Appendix E Preliminary Hydrology Report

Appendices

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PRELIMINARY HYDROLOGY REPORT

Mercury and Berry

Brea, California

Prepared For

Manley Fanticola Holdings, LLC
330 West Birch Street
Brea, CA 92821
714.990.2405

Prepared By
Fuscoe Engineering, Inc.
16795 Von Karman, Suite 100
Irvine, California 92606
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Project Manager:
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Date Prepared: March 2019

Job Number: 1743.001.01

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TABLE OF CONTENTS

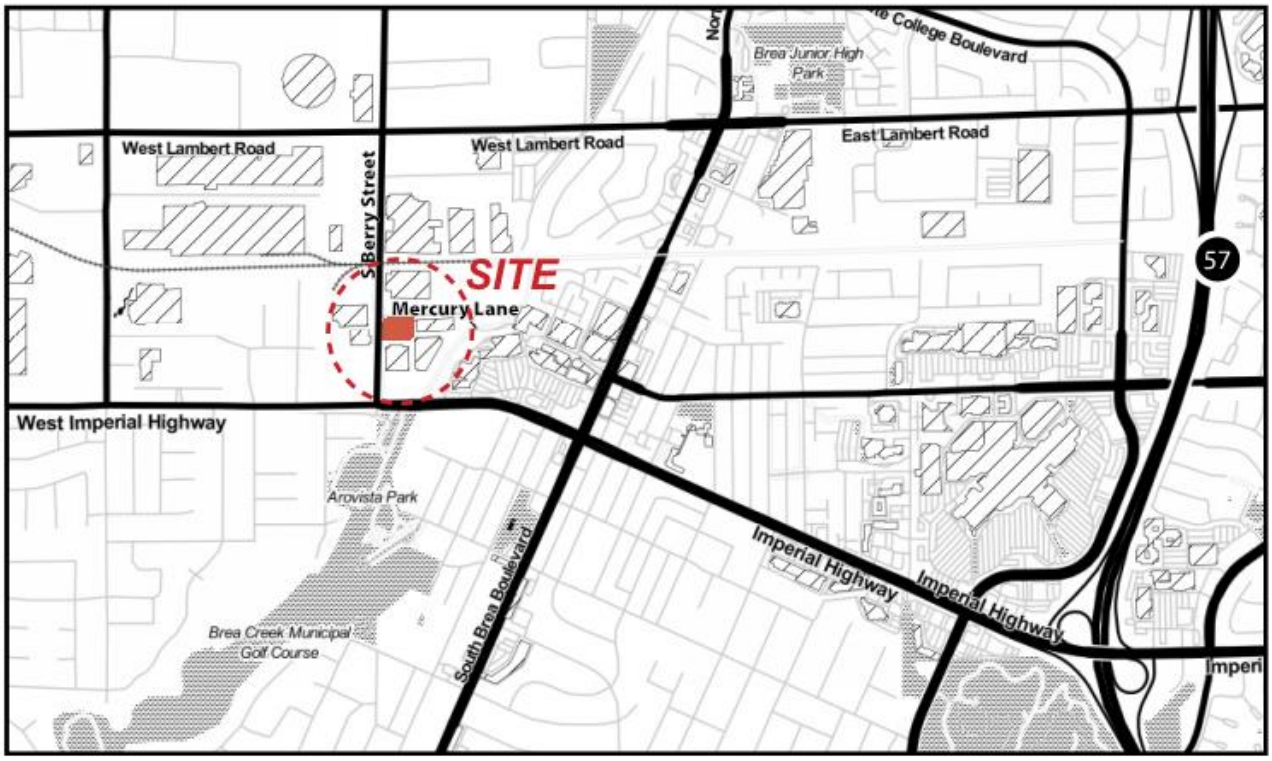
1.0 INTRODUCTION

1.1 GEOGRAPHIC SETTING

The *Mercury and Berry* project site encompasses a total area of approximately 1 acre, and is located in the city of Brea. The existing site consists of a vacant earthen lot, with minimal vegetation. Commercial development surrounds the site. There is an existing concrete gutter to the east of the easterly boundary, that drains southerly. There is an existing gutter within a drainage easement at the southeast corner of the property, which drains easterly.

The site is bounded to the north by Mercury Lane, and to the west by Berry Street. Commercial and industrial development exists to the east and south. Brea Canyon Channel, an Orange County Flood Control District (OCFCD) facility, is located about 400 feet easterly of the property. A Vicinity Map is shown below.

Vicinity Map



1.2 PROJECT DESCRIPTION

The proposed project consists of a 5-story building on-grade. The project will include 114 apartment units, along with proposed amenities. A Site Plan, prepared by Humphrey's & Partners, L.P., is included in Appendix 1 of this report.

1.3 PURPOSE OF THIS REPORT

The purpose of this report is to provide hydrologic calculations and maps for existing and proposed conditions for the proposed project.

1.4 REFERENCES

- Orange County Hydrology Manual
- A.E.S. Hydrologic Software
- Bentley Flowmaster
- Federal Emergency Management Agency (FEMA)
- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Custom Soil Resource

2.0 EXISTING DRAINAGE

2.1 EXISTING TOPOGRAPHY

The topography of the site varies, with slopes ranging from about 1-percent to approximately 3-percent. The ground surface elevation at the site varies from about 338 feet to 343 feet above mean sea level.

2.2 EXISTING DRAINAGE PATTERN

Drainage within the site is generally southerly and southeasterly, to two discharge locations, as follows. The westerly1/3 of the site drains to the adjacent property to the south. The easterly 2/3 of the site drains to an existing gutter within a drainage easement at the southeast corner of the site. The documentation for this drainage easement, including title report, is included in Appendix 2 of this report. The drainage easement conveys the drainage to Brea Canyon Channel, a County of Orange facility. Brea Canyon Channel is located approximately 400 feet easterly of the project site.

The site does not currently drain to either of the public roadways, Berry Street or Mercury Lane.

2.3 EXISTING STORM DRAIN FACILITIES

There are no existing underground storm drain facilities within the site.

There is an existing storm drain in Berry Street, to the west, which collects and conveys street drainage. Site drainage is not currently tributary to this storm drain.

2.4 FEMA

The project is included on Community Panel Map Number 06059C0041J, dated 12/3/2009. Although the project is included in Shaded-Zone X (0.2-percent/500-year chance flood hazard), the site is not within the 100-year flood zone. Since the project is outside of the 100-year flood zone, a CLOMR/LOMR will not be required. A copy of the FEMA Map (FIRMETTE) is included in Appendix 3.

3.0 PROPOSED DRAINAGE

The proposed project will drain to the discharge location at the southeast corner of the property, and outlet into the existing gutter, which is within an easement (Appendix 2). From there, the drainage is currently, and will be conveyed to the Brea Canyon Channel, located approximately 400 feet to the east of the property. A proposed roof drain and area drain system will convey the stormwater to the discharge location, via an underground detention system, which has been designed to ensure that the proposed condition flows do not exceed those of the existing condition for the discharge location at the southeast corner.

4.0 HYDROLOGY

4.1 STORM FREQUENCY

In order to provide for the required detention, the following storm events were evaluated:

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

4.2 METHODOLOGY

This study was prepared in conformance with the Orange County Hydrology Manual. A.E.S. Computer Software was utilized to compile the hydrologic data and to determine the peak discharges. The Soil Resource Report was used to confirm the soil type for the project, which is entirely soil type "C". The Web Soil Survey report is included in Appendix 4.

The Rational Method calculations were performed to determine the existing and proposed (unmitigated) runoff (Q's) that are tributary to the southeast corner of the site. The Rational Method parameters from the proposed calculations were then used to prepare proposed condition hydrographs and flood routing calculations.

The required detention volume was determined through an iterative flood routing process, with the goal of ensuring that the onsite developed flows at the discharge point (southeast corner) do not exceed the existing condition flows to that discharge point. The required volumes utilize proposed storage pipes, along with available storage volumes in the ponding depths and media/gravel voids in the the proposed water quality flow-through planters.

The following is the required volume used in the flood hydrograph routing calculations:

- Raised Planter Ponding Volume: 1,875 cubic feet
- Planter Media (20%) and gravel (40%) voids: 3,750 cubic feet
- 300 lineal feet 24-inch diameter pipe: 942 cubic feet
- Total storage volume provided: 6,567 cubic feet (=0.151 acre-feet)

The Existing Condition Rational Method Hydrology Calculations are included in Appendix 5. The Proposed Condition Rational Method Calculations are included in Appendix 6. The Flood Hydrograph Routing Calculations are included in Appendix 7. The Existing and Proposed Condition Hydrology Maps are included in Appendix 8.

5.0 RESULTS AND CONCLUSIONS

As discussed in this report, the existing condition consists of an earthen lot, while the proposed condition consists of a mixed-use development. The proposed condition will increase the imperviousness of the 1-acre project site, thus will cause an increase in proposed condition runoff. In addition, the existing condition includes two discharge locations, while the proposed development will convey the drainage to an existing drainage easement at the southeast corner of the property. To ensure that the proposed condition discharge rates do not exceed those of the existing condition at the southeast corner, a detention system will be required, which will utilize the raised planter structures, along with underground proposed pipe system. The detention system will accept the site runoff, including roof runoff, and convey it though the detention system, and outlet it at the existing drainage easement at the southeast corner.

The proposed detention system will ensure that, at the southeast corner discharge point, the discharges for the various storm events for the proposed condition will not exceed those of the existing condition. The results of the existing and proposed condition design hydrology analyses are shown in the following table.

Table 1 – Runoff at Southeast Corner

	Q_2	Q_{10}	Q_{25}	Q_{100}
Existing (0.67 ac)	0.7 cfs	1.4 cfs	1.7 cfs	2.2 cfs
Proposed (unmitigated) (1.0 acre)	1.6 cfs	2.9 cfs	3.5 cfs	4.4 cfs
Proposed (mitigated) (1.0 acre)	0.7 cfs	1.4 cfs	1.6 cfs	1.8 cfs

As discussed in this report, the storage volume will be provided using a combination of planter ponding depth and media and gravel voids, along with 300 lineal feet of 24-inch diameter pipe. The proposed site drainage will be directed to the detention system, before discharging to the existing drainage easement to the southeast of the property. From there, the drainage will be conveyed to Brea Canyon Channel, which is located approximately 400 feet easterly of the project site. The calculations and exhibits are included in the appendices of this report.

6.0 APPENDICES

Appendix 1 *Site Plan*

Appendix 2 *Title Report & Drainage Easement*

Appendix 3 *FEMA Map*

Appendix 4 *Web Soil Survey*

Appendix 5 *Existing Conditoin Rational Method Hydrology Calculations*

Appendix 6 *Proposed Condition Rational Method Hydrology Calculations*

Appendix 7 *Flood Hydrograph Routing Calculations*

Appendix 8 *Existing and Proposed Conditoin Hydrology Maps*

Appendix 1

Site Plan

NOTE: THIS PROJECT IS A NEW PROPOSED APARTMENT COMMUNITY

PROJECT SUMMARY

RESIDENTIAL	#	NET SF*		deck	total NRSF	Ave NSF	Mix
Units between 450-649 sf							
FP-1	3	452		-	1,356		
FP-1a	2	452		-	904		
FP-2c	1	458		-	458		
FP-2	69	458		-	31,602		
FP-2a	6	458		-	2,748		
FP-2b	3	458		-	1,374		
FP-3	2	596		-	1,192		
Subtotal:	**86**				39,634	461	75.4%
Units between 650-799 sf							
FP-4	15	651		-	9,765		
FP-5	9	675		-	6,075		
Subtotal:	**24**				15,840	660	21.1%
Units ≥800 sf							
FP-6	4	1,111		-	4,444		
Subtotal:	**4**				4,444	1,111	3.5%
Total	**114**			**-**	**59,918**	**526**	

*NOTE: sf taken to outside of walls and CL of parti walls

*NOTE: sf is approx. and subject to change as more information is known

SITE SUMMARY:

SITE AREA:	1.01 AC (44,038 SF)
PROPOSED UNITS:	114 DU
PROPOSED DENSITY	112.8 DU/AC
PROPOSED BUILDING HEIGHT:	~68' TOP OF STRUCTURE

BUILDING FAR :

SITE AREA:	44,038 SF
PROPOSED GROSS BUILDING SF:	~ 90,579 SF
PROPOSED F.A.R.	2.06
LOT COVERAGE:	~35,099 SF (79.7% OF SITE)

PROPOSED BUILDING GROSS SF.

Floor Area Provided:	Residential/ Stair/ Cor.	Amenity	Garage/ Storage/ Bike	Subtotal	Open Space
Level 6:	190	-	-	**190**	1,498
Level 5:	24,836	-	-	**24,836**	-
Level 4:	24,836	-	-	**24,836**	-
Level 3:	23,053	1,773	-	**24,826**	9,317
Level 2:	8,628	-	22,722	**31,350**	-
Level 1:	945	3,310	30,844	**35,099**	-
Total Floor Area Provided:	**82,488**	**5,083**	**53,566**	**141,137**	**10,815**

Parking Required:

	# du	Ratio	Total
Units between 450-649 sf	86	1.00	86
Units between 650-799 sf	24	1.00	24
Units ≥800 sf	4	2.00	8
Subtotal:	114		**118**
	# du	Ratio	Total
Guest:	114	0	**0**
Total Stalls Required:			**118**

PROJECT DESCRIPTION:

THE PROJECT IS A PROPSOED NEW 114 UNIT APARTMENT COMMUNITY IN THE CITY OF BREA. THE PROJECT CONSISTS OF 3-LEVEL TYPE-VA RESIDENTS OVER 2-STORY TYPE-IA MIXED USE RESIDENTS, PARKING GARAGE AND AMENITY.

Parking Provided:

	Standard 9'6"x19'	T-Front 9'6"x19'	T-Rear 9'6"x19'	Compact 8'0"x16'	Handicap 9'6"x19'	Total
Level 1:	44	-	-	14	4	**62**
Level 2:	27	3	3	22	1	**56**
Subtotal:	**71**	**3**	**3**	**36**	**5**	**118**
Guest:	-	-	-	-	-	**0**
	60.2%	2.5%	2.5%	30.5%	4.2%	
Total Stalls Provided:						**118**

TOTAL PROPOSED PARKING SPACES ON SITE: 118

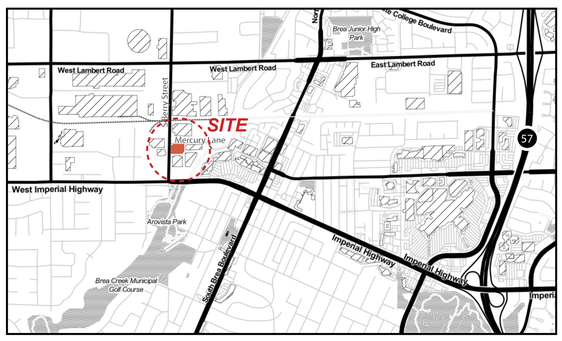
SURFACE PARKING SPACES PROPOSED: 0
GARAGE PARKING SPACES PROPOSED: 118

OPEN SPACE SUMMARY:

COMMON OPEN SPACE PROVIDED:	~ 9,317 SF COURTYARD (LEVEL 3)
	~ 1,498 SF SKY DECK (LEVEL 6)
	~ 1,773 SF CLUBRROOM AMENITY (LEVEL 3)
	~ 1,744 SF FITNESS AND FLEX AMENITY (LEVEL 1)
PRIVATE OPEN SPACE PROVIDED:	OPEN SPACE PROPOSED TO BE COMMON.

Sheet Index

Vicinity Map



Date: 11/29/2018
Job #:13578

MERCURY AND BERRY

BREA, CA

DRAFT CITY RESUBMITTAL SET

DEVELOPER/ APPLICANT:
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DAN@HPLASTUDIO.COM

ARCHITECT:
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P: 949.955.9400
CONTACT: DANIEL GEHMAN
DANIEL@HUMPHREYS.COM

Appendix 2

Title Report & Drainage Easement

EQUITY TITLE COMPANY

450 EXCHANGE, STE 200
IRVINE, CA 92602
PHONE: (714) 972-4200
FAX: (800) 668-6950

DATED AS OF FEBRUARY 26, 2018 AT 7:30 A.M.

MF MANAGEMENT
330 W. BIRCH E201
BREA, CA 92821

YOUR NO.:
PROPERTY ADDRESS: APN: 296-141-05

ATTENTION: SHANNON WATSON

ORDER NO.: OR1850914
TITLE OFFICER: CINDY J MACNEIL
EMAIL: IRVINE05@EQUITYTITLE.COM

"PRELIMINARY REPORT"

IN RESPONSE TO THE ABOVE REFERENCED APPLICATION FOR A POLICY OF TITLE INSURANCE, **EQUITY TITLE COMPANY** HEREBY REPORTS THAT IT IS PREPARED TO ISSUE, OR CAUSE TO BE ISSUED, AS OF THE DATE HEREOF, A POLICY OR POLICIES OF TITLE INSURANCE DESCRIBING THE LAND AND THE ESTATE OR INTEREST THEREIN HEREINAFTER SET FORTH, INSURING AGAINST LOSS WHICH MAY BE SUSTAINED BY REASON OF ANY DEFECT, LIEN OR ENCUMBRANCE NOT SHOWN OR REFERRED TO AS AN EXCEPTION BELOW OR NOT EXCLUDED FROM COVERAGE PURSUANT TO THE PRINTED SCHEDULES, CONDITIONS AND STIPULATIONS OF SAID POLICY FORMS.

THE PRINTED EXCEPTIONS AND EXCLUSIONS FROM THE COVERAGE OF SAID POLICY OR POLICIES ARE SET FORTH IN EXHIBIT B ATTACHED. THE POLICY TO BE ISSUED MAY CONTAIN AN ARBITRATION CLAUSE. WHEN THE AMOUNT OF INSURANCE IS LESS THAN THAT SET FORTH IN THE ARBITRATION CLAUSE, ALL ARBITRABLE MATTERS SHALL BE ARBITRATED AT THE OPTION OF EITHER THE COMPANY OR THE INSURED AS THE EXCLUSIVE REMEDY OF THE PARTIES. LIMITATIONS ON COVERED RISKS APPLICABLE TO THE CLTA AND ALTA HOMEOWNER'S POLICIES OF TITLE INSURANCE WHICH ESTABLISH A DEDUCTIBLE AMOUNT AND A MAXIMUM DOLLAR LIMIT OF LIABILITY FOR CERTAIN COVERAGES ARE SET FORTH IN THE POLICY. COPIES OF THE POLICY FORMS SHOULD BE READ. THEY ARE AVAILABLE FROM THE OFFICE THAT ISSUED THIS REPORT.

PLEASE READ THE EXCEPTIONS SHOWN OR REFERRED TO BELOW AND THE EXCEPTIONS AND EXCLUSIONS SET FORTH IN EXHIBIT B OF THIS REPORT CAREFULLY. THE EXCEPTIONS AND EXCLUSIONS ARE MEANT TO PROVIDE YOU WITH NOTICE OF MATTERS WHICH ARE NOT COVERED UNDER THE TERMS OF THE TITLE INSURANCE POLICY AND SHOULD BE CAREFULLY CONSIDERED.

IT IS IMPORTANT TO NOTE THAT THIS PRELIMINARY REPORT IS NOT A WRITTEN REPRESENTATION AS TO THE CONDITION OF TITLE AND MAY NOT LIST ALL LIENS, DEFECTS AND ENCUMBRANCES AFFECTING TITLE TO THE LAND.

THIS REPORT (AND ANY SUPPLEMENTS OR AMENDMENTS HERETO) IS ISSUED SOLELY FOR THE PURPOSE OF FACILITATING THE ISSUANCE OF A POLICY OF TITLE INSURANCE AND NO LIABILITY IS ASSUMED HEREBY. IF IT IS DESIRED THAT LIABILITY BE ASSUMED PRIOR TO THE ISSUANCE OF A POLICY OF TITLE INSURANCE, A BINDER OR COMMITMENT SHOULD BE REQUESTED.

THE FORM OF POLICY OF TITLE INSURANCE CONTEMPLATED BY THIS REPORT IS:

ALTA/CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE, IF APPLICABLE, OR

CLTA/ALTA STANDARD OWNER'S POLICY; AND/OR

ALTA LOAN POLICY, IF APPLICABLE, OR CLTA STANDARD LOAN POLICY

A SPECIFIC REQUEST SHOULD BE MADE IF ANOTHER FORM OR ADDITIONAL COVERAGE IS DESIRED.

SCHEDULE A

THE ESTATE OR INTEREST IN THE LAND HEREINAFTER DESCRIBED OR REFERRED TO COVERED BY THIS REPORT IS:

A FEE

TITLE TO SAID ESTATE OR INTEREST AT THE DATE HEREOF IS VESTED IN:

ONE BERRY, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY

THE LAND REFERRED TO IN THIS REPORT IS SITUATED IN THE COUNTY OF ORANGE, STATE OF CALIFORNIA AND IS DESCRIBED AS FOLLOWS:

SEE EXHIBIT "A" ATTACHED HERETO

EXHIBIT "A"

PARCEL NO. 3, IN THE CITY OF BREA, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP FILED IN BOOK 96, PAGES 32 AND 33 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY, CALIFORNIA.

EXCEPTING 50 PERCENT OF ALL OIL, GAS, AND OTHER HYDROCARBON SUBSTANCES IN AND UNDER SAID LAND, AS GRANTED TO MRS. L. E. WELLER, A MARRIED WOMAN, IN DEED RECORDED MAY 23, 1958 IN BOOK 4294, PAGE 486 OF OFFICIAL RECORDS.

NOTE: RECORDED JULY 1, 1953 IN BOOK 6813, PAGE 540 OF OFFICIAL RECORDS IS A DEED FROM J.W. KING AND WIFE TO SEYMOUR JASPER AND WIFE CONVEYING ALL THEIR RIGHTS, TITLE AND INTEREST TO ENTER UPON AND TO USE FOR ANY PURPOSE THE SURFACE, OF SUBSURFACE TO A DEPTH OF 500 FEET FROM THE SURFACE OF THE HEREIN DESCRIBED AND OTHER LAND.

*****END OF LEGAL DESCRIPTION*****

SCHEDULE B

AT THE DATE HEREOF EXCEPTIONS TO COVERAGE IN ADDITION TO THE PRINTED EXCEPTIONS AND EXCLUSIONS IN SAID POLICY FORM DESIGNATED ON THE FACE PAGE OF THIS REPORT WOULD BE AS FOLLOWS:

A. GENERAL AND SPECIAL TAXES FOR THE FISCAL YEAR 2018-2019, A LIEN NOT YET DUE OR PAYABLE.

B. GENERAL AND SPECIAL TAXES FOR THE FISCAL YEAR 2017-2018

TOTAL:	$10,917.20	
FIRST INSTALLMENT:	$5,458.60	PAID
SECOND INSTALLMENT:	$5,458.60	OPEN

ASSESSED VALUATION:	
LAND VALUE:	$990,268.00
IMPROVEMENTS:	$0.00
EXEMPTION:	$0.00

CODE AREA:	02-012
A. P. NO.:	296-141-05

C. THE LIEN OF SUPPLEMENTAL TAXES ASSESSED PURSUANT TO CHAPTER 3.5 COMMENCING WITH SECTION 75 OF THE CALIFORNIA REVENUE AND TAXATION CODE.

1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS.

2. THE EFFECT OF A MAP PURPORTING TO SHOW THE HEREIN DESCRIBED AND OTHER LAND RECORDED IN BOOK 12, PAGE 47 OF RECORD OF SURVEYS.

3. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES.

RECORDED:	IN BOOK 8213, PAGE 482, OF OFFICIAL RECORDS.
AFFECTS:	THE WESTERLY 10 FEET OF SAID LAND

4. THE EFFECT OF A MAP PURPORTING TO SHOW THE HEREIN DESCRIBED AND OTHER LAND RECORDED IN BOOK 96, PAGE 13 OF RECORD OF SURVEY.

5. THE FACT THAT THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE STREET OR HIGHWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED BY THE MAP OF SAID TRACT.

AFFECTS: BERRY STREET

SAID LAND, HOWEVER, ABUTS ON A PUBLIC THOROUGHFARE OTHER THAN THE STREET OR HIGHWAY REFERRED TO ABOVE, OVER WHICH RIGHTS OF VEHICULAR INGRESS AND EGRESS HAVE NOT BEEN RELINQUISHED.

6. COVENANTS, CONDITIONS AND RESTRICTIONS, WHICH PROVIDE THAT A VIOLATION THEREOF SHALL NOT DEFEAT OR RENDER INVALID THE LIEN OF ANY FIRST MORTGAGE OR DEED OF TRUST MADE IN GOOD FAITH AND FOR VALUE, BUT DELETING ANY COVENANT, CONDITION OR RESTRICTION INDICATING A PREFERENCE, LIMITATION OR DISCRIMINATION BASED ON RACE, COLOR, RELIGION, SEX, HANDICAP, FAMILIAL STATUS, NATIONAL ORIGIN, SEXUAL ORIENTATION, MARITAL STATUS, ANCESTRY, SOURCE OF INCOME OR DISABILITY, TO THE EXTENT SUCH COVENANTS, CONDITIONS OR RESTRICTIONS VIOLATE TITLE 42, SECTION 3604(C), OF THE UNITED STATES CODES OR SECTION 12955 OF THE CALIFORNIA GOVERNMENT CODE. LAWFUL RESTRICTIONS UNDER STATE AND FEDERAL LAW ON THE AGE OF OCCUPANTS IN SENIOR HOUSING OR HOUSING FOR OLDER PERSONS SHALL NOT BE CONSTRUED AS RESTRICTIONS BASED ON FAMILIAL STATUS.

