Engineering Resources of Southern California

REDLANDS | TEMECULA | PALM DESERT

16011001/20174

June 9, 2021

Isidro Abreo
Development Services Department
City of Chino
13220 Central Avenue
Chino, CA 91710

SUBJECT: Philadelphia and East End Industrial Park - TPM-20174 - Preliminary Hydrology – Approval Letter

Dear Isidro:

The Preliminary Hydrology Report for the above-referenced project has been examined by me, or under my supervision, and I am satisfied that it is technically correct.

If we can be of further assistance, please contact me at (909) 890-1255.

Respectfully yours,

Moe Ahmadi, PE
Sr. Prinicipal Engineer

1861 W. Redlands Blvd· Redlands · CA 92373
T: (909) 890-1255 | F: (909) 890-0995 | W: erscinc.com

Engineering Resources of Southern California

1861 W. Redlands Blvd., Bldg. 7B
Redlands, CA 92373
Telephone: 909/890-1255 Fax: 909/890-0995

TRANSMITTAL

To:	Date:
City of Chino, Development Services Department 13220 Central Avenue Chino Ca 91710	6.9.21
	Job No.: 16011001/20174
Attention: Isidro Abreo	Re: TPM 20174 - PRELIM HYDROLOGY

Forwarding Via: ☐ Mail ☐ Overnight Mail ☑ Messenger ☐ Picked Up

DESCRIPTION

1 - APPROVAL LETTER FOR ABOVE-REFERENCED PROJECT
1 - APPROVED REDLINES FOR ABOVE-REFERENCED PROJECT

ADDITIONAL REMARKS:

JUN 10 '21 PM 3:33

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PRELIMINARY HYDROLOGY REPORT

FOR

PHILADELPHIA AT EAST END INDUSTRIAL

APN: 1013-521-04

PROJECT LOCATION

NW Corner of Philadelphia Street and East End Avenue
San Bernardino County, CA

DEVELOPER

Golden Management Services, Inc.
4900 Santa Anita Avenue, Suite 2C
El Monte, CA 91731
626-258-3374

PREPARED BY:

Huitt-Zollars, Inc.
Christopher Borunda
3990 Concours, Suite 330
Ontario, Ca 91764
Ph: 909-941-7799
Fax: 909-941-7789

INTER-OFFICE ONLY
CITY OF CHINO
PUBLIC WORKS/ENGINEERING
Sending Date 5/25/2021
Plan Check Submittal
DEPT/DIV ENG
TO ERSC
Project TPM 20174 Return to Isidro A By 6/8/2021
4th
6/10/21

David White, P.E.
C52921, Exp 12/31/2022

PREPARATION DATE

May 4, 2021

ERSC
Engineering Resources of Southern California

6-4-2021
DATE

HZ PROJECT NUMBER

R310158.01

APPROVED AS SUBMITTED

PRELIMINARY HYDROLOGY REPORT

FOR

PHILADELPHIA AT EAST END INDUSTRIAL

APN: 1013-521-04

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C52921, Exp 12/31/2022

PREPARATION DATE

May 4, 2021

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Table of Contents

List of Appendices

Introduction
This preliminary drainage report has been prepared for Golden Management Services. The project is a new development of three (3) industrial warehouse facilities located at the northwest corner of Philadelphia Street and East End Avenue in the City of Chino, County of San Bernardino, CA. The proposed three buildings total approximately 60,000 square feet in size on approximately 3.6 acres of land.

Purpose
The purpose of this report is to present the drainage concept for the project and to determine the design flow rates for the project site. The hydrology maps (Appendix A) and calculations (Appendix B) reflect the tributary areas and Q_{100} flows.

Existing Condition
The lot is occupied by three (3) abandoned structures with some trees and scattered vegetation on the north half. The south half is currently vacant and covered with a low growth of vegetation consisting of natural weeds and grasses.

The project site is sloping from north to the southeast. The existing runoff is collected by an existing inlet at southeast corner of the project site and discharges to an existing 33" storm drain in the Philadelphia Street which connects to the San Antonio Creek Channel to the west.

Proposed Condition
For the proposed condition, the runoff will be directed to either of two on-site underground infiltration systems located on the northwest and southwest sides of the project site. See Appendix A for the proposed on-site hydrology map.

Runoff in the northeastern corner of the project site from the northern building, parking lot, and planters will be directed to catch basin (CB) #1 and enter underground infiltration system B through storm drain Line A.

Runoff from the middle of the northern building, parking lot, and planters will be directed to catch basin (CB) #2 and enter underground infiltration system B through storm drain Line A.

Runoff from the northern loading dock, and from the northern building will be directed to a trench drain at the bottom of the loading dock and enter underground infiltration system B through storm drain Line A.

Runoff in the northwestern corner of the project site from the northern building, parking lot, and planters will be directed to catch basin (CB) #3 and enter underground infiltration system B through storm drain Line A.

Runoff from the south side of building 3 will be collected by a swale and directed to catch basin (CB) #4. The runoff will then drain to underground infiltration system A through storm drain Line B.

Runoff from the east portion of buildings 2 and 3 along with the parking lot and landscaping will be directed to catch basins (CB) #5 and #6 and enter underground infiltration system A through storm drain Line B.

Runoff from the west loading docks for buildings 2 and 3 will be collected by trench drains at the bottom of the loading docks and enter underground infiltration system A through storm drain Line B.

Runoff from the west parking lot and truck yard of building 2 and 3 will be directed to catch basin (CB) #7 and enter underground infiltration system A through storm drain Line B.

The overflow from the underground infiltration systems in excess of the WQMP retention volume will be discharged through storm drain Line C to the existing 33" storm drain line in Philadelphia Street, which is connected to the San Antonio Creek Channel west of the project site.

Hydrologic Analysis

The hydrologic analysis has been prepared in accordance with the San Bernardino County Flood Control District Hydrology Manual Rational Method using the CIVILD software for San Bernardino County. CIVILD hydrology calculations are included in Appendix B and indicate flow data at each node.

The 100-year and 25-year, 1-hour rainfall rate was taken from NOAA Atlas 14 Point Precipitation Frequency Estimates, Volume 6, Version 2. The hydrologic soils type for the site is "B" and was taken from the soil map in the Hydrology Manual (see Appendix C for reference maps). A "commercial" land use was used for the project site with an AMC of III for the 100-year and II for the 25-year events.

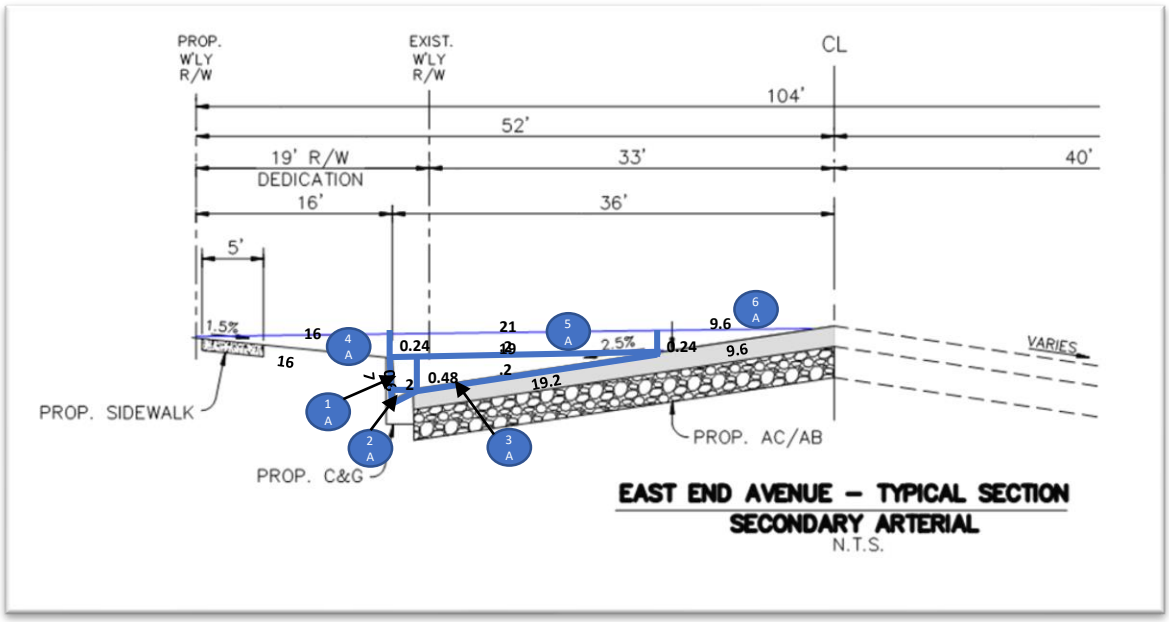
Results

Underground infiltration system A provides 8,200 cf of storage and underground infiltration system B provides 6,203 cf of storage, a total of 14,403 cf for water quality treatment. This storage volume is more than enough to address the DCV as well as the 2 year mitigation required due to the HCOC, see the WQMP report.

From the hydrologic analyses, the project site existing condition generates 9.7 cfs for Q_{100} and 6.4 cfs for Q_{25} and the proposed condition produces 17.1 cfs, see Appendix B for rational method calculations. The existing 33" storm drain was designed based on a Q_{25} of 55 cfs per the storm drain drawing. A hydraulic (WQPG) analysis was run to determine if the existing 33" had the capacity to accept the Q_{100} flow which is 72 cfs and it does not. Therefore, the project site must implement on-site detention in order to limit the developed 100-year runoff to 90% of the existing 25-year runoff. This will be accomplished by installing 96" CMP perforated pipes underground to store and infiltrate the water quality volume, then slowly release the excess runoff to the existing 33" storm drain. Per the basin routing results in Appendix D, the post development discharge is 3.13 cfs from system A and 2.45 cfs from system B. This combined total is 87% of the allowable Q_{25} of 6.4 cfs. The systems will drain within 48 hours after the storm event.

All proposed on-site drainage facilities will be sized adequately for 100-year storm event. Additional calculations, including the on-site storm drain hydraulics and catch basin sizing, will be provided in the final drainage report. Street capacity calculations for East End are shown on Table 1.

Flow Carrying Capacity (half-street)



Parameters	Value
n	0.015
Coefficient	1.49
Channel Slope	1.07%

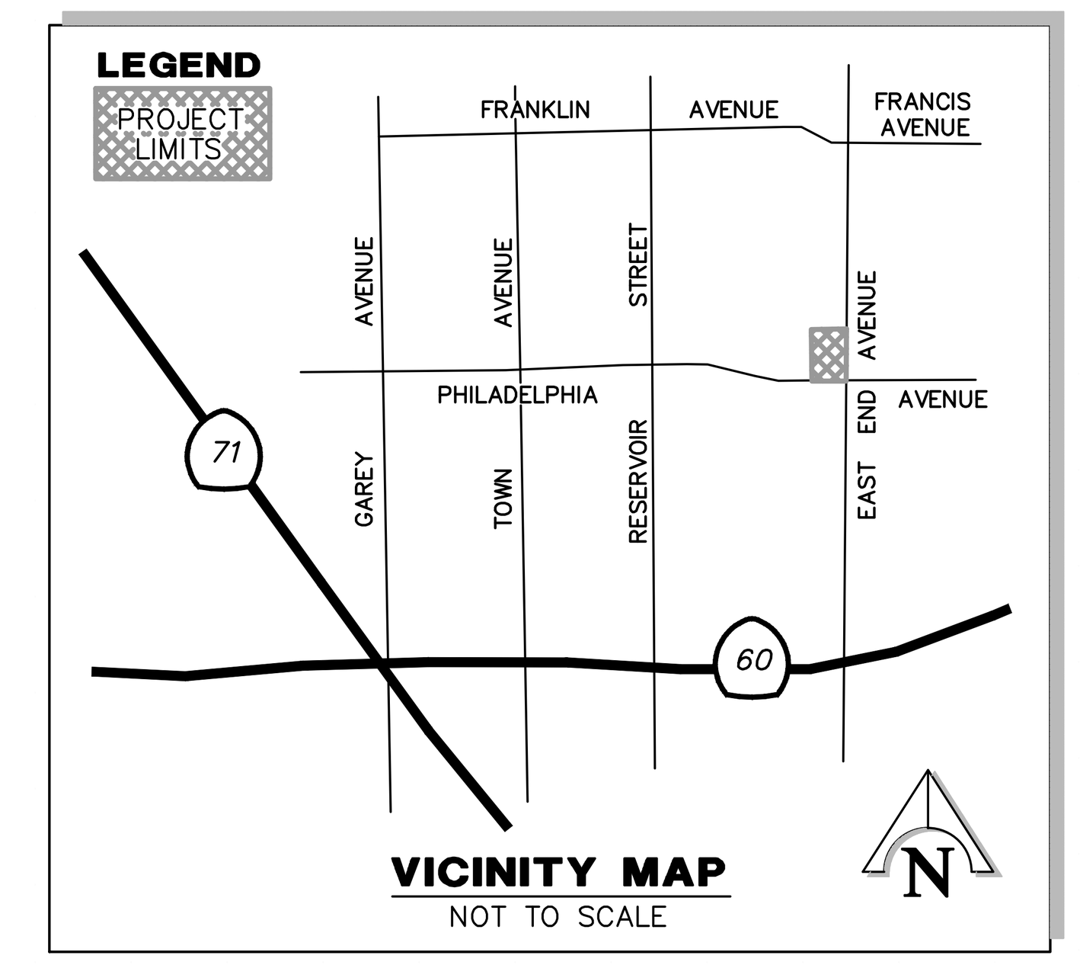
Water up to top of curb	
1A(flow area - ft^2)	0.96
2A	0.19
3A	4.61
Net A_1(ft^2)	5.76
Pw(ft)	21.87
Q(ft^3/s)	**24.30**

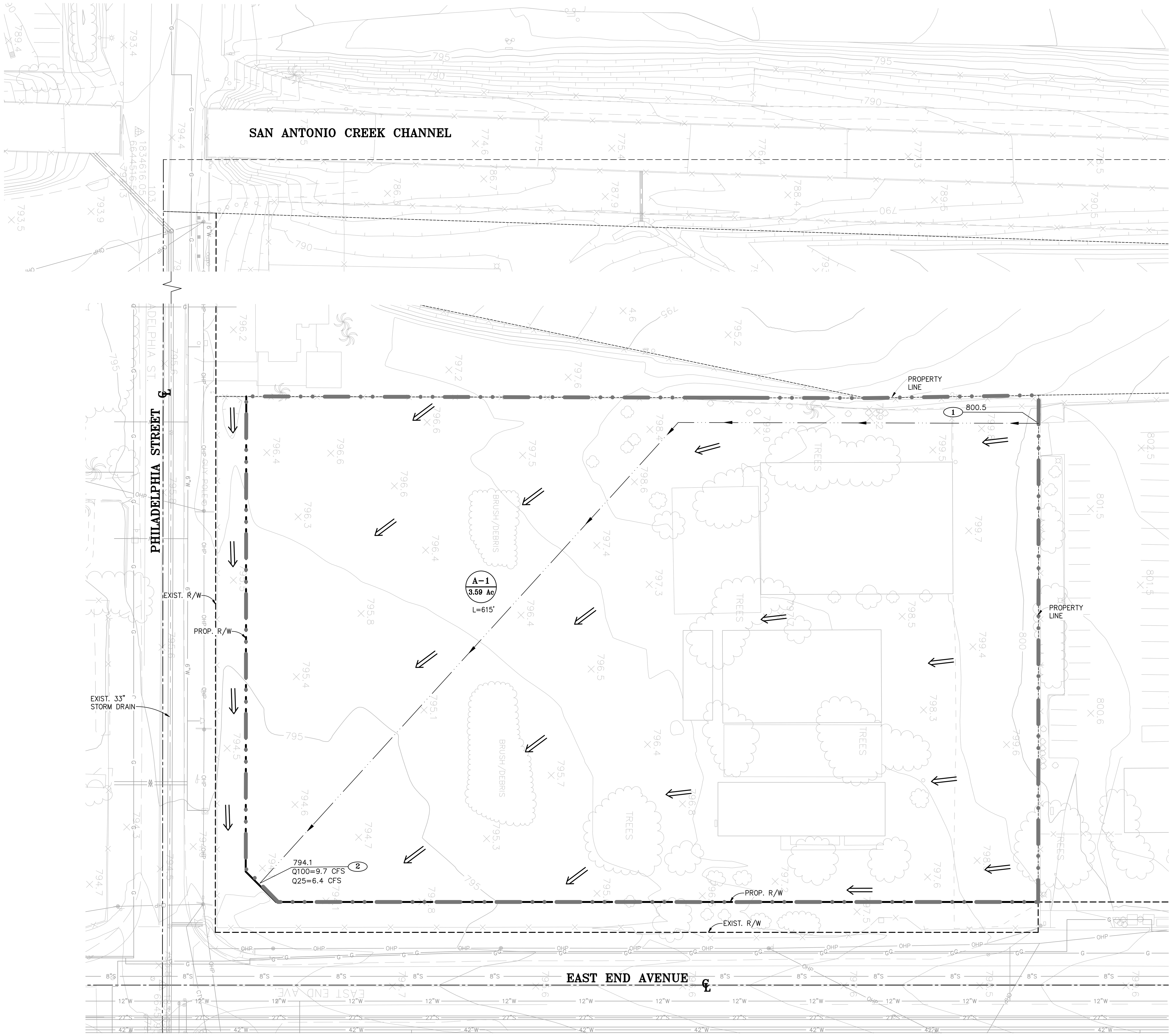
Water up to back of R/W	
4A	1.92
5A	5.09
6A	1.15
Net A_2 (ft^2) w/ NetA_1	13.92
Pw(ft)	47.47
Q(ft^3/s)	**63.12**

TABLE 1

Appendix A

Preliminary Hydrology Map





LEGEND

Symbol	Meaning
NO.	HYDROLOGY MODEL NODE NUMBER
A-1 / 3.96	TRIBUTARY AREA IN ACRES
656'	LENGTH OF FLOW
━ ━ • • ━ ━	DRAINAGE BOUNDARY
— · · · —	FLOW LINE
⇐	FLOW DIRECTION

N

0 15 30 60 90

SCALE 1" = 30'

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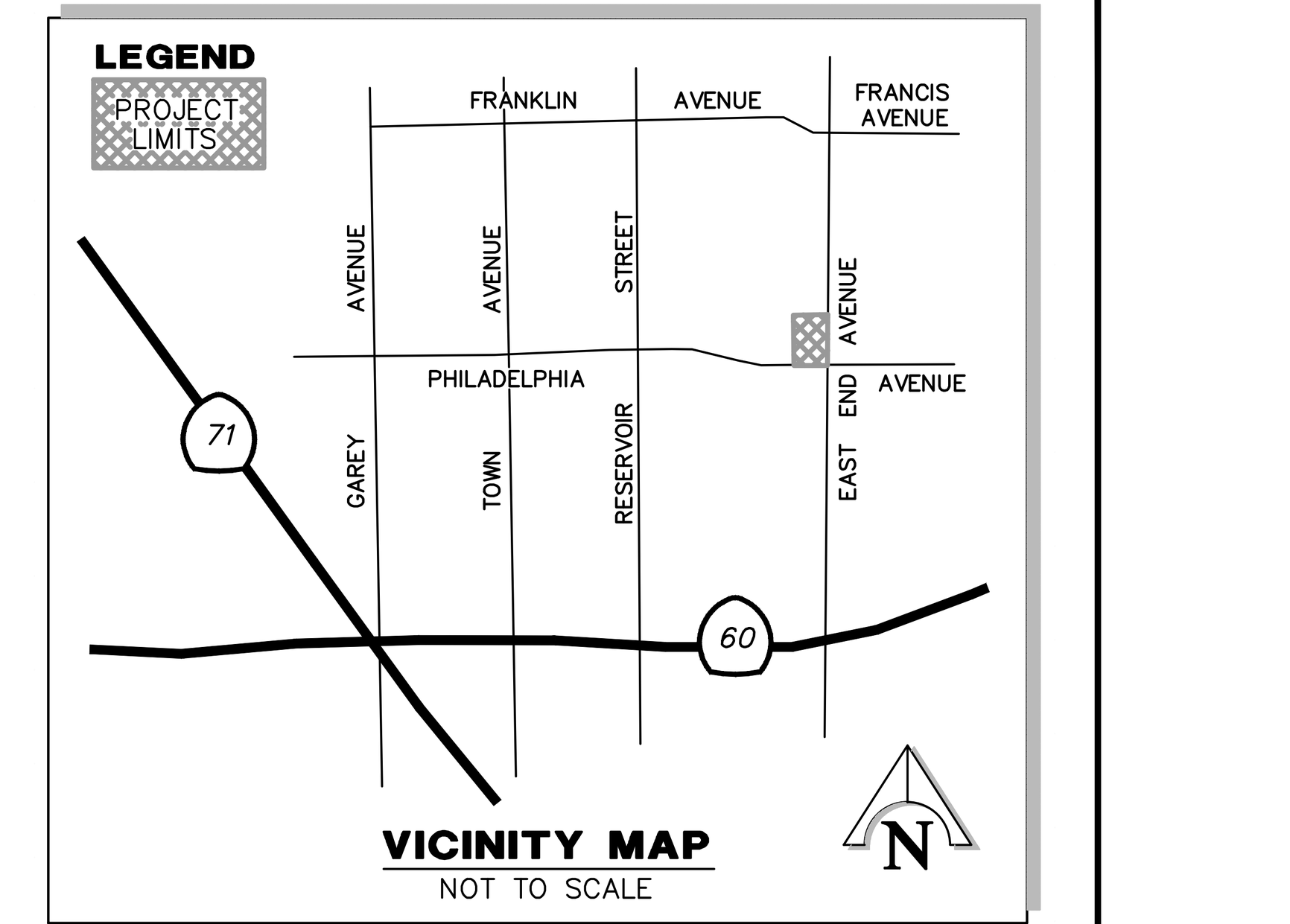
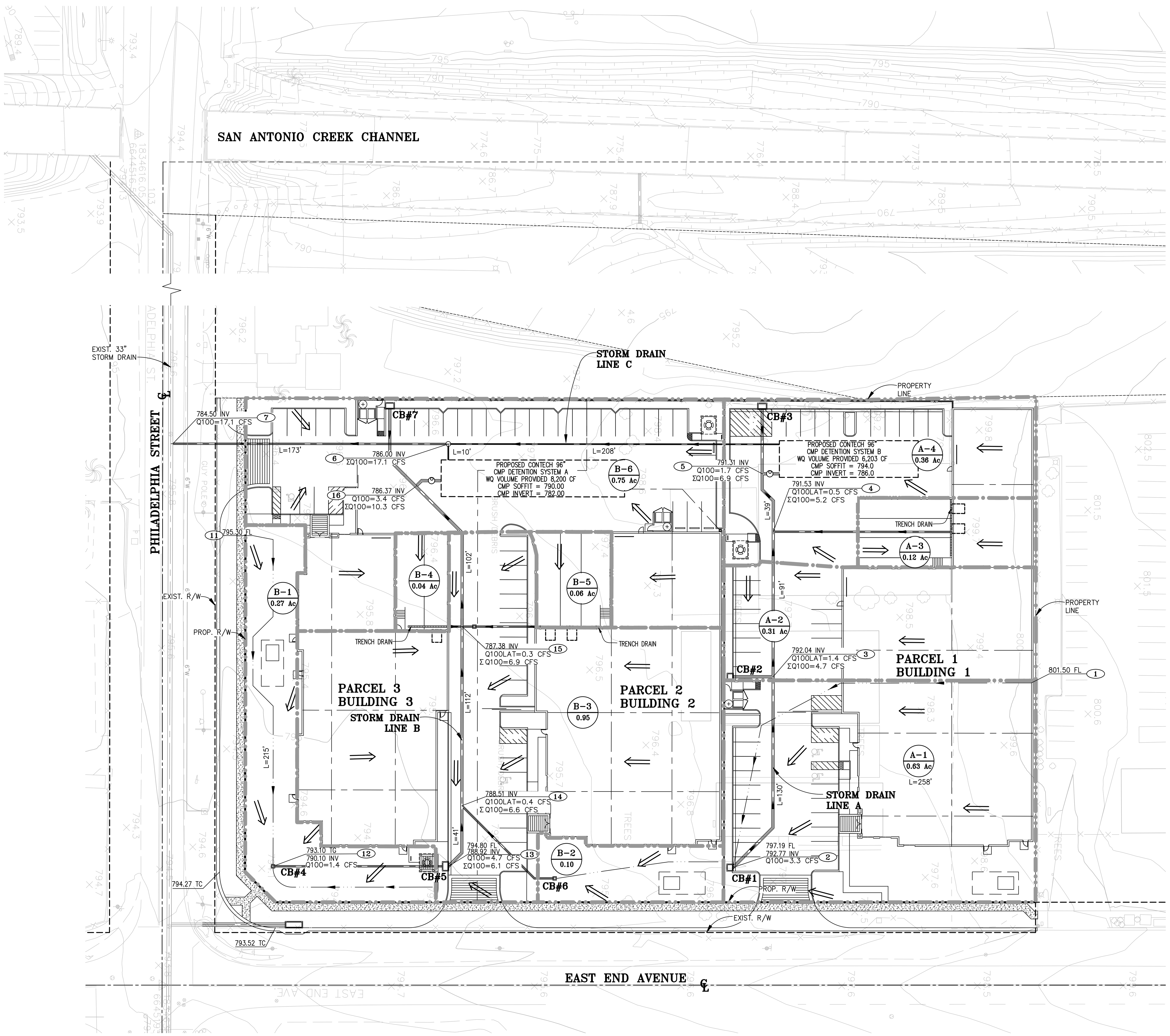
COUNTY OF SAN BERNARDINO

EXISTING DRAINAGE MAP FOR PHILADELPHIA AND EAST END COUNTY OF SAN BERNARDINO

SHEET 1 NO. 1





LEGEND

- (NO.) HYDROLOGY MODEL NODE NUMBER
- (A-1 / 3.96) TRIBUTARY AREA IN ACRES
- 656' LENGTH OF FLOW
- DRAINAGE BOUNDARY
- FLOW LINE
- FLOW DIRECTION

0 15 30 60 90

SCALE 1" = 30'

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COUNTY OF SAN BERNARDINO

PROPOSED DRAINAGE MAP FOR PHILADELPHIA AND EAST END COUNTY OF SAN BERNARDINO

SHEET 1 NO. 1

Appendix B

Rational Method Hydrologic Analysis

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 09/20/19

PAMA INDUSTRIAL - PHILEDELPHIA AT EAST END
EXISTING 100 YEAR STORM EVENT
0158Q100E
CB

Program License Serial Number 6145

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.530 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 3

++

Process from Point/Station 1.000 to Point/Station 2.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(2.5 acre lot)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.9000 Max loss rate(Fm)= 0.396(In/Hr)
Initial subarea data:
Initial area flow distance = 615.000(Ft.)
Top (of initial area) elevation = 800.500(Ft.)
Bottom (of initial area) elevation = 794.100(Ft.)
Difference in elevation = 6.400(Ft.)
Slope = 0.01041 s(%)= 1.04
TC = k(0.487)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 15.835 min.
Rainfall intensity = 3.403(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.795
Subarea runoff = 9.715(CFS)
Total initial stream area = 3.590(Ac.)
Pervious area fraction = 0.900
Initial area Fm value = 0.396(In/Hr)
End of computations, Total Study Area = 3.59 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.900
Area averaged SCS curve number = 56.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 01/13/21

PAMA INDUSTRIAL - PHILADELPHIA AT EAST END
EXISTING 25 YEAR STORM EVENT
0158Q25E.rsb
DW

Program License Serial Number 6145

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

Rational hydrology study storm event year is 25.0
Computed rainfall intensity:
Storm year = 25.00 1 hour rainfall = 1.170 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 1.000 to Point/Station 2.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(2.5 acre lot)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Pervious ratio(Ap) = 0.9000 Max loss rate(Fm)= 0.661(In/Hr)
Initial subarea data:
Initial area flow distance = 615.000(Ft.)
Top (of initial area) elevation = 800.500(Ft.)
Bottom (of initial area) elevation = 794.100(Ft.)
Difference in elevation = 6.400(Ft.)
Slope = 0.01041 s(%)= 1.04
TC = k(0.487)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 15.835 min.
Rainfall intensity = 2.602(In/Hr) for a 25.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.672
Subarea runoff = 6.273(CFS)
Total initial stream area = 3.590(Ac.)
Pervious area fraction = 0.900
Initial area Fm value = 0.661(In/Hr)
End of computations, Total Study Area = 3.59 (Ac.)

