0167
99	3.1294	0.0166
100	3.1460	0.0166
101	3.1625	0.0165
102	3.1789	0.0164
103	3.1952	0.0163
104	3.2114	0.0163
105	3.2276	0.0162
106	3.2437	0.0161
107	3.2597	0.0160
108	3.2757	0.0160
109	3.2916	0.0159
110	3.3074	0.0158
111	3.3232	0.0158
112	3.3389	0.0157
113	3.3545	0.0156
114	3.3700	0.0156
115	3.3855	0.0155
116	3.4010	0.0154
117	3.4163	0.0154
118	3.4316	0.0153
119	3.4469	0.0152
120	3.4620	0.0152
121	3.4772	0.0151
122	3.4922	0.0151
123	3.5072	0.0150
124	3.5222	0.0149
125	3.5371	0.0149
126	3.5519	0.0148
127	3.5667	0.0148
128	3.5814	0.0147
129	3.5960	0.0147
130	3.6107	0.0146

131	3.6252	0.0146
132	3.6397	0.0145
133	3.6542	0.0145
134	3.6686	0.0144
135	3.6829	0.0144
136	3.6972	0.0143
137	3.7115	0.0143
138	3.7257	0.0142
139	3.7398	0.0142
140	3.7539	0.0141
141	3.7680	0.0141
142	3.7820	0.0140
143	3.7960	0.0140
144	3.8099	0.0139
145	3.8237	0.0139
146	3.8376	0.0138
147	3.8513	0.0138
148	3.8651	0.0137
149	3.8788	0.0137
150	3.8924	0.0136
151	3.9060	0.0136
152	3.9196	0.0136
153	3.9331	0.0135
154	3.9466	0.0135
155	3.9600	0.0134
156	3.9734	0.0134
157	3.9868	0.0134
158	4.0001	0.0133
159	4.0133	0.0133
160	4.0266	0.0132
161	4.0398	0.0132
162	4.0529	0.0132
163	4.0661	0.0131
164	4.0791	0.0131
165	4.0922	0.0130
166	4.1052	0.0130
167	4.1181	0.0130
168	4.1311	0.0129
169	4.1440	0.0129
170	4.1568	0.0129
171	4.1696	0.0128
172	4.1824	0.0128
173	4.1952	0.0128
174	4.2079	0.0127
175	4.2206	0.0127
176	4.2332	0.0126
177	4.2458	0.0126
178	4.2584	0.0126
179	4.2710	0.0125
180	4.2835	0.0125
181	4.2960	0.0125
182	4.3084	0.0124
183	4.3208	0.0124
184	4.3332	0.0124
185	4.3455	0.0123
186	4.3579	0.0123
187	4.3702	0.0123
188	4.3824	0.0123
189	4.3946	0.0122
190	4.4068	0.0122
191	4.4190	0.0122
192	4.4311	0.0121
193	4.4432	0.0121

194	4.4553	0.0121
195	4.4673	0.0120
196	4.4794	0.0120
197	4.4913	0.0120
198	4.5033	0.0120
199	4.5152	0.0119
200	4.5271	0.0119
201	4.5390	0.0119
202	4.5508	0.0118
203	4.5627	0.0118
204	4.5745	0.0118
205	4.5862	0.0118
206	4.5979	0.0117
207	4.6097	0.0117
208	4.6213	0.0117
209	4.6330	0.0117
210	4.6446	0.0116
211	4.6562	0.0116
212	4.6678	0.0116
213	4.6793	0.0115
214	4.6909	0.0115
215	4.7024	0.0115
216	4.7138	0.0115
217	4.7253	0.0114
218	4.7367	0.0114
219	4.7481	0.0114
220	4.7595	0.0114
221	4.7708	0.0113
222	4.7821	0.0113
223	4.7934	0.0113
224	4.8047	0.0113
225	4.8160	0.0113
226	4.8272	0.0112
227	4.8384	0.0112
228	4.8496	0.0112
229	4.8607	0.0112
230	4.8719	0.0111
231	4.8830	0.0111
232	4.8941	0.0111
233	4.9051	0.0111
234	4.9162	0.0110
235	4.9272	0.0110
236	4.9382	0.0110
237	4.9492	0.0110
238	4.9601	0.0110
239	4.9711	0.0109
240	4.9820	0.0109
241	4.9929	0.0109
242	5.0037	0.0109
243	5.0146	0.0108
244	5.0254	0.0108
245	5.0362	0.0108
246	5.0470	0.0108
247	5.0577	0.0108
248	5.0685	0.0107
249	5.0792	0.0107
250	5.0899	0.0107
251	5.1006	0.0107
252	5.1112	0.0107
253	5.1219	0.0106
254	5.1325	0.0106
255	5.1431	0.0106
256	5.1537	0.0106

257	5.1643	0.0106
258	5.1748	0.0105
259	5.1853	0.0105
260	5.1958	0.0105
261	5.2063	0.0105
262	5.2168	0.0105
263	5.2272	0.0104
264	5.2376	0.0104
265	5.2480	0.0104
266	5.2584	0.0104
267	5.2688	0.0104
268	5.2792	0.0104
269	5.2895	0.0103
270	5.2998	0.0103
271	5.3101	0.0103
272	5.3204	0.0103
273	5.3307	0.0103
274	5.3409	0.0102
275	5.3511	0.0102
276	5.3613	0.0102
277	5.3715	0.0102
278	5.3817	0.0102
279	5.3919	0.0102
280	5.4020	0.0101
281	5.4121	0.0101
282	5.4222	0.0101
283	5.4323	0.0101
284	5.4424	0.0101
285	5.4524	0.0101
286	5.4625	0.0100
287	5.4725	0.0100
288	5.4825	0.0100

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0100	0.0008	0.0092
2	0.0100	0.0008	0.0092
3	0.0101	0.0008	0.0092
4	0.0101	0.0008	0.0093
5	0.0101	0.0008	0.0093
6	0.0101	0.0008	0.0093
7	0.0102	0.0008	0.0093
8	0.0102	0.0008	0.0093
9	0.0102	0.0008	0.0094
10	0.0102	0.0008	0.0094
11	0.0103	0.0008	0.0094
12	0.0103	0.0008	0.0094
13	0.0103	0.0008	0.0095
14	0.0103	0.0008	0.0095
15	0.0104	0.0008	0.0095
16	0.0104	0.0008	0.0095
17	0.0104	0.0008	0.0096
18	0.0104	0.0008	0.0096
19	0.0105	0.0009	0.0096
20	0.0105	0.0009	0.0097
21	0.0105	0.0009	0.0097
22	0.0106	0.0009	0.0097
23	0.0106	0.0009	0.0097
24	0.0106	0.0009	0.0098
25	0.0107	0.0009	0.0098
26	0.0107	0.0009	0.0098

27	0.0107	0.0009	0.0099
28	0.0107	0.0009	0.0099
29	0.0108	0.0009	0.0099
30	0.0108	0.0009	0.0099
31	0.0108	0.0009	0.0100
32	0.0109	0.0009	0.0100
33	0.0109	0.0009	0.0100
34	0.0109	0.0009	0.0100
35	0.0110	0.0009	0.0101
36	0.0110	0.0009	0.0101
37	0.0110	0.0009	0.0101
38	0.0111	0.0009	0.0102
39	0.0111	0.0009	0.0102
40	0.0111	0.0009	0.0102
41	0.0112	0.0009	0.0103
42	0.0112	0.0009	0.0103
43	0.0113	0.0009	0.0103
44	0.0113	0.0009	0.0104
45	0.0113	0.0009	0.0104
46	0.0113	0.0009	0.0104
47	0.0114	0.0009	0.0105
48	0.0114	0.0009	0.0105
49	0.0115	0.0009	0.0105
50	0.0115	0.0009	0.0106
51	0.0115	0.0009	0.0106
52	0.0116	0.0009	0.0106
53	0.0116	0.0009	0.0107
54	0.0117	0.0009	0.0107
55	0.0117	0.0009	0.0108
56	0.0117	0.0010	0.0108
57	0.0118	0.0010	0.0108
58	0.0118	0.0010	0.0109
59	0.0119	0.0010	0.0109
60	0.0119	0.0010	0.0109
61	0.0120	0.0010	0.0110
62	0.0120	0.0010	0.0110
63	0.0120	0.0010	0.0111
64	0.0121	0.0010	0.0111
65	0.0121	0.0010	0.0111
66	0.0122	0.0010	0.0112
67	0.0122	0.0010	0.0112
68	0.0123	0.0010	0.0113
69	0.0123	0.0010	0.0113
70	0.0123	0.0010	0.0113
71	0.0124	0.0010	0.0114
72	0.0124	0.0010	0.0114
73	0.0125	0.0010	0.0115
74	0.0125	0.0010	0.0115
75	0.0126	0.0010	0.0116
76	0.0126	0.0010	0.0116
77	0.0127	0.0010	0.0117
78	0.0128	0.0010	0.0117
79	0.0128	0.0010	0.0118
80	0.0129	0.0010	0.0118
81	0.0129	0.0010	0.0119
82	0.0130	0.0011	0.0119
83	0.0130	0.0011	0.0120
84	0.0131	0.0011	0.0120
85	0.0132	0.0011	0.0121
86	0.0132	0.0011	0.0121
87	0.0133	0.0011	0.0122
88	0.0133	0.0011	0.0122
89	0.0134	0.0011	0.0123

90	0.0134	0.0011	0.0123
91	0.0135	0.0011	0.0124
92	0.0136	0.0011	0.0125
93	0.0136	0.0011	0.0125
94	0.0137	0.0011	0.0126
95	0.0138	0.0011	0.0127
96	0.0138	0.0011	0.0127
97	0.0139	0.0011	0.0128
98	0.0140	0.0011	0.0128
99	0.0141	0.0011	0.0129
100	0.0141	0.0011	0.0130
101	0.0142	0.0012	0.0130
102	0.0143	0.0012	0.0131
103	0.0144	0.0012	0.0132
104	0.0144	0.0012	0.0132
105	0.0145	0.0012	0.0133
106	0.0146	0.0012	0.0134
107	0.0147	0.0012	0.0135
108	0.0147	0.0012	0.0135
109	0.0148	0.0012	0.0136
110	0.0149	0.0012	0.0137
111	0.0150	0.0012	0.0138
112	0.0151	0.0012	0.0138
113	0.0152	0.0012	0.0139
114	0.0152	0.0012	0.0140
115	0.0154	0.0012	0.0141
116	0.0154	0.0013	0.0142
117	0.0156	0.0013	0.0143
118	0.0156	0.0013	0.0144
119	0.0158	0.0013	0.0145
120	0.0158	0.0013	0.0145
121	0.0160	0.0013	0.0147
122	0.0160	0.0013	0.0147
123	0.0162	0.0013	0.0149
124	0.0163	0.0013	0.0149
125	0.0164	0.0013	0.0151
126	0.0165	0.0013	0.0151
127	0.0166	0.0013	0.0153
128	0.0167	0.0014	0.0154
129	0.0169	0.0014	0.0155
130	0.0170	0.0014	0.0156
131	0.0171	0.0014	0.0158
132	0.0172	0.0014	0.0158
133	0.0174	0.0014	0.0160
134	0.0175	0.0014	0.0161
135	0.0177	0.0014	0.0163
136	0.0178	0.0014	0.0164
137	0.0180	0.0015	0.0165
138	0.0181	0.0015	0.0166
139	0.0183	0.0015	0.0168
140	0.0184	0.0015	0.0169
141	0.0186	0.0015	0.0171
142	0.0188	0.0015	0.0172
143	0.0190	0.0015	0.0175
144	0.0191	0.0016	0.0176
145	0.0195	0.0016	0.0179
146	0.0196	0.0016	0.0180
147	0.0199	0.0016	0.0183
148	0.0200	0.0016	0.0184
149	0.0203	0.0016	0.0187
150	0.0205	0.0017	0.0188
151	0.0208	0.0017	0.0191
152	0.0209	0.0017	0.0192

153	0.0213	0.0017	0.0195
154	0.0214	0.0017	0.0197
155	0.0218	0.0018	0.0200
156	0.0220	0.0018	0.0202
157	0.0224	0.0018	0.0205
158	0.0226	0.0018	0.0207
159	0.0230	0.0019	0.0211
160	0.0232	0.0019	0.0213
161	0.0236	0.0019	0.0217
162	0.0239	0.0019	0.0219
163	0.0244	0.0020	0.0224
164	0.0246	0.0020	0.0226
165	0.0252	0.0020	0.0232
166	0.0255	0.0021	0.0234
167	0.0261	0.0021	0.0240
168	0.0264	0.0021	0.0243
169	0.0271	0.0022	0.0249
170	0.0275	0.0022	0.0253
171	0.0283	0.0023	0.0260
172	0.0287	0.0023	0.0264
173	0.0296	0.0024	0.0272
174	0.0301	0.0024	0.0277
175	0.0311	0.0025	0.0286
176	0.0317	0.0026	0.0291
177	0.0330	0.0027	0.0303
178	0.0336	0.0027	0.0309
179	0.0351	0.0029	0.0323
180	0.0360	0.0029	0.0331
181	0.0379	0.0031	0.0348
182	0.0389	0.0032	0.0358
183	0.0414	0.0033	0.0381
184	0.0428	0.0033	0.0395
185	0.0351	0.0028	0.0323
186	0.0371	0.0030	0.0341
187	0.0421	0.0033	0.0389
188	0.0454	0.0033	0.0422
189	0.0547	0.0033	0.0515
190	0.0618	0.0033	0.0585
191	0.0883	0.0033	0.0851
192	0.1214	0.0033	0.1182
193	0.3801	0.0033	0.3768
194	0.0719	0.0033	0.0687
195	0.0495	0.0033	0.0462
196	0.0394	0.0032	0.0362
197	0.0444	0.0033	0.0411
198	0.0401	0.0033	0.0368
199	0.0369	0.0030	0.0339
200	0.0344	0.0028	0.0316
201	0.0323	0.0026	0.0297
202	0.0306	0.0025	0.0281
203	0.0291	0.0024	0.0268
204	0.0279	0.0023	0.0256
205	0.0268	0.0022	0.0246
206	0.0258	0.0021	0.0237
207	0.0249	0.0020	0.0229
208	0.0241	0.0020	0.0222
209	0.0234	0.0019	0.0215
210	0.0228	0.0018	0.0209
211	0.0222	0.0018	0.0204
212	0.0216	0.0018	0.0199
213	0.0211	0.0017	0.0194
214	0.0206	0.0017	0.0189
215	0.0202	0.0016	0.0185

216	0.0198	0.0016	0.0182
217	0.0192	0.0016	0.0177
218	0.0189	0.0015	0.0173
219	0.0185	0.0015	0.0170
220	0.0182	0.0015	0.0167
221	0.0179	0.0015	0.0164
222	0.0176	0.0014	0.0162
223	0.0173	0.0014	0.0159
224	0.0171	0.0014	0.0157
225	0.0168	0.0014	0.0154
226	0.0166	0.0013	0.0152
227	0.0163	0.0013	0.0150
228	0.0161	0.0013	0.0148
229	0.0159	0.0013	0.0146
230	0.0157	0.0013	0.0144
231	0.0155	0.0013	0.0142
232	0.0153	0.0012	0.0141
233	0.0151	0.0012	0.0139
234	0.0149	0.0012	0.0137
235	0.0148	0.0012	0.0136
236	0.0146	0.0012	0.0134
237	0.0145	0.0012	0.0133
238	0.0143	0.0012	0.0131
239	0.0142	0.0011	0.0130
240	0.0140	0.0011	0.0129
241	0.0139	0.0011	0.0127
242	0.0137	0.0011	0.0126
243	0.0136	0.0011	0.0125
244	0.0135	0.0011	0.0124
245	0.0134	0.0011	0.0123
246	0.0132	0.0011	0.0122
247	0.0131	0.0011	0.0121
248	0.0130	0.0011	0.0119
249	0.0129	0.0010	0.0118
250	0.0128	0.0010	0.0117
251	0.0127	0.0010	0.0117
252	0.0126	0.0010	0.0116
253	0.0125	0.0010	0.0115
254	0.0124	0.0010	0.0114
255	0.0123	0.0010	0.0113
256	0.0122	0.0010	0.0112
257	0.0121	0.0010	0.0111
258	0.0120	0.0010	0.0110
259	0.0119	0.0010	0.0110
260	0.0118	0.0010	0.0109
261	0.0118	0.0010	0.0108
262	0.0117	0.0009	0.0107
263	0.0116	0.0009	0.0107
264	0.0115	0.0009	0.0106
265	0.0114	0.0009	0.0105
266	0.0114	0.0009	0.0104
267	0.0113	0.0009	0.0104
268	0.0112	0.0009	0.0103
269	0.0112	0.0009	0.0103
270	0.0111	0.0009	0.0102
271	0.0110	0.0009	0.0101
272	0.0110	0.0009	0.0101
273	0.0109	0.0009	0.0100
274	0.0108	0.0009	0.0099
275	0.0108	0.0009	0.0099
276	0.0107	0.0009	0.0098
277	0.0106	0.0009	0.0098
278	0.0106	0.0009	0.0097

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279              0.0105           0.0009              0.0097
280              0.0105           0.0008              0.0096
281              0.0104           0.0008              0.0096
282              0.0104           0.0008              0.0095
283              0.0103           0.0008              0.0095
284              0.0102           0.0008              0.0094
285              0.0102           0.0008              0.0094
286              0.0101           0.0008              0.0093
287              0.0101           0.0008              0.0093
288              0.0100           0.0008              0.0092
-------------------------------------------------------------------
-------------------------------------------------------------------
Total soil rain loss =      0.40(In)
Total effective rainfall =      5.08(In)
Peak flow rate in flood hydrograph =     13.04(CFS)
----------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R    S T O R M
                R u n o f f      H y d r o g r a p h
-------------------------------------------------------------------
            Hydrograph in   5   Minute intervals ((CFS))

