Preliminary Hydrology Report

Tentative Tract No. 20280

City of Victorville, CA

Prepared For:

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TABLE OF CONTENTS

Page

1. Project Introduction 1

2. Location & Description 1

3. Existing Hydrologic Condition 1

4. Post-Development Hydrologic Condition 2

5. Methodology 2

6. Hydrology Summary 3

7. Conclusion 4

Appendices

Appendix-1: Vicinity Map

Appendix-2: Hydrology Maps

Pre - Development Hydrology Map

Post – Development Hydrology Map

Appendix-3: Rational Method Hydrology Calculation (Pre-Development Condition)

On-Site Area: 1-Hour, 2-Hour, 100 & 10 – Year Storm

Off-Site Area: 1-Hour, 2-Hour, 100 & 10 – Year Storm

Appendix-4: Rational Method Hydrology Calculation (Post-Development Condition)

On-Site Area: 1-Hour, 2-Hour, 100, 10 & 2 Year Storm

Off-Site – Cahuenga Road: 1-Hour, 2-Hour, 100, 10 & 2 Year Storm

Appendix-5: Unit Hydrograph Method Calculation (Post-Development Condition)

On-Site Area: 100, 10 & 2 – Year Storm

Appendix-6: Basin Size & Basin Routing Analysis

Appendix-7: Reference-1

Project Site Precipitations – NOAA Atlas 14

Appendix-8: Reference-2

– Hydrologic Soil Group Map

– Soil Report

Section-9: Reference-3

– Storm Drain Improvement Plans (Tract No. 15083-3)

– City Watershed Map

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INTRODUCTION

1. PURPOSE & SCOPE

The purpose of this Hydrology Report is to demonstrate that the proposed project site can be designed to provide adequate flood protection without adversely impacting off-site street and other adjacent properties.

The scope of this report includes the analysis of Pre-development hydrological condition runoff & Post-development hydrological conditions runoff of the site and off-site, provides the criteria for the design of the on-site storm drain systems for flood protection of the facility structures. It also demonstrates the proposed LID (Low Impact Development) techniques, BMP's and WQMP practices of the project.

2. PROJECT LOCATION & DESCRIPTION

The subject site is located at southeast corner of Hopland Street & Cahuenga Road, in the City of Victorville, California. The development site is approximately 20.6 acres in size.

The project site is proposed to develop as a 74 unit single-family residential housing tract. The development will include both one-and two-story single family houses, construction of streets, driveways, landscape areas, utilities and other appurtenant facilities usually associated with such development.

3. EXISTING SITE CONDITION

The current site is vacant, relatively flat and covered with scattered debris, vegetation consisting of native desert scrub brush, sparse grasses, and scattered Yucca trees. The topography of the site consists of a ridge trending northeast – southwest on the southeast portion of the site with drainage to the northwest. On the northeast of the site, an already build single family houses area was the Tract No. 15086, Phase 1& 2. This development was used to be the Tract No. 15086, Phase 3.

The existing ground surface elevation within the project rang approximately from 2915 to 2872 feet above the Mean Sea Level. The groundwater depth is approximately 51

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feet below the current surface. The site Hydrologic Soil Group is C & B per USDA web soil survey map.

4. PROPOSED DEVELOPMENT

As was stated in previously, the proposed development will be a single family residential tract, will associated with streets, driveways and landscaped areas. The proposed on-site grading will consist of existing drainage pattern. The roof runoff of each lot will directed to the landscaped area, via area drains or swales then leave the lot to the proposed streets. The site runoff will be directed to the curb gutter and collected into the proposed catch basins through insert filters then via storm drain pipe routed to the proposed infiltration basin. The basin is located at the northwest of the development site. It is the existing site runoff outlet location.

In order to meet the City of Victorville storm water quality requirements, the proposed infiltration basin system is intend to design for mitigated low flow, and treatment for the required LID volumes. All on-site catch basins will has insert filter. The insert filter proposed into the catch basin design is for the stormwater first treatment purpose.

The drainage concept and the proposed storm drain system location shown on Post-development Condition Hydrology Exhibit in Section 7.

5. METHODOLOGY

The hydrologic data and methodology in this study is based on the San Bernardino County Hydrology Manual. The storm event precipitation based on the current NOAA Atlas 14 data. The impervious number for each drainage area is based on the residential 5-7 dwell/acre density as the hydrology manual described. The site Hydrologic Soil Group is based on USDA web soil survey map. About 90% of the site area is in soil group C, only 10% of the site area is in soil group B which located at the basin area.

Civil Design Version 8.1, a Hydrology Computer Program was used to calculate the 100, 10 & 2 year storm runoff. Therefore, 2 year storm runoff is for stromwater quality purposes. The study computes are including rational method, unit hydrograph method and basin routing analysis. Flow Master was used to size & analyze the proposed outlet storm drain pipe.

6. HYDROLOGY SUMMARY

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Hydrology & LID rainfall used in the study:

Storm Event & Duration	*1-hour*	*2-hour*	*6-hours*	*24-hours*
100-Year,Rainfall (inches)	*1.11*	*1.41*	*2.10*	*3.47*
10-Year, Rainfall (inches)	*0.63*	*0.83*	*1.28*	*2.16*
2-Year, Rainfall (inches)	*0.37*	*0.50*	*0.79*	*1.32*

On-site hydrology calculation summary tables see below:

On-Site Hydrology Summary Table:

Condition:	*Total Tributary Area (acre)*	*Impervious Rate*	*Tc (min.)*	*Q_{100} (cfs)*	*Q_{10} (cfs)*
Pre-Development	*20.17*	*0.00*	*15.6*	*50.51*	*23.35*
Post-Development	*19.71*	*0.50*	*12.35*	*45.32*	*22.14*
Mitigated	*19.71*	*0.50*	*12.35*	*21.88**	*9.16**

* Basin Routing Outlet Flow

Post-Development LID/SUSMP Summary Table:

Condition:	*Tributary Area (acre)*	*Impervious Rate*	*Tc (min.)*	*Q2 (cfs)*	*Required Stromwater Treatment Design Capture Volume DCV (ft^3)*
Post-Development	*19.71*	*0.50*	*13.57*	*8.94*	*22,780***

*** Per WQMP Report, it will be the separate report on this project.*

The WQMP study shows that the total stormwater treatment volume DCV=22,780 ft^3. The basin under 2.5' deep will provide 25,520 ft^3 storage volume for LID purpose. The basin infiltration rate will show in percolation test report in Section 5. In the basin, a standing CMP storm drain outlet pipe will outlet runoff of the site, it will start outlet flow at 3' above the bottom of basin. An existing storm drain outlet pipe from the east side

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off-site area, Tract No. 15086-1 & 2 will not conflicts with the basin. It will be directly connected to the public storm drain system on Cahuenga Road. The Cahuenga Road currently is undeveloped, has no storm drain system in the street. The development of Cahuenga Road will be a part of this project. A city approved storm drain plan for Tract No. 15083-3 is in Section 6 of this report. It should be the storm drain master plan for the Cahuenga Road.

6. CONCLUSION

In conclusion, this report demonstrates that the proposed development is designed to under the City of Victorville drainage requirements. It is no increase runoff and no flood risk to neighboring properties and public storm drain system. Therefore, the proposed infiltration basin system will be employed to accommodate the Water Quality Management Plan (WQMP) requirements. The proposed storm drain & infiltration basin system designed to convey the flow rates indicated herein and will comply with the flood protection and storm water quality requirements of the City of Victorville in final engineering stage.

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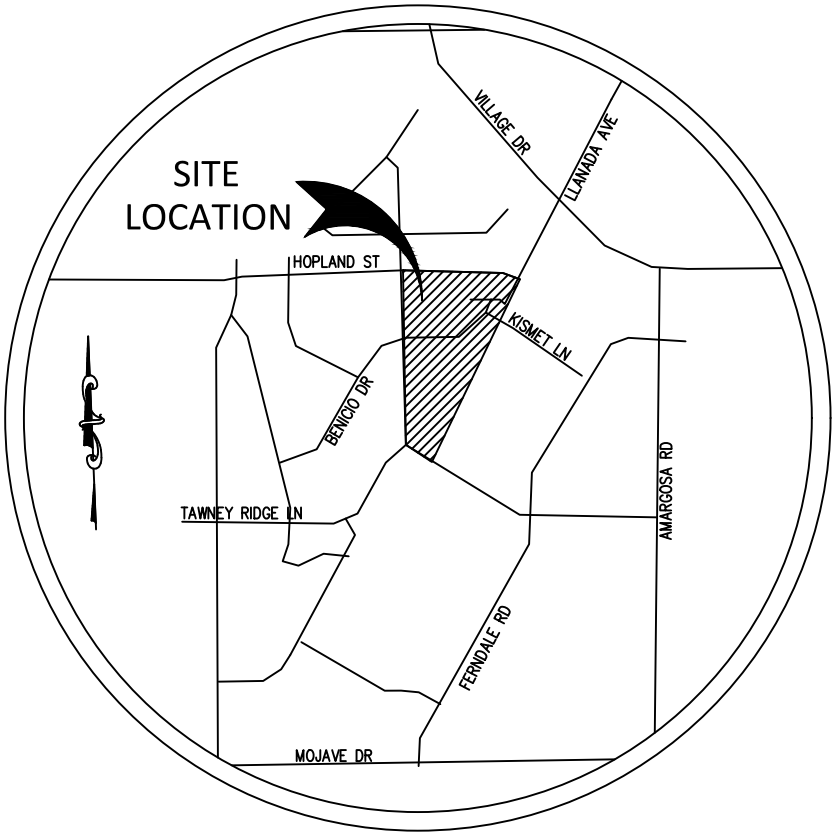
Appendix-1:

Vicinity Map



VICINITY MAP

NOT TO SCALE

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Appendix-2:

Hydrology Maps

Pre-Development Hydrology map

Post-Development Hydrology Map

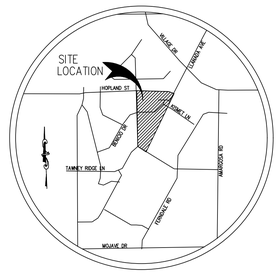
PRE-DEVELOPMENT CONDITION

HYDROLOGY EXHIBIT

FOR

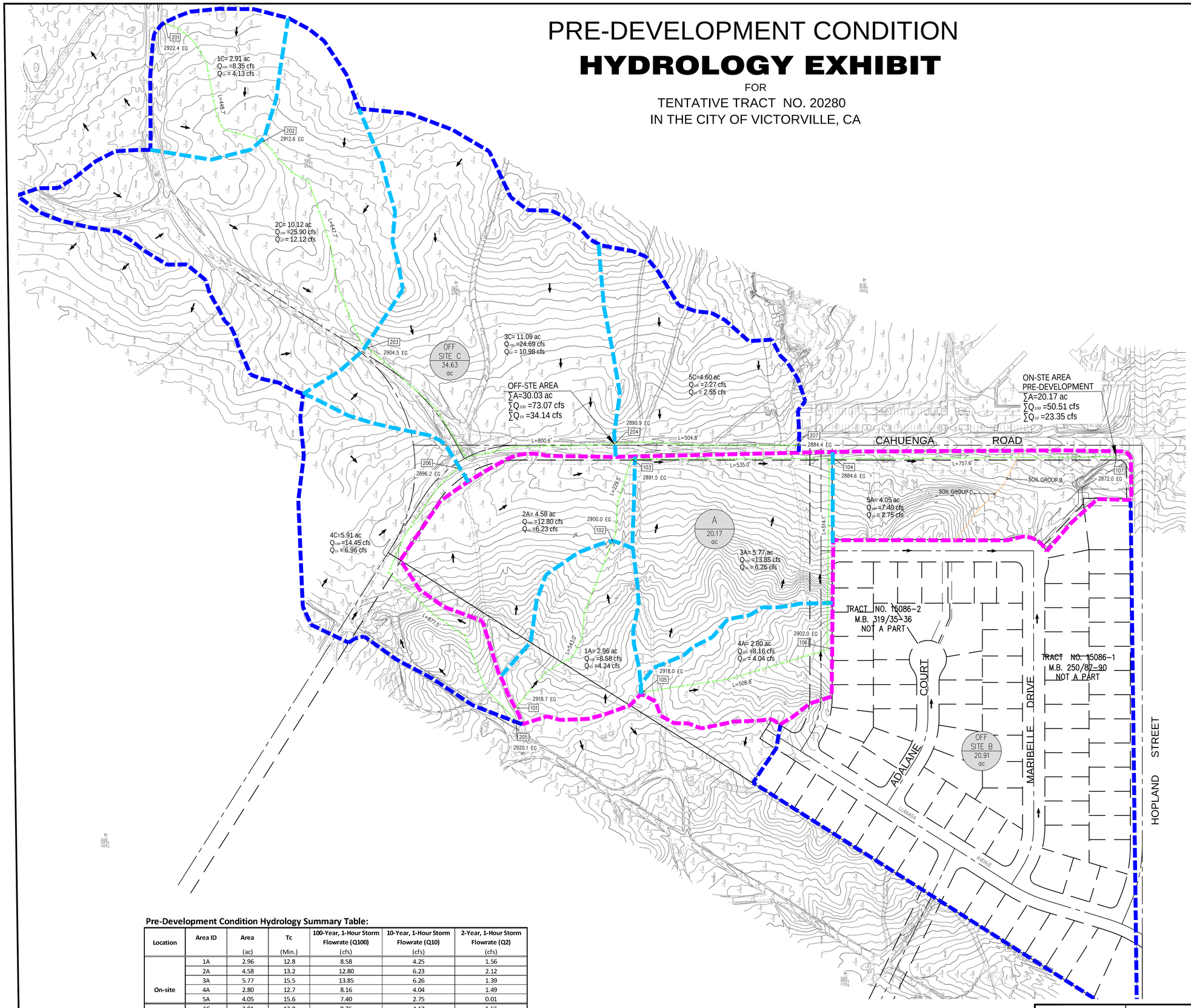
TENTATIVE TRACT NO. 20280

IN THE CITY OF VICTORVILLE, CA



VICINITY MAP

NOT TO SCALE



LEGEND:

- ON-SITE TRIBUTARY DRAINAGE AREA BOUNDARY
- OFF-SITE TRIBUTARY DRAINAGE AREA BOUNDARY
- SUB-DRAINAGE AREA BOUNDARY
- STORM DRAIN FLOW PATH
- SOIL BOUNDRAY
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- PROPOSED FLOW DIRECTION ARROW
- CATCH BASIN WITH FILTER INSERT
- X.X — NODE NUMBER
- 1A=4.2 ac, Q100 = 6.5 cfs, Q10 = 3.2 cfs — SUB- DRAINAGE AREA, 100-YEAR STORM PEAK FLOW RATE, 10-YEAR STORM PEAK FLOW RATE
- A / 21.17 — SUB-DRAINAGE AREA ID, AREA ACREAGE

HYDROLOGY INFORMATION

SITE AREA:	20.6 ACRE	
SOIL GROUP:	B & C	(PER NATIONAL SOIL SURVEY))
IMPERVIOUS:	0 %	(NATURAL LAND)
IMPERVIOUS:	50 %	(5-7 DWELLINS/ACRE)
ISOHYETALS:	1.11"	(100-YEAR 1 HOUR)
	0.63"	(10-YEAR 1 HOUR)
	0.37 "	(2-YEAR 1 HOUR)
AMC NUMBER:	1	(For 2-YEAR STORM)
	2	(For 10-YEAR STORM)
	3	(For 100-YEAR STORM)

