

**PRELIMINARY HYDROLOGY STUDY
EDEN MIXED-USE**

APN: 1052-581-03 & 1052-581-04

**CHINO, CA
COUNTY OF SAN BERNARDINO**

PREPARED FOR

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1.0 INTRODUCTION

1.1 PROJECT INTRODUCTION AND BACKGROUND

The Eden project is a proposed mixed-use development on an approximately 10.3-acre site. The project is located within the City of Chino, San Bernardino County. The site is bounded on the south by Schaefer Avenue, on the east by Euclid Avenue, and on the west by Fern Avenue. The northern portion of the site is bounded by an adjacent property. A vicinity map is included as Figure 1 below.

The project site is within a general commercial land use district. Single-family residential structures are located to the west and north of the site. East of the site, there are agricultural lots. To the south of the site there is a commercial center.

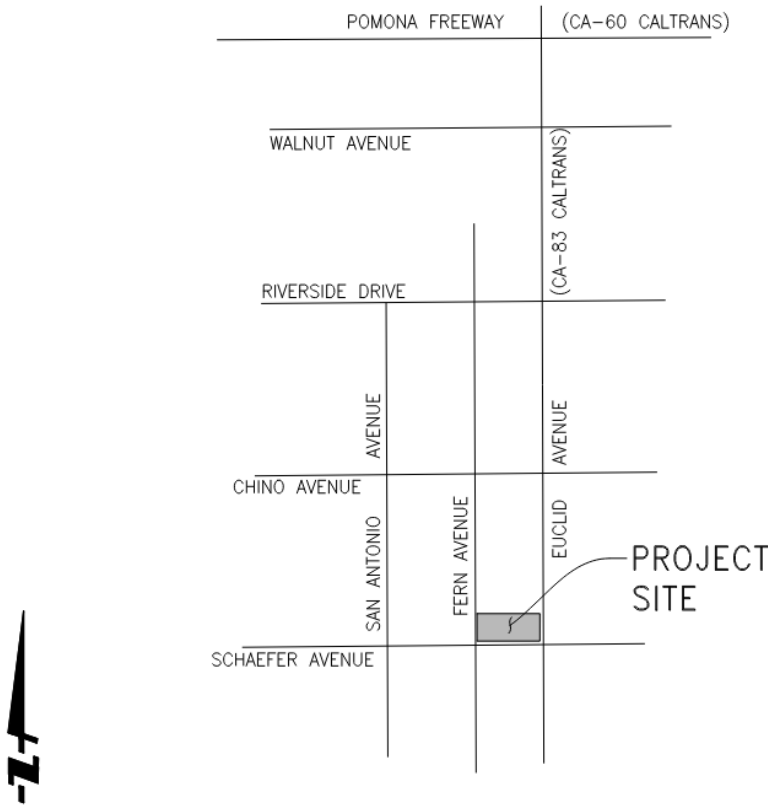


Figure 1 – Vicinity Map

1.2 PURPOSE OF THIS REPORT

The purpose of this study is to identify and analyze the pre- and post-construction hydrologic conditions for onsite storm flows. In addition, detention analyses have been performed to ensure that the project will not adversely impact the downstream drainage facilities. The criteria is that the storm flows associated with the proposed development condition do not exceed 90-percent of those of the existing condition.

In accordance with San Bernardino County requirements, this drainage report analyzes the 2-, 10-, 25, and 100-year storm events for the existing and proposed conditions. Outcomes of the hydrologic analyses were used to determine the parameters for the proposed onsite detention system that will adequately mitigate storm runoff from the site without adversely impacting the surrounding and downstream watershed, neighboring properties, and/or existing storm drain facilities.

1.3 REFERENCES

The following references were used to evaluate hydrologic conditions:

- San Bernardino County Hydrology Manual (August 1986)
- Addendum to San Bernardino Hydrology Manual (April 6, 2010)
- San Bernardino County Stormwater Mapping Tool
- NOAA Atlas 14, Volume 6, Version 2, Chino, CA; Point Precipitation Frequency Estimates
- Geotechnical Investigation Proposed Multi-Family Residential Development 16793 Baseline Avenue, Fontana, California, prepared by Geocon West, Inc. (February 18, 2022)

2.0 EXISTING TOPOGRAPHIC & HYDROLOGIC CONDITIONS

2.1 EXISTING TOPOGRAPHY

The project site is currently an agricultural lot, and generally slopes from the northeast to the southwest. The gradient of the site is relatively flat, with no distinct highs or lows. No constructed drainage systems are located within the site. The site receives stormwater run-on from the adjacent property to the north.

3.0 HYDROLOGY

3.1 STORM FREQUENCY AND CRITERIA

Per San Bernardino County's requirements, the storm events analyzed for this project are the following:

- 2-year
- 10-year
- 25-year
- 100-year

San Bernardino County has established design parameters and guidelines to ensure proper detention system design and operation. The County's design criteria states that when a detention system is to be used to mitigate downstream impacts due to increased flows generated by a development, the detention system capacity and outlet configuration shall be such that the post-development peak flow rates generated by the site shall be less than or equal to 90% of the pre-developed peak flow rate from the site for all frequency storms up to and including the 100-year. The 2-, 10-, 25, and 100-year storm events have been analyzed to ensure that the post-developed peak flows from the site do not exceed 90% of the pre-developed flows.

Per the San Bernardino County Hydrology Manual Memorandum, the pre-development peak flow rates were calculated with the following criteria:

- 10-year peak flow rate is calculated using 5-year rainfall
- 25-year peak flow rate is calculated using 10-year rainfall
- 100-year peak flow rate is calculated using 25-year rainfall

3.2 METHODOLOGY

The area of the study site is within the city of Chino, and under the jurisdiction of the County of San Bernardino Flood Control District. The San Bernardino County Hydrology Manual, along with NOAA rainfall depths, and the San Bernardino County Stormwater Mapping Tool were used to develop the hydrologic parameters for the analyses. AES software was used to

perform the proposed onsite hydrologic analyses. Rational Method was used for existing condition and proposed condition.

Unit Hydrograph analyses, using AES software, were used to develop the Unit Hydrographs of the existing site, which was then used as a comparison with the proposed condition. AES software was also used to compute the proposed condition flood hydrograph routing analyses of the various storm events through the proposed detention system.

For the Rational Method and Unit Hydrograph analyses, the rainfall depths were obtained from NOAA (see Appendix A). The soil types were obtained from the San Bernardino County Stormwater Mapping Tool (See Appendix A).

3.3 EXISTING CONDITION HYDROLOGY

Hydrologic models were prepared for existing condition, using the methodology outlined above. The existing condition hydrology calculations and map are included in Appendix B of this report. The following table presents the results of the existing condition hydrology for the project site.

Table 3.3.1 Existing Condition Hydrology

Storm Event (Year)	Existing Peak Flowrate (cfs)
2	2.1
10	4.6
25	8.9
100	11.5

3.4 PROPOSED CONDITION HYDROLOGY

Hydrologic models were prepared for proposed condition, using the methodology outlined above. The proposed condition hydrology calculations are included in Appendix C and E of this report. The following table presents the results of the unmitigated proposed condition hydrology for the project site.

Table 3.4.1 Proposed Condition Hydrology (Unmitigated)

Storm Event (Year)	Proposed (Unmitigated) Peak Flowrate (cfs)
2	14.9
10	24.2
25	29.7
100	38.9

3.5 ONSITE DRAINAGE

The proposed development will consist of an apartment building and commercial buildings. The proposed onsite drainage flows in a generally southwesterly direction, consistent with the existing topographic conditions. Onsite storm drain systems will generally convey most onsite

stormflows in a southerly direction to the two proposed detention systems, then to be piped through storm drain to connect to an existing storm drain line west of the site. The western portion of the site (Drainage Area A) cannot infiltrate and utilizes a concrete vault detention system for flow mitigation. The eastern portion of the site (Drainage Area B) will be infiltrating and the bottom foot of the 60" CMP will be utilized for infiltrating the water quality volume and the 2-yr, 24-hr storm event. The rest of the CMP will be utilized for the peak flow mitigation required. Stormwater runoff generated on-site will require water quality mitigation prior to discharge to the public storm drain. A separate Water Quality Management Plan has been provided for the project.

3.6 ONSITE DETENTION

In accordance with the San Bernardino County criteria for development, the proposed condition flows from the site may not exceed 90% of the existing condition flows from the site. Detention will be required to accomplish this requirement. An underground detention system is proposed in each of the two drainage areas and will mitigate the discharge such that the total flows from the site will meet the San Bernardino County requirement.

Drainage Area A

A 6" orifice was set at the bottom of the detention system to control the 2-yr, 24-hr storm event discharge rate to meet hydromodification requirements. A 12" orifice set to 4' from the bottom of the detention system to allow for mitigation of the other storm event peak discharges to remain within the existing condition peak discharge rate.

Drainage Area B

The bottom 1' of the system will be utilized to infiltrate the water quality volume and 2-yr, 24-hr storm event in order to meet water quality and hydromodification requirements. These calculations are expanded upon in the WQMP. A 6" orifice was set at 1' and an 8" orifice was set to 4' from the bottom of the detention system to allow for mitigation of the other storm event peak discharges to remain within the existing condition peak discharge rate.

The discharge through these pipes were calculated through HydroCAD software (see Appendix D). The stage storage of the detention system can also be seen in Appendix D.

The table below presents the mitigated flows from the site and can be compared with the existing condition flows.

Storm Event (Year)	Flowrate (cfs)				
	Existing	Proposed (Mitigated)			Percent Difference from Existing Condition
		Area A	Area B	Total	
2	2.1	1.46	-	1.46	69%
10	4.6	3.01	1.02	4.03	89%
25	8.9	5.66	1.23	6.89	78%
100	11.5	7.95	1.48	9.43	82%

The preliminary proposed underground detention system configuration is as follows, and may be revised in final design:

Drainage Area A

- Detention System: Concrete Vault
- 50' L x 87.4' W x 7' H
- Orifice Sizing:
 - 6-inch at bottom
 - 12-inch at 4' from bottom
- Total Storage Volume: 30,590 CF w 83% voids

Drainage Area B

- Detention System: 60" CMP
- Linear Footage: 5,056 LF
- Orifice Sizing:
 - 6-inch at 1' from bottom
 - 8-inch at 4' from bottom
- Total Storage Volume: 25,280 CF
- Infiltration rate – 1.32in/hr ~ 0.193 CFS

3.7 DRAINAGE SUMMARY

Drainage from the proposed development is directed the southwest corner of the site to ultimately discharge to Schaefer Avenue. Two onsite underground detention systems will be used in the southern portion of the site to address detention requirements. A total of 30,590 CF of storage is provided for the underground detention system in Drainage Area A, and 25,280 CF of storage is provided for the underground detention system in Drainage Area B. With these systems, the proposed peak 2-, 10-, 25-, and 100-year storm event flowrates will not exceed 90% of the existing peak flowrate for the respective storm event. The flood hydrograph routing calculations are included in Appendix E of this report.

The table below summarizes the results of the existing and proposed condition flowrates.

Hydrology Summary

Storm Event (Year)	Flowrate (cfs)						Drawdown Time (hrs)	
	Existing	Unmitigated	Proposed (Mitigated)			Percent Difference from Existing Condition	Area A	Area B
			Area A	Area B	Total			
2	2.1	14.9	1.46	-	1.46	69%	29	48
10	4.6	24.2	3.01	1.02	4.03	89%	30	65
25	8.9	29.7	5.66	1.23	6.89	78%	30	68
100	11.5	38.9	7.95	1.48	9.43	82%	31	66

4.0 RESULTS AND CONCLUSIONS

As demonstrated, the proposed detention system meets flow restriction required of this project and adequately mitigates any downstream flooding potential.

The calculations and exhibits for all analysis may be found in their respective appendices as listed in the Table of Contents.

APPENDIX A

Reference Material



POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

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

PF tabular

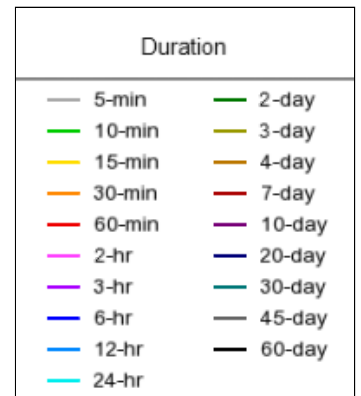
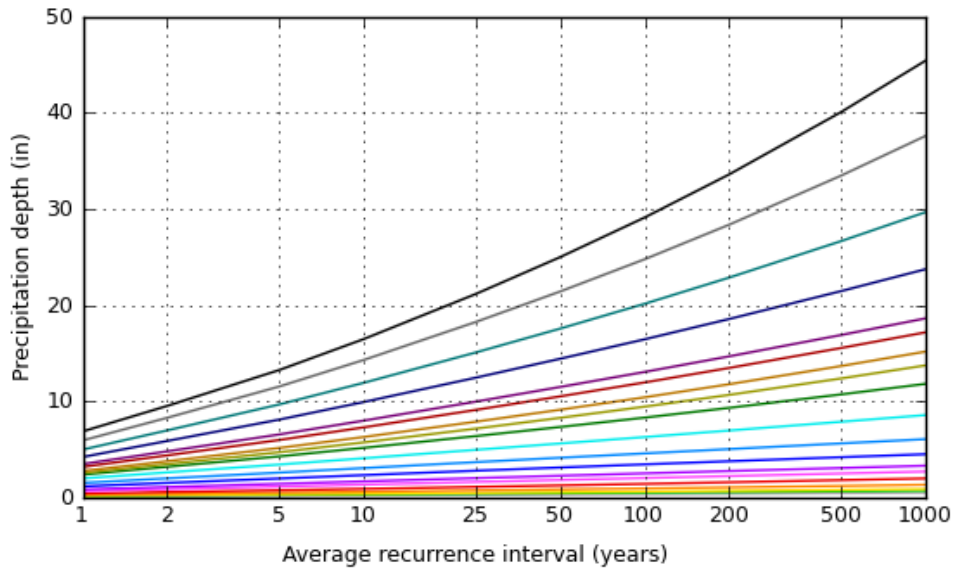
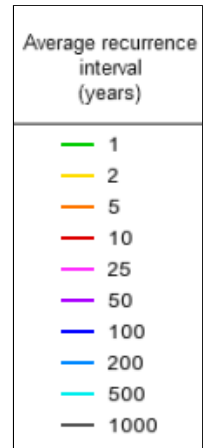
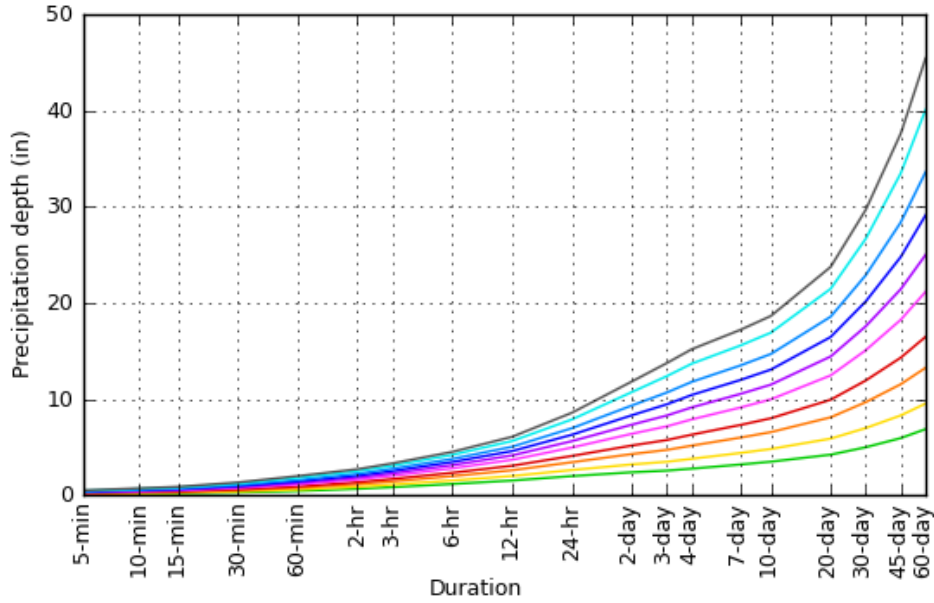
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.116 (0.097-0.140)	0.152 (0.126-0.184)	0.198 (0.165-0.241)	0.237 (0.195-0.290)	0.289 (0.230-0.366)	0.329 (0.256-0.426)	0.370 (0.281-0.492)	0.412 (0.304-0.564)	0.470 (0.332-0.672)	0.515 (0.351-0.764)
10-min	0.166 (0.138-0.201)	0.217 (0.181-0.263)	0.284 (0.236-0.345)	0.339 (0.280-0.415)	0.414 (0.329-0.525)	0.471 (0.367-0.611)	0.530 (0.402-0.705)	0.590 (0.435-0.809)	0.673 (0.475-0.963)	0.738 (0.502-1.09)
15-min	0.201 (0.167-0.243)	0.263 (0.219-0.318)	0.344 (0.286-0.418)	0.410 (0.338-0.502)	0.500 (0.398-0.635)	0.570 (0.444-0.739)	0.641 (0.486-0.852)	0.714 (0.526-0.978)	0.814 (0.575-1.17)	0.892 (0.608-1.32)
30-min	0.302 (0.252-0.365)	0.395 (0.330-0.479)	0.518 (0.431-0.629)	0.617 (0.509-0.756)	0.753 (0.600-0.955)	0.858 (0.668-1.11)	0.964 (0.732-1.28)	1.08 (0.792-1.47)	1.23 (0.865-1.75)	1.34 (0.915-1.99)
60-min	0.450 (0.376-0.545)	0.590 (0.492-0.715)	0.772 (0.642-0.938)	0.921 (0.759-1.13)	1.12 (0.894-1.43)	1.28 (0.996-1.66)	1.44 (1.09-1.91)	1.60 (1.18-2.20)	1.83 (1.29-2.62)	2.00 (1.37-2.97)
2-hr	0.674 (0.563-0.816)	0.884 (0.737-1.07)	1.15 (0.955-1.40)	1.36 (1.12-1.67)	1.64 (1.30-2.07)	1.84 (1.43-2.39)	2.05 (1.55-2.72)	2.25 (1.66-3.08)	2.52 (1.78-3.60)	2.72 (1.85-4.04)
3-hr	0.849 (0.709-1.03)	1.11 (0.927-1.35)	1.44 (1.20-1.75)	1.70 (1.40-2.08)	2.04 (1.62-2.58)	2.29 (1.78-2.96)	2.53 (1.92-3.37)	2.77 (2.04-3.80)	3.09 (2.18-4.42)	3.33 (2.26-4.93)
6-hr	1.18 (0.985-1.43)	1.54 (1.29-1.87)	1.99 (1.66-2.42)	2.35 (1.94-2.88)	2.80 (2.23-3.56)	3.14 (2.44-4.07)	3.47 (2.63-4.61)	3.79 (2.79-5.19)	4.21 (2.97-6.02)	4.52 (3.08-6.70)
12-hr	1.54 (1.29-1.86)	2.01 (1.68-2.44)	2.61 (2.17-3.17)	3.08 (2.54-3.77)	3.70 (2.94-4.69)	4.15 (3.23-5.39)	4.60 (3.49-6.12)	5.05 (3.73-6.92)	5.64 (3.98-8.07)	6.09 (4.14-9.03)
24-hr	2.00 (1.77-2.31)	2.63 (2.33-3.04)	3.44 (3.04-3.99)	4.10 (3.58-4.78)	4.97 (4.21-5.99)	5.64 (4.67-6.93)	6.30 (5.10-7.94)	6.98 (5.50-9.04)	7.89 (5.97-10.6)	8.59 (6.28-12.0)
2-day	2.40 (2.12-2.77)	3.21 (2.84-3.71)	4.29 (3.78-4.97)	5.18 (4.53-6.04)	6.40 (5.42-7.71)	7.35 (6.09-9.04)	8.32 (6.74-10.5)	9.34 (7.36-12.1)	10.7 (8.12-14.5)	11.8 (8.65-16.5)
3-day	2.57 (2.27-2.96)	3.49 (3.08-4.03)	4.72 (4.16-5.47)	5.75 (5.03-6.71)	7.17 (6.07-8.65)	8.30 (6.88-10.2)	9.46 (7.66-11.9)	10.7 (8.42-13.8)	12.4 (9.38-16.7)	13.8 (10.1-19.2)
4-day	2.77 (2.45-3.20)	3.80 (3.35-4.38)	5.17 (4.56-5.98)	6.31 (5.52-7.36)	7.89 (6.68-9.51)	9.14 (7.58-11.2)	10.4 (8.45-13.1)	11.8 (9.29-15.3)	13.7 (10.4-18.5)	15.2 (11.1-21.2)
7-day	3.20 (2.83-3.69)	4.40 (3.89-5.08)	5.99 (5.28-6.94)	7.31 (6.39-8.53)	9.12 (7.72-11.0)	10.5 (8.73-13.0)	12.0 (9.70-15.1)	13.5 (10.6-17.5)	15.6 (11.8-21.0)	17.2 (12.6-24.0)
10-day	3.50 (3.10-4.03)	4.82 (4.26-5.57)	6.57 (5.79-7.61)	8.01 (7.00-9.34)	9.98 (8.45-12.0)	11.5 (9.54-14.2)	13.1 (10.6-16.5)	14.7 (11.6-19.0)	16.9 (12.8-22.8)	18.6 (13.6-26.0)
20-day	4.23 (3.74-4.88)	5.90 (5.21-6.81)	8.11 (7.15-9.39)	9.94 (8.70-11.6)	12.5 (10.6-15.0)	14.4 (12.0-17.8)	16.5 (13.3-20.7)	18.6 (14.6-24.1)	21.5 (16.2-29.0)	23.8 (17.4-33.1)
30-day	5.00 (4.42-5.76)	6.99 (6.18-8.07)	9.69 (8.54-11.2)	11.9 (10.4-13.9)	15.1 (12.8-18.2)	17.6 (14.6-21.6)	20.2 (16.3-25.4)	22.9 (18.0-29.6)	26.7 (20.2-36.0)	29.7 (21.7-41.4)
45-day	5.95 (5.27-6.86)	8.31 (7.34-9.59)	11.6 (10.2-13.4)	14.3 (12.5-16.7)	18.3 (15.5-22.0)	21.4 (17.8-26.4)	24.8 (20.1-31.2)	28.4 (22.4-36.7)	33.5 (25.3-45.1)	37.6 (27.5-52.5)
60-day	6.89 (6.09-7.94)	9.54 (8.43-11.0)	13.3 (11.7-15.4)	16.5 (14.4-19.2)	21.2 (17.9-25.5)	25.0 (20.7-30.8)	29.1 (23.6-36.7)	33.6 (26.5-43.5)	40.1 (30.3-54.1)	45.4 (33.2-63.4)

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

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PF graphical

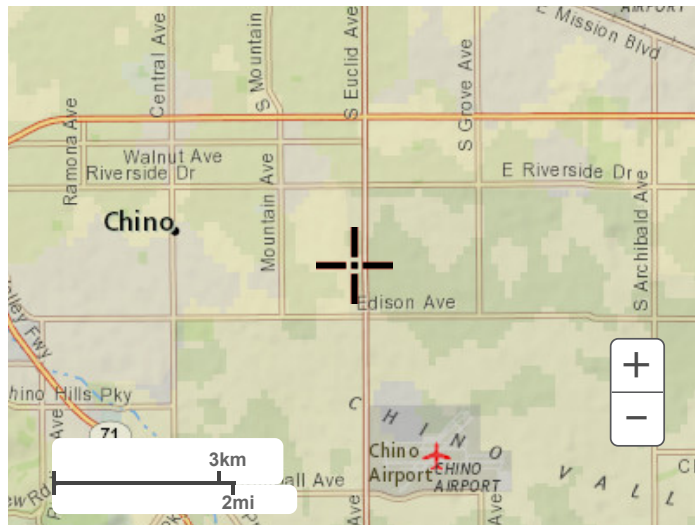
PDS-based depth-duration-frequency (DDF) curves
 Latitude: 34.0058°, Longitude: -117.6527°



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Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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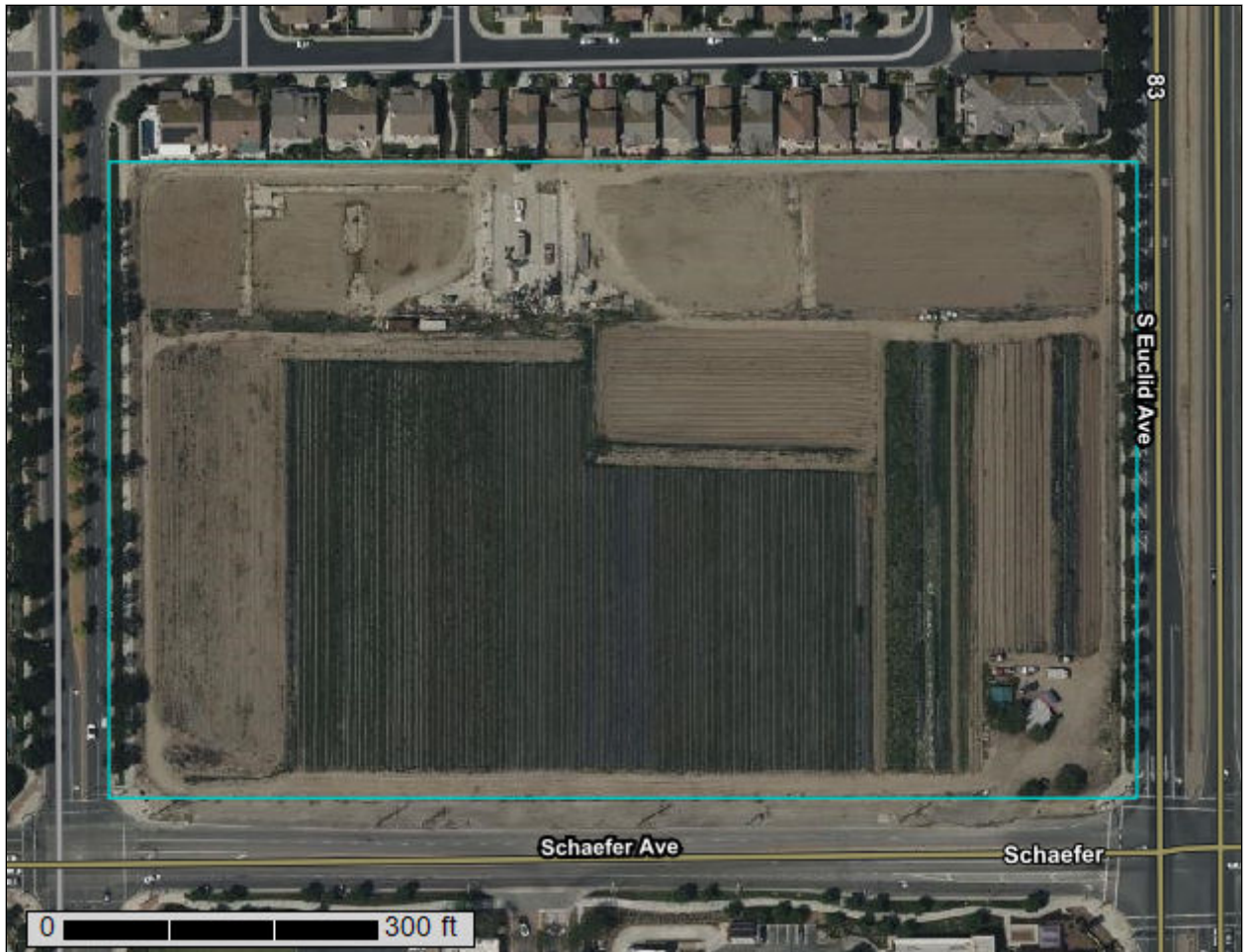
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NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for San Bernardino County Southwestern Part, California



Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report Soil Map (CHINO EUCLID)



Map Scale: 1:1,640 if printed on A landscape (11" x 8.5") sheet.


0 20 40 80 120 Meters

0 50 100 200 300 Feet


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


MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: San Bernardino County Southwestern Part, California
 Survey Area Data: Version 14, Sep 6, 2022

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

Date(s) aerial images were photographed: Mar 17, 2022—Jun 12, 2022

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

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (CHINO EUCLID)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Hr	Hilmar loamy fine sand	13.6	100.0%
Totals for Area of Interest		13.6	100.0%

Map Unit Descriptions (CHINO EUCLID)

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Custom Soil Resource Report

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

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

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

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

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

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

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

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

San Bernardino County Southwestern Part, California

Hr—Hilmar loamy fine sand

Map Unit Setting

National map unit symbol: hck6
Elevation: 540 to 890 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 63 to 65 degrees F
Frost-free period: 320 to 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Hilmar

Setting

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

Typical profile

A - 0 to 13 inches: loamy fine sand
C1 - 13 to 16 inches: loamy sand
C2 - 16 to 23 inches: loamy sand
2C - 23 to 60 inches: stratified loam to sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B
Ecological site: R019XG911CA - Loamy Fan
Hydric soil rating: No

Minor Components

Delhi

Percent of map unit: 10 percent

Landform: Alluvial fans

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Tujunga, loamy sand

Percent of map unit: 5 percent

Landform: Alluvial fans

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

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December 8, 2022

Orbis Real Estate Partners
280 Newport Center Drive, Suite 240
Newport Beach, California 92660



**SOUTHERN
CALIFORNIA
GEOTECHNICAL**
A California Corporation

Attention: Mr. Grant Ross

Project No.: **22G118-4**

Subject: **Results of Infiltration Testing**
Proposed Retail/Commercial Development
NWC Euclid Avenue and Schaefer Avenue
Chino, California

References: 1) Geotechnical Feasibility Study, Proposed Retail/Commercial Development, NWC Euclid Avenue and Schaefer Avenue, Chino, California, prepared for Orbis Real Estate Partners (OREP), by Southern California Geotechnical, Inc. (SCG), SCG Project No. 22G118-1, dated March 29, 2022.

2) Results of Preliminary Infiltration Testing, Proposed Retail/Commercial Development, NWC Euclid Avenue and Schaefer Avenue, Chino, California, prepared for OREP, by Southern California Geotechnical, Inc. (SCG), SCG Project No. 22G118-2, dated March 30, 2022.

3) Geotechnical Investigation, Proposed Retail/Commercial Development, NWC Euclid Avenue and Schaefer Avenue, Chino, California, prepared for OREP, by Southern California Geotechnical, Inc. (SCG), SCG Project No. 22G118-3.

Mr. Ross:

In accordance with your request, we have conducted additional infiltration testing at the subject site. We are pleased to present this report summarizing the results of the infiltration testing and our design recommendations.

Scope of Services

The scope of services performed for this project was in general accordance with our Proposal No. 22P112-2, dated October 18, 2022. The scope of services included visual site reconnaissance, subsurface exploration, field testing, and engineering analysis to determine the infiltration rates of the on-site soils for the stormwater disposal system. The infiltration testing was performed using a constant-head infiltration test.

Site Description

The site is located at the northwest corner of Schaefer Avenue and South Euclid Avenue (Highway 83) in Chino, California. The site is bounded to the north by a generally vacant lot that appears to have been used for farming, to the east by South Euclid Avenue, to the south

by Schaefer Avenue and to the west by Fern Avenue. The general location of the site is illustrated on the Site Location Map, enclosed as Plate 1 of this report.

The site consists of a rectangular-shaped parcel, 9.5± acres in size. At the time of the referenced feasibility study, the majority of the site was covered with row crops. However, at the time of our recent subsurface investigation for this report, row crops were only present in the southeastern portion of the site. With the exception of the area in the southeast portion of the site that is presently planted, the ground surface cover generally consists of exposed soil and is generally remains furrowed in the areas where crops were formerly planted. Two (2) fruit stand structures, 250 and 600± ft² in size are present at the southeast corner of the site.

Detailed topographic information was not available at the time of this report. Based on elevations obtained from Google Earth and visual observations, the overall site is generally flat with a slight slope to the southwest. The slope has an overall average gradient of about 1/2 percent and an elevation differential of approximately 4± feet.

Proposed Development

SCG was provided with site plan prepared by AO Architecture. Based on this plan, the site will be developed with the following:

Structure Type	Footprint (ft²)	Location
Multi-Family Residential with Parking Structure (4 Stories)	135,000	West
4-Level Self-Storage	150,000	Northeast Corner
Retail/Food Shops	15,000	East-Central
Food Shops	4,500	Southeast
Fast Food Restaurant	2,500	South-Central

We expect that the buildings will be surrounded by asphaltic concrete pavements in the parking and drive areas, and limited areas of concrete flatwork and landscape planters throughout.

Based on conversations with representatives of Huitt-Zollars, Inc., the project civil engineer, the site may utilize on-site stormwater disposal. The proposed infiltration system will consist of a dry-well extending to depths of 80 to 100 feet below existing site grades. We have been requested to perform infiltration testing in the proposed infiltration system location.

Previous Studies

Southern California Geotechnical, Inc. (SCG) previously performed a geotechnical feasibility study at the subject site (Reference 1). As a part of this study, nine (9) borings were advanced to depths of 20 to 25± feet below the previously existing site grades. Artificial fill soils were encountered at the ground surface at all of the boring locations, extending to depths of 2 to 6½± feet below ground surface. The fill soils generally consisted of loose to medium dense silty fine sands. Occasional layers of loose fine sands and fine sandy silts were also encountered. Native alluvium was encountered beneath the fill at all of the boring locations, extending to at least the maximum depth explored of 25± feet below ground surface. The alluvial soils generally consisted of loose to dense silty fine sands, fine sandy silts, fine sands and clayey fine

sands, as well as stiff to very stiff clayey silts, silty clays and fine sandy clays. The alluvial soils generally possess trace to some iron oxide staining and calcareous nodules and veining. Free water was not encountered during drilling of any of the borings. Based on the lack of water within the borings and trenches the groundwater was considered to have existed at a depth in excess of 25± feet at the time of our subsurface exploration.

SCG previously performed preliminary infiltration testing at the subject site (Reference 2). As a part of this study, four (4) infiltration borings were advanced to a depth of 10± feet below the existing site grades. Artificial fill soils were encountered at the ground surface at all of the infiltration boring locations, extending to a depth of 3± feet below the existing site grades. The fill soils generally consist of loose to medium dense silty fine sands and stiff/loose intermixed clayey fine sands and fine sandy clays. The fill soils possess a disturbed mottled appearance, with some samples possessing trace plastic fragments, resulting in their classification as artificial fill. Native alluvial soils were encountered beneath the fill soils at all of the infiltration boring locations, extending to at least the maximum depth explored of 10± feet. The alluvium generally consists of loose to medium dense silty fine to medium sands, fine to medium sandy silts, clayey fine sands, stiff to very stiff silty clays and fine sandy clays. Infiltration rates reported were between 0.0 to 3.0 inches per hour.

SCG also performed a design-level geotechnical investigation at the subject site (Reference 3). As a part of this investigation, eight (8) borings were advanced to depths of 20 to 80± feet below ground surface. Artificial fill soils were encountered at the ground surface extending to depths of 2½ to 8½± feet below the existing site grades. The fill soils consist of loose to medium dense silty fine sands and medium stiff to stiff clayey silts and silty clays. Alluvial soils were encountered extending beneath the fill soils to at least the maximum depth explored of 80± feet at all of the boring locations. The alluvial soils consist of interbedded loose to medium dense silty fine sands, silty fine to medium sands, fine sandy silts, and fine to medium sands and medium stiff to stiff silty clays, clayey silts, and clayey fine to medium sands. Free water was not encountered during drilling of any of the borings. Based on the lack of water within the borings and trenches the groundwater was considered to have existed at a depth in excess of 80± feet at the time of our subsurface exploration.

Subsurface Exploration

The subsurface exploration performed for the infiltration testing consisted of one (1) deep infiltration test boring (Boring No. DW-1). The deep infiltration test boring was advanced to a depth of 80± feet below the existing site grades for the dry well infiltration systems. In addition to the infiltration boring, one (1) exploratory soil boring (Boring No. CB-1), drilled within 5± feet of the deep infiltration test boring, was advanced to a depth of 100± feet below the existing site grades. Samples were collected from 80 to 100± feet below ground surface. The purpose of the exploratory boring is to identify the type of soils beneath the bottom of the proposed dry well system and to confirm that groundwater is greater than 20 feet below the bottom of the proposed dry well system. The borings were advanced using a truck-mounted drilling rig, equipped with 8-inch-diameter hollow stem augers and were logged during drilling by a member of our staff. The approximate locations of the borings (identified as Boring No. DW-1/CB-1) are indicated on the Infiltration Test Location Plan, enclosed as Plate 2 of this report.

Upon the completion of the infiltration borings, each infiltration test boring was filled with 2± inches of clean ¾-inch gravel. A sufficient length of 3-inch-diameter perforated PVC casing was

then placed into each test hole so that the PVC casing extended from the bottom of the test hole to the ground surface. Clean ¾-inch gravel was installed in the annulus surrounding the PVC casing.

Geotechnical Conditions

Artificial fill was encountered at the ground surface of Boring Nos. DW-1/CB-1, extending to a depth of 7± feet below ground surface. The fill soil generally consisted of fine sandy clays with little silt. The fill soils possess a disturbed and mottle appearance, resulting in its classification as artificial fill. Native alluvium was encountered beneath the fill, extending to at least the maximum depth explored of 100± feet below ground surface. The native alluvium generally consists of loose to very dense silty fine sands, fine sandy silts, silty fine to medium sands, fine to medium sandy silts, and occasional layers of fine to medium sand and clayey fine to medium sand. The Boring Logs, which illustrate the conditions encountered at the borings, are included with this report.

Free water was not encountered during drilling of any of our infiltration borings. Based on the lack of water within the borings, the groundwater was considered to have existed at a depth in excess of 100± feet at the time of our subsurface exploration.

As part of our research, we reviewed available groundwater data in order to determine the historic high groundwater level for the site. The primary reference used to determine the groundwater depths in this area is the California Department of Water Resources website, <http://www.water.ca.gov/waterdatalibrary/>. The nearest monitoring well is located approximately 0.6 mile to the east from the site. Water level readings within this monitoring well indicates high groundwater levels of 138± feet (October 2021) below the ground surface.

Infiltration Testing

As previously mentioned, the infiltration testing was performed in accordance with a modified constant-head infiltration test as requested by the project civil engineer, the designer of the proposed dry well system.

Pre-soaking

The pre-soaking process consisted of filling the test boring with water to approximately 10 feet below the ground surface. The pre-soaking was completed after all of the water had percolated through the test hole, at least 15 hours since initiating the pre-soak.

Dry Wells

Following the pre-soaking process, the constant-head infiltration test method was utilized to test the rates of deeper soils. This method consisted of filling the borings to a maximum water level of 10± feet below the ground surface, based on the soil conditions encountered. Once the hole was filled, the inflow of water was controlled via a ball valve in order to maintain the water level constant below ground surface. It was necessary to constantly monitor this depth due to varying inflows from the water source and the change in infiltration rate with time. Readings were taken every ten minutes using a water level meter. The ball valve was used to make adjustments by increasing or decreasing the inflow of water when slight changes in depth

occurred. The water level readings are presented on the spreadsheets enclosed with this report. The infiltration rates for each of the timed intervals are also tabulated on the spreadsheets.

The infiltration rate from the deep infiltration test is tabulated in gallons per square foot per day.

<u>Infiltration Test No.</u>	<u>Depth (feet)</u>	<u>Infiltration Rate (inches per hour)</u>	<u>Percolation Rate (gal/ft²/day)</u>
DW-1	80	0.59	8.8

Laboratory Testing

Moisture Content

The moisture contents for the recovered soil samples within the borings were determined in accordance with ASTM D-2216 and are expressed as a percentage of the dry weight. These test results are presented on the Boring Logs.

Grain Size Analysis

The grain size distribution of selected soils collected from the bottom of each infiltration test boring have been determined using a range of wire mesh screens. These tests were performed in general accordance with ASTM D-422 and/or ASTM D-1140. The weight of the portion of the sample retained on each screen is recorded and the percentage finer or coarser of the total weight is calculated. The results of these tests are presented on Plates C-1 through C-15 of this report.

Design Recommendations

One (1) deep infiltration test was performed at the subject site using a constant-head test method. As noted above, the infiltration rate was 8.8 gallons per square foot per day. The primary factors affecting the infiltration rate is the varying relative densities and the silt/clay content of the encountered soils, which vary at different depths within the boring.

Based on the results of the deep infiltration tests, we recommend a design infiltration rate of 0.6 inches per hour or 8.8 gallons per square foot per day be used for the proposed dry wells extending to a depth of 80± feet below existing grades at these locations.

The design of the proposed storm water infiltration system should be performed by the project civil engineer, in accordance with the City of Chino and/or County of San Bernardino guidelines. However, it is recommended that the system be constructed so as to facilitate removal of silt and clay, or other deleterious materials from any water that may enter the system. The presence of such materials would decrease the effective infiltration rate. **It is recommended that the project civil engineer apply an appropriate factor of safety. The infiltration rates recommended above are based on the assumption that only clean water will be introduced to the subsurface profile. Any fines, debris, or organic materials could significantly impact the infiltration rates.** It should be noted that the recommended

infiltration rates are based on infiltration testing at one (1) discrete locations and the overall infiltration rates of the storm water infiltration systems could vary considerably.

Construction Considerations

The infiltration rates presented in this report are specific to the tested locations and tested depths. Infiltration rates can be significantly reduced if the soils are exposed to excessive disturbance or compaction during construction. Therefore, the subgrade soils within proposed infiltration system areas should not be overexcavated, undercut or compacted in any significant manner. **It is recommended that a note to this effect be added to the project plans and/or specifications.**

We recommend that a representative from the geotechnical engineer be on-site during the construction of the proposed infiltration systems to identify the composition of the soil at the base of each chamber system. It should be confirmed that the soils at the base of the proposed infiltration systems correspond with those presented in this report. If the soil conditions at the base of the system differ from those at the test locations, the performance of the system may be inconsistent with the recommended infiltration rates provided herein.

Infiltration versus Permeability

Infiltration rates are based on unsaturated flow. As water is introduced into soils by infiltration, the soils become saturated and the wetting front advances from the unsaturated zone to the saturated zone. Once the soils become saturated, infiltration rates become zero, and water can only move through soils by hydraulic conductivity at a rate determined by pressure head and soil permeability. The infiltration rates presented herein were determined in accordance with the ASTM Test Method D-3385-03 standard and are considered valid for the time and place of the actual test. Changes in soil moisture content will affect these infiltration rates. Infiltration rates should be expected to decrease until the soils become saturated. Soil permeability values will then govern groundwater movement. Permeability values may be on the order of 10 to 20 times less than infiltration rates. The system designer should incorporate adequate factors of safety and allow for overflow design into appropriate traditional storm drain systems, which would transport storm water off-site.

Location of Infiltration Systems

The use of on-site storm water infiltration systems carries a risk of creating adverse geotechnical conditions. Increasing the moisture content of the soil can cause the soil to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. Overlying structures and pavements in the infiltration areas could potentially be damaged due to saturation of subgrade soils. **The proposed infiltration systems for this site should be located at least 25 feet away from any structures, including retaining walls.** Even with this provision of locating the infiltration system at least 25 feet from the building, it is possible that infiltrating water into the subsurface soils could have an adverse effect on the proposed or existing structures. It should also be noted that utility trenches which happen to collect storm water can also serve as conduits to transmit storm water toward the structure, depending on the slope of the utility trench. Therefore, consideration should also be given to the proposed locations of underground utilities which may pass near the proposed infiltration systems.

General Comments

This report has been prepared as an instrument of service for use by the client in order to aid in the evaluation of this property and to assist the architects and engineers in the design and preparation of the project plans and specifications. This report may be provided to the contractor(s) and other design consultants to disclose information relative to the project. However, this report is not intended to be utilized as a specification in and of itself, without appropriate interpretation by the project architect, structural engineer, and/or civil engineer. The design of the infiltration system is the responsibility of the civil engineer. The role of the geotechnical engineer is limited to determination of infiltration rate only. By using the design infiltration rates contained herein, the civil engineer agrees to indemnify, defend, and hold harmless the geotechnical engineer for all aspects of the design and performance of the infiltration system. The reproduction and distribution of this report must be authorized by the client and Southern California Geotechnical, Inc. Furthermore, any reliance on this report by an unauthorized third party is at such party's sole risk, and we accept no responsibility for damage or loss which may occur. The analysis of this site was based on a subsurface profile interpolated from limited discrete soil samples. While the materials encountered in the project area are considered to be representative of the total area, some variations should be expected between trench locations and testing depths. If the conditions encountered during construction vary significantly from those detailed herein, we should be contacted immediately to determine if the conditions alter the recommendations contained herein.

This report has been based on assumed or provided characteristics of the proposed development. It is recommended that the owner, client, architect, structural engineer, and civil engineer carefully review these assumptions to ensure that they are consistent with the characteristics of the proposed development. If discrepancies exist, they should be brought to our attention to verify that they do not affect the conclusions and recommendations contained herein. We also recommend that the project plans and specifications be submitted to our office for review to verify that our recommendations have been correctly interpreted. The analysis, conclusions, and recommendations contained within this report have been promulgated in accordance with generally accepted professional geotechnical engineering practice. No other warranty is implied or expressed.

Closure

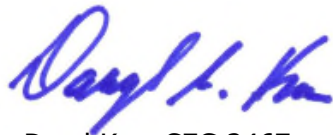
We sincerely appreciate the opportunity to be of service on this project. We look forward to providing additional consulting services during the course of the project. If we may be of further assistance in any manner, please contact our office.

Respectfully Submitted,

SOUTHERN CALIFORNIA GEOTECHNICAL, INC.



Jamie Hayward
Staff Geologist



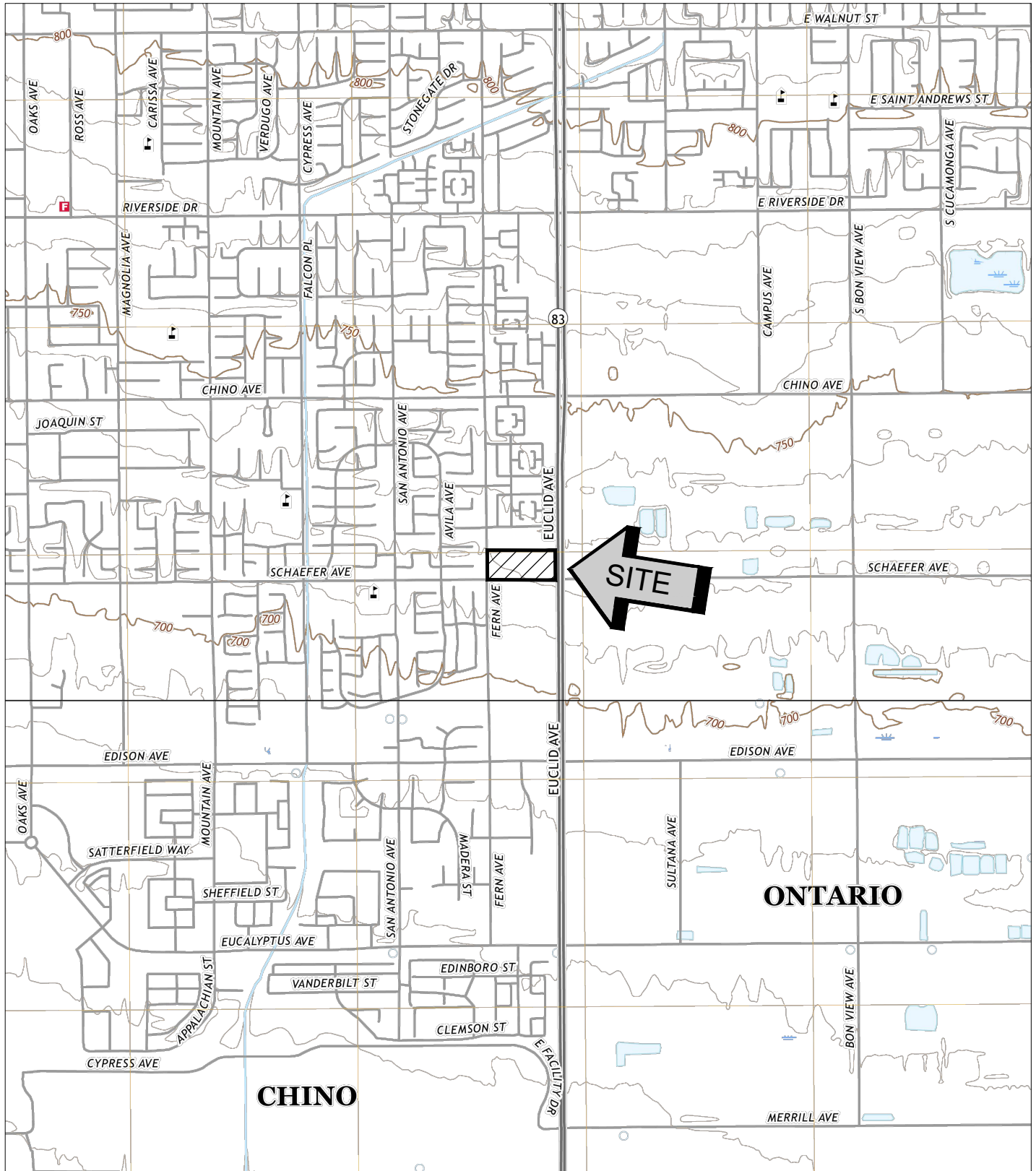
Daryl Kas, CEG 2467
Senior Geologist



Robert G. Trazo, GE 2655
Principal Engineer

Distribution: (1) Addressee

Enclosures: Plate 1 - Site Location Map
Plate 2 - Infiltration Test Location Plan
Boring Log Legend and Logs (5 pages)
Infiltration Test Results Spreadsheets (1 page)
Grain Size Distribution Graphs (15 pages)



SOURCE: USGS TOPOGRAPHIC MAPS OF THE ONTARIO AND PRADO DAM QUADRANGLES, ORANGE COUNTY, CALIFORNIA, 2021 & 2022.



SITE LOCATION MAP
PROPOSED RETAIL/COMMERCIAL DEVELOPMENT
CHINO, CALIFORNIA

SCALE: 1" = 2000'

DRAWN: JAH

CHKD: RGT

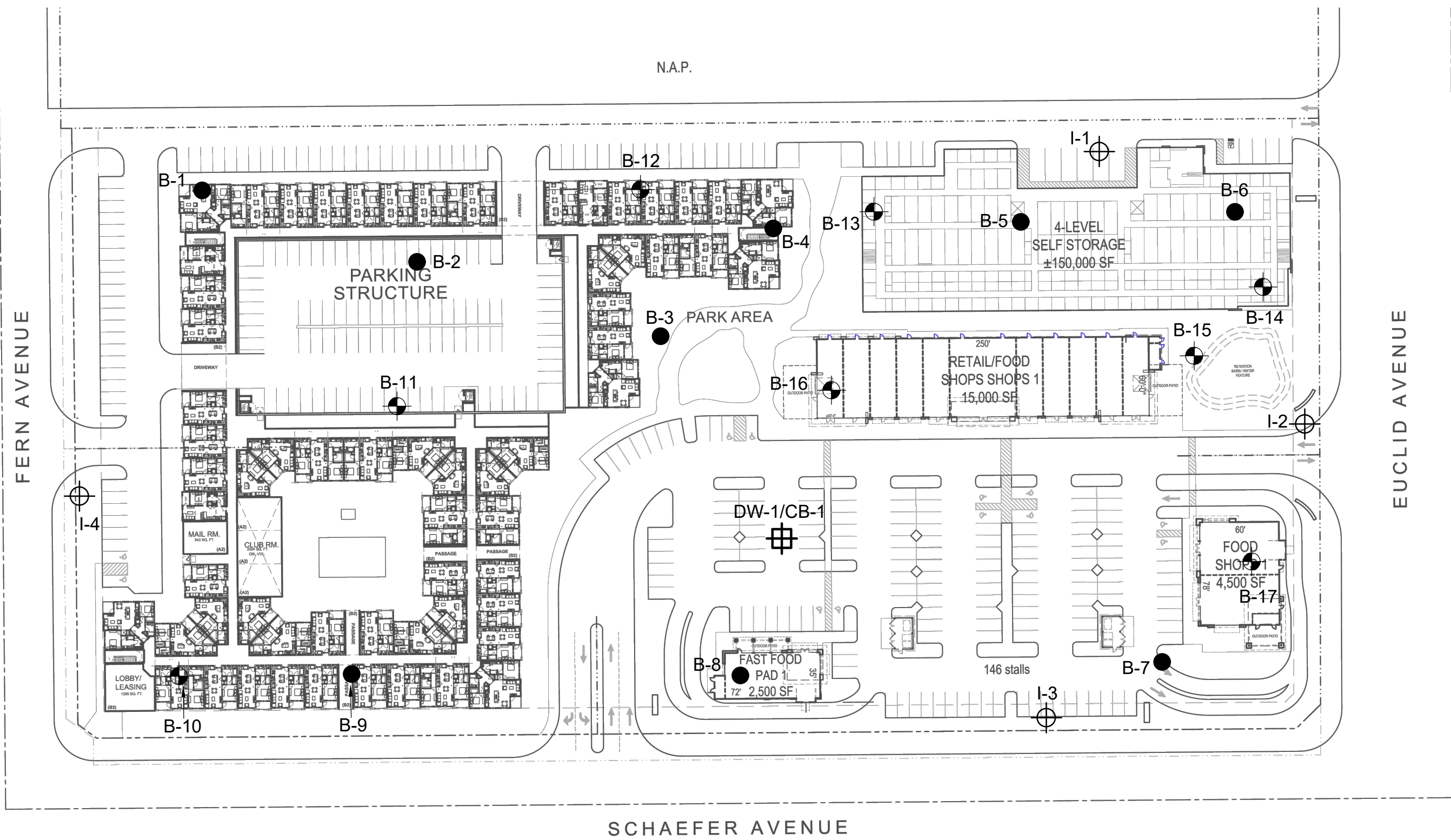
SCG PROJECT

22G118-4



PLATE 1





SOUTHERN CALIFORNIA GEOTECHNICAL



GEOTECHNICAL LEGEND

-  APPROXIMATE DRY WELL/CONFIRMATION BORING LOCATION
-  PREVIOUS INFILTRATION BORING LOCATION (SCG PROJECT NO. 22G118-2)


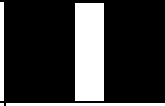

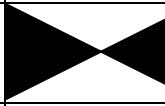

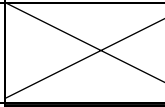


-  APPROXIMATE BORING LOCATION (SCG PROJECT NO. 22G118-3)
-  PREVIOUS BORING LOCATION (SCG PROJECT NO. 22G118-1)



NOTE: BASE MAP PREPARED BY AO ARCHITECTURE.

DRY WELL TEST LOCATION PLAN	
PROPOSED RETAIL/COMMERCIAL DEVELOPMENT CHINO, CALIFORNIA	
SCALE: 1" = 80' DRAWN: JAH CHKD: DRK SCG PROJECT 22G118-4 PLATE 2	 SOUTHERN CALIFORNIA GEOTECHNICAL

BORING LOG LEGEND

SAMPLE TYPE	GRAPHICAL SYMBOL	SAMPLE DESCRIPTION
AUGER		SAMPLE COLLECTED FROM AUGER CUTTINGS, NO FIELD MEASUREMENT OF SOIL STRENGTH. (DISTURBED)
CORE		ROCK CORE SAMPLE: TYPICALLY TAKEN WITH A DIAMOND-TIPPED CORE BARREL. TYPICALLY USED ONLY IN HIGHLY CONSOLIDATED BEDROCK.
GRAB		SOIL SAMPLE TAKEN WITH NO SPECIALIZED EQUIPMENT, SUCH AS FROM A STOCKPILE OR THE GROUND SURFACE. (DISTURBED)
CS		CALIFORNIA SAMPLER: 2-1/2 INCH I.D. SPLIT BARREL SAMPLER, LINED WITH 1-INCH HIGH BRASS RINGS. DRIVEN WITH SPT HAMMER. (RELATIVELY UNDISTURBED)
NSR		NO RECOVERY: THE SAMPLING ATTEMPT DID NOT RESULT IN RECOVERY OF ANY SIGNIFICANT SOIL OR ROCK MATERIAL.
SPT		STANDARD PENETRATION TEST: SAMPLER IS A 1.4 INCH INSIDE DIAMETER SPLIT BARREL, DRIVEN 18 INCHES WITH THE SPT HAMMER. (DISTURBED)
SH		SHELBY TUBE: TAKEN WITH A THIN WALL SAMPLE TUBE, PUSHED INTO THE SOIL AND THEN EXTRACTED. (UNDISTURBED)
VANE		VANE SHEAR TEST: SOIL STRENGTH OBTAINED USING A 4 BLADED SHEAR DEVICE. TYPICALLY USED IN SOFT CLAYS-NO SAMPLE RECOVERED.

