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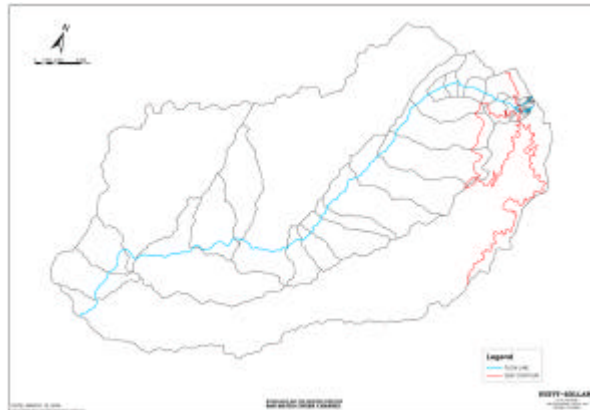
**HYDROLOGIC REPORT
TO
THE BASELINE HYDROLOGIC CONDITIONS
SAN MATEO CREEK
(LA PAZ / GABINO / CHRISTIANITOS)**

PREPARED FOR



RANCHO MISSION VIEJO

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VOLUME II

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INTRODUCTION

A Hydrology Report for the La Paz/Gabino/Christianitos canyon main stem of the San Mateo Creek system has been completed to the confluence with, and including, Talega Canyon. This confluence is located approximately a half mile downstream of the boundary of the Rancho Mission Viejo (Ranch) property. The watershed encompasses approximately 29 square miles that extend into the Cleveland National Forest and cover areas in Orange, Riverside, and San Diego Counties. The watershed elevations range from approximately 165 feet above sea level at the downstream confluence to approximately 2,400 feet above sea level at the headwaters.

2-Year, 10-Year, and 100-Year Expected Value and 100-Year High Confidence analyses were prepared. The hydrologic analyses were completed in accordance with the 1986 Orange County Hydrology Manual and 1995 Orange County Hydrology Manual Addendum No. 1. The application of the procedures outlined in these two documents and the assumptions used to develop hydrologic parameters are described in this report.

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MODEL OVERVIEW

Since the procedures of the Orange County Hydrology Manual were calibrated to a single area unit hydrograph, a series of single area unit hydrographs have been prepared along the La Paz/Gabino/Christianitos Canyons. Working downstream, a rational method analysis was prepared for the headwaters of La Paz Canyon. As soon as the total upstream tributary drainage area exceeded 640 acres, a unit hydrograph was calculated based on parameters from the rational method analysis such as basin lag. The peak flow rates from the two methods were compared. If the rational method peak flow rate was larger, then this flow rate was used to route flows downstream to the next concentration node. If the unit hydrograph peak flow rate was larger, then this flow rate was used to route flows downstream to the next concentration node. The travel time was calculated to this concentration node and used to estimate a new basin lag for development of a unit hydrograph that included the additional area tributary at this concentration node. This process was continued downstream with concentration nodes located at major confluences or other points of significance. Due to differences in methodology for different return events, specifically, the 2-Year Expected Value analysis versus the others analyzed, two distinct models were created.

To model the 10-Year and 100-Year Expected Value and 100-Year High Confidence analyses, the Advanced Engineering Software RATSCx program was utilized. The RATSCx program allows for both rational method and unit hydrograph method analyses to be completed using one data file. By using the RATSCx program, parameters such as rainfall depths and land use/soil type combinations are input on a sub-area basis and tabulated for calculations of loss rates. Additionally, the hydraulic calculations to estimate travel times between

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concentration nodes and, ultimately, basin lag are internal to the program. A limitation of the program is that S-Graph proportions can only be specified on a data file basis. Therefore, 22 separate RATSCx data files were developed, one for each concentration node, and linked together using a network file that executes the data files in upstream to downstream order.

To model the 2-Year Expected Value analysis, both the Advanced Engineering Software RATSCx and FLOODSCx programs were utilized. The RATSCx program was used to develop the rational method analysis to the first hydrograph location. According to the Orange County Hydrology Manual Addendum No. 1, $F_p = 0.60$ in/hr for all areas independent of soil type. Unfortunately, the RATSCx program requires that these F_p values be manually specified and, thus, does not tabulate soil types or curve numbers that could be used to develop loss rates for a unit hydrograph analysis. Therefore, the FLOODSCx program was used to develop unit hydrographs based on data calculated both from the rational method analysis and from other tabulations of rainfall and land use/soil type combinations. The time of concentration (T_c) from the rational method was used to calculate the basin lag at the first unit hydrograph location. Rainfall, S-Graph proportions, losses, and channel routing information, including travel times, T_c 's, and downstream basin lag estimates, were calculated outside of the FLOODSCx program.

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ASSUMPTIONS

Base Maps and Topographic Data

Due to the size and extents of the watershed, the base map for the existing and proposed condition model was created using three and four separate sources, respectively. Both base maps used aerial topography with 2-foot, 5-foot, and 10-foot contour intervals in the vicinity of the Ranch that represent existing conditions of the area. Beyond the extents of the aerial topography, USGS digital topography was utilized to the County boundary. Outside of the County, raster images of USGS quadrangle maps were used. Additionally, the base map for the proposed condition utilized mass grade topographic information that was spliced into existing aerial topography for each of the proposed development bubbles.

Rainfall

Rainfall intensities and depths were derived from the Orange County Hydrology Manual. Two rainfall zones were incorporated; Non-Mountainous for areas below the 2,000' elevation and Mountainous for areas above the 2,000' elevation. For sub-areas in both zones, weighted averages were calculated. Rainfall intensities and depths for Non-Mountainous and Mountainous zones are presented in Tables 1 and 2.

In the 10-Year and 100-Year Expected Value and 100-Year High Confidence analyses, rainfall depths were input into the model on a sub-area basis. In the 2-Year Expected Value analysis, rainfall depths were specified for the entire upstream tributary area.

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Land Use

As part of the Philip Williams & Associates (PWA) report titled, "Baseline Hydrologic Conditions – San Juan & Upper San Mateo Watersheds," dated May 30, 2001, PWA developed "Land Use Sub-Categories" for the HEC-1 model. Based on descriptions of these sub-categories, the land uses were mapped to hydrologic land uses for input into the models according to Table 3. PWA prepared land use mapping for both the existing and several proposed development conditions. For the proposed condition hydrologic analysis, only one, the Ranch Plan Alternative (B4G), land use plan was evaluated.

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RAINFALL INTENSITIES

Non-Mountainous (Elevations <2,000')

2-Year Expected Value		10-Year Expected Value		100-Year Expected Value		100-Year High Confidence	
Time (min)	Intensity (in/hr)	Time (min)	Intensity (in/hr)	Time (min)	Intensity (in/hr)	Time (min)	Intensity (in/hr)
5	1.58	5	3.19	5	4.82	5	6.19
10	1.06	10	2.16	10	3.26	10	4.16
15	0.84	15	1.72	15	2.59	15	3.30
20	0.72	20	1.46	20	2.20	20	2.80
30	0.57	30	1.16	30	1.75	30	2.22
60	0.38	60	0.79	60	1.18	60	1.49
120	0.26	120	0.53	120	0.80	120	1.00

Mountainous (Elevations >2,000')

2-Year Expected Value		10-Year Expected Value		100-Year Expected Value		100-Year High Confidence	
Time (min)	Intensity (in/hr)	Time (min)	Intensity (in/hr)	Time (min)	Intensity (in/hr)	Time (min)	Intensity (in/hr)
5	2.45	5	5.10	5	7.60	5	10.00
10	1.44	10	3.10	10	4.50	10	6.00
15	1.09	15	2.50	15	3.50	15	4.50
20	0.84	20	1.80	20	2.75	20	3.60
30	0.63	30	1.35	30	2.10	30	2.75
60	0.46	60	1.00	60	1.52	60	1.95
120	0.37	120	0.77	120	1.20	120	1.55

Table 1 – Rainfall Intensities

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RAINFALL DEPTHS

Non-Mountainous (Elevations <2,000')

2-Year Expected Value		10-Year Expected Value		100-Year Expected Value		100-Year High Confidence	
Time ()	Intensity (in)	Time ()	Intensity (in)	Time ()	Intensity (in)	Time ()	Intensity (in)
5-Min	0.13	5-Min	0.26	5-Min	0.40	5-Min	0.52
30-Min	0.28	30-Min	0.59	30-Min	0.87	30-Min	1.09
1-Hr	0.37	1-Hr	0.78	1-Hr	1.15	1-Hr	1.45
3-Hr	0.62	3-Hr	1.31	3-Hr	1.94	3-Hr	2.43
6-Hr	0.85	6-Hr	1.81	6-Hr	2.71	6-Hr	3.36
24-Hr	1.44	24-Hr	3.03	24-Hr	4.49	24-Hr	5.63

Mountainous (Elevations >2,000')

2-Year Expected Value		10-Year Expected Value		100-Year Expected Value		100-Year High Confidence	
Time ()	Intensity (in)	Time ()	Intensity (in)	Time ()	Intensity (in)	Time ()	Intensity (in)
5-Min	0.18	5-Min	0.40	5-Min	0.63	5-Min	0.78
30-Min	0.32	30-Min	0.68	30-Min	1.04	30-Min	1.34
1-Hr	0.46	1-Hr	0.99	1-Hr	1.51	1-Hr	1.94
3-Hr	0.94	3-Hr	2.10	3-Hr	3.08	3-Hr	3.96
6-Hr	1.46	6-Hr	3.14	6-Hr	4.81	6-Hr	6.19
24-Hr	2.67	24-Hr	5.71	24-Hr	8.76	24-Hr	11.27

Table 1 – Rainfall Depths

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LAND USE MAPPING

Land Use Sub-Category	Hydrologic Land Use
General Transportation	Commercial
General Urban Commercial	Commercial
General Developed Areas	5-7 Dwellings/Acre
Fluctuating Shoreline	Public Park
Lakes/Open Water	Public Park
General Disturbed Areas	Barren (Poor)
Broadleaf Chaparral	Chaparral, Broadleaf (Fair)
Broadleaf Chaparral and Sage	Chaparral, Broadleaf (Fair)
Chaparral – Sage Scrub	Chaparral, Broadleaf (Fair)
General Chaparral	Chaparral, Broadleaf (Fair)
Rural Residential	Chaparral, Broadleaf (Fair)
Narrowleaf Chaparral	Chaparral, Narrowleaf (Fair)
General Grassland	Grass (Fair)
Live Oak Savanna	Grass (Fair)
Sumac Savanna	Grass (Fair)
Disturbed Wetlands	Meadows or Cienegas (Fair)
Meadow and Marsh	Meadows or Cienegas (Good)
General Sage Scrub	Open Brush (Fair)
Rock with Plants	Open Brush (Fair)
Sage Scrub- Grassland	Open Brush (Fair)
Streams and Creeks	Open Brush (Fair)
Forest	Woodland (Fair)
Woodland and Riparian	Woodland (Fair)
General Agriculture	Fallow (Poor)
General Nurseries	Orchards, Evergreen (Fair)
General Orchards	Orchards, Evergreen (Fair)
Irrigated Row Crops	Pasture, Dryland (Fair)
Row Crops	Pasture, Dryland (Fair)
General Parks	Turf (Fair)

Table 3 – Land Use Mapping

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Hydrologic Soils

Hydrologic soils were assigned based on the Orange County Hydrology Manual.

Antecedent Moisture Condition

As outlined in the Orange County Hydrology Manual Addendum No. 1, Antecedent Moisture Condition (AMC) II was used for all analyses.

Depth Area Adjustments

As outlined in the Orange County Hydrology Manual, Sierra Madre depth area adjustments were chosen for all calculations.

S-Graphs

S-Graph proportions were assigned based on a review of topographic and land use data, as well as aerial photography. Generally, the rugged terrain in the upper portions of the watershed was assigned to a "Mountain" S-Graph, while the lower portions were assigned "Foothill" and "Valley" S-Graphs. For the proposed condition analysis, development bubble areas were assumed to change from "Valley – Undeveloped" to "Valley – Developed".

In the 10-Year and 100-Year Expected Value and 100-Year High Confidence analyses, S-Graph proportions were input into the model on a sub-area basis. In the 2-Year Expected Value analysis, S-Graph proportions were specified for the entire upstream tributary area.

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Channel Geometry

Channel geometry was determined based on estimated cross-sections taken from the topographic data at several locations. Channel sizes were incrementally increased as the model moved downstream. Channels were sized to convey the 100-Year High Confidence peak flow rates without overtopping. Additionally, the 100-Year High Confidence analysis was used as the determining factor in insuring that travel times for individual reaches met the County criteria outlined in the Hydrology Manual on pages D-12 and D-15.

Sub-Areas

In general, sub-areas were developed so that the sub-area sizes gradually increased as the study progressed downstream. After the first hydrograph was developed on La Paz Canyon, concentration nodes were located at major confluences or other points of significance. Generally these concentration nodes defined the sub-areas rather than the sub-area size defining a concentration node. Increments in sub-area sizes were, for the most part, less than four square miles. However, there are a few large canyons, such as Gabino and Talega, that drain a significantly larger watershed and the sub-area size increment was correspondingly large.

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CONCLUSIONS

Hydrologic Results

The results of the hydrologic analyses at several points of significance along the La Paz/Gabino/Christianitos canyon main stem are presented in Tables 4 through 8.

Impact of Proposed Development

The results indicate that the proposed Ranch development results in only minimal increases to the peak flow rates and runoff volumes on the La Paz/Gabino/Christianitos canyon main stem. The developed condition total watershed area is actually reduced by approximately 25 acres or 0.1% at the downstream terminus of these analyses. Percentage wise, the largest increase in peak flow rate due to development was 1.5% at the Talega Canyon confluence for the 10-Year Expected Value analysis. Correspondingly, the largest increase in runoff volume is 1.1% at the same location for the same analysis.

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HYDROLOGIC SUMMARY

Existing Condition

Node	Location	Total Area		Peak Flow Rate			
		(acres)	(sq. mi.)	2-Year EV (cfs)	10-Year EV (cfs)	100-Year EV (cfs)	100-Year HC (cfs)
1040	Ranch Boundary	2,114	3.30	304	1,455	2,439	3,364
1049	Gabino Canyon	7,790	12.17	444	2,857	5,292	7,364
1053	Blind Canyon	9,881	15.44	460	2,963	5,486	7,770
1054	Christianitos Canyon	12,304	19.23	508	3,330	6,294	8,935
1056	Ranch Boundary	13,022	20.35	508	3,330	6,336	8,935
1057	Talega Canyon	18,581	29.03	624	4,096	8,062	11,528

Proposed Condition

Node	Location	Total Area		Peak Flow Rate			
		(acres)	(sq. mi.)	2-Year EV (cfs)	10-Year EV (cfs)	100-Year EV (cfs)	100-Year HC (cfs)
1040	Ranch Boundary	2,114	3.30	304	1,455	2,439	3,364
1049	Gabino Canyon	7,790	12.17	444	2,858	5,294	7,366
1053	Blind Canyon	9,632	15.05	457	2,965	5,459	7,633
1054	Christianitos Canyon	12,171	19.02	503	3,345	6,279	8,913
1056	Ranch Boundary	12,891	20.14	503	3,345	6,340	8,913
1057	Talega Canyon	18,556	28.99	614	4,156	8,152	11,586

Table 4 – Hydrologic Summary

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HYDROLOGIC SUMMARY – 2-YEAR – EXPECTED VALUE

Existing Condition

Node	Location	Total Area		Longest Flowpath (ft)	Lag (hr)	Peak Flow Rate (cfs)	Runoff Volume (ac-ft)
		(ac)	(sq. mi.)				
1040	Ranch Boundary	2,114	3.30	18,351	0.59	304	63
1049	Gabino Canyon	7,790	12.17	35,944	1.08	444	169
1053	Blind Canyon	9,881	15.44	46,716	1.42	460	217
1054	Christianitos Canyon	12,304	19.23	48,106	1.46	508	264
1056	Ranch Boundary	13,022	20.35	53,710	1.64	508	275
1057	Talega Canyon	18,581	29.03	56,077	1.73	624	404

Proposed Condition

Node	Location	Total Area		Longest Flowpath (ft)	Lag (hr)	Peak Flow Rate (cfs)	Runoff Volume (ac-ft)
		(ac)	(sq. mi.)				
1040	Ranch Boundary	2,114	3.30	18,351	0.59	304	63
1049	Gabino Canyon	7,790	12.17	35,944	1.08	444	169
1053	Blind Canyon	9,632	15.05	46,716	1.42	457	202
1054	Christianitos Canyon	12,171	19.02	48,105	1.46	503	249
1056	Ranch Boundary	12,891	20.14	53,710	1.64	503	260
1057	Talega Canyon	18,556	28.99	56,077	1.73	614	384

Table 5 – Hydrologic Summary – 2-Year-Expected Value

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HYDROLOGIC SUMMARY – 10-YEAR – EXPECTED VALUE

Existing Condition

Node	Location	Total Area		Longest Flowpath (ft)	Lag (hr)	Peak Flow Rate (cfs)	Runoff Volume (ac-ft)
		(ac)	(sq. mi.)				
1040	Ranch Boundary	2,114	3.30	18,351	0.42	1,455	278
1049	Gabino Canyon	7,790	12.17	35,944	0.70	2,857	844
1053	Blind Canyon	9,881	15.44	46,716	0.89	2,963	1,070
1054	Christianitos Canyon	12,304	19.23	48,106	0.92	3,330	1,311
1056	Ranch Boundary	13,022	20.35	53,710	1.02	3,330	1,392
1057	Talega Canyon	18,581	29.03	56,077	1.07	4,096	2,054

Proposed Condition

Node	Location	Total Area		Longest Flowpath (ft)	Lag (hr)	Peak Flow Rate (cfs)	Runoff Volume (ac-ft)
		(ac)	(sq. mi.)				
1040	Ranch Boundary	2,114	3.30	18,351	0.42	1,455	278
1049	Gabino Canyon	7,790	12.17	35,944	0.70	2,858	843
1053	Blind Canyon	9,632	15.05	46,716	0.89	2,965	1,041
1054	Christianitos Canyon	12,171	19.02	48,105	0.92	3,345	1,306
1056	Ranch Boundary	12,891	20.14	53,710	1.02	3,345	1,390
1057	Talega Canyon	18,556	28.99	56,077	1.06	4,156	2,077

Table 6 – Hydrologic Summary – 10-Year-Expected Value

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HYDROLOGIC SUMMARY – 100-YEAR – EXPECTED VALUE

Existing Condition

Node	Location	Total Area		Longest Flowpath (ft)	Lag (hr)	Peak Flow Rate (cfs)	Runoff Volume (ac-ft)
		(ac)	(sq. mi.)				
1040	Ranch Boundary	2,114	3.30	18,351	0.38	2,439	519
1049	Gabino Canyon	7,790	12.17	35,944	0.63	5,292	1,630
1053	Blind Canyon	9,881	15.44	46,716	0.79	5,486	2,067
1054	Christianitos Canyon	12,304	19.23	48,106	0.80	6,294	2,546
1056	Ranch Boundary	13,022	20.35	53,710	0.89	6,336	2,695
1057	Talega Canyon	18,581	29.03	56,077	0.93	8,062	3,984

Proposed Condition

Node	Location	Total Area		Longest Flowpath (ft)	Lag (hr)	Peak Flow Rate (cfs)	Runoff Volume (ac-ft)
		(ac)	(sq. mi.)				
1040	Ranch Boundary	2,114	3.30	18,351	0.38	2,439	519
1049	Gabino Canyon	7,790	12.17	35,944	0.63	5,294	1,630
1053	Blind Canyon	9,632	15.05	46,716	0.78	5,459	2,014
1054	Christianitos Canyon	12,171	19.02	48,105	0.80	6,279	2,533
1056	Ranch Boundary	12,891	20.14	53,710	0.89	6,340	2,684
1057	Talega Canyon	18,556	28.99	56,077	0.93	8,152	4,009

Table 7 – Hydrologic Summary – 100-Year-Expected Value

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HYDROLOGIC SUMMARY – 100-YEAR – HIGH CONFIDENCE

Existing Condition

Node	Location	Total Area		Longest Flowpath (ft)	Lag (hr)	Peak Flow Rate (cfs)	Runoff Volume (ac-ft)
		(ac)	(sq. mi.)				
1040	Ranch Boundary	2,114	3.30	18,351	0.36	3,364	724
1049	Gabino Canyon	7,790	12.17	35,944	0.59	7,364	2,302
1053	Blind Canyon	9,881	15.44	46,716	0.73	7,770	2,913
1054	Christianitos Canyon	12,304	19.23	48,106	0.75	8,935	3,589
1056	Ranch Boundary	13,022	20.35	53,710	0.83	8,935	3,799
1057	Talega Canyon	18,581	29.03	56,077	0.86	11,528	5,613

Proposed Condition

Node	Location	Total Area		Longest Flowpath (ft)	Lag (hr)	Peak Flow Rate (cfs)	Runoff Volume (ac-ft)
		(ac)	(sq. mi.)				
1040	Ranch Boundary	2,114	3.30	18,351	0.36	3,364	724
1049	Gabino Canyon	7,790	12.17	35,944	0.59	7,366	2,302
1053	Blind Canyon	9,632	15.05	46,716	0.73	7,633	2,838
1054	Christianitos Canyon	12,171	19.02	48,105	0.75	8,913	3,564
1056	Ranch Boundary	12,891	20.14	53,710	0.83	8,913	3,776
1057	Talega Canyon	18,556	28.99	56,077	0.86	11,586	5,633

Table 8 – Hydrologic Summary – 100-Year-High Confidence

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**TECHNICAL APPENDIX II-A
HYDROLOGIC ANALYSIS
UPSTREAM AREAS
2-YEAR EXPECTED VALUE**

Rainfall Depths

2-Year - Expected Value - Existing Condition

Subarea	Area			Rainfall Depth						Node	Area			Rainfall Depth					
	(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr		(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr
		X		0.13	0.28	0.37	0.62	0.85	1.44			X		0.13	0.28	0.37	0.62	0.85	1.44
			X	0.18	0.32	0.46	0.94	1.46	2.67			X		0.18	0.32	0.46	0.94	1.46	2.67
1000	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1001	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67
1001	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1002	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67
1002	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1003	0.9	0.0	0.9	0.18	0.32	0.46	0.94	1.46	2.67
1003	0.4	0.0	0.4	0.18	0.32	0.46	0.94	1.46	2.67	1004	1.3	0.0	1.3	0.18	0.32	0.46	0.94	1.46	2.67
1004	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	1005	1.9	0.0	1.9	0.18	0.32	0.46	0.94	1.46	2.67
1005	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67										
1010	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	1011	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67
1011	0.4	0.0	0.4	0.18	0.32	0.46	0.94	1.46	2.67	1012	1.0	0.0	1.0	0.18	0.32	0.46	0.94	1.46	2.67
1012	0.9	0.0	0.9	0.18	0.32	0.46	0.94	1.46	2.67	1013	1.9	0.0	1.9	0.18	0.32	0.46	0.94	1.46	2.67
1013	1.1	0.0	1.1	0.18	0.32	0.46	0.94	1.46	2.67	1014	5.5	0.0	5.5	0.18	0.32	0.46	0.94	1.46	2.67
1014	3.8	0.0	3.8	0.18	0.32	0.46	0.94	1.46	2.67	1015	9.3	0.0	9.3	0.18	0.32	0.46	0.94	1.46	2.67
1015	3.4	1.0	2.4	0.17	0.31	0.43	0.85	1.28	2.31	1016	12.7	1.0	11.7	0.18	0.32	0.45	0.91	1.41	2.57
1016	16.2	4.1	12.1	0.17	0.31	0.44	0.86	1.31	2.36	1017	28.9	5.1	23.8	0.17	0.31	0.44	0.88	1.35	2.45
1017	4.6	2.8	1.8	0.15	0.30	0.41	0.75	1.09	1.92										
1020	0.7	0.0	0.7	0.18	0.32	0.46	0.94	1.46	2.67	1021	0.7	0.0	0.7	0.18	0.32	0.46	0.94	1.46	2.67
1021	0.5	0.0	0.5	0.18	0.32	0.46	0.94	1.46	2.67	1022	1.2	0.0	1.2	0.18	0.32	0.46	0.94	1.46	2.67
1022	1.7	0.0	1.7	0.18	0.32	0.46	0.94	1.46	2.67	1023	2.9	0.0	2.9	0.18	0.32	0.46	0.94	1.46	2.67
1023	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1024	3.2	0.0	3.2	0.18	0.32	0.46	0.94	1.46	2.67
1024	1.8	0.0	1.8	0.18	0.32	0.46	0.94	1.46	2.67	1025	5.0	0.0	5.0	0.18	0.32	0.46	0.94	1.46	2.67
1025	3.4	0.0	3.4	0.18	0.32	0.46	0.94	1.46	2.67	1026	8.4	0.0	8.4	0.18	0.32	0.46	0.94	1.46	2.67
1026	6.2	0.0	6.2	0.18	0.32	0.46	0.94	1.46	2.67	1027	14.6	0.0	14.6	0.18	0.32	0.46	0.94	1.46	2.67
1027	9.9	0.0	9.9	0.18	0.32	0.46	0.94	1.46	2.67	1028	24.5	0.0	24.5	0.18	0.32	0.46	0.94	1.46	2.67
1028	4.0	2.0	2.0	0.16	0.30	0.42	0.78	1.16	2.06	1029	62.0	9.9	52.1	0.17	0.31	0.45	0.89	1.36	2.47
1029	33.7	26.3	7.4	0.14	0.29	0.39	0.69	0.98	1.71	1030	95.7	36.2	59.5	0.16	0.30	0.43	0.82	1.23	2.20
1030	83.9	54.2	29.7	0.15	0.29	0.40	0.73	1.07	1.88	1031	179.6	90.4	89.2	0.15	0.30	0.41	0.78	1.15	2.05
1031	176.1	116.9	59.2	0.15	0.29	0.40	0.73	1.06	1.85	1032	355.7	207.3	148.4	0.15	0.30	0.41	0.75	1.10	1.95
1032	75.8	75.5	0.3	0.13	0.28	0.37	0.62	0.85	1.44	1033	431.5	282.8	148.7	0.15	0.29	0.40	0.73	1.06	1.86
1033	133.0	133.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1034	564.5	415.8	148.7	0.14	0.29	0.39	0.70	1.01	1.76
1034	46.5	46.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1035	611.0	462.3	148.7	0.14	0.29	0.39	0.70	1.00	1.74
1035	59.0	59.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1036	670.0	521.3	148.7	0.14	0.29	0.39	0.69	0.99	1.71
1036	348.9	341.2	7.7	0.13	0.28	0.37	0.63	0.86	1.47	1037	1,018.9	862.5	156.4	0.14	0.29	0.38	0.67	0.94	1.63
1037	84.2	84.2	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1038	1,103.1	946.7	156.4	0.14	0.29	0.38	0.67	0.94	1.61

Rainfall Depths

2-Year - Expected Value - Existing Condition

Subarea	Area			Rainfall Depth							Node	Area			Rainfall Depth						
	(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr	(ac)		< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr		
		X		0.13	0.28	0.37	0.62	0.85	1.44			X		0.13	0.28	0.37	0.62	0.85	1.44		
			X	0.18	0.32	0.46	0.94	1.46	2.67			X		0.18	0.32	0.46	0.94	1.46	2.67		
1038	426.5	358.5	68.0	0.14	0.29	0.38	0.67	0.95	1.64	1039	1,529.6	1,305.2	224.4	0.14	0.29	0.38	0.67	0.94	1.62		
1039	584.2	520.2	64.0	0.14	0.28	0.38	0.66	0.92	1.57	1040	2,113.8	1,825.4	288.4	0.14	0.29	0.38	0.66	0.93	1.61		
1040	629.8	628.6	1.2	0.13	0.28	0.37	0.62	0.85	1.44	1041	2,743.6	2,454.0	289.6	0.14	0.28	0.38	0.65	0.91	1.57		
1041	135.8	135.8	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1042	2,879.4	2,589.8	289.6	0.14	0.28	0.38	0.65	0.91	1.56		
1042	475.9	475.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1043	3,355.3	3,065.7	289.6	0.13	0.28	0.38	0.65	0.90	1.55		
1043	165.2	165.2	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1044	3,520.5	3,230.9	289.6	0.13	0.28	0.38	0.65	0.90	1.54		
1044	339.3	339.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1045	3,859.8	3,570.2	289.6	0.13	0.28	0.38	0.64	0.90	1.53		
1045	155.5	155.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1046	4,015.3	3,725.7	289.6	0.13	0.28	0.38	0.64	0.89	1.53		
1046	190.7	190.7	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1047	4,206.0	3,916.4	289.6	0.13	0.28	0.38	0.64	0.89	1.52		
1047	200.9	200.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1048	4,406.9	4,117.3	289.6	0.13	0.28	0.38	0.64	0.89	1.52		
1048	3,383.3	3,383.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1049	7,790.2	7,500.6	289.6	0.13	0.28	0.37	0.63	0.87	1.49		
1049	497.6	497.6	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1050	8,287.8	7,998.2	289.6	0.13	0.28	0.37	0.63	0.87	1.48		
1050	454.4	454.4	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1051	8,742.2	8,452.6	289.6	0.13	0.28	0.37	0.63	0.87	1.48		
1051	290.9	290.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1052	9,033.1	8,743.5	289.6	0.13	0.28	0.37	0.63	0.87	1.48		
1052	848.4	848.4	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1053	9,881.5	9,591.9	289.6	0.13	0.28	0.37	0.63	0.87	1.48		
1053	2,422.6	2,422.6	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1054	12,304.1	12,014.5	289.6	0.13	0.28	0.37	0.63	0.86	1.47		
1054	324.5	324.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1055	12,628.6	12,339.0	289.6	0.13	0.28	0.37	0.63	0.86	1.47		
1055	392.6	392.6	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1056	13,021.2	12,731.6	289.6	0.13	0.28	0.37	0.63	0.86	1.47		
1056	5,559.2	4,931.8	627.4	0.14	0.28	0.38	0.66	0.92	1.58	1057	18,580.4	17,663.4	917.0	0.13	0.28	0.37	0.64	0.88	1.50		

Channel Hydraulics, Travel Times, Times of Concentration, and Lag Estimates 2-Year - Expected Value - Existing Condition

U/S Node	D/S Node	U/S Elevation	D/S Elevation	Length (ft)	Manning (n)	Base (ft)	Sideslope (z)	Height (ft)	Q(2) (cfs)	Dn (ft)	V (fps)	Tt (min)	Tc (min)	Lag (hr)	
	1036		1100	Data from Rational Method Analysis:						56				31.03	0.41
1036	1037	1100	1010	1517	0.040	7	1	7	139	1.59	10.16	2.49	33.52	0.45	
1037	1038	1010	925	2069	0.040	8	1	8	193	1.99	9.69	3.56	37.08	0.49	
1038	1039	925	873	1383	0.040	8	1	8	193	2.04	9.39	2.45	39.53	0.53	
1039	1040	873	780	2714	0.040	9	1	9	235	2.21	9.49	4.76	44.30	0.59	
1040	1041	780	695	2758	0.040	10	1	10	304	2.50	9.75	4.71	49.01	0.65	
1041	1042	695	650	1846	0.040	15	1	10	335	2.25	8.63	3.56	52.58	0.70	
1042	1043	650	600	2257	0.040	15	1	10	337	2.32	8.38	4.49	57.07	0.76	
1043	1044	600	580	1011	0.040	20	1	10	337	2.03	7.55	2.23	59.30	0.79	
1044	1045	580	540	1918	0.040	20	1	10	337	2.00	7.68	4.16	63.46	0.85	
1045	1046	540	515	1273	0.040	20	1	10	342	2.05	7.57	2.80	66.27	0.88	
1046	1047	515	485	1705	0.040	20	1	10	347	2.14	7.33	3.88	70.14	0.94	
1047	1048	485	445	2398	0.040	20	1	10	347	2.17	7.21	5.55	75.69	1.01	
1048	1049	445	400	2427	0.040	20	1	10	347	2.10	7.46	5.42	81.11	1.08	
1049	1050	400	390	616	0.040	20	1	15	444	2.54	7.77	1.32	82.43	1.10	
1050	1051	390	330	4501	0.040	20	1	15	457	2.74	7.35	10.21	92.64	1.24	
1051	1052	330	300	2333	0.040	20	1	15	457	2.76	7.26	5.36	98.00	1.31	
1052	1053	300	265	3322	0.040	20	1	15	457	2.93	6.79	8.15	106.15	1.42	
1053	1054	265	245	1390	0.040	20	1	15	460	2.68	7.55	3.07	109.22	1.46	
1054	1055	245	215	2724	0.040	25	1	15	508	2.71	6.78	6.69	115.91	1.55	
1055	1056	215	185	2880	0.040	25	1	15	508	2.75	6.66	7.21	123.12	1.64	
1056	1057	185	165	2367	0.040	30	1	15	508	2.63	5.93	6.65	129.77	1.73	

Rainfall Depths

2-Year - Expected Value - Proposed Condition

Subarea	Area			Rainfall Depth						Node	Area			Rainfall Depth					
	(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr		(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr
		X		0.13	0.28	0.37	0.62	0.85	1.44			X		0.13	0.28	0.37	0.62	0.85	1.44
			X	0.18	0.32	0.46	0.94	1.46	2.67			X		0.18	0.32	0.46	0.94	1.46	2.67
1000	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1001	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67
1001	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1002	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67
1002	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1003	0.9	0.0	0.9	0.18	0.32	0.46	0.94	1.46	2.67
1003	0.4	0.0	0.4	0.18	0.32	0.46	0.94	1.46	2.67	1004	1.3	0.0	1.3	0.18	0.32	0.46	0.94	1.46	2.67
1004	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	1005	1.9	0.0	1.9	0.18	0.32	0.46	0.94	1.46	2.67
1005	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67										
1010	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	1011	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67
1011	0.4	0.0	0.4	0.18	0.32	0.46	0.94	1.46	2.67	1012	1.0	0.0	1.0	0.18	0.32	0.46	0.94	1.46	2.67
1012	0.9	0.0	0.9	0.18	0.32	0.46	0.94	1.46	2.67	1013	1.9	0.0	1.9	0.18	0.32	0.46	0.94	1.46	2.67
1013	1.1	0.0	1.1	0.18	0.32	0.46	0.94	1.46	2.67	1014	5.5	0.0	5.5	0.18	0.32	0.46	0.94	1.46	2.67
1014	3.8	0.0	3.8	0.18	0.32	0.46	0.94	1.46	2.67	1015	9.3	0.0	9.3	0.18	0.32	0.46	0.94	1.46	2.67
1015	3.4	1.0	2.4	0.17	0.31	0.43	0.85	1.28	2.31	1016	12.7	1.0	11.7	0.18	0.32	0.45	0.91	1.41	2.57
1016	16.2	4.1	12.1	0.17	0.31	0.44	0.86	1.31	2.36	1017	28.9	5.1	23.8	0.17	0.31	0.44	0.88	1.35	2.45
1017	4.6	2.8	1.8	0.15	0.30	0.41	0.75	1.09	1.92										
1020	0.7	0.0	0.7	0.18	0.32	0.46	0.94	1.46	2.67	1021	0.7	0.0	0.7	0.18	0.32	0.46	0.94	1.46	2.67
1021	0.5	0.0	0.5	0.18	0.32	0.46	0.94	1.46	2.67	1022	1.2	0.0	1.2	0.18	0.32	0.46	0.94	1.46	2.67
1022	1.7	0.0	1.7	0.18	0.32	0.46	0.94	1.46	2.67	1023	2.9	0.0	2.9	0.18	0.32	0.46	0.94	1.46	2.67
1023	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1024	3.2	0.0	3.2	0.18	0.32	0.46	0.94	1.46	2.67
1024	1.8	0.0	1.8	0.18	0.32	0.46	0.94	1.46	2.67	1025	5.0	0.0	5.0	0.18	0.32	0.46	0.94	1.46	2.67
1025	3.4	0.0	3.4	0.18	0.32	0.46	0.94	1.46	2.67	1026	8.4	0.0	8.4	0.18	0.32	0.46	0.94	1.46	2.67
1026	6.2	0.0	6.2	0.18	0.32	0.46	0.94	1.46	2.67	1027	14.6	0.0	14.6	0.18	0.32	0.46	0.94	1.46	2.67
1027	9.9	0.0	9.9	0.18	0.32	0.46	0.94	1.46	2.67	1028	24.5	0.0	24.5	0.18	0.32	0.46	0.94	1.46	2.67
1028	4.0	2.0	2.0	0.16	0.30	0.42	0.78	1.16	2.06	1029	62.0	9.9	52.1	0.17	0.31	0.45	0.89	1.36	2.47
1029	33.7	26.3	7.4	0.14	0.29	0.39	0.69	0.98	1.71	1030	95.7	36.2	59.5	0.16	0.30	0.43	0.82	1.23	2.20
1030	83.9	54.2	29.7	0.15	0.29	0.40	0.73	1.07	1.88	1031	179.6	90.4	89.2	0.15	0.30	0.41	0.78	1.15	2.05
1031	176.1	116.9	59.2	0.15	0.29	0.40	0.73	1.06	1.85	1032	355.7	207.3	148.4	0.15	0.30	0.41	0.75	1.10	1.95
1032	75.8	75.5	0.3	0.13	0.28	0.37	0.62	0.85	1.44	1033	431.5	282.8	148.7	0.15	0.29	0.40	0.73	1.06	1.86
1033	133.0	133.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1034	564.5	415.8	148.7	0.14	0.29	0.39	0.70	1.01	1.76
1034	46.5	46.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1035	611.0	462.3	148.7	0.14	0.29	0.39	0.70	1.00	1.74
1035	59.0	59.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1036	670.0	521.3	148.7	0.14	0.29	0.39	0.69	0.99	1.71
1036	348.9	341.2	7.7	0.13	0.28	0.37	0.63	0.86	1.47	1037	1,018.9	862.5	156.4	0.14	0.29	0.38	0.67	0.94	1.63
1037	84.2	84.2	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1038	1,103.1	946.7	156.4	0.14	0.29	0.38	0.67	0.94	1.61

Rainfall Depths

2-Year - Expected Value - Proposed Condition

Subarea	Area			Rainfall Depth						Node	Area			Rainfall Depth					
	(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr		(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr
		X		0.13	0.28	0.37	0.62	0.85	1.44			X		0.13	0.28	0.37	0.62	0.85	1.44
			X	0.18	0.32	0.46	0.94	1.46	2.67			X		0.18	0.32	0.46	0.94	1.46	2.67
1038	426.5	358.5	68.0	0.14	0.29	0.38	0.67	0.95	1.64	1039	1,529.6	1,305.2	224.4	0.14	0.29	0.38	0.67	0.94	1.62
1039	584.2	520.2	64.0	0.14	0.28	0.38	0.66	0.92	1.57	1040	2,113.8	1,825.4	288.4	0.14	0.29	0.38	0.66	0.93	1.61
1040	629.8	628.6	1.2	0.13	0.28	0.37	0.62	0.85	1.44	1041	2,743.6	2,454.0	289.6	0.14	0.28	0.38	0.65	0.91	1.57
1041	135.8	135.8	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1042	2,879.4	2,589.8	289.6	0.14	0.28	0.38	0.65	0.91	1.56
1042	475.9	475.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1043	3,355.3	3,065.7	289.6	0.13	0.28	0.38	0.65	0.90	1.55
1043	165.2	165.2	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1044	3,520.5	3,230.9	289.6	0.13	0.28	0.38	0.65	0.90	1.54
1044	339.3	339.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1045	3,859.8	3,570.2	289.6	0.13	0.28	0.38	0.64	0.90	1.53
1045	155.5	155.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1046	4,015.3	3,725.7	289.6	0.13	0.28	0.38	0.64	0.89	1.53
1046	190.7	190.7	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1047	4,206.0	3,916.4	289.6	0.13	0.28	0.38	0.64	0.89	1.52
1047	200.9	200.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1048	4,406.9	4,117.3	289.6	0.13	0.28	0.38	0.64	0.89	1.52
1048	3,383.3	3,383.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1049	7,790.2	7,500.6	289.6	0.13	0.28	0.37	0.63	0.87	1.49
1049	496.3	496.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1050	8,286.5	7,996.9	289.6	0.13	0.28	0.37	0.63	0.87	1.48
1050	300.9	300.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1051	8,587.4	8,297.8	289.6	0.13	0.28	0.37	0.63	0.87	1.48
1051	365.0	365.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1052	8,952.4	8,662.8	289.6	0.13	0.28	0.37	0.63	0.87	1.48
1052	679.9	679.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1053	9,632.3	9,342.7	289.6	0.13	0.28	0.37	0.63	0.87	1.48
1053	2,538.8	2,538.8	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1054	12,171.1	11,881.5	289.6	0.13	0.28	0.37	0.63	0.86	1.47
1054	351.6	351.6	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1055	12,522.7	12,233.1	289.6	0.13	0.28	0.37	0.63	0.86	1.47
1055	367.9	367.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1056	12,890.6	12,601.0	289.6	0.13	0.28	0.37	0.63	0.86	1.47
1056	5,665.4	5,037.9	627.5	0.14	0.28	0.38	0.66	0.92	1.58	1057	18,556.0	17,638.9	917.1	0.13	0.28	0.37	0.64	0.88	1.50

Channel Hydraulics, Travel Times, Times of Concentration, and Lag Estimates 2-Year - Expected Value - Proposed Condition

U/S Node	D/S Node	U/S Elevation	D/S Elevation	Length (ft)	Manning (n)	Base (ft)	Sideslope (z)	Height (ft)	Q(2) (cfs)	Dn (ft)	V (fps)	Tt (min)	Tc (min)	Lag (hr)	
	1036		1100	Data from Rational Method Analysis:						56.21				31.03	0.41
1036	1037	1100	1010	1517	0.040	7	1	7	138.92	1.59	10.16	2.49	33.52	0.45	
1037	1038	1010	925	2069	0.040	8	1	8	192.54	1.99	9.69	3.56	37.08	0.49	
1038	1039	925	873	1383	0.040	8	1	8	192.58	2.04	9.39	2.45	39.53	0.53	
1039	1040	873	780	2714	0.040	9	1	9	234.70	2.21	9.49	4.76	44.30	0.59	
1040	1041	780	695	2758	0.040	10	1	10	303.94	2.50	9.75	4.71	49.01	0.65	
1041	1042	695	650	1846	0.040	15	1	10	334.68	2.25	8.63	3.56	52.58	0.70	
1042	1043	650	600	2257	0.040	15	1	10	336.96	2.32	8.38	4.49	57.07	0.76	
1043	1044	600	580	1011	0.040	20	1	10	337.14	2.03	7.55	2.23	59.30	0.79	
1044	1045	580	540	1918	0.040	20	1	10	337.08	2.00	7.68	4.16	63.46	0.85	
1045	1046	540	515	1273	0.040	20	1	10	342.30	2.05	7.57	2.80	66.27	0.88	
1046	1047	515	485	1705	0.040	20	1	10	346.50	2.14	7.33	3.88	70.14	0.94	
1047	1048	485	445	2398	0.040	20	1	10	346.68	2.17	7.21	5.55	75.69	1.01	
1048	1049	445	400	2427	0.040	20	1	10	346.55	2.10	7.46	5.42	81.11	1.08	
1049	1050	400	390	616	0.040	20	1	15	444.07	2.54	7.77	1.32	82.43	1.10	
1050	1051	390	330	4501	0.040	20	1	15	456.57	2.73	7.35	10.21	92.65	1.24	
1051	1052	330	300	2333	0.040	20	1	15	456.73	2.76	7.26	5.36	98.00	1.31	
1052	1053	300	265	3322	0.040	20	1	15	456.58	2.93	6.79	8.15	106.16	1.42	
1053	1054	265	245	1390	0.040	20	1	15	456.69	2.67	7.54	3.07	109.23	1.46	
1054	1055	245	215	2724	0.040	25	1	15	503.05	2.69	6.76	6.72	115.95	1.55	
1055	1056	215	185	2880	0.040	25	1	15	503.33	2.73	6.64	7.23	123.18	1.64	
1056	1057	185	165	2367	0.040	30	1	15	503.34	2.61	5.91	6.67	129.85	1.73	

Losses

Node U1036
 Total Area (ac) 670.1
 24-Hour Rainfall Depth (in) 1.71
 Fm (in/hr) 0.60
 Y-Bar 0.78

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	25.9	0.0	83.0	421.9	25.9	0.0	83.0	421.9
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.1	9.1	0.0	0.0	0.1	9.1
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	11.7	0.0	47.1	69.4	11.7	0.0	47.1	69.4
Woodland (Fair)	100	36	60	73	79	0.0	0.0	0.1	0.8	0.0	0.0	0.1	0.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.19	0.37	0.53	0.62
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.03	0.15	0.25
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.11	0.25	0.37
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.07	0.21	0.32
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.08	0.23	0.32
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.01	0.09	0.19
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.05	0.18	0.30
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.12	0.21
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.18	0.37	0.53	0.66
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.04	0.18	0.27
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.07	0.21	0.32
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.04	0.18	0.27

Losses

Node U1037
 Total Area (ac) 1,019.0
 24-Hour Rainfall Depth (in) 1.63
 Fm (in/hr) 0.60
 Y-Bar 0.80

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	23.7	0.0	82.5	2.5	49.6	0.0	165.5	424.4
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	24.2	10.6	0.0	0.0	24.3	19.7
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	6.7	0.0	114.0	84.7	18.4	0.0	161.1	154.1
Woodland (Fair)	100	36	60	73	79	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.18	0.36	0.52	0.60
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.13	0.24
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.24	0.36
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.20	0.30
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.07	0.22	0.30
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.08	0.18
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.04	0.16	0.28
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.11	0.20
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.16	0.36	0.52	0.65
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.26
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.20	0.30
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.26

Losses

Node U1038
 Total Area (ac) 1,103.1
 24-Hour Rainfall Depth (in) 1.61
 Fm (in/hr) 0.60
 Y-Bar 0.81

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	10.2	0.0	31.2	1.2	59.8	0.0	196.7	425.6
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	4.7	1.9	0.0	0.0	29.0	21.6
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.4	0.0	17.5	17.0	18.8	0.0	178.6	171.1
Woodland (Fair)	100	36	60	73	79	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.18	0.35	0.52	0.60
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.13	0.23
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.23	0.35
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.19	0.30
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.07	0.21	0.30
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.08	0.18
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.04	0.16	0.28
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.10	0.19
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.16	0.35	0.52	0.64
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.25
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.19	0.30
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.25

Losses

Node U1039
 Total Area (ac) 1,529.7
 24-Hour Rainfall Depth (in) 1.62
 Fm (in/hr) 0.60
 Y-Bar 0.81

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	55.8	0.0	106.0	28.5	115.6	0.0	302.7	454.1
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	1.9	0.8	0.0	0.0	30.9	22.4
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	25.5	0.0	0.0	0.0	26.5
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	2.3	0.0	112.0	92.9	21.1	0.0	290.6	264.0
Woodland (Fair)	100	36	60	73	79	0.2	0.0	0.7	0.0	0.2	0.0	0.8	0.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.18	0.35	0.52	0.60
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.13	0.23
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.23	0.35
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.20	0.30
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.07	0.21	0.30
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.08	0.18
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.04	0.16	0.28
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.10	0.20
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.16	0.35	0.52	0.65
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.26
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.20	0.30
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.26

Losses

Node U1040
 Total Area (ac) 2,113.7
 24-Hour Rainfall Depth (in) 1.61
 Fm (in/hr) 0.60
 Y-Bar 0.81

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	31.1	0.0	122.3	129.9	146.7	0.0	425.0	584.0
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	4.4	0.0	0.0	30.9	26.8
Grass (Fair)	100	50	69	79	84	2.2	0.0	1.6	12.7	2.2	0.0	1.6	39.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	12.1	0.0	137.4	116.4	33.2	0.0	428.0	380.4
Woodland (Fair)	100	36	60	73	79	8.7	0.0	0.9	2.9	8.9	0.0	1.7	3.7
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	1.3	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.18	0.35	0.52	0.60
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.13	0.23
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.23	0.35
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.19	0.30
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.07	0.21	0.30
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.08	0.18
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.04	0.16	0.28
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.10	0.19
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.16	0.35	0.52	0.64
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.25
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.19	0.30
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.25

Losses

Node U1041
 Total Area (ac) 2,743.6
 24-Hour Rainfall Depth (in) 1.57
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	30.0	0.0	87.4	36.1	176.7	0.0	512.4	620.1
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	0.0	30.9	26.8
Grass (Fair)	100	50	69	79	84	1.2	0.0	10.4	56.8	3.4	0.0	12.0	96.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	28.6	0.0	138.6	220.7	61.8	0.0	566.6	601.1
Woodland (Fair)	100	36	60	73	79	14.7	0.0	2.9	0.9	23.6	0.0	4.6	4.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	1.6	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.17	0.34	0.51	0.59
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.22	0.34
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.19	0.29
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.29
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.17
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.27
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.10	0.19
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.34	0.51	0.64
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.19	0.29
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.15	0.24

Losses

Node U1042
 Total Area (ac) 2,879.3
 24-Hour Rainfall Depth (in) 1.56
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	1.3	0.0	25.1	18.0	178.0	0.0	537.5	638.1
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	0.0	30.9	26.8
Grass (Fair)	100	50	69	79	84	0.2	0.0	3.2	2.2	3.6	0.0	15.2	98.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	2.2	0.0	28.6	44.1	64.0	0.0	595.2	645.2
Woodland (Fair)	100	36	60	73	79	5.3	0.0	0.9	4.6	28.9	0.0	5.5	9.2
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.17	0.34	0.51	0.59
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.34
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.29
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.29
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.17
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.27
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.10	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.34	0.51	0.64
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.29
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.15	0.24

Losses

Node U1043
 Total Area (ac) 3,355.1
 24-Hour Rainfall Depth (in) 1.55
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	5.5	6.4	52.9	95.6	183.5	6.4	590.4	733.7
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	13.5	0.0	0.0	0.0	44.4	26.8
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.6	3.6	0.0	15.2	98.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	8.0	2.6	57.9	213.7	72.0	2.6	653.1	858.9
Woodland (Fair)	100	36	60	73	79	1.1	9.6	0.0	8.4	30.0	9.6	5.5	17.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.34	0.50	0.59
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.34
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.29
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.29
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.34	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.29
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24

Losses

Node U1044
 Total Area (ac) 3,520.2
 24-Hour Rainfall Depth (in) 1.54
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	1.3	0.4	27.5	33.2	184.8	6.8	617.9	766.9
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.7	7.6	0.0	0.0	0.7	52.0	26.8
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	3.6	0.0	15.2	98.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	1.3	1.6	32.5	50.7	73.3	4.2	685.6	909.6
Woodland (Fair)	100	36	60	73	79	0.9	2.8	0.9	3.7	30.9	12.4	6.4	21.3
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.34	0.50	0.59
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.34
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.34	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24

Losses

Node U1045
 Total Area (ac) 3,859.5
 24-Hour Rainfall Depth (in) 1.53
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	6.2	4.5	90.4	75.7	191.0	11.3	708.3	842.6
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	2.2	0.0	0.0	0.7	54.2	26.8
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	3.6	0.0	15.2	98.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	2.0	2.4	49.6	85.1	75.3	6.6	735.2	994.7
Woodland (Fair)	100	36	60	73	79	6.0	0.2	6.7	8.3	36.9	12.6	13.1	29.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.50	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.33	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24

Losses

Node U1046
 Total Area (ac) 4,015.1
 24-Hour Rainfall Depth (in) 1.53
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.1	6.7	90.0	1.6	191.1	18.0	798.3	844.2
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.2	3.8	0.0	0.0	0.9	58.0	26.8
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	3.6	0.0	15.2	98.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	1.1	42.9	1.7	75.3	7.7	778.1	996.4
Woodland (Fair)	100	36	60	73	79	0.0	1.0	0.8	5.7	36.9	13.6	13.9	35.3
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.50	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.33	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24

Losses

Node U1047
 Total Area (ac) 4,206.0
 24-Hour Rainfall Depth (in) 1.52
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	7.4	88.5	2.6	191.1	25.4	886.8	846.8
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	12.7	0.7	0.0	0.9	70.7	27.5
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.7	1.1	3.6	0.0	15.9	99.9
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	4.7	48.3	7.1	75.3	12.4	826.4	1,003.5
Woodland (Fair)	100	36	60	73	79	0.0	2.7	5.7	8.7	36.9	16.3	19.6	44.0
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.50	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.19	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node U1048
 Total Area (ac) 4,407.0
 24-Hour Rainfall Depth (in) 1.52
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	1.8	86.1	6.8	191.1	27.2	972.9	853.6
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	0.9	70.7	27.5
Grass (Fair)	100	50	69	79	84	0.0	3.0	4.7	6.3	3.6	3.0	20.6	106.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	0.0	47.3	2.8	75.3	12.4	873.7	1,006.3
Woodland (Fair)	100	36	60	73	79	0.0	8.1	22.4	11.7	36.9	24.4	42.0	55.7
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.50	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.19	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1049
 Total Area (ac) 7,790.2
 24-Hour Rainfall Depth (in) 1.49
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	2.2	1.0	0.0	0.0	2.2	1.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	39.1	70.7	709.7	141.9	230.2	97.9	1,682.6	995.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	2.0	78.3	21.6	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	26.9	65.1	92.3	481.5	30.5	68.1	112.9	587.7
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	43.6	39.6	838.8	419.6	118.9	52.0	1,712.5	1,425.9
Woodland (Fair)	100	36	60	73	79	72.7	81.7	84.4	70.1	109.6	106.1	126.4	125.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.33	0.49	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1050
 Total Area (ac) 8,287.9
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.9	6.9	0.0	0.0	0.9	6.9
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	1.1	0.2	0.0	0.0	3.3	1.2
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	88.3	2.5	230.2	97.9	1,770.9	998.0
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	0.3	2.2	36.5	62.6	30.8	70.3	149.4	650.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	0.2	0.2	245.3	9.2	119.1	52.2	1,957.8	1,435.1
Woodland (Fair)	100	36	60	73	79	1.1	0.4	38.0	1.8	110.7	106.5	164.4	127.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1051
 Total Area (ac) 8,742.1
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.7	0.0	0.0	23.1	0.7	0.0	0.9	30.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	1.3	7.1	0.0	0.0	4.6	8.3
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	9.1	40.7	230.2	97.9	1,780.0	1,038.7
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	1.8	3.2	5.8	178.6	32.6	73.5	155.2	828.9
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	0.0	2.2	29.6	93.4	119.1	54.4	1,987.4	1,528.5
Woodland (Fair)	100	36	60	73	79	6.5	10.9	8.8	31.4	117.2	117.4	173.2	159.0
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1052
 Total Area (ac) 9,032.9
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.7	0.0	0.9	30.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	1.1	0.0	0.0	1.1	1.1	0.0	0.0	1.1
Barren (Poor)	100	78	86	91	93	7.2	0.0	4.3	36.1	7.2	0.0	8.9	44.4
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	14.1	14.6	230.2	97.9	1,794.1	1,053.3
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	1.4	0.0	14.5	104.4	34.0	73.5	169.7	933.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	4.7	0.0	12.1	28.8	123.8	54.4	1,999.5	1,557.3
Woodland (Fair)	100	36	60	73	79	12.1	0.0	0.2	34.1	129.3	117.4	173.4	193.1
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1053
 Total Area (ac) 9,881.3
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	16.9	12.9	0.7	0.0	17.8	42.9
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1
Barren (Poor)	100	78	86	91	93	0.9	0.0	8.7	4.9	8.1	0.0	17.6	49.3
Chaparral, Broadleaf (Fair)	100	40	63	75	81	1.6	0.0	66.6	12.5	231.8	97.9	1,860.7	1,065.8
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	13.1	21.8	24.9	325.9	47.1	95.3	194.6	1,259.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	3.2	4.2	63.5	125.0	127.0	58.6	2,063.0	1,682.3
Woodland (Fair)	100	36	60	73	79	16.9	4.4	47.0	73.5	146.2	121.8	220.4	266.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1054
 Total Area (ac) 12,304.1
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.7	0.7	0.0	17.8	43.6
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.7	1.1	0.0	0.0	1.8
Barren (Poor)	100	78	86	91	93	12.0	12.5	12.3	30.7	20.1	12.5	29.9	80.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	21.7	265.4	53.4	231.8	119.6	2,126.1	1,119.2
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.9	0.7	0.0	2.9	149.9	49.8
Grass (Fair)	100	50	69	79	84	5.0	143.5	255.0	594.1	52.1	238.8	449.6	1,853.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	0.0	25.8	361.1	275.5	127.0	84.4	2,424.1	1,957.8
Woodland (Fair)	100	36	60	73	79	1.3	97.0	166.1	87.4	147.5	218.8	386.5	354.0
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node E1055
 Total Area (ac) 12,628.7
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	2.2	0.7	0.0	17.8	45.8
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.8
Barren (Poor)	100	78	86	91	93	0.0	6.9	0.4	0.2	20.1	19.4	30.3	80.2
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	5.8	71.9	4.6	231.8	125.4	2,198.0	1,123.8
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.2	0.2	0.0	2.9	150.1	50.0
Grass (Fair)	100	50	69	79	84	7.2	22.6	14.6	45.5	59.3	261.4	464.2	1,898.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	1.8	7.9	66.5	16.9	128.8	92.3	2,490.6	1,974.7
Woodland (Fair)	100	36	60	73	79	5.5	9.5	23.3	10.9	153.0	228.3	409.8	364.9
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node E1056
 Total Area (ac) 13,021.5
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.59
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	2.7	0.0	0.0	0.0	2.7
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	8.6	142.3	0.7	0.0	26.4	188.1
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.8
Barren (Poor)	100	78	86	91	93	0.0	1.8	2.4	32.6	20.1	21.2	32.7	112.8
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	0.0	4.7	231.8	125.4	2,198.0	1,128.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.7	0.0	2.9	150.1	50.7
Grass (Fair)	100	50	69	79	84	1.8	14.8	1.3	110.4	61.1	276.2	465.5	2,009.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	1.1	1.2	0.2	36.4	129.9	93.5	2,490.8	2,011.1
Woodland (Fair)	100	36	60	73	79	9.3	5.1	0.0	14.6	162.3	233.4	409.8	379.5
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.8

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node E1057
 Total Area (ac) 18,580.6
 24-Hour Rainfall Depth (in) 1.50
 Fm (in/hr) 0.59
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	12.8	87.5	0.7	0.0	39.2	275.6
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.8
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	20.1	21.2	32.7	112.8
Chaparral, Broadleaf (Fair)	100	40	63	75	81	38.9	18.5	554.0	1,538.1	270.7	143.9	2,752.0	2,666.6
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	22.0	0.0	2.9	150.1	72.7
Grass (Fair)	100	50	69	79	84	2.0	18.9	54.6	411.3	63.1	295.1	520.1	2,420.5
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	40.3	25.4	369.0	1,877.2	170.2	118.9	2,859.8	3,888.3
Woodland (Fair)	100	36	60	73	79	74.7	105.0	37.1	270.1	237.0	338.4	446.9	649.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	1.7	0.0	0.0	0.0	2.5

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.49	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.19	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1049
 Total Area (ac) 7,790.2
 24-Hour Rainfall Depth (in) 1.49
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	1.1	13.1	26.5	0.0	1.1	13.1	26.5
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	2.2	1.0	0.0	0.0	2.2	1.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	38.0	70.0	710.2	145.3	229.1	97.2	1,683.1	998.9
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	2.0	75.6	21.6	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	10.9	38.4	89.7	367.2	14.5	41.4	110.3	473.4
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	37.8	37.4	819.4	373.6	113.1	49.8	1,693.1	1,379.9
Woodland (Fair)	100	36	60	73	79	53.6	77.2	82.2	58.4	90.5	101.6	124.2	114.1
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	42.0	32.9	13.1	142.8	42.0	32.9	13.1	142.8

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.33	0.49	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1050
 Total Area (ac) 8,286.4
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	1.1	13.1	26.5
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	2.2	1.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	53.0	41.6	229.1	97.2	1,736.1	1,040.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	0.3	2.2	318.8	29.9	14.8	43.6	429.1	503.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.2	0.2	33.3	8.6	113.3	50.0	1,726.4	1,388.5
Woodland (Fair)	100	36	60	73	79	1.1	0.4	4.8	1.8	91.6	102.0	129.0	115.9
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	42.0	32.9	13.1	142.8

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1051
 Total Area (ac) 8,587.1
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.7	0.0	0.0	5.1	0.7	0.0	0.0	5.1
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	7.8	0.0	1.1	13.1	34.3
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.6	0.0	0.0	2.2	1.6
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	5.6	57.5	229.1	97.2	1,741.7	1,098.0
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	1.8	3.2	38.2	92.5	16.6	46.8	467.3	595.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	2.2	3.8	14.6	113.3	52.2	1,730.2	1,403.1
Woodland (Fair)	100	36	60	73	79	6.5	10.9	7.0	31.4	98.1	112.9	136.0	147.3
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	11.3	42.0	32.9	13.1	154.1

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1052
 Total Area (ac) 8,952.0
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.7	0.0	0.0	5.1
3-4 Dwellings / Acre	60	32	56	69	75	7.6	0.0	27.3	85.5	7.6	1.1	40.4	119.8
Public Park	85	32	56	69	75	1.1	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	3.8	0.0	3.3	7.3	3.8	0.0	5.5	8.9
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.4	0.7	49.5	229.1	97.6	1,742.4	1,147.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	0.6	0.0	0.0	13.5	17.2	46.8	467.3	609.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.4	0.0	0.3	0.8	113.7	52.2	1,730.5	1,403.9
Woodland (Fair)	100	36	60	73	79	10.1	0.0	0.2	15.0	108.2	112.9	136.2	162.3
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	2.9	3.8	0.0	130.8	44.9	36.7	13.1	284.9

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1053
 Total Area (ac) 9,632.2
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.59
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	7.7	3.3	0.7	0.0	7.7	8.4
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	17.9	12.7	7.6	1.1	58.3	132.5
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.9	0.0	8.5	4.9	4.7	0.0	14.0	13.8
Chaparral, Broadleaf (Fair)	100	40	63	75	81	1.6	0.0	47.2	79.8	230.7	97.6	1,789.6	1,227.3
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	12.5	11.4	17.2	105.1	29.7	58.2	484.5	714.4
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	2.9	1.3	49.1	67.8	116.6	53.5	1,779.6	1,471.7
Woodland (Fair)	100	36	60	73	79	16.9	4.2	43.1	49.4	125.1	117.1	179.3	211.7
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.9	9.3	0.0	104.6	45.8	46.0	13.1	389.5

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1054
 Total Area (ac) 12,171.0
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.58
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.7	0.0	7.7	8.4
3-4 Dwellings / Acre	60	32	56	69	75	14.7	24.7	56.8	499.3	22.3	25.8	115.1	631.8
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	12.5	0.0	15.4	4.7	12.5	14.0	29.2
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	36.3	295.4	38.1	230.7	133.9	2,085.0	1,265.4
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.9	0.7	0.0	2.9	147.2	49.8
Grass (Fair)	100	50	69	79	84	2.3	99.2	140.4	282.8	32.0	157.4	624.9	997.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	22.9	312.4	171.9	116.6	76.4	2,092.0	1,643.6
Woodland (Fair)	100	36	60	73	79	1.3	92.6	153.3	72.0	126.4	209.7	332.6	283.7
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	9.8	102.4	80.7	45.8	55.8	115.5	470.2

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node P1055
 Total Area (ac) 12,522.5
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.58
 Y-Bar 0.85

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	1.2	0.7	0.0	7.7	9.6
3-4 Dwellings / Acre	60	32	56	69	75	0.4	0.0	0.3	50.1	22.7	25.8	115.4	681.9
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	6.9	0.4	0.2	4.7	19.4	14.4	29.4
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	5.8	71.9	3.5	230.7	139.7	2,156.9	1,268.9
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.2	0.2	0.0	2.9	147.4	50.0
Grass (Fair)	100	50	69	79	84	6.8	22.6	14.6	33.5	38.8	180.0	639.5	1,030.7
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	1.8	7.9	66.5	9.5	118.4	84.3	2,158.5	1,653.1
Woodland (Fair)	100	36	60	73	79	5.5	9.5	23.3	8.9	131.9	219.2	355.9	292.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	45.8	55.8	115.5	470.2

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node P1056
 Total Area (ac) 12,890.6
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.58
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	2.7	0.0	0.0	0.0	2.7
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	8.5	128.0	0.7	0.0	16.2	137.6
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	42.8	22.7	25.8	115.4	724.7
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	1.8	2.4	32.6	4.7	21.2	16.8	62.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	0.0	3.1	230.7	139.7	2,156.9	1,272.0
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.7	0.0	2.9	147.4	50.7
Grass (Fair)	100	50	69	79	84	1.8	14.8	1.3	74.3	40.6	194.8	640.8	1,105.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	1.1	1.2	0.2	21.8	119.5	85.5	2,158.7	1,674.9
Woodland (Fair)	100	36	60	73	79	9.3	5.1	0.0	13.8	141.2	224.3	355.9	306.4
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.8	45.8	55.8	115.5	471.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node P1057
 Total Area (ac) 18,555.7
 24-Hour Rainfall Depth (in) 1.50
 Fm (in/hr) 0.58
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	1.4	48.3	0.7	0.0	17.6	185.9
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	145.9	398.0	22.7	25.8	261.3	1,122.7
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	4.7	21.2	16.8	62.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	38.9	18.5	540.8	1,590.5	269.6	158.2	2,697.7	2,862.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	22.0	0.0	2.9	147.4	72.7
Grass (Fair)	100	50	69	79	84	2.0	18.9	106.1	198.3	42.6	213.7	746.9	1,303.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	40.3	25.4	236.6	1,749.2	159.8	110.9	2,395.3	3,424.1
Woodland (Fair)	100	36	60	73	79	74.7	105.0	35.4	267.2	215.9	329.3	391.3	573.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	1.7	0.0	45.8	55.8	117.2	471.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.49	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.19	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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FILE NAME: MU36002E.DAT
TIME/DATE OF STUDY: 08:53 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----
USER SPECIFIED STORM EVENT(YEAR) = 2.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

- 1) 5.000; 1.780
- 2) 10.000; 1.150
- 3) 15.000; 0.900
- 4) 20.000; 0.740
- 5) 30.000; 0.580
- 6) 60.000; 0.400
- 7) 120.000; 0.280

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / OUT- / SIDE / SIDE / WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- 1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- 2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

SIZE PIPE WITH A FLOW CAPACITY GREATER THAN OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 1000.00 TO NODE 1001.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH(FEET) = 327.00
ELEVATION DATA: UPSTREAM(FEET) = 2400.00 DOWNSTREAM(FEET) = 2280.00

Tc = K*((LENGTH** 3.00)/(ELEVATION CHANGE))**0.20

SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.744

* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.642

SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER						

"CHAPARRAL,BROADLEAF" - 0.30 0.60 1.00 0 8.74
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA RUNOFF(CFS) = 0.28
TOTAL AREA(ACRES) = 0.30 PEAK FLOW RATE(CFS) = 0.28

FLOW PROCESS FROM NODE 1001.00 TO NODE 1002.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2280.00 DOWNSTREAM(FEET) = 2240.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 95.00 CHANNEL SLOPE = 0.4211
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 0.28
FLOW VELOCITY(FEET/SEC.) = 3.30 FLOW DEPTH(FEET) = 0.08
TRAVEL TIME(MIN.) = 0.48 Tc(MIN.) = 9.22
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1002.00 = 422.00 FEET.

FLOW PROCESS FROM NODE 1001.00 TO NODE 1002.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 9.22
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.248
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.30 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.30 SUBAREA RUNOFF(CFS) = 0.17
EFFECTIVE AREA(ACRES) = 0.60 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 0.60 PEAK FLOW RATE(CFS) = 0.35

FLOW PROCESS FROM NODE 1002.00 TO NODE 1003.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2240.00 DOWNSTREAM(FEET) = 2200.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 96.00 CHANNEL SLOPE = 0.4167
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 0.35
FLOW VELOCITY(FEET/SEC.) = 3.62 FLOW DEPTH(FEET) = 0.09
TRAVEL TIME(MIN.) = 0.44 Tc(MIN.) = 9.67
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1003.00 = 518.00 FEET.

FLOW PROCESS FROM NODE 1002.00 TO NODE 1003.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 9.67
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.192
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.30 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.30 SUBAREA RUNOFF(CFS) = 0.16

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EFFECTIVE AREA(ACRES) = 0.90 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 0.90 PEAK FLOW RATE(CFS) = 0.48
*****
FLOW PROCESS FROM NODE 1003.00 TO NODE 1004.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2200.00 DOWNSTREAM(FEET) = 2160.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 109.00 CHANNEL SLOPE = 0.3670
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 0.48
FLOW VELOCITY(FEET/SEC.) = 3.87 FLOW DEPTH(FEET) = 0.11
TRAVEL TIME(MIN.) = 0.47 Tc(MIN.) = 10.14
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1004.00 = 627.00 FEET.
*****
FLOW PROCESS FROM NODE 1003.00 TO NODE 1004.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 10.14
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.143
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.40 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.40 SUBAREA RUNOFF(CFS) = 0.20
EFFECTIVE AREA(ACRES) = 1.30 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.30 PEAK FLOW RATE(CFS) = 0.64
*****
FLOW PROCESS FROM NODE 1004.00 TO NODE 1005.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2160.00 DOWNSTREAM(FEET) = 2120.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 128.00 CHANNEL SLOPE = 0.3125
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 0.64
FLOW VELOCITY(FEET/SEC.) = 3.92 FLOW DEPTH(FEET) = 0.14
TRAVEL TIME(MIN.) = 0.54 Tc(MIN.) = 10.68
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1005.00 = 755.00 FEET.
*****
FLOW PROCESS FROM NODE 1004.00 TO NODE 1005.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 10.68
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.116
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.60 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.60 SUBAREA RUNOFF(CFS) = 0.28
EFFECTIVE AREA(ACRES) = 1.90 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00

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TOTAL AREA(ACRES) = 1.90 PEAK FLOW RATE(CFS) = 0.88
*****
FLOW PROCESS FROM NODE 1005.00 TO NODE 1014.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2120.00 DOWNSTREAM(FEET) = 2040.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 186.00 CHANNEL SLOPE = 0.4301
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 0.88
FLOW VELOCITY(FEET/SEC.) = 4.91 FLOW DEPTH(FEET) = 0.16
TRAVEL TIME(MIN.) = 0.63 Tc(MIN.) = 11.31
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1014.00 = 941.00 FEET.
*****
FLOW PROCESS FROM NODE 1005.00 TO NODE 1014.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 11.31
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.084
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.60 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.60 SUBAREA RUNOFF(CFS) = 0.26
EFFECTIVE AREA(ACRES) = 2.50 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2.50 PEAK FLOW RATE(CFS) = 1.09
*****
FLOW PROCESS FROM NODE 1014.00 TO NODE 1014.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
-----
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 11.31
RAINFALL INTENSITY(INCH/HR) = 1.08
AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 2.50
TOTAL STREAM AREA(ACRES) = 2.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 1.09
*****
FLOW PROCESS FROM NODE 1010.00 TO NODE 1011.00 IS CODE = 21
-----
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
-----
INITIAL SUBAREA FLOW-LENGTH(FEET) = 325.00
ELEVATION DATA: UPSTREAM(FEET) = 2300.00 DOWNSTREAM(FEET) = 2200.00
Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.035
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.272
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" - 0.60 0.60 1.00 0 9.04

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SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA RUNOFF(CFS) = 0.36
 TOTAL AREA(ACRES) = 0.60 PEAK FLOW RATE(CFS) = 0.36

 FLOW PROCESS FROM NODE 1011.00 TO NODE 1012.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
 =====
 ELEVATION DATA: UPSTREAM(FEET) = 2200.00 DOWNSTREAM(FEET) = 2160.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 89.00 CHANNEL SLOPE = 0.4494
 CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
 MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
 CHANNEL FLOW THRU SUBAREA(CFS) = 0.36
 FLOW VELOCITY(FEET/SEC.) = 3.76 FLOW DEPTH(FEET) = 0.09
 TRAVEL TIME(MIN.) = 0.39 Tc(MIN.) = 9.43
 LONGEST FLOWPATH FROM NODE 1010.00 TO NODE 1012.00 = 414.00 FEET.

 FLOW PROCESS FROM NODE 1011.00 TO NODE 1012.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc(MIN) = 9.43
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.222
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 0.40 0.60 1.00 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 0.40 SUBAREA RUNOFF(CFS) = 0.22
 EFFECTIVE AREA(ACRES) = 1.00 AREA-AVERAGED Fm(INCH/HR) = 0.60
 AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 1.00 PEAK FLOW RATE(CFS) = 0.56

 FLOW PROCESS FROM NODE 1012.00 TO NODE 1013.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
 =====
 ELEVATION DATA: UPSTREAM(FEET) = 2160.00 DOWNSTREAM(FEET) = 2120.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 114.00 CHANNEL SLOPE = 0.3509
 CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
 MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
 CHANNEL FLOW THRU SUBAREA(CFS) = 0.56
 FLOW VELOCITY(FEET/SEC.) = 3.92 FLOW DEPTH(FEET) = 0.13
 TRAVEL TIME(MIN.) = 0.49 Tc(MIN.) = 9.92
 LONGEST FLOWPATH FROM NODE 1010.00 TO NODE 1013.00 = 528.00 FEET.

 FLOW PROCESS FROM NODE 1012.00 TO NODE 1013.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc(MIN) = 9.92
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.161
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 0.90 0.60 1.00 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 0.90 SUBAREA RUNOFF(CFS) = 0.45
 EFFECTIVE AREA(ACRES) = 1.90 AREA-AVERAGED Fm(INCH/HR) = 0.60

AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 1.90 PEAK FLOW RATE(CFS) = 0.96

 FLOW PROCESS FROM NODE 1013.00 TO NODE 1014.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
 =====
 ELEVATION DATA: UPSTREAM(FEET) = 2120.00 DOWNSTREAM(FEET) = 2040.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 206.00 CHANNEL SLOPE = 0.3883
 CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
 MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
 CHANNEL FLOW THRU SUBAREA(CFS) = 0.96
 FLOW VELOCITY(FEET/SEC.) = 4.80 FLOW DEPTH(FEET) = 0.17
 TRAVEL TIME(MIN.) = 0.72 Tc(MIN.) = 10.63
 LONGEST FLOWPATH FROM NODE 1010.00 TO NODE 1014.00 = 734.00 FEET.

 FLOW PROCESS FROM NODE 1013.00 TO NODE 1014.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc(MIN) = 10.63
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.118
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 1.10 0.60 1.00 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 1.10 SUBAREA RUNOFF(CFS) = 0.51
 EFFECTIVE AREA(ACRES) = 3.00 AREA-AVERAGED Fm(INCH/HR) = 0.60
 AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 3.00 PEAK FLOW RATE(CFS) = 1.40

 FLOW PROCESS FROM NODE 1014.00 TO NODE 1014.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
 =====
 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION(MIN.) = 10.63
 RAINFALL INTENSITY(INCH/HR) = 1.12
 AREA-AVERAGED Fm(INCH/HR) = 0.60
 AREA-AVERAGED Fp(INCH/HR) = 0.60
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA(ACRES) = 3.00
 TOTAL STREAM AREA(ACRES) = 3.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 1.40

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1.09	11.31	1.084	0.60(0.60)	1.00	2.5	1000.00
2	1.40	10.63	1.118	0.60(0.60)	1.00	3.0	1010.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2.49	10.63	1.118	0.60(0.60)	1.00	5.3	1010.00
2	2.40	11.31	1.084	0.60(0.60)	1.00	5.5	1000.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2.49 Tc(MIN.) = 10.63
EFFECTIVE AREA(ACRES) = 5.35 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 5.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1014.00 = 941.00 FEET.

FLOW PROCESS FROM NODE 1014.00 TO NODE 1015.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2040.00 DOWNSTREAM(FEET) = 2000.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 182.00 CHANNEL SLOPE = 0.2198
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2.49
FLOW VELOCITY(FEET/SEC.) = 4.77 FLOW DEPTH(FEET) = 0.23
TRAVEL TIME(MIN.) = 0.64 Tc(MIN.) = 11.27
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1015.00 = 1123.00 FEET.

FLOW PROCESS FROM NODE 1014.00 TO NODE 1015.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 11.27
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.087
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 3.80 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 3.80 SUBAREA RUNOFF(CFS) = 1.66
EFFECTIVE AREA(ACRES) = 9.15 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 9.30 PEAK FLOW RATE(CFS) = 4.01

FLOW PROCESS FROM NODE 1015.00 TO NODE 1016.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2000.00 DOWNSTREAM(FEET) = 1920.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 366.00 CHANNEL SLOPE = 0.2186
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4.01
FLOW VELOCITY(FEET/SEC.) = 5.48 FLOW DEPTH(FEET) = 0.32
TRAVEL TIME(MIN.) = 1.11 Tc(MIN.) = 12.38
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1016.00 = 1489.00 FEET.

FLOW PROCESS FROM NODE 1015.00 TO NODE 1016.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 12.38
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.031
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 3.40 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 3.40 SUBAREA RUNOFF(CFS) = 1.32
EFFECTIVE AREA(ACRES) = 12.55 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 12.70 PEAK FLOW RATE(CFS) = 4.87

FLOW PROCESS FROM NODE 1016.00 TO NODE 1017.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1920.00 DOWNSTREAM(FEET) = 1880.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 107.00 CHANNEL SLOPE = 0.3738
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4.87
FLOW VELOCITY(FEET/SEC.) = 7.05 FLOW DEPTH(FEET) = 0.30
TRAVEL TIME(MIN.) = 0.25 Tc(MIN.) = 12.63
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1017.00 = 1596.00 FEET.

FLOW PROCESS FROM NODE 1016.00 TO NODE 1017.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 12.63
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.018
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 16.20 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 16.20 SUBAREA RUNOFF(CFS) = 6.10
EFFECTIVE AREA(ACRES) = 28.75 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 28.90 PEAK FLOW RATE(CFS) = 10.83

FLOW PROCESS FROM NODE 1017.00 TO NODE 1029.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1880.00 DOWNSTREAM(FEET) = 1835.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 342.00 CHANNEL SLOPE = 0.1316
CHANNEL BASE(FEET) = 3.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 3.00
CHANNEL FLOW THRU SUBAREA(CFS) = 10.83
FLOW VELOCITY(FEET/SEC.) = 5.97 FLOW DEPTH(FEET) = 0.52
TRAVEL TIME(MIN.) = 0.95 Tc(MIN.) = 13.59
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1029.00 = 1938.00 FEET.

FLOW PROCESS FROM NODE 1017.00 TO NODE 1029.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 13.59
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 0.971
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 4.60 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.60 SUBAREA RUNOFF(CFS) = 1.54
EFFECTIVE AREA(ACRES) = 33.35 AREA-AVERAGED Fm(INCH/HR) = 0.60

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AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 33.50 PEAK FLOW RATE(CFS) = 11.13
*****
FLOW PROCESS FROM NODE 1029.00 TO NODE 1029.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
-----
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 13.59
RAINFALL INTENSITY(INCH/HR) = 0.97
AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 33.35
TOTAL STREAM AREA(ACRES) = 33.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 11.13
*****
FLOW PROCESS FROM NODE 1020.00 TO NODE 1021.00 IS CODE = 21
-----
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
-----
INITIAL SUBAREA FLOW-LENGTH(FEET) = 304.00
ELEVATION DATA: UPSTREAM(FEET) = 2525.00 DOWNSTREAM(FEET) = 2360.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 7.853
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.421
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" - 0.70 0.60 1.00 0 7.85
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA RUNOFF(CFS) = 0.52
TOTAL AREA(ACRES) = 0.70 PEAK FLOW RATE(CFS) = 0.52
*****
FLOW PROCESS FROM NODE 1021.00 TO NODE 1022.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2360.00 DOWNSTREAM(FEET) = 2280.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 106.00 CHANNEL SLOPE = 0.7547
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 0.52
FLOW VELOCITY(FEET/SEC.) = 4.90 FLOW DEPTH(FEET) = 0.10
TRAVEL TIME(MIN.) = 0.36 Tc(MIN.) = 8.21
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1022.00 = 410.00 FEET.
*****
FLOW PROCESS FROM NODE 1021.00 TO NODE 1022.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 8.21
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.375
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.50 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.60
SUBAREA RUNOFF(CFS) = 0.60

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SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.50 SUBAREA RUNOFF(CFS) = 0.35
EFFECTIVE AREA(ACRES) = 1.20 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.20 PEAK FLOW RATE(CFS) = 0.84
*****
FLOW PROCESS FROM NODE 1022.00 TO NODE 1023.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2280.00 DOWNSTREAM(FEET) = 2240.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 68.00 CHANNEL SLOPE = 0.5882
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 0.84
FLOW VELOCITY(FEET/SEC.) = 5.24 FLOW DEPTH(FEET) = 0.14
TRAVEL TIME(MIN.) = 0.22 Tc(MIN.) = 8.43
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1023.00 = 478.00 FEET.
*****
FLOW PROCESS FROM NODE 1022.00 TO NODE 1023.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 8.43
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.348
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 1.70 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 1.70 SUBAREA RUNOFF(CFS) = 1.14
EFFECTIVE AREA(ACRES) = 2.90 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2.90 PEAK FLOW RATE(CFS) = 1.95
*****
FLOW PROCESS FROM NODE 1023.00 TO NODE 1024.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2240.00 DOWNSTREAM(FEET) = 2200.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 72.00 CHANNEL SLOPE = 0.5556
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1.95
FLOW VELOCITY(FEET/SEC.) = 6.84 FLOW DEPTH(FEET) = 0.23
TRAVEL TIME(MIN.) = 0.18 Tc(MIN.) = 8.61
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1024.00 = 550.00 FEET.
*****
FLOW PROCESS FROM NODE 1023.00 TO NODE 1024.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 8.61
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.326
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.30 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.30 SUBAREA RUNOFF(CFS) = 0.20

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EFFECTIVE AREA(ACRES) = 3.20 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3.20 PEAK FLOW RATE(CFS) = 2.09

FLOW PROCESS FROM NODE 1024.00 TO NODE 1025.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2200.00 DOWNSTREAM(FEET) = 2160.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 111.00 CHANNEL SLOPE = 0.3604
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2.09
FLOW VELOCITY(FEET/SEC.) = 6.05 FLOW DEPTH(FEET) = 0.27
TRAVEL TIME(MIN.) = 0.31 Tc(MIN.) = 8.91
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1025.00 = 661.00 FEET.

FLOW PROCESS FROM NODE 1024.00 TO NODE 1025.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 8.91
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.287
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 1.80 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 1.80 SUBAREA RUNOFF(CFS) = 1.11
EFFECTIVE AREA(ACRES) = 5.00 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 5.00 PEAK FLOW RATE(CFS) = 3.09

FLOW PROCESS FROM NODE 1025.00 TO NODE 1026.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2160.00 DOWNSTREAM(FEET) = 2080.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 289.00 CHANNEL SLOPE = 0.2768
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3.09
FLOW VELOCITY(FEET/SEC.) = 5.53 FLOW DEPTH(FEET) = 0.25
TRAVEL TIME(MIN.) = 0.87 Tc(MIN.) = 9.78
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1026.00 = 950.00 FEET.

FLOW PROCESS FROM NODE 1025.00 TO NODE 1026.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 9.78
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.177
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 3.40 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 3.40 SUBAREA RUNOFF(CFS) = 1.77
EFFECTIVE AREA(ACRES) = 8.40 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 8.40 PEAK FLOW RATE(CFS) = 4.37

FLOW PROCESS FROM NODE 1026.00 TO NODE 1027.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2080.00 DOWNSTREAM(FEET) = 2040.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 185.00 CHANNEL SLOPE = 0.2162
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4.37
FLOW VELOCITY(FEET/SEC.) = 5.66 FLOW DEPTH(FEET) = 0.33
TRAVEL TIME(MIN.) = 0.54 Tc(MIN.) = 10.33
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1027.00 = 1135.00 FEET.

FLOW PROCESS FROM NODE 1026.00 TO NODE 1027.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 10.33
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.134
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 6.20 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 6.20 SUBAREA RUNOFF(CFS) = 2.98
EFFECTIVE AREA(ACRES) = 14.60 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 14.60 PEAK FLOW RATE(CFS) = 7.01

FLOW PROCESS FROM NODE 1027.00 TO NODE 1028.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2040.00 DOWNSTREAM(FEET) = 2000.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 197.00 CHANNEL SLOPE = 0.2030
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7.01
FLOW VELOCITY(FEET/SEC.) = 6.44 FLOW DEPTH(FEET) = 0.45
TRAVEL TIME(MIN.) = 0.51 Tc(MIN.) = 10.84
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1028.00 = 1332.00 FEET.

FLOW PROCESS FROM NODE 1027.00 TO NODE 1028.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 10.84
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.108
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 9.90 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 9.90 SUBAREA RUNOFF(CFS) = 4.53
EFFECTIVE AREA(ACRES) = 24.50 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 24.50 PEAK FLOW RATE(CFS) = 11.21

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*****
FLOW PROCESS FROM NODE 1028.00 TO NODE 1029.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2000.00 DOWNSTREAM(FEET) = 1835.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 476.00 CHANNEL SLOPE = 0.3466
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 11.21
FLOW VELOCITY(FEET/SEC.) = 8.95 FLOW DEPTH(FEET) = 0.50
TRAVEL TIME(MIN.) = 0.89 Tc(MIN.) = 11.72
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1029.00 = 1808.00 FEET.

*****
FLOW PROCESS FROM NODE 1028.00 TO NODE 1029.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 11.72
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.064
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 4.00 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.00 SUBAREA RUNOFF(CFS) = 1.67
EFFECTIVE AREA(ACRES) = 28.50 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 28.50 PEAK FLOW RATE(CFS) = 11.90

*****
FLOW PROCESS FROM NODE 1029.00 TO NODE 1029.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
-----
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 11.72
RAINFALL INTENSITY(INCH/HR) = 1.06
AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 28.50
TOTAL STREAM AREA(ACRES) = 28.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 11.90

** CONFLUENCE DATA **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 11.13 13.59 0.971 0.60( 0.60) 1.00 33.3 1010.00
1 10.06 14.33 0.933 0.60( 0.60) 1.00 33.5 1000.00
2 11.90 11.72 1.064 0.60( 0.60) 1.00 28.5 1020.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 23.03 11.72 1.064 0.60( 0.60) 1.00 57.3 1020.00
2 20.64 13.59 0.971 0.60( 0.60) 1.00 61.8 1010.00
3 18.61 14.33 0.933 0.60( 0.60) 1.00 62.0 1000.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

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PEAK FLOW RATE(CFS) = 23.03 Tc(MIN.) = 11.72
EFFECTIVE AREA(ACRES) = 57.28 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 62.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1029.00 = 1938.00 FEET.

*****
FLOW PROCESS FROM NODE 1029.00 TO NODE 1030.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 1835.00 DOWNSTREAM(FEET) = 1680.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1378.00 CHANNEL SLOPE = 0.1125
CHANNEL BASE(FEET) = 3.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 3.00
CHANNEL FLOW THRU SUBAREA(CFS) = 23.03
FLOW VELOCITY(FEET/SEC.) = 7.10 FLOW DEPTH(FEET) = 0.84
TRAVEL TIME(MIN.) = 3.24 Tc(MIN.) = 14.96
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1030.00 = 3316.00 FEET.

*****
FLOW PROCESS FROM NODE 1029.00 TO NODE 1030.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 14.96
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 0.902
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 33.70 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 33.70 SUBAREA RUNOFF(CFS) = 9.16
EFFECTIVE AREA(ACRES) = 90.98 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 95.70 PEAK FLOW RATE(CFS) = 24.74

*****
FLOW PROCESS FROM NODE 1030.00 TO NODE 1031.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 1680.00 DOWNSTREAM(FEET) = 1630.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 523.00 CHANNEL SLOPE = 0.0956
CHANNEL BASE(FEET) = 4.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 4.00
CHANNEL FLOW THRU SUBAREA(CFS) = 24.74
FLOW VELOCITY(FEET/SEC.) = 6.55 FLOW DEPTH(FEET) = 0.79
TRAVEL TIME(MIN.) = 1.33 Tc(MIN.) = 16.29
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1031.00 = 3839.00 FEET.

*****
FLOW PROCESS FROM NODE 1030.00 TO NODE 1031.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 16.29
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 0.859
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 81.00 0.60 1.00 -
USER-DEFINED - 1.00 0.60 1.00 -
USER-DEFINED - 1.80 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60

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SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 83.80 SUBAREA RUNOFF(CFS) = 19.52
EFFECTIVE AREA(ACRES) = 174.78 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 179.50 PEAK FLOW RATE(CFS) = 40.72

*****
FLOW PROCESS FROM NODE 1031.00 TO NODE 1032.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1630.00 DOWNSTREAM(FEET) = 1520.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1128.00 CHANNEL SLOPE = 0.0975
CHANNEL BASE(FEET) = 5.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 5.00
CHANNEL FLOW THRU SUBAREA(CFS) = 40.72
FLOW VELOCITY(FEET/SEC.) = 7.42 FLOW DEPTH(FEET) = 0.93
TRAVEL TIME(MIN.) = 2.53 Tc(MIN.) = 18.82
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1032.00 = 4967.00 FEET.

*****
FLOW PROCESS FROM NODE 1031.00 TO NODE 1032.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 18.82
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 0.778
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.50 0.60 1.00 -
USER-DEFINED - 0.10 0.60 1.00 -
USER-DEFINED - 167.20 0.60 1.00 -
USER-DEFINED - 0.90 0.60 1.00 -
USER-DEFINED - 6.60 0.60 1.00 -
USER-DEFINED - 0.80 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 176.10 SUBAREA RUNOFF(CFS) = 28.17
EFFECTIVE AREA(ACRES) = 350.88 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 355.60 PEAK FLOW RATE(CFS) = 56.13

*****
FLOW PROCESS FROM NODE 1032.00 TO NODE 1033.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1520.00 DOWNSTREAM(FEET) = 1320.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1992.00 CHANNEL SLOPE = 0.1004
CHANNEL BASE(FEET) = 6.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 6.00
CHANNEL FLOW THRU SUBAREA(CFS) = 56.13
FLOW VELOCITY(FEET/SEC.) = 8.05 FLOW DEPTH(FEET) = 1.00
TRAVEL TIME(MIN.) = 4.12 Tc(MIN.) = 22.95
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1033.00 = 6959.00 FEET.

*****
FLOW PROCESS FROM NODE 1032.00 TO NODE 1033.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 22.95
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 0.693
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS

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LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.70 0.60 1.00 -
USER-DEFINED - 1.60 0.60 1.00 -
USER-DEFINED - 20.50 0.60 1.00 -
USER-DEFINED - 1.50 0.60 1.00 -
USER-DEFINED - 32.10 0.60 1.00 -
USER-DEFINED - 17.00 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 73.40 SUBAREA RUNOFF(CFS) = 6.14
EFFECTIVE AREA(ACRES) = 424.28 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 429.00 PEAK FLOW RATE(CFS) = 56.13
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

*****
FLOW PROCESS FROM NODE 1032.00 TO NODE 1033.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 22.95
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 0.693
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 2.50 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 2.50 SUBAREA RUNOFF(CFS) = 0.21
EFFECTIVE AREA(ACRES) = 426.78 AREA-AVERAGED Fm(INCH/HR) = 0.60
AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 431.50 PEAK FLOW RATE(CFS) = 56.13
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

*****
FLOW PROCESS FROM NODE 1033.00 TO NODE 1034.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1320.00 DOWNSTREAM(FEET) = 1275.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 804.00 CHANNEL SLOPE = 0.0560
CHANNEL BASE(FEET) = 6.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 6.00
CHANNEL FLOW THRU SUBAREA(CFS) = 56.13
FLOW VELOCITY(FEET/SEC.) = 7.66 FLOW DEPTH(FEET) = 1.04
TRAVEL TIME(MIN.) = 1.75 Tc(MIN.) = 24.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1034.00 = 7763.00 FEET.

*****
FLOW PROCESS FROM NODE 1033.00 TO NODE 1034.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 24.70
* 2 YEAR RAINFALL INTENSITY(INCH/HR) = 0.665
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 1.90 0.60 1.00 -
USER-DEFINED - 2.20 0.60 1.00 -
USER-DEFINED - 27.10 0.60 1.00 -
USER-DEFINED - 7.20 0.60 1.00 -
USER-DEFINED - 45.90 0.60 1.00 -
USER-DEFINED - 48.60 0.60 1.00 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 132.90 SUBAREA RUNOFF(CFS) = 7.77

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EFFECTIVE AREA(ACRES) = 559.68 AREA-AVERAGED Fm(INCH/HR) = 0.60
 AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 564.40 PEAK FLOW RATE(CFS) = 56.13
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 1034.00 TO NODE 1035.00 IS CODE = 51

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<<

 ELEVATION DATA: UPSTREAM(FEET) = 1275.00 DOWNSTREAM(FEET) = 1200.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1266.00 CHANNEL SLOPE = 0.0592
 CHANNEL BASE(FEET) = 7.00 "Z" FACTOR = 1.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 7.00
 CHANNEL FLOW THRU SUBAREA(CFS) = 56.13
 FLOW VELOCITY(FEET/SEC.) = 7.58 FLOW DEPTH(FEET) = 0.93
 TRAVEL TIME(MIN.) = 2.78 Tc(MIN.) = 27.48
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1035.00 = 9029.00 FEET.

 FLOW PROCESS FROM NODE 1034.00 TO NODE 1035.00 IS CODE = 81

 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<

 MAINLINE Tc(MIN) = 27.48
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 0.620
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 11.50 0.60 1.00 -
 USER-DEFINED - 2.70 0.60 1.00 -
 USER-DEFINED - 14.60 0.60 1.00 -
 USER-DEFINED - 16.60 0.60 1.00 -
 USER-DEFINED - 0.10 0.60 1.00 -
 USER-DEFINED - 1.10 0.60 1.00 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 46.60 SUBAREA RUNOFF(CFS) = 0.86
 EFFECTIVE AREA(ACRES) = 606.28 AREA-AVERAGED Fm(INCH/HR) = 0.60
 AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 611.00 PEAK FLOW RATE(CFS) = 56.13
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 1035.00 TO NODE 1036.00 IS CODE = 51

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<<

 ELEVATION DATA: UPSTREAM(FEET) = 1200.00 DOWNSTREAM(FEET) = 1100.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1639.00 CHANNEL SLOPE = 0.0610
 CHANNEL BASE(FEET) = 7.00 "Z" FACTOR = 1.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 7.00
 CHANNEL FLOW THRU SUBAREA(CFS) = 56.13
 FLOW VELOCITY(FEET/SEC.) = 7.65 FLOW DEPTH(FEET) = 0.93
 TRAVEL TIME(MIN.) = 3.57 Tc(MIN.) = 31.05
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.

 FLOW PROCESS FROM NODE 1035.00 TO NODE 1036.00 IS CODE = 81

 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<

 MAINLINE Tc(MIN) = 31.05
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 0.574
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS

LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
USER-DEFINED	-	11.80	0.60	1.00	-
USER-DEFINED	-	5.20	0.60	1.00	-
USER-DEFINED	-	20.30	0.60	1.00	-
USER-DEFINED	-	21.80	0.60	1.00	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.60
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 * RAINFALL INTENSITY IS LESS THAN AREA-AVERAGED Fp;
 * IMPERVIOUS AREA USED FOR RUNOFF ESTIMATES.
 SUBAREA AREA(ACRES) = 59.10 SUBAREA RUNOFF(CFS) = 0.00
 EFFECTIVE AREA(ACRES) = 665.38 AREA-AVERAGED Fm(INCH/HR) = 0.60
 AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
 * RAINFALL INTENSITY IS LESS THAN AREA-AVERAGED Fp;
 * IMPERVIOUS AREA USED FOR RUNOFF ESTIMATES.
 TOTAL AREA(ACRES) = 670.10 PEAK FLOW RATE(CFS) = 56.13
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 670.10 TC(MIN.) = 31.05
 EFFECTIVE AREA(ACRES) = 665.38 AREA-AVERAGED Fm(INCH/HR) = 0.60
 AREA-AVERAGED Fp(INCH/HR) = 0.60 AREA-AVERAGED Ap = 1.00
 PEAK FLOW RATE(CFS) = 56.13

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap (ACRES)	Ae (ACRES)	HEADWATER NODE
1	56.13	31.05	0.574	0.60(0.60)	1.00	665.4	1020.00
2	39.31	34.85	0.551	0.60(0.60)	1.00	669.9	1010.00
3	33.89	36.60	0.540	0.60(0.60)	1.00	670.1	1000.00

 END OF RATIONAL METHOD ANALYSIS

FLOOD ROUTING ANALYSIS
USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MU36002E.FLD
TIME/DATE OF STUDY: 08:33 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1036.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

=====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 670.100 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 0.410 HOURS
CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
VALLEY(DEVELOPED):
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
VALLEY(UNDEVELOPED)/DESERT:
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
LOW LOSS FRACTION = 0.780
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.14
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.29
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.39
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.69
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.99
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.71

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.970
30-MINUTE FACTOR = 0.970
1-HOUR FACTOR = 0.970
3-HOUR FACTOR = 0.996
6-HOUR FACTOR = 0.998
24-HOUR FACTOR = 0.999

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 20.325

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	2.329	188.768
2	9.008	541.280
3	21.224	989.927
4	36.530	1240.459
5	46.584	814.766
6	53.500	560.482
7	58.199	380.756
8	62.177	322.434
9	65.474	267.187
10	68.364	234.193
11	70.925	207.547
12	73.173	182.168
13	75.097	155.893
14	76.866	143.363
15	78.476	130.503
16	79.922	117.131
17	81.291	110.983
18	82.524	99.905
19	83.620	88.847
20	84.593	78.832
21	85.496	73.210
22	86.352	69.386
23	87.150	64.605
24	87.939	63.951
25	88.665	58.888
26	89.379	57.807
27	90.075	56.459
28	90.711	51.537
29	91.342	51.085
30	91.961	50.167
31	92.501	43.796
32	93.026	42.504
33	93.550	42.488
34	94.049	40.479
35	94.460	33.252
36	94.862	32.614
37	95.265	32.630
38	95.667	32.599
39	96.045	30.605
40	96.343	24.187
41	96.635	23.674
42	96.928	23.705
43	97.220	23.705
44	97.513	23.705
45	97.805	23.674
46	98.024	17.724
47	98.106	6.697
48	98.186	6.479
49	98.266	6.479
50	98.346	6.480
51	98.426	6.448
52	98.506	6.479
53	98.585	6.448
54	98.665	6.479
55	98.745	6.448
56	98.825	6.479
57	98.905	6.479
58	98.985	6.479
59	99.064	6.448

60	99.144	6.448
61	99.223	6.448
62	99.303	6.448
63	99.382	6.448
64	99.462	6.448
65	99.542	6.448
66	99.621	6.448
67	99.701	6.448
68	99.780	6.448
69	99.860	6.448
70	99.939	6.448
71	100.000	4.908

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 71.2579
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 24.0903

=====

2 4 - 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 FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	50.0	100.0	150.0	200.0
14.000	7.3286	15.00	. Q	. V	.	.	.
14.083	7.4338	15.27	. Q	. V	.	.	.
14.167	7.5411	15.59	. Q	. V	.	.	.
14.250	7.6510	15.95	. Q	. V	.	.	.
14.333	7.7636	16.35	. Q	. V	.	.	.
14.417	7.8788	16.73	. Q	. V	.	.	.
14.500	7.9967	17.11	. Q	. V	.	.	.
14.583	8.1171	17.48	. Q	. V	.	.	.
14.667	8.2402	17.88	. Q	. V	.	.	.
14.750	8.3662	18.30	. Q	. V	.	.	.
14.833	8.4953	18.74	. Q	. V	.	.	.
14.917	8.6276	19.21	. Q	. V	.	.	.
15.000	8.7634	19.71	. Q	. V	.	.	.
15.083	8.9028	20.25	. Q	. V	.	.	.
15.167	9.0464	20.85	. Q	. V	.	.	.
15.250	9.1945	21.49	. Q	. V	.	.	.
15.333	9.3475	22.21	. Q	. V	.	.	.
15.417	9.5049	22.86	. Q	. V	.	.	.
15.500	9.6656	23.34	. Q	. V	.	.	.
15.583	9.8280	23.58	. Q	. V	.	.	.
15.667	9.9921	23.82	. Q	. V	.	.	.
15.750	10.1616	24.61	. Q	. V	.	.	.
15.833	10.3402	25.93	. Q	. V	.	.	.
15.917	10.5330	27.99	. Q	. V	.	.	.
16.000	10.7495	31.44	. Q	. V	.	.	.
16.083	11.0999	50.88	. Q	. V	.	.	.
16.167	11.6736	83.29	. Q	. V	.	.	.
16.250	12.5056	120.81	. Q	. V	. Q	.	.
16.333	13.4625	138.94	. Q	. V	. Q	. Q	.
16.417	14.1689	102.57	. Q	. V	. Q	. V	.
16.500	14.7166	79.52	. Q	. V	. V	. V	.
16.583	15.1522	63.25	. Q	. V	. V	. V	.
16.667	15.5462	57.21	. Q	. V	. V	. V	.
16.750	15.9009	51.50	. Q	. V	. V	. V	.
16.833	16.2288	47.61	. Q	. V	. V	. V	.
16.917	16.5337	44.27	. Q	. V	. V	. V	.
17.000	16.8171	41.14	. Q	. V	. V	. V	.
17.083	17.0791	38.05	. Q	. V	. V	. V	.
17.167	17.3277	36.10	. Q	. V	. V	. V	.
17.250	17.5630	34.17	. Q	. V	. V	. V	.
17.333	17.7851	32.24	. Q	. V	. V	. V	.
17.417	17.9983	30.95	. Q	. V	. V	. V	.
17.500	18.2004	29.34	. Q	. V	. V	. V	.
17.583	18.3917	27.79	. Q	. V	. V	. V	.
17.667	18.5735	26.39	. Q	. V	. V	. V	.
17.750	18.7483	25.39	. Q	. V	. V	. V	.
17.833	18.9176	24.57	. Q	. V	. V	. V	.
17.917	19.0810	23.73	. Q	. V	. V	. V	.
18.000	19.2409	23.22	. Q	. V	. V	. V	.
18.083	19.3947	22.33	. Q	. V	. V	. V	.
18.167	19.5437	21.63	. Q	. V	. V	. V	.
18.250	19.6867	20.76	. Q	. V	. V	. V	.
18.333	19.8212	19.53	. Q	. V	. V	. V	.
18.417	19.9508	18.82	. Q	. V	. V	. V	.
18.500	20.0760	18.18	. Q	. V	. V	. V	.
18.583	20.1945	17.21	. Q	. V	. V	. V	.

18.667	20.3093	16.67	. Q	.	.	. V	.
18.750	20.4214	16.26	. Q	.	.	. V	.
18.833	20.5295	15.71	. Q	.	.	. V	.
18.917	20.6313	14.77	. Q	.	.	. V	.
19.000	20.7304	14.39	. Q	.	.	. V	.
19.083	20.8273	14.08	. Q	.	.	. V	.
19.167	20.9221	13.76	. Q	.	.	. V	.
19.250	21.0137	13.30	. Q	.	.	. V	.
19.333	21.0998	12.51	. Q	.	.	. V	.
19.417	21.1840	12.21	. Q	.	.	. V	.
19.500	21.2664	11.97	. Q	.	.	. V	.
19.583	21.3472	11.73	. Q	.	.	. V	.
19.667	21.4263	11.49	. Q	.	.	. V	.
19.750	21.5035	11.21	. Q	.	.	. V	.
19.833	21.5756	10.46	. Q	.	.	. V	.
19.917	21.6400	9.36	. Q	.	.	. V	.
20.000	21.7029	9.13	. Q	.	.	. V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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430 Exchange, Suite 200
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714 - 734 - 5100

FILE NAME: MU37002E.FLD
TIME/DATE OF STUDY: 08:37 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1037.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 1019.000 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 0.450 HOURS
CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
VALLEY(DEVELOPED):
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
VALLEY(UNDEVELOPED)/DESERT:
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
LOW LOSS FRACTION = 0.800
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.14
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.29
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.38
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.67
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.94
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.63

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.955
30-MINUTE FACTOR = 0.955
1-HOUR FACTOR = 0.955
3-HOUR FACTOR = 0.993
6-HOUR FACTOR = 0.997
24-HOUR FACTOR = 0.998

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 18.519

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES (CFS)
1	2.088	257.260
2	7.845	709.578
3	17.825	1229.833
4	32.303	1784.188
5	43.075	1327.446
6	50.490	913.799
7	55.648	635.652
8	59.577	484.227
9	63.055	428.563
10	65.949	356.670
11	68.544	319.878
12	70.870	286.636
13	72.948	256.063
14	74.727	219.189
15	76.372	202.741
16	77.898	188.015
17	79.254	167.154
18	80.538	158.251
19	81.761	150.719
20	82.817	130.091
21	83.809	122.255
22	84.673	106.540
23	85.496	101.406
24	86.281	96.740
25	87.008	89.565
26	87.733	89.397
27	88.412	83.612
28	89.062	80.078
29	89.711	80.051
30	90.319	74.918
31	90.893	70.758
32	91.468	70.757
33	92.026	68.809
34	92.513	59.996
35	92.991	58.879
36	93.469	58.904
37	93.938	57.839
38	94.326	47.779
39	94.692	45.179
40	95.059	45.205
41	95.426	45.179
42	95.792	45.180
43	96.115	39.824
44	96.382	32.858
45	96.648	32.831
46	96.915	32.858
47	97.181	32.831
48	97.448	32.858
49	97.714	32.754
50	97.963	30.726
51	98.067	12.841
52	98.140	8.942
53	98.213	8.994
54	98.285	8.942
55	98.358	8.942
56	98.431	9.046
57	98.504	8.942
58	98.577	8.942
59	98.649	8.942

60	98.722	8.994
61	98.795	8.942
62	98.868	8.995
63	98.940	8.941
64	99.013	8.942
65	99.085	8.941
66	99.158	8.941
67	99.230	8.941
68	99.303	8.941
69	99.376	8.941
70	99.448	8.941
71	99.521	8.941
72	99.593	8.941
73	99.666	8.941
74	99.738	8.941
75	99.811	8.941
76	99.883	8.941
77	99.956	8.941
78	100.000	5.420

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 105.6724
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 32.4416

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	50.0	100.0	150.0	200.0
14.000	9.4832	18.61	. Q	. V	.	.	.
14.083	9.6140	18.99	. Q	. V	.	.	.
14.167	9.7483	19.50	. Q	. V	.	.	.
14.250	9.8869	20.13	. Q	. V	.	.	.
14.333	10.0309	20.90	. Q	. V	.	.	.
14.417	10.1796	21.59	. Q	. V	.	.	.
14.500	10.3325	22.21	. Q	. V	.	.	.
14.583	10.4895	22.80	. Q	. V	.	.	.
14.667	10.6505	23.38	. Q	. V	.	.	.
14.750	10.8157	23.98	. Q	. V	.	.	.
14.833	10.9851	24.60	. Q	. V	.	.	.
14.917	11.1589	25.24	. Q	. V	.	.	.
15.000	11.3376	25.94	. Q	. V	.	.	.
15.083	11.5212	26.67	. Q	. V	.	.	.
15.167	11.7103	27.46	. Q	. V	.	.	.
15.250	11.9053	28.31	. Q	. V	.	.	.
15.333	12.1068	29.25	. Q	. V	.	.	.
15.417	12.3136	30.04	. Q	. V	.	.	.
15.500	12.5238	30.52	. Q	. V	.	.	.
15.583	12.7348	30.63	. Q	. V	.	.	.
15.667	12.9444	30.44	. Q	. V	.	.	.
15.750	13.1581	31.03	. Q	. V	.	.	.
15.833	13.3825	32.58	. Q	. V	.	.	.
15.917	13.6259	35.34	. Q	. V	.	.	.
16.000	13.9018	40.05	. Q	. V	.	.	.
16.083	14.3549	65.79	. Q	. V	.	.	.
16.167	15.0908	106.85	. Q	. V	. Q	.	.
16.250	16.1300	150.90	. Q	. V	. Q	.	.
16.333	17.4560	192.54	. Q	. V	. Q	. Q	.
16.417	18.5147	153.72	. Q	. V	. Q	. Q	.
16.500	19.3242	117.54	. Q	. V	. Q	. Q	.
16.583	19.9642	92.92	. Q	. V	. Q	. Q	.
16.667	20.5116	79.49	. Q	. V	. Q	. Q	.
16.750	21.0185	73.60	. Q	. V	. Q	. Q	.
16.833	21.4768	66.53	. Q	. V	. Q	. Q	.
16.917	21.9050	62.18	. Q	. V	. Q	. Q	.
17.000	22.3057	58.19	. Q	. V	. Q	. Q	.
17.083	22.6807	54.45	. Q	. V	. Q	. Q	.
17.167	23.0269	50.27	. Q	. V	. Q	. Q	.
17.250	23.3551	47.65	. Q	. V	. Q	. Q	.
17.333	23.6659	45.12	. Q	. V	. Q	. Q	.
17.417	23.9574	42.32	. Q	. V	. Q	. Q	.
17.500	24.2367	40.56	. Q	. V	. Q	. Q	.
17.583	24.5053	39.00	. Q	. V	. Q	. Q	.
17.667	24.7567	36.52	. Q	. V	. Q	. Q	.
17.750	24.9982	35.06	. Q	. V	. Q	. Q	.
17.833	25.2262	33.11	. Q	. V	. Q	. Q	.
17.917	25.4469	32.04	. Q	. V	. Q	. Q	.
18.000	25.6607	31.04	. Q	. V	. Q	. Q	.
18.083	25.8662	29.85	. Q	. V	. Q	. Q	.
18.167	26.0667	29.11	. Q	. V	. Q	. Q	.
18.250	26.2585	27.84	. Q	. V	. Q	. Q	.
18.333	26.4419	26.64	. Q	. V	. Q	. Q	.
18.417	26.6198	25.83	. Q	. V	. Q	. Q	.
18.500	26.7904	24.76	. Q	. V	. Q	. Q	.
18.583	26.9547	23.86	. Q	. V	. Q	. Q	.