FREQUENCY: 100 YEAR, 10 YEAR & 2 YEAR

METHOD: SAN BERNARDINO COUNTY HYDROLOGY MANUAL

Pre-Development Condition Hydrology Summary Table:

Location	Area ID	Area (ac)	Tc (Min.)	100-Year, 1-Hour Storm Flowrate (Q100) (cfs)	10-Year, 1-Hour Storm Flowrate (Q10) (cfs)	2-Year, 1-Hour Storm Flowrate (Q2) (cfs)
On-site	1A	2.96	12.8	8.58	4.25	1.56
	2A	4.58	13.2	12.80	6.23	2.12
	3A	5.77	15.5	13.85	6.26	1.39
	4A	2.80	12.7	8.16	4.04	1.49
	5A	4.05	15.6	7.40	2.75	0.01
Off-Site	1C	2.91	13.0	8.35	4.13	1.56
	2C	10.12	14.7	25.90	12.12	2.12
	3C	11.09	16.3	24.09	10.98	1.39
	4C	5.91	16.2	14.45	6.96	1.49
	5C	4.60	17.2	7.27	2.55	0.01

SCALE : 1"=100'

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PREPARED UNDER THE SUPERVISION OF:

BRET JENSEN THORPE R.C.E. NO. 82754 DATE

IN THE CITY OF VICTORVILLE, CA

TENTATIVE TRACT NO. 20280

PRE-DEVELOPMENT CONDITION HYDROLOGY EXHIBIT

DRAWN BY: H.Z.
DESIGNED BY: H.Z.
CHECKED BY: B.T.
SCALE: 1"=100'
DATE: 6/17/2019
SHT NO.: 1 OF 2

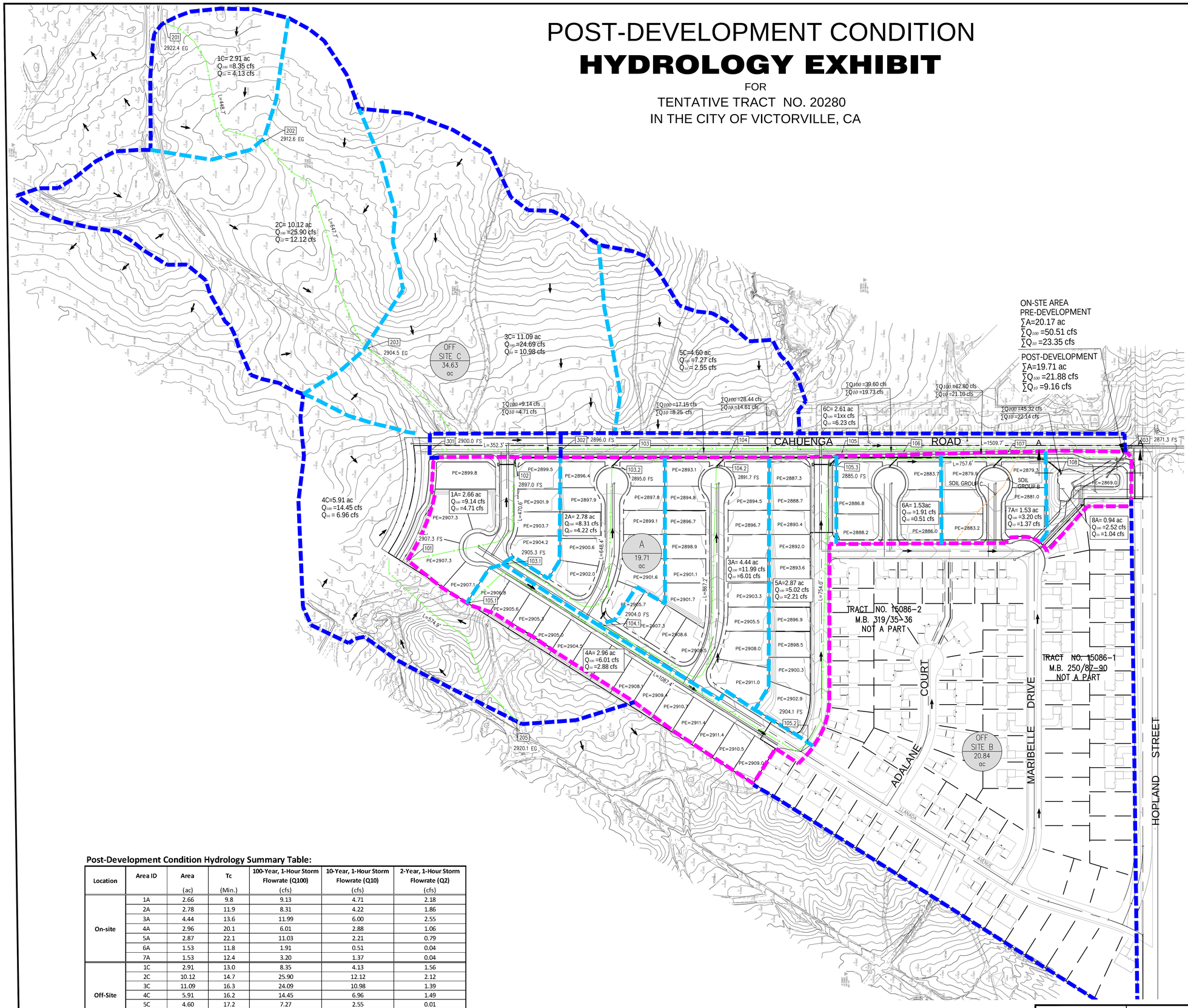
POST-DEVELOPMENT CONDITION

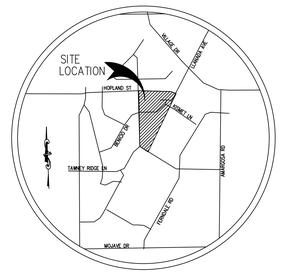
HYDROLOGY EXHIBIT

FOR

TENTATIVE TRACT NO. 20280

IN THE CITY OF VICTORVILLE, CA





VICINITY MAP

NOT TO SCALE

LEGEND:

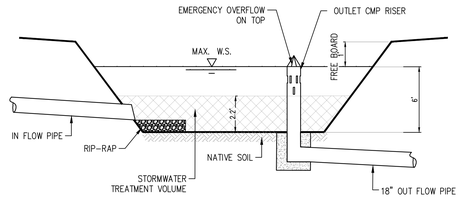
- ON-SITE TRIBUTARY DRAINAGE AREA BOUNDARY
- OFF-SITE TRIBUTARY DRAINAGE AREA BOUNDARY
- SUB-DRAINAGE AREA BOUNDARY
- STORM DRAIN FLOW PATH
- SOIL BOUNDRAY
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- PROPOSED FLOW DIRECTION ARROW
- CATCH BASIN WITH FILTER INSERT
- X.X NODE NUMBER
- 1A=4.2 ac, Q_{100} = 6.5 cfs, Q_{10} = 3.2 cfs — SUB- DRAINAGE AREA, 100-YEAR STORM PEAK FLOW RATE, 10-YEAR STORM PEAK FLOW RATE
- A / 20.17 — SUB-DRAINAGE AREA ID, AREA ACREAGE

HYDROLOGY INFORMATION

SITE AREA:	20.6 ACRE	
SOIL GROUP:	B & C	(PER NATIONAL SOIL SURVEY))
IMPERVIOUS:	0 %	(NATURAL LAND)
IMPERVIOUS:	50 %	(5-7 DWELLINS/ACRE)
ISOHYETALS:	1.11"	(100-YEAR 1 HOUR)
	0.63"	(10-YEAR 1 HOUR)
	0.37 "	(2-YEAR 1 HOUR)
AMC NUMBER:	1	(For 2-YEAR STORM)
	2	(For 10-YEAR STORM)
	3	(For 100-YEAR STORM)
FREQUENCY:	100 YEAR, 10 YEAR & 2 YEAR	
METHOD:	SAN BERNARDINO COUNTY HYDROLOGY MANUAL	

Post-Development Condition Hydrology Summary Table:

Location	Area ID	Area (ac)	Tc (Min.)	100-Year, 1-Hour Storm Flowrate (Q100) (cfs)	10-Year, 1-Hour Storm Flowrate (Q10) (cfs)	2-Year, 1-Hour Storm Flowrate (Q2) (cfs)
On-site	1A	2.66	9.8	9.13	4.71	2.18
	2A	2.78	11.9	8.31	4.22	1.86
	3A	4.44	13.6	11.99	6.00	2.55
	4A	2.96	20.1	6.01	2.88	1.06
	5A	2.87	22.1	11.03	2.21	0.79
	6A	1.53	11.8	1.91	0.51	0.04
	7A	1.53	12.4	3.20	1.37	0.04
Off-Site	1C	2.91	13.0	8.35	4.13	1.56
	2C	10.12	14.7	25.90	12.12	2.12
	3C	11.09	16.3	24.09	10.98	1.39
	4C	5.91	16.2	14.45	6.96	1.49
	5C	4.60	17.2	7.27	2.55	0.01
	6C	2.61	17.2	6.02	3.27	0.01



A-A

INFILTRATION/DETENTION BASIN DETAIL

N.T.S

SCALE : 1"=100'

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PREPARED UNDER THE SUPERVISION OF:

BRET JENSEN THORPE R.C.E. NO. 82754 DATE

IN THE CITY OF VICTORVILLE, CA

TENTATIVE TRACT NO. 20280

POST-DEVELOPMENT CONDITION HYDROLOGY EXHIBIT

DRAWN BY: H.Z.
DESIGNED BY: H.Z.
CHECKED BY: B.T.
SCALE: 1"=100'
DATE: 6/17/2019
SHT NO.: 2 OF 2

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Appendix-3:

Rational Method Hydrology Calculation

(Pre-Development Condition)

On-Site Area: 1-Hour, 2-Hour, 100 & 10 – Year Storm

Off-Site Area:1-Hour, 2-Hour, 100 & 10 – Year Storm

On-Site Area

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study Date: 06/06/19

TRACT NO. 20280
EXISTING CONDITION, ON-SITE AREA
100-YEAR STORM , 1-Hour

Program License Serial Number 6385

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.110 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.055(In/Hr)
Initial subarea data:
Initial area flow distance = 543.000(Ft.)
Top (of initial area) elevation = 2918.700(Ft.)
Bottom (of initial area) elevation = 2900.000(Ft.)
Difference in elevation = 18.700(Ft.)
Slope = 0.03444 s(%)= 3.44
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.784 min.
Rainfall intensity = 3.276(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.885
Subarea runoff = 8.580(CFS)
Total initial stream area = 2.960(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.055(In/Hr)

++
Process from Point/Station 102.000 to Point/Station 103.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 0.000(CFS)
Depth of flow = 1.513(Ft.), Average velocity = 9.059(Ft/s)

```
!!Warning: Water is above left or right bank elevations
        ******* Irregular Channel Data ***********
----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.00
        2              0.00              0.50
        3              2.00              1.00
        4              3.00              2.00
        5              6.00              2.00
Manning's 'N' friction factor =   0.020
----------------------------------------------------------------
Sub-Channel flow  =     15.014(CFS)
  '     '        flow top width =      2.513(Ft.)
  '     '    velocity=    9.059(Ft/s)
  '     '        area =      1.657(Sq.Ft)
  '     '        Froude number =     1.966

Upstream point elevation =  2900.000(Ft.)
Downstream point elevation =  2891.500(Ft.)
Flow length =   229.500(Ft.)
Travel time  =    0.42 min.
Time of concentration =   13.21 min.
Depth of flow =   1.513(Ft.)
Average velocity =   9.059(Ft/s)
Total irregular channel flow =    15.014(CFS)
Irregular channel normal depth above invert elev. =   1.513(Ft.)
Average velocity of channel(s) =   9.059(Ft/s)
!!Warning: Water is above left or right bank elevations
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.055(In/Hr)
Rainfall intensity =      3.202(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.884
Subarea runoff =     12.804(CFS) for    4.590(Ac.)
Total runoff =     21.384(CFS)
Effective area this stream =        7.55(Ac.)
Total Study Area (Main Stream No. 1) =        7.55(Ac.)
Area averaged Fm value =    0.055(In/Hr)
Depth of flow =   1.687(Ft.), Average velocity =  10.139(Ft/s)
!!Warning: Water is above left or right bank elevations


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.867(Ft.), Average velocity =   6.719(Ft/s)
        ******* Irregular Channel Data ***********
----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              3.00              1.00
```

```
        3              5.00              0.00
        4              9.00              0.00
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =     28.352(CFS)
  '     '        flow top width =      5.734(Ft.)
  '     '    velocity=    6.719(Ft/s)
  '     '        area =      4.220(Sq.Ft)
  '     '        Froude number =     1.380

Upstream point elevation =  2891.500(Ft.)
Downstream point elevation =  2884.600(Ft.)
Flow length =   535.000(Ft.)
Travel time  =    1.33 min.
Time of concentration =   14.53 min.
Depth of flow =   0.867(Ft.)
Average velocity =   6.719(Ft/s)
Total irregular channel flow =    28.352(CFS)
Irregular channel normal depth above invert elev. =   0.867(Ft.)
Average velocity of channel(s) =   6.719(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.055(In/Hr)
Rainfall intensity =      2.995(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.883
Subarea runoff =     13.854(CFS) for    5.770(Ac.)
Total runoff =     35.238(CFS)
Effective area this stream =       13.32(Ac.)
Total Study Area (Main Stream No. 1) =       13.32(Ac.)
Area averaged Fm value =    0.055(In/Hr)
Depth of flow =   0.982(Ft.), Average velocity =   7.207(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     13.320(Ac.)
Runoff from this stream =     35.238(CFS)
Time of concentration =   14.53 min.
Rainfall intensity =     2.995(In/Hr)
Area averaged loss rate (Fm) =    0.0554(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      106.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
```

```
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.055(In/Hr)
Initial subarea data:
Initial area flow distance =   508.800(Ft.)
Top (of initial area) elevation =  2918.000(Ft.)
Bottom (of initial area) elevation =  2902.000(Ft.)
Difference in elevation =    16.000(Ft.)
Slope =    0.03145  s(%)=       3.14
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   12.684 min.
Rainfall intensity =      3.294(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.885
Subarea runoff =      8.162(CFS)
Total initial stream area =        2.800(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.055(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Depth of flow =   0.853(Ft.), Average velocity =   7.478(Ft/s)
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              3.00              1.00
        3              6.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      8.162(CFS)
  '     '        flow top width =      2.559(Ft.)
  '     '    velocity=    7.478(Ft/s)
  '     '        area =      1.091(Sq.Ft)
  '     '        Froude number =     2.018

Upstream point elevation =  2902.000(Ft.)
Downstream point elevation =  2884.600(Ft.)
Flow length =   514.100(Ft.)
Travel time  =    1.15 min.
Time of concentration =   13.83 min.
Depth of flow =   0.853(Ft.)
Average velocity =   7.478(Ft/s)
Total irregular channel flow =     8.162(CFS)
Irregular channel normal depth above invert elev. =   0.853(Ft.)
Average velocity of channel(s) =   7.478(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.800(Ac.)
Runoff from this stream =      8.162(CFS)
Time of concentration =   13.83 min.
Rainfall intensity =     3.101(In/Hr)
Area averaged loss rate (Fm) =    0.0554(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
```

```
Summary of stream data:

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


1     35.24    13.320     14.53    0.055      2.995
2      8.16     2.800     13.83    0.055      3.101
Qmax(1) =
           1.000 *    1.000 *    35.238) +
           0.965 *    1.000 *     8.162) + =      43.116
Qmax(2) =
           1.036 *    0.952 *    35.238) +
           1.000 *    1.000 *     8.162) + =      42.901

Total of 2 streams to confluence:
Flow rates before confluence point:
      35.238       8.162
Maximum flow rates at confluence using above data:
       43.116       42.901
Area of streams before confluence:
       13.320        2.800
Effective area values after confluence:
       16.120       15.475
Results of confluence:
Total flow rate =     43.116(CFS)
Time of concentration =    14.533 min.
Effective stream area after confluence =     16.120(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.055(In/Hr)
Study area total (this main stream) =      16.12(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      107.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.869(Ft.), Average velocity =  11.406(Ft/s)
!!Warning: Water is above left or right bank elevations
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              1.00
        2              3.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     46.842(CFS)
  '     '        flow top width =      3.000(Ft.)
  '     '    velocity=   11.406(Ft/s)
  '     '        area =      4.107(Sq.Ft)
  '     '        Froude number =     1.718

Upstream point elevation =  2884.600(Ft.)
Downstream point elevation =  2872.000(Ft.)
Flow length =   757.600(Ft.)
Travel time  =    1.11 min.
Time of concentration =   15.64 min.
Depth of flow =   1.869(Ft.)
Average velocity =  11.406(Ft/s)
Total irregular channel flow =    46.842(CFS)
```

```
Irregular channel normal depth above invert elev. =   1.869(Ft.)
Average velocity of channel(s) =  11.406(Ft/s)
!!Warning: Water is above left or right bank elevations
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.450
Decimal fraction soil group C = 0.550
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 82.40
Adjusted SCS curve number for AMC 3 = 95.44
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.090(In/Hr)
Rainfall intensity =      2.845(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.880
Subarea runoff =      7.396(CFS) for    4.050(Ac.)
Total runoff =     50.512(CFS)
Effective area this stream =       20.17(Ac.)
Total Study Area (Main Stream No. 1) =       20.17(Ac.)
Area averaged Fm value =    0.062(In/Hr)
Depth of flow =   1.932(Ft.), Average velocity =  11.755(Ft/s)
!!Warning: Water is above left or right bank elevations
End of computations, Total Study Area =           20.17 (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) = 1.000
Area averaged SCS curve number =  85.3
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study Date: 06/06/19

TRACT NO. 20280
EXISTING CONDITION, ON-SITE AREA
10-YEAR STORM , 1-Hour

Program License Serial Number 6385

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.630 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.265(In/Hr)
Initial subarea data:
Initial area flow distance = 543.000(Ft.)
Top (of initial area) elevation = 2918.700(Ft.)
Bottom (of initial area) elevation = 2900.000(Ft.)
Difference in elevation = 18.700(Ft.)
Slope = 0.03444 s(%)= 3.44
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.784 min.
Rainfall intensity = 1.859(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.772
Subarea runoff = 4.247(CFS)
Total initial stream area = 2.960(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.265(In/Hr)

++
Process from Point/Station 102.000 to Point/Station 103.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 0.000(CFS)
Depth of flow = 1.251(Ft.), Average velocity = 7.163(Ft/s)
!!Warning: Water is above left or right bank elevations