COLUMN DESCRIPTIONS

- DEPTH:** Distance in feet below the ground surface.
- SAMPLE:** Sample Type as depicted above.
- BLOW COUNT:** Number of blows required to advance the sampler 12 inches using a 140 lb hammer with a 30-inch drop. 50/3" indicates penetration refusal (>50 blows) at 3 inches. WH indicates that the weight of the hammer was sufficient to push the sampler 6 inches or more.
- POCKET PEN.:** Approximate shear strength of a cohesive soil sample as measured by pocket penetrometer.
- GRAPHIC LOG:** Graphic Soil Symbol as depicted on the following page.
- DRY DENSITY:** Dry density of an undisturbed or relatively undisturbed sample in lbs/ft³.
- MOISTURE CONTENT:** Moisture content of a soil sample, expressed as a percentage of the dry weight.
- LIQUID LIMIT:** The moisture content above which a soil behaves as a liquid.
- PLASTIC LIMIT:** The moisture content above which a soil behaves as a plastic.
- PASSING #200 SIEVE:** The percentage of the sample finer than the #200 standard sieve.
- UNCONFINED SHEAR:** The shear strength of a cohesive soil sample, as measured in the unconfined state.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
<p>COARSE GRAINED SOILS</p> <p>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE</p>	<p>GRAVEL AND GRAVELLY SOILS</p>	<p>CLEAN GRAVELS</p> <p>(LITTLE OR NO FINES)</p>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		<p>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE</p>	<p>GRAVELS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
			<p>GRAVELS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		<p>MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE</p>	<p>CLEAN SANDS</p> <p>(LITTLE OR NO FINES)</p>		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	<p>MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE</p>		<p>SANDS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		<p>SANDS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		SM	SILTY SANDS, SAND - SILT MIXTURES	
	<p>SANDS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		SC	CLAYEY SANDS, SAND - CLAY MIXTURES		
	<p>FINE GRAINED SOILS</p> <p>MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE</p>	<p>SILTS AND CLAYS</p> <p>LIQUID LIMIT LESS THAN 50</p>		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
<p>SILTS AND CLAYS</p> <p>LIQUID LIMIT GREATER THAN 50</p>			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS		
			CH	INORGANIC CLAYS OF HIGH PLASTICITY		
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS		
<p>HIGHLY ORGANIC SOILS</p>				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS



JOB NO.: 22G118-4	DRILLING DATE: 10/24/22	WATER DEPTH: Dry
PROJECT: Proposed Retail Commercial Dev.	DRILLING METHOD: Hollow Stem Auger	CAVE DEPTH: 51 feet
LOCATION: Chino, California	LOGGED BY: Joey Hernandez	READING TAKEN: At Completion

FIELD RESULTS				GRAPHIC LOG	DESCRIPTION	LABORATORY RESULTS						COMMENTS
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)			DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	
SURFACE ELEVATION: --- MSL												
				FILL	Light Gray Brown fine Sandy Clay, little Silt, trace medium Sand, little Calcareous nodules, very stiff-moist							El = 11 @ 0 to 5 feet
5		18				18			75			
10		18		ALLUVIUM	Light Brown Silty fine Sand, trace medium Sand, medium dense-damp				25			
15		10			Light Gray Brown fine Sandy Silt, little Clay, trace medium Sand, loose to medium dense-moist				54			
20		20			Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, medium dense-moist				36			
25		39			Brown fine to medium Sandy Silt, trace coarse Sand, dense-moist				7			
30		41			Brown fine to medium Sand, little Silt, little fine Gravel, dense-damp				7			
		22	1.0		Gray Brown fine Sandy Silt, trace Clay, trace medium Sand, medium dense-moist				69			

TBL 22G118-4.GPJ, SOCALGEO.GDT, 12/22/22



JOB NO.: 22G118-4	DRILLING DATE: 10/24/22	WATER DEPTH: Dry
PROJECT: Proposed Retail Commercial Dev.	DRILLING METHOD: Hollow Stem Auger	CAVE DEPTH: 51 feet
LOCATION: Chino, California	LOGGED BY: Joey Hernandez	READING TAKEN: At Completion

FIELD RESULTS				GRAPHIC LOG	DESCRIPTION (Continued)	LABORATORY RESULTS						COMMENTS
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)			DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	
40		23	3.0	Gray Brown fine Sandy Silt, trace Clay, trace medium Sand, medium dense-moist		27			26			
45		28		Gray Brown Silty fine to medium Sand, trace coarse Sand, medium dense-very moist								
50		21	4.5	Brown fine Sandy Silt, medium dense-very moist		30			60			
55		24		Brown Silty fine to medium Sand, trace Clay, medium dense-moist		10			38			
60		18	3.0	Brown fine to medium Sandy Silt, medium dense-very moist		31			56			
65		21	4.5	Brown Clayey fine to medium Sand, trace Silt, medium dense-damp		5			33			
		55		Brown fine Sandy Silt, little Clay, trace medium Sand, medium dense-damp to moist		9			61			
				@ 68½ feet, no Clay		10			70			

TBL 22G118-4.GPJ_SOCALGEO.GDT 12/22/22



JOB NO.: 22G118-4	DRILLING DATE: 10/24/22	WATER DEPTH: Dry
PROJECT: Proposed Retail Commercial Dev.	DRILLING METHOD: Hollow Stem Auger	CAVE DEPTH: 51 feet
LOCATION: Chino, California	LOGGED BY: Joey Hernandez	READING TAKEN: At Completion

FIELD RESULTS				GRAPHIC LOG	DESCRIPTION (Continued)	LABORATORY RESULTS						COMMENTS
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)			DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	
75		39			Brown fine Sandy Silt, little Clay, trace medium Sand, medium dense-damp to moist							
					Brown fine Sandy Silt to Silty fine Sand, trace medium Sand, dense-very moist		46			50		
80		28			Brown fine Sandy Silt, trace Clay, trace medium Sand, medium dense-very moist		22			75		
85		52			Brown Silty fine Sand, very dense-damp to moist		10					@ 80 to 100 feet, samples were collected from the immediately adjacent confirmation boring (CB-1)
90		35			@ 88½ feet, dense		9					
95		80/11*			Brown fine Sandy Silt, trace medium Sand, very dense-moist		14					
100		38			Brown Silty fine to medium Sand, trace coarse Sand, dense-moist		10					
Boring Terminated at 100'												

TBL 22G118-4.GPJ_SOCALGEO.GDT 12/22/22

PERCOLATION CALCULATIONS

Project Name	Prop. Retail-Commercial Development
Project Location	Chino, CA
Project Number	22G118-4
Engineer	RB

Borehole Diameter	8
Borehole Depth	80
Water Depth from Ground Surface	10

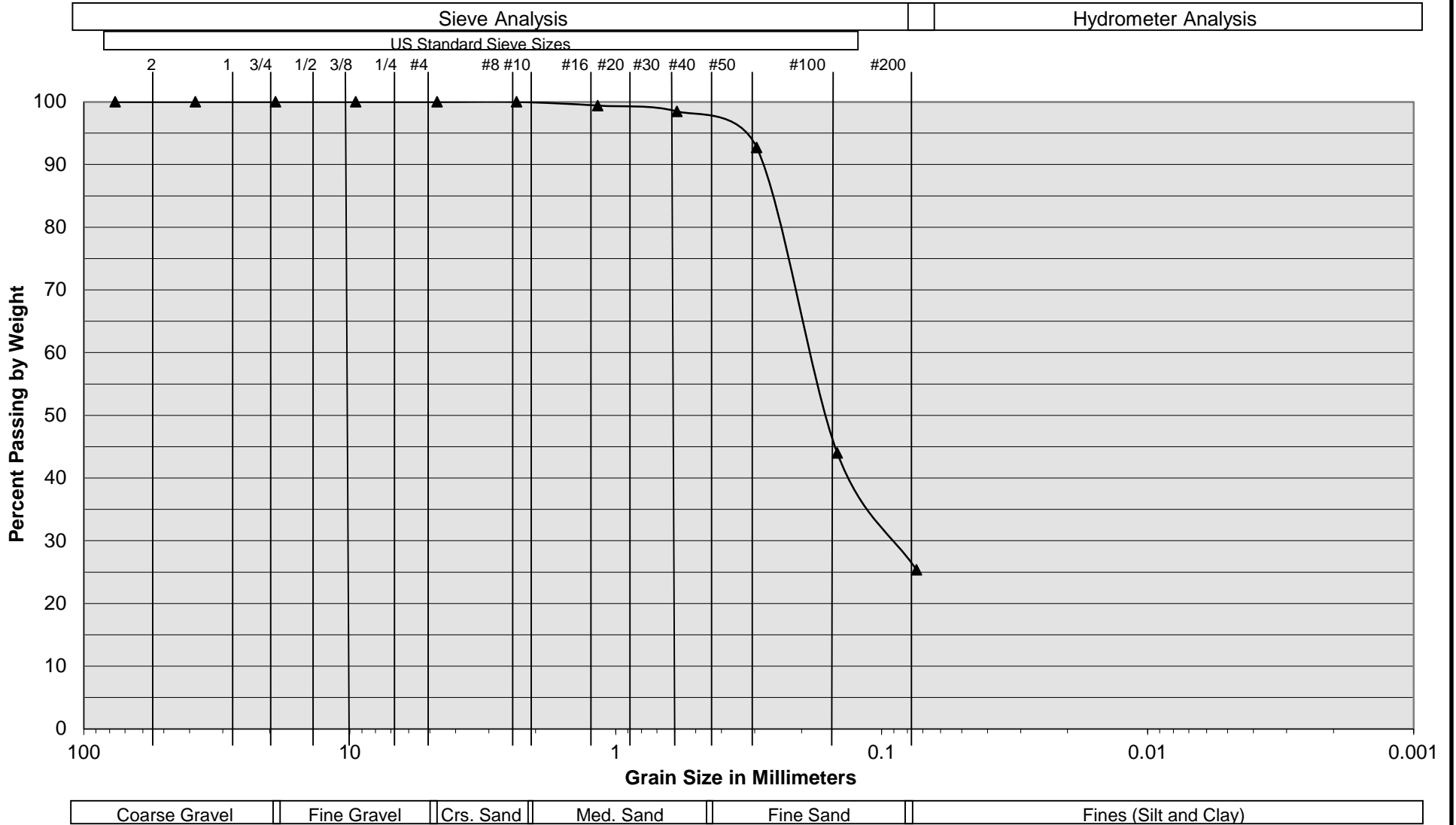
Percolation Boring No. DW-1

Interval Number		Time	Time Interval (hrs)	Average Wetted Depth for Interval (ft)	Inflow Meter Readings (gallons)	Volume of Outflow (gallons)	Percolation Rate Q (gallons/minute)	Percolation Rate Q (gal/ft ² /day)
1	Initial	10:40 AM	0.1667	70.00	3692.0	11.0	1.10	10.80
	Final	10:50 AM			3703.0			
2	Initial	10:50 AM	0.1667	70.00	3700.0	11.0	1.10	10.80
	Final	11:00 AM			3711.0			
3	Initial	11:00 AM	0.1667	70.00	3711.0	10.0	1.00	9.82
	Final	11:10 AM			3721.0			
4	Initial	11:10 AM	0.1667	70.00	3721.0	9.0	0.90	8.84
	Final	11:20 AM			3730.0			
5	Initial	11:20 AM	0.1667	70.00	3730.0	9.0	0.90	8.84
	Final	11:30 AM			3739.0			
6	Initial	11:30 AM	0.1667	70.00	3739.0	9.0	0.90	8.84
	Final	11:40 AM			3748.0			
7	Initial	11:40 AM	0.1667	70.00	3748.0	10.0	1.00	9.82
	Final	11:50 AM			3758.0			
8	Initial	11:50 AM	0.1667	70.00	3758.0	9.0	0.90	8.84
	Final	12:00 PM			3767.0			
9	Initial	12:00 PM	0.1667	70.00	3767.0	10.0	1.00	9.82
	Final	12:10 PM			3777.0			
10	Initial	12:10 PM	0.1667	70.00	3777.0	9.0	0.90	8.84
	Final	12:20 PM			3786.0			
11	Initial	12:20 PM	0.1667	70.00	3786.0	9.0	0.90	8.84
	Final	12:30 PM			3795.0			
12	Initial	12:30 PM	0.1667	70.00	3795.0	9.0	0.90	8.84
	Final	12:40 PM			3804.0			
13	Initial	12:40 PM	0.1667	70.00	3804.0	9.0	0.90	8.84
	Final	12:50 PM			3813.0			
14	Initial	12:50 PM	0.1667	70.00	3813.0	9.0	0.90	8.84
	Final	1:00 PM			3822.0			
15	Initial	1:00 PM	0.1667	70.00	3822.0	9.0	0.90	8.84
	Final	1:10 PM			3831.0			
16	Initial	1:10 PM	0.1667	70.00	3831.0	9.0	0.90	8.84
	Final	1:20 PM			3840.00			
17	Initial	1:20 PM	0.1667	70.00	3840.00	9.0	0.90	8.84
	Final	1:30 PM			3849.00			
18	Initial	1:30 PM	0.1667	70.00	3849.00	9.0	0.90	8.84
	Final	1:40 PM			3858.00			
19	Initial	1:40 PM	0.1667	70.00	3858.00	9.0	0.90	8.84
	Final	1:50 PM			3867.00			

Rate 54.0 gal/hr
 Rate 7.22 cubic ft/hr
 Surface Area 147.31 square ft
 Rate/Surface Area 0.05 ft/hr

Rate	0.59 in/hr
------	------------

Grain Size Distribution



Sample Description	DW-1 @ 8½ feet
Soil Classification	Silty fine Sand, trace medium Sand

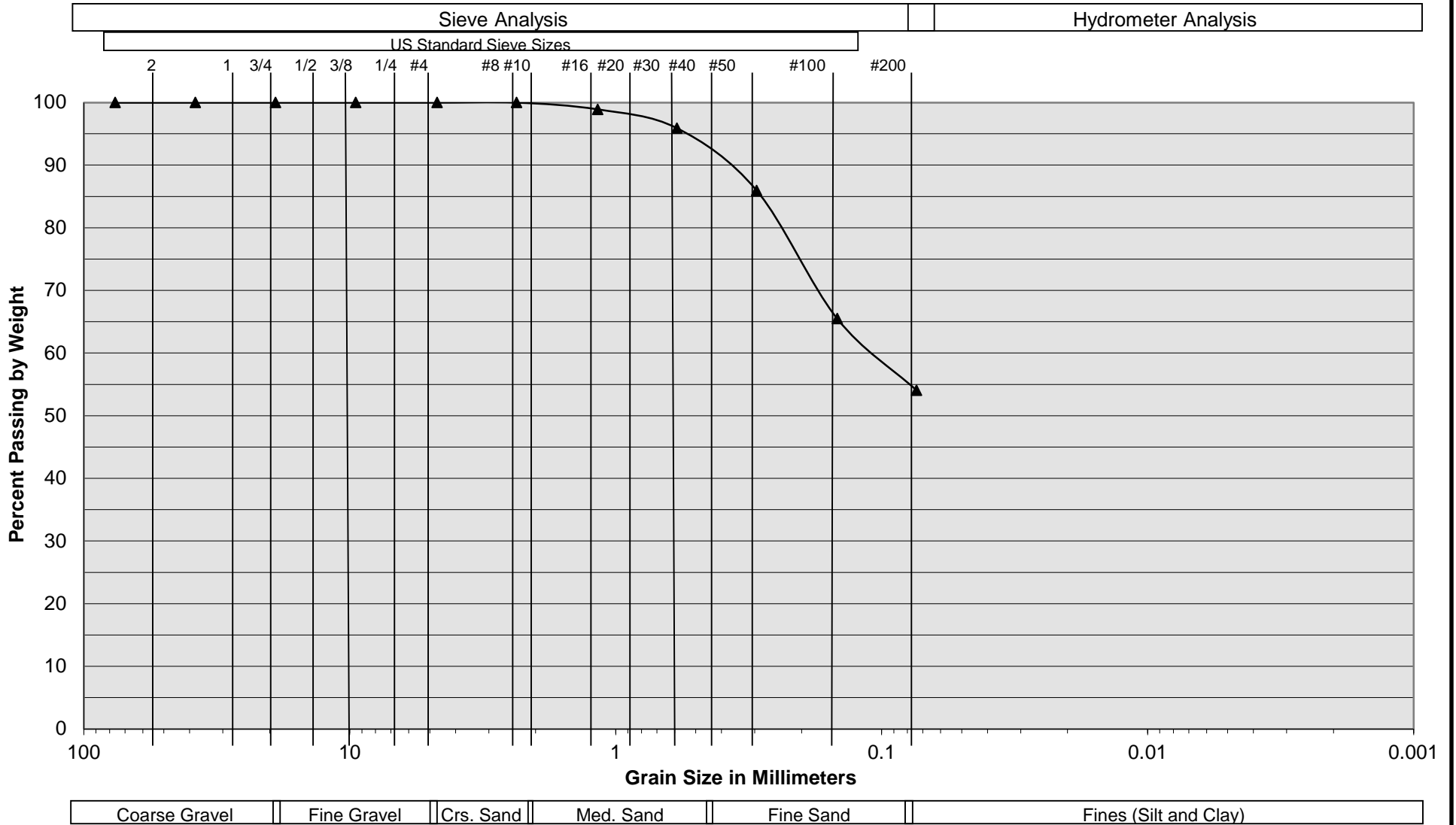
Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C- 2





SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



Sample Description	DW-1 @ 13½ feet
Soil Classification	Fine Sandy Silt, little Clay, trace medium Sand

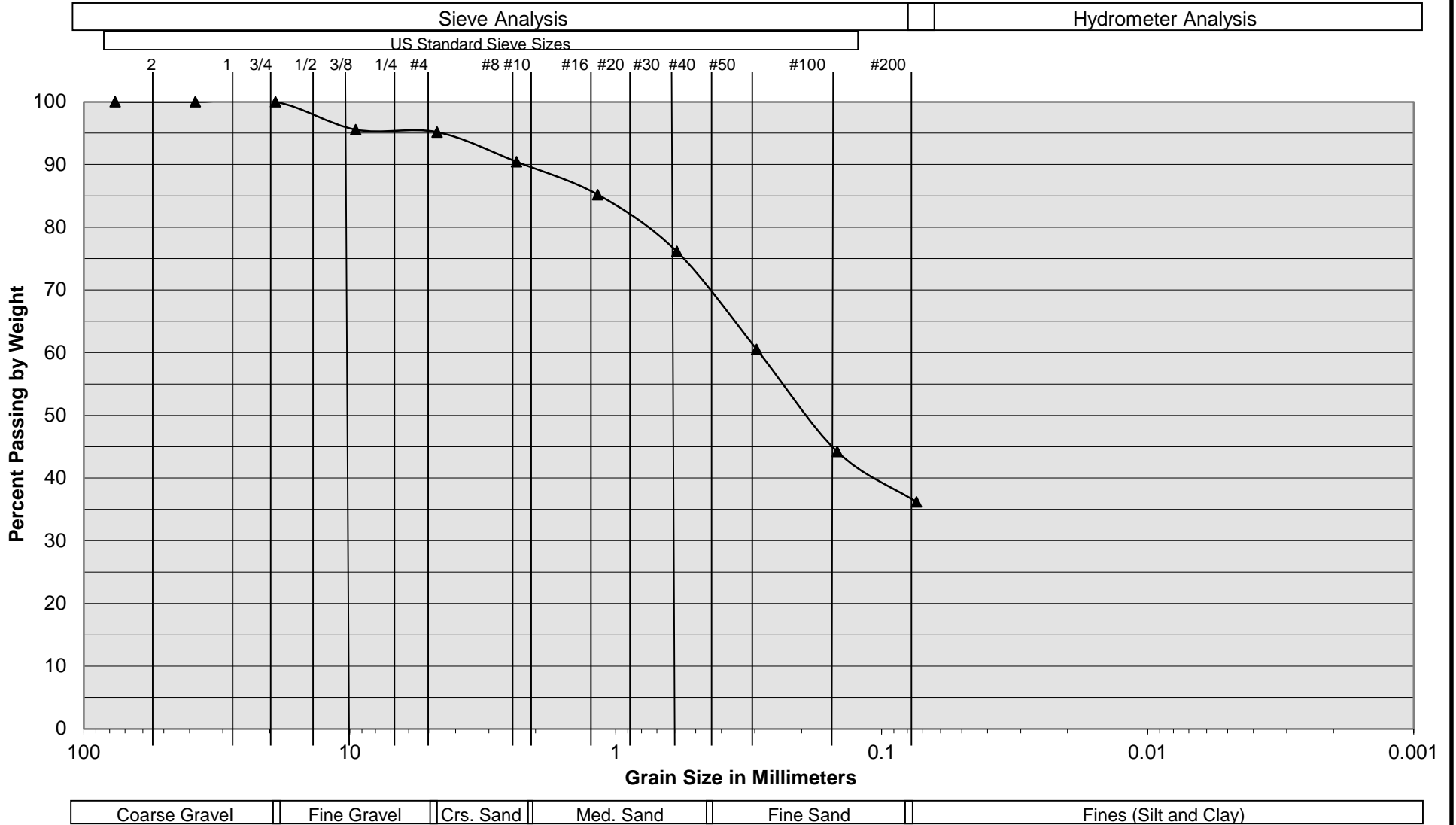
Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C- 3





SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



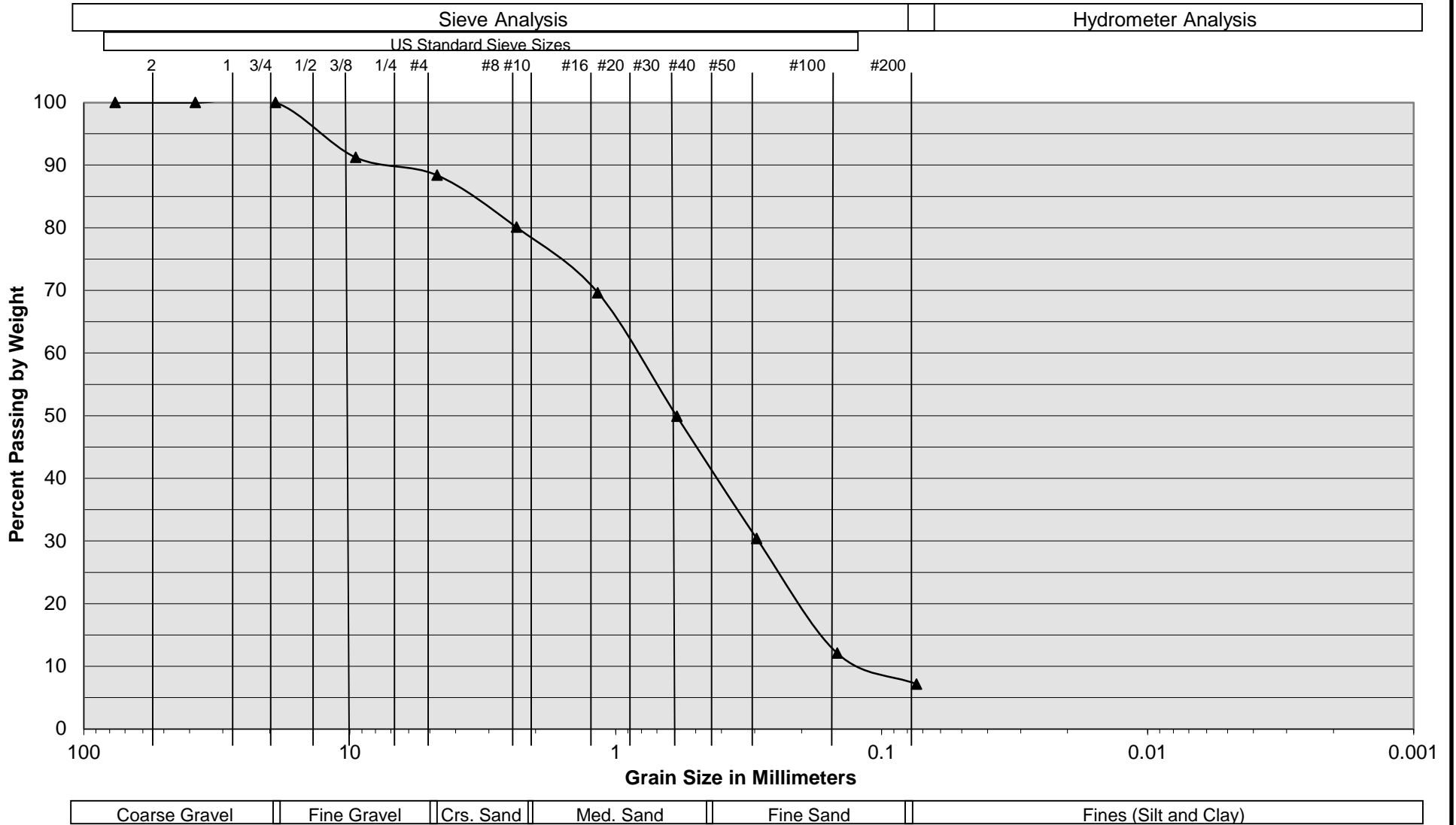
Sample Description	DW-1 @ 18½ feet
Soil Classification	Silty fine to medium Sand, trace coarse Sand, trace fine Gravel

Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C- 4



SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



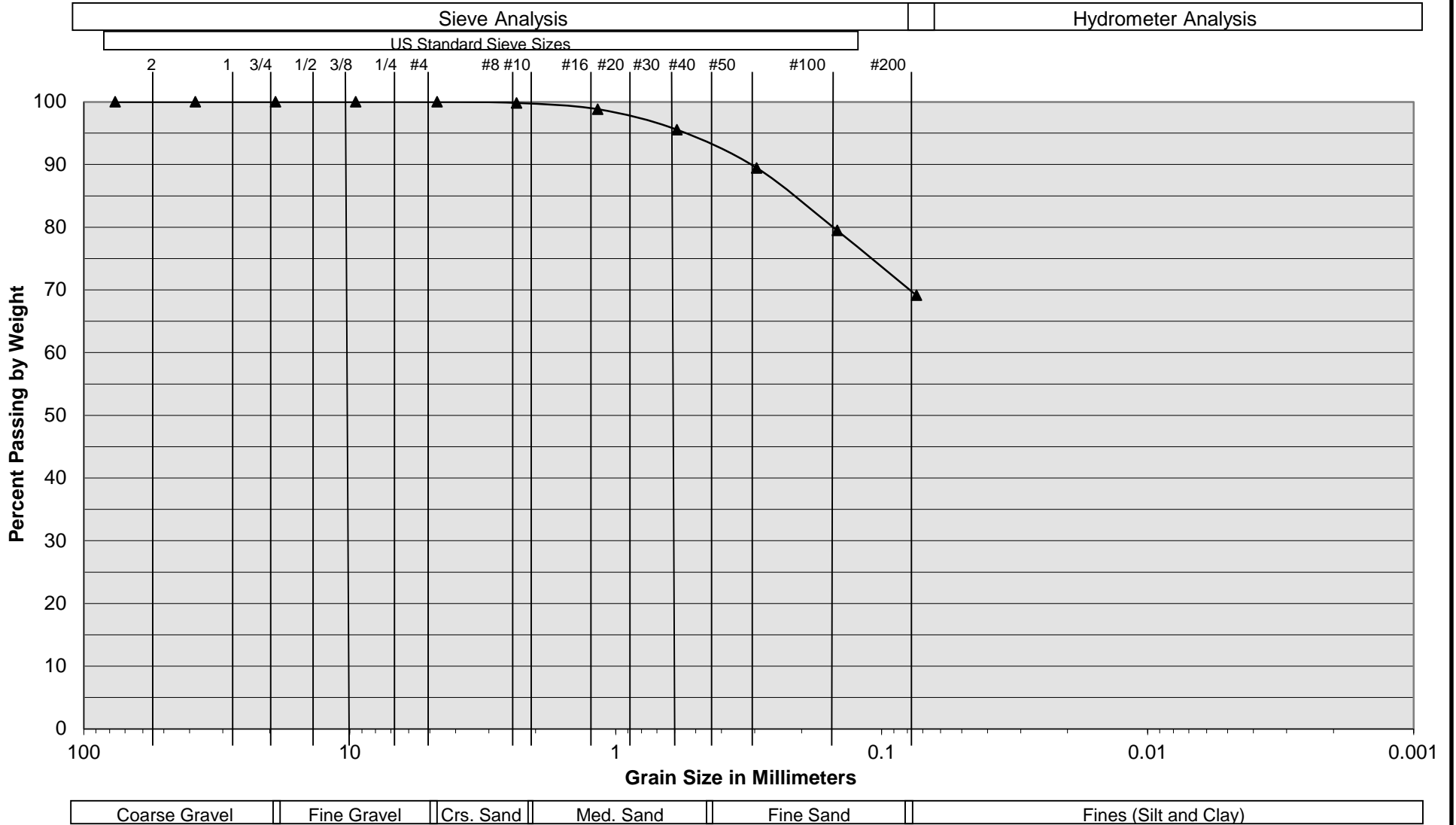
Sample Description	DW-1 @ 28½ feet
Soil Classification	Fine to medium Sand, little Silt, little fine Gravel

Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C- 5



SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



Sample Description	DW-1 @ 33½ feet
Soil Classification	Fine Sandy Silt, trace Clay, trace medium Sand

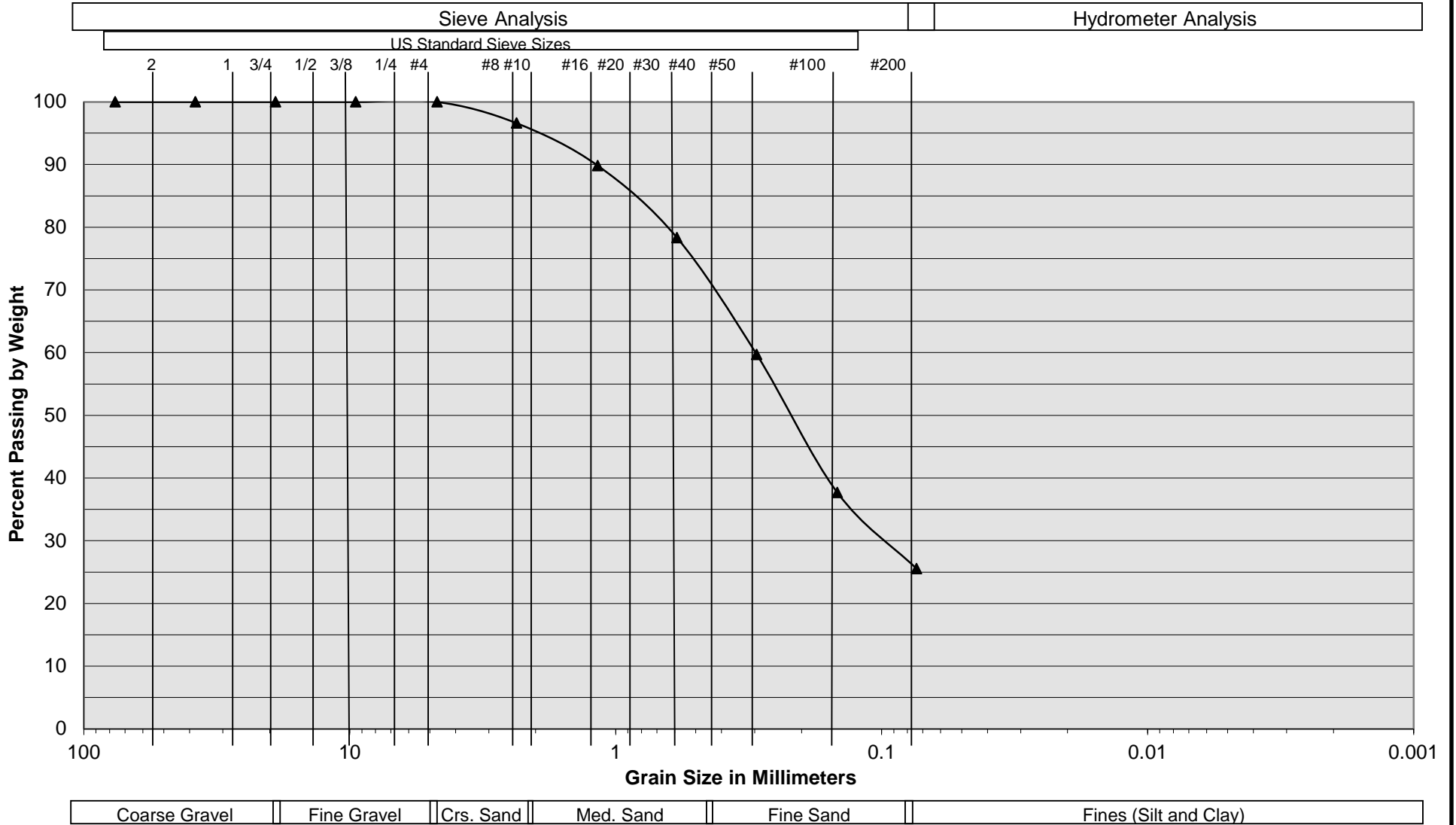
Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C- 6





SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



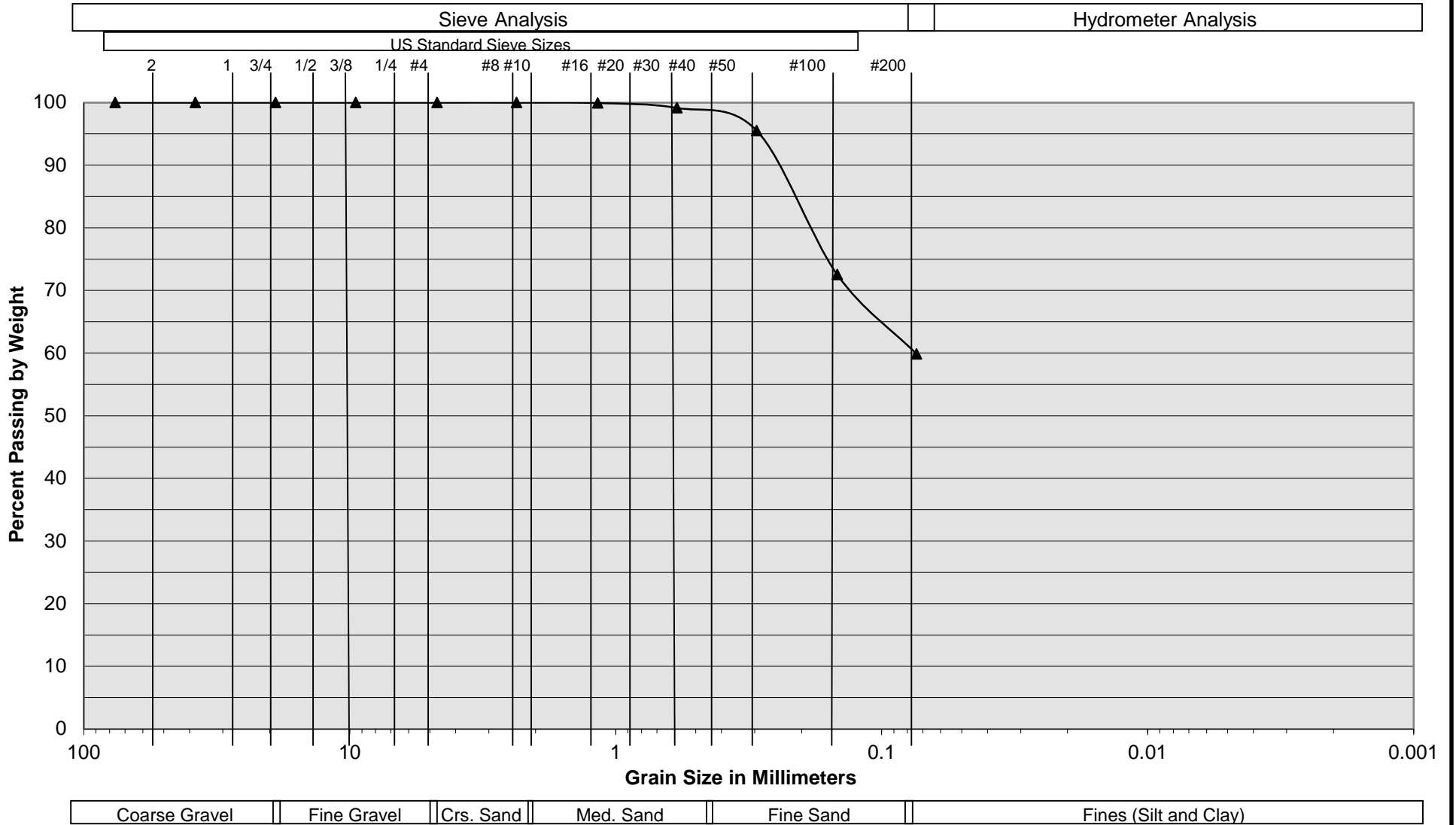
Sample Description	DW-1 @ 38½ feet
Soil Classification	Silty fine to medium Sand, trace coarse Sand

Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C-7



SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



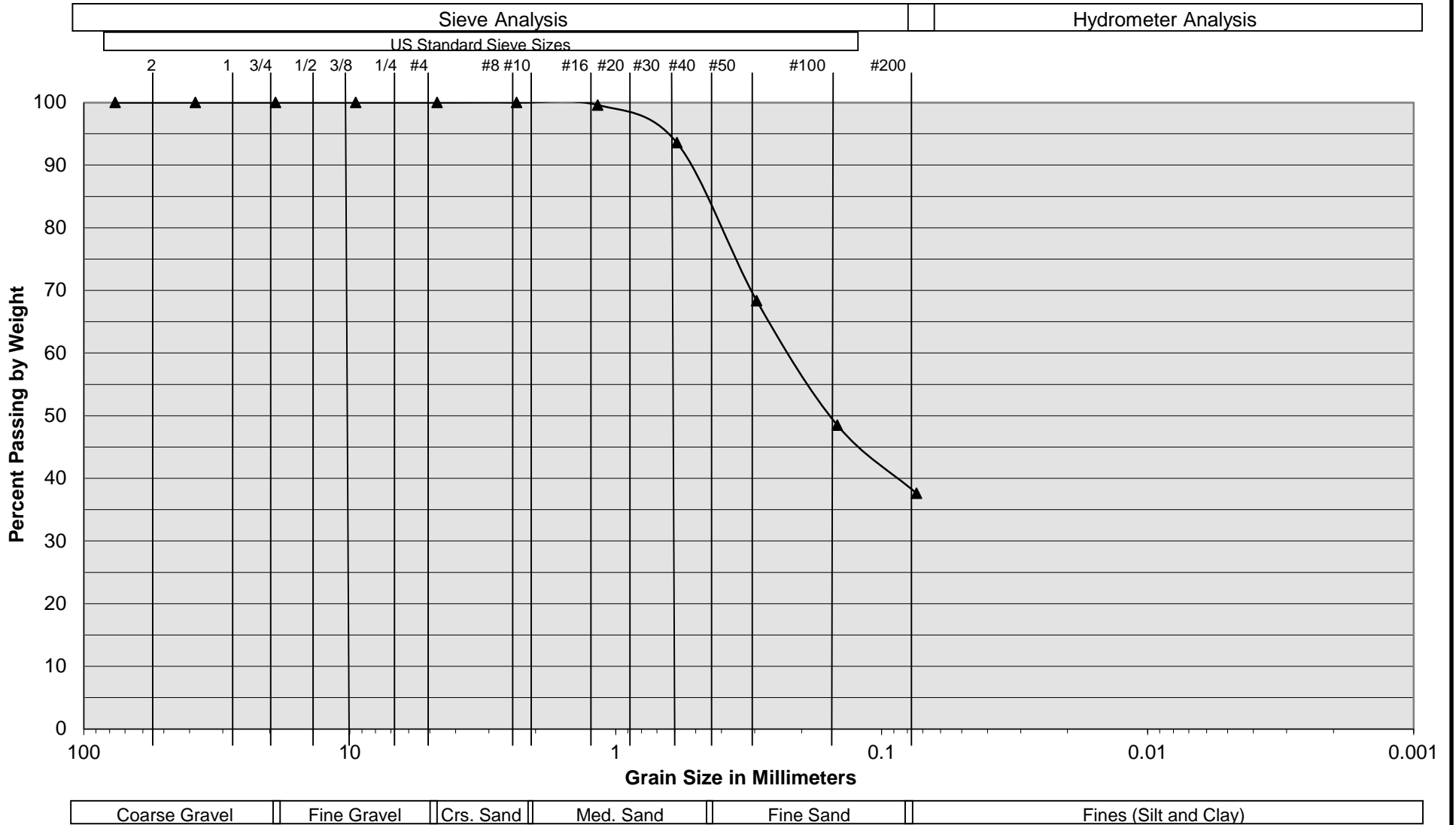
Sample Description	DW-1 @ 43½ feet
Soil Classification	Fine Sandy Silt

Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C- 8



SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



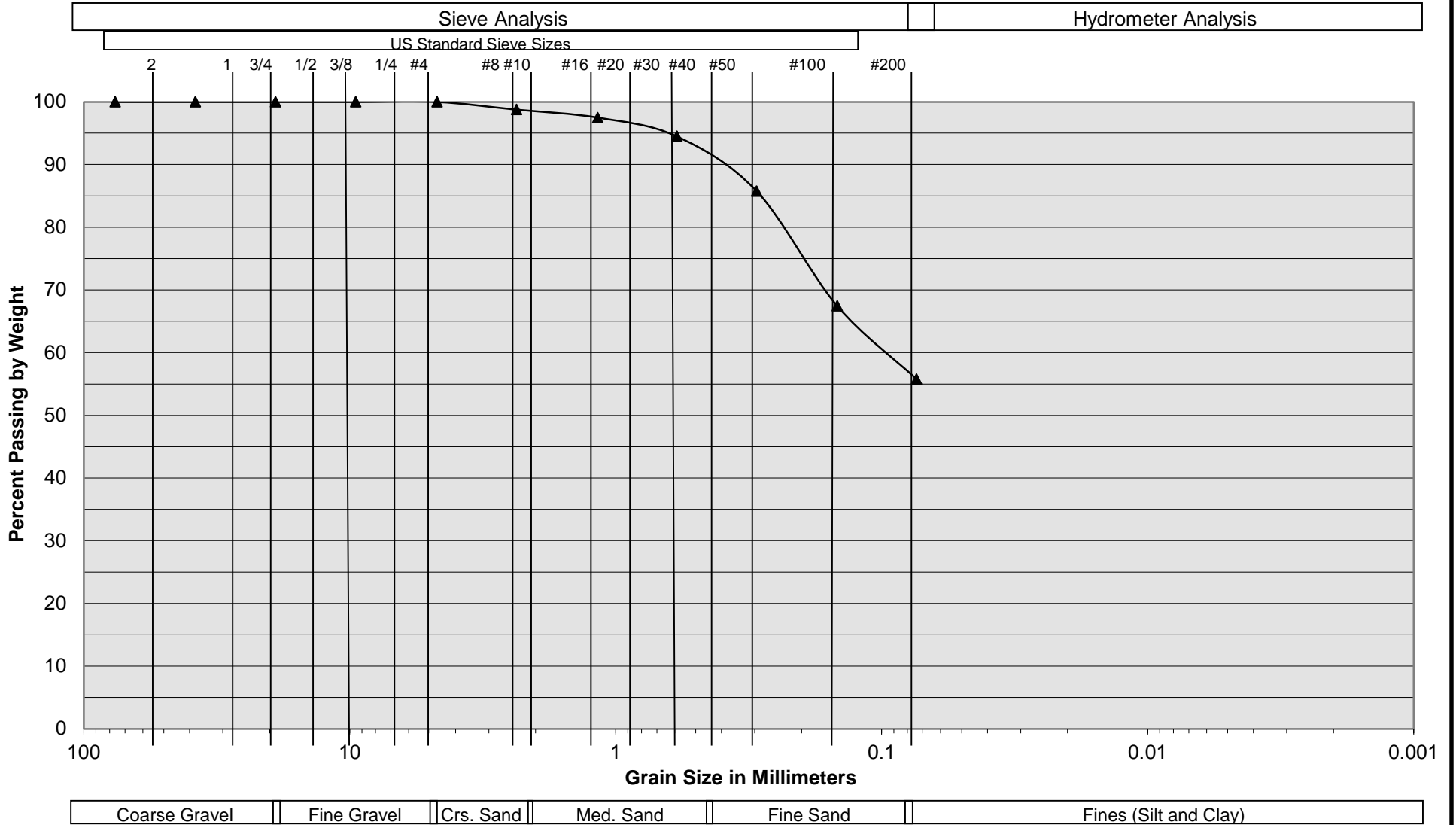
Sample Description	DW-1 @ 48½ feet
Soil Classification	Silty fine to medium Sand, trace Clay

Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C- 9



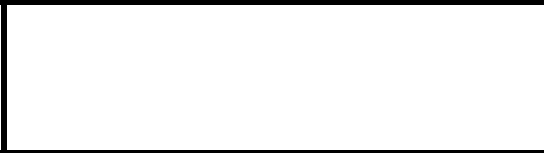
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



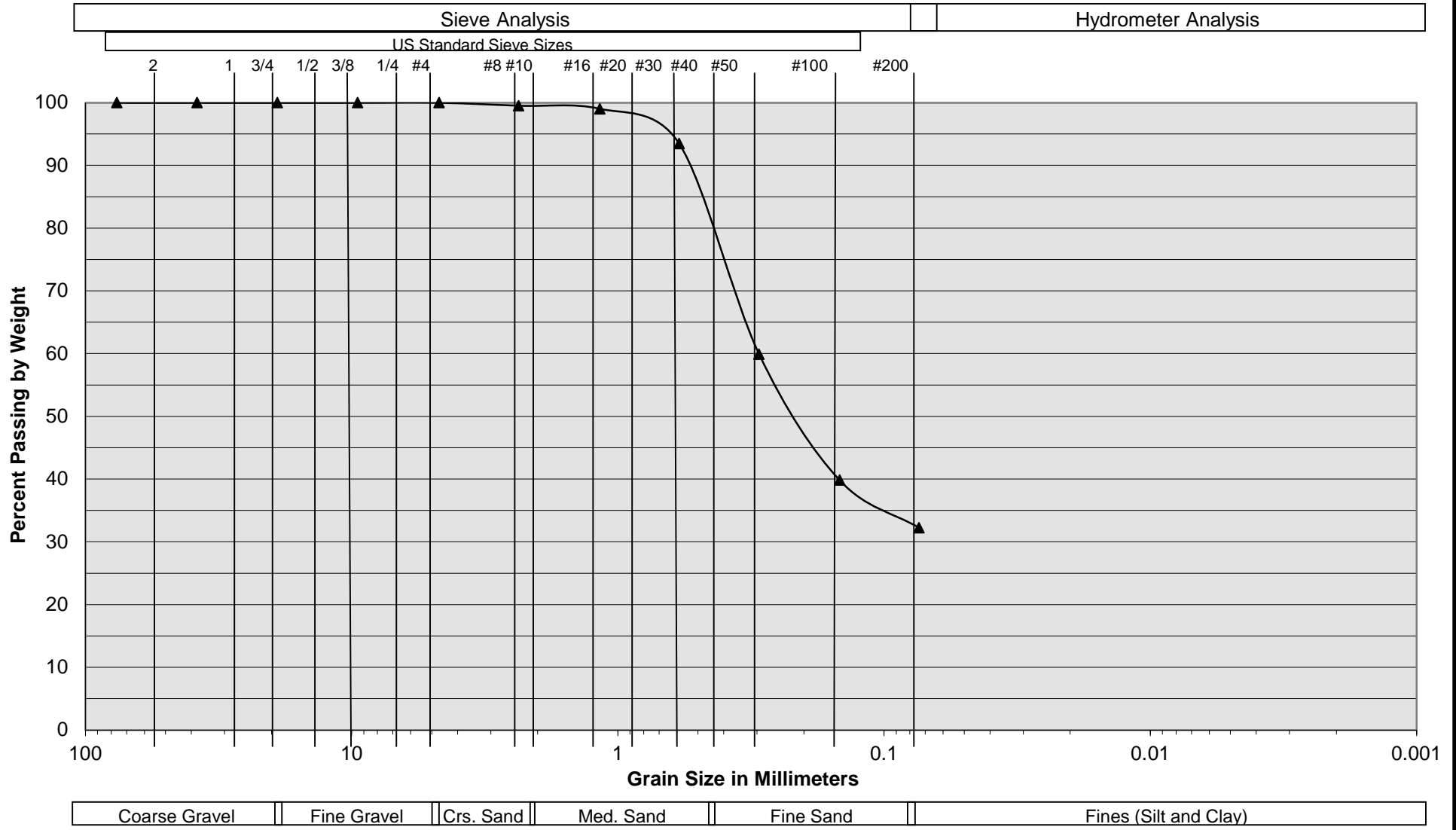
Sample Description	DW-1 @ 53½ feet
Soil Classification	Fine to medium Sandy Silt

Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C- 10



SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



Sample Description	DW-1 @ 58½ feet
Soil Classification	Clayey fine to medium Sand, trace Silt

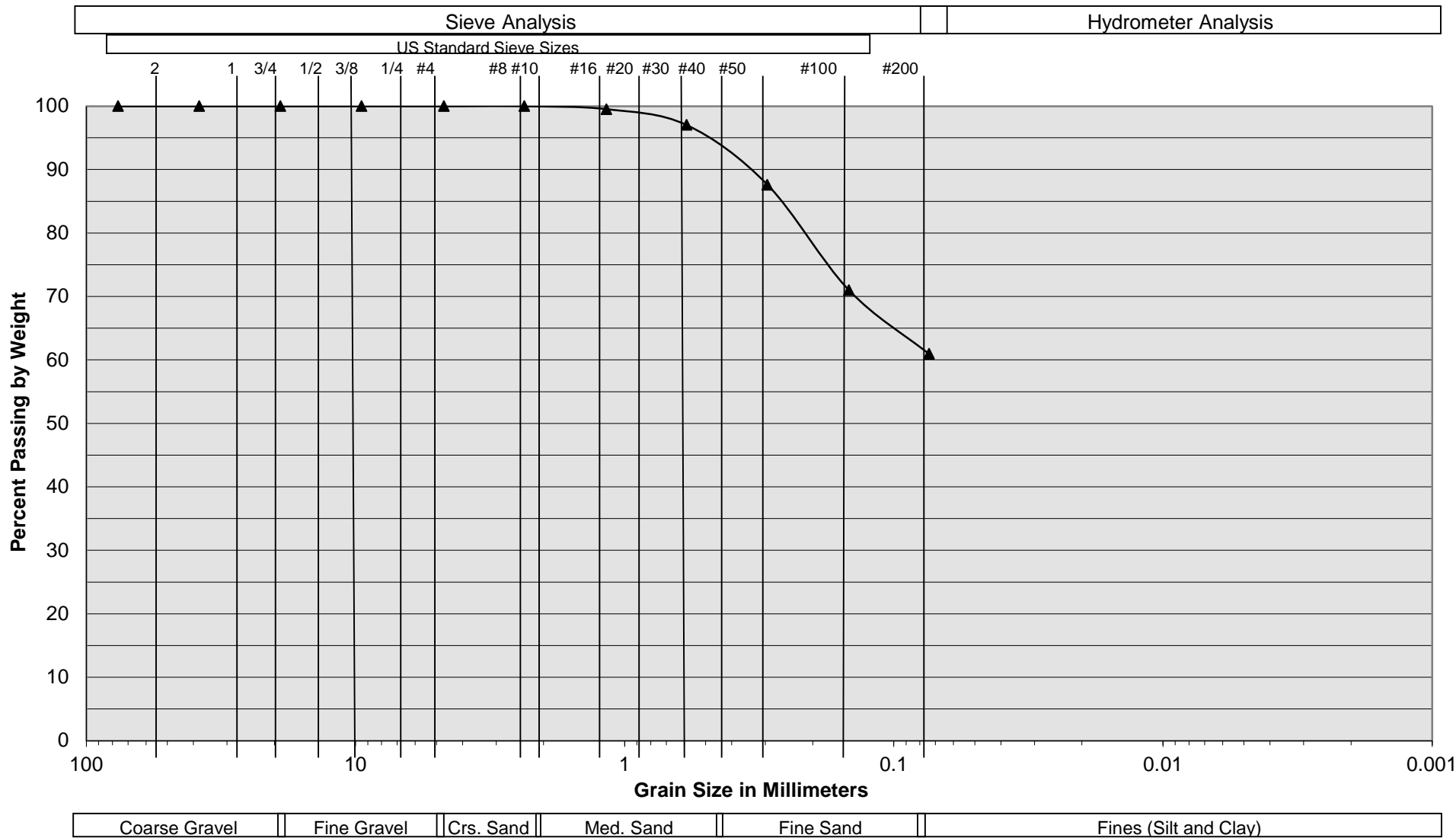
Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C- 11



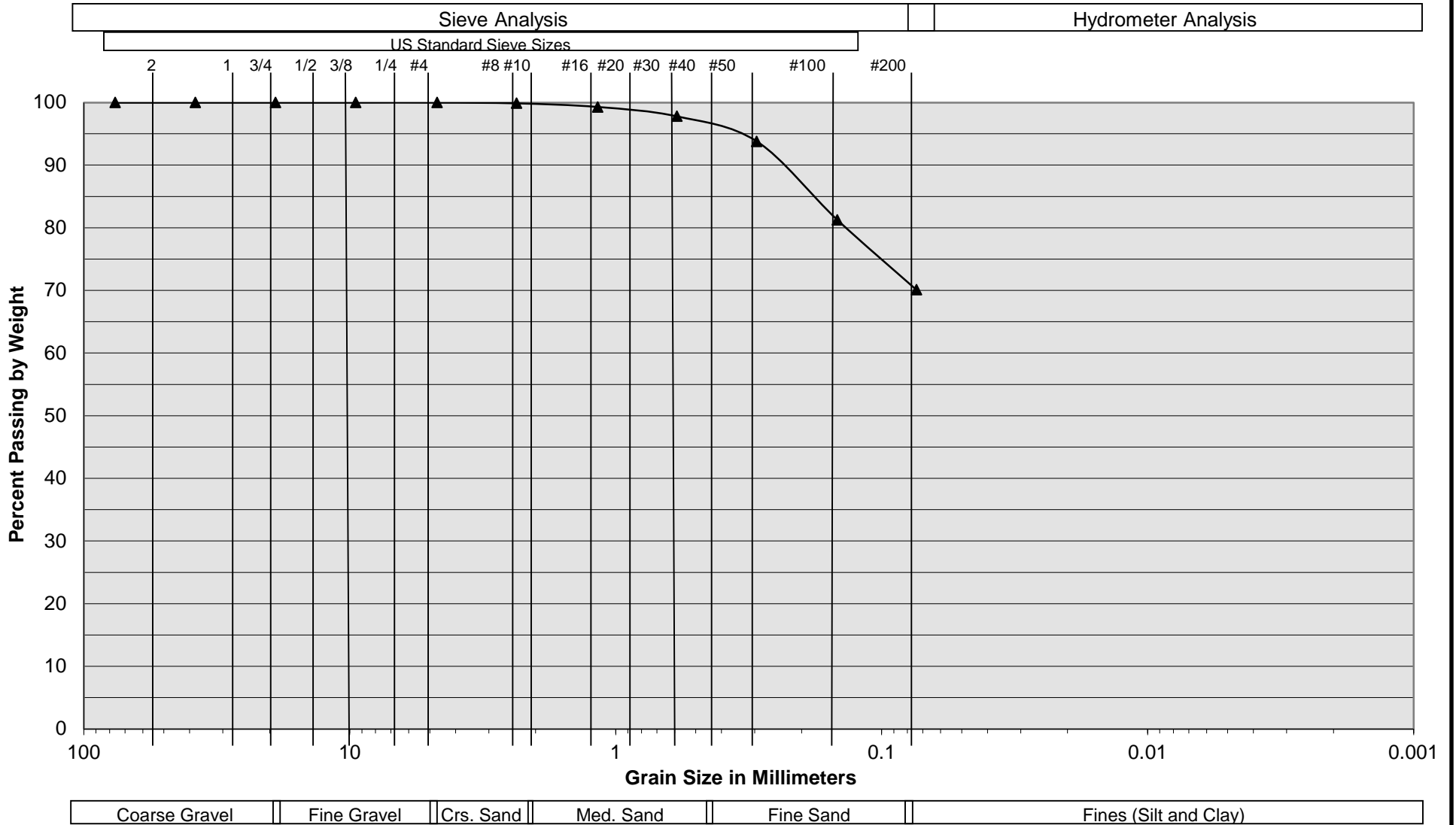


SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



Grain Size Distribution



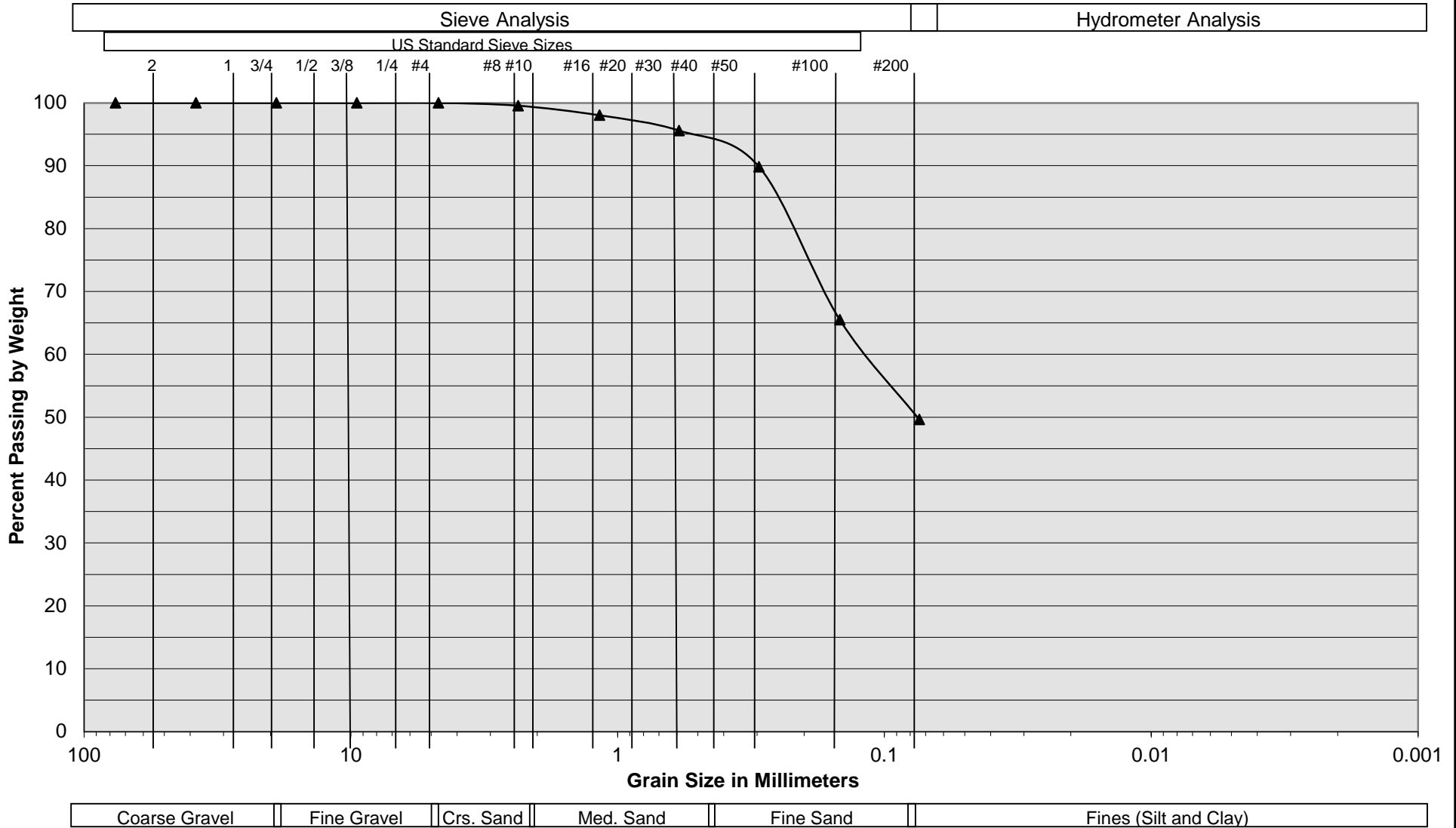
Sample Description	DW-1 @ 68½ feet
Soil Classification	Fine Sandy Silt, trace medium Sand

Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C- 13



SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



Sample Description	DW-1 @ 73½ feet
Soil Classification	Fine Sandy Silt to Silty fine Sand, trace medium Sand

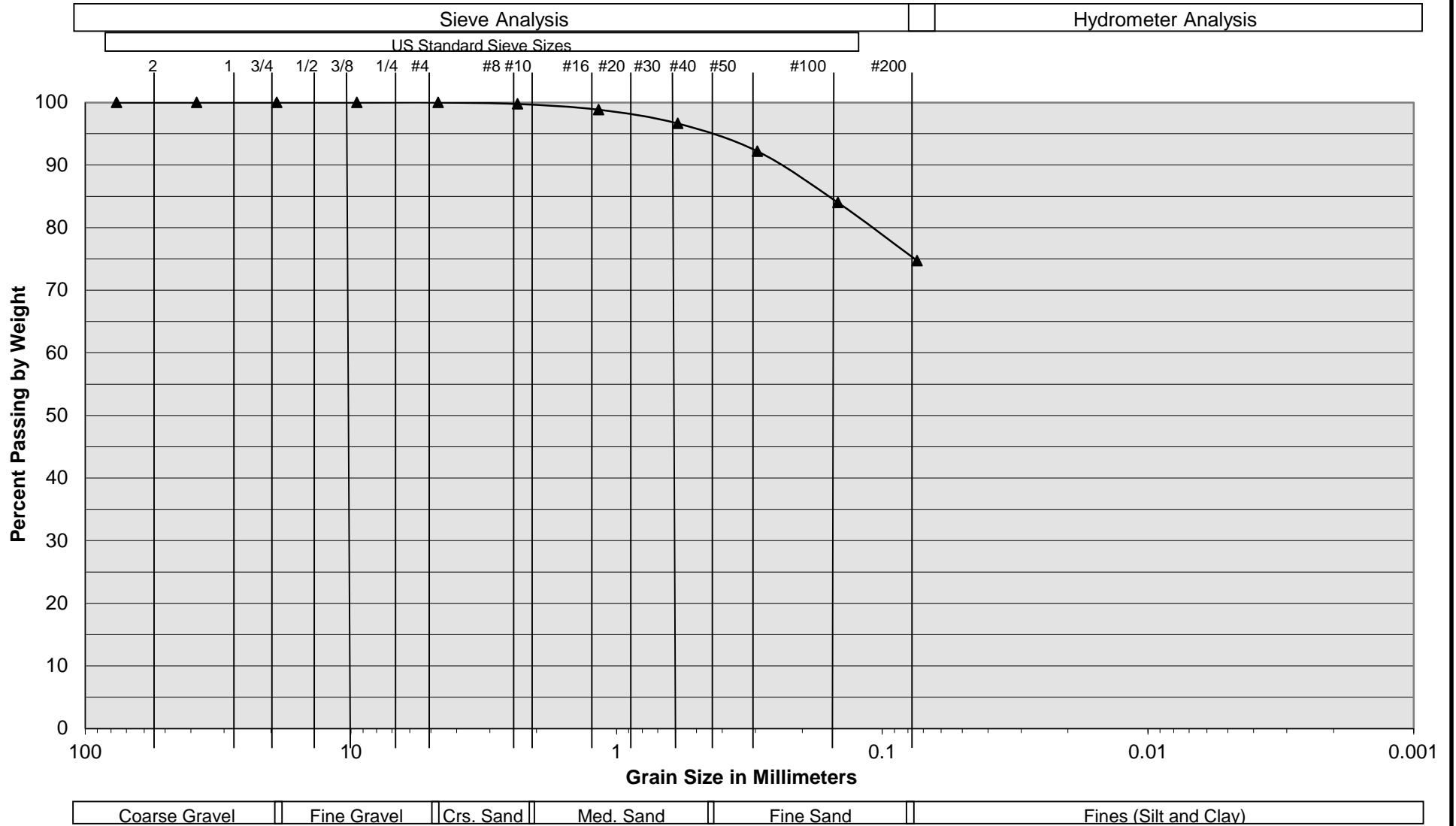
Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C- 14





SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Grain Size Distribution



Sample Description	DW-1 @ 78½ feet
Soil Classification	Fine Sandy Silt, trace Clay, trace medium Sand

Proposed Retail/Commercial Development
 Chino, California
 Project No. 22G118-4
PLATE C- 15



SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

DETENTION BASIN DESIGN CRITERIA FOR SAN BERNARDINO COUNTY

The following design parameters and procedures are listed as guidelines to insure proper detention basin operation. When necessary, these guidelines may be modified if approved in writing by both the Flood Control District and Land Management Department.

I. Definitions

A. Regional Detention Basin

1. A basin which can be incorporated into the Flood Control District's existing or proposed drainage system,
2. Basin owned and operated by the Flood Control District, although it may be joint use, and
3. A basin which will reduce the downstream peak flow rate and the necessary downstream storm drain size.

B. Local Detention Basin

1. A basin which will not be incorporated into the Flood Control District's existing or proposed drainage system,
2. A basin owned by an individual or organization other than the Flood Control District, and
3. A basin which will reduce the downstream peak flow rate, but will not be considered in downsizing future downstream storm drains.

C. Joint Use Detention Basin: A regional or local detention basin which has an additional use such as football field, parking lot, golf course, lake or etc.

D. Temporary Detention Basin

1. A local detention basin used to reduce downstream peak flow rates until ultimate storm drain facilities can be constructed as part of a phased development, and
2. Generally the life of the basin shall not exceed 10 years.

II. Basin Capacity and Outlet Drain

- A. When a basin (regional, local, temporary or joint use) is to be used to mitigate downstream impacts due to increased flows generated by a development, the basin capacity and outlet size shall be such that the post-development peak flow rate generated by the site shall be less than or equal to 90% of the pre-development peak flow rate from the site for all frequency storms up to and including 100-year (i.e. the peak 2 year post-development flow rate is equal to or less than 90% of the peak 2 year pre-development flow rate from the site and etc. for all frequency storm events through 100-year).
1. Only 2, 10, 25 and 100-year storms need to be analyzed.
 2. Additional studies shall be submitted where there exists more than one basin in the drainage area under review. The studies shall address the timing of the peak flow rates from the basins to ensure downstream flow rates are not increased.
- B. When a basin (generally regional or regional joint use) is to be used to reduce the size of a master planned downstream drainage facility, the basin capacity and outlet size shall be such that the 100 year basin peak outflow rate is no greater than the downstream facility's design capacity.
1. Open channel design capacities shall be per the San Bernardino County Flood Control District Standard Plat 100 ("San Bernradino County Standards and Specifications"). A bulking factor is not necessary when the basin is designed to handle debris and the downstream channel is lined.
 2. Pressure flow closed conduits shall be designed such that the hydraulic grade line is below the ground or street surface. In those reaches where no surface flow will be intercepted (now or in the future), a hydraulic grade line which encroaches on or is slightly higher than the ground or street surface will be acceptable.
 3. Non-pressure flow closed conduit capacities shall be based on a flow depth no greater than 0.8 times the conduits diameter or height.

SEE CHANGE PER ATTACHED MEMO

- C. Where downstream erosion is a concern the duration of erosive flow velocities for all frequency storms shall not be substantially increased unless other forms of mitigation are provided. This can be accomplished by reducing the peak flowrate further than that required above. Refer to "Handbook of Hydraulics" by Horace Williams King and Earnest F. Brater, and "Open-Channel Hydraulics" by Ven Te Chow, Ph.d. for erosive flow velocities.
- D. When there exists a potential for debris entering the basin, the basin capacity shall be increased or a desilting basin provided to accommodate the debris production generated from a 100-year storm four years after a burn (over the entire watershed), plus 20% due to maintenance uncertainties.
1. For all basins where a significant amount of debris accumulation is anticipated, a debris disposal area or areas shall be provided within a reasonable hauling distance.
 2. "A New Method of Estimating Debris-Storage Requirements for Debris Basins" by Fred E. Tatum of the U.S. Army Corps of Engineers shall be used for determining the 100-year debris volume.
 3. Local basins shall not be located in desert areas where there exists the potential for debris entering the basin (i.e., locations where flows are directed to the basin by natural drainage courses or earth graded channels which handle flows from undeveloped watersheds). It is recommended that the flows from the development be conducted to the basin in a hardlined facility (i.e. street or concrete channel), then outletted into the natural drainage course or earth channel.
 4. Local detention basins shall not be fed by natural drainage courses or earth channels with undeveloped watersheds greater than 0.5 square mile.
 5. The basin capacity for local detention basins fed by natural drainage courses or earth channels with undeveloped watershed less than 0.5 square mile, shall be enlarged to handle an additional 5 years of accumulated annual debris based on the attached figure 1.
 6. Generally regional detention basins with undeveloped watersheds shall be flow-by basins or have a separate debris basin upstream of the detention basin.

7. The basin capacity for detention basins located in watersheds known to have a high risk of burning, shall be increased as determined by the Flood Control District.

E. Outlet Drain

1. The outlet pipe for all basins except temporary basins shall be a minimum 24" RCP (1350 D minimum) for local basins and a minimum 36" RCP (1350 D minimum) for regional basins. The outlet pipe or conduit shall be encased with cut-off collars per the "Los Angeles County Flood Control Design Manual - Debris Dams and Basins" or designed per "Section 242. Cut-and-Cover Conduit Detail" of the Bureau of Reclamation's publication "Design of Small Dams".
 - a) Reinforced concrete collars generally from 2 to 3 feet high, 12 to 18 inches wide, and spaced from 7 to 10 times their height shall be provided.
 - b) All joints for pipes not encased shall be rubber gasketed.
 - c) The pipe shall be capable of withstanding H2O live loads plus the applicable dead loads.
 - d) Erosion control measures shall be provided at the outlet of the basin outlet pipe.
 - e) Temporary basin outlet pipes may be a minimum 24" C.M.P., 12 gauge with seep rings. Design considerations shall be as stated above.
2. A metered outlet structure may be necessary to provide the necessary flow attenuation for all frequency storms. "V"-shaped weirs and notched weirs are preferred over other alternates because they do not plug with debris and trash as easily as other designs.
3. All detention basin outlets should be sized so the basin will drain within 24 hours after the basin reaches its 100 year peak depth/volume. If the basin does not drain in 24 hours, further studies using longer duration storms will be necessary. The basin storage volume (capacity) may need to be increased to accomodate subsequent storms.
4. Trash racks shall be provided at the inlet to the basin outlet structure(s).

5. Anti-vortex devices shall be provided where warranted.
6. A depth gauge shall be provided on the basin outlet structure in order to monitor debris deposition and basin operation.

