Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING

PRELIMINARY HYDROLOGY CALCULATIONS

FOR

MORENO VALLEY TRADE CENTER
OPTION 1-HIGH CUBE LOGISTICS SITE PLAN
EUCALYPTUS AVENUE AND REDLANDS BLVD.
MORENO VALLEY, CALIFORNIA

PREPARED FOR
HILWOOD INVESTMENTS
901 VIA PIEMONTE, STE 1775
ONTARIO, CA 91764
PH. (949) 382-0033

APRIL 5, 2022

JOB NO. 3828

PREPARED BY

THIENES ENGINEERING
14349 FIRESTONE BOULEVARD
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HYDROLOGY AND HYDRAULIC CALCULATIONS

FOR

MORENO VALLEY TRADE CENTER

PREPARED
UNDER THE SUPERVISION OF

_____

REINHARD STENZEL DATE:
R.C.E. 56155
EXP. : 12/31/22

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INTRODUCTION

A: PROJECT LOCATION

The project site is located at southwest corner of Eucalyptus Avenue and Redlands Boulevard in the City of Moreno Valley. Encelia Avenue is adjacent to the southerly property line. Please see the next page for vicinity map.

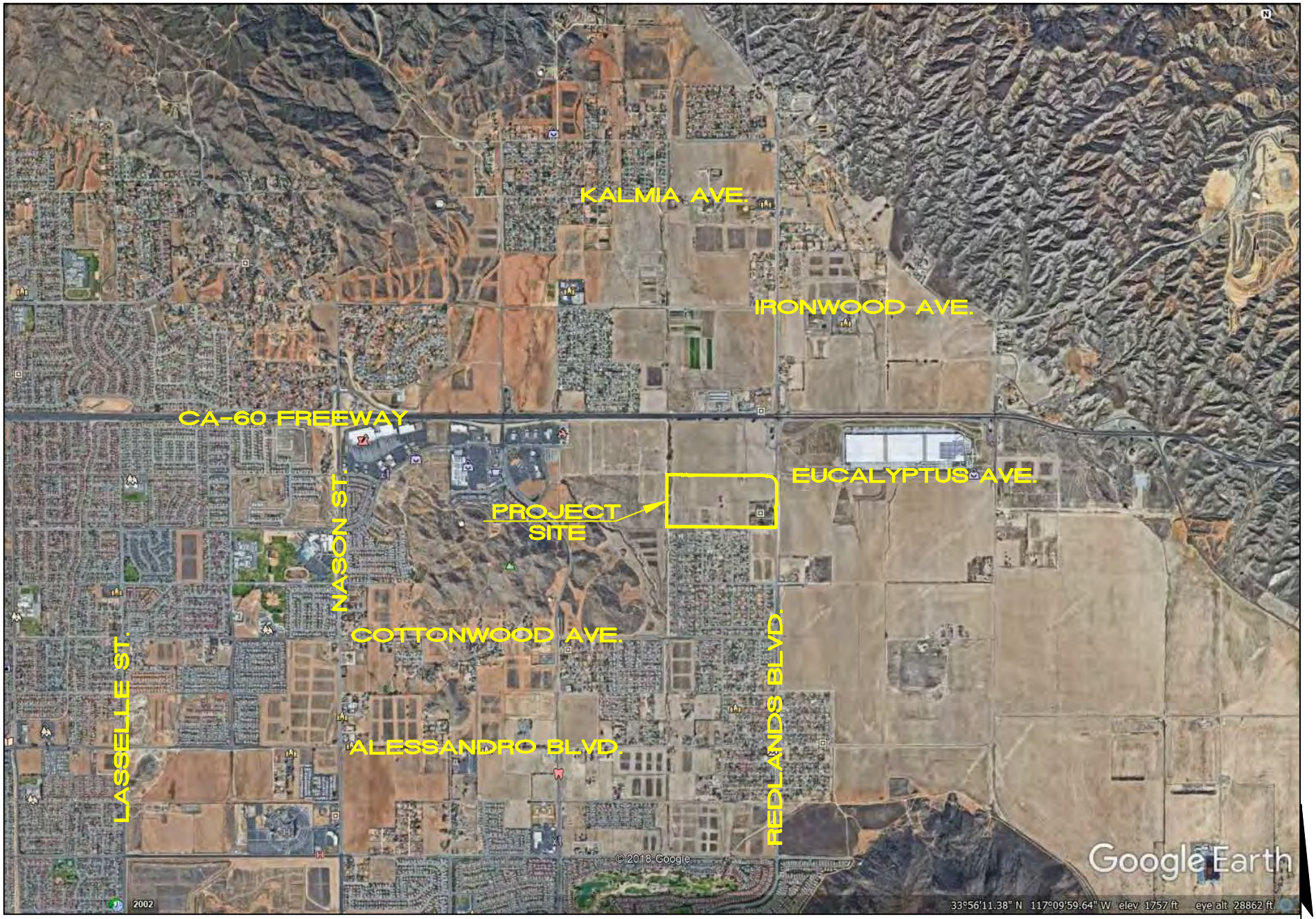
B: STUDY PURPOSE

The purpose of this study is to determine the existing and proposed condition peak flow rates for various storm events for the site. Discharge from the project site ultimately drains to an existing storm drain in Redlands Boulevard.

C: PROJECT STAFF:

Thienes Engineering staff involved in this study include:

Reinhard Stenzel
Kristie Ferronato
Brian Weil



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"VICINITY MAP"

FOR

EUCALYPTUS AVE. AND REDLANDS BLVD.

N

NOT TO SCALE

DISCUSSION

The project site encompasses approximately 72.73 acres. However, several acres along the westerly property line are within an existing drainage channel (Quincy Wash) and will not be disturbed. Here, sheet piles will be constructed within the property site to protect the site from the Wash. Proposed improvements include one warehouse type building with approximately 1,328,853 square feet. There are truck yard areas on the northerly and southerly sides of the building. Vehicle parking is primarily on the easterly side of the property with some additional parking areas along the westerly drive aisle. There is a water quality/detention basin located along the southerly side of the side adjacent to Encelia Avenue. Additional landscaped areas are located adjacent to the streets and smaller areas throughout the project site.

Master Drainage Plan

The project site is tabled to a storm drain system in Redlands Boulevard (Moreno MDP Line F-2). At this time, only portions of the Master Plan Storm Drain system are constructed. Recent improvements to the north of the project site (Aldi Foods) constructed a portion of the ultimate storm drain in Redlands Boulevard. This is a 60"-72" storm drain (plans prepared by Huitt-Zollars) that connects to an existing 51" storm drain in Redlands Boulevard approximately 200' north of Eucalyptus Avenue and continues approximately 350' south of Eucalyptus Avenue to where it daylights into an existing unimproved earthen channel. This storm drain and channel is located at the easterly portion of the project site.

Runoff continues southerly in the unimproved earthen channel to an existing headwall located northerly of Dracaea Avenue. This is the upstream portion of Riverside County Flood Control and Water Conservation District storm drain Line "F-2". This is an existing 42" storm drain system that does not appear to be adequately sized for the peak flow rates specified in the recently constructed upstream storm drain system. The existing storm drain continues southerly past Brodiaea Avenue and discharges into an existing earthen channel (Line "F").

The Master Drainage Plan indicates a storm drain system in Eucalyptus Avenue (Lateral F-16). The necessary portions of this storm drain system was constructed with the Aldi Foods development to the north. In a memo dated December 23, 2020, Riverside County Flood Control and Water Conservation District (R.C.F.C.&W.C.D.) acknowledges that the "existing facility is functionally equivalent to Line F-16, and the remaining unconstructed portion is not necessary to provide flood protection." See Appendix "A" for a copy of this memo.

The Master Drainage Plan also indicates a storm drain system in Encelia Avenue (Lateral F-17) ranging from 42" to 60". The development of the project site will utilize a detention basin and onsite storm drain systems that will greatly reduce flow to Encelia Avenue such that only a shorter and smaller storm drain will be necessary in the street. In the same memo, R.C.F.C.&W.C.D. states "Since these facilities together collect and convey the

same area that was tabled to Line F-17, it is our opinion that the existing facility is functionally equivalent to Line F-17".

See Appendix "A" for reference existing storm drain plans and a portion of the Master Drainage Plan.

Existing Condition

The project site is generally a vacant lot with natural grasses and weeds. The southeasterly portion of the site is an existing plant nursery. The nursery has a few small structures and appears unpaved. The westerly portion of the property is an unimproved drainage channel (Quincy Wash) and is not tributary to the project site.

Runoff from the site generally drains from north to south to Encelia Avenue at several locations (nodes 103, 105, 106, and 107 on existing condition hydrology map). Encelia Avenue drains from west to east to Redlands Boulevard ultimately to the existing channel adjacent to Redlands Boulevard.

Runoff from Redlands Boulevard flows southerly towards the intersection with Encilia Avenue and node 107. The 100-year Rational Method peak flow rate from the project site and adjacent streets approximately 108.4 cfs.

Runoff in Eucalyptus flows west to east and is intercepted by several riser inlet structures (nodes 112, 121, and 131). The respective 100-year Rational Method flow rates to each risers are approximately 4.2 cfs, 1.6 cfs, and 0.90 cfs.

See Appendix "B" for existing condition Rational Method calculations and Appendix "D" for existing condition hydrology map.

Existing condition hydrographs were established for various storm events. These peak flow rates and volumes are summarized below in the Detention discussion.

Proposed Condition Hydrology

Runoff from the northerly portion of the building, northerly truckyard and easterly parking lots (Nodes 100-115) will be captured in a proposed onsite storm drain system and conveyed southerly to an underground CMP detention system. Runoff from the southerly and westerly portions of the site (Nodes 200-219) will be conveyed to the southerly truck yard and confluenced with the runoff from the north.

Runoff from the detention basin in the southeasterly corner of the site (Node 220) will be confluenced in the proposed system and conveyed easterly. The 100-year peak flow rate from the project site is approximately 154.7 cfs.

Discharge from the basin will be conveyed easterly through the project site in a proposed storm drain and connect to the proposed extension of the public storm drain system in Redlands Boulevard. This will eliminate runoff to Encelia Avenue as well as the need for Master Drainage Plan Lateral "F-17", as previously mentioned in R.C.F.C.&W.C.D. memo dated December 23, 2020. The proposed public storm drain will be sized to include the ultimate peak flow rates upstream as well as the discharge from the detention basin. Final design will dictate exact pipe sizes. The public storm drain will continue south in place of the open earth channel to the existing 42" storm drain near Dracaea Avenue. The existing headwall will be removed and the proposed drain will connect to the existing system.

The existing 42" downstream storm drain system does not have the same capacity as the proposed 78" storm drain system. To avoid overburdening the existing 42" storm drain, a relief system will be designed to ensure that flow not allowed into the existing facility can discharge to the street. This will emulate existing conditions where runoff that is not currently allowed into the storm drain (via existing headwall adjacent to the Redlands Avenue) can then drain to the street. Regardless of how the storm drain systems connect, runoff exceeding the capacity of the 42" storm drain system remains on westerly surface of Redlands Avenue. The final design shall be to the satisfaction of the City Manager or City Engineer.

The landscaped areas adjacent to Encelia Avenue will sheet flow to the street and join the street runoff flowing easterly towards the intersection with Redlands Boulevard (nodes 600-604). The runoff will be intercepted by a catch basin in Encilia Avenue and will enter the proposed public storm drain in Redlands Boulevard. The 100-year Rational Method peak runoff from these areas is approximately 7.1 cfs. With the proposed onsite improvements, this is the only drainage system required in Encilia Avenue.

The landscaped frontage along Eucalyptus Avenue will also drain to the street. Catch Basins at nodes 502 and 511 will intercept street and landscape runoff and convey it to the existing 54" storm drain in Eucalyptus Avenue. The 100-year Rational Method peak runoff to these nodes will be approximately 4.4 cfs and 2.8 cfs respectively.

Runoff from Redlands Boulevard and the adjacent project frontage will flow southerly within Redlands Boulevard to a catch basin near the intersection with Encilia Avenue (nodes 520-522). The 100-year Rational Method peak runoff to node 522 will be approximately 4.9 cfs.

Approximately 2.50 acres of area adjacent to the Quincy Wash at the westerly portion of the site will remain undisturbed. The landscaped frontage along Redlands Boulevard will produce a similar amount of runoff as the existing condition and will drain directly to the street.

See Appendix "B" for proposed condition hydrology calculations and Appendix "D" for proposed condition hydrology map.

Detention

Since downstream facilities do not appear to have capacity for the increase in peak flow and volume from the proposed commercial project, detention will be required to limit runoff to no more than that under existing conditions. Detention analysis is considered for the 2-, 5-, 10- and 100-year storm events. Riverside County allows "preliminary sizing of increased runoff basin may be based on the difference in volume between the developed condition and the pre-developed condition for the 24-hour duration event for the 10-year return frequency."

1-, 3-, 6-, and 24-hour hydrographs were established for all areas tributary to the detention basin for the 2-, 5-, 10- and 100-year events for both existing (undeveloped) and proposed conditions. For existing conditions, the land use is considered "open brush, poor cover". Proposed conditions assume all commercial development. Rainfall values are taken from the Riverside County Hydrology Manual. For the 2- and 5-year events, the loss rate is determined using an AMC I condition. For the 10-year event, AMC II was used and for the 100-year event AMC III was used.

Note that not all area of the project site drains to the detention basin, thus the areas used for the detention analysis are slightly smaller than the total project site. Areas not tributary to the detention basin are the areas to the west and south of the site. It is assumed that the landscaped areas produce about the same runoff rates and volumes as the undeveloped site.

The following table summarizes existing and proposed condition peak flow rates and volumes associated with the area to the detention basin. From the table, the largest difference in volume is approximately 12.25 acre-feet (10-year 24-hour event). The largest difference in peak flow rate is about 46.3 cfs (5-year 1-hour event). For preliminary sizing, the detention basin will be sized to detain the largest difference in volume. The preliminary underground CMP system will be sized to match this volume. The southeasterly basin meets the surface area and volume requirements necessary for water quality purposes per separate Water Quality Management Plan.

Final design will dictate the outlet features that will limit runoff from all of the above events to less than existing conditions. The landscaped areas tributary to the street would yield peak flow rates similar to existing condition and are not included in the hydrographs.

See Appendix "C" for existing and proposed condition hydrographs.

The following table summarizes existing and proposed condition hydrographs:

BASIN SUMMARY TABLE

Return Event (year)	Storm Duration (hour)	Existing Total Flow (cfs)	Existing Total Volume (ac-ft)	Proposed Total Flow (cfs)	Proposed Total Volume (ac-ft)	Peak Flow Difference (cfs)	Volume Difference (ac-ft)
100	1	131.5	5.89	177.0	6.38	45.5	0.49

100	3	88.3	7.96	103.5	9.62	15.2	1.66
100	6	77.8	9.16	89.8	12.81	12.0	3.65
100	24	31.9	12.27	37.9	22.68	6.0	10.41
10	1	73.5	2.78	113.0	4.06	39.5	1.28
10	3	45.5	2.67	65.2	6.24	19.7	3.57
10	6	40.1	2.93	57.8	8.59	17.7	5.66
10	24	8.8	2.25	23.8	14.50	15.0	12.25
5	1	47.0	1.38	93.3	3.38	46.3	2.00
5	3	23.8	1.20	54.5	5.27	30.7	4.07
5	6	19.9	1.31	49.5	7.38	29.6	6.07
5	24	2.2	1.34	19.7	12.05	17.5	10.71
2	1	29.8	0.87	69.2	2.53	39.4	1.66
2	3	12.1	0.67	41.6	4.02	29.5	3.35
2	6	10.1	0.80	38.8	5.79	28.7	4.99
2	24	1.6	0.98	14.4	8.81	12.8	7.83

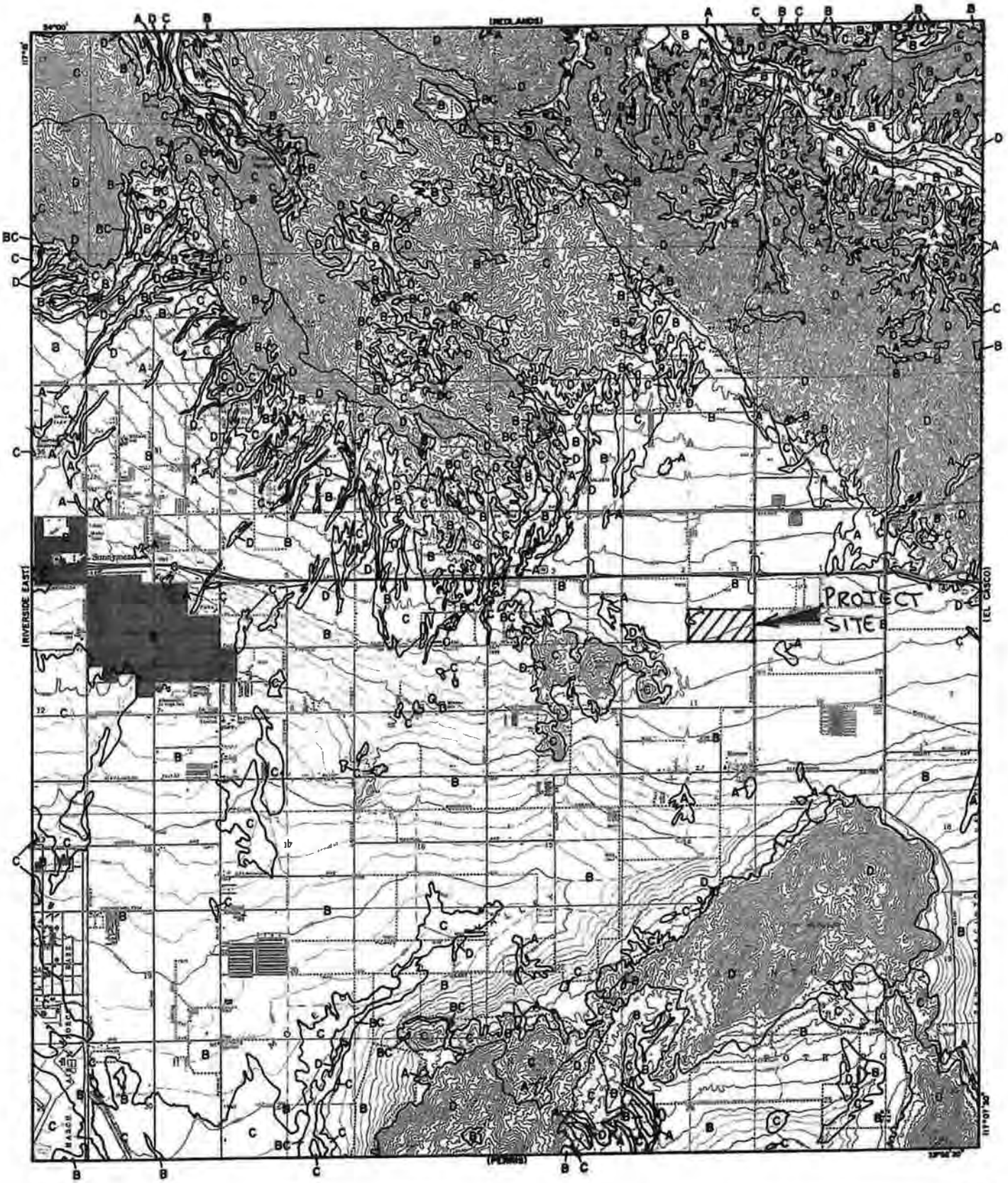
Methodology

Hydrology calculations were computed using Riverside County Rational Method program (by AES software). Hydrograph were computed using CIVILD software. The soil type is "B" per Riverside County Hydrology Manual. See Appendix "A" for reference material from the Riverside County Hydrology Manual.

APPENDIX	TITLE
A	REFERENCE MATERIALS
B	HYDROLOGY CALCULATIONS
C	DETENTION CALCULATIONS
D	HYDROLOGY MAP

APPENDIX A

REFERENCE MATERIAL



LEGEND

SOILS GROUP BOUNDARY

A SOILS GROUP DESIGNATION

RCFC & WCD

HYDROLOGY MANUAL

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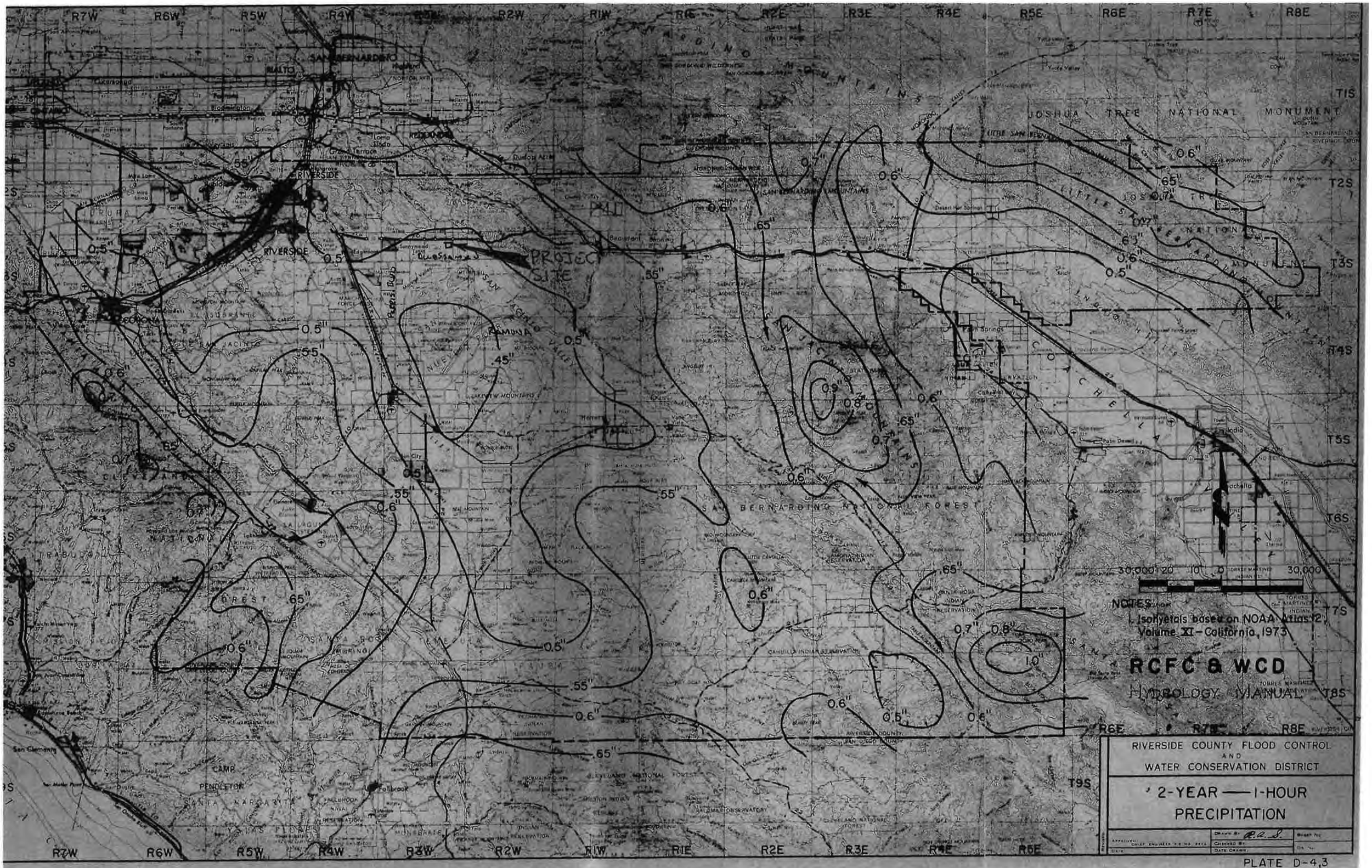
HYDROLOGIC SOILS GROUP MAP FOR SUNNYMEAD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SAN BERNARDINO MOUNTAINS
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SAN BERNARDINO NATIONAL FOREST
CLEVELAND NATIONAL FOREST
SANTA ROSA MOUNTAINS
SAN JACINTO MOUNTAINS
PALM SPRINGS
RIVERSIDE
PROJECT SITE
SAN JACINTO VALLEY
PERRIS VALLEY
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SAN GORGONIO WILDERNESS
CAHUILLA INDIAN RESERVATION
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NOTES
1. Isohyetals based on NOAA Atlas 2, Volume XI - California, 1973
RCFC & WCD
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2-YEAR — 1-HOUR PRECIPITATION
Drawn By R.A.S.
Checked By
Date Drawn
Approved: Chief Engineer R.C.F.C. & W.C.D.
Date
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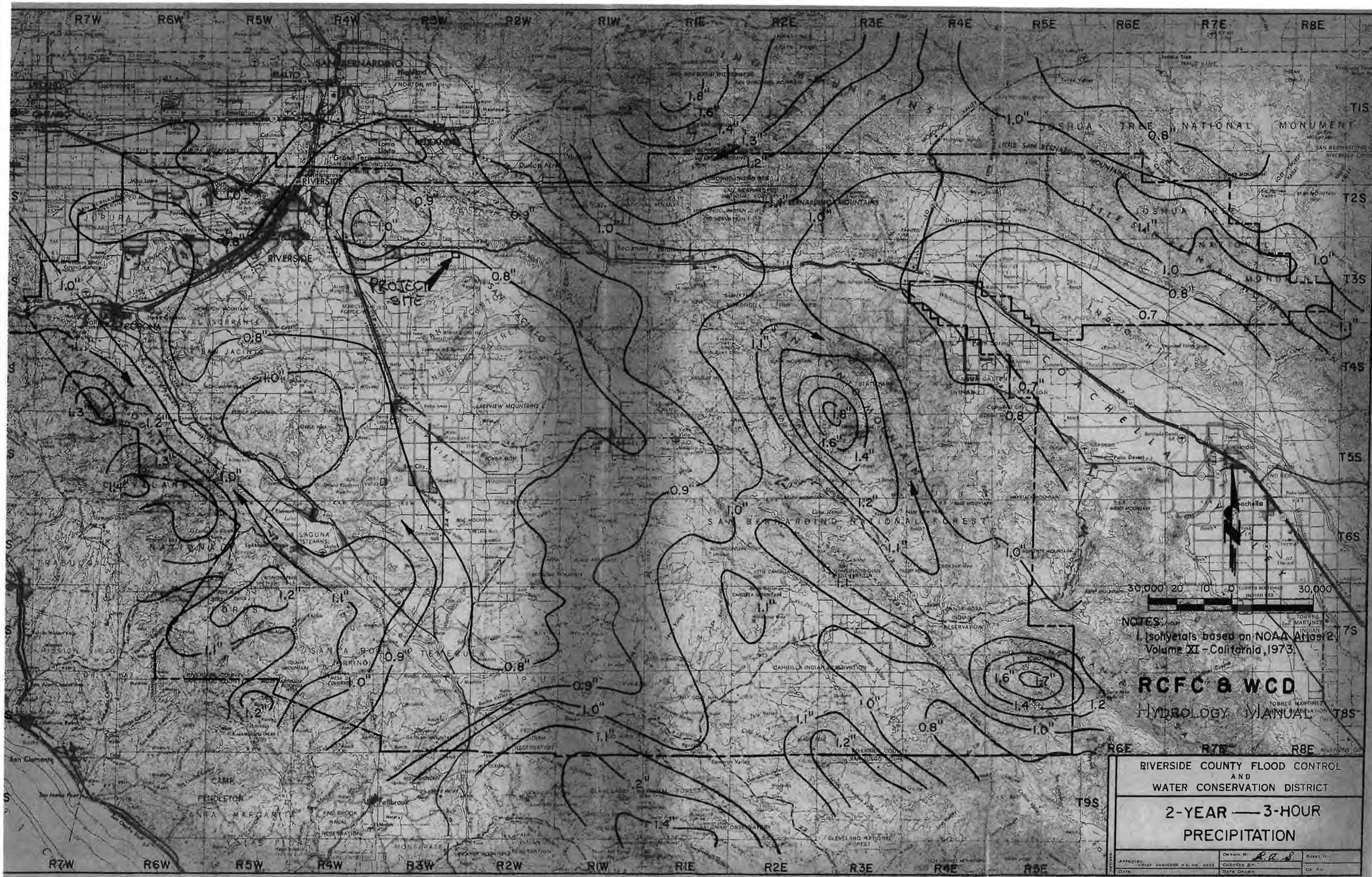
Dr. No.

PLATE D-4,3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Sun City
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Pauma Valley
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San Clemente
Camp Pendleton
Fallbrook
Oceanside
Vista
Carlsbad
Encinitas
Solana Beach
Del Mar
Rancho Santa Fe
Poway
Ramona
Julian
Santa Ysabel
Warner Springs
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Aguanga
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Escondido
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Lake Henshaw
Borrego Springs
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Morongo Indian Reservation
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Temecula Creek
Santa Margarita River
San Luis Rey River
Aqua Caliente Creek
Coyote Creek
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1. Isohyetals based on NOAA Atlas 2, Volume XI - California, 1973.
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2-YEAR — 3-HOUR PRECIPITATION
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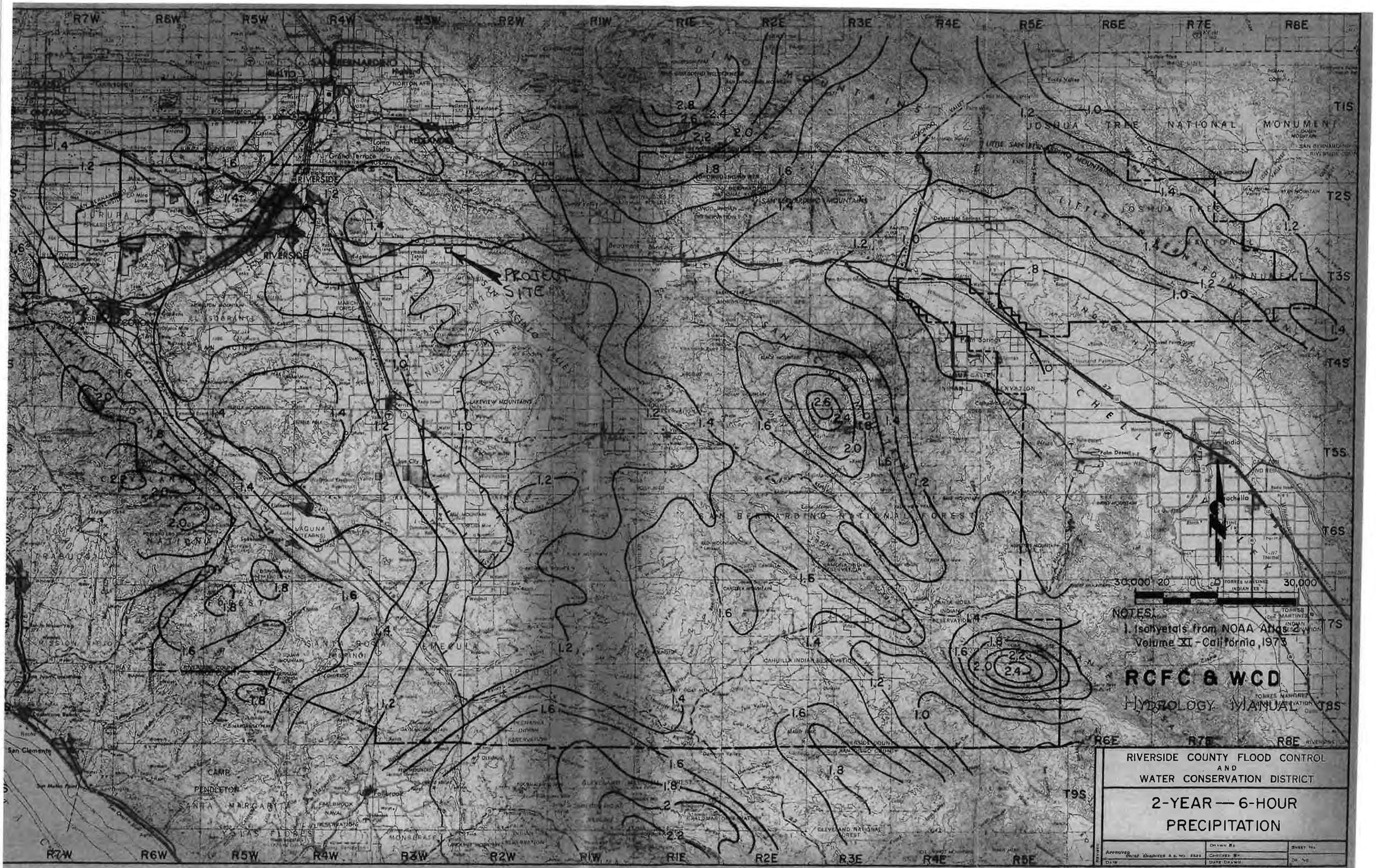
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1. Isohyetals from NOAA Atlas 2 Volume XI - California, 1973
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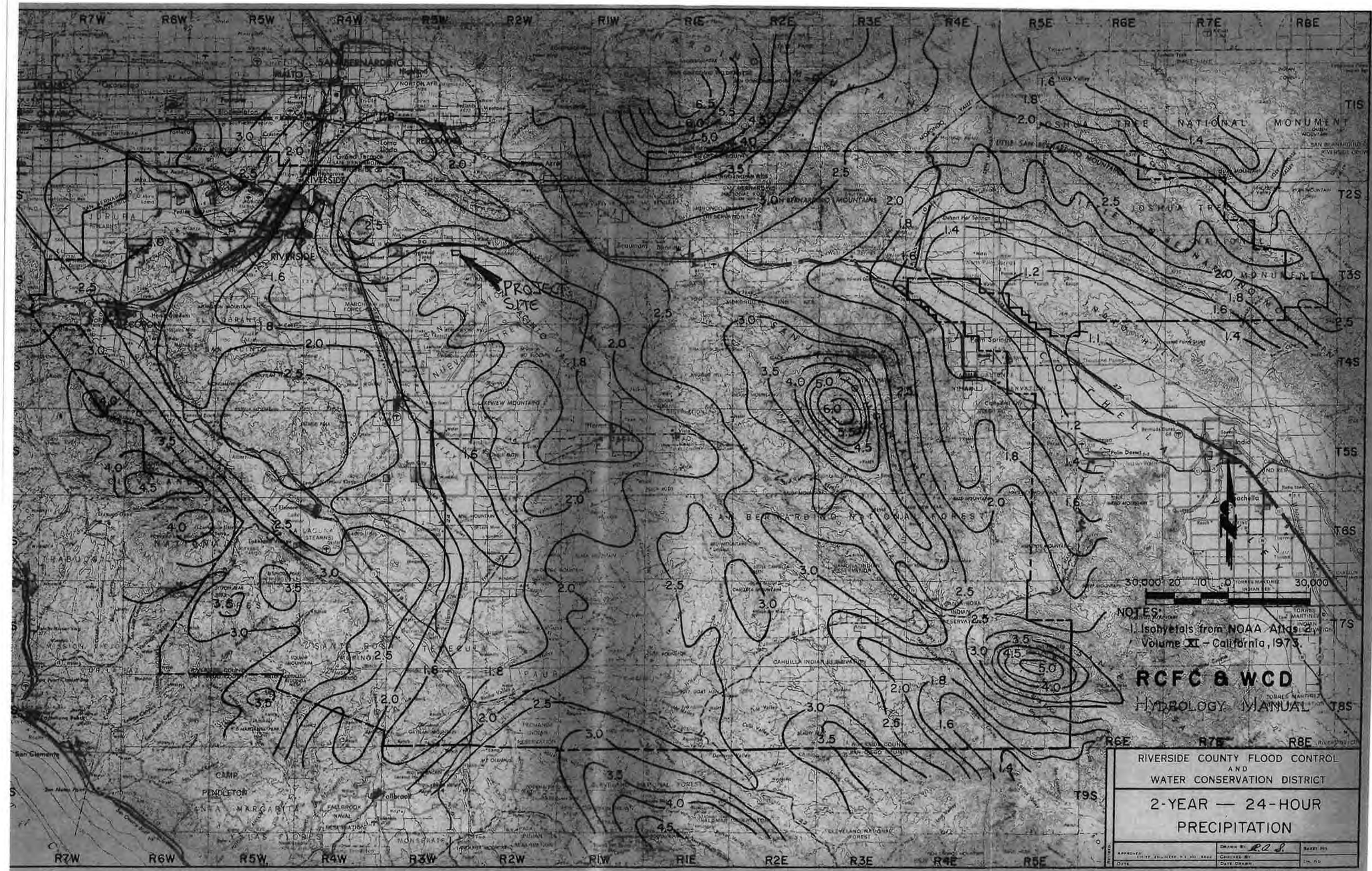
Sheet No.
Dr. No.

PLATE E-5.3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1. Isohyetals from NOAA Atlas 2, Volume XI - California, 1973.
RCFC & WCD
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2-YEAR — 24-HOUR PRECIPITATION
DRAWN BY: R.A.S.
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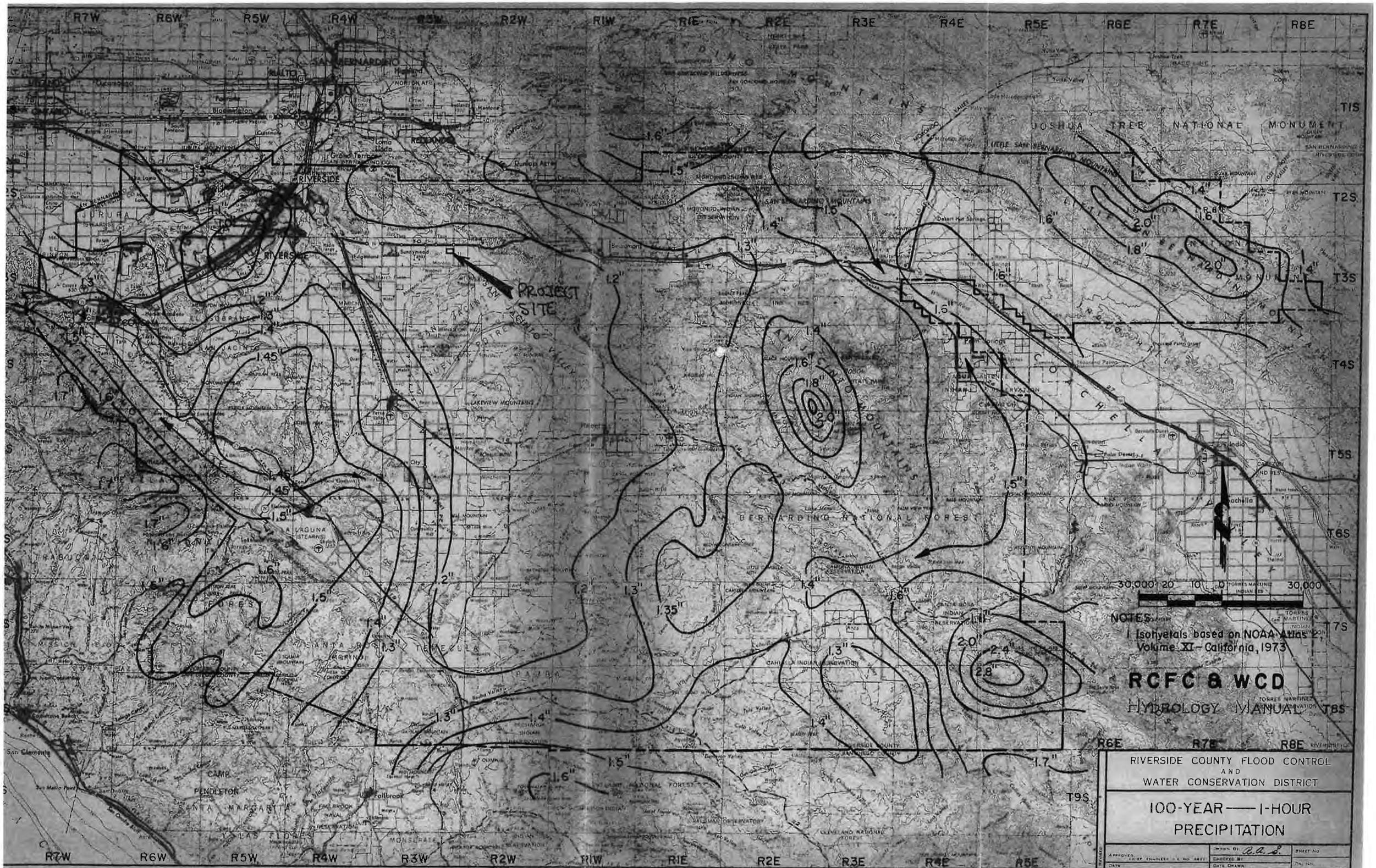
PLATE E-5.5



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

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HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

100-YEAR — 1-HOUR PRECIPITATION

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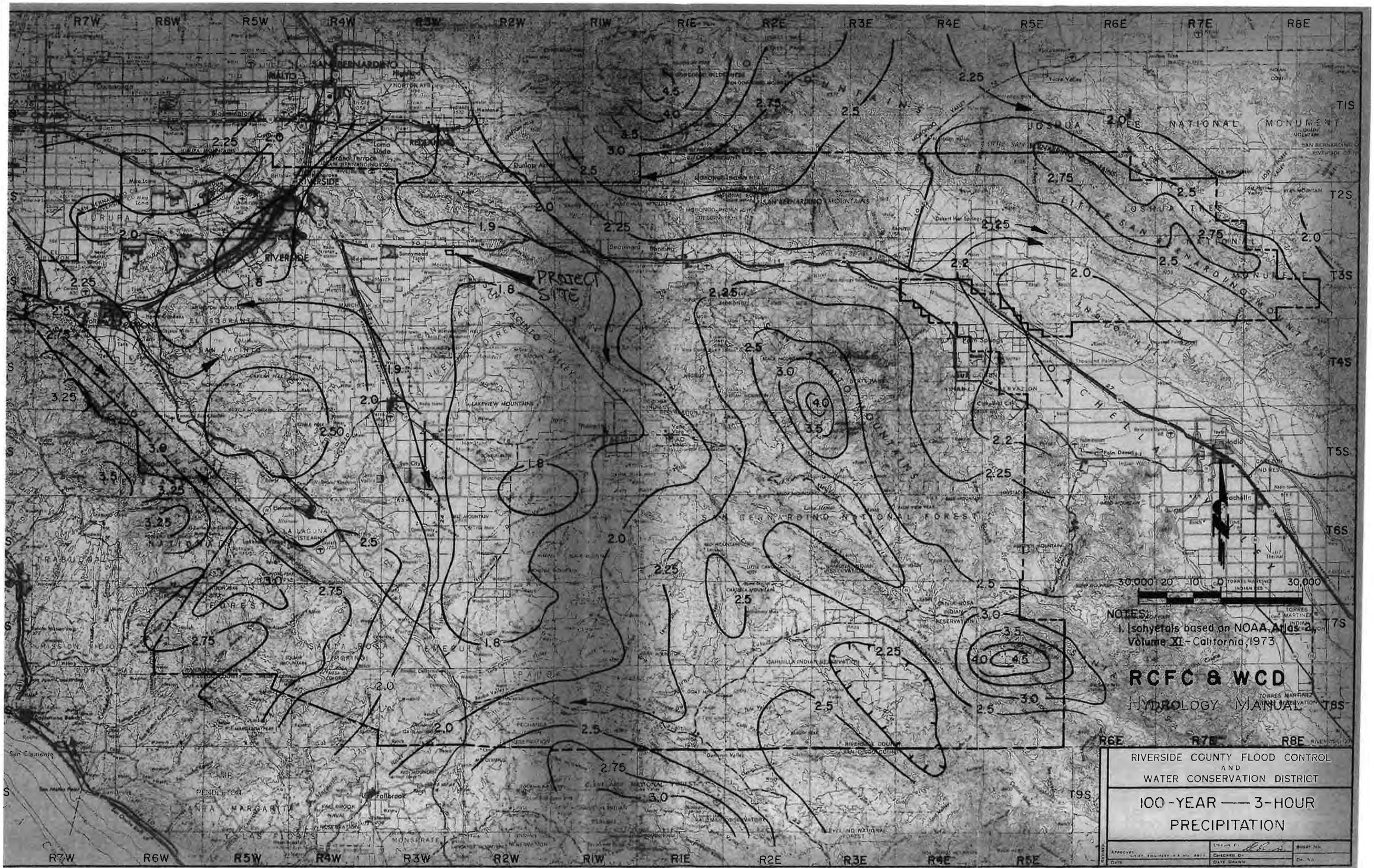


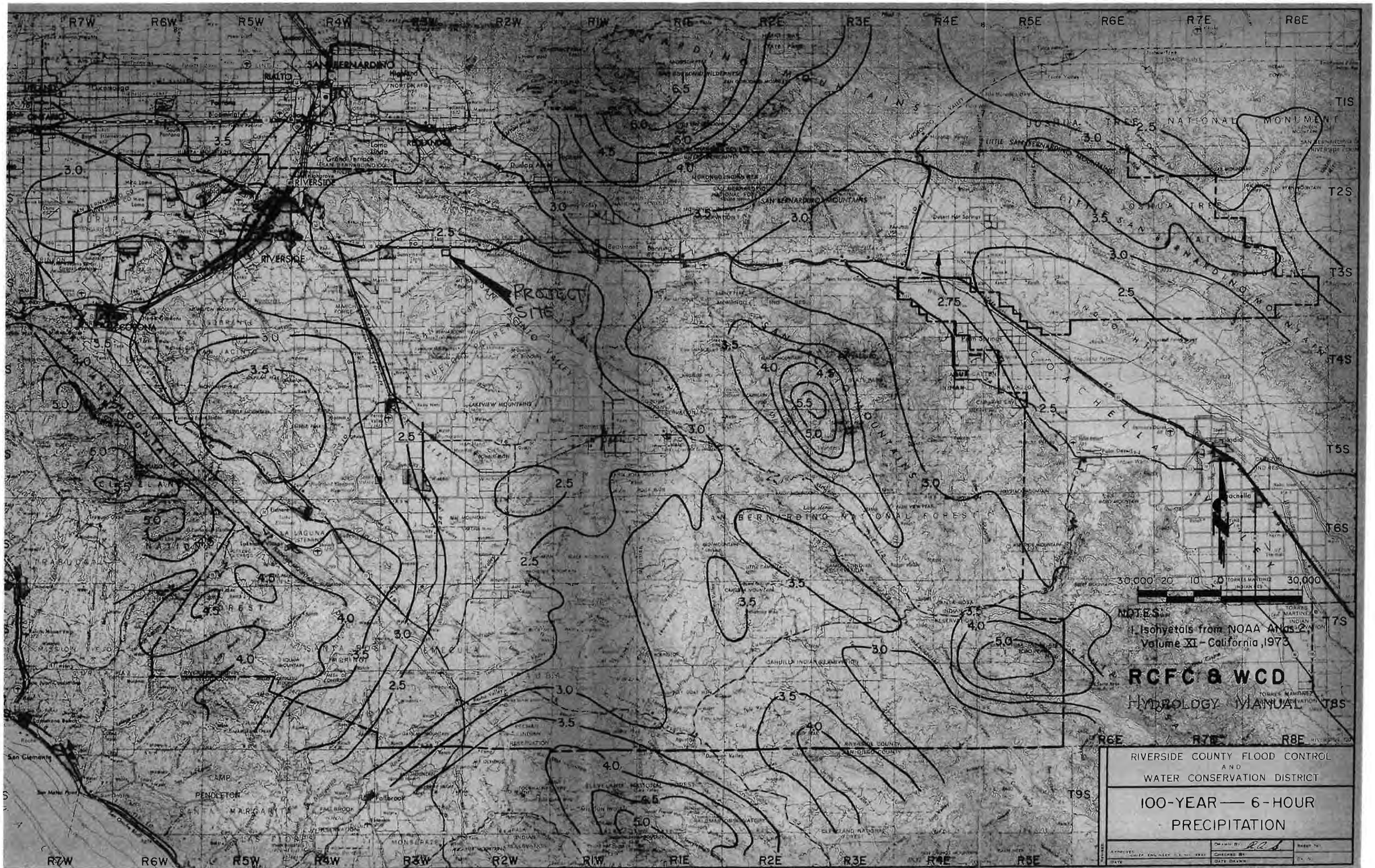
RCFC & WCD

HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

100-YEAR — 3-HOUR PRECIPITATION

PLATE E-5.2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100-YEAR — 6-HOUR
PRECIPITATION
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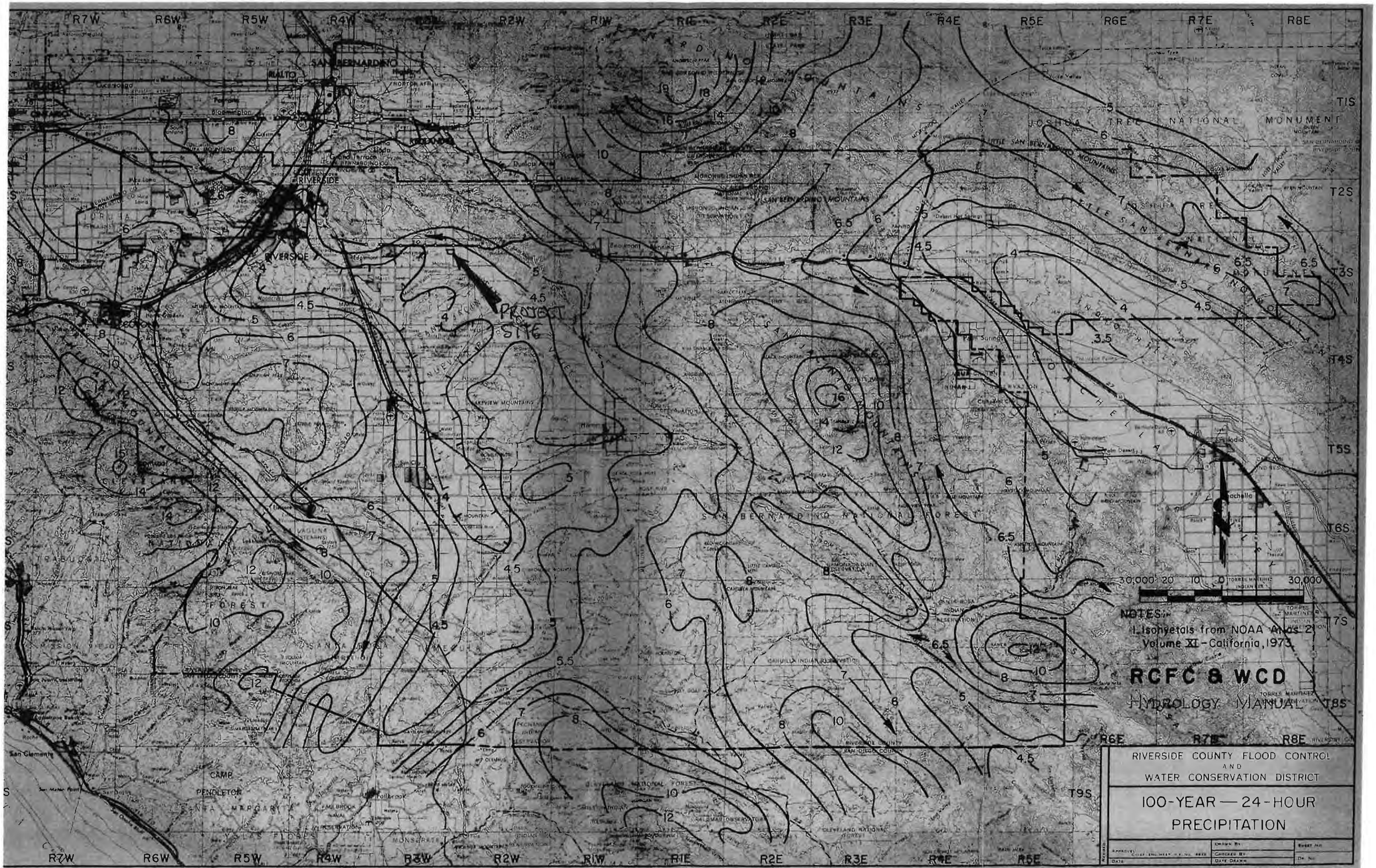
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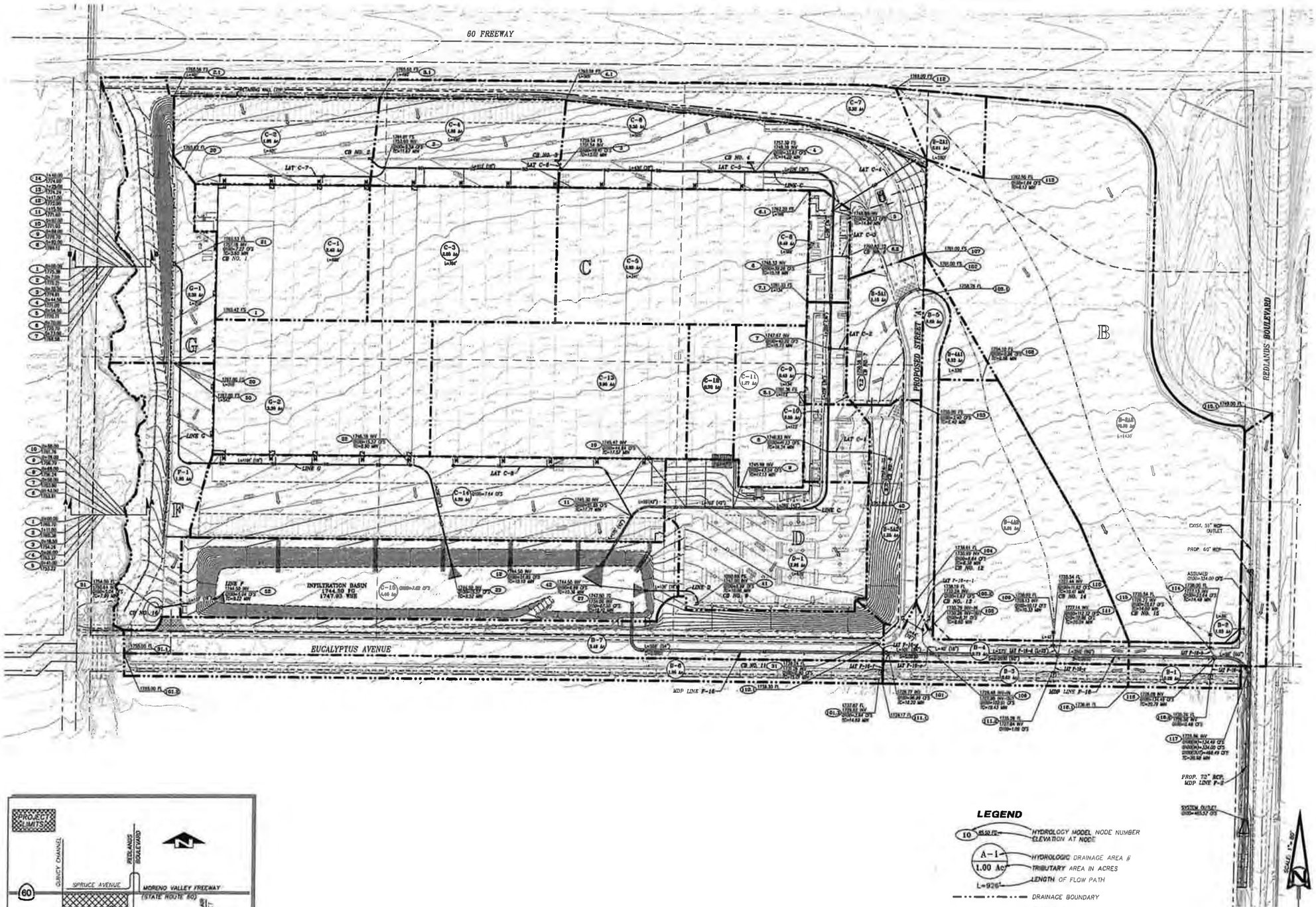
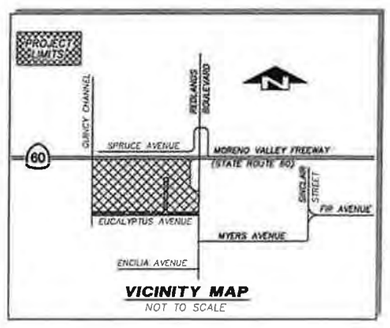
T8S
T9S
SAN BERNARDINO
RIVERSIDE
RIALTO
PROJECT SITE
JOSHUA TREE NATIONAL MONUMENT
SAN BERNARDINO MOUNTAINS
SAN JACINTO MOUNTAINS
SAN BERNARDINO NATIONAL FOREST
CLEVELAND NATIONAL FOREST
SANTA ANA MOUNTAINS
SANTA MARGARITA MOUNTAINS
PENDLETON
CAMP
Fallbrook
San Clemente
Palm Springs
Indio
Mecca
Coachella
30,000 20 10 0 30,000
NOTES:
1. Isohyetals from NOAA Atlas 2, Volume XI - California, 1973.
RCFC & WCD
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
100-YEAR — 24-HOUR PRECIPITATION

PLATE E-5.6



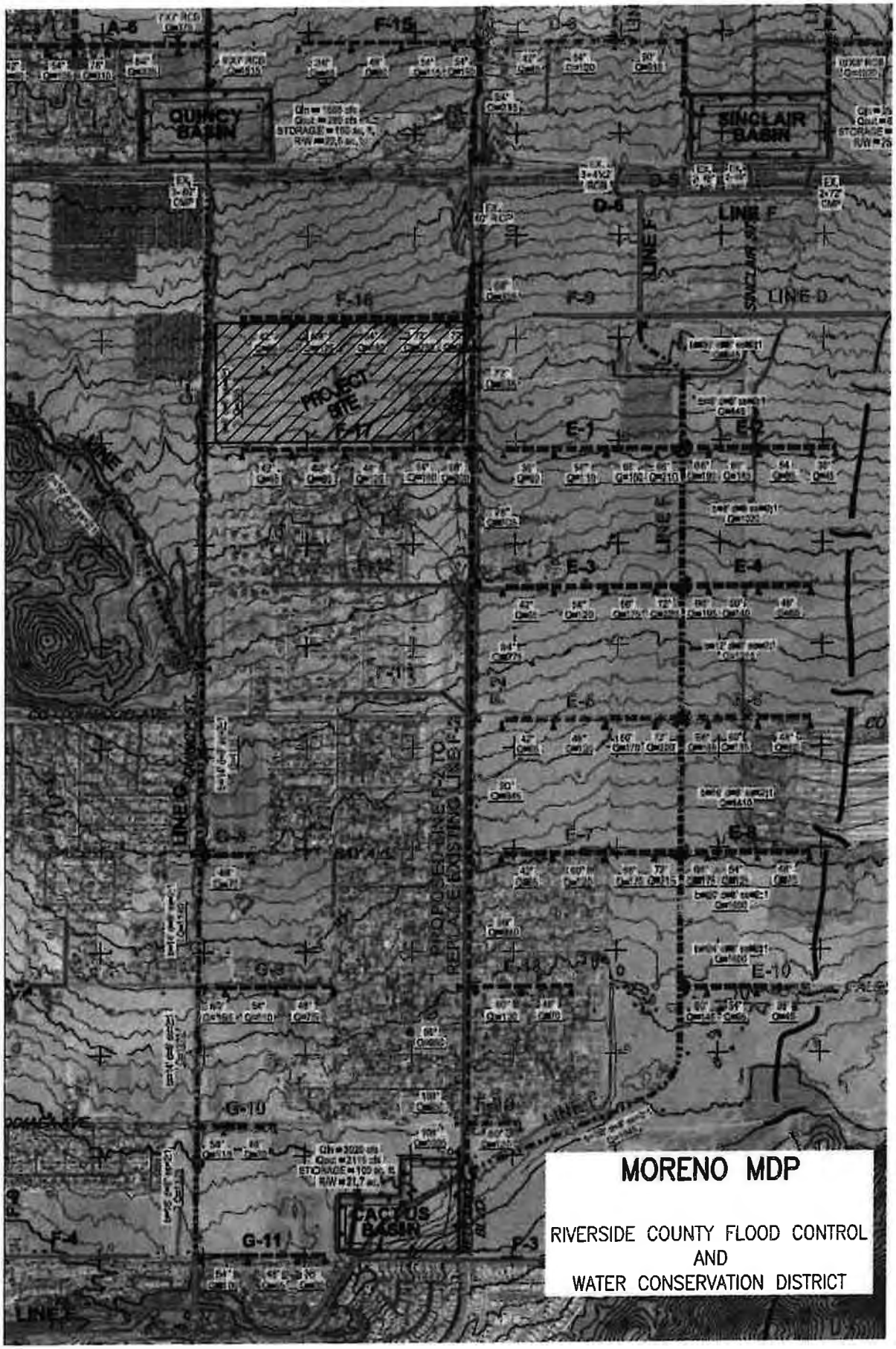


VICINITY MAP
NOT TO SCALE

HYDROLOGY MAP
FOR
AJM INDUSTRIAL WAREHOUSE
REDLANDS BOULEVARD & EUCALYPTUS AVENUE
CITY OF MORENO VALLEY

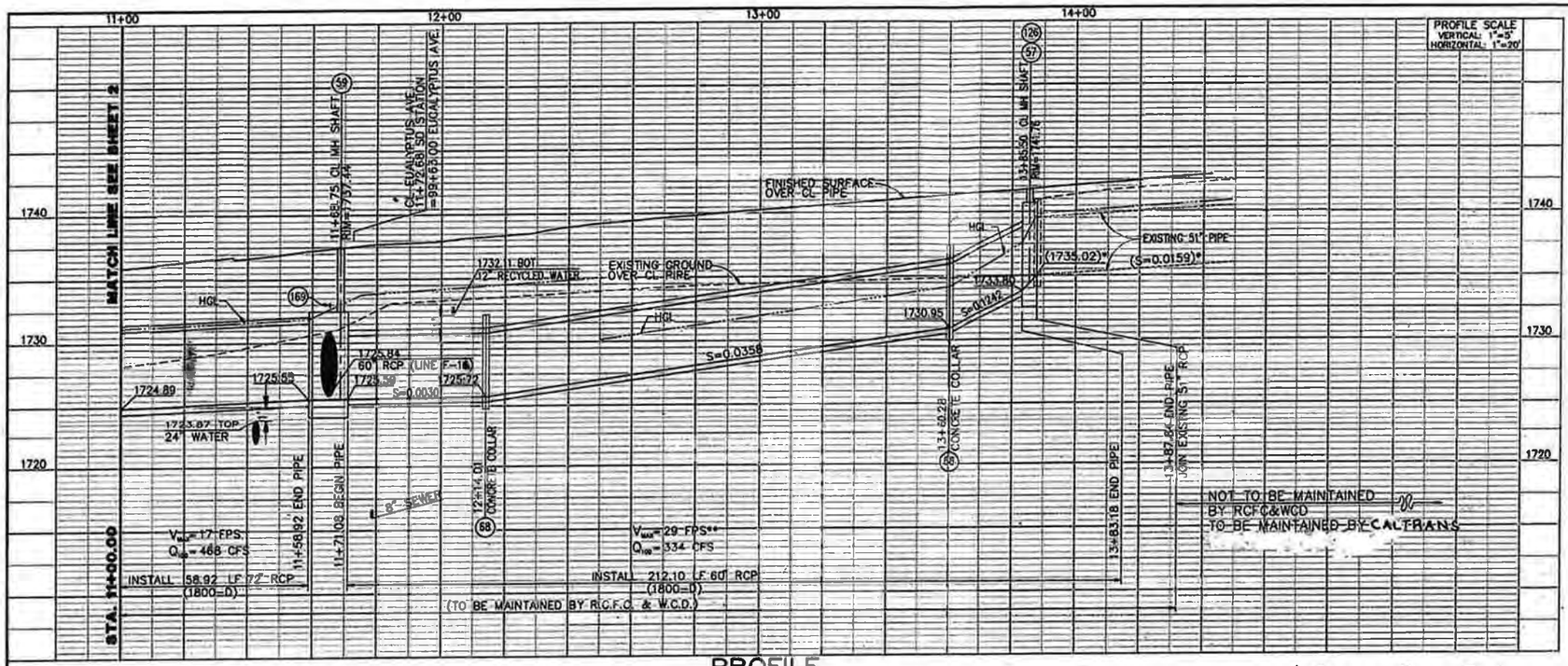
HUITT-ZOLLARS
Huitt-Zollars, Inc. Ontario

DESIGNED BY	M.H.M.
DRAWN BY	H-Z STAFF
CHECKED BY	M.H.M.
APPROVED BY	MAURICE H. MURAD
P.E.	33386
DATE	6-30-14
SHEET	1 OF 1 SHEETS

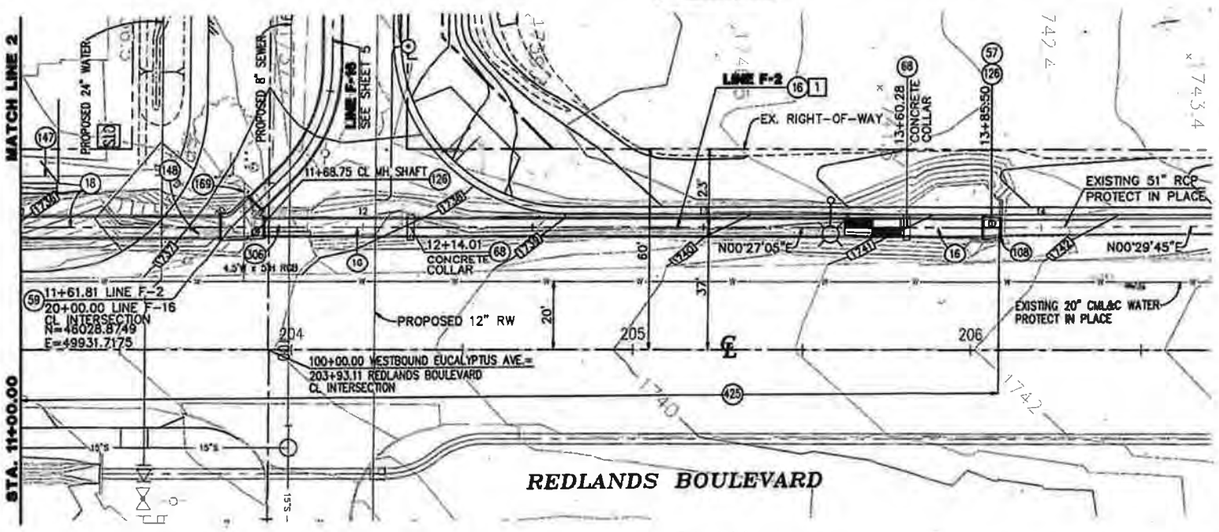


MORENO MDP

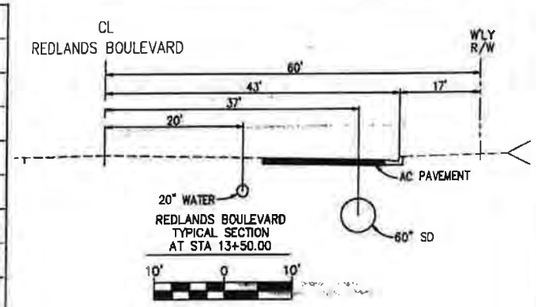
RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT



PROFILE



PLAN



NOTE:
THE CONCRETE COATING ON THE INSIDE OF ALL REINFORCED CONCRETE PIPES MUST BE INCREASED TO PROVIDE A MINIMUM OF 1-1/2 INCHES OVER THE REINFORCING AND INCREASED TO A MINIMUM OF 3-1/2 INCHES **OVER** REINFORCING FOR BOX CULVERT, WHEN DESIGN VELOCITIES EXCEED 20 FEET PER SECOND. THE CONCRETE DESIGN STRENGTH IN THESE REACHES SHALL BE F'C=5,000 PSI FOR VELOCITIES EXCEEDING 20 FEET PER SECOND AND F'C=6,000 PSI FOR VELOCITIES EXCEEDING 30 FEET PER SECOND.

NOTE:
CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES CROSSING OR PARALLELING THE STORM DRAIN UNLESS OTHERWISE NOTED

CONSTRUCTION NOTES

(16) INSTALL 60" RCP (D-LOAD AND PROFILE AS SHOWN ON PLANS)
(18) INSTALL 72" RCP (D-LOAD AND PROFILE AS SHOWN ON PLANS)
(57) CONSTRUCT MANHOLE No.2 PER R.C.F.C. & WCD STD. PLAN MH252
(59) CONSTRUCT MANHOLE No.4 PER R.C.F.C. & WCD STD. PLAN MH254
(68) CONSTRUCT CONCRETE COLLAR FOR RCP PER R.C.F.C. & WCD STD. PLAN M803
(108) REMOVE EXISTING HEADWALL STRUCTURE
(126) ADJUST MANHOLE RIM TO GRADE AFTER FINAL SURFACE HAS BEEN INSTALLED
(147) PROTECT OR RELOCATE EXISTING IRRIGATION PIPE AS NECESSARY TO CONSTRUCT STORM DRAIN
(148) PLUG EXISTING UTILITY AT LOCATION SHOWN (COORDINATE WITH OWNER OF UTILITY)
(169) LOWER OR RAISE EXISTING WATER LINE TO EMWD STANDARD SPECIFICATION TO CLEAR PROPOSED STORM DRAIN PIPING
(306) REMOVE EXISTING CULVERT
(425) REMOVE ANY EXISTING DEBRIS OR CONCRETE PIPE FROM EXISTING CHANNEL

MANHOLE DATA TABLE

S.D. MAINLINE STA.	STRUCTURE TYPE	LINE	ANGLE "A"	B	C	D1	D2	EL. S	EL. R
11+61.8	MH NO. 4	F-16	45°00'00"	60"	5.5'	66"	72"	1725.84	1725.86

COURSE DATA

	BEARING	DISTANCE
1	N00°27'05"E	553.17'

20 0 20

* NOTE:
HORIZONTAL AND VERTICAL LOCATIONS TO BE VERIFIED IN THE FIELD AND ENGINEER NOTIFIED OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

PA06-0097 (PLOT PLAN)
P13-111 (AMENDED PLOT PLAN)
PA06-0022 (TENTATIVE PARCEL MAP)

CITY OF MORENO VALLEY APPROVALS
PA06-0022 CITY ID# 4896
RECOMMENDED BY: Hoovnazo Ceron 3/5/14 DATE
for PREM KUMAR
DEPT. PUBLIC WORKS DIR./ASST. CITY ENGINEER
R.C.E. NO. C52483
APPROVED BY: 3/10/14 DATE
ARNAB R. ANSARI
PUBLIC WORKS DIRECTOR/CITY ENGINEER
R.C.E. NO. C51516

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services.

BASIS OF BEARINGS:
BEARINGS SHOWN HEREON ARE BASED ON THE BEARING BETWEEN THE CALIFORNIA SPATIAL REFERENCE CENTER (CSRC) CONTINUOUS OPERATING REFERENCE STATIONS (CORS) PPRP AND MLPP BEING NORTH 53°20'11"EAST WEST PER RECORDS ON FILE WITH THE CSRC.

BENCH MARK: IVF55 ELEVATION 1785.67
LOCATION
BRASS DISK IN TOP OF HEADWALL, NORTHWEST CORNER REDLANDS BOULEVARD AND SPRUCE AVENUE. (NGVD29 DATUM)

REVISIONS	ENGINEER	RCFC/
REF. DESCRIPTION	APPR. DATE	APPR. DATE

DESIGNED BY: M.H.M.
DRAWN BY: H-Z STAFF
DATE DRAWN: 03-2013
CHECKED BY: M.H.M.

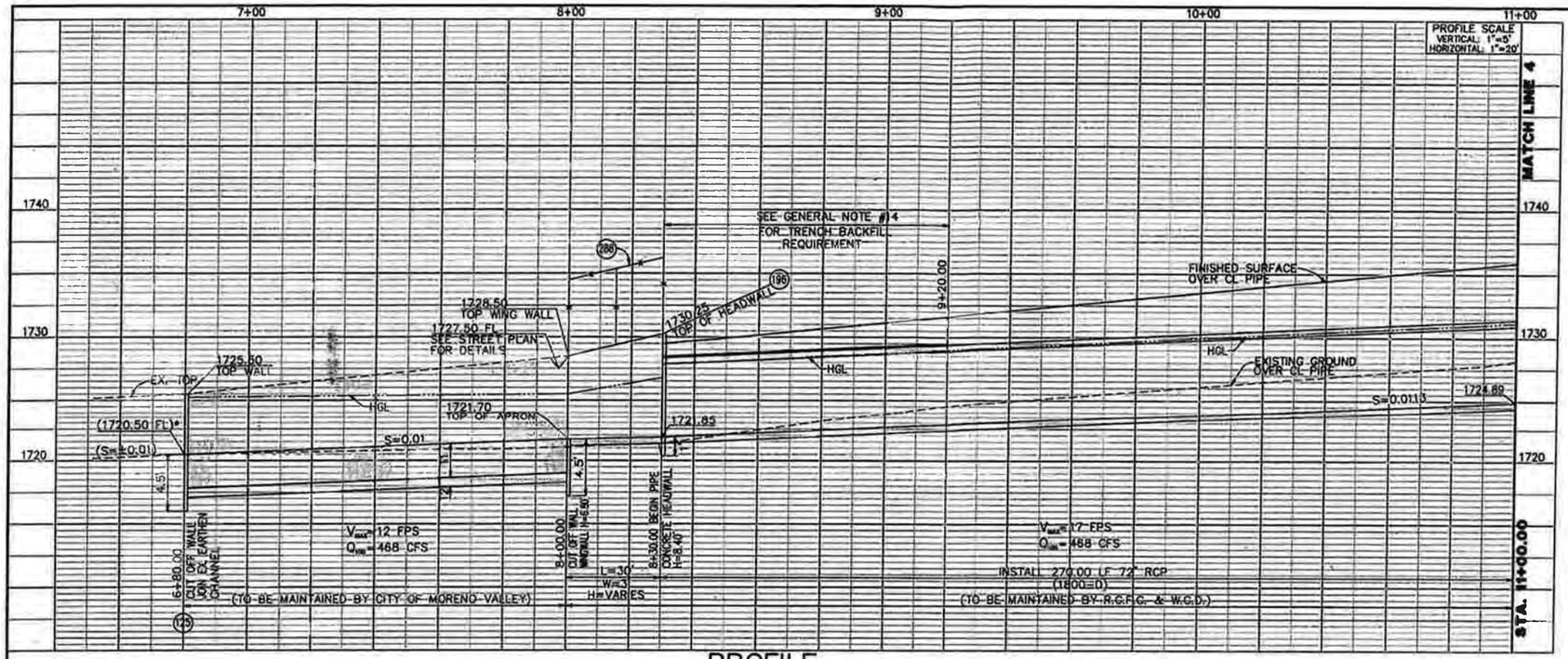
REGISTERED PROFESSIONAL ENGINEER NO. 33366 EXPIRATION 6-30-2014 STATE OF CALIFORNIA CIVIL

HUITT-ZOLLARS
Huitt-Zollars, Inc. Ontario
3990 CONCOURS, SUITE 330 • ONTARIO, CALIFORNIA 91764 • (909) 941-7700
PREPARED UNDER THE SUPERVISION OF: MAURICE H. MURAD
R.C.E. 33366 EXPIRES 6-30-14 DATE 3/10/14

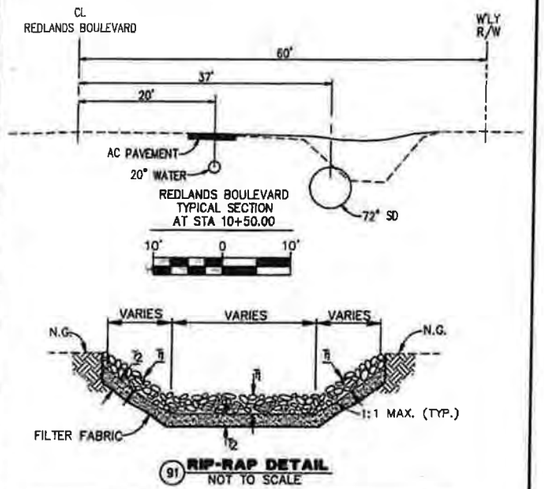
RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: DATE: 3/7/14
APPROVED BY: DATE: 5/8/2014

MORENO MDP LINE F-2
11+00.00 TO 13+87.83

PROJECT NO. 4-0-00400
DRAWING NO. 4-1068
SHEET NO. 4 OF 11



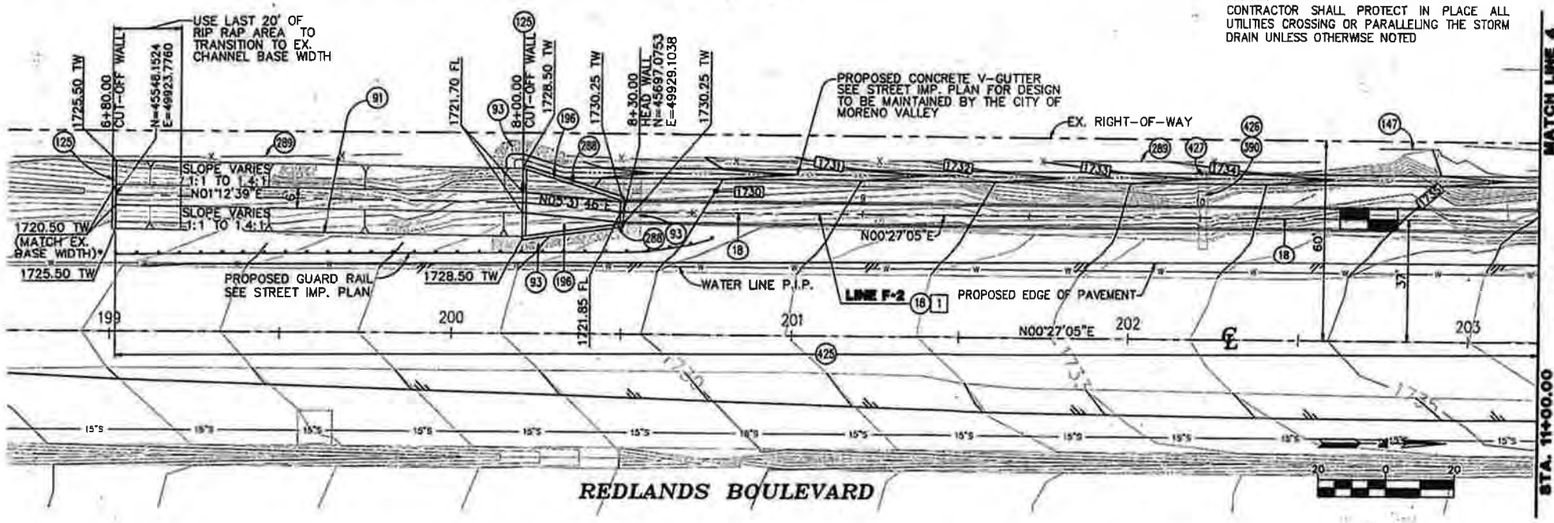
PROFILE



(91) **RIP-RAP DETAIL**
NOT TO SCALE

RIP-RAP DATA				
LOCATION	V_{AVG} (FPS)	T_1 (FT)	T_2 (FT)	CUTOFF WALL
LINE F-2 OUTLET	10-12	32" 1/4 TON	9" NO. 2 BACKING	54"

NOTES:
1. USE CALTRANS SPECIFICATIONS, SECTION 72-2.02 FOR ROCK SIZE BY RSP-CLASS AND MATERIAL PROPERTIES.
2. USE MIRAFI 1100N OR APPROVED EQUAL PER CALTRANS SECTION 88-1.04.
3. PLACEMENT METHOD TYPE B PER CALTRANS SPECIFICATIONS.
4. RIP-RAP LAYERING PER CALTRANS HIGHWAY DESIGN MANUAL TABLE 873.3 B.



