PRELIMINARY
HYDROLOGY STUDY

FOR

TENTATIVE TRACT NO. 39076

Prepared by:

BLAINE A. WOMER CIVIL ENGINEERING
41555 East Florida Avenue, Suite G
Hemet, CA 92544

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TENTATIVE TRACT NO. 39076

PRELILMINARY HYDROLOGY STUDY

NARRATIVE:

Tentative Tract No. 39076 is a 419-lot subdivision on 75.7 acres located west of Cawston Avenue between Esplanade Avenue and Seventh Street. The site naturally drains to the west/northwest and the project has been conceptually designed to honor that drainage pattern. Natural condition stormwater flows sheet flow to the northwest corner of the property and ultimately drain into Seventh Street. Rational hydrology calculations for the 10-year and 100-year flows are included in Appendix D of this report.

Site soils are BC, per the Riverside County Flood Control and Water Conservation District Hydrology Manual.

The stormwater basin referenced above has been sized to mitigate the incremental difference in volume between the developed and undeveloped condition for the 100-year, 24-hour storm. Runoff volume in excess of the mitigation volume will discharge to Seventh Street through a curb outlet structure. To mitigate standing water in the basin, a pump station will be installed to drain the basin over an extended period of time. Pumped flows will discharge to an existing catch basin in Seventh Street located approximately 1,786 feet west of the northwest corner of Tentative Tract 39706. The need for pump storm routing will be addressed through additional hydrograph analysis during final engineering design. Preliminary unit hydrograph calculations for the preliminary basin sizing are included in Appendix D.

The site is not subject to offsite flows due to the perimeter street improvements.

The following report includes rational hydrology calculations for the 10-year and 100-year recurrence interval for the undeveloped and developed site conditions. Stormwater flows

discharge via surface flow to onsite bioretention basins dispersed throughout the site for water quality mitigation. Excess bioretention flows are intercepted via onsite storm drain systems throughout the tract and discharged to the stormwater mitigation basin discussed above. Peak runoff flows within the subdivision are summarized as follows:

Rational Hydrology Runoff Summary

Drainage Area Designation*	Area (Ac)	Q_{10}(cfs)	Q_{100} (cfs)
Undeveloped Site	75.7	45.1	75.1
Area A	7.8	8.5	13.3
Area B	5.1	5.8	9.0
Area C	5.8	6.7	10.4
Area D	4.4	5.2	8.1
Area E	8.5	9.7	15.1
Area F	3.7	4.5	7.0
Area G	5.7	6.9	10.8
Area H	9.4	10.3	16.1
Area I	8.3	8.9	13.8
Area J	10.0	11.2	17.4

* See Rational Hydrology Exhibits in Appendix B and C

Retention Basin Volume Mitigation

Developed Volume, 100-year, 24-hour hydrograph = 817,436 cf

Undeveloped Volume, 100-year, 24-hour hydrograph = 652,923 cf

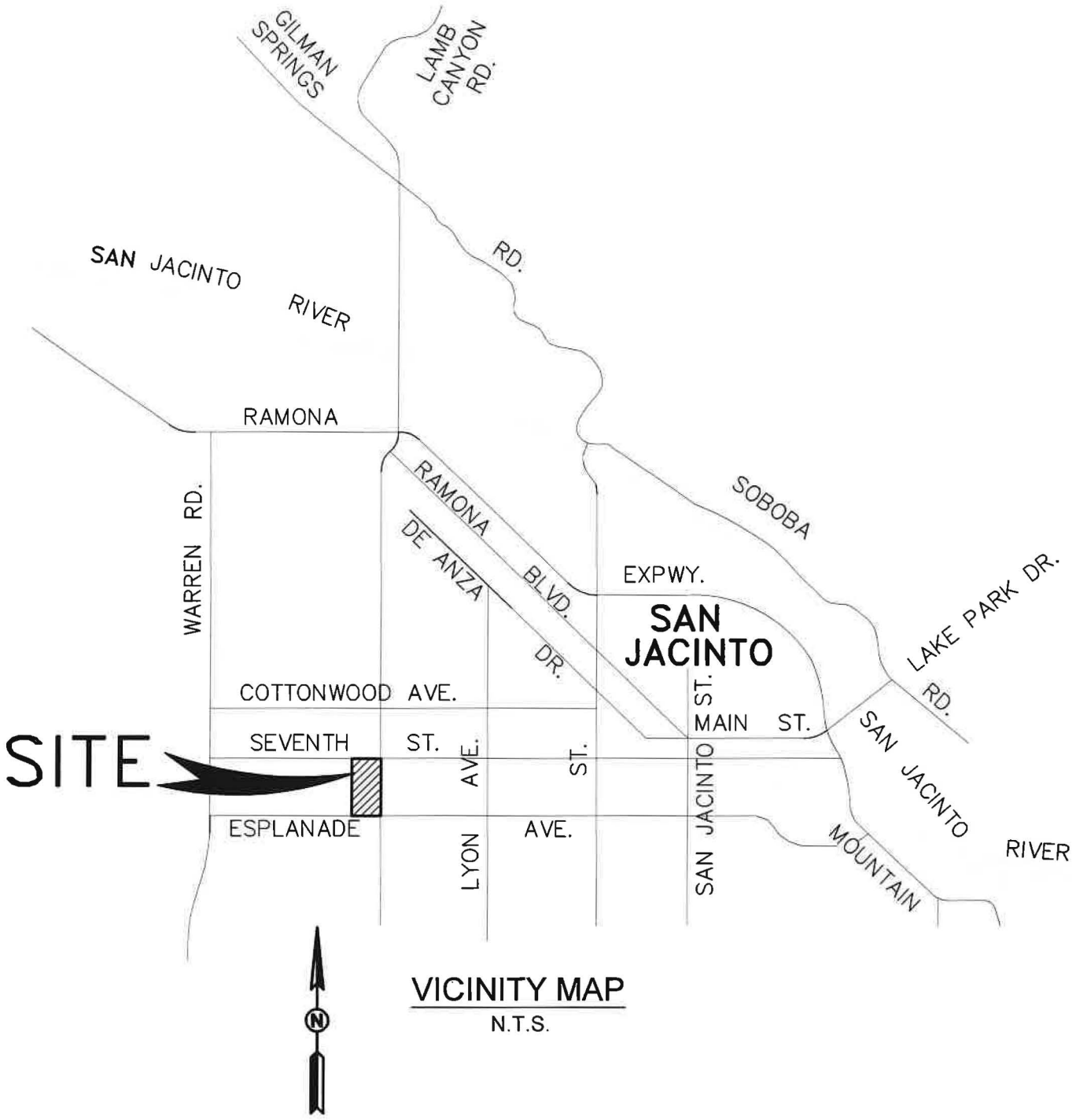
Volume Difference = 164,513 cf

Basin Volume vs Depth Summary

Depth (ft)	Area (sf)	Volume (cf)	Accum. Volume (cf)
0	36,163	0	0
1	39,246	37,704	37,704
2	42,385	40,815	78,519
3	45,582	43,983	122,502
4	48,834	47,208	169,710
5	52,144	50,489	220,199

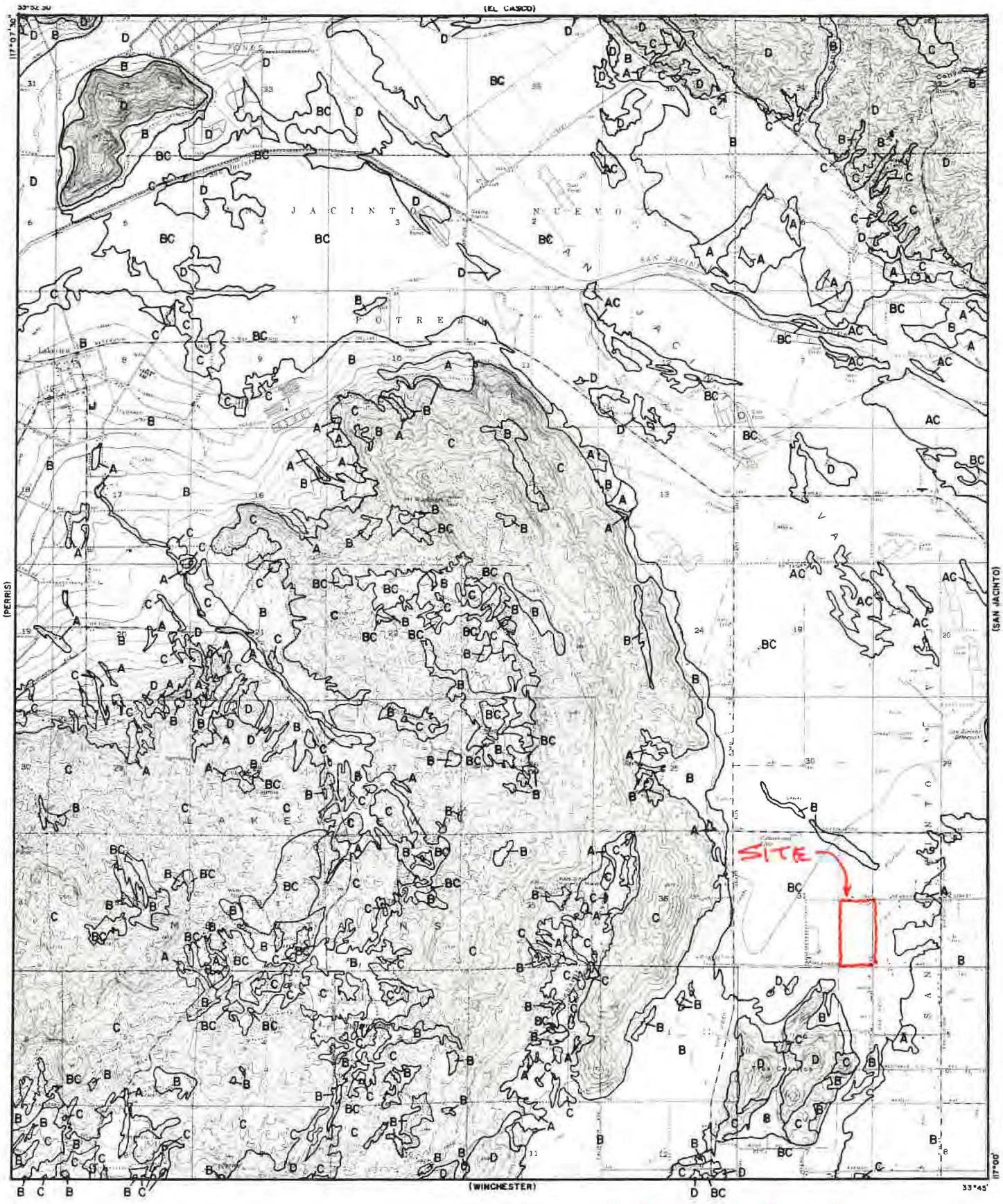
Basin Depth = 6.0' Total

APPENDIX 'A'



VICINITY MAP

N.T.S.