-------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
-------------------------------------------------------------------
  0+ 5       0.0003      0.04  Q         |         |         |         |
  0+10       0.0021      0.26  Q         |         |         |         |
  0+15       0.0055      0.49  Q         |         |         |         |
  0+20       0.0093      0.56  VQ        |         |         |         |
  0+25       0.0132      0.57  VQ        |         |         |         |
  0+30       0.0172      0.58  VQ        |         |         |         |
  0+35       0.0212      0.58  VQ        |         |         |         |
  0+40       0.0252      0.58  VQ        |         |         |         |
  0+45       0.0293      0.58  VQ        |         |         |         |
  0+50       0.0333      0.59  VQ        |         |         |         |
  0+55       0.0373      0.59  VQ        |         |         |         |
  1+ 0       0.0414      0.59  VQ        |         |         |         |
  1+ 5       0.0455      0.59  VQ        |         |         |         |
  1+10       0.0495      0.59  VQ        |         |         |         |
  1+15       0.0536      0.59  VQ        |         |         |         |
  1+20       0.0577      0.59  |Q        |         |         |         |
  1+25       0.0618      0.60  |Q        |         |         |         |
  1+30       0.0659      0.60  |Q        |         |         |         |
  1+35       0.0701      0.60  |Q        |         |         |         |
  1+40       0.0742      0.60  |Q        |         |         |         |
  1+45       0.0783      0.60  |Q        |         |         |         |
  1+50       0.0825      0.60  |Q        |         |         |         |
  1+55       0.0867      0.61  |Q        |         |         |         |
  2+ 0       0.0909      0.61  |Q        |         |         |         |
  2+ 5       0.0951      0.61  |Q        |         |         |         |
  2+10       0.0993      0.61  |Q        |         |         |         |
  2+15       0.1035      0.61  |Q        |         |         |         |
  2+20       0.1077      0.61  |Q        |         |         |         |
  2+25       0.1120      0.62  |QV       |         |         |         |
  2+30       0.1162      0.62  |QV       |         |         |         |
  2+35       0.1205      0.62  |QV       |         |         |         |
  2+40       0.1248      0.62  |QV       |         |         |         |
  2+45       0.1291      0.62  |QV       |         |         |         |
  2+50       0.1334      0.63  |QV       |         |         |         |
  2+55       0.1377      0.63  |QV       |         |         |         |
  3+ 0       0.1420      0.63  |QV       |         |         |         |
  3+ 5       0.1464      0.63  |QV       |         |         |         |
  3+10       0.1507      0.63  |QV       |         |         |         |
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3+15        0.1551      0.63  |QV        |         |         |         |
3+20        0.1595      0.64  |QV        |         |         |         |
3+25        0.1639      0.64  |QV        |         |         |         |
3+30        0.1683      0.64  |Q V       |         |         |         |
3+35        0.1727      0.64  |Q V       |         |         |         |
3+40        0.1772      0.64  |Q V       |         |         |         |
3+45        0.1816      0.65  |Q V       |         |         |         |
3+50        0.1861      0.65  |Q V       |         |         |         |
3+55        0.1906      0.65  |Q V       |         |         |         |
4+ 0        0.1951      0.65  |Q V       |         |         |         |
4+ 5        0.1996      0.66  |Q V       |         |         |         |
4+10        0.2041      0.66  |Q V       |         |         |         |
4+15        0.2086      0.66  |Q V       |         |         |         |
4+20        0.2132      0.66  |Q V       |         |         |         |
4+25        0.2178      0.66  |Q V       |         |         |         |
4+30        0.2224      0.67  |Q  V      |         |         |         |
4+35        0.2270      0.67  |Q  V      |         |         |         |
4+40        0.2316      0.67  |Q  V      |         |         |         |
4+45        0.2362      0.67  |Q  V      |         |         |         |
4+50        0.2409      0.68  |Q  V      |         |         |         |
4+55        0.2455      0.68  |Q  V      |         |         |         |
5+ 0        0.2502      0.68  |Q  V      |         |         |         |
5+ 5        0.2549      0.68  |Q  V      |         |         |         |
5+10        0.2596      0.68  |Q  V      |         |         |         |
5+15        0.2644      0.69  |Q  V      |         |         |         |
5+20        0.2691      0.69  |Q  V      |         |         |         |
5+25        0.2739      0.69  |Q   V     |         |         |         |
5+30        0.2787      0.70  |Q   V     |         |         |         |
5+35        0.2835      0.70  |Q   V     |         |         |         |
5+40        0.2883      0.70  |Q   V     |         |         |         |
5+45        0.2932      0.70  |Q   V     |         |         |         |
5+50        0.2980      0.71  |Q   V     |         |         |         |
5+55        0.3029      0.71  |Q   V     |         |         |         |
6+ 0        0.3078      0.71  |Q   V     |         |         |         |
6+ 5        0.3127      0.71  |Q   V     |         |         |         |
6+10        0.3176      0.72  |Q   V     |         |         |         |
6+15        0.3226      0.72  |Q   V     |         |         |         |
6+20        0.3276      0.72  |Q   V     |         |         |         |
6+25        0.3326      0.73  |Q    V    |         |         |         |
6+30        0.3376      0.73  |Q    V    |         |         |         |
6+35        0.3426      0.73  |Q    V    |         |         |         |
6+40        0.3477      0.73  |Q    V    |         |         |         |
6+45        0.3527      0.74  |Q    V    |         |         |         |
6+50        0.3578      0.74  |Q    V    |         |         |         |
6+55        0.3630      0.74  |Q    V    |         |         |         |
7+ 0        0.3681      0.75  |Q    V    |         |         |         |
7+ 5        0.3733      0.75  |Q    V    |         |         |         |
7+10        0.3785      0.75  |Q    V    |         |         |         |
7+15        0.3837      0.76  |Q     V   |         |         |         |
7+20        0.3889      0.76  |Q     V   |         |         |         |
7+25        0.3942      0.76  |Q     V   |         |         |         |
7+30        0.3994      0.77  |Q     V   |         |         |         |
7+35        0.4047      0.77  |Q     V   |         |         |         |
7+40        0.4101      0.77  |Q     V   |         |         |         |
7+45        0.4154      0.78  |Q     V   |         |         |         |
7+50        0.4208      0.78  |Q     V   |         |         |         |
7+55        0.4262      0.78  |Q     V   |         |         |         |
8+ 0        0.4316      0.79  |Q     V   |         |         |         |
8+ 5        0.4371      0.79  |Q     V   |         |         |         |
8+10        0.4426      0.80  |Q      V  |         |         |         |
8+15        0.4481      0.80  |Q      V  |         |         |         |
8+20        0.4536      0.80  |Q      V  |         |         |         |
8+25        0.4592      0.81  |Q      V  |         |         |         |
```

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 8+30       0.4648      0.81  |Q      V |         |         |         |
 8+35       0.4704      0.82  |Q      V |         |         |         |
 8+40       0.4761      0.82  |Q      V |         |         |         |
 8+45       0.4817      0.83  |Q      V |         |         |         |
 8+50       0.4875      0.83  |Q      V |         |         |         |
 8+55       0.4932      0.83  |Q       V|         |         |         |
 9+ 0       0.4990      0.84  |Q       V|         |         |         |
 9+ 5       0.5048      0.84  |Q       V|         |         |         |
 9+10       0.5106      0.85  |Q       V|         |         |         |
 9+15       0.5165      0.85  |Q       V|         |         |         |
 9+20       0.5224      0.86  |Q       V|         |         |         |
 9+25       0.5284      0.86  |Q       V|         |         |         |
 9+30       0.5343      0.87  |Q       V|         |         |         |
 9+35       0.5403      0.87  |Q       V|         |         |         |
 9+40       0.5464      0.88  |Q       V|         |         |         |
 9+45       0.5525      0.88  |Q        V         |         |         |
 9+50       0.5586      0.89  |Q        V         |         |         |
 9+55       0.5648      0.89  |Q        V         |         |         |
10+ 0       0.5710      0.90  |Q        V         |         |         |
10+ 5       0.5772      0.91  |Q        V         |         |         |
10+10       0.5835      0.91  |Q        V         |         |         |
10+15       0.5898      0.92  |Q        V         |         |         |
10+20       0.5962      0.92  |Q        V         |         |         |
10+25       0.6026      0.93  |Q        |V        |         |         |
10+30       0.6090      0.94  |Q        |V        |         |         |
10+35       0.6155      0.94  |Q        |V        |         |         |
10+40       0.6221      0.95  |Q        |V        |         |         |
10+45       0.6287      0.96  |Q        |V        |         |         |
10+50       0.6353      0.96  |Q        |V        |         |         |
10+55       0.6420      0.97  |Q        |V        |         |         |
11+ 0       0.6487      0.98  |Q        |V        |         |         |
11+ 5       0.6555      0.99  |Q        |V        |         |         |
11+10       0.6624      0.99  |Q        | V       |         |         |
11+15       0.6693      1.00  | Q       | V       |         |         |
11+20       0.6762      1.01  | Q       | V       |         |         |
11+25       0.6833      1.02  | Q       | V       |         |         |
11+30       0.6903      1.03  | Q       | V       |         |         |
11+35       0.6975      1.04  | Q       | V       |         |         |
11+40       0.7047      1.04  | Q       | V       |         |         |
11+45       0.7119      1.05  | Q       |  V      |         |         |
11+50       0.7192      1.06  | Q       |  V      |         |         |
11+55       0.7266      1.07  | Q       |  V      |         |         |
12+ 0       0.7341      1.08  | Q       |  V      |         |         |
12+ 5       0.7416      1.09  | Q       |  V      |         |         |
12+10       0.7492      1.11  | Q       |  V      |         |         |
12+15       0.7570      1.12  | Q       |  V      |         |         |
12+20       0.7648      1.13  | Q       |  V      |         |         |
12+25       0.7727      1.14  | Q       |   V     |         |         |
12+30       0.7806      1.16  | Q       |   V     |         |         |
12+35       0.7887      1.17  | Q       |   V     |         |         |
12+40       0.7968      1.18  | Q       |   V     |         |         |
12+45       0.8051      1.20  | Q       |   V     |         |         |
12+50       0.8134      1.21  | Q       |   V     |         |         |
12+55       0.8218      1.22  | Q       |    V    |         |         |
13+ 0       0.8304      1.24  | Q       |    V    |         |         |
13+ 5       0.8390      1.25  | Q       |    V    |         |         |
13+10       0.8477      1.27  | Q       |    V    |         |         |
13+15       0.8566      1.29  | Q       |    V    |         |         |
13+20       0.8656      1.31  | Q       |    V    |         |         |
13+25       0.8747      1.32  | Q       |    V    |         |         |
13+30       0.8840      1.34  | Q       |     V   |         |         |
13+35       0.8933      1.36  | Q       |     V   |         |         |
13+40       0.9029      1.38  | Q       |     V   |         |         |
```

```
13+45       0.9125      1.40  | Q        |      V   |          |          |
13+50       0.9224      1.43  | Q        |      V   |          |          |
13+55       0.9324      1.45  | Q        |       V  |          |          |
14+ 0       0.9426      1.48  | Q        |       V  |          |          |
14+ 5       0.9529      1.51  |  Q       |       V  |          |          |
14+10       0.9635      1.53  |  Q       |       V  |          |          |
14+15       0.9743      1.56  |  Q       |       V  |          |          |
14+20       0.9853      1.60  |  Q       |        V |          |          |
14+25       0.9965      1.63  |  Q       |        V |          |          |
14+30       1.0080      1.67  |  Q       |        V |          |          |
14+35       1.0198      1.71  |  Q       |        V |          |          |
14+40       1.0318      1.75  |  Q       |        V |          |          |
14+45       1.0442      1.80  |  Q       |         V|          |          |
14+50       1.0570      1.85  |  Q       |         V|          |          |
14+55       1.0701      1.91  |  Q       |         V|          |          |
15+ 0       1.0837      1.97  |  Q       |         V|          |          |
15+ 5       1.0977      2.03  |   Q      |          V          |          |
15+10       1.1122      2.11  |   Q      |          V          |          |
15+15       1.1273      2.20  |   Q      |          V          |          |
15+20       1.1431      2.30  |   Q      |          V          |          |
15+25       1.1594      2.37  |   Q      |          |V         |          |
15+30       1.1750      2.25  |   Q      |          |V         |          |
15+35       1.1898      2.16  |   Q      |          |V         |          |
15+40       1.2055      2.28  |   Q      |          | V        |          |
15+45       1.2229      2.52  |    Q     |          | V        |          |
15+50       1.2428      2.89  |    Q     |          | V        |          |
15+55       1.2665      3.44  |     Q    |          |  V       |          |
16+ 0       1.2974      4.48  |       Q  |          |  V       |          |
16+ 5       1.3468      7.17  |          |   Q      |   V      |          |
16+10       1.4367     13.04  |          |          |     Q    |          |
16+15       1.5197     12.06  |          |          |   Q  V   |          |
16+20       1.5608      5.97  |          |Q         |       V  |          |
16+25       1.5836      3.31  |     Q    |          |       V  |          |
16+30       1.6024      2.73  |    Q     |          |        V|          |
16+35       1.6191      2.42  |   Q      |          |        V|          |
16+40       1.6346      2.25  |   Q      |          |        V|          |
16+45       1.6489      2.08  |   Q      |          |         V          |
16+50       1.6623      1.94  |  Q       |          |         V          |
16+55       1.6749      1.83  |  Q       |          |         V          |
17+ 0       1.6869      1.73  |  Q       |          |         V          |
17+ 5       1.6982      1.65  |  Q       |          |         |V         |
17+10       1.7092      1.58  |  Q       |          |         |V         |
17+15       1.7196      1.52  |  Q       |          |         |V         |
17+20       1.7297      1.47  | Q        |          |         |V         |
17+25       1.7395      1.42  | Q        |          |         |V         |
17+30       1.7490      1.37  | Q        |          |         |V         |
17+35       1.7581      1.33  | Q        |          |         | V        |
17+40       1.7671      1.30  | Q        |          |         | V        |
17+45       1.7758      1.26  | Q        |          |         | V        |
17+50       1.7843      1.23  | Q        |          |         | V        |
17+55       1.7925      1.20  | Q        |          |         | V        |
18+ 0       1.8007      1.18  | Q        |          |         | V        |
18+ 5       1.8086      1.15  | Q        |          |         |  V       |
18+10       1.8163      1.12  | Q        |          |         |  V       |
18+15       1.8239      1.10  | Q        |          |         |  V       |
18+20       1.8313      1.08  | Q        |          |         |  V       |
18+25       1.8386      1.06  | Q        |          |         |  V       |
18+30       1.8458      1.04  | Q        |          |         |  V       |
18+35       1.8528      1.02  | Q        |          |         |  V       |
18+40       1.8598      1.01  | Q        |          |         |  V       |
18+45       1.8666      0.99  |Q         |          |         |   V      |
18+50       1.8733      0.98  |Q         |          |         |   V      |
18+55       1.8799      0.96  |Q         |          |         |   V      |
```

```
19+ 0        1.8864       0.95  |Q         |          |          |   V      |
19+ 5        1.8929       0.93  |Q         |          |          |   V      |
19+10        1.8992       0.92  |Q         |          |          |   V      |
19+15        1.9055       0.91  |Q         |          |          |   V      |
19+20        1.9117       0.90  |Q         |          |          |   V      |
19+25        1.9178       0.89  |Q         |          |          |    V     |
19+30        1.9238       0.88  |Q         |          |          |    V     |
19+35        1.9298       0.87  |Q         |          |          |    V     |
19+40        1.9356       0.86  |Q         |          |          |    V     |
19+45        1.9415       0.85  |Q         |          |          |    V     |
19+50        1.9472       0.84  |Q         |          |          |    V     |
19+55        1.9529       0.83  |Q         |          |          |    V     |
20+ 0        1.9586       0.82  |Q         |          |          |    V     |
20+ 5        1.9642       0.81  |Q         |          |          |    V     |
20+10        1.9697       0.80  |Q         |          |          |    V     |
20+15        1.9751       0.79  |Q         |          |          |     V    |
20+20        1.9806       0.79  |Q         |          |          |     V    |
20+25        1.9859       0.78  |Q         |          |          |     V    |
20+30        1.9912       0.77  |Q         |          |          |     V    |
20+35        1.9965       0.76  |Q         |          |          |     V    |
20+40        2.0017       0.76  |Q         |          |          |     V    |
20+45        2.0069       0.75  |Q         |          |          |     V    |
20+50        2.0120       0.75  |Q         |          |          |     V    |
20+55        2.0171       0.74  |Q         |          |          |     V    |
21+ 0        2.0222       0.73  |Q         |          |          |     V    |
21+ 5        2.0272       0.73  |Q         |          |          |      V   |
21+10        2.0321       0.72  |Q         |          |          |      V   |
21+15        2.0371       0.72  |Q         |          |          |      V   |
21+20        2.0420       0.71  |Q         |          |          |      V   |
21+25        2.0468       0.70  |Q         |          |          |      V   |
21+30        2.0516       0.70  |Q         |          |          |      V   |
21+35        2.0564       0.69  |Q         |          |          |      V   |
21+40        2.0611       0.69  |Q         |          |          |      V   |
21+45        2.0659       0.68  |Q         |          |          |      V   |
21+50        2.0705       0.68  |Q         |          |          |      V   |
21+55        2.0752       0.67  |Q         |          |          |      V   |
22+ 0        2.0798       0.67  |Q         |          |          |       V  |
22+ 5        2.0844       0.67  |Q         |          |          |       V  |
22+10        2.0889       0.66  |Q         |          |          |       V  |
22+15        2.0934       0.66  |Q         |          |          |       V  |
22+20        2.0979       0.65  |Q         |          |          |       V  |
22+25        2.1024       0.65  |Q         |          |          |       V  |
22+30        2.1068       0.64  |Q         |          |          |       V  |
22+35        2.1112       0.64  |Q         |          |          |       V  |
22+40        2.1156       0.64  |Q         |          |          |       V  |
22+45        2.1200       0.63  |Q         |          |          |       V  |
22+50        2.1243       0.63  |Q         |          |          |       V  |
22+55        2.1286       0.62  |Q         |          |          |       V  |
23+ 0        2.1329       0.62  |Q         |          |          |       V  |
23+ 5        2.1371       0.62  |Q         |          |          |        V|
23+10        2.1413       0.61  |Q         |          |          |        V|
23+15        2.1455       0.61  |Q         |          |          |        V|
23+20        2.1497       0.61  |Q         |          |          |        V|
23+25        2.1539       0.60  |Q         |          |          |        V|
23+30        2.1580       0.60  |Q         |          |          |        V|
23+35        2.1621       0.60  |Q         |          |          |        V|
23+40        2.1662       0.59  |Q         |          |          |        V|
23+45        2.1703       0.59  |Q         |          |          |        V|
23+50        2.1743       0.59  |Q         |          |          |        V|
23+55        2.1783       0.58  |Q         |          |          |        V|
24+ 0        2.1824       0.58  |Q         |          |          |        V|
24+ 5        2.1860       0.54  |Q         |          |          |        V|
24+10        2.1882       0.31  Q          |          |          |        V|
```

Underground System Capacity = 2.0473 Ac-ft.

```
   24+15       2.1888      0.09  Q          |          |          |         V|
   24+20       2.1889      0.02  Q          |          |          |         V|
   24+25       2.1890      0.01  Q          |          |          |          V
-----------------------------------------------------------------------
```

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

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Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Proposed Conditions
Area P2

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
5.17	1	0.88
Rainfall data for year 2		
5.17	6	1.55
Rainfall data for year 2		
5.17	24	2.90
Rainfall data for year 100		
5.17	1	1.25
Rainfall data for year 100		
5.17	6	3.25
Rainfall data for year 100		
5.17	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 3)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
32.0	52.0	5.17	1.000	0.785	0.040	0.031

Area-averaged adjusted loss rate Fm (In/Hr) = 0.031

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
0.21	0.040	32.0	52.0	9.23	0.259
4.96	0.960	98.0	98.0	0.20	0.965

Area-averaged catchment yield fraction, Y = 0.937
Area-averaged low loss fraction, Yb = 0.063
User entry of time of concentration = 0.164 (hours)
++
Watershed area = 5.17(Ac.)
Catchment Lag time = 0.131 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 63.5163
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.031(In/Hr)
Average low loss rate fraction (Yb) = 0.063 (decimal)
VALLEY DEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.463(In)
Computed peak 30-minute rainfall = 0.947(In)
Specified peak 1-hour rainfall = 1.250(In)
Computed peak 3-hour rainfall = 2.246(In)
Specified peak 6-hour rainfall = 3.250(In)
Specified peak 24-hour rainfall = 6.900(In)

Rainfall depth area reduction factors:
Using a total area of 5.17(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.463(In)
30-minute factor = 1.000 Adjusted rainfall = 0.947(In)
1-hour factor = 1.000 Adjusted rainfall = 1.250(In)
3-hour factor = 1.000 Adjusted rainfall = 2.246(In)
6-hour factor = 1.000 Adjusted rainfall = 3.250(In)
24-hour factor = 1.000 Adjusted rainfall = 6.900(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 62.52 (CFS))	
1	7.278	4.550
2	45.958	24.185
3	84.780	24.274
4	96.661	7.428
5	98.945	1.428
6	100.000	0.660

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.4625	0.4625
2	0.6103	0.1478
3	0.7178	0.1075
4	0.8053	0.0875

5	0.8805	0.0752
6	0.9471	0.0666
7	1.0073	0.0602
8	1.0626	0.0553
9	1.1139	0.0513
10	1.1618	0.0479
11	1.2070	0.0451
12	1.2497	0.0427
13	1.3042	0.0545
14	1.3568	0.0526
15	1.4077	0.0509
16	1.4570	0.0493
17	1.5049	0.0479
18	1.5515	0.0466
19	1.5969	0.0454
20	1.6412	0.0443
21	1.6845	0.0433
22	1.7268	0.0423
23	1.7682	0.0414
24	1.8088	0.0406
25	1.8486	0.0398
26	1.8877	0.0391
27	1.9261	0.0384
28	1.9639	0.0377
29	2.0010	0.0371
30	2.0375	0.0365
31	2.0734	0.0360
32	2.1089	0.0354
33	2.1438	0.0349
34	2.1782	0.0344
35	2.2121	0.0339
36	2.2456	0.0335
37	2.2787	0.0331
38	2.3113	0.0326
39	2.3436	0.0322
40	2.3754	0.0319
41	2.4069	0.0315
42	2.4380	0.0311
43	2.4688	0.0308
44	2.4993	0.0305
45	2.5294	0.0301
46	2.5592	0.0298
47	2.5888	0.0295
48	2.6180	0.0292
49	2.6469	0.0289
50	2.6756	0.0287
51	2.7040	0.0284
52	2.7322	0.0281
53	2.7601	0.0279
54	2.7877	0.0277
55	2.8151	0.0274
56	2.8423	0.0272
57	2.8693	0.0270
58	2.8960	0.0267
59	2.9225	0.0265
60	2.9488	0.0263
61	2.9749	0.0261
62	3.0008	0.0259
63	3.0266	0.0257
64	3.0521	0.0255
65	3.0774	0.0253
66	3.1026	0.0252
67	3.1276	0.0250

68	3.1524	0.0248
69	3.1770	0.0246
70	3.2015	0.0245
71	3.2258	0.0243
72	3.2499	0.0242
73	3.2744	0.0244
74	3.2987	0.0243
75	3.3228	0.0241
76	3.3468	0.0240
77	3.3706	0.0238
78	3.3943	0.0237
79	3.4179	0.0236
80	3.4413	0.0234
81	3.4646	0.0233
82	3.4878	0.0232
83	3.5108	0.0230
84	3.5337	0.0229
85	3.5565	0.0228
86	3.5792	0.0227
87	3.6017	0.0225
88	3.6242	0.0224
89	3.6465	0.0223
90	3.6687	0.0222
91	3.6907	0.0221
92	3.7127	0.0220
93	3.7346	0.0219
94	3.7563	0.0218
95	3.7780	0.0216
96	3.7995	0.0215
97	3.8210	0.0214
98	3.8423	0.0213
99	3.8635	0.0212
100	3.8847	0.0211
101	3.9057	0.0210
102	3.9267	0.0210
103	3.9476	0.0209
104	3.9683	0.0208
105	3.9890	0.0207
106	4.0096	0.0206
107	4.0301	0.0205
108	4.0505	0.0204
109	4.0708	0.0203
110	4.0911	0.0202
111	4.1112	0.0202
112	4.1313	0.0201
113	4.1513	0.0200
114	4.1712	0.0199
115	4.1910	0.0198
116	4.2108	0.0198
117	4.2305	0.0197
118	4.2501	0.0196
119	4.2696	0.0195
120	4.2890	0.0194
121	4.3084	0.0194
122	4.3277	0.0193
123	4.3469	0.0192
124	4.3661	0.0192
125	4.3852	0.0191
126	4.4042	0.0190
127	4.4231	0.0189
128	4.4420	0.0189
129	4.4608	0.0188
130	4.4796	0.0187

131	4.4983	0.0187
132	4.5169	0.0186
133	4.5354	0.0186
134	4.5539	0.0185
135	4.5723	0.0184
136	4.5907	0.0184
137	4.6090	0.0183
138	4.6273	0.0182
139	4.6454	0.0182
140	4.6636	0.0181
141	4.6816	0.0181
142	4.6996	0.0180
143	4.7176	0.0179
144	4.7355	0.0179
145	4.7533	0.0178
146	4.7711	0.0178
147	4.7888	0.0177
148	4.8064	0.0177
149	4.8241	0.0176
150	4.8416	0.0176
151	4.8591	0.0175
152	4.8766	0.0174
153	4.8940	0.0174
154	4.9113	0.0173
155	4.9286	0.0173
156	4.9458	0.0172
157	4.9630	0.0172
158	4.9802	0.0171
159	4.9973	0.0171
160	5.0143	0.0170
161	5.0313	0.0170
162	5.0483	0.0169
163	5.0652	0.0169
164	5.0820	0.0169
165	5.0988	0.0168
166	5.1156	0.0168
167	5.1323	0.0167
168	5.1490	0.0167
169	5.1656	0.0166
170	5.1822	0.0166
171	5.1987	0.0165
172	5.2152	0.0165
173	5.2316	0.0164
174	5.2480	0.0164
175	5.2644	0.0164
176	5.2807	0.0163
177	5.2970	0.0163
178	5.3132	0.0162
179	5.3294	0.0162
180	5.3455	0.0161
181	5.3616	0.0161
182	5.3777	0.0161
183	5.3937	0.0160
184	5.4097	0.0160
185	5.4257	0.0159
186	5.4416	0.0159
187	5.4575	0.0159
188	5.4733	0.0158
189	5.4891	0.0158
190	5.5048	0.0158
191	5.5205	0.0157
192	5.5362	0.0157
193	5.5519	0.0156

194	5.5675	0.0156
195	5.5830	0.0156
196	5.5986	0.0155
197	5.6141	0.0155
198	5.6295	0.0155
199	5.6449	0.0154
200	5.6603	0.0154
201	5.6757	0.0154
202	5.6910	0.0153
203	5.7063	0.0153
204	5.7215	0.0152
205	5.7367	0.0152
206	5.7519	0.0152
207	5.7671	0.0151
208	5.7822	0.0151
209	5.7973	0.0151
210	5.8123	0.0150
211	5.8273	0.0150
212	5.8423	0.0150
213	5.8573	0.0150
214	5.8722	0.0149
215	5.8871	0.0149
216	5.9019	0.0149
217	5.9168	0.0148
218	5.9315	0.0148
219	5.9463	0.0148
220	5.9610	0.0147
221	5.9757	0.0147
222	5.9904	0.0147
223	6.0050	0.0146
224	6.0197	0.0146
225	6.0342	0.0146
226	6.0488	0.0146
227	6.0633	0.0145
228	6.0778	0.0145
229	6.0923	0.0145
230	6.1067	0.0144
231	6.1211	0.0144
232	6.1355	0.0144
233	6.1498	0.0143
234	6.1641	0.0143
235	6.1784	0.0143
236	6.1927	0.0143
237	6.2069	0.0142
238	6.2211	0.0142
239	6.2353	0.0142
240	6.2495	0.0142
241	6.2636	0.0141
242	6.2777	0.0141
243	6.2918	0.0141
244	6.3058	0.0140
245	6.3199	0.0140
246	6.3339	0.0140
247	6.3478	0.0140
248	6.3618	0.0139
249	6.3757	0.0139
250	6.3896	0.0139
251	6.4034	0.0139
252	6.4173	0.0138
253	6.4311	0.0138
254	6.4449	0.0138
255	6.4587	0.0138
256	6.4724	0.0137

257	6.4861	0.0137
258	6.4998	0.0137
259	6.5135	0.0137
260	6.5271	0.0136
261	6.5408	0.0136
262	6.5544	0.0136
263	6.5679	0.0136
264	6.5815	0.0136
265	6.5950	0.0135
266	6.6085	0.0135
267	6.6220	0.0135
268	6.6355	0.0135
269	6.6489	0.0134
270	6.6623	0.0134
271	6.6757	0.0134
272	6.6891	0.0134
273	6.7024	0.0133
274	6.7157	0.0133
275	6.7290	0.0133
276	6.7423	0.0133
277	6.7556	0.0133
278	6.7688	0.0132
279	6.7820	0.0132
280	6.7952	0.0132
281	6.8084	0.0132
282	6.8215	0.0131
283	6.8346	0.0131
284	6.8477	0.0131
285	6.8608	0.0131
286	6.8739	0.0131
287	6.8869	0.0130
288	6.9000	0.0130

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0130	0.0008	0.0122
2	0.0130	0.0008	0.0122
3	0.0131	0.0008	0.0123
4	0.0131	0.0008	0.0123
5	0.0131	0.0008	0.0123
6	0.0132	0.0008	0.0123
7	0.0132	0.0008	0.0124
8	0.0132	0.0008	0.0124
9	0.0133	0.0008	0.0124
10	0.0133	0.0008	0.0125
11	0.0133	0.0008	0.0125
12	0.0134	0.0008	0.0125
13	0.0134	0.0008	0.0126
14	0.0134	0.0008	0.0126
15	0.0135	0.0008	0.0126
16	0.0135	0.0008	0.0127
17	0.0136	0.0009	0.0127
18	0.0136	0.0009	0.0127
19	0.0136	0.0009	0.0128
20	0.0136	0.0009	0.0128
21	0.0137	0.0009	0.0128
22	0.0137	0.0009	0.0129
23	0.0138	0.0009	0.0129
24	0.0138	0.0009	0.0129
25	0.0138	0.0009	0.0130
26	0.0139	0.0009	0.0130

27	0.0139	0.0009	0.0130
28	0.0139	0.0009	0.0131
29	0.0140	0.0009	0.0131
30	0.0140	0.0009	0.0131
31	0.0141	0.0009	0.0132
32	0.0141	0.0009	0.0132
33	0.0142	0.0009	0.0133
34	0.0142	0.0009	0.0133
35	0.0142	0.0009	0.0133
36	0.0143	0.0009	0.0134
37	0.0143	0.0009	0.0134
38	0.0143	0.0009	0.0134
39	0.0144	0.0009	0.0135
40	0.0144	0.0009	0.0135
41	0.0145	0.0009	0.0136
42	0.0145	0.0009	0.0136
43	0.0146	0.0009	0.0137
44	0.0146	0.0009	0.0137
45	0.0147	0.0009	0.0137
46	0.0147	0.0009	0.0138
47	0.0148	0.0009	0.0138
48	0.0148	0.0009	0.0139
49	0.0149	0.0009	0.0139
50	0.0149	0.0009	0.0140
51	0.0150	0.0009	0.0140
52	0.0150	0.0009	0.0140
53	0.0150	0.0009	0.0141
54	0.0151	0.0009	0.0141
55	0.0151	0.0010	0.0142
56	0.0152	0.0010	0.0142
57	0.0152	0.0010	0.0143
58	0.0153	0.0010	0.0143
59	0.0154	0.0010	0.0144
60	0.0154	0.0010	0.0144
61	0.0155	0.0010	0.0145
62	0.0155	0.0010	0.0145
63	0.0156	0.0010	0.0146
64	0.0156	0.0010	0.0146
65	0.0157	0.0010	0.0147
66	0.0157	0.0010	0.0147
67	0.0158	0.0010	0.0148
68	0.0158	0.0010	0.0148
69	0.0159	0.0010	0.0149
70	0.0159	0.0010	0.0149
71	0.0160	0.0010	0.0150
72	0.0161	0.0010	0.0151
73	0.0161	0.0010	0.0151
74	0.0162	0.0010	0.0152
75	0.0163	0.0010	0.0153
76	0.0163	0.0010	0.0153
77	0.0164	0.0010	0.0154
78	0.0164	0.0010	0.0154
79	0.0165	0.0010	0.0155
80	0.0166	0.0010	0.0155
81	0.0167	0.0010	0.0156
82	0.0167	0.0011	0.0157
83	0.0168	0.0011	0.0157
84	0.0169	0.0011	0.0158
85	0.0169	0.0011	0.0159
86	0.0170	0.0011	0.0159
87	0.0171	0.0011	0.0160
88	0.0171	0.0011	0.0161
89	0.0172	0.0011	0.0162