PLAN

NOTE:
CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES CROSSING OR PARALLELING THE STORM DRAIN UNLESS OTHERWISE NOTED

CONSTRUCTION NOTES

(18) INSTALL 72" RCP (D-LOAD AND PROFILE AS SHOWN ON PLANS)
(91) INSTALL GROUTED RIP-RAP PER CALTRANS SPECIFICATIONS AND RIP-RAP DATA TABLE ON THIS SHEET
(93) INSTALL GROUTED RIP RAP PER DETAIL ON SHEET 6 TO BE MAINTAINED BY CITY OF MORENO VALLEY
(125) CONSTRUCT RIP RAP PCC CUT-OFF WALL PER DETAIL ON SHEET 2
(147) PROTECT OR RELOCATE EXISTING IRRIGATION PIPE AS NECESSARY TO CONSTRUCT STORM DRAIN
(196) INSTALL PIPE CULVERT HEADWALL, WINGWALL & APRON PER CALTRANS STANDARD PLAN D86-B (SEE SHEET 2 FOR LAYOUT DETAIL)
(288) INSTALL CHAIN LINK FENCE PER R.C.F.C. & W.C.D. STD. PLAN NO. M801
(289) REMOVE, SALVAGE & RE-INSTALL EXISTING FENCE ON R/W AFTER PROPOSED IMPROVEMENTS HAVE BEEN INSTALLED
(390) EXISTING CONCRETE APRON/ENCASEMENT TO BE REMOVED
(425) REMOVE ANY EXISTING DEBRIS OR CONCRETE PIPE FROM EXISTING CHANNEL
(426) RELOCATE, LOWER OR RAISE EXISTING UTILITY TO CLEAR PROPOSED STORM DRAIN (CONTRACTOR TO FIELD VERIFY & COORDINATE WITH OWNER OF UTILITY)
(427) RELOCATE EXISTING UTILITY BOX AND APPURTENANCES (CONTRACTOR TO FIELD VERIFY & COORDINATE WITH OWNER OF UTILITY)

COURSE DATA		
	BEARING	DISTANCE
1	N00°27'05"E	553.17'

* NOTE:
HORIZONTAL AND VERTICAL LOCATIONS TO BE VERIFIED IN THE FIELD AND ENGINEER NOTIFIED OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

PA08-0087 (PLOT PLAN)
P13-111 (AMENDED PLOT PLAN)
PA09-0022 (TENTATIVE PARCEL MAP)

CITY OF MORENO VALLEY APPROVALS
PA09-0022 CITY ID# 4898

RECOMMEND BY: [signature] 2/13/14
for PRIM KEMAR
DEPT. PUBLIC WORKS DIR./ASST. CITY ENGINEER
R.C.E. NO. C52461 DATE

APPROVED BY: [signature] 3/4/14
AHMAD R. ANSARI
PUBLIC WORKS DIRECTOR/CITY ENGINEER
R.C.E. NO. C51359 DATE

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services.

BASIS OF BEARINGS:
BEARINGS SHOWN HEREON ARE BASED ON THE BEARING BETWEEN THE CALIFORNIA SPATIAL REFERENCE CENTER (CSRC) CONTINUOUS OPERATING REFERENCE STATIONS (CORS) PVEP AND MJP0 BEING NORTH 33°20'17.66" WEST PER RECORDS ON FILE WITH THE CSRC.

BENCH MARK: IVF55 ELEVATION 1785.67
LOCATION
BRASS DISK IN TOP OF HEADWALL, NORTHWEST CORNER REDLANDS BOULEVARD AND SPRUCE AVENUE. (NGVD29 DATUM)

REF.	REVISIONS	ENGINEER APPR.	ENGINEER DATE	RCFC/ APPR.	RCFC/ DATE

DESIGNED BY: M.H.M.
DRAWN BY: H-Z STAFF
DATE DRAWN: 03-2013
CHECKED BY: M.H.M.

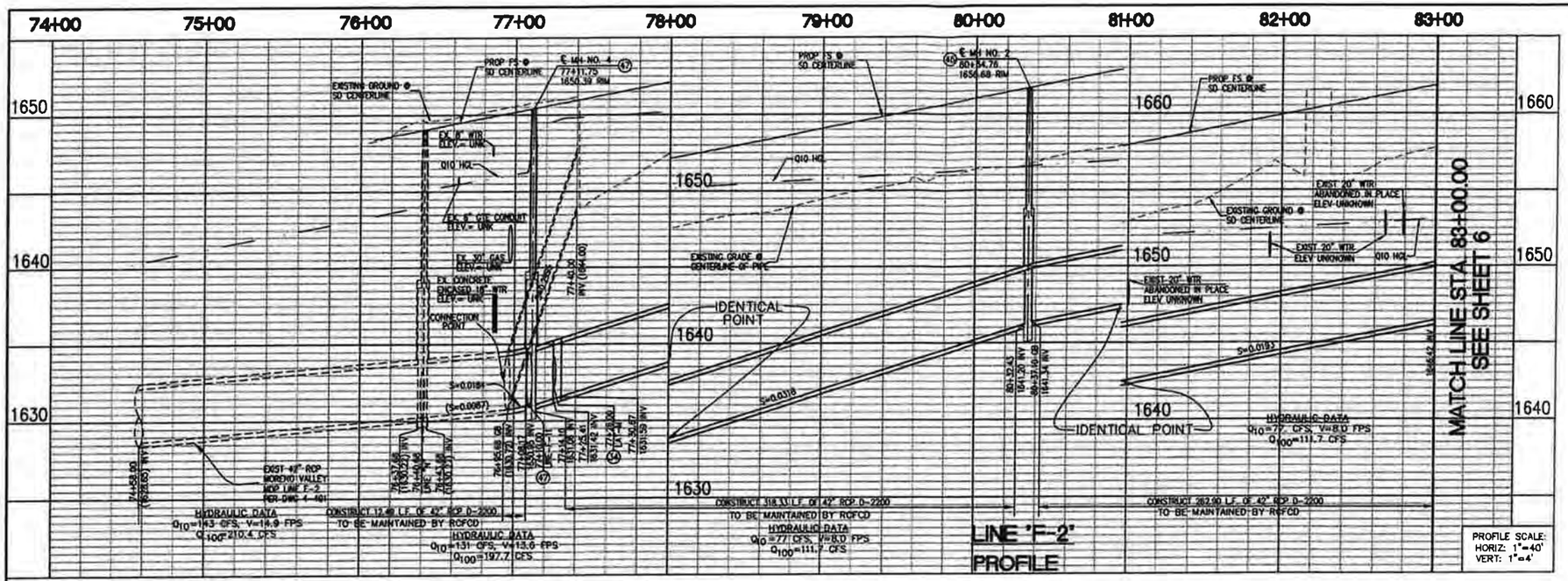
REGISTERED PROFESSIONAL ENGINEER MAURICE H. MURAD No. 33366 EXPIRATION 6-30-2014 CIVIL STATE OF CALIFORNIA

HUITT-ZOLLARS
Huitt-Zollars, Inc. Ontario
3990 CONCOURS, SUITE 330 • ONTARIO, CALIFORNIA 91764 • (909) 941-7700
PREPARED UNDER THE SUPERVISION OF: MAURICE H. MURAD R.C.E. 33366 EXPIRES 6-30-14 DATE 2/14/14

RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: [signature] DATE: 5/7/14
APPROVED BY: [signature] DATE: 5/8/2014

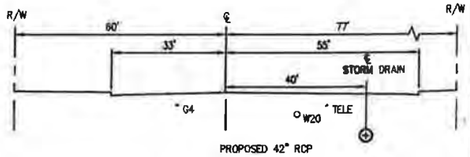
MORENO MDP LINE F-2
6+80.00 TO 11+00.00

PROJECT NO. 4-0-00400
DRAWING NO. 4-1068
SHEET NO. 3 OF 11



LINE 'F-2'
PROFILE

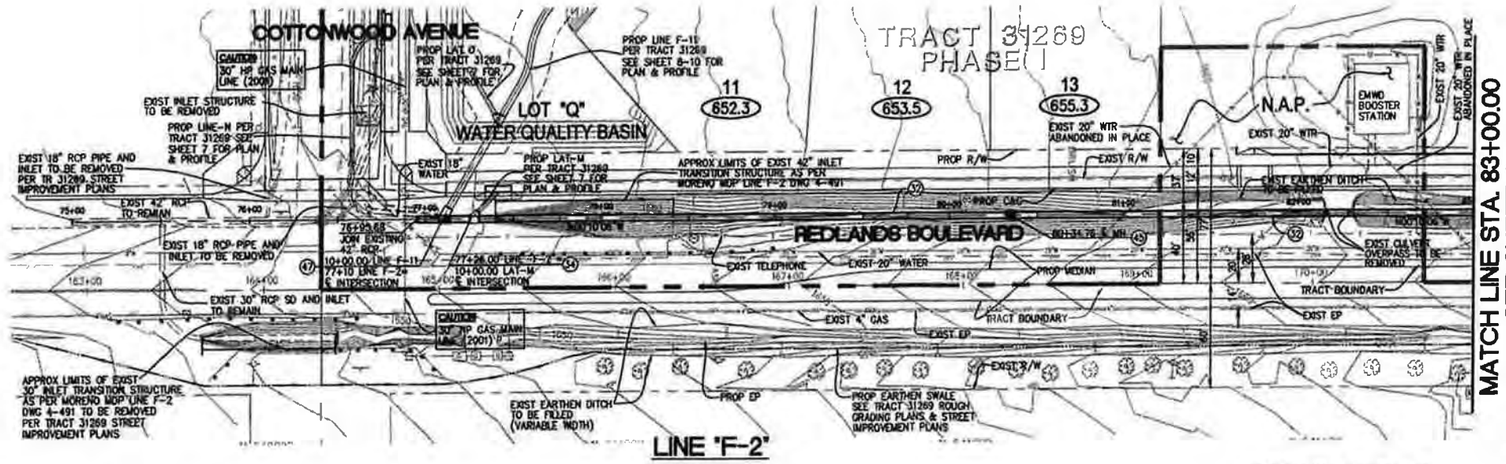
PROFILE SCALE:
HORIZ: 1"=40'
VERT: 1"=4'



SECTION AT STATION 79+00.00
TYPICAL FROM STA. 76+95.68 TO STA. 91+10.00

INFORMATIONAL NOTE
ALL X-SECTION TAKEN LOOKING DOWNSTREAM

DRACAEA AVE



LINE 'F-2'
PLAN

AS BUILT
APPROVED BY: [signature]
DATE 4-14-08

CONSTRUCTION NOTES

(32) CONSTRUCT 42" RCP (SEE PROFILE FOR D-LOAD)
(34) CONSTRUCT JUNCTION STRUCTURE NO.2 PER RCFCD STD DWG JS 227
(45) CONSTRUCT MANHOLE NO. 2 PER RCFCD STD DWG MH 252
(47) CONSTRUCT MANHOLE NO. 4 PER RCFCD STD DWG MH 254

STORM DRAIN NOTES

1. EXISTING MORENO VALLEY MDP LINE-F2 IS DESIGNED TO CONVEY ONLY THE 10-YR STORM EVENT. THEREFORE THE HGL FOR THE 10-YR STORM EVENT IS SHOWN FOR MDP LINE F-11, MDP LINE F-12, AND AND ALL IN-TRACT STORM DRAIN. THE 100-YR STORM EVENT IS CONTAINED WITH-IN THE STREET R/W
2. FOR ALL STREET CATCH BASIN(S) AND DEPRESSION(S) SEE TRACT 31269 STREET IMPROVEMENT PLANS .

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2800 for the location of buried utility lines. Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK

F.D BRASS DISK SET IN CONCRETE "M-40-4 RESET 1976" PER RIVERSIDE COUNTY RECORDS. LOCATED ON THE SOUTHEAST CORNER OF ALESSANDRO BLVD. AND NASON STREET AND IT IS 3 FEET WESTERLY OF POWER POLE NUMBER G170306.
ELEVATION: 1588.421

REF.	REVISIONS	ENGINEER APPR.	ENGINEER DATE	RCFC/ APPR.	RCFC/ DATE
	DESCRIPTION				

DESIGNED BY: F.M.
DRAWN BY: P.B.
DATE DRAWN: 05/04

REGISTERED PROFESSIONAL ENGINEER RANDALL L. STREETER No. 25083 EXP. 12/31/05 CIVIL STATE OF CALIFORNIA

ADAMS • STREETER CIVIL ENGINEERS, INC.

PREPARED UNDER THE SUPERVISION OF: [signature] R.C.E. NO. 25083
RANDAL L. STREETER EXP. 12/31/05 DATE: 2/8/05

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: [signature] DATE: 8/3/05
APPROVED BY: [signature] DATE: 8-4-2005

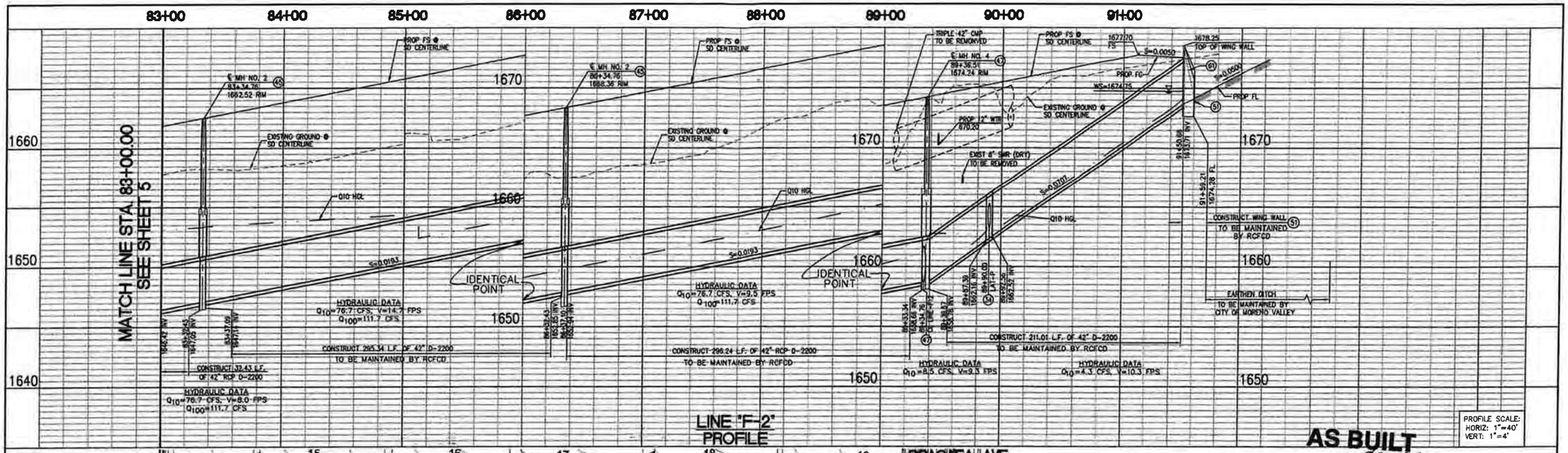
CITY OF MORENO VALLEY
PUBLIC WORKS DEPARTMENT
APPROVED BY: [signature] TRENT D. PULLIAM DATE: 3/25/08
RECOMMENDED DATE:

MORENO MASTER DRAINAGE PLAN
LINE "F-2"
STA. 75+00.00 TO 83+00.00

PROJECT NO. 4-0-00400
DRAWING NO. 04-847
SHEET NO. 5 OF 14

GW

K:\Land\04-0400\Plans\LVA\04847VD\VD04847.dwg Feb 03, 2005 - 3:12pm, hr



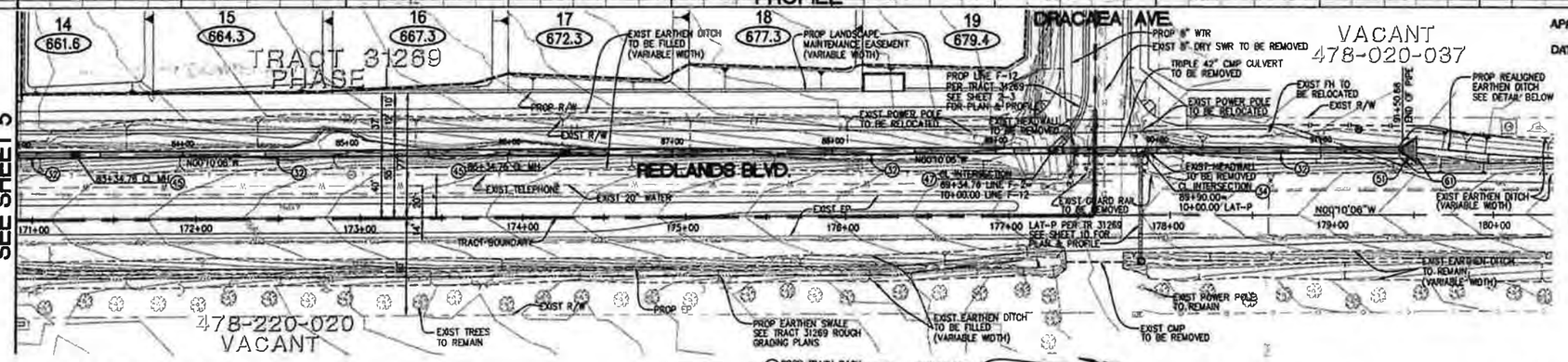
LINE "F-2" PROFILE

PROFILE SCALE:
HORIZ: 1"=40'
VERT: 1"=4'

AS BUILT

APPROVED BY: [signature]
DATE 4-24-08

MATCH LINE STA. 83+00.00
SEE SHEET 5



CONSTRUCTION NOTES

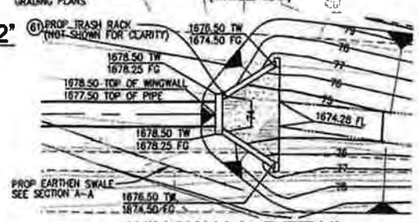
(32) CONSTRUCT 42" RCP (SEE PROFILE FOR CLASS TYPE)
(34) CONSTRUCT JUNCTION STRUCTURE NO. 2 PER RCFCD STD DWG JS 227
(45) CONSTRUCT MANHOLE NO. 2 PER RCFCD STD DWG MH 252
(47) CONSTRUCT MANHOLE NO. 4 PER RCFCD STD DWG MH 254
(51) CONSTRUCT PIPE CULVERT WING WALL PER CALTRANS STD DWG D88B SEE WING WALL DATA TABLE AND WING WALL DETAIL PER THIS SHEET
(61) CONSTRUCT TRASH RACK (INCLINED) PER APWA STD DWG 361-0

GRAPHIC SCALE
0 20 40 80 120 160
SCALE: 1" = 40'

STORM DRAIN NOTES:

1. EXISTING MORENO VALLEY MDP LINE-F2 IS DESIGNED TO CONVEY ONLY THE 10-YR STORM EVENT. THEREFORE THE HGL FOR THE 10-YR STORM EVENT IS SHOWN FOR MDP LINE F-11, MDP LINE F-12, AND ALL IN-TRACT STORM DRAIN. THE 100-YR STORM EVENT IS CONTAINED WITH-IN THE STREET R/W
2. FOR ALL STREET CATCH BASIN(S) AND DEPRESSION(S) SEE TRACT 31289 STREET IMPROVEMENT PLANS .

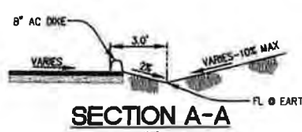
LINE "F-2" PLAN



WINGWALL DETAIL

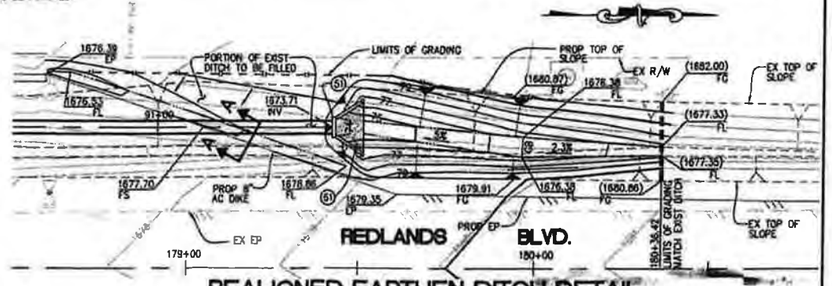
(51)(61) SCALE: 1" = 10'

WING WALL DATA TABLE					
TYPE	L	W	H	ELEV "c"	FLARE ANG.
CALTRANS D88B	9'	1.75'	2.25	1676.5'	33°



SECTION A-A

NTS



REALIGNED EARTHEN DITCH DETAIL

SCALE: 1" = 20'

Don't Dig...Until You Call U.S.A. Toll Free
1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK

F.D BRASS DISK SET IN CONCRETE "M-40-6 RESET 1978" PER RIVERSIDE COUNTY RECORDS. LOCATED ON THE SOUTHEAST CORNER OF ALESSANDRO BLVD. AND MASON STREET AND IT IS 3 FEET WESTERLY OF POWER POLE NUMBER GT70306.
ELEVATION: 1588.421

REF.	REVISIONS	DESCRIPTION	ENGINEER APPR.	ENGINEER DATE	RCFC/ APPR.	RCFC/ DATE

DESIGNED BY: F.M.
DRAWN BY: P.B.
DATE DRAWN: 05/04

REGISTERED PROFESSIONAL ENGINEER RANDAL L. STREETER No. 25083 EXP. 12/31/05 CIVIL STATE OF CALIFORNIA

ADAMS • STREETER
CIVIL ENGINEERS, INC.
3540 Adams Street, Suite 1-450
Riverside Ca. 92504
PHONE 951-351-7555 FAX 951-351-8999
mail@adams-streeter.com

PREPARED UNDER THE SUPERVISION OF: RANDAL L. STREETER EXP. 12/31/05
R.C.E. NO. 25083
DATE: 2/5/05

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: [signature] DATE: 2/9/05
APPROVED BY: [signature] DATE: 3-4-2005

CITY OF MORENO VALLEY
PUBLIC WORKS DEPARTMENT
APPROVED BY: TRENT D. FULLIAM DATE: 3/25/05
RECOMMENDED DATE:

MORENO MASTER DRAINAGE PLAN

STORM DRAIN LINE F-2
STA. 83+00.00 TO 91+10.00

PROJECT NO. 4-0-00400
DRAWING NO. 04-847
SHEET NO. 6 OF 14

n:\data\04-047#\plan\01\01\01\01\01\04-847.dwg Tue 02, 2005 - 2:12pm, hr

JASON E. UHLEY
General Manager-Chief Engineer

1995 MARKET STREET
RIVERSIDE, CA 92501
951.955.1200
951.788.9965 FAX
www.rcflood.org

RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
December 23, 2020

Mr. Michael D Lloyd
Assistant City Engineer
Engineering Division
City of Moreno Valley
14177 Frederick Street
Moreno Valley, CA 92552-0805

Dear Mr. Lloyd:

Re: Thienes Engineering PEN 19-0193
Account No. 137-0-3-75325

As requested by the City of Moreno Valley (City), the Riverside County Flood Control District (District) received the following for review on December 1, 2020:

1. Letter from Moreno Valley, dated November 12, 2020
2. Preliminary Hydrology Calculations, dated October 27, 2020
3. Preliminary Grading Plan (13 sheets, with different dates)
4. PWQMP Report, dated March 5, 2020

The District has reviewed these documents as requested in the City's letter, and has also tried to identify potential areas of concern, and has the following comments:

Line-16

The City stated in their request that the developer wished to "eliminate the proposed westerly portion of Moreno Master Drainage Plan (MMDP) Line F-16 based on the premise that it is unnecessary to construct due to the existing development to the north of the MMDP line." The existing development (PM36207 on APN 488-330-040) constructed a basin which outlets to a pipe in Eucalyptus Avenue which connect to Line F-2 in Redland Boulevard. The pipe was previously accepted for maintenance by the District. Since the pipe and basin together collect and convey the same area that was tabled to Line F-16, it is our opinion that, so long as the basin is in place, the existing facility is functionally equivalent to Line F-16, and the remaining unconstructed portion is not necessary to provide flood protection.

Line F-17

The City stated in their request that the developer wished to "eliminate the proposed MMDP Line F-17, based on the premise that it is unnecessary to construct due to the proposed developer's water quality and detention facilities." The Moreno MDP proposed Line F-17 as a 42 to 60 inch RCP conveying 200 cfs to Line F-2. The developer proposed an onsite basin and a 42" HDPE within the development conveying on site flows to Line F-2, and a catch basin in Encelia conveying street runoff to Line F-2. Since these facilities together collect and convey the same area that was tabled to Line F-17, it is our opinion that the existing facility is functionally equivalent to Line F-17.

It should be noted that since the proposed pipe is within private right of way and is proposed as HDPE, the District will not maintain it. The basin and storm drain facility will be developer maintained. However, if the design is modified to meet District standards, a public agency could maintain the storm drain and/or basin. At a minimum, the storm drain would need to be moved to the street and constructing with RCP instead of HDPE, and the basin would need to handle water quality and the 100-year route down separately and otherwise be designed to meet out meet District requirements for Operation and Maintenance. See increased runoff criteria and the LID BMP handbook for basin design requirements. Link: http://rcflood.org/npdes/LIDBMP.aspx

Also note that Line F-17 is not part of the Moreno Area Drainage Plan (ADP) and therefore is not eligible for ADP credit.

Line F-2

The developer is proposing to build a portion of Line F-2 in Redlands Avenue. The MMDP proposed Line F-2 between Eucalyptus and Encelia as a 72" RCP conveying 100-year flowrate of 535 cfs. The developer's plans don't provide details for their proposed segment of Line F-2, or even the limits of what they will be constructing, but the hydrology map identifies it as a 72" RCP. The District has not received enough information to comment on this facility. It should be noted that the existing portion of Line F-2 downstream of this project is not sized to convey the 100 year flowrate, and the MMDP proposes that it will be improved or replaced in the future to increase the current 10-year capacity to the 100 year storm.

Quincy Channel / Line G-7

The developer is proposing vinyl sheetpile along the natural Quincy wash, which the MMDP proposes as a trapezoidal channel called Line G-7. The sheetpile is proposed some distance outside of the limits of the MMDP proposed channel. While the sheetpile may protect the site from erosion, the capacity of the existing wash is unknown. The site may not be protected from the 100-year storm until the ultimate channel is constructed or erosion occurs, and therefore may not be functionally equivalent in the interim. Additionally, it should be noted that the District will not maintain the proposed sheet piles.

Hydrology Report

The City should be aware of the following District comments on the developer's hydrology study dated October 27, 2020.

1. The rainfall used should be consistent with those used in the Moreno MDP, which were based on the version of NOAA Atlas 14 that was available when the MMDP was updated. The MMDP report provides a table of rainfall values used.
2. The cover type used for node 200-204 "proposed" hydrology should be commercial cover or some other type with a high impervious percentage, since this area is proposed as a street.
3. AMC 3 was used for the 100-year basin hydrology. This is not typically recommended per the District's hydrology manual. This should be explained or corrected.

Any questions pertaining to this project may be directed to Kelly O'Sullivan of this office at 951-955-8851 or kosulliv@rivco.org.

Very truly yours,

Deborah de Chambeau

DEBORAH DE CHAMBEAU
Engineering Project Manager

cc: Kelly O'Sullivan, RCFC&WCD
Duke Aghaian, Thienes Engineering

SLJ:se

APPENDIX B

HYDROLOGY CALCULATIONS

EXISTING CONDITION

```
******************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                      (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
                      (Rational Tabling Version 23.0)
                  Release Date: 07/01/2016  License ID 1435

                           Analysis prepared by:

                         THIENES ENGINEERING, INC.
                            14349 FIRESTONE BLVD
                            LA MIRADA, CA 90638
                                714-521-4811

 ************************* DESCRIPTION OF STUDY ************************
* TEI JOB 3828                                                         *
* 100-YEAR STORM EVENT                                                 *
* EXISTING CONDITION (NODES 100-107)                                   *
 ************************************************************************

  FILE NAME: W:\3828\100XX.DAT
  TIME/DATE OF STUDY: 08:36 03/25/2021
------------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.010
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.820
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.940
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.200
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5003939
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5001161
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.200
  SLOPE OF INTENSITY DURATION CURVE = 0.5001
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: CONSIDER ALL CONFLUENCE STREAM COMBINATIONS
        FOR ALL DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

******************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   410.00
  UPSTREAM ELEVATION(FEET) =   1752.00
  DOWNSTREAM ELEVATION(FEET) =   1741.50
  ELEVATION DIFFERENCE(FEET) =     10.50
  TC = 0.533*[(  410.00**3)/(    10.50)]**.2 =   12.298
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.651
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6451
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      4.87
  TOTAL AREA(ACRES) =      2.85   TOTAL RUNOFF(CFS) =      4.87

******************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  51
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1741.50  DOWNSTREAM(FEET) =   1732.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   400.00   CHANNEL SLOPE =  0.0237
  CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =  99.990
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.186
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6085
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.84
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.15
  AVERAGE FLOW DEPTH(FEET) =   0.06   TRAVEL TIME(MIN.) =   5.78
  Tc(MIN.) =   18.08
  SUBAREA AREA(ACRES) =     4.40       SUBAREA RUNOFF(CFS) =    5.85
  TOTAL AREA(ACRES) =        7.2         PEAK FLOW RATE(CFS) =      10.73

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.07   FLOW VELOCITY(FEET/SEC.) =   1.36
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     810.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1732.00  DOWNSTREAM(FEET) =   1722.60
  CHANNEL LENGTH THRU SUBAREA(FEET) =   410.00   CHANNEL SLOPE =  0.0229
  CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =  99.900
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.957
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5862
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      16.05
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.52
  AVERAGE FLOW DEPTH(FEET) =   0.10   TRAVEL TIME(MIN.) =   4.50
  Tc(MIN.) =   22.57
  SUBAREA AREA(ACRES) =     9.25       SUBAREA RUNOFF(CFS) =   10.61
  TOTAL AREA(ACRES) =       16.5         PEAK FLOW RATE(CFS) =      21.34

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.12   FLOW VELOCITY(FEET/SEC.) =   1.63
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    103.00 =    1220.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1723.00  DOWNSTREAM ELEVATION(FEET) = 1722.00
  STREET LENGTH(FEET) =   275.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 32.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  16.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0149

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      21.87
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
         NOTE: STREET FLOW EXCEEDS TOP OF CURB.
         THE FOLLOWING STREET FLOW RESULTS ARE BASED ON THE ASSUMPTION
         THAT NEGLIBLE FLOW OCCURS OUTSIDE OF THE STREET CHANNEL.
         THAT IS, ALL FLOW ALONG THE PARKWAY, ETC., IS NEGLECTED.
    STREET FLOW DEPTH(FEET) =  0.73
    HALFSTREET FLOOD WIDTH(FEET) =   28.63
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.61
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.91
  STREET FLOW TRAVEL TIME(MIN.) =   1.76   Tc(MIN.) =   24.33
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.885
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8678
  SOIL CLASSIFICATION IS "B"
```

SUBAREA AREA(ACRES) = 0.65 SUBAREA RUNOFF(CFS) = 1.06
TOTAL AREA(ACRES) = 17.1 PEAK FLOW RATE(CFS) = 22.40

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.74 HALFSTREET FLOOD WIDTH(FEET) = 28.87
FLOW VELOCITY(FEET/SEC.) = 2.63 DEPTH*VELOCITY(FT*FT/SEC.) = 1.93
LONGEST FLOWPATH FROM NODE 100.00 TO NODE 104.00 = 1495.00 FEET.

****
FLOW PROCESS FROM NODE 104.00 TO NODE 105.00 IS CODE = 61

>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STANDARD CURB SECTION USED)<<<<<
==
UPSTREAM ELEVATION(FEET) = 1722.00 DOWNSTREAM ELEVATION(FEET) = 1715.80
STREET LENGTH(FEET) = 755.00 CURB HEIGHT(INCHES) = 8.0
STREET HALFWIDTH(FEET) = 32.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) = 16.00
INSIDE STREET CROSSFALL(DECIMAL) = 0.020
OUTSIDE STREET CROSSFALL(DECIMAL) = 0.020

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 1
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0149

**TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 22.93
STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
STREET FLOW DEPTH(FEET) = 0.66
HALFSTREET FLOOD WIDTH(FEET) = 24.94
AVERAGE FLOW VELOCITY(FEET/SEC.) = 3.58
PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 2.35
STREET FLOW TRAVEL TIME(MIN.) = 3.52 Tc(MIN.) = 27.85
100 YEAR RAINFALL INTENSITY(INCH/HOUR) = 1.762
COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8664
SOIL CLASSIFICATION IS "B"
SUBAREA AREA(ACRES) = 0.70 SUBAREA RUNOFF(CFS) = 1.07
TOTAL AREA(ACRES) = 17.9 PEAK FLOW RATE(CFS) = 23.47

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.66 HALFSTREET FLOOD WIDTH(FEET) = 25.12
FLOW VELOCITY(FEET/SEC.) = 3.61 DEPTH*VELOCITY(FT*FT/SEC.) = 2.39
LONGEST FLOWPATH FROM NODE 100.00 TO NODE 105.00 = 2250.00 FEET.

****
FLOW PROCESS FROM NODE 105.00 TO NODE 105.00 IS CODE = 81

>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==
100 YEAR RAINFALL INTENSITY(INCH/HOUR) = 1.762
COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8664
SOIL CLASSIFICATION IS "B"
SUBAREA AREA(ACRES) = 17.25 SUBAREA RUNOFF(CFS) = 26.33
TOTAL AREA(ACRES) = 35.1 TOTAL RUNOFF(CFS) = 49.80
TC(MIN.) = 27.85

****
FLOW PROCESS FROM NODE 105.00 TO NODE 106.00 IS CODE = 61

>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STANDARD CURB SECTION USED)<<<<<
==
UPSTREAM ELEVATION(FEET) = 1715.80 DOWNSTREAM ELEVATION(FEET) = 1709.80
STREET LENGTH(FEET) = 620.00 CURB HEIGHT(INCHES) = 8.0
STREET HALFWIDTH(FEET) = 32.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) = 16.00
INSIDE STREET CROSSFALL(DECIMAL) = 0.020
OUTSIDE STREET CROSSFALL(DECIMAL) = 0.020

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 1
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0149

**TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 50.24
STREET FLOW SPLITS OVER STREET-CROWN
FULL DEPTH(FEET) = 0.80 FLOOD WIDTH(FEET) = 32.00
FULL HALF-STREET VELOCITY(FEET/SEC.) = 4.58
SPLIT DEPTH(FEET) = 0.35 SPLIT FLOOD WIDTH(FEET) = 9.53

```
    SPLIT FLOW(CFS) =    2.48   SPLIT VELOCITY(FEET/SEC.) =    2.26
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
         NOTE: STREET FLOW EXCEEDS TOP OF CURB.
         THE FOLLOWING STREET FLOW RESULTS ARE BASED ON THE ASSUMPTION
         THAT NEGLIBLE FLOW OCCURS OUTSIDE OF THE STREET CHANNEL.
         THAT IS, ALL FLOW ALONG THE PARKWAY, ETC., IS NEGLECTED.
    STREET FLOW DEPTH(FEET) =  0.80
    HALFSTREET FLOOD WIDTH(FEET) =   32.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.58
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    3.65
  STREET FLOW TRAVEL TIME(MIN.) =   2.26   Tc(MIN.) =   30.10
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.694
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8656
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.60      SUBAREA RUNOFF(CFS) =    0.88
  TOTAL AREA(ACRES) =       35.7        PEAK FLOW RATE(CFS) =      50.68

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.80   HALFSTREET FLOOD WIDTH(FEET) =  32.00
  FLOW VELOCITY(FEET/SEC.) =  4.58   DEPTH*VELOCITY(FT*FT/SEC.) =   3.65
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    106.00 =    2870.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.694
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8656
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =   21.50   SUBAREA RUNOFF(CFS) =   31.53
  TOTAL AREA(ACRES) =       57.2   TOTAL RUNOFF(CFS) =      82.21
  TC(MIN.) =   30.10

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1709.80  DOWNSTREAM ELEVATION(FEET) = 1706.00
  STREET LENGTH(FEET) =   445.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 32.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  16.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0149

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      82.64
    ***STREET FLOW SPLITS OVER STREET-CROWN***
    FULL DEPTH(FEET) =    0.80   FLOOD WIDTH(FEET) =   32.00
    FULL HALF-STREET VELOCITY(FEET/SEC.) =    4.30
    SPLIT DEPTH(FEET) =    0.76   SPLIT FLOOD WIDTH(FEET) =   29.98
    SPLIT FLOW(CFS) =   37.78   SPLIT VELOCITY(FEET/SEC.) =    4.12
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
         NOTE: STREET FLOW EXCEEDS TOP OF CURB.
         THE FOLLOWING STREET FLOW RESULTS ARE BASED ON THE ASSUMPTION
         THAT NEGLIBLE FLOW OCCURS OUTSIDE OF THE STREET CHANNEL.
         THAT IS, ALL FLOW ALONG THE PARKWAY, ETC., IS NEGLECTED.
    STREET FLOW DEPTH(FEET) =  0.80
    HALFSTREET FLOOD WIDTH(FEET) =   32.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.30
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    3.43
  STREET FLOW TRAVEL TIME(MIN.) =   1.72   Tc(MIN.) =   31.83
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.648
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8650
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.60      SUBAREA RUNOFF(CFS) =    0.86
  TOTAL AREA(ACRES) =       57.8        PEAK FLOW RATE(CFS) =      83.06

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.80   HALFSTREET FLOOD WIDTH(FEET) =  32.00
  FLOW VELOCITY(FEET/SEC.) =  4.30   DEPTH*VELOCITY(FT*FT/SEC.) =   3.43
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    107.00 =    3315.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.648
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8650
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =   16.00   SUBAREA RUNOFF(CFS) =   22.80
  TOTAL AREA(ACRES) =       73.8   TOTAL RUNOFF(CFS) =     105.87
  TC(MIN.) =   31.83

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.648
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8650
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.80   SUBAREA RUNOFF(CFS) =    2.57
  TOTAL AREA(ACRES) =       75.6   TOTAL RUNOFF(CFS) =     108.43
  TC(MIN.) =   31.83
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       75.6  TC(MIN.) =     31.83
  PEAK FLOW RATE(CFS)   =     108.43
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                      (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
                      (Rational Tabling Version 23.0)
                  Release Date: 07/01/2016  License ID 1435

                           Analysis prepared by:

                         THIENES ENGINEERING, INC.
                            14349 FIRESTONE BLVD
                            LA MIRADA, CA 90638
                                714-521-4811

 ************************ DESCRIPTION OF STUDY ************************
* TEI JOB 3828                                                        *
* 100-YEAR STORM EVENT                                                *
* EXISTING CONDITION (NODES 110-112)                                  *
 **********************************************************************

  FILE NAME: W:\3828\110XX.DAT
  TIME/DATE OF STUDY: 09:40 03/25/2021
------------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.010
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.820
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.940
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.200
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5003939
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5001161
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.200
  SLOPE OF INTENSITY DURATION CURVE = 0.5001
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: CONSIDER ALL CONFLUENCE STREAM COMBINATIONS
        FOR ALL DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

******************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    111.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   875.00
  UPSTREAM ELEVATION(FEET) =   1755.15
  DOWNSTREAM ELEVATION(FEET) =   1747.00
  ELEVATION DIFFERENCE(FEET) =      8.15
  TC = 0.303*[(  875.00**3)/(     8.15)]**.2 =   11.603
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.729
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8750
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      2.39
  TOTAL AREA(ACRES) =      1.00   TOTAL RUNOFF(CFS) =      2.39

******************************************************************************
  FLOW PROCESS FROM NODE    111.00 TO NODE    112.00 IS CODE =  61
```

```
--------------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
================================================================================
  UPSTREAM ELEVATION(FEET) = 1747.00  DOWNSTREAM ELEVATION(FEET) = 1737.88
  STREET LENGTH(FEET) =   875.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 38.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  19.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0149

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.31
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.37
    HALFSTREET FLOOD WIDTH(FEET) =   10.68
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.49
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.92
  STREET FLOW TRAVEL TIME(MIN.) =   5.86   Tc(MIN.) =   17.47
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.224
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8712
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.95      SUBAREA RUNOFF(CFS) =    1.84
  TOTAL AREA(ACRES) =        2.0        PEAK FLOW RATE(CFS) =       4.23

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  11.95
  FLOW VELOCITY(FEET/SEC.) =  2.61   DEPTH*VELOCITY(FT*FT/SEC.) =   1.04
  LONGEST FLOWPATH FROM NODE    110.00 TO NODE    112.00 =    1750.00 FEET.
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.0  TC(MIN.) =     17.47
  PEAK FLOW RATE(CFS)   =       4.23
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                      (RCFC&WCD)  1978 HYDROLOGY MANUAL
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                      (Rational Tabling Version 23.0)
                  Release Date: 07/01/2016  License ID 1435

                           Analysis prepared by:

                         THIENES ENGINEERING, INC.
                            14349 FIRESTONE BLVD
                            LA MIRADA, CA 90638
                                714-521-4811

 ************************ DESCRIPTION OF STUDY ************************
* TEI JOB 3828                                                        *
* 100-YEAR STORM EVENT                                                *
* EXISTING CONDITION (NODES 120-121)                                  *
 **********************************************************************

  FILE NAME: W:\3828\120XX.DAT
  TIME/DATE OF STUDY: 10:39 03/25/2021
------------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.010
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.820
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.940
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.200
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5003939
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5001161
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.200
  SLOPE OF INTENSITY DURATION CURVE = 0.5001
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: CONSIDER ALL CONFLUENCE STREAM COMBINATIONS
        FOR ALL DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

******************************************************************************
  FLOW PROCESS FROM NODE    120.00 TO NODE    121.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   390.00
  UPSTREAM ELEVATION(FEET) =   1740.00
  DOWNSTREAM ELEVATION(FEET) =   1734.82
  ELEVATION DIFFERENCE(FEET) =      5.18
  TC = 0.303*[(  390.00**3)/(     5.18)]**.2 =    7.823
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.324
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8784
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      1.61
  TOTAL AREA(ACRES) =      0.55   TOTAL RUNOFF(CFS) =      1.61
==============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.6  TC(MIN.) =      7.82
```

```
  PEAK FLOW RATE(CFS)   =       1.61
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
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                  Release Date: 07/01/2016  License ID 1435

                           Analysis prepared by:

                         THIENES ENGINEERING, INC.
                            14349 FIRESTONE BLVD
                            LA MIRADA, CA 90638
                                714-521-4811

 ************************* DESCRIPTION OF STUDY *************************
* TEI JOB 3828                                                          *
* 100-YEAR STORM EVENT                                                  *
* EXISTING CONDITION (NODES 130-131)                                    *
 ************************************************************************

  FILE NAME: W:\3828\130XX.DAT
  TIME/DATE OF STUDY: 11:50 03/25/2021
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.010
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.820
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.940
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.200
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5003939
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5001161
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.200
  SLOPE OF INTENSITY DURATION CURVE = 0.5001
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: CONSIDER ALL CONFLUENCE STREAM COMBINATIONS
        FOR ALL DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    130.00 TO NODE    131.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   175.00
  UPSTREAM ELEVATION(FEET) =   1737.80
  DOWNSTREAM ELEVATION(FEET) =   1734.83
  ELEVATION DIFFERENCE(FEET) =      2.97
  TC = 0.303*[(  175.00**3)/(     2.97)]**.2 =    5.406
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.999
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8813
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      0.88
  TOTAL AREA(ACRES) =      0.25   TOTAL RUNOFF(CFS) =      0.88
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.2  TC(MIN.) =      5.41
```

```
  PEAK FLOW RATE(CFS)   =       0.88
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

PROPOSED CONDITION

```
************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
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                  Release Date: 07/01/2016  License ID 1435

                           Analysis prepared by:

                         THIENES ENGINEERING, INC.
                            14349 FIRESTONE BLVD
                            LA MIRIADA, CA 90638
                                714-521-4811

 ************************ DESCRIPTION OF STUDY ************************
* TEI JOB NUMBER 3828                                                 *
* PROPOSED CONDITIONS                                                 *
* 100-YEAR STORM EVENT                                                *
 ************************************************************************

  FILE NAME: W:\3828\P100.DAT
  TIME/DATE OF STUDY: 09:52 04/05/2022
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.010
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.820
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.940
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.200
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5003939
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5001161
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.200
  SLOPE OF INTENSITY DURATION CURVE = 0.5001
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: CONSIDER ALL CONFLUENCE STREAM COMBINATIONS
        FOR ALL DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   620.00
  UPSTREAM ELEVATION(FEET) =   1754.90
  DOWNSTREAM ELEVATION(FEET) =   1727.54
  ELEVATION DIFFERENCE(FEET) =     27.36
  TC = 0.303*[(  620.00**3)/(    27.36)]**.2 =    7.406
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.416
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8789
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =     18.29
  TOTAL AREA(ACRES) =      6.09   TOTAL RUNOFF(CFS) =     18.29

************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  31
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1724.00  DOWNSTREAM(FEET) =  1723.67
  FLOW LENGTH(FEET) =   193.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  22.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.31
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      18.29
  PIPE TRAVEL TIME(MIN.) =   0.75    Tc(MIN.) =    8.15
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     813.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.256
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8781
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    2.01   SUBAREA RUNOFF(CFS) =    5.75
  TOTAL AREA(ACRES) =        8.1   TOTAL RUNOFF(CFS) =      24.03
  TC(MIN.) =    8.15

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1723.67  DOWNSTREAM(FEET) =  1723.22
  FLOW LENGTH(FEET) =   150.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  22.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.70
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      24.03
  PIPE TRAVEL TIME(MIN.) =   0.44    Tc(MIN.) =    8.59
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    103.00 =     963.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.172
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8777
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    2.01   SUBAREA RUNOFF(CFS) =    5.60
  TOTAL AREA(ACRES) =       10.1   TOTAL RUNOFF(CFS) =      29.63
  TC(MIN.) =    8.59

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1723.22  DOWNSTREAM(FEET) =  1722.57
  FLOW LENGTH(FEET) =   150.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  22.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.88
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      29.63
  PIPE TRAVEL TIME(MIN.) =   0.36    Tc(MIN.) =    8.95
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    104.00 =    1113.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.107
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8773
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    2.01   SUBAREA RUNOFF(CFS) =    5.48
  TOTAL AREA(ACRES) =       12.1   TOTAL RUNOFF(CFS) =      35.11
  TC(MIN.) =    8.95

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    105.00 IS CODE =  31
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1722.57  DOWNSTREAM(FEET) =  1721.94
  FLOW LENGTH(FEET) =   150.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  26.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.94
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      35.11
  PIPE TRAVEL TIME(MIN.) =   0.36    Tc(MIN.) =    9.31
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    105.00 =    1263.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    105.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.046
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8770
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.59   SUBAREA RUNOFF(CFS) =    4.25
  TOTAL AREA(ACRES) =       13.7   TOTAL RUNOFF(CFS) =      39.36
  TC(MIN.) =    9.31

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1721.94  DOWNSTREAM(FEET) =  1721.22
  FLOW LENGTH(FEET) =   150.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  24.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.68
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      39.36
  PIPE TRAVEL TIME(MIN.) =   0.33    Tc(MIN.) =    9.64
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    106.00 =    1413.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.994
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8767
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    2.00   SUBAREA RUNOFF(CFS) =    5.25
  TOTAL AREA(ACRES) =       15.7   TOTAL RUNOFF(CFS) =      44.61
  TC(MIN.) =    9.64

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1721.22  DOWNSTREAM(FEET) =  1720.51
  FLOW LENGTH(FEET) =   150.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  27.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.78
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      44.61
  PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =    9.96
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    107.00 =    1563.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.946
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8764
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    2.01   SUBAREA RUNOFF(CFS) =    5.19
  TOTAL AREA(ACRES) =       17.7   TOTAL RUNOFF(CFS) =      49.79
  TC(MIN.) =    9.96
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    108.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1720.51  DOWNSTREAM(FEET) =  1719.76
  FLOW LENGTH(FEET) =   150.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  29.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.03
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      49.79
  PIPE TRAVEL TIME(MIN.) =   0.31    Tc(MIN.) =   10.27
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    108.00 =    1713.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    108.00 TO NODE    108.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.901
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8761
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.59   SUBAREA RUNOFF(CFS) =    4.04
  TOTAL AREA(ACRES) =       19.3   TOTAL RUNOFF(CFS) =      53.84
  TC(MIN.) =   10.27

****************************************************************************
  FLOW PROCESS FROM NODE    108.00 TO NODE    109.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1719.76  DOWNSTREAM(FEET) =  1719.01
  FLOW LENGTH(FEET) =   150.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  39.0 INCH PIPE IS  28.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.38
  ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      53.84
  PIPE TRAVEL TIME(MIN.) =   0.30    Tc(MIN.) =   10.57
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    109.00 =    1863.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.860
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8759
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    2.02   SUBAREA RUNOFF(CFS) =    5.06
  TOTAL AREA(ACRES) =       21.3   TOTAL RUNOFF(CFS) =      58.89
  TC(MIN.) =   10.57

****************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    110.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1719.01  DOWNSTREAM(FEET) =  1718.27
  FLOW LENGTH(FEET) =   150.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  39.0 INCH PIPE IS  30.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.41
  ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      58.89
  PIPE TRAVEL TIME(MIN.) =   0.30    Tc(MIN.) =   10.87
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    110.00 =    2013.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.820
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8756
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    4.41   SUBAREA RUNOFF(CFS) =   10.89
  TOTAL AREA(ACRES) =       25.7   TOTAL RUNOFF(CFS) =      69.78
```

```
  TC(MIN.) =   10.87

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    111.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1718.27  DOWNSTREAM(FEET) =  1712.62
  FLOW LENGTH(FEET) =   758.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  39.0 INCH PIPE IS  29.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.30
  ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      69.78
  PIPE TRAVEL TIME(MIN.) =   1.23    Tc(MIN.) =   12.09
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    111.00 =    2771.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    111.00 TO NODE    111.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.673
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8747
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    3.27   SUBAREA RUNOFF(CFS) =    7.65
  TOTAL AREA(ACRES) =       29.0   TOTAL RUNOFF(CFS) =      77.43
  TC(MIN.) =   12.09

****************************************************************************
  FLOW PROCESS FROM NODE    111.00 TO NODE    111.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.673
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8747
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.68   SUBAREA RUNOFF(CFS) =    1.59
  TOTAL AREA(ACRES) =       29.7   TOTAL RUNOFF(CFS) =      79.02
  TC(MIN.) =   12.09

****************************************************************************
  FLOW PROCESS FROM NODE    111.00 TO NODE    112.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1712.62  DOWNSTREAM(FEET) =  1708.53
  FLOW LENGTH(FEET) =   381.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  39.0 INCH PIPE IS  28.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.28
  ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      79.02
  PIPE TRAVEL TIME(MIN.) =   0.52    Tc(MIN.) =   12.61
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    112.00 =    3152.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    112.00 TO NODE    112.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.618
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8743
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.87   SUBAREA RUNOFF(CFS) =    4.28
  TOTAL AREA(ACRES) =       31.6   TOTAL RUNOFF(CFS) =      83.30
  TC(MIN.) =   12.61

****************************************************************************
  FLOW PROCESS FROM NODE    112.00 TO NODE    112.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.618
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8743
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    2.20   SUBAREA RUNOFF(CFS) =    5.04
  TOTAL AREA(ACRES) =       33.8   TOTAL RUNOFF(CFS) =      88.34
  TC(MIN.) =   12.61
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    112.00 TO NODE    113.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1708.53  DOWNSTREAM(FEET) =  1707.12
  FLOW LENGTH(FEET) =   285.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  45.0 INCH PIPE IS  36.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.27
  ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      88.34
  PIPE TRAVEL TIME(MIN.) =   0.51    Tc(MIN.) =   13.12
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    113.00 =    3437.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    113.00 TO NODE    113.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.566
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8739
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.24   SUBAREA RUNOFF(CFS) =    0.54
  TOTAL AREA(ACRES) =       34.0   TOTAL RUNOFF(CFS) =      88.87
  TC(MIN.) =   13.12

****************************************************************************
  FLOW PROCESS FROM NODE    113.00 TO NODE    114.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1707.12  DOWNSTREAM(FEET) =  1706.91
  FLOW LENGTH(FEET) =    41.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  45.0 INCH PIPE IS  35.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.43
  ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      88.87
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =   13.20
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    114.00 =    3478.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    114.00 TO NODE    114.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.559
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8739
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    2.22   SUBAREA RUNOFF(CFS) =    4.96
  TOTAL AREA(ACRES) =       36.2   TOTAL RUNOFF(CFS) =      93.84
  TC(MIN.) =   13.20

****************************************************************************
  FLOW PROCESS FROM NODE    114.00 TO NODE    115.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1706.91  DOWNSTREAM(FEET) =  1706.46
  FLOW LENGTH(FEET) =    90.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  48.0 INCH PIPE IS  34.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.62
  ESTIMATED PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      93.84
  PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =   13.35
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    115.00 =    3568.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    115.00 TO NODE    115.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.544
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8738
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.69   SUBAREA RUNOFF(CFS) =    3.76
```

```
  TOTAL AREA(ACRES) =       37.9   TOTAL RUNOFF(CFS) =      97.60
  TC(MIN.) =   13.35

****************************************************************************
  FLOW PROCESS FROM NODE    115.00 TO NODE    219.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1706.46  DOWNSTREAM(FEET) =  1706.30
  FLOW LENGTH(FEET) =    30.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  48.0 INCH PIPE IS  35.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.94
  ESTIMATED PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      97.60
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   13.40
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    219.00 =    3598.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    219.00 TO NODE    219.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   364.00
  UPSTREAM ELEVATION(FEET) =   1731.47
  DOWNSTREAM ELEVATION(FEET) =   1729.87
  ELEVATION DIFFERENCE(FEET) =      1.60
  TC = 0.303*[(  364.00**3)/(     1.60)]**.2 =    9.493
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.017
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8768
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      2.94
  TOTAL AREA(ACRES) =      1.11   TOTAL RUNOFF(CFS) =      2.94

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1725.87  DOWNSTREAM(FEET) =  1724.98
  FLOW LENGTH(FEET) =   368.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  10.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.08
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.94
  PIPE TRAVEL TIME(MIN.) =   1.99    Tc(MIN.) =   11.49
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     732.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.743
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8751
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.03   SUBAREA RUNOFF(CFS) =    2.47
  TOTAL AREA(ACRES) =        2.1   TOTAL RUNOFF(CFS) =       5.41
  TC(MIN.) =   11.49

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    203.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1724.98  DOWNSTREAM(FEET) =  1723.86
  FLOW LENGTH(FEET) =   224.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.0 INCHES
```

```
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.79
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.41
  PIPE TRAVEL TIME(MIN.) =   0.78    Tc(MIN.) =   12.26
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =     956.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    203.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.655
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8745
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.69   SUBAREA RUNOFF(CFS) =    1.60
  TOTAL AREA(ACRES) =        2.8   TOTAL RUNOFF(CFS) =       7.01
  TC(MIN.) =   12.26

****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    204.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1723.86  DOWNSTREAM(FEET) =  1723.67
  FLOW LENGTH(FEET) =    44.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.69
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.01
  PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =   12.42
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    204.00 =    1000.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    204.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.638
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8744
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    4.27   SUBAREA RUNOFF(CFS) =    9.85
  TOTAL AREA(ACRES) =        7.1   TOTAL RUNOFF(CFS) =      16.86
  TC(MIN.) =   12.42

****************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    205.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1723.67  DOWNSTREAM(FEET) =  1722.94
  FLOW LENGTH(FEET) =   143.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  19.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.19
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      16.86
  PIPE TRAVEL TIME(MIN.) =   0.38    Tc(MIN.) =   12.81
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    205.00 =    1143.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    205.00 TO NODE    205.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.598
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8741
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.70   SUBAREA RUNOFF(CFS) =    3.86
  TOTAL AREA(ACRES) =        8.8   TOTAL RUNOFF(CFS) =      20.72
  TC(MIN.) =   12.81

****************************************************************************
  FLOW PROCESS FROM NODE    205.00 TO NODE    206.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1722.94  DOWNSTREAM(FEET) =  1722.75
```

```
  FLOW LENGTH(FEET) =    40.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.43
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      20.72
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =   12.91
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    206.00 =    1183.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    206.00 TO NODE    206.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.587
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8741
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.70   SUBAREA RUNOFF(CFS) =    1.58
  TOTAL AREA(ACRES) =        9.5   TOTAL RUNOFF(CFS) =      22.30
  TC(MIN.) =   12.91

****************************************************************************
  FLOW PROCESS FROM NODE    206.00 TO NODE    207.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1722.75  DOWNSTREAM(FEET) =  1722.22
  FLOW LENGTH(FEET) =   106.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  21.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.63
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      22.30
  PIPE TRAVEL TIME(MIN.) =   0.27    Tc(MIN.) =   13.18
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    207.00 =    1289.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    207.00 TO NODE    207.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.561
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8739
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.34   SUBAREA RUNOFF(CFS) =    3.00
  TOTAL AREA(ACRES) =       10.8   TOTAL RUNOFF(CFS) =      25.30
  TC(MIN.) =   13.18

****************************************************************************
  FLOW PROCESS FROM NODE    207.00 TO NODE    208.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1722.22  DOWNSTREAM(FEET) =  1721.63
  FLOW LENGTH(FEET) =   117.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  20.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.99
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      25.30
  PIPE TRAVEL TIME(MIN.) =   0.28    Tc(MIN.) =   13.46
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    208.00 =    1406.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    208.00 TO NODE    208.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.534
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8737
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.70   SUBAREA RUNOFF(CFS) =    1.55
  TOTAL AREA(ACRES) =       11.5   TOTAL RUNOFF(CFS) =      26.85
  TC(MIN.) =   13.46

****************************************************************************
  FLOW PROCESS FROM NODE    208.00 TO NODE    209.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1721.63  DOWNSTREAM(FEET) =  1721.50
  FLOW LENGTH(FEET) =    28.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  22.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.81
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      26.85
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =   13.52
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    209.00 =    1434.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    209.00 TO NODE    209.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.528
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8736
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.69   SUBAREA RUNOFF(CFS) =    3.73
  TOTAL AREA(ACRES) =       13.2   TOTAL RUNOFF(CFS) =      30.59
  TC(MIN.) =   13.52

****************************************************************************
  FLOW PROCESS FROM NODE    209.00 TO NODE    210.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1721.50  DOWNSTREAM(FEET) =  1720.78
  FLOW LENGTH(FEET) =   145.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  21.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.32
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      30.59
  PIPE TRAVEL TIME(MIN.) =   0.33    Tc(MIN.) =   13.85
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    210.00 =    1579.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    210.00 TO NODE    210.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.498
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8734
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.34   SUBAREA RUNOFF(CFS) =    2.92
  TOTAL AREA(ACRES) =       14.6   TOTAL RUNOFF(CFS) =      33.51
  TC(MIN.) =   13.85

****************************************************************************
  FLOW PROCESS FROM NODE    210.00 TO NODE    211.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1720.78  DOWNSTREAM(FEET) =  1720.16
  FLOW LENGTH(FEET) =    51.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.30
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      33.51
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =   13.94
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    211.00 =    1630.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    211.00 TO NODE    211.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.490
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8734
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.70   SUBAREA RUNOFF(CFS) =    1.52
  TOTAL AREA(ACRES) =       15.3   TOTAL RUNOFF(CFS) =      35.03
  TC(MIN.) =   13.94

****************************************************************************
  FLOW PROCESS FROM NODE    211.00 TO NODE    212.00 IS CODE =  31
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1720.16  DOWNSTREAM(FEET) =  1719.04
  FLOW LENGTH(FEET) =    94.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  21.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.23
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      35.03
  PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =   14.09
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    212.00 =    1724.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    212.00 TO NODE    212.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.477
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8732
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.70   SUBAREA RUNOFF(CFS) =    3.68
  TOTAL AREA(ACRES) =       17.0   TOTAL RUNOFF(CFS) =      38.71
  TC(MIN.) =   14.09

****************************************************************************
  FLOW PROCESS FROM NODE    212.00 TO NODE    213.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1719.04  DOWNSTREAM(FEET) =  1717.49
  FLOW LENGTH(FEET) =   136.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  21.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.55
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      38.71
  PIPE TRAVEL TIME(MIN.) =   0.21    Tc(MIN.) =   14.30
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    213.00 =    1860.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    213.00 TO NODE    213.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.458
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8731
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.71   SUBAREA RUNOFF(CFS) =    1.52
  TOTAL AREA(ACRES) =       17.7   TOTAL RUNOFF(CFS) =      40.23
  TC(MIN.) =   14.30

****************************************************************************
  FLOW PROCESS FROM NODE    213.00 TO NODE    214.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1717.49  DOWNSTREAM(FEET) =  1717.36
  FLOW LENGTH(FEET) =    15.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  24.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.36
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      40.23
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   14.33
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    214.00 =    1875.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    214.00 TO NODE    214.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.456
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8731
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.70   SUBAREA RUNOFF(CFS) =    3.64
  TOTAL AREA(ACRES) =       19.4   TOTAL RUNOFF(CFS) =      43.88
  TC(MIN.) =   14.33

****************************************************************************
```

```
  FLOW PROCESS FROM NODE    214.00 TO NODE    215.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1717.36  DOWNSTREAM(FEET) =  1714.31
  FLOW LENGTH(FEET) =   145.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.54
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      43.88
  PIPE TRAVEL TIME(MIN.) =   0.18    Tc(MIN.) =   14.51
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    215.00 =    2020.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    215.00 TO NODE    215.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.441
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8730
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.34   SUBAREA RUNOFF(CFS) =    2.86
  TOTAL AREA(ACRES) =       20.7   TOTAL RUNOFF(CFS) =      46.73
  TC(MIN.) =   14.51

****************************************************************************
  FLOW PROCESS FROM NODE    215.00 TO NODE    216.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1714.31  DOWNSTREAM(FEET) =  1712.96
  FLOW LENGTH(FEET) =    64.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  21.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.62
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      46.73
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =   14.59
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    216.00 =    2084.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    216.00 TO NODE    216.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.434
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8729
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.71   SUBAREA RUNOFF(CFS) =    1.51
  TOTAL AREA(ACRES) =       21.4   TOTAL RUNOFF(CFS) =      48.24
  TC(MIN.) =   14.59

****************************************************************************
  FLOW PROCESS FROM NODE    216.00 TO NODE    217.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1712.96  DOWNSTREAM(FEET) =  1711.30
  FLOW LENGTH(FEET) =    81.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  19.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.96
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      48.24
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =   14.68
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    217.00 =    2165.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    217.00 TO NODE    217.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.426
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8729
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.68   SUBAREA RUNOFF(CFS) =    3.56
  TOTAL AREA(ACRES) =       23.1   TOTAL RUNOFF(CFS) =      51.80
  TC(MIN.) =   14.68
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    217.00 TO NODE    218.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1711.30  DOWNSTREAM(FEET) =  1708.20
  FLOW LENGTH(FEET) =   145.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  20.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.39
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      51.80
  PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =   14.85
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    218.00 =    2310.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    218.00 TO NODE    218.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.412
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8727
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.78   SUBAREA RUNOFF(CFS) =    1.64
  TOTAL AREA(ACRES) =       23.9   TOTAL RUNOFF(CFS) =      53.44
  TC(MIN.) =   14.85

****************************************************************************
  FLOW PROCESS FROM NODE    218.00 TO NODE    218.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.412
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8727
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.34   SUBAREA RUNOFF(CFS) =    2.82
  TOTAL AREA(ACRES) =       25.2   TOTAL RUNOFF(CFS) =      56.26
  TC(MIN.) =   14.85

****************************************************************************
  FLOW PROCESS FROM NODE    218.00 TO NODE    219.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1708.20  DOWNSTREAM(FEET) =  1706.30
  FLOW LENGTH(FEET) =    87.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  30.0 INCH PIPE IS  21.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.71
  ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      56.26
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =   14.95
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    219.00 =    2397.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    219.00 TO NODE    219.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       56.26    14.95       2.404       25.23
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    219.00 =    2397.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       97.60    13.40       2.539       37.91
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    219.00 =    3598.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     148.03      13.40        2.539
      2     148.66      14.95        2.404
```

```
  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     148.66   Tc(MIN.) =   14.95
  TOTAL AREA(ACRES) =       63.1

****************************************************************************
  FLOW PROCESS FROM NODE    219.00 TO NODE    219.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    219.00 TO NODE    220.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1706.30  DOWNSTREAM(FEET) =  1702.77
  FLOW LENGTH(FEET) =   706.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  57.0 INCH PIPE IS  41.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.79
  ESTIMATED PIPE DIAMETER(INCH) =  57.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     148.66
  PIPE TRAVEL TIME(MIN.) =   1.09    Tc(MIN.) =   16.04
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    220.00 =    4304.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    220.00 TO NODE    220.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.321
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8720
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    2.96   SUBAREA RUNOFF(CFS) =    5.99
  TOTAL AREA(ACRES) =       66.1   TOTAL RUNOFF(CFS) =     154.66
  TC(MIN.) =   16.04
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       66.1  TC(MIN.) =     16.04
  PEAK FLOW RATE(CFS)   =     154.66
  *** PEAK FLOW RATE TABLE ***
         Q(CFS)   Tc(MIN.)
  1      154.34      14.49
  2      154.66      16.04
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                      (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
                      (Rational Tabling Version 23.0)
                  Release Date: 07/01/2016  License ID 1435

                           Analysis prepared by:

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 ************************ DESCRIPTION OF STUDY ************************
* TEI JOB 3828                                                        *
* 100-YEAR STORM EVENT                                                *
* STREET FLOW (NODES 500-502)                                         *
 ************************************************************************

  FILE NAME: W:\3828\500P.DAT
  TIME/DATE OF STUDY: 08:59 03/22/2021
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.010
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.820
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.940
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.200
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5003939
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5001161
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.200
  SLOPE OF INTENSITY DURATION CURVE = 0.5001
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: CONSIDER ALL CONFLUENCE STREAM COMBINATIONS
        FOR ALL DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    500.00 TO NODE    501.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   860.00
  UPSTREAM ELEVATION(FEET) =   1754.80
  DOWNSTREAM ELEVATION(FEET) =   1749.00
  ELEVATION DIFFERENCE(FEET) =      5.80
  TC = 0.303*[(  860.00**3)/(     5.80)]**.2 =   12.291
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.652
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8745
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      2.43
  TOTAL AREA(ACRES) =      1.05   TOTAL RUNOFF(CFS) =      2.43

****************************************************************************
  FLOW PROCESS FROM NODE    501.00 TO NODE    502.00 IS CODE =  61
```

```
--------------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
================================================================================
  UPSTREAM ELEVATION(FEET) = 1748.80  DOWNSTREAM ELEVATION(FEET) = 1739.70
  STREET LENGTH(FEET) =   885.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 38.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0149

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.43
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.38
    HALFSTREET FLOOD WIDTH(FEET) =   10.89
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.49
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.94
  STREET FLOW TRAVEL TIME(MIN.) =   5.92   Tc(MIN.) =   18.21
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.179
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8708
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.05      SUBAREA RUNOFF(CFS) =    1.99
  TOTAL AREA(ACRES) =        2.1        PEAK FLOW RATE(CFS) =       4.43

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  12.23
  FLOW VELOCITY(FEET/SEC.) =  2.63   DEPTH*VELOCITY(FT*FT/SEC.) =   1.06
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    502.00 =    1745.00 FEET.
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.1  TC(MIN.) =     18.21
  PEAK FLOW RATE(CFS)   =       4.43
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
           RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
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                    (Rational Tabling Version 23.0)
                Release Date: 07/01/2016  License ID 1435

                         Analysis prepared by:

                       THIENES ENGINEERING, INC.
                          14349 FIRESTONE BLVD
                          LA MIRADA, CA 90638
                              714-521-4811

 ************************* DESCRIPTION OF STUDY *************************
* TEI JOB 3828                                                         *
* 100-YEAR STORM EVENT                                                 *
* STREET FLOW (NODES 510-511)                                          *
 ************************************************************************