   RECORDED: IN BOOK 12244, PAGE 967, OF OFFICIAL RECORDS.

7. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES.

   RECORDED: IN BOOK 12333, PAGE 60, OF OFFICIAL RECORDS.
   AFFECTS: THE NORTHERLY 4 FEET OF THE EASTERLY 25 FEET OF SAID LAND.

8. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES.

   RECORDED: IN BOOK 12333, PAGE 351, OF OFFICIAL RECORDS.
   AFFECTS: THE WESTERLY 4 FEET OF SAID LAND

9. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES.

   RECORDED: AUGUST 17, 1977 IN BOOK 12341, PAGE 571, OF OFFICIAL RECORDS.
   AFFECTS: THE SOUTHERLY 15 FEET OF SAID LAND

   THE EFFECT OF A MAP PURPORTING TO SHOW THE HEREIN DESCRIBED AND OTHER LAND RECORDED IN BOOK 113, PAGE 13 OF RECORD OF SURVEYS.

10. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "ORDINANLE NO. 1003 OF THE CITY OF BREA ADOPTING THE 1997 AMENDMENT TO THE REDEVELOPMENT PLAN FOR PROJECT AREA AB" RECORDED DECEMBER 2, 1997 AS INSTRUMENT NO. 19970619480, OF OFFICIAL RECORDS.

11. RIGHTS OF PARTIES IN POSSESSION OF SAID LAND BY REASON OF ANY UNRECORDED LEASES.

    PLEASE SUBMIT ANY SUCH LEASES TO THIS COMPANY FOR OUR EXAMINATION.

12. ANY FACTS, RIGHTS, INTERESTS OR CLAIMS WHICH WOULD BE DISCLOSED BY A CORRECT ALTA/NSPS SURVEY.

13. **OUR EXAMINATION OF RECORD TITLE TO THE HEREIN DESCRIBED LAND DOES NOT DISCLOSE ANY EXISTING LOANS. WE THEREFORE REQUIRE THE OWNERS DECLARATION ATTACHED HERETO BE SIGNED, NOTARIZED, AND RETURNED TO US BEFORE RECORDING.**

14. ANY DEFECTS, LIENS, ENCUMBRANCES OR OTHER MATTERS WHICH NAME PARTIES WITH THE SAME OR SIMILAR NAMES AS THE VESTEES.

15. ANY FACTS ABOUT THE LAND THAT AN INSPECTION OR INQUIRY OF PARTIES IN POSSESSION SATISFACTORY TO THE COMPANY WOULD DISCLOSE AND THAT ARE NOT SHOWN BY THE PUBLIC RECORDS.

REQUIREMENTS:

16. PRIOR TO THE ISSUANCE OF ANY POLICY OF TITLE INSURANCE, THE COMPANY WILL REQUIRE:

A. THE RECEIPT AND REVIEW OF THE COMPLETED OWNER'S AFFIDAVIT SUBJECT TO FURTHER REQUIREMENTS OF THIS COMPANY.

B. THE NAME SEARCH NECESSARY TO ASCERTAIN THE EXISTENCE OF MATTERS REFERRED TO IN ITEM NO. 14 HAS NOT BEEN COMPLETED. IN ORDER TO COMPLETE THIS PRELIMINARY REPORT OR COMMITMENT, WE WILL REQUIRE A STATEMENT OF INFORMATION.

IMPORTANT: PLEASE FORWARD THE STATEMENT OF INFORMATION TO US AS SOON AS POSSIBLE, BUT NO LATER THAN 10 WORKING DAYS BEFORE CLOSING. THIS WILL HELP TO AVOID ANY LAST MINUTE DELAYS WITH YOUR CLOSING AND RECORDING.

17. WITH RESPECT TO ONE BERRY, LLC, A CALIFORNIA, LIMITED LIABILITY COMPANY:

A. A COPY OF ITS OPERATING AGREEMENT AND ANY AMENDMENTS THERETO;

B. IF IT IS A CALIFORNIA LIMITED LIABILITY COMPANY, THAT A CERTIFIED COPY OF ITS ARTICLES OF ORGANIZATION (LLC-1) AND ANY CERTIFICATE OF CORRECTION (LLC-11), CERTIFICATE OF AMENDMENT (LLC-2), OR RESTATEMENT OF ARTICLES OF ORGANIZATION (LLC-10) BE RECORDED IN THE PUBLIC RECORDS;

C. IF IT IS A FOREIGN LIMITED LIABILITY COMPANY, THAT A CERTIFIED COPY OF ITS APPLICATION FOR REGISTRATION (LLC-5) BE RECORDED IN THE PUBLIC RECORDS;

D. WITH RESPECT TO ANY DEED, DEED OF TRUST, LEASE, SUBORDINATION AGREEMENT OR OTHER DOCUMENT OR INSTRUMENT EXECUTED BY SUCH LIMITED LIABILITY COMPANY AND PRESENTED FOR RECORDATION BY THE COMPANY OR UPON WHICH THE COMPANY IS ASKED TO RELY, THAT SUCH DOCUMENT OR INSTRUMENT BE EXECUTED IN ACCORDANCE WITH ONE OF THE FOLLOWING, AS APPROPRIATE:

(I) IF THE LIMITED LIABILITY COMPANY PROPERLY OPERATES THROUGH OFFICERS APPOINTED OR ELECTED PURSUANT TO THE TERMS OF A WRITTEN OPERATING AGREEMENT, SUCH DOCUMENT MUST BE EXECUTED BY AT LEAST TWO DULY ELECTED OR APPOINTED OFFICERS, AS FOLLOWS: THE CHAIRMAN OF THE BOARD, THE PRESIDENT OR ANY VICE PRESIDENT, AND ANY SECRETARY, ASSISTANT SECRETARY, THE CHIEF FINANCIAL OFFICER OR ANY ASSISTANT TREASURER;

(II) IF THE LIMITED LIABILITY COMPANY PROPERLY OPERATES THROUGH A MANAGER OR MANAGERS IDENTIFIED IN THE ARTICLES OF ORGANIZATION AND/OR DULY ELECTED PURSUANT TO THE TERMS OF A WRITTEN OPERATING AGREEMENT, SUCH DOCUMENT MUST BE EXECUTED BY AT LEAST TWO SUCH MANAGERS OR BY ONE MANAGER IF THE LIMITED LIABILITY COMPANY PROPERLY OPERATES WITH THE EXISTENCE OF ONLY ONE MANAGER.

E. OTHER REQUIREMENTS WHICH THE COMPANY MAY IMPOSE FOLLOWING ITS REVIEW OF THE MATERIAL REQUIRED HEREIN AND OTHER INFORMATION WHICH THE COMPANY MAY REQUIRE.

*****END OF SCHEDULE B*****

Statement of Information

EQUITY TITLE COMPANY maintains procedural safeguards that comply with federal standards to protect the confidentiality and security of non-public personal information. This statement will serve to establish identity, eliminate matters affecting persons of similar name, protect you against forgeries, and speed the completion of your title and escrow services. **PLEASE BE SURE YOU HAVE FILLED THIS FORM OUT COMPLETELY; INCLUDING SIGNATURES AND DATE. NOT PROVIDING REQUESTED INFORMATION MAY CAUSE A DELAY IN THE CLOSE OF YOUR TRANSACTION. - THANK YOU -**

FOR ONLINE VERSION OF THIS FORM CLICK HERE FOR MORE INFORMATION ON THIS FORM CLICK HERE

ESCROW NO._____ TITLE ORDER: OR1850914

NAME_____ SOC.SEC. NUMBER_____
FIRST FULL MIDDLE NAME LAST
DRIVER'S LICENSE NUMBER_____

DATE OF BIRTH_____ BIRTHPLACE_____ HOME PHONE_____

YOUR BUSINESS PHONE_____ YOUR CELL PHONE_____ YOUR FAX_____

YOUR E-MAIL_____ SPOUSE/DOMESTIC PARTNER E-MAIL_____

LIVED IN USA SINCE_____ LIVED IN CALIFORNIA SINCE_____

(CIRCLE ONE) NAME OF SPOUSE/ DOMESTIC PARTNER_____ SOC. SEC. NUMBER_____
FIRST FULL MIDDLE NAME LAST
DRIVER'S LICENSE NUMBER_____

DATE OF BIRTH_____ BIRTHPLACE_____ PREVIOUS NAME_____

SPOUSE/DOMESTIC PARTNER BUSINESS PHONE_____ CELL PHONE_____ FAX_____

LIVED IN USA SINCE_____ LIVED IN CALIFORNIA SINCE_____

IF MARRIED, OR IN A DOMESTIC PARTNERSHIP, DATE: _____ AT_____
CITY AND STATE

PREVIOUS MARRIAGE(S) OR DOMESTIC PARTNERSHIP(S) (if no previous marriage or domestic partnership, write "NONE"):

(CIRCLE ONE) NAME OF FORMER SPOUSE/DOMESTIC PARTNER_____ DECEASED DIVORCED DATE_____ WHERE_____

(CIRCLE ONE) NAME OF FORMER SPOUSE/DOMESTIC PARTNER_____ DECEASED DIVORCED DATE_____ WHERE_____

(ATTACH ADDITIONAL PAGE, IF NECESSARY)

CHILDREN:

NAME _____ DATE OF BIRTH _____ NAME _____ DATE OF BIRTH _____

NAME _____ DATE OF BIRTH _____ NAME _____ DATE OF BIRTH _____

(ATTACH ADDITIONAL PAGE, IF NECESSARY)

INFORMATION COVERING PAST 10 YEARS.

Residence:

NUMBER AND STREET	CITY	ZIP CODE	FROM	TO
NUMBER AND STREET	CITY	ZIP CODE	FROM	TO
NUMBER AND STREET	CITY	ZIP CODE	FROM	TO

Your Employment:

FIRM NAME AND ADDRESS	CITY	ZIP CODE	FROM	TO
FIRM NAME AND ADDRESS	CITY	ZIP CODE	FROM	TO
FIRM NAME AND ADDRESS	CITY	ZIP CODE	FROM	TO

Spouse/Domestic Partner Employment:

FIRM NAME AND ADDRESS	CITY	ZIP CODE	FROM	TO
FIRM NAME AND ADDRESS	CITY	ZIP CODE	FROM	TO
FIRM NAME AND ADDRESS	CITY	ZIP CODE	FROM	TO

HAVE YOU OR YOUR SPOUSE/DOMESTIC PARTNER OWNED OR OPERATED A BUSINESS?

☐ YES ☐ NO IF SO, PLEASE LIST NAMES_____

I HAVE NEVER BEEN ADJUDGED BANKRUPT, NOR ARE THERE ANY UNSATISFIED JUDGMENTS OR OTHER MATTERS PENDING AGAINST ME WHICH MIGHT AFFECT MY TITLE TO THIS PROPERTY EXCEPT AS FOLLOWS:

_____

THE STREET ADDRESS OF THE PROPERTY IN THIS TRANSACTION IS: VACANT

The undersigned declare, under penalty of perjury, that the foregoing is true and correct.

Date:_____ X_____
(SIGNATURE)

Date:_____ X_____
(SPOUSE/DOMESTIC PARTNER SIGNATURE)

OWNER'S DECLARATION

Owner's of Record: _____
(Type or Print)

Each for Himself and or Herself, declare: That to my/our personal knowledge there are NO encumbrances in the form of a Mortgage or Deed of Trust against the property in this transaction.
That this declaration is made for the protection of all parties to this transaction, and particularly for the benefit of Equity Title Company, which is about to insure the title to said property in reliance thereon, and any other title company which may hereafter insure the title to said property.
That under penalty of perjury I/We will testify, declare, depose, or certify before any competent tribunal, officer, or person, in any case now pending or which may hereafter be instituted, to the truth of particular facts hereinabove set forth.
TITLE ORDER: OR1850914
PROPERTY ADDRESS: VACANT , , CA

_____ _____
Owners of Record Signature Owners of Record Signature

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of _____

On _____ before me, _____,

A Notary Public personally appeared _____

_____

_____

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

Owners Affidavit:

In connection with the property located at: VACANT
, CA

The undersigned Owner(s) (if more than one, each jointly and severally) ("OWNER") of the above described Property, makes the following statements, declarations, representations and warranties to EQUITY TITLE COMPANY ("Company") and to Underwriter:

[___] 1. Owner warrants and represents that I/we is/are the owner of the property, that they have no pending court proceedings including but not limited to bankruptcies or unsatisfied judgment(s) of record, or in any court. No State of California, Federal, or any other tax liens filed or taxes assessed against them which may result in liens against the real property involved in this transaction, including notices, citations and violations imposed by the covenants, conditions and restrictions, bylaw and rules and regulations of any homeowners' association.

[___] 2. Owner represents that they have not contracted for, ordered, or agreed to the supplying of any labor, materials or construction-related services for construction for improvements on the Property, or for remodeling, renovation, repair or other maintenance or construction of any improvements located on said Property.

[___] 3. Owner represents that they know of no claims, encroachments, rights, interests, easements, rights of way, liens, agreements, notices, options, contracts, HOA charges or fees, HOA liens, or other matters affecting the Property, whether verbal, written, unrecorded, or appearing in the public records.

[___] 4. Owner represents that they have not leased, permitted or granted to any other person or entity, verbally, in writing or otherwise, any right to use, possess, occupy or inhabit the Property or any part thereof for any purpose, and no other person has or claims any present right to use or possess the Property.

[___] 5. Owner understands that Title Company and Underwriter will rely on the statements, declarations, representations and warranties herein to close the transaction of which this affidavit and report referenced herein are material parts, and to issue a policy or policies of title insurance on the Property, and Owner agrees to indemnify and hold Title Company and/or Underwriter harmless from and against any loss or damage either or both may sustain, including, but not limited, to reasonable attorney's fees and all court costs should any of the statements, declarations, representations and warranties herein be incorrect.

EXCEPTIONS: [___] There are no exceptions to the above statements
[___] The only exceptions to the above statements are:

Date: _____

_____ _____
(SIGNATURE) (SIGNATURE)

NOTES:

WE DEPOSIT FUNDS RECEIVED ON YOUR BEHALF IN STATE OR FEDERALLY-CHARTERED BANKS THAT ARE INSURED BY THE FEDERAL DEPOSIT INSURANCE CORPORATION ("FDIC"). THE ACCOUNT IS CURRENTLY HELD AT COMERICA BANK.

FDIC DEPOSIT INSURANCE COVERAGE APPLIES TO A MAXIMUM AMOUNT OF $250,000 PER DEPOSITOR FOR DEPOSITS HELD IN THE SAME LEGAL OWNERSHIP CATEGORY AT EACH BANK. FOR EXAMPLE, FUNDS HELD ON YOUR BEHALF IN AN ACCOUNT MAINTAINED BY US WILL BE COMBINED WITH ANY INDIVIDUAL ACCOUNTS HELD DIRECTLY BY YOU AT THE SAME BANK. YOU ARE RESPONSIBLE FOR MONITORING THE TOTAL AMOUNT OF DEPOSITS THAT ARE OWNED DIRECTLY OR INDIRECTLY BY YOU IN ANY ONE BANK.

IF YOU HAVE QUESTIONS ABOUT FDIC DEPOSIT INSURANCE, CONTACT YOUR FINANCIAL OR LEGAL ADVISORS OR GO TO HTTP://WWW.FDIC.GOV/DEPOSIT/DEPOSITS/INDEX.HTML. WE DO NOT GUARANTEE THE SOLVENCY OF ANY BANK INTO WHICH FUNDS ARE DEPOSITED AND WE ASSUME NO LIABILITY FOR ANY LOSS YOU INCUR DUE TO THE FAILURE, INSOLVENCY OR SUSPENSION OF OPERATIONS OF ANY BANK OR THE $250,000 FDIC DEPOSIT INSURANCE LIMIT.

UNLESS OTHERWISE AGREED IN WRITING, EACH OF THE PRINCIPALS AGREES, UNDERSTANDS AND ACKNOWLEDGES THAT: THE ESCROW ACCOUNT IS NON-INTEREST-BEARING; NO FINANCIAL OR OTHER BENEFITS WILL BE EARNED BY OR PROVIDED TO ANY OF THE PRINCIPALS WITH RESPECT TO SUCH FUNDS' AND EQUITY TITLE COMPANY AND ITS AFFILIATES MAY INSTEAD RECEIVE DIRECT AND INDIRECT FINANCIAL AND OTHER BENEFITS FROM THE DEPOSITORY WITH RESPECT TO SUCH FUNDS THESE BENEFITS SHALL BE TREATED AS ADDITIONAL COMPENSATION TO EQUITY TITLE COMPANY FOR ITS SERVICES AS AN ESCROW HOLDER IN THIS TRANSACTION.

NOTE: IF APPLICABLE, AND UNLESS OTHERWISE DIRECTED IN WRITING, EQUITY TITLE COMPANY ISSUES THE **ALTA HOME OWNER'S POLICY** ON RESIDENTIAL PROPERTY SALE TRANSACTIONS.

NOTE: THIS COMPANY REQUIRES CURRENT BENEFICIARY DEMANDS PRIOR TO CLOSING. NO PAYOFFS WILL BE MADE USING "VERBAL" FIGURES

NOTE: EFFECTIVE JANUARY 1, 1990, ASSEMBLY BILL 512, ENACTED AS CHAPTER 598, WILL ADD SECTION 12413.1 TO THE CALIFORNIA INSURANCE CODE DEALING WITH THE "GOOD FUNDS" ISSUE. FUNDS DEPOSITED BY:

- CASH AND BY ELECTRONIC TRANSFER (WIRED FUNDS) WILL BE AVAILABLE FOR SAME DAY DISBURSEMENTS.
- CASHIER'S CHECKS, CERTIFIED CHECKS AND TELLER'S CHECKS WILL BE AVAILABLE FOR NEXT DAY DISBURSEMENTS.
- ALL OTHER TYPES OF CHECKS WILL NOT BE AVAILABLE FOR DISBURSEMENT UNTIL THE DAY PROVIDED IN REGULATION CC ADOPTED BY THE FEDERAL RESERVE BOARD OF GOVERNORS.
- A DRAFT WILL NOT BE AVAILABLE FOR DISBURSEMENT UNTIL THE DRAFT HAS BEEN SUBMITTED FOR COLLECTION AND PAYMENT RECEIVED BY OUR BANK.

PLEASE NOTE: THIS COMPANY WILL MAKE DISBURSEMENTS ONLY IN THE SAME MANNER AS WHICH FUNDS ARE RECEIVED. SHOULD THIS COMPANY BE REQUESTED TO MAKE ANY DISBURSEMENTS BY ELECTRONIC TRANSFER (WIRED FUNDS), THIS COMPANY WILL REQUIRE FUNDS TO BE DEPOSITED TO OUR ACCOUNT BY ELECTRONIC TRANSFER.

EQUITY TITLE COMPANY

450 EXCHANGE, STE 200
IRVINE, CA 92602
PHONE: (714) 972-4200

ATTENTION:

YOUR NO.: APN: 296-141-05
OUR NO.: OR1850914
DATE: FEBRUARY 26, 2018 AT 7:30 A.M.

CINDY J MACNEIL, TITLE OFFICER

LENDERS SUPPLEMENTAL REPORT

THE ABOVE NUMBERED REPORT (INCLUDING ANY SUPPLEMENTS OR AMENDMENTS THERETO) IS HEREBY MODIFIED AND/OR SUPPLEMENTED IN ORDER TO REFLECT THE FOLLOWING ADDITIONAL ITEMS RELATING TO THE ISSUANCE OF AN AMERICAN LAND TITLE ASSOCIATION LOAN FORM POLICY AS FOLLOWS:

KNOWN AS

COMMERCIAL VACANT LAND/APN: 296-141-05

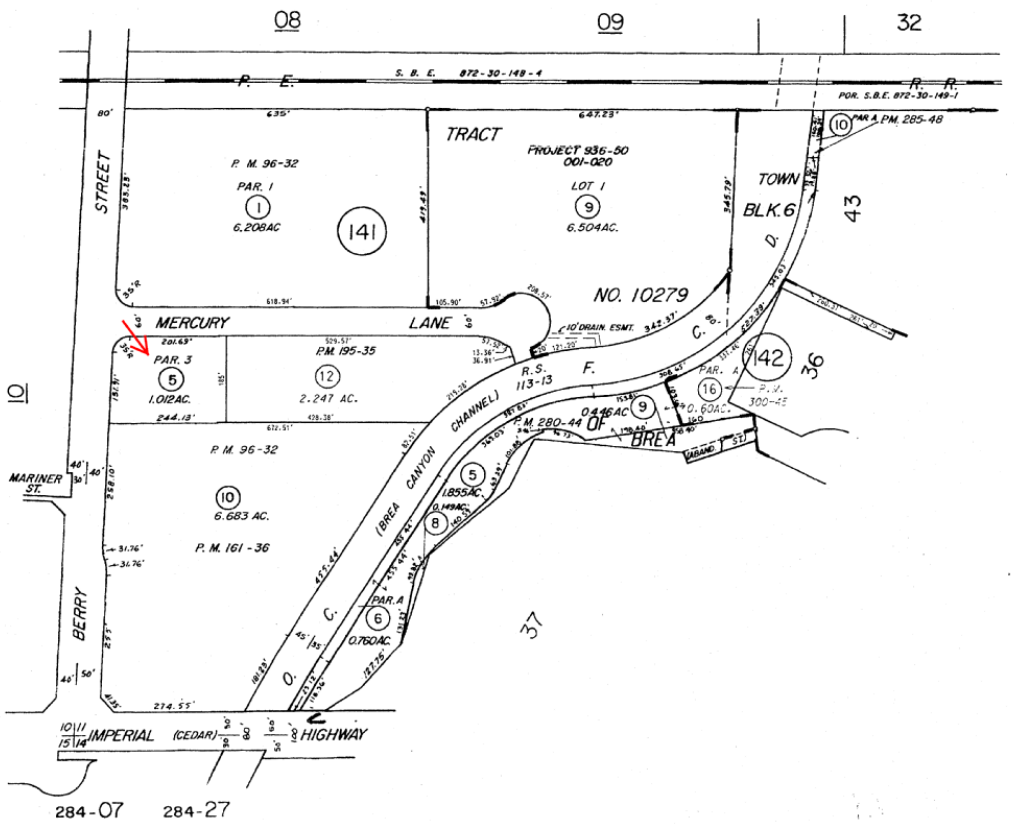
ACCORDING TO THE PUBLIC RECORDS, THERE HAVE BEEN NO DEEDS CONVEYING THE LAND DESCRIBED HEREIN WITHIN A PERIOD OF TWENTY-FOUR (24) MONTHS PRIOR TO THE DATE OF THIS REPORT, EXCEPT AS FOLLOWS:

NONE.

Description: Orange,CA Assessor Map 296.14 Page: 1 of 2
Order: 1850914 Comment:

POR. SW 1/4, SW 1/4, SEC. 11, T 3 S, R 10 W

296-14



MARCH 1978

TOWN OF BREA
TRACT NO. 10279
PARCEL MAP

M.M. 7-2,3,4
M.M. 444-18, 19
P.M. 96-32, 195-35, 280-44, 285-48
286-49, 300-45

NOTE – ASSESSOR'S BLOCK & PARCEL NUMBERS SHOWN IN CIRCLES

ASSESSOR'S MAP
BOOK 296 PAGE 14
COUNTY OF ORANGE

ORDER NO. OR1850914

FACTS

WHAT DOES EQUITY TITLE COMPANY DO WITH YOUR PERSONAL INFORMATION?

Why?	Financial companies choose how they share your personal information. Federal law gives consumers the right to limit some but not all sharing. Federal law also requires us to tell you how we collect, share, and protect your personal information. Please read this notice carefully to understand what we do.
What?	The types of personal information we collect and share depend on the product or service you have with us. This information can include: ■ Social Security number and account balances ■ payment history and credit card or other debt ■ checking account information and wire transfer instructions When you are *no longer* our customer, we continue to share your information as described in this notice.
How?	All financial companies need to share customers' personal information to run their everyday business. In the section below, we list the reasons financial companies can share their customers' personal information; the reasons EQUITY TITLE COMPANY chooses to share; and whether you can limit this sharing.

Reasons we can share your personal information	Does EQUITY TITLE COMPANY share?	Can you limit this sharing?
For our everyday business purposes— such as to process your transactions, maintain your account(s), respond to court orders and legal investigations, or report to credit bureaus	Yes	No
For our marketing purposes— to offer our products and services to you	No	We don't share
For joint marketing with other financial companies	No	We don't share
For our affiliates' everyday business purposes— information about your transactions and experiences	Yes	No
For our affiliates' everyday business purposes— information about your creditworthiness	No	We don't share
For our affiliates to market to you	No	We don't share
For nonaffiliates to market to you	No	We don't share

Questions?	www.titleresources.com

Who we are	
Who is providing this notice?	EQUITY TITLE COMPANY

What we do	
How does EQUITY TITLE COMPANY **protect my personal information?**	To protect your personal information from unauthorized access and use, we use security measures that comply with federal law. These measures include computer safeguards and secured files and buildings.
How does EQUITY TITLE COMPANY **collect my personal information?**	We collect your personal information, for example, when you ■ apply for insurance or pay insurance premiums ■ provide your mortgage information or show your driver's license ■ give us your contact information We also collect your personal information from others, such as credit bureaus, affiliates, or other companies.
Why can't I limit all sharing?	Federal law gives you the right to limit only ■ Sharing for affiliates' everyday business purposes—information about your creditworthiness ■ Affiliates from using your information to market to you ■ Sharing for nonaffiliates to market to you State laws and individual companies may give you additional rights to limit sharing.