90	0.0173	0.0011	0.0162
91	0.0174	0.0011	0.0163
92	0.0174	0.0011	0.0164
93	0.0176	0.0011	0.0165
94	0.0176	0.0011	0.0165
95	0.0177	0.0011	0.0166
96	0.0178	0.0011	0.0167
97	0.0179	0.0011	0.0168
98	0.0179	0.0011	0.0168
99	0.0181	0.0011	0.0169
100	0.0181	0.0011	0.0170
101	0.0182	0.0011	0.0171
102	0.0183	0.0012	0.0172
103	0.0184	0.0012	0.0173
104	0.0185	0.0012	0.0173
105	0.0186	0.0012	0.0174
106	0.0187	0.0012	0.0175
107	0.0188	0.0012	0.0176
108	0.0189	0.0012	0.0177
109	0.0190	0.0012	0.0178
110	0.0191	0.0012	0.0179
111	0.0192	0.0012	0.0180
112	0.0193	0.0012	0.0181
113	0.0194	0.0012	0.0182
114	0.0195	0.0012	0.0183
115	0.0197	0.0012	0.0184
116	0.0198	0.0012	0.0185
117	0.0199	0.0013	0.0187
118	0.0200	0.0013	0.0187
119	0.0202	0.0013	0.0189
120	0.0202	0.0013	0.0190
121	0.0204	0.0013	0.0191
122	0.0205	0.0013	0.0192
123	0.0207	0.0013	0.0194
124	0.0208	0.0013	0.0195
125	0.0210	0.0013	0.0196
126	0.0210	0.0013	0.0197
127	0.0212	0.0013	0.0199
128	0.0213	0.0013	0.0200
129	0.0215	0.0014	0.0202
130	0.0216	0.0014	0.0203
131	0.0219	0.0014	0.0205
132	0.0220	0.0014	0.0206
133	0.0222	0.0014	0.0208
134	0.0223	0.0014	0.0209
135	0.0225	0.0014	0.0211
136	0.0227	0.0014	0.0212
137	0.0229	0.0014	0.0215
138	0.0230	0.0014	0.0216
139	0.0233	0.0015	0.0218
140	0.0234	0.0015	0.0220
141	0.0237	0.0015	0.0222
142	0.0238	0.0015	0.0223
143	0.0241	0.0015	0.0226
144	0.0243	0.0015	0.0228
145	0.0242	0.0015	0.0226
146	0.0243	0.0015	0.0228
147	0.0246	0.0015	0.0231
148	0.0248	0.0016	0.0232
149	0.0252	0.0016	0.0236
150	0.0253	0.0016	0.0237
151	0.0257	0.0016	0.0241
152	0.0259	0.0016	0.0243

153	0.0263	0.0017	0.0247
154	0.0265	0.0017	0.0249
155	0.0270	0.0017	0.0253
156	0.0272	0.0017	0.0255
157	0.0277	0.0017	0.0259
158	0.0279	0.0018	0.0261
159	0.0284	0.0018	0.0266
160	0.0287	0.0018	0.0269
161	0.0292	0.0018	0.0274
162	0.0295	0.0019	0.0277
163	0.0301	0.0019	0.0282
164	0.0305	0.0019	0.0285
165	0.0311	0.0020	0.0292
166	0.0315	0.0020	0.0295
167	0.0322	0.0020	0.0302
168	0.0326	0.0021	0.0306
169	0.0335	0.0021	0.0314
170	0.0339	0.0021	0.0318
171	0.0349	0.0022	0.0327
172	0.0354	0.0022	0.0332
173	0.0365	0.0023	0.0342
174	0.0371	0.0023	0.0348
175	0.0384	0.0024	0.0360
176	0.0391	0.0025	0.0366
177	0.0406	0.0026	0.0381
178	0.0414	0.0026	0.0388
179	0.0433	0.0026	0.0407
180	0.0443	0.0026	0.0417
181	0.0466	0.0026	0.0440
182	0.0479	0.0026	0.0453
183	0.0509	0.0026	0.0483
184	0.0526	0.0026	0.0500
185	0.0427	0.0026	0.0401
186	0.0451	0.0026	0.0425
187	0.0513	0.0026	0.0486
188	0.0553	0.0026	0.0526
189	0.0666	0.0026	0.0640
190	0.0752	0.0026	0.0726
191	0.1075	0.0026	0.1048
192	0.1478	0.0026	0.1452
193	0.4625	0.0026	0.4599
194	0.0875	0.0026	0.0849
195	0.0602	0.0026	0.0576
196	0.0479	0.0026	0.0453
197	0.0545	0.0026	0.0519
198	0.0493	0.0026	0.0467
199	0.0454	0.0026	0.0428
200	0.0423	0.0026	0.0397
201	0.0398	0.0025	0.0373
202	0.0377	0.0024	0.0354
203	0.0360	0.0023	0.0337
204	0.0344	0.0022	0.0323
205	0.0331	0.0021	0.0310
206	0.0319	0.0020	0.0299
207	0.0308	0.0019	0.0289
208	0.0298	0.0019	0.0279
209	0.0289	0.0018	0.0271
210	0.0281	0.0018	0.0264
211	0.0274	0.0017	0.0257
212	0.0267	0.0017	0.0251
213	0.0261	0.0016	0.0245
214	0.0255	0.0016	0.0239
215	0.0250	0.0016	0.0234

216	0.0245	0.0015	0.0229
217	0.0244	0.0015	0.0229
218	0.0240	0.0015	0.0225
219	0.0236	0.0015	0.0221
220	0.0232	0.0015	0.0217
221	0.0228	0.0014	0.0214
222	0.0224	0.0014	0.0210
223	0.0221	0.0014	0.0207
224	0.0218	0.0014	0.0204
225	0.0214	0.0013	0.0201
226	0.0211	0.0013	0.0198
227	0.0209	0.0013	0.0195
228	0.0206	0.0013	0.0193
229	0.0203	0.0013	0.0190
230	0.0201	0.0013	0.0188
231	0.0198	0.0012	0.0186
232	0.0196	0.0012	0.0184
233	0.0194	0.0012	0.0182
234	0.0192	0.0012	0.0180
235	0.0189	0.0012	0.0178
236	0.0187	0.0012	0.0176
237	0.0186	0.0012	0.0174
238	0.0184	0.0012	0.0172
239	0.0182	0.0011	0.0170
240	0.0180	0.0011	0.0169
241	0.0178	0.0011	0.0167
242	0.0177	0.0011	0.0166
243	0.0175	0.0011	0.0164
244	0.0173	0.0011	0.0163
245	0.0172	0.0011	0.0161
246	0.0170	0.0011	0.0160
247	0.0169	0.0011	0.0158
248	0.0168	0.0011	0.0157
249	0.0166	0.0010	0.0156
250	0.0165	0.0010	0.0155
251	0.0164	0.0010	0.0153
252	0.0162	0.0010	0.0152
253	0.0161	0.0010	0.0151
254	0.0160	0.0010	0.0150
255	0.0159	0.0010	0.0149
256	0.0158	0.0010	0.0148
257	0.0156	0.0010	0.0147
258	0.0155	0.0010	0.0146
259	0.0154	0.0010	0.0145
260	0.0153	0.0010	0.0144
261	0.0152	0.0010	0.0143
262	0.0151	0.0010	0.0142
263	0.0150	0.0009	0.0141
264	0.0149	0.0009	0.0140
265	0.0148	0.0009	0.0139
266	0.0147	0.0009	0.0138
267	0.0146	0.0009	0.0137
268	0.0146	0.0009	0.0136
269	0.0145	0.0009	0.0136
270	0.0144	0.0009	0.0135
271	0.0143	0.0009	0.0134
272	0.0142	0.0009	0.0133
273	0.0141	0.0009	0.0132
274	0.0140	0.0009	0.0132
275	0.0140	0.0009	0.0131
276	0.0139	0.0009	0.0130
277	0.0138	0.0009	0.0129
278	0.0137	0.0009	0.0129

279	0.0137	0.0009	0.0128
280	0.0136	0.0009	0.0127
281	0.0135	0.0009	0.0127
282	0.0135	0.0008	0.0126
283	0.0134	0.0008	0.0125
284	0.0133	0.0008	0.0125
285	0.0133	0.0008	0.0124
286	0.0132	0.0008	0.0124
287	0.0131	0.0008	0.0123
288	0.0131	0.0008	0.0122

Total soil rain loss = 0.38(In)
Total effective rainfall = 6.52(In)
Peak flow rate in flood hydrograph = 15.96(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        5.0      10.0      15.0      20.0
-------------------------------------------------------------------------
  0+ 5       0.0004      0.06  Q         |         |         |         |
  0+10       0.0028      0.35  Q         |         |         |         |
  0+15       0.0073      0.65  VQ        |         |         |         |
  0+20       0.0124      0.74  VQ        |         |         |         |
  0+25       0.0176      0.76  VQ        |         |         |         |
  0+30       0.0229      0.77  VQ        |         |         |         |
  0+35       0.0282      0.77  VQ        |         |         |         |
  0+40       0.0335      0.77  VQ        |         |         |         |
  0+45       0.0388      0.77  VQ        |         |         |         |
  0+50       0.0442      0.78  VQ        |         |         |         |
  0+55       0.0495      0.78  VQ        |         |         |         |
  1+ 0       0.0549      0.78  VQ        |         |         |         |
  1+ 5       0.0603      0.78  VQ        |         |         |         |
  1+10       0.0657      0.78  VQ        |         |         |         |
  1+15       0.0711      0.79  |Q        |         |         |         |
  1+20       0.0765      0.79  |Q        |         |         |         |
  1+25       0.0820      0.79  |Q        |         |         |         |
  1+30       0.0874      0.79  |Q        |         |         |         |
  1+35       0.0929      0.79  |Q        |         |         |         |
  1+40       0.0984      0.80  |Q        |         |         |         |
  1+45       0.1039      0.80  |Q        |         |         |         |
  1+50       0.1094      0.80  |Q        |         |         |         |
  1+55       0.1149      0.80  |Q        |         |         |         |
  2+ 0       0.1205      0.80  |Q        |         |         |         |
  2+ 5       0.1260      0.81  |Q        |         |         |         |
  2+10       0.1316      0.81  |Q        |         |         |         |
  2+15       0.1372      0.81  |Q        |         |         |         |
  2+20       0.1428      0.81  |QV       |         |         |         |
  2+25       0.1484      0.82  |QV       |         |         |         |
  2+30       0.1541      0.82  |QV       |         |         |         |
  2+35       0.1597      0.82  |QV       |         |         |         |
  2+40       0.1654      0.82  |QV       |         |         |         |
  2+45       0.1711      0.83  |QV       |         |         |         |
  2+50       0.1768      0.83  |QV       |         |         |         |
  2+55       0.1825      0.83  |QV       |         |         |         |
  3+ 0       0.1882      0.83  |QV       |         |         |         |
  3+ 5       0.1940      0.83  |QV       |         |         |         |
  3+10       0.1997      0.84  |QV       |         |         |         |
```

```
3+15        0.2055      0.84  |QV        |         |         |
3+20        0.2113      0.84  |Q V       |         |         |
3+25        0.2171      0.84  |Q V       |         |         |
3+30        0.2230      0.85  |Q V       |         |         |
3+35        0.2288      0.85  |Q V       |         |         |
3+40        0.2347      0.85  |Q V       |         |         |
3+45        0.2406      0.85  |Q V       |         |         |
3+50        0.2465      0.86  |Q V       |         |         |
3+55        0.2524      0.86  |Q V       |         |         |
4+ 0        0.2583      0.86  |Q V       |         |         |
4+ 5        0.2643      0.87  |Q V       |         |         |
4+10        0.2703      0.87  |Q V       |         |         |
4+15        0.2763      0.87  |Q V       |         |         |
4+20        0.2823      0.87  |Q  V      |         |         |
4+25        0.2883      0.88  |Q  V      |         |         |
4+30        0.2944      0.88  |Q  V      |         |         |
4+35        0.3004      0.88  |Q  V      |         |         |
4+40        0.3065      0.89  |Q  V      |         |         |
4+45        0.3127      0.89  |Q  V      |         |         |
4+50        0.3188      0.89  |Q  V      |         |         |
4+55        0.3250      0.89  |Q  V      |         |         |
5+ 0        0.3311      0.90  |Q  V      |         |         |
5+ 5        0.3373      0.90  |Q  V      |         |         |
5+10        0.3436      0.90  |Q  V      |         |         |
5+15        0.3498      0.91  |Q  V      |         |         |
5+20        0.3561      0.91  |Q   V     |         |         |
5+25        0.3623      0.91  |Q   V     |         |         |
5+30        0.3687      0.92  |Q   V     |         |         |
5+35        0.3750      0.92  |Q   V     |         |         |
5+40        0.3813      0.92  |Q   V     |         |         |
5+45        0.3877      0.93  |Q   V     |         |         |
5+50        0.3941      0.93  |Q   V     |         |         |
5+55        0.4005      0.93  |Q   V     |         |         |
6+ 0        0.4070      0.94  |Q   V     |         |         |
6+ 5        0.4135      0.94  |Q   V     |         |         |
6+10        0.4199      0.94  |Q   V     |         |         |
6+15        0.4265      0.95  |Q    V    |         |         |
6+20        0.4330      0.95  |Q    V    |         |         |
6+25        0.4396      0.95  |Q    V    |         |         |
6+30        0.4462      0.96  |Q    V    |         |         |
6+35        0.4528      0.96  |Q    V    |         |         |
6+40        0.4595      0.97  |Q    V    |         |         |
6+45        0.4661      0.97  |Q    V    |         |         |
6+50        0.4728      0.97  |Q    V    |         |         |
6+55        0.4796      0.98  |Q    V    |         |         |
7+ 0        0.4863      0.98  |Q    V    |         |         |
7+ 5        0.4931      0.99  |Q     V   |         |         |
7+10        0.4999      0.99  |Q     V   |         |         |
7+15        0.5068      0.99  |Q     V   |         |         |
7+20        0.5136      1.00  |Q     V   |         |         |
7+25        0.5205      1.00  | Q    V   |         |         |
7+30        0.5275      1.01  | Q    V   |         |         |
7+35        0.5344      1.01  | Q    V   |         |         |
7+40        0.5414      1.02  | Q    V   |         |         |
7+45        0.5485      1.02  | Q    V   |         |         |
7+50        0.5555      1.02  | Q    V   |         |         |
7+55        0.5626      1.03  | Q     V  |         |         |
8+ 0        0.5697      1.03  | Q     V  |         |         |
8+ 5        0.5769      1.04  | Q     V  |         |         |
8+10        0.5841      1.04  | Q     V  |         |         |
8+15        0.5913      1.05  | Q     V  |         |         |
8+20        0.5986      1.05  | Q     V  |         |         |
8+25        0.6059      1.06  | Q     V  |         |         |
```

```
 8+30       0.6132      1.06  | Q     V |          |          |          |
 8+35       0.6206      1.07  | Q     V |          |          |          |
 8+40       0.6280      1.08  | Q     V |          |          |          |
 8+45       0.6354      1.08  | Q      V|          |          |          |
 8+50       0.6429      1.09  | Q      V|          |          |          |
 8+55       0.6504      1.09  | Q      V|          |          |          |
 9+ 0       0.6580      1.10  | Q      V|          |          |          |
 9+ 5       0.6656      1.10  | Q      V|          |          |          |
 9+10       0.6732      1.11  | Q      V|          |          |          |
 9+15       0.6809      1.12  | Q      V|          |          |          |
 9+20       0.6886      1.12  | Q      V|          |          |          |
 9+25       0.6964      1.13  | Q      V|          |          |          |
 9+30       0.7042      1.13  | Q       V          |          |          |
 9+35       0.7120      1.14  | Q       V          |          |          |
 9+40       0.7199      1.15  | Q       V          |          |          |
 9+45       0.7279      1.15  | Q       V          |          |          |
 9+50       0.7359      1.16  | Q       V          |          |          |
 9+55       0.7439      1.17  | Q       V          |          |          |
10+ 0       0.7520      1.18  | Q       V          |          |          |
10+ 5       0.7602      1.18  | Q       V          |          |          |
10+10       0.7684      1.19  | Q       V          |          |          |
10+15       0.7766      1.20  | Q       |V         |          |          |
10+20       0.7849      1.21  | Q       |V         |          |          |
10+25       0.7933      1.21  | Q       |V         |          |          |
10+30       0.8017      1.22  | Q       |V         |          |          |
10+35       0.8101      1.23  | Q       |V         |          |          |
10+40       0.8187      1.24  | Q       |V         |          |          |
10+45       0.8272      1.25  | Q       |V         |          |          |
10+50       0.8359      1.26  | Q       |V         |          |          |
10+55       0.8446      1.26  | Q       | V        |          |          |
11+ 0       0.8534      1.27  | Q       | V        |          |          |
11+ 5       0.8622      1.28  | Q       | V        |          |          |
11+10       0.8711      1.29  | Q       | V        |          |          |
11+15       0.8801      1.30  | Q       | V        |          |          |
11+20       0.8891      1.31  | Q       | V        |          |          |
11+25       0.8982      1.32  | Q       | V        |          |          |
11+30       0.9074      1.33  | Q       | V        |          |          |
11+35       0.9166      1.34  | Q       |  V       |          |          |
11+40       0.9260      1.36  | Q       |  V       |          |          |
11+45       0.9354      1.37  | Q       |  V       |          |          |
11+50       0.9449      1.38  | Q       |  V       |          |          |
11+55       0.9545      1.39  | Q       |  V       |          |          |
12+ 0       0.9641      1.40  | Q       |  V       |          |          |
12+ 5       0.9739      1.41  | Q       |  V       |          |          |
12+10       0.9837      1.42  | Q       |   V      |          |          |
12+15       0.9934      1.42  | Q       |   V      |          |          |
12+20       1.0033      1.43  | Q       |   V      |          |          |
12+25       1.0133      1.45  | Q       |   V      |          |          |
12+30       1.0233      1.46  | Q       |   V      |          |          |
12+35       1.0335      1.48  | Q       |   V      |          |          |
12+40       1.0438      1.49  | Q       |   V      |          |          |
12+45       1.0542      1.51  |  Q      |    V     |          |          |
12+50       1.0647      1.53  |  Q      |    V     |          |          |
12+55       1.0754      1.55  |  Q      |    V     |          |          |
13+ 0       1.0861      1.56  |  Q      |    V     |          |          |
13+ 5       1.0970      1.58  |  Q      |    V     |          |          |
13+10       1.1081      1.60  |  Q      |    V     |          |          |
13+15       1.1193      1.62  |  Q      |    V     |          |          |
13+20       1.1306      1.65  |  Q      |     V    |          |          |
13+25       1.1421      1.67  |  Q      |     V    |          |          |
13+30       1.1537      1.69  |  Q      |     V    |          |          |
13+35       1.1656      1.72  |  Q      |     V    |          |          |
13+40       1.1776      1.74  |  Q      |     V    |          |          |
```

```
13+45        1.1898       1.77  |  Q       |      V   |          |          |
13+50        1.2022       1.80  |  Q       |       V  |          |          |
13+55        1.2148       1.83  |  Q       |       V  |          |          |
14+ 0        1.2276       1.86  |  Q       |       V  |          |          |
14+ 5        1.2406       1.90  |  Q       |       V  |          |          |
14+10        1.2540       1.93  |  Q       |       V  |          |          |
14+15        1.2675       1.97  |  Q       |        V |          |          |
14+20        1.2814       2.01  |   Q      |        V |          |          |
14+25        1.2955       2.05  |   Q      |        V |          |          |
14+30        1.3100       2.10  |   Q      |        V |          |          |
14+35        1.3248       2.15  |   Q      |        V |          |          |
14+40        1.3400       2.20  |   Q      |         V|          |          |
14+45        1.3555       2.26  |   Q      |         V|          |          |
14+50        1.3716       2.33  |   Q      |         V|          |          |
14+55        1.3880       2.39  |   Q      |         V|          |          |
15+ 0        1.4051       2.47  |   Q      |          V          |          |
15+ 5        1.4227       2.56  |    Q     |          V          |          |
15+10        1.4411       2.66  |    Q     |          V          |          |
15+15        1.4602       2.78  |    Q     |          V          |          |
15+20        1.4802       2.91  |    Q     |          |V         |          |
15+25        1.5008       2.99  |    Q     |          |V         |          |
15+30        1.5203       2.83  |    Q     |          |V         |          |
15+35        1.5388       2.69  |    Q     |          |V         |          |
15+40        1.5585       2.85  |    Q     |          | V        |          |
15+45        1.5802       3.15  |     Q    |          | V        |          |
15+50        1.6050       3.60  |      Q   |          | V        |          |
15+55        1.6344       4.27  |       Q  |          |          |          |
16+ 0        1.6726       5.54  |          |          |          |          |
16+ 5        1.7333       8.81  |          |          |          |          |
16+10        1.8432      15.96  |          |          |          |Q         |
16+15        1.9448      14.76  |          |          |       V Q|          |
16+20        1.9954       7.35  |          |    Q     |       V  |          |
16+25        2.0238       4.11  |        Q |          |       V  |          |
16+30        2.0473       3.42  |      Q   |          |        V|          |
16+35        2.0684       3.06  |      Q   |          |        V|          |
16+40        2.0879       2.84  |    Q     |          |        V|          |
16+45        2.1060       2.62  |    Q     |          |         V          |
16+50        2.1228       2.45  |   Q      |          |         V          |
16+55        2.1387       2.30  |   Q      |          |         V          |
17+ 0        2.1537       2.18  |   Q      |          |         V          |
17+ 5        2.1680       2.08  |   Q      |          |         V          |
17+10        2.1818       1.99  |  Q       |          |         |V         |
17+15        2.1950       1.92  |  Q       |          |         |V         |
17+20        2.2077       1.85  |  Q       |          |         |V         |
17+25        2.2200       1.79  |  Q       |          |         |V         |
17+30        2.2319       1.73  |  Q       |          |         |V         |
17+35        2.2435       1.68  |  Q       |          |         |V         |
17+40        2.2548       1.64  |  Q       |          |         | V        |
17+45        2.2658       1.59  |  Q       |          |         | V        |
17+50        2.2765       1.56  |  Q       |          |         | V        |
17+55        2.2869       1.52  |  Q       |          |         | V        |
18+ 0        2.2972       1.49  | Q        |          |         | V        |
18+ 5        2.3072       1.46  | Q        |          |         | V        |
18+10        2.3171       1.44  | Q        |          |         |  V       |
18+15        2.3269       1.42  | Q        |          |         |  V       |
18+20        2.3365       1.40  | Q        |          |         |  V       |
18+25        2.3459       1.37  | Q        |          |         |  V       |
18+30        2.3552       1.35  | Q        |          |         |  V       |
18+35        2.3644       1.33  | Q        |          |         |  V       |
18+40        2.3734       1.31  | Q        |          |         |  V       |
18+45        2.3823       1.29  | Q        |          |         |  V       |
18+50        2.3910       1.27  | Q        |          |         |   V      |
18+55        2.3996       1.25  | Q        |          |         |   V      |
```

Undeground System Capacity = 2.0473 Ac-ft.