  FILE NAME: W:\3828\510P.DAT
  TIME/DATE OF STUDY: 09:09 03/22/2021
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.010
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.820
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.940
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.200
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5003939
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5001161
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.200
  SLOPE OF INTENSITY DURATION CURVE = 0.5001
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: CONSIDER ALL CONFLUENCE STREAM COMBINATIONS
        FOR ALL DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE    510.00 TO NODE    511.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   395.00
  UPSTREAM ELEVATION(FEET) =   1740.00
  DOWNSTREAM ELEVATION(FEET) =   1736.25
  ELEVATION DIFFERENCE(FEET) =      3.75
  TC = 0.303*[(  395.00**3)/(     3.75)]**.2 =    8.409
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.206
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8778
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      2.81
  TOTAL AREA(ACRES) =      1.00   TOTAL RUNOFF(CFS) =      2.81
========================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =      8.41
```

510P

PEAK FLOW RATE(CFS) = 2.81

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END OF RATIONAL METHOD ANALYSIS

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****************************************************************************
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                           Analysis prepared by:

                         THIENES ENGINEERING, INC.
                            14349 FIRESTONE BLVD
                            LA MIRADA, CA 90638
                                714-521-4811

 ************************* DESCRIPTION OF STUDY *************************
* TEI JOB 3828                                                          *
* 100-YEAR STORM EVENT                                                  *
* STREET FLOW (NODES 520-522)                                           *
 ************************************************************************

  FILE NAME: W:\3828\520P.DAT
  TIME/DATE OF STUDY: 09:29 03/22/2021
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.010
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.820
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.940
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.200
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5003939
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5001161
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.200
  SLOPE OF INTENSITY DURATION CURVE = 0.5001
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: CONSIDER ALL CONFLUENCE STREAM COMBINATIONS
        FOR ALL DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    520.00 TO NODE    521.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   755.00
  UPSTREAM ELEVATION(FEET) =   1737.10
  DOWNSTREAM ELEVATION(FEET) =   1724.20
  ELEVATION DIFFERENCE(FEET) =     12.90
  TC = 0.303*[(  755.00**3)/(    12.90)]**.2 =    9.688
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.987
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8766
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      2.49
  TOTAL AREA(ACRES) =      0.95   TOTAL RUNOFF(CFS) =      2.49

****************************************************************************
  FLOW PROCESS FROM NODE    521.00 TO NODE    522.00 IS CODE =  61
```

```
--------------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
================================================================================
  UPSTREAM ELEVATION(FEET) = 1724.20  DOWNSTREAM ELEVATION(FEET) = 1696.30
  STREET LENGTH(FEET) =   755.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 43.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0149

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.69
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.33
    HALFSTREET FLOOD WIDTH(FEET) =    8.37
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.14
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.35
  STREET FLOW TRAVEL TIME(MIN.) =   3.04   Tc(MIN.) =   12.72
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.606
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8742
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.05      SUBAREA RUNOFF(CFS) =    2.39
  TOTAL AREA(ACRES) =        2.0        PEAK FLOW RATE(CFS) =       4.88

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =   9.57
  FLOW VELOCITY(FEET/SEC.) =  4.42   DEPTH*VELOCITY(FT*FT/SEC.) =   1.54
  LONGEST FLOWPATH FROM NODE    520.00 TO NODE    522.00 =    1510.00 FEET.
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.0  TC(MIN.) =     12.72
  PEAK FLOW RATE(CFS)   =       4.88
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
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                           Analysis prepared by:

                         THIENES ENGINEERING, INC.
                            14349 FIRESTONE BLVD
                            LA MIRIADA, CA 90638
                                714-521-4811

 ************************ DESCRIPTION OF STUDY ************************
* TEI JOB NUMBER 3828                                                 *
* PROPOSED CONDITIONS                                                 *
* 100-YEAR STORM EVENT                                                *
 ************************************************************************

  FILE NAME: W:\3828\P600.DAT
  TIME/DATE OF STUDY: 12:18 04/05/2022
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.010
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.820
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.940
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.200
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5003939
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5001161
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.200
  SLOPE OF INTENSITY DURATION CURVE = 0.5001
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: CONSIDER ALL CONFLUENCE STREAM COMBINATIONS
        FOR ALL DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE    600.00 TO NODE    601.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH GOOD COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =   1728.00
  DOWNSTREAM ELEVATION(FEET) =   1723.00
  ELEVATION DIFFERENCE(FEET) =      5.00
  TC = 0.937*[(  150.00**3)/(     5.00)]**.2 =   13.734
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.509
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6349
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      1.27
  TOTAL AREA(ACRES) =      0.80   TOTAL RUNOFF(CFS) =      1.27

************************************************************************
  FLOW PROCESS FROM NODE    601.00 TO NODE    602.00 IS CODE =  61
------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1723.00  DOWNSTREAM ELEVATION(FEET) = 1718.00
  STREET LENGTH(FEET) =   840.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 32.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0149
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.92
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =    9.46
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.77
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.62
  STREET FLOW TRAVEL TIME(MIN.) =   7.89   Tc(MIN.) =   21.63
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.999
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8691
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.75      SUBAREA RUNOFF(CFS) =    1.30
  TOTAL AREA(ACRES) =        1.5        PEAK FLOW RATE(CFS) =       2.58

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.38   HALFSTREET FLOOD WIDTH(FEET) =  10.87
  FLOW VELOCITY(FEET/SEC.) =  1.88   DEPTH*VELOCITY(FT*FT/SEC.) =   0.71
  LONGEST FLOWPATH FROM NODE    600.00 TO NODE    602.00 =     990.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    602.00 TO NODE    602.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.999
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5905
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.40   SUBAREA RUNOFF(CFS) =    0.47
  TOTAL AREA(ACRES) =        1.9   TOTAL RUNOFF(CFS) =       3.05
  TC(MIN.) =   21.63

****************************************************************************
  FLOW PROCESS FROM NODE    602.00 TO NODE    603.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1718.00  DOWNSTREAM ELEVATION(FEET) = 1712.50
  STREET LENGTH(FEET) =   840.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 32.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0149
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.62
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.41
    HALFSTREET FLOOD WIDTH(FEET) =   12.35
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.11
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.85
  STREET FLOW TRAVEL TIME(MIN.) =   6.64   Tc(MIN.) =   28.26
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.749
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8663
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.75      SUBAREA RUNOFF(CFS) =    1.14
  TOTAL AREA(ACRES) =        2.7        PEAK FLOW RATE(CFS) =       4.19

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.42   HALFSTREET FLOOD WIDTH(FEET) =  13.13
```

```
  FLOW VELOCITY(FEET/SEC.) =  2.19   DEPTH*VELOCITY(FT*FT/SEC.) =   0.92
  LONGEST FLOWPATH FROM NODE    600.00 TO NODE    603.00 =    1830.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    603.00 TO NODE    604.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1712.50  DOWNSTREAM ELEVATION(FEET) = 1706.00
  STREET LENGTH(FEET) =   840.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 32.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0149
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.74
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.43
    HALFSTREET FLOOD WIDTH(FEET) =   13.37
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.40
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.02
  STREET FLOW TRAVEL TIME(MIN.) =   5.84   Tc(MIN.) =   34.11
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.592
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8643
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    0.80      SUBAREA RUNOFF(CFS) =    1.10
  TOTAL AREA(ACRES) =        3.5        PEAK FLOW RATE(CFS) =       5.29

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.44   HALFSTREET FLOOD WIDTH(FEET) =  13.99
  FLOW VELOCITY(FEET/SEC.) =  2.46   DEPTH*VELOCITY(FT*FT/SEC.) =   1.08
  LONGEST FLOWPATH FROM NODE    600.00 TO NODE    604.00 =    2670.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    604.00 TO NODE    604.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.592
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5428
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    2.15   SUBAREA RUNOFF(CFS) =    1.86
  TOTAL AREA(ACRES) =        5.6   TOTAL RUNOFF(CFS) =       7.14
  TC(MIN.) =   34.11
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        5.6  TC(MIN.) =     34.11
  PEAK FLOW RATE(CFS)   =       7.14
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX C

DETENTION CALCULATIONS

HYDROGRAPH RESULTS

Return Event (year)	Storm Duration (hour)	Existing Total Flow (cfs)	Existing Total Volume (ac-ft)	Proposed Total Flow (cfs)	Proposed Total Volume (ac-ft)	Peak Flow Difference (cfs)	Volume Difference (ac-ft)
100	1	131.5	5.89	177.0	6.38	45.5	0.49
100	3	88.3	7.96	103.5	9.62	15.2	1.66
100	6	77.8	9.16	89.8	12.81	12.0	3.65
100	24	31.9	12.27	37.9	22.68	6.0	10.41
10	1	73.5	2.78	113.0	4.06	39.5	1.28
10	3	45.5	2.67	65.2	6.24	19.7	3.57
10	6	40.1	2.93	57.8	8.59	17.7	5.66
10	24	8.8	2.25	23.8	14.50	15.0	12.25
5	1	47.0	1.38	93.3	3.38	46.3	2.00
5	3	23.8	1.20	54.5	5.27	30.7	4.07
5	6	19.9	1.31	49.5	7.38	29.6	6.07
5	24	2.2	1.34	19.7	12.05	17.5	10.71
2	1	29.8	0.87	69.2	2.53	39.4	1.66
2	3	12.1	0.67	41.6	4.02	29.5	3.35
2	6	10.1	0.80	38.8	5.79	28.7	4.99
2	24	1.6	0.98	14.4	8.81	12.8	7.83

DETENTION BASIN STAGED STORAGE

Elevation	Depth (feet)	Area (sq. ft.)	Volume (c.f.)	Σ Volume (c.f.)	Σ Volume (ac-ft)
1706.80	0.00	124,765			
			25,132	25,132	0.58
1707.00	0.20	126,554			
			25,490	50,622	1.16
1707.20	0.40	128,350			
			25,850	76,472	1.76
1707.40	0.60	130,150			
			26,211	102,683	2.36
1707.60	0.80	131,960			
			26,573	129,256	2.97
1707.80	1.00	133,770			
			26,936	156,192	3.59
1708.00	1.20	135,590			
			27,301	183,493	4.21
1708.20	1.40	137,420			
			27,667	211,160	4.85
1708.40	1.60	139,250			
			28,034	239,194	5.49
1708.60	1.80	141,090			
			28,403	267,597	6.14
1708.80	2.00	142,935			
			28,773	296,369	6.80
1709.00	2.20	144,790			
			29,143	325,512	7.47
1709.20	2.40	146,640			
			29,514	355,026	8.15
1709.40	2.60	148,500			
			29,888	384,914	8.84
1709.60	2.80	150,375			
			30,263	415,176	9.53
1709.80	3.00	152,250			
			30,638	445,814	10.23
1710.00	3.20	154,130			
			31,015	476,829	10.95
1710.20	3.40	156,020			
			31,393	508,222	11.67
1710.40	3.60	157,910			
			31,772	539,994	12.40
1710.60	3.80	159,810			
			32,152	572,147	13.13
1710.80	4.00	161,714			
			32,534	604,681	13.88
1711.00	4.20	163,625			
			32,917	637,597	14.64
1711.20	4.40	165,540			
			33,300	670,897	15.40
1711.40	4.60	167,460			
			33,686	704,583	16.18
1711.60	4.80	169,400			

EXISTING CONDITION

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 07/31/20 File: 3828EX212.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 2-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.00	0.50	0.00
0.00	0.01	0.00
0.00	0.01	0.00
0.00	0.01	0.00
0.00	0.01	0.00
0.00	0.01	0.00
0.00	0.01	0.00
0.00	0.01	0.00
0.00	0.01	0.00
0.00	0.01	0.00
0.00	0.01	0.00
0.00	0.01	0.00
0.00	0.01	0.00
67.10	0.50	33.55

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.20	80.52

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.500(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.500(In)
Areal adjustment factor = 99.94 %

Adjusted average point rain = 0.500(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
76.0	58.2	0.488	0.000	0.488	1.000	0.488
					Sum (F) =	0.488

Area averaged mean soil loss (F) (In/Hr) = 0.488
Minimum soil loss rate ((In/Hr)) = 0.244
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	52.307	6.571	4.443
2	0.167	104.614	28.083	18.991
3	0.250	156.922	28.549	19.306
4	0.333	209.229	12.179	8.236
5	0.417	261.536	6.595	4.460
6	0.500	313.843	4.589	3.103
7	0.583	366.151	3.296	2.229
8	0.667	418.458	2.462	1.665
9	0.750	470.765	1.797	1.215
10	0.833	523.072	1.548	1.047
11	0.917	575.380	1.191	0.806
12	1.000	627.687	0.940	0.636
13	1.083	679.994	0.721	0.488
14	1.167	732.301	0.542	0.367
15	1.250	784.608	0.523	0.354
16	1.333	836.916	0.415	0.281
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.252	(0.488)	0.227	0.025
2	0.17	4.30	0.258	(0.488)	0.232	0.026
3	0.25	5.00	0.300	(0.488)	0.270	0.030
4	0.33	5.00	0.300	(0.488)	0.270	0.030
5	0.42	5.80	0.348	(0.488)	0.313	0.035
6	0.50	6.50	0.390	(0.488)	0.351	0.039
7	0.58	7.40	0.444	(0.488)	0.399	0.044
8	0.67	8.60	0.516	(0.488)	0.464	0.052
9	0.75	12.30	0.738	0.488	(0.664)	0.249
10	0.83	29.10	1.745	0.488	(1.570)	1.257
11	0.92	6.80	0.408	(0.488)	0.367	0.041
12	1.00	5.00	0.300	(0.488)	0.270	0.030
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	1.9

Flood volume = Effective rainfall 0.15(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 0.9(Ac.Ft)
Total soil loss = 0.34(In)
Total soil loss = 1.929(Ac.Ft)
Total rainfall = 0.50(In)
Flood volume = 37696.1 Cubic Feet
Total soil loss = 84016.4 Cubic Feet

Peak flow rate of this hydrograph = 29.826(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	7.5	15.0	22.5	30.0
0+ 5	0.0008	0.11	Q				
0+10	0.0049	0.59	Q				
0+15	0.0125	1.11	VQ				
0+20	0.0222	1.41	|Q				
0+25	0.0334	1.63	|VQ				
0+30	0.0462	1.85	| Q				
0+35	0.0608	2.13	| Q				
0+40	0.0776	2.44	| Q				
0+45	0.1028	3.65	| Q				
0+50	0.1864	12.14	| V	Q			
0+55	0.3918	29.83	|	V			Q|
1+ 0	0.5836	27.85	|	|	V	Q	|
1+ 5	0.6750	13.27	|	Q |		V	|
1+10	0.7276	7.63	|	Q	|	V	|
1+15	0.7630	5.15	| Q	|	|	V	|
1+20	0.7884	3.68	| Q	|	|	V	|
1+25	0.8073	2.74	| Q	|	|	V	|
1+30	0.8214	2.04	| Q	|	|	V	|
1+35	0.8331	1.71	| Q	|	|	V	|
1+40	0.8422	1.32	|Q	|	|	V	|
1+45	0.8493	1.03	|Q	|	|	V	|
1+50	0.8547	0.79	|Q	|	|	V	|
1+55	0.8588	0.60	Q	|	|	V	|
2+ 0	0.8626	0.54	Q	|	|	V	|
2+ 5	0.8652	0.38	Q	|	|	V	|
2+10	0.8653	0.02	Q	|	|	V	|
2+15	0.8654	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 07/31/20 File: 3828EX232.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 2-YEAR STORM EVENT

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Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.80	53.68

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.86	124.81

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 0.800(In)
Areal adjustment factor = 99.97 %
Adjusted average point rain = 0.800(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
76.0	58.2	0.488	0.000	0.488	1.000	0.488
					Sum (F) =	0.488

Area averaged mean soil loss (F) (In/Hr) = 0.488
Minimum soil loss rate ((In/Hr)) = 0.244
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	52.307	6.571	4.443
2 0.167	104.614	28.083	18.991
3 0.250	156.922	28.549	19.306
4 0.333	209.229	12.179	8.236
5 0.417	261.536	6.595	4.460
6 0.500	313.843	4.589	3.103
7 0.583	366.151	3.296	2.229
8 0.667	418.458	2.462	1.665
9 0.750	470.765	1.797	1.215
10 0.833	523.072	1.548	1.047
11 0.917	575.380	1.191	0.806
12 1.000	627.687	0.940	0.636
13 1.083	679.994	0.721	0.488
14 1.167	732.301	0.542	0.367
15 1.250	784.608	0.523	0.354
16 1.333	836.916	0.415	0.281
		Sum = 100.000	Sum= 67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1 0.08	1.30	0.125	(0.488)	0.112	0.012
2 0.17	1.30	0.125	(0.488)	0.112	0.012
3 0.25	1.10	0.106	(0.488)	0.095	0.011
4 0.33	1.50	0.144	(0.488)	0.130	0.014
5 0.42	1.50	0.144	(0.488)	0.130	0.014
6 0.50	1.80	0.173	(0.488)	0.155	0.017
7 0.58	1.50	0.144	(0.488)	0.130	0.014
8 0.67	1.80	0.173	(0.488)	0.155	0.017
9 0.75	1.80	0.173	(0.488)	0.155	0.017
10 0.83	1.50	0.144	(0.488)	0.130	0.014
11 0.92	1.60	0.154	(0.488)	0.138	0.015
12 1.00	1.80	0.173	(0.488)	0.155	0.017
13 1.08	2.20	0.211	(0.488)	0.190	0.021
14 1.17	2.20	0.211	(0.488)	0.190	0.021
15 1.25	2.20	0.211	(0.488)	0.190	0.021
16 1.33	2.00	0.192	(0.488)	0.173	0.019
17 1.42	2.60	0.250	(0.488)	0.225	0.025
18 1.50	2.70	0.259	(0.488)	0.233	0.026
19 1.58	2.40	0.230	(0.488)	0.207	0.023
20 1.67	2.70	0.259	(0.488)	0.233	0.026
21 1.75	3.30	0.317	(0.488)	0.285	0.032
22 1.83	3.10	0.298	(0.488)	0.268	0.030
23 1.92	2.90	0.278	(0.488)	0.250	0.028
24 2.00	3.00	0.288	(0.488)	0.259	0.029
25 2.08	3.10	0.298	(0.488)	0.268	0.030
26 2.17	4.20	0.403	(0.488)	0.363	0.040
27 2.25	5.00	0.480	(0.488)	0.432	0.048
28 2.33	3.50	0.336	(0.488)	0.302	0.034
29 2.42	6.80	0.653	0.488	(0.587)	0.164
30 2.50	7.30	0.701	0.488	(0.631)	0.212
31 2.58	8.20	0.787	0.488	(0.708)	0.299
32 2.67	5.90	0.566	0.488	(0.510)	0.078
33 2.75	2.00	0.192	(0.488)	0.173	0.019
34 2.83	1.80	0.173	(0.488)	0.155	0.017
35 2.92	1.80	0.173	(0.488)	0.155	0.017
36 3.00	0.60	0.058	(0.488)	0.052	0.006
	(Loss Rate Not Used)				
Sum =	100.0			Sum =	1.4

Flood volume = Effective rainfall 0.12(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 0.7(Ac.Ft)
Total soil loss = 0.68(In)
Total soil loss = 3.800(Ac.Ft)
Total rainfall = 0.80(In)
Flood volume = 29270.2 Cubic Feet
Total soil loss = 165531.0 Cubic Feet

Peak flow rate of this hydrograph = 12.057(CFS)

++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 5.0 10.0 15.0 20.0
0+ 5	0.0004	0.06	Q
0+10	0.0024	0.29	Q
0+15	0.0060	0.52	VQ
0+20	0.0102	0.61	VQ
0+25	0.0150	0.70	VQ
0+30	0.0206	0.81	|Q
0+35	0.0268	0.90	|Q
0+40	0.0333	0.95	|Q
0+45	0.0402	0.99	|QV
0+50	0.0474	1.04	| Q
0+55	0.0545	1.03	| QV
1+ 0	0.0615	1.02	| QV
1+ 5	0.0689	1.08	| Q V
1+10	0.0772	1.20	| Q V
1+15	0.0861	1.30	| Q V
1+20	0.0953	1.33	| Q V
1+25	0.1046	1.34	| Q V
1+30	0.1145	1.44	| Q V
1+35	0.1252	1.55	| Q V
1+40	0.1360	1.58	| Q V
1+45	0.1473	1.63	| Q V
1+50	0.1596	1.79	| Q V|
1+55	0.1726	1.88	| Q V
2+ 0	0.1855	1.88	| Q |V
2+ 5	0.1985	1.89	| Q |V
2+10	0.2121	1.97	| Q | V
2+15	0.2275	2.24	| Q | V
2+20	0.2450	2.54	| Q | V
2+25	0.2663	3.09	| Q | V
2+30	0.3051	5.63	| |Q V
2+35	0.3699	9.40	| | Q | V
2+40	0.4529	12.06	| | | Q V
2+45	0.5235	10.24	| | Q |V
2+50	0.5660	6.18	| | Q | V
2+55	0.5937	4.02	| | Q | V
3+ 0	0.6147	3.05	| Q | V
3+ 5	0.6304	2.27	| Q | V
3+10	0.6414	1.60	| Q | V
3+15	0.6493	1.15	| Q | V
3+20	0.6554	0.89	|Q | V|
3+25	0.6601	0.69	|Q | V|
3+30	0.6637	0.52	|Q | V|
3+35	0.6665	0.40	Q | V|
3+40	0.6687	0.32	Q | V|
3+45	0.6704	0.23	Q | V|
3+50	0.6713	0.14	Q | V|
3+55	0.6717	0.05	Q | V|
4+ 0	0.6718	0.02	Q | V|
4+ 5	0.6719	0.01	Q | V|
4+10	0.6719	0.01	Q | V|
4+15	0.6720	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 07/31/20 File: 3828EX262.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 2-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.15	77.16

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	2.50	167.75

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.150(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.150(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 1.150(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
76.0	58.2	0.488	0.000	0.488	1.000	0.488
					Sum (F) =	0.488

Area averaged mean soil loss (F) (In/Hr) = 0.488
Minimum soil loss rate ((In/Hr)) = 0.244
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	52.307	6.571	4.443
2	0.167	104.614	28.083	18.991
3	0.250	156.922	28.549	19.306
4	0.333	209.229	12.179	8.236
5	0.417	261.536	6.595	4.460
6	0.500	313.843	4.589	3.103
7	0.583	366.151	3.296	2.229
8	0.667	418.458	2.462	1.665
9	0.750	470.765	1.797	1.215
10	0.833	523.072	1.548	1.047
11	0.917	575.380	1.191	0.806
12	1.000	627.687	0.940	0.636
13	1.083	679.994	0.721	0.488
14	1.167	732.301	0.542	0.367
15	1.250	784.608	0.523	0.354
16	1.333	836.916	0.415	0.281
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.069	(0.488)	0.062	0.007
2	0.17	0.60	0.083	(0.488)	0.075	0.008
3	0.25	0.60	0.083	(0.488)	0.075	0.008
4	0.33	0.60	0.083	(0.488)	0.075	0.008
5	0.42	0.60	0.083	(0.488)	0.075	0.008
6	0.50	0.70	0.097	(0.488)	0.087	0.010
7	0.58	0.70	0.097	(0.488)	0.087	0.010
8	0.67	0.70	0.097	(0.488)	0.087	0.010
9	0.75	0.70	0.097	(0.488)	0.087	0.010
10	0.83	0.70	0.097	(0.488)	0.087	0.010
11	0.92	0.70	0.097	(0.488)	0.087	0.010
12	1.00	0.80	0.110	(0.488)	0.099	0.011
13	1.08	0.80	0.110	(0.488)	0.099	0.011
14	1.17	0.80	0.110	(0.488)	0.099	0.011
15	1.25	0.80	0.110	(0.488)	0.099	0.011
16	1.33	0.80	0.110	(0.488)	0.099	0.011
17	1.42	0.80	0.110	(0.488)	0.099	0.011
18	1.50	0.80	0.110	(0.488)	0.099	0.011
19	1.58	0.80	0.110	(0.488)	0.099	0.011
20	1.67	0.80	0.110	(0.488)	0.099	0.011
21	1.75	0.80	0.110	(0.488)	0.099	0.011
22	1.83	0.80	0.110	(0.488)	0.099	0.011
23	1.92	0.80	0.110	(0.488)	0.099	0.011
24	2.00	0.90	0.124	(0.488)	0.112	0.012
25	2.08	0.80	0.110	(0.488)	0.099	0.011
26	2.17	0.90	0.124	(0.488)	0.112	0.012
27	2.25	0.90	0.124	(0.488)	0.112	0.012
28	2.33	0.90	0.124	(0.488)	0.112	0.012
29	2.42	0.90	0.124	(0.488)	0.112	0.012
30	2.50	0.90	0.124	(0.488)	0.112	0.012
31	2.58	0.90	0.124	(0.488)	0.112	0.012
32	2.67	0.90	0.124	(0.488)	0.112	0.012
33	2.75	1.00	0.138	(0.488)	0.124	0.014
34	2.83	1.00	0.138	(0.488)	0.124	0.014
35	2.92	1.00	0.138	(0.488)	0.124	0.014
36	3.00	1.00	0.138	(0.488)	0.124	0.014
37	3.08	1.00	0.138	(0.488)	0.124	0.014
38	3.17	1.10	0.152	(0.488)	0.137	0.015

39	3.25	1.10	0.152	(0.488)	0.137	0.015
40	3.33	1.10	0.152	(0.488)	0.137	0.015
41	3.42	1.20	0.166	(0.488)	0.149	0.017
42	3.50	1.30	0.179	(0.488)	0.161	0.018
43	3.58	1.40	0.193	(0.488)	0.174	0.019
44	3.67	1.40	0.193	(0.488)	0.174	0.019
45	3.75	1.50	0.207	(0.488)	0.186	0.021
46	3.83	1.50	0.207	(0.488)	0.186	0.021
47	3.92	1.60	0.221	(0.488)	0.199	0.022
48	4.00	1.60	0.221	(0.488)	0.199	0.022
49	4.08	1.70	0.235	(0.488)	0.211	0.023
50	4.17	1.80	0.248	(0.488)	0.224	0.025
51	4.25	1.90	0.262	(0.488)	0.236	0.026
52	4.33	2.00	0.276	(0.488)	0.248	0.028
53	4.42	2.10	0.290	(0.488)	0.261	0.029
54	4.50	2.10	0.290	(0.488)	0.261	0.029
55	4.58	2.20	0.304	(0.488)	0.273	0.030
56	4.67	2.30	0.317	(0.488)	0.286	0.032
57	4.75	2.40	0.331	(0.488)	0.298	0.033
58	4.83	2.40	0.331	(0.488)	0.298	0.033
59	4.92	2.50	0.345	(0.488)	0.310	0.034
60	5.00	2.60	0.359	(0.488)	0.323	0.036
61	5.08	3.10	0.428	(0.488)	0.385	0.043
62	5.17	3.60	0.497	(0.488)	0.447	0.050
63	5.25	3.90	0.538	(0.488)	0.484	0.054
64	5.33	4.20	0.579	0.488	(0.522)	0.091
65	5.42	4.70	0.648	0.488	(0.584)	0.160
66	5.50	5.60	0.773	0.488	(0.695)	0.284
67	5.58	1.90	0.262	(0.488)	0.236	0.026
68	5.67	0.90	0.124	(0.488)	0.112	0.012
69	5.75	0.60	0.083	(0.488)	0.075	0.008
70	5.83	0.50	0.069	(0.488)	0.062	0.007
71	5.92	0.30	0.041	(0.488)	0.037	0.004
72	6.00	0.20	0.028	(0.488)	0.025	0.003

(Loss Rate Not Used)

Sum = 100.0 Sum = 1.7

Flood volume = Effective rainfall 0.14(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 0.8(Ac.Ft)
Total soil loss = 1.01(In)
Total soil loss = 5.630(Ac.Ft)
Total rainfall = 1.15(In)
Flood volume = 34812.4 Cubic Feet
Total soil loss = 245231.9 Cubic Feet

Peak flow rate of this hydrograph = 10.077(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0002	0.03	Q				
0+10	0.0014	0.17	Q				
0+15	0.0036	0.33	Q				
0+20	0.0065	0.41	Q				
0+25	0.0096	0.45	Q				
0+30	0.0129	0.49	Q				
0+35	0.0166	0.53	VQ				
0+40	0.0205	0.57	|Q				
0+45	0.0246	0.60	|Q				
0+50	0.0289	0.61	|Q				
0+55	0.0331	0.62	|Q				
1+ 0	0.0375	0.64	|Q				
1+ 5	0.0421	0.67	|QV				
1+10	0.0470	0.70	|QV				
1+15	0.0519	0.72	|QV				
1+20	0.0569	0.73	|QV				
1+25	0.0620	0.73	|Q V				
1+30	0.0670	0.74	|Q V				
1+35	0.0721	0.74	|Q V				
1+40	0.0772	0.74	|Q V				
1+45	0.0823	0.74	|Q V				
1+50	0.0874	0.74	|Q V				

1+55	0.0926	0.74	
2+ 0	0.0978	0.75	
2+ 5	0.1031	0.77	
2+10	0.1084	0.78	
2+15	0.1139	0.79	
2+20	0.1195	0.81	
2+25	0.1251	0.82	
2+30	0.1308	0.83	
2+35	0.1365	0.83	
2+40	0.1423	0.83	
2+45	0.1481	0.84	
2+50	0.1540	0.87	
2+55	0.1602	0.90	
3+ 0	0.1665	0.91	
3+ 5	0.1728	0.92	
3+10	0.1791	0.93	
3+15	0.1857	0.96	
3+20	0.1925	0.98	
3+25	0.1994	1.00	
3+30	0.2066	1.04	
3+35	0.2143	1.11	
3+40	0.2224	1.18	
3+45	0.2308	1.23	
3+50	0.2397	1.28	
3+55	0.2488	1.33	
4+ 0	0.2583	1.38	
4+ 5	0.2681	1.42	
4+10	0.2783	1.48	
4+15	0.2890	1.55	
4+20	0.3002	1.63	
4+25	0.3120	1.72	
4+30	0.3244	1.80	
4+35	0.3372	1.86	
4+40	0.3505	1.92	
4+45	0.3642	2.00	
4+50	0.3786	2.08	
4+55	0.3933	2.14	
5+ 0	0.4085	2.20	
5+ 5	0.4244	2.31	
5+10	0.4418	2.52	
5+15	0.4613	2.83	
5+20	0.4839	3.29	
5+25	0.5148	4.48	
5+30	0.5641	7.16	
5+35	0.6335	10.08	
5+40	0.6906	8.29	
5+45	0.7216	4.51	
5+50	0.7416	2.91	
5+55	0.7564	2.14	
6+ 0	0.7675	1.62	
6+ 5	0.7759	1.22	
6+10	0.7821	0.90	
6+15	0.7868	0.69	
6+20	0.7904	0.52	
6+25	0.7932	0.40	
6+30	0.7953	0.30	
6+35	0.7968	0.23	
6+40	0.7981	0.18	
6+45	0.7988	0.11	
6+50	0.7990	0.02	
6+55	0.7991	0.01	
7+ 0	0.7991	0.01	
7+ 5	0.7992	0.00	
7+10	0.7992	0.00	
7+15	0.7992	0.00	

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

Program License Serial Number 6400

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English Rainfall Data (Inches) Input Values Used

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 2-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.75	117.42

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	4.50	301.95

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.750(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 1.750(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.750(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
76.0	58.2	0.488	0.000	0.488	1.000	0.488
					Sum (F) =	0.488

Area averaged mean soil loss (F) (In/Hr) = 0.488
Minimum soil loss rate ((In/Hr)) = 0.244
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	52.307	6.571	4.443
2 0.167	104.614	28.083	18.991
3 0.250	156.922	28.549	19.306
4 0.333	209.229	12.179	8.236
5 0.417	261.536	6.595	4.460
6 0.500	313.843	4.589	3.103
7 0.583	366.151	3.296	2.229
8 0.667	418.458	2.462	1.665
9 0.750	470.765	1.797	1.215
10 0.833	523.072	1.548	1.047
11 0.917	575.380	1.191	0.806
12 1.000	627.687	0.940	0.636
13 1.083	679.994	0.721	0.488
14 1.167	732.301	0.542	0.367
15 1.250	784.608	0.523	0.354
16 1.333	836.916	0.415	0.281
		Sum = 100.000	Sum= 67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1 0.08	0.07	0.014	(0.866)	0.013	0.001
2 0.17	0.07	0.014	(0.862)	0.013	0.001
3 0.25	0.07	0.014	(0.859)	0.013	0.001
4 0.33	0.10	0.021	(0.856)	0.019	0.002
5 0.42	0.10	0.021	(0.852)	0.019	0.002
6 0.50	0.10	0.021	(0.849)	0.019	0.002
7 0.58	0.10	0.021	(0.846)	0.019	0.002
8 0.67	0.10	0.021	(0.842)	0.019	0.002
9 0.75	0.10	0.021	(0.839)	0.019	0.002
10 0.83	0.13	0.028	(0.836)	0.025	0.003
11 0.92	0.13	0.028	(0.833)	0.025	0.003
12 1.00	0.13	0.028	(0.829)	0.025	0.003
13 1.08	0.10	0.021	(0.826)	0.019	0.002
14 1.17	0.10	0.021	(0.823)	0.019	0.002
15 1.25	0.10	0.021	(0.819)	0.019	0.002
16 1.33	0.10	0.021	(0.816)	0.019	0.002
17 1.42	0.10	0.021	(0.813)	0.019	0.002
18 1.50	0.10	0.021	(0.810)	0.019	0.002
19 1.58	0.10	0.021	(0.806)	0.019	0.002
20 1.67	0.10	0.021	(0.803)	0.019	0.002
21 1.75	0.10	0.021	(0.800)	0.019	0.002
22 1.83	0.13	0.028	(0.797)	0.025	0.003
23 1.92	0.13	0.028	(0.794)	0.025	0.003
24 2.00	0.13	0.028	(0.790)	0.025	0.003
25 2.08	0.13	0.028	(0.787)	0.025	0.003
26 2.17	0.13	0.028	(0.784)	0.025	0.003
27 2.25	0.13	0.028	(0.781)	0.025	0.003
28 2.33	0.13	0.028	(0.778)	0.025	0.003
29 2.42	0.13	0.028	(0.774)	0.025	0.003
30 2.50	0.13	0.028	(0.771)	0.025	0.003
31 2.58	0.17	0.035	(0.768)	0.031	0.003
32 2.67	0.17	0.035	(0.765)	0.031	0.003
33 2.75	0.17	0.035	(0.762)	0.031	0.003
34 2.83	0.17	0.035	(0.759)	0.031	0.003
35 2.92	0.17	0.035	(0.756)	0.031	0.003
36 3.00	0.17	0.035	(0.752)	0.031	0.003
37 3.08	0.17	0.035	(0.749)	0.031	0.003
38 3.17	0.17	0.035	(0.746)	0.031	0.003

39	3.25	0.17	0.035	(0.743)	0.031	0.003
40	3.33	0.17	0.035	(0.740)	0.031	0.003
41	3.42	0.17	0.035	(0.737)	0.031	0.003
42	3.50	0.17	0.035	(0.734)	0.031	0.003
43	3.58	0.17	0.035	(0.731)	0.031	0.003
44	3.67	0.17	0.035	(0.728)	0.031	0.003
45	3.75	0.17	0.035	(0.725)	0.031	0.003
46	3.83	0.20	0.042	(0.722)	0.038	0.004
47	3.92	0.20	0.042	(0.719)	0.038	0.004
48	4.00	0.20	0.042	(0.715)	0.038	0.004
49	4.08	0.20	0.042	(0.712)	0.038	0.004
50	4.17	0.20	0.042	(0.709)	0.038	0.004
51	4.25	0.20	0.042	(0.706)	0.038	0.004
52	4.33	0.23	0.049	(0.703)	0.044	0.005
53	4.42	0.23	0.049	(0.700)	0.044	0.005
54	4.50	0.23	0.049	(0.697)	0.044	0.005
55	4.58	0.23	0.049	(0.694)	0.044	0.005
56	4.67	0.23	0.049	(0.691)	0.044	0.005
57	4.75	0.23	0.049	(0.688)	0.044	0.005
58	4.83	0.27	0.056	(0.685)	0.050	0.006
59	4.92	0.27	0.056	(0.683)	0.050	0.006
60	5.00	0.27	0.056	(0.680)	0.050	0.006
61	5.08	0.20	0.042	(0.677)	0.038	0.004
62	5.17	0.20	0.042	(0.674)	0.038	0.004
63	5.25	0.20	0.042	(0.671)	0.038	0.004
64	5.33	0.23	0.049	(0.668)	0.044	0.005
65	5.42	0.23	0.049	(0.665)	0.044	0.005
66	5.50	0.23	0.049	(0.662)	0.044	0.005
67	5.58	0.27	0.056	(0.659)	0.050	0.006
68	5.67	0.27	0.056	(0.656)	0.050	0.006
69	5.75	0.27	0.056	(0.653)	0.050	0.006
70	5.83	0.27	0.056	(0.650)	0.050	0.006
71	5.92	0.27	0.056	(0.647)	0.050	0.006
72	6.00	0.27	0.056	(0.645)	0.050	0.006
73	6.08	0.30	0.063	(0.642)	0.057	0.006
74	6.17	0.30	0.063	(0.639)	0.057	0.006
75	6.25	0.30	0.063	(0.636)	0.057	0.006
76	6.33	0.30	0.063	(0.633)	0.057	0.006
77	6.42	0.30	0.063	(0.630)	0.057	0.006
78	6.50	0.30	0.063	(0.628)	0.057	0.006
79	6.58	0.33	0.070	(0.625)	0.063	0.007
80	6.67	0.33	0.070	(0.622)	0.063	0.007
81	6.75	0.33	0.070	(0.619)	0.063	0.007
82	6.83	0.33	0.070	(0.616)	0.063	0.007
83	6.92	0.33	0.070	(0.614)	0.063	0.007
84	7.00	0.33	0.070	(0.611)	0.063	0.007
85	7.08	0.33	0.070	(0.608)	0.063	0.007
86	7.17	0.33	0.070	(0.605)	0.063	0.007
87	7.25	0.33	0.070	(0.602)	0.063	0.007
88	7.33	0.37	0.077	(0.600)	0.069	0.008
89	7.42	0.37	0.077	(0.597)	0.069	0.008
90	7.50	0.37	0.077	(0.594)	0.069	0.008
91	7.58	0.40	0.084	(0.591)	0.076	0.008
92	7.67	0.40	0.084	(0.589)	0.076	0.008
93	7.75	0.40	0.084	(0.586)	0.076	0.008
94	7.83	0.43	0.091	(0.583)	0.082	0.009
95	7.92	0.43	0.091	(0.581)	0.082	0.009
96	8.00	0.43	0.091	(0.578)	0.082	0.009
97	8.08	0.50	0.105	(0.575)	0.094	0.010
98	8.17	0.50	0.105	(0.573)	0.094	0.010
99	8.25	0.50	0.105	(0.570)	0.094	0.010
100	8.33	0.50	0.105	(0.567)	0.094	0.010
101	8.42	0.50	0.105	(0.565)	0.094	0.010
102	8.50	0.50	0.105	(0.562)	0.094	0.010
103	8.58	0.53	0.112	(0.559)	0.101	0.011
104	8.67	0.53	0.112	(0.557)	0.101	0.011
105	8.75	0.53	0.112	(0.554)	0.101	0.011
106	8.83	0.57	0.119	(0.551)	0.107	0.012
107	8.92	0.57	0.119	(0.549)	0.107	0.012
108	9.00	0.57	0.119	(0.546)	0.107	0.012
109	9.08	0.63	0.133	(0.544)	0.120	0.013
110	9.17	0.63	0.133	(0.541)	0.120	0.013
111	9.25	0.63	0.133	(0.539)	0.120	0.013
112	9.33	0.67	0.140	(0.536)	0.126	0.014
113	9.42	0.67	0.140	(0.533)	0.126	0.014
114	9.50	0.67	0.140	(0.531)	0.126	0.014
115	9.58	0.70	0.147	(0.528)	0.132	0.015

116	9.67	0.70	0.147	(0.526)	0.132	0.015
117	9.75	0.70	0.147	(0.523)	0.132	0.015
118	9.83	0.73	0.154	(0.521)	0.139	0.015
119	9.92	0.73	0.154	(0.518)	0.139	0.015
120	10.00	0.73	0.154	(0.516)	0.139	0.015
121	10.08	0.50	0.105	(0.513)	0.094	0.010
122	10.17	0.50	0.105	(0.511)	0.094	0.010
123	10.25	0.50	0.105	(0.508)	0.094	0.010
124	10.33	0.50	0.105	(0.506)	0.094	0.010
125	10.42	0.50	0.105	(0.503)	0.094	0.010
126	10.50	0.50	0.105	(0.501)	0.094	0.010
127	10.58	0.67	0.140	(0.498)	0.126	0.014
128	10.67	0.67	0.140	(0.496)	0.126	0.014
129	10.75	0.67	0.140	(0.494)	0.126	0.014
130	10.83	0.67	0.140	(0.491)	0.126	0.014
131	10.92	0.67	0.140	(0.489)	0.126	0.014
132	11.00	0.67	0.140	(0.486)	0.126	0.014
133	11.08	0.63	0.133	(0.484)	0.120	0.013
134	11.17	0.63	0.133	(0.482)	0.120	0.013
135	11.25	0.63	0.133	(0.479)	0.120	0.013
136	11.33	0.63	0.133	(0.477)	0.120	0.013
137	11.42	0.63	0.133	(0.474)	0.120	0.013
138	11.50	0.63	0.133	(0.472)	0.120	0.013
139	11.58	0.57	0.119	(0.470)	0.107	0.012
140	11.67	0.57	0.119	(0.467)	0.107	0.012
141	11.75	0.57	0.119	(0.465)	0.107	0.012
142	11.83	0.60	0.126	(0.463)	0.113	0.013
143	11.92	0.60	0.126	(0.460)	0.113	0.013
144	12.00	0.60	0.126	(0.458)	0.113	0.013
145	12.08	0.83	0.175	(0.456)	0.157	0.017
146	12.17	0.83	0.175	(0.454)	0.157	0.017
147	12.25	0.83	0.175	(0.451)	0.157	0.017
148	12.33	0.87	0.182	(0.449)	0.164	0.018
149	12.42	0.87	0.182	(0.447)	0.164	0.018
150	12.50	0.87	0.182	(0.445)	0.164	0.018
151	12.58	0.93	0.196	(0.442)	0.176	0.020
152	12.67	0.93	0.196	(0.440)	0.176	0.020
153	12.75	0.93	0.196	(0.438)	0.176	0.020
154	12.83	0.97	0.203	(0.436)	0.183	0.020
155	12.92	0.97	0.203	(0.433)	0.183	0.020
156	13.00	0.97	0.203	(0.431)	0.183	0.020
157	13.08	1.13	0.238	(0.429)	0.214	0.024
158	13.17	1.13	0.238	(0.427)	0.214	0.024
159	13.25	1.13	0.238	(0.425)	0.214	0.024
160	13.33	1.13	0.238	(0.423)	0.214	0.024
161	13.42	1.13	0.238	(0.420)	0.214	0.024
162	13.50	1.13	0.238	(0.418)	0.214	0.024
163	13.58	0.77	0.161	(0.416)	0.145	0.016
164	13.67	0.77	0.161	(0.414)	0.145	0.016
165	13.75	0.77	0.161	(0.412)	0.145	0.016
166	13.83	0.77	0.161	(0.410)	0.145	0.016
167	13.92	0.77	0.161	(0.408)	0.145	0.016
168	14.00	0.77	0.161	(0.406)	0.145	0.016
169	14.08	0.90	0.189	(0.404)	0.170	0.019
170	14.17	0.90	0.189	(0.402)	0.170	0.019
171	14.25	0.90	0.189	(0.399)	0.170	0.019
172	14.33	0.87	0.182	(0.397)	0.164	0.018
173	14.42	0.87	0.182	(0.395)	0.164	0.018
174	14.50	0.87	0.182	(0.393)	0.164	0.018
175	14.58	0.87	0.182	(0.391)	0.164	0.018
176	14.67	0.87	0.182	(0.389)	0.164	0.018
177	14.75	0.87	0.182	(0.387)	0.164	0.018
178	14.83	0.83	0.175	(0.385)	0.157	0.017
179	14.92	0.83	0.175	(0.383)	0.157	0.017
180	15.00	0.83	0.175	(0.381)	0.157	0.017
181	15.08	0.80	0.168	(0.379)	0.151	0.017
182	15.17	0.80	0.168	(0.378)	0.151	0.017
183	15.25	0.80	0.168	(0.376)	0.151	0.017
184	15.33	0.77	0.161	(0.374)	0.145	0.016
185	15.42	0.77	0.161	(0.372)	0.145	0.016
186	15.50	0.77	0.161	(0.370)	0.145	0.016
187	15.58	0.63	0.133	(0.368)	0.120	0.013
188	15.67	0.63	0.133	(0.366)	0.120	0.013
189	15.75	0.63	0.133	(0.364)	0.120	0.013
190	15.83	0.63	0.133	(0.362)	0.120	0.013
191	15.92	0.63	0.133	(0.360)	0.120	0.013
192	16.00	0.63	0.133	(0.359)	0.120	0.013

193	16.08	0.13	0.028	(0.357)	0.025	0.003
194	16.17	0.13	0.028	(0.355)	0.025	0.003
195	16.25	0.13	0.028	(0.353)	0.025	0.003
196	16.33	0.13	0.028	(0.351)	0.025	0.003
197	16.42	0.13	0.028	(0.350)	0.025	0.003
198	16.50	0.13	0.028	(0.348)	0.025	0.003
199	16.58	0.10	0.021	(0.346)	0.019	0.002
200	16.67	0.10	0.021	(0.344)	0.019	0.002
201	16.75	0.10	0.021	(0.343)	0.019	0.002
202	16.83	0.10	0.021	(0.341)	0.019	0.002
203	16.92	0.10	0.021	(0.339)	0.019	0.002
204	17.00	0.10	0.021	(0.337)	0.019	0.002
205	17.08	0.17	0.035	(0.336)	0.031	0.003
206	17.17	0.17	0.035	(0.334)	0.031	0.003
207	17.25	0.17	0.035	(0.332)	0.031	0.003
208	17.33	0.17	0.035	(0.331)	0.031	0.003
209	17.42	0.17	0.035	(0.329)	0.031	0.003
210	17.50	0.17	0.035	(0.327)	0.031	0.003
211	17.58	0.17	0.035	(0.326)	0.031	0.003
212	17.67	0.17	0.035	(0.324)	0.031	0.003
213	17.75	0.17	0.035	(0.322)	0.031	0.003
214	17.83	0.13	0.028	(0.321)	0.025	0.003
215	17.92	0.13	0.028	(0.319)	0.025	0.003
216	18.00	0.13	0.028	(0.318)	0.025	0.003
217	18.08	0.13	0.028	(0.316)	0.025	0.003
218	18.17	0.13	0.028	(0.315)	0.025	0.003
219	18.25	0.13	0.028	(0.313)	0.025	0.003
220	18.33	0.13	0.028	(0.311)	0.025	0.003
221	18.42	0.13	0.028	(0.310)	0.025	0.003
222	18.50	0.13	0.028	(0.308)	0.025	0.003
223	18.58	0.10	0.021	(0.307)	0.019	0.002
224	18.67	0.10	0.021	(0.305)	0.019	0.002
225	18.75	0.10	0.021	(0.304)	0.019	0.002
226	18.83	0.07	0.014	(0.303)	0.013	0.001
227	18.92	0.07	0.014	(0.301)	0.013	0.001
228	19.00	0.07	0.014	(0.300)	0.013	0.001
229	19.08	0.10	0.021	(0.298)	0.019	0.002
230	19.17	0.10	0.021	(0.297)	0.019	0.002
231	19.25	0.10	0.021	(0.295)	0.019	0.002
232	19.33	0.13	0.028	(0.294)	0.025	0.003
233	19.42	0.13	0.028	(0.293)	0.025	0.003
234	19.50	0.13	0.028	(0.291)	0.025	0.003
235	19.58	0.10	0.021	(0.290)	0.019	0.002
236	19.67	0.10	0.021	(0.289)	0.019	0.002
237	19.75	0.10	0.021	(0.287)	0.019	0.002
238	19.83	0.07	0.014	(0.286)	0.013	0.001
239	19.92	0.07	0.014	(0.285)	0.013	0.001
240	20.00	0.07	0.014	(0.284)	0.013	0.001
241	20.08	0.10	0.021	(0.282)	0.019	0.002
242	20.17	0.10	0.021	(0.281)	0.019	0.002
243	20.25	0.10	0.021	(0.280)	0.019	0.002
244	20.33	0.10	0.021	(0.279)	0.019	0.002
245	20.42	0.10	0.021	(0.277)	0.019	0.002
246	20.50	0.10	0.021	(0.276)	0.019	0.002
247	20.58	0.10	0.021	(0.275)	0.019	0.002
248	20.67	0.10	0.021	(0.274)	0.019	0.002
249	20.75	0.10	0.021	(0.273)	0.019	0.002
250	20.83	0.07	0.014	(0.272)	0.013	0.001
251	20.92	0.07	0.014	(0.271)	0.013	0.001
252	21.00	0.07	0.014	(0.270)	0.013	0.001
253	21.08	0.10	0.021	(0.268)	0.019	0.002
254	21.17	0.10	0.021	(0.267)	0.019	0.002
255	21.25	0.10	0.021	(0.266)	0.019	0.002
256	21.33	0.07	0.014	(0.265)	0.013	0.001
257	21.42	0.07	0.014	(0.264)	0.013	0.001
258	21.50	0.07	0.014	(0.263)	0.013	0.001
259	21.58	0.10	0.021	(0.262)	0.019	0.002
260	21.67	0.10	0.021	(0.261)	0.019	0.002
261	21.75	0.10	0.021	(0.261)	0.019	0.002
262	21.83	0.07	0.014	(0.260)	0.013	0.001
263	21.92	0.07	0.014	(0.259)	0.013	0.001
264	22.00	0.07	0.014	(0.258)	0.013	0.001
265	22.08	0.10	0.021	(0.257)	0.019	0.002
266	22.17	0.10	0.021	(0.256)	0.019	0.002
267	22.25	0.10	0.021	(0.255)	0.019	0.002
268	22.33	0.07	0.014	(0.255)	0.013	0.001
269	22.42	0.07	0.014	(0.254)	0.013	0.001

270	22.50	0.07	0.014	(0.253)	0.013	0.001
271	22.58	0.07	0.014	(0.252)	0.013	0.001
272	22.67	0.07	0.014	(0.252)	0.013	0.001
273	22.75	0.07	0.014	(0.251)	0.013	0.001
274	22.83	0.07	0.014	(0.250)	0.013	0.001
275	22.92	0.07	0.014	(0.250)	0.013	0.001
276	23.00	0.07	0.014	(0.249)	0.013	0.001
277	23.08	0.07	0.014	(0.248)	0.013	0.001
278	23.17	0.07	0.014	(0.248)	0.013	0.001
279	23.25	0.07	0.014	(0.247)	0.013	0.001
280	23.33	0.07	0.014	(0.247)	0.013	0.001
281	23.42	0.07	0.014	(0.246)	0.013	0.001
282	23.50	0.07	0.014	(0.246)	0.013	0.001
283	23.58	0.07	0.014	(0.246)	0.013	0.001
284	23.67	0.07	0.014	(0.245)	0.013	0.001
285	23.75	0.07	0.014	(0.245)	0.013	0.001
286	23.83	0.07	0.014	(0.245)	0.013	0.001
287	23.92	0.07	0.014	(0.244)	0.013	0.001
288	24.00	0.07	0.014	(0.244)	0.013	0.001

(Loss Rate Not Used)

Sum = 100.0 Sum = 2.1

Flood volume = Effective rainfall 0.17(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 1.0(Ac.Ft)
Total soil loss = 1.57(In)
Total soil loss = 8.806(Ac.Ft)
Total rainfall = 1.75(In)
Flood volume = 42619.7 Cubic Feet
Total soil loss = 383577.2 Cubic Feet

Peak flow rate of this hydrograph = 1.573(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.01	Q				
0+10	0.0003	0.03	Q				
0+15	0.0007	0.06	Q				
0+20	0.0012	0.07	Q				
0+25	0.0018	0.09	Q				
0+30	0.0026	0.11	Q				
0+35	0.0034	0.12	Q				
0+40	0.0043	0.13	Q				
0+45	0.0052	0.13	Q				
0+50	0.0061	0.14	Q				
0+55	0.0072	0.15	Q				
1+ 0	0.0083	0.17	Q				
1+ 5	0.0095	0.17	Q				
1+10	0.0106	0.16	Q				
1+15	0.0117	0.15	Q				
1+20	0.0127	0.15	Q				
1+25	0.0137	0.15	Q				
1+30	0.0147	0.15	Q				
1+35	0.0157	0.14	Q				
1+40	0.0167	0.14	Q				
1+45	0.0177	0.14	Q				
1+50	0.0187	0.15	Q				
1+55	0.0198	0.16	Q				
2+ 0	0.0210	0.17	Q				
2+ 5	0.0222	0.18	Q				
2+10	0.0235	0.18	Q				
2+15	0.0247	0.18	QV				
2+20	0.0260	0.18	QV				
2+25	0.0273	0.19	QV				
2+30	0.0286	0.19	QV				
2+35	0.0299	0.19	QV				
2+40	0.0313	0.20	QV				
2+45	0.0328	0.22	QV				
2+50	0.0343	0.22	QV				
2+55	0.0359	0.23	QV				
3+ 0	0.0375	0.23	QV				
3+ 5	0.0391	0.23	QV				

3+10	0.0407	0.23	QV	|	|	|	|
3+15	0.0423	0.23	QV	|	|	|	|
3+20	0.0439	0.23	QV	|	|	|	|
3+25	0.0455	0.24	QV	|	|	|	|
3+30	0.0472	0.24	QV	|	|	|	|
3+35	0.0488	0.24	QV	|	|	|	|
3+40	0.0504	0.24	Q V	|	|	|	|
3+45	0.0521	0.24	Q V	|	|	|	|
3+50	0.0537	0.24	Q V	|	|	|	|
3+55	0.0554	0.25	|QV	|	|	|	|
4+ 0	0.0573	0.27	|QV	|	|	|	|
4+ 5	0.0592	0.27	|QV	|	|	|	|
4+10	0.0611	0.28	|QV	|	|	|	|
4+15	0.0630	0.28	|QV	|	|	|	|
4+20	0.0649	0.28	|QV	|	|	|	|
4+25	0.0670	0.30	|QV	|	|	|	|
4+30	0.0691	0.31	|QV	|	|	|	|
4+35	0.0713	0.32	|QV	|	|	|	|
4+40	0.0735	0.32	|Q V	|	|	|	|
4+45	0.0757	0.32	|Q V	|	|	|	|
4+50	0.0780	0.33	|Q V	|	|	|	|
4+55	0.0804	0.34	|Q V	|	|	|	|
5+ 0	0.0828	0.36	|Q V	|	|	|	|
5+ 5	0.0853	0.36	|Q V	|	|	|	|
5+10	0.0876	0.34	|Q V	|	|	|	|
5+15	0.0898	0.31	|Q V	|	|	|	|
5+20	0.0919	0.31	|Q V	|	|	|	|
5+25	0.0940	0.31	|Q V	|	|	|	|
5+30	0.0963	0.32	|Q V	|	|	|	|
5+35	0.0985	0.33	|Q V	|	|	|	|
5+40	0.1009	0.35	|Q V	|	|	|	|
5+45	0.1034	0.36	|Q V	|	|	|	|
5+50	0.1059	0.37	|Q V	|	|	|	|
5+55	0.1085	0.37	|Q V	|	|	|	|
6+ 0	0.1110	0.37	|Q V	|	|	|	|
6+ 5	0.1136	0.38	|Q V	|	|	|	|
6+10	0.1163	0.39	|Q V	|	|	|	|
6+15	0.1191	0.41	|Q V	|	|	|	|
6+20	0.1219	0.41	|Q V	|	|	|	|
6+25	0.1248	0.42	|Q V	|	|	|	|
6+30	0.1277	0.42	|Q V	|	|	|	|
6+35	0.1306	0.42	|Q V	|	|	|	|
6+40	0.1336	0.44	|Q V	|	|	|	|
6+45	0.1367	0.45	|Q V	|	|	|	|
6+50	0.1399	0.46	|Q V	|	|	|	|
6+55	0.1431	0.46	|Q V	|	|	|	|
7+ 0	0.1463	0.47	|Q V	|	|	|	|
7+ 5	0.1495	0.47	|Q V	|	|	|	|
7+10	0.1528	0.47	|Q V	|	|	|	|
7+15	0.1560	0.47	|Q V	|	|	|	|
7+20	0.1593	0.47	|Q V	|	|	|	|
7+25	0.1626	0.49	|Q V	|	|	|	|
7+30	0.1661	0.50	| Q V	|	|	|	|
7+35	0.1696	0.51	| Q V	|	|	|	|
7+40	0.1733	0.53	| Q V	|	|	|	|
7+45	0.1770	0.54	| Q V	|	|	|	|
7+50	0.1808	0.55	| Q V	|	|	|	|
7+55	0.1848	0.57	| Q V	|	|	|	|
8+ 0	0.1888	0.59	| Q V	|	|	|	|
8+ 5	0.1930	0.60	| Q V	|	|	|	|
8+10	0.1974	0.63	| Q V |	|	|	|
8+15	0.2019	0.67	| Q V |	|	|	|
8+20	0.2066	0.68	| Q V |	|	|	|
8+25	0.2114	0.69	| Q V |	|	|	|
8+30	0.2161	0.69	| Q V |	|	|	|
8+35	0.2210	0.70	| Q V|	|	|	|
8+40	0.2259	0.72	| Q V|	|	|	|
8+45	0.2310	0.73	| Q V|	|	|	|
8+50	0.2361	0.74	| Q V|	|	|	|
8+55	0.2413	0.76	| Q V|	|	|	|
9+ 0	0.2467	0.78	| Q V	|	|	|
9+ 5	0.2522	0.79	| Q V	|	|	|
9+10	0.2578	0.82	| Q V	|	|	|
9+15	0.2637	0.86	| Q V	|	|	|
9+20	0.2697	0.87	| Q |V	|	|	|
9+25	0.2759	0.89	| Q |V	|	|	|
9+30	0.2822	0.91	| Q |V	|	|	|

9+35	0.2886	0.93	Q	V			
9+40	0.2951	0.95	Q	V			
9+45	0.3017	0.96	Q	V			
9+50	0.3084	0.98	Q	V			
9+55	0.3153	1.00	Q	V			
10+ 0	0.3223	1.01	Q	V			
10+ 5	0.3292	1.00	Q	V			
10+10	0.3354	0.91	Q	V			
10+15	0.3411	0.82	Q	V			
10+20	0.3465	0.78	Q	V			
10+25	0.3518	0.76	Q	V			
10+30	0.3569	0.75	Q	V			
10+35	0.3621	0.76	Q	V			
10+40	0.3678	0.82	Q	V			
10+45	0.3738	0.88	Q	V			
10+50	0.3800	0.90	Q	V			
10+55	0.3863	0.91	Q	V			
11+ 0	0.3927	0.92	Q	V			
11+ 5	0.3991	0.92	Q	V			
11+10	0.4054	0.92	Q	V			
11+15	0.4116	0.90	Q	V			
11+20	0.4178	0.90	Q	V			
11+25	0.4240	0.90	Q	V			
11+30	0.4302	0.90	Q	V			
11+35	0.4364	0.89	Q	V			
11+40	0.4423	0.87	Q	V			
11+45	0.4481	0.84	Q	V			
11+50	0.4539	0.83	Q	V			
11+55	0.4597	0.84	Q	V			
12+ 0	0.4655	0.85	Q	V			
12+ 5	0.4715	0.87	Q	V			
12+10	0.4782	0.97	Q	V			
12+15	0.4855	1.06	Q	V			
12+20	0.4931	1.10	Q	V			
12+25	0.5009	1.14	Q	V			
12+30	0.5090	1.17	Q	V			
12+35	0.5172	1.19	Q	V			
12+40	0.5257	1.23	Q	V			
12+45	0.5344	1.26	Q	V			
12+50	0.5432	1.29	Q	V			
12+55	0.5523	1.31	Q	V			
13+ 0	0.5614	1.33	Q	V			
13+ 5	0.5708	1.36	Q	V			
13+10	0.5807	1.43	Q	V			
13+15	0.5911	1.51	Q	V			
13+20	0.6017	1.54	Q	V			
13+25	0.6125	1.56	Q	V			
13+30	0.6233	1.57	Q	V			
13+35	0.6340	1.55	Q	V			
13+40	0.6437	1.41	Q	V			
13+45	0.6524	1.27	Q	V			
13+50	0.6607	1.21	Q	V			
13+55	0.6688	1.18	Q	V			
14+ 0	0.6767	1.15	Q	V			
14+ 5	0.6846	1.15	Q	V			
14+10	0.6929	1.19	Q	V			
14+15	0.7014	1.24	Q	V			
14+20	0.7100	1.25	Q	V			
14+25	0.7186	1.24	Q	V			
14+30	0.7271	1.23	Q	V			
14+35	0.7356	1.23	Q	V			
14+40	0.7440	1.23	Q	V			
14+45	0.7525	1.23	Q	V			
14+50	0.7609	1.22	Q	V			
14+55	0.7693	1.21	Q	V			
15+ 0	0.7775	1.20	Q	V			
15+ 5	0.7858	1.19	Q	V			
15+10	0.7938	1.18	Q	V			
15+15	0.8018	1.16	Q	V			
15+20	0.8098	1.15	Q	V			
15+25	0.8176	1.13	Q	V			
15+30	0.8253	1.12	Q	V			
15+35	0.8328	1.10	Q	V			
15+40	0.8399	1.04	Q	V			
15+45	0.8467	0.98	Q	V			
15+50	0.8533	0.95	Q	V			
15+55	0.8597	0.94	Q	V			

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16+ 0       0.8661      0.93  |  Q      |         |         |    V    |
16+ 5       0.8722      0.88  |  Q      |         |         |    V    |
16+10       0.8768      0.67  | Q       |         |         |    V    |
16+15       0.8800      0.46  |Q        |         |         |    V    |
16+20       0.8825      0.37  |Q        |         |         |     V   |
16+25       0.8848      0.32  |Q        |         |         |     V   |
16+30       0.8867      0.29  |Q        |         |         |     V   |
16+35       0.8885      0.26  |Q        |         |         |     V   |
16+40       0.8901      0.23  Q         |         |         |     V   |
16+45       0.8915      0.20  Q         |         |         |     V   |
16+50       0.8928      0.18  Q         |         |         |     V   |
16+55       0.8940      0.17  Q         |         |         |     V   |
17+ 0       0.8951      0.16  Q         |         |         |     V   |
17+ 5       0.8962      0.16  Q         |         |         |     V   |
17+10       0.8975      0.19  Q         |         |         |     V   |
17+15       0.8989      0.21  Q         |         |         |     V   |
17+20       0.9004      0.22  Q         |         |         |     V   |
17+25       0.9020      0.22  Q         |         |         |     V   |
17+30       0.9035      0.23  Q         |         |         |     V   |
17+35       0.9051      0.23  Q         |         |         |      V  |
17+40       0.9067      0.23  Q         |         |         |      V  |
17+45       0.9082      0.23  Q         |         |         |      V  |
17+50       0.9098      0.23  Q         |         |         |      V  |
17+55       0.9113      0.22  Q         |         |         |      V  |
18+ 0       0.9127      0.20  Q         |         |         |      V  |
18+ 5       0.9141      0.20  Q         |         |         |      V  |
18+10       0.9155      0.20  Q         |         |         |      V  |
18+15       0.9168      0.20  Q         |         |         |      V  |
18+20       0.9182      0.19  Q         |         |         |      V  |
18+25       0.9195      0.19  Q         |         |         |      V  |
18+30       0.9208      0.19  Q         |         |         |      V  |
18+35       0.9221      0.19  Q         |         |         |      V  |
18+40       0.9233      0.17  Q         |         |         |      V  |
18+45       0.9244      0.16  Q         |         |         |      V  |
18+50       0.9255      0.15  Q         |         |         |      V  |
18+55       0.9264      0.13  Q         |         |         |      V  |
19+ 0       0.9272      0.12  Q         |         |         |      V  |
19+ 5       0.9280      0.11  Q         |         |         |      V  |
19+10       0.9288      0.12  Q         |         |         |      V  |
19+15       0.9298      0.13  Q         |         |         |       V |
19+20       0.9307      0.14  Q         |         |         |       V |
19+25       0.9318      0.16  Q         |         |         |       V |
19+30       0.9330      0.17  Q         |         |         |       V |
19+35       0.9341      0.17  Q         |         |         |       V |
19+40       0.9353      0.16  Q         |         |         |       V |
19+45       0.9363      0.15  Q         |         |         |       V |
19+50       0.9373      0.14  Q         |         |         |       V |
19+55       0.9382      0.13  Q         |         |         |       V |
20+ 0       0.9390      0.11  Q         |         |         |       V |
20+ 5       0.9398      0.11  Q         |         |         |       V |
20+10       0.9406      0.12  Q         |         |         |       V |
20+15       0.9415      0.13  Q         |         |         |       V |
20+20       0.9424      0.14  Q         |         |         |       V |
20+25       0.9434      0.14  Q         |         |         |       V |
20+30       0.9444      0.14  Q         |         |         |       V |
20+35       0.9453      0.14  Q         |         |         |       V |
20+40       0.9463      0.14  Q         |         |         |       V |
20+45       0.9473      0.14  Q         |         |         |       V |
20+50       0.9482      0.14  Q         |         |         |       V |
20+55       0.9491      0.12  Q         |         |         |       V |
21+ 0       0.9498      0.11  Q         |         |         |       V |
21+ 5       0.9506      0.11  Q         |         |         |       V |
21+10       0.9514      0.12  Q         |         |         |       V |
21+15       0.9523      0.13  Q         |         |         |       V |
21+20       0.9532      0.13  Q         |         |         |       V |
21+25       0.9540      0.12  Q         |         |         |        V|
21+30       0.9548      0.11  Q         |         |         |        V|
21+35       0.9555      0.11  Q         |         |         |        V|
21+40       0.9563      0.12  Q         |         |         |        V|
21+45       0.9572      0.13  Q         |         |         |        V|
21+50       0.9581      0.13  Q         |         |         |        V|
21+55       0.9589      0.12  Q         |         |         |        V|
22+ 0       0.9597      0.11  Q         |         |         |        V|
22+ 5       0.9604      0.11  Q         |         |         |        V|
22+10       0.9612      0.12  Q         |         |         |        V|
22+15       0.9621      0.13  Q         |         |         |        V|
22+20       0.9630      0.13  Q         |         |         |        V|
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22+25	0.9638	0.12	Q	|	|	|	V|
22+30	0.9646	0.11	Q	|	|	|	V|
22+35	0.9653	0.10	Q	|	|	|	V|
22+40	0.9660	0.10	Q	|	|	|	V|
22+45	0.9667	0.10	Q	|	|	|	V|
22+50	0.9673	0.10	Q	|	|	|	V|
22+55	0.9680	0.10	Q	|	|	|	V|
23+ 0	0.9687	0.10	Q	|	|	|	V|
23+ 5	0.9693	0.10	Q	|	|	|	V|
23+10	0.9700	0.10	Q	|	|	|	V|
23+15	0.9707	0.10	Q	|	|	|	V|
23+20	0.9713	0.10	Q	|	|	|	V|
23+25	0.9720	0.10	Q	|	|	|	V|
23+30	0.9726	0.09	Q	|	|	|	V|
23+35	0.9733	0.09	Q	|	|	|	V|
23+40	0.9739	0.09	Q	|	|	|	V|
23+45	0.9746	0.09	Q	|	|	|	V|
23+50	0.9752	0.09	Q	|	|	|	V|
23+55	0.9759	0.09	Q	|	|	|	V|
24+ 0	0.9765	0.09	Q	|	|	|	V|
24+ 5	0.9771	0.09	Q	|	|	|	V|
24+10	0.9776	0.06	Q	|	|	|	V|
24+15	0.9778	0.03	Q	|	|	|	V|
24+20	0.9780	0.02	Q	|	|	|	V|
24+25	0.9781	0.02	Q	|	|	|	V|
24+30	0.9782	0.01	Q	|	|	|	V|
24+35	0.9782	0.01	Q	|	|	|	V|
24+40	0.9783	0.01	Q	|	|	|	V|
24+45	0.9783	0.01	Q	|	|	|	V|
24+50	0.9784	0.00	Q	|	|	|	V|
24+55	0.9784	0.00	Q	|	|	|	V|
25+ 0	0.9784	0.00	Q	|	|	|	V|
25+ 5	0.9784	0.00	Q	|	|	|	V|
25+10	0.9784	0.00	Q	|	|	|	V|
25+15	0.9784	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 07/31/20 File: 3828EX515.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 5-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.00	0.50	0.00
0.00	0.01	0.00
67.10	0.50	33.55

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.20	80.52

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.500(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.664(In)
Areal adjustment factor = 99.94 %
Adjusted average point rain = 0.664(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)

76.0 58.2 0.488 0.000 0.488 1.000 0.488
Sum (F) = 0.488

Area averaged mean soil loss (F) (In/Hr) = 0.488
Minimum soil loss rate ((In/Hr)) = 0.244
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	52.307	6.571	4.443
2	0.167	104.614	28.083	18.991
3	0.250	156.922	28.549	19.306
4	0.333	209.229	12.179	8.236
5	0.417	261.536	6.595	4.460
6	0.500	313.843	4.589	3.103
7	0.583	366.151	3.296	2.229
8	0.667	418.458	2.462	1.665
9	0.750	470.765	1.797	1.215
10	0.833	523.072	1.548	1.047
11	0.917	575.380	1.191	0.806
12	1.000	627.687	0.940	0.636
13	1.083	679.994	0.721	0.488
14	1.167	732.301	0.542	0.367
15	1.250	784.608	0.523	0.354
16	1.333	836.916	0.415	0.281
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.334	(0.488)	0.301	0.033
2	0.17	4.30	0.342	(0.488)	0.308	0.034
3	0.25	5.00	0.398	(0.488)	0.358	0.040
4	0.33	5.00	0.398	(0.488)	0.358	0.040
5	0.42	5.80	0.462	(0.488)	0.416	0.046
6	0.50	6.50	0.518	(0.488)	0.466	0.052
7	0.58	7.40	0.589	0.488	(0.530)	0.101
8	0.67	8.60	0.685	0.488	(0.616)	0.196
9	0.75	12.30	0.979	0.488	(0.881)	0.491
10	0.83	29.10	2.317	0.488	(2.085)	1.829
11	0.92	6.80	0.541	(0.488)	0.487	0.054
12	1.00	5.00	0.398	(0.488)	0.358	0.040
	(Loss Rate Not Used)					
Sum =	100.0			Sum =	3.0	

Flood volume = Effective rainfall 0.25(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 1.4(Ac.Ft)
Total soil loss = 0.42(In)
Total soil loss = 2.333(Ac.Ft)
Total rainfall = 0.66(In)
Flood volume = 60006.7 Cubic Feet
Total soil loss = 101616.9 Cubic Feet

Peak flow rate of this hydrograph = 46.983(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	12.5	25.0	37.5	50.0
0+ 5	0.0010	0.15	Q				

```
    0+10       0.0064      0.79  Q         |         |         |         |
    0+15       0.0166      1.47  VQ        |         |         |         |
    0+20       0.0295      1.87  VQ        |         |         |         |
    0+25       0.0444      2.16  |Q        |         |         |         |
    0+30       0.0613      2.46  |Q        |         |         |         |
    0+35       0.0821      3.01  | Q       |         |         |         |
    0+40       0.1138      4.60  |  Q      |         |         |         |
    0+45       0.1744      8.81  |    V Q  |         |         |         |
    0+50       0.3307     22.69  |        V|       Q |         |         |
    0+55       0.6543     46.98  |         |       V |         |      Q  |
    1+ 0       0.9442     42.10  |         |         |      V  |  Q      |
    1+ 5       1.0830     20.15  |         |     Q   |         |V        |
    1+10       1.1636     11.70  |        Q|         |         |  V      |
    1+15       1.2183      7.95  |     Q   |         |         |    V    |
    1+20       1.2577      5.71  |   Q     |         |         |     V   |
    1+25       1.2871      4.27  |  Q      |         |         |      V  |
    1+30       1.3092      3.21  | Q       |         |         |       V |
    1+35       1.3275      2.66  | Q       |         |         |       V |
    1+40       1.3417      2.06  |Q        |         |         |       V |
    1+45       1.3528      1.61  |Q        |         |         |        V|
    1+50       1.3613      1.24  Q         |         |         |        V|
    1+55       1.3678      0.95  Q         |         |         |        V|
    2+ 0       1.3735      0.82  Q         |         |         |        V|
    2+ 5       1.3773      0.55  Q         |         |         |        V|
    2+10       1.3775      0.03  Q         |         |         |        V|
    2+15       1.3776      0.01  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 07/31/20 File: 3828EX535.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 5-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.80	53.68

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.86	124.81

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 1.048(In)
Areal adjustment factor = 99.97 %
Adjusted average point rain = 1.048(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
76.0	58.2	0.488	0.000	0.488	1.000	0.488
					Sum (F) =	0.488

Area averaged mean soil loss (F) (In/Hr) = 0.488
Minimum soil loss rate ((In/Hr)) = 0.244
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	52.307	6.571	4.443
2 0.167	104.614	28.083	18.991
3 0.250	156.922	28.549	19.306
4 0.333	209.229	12.179	8.236
5 0.417	261.536	6.595	4.460
6 0.500	313.843	4.589	3.103
7 0.583	366.151	3.296	2.229
8 0.667	418.458	2.462	1.665
9 0.750	470.765	1.797	1.215
10 0.833	523.072	1.548	1.047
11 0.917	575.380	1.191	0.806
12 1.000	627.687	0.940	0.636
13 1.083	679.994	0.721	0.488
14 1.167	732.301	0.542	0.367
15 1.250	784.608	0.523	0.354
16 1.333	836.916	0.415	0.281
	Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1 0.08	1.30	0.163	(0.488)	0.147	0.016
2 0.17	1.30	0.163	(0.488)	0.147	0.016
3 0.25	1.10	0.138	(0.488)	0.124	0.014
4 0.33	1.50	0.189	(0.488)	0.170	0.019
5 0.42	1.50	0.189	(0.488)	0.170	0.019
6 0.50	1.80	0.226	(0.488)	0.204	0.023
7 0.58	1.50	0.189	(0.488)	0.170	0.019
8 0.67	1.80	0.226	(0.488)	0.204	0.023
9 0.75	1.80	0.226	(0.488)	0.204	0.023
10 0.83	1.50	0.189	(0.488)	0.170	0.019
11 0.92	1.60	0.201	(0.488)	0.181	0.020
12 1.00	1.80	0.226	(0.488)	0.204	0.023
13 1.08	2.20	0.277	(0.488)	0.249	0.028
14 1.17	2.20	0.277	(0.488)	0.249	0.028
15 1.25	2.20	0.277	(0.488)	0.249	0.028
16 1.33	2.00	0.252	(0.488)	0.226	0.025
17 1.42	2.60	0.327	(0.488)	0.294	0.033
18 1.50	2.70	0.340	(0.488)	0.306	0.034
19 1.58	2.40	0.302	(0.488)	0.272	0.030
20 1.67	2.70	0.340	(0.488)	0.306	0.034
21 1.75	3.30	0.415	(0.488)	0.373	0.041
22 1.83	3.10	0.390	(0.488)	0.351	0.039
23 1.92	2.90	0.365	(0.488)	0.328	0.036
24 2.00	3.00	0.377	(0.488)	0.340	0.038
25 2.08	3.10	0.390	(0.488)	0.351	0.039
26 2.17	4.20	0.528	(0.488)	0.475	0.053
27 2.25	5.00	0.629	0.488	(0.566)	0.140
28 2.33	3.50	0.440	(0.488)	0.396	0.044
29 2.42	6.80	0.855	0.488	(0.770)	0.367
30 2.50	7.30	0.918	0.488	(0.826)	0.430
31 2.58	8.20	1.031	0.488	(0.928)	0.543
32 2.67	5.90	0.742	0.488	(0.668)	0.254
33 2.75	2.00	0.252	(0.488)	0.226	0.025
34 2.83	1.80	0.226	(0.488)	0.204	0.023
35 2.92	1.80	0.226	(0.488)	0.204	0.023
36 3.00	0.60	0.075	(0.488)	0.068	0.008
	(Loss Rate Not Used)				
Sum =	100.0			Sum =	2.6

Flood volume = Effective rainfall 0.21(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 1.2(Ac.Ft)
Total soil loss = 0.83(In)
Total soil loss = 4.661(Ac.Ft)
Total rainfall = 1.05(In)
Flood volume = 52233.5 Cubic Feet
Total soil loss = 203023.7 Cubic Feet

Peak flow rate of this hydrograph = 23.769(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 7.5 15.0 22.5 30.0
0+ 5	0.0005	0.07	Q
0+10	0.0031	0.38	Q
0+15	0.0079	0.69	Q
0+20	0.0134	0.80	VQ
0+25	0.0197	0.92	VQ
0+30	0.0270	1.06	VQ
0+35	0.0351	1.18	|Q
0+40	0.0437	1.24	|Q
0+45	0.0527	1.30	|Q
0+50	0.0621	1.37	|QV
0+55	0.0714	1.35	|QV
1+ 0	0.0806	1.34	|QV
1+ 5	0.0903	1.42	|Q V
1+10	0.1012	1.57	| QV
1+15	0.1129	1.70	| QV
1+20	0.1249	1.75	| Q V
1+25	0.1370	1.76	| Q V
1+30	0.1500	1.88	| Q V
1+35	0.1640	2.03	| Q V
1+40	0.1782	2.07	| Q V
1+45	0.1930	2.14	| Q V
1+50	0.2092	2.35	| Q V
1+55	0.2262	2.47	| Q V
2+ 0	0.2431	2.46	| Q V
2+ 5	0.2601	2.47	| Q V
2+10	0.2779	2.58	| Q V|
2+15	0.3005	3.28	| Q V
2+20	0.3336	4.80	| Q |V
2+25	0.3765	6.23	| Q | V
2+30	0.4562	11.57	| Q
2+35	0.5881	19.15	| V| Q
2+40	0.7518	23.77	| V |Q
2+45	0.8986	21.32	| QV|
2+50	0.9919	13.55	| Q | V
2+55	1.0477	8.09	| Q | V
3+ 0	1.0878	5.82	| Q | V
3+ 5	1.1173	4.29	| Q | V
3+10	1.1385	3.08	| Q | V
3+15	1.1540	2.26	| Q | V
3+20	1.1661	1.76	| Q | V
3+25	1.1756	1.38	|Q | V|
3+30	1.1829	1.06	|Q | V|
3+35	1.1885	0.81	|Q | V|
3+40	1.1929	0.65	Q | V|
3+45	1.1961	0.46	Q | V|
3+50	1.1980	0.28	Q | V|
3+55	1.1987	0.10	Q | V|
4+ 0	1.1989	0.03	Q | V|
4+ 5	1.1990	0.02	Q | V|
4+10	1.1991	0.01	Q | V|
4+15	1.1991	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 07/31/20 File: 3828EX565.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 5-YEAR STORM EVENT

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Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.15	77.16

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	2.50	167.75

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.150(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.466(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 1.466(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
76.0	58.2	0.488	0.000	0.488	1.000	0.488
					Sum (F) =	0.488

Area averaged mean soil loss (F) (In/Hr) = 0.488
Minimum soil loss rate ((In/Hr)) = 0.244
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	52.307	6.571	4.443
2	0.167	104.614	28.083	18.991
3	0.250	156.922	28.549	19.306
4	0.333	209.229	12.179	8.236
5	0.417	261.536	6.595	4.460
6	0.500	313.843	4.589	3.103
7	0.583	366.151	3.296	2.229
8	0.667	418.458	2.462	1.665
9	0.750	470.765	1.797	1.215
10	0.833	523.072	1.548	1.047
11	0.917	575.380	1.191	0.806
12	1.000	627.687	0.940	0.636
13	1.083	679.994	0.721	0.488
14	1.167	732.301	0.542	0.367
15	1.250	784.608	0.523	0.354
16	1.333	836.916	0.415	0.281
			Sum = 100.000	Sum= 67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.088	(0.488)	0.079	0.009
2	0.17	0.60	0.106	(0.488)	0.095	0.011
3	0.25	0.60	0.106	(0.488)	0.095	0.011
4	0.33	0.60	0.106	(0.488)	0.095	0.011
5	0.42	0.60	0.106	(0.488)	0.095	0.011
6	0.50	0.70	0.123	(0.488)	0.111	0.012
7	0.58	0.70	0.123	(0.488)	0.111	0.012
8	0.67	0.70	0.123	(0.488)	0.111	0.012
9	0.75	0.70	0.123	(0.488)	0.111	0.012
10	0.83	0.70	0.123	(0.488)	0.111	0.012
11	0.92	0.70	0.123	(0.488)	0.111	0.012
12	1.00	0.80	0.141	(0.488)	0.127	0.014
13	1.08	0.80	0.141	(0.488)	0.127	0.014
14	1.17	0.80	0.141	(0.488)	0.127	0.014
15	1.25	0.80	0.141	(0.488)	0.127	0.014
16	1.33	0.80	0.141	(0.488)	0.127	0.014
17	1.42	0.80	0.141	(0.488)	0.127	0.014
18	1.50	0.80	0.141	(0.488)	0.127	0.014
19	1.58	0.80	0.141	(0.488)	0.127	0.014
20	1.67	0.80	0.141	(0.488)	0.127	0.014
21	1.75	0.80	0.141	(0.488)	0.127	0.014
22	1.83	0.80	0.141	(0.488)	0.127	0.014
23	1.92	0.80	0.141	(0.488)	0.127	0.014
24	2.00	0.90	0.158	(0.488)	0.142	0.016
25	2.08	0.80	0.141	(0.488)	0.127	0.014
26	2.17	0.90	0.158	(0.488)	0.142	0.016
27	2.25	0.90	0.158	(0.488)	0.142	0.016
28	2.33	0.90	0.158	(0.488)	0.142	0.016
29	2.42	0.90	0.158	(0.488)	0.142	0.016
30	2.50	0.90	0.158	(0.488)	0.142	0.016
31	2.58	0.90	0.158	(0.488)	0.142	0.016
32	2.67	0.90	0.158	(0.488)	0.142	0.016
33	2.75	1.00	0.176	(0.488)	0.158	0.018
34	2.83	1.00	0.176	(0.488)	0.158	0.018
35	2.92	1.00	0.176	(0.488)	0.158	0.018
36	3.00	1.00	0.176	(0.488)	0.158	0.018
37	3.08	1.00	0.176	(0.488)	0.158	0.018
38	3.17	1.10	0.193	(0.488)	0.174	0.019

39	3.25	1.10	0.193	(0.488)	0.174	0.019
40	3.33	1.10	0.193	(0.488)	0.174	0.019
41	3.42	1.20	0.211	(0.488)	0.190	0.021
42	3.50	1.30	0.229	(0.488)	0.206	0.023
43	3.58	1.40	0.246	(0.488)	0.222	0.025
44	3.67	1.40	0.246	(0.488)	0.222	0.025
45	3.75	1.50	0.264	(0.488)	0.237	0.026
46	3.83	1.50	0.264	(0.488)	0.237	0.026
47	3.92	1.60	0.281	(0.488)	0.253	0.028
48	4.00	1.60	0.281	(0.488)	0.253	0.028
49	4.08	1.70	0.299	(0.488)	0.269	0.030
50	4.17	1.80	0.317	(0.488)	0.285	0.032
51	4.25	1.90	0.334	(0.488)	0.301	0.033
52	4.33	2.00	0.352	(0.488)	0.317	0.035
53	4.42	2.10	0.369	(0.488)	0.332	0.037
54	4.50	2.10	0.369	(0.488)	0.332	0.037
55	4.58	2.20	0.387	(0.488)	0.348	0.039
56	4.67	2.30	0.405	(0.488)	0.364	0.040
57	4.75	2.40	0.422	(0.488)	0.380	0.042
58	4.83	2.40	0.422	(0.488)	0.380	0.042
59	4.92	2.50	0.440	(0.488)	0.396	0.044
60	5.00	2.60	0.457	(0.488)	0.412	0.046
61	5.08	3.10	0.545	0.488	(0.491)	0.057
62	5.17	3.60	0.633	0.488	(0.570)	0.145
63	5.25	3.90	0.686	0.488	(0.617)	0.198
64	5.33	4.20	0.739	0.488	(0.665)	0.250
65	5.42	4.70	0.827	0.488	(0.744)	0.338
66	5.50	5.60	0.985	0.488	(0.887)	0.497
67	5.58	1.90	0.334	(0.488)	0.301	0.033
68	5.67	0.90	0.158	(0.488)	0.142	0.016
69	5.75	0.60	0.106	(0.488)	0.095	0.011
70	5.83	0.50	0.088	(0.488)	0.079	0.009
71	5.92	0.30	0.053	(0.488)	0.047	0.005
72	6.00	0.20	0.035	(0.488)	0.032	0.004