```
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.00
        2              0.00              0.50
        3              2.00              1.00
        4              3.00              2.00
        5              6.00              2.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      7.407(CFS)
  '     '        flow top width =      2.251(Ft.)
  '     '    velocity=    7.163(Ft/s)
  '     '        area =      1.034(Sq.Ft)
  '     '        Froude number =     1.862

Upstream point elevation =  2900.000(Ft.)
Downstream point elevation =  2891.500(Ft.)
Flow length =   229.500(Ft.)
Travel time  =    0.53 min.
Time of concentration =   13.32 min.
Depth of flow =   1.251(Ft.)
Average velocity =   7.163(Ft/s)
Total irregular channel flow =     7.407(CFS)
Irregular channel normal depth above invert elev. =   1.251(Ft.)
Average velocity of channel(s) =   7.163(Ft/s)
!!Warning: Water is above left or right bank elevations
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Rainfall intensity =      1.807(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.768
Subarea runoff =      6.229(CFS) for    4.590(Ac.)
Total runoff =     10.477(CFS)
Effective area this stream =        7.55(Ac.)
Total Study Area (Main Stream No. 1) =        7.55(Ac.)
Area averaged Fm value =    0.265(In/Hr)
Depth of flow =   1.367(Ft.), Average velocity =   8.050(Ft/s)
!!Warning: Water is above left or right bank elevations


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.568(Ft.), Average velocity =   5.259(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              3.00              1.00
        3              5.00              0.00
        4              9.00              0.00
```

```
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =     13.638(CFS)
  '     '        flow top width =      5.135(Ft.)
  '     '    velocity=    5.259(Ft/s)
  '     '        area =      2.593(Sq.Ft)
  '     '        Froude number =     1.304

Upstream point elevation =  2891.500(Ft.)
Downstream point elevation =  2884.600(Ft.)
Flow length =   535.000(Ft.)
Travel time  =    1.70 min.
Time of concentration =   15.01 min.
Depth of flow =   0.568(Ft.)
Average velocity =   5.259(Ft/s)
Total irregular channel flow =    13.638(CFS)
Irregular channel normal depth above invert elev. =   0.568(Ft.)
Average velocity of channel(s) =   5.259(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Rainfall intensity =      1.662(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.756
Subarea runoff =      6.264(CFS) for    5.770(Ac.)
Total runoff =     16.740(CFS)
Effective area this stream =       13.32(Ac.)
Total Study Area (Main Stream No. 1) =       13.32(Ac.)
Area averaged Fm value =    0.265(In/Hr)
Depth of flow =   0.640(Ft.), Average velocity =   5.640(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     13.320(Ac.)
Runoff from this stream =     16.740(CFS)
Time of concentration =   15.01 min.
Rainfall intensity =     1.662(In/Hr)
Area averaged loss rate (Fm) =    0.2651(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      106.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Initial subarea data:
```

```
Initial area flow distance =   508.800(Ft.)
Top (of initial area) elevation =  2918.000(Ft.)
Bottom (of initial area) elevation =  2902.000(Ft.)
Difference in elevation =    16.000(Ft.)
Slope =    0.03145  s(%)=       3.14
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   12.684 min.
Rainfall intensity =      1.870(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.772
Subarea runoff =      4.043(CFS)
Total initial stream area =        2.800(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.265(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
______________________________________________________________________________
Depth of flow =   0.656(Ft.), Average velocity =   6.274(Ft/s)
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              3.00              1.00
        3              6.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      4.043(CFS)
  '     '        flow top width =      1.967(Ft.)
  '     '    velocity=    6.274(Ft/s)
  '     '        area =      0.645(Sq.Ft)
  '     '        Froude number =     1.931

Upstream point elevation =  2902.000(Ft.)
Downstream point elevation =  2884.600(Ft.)
Flow length =   514.100(Ft.)
Travel time  =    1.37 min.
Time of concentration =   14.05 min.
Depth of flow =   0.656(Ft.)
Average velocity =   6.274(Ft/s)
Total irregular channel flow =     4.043(CFS)
Irregular channel normal depth above invert elev. =   0.656(Ft.)
Average velocity of channel(s) =   6.274(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.800(Ac.)
Runoff from this stream =      4.043(CFS)
Time of concentration =   14.05 min.
Rainfall intensity =     1.740(In/Hr)
Area averaged loss rate (Fm) =    0.2651(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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

```
1     16.74    13.320     15.01    0.265      1.662
2      4.04     2.800     14.05    0.265      1.740
Qmax(1) =
           1.000 *    1.000 *    16.740) +
           0.946 *    1.000 *     4.043) + =      20.568
Qmax(2) =
           1.057 *    0.936 *    16.740) +
           1.000 *    1.000 *     4.043) + =      20.595

Total of 2 streams to confluence:
Flow rates before confluence point:
      16.740       4.043
Maximum flow rates at confluence using above data:
       20.568       20.595
Area of streams before confluence:
       13.320        2.800
Effective area values after confluence:
       16.120       15.265
Results of confluence:
Total flow rate =     20.595(CFS)
Time of concentration =    14.050 min.
Effective stream area after confluence =     15.265(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.265(In/Hr)
Study area total (this main stream) =      16.12(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      107.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.370(Ft.), Average velocity =   8.433(Ft/s)
!!Warning: Water is above left or right bank elevations
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              1.00
        2              3.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     22.016(CFS)
  '     '        flow top width =      3.000(Ft.)
  '     '    velocity=    8.433(Ft/s)
  '     '        area =      2.611(Sq.Ft)
  '     '        Froude number =     1.593

Upstream point elevation =  2884.600(Ft.)
Downstream point elevation =  2872.000(Ft.)
Flow length =   757.600(Ft.)
Travel time  =    1.50 min.
Time of concentration =   15.55 min.
Depth of flow =   1.370(Ft.)
Average velocity =   8.433(Ft/s)
Total irregular channel flow =    22.016(CFS)
Irregular channel normal depth above invert elev. =   1.370(Ft.)
Average velocity of channel(s) =   8.433(Ft/s)
!!Warning: Water is above left or right bank elevations
 Adding area flow to channel
```

```
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.450
Decimal fraction soil group C = 0.550
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 82.40
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.329(In/Hr)
Rainfall intensity =      1.621(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.745
Subarea runoff =      2.751(CFS) for    4.050(Ac.)
Total runoff =     23.346(CFS)
Effective area this stream =       19.32(Ac.)
Total Study Area (Main Stream No. 1) =       20.17(Ac.)
Area averaged Fm value =    0.278(In/Hr)
Depth of flow =   1.401(Ft.), Average velocity =   8.633(Ft/s)
!!Warning: Water is above left or right bank elevations
End of computations, Total Study Area =           20.17 (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) = 1.000
Area averaged SCS curve number =  85.3
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study Date: 06/06/19

TRACT NO. 20280
EXISTING CONDITIRON - ONSITE AREA
2-YEAR STORM , 1-Hour

Program License Serial Number 6385

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.370 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.507(In/Hr)
Initial subarea data:
Initial area flow distance = 543.000(Ft.)
Top (of initial area) elevation = 2918.700(Ft.)
Bottom (of initial area) elevation = 2900.000(Ft.)
Difference in elevation = 18.700(Ft.)
Slope = 0.03444 s(%)= 3.44
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.784 min.
Rainfall intensity = 1.092(In/Hr) for a 2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.482
Subarea runoff = 1.557(CFS)
Total initial stream area = 2.960(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.507(In/Hr)

++
Process from Point/Station 102.000 to Point/Station 103.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 0.000(CFS)
Depth of flow = 1.016(Ft.), Average velocity = 4.987(Ft/s)

!!Warning: Water is above left or right bank elevations
******* Irregular Channel Data **********

Information entered for subchannel number 1 :
Point number 'X' coordinate 'Y' coordinate
1 0.00 0.00
2 0.00 0.50
3 2.00 1.00
4 3.00 2.00
5 6.00 2.00
Manning's 'N' friction factor = 0.020

Sub-Channel flow = 2.655(CFS)
' ' flow top width = 2.016(Ft.)
' ' velocity= 4.987(Ft/s)
' ' area = 0.532(Sq.Ft)
' ' Froude number = 1.710

Upstream point elevation = 2900.000(Ft.)
Downstream point elevation = 2891.500(Ft.)
Flow length = 229.500(Ft.)
Travel time = 0.77 min.
Time of concentration = 13.55 min.
Depth of flow = 1.016(Ft.)
Average velocity = 4.987(Ft/s)
Total irregular channel flow = 2.654(CFS)
Irregular channel normal depth above invert elev. = 1.016(Ft.)
Average velocity of channel(s) = 4.987(Ft/s)
!!Warning: Water is above left or right bank elevations
Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.507(In/Hr)
Rainfall intensity = 1.048(In/Hr) for a 2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.464
Subarea runoff = 2.118(CFS) for 4.590(Ac.)
Total runoff = 3.676(CFS)
Effective area this stream = 7.55(Ac.)
Total Study Area (Main Stream No. 1) = 7.55(Ac.)
Area averaged Fm value = 0.507(In/Hr)
Depth of flow = 1.076(Ft.), Average velocity = 5.607(Ft/s)
!!Warning: Water is above left or right bank elevations

++
Process from Point/Station 103.000 to Point/Station 104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 0.000(CFS)
Depth of flow = 0.291(Ft.), Average velocity = 3.515(Ft/s)
******* Irregular Channel Data **********

Information entered for subchannel number 1 :
Point number 'X' coordinate 'Y' coordinate
1 0.00 2.00
2 3.00 1.00

```
        3              5.00              0.00
        4              9.00              0.00
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =      4.396(CFS)
  '     '        flow top width =      4.583(Ft.)
  '     '    velocity=    3.515(Ft/s)
  '     '        area =      1.251(Sq.Ft)
  '     '        Froude number =     1.186

Upstream point elevation =  2891.500(Ft.)
Downstream point elevation =  2884.600(Ft.)
Flow length =   535.000(Ft.)
Travel time  =    2.54 min.
Time of concentration =   16.09 min.
Depth of flow =   0.291(Ft.)
Average velocity =   3.515(Ft/s)
Total irregular channel flow =     4.396(CFS)
Irregular channel normal depth above invert elev. =   0.291(Ft.)
Average velocity of channel(s) =   3.515(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.507(In/Hr)
Rainfall intensity =      0.930(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.409
Subarea runoff =      1.387(CFS) for    5.770(Ac.)
Total runoff =      5.062(CFS)
Effective area this stream =       13.32(Ac.)
Total Study Area (Main Stream No. 1) =       13.32(Ac.)
Area averaged Fm value =    0.507(In/Hr)
Depth of flow =   0.317(Ft.), Average velocity =   3.701(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     13.320(Ac.)
Runoff from this stream =      5.062(CFS)
Time of concentration =   16.09 min.
Rainfall intensity =     0.930(In/Hr)
Area averaged loss rate (Fm) =    0.5074(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      106.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
```

```
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.507(In/Hr)
Initial subarea data:
Initial area flow distance =   508.800(Ft.)
Top (of initial area) elevation =  2918.000(Ft.)
Bottom (of initial area) elevation =  2902.000(Ft.)
Difference in elevation =    16.000(Ft.)
Slope =    0.03145  s(%)=       3.14
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   12.684 min.
Rainfall intensity =      1.098(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.484
Subarea runoff =      1.488(CFS)
Total initial stream area =        2.800(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.507(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Depth of flow =   0.451(Ft.), Average velocity =   4.887(Ft/s)
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              3.00              1.00
        3              6.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      1.488(CFS)
  '     '        flow top width =      1.352(Ft.)
  '     '    velocity=    4.887(Ft/s)
  '     '        area =      0.305(Sq.Ft)
  '     '        Froude number =     1.814

Upstream point elevation =  2902.000(Ft.)
Downstream point elevation =  2884.600(Ft.)
Flow length =   514.100(Ft.)
Travel time  =    1.75 min.
Time of concentration =   14.44 min.
Depth of flow =   0.451(Ft.)
Average velocity =   4.887(Ft/s)
Total irregular channel flow =     1.488(CFS)
Irregular channel normal depth above invert elev. =   0.451(Ft.)
Average velocity of channel(s) =   4.887(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.800(Ac.)
Runoff from this stream =      1.488(CFS)
Time of concentration =   14.44 min.
Rainfall intensity =     1.003(In/Hr)
Area averaged loss rate (Fm) =    0.5074(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
```

```
Summary of stream data:

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


1      5.06    13.320     16.09    0.507      0.930
2      1.49     2.800     14.44    0.507      1.003
Qmax(1) =
           1.000 *    1.000 *     5.062) +
           0.852 *    1.000 *     1.488) + =       6.331
Qmax(2) =
           1.173 *    0.897 *     5.062) +
           1.000 *    1.000 *     1.488) + =       6.819

Total of 2 streams to confluence:
Flow rates before confluence point:
       5.062       1.488
Maximum flow rates at confluence using above data:
        6.331        6.819
Area of streams before confluence:
       13.320        2.800
Effective area values after confluence:
       16.120       14.754
Results of confluence:
Total flow rate =      6.819(CFS)
Time of concentration =    14.438 min.
Effective stream area after confluence =     14.754(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.507(In/Hr)
Study area total (this main stream) =      16.12(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      107.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.912(Ft.), Average velocity =   5.483(Ft/s)
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              1.00
        2              3.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      6.848(CFS)
  '     '        flow top width =      2.737(Ft.)
  '     '    velocity=    5.483(Ft/s)
  '     '        area =      1.249(Sq.Ft)
  '     '        Froude number =     1.430

Upstream point elevation =  2884.600(Ft.)
Downstream point elevation =  2872.000(Ft.)
Flow length =   757.600(Ft.)
Travel time  =    2.30 min.
Time of concentration =   16.74 min.
Depth of flow =   0.912(Ft.)
Average velocity =   5.483(Ft/s)
Total irregular channel flow =     6.848(CFS)
Irregular channel normal depth above invert elev. =   0.912(Ft.)
```

```
Average velocity of channel(s) =   5.483(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.450
Decimal fraction soil group C = 0.550
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 82.40
Adjusted SCS curve number for AMC 1 = 66.36
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.588(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =      6.421(CFS)
therefore the upstream flow rate of Q =      6.819(CFS) is being used
Rainfall intensity =      0.904(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.378
Subarea runoff =      0.000(CFS) for    4.050(Ac.)
Total runoff =      6.819(CFS)
Effective area this stream =       18.80(Ac.)
Total Study Area (Main Stream No. 1) =       20.17(Ac.)
Area averaged Fm value =    0.525(In/Hr)
Depth of flow =   0.911(Ft.), Average velocity =   5.477(Ft/s)
End of computations, Total Study Area =           20.17 (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) = 1.000
Area averaged SCS curve number =  85.3
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 01/29/20

TRACT NO. 20280
EXISTING CONDITION, ON-SITE AREA
100-YEAR STORM, 2-Hours

Program License Serial Number 4009

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 2 hour rainfall = 1.410 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.507(In/Hr)
Initial subarea data:
Initial area flow distance = 543.000(Ft.)
Top (of initial area) elevation = 2918.700(Ft.)
Bottom (of initial area) elevation = 2900.000(Ft.)
Difference in elevation = 18.700(Ft.)
Slope = 0.03444 s(%)= 3.44
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.784 min.
Rainfall intensity = 4.162(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.790
Subarea runoff = 9.735(CFS)
Total initial stream area = 2.960(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.507(In/Hr)

++

Process from Point/Station 102.000 to Point/Station 103.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.571(Ft.), Average velocity =   9.431(Ft/s)
!!Warning: Water is above left or right bank elevations
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.00
        2              0.00              0.50
        3              2.00              1.00
        4              3.00              2.00
        5              6.00              2.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     17.015(CFS)
  '     '        flow top width =      2.571(Ft.)
  '     '    velocity=    9.431(Ft/s)
  '     '        area =      1.804(Sq.Ft)
  '     '        Froude number =     1.984

Upstream point elevation =  2900.000(Ft.)
Downstream point elevation =  2891.500(Ft.)
Flow length =   229.500(Ft.)
Travel time  =    0.41 min.
Time of concentration =   13.19 min.
Depth of flow =   1.571(Ft.)
Average velocity =   9.431(Ft/s)
Total irregular channel flow =    17.015(CFS)
Irregular channel normal depth above invert elev. =   1.571(Ft.)
Average velocity of channel(s) =   9.431(Ft/s)
!!Warning: Water is above left or right bank elevations
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.507(In/Hr)
Rainfall intensity =      4.072(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.788
Subarea runoff =     14.484(CFS) for    4.590(Ac.)
Total runoff =     24.218(CFS)
Effective area this stream =        7.55(Ac.)
Total Study Area (Main Stream No. 1) =        7.55(Ac.)
Area averaged Fm value =    0.507(In/Hr)
Depth of flow =   1.756(Ft.), Average velocity =  10.540(Ft/s)
!!Warning: Water is above left or right bank elevations


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.929(Ft.), Average velocity =   6.985(Ft/s)
```

```
       ******* Irregular Channel Data ***********
---------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              3.00              1.00
        3              5.00              0.00
        4              9.00              0.00
Manning's 'N' friction factor =   0.020
---------------------------------------------------------------
Sub-Channel flow  =     31.970(CFS)
  '     '        flow top width =      5.857(Ft.)
  '     '    velocity=    6.985(Ft/s)
  '     '        area =      4.577(Sq.Ft)
  '     '        Froude number =     1.393

Upstream point elevation =  2891.500(Ft.)
Downstream point elevation =  2884.600(Ft.)
Flow length =   535.000(Ft.)
Travel time  =    1.28 min.
Time of concentration =   14.47 min.
Depth of flow =   0.929(Ft.)
Average velocity =   6.985(Ft/s)
Total irregular channel flow =    31.970(CFS)
Irregular channel normal depth above invert elev. =   0.929(Ft.)
Average velocity of channel(s) =   6.985(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.507(In/Hr)
Rainfall intensity =      3.817(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.780
Subarea runoff =     15.452(CFS) for    5.770(Ac.)
Total runoff =     39.670(CFS)
Effective area this stream =       13.32(Ac.)
Total Study Area (Main Stream No. 1) =       13.32(Ac.)
Area averaged Fm value =    0.507(In/Hr)
Depth of flow =   1.053(Ft.), Average velocity =   7.458(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     13.320(Ac.)
Runoff from this stream =     39.670(CFS)
Time of concentration =   14.47 min.
Rainfall intensity =     3.817(In/Hr)
Area averaged loss rate (Fm) =    0.5074(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
```

++
Process from Point/Station 105.000 to Point/Station 106.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.507(In/Hr)
Initial subarea data:
Initial area flow distance = 508.800(Ft.)
Top (of initial area) elevation = 2918.000(Ft.)
Bottom (of initial area) elevation = 2902.000(Ft.)
Difference in elevation = 16.000(Ft.)
Slope = 0.03145 s(%)= 3.14
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.684 min.
Rainfall intensity = 4.184(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.791
Subarea runoff = 9.266(CFS)
Total initial stream area = 2.800(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.507(In/Hr)

++
Process from Point/Station 106.000 to Point/Station 104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Depth of flow = 0.895(Ft.), Average velocity = 7.719(Ft/s)
******* Irregular Channel Data ***********

Information entered for subchannel number 1 :
Point number 'X' coordinate 'Y' coordinate
1 0.00 2.00
2 3.00 1.00
3 6.00 0.00
Manning's 'N' friction factor = 0.020

Sub-Channel flow = 9.266(CFS)
' ' flow top width = 2.684(Ft.)
' ' velocity= 7.719(Ft/s)
' ' area = 1.200(Sq.Ft)
' ' Froude number = 2.034

Upstream point elevation = 2902.000(Ft.)
Downstream point elevation = 2884.600(Ft.)
Flow length = 514.100(Ft.)
Travel time = 1.11 min.
Time of concentration = 13.79 min.
Depth of flow = 0.895(Ft.)
Average velocity = 7.719(Ft/s)
Total irregular channel flow = 9.266(CFS)
Irregular channel normal depth above invert elev. = 0.895(Ft.)
Average velocity of channel(s) = 7.719(Ft/s)

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.800(Ac.)
Runoff from this stream =      9.266(CFS)
Time of concentration =   13.79 min.
Rainfall intensity =     3.946(In/Hr)
Area averaged loss rate (Fm) =    0.5074(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1     39.67    13.320     14.47    0.507      3.817
2      9.27     2.800     13.79    0.507      3.946
Qmax(1) =
           1.000 *    1.000 *    39.670) +
           0.962 *    1.000 *     9.266) + =      48.588
Qmax(2) =
           1.039 *    0.954 *    39.670) +
           1.000 *    1.000 *     9.266) + =      48.571

Total of 2 streams to confluence:
Flow rates before confluence point:
      39.670       9.266
Maximum flow rates at confluence using above data:
       48.588       48.571
Area of streams before confluence:
       13.320        2.800
Effective area values after confluence:
       16.120       15.501
Results of confluence:
Total flow rate =     48.588(CFS)
Time of concentration =    14.466 min.
Effective stream area after confluence =     16.120(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.507(In/Hr)
Study area total (this main stream) =      16.12(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      107.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.967(Ft.), Average velocity =  11.943(Ft/s)
!!Warning: Water is above left or right bank elevations
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              1.00
        2              3.00              0.00
Manning's 'N' friction factor =   0.020
```

```
------------------------------------------------------------------
Sub-Channel flow  =     52.550(CFS)
  '     '        flow top width =      3.000(Ft.)
  '     '    velocity=   11.943(Ft/s)
  '     '        area =      4.400(Sq.Ft)
  '     '        Froude number =     1.738

Upstream point elevation =  2884.600(Ft.)
Downstream point elevation =  2872.000(Ft.)
Flow length =   757.600(Ft.)
Travel time  =    1.06 min.
Time of concentration =   15.52 min.
Depth of flow =   1.967(Ft.)
Average velocity =  11.943(Ft/s)
Total irregular channel flow =    52.550(CFS)
Irregular channel normal depth above invert elev. =   1.967(Ft.)
Average velocity of channel(s) =  11.943(Ft/s)
!!Warning: Water is above left or right bank elevations
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.450
Decimal fraction soil group C = 0.550
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 82.40
Adjusted SCS curve number for AMC 1 = 66.36
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.588(In/Hr)
Rainfall intensity =      3.633(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.770
Subarea runoff =      7.852(CFS) for    4.050(Ac.)
Total runoff =     56.440(CFS)
Effective area this stream =       20.17(Ac.)
Total Study Area (Main Stream No. 1) =       20.17(Ac.)
Area averaged Fm value =    0.524(In/Hr)
Depth of flow =   2.031(Ft.), Average velocity =  12.289(Ft/s)
!!Warning: Water is above left or right bank elevations
End of computations, Total Study Area =           20.17 (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) = 1.000
Area averaged SCS curve number =  85.3
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 01/29/20

TRACT NO. 20280
EXISTING CONDITION, ON-SITE AREA
10-YEAR STORM, 2-Hours

2

Program License Serial Number 4009

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 2 hour rainfall = 0.831 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.265(In/Hr)
Initial subarea data:
Initial area flow distance = 543.000(Ft.)
Top (of initial area) elevation = 2918.700(Ft.)
Bottom (of initial area) elevation = 2900.000(Ft.)
Difference in elevation = 18.700(Ft.)
Slope = 0.03444 s(%)= 3.44
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.784 min.
Rainfall intensity = 2.453(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.803
Subarea runoff = 5.828(CFS)
Total initial stream area = 2.960(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.265(In/Hr)

++
Process from Point/Station 102.000 to Point/Station 103.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 0.000(CFS)
Depth of flow = 1.356(Ft.), Average velocity = 7.969(Ft/s)
!!Warning: Water is above left or right bank elevations

```
       ******* Irregular Channel Data ***********
-----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
       1              0.00              0.00
       2              0.00              0.50
       3              2.00              1.00
       4              3.00              2.00
       5              6.00              2.00
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =     10.161(CFS)
  '     '        flow top width =      2.356(Ft.)
  '     '    velocity=    7.969(Ft/s)
  '     '        area =      1.275(Sq.Ft)
  '     '        Froude number =     1.909

Upstream point elevation =  2900.000(Ft.)
Downstream point elevation =  2891.500(Ft.)
Flow length =   229.500(Ft.)
Travel time  =    0.48 min.
Time of concentration =   13.26 min.
Depth of flow =   1.356(Ft.)
Average velocity =   7.969(Ft/s)
Total irregular channel flow =    10.161(CFS)
Irregular channel normal depth above invert elev. =   1.356(Ft.)
Average velocity of channel(s) =   7.969(Ft/s)
!!Warning: Water is above left or right bank elevations
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Rainfall intensity =      2.390(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.800
Subarea runoff =      8.612(CFS) for    4.590(Ac.)
Total runoff =     14.440(CFS)
Effective area this stream =        7.55(Ac.)
Total Study Area (Main Stream No. 1) =        7.55(Ac.)
Area averaged Fm value =    0.265(In/Hr)
Depth of flow =   1.496(Ft.), Average velocity =   8.945(Ft/s)
!!Warning: Water is above left or right bank elevations


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.687(Ft.), Average velocity =   5.881(Ft/s)
       ******* Irregular Channel Data ***********
-----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
       1              0.00              2.00
       2              3.00              1.00
       3              5.00              0.00
       4              9.00              0.00
```

```
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =     18.947(CFS)
  '     '        flow top width =      5.375(Ft.)
  '     '    velocity=    5.881(Ft/s)
  '     '        area =      3.222(Sq.Ft)
  '     '        Froude number =     1.339

Upstream point elevation =  2891.500(Ft.)
Downstream point elevation =  2884.600(Ft.)
Flow length =   535.000(Ft.)
Travel time  =    1.52 min.
Time of concentration =   14.78 min.
Depth of flow =   0.687(Ft.)
Average velocity =   5.881(Ft/s)
Total irregular channel flow =    18.947(CFS)
Irregular channel normal depth above invert elev. =   0.687(Ft.)
Average velocity of channel(s) =   5.881(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Rainfall intensity =      2.216(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.792
Subarea runoff =      8.945(CFS) for    5.770(Ac.)
Total runoff =     23.385(CFS)
Effective area this stream =       13.32(Ac.)
Total Study Area (Main Stream No. 1) =       13.32(Ac.)
Area averaged Fm value =    0.265(In/Hr)
Depth of flow =   0.776(Ft.), Average velocity =   6.308(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     13.320(Ac.)
Runoff from this stream =     23.385(CFS)
Time of concentration =   14.78 min.
Rainfall intensity =     2.216(In/Hr)
Area averaged loss rate (Fm) =    0.2651(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      106.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Initial subarea data:
```

```
Initial area flow distance =   508.800(Ft.)
Top (of initial area) elevation =  2918.000(Ft.)
Bottom (of initial area) elevation =  2902.000(Ft.)
Difference in elevation =    16.000(Ft.)
Slope =    0.03145  s(%)=       3.14
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   12.684 min.
Rainfall intensity =      2.466(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.803
Subarea runoff =      5.547(CFS)
Total initial stream area =        2.800(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.265(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
______________________________________________________________________________
Depth of flow =   0.738(Ft.), Average velocity =   6.789(Ft/s)
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              3.00              1.00
        3              6.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      5.547(CFS)
  '     '        flow top width =      2.214(Ft.)
  '     '    velocity=    6.789(Ft/s)
  '     '        area =      0.817(Sq.Ft)
  '     '        Froude number =     1.970