```
19+ 0       2.4081      1.23  | Q        |          |          |   V     |
19+ 5       2.4165      1.22  | Q        |          |          |   V     |
19+10       2.4248      1.20  | Q        |          |          |   V     |
19+15       2.4329      1.19  | Q        |          |          |   V     |
19+20       2.4410      1.17  | Q        |          |          |   V     |
19+25       2.4490      1.16  | Q        |          |          |   V     |
19+30       2.4569      1.14  | Q        |          |          |    V    |
19+35       2.4646      1.13  | Q        |          |          |    V    |
19+40       2.4723      1.12  | Q        |          |          |    V    |
19+45       2.4800      1.11  | Q        |          |          |    V    |
19+50       2.4875      1.09  | Q        |          |          |    V    |
19+55       2.4950      1.08  | Q        |          |          |    V    |
20+ 0       2.5024      1.07  | Q        |          |          |    V    |
20+ 5       2.5097      1.06  | Q        |          |          |    V    |
20+10       2.5169      1.05  | Q        |          |          |    V    |
20+15       2.5241      1.04  | Q        |          |          |    V    |
20+20       2.5312      1.03  | Q        |          |          |     V   |
20+25       2.5382      1.02  | Q        |          |          |     V   |
20+30       2.5452      1.01  | Q        |          |          |     V   |
20+35       2.5521      1.00  | Q        |          |          |     V   |
20+40       2.5590      1.00  |Q         |          |          |     V   |
20+45       2.5658      0.99  |Q         |          |          |     V   |
20+50       2.5725      0.98  |Q         |          |          |     V   |
20+55       2.5792      0.97  |Q         |          |          |     V   |
21+ 0       2.5859      0.96  |Q         |          |          |     V   |
21+ 5       2.5924      0.96  |Q         |          |          |     V   |
21+10       2.5990      0.95  |Q         |          |          |      V  |
21+15       2.6055      0.94  |Q         |          |          |      V  |
21+20       2.6119      0.93  |Q         |          |          |      V  |
21+25       2.6183      0.93  |Q         |          |          |      V  |
21+30       2.6246      0.92  |Q         |          |          |      V  |
21+35       2.6309      0.91  |Q         |          |          |      V  |
21+40       2.6372      0.91  |Q         |          |          |      V  |
21+45       2.6434      0.90  |Q         |          |          |      V  |
21+50       2.6496      0.90  |Q         |          |          |      V  |
21+55       2.6557      0.89  |Q         |          |          |      V  |
22+ 0       2.6618      0.88  |Q         |          |          |      V  |
22+ 5       2.6678      0.88  |Q         |          |          |       V |
22+10       2.6738      0.87  |Q         |          |          |       V |
22+15       2.6798      0.87  |Q         |          |          |       V |
22+20       2.6857      0.86  |Q         |          |          |       V |
22+25       2.6916      0.86  |Q         |          |          |       V |
22+30       2.6975      0.85  |Q         |          |          |       V |
22+35       2.7033      0.85  |Q         |          |          |       V |
22+40       2.7091      0.84  |Q         |          |          |       V |
22+45       2.7148      0.84  |Q         |          |          |       V |
22+50       2.7206      0.83  |Q         |          |          |       V |
22+55       2.7263      0.83  |Q         |          |          |       V |
23+ 0       2.7319      0.82  |Q         |          |          |       V |
23+ 5       2.7375      0.82  |Q         |          |          |        V|
23+10       2.7431      0.81  |Q         |          |          |        V|
23+15       2.7487      0.81  |Q         |          |          |        V|
23+20       2.7542      0.80  |Q         |          |          |        V|
23+25       2.7598      0.80  |Q         |          |          |        V|
23+30       2.7652      0.80  |Q         |          |          |        V|
23+35       2.7707      0.79  |Q         |          |          |        V|
23+40       2.7761      0.79  |Q         |          |          |        V|
23+45       2.7815      0.78  |Q         |          |          |        V|
23+50       2.7869      0.78  |Q         |          |          |        V|
23+55       2.7922      0.78  |Q         |          |          |        V|
24+ 0       2.7975      0.77  |Q         |          |          |        V|
24+ 5       2.8024      0.71  |Q         |          |          |        V|
24+10       2.8053      0.41  Q          |          |          |        V|
```

```
   24+15       2.8061      0.12  Q          |          |          |         V|
   24+20       2.8063      0.03  Q          |          |          |         V|
   24+25       2.8063      0.01  Q          |          |          |          V
----------------------------------------------------------------------
```

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

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Study date 03/09/20

++

San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Proposed Conditions
Area P3

Storm Event Year = 10

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
2.40	1	0.88
Rainfall data for year 2		
2.40	6	1.55
Rainfall data for year 2		
2.40	24	2.90
Rainfall data for year 100		
2.40	1	1.25
Rainfall data for year 100		
2.40	6	3.25
Rainfall data for year 100		
2.40	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 2)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
32.0	32.0	2.40	1.000	0.978	0.090	0.088

Area-averaged adjusted loss rate Fm (In/Hr) = 0.088

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
0.22	0.090	32.0	32.0	21.25	0.001
2.18	0.910	98.0	98.0	0.20	0.948

Area-averaged catchment yield fraction, Y = 0.863
Area-averaged low loss fraction, Yb = 0.137
User entry of time of concentration = 0.172 (hours)
++
Watershed area = 2.40(Ac.)
Catchment Lag time = 0.138 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 60.5620
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.088(In/Hr)
Average low loss rate fraction (Yb) = 0.137 (decimal)
VALLEY DEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.326(In)
Computed peak 30-minute rainfall = 0.667(In)
Specified peak 1-hour rainfall = 0.880(In)
Computed peak 3-hour rainfall = 1.565(In)
Specified peak 6-hour rainfall = 2.249(In)
Specified peak 24-hour rainfall = 4.546(In)

Rainfall depth area reduction factors:
Using a total area of 2.40(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.326(In)
30-minute factor = 1.000 Adjusted rainfall = 0.667(In)
1-hour factor = 1.000 Adjusted rainfall = 0.880(In)
3-hour factor = 1.000 Adjusted rainfall = 1.565(In)
6-hour factor = 1.000 Adjusted rainfall = 2.249(In)
24-hour factor = 1.000 Adjusted rainfall = 4.546(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 29.02 (CFS))	
1	6.637	1.927
2	42.333	10.361
3	82.242	11.583
4	95.739	3.917
5	98.706	0.861
6	100.000	0.376

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.3257	0.3257
2	0.4297	0.1041
3	0.5054	0.0757
4	0.5670	0.0616

5	0.6199	0.0529
6	0.6668	0.0469
7	0.7093	0.0424
8	0.7482	0.0389
9	0.7843	0.0361
10	0.8180	0.0338
11	0.8498	0.0318
12	0.8799	0.0301
13	0.9176	0.0377
14	0.9539	0.0363
15	0.9890	0.0351
16	1.0230	0.0340
17	1.0560	0.0330
18	1.0881	0.0321
19	1.1194	0.0313
20	1.1499	0.0305
21	1.1797	0.0298
22	1.2088	0.0291
23	1.2372	0.0285
24	1.2651	0.0279
25	1.2925	0.0273
26	1.3193	0.0268
27	1.3457	0.0263
28	1.3715	0.0259
29	1.3970	0.0254
30	1.4220	0.0250
31	1.4467	0.0246
32	1.4709	0.0243
33	1.4948	0.0239
34	1.5184	0.0236
35	1.5416	0.0232
36	1.5645	0.0229
37	1.5871	0.0226
38	1.6095	0.0223
39	1.6315	0.0220
40	1.6533	0.0218
41	1.6748	0.0215
42	1.6961	0.0213
43	1.7171	0.0210
44	1.7379	0.0208
45	1.7585	0.0206
46	1.7789	0.0204
47	1.7990	0.0202
48	1.8190	0.0199
49	1.8387	0.0198
50	1.8583	0.0196
51	1.8777	0.0194
52	1.8969	0.0192
53	1.9159	0.0190
54	1.9347	0.0189
55	1.9534	0.0187
56	1.9719	0.0185
57	1.9903	0.0184
58	2.0085	0.0182
59	2.0266	0.0181
60	2.0445	0.0179
61	2.0623	0.0178
62	2.0799	0.0176
63	2.0974	0.0175
64	2.1148	0.0174
65	2.1320	0.0172
66	2.1492	0.0171
67	2.1662	0.0170

68	2.1830	0.0169
69	2.1998	0.0168
70	2.2164	0.0166
71	2.2330	0.0165
72	2.2494	0.0164
73	2.2652	0.0158
74	2.2809	0.0157
75	2.2965	0.0156
76	2.3119	0.0155
77	2.3273	0.0154
78	2.3426	0.0153
79	2.3578	0.0152
80	2.3729	0.0151
81	2.3879	0.0150
82	2.4028	0.0149
83	2.4177	0.0148
84	2.4324	0.0147
85	2.4471	0.0147
86	2.4616	0.0146
87	2.4761	0.0145
88	2.4905	0.0144
89	2.5048	0.0143
90	2.5191	0.0142
91	2.5332	0.0142
92	2.5473	0.0141
93	2.5613	0.0140
94	2.5753	0.0139
95	2.5892	0.0139
96	2.6029	0.0138
97	2.6167	0.0137
98	2.6303	0.0137
99	2.6439	0.0136
100	2.6574	0.0135
101	2.6709	0.0135
102	2.6843	0.0134
103	2.6976	0.0133
104	2.7109	0.0133
105	2.7241	0.0132
106	2.7372	0.0131
107	2.7503	0.0131
108	2.7633	0.0130
109	2.7762	0.0130
110	2.7891	0.0129
111	2.8020	0.0128
112	2.8147	0.0128
113	2.8275	0.0127
114	2.8401	0.0127
115	2.8528	0.0126
116	2.8653	0.0126
117	2.8778	0.0125
118	2.8903	0.0125
119	2.9027	0.0124
120	2.9150	0.0124
121	2.9273	0.0123
122	2.9396	0.0123
123	2.9518	0.0122
124	2.9640	0.0122
125	2.9761	0.0121
126	2.9881	0.0121
127	3.0001	0.0120
128	3.0121	0.0120
129	3.0240	0.0119
130	3.0359	0.0119

131	3.0477	0.0118
132	3.0595	0.0118
133	3.0712	0.0117
134	3.0829	0.0117
135	3.0946	0.0117
136	3.1062	0.0116
137	3.1178	0.0116
138	3.1293	0.0115
139	3.1408	0.0115
140	3.1522	0.0114
141	3.1636	0.0114
142	3.1750	0.0114
143	3.1863	0.0113
144	3.1976	0.0113
145	3.2089	0.0112
146	3.2201	0.0112
147	3.2313	0.0112
148	3.2424	0.0111
149	3.2535	0.0111
150	3.2646	0.0111
151	3.2756	0.0110
152	3.2866	0.0110
153	3.2975	0.0110
154	3.3085	0.0109
155	3.3193	0.0109
156	3.3302	0.0109
157	3.3410	0.0108
158	3.3518	0.0108
159	3.3625	0.0107
160	3.3732	0.0107
161	3.3839	0.0107
162	3.3946	0.0106
163	3.4052	0.0106
164	3.4158	0.0106
165	3.4263	0.0106
166	3.4369	0.0105
167	3.4474	0.0105
168	3.4578	0.0105
169	3.4682	0.0104
170	3.4786	0.0104
171	3.4890	0.0104
172	3.4994	0.0103
173	3.5097	0.0103
174	3.5199	0.0103
175	3.5302	0.0103
176	3.5404	0.0102
177	3.5506	0.0102
178	3.5608	0.0102
179	3.5709	0.0101
180	3.5810	0.0101
181	3.5911	0.0101
182	3.6012	0.0101
183	3.6112	0.0100
184	3.6212	0.0100
185	3.6312	0.0100
186	3.6411	0.0099
187	3.6510	0.0099
188	3.6609	0.0099
189	3.6708	0.0099
190	3.6806	0.0098
191	3.6905	0.0098
192	3.7002	0.0098
193	3.7100	0.0098

194	3.7198	0.0097
195	3.7295	0.0097
196	3.7392	0.0097
197	3.7488	0.0097
198	3.7585	0.0096
199	3.7681	0.0096
200	3.7777	0.0096
201	3.7873	0.0096
202	3.7968	0.0096
203	3.8064	0.0095
204	3.8159	0.0095
205	3.8253	0.0095
206	3.8348	0.0095
207	3.8442	0.0094
208	3.8536	0.0094
209	3.8630	0.0094
210	3.8724	0.0094
211	3.8818	0.0093
212	3.8911	0.0093
213	3.9004	0.0093
214	3.9097	0.0093
215	3.9189	0.0093
216	3.9282	0.0092
217	3.9374	0.0092
218	3.9466	0.0092
219	3.9558	0.0092
220	3.9649	0.0092
221	3.9740	0.0091
222	3.9832	0.0091
223	3.9923	0.0091
224	4.0013	0.0091
225	4.0104	0.0091
226	4.0194	0.0090
227	4.0284	0.0090
228	4.0374	0.0090
229	4.0464	0.0090
230	4.0554	0.0090
231	4.0643	0.0089
232	4.0732	0.0089
233	4.0821	0.0089
234	4.0910	0.0089
235	4.0999	0.0089
236	4.1087	0.0088
237	4.1175	0.0088
238	4.1264	0.0088
239	4.1351	0.0088
240	4.1439	0.0088
241	4.1527	0.0088
242	4.1614	0.0087
243	4.1701	0.0087
244	4.1788	0.0087
245	4.1875	0.0087
246	4.1962	0.0087
247	4.2048	0.0086
248	4.2134	0.0086
249	4.2221	0.0086
250	4.2307	0.0086
251	4.2392	0.0086
252	4.2478	0.0086
253	4.2563	0.0085
254	4.2649	0.0085
255	4.2734	0.0085
256	4.2819	0.0085

257	4.2904	0.0085
258	4.2988	0.0085
259	4.3073	0.0084
260	4.3157	0.0084
261	4.3241	0.0084
262	4.3325	0.0084
263	4.3409	0.0084
264	4.3493	0.0084
265	4.3576	0.0084
266	4.3660	0.0083
267	4.3743	0.0083
268	4.3826	0.0083
269	4.3909	0.0083
270	4.3992	0.0083
271	4.4074	0.0083
272	4.4157	0.0082
273	4.4239	0.0082
274	4.4321	0.0082
275	4.4403	0.0082
276	4.4485	0.0082
277	4.4567	0.0082
278	4.4648	0.0082
279	4.4730	0.0081
280	4.4811	0.0081
281	4.4892	0.0081
282	4.4973	0.0081
283	4.5054	0.0081
284	4.5135	0.0081
285	4.5215	0.0081
286	4.5296	0.0080
287	4.5376	0.0080
288	4.5456	0.0080

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0080	0.0011	0.0069
2	0.0080	0.0011	0.0069
3	0.0081	0.0011	0.0070
4	0.0081	0.0011	0.0070
5	0.0081	0.0011	0.0070
6	0.0081	0.0011	0.0070
7	0.0081	0.0011	0.0070
8	0.0082	0.0011	0.0070
9	0.0082	0.0011	0.0071
10	0.0082	0.0011	0.0071
11	0.0082	0.0011	0.0071
12	0.0082	0.0011	0.0071
13	0.0083	0.0011	0.0071
14	0.0083	0.0011	0.0072
15	0.0083	0.0011	0.0072
16	0.0083	0.0011	0.0072
17	0.0084	0.0011	0.0072
18	0.0084	0.0012	0.0072
19	0.0084	0.0012	0.0073
20	0.0084	0.0012	0.0073
21	0.0085	0.0012	0.0073
22	0.0085	0.0012	0.0073
23	0.0085	0.0012	0.0073
24	0.0085	0.0012	0.0074
25	0.0086	0.0012	0.0074
26	0.0086	0.0012	0.0074

27	0.0086	0.0012	0.0074
28	0.0086	0.0012	0.0074
29	0.0087	0.0012	0.0075
30	0.0087	0.0012	0.0075
31	0.0087	0.0012	0.0075
32	0.0087	0.0012	0.0075
33	0.0088	0.0012	0.0076
34	0.0088	0.0012	0.0076
35	0.0088	0.0012	0.0076
36	0.0088	0.0012	0.0076
37	0.0089	0.0012	0.0077
38	0.0089	0.0012	0.0077
39	0.0089	0.0012	0.0077
40	0.0090	0.0012	0.0077
41	0.0090	0.0012	0.0078
42	0.0090	0.0012	0.0078
43	0.0091	0.0012	0.0078
44	0.0091	0.0012	0.0078
45	0.0091	0.0013	0.0079
46	0.0091	0.0013	0.0079
47	0.0092	0.0013	0.0079
48	0.0092	0.0013	0.0079
49	0.0092	0.0013	0.0080
50	0.0093	0.0013	0.0080
51	0.0093	0.0013	0.0080
52	0.0093	0.0013	0.0080
53	0.0094	0.0013	0.0081
54	0.0094	0.0013	0.0081
55	0.0094	0.0013	0.0081
56	0.0095	0.0013	0.0082
57	0.0095	0.0013	0.0082
58	0.0095	0.0013	0.0082
59	0.0096	0.0013	0.0083
60	0.0096	0.0013	0.0083
61	0.0096	0.0013	0.0083
62	0.0097	0.0013	0.0083
63	0.0097	0.0013	0.0084
64	0.0097	0.0013	0.0084
65	0.0098	0.0013	0.0084
66	0.0098	0.0013	0.0085
67	0.0099	0.0014	0.0085
68	0.0099	0.0014	0.0085
69	0.0099	0.0014	0.0086
70	0.0100	0.0014	0.0086
71	0.0100	0.0014	0.0087
72	0.0101	0.0014	0.0087
73	0.0101	0.0014	0.0087
74	0.0101	0.0014	0.0087
75	0.0102	0.0014	0.0088
76	0.0102	0.0014	0.0088
77	0.0103	0.0014	0.0089
78	0.0103	0.0014	0.0089
79	0.0104	0.0014	0.0089
80	0.0104	0.0014	0.0090
81	0.0105	0.0014	0.0090
82	0.0105	0.0014	0.0091
83	0.0106	0.0014	0.0091
84	0.0106	0.0015	0.0091
85	0.0106	0.0015	0.0092
86	0.0107	0.0015	0.0092
87	0.0107	0.0015	0.0093
88	0.0108	0.0015	0.0093
89	0.0109	0.0015	0.0094

90	0.0109	0.0015	0.0094
91	0.0110	0.0015	0.0095
92	0.0110	0.0015	0.0095
93	0.0111	0.0015	0.0095
94	0.0111	0.0015	0.0096
95	0.0112	0.0015	0.0096
96	0.0112	0.0015	0.0097
97	0.0113	0.0015	0.0097
98	0.0113	0.0016	0.0098
99	0.0114	0.0016	0.0098
100	0.0114	0.0016	0.0099
101	0.0115	0.0016	0.0099
102	0.0116	0.0016	0.0100
103	0.0117	0.0016	0.0101
104	0.0117	0.0016	0.0101
105	0.0118	0.0016	0.0102
106	0.0118	0.0016	0.0102
107	0.0119	0.0016	0.0103
108	0.0120	0.0016	0.0103
109	0.0121	0.0017	0.0104
110	0.0121	0.0017	0.0104
111	0.0122	0.0017	0.0105
112	0.0123	0.0017	0.0106
113	0.0124	0.0017	0.0107
114	0.0124	0.0017	0.0107
115	0.0125	0.0017	0.0108
116	0.0126	0.0017	0.0108
117	0.0127	0.0017	0.0109
118	0.0127	0.0017	0.0110
119	0.0128	0.0018	0.0111
120	0.0129	0.0018	0.0111
121	0.0130	0.0018	0.0112
122	0.0131	0.0018	0.0113
123	0.0132	0.0018	0.0114
124	0.0133	0.0018	0.0114
125	0.0134	0.0018	0.0116
126	0.0135	0.0018	0.0116
127	0.0136	0.0019	0.0117
128	0.0137	0.0019	0.0118
129	0.0138	0.0019	0.0119
130	0.0139	0.0019	0.0120
131	0.0140	0.0019	0.0121
132	0.0141	0.0019	0.0122
133	0.0142	0.0020	0.0123
134	0.0143	0.0020	0.0124
135	0.0145	0.0020	0.0125
136	0.0146	0.0020	0.0126
137	0.0147	0.0020	0.0127
138	0.0148	0.0020	0.0128
139	0.0150	0.0021	0.0129
140	0.0151	0.0021	0.0130
141	0.0153	0.0021	0.0132
142	0.0154	0.0021	0.0133
143	0.0156	0.0021	0.0135
144	0.0157	0.0022	0.0135
145	0.0164	0.0023	0.0142
146	0.0165	0.0023	0.0143
147	0.0168	0.0023	0.0145
148	0.0169	0.0023	0.0146
149	0.0171	0.0023	0.0148
150	0.0172	0.0024	0.0149
151	0.0175	0.0024	0.0151
152	0.0176	0.0024	0.0152

153	0.0179	0.0025	0.0155
154	0.0181	0.0025	0.0156
155	0.0184	0.0025	0.0158
156	0.0185	0.0025	0.0160
157	0.0189	0.0026	0.0163
158	0.0190	0.0026	0.0164
159	0.0194	0.0027	0.0167
160	0.0196	0.0027	0.0169
161	0.0199	0.0027	0.0172
162	0.0202	0.0028	0.0174
163	0.0206	0.0028	0.0178
164	0.0208	0.0029	0.0179
165	0.0213	0.0029	0.0184
166	0.0215	0.0030	0.0186
167	0.0220	0.0030	0.0190
168	0.0223	0.0031	0.0193
169	0.0229	0.0031	0.0198
170	0.0232	0.0032	0.0200
171	0.0239	0.0033	0.0206
172	0.0243	0.0033	0.0209
173	0.0250	0.0034	0.0216
174	0.0254	0.0035	0.0220
175	0.0263	0.0036	0.0227
176	0.0268	0.0037	0.0232
177	0.0279	0.0038	0.0241
178	0.0285	0.0039	0.0246
179	0.0298	0.0041	0.0257
180	0.0305	0.0042	0.0263
181	0.0321	0.0044	0.0277
182	0.0330	0.0045	0.0285
183	0.0351	0.0048	0.0303
184	0.0363	0.0050	0.0313
185	0.0301	0.0041	0.0260
186	0.0318	0.0044	0.0274
187	0.0361	0.0050	0.0311
188	0.0389	0.0053	0.0336
189	0.0469	0.0064	0.0405
190	0.0529	0.0073	0.0457
191	0.0757	0.0073	0.0683
192	0.1041	0.0073	0.0967
193	0.3257	0.0073	0.3183
194	0.0616	0.0073	0.0543
195	0.0424	0.0058	0.0366
196	0.0338	0.0046	0.0291
197	0.0377	0.0052	0.0325
198	0.0340	0.0047	0.0293
199	0.0313	0.0043	0.0270
200	0.0291	0.0040	0.0251
201	0.0273	0.0038	0.0236
202	0.0259	0.0036	0.0223
203	0.0246	0.0034	0.0213
204	0.0236	0.0032	0.0203
205	0.0226	0.0031	0.0195
206	0.0218	0.0030	0.0188
207	0.0210	0.0029	0.0181
208	0.0204	0.0028	0.0176
209	0.0198	0.0027	0.0170
210	0.0192	0.0026	0.0166
211	0.0187	0.0026	0.0161
212	0.0182	0.0025	0.0157
213	0.0178	0.0024	0.0153
214	0.0174	0.0024	0.0150
215	0.0170	0.0023	0.0147

216	0.0166	0.0023	0.0144
217	0.0158	0.0022	0.0136
218	0.0155	0.0021	0.0134
219	0.0152	0.0021	0.0131
220	0.0149	0.0020	0.0129
221	0.0147	0.0020	0.0126
222	0.0144	0.0020	0.0124
223	0.0142	0.0019	0.0122
224	0.0139	0.0019	0.0120
225	0.0137	0.0019	0.0118
226	0.0135	0.0019	0.0117
227	0.0133	0.0018	0.0115
228	0.0131	0.0018	0.0113
229	0.0130	0.0018	0.0112
230	0.0128	0.0018	0.0110
231	0.0126	0.0017	0.0109
232	0.0125	0.0017	0.0107
233	0.0123	0.0017	0.0106
234	0.0122	0.0017	0.0105
235	0.0120	0.0016	0.0104
236	0.0119	0.0016	0.0102
237	0.0117	0.0016	0.0101
238	0.0116	0.0016	0.0100
239	0.0115	0.0016	0.0099
240	0.0114	0.0016	0.0098
241	0.0112	0.0015	0.0097
242	0.0111	0.0015	0.0096
243	0.0110	0.0015	0.0095
244	0.0109	0.0015	0.0094
245	0.0108	0.0015	0.0093
246	0.0107	0.0015	0.0092
247	0.0106	0.0015	0.0092
248	0.0105	0.0014	0.0091
249	0.0104	0.0014	0.0090
250	0.0103	0.0014	0.0089
251	0.0103	0.0014	0.0088
252	0.0102	0.0014	0.0088
253	0.0101	0.0014	0.0087
254	0.0100	0.0014	0.0086
255	0.0099	0.0014	0.0086
256	0.0098	0.0014	0.0085
257	0.0098	0.0013	0.0084
258	0.0097	0.0013	0.0084
259	0.0096	0.0013	0.0083
260	0.0096	0.0013	0.0082
261	0.0095	0.0013	0.0082
262	0.0094	0.0013	0.0081
263	0.0093	0.0013	0.0081
264	0.0093	0.0013	0.0080
265	0.0092	0.0013	0.0080
266	0.0092	0.0013	0.0079
267	0.0091	0.0012	0.0078
268	0.0090	0.0012	0.0078
269	0.0090	0.0012	0.0077
270	0.0089	0.0012	0.0077
271	0.0089	0.0012	0.0076
272	0.0088	0.0012	0.0076
273	0.0088	0.0012	0.0076
274	0.0087	0.0012	0.0075
275	0.0086	0.0012	0.0075
276	0.0086	0.0012	0.0074
277	0.0085	0.0012	0.0074
278	0.0085	0.0012	0.0073

279	0.0084	0.0012	0.0073
280	0.0084	0.0012	0.0072
281	0.0084	0.0011	0.0072
282	0.0083	0.0011	0.0072
283	0.0083	0.0011	0.0071
284	0.0082	0.0011	0.0071
285	0.0082	0.0011	0.0071
286	0.0081	0.0011	0.0070
287	0.0081	0.0011	0.0070
288	0.0080	0.0011	0.0069

Total soil rain loss = 0.58(In)
Total effective rainfall = 3.97(In)
Peak flow rate in flood hydrograph = 4.85(CFS)

++

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

Hydrograph in 5 Minute intervals ((CFS))