F. Analysis Methodology

1. Pre and post development peak flow rates shall be developed using the procedures outlined in the San Bernardino County's Hydrology Manual.
2. Basin inflow hydrographs shall be developed using the procedures outlined in the San Bernardino County's Hydrology Manual.
3. Basin outflow hydrographs shall be developed by the Modified Puls Method.
4. Channel hydrograph routing shall be calculated by the convex channel routing method or by moving the hydrograph utilizing travel time.

III. Water Surface Elevation and Depth

A. Local Basins

1. When feasible the 100 year design water surface elevation should be at or below existing natural ground. Generally no more than 50% of the basins 100 year storage depth should be above existing ground (i.e., 50% or more of the 100-year minimum storage depth must be below the lowest ground outside basin).
2. The necessary storage depth for debris plus the two year flow attenuation shall be below existing ground.
3. The basin's maximum water depth for 100-year design should be 6 feet or less.
4. When site conditions warrant and safety can be assured, the above depth requirements may be modified if the following conditions are met.
 - a) The detention basin is designed in accordance with the Los Angeles County Flood Control District's "Design Manual - Debris Dams and Basins".

- b) The basin embankment is constructed of material, or has a solid core, which does not allow seepage or piping to occur due to rodent holes.

B. Regional Basins

1. Depths shall be as approved by the Flood Control District.
2. Basins with heights greater than or equal to 25 feet and capacity greater than or equal to 15 Ac.ft., or a capacity greater than or equal to 50 ac. ft. and a height greater than or equal to 6 feet, shall be reviewed and approved by the State's Division of Safety of Dams. (See figure 2)

C. Joint Use Basins

1. Depths should be shallow and compatible with the secondary use.
2. Depths for parking lot, tennis court or other similar joint use basins should be no greater than 6 inches to 12 inches.
3. The allowable depth in most cases will be site specific and shall be approved by all agencies involved.

IV. Emergency Spillway

- A. All detention basin spillways shall be designed to pass the fully developed 1000 year peak flow rate ($Q_{1000} = 1.35 Q_{100}$) or that peak flow rate required by the State's Division of Safety of Dams, whichever is greater.
- B. Spillway outflows shall be adequately conveyed to a storm drain, drainage channel, street or an established watercourse.
- C. Generally, all spillway structures shall be constructed of reinforced concrete. For temporary detention basins with an expected life less than 10 years the spillway may be constructed with grouted rock or other forms of approved protection designed to resist maximum design velocities.
- D. When the spillway crest is more than 3 feet above the flowline of the facility the spillway outlets into, the spillway shall be constructed of reinforced concrete.

- E. Generally the spillway crest shall be at, or above the basin's design 100 year high water line.

V. Freeboard to the Top of Embankment

- A. Local and temporary basins shall have a minimum 1-foot of freeboard above the 1000-year HWL on the emergency spillway or 2-feet of freeboard above the 100-year HWL in the basin, whichever is more stringent.
- B. Regional basins shall have a minimum 2-feet of freeboard above the 1000 year HWL on the emergency spillway. For basins with larger surface areas the freeboard shall be increased due to possible wave action. Also, a Seismic Seiche analysis shall be provided to determine necessary freeboard. Reference "Design of Small Dams" by the United States Department of Interior.
- C. Joint use basins shall conform to the applicable local or regional freeboard requirements. For smaller basins such as parking lot and tennis court basins, the freeboard conditions may be reduced.

VI. Basin Embankment

- A. Basin side slopes should be of 3H:1V or flatter on the wet side and 2H:1V or flatter on the dry side. Steeper slopes may be acceptable on a case by case basis if rock lined and recommended in the soils and geotechnical report. (See items C and D below for expanded requirements for report.)
- B. Top Width of Levee
 - 1. Regional and local basins - 15 feet minimum
 - 2. Joint use - site specific
 - 3. Refer to Section IX.C.
- C. For design of the embankment abutments and adjacent slopes, a soils and geotechnical report shall be prepared by a soils and geotechnical engineer with a demonstrated expertise in earth fill dam design. The report shall be reviewed and approved by the Land Management Department and the San Bernardino County Flood Control District. The report shall include:
 - a) Site geology including bedding, foliation, fracture, joint, fault and land slide plane attitudes.

- b) Seismic conditions including fault locations and potential seismic surface movements respective loadings and parameters of seismic shaking.
- c) Potential impact of reservoir loading on geologic structure should be evaluated.
- d) Detailed descriptions, locations, and logs of all field explorations.
- e) Field and laboratory tests and analysis descriptions and results.
- f) Ground water table elevation and analysis of near surface groundwater movement.
- g) Recommended design parameters including, but not limited to the following for the dam and its natural abutments and slopes adjacent reservoir areas:
 - 1. Lateral earth loadings
 - 2. Shear strengths
 - 3. Bearing capacities
 - 4. Permeability
 - 5. Slope stability analysis when saturated and during rapid drawdown conditions
 - 6. Seive analysis
 - 7. Sand equivalents
 - 8. Liquefaction analysis and if appropriate; mitigation
 - 9. Seismic Seiche analysis 10. UBC Chapter 70

h) Special design and construction recommendations including, but not limited to the following:

1. Foundation preparation requirements
2. Suitability of materials for embankments (gradation, sand equivalent, etc.) and abutments
3. Compaction methods and minimum requirements
4. Seepage and piping control provisions
5. Potential for settlement
6. Seismic considerations
7. Minimum design factors of safety are:

	<u>Without Seismic</u>	<u>With Seismic</u>
Embankment, Abutment and Adjacent Slope Stability	1.5	1.1
Seepage - Piping	1.5	---

8. Necessity of impervious core or shear key
 9. Erosion control of abutments.
- D. Regional basins and local basins not meeting the depth and side slope requirements set forth previously shall be designed in accordance with the Los Angeles County Flood Control District's "Design Manual - Debris Dams and Basins".

VII. Basin Floor

- A. A low flow channel shall be provided from the basin inlet(s) to the basin outlet.
 1. Where basin slopes exceed 2% or produce erosive flow velocities the low flow channel should be protected from erosion with reinforced concrete, rock lining or other form of approved erosion protection.

2. Joint use basins

a) A low flow channel or conduit should be provided to conduct minor flows around the dual use facilities wherever possible. Low flow channels may not be necessary for parking lot basins or other similar joint uses.

b) Low flow channel may be grass lined if there exists a maintenance program which includes mowing and maintenance of turf in good condition and velocities of flow through the various stages of discharge are low enough to be nonerosive.

B. Earth basin floors shall slope at a minimum 0.5% grade to the low flow channel.

C. Earth basin floors shall have a minimum grade of 0.5% from the inlet to the outlet.

VIII. Inlet Structures

A. Where storm drains enter the basin, energy dissipators and/or erosion protection shall be provided. Plans must be approved by the San Bernardino County Flood Control District Permit Section before plan approval if the basin is to be operated and maintained by the Flood Control District.

B. Where natural drainage courses or channels enter the basin some form of invert stabilization such as a reinforced concrete spillway shall be provided.

C. Energy dissipators may be required when the inletting flow velocities exceed 5 fps.

D. Inletting storm drains shall be a minimum 24" RCP (1350 D).

IX. Access

A. Access to any type of detention basin area shall be provided by a roadway capable of handling two way traffic (from a public street or public access to the parcel upon which the basin is constructed).

B. Access shall be maintained under all weather conditions.

LONG-TERM EROSION RATES

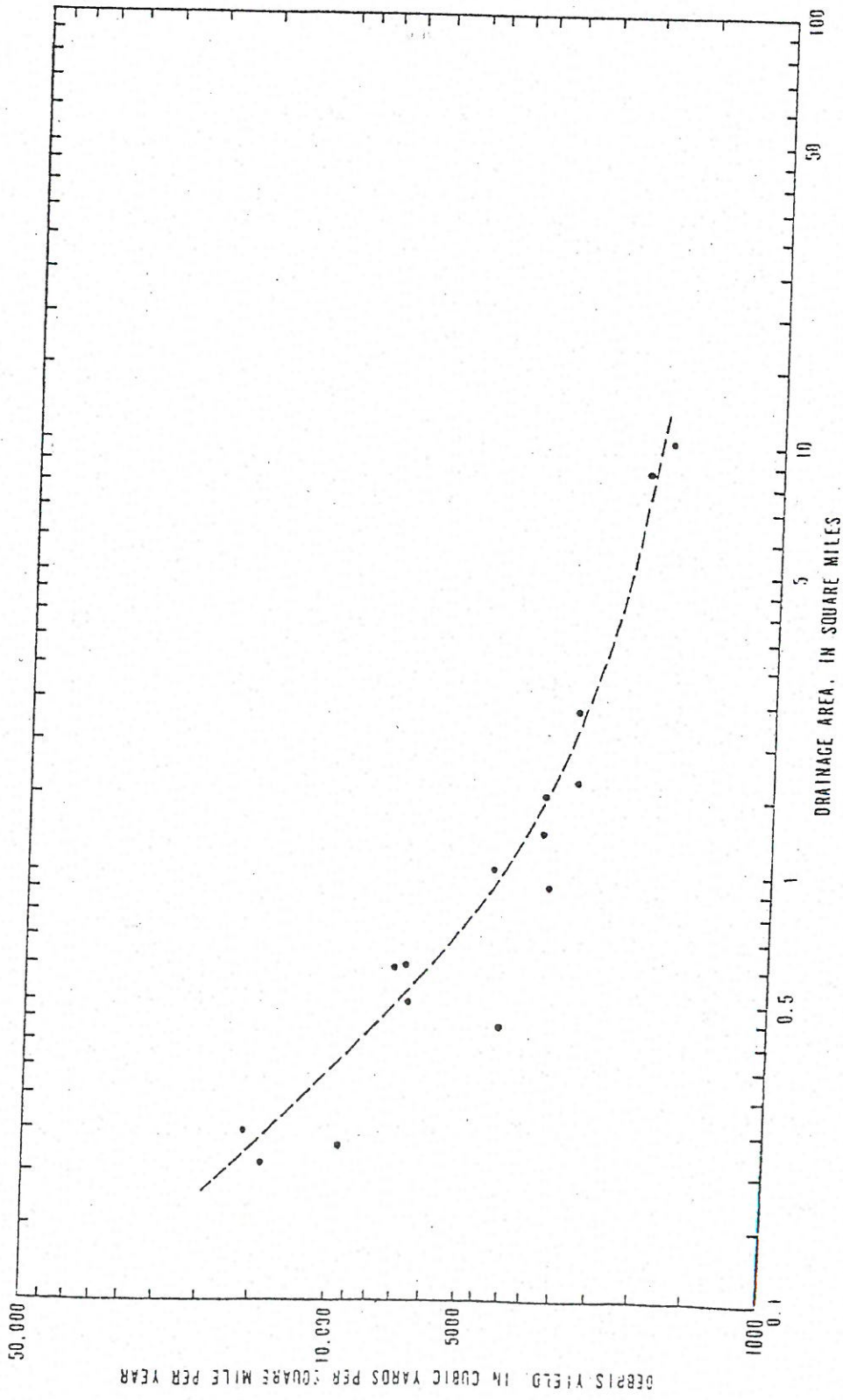


FIGURE 1 .---Long-term sediment yields at selected sites in Los Angeles County, California.

- C. A 15-foot wide roadway shall be provided along the top of embankment, across the spillway and around the basin. The intent of this criteria is to have continuous access around, and to, the basin for maintenance purposes. Under certain circumstances where it can be shown the recommended top width is not necessary for structural safety and maintenance, the criteria may be modified. Approval will be required by both the Land Management Department and the Flood Control District.
 - 1. If access across the spillway is not provided minimum 40' X 60' turn arounds shall be provided on both sides of the spillway.
 - 2. If there exists adequate access for maintenance, this requirement may be amended for local, temporary or joint use basins.
 - D. Access ramps shall be provided to the basin floor.
 - 1. Minimum of one - 15 foot wide ramp for local basins.
 - 2. Minimum of two - 15 foot wide ramps for regional basins.
 - E. The maximum roadway or access ramp slope shall be 10%.
 - F. The minimum access and roadway inside turning radius shall be 35 feet.
- X. Fencing
- A. All basins shall be fenced with 6-foot chain link fencing per Cal Trans standards or other approved barrier unless otherwise approved by the Land Management Department and the Flood Control District. Joint use basin fencing will be site specific and must meet the needs of all agencies utilizing the basin.
 - B. All regional basin chain link fencing shall have a 1 foot wide painted horizontal orange stripe at the mid height of the fence.
 - C. Access to the basins shall be gated and locked.
- XI. Rights-of-Way
- A. Sufficient rights-of-way shall be provided for the construction and economical maintenance of the basin(s), (including all fill and cut slopes) and shall include sufficient area to provide for an access road from a dedicated public street to the basin.

35

30

25

20

15

10

5

0

SECTION 6003

SECTION 6002(a)

EXAMPLE:
Dam 20 feet high
Storage 30 acre feet
NOT IN JURISDICTION

SECTION 6002(b)

SECTION 6003

DAMS NOT SUBJECT TO STATE SUPERVISION

DAMS SUBJECT TO STATE SUPERVISION

10

15

20

30

40

50

60

70

CAPACITY IN ACRE FEET

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS
DIVISION 3 OF WATER CODE
1965

FIG. 2

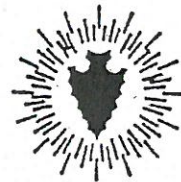
- B. Regional basins shall be dedicated to the District in fee title.
- C. Local basins shall be covered by an adequate San Bernardino County Drainage Easement.

XII. References to be Used in Design.

- "A New Method of Estimating Debris - Storage Requirements for Debris Basins," Tatum, U.S. Army Engineer District, Los Angeles, CA, 1963
- "Design of Small Dams", U.S. Bureau of Reclamation, 1977
- "Handbook of Hydraulics", King and Brater, McGraw Hill Book Company, 1954
- "Los Angeles County Flood Control Manual - Debris Dams and Basin", Los Angeles County Flood Control District
- "Open-Channel Hydraulics", Ven Te Chow, Ph.d., 1959
- "San Bernardino County Hydrology Manual", San Bernardino County, May 1983
- "San Bernardino County Standards and Specification", San Bernardino County Department of Transportation/Flood Control/Airports

INTEROFFICE MEMO

1853



County of San Bernardino

DATE September 4, 1987
FROM *Robert W. Corchero*
ROBERT W. CORCHERO, Chief
Water Resources Division

PHONE 2515

TO CHARLES L. LAIRD, Acting Director
Transportation/Flood Control

File: 1(FC)-53

SUBJECT SAN BERNARDINO COUNTY DETENTION BASIN DESIGN CRITERIA

As requested the subject criteria was reviewed with respect to the determination of pre-development peak flow rates. According to the existing criteria the County can be 85% confident that the calculated peak flow rate will equal or exceed the peak flow rate at a given concentration point if adequate streamflow data was available. Therefore, the County can only be about 15% confident a detention basin outflow will not adversely affect downstream properties (not considering erosion).

The County should be at least 50% confident a detention basin outflow will not adversely impact properties downstream of the basin. Based on the calibration study of the county's hydrology method the input parameters (procedures) described in the Manual should be modified as follows:

- a) 10 year peak flow rates should be calculated using 5-year rainfall,
- b) 25-year peak flow rates should be calculated using 10-year rainfall, and
- c) 100-year peak flow rates should be calculated using 25-year rainfall and AMC II.

If these design parameters are used for determining the pre-development peak flow rates, the basin outflow metered to 90% of these calculated pre-development peak flow rates and the post-development peak flow rates to the basin calculated in accordance with County Hydrology Manual, the County will be over 50% confident the resulting basin design will not adversely affect adjacent or downstream properties (not considering erosion).

The desired confidence level for detention basin outflow is a policy decision. Once the desired confidence level is determined the required input rainfall amounts can be developed to calculate the peak flow rate at the corresponding confidence level. I have discussed this policy issue with John Pederson of the U.S. Army Corps of Engineers, Ron Moore of the Soil Conservation Service and Al Nessinger of Orange County. Al Nessinger pointed out by using basin inflow hydrographs based on a 85% confidence level

Memo to Charles . Laird
September 4, 1968.
Page 2

and by creating adequate storage to reduce the peak flow rate from the basin to 90% of pre-development condition based on a 50% confidence level, the resulting confidence level that downstream conditions have not changed will be greater than 50%. Also, the rainfall pattern used in the hydrograph method was chosen to be the most severe test on basin design. When these facts are combined with criteria of using multi-day storms, the resulting basin design should be adequate to ensure downstream properties will not be subject to increased peak flow rates. Ron Moore felt the revised criteria better fit the actual pre-development conditions in the field. John Pederson and Al Nessigner both felt the criteria should be tested against actual occurrences in gaged watershed. Attached is page 2 of the design criteria with the proposed changes shown in bold type.

Should you have any questions, please call.

RWC:mjs
Attachment

cc: Ken Miller

II. Basin Capacity and Outlet Drain

- A. When a basin (regional, local, temporary or joint use) is to be used to mitigate downstream impacts due to increased flows generated by a development, the basin capacity and outlet size shall be such that the post-development peak flow rate generated by the site shall be less than or equal to 90% of the pre-development peak flow rate from the site for all frequency storms up to and including 100-year (i.e.) the peak 2 year post-development flow rate is equal to or less than 90% of the peak 2 year pre-development flow rate from the site and etc. for all frequency storm events through 100 year).
1. Only 2, 10, 25 and 100-year storms need to be analyzed.
 2. Post-development peak flow rates shall be calculated in accordance with the "San Bernardino County Hydrology Manual".
 3. Pre-development peak flow rates shall be calculated in accordance with the "San Bernardino County Hydrology Manual" with the following exceptions.
 - a) 10-year peak flow rates shall be calculated using 5-year rainfall.
 - b) 25-year peak flow rates shall be calculated using 10-year rainfall.
 - c) 100-year peak flow rates shall be calculated using 25-year rainfall and AMC-II.
 4. Additional studies shall be submitted where there exists more than one basin in the drainage area under review. The studies shall address the timing of the peak flow rates from the basins to ensure downstream flow rates are not increased.

APPENDIX B

Existing Condition Hydrology Calculation & Map

 RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
 (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
 (c) Copyright 1983-2016 Advanced Engineering Software (aes)
 Ver. 23.0 Release Date: 07/01/2016 License ID 1355

Analysis prepared by:

Fuscoe Engineering, Inc.
 15535 Sand Canyon Ave
 Suite 100
 Irvine, CA 92618

***** DESCRIPTION OF STUDY *****
 * CHINO EUCLID *
 * 2 YEAR STORM EVENT *
 * EXISTING CONDITION *

FILE NAME: CH10EX.DAT
 TIME/DATE OF STUDY: 15:38 02/13/2024

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

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

USER SPECIFIED STORM EVENT(YEAR) = 2.00
 SPECIFIED MINIMUM PIPE SIZE(INCH) = 12.00
 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
 USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL

SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.6000
 USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.5900

ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD

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

NO.	WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET- / SIDE / SIDE / WAY	CROSSFALL IN- / OUT- / PARK- (FT)	CURB HEIGHT (FT)	GUTTER WIDTH (FT)	GEOMETRIES LIP HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0313	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
 1. Relative Flow-Depth = 0.00 FEET
 as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
 2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
 *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
 OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
 *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

 FLOW PROCESS FROM NODE 10.00 TO NODE 11.00 IS CODE = 21

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

INITIAL SUBAREA FLOW-LENGTH(FEET) = 707.00
 ELEVATION DATA: UPSTREAM(FEET) = 726.00 DOWNSTREAM(FEET) = 718.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 31.612
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 0.867
 SUBAREA Tc AND LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
AGRICULTURAL GOOD COVER "SMALL GRAIN, STRAIGHT ROW"	C	5.46	0.57	1.000	67	31.61

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 1.46
 TOTAL AREA(ACRES) = 5.46 PEAK FLOW RATE(CFS) = 1.46

FLOW PROCESS FROM NODE 11.00 TO NODE 12.00 IS CODE = 51

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

=====

ELEVATION DATA: UPSTREAM(FEET) = 718.00 DOWNSTREAM(FEET) = 715.50
 CHANNEL LENGTH THRU SUBAREA(FEET) = 412.00 CHANNEL SLOPE = 0.0061
 CHANNEL BASE(FEET) = 10.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.030 MAXIMUM DEPTH(FEET) = 3.00
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 0.779

SUBAREA LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL GOOD COVER "ROW CROPS,STRAIGHT ROW"	C	4.83	0.53	1.000	70

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.53
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2.00
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 1.12
 AVERAGE FLOW DEPTH(FEET) = 0.17 TRAVEL TIME(MIN.) = 6.15
 Tc(MIN.) = 37.76
 SUBAREA AREA(ACRES) = 4.83 SUBAREA RUNOFF(CFS) = 1.08
 EFFECTIVE AREA(ACRES) = 10.29 AREA-AVERAGED Fm(INCH/HR) = 0.55
 AREA-AVERAGED Fp(INCH/HR) = 0.55 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 10.3 PEAK FLOW RATE(CFS) = 2.11

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.17 FLOW VELOCITY(FEET/SEC.) = 1.16
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 1119.00 FEET.

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 10.3 TC(MIN.) = 37.76
 EFFECTIVE AREA(ACRES) = 10.29 AREA-AVERAGED Fm(INCH/HR)= 0.55
 AREA-AVERAGED Fp(INCH/HR) = 0.55 AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS) = 2.11

=====

END OF RATIONAL METHOD ANALYSIS



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Analysis prepared by:

Fuscoe Engineering, Inc.
 15535 Sand Canyon Ave
 Suite 100
 Irvine, CA 92618

***** DESCRIPTION OF STUDY *****
 * CHINO EUCLID *
 * 5 YEAR STORM EVENT (FOR THE 10-YR ANALYSIS) *
 * EXISTING CONDITION *

FILE NAME: CH10EX.DAT
 TIME/DATE OF STUDY: 15:41 02/13/2024

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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

USER SPECIFIED STORM EVENT(YEAR) = 5.00
 SPECIFIED MINIMUM PIPE SIZE(INCH) = 12.00
 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
 USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL

SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.6000
 USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.7720

ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD

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

NO.	WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET- / SIDE / SIDE / WAY	CROSSFALL IN- / OUT- / PARK- (FT)	HEIGHT (FT)	GUTTER WIDTH (FT)	LIP HIKE (FT)	GEOMETRIES: MANNING 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 10.00 TO NODE 11.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 707.00
 ELEVATION DATA: UPSTREAM(FEET) = 726.00 DOWNSTREAM(FEET) = 718.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 31.612
 * 5 YEAR RAINFALL INTENSITY(INCH/HR) = 1.134
 SUBAREA Tc AND LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
AGRICULTURAL GOOD COVER "SMALL GRAIN,STRAIGHT ROW"	C	5.46	0.57	1.000	67	31.61

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 2.77
 TOTAL AREA(ACRES) = 5.46 PEAK FLOW RATE(CFS) = 2.77

FLOW PROCESS FROM NODE 11.00 TO NODE 12.00 IS CODE = 51

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

=====

ELEVATION DATA: UPSTREAM(FEET) = 718.00 DOWNSTREAM(FEET) = 715.50
 CHANNEL LENGTH THRU SUBAREA(FEET) = 412.00 CHANNEL SLOPE = 0.0061
 CHANNEL BASE(FEET) = 10.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.030 MAXIMUM DEPTH(FEET) = 3.00
 * 5 YEAR RAINFALL INTENSITY(INCH/HR) = 1.043

SUBAREA LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL GOOD COVER "ROW CROPS, STRAIGHT ROW"	C	4.83	0.53	1.000	70

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.53
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 3.89
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 1.45
 AVERAGE FLOW DEPTH(FEET) = 0.25 TRAVEL TIME(MIN.) = 4.73
 Tc(MIN.) = 36.34
 SUBAREA AREA(ACRES) = 4.83 SUBAREA RUNOFF(CFS) = 2.23
 EFFECTIVE AREA(ACRES) = 10.29 AREA-AVERAGED Fm(INCH/HR) = 0.55
 AREA-AVERAGED Fp(INCH/HR) = 0.55 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 10.3 PEAK FLOW RATE(CFS) = 4.55

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.27 FLOW VELOCITY(FEET/SEC.) = 1.55
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 1119.00 FEET.

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 10.3 TC(MIN.) = 36.34
 EFFECTIVE AREA(ACRES) = 10.29 AREA-AVERAGED Fm(INCH/HR) = 0.55
 AREA-AVERAGED Fp(INCH/HR) = 0.55 AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS) = 4.55

=====

END OF RATIONAL METHOD ANALYSIS



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Analysis prepared by:

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 15535 Sand Canyon Ave
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***** DESCRIPTION OF STUDY *****
 * CHINO EUCLID *
 * 10 YEAR STORM EVENT (FOR THE 25-YR ANALYSIS) *
 * EXISTING CONDITION *

FILE NAME: CH10EX.DAT
 TIME/DATE OF STUDY: 15:43 02/13/2024

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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

USER SPECIFIED STORM EVENT(YEAR) = 10.00
 SPECIFIED MINIMUM PIPE SIZE(INCH) = 12.00
 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
 USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL

SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.6000
 USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.9210

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

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

NO.	WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET- / SIDE / SIDE / WAY	CROSSFALL IN- / OUT- / PARK- (FT)	CURB HEIGHT (FT)	GUTTER WIDTH (FT)	GEOMETRIES LIP (FT)	MANNING HIKE 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 10.00 TO NODE 11.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 707.00
 ELEVATION DATA: UPSTREAM(FEET) = 726.00 DOWNSTREAM(FEET) = 718.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 31.612
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.353
 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.)
AGRICULTURAL GOOD COVER "SMALL GRAIN,STRAIGHT ROW"	C	5.46	0.33	1.000	83	31.61

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 5.05
 TOTAL AREA(ACRES) = 5.46 PEAK FLOW RATE(CFS) = 5.05

FLOW PROCESS FROM NODE 11.00 TO NODE 12.00 IS CODE = 51

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

=====

ELEVATION DATA: UPSTREAM(FEET) = 718.00 DOWNSTREAM(FEET) = 715.50
 CHANNEL LENGTH THRU SUBAREA(FEET) = 412.00 CHANNEL SLOPE = 0.0061
 CHANNEL BASE(FEET) = 10.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.030 MAXIMUM DEPTH(FEET) = 3.00
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.264

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL GOOD COVER "ROW CROPS, STRAIGHT ROW"	C	4.83	0.29	1.000	85

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 7.16
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 1.82
 AVERAGE FLOW DEPTH(FEET) = 0.36 TRAVEL TIME(MIN.) = 3.77
 Tc(MIN.) = 35.39
 SUBAREA AREA(ACRES) = 4.83 SUBAREA RUNOFF(CFS) = 4.24
 EFFECTIVE AREA(ACRES) = 10.29 AREA-AVERAGED Fm(INCH/HR) = 0.31
 AREA-AVERAGED Fp(INCH/HR) = 0.31 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 10.3 PEAK FLOW RATE(CFS) = 8.85

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.40 FLOW VELOCITY(FEET/SEC.) = 1.97
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 1119.00 FEET.

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 10.3 TC(MIN.) = 35.39
 EFFECTIVE AREA(ACRES) = 10.29 AREA-AVERAGED Fm(INCH/HR) = 0.31
 AREA-AVERAGED Fp(INCH/HR) = 0.31 AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS) = 8.85

=====

END OF RATIONAL METHOD ANALYSIS



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Analysis prepared by:

Fuscoe Engineering, Inc.
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***** DESCRIPTION OF STUDY *****
 * CHINO EUCLID *
 * 25 YEAR STORM EVENT (FOR THE 100-YR ANALYSIS) *
 * EXISTING CONDITION *

FILE NAME: CH10EX.DAT
 TIME/DATE OF STUDY: 15:45 02/13/2024

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

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

USER SPECIFIED STORM EVENT(YEAR) = 25.00
 SPECIFIED MINIMUM PIPE SIZE(INCH) = 12.00
 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
 USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL

SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.6000
 USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.1200

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

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

NO.	WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET- / SIDE / SIDE / WAY	CROSSFALL IN- / OUT- / PARK- (FT)	HEIGHT (FT)	GUTTER WIDTH (FT)	LIP HIKE (FT)	GEOMETRIES: MANNING 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 10.00 TO NODE 11.00 IS CODE = 21

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

INITIAL SUBAREA FLOW-LENGTH(FEET) = 707.00
 ELEVATION DATA: UPSTREAM(FEET) = 726.00 DOWNSTREAM(FEET) = 718.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 31.612
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.645
 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.)
AGRICULTURAL GOOD COVER "SMALL GRAIN, STRAIGHT ROW"	C	5.46	0.33	1.000	83	31.61

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 6.48
 TOTAL AREA(ACRES) = 5.46 PEAK FLOW RATE(CFS) = 6.48

FLOW PROCESS FROM NODE 11.00 TO NODE 12.00 IS CODE = 51

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

=====

ELEVATION DATA: UPSTREAM(FEET) = 718.00 DOWNSTREAM(FEET) = 715.50
 CHANNEL LENGTH THRU SUBAREA(FEET) = 412.00 CHANNEL SLOPE = 0.0061
 CHANNEL BASE(FEET) = 10.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.030 MAXIMUM DEPTH(FEET) = 3.00
 * 25 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
AGRICULTURAL GOOD COVER "ROW CROPS, STRAIGHT ROW"	C	4.83	0.29	1.000	85

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 9.21
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 1.97
 AVERAGE FLOW DEPTH(FEET) = 0.41 TRAVEL TIME(MIN.) = 3.48
 Tc(MIN.) = 35.09
 SUBAREA AREA(ACRES) = 4.83 SUBAREA RUNOFF(CFS) = 5.46
 EFFECTIVE AREA(ACRES) = 10.29 AREA-AVERAGED Fm(INCH/HR) = 0.31
 AREA-AVERAGED Fp(INCH/HR) = 0.31 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 10.3 PEAK FLOW RATE(CFS) = 11.45

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.47 FLOW VELOCITY(FEET/SEC.) = 2.14
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 1119.00 FEET.

=====

END OF STUDY SUMMARY:

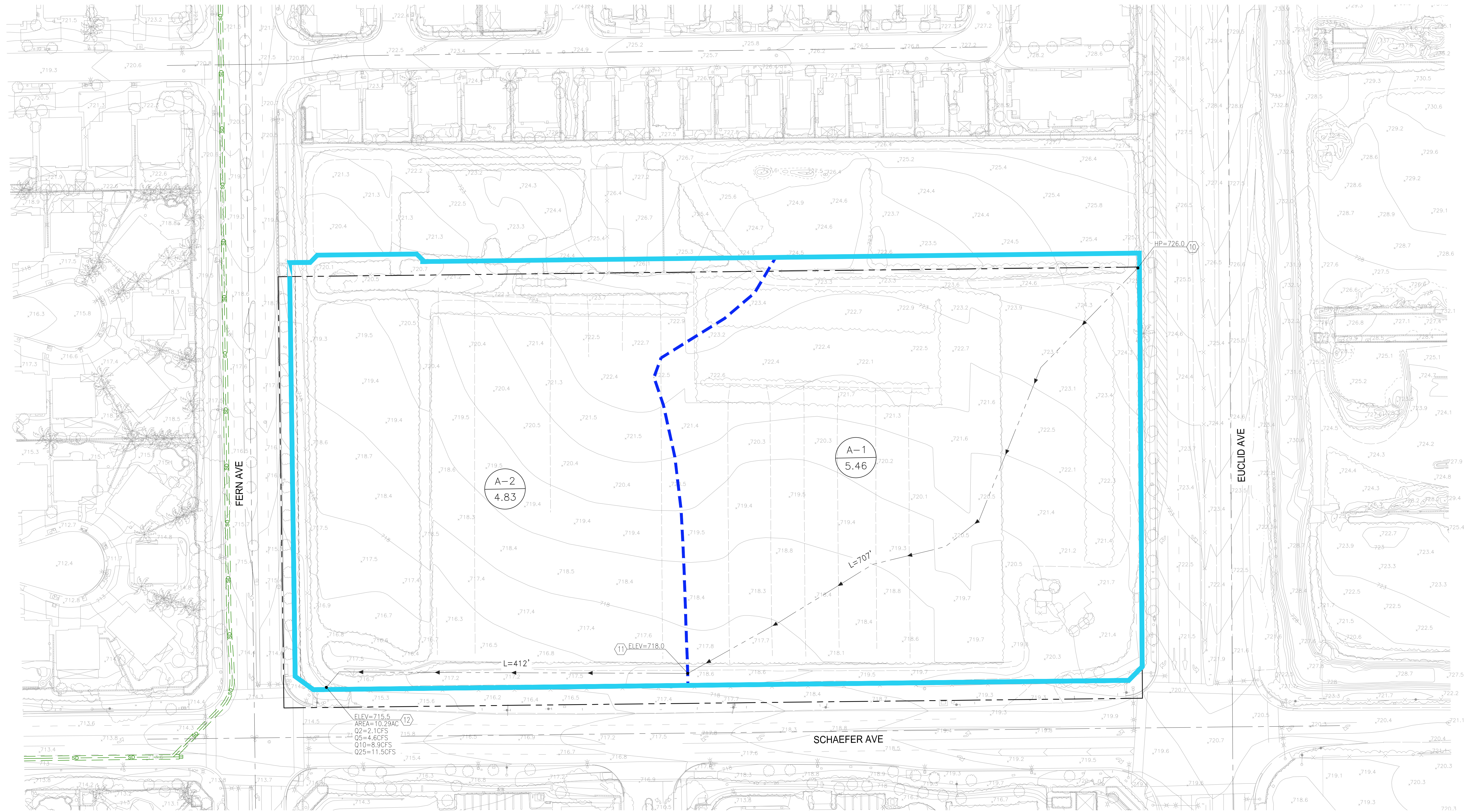
TOTAL AREA(ACRES) = 10.3 TC(MIN.) = 35.09
 EFFECTIVE AREA(ACRES) = 10.29 AREA-AVERAGED Fm(INCH/HR) = 0.31
 AREA-AVERAGED Fp(INCH/HR) = 0.31 AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS) = 11.45

=====

END OF RATIONAL METHOD ANALYSIS



F:\PROJECTS\1226\001_SUPPORT_FILES\REPORTS\HYDROLOGY\PRELIMINARY_HYDROLOGY\SUPPORTING_DOCUMENTS\EXHIBITS\126-001HX-CHNO_EUCLID_EXISTING_HYDROLOGY.DWG (02-15-24 3:57:54PM) Plotted by: Sshah



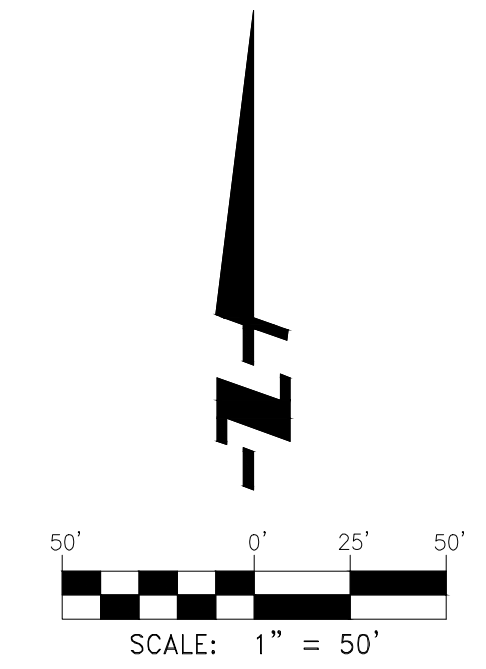
LEGEND

- DRAINAGE BOUNDARY
- DRAINAGE SUB-BOUNDARY
- NODE
- TIME OF CONCENTRATION FLOW PATH FLOW PATH LENGTH
- DRAINAGE BOUNDARY DESIGNATION AND AREA
- EXISTING STORM DRAIN

NOTES:
 SOIL TYPE C
 IMPERVIOUS PERCENTAGE - 0%
 LAND USE - AGRICULTURAL, ROW CROPS, STRAIGHT ROW

ELEV=715.5
 AREA=10.29AC
 Q2=2.1CFS
 Q5=4.6CFS
 Q10=8.9CFS
 Q25=11.5CFS

EXISTING CONDITION SUMMARY TABLE										
DRAINAGE AREA	DISCHARGE NODE	Q ₂ (CFS)	Q ₅ (CFS)	Q ₁₀ (CFS)	Q ₂₅ (CFS)	AREA (ACRES)	T _{C2} (MIN)	T _{C5} (MIN)	T _{C10} (MIN)	T _{C25} (MIN)
A	12	2.1	4.6	8.9	11.5	10.29	37.76	36.64	35.39	35.09



**CHINO EUCLID
 HYDROLOGY MAP
 EXISTING CONDITION**

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SA

SHEET
1 of 1

APPENDIX C

Proposed Condition Hydrology Calculations & Map

 RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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Analysis prepared by:

Fuscoe Engineering, Inc.
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***** DESCRIPTION OF STUDY *****
 * EDEN APARTMENTS *
 * 2 YEAR STORM EVENT *
 * PROPOSED CONDITION *

FILE NAME: CH2PR.DAT
 TIME/DATE OF STUDY: 12:08 02/15/2024

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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

USER SPECIFIED STORM EVENT(YEAR) = 2.00
 SPECIFIED MINIMUM PIPE SIZE(INCH) = 6.00
 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
 USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL

SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.6000
 USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.5900

ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD

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

NO.	WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET- / SIDE / SIDE / WAY	CROSSFALL IN- / OUT- / PARK- (FT)	CURB HEIGHT (FT)	GUTTER WIDTH (FT)	GEOMETRIES LIP (FT)	MANNING HIKE FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0313	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
 1. Relative Flow-Depth = 0.00 FEET
 as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
 2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
 *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
 OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
 *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

 FLOW PROCESS FROM NODE 10.00 TO NODE 11.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 385.00
 ELEVATION DATA: UPSTREAM(FEET) = 723.00 DOWNSTREAM(FEET) = 721.10

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.515
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.781
 SUBAREA Tc AND LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
COMMERCIAL	C	0.69	0.81	0.100	50	9.51
APARTMENTS	C	0.69	0.81	0.200	50	10.14

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.81
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 2.08
 TOTAL AREA(ACRES) = 1.39 PEAK FLOW RATE(CFS) = 2.08

 FLOW PROCESS FROM NODE 11.00 TO NODE 12.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 713.20 DOWNSTREAM(FEET) = 710.10
 FLOW LENGTH(FEET) = 632.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 12.0 INCH PIPE IS 8.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 3.40
 ESTIMATED PIPE DIAMETER(INCH) = 12.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 2.08
 PIPE TRAVEL TIME(MIN.) = 3.10 Tc(MIN.) = 12.61
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 1017.00 FEET.

 FLOW PROCESS FROM NODE 12.00 TO NODE 12.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 12.61
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.504
 SUBAREA LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.44	0.81	0.100	50
APARTMENTS	C	0.44	0.81	0.200	50

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.81
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.88 SUBAREA RUNOFF(CFS) = 1.09
 EFFECTIVE AREA(ACRES) = 2.27 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 2.3 PEAK FLOW RATE(CFS) = 2.82

 FLOW PROCESS FROM NODE 12.00 TO NODE 12.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 12.61
 RAINFALL INTENSITY(INCH/HR) = 1.50
 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 2.27
 TOTAL STREAM AREA(ACRES) = 2.27
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 2.82

 FLOW PROCESS FROM NODE 13.00 TO NODE 14.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 378.00
 ELEVATION DATA: UPSTREAM(FEET) = 720.00 DOWNSTREAM(FEET) = 718.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.315
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.804
 SUBAREA Tc AND LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ SCS SOIL	AREA	Fp	Ap	SCS	Tc
-------------------------------	------	----	----	-----	----

LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	(MIN.)
COMMERCIAL	C	0.52	0.81	0.100	50	9.31
APARTMENTS	C	0.52	0.81	0.200	50	9.93

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.81
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 1.59
 TOTAL AREA(ACRES) = 1.05 PEAK FLOW RATE(CFS) = 1.59

FLOW PROCESS FROM NODE 14.00 TO NODE 12.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION(MIN.) = 9.31
 RAINFALL INTENSITY(INCH/HR) = 1.80
 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 1.05
 TOTAL STREAM AREA(ACRES) = 1.05
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 1.59

FLOW PROCESS FROM NODE 25.00 TO NODE 14.00 IS CODE = 21

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

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 438.00
 ELEVATION DATA: UPSTREAM(FEET) = 722.00 DOWNSTREAM(FEET) = 718.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.858
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.859
 SUBAREA Tc AND LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
COMMERCIAL	C	0.67	0.81	0.100	50	8.86
APARTMENTS	C	0.67	0.81	0.200	50	9.44

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.81
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 2.08
 TOTAL AREA(ACRES) = 1.33 PEAK FLOW RATE(CFS) = 2.08

FLOW PROCESS FROM NODE 14.00 TO NODE 12.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

=====

TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 3 ARE:
 TIME OF CONCENTRATION(MIN.) = 8.86
 RAINFALL INTENSITY(INCH/HR) = 1.86
 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 1.33
 TOTAL STREAM AREA(ACRES) = 1.33
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 2.08

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2.82	12.61	1.504	0.81(0.12)	0.15	2.3	10.00
2	1.59	9.31	1.804	0.81(0.12)	0.15	1.0	13.00
3	2.08	8.86	1.859	0.81(0.12)	0.15	1.3	25.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 3 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	6.13	8.86	1.859	0.81(0.12)	0.15	3.9	25.00
2	6.14	9.31	1.804	0.81(0.12)	0.15	4.1	13.00
3	5.78	12.61	1.504	0.81(0.12)	0.15	4.7	10.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 6.14 Tc(MIN.) = 9.31
 EFFECTIVE AREA(ACRES) = 4.06 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 4.7
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 1017.00 FEET.

 FLOW PROCESS FROM NODE 12.00 TO NODE 15.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 710.10 DOWNSTREAM(FEET) = 707.70
 FLOW LENGTH(FEET) = 464.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 12.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 4.56
 ESTIMATED PIPE DIAMETER(INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 6.14
 PIPE TRAVEL TIME(MIN.) = 1.70 Tc(MIN.) = 11.01
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 15.00 = 1481.00 FEET.

 FLOW PROCESS FROM NODE 15.00 TO NODE 15.00 IS CODE = 10

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

 FLOW PROCESS FROM NODE 20.00 TO NODE 21.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 212.00
 ELEVATION DATA: UPSTREAM(FEET) = 725.00 DOWNSTREAM(FEET) = 722.30

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 6.200
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 2.303
 SUBAREA Tc AND LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
COMMERCIAL	C	0.12	0.81	0.100	50	6.20
APARTMENTS	C	0.12	0.81	0.200	50	6.61

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.81
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 0.49
 TOTAL AREA(ACRES) = 0.25 PEAK FLOW RATE(CFS) = 0.49

 FLOW PROCESS FROM NODE 21.00 TO NODE 22.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 718.80 DOWNSTREAM(FEET) = 717.50
 FLOW LENGTH(FEET) = 80.00 MANNING'S N = 0.013

DEPTH OF FLOW IN 6.0 INCH PIPE IS 3.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 3.75
 ESTIMATED PIPE DIAMETER(INCH) = 6.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 0.49
 PIPE TRAVEL TIME(MIN.) = 0.36 Tc(MIN.) = 6.56
 LONGEST FLOWPATH FROM NODE 20.00 TO NODE 22.00 = 292.00 FEET.

FLOW PROCESS FROM NODE 22.00 TO NODE 22.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 6.56
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 2.227
 SUBAREA LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.60	0.81	0.100	50
APARTMENTS	C	0.60	0.81	0.200	50

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.81
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 1.19 SUBAREA RUNOFF(CFS) = 2.25
 EFFECTIVE AREA(ACRES) = 1.44 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 1.4 PEAK FLOW RATE(CFS) = 2.73

FLOW PROCESS FROM NODE 22.00 TO NODE 22.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 6.56
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 2.227
 SUBAREA LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.19	0.81	0.100	50
APARTMENTS	C	0.19	0.81	0.200	50

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.81
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.37 SUBAREA RUNOFF(CFS) = 0.70
 EFFECTIVE AREA(ACRES) = 1.81 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 1.8 PEAK FLOW RATE(CFS) = 3.43

FLOW PROCESS FROM NODE 22.00 TO NODE 23.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 717.50 DOWNSTREAM(FEET) = 714.70
 FLOW LENGTH(FEET) = 171.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 12.0 INCH PIPE IS 8.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.10
 ESTIMATED PIPE DIAMETER(INCH) = 12.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 3.43
 PIPE TRAVEL TIME(MIN.) = 0.47 Tc(MIN.) = 7.02
 LONGEST FLOWPATH FROM NODE 20.00 TO NODE 23.00 = 463.00 FEET.

FLOW PROCESS FROM NODE 23.00 TO NODE 23.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 7.02
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 2.137
 SUBAREA LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.19	0.81	0.100	50
APARTMENTS	C	0.19	0.81	0.200	50

LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	C	0.80	0.81	0.100	50
APARTMENTS	C	0.80	0.81	0.200	50

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.81
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 1.59 SUBAREA RUNOFF(CFS) = 2.88
 EFFECTIVE AREA(ACRES) = 3.40 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 3.4 PEAK FLOW RATE(CFS) = 6.17

FLOW PROCESS FROM NODE 23.00 TO NODE 24.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 714.70 DOWNSTREAM(FEET) = 713.60
 FLOW LENGTH(FEET) = 78.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 15.0 INCH PIPE IS 10.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.65
 ESTIMATED PIPE DIAMETER(INCH) = 15.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 6.17
 PIPE TRAVEL TIME(MIN.) = 0.20 Tc(MIN.) = 7.22
 LONGEST FLOWPATH FROM NODE 20.00 TO NODE 24.00 = 541.00 FEET.

FLOW PROCESS FROM NODE 24.00 TO NODE 24.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 7.22
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 2.102
 SUBAREA LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.54	0.81	0.100	50
APARTMENTS	C	0.54	0.81	0.200	50

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.81
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 1.07 SUBAREA RUNOFF(CFS) = 1.91
 EFFECTIVE AREA(ACRES) = 4.47 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 4.5 PEAK FLOW RATE(CFS) = 7.97

FLOW PROCESS FROM NODE 24.00 TO NODE 24.00 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.) = 7.22
 RAINFALL INTENSITY(INCH/HR) = 2.10
 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 4.47
 TOTAL STREAM AREA(ACRES) = 4.47
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 7.97

FLOW PROCESS FROM NODE 25.00 TO NODE 26.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 333.00
 ELEVATION DATA: UPSTREAM(FEET) = 722.00 DOWNSTREAM(FEET) = 720.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.632
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.888
 SUBAREA Tc AND LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
COMMERCIAL	C	0.20	0.81	0.100	50	8.63
APARTMENTS	C	0.20	0.81	0.200	50	9.20

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.81
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 0.65
 TOTAL AREA(ACRES) = 0.41 PEAK FLOW RATE(CFS) = 0.65

 FLOW PROCESS FROM NODE 26.00 TO NODE 27.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
 =====
 ELEVATION DATA: UPSTREAM(FEET) = 713.00 DOWNSTREAM(FEET) = 712.00
 FLOW LENGTH(FEET) = 215.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 9.0 INCH PIPE IS 5.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 2.54
 ESTIMATED PIPE DIAMETER(INCH) = 9.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 0.65
 PIPE TRAVEL TIME(MIN.) = 1.41 Tc(MIN.) = 10.04
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 27.00 = 548.00 FEET.

 FLOW PROCESS FROM NODE 27.00 TO NODE 27.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc(MIN.) = 10.04
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.724
 SUBAREA LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.11	0.81	0.100	50
APARTMENTS	C	0.11	0.81	0.200	50

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.81
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.22 SUBAREA RUNOFF(CFS) = 0.32
 EFFECTIVE AREA(ACRES) = 0.63 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 0.6 PEAK FLOW RATE(CFS) = 0.91

 FLOW PROCESS FROM NODE 27.00 TO NODE 27.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc(MIN.) = 10.04
 * 2 YEAR RAINFALL INTENSITY(INCH/HR) = 1.724
 SUBAREA LOSS RATE DATA(AMC I):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.27	0.81	0.100	50
APARTMENTS	C	0.27	0.81	0.200	50

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.81
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.54 SUBAREA RUNOFF(CFS) = 0.78
 EFFECTIVE AREA(ACRES) = 1.17 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 1.2 PEAK FLOW RATE(CFS) = 1.69

 FLOW PROCESS FROM NODE 27.00 TO NODE 28.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 712.00 DOWNSTREAM(FEET) = 709.20
 FLOW LENGTH(FEET) = 359.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 12.0 INCH PIPE IS 6.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 3.92
 ESTIMATED PIPE DIAMETER(INCH) = 12.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 1.69
 PIPE TRAVEL TIME(MIN.) = 1.53 Tc(MIN.) = 11.57
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 28.00 = 907.00 FEET.

 FLOW PROCESS FROM NODE 28.00 TO NODE 24.00 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.) = 11.57
 RAINFALL INTENSITY(INCH/HR) = 1.58
 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 1.17
 TOTAL STREAM AREA(ACRES) = 1.17
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 1.69

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	7.97	7.22	2.102	0.81(0.12)	0.15	4.5	20.00
2	1.69	11.57	1.584	0.81(0.12)	0.15	1.2	25.00

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	9.39	7.22	2.102	0.81(0.12)	0.15	5.2	20.00
2	7.57	11.57	1.584	0.81(0.12)	0.15	5.6	25.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 9.39 Tc(MIN.) = 7.22
 EFFECTIVE AREA(ACRES) = 5.20 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 5.6
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 24.00 = 907.00 FEET.

 FLOW PROCESS FROM NODE 28.00 TO NODE 15.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 709.20 DOWNSTREAM(FEET) = 707.70
 FLOW LENGTH(FEET) = 180.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 21.0 INCH PIPE IS 12.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.14
 ESTIMATED PIPE DIAMETER(INCH) = 21.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 9.39
 PIPE TRAVEL TIME(MIN.) = 0.49 Tc(MIN.) = 7.71
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 15.00 = 1087.00 FEET.

 FLOW PROCESS FROM NODE 15.00 TO NODE 15.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	9.39	7.71	2.021	0.81(0.12)	0.15	5.2	20.00
2	7.57	12.09	1.543	0.81(0.12)	0.15	5.6	25.00

LONGEST FLOWPATH FROM NODE 25.00 TO NODE 15.00 = 1087.00 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	6.13	10.55	1.674	0.81(0.12)	0.15	3.9	25.00
2	6.14	11.01	1.632	0.81(0.12)	0.15	4.1	13.00
3	5.78	14.33	1.393	0.81(0.12)	0.15	4.7	10.00

LONGEST FLOWPATH FROM NODE 10.00 TO NODE 15.00 = 1481.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14.88	7.71	2.021	0.81(0.12)	0.15	8.1	20.00
2	14.34	10.55	1.674	0.81(0.12)	0.15	9.4	25.00
3	14.16	11.01	1.632	0.81(0.12)	0.15	9.6	13.00
4	13.59	12.09	1.543	0.81(0.12)	0.15	9.9	25.00
5	12.56	14.33	1.393	0.81(0.12)	0.15	10.3	10.00

TOTAL AREA(ACRES) = 10.3

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 14.88 Tc(MIN.) = 7.707
 EFFECTIVE AREA(ACRES) = 8.06 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 10.3
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 15.00 = 1481.00 FEET.

FLOW PROCESS FROM NODE 15.00 TO NODE 29.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 707.70 DOWNSTREAM(FEET) = 707.60
 FLOW LENGTH(FEET) = 18.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 24.0 INCH PIPE IS 18.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 5.79
 ESTIMATED PIPE DIAMETER(INCH) = 24.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 14.88
 PIPE TRAVEL TIME(MIN.) = 0.05 Tc(MIN.) = 7.76
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 29.00 = 1499.00 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 10.3 TC(MIN.) = 7.76
 EFFECTIVE AREA(ACRES) = 8.06 AREA-AVERAGED Fm(INCH/HR)= 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.81 AREA-AVERAGED Ap = 0.150
 PEAK FLOW RATE(CFS) = 14.88

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14.88	7.76	2.013	0.81(0.12)	0.15	8.1	20.00
2	14.34	10.61	1.669	0.81(0.12)	0.15	9.4	25.00
3	14.16	11.06	1.627	0.81(0.12)	0.15	9.6	13.00
4	13.59	12.14	1.539	0.81(0.12)	0.15	9.9	25.00
5	12.56	14.38	1.390	0.81(0.12)	0.15	10.3	10.00

END OF RATIONAL METHOD ANALYSIS



 RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
 (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
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Analysis prepared by:

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***** DESCRIPTION OF STUDY *****
 * EDEN APARTMENTS *
 * 10 YEAR STORM EVENT *
 * PROPOSED CONDITION *

FILE NAME: CH2PR.DAT
 TIME/DATE OF STUDY: 12:22 02/15/2024

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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

USER SPECIFIED STORM EVENT(YEAR) = 10.00
 SPECIFIED MINIMUM PIPE SIZE(INCH) = 6.00
 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
 USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL

SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.6000
 USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.9210

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

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

NO.	WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET- / SIDE / SIDE / WAY	CROSSFALL IN- / OUT- / PARK- (FT)	CURB HEIGHT (FT)	GUTTER WIDTH (FT)	GEOMETRIES LIP (FT)	MANNING HIKE 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 10.00 TO NODE 11.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 385.00
 ELEVATION DATA: UPSTREAM(FEET) = 723.00 DOWNSTREAM(FEET) = 721.10

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.515
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.780

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.)
COMMERCIAL	C	0.69	0.57	0.100	69	9.51
APARTMENTS	C	0.69	0.57	0.200	69	10.14

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 3.37
 TOTAL AREA(ACRES) = 1.39 PEAK FLOW RATE(CFS) = 3.37

 FLOW PROCESS FROM NODE 11.00 TO NODE 12.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 713.20 DOWNSTREAM(FEET) = 710.10
 FLOW LENGTH(FEET) = 632.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 15.0 INCH PIPE IS 10.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 3.87
 ESTIMATED PIPE DIAMETER(INCH) = 15.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 3.37
 PIPE TRAVEL TIME(MIN.) = 2.72 Tc(MIN.) = 12.23
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 1017.00 FEET.

 FLOW PROCESS FROM NODE 12.00 TO NODE 12.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 12.23
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.391
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.44	0.57	0.100	69
APARTMENTS	C	0.44	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.88 SUBAREA RUNOFF(CFS) = 1.83
 EFFECTIVE AREA(ACRES) = 2.27 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 2.3 PEAK FLOW RATE(CFS) = 4.71

 FLOW PROCESS FROM NODE 12.00 TO NODE 12.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 12.23
 RAINFALL INTENSITY(INCH/HR) = 2.39
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 2.27
 TOTAL STREAM AREA(ACRES) = 2.27
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 4.71

 FLOW PROCESS FROM NODE 13.00 TO NODE 14.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 378.00
 ELEVATION DATA: UPSTREAM(FEET) = 720.00 DOWNSTREAM(FEET) = 718.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.315
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.816
 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.)
COMMERCIAL	C	0.52	0.57	0.100	69	9.31
APARTMENTS	C	0.52	0.57	0.200	69	9.93

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 2.58
 TOTAL AREA(ACRES) = 1.05 PEAK FLOW RATE(CFS) = 2.58

FLOW PROCESS FROM NODE 14.00 TO NODE 12.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION(MIN.) = 9.31
 RAINFALL INTENSITY(INCH/HR) = 2.82
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 1.05
 TOTAL STREAM AREA(ACRES) = 1.05
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 2.58

FLOW PROCESS FROM NODE 25.00 TO NODE 14.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 438.00
 ELEVATION DATA: UPSTREAM(FEET) = 722.00 DOWNSTREAM(FEET) = 718.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.858
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.902
 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.)
COMMERCIAL	C	0.67	0.57	0.100	69	8.86
APARTMENTS	C	0.67	0.57	0.200	69	9.44

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 3.37
 TOTAL AREA(ACRES) = 1.33 PEAK FLOW RATE(CFS) = 3.37

FLOW PROCESS FROM NODE 14.00 TO NODE 12.00 IS CODE = 1

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

=====

TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 3 ARE:
 TIME OF CONCENTRATION(MIN.) = 8.86
 RAINFALL INTENSITY(INCH/HR) = 2.90
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 1.33
 TOTAL STREAM AREA(ACRES) = 1.33
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 3.37

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	4.71	12.23	2.391	0.57(0.08)	0.15	2.3	10.00
2	2.58	9.31	2.816	0.57(0.08)	0.15	1.0	13.00
3	3.37	8.86	2.902	0.57(0.08)	0.15	1.3	25.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 3 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	10.07	8.86	2.902	0.57(0.08)	0.15	4.0	25.00
2	10.10	9.31	2.816	0.57(0.08)	0.15	4.1	13.00
3	9.65	12.23	2.391	0.57(0.08)	0.15	4.7	10.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 10.10 Tc(MIN.) = 9.31
 EFFECTIVE AREA(ACRES) = 4.11 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 4.7
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 1017.00 FEET.

 FLOW PROCESS FROM NODE 12.00 TO NODE 15.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 710.10 DOWNSTREAM(FEET) = 707.70
 FLOW LENGTH(FEET) = 464.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 21.0 INCH PIPE IS 16.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 5.11
 ESTIMATED PIPE DIAMETER(INCH) = 21.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 10.10
 PIPE TRAVEL TIME(MIN.) = 1.51 Tc(MIN.) = 10.83
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 15.00 = 1481.00 FEET.

 FLOW PROCESS FROM NODE 15.00 TO NODE 15.00 IS CODE = 10

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

 FLOW PROCESS FROM NODE 20.00 TO NODE 21.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 212.00
 ELEVATION DATA: UPSTREAM(FEET) = 725.00 DOWNSTREAM(FEET) = 722.30

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 6.200
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 3.595
 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.)
COMMERCIAL	C	0.12	0.57	0.100	69	6.20
APARTMENTS	C	0.12	0.57	0.200	69	6.61

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 0.79
 TOTAL AREA(ACRES) = 0.25 PEAK FLOW RATE(CFS) = 0.79

 FLOW PROCESS FROM NODE 21.00 TO NODE 22.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 718.80 DOWNSTREAM(FEET) = 717.50
 FLOW LENGTH(FEET) = 80.00 MANNING'S N = 0.013

DEPTH OF FLOW IN 9.0 INCH PIPE IS 3.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 4.27
 ESTIMATED PIPE DIAMETER(INCH) = 9.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 0.79
 PIPE TRAVEL TIME(MIN.) = 0.31 Tc(MIN.) = 6.51
 LONGEST FLOWPATH FROM NODE 20.00 TO NODE 22.00 = 292.00 FEET.

FLOW PROCESS FROM NODE 22.00 TO NODE 22.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 6.51
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 3.491
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.60	0.57	0.100	69
APARTMENTS	C	0.60	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 1.19 SUBAREA RUNOFF(CFS) = 3.65
 EFFECTIVE AREA(ACRES) = 1.44 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 1.4 PEAK FLOW RATE(CFS) = 4.41

FLOW PROCESS FROM NODE 22.00 TO NODE 22.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 6.51
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 3.491
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.19	0.57	0.100	69
APARTMENTS	C	0.19	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.37 SUBAREA RUNOFF(CFS) = 1.13
 EFFECTIVE AREA(ACRES) = 1.81 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 1.8 PEAK FLOW RATE(CFS) = 5.55

FLOW PROCESS FROM NODE 22.00 TO NODE 23.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 717.50 DOWNSTREAM(FEET) = 714.70
 FLOW LENGTH(FEET) = 171.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 15.0 INCH PIPE IS 9.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.93
 ESTIMATED PIPE DIAMETER(INCH) = 15.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 5.55
 PIPE TRAVEL TIME(MIN.) = 0.41 Tc(MIN.) = 6.92
 LONGEST FLOWPATH FROM NODE 20.00 TO NODE 23.00 = 463.00 FEET.

FLOW PROCESS FROM NODE 23.00 TO NODE 23.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 6.92
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 3.365
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.19	0.57	0.100	69
APARTMENTS	C	0.19	0.57	0.200	69

LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	C	0.80	0.57	0.100	69
APARTMENTS	C	0.80	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 1.59 SUBAREA RUNOFF(CFS) = 4.69
 EFFECTIVE AREA(ACRES) = 3.40 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 3.4 PEAK FLOW RATE(CFS) = 10.04

 FLOW PROCESS FROM NODE 23.00 TO NODE 24.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
 =====
 ELEVATION DATA: UPSTREAM(FEET) = 714.70 DOWNSTREAM(FEET) = 713.60
 FLOW LENGTH(FEET) = 78.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 12.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 7.51
 ESTIMATED PIPE DIAMETER(INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 10.04
 PIPE TRAVEL TIME(MIN.) = 0.17 Tc(MIN.) = 7.10
 LONGEST FLOWPATH FROM NODE 20.00 TO NODE 24.00 = 541.00 FEET.

 FLOW PROCESS FROM NODE 24.00 TO NODE 24.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc(MIN.) = 7.10
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 3.315
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.54	0.57	0.100	69
APARTMENTS	C	0.54	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 1.07 SUBAREA RUNOFF(CFS) = 3.11
 EFFECTIVE AREA(ACRES) = 4.47 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 4.5 PEAK FLOW RATE(CFS) = 13.00

 FLOW PROCESS FROM NODE 24.00 TO NODE 24.00 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.) = 7.10
 RAINFALL INTENSITY(INCH/HR) = 3.32
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 4.47
 TOTAL STREAM AREA(ACRES) = 4.47
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 13.00

 FLOW PROCESS FROM NODE 25.00 TO NODE 26.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
 =====
 INITIAL SUBAREA FLOW-LENGTH(FEET) = 333.00
 ELEVATION DATA: UPSTREAM(FEET) = 722.00 DOWNSTREAM(FEET) = 720.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.632
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.948
 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.)
COMMERCIAL	C	0.20	0.57	0.100	69	8.63
APARTMENTS	C	0.20	0.57	0.200	69	9.20

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 1.06
 TOTAL AREA(ACRES) = 0.41 PEAK FLOW RATE(CFS) = 1.06

 FLOW PROCESS FROM NODE 26.00 TO NODE 27.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
 =====
 ELEVATION DATA: UPSTREAM(FEET) = 713.00 DOWNSTREAM(FEET) = 712.00
 FLOW LENGTH(FEET) = 215.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 9.0 INCH PIPE IS 7.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 2.77
 ESTIMATED PIPE DIAMETER(INCH) = 9.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 1.06
 PIPE TRAVEL TIME(MIN.) = 1.29 Tc(MIN.) = 9.93
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 27.00 = 548.00 FEET.

 FLOW PROCESS FROM NODE 27.00 TO NODE 27.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc(MIN.) = 9.93
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.711
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.11	0.57	0.100	69
APARTMENTS	C	0.11	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.22 SUBAREA RUNOFF(CFS) = 0.52
 EFFECTIVE AREA(ACRES) = 0.63 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 0.6 PEAK FLOW RATE(CFS) = 1.49

 FLOW PROCESS FROM NODE 27.00 TO NODE 27.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc(MIN.) = 9.93
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.711
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.27	0.57	0.100	69
APARTMENTS	C	0.27	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.54 SUBAREA RUNOFF(CFS) = 1.28
 EFFECTIVE AREA(ACRES) = 1.17 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 1.2 PEAK FLOW RATE(CFS) = 2.76

 FLOW PROCESS FROM NODE 27.00 TO NODE 28.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 712.00 DOWNSTREAM(FEET) = 709.20
 FLOW LENGTH(FEET) = 359.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 12.0 INCH PIPE IS 9.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 4.32
 ESTIMATED PIPE DIAMETER(INCH) = 12.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 2.76
 PIPE TRAVEL TIME(MIN.) = 1.39 Tc(MIN.) = 11.31
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 28.00 = 907.00 FEET.