(Loss Rate Not Used)

Sum = 100.0 Sum = 2.8

Flood volume = Effective rainfall 0.23(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 1.3(Ac.Ft)
Total soil loss = 1.23(In)
Total soil loss = 6.891(Ac.Ft)
Total rainfall = 1.47(In)
Flood volume = 56885.3 Cubic Feet
Total soil loss = 300159.7 Cubic Feet

Peak flow rate of this hydrograph = 19.934(CFS)

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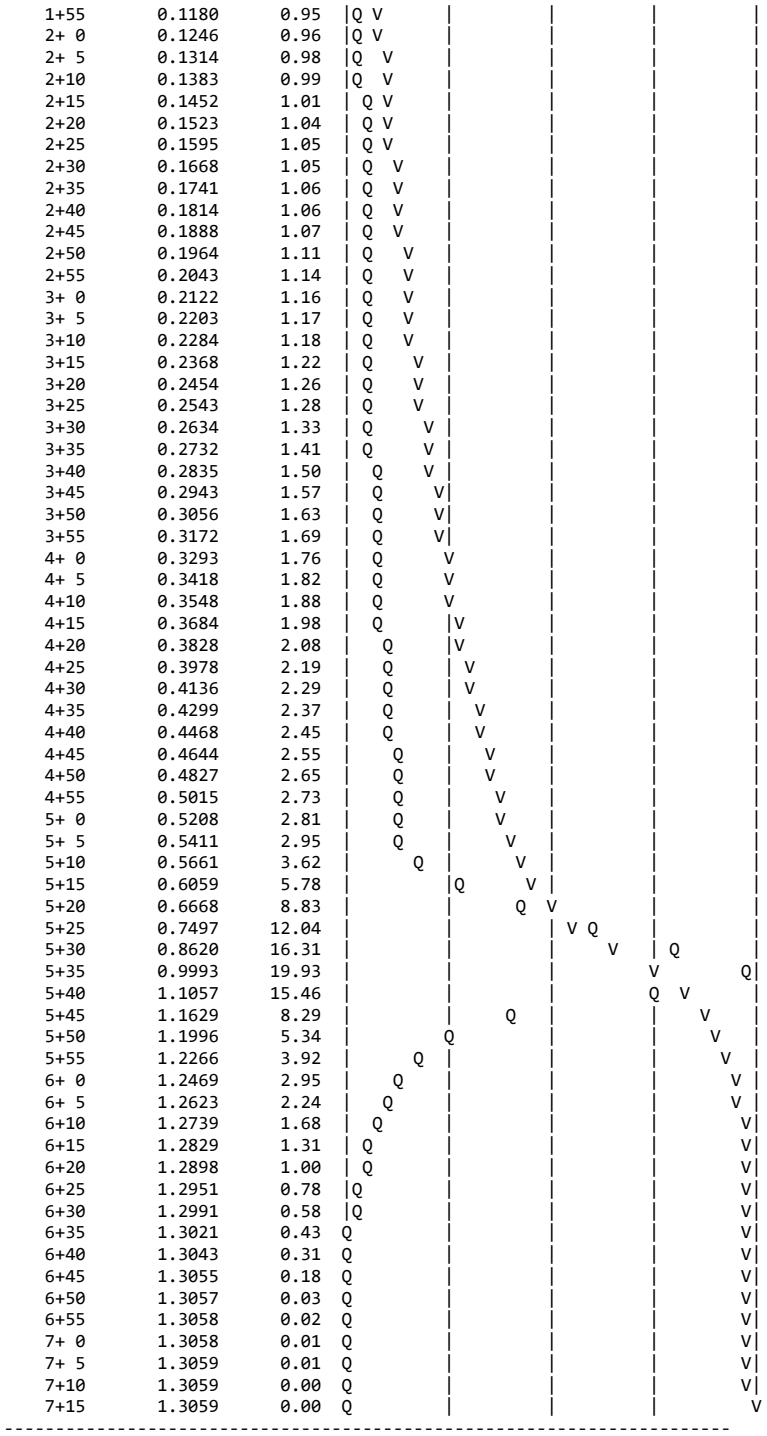
6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0003	0.04	Q				
0+10	0.0017	0.21	Q				
0+15	0.0046	0.42	Q				
0+20	0.0082	0.52	VQ				
0+25	0.0122	0.58	VQ				
0+30	0.0165	0.62	VQ				
0+35	0.0212	0.68	VQ				
0+40	0.0262	0.73	VQ				
0+45	0.0314	0.76	VQ				
0+50	0.0368	0.78	|Q				
0+55	0.0422	0.79	|Q				
1+ 0	0.0478	0.81	|Q				
1+ 5	0.0537	0.85	|Q				
1+10	0.0599	0.89	|Q				
1+15	0.0662	0.91	|QV				
1+20	0.0726	0.93	|QV				
1+25	0.0790	0.93	|QV				
1+30	0.0854	0.94	|QV				
1+35	0.0919	0.94	|QV				
1+40	0.0984	0.94	|Q V				
1+45	0.1050	0.95	|Q V				
1+50	0.1115	0.95	|Q V				

1+55	0.1180	0.95	
2+ 0	0.1246	0.96	
2+ 5	0.1314	0.98	
2+10	0.1383	0.99	
2+15	0.1452	1.01	
2+20	0.1523	1.04	
2+25	0.1595	1.05	
2+30	0.1668	1.05	
2+35	0.1741	1.06	
2+40	0.1814	1.06	
2+45	0.1888	1.07	
2+50	0.1964	1.11	
2+55	0.2043	1.14	
3+ 0	0.2122	1.16	
3+ 5	0.2203	1.17	
3+10	0.2284	1.18	
3+15	0.2368	1.22	
3+20	0.2454	1.26	
3+25	0.2543	1.28	
3+30	0.2634	1.33	
3+35	0.2732	1.41	
3+40	0.2835	1.50	
3+45	0.2943	1.57	
3+50	0.3056	1.63	
3+55	0.3172	1.69	
4+ 0	0.3293	1.76	
4+ 5	0.3418	1.82	
4+10	0.3548	1.88	
4+15	0.3684	1.98	
4+20	0.3828	2.08	
4+25	0.3978	2.19	
4+30	0.4136	2.29	
4+35	0.4299	2.37	
4+40	0.4468	2.45	
4+45	0.4644	2.55	
4+50	0.4827	2.65	
4+55	0.5015	2.73	
5+ 0	0.5208	2.81	
5+ 5	0.5411	2.95	
5+10	0.5661	3.62	
5+15	0.6059	5.78	
5+20	0.6668	8.83	
5+25	0.7497	12.04	
5+30	0.8620	16.31	
5+35	0.9993	19.93	
5+40	1.1057	15.46	
5+45	1.1629	8.29	
5+50	1.1996	5.34	
5+55	1.2266	3.92	
6+ 0	1.2469	2.95	
6+ 5	1.2623	2.24	
6+10	1.2739	1.68	
6+15	1.2829	1.31	
6+20	1.2898	1.00	
6+25	1.2951	0.78	
6+30	1.2991	0.58	
6+35	1.3021	0.43	
6+40	1.3043	0.31	
6+45	1.3055	0.18	
6+50	1.3057	0.03	
6+55	1.3058	0.02	
7+ 0	1.3058	0.01	
7+ 5	1.3059	0.01	
7+10	1.3059	0.00	
7+15	1.3059	0.00	



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 07/31/20 File: 3828EX5245.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 5-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.75	117.42

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	4.50	301.95

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.750(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 2.394(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 2.394(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
76.0	58.2	0.488	0.000	0.488	1.000	0.488
					Sum (F) =	0.488

Area averaged mean soil loss (F) (In/Hr) = 0.488
Minimum soil loss rate ((In/Hr)) = 0.244
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	52.307	6.571	4.443
2 0.167	104.614	28.083	18.991
3 0.250	156.922	28.549	19.306
4 0.333	209.229	12.179	8.236
5 0.417	261.536	6.595	4.460
6 0.500	313.843	4.589	3.103
7 0.583	366.151	3.296	2.229
8 0.667	418.458	2.462	1.665
9 0.750	470.765	1.797	1.215
10 0.833	523.072	1.548	1.047
11 0.917	575.380	1.191	0.806
12 1.000	627.687	0.940	0.636
13 1.083	679.994	0.721	0.488
14 1.167	732.301	0.542	0.367
15 1.250	784.608	0.523	0.354
16 1.333	836.916	0.415	0.281
		Sum = 100.000	Sum= 67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1 0.08	0.07	0.019	(0.866)	0.017	0.002
2 0.17	0.07	0.019	(0.862)	0.017	0.002
3 0.25	0.07	0.019	(0.859)	0.017	0.002
4 0.33	0.10	0.029	(0.856)	0.026	0.003
5 0.42	0.10	0.029	(0.852)	0.026	0.003
6 0.50	0.10	0.029	(0.849)	0.026	0.003
7 0.58	0.10	0.029	(0.846)	0.026	0.003
8 0.67	0.10	0.029	(0.842)	0.026	0.003
9 0.75	0.10	0.029	(0.839)	0.026	0.003
10 0.83	0.13	0.038	(0.836)	0.034	0.004
11 0.92	0.13	0.038	(0.833)	0.034	0.004
12 1.00	0.13	0.038	(0.829)	0.034	0.004
13 1.08	0.10	0.029	(0.826)	0.026	0.003
14 1.17	0.10	0.029	(0.823)	0.026	0.003
15 1.25	0.10	0.029	(0.819)	0.026	0.003
16 1.33	0.10	0.029	(0.816)	0.026	0.003
17 1.42	0.10	0.029	(0.813)	0.026	0.003
18 1.50	0.10	0.029	(0.810)	0.026	0.003
19 1.58	0.10	0.029	(0.806)	0.026	0.003
20 1.67	0.10	0.029	(0.803)	0.026	0.003
21 1.75	0.10	0.029	(0.800)	0.026	0.003
22 1.83	0.13	0.038	(0.797)	0.034	0.004
23 1.92	0.13	0.038	(0.794)	0.034	0.004
24 2.00	0.13	0.038	(0.790)	0.034	0.004
25 2.08	0.13	0.038	(0.787)	0.034	0.004
26 2.17	0.13	0.038	(0.784)	0.034	0.004
27 2.25	0.13	0.038	(0.781)	0.034	0.004
28 2.33	0.13	0.038	(0.778)	0.034	0.004
29 2.42	0.13	0.038	(0.774)	0.034	0.004
30 2.50	0.13	0.038	(0.771)	0.034	0.004
31 2.58	0.17	0.048	(0.768)	0.043	0.005
32 2.67	0.17	0.048	(0.765)	0.043	0.005
33 2.75	0.17	0.048	(0.762)	0.043	0.005
34 2.83	0.17	0.048	(0.759)	0.043	0.005
35 2.92	0.17	0.048	(0.756)	0.043	0.005
36 3.00	0.17	0.048	(0.752)	0.043	0.005
37 3.08	0.17	0.048	(0.749)	0.043	0.005
38 3.17	0.17	0.048	(0.746)	0.043	0.005

39	3.25	0.17	0.048	(0.743)	0.043	0.005
40	3.33	0.17	0.048	(0.740)	0.043	0.005
41	3.42	0.17	0.048	(0.737)	0.043	0.005
42	3.50	0.17	0.048	(0.734)	0.043	0.005
43	3.58	0.17	0.048	(0.731)	0.043	0.005
44	3.67	0.17	0.048	(0.728)	0.043	0.005
45	3.75	0.17	0.048	(0.725)	0.043	0.005
46	3.83	0.20	0.057	(0.722)	0.052	0.006
47	3.92	0.20	0.057	(0.719)	0.052	0.006
48	4.00	0.20	0.057	(0.715)	0.052	0.006
49	4.08	0.20	0.057	(0.712)	0.052	0.006
50	4.17	0.20	0.057	(0.709)	0.052	0.006
51	4.25	0.20	0.057	(0.706)	0.052	0.006
52	4.33	0.23	0.067	(0.703)	0.060	0.007
53	4.42	0.23	0.067	(0.700)	0.060	0.007
54	4.50	0.23	0.067	(0.697)	0.060	0.007
55	4.58	0.23	0.067	(0.694)	0.060	0.007
56	4.67	0.23	0.067	(0.691)	0.060	0.007
57	4.75	0.23	0.067	(0.688)	0.060	0.007
58	4.83	0.27	0.077	(0.685)	0.069	0.008
59	4.92	0.27	0.077	(0.683)	0.069	0.008
60	5.00	0.27	0.077	(0.680)	0.069	0.008
61	5.08	0.20	0.057	(0.677)	0.052	0.006
62	5.17	0.20	0.057	(0.674)	0.052	0.006
63	5.25	0.20	0.057	(0.671)	0.052	0.006
64	5.33	0.23	0.067	(0.668)	0.060	0.007
65	5.42	0.23	0.067	(0.665)	0.060	0.007
66	5.50	0.23	0.067	(0.662)	0.060	0.007
67	5.58	0.27	0.077	(0.659)	0.069	0.008
68	5.67	0.27	0.077	(0.656)	0.069	0.008
69	5.75	0.27	0.077	(0.653)	0.069	0.008
70	5.83	0.27	0.077	(0.650)	0.069	0.008
71	5.92	0.27	0.077	(0.647)	0.069	0.008
72	6.00	0.27	0.077	(0.645)	0.069	0.008
73	6.08	0.30	0.086	(0.642)	0.078	0.009
74	6.17	0.30	0.086	(0.639)	0.078	0.009
75	6.25	0.30	0.086	(0.636)	0.078	0.009
76	6.33	0.30	0.086	(0.633)	0.078	0.009
77	6.42	0.30	0.086	(0.630)	0.078	0.009
78	6.50	0.30	0.086	(0.628)	0.078	0.009
79	6.58	0.33	0.096	(0.625)	0.086	0.010
80	6.67	0.33	0.096	(0.622)	0.086	0.010
81	6.75	0.33	0.096	(0.619)	0.086	0.010
82	6.83	0.33	0.096	(0.616)	0.086	0.010
83	6.92	0.33	0.096	(0.614)	0.086	0.010
84	7.00	0.33	0.096	(0.611)	0.086	0.010
85	7.08	0.33	0.096	(0.608)	0.086	0.010
86	7.17	0.33	0.096	(0.605)	0.086	0.010
87	7.25	0.33	0.096	(0.602)	0.086	0.010
88	7.33	0.37	0.105	(0.600)	0.095	0.011
89	7.42	0.37	0.105	(0.597)	0.095	0.011
90	7.50	0.37	0.105	(0.594)	0.095	0.011
91	7.58	0.40	0.115	(0.591)	0.103	0.011
92	7.67	0.40	0.115	(0.589)	0.103	0.011
93	7.75	0.40	0.115	(0.586)	0.103	0.011
94	7.83	0.43	0.124	(0.583)	0.112	0.012
95	7.92	0.43	0.124	(0.581)	0.112	0.012
96	8.00	0.43	0.124	(0.578)	0.112	0.012
97	8.08	0.50	0.144	(0.575)	0.129	0.014
98	8.17	0.50	0.144	(0.573)	0.129	0.014
99	8.25	0.50	0.144	(0.570)	0.129	0.014
100	8.33	0.50	0.144	(0.567)	0.129	0.014
101	8.42	0.50	0.144	(0.565)	0.129	0.014
102	8.50	0.50	0.144	(0.562)	0.129	0.014
103	8.58	0.53	0.153	(0.559)	0.138	0.015
104	8.67	0.53	0.153	(0.557)	0.138	0.015
105	8.75	0.53	0.153	(0.554)	0.138	0.015
106	8.83	0.57	0.163	(0.551)	0.147	0.016
107	8.92	0.57	0.163	(0.549)	0.147	0.016
108	9.00	0.57	0.163	(0.546)	0.147	0.016
109	9.08	0.63	0.182	(0.544)	0.164	0.018
110	9.17	0.63	0.182	(0.541)	0.164	0.018
111	9.25	0.63	0.182	(0.539)	0.164	0.018
112	9.33	0.67	0.192	(0.536)	0.172	0.019
113	9.42	0.67	0.192	(0.533)	0.172	0.019
114	9.50	0.67	0.192	(0.531)	0.172	0.019
115	9.58	0.70	0.201	(0.528)	0.181	0.020

116	9.67	0.70	0.201	(0.526)	0.181	0.020
117	9.75	0.70	0.201	(0.523)	0.181	0.020
118	9.83	0.73	0.211	(0.521)	0.190	0.021
119	9.92	0.73	0.211	(0.518)	0.190	0.021
120	10.00	0.73	0.211	(0.516)	0.190	0.021
121	10.08	0.50	0.144	(0.513)	0.129	0.014
122	10.17	0.50	0.144	(0.511)	0.129	0.014
123	10.25	0.50	0.144	(0.508)	0.129	0.014
124	10.33	0.50	0.144	(0.506)	0.129	0.014
125	10.42	0.50	0.144	(0.503)	0.129	0.014
126	10.50	0.50	0.144	(0.501)	0.129	0.014
127	10.58	0.67	0.192	(0.498)	0.172	0.019
128	10.67	0.67	0.192	(0.496)	0.172	0.019
129	10.75	0.67	0.192	(0.494)	0.172	0.019
130	10.83	0.67	0.192	(0.491)	0.172	0.019
131	10.92	0.67	0.192	(0.489)	0.172	0.019
132	11.00	0.67	0.192	(0.486)	0.172	0.019
133	11.08	0.63	0.182	(0.484)	0.164	0.018
134	11.17	0.63	0.182	(0.482)	0.164	0.018
135	11.25	0.63	0.182	(0.479)	0.164	0.018
136	11.33	0.63	0.182	(0.477)	0.164	0.018
137	11.42	0.63	0.182	(0.474)	0.164	0.018
138	11.50	0.63	0.182	(0.472)	0.164	0.018
139	11.58	0.57	0.163	(0.470)	0.147	0.016
140	11.67	0.57	0.163	(0.467)	0.147	0.016
141	11.75	0.57	0.163	(0.465)	0.147	0.016
142	11.83	0.60	0.172	(0.463)	0.155	0.017
143	11.92	0.60	0.172	(0.460)	0.155	0.017
144	12.00	0.60	0.172	(0.458)	0.155	0.017
145	12.08	0.83	0.239	(0.456)	0.215	0.024
146	12.17	0.83	0.239	(0.454)	0.215	0.024
147	12.25	0.83	0.239	(0.451)	0.215	0.024
148	12.33	0.87	0.249	(0.449)	0.224	0.025
149	12.42	0.87	0.249	(0.447)	0.224	0.025
150	12.50	0.87	0.249	(0.445)	0.224	0.025
151	12.58	0.93	0.268	(0.442)	0.241	0.027
152	12.67	0.93	0.268	(0.440)	0.241	0.027
153	12.75	0.93	0.268	(0.438)	0.241	0.027
154	12.83	0.97	0.278	(0.436)	0.250	0.028
155	12.92	0.97	0.278	(0.433)	0.250	0.028
156	13.00	0.97	0.278	(0.431)	0.250	0.028
157	13.08	1.13	0.326	(0.429)	0.293	0.033
158	13.17	1.13	0.326	(0.427)	0.293	0.033
159	13.25	1.13	0.326	(0.425)	0.293	0.033
160	13.33	1.13	0.326	(0.423)	0.293	0.033
161	13.42	1.13	0.326	(0.420)	0.293	0.033
162	13.50	1.13	0.326	(0.418)	0.293	0.033
163	13.58	0.77	0.220	(0.416)	0.198	0.022
164	13.67	0.77	0.220	(0.414)	0.198	0.022
165	13.75	0.77	0.220	(0.412)	0.198	0.022
166	13.83	0.77	0.220	(0.410)	0.198	0.022
167	13.92	0.77	0.220	(0.408)	0.198	0.022
168	14.00	0.77	0.220	(0.406)	0.198	0.022
169	14.08	0.90	0.259	(0.404)	0.233	0.026
170	14.17	0.90	0.259	(0.402)	0.233	0.026
171	14.25	0.90	0.259	(0.399)	0.233	0.026
172	14.33	0.87	0.249	(0.397)	0.224	0.025
173	14.42	0.87	0.249	(0.395)	0.224	0.025
174	14.50	0.87	0.249	(0.393)	0.224	0.025
175	14.58	0.87	0.249	(0.391)	0.224	0.025
176	14.67	0.87	0.249	(0.389)	0.224	0.025
177	14.75	0.87	0.249	(0.387)	0.224	0.025
178	14.83	0.83	0.239	(0.385)	0.215	0.024
179	14.92	0.83	0.239	(0.383)	0.215	0.024
180	15.00	0.83	0.239	(0.381)	0.215	0.024
181	15.08	0.80	0.230	(0.379)	0.207	0.023
182	15.17	0.80	0.230	(0.378)	0.207	0.023
183	15.25	0.80	0.230	(0.376)	0.207	0.023
184	15.33	0.77	0.220	(0.374)	0.198	0.022
185	15.42	0.77	0.220	(0.372)	0.198	0.022
186	15.50	0.77	0.220	(0.370)	0.198	0.022
187	15.58	0.63	0.182	(0.368)	0.164	0.018
188	15.67	0.63	0.182	(0.366)	0.164	0.018
189	15.75	0.63	0.182	(0.364)	0.164	0.018
190	15.83	0.63	0.182	(0.362)	0.164	0.018
191	15.92	0.63	0.182	(0.360)	0.164	0.018
192	16.00	0.63	0.182	(0.359)	0.164	0.018

193	16.08	0.13	0.038	(0.357)	0.034	0.004
194	16.17	0.13	0.038	(0.355)	0.034	0.004
195	16.25	0.13	0.038	(0.353)	0.034	0.004
196	16.33	0.13	0.038	(0.351)	0.034	0.004
197	16.42	0.13	0.038	(0.350)	0.034	0.004
198	16.50	0.13	0.038	(0.348)	0.034	0.004
199	16.58	0.10	0.029	(0.346)	0.026	0.003
200	16.67	0.10	0.029	(0.344)	0.026	0.003
201	16.75	0.10	0.029	(0.343)	0.026	0.003
202	16.83	0.10	0.029	(0.341)	0.026	0.003
203	16.92	0.10	0.029	(0.339)	0.026	0.003
204	17.00	0.10	0.029	(0.337)	0.026	0.003
205	17.08	0.17	0.048	(0.336)	0.043	0.005
206	17.17	0.17	0.048	(0.334)	0.043	0.005
207	17.25	0.17	0.048	(0.332)	0.043	0.005
208	17.33	0.17	0.048	(0.331)	0.043	0.005
209	17.42	0.17	0.048	(0.329)	0.043	0.005
210	17.50	0.17	0.048	(0.327)	0.043	0.005
211	17.58	0.17	0.048	(0.326)	0.043	0.005
212	17.67	0.17	0.048	(0.324)	0.043	0.005
213	17.75	0.17	0.048	(0.322)	0.043	0.005
214	17.83	0.13	0.038	(0.321)	0.034	0.004
215	17.92	0.13	0.038	(0.319)	0.034	0.004
216	18.00	0.13	0.038	(0.318)	0.034	0.004
217	18.08	0.13	0.038	(0.316)	0.034	0.004
218	18.17	0.13	0.038	(0.315)	0.034	0.004
219	18.25	0.13	0.038	(0.313)	0.034	0.004
220	18.33	0.13	0.038	(0.311)	0.034	0.004
221	18.42	0.13	0.038	(0.310)	0.034	0.004
222	18.50	0.13	0.038	(0.308)	0.034	0.004
223	18.58	0.10	0.029	(0.307)	0.026	0.003
224	18.67	0.10	0.029	(0.305)	0.026	0.003
225	18.75	0.10	0.029	(0.304)	0.026	0.003
226	18.83	0.07	0.019	(0.303)	0.017	0.002
227	18.92	0.07	0.019	(0.301)	0.017	0.002
228	19.00	0.07	0.019	(0.300)	0.017	0.002
229	19.08	0.10	0.029	(0.298)	0.026	0.003
230	19.17	0.10	0.029	(0.297)	0.026	0.003
231	19.25	0.10	0.029	(0.295)	0.026	0.003
232	19.33	0.13	0.038	(0.294)	0.034	0.004
233	19.42	0.13	0.038	(0.293)	0.034	0.004
234	19.50	0.13	0.038	(0.291)	0.034	0.004
235	19.58	0.10	0.029	(0.290)	0.026	0.003
236	19.67	0.10	0.029	(0.289)	0.026	0.003
237	19.75	0.10	0.029	(0.287)	0.026	0.003
238	19.83	0.07	0.019	(0.286)	0.017	0.002
239	19.92	0.07	0.019	(0.285)	0.017	0.002
240	20.00	0.07	0.019	(0.284)	0.017	0.002
241	20.08	0.10	0.029	(0.282)	0.026	0.003
242	20.17	0.10	0.029	(0.281)	0.026	0.003
243	20.25	0.10	0.029	(0.280)	0.026	0.003
244	20.33	0.10	0.029	(0.279)	0.026	0.003
245	20.42	0.10	0.029	(0.277)	0.026	0.003
246	20.50	0.10	0.029	(0.276)	0.026	0.003
247	20.58	0.10	0.029	(0.275)	0.026	0.003
248	20.67	0.10	0.029	(0.274)	0.026	0.003
249	20.75	0.10	0.029	(0.273)	0.026	0.003
250	20.83	0.07	0.019	(0.272)	0.017	0.002
251	20.92	0.07	0.019	(0.271)	0.017	0.002
252	21.00	0.07	0.019	(0.270)	0.017	0.002
253	21.08	0.10	0.029	(0.268)	0.026	0.003
254	21.17	0.10	0.029	(0.267)	0.026	0.003
255	21.25	0.10	0.029	(0.266)	0.026	0.003
256	21.33	0.07	0.019	(0.265)	0.017	0.002
257	21.42	0.07	0.019	(0.264)	0.017	0.002
258	21.50	0.07	0.019	(0.263)	0.017	0.002
259	21.58	0.10	0.029	(0.262)	0.026	0.003
260	21.67	0.10	0.029	(0.261)	0.026	0.003
261	21.75	0.10	0.029	(0.261)	0.026	0.003
262	21.83	0.07	0.019	(0.260)	0.017	0.002
263	21.92	0.07	0.019	(0.259)	0.017	0.002
264	22.00	0.07	0.019	(0.258)	0.017	0.002
265	22.08	0.10	0.029	(0.257)	0.026	0.003
266	22.17	0.10	0.029	(0.256)	0.026	0.003
267	22.25	0.10	0.029	(0.255)	0.026	0.003
268	22.33	0.07	0.019	(0.255)	0.017	0.002
269	22.42	0.07	0.019	(0.254)	0.017	0.002

270	22.50	0.07	0.019	(0.253)	0.017	0.002
271	22.58	0.07	0.019	(0.252)	0.017	0.002
272	22.67	0.07	0.019	(0.252)	0.017	0.002
273	22.75	0.07	0.019	(0.251)	0.017	0.002
274	22.83	0.07	0.019	(0.250)	0.017	0.002
275	22.92	0.07	0.019	(0.250)	0.017	0.002
276	23.00	0.07	0.019	(0.249)	0.017	0.002
277	23.08	0.07	0.019	(0.248)	0.017	0.002
278	23.17	0.07	0.019	(0.248)	0.017	0.002
279	23.25	0.07	0.019	(0.247)	0.017	0.002
280	23.33	0.07	0.019	(0.247)	0.017	0.002
281	23.42	0.07	0.019	(0.246)	0.017	0.002
282	23.50	0.07	0.019	(0.246)	0.017	0.002
283	23.58	0.07	0.019	(0.246)	0.017	0.002
284	23.67	0.07	0.019	(0.245)	0.017	0.002
285	23.75	0.07	0.019	(0.245)	0.017	0.002
286	23.83	0.07	0.019	(0.245)	0.017	0.002
287	23.92	0.07	0.019	(0.244)	0.017	0.002
288	24.00	0.07	0.019	(0.244)	0.017	0.002

(Loss Rate Not Used)

Sum = 100.0 Sum = 2.9

Flood volume = Effective rainfall 0.24(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 1.3(Ac.Ft)
Total soil loss = 2.15(In)
Total soil loss = 12.047(Ac.Ft)
Total rainfall = 2.39(In)
Flood volume = 58306.6 Cubic Feet
Total soil loss = 524759.2 Cubic Feet

Peak flow rate of this hydrograph = 2.152(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	0.0004	0.04	Q				
0+15	0.0009	0.08	Q				
0+20	0.0016	0.10	Q				
0+25	0.0025	0.13	Q				
0+30	0.0036	0.15	Q				
0+35	0.0047	0.17	Q				
0+40	0.0059	0.17	Q				
0+45	0.0071	0.18	Q				
0+50	0.0084	0.19	Q				
0+55	0.0098	0.21	Q				
1+ 0	0.0114	0.23	Q				
1+ 5	0.0130	0.23	Q				
1+10	0.0146	0.22	Q				
1+15	0.0160	0.21	Q				
1+20	0.0174	0.20	Q				
1+25	0.0188	0.20	Q				
1+30	0.0201	0.20	Q				
1+35	0.0215	0.20	Q				
1+40	0.0229	0.20	Q				
1+45	0.0242	0.20	Q				
1+50	0.0256	0.20	Q				
1+55	0.0271	0.22	Q				
2+ 0	0.0287	0.24	Q				
2+ 5	0.0304	0.24	Q				
2+10	0.0321	0.25	Q				
2+15	0.0338	0.25	|Q				
2+20	0.0356	0.25	|Q				
2+25	0.0373	0.25	|Q				
2+30	0.0391	0.26	|Q				
2+35	0.0409	0.26	|Q				
2+40	0.0428	0.28	|Q				
2+45	0.0449	0.30	|Q				
2+50	0.0470	0.31	|Q				
2+55	0.0491	0.31	|Q				
3+ 0	0.0513	0.31	|Q				
3+ 5	0.0535	0.32	|Q				

3+10	0.0557	0.32	|Q	|	|	|	|
3+15	0.0579	0.32	|Q	|	|	|	|
3+20	0.0601	0.32	|Q	|	|	|	|
3+25	0.0623	0.32	|Q	|	|	|	|
3+30	0.0645	0.32	|Q	|	|	|	|
3+35	0.0668	0.32	|Q	|	|	|	|
3+40	0.0690	0.32	|QV	|	|	|	|
3+45	0.0712	0.32	|QV	|	|	|	|
3+50	0.0735	0.33	|QV	|	|	|	|
3+55	0.0759	0.35	|QV	|	|	|	|
4+ 0	0.0784	0.36	|QV	|	|	|	|
4+ 5	0.0809	0.37	|QV	|	|	|	|
4+10	0.0835	0.38	|QV	|	|	|	|
4+15	0.0862	0.38	|QV	|	|	|	|
4+20	0.0888	0.39	|QV	|	|	|	|
4+25	0.0916	0.41	|QV	|	|	|	|
4+30	0.0945	0.43	|QV	|	|	|	|
4+35	0.0975	0.43	|QV	|	|	|	|
4+40	0.1006	0.44	|Q V	|	|	|	|
4+45	0.1036	0.44	|Q V	|	|	|	|
4+50	0.1067	0.45	|Q V	|	|	|	|
4+55	0.1100	0.47	|Q V	|	|	|	|
5+ 0	0.1133	0.49	|Q V	|	|	|	|
5+ 5	0.1167	0.49	|Q V	|	|	|	|
5+10	0.1199	0.46	|Q V	|	|	|	|
5+15	0.1228	0.43	|Q V	|	|	|	|
5+20	0.1257	0.42	|Q V	|	|	|	|
5+25	0.1286	0.43	|Q V	|	|	|	|
5+30	0.1317	0.44	|Q V	|	|	|	|
5+35	0.1348	0.45	|Q V	|	|	|	|
5+40	0.1381	0.47	|Q V	|	|	|	|
5+45	0.1415	0.49	|Q V	|	|	|	|
5+50	0.1449	0.50	| Q V	|	|	|	|
5+55	0.1484	0.51	| Q V	|	|	|	|
6+ 0	0.1519	0.51	| Q V	|	|	|	|
6+ 5	0.1554	0.52	| Q V	|	|	|	|
6+10	0.1591	0.53	| Q V	|	|	|	|
6+15	0.1629	0.55	| Q V	|	|	|	|
6+20	0.1668	0.56	| Q V	|	|	|	|
6+25	0.1707	0.57	| Q V	|	|	|	|
6+30	0.1747	0.57	| Q V	|	|	|	|
6+35	0.1787	0.58	| Q V	|	|	|	|
6+40	0.1828	0.60	| Q V	|	|	|	|
6+45	0.1871	0.62	| Q V	|	|	|	|
6+50	0.1914	0.63	| Q V	|	|	|	|
6+55	0.1958	0.63	| Q V	|	|	|	|
7+ 0	0.2002	0.64	| Q V	|	|	|	|
7+ 5	0.2046	0.64	| Q V	|	|	|	|
7+10	0.2090	0.64	| Q V	|	|	|	|
7+15	0.2134	0.64	| Q V	|	|	|	|
7+20	0.2179	0.65	| Q V	|	|	|	|
7+25	0.2225	0.67	| Q V	|	|	|	|
7+30	0.2272	0.69	| Q V	|	|	|	|
7+35	0.2321	0.70	| Q V	|	|	|	|
7+40	0.2370	0.72	| Q V	|	|	|	|
7+45	0.2422	0.74	| Q V	|	|	|	|
7+50	0.2474	0.76	| Q V	|	|	|	|
7+55	0.2528	0.78	| Q V	|	|	|	|
8+ 0	0.2583	0.81	| Q V	|	|	|	|
8+ 5	0.2640	0.83	| Q V	|	|	|	|
8+10	0.2700	0.87	| Q V	|	|	|	|
8+15	0.2763	0.91	| Q V	|	|	|	|
8+20	0.2827	0.93	| Q V	|	|	|	|
8+25	0.2891	0.94	| Q V	|	|	|	|
8+30	0.2957	0.95	| Q V	|	|	|	|
8+35	0.3023	0.96	| Q V|	|	|	|	|
8+40	0.3090	0.98	| Q V|	|	|	|	|
8+45	0.3160	1.00	| Q V|	|	|	|	|
8+50	0.3230	1.02	| Q V|	|	|	|	|
8+55	0.3302	1.04	| Q V|	|	|	|	|
9+ 0	0.3375	1.07	| Q V	|	|	|	|
9+ 5	0.3450	1.09	| Q V	|	|	|	|
9+10	0.3527	1.13	| Q V	|	|	|	|
9+15	0.3608	1.17	| Q V	|	|	|	|
9+20	0.3690	1.19	| Q |V	|	|	|	|
9+25	0.3774	1.22	| Q |V	|	|	|	|
9+30	0.3860	1.25	| Q |V	|	|	|	|

9+35	0.3948	1.27	Q	V			
9+40	0.4037	1.29	Q	V			
9+45	0.4128	1.32	Q	V			
9+50	0.4220	1.34	Q	V			
9+55	0.4313	1.36	Q	V			
10+ 0	0.4409	1.39	Q	V			
10+ 5	0.4503	1.37	Q	V			
10+10	0.4589	1.25	Q	V			
10+15	0.4666	1.12	Q	V			
10+20	0.4740	1.07	Q	V			
10+25	0.4812	1.05	Q	V			
10+30	0.4883	1.03	Q	V			
10+35	0.4954	1.04	Q	V			
10+40	0.5031	1.12	Q	V			
10+45	0.5114	1.20	Q	V			
10+50	0.5199	1.23	Q	V			
10+55	0.5285	1.25	Q	V			
11+ 0	0.5372	1.26	Q	V			
11+ 5	0.5459	1.27	Q	V			
11+10	0.5546	1.25	Q	V			
11+15	0.5631	1.24	Q	V			
11+20	0.5716	1.23	Q	V			
11+25	0.5801	1.23	Q	V			
11+30	0.5885	1.23	Q	V			
11+35	0.5970	1.22	Q	V			
11+40	0.6052	1.19	Q	V			
11+45	0.6131	1.15	Q	V			
11+50	0.6209	1.14	Q	V			
11+55	0.6289	1.15	Q	V			
12+ 0	0.6369	1.16	Q	V			
12+ 5	0.6451	1.19	Q	V			
12+10	0.6542	1.32	Q	V			
12+15	0.6642	1.45	Q	V			
12+20	0.6746	1.51	Q	V			
12+25	0.6853	1.56	Q	V			
12+30	0.6963	1.60	Q	V			
12+35	0.7076	1.63	Q	V			
12+40	0.7192	1.68	Q	V			
12+45	0.7311	1.73	Q	V			
12+50	0.7432	1.76	Q	V			
12+55	0.7555	1.79	Q	V			
13+ 0	0.7681	1.82	Q	V			
13+ 5	0.7809	1.86	Q	V			
13+10	0.7944	1.96	Q	V			
13+15	0.8086	2.06	Q	V			
13+20	0.8232	2.11	Q	V			
13+25	0.8379	2.13	Q	V			
13+30	0.8527	2.15	Q	V			
13+35	0.8673	2.12	Q	V			
13+40	0.8806	1.93	Q	V			
13+45	0.8925	1.73	Q	V			
13+50	0.9039	1.65	Q	V			
13+55	0.9149	1.61	Q	V			
14+ 0	0.9258	1.58	Q	V			
14+ 5	0.9366	1.57	Q	V			
14+10	0.9479	1.63	Q	V			
14+15	0.9595	1.69	Q	V			
14+20	0.9713	1.71	Q	V			
14+25	0.9831	1.70	Q	V			
14+30	0.9947	1.69	Q	V			
14+35	1.0063	1.68	Q	V			
14+40	1.0179	1.68	Q	V			
14+45	1.0295	1.68	Q	V			
14+50	1.0410	1.68	Q	V			
14+55	1.0524	1.66	Q	V			
15+ 0	1.0637	1.64	Q	V			
15+ 5	1.0750	1.63	Q	V			
15+10	1.0860	1.61	Q	V			
15+15	1.0970	1.59	Q	V			
15+20	1.1078	1.57	Q	V			
15+25	1.1185	1.55	Q	V			
15+30	1.1290	1.53	Q	V			
15+35	1.1393	1.50	Q	V			
15+40	1.1491	1.42	Q	V			
15+45	1.1583	1.34	Q	V			
15+50	1.1673	1.31	Q	V			
15+55	1.1762	1.29	Q	V			

16+ 0	1.1849	1.27	| Q	|	|	| V	|
16+ 5	1.1932	1.20	| Q	|	|	| V	|
16+10	1.1995	0.92	| Q	|	|	| V	|
16+15	1.2038	0.63	| Q	|	|	| V	|
16+20	1.2074	0.51	| Q	|	|	| V	|
16+25	1.2104	0.44	|Q	|	|	| V	|
16+30	1.2131	0.40	|Q	|	|	| V	|
16+35	1.2156	0.36	|Q	|	|	| V	|
16+40	1.2178	0.31	|Q	|	|	| V	|
16+45	1.2197	0.28	|Q	|	|	| V	|
16+50	1.2214	0.25	|Q	|	|	| V	|
16+55	1.2230	0.24	Q	|	|	| V	|
17+ 0	1.2246	0.22	Q	|	|	| V	|
17+ 5	1.2261	0.22	Q	|	|	| V	|
17+10	1.2279	0.25	|Q	|	|	| V	|
17+15	1.2298	0.28	|Q	|	|	| V	|
17+20	1.2318	0.29	|Q	|	|	| V	|
17+25	1.2339	0.30	|Q	|	|	| V	|
17+30	1.2360	0.31	|Q	|	|	| V	|
17+35	1.2382	0.31	|Q	|	|	| V	|
17+40	1.2404	0.31	|Q	|	|	| V	|
17+45	1.2425	0.32	|Q	|	|	| V	|
17+50	1.2447	0.31	|Q	|	|	| V	|
17+55	1.2468	0.30	|Q	|	|	| V	|
18+ 0	1.2487	0.28	|Q	|	|	| V	|
18+ 5	1.2506	0.27	|Q	|	|	| V	|
18+10	1.2524	0.27	|Q	|	|	| V	|
18+15	1.2543	0.27	|Q	|	|	| V	|
18+20	1.2561	0.27	|Q	|	|	| V	|
18+25	1.2579	0.26	|Q	|	|	| V	|
18+30	1.2597	0.26	|Q	|	|	| V	|
18+35	1.2615	0.26	|Q	|	|	| V	|
18+40	1.2631	0.24	Q	|	|	| V	|
18+45	1.2647	0.22	Q	|	|	| V	|
18+50	1.2661	0.21	Q	|	|	| V	|
18+55	1.2673	0.18	Q	|	|	| V	|
19+ 0	1.2685	0.16	Q	|	|	| V	|
19+ 5	1.2695	0.16	Q	|	|	| V	|
19+10	1.2707	0.17	Q	|	|	| V	|
19+15	1.2720	0.18	Q	|	|	| V	|
19+20	1.2733	0.19	Q	|	|	| V	|
19+25	1.2747	0.21	Q	|	|	| V	|
19+30	1.2763	0.23	Q	|	|	| V	|
19+35	1.2780	0.24	Q	|	|	| V	|
19+40	1.2795	0.22	Q	|	|	| V	|
19+45	1.2809	0.21	Q	|	|	| V	|
19+50	1.2823	0.20	Q	|	|	| V	|
19+55	1.2835	0.18	Q	|	|	| V	|
20+ 0	1.2846	0.16	Q	|	|	| V	|
20+ 5	1.2856	0.15	Q	|	|	| V	|
20+10	1.2868	0.17	Q	|	|	| V	|
20+15	1.2880	0.18	Q	|	|	| V	|
20+20	1.2893	0.19	Q	|	|	| V	|
20+25	1.2906	0.19	Q	|	|	| V	|
20+30	1.2919	0.19	Q	|	|	| V	|
20+35	1.2933	0.19	Q	|	|	| V	|
20+40	1.2946	0.19	Q	|	|	| V	|
20+45	1.2959	0.19	Q	|	|	| V	|
20+50	1.2972	0.19	Q	|	|	| V	|
20+55	1.2984	0.17	Q	|	|	| V	|
21+ 0	1.2994	0.15	Q	|	|	| V	|
21+ 5	1.3005	0.15	Q	|	|	| V	|
21+10	1.3016	0.16	Q	|	|	| V	|
21+15	1.3028	0.18	Q	|	|	| V	|
21+20	1.3041	0.18	Q	|	|	| V	|
21+25	1.3052	0.17	Q	|	|	| V	|
21+30	1.3062	0.15	Q	|	|	| V	|
21+35	1.3072	0.15	Q	|	|	| V	|
21+40	1.3083	0.16	Q	|	|	| V	|
21+45	1.3095	0.18	Q	|	|	| V	|
21+50	1.3108	0.18	Q	|	|	| V	|
21+55	1.3119	0.16	Q	|	|	| V	|
22+ 0	1.3129	0.15	Q	|	|	| V	|
22+ 5	1.3139	0.15	Q	|	|	| V	|
22+10	1.3150	0.16	Q	|	|	| V	|
22+15	1.3162	0.18	Q	|	|	| V	|
22+20	1.3175	0.18	Q	|	|	| V	|

22+25	1.3186	0.16	Q	|	|	|	V|
22+30	1.3196	0.15	Q	|	|	|	V|
22+35	1.3206	0.14	Q	|	|	|	V|
22+40	1.3215	0.14	Q	|	|	|	V|
22+45	1.3225	0.14	Q	|	|	|	V|
22+50	1.3234	0.13	Q	|	|	|	V|
22+55	1.3243	0.13	Q	|	|	|	V|
23+ 0	1.3252	0.13	Q	|	|	|	V|
23+ 5	1.3261	0.13	Q	|	|	|	V|
23+10	1.3270	0.13	Q	|	|	|	V|
23+15	1.3279	0.13	Q	|	|	|	V|
23+20	1.3288	0.13	Q	|	|	|	V|
23+25	1.3297	0.13	Q	|	|	|	V|
23+30	1.3306	0.13	Q	|	|	|	V|
23+35	1.3315	0.13	Q	|	|	|	V|
23+40	1.3324	0.13	Q	|	|	|	V|
23+45	1.3333	0.13	Q	|	|	|	V|
23+50	1.3342	0.13	Q	|	|	|	V|
23+55	1.3351	0.13	Q	|	|	|	V|
24+ 0	1.3360	0.13	Q	|	|	|	V|
24+ 5	1.3368	0.12	Q	|	|	|	V|
24+10	1.3374	0.08	Q	|	|	|	V|
24+15	1.3377	0.05	Q	|	|	|	V|
24+20	1.3379	0.03	Q	|	|	|	V|
24+25	1.3381	0.02	Q	|	|	|	V|
24+30	1.3382	0.02	Q	|	|	|	V|
24+35	1.3383	0.01	Q	|	|	|	V|
24+40	1.3384	0.01	Q	|	|	|	V|
24+45	1.3384	0.01	Q	|	|	|	V|
24+50	1.3385	0.01	Q	|	|	|	V|
24+55	1.3385	0.00	Q	|	|	|	V|
25+ 0	1.3385	0.00	Q	|	|	|	V|
25+ 5	1.3385	0.00	Q	|	|	|	V|
25+10	1.3385	0.00	Q	|	|	|	V|
25+15	1.3385	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 07/31/20 File: 3828EX10110.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 10-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.50	33.55

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.20	80.52

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.500(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.788(In)
Areal adjustment factor = 99.94 %
Adjusted average point rain = 0.788(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

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

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

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

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	52.307	6.571	4.443
2	0.167	104.614	28.083	18.991
3	0.250	156.922	28.549	19.306
4	0.333	209.229	12.179	8.236
5	0.417	261.536	6.595	4.460
6	0.500	313.843	4.589	3.103
7	0.583	366.151	3.296	2.229
8	0.667	418.458	2.462	1.665
9	0.750	470.765	1.797	1.215
10	0.833	523.072	1.548	1.047
11	0.917	575.380	1.191	0.806
12	1.000	627.687	0.940	0.636
13	1.083	679.994	0.721	0.488
14	1.167	732.301	0.542	0.367
15	1.250	784.608	0.523	0.354
16	1.333	836.916	0.415	0.281
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.397	0.291	(0.357)	0.106
2	0.17	4.30	0.406	0.291	(0.366)	0.115
3	0.25	5.00	0.473	0.291	(0.425)	0.181
4	0.33	5.00	0.473	0.291	(0.425)	0.181
5	0.42	5.80	0.548	0.291	(0.493)	0.257
6	0.50	6.50	0.614	0.291	(0.553)	0.323
7	0.58	7.40	0.699	0.291	(0.629)	0.408
8	0.67	8.60	0.813	0.291	(0.731)	0.522
9	0.75	12.30	1.162	0.291	(1.046)	0.871
10	0.83	29.10	2.750	0.291	(2.475)	2.459
11	0.92	6.80	0.643	0.291	(0.578)	0.351
12	1.00	5.00	0.473	0.291	(0.425)	0.181
		(Loss Rate Not Used)			
Sum =		100.0		Sum =		6.0

Flood volume = Effective rainfall 0.50(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 2.8(Ac.Ft)
Total soil loss = 0.29(In)
Total soil loss = 1.628(Ac.Ft)
Total rainfall = 0.79(In)
Flood volume = 120886.9 Cubic Feet
Total soil loss = 70928.5 Cubic Feet

Peak flow rate of this hydrograph = 73.530(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	20.0	40.0	60.0	80.0
0+ 5	0.0032	0.47	Q				
0+10	0.0206	2.52	VQ				
0+15	0.0553	5.04	V Q				

0+20	0.1059	7.35	V Q				
0+25	0.1714	9.51	V Q				
0+30	0.2551	12.16	V Q				
0+35	0.3640	15.81	V Q				
0+40	0.5033	20.23	V Q				
0+45	0.6876	26.76	V Q				
0+50	0.9915	44.12	V	Q			
0+55	1.4979	73.53		V		Q	
1+ 0	1.9625	67.47			V	Q	
1+ 5	2.2257	38.22		Q		V	
1+10	2.3837	22.93	Q			V	
1+15	2.4858	14.83	Q			V	
1+20	2.5584	10.55	Q			V	
1+25	2.6127	7.87	Q			V	
1+30	2.6536	5.94	Q			V	
1+35	2.6866	4.80	Q			V	
1+40	2.7122	3.72	Q			V	
1+45	2.7321	2.89	Q			V	
1+50	2.7471	2.19	Q			V	
1+55	2.7585	1.64	Q			V	
2+ 0	2.7676	1.33	Q			V	
2+ 5	2.7737	0.88	Q			V	
2+10	2.7748	0.16	Q			V	
2+15	2.7752	0.05	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 07/31/20 File: 3828EX10310.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 10-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.80	53.68

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.86	124.81

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 1.236(In)
Areal adjustment factor = 99.97 %
Adjusted average point rain = 1.236(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

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

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

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	52.307	6.571	4.443
2	0.167	104.614	28.083	18.991
3	0.250	156.922	28.549	19.306
4	0.333	209.229	12.179	8.236
5	0.417	261.536	6.595	4.460
6	0.500	313.843	4.589	3.103
7	0.583	366.151	3.296	2.229
8	0.667	418.458	2.462	1.665
9	0.750	470.765	1.797	1.215
10	0.833	523.072	1.548	1.047
11	0.917	575.380	1.191	0.806
12	1.000	627.687	0.940	0.636
13	1.083	679.994	0.721	0.488
14	1.167	732.301	0.542	0.367
15	1.250	784.608	0.523	0.354
16	1.333	836.916	0.415	0.281
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.193	(0.291)	0.173	0.019
2	0.17	1.30	0.193	(0.291)	0.173	0.019
3	0.25	1.10	0.163	(0.291)	0.147	0.016
4	0.33	1.50	0.222	(0.291)	0.200	0.022
5	0.42	1.50	0.222	(0.291)	0.200	0.022
6	0.50	1.80	0.267	(0.291)	0.240	0.027
7	0.58	1.50	0.222	(0.291)	0.200	0.022
8	0.67	1.80	0.267	(0.291)	0.240	0.027
9	0.75	1.80	0.267	(0.291)	0.240	0.027
10	0.83	1.50	0.222	(0.291)	0.200	0.022
11	0.92	1.60	0.237	(0.291)	0.214	0.024
12	1.00	1.80	0.267	(0.291)	0.240	0.027
13	1.08	2.20	0.326	0.291	(0.294)	0.035
14	1.17	2.20	0.326	0.291	(0.294)	0.035
15	1.25	2.20	0.326	0.291	(0.294)	0.035
16	1.33	2.00	0.297	(0.291)	0.267	0.030
17	1.42	2.60	0.386	0.291	(0.347)	0.094
18	1.50	2.70	0.400	0.291	(0.360)	0.109
19	1.58	2.40	0.356	0.291	(0.320)	0.065
20	1.67	2.70	0.400	0.291	(0.360)	0.109
21	1.75	3.30	0.489	0.291	(0.440)	0.198
22	1.83	3.10	0.460	0.291	(0.414)	0.168
23	1.92	2.90	0.430	0.291	(0.387)	0.139
24	2.00	3.00	0.445	0.291	(0.400)	0.154
25	2.08	3.10	0.460	0.291	(0.414)	0.168
26	2.17	4.20	0.623	0.291	(0.561)	0.332
27	2.25	5.00	0.741	0.291	(0.667)	0.450
28	2.33	3.50	0.519	0.291	(0.467)	0.228
29	2.42	6.80	1.008	0.291	(0.908)	0.717
30	2.50	7.30	1.082	0.291	(0.974)	0.791
31	2.58	8.20	1.216	0.291	(1.094)	0.925
32	2.67	5.90	0.875	0.291	(0.787)	0.584
33	2.75	2.00	0.297	(0.291)	0.267	0.030
34	2.83	1.80	0.267	(0.291)	0.240	0.027
35	2.92	1.80	0.267	(0.291)	0.240	0.027
36	3.00	0.60	0.089	(0.291)	0.080	0.009
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	5.7

Flood volume = Effective rainfall 0.48(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 2.7(Ac.Ft)
Total soil loss = 0.76(In)
Total soil loss = 4.239(Ac.Ft)
Total rainfall = 1.24(In)
Flood volume = 116359.0 Cubic Feet
Total soil loss = 184631.4 Cubic Feet

Peak flow rate of this hydrograph = 45.530(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	12.5	25.0	37.5	50.0
0+ 5	0.0006	0.09	Q				
0+10	0.0037	0.45	Q				
0+15	0.0093	0.81	Q				
0+20	0.0158	0.94	Q				
0+25	0.0232	1.08	Q				
0+30	0.0318	1.25	VQ				
0+35	0.0414	1.39	VQ				
0+40	0.0515	1.47	VQ				
0+45	0.0621	1.54	VQ				
0+50	0.0732	1.61	|Q				
0+55	0.0841	1.59	|Q				
1+ 0	0.0950	1.58	|Q				
1+ 5	0.1066	1.69	|Q				
1+10	0.1198	1.91	|Q				
1+15	0.1343	2.11	|QV				
1+20	0.1492	2.17	|QV				
1+25	0.1658	2.40	|QV				
1+30	0.1908	3.63	| Q				
1+35	0.2248	4.94	| Q				
1+40	0.2600	5.11	| VQ				
1+45	0.3006	5.90	| Q				
1+50	0.3571	8.21	| VQ				
1+55	0.4232	9.59	| VQ				
2+ 0	0.4883	9.46	| Q				
2+ 5	0.5539	9.53	| QV				
2+10	0.6285	10.83	| QV|				
2+15	0.7313	14.93	| VQ				
2+20	0.8662	19.58	| V Q				
2+25	1.0130	21.32	| V Q				
2+30	1.2092	28.48	| V	Q			
2+35	1.4794	39.23	|	V	Q		
2+40	1.7930	45.53	|	V	Q		
2+45	2.0811	41.84	|		V Q		
2+50	2.2712	27.60	|	Q	V		
2+55	2.3809	15.93	| Q		V		
3+ 0	2.4574	11.11	| Q		V		
3+ 5	2.5135	8.15	| Q		V		
3+10	2.5544	5.95	| Q		V		
3+15	2.5850	4.43	| Q		V		
3+20	2.6087	3.44	| Q		V|		
3+25	2.6274	2.71	| Q		V|		
3+30	2.6415	2.04	|Q		V|		
3+35	2.6520	1.53	|Q		V|		
3+40	2.6602	1.18	Q		V|		
3+45	2.6658	0.83	Q		V|		
3+50	2.6694	0.51	Q		V|		
3+55	2.6708	0.20	Q		V|		
4+ 0	2.6710	0.03	Q		V|		
4+ 5	2.6711	0.02	Q		V|		
4+10	2.6712	0.01	Q		V|		
4+15	2.6712	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 07/31/20 File: 3828EX10610.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 10-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.15	77.16

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	2.50	167.75

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.150(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.705(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 1.705(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

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

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

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	52.307	6.571	4.443
2	0.167	104.614	28.083	18.991
3	0.250	156.922	28.549	19.306
4	0.333	209.229	12.179	8.236
5	0.417	261.536	6.595	4.460
6	0.500	313.843	4.589	3.103
7	0.583	366.151	3.296	2.229
8	0.667	418.458	2.462	1.665
9	0.750	470.765	1.797	1.215
10	0.833	523.072	1.548	1.047
11	0.917	575.380	1.191	0.806
12	1.000	627.687	0.940	0.636
13	1.083	679.994	0.721	0.488
14	1.167	732.301	0.542	0.367
15	1.250	784.608	0.523	0.354
16	1.333	836.916	0.415	0.281
			Sum = 100.000	Sum= 67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.102	(0.291)	0.092	0.010
2	0.17	0.60	0.123	(0.291)	0.110	0.012
3	0.25	0.60	0.123	(0.291)	0.110	0.012
4	0.33	0.60	0.123	(0.291)	0.110	0.012
5	0.42	0.60	0.123	(0.291)	0.110	0.012
6	0.50	0.70	0.143	(0.291)	0.129	0.014
7	0.58	0.70	0.143	(0.291)	0.129	0.014
8	0.67	0.70	0.143	(0.291)	0.129	0.014
9	0.75	0.70	0.143	(0.291)	0.129	0.014
10	0.83	0.70	0.143	(0.291)	0.129	0.014
11	0.92	0.70	0.143	(0.291)	0.129	0.014
12	1.00	0.80	0.164	(0.291)	0.147	0.016
13	1.08	0.80	0.164	(0.291)	0.147	0.016
14	1.17	0.80	0.164	(0.291)	0.147	0.016
15	1.25	0.80	0.164	(0.291)	0.147	0.016
16	1.33	0.80	0.164	(0.291)	0.147	0.016
17	1.42	0.80	0.164	(0.291)	0.147	0.016
18	1.50	0.80	0.164	(0.291)	0.147	0.016
19	1.58	0.80	0.164	(0.291)	0.147	0.016
20	1.67	0.80	0.164	(0.291)	0.147	0.016
21	1.75	0.80	0.164	(0.291)	0.147	0.016
22	1.83	0.80	0.164	(0.291)	0.147	0.016
23	1.92	0.80	0.164	(0.291)	0.147	0.016
24	2.00	0.90	0.184	(0.291)	0.166	0.018
25	2.08	0.80	0.164	(0.291)	0.147	0.016
26	2.17	0.90	0.184	(0.291)	0.166	0.018
27	2.25	0.90	0.184	(0.291)	0.166	0.018
28	2.33	0.90	0.184	(0.291)	0.166	0.018
29	2.42	0.90	0.184	(0.291)	0.166	0.018
30	2.50	0.90	0.184	(0.291)	0.166	0.018
31	2.58	0.90	0.184	(0.291)	0.166	0.018
32	2.67	0.90	0.184	(0.291)	0.166	0.018
33	2.75	1.00	0.205	(0.291)	0.184	0.020
34	2.83	1.00	0.205	(0.291)	0.184	0.020
35	2.92	1.00	0.205	(0.291)	0.184	0.020
36	3.00	1.00	0.205	(0.291)	0.184	0.020
37	3.08	1.00	0.205	(0.291)	0.184	0.020
38	3.17	1.10	0.225	(0.291)	0.203	0.023

39	3.25	1.10	0.225	(0.291)	0.203	0.023	
40	3.33	1.10	0.225	(0.291)	0.203	0.023	
41	3.42	1.20	0.246	(0.291)	0.221	0.025	
42	3.50	1.30	0.266	(0.291)	0.239	0.027	
43	3.58	1.40	0.286	(0.291)	0.258	0.029	
44	3.67	1.40	0.286	(0.291)	0.258	0.029	
45	3.75	1.50	0.307	(0.291)	0.276	0.031	
46	3.83	1.50	0.307	(0.291)	0.276	0.031	
47	3.92	1.60	0.327	0.291	(0.295)	0.036	
48	4.00	1.60	0.327	0.291	(0.295)	0.036	
49	4.08	1.70	0.348	0.291	(0.313)	0.057	
50	4.17	1.80	0.368	0.291	(0.331)	0.077	
51	4.25	1.90	0.389	0.291	(0.350)	0.098	
52	4.33	2.00	0.409	0.291	(0.368)	0.118	
53	4.42	2.10	0.430	0.291	(0.387)	0.138	
54	4.50	2.10	0.430	0.291	(0.387)	0.138	
55	4.58	2.20	0.450	0.291	(0.405)	0.159	
56	4.67	2.30	0.471	0.291	(0.424)	0.179	
57	4.75	2.40	0.491	0.291	(0.442)	0.200	
58	4.83	2.40	0.491	0.291	(0.442)	0.200	
59	4.92	2.50	0.512	0.291	(0.460)	0.220	
60	5.00	2.60	0.532	0.291	(0.479)	0.241	
61	5.08	3.10	0.634	0.291	(0.571)	0.343	
62	5.17	3.60	0.737	0.291	(0.663)	0.445	
63	5.25	3.90	0.798	0.291	(0.718)	0.507	
64	5.33	4.20	0.859	0.291	(0.773)	0.568	
65	5.42	4.70	0.962	0.291	(0.865)	0.670	
66	5.50	5.60	1.146	0.291	(1.031)	0.855	
67	5.58	1.90	0.389	0.291	(0.350)	0.098	
68	5.67	0.90	0.184	(0.291)	0.166	0.018	
69	5.75	0.60	0.123	(0.291)	0.110	0.012	
70	5.83	0.50	0.102	(0.291)	0.092	0.010	
71	5.92	0.30	0.061	(0.291)	0.055	0.006	
72	6.00	0.20	0.041	(0.291)	0.037	0.004	

(Loss Rate Not Used)

Sum = 100.0 Sum = 6.3

Flood volume = Effective rainfall 0.52(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 2.9(Ac.Ft)
Total soil loss = 1.18(In)
Total soil loss = 6.608(Ac.Ft)
Total rainfall = 1.71(In)
Flood volume = 127460.2 Cubic Feet
Total soil loss = 287833.6 Cubic Feet

Peak flow rate of this hydrograph = 40.075(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	12.5	25.0	37.5	50.0
0+ 5	0.0003	0.05	Q	|	|	|	|
0+10	0.0020	0.25	Q	|	|	|	|
0+15	0.0054	0.49	Q	|	|	|	|
0+20	0.0096	0.61	Q	|	|	|	|
0+25	0.0142	0.67	Q	|	|	|	|
0+30	0.0192	0.72	Q	|	|	|	|
0+35	0.0246	0.79	Q	|	|	|	|
0+40	0.0305	0.85	Q	|	|	|	|
0+45	0.0365	0.88	Q	|	|	|	|
0+50	0.0428	0.91	Q	|	|	|	|
0+55	0.0491	0.92	Q	|	|	|	|
1+ 0	0.0556	0.94	Q	|	|	|	|
1+ 5	0.0625	0.99	Q	|	|	|	|
1+10	0.0696	1.04	Q	|	|	|	|
1+15	0.0770	1.06	QV	|	|	|	|
1+20	0.0844	1.08	QV	|	|	|	|
1+25	0.0919	1.09	QV	|	|	|	|
1+30	0.0994	1.09	QV	|	|	|	|
1+35	0.1069	1.10	QV	|	|	|	|
1+40	0.1145	1.10	QV	|	|	|	|
1+45	0.1221	1.10	QV	|	|	|	|
1+50	0.1297	1.10	QV	|	|	|	|

1+55	0.1373	1.10	QV	|	|	|	|
2+ 0	0.1450	1.11	QV	|	|	|	|
2+ 5	0.1528	1.15	Q V	|	|	|	|
2+10	0.1608	1.16	Q V	|	|	|	|
2+15	0.1689	1.17	Q V	|	|	|	|
2+20	0.1772	1.20	Q V	|	|	|	|
2+25	0.1856	1.22	Q V	|	|	|	|
2+30	0.1940	1.23	Q V	|	|	|	|
2+35	0.2025	1.23	Q V	|	|	|	|
2+40	0.2110	1.23	Q V	|	|	|	|
2+45	0.2196	1.25	Q V	|	|	|	|
2+50	0.2284	1.29	|Q V	|	|	|	|
2+55	0.2376	1.33	|Q V	|	|	|	|
3+ 0	0.2469	1.35	|Q V	|	|	|	|
3+ 5	0.2562	1.36	|Q V	|	|	|	|
3+10	0.2657	1.37	|Q V	|	|	|	|
3+15	0.2754	1.42	|Q V	|	|	|	|
3+20	0.2855	1.46	|Q V	|	|	|	|
3+25	0.2957	1.49	|Q V	|	|	|	|
3+30	0.3064	1.55	|Q V	|	|	|	|
3+35	0.3177	1.64	|Q V	|	|	|	|
3+40	0.3298	1.75	|Q V	|	|	|	|
3+45	0.3423	1.82	|Q V	|	|	|	|
3+50	0.3554	1.90	|Q V	|	|	|	|
3+55	0.3691	1.99	|Q V	|	|	|	|
4+ 0	0.3837	2.12	|Q V	|	|	|	|
4+ 5	0.3998	2.34	|Q V	|	|	|	|
4+10	0.4197	2.88	| Q V	|	|	|	|
4+15	0.4458	3.79	| Q V	|	|	|	|
4+20	0.4792	4.86	| Q V	|	|	|	|
4+25	0.5207	6.02	| Q V	|	|	|	|
4+30	0.5698	7.14	| Q V	|	|	|	|
4+35	0.6249	8.00	| Q V |	|	|	|
4+40	0.6862	8.89	| Q V|	|	|	|
4+45	0.7553	10.04	| Q V	|	|	|	|
4+50	0.8323	11.18	| Q |V	|	|	|	|
4+55	0.9155	12.07	| Q| V	|	|	|	|
5+ 0	1.0050	12.99	| Q V	|	|	|	|
5+ 5	1.1050	14.52	| |Q V	|	|	|	|
5+10	1.2268	17.69	| Q V	|	|	|	|
5+15	1.3804	22.30	| QV	|	|	|	|
5+20	1.5653	26.84	| |Q	|	|	|	|
5+25	1.7798	31.15	| | Q	|	|	|	|
5+30	2.0314	36.53	| | V Q|	|	|	|	|
5+35	2.3074	40.07	| | |VQ	|	|	|	|
5+40	2.5187	30.68	| | Q V	|	|	|	|
5+45	2.6371	17.19	| Q |	|	|	|	|
5+50	2.7125	10.96	| Q |	|	|	|	|
5+55	2.7673	7.95	| Q |	|	|	|	|
6+ 0	2.8084	5.96	| Q |	|	|	|	|
6+ 5	2.8396	4.53	| Q |	|	|	|	|
6+10	2.8632	3.43	| Q |	|	|	|	|
6+15	2.8815	2.67	| Q |	|	|	|	|
6+20	2.8956	2.04	|Q |	|	|	|	|
6+25	2.9062	1.54	|Q |	|	|	|	|
6+30	2.9139	1.13	Q |	|	|	|	|
6+35	2.9195	0.80	Q |	|	|	|	|
6+40	2.9234	0.56	Q |	|	|	|	|
6+45	2.9255	0.30	Q |	|	|	|	|
6+50	2.9258	0.05	Q |	|	|	|	|
6+55	2.9259	0.02	Q |	|	|	|	|
7+ 0	2.9260	0.01	Q |	|	|	|	|
7+ 5	2.9261	0.01	Q |	|	|	|	|
7+10	2.9261	0.00	Q |	|	|	|	|
7+15	2.9261	0.00	Q |	|	|	|	|

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 07/31/20 File: 3828EX102410.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 10-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.75	117.42

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	4.50	301.95

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.750(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 2.881(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 2.881(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

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

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

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	52.307	6.571	4.443
2 0.167	104.614	28.083	18.991
3 0.250	156.922	28.549	19.306
4 0.333	209.229	12.179	8.236
5 0.417	261.536	6.595	4.460
6 0.500	313.843	4.589	3.103
7 0.583	366.151	3.296	2.229
8 0.667	418.458	2.462	1.665
9 0.750	470.765	1.797	1.215
10 0.833	523.072	1.548	1.047
11 0.917	575.380	1.191	0.806
12 1.000	627.687	0.940	0.636
13 1.083	679.994	0.721	0.488
14 1.167	732.301	0.542	0.367
15 1.250	784.608	0.523	0.354
16 1.333	836.916	0.415	0.281
		Sum = 100.000	Sum= 67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1 0.08	0.07	0.023	(0.516)	0.021	0.002
2 0.17	0.07	0.023	(0.514)	0.021	0.002
3 0.25	0.07	0.023	(0.512)	0.021	0.002
4 0.33	0.10	0.035	(0.510)	0.031	0.003
5 0.42	0.10	0.035	(0.508)	0.031	0.003
6 0.50	0.10	0.035	(0.506)	0.031	0.003
7 0.58	0.10	0.035	(0.504)	0.031	0.003
8 0.67	0.10	0.035	(0.502)	0.031	0.003
9 0.75	0.10	0.035	(0.500)	0.031	0.003
10 0.83	0.13	0.046	(0.498)	0.041	0.005
11 0.92	0.13	0.046	(0.496)	0.041	0.005
12 1.00	0.13	0.046	(0.494)	0.041	0.005
13 1.08	0.10	0.035	(0.493)	0.031	0.003
14 1.17	0.10	0.035	(0.491)	0.031	0.003
15 1.25	0.10	0.035	(0.489)	0.031	0.003
16 1.33	0.10	0.035	(0.487)	0.031	0.003
17 1.42	0.10	0.035	(0.485)	0.031	0.003
18 1.50	0.10	0.035	(0.483)	0.031	0.003
19 1.58	0.10	0.035	(0.481)	0.031	0.003
20 1.67	0.10	0.035	(0.479)	0.031	0.003
21 1.75	0.10	0.035	(0.477)	0.031	0.003
22 1.83	0.13	0.046	(0.475)	0.041	0.005
23 1.92	0.13	0.046	(0.473)	0.041	0.005
24 2.00	0.13	0.046	(0.471)	0.041	0.005
25 2.08	0.13	0.046	(0.469)	0.041	0.005
26 2.17	0.13	0.046	(0.467)	0.041	0.005
27 2.25	0.13	0.046	(0.466)	0.041	0.005
28 2.33	0.13	0.046	(0.464)	0.041	0.005
29 2.42	0.13	0.046	(0.462)	0.041	0.005
30 2.50	0.13	0.046	(0.460)	0.041	0.005
31 2.58	0.17	0.058	(0.458)	0.052	0.006
32 2.67	0.17	0.058	(0.456)	0.052	0.006
33 2.75	0.17	0.058	(0.454)	0.052	0.006
34 2.83	0.17	0.058	(0.452)	0.052	0.006
35 2.92	0.17	0.058	(0.451)	0.052	0.006
36 3.00	0.17	0.058	(0.449)	0.052	0.006
37 3.08	0.17	0.058	(0.447)	0.052	0.006
38 3.17	0.17	0.058	(0.445)	0.052	0.006

39	3.25	0.17	0.058	(0.443)	0.052	0.006
40	3.33	0.17	0.058	(0.441)	0.052	0.006
41	3.42	0.17	0.058	(0.439)	0.052	0.006
42	3.50	0.17	0.058	(0.438)	0.052	0.006
43	3.58	0.17	0.058	(0.436)	0.052	0.006
44	3.67	0.17	0.058	(0.434)	0.052	0.006
45	3.75	0.17	0.058	(0.432)	0.052	0.006
46	3.83	0.20	0.069	(0.430)	0.062	0.007
47	3.92	0.20	0.069	(0.428)	0.062	0.007
48	4.00	0.20	0.069	(0.427)	0.062	0.007
49	4.08	0.20	0.069	(0.425)	0.062	0.007
50	4.17	0.20	0.069	(0.423)	0.062	0.007
51	4.25	0.20	0.069	(0.421)	0.062	0.007
52	4.33	0.23	0.081	(0.419)	0.073	0.008
53	4.42	0.23	0.081	(0.418)	0.073	0.008
54	4.50	0.23	0.081	(0.416)	0.073	0.008
55	4.58	0.23	0.081	(0.414)	0.073	0.008
56	4.67	0.23	0.081	(0.412)	0.073	0.008
57	4.75	0.23	0.081	(0.411)	0.073	0.008
58	4.83	0.27	0.092	(0.409)	0.083	0.009
59	4.92	0.27	0.092	(0.407)	0.083	0.009
60	5.00	0.27	0.092	(0.405)	0.083	0.009
61	5.08	0.20	0.069	(0.403)	0.062	0.007
62	5.17	0.20	0.069	(0.402)	0.062	0.007
63	5.25	0.20	0.069	(0.400)	0.062	0.007
64	5.33	0.23	0.081	(0.398)	0.073	0.008
65	5.42	0.23	0.081	(0.396)	0.073	0.008
66	5.50	0.23	0.081	(0.395)	0.073	0.008
67	5.58	0.27	0.092	(0.393)	0.083	0.009
68	5.67	0.27	0.092	(0.391)	0.083	0.009
69	5.75	0.27	0.092	(0.390)	0.083	0.009
70	5.83	0.27	0.092	(0.388)	0.083	0.009
71	5.92	0.27	0.092	(0.386)	0.083	0.009
72	6.00	0.27	0.092	(0.384)	0.083	0.009
73	6.08	0.30	0.104	(0.383)	0.093	0.010
74	6.17	0.30	0.104	(0.381)	0.093	0.010
75	6.25	0.30	0.104	(0.379)	0.093	0.010
76	6.33	0.30	0.104	(0.378)	0.093	0.010
77	6.42	0.30	0.104	(0.376)	0.093	0.010
78	6.50	0.30	0.104	(0.374)	0.093	0.010
79	6.58	0.33	0.115	(0.373)	0.104	0.012
80	6.67	0.33	0.115	(0.371)	0.104	0.012
81	6.75	0.33	0.115	(0.369)	0.104	0.012
82	6.83	0.33	0.115	(0.368)	0.104	0.012
83	6.92	0.33	0.115	(0.366)	0.104	0.012
84	7.00	0.33	0.115	(0.364)	0.104	0.012
85	7.08	0.33	0.115	(0.363)	0.104	0.012
86	7.17	0.33	0.115	(0.361)	0.104	0.012
87	7.25	0.33	0.115	(0.359)	0.104	0.012
88	7.33	0.37	0.127	(0.358)	0.114	0.013
89	7.42	0.37	0.127	(0.356)	0.114	0.013
90	7.50	0.37	0.127	(0.354)	0.114	0.013
91	7.58	0.40	0.138	(0.353)	0.124	0.014
92	7.67	0.40	0.138	(0.351)	0.124	0.014
93	7.75	0.40	0.138	(0.349)	0.124	0.014
94	7.83	0.43	0.150	(0.348)	0.135	0.015
95	7.92	0.43	0.150	(0.346)	0.135	0.015
96	8.00	0.43	0.150	(0.345)	0.135	0.015
97	8.08	0.50	0.173	(0.343)	0.156	0.017
98	8.17	0.50	0.173	(0.341)	0.156	0.017
99	8.25	0.50	0.173	(0.340)	0.156	0.017
100	8.33	0.50	0.173	(0.338)	0.156	0.017
101	8.42	0.50	0.173	(0.337)	0.156	0.017
102	8.50	0.50	0.173	(0.335)	0.156	0.017
103	8.58	0.53	0.184	(0.334)	0.166	0.018
104	8.67	0.53	0.184	(0.332)	0.166	0.018
105	8.75	0.53	0.184	(0.330)	0.166	0.018
106	8.83	0.57	0.196	(0.329)	0.176	0.020
107	8.92	0.57	0.196	(0.327)	0.176	0.020
108	9.00	0.57	0.196	(0.326)	0.176	0.020
109	9.08	0.63	0.219	(0.324)	0.197	0.022
110	9.17	0.63	0.219	(0.323)	0.197	0.022
111	9.25	0.63	0.219	(0.321)	0.197	0.022
112	9.33	0.67	0.230	(0.320)	0.207	0.023
113	9.42	0.67	0.230	(0.318)	0.207	0.023
114	9.50	0.67	0.230	(0.317)	0.207	0.023
115	9.58	0.70	0.242	(0.315)	0.218	0.024