```
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
-----------------------------------------------------------------------
  0+ 5       0.0001      0.01  Q         |         |         |         |
  0+10       0.0007      0.09  Q         |         |         |         |
  0+15       0.0018      0.17  Q         |         |         |         |
  0+20       0.0031      0.19  Q         |         |         |         |
  0+25       0.0045      0.20  Q         |         |         |         |
  0+30       0.0059      0.20  Q         |         |         |         |
  0+35       0.0073      0.20  Q         |         |         |         |
  0+40       0.0087      0.20  Q         |         |         |         |
  0+45       0.0101      0.20  Q         |         |         |         |
  0+50       0.0115      0.20  Q         |         |         |         |
  0+55       0.0129      0.21  Q         |         |         |         |
  1+ 0       0.0144      0.21  Q         |         |         |         |
  1+ 5       0.0158      0.21  Q         |         |         |         |
  1+10       0.0172      0.21  Q         |         |         |         |
  1+15       0.0186      0.21  Q         |         |         |         |
  1+20       0.0201      0.21  QV        |         |         |         |
  1+25       0.0215      0.21  QV        |         |         |         |
  1+30       0.0229      0.21  QV        |         |         |         |
  1+35       0.0244      0.21  QV        |         |         |         |
  1+40       0.0258      0.21  QV        |         |         |         |
  1+45       0.0273      0.21  QV        |         |         |         |
  1+50       0.0287      0.21  QV        |         |         |         |
  1+55       0.0302      0.21  QV        |         |         |         |
  2+ 0       0.0317      0.21  QV        |         |         |         |
  2+ 5       0.0331      0.21  QV        |         |         |         |
  2+10       0.0346      0.21  QV        |         |         |         |
  2+15       0.0361      0.21  QV        |         |         |         |
  2+20       0.0376      0.22  QV        |         |         |         |
  2+25       0.0390      0.22  QV        |         |         |         |
  2+30       0.0405      0.22  Q V       |         |         |         |
  2+35       0.0420      0.22  Q V       |         |         |         |
  2+40       0.0435      0.22  Q V       |         |         |         |
  2+45       0.0450      0.22  Q V       |         |         |         |
  2+50       0.0465      0.22  Q V       |         |         |         |
  2+55       0.0480      0.22  Q V       |         |         |         |
  3+ 0       0.0496      0.22  Q V       |         |         |         |
  3+ 5       0.0511      0.22  Q V       |         |         |         |
  3+10       0.0526      0.22  Q V       |         |         |         |
```

```
3+15        0.0542      0.22  Q V        |          |          |          |
3+20        0.0557      0.22  Q V        |          |          |          |
3+25        0.0572      0.22  Q V        |          |          |          |
3+30        0.0588      0.22  Q V        |          |          |          |
3+35        0.0603      0.23  Q  V       |          |          |          |
3+40        0.0619      0.23  Q  V       |          |          |          |
3+45        0.0634      0.23  Q  V       |          |          |          |
3+50        0.0650      0.23  Q  V       |          |          |          |
3+55        0.0666      0.23  Q  V       |          |          |          |
4+ 0        0.0682      0.23  Q  V       |          |          |          |
4+ 5        0.0697      0.23  Q  V       |          |          |          |
4+10        0.0713      0.23  Q  V       |          |          |          |
4+15        0.0729      0.23  Q  V       |          |          |          |
4+20        0.0745      0.23  Q  V       |          |          |          |
4+25        0.0761      0.23  Q  V       |          |          |          |
4+30        0.0777      0.23  Q  V       |          |          |          |
4+35        0.0794      0.23  Q  V       |          |          |          |
4+40        0.0810      0.24  Q   V      |          |          |          |
4+45        0.0826      0.24  Q   V      |          |          |          |
4+50        0.0842      0.24  Q   V      |          |          |          |
4+55        0.0859      0.24  Q   V      |          |          |          |
5+ 0        0.0875      0.24  Q   V      |          |          |          |
5+ 5        0.0892      0.24  Q   V      |          |          |          |
5+10        0.0908      0.24  Q   V      |          |          |          |
5+15        0.0925      0.24  Q   V      |          |          |          |
5+20        0.0942      0.24  Q   V      |          |          |          |
5+25        0.0959      0.24  Q   V      |          |          |          |
5+30        0.0975      0.24  Q   V      |          |          |          |
5+35        0.0992      0.25  Q    V     |          |          |          |
5+40        0.1009      0.25  Q    V     |          |          |          |
5+45        0.1026      0.25  Q    V     |          |          |          |
5+50        0.1043      0.25  Q    V     |          |          |          |
5+55        0.1061      0.25  Q    V     |          |          |          |
6+ 0        0.1078      0.25  |Q   V     |          |          |          |
6+ 5        0.1095      0.25  |Q   V     |          |          |          |
6+10        0.1112      0.25  |Q   V     |          |          |          |
6+15        0.1130      0.25  |Q   V     |          |          |          |
6+20        0.1147      0.25  |Q   V     |          |          |          |
6+25        0.1165      0.26  |Q   V     |          |          |          |
6+30        0.1183      0.26  |Q   V     |          |          |          |
6+35        0.1200      0.26  |Q    V    |          |          |          |
6+40        0.1218      0.26  |Q    V    |          |          |          |
6+45        0.1236      0.26  |Q    V    |          |          |          |
6+50        0.1254      0.26  |Q    V    |          |          |          |
6+55        0.1272      0.26  |Q    V    |          |          |          |
7+ 0        0.1290      0.26  |Q    V    |          |          |          |
7+ 5        0.1308      0.26  |Q    V    |          |          |          |
7+10        0.1327      0.27  |Q    V    |          |          |          |
7+15        0.1345      0.27  |Q    V    |          |          |          |
7+20        0.1364      0.27  |Q    V    |          |          |          |
7+25        0.1382      0.27  |Q    V    |          |          |          |
7+30        0.1401      0.27  |Q     V   |          |          |          |
7+35        0.1419      0.27  |Q     V   |          |          |          |
7+40        0.1438      0.27  |Q     V   |          |          |          |
7+45        0.1457      0.27  |Q     V   |          |          |          |
7+50        0.1476      0.28  |Q     V   |          |          |          |
7+55        0.1495      0.28  |Q     V   |          |          |          |
8+ 0        0.1514      0.28  |Q     V   |          |          |          |
8+ 5        0.1534      0.28  |Q     V   |          |          |          |
8+10        0.1553      0.28  |Q     V   |          |          |          |
8+15        0.1573      0.28  |Q     V   |          |          |          |
8+20        0.1592      0.28  |Q      V  |          |          |          |
8+25        0.1612      0.29  |Q      V  |          |          |          |
```

```
 8+30       0.1632      0.29  |Q      V |         |         |         |
 8+35       0.1652      0.29  |Q      V |         |         |         |
 8+40       0.1672      0.29  |Q      V |         |         |         |
 8+45       0.1692      0.29  |Q      V |         |         |         |
 8+50       0.1712      0.29  |Q      V |         |         |         |
 8+55       0.1732      0.30  |Q      V |         |         |         |
 9+ 0       0.1753      0.30  |Q      V |         |         |         |
 9+ 5       0.1773      0.30  |Q      V |         |         |         |
 9+10       0.1794      0.30  |Q       V|         |         |         |
 9+15       0.1815      0.30  |Q       V|         |         |         |
 9+20       0.1836      0.30  |Q       V|         |         |         |
 9+25       0.1857      0.31  |Q       V|         |         |         |
 9+30       0.1878      0.31  |Q       V|         |         |         |
 9+35       0.1899      0.31  |Q       V|         |         |         |
 9+40       0.1921      0.31  |Q       V|         |         |         |
 9+45       0.1942      0.31  |Q       V|         |         |         |
 9+50       0.1964      0.32  |Q       V|         |         |         |
 9+55       0.1986      0.32  |Q        V         |         |         |
10+ 0       0.2008      0.32  |Q        V         |         |         |
10+ 5       0.2030      0.32  |Q        V         |         |         |
10+10       0.2052      0.32  |Q        V         |         |         |
10+15       0.2075      0.33  |Q        V         |         |         |
10+20       0.2097      0.33  |Q        V         |         |         |
10+25       0.2120      0.33  |Q        V         |         |         |
10+30       0.2143      0.33  |Q        V         |         |         |
10+35       0.2166      0.34  |Q        V         |         |         |
10+40       0.2190      0.34  |Q        |V        |         |         |
10+45       0.2213      0.34  |Q        |V        |         |         |
10+50       0.2237      0.34  |Q        |V        |         |         |
10+55       0.2260      0.35  |Q        |V        |         |         |
11+ 0       0.2284      0.35  |Q        |V        |         |         |
11+ 5       0.2309      0.35  |Q        |V        |         |         |
11+10       0.2333      0.35  |Q        |V        |         |         |
11+15       0.2358      0.36  |Q        |V        |         |         |
11+20       0.2382      0.36  |Q        | V       |         |         |
11+25       0.2407      0.36  |Q        | V       |         |         |
11+30       0.2433      0.37  |Q        | V       |         |         |
11+35       0.2458      0.37  |Q        | V       |         |         |
11+40       0.2484      0.37  |Q        | V       |         |         |
11+45       0.2510      0.38  |Q        | V       |         |         |
11+50       0.2536      0.38  |Q        | V       |         |         |
11+55       0.2562      0.38  |Q        | V       |         |         |
12+ 0       0.2589      0.39  |Q        |  V      |         |         |
12+ 5       0.2616      0.39  |Q        |  V      |         |         |
12+10       0.2643      0.40  |Q        |  V      |         |         |
12+15       0.2672      0.41  |Q        |  V      |         |         |
12+20       0.2700      0.42  |Q        |  V      |         |         |
12+25       0.2729      0.42  |Q        |  V      |         |         |
12+30       0.2758      0.42  |Q        |  V      |         |         |
12+35       0.2788      0.43  |Q        |   V     |         |         |
12+40       0.2818      0.43  |Q        |   V     |         |         |
12+45       0.2848      0.44  |Q        |   V     |         |         |
12+50       0.2879      0.44  |Q        |   V     |         |         |
12+55       0.2910      0.45  |Q        |   V     |         |         |
13+ 0       0.2941      0.45  |Q        |   V     |         |         |
13+ 5       0.2973      0.46  |Q        |   V     |         |         |
13+10       0.3005      0.47  |Q        |    V    |         |         |
13+15       0.3037      0.47  |Q        |    V    |         |         |
13+20       0.3070      0.48  |Q        |    V    |         |         |
13+25       0.3104      0.49  |Q        |    V    |         |         |
13+30       0.3138      0.49  |Q        |    V    |         |         |
13+35       0.3172      0.50  | Q       |    V    |         |         |
13+40       0.3207      0.51  | Q       |     V   |         |         |
```

```
13+45       0.3243      0.52  | Q        |      V   |          |          |
13+50       0.3279      0.52  | Q        |      V   |          |          |
13+55       0.3316      0.53  | Q        |      V   |          |          |
14+ 0       0.3353      0.54  | Q        |      V   |          |          |
14+ 5       0.3391      0.55  | Q        |       V  |          |          |
14+10       0.3430      0.56  | Q        |       V  |          |          |
14+15       0.3470      0.58  | Q        |       V  |          |          |
14+20       0.3510      0.59  | Q        |       V  |          |          |
14+25       0.3551      0.60  | Q        |       V  |          |          |
14+30       0.3594      0.61  | Q        |        V |          |          |
14+35       0.3637      0.63  | Q        |        V |          |          |
14+40       0.3681      0.64  | Q        |        V |          |          |
14+45       0.3727      0.66  | Q        |        V |          |          |
14+50       0.3774      0.68  | Q        |         V|          |          |
14+55       0.3822      0.70  | Q        |         V|          |          |
15+ 0       0.3872      0.72  | Q        |         V|          |          |
15+ 5       0.3924      0.75  | Q        |         V|          |          |
15+10       0.3977      0.78  |  Q       |          V          |          |
15+15       0.4033      0.81  |  Q       |          V          |          |
15+20       0.4091      0.84  |  Q       |          V          |          |
15+25       0.4151      0.87  |  Q       |          V          |          |
15+30       0.4209      0.84  |  Q       |          |V         |          |
15+35       0.4264      0.80  |  Q       |          |V         |          |
15+40       0.4322      0.85  |  Q       |          |V         |          |
15+45       0.4386      0.93  |  Q       |          | V        |          |
15+50       0.4459      1.05  |   Q      |          | V        |          |
15+55       0.4544      1.24  |   Q      |          | V        |          |
16+ 0       0.4656      1.62  |     Q    |          |  V       |          |
16+ 5       0.4837      2.63  |        Q           |   V      |          |
16+10       0.5171      4.85  |          |         Q|      V   |          |
16+15       0.5500      4.78  |          |         Q|       V  |          |
16+20       0.5667      2.42  |        Q|          |        V |          |
16+25       0.5757      1.31  |    Q     |          |         V|          |
16+30       0.5829      1.04  |   Q      |          |         V|          |
16+35       0.5891      0.90  |  Q       |          |         V|          |
16+40       0.5948      0.83  |  Q       |          |         V|          |
16+45       0.6001      0.77  |  Q       |          |          V          |
16+50       0.6051      0.72  | Q        |          |          V          |
16+55       0.6098      0.68  | Q        |          |          V          |
17+ 0       0.6142      0.64  | Q        |          |          V          |
17+ 5       0.6184      0.61  | Q        |          |          |V         |
17+10       0.6224      0.59  | Q        |          |          |V         |
17+15       0.6263      0.56  | Q        |          |          |V         |
17+20       0.6300      0.54  | Q        |          |          |V         |
17+25       0.6336      0.52  | Q        |          |          |V         |
17+30       0.6371      0.51  | Q        |          |          | V        |
17+35       0.6405      0.49  |Q         |          |          | V        |
17+40       0.6438      0.48  |Q         |          |          | V        |
17+45       0.6470      0.47  |Q         |          |          | V        |
17+50       0.6501      0.45  |Q         |          |          | V        |
17+55       0.6532      0.44  |Q         |          |          | V        |
18+ 0       0.6562      0.43  |Q         |          |          |  V       |
18+ 5       0.6591      0.42  |Q         |          |          |  V       |
18+10       0.6619      0.41  |Q         |          |          |  V       |
18+15       0.6646      0.40  |Q         |          |          |  V       |
18+20       0.6673      0.39  |Q         |          |          |  V       |
18+25       0.6699      0.38  |Q         |          |          |  V       |
18+30       0.6724      0.37  |Q         |          |          |  V       |
18+35       0.6750      0.37  |Q         |          |          |   V      |
18+40       0.6774      0.36  |Q         |          |          |   V      |
18+45       0.6799      0.35  |Q         |          |          |   V      |
18+50       0.6823      0.35  |Q         |          |          |   V      |
18+55       0.6846      0.34  |Q         |          |          |   V      |
```

```
19+ 0        0.6869      0.34  |Q         |          |          |   V     |
19+ 5        0.6892      0.33  |Q         |          |          |   V     |
19+10        0.6915      0.33  |Q         |          |          |   V     |
19+15        0.6937      0.32  |Q         |          |          |   V     |
19+20        0.6959      0.32  |Q         |          |          |    V    |
19+25        0.6981      0.31  |Q         |          |          |    V    |
19+30        0.7002      0.31  |Q         |          |          |    V    |
19+35        0.7023      0.31  |Q         |          |          |    V    |
19+40        0.7044      0.30  |Q         |          |          |    V    |
19+45        0.7065      0.30  |Q         |          |          |    V    |
19+50        0.7085      0.30  |Q         |          |          |    V    |
19+55        0.7106      0.29  |Q         |          |          |    V    |
20+ 0        0.7126      0.29  |Q         |          |          |    V    |
20+ 5        0.7145      0.29  |Q         |          |          |     V   |
20+10        0.7165      0.28  |Q         |          |          |     V   |
20+15        0.7184      0.28  |Q         |          |          |     V   |
20+20        0.7203      0.28  |Q         |          |          |     V   |
20+25        0.7222      0.28  |Q         |          |          |     V   |
20+30        0.7241      0.27  |Q         |          |          |     V   |
20+35        0.7260      0.27  |Q         |          |          |     V   |
20+40        0.7278      0.27  |Q         |          |          |     V   |
20+45        0.7297      0.27  |Q         |          |          |     V   |
20+50        0.7315      0.26  |Q         |          |          |     V   |
20+55        0.7333      0.26  |Q         |          |          |     V   |
21+ 0        0.7350      0.26  |Q         |          |          |      V  |
21+ 5        0.7368      0.26  |Q         |          |          |      V  |
21+10        0.7386      0.25  |Q         |          |          |      V  |
21+15        0.7403      0.25  |Q         |          |          |      V  |
21+20        0.7420      0.25  Q          |          |          |      V  |
21+25        0.7437      0.25  Q          |          |          |      V  |
21+30        0.7454      0.25  Q          |          |          |      V  |
21+35        0.7471      0.24  Q          |          |          |      V  |
21+40        0.7488      0.24  Q          |          |          |      V  |
21+45        0.7504      0.24  Q          |          |          |      V  |
21+50        0.7521      0.24  Q          |          |          |      V  |
21+55        0.7537      0.24  Q          |          |          |      V  |
22+ 0        0.7553      0.24  Q          |          |          |       V |
22+ 5        0.7569      0.23  Q          |          |          |       V |
22+10        0.7585      0.23  Q          |          |          |       V |
22+15        0.7601      0.23  Q          |          |          |       V |
22+20        0.7617      0.23  Q          |          |          |       V |
22+25        0.7633      0.23  Q          |          |          |       V |
22+30        0.7648      0.23  Q          |          |          |       V |
22+35        0.7664      0.22  Q          |          |          |       V |
22+40        0.7679      0.22  Q          |          |          |       V |
22+45        0.7694      0.22  Q          |          |          |       V |
22+50        0.7709      0.22  Q          |          |          |       V |
22+55        0.7724      0.22  Q          |          |          |       V |
23+ 0        0.7739      0.22  Q          |          |          |        V|
23+ 5        0.7754      0.22  Q          |          |          |        V|
23+10        0.7769      0.21  Q          |          |          |        V|
23+15        0.7784      0.21  Q          |          |          |        V|
23+20        0.7798      0.21  Q          |          |          |        V|
23+25        0.7813      0.21  Q          |          |          |        V|
23+30        0.7828      0.21  Q          |          |          |        V|
23+35        0.7842      0.21  Q          |          |          |        V|
23+40        0.7856      0.21  Q          |          |          |        V|
23+45        0.7870      0.21  Q          |          |          |        V|
23+50        0.7885      0.21  Q          |          |          |        V|
23+55        0.7899      0.20  Q          |          |          |        V|
24+ 0        0.7913      0.20  Q          |          |          |        V|
24+ 5        0.7926      0.19  Q          |          |          |        V|
24+10        0.7934      0.12  Q          |          |          |        V|
```