18.667	27.1154	23.33	. Q	.	.	.	. V	.
18.750	27.2714	22.66	. Q	.	.	.	. V	.
18.833	27.4195	21.50	. Q	.	.	.	. V	.
18.917	27.5638	20.97	. Q	.	.	.	. V	.
19.000	27.7053	20.54	. Q	.	.	.	. V	.
19.083	27.8433	20.03	. Q	.	.	.	. V	.
19.167	27.9731	18.85	. Q	.	.	.	. V	.
19.250	28.0991	18.28	. Q	.	.	.	. V	.
19.333	28.2226	17.94	. Q	.	.	.	. V	.
19.417	28.3438	17.60	. Q	.	.	.	. V	.
19.500	28.4625	17.24	. Q	.	.	.	. V	.
19.583	28.5761	16.49	. Q	.	.	.	. V	.
19.667	28.6839	15.65	. Q	.	.	.	. V	.
19.750	28.7898	15.37	. Q V	.
19.833	28.8939	15.12	. Q V	.
19.917	28.9962	14.85	. Q V	.
20.000	29.0966	14.58	. Q V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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FILE NAME: MU38002E.FLD
TIME/DATE OF STUDY: 08:37 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1038.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 1103.100 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 0.490 HOURS
CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
VALLEY(DEVELOPED):
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
VALLEY(UNDEVELOPED)/DESERT:
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
LOW LOSS FRACTION = 0.810
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.14
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.29
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.38
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.67
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.94
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.61

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.951
30-MINUTE FACTOR = 0.951
1-HOUR FACTOR = 0.951
3-HOUR FACTOR = 0.993
6-HOUR FACTOR = 0.996
24-HOUR FACTOR = 0.998

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 17.007

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.895	252.799
2	6.960	675.673
3	15.274	1109.226
4	28.222	1727.306
5	39.679	1528.476
6	47.451	1036.763
7	53.173	763.368
8	57.270	546.511
9	60.707	458.617
10	63.736	404.076
11	66.344	347.883
12	68.693	313.346
13	70.823	284.202
14	72.759	258.196
15	74.414	220.842
16	75.949	204.840
17	77.384	191.373
18	78.687	173.846
19	79.895	161.099
20	81.042	153.094
21	82.130	145.104
22	83.062	124.345
23	83.962	120.116
24	84.740	103.799
25	85.496	100.826
26	86.221	96.736
27	86.890	89.138
28	87.556	88.952
29	88.199	85.706
30	88.797	79.760
31	89.393	79.593
32	89.982	78.504
33	90.518	71.610
34	91.046	70.322
35	91.573	70.354
36	92.079	67.565
37	92.522	59.107
38	92.961	58.526
39	93.400	58.557
40	93.838	58.433
41	94.213	50.039
42	94.550	44.951
43	94.887	44.889
44	95.224	44.951
45	95.560	44.890
46	95.896	44.767
47	96.170	36.556
48	96.415	32.665
49	96.659	32.664
50	96.904	32.634
51	97.148	32.602
52	97.393	32.695
53	97.638	32.665
54	97.882	32.541
55	98.034	20.285
56	98.101	8.947
57	98.168	8.886
58	98.235	8.948
59	98.302	8.886

60	98.369	8.947
61	98.435	8.886
62	98.502	8.948
63	98.569	8.948
64	98.636	8.885
65	98.703	8.886
66	98.770	8.948
67	98.836	8.885
68	98.903	8.886
69	98.970	8.948
70	99.037	8.885
71	99.103	8.885
72	99.170	8.885
73	99.236	8.885
74	99.303	8.885
75	99.370	8.885
76	99.436	8.885
77	99.503	8.885
78	99.569	8.885
79	99.636	8.885
80	99.703	8.885
81	99.769	8.885
82	99.836	8.885
83	99.903	8.885
84	99.969	8.885
85	100.000	4.119

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 114.2990
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 33.3550

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	50.0	100.0	150.0	200.0
14.000	9.4250	18.87	. Q	.V	.	.	.
14.083	9.5577	19.26	. Q	.V	.	.	.
14.167	9.6937	19.75	. Q	.V	.	.	.
14.250	9.8339	20.36	. Q	.V	.	.	.
14.333	9.9793	21.12	. Q	.V	.	.	.
14.417	10.1298	21.85	. Q	.V	.	.	.
14.500	10.2848	22.50	. Q	.V	.	.	.
14.583	10.4440	23.11	. Q	.V	.	.	.
14.667	10.6072	23.71	. Q	.V	.	.	.
14.750	10.7747	24.31	. Q	.V	.	.	.
14.833	10.9465	24.94	. Q	.V	.	.	.
14.917	11.1228	25.60	. Q	.V	.	.	.
15.000	11.3038	26.29	. Q	.V	.	.	.
15.083	11.4899	27.02	. Q	.V	.	.	.
15.167	11.6815	27.82	. Q	.V	.	.	.
15.250	11.8789	28.67	. Q	.V	.	.	.
15.333	12.0828	29.60	. Q	.V	.	.	.
15.417	12.2921	30.39	. Q	.V	.	.	.
15.500	12.5050	30.91	. Q	.V	.	.	.
15.583	12.7196	31.17	. Q	.V	.	.	.
15.667	12.9335	31.05	. Q	.V	.	.	.
15.750	13.1501	31.45	. Q	.V	.	.	.
15.833	13.3763	32.83	. Q	.V	.	.	.
15.917	13.6196	35.34	. Q	.V	.	.	.
16.000	13.8932	39.71	. Q	.V	.	.	.
16.083	14.3386	64.68	. Q	.V	.	.	.
16.167	15.0479	103.00	. Q	.V	. Q	.	.
16.250	16.0176	140.80	. Q	.V	. V	. Q	.
16.333	17.3155	188.45	. Q	.V	. V	. Q	. Q
16.417	18.4878	170.22	. Q	.V	. V	. Q	. Q
16.500	19.3725	128.46	. Q	.V	. V	. Q	.
16.583	20.0883	103.94	. Q	.V	. V	. Q	.
16.667	20.6753	85.23	. Q	.V	. V	. Q	.
16.750	21.2049	76.91	. Q	.V	. V	. Q	.
16.833	21.6951	71.18	. Q	.V	. V	. Q	.
16.917	22.1457	65.42	. Q	.V	. V	. Q	.
17.000	22.5682	61.35	. Q	.V	. V	. Q	.
17.083	22.9659	57.74	. Q	.V	. V	. Q	.
17.167	23.3403	54.37	. Q	.V	. V	. Q	.
17.250	23.6857	50.15	. Q	.V	. V	. Q	.
17.333	24.0131	47.54	. Q	.V	. V	. Q	.
17.417	24.3247	45.24	. Q	.V	. V	. Q	.
17.500	24.6195	42.81	. Q	.V	. V	. Q	.
17.583	24.9008	40.85	. Q	.V	. V	. Q	.
17.667	25.1718	39.34	. Q	.V	. V	. Q	.
17.750	25.4326	37.87	. Q	.V	. V	. Q	.
17.833	25.6770	35.49	. Q	.V	. V	. Q	.
17.917	25.9140	34.41	. Q	.V	. V	. Q	.
18.000	26.1378	32.49	. Q	.V	. V	. Q	.
18.083	26.3554	31.59	. Q	.V	. V	. Q	.
18.167	26.5656	30.52	. Q	.V	. V	. Q	.
18.250	26.7662	29.13	. Q	.V	. V	. Q	.
18.333	26.9602	28.16	. Q	.V	. V	. Q	.
18.417	27.1464	27.05	. Q	.V	. V	. Q	.
18.500	27.3247	25.88	. Q	.V	. V	. Q	.
18.583	27.4986	25.25	. Q	.V	. V	. Q	.

18.667	27.6680	24.60	. Q	.	.	. V	.
18.750	27.8302	23.56	. Q	.	.	. V	.
18.833	27.9885	22.98	. Q	.	.	. V	.
18.917	28.1436	22.53	. Q	.	.	. V	.
19.000	28.2942	21.86	. Q	.	.	. V	.
19.083	28.4374	20.79	. Q	.	.	. V	.
19.167	28.5776	20.35	. Q	.	.	. V	.
19.250	28.7151	19.98	. Q	.	.	. V	.
19.333	28.8500	19.58	. Q	.	.	. V	.
19.417	28.9779	18.57	. Q	.	.	. V	.
19.500	29.1007	17.83	. Q	.	.	. V	.
19.583	29.2213	17.51	. Q	.	.	. V	.
19.667	29.3399	17.22	. Q	.	.	. V	.
19.750	29.4563	16.90	. Q	.	.	. V	.
19.833	29.5703	16.56	. Q	.	.	. V	.
19.917	29.6780	15.63	. Q	.	.	. V	.
20.000	29.7817	15.07	. Q	.	.	. V	.

=====

END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Analysis prepared by:

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 714 - 734 - 5100

 FILE NAME: MU39002E.FLD
 TIME/DATE OF STUDY: 08:38 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1039.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 1529.700 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 0.530 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.810
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.14
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.29
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.38
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.67
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.94
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.62

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.932
 30-MINUTE FACTOR = 0.932
 1-HOUR FACTOR = 0.932
 3-HOUR FACTOR = 0.990
 6-HOUR FACTOR = 0.995
 24-HOUR FACTOR = 0.997

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 15.723

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.741	322.130
2	6.232	830.813
3	13.292	1306.125
4	24.560	2084.543
5	36.406	2191.417
6	44.509	1499.035
7	50.641	1134.472
8	55.091	823.235
9	58.515	633.419
10	61.633	576.804
11	64.297	492.743
12	66.678	440.570
13	68.817	395.635
14	70.783	363.782
15	72.596	335.385
16	74.145	286.495
17	75.582	265.995
18	76.930	249.256
19	78.196	234.317
20	79.329	209.522
21	80.421	202.123
22	81.470	193.976
23	82.420	175.798
24	83.270	157.209
25	84.089	151.485
26	84.798	131.103
27	85.496	129.240
28	86.170	124.691
29	86.789	114.442
30	87.405	114.050
31	88.013	112.351
32	88.571	103.388
33	89.123	102.078
34	89.675	101.987
35	90.200	97.206
36	90.688	90.220
37	91.175	90.174
38	91.663	90.221
39	92.124	85.257
40	92.531	75.329
41	92.937	75.099
42	93.342	75.007
43	93.748	75.099
44	94.117	68.297
45	94.429	57.727
46	94.741	57.634
47	95.052	57.542
48	95.363	57.634
49	95.675	57.589
50	95.977	55.933
51	96.216	44.214
52	96.442	41.870
53	96.669	41.870
54	96.895	41.778
55	97.121	41.916
56	97.347	41.823
57	97.574	41.916
58	97.800	41.825
59	97.995	36.032
60	98.069	13.696
61	98.131	11.490
62	98.192	11.397

63	98.254	11.399
64	98.316	11.490
65	98.377	11.306
66	98.440	11.582
67	98.501	11.307
68	98.563	11.399
69	98.625	11.489
70	98.686	11.307
71	98.748	11.490
72	98.810	11.397
73	98.871	11.399
74	98.933	11.490
75	98.995	11.399
76	99.057	11.489
77	99.119	11.399
78	99.180	11.399
79	99.242	11.399
80	99.303	11.399
81	99.365	11.399
82	99.427	11.399
83	99.488	11.399
84	99.550	11.399
85	99.612	11.399
86	99.673	11.399
87	99.735	11.399
88	99.796	11.399
89	99.858	11.399
90	99.920	11.399
91	99.981	11.399
92	100.000	3.475

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 159.6639
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 46.1871

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	75.0	150.0	225.0	300.0
14.000	13.0968	25.92	. Q	.V	.	.	.
14.083	13.2790	26.46	. Q	.V	.	.	.
14.167	13.4660	27.15	. Q	.V	.	.	.
14.250	13.6588	27.99	. Q	.V	.	.	.
14.333	13.8589	29.06	. Q	.V	.	.	.
14.417	14.0668	30.18	. Q	.V	.	.	.
14.500	14.2813	31.14	. Q	.V	.	.	.
14.583	14.5020	32.04	. Q	.V	.	.	.
14.667	14.7285	32.90	. Q	.V	.	.	.
14.750	14.9609	33.74	. Q	.V	.	.	.
14.833	15.1992	34.61	. Q	.V	.	.	.
14.917	15.4438	35.51	. Q	.V	.	.	.
15.000	15.6949	36.45	. Q	.V	.	.	.
15.083	15.9528	37.45	. Q	.V	.	.	.
15.167	16.2181	38.52	. Q	.V	.	.	.
15.250	16.4913	39.67	. Q	.V	.	.	.
15.333	16.7731	40.91	. Q	.V	.	.	.
15.417	17.0620	41.95	. Q	.V	.	.	.
15.500	17.3556	42.63	. Q	.V	.	.	.
15.583	17.6519	43.03	. Q	.V	.	.	.
15.667	17.9473	42.88	. Q	.V	.	.	.
15.750	18.2438	43.06	. Q	.V	.	.	.
15.833	18.5508	44.57	. Q	.V	.	.	.
15.917	18.8782	47.54	. Q	.V	.	.	.
16.000	19.2421	52.84	. Q	.V	.	.	.
16.083	19.8182	83.65	. Q	.V	.	.	.
16.167	20.7041	128.63	. Q	.V	.	.	.
16.250	21.8762	170.19	. Q	.V	.	.	.
16.333	23.4579	229.67	. Q	.V	.	.	.
16.417	25.0737	234.61	. Q	.V	.	.	.
16.500	26.3032	178.51	. Q	.V	.	.	.
16.583	27.3133	146.67	. Q	.V	.	.	.
16.667	28.1434	120.53	. Q	.V	.	.	.
16.750	28.8632	104.52	. Q	.V	.	.	.
16.833	29.5405	98.35	. Q	.V	.	.	.
16.917	30.1625	90.30	. Q	.V	.	.	.
17.000	30.7454	84.64	. Q	.V	.	.	.
17.083	31.2930	79.52	. Q	.V	.	.	.
17.167	31.8121	75.37	. Q	.V	.	.	.
17.250	32.3039	71.40	. Q	.V	.	.	.
17.333	32.7575	65.86	. Q	.V	.	.	.
17.417	33.1880	62.51	. Q	.V	.	.	.
17.500	33.5994	59.74	. Q	.V	.	.	.
17.583	33.9938	57.26	. Q	.V	.	.	.
17.667	34.3670	54.19	. Q	.V	.	.	.
17.750	34.7287	52.52	. Q	.V	.	.	.
17.833	35.0788	50.83	. Q	.V	.	.	.
17.917	35.4125	48.45	. Q	.V	.	.	.
18.000	35.7300	46.11	. Q	.V	.	.	.
18.083	36.0378	44.70	. Q	.V	.	.	.
18.167	36.3283	42.17	. Q	.V	.	.	.
18.250	36.6102	40.94	. Q	.V	.	.	.
18.333	36.8814	39.37	. Q	.V	.	.	.
18.417	37.1391	37.42	. Q	.V	.	.	.
18.500	37.3896	36.38	. Q	.V	.	.	.
18.583	37.6333	35.37	. Q	.V	.	.	.

18.667	37.8671	33.95	. Q	.V	.	.	.
18.750	38.0955	33.17	. Q	.V	.	.	.
18.833	38.3194	32.50	. Q	.V	.	.	.
18.917	38.5364	31.52	. Q	.V	.	.	.
19.000	38.7459	30.41	. Q	.V	.	.	.
19.083	38.9515	29.86	. Q	.V	.	.	.
19.167	39.1534	29.32	. Q	.V	.	.	.
19.250	39.3491	28.41	. Q	.V	.	.	.
19.333	39.5362	27.17	. Q	.V	.	.	.
19.417	39.7200	26.68	. Q	.V	.	.	.
19.500	39.9006	26.22	. Q	.V	.	.	.
19.583	40.0781	25.77	. Q	.V	.	.	.
19.667	40.2489	24.80	. Q	.V	.	.	.
19.750	40.4114	23.59	. Q	.V	.	.	.
19.833	40.5711	23.19	. Q	.V	.	.	.
19.917	40.7282	22.82	. Q	.V	.	.	.
20.000	40.8829	22.46	. Q	.V	.	.	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Analysis prepared by:

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 FILE NAME: MU40002E.FLD
 TIME/DATE OF STUDY: 08:38 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1040.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 2113.700 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 0.590 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.810
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.14
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.29
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.38
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.66
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.93
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.61

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.906
 30-MINUTE FACTOR = 0.906
 1-HOUR FACTOR = 0.906
 3-HOUR FACTOR = 0.986
 6-HOUR FACTOR = 0.993
 24-HOUR FACTOR = 0.996

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 14.124

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.564	399.850
2	5.401	980.818
3	11.099	1456.568
4	19.998	2274.706
5	31.502	2940.872
6	40.351	2261.917
7	46.776	1642.426
8	51.892	1307.754
9	55.586	944.394
10	58.627	777.329
11	61.439	718.625
12	63.880	624.108
13	66.047	553.969
14	68.059	514.299
15	69.850	457.882
16	71.602	447.739
17	73.105	384.289
18	74.469	348.727
19	75.749	327.183
20	76.952	307.460
21	78.098	292.895
22	79.119	261.135
23	80.115	254.541
24	81.061	241.888
25	81.980	234.925
26	82.766	200.778
27	83.529	195.193
28	84.240	181.619
29	84.868	160.657
30	85.496	160.517
31	86.106	155.850
32	86.663	142.453
33	87.217	141.605
34	87.771	141.535
35	88.291	132.874
36	88.787	126.723
37	89.282	126.617
38	89.777	126.617
39	90.241	118.629
40	90.679	111.982
41	91.117	111.914
42	91.555	111.982
43	91.984	109.720
44	92.359	95.653
45	92.723	93.248
46	93.088	93.108
47	93.452	93.178
48	93.817	93.178
49	94.139	82.432
50	94.419	71.473
51	94.698	71.475
52	94.978	71.473
53	95.258	71.473
54	95.537	71.546
55	95.817	71.544
56	96.069	64.335
57	96.274	52.314
58	96.477	51.893
59	96.680	52.031
60	96.883	51.891
61	97.087	52.033
62	97.289	51.750

63	97.493	52.174
64	97.696	51.750
65	97.899	52.031
66	98.028	32.804
67	98.083	14.282
68	98.139	14.139
69	98.194	14.139
70	98.250	14.280
71	98.305	14.139
72	98.361	14.139
73	98.416	14.139
74	98.472	14.280
75	98.527	14.139
76	98.582	14.139
77	98.638	14.280
78	98.694	14.139
79	98.749	14.139
80	98.805	14.282
81	98.859	13.997
82	98.915	14.280
83	98.971	14.139
84	99.027	14.282
85	99.082	14.139
86	99.137	14.139
87	99.192	14.139
88	99.248	14.139
89	99.303	14.139
90	99.358	14.139
91	99.414	14.139
92	99.469	14.139
93	99.524	14.139
94	99.580	14.139
95	99.635	14.139
96	99.690	14.139
97	99.746	14.139
98	99.801	14.139
99	99.856	14.139
100	99.912	14.139
101	99.967	14.139
102	100.000	8.476

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 219.4484
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 62.9030

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	100.0	200.0	300.0	400.0
14.000	17.8339	35.24	. Q	. V	.	.	.
14.083	18.0815	35.95	. Q	. V	.	.	.
14.167	18.3351	36.83	. Q	. V	.	.	.
14.250	18.5959	37.86	. Q	. V	.	.	.
14.333	18.8653	39.13	. Q	. V	.	.	.
14.417	19.1449	40.60	. Q	. V	.	.	.
14.500	19.4336	41.92	. Q	. V	.	.	.
14.583	19.7307	43.13	. Q	. V	.	.	.
14.667	20.0358	44.29	. Q	. V	.	.	.
14.750	20.3486	45.42	. Q	. V	.	.	.
14.833	20.6692	46.55	. Q	. V	.	.	.
14.917	20.9979	47.74	. Q	. V	.	.	.
15.000	21.3351	48.96	. Q	. V	.	.	.
15.083	21.6813	50.26	. Q	. V	.	.	.
15.167	22.0369	51.64	. Q	. V	.	.	.
15.250	22.4028	53.12	. Q	. V	.	.	.
15.333	22.7797	54.73	. Q	. V	.	.	.
15.417	23.1659	56.07	. Q	. V	.	.	.
15.500	23.5584	56.99	. Q	. V	.	.	.
15.583	23.9556	57.68	. Q	. V	.	.	.
15.667	24.3537	57.81	. Q	. V	.	.	.
15.750	24.7518	57.80	. Q	. V	.	.	.
15.833	25.1595	59.20	. Q	. V	.	.	.
15.917	25.5904	62.57	. Q	. V	.	.	.
16.000	26.0629	68.60	. Q	. V	.	.	.
16.083	26.7858	104.96	. Q	. V	.	.	.
16.167	27.8501	154.54	. Q	. V	.	.	.
16.250	29.2021	196.30	. Q	. V	.	.	.
16.333	30.9832	258.62	. Q	. V	.	.	.
16.417	33.0771	304.04	. Q	. V	.	.	.
16.500	34.8062	251.06	. Q	. V	.	.	.
16.583	36.1930	201.36	. Q	. V	.	.	.
16.667	37.3839	172.93	. Q	. V	.	.	.
16.750	38.3785	144.42	. Q	. V	.	.	.
16.833	39.2751	130.17	. Q	. V	.	.	.
16.917	40.1267	123.66	. Q	. V	.	.	.
17.000	40.9173	114.80	. Q	. V	.	.	.
17.083	41.6581	107.56	. Q	. V	.	.	.
17.167	42.3638	102.47	. Q	. V	.	.	.
17.250	43.0270	96.29	. Q	. V	.	.	.
17.333	43.6686	93.16	. Q	. V	.	.	.
17.417	44.2624	86.22	. Q	. V	.	.	.
17.500	44.8242	81.58	. Q	. V	.	.	.
17.583	45.3629	78.21	. Q	. V	.	.	.
17.667	45.8806	75.18	. Q	. V	.	.	.
17.750	46.3809	72.64	. Q	. V	.	.	.
17.833	46.8562	69.01	. Q	. V	.	.	.
17.917	47.3194	67.25	. Q	. V	.	.	.
18.000	47.7679	65.13	. Q	. V	.	.	.
18.083	48.2040	63.31	. Q	. V	.	.	.
18.167	48.6137	59.50	. Q	. V	.	.	.
18.250	49.0107	57.64	. Q	. V	.	.	.
18.333	49.3899	55.07	. Q	. V	.	.	.
18.417	49.7475	51.92	. Q	. V	.	.	.
18.500	50.0950	50.45	. Q	. V	.	.	.
18.583	50.4317	48.89	. Q	. V	.	.	.

18.667	50.7543	46.85	. Q	. V	.	.	.
18.750	51.0699	45.82	. Q	. V	.	.	.
18.833	51.3793	44.92	. Q	. V	.	.	.
18.917	51.6786	43.46	. Q	. V	.	.	.
19.000	51.9695	42.24	. Q	. V	.	.	.
19.083	52.2552	41.49	. Q	. V	.	.	.
19.167	52.5360	40.77	. Q	. V	.	.	.
19.250	52.8082	39.51	. Q	. V	.	.	.
19.333	53.0725	38.38	. Q	. V	.	.	.
19.417	53.3326	37.76	. Q	. V	.	.	.
19.500	53.5886	37.17	. Q	. V	.	.	.
19.583	53.8392	36.39	. Q	. V	.	.	.
19.667	54.0790	34.81	. Q	. V	.	.	.
19.750	54.3137	34.09	. Q	. V	.	.	.
19.833	54.5449	33.56	. Q	. V	.	.	.
19.917	54.7725	33.05	. Q	. V	.	.	.
20.000	54.9963	32.50	. Q	. V	.	.	.

=====

END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Analysis prepared by:

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 714 - 734 - 5100

 FILE NAME: MU41002E.FLD
 TIME/DATE OF STUDY: 08:39 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1041.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 2743.600 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 0.650 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.820
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.14
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.38
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.65
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.91
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.57

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.878
 30-MINUTE FACTOR = 0.878
 1-HOUR FACTOR = 0.878
 3-HOUR FACTOR = 0.982
 6-HOUR FACTOR = 0.991
 24-HOUR FACTOR = 0.994

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 12.821

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.421	471.606
2	4.761	1108.136
3	9.537	1584.829
4	16.724	2384.555
5	26.745	3325.088
6	36.327	3179.392
7	43.105	2248.901
8	48.477	1782.228
9	52.788	1430.498
10	56.002	1066.486
11	58.718	901.143
12	61.277	848.984
13	63.534	748.987
14	65.524	660.186
15	67.410	625.978
16	69.090	557.256
17	70.692	531.742
18	72.220	506.873
19	73.517	430.369
20	74.727	401.607
21	75.885	384.041
22	76.970	360.131
23	78.017	347.241
24	78.949	309.330
25	79.861	302.530
26	80.728	287.873
27	81.583	283.577
28	82.355	256.126
29	83.048	229.946
30	83.740	229.642
31	84.357	204.618
32	84.927	189.100
33	85.496	189.052
34	86.053	184.855
35	86.561	168.426
36	87.064	166.859
37	87.567	166.811
38	88.059	163.219
39	88.512	150.432
40	88.962	149.220
41	89.411	149.217
42	89.860	148.916
43	90.275	137.593
44	90.673	131.930
45	91.070	131.932
46	91.467	131.829
47	91.864	131.629
48	92.219	117.576
49	92.549	109.790
50	92.880	109.792
51	93.211	109.790
52	93.542	109.691
53	93.872	109.688
54	94.156	94.221
55	94.410	84.214
56	94.664	84.214
57	94.918	84.214
58	95.172	84.313
59	95.425	84.113
60	95.679	84.315
61	95.932	83.708
62	96.136	67.836

63	96.320	61.061
64	96.505	61.264
65	96.690	61.264
66	96.874	61.165
67	97.059	61.264
68	97.243	61.163
69	97.427	61.061
70	97.612	61.469
71	97.796	61.061
72	97.970	57.826
73	98.045	24.669
74	98.095	16.579
75	98.145	16.784
76	98.196	16.781
77	98.246	16.781
78	98.297	16.784
79	98.347	16.579
80	98.398	16.984
81	98.448	16.581
82	98.498	16.579
83	98.549	16.986
84	98.599	16.579
85	98.649	16.581
86	98.700	16.781
87	98.750	16.581
88	98.801	16.984
89	98.851	16.579
90	98.901	16.581
91	98.952	16.984
92	99.002	16.581
93	99.052	16.581
94	99.102	16.581
95	99.152	16.581
96	99.202	16.581
97	99.252	16.581
98	99.302	16.581
99	99.352	16.581
100	99.402	16.581
101	99.452	16.581
102	99.502	16.581
103	99.552	16.581
104	99.602	16.581
105	99.652	16.581
106	99.702	16.581
107	99.752	16.581
108	99.802	16.581
109	99.852	16.581
110	99.902	16.581
111	99.952	16.581
112	100.000	16.065

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 281.1196
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 75.8171

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	100.0	200.0	300.0	400.0
14.000	20.9488	41.22	. Q	. V	.	.	.
14.083	21.2385	42.07	. Q	. V	.	.	.
14.167	21.5355	43.13	. Q	. V	.	.	.
14.250	21.8410	44.36	. Q	. V	.	.	.
14.333	22.1568	45.86	. Q	. V	.	.	.
14.417	22.4851	47.66	. Q	. V	.	.	.
14.500	22.8258	49.47	. Q	. V	.	.	.
14.583	23.1773	51.04	. Q	. V	.	.	.
14.667	23.5390	52.52	. Q	. V	.	.	.
14.750	23.9106	53.95	. Q	. V	.	.	.
14.833	24.2917	55.34	. Q	. V	.	.	.
14.917	24.6825	56.75	. Q	. V	.	.	.
15.000	25.0835	58.22	. Q	. V	.	.	.
15.083	25.4951	59.76	. Q	. V	.	.	.
15.167	25.9178	61.38	. Q	. V	.	.	.
15.250	26.3525	63.11	. Q	. V	.	.	.
15.333	26.7999	64.97	. Q	. V	.	.	.
15.417	27.2589	66.65	. Q	. V	.	.	.
15.500	27.7276	68.05	. Q	. V	.	.	.
15.583	28.2053	69.36	. Q	. V	.	.	.
15.667	28.6902	70.41	. Q	. V	.	.	.
15.750	29.1798	71.09	. Q	. V	.	.	.
15.833	29.6778	72.32	. Q	. V	.	.	.
15.917	30.1967	75.34	. Q	. V	.	.	.
16.000	30.7523	80.67	. Q	. V	.	.	.
16.083	31.5736	119.26	. Q	. V	.	.	.
16.167	32.7419	169.64	. Q	. V	.	.	.
16.250	34.1867	209.79	. Q	. V	.	.	.
16.333	36.0461	269.99	. Q	. V	.	.	.
16.417	38.3506	334.61	. Q	. V	.	.	.
16.500	40.5632	321.27	. Q	. V	.	.	.
16.583	42.3091	253.50	. Q	. V	.	.	.
16.667	43.8053	217.25	. Q	. V	.	.	.
16.750	45.1119	189.72	. Q	. V	.	.	.
16.833	46.2291	162.21	. Q	. V	.	.	.
16.917	47.2508	148.36	. Q	. V	.	.	.
17.000	48.2308	142.29	. Q	. V	.	.	.
17.083	49.1468	133.01	. Q	. V	.	.	.
17.167	50.0036	124.40	. Q	. V	.	.	.
17.250	50.8262	119.45	. Q	. V	.	.	.
17.333	51.5989	112.19	. Q	. V	.	.	.
17.417	52.3402	107.64	. Q	. V	.	.	.
17.500	53.0507	103.16	. Q	. V	.	.	.
17.583	53.7093	95.63	. Q	. V	.	.	.
17.667	54.3403	91.61	. Q	. V	.	.	.
17.750	54.9504	88.58	. Q	. V	.	.	.
17.833	55.5379	85.31	. Q	. V	.	.	.
17.917	56.1086	82.86	. Q	. V	.	.	.
18.000	56.6515	78.83	. Q	. V	.	.	.
18.083	57.1811	76.90	. Q	. V	.	.	.
18.167	57.6932	74.36	. Q	. V	.	.	.
18.250	58.1920	72.42	. Q	. V	.	.	.
18.333	58.6657	68.78	. Q	. V	.	.	.
18.417	59.1140	65.10	. Q	. V	.	.	.
18.500	59.5494	63.22	. Q	. V	.	.	.
18.583	59.9626	59.99	. Q	. V	.	.	.

18.667	60.3593	57.60	. Q	. V	.	.	.
18.750	60.7475	56.37	. Q	. V	.	.	.
18.833	61.1262	54.98	. Q	. V	.	.	.
18.917	61.4903	52.87	. Q	. V	.	.	.
19.000	61.8472	51.82	. Q	. V	.	.	.
19.083	62.1979	50.92	. Q	. V	.	.	.
19.167	62.5410	49.81	. Q	. V	.	.	.
19.250	62.8724	48.12	. Q	. V	.	.	.
19.333	63.1979	47.27	. Q	. V	.	.	.
19.417	63.5185	46.54	. Q	. V	.	.	.
19.500	63.8338	45.79	. Q	. V	.	.	.
19.583	64.1391	44.33	. Q	. V	.	.	.
19.667	64.4373	43.30	. Q	. V	.	.	.
19.750	64.7312	42.67	. Q	. V	.	.	.
19.833	65.0208	42.06	. Q	. V	.	.	.
19.917	65.3061	41.42	. Q	. V	.	.	.
20.000	65.5807	39.86	. Q	. V	.	.	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
 430 Exchange, Suite 200
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 714 - 734 - 5100

 FILE NAME: MU42002E.FLD
 TIME/DATE OF STUDY: 08:39 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1042.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 2879.300 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 0.700 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.820
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.14
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.38
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.65
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.91
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.56

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.871
 30-MINUTE FACTOR = 0.871
 1-HOUR FACTOR = 0.871
 3-HOUR FACTOR = 0.981
 6-HOUR FACTOR = 0.990
 24-HOUR FACTOR = 0.994

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 11.905

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.321	459.917
2	4.322	1044.948
3	8.524	1463.381
4	14.612	2119.881
5	23.247	3006.875
6	32.996	3394.583
7	40.224	2516.890
8	45.766	1929.818
9	50.331	1589.635
10	53.880	1235.763
11	56.742	996.760
12	59.181	849.260
13	61.542	822.166
14	63.610	719.969
15	65.454	642.147
16	67.218	614.180
17	68.804	552.280
18	70.292	518.160
19	71.761	511.763
20	73.014	436.295
21	74.180	406.046
22	75.268	378.881
23	76.320	366.196
24	77.313	345.947
25	78.259	329.318
26	79.112	297.016
27	79.957	294.072
28	80.759	279.245
29	81.552	276.390
30	82.280	253.484
31	82.924	224.117
32	83.568	224.117
33	84.172	210.406
34	84.703	184.814
35	85.232	184.299
36	85.761	184.184
37	86.256	172.357
38	86.723	162.591
39	87.189	162.530
40	87.656	162.591
41	88.109	157.618
42	88.528	145.910
43	88.945	145.392
44	89.364	145.564
45	89.781	145.453
46	90.176	137.451
47	90.545	128.540
48	90.914	128.540
49	91.283	128.426
50	91.653	128.655
51	92.012	125.228
52	92.325	109.003
53	92.632	106.944
54	92.940	107.061
55	93.247	106.944
56	93.554	106.947
57	93.861	106.944
58	94.130	93.464
59	94.365	82.035
60	94.601	82.038
61	94.837	82.152
62	95.072	82.038

63	95.308	82.150
64	95.544	82.038
65	95.779	82.038
66	96.005	78.608
67	96.182	61.701
68	96.354	59.757
69	96.525	59.642
70	96.697	59.757
71	96.868	59.528
72	97.039	59.531
73	97.210	59.757
74	97.382	59.642
75	97.553	59.642
76	97.724	59.642
77	97.895	59.414
78	98.018	42.961
79	98.065	16.227
80	98.112	16.453
81	98.158	15.996
82	98.205	16.453
83	98.252	16.453
84	98.299	16.224
85	98.346	16.224
86	98.392	16.227
87	98.439	16.224
88	98.486	16.453
89	98.533	16.224
90	98.579	16.224
91	98.626	16.224
92	98.673	16.453
93	98.719	15.996
94	98.767	16.684
95	98.813	15.996
96	98.859	16.224
97	98.907	16.453
98	98.953	16.224
99	99.000	16.224
100	99.046	16.224
101	99.093	16.224
102	99.140	16.224
103	99.186	16.224
104	99.233	16.224
105	99.279	16.224
106	99.326	16.224
107	99.373	16.224
108	99.419	16.224
109	99.466	16.224
110	99.512	16.224
111	99.559	16.224
112	99.606	16.224
113	99.652	16.224
114	99.699	16.224
115	99.745	16.224
116	99.792	16.224
117	99.839	16.224
118	99.885	16.224
119	99.932	16.224
120	99.978	16.224
121	100.000	7.540

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 293.1505
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 78.9526

=====

2 4 - 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 FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	100.0	200.0	300.0	400.0
14.000	21.4459	42.62	. Q	V	.	.	.
14.083	21.7455	43.50	. Q	.V	.	.	.
14.167	22.0525	44.58	. Q	.V	.	.	.
14.250	22.3681	45.82	. Q	.V	.	.	.
14.333	22.6938	47.29	. Q	.V	.	.	.
14.417	23.0318	49.08	. Q	.V	.	.	.
14.500	23.3831	51.02	. Q	.V	.	.	.
14.583	23.7463	52.73	. Q	.V	.	.	.
14.667	24.1202	54.30	. Q	.V	.	.	.
14.750	24.5047	55.83	. Q	.V	.	.	.
14.833	24.8993	57.30	. Q	.V	.	.	.
14.917	25.3041	58.77	. Q	.V	.	.	.
15.000	25.7192	60.27	. Q	.V	.	.	.
15.083	26.1452	61.86	. Q	.V	.	.	.
15.167	26.5826	63.52	. Q	.V	.	.	.
15.250	27.0321	65.27	. Q	.V	.	.	.
15.333	27.4947	67.16	. Q	.V	.	.	.
15.417	27.9689	68.85	. Q	.V	.	.	.
15.500	28.4530	70.29	. Q	.V	.	.	.
15.583	28.9467	71.68	. Q	.V	.	.	.
15.667	29.4486	72.89	. Q	.V	.	.	.
15.750	29.9563	73.71	. Q	.V	.	.	.
15.833	30.4707	74.68	. Q	.V	.	.	.
15.917	31.0037	77.39	. Q	.V	.	.	.
16.000	31.5717	82.47	. Q	.V	.	.	.
16.083	32.3948	119.51	. Q	.V	.	.	.
16.167	33.5333	165.32	.	. Q	.V	.	.
16.250	34.9151	200.64	.	.	. Q	.V	.
16.333	36.6451	251.19	.	.	.	. Q	.V
16.417	38.8033	313.37	.	.	.	.	. Q
16.500	41.1243	337.02	.	.	.	.	. Q
16.583	43.0112	273.98	.	.	.	. V	. Q
16.667	44.5964	230.16	.	.	. VQ	.	.
16.750	45.9978	203.50	.	.	. Q	.V	.
16.833	47.2156	176.83	.	. Q	.V	.	.
16.917	48.3038	158.00	.	. Q	.V	.	.
17.000	49.3068	145.64	.	. Q	.V	.	.
17.083	50.2799	141.29	.	. Q	.V	.	.
17.167	51.1879	131.84	.	. Q	.V	.	.
17.250	52.0422	124.04	.	. Q	.V	.	.
17.333	52.8649	119.47	.	. Q	.V	.	.
17.417	53.6403	112.58	.	. Q	.V	.	.
17.500	54.3807	107.52	.	. Q	.V	.	.
17.583	55.1006	104.53	.	. Q	.V	.	.
17.667	55.7703	97.24	.	. Q	.V	.	.
17.750	56.4122	93.20	.	. Q	.V	.	.
17.833	57.0294	89.61	.	. Q	.V	.	.
17.917	57.6298	87.18	.	. Q	.V	.	.
18.000	58.2103	84.29	.	. Q	.V	.	.
18.083	58.7722	81.59	.	. Q	.V	.	.
18.167	59.3083	77.85	.	. Q	.V	.	.
18.250	59.8321	76.05	.	. Q	.V	.	.
18.333	60.3372	73.34	.	. Q	.V	.	.
18.417	60.8278	71.23	.	. Q	.V	.	.
18.500	61.2941	67.71	.	. Q	.V	.	.
18.583	61.7353	64.06	.	. Q	.V	.	.

18.667	62.1662	62.56	. Q	.	.	.V	.
18.750	62.5813	60.28	. Q	.	.	.V	.
18.833	62.9765	57.38	. Q	.	.	.V	.
18.917	63.3639	56.26	. Q	.	.	.V	.
19.000	63.7442	55.22	. Q	.	.	.V	.
19.083	64.1123	53.45	. Q	.	.	.V	.
19.167	64.4697	51.89	. Q	.	.	.V	.
19.250	64.8213	51.05	. Q	.	.	.V	.
19.333	65.1672	50.23	. Q	.	.	.V	.
19.417	65.5053	49.10	. Q	.	.	.V	.
19.500	65.8329	47.56	. Q	.	.	.V	.
19.583	66.1553	46.81	. Q	.	.	.V	.
19.667	66.4731	46.15	. Q	.	.	.V	.
19.750	66.7863	45.47	. Q	.	.	.V	.
19.833	67.0913	44.28	. Q	.	.	.V	.
19.917	67.3879	43.07	. Q	.	.	.V	.
20.000	67.6804	42.48	. Q	.	.	.V	.

=====

END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Analysis prepared by:

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 430 Exchange, Suite 200
 Irvine, CA. 92602-1309
 714 - 734 - 5100

 FILE NAME: MU43002E.FLD
 TIME/DATE OF STUDY: 08:40 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1043.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 3355.100 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 0.760 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.820
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.38
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.65
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.90
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.55

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.850
 30-MINUTE FACTOR = 0.850
 1-HOUR FACTOR = 0.850
 3-HOUR FACTOR = 0.978
 6-HOUR FACTOR = 0.989
 24-HOUR FACTOR = 0.993

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 10.965

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.217	493.947
2	3.887	1083.274
3	7.595	1504.574
4	12.660	2054.912
5	19.908	2941.087
6	28.993	3686.444
7	36.806	3170.183
8	42.595	2348.910
9	47.339	1924.815
10	51.355	1629.407
11	54.406	1237.891
12	56.973	1041.780
13	59.212	908.585
14	61.396	885.926
15	63.330	784.949
16	65.044	695.328
17	66.702	672.865
18	68.225	617.991
19	69.606	560.427
20	70.977	556.124
21	72.270	524.539
22	73.374	448.289
23	74.428	427.436
24	75.425	404.562
25	76.386	390.109
26	77.300	370.844
27	78.179	356.465
28	78.967	319.673
29	79.749	317.434
30	80.498	303.773
31	81.229	296.548
32	81.946	291.053
33	82.560	249.134
34	83.153	240.532
35	83.745	240.389
36	84.278	216.178
37	84.765	197.746
38	85.253	197.746
39	85.740	197.672
40	86.201	186.976
41	86.630	174.402
42	87.061	174.547
43	87.490	174.398
44	87.918	173.535
45	88.314	160.524
46	88.698	156.115
47	89.083	156.115
48	89.468	156.115
49	89.852	155.827
50	90.210	145.129
51	90.550	138.046
52	90.890	137.900
53	91.230	138.049
54	91.569	137.755
55	91.908	137.470
56	92.208	121.567
57	92.490	114.627
58	92.774	114.918
59	93.056	114.776
60	93.340	114.918
61	93.622	114.772
62	93.905	114.485

63	94.145	97.427
64	94.362	88.032
65	94.579	88.177
66	94.796	88.032
67	95.013	88.029
68	95.230	88.177
69	95.448	88.177
70	95.665	88.029
71	95.881	88.032
72	96.072	77.191
73	96.230	64.037
74	96.387	64.034
75	96.545	63.892
76	96.703	64.183
77	96.860	63.892
78	97.019	64.180
79	97.176	64.034
80	97.334	63.892
81	97.492	64.183
82	97.649	63.601
83	97.808	64.471
84	97.960	61.867
85	98.034	29.777
86	98.076	17.348
87	98.120	17.633
88	98.163	17.348
89	98.205	17.345
90	98.248	17.345
91	98.292	17.924
92	98.335	17.348
93	98.378	17.345
94	98.420	17.345
95	98.465	17.924
96	98.507	17.348
97	98.550	17.345
98	98.594	17.924
99	98.636	17.057
100	98.680	17.636
101	98.723	17.636
102	98.765	17.057
103	98.810	17.924
104	98.852	17.345
105	98.895	17.345
106	98.938	17.348
107	98.981	17.633
108	99.025	17.636
109	99.068	17.633
110	99.112	17.633
111	99.155	17.633
112	99.199	17.633
113	99.242	17.633
114	99.285	17.633
115	99.329	17.633
116	99.372	17.633
117	99.416	17.633
118	99.459	17.633
119	99.503	17.633
120	99.546	17.633
121	99.590	17.633
122	99.633	17.633
123	99.677	17.633
124	99.720	17.633
125	99.763	17.633
126	99.807	17.633
127	99.850	17.633
128	99.894	17.633
129	99.937	17.633
130	99.981	17.633

131	100.000	7.820
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TOTAL SOIL-LOSS VOLUME(ACRE-FEET) =	341.6051
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) =	88.7952

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	100.0	200.0	300.0	400.0
14.000	24.4762	47.44	. Q	. V	.	.	.
14.083	24.8099	48.46	. Q	. V	.	.	.
14.167	25.1525	49.75	. Q	. V	.	.	.
14.250	25.5054	51.24	. Q	. V	.	.	.
14.333	25.8704	53.00	. Q	. V	.	.	.
14.417	26.2503	55.16	. Q	. V	.	.	.
14.500	26.6474	57.67	. Q	. V	.	.	.
14.583	27.0607	60.01	. Q	. V	.	.	.
14.667	27.4881	62.06	. Q	. V	.	.	.
14.750	27.9289	63.99	. Q	. V	.	.	.
14.833	28.3825	65.87	. Q	. V	.	.	.
14.917	28.8485	67.66	. Q	. V	.	.	.
15.000	29.3268	69.45	. Q	. V	.	.	.
15.083	29.8176	71.27	. Q	. V	.	.	.
15.167	30.3217	73.20	. Q	. V	.	.	.
15.250	30.8397	75.22	. Q	. V	.	.	.
15.333	31.3724	77.34	. Q	. V	.	.	.
15.417	31.9180	79.22	. Q	. V	.	.	.
15.500	32.4745	80.80	. Q	. V	.	.	.
15.583	33.0412	82.29	. Q	. V	.	.	.
15.667	33.6175	83.67	. Q	. V	.	.	.
15.750	34.2012	84.76	. Q	. V	.	.	.
15.833	34.7924	85.85	. Q	. V	.	.	.
15.917	35.4028	88.63	. Q	. V	.	.	.
16.000	36.0521	94.27	. Q	. V	.	.	.
16.083	36.9387	128.74	. Q	. V	.	.	.
16.167	38.1022	168.94	.	. QV	.	.	.
16.250	39.4808	200.18	.	. V	. Q	.	.
16.333	41.1214	238.21	.	. V	. Q	.	.
16.417	43.1332	292.12	.	. V	. Q	.	.
16.500	45.4249	332.76	.	. V	. Q	.	.
16.583	47.4903	299.90	.	. V	. Q	.	.
16.667	49.2069	249.24	.	. V Q	.	.	.
16.750	50.7293	221.06	.	. Q	.	.	.
16.833	52.1135	200.98	.	. Q V	.	.	.
16.917	53.3262	176.08	.	. Q	. V	.	.
17.000	54.4429	162.15	.	. Q	. V	.	.
17.083	55.4896	151.97	.	. Q	. V	.	.
17.167	56.5076	147.82	.	. Q	. V	.	.
17.250	57.4662	139.19	.	. Q	. V	.	.
17.333	58.3694	131.15	.	. Q	. V	.	.
17.417	59.2408	126.52	.	. Q	. V	.	.
17.500	60.0672	120.00	.	. Q	. V	.	.
17.583	60.8503	113.70	.	. Q	. V	.	.
17.667	61.6125	110.68	.	. Q	. V	.	.
17.750	62.3449	106.34	.	. Q	. V	.	.
17.833	63.0323	99.81	. Q	.	. V	.	.
17.917	63.6976	96.60	. Q	.	. V	.	.
18.000	64.3416	93.51	. Q	.	. V	.	.
18.083	64.9679	90.94	. Q	.	. V	.	.
18.167	65.5739	88.00	. Q	.	. V	.	.
18.250	66.1615	85.31	. Q	.	. V	.	.
18.333	66.7223	81.43	. Q	.	. V	.	.
18.417	67.2689	79.37	. Q	.	. V	.	.
18.500	67.7965	76.60	. Q	.	. V	.	.
18.583	68.3083	74.32	. Q	.	. V	.	.

18.667	68.8059	72.25	. Q	.	. V	.	.
18.750	69.2768	68.38	. Q	.	. V	.	.
18.833	69.7347	66.48	. Q	.	. V	.	.
18.917	70.1834	65.16	. Q	.	. V	.	.
19.000	70.6146	62.61	. Q	.	. V	.	.
19.083	71.0311	60.47	. Q	.	. V	.	.
19.167	71.4403	59.42	. Q	.	. V	.	.
19.250	71.8425	58.41	. Q	.	. V	.	.
19.333	72.2340	56.85	. Q	.	. V	.	.
19.417	72.6144	55.23	. Q	.	. V	.	.
19.500	72.9889	54.38	. Q	.	. V	.	.
19.583	73.3578	53.56	. Q	.	. V	.	.
19.667	73.7207	52.69	. Q	.	. V	.	.
19.750	74.0732	51.19	. Q	.	. V	.	.
19.833	74.4192	50.23	. Q	.	. V	.	.
19.917	74.7603	49.53	. Q	.	. V	.	.
20.000	75.0969	48.87	. Q	.	. V	.	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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 430 Exchange, Suite 200
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 714 - 734 - 5100

 FILE NAME: MU44002E.FLD
 TIME/DATE OF STUDY: 08:40 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1044.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 3520.200 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 0.790 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.820
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.38
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.65
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.90
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.54

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.843
 30-MINUTE FACTOR = 0.843
 1-HOUR FACTOR = 0.843
 3-HOUR FACTOR = 0.976
 6-HOUR FACTOR = 0.988
 24-HOUR FACTOR = 0.993

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 10.549

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.171	498.705
2	3.700	1076.453
3	7.189	1485.178
4	11.876	1995.726
5	18.541	2837.235
6	27.014	3607.407
7	35.090	3438.149
8	41.109	2562.176
9	45.934	2054.310
10	49.989	1726.323
11	53.288	1404.484
12	55.913	1117.253
13	58.156	954.981
14	60.281	904.700
15	62.308	863.021
16	64.057	744.644
17	65.672	687.397
18	67.228	662.628
19	68.644	602.442
20	69.962	561.316
21	71.281	561.319
22	72.479	510.234
23	73.534	449.149
24	74.535	426.328
25	75.494	408.237
26	76.416	392.156
27	77.295	374.266
28	78.143	361.215
29	78.902	323.184
30	79.656	320.820
31	80.382	309.075
32	81.085	299.461
33	81.786	298.194
34	82.399	260.991
35	82.969	242.705
36	83.539	242.783
37	84.085	232.376
38	84.559	201.637
39	85.027	199.587
40	85.496	199.584
41	85.960	197.460
42	86.383	180.034
43	86.796	176.020
44	87.210	176.095
45	87.624	176.176
46	88.030	172.785
47	88.404	159.228
48	88.774	157.493
49	89.144	157.730
50	89.514	157.493
51	89.883	157.178
52	90.225	145.355
53	90.552	139.207
54	90.879	139.363
55	91.206	139.048
56	91.533	139.363
57	91.860	139.207
58	92.156	125.961
59	92.428	115.876
60	92.700	115.873
61	92.973	115.873
62	93.245	115.873

63	93.517	115.873
64	93.789	116.032
65	94.045	108.620
66	94.256	90.019
67	94.465	88.914
68	94.674	88.918
69	94.883	88.914
70	95.092	89.074
71	95.300	88.755
72	95.509	88.914
73	95.718	89.074
74	95.926	88.599
75	96.099	73.308
76	96.251	64.639
77	96.402	64.636
78	96.554	64.639
79	96.706	64.476
80	96.858	64.795
81	97.010	64.639
82	97.162	64.795
83	97.313	64.320
84	97.465	64.636
85	97.617	64.639
86	97.768	64.636
87	97.920	64.639
88	98.020	42.250
89	98.060	17.341
90	98.102	17.656
91	98.143	17.656
92	98.185	17.659
93	98.226	17.656
94	98.268	17.971
95	98.310	17.656
96	98.351	17.341
97	98.393	17.975
98	98.434	17.341
99	98.475	17.656
100	98.517	17.971
101	98.559	17.659
102	98.600	17.656
103	98.641	17.341
104	98.682	17.656
105	98.725	17.971
106	98.766	17.659
107	98.807	17.341
108	98.849	17.971
109	98.890	17.341
110	98.932	17.971
111	98.973	17.344
112	99.014	17.656
113	99.055	17.344
114	99.096	17.344
115	99.136	17.344
116	99.177	17.344
117	99.218	17.344
118	99.259	17.344
119	99.299	17.344
120	99.340	17.344
121	99.381	17.344
122	99.422	17.344
123	99.462	17.344
124	99.503	17.344
125	99.544	17.344
126	99.585	17.344
127	99.625	17.344
128	99.666	17.344
129	99.707	17.344
130	99.747	17.344

131	99.788	17.344
132	99.829	17.344
133	99.870	17.344
134	99.910	17.344
135	99.951	17.344
136	99.992	17.344
137	100.000	3.430

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 356.1335
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 92.3831

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	100.0	200.0	300.0	400.0
14.000	25.1710	49.33	.	Q	V	.	.
14.083	25.5181	50.39	.	Q	.V	.	.
14.167	25.8744	51.73	.	Q	.V	.	.
14.250	26.2413	53.28	.	Q	.V	.	.
14.333	26.6207	55.09	.	Q	.V	.	.
14.417	27.0153	57.29	.	Q	.V	.	.
14.500	27.4276	59.87	.	Q	.V	.	.
14.583	27.8575	62.42	.	Q	.V	.	.
14.667	28.3027	64.64	.	Q	.V	.	.
14.750	28.7622	66.71	.	Q	.V	.	.
14.833	29.2353	68.69	.	Q	.V	.	.
14.917	29.7215	70.61	.	Q	.V	.	.
15.000	30.2207	72.48	.	Q	.V	.	.
15.083	30.7330	74.39	.	Q	.V	.	.
15.167	31.2590	76.37	.	Q	.V	.	.
15.250	31.7995	78.47	.	Q	.V	.	.
15.333	32.3550	80.67	.	Q	.V	.	.
15.417	32.9238	82.59	.	Q	.V	.	.
15.500	33.5037	84.20	.	Q	.V	.	.
15.583	34.0942	85.74	.	Q	.V	.	.
15.667	34.6944	87.15	.	Q	.V	.	.
15.750	35.3027	88.33	.	Q	.V	.	.
15.833	35.9187	89.45	.	Q	.V	.	.
15.917	36.5521	91.96	.	Q	.V	.	.
16.000	37.2227	97.38	.	Q	.V	.	.
16.083	38.1283	131.49	.	Q	V	.	.
16.167	39.3015	170.35	.	.	Q	.	.
16.250	40.6810	200.31	.	.	V	Q	.
16.333	42.3041	235.68	.	.	V	Q	.
16.417	44.2810	287.03	.	.	V	Q	.
16.500	46.5513	329.65	.	.	V	Q	.
16.583	48.7323	316.69	.	.	.V	Q	.
16.667	50.5498	263.90	.	.	.V	Q	.
16.750	52.1441	231.49	.	.	.VQ	.	.
16.833	53.5892	209.84	.	.	Q	V	.
16.917	54.8910	189.02	.	.	Q	V	.
17.000	56.0635	170.24	.	.	Q	V	.
17.083	57.1550	158.49	.	.	Q	V	.
17.167	58.2077	152.85	.	.	Q	V	.
17.250	59.2237	147.52	.	.	Q	V	.
17.333	60.1735	137.91	.	.	Q	V	.
17.417	61.0784	131.40	.	.	Q	V	.
17.500	61.9493	126.45	.	.	Q	V	.
17.583	62.7745	119.83	.	.	Q	V	.
17.667	63.5645	114.71	.	.	Q	V	.
17.750	64.3361	112.04	.	.	Q	V	.
17.833	65.0715	106.78	.	.	Q	V	.
17.917	65.7688	101.24	.	.	Q	V	.
18.000	66.4440	98.03	.	.	Q	V	.
18.083	67.0994	95.17	.	.	Q	V	.
18.167	67.7358	92.40	.	.	Q	V	.
18.250	68.3521	89.49	.	.	Q	V	.
18.333	68.9498	86.79	.	.	Q	V	.
18.417	69.5193	82.69	.	.	Q	V	.
18.500	70.0733	80.45	.	.	Q	V	.
18.583	70.6093	77.83	.	.	Q	V	.

18.667	71.1296	75.54	.	Q	.	.	V	.
18.750	71.6375	73.75	.	Q	.	.	.V	.
18.833	72.1208	70.18	.	Q	.	.	.V	.
18.917	72.5878	67.80	.	Q	.	.	.V	.
19.000	73.0459	66.52	.	Q	.	.	.V	.
19.083	73.4917	64.73	.	Q	.	.	.V	.
19.167	73.9181	61.91	.	Q	.	.	.V	.
19.250	74.3364	60.74	.	Q	.	.	.V	.
19.333	74.7480	59.75	.	Q	.	.	.V	.
19.417	75.1520	58.67	.	Q	.	.	.V	.
19.500	75.5430	56.77	.	Q	.	.	.V	.
19.583	75.9264	55.67	.	Q	.	.	.V	.
19.667	76.3042	54.85	.	Q	.	.	.V	.
19.750	76.6764	54.04	.	Q	.	.	.V	.
19.833	77.0418	53.06	.	Q	.	.	.V	.
19.917	77.3971	51.58	.	Q	.	.	.V	.
20.000	77.7467	50.77	.	Q	.	.	.V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
 430 Exchange, Suite 200
 Irvine, CA. 92602-1309
 714 - 734 - 5100

 FILE NAME: MU45002E.FLD
 TIME/DATE OF STUDY: 08:41 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1045.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 3859.500 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 0.850 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.820
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.38
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.64
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.90
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.53

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.828
 30-MINUTE FACTOR = 0.828
 1-HOUR FACTOR = 0.828
 3-HOUR FACTOR = 0.974
 6-HOUR FACTOR = 0.987
 24-HOUR FACTOR = 0.992

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 9.804

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.089	508.366
2	3.375	1066.884
3	6.515	1465.638
4	10.567	1891.309
5	16.128	2595.729
6	23.488	3435.168
7	31.787	3873.967
8	38.163	2976.028
9	43.129	2317.870
10	47.315	1953.890
11	50.959	1700.738
12	53.794	1323.275
13	56.212	1128.641
14	58.260	955.766
15	60.231	920.235
16	62.134	887.931
17	63.783	769.678
18	65.290	703.609
19	66.768	689.568
20	68.135	638.053
21	69.373	577.868
22	70.598	572.010
23	71.808	564.802
24	72.839	481.302
25	73.815	455.495
26	74.727	425.788
27	75.618	415.885
28	76.467	396.263
29	77.284	381.342
30	78.079	370.737
31	78.787	330.711
32	79.487	326.847
33	80.174	320.387
34	80.829	305.744
35	81.482	304.996
36	82.105	290.677
37	82.640	249.856
38	83.170	247.253
39	83.700	247.438
40	84.189	228.094
41	84.625	203.551
42	85.061	203.363
43	85.496	203.363
44	85.929	201.967
45	86.324	184.578
46	86.709	179.464
47	87.093	179.464
48	87.478	179.468
49	87.862	179.279
50	88.221	167.467
51	88.565	160.591
52	88.909	160.494
53	89.253	160.587
54	89.597	160.498
55	89.938	159.565
56	90.252	146.175
57	90.555	141.713
58	90.859	141.898
59	91.164	142.084
60	91.467	141.710
61	91.771	141.898
62	92.061	135.389

63	92.316	118.652
64	92.569	118.281
65	92.822	117.907
66	93.075	118.093
67	93.328	118.278
68	93.581	117.907
69	93.834	118.096
70	94.066	108.421
71	94.261	90.943
72	94.455	90.569
73	94.649	90.569
74	94.843	90.754
75	95.037	90.384
76	95.231	90.758
77	95.426	90.754
78	95.619	90.384
79	95.814	90.754
80	96.000	86.851
81	96.147	68.437
82	96.288	66.022
83	96.429	65.649
84	96.570	66.019
85	96.711	65.649
86	96.852	66.022
87	96.993	65.834
88	97.134	65.834
89	97.275	65.837
90	97.416	65.834
91	97.557	65.834
92	97.698	65.837
93	97.840	65.834
94	97.974	62.860
95	98.033	27.524
96	98.071	17.852
97	98.110	17.855
98	98.148	17.852
99	98.186	17.855
100	98.225	18.226
101	98.263	17.852
102	98.302	18.226
103	98.342	18.226
104	98.379	17.481
105	98.419	18.600
106	98.457	17.852
107	98.495	17.855
108	98.534	18.222
109	98.573	17.855
110	98.611	17.852
111	98.650	18.226
112	98.688	17.855
113	98.726	17.852
114	98.765	17.855
115	98.803	17.852
116	98.842	18.226
117	98.881	18.226
118	98.918	17.481
119	98.958	18.226
120	98.996	17.855
121	99.034	17.852
122	99.072	17.852
123	99.111	17.852
124	99.149	17.852
125	99.187	17.852
126	99.225	17.852
127	99.264	17.852
128	99.302	17.852
129	99.340	17.852
130	99.378	17.852

131	99.416	17.852
132	99.455	17.852
133	99.493	17.852
134	99.531	17.852
135	99.569	17.852
136	99.608	17.852
137	99.646	17.852
138	99.684	17.852
139	99.722	17.852
140	99.761	17.852
141	99.799	17.852
142	99.837	17.852
143	99.875	17.852
144	99.914	17.852
145	99.952	17.852
146	99.990	17.852
147	100.000	4.583

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 388.0852
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 100.1337

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	100.0	200.0	300.0	400.0
14.000	27.0326	54.90	.	Q	V	.	.
14.083	27.4183	56.00	.	Q	V	.	.
14.167	27.8131	57.32	.	Q	.V	.	.
14.250	28.2182	58.83	.	Q	.V	.	.
14.333	28.6349	60.50	.	Q	.V	.	.
14.417	29.0652	62.48	.	Q	.V	.	.
14.500	29.5113	64.78	.	Q	.V	.	.
14.583	29.9746	67.28	.	Q	.V	.	.
14.667	30.4534	69.51	.	Q	.V	.	.
14.750	30.9463	71.58	.	Q	.V	.	.
14.833	31.4530	73.57	.	Q	.V	.	.
14.917	31.9735	75.57	.	Q	.V	.	.
15.000	32.5073	77.50	.	Q	.V	.	.
15.083	33.0546	79.47	.	Q	.V	.	.
15.167	33.6158	81.48	.	Q	.V	.	.
15.250	34.1917	83.62	.	Q	.V	.	.
15.333	34.7832	85.88	.	Q	.V	.	.
15.417	35.3883	87.87	.	Q	.V	.	.
15.500	36.0050	89.54	.	Q	.V	.	.
15.583	36.6330	91.19	.	Q	.V	.	.
15.667	37.2720	92.79	.	Q	.V	.	.
15.750	37.9212	94.26	.	Q	.V	.	.
15.833	38.5798	95.62	.	Q	.V	.	.
15.917	39.2540	97.89	.	Q	.V	.	.
16.000	39.9633	102.99	.	Q	.V	.	.
16.083	40.9030	136.45	.	.	Q	V	.
16.167	42.0939	172.92	.	.	.	VQ	.
16.250	43.4792	201.15	.	.	.	.	V
16.333	45.0696	230.92	.	.	.	.	V
16.417	46.9610	274.64	.	.	.	.	V
16.500	49.1775	321.82	.	.	.	.	V
16.583	51.5357	342.42	.	.	.	.	V
16.667	53.5357	290.39	.	.	.	.	V
16.750	55.2631	250.81	.	.	.	.	V
16.833	56.8306	227.60	.	.	.	.	V
16.917	58.2829	210.87	.	.	.	.	V
17.000	59.5751	187.63	.	.	.	.	V
17.083	60.7735	174.00	.	.	.	.	V
17.167	61.8885	161.90	.	.	.	.	V
17.250	62.9706	157.12	.	.	.	.	V
17.333	64.0193	152.28	.	.	.	.	V
17.417	65.0031	142.84	.	.	.	.	V
17.500	65.9398	136.01	.	.	.	.	V
17.583	66.8480	131.87	.	.	.	.	V
17.667	67.7174	126.23	.	.	.	.	V
17.750	68.5472	120.49	.	.	.	.	V
17.833	69.3581	117.74	.	.	.	.	V
17.917	70.1502	115.01	.	.	.	.	V
18.000	70.8975	108.52	.	.	.	.	V
18.083	71.6211	105.06	.	.	.	.	V
18.167	72.3199	101.47	.	.	.	.	V
18.250	73.0010	98.90	.	.	.	.	V
18.333	73.6605	95.76	.	.	.	.	V
18.417	74.2994	92.77	.	.	.	.	V
18.500	74.9179	89.80	.	.	.	.	V
18.583	75.5052	85.28	.	.	.	.	V

18.667	76.0768	82.99	.	Q	.	.	V
18.750	76.6335	80.83	.	Q	.	.	V
18.833	77.1733	78.38	.	Q	.	.	V
18.917	77.7014	76.68	.	Q	.	.	.V
19.000	78.2137	74.39	.	Q	.	.	.V
19.083	78.7019	70.89	.	Q	.	.	.V
19.167	79.1805	69.49	.	Q	.	.	.V
19.250	79.6507	68.26	.	Q	.	.	.V
19.333	80.1055	66.05	.	Q	.	.	.V
19.417	80.5439	63.65	.	Q	.	.	.V
19.500	80.9752	62.63	.	Q	.	.	.V
19.583	81.4000	61.68	.	Q	.	.	.V
19.667	81.8177	60.65	.	Q	.	.	.V
19.750	82.2228	58.83	.	Q	.	.	.V
19.833	82.6202	57.70	.	Q	.	.	.V
19.917	83.0119	56.87	.	Q	.	.	.V
20.000	83.3981	56.08	.	Q	.	.	.V

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
 430 Exchange, Suite 200
 Irvine, CA. 92602-1309
 714 - 734 - 5100

 FILE NAME: MU46002E.FLD
 TIME/DATE OF STUDY: 08:41 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1046.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 4015.100 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 0.880 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.820
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.38
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.64
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.89
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.53

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.821
 30-MINUTE FACTOR = 0.821
 1-HOUR FACTOR = 0.821
 3-HOUR FACTOR = 0.973
 6-HOUR FACTOR = 0.987
 24-HOUR FACTOR = 0.992

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 9.470

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	1.052	510.886
2	3.234	1059.270
3	6.235	1457.486
4	9.989	1822.951
5	15.143	2502.384
6	21.988	3323.675
7	30.109	3943.679
8	36.671	3185.990
9	41.758	2470.490
10	46.064	2090.678
11	49.712	1771.354
12	52.817	1507.616
13	55.202	1158.172
14	57.321	1029.230
15	59.262	942.414
16	61.156	919.428
17	62.875	834.901
18	64.404	742.614
19	65.846	699.998
20	67.237	675.488
21	68.516	620.955
22	69.700	574.862
23	70.884	574.862
24	72.030	556.883
25	73.001	471.154
26	73.939	455.683
27	74.813	424.486
28	75.674	417.777
29	76.491	396.642
30	77.280	383.128
31	78.049	373.759
32	78.735	333.100
33	79.412	328.492
34	80.079	324.087
35	80.714	308.060
36	81.345	306.560
37	81.963	300.251
38	82.493	256.984
39	83.004	248.571
40	83.516	248.475
41	84.014	241.862
42	84.444	208.713
43	84.865	204.404
44	85.286	204.308
45	85.707	204.304
46	86.112	196.695
47	86.484	180.772
48	86.855	180.368
49	87.227	180.272
50	87.598	180.368
51	87.966	178.768
52	88.305	164.450
53	88.637	161.241
54	88.970	161.541
55	89.302	161.241
56	89.634	161.441
57	89.963	159.841
58	90.264	146.019
59	90.558	142.614
60	90.851	142.611
61	91.145	142.414
62	91.439	142.814

63	91.732	142.414
64	92.017	138.406
65	92.266	120.783
66	92.511	118.779
67	92.755	118.579
68	92.999	118.575
69	93.244	118.779
70	93.488	118.779
71	93.732	118.378
72	93.972	116.574
73	94.170	96.143
74	94.357	90.938
75	94.545	90.934
76	94.732	91.138
77	94.920	91.134
78	95.107	90.938
79	95.295	91.134
80	95.482	90.938
81	95.670	91.134
82	95.857	90.938
83	96.032	84.725
84	96.169	66.502
85	96.305	66.298
86	96.442	66.298
87	96.577	65.898
88	96.714	66.502
89	96.850	65.898
90	96.987	66.298
91	97.122	65.898
92	97.259	66.499
93	97.395	66.102
94	97.532	66.098
95	97.668	66.098
96	97.804	66.098
97	97.941	66.499
98	98.021	38.858
99	98.059	18.431
100	98.095	17.627
101	98.133	18.427
102	98.170	18.027
103	98.206	17.627
104	98.244	18.427
105	98.282	18.427
106	98.319	17.627
107	98.356	18.427
108	98.394	18.027
109	98.429	17.227
110	98.468	18.827
111	98.504	17.627
112	98.542	18.427
113	98.579	18.027
114	98.616	17.627
115	98.653	18.027
116	98.691	18.431
117	98.728	18.027
118	98.765	18.027
119	98.802	18.027
120	98.839	18.027
121	98.876	18.027
122	98.913	18.027
123	98.951	18.027
124	98.988	18.427
125	99.025	17.627
126	99.061	17.627
127	99.097	17.627
128	99.134	17.627
129	99.170	17.627
130	99.206	17.627

131	99.243	17.627
132	99.279	17.627
133	99.315	17.627
134	99.351	17.627
135	99.388	17.627
136	99.424	17.627
137	99.460	17.627
138	99.497	17.627
139	99.533	17.627
140	99.569	17.627
141	99.606	17.627
142	99.642	17.627
143	99.678	17.627
144	99.714	17.627
145	99.751	17.627
146	99.787	17.627
147	99.823	17.627
148	99.860	17.627
149	99.896	17.627
150	99.932	17.627

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 403.8482
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 103.8239

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	100.0	200.0	300.0	400.0
14.000	28.1175	55.09	.	Q	V	.	.
14.083	28.5047	56.23	.	Q	V	.	.
14.167	28.9015	57.62	.	Q	.V	.	.
14.250	29.3093	59.21	.	Q	.V	.	.
14.333	29.7294	61.00	.	Q	.V	.	.
14.417	30.1640	63.11	.	Q	.V	.	.
14.500	30.6158	65.60	.	Q	.V	.	.
14.583	31.0870	68.41	.	Q	.V	.	.
14.667	31.5755	70.93	.	Q	.V	.	.
14.750	32.0798	73.23	.	Q	.V	.	.
14.833	32.5992	75.42	.	Q	.V	.	.
14.917	33.1334	77.57	.	Q	.V	.	.
15.000	33.6822	79.68	.	Q	.V	.	.
15.083	34.2452	81.75	.	Q	.V	.	.
15.167	34.8227	83.86	.	Q	.V	.	.
15.250	35.4156	86.08	.	Q	.V	.	.
15.333	36.0246	88.43	.	Q	.V	.	.
15.417	36.6478	90.49	.	Q	.V	.	.
15.500	37.2829	92.22	.	Q	.V	.	.
15.583	37.9295	93.89	.	Q	.V	.	.
15.667	38.5876	95.56	.	Q	.V	.	.
15.750	39.2565	97.12	.	Q	.V	.	.
15.833	39.9351	98.53	.	Q	.V	.	.
15.917	40.6284	100.67	.	Q	.V	.	.
16.000	41.3552	105.53	.	Q	.V	.	.
16.083	42.3088	138.46	.	Q	V	.	.
16.167	43.5052	173.72	.	.	VQ	.	.
16.250	44.8918	201.33	.	.	V	Q	.
16.333	46.4583	227.46	.	.	V	.Q	.
16.417	48.3150	269.59	.	.	V	.	Q
16.500	50.4917	316.05	.	.	V	.	.Q
16.583	52.8786	346.58	.	.	V	.	Q
16.667	54.9653	303.00	.	.	.V	.	Q
16.750	56.7633	261.07	.	.	.V	Q	.
16.833	58.3975	237.27	.	.	.VQ	.	.
16.917	59.8954	217.50	.	.	.Q	V	.
17.000	61.2750	200.32	.	.	Q	V	.
17.083	62.5067	178.83	.	.	Q	V	.
17.167	63.6704	168.97	.	.	Q	V	.
17.250	64.7825	161.48	.	.	Q	V	.
17.333	65.8648	157.15	.	.	Q	V	.
17.417	66.8934	149.35	.	.	Q	V	.
17.500	67.8643	140.97	.	.	Q	V	.
17.583	68.7945	135.07	.	.	Q	V	.
17.667	69.6935	130.53	.	.	Q	V	.
17.750	70.5534	124.86	.	.	Q	V	.
17.833	71.3791	119.90	.	.	.Q	V	.
17.917	72.1881	117.46	.	.	.Q	V	.
18.000	72.9745	114.19	.	.	.Q	V	.
18.083	73.7154	107.57	.	.	Q	V	.
18.167	74.4357	104.60	.	.	Q	V	.
18.250	75.1309	100.94	.	.	Q	V	.
18.333	75.8094	98.53	.	.	Q	V	.
18.417	76.4656	95.28	.	.	Q	V	.
18.500	77.1017	92.35	.	.	Q	V	.
18.583	77.7182	89.52	.	.	Q	V	.

18.667	78.3060	85.35	.	Q	.	.	V	.
18.750	78.8797	83.29	.	Q	.	.	V	.
18.833	79.4403	81.41	.	Q	.	.	V	.
18.917	79.9847	79.05	.	Q	.	.	V	.
19.000	80.5181	77.45	.	Q	.	.	.V	.
19.083	81.0394	75.69	.	Q	.	.	.V	.
19.167	81.5362	72.14	.	Q	.	.	.V	.
19.250	82.0217	70.49	.	Q	.	.	.V	.
19.333	82.4990	69.31	.	Q	.	.	.V	.
19.417	82.9660	67.81	.	Q	.	.	.V	.
19.500	83.4137	65.00	.	Q	.	.	.V	.
19.583	83.8529	63.77	.	Q	.	.	.V	.
19.667	84.2856	62.84	.	Q	.	.	.V	.
19.750	84.7122	61.93	.	Q	.	.	.V	.
19.833	85.1297	60.63	.	Q	.	.	.V	.
19.917	85.5357	58.95	.	Q	.	.	.V	.
20.000	85.9360	58.12	.	Q	.	.	.V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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 714 - 734 - 5100

 FILE NAME: MU47002E.FLD
 TIME/DATE OF STUDY: 08:42 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1047.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 4206.000 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 0.940 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.830
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.38
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.64
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.89
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.52

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.812
 30-MINUTE FACTOR = 0.812
 1-HOUR FACTOR = 0.812
 3-HOUR FACTOR = 0.972
 6-HOUR FACTOR = 0.986
 24-HOUR FACTOR = 0.992

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 8.865

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.985	501.047
2	2.987	1018.210
3	5.730	1395.181
4	9.008	1667.457
5	13.502	2285.838
6	19.478	3040.202
7	26.665	3655.373
8	33.716	3586.762
9	39.204	2791.770
10	43.557	2214.135
11	47.296	1901.790
12	50.627	1694.092
13	53.324	1371.924
14	55.536	1125.300
15	57.466	981.997
16	59.282	923.623
17	61.055	901.884
18	62.690	831.578
19	64.140	737.525
20	65.490	686.819
21	66.820	676.201
22	68.061	631.230
23	69.184	571.167
24	70.292	563.689
25	71.400	563.685
26	72.406	511.857
27	73.293	451.061
28	74.160	440.862
29	74.969	411.725
30	75.773	409.094
31	76.532	386.119
32	77.271	375.808
33	77.996	368.640
34	78.642	328.517
35	79.275	322.075
36	79.906	320.786
37	80.505	305.038
38	81.096	300.672
39	81.687	300.556
40	82.226	273.887
41	82.705	243.741
42	83.184	243.741
43	83.663	243.741
44	84.115	229.960
45	84.511	201.378
46	84.905	200.373
47	85.299	200.373
48	85.693	200.482
49	86.075	194.323
50	86.424	177.620
51	86.772	176.952
52	87.120	176.836
53	87.467	176.727
54	87.815	176.952
55	88.145	167.984
56	88.457	158.348
57	88.768	158.235
58	89.079	158.010
59	89.390	158.460
60	89.701	158.235
61	90.007	155.546
62	90.285	141.649

63	90.560	139.860
64	90.835	139.856
65	91.110	139.856
66	91.385	139.856
67	91.660	139.635
68	91.933	139.185
69	92.175	122.823
70	92.403	116.098
71	92.632	116.548
72	92.861	116.323
73	93.090	116.548
74	93.318	116.098
75	93.547	116.548
76	93.776	116.323
77	93.998	112.737
78	94.179	92.343
79	94.355	89.429
80	94.530	89.200
81	94.706	89.204
82	94.881	89.204
83	95.057	89.429
84	95.233	89.429
85	95.408	89.204
86	95.583	89.204
87	95.759	89.425
88	95.935	89.204
89	96.080	73.964
90	96.207	64.774
91	96.335	64.995
92	96.463	64.999
93	96.590	64.774
94	96.718	64.770
95	96.845	64.999
96	96.973	64.774
97	97.101	64.995
98	97.228	64.999
99	97.355	64.549
100	97.484	65.446
101	97.611	64.549
102	97.738	64.549
103	97.866	65.446
104	97.984	60.067
105	98.034	25.101
106	98.068	17.483
107	98.103	17.483
108	98.137	17.483
109	98.173	18.376
110	98.207	17.483
111	98.242	17.483
112	98.276	17.483
113	98.312	18.379
114	98.346	17.033
115	98.381	17.929
116	98.416	17.929
117	98.451	17.483
118	98.486	17.929
119	98.520	17.483
120	98.555	17.483
121	98.590	17.929
122	98.625	17.933
123	98.659	17.479
124	98.694	17.483
125	98.729	17.929
126	98.763	17.483
127	98.799	17.933
128	98.834	17.929
129	98.868	17.483
130	98.903	17.479

131	98.938	17.933
132	98.972	17.479
133	99.008	17.933
134	99.042	17.479
135	99.076	17.479
136	99.111	17.479
137	99.145	17.479
138	99.179	17.479
139	99.214	17.479
140	99.248	17.479
141	99.282	17.479
142	99.317	17.479
143	99.351	17.479
144	99.386	17.479
145	99.420	17.479
146	99.454	17.479
147	99.489	17.479
148	99.523	17.479
149	99.557	17.479
150	99.592	17.479

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 425.2619
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 102.5233

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	100.0	200.0	300.0	400.0
14.000	27.0663	53.58	.	Q	V	.	.
14.083	27.4430	54.69	.	Q	V	.	.
14.167	27.8290	56.04	.	Q	V	.	.
14.250	28.2255	57.58	.	Q	.V	.	.
14.333	28.6336	59.26	.	Q	.V	.	.
14.417	29.0554	61.24	.	Q	.V	.	.
14.500	29.4932	63.57	.	Q	.V	.	.
14.583	29.9491	66.20	.	Q	.V	.	.
14.667	30.4232	68.85	.	Q	.V	.	.
14.750	30.9137	71.22	.	Q	.V	.	.
14.833	31.4192	73.40	.	Q	.V	.	.
14.917	31.9394	75.53	.	Q	.V	.	.
15.000	32.4742	77.65	.	Q	.V	.	.
15.083	33.0233	79.72	.	Q	.V	.	.
15.167	33.5866	81.80	.	Q	.V	.	.
15.250	34.1647	83.93	.	Q	.V	.	.
15.333	34.7582	86.18	.	Q	.V	.	.
15.417	35.3652	88.15	.	Q	.V	.	.
15.500	35.9839	89.83	.	Q	.V	.	.
15.583	36.6136	91.43	.	Q	.V	.	.
15.667	37.2548	93.09	.	Q	.V	.	.
15.750	37.9066	94.65	.	Q	.V	.	.
15.833	38.5685	96.10	.	Q	.V	.	.
15.917	39.2445	98.15	.	Q	.V	.	.
16.000	39.9478	102.13	.	Q	.V	.	.
16.083	40.8652	133.20	.	.	Q	V	.
16.167	42.0057	165.60	.	.	.	Q	.
16.250	43.3201	190.86	.	.	.	V	Q.
16.333	44.7744	211.16	.	.	.	V	.Q
16.417	46.4903	249.14	.	.	.	V	.Q
16.500	48.5041	292.41	.	.	.	V	.Q
16.583	50.7398	324.62	.	.	.	V	.Q
16.667	52.9297	317.98	.	.	.	V	.Q
16.750	54.8102	273.04	.	.	.	.V	Q
16.833	56.4603	239.59	.	.	.	.VQ	.
16.917	57.9793	220.56	.	.	.	.Q	.
17.000	59.4052	207.04	.	.	.	Q	.V
17.083	60.6951	187.30	.	.	.	.V	.
17.167	61.8757	171.41	.	.	.	.V	.
17.250	62.9855	161.15	.	.	.	.V	.
17.333	64.0559	155.42	.	.	.	.V	.
17.417	65.0973	151.21	.	.	.	.V	.
17.500	66.0904	144.19	.	.	.	.V	.
17.583	67.0262	135.88	.	.	.	.V	.
17.667	67.9214	129.98	.	.	.	.V	.
17.750	68.7929	126.54	.	.	.	.V	.
17.833	69.6306	121.64	.	.	.	.V	.
17.917	70.4312	116.24	.	.	.	.V	.
18.000	71.2140	113.67	.	.	.	.V	.
18.083	71.9816	111.46	.	.	.	.V	.
18.167	72.7160	106.64	.	.	.	.V	.
18.250	73.4146	101.44	.	.	.	.V	.
18.333	74.0956	98.87	.	.	.	.V	.
18.417	74.7524	95.37	.	.	.	.V	.
18.500	75.3935	93.09	.	.	.	.V	.
18.583	76.0113	89.71	.	.	.	.V	.

18.667	76.6108	87.05	.	Q	.	.	V.	.
18.750	77.1944	84.74	.	Q	.	.	V	.
18.833	77.7523	81.00	.	Q	.	.	V	.
18.917	78.2971	79.11	.	Q	.	.	V	.
19.000	78.8313	77.58	.	Q	.	.	V	.
19.083	79.3510	75.45	.	Q	.	.	V	.
19.167	79.8603	73.95	.	Q	.	.	.V	.
19.250	80.3609	72.69	.	Q	.	.	.V	.
19.333	80.8437	70.11	.	Q	.	.	.V	.
19.417	81.3082	67.44	.	Q	.	.	.V	.
19.500	81.7654	66.39	.	Q	.	.	.V	.
19.583	82.2156	65.36	.	Q	.	.	.V	.
19.667	82.6539	63.65	.	Q	.	.	.V	.
19.750	83.0756	61.23	.	Q	.	.	.V	.
19.833	83.4908	60.29	.	Q	.	.	.V	.
19.917	83.9004	59.47	.	Q	.	.	.V	.
20.000	84.3045	58.67	.	Q	.	.	.V	.

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END OF FLOODSCx ROUTING ANALYSIS

FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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 430 Exchange, Suite 200
 Irvine, CA. 92602-1309
 714 - 734 - 5100

 FILE NAME: MU48002E.FLD
 TIME/DATE OF STUDY: 08:42 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1048.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

=====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 4407.000 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.010 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.830
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.38
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.64
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.89
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.52

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.803
 30-MINUTE FACTOR = 0.803
 1-HOUR FACTOR = 0.803
 3-HOUR FACTOR = 0.970
 6-HOUR FACTOR = 0.985
 24-HOUR FACTOR = 0.991

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 8.251

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

=====

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.917	488.606
2	2.750	976.825
3	5.212	1312.349
4	8.130	1555.375
5	11.944	2032.553
6	16.983	2685.783
7	23.208	3317.517
8	30.425	3846.914
9	36.096	3022.430
10	40.750	2480.118
11	44.674	2091.523
12	47.987	1765.456
13	51.037	1625.573
14	53.471	1297.538
15	55.533	1099.095
16	57.329	956.831
17	59.028	905.607
18	60.678	879.493
19	62.261	843.692
20	63.644	737.368
21	64.921	680.562
22	66.182	672.013
23	67.378	637.133
24	68.487	591.143
25	69.518	549.696
26	70.550	549.700
27	71.580	549.192
28	72.490	484.913
29	73.315	439.684
30	74.123	430.852
31	74.877	401.896
32	75.628	399.879
33	76.346	382.972
34	77.033	366.381
35	77.721	366.255
36	78.350	335.596
37	78.940	314.024
38	79.529	314.146
39	80.109	308.978
40	80.660	294.087
41	81.211	293.209
42	81.760	292.953
43	82.252	262.041
44	82.698	237.697
45	83.144	237.567
46	83.590	237.819
47	84.023	230.630
48	84.396	199.088
49	84.763	195.428
50	85.130	195.428
51	85.496	195.554
52	85.863	195.176
53	86.203	181.172
54	86.526	172.592
55	86.850	172.344
56	87.173	172.466
57	87.497	172.466
58	87.821	172.466
59	88.129	164.142
60	88.418	154.550
61	88.708	154.172
62	88.997	154.298

63	89.287	154.428
64	89.577	154.424
65	89.866	154.172
66	90.138	144.836
67	90.393	136.260
68	90.650	136.508
69	90.905	136.260
70	91.161	136.256
71	91.417	136.508
72	91.673	136.260
73	91.927	135.752
74	92.154	120.613
75	92.366	113.298
76	92.579	113.546
77	92.792	113.546
78	93.005	113.298
79	93.218	113.798
80	93.431	113.298
81	93.644	113.546
82	93.857	113.298
83	94.053	104.714
84	94.217	87.306
85	94.381	87.306
86	94.544	86.802
87	94.707	87.306
88	94.871	87.050
89	95.034	86.802
90	95.197	87.054
91	95.361	87.306
92	95.525	87.302
93	95.687	86.802
94	95.851	87.054
95	96.007	83.269
96	96.129	64.849
97	96.248	63.588
98	96.367	63.332
99	96.485	63.084
100	96.604	63.588
101	96.723	63.080
102	96.842	63.336
103	96.960	63.080
104	97.078	63.084
105	97.199	64.092
106	97.316	62.576
107	97.435	63.588
108	97.554	63.084
109	97.672	63.080
110	97.791	63.588
111	97.910	63.080
112	98.005	50.970
113	98.040	18.676
114	98.073	17.156
115	98.105	17.160
116	98.137	17.160
117	98.170	17.660
118	98.202	17.160
119	98.234	17.160
120	98.268	17.664
121	98.300	17.156
122	98.332	17.160
123	98.364	17.160
124	98.397	17.664
125	98.428	16.147
126	98.461	17.664
127	98.495	18.168
128	98.526	16.651
129	98.558	17.160
130	98.591	17.664

131	98.624	17.160
132	98.656	17.156
133	98.689	17.664
134	98.720	16.655
135	98.753	17.660
136	98.786	17.160
137	98.818	17.160
138	98.850	17.160
139	98.883	17.660
140	98.915	17.160
141	98.947	17.160
142	98.980	17.156
143	99.013	17.664
144	99.045	17.156
145	99.077	17.156
146	99.109	17.156
147	99.142	17.156
148	99.174	17.156
149	99.206	17.156
150	99.238	17.156

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 445.7527
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 106.6506

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	100.0	200.0	300.0	400.0
14.000	27.9080	55.22	.	Q	V	.	.
14.083	28.2961	56.35	.	Q	V	.	.
14.167	28.6936	57.72	.	Q	V	.	.
14.250	29.1019	59.29	.	Q	V	.	.
14.333	29.5219	60.98	.	Q	.V	.	.
14.417	29.9552	62.91	.	Q	.V	.	.
14.500	30.4041	65.17	.	Q	.V	.	.
14.583	30.8707	67.75	.	Q	.V	.	.
14.667	31.3570	70.61	.	Q	.V	.	.
14.750	31.8608	73.16	.	Q	.V	.	.
14.833	32.3809	75.52	.	Q	.V	.	.
14.917	32.9166	77.79	.	Q	.V	.	.
15.000	33.4674	79.98	.	Q	.V	.	.
15.083	34.0335	82.19	.	Q	.V	.	.
15.167	34.6145	84.36	.	Q	.V	.	.
15.250	35.2107	86.56	.	Q	.V	.	.
15.333	35.8225	88.83	.	Q	.V	.	.
15.417	36.4479	90.80	.	Q	.V	.	.
15.500	37.0851	92.53	.	Q	.V	.	.
15.583	37.7337	94.18	.	Q	.V	.	.
15.667	38.3940	95.88	.	Q	.V	.	.
15.750	39.0658	97.54	.	Q	.V	.	.
15.833	39.7488	99.17	.	Q	.V	.	.
15.917	40.4464	101.30	.	Q	.V	.	.
16.000	41.1676	104.72	.	Q	.V	.	.
16.083	42.0904	133.98	.	Q	V	.	.
16.167	43.2180	163.73	.	.	Q	.	.
16.250	44.4984	185.91	.	.	V	Q	.
16.333	45.9027	203.91	.	.	V	Q	.
16.417	47.5130	233.82	.	.	V	Q	.
16.500	49.3866	272.05	.	.	V	Q	.
16.583	51.4974	306.48	.	.	V	Q	.
16.667	53.7775	331.08	.	.	V	Q	.
16.750	55.7503	286.44	.	.	V	Q	.
16.833	57.5087	255.33	.	.	.V	Q	.
16.917	59.1106	232.59	.	.	.VQ	.	.
17.000	60.5841	213.95	.	.	.QV	.	.
17.083	61.9873	203.75	.	.	Q	V	.
17.167	63.2546	184.02	.	.	Q	V	.
17.250	64.4313	170.85	.	.	Q	V	.
17.333	65.5388	160.81	.	.	Q	V	.
17.417	66.6096	155.48	.	.	Q	V	.
17.500	67.6497	151.03	.	.	Q	V	.
17.583	68.6531	145.68	.	.	Q	V	.
17.667	69.5947	136.73	.	.	Q	V	.
17.750	70.4958	130.82	.	.	Q	V	.
17.833	71.3750	127.66	.	.	Q	V	.
17.917	72.2251	123.44	.	.	Q	V	.
18.000	73.0434	118.82	.	.	Q	V	.
18.083	73.8321	114.52	.	.	Q	V	.
18.167	74.6060	112.37	.	.	Q	V	.
18.250	75.3644	110.12	.	.	Q	V	.
18.333	76.0859	104.77	.	.	Q	V	.
18.417	76.7773	100.38	.	.	Q	V	.
18.500	77.4506	97.77	.	.	Q	V	.
18.583	78.0991	94.16	.	.	Q	V	.

18.667	78.7316	91.83	.	Q	.	.	V	.
18.750	79.3445	89.00	.	Q	.	.	V	.
18.833	79.9391	86.34	.	Q	.	.	V	.
18.917	80.5218	84.60	.	Q	.	.	V	.
19.000	81.0832	81.51	.	Q	.	.	V	.
19.083	81.6272	78.99	.	Q	.	.	V	.
19.167	82.1619	77.65	.	Q	.	.	V	.
19.250	82.6862	76.13	.	Q	.	.	.V	.
19.333	83.1974	74.23	.	Q	.	.	.V	.
19.417	83.7005	73.04	.	Q	.	.	.V	.
19.500	84.1953	71.85	.	Q	.	.	.V	.
19.583	84.6718	69.18	.	Q	.	.	.V	.
19.667	85.1327	66.92	.	Q	.	.	.V	.
19.750	85.5869	65.96	.	Q	.	.	.V	.
19.833	86.0348	65.03	.	Q	.	.	.V	.
19.917	86.4734	63.70	.	Q	.	.	.V	.
20.000	86.8951	61.23	.	Q	.	.	.V	.

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END OF FLOODSCx ROUTING ANALYSIS

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PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

**TECHNICAL APPENDIX II-A
HYDROLOGIC ANALYSIS
UPSTREAM AREAS
10-YEAR EXPECTED VALUE**

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2003 Advanced Engineering Software (aes)
Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
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Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU36010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1000.00 TO NODE 1001.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 327.00
ELEVATION DATA: UPSTREAM(FEET) = 2400.00 DOWNSTREAM(FEET) = 2280.00

 $T_c = K * [(LENGTH ** 3.00) / (ELEVATION CHANGE)] ** 0.20$
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.744
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.947
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.30 0.20 1.00 81 8.74
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA RUNOFF(CFS) = 0.74
TOTAL AREA(ACRES) = 0.30 PEAK FLOW RATE(CFS) = 0.74

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71

FLOW PROCESS FROM NODE 1001.00 TO NODE 1002.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 2280.00 DOWNSTREAM(FEET) = 2240.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 95.00 CHANNEL SLOPE = 0.4211
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 0.74
FLOW VELOCITY(FEET/SEC.) = 4.57 FLOW DEPTH(FEET) = 0.14
TRAVEL TIME(MIN.) = 0.35 Tc(MIN.) = 9.09
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1002.00 = 422.00 FEET.

FLOW PROCESS FROM NODE 1001.00 TO NODE 1002.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 9.09
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.596
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.30 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.30 SUBAREA RUNOFF(CFS) = 0.65
EFFECTIVE AREA(ACRES) = 0.60 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 0.60 PEAK FLOW RATE(CFS) = 1.29

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71

FLOW PROCESS FROM NODE 1002.00 TO NODE 1003.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 2240.00 DOWNSTREAM(FEET) = 2200.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 96.00 CHANNEL SLOPE = 0.4167
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000

MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1.29
FLOW VELOCITY(FEET/SEC.) = 5.53 FLOW DEPTH(FEET) = 0.20
TRAVEL TIME(MIN.) = 0.29 Tc(MIN.) = 9.38
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1003.00 = 518.00 FEET.

FLOW PROCESS FROM NODE 1002.00 TO NODE 1003.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 9.38
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.524
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.30 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.30 SUBAREA RUNOFF(CFS) = 0.63
EFFECTIVE AREA(ACRES) = 0.90 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 0.90 PEAK FLOW RATE(CFS) = 1.88

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71

FLOW PROCESS FROM NODE 1003.00 TO NODE 1004.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2200.00 DOWNSTREAM(FEET) = 2160.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 109.00 CHANNEL SLOPE = 0.3670
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1.88
FLOW VELOCITY(FEET/SEC.) = 5.89 FLOW DEPTH(FEET) = 0.25
TRAVEL TIME(MIN.) = 0.31 Tc(MIN.) = 9.69
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1004.00 = 627.00 FEET.

FLOW PROCESS FROM NODE 1003.00 TO NODE 1004.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 9.69
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.447
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.40 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.40 SUBAREA RUNOFF(CFS) = 0.81
EFFECTIVE AREA(ACRES) = 1.30 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.30 PEAK FLOW RATE(CFS) = 2.63

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71

FLOW PROCESS FROM NODE 1004.00 TO NODE 1005.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2160.00 DOWNSTREAM(FEET) = 2120.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 128.00 CHANNEL SLOPE = 0.3125
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2.63
FLOW VELOCITY(FEET/SEC.) = 6.15 FLOW DEPTH(FEET) = 0.32
TRAVEL TIME(MIN.) = 0.35 Tc(MIN.) = 10.03
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1005.00 = 755.00 FEET.

FLOW PROCESS FROM NODE 1004.00 TO NODE 1005.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 10.03
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.367
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.60 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.60 SUBAREA RUNOFF(CFS) = 1.17
EFFECTIVE AREA(ACRES) = 1.90 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.90 PEAK FLOW RATE(CFS) = 3.71

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71

FLOW PROCESS FROM NODE 1005.00 TO NODE 1014.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2120.00 DOWNSTREAM(FEET) = 2040.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 186.00 CHANNEL SLOPE = 0.4301
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3.71
FLOW VELOCITY(FEET/SEC.) = 7.53 FLOW DEPTH(FEET) = 0.36
TRAVEL TIME(MIN.) = 0.41 Tc(MIN.) = 10.45
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1014.00 = 941.00 FEET.

FLOW PROCESS FROM NODE 1005.00 TO NODE 1014.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 10.45
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.327
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.60 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.60 SUBAREA RUNOFF(CFS) = 1.15
EFFECTIVE AREA(ACRES) = 2.50 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2.50 PEAK FLOW RATE(CFS) = 4.79

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SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71
*****
FLOW PROCESS FROM NODE 1014.00 TO NODE 1014.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
-----
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 10.45
RAINFALL INTENSITY(INCH/HR) = 2.33
AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 2.50
TOTAL STREAM AREA(ACRES) = 2.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 4.79

*****
FLOW PROCESS FROM NODE 1010.00 TO NODE 1011.00 IS CODE = 21
-----
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
-----
INITIAL SUBAREA FLOW-LENGTH(FEET) = 325.00
ELEVATION DATA: UPSTREAM(FEET) = 2300.00 DOWNSTREAM(FEET) = 2200.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.035
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.609
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.60 0.20 1.00 81 9.04
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA RUNOFF(CFS) = 1.30
TOTAL AREA(ACRES) = 0.60 PEAK FLOW RATE(CFS) = 1.30

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71
*****
FLOW PROCESS FROM NODE 1011.00 TO NODE 1012.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2200.00 DOWNSTREAM(FEET) = 2160.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 89.00 CHANNEL SLOPE = 0.4494
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1.30
FLOW VELOCITY(FEET/SEC.) = 5.63 FLOW DEPTH(FEET) = 0.19
TRAVEL TIME(MIN.) = 0.26 Tc(MIN.) = 9.30
LONGEST FLOWPATH FROM NODE 1010.00 TO NODE 1012.00 = 414.00 FEET.

*****
FLOW PROCESS FROM NODE 1011.00 TO NODE 1012.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 9.30
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.544
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS

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LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.40 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.40 SUBAREA RUNOFF(CFS) = 0.84
EFFECTIVE AREA(ACRES) = 1.00 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.00 PEAK FLOW RATE(CFS) = 2.11

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71
*****
FLOW PROCESS FROM NODE 1012.00 TO NODE 1013.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2160.00 DOWNSTREAM(FEET) = 2120.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 114.00 CHANNEL SLOPE = 0.3509
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2.11
FLOW VELOCITY(FEET/SEC.) = 5.95 FLOW DEPTH(FEET) = 0.28
TRAVEL TIME(MIN.) = 0.32 Tc(MIN.) = 9.62
LONGEST FLOWPATH FROM NODE 1010.00 TO NODE 1013.00 = 528.00 FEET.

*****
FLOW PROCESS FROM NODE 1012.00 TO NODE 1013.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 9.62
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.465
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.90 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.90 SUBAREA RUNOFF(CFS) = 1.83
EFFECTIVE AREA(ACRES) = 1.90 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.90 PEAK FLOW RATE(CFS) = 3.87

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71
*****
FLOW PROCESS FROM NODE 1013.00 TO NODE 1014.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2120.00 DOWNSTREAM(FEET) = 2040.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 206.00 CHANNEL SLOPE = 0.3883
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3.87
FLOW VELOCITY(FEET/SEC.) = 7.42 FLOW DEPTH(FEET) = 0.38
TRAVEL TIME(MIN.) = 0.46 Tc(MIN.) = 10.08
LONGEST FLOWPATH FROM NODE 1010.00 TO NODE 1014.00 = 734.00 FEET.

*****
FLOW PROCESS FROM NODE 1013.00 TO NODE 1014.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 10.08
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.362
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp        Ap      SCS
LAND USE                GROUP  (ACRES)  (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D        1.10    0.20    1.00    81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 1.10    SUBAREA RUNOFF(CFS) = 2.14
EFFECTIVE AREA(ACRES) = 3.00    AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20    AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3.00    PEAK FLOW RATE(CFS) = 5.84

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71

*****
FLOW PROCESS FROM NODE 1014.00 TO NODE 1014.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 10.08
RAINFALL INTENSITY(INCH/HR) = 2.36
AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 3.00
TOTAL STREAM AREA(ACRES) = 3.00
PEAK FLOW RATE(CFS) AT CONFLUENCE = 5.84

** CONFLUENCE DATA **
STREAM  Q    Tc  Intensity  Fp(Fm)    Ap  Ae  HEADWATER
NUMBER  (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES)  NODE
1        4.79 10.45  2.327  0.20( 0.20) 1.00  2.5  1000.00
2        5.84 10.08  2.362  0.20( 0.20) 1.00  3.0  1010.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **
STREAM  Q    Tc  Intensity  Fp(Fm)    Ap  Ae  HEADWATER
NUMBER  (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES)  NODE
1        10.53 10.08  2.362  0.20( 0.20) 1.00  5.4  1010.00
2        10.53 10.45  2.327  0.20( 0.20) 1.00  5.5  1000.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 10.53    Tc(MIN.) = 10.08
EFFECTIVE AREA(ACRES) = 5.41    AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20    AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 5.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1014.00 = 941.00 FEET.

*****
FLOW PROCESS FROM NODE 1014.00 TO NODE 1015.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2040.00 DOWNSTREAM(FEET) = 2000.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 182.00 CHANNEL SLOPE = 0.2198
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00

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CHANNEL FLOW THRU SUBAREA(CFS) = 10.53
FLOW VELOCITY(FEET/SEC.) = 7.47 FLOW DEPTH(FEET) = 0.55
TRAVEL TIME(MIN.) = 0.41 Tc(MIN.) = 10.49
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1015.00 = 1123.00 FEET.

*****
FLOW PROCESS FROM NODE 1014.00 TO NODE 1015.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 10.49
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.323
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp        Ap      SCS
LAND USE                GROUP  (ACRES)  (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D        3.80    0.20    1.00    81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 3.80    SUBAREA RUNOFF(CFS) = 7.26
EFFECTIVE AREA(ACRES) = 9.21    AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20    AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 9.30    PEAK FLOW RATE(CFS) = 17.60

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71

*****
FLOW PROCESS FROM NODE 1015.00 TO NODE 1016.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2000.00 DOWNSTREAM(FEET) = 1920.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 366.00 CHANNEL SLOPE = 0.2186
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 17.60
FLOW VELOCITY(FEET/SEC.) = 8.72 FLOW DEPTH(FEET) = 0.74
TRAVEL TIME(MIN.) = 0.70 Tc(MIN.) = 11.19
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1016.00 = 1489.00 FEET.

*****
FLOW PROCESS FROM NODE 1015.00 TO NODE 1016.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 11.19
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.256
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp        Ap      SCS
LAND USE                GROUP  (ACRES)  (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D        3.40    0.20    1.00    81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 3.40    SUBAREA RUNOFF(CFS) = 6.29
EFFECTIVE AREA(ACRES) = 12.61    AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20    AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 12.70    PEAK FLOW RATE(CFS) = 23.34

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.36; 30M = 0.65; 1HR = 0.93; 3HR = 1.80; 6HR = 2.75; 24HR = 4.92

*****
FLOW PROCESS FROM NODE 1016.00 TO NODE 1017.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

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>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1920.00 DOWNSTREAM(FEET) = 1880.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 107.00 CHANNEL SLOPE = 0.3738
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 23.34
FLOW VELOCITY(FEET/SEC.) = 11.42 FLOW DEPTH(FEET) = 0.74
TRAVEL TIME(MIN.) = 0.16 Tc(MIN.) = 11.34
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1017.00 = 1596.00 FEET.

*****
FLOW PROCESS FROM NODE 1016.00 TO NODE 1017.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN) = 11.34
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.241
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 16.20 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 16.20 SUBAREA RUNOFF(CFS) = 29.76
EFFECTIVE AREA(ACRES) = 28.81 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 28.90 PEAK FLOW RATE(CFS) = 52.93

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.36; 30M = 0.66; 1HR = 0.94; 3HR = 1.83; 6HR = 2.80; 24HR = 5.03

*****
FLOW PROCESS FROM NODE 1017.00 TO NODE 1029.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1880.00 DOWNSTREAM(FEET) = 1835.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 342.00 CHANNEL SLOPE = 0.1316
CHANNEL BASE(FEET) = 3.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 3.00
CHANNEL FLOW THRU SUBAREA(CFS) = 52.93
FLOW VELOCITY(FEET/SEC.) = 9.54 FLOW DEPTH(FEET) = 1.29
TRAVEL TIME(MIN.) = 0.60 Tc(MIN.) = 11.94
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1029.00 = 1938.00 FEET.

*****
FLOW PROCESS FROM NODE 1017.00 TO NODE 1029.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN) = 11.94
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.184
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 4.60 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.60 SUBAREA RUNOFF(CFS) = 8.21
EFFECTIVE AREA(ACRES) = 33.41 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 33.50 PEAK FLOW RATE(CFS) = 59.66

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):

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5M = 0.31; 30M = 0.63; 1HR = 0.86; 3HR = 1.58; 6HR = 2.33; 24HR = 4.08

*****
FLOW PROCESS FROM NODE 1029.00 TO NODE 1029.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 11.94
RAINFALL INTENSITY(INCH/HR) = 2.18
AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 33.41
TOTAL STREAM AREA(ACRES) = 33.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 59.66

*****
FLOW PROCESS FROM NODE 1020.00 TO NODE 1021.00 IS CODE = 21
-----
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====
INITIAL SUBAREA FLOW-LENGTH(FEET) = 304.00
ELEVATION DATA: UPSTREAM(FEET) = 2525.00 DOWNSTREAM(FEET) = 2360.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 7.853
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.902
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.70 0.20 1.00 81 7.85
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA RUNOFF(CFS) = 1.70
TOTAL AREA(ACRES) = 0.70 PEAK FLOW RATE(CFS) = 1.70

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71

*****
FLOW PROCESS FROM NODE 1021.00 TO NODE 1022.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2360.00 DOWNSTREAM(FEET) = 2280.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 106.00 CHANNEL SLOPE = 0.7547
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1.70
FLOW VELOCITY(FEET/SEC.) = 7.28 FLOW DEPTH(FEET) = 0.20
TRAVEL TIME(MIN.) = 0.24 Tc(MIN.) = 8.10
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1022.00 = 410.00 FEET.

*****
FLOW PROCESS FROM NODE 1021.00 TO NODE 1022.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN) = 8.10
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.842
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

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NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"      D      0.50      0.20      1.00      81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.50      SUBAREA RUNOFF(CFS) = 1.19
EFFECTIVE AREA(ACRES) = 1.20      AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20      AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.20      PEAK FLOW RATE(CFS) = 2.85

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71

*****
FLOW PROCESS FROM NODE 1022.00 TO NODE 1023.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2280.00 DOWNSTREAM(FEET) = 2240.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 68.00 CHANNEL SLOPE = 0.5882
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH( FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2.85
FLOW VELOCITY(FEET/SEC.) = 7.79 FLOW DEPTH( FEET) = 0.29
TRAVEL TIME(MIN.) = 0.15 Tc(MIN.) = 8.24
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1023.00 = 478.00 FEET.

*****
FLOW PROCESS FROM NODE 1022.00 TO NODE 1023.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 8.24
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.806
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL      AREA      Fp      Ap      SCS
LAND USE      GROUP      (ACRES)      (INCH/HR)      (DECIMAL)      CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"      D      1.70      0.20      1.00      81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 1.70      SUBAREA RUNOFF(CFS) = 3.99
EFFECTIVE AREA(ACRES) = 2.90      AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20      AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2.90      PEAK FLOW RATE(CFS) = 6.80

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71

*****
FLOW PROCESS FROM NODE 1023.00 TO NODE 1024.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2240.00 DOWNSTREAM(FEET) = 2200.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 72.00 CHANNEL SLOPE = 0.5556
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH( FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 6.80
FLOW VELOCITY(FEET/SEC.) = 9.84 FLOW DEPTH( FEET) = 0.47
TRAVEL TIME(MIN.) = 0.12 Tc(MIN.) = 8.36
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1024.00 = 550.00 FEET.

*****
FLOW PROCESS FROM NODE 1023.00 TO NODE 1024.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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=====
MAINLINE Tc(MIN) = 8.36
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.776
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL      AREA      Fp      Ap      SCS
LAND USE      GROUP      (ACRES)      (INCH/HR)      (DECIMAL)      CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"      D      0.30      0.20      1.00      81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.30      SUBAREA RUNOFF(CFS) = 0.70
EFFECTIVE AREA(ACRES) = 3.20      AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20      AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3.20      PEAK FLOW RATE(CFS) = 7.42

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71

*****
FLOW PROCESS FROM NODE 1024.00 TO NODE 1025.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2200.00 DOWNSTREAM(FEET) = 2160.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 111.00 CHANNEL SLOPE = 0.3604
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH( FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7.42
FLOW VELOCITY(FEET/SEC.) = 8.62 FLOW DEPTH( FEET) = 0.55
TRAVEL TIME(MIN.) = 0.21 Tc(MIN.) = 8.58
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1025.00 = 661.00 FEET.

*****
FLOW PROCESS FROM NODE 1024.00 TO NODE 1025.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 8.58
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.723
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL      AREA      Fp      Ap      SCS
LAND USE      GROUP      (ACRES)      (INCH/HR)      (DECIMAL)      CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"      D      1.80      0.20      1.00      81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 1.80      SUBAREA RUNOFF(CFS) = 4.09
EFFECTIVE AREA(ACRES) = 5.00      AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20      AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 5.00      PEAK FLOW RATE(CFS) = 11.35

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71

*****
FLOW PROCESS FROM NODE 1025.00 TO NODE 1026.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2160.00 DOWNSTREAM(FEET) = 2080.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 289.00 CHANNEL SLOPE = 0.2768
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH( FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 11.35
FLOW VELOCITY(FEET/SEC.) = 8.30 FLOW DEPTH( FEET) = 0.54
TRAVEL TIME(MIN.) = 0.58 Tc(MIN.) = 9.16

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LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1026.00 = 950.00 FEET.
*****
FLOW PROCESS FROM NODE 1025.00 TO NODE 1026.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 9.16
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.579
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp          Ap      SCS
LAND USE                GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D        3.40     0.20       1.00       81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 3.40 SUBAREA RUNOFF(CFS) = 7.28
EFFECTIVE AREA(ACRES) = 8.40 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 8.40 PEAK FLOW RATE(CFS) = 17.98

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71
*****
FLOW PROCESS FROM NODE 1026.00 TO NODE 1027.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2080.00 DOWNSTREAM(FEET) = 2040.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 185.00 CHANNEL SLOPE = 0.2162
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 17.98
FLOW VELOCITY(FEET/SEC.) = 8.71 FLOW DEPTH(FEET) = 0.75
TRAVEL TIME(MIN.) = 0.35 Tc(MIN.) = 9.51
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1027.00 = 1135.00 FEET.

*****
FLOW PROCESS FROM NODE 1026.00 TO NODE 1027.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 9.51
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.491
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp          Ap      SCS
LAND USE                GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D        6.20     0.20       1.00       81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 6.20 SUBAREA RUNOFF(CFS) = 12.78
EFFECTIVE AREA(ACRES) = 14.60 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 14.60 PEAK FLOW RATE(CFS) = 30.10

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71
*****
FLOW PROCESS FROM NODE 1027.00 TO NODE 1028.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2040.00 DOWNSTREAM(FEET) = 2000.00

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CHANNEL LENGTH THRU SUBAREA(FEET) = 197.00 CHANNEL SLOPE = 0.2030
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 30.10
FLOW VELOCITY(FEET/SEC.) = 9.80 FLOW DEPTH(FEET) = 1.02
TRAVEL TIME(MIN.) = 0.33 Tc(MIN.) = 9.85
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1028.00 = 1332.00 FEET.
*****
FLOW PROCESS FROM NODE 1027.00 TO NODE 1028.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 9.85
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.408
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp          Ap      SCS
LAND USE                GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D        9.90     0.20       1.00       81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 9.90 SUBAREA RUNOFF(CFS) = 19.67
EFFECTIVE AREA(ACRES) = 24.50 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 24.50 PEAK FLOW RATE(CFS) = 48.69

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.68; 1HR = 0.99; 3HR = 2.01; 6HR = 3.14; 24HR = 5.71
*****
FLOW PROCESS FROM NODE 1028.00 TO NODE 1029.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2000.00 DOWNSTREAM(FEET) = 1835.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 476.00 CHANNEL SLOPE = 0.3466
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 48.69
FLOW VELOCITY(FEET/SEC.) = 13.61 FLOW DEPTH(FEET) = 1.14
TRAVEL TIME(MIN.) = 0.58 Tc(MIN.) = 10.43
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1029.00 = 1808.00 FEET.

*****
FLOW PROCESS FROM NODE 1028.00 TO NODE 1029.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 10.43
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.329
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp          Ap      SCS
LAND USE                GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D        4.00     0.20       1.00       81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.00 SUBAREA RUNOFF(CFS) = 7.66
EFFECTIVE AREA(ACRES) = 28.50 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 28.50 PEAK FLOW RATE(CFS) = 54.60

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.33; 30M = 0.64; 1HR = 0.89; 3HR = 1.66; 6HR = 2.48; 24HR = 4.37
*****

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FLOW PROCESS FROM NODE 1029.00 TO NODE 1029.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 10.43
RAINFALL INTENSITY(INCH/HR) = 2.33
AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 28.50
TOTAL STREAM AREA(ACRES) = 28.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 54.60

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	59.66	11.94	2.184	0.20(0.20)	1.00	33.4	1010.00
1	58.74	12.31	2.148	0.20(0.20)	1.00	33.5	1000.00
2	54.60	10.43	2.329	0.20(0.20)	1.00	28.5	1020.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	110.52	10.43	2.329	0.20(0.20)	1.00	57.7	1020.00
2	110.54	11.94	2.184	0.20(0.20)	1.00	61.9	1010.00
3	108.71	12.31	2.148	0.20(0.20)	1.00	62.0	1000.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 110.54 Tc(MIN.) = 11.94
EFFECTIVE AREA(ACRES) = 61.91 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 62.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1029.00 = 1938.00 FEET.

FLOW PROCESS FROM NODE 1029.00 TO NODE 1030.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1835.00 DOWNSTREAM(FEET) = 1680.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1378.00 CHANNEL SLOPE = 0.1125
CHANNEL BASE(FEET) = 3.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 3.00
CHANNEL FLOW THRU SUBAREA(CFS) = 110.54
FLOW VELOCITY(FEET/SEC.) = 10.98 FLOW DEPTH(FEET) = 2.01
TRAVEL TIME(MIN.) = 2.09 Tc(MIN.) = 14.03
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1030.00 = 3316.00 FEET.

FLOW PROCESS FROM NODE 1029.00 TO NODE 1030.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 14.03
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.983
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	33.70	0.20	1.00	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 33.70 SUBAREA RUNOFF(CFS) = 54.08
EFFECTIVE AREA(ACRES) = 95.61 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 95.70 PEAK FLOW RATE(CFS) = 153.44

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.29; 30M = 0.61; 1HR = 0.83; 3HR = 1.46; 6HR = 2.10; 24HR = 3.62

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	158.57	12.52	2.128	0.20(0.20)	1.00	91.4	1020.00
2	153.44	14.03	1.983	0.20(0.20)	1.00	95.6	1010.00
3	150.48	14.40	1.947	0.20(0.20)	1.00	95.7	1000.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 158.57 Tc(MIN.) = 12.52
AREA-AVERAGED Fm(INCH/HR) = 0.20 AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 91.39

FLOW PROCESS FROM NODE 1030.00 TO NODE 1031.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1680.00 DOWNSTREAM(FEET) = 1630.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 523.00 CHANNEL SLOPE = 0.0956
CHANNEL BASE(FEET) = 4.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 4.00
CHANNEL FLOW THRU SUBAREA(CFS) = 158.57
FLOW VELOCITY(FEET/SEC.) = 11.25 FLOW DEPTH(FEET) = 2.25
TRAVEL TIME(MIN.) = 0.77 Tc(MIN.) = 13.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1031.00 = 3839.00 FEET.

FLOW PROCESS FROM NODE 1030.00 TO NODE 1031.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 13.30
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.054
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	81.00	0.20	1.00	81
NATURAL FAIR COVER "GRASS"	D	1.00	0.20	1.00	84
NATURAL FAIR COVER "OPEN BRUSH"	D	1.80	0.20	1.00	83

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 83.80 SUBAREA RUNOFF(CFS) = 139.80
EFFECTIVE AREA(ACRES) = 175.19 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 179.50 PEAK FLOW RATE(CFS) = 292.25

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.31; 30M = 0.62; 1HR = 0.85; 3HR = 1.56; 6HR = 2.28; 24HR = 3.98

FLOW PROCESS FROM NODE 1031.00 TO NODE 1032.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1630.00 DOWNSTREAM(FEET) = 1520.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 1128.00 CHANNEL SLOPE = 0.0975
CHANNEL BASE(FEET) = 5.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 5.00
CHANNEL FLOW THRU SUBAREA(CFS) = 292.25
FLOW VELOCITY(FEET/SEC.) = 13.22 FLOW DEPTH(FEET) = 2.83
TRAVEL TIME(MIN.) = 1.42 Tc(MIN.) = 14.72
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1032.00 = 4967.00 FEET.

FLOW PROCESS FROM NODE 1031.00 TO NODE 1032.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 14.72

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.917

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	0.50	0.25	1.00	75
NATURAL FAIR COVER					
"WOODLAND"	C	0.10	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	167.20	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	0.90	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	6.60	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	0.80	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 176.10 SUBAREA RUNOFF(CFS) = 272.10
EFFECTIVE AREA(ACRES) = 351.29 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 355.60 PEAK FLOW RATE(CFS) = 542.82

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.31; 30M = 0.62; 1HR = 0.85; 3HR = 1.55; 6HR = 2.26; 24HR = 3.93

FLOW PROCESS FROM NODE 1032.00 TO NODE 1033.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1520.00 DOWNSTREAM(FEET) = 1320.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1992.00 CHANNEL SLOPE = 0.1004
CHANNEL BASE(FEET) = 6.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 6.00
CHANNEL FLOW THRU SUBAREA(CFS) = 542.82
FLOW VELOCITY(FEET/SEC.) = 15.64 FLOW DEPTH(FEET) = 3.61
TRAVEL TIME(MIN.) = 2.12 Tc(MIN.) = 16.84
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1033.00 = 6959.00 FEET.