 FLOW PROCESS FROM NODE 28.00 TO NODE 24.00 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.) = 11.31
 RAINFALL INTENSITY(INCH/HR) = 2.51
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 1.17
 TOTAL STREAM AREA(ACRES) = 1.17
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 2.76

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13.00	7.10	3.315	0.57(0.08)	0.15	4.5	20.00
2	2.76	11.31	2.506	0.57(0.08)	0.15	1.2	25.00

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	15.31	7.10	3.315	0.57(0.08)	0.15	5.2	20.00
2	12.51	11.31	2.506	0.57(0.08)	0.15	5.6	25.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 15.31 Tc(MIN.) = 7.10
 EFFECTIVE AREA(ACRES) = 5.20 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 5.6
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 24.00 = 907.00 FEET.

 FLOW PROCESS FROM NODE 28.00 TO NODE 15.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 709.20 DOWNSTREAM(FEET) = 707.70
 FLOW LENGTH(FEET) = 180.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 24.0 INCH PIPE IS 16.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.90
 ESTIMATED PIPE DIAMETER(INCH) = 24.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 15.31
 PIPE TRAVEL TIME(MIN.) = 0.43 Tc(MIN.) = 7.53
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 15.00 = 1087.00 FEET.

 FLOW PROCESS FROM NODE 15.00 TO NODE 15.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	15.31	7.53	3.199	0.57(0.08)	0.15	5.2	20.00
2	12.51	11.78	2.446	0.57(0.08)	0.15	5.6	25.00

LONGEST FLOWPATH FROM NODE 25.00 TO NODE 15.00 = 1087.00 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	10.07	10.37	2.640	0.57(0.08)	0.15	4.0	25.00
2	10.10	10.83	2.573	0.57(0.08)	0.15	4.1	13.00
3	9.65	13.76	2.229	0.57(0.08)	0.15	4.7	10.00

LONGEST FLOWPATH FROM NODE 10.00 TO NODE 15.00 = 1481.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24.22	7.53	3.199	0.57(0.08)	0.15	8.1	20.00
2	23.51	10.37	2.640	0.57(0.08)	0.15	9.5	25.00
3	23.23	10.83	2.573	0.57(0.08)	0.15	9.7	13.00
4	22.46	11.78	2.446	0.57(0.08)	0.15	9.9	25.00
5	21.00	13.76	2.229	0.57(0.08)	0.15	10.3	10.00

TOTAL AREA(ACRES) = 10.3

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 24.22 Tc(MIN.) = 7.531
 EFFECTIVE AREA(ACRES) = 8.09 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 10.3
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 15.00 = 1481.00 FEET.

FLOW PROCESS FROM NODE 15.00 TO NODE 29.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<

>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 707.70 DOWNSTREAM(FEET) = 707.60
 FLOW LENGTH(FEET) = 18.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 30.0 INCH PIPE IS 21.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.62
 ESTIMATED PIPE DIAMETER(INCH) = 30.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 24.22
 PIPE TRAVEL TIME(MIN.) = 0.05 Tc(MIN.) = 7.58
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 29.00 = 1499.00 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 10.3 TC(MIN.) = 7.58
 EFFECTIVE AREA(ACRES) = 8.09 AREA-AVERAGED Fm(INCH/HR)= 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.150
 PEAK FLOW RATE(CFS) = 24.22

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24.22	7.58	3.188	0.57(0.08)	0.15	8.1	20.00
2	23.51	10.42	2.633	0.57(0.08)	0.15	9.5	25.00
3	23.23	10.87	2.566	0.57(0.08)	0.15	9.7	13.00
4	22.46	11.82	2.441	0.57(0.08)	0.15	9.9	25.00
5	21.00	13.80	2.224	0.57(0.08)	0.15	10.3	10.00

END OF RATIONAL METHOD ANALYSIS



 RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
 (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
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Analysis prepared by:

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***** DESCRIPTION OF STUDY *****
 * EDEN APARTMENTS *
 * 25 YEAR STORM EVENT *
 * PROPOSED CONDITION *

FILE NAME: CH2PR.DAT
 TIME/DATE OF STUDY: 12:24 02/15/2024

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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

USER SPECIFIED STORM EVENT(YEAR) = 25.00
 SPECIFIED MINIMUM PIPE SIZE(INCH) = 6.00
 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
 USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL

SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.6000
 USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.1200

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

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

NO.	WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET- / SIDE / SIDE / WAY	CROSSFALL IN- / OUT- / PARK- (FT)	CURB HEIGHT (FT)	GUTTER WIDTH (FT)	GEOMETRIES LIP (FT)	MANNING HIKE 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 10.00 TO NODE 11.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 385.00
 ELEVATION DATA: UPSTREAM(FEET) = 723.00 DOWNSTREAM(FEET) = 721.10

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.515
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.381
 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.)
COMMERCIAL	C	0.69	0.57	0.100	69	9.51
APARTMENTS	C	0.69	0.57	0.200	69	10.14

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 4.12
 TOTAL AREA(ACRES) = 1.39 PEAK FLOW RATE(CFS) = 4.12

 FLOW PROCESS FROM NODE 11.00 TO NODE 12.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 713.20 DOWNSTREAM(FEET) = 710.10
 FLOW LENGTH(FEET) = 632.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 15.0 INCH PIPE IS 11.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 3.98
 ESTIMATED PIPE DIAMETER(INCH) = 15.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 4.12
 PIPE TRAVEL TIME(MIN.) = 2.64 Tc(MIN.) = 12.16
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 1017.00 FEET.

 FLOW PROCESS FROM NODE 12.00 TO NODE 12.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 12.16
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.919
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.44	0.57	0.100	69
APARTMENTS	C	0.44	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.88 SUBAREA RUNOFF(CFS) = 2.24
 EFFECTIVE AREA(ACRES) = 2.27 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 2.3 PEAK FLOW RATE(CFS) = 5.79

 FLOW PROCESS FROM NODE 12.00 TO NODE 12.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 12.16
 RAINFALL INTENSITY(INCH/HR) = 2.92
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 2.27
 TOTAL STREAM AREA(ACRES) = 2.27
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 5.79

 FLOW PROCESS FROM NODE 13.00 TO NODE 14.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 378.00
 ELEVATION DATA: UPSTREAM(FEET) = 720.00 DOWNSTREAM(FEET) = 718.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.315
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.425
 SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL	AREA	Fp	Ap	SCS	Tc
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LAND USE          GROUP  (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
COMMERCIAL        C      0.52   0.57   0.100   69   9.31
APARTMENTS        C      0.52   0.57   0.200   69   9.93
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
SUBAREA RUNOFF(CFS) = 3.16
TOTAL AREA(ACRES) = 1.05  PEAK FLOW RATE(CFS) = 3.16

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FLOW PROCESS FROM NODE 14.00 TO NODE 12.00 IS CODE = 1
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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

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TOTAL NUMBER OF STREAMS = 3
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 9.31
RAINFALL INTENSITY(INCH/HR) = 3.42
AREA-AVERAGED Fm(INCH/HR) = 0.08
AREA-AVERAGED Fp(INCH/HR) = 0.57
AREA-AVERAGED Ap = 0.15
EFFECTIVE STREAM AREA(ACRES) = 1.05
TOTAL STREAM AREA(ACRES) = 1.05
PEAK FLOW RATE(CFS) AT CONFLUENCE = 3.16

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FLOW PROCESS FROM NODE 25.00 TO NODE 14.00 IS CODE = 21
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>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

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

=====

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INITIAL SUBAREA FLOW-LENGTH(FEET) = 438.00
ELEVATION DATA: UPSTREAM(FEET) = 722.00  DOWNSTREAM(FEET) = 718.00

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Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.858
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.529
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.)
COMMERCIAL         C      0.67   0.57   0.100   69   8.86
APARTMENTS         C      0.67   0.57   0.200   69   9.44
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
SUBAREA RUNOFF(CFS) = 4.12
TOTAL AREA(ACRES) = 1.33  PEAK FLOW RATE(CFS) = 4.12

```

```

FLOW PROCESS FROM NODE 14.00 TO NODE 12.00 IS CODE = 1
-----

```

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

=====

```

TOTAL NUMBER OF STREAMS = 3
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 3 ARE:
TIME OF CONCENTRATION(MIN.) = 8.86
RAINFALL INTENSITY(INCH/HR) = 3.53
AREA-AVERAGED Fm(INCH/HR) = 0.08
AREA-AVERAGED Fp(INCH/HR) = 0.57
AREA-AVERAGED Ap = 0.15
EFFECTIVE STREAM AREA(ACRES) = 1.33
TOTAL STREAM AREA(ACRES) = 1.33
PEAK FLOW RATE(CFS) AT CONFLUENCE = 4.12

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** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	5.79	12.16	2.919	0.57(0.08)	0.15	2.3	10.00
2	3.16	9.31	3.425	0.57(0.08)	0.15	1.0	13.00
3	4.12	8.86	3.529	0.57(0.08)	0.15	1.3	25.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 3 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12.35	8.86	3.529	0.57(0.08)	0.15	4.0	25.00
2	12.38	9.31	3.425	0.57(0.08)	0.15	4.1	13.00
3	11.86	12.16	2.919	0.57(0.08)	0.15	4.7	10.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 12.38 Tc(MIN.) = 9.31
 EFFECTIVE AREA(ACRES) = 4.12 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 4.7
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 1017.00 FEET.

 FLOW PROCESS FROM NODE 12.00 TO NODE 15.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 710.10 DOWNSTREAM(FEET) = 707.70
 FLOW LENGTH(FEET) = 464.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 24.0 INCH PIPE IS 16.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 5.46
 ESTIMATED PIPE DIAMETER(INCH) = 24.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 12.38
 PIPE TRAVEL TIME(MIN.) = 1.42 Tc(MIN.) = 10.73
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 15.00 = 1481.00 FEET.

 FLOW PROCESS FROM NODE 15.00 TO NODE 15.00 IS CODE = 10

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

 FLOW PROCESS FROM NODE 20.00 TO NODE 21.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 212.00
 ELEVATION DATA: UPSTREAM(FEET) = 725.00 DOWNSTREAM(FEET) = 722.30

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 6.200
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 4.372
 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.)
COMMERCIAL	C	0.12	0.57	0.100	69	6.20
APARTMENTS	C	0.12	0.57	0.200	69	6.61

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 0.96
 TOTAL AREA(ACRES) = 0.25 PEAK FLOW RATE(CFS) = 0.96

 FLOW PROCESS FROM NODE 21.00 TO NODE 22.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 718.80 DOWNSTREAM(FEET) = 717.50
 FLOW LENGTH(FEET) = 80.00 MANNING'S N = 0.013

DEPTH OF FLOW IN 9.0 INCH PIPE IS 4.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 4.50
 ESTIMATED PIPE DIAMETER(INCH) = 9.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 0.96
 PIPE TRAVEL TIME(MIN.) = 0.30 Tc(MIN.) = 6.50
 LONGEST FLOWPATH FROM NODE 20.00 TO NODE 22.00 = 292.00 FEET.

FLOW PROCESS FROM NODE 22.00 TO NODE 22.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 6.50
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 4.251
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.60	0.57	0.100	69
APARTMENTS	C	0.60	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 1.19 SUBAREA RUNOFF(CFS) = 4.46
 EFFECTIVE AREA(ACRES) = 1.44 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 1.4 PEAK FLOW RATE(CFS) = 5.40

FLOW PROCESS FROM NODE 22.00 TO NODE 22.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 6.50
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 4.251
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.19	0.57	0.100	69
APARTMENTS	C	0.19	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.37 SUBAREA RUNOFF(CFS) = 1.39
 EFFECTIVE AREA(ACRES) = 1.81 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 1.8 PEAK FLOW RATE(CFS) = 6.79

FLOW PROCESS FROM NODE 22.00 TO NODE 23.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 717.50 DOWNSTREAM(FEET) = 714.70
 FLOW LENGTH(FEET) = 171.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 15.0 INCH PIPE IS 10.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 7.19
 ESTIMATED PIPE DIAMETER(INCH) = 15.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 6.79
 PIPE TRAVEL TIME(MIN.) = 0.40 Tc(MIN.) = 6.89
 LONGEST FLOWPATH FROM NODE 20.00 TO NODE 23.00 = 463.00 FEET.

FLOW PROCESS FROM NODE 23.00 TO NODE 23.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 6.89
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 4.103
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.19	0.57	0.100	69
APARTMENTS	C	0.19	0.57	0.200	69

LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	C	0.80	0.57	0.100	69
APARTMENTS	C	0.80	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 1.59 SUBAREA RUNOFF(CFS) = 5.75
 EFFECTIVE AREA(ACRES) = 3.40 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 3.4 PEAK FLOW RATE(CFS) = 12.29

 FLOW PROCESS FROM NODE 23.00 TO NODE 24.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 714.70 DOWNSTREAM(FEET) = 713.60
 FLOW LENGTH(FEET) = 78.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 21.0 INCH PIPE IS 12.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 8.00
 ESTIMATED PIPE DIAMETER(INCH) = 21.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 12.29
 PIPE TRAVEL TIME(MIN.) = 0.16 Tc(MIN.) = 7.06
 LONGEST FLOWPATH FROM NODE 20.00 TO NODE 24.00 = 541.00 FEET.

 FLOW PROCESS FROM NODE 24.00 TO NODE 24.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 7.06
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 4.046
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.54	0.57	0.100	69
APARTMENTS	C	0.54	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 1.07 SUBAREA RUNOFF(CFS) = 3.81
 EFFECTIVE AREA(ACRES) = 4.47 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 4.5 PEAK FLOW RATE(CFS) = 15.93

 FLOW PROCESS FROM NODE 24.00 TO NODE 24.00 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.) = 7.06
 RAINFALL INTENSITY(INCH/HR) = 4.05
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 4.47
 TOTAL STREAM AREA(ACRES) = 4.47
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 15.93

 FLOW PROCESS FROM NODE 25.00 TO NODE 26.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 333.00
 ELEVATION DATA: UPSTREAM(FEET) = 722.00 DOWNSTREAM(FEET) = 720.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.632
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.584
 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.)
COMMERCIAL	C	0.20	0.57	0.100	69	8.63
APARTMENTS	C	0.20	0.57	0.200	69	9.20

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 1.29
 TOTAL AREA(ACRES) = 0.41 PEAK FLOW RATE(CFS) = 1.29

 FLOW PROCESS FROM NODE 26.00 TO NODE 27.00 IS CODE = 31

 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
 =====
 ELEVATION DATA: UPSTREAM(FEET) = 713.00 DOWNSTREAM(FEET) = 712.00
 FLOW LENGTH(FEET) = 215.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 12.0 INCH PIPE IS 6.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 3.02
 ESTIMATED PIPE DIAMETER(INCH) = 12.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 1.29
 PIPE TRAVEL TIME(MIN.) = 1.19 Tc(MIN.) = 9.82
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 27.00 = 548.00 FEET.

 FLOW PROCESS FROM NODE 27.00 TO NODE 27.00 IS CODE = 81

 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc(MIN.) = 9.82
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.318
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.11	0.57	0.100	69
APARTMENTS	C	0.11	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.22 SUBAREA RUNOFF(CFS) = 0.64
 EFFECTIVE AREA(ACRES) = 0.63 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 0.6 PEAK FLOW RATE(CFS) = 1.83

 FLOW PROCESS FROM NODE 27.00 TO NODE 27.00 IS CODE = 81

 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc(MIN.) = 9.82
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.318
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.27	0.57	0.100	69
APARTMENTS	C	0.27	0.57	0.200	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.57
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.54 SUBAREA RUNOFF(CFS) = 1.57
 EFFECTIVE AREA(ACRES) = 1.17 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 1.2 PEAK FLOW RATE(CFS) = 3.40

 FLOW PROCESS FROM NODE 27.00 TO NODE 28.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 712.00 DOWNSTREAM(FEET) = 709.20
 FLOW LENGTH(FEET) = 359.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 15.0 INCH PIPE IS 8.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 4.66
 ESTIMATED PIPE DIAMETER(INCH) = 15.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 3.40
 PIPE TRAVEL TIME(MIN.) = 1.29 Tc(MIN.) = 11.10
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 28.00 = 907.00 FEET.

FLOW PROCESS FROM NODE 28.00 TO NODE 24.00 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.) = 11.10
 RAINFALL INTENSITY(INCH/HR) = 3.08
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 1.17
 TOTAL STREAM AREA(ACRES) = 1.17
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 3.40

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	15.93	7.06	4.046	0.57(0.08)	0.15	4.5	20.00
2	3.40	11.10	3.082	0.57(0.08)	0.15	1.2	25.00

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	18.79	7.06	4.046	0.57(0.08)	0.15	5.2	20.00
2	15.46	11.10	3.082	0.57(0.08)	0.15	5.6	25.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 18.79 Tc(MIN.) = 7.06
 EFFECTIVE AREA(ACRES) = 5.21 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 5.6
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 24.00 = 907.00 FEET.

FLOW PROCESS FROM NODE 28.00 TO NODE 15.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 709.20 DOWNSTREAM(FEET) = 707.70
 FLOW LENGTH(FEET) = 180.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 24.0 INCH PIPE IS 18.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 7.10
 ESTIMATED PIPE DIAMETER(INCH) = 24.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 18.79
 PIPE TRAVEL TIME(MIN.) = 0.42 Tc(MIN.) = 7.48
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 15.00 = 1087.00 FEET.

FLOW PROCESS FROM NODE 15.00 TO NODE 15.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18.79	7.48	3.907	0.57(0.08)	0.15	5.2	20.00
2	15.46	11.54	3.012	0.57(0.08)	0.15	5.6	25.00

LONGEST FLOWPATH FROM NODE 25.00 TO NODE 15.00 = 1087.00 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12.35	10.28	3.229	0.57(0.08)	0.15	4.0	25.00
2	12.38	10.73	3.146	0.57(0.08)	0.15	4.1	13.00
3	11.86	13.59	2.731	0.57(0.08)	0.15	4.7	10.00

LONGEST FLOWPATH FROM NODE 10.00 TO NODE 15.00 = 1481.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	29.72	7.48	3.907	0.57(0.08)	0.15	8.1	20.00
2	28.84	10.28	3.229	0.57(0.08)	0.15	9.5	25.00
3	28.50	10.73	3.146	0.57(0.08)	0.15	9.7	13.00
4	27.69	11.54	3.012	0.57(0.08)	0.15	9.9	25.00
5	25.83	13.59	2.731	0.57(0.08)	0.15	10.3	10.00

TOTAL AREA(ACRES) = 10.3

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 29.72 Tc(MIN.) = 7.478
 EFFECTIVE AREA(ACRES) = 8.11 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 10.3
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 15.00 = 1481.00 FEET.

FLOW PROCESS FROM NODE 15.00 TO NODE 29.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 707.70 DOWNSTREAM(FEET) = 707.60
 FLOW LENGTH(FEET) = 18.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 33.0 INCH PIPE IS 22.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.99
 ESTIMATED PIPE DIAMETER(INCH) = 33.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 29.72
 PIPE TRAVEL TIME(MIN.) = 0.04 Tc(MIN.) = 7.52
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 29.00 = 1499.00 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 10.3 TC(MIN.) = 7.52
 EFFECTIVE AREA(ACRES) = 8.11 AREA-AVERAGED Fm(INCH/HR)= 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.57 AREA-AVERAGED Ap = 0.150
 PEAK FLOW RATE(CFS) = 29.72

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	29.72	7.52	3.894	0.57(0.08)	0.15	8.1	20.00
2	28.84	10.32	3.220	0.57(0.08)	0.15	9.5	25.00
3	28.50	10.78	3.138	0.57(0.08)	0.15	9.7	13.00
4	27.69	11.58	3.005	0.57(0.08)	0.15	9.9	25.00
5	25.83	13.63	2.725	0.57(0.08)	0.15	10.3	10.00

END OF RATIONAL METHOD ANALYSIS



 RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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Analysis prepared by:

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***** DESCRIPTION OF STUDY *****
 * EDEN APARTMENTS *
 * 100 YEAR STORM EVENT *
 * PROPOSED CONDITION *

FILE NAME: CH2PR.DAT
 TIME/DATE OF STUDY: 12:25 02/15/2024

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

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

USER SPECIFIED STORM EVENT(YEAR) = 100.00
 SPECIFIED MINIMUM PIPE SIZE(INCH) = 6.00
 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
 USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL

SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.6000
 USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.4400

ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD

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

NO.	WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET- / SIDE / SIDE / WAY	CROSSFALL IN- / OUT- / PARK- (FT)	CURB HEIGHT (FT)	GUTTER WIDTH (FT)	GEOMETRIES LIP (FT)	MANNING HIKE 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 10.00 TO NODE 11.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 385.00
 ELEVATION DATA: UPSTREAM(FEET) = 723.00 DOWNSTREAM(FEET) = 721.10

$T_c = K * [(LENGTH ** 3.00) / (ELEVATION CHANGE)] ** 0.20$

SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.515

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.347

SUBAREA Tc AND LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
COMMERCIAL	C	0.69	0.27	0.100	86	9.51
APARTMENTS	C	0.69	0.27	0.200	86	10.14

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 5.39
 TOTAL AREA(ACRES) = 1.39 PEAK FLOW RATE(CFS) = 5.39

 FLOW PROCESS FROM NODE 11.00 TO NODE 12.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 713.20 DOWNSTREAM(FEET) = 710.10
 FLOW LENGTH(FEET) = 632.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 11.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 4.36
 ESTIMATED PIPE DIAMETER(INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 5.39
 PIPE TRAVEL TIME(MIN.) = 2.42 Tc(MIN.) = 11.93
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 1017.00 FEET.

 FLOW PROCESS FROM NODE 12.00 TO NODE 12.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 11.93
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.795
 SUBAREA LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.44	0.27	0.100	86
APARTMENTS	C	0.44	0.27	0.200	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.88 SUBAREA RUNOFF(CFS) = 2.97
 EFFECTIVE AREA(ACRES) = 2.27 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 2.3 PEAK FLOW RATE(CFS) = 7.67

 FLOW PROCESS FROM NODE 12.00 TO NODE 12.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 11.93
 RAINFALL INTENSITY(INCH/HR) = 3.80
 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 2.27
 TOTAL STREAM AREA(ACRES) = 2.27
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 7.67

 FLOW PROCESS FROM NODE 13.00 TO NODE 14.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 378.00
 ELEVATION DATA: UPSTREAM(FEET) = 720.00 DOWNSTREAM(FEET) = 718.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.315
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.403
 SUBAREA Tc AND LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ SCS SOIL	AREA	Fp	Ap	SCS	Tc
-------------------------------	------	----	----	-----	----

LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	(MIN.)
COMMERCIAL	C	0.52	0.27	0.100	86	9.31
APARTMENTS	C	0.52	0.27	0.200	86	9.93

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 4.12
 TOTAL AREA(ACRES) = 1.05 PEAK FLOW RATE(CFS) = 4.12

 FLOW PROCESS FROM NODE 14.00 TO NODE 12.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION(MIN.) = 9.31
 RAINFALL INTENSITY(INCH/HR) = 4.40
 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 1.05
 TOTAL STREAM AREA(ACRES) = 1.05
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 4.12

 FLOW PROCESS FROM NODE 25.00 TO NODE 14.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 438.00
 ELEVATION DATA: UPSTREAM(FEET) = 722.00 DOWNSTREAM(FEET) = 718.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.858
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.538
 SUBAREA Tc AND LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
COMMERCIAL	C	0.67	0.27	0.100	86	8.86
APARTMENTS	C	0.67	0.27	0.200	86	9.44

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 5.38
 TOTAL AREA(ACRES) = 1.33 PEAK FLOW RATE(CFS) = 5.38

 FLOW PROCESS FROM NODE 14.00 TO NODE 12.00 IS CODE = 1

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

=====

TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 3 ARE:
 TIME OF CONCENTRATION(MIN.) = 8.86
 RAINFALL INTENSITY(INCH/HR) = 4.54
 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 1.33
 TOTAL STREAM AREA(ACRES) = 1.33
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 5.38

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	7.67	11.93	3.795	0.27(0.04)	0.15	2.3	10.00
2	4.12	9.31	4.403	0.27(0.04)	0.15	1.0	13.00
3	5.38	8.86	4.538	0.27(0.04)	0.15	1.3	25.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 3 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	16.25	8.86	4.538	0.27(0.04)	0.15	4.0	25.00
2	16.30	9.31	4.403	0.27(0.04)	0.15	4.2	13.00
3	15.71	11.93	3.795	0.27(0.04)	0.15	4.7	10.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 16.30 Tc(MIN.) = 9.31
 EFFECTIVE AREA(ACRES) = 4.15 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 4.7
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 12.00 = 1017.00 FEET.

 FLOW PROCESS FROM NODE 12.00 TO NODE 15.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 710.10 DOWNSTREAM(FEET) = 707.70
 FLOW LENGTH(FEET) = 464.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 27.0 INCH PIPE IS 17.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 5.87
 ESTIMATED PIPE DIAMETER(INCH) = 27.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 16.30
 PIPE TRAVEL TIME(MIN.) = 1.32 Tc(MIN.) = 10.63
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 15.00 = 1481.00 FEET.

 FLOW PROCESS FROM NODE 15.00 TO NODE 15.00 IS CODE = 10

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

 FLOW PROCESS FROM NODE 20.00 TO NODE 21.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 212.00
 ELEVATION DATA: UPSTREAM(FEET) = 725.00 DOWNSTREAM(FEET) = 722.30

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 6.200
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.621
 SUBAREA Tc AND LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
COMMERCIAL	C	0.12	0.27	0.100	86	6.20
APARTMENTS	C	0.12	0.27	0.200	86	6.61

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 1.26
 TOTAL AREA(ACRES) = 0.25 PEAK FLOW RATE(CFS) = 1.26

 FLOW PROCESS FROM NODE 21.00 TO NODE 22.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 718.80 DOWNSTREAM(FEET) = 717.50
 FLOW LENGTH(FEET) = 80.00 MANNING'S N = 0.013

DEPTH OF FLOW IN 9.0 INCH PIPE IS 5.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 4.78
 ESTIMATED PIPE DIAMETER(INCH) = 9.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 1.26
 PIPE TRAVEL TIME(MIN.) = 0.28 Tc(MIN.) = 6.48
 LONGEST FLOWPATH FROM NODE 20.00 TO NODE 22.00 = 292.00 FEET.

 FLOW PROCESS FROM NODE 22.00 TO NODE 22.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 6.48
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.475
 SUBAREA LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.60	0.27	0.100	86
APARTMENTS	C	0.60	0.27	0.200	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 1.19 SUBAREA RUNOFF(CFS) = 5.82
 EFFECTIVE AREA(ACRES) = 1.44 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 1.4 PEAK FLOW RATE(CFS) = 7.04

 FLOW PROCESS FROM NODE 22.00 TO NODE 22.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 6.48
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.475
 SUBAREA LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.19	0.27	0.100	86
APARTMENTS	C	0.19	0.27	0.200	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.37 SUBAREA RUNOFF(CFS) = 1.81
 EFFECTIVE AREA(ACRES) = 1.81 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 1.8 PEAK FLOW RATE(CFS) = 8.85

 FLOW PROCESS FROM NODE 22.00 TO NODE 23.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 717.50 DOWNSTREAM(FEET) = 714.70
 FLOW LENGTH(FEET) = 171.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 11.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 7.79
 ESTIMATED PIPE DIAMETER(INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 8.85
 PIPE TRAVEL TIME(MIN.) = 0.37 Tc(MIN.) = 6.84
 LONGEST FLOWPATH FROM NODE 20.00 TO NODE 23.00 = 463.00 FEET.

 FLOW PROCESS FROM NODE 23.00 TO NODE 23.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 6.84
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.297
 SUBAREA LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.19	0.27	0.100	86
APARTMENTS	C	0.19	0.27	0.200	86

LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	C	0.80	0.27	0.100	86
APARTMENTS	C	0.80	0.27	0.200	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 1.59 SUBAREA RUNOFF(CFS) = 7.52
 EFFECTIVE AREA(ACRES) = 3.40 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 3.4 PEAK FLOW RATE(CFS) = 16.08

FLOW PROCESS FROM NODE 23.00 TO NODE 24.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 714.70 DOWNSTREAM(FEET) = 713.60
 FLOW LENGTH(FEET) = 78.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 21.0 INCH PIPE IS 15.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 8.40
 ESTIMATED PIPE DIAMETER(INCH) = 21.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 16.08
 PIPE TRAVEL TIME(MIN.) = 0.15 Tc(MIN.) = 7.00
 LONGEST FLOWPATH FROM NODE 20.00 TO NODE 24.00 = 541.00 FEET.

FLOW PROCESS FROM NODE 24.00 TO NODE 24.00 IS CODE = 81

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

=====

MAINLINE Tc(MIN.) = 7.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.227
 SUBAREA LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.54	0.27	0.100	86
APARTMENTS	C	0.54	0.27	0.200	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 1.07 SUBAREA RUNOFF(CFS) = 4.99
 EFFECTIVE AREA(ACRES) = 4.47 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 4.5 PEAK FLOW RATE(CFS) = 20.86

FLOW PROCESS FROM NODE 24.00 TO NODE 24.00 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.) = 7.00
 RAINFALL INTENSITY(INCH/HR) = 5.23
 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 4.47
 TOTAL STREAM AREA(ACRES) = 4.47
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 20.86

FLOW PROCESS FROM NODE 25.00 TO NODE 26.00 IS CODE = 21

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

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 333.00
 ELEVATION DATA: UPSTREAM(FEET) = 722.00 DOWNSTREAM(FEET) = 720.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.632
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.609
 SUBAREA Tc AND LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
COMMERCIAL	C	0.20	0.27	0.100	86	8.63
APARTMENTS	C	0.20	0.27	0.200	86	9.20

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA RUNOFF(CFS) = 1.69
 TOTAL AREA(ACRES) = 0.41 PEAK FLOW RATE(CFS) = 1.69

 FLOW PROCESS FROM NODE 26.00 TO NODE 27.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
 =====
 ELEVATION DATA: UPSTREAM(FEET) = 713.00 DOWNSTREAM(FEET) = 712.00
 FLOW LENGTH(FEET) = 215.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 12.0 INCH PIPE IS 7.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 3.20
 ESTIMATED PIPE DIAMETER(INCH) = 12.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 1.69
 PIPE TRAVEL TIME(MIN.) = 1.12 Tc(MIN.) = 9.75
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 27.00 = 548.00 FEET.

 FLOW PROCESS FROM NODE 27.00 TO NODE 27.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc(MIN.) = 9.75
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.284
 SUBAREA LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.11	0.27	0.100	86
APARTMENTS	C	0.11	0.27	0.200	86

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.22 SUBAREA RUNOFF(CFS) = 0.84
 EFFECTIVE AREA(ACRES) = 0.63 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 0.6 PEAK FLOW RATE(CFS) = 2.41

 FLOW PROCESS FROM NODE 27.00 TO NODE 27.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc(MIN.) = 9.75
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.284
 SUBAREA LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	C	0.27	0.27	0.100	86
APARTMENTS	C	0.27	0.27	0.200	86

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 0.54 SUBAREA RUNOFF(CFS) = 2.06
 EFFECTIVE AREA(ACRES) = 1.17 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 1.2 PEAK FLOW RATE(CFS) = 4.47

 FLOW PROCESS FROM NODE 27.00 TO NODE 28.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 712.00 DOWNSTREAM(FEET) = 709.20
 FLOW LENGTH(FEET) = 359.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 15.0 INCH PIPE IS 10.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 4.93
 ESTIMATED PIPE DIAMETER(INCH) = 15.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 4.47
 PIPE TRAVEL TIME(MIN.) = 1.21 Tc(MIN.) = 10.97
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 28.00 = 907.00 FEET.

FLOW PROCESS FROM NODE 28.00 TO NODE 24.00 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.) = 10.97
 RAINFALL INTENSITY(INCH/HR) = 3.99
 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27
 AREA-AVERAGED Ap = 0.15
 EFFECTIVE STREAM AREA(ACRES) = 1.17
 TOTAL STREAM AREA(ACRES) = 1.17
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 4.47

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20.86	7.00	5.227	0.27(0.04)	0.15	4.5	20.00
2	4.47	10.97	3.993	0.27(0.04)	0.15	1.2	25.00

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	24.60	7.00	5.227	0.27(0.04)	0.15	5.2	20.00
2	20.37	10.97	3.993	0.27(0.04)	0.15	5.6	25.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 24.60 Tc(MIN.) = 7.00
 EFFECTIVE AREA(ACRES) = 5.22 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 5.6
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 24.00 = 907.00 FEET.

FLOW PROCESS FROM NODE 28.00 TO NODE 15.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 709.20 DOWNSTREAM(FEET) = 707.70
 FLOW LENGTH(FEET) = 180.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 27.0 INCH PIPE IS 20.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 7.65
 ESTIMATED PIPE DIAMETER(INCH) = 27.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 24.60
 PIPE TRAVEL TIME(MIN.) = 0.39 Tc(MIN.) = 7.39
 LONGEST FLOWPATH FROM NODE 25.00 TO NODE 15.00 = 1087.00 FEET.

FLOW PROCESS FROM NODE 15.00 TO NODE 15.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24.60	7.39	5.058	0.27(0.04)	0.15	5.2	20.00
2	20.37	11.37	3.907	0.27(0.04)	0.15	5.6	25.00

LONGEST FLOWPATH FROM NODE 25.00 TO NODE 15.00 = 1087.00 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	16.25	10.18	4.175	0.27(0.04)	0.15	4.0	25.00
2	16.30	10.63	4.067	0.27(0.04)	0.15	4.2	13.00
3	15.71	13.26	3.562	0.27(0.04)	0.15	4.7	10.00

LONGEST FLOWPATH FROM NODE 10.00 TO NODE 15.00 = 1481.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	38.92	7.39	5.058	0.27(0.04)	0.15	8.1	20.00
2	37.88	10.18	4.175	0.27(0.04)	0.15	9.5	25.00
3	37.45	10.63	4.067	0.27(0.04)	0.15	9.7	13.00
4	36.50	11.37	3.907	0.27(0.04)	0.15	9.9	25.00
5	34.26	13.26	3.562	0.27(0.04)	0.15	10.3	10.00

TOTAL AREA(ACRES) = 10.3

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 38.92 Tc(MIN.) = 7.392
 EFFECTIVE AREA(ACRES) = 8.13 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.15
 TOTAL AREA(ACRES) = 10.3
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 15.00 = 1481.00 FEET.

FLOW PROCESS FROM NODE 15.00 TO NODE 29.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<

>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 707.70 DOWNSTREAM(FEET) = 707.60
 FLOW LENGTH(FEET) = 18.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 36.0 INCH PIPE IS 24.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 7.45
 ESTIMATED PIPE DIAMETER(INCH) = 36.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 38.92
 PIPE TRAVEL TIME(MIN.) = 0.04 Tc(MIN.) = 7.43
 LONGEST FLOWPATH FROM NODE 10.00 TO NODE 29.00 = 1499.00 FEET.

END OF STUDY SUMMARY:

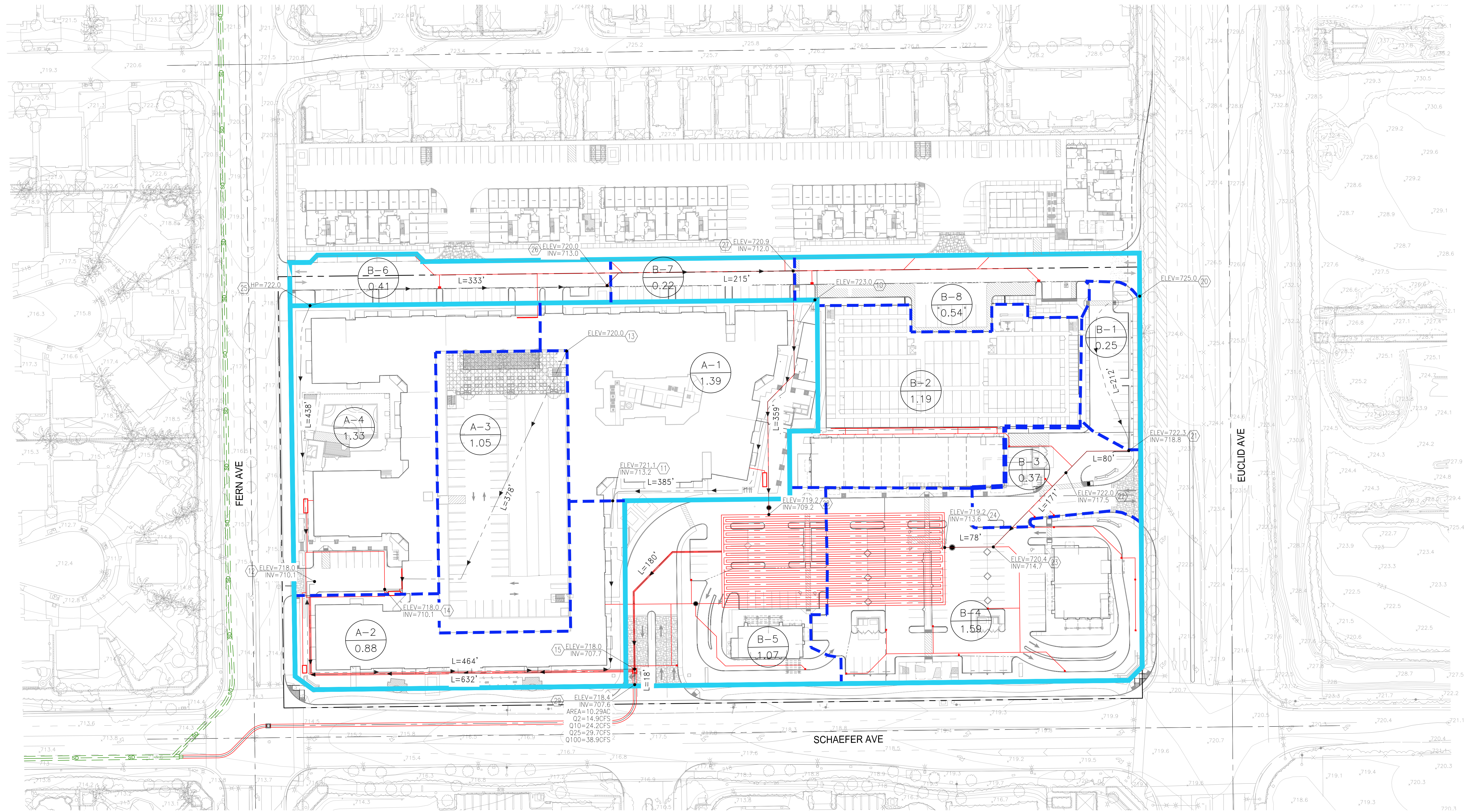
TOTAL AREA(ACRES) = 10.3 TC(MIN.) = 7.43
 EFFECTIVE AREA(ACRES) = 8.13 AREA-AVERAGED Fm(INCH/HR)= 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.150
 PEAK FLOW RATE(CFS) = 38.92

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	38.92	7.43	5.042	0.27(0.04)	0.15	8.1	20.00
2	37.88	10.22	4.165	0.27(0.04)	0.15	9.5	25.00
3	37.45	10.67	4.058	0.27(0.04)	0.15	9.7	13.00
4	36.50	11.41	3.898	0.27(0.04)	0.15	9.9	25.00
5	34.26	13.30	3.556	0.27(0.04)	0.15	10.3	10.00

END OF RATIONAL METHOD ANALYSIS



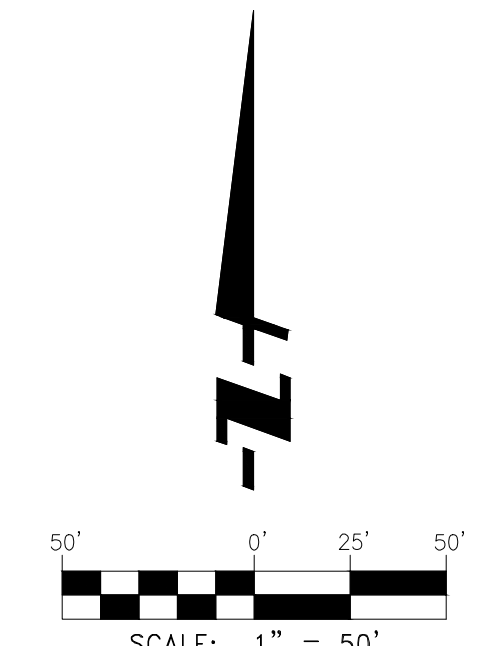


LEGEND

- DRAINAGE BOUNDARY
- - - - DRAINAGE SUB-BOUNDARY
- XX NODE
- TIME OF CONCENTRATION FLOW PATH
- L=XXX' FLOW PATH LENGTH
- DA-#
AC DRAINAGE BOUNDARY DESIGNATION AND AREA
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN

NOTES:
 SOIL TYPE C
 IMPERVIOUS PERCENTAGE - 85%
 LAND USE - MIXED USE

PROPOSED CONDITION SUMMARY TABLE										
DRAINAGE AREA	DISCHARGE NODE	Q ₂ (CFS)	Q ₁₀ (CFS)	Q ₂₅ (CFS)	Q ₁₀₀ (CFS)	AREA (ACRES)	T _{C2} (MIN)	T _{C10} (MIN)	T _{C25} (MIN)	T _{C100} (MIN)
A	29	14.9	24.2	29.7	38.9	10.3	7.8	7.6	7.5	7.4
B										



**CHINO EUCLID
 HYDROLOGY MAP
 PROPOSED CONDITION**

FUSCOE
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 Irvine California 92618 fuscoe.com

JOB NO.
4126-001

DRAWN BY:
SA

SHEET
1 of 1

F:\PROJECTS\125\001_SUPPORT FILES\REPORTS\HYDROLOGY\PRELIMINARY HYDROLOGY\SUPPORTING DOCUMENTS\EXHIBITS\125-001\CHINO EUCLID PROPOSED HYDROLOGY.DWG (02-26-24 4:51:50PM) Plotted by: Shweta

APPENDIX D

Stage/Storage/Discharge Calculations

Detention Analysis_Lot 1

Prepared by Fuscoe Engineering

Printed 2/23/2024

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Summary for Pond 1: Underground Infiltration

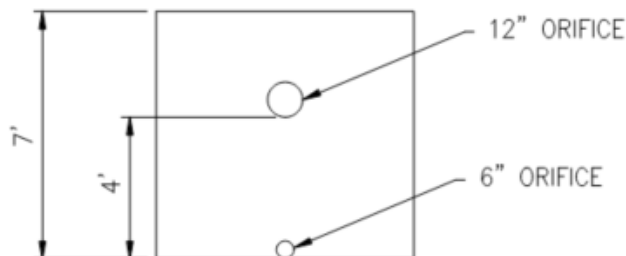
[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	25,390 cf	600.0" W x 84.0" H Box Detention Vault L= 87.4' 30,590 cf Overall x 83.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	24.0" Round Culvert L= 209.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 0.00' / -1.05' S= 0.0050 '/ Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	0.00'	6.0" Vert. One 6" Orifice C= 0.600
#3	Device 1	4.00'	12.0" Vert. One 12" Orifice C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)

- 1=Culvert (Controls 0.00 cfs)
- 2=One 6" Orifice (Controls 0.00 cfs)
- 3=One 12" Orifice (Controls 0.00 cfs)



Detention Analysis_Lot 1

Prepared by Fuscoe Engineering

HydroCAD® 10.00-18 s/n 05904 © 2016 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year Rainfall=2.70"

Printed 2/23/2024

Stage-Area-Storage for Pond 1: Underground Infiltration

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
0.00	0	1.06	3,845	2.12	7,689
0.02	73	1.08	3,917	2.14	7,762
0.04	145	1.10	3,990	2.16	7,835
0.06	218	1.12	4,062	2.18	7,907
0.08	290	1.14	4,135	2.20	7,980
0.10	363	1.16	4,207	2.22	8,052
0.12	435	1.18	4,280	2.24	8,125
0.14	508	1.20	4,353	2.26	8,197
0.16	580	1.22	4,425	2.28	8,270
0.18	653	1.24	4,498	2.30	8,342
0.20	725	1.26	4,570	2.32	8,415
0.22	798	1.28	4,643	2.34	8,487
0.24	871	1.30	4,715	2.36	8,560
0.26	943	1.32	4,788	2.38	8,632
0.28	1,016	1.34	4,860	2.40	8,705
0.30	1,088	1.36	4,933	2.42	8,778
0.32	1,161	1.38	5,005	2.44	8,850
0.34	1,233	1.40	5,078	2.46	8,923
0.36	1,306	1.42	5,150	2.48	8,995
0.38	1,378	1.44	5,223	2.50	9,068
0.40	1,451	1.46	5,296	2.52	9,140
0.42	1,523	1.48	5,368	2.54	9,213
0.44	1,596	1.50	5,441	2.56	9,285
0.46	1,668	1.52	5,513	2.58	9,358
0.48	1,741	1.54	5,586	2.60	9,430
0.50	1,814	1.56	5,658	2.62	9,503
0.52	1,886	1.58	5,731	2.64	9,576
0.54	1,959	1.60	5,803	2.66	9,648
0.56	2,031	1.62	5,876	2.68	9,721
0.58	2,104	1.64	5,948	2.70	9,793
0.60	2,176	1.66	6,021	2.72	9,866
0.62	2,249	1.68	6,094	2.74	9,938
0.64	2,321	1.70	6,166	2.76	10,011
0.66	2,394	1.72	6,239	2.78	10,083
0.68	2,466	1.74	6,311	2.80	10,156
0.70	2,539	1.76	6,384	2.82	10,228
0.72	2,612	1.78	6,456	2.84	10,301
0.74	2,684	1.80	6,529	2.86	10,374
0.76	2,757	1.82	6,601	2.88	10,446
0.78	2,829	1.84	6,674	2.90	10,519
0.80	2,902	1.86	6,746	2.92	10,591
0.82	2,974	1.88	6,819	2.94	10,664
0.84	3,047	1.90	6,891	2.96	10,736
0.86	3,119	1.92	6,964	2.98	10,809
0.88	3,192	1.94	7,037	3.00	10,881
0.90	3,264	1.96	7,109	3.02	10,954
0.92	3,337	1.98	7,182	3.04	11,026
0.94	3,409	2.00	7,254	3.06	11,099
0.96	3,482	2.02	7,327	3.08	11,171
0.98	3,555	2.04	7,399	3.10	11,244
1.00	3,627	2.06	7,472	3.12	11,317
1.02	3,700	2.08	7,544	3.14	11,389
1.04	3,772	2.10	7,617	3.16	11,462

Detention Analysis_Lot 1

Prepared by Fuscoe Engineering

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Type II 24-hr 2-Year Rainfall=2.70"

Printed 2/23/2024

Stage-Area-Storage for Pond 1: Underground Infiltration (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
3.18	11,534	4.24	15,379	5.30	19,224
3.20	11,607	4.26	15,451	5.32	19,296
3.22	11,679	4.28	15,524	5.34	19,369
3.24	11,752	4.30	15,597	5.36	19,441
3.26	11,824	4.32	15,669	5.38	19,514
3.28	11,897	4.34	15,742	5.40	19,586
3.30	11,969	4.36	15,814	5.42	19,659
3.32	12,042	4.38	15,887	5.44	19,731
3.34	12,115	4.40	15,959	5.46	19,804
3.36	12,187	4.42	16,032	5.48	19,877
3.38	12,260	4.44	16,104	5.50	19,949
3.40	12,332	4.46	16,177	5.52	20,022
3.42	12,405	4.48	16,249	5.54	20,094
3.44	12,477	4.50	16,322	5.56	20,167
3.46	12,550	4.52	16,394	5.58	20,239
3.48	12,622	4.54	16,467	5.60	20,312
3.50	12,695	4.56	16,540	5.62	20,384
3.52	12,767	4.58	16,612	5.64	20,457
3.54	12,840	4.60	16,685	5.66	20,529
3.56	12,912	4.62	16,757	5.68	20,602
3.58	12,985	4.64	16,830	5.70	20,674
3.60	13,058	4.66	16,902	5.72	20,747
3.62	13,130	4.68	16,975	5.74	20,820
3.64	13,203	4.70	17,047	5.76	20,892
3.66	13,275	4.72	17,120	5.78	20,965
3.68	13,348	4.74	17,192	5.80	21,037
3.70	13,420	4.76	17,265	5.82	21,110
3.72	13,493	4.78	17,338	5.84	21,182
3.74	13,565	4.80	17,410	5.86	21,255
3.76	13,638	4.82	17,483	5.88	21,327
3.78	13,710	4.84	17,555	5.90	21,400
3.80	13,783	4.86	17,628	5.92	21,472
3.82	13,856	4.88	17,700	5.94	21,545
3.84	13,928	4.90	17,773	5.96	21,618
3.86	14,001	4.92	17,845	5.98	21,690
3.88	14,073	4.94	17,918	6.00	21,763
3.90	14,146	4.96	17,990	6.02	21,835
3.92	14,218	4.98	18,063	6.04	21,908
3.94	14,291	5.00	18,136	6.06	21,980
3.96	14,363	5.02	18,208	6.08	22,053
3.98	14,436	5.04	18,281	6.10	22,125
4.00	14,508	5.06	18,353	6.12	22,198
4.02	14,581	5.08	18,426	6.14	22,270
4.04	14,653	5.10	18,498	6.16	22,343
4.06	14,726	5.12	18,571	6.18	22,415
4.08	14,799	5.14	18,643	6.20	22,488
4.10	14,871	5.16	18,716	6.22	22,561
4.12	14,944	5.18	18,788	6.24	22,633
4.14	15,016	5.20	18,861	6.26	22,706
4.16	15,089	5.22	18,933	6.28	22,778
4.18	15,161	5.24	19,006	6.30	22,851
4.20	15,234	5.26	19,079	6.32	22,923
4.22	15,306	5.28	19,151	6.34	22,996

Detention Analysis_Lot 1

Prepared by Fuscoe Engineering

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Type II 24-hr 2-Year Rainfall=2.70"

Printed 2/23/2024

Stage-Area-Storage for Pond 1: Underground Infiltration (continued)

Elevation (feet)	Storage (cubic-feet)
6.36	23,068
6.38	23,141
6.40	23,213
6.42	23,286
6.44	23,359
6.46	23,431
6.48	23,504
6.50	23,576
6.52	23,649
6.54	23,721
6.56	23,794
6.58	23,866
6.60	23,939
6.62	24,011
6.64	24,084
6.66	24,156
6.68	24,229
6.70	24,302
6.72	24,374
6.74	24,447
6.76	24,519
6.78	24,592
6.80	24,664
6.82	24,737
6.84	24,809
6.86	24,882
6.88	24,954
6.90	25,027
6.92	25,100
6.94	25,172
6.96	25,245
6.98	25,317
7.00	25,390

Detention Analysis_Lot 1

Prepared by Fuscoe Engineering

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Type II 24-hr 2-Year Rainfall=2.70"

Printed 2/23/2024

Stage-Discharge for Pond 1: Underground Infiltration

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	1.06	0.85	2.12	1.29	3.18	1.62
0.02	0.00	1.08	0.86	2.14	1.30	3.20	1.62
0.04	0.01	1.10	0.87	2.16	1.31	3.22	1.63
0.06	0.01	1.12	0.88	2.18	1.31	3.24	1.63
0.08	0.02	1.14	0.89	2.20	1.32	3.26	1.64
0.10	0.03	1.16	0.90	2.22	1.33	3.28	1.65
0.12	0.04	1.18	0.91	2.24	1.33	3.30	1.65
0.14	0.06	1.20	0.92	2.26	1.34	3.32	1.66
0.16	0.07	1.22	0.93	2.28	1.35	3.34	1.66
0.18	0.09	1.24	0.94	2.30	1.35	3.36	1.67
0.20	0.11	1.26	0.95	2.32	1.36	3.38	1.67
0.22	0.13	1.28	0.96	2.34	1.37	3.40	1.68
0.24	0.16	1.30	0.97	2.36	1.37	3.42	1.68
0.26	0.18	1.32	0.98	2.38	1.38	3.44	1.69
0.28	0.20	1.34	0.99	2.40	1.39	3.46	1.69
0.30	0.23	1.36	1.00	2.42	1.39	3.48	1.70
0.32	0.26	1.38	1.00	2.44	1.40	3.50	1.70
0.34	0.28	1.40	1.01	2.46	1.41	3.52	1.71
0.36	0.31	1.42	1.02	2.48	1.41	3.54	1.71
0.38	0.34	1.44	1.03	2.50	1.42	3.56	1.72
0.40	0.36	1.46	1.04	2.52	1.42	3.58	1.73
0.42	0.39	1.48	1.05	2.54	1.43	3.60	1.73
0.44	0.41	1.50	1.06	2.56	1.44	3.62	1.74
0.46	0.44	1.52	1.07	2.58	1.44	3.64	1.74
0.48	0.46	1.54	1.07	2.60	1.45	3.66	1.75
0.50	0.47	1.56	1.08	2.62	1.46	3.68	1.75
0.52	0.49	1.58	1.09	2.64	1.46	3.70	1.76
0.54	0.51	1.60	1.10	2.66	1.47	3.72	1.76
0.56	0.53	1.62	1.11	2.68	1.47	3.74	1.77
0.58	0.54	1.64	1.11	2.70	1.48	3.76	1.77
0.60	0.56	1.66	1.12	2.72	1.49	3.78	1.78
0.62	0.58	1.68	1.13	2.74	1.49	3.80	1.78
0.64	0.59	1.70	1.14	2.76	1.50	3.82	1.79
0.66	0.61	1.72	1.15	2.78	1.50	3.84	1.79
0.68	0.62	1.74	1.15	2.80	1.51	3.86	1.80
0.70	0.63	1.76	1.16	2.82	1.52	3.88	1.80
0.72	0.65	1.78	1.17	2.84	1.52	3.90	1.81
0.74	0.66	1.80	1.18	2.86	1.53	3.92	1.81
0.76	0.68	1.82	1.18	2.88	1.53	3.94	1.82
0.78	0.69	1.84	1.19	2.90	1.54	3.96	1.82
0.80	0.70	1.86	1.20	2.92	1.54	3.98	1.83
0.82	0.71	1.88	1.21	2.94	1.55	4.00	1.83
0.84	0.73	1.90	1.21	2.96	1.56	4.02	1.84
0.86	0.74	1.92	1.22	2.98	1.56	4.04	1.85
0.88	0.75	1.94	1.23	3.00	1.57	4.06	1.86
0.90	0.76	1.96	1.24	3.02	1.57	4.08	1.88
0.92	0.77	1.98	1.24	3.04	1.58	4.10	1.90
0.94	0.79	2.00	1.25	3.06	1.58	4.12	1.92
0.96	0.80	2.02	1.26	3.08	1.59	4.14	1.95
0.98	0.81	2.04	1.26	3.10	1.60	4.16	1.98
1.00	0.82	2.06	1.27	3.12	1.60	4.18	2.01
1.02	0.83	2.08	1.28	3.14	1.61	4.20	2.05
1.04	0.84	2.10	1.29	3.16	1.61	4.22	2.09

Detention Analysis_Lot 1

Prepared by Fuscoe Engineering

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Type II 24-hr 2-Year Rainfall=2.70"

Printed 2/23/2024

Stage-Discharge for Pond 1: Underground Infiltration (continued)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
4.24	2.13	5.30	5.51	6.36	7.49
4.26	2.17	5.32	5.55	6.38	7.53
4.28	2.22	5.34	5.60	6.40	7.56
4.30	2.27	5.36	5.64	6.42	7.59
4.32	2.32	5.38	5.69	6.44	7.62
4.34	2.38	5.40	5.73	6.46	7.65
4.36	2.44	5.42	5.78	6.48	7.68
4.38	2.50	5.44	5.82	6.50	7.71
4.40	2.56	5.46	5.86	6.52	7.74
4.42	2.62	5.48	5.91	6.54	7.77
4.44	2.69	5.50	5.95	6.56	7.80
4.46	2.75	5.52	5.99	6.58	7.83
4.48	2.82	5.54	6.03	6.60	7.86
4.50	2.89	5.56	6.07	6.62	7.89
4.52	2.97	5.58	6.11	6.64	7.92
4.54	3.04	5.60	6.15	6.66	7.95
4.56	3.12	5.62	6.19	6.68	7.98
4.58	3.19	5.64	6.23	6.70	8.01
4.60	3.27	5.66	6.27	6.72	8.04
4.62	3.35	5.68	6.31	6.74	8.07
4.64	3.43	5.70	6.35	6.76	8.10
4.66	3.51	5.72	6.39	6.78	8.13
4.68	3.59	5.74	6.43	6.80	8.15
4.70	3.67	5.76	6.46	6.82	8.18
4.72	3.75	5.78	6.50	6.84	8.21
4.74	3.83	5.80	6.54	6.86	8.24
4.76	3.91	5.82	6.58	6.88	8.27
4.78	3.99	5.84	6.61	6.90	8.30
4.80	4.07	5.86	6.65	6.92	8.32
4.82	4.15	5.88	6.69	6.94	8.35
4.84	4.22	5.90	6.72	6.96	8.38
4.86	4.30	5.92	6.76	6.98	8.41
4.88	4.37	5.94	6.79	7.00	8.44
4.90	4.44	5.96	6.83		
4.92	4.51	5.98	6.86		
4.94	4.58	6.00	6.90		
4.96	4.64	6.02	6.93		
4.98	4.69	6.04	6.97		
5.00	4.73	6.06	7.00		
5.02	4.79	6.08	7.04		
5.04	4.85	6.10	7.07		
5.06	4.90	6.12	7.10		
5.08	4.96	6.14	7.14		
5.10	5.01	6.16	7.17		
5.12	5.06	6.18	7.20		
5.14	5.12	6.20	7.24		
5.16	5.17	6.22	7.27		
5.18	5.22	6.24	7.30		
5.20	5.27	6.26	7.33		
5.22	5.32	6.28	7.37		
5.24	5.37	6.30	7.40		
5.26	5.41	6.32	7.43		
5.28	5.46	6.34	7.46		

Detention Analysis_Area B

Prepared by Fuscoe Engineering

Printed 2/23/2024

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Summary for Pond 1: Underground Infiltration

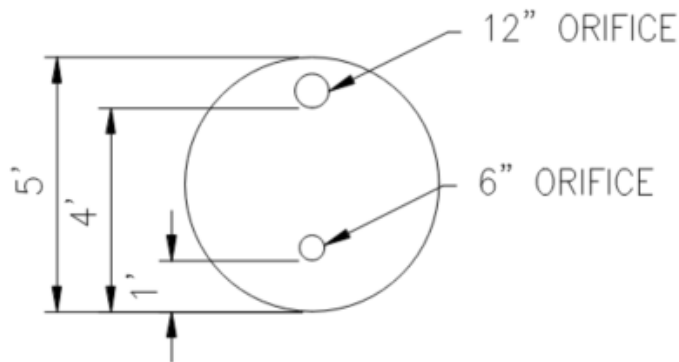
[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	99,274 cf	60.0" Round CMP_Round 60" L= 5,056.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	24.0" Round Culvert L= 209.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 0.00' / -1.05' S= 0.0050 '/ Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	1.00'	6.0" Vert. One 6" Orifice C= 0.600
#3	Device 1	4.00'	8.0" Vert. One 8" Orifice C= 0.600
#4	Discarded	0.00'	0.19 cfs Exfiltration at all elevations

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
↳ **4=Exfiltration** (Passes 0.00 cfs of 0.19 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
↳ **1=Culvert** (Controls 0.00 cfs)
↳ **2=One 6" Orifice** (Controls 0.00 cfs)
↳ **3=One 8" Orifice** (Controls 0.00 cfs)



Stage-Discharge for Pond 1: Underground Infiltration

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.00	0.00	0.53	0.19	0.19	0.00
0.01	0.19	0.19	0.00	0.54	0.19	0.19	0.00
0.02	0.19	0.19	0.00	0.55	0.19	0.19	0.00
0.03	0.19	0.19	0.00	0.56	0.19	0.19	0.00
0.04	0.19	0.19	0.00	0.57	0.19	0.19	0.00
0.05	0.19	0.19	0.00	0.58	0.19	0.19	0.00
0.06	0.19	0.19	0.00	0.59	0.19	0.19	0.00
0.07	0.19	0.19	0.00	0.60	0.19	0.19	0.00
0.08	0.19	0.19	0.00	0.61	0.19	0.19	0.00
0.09	0.19	0.19	0.00	0.62	0.19	0.19	0.00
0.10	0.19	0.19	0.00	0.63	0.19	0.19	0.00
0.11	0.19	0.19	0.00	0.64	0.19	0.19	0.00
0.12	0.19	0.19	0.00	0.65	0.19	0.19	0.00
0.13	0.19	0.19	0.00	0.66	0.19	0.19	0.00
0.14	0.19	0.19	0.00	0.67	0.19	0.19	0.00
0.15	0.19	0.19	0.00	0.68	0.19	0.19	0.00
0.16	0.19	0.19	0.00	0.69	0.19	0.19	0.00
0.17	0.19	0.19	0.00	0.70	0.19	0.19	0.00
0.18	0.19	0.19	0.00	0.71	0.19	0.19	0.00
0.19	0.19	0.19	0.00	0.72	0.19	0.19	0.00
0.20	0.19	0.19	0.00	0.73	0.19	0.19	0.00
0.21	0.19	0.19	0.00	0.74	0.19	0.19	0.00
0.22	0.19	0.19	0.00	0.75	0.19	0.19	0.00
0.23	0.19	0.19	0.00	0.76	0.19	0.19	0.00
0.24	0.19	0.19	0.00	0.77	0.19	0.19	0.00
0.25	0.19	0.19	0.00	0.78	0.19	0.19	0.00
0.26	0.19	0.19	0.00	0.79	0.19	0.19	0.00
0.27	0.19	0.19	0.00	0.80	0.19	0.19	0.00
0.28	0.19	0.19	0.00	0.81	0.19	0.19	0.00
0.29	0.19	0.19	0.00	0.82	0.19	0.19	0.00
0.30	0.19	0.19	0.00	0.83	0.19	0.19	0.00
0.31	0.19	0.19	0.00	0.84	0.19	0.19	0.00
0.32	0.19	0.19	0.00	0.85	0.19	0.19	0.00
0.33	0.19	0.19	0.00	0.86	0.19	0.19	0.00
0.34	0.19	0.19	0.00	0.87	0.19	0.19	0.00
0.35	0.19	0.19	0.00	0.88	0.19	0.19	0.00
0.36	0.19	0.19	0.00	0.89	0.19	0.19	0.00
0.37	0.19	0.19	0.00	0.90	0.19	0.19	0.00
0.38	0.19	0.19	0.00	0.91	0.19	0.19	0.00
0.39	0.19	0.19	0.00	0.92	0.19	0.19	0.00
0.40	0.19	0.19	0.00	0.93	0.19	0.19	0.00
0.41	0.19	0.19	0.00	0.94	0.19	0.19	0.00
0.42	0.19	0.19	0.00	0.95	0.19	0.19	0.00
0.43	0.19	0.19	0.00	0.96	0.19	0.19	0.00
0.44	0.19	0.19	0.00	0.97	0.19	0.19	0.00
0.45	0.19	0.19	0.00	0.98	0.19	0.19	0.00
0.46	0.19	0.19	0.00	0.99	0.19	0.19	0.00
0.47	0.19	0.19	0.00	1.00	0.19	0.19	0.00
0.48	0.19	0.19	0.00	1.01	0.19	0.19	0.00
0.49	0.19	0.19	0.00	1.02	0.19	0.19	0.00
0.50	0.19	0.19	0.00	1.03	0.19	0.19	0.00
0.51	0.19	0.19	0.00	1.04	0.20	0.19	0.01
0.52	0.19	0.19	0.00	1.05	0.20	0.19	0.01

Detention Analysis_Area B

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Type II 24-hr 2-Year Rainfall=2.70"