116	9.67	0.70	0.242	(0.314)	0.218	0.024
117	9.75	0.70	0.242	(0.312)	0.218	0.024
118	9.83	0.73	0.254	(0.310)	0.228	0.025
119	9.92	0.73	0.254	(0.309)	0.228	0.025
120	10.00	0.73	0.254	(0.308)	0.228	0.025
121	10.08	0.50	0.173	(0.306)	0.156	0.017
122	10.17	0.50	0.173	(0.305)	0.156	0.017
123	10.25	0.50	0.173	(0.303)	0.156	0.017
124	10.33	0.50	0.173	(0.302)	0.156	0.017
125	10.42	0.50	0.173	(0.300)	0.156	0.017
126	10.50	0.50	0.173	(0.299)	0.156	0.017
127	10.58	0.67	0.230	(0.297)	0.207	0.023
128	10.67	0.67	0.230	(0.296)	0.207	0.023
129	10.75	0.67	0.230	(0.294)	0.207	0.023
130	10.83	0.67	0.230	(0.293)	0.207	0.023
131	10.92	0.67	0.230	(0.291)	0.207	0.023
132	11.00	0.67	0.230	(0.290)	0.207	0.023
133	11.08	0.63	0.219	(0.289)	0.197	0.022
134	11.17	0.63	0.219	(0.287)	0.197	0.022
135	11.25	0.63	0.219	(0.286)	0.197	0.022
136	11.33	0.63	0.219	(0.284)	0.197	0.022
137	11.42	0.63	0.219	(0.283)	0.197	0.022
138	11.50	0.63	0.219	(0.281)	0.197	0.022
139	11.58	0.57	0.196	(0.280)	0.176	0.020
140	11.67	0.57	0.196	(0.279)	0.176	0.020
141	11.75	0.57	0.196	(0.277)	0.176	0.020
142	11.83	0.60	0.207	(0.276)	0.187	0.021
143	11.92	0.60	0.207	(0.275)	0.187	0.021
144	12.00	0.60	0.207	(0.273)	0.187	0.021
145	12.08	0.83	0.288	(0.272)	0.259	0.029
146	12.17	0.83	0.288	(0.270)	0.259	0.029
147	12.25	0.83	0.288	(0.269)	0.259	0.029
148	12.33	0.87	0.300	0.268	(0.270)	0.032
149	12.42	0.87	0.300	0.266	(0.270)	0.033
150	12.50	0.87	0.300	0.265	(0.270)	0.035
151	12.58	0.93	0.323	0.264	(0.290)	0.059
152	12.67	0.93	0.323	0.262	(0.290)	0.060
153	12.75	0.93	0.323	0.261	(0.290)	0.062
154	12.83	0.97	0.334	0.260	(0.301)	0.074
155	12.92	0.97	0.334	0.258	(0.301)	0.076
156	13.00	0.97	0.334	0.257	(0.301)	0.077
157	13.08	1.13	0.392	0.256	(0.353)	0.136
158	13.17	1.13	0.392	0.255	(0.353)	0.137
159	13.25	1.13	0.392	0.253	(0.353)	0.139
160	13.33	1.13	0.392	0.252	(0.353)	0.140
161	13.42	1.13	0.392	0.251	(0.353)	0.141
162	13.50	1.13	0.392	0.249	(0.353)	0.142
163	13.58	0.77	0.265	(0.248)	0.239	0.027
164	13.67	0.77	0.265	(0.247)	0.239	0.027
165	13.75	0.77	0.265	(0.246)	0.239	0.027
166	13.83	0.77	0.265	(0.244)	0.239	0.027
167	13.92	0.77	0.265	(0.243)	0.239	0.027
168	14.00	0.77	0.265	(0.242)	0.239	0.027
169	14.08	0.90	0.311	0.241	(0.280)	0.070
170	14.17	0.90	0.311	0.239	(0.280)	0.072
171	14.25	0.90	0.311	0.238	(0.280)	0.073
172	14.33	0.87	0.300	0.237	(0.270)	0.063
173	14.42	0.87	0.300	0.236	(0.270)	0.064
174	14.50	0.87	0.300	0.235	(0.270)	0.065
175	14.58	0.87	0.300	0.233	(0.270)	0.066
176	14.67	0.87	0.300	0.232	(0.270)	0.067
177	14.75	0.87	0.300	0.231	(0.270)	0.069
178	14.83	0.83	0.288	0.230	(0.259)	0.058
179	14.92	0.83	0.288	0.229	(0.259)	0.059
180	15.00	0.83	0.288	0.227	(0.259)	0.061
181	15.08	0.80	0.277	0.226	(0.249)	0.050
182	15.17	0.80	0.277	0.225	(0.249)	0.051
183	15.25	0.80	0.277	0.224	(0.249)	0.053
184	15.33	0.77	0.265	0.223	(0.239)	0.042
185	15.42	0.77	0.265	0.222	(0.239)	0.043
186	15.50	0.77	0.265	0.221	(0.239)	0.045
187	15.58	0.63	0.219	(0.219)	0.197	0.022
188	15.67	0.63	0.219	(0.218)	0.197	0.022
189	15.75	0.63	0.219	(0.217)	0.197	0.022
190	15.83	0.63	0.219	(0.216)	0.197	0.022
191	15.92	0.63	0.219	(0.215)	0.197	0.022
192	16.00	0.63	0.219	(0.214)	0.197	0.022

193	16.08	0.13	0.046	(0.213)	0.041	0.005
194	16.17	0.13	0.046	(0.212)	0.041	0.005
195	16.25	0.13	0.046	(0.211)	0.041	0.005
196	16.33	0.13	0.046	(0.210)	0.041	0.005
197	16.42	0.13	0.046	(0.208)	0.041	0.005
198	16.50	0.13	0.046	(0.207)	0.041	0.005
199	16.58	0.10	0.035	(0.206)	0.031	0.003
200	16.67	0.10	0.035	(0.205)	0.031	0.003
201	16.75	0.10	0.035	(0.204)	0.031	0.003
202	16.83	0.10	0.035	(0.203)	0.031	0.003
203	16.92	0.10	0.035	(0.202)	0.031	0.003
204	17.00	0.10	0.035	(0.201)	0.031	0.003
205	17.08	0.17	0.058	(0.200)	0.052	0.006
206	17.17	0.17	0.058	(0.199)	0.052	0.006
207	17.25	0.17	0.058	(0.198)	0.052	0.006
208	17.33	0.17	0.058	(0.197)	0.052	0.006
209	17.42	0.17	0.058	(0.196)	0.052	0.006
210	17.50	0.17	0.058	(0.195)	0.052	0.006
211	17.58	0.17	0.058	(0.194)	0.052	0.006
212	17.67	0.17	0.058	(0.193)	0.052	0.006
213	17.75	0.17	0.058	(0.192)	0.052	0.006
214	17.83	0.13	0.046	(0.191)	0.041	0.005
215	17.92	0.13	0.046	(0.190)	0.041	0.005
216	18.00	0.13	0.046	(0.189)	0.041	0.005
217	18.08	0.13	0.046	(0.188)	0.041	0.005
218	18.17	0.13	0.046	(0.188)	0.041	0.005
219	18.25	0.13	0.046	(0.187)	0.041	0.005
220	18.33	0.13	0.046	(0.186)	0.041	0.005
221	18.42	0.13	0.046	(0.185)	0.041	0.005
222	18.50	0.13	0.046	(0.184)	0.041	0.005
223	18.58	0.10	0.035	(0.183)	0.031	0.003
224	18.67	0.10	0.035	(0.182)	0.031	0.003
225	18.75	0.10	0.035	(0.181)	0.031	0.003
226	18.83	0.07	0.023	(0.180)	0.021	0.002
227	18.92	0.07	0.023	(0.180)	0.021	0.002
228	19.00	0.07	0.023	(0.179)	0.021	0.002
229	19.08	0.10	0.035	(0.178)	0.031	0.003
230	19.17	0.10	0.035	(0.177)	0.031	0.003
231	19.25	0.10	0.035	(0.176)	0.031	0.003
232	19.33	0.13	0.046	(0.175)	0.041	0.005
233	19.42	0.13	0.046	(0.175)	0.041	0.005
234	19.50	0.13	0.046	(0.174)	0.041	0.005
235	19.58	0.10	0.035	(0.173)	0.031	0.003
236	19.67	0.10	0.035	(0.172)	0.031	0.003
237	19.75	0.10	0.035	(0.171)	0.031	0.003
238	19.83	0.07	0.023	(0.171)	0.021	0.002
239	19.92	0.07	0.023	(0.170)	0.021	0.002
240	20.00	0.07	0.023	(0.169)	0.021	0.002
241	20.08	0.10	0.035	(0.168)	0.031	0.003
242	20.17	0.10	0.035	(0.168)	0.031	0.003
243	20.25	0.10	0.035	(0.167)	0.031	0.003
244	20.33	0.10	0.035	(0.166)	0.031	0.003
245	20.42	0.10	0.035	(0.165)	0.031	0.003
246	20.50	0.10	0.035	(0.165)	0.031	0.003
247	20.58	0.10	0.035	(0.164)	0.031	0.003
248	20.67	0.10	0.035	(0.163)	0.031	0.003
249	20.75	0.10	0.035	(0.163)	0.031	0.003
250	20.83	0.07	0.023	(0.162)	0.021	0.002
251	20.92	0.07	0.023	(0.161)	0.021	0.002
252	21.00	0.07	0.023	(0.161)	0.021	0.002
253	21.08	0.10	0.035	(0.160)	0.031	0.003
254	21.17	0.10	0.035	(0.159)	0.031	0.003
255	21.25	0.10	0.035	(0.159)	0.031	0.003
256	21.33	0.07	0.023	(0.158)	0.021	0.002
257	21.42	0.07	0.023	(0.158)	0.021	0.002
258	21.50	0.07	0.023	(0.157)	0.021	0.002
259	21.58	0.10	0.035	(0.156)	0.031	0.003
260	21.67	0.10	0.035	(0.156)	0.031	0.003
261	21.75	0.10	0.035	(0.155)	0.031	0.003
262	21.83	0.07	0.023	(0.155)	0.021	0.002
263	21.92	0.07	0.023	(0.154)	0.021	0.002
264	22.00	0.07	0.023	(0.154)	0.021	0.002
265	22.08	0.10	0.035	(0.153)	0.031	0.003
266	22.17	0.10	0.035	(0.153)	0.031	0.003
267	22.25	0.10	0.035	(0.152)	0.031	0.003
268	22.33	0.07	0.023	(0.152)	0.021	0.002
269	22.42	0.07	0.023	(0.151)	0.021	0.002

270	22.50	0.07	0.023	(0.151)	0.021	0.002
271	22.58	0.07	0.023	(0.150)	0.021	0.002
272	22.67	0.07	0.023	(0.150)	0.021	0.002
273	22.75	0.07	0.023	(0.150)	0.021	0.002
274	22.83	0.07	0.023	(0.149)	0.021	0.002
275	22.92	0.07	0.023	(0.149)	0.021	0.002
276	23.00	0.07	0.023	(0.148)	0.021	0.002
277	23.08	0.07	0.023	(0.148)	0.021	0.002
278	23.17	0.07	0.023	(0.148)	0.021	0.002
279	23.25	0.07	0.023	(0.147)	0.021	0.002
280	23.33	0.07	0.023	(0.147)	0.021	0.002
281	23.42	0.07	0.023	(0.147)	0.021	0.002
282	23.50	0.07	0.023	(0.147)	0.021	0.002
283	23.58	0.07	0.023	(0.146)	0.021	0.002
284	23.67	0.07	0.023	(0.146)	0.021	0.002
285	23.75	0.07	0.023	(0.146)	0.021	0.002
286	23.83	0.07	0.023	(0.146)	0.021	0.002
287	23.92	0.07	0.023	(0.146)	0.021	0.002
288	24.00	0.07	0.023	(0.146)	0.021	0.002

(Loss Rate Not Used)

Sum = 100.0 Sum = 4.8

Flood volume = Effective rainfall 0.40(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 2.2(Ac.Ft)
Total soil loss = 2.48(In)
Total soil loss = 13.860(Ac.Ft)
Total rainfall = 2.88(In)
Flood volume = 97997.1 Cubic Feet
Total soil loss = 603735.4 Cubic Feet

Peak flow rate of this hydrograph = 8.779(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	0.0004	0.05	Q				
0+15	0.0011	0.10	Q				
0+20	0.0020	0.12	Q				
0+25	0.0030	0.15	Q				
0+30	0.0043	0.18	Q				
0+35	0.0057	0.20	Q				
0+40	0.0071	0.21	Q				
0+45	0.0086	0.21	Q				
0+50	0.0101	0.22	Q				
0+55	0.0118	0.25	VQ				
1+ 0	0.0137	0.28	VQ				
1+ 5	0.0157	0.28	VQ				
1+10	0.0175	0.27	VQ				
1+15	0.0192	0.25	Q				
1+20	0.0209	0.24	Q				
1+25	0.0226	0.24	Q				
1+30	0.0242	0.24	Q				
1+35	0.0259	0.24	Q				
1+40	0.0275	0.24	Q				
1+45	0.0291	0.24	Q				
1+50	0.0308	0.24	Q				
1+55	0.0326	0.26	VQ				
2+ 0	0.0346	0.28	VQ				
2+ 5	0.0366	0.29	VQ				
2+10	0.0387	0.30	VQ				
2+15	0.0407	0.30	VQ				
2+20	0.0428	0.30	VQ				
2+25	0.0449	0.31	VQ				
2+30	0.0470	0.31	VQ				
2+35	0.0492	0.31	VQ				
2+40	0.0515	0.34	VQ				
2+45	0.0540	0.36	VQ				
2+50	0.0565	0.37	|Q				
2+55	0.0591	0.38	|Q				
3+ 0	0.0617	0.38	|Q				
3+ 5	0.0644	0.38	|Q				

3+10	0.0670	0.38	Q				
3+15	0.0697	0.39	Q				
3+20	0.0723	0.39	Q				
3+25	0.0750	0.39	Q				
3+30	0.0777	0.39	Q				
3+35	0.0803	0.39	Q				
3+40	0.0830	0.39	Q				
3+45	0.0857	0.39	Q				
3+50	0.0884	0.39	Q				
3+55	0.0913	0.42	Q				
4+ 0	0.0943	0.44	Q				
4+ 5	0.0974	0.45	Q				
4+10	0.1005	0.45	Q				
4+15	0.1037	0.46	Q				
4+20	0.1069	0.47	Q				
4+25	0.1103	0.49	Q				
4+30	0.1138	0.51	Q				
4+35	0.1174	0.52	Q				
4+40	0.1210	0.53	Q				
4+45	0.1247	0.53	Q				
4+50	0.1284	0.54	Q				
4+55	0.1323	0.57	Q				
5+ 0	0.1364	0.59	Q				
5+ 5	0.1405	0.59	Q				
5+10	0.1443	0.55	Q				
5+15	0.1478	0.51	Q				
5+20	0.1513	0.50	Q				
5+25	0.1548	0.52	Q				
5+30	0.1585	0.53	Q				
5+35	0.1623	0.54	Q				
5+40	0.1662	0.57	Q				
5+45	0.1702	0.59	QV				
5+50	0.1744	0.60	QV				
5+55	0.1786	0.61	QV				
6+ 0	0.1828	0.61	QV				
6+ 5	0.1871	0.62	QV				
6+10	0.1915	0.64	QV				
6+15	0.1961	0.67	QV				
6+20	0.2008	0.68	QV				
6+25	0.2055	0.68	QV				
6+30	0.2102	0.69	QV				
6+35	0.2150	0.70	QV				
6+40	0.2200	0.72	QV				
6+45	0.2251	0.75	Q V				
6+50	0.2304	0.76	QV				
6+55	0.2356	0.76	QV				
7+ 0	0.2409	0.77	QV				
7+ 5	0.2462	0.77	QV				
7+10	0.2515	0.77	QV				
7+15	0.2569	0.77	QV				
7+20	0.2622	0.78	QV				
7+25	0.2678	0.80	QV				
7+30	0.2735	0.83	QV				
7+35	0.2793	0.84	QV				
7+40	0.2853	0.87	Q V				
7+45	0.2914	0.90	Q V				
7+50	0.2977	0.91	Q V				
7+55	0.3042	0.94	Q V				
8+ 0	0.3109	0.97	Q V				
8+ 5	0.3177	0.99	Q V				
8+10	0.3249	1.05	QV				
8+15	0.3325	1.10	QV				
8+20	0.3402	1.12	Q V				
8+25	0.3480	1.13	Q V				
8+30	0.3559	1.14	Q V				
8+35	0.3638	1.15	Q V				
8+40	0.3719	1.18	Q V				
8+45	0.3803	1.21	Q V				
8+50	0.3887	1.23	Q V				
8+55	0.3973	1.25	Q V				
9+ 0	0.4062	1.28	Q V				
9+ 5	0.4152	1.31	Q V				
9+10	0.4245	1.36	Q V				
9+15	0.4342	1.41	Q V				
9+20	0.4441	1.44	Q V				
9+25	0.4543	1.47	Q V				
9+30	0.4646	1.50	Q V				

9+35	0.4751	1.52	Q V				
9+40	0.4858	1.56	Q V				
9+45	0.4968	1.59	Q V				
9+50	0.5078	1.61	Q V				
9+55	0.5191	1.64	Q V				
10+ 0	0.5306	1.67	Q V				
10+ 5	0.5420	1.65	Q V				
10+10	0.5523	1.50	Q V				
10+15	0.5616	1.35	Q V				
10+20	0.5705	1.29	Q V				
10+25	0.5792	1.26	Q V				
10+30	0.5877	1.24	Q V				
10+35	0.5963	1.25	Q V				
10+40	0.6055	1.34	Q V				
10+45	0.6155	1.45	Q V				
10+50	0.6257	1.49	Q V				
10+55	0.6361	1.51	Q V				
11+ 0	0.6466	1.52	Q V				
11+ 5	0.6570	1.52	Q V				
11+10	0.6674	1.51	Q V				
11+15	0.6777	1.49	Q V				
11+20	0.6879	1.48	Q V				
11+25	0.6981	1.48	Q V				
11+30	0.7083	1.48	Q V				
11+35	0.7185	1.47	Q V				
11+40	0.7283	1.43	Q V				
11+45	0.7379	1.39	Q V				
11+50	0.7473	1.37	Q V				
11+55	0.7568	1.38	Q V				
12+ 0	0.7665	1.40	Q V				
12+ 5	0.7764	1.44	Q V				
12+10	0.7873	1.59	Q V				
12+15	0.7994	1.75	Q V				
12+20	0.8119	1.83	Q V				
12+25	0.8252	1.93	Q V				
12+30	0.8393	2.04	Q V				
12+35	0.8548	2.25	Q V				
12+40	0.8739	2.78	Q V				
12+45	0.8967	3.32	Q V				
12+50	0.9219	3.65	Q V				
12+55	0.9499	4.07	Q				
13+ 0	0.9806	4.45	Q				
13+ 5	1.0146	4.95	VQ				
13+10	1.0575	6.22	V Q				
13+15	1.1090	7.49	V Q				
13+20	1.1648	8.10	V Q				
13+25	1.2232	8.48	V Q				
13+30	1.2837	8.78	V Q				
13+35	1.3422	8.50	V Q				
13+40	1.3868	6.47	VQ				
13+45	1.4167	4.35	Q V				
13+50	1.4407	3.48	Q V				
13+55	1.4616	3.03	Q V				
14+ 0	1.4804	2.73	Q V				
14+ 5	1.4990	2.70	Q V				
14+10	1.5223	3.38	Q V				
14+15	1.5508	4.14	Q V				
14+20	1.5811	4.41	Q V				
14+25	1.6111	4.35	Q V				
14+30	1.6405	4.26	Q V				
14+35	1.6700	4.28	Q V				
14+40	1.6998	4.34	Q V				
14+45	1.7301	4.39	Q V				
14+50	1.7604	4.40	Q V				
14+55	1.7898	4.28	Q V				
15+ 0	1.8184	4.14	Q V				
15+ 5	1.8465	4.09	Q V				
15+10	1.8734	3.90	Q V				
15+15	1.8991	3.73	Q V				
15+20	1.9242	3.64	Q V				
15+25	1.9478	3.43	Q V				
15+30	1.9700	3.23	Q V				
15+35	1.9911	3.07	Q V				
15+40	2.0091	2.61	Q V				
15+45	2.0238	2.14	Q V				
15+50	2.0371	1.93	Q V				
15+55	2.0496	1.81	Q V				

16+ 0	2.0614	1.73		Q			V
16+ 5	2.0724	1.58		Q			V
16+10	2.0807	1.21		Q			V
16+15	2.0865	0.84		Q			V
16+20	2.0911	0.67	Q				V
16+25	2.0951	0.57	Q				V
16+30	2.0986	0.50	Q				V
16+35	2.1016	0.45	Q				V
16+40	2.1043	0.39	Q				V
16+45	2.1066	0.34	Q				V
16+50	2.1087	0.30	Q				V
16+55	2.1107	0.28	Q				V
17+ 0	2.1125	0.27	Q				V
17+ 5	2.1144	0.27	Q				V
17+10	2.1165	0.30	Q				V
17+15	2.1189	0.34	Q				V
17+20	2.1213	0.35	Q				V
17+25	2.1238	0.36	Q				V
17+30	2.1264	0.37	Q				V
17+35	2.1289	0.38	Q				V
17+40	2.1316	0.38	Q				V
17+45	2.1342	0.38	Q				V
17+50	2.1368	0.38	Q				V
17+55	2.1392	0.36	Q				V
18+ 0	2.1416	0.34	Q				V
18+ 5	2.1438	0.33	Q				V
18+10	2.1461	0.32	Q				V
18+15	2.1483	0.32	Q				V
18+20	2.1505	0.32	Q				V
18+25	2.1527	0.32	Q				V
18+30	2.1549	0.32	Q				V
18+35	2.1570	0.31	Q				V
18+40	2.1590	0.29	Q				V
18+45	2.1608	0.26	Q				V
18+50	2.1625	0.25	Q				V
18+55	2.1640	0.22	Q				V
19+ 0	2.1654	0.20	Q				V
19+ 5	2.1667	0.19	Q				V
19+10	2.1681	0.20	Q				V
19+15	2.1696	0.22	Q				V
19+20	2.1712	0.23	Q				V
19+25	2.1729	0.26	Q				V
19+30	2.1749	0.28	Q				V
19+35	2.1768	0.28	Q				V
19+40	2.1787	0.27	Q				V
19+45	2.1804	0.25	Q				V
19+50	2.1820	0.24	Q				V
19+55	2.1835	0.21	Q				V
20+ 0	2.1848	0.19	Q				V
20+ 5	2.1861	0.18	Q				V
20+10	2.1874	0.20	Q				V
20+15	2.1889	0.22	Q				V
20+20	2.1905	0.22	Q				V
20+25	2.1920	0.23	Q				V
20+30	2.1936	0.23	Q				V
20+35	2.1952	0.23	Q				V
20+40	2.1968	0.23	Q				V
20+45	2.1984	0.23	Q				V
20+50	2.2000	0.23	Q				V
20+55	2.2014	0.21	Q				V
21+ 0	2.2026	0.18	Q				V
21+ 5	2.2039	0.18	Q				V
21+10	2.2052	0.20	Q				V
21+15	2.2067	0.22	Q				V
21+20	2.2082	0.22	Q				V
21+25	2.2096	0.20	Q				V
21+30	2.2108	0.18	Q				V
21+35	2.2120	0.18	Q				V
21+40	2.2133	0.19	Q				V
21+45	2.2148	0.21	Q				V
21+50	2.2163	0.22	Q				V
21+55	2.2177	0.20	Q				V
22+ 0	2.2189	0.18	Q				V
22+ 5	2.2201	0.17	Q				V
22+10	2.2214	0.19	Q				V
22+15	2.2229	0.21	Q				V
22+20	2.2243	0.22	Q				V

22+25	2.2257	0.20	Q	|	|	|	V|
22+30	2.2269	0.18	Q	|	|	|	V|
22+35	2.2281	0.17	Q	|	|	|	V|
22+40	2.2292	0.17	Q	|	|	|	V|
22+45	2.2304	0.16	Q	|	|	|	V|
22+50	2.2315	0.16	Q	|	|	|	V|
22+55	2.2326	0.16	Q	|	|	|	V|
23+ 0	2.2337	0.16	Q	|	|	|	V|
23+ 5	2.2348	0.16	Q	|	|	|	V|
23+10	2.2358	0.16	Q	|	|	|	V|
23+15	2.2369	0.16	Q	|	|	|	V|
23+20	2.2380	0.16	Q	|	|	|	V|
23+25	2.2391	0.16	Q	|	|	|	V|
23+30	2.2402	0.16	Q	|	|	|	V|
23+35	2.2412	0.16	Q	|	|	|	V|
23+40	2.2423	0.16	Q	|	|	|	V|
23+45	2.2434	0.16	Q	|	|	|	V|
23+50	2.2445	0.16	Q	|	|	|	V|
23+55	2.2455	0.16	Q	|	|	|	V|
24+ 0	2.2466	0.16	Q	|	|	|	V|
24+ 5	2.2476	0.15	Q	|	|	|	V|
24+10	2.2483	0.10	Q	|	|	|	V|
24+15	2.2487	0.06	Q	|	|	|	V|
24+20	2.2490	0.04	Q	|	|	|	V|
24+25	2.2492	0.03	Q	|	|	|	V|
24+30	2.2493	0.02	Q	|	|	|	V|
24+35	2.2494	0.02	Q	|	|	|	V|
24+40	2.2495	0.01	Q	|	|	|	V|
24+45	2.2496	0.01	Q	|	|	|	V|
24+50	2.2496	0.01	Q	|	|	|	V|
24+55	2.2496	0.00	Q	|	|	|	V|
25+ 0	2.2497	0.00	Q	|	|	|	V|
25+ 5	2.2497	0.00	Q	|	|	|	V|
25+10	2.2497	0.00	Q	|	|	|	V|
25+15	2.2497	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 07/31/20 File: 3828EX1001100.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 100-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.50	33.55

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.20	80.52

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.500(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 1.200(In)
Areal adjustment factor = 99.94 %
Adjusted average point rain = 1.199(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
76.0	88.6	0.146	0.000	0.146	1.000	0.146
					Sum (F) =	0.146

Area averaged mean soil loss (F) (In/Hr) = 0.146
Minimum soil loss rate ((In/Hr)) = 0.073
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	52.307	6.571	4.443
2	0.167	104.614	28.083	18.991
3	0.250	156.922	28.549	19.306
4	0.333	209.229	12.179	8.236
5	0.417	261.536	6.595	4.460
6	0.500	313.843	4.589	3.103
7	0.583	366.151	3.296	2.229
8	0.667	418.458	2.462	1.665
9	0.750	470.765	1.797	1.215
10	0.833	523.072	1.548	1.047
11	0.917	575.380	1.191	0.806
12	1.000	627.687	0.940	0.636
13	1.083	679.994	0.721	0.488
14	1.167	732.301	0.542	0.367
15	1.250	784.608	0.523	0.354
16	1.333	836.916	0.415	0.281
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.604	0.146	(0.544)	0.458
2	0.17	4.30	0.619	0.146	(0.557)	0.473
3	0.25	5.00	0.720	0.146	(0.648)	0.574
4	0.33	5.00	0.720	0.146	(0.648)	0.574
5	0.42	5.80	0.835	0.146	(0.751)	0.689
6	0.50	6.50	0.935	0.146	(0.842)	0.789
7	0.58	7.40	1.065	0.146	(0.958)	0.919
8	0.67	8.60	1.238	0.146	(1.114)	1.092
9	0.75	12.30	1.770	0.146	(1.593)	1.624
10	0.83	29.10	4.188	0.146	(3.769)	4.042
11	0.92	6.80	0.979	0.146	(0.881)	0.833
12	1.00	5.00	0.720	0.146	(0.648)	0.574
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	12.6

Flood volume = Effective rainfall 1.05(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 5.9(Ac.Ft)
Total soil loss = 0.15(In)
Total soil loss = 0.816(Ac.Ft)
Total rainfall = 1.20(In)
Flood volume = 256557.9 Cubic Feet
Total soil loss = 35551.9 Cubic Feet

Peak flow rate of this hydrograph = 131.472(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	50.0	100.0	150.0	200.0
0+ 5	0.0140	2.04	Q				
0+10	0.0885	10.81	V Q				
0+15	0.2289	20.39	|V Q				

0+20	0.4105	26.36	V Q				
0+25	0.6239	30.98	V Q				
0+30	0.8714	35.94	V Q				
0+35	1.1617	42.17	VQ				
0+40	1.5020	49.40	QV				
0+45	1.9131	59.70	QV				
0+50	2.5084	86.44	Q				
0+55	3.4139	131.47			V Q		
1+ 0	4.2570	122.43			Q V		
1+ 5	4.7854	76.71	Q			V	
1+10	5.1152	47.89	Q			V	
1+15	5.3212	29.91	Q			V	
1+20	5.4659	21.01	Q			V	
1+25	5.5734	15.61	Q			V	
1+30	5.6543	11.75	Q			V	
1+35	5.7187	9.35	Q			V	
1+40	5.7683	7.20	Q			V	
1+45	5.8068	5.58	Q			V	
1+50	5.8357	4.20	Q			V	
1+55	5.8573	3.14	Q			V	
2+ 0	5.8743	2.47	Q			V	
2+ 5	5.8856	1.64	Q			V	
2+10	5.8886	0.44	Q			V	
2+15	5.8898	0.16	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 07/31/20 File: 3828EX1003100.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 100-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.80	53.68

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.86	124.81

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 1.860(In)
Areal adjustment factor = 99.97 %
Adjusted average point rain = 1.859(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
76.0	88.6	0.146	0.000	0.146	1.000	0.146
					Sum (F) =	0.146

Area averaged mean soil loss (F) (In/Hr) = 0.146
Minimum soil loss rate ((In/Hr)) = 0.073
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	52.307	6.571	4.443
2	0.167	104.614	28.083	18.991
3	0.250	156.922	28.549	19.306
4	0.333	209.229	12.179	8.236
5	0.417	261.536	6.595	4.460
6	0.500	313.843	4.589	3.103
7	0.583	366.151	3.296	2.229
8	0.667	418.458	2.462	1.665
9	0.750	470.765	1.797	1.215
10	0.833	523.072	1.548	1.047
11	0.917	575.380	1.191	0.806
12	1.000	627.687	0.940	0.636
13	1.083	679.994	0.721	0.488
14	1.167	732.301	0.542	0.367
15	1.250	784.608	0.523	0.354
16	1.333	836.916	0.415	0.281
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.290	0.146	(0.261)	0.144
2	0.17	1.30	0.290	0.146	(0.261)	0.144
3	0.25	1.10	0.245	0.146	(0.221)	0.099
4	0.33	1.50	0.335	0.146	(0.301)	0.189
5	0.42	1.50	0.335	0.146	(0.301)	0.189
6	0.50	1.80	0.402	0.146	(0.361)	0.256
7	0.58	1.50	0.335	0.146	(0.301)	0.189
8	0.67	1.80	0.402	0.146	(0.361)	0.256
9	0.75	1.80	0.402	0.146	(0.361)	0.256
10	0.83	1.50	0.335	0.146	(0.301)	0.189
11	0.92	1.60	0.357	0.146	(0.321)	0.211
12	1.00	1.80	0.402	0.146	(0.361)	0.256
13	1.08	2.20	0.491	0.146	(0.442)	0.345
14	1.17	2.20	0.491	0.146	(0.442)	0.345
15	1.25	2.20	0.491	0.146	(0.442)	0.345
16	1.33	2.00	0.446	0.146	(0.402)	0.300
17	1.42	2.60	0.580	0.146	(0.522)	0.434
18	1.50	2.70	0.602	0.146	(0.542)	0.457
19	1.58	2.40	0.536	0.146	(0.482)	0.390
20	1.67	2.70	0.602	0.146	(0.542)	0.457
21	1.75	3.30	0.736	0.146	(0.663)	0.590
22	1.83	3.10	0.692	0.146	(0.623)	0.546
23	1.92	2.90	0.647	0.146	(0.582)	0.501
24	2.00	3.00	0.669	0.146	(0.602)	0.523
25	2.08	3.10	0.692	0.146	(0.623)	0.546
26	2.17	4.20	0.937	0.146	(0.843)	0.791
27	2.25	5.00	1.116	0.146	(1.004)	0.970
28	2.33	3.50	0.781	0.146	(0.703)	0.635
29	2.42	6.80	1.517	0.146	(1.366)	1.371
30	2.50	7.30	1.629	0.146	(1.466)	1.483
31	2.58	8.20	1.830	0.146	(1.647)	1.684
32	2.67	5.90	1.316	0.146	(1.185)	1.171
33	2.75	2.00	0.446	0.146	(0.402)	0.300
34	2.83	1.80	0.402	0.146	(0.361)	0.256
35	2.92	1.80	0.402	0.146	(0.361)	0.256
36	3.00	0.60	0.134	(0.146)	0.120	0.013
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	17.1

Flood volume = Effective rainfall 1.42(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 8.0(Ac.Ft)
Total soil loss = 0.44(In)
Total soil loss = 2.437(Ac.Ft)
Total rainfall = 1.86(In)
Flood volume = 346774.0 Cubic Feet
Total soil loss = 106138.8 Cubic Feet

Peak flow rate of this hydrograph = 88.283(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	22.5	45.0	67.5	90.0
0+ 5	0.0044	0.64	Q				
0+10	0.0277	3.38	VQ				
0+15	0.0688	5.96	V Q				
0+20	0.1149	6.70	V Q				
0+25	0.1712	8.18	V Q				
0+30	0.2420	10.28	V Q				
0+35	0.3254	12.11	V Q				
0+40	0.4145	12.93	V Q				
0+45	0.5096	13.81	V Q				
0+50	0.6117	14.83	V Q				
0+55	0.7104	14.33	V Q				
1+ 0	0.8072	14.05	V Q				
1+ 5	0.9138	15.47	V Q				
1+10	1.0387	18.13	V Q				
1+15	1.1785	20.30	V Q				
1+20	1.3237	21.09	V Q				
1+25	1.4711	21.39	V Q				
1+30	1.6334	23.57	V Q				
1+35	1.8138	26.20	V Q				
1+40	1.9981	26.77	VQ				
1+45	2.1919	28.13	VQ				
1+50	2.4106	31.75	V Q				
1+55	2.6443	33.94	V Q				
2+ 0	2.8772	33.81	VQ				
2+ 5	3.1110	33.96	Q				
2+10	3.3588	35.98	QV				
2+15	3.6494	42.19	Q				
2+20	3.9883	49.22	VQ				
2+25	4.3454	51.84	V Q				
2+30	4.7766	62.61	V Q				
2+35	5.3193	78.80	V Q				
2+40	5.9273	88.28	V Q				
2+45	6.4960	82.57	V Q				
2+50	6.9110	60.26	Q V				
2+55	7.1950	41.24	Q V				
3+ 0	7.4150	31.94	Q V				
3+ 5	7.5727	22.91	Q V				
3+10	7.6770	15.13	Q V				
3+15	7.7519	10.88	Q V				
3+20	7.8089	8.28	Q V				
3+25	7.8529	6.40	Q V				
3+30	7.8861	4.82	Q V				
3+35	7.9110	3.62	Q V				
3+40	7.9302	2.78	Q V				
3+45	7.9437	1.97	Q V				
3+50	7.9527	1.30	Q V				
3+55	7.9572	0.66	Q V				
4+ 0	7.9591	0.28	Q V				
4+ 5	7.9603	0.17	Q V				
4+10	7.9608	0.08	Q V				
4+15	7.9608	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 07/31/20 File: 3828EX1006100.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 100-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.15	77.16

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	2.50	167.75

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.150(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 2.500(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 2.499(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
76.0	88.6	0.146	0.000	0.146	1.000	0.146
					Sum (F) =	0.146

Area averaged mean soil loss (F) (In/Hr) = 0.146
Minimum soil loss rate ((In/Hr)) = 0.073
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	52.307	6.571	4.443
2 0.167	104.614	28.083	18.991
3 0.250	156.922	28.549	19.306
4 0.333	209.229	12.179	8.236
5 0.417	261.536	6.595	4.460
6 0.500	313.843	4.589	3.103
7 0.583	366.151	3.296	2.229
8 0.667	418.458	2.462	1.665
9 0.750	470.765	1.797	1.215
10 0.833	523.072	1.548	1.047
11 0.917	575.380	1.191	0.806
12 1.000	627.687	0.940	0.636
13 1.083	679.994	0.721	0.488
14 1.167	732.301	0.542	0.367
15 1.250	784.608	0.523	0.354
16 1.333	836.916	0.415	0.281
		Sum = 100.000	Sum= 67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1 0.08	0.50	0.150	(0.146)	0.135	0.015
2 0.17	0.60	0.180	0.146	(0.162)	0.034
3 0.25	0.60	0.180	0.146	(0.162)	0.034
4 0.33	0.60	0.180	0.146	(0.162)	0.034
5 0.42	0.60	0.180	0.146	(0.162)	0.034
6 0.50	0.70	0.210	0.146	(0.189)	0.064
7 0.58	0.70	0.210	0.146	(0.189)	0.064
8 0.67	0.70	0.210	0.146	(0.189)	0.064
9 0.75	0.70	0.210	0.146	(0.189)	0.064
10 0.83	0.70	0.210	0.146	(0.189)	0.064
11 0.92	0.70	0.210	0.146	(0.189)	0.064
12 1.00	0.80	0.240	0.146	(0.216)	0.094
13 1.08	0.80	0.240	0.146	(0.216)	0.094
14 1.17	0.80	0.240	0.146	(0.216)	0.094
15 1.25	0.80	0.240	0.146	(0.216)	0.094
16 1.33	0.80	0.240	0.146	(0.216)	0.094
17 1.42	0.80	0.240	0.146	(0.216)	0.094
18 1.50	0.80	0.240	0.146	(0.216)	0.094
19 1.58	0.80	0.240	0.146	(0.216)	0.094
20 1.67	0.80	0.240	0.146	(0.216)	0.094
21 1.75	0.80	0.240	0.146	(0.216)	0.094
22 1.83	0.80	0.240	0.146	(0.216)	0.094
23 1.92	0.80	0.240	0.146	(0.216)	0.094
24 2.00	0.90	0.270	0.146	(0.243)	0.124
25 2.08	0.80	0.240	0.146	(0.216)	0.094
26 2.17	0.90	0.270	0.146	(0.243)	0.124
27 2.25	0.90	0.270	0.146	(0.243)	0.124
28 2.33	0.90	0.270	0.146	(0.243)	0.124
29 2.42	0.90	0.270	0.146	(0.243)	0.124
30 2.50	0.90	0.270	0.146	(0.243)	0.124
31 2.58	0.90	0.270	0.146	(0.243)	0.124
32 2.67	0.90	0.270	0.146	(0.243)	0.124
33 2.75	1.00	0.300	0.146	(0.270)	0.154
34 2.83	1.00	0.300	0.146	(0.270)	0.154
35 2.92	1.00	0.300	0.146	(0.270)	0.154
36 3.00	1.00	0.300	0.146	(0.270)	0.154
37 3.08	1.00	0.300	0.146	(0.270)	0.154
38 3.17	1.10	0.330	0.146	(0.297)	0.184

39	3.25	1.10	0.330	0.146	(0.297)	0.184	
40	3.33	1.10	0.330	0.146	(0.297)	0.184	
41	3.42	1.20	0.360	0.146	(0.324)	0.214	
42	3.50	1.30	0.390	0.146	(0.351)	0.244	
43	3.58	1.40	0.420	0.146	(0.378)	0.274	
44	3.67	1.40	0.420	0.146	(0.378)	0.274	
45	3.75	1.50	0.450	0.146	(0.405)	0.304	
46	3.83	1.50	0.450	0.146	(0.405)	0.304	
47	3.92	1.60	0.480	0.146	(0.432)	0.334	
48	4.00	1.60	0.480	0.146	(0.432)	0.334	
49	4.08	1.70	0.510	0.146	(0.459)	0.364	
50	4.17	1.80	0.540	0.146	(0.486)	0.394	
51	4.25	1.90	0.570	0.146	(0.513)	0.424	
52	4.33	2.00	0.600	0.146	(0.540)	0.454	
53	4.42	2.10	0.630	0.146	(0.567)	0.484	
54	4.50	2.10	0.630	0.146	(0.567)	0.484	
55	4.58	2.20	0.660	0.146	(0.594)	0.514	
56	4.67	2.30	0.690	0.146	(0.621)	0.544	
57	4.75	2.40	0.720	0.146	(0.648)	0.574	
58	4.83	2.40	0.720	0.146	(0.648)	0.574	
59	4.92	2.50	0.750	0.146	(0.675)	0.604	
60	5.00	2.60	0.780	0.146	(0.702)	0.634	
61	5.08	3.10	0.930	0.146	(0.837)	0.784	
62	5.17	3.60	1.080	0.146	(0.972)	0.934	
63	5.25	3.90	1.170	0.146	(1.053)	1.024	
64	5.33	4.20	1.260	0.146	(1.134)	1.114	
65	5.42	4.70	1.410	0.146	(1.269)	1.264	
66	5.50	5.60	1.680	0.146	(1.512)	1.534	
67	5.58	1.90	0.570	0.146	(0.513)	0.424	
68	5.67	0.90	0.270	0.146	(0.243)	0.124	
69	5.75	0.60	0.180	0.146	(0.162)	0.034	
70	5.83	0.50	0.150	(0.146)	0.135	0.015	
71	5.92	0.30	0.090	(0.146)	0.081	0.009	
72	6.00	0.20	0.060	(0.146)	0.054	0.006	

(Loss Rate Not Used)

Sum = 100.0 Sum = 19.7

Flood volume = Effective rainfall 1.64(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 9.2(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 4.814(Ac.Ft)
Total rainfall = 2.50(In)
Flood volume = 399112.5 Cubic Feet
Total soil loss = 209679.5 Cubic Feet

Peak flow rate of this hydrograph = 77.753(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	20.0	40.0	60.0	80.0
0+ 5	0.0005	0.07	Q				
0+10	0.0035	0.44	Q				
0+15	0.0109	1.09	Q				
0+20	0.0218	1.58	Q				
0+25	0.0342	1.80	Q				
0+30	0.0484	2.07	VQ				
0+35	0.0672	2.73	VQ				
0+40	0.0905	3.37	VQ				
0+45	0.1158	3.67	VQ				
0+50	0.1422	3.84	VQ				
0+55	0.1696	3.97	VQ				
1+ 0	0.1985	4.19	V Q				
1+ 5	0.2317	4.83	|VQ				
1+10	0.2694	5.46	|VQ				
1+15	0.3090	5.76	|VQ				
1+20	0.3498	5.92	|VQ				
1+25	0.3914	6.04	|V Q				
1+30	0.4336	6.12	|V Q				
1+35	0.4762	6.18	| VQ				
1+40	0.5191	6.23	| VQ				
1+45	0.5623	6.27	| VQ				
1+50	0.6056	6.30	| VQ				

1+55	0.6491	6.31	VQ				
2+ 0	0.6936	6.46	Q				
2+ 5	0.7412	6.91	Q				
2+10	0.7899	7.06	Q				
2+15	0.8402	7.31	Q				
2+20	0.8938	7.78	Q				
2+25	0.9487	7.98	QV				
2+30	1.0044	8.09	Q				
2+35	1.0607	8.17	Q				
2+40	1.1173	8.22	Q				
2+45	1.1751	8.40	QV				
2+50	1.2371	9.00	QV				
2+55	1.3032	9.60	QV				
3+ 0	1.3712	9.87	QV				
3+ 5	1.4402	10.02	QV				
3+10	1.5108	10.26	QV				
3+15	1.5859	10.90	QV				
3+20	1.6654	11.54	Q V				
3+25	1.7477	11.96	Q V				
3+30	1.8361	12.83	Q V				
3+35	1.9341	14.23	QV				
3+40	2.0423	15.71	QV				
3+45	2.1585	16.87	QV				
3+50	2.2822	17.96	QV				
3+55	2.4131	19.01	QV				
4+ 0	2.5513	20.07	QV				
4+ 5	2.6966	21.09	QV				
4+10	2.8499	22.26	QV				
4+15	3.0142	23.85	Q V				
4+20	3.1905	25.61	QV				
4+25	3.3795	27.44	QV				
4+30	3.5806	29.19	QV				
4+35	3.7909	30.54	QV				
4+40	4.0107	31.92	Q V				
4+45	4.2424	33.64	Q V				
4+50	4.4859	35.35	Q V				
4+55	4.7385	36.68	Q V				
5+ 0	5.0004	38.04	Q V				
5+ 5	5.2778	40.28	Q V				
5+10	5.5874	44.94	Q V				
5+15	5.9435	51.70	Q				
5+20	6.3453	58.35	V Q				
5+25	6.7907	64.67	V Q				
5+30	7.2904	72.55	V Q				
5+35	7.8259	77.75	V Q				
5+40	8.2610	63.17	Q V				
5+45	8.5332	39.53	Q V				
5+50	8.7070	25.23	Q V				
5+55	8.8272	17.45	Q V				
6+ 0	8.9149	12.73	Q V				
6+ 5	8.9807	9.56	Q V				
6+10	9.0304	7.22	Q V				
6+15	9.0688	5.56	Q V				
6+20	9.0980	4.25	Q V				
6+25	9.1201	3.20	Q V				
6+30	9.1362	2.35	Q V				
6+35	9.1478	1.67	Q V				
6+40	9.1558	1.16	Q V				
6+45	9.1604	0.67	Q V				
6+50	9.1617	0.19	Q V				
6+55	9.1621	0.06	Q V				
7+ 0	9.1623	0.02	Q V				
7+ 5	9.1623	0.01	Q V				
7+10	9.1624	0.00	Q V				
7+15	9.1624	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 07/31/20 File: 3828EX10024100.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
EXISTING CONDITION 100-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.159 Hr.
Lag time = 9.56 Min.
25% of lag time = 2.39 Min.
40% of lag time = 3.82 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.75	117.42

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	4.50	301.95

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.750(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 4.499(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	76.00	0.000

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
76.0	88.6	0.146	0.000	0.146	1.000	0.146
					Sum (F) =	0.146

Area averaged mean soil loss (F) (In/Hr) = 0.146
Minimum soil loss rate ((In/Hr)) = 0.073
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

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

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1 0.083	52.307	6.571	4.443
2 0.167	104.614	28.083	18.991
3 0.250	156.922	28.549	19.306
4 0.333	209.229	12.179	8.236
5 0.417	261.536	6.595	4.460
6 0.500	313.843	4.589	3.103
7 0.583	366.151	3.296	2.229
8 0.667	418.458	2.462	1.665
9 0.750	470.765	1.797	1.215
10 0.833	523.072	1.548	1.047
11 0.917	575.380	1.191	0.806
12 1.000	627.687	0.940	0.636
13 1.083	679.994	0.721	0.488
14 1.167	732.301	0.542	0.367
15 1.250	784.608	0.523	0.354
16 1.333	836.916	0.415	0.281
		Sum = 100.000	Sum= 67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1 0.08	0.07	0.036	(0.259)	0.032	0.004
2 0.17	0.07	0.036	(0.258)	0.032	0.004
3 0.25	0.07	0.036	(0.257)	0.032	0.004
4 0.33	0.10	0.054	(0.256)	0.049	0.005
5 0.42	0.10	0.054	(0.255)	0.049	0.005
6 0.50	0.10	0.054	(0.254)	0.049	0.005
7 0.58	0.10	0.054	(0.253)	0.049	0.005
8 0.67	0.10	0.054	(0.252)	0.049	0.005
9 0.75	0.10	0.054	(0.251)	0.049	0.005
10 0.83	0.13	0.072	(0.250)	0.065	0.007
11 0.92	0.13	0.072	(0.249)	0.065	0.007
12 1.00	0.13	0.072	(0.248)	0.065	0.007
13 1.08	0.10	0.054	(0.247)	0.049	0.005
14 1.17	0.10	0.054	(0.246)	0.049	0.005
15 1.25	0.10	0.054	(0.245)	0.049	0.005
16 1.33	0.10	0.054	(0.244)	0.049	0.005
17 1.42	0.10	0.054	(0.243)	0.049	0.005
18 1.50	0.10	0.054	(0.242)	0.049	0.005
19 1.58	0.10	0.054	(0.241)	0.049	0.005
20 1.67	0.10	0.054	(0.240)	0.049	0.005
21 1.75	0.10	0.054	(0.239)	0.049	0.005
22 1.83	0.13	0.072	(0.238)	0.065	0.007
23 1.92	0.13	0.072	(0.237)	0.065	0.007
24 2.00	0.13	0.072	(0.236)	0.065	0.007
25 2.08	0.13	0.072	(0.235)	0.065	0.007
26 2.17	0.13	0.072	(0.234)	0.065	0.007
27 2.25	0.13	0.072	(0.233)	0.065	0.007
28 2.33	0.13	0.072	(0.232)	0.065	0.007
29 2.42	0.13	0.072	(0.231)	0.065	0.007
30 2.50	0.13	0.072	(0.231)	0.065	0.007
31 2.58	0.17	0.090	(0.230)	0.081	0.009
32 2.67	0.17	0.090	(0.229)	0.081	0.009
33 2.75	0.17	0.090	(0.228)	0.081	0.009
34 2.83	0.17	0.090	(0.227)	0.081	0.009
35 2.92	0.17	0.090	(0.226)	0.081	0.009
36 3.00	0.17	0.090	(0.225)	0.081	0.009
37 3.08	0.17	0.090	(0.224)	0.081	0.009
38 3.17	0.17	0.090	(0.223)	0.081	0.009

39	3.25	0.17	0.090	(0.222)	0.081	0.009
40	3.33	0.17	0.090	(0.221)	0.081	0.009
41	3.42	0.17	0.090	(0.220)	0.081	0.009
42	3.50	0.17	0.090	(0.219)	0.081	0.009
43	3.58	0.17	0.090	(0.218)	0.081	0.009
44	3.67	0.17	0.090	(0.217)	0.081	0.009
45	3.75	0.17	0.090	(0.217)	0.081	0.009
46	3.83	0.20	0.108	(0.216)	0.097	0.011
47	3.92	0.20	0.108	(0.215)	0.097	0.011
48	4.00	0.20	0.108	(0.214)	0.097	0.011
49	4.08	0.20	0.108	(0.213)	0.097	0.011
50	4.17	0.20	0.108	(0.212)	0.097	0.011
51	4.25	0.20	0.108	(0.211)	0.097	0.011
52	4.33	0.23	0.126	(0.210)	0.113	0.013
53	4.42	0.23	0.126	(0.209)	0.113	0.013
54	4.50	0.23	0.126	(0.208)	0.113	0.013
55	4.58	0.23	0.126	(0.208)	0.113	0.013
56	4.67	0.23	0.126	(0.207)	0.113	0.013
57	4.75	0.23	0.126	(0.206)	0.113	0.013
58	4.83	0.27	0.144	(0.205)	0.130	0.014
59	4.92	0.27	0.144	(0.204)	0.130	0.014
60	5.00	0.27	0.144	(0.203)	0.130	0.014
61	5.08	0.20	0.108	(0.202)	0.097	0.011
62	5.17	0.20	0.108	(0.201)	0.097	0.011
63	5.25	0.20	0.108	(0.200)	0.097	0.011
64	5.33	0.23	0.126	(0.200)	0.113	0.013
65	5.42	0.23	0.126	(0.199)	0.113	0.013
66	5.50	0.23	0.126	(0.198)	0.113	0.013
67	5.58	0.27	0.144	(0.197)	0.130	0.014
68	5.67	0.27	0.144	(0.196)	0.130	0.014
69	5.75	0.27	0.144	(0.195)	0.130	0.014
70	5.83	0.27	0.144	(0.194)	0.130	0.014
71	5.92	0.27	0.144	(0.194)	0.130	0.014
72	6.00	0.27	0.144	(0.193)	0.130	0.014
73	6.08	0.30	0.162	(0.192)	0.146	0.016
74	6.17	0.30	0.162	(0.191)	0.146	0.016
75	6.25	0.30	0.162	(0.190)	0.146	0.016
76	6.33	0.30	0.162	(0.189)	0.146	0.016
77	6.42	0.30	0.162	(0.188)	0.146	0.016
78	6.50	0.30	0.162	(0.188)	0.146	0.016
79	6.58	0.33	0.180	(0.187)	0.162	0.018
80	6.67	0.33	0.180	(0.186)	0.162	0.018
81	6.75	0.33	0.180	(0.185)	0.162	0.018
82	6.83	0.33	0.180	(0.184)	0.162	0.018
83	6.92	0.33	0.180	(0.183)	0.162	0.018
84	7.00	0.33	0.180	(0.183)	0.162	0.018
85	7.08	0.33	0.180	(0.182)	0.162	0.018
86	7.17	0.33	0.180	(0.181)	0.162	0.018
87	7.25	0.33	0.180	(0.180)	0.162	0.018
88	7.33	0.37	0.198	(0.179)	0.178	0.020
89	7.42	0.37	0.198	(0.178)	0.178	0.020
90	7.50	0.37	0.198	0.178	(0.178)	0.020
91	7.58	0.40	0.216	0.177	(0.194)	0.039
92	7.67	0.40	0.216	0.176	(0.194)	0.040
93	7.75	0.40	0.216	0.175	(0.194)	0.041
94	7.83	0.43	0.234	0.174	(0.211)	0.060
95	7.92	0.43	0.234	0.174	(0.211)	0.060
96	8.00	0.43	0.234	0.173	(0.211)	0.061
97	8.08	0.50	0.270	0.172	(0.243)	0.098
98	8.17	0.50	0.270	0.171	(0.243)	0.099
99	8.25	0.50	0.270	0.170	(0.243)	0.100
100	8.33	0.50	0.270	0.170	(0.243)	0.100
101	8.42	0.50	0.270	0.169	(0.243)	0.101
102	8.50	0.50	0.270	0.168	(0.243)	0.102
103	8.58	0.53	0.288	0.167	(0.259)	0.121
104	8.67	0.53	0.288	0.166	(0.259)	0.122
105	8.75	0.53	0.288	0.166	(0.259)	0.122
106	8.83	0.57	0.306	0.165	(0.275)	0.141
107	8.92	0.57	0.306	0.164	(0.275)	0.142
108	9.00	0.57	0.306	0.163	(0.275)	0.143
109	9.08	0.63	0.342	0.162	(0.308)	0.179
110	9.17	0.63	0.342	0.162	(0.308)	0.180
111	9.25	0.63	0.342	0.161	(0.308)	0.181
112	9.33	0.67	0.360	0.160	(0.324)	0.200
113	9.42	0.67	0.360	0.159	(0.324)	0.201
114	9.50	0.67	0.360	0.159	(0.324)	0.201
115	9.58	0.70	0.378	0.158	(0.340)	0.220

116	9.67	0.70	0.378	0.157	(	0.340)	0.221
117	9.75	0.70	0.378	0.156	(	0.340)	0.222
118	9.83	0.73	0.396	0.156	(	0.356)	0.240
119	9.92	0.73	0.396	0.155	(	0.356)	0.241
120	10.00	0.73	0.396	0.154	(	0.356)	0.242
121	10.08	0.50	0.270	0.153	(	0.243)	0.117
122	10.17	0.50	0.270	0.153	(	0.243)	0.117
123	10.25	0.50	0.270	0.152	(	0.243)	0.118
124	10.33	0.50	0.270	0.151	(	0.243)	0.119
125	10.42	0.50	0.270	0.150	(	0.243)	0.120
126	10.50	0.50	0.270	0.150	(	0.243)	0.120
127	10.58	0.67	0.360	0.149	(	0.324)	0.211
128	10.67	0.67	0.360	0.148	(	0.324)	0.212
129	10.75	0.67	0.360	0.148	(	0.324)	0.212
130	10.83	0.67	0.360	0.147	(	0.324)	0.213
131	10.92	0.67	0.360	0.146	(	0.324)	0.214
132	11.00	0.67	0.360	0.145	(	0.324)	0.215
133	11.08	0.63	0.342	0.145	(	0.308)	0.197
134	11.17	0.63	0.342	0.144	(	0.308)	0.198
135	11.25	0.63	0.342	0.143	(	0.308)	0.199
136	11.33	0.63	0.342	0.143	(	0.308)	0.199
137	11.42	0.63	0.342	0.142	(	0.308)	0.200
138	11.50	0.63	0.342	0.141	(	0.308)	0.201
139	11.58	0.57	0.306	0.140	(	0.275)	0.166
140	11.67	0.57	0.306	0.140	(	0.275)	0.166
141	11.75	0.57	0.306	0.139	(	0.275)	0.167
142	11.83	0.60	0.324	0.138	(	0.292)	0.186
143	11.92	0.60	0.324	0.138	(	0.292)	0.186
144	12.00	0.60	0.324	0.137	(	0.292)	0.187
145	12.08	0.83	0.450	0.136	(	0.405)	0.314
146	12.17	0.83	0.450	0.136	(	0.405)	0.314
147	12.25	0.83	0.450	0.135	(	0.405)	0.315
148	12.33	0.87	0.468	0.134	(	0.421)	0.334
149	12.42	0.87	0.468	0.134	(	0.421)	0.334
150	12.50	0.87	0.468	0.133	(	0.421)	0.335
151	12.58	0.93	0.504	0.132	(	0.454)	0.372
152	12.67	0.93	0.504	0.132	(	0.454)	0.372
153	12.75	0.93	0.504	0.131	(	0.454)	0.373
154	12.83	0.97	0.522	0.130	(	0.470)	0.392
155	12.92	0.97	0.522	0.130	(	0.470)	0.392
156	13.00	0.97	0.522	0.129	(	0.470)	0.393
157	13.08	1.13	0.612	0.128	(	0.551)	0.484
158	13.17	1.13	0.612	0.128	(	0.551)	0.484
159	13.25	1.13	0.612	0.127	(	0.551)	0.485
160	13.33	1.13	0.612	0.126	(	0.551)	0.486
161	13.42	1.13	0.612	0.126	(	0.551)	0.486
162	13.50	1.13	0.612	0.125	(	0.551)	0.487
163	13.58	0.77	0.414	0.124	(	0.373)	0.290
164	13.67	0.77	0.414	0.124	(	0.373)	0.290
165	13.75	0.77	0.414	0.123	(	0.373)	0.291
166	13.83	0.77	0.414	0.122	(	0.373)	0.291
167	13.92	0.77	0.414	0.122	(	0.373)	0.292
168	14.00	0.77	0.414	0.121	(	0.373)	0.293
169	14.08	0.90	0.486	0.121	(	0.437)	0.365
170	14.17	0.90	0.486	0.120	(	0.437)	0.366
171	14.25	0.90	0.486	0.119	(	0.437)	0.367
172	14.33	0.87	0.468	0.119	(	0.421)	0.349
173	14.42	0.87	0.468	0.118	(	0.421)	0.350
174	14.50	0.87	0.468	0.118	(	0.421)	0.350
175	14.58	0.87	0.468	0.117	(	0.421)	0.351
176	14.67	0.87	0.468	0.116	(	0.421)	0.352
177	14.75	0.87	0.468	0.116	(	0.421)	0.352
178	14.83	0.83	0.450	0.115	(	0.405)	0.335
179	14.92	0.83	0.450	0.115	(	0.405)	0.335
180	15.00	0.83	0.450	0.114	(	0.405)	0.336
181	15.08	0.80	0.432	0.113	(	0.389)	0.319
182	15.17	0.80	0.432	0.113	(	0.389)	0.319
183	15.25	0.80	0.432	0.112	(	0.389)	0.320
184	15.33	0.77	0.414	0.112	(	0.373)	0.302
185	15.42	0.77	0.414	0.111	(	0.373)	0.303
186	15.50	0.77	0.414	0.111	(	0.373)	0.303
187	15.58	0.63	0.342	0.110	(	0.308)	0.232
188	15.67	0.63	0.342	0.109	(	0.308)	0.233
189	15.75	0.63	0.342	0.109	(	0.308)	0.233
190	15.83	0.63	0.342	0.108	(	0.308)	0.234
191	15.92	0.63	0.342	0.108	(	0.308)	0.234
192	16.00	0.63	0.342	0.107	(	0.308)	0.235

193	16.08	0.13	0.072	(0.107)	0.065	0.007
194	16.17	0.13	0.072	(0.106)	0.065	0.007
195	16.25	0.13	0.072	(0.106)	0.065	0.007
196	16.33	0.13	0.072	(0.105)	0.065	0.007
197	16.42	0.13	0.072	(0.104)	0.065	0.007
198	16.50	0.13	0.072	(0.104)	0.065	0.007
199	16.58	0.10	0.054	(0.103)	0.049	0.005
200	16.67	0.10	0.054	(0.103)	0.049	0.005
201	16.75	0.10	0.054	(0.102)	0.049	0.005
202	16.83	0.10	0.054	(0.102)	0.049	0.005
203	16.92	0.10	0.054	(0.101)	0.049	0.005
204	17.00	0.10	0.054	(0.101)	0.049	0.005
205	17.08	0.17	0.090	(0.100)	0.081	0.009
206	17.17	0.17	0.090	(0.100)	0.081	0.009
207	17.25	0.17	0.090	(0.099)	0.081	0.009
208	17.33	0.17	0.090	(0.099)	0.081	0.009
209	17.42	0.17	0.090	(0.098)	0.081	0.009
210	17.50	0.17	0.090	(0.098)	0.081	0.009
211	17.58	0.17	0.090	(0.097)	0.081	0.009
212	17.67	0.17	0.090	(0.097)	0.081	0.009
213	17.75	0.17	0.090	(0.096)	0.081	0.009
214	17.83	0.13	0.072	(0.096)	0.065	0.007
215	17.92	0.13	0.072	(0.095)	0.065	0.007
216	18.00	0.13	0.072	(0.095)	0.065	0.007
217	18.08	0.13	0.072	(0.094)	0.065	0.007
218	18.17	0.13	0.072	(0.094)	0.065	0.007
219	18.25	0.13	0.072	(0.094)	0.065	0.007
220	18.33	0.13	0.072	(0.093)	0.065	0.007
221	18.42	0.13	0.072	(0.093)	0.065	0.007
222	18.50	0.13	0.072	(0.092)	0.065	0.007
223	18.58	0.10	0.054	(0.092)	0.049	0.005
224	18.67	0.10	0.054	(0.091)	0.049	0.005
225	18.75	0.10	0.054	(0.091)	0.049	0.005
226	18.83	0.07	0.036	(0.090)	0.032	0.004
227	18.92	0.07	0.036	(0.090)	0.032	0.004
228	19.00	0.07	0.036	(0.090)	0.032	0.004
229	19.08	0.10	0.054	(0.089)	0.049	0.005
230	19.17	0.10	0.054	(0.089)	0.049	0.005
231	19.25	0.10	0.054	(0.088)	0.049	0.005
232	19.33	0.13	0.072	(0.088)	0.065	0.007
233	19.42	0.13	0.072	(0.087)	0.065	0.007
234	19.50	0.13	0.072	(0.087)	0.065	0.007
235	19.58	0.10	0.054	(0.087)	0.049	0.005
236	19.67	0.10	0.054	(0.086)	0.049	0.005
237	19.75	0.10	0.054	(0.086)	0.049	0.005
238	19.83	0.07	0.036	(0.086)	0.032	0.004
239	19.92	0.07	0.036	(0.085)	0.032	0.004
240	20.00	0.07	0.036	(0.085)	0.032	0.004
241	20.08	0.10	0.054	(0.084)	0.049	0.005
242	20.17	0.10	0.054	(0.084)	0.049	0.005
243	20.25	0.10	0.054	(0.084)	0.049	0.005
244	20.33	0.10	0.054	(0.083)	0.049	0.005
245	20.42	0.10	0.054	(0.083)	0.049	0.005
246	20.50	0.10	0.054	(0.083)	0.049	0.005
247	20.58	0.10	0.054	(0.082)	0.049	0.005
248	20.67	0.10	0.054	(0.082)	0.049	0.005
249	20.75	0.10	0.054	(0.082)	0.049	0.005
250	20.83	0.07	0.036	(0.081)	0.032	0.004
251	20.92	0.07	0.036	(0.081)	0.032	0.004
252	21.00	0.07	0.036	(0.081)	0.032	0.004
253	21.08	0.10	0.054	(0.080)	0.049	0.005
254	21.17	0.10	0.054	(0.080)	0.049	0.005
255	21.25	0.10	0.054	(0.080)	0.049	0.005
256	21.33	0.07	0.036	(0.079)	0.032	0.004
257	21.42	0.07	0.036	(0.079)	0.032	0.004
258	21.50	0.07	0.036	(0.079)	0.032	0.004
259	21.58	0.10	0.054	(0.078)	0.049	0.005
260	21.67	0.10	0.054	(0.078)	0.049	0.005
261	21.75	0.10	0.054	(0.078)	0.049	0.005
262	21.83	0.07	0.036	(0.078)	0.032	0.004
263	21.92	0.07	0.036	(0.077)	0.032	0.004
264	22.00	0.07	0.036	(0.077)	0.032	0.004
265	22.08	0.10	0.054	(0.077)	0.049	0.005
266	22.17	0.10	0.054	(0.077)	0.049	0.005
267	22.25	0.10	0.054	(0.076)	0.049	0.005
268	22.33	0.07	0.036	(0.076)	0.032	0.004
269	22.42	0.07	0.036	(0.076)	0.032	0.004

270	22.50	0.07	0.036	(0.076)	0.032	0.004
271	22.58	0.07	0.036	(0.075)	0.032	0.004
272	22.67	0.07	0.036	(0.075)	0.032	0.004
273	22.75	0.07	0.036	(0.075)	0.032	0.004
274	22.83	0.07	0.036	(0.075)	0.032	0.004
275	22.92	0.07	0.036	(0.075)	0.032	0.004
276	23.00	0.07	0.036	(0.074)	0.032	0.004
277	23.08	0.07	0.036	(0.074)	0.032	0.004
278	23.17	0.07	0.036	(0.074)	0.032	0.004
279	23.25	0.07	0.036	(0.074)	0.032	0.004
280	23.33	0.07	0.036	(0.074)	0.032	0.004
281	23.42	0.07	0.036	(0.074)	0.032	0.004
282	23.50	0.07	0.036	(0.074)	0.032	0.004
283	23.58	0.07	0.036	(0.073)	0.032	0.004
284	23.67	0.07	0.036	(0.073)	0.032	0.004
285	23.75	0.07	0.036	(0.073)	0.032	0.004
286	23.83	0.07	0.036	(0.073)	0.032	0.004
287	23.92	0.07	0.036	(0.073)	0.032	0.004
288	24.00	0.07	0.036	(0.073)	0.032	0.004

(Loss Rate Not Used)

Sum = 100.0 Sum = 26.3

Flood volume = Effective rainfall 2.19(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 12.3(Ac.Ft)
Total soil loss = 2.31(In)
Total soil loss = 12.893(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 534307.9 Cubic Feet
Total soil loss = 561626.9 Cubic Feet

Peak flow rate of this hydrograph = 31.869(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	10.0	20.0	30.0	40.0
0+ 5	0.0001	0.02	Q				
0+10	0.0007	0.08	Q				
0+15	0.0018	0.15	Q				
0+20	0.0031	0.19	Q				
0+25	0.0047	0.24	Q				
0+30	0.0067	0.29	Q				
0+35	0.0089	0.31	Q				
0+40	0.0111	0.32	Q				
0+45	0.0134	0.33	Q				
0+50	0.0158	0.35	Q				
0+55	0.0185	0.39	Q				
1+ 0	0.0215	0.43	Q				
1+ 5	0.0245	0.44	Q				
1+10	0.0274	0.42	Q				
1+15	0.0300	0.39	Q				
1+20	0.0327	0.38	Q				
1+25	0.0353	0.38	Q				
1+30	0.0378	0.37	Q				
1+35	0.0404	0.37	Q				
1+40	0.0430	0.37	Q				
1+45	0.0455	0.37	Q				
1+50	0.0481	0.38	Q				
1+55	0.0509	0.41	Q				
2+ 0	0.0540	0.44	Q				
2+ 5	0.0572	0.46	Q				
2+10	0.0604	0.47	Q				
2+15	0.0636	0.47	Q				
2+20	0.0669	0.47	Q				
2+25	0.0702	0.48	Q				
2+30	0.0735	0.48	Q				
2+35	0.0768	0.49	Q				
2+40	0.0805	0.53	Q				
2+45	0.0843	0.56	Q				
2+50	0.0883	0.58	Q				
2+55	0.0923	0.59	Q				
3+ 0	0.0964	0.59	Q				
3+ 5	0.1005	0.60	Q				

```
3+10       0.1047      0.60  Q         |          |          |          |
3+15       0.1088      0.60  Q         |          |          |          |
3+20       0.1130      0.60  Q         |          |          |          |
3+25       0.1171      0.61  Q         |          |          |          |
3+30       0.1213      0.61  Q         |          |          |          |
3+35       0.1255      0.61  Q         |          |          |          |
3+40       0.1297      0.61  Q         |          |          |          |
3+45       0.1339      0.61  Q         |          |          |          |
3+50       0.1381      0.62  Q         |          |          |          |
3+55       0.1426      0.65  Q         |          |          |          |
4+ 0       0.1473      0.69  Q         |          |          |          |
4+ 5       0.1521      0.70  Q         |          |          |          |
4+10       0.1570      0.71  Q         |          |          |          |
4+15       0.1619      0.71  Q         |          |          |          |
4+20       0.1669      0.73  Q         |          |          |          |
4+25       0.1722      0.76  Q         |          |          |          |
4+30       0.1777      0.80  Q         |          |          |          |
4+35       0.1833      0.82  Q         |          |          |          |
4+40       0.1890      0.83  Q         |          |          |          |
4+45       0.1948      0.83  Q         |          |          |          |
4+50       0.2006      0.85  Q         |          |          |          |
4+55       0.2067      0.88  Q         |          |          |          |
5+ 0       0.2130      0.92  Q         |          |          |          |
5+ 5       0.2194      0.92  Q         |          |          |          |
5+10       0.2253      0.86  Q         |          |          |          |
5+15       0.2309      0.80  Q         |          |          |          |
5+20       0.2363      0.78  Q         |          |          |          |
5+25       0.2418      0.81  Q         |          |          |          |
5+30       0.2475      0.83  Q         |          |          |          |
5+35       0.2534      0.85  Q         |          |          |          |
5+40       0.2595      0.89  Q         |          |          |          |
5+45       0.2659      0.92  Q         |          |          |          |
5+50       0.2724      0.94  Q         |          |          |          |
5+55       0.2789      0.95  Q         |          |          |          |
6+ 0       0.2855      0.96  Q         |          |          |          |
6+ 5       0.2921      0.97  Q         |          |          |          |
6+10       0.2991      1.01  VQ        |          |          |          |
6+15       0.3062      1.04  VQ        |          |          |          |
6+20       0.3135      1.06  |Q        |          |          |          |
6+25       0.3209      1.07  |Q        |          |          |          |
6+30       0.3283      1.08  |Q        |          |          |          |
6+35       0.3358      1.09  |Q        |          |          |          |
6+40       0.3436      1.13  |Q        |          |          |          |
6+45       0.3516      1.17  |Q        |          |          |          |
6+50       0.3598      1.18  |Q        |          |          |          |
6+55       0.3680      1.19  |Q        |          |          |          |
7+ 0       0.3762      1.20  |Q        |          |          |          |
7+ 5       0.3845      1.20  |Q        |          |          |          |
7+10       0.3928      1.21  |Q        |          |          |          |
7+15       0.4012      1.21  |Q        |          |          |          |
7+20       0.4096      1.22  |Q        |          |          |          |
7+25       0.4182      1.26  |Q        |          |          |          |
7+30       0.4271      1.29  |Q        |          |          |          |
7+35       0.4368      1.40  |Q        |          |          |          |
7+40       0.4491      1.79  |Q        |          |          |          |
7+45       0.4641      2.18  |VQ       |          |          |          |
7+50       0.4810      2.46  |VQ       |          |          |          |
7+55       0.5012      2.93  |VQ       |          |          |          |
8+ 0       0.5245      3.38  |V Q      |          |          |          |
8+ 5       0.5505      3.78  |V Q      |          |          |          |
8+10       0.5824      4.63  |V  Q     |          |          |          |
8+15       0.6200      5.46  | V  Q    |          |          |          |
8+20       0.6604      5.86  | V  Q    |          |          |          |
8+25       0.7026      6.12  | V   Q   |          |          |          |
8+30       0.7461      6.32  | V   Q   |          |          |          |
8+35       0.7913      6.56  | V   Q   |          |          |          |
8+40       0.8398      7.04  | V    Q  |          |          |          |
8+45       0.8914      7.50  | V    Q  |          |          |          |
8+50       0.9454      7.84  |  V   Q  |          |          |          |
8+55       1.0029      8.35  |  V    Q |          |          |          |
9+ 0       1.0637      8.83  |  V    Q |          |          |          |
9+ 5       1.1274      9.26  |  V     Q|          |          |          |
9+10       1.1971     10.12  |  V      Q          |          |          |
9+15       1.2726     10.95  |   V     Q          |          |          |
9+20       1.3514     11.45  |   V     |Q         |          |          |
9+25       1.4344     12.05  |   V     | Q        |          |          |
9+30       1.5212     12.60  |   V     | Q        |          |          |
```

9+35	1.6106	12.98	V	Q			
9+40	1.7039	13.54	V	Q			
9+45	1.8007	14.06	V	Q			
9+50	1.9000	14.43	V	Q			
9+55	2.0031	14.97	V	Q			
10+ 0	2.1097	15.47	V	Q			
10+ 5	2.2143	15.19	V	Q			
10+10	2.3037	12.99	V	Q			
10+15	2.3775	10.71	V	Q			
10+20	2.4450	9.80	V	Q			
10+25	2.5093	9.34	VQ				
10+30	2.5715	9.04	VQ				
10+35	2.6351	9.24	VQ				
10+40	2.7095	10.81	V	Q			
10+45	2.7953	12.46	V	Q			
10+50	2.8858	13.13	V	Q			
10+55	2.9787	13.49	V	Q			
11+ 0	3.0733	13.74	V	Q			
11+ 5	3.1688	13.86	V	Q			
11+10	3.2629	13.67	V	Q			
11+15	3.3554	13.43	V	Q			
11+20	3.4476	13.39	V	Q			
11+25	3.5401	13.43	V	Q			
11+30	3.6330	13.48	V	Q			
11+35	3.7251	13.37	VQ				
11+40	3.8128	12.74	Q				
11+45	3.8962	12.10	Q				
11+50	3.9784	11.94	QV				
11+55	4.0621	12.15	QV				
12+ 0	4.1477	12.42	QV				
12+ 5	4.2378	13.09	Q				
12+10	4.3449	15.55	VQ				
12+15	4.4691	18.03	V	Q			
12+20	4.6012	19.19	V	Q			
12+25	4.7400	20.14	V	Q			
12+30	4.8841	20.93	V	Q			
12+35	5.0326	21.56	V	Q			
12+40	5.1882	22.58	V	Q			
12+45	5.3502	23.53	V	Q			
12+50	5.5164	24.13	V	Q			
12+55	5.6873	24.81	V	Q			
13+ 0	5.8624	25.42	V	Q			
13+ 5	6.0427	26.18	V	Q			
13+10	6.2365	28.14	V	Q			
13+15	6.4436	30.08	V	Q			
13+20	6.6570	30.98	V	Q			
13+25	6.8739	31.50	V	Q			
13+30	7.0934	31.87	V	Q			
13+35	7.3088	31.27	V	Q			
13+40	7.4998	27.73	V	Q			
13+45	7.6657	24.09	Q				
13+50	7.8214	22.61	Q	V			
13+55	7.9719	21.85	Q	V			
14+ 0	8.1189	21.34	Q	V			
14+ 5	8.2657	21.31	Q	V			
14+10	8.4201	22.43	Q	V			
14+15	8.5830	23.65	Q	V			
14+20	8.7484	24.02	Q	V			
14+25	8.9129	23.88	Q	V			
14+30	9.0760	23.68	Q	V			
14+35	9.2387	23.63	Q	V			
14+40	9.4015	23.64	Q	V			
14+45	9.5644	23.64	Q	V			
14+50	9.7268	23.58	Q	V			
14+55	9.8873	23.31	Q	V			
15+ 0	10.0459	23.03	Q	V			
15+ 5	10.2033	22.85	Q	V			
15+10	10.3581	22.48	Q	V			
15+15	10.5106	22.13	Q	V			
15+20	10.6615	21.92	Q	V			
15+25	10.8096	21.50	Q	V			
15+30	10.9549	21.10	Q	V			
15+35	11.0969	20.61	Q	V			
15+40	11.2288	19.16	Q	V			
15+45	11.3508	17.72	Q	V			
15+50	11.4685	17.09	Q	V			
15+55	11.5840	16.76	Q	V			