The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.900
Area averaged SCS curve number = 56.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 10/23/20

PAMA INDUSTRIAL - PHILEDELPHIA AT EAST END
100 YEAR STORM EVENT PROPOSED
0158Q100P
CB

Program License Serial Number 6145

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.530 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 3

++

Process from Point/Station 1.000 to Point/Station 2.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.044(In/Hr)
Initial subarea data:
Initial area flow distance = 258.000(Ft.)
Top (of initial area) elevation = 801.500(Ft.)
Bottom (of initial area) elevation = 797.190(Ft.)
Difference in elevation = 4.310(Ft.)
Slope = 0.01671 s(%)= 1.67
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.353 min.
Rainfall intensity = 5.886(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.893
Subarea runoff = 3.312(CFS)
Total initial stream area = 0.630(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.044(In/Hr)

++

Process from Point/Station 2.000 to Point/Station 3.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 792.770(Ft.)
Downstream point/station elevation = 792.040(Ft.)
Pipe length = 130.00(Ft.) Manning's N = 0.012

```
No. of pipes = 1  Required pipe flow  =     3.312(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     3.312(CFS)
Normal flow depth in pipe =    8.65(In.)
Flow top width inside pipe =   14.82(In.)
Critical Depth =    8.80(In.)
Pipe flow velocity =      4.52(Ft/s)
Travel time through pipe =    0.48 min.
Time of concentration (TC) =     6.83 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        3.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.044(In/Hr)
Time of concentration =     6.83 min.
Rainfall intensity =      5.634(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.893
Subarea runoff =      1.417(CFS) for    0.310(Ac.)
Total runoff =      4.730(CFS)
Effective area this stream =        0.94(Ac.)
Total Study Area (Main Stream No. 1) =        0.94(Ac.)
Area averaged Fm value =    0.044(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.000 to Point/Station        4.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   792.040(Ft.)
Downstream point/station elevation =   791.530(Ft.)
Pipe length  =    91.00(Ft.)   Manning's N = 0.012
No. of pipes = 1  Required pipe flow  =     4.730(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     4.730(CFS)
Normal flow depth in pipe =   11.16(In.)
Flow top width inside pipe =   13.10(In.)
Critical Depth =   10.58(In.)
Pipe flow velocity =      4.83(Ft/s)
Travel time through pipe =    0.31 min.
Time of concentration (TC) =     7.15 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        4.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
```

```
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.044(In/Hr)
Time of concentration =     7.15 min.
Rainfall intensity =      5.485(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.893
Subarea runoff =      0.461(CFS) for    0.120(Ac.)
Total runoff =      5.190(CFS)
Effective area this stream =        1.06(Ac.)
Total Study Area (Main Stream No. 1) =        1.06(Ac.)
Area averaged Fm value =    0.044(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   791.530(Ft.)
Downstream point/station elevation =   791.310(Ft.)
Pipe length  =    39.00(Ft.)   Manning's N = 0.012
No. of pipes = 1  Required pipe flow  =     5.190(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     5.190(CFS)
Normal flow depth in pipe =   12.14(In.)
Flow top width inside pipe =   11.78(In.)
Critical Depth =   11.09(In.)
Pipe flow velocity =      4.88(Ft/s)
Travel time through pipe =    0.13 min.
Time of concentration (TC) =     7.28 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.000 to Point/Station        5.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.044(In/Hr)
Time of concentration =     7.28 min.
Rainfall intensity =      5.424(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.893
Subarea runoff =      1.686(CFS) for    0.360(Ac.)
Total runoff =      6.876(CFS)
Effective area this stream =        1.42(Ac.)
Total Study Area (Main Stream No. 1) =        1.42(Ac.)
Area averaged Fm value =    0.044(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        5.000 to Point/Station        6.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   791.570(Ft.)
Downstream point/station elevation =   786.000(Ft.)
Pipe length  =   208.00(Ft.)   Manning's N = 0.012
No. of pipes = 1  Required pipe flow  =     6.876(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     6.876(CFS)
```

```
Normal flow depth in pipe =    8.38(In.)
Flow top width inside pipe =   14.90(In.)
Critical Depth =   12.62(In.)
Pipe flow velocity =      9.76(Ft/s)
Travel time through pipe =    0.36 min.
Time of concentration (TC) =     7.63 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        6.000
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      1.420(Ac.)
Runoff from this stream =      6.876(CFS)
Time of concentration =    7.63 min.
Rainfall intensity =     5.271(In/Hr)
Area averaged loss rate (Fm) =    0.0440(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.044(In/Hr)
Initial subarea data:
Initial area flow distance =   215.000(Ft.)
Top (of initial area) elevation =   795.300(Ft.)
Bottom (of initial area) elevation =   793.100(Ft.)
Difference in elevation =     2.200(Ft.)
Slope =    0.01023  s(%)=       1.02
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.514 min.
Rainfall intensity =      5.798(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.893
Subarea runoff =      1.398(CFS)
Total initial stream area =        0.270(Ac.)
Pervious area fraction = 0.100
Initial area Fm value =    0.044(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       13.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   790.100(Ft.)
Downstream point/station elevation =   788.920(Ft.)
Pipe length  =   106.00(Ft.)   Manning's N = 0.012
No. of pipes = 1  Required pipe flow  =     1.398(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.398(CFS)
Normal flow depth in pipe =    5.76(In.)
Flow top width inside pipe =    8.64(In.)
```

```
Critical Depth =    6.53(In.)
Pipe flow velocity =      4.68(Ft/s)
Travel time through pipe =    0.38 min.
Time of concentration (TC) =     6.89 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       13.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.044(In/Hr)
Time of concentration =     6.89 min.
Rainfall intensity =      5.605(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.893
Subarea runoff =      4.708(CFS) for    0.950(Ac.)
Total runoff =      6.106(CFS)
Effective area this stream =        1.22(Ac.)
Total Study Area (Main Stream No. 2) =        2.64(Ac.)
Area averaged Fm value =    0.044(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       14.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   788.920(Ft.)
Downstream point/station elevation =   788.510(Ft.)
Pipe length  =    41.00(Ft.)   Manning's N = 0.012
No. of pipes = 1  Required pipe flow  =     6.106(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     6.106(CFS)
Normal flow depth in pipe =   10.85(In.)
Flow top width inside pipe =   13.42(In.)
Critical Depth =   11.99(In.)
Pipe flow velocity =      6.43(Ft/s)
Travel time through pipe =    0.11 min.
Time of concentration (TC) =     7.00 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.000 to Point/Station       14.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.044(In/Hr)
Time of concentration =     7.00 min.
Rainfall intensity =      5.554(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.893
```

```
Subarea runoff =      0.440(CFS) for    0.100(Ac.)
Total runoff =      6.546(CFS)
Effective area this stream =        1.32(Ac.)
Total Study Area (Main Stream No. 2) =        2.74(Ac.)
Area averaged Fm value =    0.044(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.000 to Point/Station       15.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   788.510(Ft.)
Downstream point/station elevation =   787.380(Ft.)
Pipe length  =   112.00(Ft.)   Manning's N = 0.012
No. of pipes = 1  Required pipe flow  =     6.546(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     6.546(CFS)
Normal flow depth in pipe =   11.46(In.)
Flow top width inside pipe =   12.74(In.)
Critical Depth =   12.36(In.)
Pipe flow velocity =      6.51(Ft/s)
Travel time through pipe =    0.29 min.
Time of concentration (TC) =     7.28 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       15.000 to Point/Station       15.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.044(In/Hr)
Time of concentration =     7.28 min.
Rainfall intensity =      5.422(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.893
Subarea runoff =      0.036(CFS) for    0.040(Ac.)
Total runoff =      6.582(CFS)
Effective area this stream =        1.36(Ac.)
Total Study Area (Main Stream No. 2) =        2.78(Ac.)
Area averaged Fm value =    0.044(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       15.000 to Point/Station       15.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.044(In/Hr)
Time of concentration =     7.28 min.
Rainfall intensity =      5.422(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
```

```
rational method)(Q=KCIA) is C = 0.893
Subarea runoff =      0.290(CFS) for    0.060(Ac.)
Total runoff =      6.873(CFS)
Effective area this stream =        1.42(Ac.)
Total Study Area (Main Stream No. 2) =        2.84(Ac.)
Area averaged Fm value =    0.044(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       15.000 to Point/Station       16.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   787.380(Ft.)
Downstream point/station elevation =   786.370(Ft.)
Pipe length  =   102.00(Ft.)   Manning's N = 0.012
No. of pipes = 1  Required pipe flow  =     6.873(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     6.873(CFS)
Normal flow depth in pipe =   12.12(In.)
Flow top width inside pipe =   11.82(In.)
Critical Depth =   12.62(In.)
Pipe flow velocity =      6.47(Ft/s)
Travel time through pipe =    0.26 min.
Time of concentration (TC) =     7.55 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       16.000 to Point/Station       16.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________________
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.044(In/Hr)
Time of concentration =     7.55 min.
Rainfall intensity =      5.308(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.893
Subarea runoff =      3.407(CFS) for    0.750(Ac.)
Total runoff =     10.280(CFS)
Effective area this stream =        2.17(Ac.)
Total Study Area (Main Stream No. 2) =        3.59(Ac.)
Area averaged Fm value =    0.044(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       16.000 to Point/Station        6.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   786.070(Ft.)
Downstream point/station elevation =   786.000(Ft.)
Pipe length  =    10.00(Ft.)   Manning's N = 0.012
No. of pipes = 1  Required pipe flow  =    10.280(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    10.280(CFS)
Normal flow depth in pipe =   13.15(In.)
Flow top width inside pipe =   20.32(In.)
Critical Depth =   14.32(In.)
Pipe flow velocity =      6.49(Ft/s)
```

```
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     7.57 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        6.000
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      2.170(Ac.)
Runoff from this stream =     10.280(CFS)
Time of concentration =    7.57 min.
Rainfall intensity =     5.297(In/Hr)
Area averaged loss rate (Fm) =    0.0440(In/Hr)
Area averaged Pervious ratio (Ap) = 0.1000
Summary of stream data:

Stream Flow rate    Area    TC     Fm       Rainfall Intensity
 No.    (CFS)    (Ac.)       (min) (In/Hr)     (In/Hr)


1      6.88     1.420      7.63    0.044      5.271
2     10.28     2.170      7.57    0.044      5.297
Qmax(1) =
          1.000 *    1.000 *     6.876) +
          0.995 *    1.000 *    10.280) + =      17.106
Qmax(2) =
          1.005 *    0.992 *     6.876) +
          1.000 *    1.000 *    10.280) + =      17.134

Total of 2 main streams to confluence:
Flow rates before confluence point:
       7.876      11.280
Maximum flow rates at confluence using above data:
       17.106       17.134
Area of streams before confluence:
        1.420        2.170
Effective area values after confluence:
        3.590        3.579


Results of confluence:
Total flow rate =     17.134(CFS)
Time of concentration =     7.573 min.
Effective stream area after confluence  =      3.579(Ac.)
Study area average Pervious fraction(Ap) =  0.100
Study area average soil loss rate(Fm) =    0.044(In/Hr)
Study area total =       3.59(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        6.000 to Point/Station        7.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   786.000(Ft.)
Downstream point/station elevation =   784.500(Ft.)
Pipe length  =   173.00(Ft.)   Manning's N = 0.012
No. of pipes = 1  Required pipe flow  =    17.134(CFS)
Nearest computed pipe diameter  =     24.00(In.)
Calculated individual pipe flow  =    17.134(CFS)
Normal flow depth in pipe =   15.52(In.)
Flow top width inside pipe =   22.95(In.)
```

Critical Depth = 17.91(In.)
Pipe flow velocity = 7.97(Ft/s)
Travel time through pipe = 0.36 min.
Time of concentration (TC) = 7.93 min.
End of computations, Total Study Area = 3.59 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 56.0

Appendix C

Preliminary Hydraulic Calculations

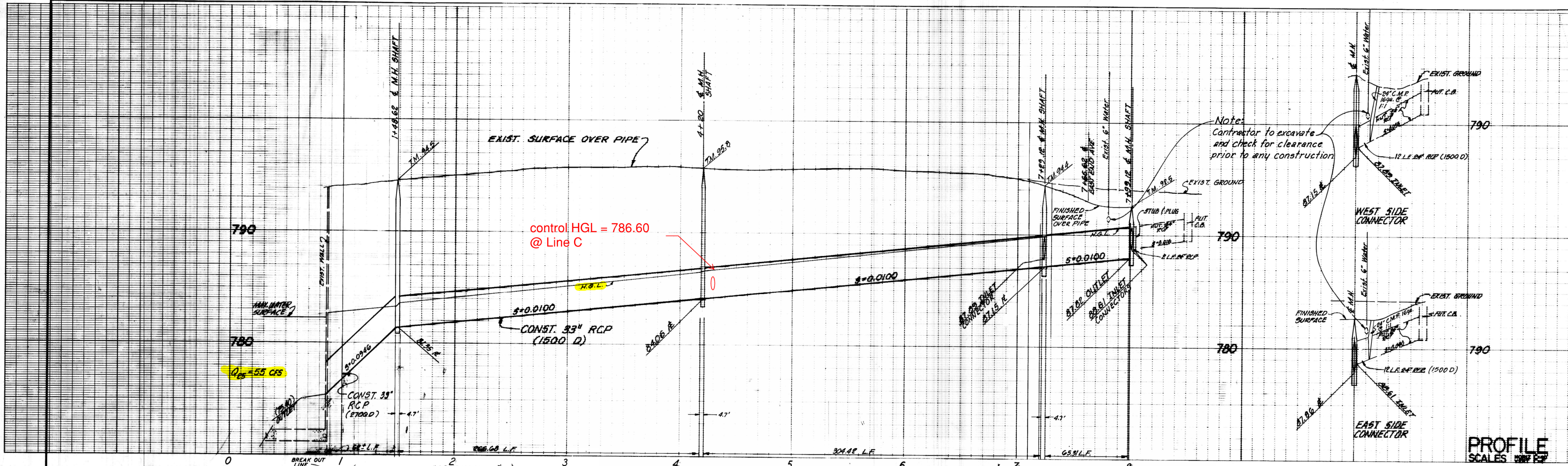
```
T1 PAMA - Philadelphia at East End Ind                                          0
T2 100 Year Storm Event - Line C Hydraulics
T3 0158LineC.wsw
SO   1000.000 784.500  1                          786.600
R    1174.000 786.000  1      .012                                .000    .000 0
JX   1177.000 786.330  1  2   .012    3.130          786.000         90.0         .000
R    1385.000 790.000  1      .012                                .000    .000 1
SH   1385.000 790.000  1                          795.000
CD   1  4   1    .000   1.000     .000  .000  .000   .00
CD   2  4   1    .000   0.670     .000  .000  .000   .00
Q             2.450   .0
```

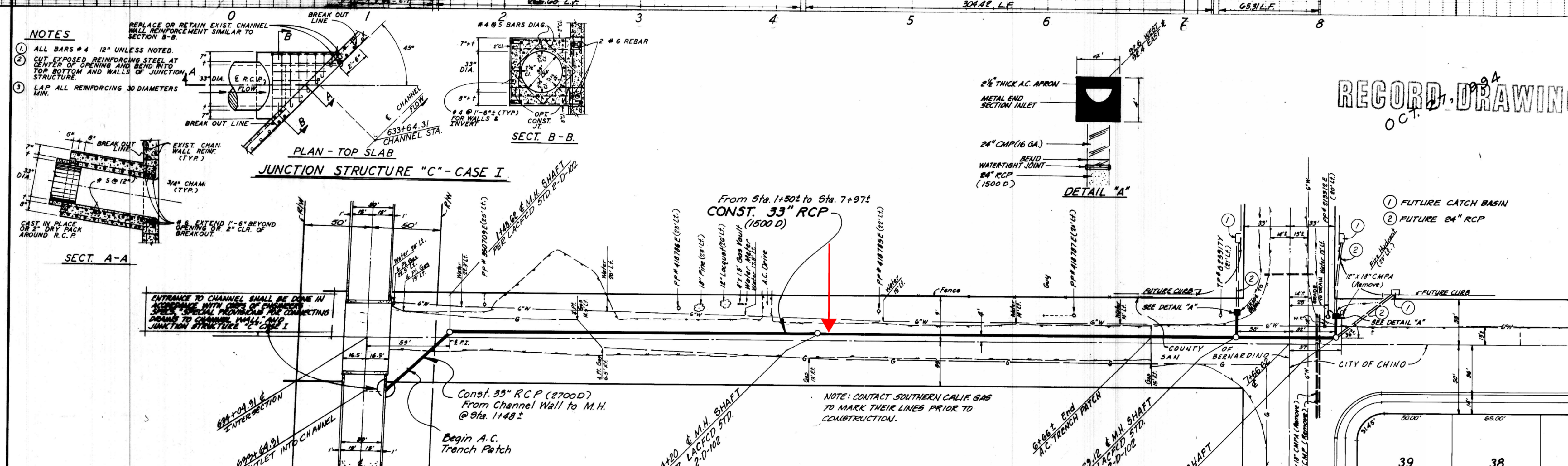
Program Package Serial Number: 1404

WATER SURFACE PROFILE LISTING Date: 1-14-2021 Time: 4:35:26

PAMA - Philadelphia at East End Ind
100 Year Storm Event - Line C Hydraulics
0158LineC.wsw

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	784.500	2.100	786.600	5.58	7.10	.78	787.38	.00	.94	.00	1.000	.000	.00	1 .0
174.000	.0086					.0209	3.64	2.10	.00	1.00	.012	.00	.00	PIPE
1174.000	786.000	4.237	790.237	5.58	7.10	.78	791.02	.00	.94	.00	1.000	.000	.00	1 .0
JUNCT STR	.1100					.0125	.04	4.24	.00		.012	.00	.00	PIPE
1177.000	786.330	5.209	791.539	2.45	3.12	.15	791.69	.00	.67	.00	1.000	.000	.00	1 .0
208.000	.0176					.0040	.84	5.21	.00	.49	.012	.00	.00	PIPE
1385.000	790.000	2.385	792.385	2.45	3.12	.15	792.54	.00	.67	.00	1.000	.000	.00	1 .0





ESTIMATE OF QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNIT	REMARKS
1.	33" RCP (1500 D)	639	LF	
2.	MANHOLE PER LACFCD STD. 2-D-102	4	EA	
3.	24" CMP (16 GA.)	12	LF	
4.	24" RCP (1500 D)	24	LF	
5.	METAL END SECTION INLETS	2	EA	
6.	CONNECTION TO CONCRETE CHANNEL	Lump Sum	L.S.	
7.	2½" THICK A.C. APRON	32	SF	
8.	A.C. TRENCH PATCH	560	L.F.	
9.	33" RCP (2700 D)	62	LF	
10	Adjust M.H. To Grade	4	Ea	

NOTE: ARMY CORPS DATUM = 3.25'± + CITY OF CHINO DATUM

GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF CHINO STANDARD DRAWINGS, STANDARD SPECIAL PROVISIONS, SPECIAL PROJECT PROVISIONS AND STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION 1973 EDITION WITH SUPPLEMENTS, AND LOS ANGELES COUNTY FLOOD CONTROL DISTRICT (LACFCD) STANDARD DRAWINGS AND SPECIFICATIONS, AND UNITED STATES ARMY CORPS OF ENGINEERS SPECIFICATIONS.
2. ALL EXISTING PAVEMENT TO BE REMOVED SHALL BE REMOVED TO CLEAN STRAIGHT LINES.
3. EXISTING PAVEMENT SHALL BE COATED WITH ASPHALTIC EMULSION AT ALL LOCATIONS WHERE NEW PAVEMENT JOINS EXISTING PAVEMENT, FOR A MIN. OF 2 FT. BEYOND THE ADJOINING EDGE.
4. ALL EXISTING P.C.C. SHALL BE SAW CUT PRIOR TO REMOVALS.
5. ALL MANHOLE FRAMES AND COVERS SHALL BE LOWERED A MIN. OF 2" BELOW SUBGRADE PRIOR TO FINE GRADING AND RAISED TO 1/8" BELOW FINIGH GRADE AFTER COMPLETION OF PAVING. MANHOLES NOT LOCATED IN PAVED AREAS SHALL HAVE TOP OF FRAMES AND COVERS AT ELEVATION SHOWN ON PLAN.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION AND ADJUSTING OF ALL WATER VALVE BOXES AND COVERS.
7. THE CONTRACTOR SHALL MAINTAIN DUST CONTROL AT ALL TIMES BY WATERING.
8. AN APPROVED SOIL STERILIZER SHALL BE USED ON ALL SUBGRADES WHEN PLACING A.C. PAVEMENT DIRECTLY ON SUBGRADE.
9. WORK IN PUBLIC STREET, ONCE BEGUN, SHALL BE PROSECUTED TO COMPLETION WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVEIENCE TO ADJACENT PROPERTY OWNERS AND TO TRAVELING PUBLIC.
10. CONTRACTOR SHALL FURNISH THE CITY ENGINEER WITH "AS BUILTS".
11. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN AN ENCROACHMENT PERMIT FROM SAN BERNARDINO COUNTY TRANSPORTATION DEPT.
12. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A CONSTRUCTION PERMIT FROM THE ARMY CORPS OF ENGINEERS FOR CONSTRUCTION FROM CHANNEL WALL TO MANHOLE AT STATION 1+48±.
13. WORK FROM CHANNEL WALL, STATION 0+87± THROUGH MANHOLE, STATION 1+48±, SHALL BE COMPLETED PRIOR TO OCTOBER 15, 1976 OR LATER THAN APRIL 15, 1977. MANHOLE AT STATION 1+48± SHALL HAVE A WATER TIGHT SEAL AT THE OUTLET IF ENTIRE CONSTRUCTION OF UPSTREAM STORM DRAIN IS NOT COMPLETED PRIOR TO OCTOBER, 1976.
14. ANY CONTRACTOR PERFORMING WORK ON THIS PROJECT SHALL FAMILIARIZE HIMSELF WITH THE SITE AND SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES RESULTING DIRECTLY OR INDIRECTLY FROM HIS OPERATIONS, WHETHER OR NOT SUCH FACILITIES ARE SHOWN ON THESE PLANS.

SPECIAL NOTE FROM PRIVATE ENGINEER TO CONTRACTOR

Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this Project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineer harmless from any and all liability, real or alleged, in connection with the performance of work on this Project, excepting for liability arising from the sole negligence of the Owner or the Engineer.

W.R. Angeles 2-1-77

BENCH MARK NO. 248 ELEV. 772.55
LOCATION: CITY OF CHINO
SPIKE IN EAST CURB OF ROSWELL AVENUE 40' NORTH OF NORTH BCR. AT NORTHEAST CORNER OF ROSWELL AVENUE AND MAXON PLACE.

APPROVED BY: TRAFFIC / WATER / SEWER / LIGHTS

CITY ENGINEER'S STAFF: DRAWN BY / CHECKED BY / CHECKED BY / RECOMMENDED BY DKC 2/25/77

APPROVED BY ASSISTANT CITY ENGINEER DATE 3/3/77

City of Chino Engineering Department

STORM DRAIN PLAN
WEST OF EAST END AVENUE
PHILADELPHIA STREET

Sht. 1 of 1
DWG. NO. AA-757

75-18V

Appendix D

Unit Hydrograph and Basin Routing

U n i t H y d r o g r a p h A n a l y s i s

Study date 01/13/21

++

San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6145

Existing 25 year Unit Hydrograph
0158UH25E.UBM

Storm Event Year = 25

Antecedent Moisture Condition = 2

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 25		
3.59	1	1.17
Rainfall data for year 25		
3.59	6	2.97
Rainfall data for year 25		
3.59	24	5.44

++

******** Area-averaged max loss rate, Fm ********

SCS curve No.(AMCII)	SCS curve NO.(AMC 2)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
56.0	56.0	3.59	1.000	0.734	0.900	0.661

Area-averaged adjusted loss rate Fm (In/Hr) = 0.661

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
3.23	0.900	56.0	56.0	7.86	0.235
0.36	0.100	98.0	98.0	0.20	0.956

Area-averaged catchment yield fraction, Y = 0.307
Area-averaged low loss fraction, Yb = 0.693
User entry of time of concentration = 0.264 (hours)
++
Watershed area = 3.59(Ac.)
Catchment Lag time = 0.211 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 39.4571
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.661(In/Hr)
Average low loss rate fraction (Yb) = 0.693 (decimal)
VALLEY DEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.433(In)
Computed peak 30-minute rainfall = 0.887(In)
Specified peak 1-hour rainfall = 1.170(In)
Computed peak 3-hour rainfall = 2.071(In)
Specified peak 6-hour rainfall = 2.970(In)
Specified peak 24-hour rainfall = 5.440(In)

Rainfall depth area reduction factors:
Using a total area of 3.59(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.433(In)
30-minute factor = 1.000 Adjusted rainfall = 0.887(In)
1-hour factor = 1.000 Adjusted rainfall = 1.170(In)
3-hour factor = 1.000 Adjusted rainfall = 2.071(In)
6-hour factor = 1.000 Adjusted rainfall = 2.970(In)
24-hour factor = 1.000 Adjusted rainfall = 5.440(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
(K = 43.42 (CFS))		
1	2.969	1.289
2	19.070	6.990
3	48.436	12.750

4	76.990	12.397
5	90.736	5.968
6	96.456	2.483
7	98.414	0.850
8	99.127	0.309
9	100.000	0.155

Total soil rain loss = 3.47(In)

Total effective rainfall = 1.97(In)

Peak flow rate in flood hydrograph = 6.41(CFS)

++

24 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0002	0.02	Q				
0+15	0.0005	0.05	Q				
0+20	0.0011	0.08	Q				
0+25	0.0018	0.10	Q				
0+30	0.0025	0.11	Q				
0+35	0.0033	0.11	Q				
0+40	0.0041	0.11	Q				
0+45	0.0048	0.11	Q				
0+50	0.0056	0.11	Q				
0+55	0.0064	0.11	Q				
1+ 0	0.0071	0.11	Q				
1+ 5	0.0079	0.11	Q				
1+10	0.0087	0.11	Q				
1+15	0.0095	0.11	Q				
1+20	0.0102	0.11	Q				
1+25	0.0110	0.11	Q				
1+30	0.0118	0.11	Q				
1+35	0.0126	0.11	Q				
1+40	0.0134	0.11	Q				
1+45	0.0142	0.12	Q				
1+50	0.0150	0.12	QV				
1+55	0.0158	0.12	QV				
2+ 0	0.0166	0.12	QV				
2+ 5	0.0174	0.12	QV				
2+10	0.0182	0.12	QV				
2+15	0.0190	0.12	QV				
2+20	0.0198	0.12	QV				
2+25	0.0206	0.12	QV				
2+30	0.0215	0.12	QV				
2+35	0.0223	0.12	QV				
2+40	0.0231	0.12	QV				

2+45	0.0239	0.12	QV	|	|	|	|
2+50	0.0248	0.12	QV	|	|	|	|
2+55	0.0256	0.12	QV	|	|	|	|
3+ 0	0.0264	0.12	QV	|	|	|	|
3+ 5	0.0273	0.12	QV	|	|	|	|
3+10	0.0281	0.12	QV	|	|	|	|
3+15	0.0290	0.12	QV	|	|	|	|
3+20	0.0298	0.12	Q V	|	|	|	|
3+25	0.0306	0.12	Q V	|	|	|	|
3+30	0.0315	0.12	Q V	|	|	|	|
3+35	0.0324	0.12	Q V	|	|	|	|
3+40	0.0332	0.12	Q V	|	|	|	|
3+45	0.0341	0.13	Q V	|	|	|	|
3+50	0.0349	0.13	Q V	|	|	|	|
3+55	0.0358	0.13	Q V	|	|	|	|
4+ 0	0.0367	0.13	Q V	|	|	|	|
4+ 5	0.0376	0.13	Q V	|	|	|	|
4+10	0.0384	0.13	Q V	|	|	|	|
4+15	0.0393	0.13	Q V	|	|	|	|
4+20	0.0402	0.13	Q V	|	|	|	|
4+25	0.0411	0.13	Q V	|	|	|	|
4+30	0.0420	0.13	Q V	|	|	|	|
4+35	0.0429	0.13	Q V	|	|	|	|
4+40	0.0438	0.13	Q V	|	|	|	|
4+45	0.0447	0.13	Q V	|	|	|	|
4+50	0.0456	0.13	Q V	|	|	|	|
4+55	0.0465	0.13	Q V	|	|	|	|
5+ 0	0.0474	0.13	Q V	|	|	|	|
5+ 5	0.0484	0.13	Q V	|	|	|	|
5+10	0.0493	0.13	Q V	|	|	|	|
5+15	0.0502	0.13	Q V	|	|	|	|
5+20	0.0511	0.14	Q V	|	|	|	|
5+25	0.0521	0.14	Q V	|	|	|	|
5+30	0.0530	0.14	Q V	|	|	|	|
5+35	0.0540	0.14	Q V	|	|	|	|
5+40	0.0549	0.14	Q V	|	|	|	|
5+45	0.0559	0.14	Q V	|	|	|	|
5+50	0.0568	0.14	Q V	|	|	|	|
5+55	0.0578	0.14	Q V	|	|	|	|
6+ 0	0.0587	0.14	Q V	|	|	|	|
6+ 5	0.0597	0.14	Q V	|	|	|	|
6+10	0.0607	0.14	Q V	|	|	|	|
6+15	0.0617	0.14	Q V	|	|	|	|
6+20	0.0627	0.14	Q V	|	|	|	|
6+25	0.0636	0.14	Q V	|	|	|	|
6+30	0.0646	0.14	Q V	|	|	|	|
6+35	0.0656	0.14	Q V	|	|	|	|
6+40	0.0666	0.15	Q V	|	|	|	|
6+45	0.0676	0.15	Q V	|	|	|	|
6+50	0.0687	0.15	Q V	|	|	|	|
6+55	0.0697	0.15	Q V	|	|	|	|
7+ 0	0.0707	0.15	Q V	|	|	|	|
7+ 5	0.0717	0.15	Q V	|	|	|	|
7+10	0.0728	0.15	Q V	|	|	|	|