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Stage-Discharge for Pond 1: Underground Infiltration (continued)

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
1.06	0.20	0.19	0.01	1.59	0.74	0.19	0.55
1.07	0.21	0.19	0.02	1.60	0.75	0.19	0.56
1.08	0.21	0.19	0.02	1.61	0.76	0.19	0.57
1.09	0.21	0.19	0.02	1.62	0.77	0.19	0.58
1.10	0.22	0.19	0.03	1.63	0.77	0.19	0.58
1.11	0.23	0.19	0.04	1.64	0.78	0.19	0.59
1.12	0.23	0.19	0.04	1.65	0.79	0.19	0.60
1.13	0.24	0.19	0.05	1.66	0.80	0.19	0.61
1.14	0.25	0.19	0.06	1.67	0.80	0.19	0.61
1.15	0.26	0.19	0.07	1.68	0.81	0.19	0.62
1.16	0.26	0.19	0.07	1.69	0.82	0.19	0.63
1.17	0.27	0.19	0.08	1.70	0.82	0.19	0.63
1.18	0.28	0.19	0.09	1.71	0.83	0.19	0.64
1.19	0.29	0.19	0.10	1.72	0.84	0.19	0.65
1.20	0.30	0.19	0.11	1.73	0.85	0.19	0.66
1.21	0.31	0.19	0.12	1.74	0.85	0.19	0.66
1.22	0.32	0.19	0.13	1.75	0.86	0.19	0.67
1.23	0.33	0.19	0.14	1.76	0.87	0.19	0.68
1.24	0.35	0.19	0.16	1.77	0.87	0.19	0.68
1.25	0.36	0.19	0.17	1.78	0.88	0.19	0.69
1.26	0.37	0.19	0.18	1.79	0.88	0.19	0.69
1.27	0.38	0.19	0.19	1.80	0.89	0.19	0.70
1.28	0.39	0.19	0.20	1.81	0.90	0.19	0.71
1.29	0.41	0.19	0.22	1.82	0.90	0.19	0.71
1.30	0.42	0.19	0.23	1.83	0.91	0.19	0.72
1.31	0.43	0.19	0.24	1.84	0.92	0.19	0.73
1.32	0.45	0.19	0.26	1.85	0.92	0.19	0.73
1.33	0.46	0.19	0.27	1.86	0.93	0.19	0.74
1.34	0.47	0.19	0.28	1.87	0.93	0.19	0.74
1.35	0.49	0.19	0.30	1.88	0.94	0.19	0.75
1.36	0.50	0.19	0.31	1.89	0.95	0.19	0.76
1.37	0.51	0.19	0.32	1.90	0.95	0.19	0.76
1.38	0.53	0.19	0.34	1.91	0.96	0.19	0.77
1.39	0.54	0.19	0.35	1.92	0.96	0.19	0.77
1.40	0.55	0.19	0.36	1.93	0.97	0.19	0.78
1.41	0.57	0.19	0.38	1.94	0.98	0.19	0.79
1.42	0.58	0.19	0.39	1.95	0.98	0.19	0.79
1.43	0.59	0.19	0.40	1.96	0.99	0.19	0.80
1.44	0.60	0.19	0.41	1.97	0.99	0.19	0.80
1.45	0.62	0.19	0.43	1.98	1.00	0.19	0.81
1.46	0.63	0.19	0.44	1.99	1.00	0.19	0.81
1.47	0.64	0.19	0.45	2.00	1.01	0.19	0.82
1.48	0.65	0.19	0.46	2.01	1.01	0.19	0.82
1.49	0.66	0.19	0.47	2.02	1.02	0.19	0.83
1.50	0.66	0.19	0.47	2.03	1.02	0.19	0.83
1.51	0.67	0.19	0.48	2.04	1.03	0.19	0.84
1.52	0.68	0.19	0.49	2.05	1.04	0.19	0.85
1.53	0.69	0.19	0.50	2.06	1.04	0.19	0.85
1.54	0.70	0.19	0.51	2.07	1.05	0.19	0.86
1.55	0.71	0.19	0.52	2.08	1.05	0.19	0.86
1.56	0.72	0.19	0.53	2.09	1.06	0.19	0.87
1.57	0.72	0.19	0.53	2.10	1.06	0.19	0.87
1.58	0.73	0.19	0.54	2.11	1.07	0.19	0.88

Detention Analysis_Area B

Prepared by Fuscoe Engineering

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Type II 24-hr 2-Year Rainfall=2.70"

Printed 2/23/2024

Stage-Discharge for Pond 1: Underground Infiltration (continued)

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
2.12	1.07	0.19	0.88	2.65	1.31	0.19	1.12
2.13	1.08	0.19	0.89	2.66	1.31	0.19	1.12
2.14	1.08	0.19	0.89	2.67	1.32	0.19	1.13
2.15	1.09	0.19	0.90	2.68	1.32	0.19	1.13
2.16	1.09	0.19	0.90	2.69	1.32	0.19	1.13
2.17	1.10	0.19	0.91	2.70	1.33	0.19	1.14
2.18	1.10	0.19	0.91	2.71	1.33	0.19	1.14
2.19	1.11	0.19	0.92	2.72	1.34	0.19	1.15
2.20	1.11	0.19	0.92	2.73	1.34	0.19	1.15
2.21	1.12	0.19	0.93	2.74	1.34	0.19	1.15
2.22	1.12	0.19	0.93	2.75	1.35	0.19	1.16
2.23	1.13	0.19	0.94	2.76	1.35	0.19	1.16
2.24	1.13	0.19	0.94	2.77	1.36	0.19	1.17
2.25	1.14	0.19	0.95	2.78	1.36	0.19	1.17
2.26	1.14	0.19	0.95	2.79	1.36	0.19	1.17
2.27	1.14	0.19	0.95	2.80	1.37	0.19	1.18
2.28	1.15	0.19	0.96	2.81	1.37	0.19	1.18
2.29	1.15	0.19	0.96	2.82	1.37	0.19	1.18
2.30	1.16	0.19	0.97	2.83	1.38	0.19	1.19
2.31	1.16	0.19	0.97	2.84	1.38	0.19	1.19
2.32	1.17	0.19	0.98	2.85	1.39	0.19	1.20
2.33	1.17	0.19	0.98	2.86	1.39	0.19	1.20
2.34	1.18	0.19	0.99	2.87	1.39	0.19	1.20
2.35	1.18	0.19	0.99	2.88	1.40	0.19	1.21
2.36	1.19	0.19	1.00	2.89	1.40	0.19	1.21
2.37	1.19	0.19	1.00	2.90	1.40	0.19	1.21
2.38	1.19	0.19	1.00	2.91	1.41	0.19	1.22
2.39	1.20	0.19	1.01	2.92	1.41	0.19	1.22
2.40	1.20	0.19	1.01	2.93	1.42	0.19	1.23
2.41	1.21	0.19	1.02	2.94	1.42	0.19	1.23
2.42	1.21	0.19	1.02	2.95	1.42	0.19	1.23
2.43	1.22	0.19	1.03	2.96	1.43	0.19	1.24
2.44	1.22	0.19	1.03	2.97	1.43	0.19	1.24
2.45	1.23	0.19	1.04	2.98	1.43	0.19	1.24
2.46	1.23	0.19	1.04	2.99	1.44	0.19	1.25
2.47	1.23	0.19	1.04	3.00	1.44	0.19	1.25
2.48	1.24	0.19	1.05	3.01	1.44	0.19	1.25
2.49	1.24	0.19	1.05	3.02	1.45	0.19	1.26
2.50	1.25	0.19	1.06	3.03	1.45	0.19	1.26
2.51	1.25	0.19	1.06	3.04	1.45	0.19	1.26
2.52	1.26	0.19	1.07	3.05	1.46	0.19	1.27
2.53	1.26	0.19	1.07	3.06	1.46	0.19	1.27
2.54	1.26	0.19	1.07	3.07	1.47	0.19	1.28
2.55	1.27	0.19	1.08	3.08	1.47	0.19	1.28
2.56	1.27	0.19	1.08	3.09	1.47	0.19	1.28
2.57	1.28	0.19	1.09	3.10	1.48	0.19	1.29
2.58	1.28	0.19	1.09	3.11	1.48	0.19	1.29
2.59	1.28	0.19	1.09	3.12	1.48	0.19	1.29
2.60	1.29	0.19	1.10	3.13	1.49	0.19	1.30
2.61	1.29	0.19	1.10	3.14	1.49	0.19	1.30
2.62	1.30	0.19	1.11	3.15	1.49	0.19	1.30
2.63	1.30	0.19	1.11	3.16	1.50	0.19	1.31
2.64	1.30	0.19	1.11	3.17	1.50	0.19	1.31

Stage-Discharge for Pond 1: Underground Infiltration (continued)

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
3.18	1.50	0.19	1.31	3.71	1.67	0.19	1.48
3.19	1.51	0.19	1.32	3.72	1.68	0.19	1.49
3.20	1.51	0.19	1.32	3.73	1.68	0.19	1.49
3.21	1.51	0.19	1.32	3.74	1.68	0.19	1.49
3.22	1.52	0.19	1.33	3.75	1.68	0.19	1.49
3.23	1.52	0.19	1.33	3.76	1.69	0.19	1.50
3.24	1.52	0.19	1.33	3.77	1.69	0.19	1.50
3.25	1.53	0.19	1.34	3.78	1.69	0.19	1.50
3.26	1.53	0.19	1.34	3.79	1.70	0.19	1.51
3.27	1.53	0.19	1.34	3.80	1.70	0.19	1.51
3.28	1.54	0.19	1.35	3.81	1.70	0.19	1.51
3.29	1.54	0.19	1.35	3.82	1.71	0.19	1.52
3.30	1.54	0.19	1.35	3.83	1.71	0.19	1.52
3.31	1.55	0.19	1.36	3.84	1.71	0.19	1.52
3.32	1.55	0.19	1.36	3.85	1.71	0.19	1.52
3.33	1.55	0.19	1.36	3.86	1.72	0.19	1.53
3.34	1.56	0.19	1.37	3.87	1.72	0.19	1.53
3.35	1.56	0.19	1.37	3.88	1.72	0.19	1.53
3.36	1.56	0.19	1.37	3.89	1.73	0.19	1.54
3.37	1.57	0.19	1.38	3.90	1.73	0.19	1.54
3.38	1.57	0.19	1.38	3.91	1.73	0.19	1.54
3.39	1.57	0.19	1.38	3.92	1.73	0.19	1.54
3.40	1.58	0.19	1.39	3.93	1.74	0.19	1.55
3.41	1.58	0.19	1.39	3.94	1.74	0.19	1.55
3.42	1.58	0.19	1.39	3.95	1.74	0.19	1.55
3.43	1.59	0.19	1.40	3.96	1.75	0.19	1.56
3.44	1.59	0.19	1.40	3.97	1.75	0.19	1.56
3.45	1.59	0.19	1.40	3.98	1.75	0.19	1.56
3.46	1.60	0.19	1.41	3.99	1.75	0.19	1.56
3.47	1.60	0.19	1.41	4.00	1.76	0.19	1.57
3.48	1.60	0.19	1.41	4.01	1.76	0.19	1.57
3.49	1.60	0.19	1.41	4.02	1.76	0.19	1.57
3.50	1.61	0.19	1.42	4.03	1.77	0.19	1.58
3.51	1.61	0.19	1.42	4.04	1.77	0.19	1.58
3.52	1.61	0.19	1.42	4.05	1.78	0.19	1.59
3.53	1.62	0.19	1.43	4.06	1.79	0.19	1.60
3.54	1.62	0.19	1.43	4.07	1.80	0.19	1.61
3.55	1.62	0.19	1.43	4.08	1.80	0.19	1.61
3.56	1.63	0.19	1.44	4.09	1.81	0.19	1.62
3.57	1.63	0.19	1.44	4.10	1.82	0.19	1.63
3.58	1.63	0.19	1.44	4.11	1.83	0.19	1.64
3.59	1.64	0.19	1.45	4.12	1.84	0.19	1.65
3.60	1.64	0.19	1.45	4.13	1.85	0.19	1.66
3.61	1.64	0.19	1.45	4.14	1.87	0.19	1.68
3.62	1.65	0.19	1.46	4.15	1.88	0.19	1.69
3.63	1.65	0.19	1.46	4.16	1.89	0.19	1.70
3.64	1.65	0.19	1.46	4.17	1.90	0.19	1.71
3.65	1.65	0.19	1.46	4.18	1.92	0.19	1.73
3.66	1.66	0.19	1.47	4.19	1.93	0.19	1.74
3.67	1.66	0.19	1.47	4.20	1.95	0.19	1.76
3.68	1.66	0.19	1.47	4.21	1.96	0.19	1.77
3.69	1.67	0.19	1.48	4.22	1.98	0.19	1.79
3.70	1.67	0.19	1.48	4.23	2.00	0.19	1.81

Detention Analysis_Area B

Prepared by Fuscoe Engineering

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Type II 24-hr 2-Year Rainfall=2.70"

Printed 2/23/2024

Stage-Discharge for Pond 1: Underground Infiltration (continued)

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
4.24	2.01	0.19	1.82	4.77	3.07	0.19	2.88
4.25	2.03	0.19	1.84	4.78	3.09	0.19	2.90
4.26	2.05	0.19	1.86	4.79	3.10	0.19	2.91
4.27	2.07	0.19	1.88	4.80	3.12	0.19	2.93
4.28	2.09	0.19	1.90	4.81	3.13	0.19	2.94
4.29	2.11	0.19	1.92	4.82	3.15	0.19	2.96
4.30	2.13	0.19	1.94	4.83	3.16	0.19	2.97
4.31	2.15	0.19	1.96	4.84	3.18	0.19	2.99
4.32	2.17	0.19	1.98	4.85	3.19	0.19	3.00
4.33	2.19	0.19	2.00	4.86	3.21	0.19	3.02
4.34	2.21	0.19	2.02	4.87	3.22	0.19	3.03
4.35	2.23	0.19	2.04	4.88	3.23	0.19	3.04
4.36	2.25	0.19	2.06	4.89	3.25	0.19	3.06
4.37	2.27	0.19	2.08	4.90	3.26	0.19	3.07
4.38	2.29	0.19	2.10	4.91	3.28	0.19	3.09
4.39	2.32	0.19	2.13	4.92	3.29	0.19	3.10
4.40	2.34	0.19	2.15	4.93	3.30	0.19	3.11
4.41	2.36	0.19	2.17	4.94	3.32	0.19	3.13
4.42	2.38	0.19	2.19	4.95	3.33	0.19	3.14
4.43	2.41	0.19	2.22	4.96	3.34	0.19	3.15
4.44	2.43	0.19	2.24	4.97	3.35	0.19	3.16
4.45	2.45	0.19	2.26	4.98	3.37	0.19	3.18
4.46	2.48	0.19	2.29	4.99	3.38	0.19	3.19
4.47	2.50	0.19	2.31	5.00	3.39	0.19	3.20
4.48	2.52	0.19	2.33				
4.49	2.55	0.19	2.36				
4.50	2.57	0.19	2.38				
4.51	2.59	0.19	2.40				
4.52	2.62	0.19	2.43				
4.53	2.64	0.19	2.45				
4.54	2.66	0.19	2.47				
4.55	2.69	0.19	2.50				
4.56	2.71	0.19	2.52				
4.57	2.73	0.19	2.54				
4.58	2.75	0.19	2.56				
4.59	2.77	0.19	2.58				
4.60	2.79	0.19	2.60				
4.61	2.81	0.19	2.62				
4.62	2.83	0.19	2.64				
4.63	2.85	0.19	2.66				
4.64	2.87	0.19	2.68				
4.65	2.89	0.19	2.70				
4.66	2.90	0.19	2.71				
4.67	2.91	0.19	2.72				
4.68	2.93	0.19	2.74				
4.69	2.95	0.19	2.76				
4.70	2.96	0.19	2.77				
4.71	2.98	0.19	2.79				
4.72	3.00	0.19	2.81				
4.73	3.01	0.19	2.82				
4.74	3.03	0.19	2.84				
4.75	3.04	0.19	2.85				
4.76	3.06	0.19	2.87				

APPENDIX E

Flood Hydrograph Routing Calculations

NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS

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Analysis prepared by:

Fusco Engineering, Inc.
15535 Sand Canyon Ave
Suite 100
Irvine, CA 92618

Problem Descriptions:

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*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS FOR AMC I:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 2.63 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp (in./hr.)	YIELD
1	4.65	15.00	69. (AMC II)	0.812	0.778

TOTAL AREA (Acres) = 4.65

AREA-AVERAGED LOSS RATE, \bar{F}_m (in./hr.) = 0.122

AREA-AVERAGED LOW LOSS FRACTION, \bar{Y} = 0.222

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Problem Descriptions:

RATIONAL METHOD CALIBRATION COEFFICIENT = 1.16
TOTAL CATCHMENT AREA (ACRES) = 4.65
SOIL-LOSS RATE, F_m , (INCH/HR) = 0.122
LOW LOSS FRACTION = 0.222
TIME OF CONCENTRATION (MIN.) = 11.01
SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
USER SPECIFIED RAINFALL VALUES ARE USED
RETURN FREQUENCY (YEARS) = 2
5-MINUTE POINT RAINFALL VALUE (INCHES) = 0.15
30-MINUTE POINT RAINFALL VALUE (INCHES) = 0.40
1-HOUR POINT RAINFALL VALUE (INCHES) = 0.59

3-HOUR POINT RAINFALL VALUE (INCHES) = 1.11
 6-HOUR POINT RAINFALL VALUE (INCHES) = 1.54
 24-HOUR POINT RAINFALL VALUE (INCHES) = 2.63

TOTAL CATCHMENT RUNOFF VOLUME (ACRE-FEET) = 0.93
 TOTAL CATCHMENT SOIL-LOSS VOLUME (ACRE-FEET) = 0.09

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	2.5	5.0	7.5	10.0
0.04	0.0000	0.00	Q	.	.	.	.
0.22	0.0014	0.18	Q	.	.	.	.
0.40	0.0041	0.18	Q	.	.	.	.
0.59	0.0068	0.18	Q	.	.	.	.
0.77	0.0096	0.18	Q	.	.	.	.
0.95	0.0123	0.18	Q	.	.	.	.
1.14	0.0151	0.19	Q	.	.	.	.
1.32	0.0179	0.19	Q	.	.	.	.
1.50	0.0208	0.19	Q	.	.	.	.
1.69	0.0236	0.19	Q	.	.	.	.
1.87	0.0265	0.19	Q	.	.	.	.
2.05	0.0294	0.19	Q	.	.	.	.
2.24	0.0324	0.19	Q	.	.	.	.
2.42	0.0353	0.20	Q	.	.	.	.
2.60	0.0383	0.20	Q	.	.	.	.
2.79	0.0413	0.20	Q	.	.	.	.
2.97	0.0443	0.20	Q	.	.	.	.
3.15	0.0474	0.20	Q	.	.	.	.
3.34	0.0505	0.20	Q	.	.	.	.
3.52	0.0536	0.21	Q	.	.	.	.
3.71	0.0567	0.21	Q	.	.	.	.
3.89	0.0599	0.21	Q	.	.	.	.
4.07	0.0631	0.21	Q	.	.	.	.
4.26	0.0663	0.21	Q	.	.	.	.
4.44	0.0695	0.22	Q	.	.	.	.
4.62	0.0728	0.22	Q	.	.	.	.
4.81	0.0761	0.22	Q	.	.	.	.
4.99	0.0795	0.22	Q	.	.	.	.
5.17	0.0829	0.22	Q	.	.	.	.
5.36	0.0863	0.23	Q	.	.	.	.
5.54	0.0897	0.23	Q	.	.	.	.
5.72	0.0932	0.23	Q	.	.	.	.
5.91	0.0968	0.23	Q	.	.	.	.
6.09	0.1003	0.24	Q	.	.	.	.
6.27	0.1039	0.24	Q	.	.	.	.
6.46	0.1076	0.24	Q	.	.	.	.
6.64	0.1113	0.25	Q	.	.	.	.
6.82	0.1150	0.25	Q	.	.	.	.
7.01	0.1188	0.25	.Q	.	.	.	.
7.19	0.1226	0.25	.Q	.	.	.	.
7.38	0.1265	0.26	.Q	.	.	.	.
7.56	0.1304	0.26	.Q	.	.	.	.
7.74	0.1344	0.26	.Q	.	.	.	.
7.93	0.1385	0.27	.Q	.	.	.	.

8.11	0.1425	0.27	.Q	.	.	.	.
8.29	0.1467	0.27	.Q	.	.	.	.
8.48	0.1509	0.28	.Q	.	.	.	.
8.66	0.1552	0.28	.Q	.	.	.	.
8.84	0.1595	0.29	.Q	.	.	.	.
9.03	0.1639	0.29	.Q	.	.	.	.
9.21	0.1684	0.30	.Q	.	.	.	.
9.39	0.1729	0.30	.Q	.	.	.	.
9.58	0.1775	0.31	.Q	.	.	.	.
9.76	0.1822	0.31	.Q	.	.	.	.
9.94	0.1870	0.32	.Q	.	.	.	.
10.13	0.1919	0.32	.Q	.	.	.	.
10.31	0.1969	0.33	.Q	.	.	.	.
10.49	0.2019	0.34	.Q	.	.	.	.
10.68	0.2071	0.35	.Q	.	.	.	.
10.86	0.2124	0.35	.Q	.	.	.	.
11.05	0.2177	0.36	.Q	.	.	.	.
11.23	0.2232	0.37	.Q	.	.	.	.
11.41	0.2289	0.38	.Q	.	.	.	.
11.60	0.2346	0.38	.Q	.	.	.	.
11.78	0.2406	0.40	.Q	.	.	.	.
11.96	0.2466	0.40	.Q	.	.	.	.
12.15	0.2533	0.48	.Q	.	.	.	.
12.33	0.2610	0.52	. Q	.	.	.	.
12.51	0.2690	0.54	. Q	.	.	.	.
12.70	0.2772	0.55	. Q	.	.	.	.
12.88	0.2857	0.57	. Q	.	.	.	.
13.06	0.2944	0.58	. Q	.	.	.	.
13.25	0.3035	0.61	. Q	.	.	.	.
13.43	0.3128	0.62	. Q	.	.	.	.
13.61	0.3224	0.65	. Q	.	.	.	.
13.80	0.3325	0.67	. Q	.	.	.	.
13.98	0.3429	0.71	. Q	.	.	.	.
14.16	0.3543	0.79	. Q	.	.	.	.
14.35	0.3674	0.94	. Q	.	.	.	.
14.53	0.3819	0.97	. Q	.	.	.	.
14.72	0.3972	1.04	. Q	.	.	.	.
14.90	0.4132	1.08	. Q	.	.	.	.
15.08	0.4304	1.18	. Q	.	.	.	.
15.27	0.4488	1.25	. Q	.	.	.	.
15.45	0.4690	1.41	. Q	.	.	.	.
15.63	0.4911	1.52	. Q	.	.	.	.
15.82	0.5173	1.94	. Q	.	.	.	.
16.00	0.5508	2.48	. Q.	.	.	.	.
16.18	0.6163	6.15	.	.	Q	.	.
16.37	0.6758	1.69	. Q	.	.	.	.
16.55	0.6987	1.33	. Q	.	.	.	.
16.73	0.7173	1.13	. Q	.	.	.	.
16.92	0.7335	1.00	. Q	.	.	.	.
17.10	0.7480	0.92	. Q	.	.	.	.
17.28	0.7602	0.69	. Q	.	.	.	.
17.47	0.7702	0.64	. Q	.	.	.	.
17.65	0.7796	0.59	. Q	.	.	.	.
17.83	0.7883	0.56	. Q	.	.	.	.
18.02	0.7966	0.53	. Q	.	.	.	.
18.20	0.8037	0.41	.Q	.	.	.	.
18.39	0.8098	0.39	.Q	.	.	.	.

18.57	0.8155	0.37	.Q	.	.	.	.
18.75	0.8210	0.35	.Q	.	.	.	.
18.94	0.8263	0.34	.Q	.	.	.	.
19.12	0.8314	0.33	.Q	.	.	.	.
19.30	0.8362	0.32	.Q	.	.	.	.
19.49	0.8409	0.30	.Q	.	.	.	.
19.67	0.8455	0.29	.Q	.	.	.	.
19.85	0.8499	0.29	.Q	.	.	.	.
20.04	0.8542	0.28	.Q	.	.	.	.
20.22	0.8583	0.27	.Q	.	.	.	.
20.40	0.8623	0.26	.Q	.	.	.	.
20.59	0.8663	0.26	.Q	.	.	.	.
20.77	0.8701	0.25	Q	.	.	.	.
20.95	0.8738	0.24	Q	.	.	.	.
21.14	0.8775	0.24	Q	.	.	.	.
21.32	0.8811	0.23	Q	.	.	.	.
21.51	0.8845	0.23	Q	.	.	.	.
21.69	0.8880	0.22	Q	.	.	.	.
21.87	0.8913	0.22	Q	.	.	.	.
22.06	0.8946	0.21	Q	.	.	.	.
22.24	0.8978	0.21	Q	.	.	.	.
22.42	0.9010	0.21	Q	.	.	.	.
22.61	0.9041	0.20	Q	.	.	.	.
22.79	0.9072	0.20	Q	.	.	.	.
22.97	0.9102	0.20	Q	.	.	.	.
23.16	0.9131	0.19	Q	.	.	.	.
23.34	0.9160	0.19	Q	.	.	.	.
23.52	0.9189	0.19	Q	.	.	.	.
23.71	0.9217	0.18	Q	.	.	.	.
23.89	0.9245	0.18	Q	.	.	.	.
24.07	0.9272	0.18	Q	.	.	.	.
24.26	0.9286	0.00	Q	.	.	.	.

 TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
 (Note: 100% of Peak Flow Rate estimate assumed to have
 an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
=====	=====
0%	1442.3
10%	253.2
20%	88.1
30%	33.0
40%	22.0
50%	11.0
60%	11.0
70%	11.0
80%	11.0
90%	11.0

Problem Descriptions:
 Lot 1 - 2 yr

13	5.50	0.42782	0.48818
14	6.00	0.46633	0.53367
15	6.50	0.50430	0.57770
16	7.00	0.54357	0.62243

WHERE S=STORAGE (AF) ; O=OUTFLOW (AF/MIN.) ; DT=UNIT INTERVAL (MIN.)

 DETENTION BASIN ROUTING RESULTS:

NOTE: COMPUTED BASIN DEPTH, OUTFLOW, AND STORAGE QUANTITIES
 OCCUR AT THE GIVEN TIME. BASIN INFLOW VALUES REPRESENT THE
 AVERAGE INFLOW DURING THE RECENT HYDROGRAPH UNIT INTERVAL.

TIME (HRS)	DEAD-STORAGE FILLED (AF)	INFLOW (CFS)	EFFECTIVE DEPTH (FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME (AF)
0.035	0.000	0.00	0.00	0.00	0.000
0.219	0.000	0.18	0.03	0.01	0.003
0.402	0.000	0.18	0.06	0.03	0.005
0.586	0.000	0.18	0.08	0.05	0.007
0.769	0.000	0.18	0.10	0.06	0.009
0.953	0.000	0.18	0.12	0.08	0.010
1.136	0.000	0.19	0.14	0.09	0.012
1.320	0.000	0.19	0.15	0.10	0.013
1.503	0.000	0.19	0.17	0.11	0.014
1.687	0.000	0.19	0.18	0.12	0.015
1.870	0.000	0.19	0.19	0.13	0.016
2.054	0.000	0.19	0.20	0.14	0.017
2.237	0.000	0.19	0.21	0.14	0.018
2.421	0.000	0.20	0.22	0.15	0.019
2.604	0.000	0.20	0.23	0.15	0.019
2.788	0.000	0.20	0.23	0.16	0.020
2.971	0.000	0.20	0.24	0.16	0.020
3.155	0.000	0.20	0.25	0.17	0.021
3.338	0.000	0.20	0.25	0.17	0.021
3.522	0.000	0.21	0.26	0.18	0.022
3.705	0.000	0.21	0.26	0.18	0.022
3.889	0.000	0.21	0.27	0.19	0.023
4.072	0.000	0.21	0.27	0.19	0.023
4.256	0.000	0.21	0.27	0.19	0.023
4.439	0.000	0.22	0.28	0.20	0.023
4.623	0.000	0.22	0.28	0.20	0.024
4.806	0.000	0.22	0.28	0.21	0.024
4.990	0.000	0.22	0.28	0.21	0.024
5.173	0.000	0.22	0.29	0.21	0.024
5.357	0.000	0.23	0.29	0.21	0.024
5.540	0.000	0.23	0.29	0.22	0.025
5.724	0.000	0.23	0.29	0.22	0.025
5.907	0.000	0.23	0.30	0.22	0.025
6.091	0.000	0.24	0.30	0.22	0.025
6.274	0.000	0.24	0.30	0.23	0.025
6.458	0.000	0.24	0.30	0.23	0.026
6.641	0.000	0.25	0.30	0.23	0.026
6.825	0.000	0.25	0.31	0.24	0.026
7.008	0.000	0.25	0.31	0.24	0.026
7.192	0.000	0.25	0.31	0.24	0.026
7.376	0.000	0.26	0.31	0.24	0.027
7.559	0.000	0.26	0.32	0.25	0.027
7.742	0.000	0.26	0.32	0.25	0.027

7.926	0.000	0.27	0.32	0.25	0.027
8.109	0.000	0.27	0.32	0.26	0.027
8.293	0.000	0.27	0.33	0.26	0.028
8.476	0.000	0.28	0.33	0.26	0.028
8.660	0.000	0.28	0.33	0.27	0.028
8.844	0.000	0.29	0.34	0.27	0.028
9.027	0.000	0.29	0.34	0.27	0.029
9.210	0.000	0.30	0.34	0.28	0.029
9.394	0.000	0.30	0.35	0.28	0.029
9.577	0.000	0.31	0.35	0.29	0.030
9.761	0.000	0.31	0.35	0.29	0.030
9.944	0.000	0.32	0.36	0.30	0.030
10.128	0.000	0.32	0.36	0.30	0.031
10.311	0.000	0.33	0.37	0.31	0.031
10.495	0.000	0.34	0.37	0.31	0.031
10.679	0.000	0.35	0.38	0.32	0.032
10.862	0.000	0.35	0.38	0.32	0.032
11.045	0.000	0.36	0.39	0.33	0.033
11.229	0.000	0.37	0.39	0.34	0.033
11.413	0.000	0.38	0.40	0.34	0.034
11.596	0.000	0.38	0.40	0.35	0.034
11.780	0.000	0.40	0.41	0.36	0.035
11.963	0.000	0.40	0.42	0.37	0.035
12.146	0.000	0.48	0.44	0.38	0.037
12.330	0.000	0.52	0.46	0.41	0.038
12.514	0.000	0.54	0.48	0.43	0.040
12.697	0.000	0.55	0.49	0.45	0.042
12.880	0.000	0.57	0.51	0.47	0.043
13.064	0.000	0.58	0.53	0.49	0.044
13.247	0.000	0.61	0.55	0.50	0.046
13.431	0.000	0.62	0.57	0.51	0.048
13.615	0.000	0.65	0.59	0.53	0.050
13.798	0.000	0.67	0.62	0.54	0.052
13.982	0.000	0.71	0.64	0.56	0.054
14.165	0.000	0.79	0.68	0.58	0.057
14.348	0.000	0.94	0.74	0.62	0.062
14.532	0.000	0.97	0.80	0.66	0.067
14.715	0.000	1.04	0.86	0.70	0.072
14.899	0.000	1.08	0.92	0.75	0.077
15.083	0.000	1.18	1.00	0.79	0.083
15.266	0.000	1.25	1.07	0.84	0.089
15.449	0.000	1.41	1.17	0.88	0.097
15.633	0.000	1.52	1.27	0.93	0.106
15.816	0.000	1.94	1.44	0.99	0.120
16.000	0.000	2.48	1.70	1.08	0.142
16.184	0.000	6.15	2.59	1.29	0.215
16.367	0.000	1.69	2.63	1.45	0.219
16.551	0.000	1.33	2.61	1.46	0.217
16.734	0.000	1.13	2.55	1.44	0.212
16.917	0.000	1.00	2.47	1.42	0.206
17.101	0.000	0.92	2.38	1.40	0.199
17.284	0.000	0.69	2.26	1.36	0.188
17.468	0.000	0.64	2.13	1.32	0.178
17.651	0.000	0.59	2.01	1.27	0.168
17.835	0.000	0.56	1.89	1.23	0.158
18.018	0.000	0.53	1.77	1.18	0.148
18.202	0.000	0.41	1.64	1.14	0.137

18.385	0.000	0.39	1.51	1.09	0.126
18.569	0.000	0.37	1.39	1.04	0.116
18.753	0.000	0.35	1.28	0.98	0.106
18.936	0.000	0.34	1.17	0.93	0.097
19.120	0.000	0.33	1.07	0.88	0.089
19.303	0.000	0.32	0.98	0.83	0.081
19.487	0.000	0.30	0.89	0.78	0.074
19.670	0.000	0.29	0.81	0.72	0.068
19.853	0.000	0.29	0.74	0.67	0.062
20.037	0.000	0.28	0.68	0.62	0.057
20.220	0.000	0.27	0.62	0.58	0.052
20.404	0.000	0.26	0.57	0.54	0.048
20.587	0.000	0.26	0.53	0.50	0.044
20.771	0.000	0.25	0.49	0.47	0.041
20.955	0.000	0.24	0.45	0.43	0.038
21.138	0.000	0.24	0.42	0.39	0.036
21.322	0.000	0.23	0.40	0.36	0.034
21.505	0.000	0.23	0.38	0.34	0.032
21.689	0.000	0.22	0.36	0.31	0.031
21.872	0.000	0.22	0.35	0.30	0.029
22.056	0.000	0.21	0.34	0.28	0.028
22.239	0.000	0.21	0.33	0.27	0.028
22.422	0.000	0.21	0.32	0.26	0.027
22.606	0.000	0.20	0.31	0.25	0.026
22.789	0.000	0.20	0.30	0.24	0.026
22.973	0.000	0.20	0.30	0.23	0.025
23.156	0.000	0.19	0.29	0.22	0.025
23.340	0.000	0.19	0.29	0.22	0.024
23.524	0.000	0.19	0.28	0.21	0.024
23.707	0.000	0.18	0.28	0.21	0.024
23.891	0.000	0.18	0.28	0.20	0.023
24.074	0.000	0.18	0.27	0.20	0.023
24.258	0.000	0.00	0.24	0.18	0.020
24.441	0.000	0.00	0.21	0.16	0.018
24.625	0.000	0.00	0.19	0.14	0.016
24.808	0.000	0.00	0.17	0.12	0.014
24.992	0.000	0.00	0.15	0.11	0.012
25.175	0.000	0.00	0.13	0.10	0.011
25.359	0.000	0.00	0.11	0.08	0.010
25.542	0.000	0.00	0.10	0.07	0.009
25.726	0.000	0.00	0.09	0.07	0.008
25.909	0.000	0.00	0.08	0.06	0.007
26.093	0.000	0.00	0.07	0.05	0.006
26.276	0.000	0.00	0.06	0.05	0.005
26.460	0.000	0.00	0.05	0.04	0.005
26.643	0.000	0.00	0.05	0.04	0.004
26.827	0.000	0.00	0.04	0.03	0.004
27.010	0.000	0.00	0.04	0.03	0.003
27.194	0.000	0.00	0.03	0.02	0.003
27.377	0.000	0.00	0.03	0.02	0.002
27.561	0.000	0.00	0.03	0.02	0.002
27.744	0.000	0.00	0.02	0.02	0.002
27.928	0.000	0.00	0.02	0.01	0.002
28.111	0.000	0.00	0.02	0.01	0.001
28.295	0.000	0.00	0.02	0.01	0.001
28.478	0.000	0.00	0.01	0.01	0.001
28.662	0.000	0.00	0.01	0.01	0.001

NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS

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Analysis prepared by:

Fusco Engineering, Inc.
15535 Sand Canyon Ave
Suite 100
Irvine, CA 92618

Problem Descriptions:

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*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 4.10 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp (in./hr.)	YIELD
1	4.65	15.00	69.	0.566	0.850

TOTAL AREA (Acres) = 4.65

AREA-AVERAGED LOSS RATE, \bar{F}_m (in./hr.) = 0.085

AREA-AVERAGED LOW LOSS FRACTION, \bar{Y} = 0.150

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Problem Descriptions:

RATIONAL METHOD CALIBRATION COEFFICIENT = 1.13
TOTAL CATCHMENT AREA (ACRES) = 4.65
SOIL-LOSS RATE, F_m , (INCH/HR) = 0.085
LOW LOSS FRACTION = 0.150
TIME OF CONCENTRATION (MIN.) = 10.83
SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
USER SPECIFIED RAINFALL VALUES ARE USED
RETURN FREQUENCY (YEARS) = 10
5-MINUTE POINT RAINFALL VALUE (INCHES) = 0.24
30-MINUTE POINT RAINFALL VALUE (INCHES) = 0.62
1-HOUR POINT RAINFALL VALUE (INCHES) = 0.92

3-HOUR POINT RAINFALL VALUE (INCHES) = 1.70
 6-HOUR POINT RAINFALL VALUE (INCHES) = 2.35
 24-HOUR POINT RAINFALL VALUE (INCHES) = 4.10

TOTAL CATCHMENT RUNOFF VOLUME (ACRE-FEET) = 1.54
 TOTAL CATCHMENT SOIL-LOSS VOLUME (ACRE-FEET) = 0.05

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	5.0	10.0	15.0	20.0
0.12	0.0000	0.00	Q	.	.	.	.
0.30	0.0023	0.31	Q	.	.	.	.
0.48	0.0069	0.31	Q	.	.	.	.
0.66	0.0116	0.31	Q	.	.	.	.
0.84	0.0163	0.31	Q	.	.	.	.
1.02	0.0210	0.32	Q	.	.	.	.
1.20	0.0257	0.32	Q	.	.	.	.
1.38	0.0305	0.32	Q	.	.	.	.
1.56	0.0354	0.32	Q	.	.	.	.
1.74	0.0402	0.33	Q	.	.	.	.
1.92	0.0451	0.33	Q	.	.	.	.
2.10	0.0500	0.33	Q	.	.	.	.
2.28	0.0550	0.33	Q	.	.	.	.
2.46	0.0600	0.34	Q	.	.	.	.
2.64	0.0651	0.34	Q	.	.	.	.
2.82	0.0702	0.34	Q	.	.	.	.
3.00	0.0753	0.34	Q	.	.	.	.
3.18	0.0805	0.35	Q	.	.	.	.
3.37	0.0857	0.35	Q	.	.	.	.
3.55	0.0910	0.35	Q	.	.	.	.
3.73	0.0963	0.36	Q	.	.	.	.
3.91	0.1016	0.36	Q	.	.	.	.
4.09	0.1070	0.36	Q	.	.	.	.
4.27	0.1125	0.37	Q	.	.	.	.
4.45	0.1180	0.37	Q	.	.	.	.
4.63	0.1235	0.37	Q	.	.	.	.
4.81	0.1291	0.38	Q	.	.	.	.
4.99	0.1348	0.38	Q	.	.	.	.
5.17	0.1405	0.38	Q	.	.	.	.
5.35	0.1463	0.39	Q	.	.	.	.
5.53	0.1521	0.39	Q	.	.	.	.
5.71	0.1580	0.40	Q	.	.	.	.
5.89	0.1639	0.40	Q	.	.	.	.
6.07	0.1699	0.41	Q	.	.	.	.
6.25	0.1760	0.41	Q	.	.	.	.
6.43	0.1822	0.41	Q	.	.	.	.
6.61	0.1884	0.42	Q	.	.	.	.
6.79	0.1946	0.42	Q	.	.	.	.
6.97	0.2010	0.43	Q	.	.	.	.
7.16	0.2074	0.43	Q	.	.	.	.
7.34	0.2139	0.44	Q	.	.	.	.
7.52	0.2205	0.45	Q	.	.	.	.
7.70	0.2272	0.45	Q	.	.	.	.
7.88	0.2339	0.46	Q	.	.	.	.

8.06	0.2408	0.46	Q	.	.	.	.
8.24	0.2477	0.47	Q	.	.	.	.
8.42	0.2548	0.47	Q	.	.	.	.
8.60	0.2619	0.48	Q	.	.	.	.
8.78	0.2691	0.49	Q	.	.	.	.
8.96	0.2765	0.50	Q	.	.	.	.
9.14	0.2839	0.50	.Q	.	.	.	.
9.32	0.2915	0.51	.Q	.	.	.	.
9.50	0.2992	0.52	.Q	.	.	.	.
9.68	0.3070	0.53	.Q	.	.	.	.
9.86	0.3149	0.54	.Q	.	.	.	.
10.04	0.3230	0.55	.Q	.	.	.	.
10.22	0.3313	0.55	.Q	.	.	.	.
10.40	0.3396	0.57	.Q	.	.	.	.
10.59	0.3482	0.58	.Q	.	.	.	.
10.77	0.3569	0.59	.Q	.	.	.	.
10.95	0.3658	0.60	.Q	.	.	.	.
11.13	0.3748	0.62	.Q	.	.	.	.
11.31	0.3841	0.63	.Q	.	.	.	.
11.49	0.3936	0.64	.Q	.	.	.	.
11.67	0.4033	0.66	.Q	.	.	.	.
11.85	0.4132	0.68	.Q	.	.	.	.
12.03	0.4234	0.69	.Q	.	.	.	.
12.21	0.4347	0.83	.Q	.	.	.	.
12.39	0.4472	0.84	.Q	.	.	.	.
12.57	0.4600	0.87	.Q	.	.	.	.
12.75	0.4731	0.89	.Q	.	.	.	.
12.93	0.4867	0.92	.Q	.	.	.	.
13.11	0.5006	0.94	.Q	.	.	.	.
13.29	0.5150	0.99	.Q	.	.	.	.
13.47	0.5299	1.01	. Q	.	.	.	.
13.65	0.5453	1.06	. Q	.	.	.	.
13.83	0.5613	1.09	. Q	.	.	.	.
14.01	0.5780	1.15	. Q	.	.	.	.
14.20	0.5966	1.33	. Q	.	.	.	.
14.38	0.6178	1.51	. Q	.	.	.	.
14.56	0.6406	1.55	. Q	.	.	.	.
14.74	0.6647	1.67	. Q	.	.	.	.
14.92	0.6901	1.74	. Q	.	.	.	.
15.10	0.7173	1.91	. Q	.	.	.	.
15.28	0.7465	2.02	. Q	.	.	.	.
15.46	0.7790	2.34	. Q	.	.	.	.
15.64	0.8156	2.57	. Q	.	.	.	.
15.82	0.8591	3.26	. Q	.	.	.	.
16.00	0.9150	4.23	. Q	.	.	.	.
16.18	1.0219	10.10	.	.	Q	.	.
16.36	1.1190	2.92	. Q	.	.	.	.
16.54	1.1568	2.15	. Q	.	.	.	.
16.72	1.1864	1.82	. Q	.	.	.	.
16.90	1.2119	1.61	. Q	.	.	.	.
17.08	1.2349	1.46	. Q	.	.	.	.
17.26	1.2541	1.12	. Q	.	.	.	.
17.44	1.2702	1.03	. Q	.	.	.	.
17.62	1.2851	0.96	.Q	.	.	.	.
17.81	1.2990	0.91	.Q	.	.	.	.
17.99	1.3122	0.86	.Q	.	.	.	.
18.17	1.3240	0.73	.Q	.	.	.	.

18.35	1.3344	0.67	.Q	.	.	.	.
18.53	1.3441	0.64	.Q	.	.	.	.
18.71	1.3534	0.61	.Q	.	.	.	.
18.89	1.3623	0.58	.Q	.	.	.	.
19.07	1.3708	0.56	.Q	.	.	.	.
19.25	1.3791	0.54	.Q	.	.	.	.
19.43	1.3870	0.52	.Q	.	.	.	.
19.61	1.3947	0.51	.Q	.	.	.	.
19.79	1.4021	0.49	Q	.	.	.	.
19.97	1.4094	0.48	Q	.	.	.	.
20.15	1.4164	0.46	Q	.	.	.	.
20.33	1.4233	0.45	Q	.	.	.	.
20.51	1.4299	0.44	Q	.	.	.	.
20.69	1.4364	0.43	Q	.	.	.	.
20.87	1.4428	0.42	Q	.	.	.	.
21.05	1.4490	0.41	Q	.	.	.	.
21.23	1.4551	0.40	Q	.	.	.	.
21.42	1.4610	0.39	Q	.	.	.	.
21.60	1.4669	0.39	Q	.	.	.	.
21.78	1.4726	0.38	Q	.	.	.	.
21.96	1.4782	0.37	Q	.	.	.	.
22.14	1.4837	0.37	Q	.	.	.	.
22.32	1.4891	0.36	Q	.	.	.	.
22.50	1.4944	0.35	Q	.	.	.	.
22.68	1.4996	0.35	Q	.	.	.	.
22.86	1.5047	0.34	Q	.	.	.	.
23.04	1.5098	0.34	Q	.	.	.	.
23.22	1.5148	0.33	Q	.	.	.	.
23.40	1.5197	0.33	Q	.	.	.	.
23.58	1.5245	0.32	Q	.	.	.	.
23.76	1.5292	0.32	Q	.	.	.	.
23.94	1.5339	0.31	Q	.	.	.	.
24.12	1.5385	0.31	Q	.	.	.	.
24.30	1.5408	0.00	Q	.	.	.	.

 TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
 (Note: 100% of Peak Flow Rate estimate assumed to have
 an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
=====	=====
0%	1440.4
10%	238.3
20%	75.8
30%	32.5
40%	21.7
50%	10.8
60%	10.8
70%	10.8
80%	10.8
90%	10.8

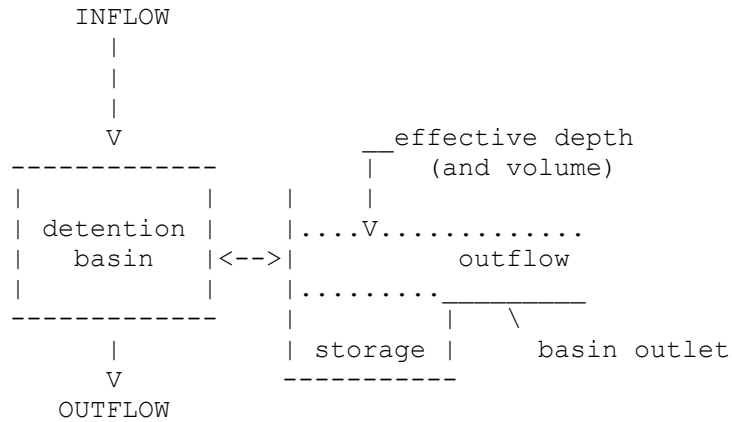
Problem Descriptions:
 AREA A - 10YR

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FLOW-THROUGH DETENTION BASIN MODEL

SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:

CONSTANT HYDROGRAPH TIME UNIT (MINUTES) = 10.830
 DEAD STORAGE (AF) = 0.00
 SPECIFIED DEAD STORAGE (AF) FILLED = 0.00
 ASSUMED INITIAL DEPTH (FEET) IN STORAGE BASIN = 0.00



DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:

TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES = 16

* BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	** BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	*
* 0.000	0.000	0.000	** 0.260	0.022	0.180	*
* 0.500	0.042	0.470	** 1.000	0.083	0.820	*
* 1.500	0.125	1.060	** 2.000	0.167	1.250	*
* 2.500	0.208	1.420	** 3.000	0.250	1.570	*
* 3.500	0.291	1.700	** 4.000	0.333	1.830	*
* 4.500	0.375	2.890	** 5.000	0.416	4.730	*
* 5.500	0.458	5.950	** 6.000	0.500	6.900	*
* 6.500	0.541	7.710	** 7.000	0.583	8.440	*

BASIN STORAGE, OUTFLOW AND DEPTH ROUTING VALUES:

INTERVAL NUMBER	DEPTH (FEET)	{S-O*DT/2} (ACRE-FEET)	{S+O*DT/2} (ACRE-FEET)
1	0.00	0.00000	0.00000
2	0.26	0.02066	0.02334
3	0.50	0.03849	0.04551
4	1.00	0.07688	0.08912
5	1.50	0.11709	0.13291
6	2.00	0.15768	0.17632
7	2.50	0.19741	0.21859
8	3.00	0.23829	0.26171
9	3.50	0.27832	0.30368
10	4.00	0.31935	0.34665

11	4.50	0.35344	0.39656
12	5.00	0.38072	0.45128
13	5.50	0.41362	0.50238
14	6.00	0.44854	0.55146
15	6.50	0.48349	0.59851
16	7.00	0.52005	0.64595

WHERE S=STORAGE (AF) ; O=OUTFLOW (AF/MIN.) ; DT=UNIT INTERVAL (MIN.)

DETENTION BASIN ROUTING RESULTS:

NOTE: COMPUTED BASIN DEPTH, OUTFLOW, AND STORAGE QUANTITIES OCCUR AT THE GIVEN TIME. BASIN INFLOW VALUES REPRESENT THE AVERAGE INFLOW DURING THE RECENT HYDROGRAPH UNIT INTERVAL.

TIME (HRS)	DEAD-STORAGE FILLED (AF)	INFLOW (CFS)	EFFECTIVE DEPTH (FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME (AF)
0.116	0.000	0.00	0.00	0.00	0.000
0.297	0.000	0.31	0.05	0.02	0.004
0.477	0.000	0.31	0.10	0.05	0.008
0.658	0.000	0.31	0.14	0.08	0.012
0.838	0.000	0.31	0.17	0.11	0.015
1.019	0.000	0.32	0.21	0.13	0.018
1.199	0.000	0.32	0.24	0.15	0.020
1.380	0.000	0.32	0.26	0.17	0.022
1.560	0.000	0.32	0.29	0.20	0.024
1.741	0.000	0.33	0.30	0.22	0.026
1.921	0.000	0.33	0.32	0.24	0.027
2.102	0.000	0.33	0.33	0.26	0.028
2.282	0.000	0.33	0.34	0.27	0.029
2.463	0.000	0.34	0.35	0.29	0.030
2.643	0.000	0.34	0.36	0.30	0.030
2.824	0.000	0.34	0.37	0.31	0.031
3.004	0.000	0.34	0.37	0.31	0.031
3.185	0.000	0.35	0.38	0.32	0.032
3.365	0.000	0.35	0.38	0.33	0.032
3.546	0.000	0.35	0.39	0.33	0.033
3.726	0.000	0.36	0.39	0.34	0.033
3.907	0.000	0.36	0.39	0.34	0.033
4.087	0.000	0.36	0.40	0.34	0.033
4.268	0.000	0.37	0.40	0.35	0.034
4.448	0.000	0.37	0.40	0.35	0.034
4.628	0.000	0.37	0.41	0.36	0.034
4.809	0.000	0.38	0.41	0.36	0.035
4.990	0.000	0.38	0.41	0.36	0.035
5.170	0.000	0.38	0.42	0.37	0.035
5.351	0.000	0.39	0.42	0.37	0.035
5.531	0.000	0.39	0.42	0.38	0.036
5.712	0.000	0.40	0.43	0.38	0.036
5.892	0.000	0.40	0.43	0.38	0.036
6.073	0.000	0.41	0.43	0.39	0.036
6.253	0.000	0.41	0.44	0.39	0.037
6.434	0.000	0.41	0.44	0.39	0.037
6.614	0.000	0.42	0.44	0.40	0.037
6.795	0.000	0.42	0.45	0.40	0.038
6.975	0.000	0.43	0.45	0.41	0.038
7.156	0.000	0.43	0.45	0.41	0.038
7.336	0.000	0.44	0.46	0.42	0.038

7.516	0.000	0.45	0.46	0.42	0.039
7.697	0.000	0.45	0.47	0.43	0.039
7.878	0.000	0.46	0.47	0.43	0.040
8.058	0.000	0.46	0.47	0.44	0.040
8.238	0.000	0.47	0.48	0.44	0.040
8.419	0.000	0.47	0.48	0.45	0.041
8.600	0.000	0.48	0.49	0.45	0.041
8.780	0.000	0.49	0.49	0.46	0.042
8.960	0.000	0.50	0.50	0.47	0.042
9.141	0.000	0.50	0.51	0.47	0.042
9.321	0.000	0.51	0.51	0.48	0.043
9.502	0.000	0.52	0.52	0.48	0.044
9.682	0.000	0.53	0.53	0.49	0.044
9.863	0.000	0.54	0.53	0.49	0.045
10.043	0.000	0.55	0.54	0.50	0.046
10.224	0.000	0.55	0.55	0.50	0.046
10.405	0.000	0.57	0.56	0.51	0.047
10.585	0.000	0.58	0.57	0.52	0.048
10.766	0.000	0.59	0.59	0.53	0.049
10.946	0.000	0.60	0.60	0.53	0.050
11.127	0.000	0.62	0.61	0.54	0.051
11.307	0.000	0.63	0.62	0.55	0.052
11.488	0.000	0.64	0.64	0.56	0.053
11.668	0.000	0.66	0.65	0.57	0.055
11.848	0.000	0.68	0.67	0.58	0.056
12.029	0.000	0.69	0.69	0.60	0.057
12.210	0.000	0.83	0.73	0.62	0.061
12.390	0.000	0.84	0.76	0.64	0.064
12.570	0.000	0.87	0.80	0.67	0.067
12.751	0.000	0.89	0.84	0.69	0.070
12.932	0.000	0.92	0.87	0.72	0.073
13.112	0.000	0.94	0.91	0.74	0.076
13.292	0.000	0.99	0.95	0.77	0.079
13.473	0.000	1.01	0.99	0.80	0.082
13.654	0.000	1.06	1.03	0.82	0.086
13.834	0.000	1.09	1.07	0.84	0.089
14.014	0.000	1.15	1.12	0.87	0.093
14.195	0.000	1.33	1.20	0.90	0.100
14.376	0.000	1.51	1.30	0.94	0.108
14.556	0.000	1.55	1.40	0.99	0.117
14.736	0.000	1.67	1.51	1.04	0.126
14.917	0.000	1.74	1.63	1.09	0.136
15.097	0.000	1.91	1.77	1.14	0.147
15.278	0.000	2.02	1.91	1.19	0.160
15.458	0.000	2.34	2.11	1.25	0.176
15.639	0.000	2.57	2.34	1.33	0.195
15.819	0.000	3.26	2.67	1.42	0.222
16.000	0.000	4.23	3.15	1.54	0.262
16.181	0.000	10.10	4.54	2.32	0.378
16.361	0.000	2.92	4.52	3.01	0.377
16.542	0.000	2.15	4.40	2.83	0.367
16.722	0.000	1.82	4.27	2.55	0.356
16.903	0.000	1.61	4.15	2.28	0.346
17.083	0.000	1.46	4.05	2.05	0.337
17.264	0.000	1.12	3.92	1.87	0.326
17.444	0.000	1.03	3.78	1.79	0.315
17.625	0.000	0.96	3.64	1.75	0.303

17.805	0.000	0.91	3.50	1.72	0.291
17.986	0.000	0.86	3.35	1.68	0.278
18.166	0.000	0.73	3.18	1.64	0.265
18.347	0.000	0.67	3.01	1.60	0.251
18.527	0.000	0.64	2.85	1.55	0.237
18.707	0.000	0.61	2.69	1.50	0.224
18.888	0.000	0.58	2.54	1.45	0.211
19.069	0.000	0.56	2.38	1.41	0.199
19.249	0.000	0.54	2.24	1.36	0.186
19.430	0.000	0.52	2.09	1.31	0.175
19.610	0.000	0.51	1.96	1.26	0.164
19.791	0.000	0.49	1.83	1.21	0.153
19.971	0.000	0.48	1.71	1.16	0.143
20.151	0.000	0.46	1.59	1.12	0.133
20.332	0.000	0.45	1.48	1.07	0.124
20.513	0.000	0.44	1.38	1.03	0.115
20.693	0.000	0.43	1.28	0.98	0.107
20.874	0.000	0.42	1.19	0.93	0.099
21.054	0.000	0.41	1.11	0.89	0.092
21.234	0.000	0.40	1.03	0.85	0.085
21.415	0.000	0.39	0.95	0.81	0.079
21.595	0.000	0.39	0.88	0.76	0.073
21.776	0.000	0.38	0.82	0.72	0.068
21.957	0.000	0.37	0.77	0.68	0.064
22.137	0.000	0.37	0.72	0.64	0.060
22.318	0.000	0.36	0.67	0.61	0.056
22.498	0.000	0.35	0.63	0.58	0.053
22.678	0.000	0.35	0.59	0.55	0.050
22.859	0.000	0.34	0.56	0.52	0.047
23.039	0.000	0.34	0.53	0.50	0.045
23.220	0.000	0.33	0.50	0.48	0.042
23.401	0.000	0.33	0.48	0.46	0.040
23.581	0.000	0.32	0.46	0.43	0.039
23.761	0.000	0.32	0.44	0.41	0.037
23.942	0.000	0.31	0.43	0.39	0.036
24.122	0.000	0.31	0.42	0.38	0.035
24.303	0.000	0.00	0.36	0.33	0.030
24.483	0.000	0.00	0.31	0.27	0.026
24.664	0.000	0.00	0.27	0.22	0.023
24.844	0.000	0.00	0.24	0.18	0.020
25.025	0.000	0.00	0.21	0.16	0.018
25.205	0.000	0.00	0.19	0.14	0.016
25.386	0.000	0.00	0.17	0.12	0.014
25.566	0.000	0.00	0.15	0.11	0.012
25.747	0.000	0.00	0.13	0.10	0.011
25.927	0.000	0.00	0.11	0.08	0.010
26.108	0.000	0.00	0.10	0.07	0.009
26.288	0.000	0.00	0.09	0.07	0.008
26.469	0.000	0.00	0.08	0.06	0.007
26.649	0.000	0.00	0.07	0.05	0.006
26.830	0.000	0.00	0.06	0.05	0.005
27.010	0.000	0.00	0.06	0.04	0.005
27.191	0.000	0.00	0.05	0.04	0.004
27.372	0.000	0.00	0.04	0.03	0.004
27.552	0.000	0.00	0.04	0.03	0.003
27.733	0.000	0.00	0.03	0.02	0.003
27.913	0.000	0.00	0.03	0.02	0.003

28.094	0.000	0.00	0.03	0.02	0.002
28.274	0.000	0.00	0.02	0.02	0.002
28.455	0.000	0.00	0.02	0.02	0.002
28.635	0.000	0.00	0.02	0.01	0.002
28.816	0.000	0.00	0.02	0.01	0.001
28.996	0.000	0.00	0.01	0.01	0.001
29.177	0.000	0.00	0.01	0.01	0.001
29.357	0.000	0.00	0.01	0.01	0.001

NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS

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Analysis prepared by:

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15535 Sand Canyon Ave
Suite 100
Irvine, CA 92618

Problem Descriptions:

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*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 4.97 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp (in./hr.)	YIELD
1	4.65	15.00	69.	0.566	0.868

TOTAL AREA (Acres) = 4.65

AREA-AVERAGED LOSS RATE, \bar{F}_m (in./hr.) = 0.085

AREA-AVERAGED LOW LOSS FRACTION, \bar{Y} = 0.132

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Problem Descriptions:

RATIONAL METHOD CALIBRATION COEFFICIENT = 1.13
TOTAL CATCHMENT AREA (ACRES) = 4.65
SOIL-LOSS RATE, F_m , (INCH/HR) = 0.085
LOW LOSS FRACTION = 0.132
TIME OF CONCENTRATION (MIN.) = 10.73
SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
USER SPECIFIED RAINFALL VALUES ARE USED
RETURN FREQUENCY (YEARS) = 25
5-MINUTE POINT RAINFALL VALUE (INCHES) = 0.29
30-MINUTE POINT RAINFALL VALUE (INCHES) = 0.75
1-HOUR POINT RAINFALL VALUE (INCHES) = 1.12

3-HOUR POINT RAINFALL VALUE (INCHES) = 2.04
 6-HOUR POINT RAINFALL VALUE (INCHES) = 2.80
 24-HOUR POINT RAINFALL VALUE (INCHES) = 4.97

TOTAL CATCHMENT RUNOFF VOLUME (ACRE-FEET) = 1.91
 TOTAL CATCHMENT SOIL-LOSS VOLUME (ACRE-FEET) = 0.01

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	5.0	10.0	15.0	20.0
0.08	0.0014	0.39	Q	.	.	.	.
0.26	0.0072	0.39	Q	.	.	.	.
0.44	0.0130	0.40	Q	.	.	.	.
0.62	0.0189	0.40	Q	.	.	.	.
0.80	0.0248	0.40	Q	.	.	.	.
0.98	0.0308	0.40	Q	.	.	.	.
1.16	0.0368	0.41	Q	.	.	.	.
1.34	0.0429	0.41	Q	.	.	.	.
1.51	0.0490	0.41	Q	.	.	.	.
1.69	0.0551	0.42	Q	.	.	.	.
1.87	0.0613	0.42	Q	.	.	.	.
2.05	0.0675	0.42	Q	.	.	.	.
2.23	0.0738	0.43	Q	.	.	.	.
2.41	0.0801	0.43	Q	.	.	.	.
2.59	0.0865	0.43	Q	.	.	.	.
2.77	0.0929	0.44	Q	.	.	.	.
2.95	0.0994	0.44	Q	.	.	.	.
3.12	0.1059	0.44	Q	.	.	.	.
3.30	0.1124	0.45	Q	.	.	.	.
3.48	0.1191	0.45	Q	.	.	.	.
3.66	0.1258	0.45	Q	.	.	.	.
3.84	0.1325	0.46	Q	.	.	.	.
4.02	0.1393	0.46	Q	.	.	.	.
4.20	0.1461	0.47	Q	.	.	.	.
4.38	0.1531	0.47	Q	.	.	.	.
4.55	0.1600	0.47	Q	.	.	.	.
4.73	0.1671	0.48	Q	.	.	.	.
4.91	0.1742	0.48	Q	.	.	.	.
5.09	0.1814	0.49	Q	.	.	.	.
5.27	0.1886	0.49	Q	.	.	.	.
5.45	0.1959	0.50	Q	.	.	.	.
5.63	0.2033	0.50	.Q	.	.	.	.
5.81	0.2108	0.51	.Q	.	.	.	.
5.99	0.2183	0.51	.Q	.	.	.	.
6.16	0.2259	0.52	.Q	.	.	.	.
6.34	0.2336	0.52	.Q	.	.	.	.
6.52	0.2414	0.53	.Q	.	.	.	.
6.70	0.2492	0.53	.Q	.	.	.	.
6.88	0.2572	0.54	.Q	.	.	.	.
7.06	0.2652	0.55	.Q	.	.	.	.
7.24	0.2733	0.55	.Q	.	.	.	.
7.42	0.2816	0.56	.Q	.	.	.	.
7.59	0.2899	0.57	.Q	.	.	.	.
7.77	0.2983	0.57	.Q	.	.	.	.