LEGEND

——— SOILS GROUP BOUNDARY

A SOILS GROUP DESIGNATION

RCFC&WCD

HYDROLOGY MANUAL

0 FEET 5000

HYDROLOGIC SOILS GROUP MAP FOR LAKEVIEW

PLATE C-1.31

RAINFALL INTENSITY–INCHES PER HOUR

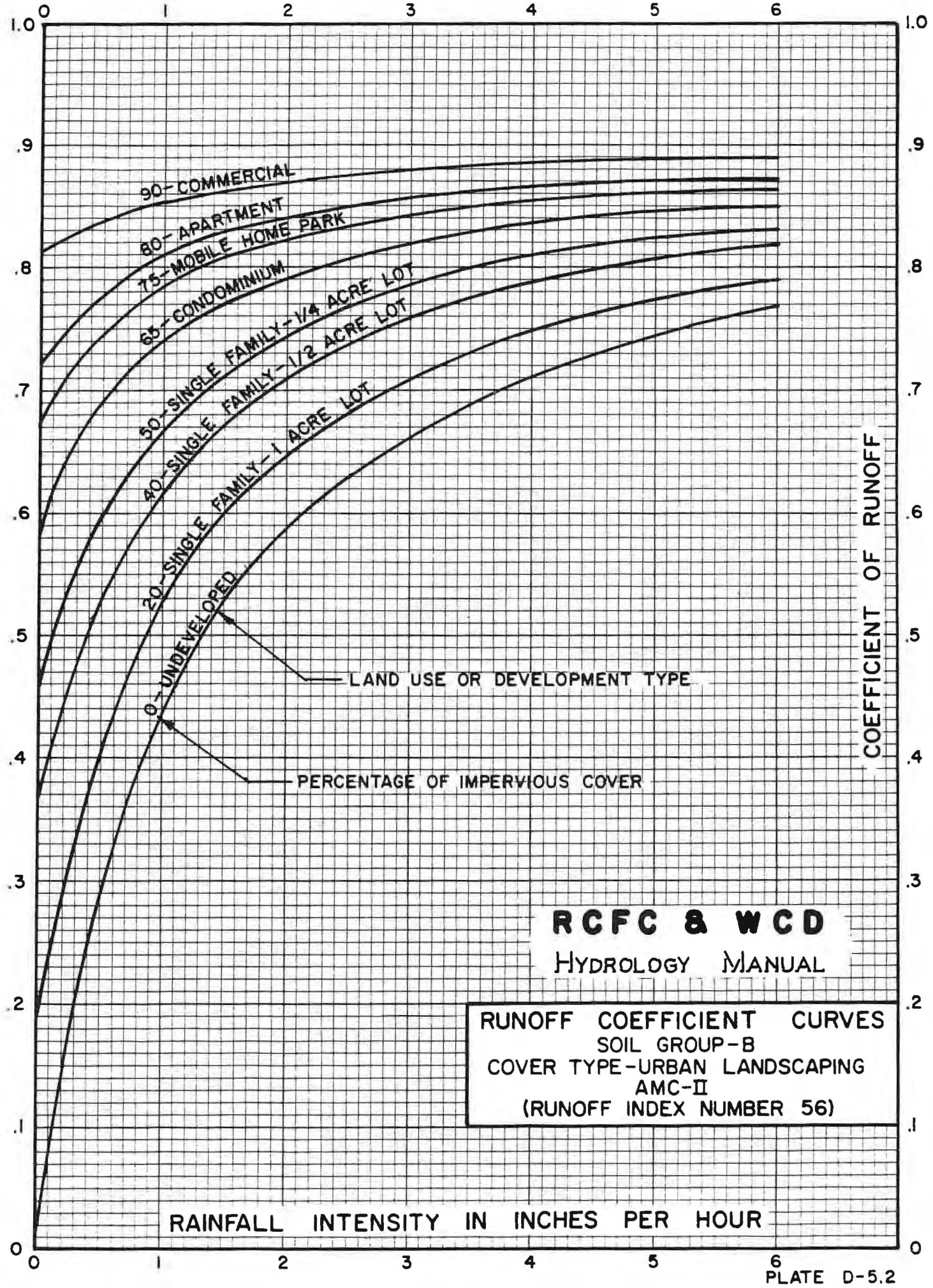
RIVERSIDE			RIVERSIDE (FOOTHILL AREAS)			RUBIDOUX			SAN JACINTO			SUN CITY		
DURATION MINUTES	FREQUENCY		DURATION MINUTES	FREQUENCY		DURATION MINUTES	FREQUENCY		DURATION MINUTES	FREQUENCY		DURATION MINUTES	FREQUENCY	
	10 YEAR	100 YEAR		10 YEAR	100 YEAR		10 YEAR	100 YEAR		10 YEAR	100 YEAR		10 YEAR	100 YEAR
5	2.75	3.92	5	3.14	4.71	5	3.18	4.71	5	2.81	4.16	5	3.25	4.85
6	2.48	3.55	6	2.84	4.26	6	2.87	4.26	6	2.56	3.79	6	2.95	4.40
7	2.28	3.26	7	2.61	3.91	7	2.64	3.91	7	2.37	3.51	7	2.72	4.06
8	2.12	3.03	8	2.42	3.63	8	2.45	3.63	8	2.22	3.29	8	2.53	3.78
9	1.99	2.84	9	2.27	3.41	9	2.30	3.41	9	2.09	3.10	9	2.38	3.55
10	1.88	2.68	10	2.14	3.21	10	2.17	3.21	10	1.98	2.94	10	2.25	3.36
11	1.78	2.54	11	2.03	3.05	11	2.06	3.05	11	1.89	2.80	11	2.14	3.19
12	1.70	2.42	12	1.94	2.91	12	1.96	2.91	12	1.81	2.68	12	2.04	3.05
13	1.62	2.32	13	1.86	2.78	13	1.88	2.78	13	1.74	2.58	13	1.96	2.92
14	1.56	2.23	14	1.78	2.67	14	1.80	2.67	14	1.68	2.48	14	1.88	2.81
15	1.50	2.14	15	1.71	2.57	15	1.74	2.57	15	1.62	2.40	15	1.81	2.71
16	1.45	2.07	16	1.66	2.48	16	1.68	2.48	16	1.57	2.32	16	1.75	2.62
17	1.40	2.00	17	1.60	2.40	17	1.62	2.40	17	1.52	2.25	17	1.70	2.54
18	1.36	1.94	18	1.55	2.33	18	1.57	2.33	18	1.48	2.19	18	1.65	2.46
19	1.32	1.88	19	1.51	2.26	19	1.52	2.26	19	1.44	2.13	19	1.60	2.39
20	1.28	1.83	20	1.46	2.20	20	1.48	2.20	20	1.40	2.08	20	1.56	2.33
22	1.22	1.74	22	1.39	2.08	22	1.41	2.08	22	1.34	1.98	22	1.48	2.21
24	1.16	1.66	24	1.32	1.99	24	1.34	1.99	24	1.28	1.90	24	1.41	2.11
26	1.11	1.58	26	1.27	1.90	26	1.28	1.90	26	1.23	1.82	26	1.36	2.03
28	1.06	1.52	28	1.22	1.82	28	1.23	1.82	28	1.19	1.76	28	1.30	1.95
30	1.02	1.46	30	1.17	1.76	30	1.19	1.76	30	1.15	1.70	30	1.26	1.88
32	.99	1.41	32	1.13	1.70	32	1.14	1.70	32	1.11	1.64	32	1.21	1.81
34	.96	1.37	34	1.09	1.64	34	1.11	1.64	34	1.08	1.59	34	1.18	1.76
36	.93	1.32	36	1.06	1.59	36	1.07	1.59	36	1.05	1.55	36	1.14	1.70
38	.90	1.29	38	1.03	1.54	38	1.04	1.54	38	1.02	1.51	38	1.11	1.66
40	.87	1.25	40	1.00	1.50	40	1.01	1.50	40	.99	1.47	40	1.08	1.61
45	.82	1.17	45	.94	1.41	45	.95	1.41	45	.94	1.39	45	1.01	1.51
50	.77	1.11	50	.88	1.33	50	.90	1.33	50	.89	1.31	50	.96	1.43
55	.73	1.05	55	.84	1.26	55	.85	1.26	55	.85	1.25	55	.91	1.36
60	.70	1.00	60	.80	1.20	60	.81	1.20	60	.81	1.20	60	.87	1.30
65	.67	.96	65	.77	1.15	65	.78	1.15	65	.78	1.15	65	.83	1.25
70	.64	.92	70	.73	1.10	70	.74	1.10	70	.75	1.11	70	.80	1.20
75	.62	.88	75	.71	1.06	75	.72	1.06	75	.72	1.07	75	.77	1.15
80	.60	.85	80	.68	1.02	80	.69	1.02	80	.70	1.04	80	.75	1.12
85	.58	.83	85	.66	.99	85	.67	.99	85	.68	1.01	85	.72	1.08
SLOPE = .550			SLOPE = .550			SLOPE = .550			SLOPE = .500			SLOPE = .530		

RCFC & WCD

HYDROLOGY MANUAL

STANDARD INTENSITY–DURATION CURVES DATA

PLATE D-4.1 (5 of 6)



RCFC & WCD

HYDROLOGY MANUAL

RUNOFF COEFFICIENT CURVES
SOIL GROUP-B
COVER TYPE-URBAN LANDSCAPING
AMC-II
(RUNOFF INDEX NUMBER 56)

PLATE D-5.2

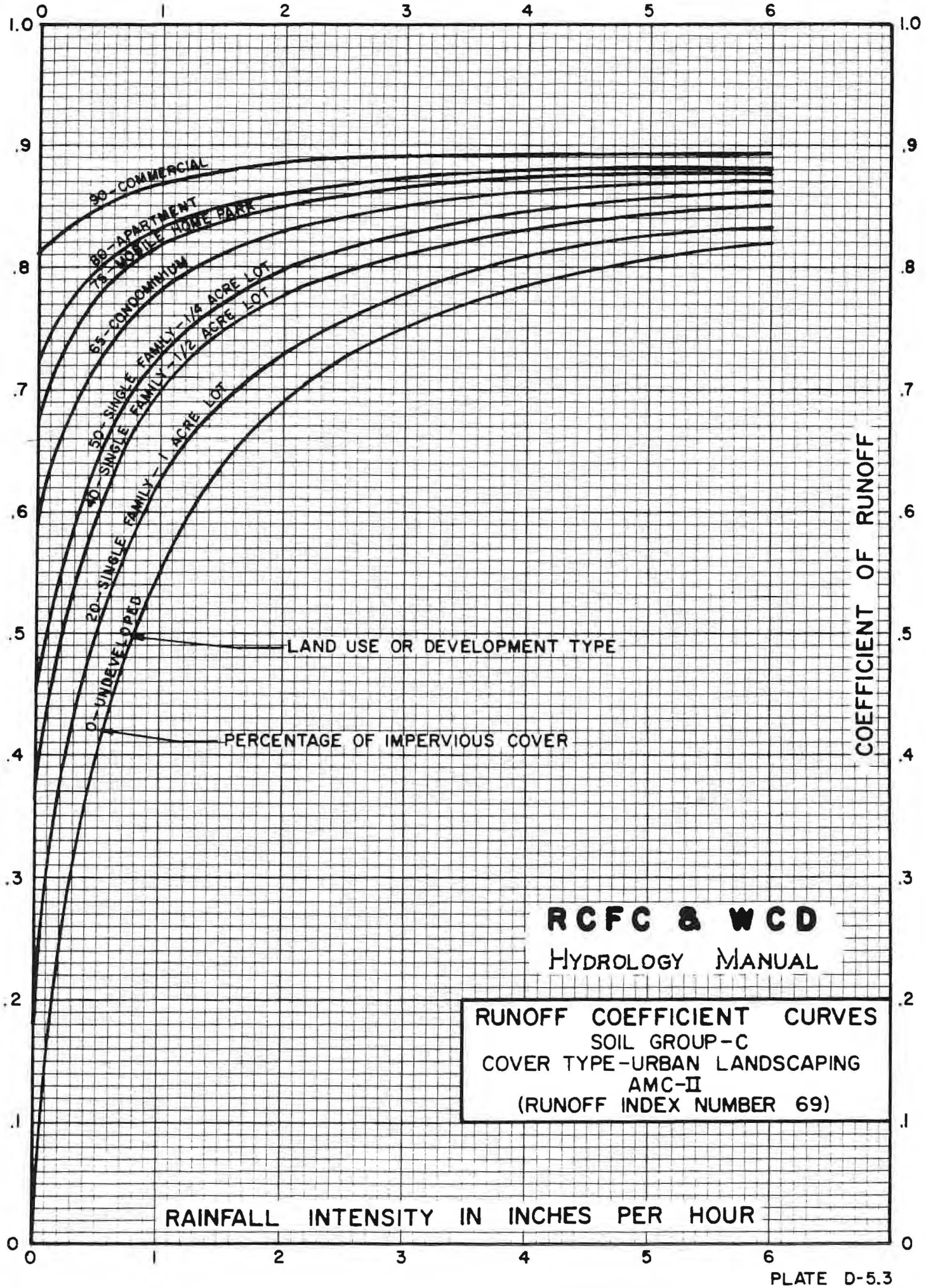

0
1
2
3
4
5
6
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
0
90 - COMMERCIAL
80 - APARTMENT
75 - MOBILE HOME PARK
65 - CONDOMINIUM
50 - SINGLE FAMILY - 1/4 ACRE LOT
40 - SINGLE FAMILY - 1/2 ACRE LOT
20 - SINGLE FAMILY - 1 ACRE LOT
0 - UNDEVELOPED
LAND USE OR DEVELOPMENT TYPE
PERCENTAGE OF IMPERVIOUS COVER
COEFFICIENT OF RUNOFF
RAINFALL INTENSITY IN INCHES PER HOUR
RCFC & WCD
HYDROLOGY MANUAL
RUNOFF COEFFICIENT CURVES
SOIL GROUP - C
COVER TYPE - URBAN LANDSCAPING
AMC - II
(RUNOFF INDEX NUMBER 69)