Upstream point elevation =  2902.000(Ft.)
Downstream point elevation =  2884.600(Ft.)
Flow length =   514.100(Ft.)
Travel time  =    1.26 min.
Time of concentration =   13.95 min.
Depth of flow =   0.738(Ft.)
Average velocity =   6.789(Ft/s)
Total irregular channel flow =     5.547(CFS)
Irregular channel normal depth above invert elev. =   0.738(Ft.)
Average velocity of channel(s) =   6.789(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.800(Ac.)
Runoff from this stream =      5.547(CFS)
Time of concentration =   13.95 min.
Rainfall intensity =     2.308(In/Hr)
Area averaged loss rate (Fm) =    0.2651(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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

```
1     23.38    13.320     14.78    0.265      2.216
2      5.55     2.800     13.95    0.265      2.308
Qmax(1) =
           1.000 *    1.000 *    23.385) +
           0.955 *    1.000 *     5.547) + =      28.682
Qmax(2) =
           1.047 *    0.944 *    23.385) +
           1.000 *    1.000 *     5.547) + =      28.652

Total of 2 streams to confluence:
Flow rates before confluence point:
      23.385       5.547
Maximum flow rates at confluence using above data:
       28.682       28.652
Area of streams before confluence:
       13.320        2.800
Effective area values after confluence:
       16.120       15.368
Results of confluence:
Total flow rate =     28.682(CFS)
Time of concentration =    14.780 min.
Effective stream area after confluence =     16.120(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.265(In/Hr)
Study area total (this main stream) =      16.12(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      107.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.565(Ft.), Average velocity =   9.647(Ft/s)
!!Warning: Water is above left or right bank elevations
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              1.00
        2              3.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     30.821(CFS)
  '     '        flow top width =      3.000(Ft.)
  '     '    velocity=    9.647(Ft/s)
  '     '        area =      3.195(Sq.Ft)
  '     '        Froude number =     1.648

Upstream point elevation =  2884.600(Ft.)
Downstream point elevation =  2872.000(Ft.)
Flow length =   757.600(Ft.)
Travel time  =    1.31 min.
Time of concentration =   16.09 min.
Depth of flow =   1.565(Ft.)
Average velocity =   9.647(Ft/s)
Total irregular channel flow =    30.821(CFS)
Irregular channel normal depth above invert elev. =   1.565(Ft.)
Average velocity of channel(s) =   9.647(Ft/s)
!!Warning: Water is above left or right bank elevations
 Adding area flow to channel
```

```
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.450
Decimal fraction soil group C = 0.550
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 82.40
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.329(In/Hr)
Rainfall intensity =      2.088(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.780
Subarea runoff =      4.178(CFS) for    4.050(Ac.)
Total runoff =     32.860(CFS)
Effective area this stream =       20.17(Ac.)
Total Study Area (Main Stream No. 1) =       20.17(Ac.)
Area averaged Fm value =    0.278(In/Hr)
Depth of flow =   1.607(Ft.), Average velocity =   9.898(Ft/s)
!!Warning: Water is above left or right bank elevations
End of computations, Total Study Area =           20.17 (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) = 1.000
Area averaged SCS curve number =  85.3
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 01/29/20

TRACT NO. 20280
EXISTING CONDITION, ON-SITE AREA
2-YEAR STORM, 2-Hours

Program License Serial Number 4009

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 2 hour rainfall = 0.504 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.507(In/Hr)
Initial subarea data:
Initial area flow distance = 543.000(Ft.)
Top (of initial area) elevation = 2918.700(Ft.)
Bottom (of initial area) elevation = 2900.000(Ft.)
Difference in elevation = 18.700(Ft.)
Slope = 0.03444 s(%)= 3.44
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.784 min.
Rainfall intensity = 1.488(In/Hr) for a 2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.593
Subarea runoff = 2.611(CFS)
Total initial stream area = 2.960(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.507(In/Hr)

++
Process from Point/Station 102.000 to Point/Station 103.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 0.000(CFS)
Depth of flow = 1.120(Ft.), Average velocity = 6.029(Ft/s)

```
!!Warning: Water is above left or right bank elevations
        ******* Irregular Channel Data ***********
----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.00
        2              0.00              0.50
        3              2.00              1.00
        4              3.00              2.00
        5              6.00              2.00
Manning's 'N' friction factor =   0.020
----------------------------------------------------------------
Sub-Channel flow  =      4.510(CFS)
  '     '        flow top width =      2.120(Ft.)
  '     '    velocity=    6.029(Ft/s)
  '     '        area =      0.748(Sq.Ft)
  '     '        Froude number =     1.789

Upstream point elevation =  2900.000(Ft.)
Downstream point elevation =  2891.500(Ft.)
Flow length =   229.500(Ft.)
Travel time  =    0.63 min.
Time of concentration =   13.42 min.
Depth of flow =   1.120(Ft.)
Average velocity =   6.029(Ft/s)
Total irregular channel flow =     4.510(CFS)
Irregular channel normal depth above invert elev. =   1.120(Ft.)
Average velocity of channel(s) =   6.029(Ft/s)
!!Warning: Water is above left or right bank elevations
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.507(In/Hr)
Rainfall intensity =      1.438(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.582
Subarea runoff =      3.712(CFS) for    4.590(Ac.)
Total runoff =      6.323(CFS)
Effective area this stream =        7.55(Ac.)
Total Study Area (Main Stream No. 1) =        7.55(Ac.)
Area averaged Fm value =    0.507(In/Hr)
Depth of flow =   1.205(Ft.), Average velocity =   6.784(Ft/s)
!!Warning: Water is above left or right bank elevations


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.414(Ft.), Average velocity =   4.355(Ft/s)
        ******* Irregular Channel Data ***********
----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              3.00              1.00
```

```
        3              5.00              0.00
        4              9.00              0.00
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =      7.952(CFS)
  '     '        flow top width =      4.827(Ft.)
  '     '    velocity=    4.355(Ft/s)
  '     '        area =      1.826(Sq.Ft)
  '     '        Froude number =     1.248

Upstream point elevation =  2891.500(Ft.)
Downstream point elevation =  2884.600(Ft.)
Flow length =   535.000(Ft.)
Travel time  =    2.05 min.
Time of concentration =   15.47 min.
Depth of flow =   0.414(Ft.)
Average velocity =   4.355(Ft/s)
Total irregular channel flow =     7.952(CFS)
Irregular channel normal depth above invert elev. =   0.414(Ft.)
Average velocity of channel(s) =   4.355(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.507(In/Hr)
Rainfall intensity =      1.302(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.549
Subarea runoff =      3.201(CFS) for    5.770(Ac.)
Total runoff =      9.524(CFS)
Effective area this stream =       13.32(Ac.)
Total Study Area (Main Stream No. 1) =       13.32(Ac.)
Area averaged Fm value =    0.507(In/Hr)
Depth of flow =   0.460(Ft.), Average velocity =   4.642(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     13.320(Ac.)
Runoff from this stream =      9.524(CFS)
Time of concentration =   15.47 min.
Rainfall intensity =     1.302(In/Hr)
Area averaged loss rate (Fm) =    0.5074(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      106.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
```

```
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.507(In/Hr)
Initial subarea data:
Initial area flow distance =   508.800(Ft.)
Top (of initial area) elevation =  2918.000(Ft.)
Bottom (of initial area) elevation =  2902.000(Ft.)
Difference in elevation =    16.000(Ft.)
Slope =    0.03145  s(%)=       3.14
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   12.684 min.
Rainfall intensity =      1.496(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.595
Subarea runoff =      2.490(CFS)
Total initial stream area =        2.800(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.507(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Depth of flow =   0.547(Ft.), Average velocity =   5.558(Ft/s)
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              3.00              1.00
        3              6.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      2.490(CFS)
  '     '        flow top width =      1.640(Ft.)
  '     '    velocity=    5.558(Ft/s)
  '     '        area =      0.448(Sq.Ft)
  '     '        Froude number =     1.874

Upstream point elevation =  2902.000(Ft.)
Downstream point elevation =  2884.600(Ft.)
Flow length =   514.100(Ft.)
Travel time  =    1.54 min.
Time of concentration =   14.23 min.
Depth of flow =   0.547(Ft.)
Average velocity =   5.558(Ft/s)
Total irregular channel flow =     2.490(CFS)
Irregular channel normal depth above invert elev. =   0.547(Ft.)
Average velocity of channel(s) =   5.558(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.800(Ac.)
Runoff from this stream =      2.490(CFS)
Time of concentration =   14.23 min.
Rainfall intensity =     1.380(In/Hr)
Area averaged loss rate (Fm) =    0.5074(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
```

```
Summary of stream data:

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


1      9.52    13.320     15.47    0.507      1.302
2      2.49     2.800     14.23    0.507      1.380
Qmax(1) =
           1.000 *    1.000 *     9.524) +
           0.910 *    1.000 *     2.490) + =      11.790
Qmax(2) =
           1.099 *    0.920 *     9.524) +
           1.000 *    1.000 *     2.490) + =      12.115

Total of 2 streams to confluence:
Flow rates before confluence point:
       9.524       2.490
Maximum flow rates at confluence using above data:
       11.790       12.115
Area of streams before confluence:
       13.320        2.800
Effective area values after confluence:
       16.120       15.052
Results of confluence:
Total flow rate =     12.115(CFS)
Time of concentration =    14.226 min.
Effective stream area after confluence =     15.052(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.507(In/Hr)
Study area total (this main stream) =      16.12(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      107.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.119(Ft.), Average velocity =   6.718(Ft/s)
!!Warning: Water is above left or right bank elevations
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              1.00
        2              3.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     12.473(CFS)
  '     '        flow top width =      3.000(Ft.)
  '     '    velocity=    6.718(Ft/s)
  '     '        area =      1.857(Sq.Ft)
  '     '        Froude number =     1.505

Upstream point elevation =  2884.600(Ft.)
Downstream point elevation =  2872.000(Ft.)
Flow length =   757.600(Ft.)
Travel time  =    1.88 min.
Time of concentration =   16.11 min.
Depth of flow =   1.119(Ft.)
Average velocity =   6.718(Ft/s)
Total irregular channel flow =    12.473(CFS)
```

```
Irregular channel normal depth above invert elev. =   1.119(Ft.)
Average velocity of channel(s) =   6.718(Ft/s)
!!Warning: Water is above left or right bank elevations
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.450
Decimal fraction soil group C = 0.550
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 82.40
Adjusted SCS curve number for AMC 1 = 66.36
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.588(In/Hr)
Rainfall intensity =      1.265(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.527
Subarea runoff =      0.623(CFS) for    4.050(Ac.)
Total runoff =     12.739(CFS)
Effective area this stream =       19.10(Ac.)
Total Study Area (Main Stream No. 1) =       20.17(Ac.)
Area averaged Fm value =    0.525(In/Hr)
Depth of flow =   1.127(Ft.), Average velocity =   6.775(Ft/s)
!!Warning: Water is above left or right bank elevations
End of computations, Total Study Area =           20.17 (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) = 1.000
Area averaged SCS curve number =  85.3
```

Off-Site Area

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study Date: 06/06/19

TRACT NO. 20280
EIXTING CONDITION, OFF-SITE AREA C
100--YEAR STORM , 1-Hour

Program License Serial Number 6385

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.110 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 201.000 to Point/Station 202.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.055(In/Hr)
Initial subarea data:
Initial area flow distance = 448.700(Ft.)
Top (of initial area) elevation = 2922.400(Ft.)
Bottom (of initial area) elevation = 2912.600(Ft.)
Difference in elevation = 9.800(Ft.)
Slope = 0.02184 s(%)= 2.18
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.974 min.
Rainfall intensity = 3.242(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.885
Subarea runoff = 8.347(CFS)
Total initial stream area = 2.910(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.055(In/Hr)

++
Process from Point/Station 202.000 to Point/Station 203.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 0.000(CFS)
Depth of flow = 1.034(Ft.), Average velocity = 6.366(Ft/s)

```
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              3.50
        2              3.00              2.50
        3              6.00              0.50
        4             10.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     21.321(CFS)
  '     '        flow top width =      4.801(Ft.)
  '     '    velocity=    6.366(Ft/s)
  '     '        area =      3.349(Sq.Ft)
  '     '        Froude number =     1.343

Upstream point elevation =  2912.600(Ft.)
Downstream point elevation =  2904.500(Ft.)
Flow length =   647.700(Ft.)
Travel time  =    1.70 min.
Time of concentration =   14.67 min.
Depth of flow =   1.034(Ft.)
Average velocity =   6.366(Ft/s)
Total irregular channel flow =    21.321(CFS)
Irregular channel normal depth above invert elev. =   1.034(Ft.)
Average velocity of channel(s) =   6.366(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.055(In/Hr)
Rainfall intensity =      2.975(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.883
Subarea runoff =     25.895(CFS) for   10.120(Ac.)
Total runoff =     34.241(CFS)
Effective area this stream =       13.03(Ac.)
Total Study Area (Main Stream No. 1) =       13.03(Ac.)
Area averaged Fm value =    0.055(In/Hr)
Depth of flow =   1.286(Ft.), Average velocity =   7.431(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      204.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
______________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.929(Ft.), Average velocity =   8.350(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              3.00
        2              3.00              0.00
        3              7.00              2.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     46.622(CFS)
```

```
  '     '        flow top width =      5.788(Ft.)
  '     '    velocity=    8.350(Ft/s)
  '     '        area =      5.583(Sq.Ft)
  '     '        Froude number =     1.498

Upstream point elevation =  2904.500(Ft.)
Downstream point elevation =  2890.900(Ft.)
Flow length =   790.100(Ft.)
Travel time  =    1.58 min.
Time of concentration =   16.25 min.
Depth of flow =   1.929(Ft.)
Average velocity =   8.350(Ft/s)
Total irregular channel flow =    46.622(CFS)
Irregular channel normal depth above invert elev. =   1.929(Ft.)
Average velocity of channel(s) =   8.350(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.055(In/Hr)
Rainfall intensity =      2.770(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.882
Subarea runoff =     24.688(CFS) for   11.090(Ac.)
Total runoff =     58.930(CFS)
Effective area this stream =       24.12(Ac.)
Total Study Area (Main Stream No. 1) =       24.12(Ac.)
Area averaged Fm value =    0.055(In/Hr)
Depth of flow =   2.094(Ft.), Average velocity =   8.975(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      204.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     24.120(Ac.)
Runoff from this stream =     58.930(CFS)
Time of concentration =   16.25 min.
Rainfall intensity =     2.770(In/Hr)
Area averaged loss rate (Fm) =    0.0554(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1     58.93    24.120     16.25    0.055      2.770
Qmax(1) =
           1.000 *    1.000 *    58.930) + =      58.930

Total of 1 streams to confluence:
Flow rates before confluence point:
      58.930
Maximum flow rates at confluence using above data:
       58.930
Area of streams before confluence:
```

```
       24.120
Effective area values after confluence:
       24.120
Results of confluence:
Total flow rate =     58.930(CFS)
Time of concentration =    16.247 min.
Effective stream area after confluence =     24.120(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.055(In/Hr)
Study area total (this main stream) =      24.12(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      206.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.055(In/Hr)
Initial subarea data:
Initial area flow distance =   877.500(Ft.)
Top (of initial area) elevation =  2920.100(Ft.)
Bottom (of initial area) elevation =  2896.200(Ft.)
Difference in elevation =    23.900(Ft.)
Slope =    0.02724  s(%)=       2.72
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.234 min.
Rainfall intensity =      2.772(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.882
Subarea runoff =     14.447(CFS)
Total initial stream area =        5.910(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.055(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      206.000 to Point/Station      204.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Depth of flow =   1.488(Ft.), Average velocity =   5.594(Ft/s)
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              4.00
        2              4.00              0.00
        3              8.00              3.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     14.447(CFS)
  '     '        flow top width =      3.472(Ft.)
  '     '    velocity=    5.594(Ft/s)
  '     '        area =      2.582(Sq.Ft)
  '     '        Froude number =     1.143