Definitions	
Affiliates	Companies related by common ownership or control. They can be financial and nonfinancial companies. ■ *Our affiliates include companies that are owned in whole or in part by Realogy Holdings Corp., such as Better Homes and Gardens® Real Estate, CENTURY 21®, Coldwell Banker®, Coldwell Banker Commercial®, The Corcoran Group®, ERA®, Sotheby's International Realty®, ZipRealty®, NRT LLC, Cartus and Title Resource Group.*
Nonaffiliates	Companies not related by common ownership or control. They can be financial and nonfinancial companies. ■ *EQUITY TITLE COMPANY does not share with nonaffiliates so they can market to you*
Joint marketing	A formal agreement between nonaffiliated financial companies that together market financial products or services to you. ■ *EQUITY TITLE COMPANY does not share with nonaffiliated financial companies for joint marketing purposes*

EQUITY TITLE COMPANY

Available Discounts

EQUITY TITLE COMPANY is pleased to inform you that upon proper qualification, there are premium discounts available upon the purchase of title insurance covering improved property with a one to four family residential dwelling.
Such discounts could apply to:

- Property located within an area proclaimed a state or federal disaster area
- Property purchased from a foreclosing beneficiary or successful bidder at a foreclosure sale
- Property being refinanced

Please talk with your title officer to determine your qualification for any of these discounts.

EXHIBIT B (Revised 11-01-2014)
LIST OF PRINTED EXCEPTIONS AND EXCLUSIONS (By Policy Type)

1. CALIFORNIA LAND TITLE ASSOCIATION STANDARD COVERAGE POLICY – 1990 (Revised 04/08/14)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims, or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable "doing business" laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate or interest insured by their policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B PART 1

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records. Proceedings by a public agency which may result in taxes or assessments, or notice of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

2. CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE 2013 / ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE 2013 (Revised 12/02/13)

Covered Risks 16 (Subdivision Law Violation), 18 (Building Permit), 19 (Zoning) and 21 (Encroachment of boundary walls or fences) are subject to Deductible Amounts and Maximum Dollar Limits of Liability

EXCLUSIONS FROM COVERAGE

In addition to the exceptions in Schedule B, you are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of any law or government regulation. This includes building and zoning ordinances and also laws and regulations concerning:
   (a) building
   (b) zoning
   (c) land use;
   (d) improvements on the land
   (e) land division
   (f) environmental protection.
   This exclusion does not limit the coverage described in Covered Risk 8a, 14, 15, 16, 18, 19, 20, 23, or 27.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit coverage described in Covered Risk 14 or 15.
3. The right to take the land by condemning it This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
   (a) that are created, allowed, or agreed to by You, whether or not they appear in the Public Records;
   (b) that are Known to You at the Policy Date, but not to Us, unless they appear in the Public Records at the Policy Date;
   (c) that result in no loss to You; or
   (d) that first occur after the Policy Date -- this does not limit the coverage described in Covered Risk 7, 8.e, 25, 26, 27, or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
   (a) to any Land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   (b) in streets, alleys, or waterways that touch the Land.
   This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditor's rights laws.
8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

3. ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (12/02/13)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorney's fees or expenses which arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations.
   This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or

(e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
(a) a fraudulent conveyance or fraudulent transfer, or
(b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.
10. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
11. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

4. 2006 ALTA LOAN POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:
1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
(i) the occupancy, use, or enjoyment of the Land;
(ii) the character, dimensions, or location of any improvement erected on the Land;
(iii) the subdivision of land; or environmental protection;
or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
(a) created, suffered, assumed, or agreed to by the Insured Claimant;
(b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
(c) resulting in no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
(e)resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
(a) a fraudulent conveyance or fraudulent transfer, or
(b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:
1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.

5. 2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:
1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
(i) the occupancy, use, or enjoyment of the Land;
(ii) the character, dimensions, or location of any improvement erected on the Land;
(iii) the subdivision of land; or
(iv) environmental protection;
or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
(a) created, suffered, assumed, or agreed to by the Insured Claimant;
(b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
(c) resulting in no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
(e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
(a) a fraudulent conveyance or fraudulent transfer; or
(b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:
1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown in the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and that are not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.

To Our Valued Customers,

The following information is provided to you in compliance with Senate Bill No. 1148 and Assembly Bill No. 877 enacted by the California Legislature in September 1999 and October 2011 respectively. That legislation requires the following disclosure to our clients receiving copies of recorded documents:

"If this document contains any restriction based on race, color, religion, sex, sexual orientation, familial status, marital status, disability, national origin, ancestry, source of income as defined in subdivision (p) of Section 12955, genetic information, gender, gender identity, that restriction violates state and federal fair housing laws and is void. Any person holding an interest in this property may request that the county recorder remove the restrictive covenant language pursuant to subdivision [c] of Section 12956.1 of the Government Code. Furthermore, such restrictions are deleted from this document to the extent such restrictions violate 42 U.S.C. 3604 [c]."

29880

RECORDING REQUESTED BY
AND WHEN RECORDED MAIL TO:

R. C. JEWETT
1303 W. VALENCIA DR.
FULLERTON, CA. 92633

$6.00
C12

RECORDED IN OFFICIAL RECORDS
OF ORANGE COUNTY, CALIFORNIA
12 00 PM AUG 17 1977
L. WYLIE CARLYLE, County Recorder

DECLARATION OF EASEMENT

THIS DECLARATION made July 29, 1977, by SHOP CITY BREA ASSOCIATES LIMITED PARTNERSHIP, a California limited partnership, hereinafter referred to as Declarant.

WHEREAS Declarant is the owner of that certain property situated in the City of Brea, County of Orange, State of California, described as follows:

Parcels 3, 4, 5, and 6, as per map recorded in Book 96, pages 32 and 33 of Parcel Maps, records of said Orange County, California.

WHEREAS Declarant hereby establishes an easement for drainage and underground sewer over and under said property, which easements are more particularly described as they relate to Parcels 3, 4, 5, and 6, of said Parcel Map as follows:

(1) An easement appurtenant to Parcel 6 for an underground sewer to be used in common with Parcel 3 of said Parcel Map described as follows:

The Westerly 15.00 feet of the Southerly 15.00 feet of Parcel 3.

(2) An easement appurtenant to Parcel 3 for drainage purposes to be used in common with the owners of Parcels 4 and 5 of said Parcel Map described as follows:

The Southerly 4.00 feet of Parcels 4 and 5.

(3) An easement appurtenant to Parcel 4 for drainage purposes to be used in common with the owners of Parcels 3 and 5 of said Parcel Map described as follows:

The Southerly 5.00 feet of Parcel 5.

(4) An easement appurtenant to Parcels 3, 4 and 5 for drainage purposes to be used in common with the owners of Parcel 6 of said Parcel Map described as follows:

The Southeasterly 32.00 feet of Parcel 6.

WHEREAS Declarant will convey each of said parcels subject to this declaration.

NOW THEREFORE, Declarant does hereby declare that the above described property is held and shall be held, conveyed, hypothecated or encumbered, leased, rented, used, occupied and improved subject to all of the provisions of this

declaration. This declaration shall constitute and be deemed an equitable servitude upon all of the subject property, shall run with the land, and shall be binding upon and shall inure to the benefit of all persons having or hereafter acquiring any right, title or interest in the subject property.

1. Each of the owners of any of the parcels within the subject property shall be responsible for the initial development and cost of improvements on his own parcel, provided however, such owner shall have the right to develop, at his own cost, any initial improvements reasonable or necessary on easements appurtenant to his parcel.

2. After the initial development of the improvements in or on an easement, each of the parcels burdened by the easement or to which the easement is appurtenant shall thereafter share equally in the cost of repair and maintenance of that portion of the easement by which it is burdened or to which it is appurtenant.

3. The respective owners of the parcels burdened by or appurtenant to a portion of any easement shall collectively determine the times and manner of repair and maintenance of that portion of the easement, the time and manner of payment therefor, and all other matters relating to the repair or maintenance of said easements. Said owners shall be responsible for making any payments so determined and joint owners of any parcel shall be jointly and severally liable therefor. Any person performing repair or maintenance on an easement and any person who has paid for any repair or maintenance of an easement, whether an owner or otherwise may enforce contribution or payment against any delinquent owner by either or both of the following procedures:

A. An action at law may be commenced in any court of competent jurisdiction for the amount of the delinquency, together with interest thereon at the rate of 10% per annum from the date of delinquency, court costs, and reasonable attorney's fees, or

B. There is hereby created the right to a claim of lien, with power of sale, on each parcel within the subject property to secure payment or contribution of amounts due for repair and maintenance of said easements, together with interest thereon at the rate of 10% per annum from the date of delinquency, and all costs of collection, including reasonable attorney's fees. At any time within 120 days after an amount becomes due from any owner of a parcel on account of the repair or maintenance of an easement, the person to whom the amount is owed may elect to record a claim of lien against the parcel of the defaulting owner. Such a claim of lien shall be executed and acknowledged and shall contain substantially the following information:

(i) Name of the defaulting owner(s).

(ii) Legal description, street address, and assessor's parcel number of the parcel against which claim of lien is made.

(iii) Nature of the delinquency.

(iv) Total amount claimed to be due and owing for the amount of the delinquency, interest thereon, collection costs, reasonable attorney's fees, and any allowable offsets.

(v) That the claim of lien is made pursuant to this declaration.

(vi) That a lien is claimed against said parcel in an amount equal to the delinquency, interest, collection costs, and attorney's fees.

Upon recordation of a duly executed original or copy of such claim of lien, the lien claimed shall immediately attach and become effective. Any such lien may be foreclosed by appropriate action in court or in the manner provided by law for the foreclosure of a deed of trust with power of sale.

4. This declaration may be modified at any time upon the recorded written agreement of all of the owners of all of the parcels within the subject property, except that the signature of one joint owner of any parcel shall be binding upon each of the other joint owners of that parcel.

5. None of the rights created hereunder nor any breach of any of the provisions of this declaration shall defeat or render invalid the lien of any holder of any indebtedness, or the renewal, extension or refinance thereof, made in good faith and for value, and secured by any recorded deed of trust upon such parcel, and the liens created hereby upon any parcel shall be subject and subordinate thereto, provided that, immediately after the exercise of any power of sale or court foreclosure of any such deed of trust by sale of such parcel, this declaration and any lien created or authorized hereunder shall be binding upon and effective against any owner whose title is derived through such trustee's sale or court foreclosure.

IN WITNESS WHEREOF, Declarant has caused this declaration to be duly executed.

SHOP CITY BREA ASSOCIATES LIMITED PARTNERSHIP,
by its General Partners:

R. C. JEWETT

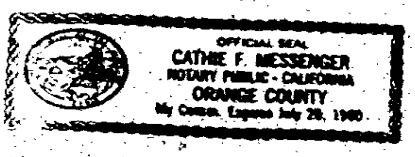
R. C. JEWETT INCORPORATED,
a California corporation

By: R. C. JEWETT, President

By: J. L. BALLARD, Secretary

STATE OF CALIFORNIA)
) ss
COUNTY OF ORANGE)

On August 16, 1977, before me, the undersigned, a Notary Public in and for said County and State, personally appeared R. C. JEWETT known to me to be one of the partners of SHOP CITY BREA ASSOCIATES LIMITED PARTNERSHIP, the partnership that executed the within instrument and acknowledged to me that such partnership executed the same.

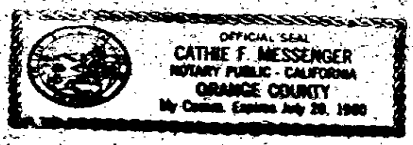


NOTARY PUBLIC IN AND FOR SAID
COUNTY AND STATE

STATE OF CALIFORNIA)
) ss
COUNTY OF ORANGE)

On August 16, 1977, before me, the undersigned, a Notary Public in and for said County and State, personally appeared R. C. JEWETT and J. L. BALLARD, known to me to be the President and Secretary respectively of R. C. JEWETT INCORPORATED, the corporation that executed the within instrument and known to me to be the persons who executed the within instrument on behalf of said corporation, said corporation being known to me to be one of the General Partners of SHOP CITY BREA ASSOCIATES LIMITED PARTNERSHIP, the partnership that executed the within instrument and acknowledged to me that such corporation executed the same as such General Partner and that such limited partnership executed the same.

NOTARY PUBLIC IN AND FOR SAID
COUNTY AND STATE



Appendix 3

FEMA Map

National Flood Hazard Layer FIRMette

FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth
- Regulatory Floodway *Zone AE, AO, AH, VE, AR*

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/21/2018 at 7:35:05 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix 4

Web Soil Survey

United States Department of Agriculture

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 Orange County and Part of Riverside County, 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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Map Scale: 1:648 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 30 60 120 180

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: Orange County and Part of Riverside County, California
Survey Area Data: Version 11, Sep 12, 2017

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

Date(s) aerial images were photographed: May 16, 2014—Jul 2, 2014

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

MAP LEGEND

MAP INFORMATION

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
206	Sorrento loam, 0 to 2 percent slopes, warm MAAT, MLRA 19	1.2	57.2%
209	Sorrento clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19	0.9	42.8%
Totals for Area of Interest		**2.0**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Orange County and Part of Riverside County, California

206—Sorrento loam, 0 to 2 percent slopes, warm MAAT, MLRA 19

Map Unit Setting

National map unit symbol: 2tz09
Elevation: 20 to 1,100 feet
Mean annual precipitation: 13 to 19 inches
Mean annual air temperature: 61 to 65 degrees F
Frost-free period: 330 to 360 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Sorrento

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from sedimentary rock

Typical profile

A - 0 to 12 inches: loam
C - 12 to 37 inches: silty clay loam
Ck - 37 to 62 inches: silty clay loam
2C - 62 to 72 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 11.3 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: C
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

Minor Components

Mocho

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

Sorrento, noncalcareous

Percent of map unit: 3 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Bolsa, drained

Percent of map unit: 2 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Anacapa

Percent of map unit: 2 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Garretson

Percent of map unit: 2 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Pico

Percent of map unit: 1 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

209—Sorrento clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19

Map Unit Setting

National map unit symbol: 2tz07
Elevation: 20 to 2,040 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 62 to 66 degrees F
Frost-free period: 320 to 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Sorrento and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sorrento

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

Ap1 - 0 to 6 inches: clay loam
Ap2 - 6 to 12 inches: clay loam
AB1 - 12 to 21 inches: silty clay loam
AB2 - 21 to 27 inches: silty clay loam
AB3 - 27 to 37 inches: silty clay loam
Bk1 - 37 to 49 inches: silty clay loam
Bk2 - 49 to 62 inches: silty clay loam
2C - 62 to 72 inches: stratified loamy fine sand to silt loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 11.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: CLAYEY (1975) (R019XD001CA)
Hydric soil rating: No

Minor Components

Sorrento, loam

Percent of map unit: 10 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

Mocho

Percent of map unit: 10 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

Botella

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: CLAYEY (1975) (R019XD001CA)
Hydric soil rating: No

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Appendix 5

Existing Condition

Rational Method Hydrology Calculations

```
******************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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             Ver. 21.0  Release Date: 06/01/2014  License ID 1355

                          Analysis prepared by:

                            Fuscoe Engineering
                             16795 Von Karman
                                Suite 210
                             Irvine CA 92606

 ************************* DESCRIPTION OF STUDY *************************
* MERCURY BERRY                                                         *
* EXISTING HYDROLOGY                                                    *
* 2 YEAR STORM EVENT                                                    *
 ************************************************************************

  FILE NAME: MB02EX.DAT
  TIME/DATE OF STUDY: 08:50 03/14/2019
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

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

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

******************************************************************************
  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) =   185.00
  ELEVATION DATA: UPSTREAM(FEET) =    343.30  DOWNSTREAM(FEET) =    341.10

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.280
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.497
  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.)
  NATURAL POOR COVER
  "BARREN"                   C        0.33      0.25     1.000    80   10.28
```

```
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      0.37
  TOTAL AREA(ACRES) =      0.33   PEAK FLOW RATE(CFS) =      0.37

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     12.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    343.30  DOWNSTREAM(FEET) =    337.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.397
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.411
  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.)
  NATURAL POOR COVER
  "BARREN"                  C        0.67      0.25     1.000    80   11.40
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      0.70
  TOTAL AREA(ACRES) =      0.67   PEAK FLOW RATE(CFS) =      0.70

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        0.70   11.40    1.411  0.25( 0.25) 1.00       0.7      10.00
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     300.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        0.37   10.28    1.497  0.25( 0.25) 1.00       0.3      10.00
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     185.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.05   10.28    1.497  0.25( 0.25) 1.00       0.9      10.00
      2        1.04   11.40    1.411  0.25( 0.25) 1.00       1.0      10.00
    TOTAL AREA(ACRES) =         1.0

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =        1.05  Tc(MIN.) =   10.280
  EFFECTIVE AREA(ACRES) =      0.93  AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =        1.0
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     300.00 FEET.
============================================================================
```

```
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =     10.28
  EFFECTIVE AREA(ACRES) =       0.93  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =       1.05

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.05   10.28    1.497  0.25( 0.25) 1.00       0.9      10.00
      2        1.04   11.40    1.411  0.25( 0.25) 1.00       1.0      10.00
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

4

```
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                          Analysis prepared by:

                            Fuscoe Engineering
                             16795 Von Karman
                                Suite 210
                             Irvine CA 92606

 ************************* DESCRIPTION OF STUDY *************************
* MERCURY BERRY                                                         *
* EXISTING HYDROLOGY                                                    *
* 10 YEAR STORM EVENT                                                   *
 ************************************************************************

  FILE NAME: MB10EX.DAT
  TIME/DATE OF STUDY: 08:54 03/14/2019
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *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) =   185.00
  ELEVATION DATA: UPSTREAM(FEET) =    343.30  DOWNSTREAM(FEET) =    341.10

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.280
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.686
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "BARREN"                   C        0.33      0.25     1.000    91   10.28
```

```
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      0.72
  TOTAL AREA(ACRES) =      0.33   PEAK FLOW RATE(CFS) =      0.72

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     12.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    343.30  DOWNSTREAM(FEET) =    337.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.397
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.532
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "BARREN"                  C        0.67      0.25     1.000    91   11.40
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      1.38
  TOTAL AREA(ACRES) =      0.67   PEAK FLOW RATE(CFS) =      1.38

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.38   11.40    2.532  0.25( 0.25) 1.00       0.7      10.00
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     300.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        0.72   10.28    2.686  0.25( 0.25) 1.00       0.3      10.00
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     185.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        2.05   10.28    2.686  0.25( 0.25) 1.00       0.9      10.00
      2        2.05   11.40    2.532  0.25( 0.25) 1.00       1.0      10.00
    TOTAL AREA(ACRES) =         1.0

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =        2.05  Tc(MIN.) =   11.397
  EFFECTIVE AREA(ACRES) =      1.00  AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =        1.0
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     300.00 FEET.
============================================================================
```

```
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =     11.40
  EFFECTIVE AREA(ACRES) =      1.00  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =       2.05

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        2.05   10.28    2.686  0.25( 0.25) 1.00       0.9      10.00
      2        2.05   11.40    2.532  0.25( 0.25) 1.00       1.0      10.00
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
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                          Analysis prepared by:

                            Fuscoe Engineering
                             16795 Von Karman
                                Suite 210
                             Irvine CA 92606

 ************************ DESCRIPTION OF STUDY ************************
* MERCURY BERRY                                                       *
* EXISTING HYDROLOGY                                                  *
* 25 YEAR STORM EVENT                                                 *
 *********************************************************************

  FILE NAME: MB25EX.DAT
  TIME/DATE OF STUDY: 08:54 03/14/2019
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *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) =   185.00
  ELEVATION DATA: UPSTREAM(FEET) =    343.30  DOWNSTREAM(FEET) =    341.10

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.280
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.208
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "BARREN"                   C        0.33      0.25     1.000    91   10.28
```

```
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      0.88
  TOTAL AREA(ACRES) =      0.33   PEAK FLOW RATE(CFS) =      0.88

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     12.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    343.30  DOWNSTREAM(FEET) =    337.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.397
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.026
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "BARREN"                  C        0.67      0.25     1.000    91   11.40
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      1.67
  TOTAL AREA(ACRES) =      0.67   PEAK FLOW RATE(CFS) =      1.67

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.67   11.40    3.026  0.25( 0.25) 1.00       0.7      10.00
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     300.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        0.88   10.28    3.208  0.25( 0.25) 1.00       0.3      10.00
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     185.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        2.49   10.28    3.208  0.25( 0.25) 1.00       0.9      10.00
      2        2.50   11.40    3.026  0.25( 0.25) 1.00       1.0      10.00
    TOTAL AREA(ACRES) =         1.0

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =        2.50  Tc(MIN.) =   11.397
  EFFECTIVE AREA(ACRES) =      1.00  AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =        1.0
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     300.00 FEET.
============================================================================
```

```
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =     11.40
  EFFECTIVE AREA(ACRES) =      1.00  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =       2.50

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        2.49   10.28    3.208  0.25( 0.25) 1.00       0.9      10.00
      2        2.50   11.40    3.026  0.25( 0.25) 1.00       1.0      10.00
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
        (c) Copyright 1983-2014 Advanced Engineering Software (aes)
            Ver. 21.0  Release Date: 06/01/2014  License ID 1355

                          Analysis prepared by:

                            Fuscoe Engineering
                             16795 Von Karman
                                Suite 210
                             Irvine CA 92606

 ************************ DESCRIPTION OF STUDY ************************
* MERCURY BERRY                                                       *
* EXISTING HYDROLOGY                                                  *
* 100 YEAR STORM EVENT                                                *
 **********************************************************************

  FILE NAME: MB100EX.DAT
  TIME/DATE OF STUDY: 08:55 03/14/2019
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *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) =   185.00
  ELEVATION DATA: UPSTREAM(FEET) =    343.30  DOWNSTREAM(FEET) =    341.10

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.280
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.094
  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.)
  NATURAL POOR COVER
  "BARREN"                   C        0.33      0.25     1.000    98   10.28
```

```
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      1.14
  TOTAL AREA(ACRES) =      0.33   PEAK FLOW RATE(CFS) =      1.14

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     12.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    343.30  DOWNSTREAM(FEET) =    337.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.397
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.859
  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.)
  NATURAL POOR COVER
  "BARREN"                  C        0.67      0.25     1.000    98   11.40
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      2.18
  TOTAL AREA(ACRES) =      0.67   PEAK FLOW RATE(CFS) =      2.18

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        2.18   11.40    3.859  0.25( 0.25) 1.00       0.7      10.00
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     300.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.14   10.28    4.094  0.25( 0.25) 1.00       0.3      10.00
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     185.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.23   10.28    4.094  0.25( 0.25) 1.00       0.9      10.00
      2        3.25   11.40    3.859  0.25( 0.25) 1.00       1.0      10.00
    TOTAL AREA(ACRES) =         1.0

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =        3.25  Tc(MIN.) =   11.397
  EFFECTIVE AREA(ACRES) =      1.00  AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =        1.0
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     300.00 FEET.
============================================================================
```

```
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =     11.40
  EFFECTIVE AREA(ACRES) =      1.00  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =       3.25

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.23   10.28    4.094  0.25( 0.25) 1.00       0.9      10.00
      2        3.25   11.40    3.859  0.25( 0.25) 1.00       1.0      10.00
==============================================================================
==============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

4

Appendix 6

Proposed Condition

Rational Method Hydrology Calculations

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY 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
                          16795 Vona Karman Suite 100
                                  Irvine CA
                                    92606

 ************************* DESCRIPTION OF STUDY *************************
* MERCURY & BERRY PROJECT                                                *
* PROPOSED HYDROLOGY                                                     *
* 2 YEAR STORM EVENT                                                     *
 **************************************************************************

  FILE NAME: MB02PR.DAT
  TIME/DATE OF STUDY: 09:16 05/30/2018
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

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

**************************************************************************
  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) =   230.00
  ELEVATION DATA: UPSTREAM(FEET) =    343.40  DOWNSTREAM(FEET) =    340.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.992
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.867
  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.)
  APARTMENTS                 C        0.49      0.25     0.200    50    6.99
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      0.80
  TOTAL AREA(ACRES) =      0.49   PEAK FLOW RATE(CFS) =      0.80

********************************************************************************
  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) =   338.00  DOWNSTREAM(FEET) =   336.00
  FLOW LENGTH(FEET) =   120.00   MANNING'S N =  0.011
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO  8.000
  DEPTH OF FLOW IN   8.0 INCH PIPE IS   3.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.90
  ESTIMATED PIPE DIAMETER(INCH) =   8.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.80
  PIPE TRAVEL TIME(MIN.) =   0.41    Tc(MIN.) =    7.40
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =     350.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  81
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN.) =    7.40
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.808
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  APARTMENTS                 C        0.51      0.25     0.200    50
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA AREA(ACRES) =    0.51      SUBAREA RUNOFF(CFS) =    0.81
  EFFECTIVE AREA(ACRES) =      1.00   AREA-AVERAGED Fm(INCH/HR) =  0.05
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.20
  TOTAL AREA(ACRES) =        1.0       PEAK FLOW RATE(CFS) =       1.58
================================================================================
  END OF STUDY SUMMARY:
```