7.95	0.3069	0.58	.Q	.	.	.	.
8.13	0.3155	0.59	.Q	.	.	.	.
8.31	0.3243	0.60	.Q	.	.	.	.
8.49	0.3331	0.60	.Q	.	.	.	.
8.67	0.3421	0.61	.Q	.	.	.	.
8.85	0.3513	0.62	.Q	.	.	.	.
9.03	0.3605	0.63	.Q	.	.	.	.
9.20	0.3699	0.64	.Q	.	.	.	.
9.38	0.3795	0.65	.Q	.	.	.	.
9.56	0.3891	0.66	.Q	.	.	.	.
9.74	0.3990	0.67	.Q	.	.	.	.
9.92	0.4090	0.68	.Q	.	.	.	.
10.10	0.4192	0.70	.Q	.	.	.	.
10.28	0.4295	0.70	.Q	.	.	.	.
10.46	0.4401	0.72	.Q	.	.	.	.
10.64	0.4508	0.73	.Q	.	.	.	.
10.81	0.4617	0.75	.Q	.	.	.	.
10.99	0.4729	0.76	.Q	.	.	.	.
11.17	0.4843	0.78	.Q	.	.	.	.
11.35	0.4959	0.79	.Q	.	.	.	.
11.53	0.5078	0.82	.Q	.	.	.	.
11.71	0.5200	0.83	.Q	.	.	.	.
11.89	0.5324	0.86	.Q	.	.	.	.
12.07	0.5452	0.87	.Q	.	.	.	.
12.24	0.5589	0.99	.Q	.	.	.	.
12.42	0.5738	1.01	. Q	.	.	.	.
12.60	0.5890	1.05	. Q	.	.	.	.
12.78	0.6046	1.07	. Q	.	.	.	.
12.96	0.6207	1.11	. Q	.	.	.	.
13.14	0.6373	1.13	. Q	.	.	.	.
13.32	0.6544	1.19	. Q	.	.	.	.
13.50	0.6721	1.21	. Q	.	.	.	.
13.68	0.6905	1.28	. Q	.	.	.	.
13.85	0.7097	1.31	. Q	.	.	.	.
14.03	0.7296	1.39	. Q	.	.	.	.
14.21	0.7521	1.65	. Q	.	.	.	.
14.39	0.7777	1.82	. Q	.	.	.	.
14.57	0.8050	1.88	. Q	.	.	.	.
14.75	0.8338	2.02	. Q	.	.	.	.
14.93	0.8643	2.10	. Q	.	.	.	.
15.11	0.8969	2.32	. Q	.	.	.	.
15.28	0.9322	2.45	. Q	.	.	.	.
15.46	0.9719	2.92	. Q	.	.	.	.
15.64	1.0179	3.30	. Q	.	.	.	.
15.82	1.0724	4.08	. Q	.	.	.	.
16.00	1.1414	5.25	. Q	.	.	.	.
16.18	1.2717	12.38	.	.	Q	.	.
16.36	1.3907	3.73	.	.	Q	.	.
16.54	1.4376	2.62	.	.	Q	.	.
16.72	1.4732	2.20	.	.	Q	.	.
16.89	1.5038	1.94	. Q	.	.	.	.
17.07	1.5312	1.76	. Q	.	.	.	.
17.25	1.5542	1.35	. Q	.	.	.	.
17.43	1.5734	1.24	. Q	.	.	.	.
17.61	1.5911	1.16	. Q	.	.	.	.
17.79	1.6077	1.09	. Q	.	.	.	.
17.97	1.6234	1.03	. Q	.	.	.	.

18.15	1.6379	0.94	.Q	.	.	.	.
18.32	1.6511	0.84	.Q	.	.	.	.
18.50	1.6632	0.80	.Q	.	.	.	.
18.68	1.6749	0.77	.Q	.	.	.	.
18.86	1.6860	0.74	.Q	.	.	.	.
19.04	1.6968	0.71	.Q	.	.	.	.
19.22	1.7071	0.69	.Q	.	.	.	.
19.40	1.7171	0.67	.Q	.	.	.	.
19.58	1.7268	0.65	.Q	.	.	.	.
19.76	1.7362	0.63	.Q	.	.	.	.
19.93	1.7453	0.61	.Q	.	.	.	.
20.11	1.7542	0.59	.Q	.	.	.	.
20.29	1.7629	0.58	.Q	.	.	.	.
20.47	1.7713	0.56	.Q	.	.	.	.
20.65	1.7795	0.55	.Q	.	.	.	.
20.83	1.7876	0.54	.Q	.	.	.	.
21.01	1.7954	0.53	.Q	.	.	.	.
21.19	1.8031	0.51	.Q	.	.	.	.
21.36	1.8106	0.50	.Q	.	.	.	.
21.54	1.8180	0.49	Q	.	.	.	.
21.72	1.8253	0.49	Q	.	.	.	.
21.90	1.8324	0.48	Q	.	.	.	.
22.08	1.8394	0.47	Q	.	.	.	.
22.26	1.8462	0.46	Q	.	.	.	.
22.44	1.8529	0.45	Q	.	.	.	.
22.62	1.8596	0.44	Q	.	.	.	.
22.80	1.8661	0.44	Q	.	.	.	.
22.97	1.8725	0.43	Q	.	.	.	.
23.15	1.8788	0.42	Q	.	.	.	.
23.33	1.8851	0.42	Q	.	.	.	.
23.51	1.8912	0.41	Q	.	.	.	.
23.69	1.8973	0.41	Q	.	.	.	.
23.87	1.9032	0.40	Q	.	.	.	.
24.05	1.9091	0.40	Q	.	.	.	.
24.23	1.9120	0.00	Q	.	.	.	.

 TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
 (Note: 100% of Peak Flow Rate estimate assumed to have
 an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
=====	=====
0%	1448.5
10%	236.1
20%	75.1
30%	42.9
40%	21.5
50%	10.7
60%	10.7
70%	10.7
80%	10.7
90%	10.7

Problem Descriptions:

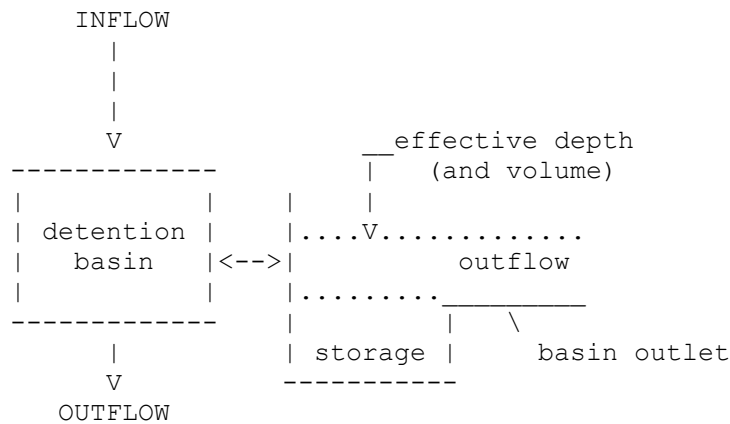
AREA A - 25 YR

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FLOW-THROUGH DETENTION BASIN MODEL

SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:

CONSTANT HYDROGRAPH TIME UNIT (MINUTES) = 10.730
 DEAD STORAGE (AF) = 0.00
 SPECIFIED DEAD STORAGE (AF) FILLED = 0.00
 ASSUMED INITIAL DEPTH (FEET) IN STORAGE BASIN = 0.00



DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:

TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES = 16

* BASIN-DEPTH	STORAGE	OUTFLOW	** BASIN-DEPTH	STORAGE	OUTFLOW	*
(FEET)	(ACRE-FEET)	(CFS)	(FEET)	(ACRE-FEET)	(CFS)	*
* 0.000	0.000	0.000**	0.260	0.022	0.180*	*
* 0.500	0.042	0.470**	1.000	0.083	0.820*	*
* 1.500	0.125	1.060**	2.000	0.167	1.250*	*
* 2.500	0.208	1.420**	3.000	0.250	1.570*	*
* 3.500	0.291	1.700**	4.000	0.333	1.830*	*
* 4.500	0.375	2.890**	5.000	0.416	4.730*	*
* 5.500	0.458	5.950**	6.000	0.500	6.900*	*
* 6.500	0.541	7.710**	7.000	0.583	8.440*	*

BASIN STORAGE, OUTFLOW AND DEPTH ROUTING VALUES:

INTERVAL	DEPTH	{S-O*DT/2}	{S+O*DT/2}
NUMBER	(FEET)	(ACRE-FEET)	(ACRE-FEET)
1	0.00	0.00000	0.00000
2	0.26	0.02067	0.02333
3	0.50	0.03853	0.04547
4	1.00	0.07694	0.08906
5	1.50	0.11717	0.13283
6	2.00	0.15776	0.17624
7	2.50	0.19751	0.21849
8	3.00	0.23840	0.26160
9	3.50	0.27844	0.30356

10	4.00	0.31948	0.34652
11	4.50	0.35364	0.39636
12	5.00	0.38105	0.45095
13	5.50	0.41403	0.50197
14	6.00	0.44901	0.55099
15	6.50	0.48402	0.59798
16	7.00	0.52063	0.64537

WHERE S=STORAGE (AF) ; O=OUTFLOW (AF/MIN.) ; DT=UNIT INTERVAL (MIN.)

DETENTION BASIN ROUTING RESULTS:

NOTE: COMPUTED BASIN DEPTH, OUTFLOW, AND STORAGE QUANTITIES
OCCUR AT THE GIVEN TIME. BASIN INFLOW VALUES REPRESENT THE
AVERAGE INFLOW DURING THE RECENT HYDROGRAPH UNIT INTERVAL.

TIME (HRS)	DEAD-STORAGE FILLED (AF)	INFLOW (CFS)	EFFECTIVE DEPTH (FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME (AF)
0.084	0.000	0.39	0.06	0.02	0.005
0.263	0.000	0.39	0.12	0.06	0.010
0.442	0.000	0.40	0.17	0.10	0.015
0.620	0.000	0.40	0.22	0.14	0.019
0.799	0.000	0.40	0.26	0.17	0.022
0.978	0.000	0.40	0.30	0.20	0.025
1.157	0.000	0.41	0.33	0.24	0.028
1.336	0.000	0.41	0.35	0.27	0.030
1.515	0.000	0.41	0.37	0.30	0.031
1.693	0.000	0.42	0.39	0.32	0.033
1.872	0.000	0.42	0.40	0.34	0.034
2.051	0.000	0.42	0.41	0.36	0.035
2.230	0.000	0.43	0.42	0.37	0.036
2.409	0.000	0.43	0.43	0.38	0.036
2.588	0.000	0.43	0.44	0.39	0.037
2.766	0.000	0.44	0.44	0.40	0.037
2.945	0.000	0.44	0.45	0.41	0.038
3.124	0.000	0.44	0.46	0.41	0.038
3.303	0.000	0.45	0.46	0.42	0.039
3.482	0.000	0.45	0.47	0.43	0.039
3.661	0.000	0.45	0.47	0.43	0.039
3.839	0.000	0.46	0.47	0.44	0.040
4.018	0.000	0.46	0.48	0.44	0.040
4.197	0.000	0.47	0.48	0.44	0.040
4.376	0.000	0.47	0.48	0.45	0.041
4.555	0.000	0.47	0.49	0.45	0.041
4.734	0.000	0.48	0.49	0.46	0.041
4.912	0.000	0.48	0.50	0.46	0.042
5.091	0.000	0.49	0.50	0.47	0.042
5.270	0.000	0.49	0.50	0.47	0.042
5.449	0.000	0.50	0.51	0.47	0.043
5.628	0.000	0.50	0.51	0.48	0.043
5.807	0.000	0.51	0.52	0.48	0.043
5.985	0.000	0.51	0.52	0.48	0.044
6.164	0.000	0.52	0.53	0.49	0.044
6.343	0.000	0.52	0.53	0.49	0.045
6.522	0.000	0.53	0.54	0.50	0.045
6.701	0.000	0.53	0.55	0.50	0.046
6.880	0.000	0.54	0.55	0.50	0.046
7.058	0.000	0.55	0.56	0.51	0.047

7.237	0.000	0.55	0.57	0.51	0.047
7.416	0.000	0.56	0.57	0.52	0.048
7.595	0.000	0.57	0.58	0.52	0.049
7.774	0.000	0.57	0.59	0.53	0.049
7.953	0.000	0.58	0.60	0.54	0.050
8.131	0.000	0.59	0.61	0.54	0.051
8.310	0.000	0.60	0.61	0.55	0.051
8.489	0.000	0.60	0.62	0.55	0.052
8.668	0.000	0.61	0.63	0.56	0.053
8.847	0.000	0.62	0.64	0.57	0.054
9.026	0.000	0.63	0.65	0.57	0.055
9.204	0.000	0.64	0.66	0.58	0.055
9.383	0.000	0.65	0.68	0.59	0.056
9.562	0.000	0.66	0.69	0.60	0.057
9.741	0.000	0.67	0.70	0.61	0.058
9.920	0.000	0.68	0.71	0.61	0.059
10.099	0.000	0.70	0.72	0.62	0.060
10.277	0.000	0.70	0.74	0.63	0.061
10.456	0.000	0.72	0.75	0.64	0.063
10.635	0.000	0.73	0.77	0.65	0.064
10.814	0.000	0.75	0.78	0.66	0.065
10.993	0.000	0.76	0.80	0.67	0.066
11.172	0.000	0.78	0.82	0.68	0.068
11.350	0.000	0.79	0.83	0.70	0.069
11.529	0.000	0.82	0.85	0.71	0.071
11.708	0.000	0.83	0.87	0.72	0.072
11.887	0.000	0.86	0.89	0.74	0.074
12.066	0.000	0.87	0.91	0.75	0.076
12.245	0.000	0.99	0.95	0.77	0.079
12.423	0.000	1.01	0.99	0.80	0.082
12.602	0.000	1.05	1.03	0.82	0.086
12.781	0.000	1.07	1.07	0.84	0.089
12.960	0.000	1.11	1.11	0.86	0.093
13.139	0.000	1.13	1.16	0.88	0.096
13.318	0.000	1.19	1.21	0.91	0.100
13.496	0.000	1.21	1.26	0.93	0.104
13.675	0.000	1.28	1.31	0.96	0.109
13.854	0.000	1.31	1.37	0.98	0.114
14.033	0.000	1.39	1.44	1.01	0.120
14.212	0.000	1.65	1.54	1.05	0.128
14.391	0.000	1.82	1.67	1.10	0.139
14.569	0.000	1.88	1.80	1.15	0.150
14.748	0.000	2.02	1.94	1.20	0.162
14.927	0.000	2.10	2.09	1.25	0.175
15.106	0.000	2.32	2.27	1.31	0.189
15.285	0.000	2.45	2.47	1.38	0.205
15.464	0.000	2.92	2.73	1.45	0.227
15.642	0.000	3.30	3.04	1.53	0.253
15.821	0.000	4.08	3.48	1.64	0.289
16.000	0.000	5.25	4.08	1.85	0.340
16.179	0.000	12.38	5.56	4.03	0.463
16.358	0.000	3.73	5.22	5.66	0.434
16.537	0.000	2.62	4.85	4.71	0.403
16.715	0.000	2.20	4.58	3.68	0.382
16.894	0.000	1.94	4.40	2.94	0.367
17.073	0.000	1.76	4.27	2.54	0.355
17.252	0.000	1.35	4.11	2.23	0.342

17.431	0.000	1.24	3.99	1.95	0.332
17.609	0.000	1.16	3.87	1.81	0.322
17.788	0.000	1.09	3.75	1.78	0.312
17.967	0.000	1.03	3.62	1.75	0.301
18.146	0.000	0.94	3.49	1.71	0.290
18.325	0.000	0.84	3.34	1.68	0.278
18.504	0.000	0.80	3.19	1.64	0.265
18.682	0.000	0.77	3.04	1.60	0.253
18.861	0.000	0.74	2.89	1.56	0.241
19.040	0.000	0.71	2.75	1.52	0.229
19.219	0.000	0.69	2.61	1.47	0.217
19.398	0.000	0.67	2.48	1.43	0.206
19.577	0.000	0.65	2.34	1.39	0.195
19.755	0.000	0.63	2.21	1.34	0.185
19.934	0.000	0.61	2.09	1.30	0.174
20.113	0.000	0.59	1.97	1.26	0.164
20.292	0.000	0.58	1.86	1.22	0.155
20.471	0.000	0.56	1.75	1.18	0.146
20.650	0.000	0.55	1.65	1.14	0.137
20.828	0.000	0.54	1.55	1.10	0.129
21.007	0.000	0.53	1.45	1.06	0.121
21.186	0.000	0.51	1.37	1.02	0.114
21.365	0.000	0.50	1.28	0.98	0.107
21.544	0.000	0.49	1.21	0.94	0.100
21.723	0.000	0.49	1.13	0.90	0.094
21.901	0.000	0.48	1.06	0.87	0.088
22.080	0.000	0.47	1.00	0.83	0.083
22.259	0.000	0.46	0.94	0.80	0.078
22.438	0.000	0.45	0.88	0.76	0.073
22.617	0.000	0.44	0.83	0.72	0.069
22.796	0.000	0.44	0.79	0.69	0.066
22.974	0.000	0.43	0.75	0.66	0.062
23.153	0.000	0.42	0.71	0.63	0.059
23.332	0.000	0.42	0.68	0.61	0.056
23.511	0.000	0.41	0.65	0.58	0.054
23.690	0.000	0.41	0.62	0.56	0.052
23.869	0.000	0.40	0.59	0.54	0.050
24.047	0.000	0.40	0.57	0.53	0.048
24.226	0.000	0.00	0.48	0.48	0.040
24.405	0.000	0.00	0.41	0.40	0.034
24.584	0.000	0.00	0.35	0.33	0.030
24.763	0.000	0.00	0.31	0.26	0.026
24.942	0.000	0.00	0.27	0.21	0.023
25.120	0.000	0.00	0.24	0.18	0.020
25.299	0.000	0.00	0.21	0.15	0.018
25.478	0.000	0.00	0.19	0.14	0.016
25.657	0.000	0.00	0.16	0.12	0.014
25.836	0.000	0.00	0.15	0.11	0.012
26.015	0.000	0.00	0.13	0.10	0.011
26.193	0.000	0.00	0.11	0.08	0.010
26.372	0.000	0.00	0.10	0.07	0.009
26.551	0.000	0.00	0.09	0.07	0.008
26.730	0.000	0.00	0.08	0.06	0.007
26.909	0.000	0.00	0.07	0.05	0.006
27.088	0.000	0.00	0.06	0.05	0.005
27.266	0.000	0.00	0.06	0.04	0.005
27.445	0.000	0.00	0.05	0.04	0.004

27.624	0.000	0.00	0.04	0.03	0.004
27.803	0.000	0.00	0.04	0.03	0.003
27.982	0.000	0.00	0.03	0.03	0.003
28.161	0.000	0.00	0.03	0.02	0.003
28.339	0.000	0.00	0.03	0.02	0.002
28.518	0.000	0.00	0.02	0.02	0.002
28.697	0.000	0.00	0.02	0.02	0.002
28.876	0.000	0.00	0.02	0.01	0.002
29.055	0.000	0.00	0.02	0.01	0.001
29.234	0.000	0.00	0.01	0.01	0.001
29.412	0.000	0.00	0.01	0.01	0.001
29.591	0.000	0.00	0.01	0.01	0.001

NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS

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Analysis prepared by:

Fusco Engineering, Inc.
15535 Sand Canyon Ave
Suite 100
Irvine, CA 92618

Problem Descriptions:

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*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 6.30 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp (in./hr.)	YIELD
1	4.65	15.00	69. (AMC II)	0.272	0.930

TOTAL AREA (Acres) = 4.65

AREA-AVERAGED LOSS RATE, \bar{F}_m (in./hr.) = 0.041

AREA-AVERAGED LOW LOSS FRACTION, \bar{Y} = 0.070

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Problem Descriptions:

RATIONAL METHOD CALIBRATION COEFFICIENT = 1.14
TOTAL CATCHMENT AREA (ACRES) = 4.65
SOIL-LOSS RATE, F_m , (INCH/HR) = 0.041
LOW LOSS FRACTION = 0.070
TIME OF CONCENTRATION (MIN.) = 10.63
SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
USER SPECIFIED RAINFALL VALUES ARE USED
RETURN FREQUENCY (YEARS) = 100
5-MINUTE POINT RAINFALL VALUE (INCHES) = 0.37
30-MINUTE POINT RAINFALL VALUE (INCHES) = 0.96
1-HOUR POINT RAINFALL VALUE (INCHES) = 1.44

3-HOUR POINT RAINFALL VALUE (INCHES) = 2.53
 6-HOUR POINT RAINFALL VALUE (INCHES) = 3.47
 24-HOUR POINT RAINFALL VALUE (INCHES) = 6.30

 TOTAL CATCHMENT RUNOFF VOLUME (ACRE-FEET) = 2.60
 TOTAL CATCHMENT SOIL-LOSS VOLUME (ACRE-FEET) = -0.15

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	5.0	10.0	15.0	20.0
0.05	0.0000	0.00	Q	.	.	.	.
0.23	0.0041	0.56	.Q	.	.	.	.
0.41	0.0123	0.56	.Q	.	.	.	.
0.59	0.0205	0.57	.Q	.	.	.	.
0.76	0.0288	0.57	.Q	.	.	.	.
0.94	0.0372	0.57	.Q	.	.	.	.
1.12	0.0456	0.58	.Q	.	.	.	.
1.30	0.0541	0.58	.Q	.	.	.	.
1.47	0.0626	0.58	.Q	.	.	.	.
1.65	0.0712	0.59	.Q	.	.	.	.
1.83	0.0798	0.59	.Q	.	.	.	.
2.00	0.0885	0.60	.Q	.	.	.	.
2.18	0.0973	0.60	.Q	.	.	.	.
2.36	0.1061	0.61	.Q	.	.	.	.
2.54	0.1150	0.61	.Q	.	.	.	.
2.71	0.1240	0.62	.Q	.	.	.	.
2.89	0.1330	0.62	.Q	.	.	.	.
3.07	0.1421	0.62	.Q	.	.	.	.
3.24	0.1512	0.63	.Q	.	.	.	.
3.42	0.1605	0.63	.Q	.	.	.	.
3.60	0.1698	0.64	.Q	.	.	.	.
3.78	0.1792	0.64	.Q	.	.	.	.
3.95	0.1887	0.65	.Q	.	.	.	.
4.13	0.1982	0.66	.Q	.	.	.	.
4.31	0.2078	0.66	.Q	.	.	.	.
4.48	0.2175	0.67	.Q	.	.	.	.
4.66	0.2273	0.67	.Q	.	.	.	.
4.84	0.2372	0.68	.Q	.	.	.	.
5.02	0.2472	0.68	.Q	.	.	.	.
5.19	0.2572	0.69	.Q	.	.	.	.
5.37	0.2674	0.70	.Q	.	.	.	.
5.55	0.2776	0.70	.Q	.	.	.	.
5.72	0.2880	0.71	.Q	.	.	.	.
5.90	0.2984	0.72	.Q	.	.	.	.
6.08	0.3090	0.72	.Q	.	.	.	.
6.26	0.3196	0.73	.Q	.	.	.	.
6.43	0.3304	0.74	.Q	.	.	.	.
6.61	0.3412	0.75	.Q	.	.	.	.
6.79	0.3522	0.75	.Q	.	.	.	.
6.96	0.3633	0.76	.Q	.	.	.	.
7.14	0.3746	0.77	.Q	.	.	.	.
7.32	0.3859	0.78	.Q	.	.	.	.
7.50	0.3974	0.79	.Q	.	.	.	.
7.67	0.4091	0.80	.Q	.	.	.	.

7.85	0.4208	0.81	.Q	.	.	.	.
8.03	0.4327	0.82	.Q	.	.	.	.
8.20	0.4448	0.83	.Q	.	.	.	.
8.38	0.4570	0.84	.Q	.	.	.	.
8.56	0.4694	0.85	.Q	.	.	.	.
8.74	0.4819	0.86	.Q	.	.	.	.
8.91	0.4946	0.87	.Q	.	.	.	.
9.09	0.5075	0.89	.Q	.	.	.	.
9.27	0.5206	0.90	.Q	.	.	.	.
9.44	0.5339	0.92	.Q	.	.	.	.
9.62	0.5473	0.92	.Q	.	.	.	.
9.80	0.5610	0.94	.Q	.	.	.	.
9.98	0.5749	0.95	.Q	.	.	.	.
10.15	0.5890	0.98	.Q	.	.	.	.
10.33	0.6034	0.99	.Q	.	.	.	.
10.51	0.6180	1.01	. Q	.	.	.	.
10.68	0.6329	1.02	. Q	.	.	.	.
10.86	0.6481	1.05	. Q	.	.	.	.
11.04	0.6635	1.06	. Q	.	.	.	.
11.22	0.6793	1.09	. Q	.	.	.	.
11.39	0.6954	1.11	. Q	.	.	.	.
11.57	0.7118	1.14	. Q	.	.	.	.
11.75	0.7286	1.16	. Q	.	.	.	.
11.93	0.7458	1.19	. Q	.	.	.	.
12.10	0.7634	1.21	. Q	.	.	.	.
12.28	0.7820	1.33	. Q	.	.	.	.
12.46	0.8016	1.35	. Q	.	.	.	.
12.63	0.8217	1.40	. Q	.	.	.	.
12.81	0.8424	1.43	. Q	.	.	.	.
12.99	0.8637	1.48	. Q	.	.	.	.
13.17	0.8857	1.51	. Q	.	.	.	.
13.34	0.9083	1.58	. Q	.	.	.	.
13.52	0.9318	1.62	. Q	.	.	.	.
13.70	0.9562	1.71	. Q	.	.	.	.
13.87	0.9815	1.75	. Q	.	.	.	.
14.05	1.0079	1.86	. Q	.	.	.	.
14.23	1.0372	2.14	. Q	.	.	.	.
14.41	1.0697	2.30	. Q	.	.	.	.
14.58	1.1040	2.38	. Q	.	.	.	.
14.76	1.1402	2.57	. Q	.	.	.	.
14.94	1.1787	2.69	. Q	.	.	.	.
15.11	1.2203	2.99	. Q	.	.	.	.
15.29	1.2655	3.19	. Q	.	.	.	.
15.47	1.3189	4.10	. Q	.	.	.	.
15.65	1.3832	4.69	. Q	.	.	.	.
15.82	1.4588	5.63	. Q	.	.	.	.
16.00	1.5523	7.15	. Q	.	.	.	.
16.18	1.7240	16.30	.	.	.	.	.
16.35	1.8817	5.23	.	.	.	.	.
16.53	1.9451	3.44	.	.	.	.	.
16.71	1.9910	2.82	.	.	.	.	.
16.89	2.0297	2.47	.	.	.	.	.
17.06	2.0641	2.22	.	.	.	.	.
17.24	2.0936	1.80	.	.	.	.	.
17.42	2.1189	1.66	.	.	.	.	.
17.59	2.1424	1.55	.	.	.	.	.
17.77	2.1644	1.45	. Q	.	.	.	.

17.95	2.1851	1.37	. Q	.	.	.	.
18.13	2.2047	1.30	. Q	.	.	.	.
18.30	2.2228	1.17	. Q	.	.	.	.
18.48	2.2396	1.12	. Q	.	.	.	.
18.66	2.2557	1.08	. Q	.	.	.	.
18.83	2.2711	1.04	. Q	.	.	.	.
19.01	2.2860	1.00	.Q	.	.	.	.
19.19	2.3004	0.96	.Q	.	.	.	.
19.37	2.3143	0.93	.Q	.	.	.	.
19.54	2.3278	0.91	.Q	.	.	.	.
19.72	2.3408	0.88	.Q	.	.	.	.
19.90	2.3536	0.86	.Q	.	.	.	.
20.07	2.3659	0.83	.Q	.	.	.	.
20.25	2.3780	0.81	.Q	.	.	.	.
20.43	2.3898	0.79	.Q	.	.	.	.
20.61	2.4012	0.78	.Q	.	.	.	.
20.78	2.4125	0.76	.Q	.	.	.	.
20.96	2.4235	0.74	.Q	.	.	.	.
21.14	2.4342	0.73	.Q	.	.	.	.
21.32	2.4448	0.71	.Q	.	.	.	.
21.49	2.4551	0.70	.Q	.	.	.	.
21.67	2.4653	0.69	.Q	.	.	.	.
21.85	2.4753	0.67	.Q	.	.	.	.
22.02	2.4850	0.66	.Q	.	.	.	.
22.20	2.4947	0.65	.Q	.	.	.	.
22.38	2.5041	0.64	.Q	.	.	.	.
22.56	2.5134	0.63	.Q	.	.	.	.
22.73	2.5226	0.62	.Q	.	.	.	.
22.91	2.5316	0.61	.Q	.	.	.	.
23.09	2.5405	0.60	.Q	.	.	.	.
23.26	2.5493	0.59	.Q	.	.	.	.
23.44	2.5579	0.59	.Q	.	.	.	.
23.62	2.5665	0.58	.Q	.	.	.	.
23.80	2.5749	0.57	.Q	.	.	.	.
23.97	2.5832	0.56	.Q	.	.	.	.
24.15	2.5914	0.56	.Q	.	.	.	.
24.33	2.5955	0.00	Q	.	.	.	.

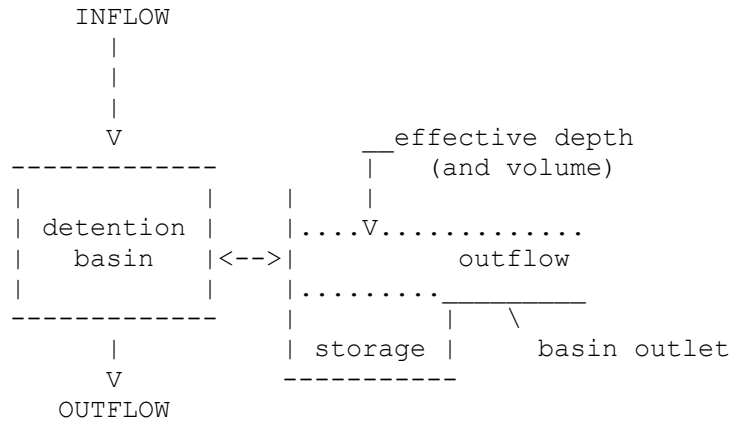
 TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
 (Note: 100% of Peak Flow Rate estimate assumed to have
 an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
=====	=====
0%	1445.7
10%	233.9
20%	74.4
30%	42.5
40%	21.3
50%	10.6
60%	10.6
70%	10.6
80%	10.6
90%	10.6

Problem Descriptions:
 AREA A - 100 YR

FLOW-THROUGH DETENTION BASIN MODEL

SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
 CONSTANT HYDROGRAPH TIME UNIT (MINUTES) = 10.630
 DEAD STORAGE (AF) = 0.00
 SPECIFIED DEAD STORAGE (AF) FILLED = 0.00
 ASSUMED INITIAL DEPTH (FEET) IN STORAGE BASIN = 0.00



DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:

TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES = 16

* BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	** BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	*
* 0.000	0.000	0.000**	0.260	0.022	0.180*	
* 0.500	0.042	0.470**	1.000	0.083	0.820*	
* 1.500	0.125	1.060**	2.000	0.167	1.250*	
* 2.500	0.208	1.420**	3.000	0.250	1.570*	
* 3.500	0.291	1.700**	4.000	0.333	1.830*	
* 4.500	0.375	2.890**	5.000	0.416	4.730*	
* 5.500	0.458	5.950**	6.000	0.500	6.900*	
* 6.500	0.541	7.710**	7.000	0.583	8.440*	

BASIN STORAGE, OUTFLOW AND DEPTH ROUTING VALUES:

INTERVAL NUMBER	DEPTH (FEET)	{S-O*DT/2} (ACRE-FEET)	{S+O*DT/2} (ACRE-FEET)
1	0.00	0.00000	0.00000
2	0.26	0.02068	0.02332
3	0.50	0.03856	0.04544
4	1.00	0.07700	0.08900
5	1.50	0.11724	0.13276
6	2.00	0.15785	0.17615
7	2.50	0.19760	0.21840

8	3.00	0.23851	0.26149
9	3.50	0.27855	0.30345
10	4.00	0.31960	0.34640
11	4.50	0.35384	0.39616
12	5.00	0.38137	0.45063
13	5.50	0.41444	0.50156
14	6.00	0.44949	0.55051
15	6.50	0.48456	0.59744
16	7.00	0.52121	0.64479

WHERE S=STORAGE (AF) ;O=OUTFLOW (AF/MIN.) ;DT=UNIT INTERVAL (MIN.)

DETENTION BASIN ROUTING RESULTS:

NOTE: COMPUTED BASIN DEPTH, OUTFLOW, AND STORAGE QUANTITIES OCCUR AT THE GIVEN TIME. BASIN INFLOW VALUES REPRESENT THE AVERAGE INFLOW DURING THE RECENT HYDROGRAPH UNIT INTERVAL.

TIME (HRS)	DEAD-STORAGE FILLED (AF)	INFLOW (CFS)	EFFECTIVE DEPTH (FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME (AF)
0.055	0.000	0.00	0.00	0.00	0.000
0.232	0.000	0.56	0.09	0.03	0.008
0.409	0.000	0.56	0.17	0.09	0.015
0.586	0.000	0.57	0.25	0.14	0.021
0.764	0.000	0.57	0.31	0.20	0.026
0.941	0.000	0.57	0.36	0.27	0.030
1.118	0.000	0.58	0.41	0.33	0.034
1.295	0.000	0.58	0.44	0.38	0.037
1.472	0.000	0.58	0.47	0.42	0.040
1.649	0.000	0.59	0.49	0.45	0.042
1.827	0.000	0.59	0.52	0.47	0.043
2.004	0.000	0.60	0.54	0.49	0.045
2.181	0.000	0.60	0.55	0.50	0.046
2.358	0.000	0.61	0.57	0.51	0.048
2.535	0.000	0.61	0.58	0.52	0.049
2.712	0.000	0.62	0.60	0.53	0.050
2.890	0.000	0.62	0.61	0.54	0.051
3.067	0.000	0.62	0.63	0.55	0.052
3.244	0.000	0.63	0.64	0.56	0.053
3.421	0.000	0.63	0.65	0.57	0.054
3.598	0.000	0.64	0.66	0.58	0.055
3.776	0.000	0.64	0.67	0.59	0.056
3.953	0.000	0.65	0.68	0.59	0.057
4.130	0.000	0.66	0.69	0.60	0.058
4.307	0.000	0.66	0.70	0.61	0.058
4.484	0.000	0.67	0.71	0.61	0.059
4.661	0.000	0.67	0.72	0.62	0.060
4.839	0.000	0.68	0.73	0.63	0.061
5.016	0.000	0.68	0.74	0.63	0.061
5.193	0.000	0.69	0.75	0.64	0.062
5.370	0.000	0.70	0.75	0.65	0.063
5.547	0.000	0.70	0.76	0.65	0.064
5.724	0.000	0.71	0.77	0.66	0.064
5.901	0.000	0.72	0.78	0.66	0.065
6.079	0.000	0.72	0.79	0.67	0.066
6.256	0.000	0.73	0.80	0.68	0.067
6.433	0.000	0.74	0.81	0.68	0.068
6.610	0.000	0.75	0.82	0.69	0.068

6.787	0.000	0.75	0.83	0.70	0.069
6.964	0.000	0.76	0.84	0.71	0.070
7.142	0.000	0.77	0.85	0.71	0.071
7.319	0.000	0.78	0.86	0.72	0.072
7.496	0.000	0.79	0.87	0.73	0.073
7.673	0.000	0.80	0.89	0.74	0.074
7.850	0.000	0.81	0.90	0.74	0.075
8.028	0.000	0.82	0.91	0.75	0.076
8.205	0.000	0.83	0.92	0.76	0.076
8.382	0.000	0.84	0.93	0.77	0.078
8.559	0.000	0.85	0.95	0.78	0.079
8.736	0.000	0.86	0.96	0.79	0.080
8.913	0.000	0.87	0.97	0.80	0.081
9.090	0.000	0.89	0.99	0.81	0.082
9.268	0.000	0.90	1.00	0.82	0.083
9.445	0.000	0.92	1.02	0.82	0.085
9.622	0.000	0.92	1.03	0.83	0.086
9.799	0.000	0.94	1.05	0.84	0.087
9.976	0.000	0.95	1.07	0.85	0.089
10.154	0.000	0.98	1.09	0.86	0.091
10.331	0.000	0.99	1.11	0.87	0.092
10.508	0.000	1.01	1.13	0.88	0.094
10.685	0.000	1.02	1.16	0.89	0.096
10.862	0.000	1.05	1.18	0.90	0.098
11.039	0.000	1.06	1.21	0.91	0.101
11.217	0.000	1.09	1.24	0.93	0.103
11.394	0.000	1.11	1.27	0.94	0.105
11.571	0.000	1.14	1.30	0.96	0.108
11.748	0.000	1.16	1.33	0.97	0.111
11.925	0.000	1.19	1.37	0.99	0.114
12.102	0.000	1.21	1.40	1.00	0.117
12.280	0.000	1.33	1.46	1.03	0.121
12.457	0.000	1.35	1.51	1.05	0.126
12.634	0.000	1.40	1.56	1.07	0.130
12.811	0.000	1.43	1.62	1.10	0.135
12.988	0.000	1.48	1.69	1.12	0.141
13.165	0.000	1.51	1.75	1.14	0.146
13.342	0.000	1.58	1.82	1.17	0.152
13.520	0.000	1.62	1.90	1.20	0.158
13.697	0.000	1.71	1.98	1.23	0.165
13.874	0.000	1.75	2.07	1.26	0.173
14.051	0.000	1.86	2.17	1.29	0.181
14.228	0.000	2.14	2.31	1.33	0.193
14.406	0.000	2.30	2.48	1.38	0.206
14.583	0.000	2.38	2.64	1.44	0.220
14.760	0.000	2.57	2.83	1.49	0.236
14.937	0.000	2.69	3.03	1.55	0.252
15.114	0.000	2.99	3.28	1.61	0.273
15.291	0.000	3.19	3.55	1.68	0.295
15.469	0.000	4.10	3.95	1.76	0.329
15.646	0.000	4.69	4.38	2.23	0.365
15.823	0.000	5.63	4.79	3.30	0.399
16.000	0.000	7.15	5.24	4.64	0.436
16.177	0.000	16.30	6.90	6.80	0.575
16.354	0.000	5.23	6.43	7.95	0.535
16.531	0.000	3.44	5.79	7.05	0.482
16.709	0.000	2.82	5.25	5.92	0.437

16.886	0.000	2.47	4.85	4.75	0.404
17.063	0.000	2.22	4.59	3.69	0.382
17.240	0.000	1.80	4.39	2.93	0.366
17.417	0.000	1.66	4.24	2.50	0.353
17.595	0.000	1.55	4.13	2.22	0.344
17.772	0.000	1.45	4.03	2.00	0.336
17.949	0.000	1.37	3.95	1.86	0.329
18.126	0.000	1.30	3.86	1.80	0.321
18.303	0.000	1.17	3.75	1.78	0.312
18.480	0.000	1.12	3.64	1.75	0.303
18.657	0.000	1.08	3.53	1.72	0.294
18.835	0.000	1.04	3.41	1.69	0.284
19.012	0.000	1.00	3.30	1.66	0.274
19.189	0.000	0.96	3.18	1.63	0.264
19.366	0.000	0.93	3.06	1.60	0.255
19.543	0.000	0.91	2.94	1.57	0.245
19.720	0.000	0.88	2.83	1.54	0.235
19.898	0.000	0.86	2.71	1.50	0.226
20.075	0.000	0.83	2.60	1.47	0.217
20.252	0.000	0.81	2.50	1.43	0.208
20.429	0.000	0.79	2.39	1.40	0.199
20.606	0.000	0.78	2.28	1.36	0.190
20.784	0.000	0.76	2.18	1.33	0.182
20.961	0.000	0.74	2.08	1.29	0.174
21.138	0.000	0.73	1.99	1.26	0.166
21.315	0.000	0.71	1.90	1.23	0.158
21.492	0.000	0.70	1.81	1.19	0.151
21.669	0.000	0.69	1.73	1.16	0.144
21.847	0.000	0.67	1.65	1.13	0.137
22.024	0.000	0.66	1.57	1.10	0.131
22.201	0.000	0.65	1.50	1.07	0.125
22.378	0.000	0.64	1.43	1.04	0.119
22.555	0.000	0.63	1.36	1.01	0.113
22.732	0.000	0.62	1.30	0.98	0.108
22.909	0.000	0.61	1.24	0.95	0.103
23.087	0.000	0.60	1.19	0.92	0.099
23.264	0.000	0.59	1.13	0.90	0.094
23.441	0.000	0.59	1.08	0.87	0.090
23.618	0.000	0.58	1.04	0.85	0.086
23.795	0.000	0.57	0.99	0.83	0.082
23.972	0.000	0.56	0.95	0.80	0.079
24.150	0.000	0.56	0.91	0.77	0.076
24.327	0.000	0.00	0.78	0.71	0.065
24.504	0.000	0.00	0.67	0.63	0.056
24.681	0.000	0.00	0.57	0.56	0.048
24.858	0.000	0.00	0.49	0.49	0.041
25.035	0.000	0.00	0.41	0.41	0.035
25.213	0.000	0.00	0.36	0.33	0.030
25.390	0.000	0.00	0.31	0.27	0.026
25.567	0.000	0.00	0.27	0.22	0.023
25.744	0.000	0.00	0.24	0.18	0.020
25.921	0.000	0.00	0.21	0.16	0.018
26.098	0.000	0.00	0.19	0.14	0.016
26.276	0.000	0.00	0.17	0.12	0.014
26.453	0.000	0.00	0.15	0.11	0.013
26.630	0.000	0.00	0.13	0.10	0.011
26.807	0.000	0.00	0.12	0.09	0.010

26.984	0.000	0.00	0.10	0.08	0.009
27.161	0.000	0.00	0.09	0.07	0.008
27.339	0.000	0.00	0.08	0.06	0.007
27.516	0.000	0.00	0.07	0.05	0.006
27.693	0.000	0.00	0.06	0.05	0.005
27.870	0.000	0.00	0.06	0.04	0.005
28.047	0.000	0.00	0.05	0.04	0.004
28.224	0.000	0.00	0.04	0.03	0.004
28.402	0.000	0.00	0.04	0.03	0.003
28.579	0.000	0.00	0.04	0.03	0.003
28.756	0.000	0.00	0.03	0.02	0.003
28.933	0.000	0.00	0.03	0.02	0.002
29.110	0.000	0.00	0.02	0.02	0.002
29.287	0.000	0.00	0.02	0.02	0.002
29.465	0.000	0.00	0.02	0.01	0.002
29.642	0.000	0.00	0.02	0.01	0.001
29.819	0.000	0.00	0.02	0.01	0.001
29.996	0.000	0.00	0.01	0.01	0.001
30.173	0.000	0.00	0.01	0.01	0.001

NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS

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Analysis prepared by:

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15535 Sand Canyon Ave
Suite 100
Irvine, CA 92618

Problem Descriptions:

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*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 4.10 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp (in./hr.)	YIELD
1	5.64	15.00	69.	0.566	0.850

TOTAL AREA (Acres) = 5.64

AREA-AVERAGED LOSS RATE, \bar{F}_m (in./hr.) = 0.085

AREA-AVERAGED LOW LOSS FRACTION, \bar{Y} = 0.150

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Problem Descriptions:

RATIONAL METHOD CALIBRATION COEFFICIENT = 1.15
TOTAL CATCHMENT AREA (ACRES) = 5.64
SOIL-LOSS RATE, F_m , (INCH/HR) = 0.085
LOW LOSS FRACTION = 0.150
TIME OF CONCENTRATION (MIN.) = 7.10
SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
USER SPECIFIED RAINFALL VALUES ARE USED
RETURN FREQUENCY (YEARS) = 10
5-MINUTE POINT RAINFALL VALUE (INCHES) = 0.24
30-MINUTE POINT RAINFALL VALUE (INCHES) = 0.62
1-HOUR POINT RAINFALL VALUE (INCHES) = 0.92

3-HOUR POINT RAINFALL VALUE (INCHES) = 1.70
 6-HOUR POINT RAINFALL VALUE (INCHES) = 2.35
 24-HOUR POINT RAINFALL VALUE (INCHES) = 4.10

TOTAL CATCHMENT RUNOFF VOLUME (ACRE-FEET) = 1.90
 TOTAL CATCHMENT SOIL-LOSS VOLUME (ACRE-FEET) = 0.03

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	5.0	10.0	15.0	20.0
0.03	0.0000	0.00	Q	.	.	.	.
0.14	0.0019	0.38	Q	.	.	.	.
0.26	0.0056	0.38	Q	.	.	.	.
0.38	0.0093	0.38	Q	.	.	.	.
0.50	0.0131	0.38	Q	.	.	.	.
0.62	0.0168	0.39	Q	.	.	.	.
0.74	0.0206	0.39	Q	.	.	.	.
0.85	0.0244	0.39	Q	.	.	.	.
0.97	0.0282	0.39	Q	.	.	.	.
1.09	0.0321	0.39	Q	.	.	.	.
1.21	0.0359	0.40	Q	.	.	.	.
1.33	0.0398	0.40	Q	.	.	.	.
1.45	0.0437	0.40	Q	.	.	.	.
1.56	0.0476	0.40	Q	.	.	.	.
1.68	0.0516	0.40	Q	.	.	.	.
1.80	0.0555	0.40	Q	.	.	.	.
1.92	0.0595	0.41	Q	.	.	.	.
2.04	0.0635	0.41	Q	.	.	.	.
2.16	0.0675	0.41	Q	.	.	.	.
2.27	0.0715	0.41	Q	.	.	.	.
2.39	0.0756	0.42	Q	.	.	.	.
2.51	0.0796	0.42	Q	.	.	.	.
2.63	0.0837	0.42	Q	.	.	.	.
2.75	0.0879	0.42	Q	.	.	.	.
2.87	0.0920	0.42	Q	.	.	.	.
2.98	0.0962	0.43	Q	.	.	.	.
3.10	0.1003	0.43	Q	.	.	.	.
3.22	0.1046	0.43	Q	.	.	.	.
3.34	0.1088	0.43	Q	.	.	.	.
3.46	0.1130	0.44	Q	.	.	.	.
3.58	0.1173	0.44	Q	.	.	.	.
3.69	0.1216	0.44	Q	.	.	.	.
3.81	0.1259	0.44	Q	.	.	.	.
3.93	0.1303	0.45	Q	.	.	.	.
4.05	0.1347	0.45	Q	.	.	.	.
4.17	0.1391	0.45	Q	.	.	.	.
4.29	0.1435	0.45	Q	.	.	.	.
4.40	0.1480	0.46	Q	.	.	.	.
4.52	0.1524	0.46	Q	.	.	.	.
4.64	0.1569	0.46	Q	.	.	.	.
4.76	0.1615	0.47	Q	.	.	.	.
4.88	0.1661	0.47	Q	.	.	.	.
5.00	0.1706	0.47	Q	.	.	.	.
5.11	0.1753	0.47	Q	.	.	.	.

5.23	0.1799	0.48	Q	.	.	.	.
5.35	0.1846	0.48	Q	.	.	.	.
5.47	0.1893	0.48	Q	.	.	.	.
5.59	0.1941	0.49	Q	.	.	.	.
5.71	0.1989	0.49	Q	.	.	.	.
5.82	0.2037	0.49	Q	.	.	.	.
5.94	0.2085	0.50	Q	.	.	.	.
6.06	0.2134	0.50	.Q	.	.	.	.
6.18	0.2183	0.50	.Q	.	.	.	.
6.30	0.2233	0.51	.Q	.	.	.	.
6.41	0.2282	0.51	.Q	.	.	.	.
6.53	0.2333	0.51	.Q	.	.	.	.
6.65	0.2383	0.52	.Q	.	.	.	.
6.77	0.2434	0.52	.Q	.	.	.	.
6.89	0.2485	0.53	.Q	.	.	.	.
7.01	0.2537	0.53	.Q	.	.	.	.
7.12	0.2589	0.54	.Q	.	.	.	.
7.24	0.2642	0.54	.Q	.	.	.	.
7.36	0.2695	0.54	.Q	.	.	.	.
7.48	0.2748	0.55	.Q	.	.	.	.
7.60	0.2802	0.55	.Q	.	.	.	.
7.72	0.2857	0.56	.Q	.	.	.	.
7.84	0.2911	0.56	.Q	.	.	.	.
7.95	0.2967	0.57	.Q	.	.	.	.
8.07	0.3022	0.57	.Q	.	.	.	.
8.19	0.3079	0.58	.Q	.	.	.	.
8.31	0.3135	0.58	.Q	.	.	.	.
8.43	0.3193	0.59	.Q	.	.	.	.
8.55	0.3250	0.59	.Q	.	.	.	.
8.66	0.3309	0.60	.Q	.	.	.	.
8.78	0.3368	0.61	.Q	.	.	.	.
8.90	0.3427	0.61	.Q	.	.	.	.
9.02	0.3487	0.62	.Q	.	.	.	.
9.14	0.3548	0.62	.Q	.	.	.	.
9.26	0.3609	0.63	.Q	.	.	.	.
9.37	0.3671	0.64	.Q	.	.	.	.
9.49	0.3733	0.64	.Q	.	.	.	.
9.61	0.3797	0.65	.Q	.	.	.	.
9.73	0.3861	0.66	.Q	.	.	.	.
9.85	0.3925	0.66	.Q	.	.	.	.
9.97	0.3991	0.67	.Q	.	.	.	.
10.08	0.4057	0.68	.Q	.	.	.	.
10.20	0.4124	0.69	.Q	.	.	.	.
10.32	0.4191	0.70	.Q	.	.	.	.
10.44	0.4260	0.71	.Q	.	.	.	.
10.56	0.4329	0.71	.Q	.	.	.	.
10.68	0.4400	0.73	.Q	.	.	.	.
10.79	0.4471	0.73	.Q	.	.	.	.
10.91	0.4543	0.75	.Q	.	.	.	.
11.03	0.4616	0.75	.Q	.	.	.	.
11.15	0.4691	0.77	.Q	.	.	.	.
11.27	0.4766	0.77	.Q	.	.	.	.
11.38	0.4842	0.79	.Q	.	.	.	.
11.50	0.4920	0.80	.Q	.	.	.	.
11.62	0.4999	0.81	.Q	.	.	.	.
11.74	0.5079	0.82	.Q	.	.	.	.
11.86	0.5160	0.84	.Q	.	.	.	.

11.98	0.5243	0.85	.Q	.	.	.	.
12.10	0.5332	0.97	.Q	.	.	.	.
12.21	0.5429	1.02	. Q	.	.	.	.
12.33	0.5531	1.05	. Q	.	.	.	.
12.45	0.5634	1.06	. Q	.	.	.	.
12.57	0.5738	1.08	. Q	.	.	.	.
12.69	0.5845	1.10	. Q	.	.	.	.
12.80	0.5953	1.12	. Q	.	.	.	.
12.92	0.6064	1.14	. Q	.	.	.	.
13.04	0.6177	1.17	. Q	.	.	.	.
13.16	0.6292	1.19	. Q	.	.	.	.
13.28	0.6410	1.22	. Q	.	.	.	.
13.40	0.6530	1.24	. Q	.	.	.	.
13.52	0.6654	1.28	. Q	.	.	.	.
13.63	0.6780	1.30	. Q	.	.	.	.
13.75	0.6910	1.35	. Q	.	.	.	.
13.87	0.7043	1.37	. Q	.	.	.	.
13.99	0.7180	1.43	. Q	.	.	.	.
14.11	0.7326	1.56	. Q	.	.	.	.
14.23	0.7490	1.81	. Q	.	.	.	.
14.34	0.7669	1.84	. Q	.	.	.	.
14.46	0.7853	1.92	. Q	.	.	.	.
14.58	0.8043	1.96	. Q	.	.	.	.
14.70	0.8240	2.06	. Q	.	.	.	.
14.82	0.8444	2.11	. Q	.	.	.	.
14.93	0.8657	2.24	. Q	.	.	.	.
15.05	0.8879	2.31	. Q	.	.	.	.
15.17	0.9113	2.48	. Q	.	.	.	.
15.29	0.9361	2.58	. Q	.	.	.	.
15.41	0.9627	2.86	. Q	.	.	.	.
15.53	0.9915	3.05	. Q	.	.	.	.
15.65	1.0238	3.55	. Q	.	.	.	.
15.76	1.0599	3.85	. Q	.	.	.	.
15.88	1.1029	4.94	. Q	.	.	.	.
16.00	1.1587	6.49	. Q	.	.	.	.
16.12	1.2653	15.31	.	.	.	.Q	.
16.24	1.3604	4.12	. Q	.	.	.	.
16.35	1.3965	3.26	. Q	.	.	.	.
16.47	1.4256	2.70	. Q	.	.	.	.
16.59	1.4505	2.39	. Q	.	.	.	.
16.71	1.4728	2.17	. Q	.	.	.	.
16.83	1.4932	2.01	. Q	.	.	.	.
16.95	1.5123	1.88	. Q	.	.	.	.
17.07	1.5301	1.78	. Q	.	.	.	.
17.18	1.5457	1.40	. Q	.	.	.	.
17.30	1.5590	1.32	. Q	.	.	.	.
17.42	1.5716	1.26	. Q	.	.	.	.
17.54	1.5837	1.20	. Q	.	.	.	.
17.66	1.5952	1.15	. Q	.	.	.	.
17.77	1.6063	1.11	. Q	.	.	.	.
17.89	1.6169	1.07	. Q	.	.	.	.
18.01	1.6272	1.03	. Q	.	.	.	.
18.13	1.6365	0.86	.Q	.	.	.	.
18.25	1.6448	0.83	.Q	.	.	.	.
18.37	1.6528	0.81	.Q	.	.	.	.
18.48	1.6605	0.78	.Q	.	.	.	.
18.60	1.6681	0.76	.Q	.	.	.	.

18.72	1.6754	0.74	.Q	.	.	.	.
18.84	1.6825	0.72	.Q	.	.	.	.
18.96	1.6895	0.70	.Q	.	.	.	.
19.08	1.6962	0.68	.Q	.	.	.	.
19.19	1.7029	0.67	.Q	.	.	.	.
19.31	1.7093	0.65	.Q	.	.	.	.
19.43	1.7156	0.64	.Q	.	.	.	.
19.55	1.7218	0.63	.Q	.	.	.	.
19.67	1.7279	0.61	.Q	.	.	.	.
19.79	1.7339	0.60	.Q	.	.	.	.
19.91	1.7397	0.59	.Q	.	.	.	.
20.02	1.7454	0.58	.Q	.	.	.	.
20.14	1.7510	0.57	.Q	.	.	.	.
20.26	1.7566	0.56	.Q	.	.	.	.
20.38	1.7620	0.55	.Q	.	.	.	.
20.50	1.7673	0.54	.Q	.	.	.	.
20.61	1.7726	0.53	.Q	.	.	.	.
20.73	1.7778	0.53	.Q	.	.	.	.
20.85	1.7829	0.52	.Q	.	.	.	.
20.97	1.7879	0.51	.Q	.	.	.	.
21.09	1.7928	0.50	.Q	.	.	.	.
21.21	1.7977	0.50	Q	.	.	.	.
21.33	1.8025	0.49	Q	.	.	.	.
21.44	1.8073	0.48	Q	.	.	.	.
21.56	1.8120	0.48	Q	.	.	.	.
21.68	1.8166	0.47	Q	.	.	.	.
21.80	1.8212	0.46	Q	.	.	.	.
21.92	1.8257	0.46	Q	.	.	.	.
22.03	1.8301	0.45	Q	.	.	.	.
22.15	1.8345	0.45	Q	.	.	.	.
22.27	1.8389	0.44	Q	.	.	.	.
22.39	1.8432	0.44	Q	.	.	.	.
22.51	1.8474	0.43	Q	.	.	.	.
22.63	1.8516	0.43	Q	.	.	.	.
22.74	1.8558	0.42	Q	.	.	.	.
22.86	1.8599	0.42	Q	.	.	.	.
22.98	1.8640	0.41	Q	.	.	.	.
23.10	1.8680	0.41	Q	.	.	.	.
23.22	1.8720	0.41	Q	.	.	.	.
23.34	1.8760	0.40	Q	.	.	.	.
23.45	1.8799	0.40	Q	.	.	.	.
23.57	1.8838	0.39	Q	.	.	.	.
23.69	1.8876	0.39	Q	.	.	.	.
23.81	1.8914	0.39	Q	.	.	.	.
23.93	1.8952	0.38	Q	.	.	.	.
24.05	1.8989	0.38	Q	.	.	.	.
24.17	1.9008	0.00	Q	.	.	.	.

 TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
 (Note: 100% of Peak Flow Rate estimate assumed to have
 an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
=====	=====

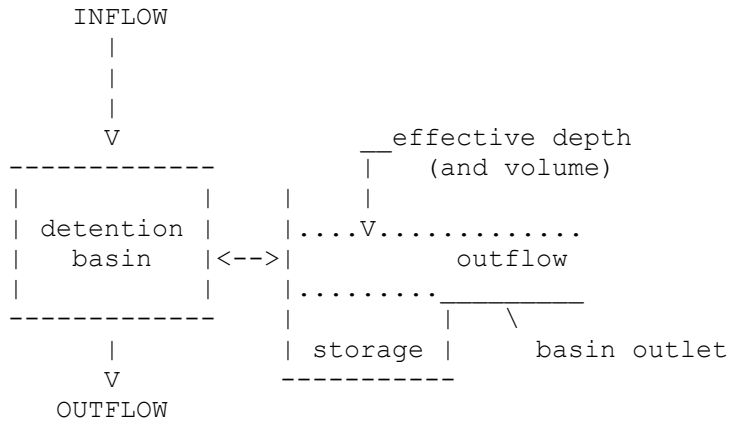
0%	1441.3
10%	184.6
20%	49.7
30%	21.3
40%	14.2
50%	7.1
60%	7.1
70%	7.1
80%	7.1
90%	7.1

Problem Descriptions:
 AREA B - 10 YR

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FLOW-THROUGH DETENTION BASIN MODEL

SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
 CONSTANT HYDROGRAPH TIME UNIT (MINUTES) = 7.100
 DEAD STORAGE (AF) = 0.00
 SPECIFIED DEAD STORAGE (AF) FILLED = 0.00
 ASSUMED INITIAL DEPTH (FEET) IN STORAGE BASIN = 0.00



DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:

TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES = 19

* BASIN-DEPTH	STORAGE	OUTFLOW	** BASIN-DEPTH	STORAGE	OUTFLOW	*
(FEET)	(ACRE-FEET)	(CFS)	(FEET)	(ACRE-FEET)	(CFS)	*
*	0.000	0.000	**	0.250	0.043	0.190*
*	0.500	0.119	**	0.750	0.214	0.190*
*	1.000	0.324	**	1.250	0.446	0.360*
*	1.500	0.575	**	1.750	0.711	0.860*
*	2.000	0.851	**	2.250	0.995	1.140*
*	2.500	1.140	**	2.750	1.284	1.350*
*	3.000	1.428	**	3.250	1.568	1.530*
*	3.500	1.704	**	3.750	1.833	1.680*
*	4.000	1.955	**	4.500	2.160	2.570*

* 5.000 2.279 3.390**

BASIN STORAGE, OUTFLOW AND DEPTH ROUTING VALUES:

INTERVAL NUMBER	DEPTH (FEET)	{S-O*DT/2} (ACRE-FEET)	{S+O*DT/2} (ACRE-FEET)
1	0.00	0.00000	0.00000
2	0.25	0.04207	0.04393
3	0.50	0.11807	0.11993
4	0.75	0.21307	0.21493
5	1.00	0.32307	0.32493
6	1.25	0.44424	0.44776
7	1.50	0.57177	0.57823
8	1.75	0.70679	0.71521
9	2.00	0.84606	0.85594
10	2.25	0.98943	1.00057
11	2.50	1.13389	1.14611
12	2.75	1.27740	1.29060
13	3.00	1.42096	1.43504
14	3.25	1.56052	1.57548
15	3.50	1.69613	1.71187
16	3.75	1.82479	1.84121
17	4.00	1.94639	1.96361
18	4.50	2.14743	2.17257
19	5.00	2.26242	2.29558

WHERE S=STORAGE (AF) ; O=OUTFLOW (AF/MIN.) ; DT=UNIT INTERVAL (MIN.)

DETENTION BASIN ROUTING RESULTS:

NOTE: COMPUTED BASIN DEPTH, OUTFLOW, AND STORAGE QUANTITIES
 OCCUR AT THE GIVEN TIME. BASIN INFLOW VALUES REPRESENT THE
 AVERAGE INFLOW DURING THE RECENT HYDROGRAPH UNIT INTERVAL.