Upstream point elevation =  2896.200(Ft.)
Downstream point elevation =  2890.900(Ft.)
```

```
Flow length =   435.000(Ft.)
Travel time  =    1.30 min.
Time of concentration =   17.53 min.
Depth of flow =   1.488(Ft.)
Average velocity =   5.594(Ft/s)
Total irregular channel flow =    14.447(CFS)
Irregular channel normal depth above invert elev. =   1.488(Ft.)
Average velocity of channel(s) =   5.594(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      204.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      5.910(Ac.)
Runoff from this stream =     14.447(CFS)
Time of concentration =   17.53 min.
Rainfall intensity =     2.627(In/Hr)
Area averaged loss rate (Fm) =    0.0554(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1     58.93    24.120     16.25    0.055      2.770
2     14.45     5.910     17.53    0.055      2.627
Qmax(1) =
           1.000 *    1.000 *    58.930) +
           1.056 *    0.927 *    14.447) + =      73.067
Qmax(2) =
           0.947 *    1.000 *    58.930) +
           1.000 *    1.000 *    14.447) + =      70.262

Total of 2 streams to confluence:
Flow rates before confluence point:
      58.930      14.447
Maximum flow rates at confluence using above data:
       73.067       70.262
Area of streams before confluence:
       24.120        5.910
Effective area values after confluence:
       29.597       30.030
Results of confluence:
Total flow rate =     73.067(CFS)
Time of concentration =    16.247 min.
Effective stream area after confluence =     29.597(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.055(In/Hr)
Study area total (this main stream) =      30.03(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      207.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.518(Ft.), Average velocity =   9.162(Ft/s)
        ******* Irregular Channel Data **********
------------------------------------------------------------------
```

```
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              4.00              0.00
        3              8.00              0.00
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =     76.732(CFS)
  '     '        flow top width =      7.036(Ft.)
  '     '    velocity=    9.162(Ft/s)
  '     '        area =      8.375(Sq.Ft)
  '     '        Froude number =     1.480

Upstream point elevation =  2890.900(Ft.)
Downstream point elevation =  2884.400(Ft.)
Flow length =   504.800(Ft.)
Travel time  =    0.92 min.
Time of concentration =   17.17 min.
Depth of flow =   1.518(Ft.)
Average velocity =   9.162(Ft/s)
Total irregular channel flow =    76.732(CFS)
Irregular channel normal depth above invert elev. =   1.518(Ft.)
Average velocity of channel(s) =   9.162(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.055(In/Hr)
Rainfall intensity =      2.665(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.881
Subarea runoff =      7.265(CFS) for    4.600(Ac.)
Total runoff =     80.332(CFS)
Effective area this stream =       34.20(Ac.)
Total Study Area (Main Stream No. 1) =       34.63(Ac.)
Area averaged Fm value =    0.055(In/Hr)
Depth of flow =   1.557(Ft.), Average velocity =   9.288(Ft/s)
End of computations, Total Study Area =           34.63 (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) = 1.000
Area averaged SCS curve number =  86.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 01/29/20

TRACT NO. 20280
EIXTING CONDITION, OFF-SITE AREA C
2-Hours, 100-Year storm

Program License Serial Number 4009

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 2 hour rainfall = 1.410 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++

Process from Point/Station 201.000 to Point/Station 202.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.055(In/Hr)
Initial subarea data:
Initial area flow distance = 448.700(Ft.)
Top (of initial area) elevation = 2922.400(Ft.)
Bottom (of initial area) elevation = 2912.600(Ft.)
Difference in elevation = 9.800(Ft.)
Slope = 0.02184 s(%)= 2.18
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.974 min.
Rainfall intensity = 4.119(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.888
Subarea runoff = 10.642(CFS)
Total initial stream area = 2.910(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.055(In/Hr)

++

Process from Point/Station 202.000 to Point/Station 203.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.158(Ft.), Average velocity =   6.909(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              3.50
        2              3.00              2.50
        3              6.00              0.50
        4             10.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     27.330(CFS)
  '     '        flow top width =      4.987(Ft.)
  '     '    velocity=    6.909(Ft/s)
  '     '        area =      3.956(Sq.Ft)
  '     '        Froude number =     1.367

Upstream point elevation =  2912.600(Ft.)
Downstream point elevation =  2904.500(Ft.)
Flow length =   647.700(Ft.)
Travel time  =    1.56 min.
Time of concentration =   14.54 min.
Depth of flow =   1.158(Ft.)
Average velocity =   6.909(Ft/s)
Total irregular channel flow =    27.330(CFS)
Irregular channel normal depth above invert elev. =   1.158(Ft.)
Average velocity of channel(s) =   6.909(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.055(In/Hr)
Rainfall intensity =      3.804(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.887
Subarea runoff =     33.313(CFS) for   10.120(Ac.)
Total runoff =     43.955(CFS)
Effective area this stream =       13.03(Ac.)
Total Study Area (Main Stream No. 1) =       13.03(Ac.)
Area averaged Fm value =    0.055(In/Hr)
Depth of flow =   1.448(Ft.), Average velocity =   8.042(Ft/s)


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Process from Point/Station      203.000 to Point/Station      204.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   2.107(Ft.), Average velocity =   9.033(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
```

```
        1              0.00              3.00
        2              3.00              0.00
        3              7.00              2.00
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =     60.034(CFS)
  '     '        flow top width =      6.107(Ft.)
  '     '    velocity=    9.033(Ft/s)
  '     '        area =      6.646(Sq.Ft)
  '     '        Froude number =     1.526

Upstream point elevation =  2904.500(Ft.)
Downstream point elevation =  2890.900(Ft.)
Flow length =   790.100(Ft.)
Travel time  =    1.46 min.
Time of concentration =   15.99 min.
Depth of flow =   2.107(Ft.)
Average velocity =   9.033(Ft/s)
Total irregular channel flow =    60.034(CFS)
Irregular channel normal depth above invert elev. =   2.107(Ft.)
Average velocity of channel(s) =   9.033(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.055(In/Hr)
Rainfall intensity =      3.557(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.886
Subarea runoff =     32.068(CFS) for   11.090(Ac.)
Total runoff =     76.023(CFS)
Effective area this stream =       24.12(Ac.)
Total Study Area (Main Stream No. 1) =       24.12(Ac.)
Area averaged Fm value =    0.055(In/Hr)
Depth of flow =   2.287(Ft.), Average velocity =   9.795(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      204.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     24.120(Ac.)
Runoff from this stream =     76.023(CFS)
Time of concentration =   15.99 min.
Rainfall intensity =     3.557(In/Hr)
Area averaged loss rate (Fm) =    0.0554(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1     76.02    24.120     15.99    0.055      3.557
```

```
Qmax(1) =
           1.000 *    1.000 *    76.023) + =      76.023

Total of 1 streams to confluence:
Flow rates before confluence point:
      76.023
Maximum flow rates at confluence using above data:
       76.023
Area of streams before confluence:
       24.120
Effective area values after confluence:
       24.120
Results of confluence:
Total flow rate =     76.023(CFS)
Time of concentration =    15.995 min.
Effective stream area after confluence =     24.120(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.055(In/Hr)
Study area total (this main stream) =      24.12(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      206.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.055(In/Hr)
Initial subarea data:
Initial area flow distance =   877.500(Ft.)
Top (of initial area) elevation =  2920.100(Ft.)
Bottom (of initial area) elevation =  2896.200(Ft.)
Difference in elevation =    23.900(Ft.)
Slope =    0.02724  s(%)=       2.72
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.234 min.
Rainfall intensity =      3.521(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.886
Subarea runoff =     18.432(CFS)
Total initial stream area =        5.910(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.055(In/Hr)


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Process from Point/Station      206.000 to Point/Station      204.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
______________________________________________________________________________
Depth of flow =   1.630(Ft.), Average velocity =   5.946(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              4.00
```

```
        2              4.00              0.00
        3              8.00              3.00
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =     18.432(CFS)
  '     '        flow top width =      3.804(Ft.)
  '     '    velocity=    5.946(Ft/s)
  '     '        area =      3.100(Sq.Ft)
  '     '        Froude number =     1.161

Upstream point elevation =  2896.200(Ft.)
Downstream point elevation =  2890.900(Ft.)
Flow length =   435.000(Ft.)
Travel time  =    1.22 min.
Time of concentration =   17.45 min.
Depth of flow =   1.630(Ft.)
Average velocity =   5.946(Ft/s)
Total irregular channel flow =    18.432(CFS)
Irregular channel normal depth above invert elev. =   1.630(Ft.)
Average velocity of channel(s) =   5.946(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      204.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      5.910(Ac.)
Runoff from this stream =     18.432(CFS)
Time of concentration =   17.45 min.
Rainfall intensity =     3.347(In/Hr)
Area averaged loss rate (Fm) =    0.0554(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1     76.02    24.120     15.99    0.055      3.557
2     18.43     5.910     17.45    0.055      3.347
Qmax(1) =
           1.000 *    1.000 *    76.023) +
           1.064 *    0.916 *    18.432) + =      93.996
Qmax(2) =
           0.940 *    1.000 *    76.023) +
           1.000 *    1.000 *    18.432) + =      89.878

Total of 2 streams to confluence:
Flow rates before confluence point:
      76.023      18.432
Maximum flow rates at confluence using above data:
       93.996       89.878
Area of streams before confluence:
       24.120        5.910
Effective area values after confluence:
       29.536       30.030
Results of confluence:
Total flow rate =     93.996(CFS)
```

```
Time of concentration =    15.995 min.
Effective stream area after confluence =     29.536(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.055(In/Hr)
Study area total (this main stream) =      30.03(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      207.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.743(Ft.), Average velocity =   9.876(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              4.00              0.00
        3              8.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     98.885(CFS)
  '     '        flow top width =      7.487(Ft.)
  '     '    velocity=    9.876(Ft/s)
  '     '        area =     10.013(Sq.Ft)
  '     '        Froude number =     1.505

Upstream point elevation =  2890.900(Ft.)
Downstream point elevation =  2884.400(Ft.)
Flow length =   504.800(Ft.)
Travel time  =    0.85 min.
Time of concentration =   16.85 min.
Depth of flow =   1.743(Ft.)
Average velocity =   9.876(Ft/s)
Total irregular channel flow =    98.885(CFS)
Irregular channel normal depth above invert elev. =   1.743(Ft.)
Average velocity of channel(s) =   9.876(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 3 = 97.20
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.055(In/Hr)
Rainfall intensity =      3.431(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.885
Subarea runoff =      9.697(CFS) for    4.600(Ac.)
Total runoff =    103.693(CFS)
Effective area this stream =       34.14(Ac.)
Total Study Area (Main Stream No. 1) =       34.63(Ac.)
Area averaged Fm value =    0.055(In/Hr)
Depth of flow =   1.789(Ft.), Average velocity =  10.014(Ft/s)
End of computations, Total Study Area =           34.63 (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) = 1.000
Area averaged SCS curve number = 86.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study Date: 06/06/19

TRACT NO. 20280
EIXTING CONDITION, OFF-SITE AREA C
10-YEAR STORM, 1-Hour

Program License Serial Number 6385

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.630 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 201.000 to Point/Station 202.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.265(In/Hr)
Initial subarea data:
Initial area flow distance = 448.700(Ft.)
Top (of initial area) elevation = 2922.400(Ft.)
Bottom (of initial area) elevation = 2912.600(Ft.)
Difference in elevation = 9.800(Ft.)
Slope = 0.02184 s(%)= 2.18
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.974 min.
Rainfall intensity = 1.840(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.770
Subarea runoff = 4.125(CFS)
Total initial stream area = 2.910(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.265(In/Hr)