```
                                     MB02PR
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =      7.40
  EFFECTIVE AREA(ACRES) =      1.00  AREA-AVERAGED Fm(INCH/HR)=  0.05
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       1.58
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                              Fuscoe Engineering
                          16795 Vona Karman Suite 100
                                  Irvine CA
                                    92606

 ************************* DESCRIPTION OF STUDY *************************
* MERCURY AND BERRY PROJECT                                             *
* PROPOSED HYDROLOGY                                                    *
* 10 YEAR STORM EVENT                                                   *
 *************************************************************************

  FILE NAME: MB10PR.DAT
  TIME/DATE OF STUDY: 09:15 05/30/2018
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

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

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

**************************************************************************
  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) =   230.00
  ELEVATION DATA: UPSTREAM(FEET) =    343.40  DOWNSTREAM(FEET) =    340.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.992
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.350
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  APARTMENTS                 C        0.49      0.25     0.200    69    6.99
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      1.46
  TOTAL AREA(ACRES) =      0.49   PEAK FLOW RATE(CFS) =      1.46

********************************************************************************
  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) =   338.00  DOWNSTREAM(FEET) =   336.00
  FLOW LENGTH(FEET) =   120.00   MANNING'S N =  0.011
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.67
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.46
  PIPE TRAVEL TIME(MIN.) =   0.35    Tc(MIN.) =    7.34
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =     350.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  81
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN.) =    7.34
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.257
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  APARTMENTS                 C        0.51      0.25     0.200    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA AREA(ACRES) =    0.51      SUBAREA RUNOFF(CFS) =    1.47
  EFFECTIVE AREA(ACRES) =      1.00   AREA-AVERAGED Fm(INCH/HR) =  0.05
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.20
  TOTAL AREA(ACRES) =        1.0       PEAK FLOW RATE(CFS) =       2.89
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =      7.34
```

MB10PR

EFFECTIVE AREA(ACRES) = 1.00 AREA-AVERAGED Fm(INCH/HR)= 0.05
AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.200
PEAK FLOW RATE(CFS) = 2.89

==========
==========

END OF RATIONAL METHOD ANALYSIS

```
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                          Analysis prepared by:

                              Fuscoe Engineering
                          16795 Vona Karman Suite 100
                                  Irvine CA
                                    92606

 ************************* DESCRIPTION OF STUDY *************************
* MERCURY AND BERRY PROJECT                                             *
* PROPOSED HYDROLOGY                                                    *
* 25 YEAR STORM EVENT                                                   *
 *************************************************************************

  FILE NAME: MB25PR.DAT
  TIME/DATE OF STUDY: 09:18 05/30/2018
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

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

**************************************************************************
  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) =   230.00
  ELEVATION DATA: UPSTREAM(FEET) =    343.40  DOWNSTREAM(FEET) =    340.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.992
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.990
  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.)
  APARTMENTS                 C        0.49      0.25     0.200    69    6.99
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      1.74
  TOTAL AREA(ACRES) =      0.49   PEAK FLOW RATE(CFS) =      1.74

********************************************************************************
  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) =   338.00  DOWNSTREAM(FEET) =   336.00
  FLOW LENGTH(FEET) =   120.00   MANNING'S N =  0.011
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.92
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.74
  PIPE TRAVEL TIME(MIN.) =   0.34    Tc(MIN.) =    7.33
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =     350.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  81
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN.) =    7.33
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.885
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  APARTMENTS                 C        0.51      0.25     0.200    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA AREA(ACRES) =    0.51      SUBAREA RUNOFF(CFS) =    1.76
  EFFECTIVE AREA(ACRES) =      1.00   AREA-AVERAGED Fm(INCH/HR) =  0.05
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.20
  TOTAL AREA(ACRES) =        1.0       PEAK FLOW RATE(CFS) =       3.45
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =      7.33
```

MB25PR

EFFECTIVE AREA(ACRES) = 1.00 AREA-AVERAGED Fm(INCH/HR)= 0.05
AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.200
PEAK FLOW RATE(CFS) = 3.45

==========

==========

END OF RATIONAL METHOD ANALYSIS

```
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                          Analysis prepared by:

                              Fuscoe Engineering
                          16795 Vona Karman Suite 100
                                  Irvine CA
                                    92606

 ************************* DESCRIPTION OF STUDY *************************
* MERCURY AND BERRY PROJECT                                             *
* PROPOSED HYDROLOGY                                                    *
* 100 YEAR STORM EVENT                                                  *
 *************************************************************************

  FILE NAME: MB100PR.DAT
  TIME/DATE OF STUDY: 14:09 05/30/2018
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

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

**************************************************************************
  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) =   230.00
  ELEVATION DATA: UPSTREAM(FEET) =    343.40  DOWNSTREAM(FEET) =    340.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.992
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.106
  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.)
  APARTMENTS                 C        0.49      0.25     0.200    86    6.99
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      2.23
  TOTAL AREA(ACRES) =      0.49   PEAK FLOW RATE(CFS) =      2.23

********************************************************************************
  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) =   338.00  DOWNSTREAM(FEET) =   336.00
  FLOW LENGTH(FEET) =   120.00   MANNING'S N =  0.011
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   6.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.16
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.23
  PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =    7.32
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =     350.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  81
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN.) =    7.32
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.975
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  APARTMENTS                 C        0.51      0.25     0.200    86
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA AREA(ACRES) =    0.51      SUBAREA RUNOFF(CFS) =    2.26
  EFFECTIVE AREA(ACRES) =      1.00   AREA-AVERAGED Fm(INCH/HR) =  0.05
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.20
  TOTAL AREA(ACRES) =        1.0       PEAK FLOW RATE(CFS) =       4.43
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =      7.32
```

MB100PR

EFFECTIVE AREA(ACRES) = 1.00 AREA-AVERAGED Fm(INCH/HR)= 0.05
AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.200
PEAK FLOW RATE(CFS) = 4.43

==========

==========

END OF RATIONAL METHOD ANALYSIS

Appendix 7

Flood Hydrograph Routing Calculations

```
******************************************************************************
          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                    AND LOW LOSS FRACTION ESTIMATIONS
==============================================================================
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                            Analysis prepared by:

                              Fuscoe Engineering
                               16795 Von Karman
                                  Suite 210
                               Irvine CA 92606

******************************************************************************
------------------------------------------------------------------------------

 Problem Descriptions:
  Mercury Berry (1743.001)
  Prop 2 Year Flood Routing
  2019-03-14 MM
==============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC I:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     2.05 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
         1          1.00       20.00       69.(AMC II)     0.250       0.712

    TOTAL AREA (Acres) =      1.00

    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.050

    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.288
==============================================================================
```

```
******************************************************************************
                    SMALL AREA UNIT HYDROGRAPH MODEL
==============================================================================
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                          Analysis prepared by:

                            Fuscoe Engineering
                             16795 Von Karman
                                Suite 100
                             Irvine, CA 92606

******************************************************************************
------------------------------------------------------------------------------

 Problem Descriptions:
  Mercury Berry (1743.001)
  Prop 2 Yr flood routing (callibration coefficient=0.895)
  2019-03-13 MM
------------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.89
    TOTAL CATCHMENT AREA(ACRES) =    1.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.050
    LOW LOSS FRACTION = 0.288
    TIME OF CONCENTRATION(MIN.) =  7.40
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =   2
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.19
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.53
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  0.89
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  1.22
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  2.05

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

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.12
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.05

******************************************************************************
  TIME     VOLUME       Q    0.        2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
------------------------------------------------------------------------------
  0.09      0.0001      0.02  Q         .         .         .         .
  0.21      0.0003      0.02  Q         .         .         .         .
  0.34      0.0005      0.02  Q         .         .         .         .
  0.46      0.0007      0.02  Q         .         .         .         .
  0.58      0.0009      0.02  Q         .         .         .         .
  0.71      0.0011      0.02  Q         .         .         .         .
  0.83      0.0013      0.02  Q         .         .         .         .
  0.95      0.0016      0.02  Q         .         .         .         .
  1.08      0.0018      0.02  Q         .         .         .         .
  1.20      0.0020      0.02  Q         .         .         .         .
  1.32      0.0022      0.02  Q         .         .         .         .
  1.45      0.0024      0.02  Q         .         .         .         .
  1.57      0.0026      0.02  Q         .         .         .         .
  1.69      0.0029      0.02  Q         .         .         .         .
  1.82      0.0031      0.02  Q         .         .         .         .
  1.94      0.0033      0.02  Q         .         .         .         .
  2.06      0.0035      0.02  Q         .         .         .         .
```

2.19	0.0038	0.02	Q	.	.	.	.
2.31	0.0040	0.02	Q	.	.	.	.
2.43	0.0042	0.02	Q	.	.	.	.
2.56	0.0044	0.02	Q	.	.	.	.
2.68	0.0047	0.02	Q	.	.	.	.
2.80	0.0049	0.02	Q	.	.	.	.
2.93	0.0051	0.02	Q	.	.	.	.
3.05	0.0054	0.02	Q	.	.	.	.
3.17	0.0056	0.02	Q	.	.	.	.
3.30	0.0059	0.02	Q	.	.	.	.
3.42	0.0061	0.02	Q	.	.	.	.
3.54	0.0063	0.02	Q	.	.	.	.
3.67	0.0066	0.02	Q	.	.	.	.
3.79	0.0068	0.02	Q	.	.	.	.
3.91	0.0071	0.02	Q	.	.	.	.
4.04	0.0073	0.02	Q	.	.	.	.
4.16	0.0076	0.02	Q	.	.	.	.
4.28	0.0078	0.02	Q	.	.	.	.
4.41	0.0081	0.02	Q	.	.	.	.
4.53	0.0083	0.02	Q	.	.	.	.
4.65	0.0086	0.03	Q	.	.	.	.
4.78	0.0088	0.03	Q	.	.	.	.
4.90	0.0091	0.03	Q	.	.	.	.
5.02	0.0093	0.03	Q	.	.	.	.
5.15	0.0096	0.03	Q	.	.	.	.
5.27	0.0099	0.03	Q	.	.	.	.
5.39	0.0101	0.03	Q	.	.	.	.
5.52	0.0104	0.03	Q	.	.	.	.
5.64	0.0107	0.03	Q	.	.	.	.
5.76	0.0110	0.03	Q	.	.	.	.
5.89	0.0112	0.03	Q	.	.	.	.
6.01	0.0115	0.03	Q	.	.	.	.
6.13	0.0118	0.03	Q	.	.	.	.
6.26	0.0121	0.03	Q	.	.	.	.
6.38	0.0123	0.03	Q	.	.	.	.
6.50	0.0126	0.03	Q	.	.	.	.
6.63	0.0129	0.03	Q	.	.	.	.
6.75	0.0132	0.03	Q	.	.	.	.
6.87	0.0135	0.03	Q	.	.	.	.
7.00	0.0138	0.03	Q	.	.	.	.
7.12	0.0141	0.03	Q	.	.	.	.
7.24	0.0144	0.03	Q	.	.	.	.
7.37	0.0147	0.03	Q	.	.	.	.
7.49	0.0150	0.03	Q	.	.	.	.
7.61	0.0153	0.03	Q	.	.	.	.
7.74	0.0156	0.03	Q	.	.	.	.
7.86	0.0159	0.03	Q	.	.	.	.
7.98	0.0162	0.03	Q	.	.	.	.
8.11	0.0166	0.03	Q	.	.	.	.
8.23	0.0169	0.03	Q	.	.	.	.
8.35	0.0172	0.03	Q	.	.	.	.
8.48	0.0175	0.03	Q	.	.	.	.
8.60	0.0179	0.03	Q	.	.	.	.
8.72	0.0182	0.03	Q	.	.	.	.
8.85	0.0185	0.03	Q	.	.	.	.
8.97	0.0189	0.03	Q	.	.	.	.
9.09	0.0192	0.03	Q	.	.	.	.
9.22	0.0196	0.03	Q	.	.	.	.
9.34	0.0199	0.03	Q	.	.	.	.
9.46	0.0203	0.04	Q	.	.	.	.
9.59	0.0207	0.04	Q	.	.	.	.
9.71	0.0210	0.04	Q	.	.	.	.
9.83	0.0214	0.04	Q	.	.	.	.
9.96	0.0218	0.04	Q	.	.	.	.
10.08	0.0221	0.04	Q	.	.	.	.

10.20	0.0225	0.04	Q	.	.	.	.
10.33	0.0229	0.04	Q	.	.	.	.
10.45	0.0233	0.04	Q	.	.	.	.
10.57	0.0237	0.04	Q	.	.	.	.
10.70	0.0241	0.04	Q	.	.	.	.
10.82	0.0245	0.04	Q	.	.	.	.
10.94	0.0250	0.04	Q	.	.	.	.
11.07	0.0254	0.04	Q	.	.	.	.
11.19	0.0258	0.04	Q	.	.	.	.
11.31	0.0263	0.04	Q	.	.	.	.
11.44	0.0267	0.04	Q	.	.	.	.
11.56	0.0271	0.04	Q	.	.	.	.
11.68	0.0276	0.05	Q	.	.	.	.
11.81	0.0281	0.05	Q	.	.	.	.
11.93	0.0286	0.05	Q	.	.	.	.
12.05	0.0290	0.05	Q	.	.	.	.
12.18	0.0296	0.06	Q	.	.	.	.
12.30	0.0302	0.06	Q	.	.	.	.
12.42	0.0308	0.06	Q	.	.	.	.
12.55	0.0315	0.06	Q	.	.	.	.
12.67	0.0321	0.06	Q	.	.	.	.
12.79	0.0328	0.07	Q	.	.	.	.
12.92	0.0334	0.07	Q	.	.	.	.
13.04	0.0341	0.07	Q	.	.	.	.
13.16	0.0348	0.07	Q	.	.	.	.
13.29	0.0356	0.07	Q	.	.	.	.
13.41	0.0363	0.07	Q	.	.	.	.
13.53	0.0370	0.07	Q	.	.	.	.
13.66	0.0378	0.08	Q	.	.	.	.
13.78	0.0386	0.08	Q	.	.	.	.
13.90	0.0394	0.08	Q	.	.	.	.
14.03	0.0403	0.08	Q	.	.	.	.
14.15	0.0412	0.09	Q	.	.	.	.
14.27	0.0421	0.09	Q	.	.	.	.
14.40	0.0431	0.10	Q	.	.	.	.
14.52	0.0441	0.10	Q	.	.	.	.
14.64	0.0451	0.11	Q	.	.	.	.
14.77	0.0462	0.11	Q	.	.	.	.
14.89	0.0474	0.12	Q	.	.	.	.
15.01	0.0487	0.13	Q	.	.	.	.
15.14	0.0500	0.14	Q	.	.	.	.
15.26	0.0515	0.15	Q	.	.	.	.
15.38	0.0531	0.17	Q	.	.	.	.
15.51	0.0548	0.16	Q	.	.	.	.
15.63	0.0566	0.20	Q	.	.	.	.
15.75	0.0588	0.23	Q	.	.	.	.
15.88	0.0618	0.35	.Q	.	.	.	.
16.00	0.0661	0.50	.Q	.	.	.	.
16.12	0.0767	1.58	.	Q	.	.	.
16.25	0.0861	0.28	.Q	.	.	.	.
16.37	0.0885	0.18	Q	.	.	.	.
16.49	0.0902	0.16	Q	.	.	.	.
16.62	0.0917	0.13	Q	.	.	.	.
16.74	0.0929	0.11	Q	.	.	.	.
16.86	0.0940	0.10	Q	.	.	.	.
16.99	0.0951	0.10	Q	.	.	.	.
17.11	0.0960	0.09	Q	.	.	.	.
17.23	0.0968	0.08	Q	.	.	.	.
17.36	0.0976	0.08	Q	.	.	.	.
17.48	0.0984	0.07	Q	.	.	.	.
17.60	0.0991	0.07	Q	.	.	.	.
17.73	0.0998	0.07	Q	.	.	.	.
17.85	0.1005	0.06	Q	.	.	.	.
17.97	0.1011	0.06	Q	.	.	.	.
18.10	0.1017	0.06	Q	.	.	.	.

18.22	0.1022	0.05	Q	.	.	.	.
18.34	0.1027	0.05	Q	.	.	.	.
18.47	0.1031	0.04	Q	.	.	.	.
18.59	0.1036	0.04	Q	.	.	.	.
18.71	0.1040	0.04	Q	.	.	.	.
18.84	0.1044	0.04	Q	.	.	.	.
18.96	0.1048	0.04	Q	.	.	.	.
19.08	0.1052	0.04	Q	.	.	.	.
19.21	0.1056	0.04	Q	.	.	.	.
19.33	0.1060	0.04	Q	.	.	.	.
19.45	0.1063	0.04	Q	.	.	.	.
19.58	0.1067	0.03	Q	.	.	.	.
19.70	0.1070	0.03	Q	.	.	.	.
19.82	0.1074	0.03	Q	.	.	.	.
19.95	0.1077	0.03	Q	.	.	.	.
20.07	0.1080	0.03	Q	.	.	.	.
20.19	0.1083	0.03	Q	.	.	.	.
20.32	0.1086	0.03	Q	.	.	.	.
20.44	0.1089	0.03	Q	.	.	.	.
20.56	0.1093	0.03	Q	.	.	.	.
20.69	0.1095	0.03	Q	.	.	.	.
20.81	0.1098	0.03	Q	.	.	.	.
20.93	0.1101	0.03	Q	.	.	.	.
21.06	0.1104	0.03	Q	.	.	.	.
21.18	0.1107	0.03	Q	.	.	.	.
21.30	0.1110	0.03	Q	.	.	.	.
21.43	0.1112	0.03	Q	.	.	.	.
21.55	0.1115	0.03	Q	.	.	.	.
21.67	0.1118	0.03	Q	.	.	.	.
21.80	0.1120	0.03	Q	.	.	.	.
21.92	0.1123	0.02	Q	.	.	.	.
22.04	0.1125	0.02	Q	.	.	.	.
22.17	0.1128	0.02	Q	.	.	.	.
22.29	0.1130	0.02	Q	.	.	.	.
22.41	0.1133	0.02	Q	.	.	.	.
22.54	0.1135	0.02	Q	.	.	.	.
22.66	0.1137	0.02	Q	.	.	.	.
22.78	0.1140	0.02	Q	.	.	.	.
22.91	0.1142	0.02	Q	.	.	.	.
23.03	0.1144	0.02	Q	.	.	.	.
23.15	0.1147	0.02	Q	.	.	.	.
23.28	0.1149	0.02	Q	.	.	.	.
23.40	0.1151	0.02	Q	.	.	.	.
23.52	0.1153	0.02	Q	.	.	.	.
23.65	0.1155	0.02	Q	.	.	.	.
23.77	0.1158	0.02	Q	.	.	.	.
23.89	0.1160	0.02	Q	.	.	.	.
24.02	0.1162	0.02	Q	.	.	.	.
24.14	0.1163	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%	1443.0
10%	66.6
20%	22.2
30%	14.8
40%	7.4
50%	7.4
60%	7.4

70%	7.4
80%	7.4
90%	7.4

Problem Descriptions:
Mercury Berry (1743.001)
Prop 2 Yr flood routing (callibration coefficient=0.895)
2019-03-13 MM

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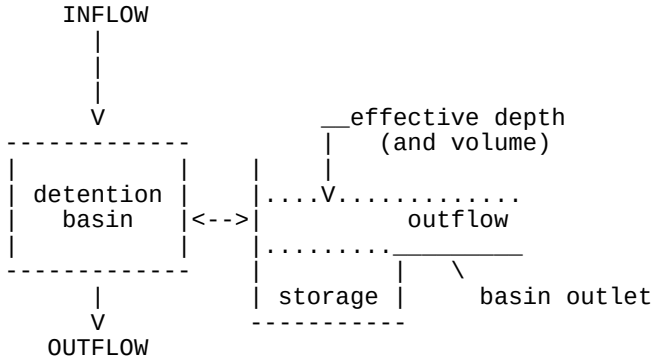
FLOW-THROUGH DETENTION BASIN MODEL

SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
CONSTANT HYDROGRAPH TIME UNIT(MINUTES) = 7.400
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 = 9

*BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	**	BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	*
0.000	0.000	0.000**		0.250	0.019	0.300	*
0.500	0.024	0.700**		0.750	0.030	1.100	*
1.000	0.037	1.400**		1.250	0.046	1.600	*
1.500	0.059	1.800**		1.750	0.083	2.000	*
2.000	0.151	2.200**					

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	0.01747	0.02053
3	0.50	0.02043	0.02757
4	0.75	0.02439	0.03561
5	1.00	0.02987	0.04413
6	1.25	0.03785	0.05415
7	1.50	0.04983	0.06817
8	1.75	0.07281	0.09319
9	2.00	0.13979	0.16221

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)
0.090	0.000	0.02	0.00	0.00	0.000
0.213	0.000	0.02	0.00	0.00	0.000
0.337	0.000	0.02	0.01	0.01	0.000
0.460	0.000	0.02	0.01	0.01	0.001
0.583	0.000	0.02	0.01	0.01	0.001
0.707	0.000	0.02	0.01	0.01	0.001
0.830	0.000	0.02	0.01	0.01	0.001
0.953	0.000	0.02	0.01	0.01	0.001
1.077	0.000	0.02	0.01	0.02	0.001
1.200	0.000	0.02	0.01	0.02	0.001
1.323	0.000	0.02	0.01	0.02	0.001
1.447	0.000	0.02	0.02	0.02	0.001
1.570	0.000	0.02	0.02	0.02	0.001
1.693	0.000	0.02	0.02	0.02	0.001
1.817	0.000	0.02	0.02	0.02	0.001
1.940	0.000	0.02	0.02	0.02	0.001
2.063	0.000	0.02	0.02	0.02	0.001
2.187	0.000	0.02	0.02	0.02	0.001
2.310	0.000	0.02	0.02	0.02	0.001
2.433	0.000	0.02	0.02	0.02	0.001
2.557	0.000	0.02	0.02	0.02	0.001
2.680	0.000	0.02	0.02	0.02	0.001
2.803	0.000	0.02	0.02	0.02	0.001
2.927	0.000	0.02	0.02	0.02	0.001
3.050	0.000	0.02	0.02	0.02	0.001
3.173	0.000	0.02	0.02	0.02	0.001
3.297	0.000	0.02	0.02	0.02	0.001
3.420	0.000	0.02	0.02	0.02	0.001
3.543	0.000	0.02	0.02	0.02	0.001
3.667	0.000	0.02	0.02	0.02	0.001
3.790	0.000	0.02	0.02	0.02	0.001
3.913	0.000	0.02	0.02	0.02	0.001
4.037	0.000	0.02	0.02	0.02	0.001
4.160	0.000	0.02	0.02	0.02	0.001
4.283	0.000	0.02	0.02	0.02	0.002
4.407	0.000	0.02	0.02	0.02	0.002
4.530	0.000	0.02	0.02	0.02	0.002
4.653	0.000	0.03	0.02	0.02	0.002
4.777	0.000	0.03	0.02	0.02	0.002
4.900	0.000	0.03	0.02	0.02	0.002
5.023	0.000	0.03	0.02	0.02	0.002
5.147	0.000	0.03	0.02	0.02	0.002
5.270	0.000	0.03	0.02	0.02	0.002
5.393	0.000	0.03	0.02	0.03	0.002
5.517	0.000	0.03	0.02	0.03	0.002
5.640	0.000	0.03	0.02	0.03	0.002
5.763	0.000	0.03	0.02	0.03	0.002
5.887	0.000	0.03	0.02	0.03	0.002
6.010	0.000	0.03	0.02	0.03	0.002
6.133	0.000	0.03	0.02	0.03	0.002
6.257	0.000	0.03	0.02	0.03	0.002
6.380	0.000	0.03	0.02	0.03	0.002
6.503	0.000	0.03	0.02	0.03	0.002
6.627	0.000	0.03	0.02	0.03	0.002
6.750	0.000	0.03	0.02	0.03	0.002
6.873	0.000	0.03	0.02	0.03	0.002
6.997	0.000	0.03	0.02	0.03	0.002
7.120	0.000	0.03	0.02	0.03	0.002
7.243	0.000	0.03	0.02	0.03	0.002
7.367	0.000	0.03	0.02	0.03	0.002
7.490	0.000	0.03	0.02	0.03	0.002

7.613	0.000	0.03	0.02	0.03	0.002
7.737	0.000	0.03	0.02	0.03	0.002
7.860	0.000	0.03	0.02	0.03	0.002
7.983	0.000	0.03	0.02	0.03	0.002
8.107	0.000	0.03	0.02	0.03	0.002
8.230	0.000	0.03	0.03	0.03	0.002
8.353	0.000	0.03	0.03	0.03	0.002
8.477	0.000	0.03	0.03	0.03	0.002
8.600	0.000	0.03	0.03	0.03	0.002
8.723	0.000	0.03	0.03	0.03	0.002
8.847	0.000	0.03	0.03	0.03	0.002
8.970	0.000	0.03	0.03	0.03	0.002
9.093	0.000	0.03	0.03	0.03	0.002
9.217	0.000	0.03	0.03	0.03	0.002
9.340	0.000	0.03	0.03	0.03	0.002
9.463	0.000	0.04	0.03	0.03	0.002
9.587	0.000	0.04	0.03	0.03	0.002
9.710	0.000	0.04	0.03	0.03	0.002
9.833	0.000	0.04	0.03	0.03	0.002
9.957	0.000	0.04	0.03	0.03	0.002
10.080	0.000	0.04	0.03	0.04	0.002
10.203	0.000	0.04	0.03	0.04	0.002
10.327	0.000	0.04	0.03	0.04	0.002
10.450	0.000	0.04	0.03	0.04	0.002
10.573	0.000	0.04	0.03	0.04	0.002
10.697	0.000	0.04	0.03	0.04	0.002
10.820	0.000	0.04	0.03	0.04	0.002
10.943	0.000	0.04	0.03	0.04	0.002
11.067	0.000	0.04	0.03	0.04	0.002
11.190	0.000	0.04	0.03	0.04	0.003
11.313	0.000	0.04	0.03	0.04	0.003
11.437	0.000	0.04	0.03	0.04	0.003
11.560	0.000	0.04	0.03	0.04	0.003
11.683	0.000	0.05	0.03	0.04	0.003
11.807	0.000	0.05	0.04	0.04	0.003
11.930	0.000	0.05	0.04	0.04	0.003
12.053	0.000	0.05	0.04	0.04	0.003
12.177	0.000	0.06	0.04	0.05	0.003
12.300	0.000	0.06	0.04	0.05	0.003
12.423	0.000	0.06	0.04	0.05	0.003
12.547	0.000	0.06	0.04	0.05	0.003
12.670	0.000	0.06	0.05	0.05	0.003
12.793	0.000	0.07	0.05	0.05	0.004
12.917	0.000	0.07	0.05	0.06	0.004
13.040	0.000	0.07	0.05	0.06	0.004
13.163	0.000	0.07	0.05	0.06	0.004
13.287	0.000	0.07	0.05	0.06	0.004
13.410	0.000	0.07	0.05	0.06	0.004
13.533	0.000	0.07	0.05	0.06	0.004
13.657	0.000	0.08	0.06	0.07	0.004
13.780	0.000	0.08	0.06	0.07	0.004
13.903	0.000	0.08	0.06	0.07	0.004
14.027	0.000	0.08	0.06	0.07	0.005
14.150	0.000	0.09	0.06	0.07	0.005
14.273	0.000	0.09	0.07	0.08	0.005
14.397	0.000	0.10	0.07	0.08	0.005
14.520	0.000	0.10	0.07	0.08	0.005
14.643	0.000	0.11	0.07	0.09	0.006
14.767	0.000	0.11	0.08	0.09	0.006
14.890	0.000	0.12	0.08	0.09	0.006
15.013	0.000	0.13	0.08	0.10	0.006
15.137	0.000	0.14	0.09	0.10	0.007
15.260	0.000	0.15	0.09	0.11	0.007
15.383	0.000	0.17	0.10	0.12	0.008
15.507	0.000	0.16	0.11	0.12	0.008

15.630	0.000	0.20	0.11	0.13	0.009
15.753	0.000	0.23	0.13	0.14	0.010
15.877	0.000	0.35	0.15	0.17	0.011
16.000	0.000	0.50	0.19	0.20	0.014
16.123	0.000	1.58	0.56	0.51	0.025
16.247	0.000	0.28	0.38	0.65	0.022
16.370	0.000	0.18	0.26	0.41	0.019
16.493	0.000	0.16	0.23	0.30	0.018
16.617	0.000	0.13	0.22	0.27	0.016
16.740	0.000	0.11	0.20	0.25	0.015
16.863	0.000	0.10	0.18	0.23	0.014
16.987	0.000	0.10	0.17	0.21	0.013
17.110	0.000	0.09	0.15	0.19	0.012
17.233	0.000	0.08	0.14	0.17	0.011
17.357	0.000	0.08	0.13	0.16	0.010
17.480	0.000	0.07	0.12	0.15	0.009
17.603	0.000	0.07	0.11	0.14	0.008
17.727	0.000	0.07	0.10	0.13	0.008
17.850	0.000	0.06	0.09	0.12	0.007
17.973	0.000	0.06	0.09	0.11	0.007
18.097	0.000	0.06	0.08	0.10	0.006
18.220	0.000	0.05	0.07	0.09	0.006
18.343	0.000	0.05	0.07	0.09	0.005
18.467	0.000	0.04	0.06	0.08	0.005
18.590	0.000	0.04	0.06	0.07	0.005
18.713	0.000	0.04	0.06	0.07	0.004
18.837	0.000	0.04	0.05	0.07	0.004
18.960	0.000	0.04	0.05	0.06	0.004
19.083	0.000	0.04	0.05	0.06	0.004
19.207	0.000	0.04	0.04	0.06	0.003
19.330	0.000	0.04	0.04	0.05	0.003
19.453	0.000	0.04	0.04	0.05	0.003
19.577	0.000	0.03	0.04	0.05	0.003
19.700	0.000	0.03	0.04	0.05	0.003
19.823	0.000	0.03	0.04	0.04	0.003
19.947	0.000	0.03	0.03	0.04	0.003
20.070	0.000	0.03	0.03	0.04	0.003
20.193	0.000	0.03	0.03	0.04	0.002
20.317	0.000	0.03	0.03	0.04	0.002
20.440	0.000	0.03	0.03	0.04	0.002
20.563	0.000	0.03	0.03	0.04	0.002
20.687	0.000	0.03	0.03	0.03	0.002
20.810	0.000	0.03	0.03	0.03	0.002
20.933	0.000	0.03	0.03	0.03	0.002
21.057	0.000	0.03	0.03	0.03	0.002
21.180	0.000	0.03	0.03	0.03	0.002
21.303	0.000	0.03	0.03	0.03	0.002
21.427	0.000	0.03	0.02	0.03	0.002
21.550	0.000	0.03	0.02	0.03	0.002
21.673	0.000	0.03	0.02	0.03	0.002
21.797	0.000	0.03	0.02	0.03	0.002
21.920	0.000	0.02	0.02	0.03	0.002
22.043	0.000	0.02	0.02	0.03	0.002
22.167	0.000	0.02	0.02	0.03	0.002
22.290	0.000	0.02	0.02	0.03	0.002
22.413	0.000	0.02	0.02	0.03	0.002
22.537	0.000	0.02	0.02	0.03	0.002
22.660	0.000	0.02	0.02	0.03	0.002
22.783	0.000	0.02	0.02	0.03	0.002
22.907	0.000	0.02	0.02	0.02	0.002
23.030	0.000	0.02	0.02	0.02	0.002
23.153	0.000	0.02	0.02	0.02	0.002
23.277	0.000	0.02	0.02	0.02	0.001
23.400	0.000	0.02	0.02	0.02	0.001
23.523	0.000	0.02	0.02	0.02	0.001

Outflow=0.7 cfs

23.647	0.000	0.02	0.02	0.02	0.001
23.770	0.000	0.02	0.02	0.02	0.001
23.893	0.000	0.02	0.02	0.02	0.001
24.017	0.000	0.02	0.02	0.02	0.001
24.140	0.000	0.00	0.02	0.02	0.001
24.263	0.000	0.00	0.01	0.02	0.001