TIME (HRS)	DEAD-STORAGE FILLED (AF)	INFLOW (CFS)	EFFECTIVE DEPTH (FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME (AF)
0.025	0.000	0.00	0.00	0.00	0.000
0.143	0.000	0.38	0.02	0.01	0.004
0.262	0.000	0.38	0.04	0.02	0.007
0.380	0.000	0.38	0.06	0.04	0.010
0.498	0.000	0.38	0.08	0.05	0.014
0.617	0.000	0.39	0.10	0.07	0.017
0.735	0.000	0.39	0.12	0.08	0.020
0.853	0.000	0.39	0.13	0.09	0.023
0.972	0.000	0.39	0.15	0.11	0.026
1.090	0.000	0.39	0.16	0.12	0.028
1.208	0.000	0.40	0.18	0.13	0.031
1.327	0.000	0.40	0.19	0.14	0.033
1.445	0.000	0.40	0.21	0.15	0.036
1.563	0.000	0.40	0.22	0.16	0.038
1.682	0.000	0.40	0.23	0.17	0.040
1.800	0.000	0.40	0.25	0.18	0.042
1.918	0.000	0.41	0.26	0.19	0.045
2.037	0.000	0.41	0.26	0.19	0.047
2.155	0.000	0.41	0.27	0.19	0.049
2.273	0.000	0.41	0.28	0.19	0.051
2.392	0.000	0.42	0.28	0.19	0.053
2.510	0.000	0.42	0.29	0.19	0.056
2.628	0.000	0.42	0.30	0.19	0.058

2.747	0.000	0.42	0.31	0.19	0.060
2.865	0.000	0.42	0.31	0.19	0.062
2.983	0.000	0.43	0.32	0.19	0.065
3.102	0.000	0.43	0.33	0.19	0.067
3.220	0.000	0.43	0.34	0.19	0.069
3.338	0.000	0.43	0.34	0.19	0.072
3.457	0.000	0.44	0.35	0.19	0.074
3.575	0.000	0.44	0.36	0.19	0.077
3.693	0.000	0.44	0.37	0.19	0.079
3.812	0.000	0.44	0.38	0.19	0.082
3.930	0.000	0.45	0.38	0.19	0.084
4.048	0.000	0.45	0.39	0.19	0.087
4.167	0.000	0.45	0.40	0.19	0.089
4.285	0.000	0.45	0.41	0.19	0.092
4.403	0.000	0.46	0.42	0.19	0.094
4.522	0.000	0.46	0.43	0.19	0.097
4.640	0.000	0.46	0.44	0.19	0.100
4.758	0.000	0.47	0.45	0.19	0.102
4.877	0.000	0.47	0.45	0.19	0.105
4.995	0.000	0.47	0.46	0.19	0.108
5.113	0.000	0.47	0.47	0.19	0.111
5.232	0.000	0.48	0.48	0.19	0.113
5.350	0.000	0.48	0.49	0.19	0.116
5.468	0.000	0.48	0.50	0.19	0.119
5.587	0.000	0.49	0.51	0.19	0.122
5.705	0.000	0.49	0.52	0.19	0.125
5.823	0.000	0.49	0.52	0.19	0.128
5.942	0.000	0.50	0.53	0.19	0.131
6.060	0.000	0.50	0.54	0.19	0.134
6.178	0.000	0.50	0.55	0.19	0.137
6.297	0.000	0.51	0.56	0.19	0.140
6.415	0.000	0.51	0.56	0.19	0.143
6.533	0.000	0.51	0.57	0.19	0.146
6.652	0.000	0.52	0.58	0.19	0.150
6.770	0.000	0.52	0.59	0.19	0.153
6.888	0.000	0.53	0.60	0.19	0.156
7.007	0.000	0.53	0.61	0.19	0.160
7.125	0.000	0.54	0.62	0.19	0.163
7.243	0.000	0.54	0.62	0.19	0.166
7.362	0.000	0.54	0.63	0.19	0.170
7.480	0.000	0.55	0.64	0.19	0.173
7.598	0.000	0.55	0.65	0.19	0.177
7.717	0.000	0.56	0.66	0.19	0.180
7.835	0.000	0.56	0.67	0.19	0.184
7.953	0.000	0.57	0.68	0.19	0.188
8.072	0.000	0.57	0.69	0.19	0.192
8.190	0.000	0.58	0.70	0.19	0.195
8.308	0.000	0.58	0.71	0.19	0.199
8.427	0.000	0.59	0.72	0.19	0.203
8.545	0.000	0.59	0.73	0.19	0.207
8.663	0.000	0.60	0.74	0.19	0.211
8.782	0.000	0.61	0.75	0.19	0.215
8.900	0.000	0.61	0.76	0.19	0.219
9.018	0.000	0.62	0.77	0.19	0.223
9.137	0.000	0.62	0.78	0.19	0.228
9.255	0.000	0.63	0.79	0.19	0.232
9.373	0.000	0.64	0.80	0.19	0.236

9.492	0.000	0.64	0.81	0.19	0.241
9.610	0.000	0.65	0.82	0.19	0.245
9.728	0.000	0.66	0.83	0.19	0.250
9.847	0.000	0.66	0.84	0.19	0.254
9.965	0.000	0.67	0.85	0.19	0.259
10.083	0.000	0.68	0.86	0.19	0.264
10.202	0.000	0.69	0.87	0.19	0.269
10.320	0.000	0.70	0.89	0.19	0.274
10.438	0.000	0.71	0.90	0.19	0.279
10.557	0.000	0.71	0.91	0.19	0.284
10.675	0.000	0.73	0.92	0.19	0.289
10.793	0.000	0.73	0.93	0.19	0.294
10.912	0.000	0.75	0.95	0.19	0.300
11.030	0.000	0.75	0.96	0.19	0.305
11.148	0.000	0.77	0.97	0.19	0.311
11.267	0.000	0.77	0.98	0.19	0.317
11.385	0.000	0.79	1.00	0.19	0.323
11.503	0.000	0.80	1.01	0.19	0.328
11.622	0.000	0.81	1.02	0.20	0.334
11.740	0.000	0.82	1.03	0.21	0.340
11.858	0.000	0.84	1.05	0.22	0.347
11.977	0.000	0.85	1.06	0.23	0.353
12.095	0.000	0.97	1.07	0.24	0.360
12.213	0.000	1.02	1.09	0.25	0.368
12.332	0.000	1.05	1.10	0.26	0.375
12.450	0.000	1.06	1.12	0.27	0.383
12.568	0.000	1.08	1.14	0.28	0.391
12.687	0.000	1.10	1.15	0.29	0.399
12.805	0.000	1.12	1.17	0.30	0.407
12.923	0.000	1.14	1.19	0.31	0.415
13.042	0.000	1.17	1.20	0.32	0.423
13.160	0.000	1.19	1.22	0.33	0.432
13.278	0.000	1.22	1.24	0.35	0.440
13.397	0.000	1.24	1.26	0.36	0.449
13.515	0.000	1.28	1.27	0.38	0.458
13.633	0.000	1.30	1.29	0.40	0.466
13.752	0.000	1.35	1.31	0.42	0.476
13.870	0.000	1.37	1.32	0.44	0.485
13.988	0.000	1.43	1.34	0.46	0.494
14.107	0.000	1.56	1.36	0.48	0.505
14.225	0.000	1.81	1.39	0.51	0.517
14.343	0.000	1.84	1.41	0.54	0.530
14.462	0.000	1.92	1.44	0.57	0.543
14.580	0.000	1.96	1.46	0.60	0.557
14.698	0.000	2.06	1.49	0.63	0.571
14.817	0.000	2.11	1.52	0.66	0.585
14.935	0.000	2.24	1.55	0.69	0.600
15.053	0.000	2.31	1.57	0.71	0.616
15.172	0.000	2.48	1.61	0.73	0.633
15.290	0.000	2.58	1.64	0.76	0.650
15.408	0.000	2.86	1.68	0.79	0.671
15.527	0.000	3.05	1.72	0.82	0.693
15.645	0.000	3.55	1.76	0.85	0.719
15.763	0.000	3.85	1.82	0.88	0.748
15.882	0.000	4.94	1.89	0.92	0.787
16.000	0.000	6.49	1.98	0.97	0.841
16.118	0.000	15.31	2.22	1.06	0.980

16.237	0.000	4.12	2.28	1.14	1.010
16.355	0.000	3.26	2.31	1.16	1.030
16.473	0.000	2.70	2.34	1.17	1.045
16.592	0.000	2.39	2.36	1.18	1.057
16.710	0.000	2.17	2.37	1.19	1.067
16.828	0.000	2.01	2.39	1.20	1.074
16.947	0.000	1.88	2.40	1.20	1.081
17.065	0.000	1.78	2.41	1.21	1.087
17.183	0.000	1.40	2.41	1.21	1.089
17.302	0.000	1.32	2.41	1.21	1.090
17.420	0.000	1.26	2.41	1.21	1.090
17.538	0.000	1.20	2.41	1.21	1.090
17.657	0.000	1.15	2.41	1.21	1.089
17.775	0.000	1.11	2.41	1.21	1.088
17.893	0.000	1.07	2.41	1.21	1.087
18.012	0.000	1.03	2.41	1.21	1.085
18.130	0.000	0.86	2.40	1.21	1.082
18.248	0.000	0.83	2.39	1.20	1.078
18.367	0.000	0.81	2.39	1.20	1.074
18.485	0.000	0.78	2.38	1.20	1.070
18.603	0.000	0.76	2.37	1.20	1.066
18.722	0.000	0.74	2.36	1.19	1.062
18.840	0.000	0.72	2.36	1.19	1.057
18.958	0.000	0.70	2.35	1.19	1.052
19.077	0.000	0.68	2.34	1.18	1.048
19.195	0.000	0.67	2.33	1.18	1.043
19.313	0.000	0.65	2.32	1.17	1.037
19.432	0.000	0.64	2.31	1.17	1.032
19.550	0.000	0.63	2.31	1.17	1.027
19.668	0.000	0.61	2.30	1.16	1.022
19.787	0.000	0.60	2.29	1.16	1.016
19.905	0.000	0.59	2.28	1.15	1.011
20.023	0.000	0.58	2.27	1.15	1.005
20.142	0.000	0.57	2.26	1.15	0.999
20.260	0.000	0.56	2.25	1.14	0.994
20.378	0.000	0.55	2.24	1.14	0.988
20.497	0.000	0.54	2.23	1.13	0.982
20.615	0.000	0.53	2.22	1.13	0.976
20.733	0.000	0.53	2.21	1.12	0.971
20.852	0.000	0.52	2.20	1.12	0.965
20.970	0.000	0.51	2.19	1.11	0.959
21.088	0.000	0.50	2.18	1.10	0.953
21.207	0.000	0.50	2.17	1.10	0.947
21.325	0.000	0.49	2.16	1.09	0.941
21.443	0.000	0.48	2.15	1.09	0.935
21.562	0.000	0.48	2.14	1.08	0.929
21.680	0.000	0.47	2.13	1.08	0.923
21.798	0.000	0.46	2.12	1.07	0.917
21.917	0.000	0.46	2.11	1.07	0.911
22.035	0.000	0.45	2.09	1.06	0.906
22.153	0.000	0.45	2.08	1.06	0.900
22.272	0.000	0.44	2.07	1.05	0.894
22.390	0.000	0.44	2.06	1.05	0.888
22.508	0.000	0.43	2.05	1.04	0.882
22.627	0.000	0.43	2.04	1.04	0.876
22.745	0.000	0.42	2.03	1.03	0.870
22.863	0.000	0.42	2.02	1.02	0.864

22.982	0.000	0.41	2.01	1.02	0.858
23.100	0.000	0.41	2.00	1.01	0.852
23.218	0.000	0.41	1.99	1.01	0.846
23.337	0.000	0.40	1.98	1.00	0.840
23.455	0.000	0.40	1.97	1.00	0.835
23.573	0.000	0.39	1.96	0.99	0.829
23.692	0.000	0.39	1.95	0.98	0.823
23.810	0.000	0.39	1.94	0.98	0.817
23.928	0.000	0.38	1.93	0.97	0.811
24.047	0.000	0.38	1.92	0.96	0.806
24.165	0.000	0.00	1.90	0.96	0.796
24.283	0.000	0.00	1.89	0.95	0.787
24.402	0.000	0.00	1.87	0.94	0.778
24.520	0.000	0.00	1.85	0.93	0.769
24.638	0.000	0.00	1.84	0.92	0.760
24.757	0.000	0.00	1.82	0.91	0.751
24.875	0.000	0.00	1.81	0.90	0.742
24.993	0.000	0.00	1.79	0.89	0.734
25.112	0.000	0.00	1.77	0.88	0.725
25.230	0.000	0.00	1.76	0.87	0.716
25.348	0.000	0.00	1.74	0.86	0.708
25.467	0.000	0.00	1.73	0.85	0.700
25.585	0.000	0.00	1.71	0.84	0.692
25.703	0.000	0.00	1.70	0.83	0.683
25.822	0.000	0.00	1.68	0.81	0.675
25.940	0.000	0.00	1.67	0.80	0.668
26.058	0.000	0.00	1.66	0.79	0.660
26.177	0.000	0.00	1.64	0.78	0.652
26.295	0.000	0.00	1.63	0.77	0.645
26.413	0.000	0.00	1.61	0.76	0.637
26.532	0.000	0.00	1.60	0.75	0.630
26.650	0.000	0.00	1.59	0.74	0.623
26.768	0.000	0.00	1.57	0.73	0.616
26.887	0.000	0.00	1.56	0.71	0.609
27.005	0.000	0.00	1.55	0.70	0.602
27.123	0.000	0.00	1.54	0.69	0.595
27.242	0.000	0.00	1.52	0.68	0.588
27.360	0.000	0.00	1.51	0.67	0.582
27.478	0.000	0.00	1.50	0.67	0.575
27.597	0.000	0.00	1.49	0.65	0.569
27.715	0.000	0.00	1.48	0.64	0.563
27.833	0.000	0.00	1.46	0.62	0.557
27.952	0.000	0.00	1.45	0.61	0.551
28.070	0.000	0.00	1.44	0.60	0.545
28.188	0.000	0.00	1.43	0.58	0.539
28.307	0.000	0.00	1.42	0.57	0.534
28.425	0.000	0.00	1.41	0.56	0.528
28.543	0.000	0.00	1.40	0.54	0.523
28.662	0.000	0.00	1.39	0.53	0.518
28.780	0.000	0.00	1.38	0.52	0.512
28.898	0.000	0.00	1.37	0.51	0.507
29.017	0.000	0.00	1.36	0.50	0.503
29.135	0.000	0.00	1.35	0.49	0.498
29.253	0.000	0.00	1.34	0.48	0.493
29.372	0.000	0.00	1.33	0.46	0.489
29.490	0.000	0.00	1.32	0.45	0.484
29.608	0.000	0.00	1.32	0.44	0.480

29.727	0.000	0.00	1.31	0.43	0.476
29.845	0.000	0.00	1.30	0.42	0.471
29.963	0.000	0.00	1.29	0.41	0.467
30.082	0.000	0.00	1.28	0.41	0.463
30.200	0.000	0.00	1.28	0.40	0.460
30.318	0.000	0.00	1.27	0.39	0.456
30.437	0.000	0.00	1.26	0.38	0.452
30.555	0.000	0.00	1.25	0.37	0.448
30.673	0.000	0.00	1.25	0.36	0.445
30.792	0.000	0.00	1.24	0.36	0.441
30.910	0.000	0.00	1.23	0.35	0.438
31.028	0.000	0.00	1.23	0.35	0.435
31.147	0.000	0.00	1.22	0.34	0.431
31.265	0.000	0.00	1.21	0.34	0.428
31.383	0.000	0.00	1.21	0.33	0.425
31.502	0.000	0.00	1.20	0.33	0.422
31.620	0.000	0.00	1.19	0.32	0.418
31.738	0.000	0.00	1.19	0.32	0.415
31.857	0.000	0.00	1.18	0.31	0.412
31.975	0.000	0.00	1.17	0.31	0.409
32.093	0.000	0.00	1.17	0.31	0.406
32.212	0.000	0.00	1.16	0.30	0.403
32.330	0.000	0.00	1.16	0.30	0.400
32.448	0.000	0.00	1.15	0.29	0.397
32.567	0.000	0.00	1.14	0.29	0.395
32.685	0.000	0.00	1.14	0.29	0.392
32.803	0.000	0.00	1.13	0.28	0.389
32.922	0.000	0.00	1.13	0.28	0.386
33.040	0.000	0.00	1.12	0.27	0.384
33.158	0.000	0.00	1.12	0.27	0.381
33.277	0.000	0.00	1.11	0.27	0.378
33.395	0.000	0.00	1.11	0.26	0.376
33.513	0.000	0.00	1.10	0.26	0.373
33.632	0.000	0.00	1.10	0.26	0.371
33.750	0.000	0.00	1.09	0.25	0.368
33.868	0.000	0.00	1.09	0.25	0.366
33.987	0.000	0.00	1.08	0.25	0.363
34.105	0.000	0.00	1.08	0.24	0.361
34.223	0.000	0.00	1.07	0.24	0.359
34.342	0.000	0.00	1.07	0.24	0.356
34.460	0.000	0.00	1.06	0.23	0.354
34.578	0.000	0.00	1.06	0.23	0.352
34.697	0.000	0.00	1.05	0.23	0.350
34.815	0.000	0.00	1.05	0.22	0.347
34.933	0.000	0.00	1.04	0.22	0.345
35.052	0.000	0.00	1.04	0.22	0.343
35.170	0.000	0.00	1.03	0.22	0.341
35.288	0.000	0.00	1.03	0.21	0.339
35.407	0.000	0.00	1.03	0.21	0.337
35.525	0.000	0.00	1.02	0.21	0.335
35.643	0.000	0.00	1.02	0.20	0.333
35.762	0.000	0.00	1.01	0.20	0.331
35.880	0.000	0.00	1.01	0.20	0.329
35.998	0.000	0.00	1.01	0.20	0.327
36.117	0.000	0.00	1.00	0.19	0.325
36.235	0.000	0.00	1.00	0.19	0.323
36.353	0.000	0.00	0.99	0.19	0.321

36.472	0.000	0.00	0.99	0.19	0.320
36.590	0.000	0.00	0.99	0.19	0.318
36.708	0.000	0.00	0.98	0.19	0.316
36.827	0.000	0.00	0.98	0.19	0.314
36.945	0.000	0.00	0.97	0.19	0.312
37.063	0.000	0.00	0.97	0.19	0.310
37.182	0.000	0.00	0.96	0.19	0.308
37.300	0.000	0.00	0.96	0.19	0.307
37.418	0.000	0.00	0.96	0.19	0.305
37.537	0.000	0.00	0.95	0.19	0.303
37.655	0.000	0.00	0.95	0.19	0.301
37.773	0.000	0.00	0.94	0.19	0.299
37.892	0.000	0.00	0.94	0.19	0.297
38.010	0.000	0.00	0.93	0.19	0.295
38.128	0.000	0.00	0.93	0.19	0.294
38.247	0.000	0.00	0.93	0.19	0.292
38.365	0.000	0.00	0.92	0.19	0.290
38.483	0.000	0.00	0.92	0.19	0.288
38.602	0.000	0.00	0.91	0.19	0.286
38.720	0.000	0.00	0.91	0.19	0.284
38.838	0.000	0.00	0.91	0.19	0.282
38.957	0.000	0.00	0.90	0.19	0.281
39.075	0.000	0.00	0.90	0.19	0.279
39.193	0.000	0.00	0.89	0.19	0.277
39.312	0.000	0.00	0.89	0.19	0.275
39.430	0.000	0.00	0.88	0.19	0.273
39.548	0.000	0.00	0.88	0.19	0.271
39.667	0.000	0.00	0.88	0.19	0.269
39.785	0.000	0.00	0.87	0.19	0.268
39.903	0.000	0.00	0.87	0.19	0.266
40.022	0.000	0.00	0.86	0.19	0.264
40.140	0.000	0.00	0.86	0.19	0.262
40.258	0.000	0.00	0.85	0.19	0.260
40.377	0.000	0.00	0.85	0.19	0.258
40.495	0.000	0.00	0.85	0.19	0.256
40.613	0.000	0.00	0.84	0.19	0.254
40.732	0.000	0.00	0.84	0.19	0.253
40.850	0.000	0.00	0.83	0.19	0.251
40.968	0.000	0.00	0.83	0.19	0.249
41.087	0.000	0.00	0.83	0.19	0.247
41.205	0.000	0.00	0.82	0.19	0.245
41.323	0.000	0.00	0.82	0.19	0.243
41.442	0.000	0.00	0.81	0.19	0.241
41.560	0.000	0.00	0.81	0.19	0.240
41.678	0.000	0.00	0.80	0.19	0.238
41.797	0.000	0.00	0.80	0.19	0.236
41.915	0.000	0.00	0.80	0.19	0.234
42.033	0.000	0.00	0.79	0.19	0.232
42.152	0.000	0.00	0.79	0.19	0.230
42.270	0.000	0.00	0.78	0.19	0.228
42.388	0.000	0.00	0.78	0.19	0.227
42.507	0.000	0.00	0.77	0.19	0.225
42.625	0.000	0.00	0.77	0.19	0.223
42.743	0.000	0.00	0.77	0.19	0.221
42.862	0.000	0.00	0.76	0.19	0.219
42.980	0.000	0.00	0.76	0.19	0.217
43.098	0.000	0.00	0.75	0.19	0.215

43.217	0.000	0.00	0.75	0.19	0.214
43.335	0.000	0.00	0.74	0.19	0.212
43.453	0.000	0.00	0.74	0.19	0.210
43.572	0.000	0.00	0.73	0.19	0.208
43.690	0.000	0.00	0.73	0.19	0.206
43.808	0.000	0.00	0.72	0.19	0.204
43.927	0.000	0.00	0.72	0.19	0.202
44.045	0.000	0.00	0.71	0.19	0.201
44.163	0.000	0.00	0.71	0.19	0.199
44.282	0.000	0.00	0.70	0.19	0.197
44.400	0.000	0.00	0.70	0.19	0.195
44.518	0.000	0.00	0.70	0.19	0.193
44.637	0.000	0.00	0.69	0.19	0.191
44.755	0.000	0.00	0.69	0.19	0.189
44.873	0.000	0.00	0.68	0.19	0.188
44.992	0.000	0.00	0.68	0.19	0.186
45.110	0.000	0.00	0.67	0.19	0.184
45.228	0.000	0.00	0.67	0.19	0.182
45.347	0.000	0.00	0.66	0.19	0.180
45.465	0.000	0.00	0.66	0.19	0.178
45.583	0.000	0.00	0.65	0.19	0.176
45.702	0.000	0.00	0.65	0.19	0.175
45.820	0.000	0.00	0.64	0.19	0.173
45.938	0.000	0.00	0.64	0.19	0.171
46.057	0.000	0.00	0.63	0.19	0.169
46.175	0.000	0.00	0.63	0.19	0.167
46.293	0.000	0.00	0.62	0.19	0.165
46.412	0.000	0.00	0.62	0.19	0.163
46.530	0.000	0.00	0.61	0.19	0.162
46.648	0.000	0.00	0.61	0.19	0.160
46.767	0.000	0.00	0.60	0.19	0.158
46.885	0.000	0.00	0.60	0.19	0.156
47.003	0.000	0.00	0.59	0.19	0.154
47.122	0.000	0.00	0.59	0.19	0.152
47.240	0.000	0.00	0.58	0.19	0.150
47.358	0.000	0.00	0.58	0.19	0.149
47.477	0.000	0.00	0.57	0.19	0.147
47.595	0.000	0.00	0.57	0.19	0.145
47.713	0.000	0.00	0.56	0.19	0.143
47.832	0.000	0.00	0.56	0.19	0.141
47.950	0.000	0.00	0.55	0.19	0.139
48.068	0.000	0.00	0.55	0.19	0.137
48.187	0.000	0.00	0.54	0.19	0.136
48.305	0.000	0.00	0.54	0.19	0.134
48.423	0.000	0.00	0.53	0.19	0.132
48.542	0.000	0.00	0.53	0.19	0.130
48.660	0.000	0.00	0.52	0.19	0.128
48.778	0.000	0.00	0.52	0.19	0.126
48.896	0.000	0.00	0.51	0.19	0.124
49.015	0.000	0.00	0.51	0.19	0.123
49.133	0.000	0.00	0.50	0.19	0.121
49.251	0.000	0.00	0.50	0.19	0.119
49.370	0.000	0.00	0.49	0.19	0.117
49.488	0.000	0.00	0.49	0.19	0.115
49.606	0.000	0.00	0.48	0.19	0.113
49.725	0.000	0.00	0.48	0.19	0.111
49.843	0.000	0.00	0.47	0.19	0.110

49.961	0.000	0.00	0.46	0.19	0.108
50.080	0.000	0.00	0.46	0.19	0.106
50.198	0.000	0.00	0.45	0.19	0.104
50.316	0.000	0.00	0.44	0.19	0.102
50.435	0.000	0.00	0.44	0.19	0.100
50.553	0.000	0.00	0.43	0.19	0.098
50.671	0.000	0.00	0.43	0.19	0.097
50.790	0.000	0.00	0.42	0.19	0.095
50.908	0.000	0.00	0.41	0.19	0.093
51.026	0.000	0.00	0.41	0.19	0.091
51.145	0.000	0.00	0.40	0.19	0.089
51.263	0.000	0.00	0.40	0.19	0.087
51.381	0.000	0.00	0.39	0.19	0.085
51.500	0.000	0.00	0.38	0.19	0.084
51.618	0.000	0.00	0.38	0.19	0.082
51.736	0.000	0.00	0.37	0.19	0.080
51.855	0.000	0.00	0.37	0.19	0.078
51.973	0.000	0.00	0.36	0.19	0.076
52.091	0.000	0.00	0.35	0.19	0.074
52.210	0.000	0.00	0.35	0.19	0.072
52.328	0.000	0.00	0.34	0.19	0.071
52.446	0.000	0.00	0.33	0.19	0.069
52.565	0.000	0.00	0.33	0.19	0.067
52.683	0.000	0.00	0.32	0.19	0.065
52.801	0.000	0.00	0.32	0.19	0.063
52.920	0.000	0.00	0.31	0.19	0.061
53.038	0.000	0.00	0.30	0.19	0.059
53.156	0.000	0.00	0.30	0.19	0.058
53.275	0.000	0.00	0.29	0.19	0.056
53.393	0.000	0.00	0.29	0.19	0.054
53.511	0.000	0.00	0.28	0.19	0.052
53.630	0.000	0.00	0.27	0.19	0.050
53.748	0.000	0.00	0.27	0.19	0.048
53.866	0.000	0.00	0.26	0.19	0.046
53.985	0.000	0.00	0.26	0.19	0.045
54.103	0.000	0.00	0.25	0.19	0.043
54.221	0.000	0.00	0.24	0.18	0.041
54.340	0.000	0.00	0.23	0.18	0.039
54.458	0.000	0.00	0.22	0.17	0.037
54.576	0.000	0.00	0.21	0.16	0.036
54.695	0.000	0.00	0.20	0.16	0.034
54.813	0.000	0.00	0.19	0.15	0.033
54.931	0.000	0.00	0.18	0.14	0.032
55.050	0.000	0.00	0.18	0.14	0.030
55.168	0.000	0.00	0.17	0.13	0.029
55.286	0.000	0.00	0.16	0.13	0.028
55.405	0.000	0.00	0.15	0.12	0.027
55.523	0.000	0.00	0.15	0.11	0.025
55.641	0.000	0.00	0.14	0.11	0.024
55.760	0.000	0.00	0.14	0.11	0.023
55.878	0.000	0.00	0.13	0.10	0.022
55.996	0.000	0.00	0.12	0.10	0.021
56.115	0.000	0.00	0.12	0.09	0.020
56.233	0.000	0.00	0.11	0.09	0.020
56.351	0.000	0.00	0.11	0.08	0.019
56.470	0.000	0.00	0.10	0.08	0.018
56.588	0.000	0.00	0.10	0.08	0.017

56.706	0.000	0.00	0.10	0.07	0.016
56.825	0.000	0.00	0.09	0.07	0.016
56.943	0.000	0.00	0.09	0.07	0.015
57.061	0.000	0.00	0.08	0.07	0.014
57.180	0.000	0.00	0.08	0.06	0.014
57.298	0.000	0.00	0.08	0.06	0.013
57.416	0.000	0.00	0.07	0.06	0.013
57.535	0.000	0.00	0.07	0.06	0.012
57.653	0.000	0.00	0.07	0.05	0.012
57.771	0.000	0.00	0.06	0.05	0.011
57.890	0.000	0.00	0.06	0.05	0.011
58.008	0.000	0.00	0.06	0.05	0.010
58.126	0.000	0.00	0.06	0.04	0.010
58.245	0.000	0.00	0.05	0.04	0.009
58.363	0.000	0.00	0.05	0.04	0.009
58.481	0.000	0.00	0.05	0.04	0.009
58.600	0.000	0.00	0.05	0.04	0.008
58.718	0.000	0.00	0.05	0.04	0.008
58.836	0.000	0.00	0.04	0.03	0.008
58.955	0.000	0.00	0.04	0.03	0.007
59.073	0.000	0.00	0.04	0.03	0.007
59.191	0.000	0.00	0.04	0.03	0.007
59.310	0.000	0.00	0.04	0.03	0.006
59.428	0.000	0.00	0.04	0.03	0.006
59.546	0.000	0.00	0.03	0.03	0.006
59.665	0.000	0.00	0.03	0.03	0.006
59.783	0.000	0.00	0.03	0.02	0.005
59.901	0.000	0.00	0.03	0.02	0.005
60.020	0.000	0.00	0.03	0.02	0.005
60.138	0.000	0.00	0.03	0.02	0.005
60.256	0.000	0.00	0.03	0.02	0.005
60.375	0.000	0.00	0.03	0.02	0.004
60.493	0.000	0.00	0.02	0.02	0.004
60.611	0.000	0.00	0.02	0.02	0.004
60.730	0.000	0.00	0.02	0.02	0.004
60.848	0.000	0.00	0.02	0.02	0.004
60.966	0.000	0.00	0.02	0.02	0.003
61.085	0.000	0.00	0.02	0.02	0.003
61.203	0.000	0.00	0.02	0.01	0.003
61.321	0.000	0.00	0.02	0.01	0.003
61.440	0.000	0.00	0.02	0.01	0.003
61.558	0.000	0.00	0.02	0.01	0.003
61.676	0.000	0.00	0.02	0.01	0.003
61.795	0.000	0.00	0.01	0.01	0.003
61.913	0.000	0.00	0.01	0.01	0.002
62.031	0.000	0.00	0.01	0.01	0.002
62.150	0.000	0.00	0.01	0.01	0.002
62.268	0.000	0.00	0.01	0.01	0.002
62.386	0.000	0.00	0.01	0.01	0.002
62.505	0.000	0.00	0.01	0.01	0.002
62.623	0.000	0.00	0.01	0.01	0.002
62.741	0.000	0.00	0.01	0.01	0.002
62.860	0.000	0.00	0.01	0.01	0.002
62.978	0.000	0.00	0.01	0.01	0.002
63.096	0.000	0.00	0.01	0.01	0.002
63.215	0.000	0.00	0.01	0.01	0.002
63.333	0.000	0.00	0.01	0.01	0.001

63.451	0.000	0.00	0.01	0.01	0.001
63.570	0.000	0.00	0.01	0.01	0.001
63.688	0.000	0.00	0.01	0.01	0.001
63.806	0.000	0.00	0.01	0.01	0.001
63.925	0.000	0.00	0.01	0.01	0.001
64.043	0.000	0.00	0.01	0.01	0.001
64.161	0.000	0.00	0.01	0.00	0.001
64.280	0.000	0.00	0.01	0.00	0.001
64.398	0.000	0.00	0.01	0.00	0.001

NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS

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Analysis prepared by:

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Problem Descriptions:

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*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 4.97 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp (in./hr.)	YIELD
1	5.64	15.00	69.	0.566	0.868

TOTAL AREA (Acres) = 5.64

AREA-AVERAGED LOSS RATE, \bar{F}_m (in./hr.) = 0.085

AREA-AVERAGED LOW LOSS FRACTION, \bar{Y} = 0.132

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Problem Descriptions:

RATIONAL METHOD CALIBRATION COEFFICIENT = 1.19

TOTAL CATCHMENT AREA (ACRES) = 5.64

SOIL-LOSS RATE, F_m , (INCH/HR) = 0.085

LOW LOSS FRACTION = 0.132

TIME OF CONCENTRATION (MIN.) = 7.48

SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA

USER SPECIFIED RAINFALL VALUES ARE USED

RETURN FREQUENCY (YEARS) = 25

5-MINUTE POINT RAINFALL VALUE (INCHES) = 0.29

30-MINUTE POINT RAINFALL VALUE (INCHES) = 0.75

1-HOUR POINT RAINFALL VALUE (INCHES) = 1.12

3-HOUR POINT RAINFALL VALUE (INCHES) = 2.04
 6-HOUR POINT RAINFALL VALUE (INCHES) = 2.80
 24-HOUR POINT RAINFALL VALUE (INCHES) = 4.97

TOTAL CATCHMENT RUNOFF VOLUME (ACRE-FEET) = 2.43
 TOTAL CATCHMENT SOIL-LOSS VOLUME (ACRE-FEET) = -0.10

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	5.0	10.0	15.0	20.0
0.04	0.0000	0.00	Q	.	.	.	.
0.17	0.0026	0.50	.Q	.	.	.	.
0.29	0.0078	0.50	.Q	.	.	.	.
0.42	0.0130	0.51	.Q	.	.	.	.
0.54	0.0182	0.51	.Q	.	.	.	.
0.67	0.0234	0.51	.Q	.	.	.	.
0.79	0.0287	0.51	.Q	.	.	.	.
0.92	0.0340	0.52	.Q	.	.	.	.
1.04	0.0393	0.52	.Q	.	.	.	.
1.16	0.0447	0.52	.Q	.	.	.	.
1.29	0.0501	0.52	.Q	.	.	.	.
1.41	0.0555	0.53	.Q	.	.	.	.
1.54	0.0609	0.53	.Q	.	.	.	.
1.66	0.0664	0.53	.Q	.	.	.	.
1.79	0.0719	0.53	.Q	.	.	.	.
1.91	0.0774	0.54	.Q	.	.	.	.
2.04	0.0829	0.54	.Q	.	.	.	.
2.16	0.0885	0.54	.Q	.	.	.	.
2.29	0.0941	0.54	.Q	.	.	.	.
2.41	0.0997	0.55	.Q	.	.	.	.
2.54	0.1054	0.55	.Q	.	.	.	.
2.66	0.1111	0.55	.Q	.	.	.	.
2.79	0.1168	0.56	.Q	.	.	.	.
2.91	0.1225	0.56	.Q	.	.	.	.
3.03	0.1283	0.56	.Q	.	.	.	.
3.16	0.1341	0.57	.Q	.	.	.	.
3.28	0.1400	0.57	.Q	.	.	.	.
3.41	0.1459	0.57	.Q	.	.	.	.
3.53	0.1518	0.58	.Q	.	.	.	.
3.66	0.1578	0.58	.Q	.	.	.	.
3.78	0.1637	0.58	.Q	.	.	.	.
3.91	0.1698	0.59	.Q	.	.	.	.
4.03	0.1758	0.59	.Q	.	.	.	.
4.16	0.1819	0.59	.Q	.	.	.	.
4.28	0.1881	0.60	.Q	.	.	.	.
4.41	0.1942	0.60	.Q	.	.	.	.
4.53	0.2004	0.60	.Q	.	.	.	.
4.66	0.2067	0.61	.Q	.	.	.	.
4.78	0.2130	0.61	.Q	.	.	.	.
4.90	0.2193	0.62	.Q	.	.	.	.
5.03	0.2257	0.62	.Q	.	.	.	.
5.15	0.2321	0.63	.Q	.	.	.	.
5.28	0.2386	0.63	.Q	.	.	.	.
5.40	0.2451	0.63	.Q	.	.	.	.

5.53	0.2516	0.64	.Q	.	.	.	.
5.65	0.2582	0.64	.Q	.	.	.	.
5.78	0.2648	0.65	.Q	.	.	.	.
5.90	0.2715	0.65	.Q	.	.	.	.
6.03	0.2783	0.66	.Q	.	.	.	.
6.15	0.2850	0.66	.Q	.	.	.	.
6.28	0.2919	0.66	.Q	.	.	.	.
6.40	0.2988	0.67	.Q	.	.	.	.
6.53	0.3057	0.67	.Q	.	.	.	.
6.65	0.3127	0.68	.Q	.	.	.	.
6.77	0.3197	0.69	.Q	.	.	.	.
6.90	0.3268	0.69	.Q	.	.	.	.
7.02	0.3340	0.70	.Q	.	.	.	.
7.15	0.3412	0.70	.Q	.	.	.	.
7.27	0.3485	0.71	.Q	.	.	.	.
7.40	0.3558	0.72	.Q	.	.	.	.
7.52	0.3632	0.72	.Q	.	.	.	.
7.65	0.3706	0.73	.Q	.	.	.	.
7.77	0.3782	0.73	.Q	.	.	.	.
7.90	0.3857	0.74	.Q	.	.	.	.
8.02	0.3934	0.75	.Q	.	.	.	.
8.15	0.4011	0.75	.Q	.	.	.	.
8.27	0.4089	0.76	.Q	.	.	.	.
8.40	0.4168	0.77	.Q	.	.	.	.
8.52	0.4247	0.77	.Q	.	.	.	.
8.64	0.4328	0.78	.Q	.	.	.	.
8.77	0.4409	0.79	.Q	.	.	.	.
8.89	0.4490	0.80	.Q	.	.	.	.
9.02	0.4573	0.80	.Q	.	.	.	.
9.14	0.4656	0.82	.Q	.	.	.	.
9.27	0.4741	0.82	.Q	.	.	.	.
9.39	0.4826	0.83	.Q	.	.	.	.
9.52	0.4912	0.84	.Q	.	.	.	.
9.64	0.5000	0.85	.Q	.	.	.	.
9.77	0.5088	0.86	.Q	.	.	.	.
9.89	0.5177	0.87	.Q	.	.	.	.
10.02	0.5267	0.88	.Q	.	.	.	.
10.14	0.5359	0.89	.Q	.	.	.	.
10.27	0.5451	0.90	.Q	.	.	.	.
10.39	0.5545	0.92	.Q	.	.	.	.
10.51	0.5639	0.92	.Q	.	.	.	.
10.64	0.5736	0.94	.Q	.	.	.	.
10.76	0.5833	0.95	.Q	.	.	.	.
10.89	0.5932	0.97	.Q	.	.	.	.
11.01	0.6032	0.98	.Q	.	.	.	.
11.14	0.6133	1.00	.Q	.	.	.	.
11.26	0.6236	1.01	. Q	.	.	.	.
11.39	0.6341	1.03	. Q	.	.	.	.
11.51	0.6447	1.04	. Q	.	.	.	.
11.64	0.6555	1.06	. Q	.	.	.	.
11.76	0.6665	1.07	. Q	.	.	.	.
11.89	0.6777	1.10	. Q	.	.	.	.
12.01	0.6890	1.11	. Q	.	.	.	.
12.14	0.7012	1.25	. Q	.	.	.	.
12.26	0.7142	1.27	. Q	.	.	.	.
12.38	0.7274	1.30	. Q	.	.	.	.
12.51	0.7409	1.31	. Q	.	.	.	.

12.63	0.7546	1.35	. Q	.	.	.	.
12.76	0.7686	1.37	. Q	.	.	.	.
12.88	0.7828	1.40	. Q	.	.	.	.
13.01	0.7974	1.42	. Q	.	.	.	.
13.13	0.8123	1.47	. Q	.	.	.	.
13.26	0.8276	1.49	. Q	.	.	.	.
13.38	0.8432	1.54	. Q	.	.	.	.
13.51	0.8592	1.57	. Q	.	.	.	.
13.63	0.8756	1.62	. Q	.	.	.	.
13.76	0.8925	1.65	. Q	.	.	.	.
13.88	0.9099	1.72	. Q	.	.	.	.
14.01	0.9278	1.76	. Q	.	.	.	.
14.13	0.9481	2.19	. Q	.	.	.	.
14.25	0.9709	2.23	. Q	.	.	.	.
14.38	0.9944	2.33	. Q	.	.	.	.
14.50	1.0187	2.38	. Q	.	.	.	.
14.63	1.0438	2.50	. Q	.	.	.	.
14.75	1.0700	2.57	. Q	.	.	.	.
14.88	1.0973	2.73	. Q	.	.	.	.
15.00	1.1258	2.82	. Q	.	.	.	.
15.13	1.1559	3.03	. Q	.	.	.	.
15.25	1.1878	3.16	. Q	.	.	.	.
15.38	1.2220	3.48	. Q	.	.	.	.
15.50	1.2601	3.91	. Q	.	.	.	.
15.63	1.3036	4.54	. Q	.	.	.	.
15.75	1.3527	4.99	. Q	.	.	.	.
15.88	1.4100	6.14	. Q	.	.	.	.
16.00	1.4830	8.03	. Q	.	.	.	.
16.12	1.6212	18.79	.	.	.	.	.
16.25	1.7445	5.14	. Q	.	.	.	.
16.37	1.7926	4.19	. Q	.	.	.	.
16.50	1.8312	3.30	. Q	.	.	.	.
16.62	1.8632	2.92	. Q	.	.	.	.
16.75	1.8919	2.65	. Q	.	.	.	.
16.87	1.9181	2.44	. Q	.	.	.	.
17.00	1.9424	2.28	. Q	.	.	.	.
17.12	1.9635	1.82	. Q	.	.	.	.
17.25	1.9816	1.69	. Q	.	.	.	.
17.37	1.9985	1.59	. Q	.	.	.	.
17.50	2.0145	1.51	. Q	.	.	.	.
17.62	2.0297	1.45	. Q	.	.	.	.
17.75	2.0443	1.39	. Q	.	.	.	.
17.87	2.0583	1.33	. Q	.	.	.	.
17.99	2.0718	1.28	. Q	.	.	.	.
18.12	2.0842	1.14	. Q	.	.	.	.
18.24	2.0957	1.08	. Q	.	.	.	.
18.37	2.1066	1.05	. Q	.	.	.	.
18.49	2.1173	1.02	. Q	.	.	.	.
18.62	2.1276	0.99	.Q	.	.	.	.
18.74	2.1376	0.96	.Q	.	.	.	.
18.87	2.1473	0.93	.Q	.	.	.	.
18.99	2.1568	0.91	.Q	.	.	.	.
19.12	2.1661	0.89	.Q	.	.	.	.
19.24	2.1751	0.87	.Q	.	.	.	.
19.37	2.1839	0.85	.Q	.	.	.	.
19.49	2.1925	0.83	.Q	.	.	.	.
19.62	2.2010	0.81	.Q	.	.	.	.

19.74	2.2092	0.79	.Q	.	.	.	.
19.86	2.2173	0.78	.Q	.	.	.	.
19.99	2.2253	0.76	.Q	.	.	.	.
20.11	2.2331	0.75	.Q	.	.	.	.
20.24	2.2407	0.74	.Q	.	.	.	.
20.36	2.2483	0.72	.Q	.	.	.	.
20.49	2.2557	0.71	.Q	.	.	.	.
20.61	2.2629	0.70	.Q	.	.	.	.
20.74	2.2701	0.69	.Q	.	.	.	.
20.86	2.2771	0.68	.Q	.	.	.	.
20.99	2.2841	0.67	.Q	.	.	.	.
21.11	2.2909	0.66	.Q	.	.	.	.
21.24	2.2976	0.65	.Q	.	.	.	.
21.36	2.3043	0.64	.Q	.	.	.	.
21.49	2.3108	0.63	.Q	.	.	.	.
21.61	2.3173	0.62	.Q	.	.	.	.
21.73	2.3236	0.61	.Q	.	.	.	.
21.86	2.3299	0.61	.Q	.	.	.	.
21.98	2.3361	0.60	.Q	.	.	.	.
22.11	2.3423	0.59	.Q	.	.	.	.
22.23	2.3483	0.58	.Q	.	.	.	.
22.36	2.3543	0.58	.Q	.	.	.	.
22.48	2.3603	0.57	.Q	.	.	.	.
22.61	2.3661	0.56	.Q	.	.	.	.
22.73	2.3719	0.56	.Q	.	.	.	.
22.86	2.3776	0.55	.Q	.	.	.	.
22.98	2.3833	0.55	.Q	.	.	.	.
23.11	2.3889	0.54	.Q	.	.	.	.
23.23	2.3944	0.54	.Q	.	.	.	.
23.36	2.3999	0.53	.Q	.	.	.	.
23.48	2.4053	0.52	.Q	.	.	.	.
23.60	2.4107	0.52	.Q	.	.	.	.
23.73	2.4160	0.51	.Q	.	.	.	.
23.85	2.4213	0.51	.Q	.	.	.	.
23.98	2.4265	0.50	.Q	.	.	.	.
24.10	2.4317	0.50	.Q	.	.	.	.
24.23	2.4343	0.00	Q	.	.	.	.

 TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
 (Note: 100% of Peak Flow Rate estimate assumed to have
 an instantaneous time duration)

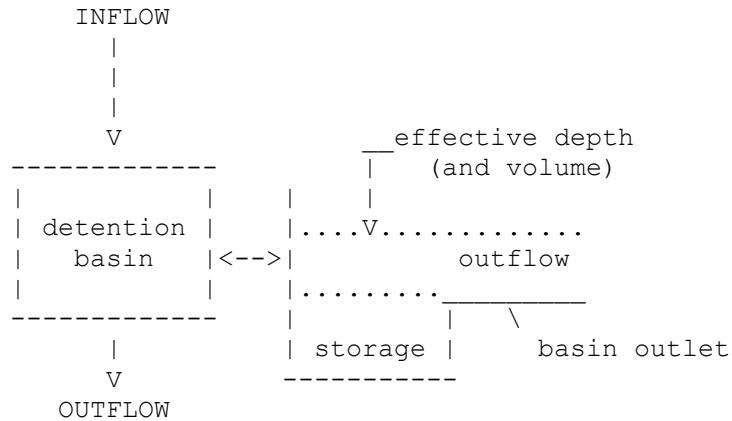
Percentile of Estimated Peak Flow Rate	Duration (minutes)
=====	=====
0%	1443.6
10%	179.5
20%	59.8
30%	22.4
40%	15.0
50%	7.5
60%	7.5
70%	7.5
80%	7.5
90%	7.5

Problem Descriptions:
 AREA B - 25 YR

FLOW-THROUGH DETENTION BASIN MODEL

SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:

CONSTANT HYDROGRAPH TIME UNIT (MINUTES) = 7.480
 DEAD STORAGE (AF) = 0.00
 SPECIFIED DEAD STORAGE (AF) FILLED = 0.00
 ASSUMED INITIAL DEPTH (FEET) IN STORAGE BASIN = 0.00



DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:

TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES = 19

* BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	** BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	*
* 0.000	0.000	0.000**	* 0.250	0.043	0.190*	*
* 0.500	0.119	0.190**	* 0.750	0.214	0.190*	*
* 1.000	0.324	0.190**	* 1.250	0.446	0.360*	*
* 1.500	0.575	0.660**	* 1.750	0.711	0.860*	*
* 2.000	0.851	1.010**	* 2.250	0.995	1.140*	*
* 2.500	1.140	1.250**	* 2.750	1.284	1.350*	*
* 3.000	1.428	1.440**	* 3.250	1.568	1.530*	*
* 3.500	1.704	1.610**	* 3.750	1.833	1.680*	*
* 4.000	1.955	1.760**	* 4.500	2.160	2.570*	*
* 5.000	2.279	3.390**				

BASIN STORAGE, OUTFLOW AND DEPTH ROUTING VALUES:

INTERVAL NUMBER	DEPTH (FEET)	{S-O*DT/2} (ACRE-FEET)	{S+O*DT/2} (ACRE-FEET)
1	0.00	0.00000	0.00000
2	0.25	0.04202	0.04398
3	0.50	0.11802	0.11998
4	0.75	0.21302	0.21498
5	1.00	0.32302	0.32498

6	1.25	0.44415	0.44785
7	1.50	0.57160	0.57840
8	1.75	0.70657	0.71543
9	2.00	0.84580	0.85620
10	2.25	0.98913	1.00087
11	2.50	1.13356	1.14644
12	2.75	1.27705	1.29095
13	3.00	1.42058	1.43542
14	3.25	1.56012	1.57588
15	3.50	1.69571	1.71229
16	3.75	1.82435	1.84165
17	4.00	1.94593	1.96407
18	4.50	2.14676	2.17324
19	5.00	2.26154	2.29646

WHERE S=STORAGE (AF) ;O=OUTFLOW (AF/MIN.) ;DT=UNIT INTERVAL (MIN.)

 DETENTION BASIN ROUTING RESULTS:

NOTE: COMPUTED BASIN DEPTH, OUTFLOW, AND STORAGE QUANTITIES OCCUR AT THE GIVEN TIME. BASIN INFLOW VALUES REPRESENT THE AVERAGE INFLOW DURING THE RECENT HYDROGRAPH UNIT INTERVAL.

TIME (HRS)	DEAD-STORAGE FILLED (AF)	INFLOW (CFS)	EFFECTIVE DEPTH (FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME (AF)
0.043	0.000	0.00	0.00	0.00	0.000
0.167	0.000	0.50	0.03	0.01	0.005
0.292	0.000	0.50	0.06	0.03	0.010
0.417	0.000	0.51	0.08	0.05	0.015
0.541	0.000	0.51	0.11	0.07	0.019
0.666	0.000	0.51	0.14	0.09	0.023
0.791	0.000	0.51	0.16	0.11	0.027
0.915	0.000	0.52	0.18	0.13	0.031
1.040	0.000	0.52	0.20	0.15	0.035
1.165	0.000	0.52	0.23	0.16	0.039
1.289	0.000	0.52	0.25	0.18	0.042
1.414	0.000	0.53	0.26	0.19	0.046
1.539	0.000	0.53	0.27	0.19	0.049
1.663	0.000	0.53	0.28	0.19	0.053
1.788	0.000	0.53	0.29	0.19	0.056
1.913	0.000	0.54	0.31	0.19	0.060
2.037	0.000	0.54	0.32	0.19	0.064
2.162	0.000	0.54	0.33	0.19	0.067
2.287	0.000	0.54	0.34	0.19	0.071
2.411	0.000	0.55	0.35	0.19	0.075
2.536	0.000	0.55	0.37	0.19	0.078
2.661	0.000	0.55	0.38	0.19	0.082
2.785	0.000	0.56	0.39	0.19	0.086
2.910	0.000	0.56	0.40	0.19	0.090
3.035	0.000	0.56	0.42	0.19	0.094
3.159	0.000	0.57	0.43	0.19	0.097
3.284	0.000	0.57	0.44	0.19	0.101
3.409	0.000	0.57	0.45	0.19	0.105
3.533	0.000	0.58	0.47	0.19	0.109
3.658	0.000	0.58	0.48	0.19	0.113
3.783	0.000	0.58	0.49	0.19	0.117
3.907	0.000	0.59	0.51	0.19	0.121
4.032	0.000	0.59	0.52	0.19	0.126

4.157	0.000	0.59	0.53	0.19	0.130
4.281	0.000	0.60	0.54	0.19	0.134
4.406	0.000	0.60	0.55	0.19	0.138
4.531	0.000	0.60	0.56	0.19	0.142
4.655	0.000	0.61	0.57	0.19	0.147
4.780	0.000	0.61	0.58	0.19	0.151
4.905	0.000	0.62	0.60	0.19	0.155
5.029	0.000	0.62	0.61	0.19	0.160
5.154	0.000	0.63	0.62	0.19	0.164
5.279	0.000	0.63	0.63	0.19	0.169
5.403	0.000	0.63	0.64	0.19	0.173
5.528	0.000	0.64	0.66	0.19	0.178
5.653	0.000	0.64	0.67	0.19	0.183
5.777	0.000	0.65	0.68	0.19	0.187
5.902	0.000	0.65	0.69	0.19	0.192
6.027	0.000	0.66	0.71	0.19	0.197
6.151	0.000	0.66	0.72	0.19	0.202
6.276	0.000	0.66	0.73	0.19	0.207
6.401	0.000	0.67	0.74	0.19	0.212
6.525	0.000	0.67	0.76	0.19	0.217
6.650	0.000	0.68	0.77	0.19	0.222
6.775	0.000	0.69	0.78	0.19	0.227
6.899	0.000	0.69	0.79	0.19	0.232
7.024	0.000	0.70	0.80	0.19	0.237
7.149	0.000	0.70	0.81	0.19	0.243
7.273	0.000	0.71	0.83	0.19	0.248
7.398	0.000	0.72	0.84	0.19	0.253
7.523	0.000	0.72	0.85	0.19	0.259
7.647	0.000	0.73	0.86	0.19	0.264
7.772	0.000	0.73	0.88	0.19	0.270
7.897	0.000	0.74	0.89	0.19	0.276
8.021	0.000	0.75	0.90	0.19	0.281
8.146	0.000	0.75	0.92	0.19	0.287
8.271	0.000	0.76	0.93	0.19	0.293
8.395	0.000	0.77	0.94	0.19	0.299
8.520	0.000	0.77	0.96	0.19	0.305
8.645	0.000	0.78	0.97	0.19	0.311
8.769	0.000	0.79	0.98	0.19	0.317
8.894	0.000	0.80	1.00	0.19	0.323
9.019	0.000	0.80	1.01	0.19	0.330
9.143	0.000	0.82	1.02	0.20	0.336
9.268	0.000	0.82	1.04	0.21	0.342
9.393	0.000	0.83	1.05	0.22	0.349
9.517	0.000	0.84	1.06	0.23	0.355
9.642	0.000	0.85	1.08	0.24	0.361
9.767	0.000	0.86	1.09	0.25	0.368
9.891	0.000	0.87	1.10	0.26	0.374
10.016	0.000	0.88	1.12	0.26	0.380
10.141	0.000	0.89	1.13	0.27	0.387
10.265	0.000	0.90	1.14	0.28	0.393
10.390	0.000	0.92	1.15	0.29	0.400
10.515	0.000	0.92	1.17	0.30	0.406
10.639	0.000	0.94	1.18	0.31	0.413
10.764	0.000	0.95	1.19	0.32	0.419
10.889	0.000	0.97	1.21	0.33	0.426
11.013	0.000	0.98	1.22	0.34	0.432
11.138	0.000	1.00	1.24	0.35	0.439

11.263	0.000	1.01	1.25	0.35	0.446
11.387	0.000	1.03	1.26	0.37	0.452
11.512	0.000	1.04	1.28	0.38	0.459
11.637	0.000	1.06	1.29	0.40	0.466
11.761	0.000	1.07	1.30	0.41	0.473
11.886	0.000	1.10	1.32	0.43	0.480
12.011	0.000	1.11	1.33	0.45	0.486
12.135	0.000	1.25	1.34	0.46	0.495
12.260	0.000	1.27	1.36	0.48	0.503
12.385	0.000	1.30	1.38	0.50	0.511
12.509	0.000	1.31	1.39	0.52	0.519
12.634	0.000	1.35	1.41	0.54	0.527
12.759	0.000	1.37	1.42	0.56	0.536
12.883	0.000	1.40	1.44	0.58	0.544
13.008	0.000	1.42	1.46	0.60	0.553
13.133	0.000	1.47	1.47	0.62	0.561
13.257	0.000	1.49	1.49	0.64	0.570
13.382	0.000	1.54	1.51	0.66	0.579
13.507	0.000	1.57	1.52	0.67	0.589
13.631	0.000	1.62	1.54	0.69	0.598
13.756	0.000	1.65	1.56	0.70	0.608
13.881	0.000	1.72	1.58	0.72	0.618
14.005	0.000	1.76	1.60	0.73	0.629
14.130	0.000	2.19	1.63	0.75	0.644
14.255	0.000	2.23	1.65	0.77	0.659
14.379	0.000	2.33	1.68	0.79	0.675
14.504	0.000	2.38	1.71	0.82	0.691
14.629	0.000	2.50	1.74	0.84	0.708
14.753	0.000	2.57	1.78	0.87	0.725
14.878	0.000	2.73	1.81	0.89	0.744
15.003	0.000	2.82	1.84	0.91	0.764
15.127	0.000	3.03	1.88	0.93	0.786
15.252	0.000	3.16	1.92	0.95	0.808
15.377	0.000	3.48	1.97	0.98	0.834
15.501	0.000	3.91	2.02	1.01	0.864
15.626	0.000	4.54	2.09	1.04	0.900
15.751	0.000	4.99	2.16	1.07	0.941
15.875	0.000	6.14	2.25	1.11	0.992
16.000	0.000	8.03	2.37	1.16	1.063
16.125	0.000	18.79	2.68	1.26	1.244
16.249	0.000	5.14	2.75	1.34	1.283
16.374	0.000	4.19	2.80	1.36	1.312
16.499	0.000	3.30	2.83	1.37	1.332
16.623	0.000	2.92	2.86	1.38	1.348
16.748	0.000	2.65	2.88	1.39	1.361
16.873	0.000	2.44	2.90	1.40	1.371
16.997	0.000	2.28	2.92	1.41	1.380
17.122	0.000	1.82	2.92	1.41	1.385
17.247	0.000	1.69	2.93	1.41	1.387
17.371	0.000	1.59	2.93	1.42	1.389
17.496	0.000	1.51	2.93	1.42	1.390
17.621	0.000	1.45	2.93	1.42	1.391
17.745	0.000	1.39	2.93	1.42	1.390
17.870	0.000	1.33	2.93	1.42	1.389
17.995	0.000	1.28	2.93	1.42	1.388
18.119	0.000	1.14	2.93	1.41	1.385
18.244	0.000	1.08	2.92	1.41	1.382

18.369	0.000	1.05	2.91	1.41	1.378
18.493	0.000	1.02	2.91	1.41	1.374
18.618	0.000	0.99	2.90	1.40	1.370
18.743	0.000	0.96	2.89	1.40	1.365
18.867	0.000	0.93	2.88	1.40	1.360
18.992	0.000	0.91	2.87	1.40	1.355
19.117	0.000	0.89	2.86	1.39	1.350
19.241	0.000	0.87	2.86	1.39	1.345
19.366	0.000	0.85	2.85	1.39	1.339
19.491	0.000	0.83	2.84	1.38	1.333
19.615	0.000	0.81	2.83	1.38	1.327
19.740	0.000	0.79	2.82	1.38	1.321
19.865	0.000	0.78	2.80	1.37	1.315
19.989	0.000	0.76	2.79	1.37	1.309
20.114	0.000	0.75	2.78	1.36	1.303
20.239	0.000	0.74	2.77	1.36	1.296
20.363	0.000	0.72	2.76	1.36	1.290
20.488	0.000	0.71	2.75	1.35	1.283
20.613	0.000	0.70	2.74	1.35	1.277
20.737	0.000	0.69	2.73	1.34	1.270
20.862	0.000	0.68	2.71	1.34	1.263
20.987	0.000	0.67	2.70	1.33	1.256
21.111	0.000	0.66	2.69	1.33	1.249
21.236	0.000	0.65	2.68	1.32	1.242
21.361	0.000	0.64	2.67	1.32	1.235
21.485	0.000	0.63	2.65	1.31	1.228
21.610	0.000	0.62	2.64	1.31	1.221
21.735	0.000	0.61	2.63	1.30	1.214
21.859	0.000	0.61	2.62	1.30	1.207
21.984	0.000	0.60	2.60	1.29	1.200
22.109	0.000	0.59	2.59	1.29	1.193
22.233	0.000	0.58	2.58	1.28	1.185
22.358	0.000	0.58	2.57	1.28	1.178
22.483	0.000	0.57	2.55	1.27	1.171
22.607	0.000	0.56	2.54	1.27	1.164
22.732	0.000	0.56	2.53	1.26	1.157
22.857	0.000	0.55	2.52	1.26	1.149
22.981	0.000	0.55	2.50	1.25	1.142
23.106	0.000	0.54	2.49	1.25	1.135
23.231	0.000	0.54	2.48	1.24	1.127
23.355	0.000	0.53	2.47	1.24	1.120
23.480	0.000	0.52	2.45	1.23	1.113
23.605	0.000	0.52	2.44	1.23	1.105
23.729	0.000	0.51	2.43	1.22	1.098
23.854	0.000	0.51	2.42	1.22	1.091
23.979	0.000	0.50	2.40	1.21	1.084
24.103	0.000	0.50	2.39	1.20	1.076
24.228	0.000	0.00	2.37	1.20	1.064
24.353	0.000	0.00	2.35	1.19	1.052
24.477	0.000	0.00	2.33	1.18	1.040
24.602	0.000	0.00	2.31	1.17	1.028
24.727	0.000	0.00	2.29	1.16	1.016
24.851	0.000	0.00	2.27	1.15	1.004
24.976	0.000	0.00	2.24	1.14	0.992
25.101	0.000	0.00	2.22	1.13	0.980
25.225	0.000	0.00	2.20	1.12	0.969
25.350	0.000	0.00	2.18	1.11	0.957

25.475	0.000	0.00	2.17	1.10	0.946
25.599	0.000	0.00	2.15	1.09	0.935
25.724	0.000	0.00	2.13	1.08	0.924
25.849	0.000	0.00	2.11	1.07	0.913
25.973	0.000	0.00	2.09	1.06	0.902
26.098	0.000	0.00	2.07	1.05	0.891
26.223	0.000	0.00	2.05	1.04	0.880
26.347	0.000	0.00	2.03	1.03	0.870
26.472	0.000	0.00	2.01	1.02	0.859
26.597	0.000	0.00	2.00	1.01	0.849
26.721	0.000	0.00	1.98	1.00	0.838
26.846	0.000	0.00	1.96	0.99	0.828
26.971	0.000	0.00	1.94	0.98	0.818
27.095	0.000	0.00	1.92	0.97	0.808
27.220	0.000	0.00	1.91	0.96	0.798
27.345	0.000	0.00	1.89	0.95	0.788
27.469	0.000	0.00	1.87	0.94	0.779
27.594	0.000	0.00	1.85	0.93	0.769
27.719	0.000	0.00	1.84	0.92	0.760
27.843	0.000	0.00	1.82	0.91	0.750
27.968	0.000	0.00	1.80	0.90	0.741
28.093	0.000	0.00	1.79	0.89	0.732
28.217	0.000	0.00	1.77	0.88	0.723
28.342	0.000	0.00	1.76	0.87	0.714
28.467	0.000	0.00	1.74	0.86	0.705
28.591	0.000	0.00	1.72	0.84	0.696
28.716	0.000	0.00	1.71	0.83	0.688
28.841	0.000	0.00	1.69	0.82	0.679
28.965	0.000	0.00	1.68	0.81	0.671
29.090	0.000	0.00	1.66	0.80	0.663
29.215	0.000	0.00	1.65	0.78	0.655
29.339	0.000	0.00	1.63	0.77	0.647
29.464	0.000	0.00	1.62	0.76	0.639
29.589	0.000	0.00	1.60	0.75	0.631
29.713	0.000	0.00	1.59	0.74	0.624
29.838	0.000	0.00	1.58	0.73	0.616
29.963	0.000	0.00	1.56	0.72	0.609
30.087	0.000	0.00	1.55	0.70	0.602
30.212	0.000	0.00	1.54	0.69	0.594
30.337	0.000	0.00	1.52	0.68	0.587
30.461	0.000	0.00	1.51	0.67	0.580
30.586	0.000	0.00	1.50	0.66	0.574
30.711	0.000	0.00	1.48	0.65	0.567
30.835	0.000	0.00	1.47	0.63	0.560
30.960	0.000	0.00	1.46	0.62	0.554
31.085	0.000	0.00	1.45	0.60	0.548
31.209	0.000	0.00	1.44	0.59	0.542
31.334	0.000	0.00	1.42	0.58	0.536
31.459	0.000	0.00	1.41	0.56	0.530
31.583	0.000	0.00	1.40	0.55	0.524
31.708	0.000	0.00	1.39	0.54	0.519
31.833	0.000	0.00	1.38	0.52	0.513
31.957	0.000	0.00	1.37	0.51	0.508
32.082	0.000	0.00	1.36	0.50	0.503
32.207	0.000	0.00	1.35	0.49	0.498
32.331	0.000	0.00	1.34	0.48	0.493
32.456	0.000	0.00	1.33	0.46	0.488

32.581	0.000	0.00	1.32	0.45	0.484
32.705	0.000	0.00	1.31	0.44	0.479
32.830	0.000	0.00	1.31	0.43	0.475
32.955	0.000	0.00	1.30	0.42	0.470
33.079	0.000	0.00	1.29	0.41	0.466
33.204	0.000	0.00	1.28	0.40	0.462
33.329	0.000	0.00	1.27	0.39	0.458
33.453	0.000	0.00	1.27	0.38	0.454
33.578	0.000	0.00	1.26	0.37	0.450
33.703	0.000	0.00	1.25	0.37	0.446
33.827	0.000	0.00	1.24	0.36	0.443
33.952	0.000	0.00	1.24	0.35	0.439
34.077	0.000	0.00	1.23	0.35	0.435
34.201	0.000	0.00	1.22	0.34	0.432
34.326	0.000	0.00	1.21	0.34	0.428
34.451	0.000	0.00	1.21	0.33	0.425
34.575	0.000	0.00	1.20	0.33	0.422
34.700	0.000	0.00	1.19	0.32	0.418
34.825	0.000	0.00	1.19	0.32	0.415
34.949	0.000	0.00	1.18	0.31	0.412
35.074	0.000	0.00	1.17	0.31	0.409
35.199	0.000	0.00	1.17	0.31	0.405
35.323	0.000	0.00	1.16	0.30	0.402
35.448	0.000	0.00	1.15	0.30	0.399
35.573	0.000	0.00	1.15	0.29	0.396
35.697	0.000	0.00	1.14	0.29	0.393
35.822	0.000	0.00	1.14	0.28	0.390
35.947	0.000	0.00	1.13	0.28	0.387
36.071	0.000	0.00	1.12	0.28	0.385
36.196	0.000	0.00	1.12	0.27	0.382
36.321	0.000	0.00	1.11	0.27	0.379
36.445	0.000	0.00	1.11	0.26	0.376
36.570	0.000	0.00	1.10	0.26	0.374
36.695	0.000	0.00	1.10	0.26	0.371
36.819	0.000	0.00	1.09	0.25	0.368
36.944	0.000	0.00	1.09	0.25	0.366
37.069	0.000	0.00	1.08	0.25	0.363
37.193	0.000	0.00	1.08	0.24	0.361
37.318	0.000	0.00	1.07	0.24	0.358
37.443	0.000	0.00	1.07	0.24	0.356
37.567	0.000	0.00	1.06	0.23	0.353
37.692	0.000	0.00	1.06	0.23	0.351
37.817	0.000	0.00	1.05	0.23	0.349
37.941	0.000	0.00	1.05	0.22	0.346
38.066	0.000	0.00	1.04	0.22	0.344
38.191	0.000	0.00	1.04	0.22	0.342
38.315	0.000	0.00	1.03	0.21	0.340
38.440	0.000	0.00	1.03	0.21	0.338
38.565	0.000	0.00	1.02	0.21	0.335
38.689	0.000	0.00	1.02	0.20	0.333
38.814	0.000	0.00	1.01	0.20	0.331
38.939	0.000	0.00	1.01	0.20	0.329
39.063	0.000	0.00	1.01	0.20	0.327
39.188	0.000	0.00	1.00	0.19	0.325
39.313	0.000	0.00	1.00	0.19	0.323
39.437	0.000	0.00	0.99	0.19	0.321
39.562	0.000	0.00	0.99	0.19	0.319