7+15	0.0738	0.15	Q	V	|	|	|	|
7+20	0.0748	0.15	Q	V	|	|	|	|
7+25	0.0759	0.15	Q	V	|	|	|	|
7+30	0.0769	0.15	Q	V	|	|	|	|
7+35	0.0780	0.15	Q	V	|	|	|	|
7+40	0.0791	0.15	Q	V	|	|	|	|
7+45	0.0801	0.16	Q	V	|	|	|	|
7+50	0.0812	0.16	Q	V	|	|	|	|
7+55	0.0823	0.16	Q	V	|	|	|	|
8+ 0	0.0834	0.16	Q	V	|	|	|	|
8+ 5	0.0845	0.16	Q	V	|	|	|	|
8+10	0.0856	0.16	Q	V	|	|	|	|
8+15	0.0867	0.16	Q	V	|	|	|	|
8+20	0.0878	0.16	Q	V	|	|	|	|
8+25	0.0889	0.16	Q	V	|	|	|	|
8+30	0.0901	0.16	Q	V	|	|	|	|
8+35	0.0912	0.16	Q	V	|	|	|	|
8+40	0.0923	0.17	Q	V	|	|	|	|
8+45	0.0935	0.17	Q	V	|	|	|	|
8+50	0.0946	0.17	Q	V	|	|	|	|
8+55	0.0958	0.17	Q	V	|	|	|	|
9+ 0	0.0970	0.17	Q	V	|	|	|	|
9+ 5	0.0982	0.17	Q	V	|	|	|	|
9+10	0.0994	0.17	Q	V	|	|	|	|
9+15	0.1005	0.17	Q	V	|	|	|	|
9+20	0.1018	0.17	Q	V	|	|	|	|
9+25	0.1030	0.18	Q	V	|	|	|	|
9+30	0.1042	0.18	Q	V	|	|	|	|
9+35	0.1054	0.18	Q	V	|	|	|	|
9+40	0.1066	0.18	Q	V	|	|	|	|
9+45	0.1079	0.18	Q	V	|	|	|	|
9+50	0.1091	0.18	Q	V	|	|	|	|
9+55	0.1104	0.18	Q	V	|	|	|	|
10+ 0	0.1117	0.18	Q	V	|	|	|	|
10+ 5	0.1130	0.19	Q	V	|	|	|	|
10+10	0.1143	0.19	Q	V	|	|	|	|
10+15	0.1156	0.19	Q	V	|	|	|	|
10+20	0.1169	0.19	Q	V	|	|	|	|
10+25	0.1182	0.19	Q	V	|	|	|	|
10+30	0.1195	0.19	Q	V	|	|	|	|
10+35	0.1209	0.20	Q	V	|	|	|	|
10+40	0.1222	0.20	Q	V	|	|	|	|
10+45	0.1236	0.20	Q	V	|	|	|	|
10+50	0.1250	0.20	Q	V	|	|	|	|
10+55	0.1264	0.20	Q	V	|	|	|	|
11+ 0	0.1278	0.20	Q	V	|	|	|	|
11+ 5	0.1292	0.21	Q	V	|	|	|	|
11+10	0.1306	0.21	Q	V	|	|	|	|
11+15	0.1321	0.21	Q	V	|	|	|	|
11+20	0.1335	0.21	Q	V	|	|	|	|
11+25	0.1350	0.21	Q	V	|	|	|	|
11+30	0.1365	0.22	Q	V	|	|	|	|
11+35	0.1380	0.22	Q	V	|	|	|	|
11+40	0.1395	0.22	Q	V	|	|	|	|

11+45	0.1410	0.22	Q	V|			
11+50	0.1426	0.22	Q	V|			
11+55	0.1441	0.23	Q	V|			
12+ 0	0.1457	0.23	Q	V|			
12+ 5	0.1473	0.23	Q	V			
12+10	0.1490	0.24	Q	V			
12+15	0.1508	0.26	|Q	V			
12+20	0.1527	0.28	|Q	V			
12+25	0.1547	0.28	|Q	V			
12+30	0.1567	0.29	|Q	V			
12+35	0.1587	0.29	|Q	V			
12+40	0.1607	0.30	|Q	V			
12+45	0.1628	0.30	|Q	|V			
12+50	0.1649	0.30	|Q	|V			
12+55	0.1670	0.31	|Q	|V			
13+ 0	0.1692	0.31	|Q	|V			
13+ 5	0.1714	0.32	|Q	|V			
13+10	0.1736	0.32	|Q	|V			
13+15	0.1758	0.32	|Q	|V			
13+20	0.1781	0.33	|Q	| V			
13+25	0.1804	0.33	|Q	| V			
13+30	0.1827	0.34	|Q	| V			
13+35	0.1850	0.34	|Q	| V			
13+40	0.1874	0.35	|Q	| V			
13+45	0.1899	0.35	|Q	| V			
13+50	0.1924	0.36	|Q	| V			
13+55	0.1949	0.37	|Q	| V			
14+ 0	0.1974	0.37	|Q	| V			
14+ 5	0.2000	0.38	|Q	| V			
14+10	0.2027	0.39	|Q	| V			
14+15	0.2054	0.39	|Q	| V			
14+20	0.2082	0.40	|Q	| V			
14+25	0.2110	0.41	|Q	| V			
14+30	0.2139	0.42	|Q	| V			
14+35	0.2168	0.43	|Q	| V			
14+40	0.2198	0.44	|Q	| V			
14+45	0.2229	0.45	|Q	| V			
14+50	0.2261	0.46	|Q	| V			
14+55	0.2294	0.48	|Q	| V			
15+ 0	0.2328	0.49	|Q	| V			
15+ 5	0.2363	0.51	| Q	| V			
15+10	0.2399	0.52	| Q	| V			
15+15	0.2436	0.54	| Q	| V			
15+20	0.2476	0.57	| Q	| V			
15+25	0.2516	0.59	| Q	| V			
15+30	0.2557	0.59	| Q	| V			
15+35	0.2597	0.58	| Q	| V			
15+40	0.2637	0.58	| Q	| V			
15+45	0.2679	0.61	| Q	| V			
15+50	0.2726	0.67	| Q	| V			
15+55	0.2780	0.79	| Q	| V			
16+ 0	0.2855	1.09	| Q	| V|			
16+ 5	0.2999	2.09	| Q	| V			
16+10	0.3309	4.50	|	| Q	| V		

16+15	0.3750	6.41	|	|	| Q |	|
16+20	0.4150	5.80	|	|	| Q V |	|
16+25	0.4369	3.18	|	Q |	| V|	|
16+30	0.4486	1.70	| Q	|	| V	|
16+35	0.4555	1.00	| Q	|	| |V	|
16+40	0.4606	0.75	| Q	|	| |V	|
16+45	0.4650	0.63	| Q	|	| |V	|
16+50	0.4687	0.54	| Q	|	| |V	|
16+55	0.4722	0.50	| Q	|	| | V	|
17+ 0	0.4754	0.47	|Q	|	| | V	|
17+ 5	0.4785	0.45	|Q	|	| | V	|
17+10	0.4814	0.43	|Q	|	| | V	|
17+15	0.4842	0.41	|Q	|	| | V	|
17+20	0.4869	0.39	|Q	|	| | V	|
17+25	0.4895	0.38	|Q	|	| | V	|
17+30	0.4920	0.36	|Q	|	| | V	|
17+35	0.4944	0.35	|Q	|	| | V	|
17+40	0.4968	0.34	|Q	|	| | V	|
17+45	0.4990	0.33	|Q	|	| | V	|
17+50	0.5013	0.32	|Q	|	| | V	|
17+55	0.5034	0.31	|Q	|	| | V	|
18+ 0	0.5055	0.31	|Q	|	| | V	|
18+ 5	0.5076	0.30	|Q	|	| | V	|
18+10	0.5096	0.28	|Q	|	| | V	|
18+15	0.5114	0.27	|Q	|	| | V	|
18+20	0.5131	0.25	Q	|	| | V	|
18+25	0.5147	0.23	Q	|	| | V	|
18+30	0.5163	0.23	Q	|	| | V	|
18+35	0.5178	0.22	Q	|	| | V	|
18+40	0.5193	0.22	Q	|	| | V	|
18+45	0.5208	0.21	Q	|	| | V	|
18+50	0.5222	0.21	Q	|	| | V	|
18+55	0.5236	0.20	Q	|	| | V	|
19+ 0	0.5250	0.20	Q	|	| | V	|
19+ 5	0.5264	0.20	Q	|	| | V	|
19+10	0.5277	0.19	Q	|	| | V	|
19+15	0.5290	0.19	Q	|	| | V	|
19+20	0.5303	0.19	Q	|	| | V	|
19+25	0.5316	0.19	Q	|	| | V	|
19+30	0.5328	0.18	Q	|	| | V	|
19+35	0.5341	0.18	Q	|	| | V	|
19+40	0.5353	0.18	Q	|	| | V	|
19+45	0.5365	0.18	Q	|	| | V	|
19+50	0.5377	0.17	Q	|	| | V	|
19+55	0.5389	0.17	Q	|	| | V	|
20+ 0	0.5400	0.17	Q	|	| | V	|
20+ 5	0.5412	0.17	Q	|	| | V	|
20+10	0.5423	0.16	Q	|	| | V	|
20+15	0.5434	0.16	Q	|	| | V	|
20+20	0.5446	0.16	Q	|	| | V	|
20+25	0.5456	0.16	Q	|	| | V	|
20+30	0.5467	0.16	Q	|	| | V	|
20+35	0.5478	0.16	Q	|	| | V	|
20+40	0.5489	0.15	Q	|	| | V	|

20+45	0.5499	0.15	Q	|	|	|	V |
20+50	0.5509	0.15	Q	|	|	|	V |
20+55	0.5520	0.15	Q	|	|	|	V |
21+ 0	0.5530	0.15	Q	|	|	|	V |
21+ 5	0.5540	0.15	Q	|	|	|	V |
21+10	0.5550	0.14	Q	|	|	|	V |
21+15	0.5560	0.14	Q	|	|	|	V |
21+20	0.5569	0.14	Q	|	|	|	V |
21+25	0.5579	0.14	Q	|	|	|	V |
21+30	0.5589	0.14	Q	|	|	|	V |
21+35	0.5598	0.14	Q	|	|	|	V |
21+40	0.5608	0.14	Q	|	|	|	V |
21+45	0.5617	0.14	Q	|	|	|	V |
21+50	0.5626	0.13	Q	|	|	|	V |
21+55	0.5635	0.13	Q	|	|	|	V |
22+ 0	0.5644	0.13	Q	|	|	|	V |
22+ 5	0.5653	0.13	Q	|	|	|	V |
22+10	0.5662	0.13	Q	|	|	|	V |
22+15	0.5671	0.13	Q	|	|	|	V |
22+20	0.5680	0.13	Q	|	|	|	V |
22+25	0.5689	0.13	Q	|	|	|	V |
22+30	0.5698	0.13	Q	|	|	|	V |
22+35	0.5706	0.13	Q	|	|	|	V |
22+40	0.5715	0.12	Q	|	|	|	V |
22+45	0.5723	0.12	Q	|	|	|	V|
22+50	0.5732	0.12	Q	|	|	|	V|
22+55	0.5740	0.12	Q	|	|	|	V|
23+ 0	0.5748	0.12	Q	|	|	|	V|
23+ 5	0.5757	0.12	Q	|	|	|	V|
23+10	0.5765	0.12	Q	|	|	|	V|
23+15	0.5773	0.12	Q	|	|	|	V|
23+20	0.5781	0.12	Q	|	|	|	V|
23+25	0.5789	0.12	Q	|	|	|	V|
23+30	0.5797	0.12	Q	|	|	|	V|
23+35	0.5805	0.12	Q	|	|	|	V|
23+40	0.5813	0.11	Q	|	|	|	V|
23+45	0.5821	0.11	Q	|	|	|	V|
23+50	0.5828	0.11	Q	|	|	|	V|
23+55	0.5836	0.11	Q	|	|	|	V|
24+ 0	0.5844	0.11	Q	|	|	|	V|
24+ 5	0.5851	0.11	Q	|	|	|	V|
24+10	0.5857	0.09	Q	|	|	|	V|
24+15	0.5861	0.06	Q	|	|	|	V|
24+20	0.5863	0.02	Q	|	|	|	V|
24+25	0.5864	0.01	Q	|	|	|	V|
24+30	0.5864	0.00	Q	|	|	|	V|
24+35	0.5864	0.00	Q	|	|	|	V|
24+40	0.5864	0.00	Q	|	|	|	V

U n i t H y d r o g r a p h A n a l y s i s

Study date 01/13/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6145

Area A Proposed Q100 Unit Hydrograph
0158UHP100A.UBM

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
2.17	1	1.53
Rainfall data for year 100		
2.17	6	3.79
Rainfall data for year 100		
2.17	24	7.07

++

******** Area-averaged max loss rate, Fm ********

SCS curve No.(AMCII)	SCS curve NO.(AMC 3)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
56.0	75.8	2.17	1.000	0.440	0.100	0.044

Area-averaged adjusted loss rate Fm (In/Hr) = 0.044

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
0.22	0.100	56.0	75.8	3.19	0.608
1.95	0.900	98.0	98.0	0.20	0.966

Area-averaged catchment yield fraction, Y = 0.930
Area-averaged low loss fraction, Yb = 0.070
User entry of time of concentration = 0.126 (hours)
++
Watershed area = 2.17(Ac.)
Catchment Lag time = 0.101 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 82.6720
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.044(In/Hr)
Average low loss rate fraction (Yb) = 0.070 (decimal)
VALLEY DEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.566(In)
Computed peak 30-minute rainfall = 1.160(In)
Specified peak 1-hour rainfall = 1.530(In)
Computed peak 3-hour rainfall = 2.668(In)
Specified peak 6-hour rainfall = 3.790(In)
Specified peak 24-hour rainfall = 7.070(In)

Rainfall depth area reduction factors:
Using a total area of 2.17(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.566(In)
30-minute factor = 1.000 Adjusted rainfall = 1.159(In)
1-hour factor = 1.000 Adjusted rainfall = 1.530(In)
3-hour factor = 1.000 Adjusted rainfall = 2.668(In)
6-hour factor = 1.000 Adjusted rainfall = 3.790(In)
24-hour factor = 1.000 Adjusted rainfall = 7.070(In)

U n i t H y d r o g r a p h
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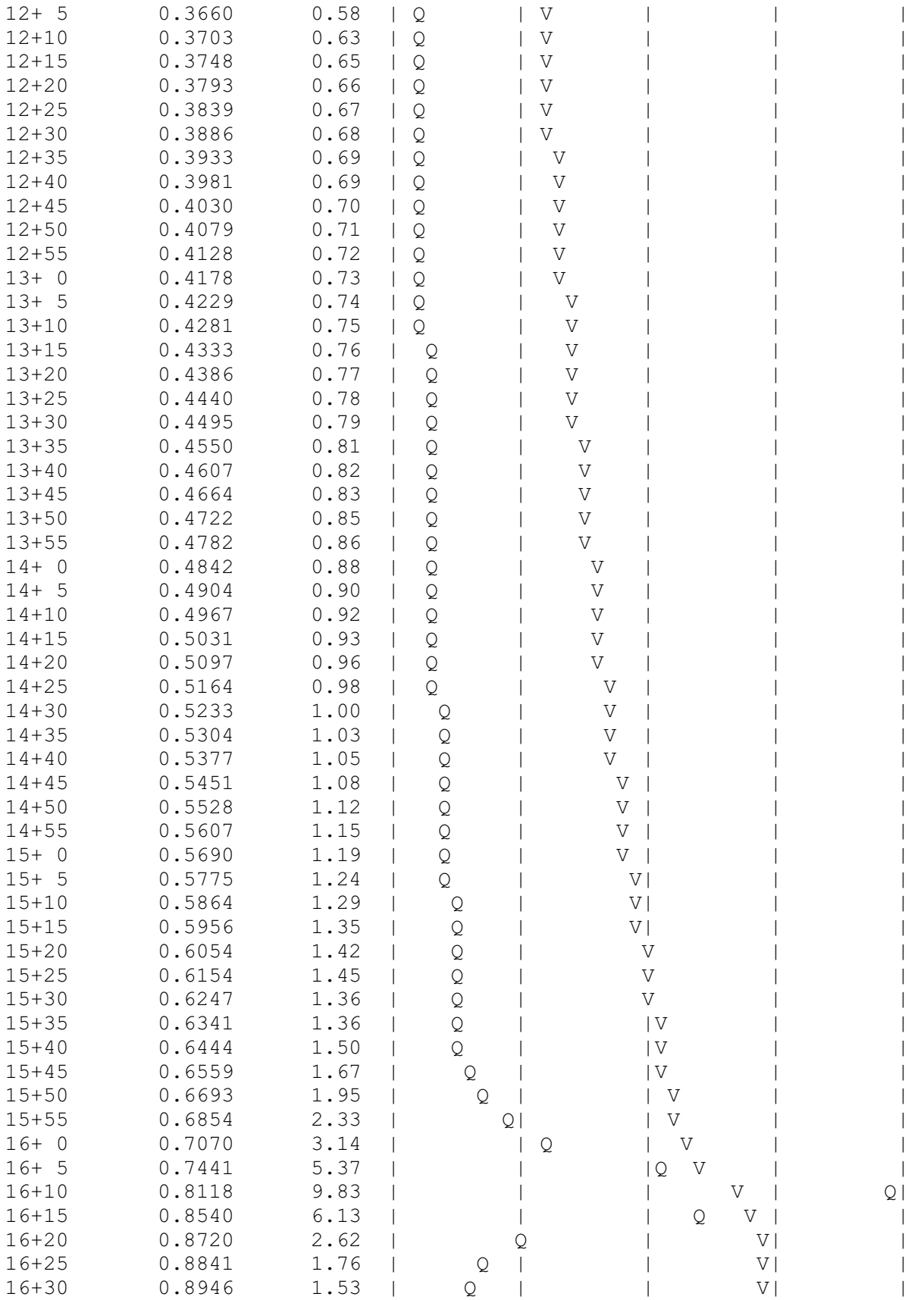
Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
(K = 26.24 (CFS))		
1	12.026	3.156
2	66.315	14.247
3	94.766	7.467

```
  4              99.008                      1.113
  5             100.000                      0.260
----------------------------------------------------------------------
----------------------------------------------------------------------
----------------------------------------------------------------------
Total soil rain loss =       0.43(In)
Total effective rainfall =       6.64(In)
Peak flow rate in flood hydrograph =      9.83(CFS)
----------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R    S T O R M
               R u n o f f     H y d r o g r a p h
----------------------------------------------------------------------
            Hydrograph in   5   Minute intervals ((CFS))

----------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
-----------------------------------------------------------------------
  0+ 5       0.0002      0.03   Q         |         |         |         |
  0+10       0.0015      0.18   Q         |         |         |         |
  0+15       0.0032      0.26   VQ        |         |         |         |
  0+20       0.0051      0.27   VQ        |         |         |         |
  0+25       0.0069      0.27   VQ        |         |         |         |
  0+30       0.0088      0.27   VQ        |         |         |         |
  0+35       0.0107      0.27   VQ        |         |         |         |
  0+40       0.0126      0.27   VQ        |         |         |         |
  0+45       0.0145      0.28   VQ        |         |         |         |
  0+50       0.0164      0.28   VQ        |         |         |         |
  0+55       0.0183      0.28   VQ        |         |         |         |
  1+ 0       0.0202      0.28   VQ        |         |         |         |
  1+ 5       0.0221      0.28   VQ        |         |         |         |
  1+10       0.0240      0.28   VQ        |         |         |         |
  1+15       0.0260      0.28   VQ        |         |         |         |
  1+20       0.0279      0.28   VQ        |         |         |         |
  1+25       0.0298      0.28   VQ        |         |         |         |
  1+30       0.0318      0.28   |Q        |         |         |         |
  1+35       0.0337      0.28   |Q        |         |         |         |
  1+40       0.0357      0.28   |Q        |         |         |         |
  1+45       0.0377      0.29   |Q        |         |         |         |
  1+50       0.0396      0.29   |Q        |         |         |         |
  1+55       0.0416      0.29   |Q        |         |         |         |
  2+ 0       0.0436      0.29   |Q        |         |         |         |
  2+ 5       0.0456      0.29   |Q        |         |         |         |
  2+10       0.0476      0.29   |Q        |         |         |         |
  2+15       0.0496      0.29   |Q        |         |         |         |
  2+20       0.0516      0.29   |Q        |         |         |         |
  2+25       0.0536      0.29   |Q        |         |         |         |
  2+30       0.0556      0.29   |Q        |         |         |         |
  2+35       0.0577      0.29   |Q        |         |         |         |
  2+40       0.0597      0.30   |Q        |         |         |         |
  2+45       0.0618      0.30   |QV       |         |         |         |
  2+50       0.0638      0.30   |QV       |         |         |         |
  2+55       0.0659      0.30   |QV       |         |         |         |
  3+ 0       0.0679      0.30   |QV       |         |         |         |
```

3+ 5	0.0700	0.30	|QV	|	|	|	|
3+10	0.0721	0.30	|QV	|	|	|	|
3+15	0.0742	0.30	|QV	|	|	|	|
3+20	0.0763	0.30	|QV	|	|	|	|
3+25	0.0784	0.31	|QV	|	|	|	|
3+30	0.0805	0.31	|QV	|	|	|	|
3+35	0.0826	0.31	|QV	|	|	|	|
3+40	0.0847	0.31	|QV	|	|	|	|
3+45	0.0869	0.31	|QV	|	|	|	|
3+50	0.0890	0.31	|QV	|	|	|	|
3+55	0.0912	0.31	|Q V	|	|	|	|
4+ 0	0.0933	0.31	|Q V	|	|	|	|
4+ 5	0.0955	0.31	|Q V	|	|	|	|
4+10	0.0977	0.32	|Q V	|	|	|	|
4+15	0.0998	0.32	|Q V	|	|	|	|
4+20	0.1020	0.32	|Q V	|	|	|	|
4+25	0.1042	0.32	|Q V	|	|	|	|
4+30	0.1064	0.32	|Q V	|	|	|	|
4+35	0.1087	0.32	|Q V	|	|	|	|
4+40	0.1109	0.32	|Q V	|	|	|	|
4+45	0.1131	0.32	|Q V	|	|	|	|
4+50	0.1154	0.33	|Q V	|	|	|	|
4+55	0.1176	0.33	|Q V	|	|	|	|
5+ 0	0.1199	0.33	|Q V	|	|	|	|
5+ 5	0.1221	0.33	|Q V	|	|	|	|
5+10	0.1244	0.33	|Q V	|	|	|	|
5+15	0.1267	0.33	|Q V	|	|	|	|
5+20	0.1290	0.33	|Q V	|	|	|	|
5+25	0.1313	0.34	|Q V	|	|	|	|
5+30	0.1336	0.34	|Q V	|	|	|	|
5+35	0.1360	0.34	|Q V	|	|	|	|
5+40	0.1383	0.34	|Q V	|	|	|	|
5+45	0.1407	0.34	|Q V	|	|	|	|
5+50	0.1430	0.34	|Q V	|	|	|	|
5+55	0.1454	0.34	|Q V	|	|	|	|
6+ 0	0.1478	0.35	|Q V	|	|	|	|
6+ 5	0.1502	0.35	|Q V	|	|	|	|
6+10	0.1526	0.35	|Q V	|	|	|	|
6+15	0.1550	0.35	|Q V	|	|	|	|
6+20	0.1574	0.35	|Q V	|	|	|	|
6+25	0.1598	0.35	|Q V	|	|	|	|
6+30	0.1623	0.36	|Q V	|	|	|	|
6+35	0.1648	0.36	|Q V	|	|	|	|
6+40	0.1672	0.36	|Q V	|	|	|	|
6+45	0.1697	0.36	|Q V	|	|	|	|
6+50	0.1722	0.36	|Q V	|	|	|	|
6+55	0.1747	0.36	|Q V	|	|	|	|
7+ 0	0.1772	0.37	|Q V	|	|	|	|
7+ 5	0.1798	0.37	|Q V	|	|	|	|
7+10	0.1823	0.37	|Q V	|	|	|	|
7+15	0.1849	0.37	|Q V	|	|	|	|
7+20	0.1874	0.37	|Q V	|	|	|	|
7+25	0.1900	0.38	|Q V	|	|	|	|
7+30	0.1926	0.38	|Q V	|	|	|	|

7+35	0.1952	0.38	Q V			
7+40	0.1979	0.38	Q V			
7+45	0.2005	0.38	Q V			
7+50	0.2032	0.39	Q V			
7+55	0.2058	0.39	Q V			
8+ 0	0.2085	0.39	Q V			
8+ 5	0.2112	0.39	Q V			
8+10	0.2140	0.39	Q V			
8+15	0.2167	0.40	Q V			
8+20	0.2194	0.40	Q V			
8+25	0.2222	0.40	Q V			
8+30	0.2250	0.40	Q V			
8+35	0.2278	0.41	Q V			
8+40	0.2306	0.41	Q V			
8+45	0.2334	0.41	Q V			
8+50	0.2363	0.41	Q V			
8+55	0.2391	0.42	Q V			
9+ 0	0.2420	0.42	Q V			
9+ 5	0.2449	0.42	Q V			
9+10	0.2479	0.42	Q V			
9+15	0.2508	0.43	Q V			
9+20	0.2538	0.43	Q V			
9+25	0.2567	0.43	Q V			
9+30	0.2597	0.44	Q V			
9+35	0.2628	0.44	Q V			
9+40	0.2658	0.44	Q V			
9+45	0.2689	0.45	Q V			
9+50	0.2720	0.45	Q V			
9+55	0.2751	0.45	Q V			
10+ 0	0.2782	0.46	Q V			
10+ 5	0.2814	0.46	Q V			
10+10	0.2846	0.46	Q V			
10+15	0.2878	0.47	Q V			
10+20	0.2910	0.47	Q V			
10+25	0.2943	0.47	Q V			
10+30	0.2975	0.48	Q V			
10+35	0.3009	0.48	Q V			
10+40	0.3042	0.48	Q V			
10+45	0.3076	0.49	Q V			
10+50	0.3110	0.49	Q V			
10+55	0.3144	0.50	Q V			
11+ 0	0.3178	0.50	Q V			
11+ 5	0.3213	0.51	Q V			
11+10	0.3248	0.51	Q V			
11+15	0.3284	0.52	Q V			
11+20	0.3320	0.52	Q V			
11+25	0.3356	0.53	Q V			
11+30	0.3392	0.53	Q V			
11+35	0.3429	0.54	Q V			
11+40	0.3467	0.54	Q V			
11+45	0.3504	0.55	Q V			
11+50	0.3542	0.55	Q V			
11+55	0.3581	0.56	Q V			
12+ 0	0.3620	0.56	Q V			



```
16+35       0.9045      1.44  |    Q    |         |         V         |
16+40       0.9136      1.31  |    Q    |         |         V         |
16+45       0.9219      1.21  |   Q     |         |         V         |
16+50       0.9297      1.13  |   Q     |         |         V         |
16+55       0.9370      1.07  |   Q     |         |         |V        |
17+ 0       0.9440      1.01  |   Q     |         |         |V        |
17+ 5       0.9506      0.96  |  Q      |         |         |V        |
17+10       0.9570      0.92  |  Q      |         |         |V        |
17+15       0.9631      0.89  |  Q      |         |         | V       |
17+20       0.9690      0.85  |  Q      |         |         | V       |
17+25       0.9746      0.82  |  Q      |         |         | V       |
17+30       0.9801      0.80  |  Q      |         |         | V       |
17+35       0.9855      0.77  |  Q      |         |         | V       |
17+40       0.9907      0.75  |  Q      |         |         |  V      |
17+45       0.9957      0.73  | Q       |         |         |  V      |
17+50       1.0006      0.71  | Q       |         |         |  V      |
17+55       1.0054      0.70  | Q       |         |         |  V      |
18+ 0       1.0101      0.68  | Q       |         |         |  V      |
18+ 5       1.0146      0.66  | Q       |         |         |  V      |
18+10       1.0188      0.60  | Q       |         |         |  V      |
18+15       1.0227      0.57  | Q       |         |         |   V     |
18+20       1.0266      0.56  | Q       |         |         |   V     |
18+25       1.0303      0.54  | Q       |         |         |   V     |
18+30       1.0340      0.53  | Q       |         |         |   V     |
18+35       1.0376      0.52  | Q       |         |         |   V     |
18+40       1.0411      0.51  | Q       |         |         |   V     |
18+45       1.0446      0.50  | Q       |         |         |   V     |
18+50       1.0480      0.49  |Q        |         |         |   V     |
18+55       1.0513      0.49  |Q        |         |         |    V    |
19+ 0       1.0546      0.48  |Q        |         |         |    V    |
19+ 5       1.0578      0.47  |Q        |         |         |    V    |
19+10       1.0610      0.46  |Q        |         |         |    V    |
19+15       1.0642      0.46  |Q        |         |         |    V    |
19+20       1.0673      0.45  |Q        |         |         |    V    |
19+25       1.0703      0.44  |Q        |         |         |    V    |
19+30       1.0733      0.44  |Q        |         |         |    V    |
19+35       1.0763      0.43  |Q        |         |         |    V    |
19+40       1.0792      0.43  |Q        |         |         |    V    |
19+45       1.0821      0.42  |Q        |         |         |     V   |
19+50       1.0850      0.41  |Q        |         |         |     V   |
19+55       1.0878      0.41  |Q        |         |         |     V   |
20+ 0       1.0906      0.40  |Q        |         |         |     V   |
20+ 5       1.0934      0.40  |Q        |         |         |     V   |
20+10       1.0961      0.40  |Q        |         |         |     V   |
20+15       1.0988      0.39  |Q        |         |         |     V   |
20+20       1.1014      0.39  |Q        |         |         |     V   |
20+25       1.1041      0.38  |Q        |         |         |     V   |
20+30       1.1067      0.38  |Q        |         |         |     V   |
20+35       1.1092      0.37  |Q        |         |         |     V   |
20+40       1.1118      0.37  |Q        |         |         |      V  |
20+45       1.1143      0.37  |Q        |         |         |      V  |
20+50       1.1168      0.36  |Q        |         |         |      V  |
20+55       1.1193      0.36  |Q        |         |         |      V  |
21+ 0       1.1218      0.36  |Q        |         |         |      V  |
```