FLOW PROCESS FROM NODE 1032.00 TO NODE 1033.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 16.84

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.761

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	A	0.70	0.40	1.00	40
NATURAL FAIR COVER					

"OPEN BRUSH"	A	1.60	0.40	1.00	46
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	20.50	0.25	1.00	75
NATURAL FAIR COVER					
"OPEN BRUSH"	C	1.50	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	32.10	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	17.00	0.20	1.00	83

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 73.40 SUBAREA RUNOFF(CFS) = 101.72
EFFECTIVE AREA(ACRES) = 424.69 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 429.00 PEAK FLOW RATE(CFS) = 595.24

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.82; 24HR = 3.04

FLOW PROCESS FROM NODE 1032.00 TO NODE 1033.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 16.84

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.761

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	2.50	0.20	1.00	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 2.50 SUBAREA RUNOFF(CFS) = 3.51
EFFECTIVE AREA(ACRES) = 427.19 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 431.50 PEAK FLOW RATE(CFS) = 598.75

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.82; 24HR = 3.04

FLOW PROCESS FROM NODE 1033.00 TO NODE 1034.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1320.00 DOWNSTREAM(FEET) = 1275.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 804.00 CHANNEL SLOPE = 0.0560
CHANNEL BASE(FEET) = 6.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 6.00
CHANNEL FLOW THRU SUBAREA(CFS) = 598.75
FLOW VELOCITY(FEET/SEC.) = 15.25 FLOW DEPTH(FEET) = 3.95
TRAVEL TIME(MIN.) = 0.88 Tc(MIN.) = 17.72
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1034.00 = 7763.00 FEET.

FLOW PROCESS FROM NODE 1033.00 TO NODE 1034.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 17.72

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.700

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	A	1.90	0.40	1.00	40

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NATURAL FAIR COVER
"OPEN BRUSH"      A      2.20    0.40    1.00    46
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  C      27.10   0.25    1.00    75
NATURAL FAIR COVER
"OPEN BRUSH"      C      7.20    0.25    1.00    77
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D      45.90   0.20    1.00    81
NATURAL FAIR COVER
"OPEN BRUSH"      D      48.60   0.20    1.00    83
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 132.90    SUBAREA RUNOFF(CFS) = 177.08
EFFECTIVE AREA(ACRES) = 560.09    AREA-AVERAGED Fm(INCH/HR) = 0.21
AREA-AVERAGED Fp(INCH/HR) = 0.21    AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 564.40    PEAK FLOW RATE(CFS) = 752.18

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

*****
FLOW PROCESS FROM NODE 1034.00 TO NODE 1035.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 1275.00 DOWNSTREAM(FEET) = 1200.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1266.00 CHANNEL SLOPE = 0.0592
CHANNEL BASE(FEET) = 7.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 7.00
CHANNEL FLOW THRU SUBAREA(CFS) = 752.18
FLOW VELOCITY(FEET/SEC.) = 16.44 FLOW DEPTH(FEET) = 4.12
TRAVEL TIME(MIN.) = 1.28 Tc(MIN.) = 19.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1035.00 = 9029.00 FEET.

*****
FLOW PROCESS FROM NODE 1034.00 TO NODE 1035.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
-----
MAINLINE Tc(MIN) = 19.00
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.610
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A 11.50 0.40 1.00 40
NATURAL FAIR COVER
"OPEN BRUSH" A 2.70 0.40 1.00 46
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 14.60 0.25 1.00 75
NATURAL FAIR COVER
"OPEN BRUSH" C 16.60 0.25 1.00 77
NATURAL FAIR COVER
"CHAPARRAL,NARROWLEAF" C 0.10 0.25 1.00 81
NATURAL FAIR COVER
"OPEN BRUSH" D 1.10 0.20 1.00 83
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 46.60 SUBAREA RUNOFF(CFS) = 55.16
EFFECTIVE AREA(ACRES) = 606.69 AREA-AVERAGED Fm(INCH/HR) = 0.21
AREA-AVERAGED Fp(INCH/HR) = 0.21 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 611.00 PEAK FLOW RATE(CFS) = 762.07

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

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FLOW PROCESS FROM NODE 1035.00 TO NODE 1036.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 1200.00 DOWNSTREAM(FEET) = 1100.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1639.00 CHANNEL SLOPE = 0.0610
CHANNEL BASE(FEET) = 7.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 7.00
CHANNEL FLOW THRU SUBAREA(CFS) = 762.07
FLOW VELOCITY(FEET/SEC.) = 16.69 FLOW DEPTH(FEET) = 4.11
TRAVEL TIME(MIN.) = 1.64 Tc(MIN.) = 20.64
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.

*****
FLOW PROCESS FROM NODE 1035.00 TO NODE 1036.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
-----
MAINLINE Tc(MIN) = 20.64
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.519
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A 11.80 0.40 1.00 40
NATURAL FAIR COVER
"OPEN BRUSH" A 5.20 0.40 1.00 46
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 20.30 0.25 1.00 75
NATURAL FAIR COVER
"OPEN BRUSH" C 21.80 0.25 1.00 77
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 59.10 SUBAREA RUNOFF(CFS) = 65.20
EFFECTIVE AREA(ACRES) = 665.79 AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 670.10 PEAK FLOW RATE(CFS) = 777.65

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

*****
FLOW PROCESS FROM NODE 1036.00 TO NODE 1036.00 IS CODE = 7
-----
>>>>PEAK FLOW RATE ESTIMATOR CHANGED TO UNIT-HYDROGRAPH METHOD<<<<<
>>>>USING TIME-OF-CONCENTRATION OF LONGEST FLOWPATH<<<<<
-----
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.29;30M= 0.61;1H= 0.83;3H= 1.47;6H= 2.11;24H= 3.62
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.38; LAG(HR) = 0.30; Fm(INCH/HR) = 0.22; Ybar = 0.54
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.97; 30M = 0.97; 1HR = 0.97;
3HR = 1.00; 6HR = 1.00; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 670.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0399; Lca/L=0.4,n=.0357; Lca/L=0.5,n=.0328;Lca/L=0.6,n=.0306
TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 104.69
UNIT-HYDROGRAPH METHOD PEAK FLOW RATE(CFS) = 642.85
TOTAL PEAK FLOW RATE(CFS) = 642.85 (SOURCE FLOW INCLUDED)
RATIONAL METHOD PEAK FLOW RATE(CFS) = 777.65
(UPSTREAM NODE PEAK FLOW RATE(CFS) = 777.65)
PEAK FLOW RATE(CFS) USED = 777.65

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END OF STUDY SUMMARY:

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TOTAL AREA(ACRES) = 670.10 TC(MIN.) = 22.68
AREA-AVERAGED Fm(INCH/HR)= 0.22 Ybar = 0.54
PEAK FLOW RATE(CFS) = 777.65

=====
=====
END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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FILE NAME: MU37010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / OUT- / PARK- SIDE / SIDE / WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1036.00 TO NODE 1036.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU36010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 777.65 Tc(MIN.) = 22.68
AREA-AVERAGED Fm(INCH/HR) = 0.22 Ybar = 0.54
TOTAL AREA(ACRES) = 670.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.

FLOW PROCESS FROM NODE 1036.00 TO NODE 1036.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 777.65 Tc(MIN.) = 22.68
AREA-AVERAGED Fm(INCH/HR) = 0.22 Ybar = 0.54
TOTAL AREA(ACRES) = 670.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.

FLOW PROCESS FROM NODE 1036.00 TO NODE 1036.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1036.00 TO NODE 1037.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 1100.00 DOWNSTREAM(FEET) = 1010.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1517.00 CHANNEL SLOPE = 0.0593
CHANNEL BASE(FEET) = 7.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 7.00
CHANNEL FLOW THRU SUBAREA(CFS) = 777.65
FLOW VELOCITY(FEET/SEC.) = 16.61 FLOW DEPTH(FEET) = 4.19
TRAVEL TIME(MIN.) = 1.52 Tc(MIN.) = 24.21
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.

FLOW PROCESS FROM NODE 1036.00 TO NODE 1037.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 24.21
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.644
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	23.70	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	6.70	0.40	1.00	46
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	82.50	0.25	1.00	75
NATURAL FAIR COVER "OPEN BRUSH"	C	114.00	0.25	1.00	77
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	C	24.20	0.25	1.00	81
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	2.50	0.20	1.00	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 253.60
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.28;30M= 0.60;1H= 0.81;3H= 1.43;6H= 2.03;24H= 3.48
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.40; LAG(HR) = 0.32; Fm(INCH/HR) = 0.23; Ybar = 0.58
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.96; 30M = 0.96; 1HR = 0.96;
 3HR = 0.99; 6HR = 1.00; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 923.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0380; Lca/L=0.4,n=.0340; Lca/L=0.5,n=.0313;Lca/L=0.6,n=.0292
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 129.54
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 809.69
 TOTAL AREA(ACRES) = 923.70 PEAK FLOW RATE(CFS) = 809.69

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.33; 6HR = 1.84; 24HR = 3.09

 FLOW PROCESS FROM NODE 1036.00 TO NODE 1037.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====
 MAINLINE Tc(MIN) = 24.21
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.401
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	D	84.70	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	10.60	0.20	1.00	86

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 95.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.28;30M= 0.60;1H= 0.81;3H= 1.42;6H= 2.01;24H= 3.44
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.40; LAG(HR) = 0.32; Fm(INCH/HR) = 0.23; Ybar = 0.57
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.95; 30M = 0.95; 1HR = 0.95;
 3HR = 0.99; 6HR = 1.00; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1019.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0380; Lca/L=0.4,n=.0340; Lca/L=0.5,n=.0313;Lca/L=0.6,n=.0292
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 143.29
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 887.03
 TOTAL AREA(ACRES) = 1019.00 PEAK FLOW RATE(CFS) = 887.03

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.33; 6HR = 1.84; 24HR = 3.09

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 1019.00 TC(MIN.) = 24.21
 AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.57
 PEAK FLOW RATE(CFS) = 887.03

=====
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2003 Advanced Engineering Software (aes)
Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU38010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	3.610
2)	10.000;	2.370
3)	15.000;	1.890
4)	20.000;	1.540
5)	30.000;	1.210
6)	60.000;	0.840
7)	120.000;	0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
---	------	------	-------------------	------	------	--------	-------	--------

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1037.00 TO NODE 1037.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU37010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 887.03 Tc(MIN.) = 24.21
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.57
TOTAL AREA(ACRES) = 1019.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.

FLOW PROCESS FROM NODE 1037.00 TO NODE 1037.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 887.03 Tc(MIN.) = 24.21
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.57
TOTAL AREA(ACRES) = 1019.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.

FLOW PROCESS FROM NODE 1037.00 TO NODE 1037.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1037.00 TO NODE 1038.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 1010.00 DOWNSTREAM(FEET) = 925.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2069.00 CHANNEL SLOPE = 0.0411
CHANNEL BASE(FEET) = 8.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 8.00
CHANNEL FLOW THRU SUBAREA(CFS) = 887.03
FLOW VELOCITY(FEET/SEC.) = 14.94 FLOW DEPTH(FEET) = 4.68
TRAVEL TIME(MIN.) = 2.31 Tc(MIN.) = 26.51
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.

FLOW PROCESS FROM NODE 1037.00 TO NODE 1038.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 26.51
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.561
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	10.20	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	0.40	0.40	1.00	46
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	31.20	0.25	1.00	75
NATURAL FAIR COVER "OPEN BRUSH"	C	17.50	0.25	1.00	77
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	C	4.70	0.25	1.00	81
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	1.20	0.20	1.00	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 65.20
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.28;30M= 0.60;1H= 0.81;3H= 1.41;6H= 2.00;24H= 3.42
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.44; LAG(HR) = 0.35; Fm(INCH/HR) = 0.23; Ybar = 0.58
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.95; 30M = 0.95; 1HR = 0.95;
 3HR = 0.99; 6HR = 1.00; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1084.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0362; Lca/L=0.4,n=.0325; Lca/L=0.5,n=.0298;Lca/L=0.6,n=.0279
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 149.10
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 868.06
 TOTAL AREA(ACRES) = 1084.20 PEAK FLOW RATE(CFS) = 887.03
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1037.00 TO NODE 1038.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 26.51
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.325
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	D	17.00	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	1.90	0.20	1.00	86

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 18.90

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.28;30M= 0.60;1H= 0.81;3H= 1.41;6H= 2.00;24H= 3.41
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.44; LAG(HR) = 0.35; Fm(INCH/HR) = 0.23; Ybar = 0.58
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.95; 30M = 0.95; 1HR = 0.95;
 3HR = 0.99; 6HR = 1.00; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1103.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0362; Lca/L=0.4,n=.0325; Lca/L=0.5,n=.0298;Lca/L=0.6,n=.0279
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 151.75
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 882.17
 TOTAL AREA(ACRES) = 1103.10 PEAK FLOW RATE(CFS) = 887.03
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 1103.10 TC(MIN.) = 26.51
 AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.58
 PEAK FLOW RATE(CFS) = 887.03

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2003 Advanced Engineering Software (aes)
Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU39010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / OUT- / PARK- SIDE / SIDE / WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc

S-GRAPH TYPE	PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED)	0.000
FOOTHILL	0.000
MOUNTAIN	1.000
VALLEY(UNDEVELOPED)/DESERT	0.000
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1038.00 TO NODE 1038.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU38010E.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 887.03 Tc(MIN.) = 26.51

AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.58

TOTAL AREA(ACRES) = 1103.10

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.

FLOW PROCESS FROM NODE 1038.00 TO NODE 1038.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 887.03 Tc(MIN.) = 26.51

AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.58

TOTAL AREA(ACRES) = 1103.10

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.

FLOW PROCESS FROM NODE 1038.00 TO NODE 1038.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1038.00 TO NODE 1039.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 925.00 DOWNSTREAM(FEET) = 873.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 1383.00 CHANNEL SLOPE = 0.0376

CHANNEL BASE(FEET) = 8.00 "Z" FACTOR = 1.000

MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 8.00

CHANNEL FLOW THRU SUBAREA(CFS) = 887.03

FLOW VELOCITY(FEET/SEC.) = 14.46 FLOW DEPTH(FEET) = 4.79

TRAVEL TIME(MIN.) = 1.59 Tc(MIN.) = 28.11

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.

FLOW PROCESS FROM NODE 1038.00 TO NODE 1039.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 28.11

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.509

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	A	55.80	0.40	1.00	40
NATURAL FAIR COVER					
"OPEN BRUSH"	A	2.30	0.40	1.00	46
NATURAL FAIR COVER					
"WOODLAND"	A	0.20	0.40	1.00	36
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	106.00	0.25	1.00	75
NATURAL FAIR COVER					
"OPEN BRUSH"	C	112.00	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	1.90	0.25	1.00	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 278.20

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.28;30M= 0.60;1H= 0.81;3H= 1.41;6H= 2.00;24H= 3.42
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.47; LAG(HR) = 0.37; Fm(INCH/HR) = 0.24; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.94; 30M = 0.94; 1HR = 0.94;
 3HR = 0.99; 6HR = 1.00; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1381.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0354; Lca/L=0.4,n=.0318; Lca/L=0.5,n=.0292;Lca/L=0.6,n=.0272
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 181.76
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1016.50
 TOTAL AREA(ACRES) = 1381.30 PEAK FLOW RATE(CFS) = 1016.50

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.28; 30M = 0.60; 1HR = 0.81; 3HR = 1.42; 6HR = 2.02; 24HR = 3.46

 FLOW PROCESS FROM NODE 1038.00 TO NODE 1039.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====
 MAINLINE Tc(MIN) = 28.11
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.272
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND"	C	0.70	0.25	1.00	73
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	28.50	0.20	1.00	81
NATURAL FAIR COVER "GRASS"	D	25.50	0.20	1.00	84
NATURAL FAIR COVER "OPEN BRUSH"	D	92.90	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	0.80	0.20	1.00	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 148.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.28;30M= 0.60;1H= 0.81;3H= 1.41;6H= 2.01;24H= 3.42
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.47; LAG(HR) = 0.37; Fm(INCH/HR) = 0.24; Ybar = 0.59
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.93; 30M = 0.93; 1HR = 0.93;
 3HR = 0.99; 6HR = 0.99; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1529.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0354; Lca/L=0.4,n=.0318; Lca/L=0.5,n=.0292;Lca/L=0.6,n=.0272
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 205.66
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1122.65
 TOTAL AREA(ACRES) = 1529.70 PEAK FLOW RATE(CFS) = 1122.65

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.28; 30M = 0.60; 1HR = 0.81; 3HR = 1.42; 6HR = 2.02; 24HR = 3.46

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 1529.70 TC(MIN.) = 28.11
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.59
 PEAK FLOW RATE(CFS) = 1122.65

=====
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2003 Advanced Engineering Software (aes)
Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU40010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / SIDE	OUT- / SIDE/ WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020		0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1039.00 TO NODE 1039.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU39010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1122.65 Tc(MIN.) = 28.11
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.59
TOTAL AREA(ACRES) = 1529.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.

FLOW PROCESS FROM NODE 1039.00 TO NODE 1039.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1122.65 Tc(MIN.) = 28.11
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.59
TOTAL AREA(ACRES) = 1529.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.

FLOW PROCESS FROM NODE 1039.00 TO NODE 1039.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1039.00 TO NODE 1040.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 873.00 DOWNSTREAM(FEET) = 780.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2714.00 CHANNEL SLOPE = 0.0343
CHANNEL BASE(FEET) = 9.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 9.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1122.65
FLOW VELOCITY(FEET/SEC.) = 14.81 FLOW DEPTH(FEET) = 5.30
TRAVEL TIME(MIN.) = 3.05 Tc(MIN.) = 31.16
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.

FLOW PROCESS FROM NODE 1039.00 TO NODE 1040.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 31.16
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.423
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	31.10	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	2.20	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	12.10	0.40	1.00	46
AGRICULTURAL FAIR COVER "PASTURE,DRYLAND"	A	0.10	0.40	1.00	49
NATURAL FAIR COVER "WOODLAND"	A	8.70	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	122.30	0.25	1.00	75

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 176.50
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.28;30M= 0.60;1H= 0.81;3H= 1.41;6H= 2.00;24H= 3.41
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.52; LAG(HR) = 0.42; Fm(INCH/HR) = 0.24; Ybar = 0.61
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.92; 30M = 0.92; 1HR = 0.92;
3HR = 0.99; 6HR = 0.99; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1706.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0341; Lca/L=0.4,n=.0306; Lca/L=0.5,n=.0281;Lca/L=0.6,n=.0262
TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 220.95
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1194.41
TOTAL AREA(ACRES) = 1706.20 PEAK FLOW RATE(CFS) = 1194.41

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.28; 30M = 0.60; 1HR = 0.80; 3HR = 1.39; 6HR = 1.96; 24HR = 3.32

FLOW PROCESS FROM NODE 1039.00 TO NODE 1040.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 31.16

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.196
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	C	1.60	0.25	1.00	79
AGRICULTURAL FAIR COVER					
"ORCHARDS"	C	1.30	0.25	1.00	77
NATURAL FAIR COVER					
"OPEN BRUSH"	C	137.40	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	0.90	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	129.90	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	12.70	0.20	1.00	84

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 283.80

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.28;30M= 0.60;1H= 0.81;3H= 1.41;6H= 1.99;24H= 3.40
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.52; LAG(HR) = 0.42; Fm(INCH/HR) = 0.24; Ybar = 0.60
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.91; 30M = 0.91; 1HR = 0.91;
3HR = 0.99; 6HR = 0.99; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1990.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0341; Lca/L=0.4,n=.0306; Lca/L=0.5,n=.0281;Lca/L=0.6,n=.0262
TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 258.77
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1375.08
TOTAL AREA(ACRES) = 1990.00 PEAK FLOW RATE(CFS) = 1375.08

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.28; 30M = 0.60; 1HR = 0.80; 3HR = 1.39; 6HR = 1.96; 24HR = 3.32

FLOW PROCESS FROM NODE 1039.00 TO NODE 1040.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 31.16

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.196
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	116.40	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	4.40	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	2.90	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 123.70
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.28;30M= 0.60;1H= 0.81;3H= 1.41;6H= 1.99;24H= 3.40
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.52; LAG(HR) = 0.42; Fm(INCH/HR) = 0.24; Ybar = 0.59
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.91; 30M = 0.91; 1HR = 0.91;
3HR = 0.99; 6HR = 0.99; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2113.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0341; Lca/L=0.4,n=.0306; Lca/L=0.5,n=.0281;Lca/L=0.6,n=.0262
TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 277.61
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1454.93
TOTAL AREA(ACRES) = 2113.70 PEAK FLOW RATE(CFS) = 1454.93

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.28; 30M = 0.60; 1HR = 0.80; 3HR = 1.39; 6HR = 1.96; 24HR = 3.32
=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 2113.70 TC(MIN.) = 31.16
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.59
PEAK FLOW RATE(CFS) = 1454.93
=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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FILE NAME: MU41010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	3.610
2)	10.000;	2.370
3)	15.000;	1.890
4)	20.000;	1.540
5)	30.000;	1.210
6)	60.000;	0.840
7)	120.000;	0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1040.00 TO NODE 1040.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU40010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1454.93 Tc(MIN.) = 31.16
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.59
TOTAL AREA(ACRES) = 2113.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.

FLOW PROCESS FROM NODE 1040.00 TO NODE 1040.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1454.93 Tc(MIN.) = 31.16
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.59
TOTAL AREA(ACRES) = 2113.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.

FLOW PROCESS FROM NODE 1040.00 TO NODE 1040.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1040.00 TO NODE 1041.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 780.00 DOWNSTREAM(FEET) = 695.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2758.00 CHANNEL SLOPE = 0.0308
CHANNEL BASE(FEET) = 10.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1454.93
FLOW VELOCITY(FEET/SEC.) = 15.18 FLOW DEPTH(FEET) = 5.99
TRAVEL TIME(MIN.) = 3.03 Tc(MIN.) = 34.19
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.

FLOW PROCESS FROM NODE 1040.00 TO NODE 1041.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 34.19
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.349
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	30.00	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	1.20	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	28.60	0.40	1.00	46
AGRICULTURAL FAIR COVER "PASTURE,DRYLAND"	A	1.60	0.40	1.00	49
NATURAL FAIR COVER "WOODLAND"	A	14.70	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	87.40	0.25	1.00	75

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.32
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 163.50
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.28;30M= 0.60;1H= 0.80;3H= 1.40;6H= 1.98;24H= 3.37
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.57; LAG(HR) = 0.46; Fm(INCH/HR) = 0.24; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.90; 30M = 0.90; 1HR = 0.90;
 3HR = 0.98; 6HR = 0.99; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2277.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0331; Lca/L=0.4,n=.0297; Lca/L=0.5,n=.0272;Lca/L=0.6,n=.0254
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 286.70
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1474.69
 TOTAL AREA(ACRES) = 2277.20 PEAK FLOW RATE(CFS) = 1474.69

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.04

 FLOW PROCESS FROM NODE 1040.00 TO NODE 1041.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 34.19
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.158
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	C	10.40	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	138.60	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	2.90	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	36.10	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	56.80	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	220.70	0.20	1.00	83

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 465.50
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.28;30M= 0.60;1H= 0.80;3H= 1.38;6H= 1.95;24H= 3.31
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.57; LAG(HR) = 0.46; Fm(INCH/HR) = 0.24; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.88; 30M = 0.88; 1HR = 0.88;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2742.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0331; Lca/L=0.4,n=.0297; Lca/L=0.5,n=.0272;Lca/L=0.6,n=.0254
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 344.76
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1727.42
 TOTAL AREA(ACRES) = 2742.70 PEAK FLOW RATE(CFS) = 1727.42

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.04

 FLOW PROCESS FROM NODE 1040.00 TO NODE 1041.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 34.19

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.158
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	D	0.90	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 0.90
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.28;30M= 0.60;1H= 0.80;3H= 1.38;6H= 1.95;24H= 3.31
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.57; LAG(HR) = 0.46; Fm(INCH/HR) = 0.24; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.88; 30M = 0.88; 1HR = 0.88;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2743.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0331; Lca/L=0.4,n=.0297; Lca/L=0.5,n=.0272;Lca/L=0.6,n=.0254
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 344.86
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1727.90
 TOTAL AREA(ACRES) = 2743.60 PEAK FLOW RATE(CFS) = 1727.90

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.04

 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 2743.60 TC(MIN.) = 34.19
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.60
 PEAK FLOW RATE(CFS) = 1727.90

 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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FILE NAME: MU42010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1041.00 TO NODE 1041.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU41010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1727.90 Tc(MIN.) = 34.19
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.60
TOTAL AREA(ACRES) = 2743.60
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.

FLOW PROCESS FROM NODE 1041.00 TO NODE 1041.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1727.90 Tc(MIN.) = 34.19
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.60
TOTAL AREA(ACRES) = 2743.60
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.

FLOW PROCESS FROM NODE 1041.00 TO NODE 1041.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1041.00 TO NODE 1042.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 695.00 DOWNSTREAM(FEET) = 650.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1846.00 CHANNEL SLOPE = 0.0244
CHANNEL BASE(FEET) = 15.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1727.90
FLOW VELOCITY(FEET/SEC.) = 14.25 FLOW DEPTH(FEET) = 5.82
TRAVEL TIME(MIN.) = 2.16 Tc(MIN.) = 36.35
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.

FLOW PROCESS FROM NODE 1041.00 TO NODE 1042.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 36.35
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.303
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A 1.30 0.40 1.00 40
NATURAL FAIR COVER
"GRASS" A 0.20 0.40 1.00 50
NATURAL FAIR COVER
"OPEN BRUSH" A 2.20 0.40 1.00 46
NATURAL FAIR COVER
"WOODLAND" A 5.30 0.40 1.00 36
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 25.10 0.25 1.00 75
NATURAL FAIR COVER
"GRASS" C 3.20 0.25 1.00 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 37.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.80;3H= 1.38;6H= 1.95;24H= 3.31
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.61; LAG(HR) = 0.48; Fm(INCH/HR) = 0.24; Ybar = 0.60
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.88; 30M = 0.88; 1HR = 0.88;
3HR = 0.98; 6HR = 0.99; 24HR= 0.99
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2780.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0326; Lca/L=0.4,n=.0293; Lca/L=0.5,n=.0269;Lca/L=0.6,n=.0251
TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 347.66
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1670.14
TOTAL AREA(ACRES) = 2780.90 PEAK FLOW RATE(CFS) = 1727.90
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1041.00 TO NODE 1042.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 36.35
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.132
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" C 28.60 0.25 1.00 77
NATURAL FAIR COVER
"WOODLAND" C 0.90 0.25 1.00 73
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 18.00 0.20 1.00 81
NATURAL FAIR COVER
"GRASS" D 2.20 0.20 1.00 84
NATURAL FAIR COVER
"OPEN BRUSH" D 44.10 0.20 1.00 83
NATURAL FAIR COVER
"WOODLAND" D 4.60 0.20 1.00 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 98.40

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.80;3H= 1.38;6H= 1.94;24H= 3.30
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.61; LAG(HR) = 0.48; Fm(INCH/HR) = 0.24; Ybar = 0.60
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.87; 30M = 0.87; 1HR = 0.87;
3HR = 0.98; 6HR = 0.99; 24HR= 0.99
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2879.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0326; Lca/L=0.4,n=.0293; Lca/L=0.5,n=.0269;Lca/L=0.6,n=.0251
TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 359.56
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1719.24
TOTAL AREA(ACRES) = 2879.30 PEAK FLOW RATE(CFS) = 1727.90
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 2879.30 TC(MIN.) = 36.35
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.60
PEAK FLOW RATE(CFS) = 1727.90

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=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
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Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU43010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / SIDE	OUT- / SIDE/ WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020		0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1042.00 TO NODE 1042.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU42010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1727.90 Tc(MIN.) = 36.35
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.60
TOTAL AREA(ACRES) = 2879.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.

FLOW PROCESS FROM NODE 1042.00 TO NODE 1042.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1727.90 Tc(MIN.) = 36.35
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.60
TOTAL AREA(ACRES) = 2879.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.

FLOW PROCESS FROM NODE 1042.00 TO NODE 1042.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1042.00 TO NODE 1043.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 650.00 DOWNSTREAM(FEET) = 600.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2257.00 CHANNEL SLOPE = 0.0222
CHANNEL BASE(FEET) = 15.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1727.90
FLOW VELOCITY(FEET/SEC.) = 13.78 FLOW DEPTH(FEET) = 5.98
TRAVEL TIME(MIN.) = 2.73 Tc(MIN.) = 39.08
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.

FLOW PROCESS FROM NODE 1042.00 TO NODE 1043.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 39.08
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.250
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	5.50	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	8.00	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	1.10	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	6.40	0.30	1.00	63
NATURAL FAIR COVER "OPEN BRUSH"	B	2.60	0.30	1.00	66
NATURAL FAIR COVER "WOODLAND"	B	9.60	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 33.20
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.80;3H= 1.38;6H= 1.94;24H= 3.30
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.65; LAG(HR) = 0.52; Fm(INCH/HR) = 0.24; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.87; 30M = 0.87; 1HR = 0.87;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2912.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0323; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0266;Lca/L=0.6,n=.0248
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 360.60
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1623.41
 TOTAL AREA(ACRES) = 2912.50 PEAK FLOW RATE(CFS) = 1727.90
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1042.00 TO NODE 1043.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 39.08
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.098
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	52.90	0.25	1.00	75
NATURAL FAIR COVER					
"OPEN BRUSH"	C	57.90	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	13.50	0.25	1.00	81
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	95.60	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	0.60	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	213.70	0.20	1.00	83

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 434.20
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.80;3H= 1.37;6H= 1.93;24H= 3.26
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.65; LAG(HR) = 0.52; Fm(INCH/HR) = 0.24; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.85; 30M = 0.85; 1HR = 0.85;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3346.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0323; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0266;Lca/L=0.6,n=.0248
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 412.84
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1819.42
 TOTAL AREA(ACRES) = 3346.70 PEAK FLOW RATE(CFS) = 1819.42

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1042.00 TO NODE 1043.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 39.08
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.098
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	D	8.40	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 8.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.80;3H= 1.37;6H= 1.93;24H= 3.26
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.65; LAG(HR) = 0.52; Fm(INCH/HR) = 0.24; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.85; 30M = 0.85; 1HR = 0.85;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3355.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0323; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0266;Lca/L=0.6,n=.0248
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 413.79
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1823.13
 TOTAL AREA(ACRES) = 3355.10 PEAK FLOW RATE(CFS) = 1823.13

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 3355.10 TC(MIN.) = 39.08
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.60
 PEAK FLOW RATE(CFS) = 1823.13
 =====
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU44010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	3.610
2)	10.000;	2.370
3)	15.000;	1.890
4)	20.000;	1.540
5)	30.000;	1.210
6)	60.000;	0.840
7)	120.000;	0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1043.00 TO NODE 1043.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU43010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1823.13 Tc(MIN.) = 39.08
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.60
TOTAL AREA(ACRES) = 3355.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.

FLOW PROCESS FROM NODE 1043.00 TO NODE 1043.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1823.13 Tc(MIN.) = 39.08
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.60
TOTAL AREA(ACRES) = 3355.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.

FLOW PROCESS FROM NODE 1043.00 TO NODE 1043.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1043.00 TO NODE 1044.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 600.00 DOWNSTREAM(FEET) = 580.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1011.00 CHANNEL SLOPE = 0.0198
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1823.13
FLOW VELOCITY(FEET/SEC.) = 13.03 FLOW DEPTH(FEET) = 5.49
TRAVEL TIME(MIN.) = 1.29 Tc(MIN.) = 40.37
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.

FLOW PROCESS FROM NODE 1043.00 TO NODE 1044.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 40.37
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.227
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	1.30	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	1.30	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	0.90	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	0.40	0.30	1.00	63
NATURAL FAIR COVER "OPEN BRUSH"	B	1.60	0.30	1.00	66
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	B	0.70	0.30	1.00	72

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.36
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 6.20
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.80;3H= 1.37;6H= 1.92;24H= 3.26
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.67; LAG(HR) = 0.54; Fm(INCH/HR) = 0.24; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.85; 30M = 0.85; 1HR = 0.85;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3361.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 413.98
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1768.41
 TOTAL AREA(ACRES) = 3361.30 PEAK FLOW RATE(CFS) = 1823.13
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1043.00 TO NODE 1044.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 40.37
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.082
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	B	2.80	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	27.50	0.25	1.00	75
NATURAL FAIR COVER					
"OPEN BRUSH"	C	32.50	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	7.60	0.25	1.00	81
NATURAL FAIR COVER					
"WOODLAND"	C	0.90	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	33.20	0.20	1.00	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 104.50

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.80;3H= 1.37;6H= 1.92;24H= 3.25
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.67; LAG(HR) = 0.54; Fm(INCH/HR) = 0.24; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.85; 30M = 0.85; 1HR = 0.85;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3465.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 424.87
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1810.17
 TOTAL AREA(ACRES) = 3465.80 PEAK FLOW RATE(CFS) = 1823.13
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1043.00 TO NODE 1044.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN) = 40.37
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.082
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	50.70	0.20	1.00	83
NATURAL FAIR COVER					
"WOODLAND"	D	3.70	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 54.40

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.80;3H= 1.37;6H= 1.92;24H= 3.25
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.67; LAG(HR) = 0.54; Fm(INCH/HR) = 0.24; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.84; 30M = 0.84; 1HR = 0.84;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99

UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3520.20

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.

EQUIVALENT BASIN FACTOR APPROXIMATIONS:

Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247

TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 431.88

UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1833.44

TOTAL AREA(ACRES) = 3520.20 PEAK FLOW RATE(CFS) = 1833.44

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):

5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 3520.20 TC(MIN.) = 40.37

AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.60

PEAK FLOW RATE(CFS) = 1833.44

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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FILE NAME: MU45010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----
USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / OUT- / PARK- SIDE / SIDE / WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc

S-GRAPH TYPE	PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED)	0.000
FOOTHILL	0.000
MOUNTAIN	1.000
VALLEY(UNDEVELOPED)/DESERT	0.000
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1044.00 TO NODE 1044.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU44010E.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 1833.44 Tc(MIN.) = 40.37

AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.60

TOTAL AREA(ACRES) = 3520.20

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.

FLOW PROCESS FROM NODE 1044.00 TO NODE 1044.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 1833.44 Tc(MIN.) = 40.37

AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.60

TOTAL AREA(ACRES) = 3520.20

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.

FLOW PROCESS FROM NODE 1044.00 TO NODE 1044.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1044.00 TO NODE 1045.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 580.00 DOWNSTREAM(FEET) = 540.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 1918.00 CHANNEL SLOPE = 0.0209

CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000

MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00

CHANNEL FLOW THRU SUBAREA(CFS) = 1833.44

FLOW VELOCITY(FEET/SEC.) = 13.30 FLOW DEPTH(FEET) = 5.42

TRAVEL TIME(MIN.) = 2.40 Tc(MIN.) = 42.77

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.

FLOW PROCESS FROM NODE 1044.00 TO NODE 1045.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 42.77

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.187

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	6.20	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	2.00	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	6.00	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	4.50	0.30	1.00	63
NATURAL FAIR COVER "OPEN BRUSH"	B	2.40	0.30	1.00	66
NATURAL FAIR COVER "WOODLAND"	B	0.20	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.37

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 21.30

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.80;3H= 1.37;6H= 1.92;24H= 3.25
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.71; LAG(HR) = 0.57; Fm(INCH/HR) = 0.24; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.84; 30M = 0.84; 1HR = 0.84;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3541.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0320; Lca/L=0.4,n=.0287; Lca/L=0.5,n=.0264;Lca/L=0.6,n=.0246
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 432.35
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1829.98
 TOTAL AREA(ACRES) = 3541.50 PEAK FLOW RATE(CFS) = 1833.44
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1044.00 TO NODE 1045.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 42.77
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.052
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	90.40	0.25	1.00	75
NATURAL FAIR COVER					
"OPEN BRUSH"	C	49.60	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	2.20	0.25	1.00	81
NATURAL FAIR COVER					
"WOODLAND"	C	6.70	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	75.70	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	85.10	0.20	1.00	83

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 309.70
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.79;3H= 1.36;6H= 1.91;24H= 3.23
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.71; LAG(HR) = 0.57; Fm(INCH/HR) = 0.24; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.83; 30M = 0.83; 1HR = 0.83;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3851.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0320; Lca/L=0.4,n=.0287; Lca/L=0.5,n=.0264;Lca/L=0.6,n=.0246
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 466.44
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1951.34
 TOTAL AREA(ACRES) = 3851.20 PEAK FLOW RATE(CFS) = 1951.34

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1044.00 TO NODE 1045.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 42.77
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.052
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	D	8.30	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 8.30
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.79;3H= 1.36;6H= 1.91;24H= 3.23
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.71; LAG(HR) = 0.57; Fm(INCH/HR) = 0.24; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.83; 30M = 0.83; 1HR = 0.83;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3859.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0320; Lca/L=0.4,n=.0287; Lca/L=0.5,n=.0264;Lca/L=0.6,n=.0246
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 467.35
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1954.63
 TOTAL AREA(ACRES) = 3859.50 PEAK FLOW RATE(CFS) = 1954.63

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 3859.50 TC(MIN.) = 42.77
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.60
 PEAK FLOW RATE(CFS) = 1954.63
 =====
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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Analysis prepared by:

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FILE NAME: MU46010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1045.00 TO NODE 1045.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU45010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1954.63 Tc(MIN.) = 42.77
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.60
TOTAL AREA(ACRES) = 3859.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.

FLOW PROCESS FROM NODE 1045.00 TO NODE 1045.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1954.63 Tc(MIN.) = 42.77
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.60
TOTAL AREA(ACRES) = 3859.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.

FLOW PROCESS FROM NODE 1045.00 TO NODE 1045.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1045.00 TO NODE 1046.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 540.00 DOWNSTREAM(FEET) = 515.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1273.00 CHANNEL SLOPE = 0.0196
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1954.63
FLOW VELOCITY(FEET/SEC.) = 13.27 FLOW DEPTH(FEET) = 5.72
TRAVEL TIME(MIN.) = 1.60 Tc(MIN.) = 44.37
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.

FLOW PROCESS FROM NODE 1045.00 TO NODE 1046.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 44.37
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.162
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A 0.10 0.40 1.00 40
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B 6.70 0.30 1.00 63
NATURAL FAIR COVER
"OPEN BRUSH" B 1.10 0.30 1.00 66
NATURAL FAIR COVER
"CHAPARRAL,NARROWLEAF" B 0.20 0.30 1.00 72
NATURAL FAIR COVER
"WOODLAND" B 1.00 0.30 1.00 60
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 90.00 0.25 1.00 75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 99.10
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.79;3H= 1.36;6H= 1.91;24H= 3.23
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.74; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.82; 30M = 0.82; 1HR = 0.82;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3958.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 475.98
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1959.80
 TOTAL AREA(ACRES) = 3958.60 PEAK FLOW RATE(CFS) = 1959.80

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1045.00 TO NODE 1046.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 44.37

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.033

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	C	42.90	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	3.80	0.25	1.00	81
NATURAL FAIR COVER					
"WOODLAND"	C	0.80	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	1.60	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	1.70	0.20	1.00	83
NATURAL FAIR COVER					
"WOODLAND"	D	5.70	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 56.50

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.79;3H= 1.36;6H= 1.91;24H= 3.22

S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%

MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 0.74; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.61

USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.

DEPTH-AREA FACTORS: 5M = 0.82; 30M = 0.82; 1HR = 0.82;

3HR = 0.97; 6HR = 0.99; 24HR= 0.99

UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4015.10

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.

EQUIVALENT BASIN FACTOR APPROXIMATIONS:

Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0245

TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 481.75

UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1980.06

TOTAL AREA(ACRES) = 4015.10 PEAK FLOW RATE(CFS) = 1980.06

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):

5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 4015.10 TC(MIN.) = 44.37

AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.61

PEAK FLOW RATE(CFS) = 1980.06

=====

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END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU47010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1046.00 TO NODE 1046.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU46010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1980.06 Tc(MIN.) = 44.37
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.61
TOTAL AREA(ACRES) = 4015.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.

FLOW PROCESS FROM NODE 1046.00 TO NODE 1046.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1980.06 Tc(MIN.) = 44.37
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.61
TOTAL AREA(ACRES) = 4015.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.

FLOW PROCESS FROM NODE 1046.00 TO NODE 1046.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1046.00 TO NODE 1047.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 515.00 DOWNSTREAM(FEET) = 485.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1705.00 CHANNEL SLOPE = 0.0176
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1980.06
FLOW VELOCITY(FEET/SEC.) = 12.81 FLOW DEPTH(FEET) = 5.95
TRAVEL TIME(MIN.) = 2.22 Tc(MIN.) = 46.59
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.

FLOW PROCESS FROM NODE 1046.00 TO NODE 1047.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 46.59
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.130
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	7.40	0.30	1.00	63
NATURAL FAIR COVER "OPEN BRUSH"	B	4.70	0.30	1.00	66
NATURAL FAIR COVER "WOODLAND"	B	2.70	0.30	1.00	60
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	88.50	0.25	1.00	75
NATURAL FAIR COVER "GRASS"	C	0.70	0.25	1.00	79
NATURAL FAIR COVER "OPEN BRUSH"	C	48.30	0.25	1.00	77

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 152.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.79;3H= 1.36;6H= 1.90;24H= 3.22
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.78; LAG(HR) = 0.62; Fm(INCH/HR) = 0.24; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.81; 30M = 0.81; 1HR = 0.81;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4167.40
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 495.30
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1967.22
 TOTAL AREA(ACRES) = 4167.40 PEAK FLOW RATE(CFS) = 1980.06
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1046.00 TO NODE 1047.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 46.59
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.005
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	12.70	0.25	1.00	81
NATURAL FAIR COVER					
"WOODLAND"	C	5.70	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	2.60	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	1.10	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	7.10	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 29.90
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.79;3H= 1.36;6H= 1.90;24H= 3.22
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.78; LAG(HR) = 0.62; Fm(INCH/HR) = 0.24; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.81; 30M = 0.81; 1HR = 0.81;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4197.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 498.70
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1977.67
 TOTAL AREA(ACRES) = 4197.30 PEAK FLOW RATE(CFS) = 1980.06
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1046.00 TO NODE 1047.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====
 MAINLINE Tc(MIN) = 46.59
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.005
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	D	8.70	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 8.70
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.79;3H= 1.36;6H= 1.90;24H= 3.22
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.78; LAG(HR) = 0.62; Fm(INCH/HR) = 0.24; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.81; 30M = 0.81; 1HR = 0.81;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4206.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 499.65
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1980.81
 TOTAL AREA(ACRES) = 4206.00 PEAK FLOW RATE(CFS) = 1980.81

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 4206.00 TC(MIN.) = 46.59
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.61
 PEAK FLOW RATE(CFS) = 1980.81
 =====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU48010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1047.00 TO NODE 1047.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU47010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1980.81 Tc(MIN.) = 46.59
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.61
TOTAL AREA(ACRES) = 4206.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.

FLOW PROCESS FROM NODE 1047.00 TO NODE 1047.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1980.81 Tc(MIN.) = 46.59
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.61
TOTAL AREA(ACRES) = 4206.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.

FLOW PROCESS FROM NODE 1047.00 TO NODE 1047.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1047.00 TO NODE 1048.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 485.00 DOWNSTREAM(FEET) = 445.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2398.00 CHANNEL SLOPE = 0.0167
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1980.81
FLOW VELOCITY(FEET/SEC.) = 12.58 FLOW DEPTH(FEET) = 6.05
TRAVEL TIME(MIN.) = 3.18 Tc(MIN.) = 49.77
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1047.00 TO NODE 1048.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 49.77
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.088
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B 1.80 0.30 1.00 63
NATURAL FAIR COVER
"GRASS" B 3.00 0.30 1.00 69
NATURAL FAIR COVER
"WOODLAND" B 8.10 0.30 1.00 60
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 86.10 0.25 1.00 75
NATURAL FAIR COVER
"GRASS" C 4.70 0.25 1.00 79
NATURAL FAIR COVER
"OPEN BRUSH" C 47.30 0.25 1.00 77
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 151.00
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.79;3H= 1.36;6H= 1.90;24H= 3.21
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.83; LAG(HR) = 0.66; Fm(INCH/HR) = 0.24; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.81; 30M = 0.81; 1HR = 0.81;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4357.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 513.09
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1920.39
 TOTAL AREA(ACRES) = 4357.00 PEAK FLOW RATE(CFS) = 1980.81
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1047.00 TO NODE 1048.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 49.77
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.966
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND"	C	22.40	0.25	1.00	73
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	6.80	0.20	1.00	81
NATURAL FAIR COVER "GRASS"	D	6.30	0.20	1.00	84
NATURAL FAIR COVER "OPEN BRUSH"	D	2.80	0.20	1.00	83
NATURAL FAIR COVER "WOODLAND"	D	11.70	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 50.00
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.79;3H= 1.36;6H= 1.90;24H= 3.21
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.83; LAG(HR) = 0.66; Fm(INCH/HR) = 0.24; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.80; 30M = 0.80; 1HR = 0.80;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4407.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 518.19
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1936.29
 TOTAL AREA(ACRES) = 4407.00 PEAK FLOW RATE(CFS) = 1980.81
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 4407.00 TC(MIN.) = 49.77
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.61
 PEAK FLOW RATE(CFS) = 1980.81

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

**TECHNICAL APPENDIX II-A
HYDROLOGIC ANALYSIS
UPSTREAM AREAS
100-YEAR EXPECTED VALUE**

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2003 Advanced Engineering Software (aes)
Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MU36100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1000.00 TO NODE 1001.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 327.00
ELEVATION DATA: UPSTREAM(FEET) = 2400.00 DOWNSTREAM(FEET) = 2280.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.744
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.492
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.30 0.20 1.00 81 8.74
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA RUNOFF(CFS) = 1.16
TOTAL AREA(ACRES) = 0.30 PEAK FLOW RATE(CFS) = 1.16

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76

FLOW PROCESS FROM NODE 1001.00 TO NODE 1002.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 2280.00 DOWNSTREAM(FEET) = 2240.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 95.00 CHANNEL SLOPE = 0.4211
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1.16
FLOW VELOCITY(FEET/SEC.) = 5.25 FLOW DEPTH(FEET) = 0.19
TRAVEL TIME(MIN.) = 0.30 Tc(MIN.) = 9.05
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1002.00 = 422.00 FEET.

FLOW PROCESS FROM NODE 1001.00 TO NODE 1002.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 9.05
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.895
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.30 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.30 SUBAREA RUNOFF(CFS) = 1.00
EFFECTIVE AREA(ACRES) = 0.60 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 0.60 PEAK FLOW RATE(CFS) = 2.00

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76

FLOW PROCESS FROM NODE 1002.00 TO NODE 1003.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 2240.00 DOWNSTREAM(FEET) = 2200.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 96.00 CHANNEL SLOPE = 0.4167
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000

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MANNING'S FACTOR = 0.050  MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2.00
FLOW VELOCITY(FEET/SEC.) = 6.25  FLOW DEPTH(FEET) = 0.25
TRAVEL TIME(MIN.) = 0.26  Tc(MIN.) = 9.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1003.00 = 518.00 FEET.

*****
FLOW PROCESS FROM NODE 1002.00 TO NODE 1003.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 9.30
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.797
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE            GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D      0.30   0.20   1.00   81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.30  SUBAREA RUNOFF(CFS) = 0.97
EFFECTIVE AREA(ACRES) = 0.90  AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20  AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 0.90  PEAK FLOW RATE(CFS) = 2.91

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76

*****
FLOW PROCESS FROM NODE 1003.00 TO NODE 1004.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2200.00  DOWNSTREAM(FEET) = 2160.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 109.00  CHANNEL SLOPE = 0.3670
CHANNEL BASE(FEET) = 1.00  "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050  MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2.91
FLOW VELOCITY(FEET/SEC.) = 6.62  FLOW DEPTH(FEET) = 0.33
TRAVEL TIME(MIN.) = 0.27  Tc(MIN.) = 9.58
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1004.00 = 627.00 FEET.

*****
FLOW PROCESS FROM NODE 1003.00 TO NODE 1004.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 9.58
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.692
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE            GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D      0.40   0.20   1.00   81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.40  SUBAREA RUNOFF(CFS) = 1.26
EFFECTIVE AREA(ACRES) = 1.30  AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20  AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.30  PEAK FLOW RATE(CFS) = 4.09

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76

*****
FLOW PROCESS FROM NODE 1004.00 TO NODE 1005.00 IS CODE = 51
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2160.00  DOWNSTREAM(FEET) = 2120.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 128.00  CHANNEL SLOPE = 0.3125
CHANNEL BASE(FEET) = 1.00  "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050  MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4.09
FLOW VELOCITY(FEET/SEC.) = 6.96  FLOW DEPTH(FEET) = 0.41
TRAVEL TIME(MIN.) = 0.31  Tc(MIN.) = 9.88
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1005.00 = 755.00 FEET.

*****
FLOW PROCESS FROM NODE 1004.00 TO NODE 1005.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 9.88
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.575
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE            GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D      0.60   0.20   1.00   81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.60  SUBAREA RUNOFF(CFS) = 1.82
EFFECTIVE AREA(ACRES) = 1.90  AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20  AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.90  PEAK FLOW RATE(CFS) = 5.77

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76

*****
FLOW PROCESS FROM NODE 1005.00 TO NODE 1014.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2120.00  DOWNSTREAM(FEET) = 2040.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 186.00  CHANNEL SLOPE = 0.4301
CHANNEL BASE(FEET) = 1.00  "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050  MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5.77
FLOW VELOCITY(FEET/SEC.) = 8.58  FLOW DEPTH(FEET) = 0.46
TRAVEL TIME(MIN.) = 0.36  Tc(MIN.) = 10.24
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1014.00 = 941.00 FEET.

*****
FLOW PROCESS FROM NODE 1005.00 TO NODE 1014.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 10.24
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.494
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE            GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D      0.60   0.20   1.00   81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.60  SUBAREA RUNOFF(CFS) = 1.78
EFFECTIVE AREA(ACRES) = 2.50  AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20  AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2.50  PEAK FLOW RATE(CFS) = 7.41

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SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76
*****
FLOW PROCESS FROM NODE 1014.00 TO NODE 1014.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
-----
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 10.24
RAINFALL INTENSITY(INCH/HR) = 3.49
AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 2.50
TOTAL STREAM AREA(ACRES) = 2.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 7.41

*****
FLOW PROCESS FROM NODE 1010.00 TO NODE 1011.00 IS CODE = 21
-----
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
-----
INITIAL SUBAREA FLOW-LENGTH(FEET) = 325.00
ELEVATION DATA: UPSTREAM(FEET) = 2300.00 DOWNSTREAM(FEET) = 2200.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.035
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.899
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.60 0.20 1.00 81 9.04
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA RUNOFF(CFS) = 2.00
TOTAL AREA(ACRES) = 0.60 PEAK FLOW RATE(CFS) = 2.00

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76
*****
FLOW PROCESS FROM NODE 1011.00 TO NODE 1012.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2200.00 DOWNSTREAM(FEET) = 2160.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 89.00 CHANNEL SLOPE = 0.4494
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2.00
FLOW VELOCITY(FEET/SEC.) = 6.42 FLOW DEPTH(FEET) = 0.25
TRAVEL TIME(MIN.) = 0.23 Tc(MIN.) = 9.27
LONGEST FLOWPATH FROM NODE 1010.00 TO NODE 1012.00 = 414.00 FEET.

*****
FLOW PROCESS FROM NODE 1011.00 TO NODE 1012.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 9.27
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.810
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS

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LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.40 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.40 SUBAREA RUNOFF(CFS) = 1.30
EFFECTIVE AREA(ACRES) = 1.00 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.00 PEAK FLOW RATE(CFS) = 3.25

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76
*****
FLOW PROCESS FROM NODE 1012.00 TO NODE 1013.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2160.00 DOWNSTREAM(FEET) = 2120.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 114.00 CHANNEL SLOPE = 0.3509
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3.25
FLOW VELOCITY(FEET/SEC.) = 6.78 FLOW DEPTH(FEET) = 0.35
TRAVEL TIME(MIN.) = 0.28 Tc(MIN.) = 9.55
LONGEST FLOWPATH FROM NODE 1010.00 TO NODE 1013.00 = 528.00 FEET.

*****
FLOW PROCESS FROM NODE 1012.00 TO NODE 1013.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 9.55
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.703
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.90 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.90 SUBAREA RUNOFF(CFS) = 2.84
EFFECTIVE AREA(ACRES) = 1.90 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.90 PEAK FLOW RATE(CFS) = 5.99

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76
*****
FLOW PROCESS FROM NODE 1013.00 TO NODE 1014.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2120.00 DOWNSTREAM(FEET) = 2040.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 206.00 CHANNEL SLOPE = 0.3883
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5.99
FLOW VELOCITY(FEET/SEC.) = 8.35 FLOW DEPTH(FEET) = 0.48
TRAVEL TIME(MIN.) = 0.41 Tc(MIN.) = 9.96
LONGEST FLOWPATH FROM NODE 1010.00 TO NODE 1014.00 = 734.00 FEET.

*****
FLOW PROCESS FROM NODE 1013.00 TO NODE 1014.00 IS CODE = 81
-----

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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 9.96
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.546
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 1.10 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 1.10 SUBAREA RUNOFF(CFS) = 3.31
EFFECTIVE AREA(ACRES) = 3.00 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3.00 PEAK FLOW RATE(CFS) = 9.04

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76

FLOW PROCESS FROM NODE 1014.00 TO NODE 1014.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 9.96
RAINFALL INTENSITY(INCH/HR) = 3.55
AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 3.00
TOTAL STREAM AREA(ACRES) = 3.00
PEAK FLOW RATE(CFS) AT CONFLUENCE = 9.04

** CONFLUENCE DATA **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. Contains 2 rows of data.

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. Contains 2 rows of data.

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 16.35 Tc(MIN.) = 9.96
EFFECTIVE AREA(ACRES) = 5.43 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 5.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1014.00 = 941.00 FEET.

FLOW PROCESS FROM NODE 1014.00 TO NODE 1015.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2040.00 DOWNSTREAM(FEET) = 2000.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 182.00 CHANNEL SLOPE = 0.2198
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00

CHANNEL FLOW THRU SUBAREA(CFS) = 16.35
FLOW VELOCITY(FEET/SEC.) = 8.55 FLOW DEPTH(FEET) = 0.71
TRAVEL TIME(MIN.) = 0.35 Tc(MIN.) = 10.31
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1015.00 = 1123.00 FEET.

FLOW PROCESS FROM NODE 1014.00 TO NODE 1015.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 10.31
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.484
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 3.80 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 3.80 SUBAREA RUNOFF(CFS) = 11.23
EFFECTIVE AREA(ACRES) = 9.23 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 9.30 PEAK FLOW RATE(CFS) = 27.28

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76

FLOW PROCESS FROM NODE 1015.00 TO NODE 1016.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2000.00 DOWNSTREAM(FEET) = 1920.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 366.00 CHANNEL SLOPE = 0.2186
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 27.28
FLOW VELOCITY(FEET/SEC.) = 9.83 FLOW DEPTH(FEET) = 0.94
TRAVEL TIME(MIN.) = 0.62 Tc(MIN.) = 10.93
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1016.00 = 1489.00 FEET.

FLOW PROCESS FROM NODE 1015.00 TO NODE 1016.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 10.93
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.392
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 3.40 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 3.40 SUBAREA RUNOFF(CFS) = 9.77
EFFECTIVE AREA(ACRES) = 12.63 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 12.70 PEAK FLOW RATE(CFS) = 36.28

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.56; 30M = 0.99; 1HR = 1.40; 3HR = 2.74; 6HR = 4.19; 24HR = 7.50

FLOW PROCESS FROM NODE 1016.00 TO NODE 1017.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

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>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1920.00 DOWNSTREAM(FEET) = 1880.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 107.00 CHANNEL SLOPE = 0.3738
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 36.28
FLOW VELOCITY(FEET/SEC.) = 12.93 FLOW DEPTH(FEET) = 0.95
TRAVEL TIME(MIN.) = 0.14 Tc(MIN.) = 11.07
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1017.00 = 1596.00 FEET.

*****
FLOW PROCESS FROM NODE 1016.00 TO NODE 1017.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN) = 11.07
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.372
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 16.20 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 16.20 SUBAREA RUNOFF(CFS) = 46.24
EFFECTIVE AREA(ACRES) = 28.83 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 28.90 PEAK FLOW RATE(CFS) = 82.29

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.57; 30M = 1.00; 1HR = 1.42; 3HR = 2.79; 6HR = 4.28; 24HR = 7.68

*****
FLOW PROCESS FROM NODE 1017.00 TO NODE 1029.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1880.00 DOWNSTREAM(FEET) = 1835.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 342.00 CHANNEL SLOPE = 0.1316
CHANNEL BASE(FEET) = 3.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 3.00
CHANNEL FLOW THRU SUBAREA(CFS) = 82.29
FLOW VELOCITY(FEET/SEC.) = 10.77 FLOW DEPTH(FEET) = 1.65
TRAVEL TIME(MIN.) = 0.53 Tc(MIN.) = 11.60
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1029.00 = 1938.00 FEET.

*****
FLOW PROCESS FROM NODE 1017.00 TO NODE 1029.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN) = 11.60
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.293
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 4.60 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.60 SUBAREA RUNOFF(CFS) = 12.81
EFFECTIVE AREA(ACRES) = 33.43 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 33.50 PEAK FLOW RATE(CFS) = 93.07

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):

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5M = 0.49; 30M = 0.94; 1HR = 1.29; 3HR = 2.39; 6HR = 3.53; 24HR = 6.16

*****
FLOW PROCESS FROM NODE 1029.00 TO NODE 1029.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 11.60
RAINFALL INTENSITY(INCH/HR) = 3.29
AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 33.43
TOTAL STREAM AREA(ACRES) = 33.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 93.07

*****
FLOW PROCESS FROM NODE 1020.00 TO NODE 1021.00 IS CODE = 21
-----
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====
INITIAL SUBAREA FLOW-LENGTH(FEET) = 304.00
ELEVATION DATA: UPSTREAM(FEET) = 2525.00 DOWNSTREAM(FEET) = 2360.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 7.853
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.350
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.70 0.20 1.00 81 7.85
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA RUNOFF(CFS) = 2.61
TOTAL AREA(ACRES) = 0.70 PEAK FLOW RATE(CFS) = 2.61

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76

*****
FLOW PROCESS FROM NODE 1021.00 TO NODE 1022.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2360.00 DOWNSTREAM(FEET) = 2280.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 106.00 CHANNEL SLOPE = 0.7547
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2.61
FLOW VELOCITY(FEET/SEC.) = 8.41 FLOW DEPTH(FEET) = 0.25
TRAVEL TIME(MIN.) = 0.21 Tc(MIN.) = 8.06
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1022.00 = 410.00 FEET.

*****
FLOW PROCESS FROM NODE 1021.00 TO NODE 1022.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN) = 8.06
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.270
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

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NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"      D      0.50      0.20      1.00      81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.50      SUBAREA RUNOFF(CFS) = 1.83
EFFECTIVE AREA(ACRES) = 1.20      AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20      AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.20      PEAK FLOW RATE(CFS) = 4.40

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76

*****
FLOW PROCESS FROM NODE 1022.00 TO NODE 1023.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2280.00 DOWNSTREAM(FEET) = 2240.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 68.00 CHANNEL SLOPE = 0.5882
CHANNEL BASE( FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH( FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4.40
FLOW VELOCITY( FEET/SEC.) = 8.87 FLOW DEPTH( FEET) = 0.36
TRAVEL TIME( MIN.) = 0.13 Tc( MIN.) = 8.19
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1023.00 = 478.00 FEET.

*****
FLOW PROCESS FROM NODE 1022.00 TO NODE 1023.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc( MIN) = 8.19
* 100 YEAR RAINFALL INTENSITY( INCH/HR) = 4.221
SUBAREA LOSS RATE DATA( AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 1.70 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp( INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA( ACRES) = 1.70 SUBAREA RUNOFF( CFS) = 6.15
EFFECTIVE AREA( ACRES) = 2.90 AREA-AVERAGED Fm( INCH/HR) = 0.20
AREA-AVERAGED Fp( INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA( ACRES) = 2.90 PEAK FLOW RATE( CFS) = 10.50

SUBAREA AREA-AVERAGED RAINFALL DEPTH( INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76

*****
FLOW PROCESS FROM NODE 1023.00 TO NODE 1024.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM( FEET) = 2240.00 DOWNSTREAM( FEET) = 2200.00
CHANNEL LENGTH THRU SUBAREA( FEET) = 72.00 CHANNEL SLOPE = 0.5556
CHANNEL BASE( FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH( FEET) = 1.00
CHANNEL FLOW THRU SUBAREA( CFS) = 10.50
FLOW VELOCITY( FEET/SEC.) = 11.13 FLOW DEPTH( FEET) = 0.59
TRAVEL TIME( MIN.) = 0.11 Tc( MIN.) = 8.30
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1024.00 = 550.00 FEET.

*****
FLOW PROCESS FROM NODE 1023.00 TO NODE 1024.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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=====
MAINLINE Tc( MIN) = 8.30
* 100 YEAR RAINFALL INTENSITY( INCH/HR) = 4.180
SUBAREA LOSS RATE DATA( AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.30 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp( INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA( ACRES) = 0.30 SUBAREA RUNOFF( CFS) = 1.07
EFFECTIVE AREA( ACRES) = 3.20 AREA-AVERAGED Fm( INCH/HR) = 0.20
AREA-AVERAGED Fp( INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA( ACRES) = 3.20 PEAK FLOW RATE( CFS) = 11.46

SUBAREA AREA-AVERAGED RAINFALL DEPTH( INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76

*****
FLOW PROCESS FROM NODE 1024.00 TO NODE 1025.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM( FEET) = 2200.00 DOWNSTREAM( FEET) = 2160.00
CHANNEL LENGTH THRU SUBAREA( FEET) = 111.00 CHANNEL SLOPE = 0.3604
CHANNEL BASE( FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH( FEET) = 1.00
CHANNEL FLOW THRU SUBAREA( CFS) = 11.46
FLOW VELOCITY( FEET/SEC.) = 9.65 FLOW DEPTH( FEET) = 0.70
TRAVEL TIME( MIN.) = 0.19 Tc( MIN.) = 8.49
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1025.00 = 661.00 FEET.

*****
FLOW PROCESS FROM NODE 1024.00 TO NODE 1025.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc( MIN) = 8.49
* 100 YEAR RAINFALL INTENSITY( INCH/HR) = 4.107
SUBAREA LOSS RATE DATA( AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 1.80 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp( INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA( ACRES) = 1.80 SUBAREA RUNOFF( CFS) = 6.33
EFFECTIVE AREA( ACRES) = 5.00 AREA-AVERAGED Fm( INCH/HR) = 0.20
AREA-AVERAGED Fp( INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA( ACRES) = 5.00 PEAK FLOW RATE( CFS) = 17.58

SUBAREA AREA-AVERAGED RAINFALL DEPTH( INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76

*****
FLOW PROCESS FROM NODE 1025.00 TO NODE 1026.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM( FEET) = 2160.00 DOWNSTREAM( FEET) = 2080.00
CHANNEL LENGTH THRU SUBAREA( FEET) = 289.00 CHANNEL SLOPE = 0.2768
CHANNEL BASE( FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH( FEET) = 2.00
CHANNEL FLOW THRU SUBAREA( CFS) = 17.58
FLOW VELOCITY( FEET/SEC.) = 9.45 FLOW DEPTH( FEET) = 0.69
TRAVEL TIME( MIN.) = 0.51 Tc( MIN.) = 9.00

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LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1026.00 = 950.00 FEET.
*****
FLOW PROCESS FROM NODE 1025.00 TO NODE 1026.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 9.00
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.912
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp       Ap       SCS
LAND USE            GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D       3.40   0.20   1.00   81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 3.40 SUBAREA RUNOFF(CFS) = 11.36
EFFECTIVE AREA(ACRES) = 8.40 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 8.40 PEAK FLOW RATE(CFS) = 28.06

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76
*****
FLOW PROCESS FROM NODE 1026.00 TO NODE 1027.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2080.00 DOWNSTREAM(FEET) = 2040.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 185.00 CHANNEL SLOPE = 0.2162
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 28.06
FLOW VELOCITY(FEET/SEC.) = 9.90 FLOW DEPTH(FEET) = 0.96
TRAVEL TIME(MIN.) = 0.31 Tc(MIN.) = 9.31
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1027.00 = 1135.00 FEET.

*****
FLOW PROCESS FROM NODE 1026.00 TO NODE 1027.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 9.31
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.793
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp       Ap       SCS
LAND USE            GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D       6.20   0.20   1.00   81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 6.20 SUBAREA RUNOFF(CFS) = 20.05
EFFECTIVE AREA(ACRES) = 14.60 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 14.60 PEAK FLOW RATE(CFS) = 47.21

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76
*****
FLOW PROCESS FROM NODE 1027.00 TO NODE 1028.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2040.00 DOWNSTREAM(FEET) = 2000.00

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CHANNEL LENGTH THRU SUBAREA(FEET) = 197.00 CHANNEL SLOPE = 0.2030
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 47.21
FLOW VELOCITY(FEET/SEC.) = 11.07 FLOW DEPTH(FEET) = 1.29
TRAVEL TIME(MIN.) = 0.30 Tc(MIN.) = 9.61
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1028.00 = 1332.00 FEET.
*****
FLOW PROCESS FROM NODE 1027.00 TO NODE 1028.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 9.61
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.680
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp       Ap       SCS
LAND USE            GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D       9.90   0.20   1.00   81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 9.90 SUBAREA RUNOFF(CFS) = 31.00
EFFECTIVE AREA(ACRES) = 24.50 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 24.50 PEAK FLOW RATE(CFS) = 76.73

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.63; 30M = 1.04; 1HR = 1.51; 3HR = 3.08; 6HR = 4.81; 24HR = 8.76
*****
FLOW PROCESS FROM NODE 1028.00 TO NODE 1029.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2000.00 DOWNSTREAM(FEET) = 1835.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 476.00 CHANNEL SLOPE = 0.3466
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 76.73
FLOW VELOCITY(FEET/SEC.) = 15.30 FLOW DEPTH(FEET) = 1.45
TRAVEL TIME(MIN.) = 0.52 Tc(MIN.) = 10.13
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1029.00 = 1808.00 FEET.

*****
FLOW PROCESS FROM NODE 1028.00 TO NODE 1029.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 10.13
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.511
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp       Ap       SCS
LAND USE            GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D       4.00   0.20   1.00   81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.00 SUBAREA RUNOFF(CFS) = 11.92
EFFECTIVE AREA(ACRES) = 28.50 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 28.50 PEAK FLOW RATE(CFS) = 84.93

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 0.96; 1HR = 1.33; 3HR = 2.51; 6HR = 3.76; 24HR = 6.63
*****

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FLOW PROCESS FROM NODE 1029.00 TO NODE 1029.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 10.13
RAINFALL INTENSITY(INCH/HR) = 3.51
AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 28.50
TOTAL STREAM AREA(ACRES) = 28.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 84.93

** CONFLUENCE DATA **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. Rows 1, 1, 2.

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. Rows 1, 2, 3.

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 172.41 Tc(MIN.) = 11.60
EFFECTIVE AREA(ACRES) = 61.93 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 62.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1029.00 = 1938.00 FEET.

FLOW PROCESS FROM NODE 1029.00 TO NODE 1030.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1835.00 DOWNSTREAM(FEET) = 1680.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1378.00 CHANNEL SLOPE = 0.1125
CHANNEL BASE(FEET) = 3.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 3.00
CHANNEL FLOW THRU SUBAREA(CFS) = 172.41
FLOW VELOCITY(FEET/SEC.) = 12.34 FLOW DEPTH(FEET) = 2.53
TRAVEL TIME(MIN.) = 1.86 Tc(MIN.) = 13.46
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1030.00 = 3316.00 FEET.

FLOW PROCESS FROM NODE 1029.00 TO NODE 1030.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 13.46
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.018
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 33.70 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 33.70 SUBAREA RUNOFF(CFS) = 85.46
EFFECTIVE AREA(ACRES) = 95.63 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 95.70 PEAK FLOW RATE(CFS) = 242.51

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.45; 30M = 0.91; 1HR = 1.23; 3HR = 2.19; 6HR = 3.17; 24HR = 5.43

** PEAK FLOW RATE TABLE **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. Rows 1, 2, 3.

NEW PEAK FLOW DATA ARE:
PEAK FLOW RATE(CFS) = 249.68 Tc(MIN.) = 11.99
AREA-AVERAGED Fm(INCH/HR) = 0.20 AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 91.38

FLOW PROCESS FROM NODE 1030.00 TO NODE 1031.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1680.00 DOWNSTREAM(FEET) = 1630.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 523.00 CHANNEL SLOPE = 0.0956
CHANNEL BASE(FEET) = 4.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 4.00
CHANNEL FLOW THRU SUBAREA(CFS) = 249.68
FLOW VELOCITY(FEET/SEC.) = 12.70 FLOW DEPTH(FEET) = 2.86
TRAVEL TIME(MIN.) = 0.69 Tc(MIN.) = 12.67
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1031.00 = 3839.00 FEET.

FLOW PROCESS FROM NODE 1030.00 TO NODE 1031.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 12.67
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.134
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 81.00 0.20 1.00 81
NATURAL FAIR COVER
"GRASS" D 1.00 0.20 1.00 84
NATURAL FAIR COVER
"OPEN BRUSH" D 1.80 0.20 1.00 83
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 83.80 SUBAREA RUNOFF(CFS) = 221.30
EFFECTIVE AREA(ACRES) = 175.18 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 179.50 PEAK FLOW RATE(CFS) = 462.63

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.48; 30M = 0.93; 1HR = 1.28; 3HR = 2.34; 6HR = 3.45; 24HR = 6.00

FLOW PROCESS FROM NODE 1031.00 TO NODE 1032.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1630.00 DOWNSTREAM(FEET) = 1520.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 1128.00 CHANNEL SLOPE = 0.0975
CHANNEL BASE(FEET) = 5.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 5.00
CHANNEL FLOW THRU SUBAREA(CFS) = 462.63
FLOW VELOCITY(FEET/SEC.) = 14.92 FLOW DEPTH(FEET) = 3.60
TRAVEL TIME(MIN.) = 1.26 Tc(MIN.) = 13.93
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1032.00 = 4967.00 FEET.

FLOW PROCESS FROM NODE 1031.00 TO NODE 1032.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 13.93
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.948
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 0.50 0.25 1.00 75
NATURAL FAIR COVER
"WOODLAND" C 0.10 0.25 1.00 73
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 167.20 0.20 1.00 81
NATURAL FAIR COVER
"OPEN BRUSH" D 0.90 0.20 1.00 83
NATURAL FAIR COVER
"CHAPARRAL,NARROWLEAF" D 6.60 0.20 1.00 86
NATURAL FAIR COVER
"WOODLAND" D 0.80 0.20 1.00 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 176.10 SUBAREA RUNOFF(CFS) = 435.47
EFFECTIVE AREA(ACRES) = 351.28 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 355.60 PEAK FLOW RATE(CFS) = 868.70

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.48; 30M = 0.93; 1HR = 1.27; 3HR = 2.32; 6HR = 3.42; 24HR = 5.93

FLOW PROCESS FROM NODE 1032.00 TO NODE 1033.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1520.00 DOWNSTREAM(FEET) = 1320.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1992.00 CHANNEL SLOPE = 0.1004
CHANNEL BASE(FEET) = 6.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 6.00
CHANNEL FLOW THRU SUBAREA(CFS) = 868.70
FLOW VELOCITY(FEET/SEC.) = 17.70 FLOW DEPTH(FEET) = 4.62
TRAVEL TIME(MIN.) = 1.88 Tc(MIN.) = 15.81
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1033.00 = 6959.00 FEET.

FLOW PROCESS FROM NODE 1032.00 TO NODE 1033.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 15.81
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.714
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A 0.70 0.40 1.00 40
NATURAL FAIR COVER

"OPEN BRUSH"	A	1.60	0.40	1.00	46
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	20.50	0.25	1.00	75
NATURAL FAIR COVER					
"OPEN BRUSH"	C	1.50	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	32.10	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	17.00	0.20	1.00	83
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00					
SUBAREA AREA(ACRES) = 73.40					
SUBAREA RUNOFF(CFS) = 164.66					
EFFECTIVE AREA(ACRES) = 424.68					
AREA-AVERAGED Fm(INCH/HR) = 0.20					
AREA-AVERAGED Fp(INCH/HR) = 0.20					
AREA-AVERAGED Ap = 1.00					
TOTAL AREA(ACRES) = 429.00					
PEAK FLOW RATE(CFS) = 959.43					

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.72; 24HR = 4.51

FLOW PROCESS FROM NODE 1032.00 TO NODE 1033.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 15.81
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.714
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,NARROWLEAF" D 2.50 0.20 1.00 86
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 2.50 SUBAREA RUNOFF(CFS) = 5.66
EFFECTIVE AREA(ACRES) = 427.18 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 431.50 PEAK FLOW RATE(CFS) = 965.08

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.72; 24HR = 4.51

FLOW PROCESS FROM NODE 1033.00 TO NODE 1034.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1320.00 DOWNSTREAM(FEET) = 1275.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 804.00 CHANNEL SLOPE = 0.0560
CHANNEL BASE(FEET) = 6.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 6.00
CHANNEL FLOW THRU SUBAREA(CFS) = 965.08
FLOW VELOCITY(FEET/SEC.) = 17.27 FLOW DEPTH(FEET) = 5.06
TRAVEL TIME(MIN.) = 0.78 Tc(MIN.) = 16.59
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1034.00 = 7763.00 FEET.

FLOW PROCESS FROM NODE 1033.00 TO NODE 1034.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 16.59
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.641
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A 1.90 0.40 1.00 40

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NATURAL FAIR COVER
"OPEN BRUSH"      A      2.20    0.40    1.00    46
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  C      27.10   0.25    1.00    75
NATURAL FAIR COVER
"OPEN BRUSH"      C      7.20    0.25    1.00    77
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D      45.90   0.20    1.00    81
NATURAL FAIR COVER
"OPEN BRUSH"      D      48.60   0.20    1.00    83
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 132.90    SUBAREA RUNOFF(CFS) = 289.68
EFFECTIVE AREA(ACRES) = 560.08    AREA-AVERAGED Fm(INCH/HR) = 0.21
AREA-AVERAGED Fp(INCH/HR) = 0.21    AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 564.40    PEAK FLOW RATE(CFS) = 1226.72

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

*****
FLOW PROCESS FROM NODE 1034.00 TO NODE 1035.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 1275.00 DOWNSTREAM(FEET) = 1200.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1266.00 CHANNEL SLOPE = 0.0592
CHANNEL BASE(FEET) = 7.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 7.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1226.72
FLOW VELOCITY(FEET/SEC.) = 18.70 FLOW DEPTH(FEET) = 5.32
TRAVEL TIME(MIN.) = 1.13 Tc(MIN.) = 17.71
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1035.00 = 9029.00 FEET.

*****
FLOW PROCESS FROM NODE 1034.00 TO NODE 1035.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
-----
MAINLINE Tc(MIN) = 17.71
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.535
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A 11.50 0.40 1.00 40
NATURAL FAIR COVER
"OPEN BRUSH" A 2.70 0.40 1.00 46
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 14.60 0.25 1.00 75
NATURAL FAIR COVER
"OPEN BRUSH" C 16.60 0.25 1.00 77
NATURAL FAIR COVER
"CHAPARRAL,NARROWLEAF" C 0.10 0.25 1.00 81
NATURAL FAIR COVER
"OPEN BRUSH" D 1.10 0.20 1.00 83
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 46.60 SUBAREA RUNOFF(CFS) = 93.96
EFFECTIVE AREA(ACRES) = 606.68 AREA-AVERAGED Fm(INCH/HR) = 0.21
AREA-AVERAGED Fp(INCH/HR) = 0.21 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 611.00 PEAK FLOW RATE(CFS) = 1267.23

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

*****

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FLOW PROCESS FROM NODE 1035.00 TO NODE 1036.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 1200.00 DOWNSTREAM(FEET) = 1100.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1639.00 CHANNEL SLOPE = 0.0610
CHANNEL BASE(FEET) = 7.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 7.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1267.23
FLOW VELOCITY(FEET/SEC.) = 19.06 FLOW DEPTH(FEET) = 5.37
TRAVEL TIME(MIN.) = 1.43 Tc(MIN.) = 19.15
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.

*****
FLOW PROCESS FROM NODE 1035.00 TO NODE 1036.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
-----
MAINLINE Tc(MIN) = 19.15
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.400
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A 11.80 0.40 1.00 40
NATURAL FAIR COVER
"OPEN BRUSH" A 5.20 0.40 1.00 46
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 20.30 0.25 1.00 75
NATURAL FAIR COVER
"OPEN BRUSH" C 21.80 0.25 1.00 77
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 59.10 SUBAREA RUNOFF(CFS) = 112.07
EFFECTIVE AREA(ACRES) = 665.78 AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 670.10 PEAK FLOW RATE(CFS) = 1305.73

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

*****
FLOW PROCESS FROM NODE 1036.00 TO NODE 1036.00 IS CODE = 7
-----
>>>>PEAK FLOW RATE ESTIMATOR CHANGED TO UNIT-HYDROGRAPH METHOD<<<<<
>>>>USING TIME-OF-CONCENTRATION OF LONGEST FLOWPATH<<<<<
-----
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.45;30M= 0.91;1H= 1.23;3H= 2.19;6H= 3.18;24H= 5.44
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.35; LAG(HR) = 0.28; Fm(INCH/HR) = 0.22; Ybar = 0.42
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.97; 30M = 0.97; 1HR = 0.97;
3HR = 1.00; 6HR = 1.00; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 670.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0370; Lca/L=0.4,n=.0332; Lca/L=0.5,n=.0305;Lca/L=0.6,n=.0284
TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 191.70
UNIT-HYDROGRAPH METHOD PEAK FLOW RATE(CFS) = 1074.14
TOTAL PEAK FLOW RATE(CFS) = 1074.14 (SOURCE FLOW INCLUDED)
RATIONAL METHOD PEAK FLOW RATE(CFS) = 1305.73
(UPSTREAM NODE PEAK FLOW RATE(CFS) = 1305.73)
PEAK FLOW RATE(CFS) USED = 1305.73

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END OF STUDY SUMMARY:

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TOTAL AREA(ACRES) = 670.10 TC(MIN.) = 21.05
AREA-AVERAGED Fm(INCH/HR)= 0.22 Ybar = 0.42
PEAK FLOW RATE(CFS) = 1305.73

=====
=====
END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU37100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	5.440
2)	10.000;	3.530
3)	15.000;	2.790
4)	20.000;	2.320
5)	30.000;	1.830
6)	60.000;	1.260
7)	120.000;	0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / SIDE /	OUT- / SIDE /	PARK- WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150		

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc

S-GRAPH TYPE	PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED)	0.000
FOOTHILL	0.000
MOUNTAIN	1.000
VALLEY(UNDEVELOPED)/DESERT	0.000
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1036.00 TO NODE 1036.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU36100E.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 1305.73 Tc(MIN.) = 21.05

AREA-AVERAGED Fm(INCH/HR) = 0.22 Ybar = 0.42

TOTAL AREA(ACRES) = 670.10

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.

FLOW PROCESS FROM NODE 1036.00 TO NODE 1036.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 1305.73 Tc(MIN.) = 21.05

AREA-AVERAGED Fm(INCH/HR) = 0.22 Ybar = 0.42

TOTAL AREA(ACRES) = 670.10

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.

FLOW PROCESS FROM NODE 1036.00 TO NODE 1036.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1036.00 TO NODE 1037.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 1100.00 DOWNSTREAM(FEET) = 1010.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 1517.00 CHANNEL SLOPE = 0.0593

CHANNEL BASE(FEET) = 7.00 "Z" FACTOR = 1.000

MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 7.00

CHANNEL FLOW THRU SUBAREA(CFS) = 1305.73

FLOW VELOCITY(FEET/SEC.) = 19.01 FLOW DEPTH(FEET) = 5.50

TRAVEL TIME(MIN.) = 1.33 Tc(MIN.) = 22.38

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.

FLOW PROCESS FROM NODE 1036.00 TO NODE 1037.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 22.38

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.622

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	A	23.70	0.40	1.00	40
NATURAL FAIR COVER					
"OPEN BRUSH"	A	6.70	0.40	1.00	46
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	82.50	0.25	1.00	75
NATURAL FAIR COVER					
"OPEN BRUSH"	C	114.00	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	24.20	0.25	1.00	81
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	2.50	0.20	1.00	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 253.60

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.44;30M= 0.90;1H= 1.21;3H= 2.13;6H= 3.06;24H= 5.20
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.37; LAG(HR) = 0.30; Fm(INCH/HR) = 0.23; Ybar = 0.46
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.96; 30M = 0.96; 1HR = 0.96;
3HR = 0.99; 6HR = 1.00; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 923.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0351; Lca/L=0.4,n=.0315; Lca/L=0.5,n=.0289;Lca/L=0.6,n=.0270
TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 240.23
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1383.21
TOTAL AREA(ACRES) = 923.70 PEAK FLOW RATE(CFS) = 1383.21

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.41; 30M = 0.87; 1HR = 1.16; 3HR = 1.97; 6HR = 2.76; 24HR = 4.58

FLOW PROCESS FROM NODE 1036.00 TO NODE 1037.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 22.38
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.203
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	D	84.70	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	10.60	0.20	1.00	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 95.30

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.44;30M= 0.90;1H= 1.21;3H= 2.12;6H= 3.03;24H= 5.14
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.37; LAG(HR) = 0.30; Fm(INCH/HR) = 0.23; Ybar = 0.45
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.95; 30M = 0.95; 1HR = 0.95;
3HR = 0.99; 6HR = 1.00; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1019.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0351; Lca/L=0.4,n=.0315; Lca/L=0.5,n=.0289;Lca/L=0.6,n=.0270
TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 264.48
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1513.98
TOTAL AREA(ACRES) = 1019.00 PEAK FLOW RATE(CFS) = 1513.98

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.41; 30M = 0.87; 1HR = 1.16; 3HR = 1.97; 6HR = 2.76; 24HR = 4.58

=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 1019.00 TC(MIN.) = 22.38
AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.45
PEAK FLOW RATE(CFS) = 1513.98

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU38100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	5.440
2)	10.000;	3.530
3)	15.000;	2.790
4)	20.000;	2.320
5)	30.000;	1.830
6)	60.000;	1.260
7)	120.000;	0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
---	------	------	-------------------	------	------	--------	-------	--------

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1037.00 TO NODE 1037.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU37100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1513.98 Tc(MIN.) = 22.38
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.45
TOTAL AREA(ACRES) = 1019.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.

FLOW PROCESS FROM NODE 1037.00 TO NODE 1037.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1513.98 Tc(MIN.) = 22.38
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.45
TOTAL AREA(ACRES) = 1019.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.

FLOW PROCESS FROM NODE 1037.00 TO NODE 1037.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1037.00 TO NODE 1038.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 1010.00 DOWNSTREAM(FEET) = 925.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2069.00 CHANNEL SLOPE = 0.0411
CHANNEL BASE(FEET) = 8.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 8.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1513.98
FLOW VELOCITY(FEET/SEC.) = 17.20 FLOW DEPTH(FEET) = 6.20
TRAVEL TIME(MIN.) = 2.01 Tc(MIN.) = 24.38
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.

FLOW PROCESS FROM NODE 1037.00 TO NODE 1038.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 24.38
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.496
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	10.20	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	0.40	0.40	1.00	46
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	31.20	0.25	1.00	75
NATURAL FAIR COVER "OPEN BRUSH"	C	17.50	0.25	1.00	77
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	C	4.70	0.25	1.00	81
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	1.20	0.20	1.00	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 65.20
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.43;30M= 0.89;1H= 1.20;3H= 2.10;6H= 3.01;24H= 5.11
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.41; LAG(HR) = 0.33; Fm(INCH/HR) = 0.23; Ybar = 0.46
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.95; 30M = 0.95; 1HR = 0.95;
 3HR = 0.99; 6HR = 1.00; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1084.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0333; Lca/L=0.4,n=.0299; Lca/L=0.5,n=.0274;Lca/L=0.6,n=.0256
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 275.97
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1513.74
 TOTAL AREA(ACRES) = 1084.20 PEAK FLOW RATE(CFS) = 1513.98
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1037.00 TO NODE 1038.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 24.38
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.105
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	D	17.00	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	1.90	0.20	1.00	86

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 18.90

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.43;30M= 0.89;1H= 1.20;3H= 2.10;6H= 3.01;24H= 5.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.41; LAG(HR) = 0.33; Fm(INCH/HR) = 0.23; Ybar = 0.46
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.95; 30M = 0.95; 1HR = 0.95;
 3HR = 0.99; 6HR = 1.00; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1103.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0333; Lca/L=0.4,n=.0299; Lca/L=0.5,n=.0274;Lca/L=0.6,n=.0256
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 280.64
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1537.78
 TOTAL AREA(ACRES) = 1103.10 PEAK FLOW RATE(CFS) = 1537.78

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 1103.10 TC(MIN.) = 24.38
 AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.46
 PEAK FLOW RATE(CFS) = 1537.78

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2003 Advanced Engineering Software (aes)
Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU39100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== =====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1038.00 TO NODE 1038.00 IS CODE = 15.1
=====

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU38100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1537.78 Tc(MIN.) = 24.38
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.46
TOTAL AREA(ACRES) = 1103.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.

FLOW PROCESS FROM NODE 1038.00 TO NODE 1038.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1537.78 Tc(MIN.) = 24.38
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.46
TOTAL AREA(ACRES) = 1103.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.

FLOW PROCESS FROM NODE 1038.00 TO NODE 1038.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1038.00 TO NODE 1039.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 925.00 DOWNSTREAM(FEET) = 873.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1383.00 CHANNEL SLOPE = 0.0376
CHANNEL BASE(FEET) = 8.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 8.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1537.78
FLOW VELOCITY(FEET/SEC.) = 16.70 FLOW DEPTH(FEET) = 6.40
TRAVEL TIME(MIN.) = 1.38 Tc(MIN.) = 25.76
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.

FLOW PROCESS FROM NODE 1038.00 TO NODE 1039.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 25.76
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.418
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	55.80	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	2.30	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	0.20	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	106.00	0.25	1.00	75
NATURAL FAIR COVER "OPEN BRUSH"	C	112.00	0.25	1.00	77
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	C	1.90	0.25	1.00	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 278.20
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.44;30M= 0.89;1H= 1.20;3H= 2.11;6H= 3.02;24H= 5.11
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.43; LAG(HR) = 0.34; Fm(INCH/HR) = 0.24; Ybar = 0.48
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.94; 30M = 0.94; 1HR = 0.94;
3HR = 0.99; 6HR = 1.00; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1381.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0325; Lca/L=0.4,n=.0291; Lca/L=0.5,n=.0267;Lca/L=0.6,n=.0249
TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 339.79
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1810.38
TOTAL AREA(ACRES) = 1381.30 PEAK FLOW RATE(CFS) = 1810.38

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.44; 30M = 0.90; 1HR = 1.21; 3HR = 2.12; 6HR = 3.04; 24HR = 5.17

FLOW PROCESS FROM NODE 1038.00 TO NODE 1039.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 25.76
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.038
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND"	C	0.70	0.25	1.00	73
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	28.50	0.20	1.00	81
NATURAL FAIR COVER "GRASS"	D	25.50	0.20	1.00	84
NATURAL FAIR COVER "OPEN BRUSH"	D	92.90	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	0.80	0.20	1.00	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 148.40
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.44;30M= 0.90;1H= 1.20;3H= 2.11;6H= 3.02;24H= 5.12
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.43; LAG(HR) = 0.34; Fm(INCH/HR) = 0.24; Ybar = 0.47
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.93; 30M = 0.93; 1HR = 0.93;
3HR = 0.99; 6HR = 0.99; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1529.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0325; Lca/L=0.4,n=.0291; Lca/L=0.5,n=.0267;Lca/L=0.6,n=.0249
TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 382.56
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1998.09
TOTAL AREA(ACRES) = 1529.70 PEAK FLOW RATE(CFS) = 1998.09

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.44; 30M = 0.90; 1HR = 1.21; 3HR = 2.12; 6HR = 3.04; 24HR = 5.17

=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 1529.70 TC(MIN.) = 25.76
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.47
PEAK FLOW RATE(CFS) = 1998.09

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU40100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	5.440
2)	10.000;	3.530
3)	15.000;	2.790
4)	20.000;	2.320
5)	30.000;	1.830
6)	60.000;	1.260
7)	120.000;	0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1039.00 TO NODE 1039.00 IS CODE = 15.1
=====

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU39100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1998.09 Tc(MIN.) = 25.76
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.47
TOTAL AREA(ACRES) = 1529.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.

FLOW PROCESS FROM NODE 1039.00 TO NODE 1039.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1998.09 Tc(MIN.) = 25.76
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.47
TOTAL AREA(ACRES) = 1529.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.

FLOW PROCESS FROM NODE 1039.00 TO NODE 1039.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1039.00 TO NODE 1040.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 873.00 DOWNSTREAM(FEET) = 780.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2714.00 CHANNEL SLOPE = 0.0343
CHANNEL BASE(FEET) = 9.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 9.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1998.09
FLOW VELOCITY(FEET/SEC.) = 17.22 FLOW DEPTH(FEET) = 7.17
TRAVEL TIME(MIN.) = 2.63 Tc(MIN.) = 28.39
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.

FLOW PROCESS FROM NODE 1039.00 TO NODE 1040.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 28.39
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.287
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	31.10	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	2.20	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	12.10	0.40	1.00	46
AGRICULTURAL FAIR COVER "PASTURE,DRYLAND"	A	0.10	0.40	1.00	49
NATURAL FAIR COVER "WOODLAND"	A	8.70	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	122.30	0.25	1.00	75

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 176.50
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.44;30M= 0.89;1H= 1.20;3H= 2.10;6H= 3.01;24H= 5.10
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.47; LAG(HR) = 0.38; Fm(INCH/HR) = 0.24; Ybar = 0.49
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.92; 30M = 0.92; 1HR = 0.92;
 3HR = 0.99; 6HR = 0.99; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1706.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0311; Lca/L=0.4,n=.0279; Lca/L=0.5,n=.0256;Lca/L=0.6,n=.0239
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 414.05
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2005.67
 TOTAL AREA(ACRES) = 1706.20 PEAK FLOW RATE(CFS) = 2005.67

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.43; 30M = 0.89; 1HR = 1.19; 3HR = 2.06; 6HR = 2.94; 24HR = 4.96

 FLOW PROCESS FROM NODE 1039.00 TO NODE 1040.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 28.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.909
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	C	1.60	0.25	1.00	79
AGRICULTURAL FAIR COVER					
"ORCHARDS"	C	1.30	0.25	1.00	77
NATURAL FAIR COVER					
"OPEN BRUSH"	C	137.40	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	0.90	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	129.90	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	12.70	0.20	1.00	84

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 283.80
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.43;30M= 0.89;1H= 1.20;3H= 2.10;6H= 3.00;24H= 5.08
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.47; LAG(HR) = 0.38; Fm(INCH/HR) = 0.24; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.91; 30M = 0.91; 1HR = 0.91;
 3HR = 0.99; 6HR = 0.99; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1990.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0311; Lca/L=0.4,n=.0279; Lca/L=0.5,n=.0256;Lca/L=0.6,n=.0239
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 484.79
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2307.60
 TOTAL AREA(ACRES) = 1990.00 PEAK FLOW RATE(CFS) = 2307.60

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.43; 30M = 0.89; 1HR = 1.19; 3HR = 2.06; 6HR = 2.94; 24HR = 4.96

 FLOW PROCESS FROM NODE 1039.00 TO NODE 1040.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 28.39

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.909
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	116.40	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	4.40	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	2.90	0.20	1.00	79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00					
SUBAREA AREA(ACRES) = 123.70					
UNIT-HYDROGRAPH DATA: RAINFALL(INCH): 5M= 0.43;30M= 0.89;1H= 1.20;3H= 2.09;6H= 3.00;24H= 5.07 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0% MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0% Tc(HR) = 0.47; LAG(HR) = 0.38; Fm(INCH/HR) = 0.24; Ybar = 0.48 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION. DEPTH-AREA FACTORS: 5M = 0.91; 30M = 0.91; 1HR = 0.91; 3HR = 0.99; 6HR = 0.99; 24HR= 1.00 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2113.70 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET. EQUIVALENT BASIN FACTOR APPROXIMATIONS: Lca/L=0.3,n=.0311; Lca/L=0.4,n=.0279; Lca/L=0.5,n=.0256;Lca/L=0.6,n=.0239 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 518.58 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2439.45 TOTAL AREA(ACRES) = 2113.70 PEAK FLOW RATE(CFS) = 2439.45					

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.43; 30M = 0.89; 1HR = 1.19; 3HR = 2.06; 6HR = 2.94; 24HR = 4.96

=====

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 2113.70 TC(MIN.) = 28.39
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.48
 PEAK FLOW RATE(CFS) = 2439.45

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU41100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1040.00 TO NODE 1040.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU40100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2439.45 Tc(MIN.) = 28.39
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.48
TOTAL AREA(ACRES) = 2113.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.

FLOW PROCESS FROM NODE 1040.00 TO NODE 1040.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2439.45 Tc(MIN.) = 28.39
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.48
TOTAL AREA(ACRES) = 2113.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.

FLOW PROCESS FROM NODE 1040.00 TO NODE 1040.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1040.00 TO NODE 1041.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 780.00 DOWNSTREAM(FEET) = 695.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2758.00 CHANNEL SLOPE = 0.0308
CHANNEL BASE(FEET) = 10.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2439.45
FLOW VELOCITY(FEET/SEC.) = 17.39 FLOW DEPTH(FEET) = 7.86
TRAVEL TIME(MIN.) = 2.64 Tc(MIN.) = 31.03
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.

FLOW PROCESS FROM NODE 1040.00 TO NODE 1041.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 31.03
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.174
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A 30.00 0.40 1.00 40
NATURAL FAIR COVER
"GRASS" A 1.20 0.40 1.00 50
NATURAL FAIR COVER
"OPEN BRUSH" A 28.60 0.40 1.00 46
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND" A 1.60 0.40 1.00 49
NATURAL FAIR COVER
"WOODLAND" A 14.70 0.40 1.00 36
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 87.40 0.25 1.00 75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.32
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 163.50
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.43;30M= 0.89;1H= 1.20;3H= 2.08;6H= 2.98;24H= 5.03
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.52; LAG(HR) = 0.41; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.90; 30M = 0.90; 1HR = 0.90;
 3HR = 0.98; 6HR = 0.99; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2277.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0300; Lca/L=0.4,n=.0269; Lca/L=0.5,n=.0247;Lca/L=0.6,n=.0231
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 538.82
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2545.13
 TOTAL AREA(ACRES) = 2277.20 PEAK FLOW RATE(CFS) = 2545.13

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.50

 FLOW PROCESS FROM NODE 1040.00 TO NODE 1041.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 31.03
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.810
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	C	10.40	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	138.60	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	2.90	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	36.10	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	56.80	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	220.70	0.20	1.00	83

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 465.50
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.43;30M= 0.89;1H= 1.19;3H= 2.06;6H= 2.93;24H= 4.94
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.52; LAG(HR) = 0.41; Fm(INCH/HR) = 0.24; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.88; 30M = 0.88; 1HR = 0.88;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2742.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0300; Lca/L=0.4,n=.0269; Lca/L=0.5,n=.0247;Lca/L=0.6,n=.0231
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 644.98
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2975.36
 TOTAL AREA(ACRES) = 2742.70 PEAK FLOW RATE(CFS) = 2975.36

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.50

 FLOW PROCESS FROM NODE 1040.00 TO NODE 1041.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 31.03

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.810
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	D	0.90	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 0.90
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.43;30M= 0.89;1H= 1.19;3H= 2.06;6H= 2.93;24H= 4.94
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.52; LAG(HR) = 0.41; Fm(INCH/HR) = 0.24; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.88; 30M = 0.88; 1HR = 0.88;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2743.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0300; Lca/L=0.4,n=.0269; Lca/L=0.5,n=.0247;Lca/L=0.6,n=.0231
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 645.18
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2976.18
 TOTAL AREA(ACRES) = 2743.60 PEAK FLOW RATE(CFS) = 2976.18

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.50

 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 2743.60 TC(MIN.) = 31.03
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.48
 PEAK FLOW RATE(CFS) = 2976.18

 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU42100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	5.440
2)	10.000;	3.530
3)	15.000;	2.790
4)	20.000;	2.320
5)	30.000;	1.830
6)	60.000;	1.260
7)	120.000;	0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1041.00 TO NODE 1041.00 IS CODE = 15.1
=====

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU41100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2976.18 Tc(MIN.) = 31.03
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.48
TOTAL AREA(ACRES) = 2743.60
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.

FLOW PROCESS FROM NODE 1041.00 TO NODE 1041.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2976.18 Tc(MIN.) = 31.03
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.48
TOTAL AREA(ACRES) = 2743.60
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.

FLOW PROCESS FROM NODE 1041.00 TO NODE 1041.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1041.00 TO NODE 1042.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 695.00 DOWNSTREAM(FEET) = 650.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1846.00 CHANNEL SLOPE = 0.0244
CHANNEL BASE(FEET) = 15.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2976.18
FLOW VELOCITY(FEET/SEC.) = 16.56 FLOW DEPTH(FEET) = 7.86
TRAVEL TIME(MIN.) = 1.86 Tc(MIN.) = 32.89
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.

FLOW PROCESS FROM NODE 1041.00 TO NODE 1042.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 32.89
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.102
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	1.30	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	0.20	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	2.20	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	5.30	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	25.10	0.25	1.00	75
NATURAL FAIR COVER "GRASS"	C	3.20	0.25	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 37.30
UNIT-HYDROGRAPH DATA:

=====
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS
 =====

RAINFALL(INCH): 5M= 0.43;30M= 0.89;1H= 1.19;3H= 2.06;6H= 2.93;24H= 4.94
 S-GGRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.55; LAG(HR) = 0.44; Fm(INCH/HR) = 0.24; Ybar = 0.49
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.88; 30M = 0.88; 1HR = 0.88;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2780.90
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 650.98
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2957.18
 TOTAL AREA(ACRES) = 2780.90 PEAK FLOW RATE(CFS) = 2976.18
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1041.00 TO NODE 1042.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 32.89
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.775
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	C	28.60	0.25	1.00	77
NATURAL FAIR COVER "WOODLAND"	C	0.90	0.25	1.00	73
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	18.00	0.20	1.00	81
NATURAL FAIR COVER "GRASS"	D	2.20	0.20	1.00	84
NATURAL FAIR COVER "OPEN BRUSH"	D	44.10	0.20	1.00	83
NATURAL FAIR COVER "WOODLAND"	D	4.60	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 98.40

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.43;30M= 0.89;1H= 1.19;3H= 2.05;6H= 2.92;24H= 4.92
 S-GGRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.55; LAG(HR) = 0.44; Fm(INCH/HR) = 0.24; Ybar = 0.49
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.87; 30M = 0.87; 1HR = 0.87;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2879.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 673.00
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3043.30
 TOTAL AREA(ACRES) = 2879.30 PEAK FLOW RATE(CFS) = 3043.30

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 2879.30 TC(MIN.) = 32.89
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.49
 PEAK FLOW RATE(CFS) = 3043.30
 =====

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MU43100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / SIDE	OUT- / SIDE/ WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020		0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1042.00 TO NODE 1042.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU42100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3043.30 Tc(MIN.) = 32.89
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.49
TOTAL AREA(ACRES) = 2879.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.

FLOW PROCESS FROM NODE 1042.00 TO NODE 1042.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3043.30 Tc(MIN.) = 32.89
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.49
TOTAL AREA(ACRES) = 2879.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.

FLOW PROCESS FROM NODE 1042.00 TO NODE 1042.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1042.00 TO NODE 1043.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 650.00 DOWNSTREAM(FEET) = 600.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2257.00 CHANNEL SLOPE = 0.0222
CHANNEL BASE(FEET) = 15.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3043.30
FLOW VELOCITY(FEET/SEC.) = 16.09 FLOW DEPTH(FEET) = 8.17
TRAVEL TIME(MIN.) = 2.34 Tc(MIN.) = 35.23
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.

FLOW PROCESS FROM NODE 1042.00 TO NODE 1043.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 35.23
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.021
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	5.50	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	8.00	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	1.10	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	6.40	0.30	1.00	63
NATURAL FAIR COVER "OPEN BRUSH"	B	2.60	0.30	1.00	66
NATURAL FAIR COVER "WOODLAND"	B	9.60	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 33.20
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.42;30M= 0.89;1H= 1.19;3H= 2.05;6H= 2.92;24H= 4.92
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.59; LAG(HR) = 0.47; Fm(INCH/HR) = 0.24; Ybar = 0.49
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.87; 30M = 0.87; 1HR = 0.87;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2912.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0291; Lca/L=0.4,n=.0261; Lca/L=0.5,n=.0240;Lca/L=0.6,n=.0224
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 676.00
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2939.64
 TOTAL AREA(ACRES) = 2912.50 PEAK FLOW RATE(CFS) = 3043.30
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1042.00 TO NODE 1043.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 35.23
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.731
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	52.90	0.25	1.00	75
NATURAL FAIR COVER					
"OPEN BRUSH"	C	57.90	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	13.50	0.25	1.00	81
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	95.60	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	0.60	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	213.70	0.20	1.00	83

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 434.20
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.42;30M= 0.89;1H= 1.18;3H= 2.04;6H= 2.89;24H= 4.86
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.59; LAG(HR) = 0.47; Fm(INCH/HR) = 0.24; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.85; 30M = 0.85; 1HR = 0.85;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3346.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0291; Lca/L=0.4,n=.0261; Lca/L=0.5,n=.0240;Lca/L=0.6,n=.0224
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 773.00
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3292.11
 TOTAL AREA(ACRES) = 3346.70 PEAK FLOW RATE(CFS) = 3292.11

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1042.00 TO NODE 1043.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 35.23
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.731
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	D	8.40	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 8.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.42;30M= 0.89;1H= 1.18;3H= 2.04;6H= 2.89;24H= 4.86
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.59; LAG(HR) = 0.47; Fm(INCH/HR) = 0.24; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.85; 30M = 0.85; 1HR = 0.85;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3355.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0291; Lca/L=0.4,n=.0261; Lca/L=0.5,n=.0240;Lca/L=0.6,n=.0224
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 774.80
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3298.80
 TOTAL AREA(ACRES) = 3355.10 PEAK FLOW RATE(CFS) = 3298.80

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 3355.10 TC(MIN.) = 35.23
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.48
 PEAK FLOW RATE(CFS) = 3298.80

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU44100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1043.00 TO NODE 1043.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU43100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3298.80 Tc(MIN.) = 35.23
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.48
TOTAL AREA(ACRES) = 3355.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.

FLOW PROCESS FROM NODE 1043.00 TO NODE 1043.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3298.80 Tc(MIN.) = 35.23
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.48
TOTAL AREA(ACRES) = 3355.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.

FLOW PROCESS FROM NODE 1043.00 TO NODE 1043.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1043.00 TO NODE 1044.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 600.00 DOWNSTREAM(FEET) = 580.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1011.00 CHANNEL SLOPE = 0.0198
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3298.80
FLOW VELOCITY(FEET/SEC.) = 15.48 FLOW DEPTH(FEET) = 7.69
TRAVEL TIME(MIN.) = 1.09 Tc(MIN.) = 36.32
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.

FLOW PROCESS FROM NODE 1043.00 TO NODE 1044.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 36.32
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.986
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	1.30	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	1.30	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	0.90	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	0.40	0.30	1.00	63
NATURAL FAIR COVER "OPEN BRUSH"	B	1.60	0.30	1.00	66
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	B	0.70	0.30	1.00	72

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.36
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 6.20
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.18;3H= 2.04;6H= 2.89;24H= 4.86
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.61; LAG(HR) = 0.48; Fm(INCH/HR) = 0.24; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.85; 30M = 0.85; 1HR = 0.85;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3361.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0290; Lca/L=0.4,n=.0260; Lca/L=0.5,n=.0238;Lca/L=0.6,n=.0222
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 775.35
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3233.01
 TOTAL AREA(ACRES) = 3361.30 PEAK FLOW RATE(CFS) = 3298.80
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1043.00 TO NODE 1044.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 36.32
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.710
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	B	2.80	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	27.50	0.25	1.00	75
NATURAL FAIR COVER					
"OPEN BRUSH"	C	32.50	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	7.60	0.25	1.00	81
NATURAL FAIR COVER					
"WOODLAND"	C	0.90	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	33.20	0.20	1.00	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 104.50

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.18;3H= 2.03;6H= 2.88;24H= 4.85
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.61; LAG(HR) = 0.48; Fm(INCH/HR) = 0.24; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.85; 30M = 0.85; 1HR = 0.85;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3465.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0290; Lca/L=0.4,n=.0260; Lca/L=0.5,n=.0238;Lca/L=0.6,n=.0222
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 796.55
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3310.97
 TOTAL AREA(ACRES) = 3465.80 PEAK FLOW RATE(CFS) = 3310.97

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1043.00 TO NODE 1044.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN) = 36.32
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.710
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	50.70	0.20	1.00	83
NATURAL FAIR COVER					
"WOODLAND"	D	3.70	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 54.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.18;3H= 2.03;6H= 2.88;24H= 4.84
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.61; LAG(HR) = 0.48; Fm(INCH/HR) = 0.24; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.84; 30M = 0.84; 1HR = 0.84;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3520.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0290; Lca/L=0.4,n=.0260; Lca/L=0.5,n=.0238;Lca/L=0.6,n=.0222
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 809.31
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3353.04
 TOTAL AREA(ACRES) = 3520.20 PEAK FLOW RATE(CFS) = 3353.04

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 3520.20 TC(MIN.) = 36.32
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.48
 PEAK FLOW RATE(CFS) = 3353.04

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU45100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	5.440
2)	10.000;	3.530
3)	15.000;	2.790
4)	20.000;	2.320
5)	30.000;	1.830
6)	60.000;	1.260
7)	120.000;	0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1044.00 TO NODE 1044.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU44100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3353.04 Tc(MIN.) = 36.32
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.48
TOTAL AREA(ACRES) = 3520.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.

FLOW PROCESS FROM NODE 1044.00 TO NODE 1044.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3353.04 Tc(MIN.) = 36.32
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.48
TOTAL AREA(ACRES) = 3520.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.

FLOW PROCESS FROM NODE 1044.00 TO NODE 1044.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1044.00 TO NODE 1045.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 580.00 DOWNSTREAM(FEET) = 540.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1918.00 CHANNEL SLOPE = 0.0209
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3353.04
FLOW VELOCITY(FEET/SEC.) = 15.85 FLOW DEPTH(FEET) = 7.65
TRAVEL TIME(MIN.) = 2.02 Tc(MIN.) = 38.33
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.

FLOW PROCESS FROM NODE 1044.00 TO NODE 1045.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 38.33
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.926
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	6.20	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	2.00	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	6.00	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	4.50	0.30	1.00	63
NATURAL FAIR COVER "OPEN BRUSH"	B	2.40	0.30	1.00	66
NATURAL FAIR COVER "WOODLAND"	B	0.20	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.37
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 21.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.18;3H= 2.03;6H= 2.88;24H= 4.84
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.64; LAG(HR) = 0.51; Fm(INCH/HR) = 0.24; Ybar = 0.49
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.84; 30M = 0.84; 1HR = 0.84;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3541.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0287; Lca/L=0.4,n=.0257; Lca/L=0.5,n=.0236;Lca/L=0.6,n=.0221
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 810.81
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3220.94
 TOTAL AREA(ACRES) = 3541.50 PEAK FLOW RATE(CFS) = 3353.04
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1044.00 TO NODE 1045.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 38.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.672
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	90.40	0.25	1.00	75
NATURAL FAIR COVER					
"OPEN BRUSH"	C	49.60	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	2.20	0.25	1.00	81
NATURAL FAIR COVER					
"WOODLAND"	C	6.70	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	75.70	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	85.10	0.20	1.00	83

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 309.70
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.18;3H= 2.02;6H= 2.87;24H= 4.81
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.64; LAG(HR) = 0.51; Fm(INCH/HR) = 0.24; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.83; 30M = 0.83; 1HR = 0.83;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3851.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0287; Lca/L=0.4,n=.0257; Lca/L=0.5,n=.0236;Lca/L=0.6,n=.0221
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 876.09
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3437.47
 TOTAL AREA(ACRES) = 3851.20 PEAK FLOW RATE(CFS) = 3437.47

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1044.00 TO NODE 1045.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 38.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.672
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	D	8.30	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 8.30
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.18;3H= 2.02;6H= 2.87;24H= 4.81
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.64; LAG(HR) = 0.51; Fm(INCH/HR) = 0.24; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.83; 30M = 0.83; 1HR = 0.83;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3859.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0287; Lca/L=0.4,n=.0257; Lca/L=0.5,n=.0236;Lca/L=0.6,n=.0221
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 877.86
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3443.29
 TOTAL AREA(ACRES) = 3859.50 PEAK FLOW RATE(CFS) = 3443.29

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 3859.50 TC(MIN.) = 38.33
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.48
 PEAK FLOW RATE(CFS) = 3443.29
 =====
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU46100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / SIDE	OUT- / SIDE/ WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020		0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1045.00 TO NODE 1045.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU45100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3443.29 Tc(MIN.) = 38.33
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.48
TOTAL AREA(ACRES) = 3859.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.

FLOW PROCESS FROM NODE 1045.00 TO NODE 1045.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3443.29 Tc(MIN.) = 38.33
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.48
TOTAL AREA(ACRES) = 3859.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.

FLOW PROCESS FROM NODE 1045.00 TO NODE 1045.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1045.00 TO NODE 1046.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 540.00 DOWNSTREAM(FEET) = 515.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1273.00 CHANNEL SLOPE = 0.0196
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3443.29
FLOW VELOCITY(FEET/SEC.) = 15.64 FLOW DEPTH(FEET) = 7.89
TRAVEL TIME(MIN.) = 1.36 Tc(MIN.) = 39.69
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.

FLOW PROCESS FROM NODE 1045.00 TO NODE 1046.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 39.69
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.888
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	0.10	0.40	1.00	40
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	6.70	0.30	1.00	63
NATURAL FAIR COVER "OPEN BRUSH"	B	1.10	0.30	1.00	66
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	B	0.20	0.30	1.00	72
NATURAL FAIR COVER "WOODLAND"	B	1.00	0.30	1.00	60
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	90.00	0.25	1.00	75

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 99.10
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.18;3H= 2.02;6H= 2.86;24H= 4.80
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.66; LAG(HR) = 0.53; Fm(INCH/HR) = 0.24; Ybar = 0.49
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.82; 30M = 0.82; 1HR = 0.82;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3958.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0286; Lca/L=0.4,n=.0256; Lca/L=0.5,n=.0235;Lca/L=0.6,n=.0219
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 895.73
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3392.71
 TOTAL AREA(ACRES) = 3958.60 PEAK FLOW RATE(CFS) = 3443.29
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1045.00 TO NODE 1046.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 39.69
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.646
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	C	42.90	0.25	1.00	77
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	C	3.80	0.25	1.00	81
NATURAL FAIR COVER "WOODLAND"	C	0.80	0.25	1.00	73
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	1.60	0.20	1.00	81
NATURAL FAIR COVER "OPEN BRUSH"	D	1.70	0.20	1.00	83
NATURAL FAIR COVER "WOODLAND"	D	5.70	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 56.50

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.18;3H= 2.02;6H= 2.86;24H= 4.80
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.66; LAG(HR) = 0.53; Fm(INCH/HR) = 0.24; Ybar = 0.49
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.82; 30M = 0.82; 1HR = 0.82;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4015.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0286; Lca/L=0.4,n=.0256; Lca/L=0.5,n=.0235;Lca/L=0.6,n=.0219
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 907.05
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3428.61
 TOTAL AREA(ACRES) = 4015.10 PEAK FLOW RATE(CFS) = 3443.29
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 4015.10 TC(MIN.) = 39.69
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.49
 PEAK FLOW RATE(CFS) = 3443.29

=====
 =====
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU47100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1046.00 TO NODE 1046.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU46100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3443.29 Tc(MIN.) = 39.69
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.49
TOTAL AREA(ACRES) = 4015.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.

FLOW PROCESS FROM NODE 1046.00 TO NODE 1046.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3443.29 Tc(MIN.) = 39.69
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.49
TOTAL AREA(ACRES) = 4015.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.

FLOW PROCESS FROM NODE 1046.00 TO NODE 1046.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1046.00 TO NODE 1047.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 515.00 DOWNSTREAM(FEET) = 485.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1705.00 CHANNEL SLOPE = 0.0176
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3443.29
FLOW VELOCITY(FEET/SEC.) = 15.02 FLOW DEPTH(FEET) = 8.14
TRAVEL TIME(MIN.) = 1.89 Tc(MIN.) = 41.58
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.