```
**************************************************************************
          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                    AND LOW LOSS FRACTION ESTIMATIONS
==========================================================================
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             Ver. 21.0  Release Date: 06/01/2014  License ID 1355

                            Analysis prepared by:

                              Fuscoe Engineering
                               16795 Von Karman
                                  Suite 210
                               Irvine CA 92606

**************************************************************************
--------------------------------------------------------------------------

 Problem Descriptions:
  Mercury Berry (1743.001)
  Prop 10 Yr Flood Routing
  2019-03-14 MM
==========================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     3.68 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
         1          1.00       20.00            69.       0.250       0.807

    TOTAL AREA (Acres) =      1.00

    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.050

    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.193
==========================================================================
```

```
******************************************************************************
                    SMALL AREA UNIT HYDROGRAPH MODEL
==============================================================================
         (C) Copyright 1989-2014 Advanced Engineering Software (aes)
             Ver. 21.0  Release Date: 06/01/2014  License ID 1355

                          Analysis prepared by:

                            Fuscoe Engineering
                             16795 Von Karman
                                Suite 210
                             Irvine CA 92606

******************************************************************************
------------------------------------------------------------------------------

 Problem Descriptions:
  Mercury Berry (1743.001)
  Prop 10 Yr Flood Routing (callibration coefficient=0.9)
  2019-03-13 MM
------------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
    TOTAL CATCHMENT AREA(ACRES) =    1.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.050
    LOW LOSS FRACTION = 0.193
    TIME OF CONCENTRATION(MIN.) =  7.34
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =  10
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.34
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.72
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.95
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.59
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.20
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  3.68

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

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.23
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.07

******************************************************************************
  TIME     VOLUME       Q    0.        2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
------------------------------------------------------------------------------
  0.10      0.0002      0.04  Q         .         .         .         .
  0.22      0.0006      0.04  Q         .         .         .         .
  0.34      0.0010      0.04  Q         .         .         .         .
  0.46      0.0015      0.04  Q         .         .         .         .
  0.59      0.0019      0.04  Q         .         .         .         .
  0.71      0.0023      0.04  Q         .         .         .         .
  0.83      0.0028      0.04  Q         .         .         .         .
  0.95      0.0032      0.04  Q         .         .         .         .
  1.08      0.0036      0.04  Q         .         .         .         .
  1.20      0.0041      0.04  Q         .         .         .         .
  1.32      0.0045      0.04  Q         .         .         .         .
  1.44      0.0049      0.04  Q         .         .         .         .
  1.56      0.0054      0.04  Q         .         .         .         .
  1.69      0.0058      0.04  Q         .         .         .         .
  1.81      0.0063      0.04  Q         .         .         .         .
  1.93      0.0067      0.04  Q         .         .         .         .
  2.05      0.0072      0.04  Q         .         .         .         .
```

2.18	0.0076	0.05	Q	.	.	.	.
2.30	0.0081	0.05	Q	.	.	.	.
2.42	0.0085	0.05	Q	.	.	.	.
2.54	0.0090	0.05	Q	.	.	.	.
2.67	0.0095	0.05	Q	.	.	.	.
2.79	0.0099	0.05	Q	.	.	.	.
2.91	0.0104	0.05	Q	.	.	.	.
3.03	0.0109	0.05	Q	.	.	.	.
3.15	0.0114	0.05	Q	.	.	.	.
3.28	0.0118	0.05	Q	.	.	.	.
3.40	0.0123	0.05	Q	.	.	.	.
3.52	0.0128	0.05	Q	.	.	.	.
3.64	0.0133	0.05	Q	.	.	.	.
3.77	0.0138	0.05	Q	.	.	.	.
3.89	0.0143	0.05	Q	.	.	.	.
4.01	0.0148	0.05	Q	.	.	.	.
4.13	0.0153	0.05	Q	.	.	.	.
4.26	0.0158	0.05	Q	.	.	.	.
4.38	0.0163	0.05	Q	.	.	.	.
4.50	0.0168	0.05	Q	.	.	.	.
4.62	0.0173	0.05	Q	.	.	.	.
4.75	0.0178	0.05	Q	.	.	.	.
4.87	0.0183	0.05	Q	.	.	.	.
4.99	0.0189	0.05	Q	.	.	.	.
5.11	0.0194	0.05	Q	.	.	.	.
5.23	0.0199	0.05	Q	.	.	.	.
5.36	0.0205	0.05	Q	.	.	.	.
5.48	0.0210	0.05	Q	.	.	.	.
5.60	0.0215	0.05	Q	.	.	.	.
5.72	0.0221	0.05	Q	.	.	.	.
5.85	0.0226	0.05	Q	.	.	.	.
5.97	0.0232	0.06	Q	.	.	.	.
6.09	0.0237	0.06	Q	.	.	.	.
6.21	0.0243	0.06	Q	.	.	.	.
6.34	0.0249	0.06	Q	.	.	.	.
6.46	0.0255	0.06	Q	.	.	.	.
6.58	0.0260	0.06	Q	.	.	.	.
6.70	0.0266	0.06	Q	.	.	.	.
6.82	0.0272	0.06	Q	.	.	.	.
6.95	0.0278	0.06	Q	.	.	.	.
7.07	0.0284	0.06	Q	.	.	.	.
7.19	0.0290	0.06	Q	.	.	.	.
7.31	0.0296	0.06	Q	.	.	.	.
7.44	0.0302	0.06	Q	.	.	.	.
7.56	0.0308	0.06	Q	.	.	.	.
7.68	0.0314	0.06	Q	.	.	.	.
7.80	0.0321	0.06	Q	.	.	.	.
7.93	0.0327	0.06	Q	.	.	.	.
8.05	0.0333	0.06	Q	.	.	.	.
8.17	0.0340	0.06	Q	.	.	.	.
8.29	0.0346	0.06	Q	.	.	.	.
8.42	0.0353	0.07	Q	.	.	.	.
8.54	0.0360	0.07	Q	.	.	.	.
8.66	0.0366	0.07	Q	.	.	.	.
8.78	0.0373	0.07	Q	.	.	.	.
8.90	0.0380	0.07	Q	.	.	.	.
9.03	0.0387	0.07	Q	.	.	.	.
9.15	0.0394	0.07	Q	.	.	.	.
9.27	0.0401	0.07	Q	.	.	.	.
9.39	0.0408	0.07	Q	.	.	.	.
9.52	0.0416	0.07	Q	.	.	.	.
9.64	0.0423	0.07	Q	.	.	.	.
9.76	0.0430	0.07	Q	.	.	.	.
9.88	0.0438	0.07	Q	.	.	.	.
10.01	0.0446	0.08	Q	.	.	.	.

10.13	0.0453	0.08	Q	.	.	.	.
10.25	0.0461	0.08	Q	.	.	.	.
10.37	0.0469	0.08	Q	.	.	.	.
10.49	0.0477	0.08	Q	.	.	.	.
10.62	0.0485	0.08	Q	.	.	.	.
10.74	0.0493	0.08	Q	.	.	.	.
10.86	0.0502	0.08	Q	.	.	.	.
10.98	0.0510	0.08	Q	.	.	.	.
11.11	0.0519	0.09	Q	.	.	.	.
11.23	0.0528	0.09	Q	.	.	.	.
11.35	0.0537	0.09	Q	.	.	.	.
11.47	0.0546	0.09	Q	.	.	.	.
11.60	0.0555	0.09	Q	.	.	.	.
11.72	0.0564	0.09	Q	.	.	.	.
11.84	0.0574	0.09	Q	.	.	.	.
11.96	0.0583	0.10	Q	.	.	.	.
12.09	0.0593	0.10	Q	.	.	.	.
12.21	0.0605	0.13	Q	.	.	.	.
12.33	0.0618	0.13	Q	.	.	.	.
12.45	0.0631	0.13	Q	.	.	.	.
12.57	0.0644	0.13	Q	.	.	.	.
12.70	0.0658	0.14	Q	.	.	.	.
12.82	0.0672	0.14	Q	.	.	.	.
12.94	0.0686	0.14	Q	.	.	.	.
13.06	0.0700	0.14	Q	.	.	.	.
13.19	0.0715	0.15	Q	.	.	.	.
13.31	0.0730	0.15	Q	.	.	.	.
13.43	0.0745	0.16	Q	.	.	.	.
13.55	0.0761	0.16	Q	.	.	.	.
13.68	0.0778	0.16	Q	.	.	.	.
13.80	0.0794	0.17	Q	.	.	.	.
13.92	0.0811	0.17	Q	.	.	.	.
14.04	0.0829	0.18	Q	.	.	.	.
14.16	0.0847	0.18	Q	.	.	.	.
14.29	0.0866	0.19	Q	.	.	.	.
14.41	0.0886	0.20	Q	.	.	.	.
14.53	0.0907	0.21	Q	.	.	.	.
14.65	0.0928	0.22	Q	.	.	.	.
14.78	0.0951	0.23	Q	.	.	.	.
14.90	0.0976	0.25	.Q	.	.	.	.
15.02	0.1002	0.26	.Q	.	.	.	.
15.14	0.1029	0.29	.Q	.	.	.	.
15.27	0.1060	0.31	.Q	.	.	.	.
15.39	0.1092	0.34	.Q	.	.	.	.
15.51	0.1125	0.32	.Q	.	.	.	.
15.63	0.1161	0.39	.Q	.	.	.	.
15.76	0.1203	0.45	.Q	.	.	.	.
15.88	0.1260	0.68	. Q	.	.	.	.
16.00	0.1342	0.94	. Q	.	.	.	.
16.12	0.1536	2.89	.	.Q	.	.	.
16.24	0.1710	0.55	. Q	.	.	.	.
16.37	0.1756	0.35	.Q	.	.	.	.
16.49	0.1790	0.33	.Q	.	.	.	.
16.61	0.1820	0.27	.Q	.	.	.	.
16.73	0.1846	0.24	Q	.	.	.	.
16.86	0.1869	0.21	Q	.	.	.	.
16.98	0.1890	0.19	Q	.	.	.	.
17.10	0.1909	0.18	Q	.	.	.	.
17.22	0.1926	0.17	Q	.	.	.	.
17.35	0.1943	0.16	Q	.	.	.	.
17.47	0.1959	0.15	Q	.	.	.	.
17.59	0.1974	0.15	Q	.	.	.	.
17.71	0.1989	0.14	Q	.	.	.	.
17.83	0.2002	0.13	Q	.	.	.	.
17.96	0.2016	0.13	Q	.	.	.	.

18.08	0.2029	0.13	Q	.	.	.	.
18.20	0.2040	0.10	Q	.	.	.	.
18.32	0.2049	0.09	Q	.	.	.	.
18.45	0.2059	0.09	Q	.	.	.	.
18.57	0.2068	0.09	Q	.	.	.	.
18.69	0.2076	0.08	Q	.	.	.	.
18.81	0.2085	0.08	Q	.	.	.	.
18.94	0.2093	0.08	Q	.	.	.	.
19.06	0.2101	0.08	Q	.	.	.	.
19.18	0.2108	0.08	Q	.	.	.	.
19.30	0.2116	0.07	Q	.	.	.	.
19.43	0.2123	0.07	Q	.	.	.	.
19.55	0.2130	0.07	Q	.	.	.	.
19.67	0.2137	0.07	Q	.	.	.	.
19.79	0.2144	0.07	Q	.	.	.	.
19.91	0.2151	0.07	Q	.	.	.	.
20.04	0.2158	0.06	Q	.	.	.	.
20.16	0.2164	0.06	Q	.	.	.	.
20.28	0.2170	0.06	Q	.	.	.	.
20.40	0.2177	0.06	Q	.	.	.	.
20.53	0.2183	0.06	Q	.	.	.	.
20.65	0.2189	0.06	Q	.	.	.	.
20.77	0.2195	0.06	Q	.	.	.	.
20.89	0.2200	0.06	Q	.	.	.	.
21.02	0.2206	0.06	Q	.	.	.	.
21.14	0.2212	0.06	Q	.	.	.	.
21.26	0.2217	0.05	Q	.	.	.	.
21.38	0.2223	0.05	Q	.	.	.	.
21.51	0.2228	0.05	Q	.	.	.	.
21.63	0.2234	0.05	Q	.	.	.	.
21.75	0.2239	0.05	Q	.	.	.	.
21.87	0.2244	0.05	Q	.	.	.	.
21.99	0.2249	0.05	Q	.	.	.	.
22.12	0.2254	0.05	Q	.	.	.	.
22.24	0.2259	0.05	Q	.	.	.	.
22.36	0.2264	0.05	Q	.	.	.	.
22.48	0.2269	0.05	Q	.	.	.	.
22.61	0.2274	0.05	Q	.	.	.	.
22.73	0.2278	0.05	Q	.	.	.	.
22.85	0.2283	0.05	Q	.	.	.	.
22.97	0.2288	0.05	Q	.	.	.	.
23.10	0.2292	0.04	Q	.	.	.	.
23.22	0.2297	0.04	Q	.	.	.	.
23.34	0.2301	0.04	Q	.	.	.	.
23.46	0.2306	0.04	Q	.	.	.	.
23.58	0.2310	0.04	Q	.	.	.	.
23.71	0.2314	0.04	Q	.	.	.	.
23.83	0.2319	0.04	Q	.	.	.	.
23.95	0.2323	0.04	Q	.	.	.	.
24.07	0.2327	0.04	Q	.	.	.	.
24.20	0.2329	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%	1446.0
10%	88.1
20%	22.0
30%	14.7
40%	7.3

```
              50%                                7.3
              60%                                7.3
              70%                                7.3
              80%                                7.3
              90%                                7.3

  Problem Descriptions:
   Mercury Berry (1743.001)
   Prop 10 Yr Flood Routing (callibration coefficient=0.9)
   2019-03-13 MM


================================================================================
     FLOW-THROUGH DETENTION BASIN MODEL

     SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
     CONSTANT HYDROGRAPH TIME UNIT(MINUTES) =    7.340
     DEAD STORAGE(AF) =       0.00
     SPECIFIED DEAD STORAGE(AF) FILLED =       0.00
     ASSUMED INITIAL DEPTH(FEET) IN STORAGE BASIN =    0.00


                    INFLOW
                      |
                      |
                      |
                      V                __effective depth
                -------------          |   (and volume)
                |           |    |     |
                | detention |    |....V..............
                |   basin   |<-->|          outflow
                |           |    |.........._________
                -------------    |         |   \
                      |          | storage |     basin outlet
                      V          -----------
                   OUTFLOW


     DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:
     TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES =   9
     *BASIN-DEPTH  STORAGE    OUTFLOW  **BASIN-DEPTH  STORAGE    OUTFLOW  *
     *   (FEET)  (ACRE-FEET)   (CFS)   **   (FEET)  (ACRE-FEET)   (CFS)   *
     *      0.000      0.000      0.000**      0.250      0.019      0.300*
     *      0.500      0.024      0.700**      0.750      0.030      1.100*
     *      1.000      0.037      1.400**      1.250      0.046      1.600*
     *      1.500      0.059      1.800**      1.750      0.083      2.000*
     *      2.000      0.151      2.200**
--------------------------------------------------------------------------------
     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     0.25       0.01748      0.02052
           3     0.50       0.02046      0.02754
           4     0.75       0.02444      0.03556
           5     1.00       0.02992      0.04408
           6     1.25       0.03791      0.05409
           7     1.50       0.04990      0.06810
           8     1.75       0.07289      0.09311
           9     2.00       0.13988      0.16212
     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)
0.097	0.000	0.04	0.01	0.00	0.000
0.219	0.000	0.04	0.01	0.01	0.001
0.341	0.000	0.04	0.01	0.01	0.001
0.464	0.000	0.04	0.02	0.02	0.001
0.586	0.000	0.04	0.02	0.02	0.001
0.708	0.000	0.04	0.02	0.02	0.002
0.831	0.000	0.04	0.02	0.03	0.002
0.953	0.000	0.04	0.03	0.03	0.002
1.075	0.000	0.04	0.03	0.03	0.002
1.198	0.000	0.04	0.03	0.03	0.002
1.320	0.000	0.04	0.03	0.03	0.002
1.442	0.000	0.04	0.03	0.04	0.002
1.565	0.000	0.04	0.03	0.04	0.002
1.687	0.000	0.04	0.03	0.04	0.002
1.809	0.000	0.04	0.03	0.04	0.002
1.932	0.000	0.04	0.03	0.04	0.003
2.054	0.000	0.04	0.03	0.04	0.003
2.176	0.000	0.05	0.03	0.04	0.003
2.299	0.000	0.05	0.04	0.04	0.003
2.421	0.000	0.05	0.04	0.04	0.003
2.543	0.000	0.05	0.04	0.04	0.003
2.666	0.000	0.05	0.04	0.04	0.003
2.788	0.000	0.05	0.04	0.04	0.003
2.910	0.000	0.05	0.04	0.04	0.003
3.033	0.000	0.05	0.04	0.04	0.003
3.155	0.000	0.05	0.04	0.04	0.003
3.277	0.000	0.05	0.04	0.05	0.003
3.400	0.000	0.05	0.04	0.05	0.003
3.522	0.000	0.05	0.04	0.05	0.003
3.644	0.000	0.05	0.04	0.05	0.003
3.767	0.000	0.05	0.04	0.05	0.003
3.889	0.000	0.05	0.04	0.05	0.003
4.011	0.000	0.05	0.04	0.05	0.003
4.134	0.000	0.05	0.04	0.05	0.003
4.256	0.000	0.05	0.04	0.05	0.003
4.378	0.000	0.05	0.04	0.05	0.003
4.501	0.000	0.05	0.04	0.05	0.003
4.623	0.000	0.05	0.04	0.05	0.003
4.745	0.000	0.05	0.04	0.05	0.003
4.868	0.000	0.05	0.04	0.05	0.003
4.990	0.000	0.05	0.04	0.05	0.003
5.112	0.000	0.05	0.04	0.05	0.003
5.235	0.000	0.05	0.04	0.05	0.003
5.357	0.000	0.05	0.04	0.05	0.003
5.479	0.000	0.05	0.04	0.05	0.003
5.602	0.000	0.05	0.04	0.05	0.003
5.724	0.000	0.05	0.04	0.05	0.003
5.846	0.000	0.05	0.04	0.05	0.003
5.969	0.000	0.06	0.04	0.05	0.003
6.091	0.000	0.06	0.04	0.05	0.003
6.213	0.000	0.06	0.04	0.05	0.003
6.336	0.000	0.06	0.05	0.05	0.003
6.458	0.000	0.06	0.05	0.05	0.003
6.580	0.000	0.06	0.05	0.05	0.003
6.703	0.000	0.06	0.05	0.06	0.004
6.825	0.000	0.06	0.05	0.06	0.004
6.947	0.000	0.06	0.05	0.06	0.004
7.070	0.000	0.06	0.05	0.06	0.004
7.192	0.000	0.06	0.05	0.06	0.004