21+ 5	1.1242	0.35	|Q	|	|	|	V |
21+10	1.1266	0.35	|Q	|	|	|	V |
21+15	1.1290	0.35	|Q	|	|	|	V |
21+20	1.1313	0.34	|Q	|	|	|	V |
21+25	1.1337	0.34	|Q	|	|	|	V |
21+30	1.1360	0.34	|Q	|	|	|	V |
21+35	1.1383	0.33	|Q	|	|	|	V |
21+40	1.1406	0.33	|Q	|	|	|	V |
21+45	1.1429	0.33	|Q	|	|	|	V |
21+50	1.1451	0.33	|Q	|	|	|	V |
21+55	1.1473	0.32	|Q	|	|	|	V |
22+ 0	1.1495	0.32	|Q	|	|	|	V |
22+ 5	1.1517	0.32	|Q	|	|	|	V |
22+10	1.1539	0.32	|Q	|	|	|	V |
22+15	1.1561	0.31	|Q	|	|	|	V |
22+20	1.1582	0.31	|Q	|	|	|	V |
22+25	1.1603	0.31	|Q	|	|	|	V |
22+30	1.1625	0.31	|Q	|	|	|	V |
22+35	1.1646	0.30	|Q	|	|	|	V |
22+40	1.1666	0.30	|Q	|	|	|	V |
22+45	1.1687	0.30	|Q	|	|	|	V |
22+50	1.1708	0.30	|Q	|	|	|	V|
22+55	1.1728	0.30	|Q	|	|	|	V|
23+ 0	1.1748	0.29	|Q	|	|	|	V|
23+ 5	1.1768	0.29	|Q	|	|	|	V|
23+10	1.1788	0.29	|Q	|	|	|	V|
23+15	1.1808	0.29	|Q	|	|	|	V|
23+20	1.1828	0.29	|Q	|	|	|	V|
23+25	1.1848	0.28	|Q	|	|	|	V|
23+30	1.1867	0.28	|Q	|	|	|	V|
23+35	1.1886	0.28	|Q	|	|	|	V|
23+40	1.1906	0.28	|Q	|	|	|	V|
23+45	1.1925	0.28	|Q	|	|	|	V|
23+50	1.1944	0.28	|Q	|	|	|	V|
23+55	1.1963	0.27	|Q	|	|	|	V|
24+ 0	1.1982	0.27	|Q	|	|	|	V|
24+ 5	1.1998	0.24	Q	|	|	|	V|
24+10	1.2004	0.09	Q	|	|	|	V|
24+15	1.2005	0.01	Q	|	|	|	V|
24+20	1.2006	0.00	Q	|	|	|	V

U n i t H y d r o g r a p h A n a l y s i s

Study date 01/13/21

++

San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6145

Area B Proposed Q100 Unit Hydrograph
0158UHP100B.UBM

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 100		
1.42	1	1.53
Rainfall data for year 100		
1.42	6	3.79
Rainfall data for year 100		
1.42	24	7.07

++

******** Area-averaged max loss rate, Fm ********

SCS curve No.(AMCII)	SCS curve NO.(AMC 3)	Area (Ac.)	Area Fraction	Fp(Fig C6) (In/Hr)	Ap (dec.)	Fm (In/Hr)
56.0	75.8	1.42	1.000	0.440	0.100	0.044

Area-averaged adjusted loss rate Fm (In/Hr) = 0.044

********* Area-Averaged low loss rate fraction, Yb **********

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
0.14	0.100	56.0	75.8	3.19	0.608
1.28	0.900	98.0	98.0	0.20	0.966

Area-averaged catchment yield fraction, Y = 0.930
Area-averaged low loss fraction, Yb = 0.070
User entry of time of concentration = 0.127 (hours)
++
Watershed area = 1.42(Ac.)
Catchment Lag time = 0.102 hours
Unit interval = 5.000 minutes
Unit interval percentage of lag time = 82.0210
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.044(In/Hr)
Average low loss rate fraction (Yb) = 0.070 (decimal)
VALLEY DEVELOPED S-Graph Selected
Computed peak 5-minute rainfall = 0.566(In)
Computed peak 30-minute rainfall = 1.160(In)
Specified peak 1-hour rainfall = 1.530(In)
Computed peak 3-hour rainfall = 2.668(In)
Specified peak 6-hour rainfall = 3.790(In)
Specified peak 24-hour rainfall = 7.070(In)

Rainfall depth area reduction factors:
Using a total area of 1.42(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000 Adjusted rainfall = 0.566(In)
30-minute factor = 1.000 Adjusted rainfall = 1.159(In)
1-hour factor = 1.000 Adjusted rainfall = 1.530(In)
3-hour factor = 1.000 Adjusted rainfall = 2.668(In)
6-hour factor = 1.000 Adjusted rainfall = 3.790(In)
24-hour factor = 1.000 Adjusted rainfall = 7.070(In)

U n i t H y d r o g r a p h
++

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
(K = 17.17 (CFS))		
1	11.850	2.035
2	65.711	9.250
3	94.581	4.958

4	98.967	0.753
5	100.000	0.177

Total soil rain loss = 0.43(In)
Total effective rainfall = 6.64(In)
Peak flow rate in flood hydrograph = 6.40(CFS)

++

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

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q				
0+10	0.0009	0.12	Q				
0+15	0.0021	0.17	Q				
0+20	0.0033	0.18	Q				
0+25	0.0045	0.18	Q				
0+30	0.0058	0.18	Q				
0+35	0.0070	0.18	Q				
0+40	0.0082	0.18	Q				
0+45	0.0095	0.18	Q				
0+50	0.0107	0.18	Q				
0+55	0.0120	0.18	Q				
1+ 0	0.0132	0.18	Q				
1+ 5	0.0145	0.18	Q				
1+10	0.0157	0.18	Q				
1+15	0.0170	0.18	Q				
1+20	0.0182	0.18	Q				
1+25	0.0195	0.18	Q				
1+30	0.0208	0.18	QV				
1+35	0.0221	0.19	QV				
1+40	0.0234	0.19	QV				
1+45	0.0246	0.19	QV				
1+50	0.0259	0.19	QV				
1+55	0.0272	0.19	QV				
2+ 0	0.0285	0.19	QV				
2+ 5	0.0298	0.19	QV				
2+10	0.0311	0.19	QV				
2+15	0.0324	0.19	QV				
2+20	0.0338	0.19	QV				
2+25	0.0351	0.19	QV				
2+30	0.0364	0.19	QV				
2+35	0.0377	0.19	QV				
2+40	0.0391	0.19	QV				
2+45	0.0404	0.19	Q V				
2+50	0.0417	0.19	Q V				
2+55	0.0431	0.20	Q V				
3+ 0	0.0444	0.20	Q V				