FLOW PROCESS FROM NODE 1046.00 TO NODE 1047.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 41.58
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.838
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B 7.40 0.30 1.00 63
NATURAL FAIR COVER
"OPEN BRUSH" B 4.70 0.30 1.00 66
NATURAL FAIR COVER
"WOODLAND" B 2.70 0.30 1.00 60
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 88.50 0.25 1.00 75
NATURAL FAIR COVER
"GRASS" C 0.70 0.25 1.00 79
NATURAL FAIR COVER
"OPEN BRUSH" C 48.30 0.25 1.00 77
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 152.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.18;3H= 2.02;6H= 2.86;24H= 4.79
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.69; LAG(HR) = 0.55; Fm(INCH/HR) = 0.24; Ybar = 0.49
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.81; 30M = 0.81; 1HR = 0.81;
3HR = 0.97; 6HR = 0.99; 24HR= 0.99
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4167.40
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0284; Lca/L=0.4,n=.0255; Lca/L=0.5,n=.0234;Lca/L=0.6,n=.0219
TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 934.93
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3481.90
TOTAL AREA(ACRES) = 4167.40 PEAK FLOW RATE(CFS) = 3481.90

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1046.00 TO NODE 1047.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 41.58
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.610
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	12.70	0.25	1.00	81
NATURAL FAIR COVER					
"WOODLAND"	C	5.70	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	2.60	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	1.10	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	7.10	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 29.90
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.18;3H= 2.02;6H= 2.85;24H= 4.78
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.69; LAG(HR) = 0.55; Fm(INCH/HR) = 0.24; Ybar = 0.49
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.81; 30M = 0.81; 1HR = 0.81;
3HR = 0.97; 6HR = 0.99; 24HR= 0.99
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4197.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0284; Lca/L=0.4,n=.0255; Lca/L=0.5,n=.0234;Lca/L=0.6,n=.0219
TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 941.35
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3500.59
TOTAL AREA(ACRES) = 4197.30 PEAK FLOW RATE(CFS) = 3500.59

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1046.00 TO NODE 1047.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 41.58

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.610
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	D	8.70	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 8.70
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.18;3H= 2.02;6H= 2.85;24H= 4.78
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.69; LAG(HR) = 0.55; Fm(INCH/HR) = 0.24; Ybar = 0.49
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.81; 30M = 0.81; 1HR = 0.81;
3HR = 0.97; 6HR = 0.99; 24HR= 0.99
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4206.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0284; Lca/L=0.4,n=.0255; Lca/L=0.5,n=.0234;Lca/L=0.6,n=.0219
TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 943.20
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3506.17
TOTAL AREA(ACRES) = 4206.00 PEAK FLOW RATE(CFS) = 3506.17

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 4206.00 TC(MIN.) = 41.58
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.49
PEAK FLOW RATE(CFS) = 3506.17

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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Analysis prepared by:

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Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU48100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1047.00 TO NODE 1047.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU47100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3506.17 Tc(MIN.) = 41.58
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.49
TOTAL AREA(ACRES) = 4206.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.

FLOW PROCESS FROM NODE 1047.00 TO NODE 1047.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3506.17 Tc(MIN.) = 41.58
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.49
TOTAL AREA(ACRES) = 4206.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.

FLOW PROCESS FROM NODE 1047.00 TO NODE 1047.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1047.00 TO NODE 1048.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 485.00 DOWNSTREAM(FEET) = 445.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2398.00 CHANNEL SLOPE = 0.0167
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3506.17
FLOW VELOCITY(FEET/SEC.) = 14.81 FLOW DEPTH(FEET) = 8.35
TRAVEL TIME(MIN.) = 2.70 Tc(MIN.) = 44.28
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1047.00 TO NODE 1048.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 44.28
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.773
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B 1.80 0.30 1.00 63
NATURAL FAIR COVER
"GRASS" B 3.00 0.30 1.00 69
NATURAL FAIR COVER
"WOODLAND" B 8.10 0.30 1.00 60
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 86.10 0.25 1.00 75
NATURAL FAIR COVER
"GRASS" C 4.70 0.25 1.00 79
NATURAL FAIR COVER
"OPEN BRUSH" C 47.30 0.25 1.00 77
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 151.00
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.17;3H= 2.01;6H= 2.85;24H= 4.77
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.74; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.49
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.81; 30M = 0.81; 1HR = 0.81;
3HR = 0.97; 6HR = 0.99; 24HR= 0.99
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4357.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0283; Lca/L=0.4,n=.0254; Lca/L=0.5,n=.0233;Lca/L=0.6,n=.0218
TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 970.94
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3526.35
TOTAL AREA(ACRES) = 4357.00 PEAK FLOW RATE(CFS) = 3526.35

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1047.00 TO NODE 1048.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND"	C	22.40	0.25	1.00	73
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	6.80	0.20	1.00	81
NATURAL FAIR COVER "GRASS"	D	6.30	0.20	1.00	84
NATURAL FAIR COVER "OPEN BRUSH"	D	2.80	0.20	1.00	83
NATURAL FAIR COVER "WOODLAND"	D	11.70	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 50.00
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.17;3H= 2.01;6H= 2.85;24H= 4.77
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.74; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.49
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.80; 30M = 0.80; 1HR = 0.80;
3HR = 0.97; 6HR = 0.99; 24HR= 0.99
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0283; Lca/L=0.4,n=.0254; Lca/L=0.5,n=.0233;Lca/L=0.6,n=.0218
TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 981.02
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3556.21
TOTAL AREA(ACRES) = 4407.00 PEAK FLOW RATE(CFS) = 3556.21

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 4407.00 TC(MIN.) = 44.28
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.49
PEAK FLOW RATE(CFS) = 3556.21

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

**TECHNICAL APPENDIX II-A
HYDROLOGIC ANALYSIS
UPSTREAM AREAS
100-YEAR HIGH CONFIDENCE**

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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Analysis prepared by:

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
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--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1000.00 TO NODE 1001.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 327.00
ELEVATION DATA: UPSTREAM(FEET) = 2400.00 DOWNSTREAM(FEET) = 2280.00

 $T_c = K * [(LENGTH ** 3.00) / (ELEVATION CHANGE)] ** 0.20$
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.744
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.492
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.30 0.20 1.00 81 8.74
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA RUNOFF(CFS) = 1.16
TOTAL AREA(ACRES) = 0.30 PEAK FLOW RATE(CFS) = 1.16

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR = 11.27

FLOW PROCESS FROM NODE 1001.00 TO NODE 1002.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 2280.00 DOWNSTREAM(FEET) = 2240.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 95.00 CHANNEL SLOPE = 0.4211
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1.16
FLOW VELOCITY(FEET/SEC.) = 5.25 FLOW DEPTH(FEET) = 0.19
TRAVEL TIME(MIN.) = 0.30 Tc(MIN.) = 9.05
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1002.00 = 422.00 FEET.

FLOW PROCESS FROM NODE 1001.00 TO NODE 1002.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 9.05
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.040
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.30 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.30 SUBAREA RUNOFF(CFS) = 1.31
EFFECTIVE AREA(ACRES) = 0.60 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 0.60 PEAK FLOW RATE(CFS) = 2.61

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR = 11.27

FLOW PROCESS FROM NODE 1002.00 TO NODE 1003.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 2240.00 DOWNSTREAM(FEET) = 2200.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 96.00 CHANNEL SLOPE = 0.4167
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000

MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2.61
FLOW VELOCITY(FEET/SEC.) = 6.85 FLOW DEPTH(FEET) = 0.29
TRAVEL TIME(MIN.) = 0.23 Tc(MIN.) = 9.28
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1003.00 = 518.00 FEET.

FLOW PROCESS FROM NODE 1002.00 TO NODE 1003.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 9.28
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.925
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.30 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.30 SUBAREA RUNOFF(CFS) = 1.28
EFFECTIVE AREA(ACRES) = 0.90 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 0.90 PEAK FLOW RATE(CFS) = 3.83

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27

FLOW PROCESS FROM NODE 1003.00 TO NODE 1004.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2200.00 DOWNSTREAM(FEET) = 2160.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 109.00 CHANNEL SLOPE = 0.3670
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3.83
FLOW VELOCITY(FEET/SEC.) = 7.19 FLOW DEPTH(FEET) = 0.38
TRAVEL TIME(MIN.) = 0.25 Tc(MIN.) = 9.53
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1004.00 = 627.00 FEET.

FLOW PROCESS FROM NODE 1003.00 TO NODE 1004.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 9.53
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.801
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.40 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.40 SUBAREA RUNOFF(CFS) = 1.66
EFFECTIVE AREA(ACRES) = 1.30 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.30 PEAK FLOW RATE(CFS) = 5.38

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27

FLOW PROCESS FROM NODE 1004.00 TO NODE 1005.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2160.00 DOWNSTREAM(FEET) = 2120.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 128.00 CHANNEL SLOPE = 0.3125
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5.38
FLOW VELOCITY(FEET/SEC.) = 7.50 FLOW DEPTH(FEET) = 0.48
TRAVEL TIME(MIN.) = 0.28 Tc(MIN.) = 9.82
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1005.00 = 755.00 FEET.

FLOW PROCESS FROM NODE 1004.00 TO NODE 1005.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 9.82
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.661
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.60 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.60 SUBAREA RUNOFF(CFS) = 2.41
EFFECTIVE AREA(ACRES) = 1.90 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.90 PEAK FLOW RATE(CFS) = 7.63

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27

FLOW PROCESS FROM NODE 1005.00 TO NODE 1014.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2120.00 DOWNSTREAM(FEET) = 2040.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 186.00 CHANNEL SLOPE = 0.4301
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7.63
FLOW VELOCITY(FEET/SEC.) = 9.24 FLOW DEPTH(FEET) = 0.54
TRAVEL TIME(MIN.) = 0.34 Tc(MIN.) = 10.15
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1014.00 = 941.00 FEET.

FLOW PROCESS FROM NODE 1005.00 TO NODE 1014.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 10.15
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.540
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.60 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.60 SUBAREA RUNOFF(CFS) = 2.34
EFFECTIVE AREA(ACRES) = 2.50 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2.50 PEAK FLOW RATE(CFS) = 9.76

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SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27
*****
FLOW PROCESS FROM NODE 1014.00 TO NODE 1014.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
-----
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 10.15
RAINFALL INTENSITY(INCH/HR) = 4.54
AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 2.50
TOTAL STREAM AREA(ACRES) = 2.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 9.76

*****
FLOW PROCESS FROM NODE 1010.00 TO NODE 1011.00 IS CODE = 21
-----
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
-----
INITIAL SUBAREA FLOW-LENGTH(FEET) = 325.00
ELEVATION DATA: UPSTREAM(FEET) = 2300.00 DOWNSTREAM(FEET) = 2200.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.035
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.045
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.60 0.20 1.00 81 9.04
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA RUNOFF(CFS) = 2.62
TOTAL AREA(ACRES) = 0.60 PEAK FLOW RATE(CFS) = 2.62

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27
*****
FLOW PROCESS FROM NODE 1011.00 TO NODE 1012.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2200.00 DOWNSTREAM(FEET) = 2160.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 89.00 CHANNEL SLOPE = 0.4494
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2.62
FLOW VELOCITY(FEET/SEC.) = 6.91 FLOW DEPTH(FEET) = 0.29
TRAVEL TIME(MIN.) = 0.21 Tc(MIN.) = 9.25
LONGEST FLOWPATH FROM NODE 1010.00 TO NODE 1012.00 = 414.00 FEET.

*****
FLOW PROCESS FROM NODE 1011.00 TO NODE 1012.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 9.25
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.939
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS

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LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.40 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.40 SUBAREA RUNOFF(CFS) = 1.71
EFFECTIVE AREA(ACRES) = 1.00 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.00 PEAK FLOW RATE(CFS) = 4.27

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27
*****
FLOW PROCESS FROM NODE 1012.00 TO NODE 1013.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2160.00 DOWNSTREAM(FEET) = 2120.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 114.00 CHANNEL SLOPE = 0.3509
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4.27
FLOW VELOCITY(FEET/SEC.) = 7.27 FLOW DEPTH(FEET) = 0.41
TRAVEL TIME(MIN.) = 0.26 Tc(MIN.) = 9.51
LONGEST FLOWPATH FROM NODE 1010.00 TO NODE 1013.00 = 528.00 FEET.

*****
FLOW PROCESS FROM NODE 1012.00 TO NODE 1013.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
-----
MAINLINE Tc(MIN) = 9.51
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.810
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.90 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.90 SUBAREA RUNOFF(CFS) = 3.73
EFFECTIVE AREA(ACRES) = 1.90 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.90 PEAK FLOW RATE(CFS) = 7.88

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27
*****
FLOW PROCESS FROM NODE 1013.00 TO NODE 1014.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
-----
ELEVATION DATA: UPSTREAM(FEET) = 2120.00 DOWNSTREAM(FEET) = 2040.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 206.00 CHANNEL SLOPE = 0.3883
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7.88
FLOW VELOCITY(FEET/SEC.) = 8.99 FLOW DEPTH(FEET) = 0.56
TRAVEL TIME(MIN.) = 0.38 Tc(MIN.) = 9.89
LONGEST FLOWPATH FROM NODE 1010.00 TO NODE 1014.00 = 734.00 FEET.

*****
FLOW PROCESS FROM NODE 1013.00 TO NODE 1014.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 9.89
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.623
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp          Ap      SCS
LAND USE                GROUP  (ACRES)  (INCH/HR)  (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D      1.10     0.20       1.00      81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 1.10     SUBAREA RUNOFF(CFS) = 4.38
EFFECTIVE AREA(ACRES) = 3.00   AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3.00     PEAK FLOW RATE(CFS) = 11.94

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27

*****
FLOW PROCESS FROM NODE 1014.00 TO NODE 1014.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 9.89
RAINFALL INTENSITY(INCH/HR) = 4.62
AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 3.00
TOTAL STREAM AREA(ACRES) = 3.00
PEAK FLOW RATE(CFS) AT CONFLUENCE = 11.94

** CONFLUENCE DATA **
STREAM  Q      Tc      Intensity  Fp(Fm)      Ap  Ae      HEADWATER
NUMBER  (CFS) (MIN.) (INCH/HR) (INCH/HR)  (ACRES)  NODE
1       9.76  10.15  4.540  0.20( 0.20)  1.00  2.5  1000.00
2      11.94  9.89   4.623  0.20( 0.20)  1.00  3.0  1010.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **
STREAM  Q      Tc      Intensity  Fp(Fm)      Ap  Ae      HEADWATER
NUMBER  (CFS) (MIN.) (INCH/HR) (INCH/HR)  (ACRES)  NODE
1      21.64  9.89   4.623  0.20( 0.20)  1.00  5.4  1010.00
2      21.48  10.15  4.540  0.20( 0.20)  1.00  5.5  1000.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 21.64     Tc(MIN.) = 9.89
EFFECTIVE AREA(ACRES) = 5.44   AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 5.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1014.00 = 941.00 FEET.

*****
FLOW PROCESS FROM NODE 1014.00 TO NODE 1015.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2040.00 DOWNSTREAM(FEET) = 2000.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 182.00 CHANNEL SLOPE = 0.2198
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00

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CHANNEL FLOW THRU SUBAREA(CFS) = 21.64
FLOW VELOCITY(FEET/SEC.) = 9.23 FLOW DEPTH(FEET) = 0.83
TRAVEL TIME(MIN.) = 0.33 Tc(MIN.) = 10.22
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1015.00 = 1123.00 FEET.

*****
FLOW PROCESS FROM NODE 1014.00 TO NODE 1015.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 10.22
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.525
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp          Ap      SCS
LAND USE                GROUP  (ACRES)  (INCH/HR)  (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D      3.80     0.20       1.00      81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 3.80     SUBAREA RUNOFF(CFS) = 14.79
EFFECTIVE AREA(ACRES) = 9.24   AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 9.30     PEAK FLOW RATE(CFS) = 35.95

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27

*****
FLOW PROCESS FROM NODE 1015.00 TO NODE 1016.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2000.00 DOWNSTREAM(FEET) = 1920.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 366.00 CHANNEL SLOPE = 0.2186
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 35.95
FLOW VELOCITY(FEET/SEC.) = 10.60 FLOW DEPTH(FEET) = 1.10
TRAVEL TIME(MIN.) = 0.58 Tc(MIN.) = 10.80
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1016.00 = 1489.00 FEET.

*****
FLOW PROCESS FROM NODE 1015.00 TO NODE 1016.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 10.80
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.409
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp          Ap      SCS
LAND USE                GROUP  (ACRES)  (INCH/HR)  (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"  D      3.40     0.20       1.00      81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 3.40     SUBAREA RUNOFF(CFS) = 12.88
EFFECTIVE AREA(ACRES) = 12.64 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 12.70     PEAK FLOW RATE(CFS) = 47.87

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.70; 30M = 1.27; 1HR = 1.80; 3HR = 3.51; 6HR = 5.36; 24HR = 9.61

*****
FLOW PROCESS FROM NODE 1016.00 TO NODE 1017.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

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>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1920.00 DOWNSTREAM(FEET) = 1880.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 107.00 CHANNEL SLOPE = 0.3738
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 47.87
FLOW VELOCITY(FEET/SEC.) = 13.88 FLOW DEPTH(FEET) = 1.11
TRAVEL TIME(MIN.) = 0.13 Tc(MIN.) = 10.93
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1017.00 = 1596.00 FEET.

*****
FLOW PROCESS FROM NODE 1016.00 TO NODE 1017.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN) = 10.93
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.383
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 16.20 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 16.20 SUBAREA RUNOFF(CFS) = 60.99
EFFECTIVE AREA(ACRES) = 28.84 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 28.90 PEAK FLOW RATE(CFS) = 108.56

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.71; 30M = 1.28; 1HR = 1.82; 3HR = 3.57; 6HR = 5.47; 24HR = 9.84

*****
FLOW PROCESS FROM NODE 1017.00 TO NODE 1029.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1880.00 DOWNSTREAM(FEET) = 1835.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 342.00 CHANNEL SLOPE = 0.1316
CHANNEL BASE(FEET) = 3.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 3.00
CHANNEL FLOW THRU SUBAREA(CFS) = 108.56
FLOW VELOCITY(FEET/SEC.) = 11.57 FLOW DEPTH(FEET) = 1.91
TRAVEL TIME(MIN.) = 0.49 Tc(MIN.) = 11.42
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1029.00 = 1938.00 FEET.

*****
FLOW PROCESS FROM NODE 1017.00 TO NODE 1029.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN) = 11.42
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.283
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 4.60 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.60 SUBAREA RUNOFF(CFS) = 16.91
EFFECTIVE AREA(ACRES) = 33.44 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 33.50 PEAK FLOW RATE(CFS) = 122.88

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):

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5M = 0.62; 30M = 1.19; 1HR = 1.64; 3HR = 3.03; 6HR = 4.47; 24HR = 7.84

*****
FLOW PROCESS FROM NODE 1029.00 TO NODE 1029.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 11.42
RAINFALL INTENSITY(INCH/HR) = 4.28
AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 33.44
TOTAL STREAM AREA(ACRES) = 33.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 122.88

*****
FLOW PROCESS FROM NODE 1020.00 TO NODE 1021.00 IS CODE = 21
-----
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====
INITIAL SUBAREA FLOW-LENGTH(FEET) = 304.00
ELEVATION DATA: UPSTREAM(FEET) = 2525.00 DOWNSTREAM(FEET) = 2360.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 7.853
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.626
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 0.70 0.20 1.00 81 7.85
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA RUNOFF(CFS) = 3.42
TOTAL AREA(ACRES) = 0.70 PEAK FLOW RATE(CFS) = 3.42

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR = 11.27

*****
FLOW PROCESS FROM NODE 1021.00 TO NODE 1022.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2360.00 DOWNSTREAM(FEET) = 2280.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 106.00 CHANNEL SLOPE = 0.7547
CHANNEL BASE(FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3.42
FLOW VELOCITY(FEET/SEC.) = 9.03 FLOW DEPTH(FEET) = 0.29
TRAVEL TIME(MIN.) = 0.20 Tc(MIN.) = 8.05
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1022.00 = 410.00 FEET.

*****
FLOW PROCESS FROM NODE 1021.00 TO NODE 1022.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN) = 8.05
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.530
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

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NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"      D      0.50      0.20      1.00      81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.50      SUBAREA RUNOFF(CFS) = 2.40
EFFECTIVE AREA(ACRES) = 1.20      AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20      AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1.20      PEAK FLOW RATE(CFS) = 5.76

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27

*****
FLOW PROCESS FROM NODE 1022.00 TO NODE 1023.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2280.00 DOWNSTREAM(FEET) = 2240.00
CHANNEL LENGTH THRU SUBAREA( FEET) = 68.00 CHANNEL SLOPE = 0.5882
CHANNEL BASE( FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH( FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5.76
FLOW VELOCITY( FEET/SEC.) = 9.58 FLOW DEPTH( FEET) = 0.42
TRAVEL TIME( MIN.) = 0.12 Tc( MIN.) = 8.17
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1023.00 = 478.00 FEET.

*****
FLOW PROCESS FROM NODE 1022.00 TO NODE 1023.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc( MIN) = 8.17
* 100 YEAR RAINFALL INTENSITY( INCH/HR) = 5.472
SUBAREA LOSS RATE DATA( AMC II):
DEVELOPMENT TYPE/      SCS SOIL      AREA      Fp      Ap      SCS
LAND USE      GROUP      (ACRES)      (INCH/HR)      (DECIMAL)      CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"      D      1.70      0.20      1.00      81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 1.70      SUBAREA RUNOFF(CFS) = 8.07
EFFECTIVE AREA(ACRES) = 2.90      AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20      AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2.90      PEAK FLOW RATE(CFS) = 13.76

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27

*****
FLOW PROCESS FROM NODE 1023.00 TO NODE 1024.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM( FEET) = 2240.00 DOWNSTREAM( FEET) = 2200.00
CHANNEL LENGTH THRU SUBAREA( FEET) = 72.00 CHANNEL SLOPE = 0.5556
CHANNEL BASE( FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH( FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 13.76
FLOW VELOCITY( FEET/SEC.) = 11.95 FLOW DEPTH( FEET) = 0.68
TRAVEL TIME( MIN.) = 0.10 Tc( MIN.) = 8.27
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1024.00 = 550.00 FEET.

*****
FLOW PROCESS FROM NODE 1023.00 TO NODE 1024.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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=====
MAINLINE Tc( MIN) = 8.27
* 100 YEAR RAINFALL INTENSITY( INCH/HR) = 5.423
SUBAREA LOSS RATE DATA( AMC II):
DEVELOPMENT TYPE/      SCS SOIL      AREA      Fp      Ap      SCS
LAND USE      GROUP      (ACRES)      (INCH/HR)      (DECIMAL)      CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"      D      0.30      0.20      1.00      81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 0.30      SUBAREA RUNOFF(CFS) = 1.41
EFFECTIVE AREA(ACRES) = 3.20      AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20      AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3.20      PEAK FLOW RATE(CFS) = 15.04

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27

*****
FLOW PROCESS FROM NODE 1024.00 TO NODE 1025.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM( FEET) = 2200.00 DOWNSTREAM( FEET) = 2160.00
CHANNEL LENGTH THRU SUBAREA( FEET) = 111.00 CHANNEL SLOPE = 0.3604
CHANNEL BASE( FEET) = 1.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH( FEET) = 1.00
CHANNEL FLOW THRU SUBAREA(CFS) = 15.04
FLOW VELOCITY( FEET/SEC.) = 10.37 FLOW DEPTH( FEET) = 0.80
TRAVEL TIME( MIN.) = 0.18 Tc( MIN.) = 8.45
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1025.00 = 661.00 FEET.

*****
FLOW PROCESS FROM NODE 1024.00 TO NODE 1025.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc( MIN) = 8.45
* 100 YEAR RAINFALL INTENSITY( INCH/HR) = 5.335
SUBAREA LOSS RATE DATA( AMC II):
DEVELOPMENT TYPE/      SCS SOIL      AREA      Fp      Ap      SCS
LAND USE      GROUP      (ACRES)      (INCH/HR)      (DECIMAL)      CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"      D      1.80      0.20      1.00      81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 1.80      SUBAREA RUNOFF(CFS) = 8.32
EFFECTIVE AREA(ACRES) = 5.00      AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20      AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 5.00      PEAK FLOW RATE(CFS) = 23.11

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27

*****
FLOW PROCESS FROM NODE 1025.00 TO NODE 1026.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM( FEET) = 2160.00 DOWNSTREAM( FEET) = 2080.00
CHANNEL LENGTH THRU SUBAREA( FEET) = 289.00 CHANNEL SLOPE = 0.2768
CHANNEL BASE( FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH( FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 23.11
FLOW VELOCITY( FEET/SEC.) = 10.22 FLOW DEPTH( FEET) = 0.81
TRAVEL TIME( MIN.) = 0.47 Tc( MIN.) = 8.92

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LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1026.00 = 950.00 FEET.
*****
FLOW PROCESS FROM NODE 1025.00 TO NODE 1026.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 8.92
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.103
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 3.40 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 3.40 SUBAREA RUNOFF(CFS) = 15.00
EFFECTIVE AREA(ACRES) = 8.40 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 8.40 PEAK FLOW RATE(CFS) = 37.07

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27
*****
FLOW PROCESS FROM NODE 1026.00 TO NODE 1027.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2080.00 DOWNSTREAM(FEET) = 2040.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 185.00 CHANNEL SLOPE = 0.2162
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 37.07
FLOW VELOCITY(FEET/SEC.) = 10.62 FLOW DEPTH(FEET) = 1.12
TRAVEL TIME(MIN.) = 0.29 Tc(MIN.) = 9.21
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1027.00 = 1135.00 FEET.

*****
FLOW PROCESS FROM NODE 1026.00 TO NODE 1027.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 9.21
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.960
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 6.20 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 6.20 SUBAREA RUNOFF(CFS) = 26.56
EFFECTIVE AREA(ACRES) = 14.60 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 14.60 PEAK FLOW RATE(CFS) = 62.55

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27
*****
FLOW PROCESS FROM NODE 1027.00 TO NODE 1028.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2040.00 DOWNSTREAM(FEET) = 2000.00

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CHANNEL LENGTH THRU SUBAREA(FEET) = 197.00 CHANNEL SLOPE = 0.2030
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 62.55
FLOW VELOCITY(FEET/SEC.) = 11.93 FLOW DEPTH(FEET) = 1.50
TRAVEL TIME(MIN.) = 0.28 Tc(MIN.) = 9.48
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1028.00 = 1332.00 FEET.
*****
FLOW PROCESS FROM NODE 1027.00 TO NODE 1028.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 9.48
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.825
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 9.90 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 9.90 SUBAREA RUNOFF(CFS) = 41.21
EFFECTIVE AREA(ACRES) = 24.50 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 24.50 PEAK FLOW RATE(CFS) = 101.97

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.78; 30M = 1.34; 1HR = 1.94; 3HR = 3.96; 6HR = 6.19; 24HR =11.27
*****
FLOW PROCESS FROM NODE 1028.00 TO NODE 1029.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 2000.00 DOWNSTREAM(FEET) = 1835.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 476.00 CHANNEL SLOPE = 0.3466
CHANNEL BASE(FEET) = 2.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 2.00
CHANNEL FLOW THRU SUBAREA(CFS) = 101.97
FLOW VELOCITY(FEET/SEC.) = 16.48 FLOW DEPTH(FEET) = 1.68
TRAVEL TIME(MIN.) = 0.48 Tc(MIN.) = 9.96
LONGEST FLOWPATH FROM NODE 1020.00 TO NODE 1029.00 = 1808.00 FEET.

*****
FLOW PROCESS FROM NODE 1028.00 TO NODE 1029.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 9.96
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.588
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 4.00 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.00 SUBAREA RUNOFF(CFS) = 15.80
EFFECTIVE AREA(ACRES) = 28.50 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 28.50 PEAK FLOW RATE(CFS) = 112.55