++
Process from Point/Station 202.000 to Point/Station 203.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 0.000(CFS)
Depth of flow = 0.754(Ft.), Average velocity = 4.952(Ft/s)
******* Irregular Channel Data **********

```
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              3.50
        2              3.00              2.50
        3              6.00              0.50
        4             10.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     10.227(CFS)
  '     '        flow top width =      4.381(Ft.)
  '     '    velocity=    4.952(Ft/s)
  '     '        area =      2.065(Sq.Ft)
  '     '        Froude number =     1.271

Upstream point elevation =  2912.600(Ft.)
Downstream point elevation =  2904.500(Ft.)
Flow length =   647.700(Ft.)
Travel time  =    2.18 min.
Time of concentration =   15.15 min.
Depth of flow =   0.754(Ft.)
Average velocity =   4.952(Ft/s)
Total irregular channel flow =    10.227(CFS)
Irregular channel normal depth above invert elev. =   0.754(Ft.)
Average velocity of channel(s) =   4.952(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Rainfall intensity =      1.651(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.755
Subarea runoff =     12.123(CFS) for   10.120(Ac.)
Total runoff =     16.249(CFS)
Effective area this stream =       13.03(Ac.)
Total Study Area (Main Stream No. 1) =       13.03(Ac.)
Area averaged Fm value =    0.265(In/Hr)
Depth of flow =   0.917(Ft.), Average velocity =   5.810(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      204.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
______________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.450(Ft.), Average velocity =   6.904(Ft/s)
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              3.00
        2              3.00              0.00
        3              7.00              2.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     21.784(CFS)
  '     '        flow top width =      4.351(Ft.)
  '     '    velocity=    6.904(Ft/s)
```

```
  '     '        area =      3.155(Sq.Ft)
  '     '        Froude number =     1.429

Upstream point elevation =  2904.500(Ft.)
Downstream point elevation =  2890.900(Ft.)
Flow length =   790.100(Ft.)
Travel time  =    1.91 min.
Time of concentration =   17.06 min.
Depth of flow =   1.450(Ft.)
Average velocity =   6.904(Ft/s)
Total irregular channel flow =    21.784(CFS)
Irregular channel normal depth above invert elev. =   1.450(Ft.)
Average velocity of channel(s) =   6.904(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Rainfall intensity =      1.519(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.743
Subarea runoff =     10.976(CFS) for   11.090(Ac.)
Total runoff =     27.225(CFS)
Effective area this stream =       24.12(Ac.)
Total Study Area (Main Stream No. 1) =       24.12(Ac.)
Area averaged Fm value =    0.265(In/Hr)
Depth of flow =   1.577(Ft.), Average velocity =   7.299(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      204.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     24.120(Ac.)
Runoff from this stream =     27.225(CFS)
Time of concentration =   17.06 min.
Rainfall intensity =     1.519(In/Hr)
Area averaged loss rate (Fm) =    0.2651(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1     27.22    24.120     17.06    0.265      1.519
Qmax(1) =
           1.000 *    1.000 *    27.225) + =      27.225

Total of 1 streams to confluence:
Flow rates before confluence point:
      27.225
Maximum flow rates at confluence using above data:
       27.225
Area of streams before confluence:
       24.120
Effective area values after confluence:
       24.120
```

```
Results of confluence:
Total flow rate =     27.225(CFS)
Time of concentration =    17.062 min.
Effective stream area after confluence =     24.120(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.265(In/Hr)
Study area total (this main stream) =      24.12(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      206.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Initial subarea data:
Initial area flow distance =   877.500(Ft.)
Top (of initial area) elevation =  2920.100(Ft.)
Bottom (of initial area) elevation =  2896.200(Ft.)
Difference in elevation =    23.900(Ft.)
Slope =    0.02724  s(%)=       2.72
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.234 min.
Rainfall intensity =      1.573(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.748
Subarea runoff =      6.957(CFS)
Total initial stream area =        5.910(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.265(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      206.000 to Point/Station      204.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Depth of flow =   1.131(Ft.), Average velocity =   4.660(Ft/s)
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              4.00
        2              4.00              0.00
        3              8.00              3.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      6.957(CFS)
  '     '        flow top width =      2.639(Ft.)
  '     '    velocity=    4.660(Ft/s)
  '     '        area =      1.493(Sq.Ft)
  '     '        Froude number =     1.092

Upstream point elevation =  2896.200(Ft.)
Downstream point elevation =  2890.900(Ft.)
Flow length =   435.000(Ft.)
Travel time  =    1.56 min.
Time of concentration =   17.79 min.
Depth of flow =   1.131(Ft.)
```

```
Average velocity =   4.660(Ft/s)
Total irregular channel flow =     6.957(CFS)
Irregular channel normal depth above invert elev. =   1.131(Ft.)
Average velocity of channel(s) =   4.660(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      204.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      5.910(Ac.)
Runoff from this stream =      6.957(CFS)
Time of concentration =   17.79 min.
Rainfall intensity =     1.475(In/Hr)
Area averaged loss rate (Fm) =    0.2651(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1     27.22    24.120     17.06    0.265      1.519
2      6.96     5.910     17.79    0.265      1.475
Qmax(1) =
           1.000 *    1.000 *    27.225) +
           1.036 *    0.959 *     6.957) + =      34.139
Qmax(2) =
           0.965 *    1.000 *    27.225) +
           1.000 *    1.000 *     6.957) + =      33.232

Total of 2 streams to confluence:
Flow rates before confluence point:
      27.225       6.957
Maximum flow rates at confluence using above data:
       34.139       33.232
Area of streams before confluence:
       24.120        5.910
Effective area values after confluence:
       29.788       30.030
Results of confluence:
Total flow rate =     34.139(CFS)
Time of concentration =    17.062 min.
Effective stream area after confluence =     29.788(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.265(In/Hr)
Study area total (this main stream) =      30.03(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      207.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.985(Ft.), Average velocity =   7.217(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              4.00              0.00
```

```
        3              8.00              0.00
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =     35.458(CFS)
  '     '        flow top width =      5.971(Ft.)
  '     '    velocity=    7.217(Ft/s)
  '     '        area =      4.913(Sq.Ft)
  '     '        Froude number =     1.402

Upstream point elevation =  2890.900(Ft.)
Downstream point elevation =  2884.400(Ft.)
Flow length =   504.800(Ft.)
Travel time  =    1.17 min.
Time of concentration =   18.23 min.
Depth of flow =   0.985(Ft.)
Average velocity =   7.217(Ft/s)
Total irregular channel flow =    35.458(CFS)
Irregular channel normal depth above invert elev. =   0.985(Ft.)
Average velocity of channel(s) =   7.217(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Rainfall intensity =      1.451(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.736
Subarea runoff =      2.550(CFS) for    4.600(Ac.)
Total runoff =     36.689(CFS)
Effective area this stream =       34.39(Ac.)
Total Study Area (Main Stream No. 1) =       34.63(Ac.)
Area averaged Fm value =    0.265(In/Hr)
Depth of flow =   1.005(Ft.), Average velocity =   7.296(Ft/s)
End of computations, Total Study Area =           34.63 (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) = 1.000
Area averaged SCS curve number =  86.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 01/29/20

TRACT NO. 20280
EIXTING CONDITION, OFF-SITE AREA C
2-Hour, 10-year Storm

Program License Serial Number 4009

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 2 hour rainfall = 0.830 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 201.000 to Point/Station 202.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.265(In/Hr)
Initial subarea data:
Initial area flow distance = 448.700(Ft.)
Top (of initial area) elevation = 2922.400(Ft.)
Bottom (of initial area) elevation = 2912.600(Ft.)
Difference in elevation = 9.800(Ft.)
Slope = 0.02184 s(%)= 2.18
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.974 min.
Rainfall intensity = 2.425(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.802
Subarea runoff = 5.655(CFS)
Total initial stream area = 2.910(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.265(In/Hr)

++
Process from Point/Station 202.000 to Point/Station 203.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 0.000(CFS)
Depth of flow = 0.865(Ft.), Average velocity = 5.551(Ft/s)
******* Irregular Channel Data **********

```
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              3.50
        2              3.00              2.50
        3              6.00              0.50
        4             10.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     14.211(CFS)
  '     '        flow top width =      4.548(Ft.)
  '     '    velocity=    5.551(Ft/s)
  '     '        area =      2.560(Sq.Ft)
  '     '        Froude number =     1.304

Upstream point elevation =  2912.600(Ft.)
Downstream point elevation =  2904.500(Ft.)
Flow length =   647.700(Ft.)
Travel time  =    1.94 min.
Time of concentration =   14.92 min.
Depth of flow =   0.865(Ft.)
Average velocity =   5.551(Ft/s)
Total irregular channel flow =    14.211(CFS)
Irregular channel normal depth above invert elev. =   0.865(Ft.)
Average velocity of channel(s) =   5.551(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Rainfall intensity =      2.199(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.791
Subarea runoff =     17.020(CFS) for   10.120(Ac.)
Total runoff =     22.675(CFS)
Effective area this stream =       13.03(Ac.)
Total Study Area (Main Stream No. 1) =       13.03(Ac.)
Area averaged Fm value =    0.265(In/Hr)
Depth of flow =   1.063(Ft.), Average velocity =   6.498(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      204.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
______________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.647(Ft.), Average velocity =   7.514(Ft/s)
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              3.00
        2              3.00              0.00
        3              7.00              2.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     30.569(CFS)
  '     '        flow top width =      4.941(Ft.)
  '     '    velocity=    7.514(Ft/s)
```

```
  '     '        area =      4.068(Sq.Ft)
  '     '        Froude number =     1.459

Upstream point elevation =  2904.500(Ft.)
Downstream point elevation =  2890.900(Ft.)
Flow length =   790.100(Ft.)
Travel time  =    1.75 min.
Time of concentration =   16.67 min.
Depth of flow =   1.647(Ft.)
Average velocity =   7.514(Ft/s)
Total irregular channel flow =    30.569(CFS)
Irregular channel normal depth above invert elev. =   1.647(Ft.)
Average velocity of channel(s) =   7.514(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Rainfall intensity =      2.034(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.783
Subarea runoff =     15.729(CFS) for   11.090(Ac.)
Total runoff =     38.404(CFS)
Effective area this stream =       24.12(Ac.)
Total Study Area (Main Stream No. 1) =       24.12(Ac.)
Area averaged Fm value =    0.265(In/Hr)
Depth of flow =   1.794(Ft.), Average velocity =   7.955(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      204.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     24.120(Ac.)
Runoff from this stream =     38.404(CFS)
Time of concentration =   16.67 min.
Rainfall intensity =     2.034(In/Hr)
Area averaged loss rate (Fm) =    0.2651(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1     38.40    24.120     16.67    0.265      2.034
Qmax(1) =
           1.000 *    1.000 *    38.404) + =      38.404

Total of 1 streams to confluence:
Flow rates before confluence point:
      38.404
Maximum flow rates at confluence using above data:
       38.404
Area of streams before confluence:
       24.120
Effective area values after confluence:
       24.120
```

```
Results of confluence:
Total flow rate =     38.404(CFS)
Time of concentration =    16.672 min.
Effective stream area after confluence =     24.120(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.265(In/Hr)
Study area total (this main stream) =      24.12(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      206.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Initial subarea data:
Initial area flow distance =   877.500(Ft.)
Top (of initial area) elevation =  2920.100(Ft.)
Bottom (of initial area) elevation =  2896.200(Ft.)
Difference in elevation =    23.900(Ft.)
Slope =    0.02724  s(%)=       2.72
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.234 min.
Rainfall intensity =      2.072(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.785
Subarea runoff =      9.613(CFS)
Total initial stream area =        5.910(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.265(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      206.000 to Point/Station      204.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Depth of flow =   1.277(Ft.), Average velocity =   5.053(Ft/s)
        ******* Irregular Channel Data **********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              4.00
        2              4.00              0.00
        3              8.00              3.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      9.613(CFS)
  '     '        flow top width =      2.980(Ft.)
  '     '    velocity=    5.053(Ft/s)
  '     '        area =      1.903(Sq.Ft)
  '     '        Froude number =     1.114

Upstream point elevation =  2896.200(Ft.)
Downstream point elevation =  2890.900(Ft.)
Flow length =   435.000(Ft.)
Travel time  =    1.43 min.
Time of concentration =   17.67 min.
Depth of flow =   1.277(Ft.)
```

```
Average velocity =   5.053(Ft/s)
Total irregular channel flow =     9.613(CFS)
Irregular channel normal depth above invert elev. =   1.277(Ft.)
Average velocity of channel(s) =   5.053(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      204.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      5.910(Ac.)
Runoff from this stream =      9.613(CFS)
Time of concentration =   17.67 min.
Rainfall intensity =     1.953(In/Hr)
Area averaged loss rate (Fm) =    0.2651(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1     38.40    24.120     16.67    0.265      2.034
2      9.61     5.910     17.67    0.265      1.953
Qmax(1) =
           1.000 *    1.000 *    38.404) +
           1.048 *    0.944 *     9.613) + =      47.910
Qmax(2) =
           0.954 *    1.000 *    38.404) +
           1.000 *    1.000 *     9.613) + =      46.258

Total of 2 streams to confluence:
Flow rates before confluence point:
      38.404       9.613
Maximum flow rates at confluence using above data:
       47.910       46.258
Area of streams before confluence:
       24.120        5.910
Effective area values after confluence:
       29.696       30.030
Results of confluence:
Total flow rate =     47.910(CFS)
Time of concentration =    16.672 min.
Effective stream area after confluence =     29.696(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.265(In/Hr)
Study area total (this main stream) =      30.03(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      207.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   1.196(Ft.), Average velocity =   8.040(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              4.00              0.00
```

```
        3              8.00              0.00
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =     49.976(CFS)
  '     '        flow top width =      6.392(Ft.)
  '     '    velocity=    8.040(Ft/s)
  '     '        area =      6.216(Sq.Ft)
  '     '        Froude number =     1.437

Upstream point elevation =  2890.900(Ft.)
Downstream point elevation =  2884.400(Ft.)
Flow length =   504.800(Ft.)
Travel time  =    1.05 min.
Time of concentration =   17.72 min.
Depth of flow =   1.196(Ft.)
Average velocity =   8.040(Ft/s)
Total irregular channel flow =    49.976(CFS)
Irregular channel normal depth above invert elev. =   1.196(Ft.)
Average velocity of channel(s) =   8.040(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.265(In/Hr)
Rainfall intensity =      1.949(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.778
Subarea runoff =      4.077(CFS) for    4.600(Ac.)
Total runoff =     51.988(CFS)
Effective area this stream =       34.30(Ac.)
Total Study Area (Main Stream No. 1) =       34.63(Ac.)
Area averaged Fm value =    0.265(In/Hr)
Depth of flow =   1.223(Ft.), Average velocity =   8.139(Ft/s)
End of computations, Total Study Area =           34.63 (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) = 1.000
Area averaged SCS curve number =  86.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 01/29/20

TRACT NO. 20280
EIXTING CONDITION, OFF-SITE AREA C
2-YEAR STORM, 1-Hour

Program License Serial Number 4009

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.370 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 201.000 to Point/Station 202.000
**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.507(In/Hr)
Initial subarea data:
Initial area flow distance = 448.700(Ft.)
Top (of initial area) elevation = 2922.400(Ft.)
Bottom (of initial area) elevation = 2912.600(Ft.)
Difference in elevation = 9.800(Ft.)
Slope = 0.02184 s(%)= 2.18
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.974 min.
Rainfall intensity = 1.081(In/Hr) for a 2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.477
Subarea runoff = 1.502(CFS)
Total initial stream area = 2.910(Ac.)
Pervious area fraction = 1.000
Initial area Fm value = 0.507(In/Hr)

++

Process from Point/Station 202.000 to Point/Station 203.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

```
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.497(Ft.), Average velocity =   3.265(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              3.50
        2              3.00              2.50
        3              6.00              0.50
        4             10.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      3.220(CFS)
  '     '        flow top width =      3.972(Ft.)
  '     '    velocity=    3.265(Ft/s)
  '     '        area =      0.986(Sq.Ft)
  '     '        Froude number =     1.155

Upstream point elevation =  2912.600(Ft.)
Downstream point elevation =  2904.500(Ft.)
Flow length =   647.700(Ft.)
Travel time  =    3.31 min.
Time of concentration =   16.28 min.
Depth of flow =   0.497(Ft.)
Average velocity =   3.265(Ft/s)
Total irregular channel flow =     3.220(CFS)
Irregular channel normal depth above invert elev. =   0.497(Ft.)
Average velocity of channel(s) =   3.265(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.507(In/Hr)
Rainfall intensity =      0.922(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.405
Subarea runoff =      3.360(CFS) for   10.120(Ac.)
Total runoff =      4.862(CFS)
Effective area this stream =       13.03(Ac.)
Total Study Area (Main Stream No. 1) =       13.03(Ac.)
Area averaged Fm value =    0.507(In/Hr)
Depth of flow =   0.570(Ft.), Average velocity =   3.793(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      204.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.893(Ft.), Average velocity =   4.995(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
```

```
        1              0.00              3.00
        2              3.00              0.00
        3              7.00              2.00
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =      5.968(CFS)
  '     '        flow top width =      2.678(Ft.)
  '     '    velocity=    4.995(Ft/s)
  '     '        area =      1.195(Sq.Ft)
  '     '        Froude number =     1.318

Upstream point elevation =  2904.500(Ft.)
Downstream point elevation =  2890.900(Ft.)
Flow length =   790.100(Ft.)
Travel time  =    2.64 min.
Time of concentration =   18.92 min.
Depth of flow =   0.893(Ft.)
Average velocity =   4.995(Ft/s)
Total irregular channel flow =     5.968(CFS)
Irregular channel normal depth above invert elev. =   0.893(Ft.)
Average velocity of channel(s) =   4.995(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.507(In/Hr)
Rainfall intensity =      0.830(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.350
Subarea runoff =      2.142(CFS) for   11.090(Ac.)
Total runoff =      7.003(CFS)
Effective area this stream =       24.12(Ac.)
Total Study Area (Main Stream No. 1) =       24.12(Ac.)
Area averaged Fm value =    0.507(In/Hr)
Depth of flow =   0.948(Ft.), Average velocity =   5.198(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      204.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     24.120(Ac.)
Runoff from this stream =      7.003(CFS)
Time of concentration =   18.92 min.
Rainfall intensity =     0.830(In/Hr)
Area averaged loss rate (Fm) =    0.5074(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1      7.00    24.120     18.92    0.507      0.830
```

```
Qmax(1) =
           1.000 *    1.000 *     7.003) + =       7.003

Total of 1 streams to confluence:
Flow rates before confluence point:
       7.003
Maximum flow rates at confluence using above data:
        7.003
Area of streams before confluence:
       24.120
Effective area values after confluence:
       24.120
Results of confluence:
Total flow rate =      7.003(CFS)
Time of concentration =    18.917 min.
Effective stream area after confluence =     24.120(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.507(In/Hr)
Study area total (this main stream) =      24.12(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      206.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.507(In/Hr)
Initial subarea data:
Initial area flow distance =   877.500(Ft.)
Top (of initial area) elevation =  2920.100(Ft.)
Bottom (of initial area) elevation =  2896.200(Ft.)
Difference in elevation =    23.900(Ft.)
Slope =    0.02724  s(%)=       2.72
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   16.234 min.
Rainfall intensity =      0.924(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.406
Subarea runoff =      2.215(CFS)
Total initial stream area =        5.910(Ac.)
Pervious area fraction = 1.000
Initial area Fm value =    0.507(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      206.000 to Point/Station      204.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Depth of flow =   0.736(Ft.), Average velocity =   3.501(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              4.00
```

```
        2              4.00              0.00
        3              8.00              3.00
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =      2.215(CFS)
  '     '        flow top width =      1.718(Ft.)
  '     '    velocity=    3.501(Ft/s)
  '     '        area =      0.633(Sq.Ft)
  '     '        Froude number =     1.017

Upstream point elevation =  2896.200(Ft.)
Downstream point elevation =  2890.900(Ft.)
Flow length =   435.000(Ft.)
Travel time  =    2.07 min.
Time of concentration =   18.31 min.
Depth of flow =   0.736(Ft.)
Average velocity =   3.501(Ft/s)
Total irregular channel flow =     2.215(CFS)
Irregular channel normal depth above invert elev. =   0.736(Ft.)
Average velocity of channel(s) =   3.501(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      204.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      5.910(Ac.)
Runoff from this stream =      2.215(CFS)
Time of concentration =   18.31 min.
Rainfall intensity =     0.849(In/Hr)
Area averaged loss rate (Fm) =    0.5074(In/Hr)
Area averaged Pervious ratio (Ap) = 1.0000
Summary of stream data:

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


1      7.00    24.120     18.92    0.507      0.830
2      2.21     5.910     18.31    0.507      0.849
Qmax(1) =
           1.000 *    1.000 *     7.003) +
           0.943 *    1.000 *     2.215) + =       9.093
Qmax(2) =
           1.060 *    0.968 *     7.003) +
           1.000 *    1.000 *     2.215) + =       9.398

Total of 2 streams to confluence:
Flow rates before confluence point:
       7.003       2.215
Maximum flow rates at confluence using above data:
        9.093        9.398
Area of streams before confluence:
       24.120        5.910
Effective area values after confluence:
       30.030       29.250
Results of confluence:
Total flow rate =      9.398(CFS)
```

```
Time of concentration =    18.305 min.
Effective stream area after confluence =     29.250(Ac.)
Study area average Pervious fraction(Ap) =  1.000
Study area average soil loss rate(Fm) =    0.507(In/Hr)
Study area total (this main stream) =      30.03(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      207.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      0.000(CFS)
Depth of flow =   0.458(Ft.), Average velocity =   4.626(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              2.00
        2              4.00              0.00
        3              8.00              0.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      9.444(CFS)
  '     '        flow top width =      4.916(Ft.)
  '     '    velocity=    4.626(Ft/s)
  '     '        area =      2.042(Sq.Ft)
  '     '        Froude number =     1.265

Upstream point elevation =  2890.900(Ft.)
Downstream point elevation =  2884.400(Ft.)
Flow length =   504.800(Ft.)
Travel time  =    1.82 min.
Time of concentration =   20.12 min.
Depth of flow =   0.458(Ft.)
Average velocity =   4.626(Ft/s)
Total irregular channel flow =     9.444(CFS)
Irregular channel normal depth above invert elev. =   0.458(Ft.)
Average velocity of channel(s) =   4.626(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 86.00
Adjusted SCS curve number for AMC 1 = 71.60
Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.507(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =      8.757(CFS)
therefore the upstream flow rate of Q =      9.398(CFS) is being used
Rainfall intensity =      0.795(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.325
Subarea runoff =      0.000(CFS) for    4.600(Ac.)
Total runoff =      9.398(CFS)
Effective area this stream =       33.85(Ac.)
Total Study Area (Main Stream No. 1) =       34.63(Ac.)
Area averaged Fm value =    0.507(In/Hr)
Depth of flow =   0.457(Ft.), Average velocity =   4.618(Ft/s)
```