```
   24+15       0.7936      0.04  Q          |          |          |         V|
   24+20       0.7937      0.01  Q          |          |          |         V|
   24+25       0.7937      0.00  Q          |          |          |          V
-----------------------------------------------------------------------------
```

Underground System
Capacity = 0.8918
Ac-ft.

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

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2012, Version 7.1

Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Proposed Conditions
Area P3

Storm Event Year = 25

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
2.40	1	0.88
Rainfall data for year 2		
2.40	6	1.55
Rainfall data for year 2		
2.40	24	2.90
Rainfall data for year 100		
2.40	1	1.25
Rainfall data for year 100		
2.40	6	3.25
Rainfall data for year 100		
2.40	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 2)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
32.0	32.0	2.40	1.000	0.978	0.090	0.088

Area-averaged adjusted loss rate Fm (In/Hr) = 0.088

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
0.22	0.090	32.0	32.0	21.25	0.012
2.18	0.910	98.0	98.0	0.20	0.957

Area-averaged catchment yield fraction, Y = 0.872
Area-averaged low loss fraction, Yb = 0.128
User entry of time of concentration = 0.172 (hours)
++
Watershed area = 2.40(Ac.)
Catchment Lag time = 0.138 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 60.5620
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.088(In/Hr)
Average low loss rate fraction (Yb) = 0.128 (decimal)
VALLEY DEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.380(In)
Computed peak 30-minute rainfall = 0.779(In)
Specified peak 1-hour rainfall = 1.027(In)
Computed peak 3-hour rainfall = 1.836(In)
Specified peak 6-hour rainfall = 2.648(In)
Specified peak 24-hour rainfall = 5.483(In)

Rainfall depth area reduction factors:
Using a total area of 2.40(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.380(In)
30-minute factor = 1.000 Adjusted rainfall = 0.778(In)
1-hour factor = 1.000 Adjusted rainfall = 1.027(In)
3-hour factor = 1.000 Adjusted rainfall = 1.836(In)
6-hour factor = 1.000 Adjusted rainfall = 2.648(In)
24-hour factor = 1.000 Adjusted rainfall = 5.483(In)

U n i t H y d r o g r a p h
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Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 29.02 (CFS))	
1	6.637	1.927
2	42.333	10.361
3	82.242	11.583
4	95.739	3.917
5	98.706	0.861
6	100.000	0.376

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.3801	0.3801
2	0.5016	0.1215
3	0.5899	0.0883
4	0.6619	0.0719

5	0.7237	0.0618
6	0.7784	0.0547
7	0.8279	0.0495
8	0.8733	0.0454
9	0.9155	0.0421
10	0.9549	0.0394
11	0.9920	0.0371
12	1.0271	0.0351
13	1.0715	0.0444
14	1.1143	0.0428
15	1.1557	0.0414
16	1.1958	0.0401
17	1.2347	0.0389
18	1.2726	0.0379
19	1.3095	0.0369
20	1.3454	0.0360
21	1.3806	0.0351
22	1.4150	0.0344
23	1.4486	0.0336
24	1.4815	0.0330
25	1.5139	0.0323
26	1.5456	0.0317
27	1.5767	0.0311
28	1.6073	0.0306
29	1.6374	0.0301
30	1.6670	0.0296
31	1.6961	0.0291
32	1.7248	0.0287
33	1.7531	0.0283
34	1.7810	0.0279
35	1.8085	0.0275
36	1.8356	0.0271
37	1.8624	0.0268
38	1.8888	0.0264
39	1.9149	0.0261
40	1.9407	0.0258
41	1.9662	0.0255
42	1.9914	0.0252
43	2.0163	0.0249
44	2.0409	0.0246
45	2.0653	0.0244
46	2.0894	0.0241
47	2.1133	0.0239
48	2.1370	0.0236
49	2.1604	0.0234
50	2.1836	0.0232
51	2.2065	0.0230
52	2.2293	0.0228
53	2.2518	0.0226
54	2.2742	0.0224
55	2.2963	0.0222
56	2.3183	0.0220
57	2.3401	0.0218
58	2.3617	0.0216
59	2.3831	0.0214
60	2.4044	0.0213
61	2.4255	0.0211
62	2.4464	0.0209
63	2.4672	0.0208
64	2.4878	0.0206
65	2.5083	0.0205
66	2.5286	0.0203
67	2.5488	0.0202

68	2.5688	0.0200
69	2.5887	0.0199
70	2.6084	0.0198
71	2.6281	0.0196
72	2.6476	0.0195
73	2.6668	0.0192
74	2.6859	0.0191
75	2.7049	0.0190
76	2.7238	0.0189
77	2.7426	0.0188
78	2.7612	0.0186
79	2.7797	0.0185
80	2.7982	0.0184
81	2.8165	0.0183
82	2.8347	0.0182
83	2.8528	0.0181
84	2.8708	0.0180
85	2.8887	0.0179
86	2.9065	0.0178
87	2.9242	0.0177
88	2.9418	0.0176
89	2.9593	0.0175
90	2.9767	0.0174
91	2.9940	0.0173
92	3.0112	0.0172
93	3.0284	0.0171
94	3.0454	0.0171
95	3.0624	0.0170
96	3.0793	0.0169
97	3.0961	0.0168
98	3.1128	0.0167
99	3.1294	0.0166
100	3.1460	0.0166
101	3.1625	0.0165
102	3.1789	0.0164
103	3.1952	0.0163
104	3.2115	0.0163
105	3.2276	0.0162
106	3.2437	0.0161
107	3.2598	0.0160
108	3.2757	0.0160
109	3.2916	0.0159
110	3.3074	0.0158
111	3.3232	0.0158
112	3.3389	0.0157
113	3.3545	0.0156
114	3.3701	0.0156
115	3.3856	0.0155
116	3.4010	0.0154
117	3.4163	0.0154
118	3.4316	0.0153
119	3.4469	0.0152
120	3.4621	0.0152
121	3.4772	0.0151
122	3.4922	0.0151
123	3.5072	0.0150
124	3.5222	0.0149
125	3.5371	0.0149
126	3.5519	0.0148
127	3.5667	0.0148
128	3.5814	0.0147
129	3.5961	0.0147
130	3.6107	0.0146

131	3.6252	0.0146
132	3.6397	0.0145
133	3.6542	0.0145
134	3.6686	0.0144
135	3.6829	0.0144
136	3.6972	0.0143
137	3.7115	0.0143
138	3.7257	0.0142
139	3.7398	0.0142
140	3.7539	0.0141
141	3.7680	0.0141
142	3.7820	0.0140
143	3.7960	0.0140
144	3.8099	0.0139
145	3.8238	0.0139
146	3.8376	0.0138
147	3.8514	0.0138
148	3.8651	0.0137
149	3.8788	0.0137
150	3.8924	0.0136
151	3.9060	0.0136
152	3.9196	0.0136
153	3.9331	0.0135
154	3.9466	0.0135
155	3.9600	0.0134
156	3.9734	0.0134
157	3.9868	0.0134
158	4.0001	0.0133
159	4.0134	0.0133
160	4.0266	0.0132
161	4.0398	0.0132
162	4.0530	0.0132
163	4.0661	0.0131
164	4.0792	0.0131
165	4.0922	0.0130
166	4.1052	0.0130
167	4.1182	0.0130
168	4.1311	0.0129
169	4.1440	0.0129
170	4.1568	0.0129
171	4.1697	0.0128
172	4.1825	0.0128
173	4.1952	0.0128
174	4.2079	0.0127
175	4.2206	0.0127
176	4.2332	0.0126
177	4.2459	0.0126
178	4.2584	0.0126
179	4.2710	0.0125
180	4.2835	0.0125
181	4.2960	0.0125
182	4.3084	0.0124
183	4.3208	0.0124
184	4.3332	0.0124
185	4.3456	0.0123
186	4.3579	0.0123
187	4.3702	0.0123
188	4.3824	0.0123
189	4.3947	0.0122
190	4.4069	0.0122
191	4.4190	0.0122
192	4.4311	0.0121
193	4.4433	0.0121

194	4.4553	0.0121
195	4.4674	0.0120
196	4.4794	0.0120
197	4.4914	0.0120
198	4.5033	0.0120
199	4.5153	0.0119
200	4.5272	0.0119
201	4.5390	0.0119
202	4.5509	0.0118
203	4.5627	0.0118
204	4.5745	0.0118
205	4.5862	0.0118
206	4.5980	0.0117
207	4.6097	0.0117
208	4.6214	0.0117
209	4.6330	0.0117
210	4.6446	0.0116
211	4.6562	0.0116
212	4.6678	0.0116
213	4.6794	0.0115
214	4.6909	0.0115
215	4.7024	0.0115
216	4.7139	0.0115
217	4.7253	0.0114
218	4.7367	0.0114
219	4.7481	0.0114
220	4.7595	0.0114
221	4.7708	0.0113
222	4.7822	0.0113
223	4.7935	0.0113
224	4.8047	0.0113
225	4.8160	0.0113
226	4.8272	0.0112
227	4.8384	0.0112
228	4.8496	0.0112
229	4.8608	0.0112
230	4.8719	0.0111
231	4.8830	0.0111
232	4.8941	0.0111
233	4.9052	0.0111
234	4.9162	0.0110
235	4.9272	0.0110
236	4.9382	0.0110
237	4.9492	0.0110
238	4.9601	0.0110
239	4.9711	0.0109
240	4.9820	0.0109
241	4.9929	0.0109
242	5.0037	0.0109
243	5.0146	0.0108
244	5.0254	0.0108
245	5.0362	0.0108
246	5.0470	0.0108
247	5.0578	0.0108
248	5.0685	0.0107
249	5.0792	0.0107
250	5.0899	0.0107
251	5.1006	0.0107
252	5.1113	0.0107
253	5.1219	0.0106
254	5.1325	0.0106
255	5.1431	0.0106
256	5.1537	0.0106

257	5.1643	0.0106
258	5.1748	0.0105
259	5.1853	0.0105
260	5.1958	0.0105
261	5.2063	0.0105
262	5.2168	0.0105
263	5.2272	0.0104
264	5.2377	0.0104
265	5.2481	0.0104
266	5.2585	0.0104
267	5.2688	0.0104
268	5.2792	0.0104
269	5.2895	0.0103
270	5.2998	0.0103
271	5.3101	0.0103
272	5.3204	0.0103
273	5.3307	0.0103
274	5.3409	0.0102
275	5.3511	0.0102
276	5.3614	0.0102
277	5.3715	0.0102
278	5.3817	0.0102
279	5.3919	0.0102
280	5.4020	0.0101
281	5.4121	0.0101
282	5.4222	0.0101
283	5.4323	0.0101
284	5.4424	0.0101
285	5.4525	0.0101
286	5.4625	0.0100
287	5.4725	0.0100
288	5.4825	0.0100

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0100	0.0013	0.0087
2	0.0100	0.0013	0.0087
3	0.0101	0.0013	0.0088
4	0.0101	0.0013	0.0088
5	0.0101	0.0013	0.0088
6	0.0101	0.0013	0.0088
7	0.0102	0.0013	0.0089
8	0.0102	0.0013	0.0089
9	0.0102	0.0013	0.0089
10	0.0102	0.0013	0.0089
11	0.0103	0.0013	0.0089
12	0.0103	0.0013	0.0090
13	0.0103	0.0013	0.0090
14	0.0103	0.0013	0.0090
15	0.0104	0.0013	0.0090
16	0.0104	0.0013	0.0091
17	0.0104	0.0013	0.0091
18	0.0104	0.0013	0.0091
19	0.0105	0.0013	0.0091
20	0.0105	0.0013	0.0092
21	0.0105	0.0014	0.0092
22	0.0106	0.0014	0.0092
23	0.0106	0.0014	0.0092
24	0.0106	0.0014	0.0093
25	0.0107	0.0014	0.0093
26	0.0107	0.0014	0.0093

27	0.0107	0.0014	0.0093
28	0.0107	0.0014	0.0094
29	0.0108	0.0014	0.0094
30	0.0108	0.0014	0.0094
31	0.0108	0.0014	0.0095
32	0.0109	0.0014	0.0095
33	0.0109	0.0014	0.0095
34	0.0109	0.0014	0.0095
35	0.0110	0.0014	0.0096
36	0.0110	0.0014	0.0096
37	0.0110	0.0014	0.0096
38	0.0111	0.0014	0.0096
39	0.0111	0.0014	0.0097
40	0.0111	0.0014	0.0097
41	0.0112	0.0014	0.0097
42	0.0112	0.0014	0.0098
43	0.0113	0.0014	0.0098
44	0.0113	0.0014	0.0098
45	0.0113	0.0015	0.0099
46	0.0113	0.0015	0.0099
47	0.0114	0.0015	0.0099
48	0.0114	0.0015	0.0100
49	0.0115	0.0015	0.0100
50	0.0115	0.0015	0.0100
51	0.0115	0.0015	0.0101
52	0.0116	0.0015	0.0101
53	0.0116	0.0015	0.0101
54	0.0117	0.0015	0.0102
55	0.0117	0.0015	0.0102
56	0.0117	0.0015	0.0102
57	0.0118	0.0015	0.0103
58	0.0118	0.0015	0.0103
59	0.0119	0.0015	0.0103
60	0.0119	0.0015	0.0104
61	0.0120	0.0015	0.0104
62	0.0120	0.0015	0.0104
63	0.0120	0.0015	0.0105
64	0.0121	0.0015	0.0105
65	0.0121	0.0016	0.0106
66	0.0122	0.0016	0.0106
67	0.0122	0.0016	0.0107
68	0.0123	0.0016	0.0107
69	0.0123	0.0016	0.0107
70	0.0123	0.0016	0.0108
71	0.0124	0.0016	0.0108
72	0.0124	0.0016	0.0108
73	0.0125	0.0016	0.0109
74	0.0125	0.0016	0.0109
75	0.0126	0.0016	0.0110
76	0.0126	0.0016	0.0110
77	0.0127	0.0016	0.0111
78	0.0128	0.0016	0.0111
79	0.0128	0.0016	0.0112
80	0.0129	0.0016	0.0112
81	0.0129	0.0017	0.0113
82	0.0130	0.0017	0.0113
83	0.0130	0.0017	0.0114
84	0.0131	0.0017	0.0114
85	0.0132	0.0017	0.0115
86	0.0132	0.0017	0.0115
87	0.0133	0.0017	0.0116
88	0.0133	0.0017	0.0116
89	0.0134	0.0017	0.0117

90	0.0134	0.0017	0.0117
91	0.0135	0.0017	0.0118
92	0.0136	0.0017	0.0118
93	0.0136	0.0018	0.0119
94	0.0137	0.0018	0.0119
95	0.0138	0.0018	0.0120
96	0.0138	0.0018	0.0121
97	0.0139	0.0018	0.0121
98	0.0140	0.0018	0.0122
99	0.0141	0.0018	0.0123
100	0.0141	0.0018	0.0123
101	0.0142	0.0018	0.0124
102	0.0143	0.0018	0.0124
103	0.0144	0.0018	0.0125
104	0.0144	0.0018	0.0126
105	0.0145	0.0019	0.0126
106	0.0146	0.0019	0.0127
107	0.0147	0.0019	0.0128
108	0.0147	0.0019	0.0128
109	0.0148	0.0019	0.0129
110	0.0149	0.0019	0.0130
111	0.0150	0.0019	0.0131
112	0.0151	0.0019	0.0131
113	0.0152	0.0019	0.0132
114	0.0152	0.0020	0.0133
115	0.0154	0.0020	0.0134
116	0.0154	0.0020	0.0134
117	0.0156	0.0020	0.0136
118	0.0156	0.0020	0.0136
119	0.0158	0.0020	0.0137
120	0.0158	0.0020	0.0138
121	0.0160	0.0020	0.0139
122	0.0160	0.0021	0.0140
123	0.0162	0.0021	0.0141
124	0.0163	0.0021	0.0142
125	0.0164	0.0021	0.0143
126	0.0165	0.0021	0.0144
127	0.0166	0.0021	0.0145
128	0.0167	0.0021	0.0146
129	0.0169	0.0022	0.0147
130	0.0170	0.0022	0.0148
131	0.0171	0.0022	0.0149
132	0.0172	0.0022	0.0150
133	0.0174	0.0022	0.0152
134	0.0175	0.0022	0.0153
135	0.0177	0.0023	0.0154
136	0.0178	0.0023	0.0155
137	0.0180	0.0023	0.0157
138	0.0181	0.0023	0.0158
139	0.0183	0.0023	0.0160
140	0.0184	0.0024	0.0161
141	0.0186	0.0024	0.0163
142	0.0188	0.0024	0.0164
143	0.0190	0.0024	0.0166
144	0.0191	0.0025	0.0167
145	0.0195	0.0025	0.0170
146	0.0196	0.0025	0.0171
147	0.0199	0.0026	0.0173
148	0.0200	0.0026	0.0175
149	0.0203	0.0026	0.0177
150	0.0205	0.0026	0.0178
151	0.0208	0.0027	0.0181
152	0.0209	0.0027	0.0182

153	0.0213	0.0027	0.0185
154	0.0214	0.0027	0.0187
155	0.0218	0.0028	0.0190
156	0.0220	0.0028	0.0191
157	0.0224	0.0029	0.0195
158	0.0226	0.0029	0.0197
159	0.0230	0.0029	0.0200
160	0.0232	0.0030	0.0202
161	0.0236	0.0030	0.0206
162	0.0239	0.0031	0.0208
163	0.0244	0.0031	0.0213
164	0.0246	0.0032	0.0215
165	0.0252	0.0032	0.0220
166	0.0255	0.0033	0.0222
167	0.0261	0.0033	0.0228
168	0.0264	0.0034	0.0230
169	0.0271	0.0035	0.0236
170	0.0275	0.0035	0.0240
171	0.0283	0.0036	0.0247
172	0.0287	0.0037	0.0250
173	0.0296	0.0038	0.0258
174	0.0301	0.0039	0.0262
175	0.0311	0.0040	0.0271
176	0.0317	0.0041	0.0276
177	0.0330	0.0042	0.0287
178	0.0336	0.0043	0.0293
179	0.0351	0.0045	0.0306
180	0.0360	0.0046	0.0314
181	0.0379	0.0049	0.0330
182	0.0389	0.0050	0.0339
183	0.0414	0.0053	0.0361
184	0.0428	0.0055	0.0373
185	0.0351	0.0045	0.0306
186	0.0371	0.0048	0.0323
187	0.0421	0.0054	0.0367
188	0.0454	0.0058	0.0396
189	0.0547	0.0070	0.0477
190	0.0618	0.0073	0.0545
191	0.0883	0.0073	0.0810
192	0.1215	0.0073	0.1141
193	0.3801	0.0073	0.3728
194	0.0719	0.0073	0.0646
195	0.0495	0.0064	0.0432
196	0.0394	0.0051	0.0344
197	0.0444	0.0057	0.0387
198	0.0401	0.0051	0.0350
199	0.0369	0.0047	0.0322
200	0.0344	0.0044	0.0300
201	0.0323	0.0041	0.0282
202	0.0306	0.0039	0.0267
203	0.0291	0.0037	0.0254
204	0.0279	0.0036	0.0243
205	0.0268	0.0034	0.0233
206	0.0258	0.0033	0.0225
207	0.0249	0.0032	0.0217
208	0.0241	0.0031	0.0210
209	0.0234	0.0030	0.0204
210	0.0228	0.0029	0.0198
211	0.0222	0.0028	0.0193
212	0.0216	0.0028	0.0188
213	0.0211	0.0027	0.0184
214	0.0206	0.0026	0.0180
215	0.0202	0.0026	0.0176

216	0.0198	0.0025	0.0172
217	0.0192	0.0025	0.0168
218	0.0189	0.0024	0.0165
219	0.0185	0.0024	0.0162
220	0.0182	0.0023	0.0159
221	0.0179	0.0023	0.0156
222	0.0176	0.0023	0.0153
223	0.0173	0.0022	0.0151
224	0.0171	0.0022	0.0149
225	0.0168	0.0022	0.0146
226	0.0166	0.0021	0.0144
227	0.0163	0.0021	0.0142
228	0.0161	0.0021	0.0140
229	0.0159	0.0020	0.0139
230	0.0157	0.0020	0.0137
231	0.0155	0.0020	0.0135
232	0.0153	0.0020	0.0133
233	0.0151	0.0019	0.0132
234	0.0149	0.0019	0.0130
235	0.0148	0.0019	0.0129
236	0.0146	0.0019	0.0127
237	0.0145	0.0019	0.0126
238	0.0143	0.0018	0.0125
239	0.0142	0.0018	0.0123
240	0.0140	0.0018	0.0122
241	0.0139	0.0018	0.0121
242	0.0137	0.0018	0.0120
243	0.0136	0.0017	0.0119
244	0.0135	0.0017	0.0117
245	0.0134	0.0017	0.0116
246	0.0132	0.0017	0.0115
247	0.0131	0.0017	0.0114
248	0.0130	0.0017	0.0113
249	0.0129	0.0017	0.0112
250	0.0128	0.0016	0.0111
251	0.0127	0.0016	0.0111
252	0.0126	0.0016	0.0110
253	0.0125	0.0016	0.0109
254	0.0124	0.0016	0.0108
255	0.0123	0.0016	0.0107
256	0.0122	0.0016	0.0106
257	0.0121	0.0016	0.0106
258	0.0120	0.0015	0.0105
259	0.0119	0.0015	0.0104
260	0.0118	0.0015	0.0103
261	0.0118	0.0015	0.0103
262	0.0117	0.0015	0.0102
263	0.0116	0.0015	0.0101
264	0.0115	0.0015	0.0100
265	0.0114	0.0015	0.0100
266	0.0114	0.0015	0.0099
267	0.0113	0.0014	0.0098
268	0.0112	0.0014	0.0098
269	0.0112	0.0014	0.0097
270	0.0111	0.0014	0.0097
271	0.0110	0.0014	0.0096
272	0.0110	0.0014	0.0095
273	0.0109	0.0014	0.0095
274	0.0108	0.0014	0.0094
275	0.0108	0.0014	0.0094
276	0.0107	0.0014	0.0093
277	0.0106	0.0014	0.0093
278	0.0106	0.0014	0.0092

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279              0.0105          0.0014              0.0092
280              0.0105          0.0013              0.0091
281              0.0104          0.0013              0.0091
282              0.0104          0.0013              0.0090
283              0.0103          0.0013              0.0090
284              0.0102          0.0013              0.0089
285              0.0102          0.0013              0.0089
286              0.0101          0.0013              0.0088
287              0.0101          0.0013              0.0088
288              0.0100          0.0013              0.0087
-------------------------------------------------------------------
-------------------------------------------------------------------
Total soil rain loss =      0.65(In)
Total effective rainfall =      4.84(In)
Peak flow rate in flood hydrograph =      5.69(CFS)
--------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R    S T O R M
                R u n o f f      H y d r o g r a p h
-------------------------------------------------------------------
            Hydrograph in   5   Minute intervals ((CFS))

-------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
-------------------------------------------------------------------
  0+ 5       0.0001      0.02  Q         |         |         |         |
  0+10       0.0009      0.11  Q         |         |         |         |
  0+15       0.0023      0.21  Q         |         |         |         |
  0+20       0.0040      0.24  Q         |         |         |         |
  0+25       0.0057      0.25  VQ        |         |         |         |
  0+30       0.0074      0.26  VQ        |         |         |         |
  0+35       0.0092      0.26  VQ        |         |         |         |
  0+40       0.0110      0.26  VQ        |         |         |         |
  0+45       0.0127      0.26  VQ        |         |         |         |
  0+50       0.0145      0.26  VQ        |         |         |         |
  0+55       0.0163      0.26  VQ        |         |         |         |
  1+ 0       0.0181      0.26  VQ        |         |         |         |
  1+ 5       0.0199      0.26  VQ        |         |         |         |
  1+10       0.0217      0.26  VQ        |         |         |         |
  1+15       0.0235      0.26  VQ        |         |         |         |
  1+20       0.0253      0.26  |Q        |         |         |         |
  1+25       0.0271      0.26  |Q        |         |         |         |
  1+30       0.0289      0.26  |Q        |         |         |         |
  1+35       0.0307      0.26  |Q        |         |         |         |
  1+40       0.0325      0.26  |Q        |         |         |         |
  1+45       0.0344      0.27  |Q        |         |         |         |
  1+50       0.0362      0.27  |Q        |         |         |         |
  1+55       0.0380      0.27  |Q        |         |         |         |
  2+ 0       0.0399      0.27  |Q        |         |         |         |
  2+ 5       0.0417      0.27  |Q        |         |         |         |
  2+10       0.0436      0.27  |Q        |         |         |         |
  2+15       0.0454      0.27  |Q        |         |         |         |
  2+20       0.0473      0.27  |Q        |         |         |         |
  2+25       0.0492      0.27  |QV       |         |         |         |
  2+30       0.0510      0.27  |QV       |         |         |         |
  2+35       0.0529      0.27  |QV       |         |         |         |
  2+40       0.0548      0.27  |QV       |         |         |         |
  2+45       0.0567      0.27  |QV       |         |         |         |
  2+50       0.0586      0.28  |QV       |         |         |         |
  2+55       0.0605      0.28  |QV       |         |         |         |
  3+ 0       0.0624      0.28  |QV       |         |         |         |
  3+ 5       0.0643      0.28  |QV       |         |         |         |
  3+10       0.0662      0.28  |QV       |         |         |         |
```

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3+15        0.0681      0.28  |QV        |         |         |         |
3+20        0.0701      0.28  |QV        |         |         |         |
3+25        0.0720      0.28  |QV        |         |         |         |
3+30        0.0740      0.28  |Q V       |         |         |         |
3+35        0.0759      0.28  |Q V       |         |         |         |
3+40        0.0779      0.28  |Q V       |         |         |         |
3+45        0.0798      0.28  |Q V       |         |         |         |
3+50        0.0818      0.29  |Q V       |         |         |         |
3+55        0.0838      0.29  |Q V       |         |         |         |
4+ 0        0.0857      0.29  |Q V       |         |         |         |
4+ 5        0.0877      0.29  |Q V       |         |         |         |
4+10        0.0897      0.29  |Q V       |         |         |         |
4+15        0.0917      0.29  |Q V       |         |         |         |
4+20        0.0937      0.29  |Q V       |         |         |         |
4+25        0.0957      0.29  |Q V       |         |         |         |
4+30        0.0978      0.29  |Q  V      |         |         |         |
4+35        0.0998      0.29  |Q  V      |         |         |         |
4+40        0.1018      0.30  |Q  V      |         |         |         |
4+45        0.1039      0.30  |Q  V      |         |         |         |
4+50        0.1059      0.30  |Q  V      |         |         |         |
4+55        0.1080      0.30  |Q  V      |         |         |         |
5+ 0        0.1100      0.30  |Q  V      |         |         |         |
5+ 5        0.1121      0.30  |Q  V      |         |         |         |
5+10        0.1142      0.30  |Q  V      |         |         |         |
5+15        0.1163      0.30  |Q  V      |         |         |         |
5+20        0.1183      0.30  |Q  V      |         |         |         |
5+25        0.1204      0.30  |Q  V      |         |         |         |
5+30        0.1226      0.31  |Q   V     |         |         |         |
5+35        0.1247      0.31  |Q   V     |         |         |         |
5+40        0.1268      0.31  |Q   V     |         |         |         |
5+45        0.1289      0.31  |Q   V     |         |         |         |
5+50        0.1311      0.31  |Q   V     |         |         |         |
5+55        0.1332      0.31  |Q   V     |         |         |         |
6+ 0        0.1354      0.31  |Q   V     |         |         |         |
6+ 5        0.1375      0.31  |Q   V     |         |         |         |
6+10        0.1397      0.32  |Q   V     |         |         |         |
6+15        0.1419      0.32  |Q   V     |         |         |         |
6+20        0.1441      0.32  |Q   V     |         |         |         |
6+25        0.1463      0.32  |Q    V    |         |         |         |
6+30        0.1485      0.32  |Q    V    |         |         |         |
6+35        0.1507      0.32  |Q    V    |         |         |         |
6+40        0.1529      0.32  |Q    V    |         |         |         |
6+45        0.1552      0.32  |Q    V    |         |         |         |
6+50        0.1574      0.33  |Q    V    |         |         |         |
6+55        0.1597      0.33  |Q    V    |         |         |         |
7+ 0        0.1619      0.33  |Q    V    |         |         |         |
7+ 5        0.1642      0.33  |Q    V    |         |         |         |
7+10        0.1665      0.33  |Q    V    |         |         |         |
7+15        0.1688      0.33  |Q    V    |         |         |         |
7+20        0.1711      0.33  |Q     V   |         |         |         |
7+25        0.1734      0.34  |Q     V   |         |         |         |
7+30        0.1757      0.34  |Q     V   |         |         |         |
7+35        0.1780      0.34  |Q     V   |         |         |         |
7+40        0.1804      0.34  |Q     V   |         |         |         |
7+45        0.1827      0.34  |Q     V   |         |         |         |
7+50        0.1851      0.34  |Q     V   |         |         |         |
7+55        0.1875      0.35  |Q     V   |         |         |         |
8+ 0        0.1899      0.35  |Q     V   |         |         |         |
8+ 5        0.1923      0.35  |Q     V   |         |         |         |
8+10        0.1947      0.35  |Q      V  |         |         |         |
8+15        0.1971      0.35  |Q      V  |         |         |         |
8+20        0.1996      0.35  |Q      V  |         |         |         |
8+25        0.2020      0.36  |Q      V  |         |         |         |
```