3+ 5	0.0458	0.20	Q	V			
3+10	0.0472	0.20	Q	V			
3+15	0.0485	0.20	Q	V			
3+20	0.0499	0.20	Q	V			
3+25	0.0513	0.20	Q	V			
3+30	0.0527	0.20	Q	V			
3+35	0.0540	0.20	Q	V			
3+40	0.0554	0.20	Q	V			
3+45	0.0568	0.20	Q	V			
3+50	0.0582	0.20	Q	V			
3+55	0.0596	0.20	Q	V			
4+ 0	0.0610	0.21	Q	V			
4+ 5	0.0625	0.21	Q	V			
4+10	0.0639	0.21	Q	V			
4+15	0.0653	0.21	Q	V			
4+20	0.0668	0.21	Q	V			
4+25	0.0682	0.21	Q	V			
4+30	0.0696	0.21	Q	V			
4+35	0.0711	0.21	Q	V			
4+40	0.0725	0.21	Q	V			
4+45	0.0740	0.21	Q	V			
4+50	0.0755	0.21	Q	V			
4+55	0.0769	0.21	Q	V			
5+ 0	0.0784	0.21	Q	V			
5+ 5	0.0799	0.22	Q	V			
5+10	0.0814	0.22	Q	V			
5+15	0.0829	0.22	Q	V			
5+20	0.0844	0.22	Q	V			
5+25	0.0859	0.22	Q	V			
5+30	0.0874	0.22	Q	V			
5+35	0.0890	0.22	Q	V			
5+40	0.0905	0.22	Q	V			
5+45	0.0920	0.22	Q	V			
5+50	0.0936	0.22	Q	V			
5+55	0.0951	0.23	Q	V			
6+ 0	0.0967	0.23	Q	V			
6+ 5	0.0982	0.23	Q	V			
6+10	0.0998	0.23	Q	V			
6+15	0.1014	0.23	Q	V			
6+20	0.1030	0.23	Q	V			
6+25	0.1046	0.23	Q	V			
6+30	0.1062	0.23	Q	V			
6+35	0.1078	0.23	Q	V			
6+40	0.1094	0.23	Q	V			
6+45	0.1110	0.24	Q	V			
6+50	0.1127	0.24	Q	V			
6+55	0.1143	0.24	Q	V			
7+ 0	0.1160	0.24	Q	V			
7+ 5	0.1176	0.24	Q	V			
7+10	0.1193	0.24	Q	V			
7+15	0.1210	0.24	Q	V			
7+20	0.1226	0.24	Q	V			
7+25	0.1243	0.25	Q	V			
7+30	0.1260	0.25	Q	V			

```
 7+35       0.1277      0.25  Q     V   |          |          |          |
 7+40       0.1295      0.25  Q     V   |          |          |          |
 7+45       0.1312      0.25  |Q    V   |          |          |          |
 7+50       0.1329      0.25  |Q    V   |          |          |          |
 7+55       0.1347      0.25  |Q    V   |          |          |          |
 8+ 0       0.1364      0.26  |Q    V   |          |          |          |
 8+ 5       0.1382      0.26  |Q     V  |          |          |          |
 8+10       0.1400      0.26  |Q     V  |          |          |          |
 8+15       0.1418      0.26  |Q     V  |          |          |          |
 8+20       0.1436      0.26  |Q     V  |          |          |          |
 8+25       0.1454      0.26  |Q     V  |          |          |          |
 8+30       0.1472      0.26  |Q     V  |          |          |          |
 8+35       0.1490      0.27  |Q     V  |          |          |          |
 8+40       0.1509      0.27  |Q     V  |          |          |          |
 8+45       0.1527      0.27  |Q     V  |          |          |          |
 8+50       0.1546      0.27  |Q     V  |          |          |          |
 8+55       0.1565      0.27  |Q     V  |          |          |          |
 9+ 0       0.1584      0.27  |Q      V |          |          |          |
 9+ 5       0.1603      0.28  |Q      V |          |          |          |
 9+10       0.1622      0.28  |Q      V |          |          |          |
 9+15       0.1641      0.28  |Q      V |          |          |          |
 9+20       0.1660      0.28  |Q      V |          |          |          |
 9+25       0.1680      0.28  |Q      V |          |          |          |
 9+30       0.1700      0.29  |Q      V |          |          |          |
 9+35       0.1719      0.29  |Q      V |          |          |          |
 9+40       0.1739      0.29  |Q      V |          |          |          |
 9+45       0.1759      0.29  |Q      V |          |          |          |
 9+50       0.1780      0.29  |Q       V|          |          |          |
 9+55       0.1800      0.30  |Q       V|          |          |          |
10+ 0       0.1820      0.30  |Q       V|          |          |          |
10+ 5       0.1841      0.30  |Q       V|          |          |          |
10+10       0.1862      0.30  |Q       V|          |          |          |
10+15       0.1883      0.30  |Q       V|          |          |          |
10+20       0.1904      0.31  |Q       V|          |          |          |
10+25       0.1925      0.31  |Q       V|          |          |          |
10+30       0.1947      0.31  |Q       V|          |          |          |
10+35       0.1968      0.31  |Q        V          |          |          |
10+40       0.1990      0.32  |Q        V          |          |          |
10+45       0.2012      0.32  |Q        V          |          |          |
10+50       0.2035      0.32  |Q        V          |          |          |
10+55       0.2057      0.33  |Q        V          |          |          |
11+ 0       0.2080      0.33  |Q        V          |          |          |
11+ 5       0.2102      0.33  |Q        V          |          |          |
11+10       0.2125      0.33  |Q        V          |          |          |
11+15       0.2149      0.34  |Q        V          |          |          |
11+20       0.2172      0.34  |Q         |V         |          |          |
11+25       0.2196      0.34  |Q         |V         |          |          |
11+30       0.2220      0.35  |Q         |V         |          |          |
11+35       0.2244      0.35  |Q         |V         |          |          |
11+40       0.2268      0.35  |Q         |V         |          |          |
11+45       0.2293      0.36  |Q         |V         |          |          |
11+50       0.2318      0.36  |Q         |V         |          |          |
11+55       0.2343      0.37  |Q         |V         |          |          |
12+ 0       0.2368      0.37  |Q         | V        |          |          |
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12+ 5	0.2394	0.38	Q	V			
12+10	0.2423	0.41	Q	V			
12+15	0.2452	0.43	Q	V			
12+20	0.2482	0.43	Q	V			
12+25	0.2512	0.44	Q	V			
12+30	0.2543	0.44	Q	V			
12+35	0.2574	0.45	Q	V			
12+40	0.2605	0.45	Q	V			
12+45	0.2637	0.46	Q	V			
12+50	0.2669	0.47	Q	V			
12+55	0.2701	0.47	Q	V			
13+ 0	0.2734	0.48	Q	V			
13+ 5	0.2767	0.48	Q	V			
13+10	0.2801	0.49	Q	V			
13+15	0.2835	0.50	Q	V			
13+20	0.2870	0.50	Q	V			
13+25	0.2905	0.51	Q	V			
13+30	0.2941	0.52	Q	V			
13+35	0.2977	0.53	Q	V			
13+40	0.3014	0.54	Q	V			
13+45	0.3052	0.54	Q	V			
13+50	0.3090	0.55	Q	V			
13+55	0.3129	0.56	Q	V			
14+ 0	0.3168	0.58	Q	V			
14+ 5	0.3209	0.59	Q	V			
14+10	0.3250	0.60	Q	V			
14+15	0.3292	0.61	Q	V			
14+20	0.3335	0.62	Q	V			
14+25	0.3379	0.64	Q	V			
14+30	0.3424	0.65	Q	V			
14+35	0.3470	0.67	Q	V			
14+40	0.3518	0.69	Q	V			
14+45	0.3567	0.71	Q	V			
14+50	0.3617	0.73	Q	V			
14+55	0.3669	0.75	Q	V			
15+ 0	0.3723	0.78	Q	V			
15+ 5	0.3778	0.81	Q	V			
15+10	0.3836	0.84	Q	V			
15+15	0.3897	0.88	Q	V			
15+20	0.3961	0.93	Q	V			
15+25	0.4026	0.95	Q	V			
15+30	0.4088	0.89	Q	V			
15+35	0.4149	0.89	Q	V			
15+40	0.4216	0.98	Q	V			
15+45	0.4292	1.09	Q	V			
15+50	0.4379	1.27	Q	V			
15+55	0.4484	1.52	Q	V			
16+ 0	0.4625	2.05	Q	V			
16+ 5	0.4866	3.50	Q	V			
16+10	0.5307	6.40	Q V				
16+15	0.5586	4.05	Q	V			
16+20	0.5705	1.73	Q	V			
16+25	0.5785	1.16	Q	V			
16+30	0.5854	1.00	Q	V			

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16+35       0.5918      0.94  |  Q       |          |          V          |
16+40       0.5978      0.86  |  Q       |          |          V          |
16+45       0.6032      0.79  |  Q       |          |          V          |
16+50       0.6083      0.74  | Q        |          |          V          |
16+55       0.6131      0.70  | Q        |          |          |V         |
17+ 0       0.6177      0.66  | Q        |          |          |V         |
17+ 5       0.6220      0.63  | Q        |          |          |V         |
17+10       0.6262      0.60  | Q        |          |          |V         |
17+15       0.6302      0.58  | Q        |          |          | V        |
17+20       0.6340      0.56  | Q        |          |          | V        |
17+25       0.6377      0.54  | Q        |          |          | V        |
17+30       0.6413      0.52  | Q        |          |          | V        |
17+35       0.6448      0.51  | Q        |          |          | V        |
17+40       0.6482      0.49  |Q         |          |          |  V       |
17+45       0.6515      0.48  |Q         |          |          |  V       |
17+50       0.6548      0.47  |Q         |          |          |  V       |
17+55       0.6579      0.46  |Q         |          |          |  V       |
18+ 0       0.6610      0.45  |Q         |          |          |  V       |
18+ 5       0.6639      0.43  |Q         |          |          |  V       |
18+10       0.6667      0.40  |Q         |          |          |  V       |
18+15       0.6692      0.37  |Q         |          |          |   V      |
18+20       0.6717      0.36  |Q         |          |          |   V      |
18+25       0.6742      0.36  |Q         |          |          |   V      |
18+30       0.6766      0.35  |Q         |          |          |   V      |
18+35       0.6789      0.34  |Q         |          |          |   V      |
18+40       0.6812      0.34  |Q         |          |          |   V      |
18+45       0.6835      0.33  |Q         |          |          |   V      |
18+50       0.6857      0.32  |Q         |          |          |   V      |
18+55       0.6879      0.32  |Q         |          |          |    V     |
19+ 0       0.6901      0.31  |Q         |          |          |    V     |
19+ 5       0.6922      0.31  |Q         |          |          |    V     |
19+10       0.6943      0.30  |Q         |          |          |    V     |
19+15       0.6964      0.30  |Q         |          |          |    V     |
19+20       0.6984      0.29  |Q         |          |          |    V     |
19+25       0.7004      0.29  |Q         |          |          |    V     |
19+30       0.7024      0.29  |Q         |          |          |    V     |
19+35       0.7043      0.28  |Q         |          |          |    V     |
19+40       0.7062      0.28  |Q         |          |          |    V     |
19+45       0.7081      0.27  |Q         |          |          |     V    |
19+50       0.7100      0.27  |Q         |          |          |     V    |
19+55       0.7118      0.27  |Q         |          |          |     V    |
20+ 0       0.7136      0.26  |Q         |          |          |     V    |
20+ 5       0.7155      0.26  |Q         |          |          |     V    |
20+10       0.7172      0.26  |Q         |          |          |     V    |
20+15       0.7190      0.26  |Q         |          |          |     V    |
20+20       0.7207      0.25  |Q         |          |          |     V    |
20+25       0.7225      0.25  |Q         |          |          |     V    |
20+30       0.7242      0.25  Q          |          |          |     V    |
20+35       0.7259      0.24  Q          |          |          |     V    |
20+40       0.7275      0.24  Q          |          |          |      V   |
20+45       0.7292      0.24  Q          |          |          |      V   |
20+50       0.7308      0.24  Q          |          |          |      V   |
20+55       0.7324      0.24  Q          |          |          |      V   |
21+ 0       0.7340      0.23  Q          |          |          |      V   |
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21+ 5	0.7356	0.23	Q	|	|	|	V |
21+10	0.7372	0.23	Q	|	|	|	V |
21+15	0.7388	0.23	Q	|	|	|	V |
21+20	0.7403	0.22	Q	|	|	|	V |
21+25	0.7418	0.22	Q	|	|	|	V |
21+30	0.7434	0.22	Q	|	|	|	V |
21+35	0.7449	0.22	Q	|	|	|	V |
21+40	0.7464	0.22	Q	|	|	|	V |
21+45	0.7478	0.22	Q	|	|	|	V |
21+50	0.7493	0.21	Q	|	|	|	V |
21+55	0.7508	0.21	Q	|	|	|	V |
22+ 0	0.7522	0.21	Q	|	|	|	V |
22+ 5	0.7537	0.21	Q	|	|	|	V |
22+10	0.7551	0.21	Q	|	|	|	V |
22+15	0.7565	0.21	Q	|	|	|	V |
22+20	0.7579	0.20	Q	|	|	|	V |
22+25	0.7593	0.20	Q	|	|	|	V |
22+30	0.7607	0.20	Q	|	|	|	V |
22+35	0.7620	0.20	Q	|	|	|	V |
22+40	0.7634	0.20	Q	|	|	|	V |
22+45	0.7648	0.20	Q	|	|	|	V |
22+50	0.7661	0.20	Q	|	|	|	V|
22+55	0.7674	0.19	Q	|	|	|	V|
23+ 0	0.7688	0.19	Q	|	|	|	V|
23+ 5	0.7701	0.19	Q	|	|	|	V|
23+10	0.7714	0.19	Q	|	|	|	V|
23+15	0.7727	0.19	Q	|	|	|	V|
23+20	0.7740	0.19	Q	|	|	|	V|
23+25	0.7753	0.19	Q	|	|	|	V|
23+30	0.7765	0.19	Q	|	|	|	V|
23+35	0.7778	0.18	Q	|	|	|	V|
23+40	0.7791	0.18	Q	|	|	|	V|
23+45	0.7803	0.18	Q	|	|	|	V|
23+50	0.7816	0.18	Q	|	|	|	V|
23+55	0.7828	0.18	Q	|	|	|	V|
24+ 0	0.7840	0.18	Q	|	|	|	V|
24+ 5	0.7851	0.16	Q	|	|	|	V|
24+10	0.7855	0.06	Q	|	|	|	V|
24+15	0.7856	0.01	Q	|	|	|	V|
24+20	0.7856	0.00	Q	|	|	|	V

PAMA - Chino Industrial

Infiltration System Routing Study Summary

Stage Storage Table

#	Depth	Elevation	Area (sf)	Incremental volume (cf)	Total Volume (cf)	Total Volume (acre-ft)	Outflow Q	Notes
1	0.00	781.50	2,645	0	0	0		**Bottom of Infiltration System**
2	0.50	782.00	2,645	529	529	0.012	0.06	****Gravel**
3	1.50	783.00	2,645	1,323	1,852	0.043	0.06	
4	2.50	784.00	2,645	1,852	3,703	0.085	0.06	
5	3.50	785.00	2,645	2,116	5,819	0.134	0.06	
6	4.50	786.00	2,645	2,381	8,200	0.188	0.06	***Meets WQMP DCV**
7	5.50	787.00	2,645	2,381	10,580	0.243	1.44	
8	6.50	788.00	2,645	2,116	12,696	0.291	2.24	
9	7.50	789.00	2,645	1,852	14,548	0.334	2.81	
10	8.50	790.00	2,645	1,323	15,870	0.364	3.29	
11	9.00	790.50	2,645	529	16,399	0.376	3.50	**Top of Infiltration System**

96" CMP system with 6" rock top & bottom = 9'

Average Infiltration rate per geotechnical report = 3"/hr, Factor of Safety =3.
Unit convert = (3"/hr)/3 x (1'/12") X (1hr/60min) X (1 min/60 sec) = 0.000023 ft/sec
Underground footprint area is 23' x 115' = 2,645 sf
Therefore, Q out for basin = 2,645 * 0.000023 = **0.06 cfs**

*WQMP Design Capture Volume is 7,980 CF
**40% Depth Calculated for Gravel

Q OutFlow = CA x (2gh)^(1/2) + Basin Infiltration Q
= 0.6A x (64.4xh)^(1/2)
A = Proposed 8" outlet pipe
h = Water Height Above Half Pipe

Example: WSE @ 790.5
= 0.6 x pi x (.33)^2 x
[64.4 x (790.5-786.33)]^(1/2) + 0.06
= 3.50 cfs

Basin Routing Summary Table

100 YEAR STORM	
Max. Q Out (CFS)	**3.13**
WSE	**789.67**

Peak discharge of 3.13 CFS occurs during the 100 year storm event

FLOOD HYDROGRAPH ROUTING PROGRAM

Study date: 01/13/21

Area A Basin Routing
0158FR100A.HYD

Program License Serial Number 6145

********** HYDROGRAPH INFORMATION **********

From study/file name: 0158UHP100A.rte
**********HYDROGRAPH DATA**********
Number of intervals = 292
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 9.830 (CFS)
Total volume = 1.201 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

****

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Process from Point/Station 1.000 to Point/Station 2.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 292
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)

0.000	0.000	0.000	0.000	0.000
0.500	0.012	0.060	0.012	0.012
1.500	0.043	0.060	0.043	0.043
2.500	0.085	0.060	0.085	0.085
3.500	0.134	0.060	0.134	0.134
4.500	0.188	0.060	0.188	0.188
5.500	0.243	1.440	0.238	0.248
6.500	0.291	2.240	0.283	0.299
7.500	0.334	2.810	0.324	0.344
8.500	0.364	3.290	0.353	0.375
9.000	0.376	3.500	0.364	0.388

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	2.5	4.91	7.37	9.83	Depth (Ft.)
0.083	0.03	0.00	0.000	O	|	|	|	|	0.00
0.167	0.18	0.00	0.001	O	|	|	|	|	0.03
0.250	0.26	0.01	0.002	O	|	|	|	|	0.09
0.333	0.27	0.02	0.004	O	|	|	|	|	0.17
0.417	0.27	0.03	0.006	O	|	|	|	|	0.24
0.500	0.27	0.04	0.007	O	|	|	|	|	0.30
0.583	0.27	0.04	0.009	O	|	|	|	|	0.37
0.667	0.27	0.05	0.010	O	|	|	|	|	0.44
0.750	0.28	0.06	0.012	O	|	|	|	|	0.50
0.833	0.28	0.06	0.013	O	|	|	|	|	0.55
0.917	0.28	0.06	0.015	O	|	|	|	|	0.59
1.000	0.28	0.06	0.016	O	|	|	|	|	0.64
1.083	0.28	0.06	0.018	O	|	|	|	|	0.69
1.167	0.28	0.06	0.019	O	|	|	|	|	0.74
1.250	0.28	0.06	0.021	O	|	|	|	|	0.79
1.333	0.28	0.06	0.022	O	|	|	|	|	0.84
1.417	0.28	0.06	0.024	O	|	|	|	|	0.89
1.500	0.28	0.06	0.026	O	|	|	|	|	0.94
1.583	0.28	0.06	0.027	O	|	|	|	|	0.99
1.667	0.28	0.06	0.029	O	|	|	|	|	1.04
1.750	0.29	0.06	0.030	O	|	|	|	|	1.09
1.833	0.29	0.06	0.032	O	|	|	|	|	1.14
1.917	0.29	0.06	0.033	O	|	|	|	|	1.19
2.000	0.29	0.06	0.035	O	|	|	|	|	1.24
2.083	0.29	0.06	0.036	O	|	|	|	|	1.29
2.167	0.29	0.06	0.038	O	|	|	|	|	1.34
2.250	0.29	0.06	0.040	O	|	|	|	|	1.39
2.333	0.29	0.06	0.041	O	|	|	|	|	1.44
2.417	0.29	0.06	0.043	O	|	|	|	|	1.49
2.500	0.29	0.06	0.044	O	|	|	|	|	1.53
2.583	0.29	0.06	0.046	O	|	|	|	|	1.57
2.667	0.30	0.06	0.048	O	|	|	|	|	1.61
2.750	0.30	0.06	0.049	O	|	|	|	|	1.65
2.833	0.30	0.06	0.051	O	|	|	|	|	1.69
2.917	0.30	0.06	0.053	O	|	|	|	|	1.73

3.000	0.30	0.06	0.054	O	|	|	|	1.77
3.083	0.30	0.06	0.056	O	|	|	|	1.81
3.167	0.30	0.06	0.058	O	|	|	|	1.85
3.250	0.30	0.06	0.059	O	|	|	|	1.89
3.333	0.30	0.06	0.061	O	|	|	|	1.93
3.417	0.31	0.06	0.063	O	|	|	|	1.97
3.500	0.31	0.06	0.064	O	|	|	|	2.01
3.583	0.31	0.06	0.066	OI	|	|	|	2.05
3.667	0.31	0.06	0.068	OI	|	|	|	2.09
3.750	0.31	0.06	0.069	OI	|	|	|	2.13
3.833	0.31	0.06	0.071	OI	|	|	|	2.17
3.917	0.31	0.06	0.073	OI	|	|	|	2.21
4.000	0.31	0.06	0.075	OI	|	|	|	2.25
4.083	0.31	0.06	0.076	OI	|	|	|	2.29
4.167	0.32	0.06	0.078	OI	|	|	|	2.33
4.250	0.32	0.06	0.080	OI	|	|	|	2.38
4.333	0.32	0.06	0.082	OI	|	|	|	2.42
4.417	0.32	0.06	0.083	OI	|	|	|	2.46
4.500	0.32	0.06	0.085	OI	|	|	|	2.50
4.583	0.32	0.06	0.087	OI	|	|	|	2.54
4.667	0.32	0.06	0.089	OI	|	|	|	2.58
4.750	0.32	0.06	0.091	OI	|	|	|	2.61
4.833	0.33	0.06	0.092	OI	|	|	|	2.65
4.917	0.33	0.06	0.094	OI	|	|	|	2.69
5.000	0.33	0.06	0.096	OI	|	|	|	2.73
5.083	0.33	0.06	0.098	OI	|	|	|	2.76
5.167	0.33	0.06	0.100	OI	|	|	|	2.80
5.250	0.33	0.06	0.102	OI	|	|	|	2.84
5.333	0.33	0.06	0.104	OI	|	|	|	2.88
5.417	0.34	0.06	0.105	OI	|	|	|	2.92
5.500	0.34	0.06	0.107	OI	|	|	|	2.96
5.583	0.34	0.06	0.109	OI	|	|	|	3.00
5.667	0.34	0.06	0.111	OI	|	|	|	3.03
5.750	0.34	0.06	0.113	OI	|	|	|	3.07
5.833	0.34	0.06	0.115	OI	|	|	|	3.11
5.917	0.34	0.06	0.117	OI	|	|	|	3.15
6.000	0.35	0.06	0.119	OI	|	|	|	3.19
6.083	0.35	0.06	0.121	OI	|	|	|	3.23
6.167	0.35	0.06	0.123	OI	|	|	|	3.27
6.250	0.35	0.06	0.125	OI	|	|	|	3.32
6.333	0.35	0.06	0.127	OI	|	|	|	3.36
6.417	0.35	0.06	0.129	OI	|	|	|	3.40
6.500	0.36	0.06	0.131	OI	|	|	|	3.44
6.583	0.36	0.06	0.133	OI	|	|	|	3.48
6.667	0.36	0.06	0.135	OI	|	|	|	3.52
6.750	0.36	0.06	0.137	OI	|	|	|	3.56
6.833	0.36	0.06	0.139	OI	|	|	|	3.60
6.917	0.36	0.06	0.141	OI	|	|	|	3.64
7.000	0.37	0.06	0.143	OI	|	|	|	3.67
7.083	0.37	0.06	0.146	OI	|	|	|	3.71
7.167	0.37	0.06	0.148	OI	|	|	|	3.75
7.250	0.37	0.06	0.150	OI	|	|	|	3.79
7.333	0.37	0.06	0.152	OI	|	|	|	3.83
7.417	0.38	0.06	0.154	OI	|	|	|	3.87

7.500	0.38	0.06	0.156	OI	|	|	|	|	3.91
7.583	0.38	0.06	0.158	OI	|	|	|	|	3.95
7.667	0.38	0.06	0.161	OI	|	|	|	|	3.99
7.750	0.38	0.06	0.163	OI	|	|	|	|	4.04
7.833	0.39	0.06	0.165	OI	|	|	|	|	4.08
7.917	0.39	0.06	0.167	OI	|	|	|	|	4.12
8.000	0.39	0.06	0.170	OI	|	|	|	|	4.16
8.083	0.39	0.06	0.172	OI	|	|	|	|	4.20
8.167	0.39	0.06	0.174	OI	|	|	|	|	4.25
8.250	0.40	0.06	0.177	OI	|	|	|	|	4.29
8.333	0.40	0.06	0.179	OI	|	|	|	|	4.33
8.417	0.40	0.06	0.181	OI	|	|	|	|	4.37
8.500	0.40	0.06	0.184	OI	|	|	|	|	4.42
8.583	0.41	0.06	0.186	OI	|	|	|	|	4.46
8.667	0.41	0.07	0.188	OI	|	|	|	|	4.51
8.750	0.41	0.12	0.190	OI	|	|	|	|	4.55
8.833	0.41	0.17	0.192	OI	|	|	|	|	4.58
8.917	0.42	0.21	0.194	OI	|	|	|	|	4.61
9.000	0.42	0.24	0.195	OI	|	|	|	|	4.63
9.083	0.42	0.27	0.196	OI	|	|	|	|	4.65
9.167	0.42	0.29	0.197	OI	|	|	|	|	4.67
9.250	0.43	0.32	0.198	|O	|	|	|	|	4.68
9.333	0.43	0.33	0.199	|O	|	|	|	|	4.70
9.417	0.43	0.35	0.200	|O	|	|	|	|	4.71
9.500	0.44	0.36	0.200	|O	|	|	|	|	4.72
9.583	0.44	0.37	0.201	|O	|	|	|	|	4.73
9.667	0.44	0.38	0.201	|O	|	|	|	|	4.74
9.750	0.45	0.39	0.201	|O	|	|	|	|	4.74
9.833	0.45	0.40	0.202	|O	|	|	|	|	4.75
9.917	0.45	0.41	0.202	|O	|	|	|	|	4.75
10.000	0.46	0.42	0.202	|O	|	|	|	|	4.76
10.083	0.46	0.42	0.202	|O	|	|	|	|	4.76
10.167	0.46	0.43	0.203	|O	|	|	|	|	4.77
10.250	0.47	0.43	0.203	|O	|	|	|	|	4.77
10.333	0.47	0.44	0.203	|O	|	|	|	|	4.78
10.417	0.47	0.44	0.203	|O	|	|	|	|	4.78
10.500	0.48	0.45	0.204	|O	|	|	|	|	4.78
10.583	0.48	0.45	0.204	|O	|	|	|	|	4.79
10.667	0.48	0.46	0.204	|O	|	|	|	|	4.79
10.750	0.49	0.46	0.204	|O	|	|	|	|	4.79
10.833	0.49	0.47	0.204	|O	|	|	|	|	4.80
10.917	0.50	0.47	0.204	|O	|	|	|	|	4.80
11.000	0.50	0.48	0.205	|O	|	|	|	|	4.80
11.083	0.51	0.48	0.205	|O	|	|	|	|	4.80
11.167	0.51	0.49	0.205	|O	|	|	|	|	4.81
11.250	0.52	0.49	0.205	|O	|	|	|	|	4.81
11.333	0.52	0.49	0.205	|O	|	|	|	|	4.81
11.417	0.53	0.50	0.205	|O	|	|	|	|	4.82
11.500	0.53	0.50	0.206	|O	|	|	|	|	4.82
11.583	0.54	0.51	0.206	|O	|	|	|	|	4.82
11.667	0.54	0.51	0.206	|O	|	|	|	|	4.83
11.750	0.55	0.52	0.206	|O	|	|	|	|	4.83
11.833	0.55	0.52	0.206	|O	|	|	|	|	4.84
11.917	0.56	0.53	0.207	|O	|	|	|	|	4.84

12.000	0.56	0.53	0.207	O				4.84
12.083	0.58	0.54	0.207	O				4.85
12.167	0.63	0.55	0.208	OI				4.85