PLATE D-5.3

APPENDIX 'B'

RATIONAL HYDROLOGY CALCULATIONS
UNDEVELOPED CONDITION

10-Year Storm
100-Year Storm

Hydrology Exhibit – Undeveloped Condition

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            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM3907610YRUNDEV.out
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TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY STUDY
UNDEVELOPED CONDITION
10-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

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

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.810(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   880.000(Ft.)
Top (of initial area) elevation =    11.200(Ft.)
Bottom (of initial area) elevation =     9.200(Ft.)
Difference in elevation =     2.000(Ft.)
Slope =    0.00227  s(percent)=       0.23
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   26.962 min.
Rainfall intensity =      1.208(In/Hr) for a    10.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.725
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  82.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      8.667(CFS)
Total initial stream area =        9.900(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        3.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------
Top of natural channel elevation =      9.200(Ft.)
End of natural channel elevation =      5.400(Ft.)
Length of natural channel  =  2492.000(Ft.)
Estimated mean flow rate at midpoint of channel =     37.469(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   1.39(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
      Normal channel slope =  0.0015
Corrected/adjusted channel slope =  0.0015
Travel time =   29.84 min.     TC =   56.80  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.666
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  82.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      0.832(In/Hr) for a    10.0 year storm
Subarea runoff =     36.476(CFS) for     65.800(Ac.)
Total runoff =     45.142(CFS)      Total area =      75.700(Ac.)
End of computations, total study area =           75.70 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  82.0
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            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076100YRUNDEV.out
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TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY STUDY
UNDEVELOPED CONDITION
100-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.200(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   880.000(Ft.)
Top (of initial area) elevation =    11.200(Ft.)
Bottom (of initial area) elevation =     9.200(Ft.)
Difference in elevation =     2.000(Ft.)
Slope =    0.00227  s(percent)=       0.23
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   26.962 min.
Rainfall intensity =      1.790(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.774
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
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```
RI index for soil(AMC 2)  =  82.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =     13.708(CFS)
Total initial stream area =        9.900(Ac.)
Pervious area fraction = 1.000

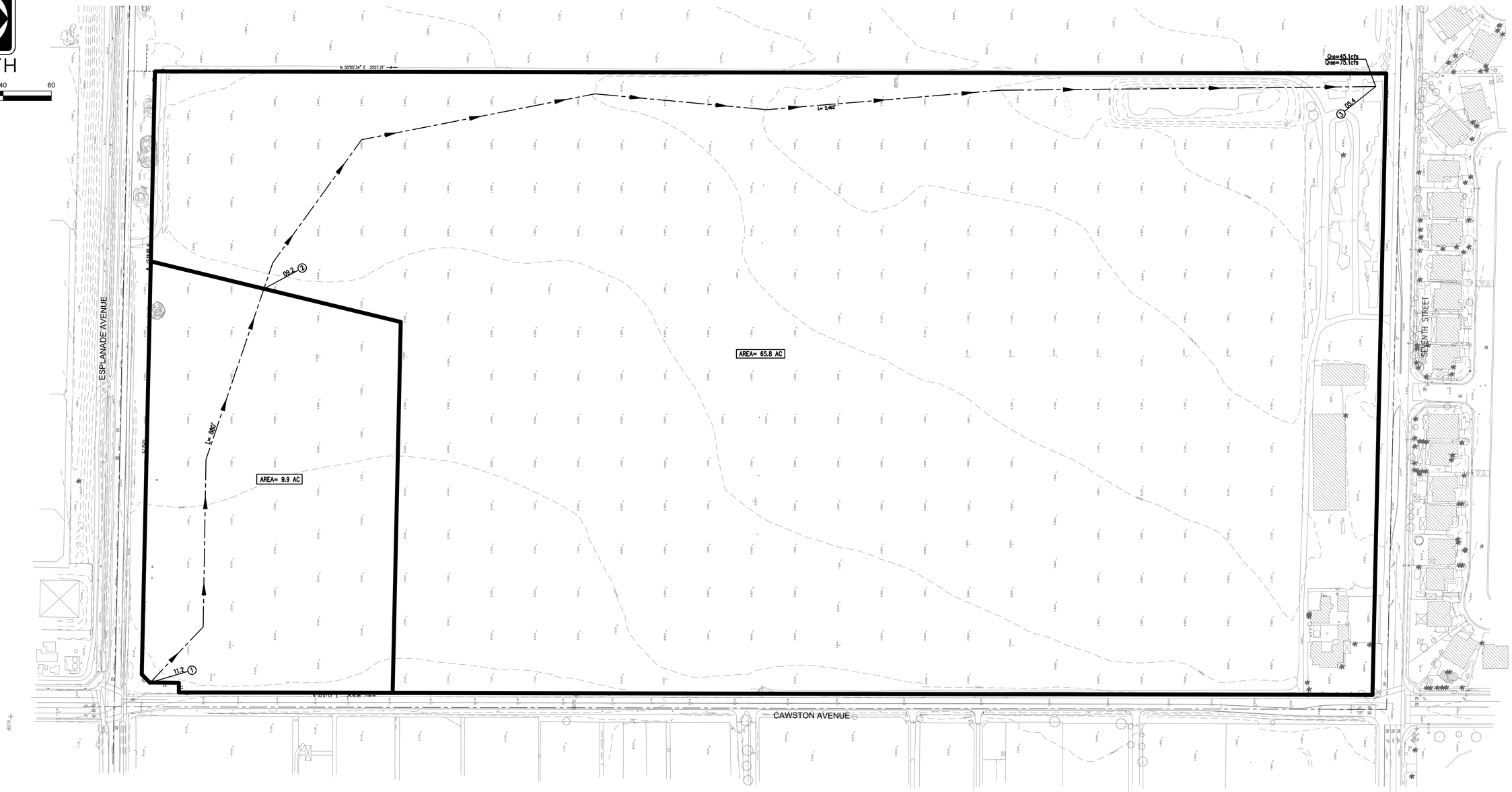

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.000 to Point/Station        3.000
**** NATURAL CHANNEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Top of natural channel elevation =      9.200(Ft.)
End of natural channel elevation =      5.400(Ft.)
Length of natural channel  =  2492.000(Ft.)
Estimated mean flow rate at midpoint of channel =     59.265(CFS)

Natural valley channel type used
L.A. County flood control district formula for channel velocity:
 Velocity(ft/s) = (7 + 8(q(English Units)^.352)(slope^0.5)
Velocity using mean channel flow =   1.59(Ft/s)

Correction to map slope used on extremely rugged channels with
drops and waterfalls (Plate D-6.2)
      Normal channel slope =  0.0015
Corrected/adjusted channel slope =  0.0015
Travel time =   26.16 min.     TC =   53.12  min.


 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.732
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  82.00
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      1.275(In/Hr) for a   100.0 year storm
Subarea runoff =     61.428(CFS) for     65.800(Ac.)
Total runoff =     75.136(CFS)      Total area =      75.700(Ac.)
End of computations, total study area =          75.70 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged RI index number =  82.0
```



LEGEND

- DRAINAGE BOUNDARY
- FLOW PATH
- (1) NODE NUMBER

DIG ALERT

DIAL TOLL FREE
1-800-227-2600

AT LEAST TWO DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

DATE	BY	MARK	REVISIONS	APPR.	DATE

ENGINEER | CITY

DESIGNED BY: DRAWN BY: CHECKED BY:

SEAL

REGISTERED PROFESSIONAL ENGINEER
BLAINE A WOMER
No. 46354
CIVIL
STATE OF CALIFORNIA

APPROVED BY: DATE _____

CONTRACT CITY ENGINEER

PREPARED BY: DATE _____

R.C.E. NO. _____

BLAINE A. WOMER
CIVIL ENGINEERING

- PLANNING
- SURVEYING
- CIVIL ENGINEERING
- PUBLIC WORKS

Hemet, CA. 92544, 41550 E Florida Ave., Suite G, Phone (951)658-1727 Fax (951)658-9347
Park City, UT 84098, 5133 Cove Carryon Dr. #302
Boise, ID. 83706, 4355 W Emerald Street, St. 145, Phone (208)593-7555

SCALE 1" = 60'

DATE SEPT. 18, 2024

BENCHMARK:

CITY OF SAN JACINTO

TENTATIVE TRACT 39076
HYDROLOGY EXHIBIT

UNDEVELOPED CONDITION

FOR RAMONA DAIRY

W.O.

SHEET NO. 1 OF 1 SHEETS

FILE NO.

APPENDIX 'C'

RATIONAL HYDROLOGY CALCULATIONS
DEVELOPED CONDITION

10-Year Storm
100-Year Storm

Hydrology Exhibit – Developed Condition

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            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAA10YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA A, 10-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

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

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.810(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   920.000(Ft.)
Top (of initial area) elevation =    12.000(Ft.)
Bottom (of initial area) elevation =     8.400(Ft.)
Difference in elevation =     3.600(Ft.)
Slope =    0.00391  s(percent)=       0.39
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   18.117 min.
Rainfall intensity =      1.474(In/Hr) for a    10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.742
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      8.528(CFS)
Total initial stream area =       7.800(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =           7.80 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

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            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAA100YR.out
--------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA A, 100-YEAR STORM
--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

--------------------------------------------------------------------------


Program License Serial Number 4061

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

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.200(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.000 to Point/Station        2.000
**** INITIAL AREA EVALUATION ****
--------------------------------------------------------------------------
Initial area flow distance =   920.000(Ft.)
Top (of initial area) elevation =    12.000(Ft.)
Bottom (of initial area) elevation =     8.400(Ft.)
Difference in elevation =     3.600(Ft.)
Slope =    0.00391  s(percent)=       0.39
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   18.117 min.
Rainfall intensity =      2.184(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.779
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =     13.275(CFS)
Total initial stream area =        7.800(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =            7.80 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAB10YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA B, 10-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

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

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.810(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   785.000(Ft.)
Top (of initial area) elevation =    11.400(Ft.)
Bottom (of initial area) elevation =     8.400(Ft.)
Difference in elevation =     3.000(Ft.)
Slope =    0.00382  s(percent)=       0.38
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.083 min.
Rainfall intensity =      1.518(In/Hr) for a    10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.745
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

RI index for soil(AMC 2) = 62.50
Pervious area fraction = 0.500; Impervious fraction = 0.500
Initial subarea runoff = 5.765(CFS)
Total initial stream area = 5.100(Ac.)
Pervious area fraction = 0.500
End of computations, total study area = 5.10 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number = 62.5

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAB100YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA B, 100-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.200(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   785.000(Ft.)
Top (of initial area) elevation =    11.400(Ft.)
Bottom (of initial area) elevation =     8.400(Ft.)
Difference in elevation =     3.000(Ft.)
Slope =    0.00382  s(percent)=       0.38
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.083 min.
Rainfall intensity =      2.249(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.782
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)   =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      8.968(CFS)
Total initial stream area =       5.100(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =           5.10 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAC10YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA C, 10-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

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

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.810(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.000 to Point/Station        6.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   750.000(Ft.)
Top (of initial area) elevation =    11.400(Ft.)
Bottom (of initial area) elevation =     8.400(Ft.)
Difference in elevation =     3.000(Ft.)
Slope =    0.00400  s(percent)=       0.40
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.622 min.
Rainfall intensity =      1.539(In/Hr) for a    10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.746
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

RI index for soil(AMC 2) = 62.50
Pervious area fraction = 0.500; Impervious fraction = 0.500
Initial subarea runoff = 6.659(CFS)
Total initial stream area = 5.800(Ac.)
Pervious area fraction = 0.500
End of computations, total study area = 5.80 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number = 62.5