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.65; 30M = 1.22; 1HR = 1.70; 3HR = 3.20; 6HR = 4.78; 24HR = 8.45
*****

```


FLOW PROCESS FROM NODE 1029.00 TO NODE 1029.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 9.96
RAINFALL INTENSITY(INCH/HR) = 4.59
AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 28.50
TOTAL STREAM AREA(ACRES) = 28.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 112.55

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	122.88	11.42	4.283	0.20(0.20)	1.00	33.4	1010.00
1	121.53	11.68	4.231	0.20(0.20)	1.00	33.5	1000.00
2	112.55	9.96	4.588	0.20(0.20)	1.00	28.5	1020.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	227.77	9.96	4.588	0.20(0.20)	1.00	57.7	1020.00
2	227.63	11.42	4.283	0.20(0.20)	1.00	61.9	1010.00
3	224.91	11.68	4.231	0.20(0.20)	1.00	62.0	1000.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 227.77 Tc(MIN.) = 9.96
EFFECTIVE AREA(ACRES) = 57.68 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 62.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1029.00 = 1938.00 FEET.

FLOW PROCESS FROM NODE 1029.00 TO NODE 1030.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1835.00 DOWNSTREAM(FEET) = 1680.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1378.00 CHANNEL SLOPE = 0.1125
CHANNEL BASE(FEET) = 3.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 3.00
CHANNEL FLOW THRU SUBAREA(CFS) = 227.77
FLOW VELOCITY(FEET/SEC.) = 13.25 FLOW DEPTH(FEET) = 2.91
TRAVEL TIME(MIN.) = 1.73 Tc(MIN.) = 11.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1030.00 = 3316.00 FEET.

FLOW PROCESS FROM NODE 1029.00 TO NODE 1030.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 11.70
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.227
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 33.70 0.20 1.00 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 33.70 SUBAREA RUNOFF(CFS) = 122.14
EFFECTIVE AREA(ACRES) = 91.38 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 95.70 PEAK FLOW RATE(CFS) = 331.18

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.58; 30M = 1.14; 1HR = 1.56; 3HR = 2.77; 6HR = 3.98; 24HR = 6.87

FLOW PROCESS FROM NODE 1030.00 TO NODE 1031.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1680.00 DOWNSTREAM(FEET) = 1630.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 523.00 CHANNEL SLOPE = 0.0956
CHANNEL BASE(FEET) = 4.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 4.00
CHANNEL FLOW THRU SUBAREA(CFS) = 331.18
FLOW VELOCITY(FEET/SEC.) = 13.66 FLOW DEPTH(FEET) = 3.31
TRAVEL TIME(MIN.) = 0.64 Tc(MIN.) = 12.34
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1031.00 = 3839.00 FEET.

FLOW PROCESS FROM NODE 1030.00 TO NODE 1031.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 12.34
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.098
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 81.00 0.20 1.00 81
NATURAL FAIR COVER
"GRASS" D 1.00 0.20 1.00 84
NATURAL FAIR COVER
"OPEN BRUSH" D 1.80 0.20 1.00 83
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 83.80 SUBAREA RUNOFF(CFS) = 294.00
EFFECTIVE AREA(ACRES) = 175.18 AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 179.50 PEAK FLOW RATE(CFS) = 614.59

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.61; 30M = 1.18; 1HR = 1.62; 3HR = 2.97; 6HR = 4.36; 24HR = 7.63

FLOW PROCESS FROM NODE 1031.00 TO NODE 1032.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1630.00 DOWNSTREAM(FEET) = 1520.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1128.00 CHANNEL SLOPE = 0.0975
CHANNEL BASE(FEET) = 5.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050 MAXIMUM DEPTH(FEET) = 5.00
CHANNEL FLOW THRU SUBAREA(CFS) = 614.59
FLOW VELOCITY(FEET/SEC.) = 16.07 FLOW DEPTH(FEET) = 4.17
TRAVEL TIME(MIN.) = 1.17 Tc(MIN.) = 13.51
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1032.00 = 4967.00 FEET.

FLOW PROCESS FROM NODE 1031.00 TO NODE 1032.00 IS CODE = 81

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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 13.51
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.862
SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
    LAND USE         GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C         0.50   0.25   1.00   75
NATURAL FAIR COVER
"WOODLAND"           C         0.10   0.25   1.00   73
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D       167.20   0.20   1.00   81
NATURAL FAIR COVER
"OPEN BRUSH"         D         0.90   0.20   1.00   83
NATURAL FAIR COVER
"CHAPARRAL,NARROWLEAF" D         6.60   0.20   1.00   86
NATURAL FAIR COVER
"WOODLAND"           D         0.80   0.20   1.00   79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 176.10   SUBAREA RUNOFF(CFS) = 580.34
EFFECTIVE AREA(ACRES) = 351.28   AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20   AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 355.60   PEAK FLOW RATE(CFS) = 1157.68

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.61; 30M = 1.17; 1HR = 1.61; 3HR = 2.94; 6HR = 4.31; 24HR = 7.53

*****
FLOW PROCESS FROM NODE 1032.00 TO NODE 1033.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1520.00   DOWNSTREAM(FEET) = 1320.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1992.00   CHANNEL SLOPE = 0.1004
CHANNEL BASE(FEET) = 6.00   "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.050   MAXIMUM DEPTH(FEET) = 6.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1157.68
FLOW VELOCITY(FEET/SEC.) = 19.05   FLOW DEPTH(FEET) = 5.35
TRAVEL TIME(MIN.) = 1.74   Tc(MIN.) = 15.25
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1033.00 = 6959.00 FEET.

*****
FLOW PROCESS FROM NODE 1032.00 TO NODE 1033.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 15.25
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.531
SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
    LAND USE         GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A         0.70   0.40   1.00   40
NATURAL FAIR COVER
"OPEN BRUSH"         A         1.60   0.40   1.00   46
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C       20.50   0.25   1.00   75
NATURAL FAIR COVER
"OPEN BRUSH"         C         1.50   0.25   1.00   77
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D       32.10   0.20   1.00   81
NATURAL FAIR COVER
"OPEN BRUSH"         D       17.00   0.20   1.00   83
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

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SUBAREA AREA(ACRES) = 73.40   SUBAREA RUNOFF(CFS) = 218.62
EFFECTIVE AREA(ACRES) = 424.68   AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20   AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 429.00   PEAK FLOW RATE(CFS) = 1271.59

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.44; 6HR = 3.37; 24HR = 5.65

*****
FLOW PROCESS FROM NODE 1032.00 TO NODE 1033.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 15.25
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.531
SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
    LAND USE         GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,NARROWLEAF" D         2.50   0.20   1.00   86
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 2.50   SUBAREA RUNOFF(CFS) = 7.49
EFFECTIVE AREA(ACRES) = 427.18   AREA-AVERAGED Fm(INCH/HR) = 0.20
AREA-AVERAGED Fp(INCH/HR) = 0.20   AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 431.50   PEAK FLOW RATE(CFS) = 1279.09

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.44; 6HR = 3.37; 24HR = 5.65

*****
FLOW PROCESS FROM NODE 1033.00 TO NODE 1034.00 IS CODE = 51
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 1320.00   DOWNSTREAM(FEET) = 1275.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 804.00   CHANNEL SLOPE = 0.0560
CHANNEL BASE(FEET) = 6.00   "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) = 6.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1279.09
FLOW VELOCITY(FEET/SEC.) = 18.54   FLOW DEPTH(FEET) = 5.83
TRAVEL TIME(MIN.) = 0.72   Tc(MIN.) = 15.97
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1034.00 = 7763.00 FEET.

*****
FLOW PROCESS FROM NODE 1033.00 TO NODE 1034.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN) = 15.97
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.445
SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
    LAND USE         GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A         1.90   0.40   1.00   40
NATURAL FAIR COVER
"OPEN BRUSH"         A         2.20   0.40   1.00   46
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C       27.10   0.25   1.00   75
NATURAL FAIR COVER
"OPEN BRUSH"         C         7.20   0.25   1.00   77
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D       45.90   0.20   1.00   81
NATURAL FAIR COVER
"OPEN BRUSH"         D       48.60   0.20   1.00   83
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22

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SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 132.90 SUBAREA RUNOFF(CFS) = 385.90
EFFECTIVE AREA(ACRES) = 560.08 AREA-AVERAGED Fm(INCH/HR) = 0.21
AREA-AVERAGED Fp(INCH/HR) = 0.21 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 564.40 PEAK FLOW RATE(CFS) = 1632.19

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

FLOW PROCESS FROM NODE 1034.00 TO NODE 1035.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1275.00 DOWNSTREAM(FEET) = 1200.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1266.00 CHANNEL SLOPE = 0.0592
CHANNEL BASE(FEET) = 7.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 7.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1632.19
FLOW VELOCITY(FEET/SEC.) = 20.13 FLOW DEPTH(FEET) = 6.16
TRAVEL TIME(MIN.) = 1.05 Tc(MIN.) = 17.02
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1035.00 = 9029.00 FEET.

FLOW PROCESS FROM NODE 1034.00 TO NODE 1035.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 17.02
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.322
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" A 11.50 0.40 1.00 40
NATURAL FAIR COVER
"OPEN BRUSH" A 2.70 0.40 1.00 46
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" C 14.60 0.25 1.00 75
NATURAL FAIR COVER
"OPEN BRUSH" C 16.60 0.25 1.00 77
NATURAL FAIR COVER
"CHAPARRAL, NARROWLEAF" C 0.10 0.25 1.00 81
NATURAL FAIR COVER
"OPEN BRUSH" D 1.10 0.20 1.00 83
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 46.60 SUBAREA RUNOFF(CFS) = 126.96
EFFECTIVE AREA(ACRES) = 606.68 AREA-AVERAGED Fm(INCH/HR) = 0.21
AREA-AVERAGED Fp(INCH/HR) = 0.21 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 611.00 PEAK FLOW RATE(CFS) = 1696.79

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

FLOW PROCESS FROM NODE 1035.00 TO NODE 1036.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1200.00 DOWNSTREAM(FEET) = 1100.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1639.00 CHANNEL SLOPE = 0.0610
CHANNEL BASE(FEET) = 7.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 7.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1696.79
FLOW VELOCITY(FEET/SEC.) = 20.55 FLOW DEPTH(FEET) = 6.24

TRAVEL TIME(MIN.) = 1.33 Tc(MIN.) = 18.35
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.

FLOW PROCESS FROM NODE 1035.00 TO NODE 1036.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 18.35
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.165
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" A 11.80 0.40 1.00 40
NATURAL FAIR COVER
"OPEN BRUSH" A 5.20 0.40 1.00 46
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" C 20.30 0.25 1.00 75
NATURAL FAIR COVER
"OPEN BRUSH" C 21.80 0.25 1.00 77
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 59.10 SUBAREA RUNOFF(CFS) = 152.74
EFFECTIVE AREA(ACRES) = 665.78 AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 670.10 PEAK FLOW RATE(CFS) = 1763.88

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

FLOW PROCESS FROM NODE 1036.00 TO NODE 1036.00 IS CODE = 7

>>>>PEAK FLOW RATE ESTIMATOR CHANGED TO UNIT-HYDROGRAPH METHOD<<<<<
>>>>USING TIME-OF-CONCENTRATION OF LONGEST FLOWPATH<<<<<

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.58; 30M= 1.14; 1H= 1.56; 3H= 2.77; 6H= 3.99; 24H= 6.88
S-GRAPH: VALLEY(DEV.) = 0.0%; VALLEY(UNDEV.) / DESERT = 0.0%
MOUNTAIN= 100.0%; FOOTHILL= 0.0%; DESERT(UNDEV.) = 0.0%
Tc(HR) = 0.34; LAG(HR) = 0.27; Fm(INCH/HR) = 0.22; Ybar = 0.36
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.97; 30M = 0.97; 1HR = 0.97;
3HR = 1.00; 6HR = 1.00; 24HR = 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 670.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L= 0.3, n= .0355; Lca/L= 0.4, n= .0318; Lca/L= 0.5, n= .0292; Lca/L= 0.6, n= .0273
TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 265.12
UNIT-HYDROGRAPH METHOD PEAK FLOW RATE(CFS) = 1415.24
TOTAL PEAK FLOW RATE(CFS) = 1415.24 (SOURCE FLOW INCLUDED)
RATIONAL METHOD PEAK FLOW RATE(CFS) = 1763.88
(UPSTREAM NODE PEAK FLOW RATE(CFS) = 1763.88)
PEAK FLOW RATE(CFS) USED = 1763.88

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 670.10 TC(MIN.) = 20.19
AREA-AVERAGED Fm(INCH/HR) = 0.22 Ybar = 0.36
PEAK FLOW RATE(CFS) = 1763.88

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2003 Advanced Engineering Software (aes)
Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU37100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----
USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	7.030
2)	10.000;	4.570
3)	15.000;	3.560
4)	20.000;	2.970
5)	30.000;	2.340
6)	60.000;	1.590
7)	120.000;	1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
---	------	------	-------------------	------	------	--------	-------	--------

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1036.00 TO NODE 1036.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU36100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1763.88 Tc(MIN.) = 20.19
AREA-AVERAGED Fm(INCH/HR) = 0.22 Ybar = 0.36
TOTAL AREA(ACRES) = 670.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.

FLOW PROCESS FROM NODE 1036.00 TO NODE 1036.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1763.88 Tc(MIN.) = 20.19
AREA-AVERAGED Fm(INCH/HR) = 0.22 Ybar = 0.36
TOTAL AREA(ACRES) = 670.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1036.00 = 10668.00 FEET.

FLOW PROCESS FROM NODE 1036.00 TO NODE 1036.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1036.00 TO NODE 1037.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 1100.00 DOWNSTREAM(FEET) = 1010.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1517.00 CHANNEL SLOPE = 0.0593
CHANNEL BASE(FEET) = 7.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 7.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1763.88
FLOW VELOCITY(FEET/SEC.) = 20.54 FLOW DEPTH(FEET) = 6.41
TRAVEL TIME(MIN.) = 1.23 Tc(MIN.) = 21.42
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.

FLOW PROCESS FROM NODE 1036.00 TO NODE 1037.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 21.42
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.688
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	23.70	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	6.70	0.40	1.00	46
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	82.50	0.25	1.00	75
NATURAL FAIR COVER "OPEN BRUSH"	C	114.00	0.25	1.00	77
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	C	24.20	0.25	1.00	81
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	2.50	0.20	1.00	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 253.60
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.56;30M= 1.13;1H= 1.53;3H= 2.68;6H= 3.83;24H= 6.57
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.36; LAG(HR) = 0.29; Fm(INCH/HR) = 0.23; Ybar = 0.40
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.96; 30M = 0.96; 1HR = 0.96;
3HR = 0.99; 6HR = 1.00; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 923.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0336; Lca/L=0.4,n=.0301; Lca/L=0.5,n=.0277;Lca/L=0.6,n=.0258
TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 334.25
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1846.26
TOTAL AREA(ACRES) = 923.70 PEAK FLOW RATE(CFS) = 1846.26

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.53; 30M = 1.10; 1HR = 1.46; 3HR = 2.46; 6HR = 3.42; 24HR = 5.75

FLOW PROCESS FROM NODE 1036.00 TO NODE 1037.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 21.42
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.881
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	D	84.70	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	10.60	0.20	1.00	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 95.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.56;30M= 1.13;1H= 1.52;3H= 2.66;6H= 3.79;24H= 6.49
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.36; LAG(HR) = 0.29; Fm(INCH/HR) = 0.23; Ybar = 0.39
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.95; 30M = 0.95; 1HR = 0.95;
3HR = 0.99; 6HR = 1.00; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1019.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1037.00 = 12185.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0336; Lca/L=0.4,n=.0301; Lca/L=0.5,n=.0277;Lca/L=0.6,n=.0258
TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 367.13
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2020.61
TOTAL AREA(ACRES) = 1019.00 PEAK FLOW RATE(CFS) = 2020.61

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.53; 30M = 1.10; 1HR = 1.46; 3HR = 2.46; 6HR = 3.42; 24HR = 5.75

=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 1019.00 TC(MIN.) = 21.42
AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.39
PEAK FLOW RATE(CFS) = 2020.61

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU38100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1037.00 TO NODE 1037.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME:	MU37100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:	
PEAK FLOW RATE(CFS) =	2020.61 Tc(MIN.) = 21.42
AREA-AVERAGED Fm(INCH/HR) =	0.23 Ybar = 0.39
TOTAL AREA(ACRES) =	1019.00
LONGEST FLOWPATH FROM NODE	1000.00 TO NODE 1037.00 = 12185.00 FEET.

FLOW PROCESS FROM NODE 1037.00 TO NODE 1037.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:	
PEAK FLOW RATE(CFS) =	2020.61 Tc(MIN.) = 21.42
AREA-AVERAGED Fm(INCH/HR) =	0.23 Ybar = 0.39
TOTAL AREA(ACRES) =	1019.00
LONGEST FLOWPATH FROM NODE	1000.00 TO NODE 1037.00 = 12185.00 FEET.

FLOW PROCESS FROM NODE 1037.00 TO NODE 1037.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1037.00 TO NODE 1038.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) =	1010.00	DOWNSTREAM(FEET) =	925.00
CHANNEL LENGTH THRU SUBAREA(FEET) =	2069.00	CHANNEL SLOPE =	0.0411
CHANNEL BASE(FEET) =	8.00	"Z" FACTOR =	1.000
MANNING'S FACTOR =	0.040	MAXIMUM DEPTH(FEET) =	8.00
CHANNEL FLOW THRU SUBAREA(CFS) =	2020.61		
FLOW VELOCITY(FEET/SEC.) =	18.50	FLOW DEPTH(FEET) =	7.19
TRAVEL TIME(MIN.) =	1.86	Tc(MIN.) =	23.28
LONGEST FLOWPATH FROM NODE	1000.00 TO NODE 1038.00 =	14254.00 FEET.	

FLOW PROCESS FROM NODE 1037.00 TO NODE 1038.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) =	23.28				
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =	2.563				
SUBAREA LOSS RATE DATA(AMC II):					
DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	10.20	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	0.40	0.40	1.00	46
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	31.20	0.25	1.00	75
NATURAL FAIR COVER "OPEN BRUSH"	C	17.50	0.25	1.00	77
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	C	4.70	0.25	1.00	81
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	1.20	0.20	1.00	81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =	0.27				
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =	1.00				
SUBAREA AREA(ACRES) =	65.20				

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.56;30M= 1.13;1H= 1.52;3H= 2.65;6H= 3.77;24H= 6.44
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.39; LAG(HR) = 0.31; Fm(INCH/HR) = 0.23; Ybar = 0.40
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.95; 30M = 0.95; 1HR = 0.95;
 3HR = 0.99; 6HR = 1.00; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1084.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 383.63
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2043.32
 TOTAL AREA(ACRES) = 1084.20 PEAK FLOW RATE(CFS) = 2043.32

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1037.00 TO NODE 1038.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 23.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.763
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	D	17.00	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	1.90	0.20	1.00	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 18.90

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.56;30M= 1.13;1H= 1.52;3H= 2.65;6H= 3.76;24H= 6.43
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.39; LAG(HR) = 0.31; Fm(INCH/HR) = 0.23; Ybar = 0.40
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.95; 30M = 0.95; 1HR = 0.95;
 3HR = 0.99; 6HR = 1.00; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1103.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 389.97
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2075.63
 TOTAL AREA(ACRES) = 1103.10 PEAK FLOW RATE(CFS) = 2075.63

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 1103.10 TC(MIN.) = 23.28
 AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.40
 PEAK FLOW RATE(CFS) = 2075.63

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU39100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / OUT- / PARK- SIDE / SIDE / WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc

S-GRAPH TYPE	PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED)	0.000
FOOTHILL	0.000
MOUNTAIN	1.000
VALLEY(UNDEVELOPED)/DESERT	0.000
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1038.00 TO NODE 1038.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU38100H.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 2075.63 Tc(MIN.) = 23.28

AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.40

TOTAL AREA(ACRES) = 1103.10

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.

FLOW PROCESS FROM NODE 1038.00 TO NODE 1038.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 2075.63 Tc(MIN.) = 23.28

AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.40

TOTAL AREA(ACRES) = 1103.10

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1038.00 = 14254.00 FEET.

FLOW PROCESS FROM NODE 1038.00 TO NODE 1038.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1038.00 TO NODE 1039.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 925.00 DOWNSTREAM(FEET) = 873.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 1383.00 CHANNEL SLOPE = 0.0376

CHANNEL BASE(FEET) = 8.00 "Z" FACTOR = 1.000

MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 8.00

CHANNEL FLOW THRU SUBAREA(CFS) = 2075.63

FLOW VELOCITY(FEET/SEC.) = 18.03 FLOW DEPTH(FEET) = 7.45

TRAVEL TIME(MIN.) = 1.28 Tc(MIN.) = 24.56

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.

FLOW PROCESS FROM NODE 1038.00 TO NODE 1039.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 24.56

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.485

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	55.80	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	2.30	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	0.20	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	106.00	0.25	1.00	75
NATURAL FAIR COVER "OPEN BRUSH"	C	112.00	0.25	1.00	77
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	C	1.90	0.25	1.00	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 278.20

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.56;30M= 1.13;1H= 1.52;3H= 2.65;6H= 3.77;24H= 6.45
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.41; LAG(HR) = 0.33; Fm(INCH/HR) = 0.24; Ybar = 0.42
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.94; 30M = 0.94; 1HR = 0.94;
3HR = 0.99; 6HR = 1.00; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1381.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0255;Lca/L=0.6,n=.0238
TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 474.95
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2465.20
TOTAL AREA(ACRES) = 1381.30 PEAK FLOW RATE(CFS) = 2465.20

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.56; 30M = 1.13; 1HR = 1.53; 3HR = 2.67; 6HR = 3.81; 24HR = 6.53

FLOW PROCESS FROM NODE 1038.00 TO NODE 1039.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 24.56
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.683
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND"	C	0.70	0.25	1.00	73
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	28.50	0.20	1.00	81
NATURAL FAIR COVER "GRASS"	D	25.50	0.20	1.00	84
NATURAL FAIR COVER "OPEN BRUSH"	D	92.90	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	0.80	0.20	1.00	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 148.40
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.56;30M= 1.13;1H= 1.52;3H= 2.65;6H= 3.77;24H= 6.46
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.41; LAG(HR) = 0.33; Fm(INCH/HR) = 0.24; Ybar = 0.41
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.93; 30M = 0.93; 1HR = 0.93;
3HR = 0.99; 6HR = 0.99; 24HR= 1.00
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1529.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0255;Lca/L=0.6,n=.0238
TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 533.43
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2718.09
TOTAL AREA(ACRES) = 1529.70 PEAK FLOW RATE(CFS) = 2718.09

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.56; 30M = 1.13; 1HR = 1.53; 3HR = 2.67; 6HR = 3.81; 24HR = 6.53

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 1529.70 TC(MIN.) = 24.56
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.41
PEAK FLOW RATE(CFS) = 2718.09

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU40100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1039.00 TO NODE 1039.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU39100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2718.09 Tc(MIN.) = 24.56
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.41
TOTAL AREA(ACRES) = 1529.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.

FLOW PROCESS FROM NODE 1039.00 TO NODE 1039.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2718.09 Tc(MIN.) = 24.56
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.41
TOTAL AREA(ACRES) = 1529.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1039.00 = 15637.00 FEET.

FLOW PROCESS FROM NODE 1039.00 TO NODE 1039.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1039.00 TO NODE 1040.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 873.00 DOWNSTREAM(FEET) = 780.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2714.00 CHANNEL SLOPE = 0.0343
CHANNEL BASE(FEET) = 9.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 9.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2718.09
FLOW VELOCITY(FEET/SEC.) = 18.63 FLOW DEPTH(FEET) = 8.39
TRAVEL TIME(MIN.) = 2.43 Tc(MIN.) = 26.99
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.

FLOW PROCESS FROM NODE 1039.00 TO NODE 1040.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 26.99
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.355
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	31.10	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	2.20	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	12.10	0.40	1.00	46
AGRICULTURAL FAIR COVER "PASTURE,DRYLAND"	A	0.10	0.40	1.00	49
NATURAL FAIR COVER "WOODLAND"	A	8.70	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	122.30	0.25	1.00	75

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 176.50
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.56;30M= 1.13;1H= 1.52;3H= 2.65;6H= 3.76;24H= 6.44
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.45; LAG(HR) = 0.36; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.92; 30M = 0.92; 1HR = 0.92;
 3HR = 0.99; 6HR = 0.99; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1706.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 579.64
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2766.81
 TOTAL AREA(ACRES) = 1706.20 PEAK FLOW RATE(CFS) = 2766.81

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.55; 30M = 1.12; 1HR = 1.50; 3HR = 2.60; 6HR = 3.67; 24HR = 6.25

 FLOW PROCESS FROM NODE 1039.00 TO NODE 1040.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 26.99
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.530
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	C	1.60	0.25	1.00	79
AGRICULTURAL FAIR COVER					
"ORCHARDS"	C	1.30	0.25	1.00	77
NATURAL FAIR COVER					
"OPEN BRUSH"	C	137.40	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	0.90	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	129.90	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	12.70	0.20	1.00	84

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 283.80
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.56;30M= 1.13;1H= 1.52;3H= 2.64;6H= 3.75;24H= 6.41
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.45; LAG(HR) = 0.36; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.91; 30M = 0.91; 1HR = 0.91;
 3HR = 0.99; 6HR = 0.99; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 1990.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 678.15
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3182.52
 TOTAL AREA(ACRES) = 1990.00 PEAK FLOW RATE(CFS) = 3182.52

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.55; 30M = 1.12; 1HR = 1.50; 3HR = 2.60; 6HR = 3.67; 24HR = 6.25

 FLOW PROCESS FROM NODE 1039.00 TO NODE 1040.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 26.99

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.530
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	116.40	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	4.40	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	2.90	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 123.70
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.56;30M= 1.13;1H= 1.52;3H= 2.64;6H= 3.75;24H= 6.40
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.45; LAG(HR) = 0.36; Fm(INCH/HR) = 0.24; Ybar = 0.41
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.91; 30M = 0.91; 1HR = 0.91;
 3HR = 0.99; 6HR = 0.99; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2113.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
 TIME OF PEAK FLOW(HR) = 16.25 RUNOFF VOLUME(AF) = 724.31
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3362.92
 TOTAL AREA(ACRES) = 2113.70 PEAK FLOW RATE(CFS) = 3362.92

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.55; 30M = 1.12; 1HR = 1.50; 3HR = 2.60; 6HR = 3.67; 24HR = 6.25

=====

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 2113.70 TC(MIN.) = 26.99
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.41
 PEAK FLOW RATE(CFS) = 3362.92

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU41100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / SIDE	OUT- / SIDE/ WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020		0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1040.00 TO NODE 1040.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU40100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3362.92 Tc(MIN.) = 26.99
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.41
TOTAL AREA(ACRES) = 2113.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.

FLOW PROCESS FROM NODE 1040.00 TO NODE 1040.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3362.92 Tc(MIN.) = 26.99
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.41
TOTAL AREA(ACRES) = 2113.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1040.00 = 18351.00 FEET.

FLOW PROCESS FROM NODE 1040.00 TO NODE 1040.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1040.00 TO NODE 1041.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 780.00 DOWNSTREAM(FEET) = 695.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2758.00 CHANNEL SLOPE = 0.0308
CHANNEL BASE(FEET) = 10.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3362.92
FLOW VELOCITY(FEET/SEC.) = 18.88 FLOW DEPTH(FEET) = 9.25
TRAVEL TIME(MIN.) = 2.43 Tc(MIN.) = 29.42
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.

FLOW PROCESS FROM NODE 1040.00 TO NODE 1041.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 29.42
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.241
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	30.00	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	1.20	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	28.60	0.40	1.00	46
AGRICULTURAL FAIR COVER "PASTURE,DRYLAND"	A	1.60	0.40	1.00	49
NATURAL FAIR COVER "WOODLAND"	A	14.70	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	87.40	0.25	1.00	75

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.32
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 163.50
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.55;30M= 1.12;1H= 1.51;3H= 2.62;6H= 3.72;24H= 6.35
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.49; LAG(HR) = 0.39; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.90; 30M = 0.90; 1HR = 0.90;
 3HR = 0.98; 6HR = 0.99; 24HR= 1.00
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2277.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0285; Lca/L=0.4,n=.0255; Lca/L=0.5,n=.0234;Lca/L=0.6,n=.0219
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 755.33
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3368.20
 TOTAL AREA(ACRES) = 2277.20 PEAK FLOW RATE(CFS) = 3368.20

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.37; 24HR = 5.64

 FLOW PROCESS FROM NODE 1040.00 TO NODE 1041.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 29.42
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.376
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	C	10.40	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	138.60	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	2.90	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	36.10	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	56.80	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	220.70	0.20	1.00	83

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 465.50
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.55;30M= 1.12;1H= 1.50;3H= 2.59;6H= 3.66;24H= 6.23
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.49; LAG(HR) = 0.39; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.88; 30M = 0.88; 1HR = 0.88;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2742.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0285; Lca/L=0.4,n=.0255; Lca/L=0.5,n=.0234;Lca/L=0.6,n=.0219
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 901.51
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3938.10
 TOTAL AREA(ACRES) = 2742.70 PEAK FLOW RATE(CFS) = 3938.10

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.37; 24HR = 5.64

 FLOW PROCESS FROM NODE 1040.00 TO NODE 1041.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 29.42

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.376
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	D	0.90	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 0.90
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.55;30M= 1.12;1H= 1.50;3H= 2.59;6H= 3.66;24H= 6.23
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.49; LAG(HR) = 0.39; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.88; 30M = 0.88; 1HR = 0.88;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2743.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0285; Lca/L=0.4,n=.0255; Lca/L=0.5,n=.0234;Lca/L=0.6,n=.0219
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 901.79
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3939.18
 TOTAL AREA(ACRES) = 2743.60 PEAK FLOW RATE(CFS) = 3939.18

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.37; 24HR = 5.64

 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 2743.60 TC(MIN.) = 29.42
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.42
 PEAK FLOW RATE(CFS) = 3939.18

 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MU42100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / OUT- / PARK- SIDE / SIDE / WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc

S-GRAPH TYPE	PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED)	0.000
FOOTHILL	0.000
MOUNTAIN	1.000
VALLEY(UNDEVELOPED)/DESERT	0.000
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1041.00 TO NODE 1041.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU41100H.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 3939.18 Tc(MIN.) = 29.42

AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42

TOTAL AREA(ACRES) = 2743.60

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.

FLOW PROCESS FROM NODE 1041.00 TO NODE 1041.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 3939.18 Tc(MIN.) = 29.42

AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42

TOTAL AREA(ACRES) = 2743.60

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1041.00 = 21109.00 FEET.

FLOW PROCESS FROM NODE 1041.00 TO NODE 1041.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1041.00 TO NODE 1042.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 695.00 DOWNSTREAM(FEET) = 650.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 1846.00 CHANNEL SLOPE = 0.0244

CHANNEL BASE(FEET) = 15.00 "Z" FACTOR = 1.000

MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00

CHANNEL FLOW THRU SUBAREA(CFS) = 3939.18

FLOW VELOCITY(FEET/SEC.) = 17.86 FLOW DEPTH(FEET) = 9.14

TRAVEL TIME(MIN.) = 1.72 Tc(MIN.) = 31.15

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.

FLOW PROCESS FROM NODE 1041.00 TO NODE 1042.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 31.15

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.169

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	1.30	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	0.20	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	2.20	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	5.30	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	25.10	0.25	1.00	75
NATURAL FAIR COVER "GRASS"	C	3.20	0.25	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 37.30

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.55;30M= 1.12;1H= 1.50;3H= 2.59;6H= 3.66;24H= 6.22
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.52; LAG(HR) = 0.42; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.88; 30M = 0.88; 1HR = 0.88;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2780.90
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0280; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 910.32
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3965.85
 TOTAL AREA(ACRES) = 2780.90 PEAK FLOW RATE(CFS) = 3965.85

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

FLOW PROCESS FROM NODE 1041.00 TO NODE 1042.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====
 MAINLINE Tc(MIN) = 31.15
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.311
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	C	28.60	0.25	1.00	77
NATURAL FAIR COVER "WOODLAND"	C	0.90	0.25	1.00	73
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	18.00	0.20	1.00	81
NATURAL FAIR COVER "GRASS"	D	2.20	0.20	1.00	84
NATURAL FAIR COVER "OPEN BRUSH"	D	44.10	0.20	1.00	83
NATURAL FAIR COVER "WOODLAND"	D	4.60	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 98.40

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.55;30M= 1.12;1H= 1.50;3H= 2.58;6H= 3.64;24H= 6.20
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.52; LAG(HR) = 0.42; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.87; 30M = 0.87; 1HR = 0.87;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2879.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0280; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 940.80
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4081.52
 TOTAL AREA(ACRES) = 2879.30 PEAK FLOW RATE(CFS) = 4081.52

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 2879.30 TC(MIN.) = 31.15
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.42
 PEAK FLOW RATE(CFS) = 4081.52

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MU43100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1042.00 TO NODE 1042.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU42100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4081.52 Tc(MIN.) = 31.15
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
TOTAL AREA(ACRES) = 2879.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.

FLOW PROCESS FROM NODE 1042.00 TO NODE 1042.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4081.52 Tc(MIN.) = 31.15
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
TOTAL AREA(ACRES) = 2879.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1042.00 = 22955.00 FEET.

FLOW PROCESS FROM NODE 1042.00 TO NODE 1042.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1042.00 TO NODE 1043.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 650.00 DOWNSTREAM(FEET) = 600.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2257.00 CHANNEL SLOPE = 0.0222
CHANNEL BASE(FEET) = 15.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4081.52
FLOW VELOCITY(FEET/SEC.) = 17.40 FLOW DEPTH(FEET) = 9.55
TRAVEL TIME(MIN.) = 2.16 Tc(MIN.) = 33.31
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.

FLOW PROCESS FROM NODE 1042.00 TO NODE 1043.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 33.31
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.087
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	5.50	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	8.00	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	1.10	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	6.40	0.30	1.00	63
NATURAL FAIR COVER "OPEN BRUSH"	B	2.60	0.30	1.00	66
NATURAL FAIR COVER "WOODLAND"	B	9.60	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 33.20
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.55;30M= 1.12;1H= 1.50;3H= 2.58;6H= 3.64;24H= 6.19
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.56; LAG(HR) = 0.44; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.87; 30M = 0.87; 1HR = 0.87;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 2912.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0275; Lca/L=0.4,n=.0247; Lca/L=0.5,n=.0227;Lca/L=0.6,n=.0211
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 945.85
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4024.69
 TOTAL AREA(ACRES) = 2912.50 PEAK FLOW RATE(CFS) = 4081.52
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1042.00 TO NODE 1043.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 33.31
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.257
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	52.90	0.25	1.00	75
NATURAL FAIR COVER					
"OPEN BRUSH"	C	57.90	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	13.50	0.25	1.00	81
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	95.60	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	0.60	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	213.70	0.20	1.00	83

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 434.20
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.49;3H= 2.56;6H= 3.61;24H= 6.12
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.56; LAG(HR) = 0.44; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.85; 30M = 0.85; 1HR = 0.85;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3346.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0275; Lca/L=0.4,n=.0247; Lca/L=0.5,n=.0227;Lca/L=0.6,n=.0211
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1080.16
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4507.42
 TOTAL AREA(ACRES) = 3346.70 PEAK FLOW RATE(CFS) = 4507.42

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1042.00 TO NODE 1043.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 33.31
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.257
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	D	8.40	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 8.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.49;3H= 2.56;6H= 3.60;24H= 6.12
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.56; LAG(HR) = 0.44; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.85; 30M = 0.85; 1HR = 0.85;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3355.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0275; Lca/L=0.4,n=.0247; Lca/L=0.5,n=.0227;Lca/L=0.6,n=.0211
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1082.69
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4516.58
 TOTAL AREA(ACRES) = 3355.10 PEAK FLOW RATE(CFS) = 4516.58

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 3355.10 TC(MIN.) = 33.31
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.42
 PEAK FLOW RATE(CFS) = 4516.58
 =====
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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FILE NAME: MU44100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== =====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1043.00 TO NODE 1043.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU43100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4516.58 Tc(MIN.) = 33.31
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
TOTAL AREA(ACRES) = 3355.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.

FLOW PROCESS FROM NODE 1043.00 TO NODE 1043.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4516.58 Tc(MIN.) = 33.31
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
TOTAL AREA(ACRES) = 3355.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1043.00 = 25212.00 FEET.

FLOW PROCESS FROM NODE 1043.00 TO NODE 1043.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1043.00 TO NODE 1044.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 600.00 DOWNSTREAM(FEET) = 580.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1011.00 CHANNEL SLOPE = 0.0198
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4516.58
FLOW VELOCITY(FEET/SEC.) = 16.91 FLOW DEPTH(FEET) = 9.16
TRAVEL TIME(MIN.) = 1.00 Tc(MIN.) = 34.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.

FLOW PROCESS FROM NODE 1043.00 TO NODE 1044.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 34.30
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.052
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	1.30	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	1.30	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	0.90	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	0.40	0.30	1.00	63
NATURAL FAIR COVER "OPEN BRUSH"	B	1.60	0.30	1.00	66
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	B	0.70	0.30	1.00	72

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.36
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 6.20
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.49;3H= 2.56;6H= 3.60;24H= 6.12
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.57; LAG(HR) = 0.46; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.85; 30M = 0.85; 1HR = 0.85;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3361.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0273; Lca/L=0.4,n=.0245; Lca/L=0.5,n=.0225;Lca/L=0.6,n=.0210
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1083.61
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4442.10
 TOTAL AREA(ACRES) = 3361.30 PEAK FLOW RATE(CFS) = 4516.58
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1043.00 TO NODE 1044.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

 MAINLINE Tc(MIN) = 34.30
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.232
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND"	B	2.80	0.30	1.00	60
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	27.50	0.25	1.00	75
NATURAL FAIR COVER "OPEN BRUSH"	C	32.50	0.25	1.00	77
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	C	7.60	0.25	1.00	81
NATURAL FAIR COVER "WOODLAND"	C	0.90	0.25	1.00	73
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	33.20	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 104.50
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.49;3H= 2.56;6H= 3.60;24H= 6.10
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.57; LAG(HR) = 0.46; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.85; 30M = 0.85; 1HR = 0.85;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3465.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0273; Lca/L=0.4,n=.0245; Lca/L=0.5,n=.0225;Lca/L=0.6,n=.0210
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1113.56
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4550.12
 TOTAL AREA(ACRES) = 3465.80 PEAK FLOW RATE(CFS) = 4550.12

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1043.00 TO NODE 1044.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 34.30
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.232
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	D	50.70	0.20	1.00	83
NATURAL FAIR COVER "WOODLAND"	D	3.70	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 54.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.49;3H= 2.55;6H= 3.59;24H= 6.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.57; LAG(HR) = 0.46; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.84; 30M = 0.84; 1HR = 0.84;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3520.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0273; Lca/L=0.4,n=.0245; Lca/L=0.5,n=.0225;Lca/L=0.6,n=.0210
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1131.06
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4607.73
 TOTAL AREA(ACRES) = 3520.20 PEAK FLOW RATE(CFS) = 4607.73

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 3520.20 TC(MIN.) = 34.30
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.42
 PEAK FLOW RATE(CFS) = 4607.73

 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MU45100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1044.00 TO NODE 1044.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU44100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4607.73 Tc(MIN.) = 34.30
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
TOTAL AREA(ACRES) = 3520.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.

FLOW PROCESS FROM NODE 1044.00 TO NODE 1044.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4607.73 Tc(MIN.) = 34.30
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
TOTAL AREA(ACRES) = 3520.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1044.00 = 26223.00 FEET.

FLOW PROCESS FROM NODE 1044.00 TO NODE 1044.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1044.00 TO NODE 1045.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 580.00 DOWNSTREAM(FEET) = 540.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1918.00 CHANNEL SLOPE = 0.0209
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4607.73
FLOW VELOCITY(FEET/SEC.) = 17.33 FLOW DEPTH(FEET) = 9.13
TRAVEL TIME(MIN.) = 1.84 Tc(MIN.) = 36.15
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.

FLOW PROCESS FROM NODE 1044.00 TO NODE 1045.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 36.15
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.992
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	6.20	0.40	1.00	40
NATURAL FAIR COVER "OPEN BRUSH"	A	2.00	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	6.00	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	4.50	0.30	1.00	63
NATURAL FAIR COVER "OPEN BRUSH"	B	2.40	0.30	1.00	66
NATURAL FAIR COVER "WOODLAND"	B	0.20	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.37
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 21.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.49;3H= 2.55;6H= 3.59;24H= 6.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.60; LAG(HR) = 0.48; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.84; 30M = 0.84; 1HR = 0.84;
 3HR = 0.98; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3541.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0271; Lca/L=0.4,n=.0243; Lca/L=0.5,n=.0223;Lca/L=0.6,n=.0208
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1133.74
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4465.58
 TOTAL AREA(ACRES) = 3541.50 PEAK FLOW RATE(CFS) = 4607.73
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1044.00 TO NODE 1045.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 36.15
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.186
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	90.40	0.25	1.00	75
NATURAL FAIR COVER					
"OPEN BRUSH"	C	49.60	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	2.20	0.25	1.00	81
NATURAL FAIR COVER					
"WOODLAND"	C	6.70	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	75.70	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	85.10	0.20	1.00	83

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 309.70
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.49;3H= 2.54;6H= 3.57;24H= 6.05
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.60; LAG(HR) = 0.48; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.83; 30M = 0.83; 1HR = 0.83;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3851.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0271; Lca/L=0.4,n=.0243; Lca/L=0.5,n=.0223;Lca/L=0.6,n=.0208
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1225.35
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4767.46
 TOTAL AREA(ACRES) = 3851.20 PEAK FLOW RATE(CFS) = 4767.46

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1044.00 TO NODE 1045.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 36.15
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.186
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	D	8.30	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 8.30
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.49;3H= 2.54;6H= 3.57;24H= 6.05
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.60; LAG(HR) = 0.48; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.83; 30M = 0.83; 1HR = 0.83;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3859.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0271; Lca/L=0.4,n=.0243; Lca/L=0.5,n=.0223;Lca/L=0.6,n=.0208
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1227.84
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4775.56
 TOTAL AREA(ACRES) = 3859.50 PEAK FLOW RATE(CFS) = 4775.56

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 3859.50 TC(MIN.) = 36.15
 AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
 PEAK FLOW RATE(CFS) = 4775.56
 =====
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU46100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== =====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1045.00 TO NODE 1045.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU45100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4775.56 Tc(MIN.) = 36.15
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
TOTAL AREA(ACRES) = 3859.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.

FLOW PROCESS FROM NODE 1045.00 TO NODE 1045.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4775.56 Tc(MIN.) = 36.15
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
TOTAL AREA(ACRES) = 3859.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1045.00 = 28141.00 FEET.

FLOW PROCESS FROM NODE 1045.00 TO NODE 1045.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1045.00 TO NODE 1046.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 540.00 DOWNSTREAM(FEET) = 515.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1273.00 CHANNEL SLOPE = 0.0196
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4775.56
FLOW VELOCITY(FEET/SEC.) = 17.12 FLOW DEPTH(FEET) = 9.47
TRAVEL TIME(MIN.) = 1.24 Tc(MIN.) = 37.39
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.

FLOW PROCESS FROM NODE 1045.00 TO NODE 1046.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 37.39
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.954
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	0.10	0.40	1.00	40
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	6.70	0.30	1.00	63
NATURAL FAIR COVER "OPEN BRUSH"	B	1.10	0.30	1.00	66
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	B	0.20	0.30	1.00	72
NATURAL FAIR COVER "WOODLAND"	B	1.00	0.30	1.00	60
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	90.00	0.25	1.00	75

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 99.10
UNIT-HYDROGRAPH DATA:

=====
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS
 =====

RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.49;3H= 2.54;6H= 3.57;24H= 6.04
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.62; LAG(HR) = 0.50; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.82; 30M = 0.82; 1HR = 0.82;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 3958.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0269; Lca/L=0.4,n=.0241; Lca/L=0.5,n=.0222;Lca/L=0.6,n=.0207
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1253.84
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4745.01
 TOTAL AREA(ACRES) = 3958.60 PEAK FLOW RATE(CFS) = 4775.56
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1045.00 TO NODE 1046.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 37.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.155
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	C	42.90	0.25	1.00	77
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	C	3.80	0.25	1.00	81
NATURAL FAIR COVER "WOODLAND"	C	0.80	0.25	1.00	73
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	1.60	0.20	1.00	81
NATURAL FAIR COVER "OPEN BRUSH"	D	1.70	0.20	1.00	83
NATURAL FAIR COVER "WOODLAND"	D	5.70	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 56.50

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.48;3H= 2.54;6H= 3.56;24H= 6.04
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.62; LAG(HR) = 0.50; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.82; 30M = 0.82; 1HR = 0.82;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4015.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0269; Lca/L=0.4,n=.0241; Lca/L=0.5,n=.0222;Lca/L=0.6,n=.0207
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1269.92
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4795.90
 TOTAL AREA(ACRES) = 4015.10 PEAK FLOW RATE(CFS) = 4795.90

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 4015.10 TC(MIN.) = 37.39
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.42
 PEAK FLOW RATE(CFS) = 4795.90
 =====

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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Analysis prepared by:

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FILE NAME: MU47100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1046.00 TO NODE 1046.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU46100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4795.90 Tc(MIN.) = 37.39
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
TOTAL AREA(ACRES) = 4015.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.

FLOW PROCESS FROM NODE 1046.00 TO NODE 1046.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4795.90 Tc(MIN.) = 37.39
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
TOTAL AREA(ACRES) = 4015.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1046.00 = 29414.00 FEET.

FLOW PROCESS FROM NODE 1046.00 TO NODE 1046.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1046.00 TO NODE 1047.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 515.00 DOWNSTREAM(FEET) = 485.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1705.00 CHANNEL SLOPE = 0.0176
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4795.90
FLOW VELOCITY(FEET/SEC.) = 16.47 FLOW DEPTH(FEET) = 9.78
TRAVEL TIME(MIN.) = 1.73 Tc(MIN.) = 39.11
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.

FLOW PROCESS FROM NODE 1046.00 TO NODE 1047.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 39.11
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.904
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B 7.40 0.30 1.00 63
NATURAL FAIR COVER
"OPEN BRUSH" B 4.70 0.30 1.00 66
NATURAL FAIR COVER
"WOODLAND" B 2.70 0.30 1.00 60
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 88.50 0.25 1.00 75
NATURAL FAIR COVER
"GRASS" C 0.70 0.25 1.00 79
NATURAL FAIR COVER
"OPEN BRUSH" C 48.30 0.25 1.00 77
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 152.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.48;3H= 2.54;6H= 3.56;24H= 6.02
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.65; LAG(HR) = 0.52; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.81; 30M = 0.81; 1HR = 0.81;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4167.40
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0268; Lca/L=0.4,n=.0240; Lca/L=0.5,n=.0220;Lca/L=0.6,n=.0206
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1310.33
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4736.10
 TOTAL AREA(ACRES) = 4167.40 PEAK FLOW RATE(CFS) = 4795.90
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1046.00 TO NODE 1047.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 39.11
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.112
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	12.70	0.25	1.00	81
NATURAL FAIR COVER					
"WOODLAND"	C	5.70	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	2.60	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	1.10	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	7.10	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 29.90

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.48;3H= 2.53;6H= 3.56;24H= 6.02
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.65; LAG(HR) = 0.52; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.81; 30M = 0.81; 1HR = 0.81;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4197.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0268; Lca/L=0.4,n=.0240; Lca/L=0.5,n=.0220;Lca/L=0.6,n=.0206
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1319.30
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4761.71
 TOTAL AREA(ACRES) = 4197.30 PEAK FLOW RATE(CFS) = 4795.90
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1046.00 TO NODE 1047.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====
 MAINLINE Tc(MIN) = 39.11
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.112
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	D	8.70	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 8.70
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.48;3H= 2.53;6H= 3.56;24H= 6.02
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.65; LAG(HR) = 0.52; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.81; 30M = 0.81; 1HR = 0.81;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4206.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0268; Lca/L=0.4,n=.0240; Lca/L=0.5,n=.0220;Lca/L=0.6,n=.0206
 TIME OF PEAK FLOW(HR) = 16.33 RUNOFF VOLUME(AF) = 1321.90
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4769.33
 TOTAL AREA(ACRES) = 4206.00 PEAK FLOW RATE(CFS) = 4795.90
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 4206.00 TC(MIN.) = 39.11
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.42
 PEAK FLOW RATE(CFS) = 4795.90
 =====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MU48100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1047.00 TO NODE 1047.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU47100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4795.90 Tc(MIN.) = 39.11
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
TOTAL AREA(ACRES) = 4206.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.

FLOW PROCESS FROM NODE 1047.00 TO NODE 1047.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4795.90 Tc(MIN.) = 39.11
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.42
TOTAL AREA(ACRES) = 4206.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1047.00 = 31119.00 FEET.

FLOW PROCESS FROM NODE 1047.00 TO NODE 1047.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1047.00 TO NODE 1048.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 485.00 DOWNSTREAM(FEET) = 445.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2398.00 CHANNEL SLOPE = 0.0167
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4795.90
FLOW VELOCITY(FEET/SEC.) = 16.15 FLOW DEPTH(FEET) = 9.92
TRAVEL TIME(MIN.) = 2.47 Tc(MIN.) = 41.59
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1047.00 TO NODE 1048.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 41.59
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.838
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	1.80	0.30	1.00	63
NATURAL FAIR COVER "GRASS"	B	3.00	0.30	1.00	69
NATURAL FAIR COVER "WOODLAND"	B	8.10	0.30	1.00	60
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	86.10	0.25	1.00	75
NATURAL FAIR COVER "GRASS"	C	4.70	0.25	1.00	79
NATURAL FAIR COVER "OPEN BRUSH"	C	47.30	0.25	1.00	77

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 151.00
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.48;3H= 2.53;6H= 3.55;24H= 6.00
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.69; LAG(HR) = 0.55; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.81; 30M = 0.81; 1HR = 0.81;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4357.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0266; Lca/L=0.4,n=.0239; Lca/L=0.5,n=.0219;Lca/L=0.6,n=.0205
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1362.08
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4781.23
 TOTAL AREA(ACRES) = 4357.00 PEAK FLOW RATE(CFS) = 4795.90
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1047.00 TO NODE 1048.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 41.59
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.050
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND"	C	22.40	0.25	1.00	73
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	6.80	0.20	1.00	81
NATURAL FAIR COVER "GRASS"	D	6.30	0.20	1.00	84
NATURAL FAIR COVER "OPEN BRUSH"	D	2.80	0.20	1.00	83
NATURAL FAIR COVER "WOODLAND"	D	11.70	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 50.00
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.48;3H= 2.53;6H= 3.55;24H= 6.00
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.69; LAG(HR) = 0.55; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.80; 30M = 0.80; 1HR = 0.80;
 3HR = 0.97; 6HR = 0.99; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4407.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0266; Lca/L=0.4,n=.0239; Lca/L=0.5,n=.0219;Lca/L=0.6,n=.0205
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1376.42
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4822.07
 TOTAL AREA(ACRES) = 4407.00 PEAK FLOW RATE(CFS) = 4822.07

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 4407.00 TC(MIN.) = 41.59
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.43
 PEAK FLOW RATE(CFS) = 4822.07

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

**TECHNICAL APPENDIX II-B
HYDROLOGIC ANALYSIS
EXISTING CONDITION
2-YEAR EXPECTED VALUE**

Rainfall Depths

2-Year - Expected Value - Existing Condition

Subarea	Area			Rainfall Depth						Node	Area			Rainfall Depth						
	(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr		(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr	
		X		0.13	0.28	0.37	0.62	0.85	1.44			X			0.13	0.28	0.37	0.62	0.85	1.44
			X	0.18	0.32	0.46	0.94	1.46	2.67			X			0.18	0.32	0.46	0.94	1.46	2.67
1000	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1001	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	
1001	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1002	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	
1002	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1003	0.9	0.0	0.9	0.18	0.32	0.46	0.94	1.46	2.67	
1003	0.4	0.0	0.4	0.18	0.32	0.46	0.94	1.46	2.67	1004	1.3	0.0	1.3	0.18	0.32	0.46	0.94	1.46	2.67	
1004	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	1005	1.9	0.0	1.9	0.18	0.32	0.46	0.94	1.46	2.67	
1005	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67											
1010	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	1011	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	
1011	0.4	0.0	0.4	0.18	0.32	0.46	0.94	1.46	2.67	1012	1.0	0.0	1.0	0.18	0.32	0.46	0.94	1.46	2.67	
1012	0.9	0.0	0.9	0.18	0.32	0.46	0.94	1.46	2.67	1013	1.9	0.0	1.9	0.18	0.32	0.46	0.94	1.46	2.67	
1013	1.1	0.0	1.1	0.18	0.32	0.46	0.94	1.46	2.67	1014	5.5	0.0	5.5	0.18	0.32	0.46	0.94	1.46	2.67	
1014	3.8	0.0	3.8	0.18	0.32	0.46	0.94	1.46	2.67	1015	9.3	0.0	9.3	0.18	0.32	0.46	0.94	1.46	2.67	
1015	3.4	1.0	2.4	0.17	0.31	0.43	0.85	1.28	2.31	1016	12.7	1.0	11.7	0.18	0.32	0.45	0.91	1.41	2.57	
1016	16.2	4.1	12.1	0.17	0.31	0.44	0.86	1.31	2.36	1017	28.9	5.1	23.8	0.17	0.31	0.44	0.88	1.35	2.45	
1017	4.6	2.8	1.8	0.15	0.30	0.41	0.75	1.09	1.92											
1020	0.7	0.0	0.7	0.18	0.32	0.46	0.94	1.46	2.67	1021	0.7	0.0	0.7	0.18	0.32	0.46	0.94	1.46	2.67	
1021	0.5	0.0	0.5	0.18	0.32	0.46	0.94	1.46	2.67	1022	1.2	0.0	1.2	0.18	0.32	0.46	0.94	1.46	2.67	
1022	1.7	0.0	1.7	0.18	0.32	0.46	0.94	1.46	2.67	1023	2.9	0.0	2.9	0.18	0.32	0.46	0.94	1.46	2.67	
1023	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1024	3.2	0.0	3.2	0.18	0.32	0.46	0.94	1.46	2.67	
1024	1.8	0.0	1.8	0.18	0.32	0.46	0.94	1.46	2.67	1025	5.0	0.0	5.0	0.18	0.32	0.46	0.94	1.46	2.67	
1025	3.4	0.0	3.4	0.18	0.32	0.46	0.94	1.46	2.67	1026	8.4	0.0	8.4	0.18	0.32	0.46	0.94	1.46	2.67	
1026	6.2	0.0	6.2	0.18	0.32	0.46	0.94	1.46	2.67	1027	14.6	0.0	14.6	0.18	0.32	0.46	0.94	1.46	2.67	
1027	9.9	0.0	9.9	0.18	0.32	0.46	0.94	1.46	2.67	1028	24.5	0.0	24.5	0.18	0.32	0.46	0.94	1.46	2.67	
1028	4.0	2.0	2.0	0.16	0.30	0.42	0.78	1.16	2.06	1029	62.0	9.9	52.1	0.17	0.31	0.45	0.89	1.36	2.47	
1029	33.7	26.3	7.4	0.14	0.29	0.39	0.69	0.98	1.71	1030	95.7	36.2	59.5	0.16	0.30	0.43	0.82	1.23	2.20	
1030	83.9	54.2	29.7	0.15	0.29	0.40	0.73	1.07	1.88	1031	179.6	90.4	89.2	0.15	0.30	0.41	0.78	1.15	2.05	
1031	176.1	116.9	59.2	0.15	0.29	0.40	0.73	1.06	1.85	1032	355.7	207.3	148.4	0.15	0.30	0.41	0.75	1.10	1.95	
1032	75.8	75.5	0.3	0.13	0.28	0.37	0.62	0.85	1.44	1033	431.5	282.8	148.7	0.15	0.29	0.40	0.73	1.06	1.86	
1033	133.0	133.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1034	564.5	415.8	148.7	0.14	0.29	0.39	0.70	1.01	1.76	
1034	46.5	46.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1035	611.0	462.3	148.7	0.14	0.29	0.39	0.70	1.00	1.74	
1035	59.0	59.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1036	670.0	521.3	148.7	0.14	0.29	0.39	0.69	0.99	1.71	
1036	348.9	341.2	7.7	0.13	0.28	0.37	0.63	0.86	1.47	1037	1,018.9	862.5	156.4	0.14	0.29	0.38	0.67	0.94	1.63	
1037	84.2	84.2	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1038	1,103.1	946.7	156.4	0.14	0.29	0.38	0.67	0.94	1.61	

Rainfall Depths

2-Year - Expected Value - Existing Condition

Subarea	Area			Rainfall Depth							Node	Area			Rainfall Depth						
	(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr	(ac)		< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr		
		X		0.13	0.28	0.37	0.62	0.85	1.44			X		0.13	0.28	0.37	0.62	0.85	1.44		
			X	0.18	0.32	0.46	0.94	1.46	2.67			X		0.18	0.32	0.46	0.94	1.46	2.67		
1038	426.5	358.5	68.0	0.14	0.29	0.38	0.67	0.95	1.64	1039	1,529.6	1,305.2	224.4	0.14	0.29	0.38	0.67	0.94	1.62		
1039	584.2	520.2	64.0	0.14	0.28	0.38	0.66	0.92	1.57	1040	2,113.8	1,825.4	288.4	0.14	0.29	0.38	0.66	0.93	1.61		
1040	629.8	628.6	1.2	0.13	0.28	0.37	0.62	0.85	1.44	1041	2,743.6	2,454.0	289.6	0.14	0.28	0.38	0.65	0.91	1.57		
1041	135.8	135.8	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1042	2,879.4	2,589.8	289.6	0.14	0.28	0.38	0.65	0.91	1.56		
1042	475.9	475.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1043	3,355.3	3,065.7	289.6	0.13	0.28	0.38	0.65	0.90	1.55		
1043	165.2	165.2	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1044	3,520.5	3,230.9	289.6	0.13	0.28	0.38	0.65	0.90	1.54		
1044	339.3	339.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1045	3,859.8	3,570.2	289.6	0.13	0.28	0.38	0.64	0.90	1.53		
1045	155.5	155.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1046	4,015.3	3,725.7	289.6	0.13	0.28	0.38	0.64	0.89	1.53		
1046	190.7	190.7	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1047	4,206.0	3,916.4	289.6	0.13	0.28	0.38	0.64	0.89	1.52		
1047	200.9	200.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1048	4,406.9	4,117.3	289.6	0.13	0.28	0.38	0.64	0.89	1.52		
1048	3,383.3	3,383.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1049	7,790.2	7,500.6	289.6	0.13	0.28	0.37	0.63	0.87	1.49		
1049	497.6	497.6	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1050	8,287.8	7,998.2	289.6	0.13	0.28	0.37	0.63	0.87	1.48		
1050	454.4	454.4	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1051	8,742.2	8,452.6	289.6	0.13	0.28	0.37	0.63	0.87	1.48		
1051	290.9	290.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1052	9,033.1	8,743.5	289.6	0.13	0.28	0.37	0.63	0.87	1.48		
1052	848.4	848.4	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1053	9,881.5	9,591.9	289.6	0.13	0.28	0.37	0.63	0.87	1.48		
1053	2,422.6	2,422.6	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1054	12,304.1	12,014.5	289.6	0.13	0.28	0.37	0.63	0.86	1.47		
1054	324.5	324.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1055	12,628.6	12,339.0	289.6	0.13	0.28	0.37	0.63	0.86	1.47		
1055	392.6	392.6	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1056	13,021.2	12,731.6	289.6	0.13	0.28	0.37	0.63	0.86	1.47		
1056	5,559.2	4,931.8	627.4	0.14	0.28	0.38	0.66	0.92	1.58	1057	18,580.4	17,663.4	917.0	0.13	0.28	0.37	0.64	0.88	1.50		

Channel Hydraulics, Travel Times, Times of Concentration, and Lag Estimates 2-Year - Expected Value - Existing Condition

U/S Node	D/S Node	U/S Elevation	D/S Elevation	Length (ft)	Manning (n)	Base (ft)	Sideslope (z)	Height (ft)	Q(2) (cfs)	Dn (ft)	V (fps)	Tt (min)	Tc (min)	Lag (hr)	
	1036		1100	Data from Rational Method Analysis:						56				31.03	0.41
1036	1037	1100	1010	1517	0.040	7	1	7	139	1.59	10.16	2.49	33.52	0.45	
1037	1038	1010	925	2069	0.040	8	1	8	193	1.99	9.69	3.56	37.08	0.49	
1038	1039	925	873	1383	0.040	8	1	8	193	2.04	9.39	2.45	39.53	0.53	
1039	1040	873	780	2714	0.040	9	1	9	235	2.21	9.49	4.76	44.30	0.59	
1040	1041	780	695	2758	0.040	10	1	10	304	2.50	9.75	4.71	49.01	0.65	
1041	1042	695	650	1846	0.040	15	1	10	335	2.25	8.63	3.56	52.58	0.70	
1042	1043	650	600	2257	0.040	15	1	10	337	2.32	8.38	4.49	57.07	0.76	
1043	1044	600	580	1011	0.040	20	1	10	337	2.03	7.55	2.23	59.30	0.79	
1044	1045	580	540	1918	0.040	20	1	10	337	2.00	7.68	4.16	63.46	0.85	
1045	1046	540	515	1273	0.040	20	1	10	342	2.05	7.57	2.80	66.27	0.88	
1046	1047	515	485	1705	0.040	20	1	10	347	2.14	7.33	3.88	70.14	0.94	
1047	1048	485	445	2398	0.040	20	1	10	347	2.17	7.21	5.55	75.69	1.01	
1048	1049	445	400	2427	0.040	20	1	10	347	2.10	7.46	5.42	81.11	1.08	
1049	1050	400	390	616	0.040	20	1	15	444	2.54	7.77	1.32	82.43	1.10	
1050	1051	390	330	4501	0.040	20	1	15	457	2.74	7.35	10.21	92.64	1.24	
1051	1052	330	300	2333	0.040	20	1	15	457	2.76	7.26	5.36	98.00	1.31	
1052	1053	300	265	3322	0.040	20	1	15	457	2.93	6.79	8.15	106.15	1.42	
1053	1054	265	245	1390	0.040	20	1	15	460	2.68	7.55	3.07	109.22	1.46	
1054	1055	245	215	2724	0.040	25	1	15	508	2.71	6.78	6.69	115.91	1.55	
1055	1056	215	185	2880	0.040	25	1	15	508	2.75	6.66	7.21	123.12	1.64	
1056	1057	185	165	2367	0.040	30	1	15	508	2.63	5.93	6.65	129.77	1.73	

Rainfall Depths

2-Year - Expected Value - Proposed Condition

Subarea	Area			Rainfall Depth						Node	Area			Rainfall Depth					
	(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr		(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr
		X		0.13	0.28	0.37	0.62	0.85	1.44			X		0.13	0.28	0.37	0.62	0.85	1.44
			X	0.18	0.32	0.46	0.94	1.46	2.67			X		0.18	0.32	0.46	0.94	1.46	2.67
1000	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1001	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67
1001	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1002	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67
1002	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1003	0.9	0.0	0.9	0.18	0.32	0.46	0.94	1.46	2.67
1003	0.4	0.0	0.4	0.18	0.32	0.46	0.94	1.46	2.67	1004	1.3	0.0	1.3	0.18	0.32	0.46	0.94	1.46	2.67
1004	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	1005	1.9	0.0	1.9	0.18	0.32	0.46	0.94	1.46	2.67
1005	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67										
1010	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	1011	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67
1011	0.4	0.0	0.4	0.18	0.32	0.46	0.94	1.46	2.67	1012	1.0	0.0	1.0	0.18	0.32	0.46	0.94	1.46	2.67
1012	0.9	0.0	0.9	0.18	0.32	0.46	0.94	1.46	2.67	1013	1.9	0.0	1.9	0.18	0.32	0.46	0.94	1.46	2.67
1013	1.1	0.0	1.1	0.18	0.32	0.46	0.94	1.46	2.67	1014	5.5	0.0	5.5	0.18	0.32	0.46	0.94	1.46	2.67
1014	3.8	0.0	3.8	0.18	0.32	0.46	0.94	1.46	2.67	1015	9.3	0.0	9.3	0.18	0.32	0.46	0.94	1.46	2.67
1015	3.4	1.0	2.4	0.17	0.31	0.43	0.85	1.28	2.31	1016	12.7	1.0	11.7	0.18	0.32	0.45	0.91	1.41	2.57
1016	16.2	4.1	12.1	0.17	0.31	0.44	0.86	1.31	2.36	1017	28.9	5.1	23.8	0.17	0.31	0.44	0.88	1.35	2.45
1017	4.6	2.8	1.8	0.15	0.30	0.41	0.75	1.09	1.92										
1020	0.7	0.0	0.7	0.18	0.32	0.46	0.94	1.46	2.67	1021	0.7	0.0	0.7	0.18	0.32	0.46	0.94	1.46	2.67
1021	0.5	0.0	0.5	0.18	0.32	0.46	0.94	1.46	2.67	1022	1.2	0.0	1.2	0.18	0.32	0.46	0.94	1.46	2.67
1022	1.7	0.0	1.7	0.18	0.32	0.46	0.94	1.46	2.67	1023	2.9	0.0	2.9	0.18	0.32	0.46	0.94	1.46	2.67
1023	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1024	3.2	0.0	3.2	0.18	0.32	0.46	0.94	1.46	2.67
1024	1.8	0.0	1.8	0.18	0.32	0.46	0.94	1.46	2.67	1025	5.0	0.0	5.0	0.18	0.32	0.46	0.94	1.46	2.67
1025	3.4	0.0	3.4	0.18	0.32	0.46	0.94	1.46	2.67	1026	8.4	0.0	8.4	0.18	0.32	0.46	0.94	1.46	2.67
1026	6.2	0.0	6.2	0.18	0.32	0.46	0.94	1.46	2.67	1027	14.6	0.0	14.6	0.18	0.32	0.46	0.94	1.46	2.67
1027	9.9	0.0	9.9	0.18	0.32	0.46	0.94	1.46	2.67	1028	24.5	0.0	24.5	0.18	0.32	0.46	0.94	1.46	2.67
1028	4.0	2.0	2.0	0.16	0.30	0.42	0.78	1.16	2.06	1029	62.0	9.9	52.1	0.17	0.31	0.45	0.89	1.36	2.47
1029	33.7	26.3	7.4	0.14	0.29	0.39	0.69	0.98	1.71	1030	95.7	36.2	59.5	0.16	0.30	0.43	0.82	1.23	2.20
1030	83.9	54.2	29.7	0.15	0.29	0.40	0.73	1.07	1.88	1031	179.6	90.4	89.2	0.15	0.30	0.41	0.78	1.15	2.05
1031	176.1	116.9	59.2	0.15	0.29	0.40	0.73	1.06	1.85	1032	355.7	207.3	148.4	0.15	0.30	0.41	0.75	1.10	1.95
1032	75.8	75.5	0.3	0.13	0.28	0.37	0.62	0.85	1.44	1033	431.5	282.8	148.7	0.15	0.29	0.40	0.73	1.06	1.86
1033	133.0	133.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1034	564.5	415.8	148.7	0.14	0.29	0.39	0.70	1.01	1.76
1034	46.5	46.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1035	611.0	462.3	148.7	0.14	0.29	0.39	0.70	1.00	1.74
1035	59.0	59.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1036	670.0	521.3	148.7	0.14	0.29	0.39	0.69	0.99	1.71
1036	348.9	341.2	7.7	0.13	0.28	0.37	0.63	0.86	1.47	1037	1,018.9	862.5	156.4	0.14	0.29	0.38	0.67	0.94	1.63
1037	84.2	84.2	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1038	1,103.1	946.7	156.4	0.14	0.29	0.38	0.67	0.94	1.61

Rainfall Depths

2-Year - Expected Value - Proposed Condition

Subarea	Area (ac)	< 2000 (ac)	> 2000 (ac)	Rainfall Depth						Node	Area (ac)	< 2000 (ac)	> 2000 (ac)	Rainfall Depth					
				5-min	30-min	1-hr	3-hr	6-hr	24-hr					5-min	30-min	1-hr	3-hr	6-hr	24-hr
		X		0.13	0.28	0.37	0.62	0.85	1.44				X	0.13	0.28	0.37	0.62	0.85	1.44
			X	0.18	0.32	0.46	0.94	1.46	2.67			X		0.18	0.32	0.46	0.94	1.46	2.67
1038	426.5	358.5	68.0	0.14	0.29	0.38	0.67	0.95	1.64	1039	1,529.6	1,305.2	224.4	0.14	0.29	0.38	0.67	0.94	1.62
1039	584.2	520.2	64.0	0.14	0.28	0.38	0.66	0.92	1.57	1040	2,113.8	1,825.4	288.4	0.14	0.29	0.38	0.66	0.93	1.61
1040	629.8	628.6	1.2	0.13	0.28	0.37	0.62	0.85	1.44	1041	2,743.6	2,454.0	289.6	0.14	0.28	0.38	0.65	0.91	1.57
1041	135.8	135.8	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1042	2,879.4	2,589.8	289.6	0.14	0.28	0.38	0.65	0.91	1.56
1042	475.9	475.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1043	3,355.3	3,065.7	289.6	0.13	0.28	0.38	0.65	0.90	1.55
1043	165.2	165.2	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1044	3,520.5	3,230.9	289.6	0.13	0.28	0.38	0.65	0.90	1.54
1044	339.3	339.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1045	3,859.8	3,570.2	289.6	0.13	0.28	0.38	0.64	0.90	1.53
1045	155.5	155.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1046	4,015.3	3,725.7	289.6	0.13	0.28	0.38	0.64	0.89	1.53
1046	190.7	190.7	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1047	4,206.0	3,916.4	289.6	0.13	0.28	0.38	0.64	0.89	1.52
1047	200.9	200.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1048	4,406.9	4,117.3	289.6	0.13	0.28	0.38	0.64	0.89	1.52
1048	3,383.3	3,383.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1049	7,790.2	7,500.6	289.6	0.13	0.28	0.37	0.63	0.87	1.49
1049	496.3	496.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1050	8,286.5	7,996.9	289.6	0.13	0.28	0.37	0.63	0.87	1.48
1050	300.9	300.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1051	8,587.4	8,297.8	289.6	0.13	0.28	0.37	0.63	0.87	1.48
1051	365.0	365.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1052	8,952.4	8,662.8	289.6	0.13	0.28	0.37	0.63	0.87	1.48
1052	679.9	679.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1053	9,632.3	9,342.7	289.6	0.13	0.28	0.37	0.63	0.87	1.48
1053	2,538.8	2,538.8	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1054	12,171.1	11,881.5	289.6	0.13	0.28	0.37	0.63	0.86	1.47
1054	351.6	351.6	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1055	12,522.7	12,233.1	289.6	0.13	0.28	0.37	0.63	0.86	1.47
1055	367.9	367.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1056	12,890.6	12,601.0	289.6	0.13	0.28	0.37	0.63	0.86	1.47
1056	5,665.4	5,037.9	627.5	0.14	0.28	0.38	0.66	0.92	1.58	1057	18,556.0	17,638.9	917.1	0.13	0.28	0.37	0.64	0.88	1.50

Channel Hydraulics, Travel Times, Times of Concentration, and Lag Estimates 2-Year - Expected Value - Proposed Condition

U/S Node	D/S Node	U/S Elevation	D/S Elevation	Length (ft)	Manning (n)	Base (ft)	Sideslope (z)	Height (ft)	Q(2) (cfs)	Dn (ft)	V (fps)	Tt (min)	Tc (min)	Lag (hr)
	1036		1100	Data from Rational Method Analysis:					56.21				31.03	0.41
1036	1037	1100	1010	1517	0.040	7	1	7	138.92	1.59	10.16	2.49	33.52	0.45
1037	1038	1010	925	2069	0.040	8	1	8	192.54	1.99	9.69	3.56	37.08	0.49
1038	1039	925	873	1383	0.040	8	1	8	192.58	2.04	9.39	2.45	39.53	0.53
1039	1040	873	780	2714	0.040	9	1	9	234.70	2.21	9.49	4.76	44.30	0.59
1040	1041	780	695	2758	0.040	10	1	10	303.94	2.50	9.75	4.71	49.01	0.65
1041	1042	695	650	1846	0.040	15	1	10	334.68	2.25	8.63	3.56	52.58	0.70
1042	1043	650	600	2257	0.040	15	1	10	336.96	2.32	8.38	4.49	57.07	0.76
1043	1044	600	580	1011	0.040	20	1	10	337.14	2.03	7.55	2.23	59.30	0.79
1044	1045	580	540	1918	0.040	20	1	10	337.08	2.00	7.68	4.16	63.46	0.85
1045	1046	540	515	1273	0.040	20	1	10	342.30	2.05	7.57	2.80	66.27	0.88
1046	1047	515	485	1705	0.040	20	1	10	346.50	2.14	7.33	3.88	70.14	0.94
1047	1048	485	445	2398	0.040	20	1	10	346.68	2.17	7.21	5.55	75.69	1.01
1048	1049	445	400	2427	0.040	20	1	10	346.55	2.10	7.46	5.42	81.11	1.08
1049	1050	400	390	616	0.040	20	1	15	444.07	2.54	7.77	1.32	82.43	1.10
1050	1051	390	330	4501	0.040	20	1	15	456.57	2.73	7.35	10.21	92.65	1.24
1051	1052	330	300	2333	0.040	20	1	15	456.73	2.76	7.26	5.36	98.00	1.31
1052	1053	300	265	3322	0.040	20	1	15	456.58	2.93	6.79	8.15	106.16	1.42
1053	1054	265	245	1390	0.040	20	1	15	456.69	2.67	7.54	3.07	109.23	1.46
1054	1055	245	215	2724	0.040	25	1	15	503.05	2.69	6.76	6.72	115.95	1.55
1055	1056	215	185	2880	0.040	25	1	15	503.33	2.73	6.64	7.23	123.18	1.64
1056	1057	185	165	2367	0.040	30	1	15	503.34	2.61	5.91	6.67	129.85	1.73

Losses

Node U1036
 Total Area (ac) 670.1
 24-Hour Rainfall Depth (in) 1.71
 Fm (in/hr) 0.60
 Y-Bar 0.78

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	25.9	0.0	83.0	421.9	25.9	0.0	83.0	421.9
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.1	9.1	0.0	0.0	0.1	9.1
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	11.7	0.0	47.1	69.4	11.7	0.0	47.1	69.4
Woodland (Fair)	100	36	60	73	79	0.0	0.0	0.1	0.8	0.0	0.0	0.1	0.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.19	0.37	0.53	0.62
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.03	0.15	0.25
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.11	0.25	0.37
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.07	0.21	0.32
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.08	0.23	0.32
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.01	0.09	0.19
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.05	0.18	0.30
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.12	0.21
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.18	0.37	0.53	0.66
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.04	0.18	0.27
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.07	0.21	0.32
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.04	0.18	0.27

Losses

Node U1037
 Total Area (ac) 1,019.0
 24-Hour Rainfall Depth (in) 1.63
 Fm (in/hr) 0.60
 Y-Bar 0.80

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	23.7	0.0	82.5	2.5	49.6	0.0	165.5	424.4
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	24.2	10.6	0.0	0.0	24.3	19.7
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	6.7	0.0	114.0	84.7	18.4	0.0	161.1	154.1
Woodland (Fair)	100	36	60	73	79	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.18	0.36	0.52	0.60
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.13	0.24
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.24	0.36
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.20	0.30
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.07	0.22	0.30
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.08	0.18
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.04	0.16	0.28
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.11	0.20
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.16	0.36	0.52	0.65
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.26
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.20	0.30
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.26

Losses

Node U1038
 Total Area (ac) 1,103.1
 24-Hour Rainfall Depth (in) 1.61
 Fm (in/hr) 0.60
 Y-Bar 0.81

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	10.2	0.0	31.2	1.2	59.8	0.0	196.7	425.6
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	4.7	1.9	0.0	0.0	29.0	21.6
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.4	0.0	17.5	17.0	18.8	0.0	178.6	171.1
Woodland (Fair)	100	36	60	73	79	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.18	0.35	0.52	0.60
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.13	0.23
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.23	0.35
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.19	0.30
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.07	0.21	0.30
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.08	0.18
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.04	0.16	0.28
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.10	0.19
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.16	0.35	0.52	0.64
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.25
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.19	0.30
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.25

Losses

Node U1039
 Total Area (ac) 1,529.7
 24-Hour Rainfall Depth (in) 1.62
 Fm (in/hr) 0.60
 Y-Bar 0.81

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	55.8	0.0	106.0	28.5	115.6	0.0	302.7	454.1
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	1.9	0.8	0.0	0.0	30.9	22.4
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	25.5	0.0	0.0	0.0	26.5
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	2.3	0.0	112.0	92.9	21.1	0.0	290.6	264.0
Woodland (Fair)	100	36	60	73	79	0.2	0.0	0.7	0.0	0.2	0.0	0.8	0.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.18	0.35	0.52	0.60
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.13	0.23
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.23	0.35
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.20	0.30
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.07	0.21	0.30
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.08	0.18
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.04	0.16	0.28
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.10	0.20
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.16	0.35	0.52	0.65
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.26
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.20	0.30
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.26

Losses

Node U1040
 Total Area (ac) 2,113.7
 24-Hour Rainfall Depth (in) 1.61
 Fm (in/hr) 0.60
 Y-Bar 0.81

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	31.1	0.0	122.3	129.9	146.7	0.0	425.0	584.0
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	4.4	0.0	0.0	30.9	26.8
Grass (Fair)	100	50	69	79	84	2.2	0.0	1.6	12.7	2.2	0.0	1.6	39.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	12.1	0.0	137.4	116.4	33.2	0.0	428.0	380.4
Woodland (Fair)	100	36	60	73	79	8.7	0.0	0.9	2.9	8.9	0.0	1.7	3.7
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	1.3	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.18	0.35	0.52	0.60
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.13	0.23
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.23	0.35
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.19	0.30
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.07	0.21	0.30
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.08	0.18
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.04	0.16	0.28
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.10	0.19
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.16	0.35	0.52	0.64
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.25
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.19	0.30
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.25

Losses

Node U1041
 Total Area (ac) 2,743.6
 24-Hour Rainfall Depth (in) 1.57
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	30.0	0.0	87.4	36.1	176.7	0.0	512.4	620.1
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	0.0	30.9	26.8
Grass (Fair)	100	50	69	79	84	1.2	0.0	10.4	56.8	3.4	0.0	12.0	96.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	28.6	0.0	138.6	220.7	61.8	0.0	566.6	601.1
Woodland (Fair)	100	36	60	73	79	14.7	0.0	2.9	0.9	23.6	0.0	4.6	4.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	1.6	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.17	0.34	0.51	0.59
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.22	0.34
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.19	0.29
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.29
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.17
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.27
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.10	0.19
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.34	0.51	0.64
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.19	0.29
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.15	0.24

Losses

Node U1042
 Total Area (ac) 2,879.3
 24-Hour Rainfall Depth (in) 1.56
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	1.3	0.0	25.1	18.0	178.0	0.0	537.5	638.1
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	0.0	30.9	26.8
Grass (Fair)	100	50	69	79	84	0.2	0.0	3.2	2.2	3.6	0.0	15.2	98.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	2.2	0.0	28.6	44.1	64.0	0.0	595.2	645.2
Woodland (Fair)	100	36	60	73	79	5.3	0.0	0.9	4.6	28.9	0.0	5.5	9.2
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.17	0.34	0.51	0.59
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.34
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.29
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.29
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.17
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.27
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.10	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.34	0.51	0.64
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.29
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.15	0.24

Losses

Node U1043
 Total Area (ac) 3,355.1
 24-Hour Rainfall Depth (in) 1.55
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	5.5	6.4	52.9	95.6	183.5	6.4	590.4	733.7
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	13.5	0.0	0.0	0.0	44.4	26.8
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.6	3.6	0.0	15.2	98.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	8.0	2.6	57.9	213.7	72.0	2.6	653.1	858.9
Woodland (Fair)	100	36	60	73	79	1.1	9.6	0.0	8.4	30.0	9.6	5.5	17.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.34	0.50	0.59
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.34
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.29
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.29
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.34	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.29
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24

Losses

Node U1044
 Total Area (ac) 3,520.2
 24-Hour Rainfall Depth (in) 1.54
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	1.3	0.4	27.5	33.2	184.8	6.8	617.9	766.9
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.7	7.6	0.0	0.0	0.7	52.0	26.8
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	3.6	0.0	15.2	98.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	1.3	1.6	32.5	50.7	73.3	4.2	685.6	909.6
Woodland (Fair)	100	36	60	73	79	0.9	2.8	0.9	3.7	30.9	12.4	6.4	21.3
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.34	0.50	0.59
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.34
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.34	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24

Losses

Node U1045
 Total Area (ac) 3,859.5
 24-Hour Rainfall Depth (in) 1.53
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	6.2	4.5	90.4	75.7	191.0	11.3	708.3	842.6
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	2.2	0.0	0.0	0.7	54.2	26.8
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	3.6	0.0	15.2	98.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	2.0	2.4	49.6	85.1	75.3	6.6	735.2	994.7
Woodland (Fair)	100	36	60	73	79	6.0	0.2	6.7	8.3	36.9	12.6	13.1	29.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.50	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.33	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24

Losses

Node U1046
 Total Area (ac) 4,015.1
 24-Hour Rainfall Depth (in) 1.53
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.1	6.7	90.0	1.6	191.1	18.0	798.3	844.2
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.2	3.8	0.0	0.0	0.9	58.0	26.8
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	3.6	0.0	15.2	98.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	1.1	42.9	1.7	75.3	7.7	778.1	996.4
Woodland (Fair)	100	36	60	73	79	0.0	1.0	0.8	5.7	36.9	13.6	13.9	35.3
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.50	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.33	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24

Losses

Node U1047
 Total Area (ac) 4,206.0
 24-Hour Rainfall Depth (in) 1.52
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	7.4	88.5	2.6	191.1	25.4	886.8	846.8
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	12.7	0.7	0.0	0.9	70.7	27.5
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.7	1.1	3.6	0.0	15.9	99.9
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	4.7	48.3	7.1	75.3	12.4	826.4	1,003.5
Woodland (Fair)	100	36	60	73	79	0.0	2.7	5.7	8.7	36.9	16.3	19.6	44.0
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.50	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.19	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node U1048
 Total Area (ac) 4,407.0
 24-Hour Rainfall Depth (in) 1.52
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	1.8	86.1	6.8	191.1	27.2	972.9	853.6
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	0.9	70.7	27.5
Grass (Fair)	100	50	69	79	84	0.0	3.0	4.7	6.3	3.6	3.0	20.6	106.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	0.0	47.3	2.8	75.3	12.4	873.7	1,006.3
Woodland (Fair)	100	36	60	73	79	0.0	8.1	22.4	11.7	36.9	24.4	42.0	55.7
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.50	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.19	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1049
 Total Area (ac) 7,790.2
 24-Hour Rainfall Depth (in) 1.49
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	2.2	1.0	0.0	0.0	2.2	1.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	39.1	70.7	709.7	141.9	230.2	97.9	1,682.6	995.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	2.0	78.3	21.6	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	26.9	65.1	92.3	481.5	30.5	68.1	112.9	587.7
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	43.6	39.6	838.8	419.6	118.9	52.0	1,712.5	1,425.9
Woodland (Fair)	100	36	60	73	79	72.7	81.7	84.4	70.1	109.6	106.1	126.4	125.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.33	0.49	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1050
 Total Area (ac) 8,287.9
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.9	6.9	0.0	0.0	0.9	6.9
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	1.1	0.2	0.0	0.0	3.3	1.2
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	88.3	2.5	230.2	97.9	1,770.9	998.0
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	0.3	2.2	36.5	62.6	30.8	70.3	149.4	650.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	0.2	0.2	245.3	9.2	119.1	52.2	1,957.8	1,435.1
Woodland (Fair)	100	36	60	73	79	1.1	0.4	38.0	1.8	110.7	106.5	164.4	127.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1051
 Total Area (ac) 8,742.1
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.7	0.0	0.0	23.1	0.7	0.0	0.9	30.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	1.3	7.1	0.0	0.0	4.6	8.3
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	9.1	40.7	230.2	97.9	1,780.0	1,038.7
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	1.8	3.2	5.8	178.6	32.6	73.5	155.2	828.9
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	0.0	2.2	29.6	93.4	119.1	54.4	1,987.4	1,528.5
Woodland (Fair)	100	36	60	73	79	6.5	10.9	8.8	31.4	117.2	117.4	173.2	159.0
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1052
 Total Area (ac) 9,032.9
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.7	0.0	0.9	30.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	1.1	0.0	0.0	1.1	1.1	0.0	0.0	1.1
Barren (Poor)	100	78	86	91	93	7.2	0.0	4.3	36.1	7.2	0.0	8.9	44.4
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	14.1	14.6	230.2	97.9	1,794.1	1,053.3
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	1.4	0.0	14.5	104.4	34.0	73.5	169.7	933.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	4.7	0.0	12.1	28.8	123.8	54.4	1,999.5	1,557.3
Woodland (Fair)	100	36	60	73	79	12.1	0.0	0.2	34.1	129.3	117.4	173.4	193.1
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1053
 Total Area (ac) 9,881.3
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	16.9	12.9	0.7	0.0	17.8	42.9
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1
Barren (Poor)	100	78	86	91	93	0.9	0.0	8.7	4.9	8.1	0.0	17.6	49.3
Chaparral, Broadleaf (Fair)	100	40	63	75	81	1.6	0.0	66.6	12.5	231.8	97.9	1,860.7	1,065.8
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	13.1	21.8	24.9	325.9	47.1	95.3	194.6	1,259.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	3.2	4.2	63.5	125.0	127.0	58.6	2,063.0	1,682.3
Woodland (Fair)	100	36	60	73	79	16.9	4.4	47.0	73.5	146.2	121.8	220.4	266.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1054
 Total Area (ac) 12,304.1
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.7	0.7	0.0	17.8	43.6
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.7	1.1	0.0	0.0	1.8
Barren (Poor)	100	78	86	91	93	12.0	12.5	12.3	30.7	20.1	12.5	29.9	80.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	21.7	265.4	53.4	231.8	119.6	2,126.1	1,119.2
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.9	0.7	0.0	2.9	149.9	49.8
Grass (Fair)	100	50	69	79	84	5.0	143.5	255.0	594.1	52.1	238.8	449.6	1,853.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	0.0	25.8	361.1	275.5	127.0	84.4	2,424.1	1,957.8
Woodland (Fair)	100	36	60	73	79	1.3	97.0	166.1	87.4	147.5	218.8	386.5	354.0
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node E1055
 Total Area (ac) 12,628.7
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	2.2	0.7	0.0	17.8	45.8
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.8
Barren (Poor)	100	78	86	91	93	0.0	6.9	0.4	0.2	20.1	19.4	30.3	80.2
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	5.8	71.9	4.6	231.8	125.4	2,198.0	1,123.8
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.2	0.2	0.0	2.9	150.1	50.0
Grass (Fair)	100	50	69	79	84	7.2	22.6	14.6	45.5	59.3	261.4	464.2	1,898.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	1.8	7.9	66.5	16.9	128.8	92.3	2,490.6	1,974.7
Woodland (Fair)	100	36	60	73	79	5.5	9.5	23.3	10.9	153.0	228.3	409.8	364.9
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node E1056
 Total Area (ac) 13,021.5
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.59
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	2.7	0.0	0.0	0.0	2.7
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	8.6	142.3	0.7	0.0	26.4	188.1
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.8
Barren (Poor)	100	78	86	91	93	0.0	1.8	2.4	32.6	20.1	21.2	32.7	112.8
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	0.0	4.7	231.8	125.4	2,198.0	1,128.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.7	0.0	2.9	150.1	50.7
Grass (Fair)	100	50	69	79	84	1.8	14.8	1.3	110.4	61.1	276.2	465.5	2,009.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	1.1	1.2	0.2	36.4	129.9	93.5	2,490.8	2,011.1
Woodland (Fair)	100	36	60	73	79	9.3	5.1	0.0	14.6	162.3	233.4	409.8	379.5
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.8

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node E1057
 Total Area (ac) 18,580.6
 24-Hour Rainfall Depth (in) 1.50
 Fm (in/hr) 0.59
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	12.8	87.5	0.7	0.0	39.2	275.6
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.8
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	20.1	21.2	32.7	112.8
Chaparral, Broadleaf (Fair)	100	40	63	75	81	38.9	18.5	554.0	1,538.1	270.7	143.9	2,752.0	2,666.6
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	22.0	0.0	2.9	150.1	72.7
Grass (Fair)	100	50	69	79	84	2.0	18.9	54.6	411.3	63.1	295.1	520.1	2,420.5
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	40.3	25.4	369.0	1,877.2	170.2	118.9	2,859.8	3,888.3
Woodland (Fair)	100	36	60	73	79	74.7	105.0	37.1	270.1	237.0	338.4	446.9	649.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	1.7	0.0	0.0	0.0	2.5

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.49	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.19	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1049
 Total Area (ac) 7,790.2
 24-Hour Rainfall Depth (in) 1.49
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	1.1	13.1	26.5	0.0	1.1	13.1	26.5
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	2.2	1.0	0.0	0.0	2.2	1.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	38.0	70.0	710.2	145.3	229.1	97.2	1,683.1	998.9
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	2.0	75.6	21.6	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	10.9	38.4	89.7	367.2	14.5	41.4	110.3	473.4
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	37.8	37.4	819.4	373.6	113.1	49.8	1,693.1	1,379.9
Woodland (Fair)	100	36	60	73	79	53.6	77.2	82.2	58.4	90.5	101.6	124.2	114.1
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	42.0	32.9	13.1	142.8	42.0	32.9	13.1	142.8

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.33	0.49	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1050
 Total Area (ac) 8,286.4
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	1.1	13.1	26.5
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	2.2	1.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	53.0	41.6	229.1	97.2	1,736.1	1,040.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	0.3	2.2	318.8	29.9	14.8	43.6	429.1	503.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.2	0.2	33.3	8.6	113.3	50.0	1,726.4	1,388.5
Woodland (Fair)	100	36	60	73	79	1.1	0.4	4.8	1.8	91.6	102.0	129.0	115.9
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	42.0	32.9	13.1	142.8

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1051
 Total Area (ac) 8,587.1
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.7	0.0	0.0	5.1	0.7	0.0	0.0	5.1
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	7.8	0.0	1.1	13.1	34.3
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.6	0.0	0.0	2.2	1.6
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	5.6	57.5	229.1	97.2	1,741.7	1,098.0
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	1.8	3.2	38.2	92.5	16.6	46.8	467.3	595.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	2.2	3.8	14.6	113.3	52.2	1,730.2	1,403.1
Woodland (Fair)	100	36	60	73	79	6.5	10.9	7.0	31.4	98.1	112.9	136.0	147.3
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	11.3	42.0	32.9	13.1	154.1

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1052
 Total Area (ac) 8,952.0
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.7	0.0	0.0	5.1
3-4 Dwellings / Acre	60	32	56	69	75	7.6	0.0	27.3	85.5	7.6	1.1	40.4	119.8
Public Park	85	32	56	69	75	1.1	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	3.8	0.0	3.3	7.3	3.8	0.0	5.5	8.9
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.4	0.7	49.5	229.1	97.6	1,742.4	1,147.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	0.6	0.0	0.0	13.5	17.2	46.8	467.3	609.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.4	0.0	0.3	0.8	113.7	52.2	1,730.5	1,403.9
Woodland (Fair)	100	36	60	73	79	10.1	0.0	0.2	15.0	108.2	112.9	136.2	162.3
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	2.9	3.8	0.0	130.8	44.9	36.7	13.1	284.9

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1053
 Total Area (ac) 9,632.2
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.59
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	7.7	3.3	0.7	0.0	7.7	8.4
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	17.9	12.7	7.6	1.1	58.3	132.5
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.9	0.0	8.5	4.9	4.7	0.0	14.0	13.8
Chaparral, Broadleaf (Fair)	100	40	63	75	81	1.6	0.0	47.2	79.8	230.7	97.6	1,789.6	1,227.3
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	12.5	11.4	17.2	105.1	29.7	58.2	484.5	714.4
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	2.9	1.3	49.1	67.8	116.6	53.5	1,779.6	1,471.7
Woodland (Fair)	100	36	60	73	79	16.9	4.2	43.1	49.4	125.1	117.1	179.3	211.7
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.9	9.3	0.0	104.6	45.8	46.0	13.1	389.5

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1054
 Total Area (ac) 12,171.0
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.58
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.7	0.0	7.7	8.4
3-4 Dwellings / Acre	60	32	56	69	75	14.7	24.7	56.8	499.3	22.3	25.8	115.1	631.8
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	12.5	0.0	15.4	4.7	12.5	14.0	29.2
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	36.3	295.4	38.1	230.7	133.9	2,085.0	1,265.4
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.9	0.7	0.0	2.9	147.2	49.8
Grass (Fair)	100	50	69	79	84	2.3	99.2	140.4	282.8	32.0	157.4	624.9	997.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	22.9	312.4	171.9	116.6	76.4	2,092.0	1,643.6
Woodland (Fair)	100	36	60	73	79	1.3	92.6	153.3	72.0	126.4	209.7	332.6	283.7
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	9.8	102.4	80.7	45.8	55.8	115.5	470.2

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node P1055
 Total Area (ac) 12,522.5
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.58
 Y-Bar 0.85

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	1.2	0.7	0.0	7.7	9.6
3-4 Dwellings / Acre	60	32	56	69	75	0.4	0.0	0.3	50.1	22.7	25.8	115.4	681.9
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	6.9	0.4	0.2	4.7	19.4	14.4	29.4
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	5.8	71.9	3.5	230.7	139.7	2,156.9	1,268.9
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.2	0.2	0.0	2.9	147.4	50.0
Grass (Fair)	100	50	69	79	84	6.8	22.6	14.6	33.5	38.8	180.0	639.5	1,030.7
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	1.8	7.9	66.5	9.5	118.4	84.3	2,158.5	1,653.1
Woodland (Fair)	100	36	60	73	79	5.5	9.5	23.3	8.9	131.9	219.2	355.9	292.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	45.8	55.8	115.5	470.2

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node P1056
 Total Area (ac) 12,890.6
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.58
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	2.7	0.0	0.0	0.0	2.7
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	8.5	128.0	0.7	0.0	16.2	137.6
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	42.8	22.7	25.8	115.4	724.7
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	1.8	2.4	32.6	4.7	21.2	16.8	62.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	0.0	3.1	230.7	139.7	2,156.9	1,272.0
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.7	0.0	2.9	147.4	50.7
Grass (Fair)	100	50	69	79	84	1.8	14.8	1.3	74.3	40.6	194.8	640.8	1,105.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	1.1	1.2	0.2	21.8	119.5	85.5	2,158.7	1,674.9
Woodland (Fair)	100	36	60	73	79	9.3	5.1	0.0	13.8	141.2	224.3	355.9	306.4
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.8	45.8	55.8	115.5	471.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node P1057
 Total Area (ac) 18,555.7
 24-Hour Rainfall Depth (in) 1.50
 Fm (in/hr) 0.58
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	1.4	48.3	0.7	0.0	17.6	185.9
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	145.9	398.0	22.7	25.8	261.3	1,122.7
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	4.7	21.2	16.8	62.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	38.9	18.5	540.8	1,590.5	269.6	158.2	2,697.7	2,862.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	22.0	0.0	2.9	147.4	72.7
Grass (Fair)	100	50	69	79	84	2.0	18.9	106.1	198.3	42.6	213.7	746.9	1,303.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	40.3	25.4	236.6	1,749.2	159.8	110.9	2,395.3	3,424.1
Woodland (Fair)	100	36	60	73	79	74.7	105.0	35.4	267.2	215.9	329.3	391.3	573.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	1.7	0.0	45.8	55.8	117.2	471.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.49	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.19	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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 714 - 734 - 5100

 FILE NAME: ME49002E.FLD
 TIME/DATE OF STUDY: 08:46 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1049.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 7790.200 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.080 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.840
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.87
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.49

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.714
 30-MINUTE FACTOR = 0.714
 1-HOUR FACTOR = 0.714
 3-HOUR FACTOR = 0.953
 6-HOUR FACTOR = 0.975
 24-HOUR FACTOR = 0.984

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 7.716

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.857	807.722
2	2.559	1602.933
3	4.761	2074.571
4	7.386	2473.194
5	10.752	3171.369
6	15.002	4003.586
7	20.525	5203.927
8	26.880	5987.055
9	33.122	5881.171
10	38.092	4682.432
11	42.009	3690.111
12	45.580	3363.764
13	48.591	2837.149
14	51.376	2623.979
15	53.598	2092.717
16	55.531	1821.361
17	57.208	1580.140
18	58.806	1505.709
19	60.349	1453.899
20	61.869	1431.509
21	63.196	1250.806
22	64.433	1165.192
23	65.603	1102.481
24	66.761	1090.607
25	67.854	1029.381
26	68.845	933.933
27	69.809	908.596
28	70.774	908.826
29	71.733	903.823
30	72.562	781.011
31	73.334	726.995
32	74.091	713.517
33	74.797	665.229
34	75.499	660.816
35	76.182	643.766
36	76.827	607.403
37	77.470	605.728
38	78.092	586.055
39	78.648	523.808
40	79.199	519.165
41	79.750	519.280
42	80.281	500.325
43	80.796	484.821
44	81.310	484.584
45	81.823	483.391
46	82.275	425.442
47	82.692	393.003
48	83.109	393.011
49	83.526	392.773
50	83.938	388.475
51	84.296	337.204
52	84.639	323.137
53	84.982	322.893
54	85.325	323.375
55	85.668	322.893
56	86.005	317.653
57	86.312	289.513
58	86.615	284.977
59	86.917	284.977
60	87.220	285.214
61	87.523	284.984
62	87.825	285.214

63	88.114	272.104
64	88.385	255.406
65	88.656	255.169
66	88.926	254.695
67	89.197	255.169
68	89.468	255.169
69	89.739	255.169
70	90.005	250.878
71	90.248	228.459
72	90.487	225.117
73	90.726	225.598
74	90.966	225.598
75	91.205	225.598
76	91.444	225.124
77	91.683	225.598
78	91.922	224.642
79	92.134	200.326
80	92.334	187.919
81	92.533	187.438
82	92.732	187.445
83	92.931	187.919
84	93.130	187.438
85	93.329	187.445
86	93.529	187.919
87	93.728	187.438
88	93.926	186.971
89	94.097	160.728
90	94.250	144.045
91	94.402	144.038
92	94.555	143.563
93	94.708	144.038
94	94.861	144.038
95	95.014	144.045
96	95.166	143.563
97	95.319	144.512
98	95.472	143.563
99	95.625	144.038
100	95.777	144.045
101	95.930	144.038
102	96.060	122.575
103	96.172	105.410
104	96.282	103.498
105	96.394	104.928
106	96.504	104.454
107	96.615	104.447
108	96.727	104.936
109	96.838	104.447
110	96.948	104.454
111	97.060	104.928
112	97.171	104.454
113	97.281	103.980
114	97.392	104.928
115	97.504	104.928
116	97.615	104.928
117	97.725	103.972
118	97.837	104.936
119	97.947	103.972
120	98.016	64.863
121	98.046	28.622
122	98.077	28.615
123	98.107	28.615
124	98.138	28.622
125	98.168	28.615
126	98.197	27.659
127	98.229	29.571
128	98.258	27.666
129	98.289	29.571
130	98.319	27.666

131	98.349	28.615
132	98.381	29.571
133	98.409	26.710
134	98.440	29.571
135	98.471	28.615
136	98.501	28.622
137	98.531	28.615
138	98.561	27.659
139	98.591	28.622
140	98.622	28.615
141	98.652	28.615
142	98.683	29.571
143	98.713	27.666
144	98.743	28.615
145	98.774	29.571
146	98.805	28.622
147	98.833	26.710
148	98.864	28.615
149	98.894	28.615
150	98.925	29.571

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 781.4597
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 168.5287

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	44.7983	87.71	.	Q V	.	.	.
14.083	45.4160	89.69	.	Q V	.	.	.
14.167	46.0512	92.22	.	Q V	.	.	.
14.250	46.7062	95.12	.	Q .V	.	.	.
14.333	47.3834	98.32	.	Q .V	.	.	.
14.417	48.0862	102.04	.	Q .V	.	.	.
14.500	48.8186	106.34	.	Q .V	.	.	.
14.583	49.5863	111.48	.	Q .V	.	.	.
14.667	50.3933	117.17	.	Q.V	.	.	.
14.750	51.2392	122.83	.	Q. V	.	.	.
14.833	52.1190	127.75	.	Q V	.	.	.
14.917	53.0286	132.07	.	Q V	.	.	.
15.000	53.9669	136.24	.	Q V	.	.	.
15.083	54.9321	140.16	.	.Q V	.	.	.
15.167	55.9241	144.03	.	.Q V	.	.	.
15.250	56.9411	147.67	.	.Q V	.	.	.
15.333	57.9828	151.26	.	.QV	.	.	.
15.417	59.0427	153.90	.	. Q V	.	.	.
15.500	60.1153	155.74	.	. Q V	.	.	.
15.583	61.1986	157.29	.	. Q V	.	.	.
15.667	62.2917	158.72	.	. Q V	.	.	.
15.750	63.3929	159.89	.	. Q V	.	.	.
15.833	64.5008	160.86	.	. Q V	.	.	.
15.917	65.6157	161.89	.	. Q V	.	.	.
16.000	66.7486	164.49	.	. Q V	.	.	.
16.083	68.1247	199.81	.	. QV	.	.	.
16.167	69.7510	236.14	.	. V Q	.	.	.
16.250	71.5478	260.90	.	. V Q	.	.	.
16.333	73.4987	283.27	.	. V . Q	.	.	.
16.417	75.6939	318.75	.	. V . Q	.	.	.
16.500	78.1700	359.53	.	. V . Q	.	.	.
16.583	81.0091	412.23	.	. V . Q	.	.	.
16.667	84.0665	443.94	.	. V . Q	.	.	.
16.750	87.0718	436.36	.	. V . Q	.	.	.
16.833	89.7230	384.96	.	. V . Q	.	.	.
16.917	92.0846	342.90	.	. V . Q	.	.	.
17.000	94.3451	328.23	.	. V . Q	.	.	.
17.083	96.4538	306.18	.	. V Q	.	.	.
17.167	98.4825	294.56	.	. V Q	.	.	.
17.250	100.3412	269.89	.	. Q V	.	.	.
17.333	102.1001	255.39	.	. Q V	.	.	.
17.417	103.7667	241.99	.	. Q V	.	.	.
17.500	105.3850	234.98	.	. Q V	.	.	.
17.583	106.9535	227.74	.	. Q V	.	.	.
17.667	108.4738	220.74	.	. Q V	.	.	.
17.750	109.9032	207.56	.	. Q V	.	.	.
17.833	111.2743	199.07	.	. Q V	.	.	.
17.917	112.5993	192.40	.	. Q V	.	.	.
18.000	113.8940	187.98	.	. Q V	.	.	.
18.083	115.1458	181.77	.	. Q V	.	.	.
18.167	116.3461	174.29	.	. Q V	.	.	.
18.250	117.5162	169.89	.	. Q V	.	.	.
18.333	118.6639	166.65	.	. Q V	.	.	.
18.417	119.7868	163.05	.	. Q V	.	.	.
18.500	120.8529	154.80	.	. Q V	.	.	.
18.583	121.8805	149.21	.	. Q V	.	.	.

18.667	122.8805	145.21	.	.Q	.	.V	.
18.750	123.8457	140.15	.	.Q	.	.V	.
18.833	124.7894	137.03	.	.Q	.	.V	.
18.917	125.7100	133.66	.	.Q	.	.V	.
19.000	126.6031	129.69	.	.Q	.	.V	.
19.083	127.4789	127.16	.	.Q	.	.V	.
19.167	128.3336	124.11	.	.Q	.	.V	.
19.250	129.1578	119.67	.	.Q	.	.V	.
19.333	129.9673	117.54	.	.Q	.	.V	.
19.417	130.7642	115.71	.	.Q	.	.V	.
19.500	131.5440	113.24	.	.Q	.	.V	.
19.583	132.3084	110.98	.	.Q	.	.V	.
19.667	133.0613	109.33	.	.Q	.	.V	.
19.750	133.8027	107.65	.	.Q	.	.V	.
19.833	134.5177	103.81	.	.Q	.	.V	.
19.917	135.2136	101.04	.	.Q	.	.V	.
20.000	135.8999	99.65	.	.Q	.	.V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Analysis prepared by:

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 430 Exchange, Suite 200
 Irvine, CA. 92602-1309
 714 - 734 - 5100

 FILE NAME: ME50002E.FLD
 TIME/DATE OF STUDY: 08:46 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1050.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 8287.900 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.100 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.010
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.980
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.010
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.840
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.87
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.48

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.701
 30-MINUTE FACTOR = 0.701
 1-HOUR FACTOR = 0.701
 3-HOUR FACTOR = 0.950
 6-HOUR FACTOR = 0.973
 24-HOUR FACTOR = 0.983

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 7.576

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.836	838.092
2	2.495	1662.972
3	4.612	2121.490
4	7.156	2550.244
5	10.370	3220.804
6	14.428	4068.181
7	19.692	5275.959
8	25.705	6027.298
9	32.084	6393.303
10	37.043	4970.116
11	41.063	4030.206
12	44.723	3668.136
13	47.843	3127.223
14	50.761	2924.950
15	53.151	2395.543
16	55.046	1898.831
17	56.861	1819.099
18	58.448	1590.917
19	59.988	1544.026
20	61.515	1529.764
21	62.895	1383.888
22	64.154	1261.971
23	65.318	1166.508
24	66.485	1169.093
25	67.580	1097.876
26	68.609	1031.683
27	69.563	955.854
28	70.512	951.480
29	71.460	950.509
30	72.363	904.260
31	73.132	771.376
32	73.891	760.854
33	74.611	721.555
34	75.301	691.854
35	75.990	689.919
36	76.642	653.489
37	77.273	632.995
38	77.904	632.467
39	78.491	588.343
40	79.033	542.629
41	79.573	541.612
42	80.111	539.379
43	80.623	513.532
44	81.127	504.921
45	81.630	504.417
46	82.129	499.362
47	82.558	430.164
48	82.965	408.392
49	83.372	407.865
50	83.780	408.637
51	84.180	400.791
52	84.526	347.460
53	84.862	335.997
54	85.197	336.250
55	85.531	334.950
56	85.865	334.200
57	86.193	328.626
58	86.492	300.003
59	86.786	294.695
60	87.080	294.611
61	87.373	294.367
62	87.667	294.351

63	87.961	294.611
64	88.246	285.251
65	88.510	264.467
66	88.773	263.992
67	89.035	263.190
68	89.299	263.908
69	89.561	262.700
70	89.823	263.220
71	90.085	261.683
72	90.325	241.441
73	90.558	232.815
74	90.789	232.326
75	91.021	232.318
76	91.254	233.320
77	91.485	231.814
78	91.718	233.320
79	91.950	232.334
80	92.172	222.186
81	92.366	194.786
82	92.559	193.601
83	92.752	193.395
84	92.944	192.905
85	93.136	192.385
86	93.329	193.395
87	93.521	192.393
88	93.714	193.410
89	93.907	192.890
90	94.094	187.323
91	94.247	153.897
92	94.395	148.323
93	94.543	148.315
94	94.691	147.826
95	94.839	148.835
96	94.987	147.818
97	95.135	148.820
98	95.283	147.826
99	95.430	148.323
100	95.579	148.835
101	95.726	147.810
102	95.874	148.330
103	96.022	148.323
104	96.143	120.977
105	96.251	108.306
106	96.359	107.656
107	96.466	107.923
108	96.573	107.411
109	96.681	107.916
110	96.788	107.411
111	96.895	107.411
112	97.003	107.916
113	97.110	107.411
114	97.218	107.916
115	97.325	106.914
116	97.432	107.908
117	97.540	107.916
118	97.648	107.923
119	97.754	106.371
120	97.861	107.365
121	97.968	107.380
122	98.048	80.027
123	98.079	31.407
124	98.108	29.372
125	98.137	28.355
126	98.165	28.371
127	98.195	30.389
128	98.225	29.372
129	98.253	28.371
130	98.282	29.365

131	98.313	30.397
132	98.341	28.355
133	98.370	29.380
134	98.399	29.380
135	98.429	29.372
136	98.458	29.380
137	98.487	29.372
138	98.516	28.363
139	98.546	30.389
140	98.574	28.363
141	98.605	30.389
142	98.633	28.363
143	98.662	29.380
144	98.692	29.372
145	98.721	29.372
146	98.749	28.363
147	98.779	30.389
148	98.808	28.363
149	98.837	29.380
150	98.866	29.380

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 825.7628
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 176.9808

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	46.8440	92.80	.	Q V	.	.	.
14.083	47.4977	94.91	.	Q V	.	.	.
14.167	48.1701	97.63	.	Q V	.	.	.
14.250	48.8637	100.72	.	Q .V	.	.	.
14.333	49.5810	104.14	.	Q .V	.	.	.
14.417	50.3254	108.09	.	Q .V	.	.	.
14.500	51.1012	112.66	.	Q.V	.	.	.
14.583	51.9146	118.09	.	Q.V	.	.	.
14.667	52.7692	124.09	.	Q.V	.	.	.
14.750	53.6671	130.38	.	Q V	.	.	.
14.833	54.6017	135.71	.	Q V	.	.	.
14.917	55.5690	140.46	.	.QV	.	.	.
15.000	56.5677	145.01	.	.QV	.	.	.
15.083	57.5958	149.28	.	.Q V	.	.	.
15.167	58.6530	153.50	.	.QV	.	.	.
15.250	59.7375	157.48	.	.QV	.	.	.
15.333	60.8479	161.22	.	.QV	.	.	.
15.417	61.9778	164.07	.	.QV	.	.	.
15.500	63.1206	165.93	.	.QV	.	.	.
15.583	64.2743	167.52	.	.QV	.	.	.
15.667	65.4378	168.94	.	.QV	.	.	.
15.750	66.6098	170.16	.	.Q V	.	.	.
15.833	67.7882	171.12	.	.Q V	.	.	.
15.917	68.9735	172.10	.	.Q V	.	.	.
16.000	70.1766	174.69	.	.Q V	.	.	.
16.083	71.6177	209.25	.	.Q	.	.	.
16.167	73.3058	245.11	.	.V	Q.	.	.
16.250	75.1537	268.31	.	.V	.Q	.	.
16.333	77.1565	290.81	.	.V	.Q	.	.
16.417	79.3886	324.11	.	.V	.Q	.	.
16.500	81.8966	364.16	.	.V	.Q	.	.
16.583	84.7594	415.68	.	.V	.Q	Q	.
16.667	87.8327	446.24	.	.V	.Q	Q	.
16.750	90.9787	456.81	.	.V	.Q	Q	.
16.833	93.7303	399.53	.	.V	.Q	.Q	.
16.917	96.2180	361.21	.	.V	.Q	.Q	.
17.000	98.5996	345.81	.	.V	.Q	.Q	.
17.083	100.8353	324.62	.	.V	.Q	.Q	.
17.167	102.9961	313.74	.	.V	.Q	.Q	.
17.250	104.9924	289.87	.	.Q	.V	.Q	.
17.333	106.8343	267.44	.	.Q	.V	.Q	.
17.417	108.6262	260.19	.	.Q	.V	.Q	.
17.500	110.3311	247.54	.	.Q	.V	.Q	.
17.583	111.9877	240.55	.	.Q	.V	.Q	.
17.667	113.5973	233.71	.	.Q	.V	.Q	.
17.750	115.1240	221.68	.	.Q	.V	.Q	.
17.833	116.5805	211.48	.	.Q	.V	.Q	.
17.917	117.9805	203.28	.	.Q	.V	.Q	.
18.000	119.3516	199.08	.	.Q	.V	.Q	.
18.083	120.6760	192.31	.	.Q	.V	.Q	.
18.167	121.9549	185.69	.	.Q	.V	.Q	.
18.250	123.1882	179.07	.	.Q	.V	.Q	.
18.333	124.3970	175.52	.	.Q	.V	.Q	.
18.417	125.5808	171.89	.	.Q	.V	.Q	.
18.500	126.7270	166.43	.	.Q	.V	.Q	.
18.583	127.8130	157.69	.	.Q	.V	.Q	.

18.667	128.8703	153.53	.	.Q	.	.V	.
18.750	129.8931	148.51	.	.Q	.	.V	.
18.833	130.8868	144.28	.	.Q	.	.V	.
18.917	131.8597	141.26	.	.Q	.	.V	.
19.000	132.8040	137.11	.	.Q	.	.V	.
19.083	133.7250	133.73	.	.Q	.	.V	.
19.167	134.6281	131.14	.	.Q	.	.V	.
19.250	135.5044	127.23	.	.Q	.	.V	.
19.333	136.3547	123.46	.	.Q	.	.V	.
19.417	137.1909	121.42	.	.Q	.	.V	.
19.500	138.0136	119.45	.	.Q	.	.V	.
19.583	138.8173	116.70	.	.Q	.	.V	.
19.667	139.6068	114.64	.	.Q	.	.V	.
19.750	140.3846	112.94	.	.Q	.	.V	.
19.833	141.1494	111.04	.	.Q	.	.V	.
19.917	141.8851	106.83	.	.Q	.	.V	.
20.000	142.6045	104.47	.	.Q	.	.V	.

=====

END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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 430 Exchange, Suite 200
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 714 - 734 - 5100

 FILE NAME: ME51002E.FLD
 TIME/DATE OF STUDY: 08:47 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1051.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 8742.100 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.240 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.030
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.930
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.040
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.840
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.87
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.48

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.693
 30-MINUTE FACTOR = 0.694
 1-HOUR FACTOR = 0.695
 3-HOUR FACTOR = 0.948
 6-HOUR FACTOR = 0.972
 24-HOUR FACTOR = 0.983

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 6.720

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.730	771.739
2	2.182	1535.680
3	3.856	1769.325
4	6.045	2314.317
5	8.485	2579.674
6	11.583	3275.177
7	15.423	4060.213
8	20.214	5065.563
9	25.493	5581.139
10	31.163	5994.022
11	35.544	4631.889
12	39.444	4123.005
13	42.833	3583.391
14	45.960	3306.186
15	48.884	3091.622
16	51.468	2731.746
17	53.587	2240.408
18	55.317	1828.800
19	57.013	1792.591
20	58.457	1527.021
21	59.878	1501.919
22	61.259	1460.378
23	62.611	1429.674
24	63.776	1231.545
25	64.902	1190.013
26	65.941	1099.055
27	66.990	1108.557
28	67.966	1032.057
29	68.905	992.888
30	69.767	911.339
31	70.619	900.869
32	71.463	892.609
33	72.305	890.173
34	73.071	809.213
35	73.753	721.808
36	74.429	713.920
37	75.072	680.066
38	75.687	650.132
39	76.301	649.019
40	76.898	631.112
41	77.460	595.033
42	78.020	591.790
43	78.577	588.773
44	79.085	536.843
45	79.565	507.708
46	80.042	504.433
47	80.518	503.159
48	80.977	485.050
49	81.420	468.854
50	81.864	468.894
51	82.307	468.579
52	82.739	456.270
53	83.106	388.160
54	83.463	377.278
55	83.820	377.569
56	84.176	377.020
57	84.533	377.278
58	84.859	344.570
59	85.154	311.418
60	85.448	310.870
61	85.742	311.144
62	86.034	308.321

63	86.322	305.385
64	86.609	303.401
65	86.873	279.097
66	87.129	270.192
67	87.384	269.184
68	87.637	268.353
69	87.892	268.635
70	88.145	268.353
71	88.400	268.942
72	88.647	261.513
73	88.877	242.582
74	89.104	240.936
75	89.333	241.243
76	89.561	241.227
77	89.786	238.581
78	90.013	239.291
79	90.238	238.040
80	90.463	238.105
81	90.670	219.222
82	90.870	211.212
83	91.071	211.785
84	91.271	211.809
85	91.470	210.648
86	91.671	212.374
87	91.871	211.196
88	92.071	211.229
89	92.271	211.785
90	92.464	204.388
91	92.634	179.182
92	92.800	175.495
93	92.964	173.479
94	93.128	173.987
95	93.292	172.906
96	93.457	174.052
97	93.621	174.003
98	93.785	172.882
99	93.949	174.060
100	94.114	173.971
101	94.277	172.914
102	94.419	150.047
103	94.545	133.414
104	94.672	134.027
105	94.800	134.592
106	94.926	134.027
107	95.053	133.447
108	95.180	134.592
109	95.306	133.455
110	95.433	134.019
111	95.560	134.019
112	95.687	134.600
113	95.813	133.422
114	95.940	134.003
115	96.067	133.987
116	96.193	133.430
117	96.300	113.418
118	96.393	98.560
119	96.485	97.359
120	96.578	98.028
121	96.670	96.883
122	96.761	96.891
123	96.853	96.891
124	96.945	97.447
125	97.037	96.891
126	97.129	97.447
127	97.221	96.891
128	97.313	97.455
129	97.403	95.753
130	97.496	98.028

131	97.589	98.028
132	97.679	95.737
133	97.772	98.028
134	97.861	93.979
135	97.952	96.011
136	98.042	94.874
137	98.127	90.293
138	98.163	37.725
139	98.186	25.142
140	98.212	27.433
141	98.236	25.150
142	98.262	27.433
143	98.286	25.142
144	98.310	25.142
145	98.333	25.150
146	98.358	26.288
147	98.383	26.288
148	98.408	26.296
149	98.433	26.288
150	98.457	25.150

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 871.1435
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 185.1861

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	48.0835	95.35	.	Q V	.	.	.
14.083	48.7545	97.43	.	Q V	.	.	.
14.167	49.4439	100.10	.	Q V	.	.	.
14.250	50.1530	102.97	.	Q V	.	.	.
14.333	50.8849	106.27	.	Q V	.	.	.
14.417	51.6409	109.78	.	Q .V	.	.	.
14.500	52.4249	113.83	.	Q.V	.	.	.
14.583	53.2408	118.47	.	Q.V	.	.	.
14.667	54.0940	123.88	.	Q.V	.	.	.
14.750	54.9871	129.68	.	QV	.	.	.
14.833	55.9224	135.81	.	Q V	.	.	.
14.917	56.8936	141.01	.	.QV	.	.	.
15.000	57.8985	145.92	.	.QV	.	.	.
15.083	58.9351	150.52	.	. Q	.	.	.
15.167	60.0027	155.01	.	. Q	.	.	.
15.250	61.1009	159.46	.	. QV	.	.	.
15.333	62.2289	163.78	.	. Q	.	.	.
15.417	63.3785	166.93	.	. Q	.	.	.
15.500	64.5428	169.05	.	. Q	.	.	.
15.583	65.7214	171.13	.	. QV	.	.	.
15.667	66.9108	172.71	.	. QV	.	.	.
15.750	68.1129	174.54	.	. QV	.	.	.
15.833	69.3272	176.32	.	. Q	.	.	.
15.917	70.5559	178.41	.	. QV	.	.	.
16.000	71.8059	181.49	.	. QV	.	.	.
16.083	73.2705	212.67	.	. V Q	.	.	.
16.167	74.9439	242.97	.	. V Q.	.	.	.
16.250	76.7046	255.64	.	. V Q	.	.	.
16.333	78.6323	279.91	.	. V . Q	.	.	.
16.417	80.6711	296.03	.	. V . Q	.	.	.
16.500	82.9368	328.99	.	. V . Q	.	.	.
16.583	85.4473	364.52	.	. V . Q.	.	.	.
16.667	88.2462	406.41	.	. V . Q Q	.	.	.
16.750	91.1882	427.18	.	. V . Q Q	.	.	.
16.833	94.2188	440.05	.	. V . Q Q	.	.	.
16.917	96.8895	387.78	.	. V . Q Q	.	.	.
17.000	99.4174	367.04	.	. .V . Q.	.	.	.
17.083	101.8003	346.00	.	. .V . Q	.	.	.
17.167	104.1053	334.69	.	. .V . Q	.	.	.
17.250	106.3351	323.76	.	. .V . Q Q	.	.	.
17.333	108.4462	306.53	.	. .V Q	.	.	.
17.417	110.4034	284.19	.	. .QV	.	.	.
17.500	112.2279	264.91	.	. .Q V	.	.	.
17.583	114.0115	258.99	.	. .Q V	.	.	.
17.667	115.6949	244.43	.	. .Q V	.	.	.
17.750	117.3338	237.98	.	. .Q V	.	.	.
17.833	118.9204	230.37	.	. .Q V	.	.	.
17.917	120.4630	223.98	.	. .Q Q	.	.	.
18.000	121.9213	211.76	.	. .Q Q	.	.	.
18.083	123.3369	205.54	.	. .Q Q	.	.	.
18.167	124.7000	197.92	.	. .Q Q	.	.	.
18.250	126.0373	194.17	.	. .Q Q	.	.	.
18.333	127.3274	187.32	.	. .Q Q	.	.	.
18.417	128.5816	182.11	.	. .Q Q	.	.	.
18.500	129.7912	175.64	.	. .Q Q	.	.	.
18.583	130.9740	171.74	.	. .Q Q	.	.	.

18.667	132.1303	167.89	.	. Q	.	. V .	.
18.750	133.2602	164.06	.	. Q	.	. V .	.
18.833	134.3430	157.23	.	. Q	.	. V .	.
18.917	135.3803	150.61	.	. Q	.	. V .	.
19.000	136.3947	147.29	.	. Q	.	. V .	.
19.083	137.3820	143.36	.	. Q	.	. V .	.
19.167	138.3442	139.71	.	. Q	.	. V .	.
19.250	139.2883	137.09	.	. Q	.	. V .	.
19.333	140.2114	134.03	.	. Q	.	. V .	.
19.417	141.1101	130.49	.	. Q	.	. V .	.
19.500	141.9934	128.26	.	. Q	.	. V .	.
19.583	142.8614	126.03	.	. Q	.	. V .	.
19.667	143.7026	122.15	.	. Q.	.	. V .	.
19.750	144.5238	119.23	.	. Q.	.	. V .	.
19.833	145.3324	117.41	.	. Q.	.	. V .	.
19.917	146.1296	115.76	.	. Q.	.	. V .	.
20.000	146.9114	113.51	.	. Q.	.	. V .	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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 FILE NAME: ME52002E.FLD
 TIME/DATE OF STUDY: 08:47 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1052.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 9032.900 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.310 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.040
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.900
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.060
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.840
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.87
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.48

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.688
 30-MINUTE FACTOR = 0.690
 1-HOUR FACTOR = 0.691
 3-HOUR FACTOR = 0.946
 6-HOUR FACTOR = 0.972
 24-HOUR FACTOR = 0.982

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 6.361

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.684	747.735
2	2.048	1489.611
3	3.553	1644.426
4	5.577	2210.846
5	7.744	2367.044
6	10.531	3044.612
7	13.857	3633.007
8	18.028	4556.493
9	22.680	5081.715
10	28.197	6026.959
11	32.799	5028.187
12	36.889	4467.337
13	40.240	3660.556
14	43.531	3595.397
15	46.486	3227.934
16	49.352	3130.708
17	51.783	2656.068
18	53.800	2203.240
19	55.473	1828.076
20	57.122	1800.926
21	58.509	1514.799
22	59.880	1498.735
23	61.215	1457.954
24	62.533	1439.977
25	63.675	1247.100
26	64.769	1195.714
27	65.796	1121.520
28	66.789	1084.990
29	67.749	1048.285
30	68.670	1006.096
31	69.525	934.045
32	70.344	895.381
33	71.150	879.454
34	71.951	875.003
35	72.745	868.144
36	73.452	772.372
37	74.102	710.239
38	74.742	698.821
39	75.353	667.291
40	75.936	636.862
41	76.519	637.346
42	77.090	623.385
43	77.627	586.114
44	78.157	579.621
45	78.685	576.529
46	79.191	552.742
47	79.649	500.002
48	80.102	494.801
49	80.551	490.526
50	80.996	486.933
51	81.420	463.088
52	81.838	456.721
53	82.256	456.129
54	82.674	457.013
55	83.075	438.110
56	83.418	374.293
57	83.753	366.442
58	84.089	366.475
59	84.424	366.125
60	84.760	366.742
61	85.078	347.264
62	85.356	304.525

63	85.633	302.416
64	85.910	302.450
65	86.185	300.983
66	86.456	295.974
67	86.726	294.582
68	86.988	286.448
69	87.230	263.503
70	87.469	261.202
71	87.706	258.860
72	87.943	258.827
73	88.180	259.077
74	88.417	259.152
75	88.654	258.785
76	88.885	252.485
77	89.099	234.390
78	89.313	233.457
79	89.526	232.840
80	89.740	233.140
81	89.951	230.765
82	90.161	229.373
83	90.370	228.031
84	90.580	229.331
85	90.783	222.022
86	90.970	204.511
87	91.156	203.370
88	91.342	203.311
89	91.529	203.370
90	91.715	203.270
91	91.901	203.386
92	92.087	203.903
93	92.274	203.345
94	92.460	203.911
95	92.640	196.760
96	92.800	174.274
97	92.954	168.415
98	93.106	165.539
99	93.257	165.648
100	93.409	166.123
101	93.561	165.614
102	93.713	166.223
103	93.865	165.531
104	94.016	165.598
105	94.168	165.581
106	94.320	166.214
107	94.469	162.547
108	94.592	134.185
109	94.709	128.776
110	94.827	128.143
111	94.944	128.168
112	95.061	128.151
113	95.179	128.734
114	95.296	127.534
115	95.413	128.184
116	95.531	128.734
117	95.648	127.542
118	95.766	128.776
119	95.883	128.184
120	96.000	128.176
121	96.118	128.184
122	96.236	128.776
123	96.348	122.742
124	96.438	97.997
125	96.524	94.371
126	96.611	94.971
127	96.696	93.271
128	96.782	93.579
129	96.867	92.371
130	96.952	93.571

131	97.037	92.379
132	97.122	93.579
133	97.207	92.371
134	97.293	93.571
135	97.378	93.579
136	97.463	92.371
137	97.547	92.379
138	97.633	93.571
139	97.718	92.371
140	97.803	93.579
141	97.887	91.046
142	97.968	89.346
143	98.051	90.562
144	98.133	89.354
145	98.202	74.860
146	98.226	26.562
147	98.248	24.153
148	98.271	25.353
149	98.293	24.153
150	98.317	25.353

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 900.2075
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 190.6168

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

=====

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	49.0501	97.37	.	Q V	.	.	.
14.083	49.7351	99.45	.	Q V	.	.	.
14.167	50.4384	102.13	.	Q V	.	.	.
14.250	51.1610	104.92	.	Q V	.	.	.
14.333	51.9061	108.18	.	Q V	.	.	.
14.417	52.6745	111.57	.	Q .V	.	.	.
14.500	53.4700	115.51	.	Q.V	.	.	.
14.583	54.2956	119.87	.	Q.V	.	.	.
14.667	55.1562	124.96	.	Q.V	.	.	.
14.750	56.0544	130.43	.	QV	.	.	.
14.833	56.9955	136.65	.	QV	.	.	.
14.917	57.9747	142.18	.	.QV	.	.	.
15.000	58.9897	147.38	.	.QV	.	.	.
15.083	60.0369	152.05	.	.Q	.	.	.
15.167	61.1166	156.78	.	.Q	.	.	.
15.250	62.2277	161.32	.	.QV	.	.	.
15.333	63.3705	165.94	.	.Q	.	.	.
15.417	64.5372	169.40	.	.Q	.	.	.
15.500	65.7206	171.84	.	.Q	.	.	.
15.583	66.9193	174.05	.	.QV	.	.	.
15.667	68.1309	175.92	.	.Q	.	.	.
15.750	69.3564	177.94	.	.Q	.	.	.
15.833	70.5957	179.94	.	.Q	.	.	.
15.917	71.8517	182.37	.	.QV	.	.	.
16.000	73.1323	185.95	.	.QV	.	.	.
16.083	74.6200	216.01	.	.V Q	.	.	.
16.167	76.3046	244.60	.	.V Q.	.	.	.
16.250	78.0492	253.32	.	.V V Q	.	.	.
16.333	79.9573	277.07	.	.V . Q	.	.	.
16.417	81.9447	288.56	.	.V . Q	.	.	.
16.500	84.1466	319.72	.	.V . Q	.	.	.
16.583	86.5407	347.62	.	.V . Q	.	.	.
16.667	89.2026	386.51	.	.V . Q	.	.	.
16.750	92.0187	408.91	.	.V . Q	.	.	.
16.833	95.0646	442.27	.	.V . Q	.	.	.
16.917	97.8517	404.68	.	.V . Q	.	.	.
17.000	100.4831	382.07	.	.V . Q	.	.	.
17.083	102.9057	351.77	.	.V . Q	.	.	.
17.167	105.3065	348.59	.	.V . Q	.	.	.
17.250	107.6040	333.60	.	.V . Q	.	.	.
17.333	109.8526	326.51	.	.V . Q	.	.	.
17.417	111.9529	304.96	.	.VQ	.	.	.
17.500	113.9098	284.14	.	.QV	.	.	.
17.583	115.7429	266.17	.	.Q V	.	.	.
17.667	117.5360	260.36	.	.Q V	.	.	.
17.750	119.2245	245.16	.	.Q V	.	.	.
17.833	120.8685	238.72	.	.Q V	.	.	.
17.917	122.4653	231.85	.	.Q V	.	.	.
18.000	124.0224	226.09	.	.Q V	.	.	.
18.083	125.4987	214.36	.	.Q V	.	.	.
18.167	126.9291	207.69	.	.Q V	.	.	.
18.250	128.3108	200.63	.	.Q V	.	.	.
18.333	129.6544	195.09	.	.Q V	.	.	.
18.417	130.9615	189.78	.	.Q V	.	.	.
18.500	132.2319	184.46	.	.Q V	.	.	.
18.583	133.4599	178.31	.	.Q V	.	.	.

18.667	134.6531	173.26	.	.Q	.	.V	.
18.750	135.8183	169.19	.	.Q	.	.V	.
18.833	136.9569	165.32	.	.Q	.	.V	.
18.917	138.0688	161.46	.	.Q	.	.V	.
19.000	139.1335	154.59	.	.Q	.	.V	.
19.083	140.1620	149.34	.	.Q	.	.V	.
19.167	141.1680	146.07	.	.Q	.	.V	.
19.250	142.1486	142.39	.	.Q	.	.V	.
19.333	143.1046	138.80	.	.Q	.	.V	.
19.417	144.0441	136.41	.	.Q	.	.V	.
19.500	144.9646	133.66	.	.Q	.	.V	.
19.583	145.8616	130.26	.	.Q	.	.V	.
19.667	146.7431	128.00	.	.Q	.	.V	.
19.750	147.6103	125.91	.	.Q	.	.V	.
19.833	148.4579	123.07	.	.Q	.	.V	.
19.917	149.2795	119.29	.	.Q	.	.V	.
20.000	150.0882	117.42	.	.Q	.	.V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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 430 Exchange, Suite 200
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 714 - 734 - 5100

 FILE NAME: ME53002E.FLD
 TIME/DATE OF STUDY: 08:48 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1053.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 9881.300 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.420 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.060
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.840
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.100
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.830
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.87
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.48

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.674
 30-MINUTE FACTOR = 0.679
 1-HOUR FACTOR = 0.681
 3-HOUR FACTOR = 0.942
 6-HOUR FACTOR = 0.970
 24-HOUR FACTOR = 0.981

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 5.869

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.620	740.342
2	1.856	1477.124
3	3.148	1544.762
4	4.920	2117.351
5	6.805	2252.248
6	9.097	2739.449
7	11.882	3327.497
8	15.181	3942.905
9	19.232	4840.709
10	23.501	5101.800
11	28.558	6043.435
12	32.603	4833.043
13	36.366	4497.366
14	39.507	3753.350
15	42.676	3787.599
16	45.582	3472.360
17	48.489	3473.655
18	51.034	3041.195
19	53.118	2491.282
20	54.823	2037.233
21	56.546	2058.667
22	57.923	1645.709
23	59.256	1593.454
24	60.565	1564.342
25	61.811	1488.915
26	63.065	1497.659
27	64.124	1266.198
28	65.156	1232.628
29	66.152	1190.352
30	67.071	1099.079
31	67.993	1100.875
32	68.851	1025.539
33	69.687	999.773
34	70.458	920.827
35	71.225	916.687
36	71.967	886.318
37	72.709	886.938
38	73.438	871.110
39	74.086	774.349
40	74.694	726.355
41	75.287	708.604
42	75.859	683.723
43	76.397	643.133
44	76.943	652.633
45	77.475	635.346
46	77.984	608.305
47	78.474	585.931
48	78.962	583.095
49	79.446	578.309
50	79.900	542.660
51	80.320	502.243
52	80.737	497.712
53	81.148	491.157
54	81.556	487.893
55	81.947	466.950
56	82.329	456.821
57	82.712	456.949
58	83.094	456.502
59	83.475	455.253
60	83.815	406.448
61	84.120	365.256
62	84.425	364.627

63	84.730	364.527
64	85.036	364.591
65	85.341	364.573
66	85.633	349.374
67	85.888	305.128
68	86.141	301.508
69	86.393	301.408
70	86.645	301.043
71	86.891	294.370
72	87.133	289.674
73	87.376	290.130
74	87.604	272.315
75	87.821	259.396
76	88.036	256.469
77	88.248	253.643
78	88.460	253.716
79	88.673	253.925
80	88.885	253.734
81	89.098	253.934
82	89.308	251.646
83	89.505	234.606
84	89.697	229.673
85	89.889	229.263
86	90.081	229.491
87	90.272	228.625
88	90.460	224.841
89	90.645	221.495
90	90.832	222.316
91	91.018	222.826
92	91.200	217.037
93	91.367	200.088
94	91.533	198.164
95	91.699	198.328
96	91.865	198.784
97	92.031	198.200
98	92.197	198.255
99	92.363	198.857
100	92.529	198.210
101	92.696	198.875
102	92.861	198.164
103	93.022	191.518
104	93.164	169.554
105	93.301	163.965
106	93.434	159.707
107	93.568	159.644
108	93.701	158.796
109	93.834	159.042
110	93.967	159.470
111	94.101	159.625
112	94.234	158.878
113	94.367	158.960
114	94.501	160.136
115	94.633	158.285
116	94.764	156.215
117	94.871	128.216
118	94.975	124.059
119	95.079	124.223
120	95.183	123.457
121	95.286	124.223
122	95.390	123.384
123	95.494	124.214
124	95.597	123.539
125	95.701	124.059
126	95.805	124.214
127	95.908	123.466
128	96.012	124.214
129	96.116	124.141
130	96.219	123.475

131	96.323	123.466
132	96.426	124.132
133	96.530	123.475
134	96.614	100.080
135	96.691	92.057
136	96.768	92.012
137	96.843	89.869
138	96.917	89.194
139	96.993	90.544
140	97.068	89.203
141	97.143	89.869
142	97.218	89.860
143	97.293	89.869
144	97.369	89.869
145	97.443	89.203
146	97.519	90.544
147	97.594	89.203
148	97.669	90.525
149	97.745	90.535
150	97.819	87.872

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 973.7947
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 216.9976

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	55.9507	111.26	.	Q V	.	.	.
14.083	56.7333	113.63	.	QV	.	.	.
14.167	57.5363	116.60	.	QV	.	.	.
14.250	58.3603	119.65	.	QV	.	.	.
14.333	59.2085	123.15	.	QV	.	.	.
14.417	60.0820	126.83	.	QV	.	.	.
14.500	60.9835	130.89	.	QV	.	.	.
14.583	61.9166	135.48	.	QV	.	.	.
14.667	62.8846	140.56	.	.Q	.	.	.
14.750	63.8928	146.40	.	.Q	.	.	.
14.833	64.9427	152.44	.	.VQ	.	.	.
14.917	66.0397	159.28	.	.Q	.	.	.
15.000	67.1776	165.23	.	.VQ	.	.	.
15.083	68.3554	171.01	.	.VQ	.	.	.
15.167	69.5695	176.29	.	.V Q	.	.	.
15.250	70.8209	181.70	.	.VQ	.	.	.
15.333	72.1084	186.95	.	.VQ	.	.	.
15.417	73.4265	191.39	.	.V Q	.	.	.
15.500	74.7672	194.67	.	.V Q	.	.	.
15.583	76.1291	197.74	.	.VQ	.	.	.
15.667	77.5066	200.02	.	.V Q	.	.	.
15.750	78.9032	202.78	.	.V Q	.	.	.
15.833	80.3173	205.34	.	.V Q	.	.	.
15.917	81.7524	208.37	.	.VQ	.	.	.
16.000	83.2181	212.82	.	.V Q	.	.	.
16.083	84.8816	241.55	.	.V .Q	.	.	.
16.167	86.7373	269.44	.	.V .Q	.	.	.
16.250	88.6211	273.53	.	.V .Q	.	.	.
16.333	90.6561	295.47	.	.V .Q	.	.	.
16.417	92.7556	304.86	.	.V .Q	.	.	.
16.500	95.0138	327.88	.	.V .Q	.	.	.
16.583	97.4562	354.63	.	.V .Q	.	.	.
16.667	100.0879	382.12	.	.V .Q	.	.	.
16.750	102.9611	417.20	.	.V .Q	.	.	.
16.833	105.9159	429.04	.	.V .Q	.	.	.
16.917	109.0831	459.88	.	.V .Q	.	.	.
17.000	111.9606	417.81	.	.V .Q	.	.	.
17.083	114.7439	404.14	.	.V .Q	.	.	.
17.167	117.3469	377.96	.	.V .Q	.	.	.
17.250	119.9569	378.98	.	.V .Q	.	.	.
17.333	122.4802	366.37	.	.V .Q	.	.	.
17.417	124.9795	362.90	.	.V .Q	.	.	.
17.500	127.3405	342.82	.	.V .Q	.	.	.
17.583	129.5370	318.93	.	.V Q	.	.	.
17.667	131.5917	298.35	.	.QV	.	.	.
17.750	133.6125	293.42	.	.QV	.	.	.
17.833	135.5013	274.26	.	.Q V	.	.	.
17.917	137.3341	266.12	.	.Q V	.	.	.
18.000	139.1218	259.58	.	.Q V	.	.	.
18.083	140.8556	251.74	.	.Q V	.	.	.
18.167	142.5528	246.44	.	.Q V	.	.	.
18.250	144.1594	233.27	.	.Q V	.	.	.
18.333	145.7224	226.95	.	.Q V	.	.	.
18.417	147.2405	220.43	.	.Q V	.	.	.
18.500	148.7054	212.70	.	.Q V	.	.	.
18.583	150.1397	208.25	.	.Q V	.	.	.

18.667	151.5279	201.57	.	.Q	.	.V	.
18.750	152.8802	196.35	.	.Q	.	.V	.
18.833	154.1869	189.73	.	.Q	.	.V	.
18.917	155.4651	185.59	.	.Q	.	.V	.
19.000	156.7106	180.85	.	.Q	.	.V	.
19.083	157.9311	177.21	.	.Q	.	.V	.
19.167	159.1228	173.04	.	.Q	.	.V	.
19.250	160.2690	166.42	.	.Q	.	.V	.
19.333	161.3823	161.65	.	.Q	.	.V	.
19.417	162.4708	158.05	.	.Q	.	.V	.
19.500	163.5350	154.52	.	.Q	.	.V	.
19.583	164.5722	150.61	.	.Q	.	.V	.
19.667	165.5952	148.53	.	.Q	.	.V	.
19.750	166.5978	145.58	.	.Q	.	.V	.
19.833	167.5791	142.48	.	.Q	.	.V	.
19.917	168.5404	139.59	.	.Q	.	.V	.
20.000	169.4869	137.43	.	.Q	.	.V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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 714 - 734 - 5100

 FILE NAME: ME54002E.FLD
 TIME/DATE OF STUDY: 08:48 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1054.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 12304.100 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.460 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.110
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.710
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.180
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.830
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.86
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.47

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.633
 30-MINUTE FACTOR = 0.646
 1-HOUR FACTOR = 0.651
 3-HOUR FACTOR = 0.929
 6-HOUR FACTOR = 0.965
 24-HOUR FACTOR = 0.978

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 5.708

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.577	858.154
2	1.728	1713.308
3	2.919	1771.600
4	4.538	2410.056
5	6.290	2606.822
6	8.368	3091.917
7	10.874	3728.680
8	13.808	4365.902
9	17.380	5315.049
10	21.235	5736.698
11	25.852	6869.600
12	29.941	6084.884
13	33.573	5404.188
14	37.023	5133.677
15	40.244	4792.958
16	43.440	4756.652
17	46.749	4923.163
18	49.877	4655.142
19	52.310	3619.562
20	54.389	3093.719
21	56.116	2570.409
22	57.875	2617.773
23	59.248	2042.223
24	60.611	2029.224
25	61.988	2048.228
26	63.218	1829.932
27	64.482	1881.916
28	65.508	1526.524
29	66.560	1565.566
30	67.569	1501.139
31	68.494	1375.692
32	69.388	1331.132
33	70.239	1266.001
34	71.063	1225.665
35	71.834	1148.228
36	72.606	1148.149
37	73.333	1082.598
38	74.062	1084.482
39	74.771	1055.135
40	75.415	958.263
41	76.024	906.153
42	76.609	870.358
43	77.172	837.322
44	77.699	783.896
45	78.240	805.852
46	78.760	774.144
47	79.263	747.544
48	79.742	712.680
49	80.218	708.184
50	80.687	698.512
51	81.141	675.000
52	81.555	616.375
53	81.963	606.747
54	82.359	588.969
55	82.751	583.894
56	83.133	567.773
57	83.498	544.160
58	83.863	542.900
59	84.227	542.116
60	84.592	542.343
61	84.948	529.322
62	85.251	451.431

63	85.538	427.045
64	85.825	427.544
65	86.112	426.682
66	86.399	427.658
67	86.686	427.045