```
 8+30       0.2045      0.36  |Q      V |         |         |         |
 8+35       0.2070      0.36  |Q      V |         |         |         |
 8+40       0.2094      0.36  |Q      V |         |         |         |
 8+45       0.2119      0.36  |Q      V |         |         |         |
 8+50       0.2145      0.37  |Q      V |         |         |         |
 8+55       0.2170      0.37  |Q      V |         |         |         |
 9+ 0       0.2195      0.37  |Q       V|         |         |         |
 9+ 5       0.2221      0.37  |Q       V|         |         |         |
 9+10       0.2247      0.37  |Q       V|         |         |         |
 9+15       0.2272      0.38  |Q       V|         |         |         |
 9+20       0.2298      0.38  |Q       V|         |         |         |
 9+25       0.2325      0.38  |Q       V|         |         |         |
 9+30       0.2351      0.38  |Q       V|         |         |         |
 9+35       0.2377      0.38  |Q       V|         |         |         |
 9+40       0.2404      0.39  |Q       V|         |         |         |
 9+45       0.2431      0.39  |Q        V         |         |         |
 9+50       0.2458      0.39  |Q        V         |         |         |
 9+55       0.2485      0.39  |Q        V         |         |         |
10+ 0       0.2512      0.40  |Q        V         |         |         |
10+ 5       0.2540      0.40  |Q        V         |         |         |
10+10       0.2567      0.40  |Q        V         |         |         |
10+15       0.2595      0.40  |Q        V         |         |         |
10+20       0.2623      0.41  |Q        V         |         |         |
10+25       0.2651      0.41  |Q        V         |         |         |
10+30       0.2680      0.41  |Q        |V        |         |         |
10+35       0.2708      0.42  |Q        |V        |         |         |
10+40       0.2737      0.42  |Q        |V        |         |         |
10+45       0.2766      0.42  |Q        |V        |         |         |
10+50       0.2795      0.42  |Q        |V        |         |         |
10+55       0.2825      0.43  |Q        |V        |         |         |
11+ 0       0.2854      0.43  |Q        |V        |         |         |
11+ 5       0.2884      0.43  |Q        |V        |         |         |
11+10       0.2914      0.44  |Q        | V       |         |         |
11+15       0.2945      0.44  |Q        | V       |         |         |
11+20       0.2975      0.44  |Q        | V       |         |         |
11+25       0.3006      0.45  |Q        | V       |         |         |
11+30       0.3037      0.45  |Q        | V       |         |         |
11+35       0.3069      0.46  |Q        | V       |         |         |
11+40       0.3100      0.46  |Q        | V       |         |         |
11+45       0.3132      0.46  |Q        | V       |         |         |
11+50       0.3165      0.47  |Q        |  V      |         |         |
11+55       0.3197      0.47  |Q        |  V      |         |         |
12+ 0       0.3230      0.48  |Q        |  V      |         |         |
12+ 5       0.3263      0.48  |Q        |  V      |         |         |
12+10       0.3297      0.49  |Q        |  V      |         |         |
12+15       0.3331      0.49  |Q        |  V      |         |         |
12+20       0.3365      0.50  |Q        |  V      |         |         |
12+25       0.3400      0.50  | Q       |   V     |         |         |
12+30       0.3435      0.51  | Q       |   V     |         |         |
12+35       0.3470      0.51  | Q       |   V     |         |         |
12+40       0.3506      0.52  | Q       |   V     |         |         |
12+45       0.3542      0.53  | Q       |   V     |         |         |
12+50       0.3579      0.53  | Q       |   V     |         |         |
12+55       0.3616      0.54  | Q       |   V     |         |         |
13+ 0       0.3654      0.55  | Q       |    V    |         |         |
13+ 5       0.3692      0.55  | Q       |    V    |         |         |
13+10       0.3730      0.56  | Q       |    V    |         |         |
13+15       0.3769      0.57  | Q       |    V    |         |         |
13+20       0.3809      0.57  | Q       |    V    |         |         |
13+25       0.3849      0.58  | Q       |    V    |         |         |
13+30       0.3889      0.59  | Q       |     V   |         |         |
13+35       0.3931      0.60  | Q       |     V   |         |         |
13+40       0.3973      0.61  | Q       |     V   |         |         |
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13+45       0.4015      0.62  | Q        |      V   |          |          |
13+50       0.4058      0.63  | Q        |      V   |          |          |
13+55       0.4102      0.64  | Q        |      V   |          |          |
14+ 0       0.4147      0.65  | Q        |       V  |          |          |
14+ 5       0.4193      0.66  | Q        |       V  |          |          |
14+10       0.4239      0.67  | Q        |       V  |          |          |
14+15       0.4286      0.69  | Q        |       V  |          |          |
14+20       0.4335      0.70  | Q        |       V  |          |          |
14+25       0.4384      0.72  | Q        |        V |          |          |
14+30       0.4435      0.73  | Q        |        V |          |          |
14+35       0.4487      0.75  |  Q       |        V |          |          |
14+40       0.4540      0.77  |  Q       |        V |          |          |
14+45       0.4594      0.79  |  Q       |         V|          |          |
14+50       0.4650      0.81  |  Q       |         V|          |          |
14+55       0.4708      0.84  |  Q       |         V|          |          |
15+ 0       0.4767      0.86  |  Q       |         V|          |          |
15+ 5       0.4829      0.89  |  Q       |         V|          |          |
15+10       0.4892      0.93  |  Q       |          V          |          |
15+15       0.4959      0.96  |  Q       |          V          |          |
15+20       0.5028      1.01  |   Q      |          V          |          |
15+25       0.5100      1.04  |   Q      |          |V         |          |
15+30       0.5168      0.99  |  Q       |          |V         |          |
15+35       0.5234      0.95  |  Q       |          |V         |          |
15+40       0.5302      1.00  |  Q       |          |V         |          |
15+45       0.5378      1.09  |   Q      |          | V        |          |
15+50       0.5463      1.24  |   Q      |          | V        |          |
15+55       0.5564      1.47  |    Q     |          |  V       |          |
16+ 0       0.5697      1.92  |      Q   |          |  V       |          |
16+ 5       0.5911      3.11  |          | Q        |   V      |          |
16+10       0.6303      5.69  |          |          | Q   V    |          |
16+15       0.6689      5.61  |          |          | Q    V   |          |
16+20       0.6886      2.85  |          |Q         |       V  |          |
16+25       0.6992      1.55  |     Q    |          |       V  |          |
16+30       0.7077      1.23  |   Q      |          |        V|          |
16+35       0.7150      1.07  |   Q      |          |        V|          |
16+40       0.7219      0.99  |  Q       |          |        V|          |
16+45       0.7282      0.92  |  Q       |          |         V          |
16+50       0.7342      0.86  |  Q       |          |         V          |
16+55       0.7397      0.81  |  Q       |          |         V          |
17+ 0       0.7450      0.77  |  Q       |          |         V          |
17+ 5       0.7500      0.73  | Q        |          |         |V         |
17+10       0.7549      0.70  | Q        |          |         |V         |
17+15       0.7595      0.67  | Q        |          |         |V         |
17+20       0.7640      0.65  | Q        |          |         |V         |
17+25       0.7683      0.63  | Q        |          |         |V         |
17+30       0.7724      0.61  | Q        |          |         |V         |
17+35       0.7765      0.59  | Q        |          |         | V        |
17+40       0.7804      0.57  | Q        |          |         | V        |
17+45       0.7843      0.56  | Q        |          |         | V        |
17+50       0.7880      0.54  | Q        |          |         | V        |
17+55       0.7917      0.53  | Q        |          |         | V        |
18+ 0       0.7953      0.52  | Q        |          |         | V        |
18+ 5       0.7988      0.51  | Q        |          |         |  V       |
18+10       0.8022      0.50  |Q         |          |         |  V       |
18+15       0.8055      0.49  |Q         |          |         |  V       |
18+20       0.8088      0.48  |Q         |          |         |  V       |
18+25       0.8120      0.47  |Q         |          |         |  V       |
18+30       0.8152      0.46  |Q         |          |         |  V       |
18+35       0.8183      0.45  |Q         |          |         |  V       |
18+40       0.8213      0.44  |Q         |          |         |  V       |
18+45       0.8243      0.44  |Q         |          |         |   V      |
18+50       0.8273      0.43  |Q         |          |         |   V      |
18+55       0.8302      0.42  |Q         |          |         |   V      |
```

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19+ 0        0.8331       0.42  |Q          |           |           |   V      |
19+ 5        0.8359       0.41  |Q          |           |           |   V      |
19+10        0.8387       0.41  |Q          |           |           |   V      |
19+15        0.8415       0.40  |Q          |           |           |   V      |
19+20        0.8442       0.40  |Q          |           |           |   V      |
19+25        0.8469       0.39  |Q          |           |           |    V     |
19+30        0.8496       0.39  |Q          |           |           |    V     |
19+35        0.8522       0.38  |Q          |           |           |    V     |
19+40        0.8548       0.38  |Q          |           |           |    V     |
19+45        0.8573       0.37  |Q          |           |           |    V     |
19+50        0.8599       0.37  |Q          |           |           |    V     |
19+55        0.8624       0.36  |Q          |           |           |    V     |
20+ 0        0.8649       0.36  |Q          |           |           |    V     |
20+ 5        0.8673       0.36  |Q          |           |           |    V     |
20+10        0.8698       0.35  |Q          |           |           |    V     |
20+15        0.8722       0.35  |Q          |           |           |     V    |
20+20        0.8746       0.35  |Q          |           |           |     V    |
20+25        0.8769       0.34  |Q          |           |           |     V    |
20+30        0.8793       0.34  |Q          |           |           |     V    |
20+35        0.8816       0.34  |Q          |           |           |     V    |
20+40        0.8839       0.33  |Q          |           |           |     V    |
20+45        0.8862       0.33  |Q          |           |           |     V    |
20+50        0.8884       0.33  |Q          |           |           |     V    |
20+55        0.8907       0.33  |Q          |           |           |     V    |
21+ 0        0.8929       0.32  |Q          |           |           |     V    |
21+ 5        0.8951       0.32  |Q          |           |           |      V   |
21+10        0.8973       0.32  |Q          |           |           |      V   |
21+15        0.8995       0.32  |Q          |           |           |      V   |
21+20        0.9016       0.31  |Q          |           |           |      V   |
21+25        0.9038       0.31  |Q          |           |           |      V   |
21+30        0.9059       0.31  |Q          |           |           |      V   |
21+35        0.9080       0.31  |Q          |           |           |      V   |
21+40        0.9101       0.30  |Q          |           |           |      V   |
21+45        0.9122       0.30  |Q          |           |           |      V   |
21+50        0.9142       0.30  |Q          |           |           |      V   |
21+55        0.9163       0.30  |Q          |           |           |      V   |
22+ 0        0.9183       0.30  |Q          |           |           |       V  |
22+ 5        0.9203       0.29  |Q          |           |           |       V  |
22+10        0.9223       0.29  |Q          |           |           |       V  |
22+15        0.9243       0.29  |Q          |           |           |       V  |
22+20        0.9263       0.29  |Q          |           |           |       V  |
22+25        0.9283       0.29  |Q          |           |           |       V  |
22+30        0.9302       0.28  |Q          |           |           |       V  |
22+35        0.9321       0.28  |Q          |           |           |       V  |
22+40        0.9341       0.28  |Q          |           |           |       V  |
22+45        0.9360       0.28  |Q          |           |           |       V  |
22+50        0.9379       0.28  |Q          |           |           |       V  |
22+55        0.9398       0.28  |Q          |           |           |       V  |
23+ 0        0.9417       0.27  |Q          |           |           |       V  |
23+ 5        0.9436       0.27  |Q          |           |           |        V|
23+10        0.9454       0.27  |Q          |           |           |        V|
23+15        0.9473       0.27  |Q          |           |           |        V|
23+20        0.9491       0.27  |Q          |           |           |        V|
23+25        0.9509       0.27  |Q          |           |           |        V|
23+30        0.9528       0.26  |Q          |           |           |        V|
23+35        0.9546       0.26  |Q          |           |           |        V|
23+40        0.9564       0.26  |Q          |           |           |        V|
23+45        0.9582       0.26  |Q          |           |           |        V|
23+50        0.9599       0.26  |Q          |           |           |        V|
23+55        0.9617       0.26  |Q          |           |           |        V|
24+ 0        0.9635       0.26  |Q          |           |           |        V|
24+ 5        0.9651       0.24  Q           |           |           |        V|
24+10        0.9661       0.15  Q           |           |           |        V|
```

Underground System Capacity - 0.8918 Ac-ft.

```
   24+15       0.9664      0.05  Q          |          |          |         V|
   24+20       0.9665      0.01  Q          |          |          |         V|
   24+25       0.9665      0.00  Q          |          |          |          V
-----------------------------------------------------------------------
```

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

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Study date 03/09/20

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Proposed Conditions
Area P3

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
2.40	1	0.88
Rainfall data for year 2		
2.40	6	1.55
Rainfall data for year 2		
2.40	24	2.90
Rainfall data for year 100		
2.40	1	1.25
Rainfall data for year 100		
2.40	6	3.25
Rainfall data for year 100		
2.40	24	6.90

++

******** Area-averaged max loss rate, Fm ********

SCS curve	SCS curve	Area	Area	Fp(Fig C6)	Ap	Fm

No.(AMCII)	NO.(AMC 3)	(Ac.)	Fraction	(In/Hr)	(dec.)	(In/Hr)
32.0	52.0	2.40	1.000	0.785	0.090	0.071

Area-averaged adjusted loss rate Fm (In/Hr) = 0.071

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
0.22	0.090	32.0	52.0	9.23	0.259
2.18	0.910	98.0	98.0	0.20	0.965

Area-averaged catchment yield fraction, Y = 0.902
Area-averaged low loss fraction, Yb = 0.098
User entry of time of concentration = 0.172 (hours)
++
Watershed area = 2.40(Ac.)
Catchment Lag time = 0.138 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 60.5620
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.071(In/Hr)
Average low loss rate fraction (Yb) = 0.098 (decimal)
VALLEY DEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.463(In)
Computed peak 30-minute rainfall = 0.947(In)
Specified peak 1-hour rainfall = 1.250(In)
Computed peak 3-hour rainfall = 2.246(In)
Specified peak 6-hour rainfall = 3.250(In)
Specified peak 24-hour rainfall = 6.900(In)

Rainfall depth area reduction factors:
Using a total area of 2.40(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.463(In)
30-minute factor = 1.000 Adjusted rainfall = 0.947(In)
1-hour factor = 1.000 Adjusted rainfall = 1.250(In)
3-hour factor = 1.000 Adjusted rainfall = 2.246(In)
6-hour factor = 1.000 Adjusted rainfall = 3.250(In)
24-hour factor = 1.000 Adjusted rainfall = 6.900(In)

U n i t H y d r o g r a p h
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Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 29.02 (CFS))	
1	6.637	1.927
2	42.333	10.361
3	82.242	11.583
4	95.739	3.917
5	98.706	0.861
6	100.000	0.376

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.4626	0.4626
2	0.6104	0.1478
3	0.7179	0.1075
4	0.8054	0.0875

5	0.8806	0.0752
6	0.9472	0.0666
7	1.0075	0.0602
8	1.0627	0.0553
9	1.1140	0.0513
10	1.1620	0.0480
11	1.2071	0.0452
12	1.2499	0.0428
13	1.3044	0.0545
14	1.3570	0.0526
15	1.4078	0.0509
16	1.4571	0.0493
17	1.5050	0.0479
18	1.5516	0.0466
19	1.5970	0.0454
20	1.6413	0.0443
21	1.6846	0.0433
22	1.7269	0.0423
23	1.7683	0.0414
24	1.8089	0.0406
25	1.8487	0.0398
26	1.8878	0.0391
27	1.9262	0.0384
28	1.9639	0.0377
29	2.0010	0.0371
30	2.0376	0.0365
31	2.0735	0.0359
32	2.1089	0.0354
33	2.1438	0.0349
34	2.1782	0.0344
35	2.2122	0.0339
36	2.2457	0.0335
37	2.2787	0.0331
38	2.3114	0.0326
39	2.3436	0.0322
40	2.3754	0.0319
41	2.4069	0.0315
42	2.4381	0.0311
43	2.4689	0.0308
44	2.4993	0.0305
45	2.5294	0.0301
46	2.5593	0.0298
47	2.5888	0.0295
48	2.6180	0.0292
49	2.6470	0.0289
50	2.6756	0.0287
51	2.7040	0.0284
52	2.7322	0.0281
53	2.7601	0.0279
54	2.7877	0.0277
55	2.8151	0.0274
56	2.8423	0.0272
57	2.8693	0.0270
58	2.8960	0.0267
59	2.9225	0.0265
60	2.9489	0.0263
61	2.9750	0.0261
62	3.0009	0.0259
63	3.0266	0.0257
64	3.0521	0.0255
65	3.0775	0.0253
66	3.1026	0.0252
67	3.1276	0.0250

68	3.1524	0.0248
69	3.1770	0.0246
70	3.2015	0.0245
71	3.2258	0.0243
72	3.2500	0.0242
73	3.2744	0.0244
74	3.2987	0.0243
75	3.3228	0.0241
76	3.3468	0.0240
77	3.3707	0.0238
78	3.3944	0.0237
79	3.4179	0.0236
80	3.4414	0.0234
81	3.4647	0.0233
82	3.4878	0.0232
83	3.5109	0.0230
84	3.5338	0.0229
85	3.5565	0.0228
86	3.5792	0.0227
87	3.6018	0.0225
88	3.6242	0.0224
89	3.6465	0.0223
90	3.6687	0.0222
91	3.6908	0.0221
92	3.7127	0.0220
93	3.7346	0.0219
94	3.7564	0.0218
95	3.7780	0.0216
96	3.7995	0.0215
97	3.8210	0.0214
98	3.8423	0.0213
99	3.8636	0.0212
100	3.8847	0.0211
101	3.9058	0.0210
102	3.9267	0.0210
103	3.9476	0.0209
104	3.9684	0.0208
105	3.9890	0.0207
106	4.0096	0.0206
107	4.0301	0.0205
108	4.0505	0.0204
109	4.0709	0.0203
110	4.0911	0.0202
111	4.1113	0.0202
112	4.1313	0.0201
113	4.1513	0.0200
114	4.1712	0.0199
115	4.1911	0.0198
116	4.2108	0.0198
117	4.2305	0.0197
118	4.2501	0.0196
119	4.2696	0.0195
120	4.2891	0.0194
121	4.3084	0.0194
122	4.3277	0.0193
123	4.3470	0.0192
124	4.3661	0.0192
125	4.3852	0.0191
126	4.4042	0.0190
127	4.4232	0.0189
128	4.4421	0.0189
129	4.4609	0.0188
130	4.4796	0.0187

131	4.4983	0.0187
132	4.5169	0.0186
133	4.5355	0.0186
134	4.5540	0.0185
135	4.5724	0.0184
136	4.5907	0.0184
137	4.6090	0.0183
138	4.6273	0.0182
139	4.6455	0.0182
140	4.6636	0.0181
141	4.6816	0.0181
142	4.6996	0.0180
143	4.7176	0.0179
144	4.7355	0.0179
145	4.7533	0.0178
146	4.7711	0.0178
147	4.7888	0.0177
148	4.8065	0.0177
149	4.8241	0.0176
150	4.8416	0.0176
151	4.8591	0.0175
152	4.8766	0.0174
153	4.8940	0.0174
154	4.9113	0.0173
155	4.9286	0.0173
156	4.9459	0.0172
157	4.9631	0.0172
158	4.9802	0.0171
159	4.9973	0.0171
160	5.0143	0.0170
161	5.0313	0.0170
162	5.0483	0.0169
163	5.0652	0.0169
164	5.0820	0.0169
165	5.0988	0.0168
166	5.1156	0.0168
167	5.1323	0.0167
168	5.1490	0.0167
169	5.1656	0.0166
170	5.1822	0.0166
171	5.1987	0.0165
172	5.2152	0.0165
173	5.2316	0.0164
174	5.2481	0.0164
175	5.2644	0.0164
176	5.2807	0.0163
177	5.2970	0.0163
178	5.3132	0.0162
179	5.3294	0.0162
180	5.3456	0.0161
181	5.3617	0.0161
182	5.3777	0.0161
183	5.3938	0.0160
184	5.4098	0.0160
185	5.4257	0.0159
186	5.4416	0.0159
187	5.4575	0.0159
188	5.4733	0.0158
189	5.4891	0.0158
190	5.5049	0.0158
191	5.5206	0.0157
192	5.5363	0.0157
193	5.5519	0.0156

194	5.5675	0.0156
195	5.5831	0.0156
196	5.5986	0.0155
197	5.6141	0.0155
198	5.6295	0.0155
199	5.6450	0.0154
200	5.6604	0.0154
201	5.6757	0.0154
202	5.6910	0.0153
203	5.7063	0.0153
204	5.7216	0.0152
205	5.7368	0.0152
206	5.7520	0.0152
207	5.7671	0.0151
208	5.7822	0.0151
209	5.7973	0.0151
210	5.8123	0.0150
211	5.8274	0.0150
212	5.8423	0.0150
213	5.8573	0.0150
214	5.8722	0.0149
215	5.8871	0.0149
216	5.9020	0.0149
217	5.9168	0.0148
218	5.9316	0.0148
219	5.9463	0.0148
220	5.9611	0.0147
221	5.9758	0.0147
222	5.9904	0.0147
223	6.0051	0.0146
224	6.0197	0.0146
225	6.0343	0.0146
226	6.0488	0.0146
227	6.0633	0.0145
228	6.0778	0.0145
229	6.0923	0.0145
230	6.1067	0.0144
231	6.1211	0.0144
232	6.1355	0.0144
233	6.1498	0.0143
234	6.1642	0.0143
235	6.1785	0.0143
236	6.1927	0.0143
237	6.2070	0.0142
238	6.2212	0.0142
239	6.2354	0.0142
240	6.2495	0.0142
241	6.2636	0.0141
242	6.2777	0.0141
243	6.2918	0.0141
244	6.3059	0.0140
245	6.3199	0.0140
246	6.3339	0.0140
247	6.3479	0.0140
248	6.3618	0.0139
249	6.3757	0.0139
250	6.3896	0.0139
251	6.4035	0.0139
252	6.4173	0.0138
253	6.4311	0.0138
254	6.4449	0.0138
255	6.4587	0.0138
256	6.4724	0.0137

257	6.4862	0.0137
258	6.4998	0.0137
259	6.5135	0.0137
260	6.5272	0.0136
261	6.5408	0.0136
262	6.5544	0.0136
263	6.5680	0.0136
264	6.5815	0.0136
265	6.5950	0.0135
266	6.6085	0.0135
267	6.6220	0.0135
268	6.6355	0.0135
269	6.6489	0.0134
270	6.6623	0.0134
271	6.6757	0.0134
272	6.6891	0.0134
273	6.7024	0.0133
274	6.7157	0.0133
275	6.7290	0.0133
276	6.7423	0.0133
277	6.7556	0.0133
278	6.7688	0.0132
279	6.7820	0.0132
280	6.7952	0.0132
281	6.8084	0.0132
282	6.8215	0.0131
283	6.8347	0.0131
284	6.8478	0.0131
285	6.8609	0.0131
286	6.8739	0.0131
287	6.8870	0.0130
288	6.9000	0.0130

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0130	0.0013	0.0117
2	0.0130	0.0013	0.0118
3	0.0131	0.0013	0.0118
4	0.0131	0.0013	0.0118
5	0.0131	0.0013	0.0119
6	0.0132	0.0013	0.0119
7	0.0132	0.0013	0.0119
8	0.0132	0.0013	0.0119
9	0.0133	0.0013	0.0120
10	0.0133	0.0013	0.0120
11	0.0133	0.0013	0.0120
12	0.0134	0.0013	0.0121
13	0.0134	0.0013	0.0121
14	0.0134	0.0013	0.0121
15	0.0135	0.0013	0.0122
16	0.0135	0.0013	0.0122
17	0.0136	0.0013	0.0122
18	0.0136	0.0013	0.0122
19	0.0136	0.0013	0.0123
20	0.0136	0.0013	0.0123
21	0.0137	0.0013	0.0123
22	0.0137	0.0013	0.0124
23	0.0138	0.0014	0.0124
24	0.0138	0.0014	0.0124
25	0.0138	0.0014	0.0125
26	0.0139	0.0014	0.0125

27	0.0139	0.0014	0.0126
28	0.0139	0.0014	0.0126
29	0.0140	0.0014	0.0126
30	0.0140	0.0014	0.0126
31	0.0141	0.0014	0.0127
32	0.0141	0.0014	0.0127
33	0.0142	0.0014	0.0128
34	0.0142	0.0014	0.0128
35	0.0142	0.0014	0.0128
36	0.0143	0.0014	0.0129
37	0.0143	0.0014	0.0129
38	0.0143	0.0014	0.0129
39	0.0144	0.0014	0.0130
40	0.0144	0.0014	0.0130
41	0.0145	0.0014	0.0131
42	0.0145	0.0014	0.0131
43	0.0146	0.0014	0.0131
44	0.0146	0.0014	0.0132
45	0.0147	0.0014	0.0132
46	0.0147	0.0014	0.0133
47	0.0148	0.0014	0.0133
48	0.0148	0.0015	0.0133
49	0.0149	0.0015	0.0134
50	0.0149	0.0015	0.0134
51	0.0150	0.0015	0.0135
52	0.0150	0.0015	0.0135
53	0.0150	0.0015	0.0136
54	0.0151	0.0015	0.0136
55	0.0151	0.0015	0.0137
56	0.0152	0.0015	0.0137
57	0.0152	0.0015	0.0138
58	0.0153	0.0015	0.0138
59	0.0154	0.0015	0.0138
60	0.0154	0.0015	0.0139
61	0.0155	0.0015	0.0139
62	0.0155	0.0015	0.0140
63	0.0156	0.0015	0.0140
64	0.0156	0.0015	0.0141
65	0.0157	0.0015	0.0141
66	0.0157	0.0015	0.0142
67	0.0158	0.0016	0.0142
68	0.0158	0.0016	0.0143
69	0.0159	0.0016	0.0143
70	0.0159	0.0016	0.0144
71	0.0160	0.0016	0.0145
72	0.0161	0.0016	0.0145
73	0.0161	0.0016	0.0146
74	0.0162	0.0016	0.0146
75	0.0163	0.0016	0.0147
76	0.0163	0.0016	0.0147
77	0.0164	0.0016	0.0148
78	0.0164	0.0016	0.0148
79	0.0165	0.0016	0.0149
80	0.0166	0.0016	0.0149
81	0.0167	0.0016	0.0150
82	0.0167	0.0016	0.0151
83	0.0168	0.0017	0.0152
84	0.0169	0.0017	0.0152
85	0.0169	0.0017	0.0153
86	0.0170	0.0017	0.0153
87	0.0171	0.0017	0.0154
88	0.0171	0.0017	0.0155
89	0.0172	0.0017	0.0156

90	0.0173	0.0017	0.0156
91	0.0174	0.0017	0.0157
92	0.0174	0.0017	0.0157
93	0.0176	0.0017	0.0158
94	0.0176	0.0017	0.0159
95	0.0177	0.0017	0.0160
96	0.0178	0.0017	0.0160
97	0.0179	0.0018	0.0161
98	0.0179	0.0018	0.0162
99	0.0181	0.0018	0.0163
100	0.0181	0.0018	0.0163
101	0.0182	0.0018	0.0164
102	0.0183	0.0018	0.0165
103	0.0184	0.0018	0.0166
104	0.0185	0.0018	0.0167
105	0.0186	0.0018	0.0168
106	0.0187	0.0018	0.0168
107	0.0188	0.0018	0.0170
108	0.0189	0.0019	0.0170
109	0.0190	0.0019	0.0172
110	0.0191	0.0019	0.0172
111	0.0192	0.0019	0.0173
112	0.0193	0.0019	0.0174
113	0.0194	0.0019	0.0175
114	0.0195	0.0019	0.0176
115	0.0197	0.0019	0.0177
116	0.0198	0.0019	0.0178
117	0.0199	0.0020	0.0180
118	0.0200	0.0020	0.0180
119	0.0202	0.0020	0.0182
120	0.0202	0.0020	0.0183
121	0.0204	0.0020	0.0184
122	0.0205	0.0020	0.0185
123	0.0207	0.0020	0.0186
124	0.0208	0.0020	0.0187
125	0.0210	0.0021	0.0189
126	0.0210	0.0021	0.0190
127	0.0212	0.0021	0.0192
128	0.0213	0.0021	0.0192
129	0.0215	0.0021	0.0194
130	0.0216	0.0021	0.0195
131	0.0219	0.0021	0.0197
132	0.0220	0.0022	0.0198
133	0.0222	0.0022	0.0200
134	0.0223	0.0022	0.0201
135	0.0225	0.0022	0.0203
136	0.0227	0.0022	0.0204
137	0.0229	0.0022	0.0207
138	0.0230	0.0023	0.0208
139	0.0233	0.0023	0.0210
140	0.0234	0.0023	0.0211
141	0.0237	0.0023	0.0214
142	0.0238	0.0023	0.0215
143	0.0241	0.0024	0.0218
144	0.0243	0.0024	0.0219
145	0.0242	0.0024	0.0218
146	0.0243	0.0024	0.0219
147	0.0246	0.0024	0.0222
148	0.0248	0.0024	0.0224
149	0.0252	0.0025	0.0227
150	0.0253	0.0025	0.0229
151	0.0257	0.0025	0.0232
152	0.0259	0.0025	0.0234