```
          Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAC100YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA C, 100-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.200(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.000 to Point/Station        6.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   750.000(Ft.)
Top (of initial area) elevation =    11.400(Ft.)
Bottom (of initial area) elevation =     8.400(Ft.)
Difference in elevation =     3.000(Ft.)
Slope =    0.00400  s(percent)=       0.40
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.622 min.
Rainfall intensity =      2.280(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.783
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =     10.355(CFS)
Total initial stream area =        5.800(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =            5.80 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAD10YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA D, 10-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

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

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.810(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        8.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   640.000(Ft.)
Top (of initial area) elevation =    10.900(Ft.)
Bottom (of initial area) elevation =     8.400(Ft.)
Difference in elevation =     2.500(Ft.)
Slope =    0.00391  s(percent)=       0.39
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   15.674 min.
Rainfall intensity =      1.585(In/Hr) for a    10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.749
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

RI index for soil(AMC 2) = 62.50
Pervious area fraction = 0.500; Impervious fraction = 0.500
Initial subarea runoff = 5.223(CFS)
Total initial stream area = 4.400(Ac.)
Pervious area fraction = 0.500
End of computations, total study area = 4.40 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number = 62.5

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAD100YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOED CONDITION
AREA D, 100-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.200(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        7.000 to Point/Station        8.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   640.000(Ft.)
Top (of initial area) elevation =    10.900(Ft.)
Bottom (of initial area) elevation =     8.400(Ft.)
Difference in elevation =     2.500(Ft.)
Slope =    0.00391  s(percent)=       0.39
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   15.674 min.
Rainfall intensity =      2.348(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.786
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      8.116(CFS)
Total initial stream area =        4.400(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =            4.40 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 10/30/24 File:TTM39076AREAE10YR.out

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TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA E, 10-YEAR STORM

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

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

Program License Serial Number 4061

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

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

Standard intensity-duration curves data (Plate D-4.1)
For the [San Jacinto] area used.
10 year storm 10 minute intensity = 1.980(In/Hr)
10 year storm 60 minute intensity = 0.810(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 10.0
Calculated rainfall intensity data:
1 hour intensity = 0.810(In/Hr)
Slope of intensity duration curve = 0.5000

++
Process from Point/Station 9.000 to Point/Station 10.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 790.000(Ft.)
Top (of initial area) elevation = 11.400(Ft.)
Bottom (of initial area) elevation = 8.000(Ft.)
Difference in elevation = 3.400(Ft.)
Slope = 0.00430 s(percent)= 0.43
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 16.724 min.
Rainfall intensity = 1.534(In/Hr) for a 10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.746
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000

RI index for soil(AMC 2) = 62.50
Pervious area fraction = 0.500; Impervious fraction = 0.500
Initial subarea runoff = 9.726(CFS)
Total initial stream area = 8.500(Ac.)
Pervious area fraction = 0.500
End of computations, total study area = 8.50 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number = 62.5

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAE100YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA E, 100-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.200(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        9.000 to Point/Station       10.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   790.000(Ft.)
Top (of initial area) elevation =    11.400(Ft.)
Bottom (of initial area) elevation =     8.000(Ft.)
Difference in elevation =     3.400(Ft.)
Slope =    0.00430  s(percent)=       0.43
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.724 min.
Rainfall intensity =      2.273(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.783
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =     15.124(CFS)
Total initial stream area =        8.500(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =            8.50 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAF10YR.out
--------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA F, 10-YEAR STORM
--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

--------------------------------------------------------------------------


Program License Serial Number 4061

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

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

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.810(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** INITIAL AREA EVALUATION ****
--------------------------------------------------------------------------
Initial area flow distance =   640.000(Ft.)
Top (of initial area) elevation =    11.100(Ft.)
Bottom (of initial area) elevation =     8.000(Ft.)
Difference in elevation =     3.100(Ft.)
Slope =    0.00484  s(percent)=       0.48
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   15.014 min.
Rainfall intensity =      1.619(In/Hr) for a    10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.751
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      4.501(CFS)
Total initial stream area =        3.700(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =            3.70 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAF100YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA F, 100-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.200(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   640.000(Ft.)
Top (of initial area) elevation =    11.100(Ft.)
Bottom (of initial area) elevation =     8.000(Ft.)
Difference in elevation =     3.100(Ft.)
Slope =    0.00484  s(percent)=       0.48
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   15.014 min.
Rainfall intensity =      2.399(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.787
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      6.989(CFS)
Total initial stream area =       3.700(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =           3.70 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAG10YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA G, 10-YR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

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

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.810(In/Hr)
Slope of intensity duration curve = 0.5000



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       14.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   590.000(Ft.)
Top (of initial area) elevation =    10.400(Ft.)
Bottom (of initial area) elevation =     8.000(Ft.)
Difference in elevation =     2.400(Ft.)
Slope =    0.00407  s(percent)=       0.41
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   15.050 min.
Rainfall intensity =      1.617(In/Hr) for a    10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.751
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      6.924(CFS)
Total initial stream area =        5.700(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =            5.70 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAG100YR.out
--------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA G, 100-YEAR STORM
--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

--------------------------------------------------------------------------


Program License Serial Number 4061

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

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.200(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       14.000
**** INITIAL AREA EVALUATION ****
--------------------------------------------------------------------------
Initial area flow distance =   590.000(Ft.)
Top (of initial area) elevation =    10.400(Ft.)
Bottom (of initial area) elevation =     8.000(Ft.)
Difference in elevation =     2.400(Ft.)
Slope =    0.00407  s(percent)=       0.41
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   15.050 min.
Rainfall intensity =      2.396(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.787
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =     10.753(CFS)
Total initial stream area =        5.700(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =            5.70 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAH10YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA H, 10-YEAR
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

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

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.810(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       15.000 to Point/Station       16.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =    10.900(Ft.)
Bottom (of initial area) elevation =     6.000(Ft.)
Difference in elevation =     4.900(Ft.)
Slope =    0.00490  s(percent)=       0.49
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.907 min.
Rainfall intensity =      1.483(In/Hr) for a    10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.742
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =     10.345(CFS)
Total initial stream area =        9.400(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =            9.40 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAH100YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA H, 100-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.200(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       15.000 to Point/Station       16.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =    10.900(Ft.)
Bottom (of initial area) elevation =     6.000(Ft.)
Difference in elevation =     4.900(Ft.)
Slope =    0.00490  s(percent)=       0.49
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.907 min.
Rainfall intensity =      2.197(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.780
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =     16.102(CFS)
Total initial stream area =        9.400(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =            9.40 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAI10YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA I, 10-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

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

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.810(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       17.000 to Point/Station       18.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   990.000(Ft.)
Top (of initial area) elevation =     9.100(Ft.)
Bottom (of initial area) elevation =     5.500(Ft.)
Difference in elevation =     3.600(Ft.)
Slope =    0.00364  s(percent)=       0.36
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   18.932 min.
Rainfall intensity =      1.442(In/Hr) for a    10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.739
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      8.850(CFS)
Total initial stream area =        8.300(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =           8.30 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAI100YR.out
--------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA I, 100-YEAR STORM
--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

--------------------------------------------------------------------------


Program License Serial Number 4061

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

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.200(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       17.000 to Point/Station       18.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =   990.000(Ft.)
Top (of initial area) elevation =     9.100(Ft.)
Bottom (of initial area) elevation =     5.500(Ft.)
Difference in elevation =     3.600(Ft.)
Slope =    0.00364  s(percent)=       0.36
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   18.932 min.
Rainfall intensity =      2.136(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.777
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

RI index for soil(AMC 2) = 62.50
Pervious area fraction = 0.500; Impervious fraction = 0.500
Initial subarea runoff = 13.784(CFS)
Total initial stream area = 8.300(Ac.)
Pervious area fraction = 0.500
End of computations, total study area = 8.30 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number = 62.5

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAJ10YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA J, 10-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

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

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.810(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       19.000 to Point/Station       20.000
**** INITIAL AREA EVALUATION ****

------------------------------------------------------------------------
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =    11.100(Ft.)
Bottom (of initial area) elevation =     5.500(Ft.)
Difference in elevation =     5.600(Ft.)
Slope =    0.00560  s(percent)=       0.56
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.435 min.
Rainfall intensity =      1.503(In/Hr) for a    10.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.744
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)   =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      11.174(CFS)
Total initial stream area =       10.000(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =           10.00 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

```
            Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
      Rational Hydrology Study        Date: 10/30/24  File:TTM39076AREAJ100YR.out
------------------------------------------------------------------------
TENTATIVE TRACT 39076
PRELIMINARY HYDROLOGY
DEVELOPED CONDITION
AREA J, 100-YEAR STORM
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

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

------------------------------------------------------------------------


Program License Serial Number 4061

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

Storm event (year) =  100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [ San Jacinto ] area used.
10 year storm 10 minute intensity =  1.980(In/Hr)
10 year storm 60 minute intensity =  0.810(In/Hr)
100 year storm 10 minute intensity =  2.940(In/Hr)
100 year storm 60 minute intensity =  1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.200(In/Hr)
Slope of intensity duration curve = 0.5000




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       19.000 to Point/Station       20.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =    11.100(Ft.)
Bottom (of initial area) elevation =     5.500(Ft.)
Difference in elevation =     5.600(Ft.)
Slope =    0.00560  s(percent)=       0.56
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   17.435 min.
Rainfall intensity =      2.226(In/Hr) for a   100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.781
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.000
```

```
RI index for soil(AMC 2)  =  62.50
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =     17.387(CFS)
Total initial stream area =       10.000(Ac.)
Pervious area fraction = 0.500
End of computations, total study area =           10.00 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.500
Area averaged RI index number =  62.5
```

NORTH

0 60 120 180

1"=60'



SEE SHEET NO. 2

LEGEND

- DRAINAGE BOUNDARY
- NODE NUMBER
- DRAINAGE ARROW
- A / 7.8 – AREA DESIGNATION / AREA IN ACRES

DIG ALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

DATE	BY	MARK	REVISIONS	APPR.	DATE
				CITY	

DESIGNED BY: DRAWN BY: CHECKED BY:

SEAL
REGISTERED PROFESSIONAL ENGINEER
BLAINE A WOMER
No. 46354
CIVIL
STATE OF CALIFORNIA

APPROVED BY: DATE
CONTRACT CITY ENGINEER

PREPARED BY: DATE
R.C.E. NO.