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16+ 0      11.6978     16.53  |          |     Q    |          |       V |
16+ 5      11.8036     15.36  |          |    Q     |          |       V |
16+10      11.8789     10.92  |        Q           |          |       V |
16+15      11.9232      6.44  |     Q    |         |          |       V |
16+20      11.9541      4.48  |   Q      |         |          |       V |
16+25      11.9775      3.41  |  Q       |         |          |        V|
16+30      11.9958      2.65  | Q        |         |          |        V|
16+35      12.0103      2.10  | Q        |         |          |        V|
16+40      12.0218      1.67  |Q         |         |          |        V|
16+45      12.0309      1.33  |Q         |         |          |        V|
16+50      12.0382      1.06  |Q         |         |          |        V|
16+55      12.0442      0.87  Q          |         |          |        V|
17+ 0      12.0492      0.72  Q          |         |          |        V|
17+ 5      12.0534      0.62  Q          |         |          |        V|
17+10      12.0576      0.60  Q          |         |          |        V|
17+15      12.0617      0.59  Q          |         |          |        V|
17+20      12.0655      0.55  Q          |         |          |        V|
17+25      12.0694      0.57  Q          |         |          |        V|
17+30      12.0734      0.58  Q          |         |          |        V|
17+35      12.0774      0.59  Q          |         |          |        V|
17+40      12.0815      0.59  Q          |         |          |        V|
17+45      12.0856      0.60  Q          |         |          |        V|
17+50      12.0897      0.59  Q          |         |          |        V|
17+55      12.0935      0.56  Q          |         |          |        V|
18+ 0      12.0971      0.53  Q          |         |          |        V|
18+ 5      12.1007      0.51  Q          |         |          |        V|
18+10      12.1042      0.51  Q          |         |          |        V|
18+15      12.1076      0.50  Q          |         |          |        V|
18+20      12.1111      0.50  Q          |         |          |        V|
18+25      12.1145      0.50  Q          |         |          |        V|
18+30      12.1179      0.49  Q          |         |          |        V|
18+35      12.1212      0.48  Q          |         |          |        V|
18+40      12.1243      0.45  Q          |         |          |        V|
18+45      12.1272      0.41  Q          |         |          |        V|
18+50      12.1298      0.39  Q          |         |          |        V|
18+55      12.1322      0.35  Q          |         |          |        V|
19+ 0      12.1343      0.31  Q          |         |          |        V|
19+ 5      12.1363      0.29  Q          |         |          |        V|
19+10      12.1385      0.32  Q          |         |          |        V|
19+15      12.1409      0.34  Q          |         |          |        V|
19+20      12.1434      0.36  Q          |         |          |        V|
19+25      12.1461      0.40  Q          |         |          |        V|
19+30      12.1491      0.44  Q          |         |          |        V|
19+35      12.1522      0.44  Q          |         |          |        V|
19+40      12.1551      0.42  Q          |         |          |        V|
19+45      12.1578      0.39  Q          |         |          |        V|
19+50      12.1603      0.37  Q          |         |          |        V|
19+55      12.1626      0.33  Q          |         |          |        V|
20+ 0      12.1646      0.30  Q          |         |          |        V|
20+ 5      12.1666      0.29  Q          |         |          |        V|
20+10      12.1688      0.31  Q          |         |          |        V|
20+15      12.1711      0.34  Q          |         |          |        V|
20+20      12.1735      0.35  Q          |         |          |        V|
20+25      12.1760      0.36  Q          |         |          |        V|
20+30      12.1784      0.36  Q          |         |          |        V|
20+35      12.1809      0.36  Q          |         |          |        V|
20+40      12.1834      0.36  Q          |         |          |        V|
20+45      12.1859      0.36  Q          |         |          |        V|
20+50      12.1883      0.35  Q          |         |          |        V|
20+55      12.1905      0.32  Q          |         |          |        V|
21+ 0      12.1925      0.29  Q          |         |          |        V|
21+ 5      12.1944      0.28  Q          |         |          |        V|
21+10      12.1966      0.31  Q          |         |          |        V|
21+15      12.1989      0.34  Q          |         |          |        V|
21+20      12.2012      0.34  Q          |         |          |        V|
21+25      12.2033      0.31  Q          |         |          |        V|
21+30      12.2053      0.28  Q          |         |          |        V|
21+35      12.2072      0.27  Q          |         |          |        V|
21+40      12.2092      0.30  Q          |         |          |        V|
21+45      12.2115      0.33  Q          |         |          |        V|
21+50      12.2138      0.34  Q          |         |          |        V|
21+55      12.2160      0.31  Q          |         |          |        V|
22+ 0      12.2179      0.28  Q          |         |          |        V|
22+ 5      12.2198      0.27  Q          |         |          |        V|
22+10      12.2218      0.30  Q          |         |          |        V|
22+15      12.2241      0.33  Q          |         |          |        V|
22+20      12.2264      0.34  Q          |         |          |        V|
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22+25	12.2285	0.31	Q	|	|	|	V|
22+30	12.2305	0.28	Q	|	|	|	V|
22+35	12.2323	0.26	Q	|	|	|	V|
22+40	12.2341	0.26	Q	|	|	|	V|
22+45	12.2358	0.25	Q	|	|	|	V|
22+50	12.2376	0.25	Q	|	|	|	V|
22+55	12.2393	0.25	Q	|	|	|	V|
23+ 0	12.2410	0.25	Q	|	|	|	V|
23+ 5	12.2427	0.25	Q	|	|	|	V|
23+10	12.2444	0.25	Q	|	|	|	V|
23+15	12.2461	0.25	Q	|	|	|	V|
23+20	12.2478	0.25	Q	|	|	|	V|
23+25	12.2494	0.24	Q	|	|	|	V|
23+30	12.2511	0.24	Q	|	|	|	V|
23+35	12.2528	0.24	Q	|	|	|	V|
23+40	12.2545	0.24	Q	|	|	|	V|
23+45	12.2562	0.24	Q	|	|	|	V|
23+50	12.2578	0.24	Q	|	|	|	V|
23+55	12.2595	0.24	Q	|	|	|	V|
24+ 0	12.2612	0.24	Q	|	|	|	V|
24+ 5	12.2628	0.23	Q	|	|	|	V|
24+10	12.2639	0.16	Q	|	|	|	V|
24+15	12.2645	0.09	Q	|	|	|	V|
24+20	12.2649	0.06	Q	|	|	|	V|
24+25	12.2652	0.04	Q	|	|	|	V|
24+30	12.2654	0.03	Q	|	|	|	V|
24+35	12.2656	0.02	Q	|	|	|	V|
24+40	12.2657	0.02	Q	|	|	|	V|
24+45	12.2658	0.01	Q	|	|	|	V|
24+50	12.2659	0.01	Q	|	|	|	V|
24+55	12.2659	0.01	Q	|	|	|	V|
25+ 0	12.2660	0.01	Q	|	|	|	V|
25+ 5	12.2660	0.00	Q	|	|	|	V|
25+10	12.2660	0.00	Q	|	|	|	V|
25+15	12.2660	0.00	Q	|	|	|	V

PROPOSED CONDITION

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 07/31/20 File: 3828PR212.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 2-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.50	33.55

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.20	80.52

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.500(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.500(In)
Areal adjustment factor = 99.94 %
Adjusted average point rain = 0.500(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	36.0	0.706	0.900	0.134	1.000	0.134
					Sum (F) =	0.134

Area averaged mean soil loss (F) (In/Hr) = 0.134
Minimum soil loss rate ((In/Hr)) = 0.067
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.252	(0.134)	0.025	0.227
2	0.17	4.30	0.258	(0.134)	0.026	0.232
3	0.25	5.00	0.300	(0.134)	0.030	0.270
4	0.33	5.00	0.300	(0.134)	0.030	0.270
5	0.42	5.80	0.348	(0.134)	0.035	0.313
6	0.50	6.50	0.390	(0.134)	0.039	0.351
7	0.58	7.40	0.444	(0.134)	0.044	0.399
8	0.67	8.60	0.516	(0.134)	0.052	0.464
9	0.75	12.30	0.738	(0.134)	0.074	0.664
10	0.83	29.10	1.745	0.134	(0.174)	1.611
11	0.92	6.80	0.408	(0.134)	0.041	0.367
12	1.00	5.00	0.300	(0.134)	0.030	0.270
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	5.4

Flood volume = Effective rainfall 0.45(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 2.5(Ac.Ft)
Total soil loss = 0.05(In)
Total soil loss = 0.261(Ac.Ft)
Total rainfall = 0.50(In)
Flood volume = 110360.3 Cubic Feet
Total soil loss = 11352.2 Cubic Feet

Peak flow rate of this hydrograph = 69.176(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	17.5	35.0	52.5	70.0
0+ 5	0.0218	3.16	VQ				
0+10	0.0955	10.70	V Q				
0+15	0.1898	13.70	V Q				
0+20	0.3004	16.05	V Q				
0+25	0.4219	17.64	V Q				
0+30	0.5607	20.15	V Q				
0+35	0.7180	22.84	V Q				
0+40	0.8983	26.18	Q				
0+45	1.1181	31.92	VQ				
0+50	1.4816	52.78	V	Q			
0+55	1.9580	69.18	V	Q			

```
    1+ 0       2.2176     37.69  |         |         |Q        |    V    |
    1+ 5       2.3773     23.20  |         |  Q      |         |      V  |
    1+10       2.4493     10.45  |    Q    |         |         |       V |
    1+15       2.4898      5.88  |  Q      |         |         |        V|
    1+20       2.5135      3.44  |Q        |         |         |        V|
    1+25       2.5281      2.13  |Q        |         |         |        V|
    1+30       2.5320      0.57  Q         |         |         |        V|
    1+35       2.5335      0.22  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 07/31/20 File: 3828PR232.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 2-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.80	53.68

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.86	124.81

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 0.800(In)
Areal adjustment factor = 99.97 %
Adjusted average point rain = 0.800(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	36.0	0.706	0.900	0.134	1.000	0.134
					Sum (F) =	0.134

Area averaged mean soil loss (F) (In/Hr) = 0.134
Minimum soil loss rate ((In/Hr)) = 0.067
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
			Sum = 100.000	Sum= 67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.125	(0.134)	0.012	0.112
2	0.17	1.30	0.125	(0.134)	0.012	0.112
3	0.25	1.10	0.106	(0.134)	0.011	0.095
4	0.33	1.50	0.144	(0.134)	0.014	0.130
5	0.42	1.50	0.144	(0.134)	0.014	0.130
6	0.50	1.80	0.173	(0.134)	0.017	0.155
7	0.58	1.50	0.144	(0.134)	0.014	0.130
8	0.67	1.80	0.173	(0.134)	0.017	0.155
9	0.75	1.80	0.173	(0.134)	0.017	0.155
10	0.83	1.50	0.144	(0.134)	0.014	0.130
11	0.92	1.60	0.154	(0.134)	0.015	0.138
12	1.00	1.80	0.173	(0.134)	0.017	0.155
13	1.08	2.20	0.211	(0.134)	0.021	0.190
14	1.17	2.20	0.211	(0.134)	0.021	0.190
15	1.25	2.20	0.211	(0.134)	0.021	0.190
16	1.33	2.00	0.192	(0.134)	0.019	0.173
17	1.42	2.60	0.250	(0.134)	0.025	0.225
18	1.50	2.70	0.259	(0.134)	0.026	0.233
19	1.58	2.40	0.230	(0.134)	0.023	0.207
20	1.67	2.70	0.259	(0.134)	0.026	0.233
21	1.75	3.30	0.317	(0.134)	0.032	0.285
22	1.83	3.10	0.298	(0.134)	0.030	0.268
23	1.92	2.90	0.278	(0.134)	0.028	0.250
24	2.00	3.00	0.288	(0.134)	0.029	0.259
25	2.08	3.10	0.298	(0.134)	0.030	0.268
26	2.17	4.20	0.403	(0.134)	0.040	0.363
27	2.25	5.00	0.480	(0.134)	0.048	0.432
28	2.33	3.50	0.336	(0.134)	0.034	0.302
29	2.42	6.80	0.653	(0.134)	0.065	0.587
30	2.50	7.30	0.701	(0.134)	0.070	0.631
31	2.58	8.20	0.787	(0.134)	0.079	0.708
32	2.67	5.90	0.566	(0.134)	0.057	0.510
33	2.75	2.00	0.192	(0.134)	0.019	0.173
34	2.83	1.80	0.173	(0.134)	0.017	0.155
35	2.92	1.80	0.173	(0.134)	0.017	0.155
36	3.00	0.60	0.058	(0.134)	0.006	0.052
		(Loss Rate Not Used)			
Sum =		100.0		Sum =	8.6

Flood volume = Effective rainfall 0.72(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 4.0(Ac.Ft)
Total soil loss = 0.08(In)
Total soil loss = 0.447(Ac.Ft)
Total rainfall = 0.80(In)
Flood volume = 175321.1 Cubic Feet
Total soil loss = 19480.1 Cubic Feet

Peak flow rate of this hydrograph = 41.603(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 12.5 25.0 37.5 50.0
0+ 5	0.0108	1.57	VQ | | | |
0+10	0.0470	5.26	V Q | | | |
0+15	0.0895	6.16	V Q | | | |
0+20	0.1349	6.59	|V Q | | | |
0+25	0.1889	7.84	|V Q | | | |
0+30	0.2485	8.66	| V Q | | | |
0+35	0.3131	9.38	| V Q | | | |
0+40	0.3772	9.30	| V Q | | | |
0+45	0.4464	10.05	| V Q | | | |
0+50	0.5148	9.92	| V Q | | | |
0+55	0.5789	9.31	| V Q | | | |
1+ 0	0.6452	9.62	| VQ | | | |
1+ 5	0.7187	10.68	| VQ | | | |
1+10	0.8012	11.97	| V Q| | | |
1+15	0.8866	12.40	| VQ| | | |
1+20	0.9717	12.35	| Q| | | |
1+25	1.0585	12.61	| Q | | |
1+30	1.1573	14.35	| |Q | | |
1+35	1.2590	14.76	| |QV | | |
1+40	1.3594	14.58	| |Q V | | |
1+45	1.4699	16.04	| | Q V | | |
1+50	1.5920	17.74	| | QV | | |
1+55	1.7130	17.56	| | Q V | | |
2+ 0	1.8318	17.25	| | Q V | | |
2+ 5	1.9527	17.56	| | Q V| | |
2+10	2.0850	19.22	| | Q V | |
2+15	2.2465	23.44	| | Q | V | |
2+20	2.4181	24.93	| | Q| V | |
2+25	2.5957	25.78	| | Q V | |
2+30	2.8370	35.03	| | | Q | |
2+35	3.1137	40.18	| | | V Q |
2+40	3.4002	41.60	| | | Q |
2+45	3.6207	32.01	| | Q | V |
2+50	3.7552	19.53	| Q | | V |
2+55	3.8591	15.08	| Q | | V |
3+ 0	3.9403	11.80	| Q| | | V|
3+ 5	3.9851	6.50	| Q | | | V|
3+10	4.0058	3.01	| Q | | | V|
3+15	4.0161	1.48	|Q | | | V|
3+20	4.0208	0.68	Q | | | V|
3+25	4.0233	0.37	Q | | | V|
3+30	4.0245	0.18	Q | | | V|
3+35	4.0248	0.04	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 07/31/20 File: 3828PR262.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 2-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.15	77.16

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	2.50	167.75

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.150(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.150(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 1.150(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	36.0	0.706	0.900	0.134	1.000	0.134
					Sum (F) =	0.134

Area averaged mean soil loss (F) (In/Hr) = 0.134
Minimum soil loss rate ((In/Hr)) = 0.067
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.069	(0.134)	0.007	0.062
2	0.17	0.60	0.083	(0.134)	0.008	0.075
3	0.25	0.60	0.083	(0.134)	0.008	0.075
4	0.33	0.60	0.083	(0.134)	0.008	0.075
5	0.42	0.60	0.083	(0.134)	0.008	0.075
6	0.50	0.70	0.097	(0.134)	0.010	0.087
7	0.58	0.70	0.097	(0.134)	0.010	0.087
8	0.67	0.70	0.097	(0.134)	0.010	0.087
9	0.75	0.70	0.097	(0.134)	0.010	0.087
10	0.83	0.70	0.097	(0.134)	0.010	0.087
11	0.92	0.70	0.097	(0.134)	0.010	0.087
12	1.00	0.80	0.110	(0.134)	0.011	0.099
13	1.08	0.80	0.110	(0.134)	0.011	0.099
14	1.17	0.80	0.110	(0.134)	0.011	0.099
15	1.25	0.80	0.110	(0.134)	0.011	0.099
16	1.33	0.80	0.110	(0.134)	0.011	0.099
17	1.42	0.80	0.110	(0.134)	0.011	0.099
18	1.50	0.80	0.110	(0.134)	0.011	0.099
19	1.58	0.80	0.110	(0.134)	0.011	0.099
20	1.67	0.80	0.110	(0.134)	0.011	0.099
21	1.75	0.80	0.110	(0.134)	0.011	0.099
22	1.83	0.80	0.110	(0.134)	0.011	0.099
23	1.92	0.80	0.110	(0.134)	0.011	0.099
24	2.00	0.90	0.124	(0.134)	0.012	0.112
25	2.08	0.80	0.110	(0.134)	0.011	0.099
26	2.17	0.90	0.124	(0.134)	0.012	0.112
27	2.25	0.90	0.124	(0.134)	0.012	0.112
28	2.33	0.90	0.124	(0.134)	0.012	0.112
29	2.42	0.90	0.124	(0.134)	0.012	0.112
30	2.50	0.90	0.124	(0.134)	0.012	0.112
31	2.58	0.90	0.124	(0.134)	0.012	0.112
32	2.67	0.90	0.124	(0.134)	0.012	0.112
33	2.75	1.00	0.138	(0.134)	0.014	0.124
34	2.83	1.00	0.138	(0.134)	0.014	0.124
35	2.92	1.00	0.138	(0.134)	0.014	0.124
36	3.00	1.00	0.138	(0.134)	0.014	0.124
37	3.08	1.00	0.138	(0.134)	0.014	0.124
38	3.17	1.10	0.152	(0.134)	0.015	0.137
39	3.25	1.10	0.152	(0.134)	0.015	0.137
40	3.33	1.10	0.152	(0.134)	0.015	0.137
41	3.42	1.20	0.166	(0.134)	0.017	0.149
42	3.50	1.30	0.179	(0.134)	0.018	0.161
43	3.58	1.40	0.193	(0.134)	0.019	0.174
44	3.67	1.40	0.193	(0.134)	0.019	0.174
45	3.75	1.50	0.207	(0.134)	0.021	0.186
46	3.83	1.50	0.207	(0.134)	0.021	0.186

47	3.92	1.60	0.221	(	0.134)	0.022	0.199
48	4.00	1.60	0.221	(	0.134)	0.022	0.199
49	4.08	1.70	0.235	(	0.134)	0.023	0.211
50	4.17	1.80	0.248	(	0.134)	0.025	0.224
51	4.25	1.90	0.262	(	0.134)	0.026	0.236
52	4.33	2.00	0.276	(	0.134)	0.028	0.248
53	4.42	2.10	0.290	(	0.134)	0.029	0.261
54	4.50	2.10	0.290	(	0.134)	0.029	0.261
55	4.58	2.20	0.304	(	0.134)	0.030	0.273
56	4.67	2.30	0.317	(	0.134)	0.032	0.286
57	4.75	2.40	0.331	(	0.134)	0.033	0.298
58	4.83	2.40	0.331	(	0.134)	0.033	0.298
59	4.92	2.50	0.345	(	0.134)	0.034	0.310
60	5.00	2.60	0.359	(	0.134)	0.036	0.323
61	5.08	3.10	0.428	(	0.134)	0.043	0.385
62	5.17	3.60	0.497	(	0.134)	0.050	0.447
63	5.25	3.90	0.538	(	0.134)	0.054	0.484
64	5.33	4.20	0.579	(	0.134)	0.058	0.522
65	5.42	4.70	0.648	(	0.134)	0.065	0.584
66	5.50	5.60	0.773	(	0.134)	0.077	0.695
67	5.58	1.90	0.262	(	0.134)	0.026	0.236
68	5.67	0.90	0.124	(	0.134)	0.012	0.112
69	5.75	0.60	0.083	(	0.134)	0.008	0.075
70	5.83	0.50	0.069	(	0.134)	0.007	0.062
71	5.92	0.30	0.041	(	0.134)	0.004	0.037
72	6.00	0.20	0.028	(	0.134)	0.003	0.025

(Loss Rate Not Used)

Sum = 100.0 Sum = 12.4

Flood volume = Effective rainfall 1.03(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 5.8(Ac.Ft)
Total soil loss = 0.11(In)
Total soil loss = 0.643(Ac.Ft)
Total rainfall = 1.15(In)
Flood volume = 252039.9 Cubic Feet
Total soil loss = 28004.4 Cubic Feet

Peak flow rate of this hydrograph = 38.797(CFS)

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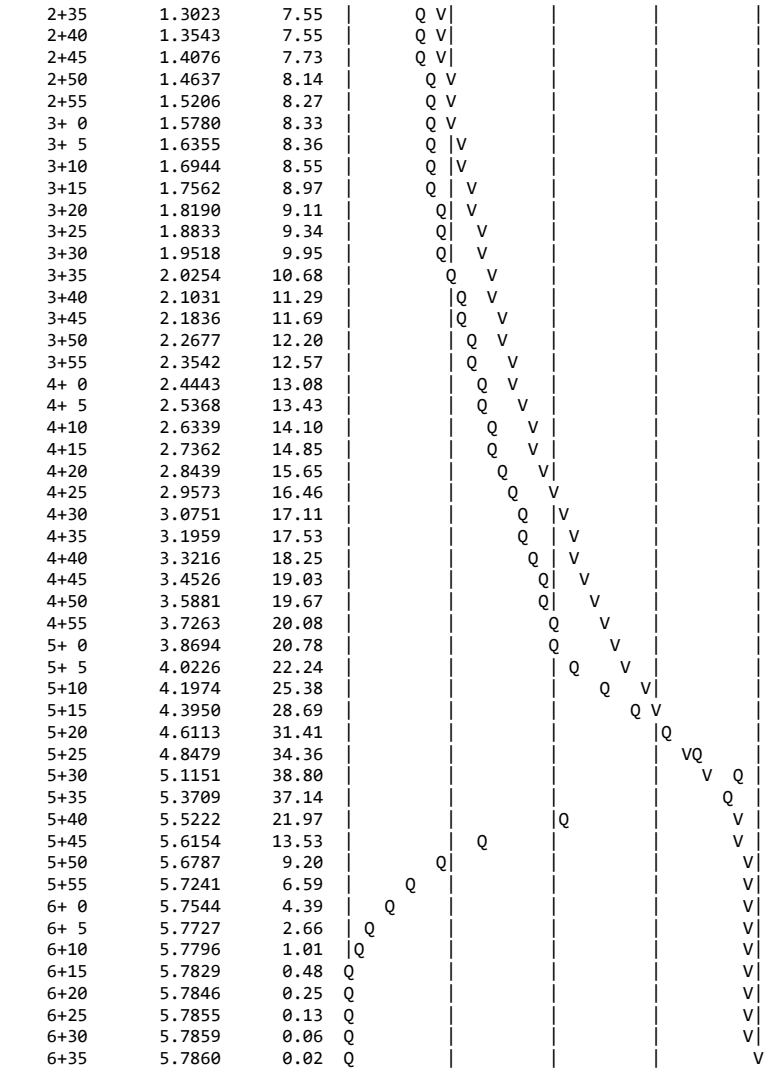
6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