39.687	0.000	0.00	0.98	0.19	0.317
39.811	0.000	0.00	0.98	0.19	0.315
39.936	0.000	0.00	0.98	0.19	0.313
40.061	0.000	0.00	0.97	0.19	0.311
40.185	0.000	0.00	0.97	0.19	0.310
40.310	0.000	0.00	0.96	0.19	0.308
40.435	0.000	0.00	0.96	0.19	0.306
40.559	0.000	0.00	0.95	0.19	0.304
40.684	0.000	0.00	0.95	0.19	0.302
40.809	0.000	0.00	0.94	0.19	0.300
40.933	0.000	0.00	0.94	0.19	0.298
41.058	0.000	0.00	0.94	0.19	0.296
41.183	0.000	0.00	0.93	0.19	0.294
41.307	0.000	0.00	0.93	0.19	0.292
41.432	0.000	0.00	0.92	0.19	0.290
41.557	0.000	0.00	0.92	0.19	0.288
41.681	0.000	0.00	0.91	0.19	0.286
41.806	0.000	0.00	0.91	0.19	0.284
41.931	0.000	0.00	0.90	0.19	0.282
42.055	0.000	0.00	0.90	0.19	0.280
42.180	0.000	0.00	0.90	0.19	0.278
42.305	0.000	0.00	0.89	0.19	0.276
42.429	0.000	0.00	0.89	0.19	0.274
42.554	0.000	0.00	0.88	0.19	0.272
42.679	0.000	0.00	0.88	0.19	0.270
42.803	0.000	0.00	0.87	0.19	0.268
42.928	0.000	0.00	0.87	0.19	0.266
43.053	0.000	0.00	0.86	0.19	0.265
43.177	0.000	0.00	0.86	0.19	0.263
43.302	0.000	0.00	0.86	0.19	0.261
43.427	0.000	0.00	0.85	0.19	0.259
43.551	0.000	0.00	0.85	0.19	0.257
43.676	0.000	0.00	0.84	0.19	0.255
43.801	0.000	0.00	0.84	0.19	0.253
43.925	0.000	0.00	0.83	0.19	0.251
44.050	0.000	0.00	0.83	0.19	0.249
44.175	0.000	0.00	0.82	0.19	0.247
44.299	0.000	0.00	0.82	0.19	0.245
44.424	0.000	0.00	0.82	0.19	0.243
44.549	0.000	0.00	0.81	0.19	0.241
44.673	0.000	0.00	0.81	0.19	0.239
44.798	0.000	0.00	0.80	0.19	0.237
44.923	0.000	0.00	0.80	0.19	0.235
45.047	0.000	0.00	0.79	0.19	0.233
45.172	0.000	0.00	0.79	0.19	0.231
45.297	0.000	0.00	0.78	0.19	0.229
45.421	0.000	0.00	0.78	0.19	0.227
45.546	0.000	0.00	0.78	0.19	0.225
45.671	0.000	0.00	0.77	0.19	0.223
45.795	0.000	0.00	0.77	0.19	0.221
45.920	0.000	0.00	0.76	0.19	0.219
46.045	0.000	0.00	0.76	0.19	0.218
46.169	0.000	0.00	0.75	0.19	0.216
46.294	0.000	0.00	0.75	0.19	0.214
46.419	0.000	0.00	0.74	0.19	0.212
46.543	0.000	0.00	0.74	0.19	0.210
46.668	0.000	0.00	0.73	0.19	0.208

46.793	0.000	0.00	0.73	0.19	0.206
46.917	0.000	0.00	0.72	0.19	0.204
47.042	0.000	0.00	0.72	0.19	0.202
47.167	0.000	0.00	0.71	0.19	0.200
47.291	0.000	0.00	0.71	0.19	0.198
47.416	0.000	0.00	0.70	0.19	0.196
47.541	0.000	0.00	0.70	0.19	0.194
47.665	0.000	0.00	0.69	0.19	0.192
47.790	0.000	0.00	0.69	0.19	0.190
47.915	0.000	0.00	0.68	0.19	0.188
48.039	0.000	0.00	0.68	0.19	0.186
48.164	0.000	0.00	0.67	0.19	0.184
48.289	0.000	0.00	0.67	0.19	0.182
48.413	0.000	0.00	0.66	0.19	0.180
48.538	0.000	0.00	0.66	0.19	0.178
48.663	0.000	0.00	0.65	0.19	0.176
48.787	0.000	0.00	0.65	0.19	0.174
48.912	0.000	0.00	0.64	0.19	0.173
49.037	0.000	0.00	0.64	0.19	0.171
49.162	0.000	0.00	0.63	0.19	0.169
49.286	0.000	0.00	0.63	0.19	0.167
49.411	0.000	0.00	0.62	0.19	0.165
49.536	0.000	0.00	0.62	0.19	0.163
49.660	0.000	0.00	0.61	0.19	0.161
49.785	0.000	0.00	0.60	0.19	0.159
49.910	0.000	0.00	0.60	0.19	0.157
50.034	0.000	0.00	0.59	0.19	0.155
50.159	0.000	0.00	0.59	0.19	0.153
50.284	0.000	0.00	0.58	0.19	0.151
50.408	0.000	0.00	0.58	0.19	0.149
50.533	0.000	0.00	0.57	0.19	0.147
50.658	0.000	0.00	0.57	0.19	0.145
50.782	0.000	0.00	0.56	0.19	0.143
50.907	0.000	0.00	0.56	0.19	0.141
51.032	0.000	0.00	0.55	0.19	0.139
51.156	0.000	0.00	0.55	0.19	0.137
51.281	0.000	0.00	0.54	0.19	0.135
51.406	0.000	0.00	0.54	0.19	0.133
51.530	0.000	0.00	0.53	0.19	0.131
51.655	0.000	0.00	0.53	0.19	0.129
51.780	0.000	0.00	0.52	0.19	0.127
51.904	0.000	0.00	0.52	0.19	0.126
52.029	0.000	0.00	0.51	0.19	0.124
52.154	0.000	0.00	0.51	0.19	0.122
52.278	0.000	0.00	0.50	0.19	0.120
52.403	0.000	0.00	0.50	0.19	0.118
52.528	0.000	0.00	0.49	0.19	0.116
52.652	0.000	0.00	0.48	0.19	0.114
52.777	0.000	0.00	0.48	0.19	0.112
52.902	0.000	0.00	0.47	0.19	0.110
53.026	0.000	0.00	0.46	0.19	0.108
53.151	0.000	0.00	0.46	0.19	0.106
53.276	0.000	0.00	0.45	0.19	0.104
53.400	0.000	0.00	0.44	0.19	0.102
53.525	0.000	0.00	0.44	0.19	0.100
53.650	0.000	0.00	0.43	0.19	0.098
53.774	0.000	0.00	0.42	0.19	0.096

53.899	0.000	0.00	0.42	0.19	0.094
54.024	0.000	0.00	0.41	0.19	0.092
54.148	0.000	0.00	0.41	0.19	0.090
54.273	0.000	0.00	0.40	0.19	0.088
54.398	0.000	0.00	0.39	0.19	0.086
54.522	0.000	0.00	0.39	0.19	0.084
54.647	0.000	0.00	0.38	0.19	0.082
54.772	0.000	0.00	0.37	0.19	0.080
54.896	0.000	0.00	0.37	0.19	0.079
55.021	0.000	0.00	0.36	0.19	0.077
55.146	0.000	0.00	0.35	0.19	0.075
55.270	0.000	0.00	0.35	0.19	0.073
55.395	0.000	0.00	0.34	0.19	0.071
55.520	0.000	0.00	0.33	0.19	0.069
55.644	0.000	0.00	0.33	0.19	0.067
55.769	0.000	0.00	0.32	0.19	0.065
55.894	0.000	0.00	0.32	0.19	0.063
56.018	0.000	0.00	0.31	0.19	0.061
56.143	0.000	0.00	0.30	0.19	0.059
56.268	0.000	0.00	0.30	0.19	0.057
56.392	0.000	0.00	0.29	0.19	0.055
56.517	0.000	0.00	0.28	0.19	0.053
56.642	0.000	0.00	0.28	0.19	0.051
56.766	0.000	0.00	0.27	0.19	0.049
56.891	0.000	0.00	0.26	0.19	0.047
57.016	0.000	0.00	0.26	0.19	0.045
57.140	0.000	0.00	0.25	0.19	0.043
57.265	0.000	0.00	0.24	0.19	0.041
57.390	0.000	0.00	0.23	0.18	0.040
57.514	0.000	0.00	0.22	0.17	0.038
57.639	0.000	0.00	0.21	0.16	0.036
57.764	0.000	0.00	0.20	0.16	0.034
57.888	0.000	0.00	0.19	0.15	0.033
58.013	0.000	0.00	0.18	0.14	0.031
58.138	0.000	0.00	0.17	0.14	0.030
58.262	0.000	0.00	0.17	0.13	0.029
58.387	0.000	0.00	0.16	0.12	0.027
58.512	0.000	0.00	0.15	0.12	0.026
58.636	0.000	0.00	0.15	0.11	0.025
58.761	0.000	0.00	0.14	0.11	0.024
58.886	0.000	0.00	0.13	0.10	0.023
59.010	0.000	0.00	0.13	0.10	0.022
59.135	0.000	0.00	0.12	0.09	0.021
59.260	0.000	0.00	0.12	0.09	0.020
59.384	0.000	0.00	0.11	0.09	0.019
59.509	0.000	0.00	0.11	0.08	0.018
59.634	0.000	0.00	0.10	0.08	0.017
59.758	0.000	0.00	0.10	0.08	0.017
59.883	0.000	0.00	0.09	0.07	0.016
60.008	0.000	0.00	0.09	0.07	0.015
60.132	0.000	0.00	0.08	0.07	0.015
60.257	0.000	0.00	0.08	0.06	0.014
60.382	0.000	0.00	0.08	0.06	0.013
60.506	0.000	0.00	0.07	0.06	0.013
60.631	0.000	0.00	0.07	0.05	0.012
60.756	0.000	0.00	0.07	0.05	0.012
60.880	0.000	0.00	0.06	0.05	0.011

61.005	0.000	0.00	0.06	0.05	0.011
61.130	0.000	0.00	0.06	0.05	0.010
61.254	0.000	0.00	0.06	0.04	0.010
61.379	0.000	0.00	0.05	0.04	0.009
61.504	0.000	0.00	0.05	0.04	0.009
61.628	0.000	0.00	0.05	0.04	0.008
61.753	0.000	0.00	0.05	0.04	0.008
61.878	0.000	0.00	0.04	0.03	0.008
62.002	0.000	0.00	0.04	0.03	0.007
62.127	0.000	0.00	0.04	0.03	0.007
62.252	0.000	0.00	0.04	0.03	0.007
62.376	0.000	0.00	0.04	0.03	0.006
62.501	0.000	0.00	0.04	0.03	0.006
62.626	0.000	0.00	0.03	0.03	0.006
62.750	0.000	0.00	0.03	0.03	0.006
62.875	0.000	0.00	0.03	0.02	0.005
63.000	0.000	0.00	0.03	0.02	0.005
63.124	0.000	0.00	0.03	0.02	0.005
63.249	0.000	0.00	0.03	0.02	0.005
63.374	0.000	0.00	0.03	0.02	0.004
63.498	0.000	0.00	0.02	0.02	0.004
63.623	0.000	0.00	0.02	0.02	0.004
63.748	0.000	0.00	0.02	0.02	0.004
63.872	0.000	0.00	0.02	0.02	0.004
63.997	0.000	0.00	0.02	0.02	0.004
64.122	0.000	0.00	0.02	0.02	0.003
64.246	0.000	0.00	0.02	0.01	0.003
64.371	0.000	0.00	0.02	0.01	0.003
64.496	0.000	0.00	0.02	0.01	0.003
64.620	0.000	0.00	0.02	0.01	0.003
64.745	0.000	0.00	0.02	0.01	0.003
64.870	0.000	0.00	0.01	0.01	0.003
64.994	0.000	0.00	0.01	0.01	0.002
65.119	0.000	0.00	0.01	0.01	0.002
65.244	0.000	0.00	0.01	0.01	0.002
65.368	0.000	0.00	0.01	0.01	0.002
65.493	0.000	0.00	0.01	0.01	0.002
65.618	0.000	0.00	0.01	0.01	0.002
65.742	0.000	0.00	0.01	0.01	0.002
65.867	0.000	0.00	0.01	0.01	0.002
65.992	0.000	0.00	0.01	0.01	0.002
66.116	0.000	0.00	0.01	0.01	0.002
66.241	0.000	0.00	0.01	0.01	0.002
66.366	0.000	0.00	0.01	0.01	0.001
66.490	0.000	0.00	0.01	0.01	0.001
66.615	0.000	0.00	0.01	0.01	0.001
66.740	0.000	0.00	0.01	0.01	0.001
66.864	0.000	0.00	0.01	0.01	0.001
66.989	0.000	0.00	0.01	0.01	0.001
67.114	0.000	0.00	0.01	0.01	0.001
67.238	0.000	0.00	0.01	0.00	0.001
67.363	0.000	0.00	0.01	0.00	0.001
67.488	0.000	0.00	0.01	0.00	0.001

NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS

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Analysis prepared by:

Fusco Engineering, Inc.
15535 Sand Canyon Ave
Suite 100
Irvine, CA 92618

Problem Descriptions:

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*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 6.30 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp (in./hr.)	YIELD
1	5.64	15.00	69. (AMC II)	0.272	0.930

TOTAL AREA (Acres) = 5.64

AREA-AVERAGED LOSS RATE, \bar{F}_m (in./hr.) = 0.041

AREA-AVERAGED LOW LOSS FRACTION, \bar{Y} = 0.070

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Problem Descriptions:

RATIONAL METHOD CALIBRATION COEFFICIENT = 1.16

TOTAL CATCHMENT AREA (ACRES) = 5.64

SOIL-LOSS RATE, F_m , (INCH/HR) = 0.041

LOW LOSS FRACTION = 0.070

TIME OF CONCENTRATION (MIN.) = 7.00

SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA

USER SPECIFIED RAINFALL VALUES ARE USED

RETURN FREQUENCY (YEARS) = 100

5-MINUTE POINT RAINFALL VALUE (INCHES) = 0.37

30-MINUTE POINT RAINFALL VALUE (INCHES) = 0.96

1-HOUR POINT RAINFALL VALUE (INCHES) = 1.44

3-HOUR POINT RAINFALL VALUE (INCHES) = 2.53
 6-HOUR POINT RAINFALL VALUE (INCHES) = 3.47
 24-HOUR POINT RAINFALL VALUE (INCHES) = 6.30

TOTAL CATCHMENT RUNOFF VOLUME (ACRE-FEET) = 3.21
 TOTAL CATCHMENT SOIL-LOSS VOLUME (ACRE-FEET) = -0.25

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	7.5	15.0	22.5	30.0
0.02	0.0000	0.00	Q	.	.	.	.
0.13	0.0033	0.69	Q	.	.	.	.
0.25	0.0100	0.69	Q	.	.	.	.
0.37	0.0167	0.69	Q	.	.	.	.
0.48	0.0234	0.70	Q	.	.	.	.
0.60	0.0301	0.70	Q	.	.	.	.
0.72	0.0369	0.70	Q	.	.	.	.
0.83	0.0437	0.71	Q	.	.	.	.
0.95	0.0506	0.71	Q	.	.	.	.
1.07	0.0574	0.71	Q	.	.	.	.
1.18	0.0643	0.72	Q	.	.	.	.
1.30	0.0712	0.72	Q	.	.	.	.
1.42	0.0782	0.72	Q	.	.	.	.
1.53	0.0852	0.73	Q	.	.	.	.
1.65	0.0922	0.73	Q	.	.	.	.
1.77	0.0993	0.73	Q	.	.	.	.
1.88	0.1064	0.74	Q	.	.	.	.
2.00	0.1135	0.74	Q	.	.	.	.
2.12	0.1206	0.74	Q	.	.	.	.
2.23	0.1278	0.75	Q	.	.	.	.
2.35	0.1350	0.75	.Q	.	.	.	.
2.47	0.1423	0.75	.Q	.	.	.	.
2.58	0.1496	0.76	.Q	.	.	.	.
2.70	0.1569	0.76	.Q	.	.	.	.
2.82	0.1643	0.77	.Q	.	.	.	.
2.93	0.1717	0.77	.Q	.	.	.	.
3.05	0.1791	0.77	.Q	.	.	.	.
3.17	0.1866	0.78	.Q	.	.	.	.
3.28	0.1941	0.78	.Q	.	.	.	.
3.40	0.2017	0.78	.Q	.	.	.	.
3.52	0.2093	0.79	.Q	.	.	.	.
3.63	0.2169	0.79	.Q	.	.	.	.
3.75	0.2246	0.80	.Q	.	.	.	.
3.87	0.2323	0.80	.Q	.	.	.	.
3.98	0.2400	0.81	.Q	.	.	.	.
4.10	0.2478	0.81	.Q	.	.	.	.
4.22	0.2557	0.82	.Q	.	.	.	.
4.33	0.2636	0.82	.Q	.	.	.	.
4.45	0.2715	0.83	.Q	.	.	.	.
4.57	0.2795	0.83	.Q	.	.	.	.
4.68	0.2875	0.84	.Q	.	.	.	.
4.80	0.2956	0.84	.Q	.	.	.	.
4.92	0.3037	0.85	.Q	.	.	.	.
5.03	0.3119	0.85	.Q	.	.	.	.

5.15	0.3201	0.86	.Q	.	.	.	.
5.27	0.3284	0.86	.Q	.	.	.	.
5.38	0.3367	0.87	.Q	.	.	.	.
5.50	0.3450	0.87	.Q	.	.	.	.
5.62	0.3535	0.88	.Q	.	.	.	.
5.73	0.3619	0.88	.Q	.	.	.	.
5.85	0.3705	0.89	.Q	.	.	.	.
5.97	0.3791	0.89	.Q	.	.	.	.
6.08	0.3877	0.90	.Q	.	.	.	.
6.20	0.3964	0.90	.Q	.	.	.	.
6.32	0.4052	0.91	.Q	.	.	.	.
6.43	0.4140	0.92	.Q	.	.	.	.
6.55	0.4229	0.93	.Q	.	.	.	.
6.67	0.4318	0.93	.Q	.	.	.	.
6.78	0.4408	0.94	.Q	.	.	.	.
6.90	0.4499	0.94	.Q	.	.	.	.
7.02	0.4590	0.95	.Q	.	.	.	.
7.13	0.4682	0.96	.Q	.	.	.	.
7.25	0.4775	0.97	.Q	.	.	.	.
7.37	0.4868	0.97	.Q	.	.	.	.
7.48	0.4962	0.98	.Q	.	.	.	.
7.60	0.5057	0.99	.Q	.	.	.	.
7.72	0.5153	1.00	.Q	.	.	.	.
7.83	0.5249	1.00	.Q	.	.	.	.
7.95	0.5346	1.01	.Q	.	.	.	.
8.07	0.5444	1.02	.Q	.	.	.	.
8.18	0.5543	1.03	.Q	.	.	.	.
8.30	0.5643	1.04	.Q	.	.	.	.
8.42	0.5743	1.05	.Q	.	.	.	.
8.53	0.5844	1.05	.Q	.	.	.	.
8.65	0.5947	1.07	.Q	.	.	.	.
8.77	0.6050	1.07	.Q	.	.	.	.
8.88	0.6154	1.09	.Q	.	.	.	.
9.00	0.6259	1.09	.Q	.	.	.	.
9.12	0.6365	1.11	.Q	.	.	.	.
9.23	0.6472	1.11	.Q	.	.	.	.
9.35	0.6580	1.13	.Q	.	.	.	.
9.47	0.6689	1.14	.Q	.	.	.	.
9.58	0.6799	1.15	.Q	.	.	.	.
9.70	0.6911	1.16	.Q	.	.	.	.
9.82	0.7023	1.18	.Q	.	.	.	.
9.93	0.7137	1.18	.Q	.	.	.	.
10.05	0.7252	1.20	.Q	.	.	.	.
10.17	0.7368	1.21	.Q	.	.	.	.
10.28	0.7486	1.23	.Q	.	.	.	.
10.40	0.7604	1.24	.Q	.	.	.	.
10.52	0.7725	1.26	.Q	.	.	.	.
10.63	0.7846	1.27	.Q	.	.	.	.
10.75	0.7970	1.29	.Q	.	.	.	.
10.87	0.8094	1.30	.Q	.	.	.	.
10.98	0.8221	1.32	.Q	.	.	.	.
11.10	0.8349	1.33	.Q	.	.	.	.
11.22	0.8479	1.36	.Q	.	.	.	.
11.33	0.8610	1.37	.Q	.	.	.	.
11.45	0.8743	1.40	.Q	.	.	.	.
11.57	0.8879	1.41	.Q	.	.	.	.
11.68	0.9016	1.44	.Q	.	.	.	.

11.80	0.9155	1.45	.Q	.	.	.	.
11.92	0.9297	1.48	.Q	.	.	.	.
12.03	0.9441	1.50	.Q	.	.	.	.
12.15	0.9591	1.62	. Q	.	.	.	.
12.27	0.9749	1.64	. Q	.	.	.	.
12.38	0.9909	1.68	. Q	.	.	.	.
12.50	1.0071	1.70	. Q	.	.	.	.
12.62	1.0237	1.74	. Q	.	.	.	.
12.73	1.0406	1.76	. Q	.	.	.	.
12.85	1.0578	1.81	. Q	.	.	.	.
12.97	1.0753	1.83	. Q	.	.	.	.
13.08	1.0932	1.88	. Q	.	.	.	.
13.20	1.1115	1.91	. Q	.	.	.	.
13.32	1.1302	1.97	. Q	.	.	.	.
13.43	1.1493	2.00	. Q	.	.	.	.
13.55	1.1689	2.06	. Q	.	.	.	.
13.67	1.1889	2.10	. Q	.	.	.	.
13.78	1.2095	2.18	. Q	.	.	.	.
13.90	1.2307	2.22	. Q	.	.	.	.
14.02	1.2525	2.31	. Q	.	.	.	.
14.13	1.2760	2.56	. Q	.	.	.	.
14.25	1.3016	2.76	. Q	.	.	.	.
14.37	1.3285	2.82	. Q	.	.	.	.
14.48	1.3563	2.95	. Q	.	.	.	.
14.60	1.3850	3.02	. Q	.	.	.	.
14.72	1.4149	3.18	. Q	.	.	.	.
14.83	1.4460	3.27	. Q	.	.	.	.
14.95	1.4786	3.49	. Q	.	.	.	.
15.07	1.5129	3.61	. Q	.	.	.	.
15.18	1.5492	3.93	. Q	.	.	.	.
15.30	1.5880	4.12	. Q	.	.	.	.
15.42	1.6319	4.98	. Q	.	.	.	.
15.53	1.6828	5.57	. Q	.	.	.	.
15.65	1.7404	6.38	. Q	.	.	.	.
15.77	1.8038	6.77	. Q	.	.	.	.
15.88	1.8768	8.39	. .Q	.	.	.	.
16.00	1.9695	10.82	. . Q	.	.	.	.
16.12	2.1403	24.60	. . Q	.	.	.	.
16.23	2.2932	7.11	. . Q	.	.	.	.
16.35	2.3560	5.93	. . Q	.	.	.	.
16.47	2.4056	4.34	. . Q	.	.	.	.
16.58	2.4446	3.76	. . Q	.	.	.	.
16.70	2.4790	3.38	. . Q	.	.	.	.
16.82	2.5102	3.10	. . Q	.	.	.	.
16.93	2.5390	2.88	. . Q	.	.	.	.
17.05	2.5659	2.70	. . Q	.	.	.	.
17.17	2.5898	2.26	. . Q	.	.	.	.
17.28	2.6110	2.14	. . Q	.	.	.	.
17.40	2.6311	2.03	. . Q	.	.	.	.
17.52	2.6502	1.94	. . Q	.	.	.	.
17.63	2.6685	1.86	. . Q	.	.	.	.
17.75	2.6861	1.78	. . Q	.	.	.	.
17.87	2.7030	1.72	. . Q	.	.	.	.
17.98	2.7192	1.66	. . Q	.	.	.	.
18.10	2.7347	1.55	. . Q	.	.	.	.
18.22	2.7493	1.47	.Q	.	.	.	.
18.33	2.7632	1.42	.Q	.	.	.	.

18.45	2.7768	1.38	.Q	.	.	.	.
18.57	2.7899	1.35	.Q	.	.	.	.
18.68	2.8027	1.31	.Q	.	.	.	.
18.80	2.8152	1.28	.Q	.	.	.	.
18.92	2.8274	1.25	.Q	.	.	.	.
19.03	2.8393	1.22	.Q	.	.	.	.
19.15	2.8509	1.19	.Q	.	.	.	.
19.27	2.8623	1.17	.Q	.	.	.	.
19.38	2.8734	1.14	.Q	.	.	.	.
19.50	2.8843	1.12	.Q	.	.	.	.
19.62	2.8950	1.10	.Q	.	.	.	.
19.73	2.9055	1.08	.Q	.	.	.	.
19.85	2.9158	1.06	.Q	.	.	.	.
19.97	2.9260	1.04	.Q	.	.	.	.
20.08	2.9359	1.02	.Q	.	.	.	.
20.20	2.9457	1.01	.Q	.	.	.	.
20.32	2.9554	0.99	.Q	.	.	.	.
20.43	2.9648	0.98	.Q	.	.	.	.
20.55	2.9742	0.96	.Q	.	.	.	.
20.67	2.9834	0.95	.Q	.	.	.	.
20.78	2.9925	0.93	.Q	.	.	.	.
20.90	3.0014	0.92	.Q	.	.	.	.
21.02	3.0102	0.91	.Q	.	.	.	.
21.13	3.0189	0.90	.Q	.	.	.	.
21.25	3.0275	0.88	.Q	.	.	.	.
21.37	3.0360	0.87	.Q	.	.	.	.
21.48	3.0444	0.86	.Q	.	.	.	.
21.60	3.0526	0.85	.Q	.	.	.	.
21.72	3.0608	0.84	.Q	.	.	.	.
21.83	3.0689	0.83	.Q	.	.	.	.
21.95	3.0768	0.82	.Q	.	.	.	.
22.07	3.0847	0.81	.Q	.	.	.	.
22.18	3.0925	0.80	.Q	.	.	.	.
22.30	3.1003	0.80	.Q	.	.	.	.
22.42	3.1079	0.79	.Q	.	.	.	.
22.53	3.1154	0.78	.Q	.	.	.	.
22.65	3.1229	0.77	.Q	.	.	.	.
22.77	3.1303	0.76	.Q	.	.	.	.
22.88	3.1376	0.76	.Q	.	.	.	.
23.00	3.1449	0.75	Q	.	.	.	.
23.12	3.1521	0.74	Q	.	.	.	.
23.23	3.1592	0.73	Q	.	.	.	.
23.35	3.1663	0.73	Q	.	.	.	.
23.47	3.1733	0.72	Q	.	.	.	.
23.58	3.1802	0.72	Q	.	.	.	.
23.70	3.1870	0.71	Q	.	.	.	.
23.82	3.1939	0.70	Q	.	.	.	.
23.93	3.2006	0.70	Q	.	.	.	.
24.05	3.2073	0.69	Q	.	.	.	.
24.17	3.2106	0.00	Q	.	.	.	.

 TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
 (Note: 100% of Peak Flow Rate estimate assumed to have
 an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1442.0
10%	182.0
20%	63.0
30%	21.0
40%	14.0
50%	7.0
60%	7.0
70%	7.0
80%	7.0
90%	7.0

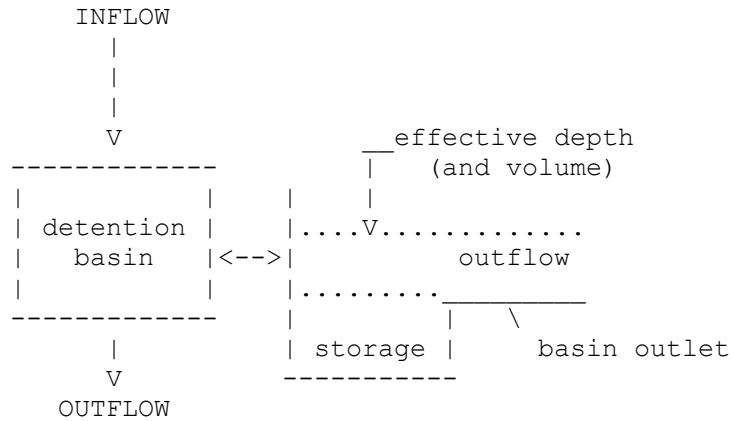
Problem Descriptions:
 AREA B - 100 YR

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FLOW-THROUGH DETENTION BASIN MODEL

SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:

CONSTANT HYDROGRAPH TIME UNIT (MINUTES) = 7.000
 DEAD STORAGE (AF) = 0.00
 SPECIFIED DEAD STORAGE (AF) FILLED = 0.00
 ASSUMED INITIAL DEPTH (FEET) IN STORAGE BASIN = 0.00



DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:

TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES = 20

* BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	** BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	*
* 0.000	0.000	0.000	** 0.130	0.016	0.190	*
* 0.250	0.043	0.190	** 0.500	0.119	0.190	*
* 0.750	0.214	0.190	** 1.000	0.324	0.190	*
* 1.250	0.446	0.360	** 1.500	0.575	0.660	*
* 1.750	0.711	0.860	** 2.000	0.851	1.010	*
* 2.250	0.995	1.140	** 2.500	1.140	1.250	*

*	2.750	1.284	1.350**	3.000	1.428	1.440*
*	3.250	1.568	1.530**	3.500	1.704	1.610*
*	3.750	1.833	1.680**	4.000	1.955	1.760*
*	4.500	2.160	2.570**	5.000	2.279	3.390*

BASIN STORAGE, OUTFLOW AND DEPTH ROUTING VALUES:

INTERVAL NUMBER	DEPTH (FEET)	{S-O*DT/2} (ACRE-FEET)	{S+O*DT/2} (ACRE-FEET)
1	0.00	0.00000	0.00000
2	0.13	0.01508	0.01692
3	0.25	0.04208	0.04392
4	0.50	0.11808	0.11992
5	0.75	0.21308	0.21492
6	1.00	0.32308	0.32492
7	1.25	0.44426	0.44774
8	1.50	0.57182	0.57818
9	1.75	0.70685	0.71515
10	2.00	0.84613	0.85587
11	2.25	0.98950	1.00050
12	2.50	1.13397	1.14603
13	2.75	1.27749	1.29051
14	3.00	1.42106	1.43494
15	3.25	1.56062	1.57538
16	3.50	1.69624	1.71176
17	3.75	1.82490	1.84110
18	4.00	1.94652	1.96348
19	4.50	2.14761	2.17239
20	5.00	2.26266	2.29534

WHERE S=STORAGE (AF) ; O=OUTFLOW (AF/MIN.) ; DT=UNIT INTERVAL (MIN.)

DETENTION BASIN ROUTING RESULTS:

NOTE: COMPUTED BASIN DEPTH, OUTFLOW, AND STORAGE QUANTITIES OCCUR AT THE GIVEN TIME. BASIN INFLOW VALUES REPRESENT THE AVERAGE INFLOW DURING THE RECENT HYDROGRAPH UNIT INTERVAL.

TIME (HRS)	DEAD-STORAGE FILLED (AF)	INFLOW (CFS)	EFFECTIVE DEPTH (FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME (AF)
0.017	0.000	0.00	0.00	0.00	0.000
0.133	0.000	0.69	0.05	0.04	0.006
0.250	0.000	0.69	0.10	0.11	0.012
0.367	0.000	0.69	0.13	0.17	0.017
0.483	0.000	0.70	0.16	0.19	0.022
0.600	0.000	0.70	0.18	0.19	0.027
0.717	0.000	0.70	0.20	0.19	0.032
0.833	0.000	0.71	0.22	0.19	0.037
0.950	0.000	0.71	0.24	0.19	0.042
1.067	0.000	0.71	0.26	0.19	0.047
1.183	0.000	0.72	0.28	0.19	0.052
1.300	0.000	0.72	0.30	0.19	0.057
1.417	0.000	0.72	0.31	0.19	0.062
1.533	0.000	0.73	0.33	0.19	0.067
1.650	0.000	0.73	0.35	0.19	0.073
1.767	0.000	0.73	0.36	0.19	0.078
1.883	0.000	0.74	0.38	0.19	0.083
2.000	0.000	0.74	0.40	0.19	0.088
2.117	0.000	0.74	0.42	0.19	0.094

2.233	0.000	0.75	0.43	0.19	0.099
2.350	0.000	0.75	0.45	0.19	0.105
2.467	0.000	0.75	0.47	0.19	0.110
2.583	0.000	0.76	0.49	0.19	0.115
2.700	0.000	0.76	0.51	0.19	0.121
2.817	0.000	0.77	0.52	0.19	0.126
2.933	0.000	0.77	0.53	0.19	0.132
3.050	0.000	0.77	0.55	0.19	0.138
3.167	0.000	0.78	0.56	0.19	0.143
3.283	0.000	0.78	0.58	0.19	0.149
3.400	0.000	0.78	0.59	0.19	0.155
3.517	0.000	0.79	0.61	0.19	0.161
3.633	0.000	0.79	0.62	0.19	0.166
3.750	0.000	0.80	0.64	0.19	0.172
3.867	0.000	0.80	0.66	0.19	0.178
3.983	0.000	0.81	0.67	0.19	0.184
4.100	0.000	0.81	0.69	0.19	0.190
4.217	0.000	0.82	0.70	0.19	0.196
4.333	0.000	0.82	0.72	0.19	0.202
4.450	0.000	0.83	0.74	0.19	0.208
4.567	0.000	0.83	0.75	0.19	0.215
4.683	0.000	0.84	0.77	0.19	0.221
4.800	0.000	0.84	0.78	0.19	0.227
4.917	0.000	0.85	0.79	0.19	0.233
5.033	0.000	0.85	0.81	0.19	0.240
5.150	0.000	0.86	0.82	0.19	0.246
5.267	0.000	0.86	0.84	0.19	0.253
5.383	0.000	0.87	0.85	0.19	0.259
5.500	0.000	0.87	0.87	0.19	0.266
5.617	0.000	0.88	0.88	0.19	0.272
5.733	0.000	0.88	0.90	0.19	0.279
5.850	0.000	0.89	0.91	0.19	0.286
5.967	0.000	0.89	0.93	0.19	0.292
6.083	0.000	0.90	0.94	0.19	0.299
6.200	0.000	0.90	0.96	0.19	0.306
6.317	0.000	0.91	0.98	0.19	0.313
6.433	0.000	0.92	0.99	0.19	0.320
6.550	0.000	0.93	1.01	0.19	0.327
6.667	0.000	0.93	1.02	0.20	0.334
6.783	0.000	0.94	1.04	0.21	0.341
6.900	0.000	0.94	1.05	0.22	0.348
7.017	0.000	0.95	1.06	0.23	0.355
7.133	0.000	0.96	1.08	0.24	0.362
7.250	0.000	0.97	1.09	0.25	0.369
7.367	0.000	0.97	1.11	0.26	0.376
7.483	0.000	0.98	1.12	0.27	0.383
7.600	0.000	0.99	1.13	0.28	0.390
7.717	0.000	1.00	1.15	0.29	0.397
7.833	0.000	1.00	1.16	0.30	0.403
7.950	0.000	1.01	1.18	0.31	0.410
8.067	0.000	1.02	1.19	0.31	0.417
8.183	0.000	1.03	1.20	0.32	0.424
8.300	0.000	1.04	1.22	0.33	0.431
8.417	0.000	1.05	1.23	0.34	0.437
8.533	0.000	1.05	1.25	0.35	0.444
8.650	0.000	1.07	1.26	0.36	0.451
8.767	0.000	1.07	1.27	0.38	0.458

8.883	0.000	1.09	1.29	0.39	0.464
9.000	0.000	1.09	1.30	0.41	0.471
9.117	0.000	1.11	1.31	0.43	0.477
9.233	0.000	1.11	1.32	0.44	0.484
9.350	0.000	1.13	1.34	0.46	0.490
9.467	0.000	1.14	1.35	0.47	0.497
9.583	0.000	1.15	1.36	0.49	0.503
9.700	0.000	1.16	1.37	0.50	0.510
9.817	0.000	1.18	1.39	0.52	0.516
9.933	0.000	1.18	1.40	0.53	0.522
10.050	0.000	1.20	1.41	0.54	0.529
10.167	0.000	1.21	1.42	0.56	0.535
10.283	0.000	1.23	1.43	0.57	0.541
10.400	0.000	1.24	1.45	0.59	0.547
10.517	0.000	1.26	1.46	0.60	0.554
10.633	0.000	1.27	1.47	0.62	0.560
10.750	0.000	1.29	1.48	0.63	0.566
10.867	0.000	1.30	1.50	0.65	0.573
10.983	0.000	1.32	1.51	0.66	0.579
11.100	0.000	1.33	1.52	0.67	0.585
11.217	0.000	1.36	1.53	0.68	0.592
11.333	0.000	1.37	1.54	0.69	0.598
11.450	0.000	1.40	1.56	0.70	0.605
11.567	0.000	1.41	1.57	0.71	0.612
11.683	0.000	1.44	1.58	0.72	0.619
11.800	0.000	1.45	1.59	0.73	0.626
11.917	0.000	1.48	1.61	0.74	0.633
12.033	0.000	1.50	1.62	0.75	0.640
12.150	0.000	1.62	1.64	0.76	0.648
12.267	0.000	1.64	1.65	0.77	0.657
12.383	0.000	1.68	1.67	0.79	0.665
12.500	0.000	1.70	1.68	0.80	0.674
12.617	0.000	1.74	1.70	0.81	0.683
12.733	0.000	1.76	1.72	0.83	0.692
12.850	0.000	1.81	1.73	0.84	0.701
12.967	0.000	1.83	1.75	0.85	0.711
13.083	0.000	1.88	1.77	0.87	0.721
13.200	0.000	1.91	1.78	0.88	0.731
13.317	0.000	1.97	1.80	0.89	0.741
13.433	0.000	2.00	1.82	0.90	0.752
13.550	0.000	2.06	1.84	0.91	0.763
13.667	0.000	2.10	1.86	0.92	0.774
13.783	0.000	2.18	1.88	0.93	0.786
13.900	0.000	2.22	1.91	0.95	0.798
14.017	0.000	2.31	1.93	0.96	0.811
14.133	0.000	2.56	1.96	0.98	0.827
14.250	0.000	2.76	1.99	0.99	0.844
14.367	0.000	2.82	2.02	1.01	0.861
14.483	0.000	2.95	2.05	1.03	0.879
14.600	0.000	3.02	2.08	1.04	0.899
14.717	0.000	3.18	2.12	1.06	0.919
14.833	0.000	3.27	2.15	1.08	0.940
14.950	0.000	3.49	2.19	1.10	0.963
15.067	0.000	3.61	2.24	1.12	0.987
15.183	0.000	3.93	2.28	1.14	1.014
15.300	0.000	4.12	2.33	1.17	1.042
15.417	0.000	4.98	2.39	1.19	1.079

15.533	0.000	5.57	2.47	1.22	1.121
15.650	0.000	6.38	2.55	1.25	1.170
15.767	0.000	6.77	2.64	1.29	1.223
15.883	0.000	8.39	2.76	1.33	1.291
16.000	0.000	10.82	2.92	1.38	1.382
16.117	0.000	24.60	3.32	1.48	1.605
16.233	0.000	7.11	3.42	1.57	1.659
16.350	0.000	5.93	3.49	1.60	1.701
16.467	0.000	4.34	3.54	1.62	1.727
16.583	0.000	3.76	3.58	1.63	1.747
16.700	0.000	3.38	3.62	1.64	1.764
16.817	0.000	3.10	3.64	1.65	1.778
16.933	0.000	2.88	3.67	1.65	1.790
17.050	0.000	2.70	3.69	1.66	1.800
17.167	0.000	2.26	3.70	1.66	1.806
17.283	0.000	2.14	3.71	1.67	1.810
17.400	0.000	2.03	3.71	1.67	1.814
17.517	0.000	1.94	3.72	1.67	1.816
17.633	0.000	1.86	3.72	1.67	1.818
17.750	0.000	1.78	3.72	1.67	1.819
17.867	0.000	1.72	3.72	1.67	1.820
17.983	0.000	1.66	3.72	1.67	1.819
18.100	0.000	1.55	3.72	1.67	1.818
18.217	0.000	1.47	3.72	1.67	1.816
18.333	0.000	1.42	3.71	1.67	1.814
18.450	0.000	1.38	3.71	1.67	1.811
18.567	0.000	1.35	3.70	1.67	1.808
18.683	0.000	1.31	3.70	1.67	1.805
18.800	0.000	1.28	3.69	1.66	1.801
18.917	0.000	1.25	3.68	1.66	1.797
19.033	0.000	1.22	3.67	1.66	1.793
19.150	0.000	1.19	3.66	1.66	1.788
19.267	0.000	1.17	3.65	1.65	1.784
19.383	0.000	1.14	3.64	1.65	1.779
19.500	0.000	1.12	3.63	1.65	1.774
19.617	0.000	1.10	3.62	1.65	1.768
19.733	0.000	1.08	3.61	1.64	1.763
19.850	0.000	1.06	3.60	1.64	1.757
19.967	0.000	1.04	3.59	1.64	1.751
20.083	0.000	1.02	3.58	1.63	1.746
20.200	0.000	1.01	3.57	1.63	1.740
20.317	0.000	0.99	3.56	1.63	1.733
20.433	0.000	0.98	3.54	1.62	1.727
20.550	0.000	0.96	3.53	1.62	1.721
20.667	0.000	0.95	3.52	1.62	1.714
20.783	0.000	0.93	3.51	1.61	1.708
20.900	0.000	0.92	3.49	1.61	1.701
21.017	0.000	0.91	3.48	1.61	1.694
21.133	0.000	0.90	3.47	1.60	1.688
21.250	0.000	0.88	3.46	1.60	1.681
21.367	0.000	0.87	3.44	1.59	1.674
21.483	0.000	0.86	3.43	1.59	1.667
21.600	0.000	0.85	3.42	1.59	1.660
21.717	0.000	0.84	3.41	1.58	1.653
21.833	0.000	0.83	3.39	1.58	1.645
21.950	0.000	0.82	3.38	1.57	1.638
22.067	0.000	0.81	3.37	1.57	1.631

22.183	0.000	0.80	3.35	1.56	1.624
22.300	0.000	0.80	3.34	1.56	1.616
22.417	0.000	0.79	3.32	1.56	1.609
22.533	0.000	0.78	3.31	1.55	1.601
22.650	0.000	0.77	3.30	1.55	1.594
22.767	0.000	0.76	3.28	1.54	1.586
22.883	0.000	0.76	3.27	1.54	1.579
23.000	0.000	0.75	3.26	1.53	1.571
23.117	0.000	0.74	3.24	1.53	1.564
23.233	0.000	0.73	3.23	1.52	1.556
23.350	0.000	0.73	3.21	1.52	1.548
23.467	0.000	0.72	3.20	1.51	1.541
23.583	0.000	0.72	3.19	1.51	1.533
23.700	0.000	0.71	3.17	1.51	1.525
23.817	0.000	0.70	3.16	1.50	1.518
23.933	0.000	0.70	3.15	1.50	1.510
24.050	0.000	0.69	3.13	1.49	1.502
24.167	0.000	0.00	3.11	1.48	1.488
24.283	0.000	0.00	3.08	1.47	1.474
24.400	0.000	0.00	3.06	1.46	1.460
24.517	0.000	0.00	3.03	1.46	1.446
24.633	0.000	0.00	3.01	1.45	1.432
24.750	0.000	0.00	2.98	1.44	1.418
24.867	0.000	0.00	2.96	1.43	1.404
24.983	0.000	0.00	2.93	1.42	1.390
25.100	0.000	0.00	2.91	1.41	1.377
25.217	0.000	0.00	2.89	1.40	1.363
25.333	0.000	0.00	2.86	1.40	1.350
25.450	0.000	0.00	2.84	1.39	1.336
25.567	0.000	0.00	2.82	1.38	1.323
25.683	0.000	0.00	2.79	1.37	1.310
25.800	0.000	0.00	2.77	1.36	1.297
25.917	0.000	0.00	2.75	1.35	1.284
26.033	0.000	0.00	2.73	1.35	1.271
26.150	0.000	0.00	2.70	1.34	1.258
26.267	0.000	0.00	2.68	1.33	1.245
26.383	0.000	0.00	2.66	1.32	1.232
26.500	0.000	0.00	2.64	1.31	1.220
26.617	0.000	0.00	2.62	1.30	1.207
26.733	0.000	0.00	2.59	1.29	1.195
26.850	0.000	0.00	2.57	1.28	1.182
26.967	0.000	0.00	2.55	1.28	1.170
27.083	0.000	0.00	2.53	1.27	1.158
27.200	0.000	0.00	2.51	1.26	1.146
27.317	0.000	0.00	2.49	1.25	1.134
27.433	0.000	0.00	2.47	1.24	1.122
27.550	0.000	0.00	2.45	1.23	1.110
27.667	0.000	0.00	2.43	1.22	1.098
27.783	0.000	0.00	2.41	1.21	1.086
27.900	0.000	0.00	2.39	1.20	1.075
28.017	0.000	0.00	2.37	1.20	1.063
28.133	0.000	0.00	2.35	1.19	1.052
28.250	0.000	0.00	2.33	1.18	1.040
28.367	0.000	0.00	2.31	1.17	1.029
28.483	0.000	0.00	2.29	1.16	1.018
28.600	0.000	0.00	2.27	1.15	1.007
28.717	0.000	0.00	2.25	1.14	0.996

28.833	0.000	0.00	2.23	1.14	0.985
28.950	0.000	0.00	2.21	1.13	0.974
29.067	0.000	0.00	2.19	1.12	0.963
29.183	0.000	0.00	2.18	1.11	0.952
29.300	0.000	0.00	2.16	1.10	0.942
29.417	0.000	0.00	2.14	1.09	0.931
29.533	0.000	0.00	2.12	1.08	0.921
29.650	0.000	0.00	2.10	1.07	0.911
29.767	0.000	0.00	2.09	1.06	0.900
29.883	0.000	0.00	2.07	1.05	0.890
30.000	0.000	0.00	2.05	1.04	0.880
30.117	0.000	0.00	2.03	1.03	0.870
30.233	0.000	0.00	2.02	1.02	0.860
30.350	0.000	0.00	2.00	1.01	0.851
30.467	0.000	0.00	1.98	1.00	0.841
30.583	0.000	0.00	1.97	0.99	0.831
30.700	0.000	0.00	1.95	0.98	0.822
30.817	0.000	0.00	1.93	0.97	0.813
30.933	0.000	0.00	1.91	0.96	0.803
31.050	0.000	0.00	1.90	0.95	0.794
31.167	0.000	0.00	1.88	0.94	0.785
31.283	0.000	0.00	1.87	0.93	0.776
31.400	0.000	0.00	1.85	0.92	0.767
31.517	0.000	0.00	1.83	0.92	0.758
31.633	0.000	0.00	1.82	0.91	0.749
31.750	0.000	0.00	1.80	0.90	0.741
31.867	0.000	0.00	1.79	0.89	0.732
31.983	0.000	0.00	1.77	0.88	0.724
32.100	0.000	0.00	1.76	0.87	0.715
32.217	0.000	0.00	1.74	0.86	0.707
32.333	0.000	0.00	1.73	0.85	0.699
32.450	0.000	0.00	1.71	0.84	0.691
32.567	0.000	0.00	1.70	0.82	0.683
32.683	0.000	0.00	1.68	0.81	0.675
32.800	0.000	0.00	1.67	0.80	0.667
32.917	0.000	0.00	1.66	0.79	0.660
33.033	0.000	0.00	1.64	0.78	0.652
33.150	0.000	0.00	1.63	0.77	0.645
33.267	0.000	0.00	1.61	0.76	0.638
33.383	0.000	0.00	1.60	0.75	0.630
33.500	0.000	0.00	1.59	0.74	0.623
33.617	0.000	0.00	1.58	0.73	0.616
33.733	0.000	0.00	1.56	0.72	0.609
33.850	0.000	0.00	1.55	0.71	0.603
33.967	0.000	0.00	1.54	0.70	0.596
34.083	0.000	0.00	1.53	0.69	0.589
34.200	0.000	0.00	1.51	0.68	0.583
34.317	0.000	0.00	1.50	0.67	0.576
34.433	0.000	0.00	1.49	0.66	0.570
34.550	0.000	0.00	1.48	0.64	0.564
34.667	0.000	0.00	1.47	0.63	0.558
34.783	0.000	0.00	1.46	0.61	0.552
34.900	0.000	0.00	1.44	0.60	0.546
35.017	0.000	0.00	1.43	0.59	0.540
35.133	0.000	0.00	1.42	0.57	0.535
35.250	0.000	0.00	1.41	0.56	0.529
35.367	0.000	0.00	1.40	0.55	0.524

35.483	0.000	0.00	1.39	0.54	0.519
35.600	0.000	0.00	1.38	0.52	0.514
35.717	0.000	0.00	1.37	0.51	0.509
35.833	0.000	0.00	1.36	0.50	0.504
35.950	0.000	0.00	1.35	0.49	0.499
36.067	0.000	0.00	1.34	0.48	0.495
36.183	0.000	0.00	1.34	0.47	0.490
36.300	0.000	0.00	1.33	0.46	0.486
36.417	0.000	0.00	1.32	0.45	0.482
36.533	0.000	0.00	1.31	0.44	0.477
36.650	0.000	0.00	1.30	0.43	0.473
36.767	0.000	0.00	1.30	0.42	0.469
36.883	0.000	0.00	1.29	0.41	0.465
37.000	0.000	0.00	1.28	0.40	0.461
37.117	0.000	0.00	1.27	0.39	0.458
37.233	0.000	0.00	1.27	0.38	0.454
37.350	0.000	0.00	1.26	0.37	0.450
37.467	0.000	0.00	1.25	0.37	0.447
37.583	0.000	0.00	1.24	0.36	0.443
37.700	0.000	0.00	1.24	0.35	0.440
37.817	0.000	0.00	1.23	0.35	0.437
37.933	0.000	0.00	1.22	0.34	0.433
38.050	0.000	0.00	1.22	0.34	0.430
38.167	0.000	0.00	1.21	0.34	0.427
38.283	0.000	0.00	1.20	0.33	0.424
38.400	0.000	0.00	1.20	0.33	0.420
38.517	0.000	0.00	1.19	0.32	0.417
38.633	0.000	0.00	1.18	0.32	0.414
38.750	0.000	0.00	1.18	0.31	0.411
38.867	0.000	0.00	1.17	0.31	0.408
38.983	0.000	0.00	1.17	0.31	0.405
39.100	0.000	0.00	1.16	0.30	0.402
39.217	0.000	0.00	1.15	0.30	0.400
39.333	0.000	0.00	1.15	0.29	0.397
39.450	0.000	0.00	1.14	0.29	0.394
39.567	0.000	0.00	1.14	0.29	0.391
39.683	0.000	0.00	1.13	0.28	0.388
39.800	0.000	0.00	1.13	0.28	0.386
39.917	0.000	0.00	1.12	0.27	0.383
40.033	0.000	0.00	1.12	0.27	0.380
40.150	0.000	0.00	1.11	0.27	0.378
40.267	0.000	0.00	1.11	0.26	0.375
40.383	0.000	0.00	1.10	0.26	0.373
40.500	0.000	0.00	1.10	0.26	0.370
40.617	0.000	0.00	1.09	0.25	0.368
40.733	0.000	0.00	1.09	0.25	0.366
40.850	0.000	0.00	1.08	0.25	0.363
40.967	0.000	0.00	1.08	0.24	0.361
41.083	0.000	0.00	1.07	0.24	0.359
41.200	0.000	0.00	1.07	0.24	0.356
41.317	0.000	0.00	1.06	0.23	0.354
41.433	0.000	0.00	1.06	0.23	0.352
41.550	0.000	0.00	1.05	0.23	0.350
41.667	0.000	0.00	1.05	0.22	0.347
41.783	0.000	0.00	1.04	0.22	0.345
41.900	0.000	0.00	1.04	0.22	0.343
42.017	0.000	0.00	1.04	0.22	0.341

42.133	0.000	0.00	1.03	0.21	0.339
42.250	0.000	0.00	1.03	0.21	0.337
42.367	0.000	0.00	1.02	0.21	0.335
42.483	0.000	0.00	1.02	0.20	0.333
42.600	0.000	0.00	1.01	0.20	0.331
42.717	0.000	0.00	1.01	0.20	0.329
42.833	0.000	0.00	1.01	0.20	0.327
42.950	0.000	0.00	1.00	0.19	0.325
43.067	0.000	0.00	1.00	0.19	0.324
43.183	0.000	0.00	0.99	0.19	0.322
43.300	0.000	0.00	0.99	0.19	0.320
43.417	0.000	0.00	0.99	0.19	0.318
43.533	0.000	0.00	0.98	0.19	0.316
43.650	0.000	0.00	0.98	0.19	0.314
43.766	0.000	0.00	0.97	0.19	0.313
43.883	0.000	0.00	0.97	0.19	0.311
44.000	0.000	0.00	0.97	0.19	0.309
44.116	0.000	0.00	0.96	0.19	0.307
44.233	0.000	0.00	0.96	0.19	0.305
44.350	0.000	0.00	0.95	0.19	0.303
44.466	0.000	0.00	0.95	0.19	0.302
44.583	0.000	0.00	0.95	0.19	0.300
44.700	0.000	0.00	0.94	0.19	0.298
44.816	0.000	0.00	0.94	0.19	0.296
44.933	0.000	0.00	0.93	0.19	0.294
45.050	0.000	0.00	0.93	0.19	0.292
45.166	0.000	0.00	0.92	0.19	0.291
45.283	0.000	0.00	0.92	0.19	0.289
45.400	0.000	0.00	0.92	0.19	0.287
45.516	0.000	0.00	0.91	0.19	0.285
45.633	0.000	0.00	0.91	0.19	0.283
45.750	0.000	0.00	0.90	0.19	0.281
45.866	0.000	0.00	0.90	0.19	0.280
45.983	0.000	0.00	0.90	0.19	0.278
46.100	0.000	0.00	0.89	0.19	0.276
46.216	0.000	0.00	0.89	0.19	0.274
46.333	0.000	0.00	0.88	0.19	0.272
46.450	0.000	0.00	0.88	0.19	0.271
46.566	0.000	0.00	0.87	0.19	0.269
46.683	0.000	0.00	0.87	0.19	0.267
46.800	0.000	0.00	0.87	0.19	0.265
46.916	0.000	0.00	0.86	0.19	0.263
47.033	0.000	0.00	0.86	0.19	0.261
47.150	0.000	0.00	0.85	0.19	0.260
47.266	0.000	0.00	0.85	0.19	0.258
47.383	0.000	0.00	0.85	0.19	0.256
47.500	0.000	0.00	0.84	0.19	0.254
47.616	0.000	0.00	0.84	0.19	0.252
47.733	0.000	0.00	0.83	0.19	0.250
47.850	0.000	0.00	0.83	0.19	0.249
47.966	0.000	0.00	0.82	0.19	0.247
48.083	0.000	0.00	0.82	0.19	0.245
48.200	0.000	0.00	0.82	0.19	0.243
48.316	0.000	0.00	0.81	0.19	0.241
48.433	0.000	0.00	0.81	0.19	0.239
48.550	0.000	0.00	0.80	0.19	0.238
48.666	0.000	0.00	0.80	0.19	0.236

48.783	0.000	0.00	0.80	0.19	0.234
48.900	0.000	0.00	0.79	0.19	0.232
49.016	0.000	0.00	0.79	0.19	0.230
49.133	0.000	0.00	0.78	0.19	0.228
49.250	0.000	0.00	0.78	0.19	0.227
49.366	0.000	0.00	0.77	0.19	0.225
49.483	0.000	0.00	0.77	0.19	0.223
49.600	0.000	0.00	0.77	0.19	0.221
49.716	0.000	0.00	0.76	0.19	0.219
49.833	0.000	0.00	0.76	0.19	0.217
49.950	0.000	0.00	0.75	0.19	0.216
50.066	0.000	0.00	0.75	0.19	0.214
50.183	0.000	0.00	0.74	0.19	0.212
50.300	0.000	0.00	0.74	0.19	0.210
50.416	0.000	0.00	0.73	0.19	0.208
50.533	0.000	0.00	0.73	0.19	0.206
50.650	0.000	0.00	0.73	0.19	0.205
50.766	0.000	0.00	0.72	0.19	0.203
50.883	0.000	0.00	0.72	0.19	0.201
51.000	0.000	0.00	0.71	0.19	0.199
51.116	0.000	0.00	0.71	0.19	0.197
51.233	0.000	0.00	0.70	0.19	0.195
51.350	0.000	0.00	0.70	0.19	0.194
51.466	0.000	0.00	0.69	0.19	0.192
51.583	0.000	0.00	0.69	0.19	0.190
51.700	0.000	0.00	0.68	0.19	0.188
51.816	0.000	0.00	0.68	0.19	0.186
51.933	0.000	0.00	0.67	0.19	0.184
52.050	0.000	0.00	0.67	0.19	0.183
52.166	0.000	0.00	0.66	0.19	0.181
52.283	0.000	0.00	0.66	0.19	0.179
52.400	0.000	0.00	0.65	0.19	0.177
52.516	0.000	0.00	0.65	0.19	0.175
52.633	0.000	0.00	0.64	0.19	0.173
52.750	0.000	0.00	0.64	0.19	0.172
52.866	0.000	0.00	0.63	0.19	0.170
52.983	0.000	0.00	0.63	0.19	0.168
53.100	0.000	0.00	0.62	0.19	0.166
53.216	0.000	0.00	0.62	0.19	0.164
53.333	0.000	0.00	0.61	0.19	0.162
53.450	0.000	0.00	0.61	0.19	0.161
53.566	0.000	0.00	0.60	0.19	0.159
53.683	0.000	0.00	0.60	0.19	0.157
53.800	0.000	0.00	0.59	0.19	0.155
53.916	0.000	0.00	0.59	0.19	0.153
54.033	0.000	0.00	0.59	0.19	0.151
54.150	0.000	0.00	0.58	0.19	0.150
54.266	0.000	0.00	0.58	0.19	0.148
54.383	0.000	0.00	0.57	0.19	0.146
54.500	0.000	0.00	0.57	0.19	0.144
54.616	0.000	0.00	0.56	0.19	0.142
54.733	0.000	0.00	0.56	0.19	0.140
54.850	0.000	0.00	0.55	0.19	0.139
54.966	0.000	0.00	0.55	0.19	0.137
55.083	0.000	0.00	0.54	0.19	0.135
55.200	0.000	0.00	0.54	0.19	0.133
55.316	0.000	0.00	0.53	0.19	0.131

55.433	0.000	0.00	0.53	0.19	0.129
55.550	0.000	0.00	0.52	0.19	0.128
55.666	0.000	0.00	0.52	0.19	0.126
55.783	0.000	0.00	0.51	0.19	0.124
55.900	0.000	0.00	0.51	0.19	0.122
56.016	0.000	0.00	0.50	0.19	0.120
56.133	0.000	0.00	0.50	0.19	0.118
56.250	0.000	0.00	0.49	0.19	0.117
56.366	0.000	0.00	0.49	0.19	0.115
56.483	0.000	0.00	0.48	0.19	0.113
56.600	0.000	0.00	0.47	0.19	0.111
56.716	0.000	0.00	0.47	0.19	0.109
56.833	0.000	0.00	0.46	0.19	0.107
56.950	0.000	0.00	0.46	0.19	0.106
57.066	0.000	0.00	0.45	0.19	0.104
57.183	0.000	0.00	0.44	0.19	0.102
57.300	0.000	0.00	0.44	0.19	0.100
57.416	0.000	0.00	0.43	0.19	0.098
57.533	0.000	0.00	0.43	0.19	0.096
57.650	0.000	0.00	0.42	0.19	0.095
57.766	0.000	0.00	0.41	0.19	0.093
57.883	0.000	0.00	0.41	0.19	0.091
58.000	0.000	0.00	0.40	0.19	0.089
58.116	0.000	0.00	0.40	0.19	0.087
58.233	0.000	0.00	0.39	0.19	0.085
58.350	0.000	0.00	0.38	0.19	0.084
58.466	0.000	0.00	0.38	0.19	0.082
58.583	0.000	0.00	0.37	0.19	0.080
58.700	0.000	0.00	0.37	0.19	0.078
58.816	0.000	0.00	0.36	0.19	0.076
58.933	0.000	0.00	0.35	0.19	0.074
59.050	0.000	0.00	0.35	0.19	0.073
59.166	0.000	0.00	0.34	0.19	0.071
59.283	0.000	0.00	0.34	0.19	0.069
59.400	0.000	0.00	0.33	0.19	0.067
59.516	0.000	0.00	0.32	0.19	0.065
59.633	0.000	0.00	0.32	0.19	0.063
59.750	0.000	0.00	0.31	0.19	0.062
59.866	0.000	0.00	0.31	0.19	0.060
59.983	0.000	0.00	0.30	0.19	0.058
60.100	0.000	0.00	0.29	0.19	0.056
60.216	0.000	0.00	0.29	0.19	0.054
60.333	0.000	0.00	0.28	0.19	0.053
60.450	0.000	0.00	0.28	0.19	0.051
60.566	0.000	0.00	0.27	0.19	0.049
60.683	0.000	0.00	0.26	0.19	0.047
60.800	0.000	0.00	0.26	0.19	0.045
60.916	0.000	0.00	0.25	0.19	0.043
61.033	0.000	0.00	0.24	0.19	0.042
61.150	0.000	0.00	0.24	0.19	0.040
61.266	0.000	0.00	0.23	0.19	0.038
61.383	0.000	0.00	0.22	0.19	0.036
61.500	0.000	0.00	0.21	0.19	0.034
61.616	0.000	0.00	0.20	0.19	0.032
61.733	0.000	0.00	0.19	0.19	0.031
61.850	0.000	0.00	0.19	0.19	0.029
61.966	0.000	0.00	0.18	0.19	0.027

62.083	0.000	0.00	0.17	0.19	0.025
62.200	0.000	0.00	0.16	0.19	0.023
62.316	0.000	0.00	0.15	0.19	0.021
62.433	0.000	0.00	0.15	0.19	0.020
62.550	0.000	0.00	0.14	0.19	0.018
62.666	0.000	0.00	0.13	0.19	0.016
62.783	0.000	0.00	0.11	0.18	0.014
62.900	0.000	0.00	0.10	0.16	0.013
63.016	0.000	0.00	0.09	0.14	0.011
63.133	0.000	0.00	0.08	0.13	0.010
63.250	0.000	0.00	0.07	0.11	0.009
63.366	0.000	0.00	0.06	0.10	0.008
63.483	0.000	0.00	0.06	0.09	0.007
63.600	0.000	0.00	0.05	0.08	0.006
63.716	0.000	0.00	0.05	0.07	0.006
63.833	0.000	0.00	0.04	0.06	0.005
63.950	0.000	0.00	0.04	0.06	0.004
64.066	0.000	0.00	0.03	0.05	0.004
64.183	0.000	0.00	0.03	0.05	0.004
64.300	0.000	0.00	0.03	0.04	0.003
64.416	0.000	0.00	0.02	0.04	0.003
64.533	0.000	0.00	0.02	0.03	0.003
64.650	0.000	0.00	0.02	0.03	0.002
64.766	0.000	0.00	0.02	0.03	0.002
64.883	0.000	0.00	0.01	0.02	0.002
65.000	0.000	0.00	0.01	0.02	0.002
65.116	0.000	0.00	0.01	0.02	0.001
65.233	0.000	0.00	0.01	0.02	0.001
65.350	0.000	0.00	0.01	0.01	0.001
65.466	0.000	0.00	0.01	0.01	0.001