BLAINE A. WOMER
CIVIL ENGINEERING
• PLANNING
• SURVEYING
• CIVIL ENGINEERING
• PUBLIC WORKS
Hemet, CA. 92546, 41005 E Florida Ave., Suite G, Phone (951)658-1727 Fax (951)658-9347
Park City, UT 84098, 5130 Cove Canyon Dr. #302
Boise, ID. 83706, 4355 W Emerald Street, St. 145, Phone (208)593-7555

SCALE 1" = 60'
DATE SEPT. 18, 2024
BENCHMARK:

CITY OF SAN JACINTO
TENTATIVE TRACT MAP NO. 39076
HYDROLOGY EXHIBIT
DEVELOPED CONDITION
FOR RAMONA DAIRY
W.O.

SHEET NO. 1 OF 3 SHEETS
FILE NO.

NORTH

0 60 120 180

1"=60'

SEE SHEET NO. 1

LEGEND

- DRAINAGE BOUNDARY
- NODE NUMBER
- DRAINAGE ARROW
- A / 7.8 – AREA DESIGNATION / AREA IN ACRES

ESPLANADE SPECIFIC PLAN SP 01-02
TRACT 32955-1
APN 432-260-014

ESPLANADE SPECIFIC PLAN SP 01-02
TRACTS 32955-1 & 32955-5
APN 432-260-017

CAWSTON AVENUE
LAND USE: VARY LOW DENSITY RESIDENTIAL
ZONE: RURAL RESIDENTIAL

BIORETENTION BASIN NO. 2
BOTTOM ELEV= 07.0

LOT 'B'
F.G.= 08.0

Q100=6.9cfs
Q500=10.8cfs

Q100=4.5cfs
Q500=7.0cfs

Q100=9.7cfs
Q500=15.1cfs

L= 1000'
L=640'
L=590'
L=790'

EXIST. BLOCK WALL

PROP. 6' BLOCK WALL ON RETAINING WALL.

PROP. 6' BLOCK WALL

SEE SHEET NO. 4

SEE SHEET NO. 3

DIG ALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

DATE	BY	MARK	REVISIONS	APPR.	DATE
				CITY	

DESIGNED BY: DRAWN BY: CHECKED BY:

SEAL
REGISTERED PROFESSIONAL ENGINEER
BLAINE A WOMER
No. 46354
CIVIL
STATE OF CALIFORNIA

APPROVED BY: DATE
CONTRACT CITY ENGINEER

PREPARED BY: DATE
R.C.E. NO.

BLAINE A. WOMER
CIVIL ENGINEERING
• PLANNING
• SURVEYING
• CIVIL ENGINEERING
• PUBLIC WORKS
Hemet, CA. 92544, 41000 E Florida Ave., Suite G, Phone (951)658-1727 Fax (951)658-9347
Park City, UT 84098, 5130 Cove Canyon Dr. #302
Boise, ID. 83706, 4355 W Emerald Street, St. 145, Phone (208)593-7555

SCALE 1" = 60'
DATE SEPT. 18, 2024
BENCHMARK:

CITY OF SAN JACINTO
TENTATIVE TRACT MAP NO. 39076
HYDROLOGY EXHIBIT
DEVELOPED CONDITION
FOR RAMONA DAIRY
W.O.

SHEET NO. 2 OF 3 SHEETS
FILE NO.

SEE SHEET NO. 2

NORTH

0 60 120 180

1"=60'

℄

LEGEND

- DRAINAGE BOUNDARY
- NODE NUMBER
- DRAINAGE ARROW
- A / 7.8 – AREA DESIGNATION / AREA IN ACRES

ESPLANADE SPECIFIC PLAN SP 01-02
TRACT 32955-1
APN 432-260-014

CAWSTON AVENUE

LAND USE: VERY LOW DENSITY RESIDENTIAL
ZONE: RURAL RESIDENTIAL

PROP. 6' BLOCK WALL ON RETAINING WALL.

PROP. 6' BLOCK WALL

ESPLANADE AVENUE
CITY OF HEMET

STREET 'D' · STREET 'L' · STREET 'M' · STREET 'N' · STREET 'O' · STREET 'P'

LOT 'C' F.G.= 09.0 · LOT 'D' F.G.= 09.0

BIORETENTION BASIN NO. 3 BOTTOM ELEV=07.0

BIORETENTION BASIN NO. 3 BOTTOM ELEV= 07.0

Q₁₀=5.2cfs Q₁₀₀=8.1cfs

Q₁₀=5.8cfs Q₁₀₀=9.0cfs

Q₁₀=6.7cfs Q₁₀₀=10.4cfs

Q₁₀=8.5cfs Q₁₀₀=13.3cfs

L=640' · L=785' · L=750' · L=920'

LANDSCAPE SETBACK

N 88°44'57" W 1252.75'

N 00°07'34" E 2557.21'

N 00°07'01" E 2478.96'

DIG ALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

DATE	BY	MARK	REVISIONS	APPR.	DATE
				CITY	

ENGINEER
DESIGNED BY: DRAWN BY: CHECKED BY:

SEAL
REGISTERED PROFESSIONAL ENGINEER
BLAINE A WOMER
No. 46354
CIVIL
STATE OF CALIFORNIA

APPROVED BY: DATE
CONTRACT CITY ENGINEER

PREPARED BY: DATE
R.C.E. NO.

BLAINE A. WOMER
CIVIL ENGINEERING
• PLANNING • SURVEYING • CIVIL ENGINEERING • PUBLIC WORKS
Hemet, CA. 92544, 41555 E Florida Ave., Suite G, Phone (951)658-1727 Fax (951)658-9347
Park City, UT 84098, 5133 Cove Canyon Dr. #302
Boise, ID. 83706, 4355 W Emerald Street, St. 145, Phone (208)593-7555

SCALE 1" = 60'
DATE SEPT. 18, 2024
BENCHMARK:

CITY OF SAN JACINTO
TENTATIVE TRACT MAP NO. 39076
HYDROLOGY EXHIBIT DEVELOPED CONDITION

FOR RAMONA DAIRY
W.O.

SHEET NO. 3 OF 3 SHEETS
FILE NO.

APPENDIX 'D'

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 10/30/24 File: TTM39076100YR24HRUNDEV24100.out

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

Program License Serial Number 4061

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

English Units used in output format

TENTATIVE TRACT 39076
PRELIMINARY BASIN SIZING HYDROLOGY
100 YEAR, 24 HOUR STORM
UNDEVELOPED CONDITION

Drainage Area = 75.70(Ac.) = 0.118 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 75.70(Ac.) = 0.118 Sq. Mi.
Length along longest watercourse = 3372.00(Ft.)
Length along longest watercourse measured to centroid = 1680.00(Ft.)
Length along longest watercourse = 0.639 Mi.
Length along longest watercourse measured to centroid = 0.318 Mi.
Difference in elevation = 5.80(Ft.)
Slope along watercourse = 9.0819 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.215 Hr.
Lag time = 12.92 Min.
25% of lag time = 3.23 Min.
40% of lag time = 5.17 Min.
Unit time = 15.00 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]
75.70	1.80	136.26

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
75.70	4.50	340.65

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(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 %
75.700	79.00	0.000

Total Area Entered = 75.70(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	90.4	0.125	0.000	0.125	1.000	0.125
					Sum (F) =	0.125

Area averaged mean soil loss (F) (In/Hr) = 0.125
Minimum soil loss rate ((In/Hr)) = 0.062
(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	0.250	116.099	24.058	18.354
2	0.500	232.198	48.813	37.240
3	0.750	348.297	13.664	10.424
4	1.000	464.396	6.228	4.752
5	1.250	580.496	3.471	2.648
6	1.500	696.595	2.062	1.573
7	1.750	812.694	1.704	1.300
			Sum = 100.000 Sum=	76.291

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	0.25	0.20	0.036	(0.220)	0.032	0.004
2	0.50	0.30	0.054	(0.218)	0.049	0.005
3	0.75	0.30	0.054	(0.215)	0.049	0.005
4	1.00	0.40	0.072	(0.213)	0.065	0.007
5	1.25	0.30	0.054	(0.210)	0.049	0.005
6	1.50	0.30	0.054	(0.208)	0.049	0.005
7	1.75	0.30	0.054	(0.205)	0.049	0.005
8	2.00	0.40	0.072	(0.203)	0.065	0.007
9	2.25	0.40	0.072	(0.200)	0.065	0.007
10	2.50	0.40	0.072	(0.198)	0.065	0.007
11	2.75	0.50	0.090	(0.195)	0.081	0.009
12	3.00	0.50	0.090	(0.193)	0.081	0.009
13	3.25	0.50	0.090	(0.191)	0.081	0.009
14	3.50	0.50	0.090	(0.188)	0.081	0.009
15	3.75	0.50	0.090	(0.186)	0.081	0.009

16	4.00	0.60	0.108	(	0.184)	0.097		0.011
17	4.25	0.60	0.108	(	0.181)	0.097		0.011
18	4.50	0.70	0.126	(	0.179)	0.113		0.013
19	4.75	0.70	0.126	(	0.177)	0.113		0.013
20	5.00	0.80	0.144	(	0.174)	0.130		0.014
21	5.25	0.60	0.108	(	0.172)	0.097		0.011
22	5.50	0.70	0.126	(	0.170)	0.113		0.013
23	5.75	0.80	0.144	(	0.168)	0.130		0.014
24	6.00	0.80	0.144	(	0.165)	0.130		0.014
25	6.25	0.90	0.162	(	0.163)	0.146		0.016
26	6.50	0.90	0.162	(	0.161)	0.146		0.016
27	6.75	1.00	0.180		0.159	(0.162)		0.021
28	7.00	1.00	0.180		0.157	(0.162)		0.023
29	7.25	1.00	0.180		0.155	(0.162)		0.025
30	7.50	1.10	0.198		0.153	(0.178)		0.045
31	7.75	1.20	0.216		0.150	(0.194)		0.066
32	8.00	1.30	0.234		0.148	(0.211)		0.086
33	8.25	1.50	0.270		0.146	(0.243)		0.124
34	8.50	1.50	0.270		0.144	(0.243)		0.126
35	8.75	1.60	0.288		0.142	(0.259)		0.146
36	9.00	1.70	0.306		0.140	(0.275)		0.166
37	9.25	1.90	0.342		0.138	(0.308)		0.204
38	9.50	2.00	0.360		0.136	(0.324)		0.224
39	9.75	2.10	0.378		0.134	(0.340)		0.244
40	10.00	2.20	0.396		0.132	(0.356)		0.264
41	10.25	1.50	0.270		0.131	(0.243)		0.139
42	10.50	1.50	0.270		0.129	(0.243)		0.141
43	10.75	2.00	0.360		0.127	(0.324)		0.233
44	11.00	2.00	0.360		0.125	(0.324)		0.235
45	11.25	1.90	0.342		0.123	(0.308)		0.219
46	11.50	1.90	0.342		0.121	(0.308)		0.221
47	11.75	1.70	0.306		0.119	(0.275)		0.187
48	12.00	1.80	0.324		0.118	(0.292)		0.206
49	12.25	2.50	0.450		0.116	(0.405)		0.334
50	12.50	2.60	0.468		0.114	(0.421)		0.354
51	12.75	2.80	0.504		0.112	(0.454)		0.391
52	13.00	2.90	0.522		0.111	(0.470)		0.411
53	13.25	3.40	0.612		0.109	(0.551)		0.503
54	13.50	3.40	0.612		0.107	(0.551)		0.504
55	13.75	2.30	0.414		0.106	(0.373)		0.308
56	14.00	2.30	0.414		0.104	(0.373)		0.310
57	14.25	2.70	0.486		0.103	(0.437)		0.383
58	14.50	2.60	0.468		0.101	(0.421)		0.367
59	14.75	2.60	0.468		0.099	(0.421)		0.368
60	15.00	2.50	0.450		0.098	(0.405)		0.352
61	15.25	2.40	0.432		0.096	(0.389)		0.335
62	15.50	2.30	0.414		0.095	(0.373)		0.319
63	15.75	1.90	0.342		0.094	(0.308)		0.248
64	16.00	1.90	0.342		0.092	(0.308)		0.250
65	16.25	0.40	0.072	(	0.091)	0.065		0.007
66	16.50	0.40	0.072	(	0.089)	0.065		0.007
67	16.75	0.30	0.054	(	0.088)	0.049		0.005
68	17.00	0.30	0.054	(	0.087)	0.049		0.005
69	17.25	0.50	0.090	(	0.085)	0.081		0.009
70	17.50	0.50	0.090	(	0.084)	0.081		0.009
71	17.75	0.50	0.090	(	0.083)	0.081		0.009
72	18.00	0.40	0.072	(	0.082)	0.065		0.007
73	18.25	0.40	0.072	(	0.080)	0.065		0.007
74	18.50	0.40	0.072	(	0.079)	0.065		0.007
75	18.75	0.30	0.054	(	0.078)	0.049		0.005
76	19.00	0.20	0.036	(	0.077)	0.032		0.004