```
Time(h+m) Volume Ac.Ft   Q(CFS)  0       10.0      20.0      30.0      40.0
-------------------------------------------------------------------------
  0+ 5       0.0060      0.87  Q         |         |         |         |
  0+10       0.0272      3.08  V  Q      |         |         |         |
  0+15       0.0556      4.12  V   Q     |         |         |         |
  0+20       0.0868      4.53  V   Q     |         |         |         |
  0+25       0.1195      4.75  V   Q     |         |         |         |
  0+30       0.1544      5.06  |V   Q    |         |         |         |
  0+35       0.1926      5.55  |V   Q    |         |         |         |
  0+40       0.2321      5.74  |V   Q    |         |         |         |
  0+45       0.2721      5.81  |V   Q    |         |         |         |
  0+50       0.3123      5.84  | V  Q    |         |         |         |
  0+55       0.3527      5.86  | V  Q    |         |         |         |
  1+ 0       0.3943      6.04  | V   Q   |         |         |         |
  1+ 5       0.4388      6.46  |  V  Q   |         |         |         |
  1+10       0.4842      6.59  |  V  Q   |         |         |         |
  1+15       0.5300      6.65  |  V  Q   |         |         |         |
  1+20       0.5759      6.68  |  V  Q   |         |         |         |
  1+25       0.6221      6.70  |   V Q   |         |         |         |
  1+30       0.6683      6.71  |   V Q   |         |         |         |
  1+35       0.7146      6.72  |   V Q   |         |         |         |
  1+40       0.7609      6.72  |    VQ   |         |         |         |
  1+45       0.8072      6.72  |    VQ   |         |         |         |
  1+50       0.8535      6.72  |    VQ   |         |         |         |
  1+55       0.8997      6.72  |     Q   |         |         |         |
  2+ 0       0.9472      6.89  |     Q   |         |         |         |
  2+ 5       0.9963      7.13  |     VQ  |         |         |         |
  2+10       1.0447      7.02  |      Q  |         |         |         |
  2+15       1.0954      7.36  |      Q  |         |         |         |
  2+20       1.1468      7.46  |      Q  |         |         |         |
  2+25       1.1985      7.51  |      QV |         |         |         |
  2+30       1.2503      7.53  |      QV |         |         |         |
```



2+35	1.3023	7.55	
2+40	1.3543	7.55	
2+45	1.4076	7.73	
2+50	1.4637	8.14	
2+55	1.5206	8.27	
3+ 0	1.5780	8.33	
3+ 5	1.6355	8.36	
3+10	1.6944	8.55	
3+15	1.7562	8.97	
3+20	1.8190	9.11	
3+25	1.8833	9.34	
3+30	1.9518	9.95	
3+35	2.0254	10.68	
3+40	2.1031	11.29	
3+45	2.1836	11.69	
3+50	2.2677	12.20	
3+55	2.3542	12.57	
4+ 0	2.4443	13.08	
4+ 5	2.5368	13.43	
4+10	2.6339	14.10	
4+15	2.7362	14.85	
4+20	2.8439	15.65	
4+25	2.9573	16.46	
4+30	3.0751	17.11	
4+35	3.1959	17.53	
4+40	3.3216	18.25	
4+45	3.4526	19.03	
4+50	3.5881	19.67	
4+55	3.7263	20.08	
5+ 0	3.8694	20.78	
5+ 5	4.0226	22.24	
5+10	4.1974	25.38	
5+15	4.3950	28.69	
5+20	4.6113	31.41	
5+25	4.8479	34.36	
5+30	5.1151	38.80	
5+35	5.3709	37.14	
5+40	5.5222	21.97	
5+45	5.6154	13.53	
5+50	5.6787	9.20	
5+55	5.7241	6.59	
6+ 0	5.7544	4.39	
6+ 5	5.7727	2.66	
6+10	5.7796	1.01	
6+15	5.7829	0.48	
6+20	5.7846	0.25	
6+25	5.7855	0.13	
6+30	5.7859	0.06	
6+35	5.7860	0.02	

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 07/31/20 File: 3828PR2242.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 2-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.75	117.42

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	4.50	301.95

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.750(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 1.750(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.750(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	36.0	0.706	0.900	0.134	1.000	0.134
					Sum (F) =	0.134

Area averaged mean soil loss (F) (In/Hr) = 0.134
Minimum soil loss rate ((In/Hr)) = 0.067
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
			Sum = 100.000	Sum= 67.624

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.014	(0.238)	0.001	0.013
2	0.17	0.07	0.014	(0.237)	0.001	0.013
3	0.25	0.07	0.014	(0.236)	0.001	0.013
4	0.33	0.10	0.021	(0.235)	0.002	0.019
5	0.42	0.10	0.021	(0.234)	0.002	0.019
6	0.50	0.10	0.021	(0.233)	0.002	0.019
7	0.58	0.10	0.021	(0.232)	0.002	0.019
8	0.67	0.10	0.021	(0.231)	0.002	0.019
9	0.75	0.10	0.021	(0.230)	0.002	0.019
10	0.83	0.13	0.028	(0.230)	0.003	0.025
11	0.92	0.13	0.028	(0.229)	0.003	0.025
12	1.00	0.13	0.028	(0.228)	0.003	0.025
13	1.08	0.10	0.021	(0.227)	0.002	0.019
14	1.17	0.10	0.021	(0.226)	0.002	0.019
15	1.25	0.10	0.021	(0.225)	0.002	0.019
16	1.33	0.10	0.021	(0.224)	0.002	0.019
17	1.42	0.10	0.021	(0.223)	0.002	0.019
18	1.50	0.10	0.021	(0.222)	0.002	0.019
19	1.58	0.10	0.021	(0.222)	0.002	0.019
20	1.67	0.10	0.021	(0.221)	0.002	0.019
21	1.75	0.10	0.021	(0.220)	0.002	0.019
22	1.83	0.13	0.028	(0.219)	0.003	0.025
23	1.92	0.13	0.028	(0.218)	0.003	0.025
24	2.00	0.13	0.028	(0.217)	0.003	0.025
25	2.08	0.13	0.028	(0.216)	0.003	0.025
26	2.17	0.13	0.028	(0.215)	0.003	0.025
27	2.25	0.13	0.028	(0.214)	0.003	0.025
28	2.33	0.13	0.028	(0.214)	0.003	0.025
29	2.42	0.13	0.028	(0.213)	0.003	0.025
30	2.50	0.13	0.028	(0.212)	0.003	0.025
31	2.58	0.17	0.035	(0.211)	0.003	0.031
32	2.67	0.17	0.035	(0.210)	0.003	0.031
33	2.75	0.17	0.035	(0.209)	0.003	0.031
34	2.83	0.17	0.035	(0.208)	0.003	0.031
35	2.92	0.17	0.035	(0.208)	0.003	0.031
36	3.00	0.17	0.035	(0.207)	0.003	0.031
37	3.08	0.17	0.035	(0.206)	0.003	0.031
38	3.17	0.17	0.035	(0.205)	0.003	0.031
39	3.25	0.17	0.035	(0.204)	0.003	0.031
40	3.33	0.17	0.035	(0.203)	0.003	0.031
41	3.42	0.17	0.035	(0.202)	0.003	0.031
42	3.50	0.17	0.035	(0.202)	0.003	0.031
43	3.58	0.17	0.035	(0.201)	0.003	0.031
44	3.67	0.17	0.035	(0.200)	0.003	0.031
45	3.75	0.17	0.035	(0.199)	0.003	0.031
46	3.83	0.20	0.042	(0.198)	0.004	0.038

47	3.92	0.20	0.042	(0.197)	0.004	0.038
48	4.00	0.20	0.042	(0.197)	0.004	0.038
49	4.08	0.20	0.042	(0.196)	0.004	0.038
50	4.17	0.20	0.042	(0.195)	0.004	0.038
51	4.25	0.20	0.042	(0.194)	0.004	0.038
52	4.33	0.23	0.049	(0.193)	0.005	0.044
53	4.42	0.23	0.049	(0.192)	0.005	0.044
54	4.50	0.23	0.049	(0.192)	0.005	0.044
55	4.58	0.23	0.049	(0.191)	0.005	0.044
56	4.67	0.23	0.049	(0.190)	0.005	0.044
57	4.75	0.23	0.049	(0.189)	0.005	0.044
58	4.83	0.27	0.056	(0.188)	0.006	0.050
59	4.92	0.27	0.056	(0.187)	0.006	0.050
60	5.00	0.27	0.056	(0.187)	0.006	0.050
61	5.08	0.20	0.042	(0.186)	0.004	0.038
62	5.17	0.20	0.042	(0.185)	0.004	0.038
63	5.25	0.20	0.042	(0.184)	0.004	0.038
64	5.33	0.23	0.049	(0.183)	0.005	0.044
65	5.42	0.23	0.049	(0.183)	0.005	0.044
66	5.50	0.23	0.049	(0.182)	0.005	0.044
67	5.58	0.27	0.056	(0.181)	0.006	0.050
68	5.67	0.27	0.056	(0.180)	0.006	0.050
69	5.75	0.27	0.056	(0.179)	0.006	0.050
70	5.83	0.27	0.056	(0.179)	0.006	0.050
71	5.92	0.27	0.056	(0.178)	0.006	0.050
72	6.00	0.27	0.056	(0.177)	0.006	0.050
73	6.08	0.30	0.063	(0.176)	0.006	0.057
74	6.17	0.30	0.063	(0.175)	0.006	0.057
75	6.25	0.30	0.063	(0.175)	0.006	0.057
76	6.33	0.30	0.063	(0.174)	0.006	0.057
77	6.42	0.30	0.063	(0.173)	0.006	0.057
78	6.50	0.30	0.063	(0.172)	0.006	0.057
79	6.58	0.33	0.070	(0.172)	0.007	0.063
80	6.67	0.33	0.070	(0.171)	0.007	0.063
81	6.75	0.33	0.070	(0.170)	0.007	0.063
82	6.83	0.33	0.070	(0.169)	0.007	0.063
83	6.92	0.33	0.070	(0.169)	0.007	0.063
84	7.00	0.33	0.070	(0.168)	0.007	0.063
85	7.08	0.33	0.070	(0.167)	0.007	0.063
86	7.17	0.33	0.070	(0.166)	0.007	0.063
87	7.25	0.33	0.070	(0.165)	0.007	0.063
88	7.33	0.37	0.077	(0.165)	0.008	0.069
89	7.42	0.37	0.077	(0.164)	0.008	0.069
90	7.50	0.37	0.077	(0.163)	0.008	0.069
91	7.58	0.40	0.084	(0.162)	0.008	0.076
92	7.67	0.40	0.084	(0.162)	0.008	0.076
93	7.75	0.40	0.084	(0.161)	0.008	0.076
94	7.83	0.43	0.091	(0.160)	0.009	0.082
95	7.92	0.43	0.091	(0.159)	0.009	0.082
96	8.00	0.43	0.091	(0.159)	0.009	0.082
97	8.08	0.50	0.105	(0.158)	0.010	0.094
98	8.17	0.50	0.105	(0.157)	0.010	0.094
99	8.25	0.50	0.105	(0.157)	0.010	0.094
100	8.33	0.50	0.105	(0.156)	0.010	0.094
101	8.42	0.50	0.105	(0.155)	0.010	0.094
102	8.50	0.50	0.105	(0.154)	0.010	0.094
103	8.58	0.53	0.112	(0.154)	0.011	0.101
104	8.67	0.53	0.112	(0.153)	0.011	0.101
105	8.75	0.53	0.112	(0.152)	0.011	0.101
106	8.83	0.57	0.119	(0.151)	0.012	0.107
107	8.92	0.57	0.119	(0.151)	0.012	0.107
108	9.00	0.57	0.119	(0.150)	0.012	0.107
109	9.08	0.63	0.133	(0.149)	0.013	0.120
110	9.17	0.63	0.133	(0.149)	0.013	0.120
111	9.25	0.63	0.133	(0.148)	0.013	0.120
112	9.33	0.67	0.140	(0.147)	0.014	0.126
113	9.42	0.67	0.140	(0.147)	0.014	0.126
114	9.50	0.67	0.140	(0.146)	0.014	0.126
115	9.58	0.70	0.147	(0.145)	0.015	0.132
116	9.67	0.70	0.147	(0.144)	0.015	0.132
117	9.75	0.70	0.147	(0.144)	0.015	0.132
118	9.83	0.73	0.154	(0.143)	0.015	0.139
119	9.92	0.73	0.154	(0.142)	0.015	0.139
120	10.00	0.73	0.154	(0.142)	0.015	0.139
121	10.08	0.50	0.105	(0.141)	0.010	0.094
122	10.17	0.50	0.105	(0.140)	0.010	0.094
123	10.25	0.50	0.105	(0.140)	0.010	0.094

124	10.33	0.50	0.105	(0.139)	0.010	0.094
125	10.42	0.50	0.105	(0.138)	0.010	0.094
126	10.50	0.50	0.105	(0.138)	0.010	0.094
127	10.58	0.67	0.140	(0.137)	0.014	0.126
128	10.67	0.67	0.140	(0.136)	0.014	0.126
129	10.75	0.67	0.140	(0.136)	0.014	0.126
130	10.83	0.67	0.140	(0.135)	0.014	0.126
131	10.92	0.67	0.140	(0.134)	0.014	0.126
132	11.00	0.67	0.140	(0.134)	0.014	0.126
133	11.08	0.63	0.133	(0.133)	0.013	0.120
134	11.17	0.63	0.133	(0.132)	0.013	0.120
135	11.25	0.63	0.133	(0.132)	0.013	0.120
136	11.33	0.63	0.133	(0.131)	0.013	0.120
137	11.42	0.63	0.133	(0.130)	0.013	0.120
138	11.50	0.63	0.133	(0.130)	0.013	0.120
139	11.58	0.57	0.119	(0.129)	0.012	0.107
140	11.67	0.57	0.119	(0.128)	0.012	0.107
141	11.75	0.57	0.119	(0.128)	0.012	0.107
142	11.83	0.60	0.126	(0.127)	0.013	0.113
143	11.92	0.60	0.126	(0.126)	0.013	0.113
144	12.00	0.60	0.126	(0.126)	0.013	0.113
145	12.08	0.83	0.175	(0.125)	0.017	0.157
146	12.17	0.83	0.175	(0.125)	0.017	0.157
147	12.25	0.83	0.175	(0.124)	0.017	0.157
148	12.33	0.87	0.182	(0.123)	0.018	0.164
149	12.42	0.87	0.182	(0.123)	0.018	0.164
150	12.50	0.87	0.182	(0.122)	0.018	0.164
151	12.58	0.93	0.196	(0.121)	0.020	0.176
152	12.67	0.93	0.196	(0.121)	0.020	0.176
153	12.75	0.93	0.196	(0.120)	0.020	0.176
154	12.83	0.97	0.203	(0.120)	0.020	0.183
155	12.92	0.97	0.203	(0.119)	0.020	0.183
156	13.00	0.97	0.203	(0.118)	0.020	0.183
157	13.08	1.13	0.238	(0.118)	0.024	0.214
158	13.17	1.13	0.238	(0.117)	0.024	0.214
159	13.25	1.13	0.238	(0.117)	0.024	0.214
160	13.33	1.13	0.238	(0.116)	0.024	0.214
161	13.42	1.13	0.238	(0.115)	0.024	0.214
162	13.50	1.13	0.238	(0.115)	0.024	0.214
163	13.58	0.77	0.161	(0.114)	0.016	0.145
164	13.67	0.77	0.161	(0.114)	0.016	0.145
165	13.75	0.77	0.161	(0.113)	0.016	0.145
166	13.83	0.77	0.161	(0.113)	0.016	0.145
167	13.92	0.77	0.161	(0.112)	0.016	0.145
168	14.00	0.77	0.161	(0.111)	0.016	0.145
169	14.08	0.90	0.189	(0.111)	0.019	0.170
170	14.17	0.90	0.189	(0.110)	0.019	0.170
171	14.25	0.90	0.189	(0.110)	0.019	0.170
172	14.33	0.87	0.182	(0.109)	0.018	0.164
173	14.42	0.87	0.182	(0.109)	0.018	0.164
174	14.50	0.87	0.182	(0.108)	0.018	0.164
175	14.58	0.87	0.182	(0.107)	0.018	0.164
176	14.67	0.87	0.182	(0.107)	0.018	0.164
177	14.75	0.87	0.182	(0.106)	0.018	0.164
178	14.83	0.83	0.175	(0.106)	0.017	0.157
179	14.92	0.83	0.175	(0.105)	0.017	0.157
180	15.00	0.83	0.175	(0.105)	0.017	0.157
181	15.08	0.80	0.168	(0.104)	0.017	0.151
182	15.17	0.80	0.168	(0.104)	0.017	0.151
183	15.25	0.80	0.168	(0.103)	0.017	0.151
184	15.33	0.77	0.161	(0.103)	0.016	0.145
185	15.42	0.77	0.161	(0.102)	0.016	0.145
186	15.50	0.77	0.161	(0.102)	0.016	0.145
187	15.58	0.63	0.133	(0.101)	0.013	0.120
188	15.67	0.63	0.133	(0.101)	0.013	0.120
189	15.75	0.63	0.133	(0.100)	0.013	0.120
190	15.83	0.63	0.133	(0.100)	0.013	0.120
191	15.92	0.63	0.133	(0.099)	0.013	0.120
192	16.00	0.63	0.133	(0.099)	0.013	0.120
193	16.08	0.13	0.028	(0.098)	0.003	0.025
194	16.17	0.13	0.028	(0.098)	0.003	0.025
195	16.25	0.13	0.028	(0.097)	0.003	0.025
196	16.33	0.13	0.028	(0.097)	0.003	0.025
197	16.42	0.13	0.028	(0.096)	0.003	0.025
198	16.50	0.13	0.028	(0.096)	0.003	0.025
199	16.58	0.10	0.021	(0.095)	0.002	0.019
200	16.67	0.10	0.021	(0.095)	0.002	0.019

201	16.75	0.10	0.021	(0.094)	0.002	0.019
202	16.83	0.10	0.021	(0.094)	0.002	0.019
203	16.92	0.10	0.021	(0.093)	0.002	0.019
204	17.00	0.10	0.021	(0.093)	0.002	0.019
205	17.08	0.17	0.035	(0.092)	0.003	0.031
206	17.17	0.17	0.035	(0.092)	0.003	0.031
207	17.25	0.17	0.035	(0.091)	0.003	0.031
208	17.33	0.17	0.035	(0.091)	0.003	0.031
209	17.42	0.17	0.035	(0.090)	0.003	0.031
210	17.50	0.17	0.035	(0.090)	0.003	0.031
211	17.58	0.17	0.035	(0.089)	0.003	0.031
212	17.67	0.17	0.035	(0.089)	0.003	0.031
213	17.75	0.17	0.035	(0.089)	0.003	0.031
214	17.83	0.13	0.028	(0.088)	0.003	0.025
215	17.92	0.13	0.028	(0.088)	0.003	0.025
216	18.00	0.13	0.028	(0.087)	0.003	0.025
217	18.08	0.13	0.028	(0.087)	0.003	0.025
218	18.17	0.13	0.028	(0.086)	0.003	0.025
219	18.25	0.13	0.028	(0.086)	0.003	0.025
220	18.33	0.13	0.028	(0.086)	0.003	0.025
221	18.42	0.13	0.028	(0.085)	0.003	0.025
222	18.50	0.13	0.028	(0.085)	0.003	0.025
223	18.58	0.10	0.021	(0.084)	0.002	0.019
224	18.67	0.10	0.021	(0.084)	0.002	0.019
225	18.75	0.10	0.021	(0.084)	0.002	0.019
226	18.83	0.07	0.014	(0.083)	0.001	0.013
227	18.92	0.07	0.014	(0.083)	0.001	0.013
228	19.00	0.07	0.014	(0.082)	0.001	0.013
229	19.08	0.10	0.021	(0.082)	0.002	0.019
230	19.17	0.10	0.021	(0.082)	0.002	0.019
231	19.25	0.10	0.021	(0.081)	0.002	0.019
232	19.33	0.13	0.028	(0.081)	0.003	0.025
233	19.42	0.13	0.028	(0.080)	0.003	0.025
234	19.50	0.13	0.028	(0.080)	0.003	0.025
235	19.58	0.10	0.021	(0.080)	0.002	0.019
236	19.67	0.10	0.021	(0.079)	0.002	0.019
237	19.75	0.10	0.021	(0.079)	0.002	0.019
238	19.83	0.07	0.014	(0.079)	0.001	0.013
239	19.92	0.07	0.014	(0.078)	0.001	0.013
240	20.00	0.07	0.014	(0.078)	0.001	0.013
241	20.08	0.10	0.021	(0.078)	0.002	0.019
242	20.17	0.10	0.021	(0.077)	0.002	0.019
243	20.25	0.10	0.021	(0.077)	0.002	0.019
244	20.33	0.10	0.021	(0.077)	0.002	0.019
245	20.42	0.10	0.021	(0.076)	0.002	0.019
246	20.50	0.10	0.021	(0.076)	0.002	0.019
247	20.58	0.10	0.021	(0.076)	0.002	0.019
248	20.67	0.10	0.021	(0.075)	0.002	0.019
249	20.75	0.10	0.021	(0.075)	0.002	0.019
250	20.83	0.07	0.014	(0.075)	0.001	0.013
251	20.92	0.07	0.014	(0.074)	0.001	0.013
252	21.00	0.07	0.014	(0.074)	0.001	0.013
253	21.08	0.10	0.021	(0.074)	0.002	0.019
254	21.17	0.10	0.021	(0.073)	0.002	0.019
255	21.25	0.10	0.021	(0.073)	0.002	0.019
256	21.33	0.07	0.014	(0.073)	0.001	0.013
257	21.42	0.07	0.014	(0.073)	0.001	0.013
258	21.50	0.07	0.014	(0.072)	0.001	0.013
259	21.58	0.10	0.021	(0.072)	0.002	0.019
260	21.67	0.10	0.021	(0.072)	0.002	0.019
261	21.75	0.10	0.021	(0.072)	0.002	0.019
262	21.83	0.07	0.014	(0.071)	0.001	0.013
263	21.92	0.07	0.014	(0.071)	0.001	0.013
264	22.00	0.07	0.014	(0.071)	0.001	0.013
265	22.08	0.10	0.021	(0.071)	0.002	0.019
266	22.17	0.10	0.021	(0.070)	0.002	0.019
267	22.25	0.10	0.021	(0.070)	0.002	0.019
268	22.33	0.07	0.014	(0.070)	0.001	0.013
269	22.42	0.07	0.014	(0.070)	0.001	0.013
270	22.50	0.07	0.014	(0.069)	0.001	0.013
271	22.58	0.07	0.014	(0.069)	0.001	0.013
272	22.67	0.07	0.014	(0.069)	0.001	0.013
273	22.75	0.07	0.014	(0.069)	0.001	0.013
274	22.83	0.07	0.014	(0.069)	0.001	0.013
275	22.92	0.07	0.014	(0.069)	0.001	0.013
276	23.00	0.07	0.014	(0.068)	0.001	0.013
277	23.08	0.07	0.014	(0.068)	0.001	0.013

278	23.17	0.07	0.014	(0.068)	0.001	0.013
279	23.25	0.07	0.014	(0.068)	0.001	0.013
280	23.33	0.07	0.014	(0.068)	0.001	0.013
281	23.42	0.07	0.014	(0.068)	0.001	0.013
282	23.50	0.07	0.014	(0.068)	0.001	0.013
283	23.58	0.07	0.014	(0.067)	0.001	0.013
284	23.67	0.07	0.014	(0.067)	0.001	0.013
285	23.75	0.07	0.014	(0.067)	0.001	0.013
286	23.83	0.07	0.014	(0.067)	0.001	0.013
287	23.92	0.07	0.014	(0.067)	0.001	0.013
288	24.00	0.07	0.014	(0.067)	0.001	0.013

(Loss Rate Not Used)

Sum = 100.0 Sum = 18.9

Flood volume = Effective rainfall 1.57(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 8.8(Ac.Ft)
Total soil loss = 0.17(In)
Total soil loss = 0.978(Ac.Ft)
Total rainfall = 1.75(In)
Flood volume = 383577.2 Cubic Feet
Total soil loss = 42619.7 Cubic Feet

Peak flow rate of this hydrograph = 14.434(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	0.0012	0.18	Q				
0+10	0.0053	0.59	VQ				
0+15	0.0102	0.72	VQ				
0+20	0.0162	0.86	VQ				
0+25	0.0238	1.10	V Q				
0+30	0.0320	1.19	V Q				
0+35	0.0404	1.23	V Q				
0+40	0.0491	1.26	V Q				
0+45	0.0578	1.27	V Q				
0+50	0.0672	1.36	V Q				
0+55	0.0780	1.57	V Q				
1+ 0	0.0893	1.64	V Q				
1+ 5	0.1002	1.58	V Q				
1+10	0.1098	1.39	V Q				
1+15	0.1189	1.33	V Q				
1+20	0.1280	1.31	V Q				
1+25	0.1369	1.30	V Q				
1+30	0.1458	1.29	V Q				
1+35	0.1547	1.28	V Q				
1+40	0.1635	1.28	V Q				
1+45	0.1723	1.28	V Q				
1+50	0.1817	1.37	V Q				
1+55	0.1925	1.57	V Q				
2+ 0	0.2038	1.64	V Q				
2+ 5	0.2153	1.67	V Q				
2+10	0.2269	1.68	|V Q				
2+15	0.2385	1.69	|V Q				
2+20	0.2502	1.70	|V Q				
2+25	0.2620	1.70	|V Q				
2+30	0.2737	1.70	|V Q				
2+35	0.2861	1.79	|V Q				
2+40	0.2998	2.00	|V Q				
2+45	0.3140	2.06	|V Q				
2+50	0.3285	2.09	|V Q				
2+55	0.3430	2.11	|V Q				
3+ 0	0.3576	2.12	|V Q				
3+ 5	0.3722	2.13	|V Q				
3+10	0.3869	2.13	|V Q				
3+15	0.4016	2.13	|V Q				
3+20	0.4163	2.13	|V Q				
3+25	0.4309	2.13	|V Q				
3+30	0.4456	2.13	| V Q				
3+35	0.4603	2.13	| V Q				
3+40	0.4750	2.13	| V Q				
3+45	0.4896	2.13	| V Q				

3+50	0.5049	2.22	V Q				
3+55	0.5216	2.43	V Q				
4+ 0	0.5388	2.49	V Q				
4+ 5	0.5561	2.52	V Q				
4+10	0.5736	2.54	V Q				
4+15	0.5911	2.55	V Q				
4+20	0.6093	2.64	V Q				
4+25	0.6290	2.85	V Q				
4+30	0.6490	2.92	V Q				
4+35	0.6693	2.95	V Q				
4+40	0.6897	2.96	V Q				
4+45	0.7102	2.97	V Q				
4+50	0.7313	3.07	V Q				
4+55	0.7539	3.28	V Q				
5+ 0	0.7769	3.34	V Q				
5+ 5	0.7989	3.20	V Q				
5+10	0.8182	2.80	V Q				
5+15	0.8366	2.68	V Q				
5+20	0.8553	2.72	V Q				
5+25	0.8753	2.90	V Q				
5+30	0.8955	2.94	VQ				
5+35	0.9165	3.04	V Q				
5+40	0.9389	3.26	V Q				
5+45	0.9619	3.33	V Q				
5+50	0.9850	3.37	V Q				
5+55	1.0084	3.39	V Q				
6+ 0	1.0318	3.40	V Q				
6+ 5	1.0558	3.49	V Q				
6+10	1.0813	3.70	V Q				
6+15	1.1073	3.77	V Q				
6+20	1.1335	3.80	V Q				
6+25	1.1597	3.81	V Q				
6+30	1.1861	3.82	V Q				
6+35	1.2130	3.92	V Q				
6+40	1.2415	4.13	V Q				
6+45	1.2704	4.19	V Q				
6+50	1.2995	4.22	V Q				
6+55	1.3287	4.24	V Q				
7+ 0	1.3580	4.25	V Q				
7+ 5	1.3873	4.26	V Q				
7+10	1.4166	4.26	V Q				
7+15	1.4460	4.26	V Q				
7+20	1.4759	4.35	V Q				
7+25	1.5073	4.56	V Q				
7+30	1.5392	4.62	V Q				
7+35	1.5718	4.74	V Q				
7+40	1.6060	4.96	V Q				
7+45	1.6406	5.04	V Q				
7+50	1.6762	5.16	V Q				
7+55	1.7133	5.39	V Q				
8+ 0	1.7509	5.46	V Q				
8+ 5	1.7900	5.67	V Q				
8+10	1.8320	6.11	V Q				
8+15	1.8751	6.25	V Q				
8+20	1.9185	6.31	V Q				
8+25	1.9623	6.35	V Q				
8+30	2.0061	6.37	V Q				
8+35	2.0507	6.47	V Q				
8+40	2.0968	6.69	V Q				
8+45	2.1433	6.75	V Q				
8+50	2.1906	6.87	V Q				
8+55	2.2394	7.09	V Q				
9+ 0	2.2888	7.17	V Q				
9+ 5	2.3396	7.38	V Q				
9+10	2.3934	7.81	V Q				
9+15	2.4482	7.95	V Q				
9+20	2.5040	8.10	V Q				
9+25	2.5615	8.35	V Q				
9+30	2.6196	8.43	V Q				
9+35	2.6786	8.56	V Q				
9+40	2.7391	8.80	V Q				
9+45	2.8002	8.87	V Q				
9+50	2.8622	8.99	V Q				
9+55	2.9257	9.22	V Q				
10+ 0	2.9898	9.30	V Q				
10+ 5	3.0498	8.72	V Q				
10+10	3.1000	7.29	Q				

10+15	3.1472	6.85		QV			
10+20	3.1930	6.65		QV			
10+25	3.2381	6.55		QV			
10+30	3.2826	6.47		Q V			
10+35	3.3299	6.87		Q V			
10+40	3.3841	7.87		Q			
10+45	3.4405	8.19		VQ			
10+50	3.4979	8.33		VQ			
10+55	3.5559	8.42		Q			
11+ 0	3.6142	8.47		Q			
11+ 5	3.6721	8.41		Q			
11+10	3.7288	8.23		Q			
11+15	3.7850	8.16		QV			
11+20	3.8411	8.14		QV			
11+25	3.8970	8.12		QV			
11+30	3.9528	8.11		QV			
11+35	4.0074	7.93		Q V			
11+40	4.0591	7.51		Q V			
11+45	4.1099	7.38		Q V			
11+50	4.1610	7.41		Q V			
11+55	4.2132	7.58		Q V			
12+ 0	4.2657	7.63		Q V			
12+ 5	4.3226	8.26		Q V			
12+10	4.3895	9.72		Q			
12+15	4.4596	10.17		Q			
12+20	4.5317	10.47		Q			
12+25	4.6061	10.80		VQ			
12+30	4.6814	10.93		Q			
12+35	4.7584	11.18		VQ			
12+40	4.8387	11.65		V Q			
12+45	4.9198	11.79		VQ			
12+50	5.0021	11.94		VQ			
12+55	5.0860	12.19		VQ			
13+ 0	5.1705	12.27		VQ			
13+ 5	5.2583	12.75		V Q			
13+10	5.3535	13.81		V Q			
13+15	5.4509	14.14		V Q			
13+20	5.5493	14.30		V Q			
13+25	5.6484	14.38		V Q			
13+30	5.7478	14.43		V Q			
13+35	5.8407	13.50		Q			
13+40	5.9182	11.24		Q V			
13+45	5.9908	10.54		Q V			
13+50	6.0611	10.22		Q V			
13+55	6.1303	10.04		Q V			
14+ 0	6.1987	9.93		Q V			
14+ 5	6.2690	10.21		Q V			
14+10	6.3446	10.98		Q V			
14+15	6.4220	11.24		Q V			
14+20	6.4996	11.27		Q V			
14+25	6.5763	11.12		Q V			
14+30	6.6527	11.10		Q V			
14+35	6.7292	11.10		Q V			
14+40	6.8056	11.10		Q V			
14+45	6.8820	11.09		Q V			
14+50	6.9578	11.00		Q V			
14+55	7.0321	10.79		Q V			
15+ 0	7.1059	10.72		Q V			
15+ 5	7.1789	10.61		Q V			
15+10	7.2504	10.38		Q V			
15+15	7.3214	10.31		Q V			
15+20	7.3916	10.18		Q V			
15+25	7.4601	9.96		Q V			
15+30	7.5282	9.88		Q V			
15+35	7.5936	9.49		Q V			
15+40	7.6531	8.64		Q V			
15+45	7.7108	8.38		Q V			
15+50	7.7676	8.25		Q V			
15+55	7.8240	8.18		Q V			
16+ 0	7.8801	8.14		Q V			
16+ 5	7.9269	6.80		Q V			
16+10	7.9522	3.67	Q	V			
16+15	7.9708	2.71	Q	V			
16+20	7.9865	2.27	Q	V			
16+25	8.0005	2.03	Q	V			
16+30	8.0134	1.88	Q	V			
16+35	8.0251	1.69	Q	V			

16+40	8.0348	1.41	Q			V	
16+45	8.0441	1.35	Q			V	
16+50	8.0531	1.32	Q			V	
16+55	8.0621	1.30	Q			V	
17+ 0	8.0710	1.29	Q			V	
17+ 5	8.0810	1.46	Q			V	
17+10	8.0939	1.87	Q			V	
17+15	8.1076	2.00	Q			V	
17+20	8.1218	2.06	Q			V	
17+25	8.1362	2.09	Q			V	
17+30	8.1507	2.11	Q			V	
17+35	8.1653	2.12	Q			V	
17+40	8.1800	2.13	Q			V	
17+45	8.1946	2.13	Q			V	
17+50	8.2087	2.04	Q			V	
17+55	8.2214	1.84	Q			V	
18+ 0	8.2336	1.77	Q			V	
18+ 5	8.2456	1.74	Q			V	
18+10	8.2575	1.73	Q			V	
18+15	8.2693	1.72	Q			V	
18+20	8.2810	1.71	Q			V	
18+25	8.2928	1.70	Q			V	
18+30	8.3045	1.70	Q			V	
18+35	8.3157	1.62	Q			V	
18+40	8.3254	1.41	Q			V	
18+45	8.3346	1.35	Q			V	
18+50	8.3431	1.23	Q			V	
18+55	8.3500	1.01	Q			V	
19+ 0	8.3564	0.93	Q			V	
19+ 5	8.3632	0.98	Q			V	
19+10	8.3713	1.17	Q			V	
19+15	8.3797	1.22	Q			V	
19+20	8.3889	1.33	Q			V	
19+25	8.3996	1.55	Q			V	
19+30	8.4108	1.63	Q			V	
19+35	8.4216	1.57	Q			V	
19+40	8.4312	1.39	Q			V	
19+45	8.4403	1.33	Q			V	
19+50	8.4488	1.22	Q			V	
19+55	8.4557	1.01	Q			V	
20+ 0	8.4621	0.93	Q			V	
20+ 5	8.4689	0.98	Q			V	
20+10	8.4769	1.17	Q			V	
20+15	8.4854	1.22	Q			V	
20+20	8.4939	1.25	Q			V	
20+25	8.5026	1.26	Q			V	
20+30	8.5113	1.27	Q			V	
20+35	8.5201	1.27	Q			V	
20+40	8.5289	1.28	Q			V	
20+45	8.5377	1.28	Q			V	
20+50	8.5459	1.19	Q			V	
20+55	8.5527	0.98	Q			V	
21+ 0	8.5590	0.92	Q			V	
21+ 5	8.5657	0.98	Q			V	
21+10	8.5738	1.17	Q			V	
21+15	8.5822	1.22	Q			V	
21+20	8.5902	1.16	Q			V	
21+25	8.5968	0.96	Q			V	
21+30	8.6031	0.91	Q			V	
21+35	8.6098	0.97	Q			V	
21+40	8.6178	1.17	Q			V	
21+45	8.6262	1.22	Q			V	
21+50	8.6342	1.16	Q			V	
21+55	8.6408	0.96	Q			V	
22+ 0	8.6471	0.91	Q			V	
22+ 5	8.6538	0.97	Q			V	
22+10	8.6619	1.17	Q			V	
22+15	8.6703	1.22	Q			V	
22+20	8.6782	1.16	Q			V	
22+25	8.6849	0.96	Q			V	
22+30	8.6911	0.91	Q			V	
22+35	8.6972	0.89	Q			V	
22+40	8.7032	0.87	Q			V	
22+45	8.7092	0.86	Q			V	
22+50	8.7151	0.86	Q			V	
22+55	8.7210	0.85	Q			V	
23+ 0	8.7268	0.85	Q			V	

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   23+ 5       8.7327      0.85  |Q        |         |         |        V|
   23+10       8.7386      0.85  |Q        |         |         |        V|
   23+15       8.7444      0.85  |Q        |         |         |        V|
   23+20       8.7503      0.85  |Q        |         |         |        V|
   23+25       8.7562      0.85  |Q        |         |         |        V|
   23+30       8.7621      0.85  |Q        |         |         |        V|
   23+35       8.7679      0.85  |Q        |         |         |        V|
   23+40       8.7738      0.85  |Q        |         |         |        V|
   23+45       8.7797      0.85  |Q        |         |         |        V|
   23+50       8.7855      0.85  |Q        |         |         |        V|
   23+55       8.7914      0.85  |Q        |         |         |        V|
   24+ 0       8.7973      0.85  |Q        |         |         |        V|
   24+ 5       8.8019      0.68  |Q        |         |         |        V|
   24+10       8.8037      0.26  Q         |         |         |        V|
   24+15       8.8047      0.13  Q         |         |         |        V|
   24+20       8.8052      0.08  Q         |         |         |        V|
   24+25       8.8055      0.04  Q         |         |         |        V|
   24+30       8.8056      0.02  Q         |         |         |        V|
   24+35       8.8057      0.01  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 07/31/20 File: 3828PR515.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 5-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.50	33.55

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.20	80.52

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.500(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.664(In)
Areal adjustment factor = 99.94 %
Adjusted average point rain = 0.664(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	36.0	0.706	0.900	0.134	1.000	0.134
					Sum (F) =	0.134

Area averaged mean soil loss (F) (In/Hr) = 0.134
Minimum soil loss rate ((In/Hr)) = 0.067
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.334	(0.134)	0.033	0.301
2	0.17	4.30	0.342	(0.134)	0.034	0.308
3	0.25	5.00	0.398	(0.134)	0.040	0.358
4	0.33	5.00	0.398	(0.134)	0.040	0.358
5	0.42	5.80	0.462	(0.134)	0.046	0.416
6	0.50	6.50	0.518	(0.134)	0.052	0.466
7	0.58	7.40	0.589	(0.134)	0.059	0.530
8	0.67	8.60	0.685	(0.134)	0.068	0.616
9	0.75	12.30	0.979	(0.134)	0.098	0.881
10	0.83	29.10	2.317	0.134	(0.232)	2.183
11	0.92	6.80	0.541	(0.134)	0.054	0.487
12	1.00	5.00	0.398	(0.134)	0.040	0.358
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	7.3

Flood volume = Effective rainfall 0.61(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 3.4(Ac.Ft)
Total soil loss = 0.06(In)
Total soil loss = 0.326(Ac.Ft)
Total rainfall = 0.66(In)
Flood volume = 147441.8 Cubic Feet
Total soil loss = 14181.9 Cubic Feet

Peak flow rate of this hydrograph = 93.308(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	25.0	50.0	75.0	100.0
0+ 5	0.0289	4.20	VQ				
0+10	0.1268	14.21	V Q				
0+15	0.2521	18.20	V Q				
0+20	0.3989	21.31	V Q				
0+25	0.5602	23.43	V Q				
0+30	0.7445	26.76	V Q				
0+35	0.9534	30.33	VQ				
0+40	1.1928	34.76	QV				
0+45	1.4847	42.38	QV				
0+50	1.9716	70.70	V Q				
0+55	2.6142	93.31	V Q				

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                                                                3828PR515
    1+ 0       2.9620     50.50  |         |         Q         |    V    |
    1+ 5       3.1755     31.00  |         | Q       |         |      V  |
    1+10       3.2719     13.99  |    Q    |         |         |       V |
    1+15       3.3262      7.88  |  Q      |         |         |        V|
    1+20       3.3579      4.61  |Q        |         |         |        V|
    1+25       3.3776      2.86  |Q        |         |         |        V|
    1+30       3.3828      0.75  Q         |         |         |        V|
    1+35       3.3848      0.29  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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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 5-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.80	53.68

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.86	124.81

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 1.048(In)
Areal adjustment factor = 99.97 %
Adjusted average point rain = 1.048(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	36.0	0.706	0.900	0.134	1.000	0.134
					Sum (F) =	0.134

Area averaged mean soil loss (F) (In/Hr) = 0.134
Minimum soil loss rate ((In/Hr)) = 0.067
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
			Sum = 100.000	Sum= 67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.163	(0.134)	0.016	0.147
2	0.17	1.30	0.163	(0.134)	0.016	0.147
3	0.25	1.10	0.138	(0.134)	0.014	0.124
4	0.33	1.50	0.189	(0.134)	0.019	0.170
5	0.42	1.50	0.189	(0.134)	0.019	0.170
6	0.50	1.80	0.226	(0.134)	0.023	0.204
7	0.58	1.50	0.189	(0.134)	0.019	0.170
8	0.67	1.80	0.226	(0.134)	0.023	0.204
9	0.75	1.80	0.226	(0.134)	0.023	0.204
10	0.83	1.50	0.189	(0.134)	0.019	0.170
11	0.92	1.60	0.201	(0.134)	0.020	0.181
12	1.00	1.80	0.226	(0.134)	0.023	0.204
13	1.08	2.20	0.277	(0.134)	0.028	0.249
14	1.17	2.20	0.277	(0.134)	0.028	0.249
15	1.25	2.20	0.277	(0.134)	0.028	0.249
16	1.33	2.00	0.252	(0.134)	0.025	0.226
17	1.42	2.60	0.327	(0.134)	0.033	0.294
18	1.50	2.70	0.340	(0.134)	0.034	0.306
19	1.58	2.40	0.302	(0.134)	0.030	0.272
20	1.67	2.70	0.340	(0.134)	0.034	0.306
21	1.75	3.30	0.415	(0.134)	0.041	0.373
22	1.83	3.10	0.390	(0.134)	0.039	0.351
23	1.92	2.90	0.365	(0.134)	0.036	0.328
24	2.00	3.00	0.377	(0.134)	0.038	0.340
25	2.08	3.10	0.390	(0.134)	0.039	0.351
26	2.17	4.20	0.528	(0.134)	0.053	0.475
27	2.25	5.00	0.629	(0.134)	0.063	0.566
28	2.33	3.50	0.440	(0.134)	0.044	0.396
29	2.42	6.80	0.855	(0.134)	0.086	0.770
30	2.50	7.30	0.918	(0.134)	0.092	0.826
31	2.58	8.20	1.031	(0.134)	0.103	0.928
32	2.67	5.90	0.742	(0.134)	0.074	0.668
33	2.75	2.00	0.252	(0.134)	0.025	0.226
34	2.83	1.80	0.226	(0.134)	0.023	0.204
35	2.92	1.80	0.226	(0.134)	0.023	0.204
36	3.00	0.60	0.075	(0.134)	0.008	0.068
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	11.3

Flood volume = Effective rainfall 0.94(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 5.3(Ac.Ft)
Total soil loss = 0.10(In)
Total soil loss = 0.586(Ac.Ft)
Total rainfall = 1.05(In)
Flood volume = 229731.5 Cubic Feet
Total soil loss = 25525.7 Cubic Feet

Peak flow rate of this hydrograph = 54.514(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 15.0 30.0 45.0 60.0
0+ 5	0.0141	2.05	VQ | | | |
0+10	0.0616	6.90	V Q | | | |
0+15	0.1172	8.07	V Q | | | |
0+20	0.1767	8.64	|V Q | | | |
0+25	0.2475	10.28	|V Q | | | |
0+30	0.3257	11.35	| V Q | | | |
0+35	0.4103	12.29	| V Q | | | |
0+40	0.4943	12.19	| V Q | | | |
0+45	0.5850	13.17	| V Q | | | |
0+50	0.6745	13.00	| V Q | | | |
0+55	0.7585	12.20	| V Q | | | |
1+ 0	0.8454	12.61	| V Q | | | |
1+ 5	0.9418	14.00	| V Q| | | |
1+10	1.0498	15.69	| V Q | | | |
1+15	1.1617	16.25	| V Q | | | |
1+20	1.2732	16.19	| VQ | | | |
1+25	1.3870	16.53	| VQ | | | |
1+30	1.5165	18.80	| |VQ | | | |
1+35	1.6497	19.34	| | Q | | | |
1+40	1.7813	19.11	| | QV | | | |
1+45	1.9260	21.02	| | Q | | | |
1+50	2.0861	23.24	| | Q | | | |
1+55	2.2446	23.01	| | Q V | | | |
2+ 0	2.4002	22.60	| | Q V | | | |
2+ 5	2.5587	23.00	| | Q V| | | |
2+10	2.7321	25.18	| | Q V | | |
2+15	2.9436	30.71	| | Q V | | |
2+20	3.1686	32.67	| | |Q V | | |
2+25	3.4013	33.78	| | | Q V | | |
2+30	3.7174	45.90	| | | V Q | |
2+35	4.0800	52.65	| | | V Q |
2+40	4.4554	54.51	| | | | V Q |
2+45	4.7444	41.95	| | | Q | V |
2+50	4.9206	25.60	| | Q | | V |
2+55	5.0567	19.76	| | Q | | V |
3+ 0	5.1632	15.46	| | Q | | V|
3+ 5	5.2219	8.52	| Q | | | V|
3+10	5.2490	3.95	| Q | | | V|
3+15	5.2624	1.94	|Q | | | V|
3+20	5.2686	0.90	Q | | | V|
3+25	5.2719	0.48	Q | | | V|
3+30	5.2735	0.23	Q | | | V|
3+35	5.2739	0.06	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 07/31/20 File: 3828PR565.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 5-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.15	77.16

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	2.50	167.75

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.150(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.466(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 1.466(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	36.0	0.706	0.900	0.134	1.000	0.134
					Sum (F) =	0.134

Area averaged mean soil loss (F) (In/Hr) = 0.134
Minimum soil loss rate ((In/Hr)) = 0.067
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
		Sum =	100.000 Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.088	(0.134)	0.009	0.079
2	0.17	0.60	0.106	(0.134)	0.011	0.095
3	0.25	0.60	0.106	(0.134)	0.011	0.095
4	0.33	0.60	0.106	(0.134)	0.011	0.095
5	0.42	0.60	0.106	(0.134)	0.011	0.095
6	0.50	0.70	0.123	(0.134)	0.012	0.111
7	0.58	0.70	0.123	(0.134)	0.012	0.111
8	0.67	0.70	0.123	(0.134)	0.012	0.111
9	0.75	0.70	0.123	(0.134)	0.012	0.111
10	0.83	0.70	0.123	(0.134)	0.012	0.111
11	0.92	0.70	0.123	(0.134)	0.012	0.111
12	1.00	0.80	0.141	(0.134)	0.014	0.127
13	1.08	0.80	0.141	(0.134)	0.014	0.127
14	1.17	0.80	0.141	(0.134)	0.014	0.127
15	1.25	0.80	0.141	(0.134)	0.014	0.127
16	1.33	0.80	0.141	(0.134)	0.014	0.127
17	1.42	0.80	0.141	(0.134)	0.014	0.127
18	1.50	0.80	0.141	(0.134)	0.014	0.127
19	1.58	0.80	0.141	(0.134)	0.014	0.127
20	1.67	0.80	0.141	(0.134)	0.014	0.127
21	1.75	0.80	0.141	(0.134)	0.014	0.127
22	1.83	0.80	0.141	(0.134)	0.014	0.127
23	1.92	0.80	0.141	(0.134)	0.014	0.127
24	2.00	0.90	0.158	(0.134)	0.016	0.142
25	2.08	0.80	0.141	(0.134)	0.014	0.127
26	2.17	0.90	0.158	(0.134)	0.016	0.142
27	2.25	0.90	0.158	(0.134)	0.016	0.142
28	2.33	0.90	0.158	(0.134)	0.016	0.142
29	2.42	0.90	0.158	(0.134)	0.016	0.142
30	2.50	0.90	0.158	(0.134)	0.016	0.142
31	2.58	0.90	0.158	(0.134)	0.016	0.142
32	2.67	0.90	0.158	(0.134)	0.016	0.142
33	2.75	1.00	0.176	(0.134)	0.018	0.158
34	2.83	1.00	0.176	(0.134)	0.018	0.158
35	2.92	1.00	0.176	(0.134)	0.018	0.158
36	3.00	1.00	0.176	(0.134)	0.018	0.158
37	3.08	1.00	0.176	(0.134)	0.018	0.158
38	3.17	1.10	0.193	(0.134)	0.019	0.174
39	3.25	1.10	0.193	(0.134)	0.019	0.174
40	3.33	1.10	0.193	(0.134)	0.019	0.174
41	3.42	1.20	0.211	(0.134)	0.021	0.190
42	3.50	1.30	0.229	(0.134)	0.023	0.206
43	3.58	1.40	0.246	(0.134)	0.025	0.222
44	3.67	1.40	0.246	(0.134)	0.025	0.222
45	3.75	1.50	0.264	(0.134)	0.026	0.237
46	3.83	1.50	0.264	(0.134)	0.026	0.237

47	3.92	1.60	0.281	(0.134)	0.028	0.253
48	4.00	1.60	0.281	(0.134)	0.028	0.253
49	4.08	1.70	0.299	(0.134)	0.030	0.269
50	4.17	1.80	0.317	(0.134)	0.032	0.285
51	4.25	1.90	0.334	(0.134)	0.033	0.301
52	4.33	2.00	0.352	(0.134)	0.035	0.317
53	4.42	2.10	0.369	(0.134)	0.037	0.332
54	4.50	2.10	0.369	(0.134)	0.037	0.332
55	4.58	2.20	0.387	(0.134)	0.039	0.348
56	4.67	2.30	0.405	(0.134)	0.040	0.364
57	4.75	2.40	0.422	(0.134)	0.042	0.380
58	4.83	2.40	0.422	(0.134)	0.042	0.380
59	4.92	2.50	0.440	(0.134)	0.044	0.396
60	5.00	2.60	0.457	(0.134)	0.046	0.412
61	5.08	3.10	0.545	(0.134)	0.055	0.491
62	5.17	3.60	0.633	(0.134)	0.063	0.570
63	5.25	3.90	0.686	(0.134)	0.069	0.617
64	5.33	4.20	0.739	(0.134)	0.074	0.665
65	5.42	4.70	0.827	(0.134)	0.083	0.744
66	5.50	5.60	0.985	(0.134)	0.099	0.887
67	5.58	1.90	0.334	(0.134)	0.033	0.301
68	5.67	0.90	0.158	(0.134)	0.016	0.142
69	5.75	0.60	0.106	(0.134)	0.011	0.095
70	5.83	0.50	0.088	(0.134)	0.009	0.079
71	5.92	0.30	0.053	(0.134)	0.005	0.047
72	6.00	0.20	0.035	(0.134)	0.004	0.032

(Loss Rate Not Used)

Sum = 100.0 Sum = 15.8

Flood volume = Effective rainfall 1.32(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 7.4(Ac.Ft)
Total soil loss = 0.15(In)
Total soil loss = 0.820(Ac.Ft)
Total rainfall = 1.47(In)
Flood volume = 321340.5 Cubic Feet
Total soil loss = 35704.5 Cubic Feet

Peak flow rate of this hydrograph = 49.464(CFS)

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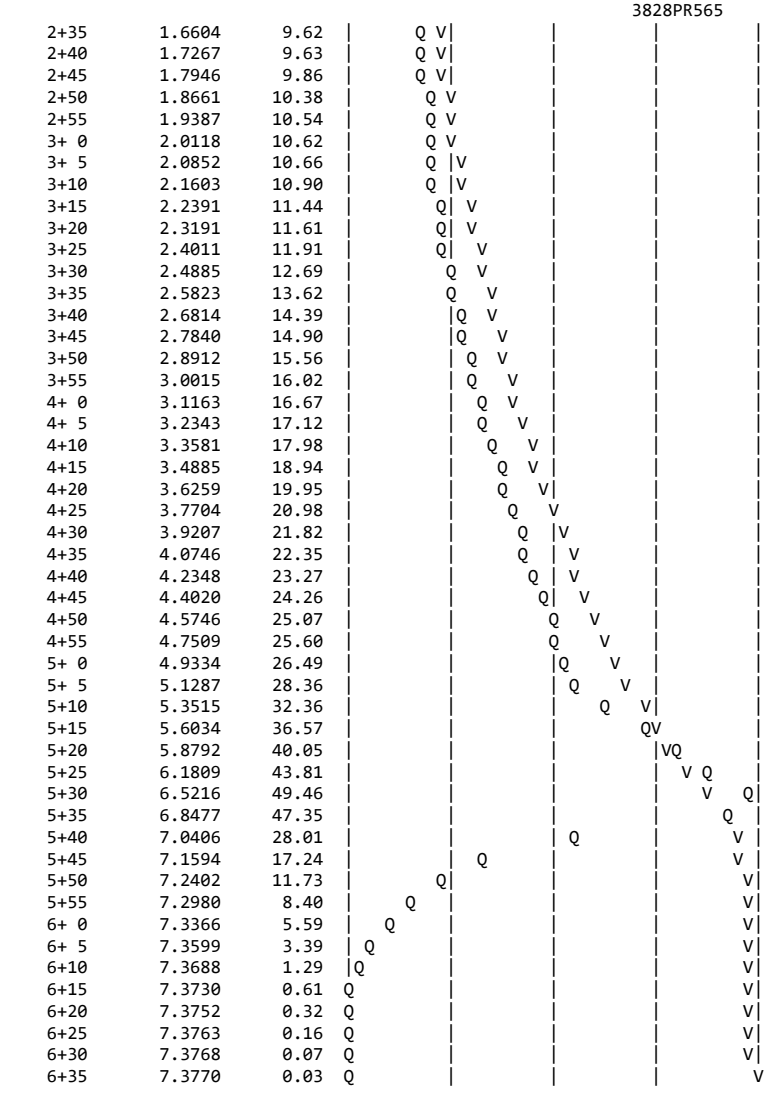
6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	12.5	25.0	37.5	50.0
0+ 5	0.0076	1.10	Q				
0+10	0.0347	3.93	V Q				
0+15	0.0709	5.26	V Q				
0+20	0.1107	5.78	V Q				
0+25	0.1524	6.06	V Q				
0+30	0.1968	6.45	V Q				
0+35	0.2456	7.08	V Q				
0+40	0.2960	7.32	V Q				
0+45	0.3469	7.40	V Q				
0+50	0.3982	7.44	V Q				
0+55	0.4496	7.47	V Q				
1+ 0	0.5027	7.71	V Q				
1+ 5	0.5595	8.24	V Q				
1+10	0.6173	8.40	V Q				
1+15	0.6757	8.47	V Q				
1+20	0.7343	8.51	V Q				
1+25	0.7931	8.54	V Q				
1+30	0.8521	8.56	V Q				
1+35	0.9111	8.57	V Q				
1+40	0.9701	8.57	VQ				
1+45	1.0291	8.57	VQ				
1+50	1.0881	8.57	VQ				
1+55	1.1471	8.57	Q				
2+ 0	1.2077	8.79	VQ				
2+ 5	1.2703	9.09	VQ				
2+10	1.3319	8.95	Q				
2+15	1.3965	9.38	Q				
2+20	1.4621	9.51	Q				
2+25	1.5280	9.57	QV				
2+30	1.5941	9.60	QV				



2+35	1.6604	9.62	
2+40	1.7267	9.63	
2+45	1.7946	9.86	
2+50	1.8661	10.38	
2+55	1.9387	10.54	
3+ 0	2.0118	10.62	
3+ 5	2.0852	10.66	
3+10	2.1603	10.90	
3+15	2.2391	11.44	
3+20	2.3191	11.61	
3+25	2.4011	11.91	
3+30	2.4885	12.69	
3+35	2.5823	13.62	
3+40	2.6814	14.39	
3+45	2.7840	14.90	
3+50	2.8912	15.56	
3+55	3.0015	16.02	
4+ 0	3.1163	16.67	
4+ 5	3.2343	17.12	
4+10	3.3581	17.98	
4+15	3.4885	18.94	
4+20	3.6259	19.95	
4+25	3.7704	20.98	
4+30	3.9207	21.82	
4+35	4.0746	22.35	
4+40	4.2348	23.27	
4+45	4.4020	24.26	
4+50	4.5746	25.07	
4+55	4.7509	25.60	
5+ 0	4.9334	26.49	
5+ 5	5.1287	28.36	
5+10	5.3515	32.36	
5+15	5.6034	36.57	
5+20	5.8792	40.05	
5+25	6.1809	43.81	
5+30	6.5216	49.46	
5+35	6.8477	47.35	
5+40	7.0406	28.01	
5+45	7.1594	17.24	
5+50	7.2402	11.73	
5+55	7.2980	8.40	
6+ 0	7.3366	5.59	
6+ 5	7.3599	3.39	
6+10	7.3688	1.29	
6+15	7.3730	0.61	
6+20	7.3752	0.32	
6+25	7.3763	0.16	
6+30	7.3768	0.07	
6+35	7.3770	0.03	

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 07/31/20 File: 3828PR5245.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 5-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.75	117.42

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	4.50	301.95

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.750(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 2.394(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 2.394(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	36.0	0.706	0.900	0.134	1.000	0.134
					Sum (F) =	0.134

Area averaged mean soil loss (F) (In/Hr) = 0.134
Minimum soil loss rate ((In/Hr)) = 0.067
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.019	(0.238)	0.002	0.017
2	0.17	0.07	0.019	(0.237)	0.002	0.017
3	0.25	0.07	0.019	(0.236)	0.002	0.017
4	0.33	0.10	0.029	(0.235)	0.003	0.026
5	0.42	0.10	0.029	(0.234)	0.003	0.026
6	0.50	0.10	0.029	(0.233)	0.003	0.026
7	0.58	0.10	0.029	(0.232)	0.003	0.026
8	0.67	0.10	0.029	(0.231)	0.003	0.026
9	0.75	0.10	0.029	(0.230)	0.003	0.026
10	0.83	0.13	0.038	(0.230)	0.004	0.034
11	0.92	0.13	0.038	(0.229)	0.004	0.034
12	1.00	0.13	0.038	(0.228)	0.004	0.034
13	1.08	0.10	0.029	(0.227)	0.003	0.026
14	1.17	0.10	0.029	(0.226)	0.003	0.026
15	1.25	0.10	0.029	(0.225)	0.003	0.026
16	1.33	0.10	0.029	(0.224)	0.003	0.026
17	1.42	0.10	0.029	(0.223)	0.003	0.026
18	1.50	0.10	0.029	(0.222)	0.003	0.026
19	1.58	0.10	0.029	(0.222)	0.003	0.026
20	1.67	0.10	0.029	(0.221)	0.003	0.026
21	1.75	0.10	0.029	(0.220)	0.003	0.026
22	1.83	0.13	0.038	(0.219)	0.004	0.034
23	1.92	0.13	0.038	(0.218)	0.004	0.034
24	2.00	0.13	0.038	(0.217)	0.004	0.034
25	2.08	0.13	0.038	(0.216)	0.004	0.034
26	2.17	0.13	0.038	(0.215)	0.004	0.034
27	2.25	0.13	0.038	(0.214)	0.004	0.034
28	2.33	0.13	0.038	(0.214)	0.004	0.034
29	2.42	0.13	0.038	(0.213)	0.004	0.034
30	2.50	0.13	0.038	(0.212)	0.004	0.034
31	2.58	0.17	0.048	(0.211)	0.005	0.043
32	2.67	0.17	0.048	(0.210)	0.005	0.043
33	2.75	0.17	0.048	(0.209)	0.005	0.043
34	2.83	0.17	0.048	(0.208)	0.005	0.043
35	2.92	0.17	0.048	(0.208)	0.005	0.043
36	3.00	0.17	0.048	(0.207)	0.005	0.043
37	3.08	0.17	0.048	(0.206)	0.005	0.043
38	3.17	0.17	0.048	(0.205)	0.005	0.043
39	3.25	0.17	0.048	(0.204)	0.005	0.043
40	3.33	0.17	0.048	(0.203)	0.005	0.043
41	3.42	0.17	0.048	(0.202)	0.005	0.043
42	3.50	0.17	0.048	(0.202)	0.005	0.043
43	3.58	0.17	0.048	(0.201)	0.005	0.043
44	3.67	0.17	0.048	(0.200)	0.005	0.043
45	3.75	0.17	0.048	(0.199)	0.005	0.043
46	3.83	0.20	0.057	(0.198)	0.006	0.052

47	3.92	0.20	0.057	(0.197)	0.006	0.052
48	4.00	0.20	0.057	(0.197)	0.006	0.052
49	4.08	0.20	0.057	(0.196)	0.006	0.052
50	4.17	0.20	0.057	(0.195)	0.006	0.052
51	4.25	0.20	0.057	(0.194)	0.006	0.052
52	4.33	0.23	0.067	(0.193)	0.007	0.060
53	4.42	0.23	0.067	(0.192)	0.007	0.060
54	4.50	0.23	0.067	(0.192)	0.007	0.060
55	4.58	0.23	0.067	(0.191)	0.007	0.060
56	4.67	0.23	0.067	(0.190)	0.007	0.060
57	4.75	0.23	0.067	(0.189)	0.007	0.060
58	4.83	0.27	0.077	(0.188)	0.008	0.069
59	4.92	0.27	0.077	(0.187)	0.008	0.069
60	5.00	0.27	0.077	(0.187)	0.008	0.069
61	5.08	0.20	0.057	(0.186)	0.006	0.052
62	5.17	0.20	0.057	(0.185)	0.006	0.052
63	5.25	0.20	0.057	(0.184)	0.006	0.052
64	5.33	0.23	0.067	(0.183)	0.007	0.060
65	5.42	0.23	0.067	(0.183)	0.007	0.060
66	5.50	0.23	0.067	(0.182)	0.007	0.060
67	5.58	0.27	0.077	(0.181)	0.008	0.069
68	5.67	0.27	0.077	(0.180)	0.008	0.069
69	5.75	0.27	0.077	(0.179)	0.008	0.069
70	5.83	0.27	0.077	(0.179)	0.008	0.069
71	5.92	0.27	0.077	(0.178)	0.008	0.069
72	6.00	0.27	0.077	(0.177)	0.008	0.069
73	6.08	0.30	0.086	(0.176)	0.009	0.078
74	6.17	0.30	0.086	(0.175)	0.009	0.078
75	6.25	0.30	0.086	(0.175)	0.009	0.078
76	6.33	0.30	0.086	(0.174)	0.009	0.078
77	6.42	0.30	0.086	(0.173)	0.009	0.078
78	6.50	0.30	0.086	(0.172)	0.009	0.078
79	6.58	0.33	0.096	(0.172)	0.010	0.086
80	6.67	0.33	0.096	(0.171)	0.010	0.086
81	6.75	0.33	0.096	(0.170)	0.010	0.086
82	6.83	0.33	0.096	(0.169)	0.010	0.086
83	6.92	0.33	0.096	(0.169)	0.010	0.086
84	7.00	0.33	0.096	(0.168)	0.010	0.086
85	7.08	0.33	0.096	(0.167)	0.010	0.086
86	7.17	0.33	0.096	(0.166)	0.010	0.086
87	7.25	0.33	0.096	(0.165)	0.010	0.086
88	7.33	0.37	0.105	(0.165)	0.011	0.095
89	7.42	0.37	0.105	(0.164)	0.011	0.095
90	7.50	0.37	0.105	(0.163)	0.011	0.095
91	7.58	0.40	0.115	(0.162)	0.011	0.103
92	7.67	0.40	0.115	(0.162)	0.011	0.103
93	7.75	0.40	0.115	(0.161)	0.011	0.103
94	7.83	0.43	0.124	(0.160)	0.012	0.112
95	7.92	0.43	0.124	(0.159)	0.012	0.112
96	8.00	0.43	0.124	(0.159)	0.012	0.112
97	8.08	0.50	0.144	(0.158)	0.014	0.129
98	8.17	0.50	0.144	(0.157)	0.014	0.129
99	8.25	0.50	0.144	(0.157)	0.014	0.129
100	8.33	0.50	0.144	(0.156)	0.014	0.129
101	8.42	0.50	0.144	(0.155)	0.014	0.129
102	8.50	0.50	0.144	(0.154)	0.014	0.129
103	8.58	0.53	0.153	(0.154)	0.015	0.138
104	8.67	0.53	0.153	(0.153)	0.015	0.138
105	8.75	0.53	0.153	(0.152)	0.015	0.138
106	8.83	0.57	0.163	(0.151)	0.016	0.147
107	8.92	0.57	0.163	(0.151)	0.016	0.147
108	9.00	0.57	0.163	(0.150)	0.016	0.147
109	9.08	0.63	0.182	(0.149)	0.018	0.164
110	9.17	0.63	0.182	(0.149)	0.018	0.164
111	9.25	0.63	0.182	(0.148)	0.018	0.164
112	9.33	0.67	0.192	(0.147)	0.019	0.172
113	9.42	0.67	0.192	(0.147)	0.019	0.172
114	9.50	0.67	0.192	(0.146)	0.019	0.172
115	9.58	0.70	0.201	(0.145)	0.020	0.181
116	9.67	0.70	0.201	(0.144)	0.020	0.181
117	9.75	0.70	0.201	(0.144)	0.020	0.181
118	9.83	0.73	0.211	(0.143)	0.021	0.190
119	9.92	0.73	0.211	(0.142)	0.021	0.190
120	10.00	0.73	0.211	(0.142)	0.021	0.190
121	10.08	0.50	0.144	(0.141)	0.014	0.129
122	10.17	0.50	0.144	(0.140)	0.014	0.129
123	10.25	0.50	0.144	(0.140)	0.014	0.129

124	10.33	0.50	0.144	(0.139)	0.014	0.129
125	10.42	0.50	0.144	(0.138)	0.014	0.129
126	10.50	0.50	0.144	(0.138)	0.014	0.129
127	10.58	0.67	0.192	(0.137)	0.019	0.172
128	10.67	0.67	0.192	(0.136)	0.019	0.172
129	10.75	0.67	0.192	(0.136)	0.019	0.172
130	10.83	0.67	0.192	(0.135)	0.019	0.172
131	10.92	0.67	0.192	(0.134)	0.019	0.172
132	11.00	0.67	0.192	(0.134)	0.019	0.172
133	11.08	0.63	0.182	(0.133)	0.018	0.164
134	11.17	0.63	0.182	(0.132)	0.018	0.164
135	11.25	0.63	0.182	(0.132)	0.018	0.164
136	11.33	0.63	0.182	(0.131)	0.018	0.164
137	11.42	0.63	0.182	(0.130)	0.018	0.164
138	11.50	0.63	0.182	(0.130)	0.018	0.164
139	11.58	0.57	0.163	(0.129)	0.016	0.147
140	11.67	0.57	0.163	(0.128)	0.016	0.147
141	11.75	0.57	0.163	(0.128)	0.016	0.147
142	11.83	0.60	0.172	(0.127)	0.017	0.155
143	11.92	0.60	0.172	(0.126)	0.017	0.155
144	12.00	0.60	0.172	(0.126)	0.017	0.155
145	12.08	0.83	0.239	(0.125)	0.024	0.215
146	12.17	0.83	0.239	(0.125)	0.024	0.215
147	12.25	0.83	0.239	(0.124)	0.024	0.215
148	12.33	0.87	0.249	(0.123)	0.025	0.224
149	12.42	0.87	0.249	(0.123)	0.025	0.224
150	12.50	0.87	0.249	(0.122)	0.025	0.224
151	12.58	0.93	0.268	(0.121)	0.027	0.241
152	12.67	0.93	0.268	(0.121)	0.027	0.241
153	12.75	0.93	0.268	(0.120)	0.027	0.241
154	12.83	0.97	0.278	(0.120)	0.028	0.250
155	12.92	0.97	0.278	(0.119)	0.028	0.250
156	13.00	0.97	0.278	(0.118)	0.028	0.250
157	13.08	1.13	0.326	(0.118)	0.033	0.293
158	13.17	1.13	0.326	(0.117)	0.033	0.293
159	13.25	1.13	0.326	(0.117)	0.033	0.293
160	13.33	1.13	0.326	(0.116)	0.033	0.293
161	13.42	1.13	0.326	(0.115)	0.033	0.293
162	13.50	1.13	0.326	(0.115)	0.033	0.293
163	13.58	0.77	0.220	(0.114)	0.022	0.198
164	13.67	0.77	0.220	(0.114)	0.022	0.198
165	13.75	0.77	0.220	(0.113)	0.022	0.198
166	13.83	0.77	0.220	(0.113)	0.022	0.198
167	13.92	0.77	0.220	(0.112)	0.022	0.198
168	14.00	0.77	0.220	(0.111)	0.022	0.198
169	14.08	0.90	0.259	(0.111)	0.026	0.233
170	14.17	0.90	0.259	(0.110)	0.026	0.233
171	14.25	0.90	0.259	(0.110)	0.026	0.233
172	14.33	0.87	0.249	(0.109)	0.025	0.224
173	14.42	0.87	0.249	(0.109)	0.025	0.224
174	14.50	0.87	0.249	(0.108)	0.025	0.224
175	14.58	0.87	0.249	(0.107)	0.025	0.224
176	14.67	0.87	0.249	(0.107)	0.025	0.224
177	14.75	0.87	0.249	(0.106)	0.025	0.224
178	14.83	0.83	0.239	(0.106)	0.024	0.215
179	14.92	0.83	0.239	(0.105)	0.024	0.215
180	15.00	0.83	0.239	(0.105)	0.024	0.215
181	15.08	0.80	0.230	(0.104)	0.023	0.207
182	15.17	0.80	0.230	(0.104)	0.023	0.207
183	15.25	0.80	0.230	(0.103)	0.023	0.207
184	15.33	0.77	0.220	(0.103)	0.022	0.198
185	15.42	0.77	0.220	(0.102)	0.022	0.198
186	15.50	0.77	0.220	(0.102)	0.022	0.198
187	15.58	0.63	0.182	(0.101)	0.018	0.164
188	15.67	0.63	0.182	(0.101)	0.018	0.164
189	15.75	0.63	0.182	(0.100)	0.018	0.164
190	15.83	0.63	0.182	(0.100)	0.018	0.164
191	15.92	0.63	0.182	(0.099)	0.018	0.164
192	16.00	0.63	0.182	(0.099)	0.018	0.164
193	16.08	0.13	0.038	(0.098)	0.004	0.034
194	16.17	0.13	0.038	(0.098)	0.004	0.034
195	16.25	0.13	0.038	(0.097)	0.004	0.034
196	16.33	0.13	0.038	(0.097)	0.004	0.034
197	16.42	0.13	0.038	(0.096)	0.004	0.034
198	16.50	0.13	0.038	(0.096)	0.004	0.034
199	16.58	0.10	0.029	(0.095)	0.003	0.026
200	16.67	0.10	0.029	(0.095)	0.003	0.026

201	16.75	0.10	0.029	(0.094)	0.003	0.026
202	16.83	0.10	0.029	(0.094)	0.003	0.026
203	16.92	0.10	0.029	(0.093)	0.003	0.026
204	17.00	0.10	0.029	(0.093)	0.003	0.026
205	17.08	0.17	0.048	(0.092)	0.005	0.043
206	17.17	0.17	0.048	(0.092)	0.005	0.043
207	17.25	0.17	0.048	(0.091)	0.005	0.043
208	17.33	0.17	0.048	(0.091)	0.005	0.043
209	17.42	0.17	0.048	(0.090)	0.005	0.043
210	17.50	0.17	0.048	(0.090)	0.005	0.043
211	17.58	0.17	0.048	(0.089)	0.005	0.043
212	17.67	0.17	0.048	(0.089)	0.005	0.043
213	17.75	0.17	0.048	(0.089)	0.005	0.043
214	17.83	0.13	0.038	(0.088)	0.004	0.034
215	17.92	0.13	0.038	(0.088)	0.004	0.034
216	18.00	0.13	0.038	(0.087)	0.004	0.034
217	18.08	0.13	0.038	(0.087)	0.004	0.034
218	18.17	0.13	0.038	(0.086)	0.004	0.034
219	18.25	0.13	0.038	(0.086)	0.004	0.034
220	18.33	0.13	0.038	(0.086)	0.004	0.034
221	18.42	0.13	0.038	(0.085)	0.004	0.034
222	18.50	0.13	0.038	(0.085)	0.004	0.034
223	18.58	0.10	0.029	(0.084)	0.003	0.026
224	18.67	0.10	0.029	(0.084)	0.003	0.026
225	18.75	0.10	0.029	(0.084)	0.003	0.026
226	18.83	0.07	0.019	(0.083)	0.002	0.017
227	18.92	0.07	0.019	(0.083)	0.002	0.017
228	19.00	0.07	0.019	(0.082)	0.002	0.017
229	19.08	0.10	0.029	(0.082)	0.003	0.026
230	19.17	0.10	0.029	(0.082)	0.003	0.026
231	19.25	0.10	0.029	(0.081)	0.003	0.026
232	19.33	0.13	0.038	(0.081)	0.004	0.034
233	19.42	0.13	0.038	(0.080)	0.004	0.034
234	19.50	0.13	0.038	(0.080)	0.004	0.034
235	19.58	0.10	0.029	(0.080)	0.003	0.026
236	19.67	0.10	0.029	(0.079)	0.003	0.026
237	19.75	0.10	0.029	(0.079)	0.003	0.026
238	19.83	0.07	0.019	(0.079)	0.002	0.017
239	19.92	0.07	0.019	(0.078)	0.002	0.017
240	20.00	0.07	0.019	(0.078)	0.002	0.017
241	20.08	0.10	0.029	(0.078)	0.003	0.026
242	20.17	0.10	0.029	(0.077)	0.003	0.026
243	20.25	0.10	0.029	(0.077)	0.003	0.026
244	20.33	0.10	0.029	(0.077)	0.003	0.026
245	20.42	0.10	0.029	(0.076)	0.003	0.026
246	20.50	0.10	0.029	(0.076)	0.003	0.026
247	20.58	0.10	0.029	(0.076)	0.003	0.026
248	20.67	0.10	0.029	(0.075)	0.003	0.026
249	20.75	0.10	0.029	(0.075)	0.003	0.026
250	20.83	0.07	0.019	(0.075)	0.002	0.017
251	20.92	0.07	0.019	(0.074)	0.002	0.017
252	21.00	0.07	0.019	(0.074)	0.002	0.017
253	21.08	0.10	0.029	(0.074)	0.003	0.026
254	21.17	0.10	0.029	(0.073)	0.003	0.026
255	21.25	0.10	0.029	(0.073)	0.003	0.026
256	21.33	0.07	0.019	(0.073)	0.002	0.017
257	21.42	0.07	0.019	(0.073)	0.002	0.017
258	21.50	0.07	0.019	(0.072)	0.002	0.017
259	21.58	0.10	0.029	(0.072)	0.003	0.026
260	21.67	0.10	0.029	(0.072)	0.003	0.026
261	21.75	0.10	0.029	(0.072)	0.003	0.026
262	21.83	0.07	0.019	(0.071)	0.002	0.017
263	21.92	0.07	0.019	(0.071)	0.002	0.017
264	22.00	0.07	0.019	(0.071)	0.002	0.017
265	22.08	0.10	0.029	(0.071)	0.003	0.026
266	22.17	0.10	0.029	(0.070)	0.003	0.026
267	22.25	0.10	0.029	(0.070)	0.003	0.026
268	22.33	0.07	0.019	(0.070)	0.002	0.017
269	22.42	0.07	0.019	(0.070)	0.002	0.017
270	22.50	0.07	0.019	(0.069)	0.002	0.017
271	22.58	0.07	0.019	(0.069)	0.002	0.017
272	22.67	0.07	0.019	(0.069)	0.002	0.017
273	22.75	0.07	0.019	(0.069)	0.002	0.017
274	22.83	0.07	0.019	(0.069)	0.002	0.017
275	22.92	0.07	0.019	(0.069)	0.002	0.017
276	23.00	0.07	0.019	(0.068)	0.002	0.017
277	23.08	0.07	0.019	(0.068)	0.002	0.017

278	23.17	0.07	0.019	(0.068)	0.002	0.017
279	23.25	0.07	0.019	(0.068)	0.002	0.017
280	23.33	0.07	0.019	(0.068)	0.002	0.017
281	23.42	0.07	0.019	(0.068)	0.002	0.017
282	23.50	0.07	0.019	(0.068)	0.002	0.017
283	23.58	0.07	0.019	(0.067)	0.002	0.017
284	23.67	0.07	0.019	(0.067)	0.002	0.017
285	23.75	0.07	0.019	(0.067)	0.002	0.017
286	23.83	0.07	0.019	(0.067)	0.002	0.017
287	23.92	0.07	0.019	(0.067)	0.002	0.017
288	24.00	0.07	0.019	(0.067)	0.002	0.017

(Loss Rate Not Used)

Sum = 100.0 Sum = 25.9

Flood volume = Effective rainfall 2.15(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 12.0(Ac.Ft)
Total soil loss = 0.24(In)
Total soil loss = 1.339(Ac.Ft)
Total rainfall = 2.39(In)
Flood volume = 524759.2 Cubic Feet
Total soil loss = 58306.6 Cubic Feet

Peak flow rate of this hydrograph = 19.746(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	0.0017	0.24	Q				
0+10	0.0072	0.81	VQ				
0+15	0.0140	0.98	VQ				
0+20	0.0221	1.18	V Q				
0+25	0.0325	1.51	V Q				
0+30	0.0437	1.63	V Q				
0+35	0.0553	1.68	V Q				
0+40	0.0672	1.72	V Q				
0+45	0.0791	1.73	V Q				
0+50	0.0919	1.86	V Q				
0+55	0.1068	2.15	V Q				
1+ 0	0.1222	2.24	V Q				
1+ 5	0.1371	2.16	V Q				
1+10	0.1501	1.90	V Q				
1+15	0.1627	1.83	V Q				
1+20	0.1751	1.79	V Q				
1+25	0.1873	1.78	V Q				
1+30	0.1995	1.76	V Q				
1+35	0.2116	1.76	V Q				
1+40	0.2236	1.75	V Q				
1+45	0.2357	1.75	V Q				
1+50	0.2485	1.87	V Q				
1+55	0.2634	2.15	V Q				
2+ 0	0.2788	2.24	V Q				
2+ 5	0.2945	2.28	V Q				
2+10	0.3104	2.30	|V Q				
2+15	0.3263	2.32	|V Q				
2+20	0.3423	2.33	|V Q				
2+25	0.3584	2.33	|V Q				
2+30	0.3745	2.33	|V Q				
2+35	0.3913	2.45	|V Q				
2+40	0.4102	2.74	|V Q				
2+45	0.4296	2.82	|V Q				
2+50	0.4494	2.86	|V Q				
2+55	0.4692	2.89	|V Q				
3+ 0	0.4892	2.90	|V Q				
3+ 5	0.5092	2.91	|V Q				
3+10	0.5293	2.92	|V Q				
3+15	0.5494	2.92	|V Q				
3+20	0.5695	2.92	|V Q				
3+25	0.5895	2.92	|V Q				
3+30	0.6096	2.92	| V Q				
3+35	0.6297	2.92	| V Q				
3+40	0.6498	2.92	| V Q				
3+45	0.6699	2.92	| V Q				

3+50	0.6908	3.04	V Q				
3+55	0.7136	3.32	V Q				
4+ 0	0.7371	3.41	V Q				
4+ 5	0.7608	3.45	V Q				
4+10	0.7847	3.47	V Q				
4+15	0.8087	3.48	V Q				
4+20	0.8336	3.61	V Q				
4+25	0.8604	3.90	V Q				
4+30	0.8879	3.99	V Q				
4+35	0.9157	4.03	V Q				
4+40	0.9436	4.05	V Q				
4+45	0.9716	4.07	V Q				
4+50	1.0005	4.19	V Q				
4+55	1.0314	4.49	V Q				
5+ 0	1.0629	4.57	V Q				
5+ 5	1.0930	4.37	V Q				
5+10	1.1193	3.83	V Q				
5+15	1.1446	3.67	V Q				
5+20	1.1702	3.72	V Q				
5+25	1.1974	3.96	V Q				
5+30	1.2251	4.02	V Q				
5+35	1.2538	4.16	V Q				
5+40	1.2845	4.46	V Q				
5+45	1.3159	4.56	V Q				
5+50	1.3476	4.61	V Q				
5+55	1.3795	4.63	V Q				
6+ 0	1.4115	4.65	V Q				
6+ 5	1.4444	4.78	V Q				
6+10	1.4794	5.07	V Q				
6+15	1.5149	5.16	V Q				
6+20	1.5506	5.20	V Q				
6+25	1.5866	5.22	V Q				
6+30	1.6226	5.23	V Q				
6+35	1.6595	5.36	V Q				
6+40	1.6985	5.65	V Q				
6+45	1.7380	5.74	V Q				
6+50	1.7778	5.78	V Q				
6+55	1.8177	5.80	V Q				
7+ 0	1.8578	5.82	V Q				
7+ 5	1.8979	5.82	V Q				
7+10	1.9380	5.83	V Q				
7+15	1.9782	5.83	V Q				
7+20	2.0192	5.95	V Q				
7+25	2.0621	6.23	V Q				
7+30	2.1057	6.32	V Q				
7+35	2.1503	6.48	V Q				
7+40	2.1971	6.79	V Q				
7+45	2.2445	6.89	V Q				
7+50	2.2931	7.06	V Q				
7+55	2.3439	7.37	V Q				
8+ 0	2.3953	7.47	V Q				
8+ 5	2.4488	7.76	V Q				
8+10	2.5064	8.36	V Q				
8+15	2.5652	8.55	V Q				
8+20	2.6247	8.64	V Q				
8+25	2.6845	8.69	V Q				
8+30	2.7445	8.71	V Q				
8+35	2.8055	8.85	V Q				
8+40	2.8685	9.15	V Q				
8+45	2.9321	9.24	V Q				
8+50	2.9968	9.40	V Q				
8+55	3.0637	9.70	V Q				
9+ 0	3.1312	9.80	V Q				
9+ 5	3.2007	10.09	V Q				
9+10	3.2743	10.69	V Q				
9+15	3.3493	10.88	V Q				
9+20	3.4256	11.09	V Q				
9+25	3.5043	11.42	V Q				
9+30	3.5838	11.54	V Q				
9+35	3.6644	11.72	V Q				
9+40	3.7473	12.04	V Q				
9+45	3.8309	12.14	V Q				
9+50	3.9157	12.31	V Q				
9+55	4.0026	12.62	V Q				
10+ 0	4.0902	12.72	V Q				
10+ 5	4.1723	11.93	V Q				
10+10	4.2410	9.97	V Q				

10+15	4.3055	9.37	|	|	V Q	|	|	|	|
10+20	4.3682	9.10	|	|	V Q	|	|	|	|
10+25	4.4299	8.95	|	|	V Q	|	|	|	|
10+30	4.4909	8.86	|	|	V Q	|	|	|	|
10+35	4.5556	9.40	|	|	V Q	|	|	|	|
10+40	4.6297	10.77	|	|	V	Q	|	|	|
10+45	4.7069	11.20	|	|	V	Q	|	|	|
10+50	4.7854	11.40	|	|	V	Q	|	|	|
10+55	4.8647	11.51	|	|	V	Q	|	|	|
11+ 0	4.9445	11.58	|	|	V	Q	|	|	|
11+ 5	5.0237	11.51	|	|	V	Q	|	|	|
11+10	5.1012	11.26	|	|	V	Q	|	|	|
11+15	5.1782	11.17	|	|	V	Q	|	|	|
11+20	5.2548	11.13	|	|	V	Q	|	|	|
11+25	5.3313	11.11	|	|	V	Q	|	|	|
11+30	5.4077	11.09	|	|	V	Q	|	|	|
11+35	5.4824	10.84	|	|	V	Q	|	|	|
11+40	5.5532	10.27	|	|	V	Q	|	|	|
11+45	5.6227	10.10	|	|	V	Q	|	|	|
11+50	5.6925	10.14	|	|	V	Q	|	|	|
11+55	5.7640	10.38	|	|	V	Q	|	|	|
12+ 0	5.8358	10.43	|	|	V	Q	|	|	|
12+ 5	5.9136	11.30	|	|	V	Q	|	|	|
12+10	6.0052	13.29	|	|	V	|	Q	|	|
12+15	6.1010	13.92	|	|	V	|	Q	|	|
12+20	6.1997	14.33	|	|	V	|	Q	|	|
12+25	6.3014	14.77	|	|	V	|	Q	|	|
12+30	6.4045	14.96	|	|	V	|	Q	|	|
12+35	6.5098	15.30	|	|	V	|	Q	|	|
12+40	6.6196	15.94	|	|	V	|	Q	|	|
12+45	6.7307	16.13	|	|	V	|	Q	|	|
12+50	6.8432	16.34	|	|	V	|	Q	|	|
12+55	6.9580	16.67	|	|	V	|	Q	|	|
13+ 0	7.0736	16.79	|	|	V	|	Q	|	|
13+ 5	7.1937	17.44	|	|	V	|	Q	|	|
13+10	7.3239	18.90	|	|	V	|	Q	|	|
13+15	7.4571	19.35	|	|	V	|	Q	|	|
13+20	7.5918	19.56	|	|	V	|	Q	|	|
13+25	7.7273	19.68	|	|	V	|	Q	|	|
13+30	7.8633	19.75	|	|	V	|	Q	|	|
13+35	7.9905	18.47	|	|	V	|	Q	|	|
13+40	8.0964	15.38	|	|	V	Q	|	|	|
13+45	8.1957	14.42	|	|	VQ	|	|	|	|
13+50	8.2920	13.98	|	|	Q	|	|	|	|
13+55	8.3867	13.74	|	|	Q	|	|	|	|
14+ 0	8.4802	13.58	|	|	QV	|	|	|	|
14+ 5	8.5764	13.97	|	|	QV	|	|	|	|
14+10	8.6799	15.03	|	|	V	Q	|	|	|
14+15	8.7858	15.38	|	|	VQ	|	|	|	|
14+20	8.8919	15.41	|	|	VQ	|	|	|	|
14+25	8.9968	15.22	|	|	VQ	|	|	|	|
14+30	9.1014	15.19	|	|	Q	|	|	|	|
14+35	9.2059	15.18	|	|	Q	|	|	|	|
14+40	9.3106	15.19	|	|	Q	|	|	|	|
14+45	9.4151	15.18	|	|	QV	|	|	|	|
14+50	9.5187	15.05	|	|	QV	|	|	|	|
14+55	9.6203	14.76	|	|	Q	|	V	|	|
15+ 0	9.7213	14.67	|	|	Q	|	V	|	|
15+ 5	9.8213	14.51	|	|	Q	|	V	|	|
15+10	9.9191	14.20	|	|	Q	|	V	|	|
15+15	10.0162	14.10	|	|	Q	|	V	|	|
15+20	10.1121	13.93	|	|	Q	|	V	|	|
15+25	10.2059	13.62	|	|	Q	|	V	|	|
15+30	10.2990	13.52	|	|	Q	|	V	|	|
15+35	10.3885	12.99	|	|	Q	|	V	|	|
15+40	10.4699	11.82	|	|	Q	|	V	|	|
15+45	10.5489	11.46	|	|	Q	|	V	|	|
15+50	10.6266	11.29	|	|	Q	|	V	|	|
15+55	10.7037	11.20	|	|	Q	|	V	|	|
16+ 0	10.7805	11.14	|	|	Q	|	V	|	|
16+ 5	10.8445	9.30	|	|	Q	|	|	V	|
16+10	10.8791	5.02	|	Q	|	|	|	V	|
16+15	10.9046	3.71	|	Q	|	|	|	V	|
16+20	10.9261	3.11	|	Q	|	|	|	V	|
16+25	10.9452	2.78	|	Q	|	|	|	V	|
16+30	10.9629	2.57	|	Q	|	|	|	V	|
16+35	10.9788	2.32	|	Q	|	|	|	V	|

16+40	10.9921	1.93	Q			V	
16+45	11.0048	1.84	Q			V	
16+50	11.0172	1.80	Q			V	
16+55	11.0295	1.78	Q			V	
17+ 0	11.0416	1.76	Q			V	
17+ 5	11.0554	2.00	Q			V	
17+10	11.0730	2.56	Q			V	
17+15	11.0918	2.73	Q			V	
17+20	11.1112	2.81	Q			V	
17+25	11.1308	2.86	Q			V	
17+30	11.1507	2.88	Q			V	
17+35	11.1707	2.90	Q			V	
17+40	11.1907	2.92	Q			V	
17+45	11.2108	2.92	Q			V	
17+50	11.2301	2.80	Q			V	
17+55	11.2474	2.51	Q			V	
18+ 0	11.2641	2.42	Q			V	
18+ 5	11.2805	2.38	Q			V	
18+10	11.2967	2.36	Q			V	
18+15	11.3129	2.35	Q			V	
18+20	11.3290	2.34	Q			V	
18+25	11.3451	2.33	Q			V	
18+30	11.3612	2.33	Q			V	
18+35	11.3764	2.21	Q			V	
18+40	11.3897	1.93	Q			V	
18+45	11.4023	1.84	Q			V	
18+50	11.4139	1.68	Q			V	
18+55	11.4234	1.37	Q			V	
19+ 0	11.4322	1.27	Q			V	
19+ 5	11.4414	1.35	Q			V	
19+10	11.4524	1.60	Q			V	
19+15	11.4640	1.67	Q			V	
19+20	11.4765	1.82	Q			V	
19+25	11.4912	2.12	Q			V	
19+30	11.5065	2.22	Q			V	
19+35	11.5213	2.15	Q			V	
19+40	11.5344	1.90	Q			V	
19+45	11.5470	1.83	Q			V	
19+50	11.5585	1.67	Q			V	
19+55	11.5680	1.37	Q			V	
20+ 0	11.5767	1.27	Q			V	
20+ 5	11.5860	1.35	Q			V	
20+10	11.5970	1.60	Q			V	
20+15	11.6085	1.67	Q			V	
20+20	11.6203	1.70	Q			V	
20+25	11.6321	1.72	Q			V	
20+30	11.6440	1.73	Q			V	
20+35	11.6560	1.74	Q			V	
20+40	11.6681	1.75	Q			V	
20+45	11.6801	1.75	Q			V	
20+50	11.6914	1.63	Q			V	
20+55	11.7006	1.35	Q			V	
21+ 0	11.7093	1.26	Q			V	
21+ 5	11.7185	1.34	Q			V	
21+10	11.7295	1.60	Q			V	
21+15	11.7410	1.67	Q			V	
21+20	11.7520	1.58	Q			V	
21+25	11.7610	1.32	Q			V	
21+30	11.7696	1.24	Q			V	
21+35	11.7787	1.33	Q			V	
21+40	11.7898	1.60	Q			V	
21+45	11.8013	1.67	Q			V	
21+50	11.8122	1.58	Q			V	
21+55	11.8212	1.32	Q			V	
22+ 0	11.8298	1.24	Q			V	
22+ 5	11.8390	1.33	Q			V	
22+10	11.8500	1.60	Q			V	
22+15	11.8615	1.67	Q			V	
22+20	11.8724	1.58	Q			V	
22+25	11.8815	1.32	Q			V	
22+30	11.8900	1.24	Q			V	
22+35	11.8984	1.21	Q			V	
22+40	11.9066	1.20	Q			V	
22+45	11.9148	1.18	Q			V	
22+50	11.9228	1.17	Q			V	
22+55	11.9309	1.17	Q			V	
23+ 0	11.9389	1.17	Q			V	

23+ 5	11.9469	1.17	| Q	|	|	|	V|
23+10	11.9550	1.17	| Q	|	|	|	V|
23+15	11.9630	1.17	| Q	|	|	|	V|
23+20	11.9710	1.17	| Q	|	|	|	V|
23+25	11.9791	1.17	| Q	|	|	|	V|
23+30	11.9871	1.17	| Q	|	|	|	V|
23+35	11.9951	1.17	| Q	|	|	|	V|
23+40	12.0031	1.17	| Q	|	|	|	V|
23+45	12.0112	1.17	| Q	|	|	|	V|
23+50	12.0192	1.17	| Q	|	|	|	V|
23+55	12.0272	1.17	| Q	|	|	|	V|
24+ 0	12.0353	1.17	| Q	|	|	|	V|
24+ 5	12.0416	0.93	|Q	|	|	|	V|
24+10	12.0441	0.36	Q	|	|	|	V|
24+15	12.0454	0.18	Q	|	|	|	V|
24+20	12.0461	0.10	Q	|	|	|	V|
24+25	12.0465	0.06	Q	|	|	|	V|
24+30	12.0467	0.03	Q	|	|	|	V|
24+35	12.0468	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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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 10-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.50	33.55

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.20	80.52

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.500(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 0.788(In)
Areal adjustment factor = 99.94 %
Adjusted average point rain = 0.788(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	56.0	0.511	0.900	0.097	1.000	0.097
					Sum (F) =	0.097

Area averaged mean soil loss (F) (In/Hr) = 0.097
Minimum soil loss rate ((In/Hr)) = 0.049
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.397	(0.097)	0.040	0.357
2	0.17	4.30	0.406	(0.097)	0.041	0.366
3	0.25	5.00	0.473	(0.097)	0.047	0.425
4	0.33	5.00	0.473	(0.097)	0.047	0.425
5	0.42	5.80	0.548	(0.097)	0.055	0.493
6	0.50	6.50	0.614	(0.097)	0.061	0.553
7	0.58	7.40	0.699	(0.097)	0.070	0.629
8	0.67	8.60	0.813	(0.097)	0.081	0.731
9	0.75	12.30	1.162	0.097	(0.116)	1.065
10	0.83	29.10	2.750	0.097	(0.275)	2.653
11	0.92	6.80	0.643	(0.097)	0.064	0.578
12	1.00	5.00	0.473	(0.097)	0.047	0.425
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	8.7

Flood volume = Effective rainfall 0.73(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 4.1(Ac.Ft)
Total soil loss = 0.06(In)
Total soil loss = 0.348(Ac.Ft)
Total rainfall = 0.79(In)
Flood volume = 176635.1 Cubic Feet
Total soil loss = 15180.3 Cubic Feet

Peak flow rate of this hydrograph = 112.980(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	50.0	100.0	150.0	200.0
0+ 5	0.0343	4.98	Q				
0+10	0.1505	16.87	V Q				
0+15	0.2992	21.60	V Q				
0+20	0.4734	25.29	VQ				
0+25	0.6649	27.80	QV				
0+30	0.8836	31.76	Q V				
0+35	1.1315	36.00	Q	V			
0+40	1.4156	41.26	Q	V			
0+45	1.7639	50.57	Q	V			
0+50	2.3521	85.41	Q	V			
0+55	3.1302	112.98	Q	V			

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                                                                3828PR10110
    1+ 0       3.5479     60.65  |         | Q       |         |   V     |
    1+ 5       3.8036     37.13  |      Q  |         |         |      V  |
    1+10       3.9193     16.80  |  Q      |         |         |       V |
    1+15       3.9845      9.47  |Q        |         |         |        V|
    1+20       4.0227      5.54  |Q        |         |         |        V|
    1+25       4.0464      3.44  Q         |         |         |        V|
    1+30       4.0526      0.89  Q         |         |         |        V|
    1+35       4.0550      0.35  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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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 10-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.80	53.68

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.86	124.81

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 1.236(In)
Areal adjustment factor = 99.97 %
Adjusted average point rain = 1.236(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	56.0	0.511	0.900	0.097	1.000	0.097
					Sum (F) =	0.097

Area averaged mean soil loss (F) (In/Hr) = 0.097
Minimum soil loss rate ((In/Hr)) = 0.049
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
			Sum = 100.000	Sum= 67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.193	(0.097)	0.019	0.173
2	0.17	1.30	0.193	(0.097)	0.019	0.173
3	0.25	1.10	0.163	(0.097)	0.016	0.147
4	0.33	1.50	0.222	(0.097)	0.022	0.200
5	0.42	1.50	0.222	(0.097)	0.022	0.200
6	0.50	1.80	0.267	(0.097)	0.027	0.240
7	0.58	1.50	0.222	(0.097)	0.022	0.200
8	0.67	1.80	0.267	(0.097)	0.027	0.240
9	0.75	1.80	0.267	(0.097)	0.027	0.240
10	0.83	1.50	0.222	(0.097)	0.022	0.200
11	0.92	1.60	0.237	(0.097)	0.024	0.214
12	1.00	1.80	0.267	(0.097)	0.027	0.240
13	1.08	2.20	0.326	(0.097)	0.033	0.294
14	1.17	2.20	0.326	(0.097)	0.033	0.294
15	1.25	2.20	0.326	(0.097)	0.033	0.294
16	1.33	2.00	0.297	(0.097)	0.030	0.267
17	1.42	2.60	0.386	(0.097)	0.039	0.347
18	1.50	2.70	0.400	(0.097)	0.040	0.360
19	1.58	2.40	0.356	(0.097)	0.036	0.320
20	1.67	2.70	0.400	(0.097)	0.040	0.360
21	1.75	3.30	0.489	(0.097)	0.049	0.440
22	1.83	3.10	0.460	(0.097)	0.046	0.414
23	1.92	2.90	0.430	(0.097)	0.043	0.387
24	2.00	3.00	0.445	(0.097)	0.044	0.400
25	2.08	3.10	0.460	(0.097)	0.046	0.414
26	2.17	4.20	0.623	(0.097)	0.062	0.561
27	2.25	5.00	0.741	(0.097)	0.074	0.667
28	2.33	3.50	0.519	(0.097)	0.052	0.467
29	2.42	6.80	1.008	0.097	(0.101)	0.911
30	2.50	7.30	1.082	0.097	(0.108)	0.985
31	2.58	8.20	1.216	0.097	(0.122)	1.119
32	2.67	5.90	0.875	(0.097)	0.087	0.787
33	2.75	2.00	0.297	(0.097)	0.030	0.267
34	2.83	1.80	0.267	(0.097)	0.027	0.240
35	2.92	1.80	0.267	(0.097)	0.027	0.240
36	3.00	0.60	0.089	(0.097)	0.009	0.080
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	13.4

Flood volume = Effective rainfall 1.12(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 6.2(Ac.Ft)
Total soil loss = 0.12(In)
Total soil loss = 0.673(Ac.Ft)
Total rainfall = 1.24(In)
Flood volume = 271693.6 Cubic Feet
Total soil loss = 29296.8 Cubic Feet

Peak flow rate of this hydrograph = 65.220(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 17.5 35.0 52.5 70.0
0+ 5	0.0167	2.42	VQ | | | |
0+10	0.0727	8.13	V Q | | | |
0+15	0.1382	9.52	V Q | | | |
0+20	0.2084	10.19	|V Q | | | |
0+25	0.2919	12.12	|V Q | | | |
0+30	0.3840	13.38	| V Q | | | |
0+35	0.4838	14.49	| V Q | | | |
0+40	0.5828	14.37	| V Q | | | |
0+45	0.6898	15.53	| V Q | | | |
0+50	0.7954	15.33	| V Q | | | |
0+55	0.8944	14.39	| V Q | | | |
1+ 0	0.9969	14.87	| V Q | | | |
1+ 5	1.1105	16.50	| V Q| | | |
1+10	1.2379	18.50	| V Q | | | |
1+15	1.3699	19.16	| V Q | | | |
1+20	1.5013	19.09	| VQ | | | |
1+25	1.6355	19.49	| VQ | | | |
1+30	1.7882	22.17	| |VQ | | | |
1+35	1.9453	22.81	| | VQ | | | |
1+40	2.1004	22.53	| | QV | | | |
1+45	2.2711	24.78	| | Q | | | |
1+50	2.4599	27.41	| | Q | | | |
1+55	2.6467	27.13	| | QV | | | |
2+ 0	2.8303	26.65	| | Q V | | | |