68	86.957	402.750
69	87.198	357.952
70	87.436	355.034
71	87.674	354.206
72	87.913	354.682
73	88.140	338.085
74	88.361	329.763
75	88.583	329.264
76	88.793	313.427
77	88.994	297.953
78	89.190	292.901
79	89.383	286.396
80	89.575	286.157
81	89.768	286.350
82	89.960	286.259
83	90.152	286.418
84	90.345	285.908
85	90.528	272.250
86	90.703	261.579
87	90.879	261.034
88	91.054	261.397
89	91.230	261.874
90	91.400	252.315
91	91.566	247.388
92	91.731	245.344
93	91.897	246.661
94	92.062	246.479
95	92.218	230.881
96	92.367	221.787
97	92.515	221.242
98	92.664	221.696
99	92.813	221.787
100	92.962	221.061
101	93.111	221.776
102	93.260	221.061
103	93.409	222.502
104	93.557	220.448
105	93.706	221.662
106	93.849	212.603
107	93.977	189.750
108	94.099	181.860
109	94.214	171.222
110	94.329	171.040
111	94.444	171.040
112	94.559	171.404
113	94.674	170.700
114	94.789	171.392
115	94.904	171.767
116	95.019	170.507
117	95.134	171.585
118	95.249	171.040
119	95.364	170.325
120	95.462	145.747
121	95.553	135.438
122	95.643	135.064
123	95.734	134.712
124	95.825	134.893
125	95.916	135.620
126	96.006	134.178
127	96.097	135.609
128	96.188	134.882
129	96.278	134.723
130	96.369	134.893

131	96.460	135.064
132	96.550	134.723
133	96.641	135.438
134	96.732	134.712
135	96.822	134.700
136	96.913	134.712
137	97.000	130.375
138	97.071	105.796
139	97.140	102.163
140	97.209	102.901
141	97.277	101.459
142	97.346	101.335
143	97.411	97.588
144	97.476	96.862
145	97.542	98.303
146	97.608	98.292
147	97.673	96.862
148	97.739	97.588
149	97.805	97.588
150	97.870	97.565

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 1205.1951
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 263.5227

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	150.0	300.0	450.0	600.0
14.000	69.4644	135.74	.	QV	.	.	.
14.083	70.4193	138.66	.	QV	.	.	.
14.167	71.3995	142.32	.	QV	.	.	.
14.250	72.4057	146.10	.	QV	.	.	.
14.333	73.4415	150.40	.	QV	.	.	.
14.417	74.5087	154.95	.	QV	.	.	.
14.500	75.6103	159.95	.	QV	.	.	.
14.583	76.7503	165.53	.	.Q	.	.	.
14.667	77.9327	171.69	.	.Q	.	.	.
14.750	79.1634	178.70	.	.QV	.	.	.
14.833	80.4452	186.11	.	.Q	.	.	.
14.917	81.7849	194.52	.	.Q	.	.	.
15.000	83.1783	202.32	.	.VQ	.	.	.
15.083	84.6218	209.60	.	.VQ	.	.	.
15.167	86.1144	216.73	.	.VQ	.	.	.
15.250	87.6548	223.67	.	.VQ	.	.	.
15.333	89.2434	230.67	.	.V Q	.	.	.
15.417	90.8742	236.78	.	.V Q	.	.	.
15.500	92.5388	241.71	.	.V Q	.	.	.
15.583	94.2328	245.96	.	.V Q	.	.	.
15.667	95.9495	249.27	.	.V Q	.	.	.
15.750	97.6889	252.56	.	.V Q	.	.	.
15.833	99.4526	256.09	.	.V Q	.	.	.
15.917	101.2410	259.67	.	.V Q	.	.	.
16.000	103.0652	264.88	.	.V Q	.	.	.
16.083	105.0893	293.90	.	.V	.Q.	.	.
16.167	107.3046	321.66	.	.V	.Q	.	.
16.250	109.5455	325.38	.	.V	.Q	.	.
16.333	111.9261	345.66	.	.V	.Q	.	.
16.417	114.3787	356.12	.	.V	.Q	.	.
16.500	116.9704	376.30	.	.V	.Q	.	.
16.583	119.7358	401.54	.	.V	.Q	.	.
16.667	122.6755	426.85	.	.V	.Q	.	.
16.750	125.8382	459.22	.	.V	.Q	.	.
16.833	129.1113	475.26	.	.V	.Q	.	.
16.917	132.6120	508.29	.	.V	.Q	.	.
17.000	135.9572	485.73	.	.V	.Q	.	.
17.083	139.1655	465.85	.	.V	.Q	.	.
17.167	142.3143	457.21	.	.V	.Q	.	.
17.250	145.4071	449.06	.	.V	.Q	.	.
17.333	148.4905	447.71	.	.V	.Q	.	.
17.417	151.5837	449.13	.	.V	.Q	.	.
17.500	154.5848	435.77	.	.V	.Q	.	.
17.583	157.3336	399.11	.	.V	.Q	.	.
17.667	159.9326	377.38	.	.VQ	.	.	.
17.750	162.3878	356.50	.	.QV	.	.	.
17.833	164.8081	351.42	.	.Q V	.	.	.
17.917	167.0656	327.80	.	.Q	V	.	.
18.000	169.2725	320.44	.	.Q	V	.	.
18.083	171.4357	314.09	.	.Q	V	.	.
18.167	173.5109	301.33	.	.Q	V	.	.
18.250	175.5464	295.55	.	.Q	V	.	.
18.333	177.4652	278.61	.	.Q	V	.	.
18.417	179.3441	272.82	.	.Q	V	.	.
18.500	181.1631	264.12	.	.Q	V	.	.
18.583	182.9171	254.68	.	.Q	V	.	.

18.667	184.6227	247.65	.	.	Q	.	V	.
18.750	186.2794	240.55	.	.	Q	.	V	.
18.833	187.8919	234.14	.	.	Q	.	V	.
18.917	189.4551	226.99	.	.	Q	.	V	.
19.000	190.9860	222.29	.	.	Q	.	V	.
19.083	192.4729	215.90	.	.	Q	.	V	.
19.167	193.9299	211.55	.	.	Q	.	V	.
19.250	195.3502	206.23	.	.	Q	.	V	.
19.333	196.7237	199.43	.	.	Q	.	V	.
19.417	198.0590	193.89	.	.	Q	.	V	.
19.500	199.3612	189.08	.	.	Q	.	V	.
19.583	200.6339	184.79	.	.	Q	.	V	.
19.667	201.8749	180.19	.	.	Q	.	V	.
19.750	203.0996	177.84	.	.	Q	.	V	.
19.833	204.2981	174.01	.	.	Q	.	V	.
19.917	205.4724	170.52	.	.	Q	.	V	.
20.000	206.6214	166.83	.	.	Q	.	V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Analysis prepared by:

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 Irvine, CA. 92602-1309
 714 - 734 - 5100

 FILE NAME: ME55002E.FLD
 TIME/DATE OF STUDY: 08:49 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1055.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 12628.700 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.550 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.120
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.690
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.190
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.830
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.86
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.47

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.627
 30-MINUTE FACTOR = 0.641
 1-HOUR FACTOR = 0.647
 3-HOUR FACTOR = 0.928
 6-HOUR FACTOR = 0.965
 24-HOUR FACTOR = 0.978

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 5.376

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.539	823.583
2	1.617	1645.495
3	2.702	1657.175
4	4.159	2226.013
5	5.781	2476.564
6	7.582	2750.461
7	9.807	3398.167
8	12.376	3924.243
9	15.387	4598.357
10	18.988	5499.701
11	22.713	5690.023
12	27.089	6683.514
13	30.707	5524.508
14	34.140	5242.952
15	37.256	4759.477
16	40.377	4766.323
17	43.415	4640.042
18	46.621	4897.463
19	49.666	4649.562
20	52.045	3634.458
21	54.083	3112.106
22	55.752	2549.605
23	57.516	2693.971
24	58.870	2066.777
25	60.174	1991.719
26	61.478	1991.643
27	62.728	1909.926
28	63.927	1830.498
29	65.010	1653.780
30	65.993	1502.441
31	66.995	1529.964
32	67.924	1418.556
33	68.803	1342.129
34	69.640	1278.287
35	70.444	1228.135
36	71.225	1192.736
37	71.955	1115.959
38	72.693	1125.957
39	73.382	1053.119
40	74.070	1050.007
41	74.747	1034.358
42	75.385	975.060
43	75.965	884.813
44	76.533	868.500
45	77.075	826.762
46	77.591	788.414
47	78.088	758.491
48	78.600	781.959
49	79.085	741.339
50	79.554	716.147
51	80.004	688.298
52	80.453	684.744
53	80.895	675.085
54	81.324	656.033
55	81.717	599.939
56	82.103	588.578
57	82.477	572.184
58	82.847	565.122
59	83.211	555.101
60	83.558	531.086
61	83.901	522.778
62	84.243	523.000

63	84.585	522.452
64	84.927	522.347
65	85.251	494.312
66	85.526	420.390
67	85.795	411.033
68	86.064	410.182
69	86.333	410.614
70	86.602	411.045
71	86.870	410.182
72	87.129	394.708
73	87.356	347.668
74	87.580	341.376
75	87.803	341.271
76	88.027	341.271
77	88.246	334.280
78	88.452	315.252
79	88.659	315.228
80	88.863	312.047
81	89.053	290.677
82	89.240	284.664
83	89.421	277.358
84	89.600	273.408
85	89.779	273.443
86	89.958	272.581
87	90.137	273.350
88	90.316	273.362
89	90.494	272.802
90	90.667	264.389
91	90.831	249.754
92	90.994	249.242
93	91.158	249.929
94	91.322	250.011
95	91.483	247.412
96	91.638	236.587
97	91.791	233.663
98	91.945	234.490
99	92.098	233.395
100	92.251	233.989
101	92.392	215.986
102	92.531	211.442
103	92.669	210.766
104	92.807	211.512
105	92.945	210.696
106	93.084	211.535
107	93.222	210.743
108	93.360	211.523
109	93.498	210.684
110	93.636	210.766
111	93.775	211.383
112	93.912	209.298
113	94.036	189.302
114	94.154	180.621
115	94.262	165.299
116	94.369	163.446
117	94.476	162.689
118	94.581	161.512
119	94.688	163.446
120	94.794	161.500
121	94.901	162.689
122	95.007	163.038
123	95.113	161.920
124	95.220	163.458
125	95.326	161.500
126	95.433	162.479
127	95.530	149.452
128	95.615	128.792
129	95.699	128.233
130	95.783	128.023

131	95.867	128.781
132	95.951	128.035
133	96.035	128.571
134	96.119	129.002
135	96.203	128.233
136	96.287	128.571
137	96.371	128.233
138	96.456	128.583
139	96.540	128.233
140	96.623	128.023
141	96.708	128.583
142	96.792	128.571
143	96.875	127.802
144	96.960	128.583
145	97.043	127.814
146	97.115	109.438
147	97.179	97.180
148	97.243	97.960
149	97.307	97.599
150	97.367	92.123

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 1237.1260
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 268.3796

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

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TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	150.0	300.0	450.0	600.0
14.000	70.1379	137.06	.	QV	.	.	.
14.083	71.1016	139.93	.	QV	.	.	.
14.167	72.0904	143.57	.	QV	.	.	.
14.250	73.1045	147.25	.	QV	.	.	.
14.333	74.1477	151.47	.	QV	.	.	.
14.417	75.2215	155.91	.	QV	.	.	.
14.500	76.3278	160.63	.	QV	.	.	.
14.583	77.4707	165.96	.	.Q	.	.	.
14.667	78.6538	171.78	.	.Q	.	.	.
14.750	79.8811	178.21	.	.Q	.	.	.
14.833	81.1584	185.46	.	.Q	.	.	.
14.917	82.4868	192.90	.	.Q	.	.	.
15.000	83.8728	201.24	.	.VQ	.	.	.
15.083	85.3097	208.64	.	.VQ	.	.	.
15.167	86.7965	215.88	.	.V Q	.	.	.
15.250	88.3308	222.78	.	.VQ	.	.	.
15.333	89.9135	229.80	.	.V Q	.	.	.
15.417	91.5369	235.73	.	.V Q	.	.	.
15.500	93.1964	240.95	.	.V Q	.	.	.
15.583	94.8918	246.18	.	.V Q	.	.	.
15.667	96.6145	250.14	.	.V Q	.	.	.
15.750	98.3633	253.91	.	.V Q	.	.	.
15.833	100.1379	257.68	.	.V Q	.	.	.
15.917	101.9420	261.96	.	.V Q	.	.	.
16.000	103.7835	267.38	.	.V Q	.	.	.
16.083	105.8168	295.23	.	.V .Q	.	.	.
16.167	108.0296	321.30	.	.V .Q	.	.	.
16.250	110.2652	324.61	.	.V .Q	.	.	.
16.333	112.6163	341.38	.	.V .Q	.	.	.
16.417	115.0411	352.09	.	.V .Q	.	.	.
16.500	117.5578	365.42	.	.V .Q	.	.	.
16.583	120.2413	389.64	.	.V .Q	.	.	.
16.667	123.0744	411.37	.	.V .Q	.	.	.
16.750	126.0789	436.25	.	.V .Q	.	.	.
16.833	129.2842	465.41	.	.V .Q	.	.	.
16.917	132.5450	473.47	.	.V .Q	.	.	.
17.000	135.9949	500.92	.	.V .Q	.	.	.
17.083	139.2183	468.04	.	.V .Q	.	.	.
17.167	142.3828	459.47	.	.V .Q	.	.	.
17.250	145.4539	445.93	.	.V .Q	.	.	.
17.333	148.5359	447.51	.	.V .Q	.	.	.
17.417	151.5915	443.67	.	.V .Q	.	.	.
17.500	154.6746	447.67	.	.V .Q	.	.	.
17.583	157.6674	434.55	.	.V .Q	.	.	.
17.667	160.4171	399.25	.	.V .Q	.	.	.
17.750	163.0178	377.62	.	.V .Q	.	.	.
17.833	165.4700	356.06	.	.QV	.	.	.
17.917	167.9053	353.61	.	.Q V	.	.	.
18.000	170.1709	328.97	.	.Q V	.	.	.
18.083	172.3766	320.27	.	.Q V	.	.	.
18.167	174.5354	313.46	.	.Q V	.	.	.
18.250	176.6368	305.12	.	.Q V	.	.	.
18.333	178.6740	295.80	.	.Q V	.	.	.
18.417	180.6300	284.01	.	.Q V	.	.	.
18.500	182.5099	272.95	.	.Q V	.	.	.
18.583	184.3482	266.93	.	.Q V	.	.	.

18.667	186.1242	257.88	.	.	.Q	.	.V	.
18.750	187.8457	249.96	.	.	.Q	.	.V	.
18.833	189.5177	242.77	.	.	.Q	.	.V	.
18.917	191.1435	236.07	.	.	.Q	.	.V	.
19.000	192.7282	230.10	.	.	.Q	.	.V	.
19.083	194.2669	223.42	.	.	.Q	.	.V	.
19.167	195.7767	219.23	.	.	.Q	.	.V	.
19.250	197.2439	213.03	.	.	.Q	.	.V	.
19.333	198.6818	208.78	.	.	.Q	.	.V	.
19.417	200.0885	204.25	.	.	.Q	.	.V	.
19.500	201.4561	198.58	.	.	.Q	.	.V	.
19.583	202.7794	192.15	.	.	.Q	.	.V	.
19.667	204.0755	188.19	.	.	.Q	.	.V	.
19.750	205.3414	183.82	.	.	.Q	.	.V	.
19.833	206.5797	179.80	.	.	.Q	.	.V	.
19.917	207.7928	176.13	.	.	.Q	.	.V	.
20.000	208.9917	174.09	.	.	.Q	.	.V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: ME56002E.FLD
TIME/DATE OF STUDY: 08:50 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1056.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
=====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 13021.500 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 1.640 HOURS
VALLEY(DEVELOPED):
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.120
MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.670
VALLEY(UNDEVELOPED)/DESERT:
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.210
DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.590
LOW LOSS FRACTION = 0.830
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.86
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.47

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.620
30-MINUTE FACTOR = 0.636
1-HOUR FACTOR = 0.642
3-HOUR FACTOR = 0.926
6-HOUR FACTOR = 0.964
24-HOUR FACTOR = 0.977

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 5.081

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.507	798.152
2	1.520	1595.525
3	2.528	1587.739
4	3.830	2050.160
5	5.343	2382.799
6	6.945	2521.894
7	8.923	3115.224
8	11.241	3650.655
9	13.843	4097.734
10	16.971	4925.706
11	20.338	5302.043
12	24.248	6158.287
13	28.161	6161.537
14	31.386	5078.672
15	34.689	5201.772
16	37.560	4520.462
17	40.579	4755.283
18	43.461	4537.715
19	46.539	4847.002
20	49.472	4619.649
21	51.798	3663.281
22	53.779	3119.010
23	55.442	2618.448
24	57.121	2644.154
25	58.522	2206.771
26	59.767	1961.198
27	61.002	1943.776
28	62.263	1986.218
29	63.356	1721.114
30	64.545	1872.307
31	65.471	1459.387
32	66.417	1489.339
33	67.373	1505.439
34	68.230	1348.731
35	69.066	1316.820
36	69.851	1237.235
37	70.613	1198.656
38	71.353	1166.517
39	72.047	1092.182
40	72.747	1102.262
41	73.406	1037.251
42	74.055	1022.869
43	74.702	1019.289
44	75.323	976.733
45	75.884	884.340
46	76.432	862.173
47	76.954	823.186
48	77.460	796.068
49	77.933	745.078
50	78.410	751.578
51	78.889	754.510
52	79.345	718.189
53	79.784	690.039
54	80.209	670.203
55	80.632	666.106
56	81.049	656.590
57	81.456	641.319
58	81.830	588.551
59	82.195	574.025
60	82.551	561.878
61	82.899	547.869
62	83.245	544.974

63	83.579	525.390
64	83.902	508.930
65	84.225	507.944
66	84.547	508.245
67	84.870	507.884
68	85.191	505.902
69	85.483	459.621
70	85.738	401.278
71	85.991	399.440
72	86.245	398.695
73	86.498	398.683
74	86.751	399.164
75	87.005	399.164
76	87.251	388.471
77	87.469	342.683
78	87.680	331.473
79	87.890	331.581
80	88.101	331.689
81	88.310	329.947
82	88.508	311.384
83	88.702	305.713
84	88.896	305.761
85	89.085	297.171
86	89.261	277.996
87	89.437	276.145
88	89.607	267.242
89	89.775	264.527
90	89.943	264.599
91	90.111	264.551
92	90.279	265.092
93	90.447	264.311
94	90.615	264.335
95	90.779	259.060
96	90.934	243.249
97	91.087	242.432
98	91.242	242.853
99	91.396	242.300
100	91.550	243.237
101	91.698	232.977
102	91.841	225.804
103	91.985	225.515
104	92.128	225.924
105	92.271	225.792
106	92.413	222.428
107	92.544	206.436
108	92.673	203.913
109	92.802	203.601
110	92.932	204.165
111	93.061	203.613
112	93.191	204.057
113	93.320	203.601
114	93.450	204.021
115	93.579	204.153
116	93.709	203.372
117	93.838	203.493
118	93.968	204.670
119	94.091	193.785
120	94.203	176.568
121	94.311	170.332
122	94.410	155.542
123	94.508	155.037
124	94.608	156.395
125	94.706	154.785
126	94.805	155.842
127	94.903	154.773
128	95.002	155.854
129	95.100	154.761
130	95.199	155.842

131	95.298	154.785
132	95.397	155.842
133	95.495	155.326
134	95.591	150.424
135	95.671	125.577
136	95.749	123.955
137	95.827	122.598
138	95.905	123.138
139	95.984	123.391
140	96.062	123.150
141	96.140	123.138
142	96.218	123.415
143	96.296	122.574
144	96.374	122.898
145	96.453	124.460
146	96.531	122.081
147	96.609	123.655
148	96.687	122.874
149	96.766	123.403
150	96.843	122.081

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 1274.8693
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 275.2398

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	71.1596	139.08	.	VQ	.	.	.
14.083	72.1375	141.99	.	VQ	.	.	.
14.167	73.1401	145.59	.	VQ	.	.	.
14.250	74.1679	149.23	.	VQ	.	.	.
14.333	75.2240	153.34	.	V Q	.	.	.
14.417	76.3103	157.74	.	.VQ	.	.	.
14.500	77.4284	162.35	.	.VQ	.	.	.
14.583	78.5816	167.44	.	.V Q	.	.	.
14.667	79.7735	173.06	.	.V Q	.	.	.
14.750	81.0071	179.12	.	.V Q	.	.	.
14.833	82.2875	185.92	.	.V Q	.	.	.
14.917	83.6173	193.09	.	.V Q	.	.	.
15.000	85.0018	201.03	.	.V Q	.	.	.
15.083	86.4414	209.03	.	.V Q	.	.	.
15.167	87.9300	216.15	.	.V Q	.	.	.
15.250	89.4690	223.46	.	.V Q	.	.	.
15.333	91.0550	230.28	.	.V Q	.	.	.
15.417	92.6826	236.34	.	.V Q	.	.	.
15.500	94.3446	241.31	.	.V Q	.	.	.
15.583	96.0444	246.82	.	.V Q	.	.	.
15.667	97.7787	251.82	.	.V Q	.	.	.
15.750	99.5426	256.12	.	.V Q	.	.	.
15.833	101.3369	260.53	.	.V Q	.	.	.
15.917	103.1616	264.94	.	.V .Q	.	.	.
16.000	105.0270	270.86	.	.V .Q	.	.	.
16.083	107.0825	298.46	.	.V .Q	.	.	.
16.167	109.3142	324.05	.	.V .Q	.	.	.
16.250	111.5651	326.82	.	.V .Q	.	.	.
16.333	113.9135	341.00	.	.V .Q	.	.	.
16.417	116.3410	352.47	.	.V .Q	.	.	.
16.500	118.8337	361.94	.	.V .Q	.	.	.
16.583	121.4748	383.48	.	.V .Q	.	.	.
16.667	124.2641	405.01	.	.V .Q	.	.	.
16.750	127.1831	423.83	.	.V .Q	.	.	.
16.833	130.2952	451.89	.	.V .Q	.	.	.
16.917	133.5075	466.42	.	.V .Q	.	.	.
17.000	136.8895	491.07	.	.V .Q	.	.	.
17.083	140.2646	490.07	.	.V .Q	.	.	.
17.167	143.4265	459.10	.	.V .Q	.	.	.
17.250	146.6063	461.71	.	.V .Q	.	.	.
17.333	149.6624	443.75	.	.V .Q	.	.	.
17.417	152.7675	450.86	.	.V .Q	.	.	.
17.500	155.8273	444.29	.	.V .Q	.	.	.
17.583	158.9252	449.80	.	.V .Q	.	.	.
17.667	161.9352	437.06	.	.V .Q	.	.	.
17.750	164.7154	403.68	.	.V .Q	.	.	.
17.833	167.3389	380.94	.	.V .Q	.	.	.
17.917	169.8271	361.28	.	.V .Q	.	.	.
18.000	172.2749	355.42	.	.V .Q	.	.	.
18.083	174.5885	335.93	.	.VQ	.	.	.
18.167	176.8117	322.81	.	.Q	.	.	.
18.250	178.9856	315.65	.	.QV	.	.	.
18.333	181.1265	310.85	.	.Q V	.	.	.
18.417	183.1715	296.94	.	.Q V	.	.	.
18.500	185.1959	293.93	.	.Q V	.	.	.
18.583	187.0941	275.62	.	.Q V	.	.	.

18.667	188.9519	269.76	.	.	.Q	V	.
18.750	190.7705	264.06	.	.	.Q	V	.
18.833	192.5213	254.21	.	.	.Q	V	.
18.917	194.2270	247.67	.	.	.Q	V	.
19.000	195.8794	239.93	.	.	.Q	V	.
19.083	197.4906	233.94	.	.	.Q	V	.
19.167	199.0645	228.53	.	.	.Q	V	.
19.250	200.5941	222.10	.	.	.Q	V	.
19.333	202.0960	218.08	.	.	.Q	V	.
19.417	203.5582	212.31	.	.	.Q	V	.
19.500	204.9897	207.86	.	.	.Q	V	.
19.583	206.3937	203.85	.	.	.Q	V	.
19.667	207.7630	198.84	.	.	.Q	V	.
19.750	209.0898	192.65	.	.	.Q	V	.
19.833	210.3896	188.72	.	.	.Q	V	.
19.917	211.6608	184.58	.	.	.Q	V	.
20.000	212.9064	180.87	.	.	.Q	V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Analysis prepared by:

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430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: ME57002E.FLD
TIME/DATE OF STUDY: 08:51 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1057.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<<
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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 18580.600 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 1.730 HOURS
VALLEY(DEVELOPED):
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.120
MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.650
VALLEY(UNDEVELOPED)/DESERT:
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.230
DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.590
LOW LOSS FRACTION = 0.820
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.64
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.88
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.50

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.543
30-MINUTE FACTOR = 0.568
1-HOUR FACTOR = 0.581
3-HOUR FACTOR = 0.897
6-HOUR FACTOR = 0.953
24-HOUR FACTOR = 0.971

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 4.817

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.478	1073.634
2	1.433	2146.930
3	2.383	2133.661
4	3.538	2596.970
5	4.957	3187.222
6	6.430	3309.285
7	8.199	3976.993
8	10.237	4578.428
9	12.554	5205.796
10	15.245	6048.084
11	18.456	7214.502
12	21.627	7125.448
13	25.567	8853.532
14	28.997	7707.755
15	32.020	6794.463
16	35.145	7020.626
17	37.845	6067.234
18	40.754	6536.387
19	43.494	6157.711
20	46.459	6663.817
21	49.291	6362.324
22	51.569	5119.131
23	53.497	4332.412
24	55.169	3756.667
25	56.720	3485.741
26	58.212	3352.447
27	59.404	2677.910
28	60.588	2661.495
29	61.784	2686.928
30	62.933	2583.156
31	63.986	2364.836
32	65.055	2404.078
33	65.915	1930.906
34	66.813	2017.328
35	67.730	2062.314
36	68.521	1776.747
37	69.320	1795.023
38	70.059	1661.420
39	70.782	1623.720
40	71.486	1583.038
41	72.147	1483.774
42	72.812	1495.364
43	73.444	1421.010
44	74.060	1384.391
45	74.678	1388.625
46	75.274	1337.331
47	75.830	1249.622
48	76.350	1169.011
49	76.863	1153.839
50	77.347	1086.978
51	77.816	1054.233
52	78.258	992.292
53	78.721	1039.626
54	79.166	1000.264
55	79.596	967.570
56	80.008	924.333
57	80.411	905.938
58	80.811	900.109
59	81.205	885.725
60	81.592	868.324
61	81.949	802.834
62	82.295	776.432

63	82.636	766.369
64	82.965	738.818
65	83.293	737.738
66	83.614	720.560
67	83.921	691.552
68	84.226	685.501
69	84.532	686.049
70	84.837	685.604
71	85.142	685.621
72	85.442	674.786
73	85.704	589.152
74	85.944	539.451
75	86.184	537.857
76	86.423	537.668
77	86.662	538.063
78	86.902	538.577
79	87.141	537.171
80	87.377	530.279
81	87.587	470.447
82	87.785	446.977
83	87.984	446.788
84	88.183	446.788
85	88.382	446.754
86	88.575	433.125
87	88.758	411.900
88	88.941	410.992
89	89.124	411.678
90	89.297	387.779
91	89.464	375.658
92	89.629	371.098
93	89.787	356.028
94	89.946	356.097
95	90.104	355.788
96	90.263	355.891
97	90.421	355.891
98	90.579	356.097
99	90.738	355.514
100	90.894	350.937
101	91.041	330.450
102	91.186	326.044
103	91.332	327.089
104	91.477	327.689
105	91.622	325.083
106	91.767	324.861
107	91.902	303.105
108	92.037	303.722
109	92.170	300.362
110	92.305	302.111
111	92.440	303.174
112	92.570	292.819
113	92.693	275.280
114	92.814	272.383
115	92.936	273.669
116	93.057	273.343
117	93.179	273.686
118	93.300	272.126
119	93.422	274.526
120	93.544	272.726
121	93.665	272.897
122	93.786	272.709
123	93.908	273.326
124	94.030	274.337
125	94.151	270.754
126	94.259	243.855
127	94.364	235.969
128	94.461	217.042
129	94.553	206.636
130	94.644	205.384

131	94.736	206.996
132	94.828	205.384
133	94.919	205.796
134	95.011	205.402
135	95.103	206.979
136	95.194	205.796
137	95.286	205.796
138	95.378	206.585
139	95.469	205.796
140	95.561	205.384
141	95.652	205.796
142	95.731	176.205
143	95.803	161.547
144	95.876	165.113
145	95.949	163.588
146	96.021	162.747
147	96.095	164.359
148	96.167	163.930
149	96.241	164.753
150	96.313	162.319

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 1835.3334
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 403.6920

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	175.0	350.0	525.0	700.0
14.000	108.1694	219.17	.	V Q	.	.	.
14.083	109.7113	223.88	.	V Q	.	.	.
14.167	111.2931	229.69	.	.V Q	.	.	.
14.250	112.9139	235.34	.	.V Q	.	.	.
14.333	114.5773	241.52	.	.V Q	.	.	.
14.417	116.2878	248.36	.	.V Q	.	.	.
14.500	118.0464	255.35	.	.V Q	.	.	.
14.583	119.8577	263.00	.	.V Q	.	.	.
14.667	121.7262	271.31	.	.V Q	.	.	.
14.750	123.6556	280.15	.	.V Q	.	.	.
14.833	125.6521	289.89	.	.V Q	.	.	.
14.917	127.7240	300.84	.	.V Q	.	.	.
15.000	129.8702	311.62	.	.V Q	.	.	.
15.083	132.1026	324.15	.	.V Q	.	.	.
15.167	134.4132	335.49	.	.V Q	.	.	.
15.250	136.7957	345.94	.	.V Q	.	.	.
15.333	139.2519	356.64	.	.V Q	.	.	.
15.417	141.7646	364.85	.	.V Q	.	.	.
15.500	144.3272	372.09	.	.V Q	.	.	.
15.583	146.9389	379.22	.	.V Q	.	.	.
15.667	149.6009	386.52	.	.V Q	.	.	.
15.750	152.3095	393.29	.	.V Q	.	.	.
15.833	155.0608	399.49	.	.V Q	.	.	.
15.917	157.8529	405.42	.	.V Q	.	.	.
16.000	160.6940	412.52	.	.V Q	.	.	.
16.083	163.7122	438.24	.	.V Q	.	.	.
16.167	166.8905	461.50	.	.V Q	.	.	.
16.250	170.0788	462.94	.	.V Q	.	.	.
16.333	173.3333	472.55	.	.V Q	.	.	.
16.417	176.6624	483.39	.	.V Q	.	.	.
16.500	180.0357	489.80	.	.V Q	.	.	.
16.583	183.5307	507.48	.	.V Q	.	.	.
16.667	187.1420	524.37	.	.V Q	.	.	.
16.750	190.8881	543.92	.	.V Q	.	.	.
16.833	194.7832	565.57	.	.V Q	.	.	.
16.917	198.8622	592.27	.	.V Q	.	.	.
17.000	202.9602	595.04	.	.V Q	.	.	.
17.083	207.2594	624.25	.	.V Q	.	.	.
17.167	211.4076	602.31	.	.V Q	.	.	.
17.250	215.4445	586.15	.	.V Q	.	.	.
17.333	219.5080	590.02	.	.V Q	.	.	.
17.417	223.4777	576.41	.	.V Q	.	.	.
17.500	227.5122	585.81	.	.V Q	.	.	.
17.583	231.5013	579.21	.	.V Q	.	.	.
17.667	235.5323	585.31	.	.V Q	.	.	.
17.750	239.4742	572.36	.	.V Q	.	.	.
17.833	243.2055	541.78	.	.V Q	.	.	.
17.917	246.7742	518.18	.	.V Q	.	.	.
18.000	250.2209	500.46	.	.V Q	.	.	.
18.083	253.5759	487.14	.	.V Q	.	.	.
18.167	256.8492	475.28	.	.V Q	.	.	.
18.250	259.9796	454.54	.	.V Q	.	.	.
18.333	263.0463	445.28	.	.V Q	.	.	.
18.417	266.0580	437.30	.	.V Q	.	.	.
18.500	268.9954	426.51	.	.V Q	.	.	.
18.583	271.8387	412.85	.	.V Q	.	.	.

18.667	274.6120	402.69	.	.	.	Q	V	.	.
18.750	277.2595	384.41	.	.	.	.	.Q	V	.
18.833	279.8552	376.90	.	.	.	.	.Q	V	.
18.917	282.3954	368.84	.	.	.	.	.Q	V	.
19.000	284.8462	355.86	.	.	.	.	Q	V	.
19.083	287.2378	347.26	.	.	.	.	Q	V	.
19.167	289.5584	336.96	.	.	.	.	Q	V	.
19.250	291.8285	329.61	.	.	.	.	Q	V	.
19.333	294.0460	321.99	.	.	.	.	Q	V	.
19.417	296.2076	313.86	.	.	.	.	Q	V	.
19.500	298.3259	307.58	.	.	.	.	Q	V	.
19.583	300.3936	300.22	.	.	.	.	Q	V	.
19.667	302.4145	293.44	.	.	.	.	Q	V	.
19.750	304.3959	287.71	.	.	.	.	Q	V	.
19.833	306.3335	281.33	.	.	.	.	Q	V	.
19.917	308.2241	274.52	.	.	.	.	Q	V	.
20.000	310.0729	268.45	.	.	.	.	Q	V	.

=====

END OF FLOODSCx ROUTING ANALYSIS

=====

PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

**TECHNICAL APPENDIX II-B
HYDROLOGIC ANALYSIS
EXISTING CONDITION
10-YEAR EXPECTED VALUE**

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: ME49010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU48010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1980.81 Tc(MIN.) = 49.77
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.61
TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1980.81 Tc(MIN.) = 49.77
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.61
TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 445.00 DOWNSTREAM(FEET) = 400.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2427.00 CHANNEL SLOPE = 0.0185
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1980.81
FLOW VELOCITY(FEET/SEC.) = 13.06 FLOW DEPTH(FEET) = 5.86
TRAVEL TIME(MIN.) = 3.10 Tc(MIN.) = 52.86
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 52.86
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.051
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	39.10	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	26.90	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	43.60	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	72.70	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	70.70	0.30	1.00	63
NATURAL FAIR COVER "GRASS"	B	65.10	0.30	1.00	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.36
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 318.10
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.35;6H= 1.89;24H= 3.19
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.88; LAG(HR) = 0.70; Fm(INCH/HR) = 0.25; Ybar = 0.63
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.79; 30M = 0.79; 1HR = 0.79;
 3HR = 0.97; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4725.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 527.86
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1948.03
 TOTAL AREA(ACRES) = 4725.10 PEAK FLOW RATE(CFS) = 1980.81
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 52.86
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.928
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	39.60	0.30	1.00	66
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	2.00	0.30	1.00	72
NATURAL FAIR COVER					
"WOODLAND"	B	81.70	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	709.70	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	2.20	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	92.30	0.25	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 927.50

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.35;6H= 1.88;24H= 3.17
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.88; LAG(HR) = 0.70; Fm(INCH/HR) = 0.25; Ybar = 0.64
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.77; 30M = 0.77; 1HR = 0.77;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 5652.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 607.79
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2231.00
 TOTAL AREA(ACRES) = 5652.60 PEAK FLOW RATE(CFS) = 2231.00

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 52.86
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.928
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	C	838.80	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	78.30	0.25	1.00	81
NATURAL FAIR COVER					
"WOODLAND"	C	84.40	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	141.90	0.20	1.00	81
NATURAL POOR COVER					
"BARREN"	D	1.00	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	481.50	0.20	1.00	84

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 1625.90
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.34;6H= 1.86;24H= 3.14
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 0.88; LAG(HR) = 0.70; Fm(INCH/HR) = 0.24; Ybar = 0.63
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.73; 30M = 0.73; 1HR = 0.73;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7278.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 782.01
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2710.06
 TOTAL AREA(ACRES) = 7278.50 PEAK FLOW RATE(CFS) = 2710.06

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 52.86
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.928
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	419.60	0.20	1.00	83
NATURAL GOOD COVER					
"MEADOWS"	D	0.40	0.20	1.00	78
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	21.60	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	70.10	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 511.70

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.34;6H= 1.86;24H= 3.13
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 0.88; LAG(HR) = 0.70; Fm(INCH/HR) = 0.24; Ybar = 0.63
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.71; 30M = 0.71; 1HR = 0.71;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98

UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 843.62
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2856.72
TOTAL AREA(ACRES) = 7790.20 PEAK FLOW RATE(CFS) = 2856.72

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 7790.20 TC(MIN.) = 52.86
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.63
PEAK FLOW RATE(CFS) = 2856.72

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: ME50010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.100
MOUNTAIN 0.700
VALLEY(UNDEVELOPED)/DESERT 0.200
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME49010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2856.72 Tc(MIN.) = 52.86
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.63
TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2856.72 Tc(MIN.) = 52.86
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.63
TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 400.00 DOWNSTREAM(FEET) = 390.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 616.00 CHANNEL SLOPE = 0.0162
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2856.72
FLOW VELOCITY(FEET/SEC.) = 13.84 FLOW DEPTH(FEET) = 7.50
TRAVEL TIME(MIN.) = 0.74 Tc(MIN.) = 53.61
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 53.61
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.043
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS" A 0.30 0.40 1.00 50
NATURAL FAIR COVER
"OPEN BRUSH" A 0.20 0.40 1.00 46
NATURAL FAIR COVER
"WOODLAND" A 1.10 0.40 1.00 36
NATURAL FAIR COVER
"GRASS" B 2.20 0.30 1.00 69
NATURAL FAIR COVER
"OPEN BRUSH" B 0.20 0.30 1.00 66
NATURAL FAIR COVER
"WOODLAND" B 0.40 0.30 1.00 60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.40
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.34;6H= 1.86;24H= 3.13
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.89; LAG(HR) = 0.71; Fm(INCH/HR) = 0.24; Ybar = 0.63
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.71; 30M = 0.71; 1HR = 0.71;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7794.60
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 843.65
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2850.23
TOTAL AREA(ACRES) = 7794.60 PEAK FLOW RATE(CFS) = 2856.72
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 53.61
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.919
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 88.30 0.25 1.00 75
RESIDENTIAL
"5-7 DWELLINGS/ACRE" C 0.90 0.25 0.50 69
NATURAL POOR COVER
"BARREN" C 1.10 0.25 1.00 91
NATURAL FAIR COVER
"GRASS" C 36.50 0.25 1.00 79
NATURAL FAIR COVER
"OPEN BRUSH" C 245.30 0.25 1.00 77
NATURAL FAIR COVER
"WOODLAND" C 38.00 0.25 1.00 73
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 410.10
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.34;6H= 1.86;24H= 3.12
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 1.0%
MOUNTAIN= 98.5%;FOOTHILL= 0.5%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.89; LAG(HR) = 0.71; Fm(INCH/HR) = 0.24; Ybar = 0.63
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8204.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 880.52
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2940.57
TOTAL AREA(ACRES) = 8204.70 PEAK FLOW RATE(CFS) = 2940.57

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 53.61
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.919
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 2.50 0.20 1.00 81
RESIDENTIAL
"5-7 DWELLINGS/ACRE" D 6.90 0.20 0.50 75
NATURAL POOR COVER
"BARREN" D 0.20 0.20 1.00 93
NATURAL FAIR COVER
"GRASS" D 62.60 0.20 1.00 84
NATURAL FAIR COVER
"OPEN BRUSH" D 9.20 0.20 1.00 83
NATURAL FAIR COVER
"WOODLAND" D 1.80 0.20 1.00 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.96
SUBAREA AREA(ACRES) = 83.20
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.86;24H= 3.12
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 1.2%
MOUNTAIN= 98.2%;FOOTHILL= 0.6%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.89; LAG(HR) = 0.71; Fm(INCH/HR) = 0.24; Ybar = 0.63
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8287.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 891.06
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2962.33
TOTAL AREA(ACRES) = 8287.90 PEAK FLOW RATE(CFS) = 2962.33

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03
=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 8287.90 TC(MIN.) = 53.61
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.63
PEAK FLOW RATE(CFS) = 2962.33
=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME51010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / OUT- / PARK- SIDE / SIDE / WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc

S-GRAPH TYPE	PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED)	0.000
FOOTHILL	0.500
MOUNTAIN	0.000
VALLEY(UNDEVELOPED)/DESERT	0.500
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: ME50010E.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 2962.33 Tc(MIN.) = 53.61

AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.63

TOTAL AREA(ACRES) = 8287.90

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 2962.33 Tc(MIN.) = 53.61

AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.63

TOTAL AREA(ACRES) = 8287.90

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 390.00 DOWNSTREAM(FEET) = 330.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 4501.00 CHANNEL SLOPE = 0.0133

CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000

MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00

CHANNEL FLOW THRU SUBAREA(CFS) = 2962.33

FLOW VELOCITY(FEET/SEC.) = 13.04 FLOW DEPTH(FEET) = 8.09

TRAVEL TIME(MIN.) = 5.75 Tc(MIN.) = 59.36

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 59.36

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.983

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	A	0.70	0.40	0.50	32
NATURAL FAIR COVER					
"GRASS"	A	1.80	0.40	1.00	50
NATURAL FAIR COVER					
"WOODLAND"	A	6.50	0.40	1.00	36
NATURAL FAIR COVER					
"GRASS"	B	3.20	0.30	1.00	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.20	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	10.90	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99

SUBAREA AREA(ACRES) = 25.30

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.86;24H= 3.12
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 1.3%
 MOUNTAIN= 97.9%;FOOTHILL= 0.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.99; LAG(HR) = 0.79; Fm(INCH/HR) = 0.24; Ybar = 0.63
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8313.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 891.88
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2771.05
 TOTAL AREA(ACRES) = 8313.20 PEAK FLOW RATE(CFS) = 2962.33
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 59.36
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.848
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	9.10	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	1.30	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	5.80	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	29.60	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	8.80	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	40.70	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 95.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.86;24H= 3.12
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 1.9%
 MOUNTAIN= 96.8%;FOOTHILL= 1.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.99; LAG(HR) = 0.79; Fm(INCH/HR) = 0.24; Ybar = 0.63
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8408.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 901.65
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2790.62
 TOTAL AREA(ACRES) = 8408.50 PEAK FLOW RATE(CFS) = 2962.33
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====
 MAINLINE Tc(MIN) = 59.36
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.848
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	23.10	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	7.10	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	178.60	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	93.40	0.20	1.00	83
NATURAL FAIR COVER					
"WOODLAND"	D	31.40	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.97
 SUBAREA AREA(ACRES) = 333.60
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.12
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 3.7%
 MOUNTAIN= 93.1%;FOOTHILL= 3.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.99; LAG(HR) = 0.79; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8742.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 944.56
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2870.15
 TOTAL AREA(ACRES) = 8742.10 PEAK FLOW RATE(CFS) = 2962.33
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 8742.10 TC(MIN.) = 59.36
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.62
 PEAK FLOW RATE(CFS) = 2962.33
 =====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME52010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	3.610
2)	10.000;	2.370
3)	15.000;	1.890
4)	20.000;	1.540
5)	30.000;	1.210
6)	60.000;	0.840
7)	120.000;	0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.300
MOUNTAIN 0.100
VALLEY(UNDEVELOPED)/DESERT 0.600
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME51010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2962.33 Tc(MIN.) = 59.36
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 8742.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2962.33 Tc(MIN.) = 59.36
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 8742.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 330.00 DOWNSTREAM(FEET) = 300.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2333.00 CHANNEL SLOPE = 0.0129
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2962.33
FLOW VELOCITY(FEET/SEC.) = 12.87 FLOW DEPTH(FEET) = 8.17
TRAVEL TIME(MIN.) = 3.02 Tc(MIN.) = 62.38
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 62.38
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.956
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" A 7.20 0.40 1.00 78
NATURAL FAIR COVER
"GRASS" A 1.40 0.40 1.00 50
NATURAL FAIR COVER
"OPEN BRUSH" A 4.70 0.40 1.00 46
PUBLIC PARK A 1.10 0.40 0.85 32
NATURAL FAIR COVER
"WOODLAND" A 12.10 0.40 1.00 36
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 14.10 0.25 1.00 75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.35
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 40.60
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.12

S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 4.0%
MOUNTAIN= 92.7%;FOOTHILL= 3.3%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 1.04; LAG(HR) = 0.83; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8782.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 946.60
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2784.06
TOTAL AREA(ACRES) = 8782.70 PEAK FLOW RATE(CFS) = 2962.33
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 62.38
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.830
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" C 4.30 0.25 1.00 91
NATURAL FAIR COVER
"GRASS" C 14.50 0.25 1.00 79
NATURAL FAIR COVER
"OPEN BRUSH" C 12.10 0.25 1.00 77
NATURAL FAIR COVER
"WOODLAND" C 0.20 0.25 1.00 73
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 14.60 0.20 1.00 81
NATURAL POOR COVER
"BARREN" D 36.10 0.20 1.00 93

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 81.80
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.12

S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 4.5%
MOUNTAIN= 91.9%;FOOTHILL= 3.5%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 1.04; LAG(HR) = 0.83; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8864.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 958.07
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2805.38
TOTAL AREA(ACRES) = 8864.50 PEAK FLOW RATE(CFS) = 2962.33
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 62.38
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.830
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS" D 104.40 0.20 1.00 84
NATURAL FAIR COVER
"OPEN BRUSH" D 28.80 0.20 1.00 83
PUBLIC PARK D 1.10 0.20 0.85 75
NATURAL FAIR COVER
"WOODLAND" D 34.10 0.20 1.00 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 168.40

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.12

S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 5.5%
MOUNTAIN= 90.4%;FOOTHILL= 4.0%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 1.04; LAG(HR) = 0.83; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9032.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 978.77
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2848.45
TOTAL AREA(ACRES) = 9032.90 PEAK FLOW RATE(CFS) = 2962.33
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====
END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 9032.90 TC(MIN.) = 62.38
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.62
PEAK FLOW RATE(CFS) = 2962.33
=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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FILE NAME: ME53010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.300
MOUNTAIN 0.100
VALLEY(UNDEVELOPED)/DESERT 0.600
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME52010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2962.33 Tc(MIN.) = 62.38
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 9032.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2962.33 Tc(MIN.) = 62.38
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 9032.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 300.00 DOWNSTREAM(FEET) = 265.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 3322.00 CHANNEL SLOPE = 0.0105
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2962.33
FLOW VELOCITY(FEET/SEC.) = 11.98 FLOW DEPTH(FEET) = 8.63
TRAVEL TIME(MIN.) = 4.62 Tc(MIN.) = 67.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 67.00
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.918
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A 1.60 0.40 1.00 40
NATURAL POOR COVER
"BARREN" A 0.90 0.40 1.00 78
NATURAL FAIR COVER
"GRASS" A 13.10 0.40 1.00 50
NATURAL FAIR COVER
"OPEN BRUSH" A 3.20 0.40 1.00 46
NATURAL FAIR COVER
"WOODLAND" A 16.90 0.40 1.00 36
NATURAL FAIR COVER
"GRASS" B 21.80 0.30 1.00 69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.36
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 57.50
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.12
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 5.9%
MOUNTAIN= 89.9%;FOOTHILL= 4.2%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 1.12; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9090.40
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 979.29
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2779.85
TOTAL AREA(ACRES) = 9090.40 PEAK FLOW RATE(CFS) = 2962.33
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 67.00
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.811
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" B 4.20 0.30 1.00 66
NATURAL FAIR COVER
"WOODLAND" B 4.40 0.30 1.00 60
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 66.60 0.25 1.00 75
RESIDENTIAL
"5-7 DWELLINGS/ACRE" C 16.90 0.25 0.50 69
NATURAL POOR COVER
"BARREN" C 8.70 0.25 1.00 91
NATURAL FAIR COVER
"GRASS" C 24.90 0.25 1.00 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.93
SUBAREA AREA(ACRES) = 125.70
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.11
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 6.6%
MOUNTAIN= 88.8%;FOOTHILL= 4.5%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 1.12; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9216.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 991.85
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2805.44
TOTAL AREA(ACRES) = 9216.10 PEAK FLOW RATE(CFS) = 2962.33
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 67.00
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.811
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" C 63.50 0.25 1.00 77
NATURAL FAIR COVER
"WOODLAND" C 47.00 0.25 1.00 73
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 12.50 0.20 1.00 81
RESIDENTIAL
"5-7 DWELLINGS/ACRE" D 12.90 0.20 0.50 75
NATURAL POOR COVER
"BARREN" D 4.90 0.20 1.00 93
NATURAL FAIR COVER
"GRASS" D 325.90 0.20 1.00 84
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
SUBAREA AREA(ACRES) = 466.70
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.11
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 9.2%
MOUNTAIN= 85.0%;FOOTHILL= 5.8%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 1.12; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.68; 1HR = 0.68;
3HR = 0.94; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9682.80
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1047.45
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2910.27
TOTAL AREA(ACRES) = 9682.80 PEAK FLOW RATE(CFS) = 2962.33
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 67.00
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.811
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" D 125.00 0.20 1.00 83
NATURAL FAIR COVER
"WOODLAND" D 73.50 0.20 1.00 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 198.50
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.11
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 10.2%
MOUNTAIN= 83.5%;FOOTHILL= 6.3%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 1.12; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.67; 30M = 0.68; 1HR = 0.68;
3HR = 0.94; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9881.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1070.49
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2954.55
TOTAL AREA(ACRES) = 9881.30 PEAK FLOW RATE(CFS) = 2962.33
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====
END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 9881.30 TC(MIN.) = 67.00
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.62
PEAK FLOW RATE(CFS) = 2962.33
=====

=====
END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: ME54010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.300
MOUNTAIN 0.200
VALLEY(UNDEVELOPED)/DESERT 0.500
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME53010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2962.33 Tc(MIN.) = 67.00
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 9881.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2962.33 Tc(MIN.) = 67.00
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 9881.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 265.00 DOWNSTREAM(FEET) = 245.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1390.00 CHANNEL SLOPE = 0.0144
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2962.33
FLOW VELOCITY(FEET/SEC.) = 13.40 FLOW DEPTH(FEET) = 7.92
TRAVEL TIME(MIN.) = 1.73 Tc(MIN.) = 68.73
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 68.73
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.904
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	A	12.00	0.40	1.00	78
NATURAL FAIR COVER "GRASS"	A	5.00	0.40	1.00	50
NATURAL FAIR COVER "WOODLAND"	A	1.30	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	21.70	0.30	1.00	63
NATURAL POOR COVER "BARREN"	B	12.50	0.30	1.00	86
NATURAL FAIR COVER "GRASS"	B	143.50	0.30	1.00	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.31
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 196.00
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.11
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 11.0%
 MOUNTAIN= 82.3%;FOOTHILL= 6.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.15; LAG(HR) = 0.92; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.67; 30M = 0.68; 1HR = 0.68;
 3HR = 0.94; 6HR = 0.97; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 10077.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1081.81
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2914.57
 TOTAL AREA(ACRES) = 10077.30 PEAK FLOW RATE(CFS) = 2962.33
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

 MAINLINE Tc(MIN) = 68.73
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.804
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	25.80	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	97.00	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	265.40	0.25	1.00	75
NATURAL FAIR COVER					
"WOODLAND"	C	166.10	0.25	1.00	73
NATURAL POOR COVER					
"BARREN"	C	12.30	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	255.00	0.25	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 821.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.10
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 13.9%
 MOUNTAIN= 77.6%;FOOTHILL= 8.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.15; LAG(HR) = 0.92; Fm(INCH/HR) = 0.24; Ybar = 0.63
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.66; 30M = 0.66; 1HR = 0.67;
 3HR = 0.94; 6HR = 0.97; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 10898.90
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1149.60
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3052.71
 TOTAL AREA(ACRES) = 10898.90 PEAK FLOW RATE(CFS) = 3052.71

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 68.73
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.804
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	C	361.10	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	0.90	0.25	1.00	81
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	53.40	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	0.70	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	30.70	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	594.10	0.20	1.00	84

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 1040.90

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.10
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 17.1%
 MOUNTAIN= 72.6%;FOOTHILL= 10.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.15; LAG(HR) = 0.92; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.64; 30M = 0.65; 1HR = 0.66;
 3HR = 0.93; 6HR = 0.97; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 11939.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1268.60
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3257.37
 TOTAL AREA(ACRES) = 11939.80 PEAK FLOW RATE(CFS) = 3257.37

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

 MAINLINE Tc(MIN) = 68.73
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.804
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	275.50	0.20	1.00	83
PUBLIC PARK	D	0.70	0.20	0.85	75
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	87.40	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 364.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 18.1%
 MOUNTAIN= 71.0%;FOOTHILL= 10.9%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.15; LAG(HR) = 0.92; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12304.10

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1310.64
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3328.95
TOTAL AREA(ACRES) = 12304.10 PEAK FLOW RATE(CFS) = 3328.95

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====
END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 12304.10 TC(MIN.) = 68.73
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.62
PEAK FLOW RATE(CFS) = 3328.95

=====
END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: ME55010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	3.610
2)	10.000;	2.370
3)	15.000;	1.890
4)	20.000;	1.540
5)	30.000;	1.210
6)	60.000;	0.840
7)	120.000;	0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)

VALLEY(DEVELOPED)	0.000
FOOTHILL	0.400
MOUNTAIN	0.000
VALLEY(UNDEVELOPED)/DESERT	0.600
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME:	ME54010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:	
PEAK FLOW RATE(CFS) =	3328.95 Tc(MIN.) = 68.73
AREA-AVERAGED Fm(INCH/HR) =	0.24 Ybar = 0.62
TOTAL AREA(ACRES) =	12304.10
LONGEST FLOWPATH FROM NODE	1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3328.95 Tc(MIN.) = 68.73
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 12304.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 245.00 DOWNSTREAM(FEET) = 215.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2724.00 CHANNEL SLOPE = 0.0110
CHANNEL BASE(FEET) = 25.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3328.95
FLOW VELOCITY(FEET/SEC.) = 12.33 FLOW DEPTH(FEET) = 8.15
TRAVEL TIME(MIN.) = 3.68 Tc(MIN.) = 72.41
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 72.41
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.878
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	A	7.20	0.40	1.00	50
NATURAL FAIR COVER					
"OPEN BRUSH"	A	1.80	0.40	1.00	46
NATURAL FAIR COVER					
"WOODLAND"	A	5.50	0.40	1.00	36
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	5.80	0.30	1.00	63
NATURAL POOR COVER					
"BARREN"	B	6.90	0.30	1.00	86
NATURAL FAIR COVER					
"GRASS"	B	22.60	0.30	1.00	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 49.80
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 18.2%
 MOUNTAIN= 70.7%;FOOTHILL= 11.1%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.21; LAG(HR) = 0.97; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12353.90
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.67 RUNOFF VOLUME(AF) = 1310.73
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3250.23
 TOTAL AREA(ACRES) = 12353.90 PEAK FLOW RATE(CFS) = 3328.95
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 72.41
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.788
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	7.90	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	9.50	0.30	1.00	60
NATURAL FAIR COVER					
"WOODLAND"	C	23.30	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	71.90	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	0.40	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	14.60	0.25	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 127.60
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 18.7%
 MOUNTAIN= 70.0%;FOOTHILL= 11.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.21; LAG(HR) = 0.97; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12481.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.67 RUNOFF VOLUME(AF) = 1320.61
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3268.87
 TOTAL AREA(ACRES) = 12481.50 PEAK FLOW RATE(CFS) = 3328.95
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 72.41
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.788
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	C	66.50	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	0.20	0.25	1.00	81
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	4.60	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	2.20	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	0.20	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	45.50	0.20	1.00	84

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 119.20
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 19.0%

MOUNTAIN= 69.3%;FOOTHILL= 11.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.21; LAG(HR) = 0.97; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12600.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.67 RUNOFF VOLUME(AF) = 1333.13
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3289.89
 TOTAL AREA(ACRES) = 12600.70 PEAK FLOW RATE(CFS) = 3328.95
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 72.41
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.788
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	16.90	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.20	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	10.90	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 28.00
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 19.1%

MOUNTAIN= 69.2%;FOOTHILL= 11.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.21; LAG(HR) = 0.97; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98

UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12628.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0245
TIME OF PEAK FLOW(HR) = 16.67 RUNOFF VOLUME(AF) = 1336.27
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3295.21
TOTAL AREA(ACRES) = 12628.70 PEAK FLOW RATE(CFS) = 3328.95
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 12628.70 TC(MIN.) = 72.41
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.62
PEAK FLOW RATE(CFS) = 3328.95

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME56010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.300
MOUNTAIN 0.000
VALLEY(UNDEVELOPED)/DESERT 0.700
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME55010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3328.95 Tc(MIN.) = 72.41
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 12628.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3328.95 Tc(MIN.) = 72.41
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 12628.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 215.00 DOWNSTREAM(FEET) = 185.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2880.00 CHANNEL SLOPE = 0.0104
CHANNEL BASE(FEET) = 25.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3328.95
FLOW VELOCITY(FEET/SEC.) = 12.09 FLOW DEPTH(FEET) = 8.28
TRAVEL TIME(MIN.) = 3.97 Tc(MIN.) = 76.38
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 76.38
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.851
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS" A 1.80 0.40 1.00 50
NATURAL FAIR COVER
"OPEN BRUSH" A 1.10 0.40 1.00 46
NATURAL FAIR COVER
"WOODLAND" A 9.30 0.40 1.00 36
NATURAL POOR COVER
"BARREN" B 1.80 0.30 1.00 86
NATURAL FAIR COVER
"GRASS" B 14.80 0.30 1.00 69
NATURAL FAIR COVER
"OPEN BRUSH" B 1.20 0.30 1.00 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 30.00
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 19.3%
 MOUNTAIN= 69.0%;FOOTHILL= 11.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.27; LAG(HR) = 1.02; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 12658.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0320; Lca/L=0.4,n=.0287; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0246
 TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1341.70
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3039.59
 TOTAL AREA(ACRES) = 12658.70 PEAK FLOW RATE(CFS) = 3328.95
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 76.38
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.772
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	B	5.10	0.30	1.00	60
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	8.60	0.25	0.50	69
NATURAL POOR COVER					
"BARREN"	C	2.40	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	1.30	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	0.20	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	4.70	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.81
 SUBAREA AREA(ACRES) = 22.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 19.3%
 MOUNTAIN= 68.9%;FOOTHILL= 11.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.27; LAG(HR) = 1.02; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 12681.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0320; Lca/L=0.4,n=.0287; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0246
 TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1344.14
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3044.07
 TOTAL AREA(ACRES) = 12681.00 PEAK FLOW RATE(CFS) = 3328.95
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====
 MAINLINE Tc(MIN) = 76.38
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.772
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	142.30	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	32.60	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	110.40	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	0.80	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	36.40	0.20	1.00	83
COMMERCIAL	D	2.70	0.20	0.10	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.77
 SUBAREA AREA(ACRES) = 325.20
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 20.6%
 MOUNTAIN= 67.2%;FOOTHILL= 12.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.27; LAG(HR) = 1.02; Fm(INCH/HR) = 0.24; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.64; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 13006.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0320; Lca/L=0.4,n=.0287; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0246
 TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1390.44
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3122.11
 TOTAL AREA(ACRES) = 13006.20 PEAK FLOW RATE(CFS) = 3328.95
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 76.38
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.772
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	14.60	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 15.30
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 20.7%
 MOUNTAIN= 67.1%;FOOTHILL= 12.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.27; LAG(HR) = 1.02; Fm(INCH/HR) = 0.24; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.64; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 13021.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:

Lca/L=0.3,n=.0320; Lca/L=0.4,n=.0287; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0246
TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1392.00
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3125.05
TOTAL AREA(ACRES) = 13021.50 PEAK FLOW RATE(CFS) = 3328.95
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 13021.50 TC(MIN.) = 76.38
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.61
PEAK FLOW RATE(CFS) = 3328.95

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: ME57010E.DAT
TIME/DATE OF STUDY: 09:50 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / SIDE	OUT- / SIDE/ WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020		0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.100
MOUNTAIN 0.600
VALLEY(UNDEVELOPED)/DESERT 0.300
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME56010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3328.95 Tc(MIN.) = 76.38
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.61
TOTAL AREA(ACRES) = 13021.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3328.95 Tc(MIN.) = 76.38
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.61
TOTAL AREA(ACRES) = 13021.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 185.00 DOWNSTREAM(FEET) = 165.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2367.00 CHANNEL SLOPE = 0.0084
CHANNEL BASE(FEET) = 30.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3328.95
FLOW VELOCITY(FEET/SEC.) = 10.98 FLOW DEPTH(FEET) = 7.98
TRAVEL TIME(MIN.) = 3.59 Tc(MIN.) = 79.98
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 79.98
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.829
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	A	38.90	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	2.00	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	40.30	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	74.70	0.40	1.00	36
NATURAL FAIR COVER "OPEN BRUSH"	B	25.40	0.30	1.00	66
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	18.50	0.30	1.00	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 199.80
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 20.8%
 MOUNTAIN= 67.0%;FOOTHILL= 12.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.33; LAG(HR) = 1.07; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.63; 1HR = 0.64;
 3HR = 0.92; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 13221.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1397.85
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3098.90
 TOTAL AREA(ACRES) = 13221.30 PEAK FLOW RATE(CFS) = 3328.95
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.28; 30M = 0.60; 1HR = 0.80; 3HR = 1.39; 6HR = 1.96; 24HR = 3.33

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 79.98
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.757
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	18.90	0.30	1.00	69
NATURAL FAIR COVER					
"WOODLAND"	B	105.00	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	554.00	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	12.80	0.25	0.50	69
NATURAL FAIR COVER					
"GRASS"	C	54.60	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	369.00	0.25	1.00	77

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 1114.30
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.11
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 21.5%
 MOUNTAIN= 66.4%;FOOTHILL= 12.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.33; LAG(HR) = 1.07; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.60; 30M = 0.62; 1HR = 0.63;
 3HR = 0.92; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 14335.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1504.95
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3277.62
 TOTAL AREA(ACRES) = 14335.60 PEAK FLOW RATE(CFS) = 3328.95
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.28; 30M = 0.60; 1HR = 0.80; 3HR = 1.39; 6HR = 1.96; 24HR = 3.33

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 79.98
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.757
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	C	37.10	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	1538.10	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	1877.20	0.20	1.00	83
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	87.50	0.20	0.50	75
NATURAL FAIR COVER					
"GRASS"	D	411.30	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	1.70	0.20	1.00	82

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 3952.90
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.34;6H= 1.87;24H= 3.16
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 23.4%
 MOUNTAIN= 65.1%;FOOTHILL= 11.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.33; LAG(HR) = 1.07; Fm(INCH/HR) = 0.23; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.55; 30M = 0.57; 1HR = 0.58;
 3HR = 0.90; 6HR = 0.95; 24HR= 0.97
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 18288.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 2020.56
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4044.96
 TOTAL AREA(ACRES) = 18288.50 PEAK FLOW RATE(CFS) = 4044.96

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.28; 30M = 0.60; 1HR = 0.80; 3HR = 1.39; 6HR = 1.96; 24HR = 3.33

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 79.98
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.757
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	22.00	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	270.10	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 292.10
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.34;6H= 1.88;24H= 3.16
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 23.5%
 MOUNTAIN= 65.0%;FOOTHILL= 11.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.33; LAG(HR) = 1.07; Fm(INCH/HR) = 0.23; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.54; 30M = 0.57; 1HR = 0.58;
 3HR = 0.90; 6HR = 0.95; 24HR= 0.97
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 18580.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:

Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 2054.40
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4095.52
TOTAL AREA(ACRES) = 18580.60 PEAK FLOW RATE(CFS) = 4095.52

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.28; 30M = 0.60; 1HR = 0.80; 3HR = 1.39; 6HR = 1.96; 24HR = 3.33

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 18580.60 TC(MIN.) = 79.98

AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.60

PEAK FLOW RATE(CFS) = 4095.52

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

**TECHNICAL APPENDIX II-B
HYDROLOGIC ANALYSIS
EXISTING CONDITION
100-YEAR EXPECTED VALUE**

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2003 Advanced Engineering Software (aes)
Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME49100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	5.440
2)	10.000;	3.530
3)	15.000;	2.790
4)	20.000;	2.320
5)	30.000;	1.830
6)	60.000;	1.260
7)	120.000;	0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU48100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3556.21 Tc(MIN.) = 44.28
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.49
TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3556.21 Tc(MIN.) = 44.28
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.49
TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 445.00 DOWNSTREAM(FEET) = 400.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2427.00 CHANNEL SLOPE = 0.0185
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3556.21
FLOW VELOCITY(FEET/SEC.) = 15.46 FLOW DEPTH(FEET) = 8.17
TRAVEL TIME(MIN.) = 2.62 Tc(MIN.) = 46.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 46.90
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.716
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	A	39.10	0.40	1.00	40
NATURAL FAIR COVER					
"GRASS"	A	26.90	0.40	1.00	50
NATURAL FAIR COVER					
"OPEN BRUSH"	A	43.60	0.40	1.00	46
NATURAL FAIR COVER					
"WOODLAND"	A	72.70	0.40	1.00	36
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	70.70	0.30	1.00	63
NATURAL FAIR COVER					
"GRASS"	B	65.10	0.30	1.00	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.36
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 318.10
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.17;3H= 2.01;6H= 2.84;24H= 4.75
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.78; LAG(HR) = 0.63; Fm(INCH/HR) = 0.25; Ybar = 0.52
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.79; 30M = 0.79; 1HR = 0.79;
 3HR = 0.97; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4725.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0253; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0217
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1008.72
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3586.23
 TOTAL AREA(ACRES) = 4725.10 PEAK FLOW RATE(CFS) = 3586.23

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 46.90

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.509
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	39.60	0.30	1.00	66
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	2.00	0.30	1.00	72
NATURAL FAIR COVER					
"WOODLAND"	B	81.70	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	709.70	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	2.20	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	92.30	0.25	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 927.50

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.17;3H= 2.00;6H= 2.82;24H= 4.71
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.78; LAG(HR) = 0.63; Fm(INCH/HR) = 0.25; Ybar = 0.52
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.77; 30M = 0.77; 1HR = 0.77;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 5652.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0253; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0217
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1175.31
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4127.52
 TOTAL AREA(ACRES) = 5652.60 PEAK FLOW RATE(CFS) = 4127.52

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 46.90

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.509
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	C	838.80	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	78.30	0.25	1.00	81
NATURAL FAIR COVER					
"WOODLAND"	C	84.40	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	141.90	0.20	1.00	81
NATURAL POOR COVER					
"BARREN"	D	1.00	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	481.50	0.20	1.00	84

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 1625.90
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.79;24H= 4.66
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.78; LAG(HR) = 0.63; Fm(INCH/HR) = 0.24; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.73; 30M = 0.73; 1HR = 0.73;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7278.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0253; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0217
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1513.42
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5022.92
 TOTAL AREA(ACRES) = 7278.50 PEAK FLOW RATE(CFS) = 5022.92

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 46.90

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.509
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	419.60	0.20	1.00	83
NATURAL GOOD COVER					
"MEADOWS"	D	0.40	0.20	1.00	78
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	21.60	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	70.10	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 511.70

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.79;24H= 4.65
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.78; LAG(HR) = 0.63; Fm(INCH/HR) = 0.24; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.71; 30M = 0.71; 1HR = 0.71;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7790.20

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0253; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0217
TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1629.67
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5292.65
TOTAL AREA(ACRES) = 7790.20 PEAK FLOW RATE(CFS) = 5292.65

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====
END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 7790.20 TC(MIN.) = 46.90
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.51
PEAK FLOW RATE(CFS) = 5292.65

=====
END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME50100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.100
MOUNTAIN 0.700
VALLEY(UNDEVELOPED)/DESERT 0.200
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME49100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5292.65 Tc(MIN.) = 46.90
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.51
TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5292.65 Tc(MIN.) = 46.90
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.51
TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 400.00 DOWNSTREAM(FEET) = 390.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 616.00 CHANNEL SLOPE = 0.0162
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5292.65
FLOW VELOCITY(FEET/SEC.) = 16.43 FLOW DEPTH(FEET) = 10.55
TRAVEL TIME(MIN.) = 0.62 Tc(MIN.) = 47.52
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 47.52
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.703
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS" A 0.30 0.40 1.00 50
NATURAL FAIR COVER
"OPEN BRUSH" A 0.20 0.40 1.00 46
NATURAL FAIR COVER
"WOODLAND" A 1.10 0.40 1.00 36
NATURAL FAIR COVER
"GRASS" B 2.20 0.30 1.00 69
NATURAL FAIR COVER
"OPEN BRUSH" B 0.20 0.30 1.00 66
NATURAL FAIR COVER
"WOODLAND" B 0.40 0.30 1.00 60
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.40
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.79;24H= 4.65
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.79; LAG(HR) = 0.63; Fm(INCH/HR) = 0.24; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.71; 30M = 0.71; 1HR = 0.71;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7794.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0216
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1629.88
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5242.96
 TOTAL AREA(ACRES) = 7794.60 PEAK FLOW RATE(CFS) = 5292.65
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 47.52
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.497
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	88.30	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	0.90	0.25	0.50	69
NATURAL POOR COVER					
"BARREN"	C	1.10	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	36.50	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	245.30	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	38.00	0.25	1.00	73

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 410.10
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.64
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 1.0%
 MOUNTAIN= 98.5%;FOOTHILL= 0.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.79; LAG(HR) = 0.63; Fm(INCH/HR) = 0.24; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8204.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0216
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1707.54
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5418.70
 TOTAL AREA(ACRES) = 8204.70 PEAK FLOW RATE(CFS) = 5418.70

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 47.52
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.497
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	2.50	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	6.90	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	0.20	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	62.60	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	9.20	0.20	1.00	83
NATURAL FAIR COVER					
"WOODLAND"	D	1.80	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.96
 SUBAREA AREA(ACRES) = 83.20
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.64
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 1.2%
 MOUNTAIN= 98.2%;FOOTHILL= 0.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.79; LAG(HR) = 0.63; Fm(INCH/HR) = 0.24; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8287.90
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0216
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1727.12
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5457.80
 TOTAL AREA(ACRES) = 8287.90 PEAK FLOW RATE(CFS) = 5457.80

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49
 =====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 8287.90 TC(MIN.) = 47.52
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.51
 PEAK FLOW RATE(CFS) = 5457.80
 =====
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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430 Exchange, Suite 200
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714 - 734 - 5100

FILE NAME: ME51100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.500
MOUNTAIN 0.000
VALLEY(UNDEVELOPED)/DESERT 0.500
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: ME50100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5457.80 Tc(MIN.) = 47.52
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.51
TOTAL AREA(ACRES) = 8287.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5457.80 Tc(MIN.) = 47.52
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.51
TOTAL AREA(ACRES) = 8287.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 390.00 DOWNSTREAM(FEET) = 330.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 4501.00 CHANNEL SLOPE = 0.0133
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5457.80
FLOW VELOCITY(FEET/SEC.) = 15.41 FLOW DEPTH(FEET) = 11.31
TRAVEL TIME(MIN.) = 4.87 Tc(MIN.) = 52.39
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 52.39
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.610
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	A	0.70	0.40	0.50	32
NATURAL FAIR COVER					
"GRASS"	A	1.80	0.40	1.00	50
NATURAL FAIR COVER					
"WOODLAND"	A	6.50	0.40	1.00	36
NATURAL FAIR COVER					
"GRASS"	B	3.20	0.30	1.00	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.20	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	10.90	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
SUBAREA AREA(ACRES) = 25.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.64
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 1.3%
 MOUNTAIN= 97.9%;FOOTHILL= 0.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.87; LAG(HR) = 0.70; Fm(INCH/HR) = 0.24; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8313.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0280; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1729.73
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5144.92
 TOTAL AREA(ACRES) = 8313.20 PEAK FLOW RATE(CFS) = 5457.80
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 52.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.405
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	9.10	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	1.30	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	5.80	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	29.60	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	8.80	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	40.70	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 95.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.64
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 1.9%
 MOUNTAIN= 96.8%;FOOTHILL= 1.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.87; LAG(HR) = 0.70; Fm(INCH/HR) = 0.24; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8408.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0280; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1749.03
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5187.83
 TOTAL AREA(ACRES) = 8408.50 PEAK FLOW RATE(CFS) = 5457.80
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====
 MAINLINE Tc(MIN) = 52.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.405
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	23.10	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	7.10	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	178.60	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	93.40	0.20	1.00	83
NATURAL FAIR COVER					
"WOODLAND"	D	31.40	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.97
 SUBAREA AREA(ACRES) = 333.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.63
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 3.7%
 MOUNTAIN= 93.1%;FOOTHILL= 3.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.87; LAG(HR) = 0.70; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8742.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0280; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1827.08
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5350.46
 TOTAL AREA(ACRES) = 8742.10 PEAK FLOW RATE(CFS) = 5457.80
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 8742.10 TC(MIN.) = 52.39
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.50
 PEAK FLOW RATE(CFS) = 5457.80
 =====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME52100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.300
MOUNTAIN 0.100
VALLEY(UNDEVELOPED)/DESERT 0.600
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME51100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5457.80 Tc(MIN.) = 52.39
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 8742.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5457.80 Tc(MIN.) = 52.39
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 8742.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 330.00 DOWNSTREAM(FEET) = 300.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2333.00 CHANNEL SLOPE = 0.0129
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5457.80
FLOW VELOCITY(FEET/SEC.) = 15.21 FLOW DEPTH(FEET) = 11.42
TRAVEL TIME(MIN.) = 2.56 Tc(MIN.) = 54.95
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 54.95
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.567
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" A 7.20 0.40 1.00 78
NATURAL FAIR COVER
"GRASS" A 1.40 0.40 1.00 50
NATURAL FAIR COVER
"OPEN BRUSH" A 4.70 0.40 1.00 46
PUBLIC PARK A 1.10 0.40 0.85 32
NATURAL FAIR COVER
"WOODLAND" A 12.10 0.40 1.00 36
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 14.10 0.25 1.00 75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.35
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 40.60
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.63

S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 4.0%
MOUNTAIN= 92.7%;FOOTHILL= 3.3%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.50
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8782.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1831.85
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5290.48
TOTAL AREA(ACRES) = 8782.70 PEAK FLOW RATE(CFS) = 5457.80
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 54.95
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.356
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	C	4.30	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	14.50	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	12.10	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	0.20	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	14.60	0.20	1.00	81
NATURAL POOR COVER					
"BARREN"	D	36.10	0.20	1.00	93

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 81.80
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.63

S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 4.5%
MOUNTAIN= 91.9%;FOOTHILL= 3.5%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.50
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8864.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1851.54
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5328.44
TOTAL AREA(ACRES) = 8864.50 PEAK FLOW RATE(CFS) = 5457.80
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 54.95
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.356
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	D	104.40	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	28.80	0.20	1.00	83
PUBLIC PARK	D	1.10	0.20	0.85	75
NATURAL FAIR COVER					
"WOODLAND"	D	34.10	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 168.40
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.63

S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 5.5%
MOUNTAIN= 90.4%;FOOTHILL= 4.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.50

USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9032.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1889.89
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5406.79
TOTAL AREA(ACRES) = 9032.90 PEAK FLOW RATE(CFS) = 5457.80
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 9032.90 TC(MIN.) = 54.95
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.50
PEAK FLOW RATE(CFS) = 5457.80

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME53100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.300
MOUNTAIN 0.100
VALLEY(UNDEVELOPED)/DESERT 0.600
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME52100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5457.80 Tc(MIN.) = 54.95
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 9032.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5457.80 Tc(MIN.) = 54.95
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 9032.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 300.00 DOWNSTREAM(FEET) = 265.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 3322.00 CHANNEL SLOPE = 0.0105
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5457.80
FLOW VELOCITY(FEET/SEC.) = 14.14 FLOW DEPTH(FEET) = 12.04
TRAVEL TIME(MIN.) = 3.92 Tc(MIN.) = 58.86
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 58.86
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.506
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" A 1.60 0.40 1.00 40
NATURAL POOR COVER
"BARREN" A 0.90 0.40 1.00 78
NATURAL FAIR COVER
"GRASS" A 13.10 0.40 1.00 50
NATURAL FAIR COVER
"OPEN BRUSH" A 3.20 0.40 1.00 46
NATURAL FAIR COVER
"WOODLAND" A 16.90 0.40 1.00 36
NATURAL FAIR COVER
"GRASS" B 21.80 0.30 1.00 69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.36
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 57.50
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.63
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 5.9%
 MOUNTAIN= 89.9%;FOOTHILL= 4.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.78; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9090.40
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1895.17
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5160.09
 TOTAL AREA(ACRES) = 9090.40 PEAK FLOW RATE(CFS) = 5457.80
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 58.86
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.282
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	4.20	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	4.40	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	66.60	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	16.90	0.25	0.50	69
NATURAL POOR COVER					
"BARREN"	C	8.70	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	24.90	0.25	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.93
 SUBAREA AREA(ACRES) = 125.70
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.62
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 6.6%
 MOUNTAIN= 88.8%;FOOTHILL= 4.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.78; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9216.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1919.91
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5209.81
 TOTAL AREA(ACRES) = 9216.10 PEAK FLOW RATE(CFS) = 5457.80
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 58.86
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.282
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	C	63.50	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	47.00	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	12.50	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	12.90	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	4.90	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	325.90	0.20	1.00	84

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 466.70
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.97;6H= 2.77;24H= 4.62
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 9.2%
 MOUNTAIN= 85.0%;FOOTHILL= 5.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.78; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.68; 1HR = 0.68;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9682.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2023.60
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5404.63
 TOTAL AREA(ACRES) = 9682.80 PEAK FLOW RATE(CFS) = 5457.80
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 58.86
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.282
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	125.00	0.20	1.00	83
NATURAL FAIR COVER					
"WOODLAND"	D	73.50	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 198.50
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.97;6H= 2.77;24H= 4.62
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 10.2%
 MOUNTAIN= 83.5%;FOOTHILL= 6.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.78; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.67; 30M = 0.68; 1HR = 0.68;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9881.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2067.39
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5487.14
TOTAL AREA(ACRES) = 9881.30 PEAK FLOW RATE(CFS) = 5487.14

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 9881.30 TC(MIN.) = 58.86
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.50
PEAK FLOW RATE(CFS) = 5487.14

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME54100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.300
MOUNTAIN 0.200
VALLEY(UNDEVELOPED)/DESERT 0.500
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME53100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5487.14 Tc(MIN.) = 58.86
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 9881.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5487.14 Tc(MIN.) = 58.86
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 9881.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 265.00 DOWNSTREAM(FEET) = 245.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1390.00 CHANNEL SLOPE = 0.0144
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5487.14
FLOW VELOCITY(FEET/SEC.) = 15.87 FLOW DEPTH(FEET) = 11.11
TRAVEL TIME(MIN.) = 1.46 Tc(MIN.) = 60.32
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 60.32
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.485
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" A 12.00 0.40 1.00 78
NATURAL FAIR COVER
"GRASS" A 5.00 0.40 1.00 50
NATURAL FAIR COVER
"WOODLAND" A 1.30 0.40 1.00 36
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B 21.70 0.30 1.00 63
NATURAL POOR COVER
"BARREN" B 12.50 0.30 1.00 86
NATURAL FAIR COVER
"GRASS" B 143.50 0.30 1.00 69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.31
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 196.00
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.77;24H= 4.61
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 11.0%
 MOUNTAIN= 82.3%;FOOTHILL= 6.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.01; LAG(HR) = 0.80; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.67; 30M = 0.68; 1HR = 0.68;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 10077.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2096.30
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5439.37
 TOTAL AREA(ACRES) = 10077.30 PEAK FLOW RATE(CFS) = 5487.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 60.32
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.258
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	25.80	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	97.00	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	265.40	0.25	1.00	75
NATURAL FAIR COVER					
"WOODLAND"	C	166.10	0.25	1.00	73
NATURAL POOR COVER					
"BARREN"	C	12.30	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	255.00	0.25	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 821.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.77;24H= 4.60
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 13.9%
 MOUNTAIN= 77.6%;FOOTHILL= 8.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.01; LAG(HR) = 0.80; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.66; 30M = 0.66; 1HR = 0.67;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 10898.90
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2241.04
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5725.01
 TOTAL AREA(ACRES) = 10898.90 PEAK FLOW RATE(CFS) = 5725.01

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 60.32
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.258
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	C	361.10	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	0.90	0.25	1.00	81
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	53.40	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	0.70	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	30.70	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	594.10	0.20	1.00	84

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 1040.90

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 17.1%
 MOUNTAIN= 72.6%;FOOTHILL= 10.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.01; LAG(HR) = 0.80; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.64; 30M = 0.65; 1HR = 0.66;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 11939.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2465.97
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6147.45
 TOTAL AREA(ACRES) = 11939.80 PEAK FLOW RATE(CFS) = 6147.45

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 60.32
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.258
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	275.50	0.20	1.00	83
PUBLIC PARK	D	0.70	0.20	0.85	75
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	87.40	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 364.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 18.1%
 MOUNTAIN= 71.0%;FOOTHILL= 10.9%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.01; LAG(HR) = 0.80; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12304.10

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2546.11
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6294.74
TOTAL AREA(ACRES) = 12304.10 PEAK FLOW RATE(CFS) = 6294.74

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====
END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 12304.10 TC(MIN.) = 60.32
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.50
PEAK FLOW RATE(CFS) = 6294.74

=====
END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
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714 - 734 - 5100

FILE NAME: ME55100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	5.440
2)	10.000;	3.530
3)	15.000;	2.790
4)	20.000;	2.320
5)	30.000;	1.830
6)	60.000;	1.260
7)	120.000;	0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
---	------	------	-------------------	------	------	--------	-------	--------

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)

VALLEY(DEVELOPED)	0.000
FOOTHILL	0.400
MOUNTAIN	0.000
VALLEY(UNDEVELOPED)/DESERT	0.600
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME54100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 6294.74 Tc(MIN.) = 60.32
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 12304.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 6294.74 Tc(MIN.) = 60.32
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 12304.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 245.00 DOWNSTREAM(FEET) = 215.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2724.00 CHANNEL SLOPE = 0.0110
CHANNEL BASE(FEET) = 25.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 6294.74
FLOW VELOCITY(FEET/SEC.) = 14.76 FLOW DEPTH(FEET) = 11.64
TRAVEL TIME(MIN.) = 3.08 Tc(MIN.) = 63.40
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 63.40
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.444
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	A	7.20	0.40	1.00	50
NATURAL FAIR COVER					
"OPEN BRUSH"	A	1.80	0.40	1.00	46
NATURAL FAIR COVER					
"WOODLAND"	A	5.50	0.40	1.00	36
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	5.80	0.30	1.00	63
NATURAL POOR COVER					
"BARREN"	B	6.90	0.30	1.00	86
NATURAL FAIR COVER					
"GRASS"	B	22.60	0.30	1.00	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 49.80
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 18.2%
 MOUNTAIN= 70.7%;FOOTHILL= 11.1%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.06; LAG(HR) = 0.85; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12353.90
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2552.38
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6244.89
 TOTAL AREA(ACRES) = 12353.90 PEAK FLOW RATE(CFS) = 6294.74
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 63.40
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.239
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	7.90	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	9.50	0.30	1.00	60
NATURAL FAIR COVER					
"WOODLAND"	C	23.30	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	71.90	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	0.40	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	14.60	0.25	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 127.60
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 18.7%
 MOUNTAIN= 70.0%;FOOTHILL= 11.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.06; LAG(HR) = 0.85; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12481.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2574.21
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6285.29
 TOTAL AREA(ACRES) = 12481.50 PEAK FLOW RATE(CFS) = 6294.74
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 63.40
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.239
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	C	66.50	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	0.20	0.25	1.00	81
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	4.60	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	2.20	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	0.20	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	45.50	0.20	1.00	84

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 119.20
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 19.0%
 MOUNTAIN= 69.3%;FOOTHILL= 11.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.06; LAG(HR) = 0.85; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12600.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2598.67
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6326.71
 TOTAL AREA(ACRES) = 12600.70 PEAK FLOW RATE(CFS) = 6326.71

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 63.40
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.239
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	16.90	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.20	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	10.90	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 28.00
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 19.1%
 MOUNTAIN= 69.2%;FOOTHILL= 11.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.06; LAG(HR) = 0.85; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12628.70

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2604.74
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6336.95
TOTAL AREA(ACRES) = 12628.70 PEAK FLOW RATE(CFS) = 6336.95

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====
END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 12628.70 TC(MIN.) = 63.40
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.50
PEAK FLOW RATE(CFS) = 6336.95

=====
END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: ME56100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / OUT- / PARK- SIDE / SIDE / WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc

S-GRAPH TYPE	PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED)	0.000
FOOTHILL	0.300
MOUNTAIN	0.000
VALLEY(UNDEVELOPED)/DESERT	0.700
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: ME55100E.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 6336.95 Tc(MIN.) = 63.40

AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50

TOTAL AREA(ACRES) = 12628.70

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 6336.95 Tc(MIN.) = 63.40

AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50

TOTAL AREA(ACRES) = 12628.70

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 215.00 DOWNSTREAM(FEET) = 185.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 2880.00 CHANNEL SLOPE = 0.0104

CHANNEL BASE(FEET) = 25.00 "Z" FACTOR = 1.000

MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00

CHANNEL FLOW THRU SUBAREA(CFS) = 6336.95

FLOW VELOCITY(FEET/SEC.) = 14.49 FLOW DEPTH(FEET) = 11.87

TRAVEL TIME(MIN.) = 3.31 Tc(MIN.) = 66.71

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 66.71

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.402

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	A	1.80	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	1.10	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	9.30	0.40	1.00	36
NATURAL POOR COVER "BARREN"	B	1.80	0.30	1.00	86
NATURAL FAIR COVER "GRASS"	B	14.80	0.30	1.00	69
NATURAL FAIR COVER "OPEN BRUSH"	B	1.20	0.30	1.00	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 30.00

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 19.3%
 MOUNTAIN= 69.0%;FOOTHILL= 11.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.11; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12658.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2606.05
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6175.14
 TOTAL AREA(ACRES) = 12658.70 PEAK FLOW RATE(CFS) = 6336.95
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 66.71
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.219
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	B	5.10	0.30	1.00	60
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	8.60	0.25	0.50	69
NATURAL POOR COVER					
"BARREN"	C	2.40	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	1.30	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	0.20	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	4.70	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.81
 SUBAREA AREA(ACRES) = 22.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 19.3%
 MOUNTAIN= 68.9%;FOOTHILL= 11.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.11; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12681.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2610.69
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6182.85
 TOTAL AREA(ACRES) = 12681.00 PEAK FLOW RATE(CFS) = 6336.95
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 66.71
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.219
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	142.30	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	32.60	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	110.40	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	0.80	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	36.40	0.20	1.00	83
COMMERCIAL	D	2.70	0.20	0.10	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.77
 SUBAREA AREA(ACRES) = 325.20

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 20.6%
 MOUNTAIN= 67.2%;FOOTHILL= 12.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.11; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.49
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.64; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 13006.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2692.08
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6309.29
 TOTAL AREA(ACRES) = 13006.20 PEAK FLOW RATE(CFS) = 6336.95
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 66.71
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.219
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	14.60	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 15.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 20.7%
 MOUNTAIN= 67.1%;FOOTHILL= 12.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.11; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.49
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.64; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 13021.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:

Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2695.25
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6314.51
TOTAL AREA(ACRES) = 13021.50 PEAK FLOW RATE(CFS) = 6336.95
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====
END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 13021.50 TC(MIN.) = 66.71
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.49
PEAK FLOW RATE(CFS) = 6336.95

=====
END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

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FILE NAME: ME57100E.DAT
TIME/DATE OF STUDY: 10:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	5.440
2)	10.000;	3.530
3)	15.000;	2.790
4)	20.000;	2.320
5)	30.000;	1.830
6)	60.000;	1.260
7)	120.000;	0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / OUT- / PARK- SIDE / SIDE / WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc

S-GRAPH TYPE	PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED)	0.000
FOOTHILL	0.100
MOUNTAIN	0.600
VALLEY(UNDEVELOPED)/DESERT	0.300
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: ME56100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 6336.95 Tc(MIN.) = 66.71
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.49
TOTAL AREA(ACRES) = 13021.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 6336.95 Tc(MIN.) = 66.71
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.49
TOTAL AREA(ACRES) = 13021.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 185.00 DOWNSTREAM(FEET) = 165.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2367.00 CHANNEL SLOPE = 0.0084
CHANNEL BASE(FEET) = 30.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 6336.95
FLOW VELOCITY(FEET/SEC.) = 13.25 FLOW DEPTH(FEET) = 11.52
TRAVEL TIME(MIN.) = 2.98 Tc(MIN.) = 69.69
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 69.69
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.367
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	A	38.90	0.40	1.00	40
NATURAL FAIR COVER					
"GRASS"	A	2.00	0.40	1.00	50
NATURAL FAIR COVER					
"OPEN BRUSH"	A	40.30	0.40	1.00	46
NATURAL FAIR COVER					
"WOODLAND"	A	74.70	0.40	1.00	36
NATURAL FAIR COVER					
"OPEN BRUSH"	B	25.40	0.30	1.00	66
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	18.50	0.30	1.00	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 199.80
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 20.8%
 MOUNTAIN= 67.0%;FOOTHILL= 12.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.16; LAG(HR) = 0.93; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.63; 1HR = 0.64;
 3HR = 0.92; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 13221.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0281; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0231;Lca/L=0.6,n=.0216
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2709.89
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6127.84
 TOTAL AREA(ACRES) = 13221.30 PEAK FLOW RATE(CFS) = 6336.95
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.43; 30M = 0.89; 1HR = 1.19; 3HR = 2.07; 6HR = 2.95; 24HR = 4.97

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 69.69
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.200
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	18.90	0.30	1.00	69
NATURAL FAIR COVER					
"WOODLAND"	B	105.00	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	554.00	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	12.80	0.25	0.50	69
NATURAL FAIR COVER					
"GRASS"	C	54.60	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	369.00	0.25	1.00	77

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 1114.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.97;6H= 2.77;24H= 4.62
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 21.5%
 MOUNTAIN= 66.4%;FOOTHILL= 12.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.16; LAG(HR) = 0.93; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.60; 30M = 0.62; 1HR = 0.63;
 3HR = 0.92; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 14335.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0281; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0231;Lca/L=0.6,n=.0216
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2938.15
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6507.48
 TOTAL AREA(ACRES) = 14335.60 PEAK FLOW RATE(CFS) = 6507.48

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.43; 30M = 0.89; 1HR = 1.19; 3HR = 2.07; 6HR = 2.95; 24HR = 4.97

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 69.69
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.200
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	C	37.10	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	1538.10	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	1877.20	0.20	1.00	83
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	87.50	0.20	0.50	75
NATURAL FAIR COVER					
"GRASS"	D	411.30	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	1.70	0.20	1.00	82

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99

SUBAREA AREA(ACRES) = 3952.90
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.17;3H= 2.00;6H= 2.81;24H= 4.70
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 23.4%
 MOUNTAIN= 65.1%;FOOTHILL= 11.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.16; LAG(HR) = 0.93; Fm(INCH/HR) = 0.23; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.55; 30M = 0.57; 1HR = 0.58;
 3HR = 0.90; 6HR = 0.95; 24HR= 0.97
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 18288.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0281; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0231;Lca/L=0.6,n=.0216
 TIME OF PEAK FLOW(HR) = 16.67 RUNOFF VOLUME(AF) = 3916.12
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7961.17
 TOTAL AREA(ACRES) = 18288.50 PEAK FLOW RATE(CFS) = 7961.17

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.43; 30M = 0.89; 1HR = 1.19; 3HR = 2.07; 6HR = 2.95; 24HR = 4.97

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 69.69
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.200
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	22.00	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	270.10	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 292.10

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.17;3H= 2.00;6H= 2.81;24H= 4.70
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 23.5%
 MOUNTAIN= 65.0%;FOOTHILL= 11.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.16; LAG(HR) = 0.93; Fm(INCH/HR) = 0.23; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.54; 30M = 0.57; 1HR = 0.58;
 3HR = 0.90; 6HR = 0.95; 24HR= 0.97
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 18580.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0281; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0231;Lca/L=0.6,n=.0216

TIME OF PEAK FLOW(HR) = 16.67 RUNOFF VOLUME(AF) = 3983.66
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8062.08
TOTAL AREA(ACRES) = 18580.60 PEAK FLOW RATE(CFS) = 8062.08

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.43; 30M = 0.89; 1HR = 1.19; 3HR = 2.07; 6HR = 2.95; 24HR = 4.97

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 18580.60 TC(MIN.) = 69.69
AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.48
PEAK FLOW RATE(CFS) = 8062.08

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

**TECHNICAL APPENDIX II-B
HYDROLOGIC ANALYSIS
EXISTING CONDITION
100-YEAR HIGH CONFIDENCE**

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

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FILE NAME: ME49100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / OUT- / PARK- SIDE / SIDE / WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MU48100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4822.07 Tc(MIN.) = 41.59
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4822.07 Tc(MIN.) = 41.59
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 445.00 DOWNSTREAM(FEET) = 400.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2427.00 CHANNEL SLOPE = 0.0185
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4822.07
FLOW VELOCITY(FEET/SEC.) = 16.81 FLOW DEPTH(FEET) = 9.67
TRAVEL TIME(MIN.) = 2.41 Tc(MIN.) = 43.99
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 43.99
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.780
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	39.10	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	26.90	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	43.60	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	72.70	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	70.70	0.30	1.00	63
NATURAL FAIR COVER "GRASS"	B	65.10	0.30	1.00	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.36
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 318.10
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.48;3H= 2.52;6H= 3.53;24H= 5.98
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.73; LAG(HR) = 0.59; Fm(INCH/HR) = 0.25; Ybar = 0.45
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.79; 30M = 0.79; 1HR = 0.79;
 3HR = 0.97; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4725.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0265; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0218;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1423.71
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4978.69
 TOTAL AREA(ACRES) = 4725.10 PEAK FLOW RATE(CFS) = 4978.69

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 43.99
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.990
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	39.60	0.30	1.00	66
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	2.00	0.30	1.00	72
NATURAL FAIR COVER					
"WOODLAND"	B	81.70	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	709.70	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	2.20	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	92.30	0.25	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 927.50
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.51;6H= 3.51;24H= 5.92
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.73; LAG(HR) = 0.59; Fm(INCH/HR) = 0.25; Ybar = 0.46
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.77; 30M = 0.77; 1HR = 0.77;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 5652.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0265; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0218;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1666.06
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5741.34
 TOTAL AREA(ACRES) = 5652.60 PEAK FLOW RATE(CFS) = 5741.34

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 43.99

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.990
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	C	838.80	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	78.30	0.25	1.00	81
NATURAL FAIR COVER					
"WOODLAND"	C	84.40	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	141.90	0.20	1.00	81
NATURAL POOR COVER					
"BARREN"	D	1.00	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	481.50	0.20	1.00	84

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 1625.90
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.49;6H= 3.47;24H= 5.85
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.73; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.45
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.73; 30M = 0.73; 1HR = 0.73;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7278.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0265; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0218;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2141.50
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6990.65
 TOTAL AREA(ACRES) = 7278.50 PEAK FLOW RATE(CFS) = 6990.65

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 43.99
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.990
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	419.60	0.20	1.00	83
NATURAL GOOD COVER					
"MEADOWS"	D	0.40	0.20	1.00	78
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	21.60	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	70.10	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 511.70
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.49;6H= 3.47;24H= 5.84
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.73; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.71; 30M = 0.71; 1HR = 0.71;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7790.20

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0265; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0218;Lca/L=0.6,n=.0203
TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2301.90
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7363.67
TOTAL AREA(ACRES) = 7790.20 PEAK FLOW RATE(CFS) = 7363.67

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====
END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 7790.20 TC(MIN.) = 43.99
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.44
PEAK FLOW RATE(CFS) = 7363.67

=====
END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME50100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / SIDE	OUT- / SIDE/ WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020		0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.100
MOUNTAIN 0.700
VALLEY(UNDEVELOPED)/DESERT 0.200
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME49100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7363.67 Tc(MIN.) = 43.99
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.44
TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7363.67 Tc(MIN.) = 43.99
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.44
TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 400.00 DOWNSTREAM(FEET) = 390.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 616.00 CHANNEL SLOPE = 0.0162
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7363.67
FLOW VELOCITY(FEET/SEC.) = 17.94 FLOW DEPTH(FEET) = 12.59
TRAVEL TIME(MIN.) = 0.57 Tc(MIN.) = 44.57
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 44.57
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.767
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	A	0.30	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	0.20	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	1.10	0.40	1.00	36
NATURAL FAIR COVER "GRASS"	B	2.20	0.30	1.00	69
NATURAL FAIR COVER "OPEN BRUSH"	B	0.20	0.30	1.00	66
NATURAL FAIR COVER "WOODLAND"	B	0.40	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.40
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.49;6H= 3.47;24H= 5.84
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.74; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.71; 30M = 0.71; 1HR = 0.71;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7794.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0264; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0217;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2302.27
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7319.54
 TOTAL AREA(ACRES) = 7794.60 PEAK FLOW RATE(CFS) = 7363.67
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

 MAINLINE Tc(MIN) = 44.57
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.976
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	88.30	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	0.90	0.25	0.50	69
NATURAL POOR COVER					
"BARREN"	C	1.10	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	36.50	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	245.30	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	38.00	0.25	1.00	73

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 410.10

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.46;24H= 5.83
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 1.0%
 MOUNTAIN= 98.5%;FOOTHILL= 0.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.74; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8204.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0264; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0217;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2413.45
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7573.53
 TOTAL AREA(ACRES) = 8204.70 PEAK FLOW RATE(CFS) = 7573.53

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 44.57
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.976
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	2.50	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	6.90	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	0.20	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	62.60	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	9.20	0.20	1.00	83
NATURAL FAIR COVER					
"WOODLAND"	D	1.80	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.96
 SUBAREA AREA(ACRES) = 83.20
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.46;24H= 5.83
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 1.2%
 MOUNTAIN= 98.2%;FOOTHILL= 0.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.74; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8287.90
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0264; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0217;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2440.17
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7628.20
 TOTAL AREA(ACRES) = 8287.90 PEAK FLOW RATE(CFS) = 7628.20

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63
 =====
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 8287.90 TC(MIN.) = 44.57
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.44
 PEAK FLOW RATE(CFS) = 7628.20
 =====
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME51100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.500
MOUNTAIN 0.000
VALLEY(UNDEVELOPED)/DESERT 0.500
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: ME50100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7628.20 Tc(MIN.) = 44.57
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.44
TOTAL AREA(ACRES) = 8287.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7628.20 Tc(MIN.) = 44.57
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.44
TOTAL AREA(ACRES) = 8287.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 390.00 DOWNSTREAM(FEET) = 330.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 4501.00 CHANNEL SLOPE = 0.0133
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7628.20
FLOW VELOCITY(FEET/SEC.) = 16.84 FLOW DEPTH(FEET) = 13.51
TRAVEL TIME(MIN.) = 4.45 Tc(MIN.) = 49.02
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 49.02
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.673
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	A	0.70	0.40	0.50	32
NATURAL FAIR COVER					
"GRASS"	A	1.80	0.40	1.00	50
NATURAL FAIR COVER					
"WOODLAND"	A	6.50	0.40	1.00	36
NATURAL FAIR COVER					
"GRASS"	B	3.20	0.30	1.00	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.20	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	10.90	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
SUBAREA AREA(ACRES) = 25.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.46;24H= 5.83
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 1.3%
 MOUNTAIN= 97.9%;FOOTHILL= 0.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.82; LAG(HR) = 0.65; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8313.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0262; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2444.31
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7150.99
 TOTAL AREA(ACRES) = 8313.20 PEAK FLOW RATE(CFS) = 7628.20
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

 MAINLINE Tc(MIN) = 49.02
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.864
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	9.10	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	1.30	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	5.80	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	29.60	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	8.80	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	40.70	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 95.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.46;24H= 5.82
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 1.9%
 MOUNTAIN= 96.8%;FOOTHILL= 1.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.82; LAG(HR) = 0.65; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8408.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0262; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2471.54
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7205.02
 TOTAL AREA(ACRES) = 8408.50 PEAK FLOW RATE(CFS) = 7628.20
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

 MAINLINE Tc(MIN) = 49.02
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.864
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	23.10	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	7.10	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	178.60	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	93.40	0.20	1.00	83
NATURAL FAIR COVER					
"WOODLAND"	D	31.40	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.97
 SUBAREA AREA(ACRES) = 333.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.45;24H= 5.82
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 3.7%
 MOUNTAIN= 93.1%;FOOTHILL= 3.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.82; LAG(HR) = 0.65; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8742.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0262; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2578.32
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7406.75
 TOTAL AREA(ACRES) = 8742.10 PEAK FLOW RATE(CFS) = 7628.20
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 8742.10 TC(MIN.) = 49.02
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.44
 PEAK FLOW RATE(CFS) = 7628.20

 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME52100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / SIDE	OUT- / SIDE/ WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020		0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.300
MOUNTAIN 0.100
VALLEY(UNDEVELOPED)/DESERT 0.600
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME51100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7628.20 Tc(MIN.) = 49.02
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.44
TOTAL AREA(ACRES) = 8742.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7628.20 Tc(MIN.) = 49.02
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.44
TOTAL AREA(ACRES) = 8742.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 330.00 DOWNSTREAM(FEET) = 300.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2333.00 CHANNEL SLOPE = 0.0129
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7628.20
FLOW VELOCITY(FEET/SEC.) = 16.62 FLOW DEPTH(FEET) = 13.64
TRAVEL TIME(MIN.) = 2.34 Tc(MIN.) = 51.36
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 51.36
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.629
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	A	7.20	0.40	1.00	78
NATURAL FAIR COVER "GRASS"	A	1.40	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	4.70	0.40	1.00	46
PUBLIC PARK	A	1.10	0.40	0.85	32
NATURAL FAIR COVER "WOODLAND"	A	12.10	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	14.10	0.25	1.00	75

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.35
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 40.60
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.45;24H= 5.82

S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 4.0%
MOUNTAIN= 92.7%;FOOTHILL= 3.3%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.86; LAG(HR) = 0.68; Fm(INCH/HR) = 0.24; Ybar = 0.44
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8782.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2585.68
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7226.81
TOTAL AREA(ACRES) = 8782.70 PEAK FLOW RATE(CFS) = 7628.20
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 51.36
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.806
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	C	4.30	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	14.50	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	12.10	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	0.20	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	14.60	0.20	1.00	81
NATURAL POOR COVER					
"BARREN"	D	36.10	0.20	1.00	93

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 81.80

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.45;24H= 5.81

S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 4.5%
MOUNTAIN= 91.9%;FOOTHILL= 3.5%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.86; LAG(HR) = 0.68; Fm(INCH/HR) = 0.24; Ybar = 0.44
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8864.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2612.41
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7280.90
TOTAL AREA(ACRES) = 8864.50 PEAK FLOW RATE(CFS) = 7628.20
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 51.36
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.806
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	D	104.40	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	28.80	0.20	1.00	83
PUBLIC PARK	D	1.10	0.20	0.85	75
NATURAL FAIR COVER					
"WOODLAND"	D	34.10	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 168.40

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.45;24H= 5.81

S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 5.5%
MOUNTAIN= 90.4%;FOOTHILL= 4.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.86; LAG(HR) = 0.68; Fm(INCH/HR) = 0.24; Ybar = 0.43
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9032.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2665.18
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7392.98
TOTAL AREA(ACRES) = 9032.90 PEAK FLOW RATE(CFS) = 7628.20
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====
END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 9032.90 TC(MIN.) = 51.36
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.43
PEAK FLOW RATE(CFS) = 7628.20
=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME53100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.300
MOUNTAIN 0.100
VALLEY(UNDEVELOPED)/DESERT 0.600
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: ME52100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7628.20 Tc(MIN.) = 51.36
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 9032.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7628.20 Tc(MIN.) = 51.36
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 9032.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 300.00 DOWNSTREAM(FEET) = 265.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 3322.00 CHANNEL SLOPE = 0.0105
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7628.20
FLOW VELOCITY(FEET/SEC.) = 15.43 FLOW DEPTH(FEET) = 14.38
TRAVEL TIME(MIN.) = 3.59 Tc(MIN.) = 54.95
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 54.95
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.567
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	1.60	0.40	1.00	40
NATURAL POOR COVER "BARREN"	A	0.90	0.40	1.00	78
NATURAL FAIR COVER "GRASS"	A	13.10	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	3.20	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	16.90	0.40	1.00	36
NATURAL FAIR COVER "GRASS"	B	21.80	0.30	1.00	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.36
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 57.50
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.45;24H= 5.81
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 5.9%
 MOUNTAIN= 89.9%;FOOTHILL= 4.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9090.40
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2673.85
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7297.67
 TOTAL AREA(ACRES) = 9090.40 PEAK FLOW RATE(CFS) = 7628.20
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 54.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.716
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	4.20	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	4.40	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	66.60	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	16.90	0.25	0.50	69
NATURAL POOR COVER					
"BARREN"	C	8.70	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	24.90	0.25	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.93
 SUBAREA AREA(ACRES) = 125.70
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.45;24H= 5.81
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 6.6%
 MOUNTAIN= 88.8%;FOOTHILL= 4.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9216.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2708.80
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7370.66
 TOTAL AREA(ACRES) = 9216.10 PEAK FLOW RATE(CFS) = 7628.20
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 54.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.716
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	C	63.50	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	47.00	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	12.50	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	12.90	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	4.90	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	325.90	0.20	1.00	84

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 466.70
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.48;6H= 3.44;24H= 5.80
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 9.2%
 MOUNTAIN= 85.0%;FOOTHILL= 5.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.68; 1HR = 0.68;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9682.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2852.03
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7651.09
 TOTAL AREA(ACRES) = 9682.80 PEAK FLOW RATE(CFS) = 7651.09

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 54.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.716
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	125.00	0.20	1.00	83
NATURAL FAIR COVER					
"WOODLAND"	D	73.50	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 198.50
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.44;24H= 5.80
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 10.2%
 MOUNTAIN= 83.5%;FOOTHILL= 6.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.67; 30M = 0.68; 1HR = 0.68;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9881.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:

Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2912.63
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7769.77
TOTAL AREA(ACRES) = 9881.30 PEAK FLOW RATE(CFS) = 7769.77

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 9881.30 TC(MIN.) = 54.95

AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.43

PEAK FLOW RATE(CFS) = 7769.77

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: ME54100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	7.030
2)	10.000;	4.570
3)	15.000;	3.560
4)	20.000;	2.970
5)	30.000;	2.340
6)	60.000;	1.590
7)	120.000;	1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)

VALLEY(DEVELOPED)	0.000
FOOTHILL	0.300
MOUNTAIN	0.200
VALLEY(UNDEVELOPED)/DESERT	0.500
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 15.1
=====

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: ME53100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7769.77 Tc(MIN.) = 54.95
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 9881.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7769.77 Tc(MIN.) = 54.95
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 9881.30
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 265.00 DOWNSTREAM(FEET) = 245.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1390.00 CHANNEL SLOPE = 0.0144
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7769.77
FLOW VELOCITY(FEET/SEC.) = 17.40 FLOW DEPTH(FEET) = 13.38
TRAVEL TIME(MIN.) = 1.33 Tc(MIN.) = 56.28
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 56.28
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.545
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	A	12.00	0.40	1.00	78
NATURAL FAIR COVER "GRASS"	A	5.00	0.40	1.00	50
NATURAL FAIR COVER "WOODLAND"	A	1.30	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	21.70	0.30	1.00	63
NATURAL POOR COVER "BARREN"	B	12.50	0.30	1.00	86
NATURAL FAIR COVER "GRASS"	B	143.50	0.30	1.00	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.31
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 196.00
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.44;24H= 5.79
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 11.0%
 MOUNTAIN= 82.3%;FOOTHILL= 6.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.94; LAG(HR) = 0.75; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.67; 30M = 0.68; 1HR = 0.68;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 10077.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2956.24
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7753.34
 TOTAL AREA(ACRES) = 10077.30 PEAK FLOW RATE(CFS) = 7769.77
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 56.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.683
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	25.80	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	97.00	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	265.40	0.25	1.00	75
NATURAL FAIR COVER					
"WOODLAND"	C	166.10	0.25	1.00	73
NATURAL POOR COVER					
"BARREN"	C	12.30	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	255.00	0.25	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 821.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.44;24H= 5.78
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 13.9%
 MOUNTAIN= 77.6%;FOOTHILL= 8.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.94; LAG(HR) = 0.75; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.66; 30M = 0.66; 1HR = 0.67;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 10898.90
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3165.85
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8179.95
 TOTAL AREA(ACRES) = 10898.90 PEAK FLOW RATE(CFS) = 8179.95

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 56.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.683
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	C	361.10	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	0.90	0.25	1.00	81
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	53.40	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	0.70	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	30.70	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	594.10	0.20	1.00	84

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 1040.90

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.77
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 17.1%
 MOUNTAIN= 72.6%;FOOTHILL= 10.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.94; LAG(HR) = 0.75; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.64; 30M = 0.65; 1HR = 0.66;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 11939.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3478.46
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8740.55
 TOTAL AREA(ACRES) = 11939.80 PEAK FLOW RATE(CFS) = 8740.55

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 56.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.683
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	275.50	0.20	1.00	83
PUBLIC PARK	D	0.70	0.20	0.85	75
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	87.40	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 364.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 18.1%
 MOUNTAIN= 71.0%;FOOTHILL= 10.9%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.94; LAG(HR) = 0.75; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12304.10

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3589.39
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8934.83
TOTAL AREA(ACRES) = 12304.10 PEAK FLOW RATE(CFS) = 8934.83

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====
END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 12304.10 TC(MIN.) = 56.28
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.43
PEAK FLOW RATE(CFS) = 8934.83

=====
END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: ME55100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	7.030
2)	10.000;	4.570
3)	15.000;	3.560
4)	20.000;	2.970
5)	30.000;	2.340
6)	60.000;	1.590
7)	120.000;	1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.400
MOUNTAIN 0.000
VALLEY(UNDEVELOPED)/DESERT 0.600
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME54100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 8934.83 Tc(MIN.) = 56.28
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 12304.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 8934.83 Tc(MIN.) = 56.28
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 12304.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 245.00 DOWNSTREAM(FEET) = 215.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2724.00 CHANNEL SLOPE = 0.0110
CHANNEL BASE(FEET) = 25.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 8934.83
FLOW VELOCITY(FEET/SEC.) = 16.23 FLOW DEPTH(FEET) = 14.09
TRAVEL TIME(MIN.) = 2.80 Tc(MIN.) = 59.08
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 59.08
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.503