77	19.25	0.30	0.054	(0.076)	0.049	0.005
78	19.50	0.40	0.072	(0.075)	0.065	0.007
79	19.75	0.30	0.054	(0.074)	0.049	0.005
80	20.00	0.20	0.036	(0.073)	0.032	0.004
81	20.25	0.30	0.054	(0.072)	0.049	0.005
82	20.50	0.30	0.054	(0.071)	0.049	0.005
83	20.75	0.30	0.054	(0.070)	0.049	0.005
84	21.00	0.20	0.036	(0.069)	0.032	0.004
85	21.25	0.30	0.054	(0.068)	0.049	0.005
86	21.50	0.20	0.036	(0.068)	0.032	0.004
87	21.75	0.30	0.054	(0.067)	0.049	0.005
88	22.00	0.20	0.036	(0.066)	0.032	0.004
89	22.25	0.30	0.054	(0.065)	0.049	0.005
90	22.50	0.20	0.036	(0.065)	0.032	0.004
91	22.75	0.20	0.036	(0.064)	0.032	0.004
92	23.00	0.20	0.036	(0.064)	0.032	0.004
93	23.25	0.20	0.036	(0.063)	0.032	0.004
94	23.50	0.20	0.036	(0.063)	0.032	0.004
95	23.75	0.20	0.036	(0.063)	0.032	0.004
96	24.00	0.20	0.036	(0.062)	0.032	0.004

(Loss Rate Not Used)

Sum = 100.0 Sum = 9.5

Flood volume = Effective rainfall 2.38(In)
times area 75.7(Ac.)/[(In)/(Ft.)] = 15.0(Ac.Ft)
Total soil loss = 2.12(In)
Total soil loss = 13.394(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 652922.9 Cubic Feet
Total soil loss = 583453.8 Cubic Feet

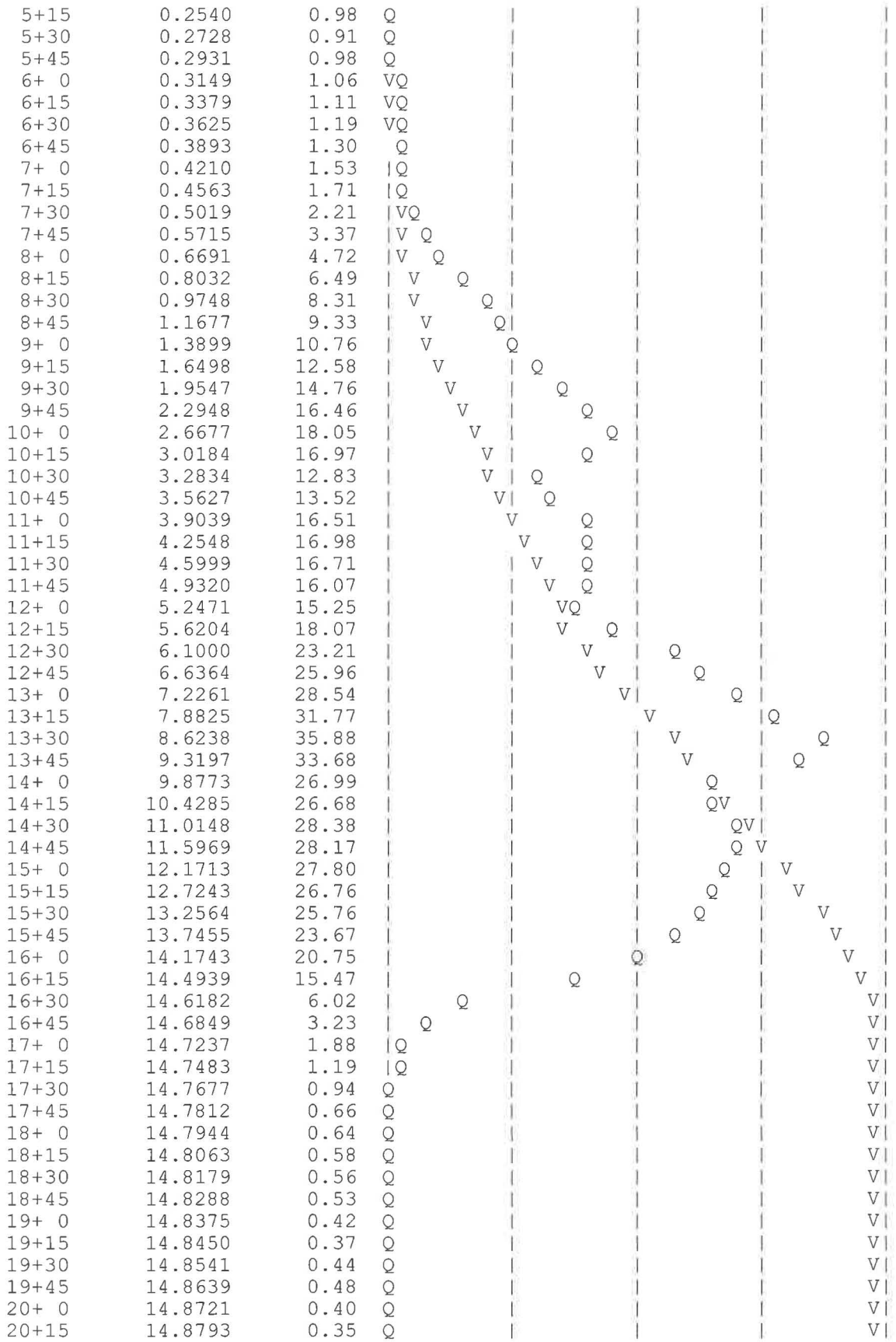
Peak flow rate of this hydrograph = 35.879(CFS)

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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 15 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	10.0	20.0	30.0	40.0
0+15	0.0014	0.07	Q	|	|	|	|
0+30	0.0062	0.23	Q	|	|	|	|
0+45	0.0132	0.34	Q	|	|	|	|
1+ 0	0.0216	0.41	Q	|	|	|	|
1+15	0.0311	0.46	Q	|	|	|	|
1+30	0.0398	0.42	Q	|	|	|	|
1+45	0.0484	0.42	Q	|	|	|	|
2+ 0	0.0577	0.45	Q	|	|	|	|
2+15	0.0683	0.52	Q	|	|	|	|
2+30	0.0794	0.53	Q	|	|	|	|
2+45	0.0912	0.57	Q	|	|	|	|
3+ 0	0.1045	0.64	Q	|	|	|	|
3+15	0.1183	0.67	Q	|	|	|	|
3+30	0.1322	0.68	Q	|	|	|	|
3+45	0.1463	0.68	Q	|	|	|	|
4+ 0	0.1612	0.72	Q	|	|	|	|
4+15	0.1774	0.79	Q	|	|	|	|
4+30	0.1947	0.84	Q	|	|	|	|
4+45	0.2136	0.91	Q	|	|	|	|
5+ 0	0.2337	0.97	Q	|	|	|	|



20+30	14.8875	0.40	Q	|	|	|	V|
20+45	14.8959	0.41	Q	|	|	|	V|
21+ 0	14.9037	0.38	Q	|	|	|	V|
21+15	14.9107	0.34	Q	|	|	|	V|
21+30	14.9181	0.36	Q	|	|	|	V|
21+45	14.9251	0.34	Q	|	|	|	V|
22+ 0	14.9324	0.36	Q	|	|	|	V|
22+15	14.9393	0.33	Q	|	|	|	V|
22+30	14.9466	0.35	Q	|	|	|	V|
22+45	14.9528	0.30	Q	|	|	|	V|
23+ 0	14.9587	0.29	Q	|	|	|	V|
23+15	14.9646	0.28	Q	|	|	|	V|
23+30	14.9703	0.28	Q	|	|	|	V|
23+45	14.9760	0.28	Q	|	|	|	V|
24+ 0	14.9817	0.27	Q	|	|	|	V|
24+15	14.9860	0.21	Q	|	|	|	V|
24+30	14.9876	0.07	Q	|	|	|	V|
24+45	14.9883	0.04	Q	|	|	|	V|
25+ 0	14.9887	0.02	Q	|	|	|	V|
25+15	14.9890	0.01	Q	|	|	|	V|
25+30	14.9890	0.00	Q	|	|	|	V

P-4524-004

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 4061

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

English Units used in output format

TENTATIVE TRACT 39076
PRELIMINRY BASIN SIZING HYDROLOGY
100 YEAR, 24 HOUR STORM
DEVELOPED CONDITION

Drainage Area = 75.70(Ac.) = 0.118 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 75.70(Ac.) = 0.118 Sq. Mi.
Length along longest watercourse = 2310.00(Ft.)
Length along longest watercourse measured to centroid = 1035.00(Ft.)
Length along longest watercourse = 0.438 Mi.
Length along longest watercourse measured to centroid = 0.196 Mi.
Difference in elevation = 5.50(Ft.)
Slope along watercourse = 12.5714 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.088 Hr.
Lag time = 5.25 Min.
25% of lag time = 1.31 Min.
40% of lag time = 2.10 Min.
Unit time = 15.00 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]
75.70	1.80	136.26

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
75.70	4.50	340.65

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(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 %
75.700	63.00	0.550

Total Area Entered = 75.70(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.0	80.4	0.239	0.550	0.121	1.000	0.121
					Sum (F) =	0.121

Area averaged mean soil loss (F) (In/Hr) = 0.121
Minimum soil loss rate ((In/Hr)) = 0.060
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.460

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	0.250	285.675	55.160	42.083
2	0.500	571.350	37.931	28.938
3	0.750	857.025	6.908	5.270
			Sum = 100.000 Sum=	76.291

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	0.25	0.20	0.036	(0.214)	0.017	0.019
2	0.50	0.30	0.054	(0.211)	0.025	0.029
3	0.75	0.30	0.054	(0.209)	0.025	0.029
4	1.00	0.40	0.072	(0.206)	0.033	0.039
5	1.25	0.30	0.054	(0.204)	0.025	0.029
6	1.50	0.30	0.054	(0.201)	0.025	0.029
7	1.75	0.30	0.054	(0.199)	0.025	0.029
8	2.00	0.40	0.072	(0.196)	0.033	0.039
9	2.25	0.40	0.072	(0.194)	0.033	0.039
10	2.50	0.40	0.072	(0.192)	0.033	0.039
11	2.75	0.50	0.090	(0.189)	0.041	0.049
12	3.00	0.50	0.090	(0.187)	0.041	0.049
13	3.25	0.50	0.090	(0.185)	0.041	0.049
14	3.50	0.50	0.090	(0.182)	0.041	0.049
15	3.75	0.50	0.090	(0.180)	0.041	0.049
16	4.00	0.60	0.108	(0.178)	0.050	0.058
17	4.25	0.60	0.108	(0.176)	0.050	0.058
18	4.50	0.70	0.126	(0.173)	0.058	0.068
19	4.75	0.70	0.126	(0.171)	0.058	0.068