2+ 5	3.0171	27.13	| | Q V| | | |
2+10	3.2216	29.70	| | Q V | | |
2+15	3.4710	36.22	| | Q V | | |
2+20	3.7363	38.52	| | | QV | | |
2+25	4.0110	39.89	| | | Q V | | |
2+30	4.3857	54.41	| | | V |Q | |
2+35	4.8185	62.83	| | | V Q | |
2+40	5.2676	65.22	| | | | V Q |
2+45	5.6104	49.78	| | | Q | V |
2+50	5.8193	30.33	| | Q | | V |
2+55	5.9804	23.39	| | Q | | V |
3+ 0	6.1063	18.28	| | Q | | V|
3+ 5	6.1757	10.08	| Q | | | V|
3+10	6.2079	4.67	| Q | | | V|
3+15	6.2237	2.29	|Q | | | V|
3+20	6.2310	1.06	Q | | | V|
3+25	6.2349	0.57	Q | | | V|
3+30	6.2368	0.28	Q | | | V|
3+35	6.2372	0.07	Q | | | V|

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

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

Program License Serial Number 6400

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PROPOSED CONDITION 10-YEAR STORM EVENT

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Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.15	77.16

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	2.50	167.75

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.150(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 1.705(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 1.705(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	56.0	0.511	0.900	0.097	1.000	0.097
					Sum (F) =	0.097

Area averaged mean soil loss (F) (In/Hr) = 0.097
Minimum soil loss rate ((In/Hr)) = 0.049
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.102	(0.097)	0.010	0.092
2	0.17	0.60	0.123	(0.097)	0.012	0.110
3	0.25	0.60	0.123	(0.097)	0.012	0.110
4	0.33	0.60	0.123	(0.097)	0.012	0.110
5	0.42	0.60	0.123	(0.097)	0.012	0.110
6	0.50	0.70	0.143	(0.097)	0.014	0.129
7	0.58	0.70	0.143	(0.097)	0.014	0.129
8	0.67	0.70	0.143	(0.097)	0.014	0.129
9	0.75	0.70	0.143	(0.097)	0.014	0.129
10	0.83	0.70	0.143	(0.097)	0.014	0.129
11	0.92	0.70	0.143	(0.097)	0.014	0.129
12	1.00	0.80	0.164	(0.097)	0.016	0.147
13	1.08	0.80	0.164	(0.097)	0.016	0.147
14	1.17	0.80	0.164	(0.097)	0.016	0.147
15	1.25	0.80	0.164	(0.097)	0.016	0.147
16	1.33	0.80	0.164	(0.097)	0.016	0.147
17	1.42	0.80	0.164	(0.097)	0.016	0.147
18	1.50	0.80	0.164	(0.097)	0.016	0.147
19	1.58	0.80	0.164	(0.097)	0.016	0.147
20	1.67	0.80	0.164	(0.097)	0.016	0.147
21	1.75	0.80	0.164	(0.097)	0.016	0.147
22	1.83	0.80	0.164	(0.097)	0.016	0.147
23	1.92	0.80	0.164	(0.097)	0.016	0.147
24	2.00	0.90	0.184	(0.097)	0.018	0.166
25	2.08	0.80	0.164	(0.097)	0.016	0.147
26	2.17	0.90	0.184	(0.097)	0.018	0.166
27	2.25	0.90	0.184	(0.097)	0.018	0.166
28	2.33	0.90	0.184	(0.097)	0.018	0.166
29	2.42	0.90	0.184	(0.097)	0.018	0.166
30	2.50	0.90	0.184	(0.097)	0.018	0.166
31	2.58	0.90	0.184	(0.097)	0.018	0.166
32	2.67	0.90	0.184	(0.097)	0.018	0.166
33	2.75	1.00	0.205	(0.097)	0.020	0.184
34	2.83	1.00	0.205	(0.097)	0.020	0.184
35	2.92	1.00	0.205	(0.097)	0.020	0.184
36	3.00	1.00	0.205	(0.097)	0.020	0.184
37	3.08	1.00	0.205	(0.097)	0.020	0.184
38	3.17	1.10	0.225	(0.097)	0.023	0.203
39	3.25	1.10	0.225	(0.097)	0.023	0.203
40	3.33	1.10	0.225	(0.097)	0.023	0.203
41	3.42	1.20	0.246	(0.097)	0.025	0.221
42	3.50	1.30	0.266	(0.097)	0.027	0.239
43	3.58	1.40	0.286	(0.097)	0.029	0.258
44	3.67	1.40	0.286	(0.097)	0.029	0.258
45	3.75	1.50	0.307	(0.097)	0.031	0.276
46	3.83	1.50	0.307	(0.097)	0.031	0.276

47	3.92	1.60	0.327	(0.097)	0.033	0.295
48	4.00	1.60	0.327	(0.097)	0.033	0.295
49	4.08	1.70	0.348	(0.097)	0.035	0.313
50	4.17	1.80	0.368	(0.097)	0.037	0.331
51	4.25	1.90	0.389	(0.097)	0.039	0.350
52	4.33	2.00	0.409	(0.097)	0.041	0.368
53	4.42	2.10	0.430	(0.097)	0.043	0.387
54	4.50	2.10	0.430	(0.097)	0.043	0.387
55	4.58	2.20	0.450	(0.097)	0.045	0.405
56	4.67	2.30	0.471	(0.097)	0.047	0.424
57	4.75	2.40	0.491	(0.097)	0.049	0.442
58	4.83	2.40	0.491	(0.097)	0.049	0.442
59	4.92	2.50	0.512	(0.097)	0.051	0.460
60	5.00	2.60	0.532	(0.097)	0.053	0.479
61	5.08	3.10	0.634	(0.097)	0.063	0.571
62	5.17	3.60	0.737	(0.097)	0.074	0.663
63	5.25	3.90	0.798	(0.097)	0.080	0.718
64	5.33	4.20	0.859	(0.097)	0.086	0.773
65	5.42	4.70	0.962	(0.097)	0.096	0.865
66	5.50	5.60	1.146	0.097	(0.115)	1.049
67	5.58	1.90	0.389	(0.097)	0.039	0.350
68	5.67	0.90	0.184	(0.097)	0.018	0.166
69	5.75	0.60	0.123	(0.097)	0.012	0.110
70	5.83	0.50	0.102	(0.097)	0.010	0.092
71	5.92	0.30	0.061	(0.097)	0.006	0.055
72	6.00	0.20	0.041	(0.097)	0.004	0.037

(Loss Rate Not Used)

Sum = 100.0 Sum = 18.4

Flood volume = Effective rainfall 1.54(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 8.6(Ac.Ft)
Total soil loss = 0.17(In)
Total soil loss = 0.945(Ac.Ft)
Total rainfall = 1.71(In)
Flood volume = 374120.1 Cubic Feet
Total soil loss = 41173.7 Cubic Feet

Peak flow rate of this hydrograph = 57.779(CFS)

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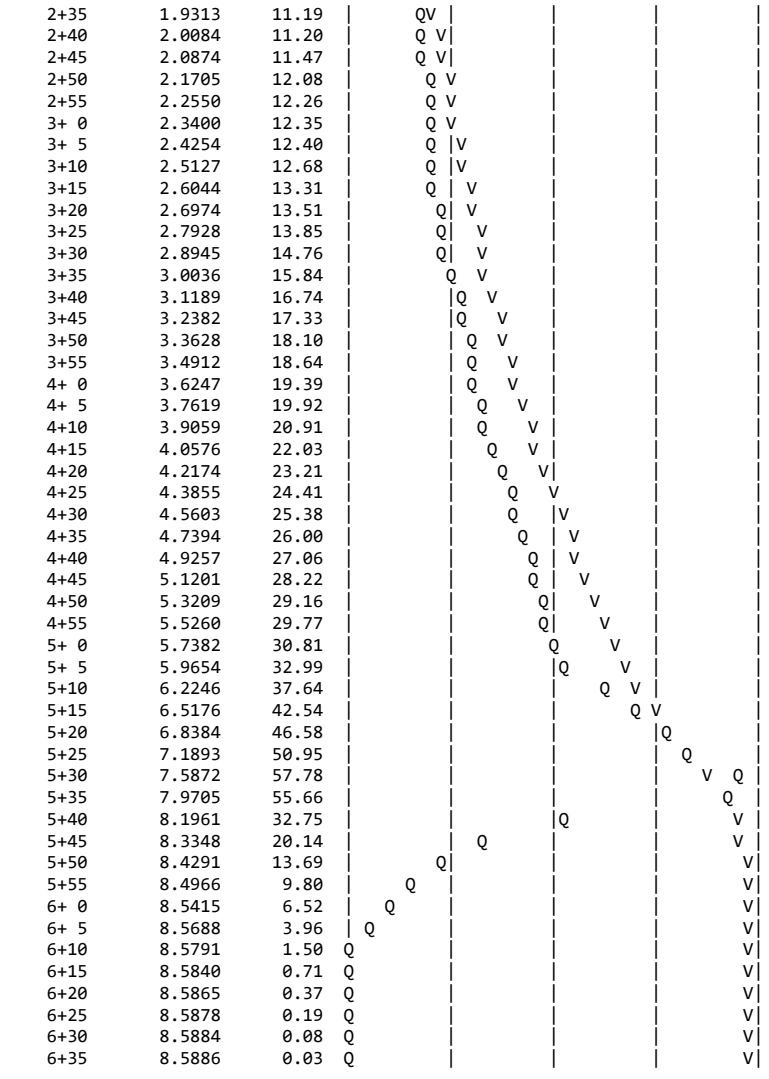
6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	15.0	30.0	45.0	60.0
0+ 5	0.0088	1.28	Q				
0+10	0.0403	4.57	V Q				
0+15	0.0824	6.11	V Q				
0+20	0.1287	6.72	V Q				
0+25	0.1773	7.05	V Q				
0+30	0.2289	7.50	V Q				
0+35	0.2856	8.23	V Q				
0+40	0.3442	8.51	V Q				
0+45	0.4035	8.61	V Q				
0+50	0.4632	8.66	V Q				
0+55	0.5230	8.69	V Q				
1+ 0	0.5847	8.96	V Q				
1+ 5	0.6507	9.58	V Q				
1+10	0.7180	9.77	V Q				
1+15	0.7859	9.86	V Q				
1+20	0.8541	9.90	V Q				
1+25	0.9225	9.93	V Q				
1+30	0.9911	9.95	V Q				
1+35	1.0597	9.97	V Q				
1+40	1.1283	9.97	VQ				
1+45	1.1970	9.97	VQ				
1+50	1.2656	9.97	VQ				
1+55	1.3343	9.97	Q				
2+ 0	1.4047	10.22	Q				
2+ 5	1.4775	10.57	VQ				
2+10	1.5492	10.41	QV				
2+15	1.6244	10.92	Q				
2+20	1.7006	11.06	Q				
2+25	1.7773	11.13	QV				
2+30	1.8542	11.17	QV				



2+35	1.9313	11.19	
2+40	2.0084	11.20	
2+45	2.0874	11.47	
2+50	2.1705	12.08	
2+55	2.2550	12.26	
3+ 0	2.3400	12.35	
3+ 5	2.4254	12.40	
3+10	2.5127	12.68	
3+15	2.6044	13.31	
3+20	2.6974	13.51	
3+25	2.7928	13.85	
3+30	2.8945	14.76	
3+35	3.0036	15.84	
3+40	3.1189	16.74	
3+45	3.2382	17.33	
3+50	3.3628	18.10	
3+55	3.4912	18.64	
4+ 0	3.6247	19.39	
4+ 5	3.7619	19.92	
4+10	3.9059	20.91	
4+15	4.0576	22.03	
4+20	4.2174	23.21	
4+25	4.3855	24.41	
4+30	4.5603	25.38	
4+35	4.7394	26.00	
4+40	4.9257	27.06	
4+45	5.1201	28.22	
4+50	5.3209	29.16	
4+55	5.5260	29.77	
5+ 0	5.7382	30.81	
5+ 5	5.9654	32.99	
5+10	6.2246	37.64	
5+15	6.5176	42.54	
5+20	6.8384	46.58	
5+25	7.1893	50.95	
5+30	7.5872	57.78	
5+35	7.9705	55.66	
5+40	8.1961	32.75	
5+45	8.3348	20.14	
5+50	8.4291	13.69	
5+55	8.4966	9.80	
6+ 0	8.5415	6.52	
6+ 5	8.5688	3.96	
6+10	8.5791	1.50	
6+15	8.5840	0.71	
6+20	8.5865	0.37	
6+25	8.5878	0.19	
6+30	8.5884	0.08	
6+35	8.5886	0.03	

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 07/31/20 File: 3828PR102410.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 10-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.75	117.42

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	4.50	301.95

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.750(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 2.881(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 2.881(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	56.0	0.511	0.900	0.097	1.000	0.097
					Sum (F) =	0.097

Area averaged mean soil loss (F) (In/Hr) = 0.097
Minimum soil loss rate ((In/Hr)) = 0.049
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
		Sum = 100.000	Sum=	67.624

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

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.023	(0.172)	0.002	0.021
2	0.17	0.07	0.023	(0.171)	0.002	0.021
3	0.25	0.07	0.023	(0.171)	0.002	0.021
4	0.33	0.10	0.035	(0.170)	0.003	0.031
5	0.42	0.10	0.035	(0.169)	0.003	0.031
6	0.50	0.10	0.035	(0.169)	0.003	0.031
7	0.58	0.10	0.035	(0.168)	0.003	0.031
8	0.67	0.10	0.035	(0.167)	0.003	0.031
9	0.75	0.10	0.035	(0.167)	0.003	0.031
10	0.83	0.13	0.046	(0.166)	0.005	0.041
11	0.92	0.13	0.046	(0.165)	0.005	0.041
12	1.00	0.13	0.046	(0.165)	0.005	0.041
13	1.08	0.10	0.035	(0.164)	0.003	0.031
14	1.17	0.10	0.035	(0.163)	0.003	0.031
15	1.25	0.10	0.035	(0.163)	0.003	0.031
16	1.33	0.10	0.035	(0.162)	0.003	0.031
17	1.42	0.10	0.035	(0.162)	0.003	0.031
18	1.50	0.10	0.035	(0.161)	0.003	0.031
19	1.58	0.10	0.035	(0.160)	0.003	0.031
20	1.67	0.10	0.035	(0.160)	0.003	0.031
21	1.75	0.10	0.035	(0.159)	0.003	0.031
22	1.83	0.13	0.046	(0.158)	0.005	0.041
23	1.92	0.13	0.046	(0.158)	0.005	0.041
24	2.00	0.13	0.046	(0.157)	0.005	0.041
25	2.08	0.13	0.046	(0.156)	0.005	0.041
26	2.17	0.13	0.046	(0.156)	0.005	0.041
27	2.25	0.13	0.046	(0.155)	0.005	0.041
28	2.33	0.13	0.046	(0.155)	0.005	0.041
29	2.42	0.13	0.046	(0.154)	0.005	0.041
30	2.50	0.13	0.046	(0.153)	0.005	0.041
31	2.58	0.17	0.058	(0.153)	0.006	0.052
32	2.67	0.17	0.058	(0.152)	0.006	0.052
33	2.75	0.17	0.058	(0.151)	0.006	0.052
34	2.83	0.17	0.058	(0.151)	0.006	0.052
35	2.92	0.17	0.058	(0.150)	0.006	0.052
36	3.00	0.17	0.058	(0.150)	0.006	0.052
37	3.08	0.17	0.058	(0.149)	0.006	0.052
38	3.17	0.17	0.058	(0.148)	0.006	0.052
39	3.25	0.17	0.058	(0.148)	0.006	0.052
40	3.33	0.17	0.058	(0.147)	0.006	0.052
41	3.42	0.17	0.058	(0.146)	0.006	0.052
42	3.50	0.17	0.058	(0.146)	0.006	0.052
43	3.58	0.17	0.058	(0.145)	0.006	0.052
44	3.67	0.17	0.058	(0.145)	0.006	0.052
45	3.75	0.17	0.058	(0.144)	0.006	0.052
46	3.83	0.20	0.069	(0.143)	0.007	0.062

47	3.92	0.20	0.069	(0.143)	0.007	0.062
48	4.00	0.20	0.069	(0.142)	0.007	0.062
49	4.08	0.20	0.069	(0.142)	0.007	0.062
50	4.17	0.20	0.069	(0.141)	0.007	0.062
51	4.25	0.20	0.069	(0.140)	0.007	0.062
52	4.33	0.23	0.081	(0.140)	0.008	0.073
53	4.42	0.23	0.081	(0.139)	0.008	0.073
54	4.50	0.23	0.081	(0.139)	0.008	0.073
55	4.58	0.23	0.081	(0.138)	0.008	0.073
56	4.67	0.23	0.081	(0.137)	0.008	0.073
57	4.75	0.23	0.081	(0.137)	0.008	0.073
58	4.83	0.27	0.092	(0.136)	0.009	0.083
59	4.92	0.27	0.092	(0.136)	0.009	0.083
60	5.00	0.27	0.092	(0.135)	0.009	0.083
61	5.08	0.20	0.069	(0.134)	0.007	0.062
62	5.17	0.20	0.069	(0.134)	0.007	0.062
63	5.25	0.20	0.069	(0.133)	0.007	0.062
64	5.33	0.23	0.081	(0.133)	0.008	0.073
65	5.42	0.23	0.081	(0.132)	0.008	0.073
66	5.50	0.23	0.081	(0.132)	0.008	0.073
67	5.58	0.27	0.092	(0.131)	0.009	0.083
68	5.67	0.27	0.092	(0.130)	0.009	0.083
69	5.75	0.27	0.092	(0.130)	0.009	0.083
70	5.83	0.27	0.092	(0.129)	0.009	0.083
71	5.92	0.27	0.092	(0.129)	0.009	0.083
72	6.00	0.27	0.092	(0.128)	0.009	0.083
73	6.08	0.30	0.104	(0.128)	0.010	0.093
74	6.17	0.30	0.104	(0.127)	0.010	0.093
75	6.25	0.30	0.104	(0.126)	0.010	0.093
76	6.33	0.30	0.104	(0.126)	0.010	0.093
77	6.42	0.30	0.104	(0.125)	0.010	0.093
78	6.50	0.30	0.104	(0.125)	0.010	0.093
79	6.58	0.33	0.115	(0.124)	0.012	0.104
80	6.67	0.33	0.115	(0.124)	0.012	0.104
81	6.75	0.33	0.115	(0.123)	0.012	0.104
82	6.83	0.33	0.115	(0.122)	0.012	0.104
83	6.92	0.33	0.115	(0.122)	0.012	0.104
84	7.00	0.33	0.115	(0.121)	0.012	0.104
85	7.08	0.33	0.115	(0.121)	0.012	0.104
86	7.17	0.33	0.115	(0.120)	0.012	0.104
87	7.25	0.33	0.115	(0.120)	0.012	0.104
88	7.33	0.37	0.127	(0.119)	0.013	0.114
89	7.42	0.37	0.127	(0.119)	0.013	0.114
90	7.50	0.37	0.127	(0.118)	0.013	0.114
91	7.58	0.40	0.138	(0.118)	0.014	0.124
92	7.67	0.40	0.138	(0.117)	0.014	0.124
93	7.75	0.40	0.138	(0.116)	0.014	0.124
94	7.83	0.43	0.150	(0.116)	0.015	0.135
95	7.92	0.43	0.150	(0.115)	0.015	0.135
96	8.00	0.43	0.150	(0.115)	0.015	0.135
97	8.08	0.50	0.173	(0.114)	0.017	0.156
98	8.17	0.50	0.173	(0.114)	0.017	0.156
99	8.25	0.50	0.173	(0.113)	0.017	0.156
100	8.33	0.50	0.173	(0.113)	0.017	0.156
101	8.42	0.50	0.173	(0.112)	0.017	0.156
102	8.50	0.50	0.173	(0.112)	0.017	0.156
103	8.58	0.53	0.184	(0.111)	0.018	0.166
104	8.67	0.53	0.184	(0.111)	0.018	0.166
105	8.75	0.53	0.184	(0.110)	0.018	0.166
106	8.83	0.57	0.196	(0.110)	0.020	0.176
107	8.92	0.57	0.196	(0.109)	0.020	0.176
108	9.00	0.57	0.196	(0.109)	0.020	0.176
109	9.08	0.63	0.219	(0.108)	0.022	0.197
110	9.17	0.63	0.219	(0.108)	0.022	0.197
111	9.25	0.63	0.219	(0.107)	0.022	0.197
112	9.33	0.67	0.230	(0.107)	0.023	0.207
113	9.42	0.67	0.230	(0.106)	0.023	0.207
114	9.50	0.67	0.230	(0.105)	0.023	0.207
115	9.58	0.70	0.242	(0.105)	0.024	0.218
116	9.67	0.70	0.242	(0.104)	0.024	0.218
117	9.75	0.70	0.242	(0.104)	0.024	0.218
118	9.83	0.73	0.254	(0.103)	0.025	0.228
119	9.92	0.73	0.254	(0.103)	0.025	0.228
120	10.00	0.73	0.254	(0.102)	0.025	0.228
121	10.08	0.50	0.173	(0.102)	0.017	0.156
122	10.17	0.50	0.173	(0.101)	0.017	0.156
123	10.25	0.50	0.173	(0.101)	0.017	0.156

124	10.33	0.50	0.173	(0.101)	0.017	0.156
125	10.42	0.50	0.173	(0.100)	0.017	0.156
126	10.50	0.50	0.173	(0.100)	0.017	0.156
127	10.58	0.67	0.230	(0.099)	0.023	0.207
128	10.67	0.67	0.230	(0.099)	0.023	0.207
129	10.75	0.67	0.230	(0.098)	0.023	0.207
130	10.83	0.67	0.230	(0.098)	0.023	0.207
131	10.92	0.67	0.230	(0.097)	0.023	0.207
132	11.00	0.67	0.230	(0.097)	0.023	0.207
133	11.08	0.63	0.219	(0.096)	0.022	0.197
134	11.17	0.63	0.219	(0.096)	0.022	0.197
135	11.25	0.63	0.219	(0.095)	0.022	0.197
136	11.33	0.63	0.219	(0.095)	0.022	0.197
137	11.42	0.63	0.219	(0.094)	0.022	0.197
138	11.50	0.63	0.219	(0.094)	0.022	0.197
139	11.58	0.57	0.196	(0.093)	0.020	0.176
140	11.67	0.57	0.196	(0.093)	0.020	0.176
141	11.75	0.57	0.196	(0.092)	0.020	0.176
142	11.83	0.60	0.207	(0.092)	0.021	0.187
143	11.92	0.60	0.207	(0.092)	0.021	0.187
144	12.00	0.60	0.207	(0.091)	0.021	0.187
145	12.08	0.83	0.288	(0.091)	0.029	0.259
146	12.17	0.83	0.288	(0.090)	0.029	0.259
147	12.25	0.83	0.288	(0.090)	0.029	0.259
148	12.33	0.87	0.300	(0.089)	0.030	0.270
149	12.42	0.87	0.300	(0.089)	0.030	0.270
150	12.50	0.87	0.300	(0.088)	0.030	0.270
151	12.58	0.93	0.323	(0.088)	0.032	0.290
152	12.67	0.93	0.323	(0.087)	0.032	0.290
153	12.75	0.93	0.323	(0.087)	0.032	0.290
154	12.83	0.97	0.334	(0.087)	0.033	0.301
155	12.92	0.97	0.334	(0.086)	0.033	0.301
156	13.00	0.97	0.334	(0.086)	0.033	0.301
157	13.08	1.13	0.392	(0.085)	0.039	0.353
158	13.17	1.13	0.392	(0.085)	0.039	0.353
159	13.25	1.13	0.392	(0.084)	0.039	0.353
160	13.33	1.13	0.392	(0.084)	0.039	0.353
161	13.42	1.13	0.392	(0.084)	0.039	0.353
162	13.50	1.13	0.392	(0.083)	0.039	0.353
163	13.58	0.77	0.265	(0.083)	0.027	0.239
164	13.67	0.77	0.265	(0.082)	0.027	0.239
165	13.75	0.77	0.265	(0.082)	0.027	0.239
166	13.83	0.77	0.265	(0.081)	0.027	0.239
167	13.92	0.77	0.265	(0.081)	0.027	0.239
168	14.00	0.77	0.265	(0.081)	0.027	0.239
169	14.08	0.90	0.311	(0.080)	0.031	0.280
170	14.17	0.90	0.311	(0.080)	0.031	0.280
171	14.25	0.90	0.311	(0.079)	0.031	0.280
172	14.33	0.87	0.300	(0.079)	0.030	0.270
173	14.42	0.87	0.300	(0.079)	0.030	0.270
174	14.50	0.87	0.300	(0.078)	0.030	0.270
175	14.58	0.87	0.300	(0.078)	0.030	0.270
176	14.67	0.87	0.300	(0.077)	0.030	0.270
177	14.75	0.87	0.300	(0.077)	0.030	0.270
178	14.83	0.83	0.288	(0.077)	0.029	0.259
179	14.92	0.83	0.288	(0.076)	0.029	0.259
180	15.00	0.83	0.288	(0.076)	0.029	0.259
181	15.08	0.80	0.277	(0.075)	0.028	0.249
182	15.17	0.80	0.277	(0.075)	0.028	0.249
183	15.25	0.80	0.277	(0.075)	0.028	0.249
184	15.33	0.77	0.265	(0.074)	0.027	0.239
185	15.42	0.77	0.265	(0.074)	0.027	0.239
186	15.50	0.77	0.265	(0.073)	0.027	0.239
187	15.58	0.63	0.219	(0.073)	0.022	0.197
188	15.67	0.63	0.219	(0.073)	0.022	0.197
189	15.75	0.63	0.219	(0.072)	0.022	0.197
190	15.83	0.63	0.219	(0.072)	0.022	0.197
191	15.92	0.63	0.219	(0.072)	0.022	0.197
192	16.00	0.63	0.219	(0.071)	0.022	0.197
193	16.08	0.13	0.046	(0.071)	0.005	0.041
194	16.17	0.13	0.046	(0.071)	0.005	0.041
195	16.25	0.13	0.046	(0.070)	0.005	0.041
196	16.33	0.13	0.046	(0.070)	0.005	0.041
197	16.42	0.13	0.046	(0.069)	0.005	0.041
198	16.50	0.13	0.046	(0.069)	0.005	0.041
199	16.58	0.10	0.035	(0.069)	0.003	0.031
200	16.67	0.10	0.035	(0.068)	0.003	0.031

201	16.75	0.10	0.035	(0.068)	0.003	0.031
202	16.83	0.10	0.035	(0.068)	0.003	0.031
203	16.92	0.10	0.035	(0.067)	0.003	0.031
204	17.00	0.10	0.035	(0.067)	0.003	0.031
205	17.08	0.17	0.058	(0.067)	0.006	0.052
206	17.17	0.17	0.058	(0.066)	0.006	0.052
207	17.25	0.17	0.058	(0.066)	0.006	0.052
208	17.33	0.17	0.058	(0.066)	0.006	0.052
209	17.42	0.17	0.058	(0.065)	0.006	0.052
210	17.50	0.17	0.058	(0.065)	0.006	0.052
211	17.58	0.17	0.058	(0.065)	0.006	0.052
212	17.67	0.17	0.058	(0.064)	0.006	0.052
213	17.75	0.17	0.058	(0.064)	0.006	0.052
214	17.83	0.13	0.046	(0.064)	0.005	0.041
215	17.92	0.13	0.046	(0.063)	0.005	0.041
216	18.00	0.13	0.046	(0.063)	0.005	0.041
217	18.08	0.13	0.046	(0.063)	0.005	0.041
218	18.17	0.13	0.046	(0.063)	0.005	0.041
219	18.25	0.13	0.046	(0.062)	0.005	0.041
220	18.33	0.13	0.046	(0.062)	0.005	0.041
221	18.42	0.13	0.046	(0.062)	0.005	0.041
222	18.50	0.13	0.046	(0.061)	0.005	0.041
223	18.58	0.10	0.035	(0.061)	0.003	0.031
224	18.67	0.10	0.035	(0.061)	0.003	0.031
225	18.75	0.10	0.035	(0.060)	0.003	0.031
226	18.83	0.07	0.023	(0.060)	0.002	0.021
227	18.92	0.07	0.023	(0.060)	0.002	0.021
228	19.00	0.07	0.023	(0.060)	0.002	0.021
229	19.08	0.10	0.035	(0.059)	0.003	0.031
230	19.17	0.10	0.035	(0.059)	0.003	0.031
231	19.25	0.10	0.035	(0.059)	0.003	0.031
232	19.33	0.13	0.046	(0.058)	0.005	0.041
233	19.42	0.13	0.046	(0.058)	0.005	0.041
234	19.50	0.13	0.046	(0.058)	0.005	0.041
235	19.58	0.10	0.035	(0.058)	0.003	0.031
236	19.67	0.10	0.035	(0.057)	0.003	0.031
237	19.75	0.10	0.035	(0.057)	0.003	0.031
238	19.83	0.07	0.023	(0.057)	0.002	0.021
239	19.92	0.07	0.023	(0.057)	0.002	0.021
240	20.00	0.07	0.023	(0.056)	0.002	0.021
241	20.08	0.10	0.035	(0.056)	0.003	0.031
242	20.17	0.10	0.035	(0.056)	0.003	0.031
243	20.25	0.10	0.035	(0.056)	0.003	0.031
244	20.33	0.10	0.035	(0.055)	0.003	0.031
245	20.42	0.10	0.035	(0.055)	0.003	0.031
246	20.50	0.10	0.035	(0.055)	0.003	0.031
247	20.58	0.10	0.035	(0.055)	0.003	0.031
248	20.67	0.10	0.035	(0.054)	0.003	0.031
249	20.75	0.10	0.035	(0.054)	0.003	0.031
250	20.83	0.07	0.023	(0.054)	0.002	0.021
251	20.92	0.07	0.023	(0.054)	0.002	0.021
252	21.00	0.07	0.023	(0.054)	0.002	0.021
253	21.08	0.10	0.035	(0.053)	0.003	0.031
254	21.17	0.10	0.035	(0.053)	0.003	0.031
255	21.25	0.10	0.035	(0.053)	0.003	0.031
256	21.33	0.07	0.023	(0.053)	0.002	0.021
257	21.42	0.07	0.023	(0.053)	0.002	0.021
258	21.50	0.07	0.023	(0.052)	0.002	0.021
259	21.58	0.10	0.035	(0.052)	0.003	0.031
260	21.67	0.10	0.035	(0.052)	0.003	0.031
261	21.75	0.10	0.035	(0.052)	0.003	0.031
262	21.83	0.07	0.023	(0.052)	0.002	0.021
263	21.92	0.07	0.023	(0.051)	0.002	0.021
264	22.00	0.07	0.023	(0.051)	0.002	0.021
265	22.08	0.10	0.035	(0.051)	0.003	0.031
266	22.17	0.10	0.035	(0.051)	0.003	0.031
267	22.25	0.10	0.035	(0.051)	0.003	0.031
268	22.33	0.07	0.023	(0.051)	0.002	0.021
269	22.42	0.07	0.023	(0.050)	0.002	0.021
270	22.50	0.07	0.023	(0.050)	0.002	0.021
271	22.58	0.07	0.023	(0.050)	0.002	0.021
272	22.67	0.07	0.023	(0.050)	0.002	0.021
273	22.75	0.07	0.023	(0.050)	0.002	0.021
274	22.83	0.07	0.023	(0.050)	0.002	0.021
275	22.92	0.07	0.023	(0.050)	0.002	0.021
276	23.00	0.07	0.023	(0.049)	0.002	0.021
277	23.08	0.07	0.023	(0.049)	0.002	0.021

278	23.17	0.07	0.023	(0.049)	0.002	0.021	
279	23.25	0.07	0.023	(0.049)	0.002	0.021	
280	23.33	0.07	0.023	(0.049)	0.002	0.021	
281	23.42	0.07	0.023	(0.049)	0.002	0.021	
282	23.50	0.07	0.023	(0.049)	0.002	0.021	
283	23.58	0.07	0.023	(0.049)	0.002	0.021	
284	23.67	0.07	0.023	(0.049)	0.002	0.021	
285	23.75	0.07	0.023	(0.049)	0.002	0.021	
286	23.83	0.07	0.023	(0.049)	0.002	0.021	
287	23.92	0.07	0.023	(0.049)	0.002	0.021	
288	24.00	0.07	0.023	(0.049)	0.002	0.021	

(Loss Rate Not Used)

Sum = 100.0 Sum = 31.1

Flood volume = Effective rainfall 2.59(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 14.5(Ac.Ft)
Total soil loss = 0.29(In)
Total soil loss = 1.611(Ac.Ft)
Total rainfall = 2.88(In)
Flood volume = 631559.3 Cubic Feet
Total soil loss = 70173.3 Cubic Feet

Peak flow rate of this hydrograph = 23.765(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	7.5	15.0	22.5	30.0
0+ 5	0.0020	0.29	Q				
0+10	0.0087	0.97	VQ				
0+15	0.0168	1.18	VQ				
0+20	0.0266	1.42	VQ				
0+25	0.0392	1.82	V Q				
0+30	0.0526	1.96	V Q				
0+35	0.0666	2.03	V Q				
0+40	0.0808	2.07	V Q				
0+45	0.0952	2.09	V Q				
0+50	0.1106	2.24	V Q				
0+55	0.1285	2.59	V Q				
1+ 0	0.1471	2.70	V Q				
1+ 5	0.1650	2.60	V Q				
1+10	0.1807	2.28	V Q				
1+15	0.1958	2.20	V Q				
1+20	0.2107	2.16	V Q				
1+25	0.2255	2.14	V Q				
1+30	0.2401	2.12	V Q				
1+35	0.2546	2.11	V Q				
1+40	0.2691	2.11	V Q				
1+45	0.2836	2.11	V Q				
1+50	0.2991	2.25	V Q				
1+55	0.3170	2.59	V Q				
2+ 0	0.3355	2.70	V Q				
2+ 5	0.3544	2.74	V Q				
2+10	0.3735	2.77	|V Q				
2+15	0.3927	2.79	|V Q				
2+20	0.4120	2.80	|V Q				
2+25	0.4313	2.81	|V Q				
2+30	0.4507	2.81	|V Q				
2+35	0.4710	2.95	|V Q				
2+40	0.4937	3.29	|V Q				
2+45	0.5171	3.40	|V Q				
2+50	0.5408	3.45	|V Q				
2+55	0.5647	3.47	|V Q				
3+ 0	0.5888	3.49	|V Q				
3+ 5	0.6129	3.50	|V Q				
3+10	0.6370	3.51	|V Q				
3+15	0.6612	3.51	|V Q				
3+20	0.6854	3.51	|V Q				
3+25	0.7095	3.51	|V Q				
3+30	0.7337	3.51	| V Q				
3+35	0.7579	3.51	| V Q				
3+40	0.7820	3.51	| V Q				
3+45	0.8062	3.51	| V Q				

3+50	0.8313	3.65	V Q			
3+55	0.8589	3.99	V Q			
4+ 0	0.8871	4.10	V Q			
4+ 5	0.9157	4.15	V Q			
4+10	0.9444	4.17	V Q			
4+15	0.9733	4.19	V Q			
4+20	1.0032	4.35	V Q			
4+25	1.0356	4.70	V Q			
4+30	1.0686	4.80	V Q			
4+35	1.1020	4.85	V Q			
4+40	1.1356	4.88	V Q			
4+45	1.1693	4.89	V Q			
4+50	1.2041	5.05	V Q			
4+55	1.2413	5.40	V Q			
5+ 0	1.2792	5.50	V Q			
5+ 5	1.3154	5.26	V Q			
5+10	1.3471	4.61	V Q			
5+15	1.3775	4.41	V Q			
5+20	1.4083	4.47	V Q			
5+25	1.4412	4.77	V Q			
5+30	1.4745	4.84	V Q			
5+35	1.5090	5.01	V Q			
5+40	1.5459	5.36	V Q			
5+45	1.5837	5.48	V Q			
5+50	1.6219	5.54	V Q			
5+55	1.6603	5.58	V Q			
6+ 0	1.6988	5.60	V Q			
6+ 5	1.7384	5.75	V Q			
6+10	1.7804	6.10	V Q			
6+15	1.8232	6.21	V Q			
6+20	1.8662	6.25	V Q			
6+25	1.9095	6.28	V Q			
6+30	1.9529	6.30	V Q			
6+35	1.9973	6.45	V Q			
6+40	2.0441	6.80	V Q			
6+45	2.0917	6.91	V Q			
6+50	2.1396	6.95	V Q			
6+55	2.1877	6.98	V Q			
7+ 0	2.2359	7.00	V Q			
7+ 5	2.2841	7.01	V Q			
7+10	2.3325	7.02	V Q			
7+15	2.3808	7.02	V Q			
7+20	2.4301	7.16	V Q			
7+25	2.4818	7.50	V Q			
7+30	2.5342	7.61	V Q			
7+35	2.5879	7.80	V Q			
7+40	2.6442	8.17	V Q			
7+45	2.7013	8.29	V Q			
7+50	2.7598	8.49	V Q			
7+55	2.8209	8.87	V Q			
8+ 0	2.8828	8.99	V Q			
8+ 5	2.9472	9.34	V Q			
8+10	3.0164	10.06	V Q			
8+15	3.0873	10.29	V Q			
8+20	3.1589	10.39	V Q			
8+25	3.2309	10.45	V Q			
8+30	3.3031	10.49	V Q			
8+35	3.3765	10.65	V Q			
8+40	3.4523	11.01	V Q			
8+45	3.5289	11.12	V Q			
8+50	3.6068	11.31	V Q			
8+55	3.6872	11.68	V Q			
9+ 0	3.7685	11.80	V Q			
9+ 5	3.8521	12.15	V Q			
9+10	3.9407	12.87	V Q			
9+15	4.0309	13.09	V Q			
9+20	4.1228	13.34	V Q			
9+25	4.2175	13.75	V Q			
9+30	4.3131	13.89	V Q			
9+35	4.4102	14.10	V Q			
9+40	4.5100	14.49	V Q			
9+45	4.6106	14.61	V Q			
9+50	4.7126	14.81	V Q			
9+55	4.8172	15.19	V Q			
10+ 0	4.9226	15.31	V Q			
10+ 5	5.0215	14.35	V Q			
10+10	5.1041	12.00	VQ			

10+15	5.1818	11.28	|	VQ	|	|	|
10+20	5.2573	10.96	|	Q	|	|	|
10+25	5.3315	10.78	|	Q	|	|	|
10+30	5.4049	10.66	|	Q	|	|	|
10+35	5.4828	11.31	|	Q	|	|	|
10+40	5.5720	12.96	|	V Q	|	|	|
10+45	5.6648	13.48	|	V Q	|	|	|
10+50	5.7594	13.72	|	V Q	|	|	|
10+55	5.8548	13.86	|	V Q	|	|	|
11+ 0	5.9508	13.94	|	V Q	|	|	|
11+ 5	6.0462	13.85	|	V Q	|	|	|
11+10	6.1395	13.55	|	V Q	|	|	|
11+15	6.2320	13.44	|	Q	|	|	|
11+20	6.3243	13.40	|	Q	|	|	|
11+25	6.4164	13.37	|	Q	|	|	|
11+30	6.5083	13.35	|	Q	|	|	|
11+35	6.5982	13.05	|	QV	|	|	|
11+40	6.6833	12.36	|	Q V	|	|	|
11+45	6.7670	12.15	|	Q V	|	|	|
11+50	6.8510	12.20	|	Q V	|	|	|
11+55	6.9370	12.49	|	Q V	|	|	|
12+ 0	7.0235	12.56	|	Q V	|	|	|
12+ 5	7.1172	13.60	|	QV	|	|	|
12+10	7.2274	16.00	|	V	| Q	|	|
12+15	7.3427	16.75	|	V Q	|	|	|
12+20	7.4615	17.24	|	V Q	|	|	|
12+25	7.5839	17.78	|	V Q	|	|	|
12+30	7.7079	18.00	|	V Q	|	|	|
12+35	7.8347	18.41	|	V Q	|	|	|
12+40	7.9668	19.18	|	V Q	|	|	|
12+45	8.1005	19.41	|	V Q	|	|	|
12+50	8.2359	19.66	|	V Q	|	|	|
12+55	8.3741	20.06	|	V Q	|	|	|
13+ 0	8.5132	20.20	|	V Q	|	|	|
13+ 5	8.6578	20.99	|	V Q	|	|	|
13+10	8.8144	22.75	|	V	Q	|	|
13+15	8.9748	23.29	|	V	Q	|	|
13+20	9.1369	23.54	|	V	Q	|	|
13+25	9.3000	23.68	|	V	Q	|	|
13+30	9.4637	23.77	|	V	Q	|	|
13+35	9.6168	22.23	|	V	Q	|	|
13+40	9.7442	18.51	|	Q	V	|	|
13+45	9.8638	17.35	|	Q	V	|	|
13+50	9.9797	16.83	|	Q	V	|	|
13+55	10.0935	16.53	|	Q	V	|	|
14+ 0	10.2061	16.35	|	Q	V	|	|
14+ 5	10.3219	16.81	|	Q	V	|	|
14+10	10.4464	18.08	|	Q	V	|	|
14+15	10.5739	18.51	|	Q	V	|	|
14+20	10.7017	18.55	|	Q	V	|	|
14+25	10.8278	18.32	|	Q	V	|	|
14+30	10.9537	18.28	|	Q	V	|	|
14+35	11.0796	18.27	|	Q	V	|	|
14+40	11.2055	18.28	|	Q	V	|	|
14+45	11.3312	18.26	|	Q	V	|	|
14+50	11.4560	18.11	|	Q	V	|	|
14+55	11.5783	17.76	|	Q	V	|	|
15+ 0	11.6998	17.65	|	Q	V	|	|
15+ 5	11.8201	17.46	|	Q	V	|	|
15+10	11.9378	17.09	|	Q	V	|	|
15+15	12.0547	16.97	|	Q	V	|	|
15+20	12.1702	16.77	|	Q	V	|	|
15+25	12.2831	16.39	|	Q	V	|	|
15+30	12.3951	16.27	|	Q	V	|	|
15+35	12.5028	15.63	|	Q	V	|	|
15+40	12.6008	14.23	|	Q	V	|	|
15+45	12.6958	13.79	|	Q	V	|	|
15+50	12.7894	13.59	|	Q	V	|	|
15+55	12.8822	13.48	|	Q	V	|	|
16+ 0	12.9745	13.41	|	Q	V	|	|
16+ 5	13.0516	11.20	|	Q	V	|	|
16+10	13.0932	6.04	|	Q	V	|	|
16+15	13.1240	4.46	|	Q	V	|	|
16+20	13.1498	3.74	|	Q	V	|	|
16+25	13.1728	3.34	|	Q	V	|	|
16+30	13.1941	3.09	|	Q	V	|	|
16+35	13.2133	2.79	|	Q	V	|	|

16+40	13.2293	2.32	Q				V
16+45	13.2445	2.22	Q				V
16+50	13.2595	2.17	Q				V
16+55	13.2742	2.14	Q				V
17+ 0	13.2888	2.12	Q				V
17+ 5	13.3054	2.40	Q				V
17+10	13.3266	3.08	Q				V
17+15	13.3492	3.29	Q				V
17+20	13.3725	3.38	Q				V
17+25	13.3962	3.44	Q				V
17+30	13.4201	3.47	Q				V
17+35	13.4441	3.49	Q				V
17+40	13.4683	3.51	Q				V
17+45	13.4925	3.51	Q				V
17+50	13.5156	3.36	Q				V
17+55	13.5365	3.02	Q				V
18+ 0	13.5565	2.92	Q				V
18+ 5	13.5763	2.87	Q				V
18+10	13.5959	2.84	Q				V
18+15	13.6153	2.83	Q				V
18+20	13.6347	2.82	Q				V
18+25	13.6541	2.81	Q				V
18+30	13.6734	2.81	Q				V
18+35	13.6917	2.66	Q				V
18+40	13.7077	2.32	Q				V
18+45	13.7230	2.22	Q				V
18+50	13.7369	2.02	Q				V
18+55	13.7483	1.65	Q				V
19+ 0	13.7589	1.53	Q				V
19+ 5	13.7700	1.62	Q				V
19+10	13.7833	1.93	Q				V
19+15	13.7971	2.01	Q				V
19+20	13.8123	2.20	Q				V
19+25	13.8299	2.56	Q				V
19+30	13.8483	2.68	Q				V
19+35	13.8662	2.59	Q				V
19+40	13.8819	2.28	Q				V
19+45	13.8970	2.20	Q				V
19+50	13.9109	2.01	Q				V
19+55	13.9223	1.65	Q				V
20+ 0	13.9328	1.53	Q				V
20+ 5	13.9440	1.62	Q				V
20+10	13.9573	1.93	Q				V
20+15	13.9711	2.01	Q				V
20+20	13.9852	2.05	Q				V
20+25	13.9995	2.07	Q				V
20+30	14.0139	2.09	Q				V
20+35	14.0283	2.10	Q				V
20+40	14.0428	2.11	Q				V
20+45	14.0573	2.11	Q				V
20+50	14.0708	1.96	Q				V
20+55	14.0820	1.62	Q				V
21+ 0	14.0924	1.51	Q				V
21+ 5	14.1035	1.61	Q				V
21+10	14.1167	1.93	Q				V
21+15	14.1306	2.01	Q				V
21+20	14.1437	1.91	Q				V
21+25	14.1546	1.58	Q				V
21+30	14.1649	1.50	Q				V
21+35	14.1760	1.60	Q				V
21+40	14.1892	1.93	Q				V
21+45	14.2031	2.01	Q				V
21+50	14.2162	1.91	Q				V
21+55	14.2271	1.58	Q				V
22+ 0	14.2374	1.50	Q				V
22+ 5	14.2485	1.60	Q				V
22+10	14.2617	1.93	Q				V
22+15	14.2756	2.01	Q				V
22+20	14.2887	1.91	Q				V
22+25	14.2996	1.58	Q				V
22+30	14.3099	1.50	Q				V
22+35	14.3200	1.46	Q				V
22+40	14.3299	1.44	Q				V
22+45	14.3397	1.42	Q				V
22+50	14.3494	1.41	Q				V
22+55	14.3591	1.40	Q				V
23+ 0	14.3687	1.40	Q				V

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   23+ 5      14.3784      1.40  |Q        |         |         |        V|
   23+10      14.3881      1.40  |Q        |         |         |        V|
   23+15      14.3977      1.40  |Q        |         |         |        V|
   23+20      14.4074      1.40  |Q        |         |         |        V|
   23+25      14.4171      1.40  |Q        |         |         |        V|
   23+30      14.4267      1.40  |Q        |         |         |        V|
   23+35      14.4364      1.40  |Q        |         |         |        V|
   23+40      14.4461      1.40  |Q        |         |         |        V|
   23+45      14.4557      1.40  |Q        |         |         |        V|
   23+50      14.4654      1.40  |Q        |         |         |        V|
   23+55      14.4750      1.40  |Q        |         |         |        V|
   24+ 0      14.4847      1.40  |Q        |         |         |        V|
   24+ 5      14.4924      1.11  |Q        |         |         |        V|
   24+10      14.4954      0.43  Q         |         |         |        V|
   24+15      14.4969      0.22  Q         |         |         |        V|
   24+20      14.4977      0.13  Q         |         |         |        V|
   24+25      14.4982      0.07  Q         |         |         |        V|
   24+30      14.4985      0.04  Q         |         |         |        V|
   24+35      14.4986      0.02  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 07/31/20 File: 3828PR1001100.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 100-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.50	33.55

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.20	80.52

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.500(In)
Area Averaged 100-Year Rainfall = 1.200(In)

Point rain (area averaged) = 1.200(In)
Areal adjustment factor = 99.94 %
Adjusted average point rain = 1.199(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	74.8	0.305	0.900	0.058	1.000	0.058
					Sum (F) =	0.058

Area averaged mean soil loss (F) (In/Hr) = 0.058
Minimum soil loss rate ((In/Hr)) = 0.029
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
			Sum = 100.000 Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.604	0.058	(0.060)	0.546
2	0.17	4.30	0.619	0.058	(0.062)	0.561
3	0.25	5.00	0.720	0.058	(0.072)	0.662
4	0.33	5.00	0.720	0.058	(0.072)	0.662
5	0.42	5.80	0.835	0.058	(0.083)	0.777
6	0.50	6.50	0.935	0.058	(0.094)	0.877
7	0.58	7.40	1.065	0.058	(0.106)	1.007
8	0.67	8.60	1.238	0.058	(0.124)	1.180
9	0.75	12.30	1.770	0.058	(0.177)	1.712
10	0.83	29.10	4.188	0.058	(0.419)	4.130
11	0.92	6.80	0.979	0.058	(0.098)	0.921
12	1.00	5.00	0.720	0.058	(0.072)	0.662
		(Loss Rate Not Used)			
Sum =		100.0		Sum =	13.7

Flood volume = Effective rainfall 1.14(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 6.4(Ac.Ft)
Total soil loss = 0.06(In)
Total soil loss = 0.324(Ac.Ft)
Total rainfall = 1.20(In)
Flood volume = 277978.1 Cubic Feet
Total soil loss = 14131.7 Cubic Feet

Peak flow rate of this hydrograph = 176.999(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	50.0	100.0	150.0	200.0
0+ 5	0.0525	7.62	VQ				
0+10	0.2303	25.82	V Q				
0+15	0.4592	33.23	V Q				
0+20	0.7293	39.22	V Q				
0+25	1.0276	43.32	V Q				
0+30	1.3714	49.92	VQ				
0+35	1.7642	57.03	Q				
0+40	2.2179	65.89	Q				
0+45	2.7771	81.18	QV				
0+50	3.7090	135.32	V Q				
0+55	4.9280	177.00	V Q				

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                                                                3828PR1001100
    1+ 0       5.5857     95.50  |         |        Q|         |    V    |
    1+ 5       5.9868     58.24  |         |Q        |         |      V  |
    1+10       6.1686     26.39  |    Q    |         |         |       V |
    1+15       6.2711     14.88  | Q       |         |         |        V|
    1+20       6.3310      8.71  |Q        |         |         |        V|
    1+25       6.3681      5.38  |Q        |         |         |        V|
    1+30       6.3778      1.41  Q         |         |         |        V|
    1+35       6.3815      0.54  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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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 100-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	0.80	53.68

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.86	124.81

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 0.800(In)
Area Averaged 100-Year Rainfall = 1.860(In)

Point rain (area averaged) = 1.860(In)
Areal adjustment factor = 99.97 %
Adjusted average point rain = 1.859(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	74.8	0.305	0.900	0.058	1.000	0.058
					Sum (F) =	0.058

Area averaged mean soil loss (F) (In/Hr) = 0.058
Minimum soil loss rate ((In/Hr)) = 0.029
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.290	(0.058)	0.029	0.261
2	0.17	1.30	0.290	(0.058)	0.029	0.261
3	0.25	1.10	0.245	(0.058)	0.025	0.221
4	0.33	1.50	0.335	(0.058)	0.033	0.301
5	0.42	1.50	0.335	(0.058)	0.033	0.301
6	0.50	1.80	0.402	(0.058)	0.040	0.361
7	0.58	1.50	0.335	(0.058)	0.033	0.301
8	0.67	1.80	0.402	(0.058)	0.040	0.361
9	0.75	1.80	0.402	(0.058)	0.040	0.361
10	0.83	1.50	0.335	(0.058)	0.033	0.301
11	0.92	1.60	0.357	(0.058)	0.036	0.321
12	1.00	1.80	0.402	(0.058)	0.040	0.361
13	1.08	2.20	0.491	(0.058)	0.049	0.442
14	1.17	2.20	0.491	(0.058)	0.049	0.442
15	1.25	2.20	0.491	(0.058)	0.049	0.442
16	1.33	2.00	0.446	(0.058)	0.045	0.402
17	1.42	2.60	0.580	(0.058)	0.058	0.522
18	1.50	2.70	0.602	0.058	(0.060)	0.544
19	1.58	2.40	0.536	(0.058)	0.054	0.482
20	1.67	2.70	0.602	0.058	(0.060)	0.544
21	1.75	3.30	0.736	0.058	(0.074)	0.678
22	1.83	3.10	0.692	0.058	(0.069)	0.634
23	1.92	2.90	0.647	0.058	(0.065)	0.589
24	2.00	3.00	0.669	0.058	(0.067)	0.611
25	2.08	3.10	0.692	0.058	(0.069)	0.634
26	2.17	4.20	0.937	0.058	(0.094)	0.879
27	2.25	5.00	1.116	0.058	(0.112)	1.058
28	2.33	3.50	0.781	0.058	(0.078)	0.723
29	2.42	6.80	1.517	0.058	(0.152)	1.459
30	2.50	7.30	1.629	0.058	(0.163)	1.571
31	2.58	8.20	1.830	0.058	(0.183)	1.772
32	2.67	5.90	1.316	0.058	(0.132)	1.258
33	2.75	2.00	0.446	(0.058)	0.045	0.402
34	2.83	1.80	0.402	(0.058)	0.040	0.361
35	2.92	1.80	0.402	(0.058)	0.040	0.361
36	3.00	0.60	0.134	(0.058)	0.013	0.120
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	20.6

Flood volume = Effective rainfall 1.72(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 9.6(Ac.Ft)
Total soil loss = 0.14(In)
Total soil loss = 0.777(Ac.Ft)
Total rainfall = 1.86(In)
Flood volume = 419079.2 Cubic Feet
Total soil loss = 33833.6 Cubic Feet

Peak flow rate of this hydrograph = 103.548(CFS)

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 50.0 100.0 150.0 200.0
0+ 5	0.0251	3.64	Q
0+10	0.1094	12.24	V Q
0+15	0.2080	14.32	V Q
0+20	0.3136	15.33	V Q
0+25	0.4392	18.24	V Q
0+30	0.5779	20.14	V Q
0+35	0.7280	21.81	VQ
0+40	0.8770	21.63	VQ
0+45	1.0380	23.37	Q
0+50	1.1968	23.07	Q
0+55	1.3459	21.65	QV
1+ 0	1.5000	22.38	Q V
1+ 5	1.6710	24.83	Q V
1+10	1.8627	27.83	Q V
1+15	2.0613	28.83	Q V
1+20	2.2591	28.72	Q V
1+25	2.4611	29.32	Q V
1+30	2.6910	33.38	Q V
1+35	2.9279	34.40	Q V
1+40	3.1617	33.95	Q V
1+45	3.4206	37.59	Q V
1+50	3.7095	41.94	Q V
1+55	3.9950	41.46	Q V
2+ 0	4.2749	40.64	Q V
2+ 5	4.5602	41.43	Q V
2+10	4.8751	45.73	Q V
2+15	5.2651	56.63	Q V
2+20	5.6816	60.48	Q V
2+25	6.1133	62.68	Q V
2+30	6.7095	86.57	Q V
2+35	7.3973	99.87	Q V
2+40	8.1105	103.55	Q V
2+45	8.6543	78.97	Q V
2+50	8.9795	47.23	Q V
2+55	9.2275	36.01	Q V
3+ 0	9.4204	28.01	Q V
3+ 5	9.5268	15.45	Q V
3+10	9.5762	7.18	Q V
3+15	9.6004	3.51	Q V
3+20	9.6113	1.59	Q V
3+25	9.6172	0.85	Q V
3+30	9.6201	0.42	Q V
3+35	9.6207	0.10	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 07/31/20 File: 3828PR1006100.out

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

Program License Serial Number 6400

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

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 100-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.15	77.16

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	2.50	167.75

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.150(In)
Area Averaged 100-Year Rainfall = 2.500(In)

Point rain (area averaged) = 2.500(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 2.499(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	74.8	0.305	0.900	0.058	1.000	0.058
					Sum (F) =	0.058

Area averaged mean soil loss (F) (In/Hr) = 0.058
Minimum soil loss rate ((In/Hr)) = 0.029
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.150	(0.058)	0.015	0.135
2	0.17	0.60	0.180	(0.058)	0.018	0.162
3	0.25	0.60	0.180	(0.058)	0.018	0.162
4	0.33	0.60	0.180	(0.058)	0.018	0.162
5	0.42	0.60	0.180	(0.058)	0.018	0.162
6	0.50	0.70	0.210	(0.058)	0.021	0.189
7	0.58	0.70	0.210	(0.058)	0.021	0.189
8	0.67	0.70	0.210	(0.058)	0.021	0.189
9	0.75	0.70	0.210	(0.058)	0.021	0.189
10	0.83	0.70	0.210	(0.058)	0.021	0.189
11	0.92	0.70	0.210	(0.058)	0.021	0.189
12	1.00	0.80	0.240	(0.058)	0.024	0.216
13	1.08	0.80	0.240	(0.058)	0.024	0.216
14	1.17	0.80	0.240	(0.058)	0.024	0.216
15	1.25	0.80	0.240	(0.058)	0.024	0.216
16	1.33	0.80	0.240	(0.058)	0.024	0.216
17	1.42	0.80	0.240	(0.058)	0.024	0.216
18	1.50	0.80	0.240	(0.058)	0.024	0.216
19	1.58	0.80	0.240	(0.058)	0.024	0.216
20	1.67	0.80	0.240	(0.058)	0.024	0.216
21	1.75	0.80	0.240	(0.058)	0.024	0.216
22	1.83	0.80	0.240	(0.058)	0.024	0.216
23	1.92	0.80	0.240	(0.058)	0.024	0.216
24	2.00	0.90	0.270	(0.058)	0.027	0.243
25	2.08	0.80	0.240	(0.058)	0.024	0.216
26	2.17	0.90	0.270	(0.058)	0.027	0.243
27	2.25	0.90	0.270	(0.058)	0.027	0.243
28	2.33	0.90	0.270	(0.058)	0.027	0.243
29	2.42	0.90	0.270	(0.058)	0.027	0.243
30	2.50	0.90	0.270	(0.058)	0.027	0.243
31	2.58	0.90	0.270	(0.058)	0.027	0.243
32	2.67	0.90	0.270	(0.058)	0.027	0.243
33	2.75	1.00	0.300	(0.058)	0.030	0.270
34	2.83	1.00	0.300	(0.058)	0.030	0.270
35	2.92	1.00	0.300	(0.058)	0.030	0.270
36	3.00	1.00	0.300	(0.058)	0.030	0.270
37	3.08	1.00	0.300	(0.058)	0.030	0.270
38	3.17	1.10	0.330	(0.058)	0.033	0.297
39	3.25	1.10	0.330	(0.058)	0.033	0.297
40	3.33	1.10	0.330	(0.058)	0.033	0.297
41	3.42	1.20	0.360	(0.058)	0.036	0.324
42	3.50	1.30	0.390	(0.058)	0.039	0.351
43	3.58	1.40	0.420	(0.058)	0.042	0.378
44	3.67	1.40	0.420	(0.058)	0.042	0.378
45	3.75	1.50	0.450	(0.058)	0.045	0.405
46	3.83	1.50	0.450	(0.058)	0.045	0.405

47	3.92	1.60	0.480	(0.058)	0.048		0.432
48	4.00	1.60	0.480	(0.058)	0.048		0.432
49	4.08	1.70	0.510	(0.058)	0.051		0.459
50	4.17	1.80	0.540	(0.058)	0.054		0.486
51	4.25	1.90	0.570	(0.058)	0.057		0.513
52	4.33	2.00	0.600	0.058	(0.060)		0.542
53	4.42	2.10	0.630	0.058	(0.063)		0.572
54	4.50	2.10	0.630	0.058	(0.063)		0.572
55	4.58	2.20	0.660	0.058	(0.066)		0.602
56	4.67	2.30	0.690	0.058	(0.069)		0.632
57	4.75	2.40	0.720	0.058	(0.072)		0.662
58	4.83	2.40	0.720	0.058	(0.072)		0.662
59	4.92	2.50	0.750	0.058	(0.075)		0.692
60	5.00	2.60	0.780	0.058	(0.078)		0.722
61	5.08	3.10	0.930	0.058	(0.093)		0.872
62	5.17	3.60	1.080	0.058	(0.108)		1.022
63	5.25	3.90	1.170	0.058	(0.117)		1.112
64	5.33	4.20	1.260	0.058	(0.126)		1.202
65	5.42	4.70	1.410	0.058	(0.141)		1.352
66	5.50	5.60	1.680	0.058	(0.168)		1.622
67	5.58	1.90	0.570	(0.058)	0.057		0.513
68	5.67	0.90	0.270	(0.058)	0.027		0.243
69	5.75	0.60	0.180	(0.058)	0.018		0.162
70	5.83	0.50	0.150	(0.058)	0.015		0.135
71	5.92	0.30	0.090	(0.058)	0.009		0.081
72	6.00	0.20	0.060	(0.058)	0.006		0.054

(Loss Rate Not Used)

Sum = 100.0 Sum = 27.5

Flood volume = Effective rainfall 2.29(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 12.8(Ac.Ft)
Total soil loss = 0.21(In)
Total soil loss = 1.164(Ac.Ft)
Total rainfall = 2.50(In)
Flood volume = 558070.0 Cubic Feet
Total soil loss = 50722.1 Cubic Feet

Peak flow rate of this hydrograph = 89.787(CFS)

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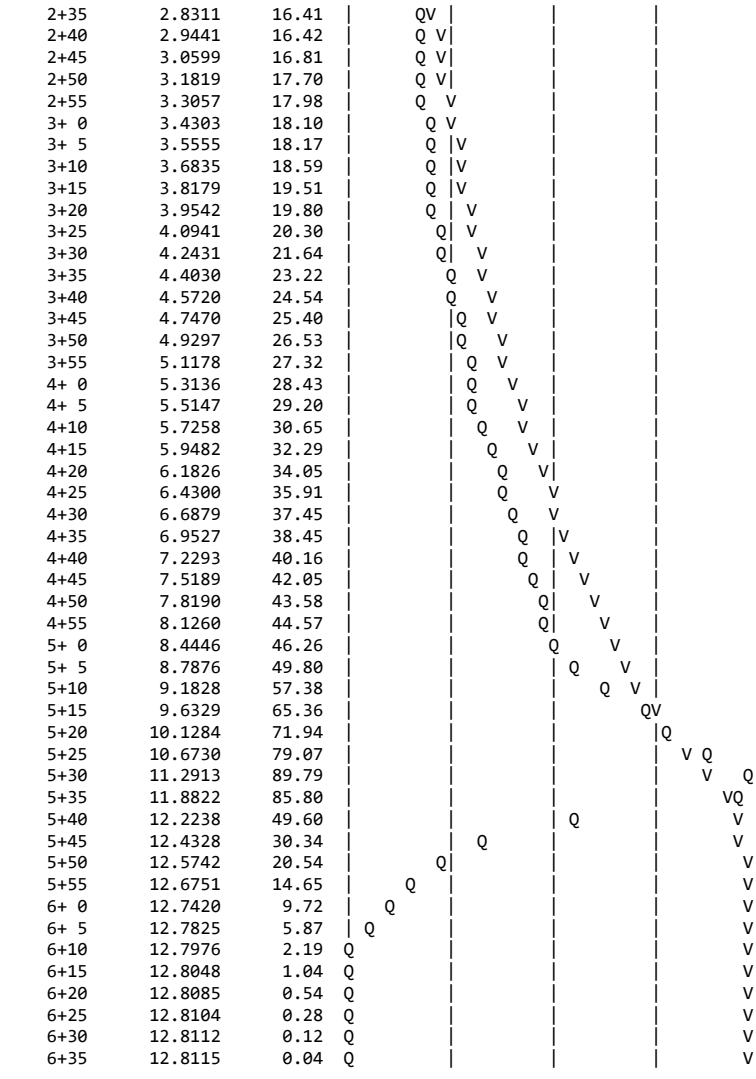
6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	22.5	45.0	67.5	90.0
0+ 5	0.0130	1.88	Q				
0+10	0.0591	6.70	V Q				
0+15	0.1208	8.96	V Q				
0+20	0.1887	9.86	V Q				
0+25	0.2599	10.33	V Q				
0+30	0.3356	11.00	V Q				
0+35	0.4187	12.06	V Q				
0+40	0.5046	12.48	V Q				
0+45	0.5915	12.62	V Q				
0+50	0.6790	12.69	V Q				
0+55	0.7667	12.74	V Q				
1+ 0	0.8572	13.14	V Q				
1+ 5	0.9539	14.05	V Q				
1+10	1.0526	14.32	V Q				
1+15	1.1521	14.45	V Q				
1+20	1.2521	14.52	V Q				
1+25	1.3524	14.56	V Q				
1+30	1.4528	14.59	V Q				
1+35	1.5535	14.61	V Q				
1+40	1.6541	14.61	VQ				
1+45	1.7547	14.61	VQ				
1+50	1.8553	14.61	VQ				
1+55	1.9560	14.61	Q				
2+ 0	2.0592	14.99	Q				
2+ 5	2.1659	15.50	Q				
2+10	2.2710	15.26	QV				
2+15	2.3812	16.00	Q				
2+20	2.4929	16.22	Q				
2+25	2.6053	16.32	QV				
2+30	2.7181	16.37	QV				



2+35	2.8311	16.41	|	QV	|	|	|	|
2+40	2.9441	16.42	|	Q	V|	|	|	|
2+45	3.0599	16.81	|	Q	V|	|	|	|
2+50	3.1819	17.70	|	Q	V|	|	|	|
2+55	3.3057	17.98	|	Q	V	|	|	|
3+ 0	3.4303	18.10	|	Q	V	|	|	|
3+ 5	3.5555	18.17	|	Q	|V	|	|	|
3+10	3.6835	18.59	|	Q	|V	|	|	|
3+15	3.8179	19.51	|	Q	|V	|	|	|
3+20	3.9542	19.80	|	Q	| V	|	|	|
3+25	4.0941	20.30	|	Q	| V	|	|	|
3+30	4.2431	21.64	|	Q	| V	|	|	|
3+35	4.4030	23.22	|	Q	V	|	|	|
3+40	4.5720	24.54	|	Q	V	|	|	|
3+45	4.7470	25.40	|	Q	| V	|	|	|
3+50	4.9297	26.53	|	Q	| V	|	|	|
3+55	5.1178	27.32	|	Q	V	|	|	|
4+ 0	5.3136	28.43	|	Q	V	|	|	|
4+ 5	5.5147	29.20	|	Q	V	|	|	|
4+10	5.7258	30.65	|	Q	V	|	|	|
4+15	5.9482	32.29	|	Q	V	|	|	|
4+20	6.1826	34.05	|	Q	V|	|	|	|
4+25	6.4300	35.91	|	Q	V	|	|	|
4+30	6.6879	37.45	|	Q	V	|	|	|
4+35	6.9527	38.45	|	Q	|V	|	|	|
4+40	7.2293	40.16	|	Q	| V	|	|	|
4+45	7.5189	42.05	|	Q	| V	|	|	|
4+50	7.8190	43.58	|	Q	V	|	|	|
4+55	8.1260	44.57	|	Q	V	|	|	|
5+ 0	8.4446	46.26	|	Q	V	|	|	|
5+ 5	8.7876	49.80	|	Q	V	|	|	|
5+10	9.1828	57.38	|	Q	V	|	|	|
5+15	9.6329	65.36	|	QV	|	|	|	|
5+20	10.1284	71.94	|	Q	|	|	|	|
5+25	10.6730	79.07	|	Q	V	|	|	|
5+30	11.2913	89.79	|	Q	V	|	|	|
5+35	11.8822	85.80	|	Q	V	|	|	|
5+40	12.2238	49.60	|	Q	V	|	|	|
5+45	12.4328	30.34	|	Q	V	|	|	|
5+50	12.5742	20.54	|	Q	V	|	|	|
5+55	12.6751	14.65	|	Q	V	|	|	|
6+ 0	12.7420	9.72	|	Q	V	|	|	|
6+ 5	12.7825	5.87	|	Q	V	|	|	|
6+10	12.7976	2.19	|	Q	V	|	|	|
6+15	12.8048	1.04	|	Q	V	|	|	|
6+20	12.8085	0.54	|	Q	V	|	|	|
6+25	12.8104	0.28	|	Q	V	|	|	|
6+30	12.8112	0.12	|	Q	V	|	|	|
6+35	12.8115	0.04	|	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 07/31/20 File: 3828PR10024100.out

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

Program License Serial Number 6400

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English Rainfall Data (Inches) Input Values Used

English Units used in output format

TEI JOB 3828
OPTION 1 - HIGH CUBE
PROPOSED CONDITION 100-YEAR STORM EVENT

Drainage Area = 67.10(Ac.) = 0.105 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 67.10(Ac.) = 0.105 Sq. Mi.
Length along longest watercourse = 3400.00(Ft.)
Length along longest watercourse measured to centroid = 1280.00(Ft.)
Length along longest watercourse = 0.644 Mi.
Length along longest watercourse measured to centroid = 0.242 Mi.
Difference in elevation = 44.00(Ft.)
Slope along watercourse = 68.3294 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.080 Hr.
Lag time = 4.78 Min.
25% of lag time = 1.19 Min.
40% of lag time = 1.91 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	1.75	117.42

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
67.10	4.50	301.95

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.750(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 4.499(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
67.100	56.00	0.900

Total Area Entered = 67.10(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	74.8	0.305	0.900	0.058	1.000	0.058
					Sum (F) =	0.058

Area averaged mean soil loss (F) (In/Hr) = 0.058
Minimum soil loss rate ((In/Hr)) = 0.029
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.100

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

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	104.614	20.612	13.939
2	0.167	209.229	48.679	32.919
3	0.250	313.843	14.978	10.129
4	0.333	418.458	6.821	4.613
5	0.417	523.072	3.802	2.571
6	0.500	627.687	2.435	1.647
7	0.583	732.301	1.462	0.989
8	0.667	836.916	1.210	0.818
		Sum = 100.000	Sum=	67.624

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

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.036	(0.103)	0.004	0.032
2	0.17	0.07	0.036	(0.102)	0.004	0.032
3	0.25	0.07	0.036	(0.102)	0.004	0.032
4	0.33	0.10	0.054	(0.102)	0.005	0.049
5	0.42	0.10	0.054	(0.101)	0.005	0.049
6	0.50	0.10	0.054	(0.101)	0.005	0.049
7	0.58	0.10	0.054	(0.100)	0.005	0.049
8	0.67	0.10	0.054	(0.100)	0.005	0.049
9	0.75	0.10	0.054	(0.100)	0.005	0.049
10	0.83	0.13	0.072	(0.099)	0.007	0.065
11	0.92	0.13	0.072	(0.099)	0.007	0.065
12	1.00	0.13	0.072	(0.099)	0.007	0.065
13	1.08	0.10	0.054	(0.098)	0.005	0.049
14	1.17	0.10	0.054	(0.098)	0.005	0.049
15	1.25	0.10	0.054	(0.097)	0.005	0.049
16	1.33	0.10	0.054	(0.097)	0.005	0.049
17	1.42	0.10	0.054	(0.097)	0.005	0.049
18	1.50	0.10	0.054	(0.096)	0.005	0.049
19	1.58	0.10	0.054	(0.096)	0.005	0.049
20	1.67	0.10	0.054	(0.095)	0.005	0.049
21	1.75	0.10	0.054	(0.095)	0.005	0.049
22	1.83	0.13	0.072	(0.095)	0.007	0.065
23	1.92	0.13	0.072	(0.094)	0.007	0.065
24	2.00	0.13	0.072	(0.094)	0.007	0.065
25	2.08	0.13	0.072	(0.094)	0.007	0.065
26	2.17	0.13	0.072	(0.093)	0.007	0.065
27	2.25	0.13	0.072	(0.093)	0.007	0.065
28	2.33	0.13	0.072	(0.092)	0.007	0.065
29	2.42	0.13	0.072	(0.092)	0.007	0.065
30	2.50	0.13	0.072	(0.092)	0.007	0.065
31	2.58	0.17	0.090	(0.091)	0.009	0.081
32	2.67	0.17	0.090	(0.091)	0.009	0.081
33	2.75	0.17	0.090	(0.091)	0.009	0.081
34	2.83	0.17	0.090	(0.090)	0.009	0.081
35	2.92	0.17	0.090	(0.090)	0.009	0.081
36	3.00	0.17	0.090	(0.089)	0.009	0.081
37	3.08	0.17	0.090	(0.089)	0.009	0.081
38	3.17	0.17	0.090	(0.089)	0.009	0.081
39	3.25	0.17	0.090	(0.088)	0.009	0.081
40	3.33	0.17	0.090	(0.088)	0.009	0.081
41	3.42	0.17	0.090	(0.088)	0.009	0.081
42	3.50	0.17	0.090	(0.087)	0.009	0.081
43	3.58	0.17	0.090	(0.087)	0.009	0.081
44	3.67	0.17	0.090	(0.086)	0.009	0.081
45	3.75	0.17	0.090	(0.086)	0.009	0.081
46	3.83	0.20	0.108	(0.086)	0.011	0.097

47	3.92	0.20	0.108	(0.085)	0.011	0.097
48	4.00	0.20	0.108	(0.085)	0.011	0.097
49	4.08	0.20	0.108	(0.085)	0.011	0.097
50	4.17	0.20	0.108	(0.084)	0.011	0.097
51	4.25	0.20	0.108	(0.084)	0.011	0.097
52	4.33	0.23	0.126	(0.084)	0.013	0.113
53	4.42	0.23	0.126	(0.083)	0.013	0.113
54	4.50	0.23	0.126	(0.083)	0.013	0.113
55	4.58	0.23	0.126	(0.082)	0.013	0.113
56	4.67	0.23	0.126	(0.082)	0.013	0.113
57	4.75	0.23	0.126	(0.082)	0.013	0.113
58	4.83	0.27	0.144	(0.081)	0.014	0.130
59	4.92	0.27	0.144	(0.081)	0.014	0.130
60	5.00	0.27	0.144	(0.081)	0.014	0.130
61	5.08	0.20	0.108	(0.080)	0.011	0.097
62	5.17	0.20	0.108	(0.080)	0.011	0.097
63	5.25	0.20	0.108	(0.080)	0.011	0.097
64	5.33	0.23	0.126	(0.079)	0.013	0.113
65	5.42	0.23	0.126	(0.079)	0.013	0.113
66	5.50	0.23	0.126	(0.079)	0.013	0.113
67	5.58	0.27	0.144	(0.078)	0.014	0.130
68	5.67	0.27	0.144	(0.078)	0.014	0.130
69	5.75	0.27	0.144	(0.078)	0.014	0.130
70	5.83	0.27	0.144	(0.077)	0.014	0.130
71	5.92	0.27	0.144	(0.077)	0.014	0.130
72	6.00	0.27	0.144	(0.077)	0.014	0.130
73	6.08	0.30	0.162	(0.076)	0.016	0.146
74	6.17	0.30	0.162	(0.076)	0.016	0.146
75	6.25	0.30	0.162	(0.076)	0.016	0.146
76	6.33	0.30	0.162	(0.075)	0.016	0.146
77	6.42	0.30	0.162	(0.075)	0.016	0.146
78	6.50	0.30	0.162	(0.075)	0.016	0.146
79	6.58	0.33	0.180	(0.074)	0.018	0.162
80	6.67	0.33	0.180	(0.074)	0.018	0.162
81	6.75	0.33	0.180	(0.074)	0.018	0.162
82	6.83	0.33	0.180	(0.073)	0.018	0.162
83	6.92	0.33	0.180	(0.073)	0.018	0.162
84	7.00	0.33	0.180	(0.073)	0.018	0.162
85	7.08	0.33	0.180	(0.072)	0.018	0.162
86	7.17	0.33	0.180	(0.072)	0.018	0.162
87	7.25	0.33	0.180	(0.072)	0.018	0.162
88	7.33	0.37	0.198	(0.071)	0.020	0.178
89	7.42	0.37	0.198	(0.071)	0.020	0.178
90	7.50	0.37	0.198	(0.071)	0.020	0.178
91	7.58	0.40	0.216	(0.070)	0.022	0.194
92	7.67	0.40	0.216	(0.070)	0.022	0.194
93	7.75	0.40	0.216	(0.070)	0.022	0.194
94	7.83	0.43	0.234	(0.069)	0.023	0.211
95	7.92	0.43	0.234	(0.069)	0.023	0.211
96	8.00	0.43	0.234	(0.069)	0.023	0.211
97	8.08	0.50	0.270	(0.068)	0.027	0.243
98	8.17	0.50	0.270	(0.068)	0.027	0.243
99	8.25	0.50	0.270	(0.068)	0.027	0.243
100	8.33	0.50	0.270	(0.067)	0.027	0.243
101	8.42	0.50	0.270	(0.067)	0.027	0.243
102	8.50	0.50	0.270	(0.067)	0.027	0.243
103	8.58	0.53	0.288	(0.066)	0.029	0.259
104	8.67	0.53	0.288	(0.066)	0.029	0.259
105	8.75	0.53	0.288	(0.066)	0.029	0.259
106	8.83	0.57	0.306	(0.066)	0.031	0.275
107	8.92	0.57	0.306	(0.065)	0.031	0.275
108	9.00	0.57	0.306	(0.065)	0.031	0.275
109	9.08	0.63	0.342	(0.065)	0.034	0.308
110	9.17	0.63	0.342	(0.064)	0.034	0.308
111	9.25	0.63	0.342	(0.064)	0.034	0.308
112	9.33	0.67	0.360	(0.064)	0.036	0.324
113	9.42	0.67	0.360	(0.063)	0.036	0.324
114	9.50	0.67	0.360	(0.063)	0.036	0.324
115	9.58	0.70	0.378	(0.063)	0.038	0.340
116	9.67	0.70	0.378	(0.062)	0.038	0.340
117	9.75	0.70	0.378	(0.062)	0.038	0.340
118	9.83	0.73	0.396	(0.062)	0.040	0.356
119	9.92	0.73	0.396	(0.062)	0.040	0.356
120	10.00	0.73	0.396	(0.061)	0.040	0.356
121	10.08	0.50	0.270	(0.061)	0.027	0.243
122	10.17	0.50	0.270	(0.061)	0.027	0.243
123	10.25	0.50	0.270	(0.060)	0.027	0.243

124	10.33	0.50	0.270	(0.060)	0.027	0.243
125	10.42	0.50	0.270	(0.060)	0.027	0.243
126	10.50	0.50	0.270	(0.060)	0.027	0.243
127	10.58	0.67	0.360	(0.059)	0.036	0.324
128	10.67	0.67	0.360	(0.059)	0.036	0.324
129	10.75	0.67	0.360	(0.059)	0.036	0.324
130	10.83	0.67	0.360	(0.058)	0.036	0.324
131	10.92	0.67	0.360	(0.058)	0.036	0.324
132	11.00	0.67	0.360	(0.058)	0.036	0.324
133	11.08	0.63	0.342	(0.057)	0.034	0.308
134	11.17	0.63	0.342	(0.057)	0.034	0.308
135	11.25	0.63	0.342	(0.057)	0.034	0.308
136	11.33	0.63	0.342	(0.057)	0.034	0.308
137	11.42	0.63	0.342	(0.056)	0.034	0.308
138	11.50	0.63	0.342	(0.056)	0.034	0.308
139	11.58	0.57	0.306	(0.056)	0.031	0.275
140	11.67	0.57	0.306	(0.056)	0.031	0.275
141	11.75	0.57	0.306	(0.055)	0.031	0.275
142	11.83	0.60	0.324	(0.055)	0.032	0.292
143	11.92	0.60	0.324	(0.055)	0.032	0.292
144	12.00	0.60	0.324	(0.054)	0.032	0.292
145	12.08	0.83	0.450	(0.054)	0.045	0.405
146	12.17	0.83	0.450	(0.054)	0.045	0.405
147	12.25	0.83	0.450	(0.054)	0.045	0.405
148	12.33	0.87	0.468	(0.053)	0.047	0.421
149	12.42	0.87	0.468	(0.053)	0.047	0.421
150	12.50	0.87	0.468	(0.053)	0.047	0.421
151	12.58	0.93	0.504	(0.053)	0.050	0.454
152	12.67	0.93	0.504	(0.052)	0.050	0.454
153	12.75	0.93	0.504	(0.052)	0.050	0.454
154	12.83	0.97	0.522	0.052	(0.052)	0.470
155	12.92	0.97	0.522	0.051	(0.052)	0.470
156	13.00	0.97	0.522	0.051	(0.052)	0.471
157	13.08	1.13	0.612	0.051	(0.061)	0.561
158	13.17	1.13	0.612	0.051	(0.061)	0.561
159	13.25	1.13	0.612	0.050	(0.061)	0.561
160	13.33	1.13	0.612	0.050	(0.061)	0.562
161	13.42	1.13	0.612	0.050	(0.061)	0.562
162	13.50	1.13	0.612	0.050	(0.061)	0.562
163	13.58	0.77	0.414	(0.049)	0.041	0.373
164	13.67	0.77	0.414	(0.049)	0.041	0.373
165	13.75	0.77	0.414	(0.049)	0.041	0.373
166	13.83	0.77	0.414	(0.049)	0.041	0.373
167	13.92	0.77	0.414	(0.048)	0.041	0.373
168	14.00	0.77	0.414	(0.048)	0.041	0.373
169	14.08	0.90	0.486	0.048	(0.049)	0.438
170	14.17	0.90	0.486	0.048	(0.049)	0.438
171	14.25	0.90	0.486	0.047	(0.049)	0.438
172	14.33	0.87	0.468	(0.047)	0.047	0.421
173	14.42	0.87	0.468	(0.047)	0.047	0.421
174	14.50	0.87	0.468	0.047	(0.047)	0.421
175	14.58	0.87	0.468	0.046	(0.047)	0.421
176	14.67	0.87	0.468	0.046	(0.047)	0.422
177	14.75	0.87	0.468	0.046	(0.047)	0.422
178	14.83	0.83	0.450	(0.046)	0.045	0.405
179	14.92	0.83	0.450	(0.046)	0.045	0.405
180	15.00	0.83	0.450	(0.045)	0.045	0.405
181	15.08	0.80	0.432	(0.045)	0.043	0.389
182	15.17	0.80	0.432	(0.045)	0.043	0.389
183	15.25	0.80	0.432	(0.045)	0.043	0.389
184	15.33	0.77	0.414	(0.044)	0.041	0.373
185	15.42	0.77	0.414	(0.044)	0.041	0.373
186	15.50	0.77	0.414	(0.044)	0.041	0.373
187	15.58	0.63	0.342	(0.044)	0.034	0.308
188	15.67	0.63	0.342	(0.043)	0.034	0.308
189	15.75	0.63	0.342	(0.043)	0.034	0.308
190	15.83	0.63	0.342	(0.043)	0.034	0.308
191	15.92	0.63	0.342	(0.043)	0.034	0.308
192	16.00	0.63	0.342	(0.043)	0.034	0.308
193	16.08	0.13	0.072	(0.042)	0.007	0.065
194	16.17	0.13	0.072	(0.042)	0.007	0.065
195	16.25	0.13	0.072	(0.042)	0.007	0.065
196	16.33	0.13	0.072	(0.042)	0.007	0.065
197	16.42	0.13	0.072	(0.042)	0.007	0.065
198	16.50	0.13	0.072	(0.041)	0.007	0.065
199	16.58	0.10	0.054	(0.041)	0.005	0.049
200	16.67	0.10	0.054	(0.041)	0.005	0.049

201	16.75	0.10	0.054	(0.041)	0.005	0.049
202	16.83	0.10	0.054	(0.040)	0.005	0.049
203	16.92	0.10	0.054	(0.040)	0.005	0.049
204	17.00	0.10	0.054	(0.040)	0.005	0.049
205	17.08	0.17	0.090	(0.040)	0.009	0.081
206	17.17	0.17	0.090	(0.040)	0.009	0.081
207	17.25	0.17	0.090	(0.039)	0.009	0.081
208	17.33	0.17	0.090	(0.039)	0.009	0.081
209	17.42	0.17	0.090	(0.039)	0.009	0.081
210	17.50	0.17	0.090	(0.039)	0.009	0.081
211	17.58	0.17	0.090	(0.039)	0.009	0.081
212	17.67	0.17	0.090	(0.038)	0.009	0.081
213	17.75	0.17	0.090	(0.038)	0.009	0.081
214	17.83	0.13	0.072	(0.038)	0.007	0.065
215	17.92	0.13	0.072	(0.038)	0.007	0.065
216	18.00	0.13	0.072	(0.038)	0.007	0.065
217	18.08	0.13	0.072	(0.038)	0.007	0.065
218	18.17	0.13	0.072	(0.037)	0.007	0.065
219	18.25	0.13	0.072	(0.037)	0.007	0.065
220	18.33	0.13	0.072	(0.037)	0.007	0.065
221	18.42	0.13	0.072	(0.037)	0.007	0.065
222	18.50	0.13	0.072	(0.037)	0.007	0.065
223	18.58	0.10	0.054	(0.036)	0.005	0.049
224	18.67	0.10	0.054	(0.036)	0.005	0.049
225	18.75	0.10	0.054	(0.036)	0.005	0.049
226	18.83	0.07	0.036	(0.036)	0.004	0.032
227	18.92	0.07	0.036	(0.036)	0.004	0.032
228	19.00	0.07	0.036	(0.036)	0.004	0.032
229	19.08	0.10	0.054	(0.035)	0.005	0.049
230	19.17	0.10	0.054	(0.035)	0.005	0.049
231	19.25	0.10	0.054	(0.035)	0.005	0.049
232	19.33	0.13	0.072	(0.035)	0.007	0.065
233	19.42	0.13	0.072	(0.035)	0.007	0.065
234	19.50	0.13	0.072	(0.035)	0.007	0.065
235	19.58	0.10	0.054	(0.034)	0.005	0.049
236	19.67	0.10	0.054	(0.034)	0.005	0.049
237	19.75	0.10	0.054	(0.034)	0.005	0.049
238	19.83	0.07	0.036	(0.034)	0.004	0.032
239	19.92	0.07	0.036	(0.034)	0.004	0.032
240	20.00	0.07	0.036	(0.034)	0.004	0.032
241	20.08	0.10	0.054	(0.034)	0.005	0.049
242	20.17	0.10	0.054	(0.033)	0.005	0.049
243	20.25	0.10	0.054	(0.033)	0.005	0.049
244	20.33	0.10	0.054	(0.033)	0.005	0.049
245	20.42	0.10	0.054	(0.033)	0.005	0.049
246	20.50	0.10	0.054	(0.033)	0.005	0.049
247	20.58	0.10	0.054	(0.033)	0.005	0.049
248	20.67	0.10	0.054	(0.033)	0.005	0.049
249	20.75	0.10	0.054	(0.032)	0.005	0.049
250	20.83	0.07	0.036	(0.032)	0.004	0.032
251	20.92	0.07	0.036	(0.032)	0.004	0.032
252	21.00	0.07	0.036	(0.032)	0.004	0.032
253	21.08	0.10	0.054	(0.032)	0.005	0.049
254	21.17	0.10	0.054	(0.032)	0.005	0.049
255	21.25	0.10	0.054	(0.032)	0.005	0.049
256	21.33	0.07	0.036	(0.032)	0.004	0.032
257	21.42	0.07	0.036	(0.031)	0.004	0.032
258	21.50	0.07	0.036	(0.031)	0.004	0.032
259	21.58	0.10	0.054	(0.031)	0.005	0.049
260	21.67	0.10	0.054	(0.031)	0.005	0.049
261	21.75	0.10	0.054	(0.031)	0.005	0.049
262	21.83	0.07	0.036	(0.031)	0.004	0.032
263	21.92	0.07	0.036	(0.031)	0.004	0.032
264	22.00	0.07	0.036	(0.031)	0.004	0.032
265	22.08	0.10	0.054	(0.031)	0.005	0.049
266	22.17	0.10	0.054	(0.030)	0.005	0.049
267	22.25	0.10	0.054	(0.030)	0.005	0.049
268	22.33	0.07	0.036	(0.030)	0.004	0.032
269	22.42	0.07	0.036	(0.030)	0.004	0.032
270	22.50	0.07	0.036	(0.030)	0.004	0.032
271	22.58	0.07	0.036	(0.030)	0.004	0.032
272	22.67	0.07	0.036	(0.030)	0.004	0.032
273	22.75	0.07	0.036	(0.030)	0.004	0.032
274	22.83	0.07	0.036	(0.030)	0.004	0.032
275	22.92	0.07	0.036	(0.030)	0.004	0.032
276	23.00	0.07	0.036	(0.030)	0.004	0.032
277	23.08	0.07	0.036	(0.030)	0.004	0.032

278	23.17	0.07	0.036	(0.029)	0.004	0.032	
279	23.25	0.07	0.036	(0.029)	0.004	0.032	
280	23.33	0.07	0.036	(0.029)	0.004	0.032	
281	23.42	0.07	0.036	(0.029)	0.004	0.032	
282	23.50	0.07	0.036	(0.029)	0.004	0.032	
283	23.58	0.07	0.036	(0.029)	0.004	0.032	
284	23.67	0.07	0.036	(0.029)	0.004	0.032	
285	23.75	0.07	0.036	(0.029)	0.004	0.032	
286	23.83	0.07	0.036	(0.029)	0.004	0.032	
287	23.92	0.07	0.036	(0.029)	0.004	0.032	
288	24.00	0.07	0.036	(0.029)	0.004	0.032	

(Loss Rate Not Used)

Sum = 100.0 Sum = 48.7

Flood volume = Effective rainfall 4.06(In)
times area 67.1(Ac.)/[(In)/(Ft.)] = 22.7(Ac.Ft)
Total soil loss = 0.44(In)
Total soil loss = 2.483(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 987794.6 Cubic Feet
Total soil loss = 108140.2 Cubic Feet

Peak flow rate of this hydrograph = 37.852(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	10.0	20.0	30.0	40.0
0+ 5	0.0031	0.45	Q				
0+10	0.0136	1.52	VQ				
0+15	0.0263	1.85	VQ				
0+20	0.0416	2.22	V Q				
0+25	0.0612	2.84	V Q				
0+30	0.0822	3.06	V Q				
0+35	0.1040	3.16	V Q				
0+40	0.1263	3.23	V Q				
0+45	0.1487	3.26	V Q				
0+50	0.1728	3.50	V Q				
0+55	0.2007	4.05	V Q				
1+ 0	0.2297	4.21	V Q				
1+ 5	0.2576	4.06	V Q				
1+10	0.2822	3.57	V Q				
1+15	0.3058	3.43	V Q				
1+20	0.3291	3.37	V Q				
1+25	0.3521	3.34	V Q				
1+30	0.3749	3.32	V Q				
1+35	0.3977	3.30	V Q				
1+40	0.4203	3.29	V Q				
1+45	0.4430	3.29	V Q				
1+50	0.4672	3.51	V Q				
1+55	0.4950	4.05	V Q				
2+ 0	0.5240	4.21	V Q				
2+ 5	0.5536	4.29	V Q				
2+10	0.5834	4.33	|V Q				
2+15	0.6134	4.35	|V Q				
2+20	0.6435	4.37	|V Q				
2+25	0.6736	4.38	|V Q				
2+30	0.7038	4.38	|V Q				
2+35	0.7356	4.61	|V Q				
2+40	0.7710	5.14	|V Q				
2+45	0.8076	5.31	|V Q				
2+50	0.8446	5.38	|V Q				
2+55	0.8820	5.42	|V Q				
3+ 0	0.9195	5.45	|V Q				
3+ 5	0.9572	5.47	|V Q				
3+10	0.9949	5.48	|V Q				
3+15	1.0326	5.48	|V Q				
3+20	1.0704	5.48	|V Q				
3+25	1.1081	5.48	|V Q				
3+30	1.1459	5.48	| V Q				
3+35	1.1836	5.48	| V Q				
3+40	1.2213	5.48	| V Q				
3+45	1.2591	5.48	| V Q				

3+50	1.2984	5.71	V Q			
3+55	1.3413	6.24	V Q			
4+ 0	1.3854	6.40	V Q			
4+ 5	1.4300	6.48	V Q			
4+10	1.4749	6.52	V Q			
4+15	1.5200	6.55	V Q			
4+20	1.5668	6.79	V Q			
4+25	1.6173	7.33	V Q			
4+30	1.6689	7.50	V Q			
4+35	1.7211	7.57	V Q			
4+40	1.7736	7.62	V Q			
4+45	1.8262	7.64	V Q			
4+50	1.8805	7.88	V Q			
4+55	1.9386	8.43	V Q			
5+ 0	1.9977	8.60	V Q			
5+ 5	2.0543	8.22	V Q			
5+10	2.1039	7.19	V Q			
5+15	2.1513	6.89	V Q			
5+20	2.1994	6.98	V Q			
5+25	2.2507	7.45	V Q			
5+30	2.3028	7.56	V Q			
5+35	2.3567	7.83	V Q			
5+40	2.4144	8.37	V Q			
5+45	2.4733	8.57	V Q			
5+50	2.5330	8.66	V Q			
5+55	2.5930	8.71	V Q			
6+ 0	2.6531	8.74	V Q			
6+ 5	2.7150	8.98	V Q			
6+10	2.7806	9.53	V Q			
6+15	2.8473	9.69	V Q			
6+20	2.9146	9.77	V Q			
6+25	2.9821	9.81	V Q			
6+30	3.0499	9.83	V Q			
6+35	3.1193	10.08	V Q			
6+40	3.1924	10.62	V Q			
6+45	3.2667	10.79	V Q			
6+50	3.3415	10.86	V Q			
6+55	3.4166	10.90	V Q			
7+ 0	3.4919	10.93	V Q			
7+ 5	3.5673	10.95	V Q			
7+10	3.6428	10.96	V Q			
7+15	3.7182	10.96	V Q			
7+20	3.7953	11.19	V Q			
7+25	3.8760	11.72	V Q			
7+30	3.9578	11.88	V Q			
7+35	4.0417	12.18	V Q			
7+40	4.1296	12.76	V Q			
7+45	4.2188	12.95	V Q			
7+50	4.3101	13.27	V Q			
7+55	4.4056	13.85	V Q			
8+ 0	4.5023	14.05	V Q			
8+ 5	4.6028	14.59	V Q			
8+10	4.7110	15.71	V Q			
8+15	4.8216	16.06	V Q			
8+20	4.9334	16.23	V Q			
8+25	5.0458	16.33	V Q			
8+30	5.1586	16.38	V Q			
8+35	5.2732	16.64	V Q			
8+40	5.3917	17.20	V Q			
8+45	5.5112	17.36	V Q			
8+50	5.6329	17.66	V Q			
8+55	5.7585	18.24	V Q			
9+ 0	5.8854	18.43	V Q			
9+ 5	6.0161	18.97	V Q			
9+10	6.1545	20.09	V Q			
9+15	6.2953	20.45	V Q			
9+20	6.4388	20.84	V Q			
9+25	6.5867	21.47	V Q			
9+30	6.7361	21.69	V Q			
9+35	6.8877	22.02	V Q			
9+40	7.0435	22.62	V Q			
9+45	7.2006	22.81	V Q			
9+50	7.3599	23.13	V Q			
9+55	7.5233	23.72	V Q			
10+ 0	7.6879	23.91	V Q			
10+ 5	7.8423	22.42	V Q			
10+10	7.9714	18.74	V Q			

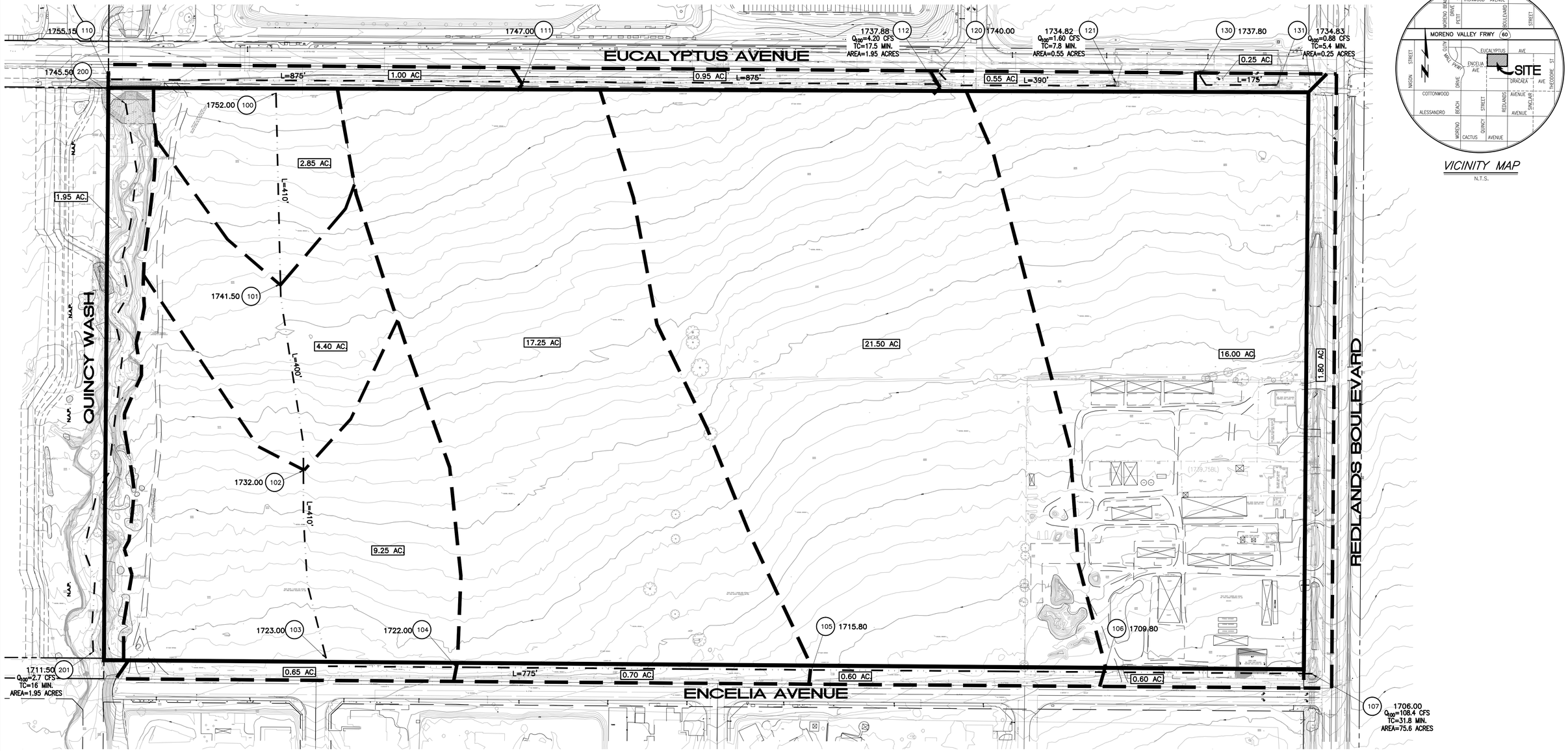
10+15	8.0927	17.62		V Q			
10+20	8.2105	17.11		V Q			
10+25	8.3265	16.83		V Q			
10+30	8.4411	16.64		V Q			
10+35	8.5627	17.66		V Q			
10+40	8.7021	20.24		V Q			
10+45	8.8471	21.06		V Q			
10+50	8.9947	21.43		V Q			
10+55	9.1437	21.64		V Q			
11+ 0	9.2937	21.77		V Q			
11+ 5	9.4426	21.63		V Q			
11+10	9.5883	21.16		V Q			
11+15	9.7329	21.00		V Q			
11+20	9.8770	20.92		V Q			
11+25	10.0208	20.88		V Q			
11+30	10.1644	20.85		V Q			
11+35	10.3048	20.38		V Q			
11+40	10.4378	19.30		VQ			
11+45	10.5684	18.98		Q			
11+50	10.6997	19.05		VQ			
11+55	10.8340	19.50		Q			
12+ 0	10.9690	19.61		Q			
12+ 5	11.1153	21.24		V Q			
12+10	11.2874	24.99		V Q			
12+15	11.4676	26.16		V Q			
12+20	11.6530	26.93		V Q			
12+25	11.8442	27.77		V Q			
12+30	12.0379	28.12		V Q			
12+35	12.2359	28.76		V Q			
12+40	12.4422	29.96		V Q			
12+45	12.6510	30.31		V Q			
12+50	12.8625	30.71		V Q			
12+55	13.0785	31.36		V Q			
13+ 0	13.2960	31.59		V Q			
13+ 5	13.5231	32.97		V Q			
13+10	13.7712	36.02		V Q			
13+15	14.0258	36.98		V Q			
13+20	14.2836	37.42		V Q			
13+25	14.5431	37.69		V Q			
13+30	14.8038	37.85		V Q			
13+35	15.0470	35.31		V Q			
13+40	15.2477	29.14		V Q			
13+45	15.4352	27.22		Q			
13+50	15.6166	26.35		QV			
13+55	15.7948	25.86		Q V			
14+ 0	15.9707	25.55		Q V			
14+ 5	16.1517	26.27		Q V			
14+10	16.3464	28.28		Q			
14+15	16.5458	28.95		QV			
14+20	16.7457	29.02		Q			
14+25	16.9428	28.62		QV			
14+30	17.1395	28.56		Q V			
14+35	17.3361	28.55		Q V			
14+40	17.5329	28.57		Q V			
14+45	17.7296	28.56		Q V			
14+50	17.9246	28.32		Q V			
14+55	18.1157	27.75		Q V			
15+ 0	18.3056	27.58		Q V			
15+ 5	18.4934	27.27		Q V			
15+10	18.6773	26.70		Q V			
15+15	18.8599	26.51		Q V			
15+20	19.0402	26.19		Q V			
15+25	19.2165	25.60		Q V			
15+30	19.3915	25.41		Q V			
15+35	19.5596	24.41		Q V			
15+40	19.7127	22.22		Q V			
15+45	19.8611	21.54		Q V			
15+50	20.0073	21.23		Q V			
15+55	20.1522	21.05		Q V			
16+ 0	20.2964	20.94		Q V			
16+ 5	20.4169	17.49		Q V			
16+10	20.4818	9.43	Q	V			
16+15	20.5298	6.97	Q	V			
16+20	20.5701	5.85	Q	V			
16+25	20.6061	5.22	Q	V			
16+30	20.6393	4.82	Q	V			
16+35	20.6693	4.36	Q	V			

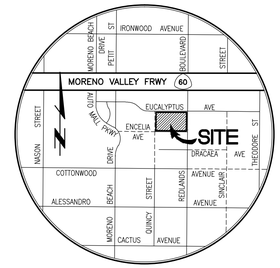
16+40	20.6942	3.62	Q			V	
16+45	20.7181	3.46	Q			V	
16+50	20.7414	3.39	Q			V	
16+55	20.7644	3.34	Q			V	
17+ 0	20.7873	3.32	Q			V	
17+ 5	20.8131	3.75	Q			V	
17+10	20.8462	4.81	Q			V	
17+15	20.8816	5.13	Q			V	
17+20	20.9180	5.28	Q			V	
17+25	20.9549	5.37	Q			V	
17+30	20.9923	5.42	Q			V	
17+35	21.0298	5.45	Q			V	
17+40	21.0676	5.48	Q			V	
17+45	21.1053	5.48	Q			V	
17+50	21.1415	5.25	Q			V	
17+55	21.1740	4.72	Q			V	
18+ 0	21.2054	4.56	Q			V	
18+ 5	21.2362	4.48	Q			V	
18+10	21.2668	4.44	Q			V	
18+15	21.2972	4.41	Q			V	
18+20	21.3275	4.40	Q			V	
18+25	21.3577	4.38	Q			V	
18+30	21.3879	4.38	Q			V	
18+35	21.4165	4.16	Q			V	
18+40	21.4415	3.62	Q			V	
18+45	21.4653	3.46	Q			V	
18+50	21.4871	3.16	Q			V	
18+55	21.5049	2.58	Q			V	
19+ 0	21.5213	2.39	Q			V	
19+ 5	21.5388	2.53	Q			V	
19+10	21.5595	3.01	Q			V	
19+15	21.5811	3.14	Q			V	
19+20	21.6047	3.43	Q			V	
19+25	21.6322	3.99	Q			V	
19+30	21.6610	4.18	Q			V	
19+35	21.6889	4.05	Q			V	
19+40	21.7135	3.57	Q			V	
19+45	21.7371	3.43	Q			V	
19+50	21.7588	3.15	Q			V	
19+55	21.7766	2.58	Q			V	
20+ 0	21.7931	2.39	Q			V	
20+ 5	21.8105	2.53	Q			V	
20+10	21.8312	3.01	Q			V	
20+15	21.8528	3.14	Q			V	
20+20	21.8749	3.20	Q			V	
20+25	21.8972	3.23	Q			V	
20+30	21.9196	3.26	Q			V	
20+35	21.9422	3.27	Q			V	
20+40	21.9648	3.29	Q			V	
20+45	21.9874	3.29	Q			V	
20+50	22.0085	3.06	Q			V	
20+55	22.0259	2.53	Q			V	
21+ 0	22.0422	2.36	Q			V	
21+ 5	22.0596	2.52	Q			V	
21+10	22.0803	3.01	Q			V	
21+15	22.1019	3.14	Q			V	
21+20	22.1224	2.98	Q			V	
21+25	22.1395	2.47	Q			V	
21+30	22.1555	2.33	Q			V	
21+35	22.1728	2.50	Q			V	
21+40	22.1935	3.01	Q			V	
21+45	22.2151	3.14	Q			V	
21+50	22.2356	2.98	Q			V	
21+55	22.2527	2.47	Q			V	
22+ 0	22.2688	2.33	Q			V	
22+ 5	22.2860	2.50	Q			V	
22+10	22.3067	3.01	Q			V	
22+15	22.3284	3.14	Q			V	
22+20	22.3489	2.98	Q			V	
22+25	22.3659	2.47	Q			V	
22+30	22.3820	2.33	Q			V	
22+35	22.3976	2.28	Q			V	
22+40	22.4131	2.25	Q			V	
22+45	22.4284	2.22	Q			V	
22+50	22.4436	2.21	Q			V	
22+55	22.4587	2.19	Q			V	
23+ 0	22.4738	2.19	Q			V	

23+ 5	22.4889	2.19	Q				V
23+10	22.5040	2.19	Q				V
23+15	22.5191	2.19	Q				V
23+20	22.5342	2.19	Q				V
23+25	22.5493	2.19	Q				V
23+30	22.5644	2.19	Q				V
23+35	22.5795	2.19	Q				V
23+40	22.5946	2.19	Q				V
23+45	22.6097	2.19	Q				V
23+50	22.6248	2.19	Q				V
23+55	22.6399	2.19	Q				V
24+ 0	22.6549	2.19	Q				V
24+ 5	22.6669	1.74	Q				V
24+10	22.6716	0.67	Q				V
24+15	22.6739	0.34	Q				V
24+20	22.6753	0.20	Q				V
24+25	22.6761	0.11	Q				V
24+30	22.6765	0.06	Q				V
24+35	22.6766	0.03	Q				V

APPENDIX D

HYDROLOGY MAP





VICINITY MAP

N.T.S.

LEGEND

- PROJECT BOUNDARY
- SUBAREA BOUNDARY
- SUBAREA FLOWLINE
- 9.1 AC. — SUBAREA AREA
- 100 — NODE NUMBER

NOTE:
SEE PROPOSED CONDITION RATIONAL METHOD CALCULATIONS FOR OFFSITE STREET RUNS

0 50 100 200 300

SCALE:1"=100'

PEN19-0193/LST21-0023

Last Update: 8/3/21
O:\3800-3899\3828\3828HYD EX JW.dwg

PREPARED FOR:

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LA MIRADA, CALIFORNIA 90638
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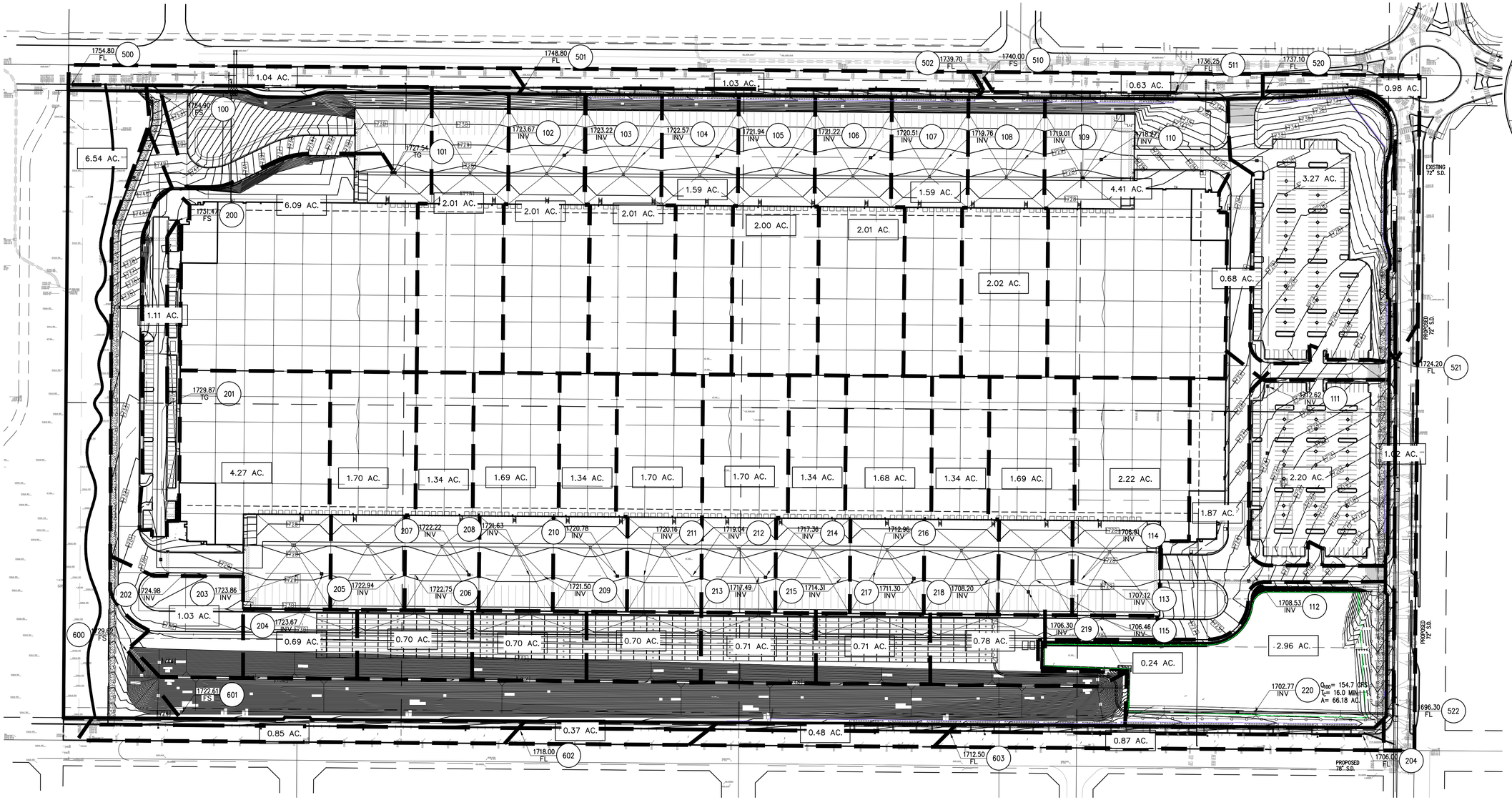
CITY OF MORENO VALLEY

EXISTING CONDITION HYDROLOGY MAP
MORENO VALLEY TRADE CENTER



VICINITY MAP

N.T.S.

LEGEND

- PROJECT BOUNDARY
- SUBAREA BOUNDARY
- SUBAREA FLOWLINE
- 9.1 AC. — SUBAREA AREA
- 100 — NODE NUMBER

0 50 100 200 300

SCALE: 1"=100'

PEN19-0193/LST21-0023 Last Update: 4/5/22
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CITY OF MORENO VALLEY

PROPOSED CONDITION HYDROLOGY MAP OPTION 1

MORENO VALLEY TRADE CENTER