12.250	0.65	0.56	0.208	OI				4.87
12.333	0.66	0.58	0.209	OI				4.88
12.417	0.67	0.59	0.209	OI				4.89
12.500	0.68	0.61	0.210	OI				4.90
12.583	0.69	0.62	0.210	O				4.90
12.667	0.69	0.63	0.211	O				4.91
12.750	0.70	0.64	0.211	O				4.92
12.833	0.71	0.65	0.212	O				4.93
12.917	0.72	0.66	0.212	O				4.94
13.000	0.73	0.67	0.212	O				4.94
13.083	0.74	0.68	0.213	O				4.95
13.167	0.75	0.69	0.213	O				4.96
13.250	0.76	0.70	0.214	O				4.96
13.333	0.77	0.71	0.214	O				4.97
13.417	0.78	0.72	0.214	O				4.98
13.500	0.79	0.73	0.215	O				4.99
13.583	0.81	0.74	0.215	O				4.99
13.667	0.82	0.75	0.216	O				5.00
13.750	0.83	0.77	0.216	O				5.01
13.833	0.85	0.78	0.217	O				5.02
13.917	0.86	0.79	0.217	O				5.03
14.000	0.88	0.80	0.218	O				5.04
14.083	0.90	0.82	0.218	O				5.05
14.167	0.92	0.83	0.219	O				5.06
14.250	0.93	0.85	0.219	OI				5.07
14.333	0.96	0.86	0.220	OI				5.08
14.417	0.98	0.88	0.221	OI				5.09
14.500	1.00	0.90	0.221	OI				5.11
14.583	1.03	0.91	0.222	OI				5.12
14.667	1.05	0.93	0.223	O				5.13
14.750	1.08	0.96	0.224	O				5.15
14.833	1.12	0.98	0.225	O				5.17
14.917	1.15	1.00	0.226	O				5.18
15.000	1.19	1.03	0.227	O				5.20
15.083	1.24	1.06	0.228	OI				5.22
15.167	1.29	1.09	0.229	OI				5.25
15.250	1.35	1.13	0.231	OI				5.27
15.333	1.42	1.17	0.232	OI				5.30
15.417	1.45	1.21	0.234	OI				5.33
15.500	1.36	1.24	0.235	O				5.36
15.583	1.36	1.26	0.236	O				5.37
15.667	1.50	1.29	0.237	O				5.39
15.750	1.67	1.33	0.239	OI				5.42
15.833	1.95	1.41	0.242	O I				5.48
15.917	2.33	1.50	0.247	O I				5.57
16.000	3.14	1.63	0.255	O	I			5.74
16.083	5.37	1.92	0.272	O		I		6.10
16.167	9.83	2.48	0.309	O			I	6.92
16.250	6.13	2.99	0.345	O	I			7.87
16.333	2.62	3.13	0.354	I O				8.17
16.417	1.76	3.03	0.348	I	O			7.96

16.500	1.53	2.89	0.339	| I |O	|	|	|	7.66
16.583	1.44	2.75	0.330	| I O	|	|	|	7.40
16.667	1.31	2.63	0.321	| I O	|	|	|	7.19
16.750	1.21	2.51	0.312	| I O	|	|	|	6.98
16.833	1.13	2.40	0.303	| I O|	|	|	|	6.77
16.917	1.07	2.28	0.294	| I O|	|	|	|	6.57
17.000	1.01	2.16	0.286	| I O|	|	|	|	6.40
17.083	0.96	2.03	0.278	| I O |	|	|	|	6.24
17.167	0.92	1.91	0.271	| I O |	|	|	|	6.09
17.250	0.89	1.80	0.265	| I O |	|	|	|	5.95
17.333	0.85	1.70	0.259	| I O |	|	|	|	5.83
17.417	0.82	1.61	0.253	| I O |	|	|	|	5.71
17.500	0.80	1.52	0.248	| I O |	|	|	|	5.60
17.583	0.77	1.44	0.243	| I O |	|	|	|	5.50
17.667	0.75	1.33	0.239	| I O |	|	|	|	5.42
17.750	0.73	1.24	0.235	| I O |	|	|	|	5.36
17.833	0.71	1.16	0.232	| IO |	|	|	|	5.30
17.917	0.70	1.09	0.229	| IO |	|	|	|	5.24
18.000	0.68	1.02	0.226	| IO |	|	|	|	5.20
18.083	0.66	0.97	0.224	| IO |	|	|	|	5.16
18.167	0.60	0.91	0.222	|IO |	|	|	|	5.12
18.250	0.57	0.86	0.220	|IO |	|	|	|	5.08
18.333	0.56	0.81	0.218	|IO |	|	|	|	5.05
18.417	0.54	0.77	0.216	|IO |	|	|	|	5.02
18.500	0.53	0.73	0.215	|IO |	|	|	|	4.99
18.583	0.52	0.70	0.214	|IO |	|	|	|	4.97
18.667	0.51	0.67	0.212	|IO |	|	|	|	4.94
18.750	0.50	0.65	0.211	|IO |	|	|	|	4.92
18.833	0.49	0.62	0.210	|IO |	|	|	|	4.91
18.917	0.49	0.60	0.210	|O |	|	|	|	4.89
19.000	0.48	0.58	0.209	|O |	|	|	|	4.88
19.083	0.47	0.57	0.208	|O |	|	|	|	4.87
19.167	0.46	0.55	0.208	|O |	|	|	|	4.85
19.250	0.46	0.54	0.207	|O |	|	|	|	4.84
19.333	0.45	0.52	0.206	|O |	|	|	|	4.84
19.417	0.44	0.51	0.206	|O |	|	|	|	4.83
19.500	0.44	0.50	0.206	|O |	|	|	|	4.82
19.583	0.43	0.49	0.205	|O |	|	|	|	4.81
19.667	0.43	0.48	0.205	|O |	|	|	|	4.80
19.750	0.42	0.47	0.204	|O |	|	|	|	4.80
19.833	0.41	0.46	0.204	|O |	|	|	|	4.79
19.917	0.41	0.45	0.204	|O |	|	|	|	4.79
20.000	0.40	0.45	0.203	|O |	|	|	|	4.78
20.083	0.40	0.44	0.203	|O |	|	|	|	4.77
20.167	0.40	0.43	0.203	|O |	|	|	|	4.77
20.250	0.39	0.43	0.203	|O |	|	|	|	4.77
20.333	0.39	0.42	0.202	|O |	|	|	|	4.76
20.417	0.38	0.41	0.202	|O |	|	|	|	4.76
20.500	0.38	0.41	0.202	|O |	|	|	|	4.75
20.583	0.37	0.40	0.202	|O |	|	|	|	4.75
20.667	0.37	0.40	0.202	|O |	|	|	|	4.75
20.750	0.37	0.39	0.201	|O |	|	|	|	4.74
20.833	0.36	0.39	0.201	|O |	|	|	|	4.74
20.917	0.36	0.38	0.201	|O |	|	|	|	4.74

21.000	0.36	0.38	0.201	|O	|	|	|	4.73
21.083	0.35	0.38	0.201	|O	|	|	|	4.73
21.167	0.35	0.37	0.200	|O	|	|	|	4.73
21.250	0.35	0.37	0.200	|O	|	|	|	4.72
21.333	0.34	0.36	0.200	|O	|	|	|	4.72
21.417	0.34	0.36	0.200	|O	|	|	|	4.72
21.500	0.34	0.36	0.200	|O	|	|	|	4.72
21.583	0.33	0.35	0.200	|O	|	|	|	4.71
21.667	0.33	0.35	0.200	|O	|	|	|	4.71
21.750	0.33	0.35	0.199	|O	|	|	|	4.71
21.833	0.33	0.34	0.199	|O	|	|	|	4.71
21.917	0.32	0.34	0.199	|O	|	|	|	4.70
22.000	0.32	0.34	0.199	|O	|	|	|	4.70
22.083	0.32	0.34	0.199	|O	|	|	|	4.70
22.167	0.32	0.33	0.199	|O	|	|	|	4.70
22.250	0.31	0.33	0.199	|O	|	|	|	4.70
22.333	0.31	0.33	0.199	|O	|	|	|	4.69
22.417	0.31	0.32	0.199	|O	|	|	|	4.69
22.500	0.31	0.32	0.198	IO	|	|	|	4.69
22.583	0.30	0.32	0.198	IO	|	|	|	4.69
22.667	0.30	0.32	0.198	IO	|	|	|	4.69
22.750	0.30	0.31	0.198	IO	|	|	|	4.68
22.833	0.30	0.31	0.198	IO	|	|	|	4.68
22.917	0.30	0.31	0.198	IO	|	|	|	4.68
23.000	0.29	0.31	0.198	IO	|	|	|	4.68
23.083	0.29	0.31	0.198	O	|	|	|	4.68
23.167	0.29	0.30	0.198	O	|	|	|	4.68
23.250	0.29	0.30	0.198	O	|	|	|	4.67
23.333	0.29	0.30	0.198	O	|	|	|	4.67
23.417	0.28	0.30	0.197	O	|	|	|	4.67
23.500	0.28	0.29	0.197	O	|	|	|	4.67
23.583	0.28	0.29	0.197	O	|	|	|	4.67
23.667	0.28	0.29	0.197	O	|	|	|	4.67
23.750	0.28	0.29	0.197	O	|	|	|	4.67
23.833	0.28	0.29	0.197	O	|	|	|	4.66
23.917	0.27	0.29	0.197	O	|	|	|	4.66
24.000	0.27	0.28	0.197	O	|	|	|	4.66
24.083	0.24	0.28	0.197	O	|	|	|	4.66
24.167	0.09	0.26	0.196	O	|	|	|	4.65
24.250	0.01	0.23	0.195	O	|	|	|	4.62
24.333	0.00	0.19	0.193	O	|	|	|	4.60
24.417	0.00	0.16	0.192	O	|	|	|	4.57
24.500	0.00	0.14	0.191	O	|	|	|	4.56
24.583	0.00	0.11	0.190	O	|	|	|	4.54
24.667	0.00	0.10	0.189	O	|	|	|	4.53
24.750	0.00	0.08	0.189	O	|	|	|	4.52
24.833	0.00	0.07	0.188	O	|	|	|	4.51
24.917	0.00	0.06	0.188	O	|	|	|	4.50
25.000	0.00	0.06	0.187	O	|	|	|	4.49
25.083	0.00	0.06	0.187	O	|	|	|	4.48
25.167	0.00	0.06	0.187	O	|	|	|	4.47
25.250	0.00	0.06	0.186	O	|	|	|	4.47
25.333	0.00	0.06	0.186	O	|	|	|	4.46
25.417	0.00	0.06	0.185	O	|	|	|	4.45

25.500	0.00	0.06	0.185	O					4.44
25.583	0.00	0.06	0.185	O					4.44
25.667	0.00	0.06	0.184	O					4.43
25.750	0.00	0.06	0.184	O					4.42
25.833	0.00	0.06	0.183	O					4.41
25.917	0.00	0.06	0.183	O					4.41
26.000	0.00	0.06	0.183	O					4.40
26.083	0.00	0.06	0.182	O					4.39
26.167	0.00	0.06	0.182	O					4.38
26.250	0.00	0.06	0.181	O					4.38
26.333	0.00	0.06	0.181	O					4.37
26.417	0.00	0.06	0.180	O					4.36
26.500	0.00	0.06	0.180	O					4.35
26.583	0.00	0.06	0.180	O					4.34
26.667	0.00	0.06	0.179	O					4.34
26.750	0.00	0.06	0.179	O					4.33
26.833	0.00	0.06	0.178	O					4.32
26.917	0.00	0.06	0.178	O					4.31
27.000	0.00	0.06	0.178	O					4.31
27.083	0.00	0.06	0.177	O					4.30
27.167	0.00	0.06	0.177	O					4.29
27.250	0.00	0.06	0.176	O					4.28
27.333	0.00	0.06	0.176	O					4.28
27.417	0.00	0.06	0.175	O					4.27
27.500	0.00	0.06	0.175	O					4.26
27.583	0.00	0.06	0.175	O					4.25
27.667	0.00	0.06	0.174	O					4.25
27.750	0.00	0.06	0.174	O					4.24
27.833	0.00	0.06	0.173	O					4.23
27.917	0.00	0.06	0.173	O					4.22
28.000	0.00	0.06	0.173	O					4.21
28.083	0.00	0.06	0.172	O					4.21
28.167	0.00	0.06	0.172	O					4.20
28.250	0.00	0.06	0.171	O					4.19
28.333	0.00	0.06	0.171	O					4.18
28.417	0.00	0.06	0.171	O					4.18
28.500	0.00	0.06	0.170	O					4.17
28.583	0.00	0.06	0.170	O					4.16
28.667	0.00	0.06	0.169	O					4.15
28.750	0.00	0.06	0.169	O					4.15
28.833	0.00	0.06	0.168	O					4.14
28.917	0.00	0.06	0.168	O					4.13
29.000	0.00	0.06	0.168	O					4.12
29.083	0.00	0.06	0.167	O					4.12
29.167	0.00	0.06	0.167	O					4.11
29.250	0.00	0.06	0.166	O					4.10
29.333	0.00	0.06	0.166	O					4.09
29.417	0.00	0.06	0.166	O					4.08
29.500	0.00	0.06	0.165	O					4.08
29.583	0.00	0.06	0.165	O					4.07
29.667	0.00	0.06	0.164	O					4.06
29.750	0.00	0.06	0.164	O					4.05
29.833	0.00	0.06	0.164	O					4.05
29.917	0.00	0.06	0.163	O					4.04

30.000	0.00	0.06	0.163	O					4.03
30.083	0.00	0.06	0.162	O					4.02
30.167	0.00	0.06	0.162	O					4.02
30.250	0.00	0.06	0.161	O					4.01
30.333	0.00	0.06	0.161	O					4.00
30.417	0.00	0.06	0.161	O					3.99
30.500	0.00	0.06	0.160	O					3.99
30.583	0.00	0.06	0.160	O					3.98
30.667	0.00	0.06	0.159	O					3.97
30.750	0.00	0.06	0.159	O					3.96
30.833	0.00	0.06	0.159	O					3.95
30.917	0.00	0.06	0.158	O					3.95
31.000	0.00	0.06	0.158	O					3.94
31.083	0.00	0.06	0.157	O					3.93
31.167	0.00	0.06	0.157	O					3.92
31.250	0.00	0.06	0.156	O					3.92
31.333	0.00	0.06	0.156	O					3.91
31.417	0.00	0.06	0.156	O					3.90
31.500	0.00	0.06	0.155	O					3.89
31.583	0.00	0.06	0.155	O					3.89
31.667	0.00	0.06	0.154	O					3.88
31.750	0.00	0.06	0.154	O					3.87
31.833	0.00	0.06	0.154	O					3.86
31.917	0.00	0.06	0.153	O					3.86
32.000	0.00	0.06	0.153	O					3.85
32.083	0.00	0.06	0.152	O					3.84
32.167	0.00	0.06	0.152	O					3.83
32.250	0.00	0.06	0.152	O					3.82
32.333	0.00	0.06	0.151	O					3.82
32.417	0.00	0.06	0.151	O					3.81
32.500	0.00	0.06	0.150	O					3.80
32.583	0.00	0.06	0.150	O					3.79
32.667	0.00	0.06	0.149	O					3.79
32.750	0.00	0.06	0.149	O					3.78
32.833	0.00	0.06	0.149	O					3.77
32.917	0.00	0.06	0.148	O					3.76
33.000	0.00	0.06	0.148	O					3.76
33.083	0.00	0.06	0.147	O					3.75
33.167	0.00	0.06	0.147	O					3.74
33.250	0.00	0.06	0.147	O					3.73
33.333	0.00	0.06	0.146	O					3.73
33.417	0.00	0.06	0.146	O					3.72
33.500	0.00	0.06	0.145	O					3.71
33.583	0.00	0.06	0.145	O					3.70
33.667	0.00	0.06	0.145	O					3.69
33.750	0.00	0.06	0.144	O					3.69
33.833	0.00	0.06	0.144	O					3.68
33.917	0.00	0.06	0.143	O					3.67
34.000	0.00	0.06	0.143	O					3.66
34.083	0.00	0.06	0.142	O					3.66
34.167	0.00	0.06	0.142	O					3.65
34.250	0.00	0.06	0.142	O					3.64
34.333	0.00	0.06	0.141	O					3.63
34.417	0.00	0.06	0.141	O					3.63

34.500	0.00	0.06	0.140	O					3.62
34.583	0.00	0.06	0.140	O					3.61
34.667	0.00	0.06	0.140	O					3.60
34.750	0.00	0.06	0.139	O					3.59
34.833	0.00	0.06	0.139	O					3.59
34.917	0.00	0.06	0.138	O					3.58
35.000	0.00	0.06	0.138	O					3.57
35.083	0.00	0.06	0.137	O					3.56
35.167	0.00	0.06	0.137	O					3.56
35.250	0.00	0.06	0.137	O					3.55
35.333	0.00	0.06	0.136	O					3.54
35.417	0.00	0.06	0.136	O					3.53
35.500	0.00	0.06	0.135	O					3.53
35.583	0.00	0.06	0.135	O					3.52
35.667	0.00	0.06	0.135	O					3.51
35.750	0.00	0.06	0.134	O					3.50
35.833	0.00	0.06	0.134	O					3.50
35.917	0.00	0.06	0.133	O					3.49
36.000	0.00	0.06	0.133	O					3.48
36.083	0.00	0.06	0.133	O					3.47
36.167	0.00	0.06	0.132	O					3.46
36.250	0.00	0.06	0.132	O					3.45
36.333	0.00	0.06	0.131	O					3.44
36.417	0.00	0.06	0.131	O					3.44
36.500	0.00	0.06	0.130	O					3.43
36.583	0.00	0.06	0.130	O					3.42
36.667	0.00	0.06	0.130	O					3.41
36.750	0.00	0.06	0.129	O					3.40
36.833	0.00	0.06	0.129	O					3.39
36.917	0.00	0.06	0.128	O					3.39
37.000	0.00	0.06	0.128	O					3.38
37.083	0.00	0.06	0.128	O					3.37
37.167	0.00	0.06	0.127	O					3.36
37.250	0.00	0.06	0.127	O					3.35
37.333	0.00	0.06	0.126	O					3.34
37.417	0.00	0.06	0.126	O					3.33
37.500	0.00	0.06	0.125	O					3.33
37.583	0.00	0.06	0.125	O					3.32
37.667	0.00	0.06	0.125	O					3.31
37.750	0.00	0.06	0.124	O					3.30
37.833	0.00	0.06	0.124	O					3.29
37.917	0.00	0.06	0.123	O					3.28
38.000	0.00	0.06	0.123	O					3.28
38.083	0.00	0.06	0.123	O					3.27
38.167	0.00	0.06	0.122	O					3.26
38.250	0.00	0.06	0.122	O					3.25
38.333	0.00	0.06	0.121	O					3.24
38.417	0.00	0.06	0.121	O					3.23
38.500	0.00	0.06	0.121	O					3.23
38.583	0.00	0.06	0.120	O					3.22
38.667	0.00	0.06	0.120	O					3.21
38.750	0.00	0.06	0.119	O					3.20
38.833	0.00	0.06	0.119	O					3.19
38.917	0.00	0.06	0.118	O					3.18

39.000	0.00	0.06	0.118	O					3.17
39.083	0.00	0.06	0.118	O					3.17
39.167	0.00	0.06	0.117	O					3.16
39.250	0.00	0.06	0.117	O					3.15
39.333	0.00	0.06	0.116	O					3.14
39.417	0.00	0.06	0.116	O					3.13
39.500	0.00	0.06	0.116	O					3.12
39.583	0.00	0.06	0.115	O					3.12
39.667	0.00	0.06	0.115	O					3.11
39.750	0.00	0.06	0.114	O					3.10
39.833	0.00	0.06	0.114	O					3.09
39.917	0.00	0.06	0.114	O					3.08
40.000	0.00	0.06	0.113	O					3.07
40.083	0.00	0.06	0.113	O					3.06
40.167	0.00	0.06	0.112	O					3.06
40.250	0.00	0.06	0.112	O					3.05
40.333	0.00	0.06	0.111	O					3.04
40.417	0.00	0.06	0.111	O					3.03
40.500	0.00	0.06	0.111	O					3.02
40.583	0.00	0.06	0.110	O					3.01
40.667	0.00	0.06	0.110	O					3.01
40.750	0.00	0.06	0.109	O					3.00
40.833	0.00	0.06	0.109	O					2.99
40.917	0.00	0.06	0.109	O					2.98
41.000	0.00	0.06	0.108	O					2.97
41.083	0.00	0.06	0.108	O					2.96
41.167	0.00	0.06	0.107	O					2.96
41.250	0.00	0.06	0.107	O					2.95
41.333	0.00	0.06	0.106	O					2.94
41.417	0.00	0.06	0.106	O					2.93
41.500	0.00	0.06	0.106	O					2.92
41.583	0.00	0.06	0.105	O					2.91
41.667	0.00	0.06	0.105	O					2.90
41.750	0.00	0.06	0.104	O					2.90
41.833	0.00	0.06	0.104	O					2.89
41.917	0.00	0.06	0.104	O					2.88
42.000	0.00	0.06	0.103	O					2.87
42.083	0.00	0.06	0.103	O					2.86
42.167	0.00	0.06	0.102	O					2.85
42.250	0.00	0.06	0.102	O					2.85
42.333	0.00	0.06	0.102	O					2.84
42.417	0.00	0.06	0.101	O					2.83
42.500	0.00	0.06	0.101	O					2.82
42.583	0.00	0.06	0.100	O					2.81
42.667	0.00	0.06	0.100	O					2.80
42.750	0.00	0.06	0.099	O					2.80
42.833	0.00	0.06	0.099	O					2.79
42.917	0.00	0.06	0.099	O					2.78
43.000	0.00	0.06	0.098	O					2.77
43.083	0.00	0.06	0.098	O					2.76
43.167	0.00	0.06	0.097	O					2.75
43.250	0.00	0.06	0.097	O					2.74
43.333	0.00	0.06	0.097	O					2.74
43.417	0.00	0.06	0.096	O					2.73

43.500	0.00	0.06	0.096	O					2.72
43.583	0.00	0.06	0.095	O					2.71
43.667	0.00	0.06	0.095	O					2.70
43.750	0.00	0.06	0.095	O					2.69
43.833	0.00	0.06	0.094	O					2.69
43.917	0.00	0.06	0.094	O					2.68
44.000	0.00	0.06	0.093	O					2.67
44.083	0.00	0.06	0.093	O					2.66
44.167	0.00	0.06	0.092	O					2.65
44.250	0.00	0.06	0.092	O					2.64
44.333	0.00	0.06	0.092	O					2.63
44.417	0.00	0.06	0.091	O					2.63
44.500	0.00	0.06	0.091	O					2.62
44.583	0.00	0.06	0.090	O					2.61
44.667	0.00	0.06	0.090	O					2.60
44.750	0.00	0.06	0.090	O					2.59
44.833	0.00	0.06	0.089	O					2.58
44.917	0.00	0.06	0.089	O					2.58
45.000	0.00	0.06	0.088	O					2.57
45.083	0.00	0.06	0.088	O					2.56
45.167	0.00	0.06	0.087	O					2.55
45.250	0.00	0.06	0.087	O					2.54
45.333	0.00	0.06	0.087	O					2.53
45.417	0.00	0.06	0.086	O					2.53
45.500	0.00	0.06	0.086	O					2.52
45.583	0.00	0.06	0.085	O					2.51
45.667	0.00	0.06	0.085	O					2.50
45.750	0.00	0.06	0.085	O					2.49
45.833	0.00	0.06	0.084	O					2.48
45.917	0.00	0.06	0.084	O					2.47
46.000	0.00	0.06	0.083	O					2.46
46.083	0.00	0.06	0.083	O					2.45
46.167	0.00	0.06	0.083	O					2.44
46.250	0.00	0.06	0.082	O					2.43
46.333	0.00	0.06	0.082	O					2.42
46.417	0.00	0.06	0.081	O					2.41
46.500	0.00	0.06	0.081	O					2.40
46.583	0.00	0.06	0.080	O					2.39
46.667	0.00	0.06	0.080	O					2.38
46.750	0.00	0.06	0.080	O					2.37
46.833	0.00	0.06	0.079	O					2.36
46.917	0.00	0.06	0.079	O					2.35
47.000	0.00	0.06	0.078	O					2.34
47.083	0.00	0.06	0.078	O					2.33
47.167	0.00	0.06	0.078	O					2.32
47.250	0.00	0.06	0.077	O					2.31
47.333	0.00	0.06	0.077	O					2.30
47.417	0.00	0.06	0.076	O					2.29
47.500	0.00	0.06	0.076	O					2.28
47.583	0.00	0.06	0.075	O					2.27
47.667	0.00	0.06	0.075	O					2.26
47.750	0.00	0.06	0.075	O					2.25
47.833	0.00	0.06	0.074	O					2.24
47.917	0.00	0.06	0.074	O					2.23

48.000	0.00	0.06	0.073	O	|	|	|	|	2.22
48.083	0.00	0.06	0.073	O	|	|	|	|	2.21
48.167	0.00	0.06	0.073	O	|	|	|	|	2.20
48.250	0.00	0.06	0.072	O	|	|	|	|	2.19
48.333	0.00	0.06	0.072	O	|	|	|	|	2.19
48.417	0.00	0.06	0.071	O	|	|	|	|	2.18
48.500	0.00	0.06	0.071	O	|	|	|	|	2.17
48.583	0.00	0.06	0.071	O	|	|	|	|	2.16
48.667	0.00	0.06	0.070	O	|	|	|	|	2.15
48.750	0.00	0.06	0.070	O	|	|	|	|	2.14
48.833	0.00	0.06	0.069	O	|	|	|	|	2.13
48.917	0.00	0.06	0.069	O	|	|	|	|	2.12
49.000	0.00	0.06	0.068	O	|	|	|	|	2.11
49.083	0.00	0.06	0.068	O	|	|	|	|	2.10
49.167	0.00	0.06	0.068	O	|	|	|	|	2.09
49.250	0.00	0.06	0.067	O	|	|	|	|	2.08
49.333	0.00	0.06	0.067	O	|	|	|	|	2.07
49.417	0.00	0.06	0.066	O	|	|	|	|	2.06
49.500	0.00	0.06	0.066	O	|	|	|	|	2.05
49.583	0.00	0.06	0.066	O	|	|	|	|	2.04
49.667	0.00	0.06	0.065	O	|	|	|	|	2.03
49.750	0.00	0.06	0.065	O	|	|	|	|	2.02
49.833	0.00	0.06	0.064	O	|	|	|	|	2.01
49.917	0.00	0.06	0.064	O	|	|	|	|	2.00
50.000	0.00	0.06	0.064	O	|	|	|	|	1.99
50.083	0.00	0.06	0.063	O	|	|	|	|	1.98
50.167	0.00	0.06	0.063	O	|	|	|	|	1.97
50.250	0.00	0.06	0.062	O	|	|	|	|	1.96
50.333	0.00	0.06	0.062	O	|	|	|	|	1.95
50.417	0.00	0.06	0.061	O	|	|	|	|	1.94
50.500	0.00	0.06	0.061	O	|	|	|	|	1.93
50.583	0.00	0.06	0.061	O	|	|	|	|	1.92
50.667	0.00	0.06	0.060	O	|	|	|	|	1.91
50.750	0.00	0.06	0.060	O	|	|	|	|	1.90
50.833	0.00	0.06	0.059	O	|	|	|	|	1.89
50.917	0.00	0.06	0.059	O	|	|	|	|	1.88
51.000	0.00	0.06	0.059	O	|	|	|	|	1.87
51.083	0.00	0.06	0.058	O	|	|	|	|	1.86
51.167	0.00	0.06	0.058	O	|	|	|	|	1.85
51.250	0.00	0.06	0.057	O	|	|	|	|	1.84
51.333	0.00	0.06	0.057	O	|	|	|	|	1.83
51.417	0.00	0.06	0.056	O	|	|	|	|	1.82
51.500	0.00	0.06	0.056	O	|	|	|	|	1.81
51.583	0.00	0.06	0.056	O	|	|	|	|	1.80
51.667	0.00	0.06	0.055	O	|	|	|	|	1.79
51.750	0.00	0.06	0.055	O	|	|	|	|	1.78
51.833	0.00	0.06	0.054	O	|	|	|	|	1.77
51.917	0.00	0.06	0.054	O	|	|	|	|	1.76
52.000	0.00	0.06	0.054	O	|	|	|	|	1.75
52.083	0.00	0.06	0.053	O	|	|	|	|	1.74
52.167	0.00	0.06	0.053	O	|	|	|	|	1.73
52.250	0.00	0.06	0.052	O	|	|	|	|	1.72
52.333	0.00	0.06	0.052	O	|	|	|	|	1.71
52.417	0.00	0.06	0.052	O	|	|	|	|	1.70

52.500	0.00	0.06	0.051	O					1.69
52.583	0.00	0.06	0.051	O					1.68
52.667	0.00	0.06	0.050	O					1.67
52.750	0.00	0.06	0.050	O					1.66
52.833	0.00	0.06	0.049	O					1.65
52.917	0.00	0.06	0.049	O					1.64
53.000	0.00	0.06	0.049	O					1.63
53.083	0.00	0.06	0.048	O					1.62
53.167	0.00	0.06	0.048	O					1.61
53.250	0.00	0.06	0.047	O					1.60
53.333	0.00	0.06	0.047	O					1.59
53.417	0.00	0.06	0.047	O					1.58
53.500	0.00	0.06	0.046	O					1.58
53.583	0.00	0.06	0.046	O					1.57
53.667	0.00	0.06	0.045	O					1.56
53.750	0.00	0.06	0.045	O					1.55
53.833	0.00	0.06	0.045	O					1.54
53.917	0.00	0.06	0.044	O					1.53
54.000	0.00	0.06	0.044	O					1.52
54.083	0.00	0.06	0.043	O					1.51
54.167	0.00	0.06	0.043	O					1.50
54.250	0.00	0.06	0.042	O					1.48
54.333	0.00	0.06	0.042	O					1.47
54.417	0.00	0.06	0.042	O					1.46
54.500	0.00	0.06	0.041	O					1.44
54.583	0.00	0.06	0.041	O					1.43
54.667	0.00	0.06	0.040	O					1.42
54.750	0.00	0.06	0.040	O					1.40
54.833	0.00	0.06	0.040	O					1.39
54.917	0.00	0.06	0.039	O					1.38
55.000	0.00	0.06	0.039	O					1.36
55.083	0.00	0.06	0.038	O					1.35
55.167	0.00	0.06	0.038	O					1.34
55.250	0.00	0.06	0.037	O					1.32
55.333	0.00	0.06	0.037	O					1.31
55.417	0.00	0.06	0.037	O					1.30
55.500	0.00	0.06	0.036	O					1.28
55.583	0.00	0.06	0.036	O					1.27
55.667	0.00	0.06	0.035	O					1.26
55.750	0.00	0.06	0.035	O					1.24
55.833	0.00	0.06	0.035	O					1.23
55.917	0.00	0.06	0.034	O					1.22
56.000	0.00	0.06	0.034	O					1.20
56.083	0.00	0.06	0.033	O					1.19
56.167	0.00	0.06	0.033	O					1.18
56.250	0.00	0.06	0.033	O					1.16
56.333	0.00	0.06	0.032	O					1.15
56.417	0.00	0.06	0.032	O					1.14
56.500	0.00	0.06	0.031	O					1.12
56.583	0.00	0.06	0.031	O					1.11
56.667	0.00	0.06	0.030	O					1.10
56.750	0.00	0.06	0.030	O					1.08
56.833	0.00	0.06	0.030	O					1.07
56.917	0.00	0.06	0.029	O					1.06

57.000	0.00	0.06	0.029	O					1.04
57.083	0.00	0.06	0.028	O					1.03
57.167	0.00	0.06	0.028	O					1.02
57.250	0.00	0.06	0.028	O					1.00
57.333	0.00	0.06	0.027	O					0.99
57.417	0.00	0.06	0.027	O					0.98
57.500	0.00	0.06	0.026	O					0.96
57.583	0.00	0.06	0.026	O					0.95
57.667	0.00	0.06	0.025	O					0.94
57.750	0.00	0.06	0.025	O					0.92
57.833	0.00	0.06	0.025	O					0.91
57.917	0.00	0.06	0.024	O					0.90
58.000	0.00	0.06	0.024	O					0.88
58.083	0.00	0.06	0.023	O					0.87
58.167	0.00	0.06	0.023	O					0.86
58.250	0.00	0.06	0.023	O					0.84
58.333	0.00	0.06	0.022	O					0.83
58.417	0.00	0.06	0.022	O					0.82
58.500	0.00	0.06	0.021	O					0.80
58.583	0.00	0.06	0.021	O					0.79
58.667	0.00	0.06	0.021	O					0.78
58.750	0.00	0.06	0.020	O					0.76
58.833	0.00	0.06	0.020	O					0.75
58.917	0.00	0.06	0.019	O					0.74
59.000	0.00	0.06	0.019	O					0.72
59.083	0.00	0.06	0.018	O					0.71
59.167	0.00	0.06	0.018	O					0.70
59.250	0.00	0.06	0.018	O					0.68
59.333	0.00	0.06	0.017	O					0.67
59.417	0.00	0.06	0.017	O					0.66
59.500	0.00	0.06	0.016	O					0.64
59.583	0.00	0.06	0.016	O					0.63
59.667	0.00	0.06	0.016	O					0.62
59.750	0.00	0.06	0.015	O					0.60
59.833	0.00	0.06	0.015	O					0.59
59.917	0.00	0.06	0.014	O					0.58
60.000	0.00	0.06	0.014	O					0.56