7.314	0.000	0.06	0.05	0.06	0.004
7.437	0.000	0.06	0.05	0.06	0.004
7.559	0.000	0.06	0.05	0.06	0.004
7.681	0.000	0.06	0.05	0.06	0.004
7.804	0.000	0.06	0.05	0.06	0.004
7.926	0.000	0.06	0.05	0.06	0.004
8.048	0.000	0.06	0.05	0.06	0.004
8.171	0.000	0.06	0.05	0.06	0.004
8.293	0.000	0.06	0.05	0.06	0.004
8.415	0.000	0.07	0.05	0.06	0.004
8.538	0.000	0.07	0.05	0.06	0.004
8.660	0.000	0.07	0.05	0.06	0.004
8.782	0.000	0.07	0.05	0.06	0.004
8.905	0.000	0.07	0.05	0.06	0.004
9.027	0.000	0.07	0.05	0.06	0.004
9.149	0.000	0.07	0.05	0.07	0.004
9.272	0.000	0.07	0.06	0.07	0.004
9.394	0.000	0.07	0.06	0.07	0.004
9.516	0.000	0.07	0.06	0.07	0.004
9.639	0.000	0.07	0.06	0.07	0.004
9.761	0.000	0.07	0.06	0.07	0.004
9.883	0.000	0.07	0.06	0.07	0.004
10.006	0.000	0.08	0.06	0.07	0.005
10.128	0.000	0.08	0.06	0.07	0.005
10.250	0.000	0.08	0.06	0.07	0.005
10.373	0.000	0.08	0.06	0.07	0.005
10.495	0.000	0.08	0.06	0.07	0.005
10.617	0.000	0.08	0.06	0.08	0.005
10.740	0.000	0.08	0.06	0.08	0.005
10.862	0.000	0.08	0.06	0.08	0.005
10.984	0.000	0.08	0.07	0.08	0.005
11.107	0.000	0.09	0.07	0.08	0.005
11.229	0.000	0.09	0.07	0.08	0.005
11.351	0.000	0.09	0.07	0.08	0.005
11.474	0.000	0.09	0.07	0.08	0.005
11.596	0.000	0.09	0.07	0.08	0.005
11.718	0.000	0.09	0.07	0.09	0.005
11.841	0.000	0.09	0.07	0.09	0.006
11.963	0.000	0.10	0.07	0.09	0.006
12.085	0.000	0.10	0.08	0.09	0.006
12.208	0.000	0.13	0.08	0.09	0.006
12.330	0.000	0.13	0.08	0.10	0.006
12.452	0.000	0.13	0.09	0.10	0.007
12.575	0.000	0.13	0.09	0.11	0.007
12.697	0.000	0.14	0.09	0.11	0.007
12.819	0.000	0.14	0.10	0.12	0.007
12.942	0.000	0.14	0.10	0.12	0.008
13.064	0.000	0.14	0.10	0.12	0.008
13.186	0.000	0.15	0.11	0.13	0.008
13.309	0.000	0.15	0.11	0.13	0.008
13.431	0.000	0.16	0.11	0.13	0.009
13.553	0.000	0.16	0.11	0.14	0.009
13.676	0.000	0.16	0.12	0.14	0.009
13.798	0.000	0.17	0.12	0.14	0.009
13.920	0.000	0.17	0.12	0.15	0.009
14.043	0.000	0.18	0.13	0.15	0.010
14.165	0.000	0.18	0.13	0.16	0.010
14.287	0.000	0.19	0.14	0.16	0.010
14.410	0.000	0.20	0.14	0.17	0.011
14.532	0.000	0.21	0.15	0.17	0.011
14.654	0.000	0.22	0.15	0.18	0.011
14.777	0.000	0.23	0.16	0.18	0.012
14.899	0.000	0.25	0.16	0.19	0.013
15.021	0.000	0.26	0.17	0.20	0.013
15.144	0.000	0.29	0.18	0.21	0.014

15.266	0.000	0.31	0.19	0.23	0.015
15.388	0.000	0.34	0.21	0.24	0.016
15.511	0.000	0.32	0.21	0.25	0.016
15.633	0.000	0.39	0.23	0.27	0.018
15.755	0.000	0.45	0.26	0.29	0.019
15.878	0.000	0.68	0.39	0.42	0.022
16.000	0.000	0.94	0.54	0.64	0.025
16.122	0.000	2.89	1.15	1.14	0.043
16.245	0.000	0.55	0.89	1.40	0.034
16.367	0.000	0.35	0.61	1.07	0.027
16.489	0.000	0.33	0.43	0.73	0.023
16.612	0.000	0.27	0.32	0.50	0.020
16.734	0.000	0.24	0.26	0.36	0.019
16.856	0.000	0.21	0.24	0.30	0.018
16.979	0.000	0.19	0.23	0.28	0.017
17.101	0.000	0.18	0.22	0.27	0.017
17.223	0.000	0.17	0.21	0.25	0.016
17.346	0.000	0.16	0.20	0.24	0.015
17.468	0.000	0.15	0.19	0.23	0.014
17.590	0.000	0.15	0.18	0.22	0.013
17.713	0.000	0.14	0.17	0.21	0.013
17.835	0.000	0.13	0.16	0.20	0.012
17.957	0.000	0.13	0.15	0.19	0.012
18.080	0.000	0.13	0.14	0.18	0.011
18.202	0.000	0.10	0.14	0.17	0.010
18.324	0.000	0.09	0.13	0.16	0.010
18.447	0.000	0.09	0.12	0.15	0.009
18.569	0.000	0.09	0.11	0.14	0.009
18.691	0.000	0.08	0.11	0.13	0.008
18.814	0.000	0.08	0.10	0.12	0.008
18.936	0.000	0.08	0.10	0.12	0.007
19.058	0.000	0.08	0.09	0.11	0.007
19.181	0.000	0.08	0.09	0.11	0.007
19.303	0.000	0.07	0.08	0.10	0.006
19.425	0.000	0.07	0.08	0.10	0.006
19.548	0.000	0.07	0.08	0.09	0.006
19.670	0.000	0.07	0.07	0.09	0.006
19.792	0.000	0.07	0.07	0.09	0.005
19.915	0.000	0.07	0.07	0.08	0.005
20.037	0.000	0.06	0.07	0.08	0.005
20.159	0.000	0.06	0.06	0.08	0.005
20.282	0.000	0.06	0.06	0.08	0.005
20.404	0.000	0.06	0.06	0.07	0.005
20.526	0.000	0.06	0.06	0.07	0.004
20.649	0.000	0.06	0.06	0.07	0.004
20.771	0.000	0.06	0.06	0.07	0.004
20.893	0.000	0.06	0.06	0.07	0.004
21.016	0.000	0.06	0.05	0.07	0.004
21.138	0.000	0.06	0.05	0.06	0.004
21.260	0.000	0.05	0.05	0.06	0.004
21.383	0.000	0.05	0.05	0.06	0.004
21.505	0.000	0.05	0.05	0.06	0.004
21.627	0.000	0.05	0.05	0.06	0.004
21.750	0.000	0.05	0.05	0.06	0.004
21.872	0.000	0.05	0.05	0.06	0.004
21.994	0.000	0.05	0.05	0.06	0.004
22.117	0.000	0.05	0.05	0.06	0.003
22.239	0.000	0.05	0.04	0.05	0.003
22.361	0.000	0.05	0.04	0.05	0.003
22.484	0.000	0.05	0.04	0.05	0.003
22.606	0.000	0.05	0.04	0.05	0.003
22.728	0.000	0.05	0.04	0.05	0.003
22.851	0.000	0.05	0.04	0.05	0.003
22.973	0.000	0.05	0.04	0.05	0.003
23.095	0.000	0.04	0.04	0.05	0.003

Outflow=1.4 cfs

23.218	0.000	0.04	0.04	0.05	0.003
23.340	0.000	0.04	0.04	0.05	0.003
23.462	0.000	0.04	0.04	0.05	0.003
23.585	0.000	0.04	0.04	0.05	0.003
23.707	0.000	0.04	0.04	0.05	0.003
23.829	0.000	0.04	0.04	0.05	0.003
23.952	0.000	0.04	0.04	0.05	0.003
24.074	0.000	0.04	0.04	0.04	0.003
24.196	0.000	0.00	0.03	0.04	0.002
24.319	0.000	0.00	0.03	0.03	0.002
24.441	0.000	0.00	0.02	0.03	0.002
24.563	0.000	0.00	0.02	0.03	0.001
24.686	0.000	0.00	0.02	0.02	0.001
24.808	0.000	0.00	0.01	0.02	0.001

```
******************************************************************************
          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                    AND LOW LOSS FRACTION ESTIMATIONS
==============================================================================
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             Ver. 21.0  Release Date: 06/01/2014  License ID 1355

                            Analysis prepared by:

                              Fuscoe Engineering
                               16795 Von Karman
                                  Suite 210
                               Irvine CA 92606

******************************************************************************
------------------------------------------------------------------------------

 Problem Descriptions:
  Mercury Berry (1743.001)
  Prop 25 Yr Flood Routing
  2019-03-14 MM
==============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     4.49 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
         1          1.00       20.00            69.       0.250       0.829

    TOTAL AREA (Acres) =      1.00

    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.050

    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.171
==============================================================================
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**************************************************************************
                    SMALL AREA UNIT HYDROGRAPH MODEL
==========================================================================
         (C) Copyright 1989-2014 Advanced Engineering Software (aes)
             Ver. 21.0  Release Date: 06/01/2014  License ID 1355

                          Analysis prepared by:

                            Fuscoe Engineering
                             16795 Von Karman
                                Suite 210
                             Irvine CA 92606

**************************************************************************
--------------------------------------------------------------------------

 Problem Descriptions:
  Mercuy Berry (1743.001)
  Prop 25 Yr Flood Routing
  2019-03-13 MM
--------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
    TOTAL CATCHMENT AREA(ACRES) =    1.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.050
    LOW LOSS FRACTION = 0.171
    TIME OF CONCENTRATION(MIN.) =  7.33
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =  25
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.87
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.15
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.94
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.71
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  4.49

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

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.29
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.08

**************************************************************************
  TIME     VOLUME       Q    0.        2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
--------------------------------------------------------------------------
  0.12      0.0003      0.05  Q         .         .         .         .
  0.24      0.0008      0.05  Q         .         .         .         .
  0.36      0.0013      0.05  Q         .         .         .         .
  0.48      0.0018      0.05  Q         .         .         .         .
  0.61      0.0023      0.05  Q         .         .         .         .
  0.73      0.0029      0.05  Q         .         .         .         .
  0.85      0.0034      0.05  Q         .         .         .         .
  0.97      0.0039      0.05  Q         .         .         .         .
  1.10      0.0045      0.05  Q         .         .         .         .
  1.22      0.0050      0.05  Q         .         .         .         .
  1.34      0.0056      0.05  Q         .         .         .         .
  1.46      0.0061      0.05  Q         .         .         .         .
  1.58      0.0066      0.05  Q         .         .         .         .
  1.71      0.0072      0.05  Q         .         .         .         .
  1.83      0.0078      0.05  Q         .         .         .         .
  1.95      0.0083      0.06  Q         .         .         .         .
  2.07      0.0089      0.06  Q         .         .         .         .
```

2.20	0.0094	0.06	Q	.	.	.	.
2.32	0.0100	0.06	Q	.	.	.	.
2.44	0.0106	0.06	Q	.	.	.	.
2.56	0.0111	0.06	Q	.	.	.	.
2.68	0.0117	0.06	Q	.	.	.	.
2.81	0.0123	0.06	Q	.	.	.	.
2.93	0.0129	0.06	Q	.	.	.	.
3.05	0.0135	0.06	Q	.	.	.	.
3.17	0.0140	0.06	Q	.	.	.	.
3.29	0.0146	0.06	Q	.	.	.	.
3.42	0.0152	0.06	Q	.	.	.	.
3.54	0.0158	0.06	Q	.	.	.	.
3.66	0.0164	0.06	Q	.	.	.	.
3.78	0.0170	0.06	Q	.	.	.	.
3.91	0.0177	0.06	Q	.	.	.	.
4.03	0.0183	0.06	Q	.	.	.	.
4.15	0.0189	0.06	Q	.	.	.	.
4.27	0.0195	0.06	Q	.	.	.	.
4.39	0.0201	0.06	Q	.	.	.	.
4.52	0.0208	0.06	Q	.	.	.	.
4.64	0.0214	0.06	Q	.	.	.	.
4.76	0.0221	0.06	Q	.	.	.	.
4.88	0.0227	0.06	Q	.	.	.	.
5.01	0.0233	0.06	Q	.	.	.	.
5.13	0.0240	0.07	Q	.	.	.	.
5.25	0.0247	0.07	Q	.	.	.	.
5.37	0.0253	0.07	Q	.	.	.	.
5.49	0.0260	0.07	Q	.	.	.	.
5.62	0.0267	0.07	Q	.	.	.	.
5.74	0.0273	0.07	Q	.	.	.	.
5.86	0.0280	0.07	Q	.	.	.	.
5.98	0.0287	0.07	Q	.	.	.	.
6.10	0.0294	0.07	Q	.	.	.	.
6.23	0.0301	0.07	Q	.	.	.	.
6.35	0.0308	0.07	Q	.	.	.	.
6.47	0.0315	0.07	Q	.	.	.	.
6.59	0.0322	0.07	Q	.	.	.	.
6.72	0.0330	0.07	Q	.	.	.	.
6.84	0.0337	0.07	Q	.	.	.	.
6.96	0.0344	0.07	Q	.	.	.	.
7.08	0.0352	0.07	Q	.	.	.	.
7.20	0.0359	0.07	Q	.	.	.	.
7.33	0.0367	0.08	Q	.	.	.	.
7.45	0.0374	0.08	Q	.	.	.	.
7.57	0.0382	0.08	Q	.	.	.	.
7.69	0.0390	0.08	Q	.	.	.	.
7.81	0.0397	0.08	Q	.	.	.	.
7.94	0.0405	0.08	Q	.	.	.	.
8.06	0.0413	0.08	Q	.	.	.	.
8.18	0.0421	0.08	Q	.	.	.	.
8.30	0.0429	0.08	Q	.	.	.	.
8.43	0.0438	0.08	Q	.	.	.	.
8.55	0.0446	0.08	Q	.	.	.	.
8.67	0.0454	0.08	Q	.	.	.	.
8.79	0.0463	0.08	Q	.	.	.	.
8.91	0.0471	0.08	Q	.	.	.	.
9.04	0.0480	0.09	Q	.	.	.	.
9.16	0.0488	0.09	Q	.	.	.	.
9.28	0.0497	0.09	Q	.	.	.	.
9.40	0.0506	0.09	Q	.	.	.	.
9.53	0.0515	0.09	Q	.	.	.	.
9.65	0.0524	0.09	Q	.	.	.	.
9.77	0.0534	0.09	Q	.	.	.	.
9.89	0.0543	0.09	Q	.	.	.	.
10.01	0.0553	0.09	Q	.	.	.	.

10.14	0.0562	0.10	Q	.	.	.	.
10.26	0.0572	0.10	Q	.	.	.	.
10.38	0.0582	0.10	Q	.	.	.	.
10.50	0.0592	0.10	Q	.	.	.	.
10.62	0.0602	0.10	Q	.	.	.	.
10.75	0.0612	0.10	Q	.	.	.	.
10.87	0.0623	0.10	Q	.	.	.	.
10.99	0.0633	0.11	Q	.	.	.	.
11.11	0.0644	0.11	Q	.	.	.	.
11.24	0.0655	0.11	Q	.	.	.	.
11.36	0.0666	0.11	Q	.	.	.	.
11.48	0.0677	0.11	Q	.	.	.	.
11.60	0.0689	0.11	Q	.	.	.	.
11.72	0.0700	0.12	Q	.	.	.	.
11.85	0.0712	0.12	Q	.	.	.	.
11.97	0.0724	0.12	Q	.	.	.	.
12.09	0.0737	0.13	Q	.	.	.	.
12.21	0.0752	0.17	Q	.	.	.	.
12.34	0.0768	0.17	Q	.	.	.	.
12.46	0.0786	0.17	Q	.	.	.	.
12.58	0.0803	0.17	Q	.	.	.	.
12.70	0.0821	0.18	Q	.	.	.	.
12.82	0.0839	0.18	Q	.	.	.	.
12.95	0.0857	0.19	Q	.	.	.	.
13.07	0.0876	0.19	Q	.	.	.	.
13.19	0.0896	0.19	Q	.	.	.	.
13.31	0.0915	0.20	Q	.	.	.	.
13.43	0.0935	0.20	Q	.	.	.	.
13.56	0.0956	0.21	Q	.	.	.	.
13.68	0.0977	0.21	Q	.	.	.	.
13.80	0.0999	0.22	Q	.	.	.	.
13.92	0.1021	0.23	Q	.	.	.	.
14.05	0.1044	0.23	Q	.	.	.	.
14.17	0.1068	0.24	Q	.	.	.	.
14.29	0.1093	0.25	Q	.	.	.	.
14.41	0.1118	0.26	.Q	.	.	.	.
14.53	0.1145	0.27	.Q	.	.	.	.
14.66	0.1173	0.29	.Q	.	.	.	.
14.78	0.1203	0.30	.Q	.	.	.	.
14.90	0.1234	0.32	.Q	.	.	.	.
15.02	0.1267	0.34	.Q	.	.	.	.
15.14	0.1303	0.37	.Q	.	.	.	.
15.27	0.1341	0.39	.Q	.	.	.	.
15.39	0.1382	0.43	.Q	.	.	.	.
15.51	0.1424	0.40	.Q	.	.	.	.
15.63	0.1468	0.49	.Q	.	.	.	.
15.76	0.1521	0.56	. Q	.	.	.	.
15.88	0.1593	0.86	. Q	.	.	.	.
16.00	0.1696	1.18	. Q	.	.	.	.
16.12	0.1930	3.45	.	. Q	.	.	.
16.24	0.2140	0.70	. Q	.	.	.	.
16.37	0.2197	0.44	.Q	.	.	.	.
16.49	0.2240	0.41	.Q	.	.	.	.
16.61	0.2279	0.35	.Q	.	.	.	.
16.73	0.2312	0.31	.Q	.	.	.	.
16.86	0.2342	0.28	.Q	.	.	.	.
16.98	0.2369	0.25	.Q	.	.	.	.
17.10	0.2393	0.24	Q	.	.	.	.
17.22	0.2416	0.22	Q	.	.	.	.
17.34	0.2438	0.21	Q	.	.	.	.
17.47	0.2459	0.20	Q	.	.	.	.
17.59	0.2478	0.19	Q	.	.	.	.
17.71	0.2497	0.18	Q	.	.	.	.
17.83	0.2515	0.18	Q	.	.	.	.
17.95	0.2533	0.17	Q	.	.	.	.

18.08	0.2550	0.16	Q	.	.	.	.
18.20	0.2564	0.12	Q	.	.	.	.
18.32	0.2576	0.12	Q	.	.	.	.
18.44	0.2587	0.11	Q	.	.	.	.
18.57	0.2599	0.11	Q	.	.	.	.
18.69	0.2609	0.10	Q	.	.	.	.
18.81	0.2620	0.10	Q	.	.	.	.
18.93	0.2630	0.10	Q	.	.	.	.
19.05	0.2640	0.10	Q	.	.	.	.
19.18	0.2649	0.09	Q	.	.	.	.
19.30	0.2659	0.09	Q	.	.	.	.
19.42	0.2668	0.09	Q	.	.	.	.
19.54	0.2677	0.09	Q	.	.	.	.
19.67	0.2685	0.09	Q	.	.	.	.
19.79	0.2694	0.08	Q	.	.	.	.
19.91	0.2702	0.08	Q	.	.	.	.
20.03	0.2711	0.08	Q	.	.	.	.
20.15	0.2719	0.08	Q	.	.	.	.
20.28	0.2726	0.08	Q	.	.	.	.
20.40	0.2734	0.08	Q	.	.	.	.
20.52	0.2742	0.07	Q	.	.	.	.
20.64	0.2749	0.07	Q	.	.	.	.
20.76	0.2757	0.07	Q	.	.	.	.
20.89	0.2764	0.07	Q	.	.	.	.
21.01	0.2771	0.07	Q	.	.	.	.
21.13	0.2778	0.07	Q	.	.	.	.
21.25	0.2785	0.07	Q	.	.	.	.
21.38	0.2792	0.07	Q	.	.	.	.
21.50	0.2798	0.07	Q	.	.	.	.
21.62	0.2805	0.06	Q	.	.	.	.
21.74	0.2811	0.06	Q	.	.	.	.
21.86	0.2818	0.06	Q	.	.	.	.
21.99	0.2824	0.06	Q	.	.	.	.
22.11	0.2830	0.06	Q	.	.	.	.
22.23	0.2836	0.06	Q	.	.	.	.
22.35	0.2842	0.06	Q	.	.	.	.
22.47	0.2848	0.06	Q	.	.	.	.
22.60	0.2854	0.06	Q	.	.	.	.
22.72	0.2860	0.06	Q	.	.	.	.
22.84	0.2866	0.06	Q	.	.	.	.
22.96	0.2872	0.06	Q	.	.	.	.
23.09	0.2877	0.06	Q	.	.	.	.
23.21	0.2883	0.06	Q	.	.	.	.
23.33	0.2889	0.05	Q	.	.	.	.
23.45	0.2894	0.05	Q	.	.	.	.
23.57	0.2899	0.05	Q	.	.	.	.
23.70	0.2905	0.05	Q	.	.	.	.
23.82	0.2910	0.05	Q	.	.	.	.
23.94	0.2915	0.05	Q	.	.	.	.
24.06	0.2921	0.05	Q	.	.	.	.
24.19	0.2923	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%	1444.0
10%	95.3
20%	29.3
30%	14.7
40%	7.3

50%	7.3
60%	7.3
70%	7.3
80%	7.3
90%	7.3

Problem Descriptions:
Mercuy Berry (1743.001)
Prop 25 Yr Flood Routing
2019-03-13 MM

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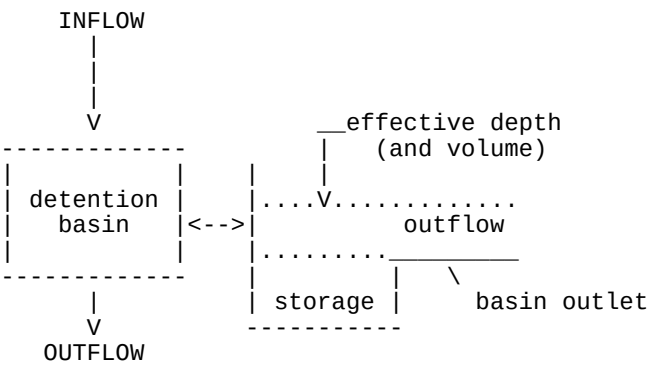
FLOW-THROUGH DETENTION BASIN MODEL

SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
CONSTANT HYDROGRAPH TIME UNIT(MINUTES) = 7.330
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 = 9

*BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	**BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)
0.000	0.000	0.000**	0.250	0.019	0.300*
0.500	0.024	0.700**	0.750	0.030	1.100*
1.000	0.037	1.400**	1.250	0.046	1.600*
1.500	0.059	1.800**	1.750	0.083	2.000*
2.000	0.151	2.200**			

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	0.01749	0.02051
3	0.50	0.02047	0.02753
4	0.75	0.02445	0.03555
5	1.00	0.02993	0.04407
6	1.25	0.03792	0.05408
7	1.50	0.04991	0.06809
8	1.75	0.07290	0.09310
9	2.00	0.13989	0.16211

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)
0.118	0.000	0.05	0.01	0.00	0.000
0.241	0.000	0.05	0.01	0.01	0.001
0.363	0.000	0.05	0.02	0.02	0.001
0.485	0.000	0.05	0.02	0.02	0.002
0.607	0.000	0.05	0.02	0.03	0.002
0.729	0.000	0.05	0.03	0.03	0.002
0.851	0.000	0.05	0.03	0.03	0.002
0.974	0.000	0.05	0.03	0.04	0.002
1.096	0.000	0.05	0.03	0.04	0.003
1.218	0.000	0.05	0.04	0.04	0.003
1.340	0.000	0.05	0.04	0.04	0.003
1.462	0.000	0.05	0.04	0.04	0.003
1.584	0.000	0.05	0.04	0.05	0.003
1.707	0.000	0.05	0.04	0.05	0.003
1.829	0.000	0.05	0.04	0.05	0.003
1.951	0.000	0.06	0.04	0.05	0.003
2.073	0.000	0.06	0.04	0.05	0.003
2.195	0.000	0.06	0.04	0.05	0.003
2.317	0.000	0.06	0.04	0.05	0.003
2.440	0.000	0.06	0.04	0.05	0.003
2.562	0.000	0.06	0.04	0.05	0.003
2.684	0.000	0.06	0.04	0.05	0.003
2.806	0.000	0.06	0.05	0.05	0.003
2.928	0.000	0.06	0.05	0.05	0.003
3.050	0.000	0.06	0.05	0.06	0.004
3.173	0.000	0.06	0.05	0.06	0.004
3.295	0.000	0.06	0.05	0.06	0.004
3.417	0.000	0.06	0.05	0.06	0.004
3.539	0.000	0.06	0.05	0.06	0.004
3.661	0.000	0.06	0.05	0.06	0.004
3.783	0.000	0.06	0.05	0.06	0.004
3.905	0.000	0.06	0.05	0.06	0.004
4.028	0.000	0.06	0.05	0.06	0.004
4.150	0.000	0.06	0.05	0.06	0.004
4.272	0.000	0.06	0.05	0.06	0.004
4.394	0.000	0.06	0.05	0.06	0.004
4.516	0.000	0.06	0.05	0.06	0.004
4.638	0.000	0.06	0.05	0.06	0.004
4.761	0.000	0.06	0.05	0.06	0.004
4.883	0.000	0.06	0.05	0.06	0.004
5.005	0.000	0.06	0.05	0.06	0.004
5.127	0.000	0.07	0.05	0.06	0.004
5.249	0.000	0.07	0.05	0.06	0.004
5.372	0.000	0.07	0.05	0.06	0.004
5.494	0.000	0.07	0.05	0.06	0.004
5.616	0.000	0.07	0.05	0.06	0.004
5.738	0.000	0.07	0.05	0.06	0.004
5.860	0.000	0.07	0.05	0.06	0.004
5.982	0.000	0.07	0.05	0.07	0.004
6.105	0.000	0.07	0.06	0.07	0.004
6.227	0.000	0.07	0.06	0.07	0.004
6.349	0.000	0.07	0.06	0.07	0.004
6.471	0.000	0.07	0.06	0.07	0.004
6.593	0.000	0.07	0.06	0.07	0.004
6.715	0.000	0.07	0.06	0.07	0.004
6.838	0.000	0.07	0.06	0.07	0.004
6.960	0.000	0.07	0.06	0.07	0.004
7.082	0.000	0.07	0.06	0.07	0.004
7.204	0.000	0.07	0.06	0.07	0.004