153	0.0263	0.0026	0.0237
154	0.0265	0.0026	0.0239
155	0.0270	0.0026	0.0243
156	0.0272	0.0027	0.0245
157	0.0277	0.0027	0.0249
158	0.0279	0.0027	0.0252
159	0.0284	0.0028	0.0256
160	0.0287	0.0028	0.0259
161	0.0292	0.0029	0.0264
162	0.0295	0.0029	0.0266
163	0.0301	0.0030	0.0272
164	0.0305	0.0030	0.0275
165	0.0311	0.0031	0.0281
166	0.0315	0.0031	0.0284
167	0.0322	0.0032	0.0291
168	0.0326	0.0032	0.0294
169	0.0335	0.0033	0.0302
170	0.0339	0.0033	0.0306
171	0.0349	0.0034	0.0315
172	0.0354	0.0035	0.0319
173	0.0365	0.0036	0.0329
174	0.0371	0.0036	0.0335
175	0.0384	0.0038	0.0346
176	0.0391	0.0038	0.0352
177	0.0406	0.0040	0.0366
178	0.0414	0.0041	0.0374
179	0.0433	0.0042	0.0390
180	0.0443	0.0043	0.0399
181	0.0466	0.0046	0.0420
182	0.0479	0.0047	0.0432
183	0.0509	0.0050	0.0459
184	0.0526	0.0052	0.0474
185	0.0428	0.0042	0.0386
186	0.0452	0.0044	0.0407
187	0.0513	0.0050	0.0462
188	0.0553	0.0054	0.0498
189	0.0666	0.0059	0.0607
190	0.0752	0.0059	0.0693
191	0.1075	0.0059	0.1016
192	0.1478	0.0059	0.1419
193	0.4626	0.0059	0.4567
194	0.0875	0.0059	0.0817
195	0.0602	0.0059	0.0544
196	0.0480	0.0047	0.0432
197	0.0545	0.0054	0.0492
198	0.0493	0.0048	0.0445
199	0.0454	0.0045	0.0409
200	0.0423	0.0042	0.0382
201	0.0398	0.0039	0.0359
202	0.0377	0.0037	0.0340
203	0.0359	0.0035	0.0324
204	0.0344	0.0034	0.0310
205	0.0331	0.0032	0.0298
206	0.0319	0.0031	0.0287
207	0.0308	0.0030	0.0278
208	0.0298	0.0029	0.0269
209	0.0289	0.0028	0.0261
210	0.0281	0.0028	0.0254
211	0.0274	0.0027	0.0247
212	0.0267	0.0026	0.0241
213	0.0261	0.0026	0.0235
214	0.0255	0.0025	0.0230
215	0.0250	0.0025	0.0225

216	0.0245	0.0024	0.0221
217	0.0244	0.0024	0.0220
218	0.0240	0.0024	0.0216
219	0.0236	0.0023	0.0213
220	0.0232	0.0023	0.0209
221	0.0228	0.0022	0.0205
222	0.0224	0.0022	0.0202
223	0.0221	0.0022	0.0199
224	0.0218	0.0021	0.0196
225	0.0214	0.0021	0.0193
226	0.0211	0.0021	0.0191
227	0.0209	0.0020	0.0188
228	0.0206	0.0020	0.0186
229	0.0203	0.0020	0.0183
230	0.0201	0.0020	0.0181
231	0.0198	0.0019	0.0179
232	0.0196	0.0019	0.0177
233	0.0194	0.0019	0.0175
234	0.0192	0.0019	0.0173
235	0.0189	0.0019	0.0171
236	0.0187	0.0018	0.0169
237	0.0186	0.0018	0.0167
238	0.0184	0.0018	0.0166
239	0.0182	0.0018	0.0164
240	0.0180	0.0018	0.0162
241	0.0178	0.0018	0.0161
242	0.0177	0.0017	0.0159
243	0.0175	0.0017	0.0158
244	0.0173	0.0017	0.0156
245	0.0172	0.0017	0.0155
246	0.0170	0.0017	0.0154
247	0.0169	0.0017	0.0152
248	0.0168	0.0016	0.0151
249	0.0166	0.0016	0.0150
250	0.0165	0.0016	0.0149
251	0.0164	0.0016	0.0148
252	0.0162	0.0016	0.0146
253	0.0161	0.0016	0.0145
254	0.0160	0.0016	0.0144
255	0.0159	0.0016	0.0143
256	0.0158	0.0015	0.0142
257	0.0156	0.0015	0.0141
258	0.0155	0.0015	0.0140
259	0.0154	0.0015	0.0139
260	0.0153	0.0015	0.0138
261	0.0152	0.0015	0.0137
262	0.0151	0.0015	0.0136
263	0.0150	0.0015	0.0135
264	0.0149	0.0015	0.0135
265	0.0148	0.0015	0.0134
266	0.0147	0.0014	0.0133
267	0.0146	0.0014	0.0132
268	0.0146	0.0014	0.0131
269	0.0145	0.0014	0.0130
270	0.0144	0.0014	0.0130
271	0.0143	0.0014	0.0129
272	0.0142	0.0014	0.0128
273	0.0141	0.0014	0.0127
274	0.0140	0.0014	0.0127
275	0.0140	0.0014	0.0126
276	0.0139	0.0014	0.0125
277	0.0138	0.0014	0.0125
278	0.0137	0.0013	0.0124

279	0.0137	0.0013	0.0123
280	0.0136	0.0013	0.0123
281	0.0135	0.0013	0.0122
282	0.0135	0.0013	0.0121
283	0.0134	0.0013	0.0121
284	0.0133	0.0013	0.0120
285	0.0133	0.0013	0.0120
286	0.0132	0.0013	0.0119
287	0.0131	0.0013	0.0118
288	0.0131	0.0013	0.0118

Total soil rain loss = 0.62(In)
Total effective rainfall = 6.28(In)
Peak flow rate in flood hydrograph = 7.01(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       0.0011      0.14  Q         |         |         |         |
  0+15       0.0031      0.28  VQ        |         |         |         |
  0+20       0.0053      0.33  VQ        |         |         |         |
  0+25       0.0077      0.34  VQ        |         |         |         |
  0+30       0.0100      0.34  VQ        |         |         |         |
  0+35       0.0124      0.34  VQ        |         |         |         |
  0+40       0.0148      0.35  VQ        |         |         |         |
  0+45       0.0172      0.35  VQ        |         |         |         |
  0+50       0.0195      0.35  VQ        |         |         |         |
  0+55       0.0219      0.35  VQ        |         |         |         |
  1+ 0       0.0243      0.35  VQ        |         |         |         |
  1+ 5       0.0267      0.35  VQ        |         |         |         |
  1+10       0.0292      0.35  VQ        |         |         |         |
  1+15       0.0316      0.35  |Q        |         |         |         |
  1+20       0.0340      0.35  |Q        |         |         |         |
  1+25       0.0364      0.35  |Q        |         |         |         |
  1+30       0.0389      0.35  |Q        |         |         |         |
  1+35       0.0413      0.35  |Q        |         |         |         |
  1+40       0.0438      0.36  |Q        |         |         |         |
  1+45       0.0462      0.36  |Q        |         |         |         |
  1+50       0.0487      0.36  |Q        |         |         |         |
  1+55       0.0512      0.36  |Q        |         |         |         |
  2+ 0       0.0536      0.36  |Q        |         |         |         |
  2+ 5       0.0561      0.36  |Q        |         |         |         |
  2+10       0.0586      0.36  |Q        |         |         |         |
  2+15       0.0611      0.36  |Q        |         |         |         |
  2+20       0.0636      0.36  |QV       |         |         |         |
  2+25       0.0661      0.36  |QV       |         |         |         |
  2+30       0.0686      0.37  |QV       |         |         |         |
  2+35       0.0711      0.37  |QV       |         |         |         |
  2+40       0.0737      0.37  |QV       |         |         |         |
  2+45       0.0762      0.37  |QV       |         |         |         |
  2+50       0.0788      0.37  |QV       |         |         |         |
  2+55       0.0813      0.37  |QV       |         |         |         |
  3+ 0       0.0839      0.37  |QV       |         |         |         |
  3+ 5       0.0864      0.37  |QV       |         |         |         |
  3+10       0.0890      0.37  |QV       |         |         |         |
```

```
3+15        0.0916      0.37  |QV        |          |          |
3+20        0.0942      0.38  |Q V       |          |          |
3+25        0.0968      0.38  |Q V       |          |          |
3+30        0.0994      0.38  |Q V       |          |          |
3+35        0.1020      0.38  |Q V       |          |          |
3+40        0.1046      0.38  |Q V       |          |          |
3+45        0.1073      0.38  |Q V       |          |          |
3+50        0.1099      0.38  |Q V       |          |          |
3+55        0.1125      0.38  |Q V       |          |          |
4+ 0        0.1152      0.39  |Q V       |          |          |
4+ 5        0.1179      0.39  |Q V       |          |          |
4+10        0.1205      0.39  |Q V       |          |          |
4+15        0.1232      0.39  |Q V       |          |          |
4+20        0.1259      0.39  |Q  V      |          |          |
4+25        0.1286      0.39  |Q  V      |          |          |
4+30        0.1313      0.39  |Q  V      |          |          |
4+35        0.1340      0.39  |Q  V      |          |          |
4+40        0.1367      0.40  |Q  V      |          |          |
4+45        0.1395      0.40  |Q  V      |          |          |
4+50        0.1422      0.40  |Q  V      |          |          |
4+55        0.1449      0.40  |Q  V      |          |          |
5+ 0        0.1477      0.40  |Q  V      |          |          |
5+ 5        0.1505      0.40  |Q  V      |          |          |
5+10        0.1533      0.40  |Q  V      |          |          |
5+15        0.1560      0.40  |Q  V      |          |          |
5+20        0.1588      0.41  |Q   V     |          |          |
5+25        0.1616      0.41  |Q   V     |          |          |
5+30        0.1645      0.41  |Q   V     |          |          |
5+35        0.1673      0.41  |Q   V     |          |          |
5+40        0.1701      0.41  |Q   V     |          |          |
5+45        0.1730      0.41  |Q   V     |          |          |
5+50        0.1758      0.42  |Q   V     |          |          |
5+55        0.1787      0.42  |Q   V     |          |          |
6+ 0        0.1816      0.42  |Q   V     |          |          |
6+ 5        0.1845      0.42  |Q   V     |          |          |
6+10        0.1874      0.42  |Q   V     |          |          |
6+15        0.1903      0.42  |Q    V    |          |          |
6+20        0.1932      0.42  |Q    V    |          |          |
6+25        0.1961      0.43  |Q    V    |          |          |
6+30        0.1991      0.43  |Q    V    |          |          |
6+35        0.2020      0.43  |Q    V    |          |          |
6+40        0.2050      0.43  |Q    V    |          |          |
6+45        0.2080      0.43  |Q    V    |          |          |
6+50        0.2110      0.43  |Q    V    |          |          |
6+55        0.2140      0.44  |Q    V    |          |          |
7+ 0        0.2170      0.44  |Q    V    |          |          |
7+ 5        0.2200      0.44  |Q     V   |          |          |
7+10        0.2231      0.44  |Q     V   |          |          |
7+15        0.2261      0.44  |Q     V   |          |          |
7+20        0.2292      0.45  |Q     V   |          |          |
7+25        0.2323      0.45  |Q     V   |          |          |
7+30        0.2354      0.45  |Q     V   |          |          |
7+35        0.2385      0.45  |Q     V   |          |          |
7+40        0.2416      0.45  |Q     V   |          |          |
7+45        0.2448      0.46  |Q     V   |          |          |
7+50        0.2479      0.46  |Q     V   |          |          |
7+55        0.2511      0.46  |Q      V  |          |          |
8+ 0        0.2543      0.46  |Q      V  |          |          |
8+ 5        0.2575      0.46  |Q      V  |          |          |
8+10        0.2607      0.47  |Q      V  |          |          |
8+15        0.2639      0.47  |Q      V  |          |          |
8+20        0.2671      0.47  |Q      V  |          |          |
8+25        0.2704      0.47  |Q      V  |          |          |
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 8+30       0.2737      0.48  |Q      V |          |          |          |
 8+35       0.2770      0.48  |Q      V |          |          |          |
 8+40       0.2803      0.48  |Q      V |          |          |          |
 8+45       0.2836      0.48  |Q       V|          |          |          |
 8+50       0.2869      0.49  |Q       V|          |          |          |
 8+55       0.2903      0.49  |Q       V|          |          |          |
 9+ 0       0.2937      0.49  |Q       V|          |          |          |
 9+ 5       0.2971      0.49  |Q       V|          |          |          |
 9+10       0.3005      0.50  |Q       V|          |          |          |
 9+15       0.3039      0.50  |Q       V|          |          |          |
 9+20       0.3073      0.50  | Q      V|          |          |          |
 9+25       0.3108      0.50  | Q      V|          |          |          |
 9+30       0.3143      0.51  | Q       V          |          |          |
 9+35       0.3178      0.51  | Q       V          |          |          |
 9+40       0.3213      0.51  | Q       V          |          |          |
 9+45       0.3249      0.52  | Q       V          |          |          |
 9+50       0.3285      0.52  | Q       V          |          |          |
 9+55       0.3320      0.52  | Q       V          |          |          |
10+ 0       0.3357      0.52  | Q       V          |          |          |
10+ 5       0.3393      0.53  | Q       V          |          |          |
10+10       0.3430      0.53  | Q       V          |          |          |
10+15       0.3466      0.53  | Q       |V         |          |          |
10+20       0.3503      0.54  | Q       |V         |          |          |
10+25       0.3541      0.54  | Q       |V         |          |          |
10+30       0.3578      0.55  | Q       |V         |          |          |
10+35       0.3616      0.55  | Q       |V         |          |          |
10+40       0.3654      0.55  | Q       |V         |          |          |
10+45       0.3692      0.56  | Q       |V         |          |          |
10+50       0.3731      0.56  | Q       |V         |          |          |
10+55       0.3770      0.56  | Q       | V        |          |          |
11+ 0       0.3809      0.57  | Q       | V        |          |          |
11+ 5       0.3848      0.57  | Q       | V        |          |          |
11+10       0.3888      0.58  | Q       | V        |          |          |
11+15       0.3928      0.58  | Q       | V        |          |          |
11+20       0.3969      0.59  | Q       | V        |          |          |
11+25       0.4009      0.59  | Q       | V        |          |          |
11+30       0.4050      0.60  | Q       | V        |          |          |
11+35       0.4092      0.60  | Q       |  V       |          |          |
11+40       0.4133      0.61  | Q       |  V       |          |          |
11+45       0.4175      0.61  | Q       |  V       |          |          |
11+50       0.4218      0.62  | Q       |  V       |          |          |
11+55       0.4260      0.62  | Q       |  V       |          |          |
12+ 0       0.4304      0.63  | Q       |  V       |          |          |
12+ 5       0.4347      0.63  | Q       |  V       |          |          |
12+10       0.4391      0.63  | Q       |  V       |          |          |
12+15       0.4434      0.63  | Q       |   V      |          |          |
12+20       0.4479      0.64  | Q       |   V      |          |          |
12+25       0.4523      0.65  | Q       |   V      |          |          |
12+30       0.4568      0.65  | Q       |   V      |          |          |
12+35       0.4613      0.66  | Q       |   V      |          |          |
12+40       0.4659      0.67  | Q       |   V      |          |          |
12+45       0.4706      0.67  | Q       |   V      |          |          |
12+50       0.4753      0.68  | Q       |    V     |          |          |
12+55       0.4800      0.69  | Q       |    V     |          |          |
13+ 0       0.4848      0.70  | Q       |    V     |          |          |
13+ 5       0.4897      0.71  | Q       |    V     |          |          |
13+10       0.4946      0.72  | Q       |    V     |          |          |
13+15       0.4996      0.72  | Q       |    V     |          |          |
13+20       0.5047      0.73  | Q       |     V    |          |          |
13+25       0.5098      0.74  | Q       |     V    |          |          |
13+30       0.5150      0.76  |  Q      |     V    |          |          |
13+35       0.5203      0.77  |  Q      |     V    |          |          |
13+40       0.5256      0.78  |  Q      |     V    |          |          |
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13+45        0.5311       0.79  |  Q       |      V   |          |          |
13+50        0.5366       0.80  |  Q       |       V  |          |          |
13+55        0.5422       0.82  |  Q       |       V  |          |          |
14+ 0        0.5479       0.83  |  Q       |       V  |          |          |
14+ 5        0.5538       0.85  |  Q       |       V  |          |          |
14+10        0.5597       0.86  |  Q       |       V  |          |          |
14+15        0.5657       0.88  |  Q       |        V |          |          |
14+20        0.5719       0.90  |  Q       |        V |          |          |
14+25        0.5782       0.92  |  Q       |        V |          |          |
14+30        0.5847       0.94  |  Q       |        V |          |          |
14+35        0.5913       0.96  |  Q       |        V |          |          |
14+40        0.5980       0.98  |  Q       |         V|          |          |
14+45        0.6050       1.01  |   Q      |         V|          |          |
14+50        0.6121       1.04  |   Q      |         V|          |          |
14+55        0.6195       1.07  |   Q      |         V|          |          |
15+ 0        0.6271       1.10  |   Q      |         V|          |          |
15+ 5        0.6349       1.14  |   Q      |          V          |          |
15+10        0.6430       1.18  |   Q      |          V          |          |
15+15        0.6515       1.23  |   Q      |          V          |          |
15+20        0.6603       1.28  |    Q     |           V         |          |
15+25        0.6694       1.32  |    Q     |           V         |          |
15+30        0.6780       1.26  |    Q     |           V         |          |
15+35        0.6863       1.20  |   Q      |           V         |          |
15+40        0.6949       1.26  |    Q     |           V         |          |
15+45        0.7044       1.38  |    Q     |          | V        |          |
15+50        0.7153       1.57  |     Q    |          | V        |          |
15+55        0.7281       1.87  |      Q   |          |  V       |          |
16+ 0        0.7448       2.43  |        Q |          |  V       |          |
16+ 5        0.7715       3.87  |          |     Q    |   V      |          |
16+10        0.8198       7.01  |          |          |     V Q  |          |
16+15        0.8674       6.91  |          |          |      Q   |          |
16+20        0.8918       3.54  |          |    Q     |       V  |          |
16+25        0.9051       1.94  |       Q  |          |       V  |          |
16+30        0.9158       1.55  |      Q   |          |        V|          |
16+35        0.9251       1.36  |    Q     |          |        V|          |
16+40        0.9338       1.26  |    Q     |          |        V|          |
16+45        0.9419       1.17  |   Q      |          |         V          |
16+50        0.9495       1.10  |   Q      |          |         V          |
16+55        0.9566       1.03  |   Q      |          |         V          |
17+ 0        0.9633       0.98  |  Q       |          |         V          |
17+ 5        0.9697       0.93  |  Q       |          |         V          |
17+10        0.9759       0.89  |  Q       |          |         |V         |
17+15        0.9818       0.86  |  Q       |          |         |V         |
17+20        0.9875       0.83  |  Q       |          |         |V         |
17+25        0.9930       0.80  |  Q       |          |         |V         |
17+30        0.9984       0.78  |  Q       |          |         |V         |
17+35        1.0035       0.75  |  Q       |          |         |V         |
17+40        1.0086       0.73  | Q        |          |         | V        |
17+45        1.0135       0.71  | Q        |          |         | V        |
17+50        1.0183       0.70  | Q        |          |         | V        |
17+55        1.0230       0.68  | Q        |          |         | V        |
18+ 0        1.0276       0.66  | Q        |          |         | V        |
18+ 5        1.0320       0.65  | Q        |          |         | V        |
18+10        1.0365       0.64  | Q        |          |         |  V       |
18+15        1.0408       0.63  | Q        |          |         |  V       |
18+20        1.0452       0.62  | Q        |          |         |  V       |
18+25        1.0494       0.61  | Q        |          |         |  V       |
18+30        1.0535       0.60  | Q        |          |         |  V       |
18+35        1.0576       0.59  | Q        |          |         |  V       |
18+40        1.0617       0.58  | Q        |          |         |  V       |
18+45        1.0656       0.58  | Q        |          |         |  V       |
18+50        1.0695       0.57  | Q        |          |         |   V      |
18+55        1.0734       0.56  | Q        |          |         |   V      |
```

Underground System Capacity = 0.8918 Ac-ft.

```
19+ 0       1.0772      0.55  | Q        |          |          |   V     |
19+ 5       1.0809      0.54  | Q        |          |          |   V     |
19+10       1.0846      0.54  | Q        |          |          |   V     |
19+15       1.0883      0.53  | Q        |          |          |   V     |
19+20       1.0919      0.52  | Q        |          |          |   V     |
19+25       1.0955      0.52  | Q        |          |          |   V     |
19+30       1.0990      0.51  | Q        |          |          |    V    |
19+35       1.1025      0.51  | Q        |          |          |    V    |
19+40       1.1059      0.50  | Q        |          |          |    V    |
19+45       1.1093      0.49  |Q         |          |          |    V    |
19+50       1.1127      0.49  |Q         |          |          |    V    |
19+55       1.1160      0.48  |Q         |          |          |    V    |
20+ 0       1.1193      0.48  |Q         |          |          |    V    |
20+ 5       1.1226      0.47  |Q         |          |          |    V    |
20+10       1.1258      0.47  |Q         |          |          |    V    |
20+15       1.1290      0.47  |Q         |          |          |    V    |
20+20       1.1322      0.46  |Q         |          |          |     V   |
20+25       1.1354      0.46  |Q         |          |          |     V   |
20+30       1.1385      0.45  |Q         |          |          |     V   |
20+35       1.1416      0.45  |Q         |          |          |     V   |
20+40       1.1446      0.45  |Q         |          |          |     V   |
20+45       1.1477      0.44  |Q         |          |          |     V   |
20+50       1.1507      0.44  |Q         |          |          |     V   |
20+55       1.1537      0.43  |Q         |          |          |     V   |
21+ 0       1.1567      0.43  |Q         |          |          |     V   |
21+ 5       1.1596      0.43  |Q         |          |          |     V   |
21+10       1.1625      0.42  |Q         |          |          |      V  |
21+15       1.1654      0.42  |Q         |          |          |      V  |
21+20       1.1683      0.42  |Q         |          |          |      V  |
21+25       1.1712      0.41  |Q         |          |          |      V  |
21+30       1.1740      0.41  |Q         |          |          |      V  |
21+35       1.1768      0.41  |Q         |          |          |      V  |
21+40       1.1796      0.41  |Q         |          |          |      V  |
21+45       1.1824      0.40  |Q         |          |          |      V  |
21+50       1.1851      0.40  |Q         |          |          |      V  |
21+55       1.1879      0.40  |Q         |          |          |      V  |
22+ 0       1.1906      0.39  |Q         |          |          |      V  |
22+ 5       1.1933      0.39  |Q         |          |          |       V |
22+10       1.1960      0.39  |Q         |          |          |       V |
22+15       1.1986      0.39  |Q         |          |          |       V |
22+20       1.2013      0.38  |Q         |          |          |       V |
22+25       1.2039      0.38  |Q         |          |          |       V |
22+30       1.2065      0.38  |Q         |          |          |       V |
22+35       1.2092      0.38  |Q         |          |          |       V |
22+40       1.2117      0.38  |Q         |          |          |       V |
22+45       1.2143      0.37  |Q         |          |          |       V |
22+50       1.2169      0.37  |Q         |          |          |       V |
22+55       1.2194      0.37  |Q         |          |          |       V |
23+ 0       1.2219      0.37  |Q         |          |          |       V |
23+ 5       1.2245      0.37  |Q         |          |          |        V|
23+10       1.2270      0.36  |Q         |          |          |        V|
23+15       1.2294      0.36  |Q         |          |          |        V|
23+20       1.2319      0.36  |Q         |          |          |        V|
23+25       1.2344      0.36  |Q         |          |          |        V|
23+30       1.2368      0.36  |Q         |          |          |        V|
23+35       1.2393      0.35  |Q         |          |          |        V|
23+40       1.2417      0.35  |Q         |          |          |        V|
23+45       1.2441      0.35  |Q         |          |          |        V|
23+50       1.2465      0.35  |Q         |          |          |        V|
23+55       1.2489      0.35  |Q         |          |          |        V|
24+ 0       1.2513      0.34  |Q         |          |          |        V|
24+ 5       1.2535      0.32  |Q         |          |          |        V|
24+10       1.2548      0.20  Q          |          |          |        V|
```

```
   24+15       1.2552      0.06  Q          |          |          |         V|
   24+20       1.2553      0.01  Q          |          |          |         V|
   24+25       1.2554      0.00  Q          |          |          |          V
-----------------------------------------------------------------------
```