60.083	0.00	0.06	0.014	O					0.55
60.167	0.00	0.06	0.013	O					0.54
60.250	0.00	0.06	0.013	O					0.52
60.333	0.00	0.06	0.012	O					0.51
60.417	0.00	0.06	0.012	O					0.49
60.500	0.00	0.06	0.011	O					0.48
60.583	0.00	0.06	0.011	O					0.46
60.667	0.00	0.05	0.011	O					0.45
60.750	0.00	0.05	0.010	O					0.43
60.833	0.00	0.05	0.010	O					0.42
60.917	0.00	0.05	0.010	O					0.40
61.000	0.00	0.05	0.009	O					0.39
61.083	0.00	0.05	0.009	O					0.38
61.167	0.00	0.04	0.009	O					0.36
61.250	0.00	0.04	0.008	O					0.35
61.333	0.00	0.04	0.008	O					0.34
61.417	0.00	0.04	0.008	O					0.33

61.500	0.00	0.04	0.008	O	|	|	|	|	0.32
61.583	0.00	0.04	0.007	O	|	|	|	|	0.31
61.667	0.00	0.04	0.007	O	|	|	|	|	0.29
61.750	0.00	0.03	0.007	O	|	|	|	|	0.28
61.833	0.00	0.03	0.007	O	|	|	|	|	0.28
61.917	0.00	0.03	0.006	O	|	|	|	|	0.27
62.000	0.00	0.03	0.006	O	|	|	|	|	0.26
62.083	0.00	0.03	0.006	O	|	|	|	|	0.25
62.167	0.00	0.03	0.006	O	|	|	|	|	0.24
62.250	0.00	0.03	0.006	O	|	|	|	|	0.23
62.333	0.00	0.03	0.005	O	|	|	|	|	0.22
62.417	0.00	0.03	0.005	O	|	|	|	|	0.22
62.500	0.00	0.03	0.005	O	|	|	|	|	0.21
62.583	0.00	0.02	0.005	O	|	|	|	|	0.20
62.667	0.00	0.02	0.005	O	|	|	|	|	0.19
62.750	0.00	0.02	0.005	O	|	|	|	|	0.19
62.833	0.00	0.02	0.004	O	|	|	|	|	0.18
62.917	0.00	0.02	0.004	O	|	|	|	|	0.18
63.000	0.00	0.02	0.004	O	|	|	|	|	0.17
63.083	0.00	0.02	0.004	O	|	|	|	|	0.16
63.167	0.00	0.02	0.004	O	|	|	|	|	0.16
63.250	0.00	0.02	0.004	O	|	|	|	|	0.15
63.333	0.00	0.02	0.004	O	|	|	|	|	0.15
63.417	0.00	0.02	0.003	O	|	|	|	|	0.14
63.500	0.00	0.02	0.003	O	|	|	|	|	0.14
63.583	0.00	0.02	0.003	O	|	|	|	|	0.13
63.667	0.00	0.02	0.003	O	|	|	|	|	0.13
63.750	0.00	0.01	0.003	O	|	|	|	|	0.12
63.833	0.00	0.01	0.003	O	|	|	|	|	0.12
63.917	0.00	0.01	0.003	O	|	|	|	|	0.12
64.000	0.00	0.01	0.003	O	|	|	|	|	0.11
64.083	0.00	0.01	0.003	O	|	|	|	|	0.11
64.167	0.00	0.01	0.003	O	|	|	|	|	0.10
64.250	0.00	0.01	0.002	O	|	|	|	|	0.10
64.333	0.00	0.01	0.002	O	|	|	|	|	0.10
64.417	0.00	0.01	0.002	O	|	|	|	|	0.09
64.500	0.00	0.01	0.002	O	|	|	|	|	0.09
64.583	0.00	0.01	0.002	O	|	|	|	|	0.09
64.667	0.00	0.01	0.002	O	|	|	|	|	0.09
64.750	0.00	0.01	0.002	O	|	|	|	|	0.08
64.833	0.00	0.01	0.002	O	|	|	|	|	0.08
64.917	0.00	0.01	0.002	O	|	|	|	|	0.08
65.000	0.00	0.01	0.002	O	|	|	|	|	0.07
65.083	0.00	0.01	0.002	O	|	|	|	|	0.07
65.167	0.00	0.01	0.002	O	|	|	|	|	0.07
65.250	0.00	0.01	0.002	O	|	|	|	|	0.07
65.333	0.00	0.01	0.002	O	|	|	|	|	0.06
65.417	0.00	0.01	0.002	O	|	|	|	|	0.06
65.500	0.00	0.01	0.001	O	|	|	|	|	0.06
65.583	0.00	0.01	0.001	O	|	|	|	|	0.06
65.667	0.00	0.01	0.001	O	|	|	|	|	0.06
65.750	0.00	0.01	0.001	O	|	|	|	|	0.05
65.833	0.00	0.01	0.001	O	|	|	|	|	0.05
65.917	0.00	0.01	0.001	O	|	|	|	|	0.05

66.000	0.00	0.01	0.001	O	|	|	|	0.05
66.083	0.00	0.01	0.001	O	|	|	|	0.05
66.167	0.00	0.01	0.001	O	|	|	|	0.05
66.250	0.00	0.01	0.001	O	|	|	|	0.04
66.333	0.00	0.01	0.001	O	|	|	|	0.04
66.417	0.00	0.00	0.001	O	|	|	|	0.04
66.500	0.00	0.00	0.001	O	|	|	|	0.04
66.583	0.00	0.00	0.001	O	|	|	|	0.04
66.667	0.00	0.00	0.001	O	|	|	|	0.04
66.750	0.00	0.00	0.001	O	|	|	|	0.04
66.833	0.00	0.00	0.001	O	|	|	|	0.03
66.917	0.00	0.00	0.001	O	|	|	|	0.03
67.000	0.00	0.00	0.001	O	|	|	|	0.03
67.083	0.00	0.00	0.001	O	|	|	|	0.03
67.167	0.00	0.00	0.001	O	|	|	|	0.03
67.250	0.00	0.00	0.001	O	|	|	|	0.03
67.333	0.00	0.00	0.001	O	|	|	|	0.03
67.417	0.00	0.00	0.001	O	|	|	|	0.03
67.500	0.00	0.00	0.001	O	|	|	|	0.03
67.583	0.00	0.00	0.001	O	|	|	|	0.03
67.667	0.00	0.00	0.001	O	|	|	|	0.02
67.750	0.00	0.00	0.001	O	|	|	|	0.02
67.833	0.00	0.00	0.001	O	|	|	|	0.02
67.917	0.00	0.00	0.001	O	|	|	|	0.02
68.000	0.00	0.00	0.001	O	|	|	|	0.02
68.083	0.00	0.00	0.000	O	|	|	|	0.02
68.167	0.00	0.00	0.000	O	|	|	|	0.02
68.250	0.00	0.00	0.000	O	|	|	|	0.02
68.333	0.00	0.00	0.000	O	|	|	|	0.02
68.417	0.00	0.00	0.000	O	|	|	|	0.02
68.500	0.00	0.00	0.000	O	|	|	|	0.02
68.583	0.00	0.00	0.000	O	|	|	|	0.02
68.667	0.00	0.00	0.000	O	|	|	|	0.02
68.750	0.00	0.00	0.000	O	|	|	|	0.02
68.833	0.00	0.00	0.000	O	|	|	|	0.02
68.917	0.00	0.00	0.000	O	|	|	|	0.01
69.000	0.00	0.00	0.000	O	|	|	|	0.01
69.083	0.00	0.00	0.000	O	|	|	|	0.01
69.167	0.00	0.00	0.000	O	|	|	|	0.01
69.250	0.00	0.00	0.000	O	|	|	|	0.01
69.333	0.00	0.00	0.000	O	|	|	|	0.01
69.417	0.00	0.00	0.000	O	|	|	|	0.01
69.500	0.00	0.00	0.000	O	|	|	|	0.01
69.583	0.00	0.00	0.000	O	|	|	|	0.01
69.667	0.00	0.00	0.000	O	|	|	|	0.01
69.750	0.00	0.00	0.000	O	|	|	|	0.01
69.833	0.00	0.00	0.000	O	|	|	|	0.01
69.917	0.00	0.00	0.000	O	|	|	|	0.01
70.000	0.00	0.00	0.000	O	|	|	|	0.01
70.083	0.00	0.00	0.000	O	|	|	|	0.01
70.167	0.00	0.00	0.000	O	|	|	|	0.01
70.250	0.00	0.00	0.000	O	|	|	|	0.01
70.333	0.00	0.00	0.000	O	|	|	|	0.01

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**************************HYDROGRAPH DATA**************************
           Number of intervals =   844
           Time interval =    5.0 (Min.)
           Maximum/Peak flow rate =        3.131 (CFS)
           Total volume =       1.200 (Ac.Ft)
      Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
      Peak (CFS)      0.000     0.000     0.000     0.000     0.000
      Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
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PAMA - Chino Industrial

Infiltration System Routing Study Summary

Stage Storage Table

#	Depth	Elevation	Area (sf)	Incremental volume (cf)	Total Volume (cf)	Total Volume (acre-ft)	Outflow Q	Notes
1	0.00	785.50	2,001	0	0	0		**Bottom of Infiltration System**
2	0.50	786.00	2,001	400	400	0.009	0.05	****Gravel**
3	1.50	787.00	2,001	1,001	1,401	0.032	0.05	
4	2.50	788.00	2,001	1,401	2,801	0.064	0.05	
5	3.50	789.00	2,001	1,601	4,402	0.101	0.05	
6	4.50	790.00	2,001	1,801	**6,203**	0.142	0.05	***Meets WQMP DCV**
7	5.50	791.00	2,001	1,801	8,004	0.184	1.43	
8	6.50	792.00	2,001	1,601	9,605	0.220	2.23	
9	7.50	793.00	2,001	1,401	11,006	0.253	2.80	
10	8.50	794.00	2,001	1,001	12,006	0.276	3.28	
11	9.00	794.50	2,001	400	12,406	0.285	3.49	**Top of Infiltration System**

96" CMP system with 6" rock top & bottom = 9'

Average Infiltration rate per geotechnical report = 3"/hr, Factor of Safety =3.
Unit convert = (3"/hr)/3 x (1'/12") X (1hr/60min) X (1 min/60 sec) = 0.000023 ft/sec
Underground footprint area is 23' x 87' = 2,001 sf
Therefore, Q out for basin = 2,001 * 0.000023 = **0.05 cfs**

*WQMP Design Capture Volume is 6,025 CF
**40% Depth Calculated for Gravel

Q OutFlow = CA x (2gh)^(1/2) + Basin Infiltration Q
= 0.6A x (64.4xh)^(1/2)
A = Proposed 8" outlet pipe
h = Water Height Above Half Pipe

Example: WSE @ 794.5
= 0.6 x pi x (.33)^2 x
[64.4 x (790.5-786.33)]^(1/2) + 0.05
= 3.49 cfs

Basin Routing Summary Table

100 YEAR STORM	
Max. Q Out (CFS)	**2.45**
WSE	**792.39**

Peak discharge of 2.45 CFS occurs during the 100 year storm event

FLOOD HYDROGRAPH ROUTING PROGRAM

Study date: 01/13/21

Area B Basin Routing
0158FR100B.HYD

Program License Serial Number 6145

********** HYDROGRAPH INFORMATION **********

From study/file name: 0158uhp100b.rte
**********HYDROGRAPH DATA**********
Number of intervals = 292
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 6.405 (CFS)
Total volume = 0.786 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

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Process from Point/Station 1.000 to Point/Station 2.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 292
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)

0.000	0.000	0.000	0.000	0.000
0.500	0.009	0.050	0.009	0.009
1.500	0.032	0.050	0.032	0.032
2.500	0.064	0.050	0.064	0.064
3.500	0.101	0.050	0.101	0.101
4.500	0.142	0.050	0.142	0.142
5.500	0.184	1.430	0.179	0.189
6.500	0.220	2.230	0.212	0.228
7.500	0.253	2.800	0.243	0.263
8.500	0.276	3.280	0.265	0.287
9.000	0.285	3.490	0.273	0.297

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	1.6	3.20	4.80	6.40	Depth (Ft.)
0.083	0.02	0.00	0.000	O	|	|	|	|	0.00
0.167	0.12	0.00	0.001	O	|	|	|	|	0.03
0.250	0.17	0.01	0.001	O	|	|	|	|	0.08
0.333	0.18	0.01	0.003	O	|	|	|	|	0.14
0.417	0.18	0.02	0.004	O	|	|	|	|	0.20
0.500	0.18	0.03	0.005	O	|	|	|	|	0.26
0.583	0.18	0.03	0.006	O	|	|	|	|	0.32
0.667	0.18	0.04	0.007	O	|	|	|	|	0.38
0.750	0.18	0.04	0.008	O	|	|	|	|	0.43
0.833	0.18	0.05	0.009	O	|	|	|	|	0.48
0.917	0.18	0.05	0.010	O	|	|	|	|	0.52
1.000	0.18	0.05	0.010	O	|	|	|	|	0.56
1.083	0.18	0.05	0.011	O	|	|	|	|	0.60
1.167	0.18	0.05	0.012	O	|	|	|	|	0.64
1.250	0.18	0.05	0.013	O	|	|	|	|	0.68
1.333	0.18	0.05	0.014	O	|	|	|	|	0.72
1.417	0.18	0.05	0.015	O	|	|	|	|	0.76
1.500	0.18	0.05	0.016	O	|	|	|	|	0.80
1.583	0.19	0.05	0.017	O	|	|	|	|	0.84
1.667	0.19	0.05	0.018	O	|	|	|	|	0.88
1.750	0.19	0.05	0.019	O	|	|	|	|	0.92
1.833	0.19	0.05	0.020	O	|	|	|	|	0.97
1.917	0.19	0.05	0.021	O	|	|	|	|	1.01
2.000	0.19	0.05	0.022	O	|	|	|	|	1.05
2.083	0.19	0.05	0.023	O	|	|	|	|	1.09
2.167	0.19	0.05	0.024	O	|	|	|	|	1.13
2.250	0.19	0.05	0.025	O	|	|	|	|	1.17
2.333	0.19	0.05	0.025	O	|	|	|	|	1.22
2.417	0.19	0.05	0.026	O	|	|	|	|	1.26
2.500	0.19	0.05	0.027	O	|	|	|	|	1.30
2.583	0.19	0.05	0.028	O	|	|	|	|	1.34
2.667	0.19	0.05	0.029	O	|	|	|	|	1.39
2.750	0.19	0.05	0.030	O	|	|	|	|	1.43
2.833	0.19	0.05	0.031	O	|	|	|	|	1.47
2.917	0.20	0.05	0.032	O	|	|	|	|	1.51

3.000	0.20	0.05	0.033	O					1.54
3.083	0.20	0.05	0.034	O					1.57
3.167	0.20	0.05	0.035	O					1.61
3.250	0.20	0.05	0.036	O					1.64
3.333	0.20	0.05	0.037	O					1.67
3.417	0.20	0.05	0.038	O					1.70
3.500	0.20	0.05	0.040	OI					1.73
3.583	0.20	0.05	0.041	OI					1.77
3.667	0.20	0.05	0.042	OI					1.80
3.750	0.20	0.05	0.043	OI					1.83
3.833	0.20	0.05	0.044	OI					1.87
3.917	0.20	0.05	0.045	OI					1.90
4.000	0.21	0.05	0.046	OI					1.93
4.083	0.21	0.05	0.047	OI					1.97
4.167	0.21	0.05	0.048	OI					2.00
4.250	0.21	0.05	0.049	OI					2.03
4.333	0.21	0.05	0.050	OI					2.07
4.417	0.21	0.05	0.051	OI					2.10
4.500	0.21	0.05	0.052	OI					2.14
4.583	0.21	0.05	0.053	OI					2.17
4.667	0.21	0.05	0.055	OI					2.20
4.750	0.21	0.05	0.056	OI					2.24
4.833	0.21	0.05	0.057	OI					2.27
4.917	0.21	0.05	0.058	OI					2.31
5.000	0.21	0.05	0.059	OI					2.34
5.083	0.22	0.05	0.060	OI					2.38
5.167	0.22	0.05	0.061	OI					2.42
5.250	0.22	0.05	0.062	OI					2.45
5.333	0.22	0.05	0.064	OI					2.49
5.417	0.22	0.05	0.065	OI					2.52
5.500	0.22	0.05	0.066	OI					2.55
5.583	0.22	0.05	0.067	OI					2.58
5.667	0.22	0.05	0.068	OI					2.62
5.750	0.22	0.05	0.070	OI					2.65
5.833	0.22	0.05	0.071	OI					2.68
5.917	0.23	0.05	0.072	OI					2.71
6.000	0.23	0.05	0.073	OI					2.75
6.083	0.23	0.05	0.074	OI					2.78
6.167	0.23	0.05	0.076	OI					2.81
6.250	0.23	0.05	0.077	OI					2.85
6.333	0.23	0.05	0.078	OI					2.88
6.417	0.23	0.05	0.079	OI					2.91
6.500	0.23	0.05	0.081	OI					2.95
6.583	0.23	0.05	0.082	OI					2.98
6.667	0.23	0.05	0.083	OI					3.02
6.750	0.24	0.05	0.084	OI					3.05
6.833	0.24	0.05	0.086	OI					3.08
6.917	0.24	0.05	0.087	OI					3.12
7.000	0.24	0.05	0.088	OI					3.15
7.083	0.24	0.05	0.090	OI					3.19
7.167	0.24	0.05	0.091	OI					3.23
7.250	0.24	0.05	0.092	OI					3.26
7.333	0.24	0.05	0.094	OI					3.30
7.417	0.25	0.05	0.095	OI					3.33

7.500	0.25	0.05	0.096	OI					3.37
7.583	0.25	0.05	0.098	OI					3.41
7.667	0.25	0.05	0.099	OI					3.44
7.750	0.25	0.05	0.100	OI					3.48
7.833	0.25	0.05	0.102	OI					3.52
7.917	0.25	0.05	0.103	OI					3.55
8.000	0.26	0.05	0.105	OI					3.59
8.083	0.26	0.05	0.106	OI					3.62
8.167	0.26	0.05	0.107	OI					3.66
8.250	0.26	0.05	0.109	OI					3.69
8.333	0.26	0.05	0.110	OI					3.73
8.417	0.26	0.05	0.112	OI					3.76
8.500	0.26	0.05	0.113	OI					3.80
8.583	0.27	0.05	0.115	OI					3.83
8.667	0.27	0.05	0.116	OI					3.87
8.750	0.27	0.05	0.118	OI					3.91
8.833	0.27	0.05	0.119	OI					3.94
8.917	0.27	0.05	0.121	OI					3.98
9.000	0.27	0.05	0.122	OI					4.02
9.083	0.28	0.05	0.124	OI					4.06
9.167	0.28	0.05	0.125	OI					4.09
9.250	0.28	0.05	0.127	OI					4.13
9.333	0.28	0.05	0.129	OI					4.17
9.417	0.28	0.05	0.130	OI					4.21
9.500	0.29	0.05	0.132	OI					4.25
9.583	0.29	0.05	0.133	OI					4.29
9.667	0.29	0.05	0.135	OI					4.33
9.750	0.29	0.05	0.137	OI					4.37
9.833	0.29	0.05	0.138	OI					4.41
9.917	0.30	0.05	0.140	OI					4.45
10.000	0.30	0.05	0.142	OI					4.49
10.083	0.30	0.09	0.143	OI					4.53
10.167	0.30	0.13	0.145	OI					4.56
10.250	0.30	0.17	0.146	OI					4.59
10.333	0.31	0.20	0.146	OI					4.61
10.417	0.31	0.22	0.147	|O					4.62
10.500	0.31	0.24	0.148	|O					4.64
10.583	0.31	0.25	0.148	|O					4.65
10.667	0.32	0.27	0.149	|O					4.66
10.750	0.32	0.28	0.149	|O					4.66
10.833	0.32	0.29	0.149	|O					4.67
10.917	0.33	0.29	0.149	|O					4.68
11.000	0.33	0.30	0.150	|O					4.68
11.083	0.33	0.31	0.150	|O					4.69
11.167	0.33	0.31	0.150	|O					4.69
11.250	0.34	0.32	0.150	|O					4.69
11.333	0.34	0.32	0.150	|O					4.70
11.417	0.34	0.33	0.150	|O					4.70
11.500	0.35	0.33	0.151	|O					4.70
11.583	0.35	0.33	0.151	|O					4.71
11.667	0.35	0.34	0.151	|O					4.71
11.750	0.36	0.34	0.151	|O					4.71
11.833	0.36	0.34	0.151	|O					4.71
11.917	0.37	0.35	0.151	|O					4.72

12.000	0.37	0.35	0.151	O				4.72
12.083	0.38	0.36	0.151	O				4.72
12.167	0.41	0.36	0.152	OI				4.73
12.250	0.43	0.38	0.152	OI				4.74
12.333	0.43	0.39	0.152	OI				4.74
12.417	0.44	0.40	0.153	OI				4.75
12.500	0.44	0.41	0.153	O				4.76
12.583	0.45	0.41	0.153	O				4.76
12.667	0.45	0.42	0.153	O				4.77
12.750	0.46	0.43	0.154	O				4.77
12.833	0.47	0.44	0.154	O				4.78
12.917	0.47	0.44	0.154	O				4.78
13.000	0.48	0.45	0.154	O				4.79
13.083	0.48	0.46	0.154	O				4.79
13.167	0.49	0.46	0.155	O				4.80
13.250	0.50	0.47	0.155	O				4.80
13.333	0.50	0.47	0.155	O				4.81
13.417	0.51	0.48	0.155	O				4.81
13.500	0.52	0.49	0.155	O				4.82
13.583	0.53	0.50	0.156	O				4.82
13.667	0.54	0.50	0.156	O				4.83
13.750	0.54	0.51	0.156	O				4.83
13.833	0.55	0.52	0.156	O				4.84
13.917	0.56	0.53	0.157	O				4.85
14.000	0.58	0.54	0.157	O				4.85
14.083	0.59	0.54	0.157	O				4.86
14.167	0.60	0.55	0.157	O				4.87
14.250	0.61	0.56	0.158	OI				4.87
14.333	0.62	0.58	0.158	OI				4.88
14.417	0.64	0.59	0.158	OI				4.89
14.500	0.65	0.60	0.159	OI				4.90
14.583	0.67	0.61	0.159	O				4.91
14.667	0.69	0.63	0.160	O				4.92
14.750	0.71	0.64	0.160	O				4.93
14.833	0.73	0.66	0.160	O				4.94
14.917	0.75	0.67	0.161	O				4.95
15.000	0.78	0.69	0.162	O				4.97
15.083	0.81	0.71	0.162	OI				4.98
15.167	0.84	0.74	0.163	OI				5.00
15.250	0.88	0.76	0.164	OI				5.02
15.333	0.93	0.79	0.165	OI				5.04
15.417	0.95	0.82	0.165	O				5.06
15.500	0.89	0.84	0.166	O				5.07
15.583	0.89	0.85	0.166	O				5.08
15.667	0.98	0.87	0.167	O				5.09
15.750	1.09	0.90	0.168	OI				5.12
15.833	1.27	0.96	0.170	O I				5.16
15.917	1.52	1.05	0.172	O I				5.22
16.000	2.05	1.20	0.177	O	I			5.33
16.083	3.50	1.49	0.187	O		I		5.58
16.167	6.40	1.98	0.209	O			I	6.19
16.250	4.05	2.40	0.230	O		I		6.80
16.333	1.73	2.45	0.233	I	O			6.89
16.417	1.16	2.34	0.226	I	O			6.69

16.500	1.00	2.19	0.218	I	O			6.45
16.583	0.94	2.02	0.210	I	O			6.23
16.667	0.86	1.86	0.203	I	O			6.04
16.750	0.79	1.71	0.197	I	O			5.85
16.833	0.74	1.58	0.191	I	O			5.68
16.917	0.70	1.46	0.185	I	O			5.53
17.000	0.66	1.31	0.180	I	O			5.41
17.083	0.63	1.17	0.176	I	O			5.31
17.167	0.60	1.06	0.173	I	O			5.23
17.250	0.58	0.97	0.170	I	O			5.16
17.333	0.56	0.88	0.167	I	O			5.11
17.417	0.54	0.82	0.165	I	O			5.06
17.500	0.52	0.76	0.164	I	O			5.01
17.583	0.51	0.71	0.162	I	O			4.98
17.667	0.49	0.67	0.161	I	O			4.95
17.750	0.48	0.63	0.160	I	O			4.92
17.833	0.47	0.60	0.159	O				4.90
17.917	0.46	0.57	0.158	O				4.88
18.000	0.45	0.55	0.157	O				4.86
18.083	0.43	0.52	0.156	O				4.84
18.167	0.40	0.50	0.156	I	O			4.83
18.250	0.37	0.48	0.155	I	O			4.81
18.333	0.36	0.46	0.154	I	O			4.79
18.417	0.36	0.44	0.154	I	O			4.78
18.500	0.35	0.42	0.153	I	O			4.77
18.583	0.34	0.40	0.153	I	O			4.76
18.667	0.34	0.39	0.152	O				4.75
18.750	0.33	0.38	0.152	O				4.74
18.833	0.32	0.37	0.152	O				4.73
18.917	0.32	0.36	0.151	O				4.72
19.000	0.31	0.35	0.151	O				4.72
19.083	0.31	0.34	0.151	O				4.71
19.167	0.30	0.33	0.151	O				4.71
19.250	0.30	0.33	0.150	O				4.70
19.333	0.29	0.32	0.150	O				4.70
19.417	0.29	0.32	0.150	O				4.69
19.500	0.29	0.31	0.150	O				4.69
19.583	0.28	0.30	0.150	O				4.68
19.667	0.28	0.30	0.150	O				4.68
19.750	0.27	0.30	0.149	O				4.68
19.833	0.27	0.29	0.149	O				4.67
19.917	0.27	0.29	0.149	O				4.67
20.000	0.26	0.28	0.149	O				4.67
20.083	0.26	0.28	0.149	O				4.67
20.167	0.26	0.27	0.149	O				4.66
20.250	0.26	0.27	0.149	O				4.66
20.333	0.25	0.27	0.149	O				4.66
20.417	0.25	0.26	0.149	O				4.66
20.500	0.25	0.26	0.148	O				4.65
20.583	0.24	0.26	0.148	O				4.65
20.667	0.24	0.26	0.148	O				4.65
20.750	0.24	0.25	0.148	O				4.65
20.833	0.24	0.25	0.148	O				4.64
20.917	0.24	0.25	0.148	O				4.64

21.000	0.23	0.24	0.148	|O	|	|	|	4.64
21.083	0.23	0.24	0.148	|O	|	|	|	4.64
21.167	0.23	0.24	0.148	|O	|	|	|	4.64
21.250	0.23	0.24	0.148	|O	|	|	|	4.64
21.333	0.22	0.23	0.148	|O	|	|	|	4.63
21.417	0.22	0.23	0.148	|O	|	|	|	4.63
21.500	0.22	0.23	0.147	|O	|	|	|	4.63
21.583	0.22	0.23	0.147	|O	|	|	|	4.63
21.667	0.22	0.23	0.147	|O	|	|	|	4.63
21.750	0.22	0.22	0.147	|O	|	|	|	4.63
21.833	0.21	0.22	0.147	|O	|	|	|	4.62
21.917	0.21	0.22	0.147	|O	|	|	|	4.62
22.000	0.21	0.22	0.147	|O	|	|	|	4.62
22.083	0.21	0.22	0.147	|O	|	|	|	4.62
22.167	0.21	0.21	0.147	|O	|	|	|	4.62
22.250	0.21	0.21	0.147	|O	|	|	|	4.62
22.333	0.20	0.21	0.147	|O	|	|	|	4.62
22.417	0.20	0.21	0.147	|O	|	|	|	4.62
22.500	0.20	0.21	0.147	|O	|	|	|	4.61
22.583	0.20	0.21	0.147	IO	|	|	|	4.61
22.667	0.20	0.20	0.147	IO	|	|	|	4.61
22.750	0.20	0.20	0.147	IO	|	|	|	4.61
22.833	0.20	0.20	0.147	IO	|	|	|	4.61
22.917	0.19	0.20	0.147	IO	|	|	|	4.61
23.000	0.19	0.20	0.147	O	|	|	|	4.61
23.083	0.19	0.20	0.146	O	|	|	|	4.61
23.167	0.19	0.20	0.146	O	|	|	|	4.61
23.250	0.19	0.19	0.146	O	|	|	|	4.60
23.333	0.19	0.19	0.146	O	|	|	|	4.60
23.417	0.19	0.19	0.146	O	|	|	|	4.60
23.500	0.19	0.19	0.146	O	|	|	|	4.60
23.583	0.18	0.19	0.146	O	|	|	|	4.60
23.667	0.18	0.19	0.146	O	|	|	|	4.60
23.750	0.18	0.19	0.146	O	|	|	|	4.60
23.833	0.18	0.19	0.146	O	|	|	|	4.60
23.917	0.18	0.18	0.146	O	|	|	|	4.60
24.000	0.18	0.18	0.146	O	|	|	|	4.60
24.083	0.16	0.18	0.146	O	|	|	|	4.59
24.167	0.06	0.17	0.146	O	|	|	|	4.58
24.250	0.01	0.14	0.145	O	|	|	|	4.56
24.333	0.00	0.11	0.144	O	|	|	|	4.55
24.417	0.00	0.09	0.143	O	|	|	|	4.53
24.500	0.00	0.07	0.143	O	|	|	|	4.52
24.583	0.00	0.06	0.142	O	|	|	|	4.50
24.667	0.00	0.05	0.142	O	|	|	|	4.50
24.750	0.00	0.05	0.141	O	|	|	|	4.49
24.833	0.00	0.05	0.141	O	|	|	|	4.48
24.917	0.00	0.05	0.141	O	|	|	|	4.47
25.000	0.00	0.05	0.140	O	|	|	|	4.46
25.083	0.00	0.05	0.140	O	|	|	|	4.45
25.167	0.00	0.05	0.140	O	|	|	|	4.45
25.250	0.00	0.05	0.139	O	|	|	|	4.44
25.333	0.00	0.05	0.139	O	|	|	|	4.43
25.417	0.00	0.05	0.139	O	|	|	|	4.42

25.500	0.00	0.05	0.138	O					4.41
25.583	0.00	0.05	0.138	O					4.40
25.667	0.00	0.05	0.138	O					4.40
25.750	0.00	0.05	0.137	O					4.39
25.833	0.00	0.05	0.137	O					4.38
25.917	0.00	0.05	0.137	O					4.37
26.000	0.00	0.05	0.136	O					4.36
26.083	0.00	0.05	0.136	O					4.35
26.167	0.00	0.05	0.136	O					4.34
26.250	0.00	0.05	0.135	O					4.34
26.333	0.00	0.05	0.135	O					4.33
26.417	0.00	0.05	0.135	O					4.32
26.500	0.00	0.05	0.134	O					4.31
26.583	0.00	0.05	0.134	O					4.30
26.667	0.00	0.05	0.134	O					4.29
26.750	0.00	0.05	0.133	O					4.29
26.833	0.00	0.05	0.133	O					4.28
26.917	0.00	0.05	0.133	O					4.27
27.000	0.00	0.05	0.132	O					4.26
27.083	0.00	0.05	0.132	O					4.25
27.167	0.00	0.05	0.132	O					4.24
27.250	0.00	0.05	0.131	O					4.24
27.333	0.00	0.05	0.131	O					4.23
27.417	0.00	0.05	0.130	O					4.22
27.500	0.00	0.05	0.130	O					4.21
27.583	0.00	0.05	0.130	O					4.20
27.667	0.00	0.05	0.129	O					4.19
27.750	0.00	0.05	0.129	O					4.19
27.833	0.00	0.05	0.129	O					4.18
27.917	0.00	0.05	0.128	O					4.17
28.000	0.00	0.05	0.128	O					4.16
28.083	0.00	0.05	0.128	O					4.15
28.167	0.00	0.05	0.127	O					4.14
28.250	0.00	0.05	0.127	O					4.13
28.333	0.00	0.05	0.127	O					4.13
28.417	0.00	0.05	0.126	O					4.12
28.500	0.00	0.05	0.126	O					4.11
28.583	0.00	0.05	0.126	O					4.10
28.667	0.00	0.05	0.125	O					4.09
28.750	0.00	0.05	0.125	O					4.08
28.833	0.00	0.05	0.125	O					4.08
28.917	0.00	0.05	0.124	O					4.07
29.000	0.00	0.05	0.124	O					4.06
29.083	0.00	0.05	0.124	O					4.05
29.167	0.00	0.05	0.123	O					4.04
29.250	0.00	0.05	0.123	O					4.03
29.333	0.00	0.05	0.123	O					4.03
29.417	0.00	0.05	0.122	O					4.02
29.500	0.00	0.05	0.122	O					4.01
29.583	0.00	0.05	0.122	O					4.00
29.667	0.00	0.05	0.121	O					3.99
29.750	0.00	0.05	0.121	O					3.98
29.833	0.00	0.05	0.120	O					3.98
29.917	0.00	0.05	0.120	O					3.97

30.000	0.00	0.05	0.120	O					3.96
30.083	0.00	0.05	0.119	O					3.95
30.167	0.00	0.05	0.119	O					3.94