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	A	7.20	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	1.80	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	5.50	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	5.80	0.30	1.00	63
NATURAL POOR COVER "BARREN"	B	6.90	0.30	1.00	86
NATURAL FAIR COVER "GRASS"	B	22.60	0.30	1.00	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 49.80
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 18.2%
 MOUNTAIN= 70.7%;FOOTHILL= 11.1%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.79; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12353.90
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3599.05
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8606.59
 TOTAL AREA(ACRES) = 12353.90 PEAK FLOW RATE(CFS) = 8934.83
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 59.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.613
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	7.90	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	9.50	0.30	1.00	60
NATURAL FAIR COVER					
"WOODLAND"	C	23.30	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	71.90	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	0.40	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	14.60	0.25	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 127.60

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 18.7%
 MOUNTAIN= 70.0%;FOOTHILL= 11.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.79; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12481.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3630.83
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8661.05
 TOTAL AREA(ACRES) = 12481.50 PEAK FLOW RATE(CFS) = 8934.83
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 59.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.613
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	C	66.50	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	0.20	0.25	1.00	81
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	4.60	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	2.20	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	0.20	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	45.50	0.20	1.00	84

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99

SUBAREA AREA(ACRES) = 119.20

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.46;6H= 3.43;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 19.0%
 MOUNTAIN= 69.3%;FOOTHILL= 11.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.79; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12600.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3665.18
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8715.69
 TOTAL AREA(ACRES) = 12600.70 PEAK FLOW RATE(CFS) = 8934.83
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 59.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.613
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	16.90	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.20	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	10.90	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 28.00

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.46;6H= 3.42;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 19.1%
 MOUNTAIN= 69.2%;FOOTHILL= 11.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.79; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98

UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12628.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3673.60
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8729.06
TOTAL AREA(ACRES) = 12628.70 PEAK FLOW RATE(CFS) = 8934.83
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 12628.70 TC(MIN.) = 59.08
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.43
PEAK FLOW RATE(CFS) = 8934.83

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: ME56100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.300
MOUNTAIN 0.000
VALLEY(UNDEVELOPED)/DESERT 0.700
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 15.1
=====

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME55100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 8934.83 Tc(MIN.) = 59.08
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 12628.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 8934.83 Tc(MIN.) = 59.08
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 12628.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 215.00 DOWNSTREAM(FEET) = 185.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2880.00 CHANNEL SLOPE = 0.0104
CHANNEL BASE(FEET) = 25.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 8934.83
FLOW VELOCITY(FEET/SEC.) = 15.90 FLOW DEPTH(FEET) = 14.30
TRAVEL TIME(MIN.) = 3.02 Tc(MIN.) = 62.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 62.10
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.461
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	A	1.80	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	1.10	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	9.30	0.40	1.00	36
NATURAL POOR COVER "BARREN"	B	1.80	0.30	1.00	86
NATURAL FAIR COVER "GRASS"	B	14.80	0.30	1.00	69
NATURAL FAIR COVER "OPEN BRUSH"	B	1.20	0.30	1.00	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 30.00
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.46;6H= 3.42;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 19.3%
 MOUNTAIN= 69.0%;FOOTHILL= 11.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.03; LAG(HR) = 0.83; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12658.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 3678.69
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8642.48
 TOTAL AREA(ACRES) = 12658.70 PEAK FLOW RATE(CFS) = 8934.83
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 62.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.574
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	B	5.10	0.30	1.00	60
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	8.60	0.25	0.50	69
NATURAL POOR COVER					
"BARREN"	C	2.40	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	1.30	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	0.20	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	4.70	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.81
 SUBAREA AREA(ACRES) = 22.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.46;6H= 3.42;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 19.3%
 MOUNTAIN= 68.9%;FOOTHILL= 11.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.03; LAG(HR) = 0.83; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12681.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 3685.11
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8653.78
 TOTAL AREA(ACRES) = 12681.00 PEAK FLOW RATE(CFS) = 8934.83
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 62.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.574
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	142.30	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	32.60	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	110.40	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	0.80	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	36.40	0.20	1.00	83
COMMERCIAL	D	2.70	0.20	0.10	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.77
 SUBAREA AREA(ACRES) = 325.20
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.46;6H= 3.42;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 20.6%
 MOUNTAIN= 67.2%;FOOTHILL= 12.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.03; LAG(HR) = 0.83; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.64; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 13006.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 3794.38
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8832.77
 TOTAL AREA(ACRES) = 13006.20 PEAK FLOW RATE(CFS) = 8934.83
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 62.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.574
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	14.60	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 15.30
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.46;6H= 3.42;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 20.7%
 MOUNTAIN= 67.1%;FOOTHILL= 12.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.03; LAG(HR) = 0.83; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.64; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 13021.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:

Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 3798.80
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8840.43
TOTAL AREA(ACRES) = 13021.50 PEAK FLOW RATE(CFS) = 8934.83
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 13021.50 TC(MIN.) = 62.10
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.43
PEAK FLOW RATE(CFS) = 8934.83

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: ME57100H.DAT
TIME/DATE OF STUDY: 10:54 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	7.030
2)	10.000;	4.570
3)	15.000;	3.560
4)	20.000;	2.970
5)	30.000;	2.340
6)	60.000;	1.590
7)	120.000;	1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.100
MOUNTAIN 0.600
VALLEY(UNDEVELOPED)/DESERT 0.300
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: ME56100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 8934.83 Tc(MIN.) = 62.10
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 13021.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 8934.83 Tc(MIN.) = 62.10
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 13021.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 185.00 DOWNSTREAM(FEET) = 165.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2367.00 CHANNEL SLOPE = 0.0084
CHANNEL BASE(FEET) = 30.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 8934.83
FLOW VELOCITY(FEET/SEC.) = 14.58 FLOW DEPTH(FEET) = 13.94
TRAVEL TIME(MIN.) = 2.71 Tc(MIN.) = 64.80
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
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MAINLINE Tc(MIN) = 64.80
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.426
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	38.90	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	2.00	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	40.30	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	74.70	0.40	1.00	36
NATURAL FAIR COVER "OPEN BRUSH"	B	25.40	0.30	1.00	66
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	18.50	0.30	1.00	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 199.80
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 20.8%
 MOUNTAIN= 67.0%;FOOTHILL= 12.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.08; LAG(HR) = 0.86; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.63; 1HR = 0.64;
 3HR = 0.92; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 13221.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 3830.19
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8780.84
 TOTAL AREA(ACRES) = 13221.30 PEAK FLOW RATE(CFS) = 8934.83
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.55; 30M = 1.12; 1HR = 1.51; 3HR = 2.60; 6HR = 3.68; 24HR = 6.27

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 64.80
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.552
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	18.90	0.30	1.00	69
NATURAL FAIR COVER					
"WOODLAND"	B	105.00	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	554.00	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	12.80	0.25	0.50	69
NATURAL FAIR COVER					
"GRASS"	C	54.60	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	369.00	0.25	1.00	77

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 1114.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.45;24H= 5.80
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 21.5%
 MOUNTAIN= 66.4%;FOOTHILL= 12.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.08; LAG(HR) = 0.86; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.60; 30M = 0.62; 1HR = 0.63;
 3HR = 0.92; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 14335.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 4159.97
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 9336.92
 TOTAL AREA(ACRES) = 14335.60 PEAK FLOW RATE(CFS) = 9336.92

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.55; 30M = 1.12; 1HR = 1.51; 3HR = 2.60; 6HR = 3.68; 24HR = 6.27

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 64.80
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.552
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	C	37.10	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	1538.10	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	1877.20	0.20	1.00	83
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	87.50	0.20	0.50	75
NATURAL FAIR COVER					
"GRASS"	D	411.30	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	1.70	0.20	1.00	82

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 3952.90

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.50;6H= 3.50;24H= 5.90
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 23.4%
 MOUNTAIN= 65.1%;FOOTHILL= 11.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.08; LAG(HR) = 0.86; Fm(INCH/HR) = 0.23; Ybar = 0.41
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.55; 30M = 0.57; 1HR = 0.58;
 3HR = 0.90; 6HR = 0.95; 24HR= 0.97
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 18288.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 5518.43
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 11385.84
 TOTAL AREA(ACRES) = 18288.50 PEAK FLOW RATE(CFS) = 11385.84

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.55; 30M = 1.12; 1HR = 1.51; 3HR = 2.60; 6HR = 3.68; 24HR = 6.27

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 64.80
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.552
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	22.00	0.20	1.00	86
NATURAL FAIR COVER					
"WOODLAND"	D	270.10	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 292.10

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.48;3H= 2.50;6H= 3.50;24H= 5.91
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 23.5%
 MOUNTAIN= 65.0%;FOOTHILL= 11.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.08; LAG(HR) = 0.86; Fm(INCH/HR) = 0.23; Ybar = 0.41
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.54; 30M = 0.57; 1HR = 0.58;
 3HR = 0.90; 6HR = 0.95; 24HR= 0.97
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 18580.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201

TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 5613.31
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 11527.73
TOTAL AREA(ACRES) = 18580.60 PEAK FLOW RATE(CFS) = 11527.73

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):

5M = 0.55; 30M = 1.12; 1HR = 1.51; 3HR = 2.60; 6HR = 3.68; 24HR = 6.27

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END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 18580.60 TC(MIN.) = 64.80

AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.41

PEAK FLOW RATE(CFS) = 11527.73

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END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

**TECHNICAL APPENDIX II-C
HYDROLOGIC ANALYSIS
PROPOSED CONDITION
2-YEAR EXPECTED VALUE**

Rainfall Depths

2-Year - Expected Value - Existing Condition

Subarea	Area			Rainfall Depth						Node	Area			Rainfall Depth						
	(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr		(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr	
		X		0.13	0.28	0.37	0.62	0.85	1.44			X			0.13	0.28	0.37	0.62	0.85	1.44
			X	0.18	0.32	0.46	0.94	1.46	2.67			X			0.18	0.32	0.46	0.94	1.46	2.67
1000	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1001	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	
1001	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1002	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	
1002	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1003	0.9	0.0	0.9	0.18	0.32	0.46	0.94	1.46	2.67	
1003	0.4	0.0	0.4	0.18	0.32	0.46	0.94	1.46	2.67	1004	1.3	0.0	1.3	0.18	0.32	0.46	0.94	1.46	2.67	
1004	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	1005	1.9	0.0	1.9	0.18	0.32	0.46	0.94	1.46	2.67	
1005	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67											
1010	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	1011	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	
1011	0.4	0.0	0.4	0.18	0.32	0.46	0.94	1.46	2.67	1012	1.0	0.0	1.0	0.18	0.32	0.46	0.94	1.46	2.67	
1012	0.9	0.0	0.9	0.18	0.32	0.46	0.94	1.46	2.67	1013	1.9	0.0	1.9	0.18	0.32	0.46	0.94	1.46	2.67	
1013	1.1	0.0	1.1	0.18	0.32	0.46	0.94	1.46	2.67	1014	5.5	0.0	5.5	0.18	0.32	0.46	0.94	1.46	2.67	
1014	3.8	0.0	3.8	0.18	0.32	0.46	0.94	1.46	2.67	1015	9.3	0.0	9.3	0.18	0.32	0.46	0.94	1.46	2.67	
1015	3.4	1.0	2.4	0.17	0.31	0.43	0.85	1.28	2.31	1016	12.7	1.0	11.7	0.18	0.32	0.45	0.91	1.41	2.57	
1016	16.2	4.1	12.1	0.17	0.31	0.44	0.86	1.31	2.36	1017	28.9	5.1	23.8	0.17	0.31	0.44	0.88	1.35	2.45	
1017	4.6	2.8	1.8	0.15	0.30	0.41	0.75	1.09	1.92											
1020	0.7	0.0	0.7	0.18	0.32	0.46	0.94	1.46	2.67	1021	0.7	0.0	0.7	0.18	0.32	0.46	0.94	1.46	2.67	
1021	0.5	0.0	0.5	0.18	0.32	0.46	0.94	1.46	2.67	1022	1.2	0.0	1.2	0.18	0.32	0.46	0.94	1.46	2.67	
1022	1.7	0.0	1.7	0.18	0.32	0.46	0.94	1.46	2.67	1023	2.9	0.0	2.9	0.18	0.32	0.46	0.94	1.46	2.67	
1023	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1024	3.2	0.0	3.2	0.18	0.32	0.46	0.94	1.46	2.67	
1024	1.8	0.0	1.8	0.18	0.32	0.46	0.94	1.46	2.67	1025	5.0	0.0	5.0	0.18	0.32	0.46	0.94	1.46	2.67	
1025	3.4	0.0	3.4	0.18	0.32	0.46	0.94	1.46	2.67	1026	8.4	0.0	8.4	0.18	0.32	0.46	0.94	1.46	2.67	
1026	6.2	0.0	6.2	0.18	0.32	0.46	0.94	1.46	2.67	1027	14.6	0.0	14.6	0.18	0.32	0.46	0.94	1.46	2.67	
1027	9.9	0.0	9.9	0.18	0.32	0.46	0.94	1.46	2.67	1028	24.5	0.0	24.5	0.18	0.32	0.46	0.94	1.46	2.67	
1028	4.0	2.0	2.0	0.16	0.30	0.42	0.78	1.16	2.06	1029	62.0	9.9	52.1	0.17	0.31	0.45	0.89	1.36	2.47	
1029	33.7	26.3	7.4	0.14	0.29	0.39	0.69	0.98	1.71	1030	95.7	36.2	59.5	0.16	0.30	0.43	0.82	1.23	2.20	
1030	83.9	54.2	29.7	0.15	0.29	0.40	0.73	1.07	1.88	1031	179.6	90.4	89.2	0.15	0.30	0.41	0.78	1.15	2.05	
1031	176.1	116.9	59.2	0.15	0.29	0.40	0.73	1.06	1.85	1032	355.7	207.3	148.4	0.15	0.30	0.41	0.75	1.10	1.95	
1032	75.8	75.5	0.3	0.13	0.28	0.37	0.62	0.85	1.44	1033	431.5	282.8	148.7	0.15	0.29	0.40	0.73	1.06	1.86	
1033	133.0	133.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1034	564.5	415.8	148.7	0.14	0.29	0.39	0.70	1.01	1.76	
1034	46.5	46.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1035	611.0	462.3	148.7	0.14	0.29	0.39	0.70	1.00	1.74	
1035	59.0	59.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1036	670.0	521.3	148.7	0.14	0.29	0.39	0.69	0.99	1.71	
1036	348.9	341.2	7.7	0.13	0.28	0.37	0.63	0.86	1.47	1037	1,018.9	862.5	156.4	0.14	0.29	0.38	0.67	0.94	1.63	
1037	84.2	84.2	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1038	1,103.1	946.7	156.4	0.14	0.29	0.38	0.67	0.94	1.61	

Rainfall Depths

2-Year - Expected Value - Existing Condition

Subarea	Area			Rainfall Depth							Node	Area			Rainfall Depth						
	(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr	(ac)		< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr		
		X		0.13	0.28	0.37	0.62	0.85	1.44			X		0.13	0.28	0.37	0.62	0.85	1.44		
			X	0.18	0.32	0.46	0.94	1.46	2.67			X		0.18	0.32	0.46	0.94	1.46	2.67		
1038	426.5	358.5	68.0	0.14	0.29	0.38	0.67	0.95	1.64	1039	1,529.6	1,305.2	224.4	0.14	0.29	0.38	0.67	0.94	1.62		
1039	584.2	520.2	64.0	0.14	0.28	0.38	0.66	0.92	1.57	1040	2,113.8	1,825.4	288.4	0.14	0.29	0.38	0.66	0.93	1.61		
1040	629.8	628.6	1.2	0.13	0.28	0.37	0.62	0.85	1.44	1041	2,743.6	2,454.0	289.6	0.14	0.28	0.38	0.65	0.91	1.57		
1041	135.8	135.8	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1042	2,879.4	2,589.8	289.6	0.14	0.28	0.38	0.65	0.91	1.56		
1042	475.9	475.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1043	3,355.3	3,065.7	289.6	0.13	0.28	0.38	0.65	0.90	1.55		
1043	165.2	165.2	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1044	3,520.5	3,230.9	289.6	0.13	0.28	0.38	0.65	0.90	1.54		
1044	339.3	339.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1045	3,859.8	3,570.2	289.6	0.13	0.28	0.38	0.64	0.90	1.53		
1045	155.5	155.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1046	4,015.3	3,725.7	289.6	0.13	0.28	0.38	0.64	0.89	1.53		
1046	190.7	190.7	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1047	4,206.0	3,916.4	289.6	0.13	0.28	0.38	0.64	0.89	1.52		
1047	200.9	200.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1048	4,406.9	4,117.3	289.6	0.13	0.28	0.38	0.64	0.89	1.52		
1048	3,383.3	3,383.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1049	7,790.2	7,500.6	289.6	0.13	0.28	0.37	0.63	0.87	1.49		
1049	497.6	497.6	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1050	8,287.8	7,998.2	289.6	0.13	0.28	0.37	0.63	0.87	1.48		
1050	454.4	454.4	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1051	8,742.2	8,452.6	289.6	0.13	0.28	0.37	0.63	0.87	1.48		
1051	290.9	290.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1052	9,033.1	8,743.5	289.6	0.13	0.28	0.37	0.63	0.87	1.48		
1052	848.4	848.4	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1053	9,881.5	9,591.9	289.6	0.13	0.28	0.37	0.63	0.87	1.48		
1053	2,422.6	2,422.6	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1054	12,304.1	12,014.5	289.6	0.13	0.28	0.37	0.63	0.86	1.47		
1054	324.5	324.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1055	12,628.6	12,339.0	289.6	0.13	0.28	0.37	0.63	0.86	1.47		
1055	392.6	392.6	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1056	13,021.2	12,731.6	289.6	0.13	0.28	0.37	0.63	0.86	1.47		
1056	5,559.2	4,931.8	627.4	0.14	0.28	0.38	0.66	0.92	1.58	1057	18,580.4	17,663.4	917.0	0.13	0.28	0.37	0.64	0.88	1.50		

Channel Hydraulics, Travel Times, Times of Concentration, and Lag Estimates 2-Year - Expected Value - Existing Condition

U/S Node	D/S Node	U/S Elevation	D/S Elevation	Length (ft)	Manning (n)	Base (ft)	Sideslope (z)	Height (ft)	Q(2) (cfs)	Dn (ft)	V (fps)	Tt (min)	Tc (min)	Lag (hr)	
	1036		1100	Data from Rational Method Analysis:						56				31.03	0.41
1036	1037	1100	1010	1517	0.040	7	1	7	139	1.59	10.16	2.49	33.52	0.45	
1037	1038	1010	925	2069	0.040	8	1	8	193	1.99	9.69	3.56	37.08	0.49	
1038	1039	925	873	1383	0.040	8	1	8	193	2.04	9.39	2.45	39.53	0.53	
1039	1040	873	780	2714	0.040	9	1	9	235	2.21	9.49	4.76	44.30	0.59	
1040	1041	780	695	2758	0.040	10	1	10	304	2.50	9.75	4.71	49.01	0.65	
1041	1042	695	650	1846	0.040	15	1	10	335	2.25	8.63	3.56	52.58	0.70	
1042	1043	650	600	2257	0.040	15	1	10	337	2.32	8.38	4.49	57.07	0.76	
1043	1044	600	580	1011	0.040	20	1	10	337	2.03	7.55	2.23	59.30	0.79	
1044	1045	580	540	1918	0.040	20	1	10	337	2.00	7.68	4.16	63.46	0.85	
1045	1046	540	515	1273	0.040	20	1	10	342	2.05	7.57	2.80	66.27	0.88	
1046	1047	515	485	1705	0.040	20	1	10	347	2.14	7.33	3.88	70.14	0.94	
1047	1048	485	445	2398	0.040	20	1	10	347	2.17	7.21	5.55	75.69	1.01	
1048	1049	445	400	2427	0.040	20	1	10	347	2.10	7.46	5.42	81.11	1.08	
1049	1050	400	390	616	0.040	20	1	15	444	2.54	7.77	1.32	82.43	1.10	
1050	1051	390	330	4501	0.040	20	1	15	457	2.74	7.35	10.21	92.64	1.24	
1051	1052	330	300	2333	0.040	20	1	15	457	2.76	7.26	5.36	98.00	1.31	
1052	1053	300	265	3322	0.040	20	1	15	457	2.93	6.79	8.15	106.15	1.42	
1053	1054	265	245	1390	0.040	20	1	15	460	2.68	7.55	3.07	109.22	1.46	
1054	1055	245	215	2724	0.040	25	1	15	508	2.71	6.78	6.69	115.91	1.55	
1055	1056	215	185	2880	0.040	25	1	15	508	2.75	6.66	7.21	123.12	1.64	
1056	1057	185	165	2367	0.040	30	1	15	508	2.63	5.93	6.65	129.77	1.73	

Rainfall Depths

2-Year - Expected Value - Proposed Condition

Subarea	Area			Rainfall Depth						Node	Area			Rainfall Depth					
	(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr		(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr
		X		0.13	0.28	0.37	0.62	0.85	1.44			X		0.13	0.28	0.37	0.62	0.85	1.44
			X	0.18	0.32	0.46	0.94	1.46	2.67			X		0.18	0.32	0.46	0.94	1.46	2.67
1000	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1001	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67
1001	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1002	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67
1002	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1003	0.9	0.0	0.9	0.18	0.32	0.46	0.94	1.46	2.67
1003	0.4	0.0	0.4	0.18	0.32	0.46	0.94	1.46	2.67	1004	1.3	0.0	1.3	0.18	0.32	0.46	0.94	1.46	2.67
1004	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	1005	1.9	0.0	1.9	0.18	0.32	0.46	0.94	1.46	2.67
1005	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67										
1010	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67	1011	0.6	0.0	0.6	0.18	0.32	0.46	0.94	1.46	2.67
1011	0.4	0.0	0.4	0.18	0.32	0.46	0.94	1.46	2.67	1012	1.0	0.0	1.0	0.18	0.32	0.46	0.94	1.46	2.67
1012	0.9	0.0	0.9	0.18	0.32	0.46	0.94	1.46	2.67	1013	1.9	0.0	1.9	0.18	0.32	0.46	0.94	1.46	2.67
1013	1.1	0.0	1.1	0.18	0.32	0.46	0.94	1.46	2.67	1014	5.5	0.0	5.5	0.18	0.32	0.46	0.94	1.46	2.67
1014	3.8	0.0	3.8	0.18	0.32	0.46	0.94	1.46	2.67	1015	9.3	0.0	9.3	0.18	0.32	0.46	0.94	1.46	2.67
1015	3.4	1.0	2.4	0.17	0.31	0.43	0.85	1.28	2.31	1016	12.7	1.0	11.7	0.18	0.32	0.45	0.91	1.41	2.57
1016	16.2	4.1	12.1	0.17	0.31	0.44	0.86	1.31	2.36	1017	28.9	5.1	23.8	0.17	0.31	0.44	0.88	1.35	2.45
1017	4.6	2.8	1.8	0.15	0.30	0.41	0.75	1.09	1.92										
1020	0.7	0.0	0.7	0.18	0.32	0.46	0.94	1.46	2.67	1021	0.7	0.0	0.7	0.18	0.32	0.46	0.94	1.46	2.67
1021	0.5	0.0	0.5	0.18	0.32	0.46	0.94	1.46	2.67	1022	1.2	0.0	1.2	0.18	0.32	0.46	0.94	1.46	2.67
1022	1.7	0.0	1.7	0.18	0.32	0.46	0.94	1.46	2.67	1023	2.9	0.0	2.9	0.18	0.32	0.46	0.94	1.46	2.67
1023	0.3	0.0	0.3	0.18	0.32	0.46	0.94	1.46	2.67	1024	3.2	0.0	3.2	0.18	0.32	0.46	0.94	1.46	2.67
1024	1.8	0.0	1.8	0.18	0.32	0.46	0.94	1.46	2.67	1025	5.0	0.0	5.0	0.18	0.32	0.46	0.94	1.46	2.67
1025	3.4	0.0	3.4	0.18	0.32	0.46	0.94	1.46	2.67	1026	8.4	0.0	8.4	0.18	0.32	0.46	0.94	1.46	2.67
1026	6.2	0.0	6.2	0.18	0.32	0.46	0.94	1.46	2.67	1027	14.6	0.0	14.6	0.18	0.32	0.46	0.94	1.46	2.67
1027	9.9	0.0	9.9	0.18	0.32	0.46	0.94	1.46	2.67	1028	24.5	0.0	24.5	0.18	0.32	0.46	0.94	1.46	2.67
1028	4.0	2.0	2.0	0.16	0.30	0.42	0.78	1.16	2.06	1029	62.0	9.9	52.1	0.17	0.31	0.45	0.89	1.36	2.47
1029	33.7	26.3	7.4	0.14	0.29	0.39	0.69	0.98	1.71	1030	95.7	36.2	59.5	0.16	0.30	0.43	0.82	1.23	2.20
1030	83.9	54.2	29.7	0.15	0.29	0.40	0.73	1.07	1.88	1031	179.6	90.4	89.2	0.15	0.30	0.41	0.78	1.15	2.05
1031	176.1	116.9	59.2	0.15	0.29	0.40	0.73	1.06	1.85	1032	355.7	207.3	148.4	0.15	0.30	0.41	0.75	1.10	1.95
1032	75.8	75.5	0.3	0.13	0.28	0.37	0.62	0.85	1.44	1033	431.5	282.8	148.7	0.15	0.29	0.40	0.73	1.06	1.86
1033	133.0	133.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1034	564.5	415.8	148.7	0.14	0.29	0.39	0.70	1.01	1.76
1034	46.5	46.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1035	611.0	462.3	148.7	0.14	0.29	0.39	0.70	1.00	1.74
1035	59.0	59.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1036	670.0	521.3	148.7	0.14	0.29	0.39	0.69	0.99	1.71
1036	348.9	341.2	7.7	0.13	0.28	0.37	0.63	0.86	1.47	1037	1,018.9	862.5	156.4	0.14	0.29	0.38	0.67	0.94	1.63
1037	84.2	84.2	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1038	1,103.1	946.7	156.4	0.14	0.29	0.38	0.67	0.94	1.61

Rainfall Depths

2-Year - Expected Value - Proposed Condition

Subarea	Area			Rainfall Depth						Node	Area			Rainfall Depth					
	(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr		(ac)	< 2000 (ac)	> 2000 (ac)	5-min	30-min	1-hr	3-hr	6-hr	24-hr
		X		0.13	0.28	0.37	0.62	0.85	1.44			X		0.13	0.28	0.37	0.62	0.85	1.44
			X	0.18	0.32	0.46	0.94	1.46	2.67			X		0.18	0.32	0.46	0.94	1.46	2.67
1038	426.5	358.5	68.0	0.14	0.29	0.38	0.67	0.95	1.64	1039	1,529.6	1,305.2	224.4	0.14	0.29	0.38	0.67	0.94	1.62
1039	584.2	520.2	64.0	0.14	0.28	0.38	0.66	0.92	1.57	1040	2,113.8	1,825.4	288.4	0.14	0.29	0.38	0.66	0.93	1.61
1040	629.8	628.6	1.2	0.13	0.28	0.37	0.62	0.85	1.44	1041	2,743.6	2,454.0	289.6	0.14	0.28	0.38	0.65	0.91	1.57
1041	135.8	135.8	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1042	2,879.4	2,589.8	289.6	0.14	0.28	0.38	0.65	0.91	1.56
1042	475.9	475.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1043	3,355.3	3,065.7	289.6	0.13	0.28	0.38	0.65	0.90	1.55
1043	165.2	165.2	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1044	3,520.5	3,230.9	289.6	0.13	0.28	0.38	0.65	0.90	1.54
1044	339.3	339.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1045	3,859.8	3,570.2	289.6	0.13	0.28	0.38	0.64	0.90	1.53
1045	155.5	155.5	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1046	4,015.3	3,725.7	289.6	0.13	0.28	0.38	0.64	0.89	1.53
1046	190.7	190.7	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1047	4,206.0	3,916.4	289.6	0.13	0.28	0.38	0.64	0.89	1.52
1047	200.9	200.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1048	4,406.9	4,117.3	289.6	0.13	0.28	0.38	0.64	0.89	1.52
1048	3,383.3	3,383.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1049	7,790.2	7,500.6	289.6	0.13	0.28	0.37	0.63	0.87	1.49
1049	496.3	496.3	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1050	8,286.5	7,996.9	289.6	0.13	0.28	0.37	0.63	0.87	1.48
1050	300.9	300.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1051	8,587.4	8,297.8	289.6	0.13	0.28	0.37	0.63	0.87	1.48
1051	365.0	365.0	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1052	8,952.4	8,662.8	289.6	0.13	0.28	0.37	0.63	0.87	1.48
1052	679.9	679.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1053	9,632.3	9,342.7	289.6	0.13	0.28	0.37	0.63	0.87	1.48
1053	2,538.8	2,538.8	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1054	12,171.1	11,881.5	289.6	0.13	0.28	0.37	0.63	0.86	1.47
1054	351.6	351.6	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1055	12,522.7	12,233.1	289.6	0.13	0.28	0.37	0.63	0.86	1.47
1055	367.9	367.9	0.0	0.13	0.28	0.37	0.62	0.85	1.44	1056	12,890.6	12,601.0	289.6	0.13	0.28	0.37	0.63	0.86	1.47
1056	5,665.4	5,037.9	627.5	0.14	0.28	0.38	0.66	0.92	1.58	1057	18,556.0	17,638.9	917.1	0.13	0.28	0.37	0.64	0.88	1.50

Channel Hydraulics, Travel Times, Times of Concentration, and Lag Estimates 2-Year - Expected Value - Proposed Condition

U/S Node	D/S Node	U/S Elevation	D/S Elevation	Length (ft)	Manning (n)	Base (ft)	Sideslope (z)	Height (ft)	Q(2) (cfs)	Dn (ft)	V (fps)	Tt (min)	Tc (min)	Lag (hr)	
	1036		1100	Data from Rational Method Analysis:						56.21				31.03	0.41
1036	1037	1100	1010	1517	0.040	7	1	7	138.92	1.59	10.16	2.49	33.52	0.45	
1037	1038	1010	925	2069	0.040	8	1	8	192.54	1.99	9.69	3.56	37.08	0.49	
1038	1039	925	873	1383	0.040	8	1	8	192.58	2.04	9.39	2.45	39.53	0.53	
1039	1040	873	780	2714	0.040	9	1	9	234.70	2.21	9.49	4.76	44.30	0.59	
1040	1041	780	695	2758	0.040	10	1	10	303.94	2.50	9.75	4.71	49.01	0.65	
1041	1042	695	650	1846	0.040	15	1	10	334.68	2.25	8.63	3.56	52.58	0.70	
1042	1043	650	600	2257	0.040	15	1	10	336.96	2.32	8.38	4.49	57.07	0.76	
1043	1044	600	580	1011	0.040	20	1	10	337.14	2.03	7.55	2.23	59.30	0.79	
1044	1045	580	540	1918	0.040	20	1	10	337.08	2.00	7.68	4.16	63.46	0.85	
1045	1046	540	515	1273	0.040	20	1	10	342.30	2.05	7.57	2.80	66.27	0.88	
1046	1047	515	485	1705	0.040	20	1	10	346.50	2.14	7.33	3.88	70.14	0.94	
1047	1048	485	445	2398	0.040	20	1	10	346.68	2.17	7.21	5.55	75.69	1.01	
1048	1049	445	400	2427	0.040	20	1	10	346.55	2.10	7.46	5.42	81.11	1.08	
1049	1050	400	390	616	0.040	20	1	15	444.07	2.54	7.77	1.32	82.43	1.10	
1050	1051	390	330	4501	0.040	20	1	15	456.57	2.73	7.35	10.21	92.65	1.24	
1051	1052	330	300	2333	0.040	20	1	15	456.73	2.76	7.26	5.36	98.00	1.31	
1052	1053	300	265	3322	0.040	20	1	15	456.58	2.93	6.79	8.15	106.16	1.42	
1053	1054	265	245	1390	0.040	20	1	15	456.69	2.67	7.54	3.07	109.23	1.46	
1054	1055	245	215	2724	0.040	25	1	15	503.05	2.69	6.76	6.72	115.95	1.55	
1055	1056	215	185	2880	0.040	25	1	15	503.33	2.73	6.64	7.23	123.18	1.64	
1056	1057	185	165	2367	0.040	30	1	15	503.34	2.61	5.91	6.67	129.85	1.73	

Losses

Node U1036
 Total Area (ac) 670.1
 24-Hour Rainfall Depth (in) 1.71
 Fm (in/hr) 0.60
 Y-Bar 0.78

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	25.9	0.0	83.0	421.9	25.9	0.0	83.0	421.9
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.1	9.1	0.0	0.0	0.1	9.1
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	11.7	0.0	47.1	69.4	11.7	0.0	47.1	69.4
Woodland (Fair)	100	36	60	73	79	0.0	0.0	0.1	0.8	0.0	0.0	0.1	0.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.07	0.15
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.19	0.37	0.53	0.62
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.03	0.15	0.25
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.11	0.25	0.37
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.07	0.21	0.32
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.08	0.23	0.32
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.01	0.09	0.19
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.05	0.18	0.30
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.12	0.21
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.18	0.37	0.53	0.66
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.04	0.18	0.27
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.07	0.21	0.32
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.04	0.18	0.27

Losses

Node U1037
 Total Area (ac) 1,019.0
 24-Hour Rainfall Depth (in) 1.63
 Fm (in/hr) 0.60
 Y-Bar 0.80

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	23.7	0.0	82.5	2.5	49.6	0.0	165.5	424.4
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	24.2	10.6	0.0	0.0	24.3	19.7
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	6.7	0.0	114.0	84.7	18.4	0.0	161.1	154.1
Woodland (Fair)	100	36	60	73	79	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.18	0.36	0.52	0.60
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.13	0.24
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.24	0.36
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.20	0.30
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.07	0.22	0.30
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.08	0.18
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.04	0.16	0.28
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.11	0.20
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.16	0.36	0.52	0.65
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.26
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.20	0.30
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.26

Losses

Node U1038
 Total Area (ac) 1,103.1
 24-Hour Rainfall Depth (in) 1.61
 Fm (in/hr) 0.60
 Y-Bar 0.81

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	10.2	0.0	31.2	1.2	59.8	0.0	196.7	425.6
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	4.7	1.9	0.0	0.0	29.0	21.6
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.4	0.0	17.5	17.0	18.8	0.0	178.6	171.1
Woodland (Fair)	100	36	60	73	79	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.18	0.35	0.52	0.60
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.13	0.23
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.23	0.35
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.19	0.30
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.07	0.21	0.30
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.08	0.18
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.04	0.16	0.28
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.10	0.19
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.16	0.35	0.52	0.64
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.25
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.19	0.30
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.25

Losses

Node U1039
 Total Area (ac) 1,529.7
 24-Hour Rainfall Depth (in) 1.62
 Fm (in/hr) 0.60
 Y-Bar 0.81

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	55.8	0.0	106.0	28.5	115.6	0.0	302.7	454.1
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	1.9	0.8	0.0	0.0	30.9	22.4
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	25.5	0.0	0.0	0.0	26.5
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	2.3	0.0	112.0	92.9	21.1	0.0	290.6	264.0
Woodland (Fair)	100	36	60	73	79	0.2	0.0	0.7	0.0	0.2	0.0	0.8	0.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.18	0.35	0.52	0.60
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.13	0.23
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.23	0.35
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.20	0.30
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.07	0.21	0.30
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.08	0.18
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.04	0.16	0.28
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.10	0.20
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.16	0.35	0.52	0.65
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.26
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.20	0.30
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.26

Losses

Node U1040
 Total Area (ac) 2,113.7
 24-Hour Rainfall Depth (in) 1.61
 Fm (in/hr) 0.60
 Y-Bar 0.81

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	31.1	0.0	122.3	129.9	146.7	0.0	425.0	584.0
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	4.4	0.0	0.0	30.9	26.8
Grass (Fair)	100	50	69	79	84	2.2	0.0	1.6	12.7	2.2	0.0	1.6	39.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	12.1	0.0	137.4	116.4	33.2	0.0	428.0	380.4
Woodland (Fair)	100	36	60	73	79	8.7	0.0	0.9	2.9	8.9	0.0	1.7	3.7
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	1.3	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.13
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.18	0.35	0.52	0.60
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.13	0.23
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.23	0.35
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.19	0.30
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.07	0.21	0.30
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.08	0.18
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.04	0.16	0.28
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.10	0.19
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.16	0.35	0.52	0.64
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.25
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.19	0.30
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.16	0.25

Losses

Node U1041
 Total Area (ac) 2,743.6
 24-Hour Rainfall Depth (in) 1.57
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	30.0	0.0	87.4	36.1	176.7	0.0	512.4	620.1
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	0.0	30.9	26.8
Grass (Fair)	100	50	69	79	84	1.2	0.0	10.4	56.8	3.4	0.0	12.0	96.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	28.6	0.0	138.6	220.7	61.8	0.0	566.6	601.1
Woodland (Fair)	100	36	60	73	79	14.7	0.0	2.9	0.9	23.6	0.0	4.6	4.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	1.6	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.06	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.17	0.34	0.51	0.59
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.09	0.22	0.34
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.06	0.19	0.29
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.29
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.17
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.27
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.01	0.10	0.19
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.34	0.51	0.64
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.06	0.19	0.29
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.15	0.24

Losses

Node U1042
 Total Area (ac) 2,879.3
 24-Hour Rainfall Depth (in) 1.56
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	1.3	0.0	25.1	18.0	178.0	0.0	537.5	638.1
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	0.0	30.9	26.8
Grass (Fair)	100	50	69	79	84	0.2	0.0	3.2	2.2	3.6	0.0	15.2	98.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	2.2	0.0	28.6	44.1	64.0	0.0	595.2	645.2
Woodland (Fair)	100	36	60	73	79	5.3	0.0	0.9	4.6	28.9	0.0	5.5	9.2
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.17	0.34	0.51	0.59
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.02	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.34
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.29
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.29
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.17
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.27
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.10	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.34	0.51	0.64
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.29
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.03	0.15	0.24

Losses

Node U1043
 Total Area (ac) 3,355.1
 24-Hour Rainfall Depth (in) 1.55
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	5.5	6.4	52.9	95.6	183.5	6.4	590.4	733.7
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	13.5	0.0	0.0	0.0	44.4	26.8
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.6	3.6	0.0	15.2	98.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	8.0	2.6	57.9	213.7	72.0	2.6	653.1	858.9
Woodland (Fair)	100	36	60	73	79	1.1	9.6	0.0	8.4	30.0	9.6	5.5	17.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.34	0.50	0.59
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.34
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.29
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.29
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.34	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.29
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24

Losses

Node U1044
 Total Area (ac) 3,520.2
 24-Hour Rainfall Depth (in) 1.54
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	1.3	0.4	27.5	33.2	184.8	6.8	617.9	766.9
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.7	7.6	0.0	0.0	0.7	52.0	26.8
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	3.6	0.0	15.2	98.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	1.3	1.6	32.5	50.7	73.3	4.2	685.6	909.6
Woodland (Fair)	100	36	60	73	79	0.9	2.8	0.9	3.7	30.9	12.4	6.4	21.3
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.34	0.50	0.59
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.34
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.34	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24

Losses

Node U1045
 Total Area (ac) 3,859.5
 24-Hour Rainfall Depth (in) 1.53
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	6.2	4.5	90.4	75.7	191.0	11.3	708.3	842.6
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	2.2	0.0	0.0	0.7	54.2	26.8
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	3.6	0.0	15.2	98.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	2.0	2.4	49.6	85.1	75.3	6.6	735.2	994.7
Woodland (Fair)	100	36	60	73	79	6.0	0.2	6.7	8.3	36.9	12.6	13.1	29.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.50	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.33	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24

Losses

Node U1046
 Total Area (ac) 4,015.1
 24-Hour Rainfall Depth (in) 1.53
 Fm (in/hr) 0.60
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.1	6.7	90.0	1.6	191.1	18.0	798.3	844.2
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.2	3.8	0.0	0.0	0.9	58.0	26.8
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.0	0.0	3.6	0.0	15.2	98.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	1.1	42.9	1.7	75.3	7.7	778.1	996.4
Woodland (Fair)	100	36	60	73	79	0.0	1.0	0.8	5.7	36.9	13.6	13.9	35.3
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.12
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.50	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.12	0.22
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.22	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.20	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.15	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.15	0.33	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.15	0.24

Losses

Node U1047
 Total Area (ac) 4,206.0
 24-Hour Rainfall Depth (in) 1.52
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	7.4	88.5	2.6	191.1	25.4	886.8	846.8
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	12.7	0.7	0.0	0.9	70.7	27.5
Grass (Fair)	100	50	69	79	84	0.0	0.0	0.7	1.1	3.6	0.0	15.9	99.9
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	4.7	48.3	7.1	75.3	12.4	826.4	1,003.5
Woodland (Fair)	100	36	60	73	79	0.0	2.7	5.7	8.7	36.9	16.3	19.6	44.0
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.50	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.19	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node U1048
 Total Area (ac) 4,407.0
 24-Hour Rainfall Depth (in) 1.52
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	1.8	86.1	6.8	191.1	27.2	972.9	853.6
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	0.9	70.7	27.5
Grass (Fair)	100	50	69	79	84	0.0	3.0	4.7	6.3	3.6	3.0	20.6	106.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	0.0	47.3	2.8	75.3	12.4	873.7	1,006.3
Woodland (Fair)	100	36	60	73	79	0.0	8.1	22.4	11.7	36.9	24.4	42.0	55.7
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.50	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.19	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.26
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.18
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.50	0.63
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.18	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1049
 Total Area (ac) 7,790.2
 24-Hour Rainfall Depth (in) 1.49
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	2.2	1.0	0.0	0.0	2.2	1.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	39.1	70.7	709.7	141.9	230.2	97.9	1,682.6	995.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	2.0	78.3	21.6	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	26.9	65.1	92.3	481.5	30.5	68.1	112.9	587.7
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	43.6	39.6	838.8	419.6	118.9	52.0	1,712.5	1,425.9
Woodland (Fair)	100	36	60	73	79	72.7	81.7	84.4	70.1	109.6	106.1	126.4	125.8
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.33	0.49	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1050
 Total Area (ac) 8,287.9
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.9	6.9	0.0	0.0	0.9	6.9
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	1.1	0.2	0.0	0.0	3.3	1.2
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	88.3	2.5	230.2	97.9	1,770.9	998.0
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	0.3	2.2	36.5	62.6	30.8	70.3	149.4	650.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	0.2	0.2	245.3	9.2	119.1	52.2	1,957.8	1,435.1
Woodland (Fair)	100	36	60	73	79	1.1	0.4	38.0	1.8	110.7	106.5	164.4	127.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1051
 Total Area (ac) 8,742.1
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.7	0.0	0.0	23.1	0.7	0.0	0.9	30.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	1.3	7.1	0.0	0.0	4.6	8.3
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	9.1	40.7	230.2	97.9	1,780.0	1,038.7
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	1.8	3.2	5.8	178.6	32.6	73.5	155.2	828.9
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	0.0	2.2	29.6	93.4	119.1	54.4	1,987.4	1,528.5
Woodland (Fair)	100	36	60	73	79	6.5	10.9	8.8	31.4	117.2	117.4	173.2	159.0
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1052
 Total Area (ac) 9,032.9
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.7	0.0	0.9	30.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	1.1	0.0	0.0	1.1	1.1	0.0	0.0	1.1
Barren (Poor)	100	78	86	91	93	7.2	0.0	4.3	36.1	7.2	0.0	8.9	44.4
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	14.1	14.6	230.2	97.9	1,794.1	1,053.3
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	1.4	0.0	14.5	104.4	34.0	73.5	169.7	933.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	4.7	0.0	12.1	28.8	123.8	54.4	1,999.5	1,557.3
Woodland (Fair)	100	36	60	73	79	12.1	0.0	0.2	34.1	129.3	117.4	173.4	193.1
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1053
 Total Area (ac) 9,881.3
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	16.9	12.9	0.7	0.0	17.8	42.9
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1
Barren (Poor)	100	78	86	91	93	0.9	0.0	8.7	4.9	8.1	0.0	17.6	49.3
Chaparral, Broadleaf (Fair)	100	40	63	75	81	1.6	0.0	66.6	12.5	231.8	97.9	1,860.7	1,065.8
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	149.0	49.1
Grass (Fair)	100	50	69	79	84	13.1	21.8	24.9	325.9	47.1	95.3	194.6	1,259.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	3.2	4.2	63.5	125.0	127.0	58.6	2,063.0	1,682.3
Woodland (Fair)	100	36	60	73	79	16.9	4.4	47.0	73.5	146.2	121.8	220.4	266.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description	S				Ia				Y			
	A	B	C	D	A	B	C	D	A	B	C	D
Commercial	21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre	21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre	21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre	21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park	21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)	2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)	15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)	8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)	10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)	9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)	23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)	11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)	17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)	2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)	12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)	10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)	12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node E1054
 Total Area (ac) 12,304.1
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.7	0.7	0.0	17.8	43.6
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.7	1.1	0.0	0.0	1.8
Barren (Poor)	100	78	86	91	93	12.0	12.5	12.3	30.7	20.1	12.5	29.9	80.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	21.7	265.4	53.4	231.8	119.6	2,126.1	1,119.2
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.9	0.7	0.0	2.9	149.9	49.8
Grass (Fair)	100	50	69	79	84	5.0	143.5	255.0	594.1	52.1	238.8	449.6	1,853.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	0.0	25.8	361.1	275.5	127.0	84.4	2,424.1	1,957.8
Woodland (Fair)	100	36	60	73	79	1.3	97.0	166.1	87.4	147.5	218.8	386.5	354.0
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node E1055
 Total Area (ac) 12,628.7
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.60
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	2.2	0.7	0.0	17.8	45.8
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.8
Barren (Poor)	100	78	86	91	93	0.0	6.9	0.4	0.2	20.1	19.4	30.3	80.2
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	5.8	71.9	4.6	231.8	125.4	2,198.0	1,123.8
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.2	0.2	0.0	2.9	150.1	50.0
Grass (Fair)	100	50	69	79	84	7.2	22.6	14.6	45.5	59.3	261.4	464.2	1,898.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	1.8	7.9	66.5	16.9	128.8	92.3	2,490.6	1,974.7
Woodland (Fair)	100	36	60	73	79	5.5	9.5	23.3	10.9	153.0	228.3	409.8	364.9
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node E1056
 Total Area (ac) 13,021.5
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.59
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	2.7	0.0	0.0	0.0	2.7
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	8.6	142.3	0.7	0.0	26.4	188.1
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.8
Barren (Poor)	100	78	86	91	93	0.0	1.8	2.4	32.6	20.1	21.2	32.7	112.8
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	0.0	4.7	231.8	125.4	2,198.0	1,128.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.7	0.0	2.9	150.1	50.7
Grass (Fair)	100	50	69	79	84	1.8	14.8	1.3	110.4	61.1	276.2	465.5	2,009.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	1.1	1.2	0.2	36.4	129.9	93.5	2,490.8	2,011.1
Woodland (Fair)	100	36	60	73	79	9.3	5.1	0.0	14.6	162.3	233.4	409.8	379.5
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.8

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node E1057
 Total Area (ac) 18,580.6
 24-Hour Rainfall Depth (in) 1.50
 Fm (in/hr) 0.59
 Y-Bar 0.82

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	12.8	87.5	0.7	0.0	39.2	275.6
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.8
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	20.1	21.2	32.7	112.8
Chaparral, Broadleaf (Fair)	100	40	63	75	81	38.9	18.5	554.0	1,538.1	270.7	143.9	2,752.0	2,666.6
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	22.0	0.0	2.9	150.1	72.7
Grass (Fair)	100	50	69	79	84	2.0	18.9	54.6	411.3	63.1	295.1	520.1	2,420.5
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Open Brush (Fair)	100	46	66	77	83	40.3	25.4	369.0	1,877.2	170.2	118.9	2,859.8	3,888.3
Woodland (Fair)	100	36	60	73	79	74.7	105.0	37.1	270.1	237.0	338.4	446.9	649.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	1.7	0.0	0.0	0.0	2.5

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.49	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.19	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1049
 Total Area (ac) 7,790.2
 24-Hour Rainfall Depth (in) 1.49
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	1.1	13.1	26.5	0.0	1.1	13.1	26.5
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	2.2	1.0	0.0	0.0	2.2	1.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	38.0	70.0	710.2	145.3	229.1	97.2	1,683.1	998.9
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	2.0	75.6	21.6	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	10.9	38.4	89.7	367.2	14.5	41.4	110.3	473.4
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	37.8	37.4	819.4	373.6	113.1	49.8	1,693.1	1,379.9
Woodland (Fair)	100	36	60	73	79	53.6	77.2	82.2	58.4	90.5	101.6	124.2	114.1
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	42.0	32.9	13.1	142.8	42.0	32.9	13.1	142.8

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.33	0.49	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1050
 Total Area (ac) 8,286.4
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	0.0	0.0	1.1	13.1	26.5
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	0.0	0.0	2.2	1.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	53.0	41.6	229.1	97.2	1,736.1	1,040.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	0.3	2.2	318.8	29.9	14.8	43.6	429.1	503.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.2	0.2	33.3	8.6	113.3	50.0	1,726.4	1,388.5
Woodland (Fair)	100	36	60	73	79	1.1	0.4	4.8	1.8	91.6	102.0	129.0	115.9
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	42.0	32.9	13.1	142.8

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1051
 Total Area (ac) 8,587.1
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.7	0.0	0.0	5.1	0.7	0.0	0.0	5.1
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	7.8	0.0	1.1	13.1	34.3
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.6	0.0	0.0	2.2	1.6
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	5.6	57.5	229.1	97.2	1,741.7	1,098.0
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	1.8	3.2	38.2	92.5	16.6	46.8	467.3	595.8
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	2.2	3.8	14.6	113.3	52.2	1,730.2	1,403.1
Woodland (Fair)	100	36	60	73	79	6.5	10.9	7.0	31.4	98.1	112.9	136.0	147.3
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	11.3	42.0	32.9	13.1	154.1

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1052
 Total Area (ac) 8,952.0
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.60
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.7	0.0	0.0	5.1
3-4 Dwellings / Acre	60	32	56	69	75	7.6	0.0	27.3	85.5	7.6	1.1	40.4	119.8
Public Park	85	32	56	69	75	1.1	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	3.8	0.0	3.3	7.3	3.8	0.0	5.5	8.9
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.4	0.7	49.5	229.1	97.6	1,742.4	1,147.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	0.6	0.0	0.0	13.5	17.2	46.8	467.3	609.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.4	0.0	0.3	0.8	113.7	52.2	1,730.5	1,403.9
Woodland (Fair)	100	36	60	73	79	10.1	0.0	0.2	15.0	108.2	112.9	136.2	162.3
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	2.9	3.8	0.0	130.8	44.9	36.7	13.1	284.9

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1053
 Total Area (ac) 9,632.2
 24-Hour Rainfall Depth (in) 1.48
 Fm (in/hr) 0.59
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	7.7	3.3	0.7	0.0	7.7	8.4
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	17.9	12.7	7.6	1.1	58.3	132.5
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.9	0.0	8.5	4.9	4.7	0.0	14.0	13.8
Chaparral, Broadleaf (Fair)	100	40	63	75	81	1.6	0.0	47.2	79.8	230.7	97.6	1,789.6	1,227.3
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.0	0.0	2.9	146.3	49.1
Grass (Fair)	100	50	69	79	84	12.5	11.4	17.2	105.1	29.7	58.2	484.5	714.4
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	2.9	1.3	49.1	67.8	116.6	53.5	1,779.6	1,471.7
Woodland (Fair)	100	36	60	73	79	16.9	4.2	43.1	49.4	125.1	117.1	179.3	211.7
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.9	9.3	0.0	104.6	45.8	46.0	13.1	389.5

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.21	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.19	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

Losses

Node P1054
 Total Area (ac) 12,171.0
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.58
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	0.0	0.7	0.0	7.7	8.4
3-4 Dwellings / Acre	60	32	56	69	75	14.7	24.7	56.8	499.3	22.3	25.8	115.1	631.8
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	12.5	0.0	15.4	4.7	12.5	14.0	29.2
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	36.3	295.4	38.1	230.7	133.9	2,085.0	1,265.4
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.9	0.7	0.0	2.9	147.2	49.8
Grass (Fair)	100	50	69	79	84	2.3	99.2	140.4	282.8	32.0	157.4	624.9	997.2
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	0.0	22.9	312.4	171.9	116.6	76.4	2,092.0	1,643.6
Woodland (Fair)	100	36	60	73	79	1.3	92.6	153.3	72.0	126.4	209.7	332.6	283.7
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	9.8	102.4	80.7	45.8	55.8	115.5	470.2

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node P1055
 Total Area (ac) 12,522.5
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.58
 Y-Bar 0.85

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	0.0	1.2	0.7	0.0	7.7	9.6
3-4 Dwellings / Acre	60	32	56	69	75	0.4	0.0	0.3	50.1	22.7	25.8	115.4	681.9
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	6.9	0.4	0.2	4.7	19.4	14.4	29.4
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	5.8	71.9	3.5	230.7	139.7	2,156.9	1,268.9
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.2	0.2	0.0	2.9	147.4	50.0
Grass (Fair)	100	50	69	79	84	6.8	22.6	14.6	33.5	38.8	180.0	639.5	1,030.7
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	1.8	7.9	66.5	9.5	118.4	84.3	2,158.5	1,653.1
Woodland (Fair)	100	36	60	73	79	5.5	9.5	23.3	8.9	131.9	219.2	355.9	292.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	45.8	55.8	115.5	470.2

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node P1056
 Total Area (ac) 12,890.6
 24-Hour Rainfall Depth (in) 1.47
 Fm (in/hr) 0.58
 Y-Bar 0.84

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	2.7	0.0	0.0	0.0	2.7
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	8.5	128.0	0.7	0.0	16.2	137.6
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	0.0	42.8	22.7	25.8	115.4	724.7
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	1.8	2.4	32.6	4.7	21.2	16.8	62.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	0.0	0.0	0.0	3.1	230.7	139.7	2,156.9	1,272.0
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	0.7	0.0	2.9	147.4	50.7
Grass (Fair)	100	50	69	79	84	1.8	14.8	1.3	74.3	40.6	194.8	640.8	1,105.0
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	1.1	1.2	0.2	21.8	119.5	85.5	2,158.7	1,674.9
Woodland (Fair)	100	36	60	73	79	9.3	5.1	0.0	13.8	141.2	224.3	355.9	306.4
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.8	45.8	55.8	115.5	471.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.04	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.15	0.32	0.49	0.57
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.20
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.07	0.20	0.32
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.05	0.18	0.27
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.06	0.15
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.02	0.13	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.08	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.13	0.32	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.04	0.17	0.27
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.13	0.22

Losses

Node P1057
 Total Area (ac) 18,555.7
 24-Hour Rainfall Depth (in) 1.50
 Fm (in/hr) 0.58
 Y-Bar 0.83

Description	Ap %	Curve Number (AMC II)				Subarea (ac)				Total (ac)			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial	10	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7
11+ Dwellings / Acre	20	32	56	69	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-7 Dwellings / Acre	50	32	56	69	75	0.0	0.0	1.4	48.3	0.7	0.0	17.6	185.9
3-4 Dwellings / Acre	60	32	56	69	75	0.0	0.0	145.9	398.0	22.7	25.8	261.3	1,122.7
Public Park	85	32	56	69	75	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Barren (Poor)	100	78	86	91	93	0.0	0.0	0.0	0.0	4.7	21.2	16.8	62.0
Chaparral, Broadleaf (Fair)	100	40	63	75	81	38.9	18.5	540.8	1,590.5	269.6	158.2	2,697.7	2,862.5
Chaparral, Narrowleaf (Fair)	100	55	72	81	86	0.0	0.0	0.0	22.0	0.0	2.9	147.4	72.7
Grass (Fair)	100	50	69	79	84	2.0	18.9	106.1	198.3	42.6	213.7	746.9	1,303.3
Meadows or Cienegas (Fair)	100	51	70	80	84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meadows or Cienegas (Good)	100	30	58	71	78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open Brush (Fair)	100	46	66	77	83	40.3	25.4	236.6	1,749.2	159.8	110.9	2,395.3	3,424.1
Woodland (Fair)	100	36	60	73	79	74.7	105.0	35.4	267.2	215.9	329.3	391.3	573.6
Fallow (Poor)	100	77	86	91	94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orchards, Evergreen (Fair)	100	44	65	77	82	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Pasture, Dryland (Fair)	100	49	69	79	84	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Turf (Fair)	100	44	65	77	82	0.0	0.0	1.7	0.0	45.8	55.8	117.2	471.0

Description		S				Ia				Y			
		A	B	C	D	A	B	C	D	A	B	C	D
Commercial		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
11+ Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
5-7 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
3-4 Dwellings / Acre		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Public Park		21.25	7.86	4.49	3.33	4.25	1.57	0.90	0.67	0.00	0.00	0.05	0.11
Barren (Poor)		2.82	1.63	0.99	0.75	0.56	0.33	0.20	0.15	0.16	0.33	0.49	0.58
Chaparral, Broadleaf (Fair)		15.00	5.87	3.33	2.35	3.00	1.17	0.67	0.47	0.00	0.01	0.11	0.21
Chaparral, Narrowleaf (Fair)		8.18	3.89	2.35	1.63	1.64	0.78	0.47	0.33	0.00	0.08	0.21	0.33
Grass (Fair)		10.00	4.49	2.66	1.90	2.00	0.90	0.53	0.38	0.00	0.05	0.17	0.28
Meadows or Cienegas (Fair)		9.61	4.29	2.50	1.90	1.92	0.86	0.50	0.38	0.00	0.06	0.19	0.28
Meadows or Cienegas (Good)		23.33	7.24	4.08	2.82	4.67	1.45	0.82	0.56	0.00	0.00	0.07	0.16
Open Brush (Fair)		11.74	5.15	2.99	2.05	2.35	1.03	0.60	0.41	0.00	0.03	0.14	0.25
Woodland (Fair)		17.78	6.67	3.70	2.66	3.56	1.33	0.74	0.53	0.00	0.00	0.09	0.17
Fallow (Poor)		2.99	1.63	0.99	0.64	0.60	0.33	0.20	0.13	0.14	0.33	0.49	0.62
Orchards, Evergreen (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23
Pasture, Dryland (Fair)		10.41	4.49	2.66	1.90	2.08	0.90	0.53	0.38	0.00	0.05	0.17	0.28
Turf (Fair)		12.73	5.38	2.99	2.20	2.55	1.08	0.60	0.44	0.00	0.02	0.14	0.23

FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
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 Irvine, CA. 92602-1309
 714 - 734 - 5100

 FILE NAME: MP49002E.FLD
 TIME/DATE OF STUDY: 14:04 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1049.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 7790.200 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.080 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 1.000
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.840
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.87
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.49

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.714
 30-MINUTE FACTOR = 0.714
 1-HOUR FACTOR = 0.714
 3-HOUR FACTOR = 0.953
 6-HOUR FACTOR = 0.975
 24-HOUR FACTOR = 0.984

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 7.716

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.857	807.722
2	2.559	1602.933
3	4.761	2074.571
4	7.386	2473.194
5	10.752	3171.369
6	15.002	4003.586
7	20.525	5203.927
8	26.880	5987.055
9	33.122	5881.171
10	38.092	4682.432
11	42.009	3690.111
12	45.580	3363.764
13	48.591	2837.149
14	51.376	2623.979
15	53.598	2092.717
16	55.531	1821.361
17	57.208	1580.140
18	58.806	1505.709
19	60.349	1453.899
20	61.869	1431.509
21	63.196	1250.806
22	64.433	1165.192
23	65.603	1102.481
24	66.761	1090.607
25	67.854	1029.381
26	68.845	933.933
27	69.809	908.596
28	70.774	908.826
29	71.733	903.823
30	72.562	781.011
31	73.334	726.995
32	74.091	713.517
33	74.797	665.229
34	75.499	660.816
35	76.182	643.766
36	76.827	607.403
37	77.470	605.728
38	78.092	586.055
39	78.648	523.808
40	79.199	519.165
41	79.750	519.280
42	80.281	500.325
43	80.796	484.821
44	81.310	484.584
45	81.823	483.391
46	82.275	425.442
47	82.692	393.003
48	83.109	393.011
49	83.526	392.773
50	83.938	388.475
51	84.296	337.204
52	84.639	323.137
53	84.982	322.893
54	85.325	323.375
55	85.668	322.893
56	86.005	317.653
57	86.312	289.513
58	86.615	284.977
59	86.917	284.977
60	87.220	285.214
61	87.523	284.984
62	87.825	285.214

63	88.114	272.104
64	88.385	255.406
65	88.656	255.169
66	88.926	254.695
67	89.197	255.169
68	89.468	255.169
69	89.739	255.169
70	90.005	250.878
71	90.248	228.459
72	90.487	225.117
73	90.726	225.598
74	90.966	225.598
75	91.205	225.598
76	91.444	225.124
77	91.683	225.598
78	91.922	224.642
79	92.134	200.326
80	92.334	187.919
81	92.533	187.438
82	92.732	187.445
83	92.931	187.919
84	93.130	187.438
85	93.329	187.445
86	93.529	187.919
87	93.728	187.438
88	93.926	186.971
89	94.097	160.728
90	94.250	144.045
91	94.402	144.038
92	94.555	143.563
93	94.708	144.038
94	94.861	144.038
95	95.014	144.045
96	95.166	143.563
97	95.319	144.512
98	95.472	143.563
99	95.625	144.038
100	95.777	144.045
101	95.930	144.038
102	96.060	122.575
103	96.172	105.410
104	96.282	103.498
105	96.394	104.928
106	96.504	104.454
107	96.615	104.447
108	96.727	104.936
109	96.838	104.447
110	96.948	104.454
111	97.060	104.928
112	97.171	104.454
113	97.281	103.980
114	97.392	104.928
115	97.504	104.928
116	97.615	104.928
117	97.725	103.972
118	97.837	104.936
119	97.947	103.972
120	98.016	64.863
121	98.046	28.622
122	98.077	28.615
123	98.107	28.615
124	98.138	28.622
125	98.168	28.615
126	98.197	27.659
127	98.229	29.571
128	98.258	27.666
129	98.289	29.571
130	98.319	27.666

131	98.349	28.615
132	98.381	29.571
133	98.409	26.710
134	98.440	29.571
135	98.471	28.615
136	98.501	28.622
137	98.531	28.615
138	98.561	27.659
139	98.591	28.622
140	98.622	28.615
141	98.652	28.615
142	98.683	29.571
143	98.713	27.666
144	98.743	28.615
145	98.774	29.571
146	98.805	28.622
147	98.833	26.710
148	98.864	28.615
149	98.894	28.615
150	98.925	29.571

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 781.4597
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 168.5287

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	44.7983	87.71	.	Q V	.	.	.
14.083	45.4160	89.69	.	Q V	.	.	.
14.167	46.0512	92.22	.	Q V	.	.	.
14.250	46.7062	95.12	.	Q .V	.	.	.
14.333	47.3834	98.32	.	Q .V	.	.	.
14.417	48.0862	102.04	.	Q .V	.	.	.
14.500	48.8186	106.34	.	Q .V	.	.	.
14.583	49.5863	111.48	.	Q .V	.	.	.
14.667	50.3933	117.17	.	Q.V	.	.	.
14.750	51.2392	122.83	.	Q. V	.	.	.
14.833	52.1190	127.75	.	Q V	.	.	.
14.917	53.0286	132.07	.	Q V	.	.	.
15.000	53.9669	136.24	.	Q V	.	.	.
15.083	54.9321	140.16	.	.Q V	.	.	.
15.167	55.9241	144.03	.	.Q V	.	.	.
15.250	56.9411	147.67	.	.Q V	.	.	.
15.333	57.9828	151.26	.	.QV	.	.	.
15.417	59.0427	153.90	.	. Q V	.	.	.
15.500	60.1153	155.74	.	. Q V	.	.	.
15.583	61.1986	157.29	.	. Q V	.	.	.
15.667	62.2917	158.72	.	. Q V	.	.	.
15.750	63.3929	159.89	.	. Q V	.	.	.
15.833	64.5008	160.86	.	. Q V	.	.	.
15.917	65.6157	161.89	.	. Q V	.	.	.
16.000	66.7486	164.49	.	. Q V	.	.	.
16.083	68.1247	199.81	.	. QV	.	.	.
16.167	69.7510	236.14	.	. V Q	.	.	.
16.250	71.5478	260.90	.	. V Q	.	.	.
16.333	73.4987	283.27	.	. V . Q	.	.	.
16.417	75.6939	318.75	.	. V . Q	.	.	.
16.500	78.1700	359.53	.	. V . Q	.	.	.
16.583	81.0091	412.23	.	. V . Q	.	.	.
16.667	84.0665	443.94	.	. V . Q	.	.	.
16.750	87.0718	436.36	.	. V . Q	.	.	.
16.833	89.7230	384.96	.	. V . Q	.	.	.
16.917	92.0846	342.90	.	. V . Q	.	.	.
17.000	94.3451	328.23	.	. V . Q	.	.	.
17.083	96.4538	306.18	.	. V Q	.	.	.
17.167	98.4825	294.56	.	. Q	.	.	.
17.250	100.3412	269.89	.	. Q V	.	.	.
17.333	102.1001	255.39	.	. Q V	.	.	.
17.417	103.7667	241.99	.	. Q V	.	.	.
17.500	105.3850	234.98	.	. Q V	.	.	.
17.583	106.9535	227.74	.	. Q V	.	.	.
17.667	108.4738	220.74	.	. Q V	.	.	.
17.750	109.9032	207.56	.	. Q V	.	.	.
17.833	111.2743	199.07	.	. Q V	.	.	.
17.917	112.5993	192.40	.	. Q V	.	.	.
18.000	113.8940	187.98	.	. Q V	.	.	.
18.083	115.1458	181.77	.	. Q V	.	.	.
18.167	116.3461	174.29	.	. Q V	.	.	.
18.250	117.5162	169.89	.	. Q V	.	.	.
18.333	118.6639	166.65	.	. Q V	.	.	.
18.417	119.7868	163.05	.	. Q V	.	.	.
18.500	120.8529	154.80	.	. Q V	.	.	.
18.583	121.8805	149.21	.	. Q V	.	.	.

18.667	122.8805	145.21	.	.Q	.	.V	.
18.750	123.8457	140.15	.	.Q	.	.V	.
18.833	124.7894	137.03	.	.Q	.	.V	.
18.917	125.7100	133.66	.	.Q	.	.V	.
19.000	126.6031	129.69	.	.Q	.	.V	.
19.083	127.4789	127.16	.	.Q	.	.V	.
19.167	128.3336	124.11	.	.Q	.	.V	.
19.250	129.1578	119.67	.	.Q	.	.V	.
19.333	129.9673	117.54	.	.Q	.	.V	.
19.417	130.7642	115.71	.	.Q	.	.V	.
19.500	131.5440	113.24	.	.Q	.	.V	.
19.583	132.3084	110.98	.	.Q	.	.V	.
19.667	133.0613	109.33	.	.Q	.	.V	.
19.750	133.8027	107.65	.	.Q	.	.V	.
19.833	134.5177	103.81	.	.Q	.	.V	.
19.917	135.2136	101.04	.	.Q	.	.V	.
20.000	135.8999	99.65	.	.Q	.	.V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Analysis prepared by:

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 430 Exchange, Suite 200
 Irvine, CA. 92602-1309
 714 - 734 - 5100

 FILE NAME: MP50002E.FLD
 TIME/DATE OF STUDY: 14:04 03/26/2004

 FLOW PROCESS FROM NODE 1000.00 TO NODE 1050.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 8286.400 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.100 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.010
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.010
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.980
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.840
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.87
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.48

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.701
 30-MINUTE FACTOR = 0.701
 1-HOUR FACTOR = 0.701
 3-HOUR FACTOR = 0.950
 6-HOUR FACTOR = 0.973
 24-HOUR FACTOR = 0.983

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 7.576

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.834	835.951
2	2.489	1658.475
3	4.599	2114.760
4	7.137	2542.779
5	10.345	3214.869
6	14.407	4070.594
7	19.671	5275.608
8	25.686	6028.183
9	32.059	6386.604
10	37.015	4966.486
11	41.033	4026.406
12	44.694	3669.081
13	47.825	3137.705
14	50.763	2943.898
15	53.169	2411.009
16	55.095	1930.121
17	56.936	1844.864
18	58.547	1615.126
19	60.102	1558.223
20	61.643	1543.872
21	63.039	1399.162
22	64.308	1271.705
23	65.476	1170.273
24	66.646	1172.521
25	67.745	1101.454
26	68.777	1034.569
27	69.731	955.406
28	70.679	950.559
29	71.625	947.432
30	72.525	902.192
31	73.292	768.247
32	74.047	757.000
33	74.762	716.149
34	75.446	685.429
35	76.129	684.611
36	76.776	648.645
37	77.403	628.277
38	78.030	628.239
39	78.613	584.230
40	79.150	538.632
41	79.688	538.502
42	80.223	536.307
43	80.732	510.404
44	81.233	501.787
45	81.733	501.290
46	82.228	495.900
47	82.653	426.515
48	83.057	404.786
49	83.461	404.258
50	83.865	405.038
51	84.261	397.186
52	84.605	344.263
53	84.937	333.123
54	85.270	333.375
55	85.601	332.075
56	85.932	331.334
57	86.257	325.752
58	86.553	297.135
59	86.845	292.073
60	87.137	292.325
61	87.428	292.081
62	87.720	292.066

63	88.011	292.325
64	88.294	282.967
65	88.555	262.186
66	88.816	261.712
67	89.077	260.909
68	89.338	261.964
69	89.599	261.169
70	89.860	261.704
71	90.119	260.160
72	90.359	239.922
73	90.590	231.305
74	90.820	230.808
75	91.050	230.801
76	91.282	231.802
77	91.511	230.304
78	91.743	231.802
79	91.973	230.808
80	92.193	220.678
81	92.386	193.329
82	92.579	192.817
83	92.771	192.824
84	92.963	192.320
85	93.154	191.808
86	93.347	192.817
87	93.538	191.815
88	93.731	192.824
89	93.922	192.312
90	94.109	186.746
91	94.262	153.327
92	94.409	147.753
93	94.557	147.745
94	94.704	147.248
95	94.852	148.258
96	94.998	147.248
97	95.146	148.258
98	95.293	147.248
99	95.441	147.753
100	95.589	148.258
101	95.736	147.241
102	95.883	147.761
103	96.031	147.753
104	96.151	120.412
105	96.258	107.743
106	96.365	107.101
107	96.472	107.361
108	96.579	106.849
109	96.686	107.353
110	96.793	106.849
111	96.899	106.849
112	97.006	107.353
113	97.113	106.849
114	97.220	107.353
115	97.326	106.352
116	97.433	107.346
117	97.540	107.353
118	97.648	107.361
119	97.754	106.344
120	97.861	107.346
121	97.968	107.361
122	98.048	80.012
123	98.079	31.401
124	98.108	29.367
125	98.137	28.350
126	98.165	28.366
127	98.195	30.384
128	98.225	29.367
129	98.253	28.366
130	98.282	29.359

131	98.313	30.392
132	98.341	28.350
133	98.370	29.375
134	98.399	29.375
135	98.429	29.367
136	98.458	29.375
137	98.487	29.367
138	98.516	28.358
139	98.546	30.384
140	98.574	28.358
141	98.605	30.384
142	98.633	28.358
143	98.662	29.375
144	98.692	29.367
145	98.721	29.367
146	98.749	28.358
147	98.779	30.384
148	98.808	28.358
149	98.837	29.375
150	98.866	29.375

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 825.6131
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 176.9522

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	46.8622	92.85	.	Q V	.	.	.
14.083	47.5162	94.97	.	Q V	.	.	.
14.167	48.1890	97.68	.	Q V	.	.	.
14.250	48.8830	100.76	.	Q .V	.	.	.
14.333	49.6005	104.18	.	Q .V	.	.	.
14.417	50.3451	108.13	.	Q .V	.	.	.
14.500	51.1213	112.70	.	Q.V	.	.	.
14.583	51.9349	118.13	.	Q.V	.	.	.
14.667	52.7897	124.13	.	Q.V	.	.	.
14.750	53.6879	130.41	.	Q V	.	.	.
14.833	54.6228	135.74	.	Q V	.	.	.
14.917	55.5903	140.49	.	.QV	.	.	.
15.000	56.5892	145.04	.	.QV	.	.	.
15.083	57.6176	149.32	.	.Q V	.	.	.
15.167	58.6751	153.55	.	.QV	.	.	.
15.250	59.7601	157.54	.	.QV	.	.	.
15.333	60.8711	161.31	.	.QV	.	.	.
15.417	62.0017	164.17	.	.QV	.	.	.
15.500	63.1454	166.06	.	.QV	.	.	.
15.583	64.3002	167.67	.	.QV	.	.	.
15.667	65.4649	169.11	.	.QV	.	.	.
15.750	66.6381	170.35	.	.Q V	.	.	.
15.833	67.8178	171.30	.	.Q V	.	.	.
15.917	69.0043	172.28	.	.Q V	.	.	.
16.000	70.2086	174.86	.	.Q V	.	.	.
16.083	71.6504	209.35	.	.Q	.	.	.
16.167	73.3387	245.13	.	.V	Q.	.	.
16.250	75.1861	268.25	.	.V	.Q	.	.
16.333	77.1885	290.74	.	.V	.Q	.	.
16.417	79.4206	324.11	.	.V	.Q	.	.
16.500	81.9307	364.47	.	.V	.Q	.	.
16.583	84.7948	415.87	.	.V	.Q	Q	.
16.667	87.8694	446.43	.	.V	.Q	Q	.
16.750	91.0147	456.69	.	.V	.Q	Q	.
16.833	93.7663	399.53	.	.V	.Q	.	.
16.917	96.2541	361.23	.	.V	.Q	.	.
17.000	98.6374	346.06	.	.V	.Q	.	.
17.083	100.8774	325.25	.	.V	.Q	.	.
17.167	103.0449	314.72	.	.V	Q	.	.
17.250	105.0474	290.76	.	.V	Q	.	.
17.333	106.8994	268.91	.	.Q	V	.	.
17.417	108.7000	261.45	.	.Q	V	.	.
17.500	110.4128	248.70	.	.Q	V	.	.
17.583	112.0747	241.31	.	.Q	V	.	.
17.667	113.6895	234.46	.	.Q	V	.	.
17.750	115.2216	222.46	.	.Q	V	.	.
17.833	116.6819	212.04	.	.Q	V	.	.
17.917	118.0841	203.59	.	.Q	V	.	.
18.000	119.4571	199.36	.	.Q	V	.	.
18.083	120.7834	192.58	.	.Q	V	.	.
18.167	122.0638	185.91	.	.Q	V	.	.
18.250	123.2975	179.13	.	.Q	V	.	.
18.333	124.5063	175.52	.	.Q	V	.	.
18.417	125.6893	171.78	.	.Q	V	.	.
18.500	126.8348	166.32	.	.Q	V	.	.
18.583	127.9196	157.51	.	.Q	V	.	.

18.667	128.9754	153.30	.	.Q	.	V.	.
18.750	129.9960	148.19	.	.Q	.	V.	.
18.833	130.9872	143.91	.	.Q	.	V.	.
18.917	131.9577	140.93	.	.Q	.	V.	.
19.000	132.8998	136.79	.	Q	.	V	.
19.083	133.8185	133.40	.	Q	.	V	.
19.167	134.7195	130.82	.	Q	.	V	.
19.250	135.5934	126.90	.	Q	.	V	.
19.333	136.4414	123.13	.	Q.	.	V	.
19.417	137.2755	121.11	.	Q.	.	.V	.
19.500	138.0960	119.14	.	Q.	.	.V	.
19.583	138.8975	116.37	.	Q.	.	.V	.
19.667	139.6847	114.31	.	Q.	.	.V	.
19.750	140.4603	112.60	.	Q.	.	.V	.
19.833	141.2226	110.69	.	Q.	.	.V	.
19.917	141.9559	106.47	.	Q.	.	.V	.
20.000	142.6729	104.11	.	Q.	.	.V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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 Irvine, CA. 92602-1309
 714 - 734 - 5100

 FILE NAME: MP51002E.FLD
 TIME/DATE OF STUDY: 14:05 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1051.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 8587.100 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.240 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.020
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.020
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.950
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.010
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.840
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.87
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.48

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.695
 30-MINUTE FACTOR = 0.696
 1-HOUR FACTOR = 0.697
 3-HOUR FACTOR = 0.949
 6-HOUR FACTOR = 0.972
 24-HOUR FACTOR = 0.983

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 6.720

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.731	759.557
2	2.186	1511.125
3	3.860	1738.093
4	6.055	2279.095
5	8.496	2534.775
6	11.610	3234.350
7	15.493	4032.319
8	20.326	5019.204
9	25.656	5534.837
10	31.353	5917.042
11	35.744	4560.227
12	39.617	4021.574
13	42.971	3483.525
14	46.044	3190.812
15	48.891	2956.529
16	51.453	2660.592
17	53.566	2195.107
18	55.322	1823.159
19	57.039	1783.036
20	58.512	1530.292
21	59.946	1488.580
22	61.341	1448.775
23	62.705	1416.983
24	63.892	1232.156
25	65.019	1170.185
26	66.057	1078.681
27	67.108	1091.381
28	68.088	1017.839
29	69.030	977.969
30	69.887	890.340
31	70.734	879.738
32	71.574	872.322
33	72.411	868.321
34	73.171	789.834
35	73.845	700.010
36	74.513	693.085
37	75.146	657.756
38	75.749	626.182
39	76.352	626.134
40	76.940	611.358
41	77.495	575.474
42	78.046	573.065
43	78.597	571.481
44	79.098	520.376
45	79.571	491.370
46	80.043	490.577
47	80.515	490.023
48	80.970	472.560
49	81.410	456.373
50	81.849	456.397
51	82.288	456.104
52	82.715	443.363
53	83.078	376.547
54	83.430	366.152
55	83.783	366.437
56	84.136	365.875
57	84.488	366.152
58	84.809	333.652
59	85.100	301.896
60	85.391	301.555
61	85.681	301.832
62	85.970	299.986

63	86.257	298.053
64	86.542	296.064
65	86.804	271.685
66	87.057	262.993
67	87.310	263.183
68	87.563	262.549
69	87.816	262.827
70	88.069	262.549
71	88.323	263.128
72	88.569	255.664
73	88.797	236.720
74	89.023	235.032
75	89.250	235.317
76	89.476	235.531
77	89.702	234.446
78	89.929	235.500
79	90.155	234.295
80	90.380	234.343
81	90.588	215.399
82	90.787	207.365
83	90.987	207.943
84	91.188	207.959
85	91.387	206.786
86	91.588	208.529
87	91.787	207.349
88	91.987	207.388
89	92.187	207.943
90	92.380	200.495
91	92.549	175.252
92	92.716	173.049
93	92.881	172.114
94	93.048	172.677
95	93.213	171.544
96	93.379	172.693
97	93.545	172.685
98	93.711	171.536
99	93.877	172.693
100	94.043	172.677
101	94.208	171.544
102	94.351	148.606
103	94.479	131.960
104	94.606	132.554
105	94.734	133.109
106	94.862	132.546
107	94.989	131.968
108	95.117	133.133
109	95.244	131.968
110	95.372	132.546
111	95.500	132.538
112	95.628	133.117
113	95.755	131.968
114	95.882	132.538
115	96.010	132.538
116	96.137	131.968
117	96.245	111.891
118	96.338	96.979
119	96.431	95.799
120	96.524	96.829
121	96.616	95.696
122	96.708	95.688
123	96.800	95.688
124	96.893	96.258
125	96.985	95.696
126	97.078	96.250
127	97.170	95.688
128	97.263	96.258
129	97.354	94.539
130	97.447	96.845

131	97.540	96.829
132	97.631	94.547
133	97.724	96.829
134	97.815	94.103
135	97.908	96.338
136	97.999	95.197
137	98.087	90.601
138	98.123	37.857
139	98.147	25.227
140	98.174	27.525
141	98.198	25.235
142	98.225	27.525
143	98.249	25.227
144	98.273	25.227
145	98.298	25.235
146	98.323	26.384
147	98.348	26.368
148	98.374	26.384
149	98.399	26.384
150	98.424	25.227

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 855.6541
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 182.0733

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	47.2245	93.62	.	Q V	.	.	.
14.083	47.8833	95.67	.	Q V	.	.	.
14.167	48.5602	98.29	.	Q V	.	.	.
14.250	49.2565	101.10	.	Q V	.	.	.
14.333	49.9752	104.35	.	Q V	.	.	.
14.417	50.7176	107.80	.	Q .V	.	.	.
14.500	51.4875	111.78	.	Q .V	.	.	.
14.583	52.2889	116.37	.	Q.V	.	.	.
14.667	53.1270	121.70	.	Q.V	.	.	.
14.750	54.0047	127.43	.	QV	.	.	.
14.833	54.9238	133.47	.	Q V	.	.	.
14.917	55.8782	138.57	.	.QV	.	.	.
15.000	56.8656	143.38	.	.QV	.	.	.
15.083	57.8839	147.86	.	.QV	.	.	.
15.167	58.9324	152.24	.	. Q	.	.	.
15.250	60.0106	156.55	.	. QV	.	.	.
15.333	61.1179	160.79	.	. QV	.	.	.
15.417	62.2466	163.88	.	. Q	.	.	.
15.500	63.3899	166.00	.	. Q	.	.	.
15.583	64.5474	168.07	.	. QV	.	.	.
15.667	65.7158	169.66	.	. QV	.	.	.
15.750	66.8969	171.49	.	. QV	.	.	.
15.833	68.0900	173.25	.	. QV	.	.	.
15.917	69.2973	175.30	.	. QV	.	.	.
16.000	70.5255	178.33	.	. QV	.	.	.
16.083	71.9667	209.26	.	. VQ	.	.	.
16.167	73.6150	239.34	.	. V Q.	.	.	.
16.250	75.3494	251.83	.	. V Q	.	.	.
16.333	77.2514	276.17	.	. V . Q	.	.	.
16.417	79.2629	292.08	.	. V . Q	.	.	.
16.500	81.5044	325.47	.	. V . Q	.	.	.
16.583	83.9959	361.76	.	. V . Q	.	.	.
16.667	86.7729	403.22	.	. V . Q	.	.	.
16.750	89.6928	423.98	.	. V . Q	.	.	.
16.833	92.6933	435.66	.	. V . Q	.	.	.
16.917	95.3305	382.93	.	. V . Q	.	.	.
17.000	97.8152	360.77	.	. V . Q	.	.	.
17.083	100.1533	339.50	.	. V . Q	.	.	.
17.167	102.4090	327.52	.	. V . Q	.	.	.
17.250	104.5852	315.98	.	. V . Q	.	.	.
17.333	106.6592	301.15	.	. V Q	.	.	.
17.417	108.5861	279.79	.	. QV	.	.	.
17.500	110.3899	261.91	.	. Q V	.	.	.
17.583	112.1517	255.81	.	. Q V	.	.	.
17.667	113.8158	241.62	.	. Q . V	.	.	.
17.750	115.4312	234.57	.	. Q . V	.	.	.
17.833	116.9952	227.09	.	. Q . V	.	.	.
17.917	118.5155	220.74	.	. Q . V	.	.	.
18.000	119.9550	209.01	.	. Q . V	.	.	.
18.083	121.3470	202.12	.	. Q . V	.	.	.
18.167	122.6868	194.54	.	. Q . V	.	.	.
18.250	124.0024	191.04	.	. Q . V	.	.	.
18.333	125.2721	184.36	.	. Q . V	.	.	.
18.417	126.5060	179.15	.	. Q . V	.	.	.
18.500	127.6937	172.45	.	. Q . V	.	.	.
18.583	128.8546	168.57	.	. Q . V	.	.	.

18.667	129.9895	164.78	.	. Q	.	. V .	.
18.750	131.0978	160.93	.	. Q	.	. V .	.
18.833	132.1597	154.19	.	. Q	.	. V .	.
18.917	133.1755	147.49	.	. Q	.	. V .	.
19.000	134.1689	144.24	.	. Q	.	. V .	.
19.083	135.1350	140.28	.	. Q	.	. V .	.
19.167	136.0759	136.61	.	. Q	.	. V .	.
19.250	136.9993	134.09	.	. Q	.	. V .	.
19.333	137.9028	131.19	.	. Q	.	. V .	.
19.417	138.7822	127.68	.	. Q	.	. V .	.
19.500	139.6466	125.52	.	. Q	.	. V .	.
19.583	140.4963	123.37	.	. Q	.	. V .	.
19.667	141.3196	119.54	.	. Q	.	. V .	.
19.750	142.1230	116.66	.	. Q	.	. V .	.
19.833	142.9148	114.97	.	. Q	.	. V .	.
19.917	143.6956	113.38	.	. Q	.	. V .	.
20.000	144.4613	111.18	.	. Q	.	. V .	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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 430 Exchange, Suite 200
 Irvine, CA. 92602-1309
 714 - 734 - 5100

 FILE NAME: MP52002E.FLD
 TIME/DATE OF STUDY: 14:05 03/26/2004

 FLOW PROCESS FROM NODE 1000.00 TO NODE 1052.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 8952.000 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.310 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.040
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.030
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.910
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.020
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.600
 LOW LOSS FRACTION = 0.840
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.87
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.48

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.689
 30-MINUTE FACTOR = 0.691
 1-HOUR FACTOR = 0.692
 3-HOUR FACTOR = 0.947
 6-HOUR FACTOR = 0.972
 24-HOUR FACTOR = 0.982

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 6.361

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.681	736.999
2	2.037	1468.066
3	3.529	1615.362
4	5.542	2179.663
5	7.691	2326.098
6	10.478	3017.994
7	13.832	3630.317
8	18.036	4552.400
9	22.721	5071.426
10	28.255	5991.328
11	32.868	4994.137
12	36.947	4416.267
13	40.282	3610.306
14	43.547	3535.393
15	46.484	3179.460
16	49.334	3085.195
17	51.791	2660.078
18	53.851	2229.923
19	55.620	1915.603
20	57.340	1861.704
21	58.804	1585.255
22	60.232	1545.964
23	61.602	1483.032
24	62.960	1470.204
25	64.152	1291.334
26	65.275	1214.963
27	66.306	1116.523
28	67.311	1088.026
29	68.281	1050.353
30	69.211	1007.030
31	70.073	932.675
32	70.886	880.324
33	71.687	867.803
34	72.479	857.246
35	73.264	849.953
36	73.963	755.816
37	74.600	690.555
38	75.226	677.248
39	75.818	641.095
40	76.381	608.931
41	76.943	609.105
42	77.498	600.184
43	78.018	563.271
44	78.533	557.258
45	79.046	556.002
46	79.539	533.469
47	79.983	480.846
48	80.424	477.220
49	80.863	475.675
50	81.299	472.314
51	81.714	448.823
52	82.123	442.454
53	82.531	441.868
54	82.940	442.768
55	83.329	421.821
56	83.661	359.336
57	83.986	351.844
58	84.311	351.869
59	84.636	351.538
60	84.961	352.166
61	85.269	332.739
62	85.538	291.861

63	85.806	290.350
64	86.075	290.366
65	86.342	289.210
66	86.606	285.633
67	86.868	284.452
68	87.124	276.283
69	87.358	253.312
70	87.590	251.727
71	87.822	250.744
72	88.053	250.752
73	88.285	251.016
74	88.517	251.058
75	88.749	250.711
76	88.974	244.408
77	89.183	226.253
78	89.391	225.320
79	89.599	224.725
80	89.807	225.023
81	90.014	224.420
82	90.221	223.990
83	90.427	222.726
84	90.634	223.974
85	90.834	216.680
86	91.018	199.128
87	91.201	197.972
88	91.383	197.930
89	91.566	197.955
90	91.749	197.906
91	91.932	197.972
92	92.115	198.517
93	92.298	197.947
94	92.482	198.542
95	92.658	191.322
96	92.814	168.856
97	92.966	164.478
98	93.117	163.545
99	93.268	163.569
100	93.420	164.139
101	93.571	163.561
102	93.723	164.172
103	93.874	163.536
104	94.025	163.553
105	94.176	163.553
106	94.327	164.172
107	94.476	160.522
108	94.598	132.091
109	94.715	126.656
110	94.831	126.045
111	94.948	126.053
112	95.064	126.037
113	95.181	126.648
114	95.297	125.426
115	95.413	126.062
116	95.530	126.640
117	95.646	125.442
118	95.763	126.656
119	95.880	126.053
120	95.996	126.053
121	96.112	126.053
122	96.229	126.664
123	96.341	120.602
124	96.429	95.806
125	96.514	92.180
126	96.600	92.783
127	96.684	91.197
128	96.769	91.742
129	96.853	90.536
130	96.937	91.734

131	97.021	90.536
132	97.106	91.750
133	97.189	90.536
134	97.274	91.734
135	97.359	91.750
136	97.443	90.536
137	97.526	90.528
138	97.611	91.742
139	97.695	90.536
140	97.779	91.742
141	97.863	90.908
142	97.946	89.537
143	98.030	90.742
144	98.112	89.537
145	98.182	75.016
146	98.206	26.613
147	98.229	24.201
148	98.252	25.407
149	98.275	24.201
150	98.298	25.407

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 892.1212
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 188.9998

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	48.6972	96.67	.	Q V	.	.	.
14.083	49.3773	98.75	.	Q V	.	.	.
14.167	50.0757	101.41	.	Q V	.	.	.
14.250	50.7931	104.17	.	Q V	.	.	.
14.333	51.5327	107.40	.	Q V	.	.	.
14.417	52.2955	110.75	.	Q .V	.	.	.
14.500	53.0851	114.65	.	Q.V	.	.	.
14.583	53.9046	119.00	.	Q.V	.	.	.
14.667	54.7591	124.07	.	Q.V	.	.	.
14.750	55.6511	129.52	.	QV	.	.	.
14.833	56.5856	135.69	.	QV	.	.	.
14.917	57.5579	141.18	.	.QV	.	.	.
15.000	58.5657	146.33	.	.QV	.	.	.
15.083	59.6053	150.94	.	.Q	.	.	.
15.167	60.6770	155.62	.	.Q	.	.	.
15.250	61.7797	160.11	.	.QV	.	.	.
15.333	62.9139	164.68	.	.Q	.	.	.
15.417	64.0719	168.14	.	.Q	.	.	.
15.500	65.2469	170.61	.	.Q	.	.	.
15.583	66.4377	172.90	.	.QV	.	.	.
15.667	67.6418	174.84	.	.QV	.	.	.
15.750	68.8604	176.94	.	.Q	.	.	.
15.833	70.0929	178.97	.	.Q	.	.	.
15.917	71.3420	181.37	.	.QV	.	.	.
16.000	72.6155	184.91	.	.QV	.	.	.
16.083	74.0940	214.68	.	.V Q	.	.	.
16.167	75.7676	243.00	.	.V Q.	.	.	.
16.250	77.4996	251.48	.	.V V Q	.	.	.
16.333	79.3957	275.31	.	.V V . Q	.	.	.
16.417	81.3695	286.59	.	.V V . Q	.	.	.
16.500	83.5630	318.51	.	.V V . Q	.	.	.
16.583	85.9558	347.42	.	.V V . Q	.	.	.
16.667	88.6168	386.39	.	.V V . Q	.	.	.
16.750	91.4303	408.51	.	.V V . Q	.	.	.
16.833	94.4672	440.96	.	.V V . Q	.	.	.
16.917	97.2431	403.06	.	.V V . Q	.	.	.
17.000	99.8576	379.63	.	.V V . Q	.	.	.
17.083	102.2622	349.14	.	.V V . Q	.	.	.
17.167	104.6424	345.61	.	.V V . Q	.	.	.
17.250	106.9227	331.09	.	.V V . Q	.	.	.
17.333	109.1561	324.29	.	.V V . Q	.	.	.
17.417	111.2541	304.63	.	.VQ	.	.	.
17.500	113.2149	284.72	.	.QV	.	.	.
17.583	115.0668	268.89	.	.Q V	.	.	.
17.667	116.8717	262.07	.	.Q V	.	.	.
17.750	118.5732	247.06	.	.Q V	.	.	.
17.833	120.2241	239.71	.	.Q V	.	.	.
17.917	121.8223	232.06	.	.Q V	.	.	.
18.000	123.3824	226.51	.	.Q V	.	.	.
18.083	124.8648	215.25	.	.Q V	.	.	.
18.167	126.2949	207.65	.	.Q V	.	.	.
18.250	127.6701	199.69	.	.Q V	.	.	.
18.333	129.0092	194.44	.	.Q V	.	.	.
18.417	130.3115	189.09	.	.Q V	.	.	.
18.500	131.5765	183.68	.	.Q V	.	.	.
18.583	132.7975	177.29	.	.Q V	.	.	.

18.667	133.9798	171.66	.	.Q	.	.V	.
18.750	135.1342	167.62	.	.Q	.	.V	.
18.833	136.2601	163.48	.	.Q	.	.V	.
18.917	137.3590	159.56	.	.Q	.	.V	.
19.000	138.4105	152.68	.	.Q	.	.V	.
19.083	139.4247	147.25	.	.Q	.	.V	.
19.167	140.4154	143.86	.	.Q	.	.V	.
19.250	141.3795	139.98	.	.Q	.	.V	.
19.333	142.3183	136.32	.	.Q	.	.V	.
19.417	143.2405	133.91	.	.Q	.	.V	.
19.500	144.1449	131.31	.	.Q	.	.V	.
19.583	145.0257	127.89	.	.Q	.	.V	.
19.667	145.8909	125.63	.	.Q	.	.V	.
19.750	146.7421	123.59	.	.Q	.	.V	.
19.833	147.5740	120.80	.	.Q	.	.V	.
19.917	148.3799	117.02	.	.Q	.	.V	.
20.000	149.1735	115.22	.	.Q	.	.V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
 430 Exchange, Suite 200
 Irvine, CA. 92602-1309
 714 - 734 - 5100

 FILE NAME: MP53002E.FLD
 TIME/DATE OF STUDY: 14:05 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1053.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 9632.200 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.420 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.060
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.050
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.860
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.030
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.590
 LOW LOSS FRACTION = 0.840
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.87
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.48

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.678
 30-MINUTE FACTOR = 0.682
 1-HOUR FACTOR = 0.684
 3-HOUR FACTOR = 0.943
 6-HOUR FACTOR = 0.970
 24-HOUR FACTOR = 0.981

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 5.869

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.615	715.987
2	1.841	1428.421
3	3.117	1486.355
4	4.873	2045.246
5	6.736	2170.510
6	9.015	2655.222
7	11.814	3260.655
8	15.175	3914.703
9	19.253	4750.146
10	23.581	5042.074
11	28.647	5901.425
12	32.705	4726.766
13	36.441	4352.894
14	39.551	3622.359
15	42.683	3648.791
16	45.572	3365.024
17	48.443	3344.560
18	51.032	3015.992
19	53.150	2466.735
20	54.960	2108.202
21	56.795	2138.424
22	58.274	1722.976
23	59.708	1670.398
24	61.076	1593.411
25	62.376	1514.704
26	63.679	1517.352
27	64.813	1320.922
28	65.889	1253.751
29	66.887	1161.970
30	67.826	1093.670
31	68.760	1087.982
32	69.633	1017.052
33	70.482	989.821
34	71.255	899.506
35	72.012	882.878
36	72.750	859.255
37	73.477	846.448
38	74.195	837.143
39	74.832	741.586
40	75.422	687.079
41	75.997	670.530
42	76.545	637.434
43	77.057	596.578
44	77.570	598.231
45	78.079	593.094
46	78.567	567.481
47	79.035	545.298
48	79.502	544.507
49	79.968	542.374
50	80.404	508.041
51	80.805	467.746
52	81.206	466.324
53	81.604	464.404
54	82.000	460.867
55	82.378	440.328
56	82.747	430.303
57	83.117	430.321
58	83.486	429.974
59	83.853	427.601
60	84.178	378.205
61	84.469	338.958
62	84.759	338.336

63	85.049	338.291
64	85.340	338.300
65	85.630	338.309
66	85.908	323.263
67	86.150	282.274
68	86.391	280.034
69	86.631	279.990
70	86.871	279.608
71	87.106	274.231
72	87.338	270.400
73	87.571	270.791
74	87.788	253.070
75	87.994	240.103
76	88.200	239.241
77	88.404	238.166
78	88.609	238.237
79	88.813	238.494
80	89.018	238.246
81	89.223	238.468
82	89.425	236.193
83	89.613	219.200
84	89.797	214.205
85	89.981	213.867
86	90.165	214.107
87	90.348	213.672
88	90.532	213.538
89	90.713	211.059
90	90.895	211.859
91	91.077	212.410
92	91.254	206.526
93	91.417	189.747
94	91.578	187.765
95	91.740	187.863
96	91.901	188.405
97	92.062	187.800
98	92.224	187.845
99	92.385	188.414
100	92.547	187.809
101	92.709	188.467
102	92.870	187.774
103	93.025	181.135
104	93.162	159.156
105	93.296	156.099
106	93.429	155.335
107	93.562	155.317
108	93.695	154.588
109	93.828	154.668
110	93.961	155.264
111	94.095	155.317
112	94.227	154.615
113	94.360	154.641
114	94.494	155.930
115	94.626	153.966
116	94.757	151.957
117	94.863	123.971
118	94.966	119.918
119	95.069	119.963
120	95.171	119.278
121	95.274	119.972
122	95.377	119.252
123	95.480	119.972
124	95.582	119.296
125	95.685	119.918
126	95.788	119.972
127	95.890	119.278
128	95.993	119.963
129	96.096	119.945
130	96.199	119.278

131	96.301	119.278
132	96.404	119.945
133	96.506	119.278
134	96.589	95.940
135	96.664	87.932
136	96.740	87.888
137	96.814	86.155
138	96.887	85.488
139	96.962	86.812
140	97.035	85.488
141	97.109	86.155
142	97.183	86.155
143	97.257	86.155
144	97.331	86.146
145	97.404	85.488
146	97.479	86.830
147	97.552	85.488
148	97.627	86.804
149	97.701	86.821
150	97.773	84.155

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 959.4523
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 201.7948

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	51.4624	102.25	.	Q V	.	.	.
14.083	52.1817	104.44	.	Q V	.	.	.
14.167	52.9198	107.17	.	Q V	.	.	.
14.250	53.6772	109.97	.	Q V	.	.	.
14.333	54.4567	113.19	.	QV	.	.	.
14.417	55.2593	116.54	.	QV	.	.	.
14.500	56.0876	120.26	.	Q.V	.	.	.
14.583	56.9450	124.49	.	Q.V	.	.	.
14.667	57.8348	129.20	.	QV	.	.	.
14.750	58.7616	134.58	.	QV	.	.	.
14.833	59.7270	140.17	.	.Q	.	.	.
14.917	60.7356	146.45	.	.QV	.	.	.
15.000	61.7818	151.91	.	.Q	.	.	.
15.083	62.8644	157.20	.	.Q	.	.	.
15.167	63.9803	162.02	.	.Q	.	.	.
15.250	65.1302	166.96	.	.VQ	.	.	.
15.333	66.3133	171.78	.	.Q	.	.	.
15.417	67.5243	175.84	.	.VQ	.	.	.
15.500	68.7566	178.93	.	.VQ	.	.	.
15.583	70.0087	181.82	.	.VQ	.	.	.
15.667	71.2763	184.05	.	.Q	.	.	.
15.750	72.5623	186.73	.	.Q	.	.	.
15.833	73.8654	189.21	.	.VQ	.	.	.
15.917	75.1882	192.08	.	.VQ	.	.	.
16.000	76.5391	196.15	.	.Q	.	.	.
16.083	78.0882	224.93	.	.V Q	.	.	.
16.167	79.8298	252.88	.	.V	.Q	.	.
16.250	81.5978	256.71	.	.V	.Q	.	.
16.333	83.5192	279.00	.	.V	.Q	.	.
16.417	85.5031	288.06	.	.V	.Q	.	.
16.500	87.6487	311.54	.	.V	.Q	.	.
16.583	89.9871	339.53	.	.V	.Q	.	.
16.667	92.5279	368.92	.	.V	.Q	.	.
16.750	95.3026	402.89	.	.V	.Q	.	.
16.833	98.1659	415.75	.	.V	.Q	.	.
16.917	101.2311	445.07	.	.V	.Q	.	.
17.000	104.0007	402.15	.	.V	.Q	.	.
17.083	106.6628	386.53	.	.V	.Q	.	.
17.167	109.1397	359.65	.	.V	.Q	.	.
17.250	111.6218	360.41	.	.V	.Q	.	.
17.333	114.0233	348.69	.	.V	.Q	.	.
17.417	116.3990	344.95	.	.V	.Q	.	.
17.500	118.6610	328.44	.	.V	.Q	.	.
17.583	120.7566	304.29	.	.VQ	.	.	.
17.667	122.7317	286.77	.	.Q V	.	.	.
17.750	124.6777	282.57	.	.Q V	.	.	.
17.833	126.4887	262.94	.	.Q	.V	.	.
17.917	128.2450	255.02	.	.Q	.V	.	.
18.000	129.9468	247.11	.	.Q	.V	.	.
18.083	131.5958	239.44	.	.Q	.V	.	.
18.167	133.2103	234.43	.	.Q	.V	.	.
18.250	134.7427	222.50	.	.Q	.V	.	.
18.333	136.2249	215.22	.	.Q	.V	.	.
18.417	137.6523	207.25	.	.Q	.V	.	.
18.500	139.0328	200.46	.	.Q	.V	.	.
18.583	140.3833	196.09	.	.Q	.V	.	.

18.667	141.6892	189.63	.	.	.Q	.	.V	.
18.750	142.9595	184.44	.	.	.Q	.	.V	.
18.833	144.1815	177.43	.	.	.Q	.	.V	.
18.917	145.3730	173.01	.	.	.Q	.	.V	.
19.000	146.5345	168.65	.	.	.Q	.	.V	.
19.083	147.6693	164.76	.	.	.Q	.	.V	.
19.167	148.7780	160.99	.	.	.Q	.	.V	.
19.250	149.8414	154.40	.	.	.Q	.	.V	.
19.333	150.8708	149.47	.	.	.Q	.	.V	.
19.417	151.8766	146.05	.	.	.Q	.	.V	.
19.500	152.8567	142.31	.	.	.Q	.	.V	.
19.583	153.8104	138.47	.	.	.Q	.	.V	.
19.667	154.7488	136.26	.	.	.Q	.	.V	.
19.750	155.6706	133.84	.	.	.Q	.	.V	.
19.833	156.5719	130.87	.	.	.Q	.	.V	.
19.917	157.4539	128.07	.	.	.Q	.	.V	.
20.000	158.3225	126.11	.	.	.Q	.	.V	.

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Analysis prepared by:

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 714 - 734 - 5100

 FILE NAME: MP54002E.FLD
 TIME/DATE OF STUDY: 14:06 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1054.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 12171.000 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.460 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.130
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.100
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.720
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.040
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.010
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.580
 LOW LOSS FRACTION = 0.840
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.86
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.47

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.635
 30-MINUTE FACTOR = 0.647
 1-HOUR FACTOR = 0.652
 3-HOUR FACTOR = 0.930
 6-HOUR FACTOR = 0.965
 24-HOUR FACTOR = 0.978

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 5.708

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.558	820.836
2	1.671	1638.662
3	2.812	1680.128
4	4.372	2295.522
5	6.062	2487.755
6	8.077	2965.865
7	10.565	3662.265
8	13.573	4427.514
9	17.158	5277.560
10	21.064	5749.304
11	25.663	6769.294
12	29.751	6016.080
13	33.393	5361.119
14	36.771	4972.246
15	40.024	4789.035
16	43.206	4682.884
17	46.561	4938.432
18	49.833	4815.543
19	52.381	3751.400
20	54.632	3312.798
21	56.681	3016.254
22	58.673	2931.962
23	60.297	2389.944
24	61.878	2328.061
25	63.361	2182.426
26	64.742	2033.416
27	66.123	2032.821
28	67.313	1751.331
29	68.450	1672.688
30	69.479	1515.121
31	70.450	1429.032
32	71.377	1364.168
33	72.263	1304.368
34	73.119	1260.796
35	73.898	1146.666
36	74.658	1118.311
37	75.379	1060.825
38	76.076	1026.787
39	76.764	1012.210
40	77.388	918.777
41	77.963	845.491
42	78.515	813.148
43	79.027	753.439
44	79.502	699.400
45	79.977	698.569
46	80.447	691.787
47	80.904	672.314
48	81.337	637.681
49	81.768	635.120
50	82.197	631.830
51	82.613	611.122
52	82.988	552.771
53	83.358	544.888
54	83.725	539.823
55	84.090	536.342
56	84.442	519.160
57	84.779	495.790
58	85.115	494.185
59	85.450	493.286
60	85.785	493.623
61	86.107	473.263
62	86.377	397.484

63	86.631	373.586
64	86.885	374.181
65	87.138	373.193
66	87.393	374.159
67	87.646	373.306
68	87.884	349.723
69	88.096	312.978
70	88.309	312.338
71	88.520	311.226
72	88.732	311.182
73	88.933	296.223
74	89.129	288.767
75	89.325	288.340
76	89.510	272.393
77	89.684	256.862
78	89.858	255.683
79	90.031	254.313
80	90.203	253.797
81	90.376	253.583
82	90.548	253.684
83	90.720	253.808
84	90.892	253.302
85	91.055	239.456
86	91.211	228.889
87	91.366	228.215
88	91.521	228.810
89	91.676	228.496
90	91.829	224.981
91	91.983	225.755
92	92.135	224.004
93	92.288	225.037
94	92.440	224.958
95	92.583	209.539
96	92.719	200.207
97	92.854	199.410
98	92.990	199.646
99	93.126	199.567
100	93.261	198.804
101	93.396	199.556
102	93.531	198.826
103	93.667	200.275
104	93.802	198.208
105	93.937	199.444
106	94.067	190.392
107	94.181	167.607
108	94.294	166.416
109	94.405	163.542
110	94.516	163.508
111	94.627	163.474
112	94.739	164.137
113	94.849	162.868
114	94.961	164.137
115	95.072	164.204
116	95.183	162.823
117	95.294	164.170
118	95.405	163.474
119	95.516	162.755
120	95.610	138.117
121	95.697	127.898
122	95.783	127.258
123	95.870	127.179
124	95.956	127.213
125	96.043	127.954
126	96.129	126.494
127	96.216	127.943
128	96.302	127.201
129	96.389	127.190
130	96.475	127.213

131	96.561	126.865
132	96.647	126.180
133	96.733	126.921
134	96.819	126.168
135	96.905	126.180
136	96.990	126.180
137	97.073	121.834
138	97.139	97.173
139	97.203	93.545
140	97.267	94.264
141	97.330	92.815
142	97.393	92.804
143	97.454	89.413
144	97.514	88.694
145	97.575	90.131
146	97.636	90.143
147	97.697	88.683
148	97.757	89.424
149	97.818	89.402
150	97.879	89.413

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 1204.1667
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 249.1757

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	150.0	300.0	450.0	600.0
14.000	65.1945	127.29	.	Q V	.	.	.
14.083	66.0900	130.03	.	Q V	.	.	.
14.167	67.0090	133.44	.	Q V	.	.	.
14.250	67.9522	136.95	.	QV	.	.	.
14.333	68.9230	140.95	.	Q.V	.	.	.
14.417	69.9227	145.15	.	Q.V	.	.	.
14.500	70.9540	149.76	.	Q.V	.	.	.
14.583	72.0213	154.96	.	QV	.	.	.
14.667	73.1288	160.81	.	QV	.	.	.
14.750	74.2816	167.39	.	.Q	.	.	.
14.833	75.4825	174.37	.	.QV	.	.	.
14.917	76.7373	182.20	.	.Q	.	.	.
15.000	78.0423	189.48	.	.Q	.	.	.
15.083	79.3941	196.29	.	.VQ	.	.	.
15.167	80.7912	202.86	.	.VQ	.	.	.
15.250	82.2333	209.39	.	.Q	.	.	.
15.333	83.7203	215.91	.	.VQ	.	.	.
15.417	85.2473	221.73	.	.VQ	.	.	.
15.500	86.8078	226.58	.	.V Q	.	.	.
15.583	88.3972	230.79	.	.VQ	.	.	.
15.667	90.0102	234.21	.	.VQ	.	.	.
15.750	91.6476	237.75	.	.VQ	.	.	.
15.833	93.3103	241.42	.	.V Q	.	.	.
15.917	94.9979	245.03	.	.VQ	.	.	.
16.000	96.7189	249.90	.	.VQ	.	.	.
16.083	98.6426	279.32	.	.V Q	.	.	.
16.167	100.7609	307.58	.	.V Q	.	.	.
16.250	102.9024	310.95	.	.V Q	.	.	.
16.333	105.1897	332.10	.	.V . Q	.	.	.
16.417	107.5506	342.81	.	.V . Q	.	.	.
16.500	110.0573	363.97	.	.V . Q	.	.	.
16.583	112.7592	392.32	.	.V . Q	.	.	.
16.667	115.6697	422.61	.	.V . Q	.	.	.
16.750	118.7940	453.64	.	.V . Q	.	.	.
16.833	122.0405	471.39	.	.V . Q	.	.	.
16.917	125.5060	503.19	.	.V . Q	.	.	.
17.000	128.8097	479.70	.	.V . Q	.	.	.
17.083	131.9687	458.68	.	.V . Q	.	.	.
17.167	135.0402	445.98	.	.V . Q	.	.	.
17.250	138.0822	441.71	.	.V . Q	.	.	.
17.333	141.1023	438.52	.	.V . Q	.	.	.
17.417	144.1594	443.89	.	.V . Q	.	.	.
17.500	147.1552	434.99	.	.V . Q	.	.	.
17.583	149.8840	396.22	.	.V Q	.	.	.
17.667	152.4776	376.59	.	.VQ	.	.	.
17.750	154.9693	361.78	.	.Q	.	.	.
17.833	157.4018	353.20	.	.Q V	.	.	.
17.917	159.6702	329.38	.	.Q V	.	.	.
18.000	161.8777	320.52	.	.Q V	.	.	.
18.083	164.0100	309.62	.	.Q V	.	.	.
18.167	166.0683	298.86	.	.Q V	.	.	.
18.250	168.0798	292.08	.	.Q V	.	.	.
18.333	169.9864	276.83	.	.Q . V	.	.	.
18.417	171.8286	267.49	.	.Q . V	.	.	.
18.500	173.5912	255.93	.	.Q . V	.	.	.
18.583	175.2957	247.49	.	.Q . V	.	.	.

18.667	176.9479	239.90	.	. Q	.	. V .	.
18.750	178.5501	232.63	.	. Q	.	. V .	.
18.833	180.1048	225.75	.	. Q	.	. V .	.
18.917	181.6000	217.10	.	. Q	.	. V .	.
19.000	183.0557	211.37	.	. Q	.	. V .	.
19.083	184.4679	205.06	.	. Q	.	. V .	.
19.167	185.8428	199.63	.	. Q	.	. V .	.
19.250	187.1834	194.66	.	. Q	.	. V .	.
19.333	188.4755	187.61	.	. Q	.	. V .	.
19.417	189.7238	181.25	.	. Q	.	. V .	.
19.500	190.9386	176.38	.	. Q	.	. V .	.
19.583	192.1172	171.13	.	. Q	.	. V .	.
19.667	193.2627	166.34	.	. Q	.	. V .	.
19.750	194.3874	163.30	.	. Q	.	. V .	.
19.833	195.4905	160.18	.	. Q	.	. V .	.
19.917	196.5707	156.84	.	. Q	.	. V .	.
20.000	197.6252	153.11	.	. Q	.	. V .	.

=====

END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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Analysis prepared by:

Huitt - Zollars, Inc.
 430 Exchange, Suite 200
 Irvine, CA. 92602-1309
 714 - 734 - 5100

 FILE NAME: MP55002E.FLD
 TIME/DATE OF STUDY: 14:07 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1055.00 IS CODE = 1

 >>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
 =====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 12522.500 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.550 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.140
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.110
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.700
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.050
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.580
 LOW LOSS FRACTION = 0.850
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.86
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.47

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.629
 30-MINUTE FACTOR = 0.643
 1-HOUR FACTOR = 0.648
 3-HOUR FACTOR = 0.928
 6-HOUR FACTOR = 0.965
 24-HOUR FACTOR = 0.978

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 5.376

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.522	790.557
2	1.565	1579.433
3	2.607	1578.787
4	4.003	2114.217
5	5.576	2381.000
6	7.298	2608.504
7	9.501	3335.706
8	12.112	3955.398
9	15.202	4679.234
10	18.785	5426.609
11	22.587	5757.583
12	26.905	6539.673
13	30.536	5498.435
14	33.920	5124.291
15	36.981	4635.361
16	40.123	4759.667
17	43.145	4576.012
18	46.409	4943.241
19	49.606	4841.107
20	52.111	3794.852
21	54.301	3315.564
22	56.288	3009.503
23	58.309	3060.042
24	59.918	2437.094
25	61.455	2328.564
26	62.929	2231.018
27	64.289	2060.638
28	65.631	2031.493
29	66.860	1862.050
30	67.984	1702.693
31	69.047	1609.277
32	70.005	1450.059
33	70.925	1393.790
34	71.795	1317.370
35	72.633	1269.952
36	73.446	1231.222
37	74.188	1122.785
38	74.911	1095.563
39	75.595	1035.724
40	76.258	1003.568
41	76.905	980.668
42	77.526	939.546
43	78.075	832.022
44	78.612	812.715
45	79.109	753.603
46	79.572	701.367
47	80.013	666.923
48	80.457	673.116
49	80.894	661.967
50	81.316	638.812
51	81.720	610.908
52	82.122	609.972
53	82.523	607.119
54	82.913	590.596
55	83.266	534.789
56	83.612	523.685
57	83.955	519.399
58	84.297	517.596
59	84.631	506.030
60	84.949	481.940
61	85.262	473.725
62	85.575	473.886

63	85.887	473.401
64	86.200	473.621
65	86.487	434.868
66	86.729	365.311
67	86.964	356.287
68	87.199	355.513
69	87.434	355.940
70	87.669	356.310
71	87.904	355.501
72	88.128	340.100
73	88.326	300.157
74	88.523	297.291
75	88.719	297.106
76	88.915	297.268
77	89.107	290.786
78	89.288	273.582
79	89.468	273.489
80	89.647	270.393
81	89.811	248.856
82	89.972	242.998
83	90.131	241.114
84	90.290	240.386
85	90.448	240.340
86	90.607	239.554
87	90.765	240.317
88	90.924	240.421
89	91.082	239.601
90	91.235	231.224
91	91.378	216.665
92	91.521	216.157
93	91.664	216.527
94	91.807	216.920
95	91.949	215.857
96	92.090	213.338
97	92.230	212.078
98	92.371	212.783
99	92.511	211.836
100	92.651	212.263
101	92.779	194.169
102	92.904	189.732
103	93.029	188.912
104	93.154	189.675
105	93.279	188.970
106	93.404	189.686
107	93.529	188.901
108	93.654	189.675
109	93.779	188.981
110	93.904	188.901
111	94.029	189.548
112	94.153	187.560
113	94.263	167.329
114	94.369	159.368
115	94.471	154.804
116	94.573	155.451
117	94.676	154.677
118	94.777	153.822
119	94.880	155.439
120	94.981	153.810
121	95.084	154.677
122	95.186	155.359
123	95.288	153.903
124	95.390	155.463
125	95.492	153.810
126	95.594	154.619
127	95.688	141.540
128	95.767	120.742
129	95.846	120.026
130	95.926	119.956

131	96.005	120.754
132	96.085	119.968
133	96.164	120.684
134	96.244	120.800
135	96.323	120.014
136	96.403	120.696
137	96.482	120.026
138	96.562	120.673
139	96.641	120.026
140	96.720	119.979
141	96.800	120.673
142	96.880	120.696
143	96.959	119.922
144	97.039	120.673
145	97.118	119.922
146	97.185	101.412
147	97.244	89.118
148	97.303	89.881
149	97.362	89.546
150	97.418	84.508

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 1253.2402
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 240.6278

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	61.9327	120.83	.	QV	.	.	.
14.083	62.7825	123.40	.	QV	.	.	.
14.167	63.6545	126.61	.	Q	.	.	.
14.250	64.5486	129.83	.	Q	.	.	.
14.333	65.4680	133.50	.	Q	.	.	.
14.417	66.4143	137.39	.	QV	.	.	.
14.500	67.3888	141.49	.	.Q	.	.	.
14.583	68.3954	146.16	.	.Q	.	.	.
14.667	69.4376	151.33	.	.VQ	.	.	.
14.750	70.5194	157.08	.	.VQ	.	.	.
14.833	71.6450	163.43	.	.V Q	.	.	.
14.917	72.8162	170.06	.	.VQ	.	.	.
15.000	74.0374	177.33	.	.V Q	.	.	.
15.083	75.3035	183.84	.	.V Q	.	.	.
15.167	76.6131	190.15	.	.V Q	.	.	.
15.250	77.9640	196.15	.	.V Q	.	.	.
15.333	79.3575	202.35	.	.V Q	.	.	.
15.417	80.7871	207.57	.	.V Q	.	.	.
15.500	82.2492	212.30	.	.V Q	.	.	.
15.583	83.7447	217.15	.	.V Q	.	.	.
15.667	85.2660	220.89	.	.V Q	.	.	.
15.750	86.8119	224.47	.	.V Q	.	.	.
15.833	88.3839	228.25	.	.V Q	.	.	.
15.917	89.9836	232.29	.	.V Q	.	.	.
16.000	91.6169	237.14	.	.V Q	.	.	.
16.083	93.4442	265.33	.	.V .Q	.	.	.
16.167	95.4557	292.06	.	.V .Q	.Q	.	.
16.250	97.4849	294.65	.	.V .Q	.Q	.	.
16.333	99.6335	311.98	.	.V .Q	.Q	.	.
16.417	101.8622	323.61	.	.V .Q	.Q	.	.
16.500	104.1766	336.05	.	.V .Q	.Q	.	.
16.583	106.6835	364.00	.	.V .Q	.Q	.	.
16.667	109.3629	389.06	.	.V .Q	.Q	.	.
16.750	112.2300	416.29	.	.V .Q	.Q	.	.
16.833	115.2758	442.26	.	.V .Q	.Q	.	.
16.917	118.4035	454.14	.	.V .Q	.Q	.	.
17.000	121.6922	477.52	.	.V .Q	.Q	.	.
17.083	124.7595	445.37	.	.V .Q	.Q	.	.
17.167	127.7423	433.10	.	.V .Q	.Q	.	.
17.250	130.6240	418.43	.	.V .Q	.Q	.	.
17.333	133.5394	423.32	.	.V .Q	.Q	.	.
17.417	136.4174	417.88	.	.V .Q	.Q	.	.
17.500	139.3557	426.65	.	.V .Q	.Q	.	.
17.583	142.2372	418.39	.	.V .Q	.Q	.	.
17.667	144.8612	381.01	.	.V .Q	.Q	.	.
17.750	147.3443	360.54	.	.V .Q	.Q	.	.
17.833	149.7276	346.06	.	.V .Q	.Q	.	.
17.917	152.0820	341.85	.	.V .Q	.Q	.	.
18.000	154.2618	316.51	.	.Q	.	.	.
18.083	156.3759	306.96	.	.QV	.	.	.
18.167	158.4281	297.98	.	.Q V	.	.	.
18.250	160.4082	287.52	.	.Q V	.	.	.
18.333	162.3390	280.35	.	.Q V	.	.	.
18.417	164.1926	269.14	.	.Q V	.	.	.
18.500	165.9689	257.92	.	.Q V	.	.	.
18.583	167.6808	248.58	.	.Q V	.	.	.

18.667	169.3214	238.21	.	.	.	.Q.	V .
18.750	170.9133	231.15	.	.	.	.Q.	V .
18.833	172.4538	223.68	.	.	.	.Q	V .
18.917	173.9489	217.09	.	.	.	.Q	V .
19.000	175.4017	210.95	.	.	.	.Q	V.
19.083	176.8009	203.16	.	.	.	.Q	V.
19.167	178.1647	198.03	.	.	.	.Q	V.
19.250	179.4888	192.25	.	.	.	.Q	V.
19.333	180.7791	187.35	.	.	.	.Q	V
19.417	182.0376	182.74	.	.	.	.Q	V
19.500	183.2606	177.57	.	.	.	.Q	V
19.583	184.4354	170.59	.	.	.	.Q	V
19.667	185.5828	166.61	.	.	.	.Q	V
19.750	186.6963	161.68Q	.V
19.833	187.7790	157.20Q	.V
19.917	188.8355	153.40Q	.V
20.000	189.8757	151.04Q	.V

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END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
 USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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 Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
 430 Exchange, Suite 200
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 714 - 734 - 5100

 FILE NAME: MP56002E.FLD
 TIME/DATE OF STUDY: 14:07 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1056.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<

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(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 12890.600 ACRES
 BASEFLOW = 0.000 CFS/SQUARE-MILE
 *USER ENTERED "LAG" TIME = 1.640 HOURS
 VALLEY(DEVELOPED):
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.140
 FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.120
 MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.680
 VALLEY(UNDEVELOPED)/DESERT:
 "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.060
 DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
 MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.580
 LOW LOSS FRACTION = 0.840
 HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
 SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
 SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
 SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.63
 SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.86
 SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.47

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
 5-MINUTE FACTOR = 0.623
 30-MINUTE FACTOR = 0.638
 1-HOUR FACTOR = 0.643
 3-HOUR FACTOR = 0.926
 6-HOUR FACTOR = 0.964
 24-HOUR FACTOR = 0.978

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
 UNIT INTERVAL PERCENTAGE OF LAG-TIME = 5.081

RUNOFF HYDROGRAPH LISTING LIMITS:
 MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
 MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

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UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.490	763.283
2	1.468	1525.783
3	2.437	1509.675
4	3.676	1932.457
5	5.143	2286.810
6	6.663	2369.356
7	8.602	3023.493
8	10.920	3612.480
9	13.598	4175.750
10	16.731	4883.990
11	20.122	5285.835
12	24.032	6095.364
13	27.883	6004.774
14	31.138	5073.874
15	34.348	5004.027
16	37.190	4430.899
17	40.220	4723.923
18	43.111	4507.163
19	46.284	4945.250
20	49.393	4847.982
21	51.852	3833.362
22	53.970	3301.377
23	55.905	3015.900
24	57.869	3063.142
25	59.500	2541.464
26	60.976	2302.212
27	62.417	2245.205
28	63.774	2116.816
29	65.017	1936.850
30	66.312	2018.311
31	67.404	1703.634
32	68.465	1654.215
33	69.459	1548.490
34	70.352	1393.239
35	71.225	1360.935
36	72.043	1275.347
37	72.838	1239.071
38	73.611	1204.899
39	74.321	1105.978
40	75.010	1075.101
41	75.663	1018.415
42	76.298	988.894
43	76.913	958.303
44	77.517	942.948
45	78.059	844.336
46	78.573	801.458
47	79.067	770.356
48	79.525	713.931
49	79.949	660.861
50	80.368	653.225
51	80.788	654.069
52	81.200	642.758
53	81.594	614.605
54	81.976	594.695
55	82.356	593.351
56	82.735	590.734
57	83.106	577.258
58	83.442	524.461
59	83.769	509.796
60	84.094	506.383
61	84.416	502.684
62	84.735	497.189

63	85.041	476.529
64	85.336	459.901
65	85.630	458.986
66	85.925	459.116
67	86.219	459.033
68	86.510	454.050
69	86.769	402.787
70	86.991	346.160
71	87.212	344.531
72	87.432	343.686
73	87.653	343.674
74	87.874	344.162
75	88.094	344.150
76	88.308	333.422
77	88.497	293.637
78	88.681	287.535
79	88.866	287.809
80	89.050	287.844
81	89.234	286.179
82	89.406	267.851
83	89.574	262.094
84	89.742	262.177
85	89.905	253.542
86	90.055	234.357
87	90.204	233.239
88	90.353	231.087
89	90.500	230.016
90	90.648	229.980
91	90.795	230.206
92	90.943	230.575
93	91.091	229.802
94	91.238	229.909
95	91.382	224.426
96	91.516	208.714
97	91.649	207.727
98	91.783	208.298
99	91.916	207.774
100	92.050	208.524
101	92.181	204.658
102	92.312	203.290
103	92.442	203.017
104	92.572	203.243
105	92.703	203.302
106	92.831	199.901
107	92.949	183.677
108	93.065	181.311
109	93.181	181.001
110	93.297	181.370
111	93.414	181.013
112	93.530	181.441
113	93.646	181.025
114	93.762	181.227
115	93.879	181.370
116	93.995	180.942
117	94.111	180.692
118	94.227	181.905
119	94.337	171.308
120	94.436	153.669
121	94.533	151.790
122	94.627	147.032
123	94.722	146.878
124	94.817	148.436
125	94.911	146.818
126	95.006	147.698
127	95.100	146.806
128	95.195	147.698
129	95.289	146.806
130	95.384	147.698

131	95.478	146.818
132	95.573	147.698
133	95.667	147.544
134	95.758	142.061
135	95.834	117.476
136	95.908	115.847
137	95.981	114.288
138	96.055	115.026
139	96.129	115.085
140	96.203	115.026
141	96.276	115.038
142	96.350	115.097
143	96.424	114.288
144	96.497	114.955
145	96.572	115.977
146	96.645	114.146
147	96.719	115.169
148	96.793	114.943
149	96.866	115.121
150	96.940	114.134

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 1275.6704
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 259.7846

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2 4 - 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

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	125.0	250.0	375.0	500.0
14.000	66.9521	130.51	.	Q	.	.	.
14.083	67.8700	133.28	.	Q	.	.	.
14.167	68.8113	136.67	.	Q	.	.	.
14.250	69.7761	140.10	.	VQ	.	.	.
14.333	70.7671	143.89	.	VQ	.	.	.
14.417	71.7864	148.00	.	.Q	.	.	.
14.500	72.8348	152.24	.	.VQ	.	.	.
14.583	73.9162	157.01	.	.VQ	.	.	.
14.667	75.0339	162.29	.	.VQ	.	.	.
14.750	76.1914	168.07	.	.V Q	.	.	.
14.833	77.3928	174.44	.	.V Q	.	.	.
14.917	78.6407	181.19	.	. V Q	.	.	.
15.000	79.9397	188.62	.	. V Q	.	.	.
15.083	81.2898	196.03	.	. V Q	.	.	.
15.167	82.6861	202.75	.	. V Q	.	.	.
15.250	84.1288	209.47	.	. V Q	.	.	.
15.333	85.6152	215.82	.	. V Q	.	.	.
15.417	87.1410	221.56	.	. V Q	.	.	.
15.500	88.6996	226.30	.	. V Q	.	.	.
15.583	90.2950	231.66	.	. V Q	.	.	.
15.667	91.9251	236.69	.	. V Q	.	.	.
15.750	93.5847	240.97	.	. V Q	.	.	.
15.833	95.2749	245.41	.	. V Q	.	.	.
15.917	96.9960	249.91	.	. V Q	.	.	.
16.000	98.7568	255.67	.	. V Q	.	.	.
16.083	100.7058	283.00	.	. V Q	.	.	.
16.167	102.8310	308.58	.	. V Q	.	.	.
16.250	104.9735	311.08	.	. V Q	.	.	.
16.333	107.2106	324.83	.	. V Q	.	.	.
16.417	109.5360	337.65	.	. V Q	.	.	.
16.500	111.9165	345.65	.	. V Q	.	.	.
16.583	114.4660	370.19	.	. V Q	.	.	.
16.667	117.1800	394.07	.	. V Q	.	.	.
16.750	120.0482	416.45	.	. V Q	.	.	.
16.833	123.0905	441.75	.	. V Q	.	.	.
16.917	126.2369	456.86	.	. V Q	.	.	.
17.000	129.5487	480.87	.	. V Q	.	.	.
17.083	132.8358	477.28	.	. V Q	.	.	.
17.167	135.9291	449.15	.	. V Q	.	.	.
17.250	139.0032	446.37	.	. V Q	.	.	.
17.333	141.9687	430.59	.	. V Q	.	.	.
17.417	144.9978	439.83	.	. V Q	.	.	.
17.500	147.9839	433.57	.	. V Q	.	.	.
17.583	151.0396	443.69	.	. V Q	.	.	.
17.667	154.0363	435.11	.	. V Q	.	.	.
17.750	156.7866	399.35	.	. V Q	.	.	.
17.833	159.3838	377.11	.	. V Q	.	.	.
17.917	161.8870	363.47	.	. V Q	.	.	.
18.000	164.3569	358.63	.	. V Q	.	.	.
18.083	166.6744	336.50	.	. VQ	.	.	.
18.167	168.8999	323.14	.	. QV	.	.	.
18.250	171.0700	315.09	.	. QV	.	.	.
18.333	173.1761	305.81	.	. Q V	.	.	.
18.417	175.2031	294.32	.	. Q V	.	.	.
18.500	177.2005	290.01	.	. Q V	.	.	.
18.583	179.0881	274.09	.	. Q V	.	.	.

18.667	180.9178	265.68	.	.	.	.Q	V .
18.750	182.6835	256.37	.	.	.	.Q	V .
18.833	184.3796	246.28	.	.	.	.Q	V .
18.917	186.0305	239.70	.	.	.	.Q	V .
19.000	187.6254	231.59	.	.	.	.Q	V .
19.083	189.1778	225.41	.	.	.	.Q	V .
19.167	190.6902	219.60	.	.	.	.Q	V .
19.250	192.1509	212.09	.	.	.	.Q	V .
19.333	193.5754	206.83	.	.	.	.Q	V .
19.417	194.9602	201.07	.	.	.	.Q	V .
19.500	196.3109	196.13	.	.	.	.Q	V .
19.583	197.6281	191.25	.	.	.	.Q	V .
19.667	198.9145	186.79	.	.	.	.Q	V .
19.750	200.1559	180.24	.	.	.	.Q	V .
19.833	201.3651	175.58	.	.	.	.Q	.V
19.917	202.5455	171.40Q	.V
20.000	203.6933	166.66Q	.V

=====

END OF FLOODSCx ROUTING ANALYSIS

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FLOOD ROUTING ANALYSIS
USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
(c) Copyright 1989-2003 Advanced Engineering Software (aes)
Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MP57002E.FLD
TIME/DATE OF STUDY: 14:08 03/26/2004

FLOW PROCESS FROM NODE 1000.00 TO NODE 1057.00 IS CODE = 1

>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<<
=====

(UNIT-HYDROGRAPH ADDED TO STREAM #1)

WATERSHED AREA = 18555.699 ACRES
BASEFLOW = 0.000 CFS/SQUARE-MILE
*USER ENTERED "LAG" TIME = 1.730 HOURS
VALLEY(DEVELOPED):
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.160
FOOTHILL "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.110
MOUNTAIN "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.660
VALLEY(UNDEVELOPED)/DESERT:
"S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.070
DESERT(UNDEVELOPED) "S"-CURVE PERCENTAGE(DECIMAL NOTATION) = 0.000
MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) = 0.580
LOW LOSS FRACTION = 0.830
HYDROGRAPH MODEL #1 SPECIFIED

SPECIFIED PEAK 5-MINUTES RAINFALL(INCH)= 0.13
SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)= 0.28
SPECIFIED PEAK 1-HOUR RAINFALL(INCH) = 0.37
SPECIFIED PEAK 3-HOUR RAINFALL(INCH) = 0.64
SPECIFIED PEAK 6-HOUR RAINFALL(INCH) = 0.88
SPECIFIED PEAK 24-HOUR RAINFALL(INCH) = 1.50

PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
5-MINUTE FACTOR = 0.543
30-MINUTE FACTOR = 0.568
1-HOUR FACTOR = 0.581
3-HOUR FACTOR = 0.897
6-HOUR FACTOR = 0.953
24-HOUR FACTOR = 0.971

UNIT HYDROGRAPH TIME UNIT = 5.000 MINUTES
UNIT INTERVAL PERCENTAGE OF LAG-TIME = 4.817

RUNOFF HYDROGRAPH LISTING LIMITS:
MODEL TIME(HOURS) FOR BEGINNING OF RESULTS = 14.00
MODEL TIME(HOURS) FOR END OF RESULTS = 20.00

=====

UNIT HYDROGRAPH DETERMINATION

INTERVAL NUMBER	"S" GRAPH MEAN VALUES	UNIT HYDROGRAPH ORDINATES(CFS)
1	0.460	1031.882
2	1.379	2063.421
3	2.289	2042.339
4	3.381	2449.008
5	4.749	3070.261
6	6.150	3143.278
7	7.861	3839.983
8	9.877	4525.214
9	12.254	5334.683
10	15.024	6215.473
11	18.201	7128.930
12	21.467	7330.100
13	25.351	8714.519
14	28.759	7647.745
15	31.804	6833.643
16	34.822	6772.362
17	37.523	6060.738
18	40.429	6521.720
19	43.175	6163.806
20	46.205	6799.011
21	49.191	6700.848
22	51.616	5440.976
23	53.676	4622.893
24	55.605	4330.107
25	57.495	4240.376
26	59.220	3870.495
27	60.681	3278.315
28	62.101	3187.702
29	63.459	3046.985
30	64.716	2820.380
31	65.930	2725.847
32	67.124	2677.908
33	68.155	2315.012
34	69.157	2247.812
35	70.095	2104.972
36	70.935	1885.378
37	71.767	1867.470
38	72.544	1742.384
39	73.301	1699.787
40	74.039	1655.016
41	74.718	1524.982
42	75.370	1462.097
43	75.995	1402.293
44	76.601	1359.799
45	77.182	1304.224
46	77.754	1284.090
47	78.291	1205.299
48	78.779	1094.544
49	79.260	1079.683
50	79.701	990.414
51	80.116	930.936
52	80.504	869.403
53	80.897	881.970
54	81.284	869.985
55	81.667	858.017
56	82.030	814.890
57	82.385	796.159
58	82.739	794.927
59	83.091	789.825
60	83.437	776.385
61	83.753	710.503
62	84.058	683.829

63	84.361	680.764
64	84.661	672.460
65	84.960	670.731
66	85.250	651.504
67	85.528	622.621
68	85.802	616.509
69	86.077	616.749
70	86.352	616.475
71	86.627	616.612
72	86.893	596.786
73	87.119	508.544
74	87.325	460.520
75	87.529	459.116
76	87.734	458.945
77	87.938	459.202
78	88.143	459.698
79	88.347	458.448
80	88.549	451.292
81	88.725	397.001
82	88.896	383.510
83	89.067	383.458
84	89.238	383.441
85	89.409	383.441
86	89.574	370.909
87	89.731	351.528
88	89.887	350.603
89	90.044	351.322
90	90.189	327.096
91	90.330	314.786
92	90.469	312.834
93	90.606	307.818
94	90.744	308.366
95	90.881	308.177
96	91.018	308.297
97	91.156	308.143
98	91.293	308.349
99	91.430	307.869
100	91.565	303.298
101	91.691	282.325
102	91.815	278.182
103	91.940	278.918
104	92.064	279.534
105	92.188	276.932
106	92.312	279.363
107	92.433	270.631
108	92.554	272.823
109	92.674	269.672
110	92.795	271.470
111	92.917	272.206
112	93.033	262.071
113	93.142	244.265
114	93.250	240.978
115	93.358	242.656
116	93.466	241.988
117	93.574	242.929
118	93.681	240.772
119	93.790	243.169
120	93.897	241.662
121	94.005	241.851
122	94.113	241.662
123	94.220	241.971
124	94.329	243.255
125	94.436	239.368
126	94.530	212.711
127	94.621	204.390
128	94.710	199.528
129	94.797	195.504
130	94.884	195.111

131	94.972	196.446
132	95.059	195.128
133	95.146	195.248
134	95.233	195.111
135	95.320	196.446
136	95.407	195.248
137	95.494	195.248
138	95.582	196.309
139	95.669	195.248
140	95.756	195.128
141	95.843	195.248
142	95.916	165.217
143	95.984	150.665
144	96.052	154.294
145	96.120	152.137
146	96.188	151.880
147	96.256	153.216
148	96.324	153.061
149	96.393	153.335
150	96.460	151.760

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 1853.0271
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = 384.4073

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2 4 - 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 FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	175.0	350.0	525.0	700.0
14.000	103.2054	208.36	.	VQ	.	.	.
14.083	104.6725	213.02	.	V Q	.	.	.
14.167	106.1780	218.60	.	.VQ	.	.	.
14.250	107.7212	224.07	.	.VQ	.	.	.
14.333	109.3048	229.95	.	.V Q	.	.	.
14.417	110.9332	236.44	.	.V Q	.	.	.
14.500	112.6067	242.99	.	.V Q	.	.	.
14.583	114.3301	250.23	.	.V Q	.	.	.
14.667	116.1080	258.16	.	.V Q	.	.	.
14.750	117.9454	266.79	.	.V Q	.	.	.
14.833	119.8480	276.26	.	.V Q	.	.	.
14.917	121.8217	286.58	.	.V Q	.	.	.
15.000	123.8675	297.04	.	.V Q	.	.	.
15.083	125.9942	308.81	.	.V Q	.	.	.
15.167	128.1949	319.54	.	.V Q	.	.	.
15.250	130.4644	329.52	.	.V Q	.	.	.
15.333	132.8024	339.48	.	.V Q	.	.	.
15.417	135.1946	347.36	.	.V Q	.	.	.
15.500	137.6351	354.35	.	.V Q	.	.	.
15.583	140.1232	361.28	.	.V Q	.	.	.
15.667	142.6614	368.54	.	.V .Q	.	.	.
15.750	145.2470	375.43	.	.V .Q	.	.	.
15.833	147.8764	381.80	.	.V .Q	.	.	.
15.917	150.5472	387.79	.	.V .Q	.	.	.
16.000	153.2672	394.94	.	.V .Q	.	.	.
16.083	156.1665	420.98	.	.V .Q	.	.	.
16.167	159.2274	444.45	.	.V .Q	.	.	.
16.250	162.3004	446.20	.	.V .Q	.	.	.
16.333	165.4368	455.41	.	.V .Q	.	.	.
16.417	168.6602	468.03	.	.V .Q	.	.	.
16.500	171.9244	473.97	.	.V .Q	.	.	.
16.583	175.3217	493.28	.	.V .Q	.	.	.
16.667	178.8560	513.19	.	.V .Q	.	.	.
16.750	182.5533	536.85	.	.V .Q	.	.	.
16.833	186.4079	559.69	.	.V .Q	.	.	.
16.917	190.4191	582.42	.	.V .Q	.	.	.
17.000	194.4798	589.62	.	.V .Q	.	.	.
17.083	198.7091	614.10	.	.V .Q	.	.	.
17.167	202.7888	592.36	.	.V .Q	.	.	.
17.250	206.7603	576.67	.	.V .Q	.	.	.
17.333	210.7244	575.58	.	.V .Q	.	.	.
17.417	214.6141	564.78	.	.V .Q	.	.	.
17.500	218.5715	574.62	.	.V .Q	.	.	.
17.583	222.4860	568.38	.	.V .Q	.	.	.
17.667	226.4649	577.74	.	.V .Q	.	.	.
17.750	230.3829	568.90	.	.V .Q	.	.	.
17.833	234.0839	537.38	.	.V .Q	.	.	.
17.917	237.6198	513.42	.	.V .Q	.	.	.
18.000	241.0700	500.96	.	.V .Q	.	.	.
18.083	244.4526	491.16	.	.V .Q	.	.	.
18.167	247.7241	475.02	.	.V .Q	.	.	.
18.250	250.8583	455.09	.	.Q	.	.	.
18.333	253.9214	444.76	.	.QV	.	.	.
18.417	256.9113	434.14	.	.Q V	.	.	.
18.500	259.8135	421.40	.	.Q V	.	.	.
18.583	262.6406	410.49	.	.Q V	.	.	.

18.667	265.3906	399.31	.	.	.	.Q	V .
18.750	268.0232	382.24	.	.	.	.Q	V .
18.833	270.5812	371.43	.	.	.	.Q	V .
18.917	273.0596	359.86	.	.	.	.Q	V .
19.000	275.4522	347.41	.	.	.	.Q	V .
19.083	277.7808	338.11	.	.	.	.Q	V .
19.167	280.0373	327.65	.	.	.	.Q	V .
19.250	282.2380	319.55	.	.	.	.Q	V .
19.333	284.3826	311.40	.	.	.	.Q	V .
19.417	286.4633	302.12	.	.	.	.Q	V .
19.500	288.4900	294.26	.	.	.	.Q	V .
19.583	290.4652	286.81	.	.	.	.Q	V .
19.667	292.3913	279.66	.	.	.	.Q	V .
19.750	294.2682	272.53	.	.	.	.Q	V .
19.833	296.1029	266.40	.	.	.	.Q	V .
19.917	297.8902	259.52Q	V .
20.000	299.6289	252.46Q	.V

=====

END OF FLOODSCx ROUTING ANALYSIS

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PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

**TECHNICAL APPENDIX II-C
HYDROLOGIC ANALYSIS
PROPOSED CONDITION
10-YEAR EXPECTED VALUE**

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2003 Advanced Engineering Software (aes)
Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
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Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MP49010E.DAT
TIME/DATE OF STUDY: 14:29 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
===

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / SIDE	OUT- / SIDE/ WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020		0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU48010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1980.81 Tc(MIN.) = 49.77
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.61
TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1980.81 Tc(MIN.) = 49.77
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.61
TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 445.00 DOWNSTREAM(FEET) = 400.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2427.00 CHANNEL SLOPE = 0.0185
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 1980.81
FLOW VELOCITY(FEET/SEC.) = 13.06 FLOW DEPTH(FEET) = 5.86
TRAVEL TIME(MIN.) = 3.10 Tc(MIN.) = 52.86
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 52.86
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.051
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	38.00	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	10.90	0.40	1.00	50
URBAN FAIR COVER "TURF"	A	42.00	0.40	1.00	44
NATURAL FAIR COVER "OPEN BRUSH"	A	37.80	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	53.60	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	70.00	0.30	1.00	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.37
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 252.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.60;1H= 0.79;3H= 1.35;6H= 1.89;24H= 3.20
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.88; LAG(HR) = 0.70; Fm(INCH/HR) = 0.25; Ybar = 0.63
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.80; 30M = 0.80; 1HR = 0.80;
 3HR = 0.97; 6HR = 0.98; 24HR = 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4659.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 523.40
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1929.08
 TOTAL AREA(ACRES) = 4659.30 PEAK FLOW RATE(CFS) = 1980.81
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 52.86
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.928
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	38.40	0.30	1.00	69
URBAN FAIR COVER					
"TURF"	B	32.90	0.30	1.00	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	37.40	0.30	1.00	66
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	2.00	0.30	1.00	72
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	B	1.10	0.30	0.60	56
NATURAL FAIR COVER					
"WOODLAND"	B	77.20	0.30	1.00	60

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 189.00

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.35;6H= 1.89;24H= 3.19
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.88; LAG(HR) = 0.70; Fm(INCH/HR) = 0.25; Ybar = 0.64
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.79; 30M = 0.79; 1HR = 0.79;
 3HR = 0.97; 6HR = 0.98; 24HR = 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4848.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 533.43
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 1981.33
 TOTAL AREA(ACRES) = 4848.30 PEAK FLOW RATE(CFS) = 1981.33

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 52.86
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.928
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	710.20	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	2.20	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	89.70	0.25	1.00	79
URBAN FAIR COVER					
"TURF"	C	13.10	0.25	1.00	77
NATURAL FAIR COVER					
"OPEN BRUSH"	C	819.40	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	75.60	0.25	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 1710.20

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.34;6H= 1.87;24H= 3.15
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.88; LAG(HR) = 0.70; Fm(INCH/HR) = 0.25; Ybar = 0.64
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.75; 30M = 0.75; 1HR = 0.75;
 3HR = 0.96; 6HR = 0.98; 24HR = 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 6558.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 695.66
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2493.55
 TOTAL AREA(ACRES) = 6558.50 PEAK FLOW RATE(CFS) = 2493.55

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 52.86
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.928
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	13.10	0.25	0.60	69
NATURAL FAIR COVER					
"WOODLAND"	C	82.20	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	145.30	0.20	1.00	81
NATURAL POOR COVER					
"BARREN"	D	1.00	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	367.20	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	142.80	0.20	1.00	82

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 751.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.34;6H= 1.86;24H= 3.14
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 0.88; LAG(HR) = 0.70; Fm(INCH/HR) = 0.24; Ybar = 0.63
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.73; 30M = 0.73; 1HR = 0.73;
3HR = 0.96; 6HR = 0.98; 24HR= 0.99
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7310.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 784.83
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2719.31
TOTAL AREA(ACRES) = 7310.10 PEAK FLOW RATE(CFS) = 2719.31

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	D	373.60	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	21.60	0.20	1.00	86
RESIDENTIAL "3-4 DWELLINGS/ACRE"	D	26.50	0.20	0.60	75
NATURAL FAIR COVER "WOODLAND"	D	58.40	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
SUBAREA AREA(ACRES) = 480.10

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.34;6H= 1.86;24H= 3.13
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.88; LAG(HR) = 0.70; Fm(INCH/HR) = 0.24; Ybar = 0.63
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.71; 30M = 0.71; 1HR = 0.71;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 843.39
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2858.16
TOTAL AREA(ACRES) = 7790.20 PEAK FLOW RATE(CFS) = 2858.16

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 7790.20 TC(MIN.) = 52.86
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.63
PEAK FLOW RATE(CFS) = 2858.16

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MP50010E.DAT
TIME/DATE OF STUDY: 14:29 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----
USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	3.610
2)	10.000;	2.370
3)	15.000;	1.890
4)	20.000;	1.540
5)	30.000;	1.210
6)	60.000;	0.840
7)	120.000;	0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.200
FOOTHILL 0.100
MOUNTAIN 0.700
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP49010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2858.16 Tc(MIN.) = 52.86
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.63
TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2858.16 Tc(MIN.) = 52.86
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.63
TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 400.00 DOWNSTREAM(FEET) = 390.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 616.00 CHANNEL SLOPE = 0.0162
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2858.16
FLOW VELOCITY(FEET/SEC.) = 13.85 FLOW DEPTH(FEET) = 7.50
TRAVEL TIME(MIN.) = 0.74 Tc(MIN.) = 53.61
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 53.61
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.043
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	A	0.30	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	0.20	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	1.10	0.40	1.00	36
NATURAL FAIR COVER "GRASS"	B	2.20	0.30	1.00	69
NATURAL FAIR COVER "OPEN BRUSH"	B	0.20	0.30	1.00	66
NATURAL FAIR COVER "WOODLAND"	B	0.40	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.40
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.34;6H= 1.86;24H= 3.13
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.89; LAG(HR) = 0.71; Fm(INCH/HR) = 0.24; Ybar = 0.63
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.71; 30M = 0.71; 1HR = 0.71;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7794.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 843.41
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2851.67
 TOTAL AREA(ACRES) = 7794.60 PEAK FLOW RATE(CFS) = 2858.16
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 53.61
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.919
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	53.00	0.25	1.00	75
NATURAL FAIR COVER					
"GRASS"	C	318.80	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	33.30	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	4.80	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	41.60	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	29.90	0.20	1.00	84

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 481.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.86;24H= 3.12
 S-GRAPH: VALLEY(DEV.)= 1.2%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN= 98.2%;FOOTHILL= 0.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.89; LAG(HR) = 0.71; Fm(INCH/HR) = 0.24; Ybar = 0.63
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8276.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 891.59
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2961.45
 TOTAL AREA(ACRES) = 8276.00 PEAK FLOW RATE(CFS) = 2961.45

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 53.61
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.919
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	8.60	0.20	1.00	83
NATURAL FAIR COVER					
"WOODLAND"	D	1.80	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 10.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.86;24H= 3.12
 S-GRAPH: VALLEY(DEV.)= 1.2%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN= 98.2%;FOOTHILL= 0.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.89; LAG(HR) = 0.71; Fm(INCH/HR) = 0.24; Ybar = 0.63
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8286.40
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 892.81
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2964.05
 TOTAL AREA(ACRES) = 8286.40 PEAK FLOW RATE(CFS) = 2964.05

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 8286.40 TC(MIN.) = 53.61
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.63
 PEAK FLOW RATE(CFS) = 2964.05

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MP51010E.DAT
TIME/DATE OF STUDY: 14:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	3.610
2)	10.000;	2.370
3)	15.000;	1.890
4)	20.000;	1.540
5)	30.000;	1.210
6)	60.000;	0.840
7)	120.000;	0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.300
FOOTHILL 0.500
MOUNTAIN 0.000
VALLEY(UNDEVELOPED)/DESERT 0.200
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP50010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2964.05 Tc(MIN.) = 53.61
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.63
TOTAL AREA(ACRES) = 8286.40
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2964.05 Tc(MIN.) = 53.61
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.63
TOTAL AREA(ACRES) = 8286.40
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 390.00 DOWNSTREAM(FEET) = 330.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 4501.00 CHANNEL SLOPE = 0.0133
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2964.05
FLOW VELOCITY(FEET/SEC.) = 13.04 FLOW DEPTH(FEET) = 8.09
TRAVEL TIME(MIN.) = 5.75 Tc(MIN.) = 59.36
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 59.36
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.984
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	A	0.70	0.40	0.50	32
NATURAL FAIR COVER					
"GRASS"	A	1.80	0.40	1.00	50
NATURAL FAIR COVER					
"WOODLAND"	A	6.50	0.40	1.00	36
NATURAL FAIR COVER					
"GRASS"	B	3.20	0.30	1.00	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.20	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	10.90	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
SUBAREA AREA(ACRES) = 25.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.86;24H= 3.12
S-GRAPH: VALLEY(DEV.)= 1.3%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN= 97.9%;FOOTHILL= 0.7%;DESERT(UNDEV.)= 0.1%
Tc(HR) = 0.99; LAG(HR) = 0.79; Fm(INCH/HR) = 0.24; Ybar = 0.63
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8311.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 893.08
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2772.08
TOTAL AREA(ACRES) = 8311.70 PEAK FLOW RATE(CFS) = 2964.05
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 59.36
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.848
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	5.60	0.25	1.00	75
NATURAL FAIR COVER					
"GRASS"	C	38.20	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	3.80	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	7.00	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	57.50	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	5.10	0.20	0.50	75

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
SUBAREA AREA(ACRES) = 117.20
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.86;24H= 3.12
S-GRAPH: VALLEY(DEV.)= 1.7%;VALLEY(UNDEV.)/DESERT= 0.3%
MOUNTAIN= 96.5%;FOOTHILL= 1.4%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.99; LAG(HR) = 0.79; Fm(INCH/HR) = 0.24; Ybar = 0.63
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8428.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 906.36
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2798.71
TOTAL AREA(ACRES) = 8428.90 PEAK FLOW RATE(CFS) = 2964.05
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 59.36
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.848
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	D	0.60	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	92.50	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	11.30	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	14.60	0.20	1.00	83
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	7.80	0.20	0.60	75
NATURAL FAIR COVER					
"WOODLAND"	D	31.40	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
SUBAREA AREA(ACRES) = 158.20
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.12
S-GRAPH: VALLEY(DEV.)= 2.2%;VALLEY(UNDEV.)/DESERT= 0.7%
MOUNTAIN= 94.8%;FOOTHILL= 2.3%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.99; LAG(HR) = 0.79; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8587.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 926.04
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2836.08
TOTAL AREA(ACRES) = 8587.10 PEAK FLOW RATE(CFS) = 2964.05
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 8587.10 TC(MIN.) = 59.36
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.62
PEAK FLOW RATE(CFS) = 2964.05

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MP52010E.DAT
TIME/DATE OF STUDY: 14:29 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	3.610
2)	10.000;	2.370
3)	15.000;	1.890
4)	20.000;	1.540
5)	30.000;	1.210
6)	60.000;	0.840
7)	120.000;	0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.400
FOOTHILL 0.300
MOUNTAIN 0.100
VALLEY(UNDEVELOPED)/DESERT 0.200
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP51010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2964.05 Tc(MIN.) = 59.36
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 8587.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2964.05 Tc(MIN.) = 59.36
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 8587.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 330.00 DOWNSTREAM(FEET) = 300.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2333.00 CHANNEL SLOPE = 0.0129
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2964.05
FLOW VELOCITY(FEET/SEC.) = 12.87 FLOW DEPTH(FEET) = 8.17
TRAVEL TIME(MIN.) = 3.02 Tc(MIN.) = 62.38
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 62.38
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.956
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" A 3.80 0.40 1.00 78
NATURAL FAIR COVER
"GRASS" A 0.60 0.40 1.00 50
URBAN FAIR COVER
"TURF" A 2.90 0.40 1.00 44
NATURAL FAIR COVER
"OPEN BRUSH" A 0.40 0.40 1.00 46
PUBLIC PARK A 1.10 0.40 0.85 32
RESIDENTIAL
"3-4 DWELLINGS/ACRE" A 7.60 0.40 0.60 32
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.40
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.80
SUBAREA AREA(ACRES) = 16.40
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.12

S-GRAPH: VALLEY(DEV.)= 2.3%;VALLEY(UNDEV.)/DESERT= 0.7%
MOUNTAIN= 94.6%;FOOTHILL= 2.4%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 1.04; LAG(HR) = 0.83; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
3HR = 0.95; 6HR = 0.97; 24HR = 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8603.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 927.19
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2742.46
TOTAL AREA(ACRES) = 8603.50 PEAK FLOW RATE(CFS) = 2964.05
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 62.38
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.830
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND" A 10.10 0.40 1.00 36
URBAN FAIR COVER
"TURF" B 3.80 0.30 1.00 65
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B 0.40 0.30 1.00 63
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 0.70 0.25 1.00 75
NATURAL POOR COVER
"BARREN" C 3.30 0.25 1.00 91
NATURAL FAIR COVER
"OPEN BRUSH" C 0.30 0.25 1.00 77

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 18.60
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.12
S-GRAPH: VALLEY(DEV.)= 2.4%;VALLEY(UNDEV.)/DESERT= 0.8%

MOUNTAIN= 94.4%;FOOTHILL= 2.4%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 1.04; LAG(HR) = 0.83; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.70; 1HR = 0.70;
3HR = 0.95; 6HR = 0.97; 24HR = 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8622.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 928.10
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2745.27
TOTAL AREA(ACRES) = 8622.10 PEAK FLOW RATE(CFS) = 2964.05
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 62.38
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.830
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
RESIDENTIAL
"3-4 DWELLINGS/ACRE" C 27.30 0.25 0.60 69
NATURAL FAIR COVER
"WOODLAND" C 0.20 0.25 1.00 73
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 49.50 0.20 1.00 81
NATURAL POOR COVER
"BARREN" D 7.30 0.20 1.00 93
NATURAL FAIR COVER
"GRASS" D 13.50 0.20 1.00 84
URBAN FAIR COVER
"TURF" D 130.80 0.20 1.00 82

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.95
SUBAREA AREA(ACRES) = 228.60
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.12
S-GRAPH: VALLEY(DEV.)= 3.3%;VALLEY(UNDEV.)/DESERT= 1.3%
MOUNTAIN= 92.2%;FOOTHILL= 3.2%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 1.04; LAG(HR) = 0.83; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR = 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8850.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 956.03
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2804.45
TOTAL AREA(ACRES) = 8850.70 PEAK FLOW RATE(CFS) = 2964.05
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 62.38
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.830
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" D 0.80 0.20 1.00 83
RESIDENTIAL