20	5.00	0.80	0.144	(0.169)	0.066	0.078
21	5.25	0.60	0.108	(0.167)	0.050	0.058
22	5.50	0.70	0.126	(0.165)	0.058	0.068
23	5.75	0.80	0.144	(0.162)	0.066	0.078
24	6.00	0.80	0.144	(0.160)	0.066	0.078
25	6.25	0.90	0.162	(0.158)	0.075	0.087
26	6.50	0.90	0.162	(0.156)	0.075	0.087
27	6.75	1.00	0.180	(0.154)	0.083	0.097
28	7.00	1.00	0.180	(0.152)	0.083	0.097
29	7.25	1.00	0.180	(0.150)	0.083	0.097
30	7.50	1.10	0.198	(0.148)	0.091	0.107
31	7.75	1.20	0.216	(0.146)	0.099	0.117
32	8.00	1.30	0.234	(0.144)	0.108	0.126
33	8.25	1.50	0.270	(0.142)	0.124	0.146
34	8.50	1.50	0.270	(0.140)	0.124	0.146
35	8.75	1.60	0.288	(0.138)	0.132	0.155
36	9.00	1.70	0.306	0.136	(0.141)	0.170
37	9.25	1.90	0.342	0.134	(0.157)	0.208
38	9.50	2.00	0.360	0.132	(0.166)	0.228
39	9.75	2.10	0.378	0.130	(0.174)	0.248
40	10.00	2.20	0.396	0.128	(0.182)	0.268
41	10.25	1.50	0.270	(0.126)	0.124	0.146
42	10.50	1.50	0.270	(0.125)	0.124	0.146
43	10.75	2.00	0.360	0.123	(0.166)	0.237
44	11.00	2.00	0.360	0.121	(0.166)	0.239
45	11.25	1.90	0.342	0.119	(0.157)	0.223
46	11.50	1.90	0.342	0.117	(0.157)	0.224
47	11.75	1.70	0.306	0.116	(0.141)	0.190
48	12.00	1.80	0.324	0.114	(0.149)	0.210
49	12.25	2.50	0.450	0.112	(0.207)	0.338
50	12.50	2.60	0.468	0.111	(0.215)	0.357
51	12.75	2.80	0.504	0.109	(0.232)	0.395
52	13.00	2.90	0.522	0.107	(0.240)	0.415
53	13.25	3.40	0.612	0.106	(0.281)	0.506
54	13.50	3.40	0.612	0.104	(0.281)	0.508
55	13.75	2.30	0.414	0.103	(0.190)	0.311
56	14.00	2.30	0.414	0.101	(0.190)	0.313
57	14.25	2.70	0.486	0.099	(0.224)	0.387
58	14.50	2.60	0.468	0.098	(0.215)	0.370
59	14.75	2.60	0.468	0.096	(0.215)	0.372
60	15.00	2.50	0.450	0.095	(0.207)	0.355
61	15.25	2.40	0.432	0.093	(0.199)	0.338
62	15.50	2.30	0.414	0.092	(0.190)	0.322
63	15.75	1.90	0.342	0.091	(0.157)	0.251
64	16.00	1.90	0.342	0.089	(0.157)	0.253
65	16.25	0.40	0.072	(0.088)	0.033	0.039
66	16.50	0.40	0.072	(0.087)	0.033	0.039
67	16.75	0.30	0.054	(0.085)	0.025	0.029
68	17.00	0.30	0.054	(0.084)	0.025	0.029
69	17.25	0.50	0.090	(0.083)	0.041	0.049
70	17.50	0.50	0.090	(0.081)	0.041	0.049
71	17.75	0.50	0.090	(0.080)	0.041	0.049
72	18.00	0.40	0.072	(0.079)	0.033	0.039
73	18.25	0.40	0.072	(0.078)	0.033	0.039
74	18.50	0.40	0.072	(0.077)	0.033	0.039
75	18.75	0.30	0.054	(0.076)	0.025	0.029
76	19.00	0.20	0.036	(0.075)	0.017	0.019
77	19.25	0.30	0.054	(0.074)	0.025	0.029
78	19.50	0.40	0.072	(0.072)	0.033	0.039
79	19.75	0.30	0.054	(0.071)	0.025	0.029
80	20.00	0.20	0.036	(0.071)	0.017	0.019

81	20.25	0.30	0.054	(0.070)	0.025	0.029
82	20.50	0.30	0.054	(0.069)	0.025	0.029
83	20.75	0.30	0.054	(0.068)	0.025	0.029
84	21.00	0.20	0.036	(0.067)	0.017	0.019
85	21.25	0.30	0.054	(0.066)	0.025	0.029
86	21.50	0.20	0.036	(0.065)	0.017	0.019
87	21.75	0.30	0.054	(0.065)	0.025	0.029
88	22.00	0.20	0.036	(0.064)	0.017	0.019
89	22.25	0.30	0.054	(0.063)	0.025	0.029
90	22.50	0.20	0.036	(0.063)	0.017	0.019
91	22.75	0.20	0.036	(0.062)	0.017	0.019
92	23.00	0.20	0.036	(0.062)	0.017	0.019
93	23.25	0.20	0.036	(0.061)	0.017	0.019
94	23.50	0.20	0.036	(0.061)	0.017	0.019
95	23.75	0.20	0.036	(0.061)	0.017	0.019
96	24.00	0.20	0.036	(0.061)	0.017	0.019

(Loss Rate Not Used)

Sum = 100.0 Sum = 11.9

Flood volume = Effective rainfall 2.97(In)
times area 75.7(Ac.)/[(In)/(Ft.)] = 18.8(Ac.Ft)
Total soil loss = 1.52(In)
Total soil loss = 9.618(Ac.Ft)
Total rainfall = 4.50(In)
Flood volume = 817435.7 Cubic Feet
Total soil loss = 418941.0 Cubic Feet

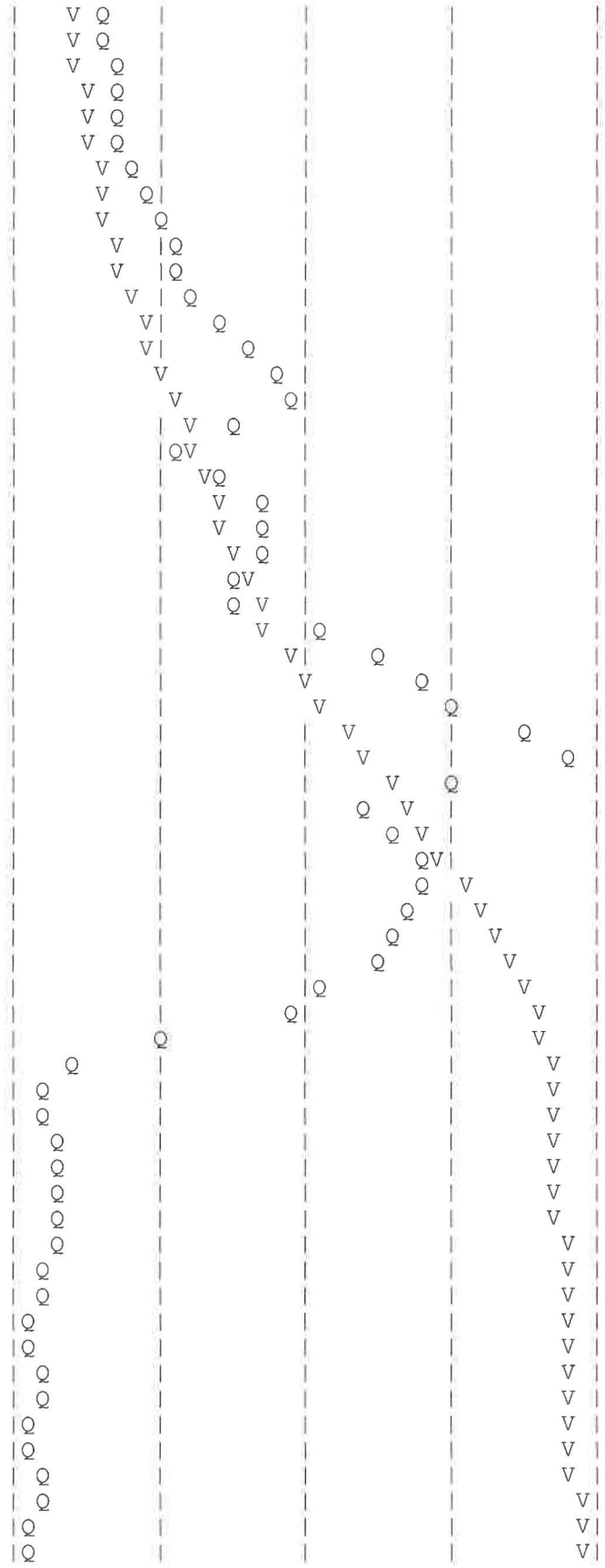
Peak flow rate of this hydrograph = 38.224(CFS)

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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 15 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	10.0	20.0	30.0	40.0
0+15	0.0169	0.82	Q				
0+30	0.0539	1.79	VQ				
0+45	0.0988	2.17	V Q				
1+ 0	0.1533	2.63	V Q				
1+15	0.2051	2.51	V Q				
1+30	0.2521	2.28	V Q				
1+45	0.2981	2.23	V Q				
2+ 0	0.3525	2.63	V Q				
2+15	0.4128	2.92	V Q				
2+30	0.4741	2.97	VQ				
2+45	0.5438	3.38	|V Q				
3+ 0	0.6194	3.66	|V Q				
3+15	0.6960	3.71	|V Q				
3+30	0.7727	3.71	|V Q				
3+45	0.8493	3.71	|V Q				
4+ 0	0.9344	4.12	|V Q				
4+15	1.0253	4.40	| V Q				
4+30	1.1257	4.86	| V Q				
4+45	1.2319	5.14	| V Q				
5+ 0	1.3477	5.60	| V Q				
5+15	1.4523	5.06	| V Q				
5+30	1.5549	4.96	| VQ				
5+45	1.6696	5.55	| V Q				
6+ 0	1.7911	5.88	| V Q				

6+15	1.9222	6.34	
6+30	2.0591	6.63	
6+45	2.2055	7.09	
7+ 0	2.3577	7.37	
7+15	2.5109	7.42	
7+30	2.6727	7.83	
7+45	2.8487	8.52	
8+ 0	3.0400	9.26	
8+15	3.2551	10.41	
8+30	3.4829	11.02	
8+45	3.7212	11.54	
9+ 0	3.9781	12.43	
9+15	4.2777	14.50	
9+30	4.6188	16.51	
9+45	4.9934	18.13	
10+ 0	5.3992	19.64	
10+15	5.7131	15.19	
10+30	5.9563	11.77	
10+45	6.2657	14.97	
11+ 0	6.6313	17.70	
11+15	6.9938	17.55	
11+30	7.3484	17.16	
11+45	7.6724	15.68	
12+ 0	7.9933	15.53	
12+15	8.4333	21.30	
12+30	8.9690	25.93	
12+45	9.5631	28.76	
13+ 0	10.1990	30.78	
13+15	10.9304	35.40	
13+30	11.7201	38.22	
13+45	12.3500	30.48	
14+ 0	12.8639	24.87	
14+15	13.4212	26.98	
14+30	14.0085	28.42	
14+45	14.5951	28.39	
15+ 0	15.1665	27.66	
15+15	15.7138	26.49	
15+30	16.2350	25.22	
15+45	16.6830	21.69	
16+ 0	17.0883	19.61	
16+15	17.3006	10.28	
16+30	17.3852	4.09	
16+45	17.4381	2.56	
17+ 0	17.4851	2.28	
17+15	17.5480	3.04	
17+30	17.6225	3.61	
17+45	17.6992	3.71	
18+ 0	17.7674	3.30	
18+15	17.8297	3.02	
18+30	17.8910	2.97	
18+45	17.9439	2.56	
19+ 0	17.9825	1.87	
19+15	18.0226	1.94	
19+30	18.0760	2.58	
19+45	18.1278	2.51	
20+ 0	18.1664	1.87	
20+15	18.2066	1.94	
20+30	18.2515	2.17	
20+45	18.2975	2.23	
21+ 0	18.3350	1.82	
21+15	18.3752	1.94	