30.250	0.00	0.05	0.119	O					3.93
30.333	0.00	0.05	0.118	O					3.92
30.417	0.00	0.05	0.118	O					3.92
30.500	0.00	0.05	0.118	O					3.91
30.583	0.00	0.05	0.117	O					3.90
30.667	0.00	0.05	0.117	O					3.89
30.750	0.00	0.05	0.117	O					3.88
30.833	0.00	0.05	0.116	O					3.87
30.917	0.00	0.05	0.116	O					3.87
31.000	0.00	0.05	0.116	O					3.86
31.083	0.00	0.05	0.115	O					3.85
31.167	0.00	0.05	0.115	O					3.84
31.250	0.00	0.05	0.115	O					3.83
31.333	0.00	0.05	0.114	O					3.82
31.417	0.00	0.05	0.114	O					3.82
31.500	0.00	0.05	0.114	O					3.81
31.583	0.00	0.05	0.113	O					3.80
31.667	0.00	0.05	0.113	O					3.79
31.750	0.00	0.05	0.113	O					3.78
31.833	0.00	0.05	0.112	O					3.77
31.917	0.00	0.05	0.112	O					3.77
32.000	0.00	0.05	0.112	O					3.76
32.083	0.00	0.05	0.111	O					3.75
32.167	0.00	0.05	0.111	O					3.74
32.250	0.00	0.05	0.111	O					3.73
32.333	0.00	0.05	0.110	O					3.72
32.417	0.00	0.05	0.110	O					3.71
32.500	0.00	0.05	0.109	O					3.71
32.583	0.00	0.05	0.109	O					3.70
32.667	0.00	0.05	0.109	O					3.69
32.750	0.00	0.05	0.108	O					3.68
32.833	0.00	0.05	0.108	O					3.67
32.917	0.00	0.05	0.108	O					3.66
33.000	0.00	0.05	0.107	O					3.66
33.083	0.00	0.05	0.107	O					3.65
33.167	0.00	0.05	0.107	O					3.64
33.250	0.00	0.05	0.106	O					3.63
33.333	0.00	0.05	0.106	O					3.62
33.417	0.00	0.05	0.106	O					3.61
33.500	0.00	0.05	0.105	O					3.61
33.583	0.00	0.05	0.105	O					3.60
33.667	0.00	0.05	0.105	O					3.59
33.750	0.00	0.05	0.104	O					3.58
33.833	0.00	0.05	0.104	O					3.57
33.917	0.00	0.05	0.104	O					3.56
34.000	0.00	0.05	0.103	O					3.56
34.083	0.00	0.05	0.103	O					3.55
34.167	0.00	0.05	0.103	O					3.54
34.250	0.00	0.05	0.102	O					3.53
34.333	0.00	0.05	0.102	O					3.52
34.417	0.00	0.05	0.102	O					3.51

34.500	0.00	0.05	0.101	O					3.51
34.583	0.00	0.05	0.101	O					3.50
34.667	0.00	0.05	0.101	O					3.49
34.750	0.00	0.05	0.100	O					3.48
34.833	0.00	0.05	0.100	O					3.47
34.917	0.00	0.05	0.099	O					3.46
35.000	0.00	0.05	0.099	O					3.45
35.083	0.00	0.05	0.099	O					3.44
35.167	0.00	0.05	0.098	O					3.43
35.250	0.00	0.05	0.098	O					3.42
35.333	0.00	0.05	0.098	O					3.41
35.417	0.00	0.05	0.097	O					3.40
35.500	0.00	0.05	0.097	O					3.39
35.583	0.00	0.05	0.097	O					3.38
35.667	0.00	0.05	0.096	O					3.38
35.750	0.00	0.05	0.096	O					3.37
35.833	0.00	0.05	0.096	O					3.36
35.917	0.00	0.05	0.095	O					3.35
36.000	0.00	0.05	0.095	O					3.34
36.083	0.00	0.05	0.095	O					3.33
36.167	0.00	0.05	0.094	O					3.32
36.250	0.00	0.05	0.094	O					3.31
36.333	0.00	0.05	0.094	O					3.30
36.417	0.00	0.05	0.093	O					3.29
36.500	0.00	0.05	0.093	O					3.28
36.583	0.00	0.05	0.093	O					3.27
36.667	0.00	0.05	0.092	O					3.26
36.750	0.00	0.05	0.092	O					3.25
36.833	0.00	0.05	0.092	O					3.24
36.917	0.00	0.05	0.091	O					3.24
37.000	0.00	0.05	0.091	O					3.23
37.083	0.00	0.05	0.091	O					3.22
37.167	0.00	0.05	0.090	O					3.21
37.250	0.00	0.05	0.090	O					3.20
37.333	0.00	0.05	0.089	O					3.19
37.417	0.00	0.05	0.089	O					3.18
37.500	0.00	0.05	0.089	O					3.17
37.583	0.00	0.05	0.088	O					3.16
37.667	0.00	0.05	0.088	O					3.15
37.750	0.00	0.05	0.088	O					3.14
37.833	0.00	0.05	0.087	O					3.13
37.917	0.00	0.05	0.087	O					3.12
38.000	0.00	0.05	0.087	O					3.11
38.083	0.00	0.05	0.086	O					3.11
38.167	0.00	0.05	0.086	O					3.10
38.250	0.00	0.05	0.086	O					3.09
38.333	0.00	0.05	0.085	O					3.08
38.417	0.00	0.05	0.085	O					3.07
38.500	0.00	0.05	0.085	O					3.06
38.583	0.00	0.05	0.084	O					3.05
38.667	0.00	0.05	0.084	O					3.04
38.750	0.00	0.05	0.084	O					3.03
38.833	0.00	0.05	0.083	O					3.02
38.917	0.00	0.05	0.083	O					3.01

39.000	0.00	0.05	0.083	O					3.00
39.083	0.00	0.05	0.082	O					2.99
39.167	0.00	0.05	0.082	O					2.98
39.250	0.00	0.05	0.082	O					2.98
39.333	0.00	0.05	0.081	O					2.97
39.417	0.00	0.05	0.081	O					2.96
39.500	0.00	0.05	0.081	O					2.95
39.583	0.00	0.05	0.080	O					2.94
39.667	0.00	0.05	0.080	O					2.93
39.750	0.00	0.05	0.080	O					2.92
39.833	0.00	0.05	0.079	O					2.91
39.917	0.00	0.05	0.079	O					2.90
40.000	0.00	0.05	0.078	O					2.89
40.083	0.00	0.05	0.078	O					2.88
40.167	0.00	0.05	0.078	O					2.87
40.250	0.00	0.05	0.077	O					2.86
40.333	0.00	0.05	0.077	O					2.85
40.417	0.00	0.05	0.077	O					2.84
40.500	0.00	0.05	0.076	O					2.84
40.583	0.00	0.05	0.076	O					2.83
40.667	0.00	0.05	0.076	O					2.82
40.750	0.00	0.05	0.075	O					2.81
40.833	0.00	0.05	0.075	O					2.80
40.917	0.00	0.05	0.075	O					2.79
41.000	0.00	0.05	0.074	O					2.78
41.083	0.00	0.05	0.074	O					2.77
41.167	0.00	0.05	0.074	O					2.76
41.250	0.00	0.05	0.073	O					2.75
41.333	0.00	0.05	0.073	O					2.74
41.417	0.00	0.05	0.073	O					2.73
41.500	0.00	0.05	0.072	O					2.72
41.583	0.00	0.05	0.072	O					2.71
41.667	0.00	0.05	0.072	O					2.71
41.750	0.00	0.05	0.071	O					2.70
41.833	0.00	0.05	0.071	O					2.69
41.917	0.00	0.05	0.071	O					2.68
42.000	0.00	0.05	0.070	O					2.67
42.083	0.00	0.05	0.070	O					2.66
42.167	0.00	0.05	0.070	O					2.65
42.250	0.00	0.05	0.069	O					2.64
42.333	0.00	0.05	0.069	O					2.63
42.417	0.00	0.05	0.068	O					2.62
42.500	0.00	0.05	0.068	O					2.61
42.583	0.00	0.05	0.068	O					2.60
42.667	0.00	0.05	0.067	O					2.59
42.750	0.00	0.05	0.067	O					2.58
42.833	0.00	0.05	0.067	O					2.57
42.917	0.00	0.05	0.066	O					2.57
43.000	0.00	0.05	0.066	O					2.56
43.083	0.00	0.05	0.066	O					2.55
43.167	0.00	0.05	0.065	O					2.54
43.250	0.00	0.05	0.065	O					2.53
43.333	0.00	0.05	0.065	O					2.52
43.417	0.00	0.05	0.064	O					2.51

43.500	0.00	0.05	0.064	O					2.50
43.583	0.00	0.05	0.064	O					2.49
43.667	0.00	0.05	0.063	O					2.48
43.750	0.00	0.05	0.063	O					2.47
43.833	0.00	0.05	0.063	O					2.46
43.917	0.00	0.05	0.062	O					2.45
44.000	0.00	0.05	0.062	O					2.44
44.083	0.00	0.05	0.062	O					2.43
44.167	0.00	0.05	0.061	O					2.41
44.250	0.00	0.05	0.061	O					2.40
44.333	0.00	0.05	0.061	O					2.39
44.417	0.00	0.05	0.060	O					2.38
44.500	0.00	0.05	0.060	O					2.37
44.583	0.00	0.05	0.060	O					2.36
44.667	0.00	0.05	0.059	O					2.35
44.750	0.00	0.05	0.059	O					2.34
44.833	0.00	0.05	0.059	O					2.33
44.917	0.00	0.05	0.058	O					2.32
45.000	0.00	0.05	0.058	O					2.31
45.083	0.00	0.05	0.057	O					2.30
45.167	0.00	0.05	0.057	O					2.29
45.250	0.00	0.05	0.057	O					2.27
45.333	0.00	0.05	0.056	O					2.26
45.417	0.00	0.05	0.056	O					2.25
45.500	0.00	0.05	0.056	O					2.24
45.583	0.00	0.05	0.055	O					2.23
45.667	0.00	0.05	0.055	O					2.22
45.750	0.00	0.05	0.055	O					2.21
45.833	0.00	0.05	0.054	O					2.20
45.917	0.00	0.05	0.054	O					2.19
46.000	0.00	0.05	0.054	O					2.18
46.083	0.00	0.05	0.053	O					2.17
46.167	0.00	0.05	0.053	O					2.16
46.250	0.00	0.05	0.053	O					2.15
46.333	0.00	0.05	0.052	O					2.13
46.417	0.00	0.05	0.052	O					2.12
46.500	0.00	0.05	0.052	O					2.11
46.583	0.00	0.05	0.051	O					2.10
46.667	0.00	0.05	0.051	O					2.09
46.750	0.00	0.05	0.051	O					2.08
46.833	0.00	0.05	0.050	O					2.07
46.917	0.00	0.05	0.050	O					2.06
47.000	0.00	0.05	0.050	O					2.05
47.083	0.00	0.05	0.049	O					2.04
47.167	0.00	0.05	0.049	O					2.03
47.250	0.00	0.05	0.049	O					2.02
47.333	0.00	0.05	0.048	O					2.01
47.417	0.00	0.05	0.048	O					1.99
47.500	0.00	0.05	0.047	O					1.98
47.583	0.00	0.05	0.047	O					1.97
47.667	0.00	0.05	0.047	O					1.96
47.750	0.00	0.05	0.046	O					1.95
47.833	0.00	0.05	0.046	O					1.94
47.917	0.00	0.05	0.046	O					1.93

48.000	0.00	0.05	0.045	O					1.92
48.083	0.00	0.05	0.045	O					1.91
48.167	0.00	0.05	0.045	O					1.90
48.250	0.00	0.05	0.044	O					1.89
48.333	0.00	0.05	0.044	O					1.88
48.417	0.00	0.05	0.044	O					1.87
48.500	0.00	0.05	0.043	O					1.85
48.583	0.00	0.05	0.043	O					1.84
48.667	0.00	0.05	0.043	O					1.83
48.750	0.00	0.05	0.042	O					1.82
48.833	0.00	0.05	0.042	O					1.81
48.917	0.00	0.05	0.042	O					1.80
49.000	0.00	0.05	0.041	O					1.79
49.083	0.00	0.05	0.041	O					1.78
49.167	0.00	0.05	0.041	O					1.77
49.250	0.00	0.05	0.040	O					1.76
49.333	0.00	0.05	0.040	O					1.75
49.417	0.00	0.05	0.040	O					1.74
49.500	0.00	0.05	0.039	O					1.73
49.583	0.00	0.05	0.039	O					1.71
49.667	0.00	0.05	0.039	O					1.70
49.750	0.00	0.05	0.038	O					1.69
49.833	0.00	0.05	0.038	O					1.68
49.917	0.00	0.05	0.038	O					1.67
50.000	0.00	0.05	0.037	O					1.66
50.083	0.00	0.05	0.037	O					1.65
50.167	0.00	0.05	0.036	O					1.64
50.250	0.00	0.05	0.036	O					1.63
50.333	0.00	0.05	0.036	O					1.62
50.417	0.00	0.05	0.035	O					1.61
50.500	0.00	0.05	0.035	O					1.60
50.583	0.00	0.05	0.035	O					1.59
50.667	0.00	0.05	0.034	O					1.58
50.750	0.00	0.05	0.034	O					1.56
50.833	0.00	0.05	0.034	O					1.55
50.917	0.00	0.05	0.033	O					1.54
51.000	0.00	0.05	0.033	O					1.53
51.083	0.00	0.05	0.033	O					1.52
51.167	0.00	0.05	0.032	O					1.51
51.250	0.00	0.05	0.032	O					1.50
51.333	0.00	0.05	0.032	O					1.48
51.417	0.00	0.05	0.031	O					1.47
51.500	0.00	0.05	0.031	O					1.45
51.583	0.00	0.05	0.031	O					1.44
51.667	0.00	0.05	0.030	O					1.42
51.750	0.00	0.05	0.030	O					1.41
51.833	0.00	0.05	0.030	O					1.39
51.917	0.00	0.05	0.029	O					1.38
52.000	0.00	0.05	0.029	O					1.36
52.083	0.00	0.05	0.029	O					1.35
52.167	0.00	0.05	0.028	O					1.33
52.250	0.00	0.05	0.028	O					1.32
52.333	0.00	0.05	0.028	O					1.30
52.417	0.00	0.05	0.027	O					1.29

52.500	0.00	0.05	0.027	O					1.28
52.583	0.00	0.05	0.026	O					1.26
52.667	0.00	0.05	0.026	O					1.25
52.750	0.00	0.05	0.026	O					1.23
52.833	0.00	0.05	0.025	O					1.22
52.917	0.00	0.05	0.025	O					1.20
53.000	0.00	0.05	0.025	O					1.19
53.083	0.00	0.05	0.024	O					1.17
53.167	0.00	0.05	0.024	O					1.16
53.250	0.00	0.05	0.024	O					1.14
53.333	0.00	0.05	0.023	O					1.13
53.417	0.00	0.05	0.023	O					1.11
53.500	0.00	0.05	0.023	O					1.10
53.583	0.00	0.05	0.022	O					1.08
53.667	0.00	0.05	0.022	O					1.07
53.750	0.00	0.05	0.022	O					1.05
53.833	0.00	0.05	0.021	O					1.04
53.917	0.00	0.05	0.021	O					1.02
54.000	0.00	0.05	0.021	O					1.01
54.083	0.00	0.05	0.020	O					0.99
54.167	0.00	0.05	0.020	O					0.98
54.250	0.00	0.05	0.020	O					0.96
54.333	0.00	0.05	0.019	O					0.95
54.417	0.00	0.05	0.019	O					0.93
54.500	0.00	0.05	0.019	O					0.92
54.583	0.00	0.05	0.018	O					0.90
54.667	0.00	0.05	0.018	O					0.89
54.750	0.00	0.05	0.018	O					0.87
54.833	0.00	0.05	0.017	O					0.86
54.917	0.00	0.05	0.017	O					0.84
55.000	0.00	0.05	0.016	O					0.83
55.083	0.00	0.05	0.016	O					0.81
55.167	0.00	0.05	0.016	O					0.80
55.250	0.00	0.05	0.015	O					0.78
55.333	0.00	0.05	0.015	O					0.77
55.417	0.00	0.05	0.015	O					0.75
55.500	0.00	0.05	0.014	O					0.74
55.583	0.00	0.05	0.014	O					0.72
55.667	0.00	0.05	0.014	O					0.71
55.750	0.00	0.05	0.013	O					0.69
55.833	0.00	0.05	0.013	O					0.68
55.917	0.00	0.05	0.013	O					0.66
56.000	0.00	0.05	0.012	O					0.65
56.083	0.00	0.05	0.012	O					0.63
56.167	0.00	0.05	0.012	O					0.62
56.250	0.00	0.05	0.011	O					0.60
56.333	0.00	0.05	0.011	O					0.59
56.417	0.00	0.05	0.011	O					0.57
56.500	0.00	0.05	0.010	O					0.56
56.583	0.00	0.05	0.010	O					0.54
56.667	0.00	0.05	0.010	O					0.53
56.750	0.00	0.05	0.009	O					0.51
56.833	0.00	0.05	0.009	O					0.50
56.917	0.00	0.05	0.009	O					0.48

57.000	0.00	0.05	0.008	O					0.46
57.083	0.00	0.04	0.008	O					0.44
57.167	0.00	0.04	0.008	O					0.43
57.250	0.00	0.04	0.007	O					0.41
57.333	0.00	0.04	0.007	O					0.39
57.417	0.00	0.04	0.007	O					0.38
57.500	0.00	0.04	0.007	O					0.36
57.583	0.00	0.04	0.006	O					0.35
57.667	0.00	0.03	0.006	O					0.34
57.750	0.00	0.03	0.006	O					0.33
57.833	0.00	0.03	0.006	O					0.31
57.917	0.00	0.03	0.005	O					0.30
58.000	0.00	0.03	0.005	O					0.29
58.083	0.00	0.03	0.005	O					0.28
58.167	0.00	0.03	0.005	O					0.27
58.250	0.00	0.03	0.005	O					0.26
58.333	0.00	0.02	0.004	O					0.25
58.417	0.00	0.02	0.004	O					0.24
58.500	0.00	0.02	0.004	O					0.23
58.583	0.00	0.02	0.004	O					0.22
58.667	0.00	0.02	0.004	O					0.21
58.750	0.00	0.02	0.004	O					0.21
58.833	0.00	0.02	0.004	O					0.20
58.917	0.00	0.02	0.003	O					0.19
59.000	0.00	0.02	0.003	O					0.18
59.083	0.00	0.02	0.003	O					0.18
59.167	0.00	0.02	0.003	O					0.17
59.250	0.00	0.02	0.003	O					0.16
59.333	0.00	0.02	0.003	O					0.16
59.417	0.00	0.02	0.003	O					0.15
59.500	0.00	0.01	0.003	O					0.15
59.583	0.00	0.01	0.003	O					0.14
59.667	0.00	0.01	0.002	O					0.13
59.750	0.00	0.01	0.002	O					0.13
59.833	0.00	0.01	0.002	O					0.12
59.917	0.00	0.01	0.002	O					0.12
60.000	0.00	0.01	0.002	O					0.12
60.083	0.00	0.01	0.002	O					0.11
60.167	0.00	0.01	0.002	O					0.11
60.250	0.00	0.01	0.002	O					0.10
60.333	0.00	0.01	0.002	O					0.10
60.417	0.00	0.01	0.002	O					0.10
60.500	0.00	0.01	0.002	O					0.09
60.583	0.00	0.01	0.002	O					0.09
60.667	0.00	0.01	0.002	O					0.09
60.750	0.00	0.01	0.001	O					0.08
60.833	0.00	0.01	0.001	O					0.08
60.917	0.00	0.01	0.001	O					0.08
61.000	0.00	0.01	0.001	O					0.07
61.083	0.00	0.01	0.001	O					0.07
61.167	0.00	0.01	0.001	O					0.07
61.250	0.00	0.01	0.001	O					0.07
61.333	0.00	0.01	0.001	O					0.06
61.417	0.00	0.01	0.001	O					0.06

61.500	0.00	0.01	0.001	O	|	|	|	|	0.06
61.583	0.00	0.01	0.001	O	|	|	|	|	0.06
61.667	0.00	0.01	0.001	O	|	|	|	|	0.05
61.750	0.00	0.01	0.001	O	|	|	|	|	0.05
61.833	0.00	0.00	0.001	O	|	|	|	|	0.05
61.917	0.00	0.00	0.001	O	|	|	|	|	0.05
62.000	0.00	0.00	0.001	O	|	|	|	|	0.05
62.083	0.00	0.00	0.001	O	|	|	|	|	0.04
62.167	0.00	0.00	0.001	O	|	|	|	|	0.04
62.250	0.00	0.00	0.001	O	|	|	|	|	0.04
62.333	0.00	0.00	0.001	O	|	|	|	|	0.04
62.417	0.00	0.00	0.001	O	|	|	|	|	0.04
62.500	0.00	0.00	0.001	O	|	|	|	|	0.04
62.583	0.00	0.00	0.001	O	|	|	|	|	0.04
62.667	0.00	0.00	0.001	O	|	|	|	|	0.03
62.750	0.00	0.00	0.001	O	|	|	|	|	0.03
62.833	0.00	0.00	0.001	O	|	|	|	|	0.03
62.917	0.00	0.00	0.001	O	|	|	|	|	0.03
63.000	0.00	0.00	0.001	O	|	|	|	|	0.03
63.083	0.00	0.00	0.001	O	|	|	|	|	0.03
63.167	0.00	0.00	0.000	O	|	|	|	|	0.03
63.250	0.00	0.00	0.000	O	|	|	|	|	0.03
63.333	0.00	0.00	0.000	O	|	|	|	|	0.03
63.417	0.00	0.00	0.000	O	|	|	|	|	0.02
63.500	0.00	0.00	0.000	O	|	|	|	|	0.02
63.583	0.00	0.00	0.000	O	|	|	|	|	0.02
63.667	0.00	0.00	0.000	O	|	|	|	|	0.02
63.750	0.00	0.00	0.000	O	|	|	|	|	0.02
63.833	0.00	0.00	0.000	O	|	|	|	|	0.02
63.917	0.00	0.00	0.000	O	|	|	|	|	0.02
64.000	0.00	0.00	0.000	O	|	|	|	|	0.02
64.083	0.00	0.00	0.000	O	|	|	|	|	0.02
64.167	0.00	0.00	0.000	O	|	|	|	|	0.02
64.250	0.00	0.00	0.000	O	|	|	|	|	0.02
64.333	0.00	0.00	0.000	O	|	|	|	|	0.02
64.417	0.00	0.00	0.000	O	|	|	|	|	0.02
64.500	0.00	0.00	0.000	O	|	|	|	|	0.01
64.583	0.00	0.00	0.000	O	|	|	|	|	0.01
64.667	0.00	0.00	0.000	O	|	|	|	|	0.01
64.750	0.00	0.00	0.000	O	|	|	|	|	0.01
64.833	0.00	0.00	0.000	O	|	|	|	|	0.01
64.917	0.00	0.00	0.000	O	|	|	|	|	0.01
65.000	0.00	0.00	0.000	O	|	|	|	|	0.01
65.083	0.00	0.00	0.000	O	|	|	|	|	0.01
65.167	0.00	0.00	0.000	O	|	|	|	|	0.01
65.250	0.00	0.00	0.000	O	|	|	|	|	0.01
65.333	0.00	0.00	0.000	O	|	|	|	|	0.01
65.417	0.00	0.00	0.000	O	|	|	|	|	0.01

**********HYDROGRAPH DATA**********

Number of intervals = 785
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 2.454 (CFS)
Total volume = 0.785 (Ac.Ft)

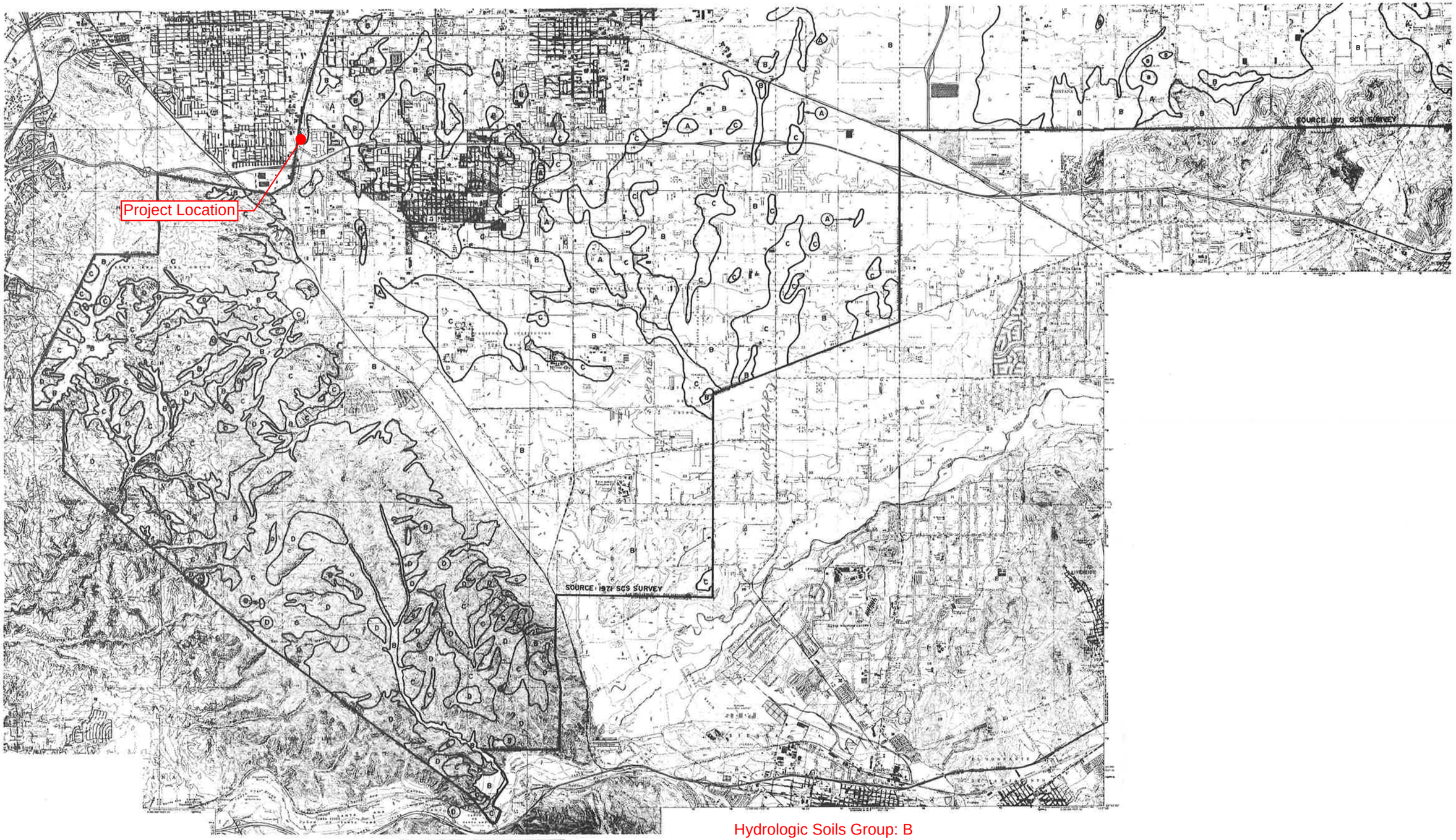
Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

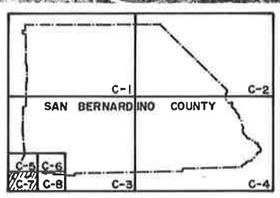
****

Appendix E

Soil Group Map and Rainfall Data



Hydrologic Soils Group: B



INDEX MAP

LEGEND

SOIL GROUP BOUNDARY

A SOIL GROUP DESIGNATION

BOUNDARY OF INDICATED SOURCE

SCALE 1:48,000

SCALE REDUCED BY 1/2

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

HYDROLOGIC SOILS GROUP MAP
FOR
SOUTHWEST-C AREA

NOAA Atlas 14, Volume 6, Version 2
Location name: Chino, California, USA*
Latitude: 34.0345°, Longitude: -117.7252°
Elevation: 803.9 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.121** (0.101-0.147)	**0.159** (0.133-0.192)	**0.209** (0.174-0.254)	**0.252** (0.207-0.308)	**0.311** (0.247-0.394)	**0.358** (0.279-0.464)	**0.407** (0.309-0.542)	**0.459** (0.338-0.629)	**0.532** (0.375-0.761)	**0.590** (0.402-0.876)
10-min	**0.174** (0.145-0.211)	**0.228** (0.190-0.276)	**0.300** (0.250-0.364)	**0.361** (0.297-0.442)	**0.446** (0.355-0.565)	**0.513** (0.399-0.665)	**0.583** (0.443-0.776)	**0.658** (0.485-0.902)	**0.762** (0.538-1.09)	**0.846** (0.576-1.26)
15-min	**0.211** (0.176-0.255)	**0.275** (0.230-0.334)	**0.363** (0.302-0.441)	**0.436** (0.360-0.534)	**0.539** (0.429-0.684)	**0.620** (0.483-0.805)	**0.705** (0.535-0.939)	**0.796** (0.587-1.09)	**0.922** (0.651-1.32)	**1.02** (0.697-1.52)
30-min	**0.308** (0.257-0.373)	**0.403** (0.336-0.488)	**0.531** (0.442-0.645)	**0.638** (0.526-0.782)	**0.789** (0.628-1.00)	**0.908** (0.707-1.18)	**1.03** (0.784-1.37)	**1.17** (0.858-1.60)	**1.35** (0.952-1.93)	**1.50** (1.02-2.22)
60-min	**0.457** (0.382-0.553)	**0.598** (0.499-0.725)	**0.788** (0.655-0.957)	**0.947** (0.781-1.16)	**1.17** (0.932-1.49)	**1.35** (1.05-1.75)	**1.53** (1.16-2.04)	**1.73** (1.27-2.37)	**2.00** (1.41-2.87)	**2.22** (1.51-3.30)
2-hr	**0.687** (0.574-0.831)	**0.895** (0.746-1.08)	**1.17** (0.973-1.42)	**1.40** (1.15-1.71)	**1.71** (1.36-2.17)	**1.95** (1.52-2.53)	**2.20** (1.67-2.92)	**2.46** (1.81-3.37)	**2.81** (1.99-4.03)	**3.10** (2.11-4.59)
3-hr	**0.871** (0.727-1.05)	**1.13** (0.943-1.37)	**1.47** (1.23-1.79)	**1.75** (1.45-2.15)	**2.13** (1.70-2.71)	**2.43** (1.89-3.15)	**2.73** (2.07-3.64)	**3.05** (2.25-4.18)	**3.48** (2.46-4.98)	**3.82** (2.60-5.67)
6-hr	**1.23** (1.02-1.48)	**1.59** (1.32-1.92)	**2.06** (1.71-2.50)	**2.44** (2.02-3.00)	**2.97** (2.36-3.77)	**3.37** (2.63-4.37)	**3.79** (2.87-5.04)	**4.21** (3.11-5.77)	**4.80** (3.39-6.87)	**5.26** (3.58-7.80)
12-hr	**1.62** (1.35-1.96)	**2.10** (1.75-2.55)	**2.74** (2.28-3.33)	**3.26** (2.69-4.00)	**3.98** (3.17-5.05)	**4.53** (3.53-5.88)	**5.10** (3.87-6.79)	**5.69** (4.20-7.80)	**6.51** (4.59-9.31)	**7.15** (4.87-10.6)
24-hr	**2.14** (1.89-2.46)	**2.80** (2.47-3.23)	**3.69** (3.25-4.26)	**4.42** (3.87-5.16)	**5.44** (4.61-6.56)	**6.24** (5.18-7.68)	**7.07** (5.73-8.91)	**7.94** (6.26-10.3)	**9.15** (6.92-12.3)	**10.1** (7.40-14.1)
2-day	**2.63** (2.32-3.03)	**3.50** (3.09-4.04)	**4.68** (4.13-5.42)	**5.68** (4.97-6.63)	**7.08** (6.00-8.54)	**8.20** (6.80-10.1)	**9.38** (7.59-11.8)	**10.6** (8.37-13.8)	**12.4** (9.36-16.7)	**13.8** (10.1-19.2)
3-day	**2.86** (2.53-3.30)	**3.86** (3.41-4.45)	**5.22** (4.60-6.04)	**6.37** (5.57-7.44)	**8.01** (6.78-9.65)	**9.32** (7.73-11.5)	**10.7** (8.67-13.5)	**12.2** (9.60-15.8)	**14.3** (10.8-19.3)	**16.0** (11.7-22.3)
4-day	**3.10** (2.74-3.57)	**4.21** (3.72-4.86)	**5.72** (5.04-6.62)	**7.00** (6.13-8.17)	**8.82** (7.47-10.6)	**10.3** (8.53-12.6)	**11.8** (9.57-14.9)	**13.5** (10.6-17.4)	**15.8** (11.9-21.3)	**17.7** (12.9-24.6)
7-day	**3.53** (3.13-4.07)	**4.83** (4.26-5.57)	**6.58** (5.80-7.62)	**8.06** (7.05-9.40)	**10.1** (8.57-12.2)	**11.8** (9.77-14.5)	**13.5** (10.9-17.0)	**15.3** (12.1-19.9)	**17.9** (13.5-24.1)	**20.0** (14.6-27.9)
10-day	**3.84** (3.40-4.43)	**5.27** (4.66-6.09)	**7.21** (6.35-8.34)	**8.82** (7.72-10.3)	**11.1** (9.39-13.4)	**12.9** (10.7-15.8)	**14.8** (11.9-18.6)	**16.7** (13.2-21.7)	**19.5** (14.7-26.3)	**21.7** (15.9-30.3)
20-day	**4.61** (4.08-5.31)	**6.39** (5.65-7.37)	**8.80** (7.76-10.2)	**10.8** (9.47-12.6)	**13.7** (11.6-16.5)	**15.9** (13.2-19.6)	**18.3** (14.8-23.0)	**20.8** (16.4-26.9)	**24.3** (18.4-32.7)	**27.1** (19.8-37.8)
30-day	**5.47** (4.84-6.31)	**7.60** (6.72-8.78)	**10.5** (9.27-12.2)	**13.0** (11.3-15.1)	**16.5** (13.9-19.8)	**19.3** (16.0-23.7)	**22.2** (18.0-28.0)	**25.3** (19.9-32.8)	**29.7** (22.5-40.1)	**33.3** (24.3-46.4)
45-day	**6.51** (5.76-7.50)	**8.99** (7.95-10.4)	**12.4** (11.0-14.4)	**15.4** (13.5-18.0)	**19.6** (16.6-23.7)	**23.1** (19.1-28.4)	**26.7** (21.6-33.7)	**30.7** (24.2-39.7)	**36.3** (27.4-48.9)	**40.9** (29.9-57.0)
60-day	**7.52** (6.66-8.67)	**10.3** (9.10-11.9)	**14.2** (12.5-16.4)	**17.6** (15.4-20.5)	**22.5** (19.0-27.1)	**26.5** (22.0-32.6)	**30.9** (25.0-38.9)	**35.6** (28.0-46.1)	**42.4** (32.1-57.2)	**48.1** (35.1-67.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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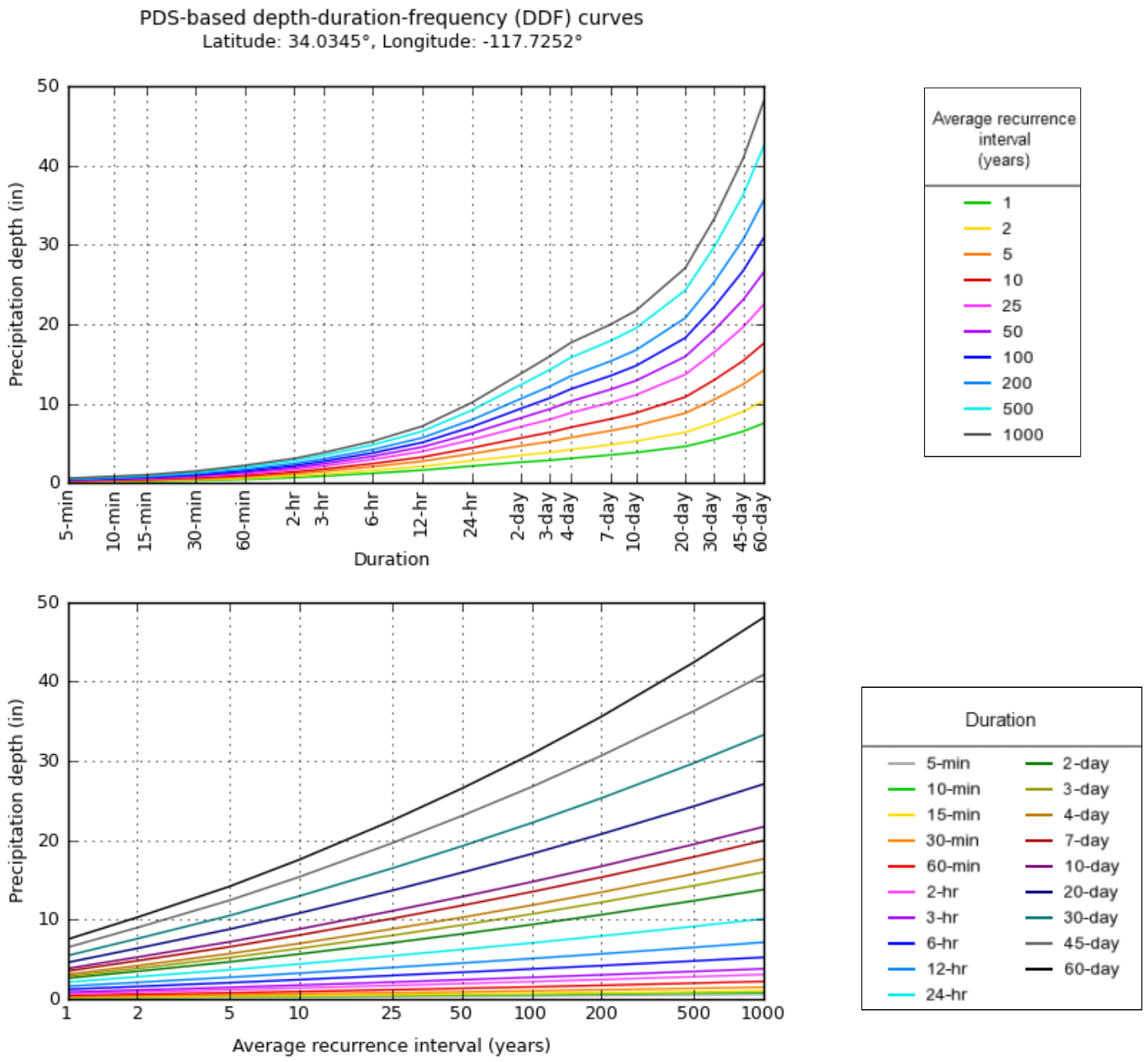
PF graphical



NOAA Atlas 14, Volume 6, Version 2

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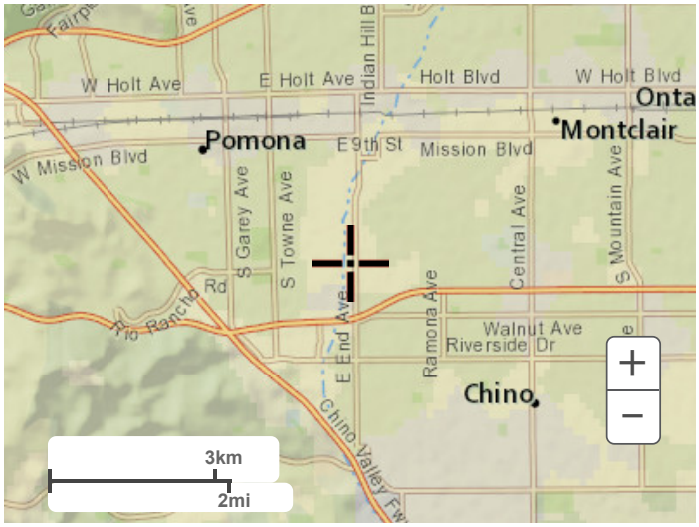
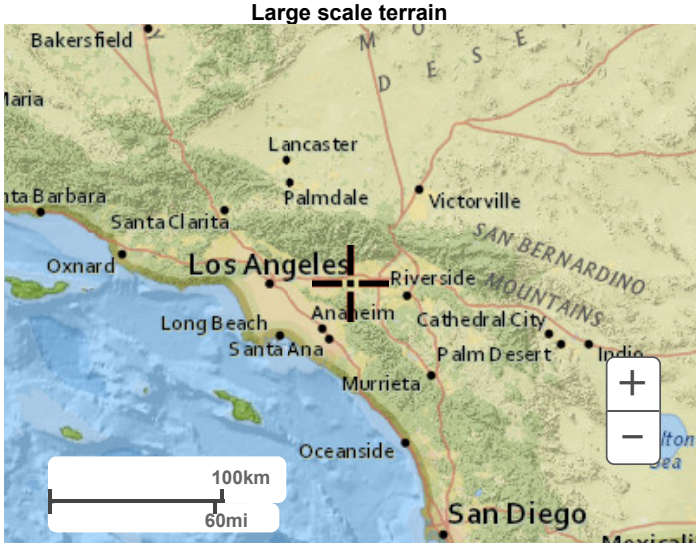
Maps & aerials

Small scale terrain

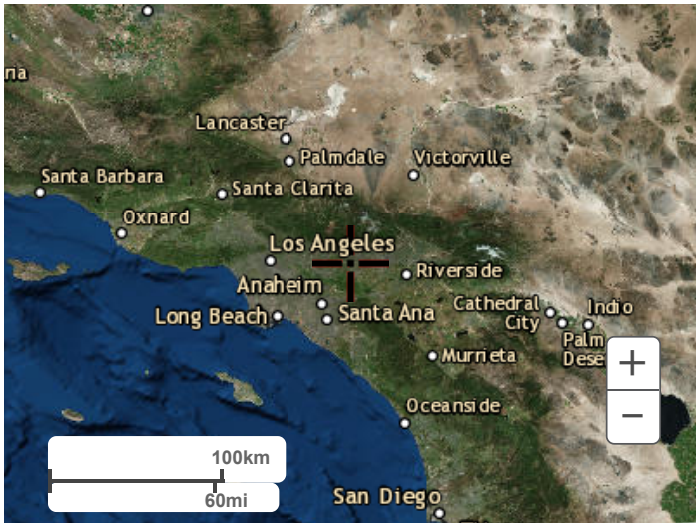


Large scale terrain



Large scale map

Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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