"3-4 DWELLINGS/ACRE" D 85.50 0.20 0.60 75
NATURAL FAIR COVER
"WOODLAND" D 15.00 0.20 1.00 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.66
SUBAREA AREA(ACRES) = 101.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.12
S-GRAPH: VALLEY(DEV.)= 3.7%;VALLEY(UNDEV.)/DESERT= 1.5%
MOUNTAIN= 91.3%;FOOTHILL= 3.5%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 1.04; LAG(HR) = 0.83; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR = 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8952.00

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0317; Lca/L=0.4,n=.0284; Lca/L=0.5,n=.0261;Lca/L=0.6,n=.0243
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 970.18
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2834.24
TOTAL AREA(ACRES) = 8952.00 PEAK FLOW RATE(CFS) = 2964.05
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 8952.00 TC(MIN.) = 62.38
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.62
PEAK FLOW RATE(CFS) = 2964.05

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MP53010E.DAT
TIME/DATE OF STUDY: 14:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / SIDE	OUT- / SIDE/ WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020		0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.400
FOOTHILL 0.300
MOUNTAIN 0.100
VALLEY(UNDEVELOPED)/DESERT 0.200
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP52010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2964.05 Tc(MIN.) = 62.38
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 8952.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2964.05 Tc(MIN.) = 62.38
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 8952.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 300.00 DOWNSTREAM(FEET) = 265.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 3322.00 CHANNEL SLOPE = 0.0105
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2964.05
FLOW VELOCITY(FEET/SEC.) = 11.98 FLOW DEPTH(FEET) = 8.64
TRAVEL TIME(MIN.) = 4.62 Tc(MIN.) = 67.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 67.00
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.918
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	1.60	0.40	1.00	40
NATURAL POOR COVER "BARREN"	A	0.90	0.40	1.00	78
NATURAL FAIR COVER "GRASS"	A	12.50	0.40	1.00	50
URBAN FAIR COVER "TURF"	A	0.90	0.40	1.00	44
NATURAL FAIR COVER "OPEN BRUSH"	A	2.90	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	16.90	0.40	1.00	36

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.40
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 35.70
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.12
 S-GRAPH: VALLEY(DEV.)= 3.9%;VALLEY(UNDEV.)/DESERT= 1.6%
 MOUNTAIN= 91.0%;FOOTHILL= 3.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.12; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8987.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 969.16
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2765.30
 TOTAL AREA(ACRES) = 8987.70 PEAK FLOW RATE(CFS) = 2964.05
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 67.00
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.811
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	11.40	0.30	1.00	69
URBAN FAIR COVER					
"TURF"	B	9.30	0.30	1.00	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.30	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	4.20	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	47.20	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	7.70	0.25	0.50	69

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.95
 SUBAREA AREA(ACRES) = 81.10
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.12
 S-GRAPH: VALLEY(DEV.)= 4.2%;VALLEY(UNDEV.)/DESERT= 1.7%
 MOUNTAIN= 90.3%;FOOTHILL= 3.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.12; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9068.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 975.78
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2780.37
 TOTAL AREA(ACRES) = 9068.80 PEAK FLOW RATE(CFS) = 2964.05
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 67.00
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.811
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	C	8.50	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	17.20	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	49.10	0.25	1.00	77
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	17.90	0.25	0.60	69
NATURAL FAIR COVER					
"WOODLAND"	C	43.10	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	79.80	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.97
 SUBAREA AREA(ACRES) = 215.60
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.11
 S-GRAPH: VALLEY(DEV.)= 5.0%;VALLEY(UNDEV.)/DESERT= 2.1%

MOUNTAIN= 88.4%;FOOTHILL= 4.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.12; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.69; 1HR = 0.69;
 3HR = 0.94; 6HR = 0.97; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9284.40
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 998.36
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2826.05
 TOTAL AREA(ACRES) = 9284.40 PEAK FLOW RATE(CFS) = 2964.05
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 67.00
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.811
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	3.30	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	4.90	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	105.10	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	104.60	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	67.80	0.20	1.00	83
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	12.70	0.20	0.60	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 298.40
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.11

S-GGRAPH: VALLEY(DEV.)= 6.1%;VALLEY(UNDEV.)/DESERT= 2.7%
MOUNTAIN= 86.0%;FOOTHILL= 5.2%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 1.12; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.68; 1HR = 0.68;
3HR = 0.94; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9582.80
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1035.73
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2895.86
TOTAL AREA(ACRES) = 9582.80 PEAK FLOW RATE(CFS) = 2964.05
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) =	67.00				
* 10 YEAR RAINFALL INTENSITY(INCH/HR) =	0.811				
SUBAREA LOSS RATE DATA(AMC II):					
DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND"	D	49.40	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 49.40

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.11
S-GGRAPH: VALLEY(DEV.)= 6.3%;VALLEY(UNDEV.)/DESERT= 2.8%
MOUNTAIN= 85.6%;FOOTHILL= 5.3%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 1.12; LAG(HR) = 0.89; Fm(INCH/HR) = 0.24; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.68; 1HR = 0.68;
3HR = 0.94; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9632.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1040.92
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2906.58
TOTAL AREA(ACRES) = 9632.20 PEAK FLOW RATE(CFS) = 2964.05
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 9632.20 TC(MIN.) = 67.00
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.62
PEAK FLOW RATE(CFS) = 2964.05

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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Huitt - Zollars, Inc.
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Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MP54010E.DAT
TIME/DATE OF STUDY: 14:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.400
FOOTHILL 0.300
MOUNTAIN 0.200
VALLEY(UNDEVELOPED)/DESERT 0.100
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP53010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2964.05 Tc(MIN.) = 67.00
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 9632.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2964.05 Tc(MIN.) = 67.00
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.62
TOTAL AREA(ACRES) = 9632.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 265.00 DOWNSTREAM(FEET) = 245.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1390.00 CHANNEL SLOPE = 0.0144
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 2964.05
FLOW VELOCITY(FEET/SEC.) = 13.40 FLOW DEPTH(FEET) = 7.92
TRAVEL TIME(MIN.) = 1.73 Tc(MIN.) = 68.73
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 68.73
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.904
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS" A 2.30 0.40 1.00 50
RESIDENTIAL
"3-4 DWELLINGS/ACRE" A 14.70 0.40 0.60 32
NATURAL FAIR COVER
"WOODLAND" A 1.30 0.40 1.00 36
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B 36.30 0.30 1.00 63
NATURAL POOR COVER
"BARREN" B 12.50 0.30 1.00 86
NATURAL FAIR COVER
"GRASS" B 99.20 0.30 1.00 69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.31
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.96
SUBAREA AREA(ACRES) = 166.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.11
 S-GRAPH: VALLEY(DEV.)= 6.9%;VALLEY(UNDEV.)/DESERT= 2.9%
 MOUNTAIN= 84.5%;FOOTHILL= 5.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.15; LAG(HR) = 0.92; Fm(INCH/HR) = 0.24; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.67; 30M = 0.68; 1HR = 0.68;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9798.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1050.55
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2867.27
 TOTAL AREA(ACRES) = 9798.50 PEAK FLOW RATE(CFS) = 2964.05
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 68.73
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.804
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
URBAN FAIR COVER					
"TURF"	B	9.80	0.30	1.00	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	22.90	0.30	1.00	66
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	B	24.70	0.30	0.60	56
NATURAL FAIR COVER					
"WOODLAND"	B	92.60	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	295.40	0.25	1.00	75
NATURAL FAIR COVER					
"WOODLAND"	C	153.30	0.25	1.00	73

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 598.70

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.10
 S-GRAPH: VALLEY(DEV.)= 8.8%;VALLEY(UNDEV.)/DESERT= 3.3%
 MOUNTAIN= 80.7%;FOOTHILL= 7.1%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.15; LAG(HR) = 0.92; Fm(INCH/HR) = 0.24; Ybar = 0.63
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.66; 30M = 0.67; 1HR = 0.67;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 10397.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1095.40
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 2967.28
 TOTAL AREA(ACRES) = 10397.20 PEAK FLOW RATE(CFS) = 2967.28

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 68.73
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.804
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	C	140.40	0.25	1.00	79
URBAN FAIR COVER					
"TURF"	C	102.40	0.25	1.00	77
NATURAL FAIR COVER					
"OPEN BRUSH"	C	312.40	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	0.90	0.25	1.00	81
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	56.80	0.25	0.60	69
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	38.10	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.97
 SUBAREA AREA(ACRES) = 651.00
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.84;24H= 3.10
 S-GRAPH: VALLEY(DEV.)= 10.6%;VALLEY(UNDEV.)/DESERT= 3.7%
 MOUNTAIN= 77.2%;FOOTHILL= 8.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.15; LAG(HR) = 0.92; Fm(INCH/HR) = 0.24; Ybar = 0.63
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.65; 30M = 0.66; 1HR = 0.67;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 11048.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1159.26
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3087.61
 TOTAL AREA(ACRES) = 11048.20 PEAK FLOW RATE(CFS) = 3087.61

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 68.73
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.804
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	D	15.40	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	282.80	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	80.70	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	171.90	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	499.30	0.20	0.60	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.81
 SUBAREA AREA(ACRES) = 1050.80
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 13.2%;VALLEY(UNDEV.)/DESERT= 4.3%
 MOUNTAIN= 72.2%;FOOTHILL= 10.4%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 1.15; LAG(HR) = 0.92; Fm(INCH/HR) = 0.23; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.64; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12099.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1298.71
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3329.00
 TOTAL AREA(ACRES) = 12099.00 PEAK FLOW RATE(CFS) = 3329.00

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 68.73
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.804
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND"	D	72.00	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 72.00

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 13.3%;VALLEY(UNDEV.)/DESERT= 4.3%
 MOUNTAIN= 71.9%;FOOTHILL= 10.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.15; LAG(HR) = 0.92; Fm(INCH/HR) = 0.23; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12171.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0318; Lca/L=0.4,n=.0285; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0244
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 1306.06
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3342.54
 TOTAL AREA(ACRES) = 12171.00 PEAK FLOW RATE(CFS) = 3342.54

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 12171.00 TC(MIN.) = 68.73
 AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.61
 PEAK FLOW RATE(CFS) = 3342.54

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2003 Advanced Engineering Software (aes)
Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MP55010E.DAT
TIME/DATE OF STUDY: 14:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	3.610
2)	10.000;	2.370
3)	15.000;	1.890
4)	20.000;	1.540
5)	30.000;	1.210
6)	60.000;	0.840
7)	120.000;	0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
---	------	------	-------------------	------	------	--------	-------	--------

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.200
FOOTHILL 0.400
MOUNTAIN 0.000
VALLEY(UNDEVELOPED)/DESERT 0.400
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP54010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3342.54 Tc(MIN.) = 68.73
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.61
TOTAL AREA(ACRES) = 12171.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3342.54 Tc(MIN.) = 68.73
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.61
TOTAL AREA(ACRES) = 12171.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 245.00 DOWNSTREAM(FEET) = 215.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2724.00 CHANNEL SLOPE = 0.0110
CHANNEL BASE(FEET) = 25.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3342.54
FLOW VELOCITY(FEET/SEC.) = 12.34 FLOW DEPTH(FEET) = 8.17
TRAVEL TIME(MIN.) = 3.68 Tc(MIN.) = 72.41
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 72.41
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.878
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	A	6.80	0.40	1.00	50
NATURAL FAIR COVER					
"OPEN BRUSH"	A	1.80	0.40	1.00	46
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	A	0.40	0.40	0.60	32
NATURAL FAIR COVER					
"WOODLAND"	A	5.50	0.40	1.00	36
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	5.80	0.30	1.00	63
NATURAL POOR COVER					
"BARREN"	B	6.90	0.30	1.00	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.35
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
SUBAREA AREA(ACRES) = 27.20
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 13.3%;VALLEY(UNDEV.)/DESERT= 4.4%
 MOUNTAIN= 71.7%;FOOTHILL= 10.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.21; LAG(HR) = 0.97; Fm(INCH/HR) = 0.23; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12198.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.67 RUNOFF VOLUME(AF) = 1304.86
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3248.54
 TOTAL AREA(ACRES) = 12198.20 PEAK FLOW RATE(CFS) = 3342.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 72.41
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.788
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	22.60	0.30	1.00	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	7.90	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	9.50	0.30	1.00	60
NATURAL FAIR COVER					
"WOODLAND"	C	23.30	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	71.90	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	0.40	0.25	1.00	91

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 135.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 13.4%;VALLEY(UNDEV.)/DESERT= 4.8%
 MOUNTAIN= 70.9%;FOOTHILL= 10.9%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.21; LAG(HR) = 0.97; Fm(INCH/HR) = 0.23; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12333.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.67 RUNOFF VOLUME(AF) = 1314.68
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3267.61
 TOTAL AREA(ACRES) = 12333.80 PEAK FLOW RATE(CFS) = 3342.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 72.41
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.788
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	C	14.60	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	66.50	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	0.20	0.25	1.00	81
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	0.30	0.25	0.60	69
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	3.50	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	1.20	0.20	0.50	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 86.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 13.5%;VALLEY(UNDEV.)/DESERT= 5.0%
 MOUNTAIN= 70.4%;FOOTHILL= 11.1%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.21; LAG(HR) = 0.97; Fm(INCH/HR) = 0.23; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12420.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0245
 TIME OF PEAK FLOW(HR) = 16.67 RUNOFF VOLUME(AF) = 1322.73
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3281.57
 TOTAL AREA(ACRES) = 12420.10 PEAK FLOW RATE(CFS) = 3342.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 72.41
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.788
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	D	0.20	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	33.50	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	9.50	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.20	0.20	1.00	86
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	50.10	0.20	0.60	75
NATURAL FAIR COVER					
"WOODLAND"	D	8.90	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.80
 SUBAREA AREA(ACRES) = 102.40

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09

S-GRAPH: VALLEY(DEV.)= 13.5%;VALLEY(UNDEV.)/DESERT= 5.3%
MOUNTAIN= 69.9%;FOOTHILL= 11.3%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 1.21; LAG(HR) = 0.97; Fm(INCH/HR) = 0.23; Ybar = 0.62
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
3HR = 0.93; 6HR = 0.96; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12522.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0319; Lca/L=0.4,n=.0286; Lca/L=0.5,n=.0262;Lca/L=0.6,n=.0245
TIME OF PEAK FLOW(HR) = 16.67 RUNOFF VOLUME(AF) = 1336.08
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3303.95
TOTAL AREA(ACRES) = 12522.50 PEAK FLOW RATE(CFS) = 3342.54
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 12522.50 TC(MIN.) = 72.41
AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.62
PEAK FLOW RATE(CFS) = 3342.54

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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FILE NAME: MP56010E.DAT
TIME/DATE OF STUDY: 14:29 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	3.610
2)	10.000;	2.370
3)	15.000;	1.890
4)	20.000;	1.540
5)	30.000;	1.210
6)	60.000;	0.840
7)	120.000;	0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)

VALLEY(DEVELOPED)	0.300
FOOTHILL	0.300
MOUNTAIN	0.000
VALLEY(UNDEVELOPED)/DESERT	0.400
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP55010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3342.54 Tc(MIN.) = 72.41
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.62
TOTAL AREA(ACRES) = 12522.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3342.54 Tc(MIN.) = 72.41
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.62
TOTAL AREA(ACRES) = 12522.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 215.00 DOWNSTREAM(FEET) = 185.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2880.00 CHANNEL SLOPE = 0.0104
CHANNEL BASE(FEET) = 25.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3342.54
FLOW VELOCITY(FEET/SEC.) = 12.10 FLOW DEPTH(FEET) = 8.30
TRAVEL TIME(MIN.) = 3.97 Tc(MIN.) = 76.38
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 76.38
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.851
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	A	1.80	0.40	1.00	50
NATURAL FAIR COVER					
"OPEN BRUSH"	A	1.10	0.40	1.00	46
NATURAL FAIR COVER					
"WOODLAND"	A	9.30	0.40	1.00	36
NATURAL POOR COVER					
"BARREN"	B	1.80	0.30	1.00	86
NATURAL FAIR COVER					
"GRASS"	B	14.80	0.30	1.00	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.20	0.30	1.00	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 30.00
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 13.6%;VALLEY(UNDEV.)/DESERT= 5.4%
 MOUNTAIN= 69.7%;FOOTHILL= 11.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.27; LAG(HR) = 1.02; Fm(INCH/HR) = 0.23; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 12552.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0320; Lca/L=0.4,n=.0287; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0246
 TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1342.11
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3059.52
 TOTAL AREA(ACRES) = 12552.50 PEAK FLOW RATE(CFS) = 3342.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 76.38
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.772
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	B	5.10	0.30	1.00	60
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	8.50	0.25	0.50	69
NATURAL POOR COVER					
"BARREN"	C	2.40	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	1.30	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	0.20	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	3.10	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.79
 SUBAREA AREA(ACRES) = 20.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 13.6%;VALLEY(UNDEV.)/DESERT= 5.4%
 MOUNTAIN= 69.6%;FOOTHILL= 11.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.27; LAG(HR) = 1.02; Fm(INCH/HR) = 0.23; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 12573.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0320; Lca/L=0.4,n=.0287; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0246
 TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1344.37
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3063.71
 TOTAL AREA(ACRES) = 12573.10 PEAK FLOW RATE(CFS) = 3342.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====
 MAINLINE Tc(MIN) = 76.38
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.772
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	128.00	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	32.60	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	74.30	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	0.80	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	21.80	0.20	1.00	83
COMMERCIAL	D	2.70	0.20	0.10	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.74
 SUBAREA AREA(ACRES) = 260.20

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 13.9%;VALLEY(UNDEV.)/DESERT= 6.1%
 MOUNTAIN= 68.2%;FOOTHILL= 11.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.27; LAG(HR) = 1.02; Fm(INCH/HR) = 0.23; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.64; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 12833.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0320; Lca/L=0.4,n=.0287; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0246
 TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1382.35
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3128.23
 TOTAL AREA(ACRES) = 12833.30 PEAK FLOW RATE(CFS) = 3342.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 76.38
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.772
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	42.80	0.20	0.60	75
NATURAL FAIR COVER					
"WOODLAND"	D	13.80	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.70
 SUBAREA AREA(ACRES) = 57.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 14.0%;VALLEY(UNDEV.)/DESERT= 6.3%
 MOUNTAIN= 67.9%;FOOTHILL= 11.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.27; LAG(HR) = 1.02; Fm(INCH/HR) = 0.23; Ybar = 0.61
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.64; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 12890.60

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0320; Lca/L=0.4,n=.0287; Lca/L=0.5,n=.0263;Lca/L=0.6,n=.0246
TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1389.89
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3141.95
TOTAL AREA(ACRES) = 12890.60 PEAK FLOW RATE(CFS) = 3342.54
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.26; 30M = 0.59; 1HR = 0.78; 3HR = 1.31; 6HR = 1.81; 24HR = 3.03

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 12890.60 TC(MIN.) = 76.38
AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.61
PEAK FLOW RATE(CFS) = 3342.54

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MP57010E.DAT
TIME/DATE OF STUDY: 14:29 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 3.610
2) 10.000; 2.370
3) 15.000; 1.890
4) 20.000; 1.540
5) 30.000; 1.210
6) 60.000; 0.840
7) 120.000; 0.590

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
---	------	------	-------------------	------	------	--------	-------	--------

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.200
FOOTHILL 0.100
MOUNTAIN 0.600
VALLEY(UNDEVELOPED)/DESERT 0.100
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP56010E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3342.54 Tc(MIN.) = 76.38
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.61
TOTAL AREA(ACRES) = 12890.60
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3342.54 Tc(MIN.) = 76.38
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.61
TOTAL AREA(ACRES) = 12890.60
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 185.00 DOWNSTREAM(FEET) = 165.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2367.00 CHANNEL SLOPE = 0.0084
CHANNEL BASE(FEET) = 30.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3342.54
FLOW VELOCITY(FEET/SEC.) = 10.99 FLOW DEPTH(FEET) = 8.00
TRAVEL TIME(MIN.) = 3.59 Tc(MIN.) = 79.96
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 79.96
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.829
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	38.90	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	2.00	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	40.30	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	74.70	0.40	1.00	36
NATURAL FAIR COVER "OPEN BRUSH"	B	25.40	0.30	1.00	66
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	18.50	0.30	1.00	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 199.80
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.78;3H= 1.33;6H= 1.84;24H= 3.09
 S-GRAPH: VALLEY(DEV.)= 14.1%;VALLEY(UNDEV.)/DESERT= 6.3%
 MOUNTAIN= 67.8%;FOOTHILL= 11.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.33; LAG(HR) = 1.07; Fm(INCH/HR) = 0.23; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.63; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 13090.40
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1395.75
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3115.65
 TOTAL AREA(ACRES) = 13090.40 PEAK FLOW RATE(CFS) = 3342.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.28; 30M = 0.60; 1HR = 0.80; 3HR = 1.39; 6HR = 1.96; 24HR = 3.33

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 79.96
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.757
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	18.90	0.30	1.00	69
NATURAL FAIR COVER					
"WOODLAND"	B	105.00	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	540.80	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	1.40	0.25	0.50	69
NATURAL FAIR COVER					
"GRASS"	C	106.10	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	236.60	0.25	1.00	77

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 1008.80

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.26;30M= 0.59;1H= 0.79;3H= 1.33;6H= 1.85;24H= 3.11
 S-GRAPH: VALLEY(DEV.)= 14.5%;VALLEY(UNDEV.)/DESERT= 6.6%
 MOUNTAIN= 67.2%;FOOTHILL= 11.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.33; LAG(HR) = 1.07; Fm(INCH/HR) = 0.23; Ybar = 0.62
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.60; 30M = 0.62; 1HR = 0.63;
 3HR = 0.92; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 14099.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1491.55
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3274.98
 TOTAL AREA(ACRES) = 14099.20 PEAK FLOW RATE(CFS) = 3342.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.28; 30M = 0.60; 1HR = 0.80; 3HR = 1.39; 6HR = 1.96; 24HR = 3.33

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 79.96
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.757
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	145.90	0.25	0.60	69
NATURAL FAIR COVER					
"WOODLAND"	C	35.40	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	1590.50	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	1749.20	0.20	1.00	83
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	48.30	0.20	0.50	75
NATURAL FAIR COVER					
"GRASS"	D	198.30	0.20	1.00	84

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 3767.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.34;6H= 1.87;24H= 3.16
 S-GRAPH: VALLEY(DEV.)= 15.7%;VALLEY(UNDEV.)/DESERT= 7.3%
 MOUNTAIN= 65.7%;FOOTHILL= 11.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.33; LAG(HR) = 1.07; Fm(INCH/HR) = 0.23; Ybar = 0.60
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.55; 30M = 0.58; 1HR = 0.59;
 3HR = 0.90; 6HR = 0.95; 24HR= 0.97
 UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 17866.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 1981.44
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4010.69
 TOTAL AREA(ACRES) = 17866.80 PEAK FLOW RATE(CFS) = 4010.69

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.28; 30M = 0.60; 1HR = 0.80; 3HR = 1.39; 6HR = 1.96; 24HR = 3.33

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 79.96
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.757
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
URBAN FAIR COVER					
"TURF"	D	1.70	0.20	1.00	82
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	22.00	0.20	1.00	86
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	398.00	0.20	0.60	75
NATURAL FAIR COVER					
"WOODLAND"	D	267.20	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.77
 SUBAREA AREA(ACRES) = 688.90

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.27;30M= 0.59;1H= 0.79;3H= 1.35;6H= 1.88;24H= 3.16
 S-GRAPH: VALLEY(DEV.)= 15.8%;VALLEY(UNDEV.)/DESERT= 7.4%
 MOUNTAIN= 65.5%;FOOTHILL= 11.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.33; LAG(HR) = 1.07; Fm(INCH/HR) = 0.22; Ybar = 0.59
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.54; 30M = 0.57; 1HR = 0.58;

3HR = 0.90; 6HR = 0.95; 24HR= 0.97
UNIT-INTERVAL(MIN) = 10.00 TOTAL AREA(ACRES) = 18555.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0289; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
TIME OF PEAK FLOW(HR) = 16.83 RUNOFF VOLUME(AF) = 2077.36
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4154.54
TOTAL AREA(ACRES) = 18555.70 PEAK FLOW RATE(CFS) = 4154.54

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.28; 30M = 0.60; 1HR = 0.80; 3HR = 1.39; 6HR = 1.96; 24HR = 3.33

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 18555.70 TC(MIN.) = 79.96
AREA-AVERAGED Fm(INCH/HR)= 0.22 Ybar = 0.59
PEAK FLOW RATE(CFS) = 4154.54

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

**TECHNICAL APPENDIX II-C
HYDROLOGIC ANALYSIS
PROPOSED CONDITION
100-YEAR EXPECTED VALUE**

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MP49100E.DAT
TIME/DATE OF STUDY: 14:43 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU48100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3556.21 Tc(MIN.) = 44.28
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.49
TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3556.21 Tc(MIN.) = 44.28
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.49
TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 445.00 DOWNSTREAM(FEET) = 400.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2427.00 CHANNEL SLOPE = 0.0185
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 3556.21
FLOW VELOCITY(FEET/SEC.) = 15.46 FLOW DEPTH(FEET) = 8.17
TRAVEL TIME(MIN.) = 2.62 Tc(MIN.) = 46.90
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 46.90
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.716
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	38.00	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	10.90	0.40	1.00	50
URBAN FAIR COVER "TURF"	A	42.00	0.40	1.00	44
NATURAL FAIR COVER "OPEN BRUSH"	A	37.80	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	53.60	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	70.00	0.30	1.00	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.37
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 252.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.42;30M= 0.88;1H= 1.17;3H= 2.01;6H= 2.84;24H= 4.76
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.78; LAG(HR) = 0.63; Fm(INCH/HR) = 0.25; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.80; 30M = 0.80; 1HR = 0.80;
 3HR = 0.97; 6HR = 0.98; 24HR = 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4659.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0253; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0217
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 998.76
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3548.77
 TOTAL AREA(ACRES) = 4659.30 PEAK FLOW RATE(CFS) = 3556.21
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 46.90
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.509
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	38.40	0.30	1.00	69
URBAN FAIR COVER					
"TURF"	B	32.90	0.30	1.00	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	37.40	0.30	1.00	66
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	2.00	0.30	1.00	72
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	B	1.10	0.30	0.60	56
NATURAL FAIR COVER					
"WOODLAND"	B	77.20	0.30	1.00	60

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 189.00

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.17;3H= 2.01;6H= 2.83;24H= 4.75
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.78; LAG(HR) = 0.63; Fm(INCH/HR) = 0.25; Ybar = 0.52
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.79; 30M = 0.79; 1HR = 0.79;
 3HR = 0.97; 6HR = 0.98; 24HR = 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4848.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0253; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0217
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1023.83
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 3654.43
 TOTAL AREA(ACRES) = 4848.30 PEAK FLOW RATE(CFS) = 3654.43

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 46.90
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.509
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	710.20	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	2.20	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	89.70	0.25	1.00	79
URBAN FAIR COVER					
"TURF"	C	13.10	0.25	1.00	77
NATURAL FAIR COVER					
"OPEN BRUSH"	C	819.40	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	75.60	0.25	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 1710.20

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.17;3H= 1.99;6H= 2.80;24H= 4.68
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.78; LAG(HR) = 0.63; Fm(INCH/HR) = 0.25; Ybar = 0.52
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.75; 30M = 0.75; 1HR = 0.75;
 3HR = 0.96; 6HR = 0.98; 24HR = 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 6558.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0253; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0217
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1351.48
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4625.87
 TOTAL AREA(ACRES) = 6558.50 PEAK FLOW RATE(CFS) = 4625.87

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 46.90
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.509
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	13.10	0.25	0.60	69
NATURAL FAIR COVER					
"WOODLAND"	C	82.20	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	145.30	0.20	1.00	81
NATURAL POOR COVER					
"BARREN"	D	1.00	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	367.20	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	142.80	0.20	1.00	82

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 751.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.79;24H= 4.66
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 0.78; LAG(HR) = 0.63; Fm(INCH/HR) = 0.24; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.73; 30M = 0.73; 1HR = 0.73;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7310.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0253; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0217
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1519.68
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5040.46
 TOTAL AREA(ACRES) = 7310.10 PEAK FLOW RATE(CFS) = 5040.46

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	D	373.60	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	21.60	0.20	1.00	86
RESIDENTIAL "3-4 DWELLINGS/ACRE"	D	26.50	0.20	0.60	75
NATURAL FAIR COVER "WOODLAND"	D	58.40	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 480.10
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.79;24H= 4.65
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%

MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.78; LAG(HR) = 0.63; Fm(INCH/HR) = 0.24; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.71; 30M = 0.71; 1HR = 0.71;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7790.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0253; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0217
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1629.66
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5294.81
 TOTAL AREA(ACRES) = 7790.20 PEAK FLOW RATE(CFS) = 5294.81

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 7790.20 TC(MIN.) = 46.90
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.51
 PEAK FLOW RATE(CFS) = 5294.81

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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FILE NAME: MP50100E.DAT
TIME/DATE OF STUDY: 14:43 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
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--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.200
FOOTHILL 0.100
MOUNTAIN 0.700
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP49100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5294.81 Tc(MIN.) = 46.90
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.51
TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5294.81 Tc(MIN.) = 46.90
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.51
TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 400.00 DOWNSTREAM(FEET) = 390.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 616.00 CHANNEL SLOPE = 0.0162
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5294.81
FLOW VELOCITY(FEET/SEC.) = 16.43 FLOW DEPTH(FEET) = 10.55
TRAVEL TIME(MIN.) = 0.62 Tc(MIN.) = 47.52
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 47.52
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.703
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	A	0.30	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	0.20	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	1.10	0.40	1.00	36
NATURAL FAIR COVER "GRASS"	B	2.20	0.30	1.00	69
NATURAL FAIR COVER "OPEN BRUSH"	B	0.20	0.30	1.00	66
NATURAL FAIR COVER "WOODLAND"	B	0.40	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.40
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.79;24H= 4.65
S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.79; LAG(HR) = 0.63; Fm(INCH/HR) = 0.24; Ybar = 0.51
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.71; 30M = 0.71; 1HR = 0.71;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7794.60
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0216
TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1629.86
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5245.12
TOTAL AREA(ACRES) = 7794.60 PEAK FLOW RATE(CFS) = 5294.81
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 47.52
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.497
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 53.00 0.25 1.00 75
NATURAL FAIR COVER
"GRASS" C 318.80 0.25 1.00 79
NATURAL FAIR COVER
"OPEN BRUSH" C 33.30 0.25 1.00 77
NATURAL FAIR COVER
"WOODLAND" C 4.80 0.25 1.00 73
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 41.60 0.20 1.00 81
NATURAL FAIR COVER
"GRASS" D 29.90 0.20 1.00 84
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 481.40
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.64
S-GRAPH: VALLEY(DEV.)= 1.2%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN= 98.2%;FOOTHILL= 0.6%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.79; LAG(HR) = 0.63; Fm(INCH/HR) = 0.24; Ybar = 0.50
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8276.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0216
TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1726.83
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5455.25
TOTAL AREA(ACRES) = 8276.00 PEAK FLOW RATE(CFS) = 5455.25

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 47.52
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.497
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" D 8.60 0.20 1.00 83
NATURAL FAIR COVER
"WOODLAND" D 1.80 0.20 1.00 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 10.40
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.64
S-GRAPH: VALLEY(DEV.)= 1.2%;VALLEY(UNDEV.)/DESERT= 0.0%
MOUNTAIN= 98.2%;FOOTHILL= 0.6%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.79; LAG(HR) = 0.63; Fm(INCH/HR) = 0.24; Ybar = 0.50
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8286.40
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0282; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0232;Lca/L=0.6,n=.0216
TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1729.18
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5460.03
TOTAL AREA(ACRES) = 8286.40 PEAK FLOW RATE(CFS) = 5460.03

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49
=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 8286.40 TC(MIN.) = 47.52
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.50
PEAK FLOW RATE(CFS) = 5460.03
=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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FILE NAME: MP51100E.DAT
TIME/DATE OF STUDY: 14:43 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	5.440
2)	10.000;	3.530
3)	15.000;	2.790
4)	20.000;	2.320
5)	30.000;	1.830
6)	60.000;	1.260
7)	120.000;	0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
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1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.300
FOOTHILL 0.500
MOUNTAIN 0.000
VALLEY(UNDEVELOPED)/DESERT 0.200
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
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PEAK FLOWRATE TABLE FILE NAME: MP50100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5460.03 Tc(MIN.) = 47.52
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 8286.40
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5460.03 Tc(MIN.) = 47.52
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 8286.40
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 390.00 DOWNSTREAM(FEET) = 330.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 4501.00 CHANNEL SLOPE = 0.0133
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5460.03
FLOW VELOCITY(FEET/SEC.) = 15.42 FLOW DEPTH(FEET) = 11.31
TRAVEL TIME(MIN.) = 4.87 Tc(MIN.) = 52.39
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
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MAINLINE Tc(MIN) = 52.39
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.610
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	A	0.70	0.40	0.50	32
NATURAL FAIR COVER					
"GRASS"	A	1.80	0.40	1.00	50
NATURAL FAIR COVER					
"WOODLAND"	A	6.50	0.40	1.00	36
NATURAL FAIR COVER					
"GRASS"	B	3.20	0.30	1.00	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.20	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	10.90	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
SUBAREA AREA(ACRES) = 25.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.64
 S-GRAPH: VALLEY(DEV.)= 1.3%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN= 97.9%;FOOTHILL= 0.7%;DESERT(UNDEV.)= 0.1%
 Tc(HR) = 0.87; LAG(HR) = 0.70; Fm(INCH/HR) = 0.24; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8311.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0280; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1730.73
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5143.40
 TOTAL AREA(ACRES) = 8311.70 PEAK FLOW RATE(CFS) = 5460.03
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 52.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.405
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	5.60	0.25	1.00	75
NATURAL FAIR COVER					
"GRASS"	C	38.20	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	3.80	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	7.00	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	57.50	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	5.10	0.20	0.50	75

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 117.20
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.64
 S-GRAPH: VALLEY(DEV.)= 1.7%;VALLEY(UNDEV.)/DESERT= 0.3%
 MOUNTAIN= 96.5%;FOOTHILL= 1.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.87; LAG(HR) = 0.70; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8428.90
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0280; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1756.43
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5200.04
 TOTAL AREA(ACRES) = 8428.90 PEAK FLOW RATE(CFS) = 5460.03
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 52.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.405
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	D	0.60	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	92.50	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	11.30	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	14.60	0.20	1.00	83
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	7.80	0.20	0.60	75
NATURAL FAIR COVER					
"WOODLAND"	D	31.40	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 158.20
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.63
 S-GRAPH: VALLEY(DEV.)= 2.2%;VALLEY(UNDEV.)/DESERT= 0.7%
 MOUNTAIN= 94.8%;FOOTHILL= 2.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.87; LAG(HR) = 0.70; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8587.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0280; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1792.73
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5276.50
 TOTAL AREA(ACRES) = 8587.10 PEAK FLOW RATE(CFS) = 5460.03
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 8587.10 TC(MIN.) = 52.39
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.50
 PEAK FLOW RATE(CFS) = 5460.03

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MP52100E.DAT
TIME/DATE OF STUDY: 14:43 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.400
FOOTHILL 0.300
MOUNTAIN 0.100
VALLEY(UNDEVELOPED)/DESERT 0.200
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP51100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5460.03 Tc(MIN.) = 52.39
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 8587.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5460.03 Tc(MIN.) = 52.39
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 8587.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 330.00 DOWNSTREAM(FEET) = 300.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2333.00 CHANNEL SLOPE = 0.0129
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5460.03
FLOW VELOCITY(FEET/SEC.) = 15.21 FLOW DEPTH(FEET) = 11.42
TRAVEL TIME(MIN.) = 2.56 Tc(MIN.) = 54.94
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 54.94
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.567
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" A 3.80 0.40 1.00 78
NATURAL FAIR COVER
"GRASS" A 0.60 0.40 1.00 50
URBAN FAIR COVER
"TURF" A 2.90 0.40 1.00 44
NATURAL FAIR COVER
"OPEN BRUSH" A 0.40 0.40 1.00 46
PUBLIC PARK A 1.10 0.40 0.85 32
RESIDENTIAL
"3-4 DWELLINGS/ACRE" A 7.60 0.40 0.60 32
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.40
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.80
SUBAREA AREA(ACRES) = 16.40
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.63

S-GRAPH: VALLEY(DEV.)= 2.3%;VALLEY(UNDEV.)/DESERT= 0.7%
MOUNTAIN= 94.6%;FOOTHILL= 2.4%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.50
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8603.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1794.94
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5213.44
TOTAL AREA(ACRES) = 8603.50 PEAK FLOW RATE(CFS) = 5460.03
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 54.94
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.356
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND" A 10.10 0.40 1.00 36
URBAN FAIR COVER
"TURF" B 3.80 0.30 1.00 65
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B 0.40 0.30 1.00 63
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" C 0.70 0.25 1.00 75
NATURAL POOR COVER
"BARREN" C 3.30 0.25 1.00 91
NATURAL FAIR COVER
"OPEN BRUSH" C 0.30 0.25 1.00 77

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 18.60
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.63
S-GRAPH: VALLEY(DEV.)= 2.4%;VALLEY(UNDEV.)/DESERT= 0.8%
MOUNTAIN= 94.4%;FOOTHILL= 2.4%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.50
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.70; 1HR = 0.70;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8622.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1796.98
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5219.68
TOTAL AREA(ACRES) = 8622.10 PEAK FLOW RATE(CFS) = 5460.03
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 54.94
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.356
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
RESIDENTIAL
"3-4 DWELLINGS/ACRE" C 27.30 0.25 0.60 69
NATURAL FAIR COVER
"WOODLAND" C 0.20 0.25 1.00 73
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" D 49.50 0.20 1.00 81
NATURAL POOR COVER
"BARREN" D 7.30 0.20 1.00 93
NATURAL FAIR COVER
"GRASS" D 13.50 0.20 1.00 84
URBAN FAIR COVER
"TURF" D 130.80 0.20 1.00 82

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.95
SUBAREA AREA(ACRES) = 228.60

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.63
S-GRAPH: VALLEY(DEV.)= 3.3%;VALLEY(UNDEV.)/DESERT= 1.3%

MOUNTAIN= 92.2%;FOOTHILL= 3.2%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.50
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8850.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1848.84
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5327.25
TOTAL AREA(ACRES) = 8850.70 PEAK FLOW RATE(CFS) = 5460.03
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 54.94
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.356
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" D 0.80 0.20 1.00 83
RESIDENTIAL
"3-4 DWELLINGS/ACRE" D 85.50 0.20 0.60 75
NATURAL FAIR COVER
"WOODLAND" D 15.00 0.20 1.00 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.66
SUBAREA AREA(ACRES) = 101.30

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.63
S-GRAPH: VALLEY(DEV.)= 3.7%;VALLEY(UNDEV.)/DESERT= 1.5%

MOUNTAIN= 91.3%;FOOTHILL= 3.5%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.50
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
3HR = 0.95; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8952.00

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1874.09
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5379.02
TOTAL AREA(ACRES) = 8952.00 PEAK FLOW RATE(CFS) = 5460.03
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 8952.00 TC(MIN.) = 54.94
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.50
PEAK FLOW RATE(CFS) = 5460.03

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MP53100E.DAT
TIME/DATE OF STUDY: 14:43 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	5.440
2)	10.000;	3.530
3)	15.000;	2.790
4)	20.000;	2.320
5)	30.000;	1.830
6)	60.000;	1.260
7)	120.000;	0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.400
FOOTHILL 0.300
MOUNTAIN 0.100
VALLEY(UNDEVELOPED)/DESERT 0.200
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME:	MP52100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:	
PEAK FLOW RATE(CFS) =	5460.03 Tc(MIN.) = 54.94
AREA-AVERAGED Fm(INCH/HR) =	0.24 Ybar = 0.50
TOTAL AREA(ACRES) =	8952.00
LONGEST FLOWPATH FROM NODE	1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:	
PEAK FLOW RATE(CFS) =	5460.03 Tc(MIN.) = 54.94
AREA-AVERAGED Fm(INCH/HR) =	0.24 Ybar = 0.50
TOTAL AREA(ACRES) =	8952.00
LONGEST FLOWPATH FROM NODE	1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) =	300.00	DOWNSTREAM(FEET) =	265.00
CHANNEL LENGTH THRU SUBAREA(FEET) =	3322.00	CHANNEL SLOPE =	0.0105
CHANNEL BASE(FEET) =	20.00	"Z" FACTOR =	1.000
MANNING'S FACTOR =	0.040	MAXIMUM DEPTH(FEET) =	15.00
CHANNEL FLOW THRU SUBAREA(CFS) =	5460.03		
FLOW VELOCITY(FEET/SEC.) =	14.14	FLOW DEPTH(FEET) =	12.05
TRAVEL TIME(MIN.) =	3.92	Tc(MIN.) =	58.86
LONGEST FLOWPATH FROM NODE	1000.00 TO NODE 1053.00 =	46716.00 FEET.	

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) =	58.86				
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =	1.506				
SUBAREA LOSS RATE DATA(AMC II):					
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	A	1.60	0.40	1.00	40
NATURAL POOR COVER					
"BARREN"	A	0.90	0.40	1.00	78
NATURAL FAIR COVER					
"GRASS"	A	12.50	0.40	1.00	50
URBAN FAIR COVER					
"TURF"	A	0.90	0.40	1.00	44
NATURAL FAIR COVER					
"OPEN BRUSH"	A	2.90	0.40	1.00	46
NATURAL FAIR COVER					
"WOODLAND"	A	16.90	0.40	1.00	36
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =	0.40				
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =	1.00				
SUBAREA AREA(ACRES) =	35.70				
UNIT-HYDROGRAPH DATA:					

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.63
 S-GRAPH: VALLEY(DEV.)= 3.9%;VALLEY(UNDEV.)/DESERT= 1.6%
 MOUNTAIN= 91.0%;FOOTHILL= 3.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.78; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8987.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1876.14
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5131.46
 TOTAL AREA(ACRES) = 8987.70 PEAK FLOW RATE(CFS) = 5460.03
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 58.86
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.282
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	11.40	0.30	1.00	69
URBAN FAIR COVER					
"TURF"	B	9.30	0.30	1.00	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.30	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	4.20	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	47.20	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	7.70	0.25	0.50	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.95
 SUBAREA AREA(ACRES) = 81.10
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.63
 S-GRAPH: VALLEY(DEV.)= 4.2%;VALLEY(UNDEV.)/DESERT= 1.7%
 MOUNTAIN= 90.3%;FOOTHILL= 3.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.78; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9068.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1890.31
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5162.30
 TOTAL AREA(ACRES) = 9068.80 PEAK FLOW RATE(CFS) = 5460.03
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 58.86
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.282
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	C	8.50	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	17.20	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	49.10	0.25	1.00	77
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	17.90	0.25	0.60	69
NATURAL FAIR COVER					
"WOODLAND"	C	43.10	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	79.80	0.20	1.00	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.97
 SUBAREA AREA(ACRES) = 215.60
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.98;6H= 2.78;24H= 4.62
 S-GRAPH: VALLEY(DEV.)= 5.0%;VALLEY(UNDEV.)/DESERT= 2.1%
 MOUNTAIN= 88.4%;FOOTHILL= 4.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.78; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.69; 1HR = 0.69;
 3HR = 0.94; 6HR = 0.97; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9284.40
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 1934.47
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5250.46
 TOTAL AREA(ACRES) = 9284.40 PEAK FLOW RATE(CFS) = 5460.03
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 58.86
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.282
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	3.30	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	4.90	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	105.10	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	104.60	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	67.80	0.20	1.00	83
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	12.70	0.20	0.60	75

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 298.40
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.97;6H= 2.77;24H= 4.62

S-GRAPH: VALLEY(DEV.)= 6.1%;VALLEY(UNDEV.)/DESERT= 2.7%
MOUNTAIN= 86.0%;FOOTHILL= 5.2%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.98; LAG(HR) = 0.78; Fm(INCH/HR) = 0.24; Ybar = 0.50
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.68; 1HR = 0.68;
3HR = 0.94; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9582.80
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2003.25
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5379.29
TOTAL AREA(ACRES) = 9582.80 PEAK FLOW RATE(CFS) = 5460.03
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) =	58.86				
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =	1.282				
SUBAREA LOSS RATE DATA(AMC II):					
DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND"	D	49.40	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 49.40

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.97;6H= 2.77;24H= 4.62
S-GRAPH: VALLEY(DEV.)= 6.3%;VALLEY(UNDEV.)/DESERT= 2.8%
MOUNTAIN= 85.6%;FOOTHILL= 5.3%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.98; LAG(HR) = 0.78; Fm(INCH/HR) = 0.24; Ybar = 0.50
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.68; 1HR = 0.68;
3HR = 0.94; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9632.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0251; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2013.58
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5399.82
TOTAL AREA(ACRES) = 9632.20 PEAK FLOW RATE(CFS) = 5460.03
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 9632.20 TC(MIN.) = 58.86
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.50
PEAK FLOW RATE(CFS) = 5460.03

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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FILE NAME: MP54100E.DAT
TIME/DATE OF STUDY: 14:43 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	5.440
2)	10.000;	3.530
3)	15.000;	2.790
4)	20.000;	2.320
5)	30.000;	1.830
6)	60.000;	1.260
7)	120.000;	0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
---	------	------	-------------------	------	------	--------	-------	--------

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)

VALLEY(DEVELOPED)	0.400
FOOTHILL	0.300
MOUNTAIN	0.200
VALLEY(UNDEVELOPED)/DESERT	0.100
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP53100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5460.03 Tc(MIN.) = 58.86
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 9632.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5460.03 Tc(MIN.) = 58.86
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.50
TOTAL AREA(ACRES) = 9632.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 265.00 DOWNSTREAM(FEET) = 245.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1390.00 CHANNEL SLOPE = 0.0144
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 5460.03
FLOW VELOCITY(FEET/SEC.) = 15.85 FLOW DEPTH(FEET) = 11.08
TRAVEL TIME(MIN.) = 1.46 Tc(MIN.) = 60.32
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 60.32
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.485
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	A	2.30	0.40	1.00	50
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	A	14.70	0.40	0.60	32
NATURAL FAIR COVER					
"WOODLAND"	A	1.30	0.40	1.00	36
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	36.30	0.30	1.00	63
NATURAL POOR COVER					
"BARREN"	B	12.50	0.30	1.00	86
NATURAL FAIR COVER					
"GRASS"	B	99.20	0.30	1.00	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.31
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.96
SUBAREA AREA(ACRES) = 166.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.97;6H= 2.77;24H= 4.62
 S-GRAPH: VALLEY(DEV.)= 6.9%;VALLEY(UNDEV.)/DESERT= 2.9%
 MOUNTAIN= 84.5%;FOOTHILL= 5.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.01; LAG(HR) = 0.80; Fm(INCH/HR) = 0.24; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.67; 30M = 0.68; 1HR = 0.68;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9798.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2038.16
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5348.38
 TOTAL AREA(ACRES) = 9798.50 PEAK FLOW RATE(CFS) = 5460.03
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 60.32
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.258
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
URBAN FAIR COVER					
"TURF"	B	9.80	0.30	1.00	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	22.90	0.30	1.00	66
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	B	24.70	0.30	0.60	56
NATURAL FAIR COVER					
"WOODLAND"	B	92.60	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	295.40	0.25	1.00	75
NATURAL FAIR COVER					
"WOODLAND"	C	153.30	0.25	1.00	73

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 598.70

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.77;24H= 4.61
 S-GRAPH: VALLEY(DEV.)= 8.8%;VALLEY(UNDEV.)/DESERT= 3.3%
 MOUNTAIN= 80.7%;FOOTHILL= 7.1%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.01; LAG(HR) = 0.80; Fm(INCH/HR) = 0.24; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.66; 30M = 0.67; 1HR = 0.67;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 10397.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2138.22
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5559.55
 TOTAL AREA(ACRES) = 10397.20 PEAK FLOW RATE(CFS) = 5559.55

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 60.32
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.258
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	C	140.40	0.25	1.00	79
URBAN FAIR COVER					
"TURF"	C	102.40	0.25	1.00	77
NATURAL FAIR COVER					
"OPEN BRUSH"	C	312.40	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	0.90	0.25	1.00	81
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	56.80	0.25	0.60	69
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	38.10	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.97
 SUBAREA AREA(ACRES) = 651.00

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.60
 S-GRAPH: VALLEY(DEV.)= 10.6%;VALLEY(UNDEV.)/DESERT= 3.7%
 MOUNTAIN= 77.2%;FOOTHILL= 8.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.01; LAG(HR) = 0.80; Fm(INCH/HR) = 0.24; Ybar = 0.51
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.65; 30M = 0.66; 1HR = 0.67;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 11048.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2265.89
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5798.07
 TOTAL AREA(ACRES) = 11048.20 PEAK FLOW RATE(CFS) = 5798.07

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 60.32
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.258
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	D	15.40	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	282.80	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	80.70	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	171.90	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	499.30	0.20	0.60	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.81
 SUBAREA AREA(ACRES) = 1050.80

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 13.2%;VALLEY(UNDEV.)/DESERT= 4.3%
 MOUNTAIN= 72.2%;FOOTHILL= 10.4%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 1.01; LAG(HR) = 0.80; Fm(INCH/HR) = 0.23; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.64; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12099.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2518.14
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6250.35
 TOTAL AREA(ACRES) = 12099.00 PEAK FLOW RATE(CFS) = 6250.35

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 60.32
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.258
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND"	D	72.00	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 72.00

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 13.3%;VALLEY(UNDEV.)/DESERT= 4.3%
 MOUNTAIN= 71.9%;FOOTHILL= 10.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.01; LAG(HR) = 0.80; Fm(INCH/HR) = 0.23; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12171.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2532.97
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6278.78
 TOTAL AREA(ACRES) = 12171.00 PEAK FLOW RATE(CFS) = 6278.78

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 12171.00 TC(MIN.) = 60.32
 AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.50
 PEAK FLOW RATE(CFS) = 6278.78

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MP55100E.DAT
TIME/DATE OF STUDY: 14:43 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	5.440
2)	10.000;	3.530
3)	15.000;	2.790
4)	20.000;	2.320
5)	30.000;	1.830
6)	60.000;	1.260
7)	120.000;	0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
---	------	------	-------------------	------	------	--------	-------	--------

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.200
FOOTHILL 0.400
MOUNTAIN 0.000
VALLEY(UNDEVELOPED)/DESERT 0.400
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP54100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 6278.78 Tc(MIN.) = 60.32
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.50
TOTAL AREA(ACRES) = 12171.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 6278.78 Tc(MIN.) = 60.32
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.50
TOTAL AREA(ACRES) = 12171.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 245.00 DOWNSTREAM(FEET) = 215.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2724.00 CHANNEL SLOPE = 0.0110
CHANNEL BASE(FEET) = 25.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 6278.78
FLOW VELOCITY(FEET/SEC.) = 14.75 FLOW DEPTH(FEET) = 11.62
TRAVEL TIME(MIN.) = 3.08 Tc(MIN.) = 63.40
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 63.40
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.443
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	A	6.80	0.40	1.00	50
NATURAL FAIR COVER					
"OPEN BRUSH"	A	1.80	0.40	1.00	46
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	A	0.40	0.40	0.60	32
NATURAL FAIR COVER					
"WOODLAND"	A	5.50	0.40	1.00	36
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	5.80	0.30	1.00	63
NATURAL POOR COVER					
"BARREN"	B	6.90	0.30	1.00	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.35
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
SUBAREA AREA(ACRES) = 27.20
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 13.3%;VALLEY(UNDEV.)/DESERT= 4.4%
 MOUNTAIN= 71.7%;FOOTHILL= 10.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.06; LAG(HR) = 0.85; Fm(INCH/HR) = 0.23; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12198.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2536.03
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6228.88
 TOTAL AREA(ACRES) = 12198.20 PEAK FLOW RATE(CFS) = 6278.78
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 63.40
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.239
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	22.60	0.30	1.00	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	7.90	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	9.50	0.30	1.00	60
NATURAL FAIR COVER					
"WOODLAND"	C	23.30	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	71.90	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	0.40	0.25	1.00	91

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 135.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 13.4%;VALLEY(UNDEV.)/DESERT= 4.8%
 MOUNTAIN= 70.9%;FOOTHILL= 10.9%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.06; LAG(HR) = 0.85; Fm(INCH/HR) = 0.23; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12333.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2558.28
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6271.01
 TOTAL AREA(ACRES) = 12333.80 PEAK FLOW RATE(CFS) = 6278.78
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 63.40
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.239
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	C	14.60	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	66.50	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	0.20	0.25	1.00	81
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	0.30	0.25	0.60	69
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	3.50	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	1.20	0.20	0.50	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 86.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 13.5%;VALLEY(UNDEV.)/DESERT= 5.0%
 MOUNTAIN= 70.4%;FOOTHILL= 11.1%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.06; LAG(HR) = 0.85; Fm(INCH/HR) = 0.23; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR = 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12420.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2574.72
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6299.67
 TOTAL AREA(ACRES) = 12420.10 PEAK FLOW RATE(CFS) = 6299.67

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 63.40
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.239
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	D	0.20	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	33.50	0.20	1.00	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	9.50	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.20	0.20	1.00	86
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	50.10	0.20	0.60	75
NATURAL FAIR COVER					
"WOODLAND"	D	8.90	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.80
 SUBAREA AREA(ACRES) = 102.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 13.5%;VALLEY(UNDEV.)/DESERT= 5.3%

MOUNTAIN= 69.9%;FOOTHILL= 11.3%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 1.06; LAG(HR) = 0.85; Fm(INCH/HR) = 0.23; Ybar = 0.50
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
3HR = 0.93; 6HR = 0.96; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12522.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0214
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2599.06
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6340.46
TOTAL AREA(ACRES) = 12522.50 PEAK FLOW RATE(CFS) = 6340.46

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 12522.50 TC(MIN.) = 63.40
AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.50
PEAK FLOW RATE(CFS) = 6340.46

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2003 Advanced Engineering Software (aes)
Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MP56100E.DAT
TIME/DATE OF STUDY: 14:43 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.300
FOOTHILL 0.300
MOUNTAIN 0.000
VALLEY(UNDEVELOPED)/DESERT 0.400
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP55100E.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 6340.46 Tc(MIN.) = 63.40
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.50
TOTAL AREA(ACRES) = 12522.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 6340.46 Tc(MIN.) = 63.40
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.50
TOTAL AREA(ACRES) = 12522.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 215.00 DOWNSTREAM(FEET) = 185.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2880.00 CHANNEL SLOPE = 0.0104
CHANNEL BASE(FEET) = 25.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 6340.46
FLOW VELOCITY(FEET/SEC.) = 14.49 FLOW DEPTH(FEET) = 11.87
TRAVEL TIME(MIN.) = 3.31 Tc(MIN.) = 66.71
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 66.71
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.402
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	A	1.80	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	1.10	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	9.30	0.40	1.00	36
NATURAL POOR COVER "BARREN"	B	1.80	0.30	1.00	86
NATURAL FAIR COVER "GRASS"	B	14.80	0.30	1.00	69
NATURAL FAIR COVER "OPEN BRUSH"	B	1.20	0.30	1.00	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 30.00
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 13.6%;VALLEY(UNDEV.)/DESERT= 5.4%
 MOUNTAIN= 69.7%;FOOTHILL= 11.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.11; LAG(HR) = 0.89; Fm(INCH/HR) = 0.23; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12552.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2600.35
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6188.52
 TOTAL AREA(ACRES) = 12552.50 PEAK FLOW RATE(CFS) = 6340.46
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 66.71
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.219
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	B	5.10	0.30	1.00	60
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	8.50	0.25	0.50	69
NATURAL POOR COVER					
"BARREN"	C	2.40	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	1.30	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	0.20	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	3.10	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.79
 SUBAREA AREA(ACRES) = 20.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 13.6%;VALLEY(UNDEV.)/DESERT= 5.4%
 MOUNTAIN= 69.6%;FOOTHILL= 11.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.11; LAG(HR) = 0.89; Fm(INCH/HR) = 0.23; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12573.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2604.62
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6195.67
 TOTAL AREA(ACRES) = 12573.10 PEAK FLOW RATE(CFS) = 6340.46
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 66.71
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.219
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	128.00	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	32.60	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	74.30	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	0.80	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	21.80	0.20	1.00	83
COMMERCIAL	D	2.70	0.20	0.10	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.74
 SUBAREA AREA(ACRES) = 260.20
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 13.9%;VALLEY(UNDEV.)/DESERT= 6.1%
 MOUNTAIN= 68.2%;FOOTHILL= 11.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.11; LAG(HR) = 0.89; Fm(INCH/HR) = 0.23; Ybar = 0.49
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.64; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12833.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2670.75
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6298.89
 TOTAL AREA(ACRES) = 12833.30 PEAK FLOW RATE(CFS) = 6340.46
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

 FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 66.71
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.219
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	42.80	0.20	0.60	75
NATURAL FAIR COVER					
"WOODLAND"	D	13.80	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.70
 SUBAREA AREA(ACRES) = 57.30

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 14.0%;VALLEY(UNDEV.)/DESERT= 6.3%
 MOUNTAIN= 67.9%;FOOTHILL= 11.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.11; LAG(HR) = 0.89; Fm(INCH/HR) = 0.23; Ybar = 0.49
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.64; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12890.60

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0279; Lca/L=0.4,n=.0250; Lca/L=0.5,n=.0230;Lca/L=0.6,n=.0215
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2684.51
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6321.32
TOTAL AREA(ACRES) = 12890.60 PEAK FLOW RATE(CFS) = 6340.46
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.40; 30M = 0.87; 1HR = 1.15; 3HR = 1.94; 6HR = 2.71; 24HR = 4.49

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 12890.60 TC(MIN.) = 66.71
AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.49
PEAK FLOW RATE(CFS) = 6340.46

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MP57100E.DAT
TIME/DATE OF STUDY: 14:43 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 5.440
2) 10.000; 3.530
3) 15.000; 2.790
4) 20.000; 2.320
5) 30.000; 1.830
6) 60.000; 1.260
7) 120.000; 0.890

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / OUT- / PARK- SIDE / SIDE / WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.200
FOOTHILL 0.100
MOUNTAIN 0.600
VALLEY(UNDEVELOPED)/DESERT 0.100
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MP56100E.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 6340.46 Tc(MIN.) = 66.71

AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.49

TOTAL AREA(ACRES) = 12890.60

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

PEAK FLOW RATE(CFS) = 6340.46 Tc(MIN.) = 66.71

AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.49

TOTAL AREA(ACRES) = 12890.60

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 185.00 DOWNSTREAM(FEET) = 165.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 2367.00 CHANNEL SLOPE = 0.0084

CHANNEL BASE(FEET) = 30.00 "Z" FACTOR = 1.000

MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00

CHANNEL FLOW THRU SUBAREA(CFS) = 6340.46

FLOW VELOCITY(FEET/SEC.) = 13.25 FLOW DEPTH(FEET) = 11.52

TRAVEL TIME(MIN.) = 2.98 Tc(MIN.) = 69.69

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 69.69

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.367

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	A	38.90	0.40	1.00	40
NATURAL FAIR COVER					
"GRASS"	A	2.00	0.40	1.00	50
NATURAL FAIR COVER					
"OPEN BRUSH"	A	40.30	0.40	1.00	46
NATURAL FAIR COVER					
"WOODLAND"	A	74.70	0.40	1.00	36
NATURAL FAIR COVER					
"OPEN BRUSH"	B	25.40	0.30	1.00	66
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	18.50	0.30	1.00	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.38

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00

SUBAREA AREA(ACRES) = 199.80

UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.41;30M= 0.87;1H= 1.16;3H= 1.97;6H= 2.76;24H= 4.59
 S-GRAPH: VALLEY(DEV.)= 14.1%;VALLEY(UNDEV.)/DESERT= 6.3%
 MOUNTAIN= 67.8%;FOOTHILL= 11.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.16; LAG(HR) = 0.93; Fm(INCH/HR) = 0.23; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.63; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 13090.40
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0281; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0231;Lca/L=0.6,n=.0216
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2699.04
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6153.52
 TOTAL AREA(ACRES) = 13090.40 PEAK FLOW RATE(CFS) = 6340.46
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.43; 30M = 0.89; 1HR = 1.19; 3HR = 2.07; 6HR = 2.94; 24HR = 4.96

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 69.69
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.200
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	18.90	0.30	1.00	69
NATURAL FAIR COVER					
"WOODLAND"	B	105.00	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	540.80	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	1.40	0.25	0.50	69
NATURAL FAIR COVER					
"GRASS"	C	106.10	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	236.60	0.25	1.00	77

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 1008.80

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.16;3H= 1.97;6H= 2.77;24H= 4.62
 S-GRAPH: VALLEY(DEV.)= 14.5%;VALLEY(UNDEV.)/DESERT= 6.6%
 MOUNTAIN= 67.2%;FOOTHILL= 11.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.16; LAG(HR) = 0.93; Fm(INCH/HR) = 0.23; Ybar = 0.50
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.60; 30M = 0.62; 1HR = 0.63;
 3HR = 0.92; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 14099.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0281; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0231;Lca/L=0.6,n=.0216
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 2904.03
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6499.97
 TOTAL AREA(ACRES) = 14099.20 PEAK FLOW RATE(CFS) = 6499.97

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.43; 30M = 0.89; 1HR = 1.19; 3HR = 2.07; 6HR = 2.94; 24HR = 4.96

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 69.69
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.200
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	145.90	0.25	0.60	69
NATURAL FAIR COVER					
"WOODLAND"	C	35.40	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	1590.50	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	1749.20	0.20	1.00	83
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	48.30	0.20	0.50	75
NATURAL FAIR COVER					
"GRASS"	D	198.30	0.20	1.00	84

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 3767.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.17;3H= 1.99;6H= 2.81;24H= 4.69
 S-GRAPH: VALLEY(DEV.)= 15.7%;VALLEY(UNDEV.)/DESERT= 7.3%
 MOUNTAIN= 65.7%;FOOTHILL= 11.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.16; LAG(HR) = 0.93; Fm(INCH/HR) = 0.23; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.55; 30M = 0.58; 1HR = 0.59;
 3HR = 0.90; 6HR = 0.95; 24HR= 0.97
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 17866.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0281; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0231;Lca/L=0.6,n=.0216
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 3832.43
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7890.70
 TOTAL AREA(ACRES) = 17866.80 PEAK FLOW RATE(CFS) = 7890.70

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.43; 30M = 0.89; 1HR = 1.19; 3HR = 2.07; 6HR = 2.94; 24HR = 4.96

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 69.69
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.200
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
URBAN FAIR COVER					
"TURF"	D	1.70	0.20	1.00	82
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	22.00	0.20	1.00	86
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	398.00	0.20	0.60	75
NATURAL FAIR COVER					
"WOODLAND"	D	267.20	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.77
 SUBAREA AREA(ACRES) = 688.90

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.41;30M= 0.88;1H= 1.17;3H= 2.00;6H= 2.81;24H= 4.70
 S-GRAPH: VALLEY(DEV.)= 15.8%;VALLEY(UNDEV.)/DESERT= 7.4%
 MOUNTAIN= 65.5%;FOOTHILL= 11.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.16; LAG(HR) = 0.93; Fm(INCH/HR) = 0.22; Ybar = 0.48
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.54; 30M = 0.57; 1HR = 0.58;
 3HR = 0.90; 6HR = 0.95; 24HR= 0.97

UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 18555.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0281; Lca/L=0.4,n=.0252; Lca/L=0.5,n=.0231;Lca/L=0.6,n=.0216
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 4008.93
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8152.32
TOTAL AREA(ACRES) = 18555.70 PEAK FLOW RATE(CFS) = 8152.32

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.43; 30M = 0.89; 1HR = 1.19; 3HR = 2.07; 6HR = 2.94; 24HR = 4.96

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 18555.70 TC(MIN.) = 69.69
AREA-AVERAGED Fm(INCH/HR)= 0.22 Ybar = 0.48
PEAK FLOW RATE(CFS) = 8152.32

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

**TECHNICAL APPENDIX II-C
HYDROLOGIC ANALYSIS
PROPOSED CONDITION
100-YEAR HIGH CONFIDENCE**

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MP49100H.DAT
TIME/DATE OF STUDY: 15:44 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=== -----
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.000
FOOTHILL 0.000
MOUNTAIN 1.000
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MU48100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4822.07 Tc(MIN.) = 41.59
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 4822.07 Tc(MIN.) = 41.59
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 4407.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1048.00 = 33517.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1048.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 445.00 DOWNSTREAM(FEET) = 400.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2427.00 CHANNEL SLOPE = 0.0185
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
CHANNEL FLOW THRU SUBAREA(CFS) = 4822.07
FLOW VELOCITY(FEET/SEC.) = 16.81 FLOW DEPTH(FEET) = 9.67
TRAVEL TIME(MIN.) = 2.41 Tc(MIN.) = 43.99
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 43.99
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.780
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	38.00	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	10.90	0.40	1.00	50
URBAN FAIR COVER "TURF"	A	42.00	0.40	1.00	44
NATURAL FAIR COVER "OPEN BRUSH"	A	37.80	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	53.60	0.40	1.00	36
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	70.00	0.30	1.00	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.37
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 252.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.48;3H= 2.52;6H= 3.54;24H= 5.98
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.73; LAG(HR) = 0.59; Fm(INCH/HR) = 0.25; Ybar = 0.45
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.80; 30M = 0.80; 1HR = 0.80;
 3HR = 0.97; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4659.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0265; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0218;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1408.72
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 4925.13
 TOTAL AREA(ACRES) = 4659.30 PEAK FLOW RATE(CFS) = 4925.13

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 43.99

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.990
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

NATURAL FAIR COVER						
"GRASS"	B	38.40	0.30	1.00	69	
URBAN FAIR COVER						
"TURF"	B	32.90	0.30	1.00	65	
NATURAL FAIR COVER						
"OPEN BRUSH"	B	37.40	0.30	1.00	66	
NATURAL FAIR COVER						
"CHAPARRAL,NARROWLEAF"	B	2.00	0.30	1.00	72	
RESIDENTIAL						
"3-4 DWELLINGS/ACRE"	B	1.10	0.30	0.60	56	
NATURAL FAIR COVER						
"WOODLAND"	B	77.20	0.30	1.00	60	

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 189.00

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.54;30M= 1.11;1H= 1.48;3H= 2.52;6H= 3.53;24H= 5.97
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.73; LAG(HR) = 0.59; Fm(INCH/HR) = 0.25; Ybar = 0.46
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.79; 30M = 0.79; 1HR = 0.79;
 3HR = 0.97; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 4848.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0265; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0218;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1448.03
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 5077.45
 TOTAL AREA(ACRES) = 4848.30 PEAK FLOW RATE(CFS) = 5077.45

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 43.99

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.990
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

NATURAL FAIR COVER						
"CHAPARRAL,BROADLEAF"	C	710.20	0.25	1.00	75	
NATURAL POOR COVER						
"BARREN"	C	2.20	0.25	1.00	91	
NATURAL FAIR COVER						
"GRASS"	C	89.70	0.25	1.00	79	
URBAN FAIR COVER						
"TURF"	C	13.10	0.25	1.00	77	
NATURAL FAIR COVER						
"OPEN BRUSH"	C	819.40	0.25	1.00	77	
NATURAL FAIR COVER						
"CHAPARRAL,NARROWLEAF"	C	75.60	0.25	1.00	81	

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 1710.20
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.50;6H= 3.49;24H= 5.88
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%

MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.73; LAG(HR) = 0.59; Fm(INCH/HR) = 0.25; Ybar = 0.46
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.75; 30M = 0.75; 1HR = 0.75;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 6558.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0265; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0218;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 1917.75
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 6442.27
 TOTAL AREA(ACRES) = 6558.50 PEAK FLOW RATE(CFS) = 6442.27

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 43.99
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.990
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

RESIDENTIAL						
"3-4 DWELLINGS/ACRE"	C	13.10	0.25	0.60	69	
NATURAL FAIR COVER						
"WOODLAND"	C	82.20	0.25	1.00	73	
NATURAL FAIR COVER						
"CHAPARRAL,BROADLEAF"	D	145.30	0.20	1.00	81	
NATURAL POOR COVER						
"BARREN"	D	1.00	0.20	1.00	93	
NATURAL FAIR COVER						
"GRASS"	D	367.20	0.20	1.00	84	
URBAN FAIR COVER						
"TURF"	D	142.80	0.20	1.00	82	

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 751.60
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.49;6H= 3.47;24H= 5.85
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%

MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.73; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.45

USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.73; 30M = 0.73; 1HR = 0.73;
 3HR = 0.96; 6HR = 0.98; 24HR = 0.99
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7310.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0265; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0218;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2150.43
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7014.82
 TOTAL AREA(ACRES) = 7310.10 PEAK FLOW RATE(CFS) = 7014.82

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1048.00 TO NODE 1049.00 IS CODE = 81

 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====

MAINLINE Tc(MIN) = 43.99
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.990
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	D	373.60	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	21.60	0.20	1.00	86
RESIDENTIAL "3-4 DWELLINGS/ACRE"	D	26.50	0.20	0.60	75
NATURAL FAIR COVER "WOODLAND"	D	58.40	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 480.10
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.49;6H= 3.47;24H= 5.84
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 0.73; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.71; 30M = 0.71; 1HR = 0.71;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7790.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0265; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0218;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2301.81
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7366.03
 TOTAL AREA(ACRES) = 7790.20 PEAK FLOW RATE(CFS) = 7366.03

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 7790.20 TC(MIN.) = 43.99
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.44
 PEAK FLOW RATE(CFS) = 7366.03

 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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FILE NAME: MP50100H.DAT
TIME/DATE OF STUDY: 15:44 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	7.030
2)	10.000;	4.570
3)	15.000;	3.560
4)	20.000;	2.970
5)	30.000;	2.340
6)	60.000;	1.590
7)	120.000;	1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.200
FOOTHILL 0.100
MOUNTAIN 0.700
VALLEY(UNDEVELOPED)/DESERT 0.000
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP49100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7366.03 Tc(MIN.) = 43.99
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.44
TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7366.03 Tc(MIN.) = 43.99
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.44
TOTAL AREA(ACRES) = 7790.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1049.00 = 35944.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1049.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 400.00 DOWNSTREAM(FEET) = 390.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 616.00 CHANNEL SLOPE = 0.0162
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7366.03
FLOW VELOCITY(FEET/SEC.) = 17.95 FLOW DEPTH(FEET) = 12.59
TRAVEL TIME(MIN.) = 0.57 Tc(MIN.) = 44.57
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 44.57
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.767
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS" A 0.30 0.40 1.00 50
NATURAL FAIR COVER
"OPEN BRUSH" A 0.20 0.40 1.00 46
NATURAL FAIR COVER
"WOODLAND" A 1.10 0.40 1.00 36
NATURAL FAIR COVER
"GRASS" B 2.20 0.30 1.00 69
NATURAL FAIR COVER
"OPEN BRUSH" B 0.20 0.30 1.00 66
NATURAL FAIR COVER
"WOODLAND" B 0.40 0.30 1.00 60
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 4.40
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.49;6H= 3.47;24H= 5.84
 S-GRAPH: VALLEY(DEV.)= 0.0%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN=100.0%;FOOTHILL= 0.0%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.74; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.71; 30M = 0.71; 1HR = 0.71;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 7794.60
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0264; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0217;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2302.19
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7321.90
 TOTAL AREA(ACRES) = 7794.60 PEAK FLOW RATE(CFS) = 7366.03
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

 MAINLINE Tc(MIN) = 44.57
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.976
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	53.00	0.25	1.00	75
NATURAL FAIR COVER					
"GRASS"	C	318.80	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	33.30	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	4.80	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	41.60	0.20	1.00	81
NATURAL FAIR COVER					
"GRASS"	D	29.90	0.20	1.00	84

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 481.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.46;24H= 5.83
 S-GRAPH: VALLEY(DEV.)= 1.2%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN= 98.2%;FOOTHILL= 0.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.74; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8276.00
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0264; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0217;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2439.18
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7622.91
 TOTAL AREA(ACRES) = 8276.00 PEAK FLOW RATE(CFS) = 7622.91

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1049.00 TO NODE 1050.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN) = 44.57
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.976
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	8.60	0.20	1.00	83
NATURAL FAIR COVER					
"WOODLAND"	D	1.80	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 10.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.46;24H= 5.83
 S-GRAPH: VALLEY(DEV.)= 1.2%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN= 98.2%;FOOTHILL= 0.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.74; LAG(HR) = 0.59; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8286.40
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0264; Lca/L=0.4,n=.0237; Lca/L=0.5,n=.0217;Lca/L=0.6,n=.0203
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2442.40
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7629.62
 TOTAL AREA(ACRES) = 8286.40 PEAK FLOW RATE(CFS) = 7629.62

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 8286.40 TC(MIN.) = 44.57
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.44
 PEAK FLOW RATE(CFS) = 7629.62

 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

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714 - 734 - 5100

FILE NAME: MP51100H.DAT
TIME/DATE OF STUDY: 15:44 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

-----*TIME-OF-CONCENTRATION MODEL*-----

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / OUT- / PARK- SIDE / SIDE / WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc

S-GRAPH TYPE	PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED)	0.300
FOOTHILL	0.500
MOUNTAIN	0.000
VALLEY(UNDEVELOPED)/DESERT	0.200
DESERT(UNDEVELOPED)	0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.

SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: MP50100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7629.62 Tc(MIN.) = 44.57
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.44
TOTAL AREA(ACRES) = 8286.40
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7629.62 Tc(MIN.) = 44.57
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.44
TOTAL AREA(ACRES) = 8286.40
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1050.00 = 36560.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1050.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 390.00 DOWNSTREAM(FEET) = 330.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 4501.00 CHANNEL SLOPE = 0.0133
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7629.62
FLOW VELOCITY(FEET/SEC.) = 16.84 FLOW DEPTH(FEET) = 13.52
TRAVEL TIME(MIN.) = 4.45 Tc(MIN.) = 49.02
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 49.02
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.673
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	A	0.70	0.40	0.50	32
NATURAL FAIR COVER					
"GRASS"	A	1.80	0.40	1.00	50
NATURAL FAIR COVER					
"WOODLAND"	A	6.50	0.40	1.00	36
NATURAL FAIR COVER					
"GRASS"	B	3.20	0.30	1.00	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.20	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	10.90	0.30	1.00	60

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
SUBAREA AREA(ACRES) = 25.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.46;24H= 5.83
 S-GRAPH: VALLEY(DEV.)= 1.3%;VALLEY(UNDEV.)/DESERT= 0.0%
 MOUNTAIN= 97.9%;FOOTHILL= 0.7%;DESERT(UNDEV.)= 0.1%
 Tc(HR) = 0.82; LAG(HR) = 0.65; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8311.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0262; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2445.06
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7149.41
 TOTAL AREA(ACRES) = 8311.70 PEAK FLOW RATE(CFS) = 7629.62
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

 MAINLINE Tc(MIN) = 49.02
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.864
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	5.60	0.25	1.00	75
NATURAL FAIR COVER					
"GRASS"	C	38.20	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	3.80	0.25	1.00	77
NATURAL FAIR COVER					
"WOODLAND"	C	7.00	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	57.50	0.20	1.00	81
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	5.10	0.20	0.50	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 117.20
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.46;24H= 5.82
 S-GRAPH: VALLEY(DEV.)= 1.7%;VALLEY(UNDEV.)/DESERT= 0.3%
 MOUNTAIN= 96.5%;FOOTHILL= 1.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.82; LAG(HR) = 0.65; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8428.90
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0262; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2481.03
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7221.00
 TOTAL AREA(ACRES) = 8428.90 PEAK FLOW RATE(CFS) = 7629.62
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1050.00 TO NODE 1051.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

 MAINLINE Tc(MIN) = 49.02
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.864
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	D	0.60	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	92.50	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	11.30	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	14.60	0.20	1.00	83
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	7.80	0.20	0.60	75
NATURAL FAIR COVER					
"WOODLAND"	D	31.40	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 158.20

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.46;24H= 5.82
 S-GRAPH: VALLEY(DEV.)= 2.2%;VALLEY(UNDEV.)/DESERT= 0.7%
 MOUNTAIN= 94.8%;FOOTHILL= 2.3%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.82; LAG(HR) = 0.65; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8587.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0262; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
 TIME OF PEAK FLOW(HR) = 16.42 RUNOFF VOLUME(AF) = 2530.90
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7316.55
 TOTAL AREA(ACRES) = 8587.10 PEAK FLOW RATE(CFS) = 7629.62
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 8587.10 TC(MIN.) = 49.02
 AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.44
 PEAK FLOW RATE(CFS) = 7629.62

 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MP52100H.DAT
TIME/DATE OF STUDY: 15:44 03/26/2004

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.400
FOOTHILL 0.300
MOUNTAIN 0.100
VALLEY(UNDEVELOPED)/DESERT 0.200
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP51100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7629.62 Tc(MIN.) = 49.02
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.44
TOTAL AREA(ACRES) = 8587.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7629.62 Tc(MIN.) = 49.02
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.44
TOTAL AREA(ACRES) = 8587.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1051.00 = 41061.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1051.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 330.00 DOWNSTREAM(FEET) = 300.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2333.00 CHANNEL SLOPE = 0.0129
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7629.62
FLOW VELOCITY(FEET/SEC.) = 16.62 FLOW DEPTH(FEET) = 13.64
TRAVEL TIME(MIN.) = 2.34 Tc(MIN.) = 51.36
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 51.36
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.629
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	A	3.80	0.40	1.00	78
NATURAL FAIR COVER					
"GRASS"	A	0.60	0.40	1.00	50
URBAN FAIR COVER					
"TURF"	A	2.90	0.40	1.00	44
NATURAL FAIR COVER					
"OPEN BRUSH"	A	0.40	0.40	1.00	46
PUBLIC PARK	A	1.10	0.40	0.85	32
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	A	7.60	0.40	0.60	32
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.40					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.80					
SUBAREA AREA(ACRES) = 16.40					
UNIT-HYDROGRAPH DATA:					
RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.46;24H= 5.82					

S-GRAPH: VALLEY(DEV.)= 2.3%;VALLEY(UNDEV.)/DESERT= 0.7%
 MOUNTAIN= 94.6%;FOOTHILL= 2.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.86; LAG(HR) = 0.68; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.70; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8603.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2534.11
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7113.11
 TOTAL AREA(ACRES) = 8603.50 PEAK FLOW RATE(CFS) = 7629.62
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 51.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.806
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	A	10.10	0.40	1.00	36
URBAN FAIR COVER					
"TURF"	B	3.80	0.30	1.00	65
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.40	0.30	1.00	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	0.70	0.25	1.00	75
NATURAL POOR COVER					
"BARREN"	C	3.30	0.25	1.00	91
NATURAL FAIR COVER					
"OPEN BRUSH"	C	0.30	0.25	1.00	77

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 18.60
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.46;24H= 5.82
 S-GRAPH: VALLEY(DEV.)= 2.4%;VALLEY(UNDEV.)/DESERT= 0.8%
 MOUNTAIN= 94.4%;FOOTHILL= 2.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.86; LAG(HR) = 0.68; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.70; 1HR = 0.70;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8622.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2537.26
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7122.96
 TOTAL AREA(ACRES) = 8622.10 PEAK FLOW RATE(CFS) = 7629.62
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 51.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.806
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	27.30	0.25	0.60	69
NATURAL FAIR COVER					
"WOODLAND"	C	0.20	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	49.50	0.20	1.00	81
NATURAL POOR COVER					
"BARREN"	D	7.30	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	13.50	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	130.80	0.20	1.00	82

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.95
 SUBAREA AREA(ACRES) = 228.60
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.45;24H= 5.81
 S-GRAPH: VALLEY(DEV.)= 3.3%;VALLEY(UNDEV.)/DESERT= 1.3%
 MOUNTAIN= 92.2%;FOOTHILL= 3.2%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.86; LAG(HR) = 0.68; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8850.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2608.56
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7276.67
 TOTAL AREA(ACRES) = 8850.70 PEAK FLOW RATE(CFS) = 7629.62
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1051.00 TO NODE 1052.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 51.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.806
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	D	0.80	0.20	1.00	83
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	85.50	0.20	0.60	75
NATURAL FAIR COVER					
"WOODLAND"	D	15.00	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.66
 SUBAREA AREA(ACRES) = 101.30
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.45;24H= 5.81
 S-GRAPH: VALLEY(DEV.)= 3.7%;VALLEY(UNDEV.)/DESERT= 1.5%
 MOUNTAIN= 91.3%;FOOTHILL= 3.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.86; LAG(HR) = 0.68; Fm(INCH/HR) = 0.24; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8952.00

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2642.45
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7349.17
TOTAL AREA(ACRES) = 8952.00 PEAK FLOW RATE(CFS) = 7629.62
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 8952.00 TC(MIN.) = 51.36
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.43
PEAK FLOW RATE(CFS) = 7629.62

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

Huitt - Zollars, Inc.
430 Exchange, Suite 200
Irvine, CA. 92602-1309
714 - 734 - 5100

FILE NAME: MP53100H.DAT
TIME/DATE OF STUDY: 15:44 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
---	------	------	-------------------	------	------	--------	-------	--------

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.400
FOOTHILL 0.300
MOUNTAIN 0.100
VALLEY(UNDEVELOPED)/DESERT 0.200
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP52100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7629.62 Tc(MIN.) = 51.36
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 8952.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7629.62 Tc(MIN.) = 51.36
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 8952.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1052.00 = 43394.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1052.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 300.00 DOWNSTREAM(FEET) = 265.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 3322.00 CHANNEL SLOPE = 0.0105
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7629.62
FLOW VELOCITY(FEET/SEC.) = 15.44 FLOW DEPTH(FEET) = 14.38
TRAVEL TIME(MIN.) = 3.59 Tc(MIN.) = 54.95
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 54.95
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.567
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	1.60	0.40	1.00	40
NATURAL POOR COVER "BARREN"	A	0.90	0.40	1.00	78
NATURAL FAIR COVER "GRASS"	A	12.50	0.40	1.00	50
URBAN FAIR COVER "TURF"	A	0.90	0.40	1.00	44
NATURAL FAIR COVER "OPEN BRUSH"	A	2.90	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	16.90	0.40	1.00	36

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.40
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 35.70
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.45;24H= 5.81
 S-GRAPH: VALLEY(DEV.)= 3.9%;VALLEY(UNDEV.)/DESERT= 1.6%
 MOUNTAIN= 91.0%;FOOTHILL= 3.6%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 8987.70
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2646.25
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7247.79
 TOTAL AREA(ACRES) = 8987.70 PEAK FLOW RATE(CFS) = 7629.62
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 54.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.716
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	11.40	0.30	1.00	69
URBAN FAIR COVER					
"TURF"	B	9.30	0.30	1.00	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.30	0.30	1.00	66
NATURAL FAIR COVER					
"WOODLAND"	B	4.20	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	47.20	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	7.70	0.25	0.50	69

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.95
 SUBAREA AREA(ACRES) = 81.10
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.48;6H= 3.45;24H= 5.81
 S-GRAPH: VALLEY(DEV.)= 4.2%;VALLEY(UNDEV.)/DESERT= 1.7%
 MOUNTAIN= 90.3%;FOOTHILL= 3.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.69; 30M = 0.69; 1HR = 0.69;
 3HR = 0.95; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9068.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2666.77
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7293.38
 TOTAL AREA(ACRES) = 9068.80 PEAK FLOW RATE(CFS) = 7629.62
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 54.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.716
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	C	8.50	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	17.20	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	49.10	0.25	1.00	77
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	17.90	0.25	0.60	69
NATURAL FAIR COVER					
"WOODLAND"	C	43.10	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	79.80	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.97
 SUBAREA AREA(ACRES) = 215.60
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.48;6H= 3.45;24H= 5.81
 S-GRAPH: VALLEY(DEV.)= 5.0%;VALLEY(UNDEV.)/DESERT= 2.1%
 MOUNTAIN= 88.4%;FOOTHILL= 4.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.69; 1HR = 0.69;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9284.40
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2728.75
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7420.66
 TOTAL AREA(ACRES) = 9284.40 PEAK FLOW RATE(CFS) = 7629.62
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN) = 54.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.716
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	3.30	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	4.90	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	105.10	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	104.60	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	67.80	0.20	1.00	83
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	12.70	0.20	0.60	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 298.40
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.48;6H= 3.45;24H= 5.80

S-GRAPH: VALLEY(DEV.)= 6.1%;VALLEY(UNDEV.)/DESERT= 2.7%
MOUNTAIN= 86.0%;FOOTHILL= 5.2%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.43
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.68; 1HR = 0.68;
3HR = 0.94; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9582.80
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2823.08
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7603.15
TOTAL AREA(ACRES) = 9582.80 PEAK FLOW RATE(CFS) = 7629.62
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

FLOW PROCESS FROM NODE 1052.00 TO NODE 1053.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 54.95
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.716
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND"	D	49.40	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 49.40

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.48;6H= 3.45;24H= 5.80
S-GRAPH: VALLEY(DEV.)= 6.3%;VALLEY(UNDEV.)/DESERT= 2.8%
MOUNTAIN= 85.6%;FOOTHILL= 5.3%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.92; LAG(HR) = 0.73; Fm(INCH/HR) = 0.24; Ybar = 0.43
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.68; 30M = 0.68; 1HR = 0.68;
3HR = 0.94; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9632.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2837.53
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7632.59
TOTAL AREA(ACRES) = 9632.20 PEAK FLOW RATE(CFS) = 7632.59

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 9632.20 TC(MIN.) = 54.95
AREA-AVERAGED Fm(INCH/HR)= 0.24 Ybar = 0.43
PEAK FLOW RATE(CFS) = 7632.59

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MP54100H.DAT
TIME/DATE OF STUDY: 15:44 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.400
FOOTHILL 0.300
MOUNTAIN 0.200
VALLEY(UNDEVELOPED)/DESERT 0.100
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP53100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7632.59 Tc(MIN.) = 54.95
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 9632.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 7632.59 Tc(MIN.) = 54.95
AREA-AVERAGED Fm(INCH/HR) = 0.24 Ybar = 0.43
TOTAL AREA(ACRES) = 9632.20
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1053.00 = 46716.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1053.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 265.00 DOWNSTREAM(FEET) = 245.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1390.00 CHANNEL SLOPE = 0.0144
CHANNEL BASE(FEET) = 20.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 7632.59
FLOW VELOCITY(FEET/SEC.) = 17.33 FLOW DEPTH(FEET) = 13.25
TRAVEL TIME(MIN.) = 1.34 Tc(MIN.) = 56.28
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 56.28
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.545
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	A	2.30	0.40	1.00	50
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	A	14.70	0.40	0.60	32
NATURAL FAIR COVER					
"WOODLAND"	A	1.30	0.40	1.00	36
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	36.30	0.30	1.00	63
NATURAL POOR COVER					
"BARREN"	B	12.50	0.30	1.00	86
NATURAL FAIR COVER					
"GRASS"	B	99.20	0.30	1.00	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.31
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.96
SUBAREA AREA(ACRES) = 166.30
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.44;24H= 5.80
 S-GRAPH: VALLEY(DEV.)= 6.9%;VALLEY(UNDEV.)/DESERT= 2.9%
 MOUNTAIN= 84.5%;FOOTHILL= 5.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.94; LAG(HR) = 0.75; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.67; 30M = 0.68; 1HR = 0.68;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 9798.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 2874.23
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7608.94
 TOTAL AREA(ACRES) = 9798.50 PEAK FLOW RATE(CFS) = 7632.59
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 56.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.683
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
URBAN FAIR COVER					
"TURF"	B	9.80	0.30	1.00	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	22.90	0.30	1.00	66
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	B	24.70	0.30	0.60	56
NATURAL FAIR COVER					
"WOODLAND"	B	92.60	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	295.40	0.25	1.00	75
NATURAL FAIR COVER					
"WOODLAND"	C	153.30	0.25	1.00	73

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98
 SUBAREA AREA(ACRES) = 598.70

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.44;24H= 5.79
 S-GRAPH: VALLEY(DEV.)= 8.8%;VALLEY(UNDEV.)/DESERT= 3.3%
 MOUNTAIN= 80.7%;FOOTHILL= 7.1%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.94; LAG(HR) = 0.75; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.66; 30M = 0.67; 1HR = 0.67;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 10397.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3020.45
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 7922.35
 TOTAL AREA(ACRES) = 10397.20 PEAK FLOW RATE(CFS) = 7922.35

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 56.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.683
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	C	140.40	0.25	1.00	79
URBAN FAIR COVER					
"TURF"	C	102.40	0.25	1.00	77
NATURAL FAIR COVER					
"OPEN BRUSH"	C	312.40	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	C	0.90	0.25	1.00	81
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	56.80	0.25	0.60	69
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	38.10	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.97
 SUBAREA AREA(ACRES) = 651.00
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.78
 S-GRAPH: VALLEY(DEV.)= 10.6%;VALLEY(UNDEV.)/DESERT= 3.7%
 MOUNTAIN= 77.2%;FOOTHILL= 8.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.94; LAG(HR) = 0.75; Fm(INCH/HR) = 0.24; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.65; 30M = 0.66; 1HR = 0.67;
 3HR = 0.94; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 11048.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3201.26
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8268.40
 TOTAL AREA(ACRES) = 11048.20 PEAK FLOW RATE(CFS) = 8268.40

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 56.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.683
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	D	15.40	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	282.80	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	80.70	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	171.90	0.20	1.00	83
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	499.30	0.20	0.60	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.81
 SUBAREA AREA(ACRES) = 1050.80
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.77
 S-GRAPH: VALLEY(DEV.)= 13.2%;VALLEY(UNDEV.)/DESERT= 4.3%
 MOUNTAIN= 72.2%;FOOTHILL= 10.4%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 0.94; LAG(HR) = 0.75; Fm(INCH/HR) = 0.23; Ybar = 0.43
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.64; 30M = 0.65; 1HR = 0.65;
3HR = 0.93; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12099.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3542.91
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8874.55
TOTAL AREA(ACRES) = 12099.00 PEAK FLOW RATE(CFS) = 8874.55

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

FLOW PROCESS FROM NODE 1053.00 TO NODE 1054.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN) = 56.28
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.683
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND" D 72.00 0.20 1.00 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 72.00

UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.76
S-GRAPH: VALLEY(DEV.)= 13.3%;VALLEY(UNDEV.)/DESERT= 4.3%
MOUNTAIN= 71.9%;FOOTHILL= 10.5%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.94; LAG(HR) = 0.75; Fm(INCH/HR) = 0.23; Ybar = 0.43
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.65; 1HR = 0.65;
3HR = 0.93; 6HR = 0.97; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12171.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3563.69
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8912.34
TOTAL AREA(ACRES) = 12171.00 PEAK FLOW RATE(CFS) = 8912.34

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 12171.00 TC(MIN.) = 56.28
AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.43
PEAK FLOW RATE(CFS) = 8912.34

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 8.0 Release Date: 01/01/2003 License ID 1202

Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MP55100H.DAT
TIME/DATE OF STUDY: 15:44 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--
=====

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7
1) 5.000; 7.030
2) 10.000; 4.570
3) 15.000; 3.560
4) 20.000; 2.970
5) 30.000; 2.340
6) 60.000; 1.590
7) 120.000; 1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

NO.	WIDTH (FT)	CROSSFALL (FT)	IN- / SIDE	OUT- / SIDE/ WAY	HEIGHT (FT)	WIDTH (FT)	LIP (FT)	HIKE (FT)	FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020		0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.200
FOOTHILL 0.400
MOUNTAIN 0.000
VALLEY(UNDEVELOPED)/DESERT 0.400
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP54100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 8912.34 Tc(MIN.) = 56.28
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.43
TOTAL AREA(ACRES) = 12171.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 8912.34 Tc(MIN.) = 56.28
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.43
TOTAL AREA(ACRES) = 12171.00
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1054.00 = 48106.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1054.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 245.00 DOWNSTREAM(FEET) = 215.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2724.00 CHANNEL SLOPE = 0.0110
CHANNEL BASE(FEET) = 25.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 8912.34
FLOW VELOCITY(FEET/SEC.) = 16.22 FLOW DEPTH(FEET) = 14.07
TRAVEL TIME(MIN.) = 2.80 Tc(MIN.) = 59.08
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 59.08
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.503
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	A	6.80	0.40	1.00	50
NATURAL FAIR COVER					
"OPEN BRUSH"	A	1.80	0.40	1.00	46
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	A	0.40	0.40	0.60	32
NATURAL FAIR COVER					
"WOODLAND"	A	5.50	0.40	1.00	36
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	5.80	0.30	1.00	63
NATURAL POOR COVER					
"BARREN"	B	6.90	0.30	1.00	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.35
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
SUBAREA AREA(ACRES) = 27.20
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 13.3%;VALLEY(UNDEV.)/DESERT= 4.4%
 MOUNTAIN= 71.7%;FOOTHILL= 10.5%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.79; Fm(INCH/HR) = 0.23; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12198.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3568.46
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8596.23
 TOTAL AREA(ACRES) = 12198.20 PEAK FLOW RATE(CFS) = 8912.34
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 59.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.613
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	B	22.60	0.30	1.00	69
NATURAL FAIR COVER "OPEN BRUSH"	B	7.90	0.30	1.00	66
NATURAL FAIR COVER "WOODLAND"	B	9.50	0.30	1.00	60
NATURAL FAIR COVER "WOODLAND"	C	23.30	0.25	1.00	73
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	71.90	0.25	1.00	75
NATURAL POOR COVER "BARREN"	C	0.40	0.25	1.00	91

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 135.60
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 13.4%;VALLEY(UNDEV.)/DESERT= 4.8%
 MOUNTAIN= 70.9%;FOOTHILL= 10.9%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 0.98; LAG(HR) = 0.79; Fm(INCH/HR) = 0.23; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.65; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.97; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12333.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3601.16
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8653.54
 TOTAL AREA(ACRES) = 12333.80 PEAK FLOW RATE(CFS) = 8912.34
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 59.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.613
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	C	14.60	0.25	1.00	79
NATURAL FAIR COVER "OPEN BRUSH"	C	66.50	0.25	1.00	77
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	C	0.20	0.25	1.00	81
RESIDENTIAL "3-4 DWELLINGS/ACRE"	C	0.30	0.25	0.60	69
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	D	3.50	0.20	1.00	81
RESIDENTIAL "5-7 DWELLINGS/ACRE"	D	1.20	0.20	0.50	75

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.99
 SUBAREA AREA(ACRES) = 86.30
 UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 13.5%;VALLEY(UNDEV.)/DESERT= 5.0%
 MOUNTAIN= 70.4%;FOOTHILL= 11.1%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 0.98; LAG(HR) = 0.79; Fm(INCH/HR) = 0.23; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12420.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3624.62
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8691.90
 TOTAL AREA(ACRES) = 12420.10 PEAK FLOW RATE(CFS) = 8912.34
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

 FLOW PROCESS FROM NODE 1054.00 TO NODE 1055.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 59.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.613
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	D	0.20	0.20	1.00	93
NATURAL FAIR COVER "GRASS"	D	33.50	0.20	1.00	84
NATURAL FAIR COVER "OPEN BRUSH"	D	9.50	0.20	1.00	83
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	D	0.20	0.20	1.00	86
RESIDENTIAL "3-4 DWELLINGS/ACRE"	D	50.10	0.20	0.60	75
NATURAL FAIR COVER "WOODLAND"	D	8.90	0.20	1.00	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.80
 SUBAREA AREA(ACRES) = 102.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.76

S-GRAPH: VALLEY(DEV.)= 13.5%;VALLEY(UNDEV.)/DESERT= 5.3%
MOUNTAIN= 69.9%;FOOTHILL= 11.3%;DESERT(UNDEV.)= 0.0%
Tc(HR) = 0.98; LAG(HR) = 0.79; Fm(INCH/HR) = 0.23; Ybar = 0.43
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
3HR = 0.93; 6HR = 0.96; 24HR= 0.98
UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12522.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.50 RUNOFF VOLUME(AF) = 3657.63
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8744.48
TOTAL AREA(ACRES) = 12522.50 PEAK FLOW RATE(CFS) = 8912.34
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 12522.50 TC(MIN.) = 59.08
AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.43
PEAK FLOW RATE(CFS) = 8912.34

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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714 - 734 - 5100

FILE NAME: MP56100H.DAT
TIME/DATE OF STUDY: 15:44 03/26/2004
=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	7.030
2)	10.000;	4.570
3)	15.000;	3.560
4)	20.000;	2.970
5)	30.000;	2.340
6)	60.000;	1.590
7)	120.000;	1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
- (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:

WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.300
FOOTHILL 0.300
MOUNTAIN 0.000
VALLEY(UNDEVELOPED)/DESERT 0.400
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP55100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 8912.34 Tc(MIN.) = 59.08
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.43
TOTAL AREA(ACRES) = 12522.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 8912.34 Tc(MIN.) = 59.08
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.43
TOTAL AREA(ACRES) = 12522.50
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1055.00 = 50830.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1055.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 215.00 DOWNSTREAM(FEET) = 185.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2880.00 CHANNEL SLOPE = 0.0104
CHANNEL BASE(FEET) = 25.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 8912.34
FLOW VELOCITY(FEET/SEC.) = 15.89 FLOW DEPTH(FEET) = 14.28
TRAVEL TIME(MIN.) = 3.02 Tc(MIN.) = 62.10
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 62.10
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.461
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	A	1.80	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	1.10	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	9.30	0.40	1.00	36
NATURAL POOR COVER "BARREN"	B	1.80	0.30	1.00	86
NATURAL FAIR COVER "GRASS"	B	14.80	0.30	1.00	69
NATURAL FAIR COVER "OPEN BRUSH"	B	1.20	0.30	1.00	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 30.00
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.46;6H= 3.43;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 13.6%;VALLEY(UNDEV.)/DESERT= 5.4%
 MOUNTAIN= 69.7%;FOOTHILL= 11.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.04; LAG(HR) = 0.83; Fm(INCH/HR) = 0.23; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12552.50
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 3662.73
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8632.18
 TOTAL AREA(ACRES) = 12552.50 PEAK FLOW RATE(CFS) = 8912.34
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 62.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.574
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND"	B	5.10	0.30	1.00	60
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	8.50	0.25	0.50	69
NATURAL POOR COVER					
"BARREN"	C	2.40	0.25	1.00	91
NATURAL FAIR COVER					
"GRASS"	C	1.30	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	0.20	0.25	1.00	77
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	3.10	0.20	1.00	81

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.79
 SUBAREA AREA(ACRES) = 20.60

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.46;6H= 3.43;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 13.6%;VALLEY(UNDEV.)/DESERT= 5.4%
 MOUNTAIN= 69.6%;FOOTHILL= 11.4%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.04; LAG(HR) = 0.83; Fm(INCH/HR) = 0.23; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.63; 30M = 0.64; 1HR = 0.65;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12573.10
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 3668.64
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8642.62
 TOTAL AREA(ACRES) = 12573.10 PEAK FLOW RATE(CFS) = 8912.34
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 62.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.574
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	128.00	0.20	0.50	75
NATURAL POOR COVER					
"BARREN"	D	32.60	0.20	1.00	93
NATURAL FAIR COVER					
"GRASS"	D	74.30	0.20	1.00	84
URBAN FAIR COVER					
"TURF"	D	0.80	0.20	1.00	82
NATURAL FAIR COVER					
"OPEN BRUSH"	D	21.80	0.20	1.00	83
COMMERCIAL	D	2.70	0.20	0.10	75

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.74
 SUBAREA AREA(ACRES) = 260.20
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.46;6H= 3.42;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 13.9%;VALLEY(UNDEV.)/DESERT= 6.1%
 MOUNTAIN= 68.2%;FOOTHILL= 11.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.04; LAG(HR) = 0.83; Fm(INCH/HR) = 0.23; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.64; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12833.30
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 3757.11
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8787.64
 TOTAL AREA(ACRES) = 12833.30 PEAK FLOW RATE(CFS) = 8912.34
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

FLOW PROCESS FROM NODE 1055.00 TO NODE 1056.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 62.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.574
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	0.70	0.20	1.00	86
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	42.80	0.20	0.60	75
NATURAL FAIR COVER					
"WOODLAND"	D	13.80	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.70
 SUBAREA AREA(ACRES) = 57.30
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.46;6H= 3.42;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 14.0%;VALLEY(UNDEV.)/DESERT= 6.3%
 MOUNTAIN= 67.9%;FOOTHILL= 11.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.04; LAG(HR) = 0.83; Fm(INCH/HR) = 0.23; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.64; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 12890.60

LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0260; Lca/L=0.4,n=.0233; Lca/L=0.5,n=.0214;Lca/L=0.6,n=.0200
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 3775.66
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8819.28
TOTAL AREA(ACRES) = 12890.60 PEAK FLOW RATE(CFS) = 8912.34
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.52; 30M = 1.09; 1HR = 1.45; 3HR = 2.43; 6HR = 3.36; 24HR = 5.63

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 12890.60 TC(MIN.) = 62.10
AREA-AVERAGED Fm(INCH/HR)= 0.23 Ybar = 0.43
PEAK FLOW RATE(CFS) = 8912.34

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

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(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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714 - 734 - 5100

FILE NAME: MP57100H.DAT
TIME/DATE OF STUDY: 15:44 03/26/2004

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 7

1)	5.000;	7.030
2)	10.000;	4.570
3)	15.000;	3.560
4)	20.000;	2.970
5)	30.000;	2.340
6)	60.000;	1.590
7)	120.000;	1.120

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (n)
=====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
---	------	------	-------------------	------	------	--------	-------	--------

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)

*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
WATERSHED LAG = 0.80 * Tc
S-GRAPH TYPE PERCENTAGE(DECIMAL)
VALLEY(DEVELOPED) 0.200
FOOTHILL 0.100
MOUNTAIN 0.600
VALLEY(UNDEVELOPED)/DESERT 0.100
DESERT(UNDEVELOPED) 0.000

PRECIPITATION DATA ENTERED ON SUBAREA BASIS.
SIERRA MADRE DEPTH-AREA FACTORS USED.
ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: MP56100H.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 8912.34 Tc(MIN.) = 62.10
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.43
TOTAL AREA(ACRES) = 12890.60
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
PEAK FLOW RATE(CFS) = 8912.34 Tc(MIN.) = 62.10
AREA-AVERAGED Fm(INCH/HR) = 0.23 Ybar = 0.43
TOTAL AREA(ACRES) = 12890.60
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1056.00 = 53710.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1056.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 185.00 DOWNSTREAM(FEET) = 165.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2367.00 CHANNEL SLOPE = 0.0084
CHANNEL BASE(FEET) = 30.00 "Z" FACTOR = 1.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 15.00
CHANNEL FLOW THRU SUBAREA(CFS) = 8912.34
FLOW VELOCITY(FEET/SEC.) = 14.58 FLOW DEPTH(FEET) = 13.92
TRAVEL TIME(MIN.) = 2.71 Tc(MIN.) = 64.81
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.

FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN) = 64.81
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.425
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	A	38.90	0.40	1.00	40
NATURAL FAIR COVER "GRASS"	A	2.00	0.40	1.00	50
NATURAL FAIR COVER "OPEN BRUSH"	A	40.30	0.40	1.00	46
NATURAL FAIR COVER "WOODLAND"	A	74.70	0.40	1.00	36
NATURAL FAIR COVER "OPEN BRUSH"	B	25.40	0.30	1.00	66
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	18.50	0.30	1.00	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.38
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
SUBAREA AREA(ACRES) = 199.80
UNIT-HYDROGRAPH DATA:

RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.47;6H= 3.43;24H= 5.76
 S-GRAPH: VALLEY(DEV.)= 14.1%;VALLEY(UNDEV.)/DESERT= 6.3%
 MOUNTAIN= 67.8%;FOOTHILL= 11.8%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.08; LAG(HR) = 0.86; Fm(INCH/HR) = 0.23; Ybar = 0.43
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.62; 30M = 0.63; 1HR = 0.64;
 3HR = 0.93; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 13090.40
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 3806.87
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 8769.19
 TOTAL AREA(ACRES) = 13090.40 PEAK FLOW RATE(CFS) = 8912.34
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.55; 30M = 1.12; 1HR = 1.50; 3HR = 2.60; 6HR = 3.67; 24HR = 6.25

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 64.81
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.552
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	18.90	0.30	1.00	69
NATURAL FAIR COVER					
"WOODLAND"	B	105.00	0.30	1.00	60
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	C	540.80	0.25	1.00	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	C	1.40	0.25	0.50	69
NATURAL FAIR COVER					
"GRASS"	C	106.10	0.25	1.00	79
NATURAL FAIR COVER					
"OPEN BRUSH"	C	236.60	0.25	1.00	77

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.00
 SUBAREA AREA(ACRES) = 1008.80

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.46;3H= 2.48;6H= 3.44;24H= 5.80
 S-GRAPH: VALLEY(DEV.)= 14.5%;VALLEY(UNDEV.)/DESERT= 6.6%
 MOUNTAIN= 67.2%;FOOTHILL= 11.7%;DESERT(UNDEV.)= 0.0%
 Tc(HR) = 1.08; LAG(HR) = 0.86; Fm(INCH/HR) = 0.23; Ybar = 0.44
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.60; 30M = 0.62; 1HR = 0.63;
 3HR = 0.92; 6HR = 0.96; 24HR= 0.98
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 14099.20
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 4103.19
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 9272.71
 TOTAL AREA(ACRES) = 14099.20 PEAK FLOW RATE(CFS) = 9272.71

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.55; 30M = 1.12; 1HR = 1.50; 3HR = 2.60; 6HR = 3.67; 24HR = 6.25

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 64.81
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.552
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	C	145.90	0.25	0.60	69
NATURAL FAIR COVER					
"WOODLAND"	C	35.40	0.25	1.00	73
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	D	1590.50	0.20	1.00	81
NATURAL FAIR COVER					
"OPEN BRUSH"	D	1749.20	0.20	1.00	83
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	48.30	0.20	0.50	75
NATURAL FAIR COVER					
"GRASS"	D	198.30	0.20	1.00	84

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.98

SUBAREA AREA(ACRES) = 3767.60
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.50;6H= 3.49;24H= 5.89
 S-GRAPH: VALLEY(DEV.)= 15.7%;VALLEY(UNDEV.)/DESERT= 7.3%
 MOUNTAIN= 65.7%;FOOTHILL= 11.3%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 1.08; LAG(HR) = 0.86; Fm(INCH/HR) = 0.23; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.55; 30M = 0.58; 1HR = 0.59;
 3HR = 0.90; 6HR = 0.95; 24HR= 0.97
 UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 17866.80
 LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
 TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 5391.98
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 11224.26
 TOTAL AREA(ACRES) = 17866.80 PEAK FLOW RATE(CFS) = 11224.26

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
 5M = 0.55; 30M = 1.12; 1HR = 1.50; 3HR = 2.60; 6HR = 3.67; 24HR = 6.25

 FLOW PROCESS FROM NODE 1056.00 TO NODE 1057.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN) = 64.81
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.552
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
URBAN FAIR COVER					
"TURF"	D	1.70	0.20	1.00	82
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	D	22.00	0.20	1.00	86
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	398.00	0.20	0.60	75
NATURAL FAIR COVER					
"WOODLAND"	D	267.20	0.20	1.00	79

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.77
 SUBAREA AREA(ACRES) = 688.90

UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.53;30M= 1.10;1H= 1.47;3H= 2.51;6H= 3.50;24H= 5.91
 S-GRAPH: VALLEY(DEV.)= 15.8%;VALLEY(UNDEV.)/DESERT= 7.4%
 MOUNTAIN= 65.5%;FOOTHILL= 11.3%;DESERT(UNDEV.)= 0.0%

Tc(HR) = 1.08; LAG(HR) = 0.86; Fm(INCH/HR) = 0.22; Ybar = 0.41
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.54; 30M = 0.57; 1HR = 0.58;
 3HR = 0.90; 6HR = 0.95; 24HR= 0.97

UNIT-INTERVAL(MIN) = 5.00 TOTAL AREA(ACRES) = 18555.70
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1057.00 = 56077.00 FEET.
EQUIVALENT BASIN FACTOR APPROXIMATIONS:
Lca/L=0.3,n=.0261; Lca/L=0.4,n=.0234; Lca/L=0.5,n=.0215;Lca/L=0.6,n=.0201
TIME OF PEAK FLOW(HR) = 16.58 RUNOFF VOLUME(AF) = 5633.41
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) = 11585.06
TOTAL AREA(ACRES) = 18555.70 PEAK FLOW RATE(CFS) = 11585.06

SUBAREA AREA-AVERAGED RAINFALL DEPTH(INCH):
5M = 0.55; 30M = 1.12; 1HR = 1.50; 3HR = 2.60; 6HR = 3.67; 24HR = 6.25

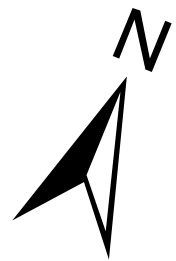
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END OF STUDY SUMMARY:

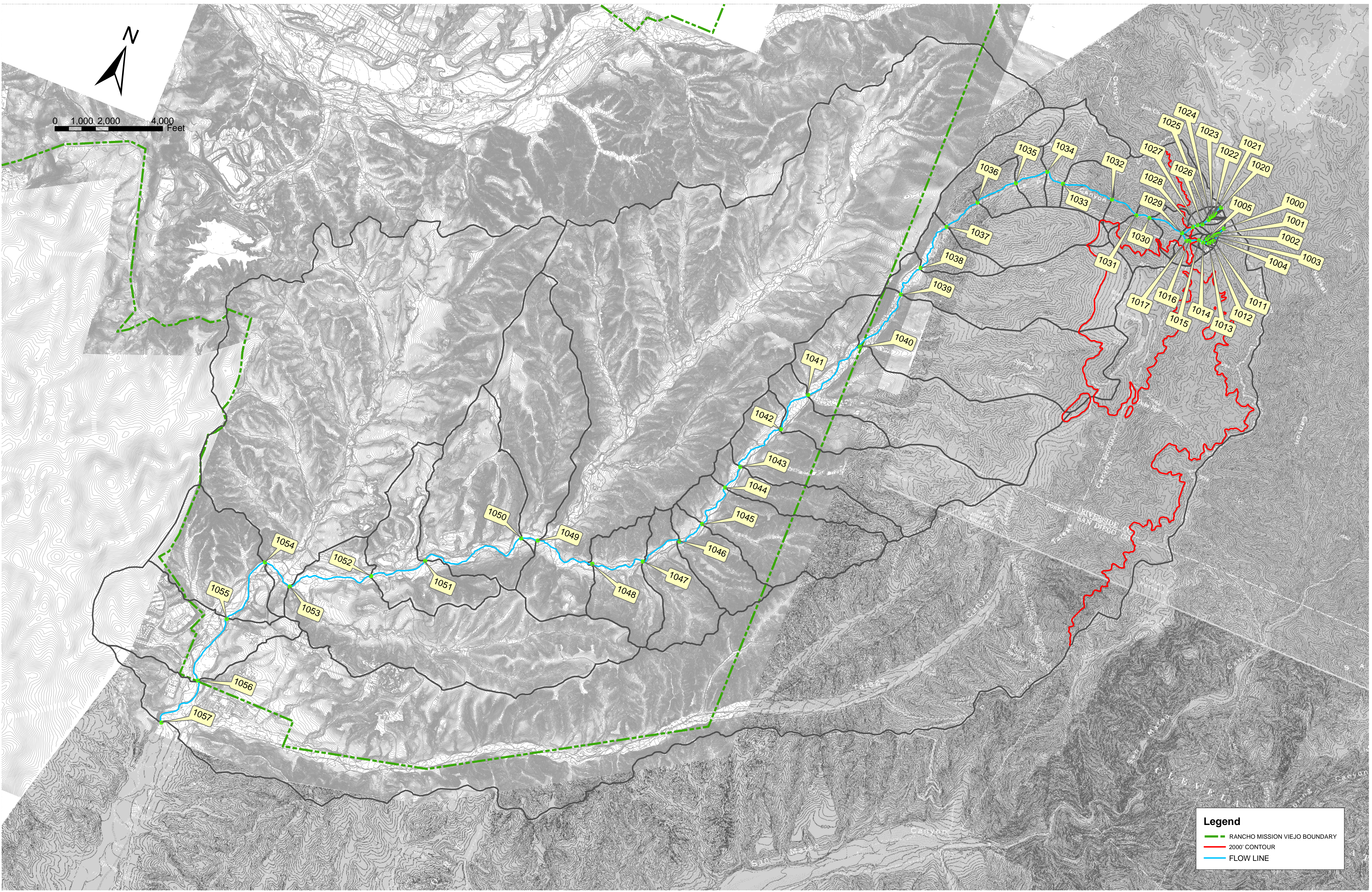
TOTAL AREA(ACRES) = 18555.70 TC(MIN.) = 64.81
AREA-AVERAGED Fm(INCH/HR)= 0.22 Ybar = 0.41
PEAK FLOW RATE(CFS) = 11585.06

=====

END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS

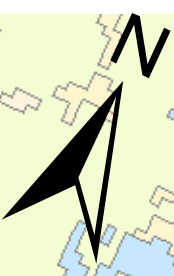


0 1,000 2,000 4,000 Feet

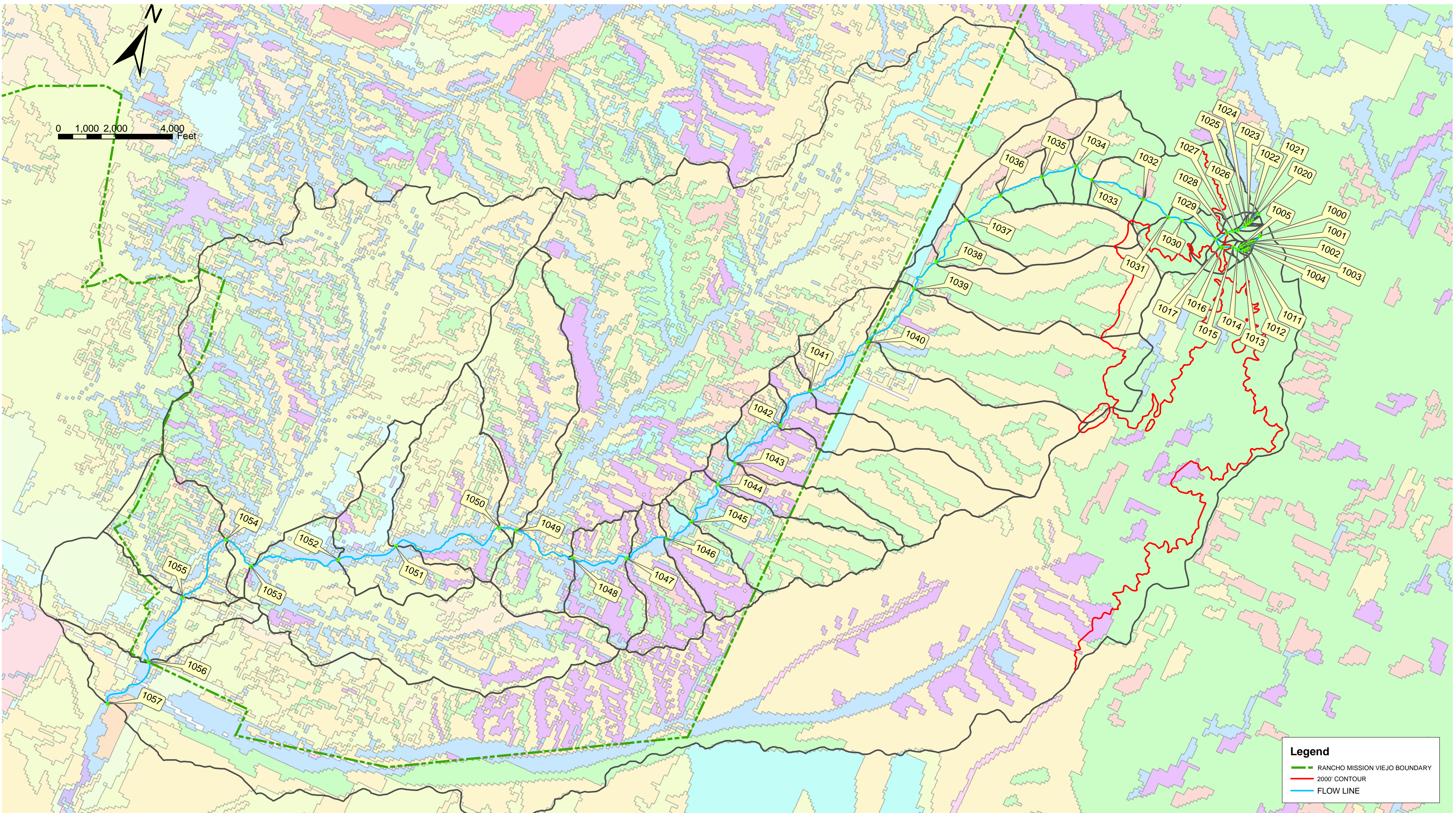


Legend

- RANCHO MISSION VIEJO BOUNDARY
- 2000' CONTOUR
- FLOW LINE



0 1,000 2,000 4,000 Feet



Legend

- RANCHO MISSION VIEJO BOUNDARY
- 2000' CONTOUR
- FLOW LINE

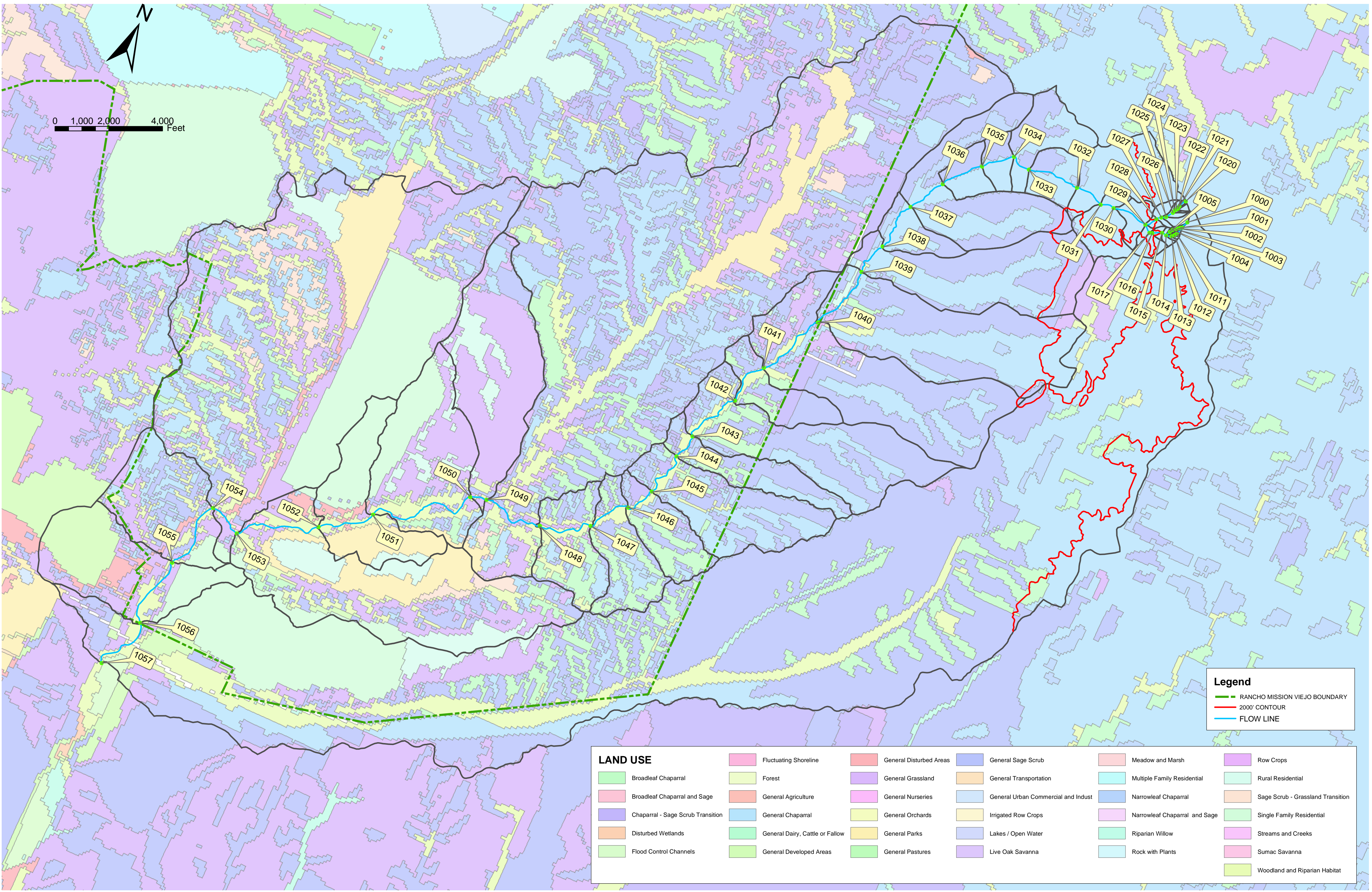
LAND USE								
 Broadleaf Chaparral	 Fluctuating Shoreline	 General Developed Areas	 General Parks	 Irrigated Row Crops	 Narrowleaf Chaparral and Sage	 Sage Scrub - Grassland Transition		
 Broadleaf Chaparral and Sage	 Forest	 General Disturbed Areas	 General Pastures	 Lakes / Open Water	 Riparian Willow	 Streams and Creeks		
 Chaparral - Sage Scrub Transition	 General Agriculture	 General Grassland	 General Sage Scrub	 Live Oak Savanna	 Rock with Plants	 Sumac Savanna		
 Disturbed Wetlands	 General Chaparral	 General Nurseries	 General Transportation	 Meadow and Marsh	 Row Crops	 Woodland and Riparian Habitat		
 Flood Control Channels	 General Dairy, Cattle or Fallow	 General Orchards	 General Urban Commercial and Indust	 Narrowleaf Chaparral	 Rural Residential			

HYDROLOGIC MAP FOR EXISTING CONDITION
SAN MATEO CREEK CHANNEL

HUITT-ZOLLARS
(714) 734-5100
430 EXCHANGE, SUITE 200
IRVINE, CA 92602



0 1,000 2,000 4,000 Feet



Legend

- RANCHO MISSION VIEJO BOUNDARY
- 2000' CONTOUR
- FLOW LINE

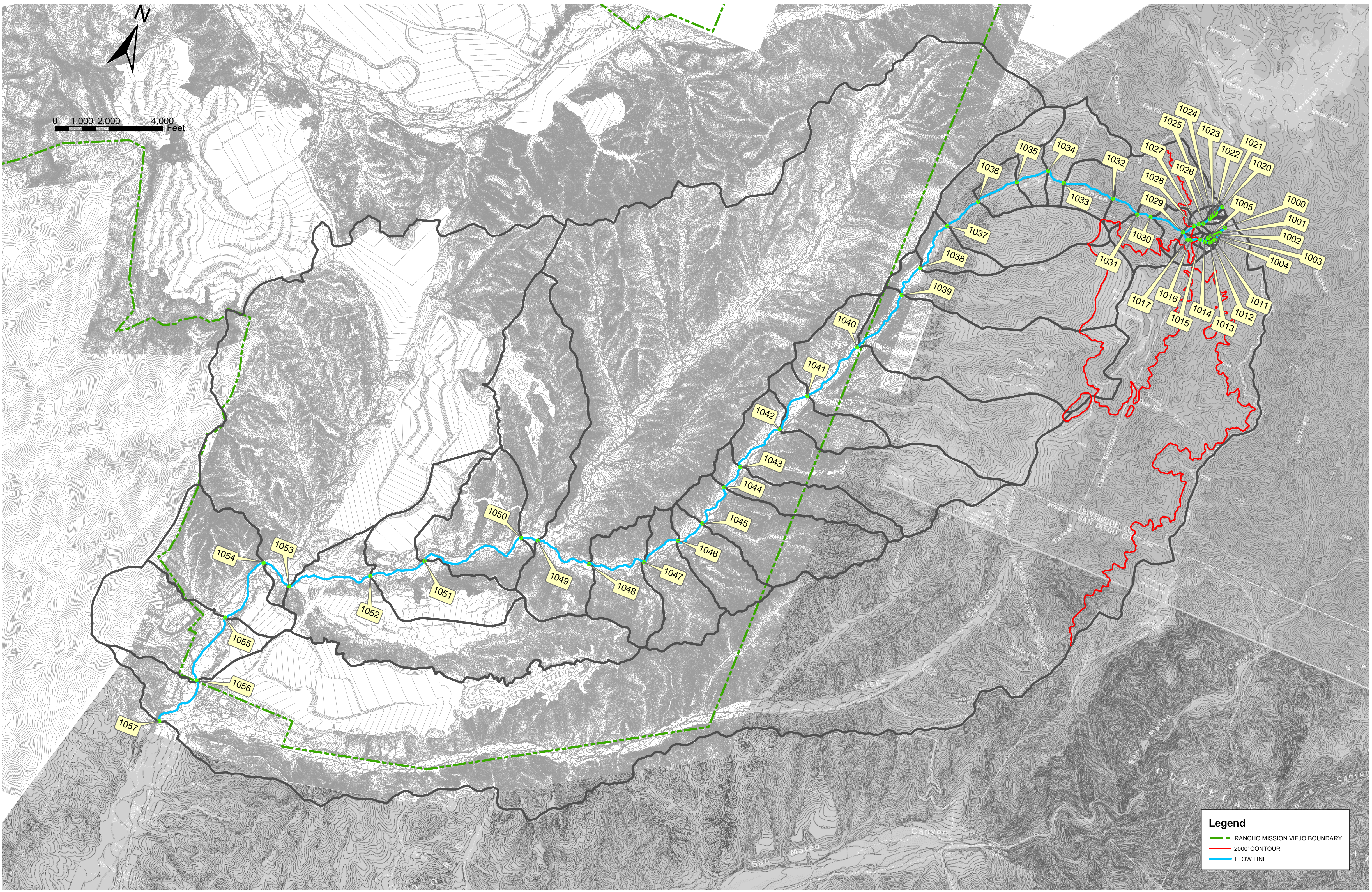
LAND USE					
■ Broadleaf Chaparral	■ Fluctuating Shoreline	■ General Disturbed Areas	■ General Sage Scrub	■ Meadow and Marsh	■ Row Crops
■ Broadleaf Chaparral and Sage	■ Forest	■ General Grassland	■ General Transportation	■ Multiple Family Residential	■ Rural Residential
■ Chaparral - Sage Scrub Transition	■ General Agriculture	■ General Nurseries	■ General Urban Commercial and Indust	■ Narrowleaf Chaparral	■ Sage Scrub - Grassland Transition
■ Disturbed Wetlands	■ General Chaparral	■ General Orchards	■ Irrigated Row Crops	■ Narrowleaf Chaparral and Sage	■ Single Family Residential
■ Flood Control Channels	■ General Dairy, Cattle or Fallow	■ General Parks	■ Lakes / Open Water	■ Riparian Willow	■ Streams and Creeks
	■ General Developed Areas	■ General Pastures	■ Live Oak Savanna	■ Rock with Plants	■ Sumac Savanna
					■ Woodland and Riparian Habitat

**HYDROLOGIC MAP FOR PROPOSED CONDITION
SAN MATEO CREEK CHANNEL**

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430 EXCHANGE, SUITE 200
IRVINE, CA 92602



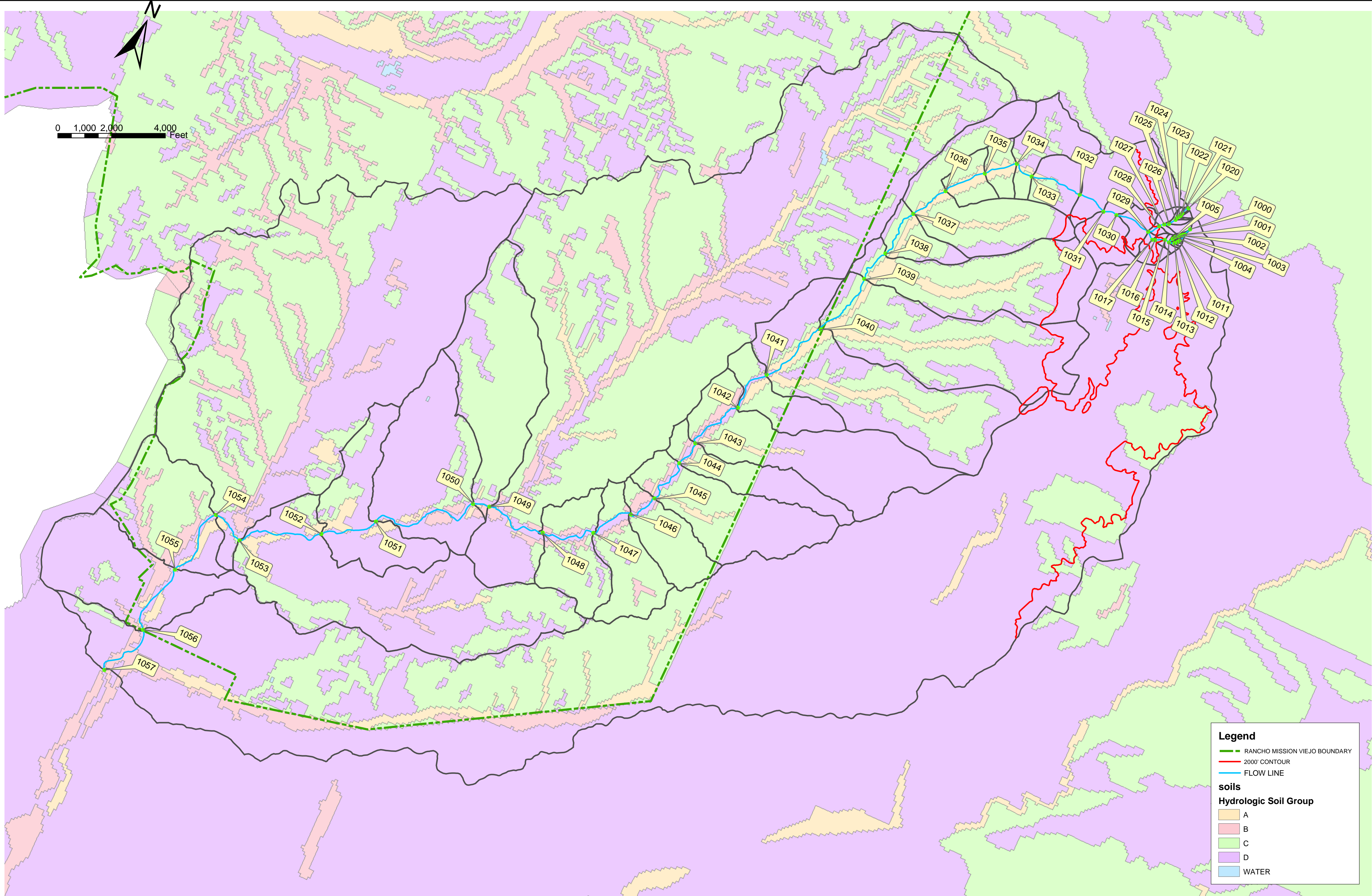
0 1,000 2,000 4,000 Feet



Legend

- RANCHO MISSION VIEJO BOUNDARY
- 2000' CONTOUR
- FLOW LINE

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Legend

- RANCHO MISSION VIEJO BOUNDARY
- 2000' CONTOUR
- FLOW LINE

soils

Hydrologic Soil Group

- A
- B
- C
- D
- WATER

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 IRVINE, CA 92602

HYDROLOGIC ANALYSIS OF
 SAN MATEO CREEK CHANNEL

DATE: MARCH 15, 2004
 H:/10075501/PH801/RMV WATERSHED/EX/SAN MATEO SOILTYPE EXISTING.MXD