21+30	18.4116	1.77	|Q	|	|	|	V|
21+45	18.4518	1.94	|Q	|	|	|	V|
22+ 0	18.4883	1.77	|Q	|	|	|	V|
22+15	18.5284	1.94	|Q	|	|	|	V|
22+30	18.5649	1.77	|Q	|	|	|	V|
22+45	18.5966	1.53	|Q	|	|	|	V|
23+ 0	18.6273	1.48	|Q	|	|	|	V|
23+15	18.6579	1.48	|Q	|	|	|	V|
23+30	18.6886	1.48	|Q	|	|	|	V|
23+45	18.7192	1.48	|Q	|	|	|	V|
24+ 0	18.7499	1.48	|Q	|	|	|	V|
24+15	18.7636	0.67	Q	|	|	|	V|
24+30	18.7657	0.10	Q	|	|	|	V

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

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

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RUNOFF INDEX NUMBERS FOR PERVIOUS AREA

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent(2)
Natural or Agriculture	0 - 10	0
Single Family Residential: (3)		
40,000 S. F. (1 Acre) Lots	10 - 25	20
20,000 S. F. (½ Acre) Lots	30 - 45	40
7,200 - 10,000 S. F. Lots	45 - 55	50
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 -100	90

Notes:

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

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

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

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IMPERVIOUS COVER FOR DEVELOPED AREAS

PLATE D-5.6

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

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
AGRICULTURAL COVERS (cont.) -					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Deciduous (Apples, apricots, pears, walnuts, etc.)		See Note 4			
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small Grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87
Vineyard		See Note 4			

Notes:

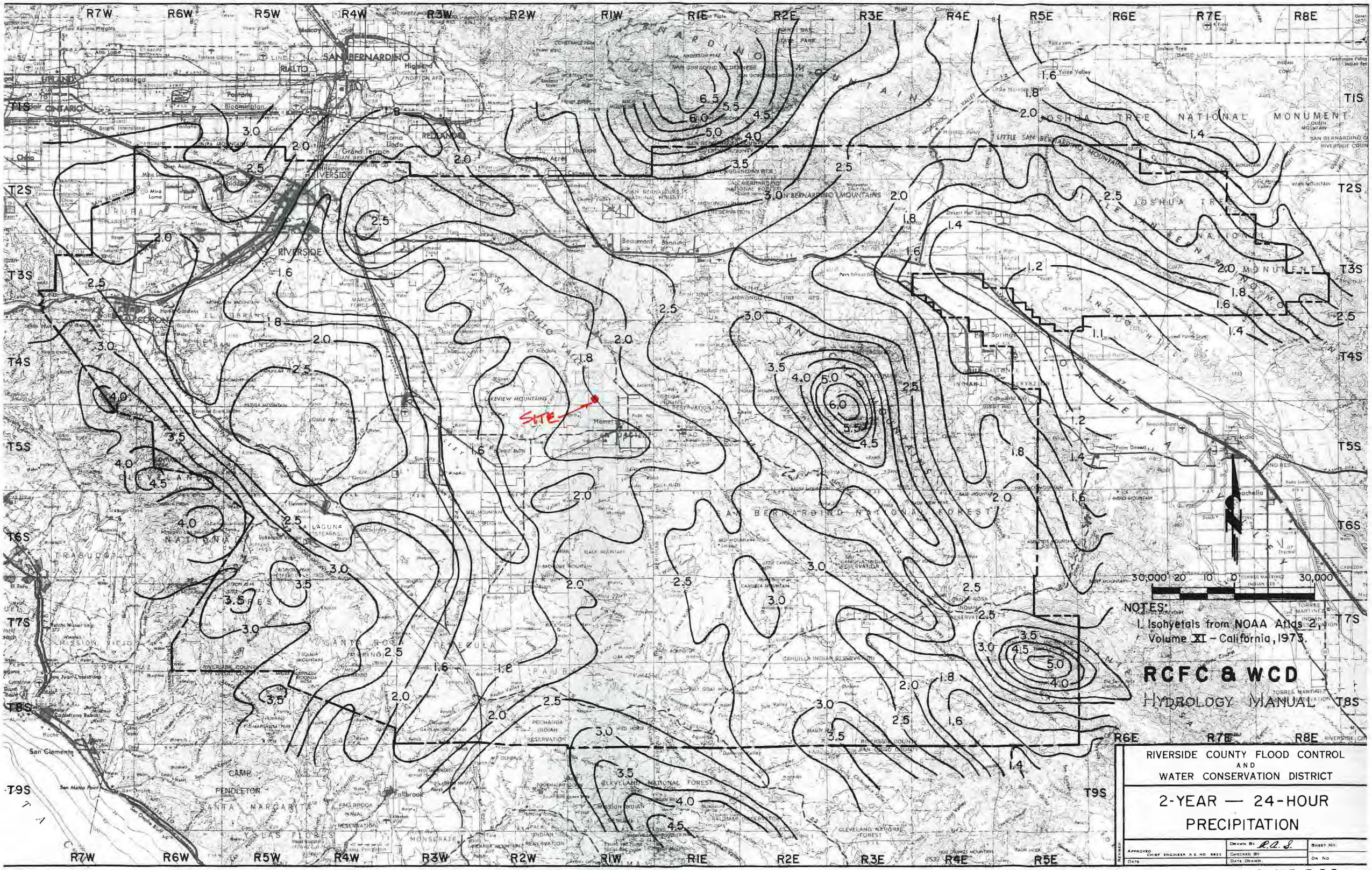
1. All runoff index (RI) numbers are for Antecedent Moisture Condition (AMC) II.

2. Quality of cover definitions:
   Poor-Heavily grazed or regularly burned areas. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.
   Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.
   Good-Heavy or dense cover with more than 75 percent of the ground surface protected.

3. See Plate C-2 for a detailed description of cover types.

4. Use runoff index numbers based on ground cover type. See discussion under "Cover Type Descriptions" on Plate C-2.

5. Reference Bibliography item 17.



NOTES:
1. Isohyetals from NOAA Atlas 2, Volume XI – California, 1973.

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HYDROLOGY MANUAL

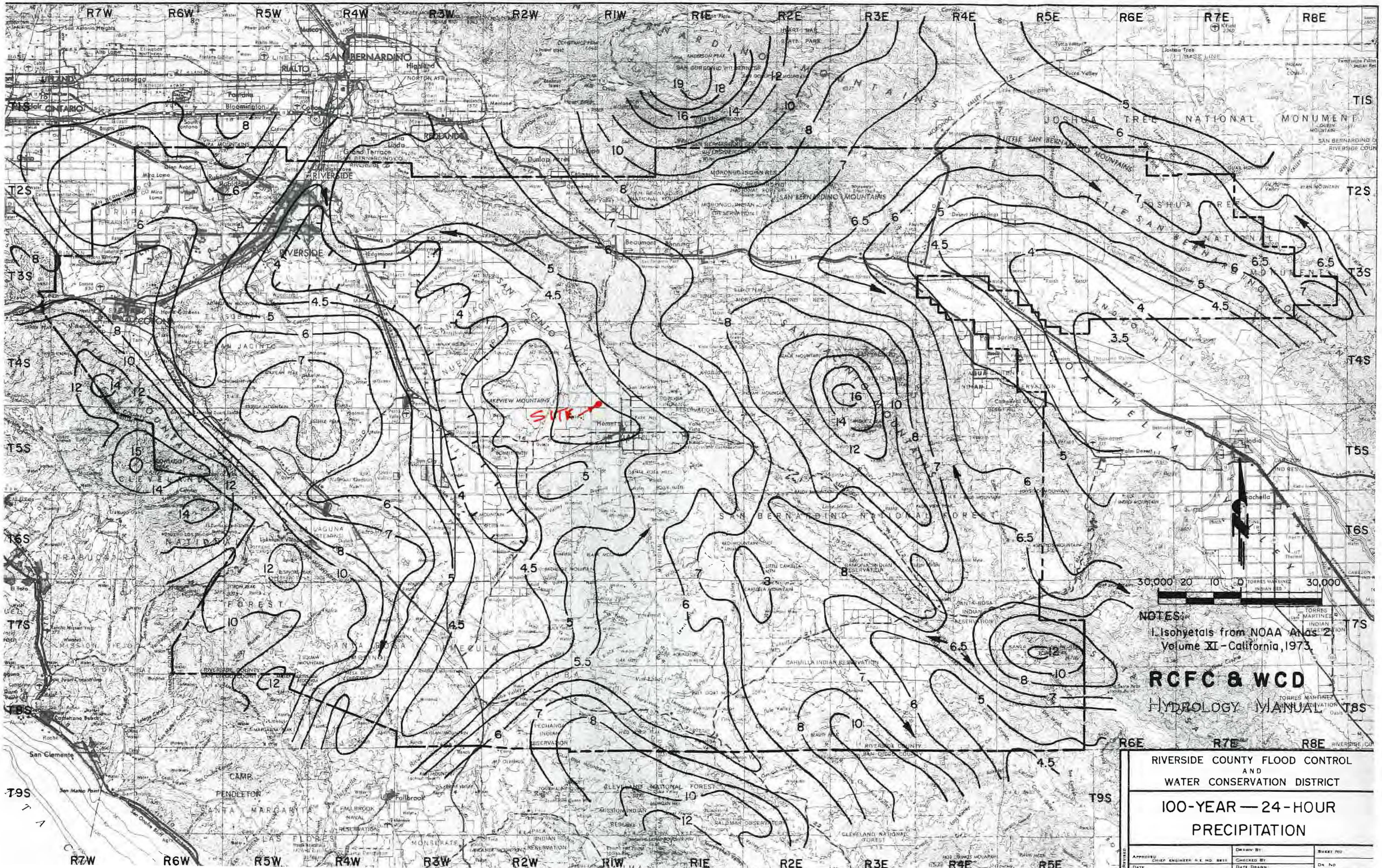
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

2-YEAR — 24-HOUR PRECIPITATION

APPROVED CHIEF ENGINEER R.E. NO. 9822	DRAWN BY R.A.S.	SHEET NO.
DATE	CHECKED BY	DR. NO.
	DATE DRAWN	

REVISED

PLATE E-5.5


R7W
R6W
R5W
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
T1S
T2S
T3S
T4S
T5S
T6S
T7S
T8S
T9S
SAN BERNARDINO
RIALTO
RIVERSIDE
Beaumont
Banning
Palm Springs
Indio
Coachella
Hemet
Fallbrook
San Clemente
Temecula
SAN BERNARDINO MOUNTAINS
SAN BERNARDINO NATIONAL FOREST
JOSHUA TREE NATIONAL MONUMENT
SAN JACINTO MOUNTAINS
SAN JACINTO VALLEY
SANTA ROSA MOUNTAINS
LITTLE SAN BERNARDINO MOUNTAINS
SITE
30,000 20 10 0 30,000
NOTES:
1. Isohyetals from NOAA Atlas 2, Volume XI - California, 1973.
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RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
100-YEAR — 24-HOUR PRECIPITATION