7.326	0.000	0.08	0.06	0.07	0.005
7.448	0.000	0.08	0.06	0.07	0.005
7.571	0.000	0.08	0.06	0.07	0.005
7.693	0.000	0.08	0.06	0.07	0.005
7.815	0.000	0.08	0.06	0.07	0.005
7.937	0.000	0.08	0.06	0.07	0.005
8.059	0.000	0.08	0.06	0.07	0.005
8.181	0.000	0.08	0.06	0.08	0.005
8.304	0.000	0.08	0.06	0.08	0.005
8.426	0.000	0.08	0.06	0.08	0.005
8.548	0.000	0.08	0.07	0.08	0.005
8.670	0.000	0.08	0.07	0.08	0.005
8.792	0.000	0.08	0.07	0.08	0.005
8.914	0.000	0.08	0.07	0.08	0.005
9.036	0.000	0.09	0.07	0.08	0.005
9.159	0.000	0.09	0.07	0.08	0.005
9.281	0.000	0.09	0.07	0.08	0.005
9.403	0.000	0.09	0.07	0.08	0.005
9.525	0.000	0.09	0.07	0.08	0.005
9.647	0.000	0.09	0.07	0.09	0.005
9.769	0.000	0.09	0.07	0.09	0.005
9.892	0.000	0.09	0.07	0.09	0.006
10.014	0.000	0.09	0.07	0.09	0.006
10.136	0.000	0.10	0.07	0.09	0.006
10.258	0.000	0.10	0.08	0.09	0.006
10.380	0.000	0.10	0.08	0.09	0.006
10.503	0.000	0.10	0.08	0.09	0.006
10.625	0.000	0.10	0.08	0.09	0.006
10.747	0.000	0.10	0.08	0.09	0.006
10.869	0.000	0.10	0.08	0.10	0.006
10.991	0.000	0.11	0.08	0.10	0.006
11.113	0.000	0.11	0.08	0.10	0.006
11.236	0.000	0.11	0.08	0.10	0.006
11.358	0.000	0.11	0.09	0.10	0.006
11.480	0.000	0.11	0.09	0.10	0.007
11.602	0.000	0.11	0.09	0.10	0.007
11.724	0.000	0.12	0.09	0.11	0.007
11.846	0.000	0.12	0.09	0.11	0.007
11.969	0.000	0.12	0.09	0.11	0.007
12.091	0.000	0.13	0.09	0.11	0.007
12.213	0.000	0.17	0.10	0.12	0.008
12.335	0.000	0.17	0.11	0.12	0.008
12.457	0.000	0.17	0.11	0.13	0.009
12.579	0.000	0.17	0.12	0.14	0.009
12.702	0.000	0.18	0.12	0.14	0.009
12.824	0.000	0.18	0.13	0.15	0.010
12.946	0.000	0.19	0.13	0.15	0.010
13.068	0.000	0.19	0.13	0.16	0.010
13.190	0.000	0.19	0.14	0.16	0.010
13.312	0.000	0.20	0.14	0.17	0.011
13.434	0.000	0.20	0.15	0.17	0.011
13.557	0.000	0.21	0.15	0.18	0.011
13.679	0.000	0.21	0.15	0.18	0.012
13.801	0.000	0.22	0.16	0.19	0.012
13.923	0.000	0.23	0.16	0.19	0.012
14.045	0.000	0.23	0.17	0.20	0.013
14.167	0.000	0.24	0.17	0.20	0.013
14.290	0.000	0.25	0.18	0.21	0.013
14.412	0.000	0.26	0.18	0.22	0.014
14.534	0.000	0.27	0.19	0.22	0.014
14.656	0.000	0.29	0.20	0.23	0.015
14.778	0.000	0.30	0.20	0.24	0.015
14.901	0.000	0.32	0.21	0.25	0.016
15.023	0.000	0.34	0.22	0.26	0.017
15.145	0.000	0.37	0.24	0.28	0.018

15.267	0.000	0.39	0.25	0.29	0.019
15.389	0.000	0.43	0.29	0.33	0.020
15.511	0.000	0.40	0.30	0.38	0.020
15.634	0.000	0.49	0.34	0.41	0.021
15.756	0.000	0.56	0.38	0.48	0.022
15.878	0.000	0.86	0.51	0.61	0.024
16.000	0.000	1.18	0.66	0.83	0.028
16.122	0.000	3.45	1.32	1.30	0.049
16.244	0.000	0.70	1.10	1.57	0.041
16.366	0.000	0.44	0.81	1.33	0.032
16.489	0.000	0.41	0.58	1.00	0.026
16.611	0.000	0.35	0.42	0.69	0.022
16.733	0.000	0.31	0.32	0.49	0.020
16.855	0.000	0.28	0.27	0.38	0.019
16.977	0.000	0.25	0.25	0.32	0.019
17.099	0.000	0.24	0.24	0.29	0.018
17.222	0.000	0.22	0.23	0.28	0.018
17.344	0.000	0.21	0.22	0.27	0.017
17.466	0.000	0.20	0.21	0.26	0.016
17.588	0.000	0.19	0.21	0.25	0.016
17.710	0.000	0.18	0.20	0.24	0.015
17.832	0.000	0.18	0.19	0.23	0.015
17.955	0.000	0.17	0.18	0.22	0.014
18.077	0.000	0.16	0.18	0.22	0.013
18.199	0.000	0.12	0.17	0.21	0.013
18.321	0.000	0.12	0.16	0.19	0.012
18.443	0.000	0.11	0.15	0.18	0.011
18.566	0.000	0.11	0.14	0.17	0.010
18.688	0.000	0.10	0.13	0.16	0.010
18.810	0.000	0.10	0.12	0.15	0.009
18.932	0.000	0.10	0.12	0.14	0.009
19.054	0.000	0.10	0.11	0.14	0.009
19.176	0.000	0.09	0.11	0.13	0.008
19.299	0.000	0.09	0.10	0.13	0.008
19.421	0.000	0.09	0.10	0.12	0.007
19.543	0.000	0.09	0.09	0.12	0.007
19.665	0.000	0.09	0.09	0.11	0.007
19.787	0.000	0.08	0.09	0.11	0.007
19.909	0.000	0.08	0.09	0.10	0.006
20.031	0.000	0.08	0.08	0.10	0.006
20.154	0.000	0.08	0.08	0.10	0.006
20.276	0.000	0.08	0.08	0.09	0.006
20.398	0.000	0.08	0.08	0.09	0.006
20.520	0.000	0.07	0.07	0.09	0.006
20.642	0.000	0.07	0.07	0.09	0.005
20.764	0.000	0.07	0.07	0.09	0.005
20.887	0.000	0.07	0.07	0.08	0.005
21.009	0.000	0.07	0.07	0.08	0.005
21.131	0.000	0.07	0.07	0.08	0.005
21.253	0.000	0.07	0.06	0.08	0.005
21.375	0.000	0.07	0.06	0.08	0.005
21.497	0.000	0.07	0.06	0.07	0.005
21.620	0.000	0.06	0.06	0.07	0.005
21.742	0.000	0.06	0.06	0.07	0.005
21.864	0.000	0.06	0.06	0.07	0.004
21.986	0.000	0.06	0.06	0.07	0.004
22.108	0.000	0.06	0.06	0.07	0.004
22.230	0.000	0.06	0.06	0.07	0.004
22.353	0.000	0.06	0.05	0.07	0.004
22.475	0.000	0.06	0.05	0.07	0.004
22.597	0.000	0.06	0.05	0.06	0.004
22.719	0.000	0.06	0.05	0.06	0.004
22.841	0.000	0.06	0.05	0.06	0.004
22.963	0.000	0.06	0.05	0.06	0.004
23.086	0.000	0.06	0.05	0.06	0.004

Outflow=1.6 cfs

23.208	0.000	0.06	0.05	0.06	0.004
23.330	0.000	0.05	0.05	0.06	0.004
23.452	0.000	0.05	0.05	0.06	0.004
23.574	0.000	0.05	0.05	0.06	0.004
23.697	0.000	0.05	0.05	0.06	0.004
23.819	0.000	0.05	0.05	0.06	0.004
23.941	0.000	0.05	0.05	0.06	0.004
24.063	0.000	0.05	0.05	0.06	0.003
24.185	0.000	0.00	0.04	0.05	0.003
24.307	0.000	0.00	0.03	0.04	0.003
24.430	0.000	0.00	0.03	0.04	0.002
24.552	0.000	0.00	0.02	0.03	0.002
24.674	0.000	0.00	0.02	0.03	0.002
24.796	0.000	0.00	0.02	0.02	0.001
24.918	0.000	0.00	0.01	0.02	0.001
25.040	0.000	0.00	0.01	0.02	0.001

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          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                    AND LOW LOSS FRACTION ESTIMATIONS
==============================================================================
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             Ver. 21.0  Release Date: 06/01/2014  License ID 1355

                            Analysis prepared by:

                              Fuscoe Engineering
                               16795 Von Karman
                                  Suite 210
                               Irvine CA 92606

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 Problem Descriptions:
  Mercury Berry (1743.001)
  Prop 100 Yr Flood Routing
  2019-03-14 MM
==============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     5.63 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
         1          1.00       20.00       69.(AMC II)     0.250       0.910

    TOTAL AREA (Acres) =      1.00

    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.050

    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.090
==============================================================================
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**************************************************************************
                    SMALL AREA UNIT HYDROGRAPH MODEL
==========================================================================
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             Ver. 21.0  Release Date: 06/01/2014  License ID 1355

                          Analysis prepared by:

                            Fuscoe Engineering
                             16795 Von Karman
                                Suite 100
                              Ivine CA 92606

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 Problem Descriptions:
  Mercury Berry (1743.001)
  Prop 100 Yr Flood Routing (coefficient=0.897)
  2019-03-12 SS
--------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
    TOTAL CATCHMENT AREA(ACRES) =    1.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.050
    LOW LOSS FRACTION = 0.090
    TIME OF CONCENTRATION(MIN.) =  7.32
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) = 100
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.52
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  1.09
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.45
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  2.43
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  3.36
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  5.63

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

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.39
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.08

**************************************************************************
  TIME     VOLUME       Q    0.        2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
--------------------------------------------------------------------------
  0.02      0.0000      0.00  Q         .         .         .         .
  0.14      0.0004      0.07  Q         .         .         .         .
  0.26      0.0011      0.07  Q         .         .         .         .
  0.38      0.0018      0.07  Q         .         .         .         .
  0.51      0.0025      0.07  Q         .         .         .         .
  0.63      0.0033      0.07  Q         .         .         .         .
  0.75      0.0040      0.07  Q         .         .         .         .
  0.87      0.0047      0.07  Q         .         .         .         .
  0.99      0.0055      0.07  Q         .         .         .         .
  1.12      0.0062      0.07  Q         .         .         .         .
  1.24      0.0070      0.07  Q         .         .         .         .
  1.36      0.0077      0.07  Q         .         .         .         .
  1.48      0.0085      0.08  Q         .         .         .         .
  1.60      0.0093      0.08  Q         .         .         .         .
  1.73      0.0100      0.08  Q         .         .         .         .
  1.85      0.0108      0.08  Q         .         .         .         .
  1.97      0.0116      0.08  Q         .         .         .         .
```

2.09	0.0124	0.08	Q	.	.	.	.
2.21	0.0131	0.08	Q	.	.	.	.
2.34	0.0139	0.08	Q	.	.	.	.
2.46	0.0147	0.08	Q	.	.	.	.
2.58	0.0155	0.08	Q	.	.	.	.
2.70	0.0163	0.08	Q	.	.	.	.
2.82	0.0171	0.08	Q	.	.	.	.
2.95	0.0179	0.08	Q	.	.	.	.
3.07	0.0187	0.08	Q	.	.	.	.
3.19	0.0196	0.08	Q	.	.	.	.
3.31	0.0204	0.08	Q	.	.	.	.
3.43	0.0212	0.08	Q	.	.	.	.
3.56	0.0221	0.08	Q	.	.	.	.
3.68	0.0229	0.08	Q	.	.	.	.
3.80	0.0237	0.08	Q	.	.	.	.
3.92	0.0246	0.08	Q	.	.	.	.
4.04	0.0254	0.09	Q	.	.	.	.
4.17	0.0263	0.09	Q	.	.	.	.
4.29	0.0272	0.09	Q	.	.	.	.
4.41	0.0280	0.09	Q	.	.	.	.
4.53	0.0289	0.09	Q	.	.	.	.
4.65	0.0298	0.09	Q	.	.	.	.
4.78	0.0307	0.09	Q	.	.	.	.
4.90	0.0316	0.09	Q	.	.	.	.
5.02	0.0325	0.09	Q	.	.	.	.
5.14	0.0334	0.09	Q	.	.	.	.
5.26	0.0343	0.09	Q	.	.	.	.
5.39	0.0352	0.09	Q	.	.	.	.
5.51	0.0362	0.09	Q	.	.	.	.
5.63	0.0371	0.09	Q	.	.	.	.
5.75	0.0380	0.09	Q	.	.	.	.
5.87	0.0390	0.09	Q	.	.	.	.
6.00	0.0400	0.10	Q	.	.	.	.
6.12	0.0409	0.10	Q	.	.	.	.
6.24	0.0419	0.10	Q	.	.	.	.
6.36	0.0429	0.10	Q	.	.	.	.
6.48	0.0438	0.10	Q	.	.	.	.
6.61	0.0448	0.10	Q	.	.	.	.
6.73	0.0458	0.10	Q	.	.	.	.
6.85	0.0469	0.10	Q	.	.	.	.
6.97	0.0479	0.10	Q	.	.	.	.
7.09	0.0489	0.10	Q	.	.	.	.
7.22	0.0499	0.10	Q	.	.	.	.
7.34	0.0510	0.10	Q	.	.	.	.
7.46	0.0520	0.10	Q	.	.	.	.
7.58	0.0531	0.11	Q	.	.	.	.
7.70	0.0542	0.11	Q	.	.	.	.
7.83	0.0552	0.11	Q	.	.	.	.
7.95	0.0563	0.11	Q	.	.	.	.
8.07	0.0574	0.11	Q	.	.	.	.
8.19	0.0586	0.11	Q	.	.	.	.
8.31	0.0597	0.11	Q	.	.	.	.
8.44	0.0608	0.11	Q	.	.	.	.
8.56	0.0620	0.11	Q	.	.	.	.
8.68	0.0631	0.12	Q	.	.	.	.
8.80	0.0643	0.12	Q	.	.	.	.
8.92	0.0655	0.12	Q	.	.	.	.
9.05	0.0667	0.12	Q	.	.	.	.
9.17	0.0679	0.12	Q	.	.	.	.
9.29	0.0691	0.12	Q	.	.	.	.
9.41	0.0703	0.12	Q	.	.	.	.
9.53	0.0716	0.12	Q	.	.	.	.
9.66	0.0728	0.13	Q	.	.	.	.
9.78	0.0741	0.13	Q	.	.	.	.
9.90	0.0754	0.13	Q	.	.	.	.

10.02	0.0767	0.13	Q	.	.	.	.
10.14	0.0781	0.13	Q	.	.	.	.
10.27	0.0794	0.13	Q	.	.	.	.
10.39	0.0808	0.14	Q	.	.	.	.
10.51	0.0822	0.14	Q	.	.	.	.
10.63	0.0836	0.14	Q	.	.	.	.
10.75	0.0850	0.14	Q	.	.	.	.
10.88	0.0864	0.14	Q	.	.	.	.
11.00	0.0879	0.15	Q	.	.	.	.
11.12	0.0894	0.15	Q	.	.	.	.
11.24	0.0909	0.15	Q	.	.	.	.
11.36	0.0924	0.15	Q	.	.	.	.
11.49	0.0940	0.16	Q	.	.	.	.
11.61	0.0955	0.16	Q	.	.	.	.
11.73	0.0971	0.16	Q	.	.	.	.
11.85	0.0988	0.16	Q	.	.	.	.
11.97	0.1004	0.17	Q	.	.	.	.
12.10	0.1022	0.18	Q	.	.	.	.
12.22	0.1042	0.22	Q	.	.	.	.
12.34	0.1064	0.22	Q	.	.	.	.
12.46	0.1086	0.23	Q	.	.	.	.
12.58	0.1109	0.23	Q	.	.	.	.
12.71	0.1132	0.23	Q	.	.	.	.
12.83	0.1156	0.24	Q	.	.	.	.
12.95	0.1180	0.24	Q	.	.	.	.
13.07	0.1205	0.25	Q	.	.	.	.
13.19	0.1230	0.25	.Q	.	.	.	.
13.32	0.1256	0.26	.Q	.	.	.	.
13.44	0.1283	0.27	.Q	.	.	.	.
13.56	0.1310	0.27	.Q	.	.	.	.
13.68	0.1338	0.28	.Q	.	.	.	.
13.80	0.1366	0.29	.Q	.	.	.	.
13.93	0.1396	0.30	.Q	.	.	.	.
14.05	0.1426	0.30	.Q	.	.	.	.
14.17	0.1457	0.32	.Q	.	.	.	.
14.29	0.1490	0.33	.Q	.	.	.	.
14.41	0.1523	0.34	.Q	.	.	.	.
14.54	0.1558	0.35	.Q	.	.	.	.
14.66	0.1595	0.37	.Q	.	.	.	.
14.78	0.1633	0.38	.Q	.	.	.	.
14.90	0.1673	0.41	.Q	.	.	.	.
15.02	0.1715	0.43	.Q	.	.	.	.
15.15	0.1760	0.47	.Q	.	.	.	.
15.27	0.1808	0.49	.Q	.	.	.	.
15.39	0.1860	0.54	. Q	.	.	.	.
15.51	0.1914	0.52	. Q	.	.	.	.
15.63	0.1972	0.63	. Q	.	.	.	.
15.76	0.2040	0.72	. Q	.	.	.	.
15.88	0.2129	1.04	. Q	.	.	.	.
16.00	0.2254	1.44	. Q	.	.	.	.
16.12	0.2550	4.43	.	.	Q	.	.
16.24	0.2816	0.84	. Q	.	.	.	.
16.37	0.2887	0.57	. Q	.	.	.	.
16.49	0.2942	0.52	. Q	.	.	.	.
16.61	0.2991	0.44	.Q	.	.	.	.
16.73	0.3033	0.40	.Q	.	.	.	.
16.85	0.3071	0.36	.Q	.	.	.	.
16.98	0.3106	0.33	.Q	.	.	.	.
17.10	0.3139	0.31	.Q	.	.	.	.
17.22	0.3169	0.29	.Q	.	.	.	.
17.34	0.3198	0.28	.Q	.	.	.	.
17.46	0.3225	0.26	.Q	.	.	.	.
17.59	0.3251	0.25	.Q	.	.	.	.
17.71	0.3275	0.24	Q	.	.	.	.
17.83	0.3299	0.23	Q	.	.	.	.

17.95	0.3322	0.22	Q	.	.	.	.
18.07	0.3344	0.22	Q	.	.	.	.
18.20	0.3363	0.17	Q	.	.	.	.
18.32	0.3380	0.16	Q	.	.	.	.
18.44	0.3396	0.15	Q	.	.	.	.
18.56	0.3411	0.15	Q	.	.	.	.
18.68	0.3426	0.14	Q	.	.	.	.
18.81	0.3440	0.14	Q	.	.	.	.
18.93	0.3454	0.14	Q	.	.	.	.
19.05	0.3468	0.13	Q	.	.	.	.
19.17	0.3481	0.13	Q	.	.	.	.
19.29	0.3494	0.13	Q	.	.	.	.
19.42	0.3507	0.12	Q	.	.	.	.
19.54	0.3519	0.12	Q	.	.	.	.
19.66	0.3531	0.12	Q	.	.	.	.
19.78	0.3543	0.12	Q	.	.	.	.
19.90	0.3555	0.11	Q	.	.	.	.
20.03	0.3566	0.11	Q	.	.	.	.
20.15	0.3577	0.11	Q	.	.	.	.
20.27	0.3588	0.11	Q	.	.	.	.
20.39	0.3599	0.11	Q	.	.	.	.
20.51	0.3609	0.10	Q	.	.	.	.
20.64	0.3620	0.10	Q	.	.	.	.
20.76	0.3630	0.10	Q	.	.	.	.
20.88	0.3640	0.10	Q	.	.	.	.
21.00	0.3650	0.10	Q	.	.	.	.
21.12	0.3659	0.10	Q	.	.	.	.
21.25	0.3669	0.09	Q	.	.	.	.
21.37	0.3678	0.09	Q	.	.	.	.
21.49	0.3688	0.09	Q	.	.	.	.
21.61	0.3697	0.09	Q	.	.	.	.
21.73	0.3706	0.09	Q	.	.	.	.
21.86	0.3715	0.09	Q	.	.	.	.
21.98	0.3723	0.09	Q	.	.	.	.
22.10	0.3732	0.09	Q	.	.	.	.
22.22	0.3741	0.08	Q	.	.	.	.
22.34	0.3749	0.08	Q	.	.	.	.
22.47	0.3757	0.08	Q	.	.	.	.
22.59	0.3766	0.08	Q	.	.	.	.
22.71	0.3774	0.08	Q	.	.	.	.
22.83	0.3782	0.08	Q	.	.	.	.
22.95	0.3790	0.08	Q	.	.	.	.
23.08	0.3798	0.08	Q	.	.	.	.
23.20	0.3806	0.08	Q	.	.	.	.
23.32	0.3813	0.08	Q	.	.	.	.
23.44	0.3821	0.08	Q	.	.	.	.
23.56	0.3828	0.07	Q	.	.	.	.
23.69	0.3836	0.07	Q	.	.	.	.
23.81	0.3843	0.07	Q	.	.	.	.
23.93	0.3851	0.07	Q	.	.	.	.
24.05	0.3858	0.07	Q	.	.	.	.
24.17	0.3861	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%	95.2
20%	22.0
30%	14.6

```
              40%                                7.3
              50%                                7.3
              60%                                7.3
              70%                                7.3
              80%                                7.3
              90%                                7.3

  Problem Descriptions:
   Mercury Berry (1743.001)
   Prop 100 Yr Flood Routing (coefficient=0.897)
   2019-03-12 SS


================================================================================
     FLOW-THROUGH DETENTION BASIN MODEL

     SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
     CONSTANT HYDROGRAPH TIME UNIT(MINUTES) =    7.320
     DEAD STORAGE(AF) =       0.00
     SPECIFIED DEAD STORAGE(AF) FILLED =       0.00
     ASSUMED INITIAL DEPTH(FEET) IN STORAGE BASIN =    0.00


                    INFLOW
                      |
                      |
                      |
                      V                __effective depth
                -------------          |   (and volume)
                |           |    |     |
                | detention |    |....V.............
                |   basin   |<-->|          outflow
                |           |    |.........________
                -------------    |         |   \
                      |          | storage |     basin outlet
                      V          -----------
                   OUTFLOW


     DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:
     TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES =   9
     *BASIN-DEPTH  STORAGE    OUTFLOW  **BASIN-DEPTH  STORAGE    OUTFLOW  *
     *   (FEET)  (ACRE-FEET)   (CFS)   **   (FEET)  (ACRE-FEET)   (CFS)   *
     *      0.000      0.000      0.000**      0.250      0.019      0.300*
     *      0.500      0.024      0.700**      0.750      0.030      1.100*
     *      1.000      0.037      1.400**      1.250      0.046      1.600*
     *      1.500      0.059      1.800**      1.750      0.083      2.000*
     *      2.000      0.151      2.200**
--------------------------------------------------------------------------------
     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     0.25       0.01749      0.02051
           3     0.50       0.02047      0.02753
           4     0.75       0.02445      0.03555
           5     1.00       0.02994      0.04406
           6     1.25       0.03793      0.05407
           7     1.50       0.04993      0.06807
           8     1.75       0.07292      0.09308
           9     2.00       0.13991      0.16209
     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)
0.018	0.000	0.00	0.00	0.00	0.000
0.140	0.000	0.07	0.01	0.01	0.001
0.262	0.000	0.07	0.02	0.02	0.001
0.384	0.000	0.07	0.02	0.02	0.002
0.506	0.000	0.07	0.03	0.03	0.002
0.628	0.000	0.07	0.03	0.04	0.003
0.750	0.000	0.07	0.04	0.04	0.003
0.872	0.000	0.07	0.04	0.05	0.003
0.994	0.000	0.07	0.04	0.05	0.003
1.116	0.000	0.07	0.05	0.05	0.004
1.238	0.000	0.07	0.05	0.06	0.004
1.360	0.000	0.07	0.05	0.06	0.004
1.482	0.000	0.08	0.05	0.06	0.004
1.604	0.000	0.08	0.05	0.06	0.004
1.726	0.000	0.08	0.06	0.07	0.004
1.848	0.000	0.08	0.06	0.07	0.004
1.970	0.000	0.08	0.06	0.07	0.004
2.092	0.000	0.08	0.06	0.07	0.004
2.214	0.000	0.08	0.06	0.07	0.005
2.336	0.000	0.08	0.06	0.07	0.005
2.458	0.000	0.08	0.06	0.07	0.005
2.580	0.000	0.08	0.06	0.07	0.005
2.702	0.000	0.08	0.06	0.07	0.005
2.824	0.000	0.08	0.06	0.08	0.005
2.946	0.000	0.08	0.06	0.08	0.005
3.068	0.000	0.08	0.06	0.08	0.005
3.190	0.000	0.08	0.06	0.08	0.005
3.312	0.000	0.08	0.07	0.08	0.005
3.434	0.000	0.08	0.07	0.08	0.005
3.556	0.000	0.08	0.07	0.08	0.005
3.678	0.000	0.08	0.07	0.08	0.005
3.800	0.000	0.08	0.07	0.08	0.005
3.922	0.000	0.08	0.07	0.08	0.005
4.044	0.000	0.09	0.07	0.08	0.005
4.166	0.000	0.09	0.07	0.08	0.005
4.288	0.000	0.09	0.07	0.08	0.005
4.410	0.000	0.09	0.07	0.08	0.005
4.532	0.000	0.09	0.07	0.08	0.005
4.654	0.000	0.09	0.07	0.08	0.005
4.776	0.000	0.09	0.07	0.09	0.005
4.898	0.000	0.09	0.07	0.09	0.005
5.020	0.000	0.09	0.07	0.09	0.005
5.142	0.000	0.09	0.07	0.09	0.006
5.264	0.000	0.09	0.07	0.09	0.006
5.386	0.000	0.09	0.07	0.09	0.006
5.508	0.000	0.09	0.07	0.09	0.006
5.630	0.000	0.09	0.07	0.09	0.006
5.752	0.000	0.09	0.08	0.09	0.006
5.874	0.000	0.09	0.08	0.09	0.006
5.996	0.000	0.10	0.08	0.09	0.006
6.118	0.000	0.10	0.08	0.09	0.006
6.240	0.000	0.10	0.08	0.09	0.006
6.362	0.000	0.10	0.08	0.09	0.006
6.484	0.000	0.10	0.08	0.09	0.006
6.606	0.000	0.10	0.08	0.09	0.006
6.728	0.000	0.10	0.08	0.10	0.006
6.850	0.000	0.10	0.08	0.10	0.006
6.972	0.000	0.10	0.08	0.10	0.006

7.094	0.000	0.10	0.08	0.10	0.006
7.216	0.000	0.10	0.08	0.10	0.006
7.338	0.000	0.10	0.08	0.10	0.006
7.460	0.000	0.10	0.08	0.10	0.006
7.582	0.000	0.11	0.08	0.10	0.006
7.704	0.000	0.11	0.08	0.10	0.006
7.826	0.000	0.11	0.09	0.10	0.007
7.948	0.000	0.11	0.09	0.10	0.007
8.070	0.000	0.11	0.09	0.10	0.007
8.192	0.000	0.11	0.09	0.11	0.007
8.314	0.000	0.11	0.09	0.11	0.007
8.436	0.000	0.11	0.09	0.11	0.007
8.558	0.000	0.11	0.09	0.11	0.007
8.680	0.000	0.12	0.09	0.11	0.007
8.802	0.000	0.12	0.09	0.11	0.007
8.924	0.000	0.12	0.09	0.11	0.007
9.046	0.000	0.12	0.09	0.11	0.007
9.168	0.000	0.12	0.09	0.11	0.007
9.290	0.000	0.12	0.10	0.11	0.007
9.412	0.000	0.12	0.10	0.12	0.007
9.534	0.000	0.12	0.10	0.12	0.007
9.656	0.000	0.13	0.10	0.12	0.008
9.778	0.000	0.13	0.10	0.12	0.008
9.900	0.000	0.13	0.10	0.12	0.008
10.022	0.000	0.13	0.10	0.12	0.008
10.144	0.000	0.13	0.10	0.12	0.008
10.266	0.000	0.13	0.10	0.13	0.008
10.388	0.000	0.14	0.11	0.13	0.008
10.510	0.000	0.14	0.11	0.13	0.008
10.632	0.000	0.14	0.11	0.13	0.008
10.754	0.000	0.14	0.11	0.13	0.008
10.876	0.000	0.14	0.11	0.13	0.008
10.998	0.000	0.15	0.11	0.13	0.009
11.120	0.000	0.15	0.11	0.14	0.009
11.242	0.000	0.15	0.12	0.14	0.009
11.364	0.000	0.15	0.12	0.14	0.009
11.486	0.000	0.16	0.12	0.14	0.009
11.608	0.000	0.16	0.12	0.14	0.009
11.730	0.000	0.16	0.12	0.15	0.009
11.852	0.000	0.16	0.13	0.15	0.010
11.974	0.000	0.17	0.13	0.15	0.010
12.096	0.000	0.18	0.13	0.15	0.010
12.218	0.000	0.22	0.14	0.16	0.010
12.340	0.000	0.22	0.14	0.17	0.011
12.462	0.000	0.23	0.15	0.18	0.011
12.584	0.000	0.23	0.16	0.18	0.012
12.706	0.000	0.23	0.16	0.19	0.012
12.828	0.000	0.24	0.17	0.20	0.013
12.950	0.000	0.24	0.17	0.20	0.013
13.072	0.000	0.25	0.18	0.21	0.013
13.194	0.000	0.25	0.18	0.22	0.014
13.316	0.000	0.26	0.19	0.22	0.014
13.438	0.000	0.27	0.19	0.23	0.015
13.560	0.000	0.27	0.20	0.23	0.015
13.682	0.000	0.28	0.20	0.24	0.015
13.804	0.000	0.29	0.21	0.25	0.016
13.926	0.000	0.30	0.21	0.25	0.016
14.048	0.000	0.30	0.22	0.26	0.017
14.170	0.000	0.32	0.23	0.27	0.017
14.292	0.000	0.33	0.23	0.28	0.018
14.414	0.000	0.34	0.24	0.28	0.018
14.536	0.000	0.35	0.25	0.29	0.019
14.658	0.000	0.37	0.27	0.32	0.019
14.780	0.000	0.38	0.29	0.35	0.020
14.902	0.000	0.41	0.31	0.38	0.020

15.024	0.000	0.43	0.32	0.40	0.020
15.146	0.000	0.47	0.34	0.43	0.021
15.268	0.000	0.49	0.36	0.46	0.021
15.390	0.000	0.54	0.38	0.49	0.022
15.512	0.000	0.52	0.38	0.51	0.022
15.634	0.000	0.63	0.43	0.55	0.023
15.756	0.000	0.72	0.48	0.62	0.024
15.878	0.000	1.04	0.60	0.76	0.026
16.000	0.000	1.44	0.78	1.00	0.031
16.122	0.000	4.43	1.52	1.47	0.061
16.244	0.000	0.84	1.36	1.75	0.052
16.366	0.000	0.57	1.12	1.59	0.041
16.488	0.000	0.52	0.85	1.36	0.033
16.610	0.000	0.44	0.61	1.05	0.027
16.732	0.000	0.40	0.45	0.75	0.023
16.854	0.000	0.36	0.36	0.55	0.021
16.976	0.000	0.33	0.31	0.43	0.020
17.098	0.000	0.31	0.28	0.37	0.020
17.220	0.000	0.29	0.26	0.33	0.019
17.342	0.000	0.28	0.25	0.31	0.019
17.464	0.000	0.26	0.24	0.30	0.019
17.586	0.000	0.25	0.24	0.29	0.018
17.708	0.000	0.24	0.23	0.28	0.018
17.830	0.000	0.23	0.23	0.28	0.017
17.952	0.000	0.22	0.22	0.27	0.017
18.074	0.000	0.22	0.21	0.26	0.016
18.196	0.000	0.17	0.20	0.25	0.015
18.318	0.000	0.16	0.19	0.24	0.015
18.440	0.000	0.15	0.18	0.23	0.014
18.562	0.000	0.15	0.17	0.22	0.013
18.684	0.000	0.14	0.17	0.21	0.013
18.806	0.000	0.14	0.16	0.20	0.012
18.928	0.000	0.14	0.15	0.19	0.012
19.050	0.000	0.13	0.15	0.18	0.011
19.172	0.000	0.13	0.14	0.17	0.011
19.294	0.000	0.13	0.14	0.17	0.010
19.416	0.000	0.12	0.13	0.16	0.010
19.538	0.000	0.12	0.13	0.15	0.010
19.660	0.000	0.12	0.12	0.15	0.009
19.782	0.000	0.12	0.12	0.14	0.009
19.904	0.000	0.11	0.12	0.14	0.009
20.026	0.000	0.11	0.11	0.14	0.009
20.148	0.000	0.11	0.11	0.13	0.008
20.270	0.000	0.11	0.11	0.13	0.008
20.392	0.000	0.11	0.10	0.13	0.008
20.514	0.000	0.10	0.10	0.12	0.008
20.636	0.000	0.10	0.10	0.12	0.007
20.758	0.000	0.10	0.10	0.12	0.007
20.880	0.000	0.10	0.09	0.11	0.007
21.002	0.000	0.10	0.09	0.11	0.007
21.124	0.000	0.10	0.09	0.11	0.007
21.246	0.000	0.09	0.09	0.11	0.007
21.368	0.000	0.09	0.09	0.11	0.007
21.490	0.000	0.09	0.09	0.10	0.006
21.612	0.000	0.09	0.08	0.10	0.006
21.734	0.000	0.09	0.08	0.10	0.006
21.856	0.000	0.09	0.08	0.10	0.006
21.978	0.000	0.09	0.08	0.10	0.006
22.100	0.000	0.09	0.08	0.09	0.006
22.222	0.000	0.08	0.08	0.09	0.006
22.344	0.000	0.08	0.08	0.09	0.006
22.466	0.000	0.08	0.07	0.09	0.006
22.588	0.000	0.08	0.07	0.09	0.006
22.710	0.000	0.08	0.07	0.09	0.006
22.832	0.000	0.08	0.07	0.09	0.005

Outflow=1.8 cfs

22.954	0.000	0.08	0.07	0.09	0.005
23.076	0.000	0.08	0.07	0.08	0.005
23.198	0.000	0.08	0.07	0.08	0.005
23.320	0.000	0.08	0.07	0.08	0.005
23.442	0.000	0.08	0.07	0.08	0.005
23.564	0.000	0.07	0.07	0.08	0.005
23.686	0.000	0.07	0.07	0.08	0.005
23.808	0.000	0.07	0.07	0.08	0.005
23.930	0.000	0.07	0.06	0.08	0.005
24.052	0.000	0.07	0.06	0.08	0.005
24.174	0.000	0.00	0.05	0.07	0.004
24.296	0.000	0.00	0.05	0.06	0.004
24.418	0.000	0.00	0.04	0.05	0.003
24.540	0.000	0.00	0.03	0.04	0.003
24.662	0.000	0.00	0.03	0.04	0.002
24.784	0.000	0.00	0.02	0.03	0.002
24.906	0.000	0.00	0.02	0.03	0.002
25.028	0.000	0.00	0.02	0.02	0.001
25.150	0.000	0.00	0.02	0.02	0.001
25.272	0.000	0.00	0.01	0.02	0.001

Mercury & Berry Detention & Outflow Summary Table

diameter (in)	area (ft2)	length (ft)			Raised Planter Ponding Volume (cf)	Planter media and gravel voids (20% /40% porosity) (cf)	Total Planter Storage (ac-ft)	Total Storage (pipe & planter) (ac-ft)
24	3.14	300			1875	3750	0.129	-
depth in 24" pipe (ft)		volume (cf)	volume (ac-ft)	Q(out) cfs				
0.25	0.39	118	0.0027	0.3				0.019
0.50	0.79	236	0.0054	0.7				0.024
0.75	1.18	353	0.0081	1.1				0.030
1.00	1.57	471	0.0108	1.4				0.037
1.25	1.96	589	0.0135	1.6				0.046
1.50	2.36	707	0.0162	1.8				0.059
1.75	2.75	825	0.0189	2.0				0.083
2.00	3.14	942	0.0216	2.2				0.151

Rating Table for Circular Orifice - 1

Project Description

Solve For	Discharge	Detention outflow

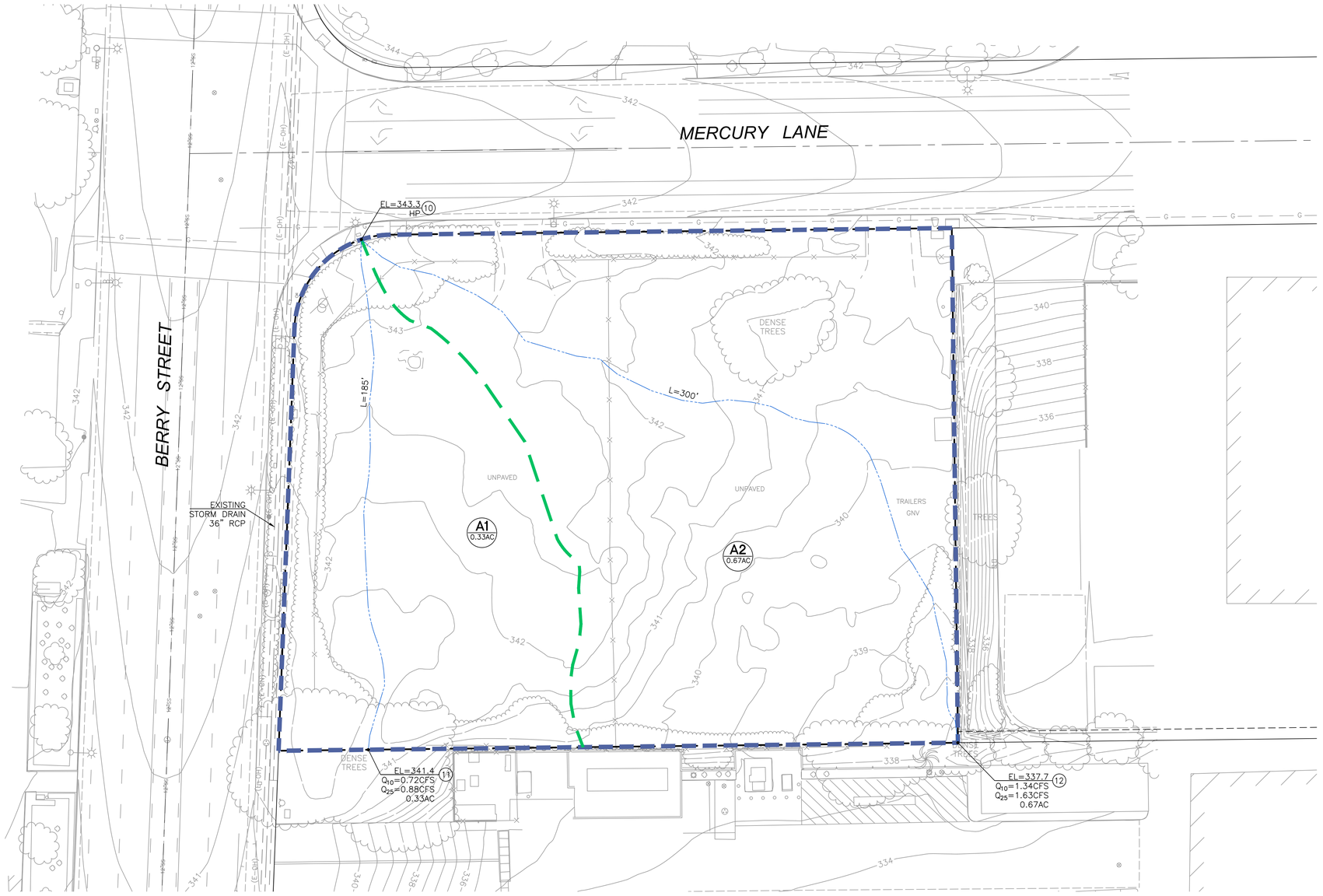
Input Data

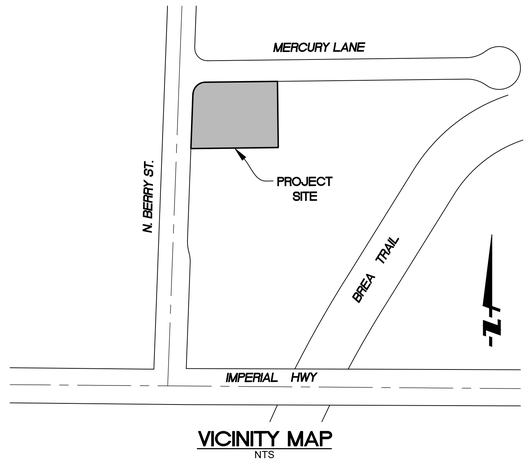
Headwater Elevation	2.00	ft
Centroid Elevation	4.0	in
Tailwater Elevation	0.00	ft
Discharge Coefficient	0.57	
Diameter	8.0	in

Headwater Elevation (ft)	Discharge (ft³/s)	Velocity (ft/s)
0.25		
0.50	0.7	1.87
0.75	1.0	2.95
1.00	1.3	3.73
1.25	1.5	4.38
1.50	1.7	4.94
1.75	1.9	5.44
2.00	2.1	5.90

Appendix 8

Existing and Proposed Condition Hydrology Maps





VICINITY MAP
NTS

EXISTING CONDITION SUMMARY TABLE

	Q_{10} (CFS)	Q_{25} (CFS)	AREA (ACRES)
TOTAL	2.1	2.5	1.0

LEGEND

- PROPERTY LINE
- HYDROLOGIC FLOWPATH/DIRECTION OF FLOW
- MAJOR/PROJECT BOUNDARY
- MINOR/SUB BOUNDARY
- A1 / 0.33AC — DRAINAGE AREA DESIGNATION
- ACRES
- (11) — HYDROLOGIC NODE
- EL — SURFACE ELEVATION

NOTE: SOIL TYPE C THROUGHOUT PROJECT SITE

N

20' 0' 10' 20'
SCALE: 1" = 20'

Know what's below. Call before you dig.

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'V'D	REV.	DATE	BY	DESCRIPTION	APP'V'D

PREPARED UNDER THE SUPERVISION OF:

SOOJIN SHIM DATE
R.C.E. NO. 70855

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ◦ fax 949.474.5315
www.fuscoe.com

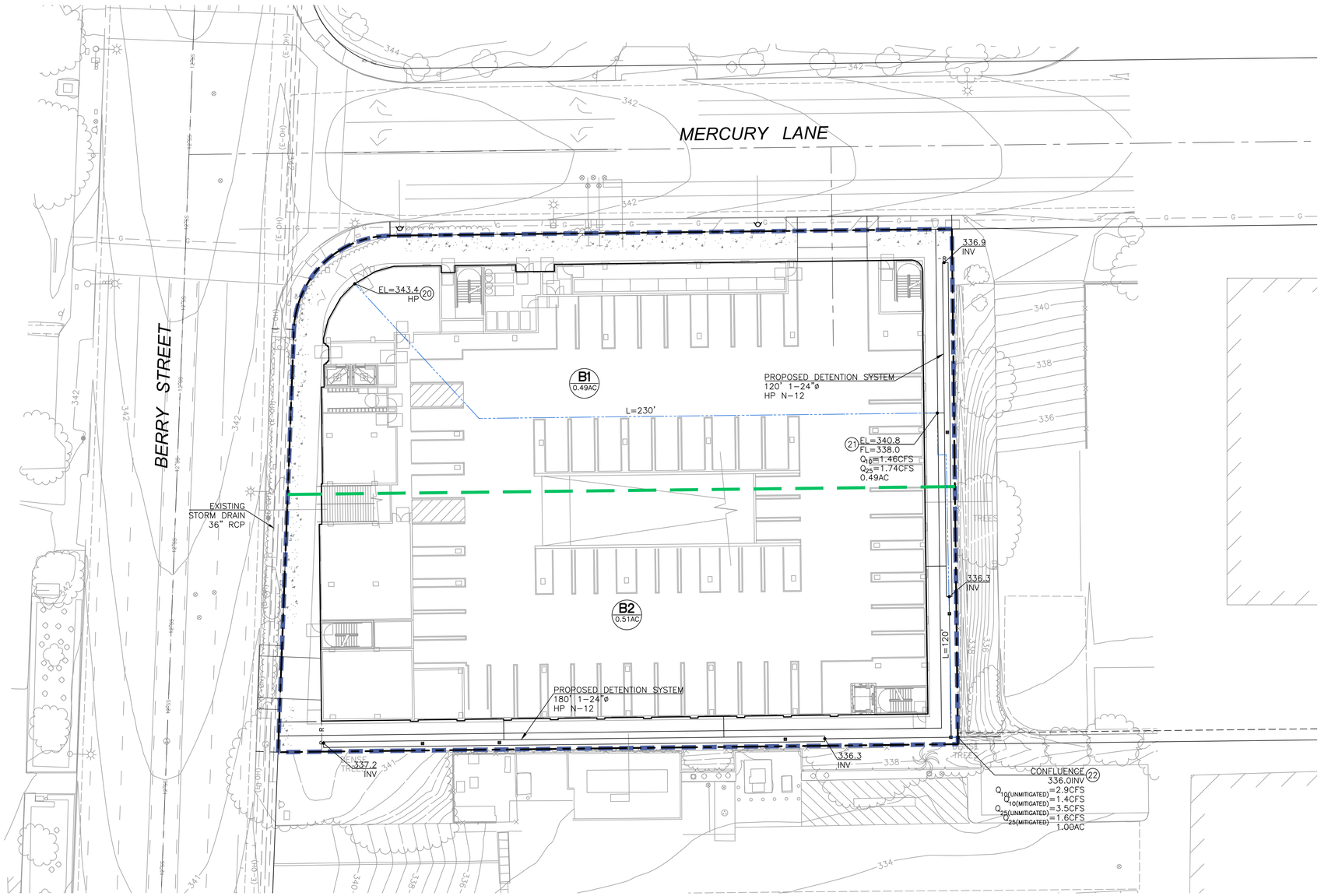
CITY OF BREA
PUBLIC WORKS DEPARTMENT

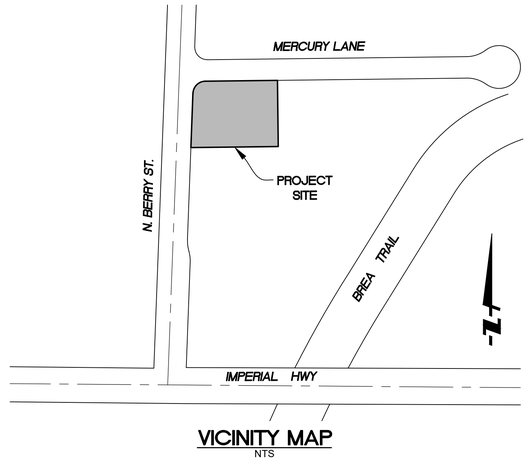
MERCURY AND BERRY

EXISTING HYDROLOGY MAP

SHEET 1 OF 1

F:\Projects\17431.00\Exhibits\Hydrology Exhibits\Mercury and Berry Existing Hydrology.dwg (3/15/2019 9:22 AM) Plotted by: Matt Montong





VICINITY MAP
NTS

PROPOSED CONDITION SUMMARY TABLE

	Q_{10} (CFS)	Q_{25} (CFS)	AREA (ACRES)
TOTAL	2.89	3.45	1.0

LEGEND

- PROPERTY LINE
- HYDROLOGIC FLOWPATH/DIRECTION OF FLOW
- MAJOR/PROJECT BOUNDARY
- MINOR/SUB BOUNDARY
- A1 / 0.33AC — DRAINAGE AREA DESIGNATION / ACRES
- 21 — HYDROLOGIC NODE
- EL — SURFACE ELEVATION
- FL — FLOWLINE ELEVATION

NOTE: SOIL TYPE C THROUGHOUT PROJECT SITE

REGISTERED PROFESSIONAL ENGINEER
SOJIN SHIM
NO. 70855
EXP. 06/30/19
CIVIL
STATE OF CALIFORNIA

20' 0' 10' 20'
SCALE: 1" = 20'

Know what's below. Call before you dig.

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'V'D	REV.	DATE	BY	DESCRIPTION	APP'V'D

PREPARED UNDER THE SUPERVISION OF:

SOOJIN SHIM DATE
R.C.E. NO. 70855

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tel 949.474.1960 ◦ fax 949.474.5315
www.fuscoe.com

CITY OF BREA
PUBLIC WORKS DEPARTMENT

MERCURY AND BERRY

PROPOSED HYDROLOGY MAP

SHEET 1 OF 1

F:\Projects\1743\001\Exhibits\Hydrology Exhibits\Mercury and Berry Proposed Hydrology.dwg (3/15/2019 8:25 AM) Plotted by: Matt Mantong