End of computations, Total Study Area = 34.63 (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) = 1.000
Area averaged SCS curve number = 86.0

DAVID EVANS AND ASSOCIATES INC.

Appendix-4:

Rational Method Hydrology Calculation

(Post-Development Condition)

On-Site Area: 1-Hour, 2-Hour, 100, 10 & 2 Year Storm

Off-Site – Cahuenga Road: 1-Hour, 2-Hour, 100, 10 Year Storm

On-Site Area

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study Date: 06/17/19

TRACT NO. 20280
PROPOSED CONDITION, ON-SITE AREA
100-YEAR STORM , 1-Hour

Program License Serial Number 6385

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.110 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.5000 Max loss rate(Fm)= 0.131(In/Hr)
Initial subarea data:
Initial area flow distance = 470.600(Ft.)
Top (of initial area) elevation = 2907.300(Ft.)
Bottom (of initial area) elevation = 2897.000(Ft.)
Difference in elevation = 10.300(Ft.)
Slope = 0.02189 s(%)= 2.19
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.794 min.
Rainfall intensity = 3.948(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.870
Subarea runoff = 9.138(CFS)
Total initial stream area = 2.660(Ac.)
Pervious area fraction = 0.500
Initial area Fm value = 0.131(In/Hr)

++
Process from Point/Station 102.000 to Point/Station 103.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 2897.000(Ft.)
Downstream point/station elevation = 2892.700(Ft.)

```
Pipe length  =   310.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     9.138(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     9.138(CFS)
Normal flow depth in pipe =   11.51(In.)
Flow top width inside pipe =   17.29(In.)
Critical Depth =   14.02(In.)
Pipe flow velocity =      7.66(Ft/s)
Travel time through pipe =    0.67 min.
Time of concentration (TC) =    10.47 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.660(Ac.)
Runoff from this stream =      9.138(CFS)
Time of concentration =   10.47 min.
Rainfall intensity =     3.768(In/Hr)
Area averaged loss rate (Fm) =    0.1308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      9.14     2.660     10.47    0.131      3.768
Qmax(1) =
           1.000 *    1.000 *     9.138) + =       9.138

Total of 1 streams to confluence:
Flow rates before confluence point:
       9.138
Maximum flow rates at confluence using above data:
        9.138
Area of streams before confluence:
        2.660
Effective area values after confluence:
        2.660
Results of confluence:
Total flow rate =      9.138(CFS)
Time of concentration =    10.469 min.
Effective stream area after confluence =      2.660(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.131(In/Hr)
Study area total (this main stream) =       2.66(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.100 to Point/Station      103.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
```

Pervious ratio(Ap) = 0.5000 Max loss rate(Fm)= 0.131(In/Hr)
Initial subarea data:
Initial area flow distance = 648.400(Ft.)
Top (of initial area) elevation = 2905.300(Ft.)
Bottom (of initial area) elevation = 2895.000(Ft.)
Difference in elevation = 10.300(Ft.)
Slope = 0.01589 s(%)= 1.59
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.871 min.
Rainfall intensity = 3.451(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.866
Subarea runoff = 8.306(CFS)
Total initial stream area = 2.780(Ac.)
Pervious area fraction = 0.500
Initial area Fm value = 0.131(In/Hr)

++
Process from Point/Station 103.200 to Point/Station 103.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****

Upstream point/station elevation = 2895.000(Ft.)
Downstream point/station elevation = 2892.700(Ft.)
Pipe length = 55.70(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 8.306(CFS)
Given pipe size = 18.00(In.)
Calculated individual pipe flow = 8.306(CFS)
Normal flow depth in pipe = 7.79(In.)
Flow top width inside pipe = 17.84(In.)
Critical Depth = 13.40(In.)
Pipe flow velocity = 11.32(Ft/s)
Travel time through pipe = 0.08 min.
Time of concentration (TC) = 11.95 min.

++
Process from Point/Station 103.000 to Point/Station 103.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 2.780(Ac.)
Runoff from this stream = 8.306(CFS)
Time of concentration = 11.95 min.
Rainfall intensity = 3.434(In/Hr)
Area averaged loss rate (Fm) = 0.1308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

Stream No.	Flow rate (CFS)	Area (Ac.)	TC (min)	Fm (In/Hr)	Rainfall Intensity (In/Hr)
1	9.14	2.660	10.47	0.131	3.768
2	8.31	2.780	11.95	0.131	3.434

Qmax(1) =
1.000 * 1.000 * 9.138) +
1.101 * 0.876 * 8.306) + = 17.148
Qmax(2) =
0.908 * 1.000 * 9.138) +
1.000 * 1.000 * 8.306) + = 16.605

Total of 2 streams to confluence:

```
Flow rates before confluence point:
       9.138       8.306
Maximum flow rates at confluence using above data:
       17.148       16.605
Area of streams before confluence:
        2.660        2.780
Effective area values after confluence:
        5.095        5.440
Results of confluence:
Total flow rate =     17.148(CFS)
Time of concentration =    10.469 min.
Effective stream area after confluence =      5.095(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.131(In/Hr)
Study area total (this main stream) =       5.44(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  2892.700(Ft.)
Downstream point/station elevation =  2888.300(Ft.)
Pipe length  =   290.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    17.148(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    17.148(CFS)
Normal flow depth in pipe =   15.26(In.)
Flow top width inside pipe =   18.72(In.)
Critical Depth =   18.19(In.)
Pipe flow velocity =      9.15(Ft/s)
Travel time through pipe =    0.53 min.
Time of concentration (TC) =    11.00 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      5.095(Ac.)
Runoff from this stream =     17.148(CFS)
Time of concentration =   11.00 min.
Rainfall intensity =     3.640(In/Hr)
Area averaged loss rate (Fm) =    0.1308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     17.15     5.095     11.00    0.131      3.640
Qmax(1) =
           1.000 *    1.000 *    17.148) + =      17.148

Total of 1 streams to confluence:
Flow rates before confluence point:
      17.148
Maximum flow rates at confluence using above data:
       17.148
Area of streams before confluence:
```

```
        5.095
Effective area values after confluence:
        5.095
Results of confluence:
Total flow rate =     17.148(CFS)
Time of concentration =    10.997 min.
Effective stream area after confluence =      5.095(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.131(In/Hr)
Study area total (this main stream) =       5.09(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.100 to Point/Station      104.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.131(In/Hr)
Initial subarea data:
Initial area flow distance =   867.200(Ft.)
Top (of initial area) elevation =  2904.000(Ft.)
Bottom (of initial area) elevation =  2891.700(Ft.)
Difference in elevation =    12.300(Ft.)
Slope =    0.01418  s(%)=       1.42
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   13.641 min.
Rainfall intensity =      3.131(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.862
Subarea runoff =     11.988(CFS)
Total initial stream area =        4.440(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.131(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.200 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  2891.700(Ft.)
Downstream point/station elevation =  2888.300(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    11.988(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =    11.988(CFS)
Normal flow depth in pipe =    8.57(In.)
Flow top width inside pipe =   17.98(In.)
Critical Depth =   15.76(In.)
Pipe flow velocity =     14.47(Ft/s)
Travel time through pipe =    0.06 min.
Time of concentration (TC) =    13.70 min.


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Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
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Along Main Stream number: 1 in normal stream number 2
Stream flow area =      4.440(Ac.)
Runoff from this stream =     11.988(CFS)
Time of concentration =   13.70 min.
Rainfall intensity =     3.121(In/Hr)
Area averaged loss rate (Fm) =    0.1308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     17.15     5.095     11.00    0.131      3.640
2     11.99     4.440     13.70    0.131      3.121
Qmax(1) =
           1.000 *    1.000 *    17.148) +
           1.174 *    0.802 *    11.988) + =      28.440
Qmax(2) =
           0.852 *    1.000 *    17.148) +
           1.000 *    1.000 *    11.988) + =      26.596

Total of 2 streams to confluence:
Flow rates before confluence point:
      17.148      11.988
Maximum flow rates at confluence using above data:
       28.440       26.596
Area of streams before confluence:
        5.095        4.440
Effective area values after confluence:
        8.658        9.535
Results of confluence:
Total flow rate =     28.440(CFS)
Time of concentration =    10.997 min.
Effective stream area after confluence =      8.658(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.131(In/Hr)
Study area total (this main stream) =       9.53(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  2888.300(Ft.)
Downstream point/station elevation =  2883.800(Ft.)
Pipe length  =   298.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    28.440(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    28.440(CFS)
Normal flow depth in pipe =   17.39(In.)
Flow top width inside pipe =   25.85(In.)
Critical Depth =   22.25(In.)
Pipe flow velocity =     10.49(Ft/s)
Travel time through pipe =    0.47 min.
Time of concentration (TC) =    11.47 min.


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Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
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```
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      8.658(Ac.)
Runoff from this stream =     28.440(CFS)
Time of concentration =   11.47 min.
Rainfall intensity =     3.535(In/Hr)
Area averaged loss rate (Fm) =    0.1308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     28.44     8.658     11.47    0.131      3.535
Qmax(1) =
           1.000 *    1.000 *    28.440) + =      28.440

Total of 1 streams to confluence:
Flow rates before confluence point:
      28.440
Maximum flow rates at confluence using above data:
       28.440
Area of streams before confluence:
        8.658
Effective area values after confluence:
        8.658
Results of confluence:
Total flow rate =     28.440(CFS)
Time of concentration =    11.470 min.
Effective stream area after confluence =      8.658(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.131(In/Hr)
Study area total (this main stream) =       8.66(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.100 to Point/Station      105.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.131(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  2906.800(Ft.)
Bottom (of initial area) elevation =  2904.100(Ft.)
Difference in elevation =     2.700(Ft.)
Slope =    0.00270  s(%)=       0.27
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   20.122 min.
Rainfall intensity =      2.385(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.851
Subarea runoff =      6.005(CFS)
Total initial stream area =        2.960(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.131(In/Hr)
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Process from Point/Station      105.200 to Point/Station      105.300
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of street segment elevation =  2904.100(Ft.)
End of street segment elevation =  2885.000(Ft.)
Length of street segment  =   754.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      8.567(CFS)
Depth of flow =   0.409(Ft.), Average velocity =   6.298(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.242(Ft.)
Flow velocity =   6.30(Ft/s)
Travel time =    2.00 min.     TC =   22.12  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.131(In/Hr)
Rainfall intensity =      2.232(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.847
Subarea runoff =      5.021(CFS) for    2.870(Ac.)
Total runoff =     11.026(CFS)
Effective area this stream =        5.83(Ac.)
Total Study Area (Main Stream No. 1) =       15.71(Ac.)
Area averaged Fm value =    0.131(In/Hr)
Street flow at end of street =     11.026(CFS)
Half street flow at end of street =      5.513(CFS)
Depth of flow =   0.464(Ft.), Average velocity =   6.849(Ft/s)
Flow width (from curb towards crown)=   2.297(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.300 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =  2885.000(Ft.)
Downstream point/station elevation =  2883.800(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    11.026(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =    11.026(CFS)
Normal flow depth in pipe =   11.20(In.)
Flow top width inside pipe =   17.45(In.)
```

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Critical Depth =   15.26(In.)
Pipe flow velocity =      9.53(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =    22.21 min.


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Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      5.830(Ac.)
Runoff from this stream =     11.026(CFS)
Time of concentration =   22.21 min.
Rainfall intensity =     2.225(In/Hr)
Area averaged loss rate (Fm) =    0.1308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     28.44     8.658     11.47    0.131      3.535
2     11.03     5.830     22.21    0.131      2.225
Qmax(1) =
           1.000 *    1.000 *    28.440) +
           1.625 *    0.516 *    11.026) + =      37.692
Qmax(2) =
           0.615 *    1.000 *    28.440) +
           1.000 *    1.000 *    11.026) + =      28.527

Total of 2 streams to confluence:
Flow rates before confluence point:
      28.440      11.026
Maximum flow rates at confluence using above data:
       37.692       28.527
Area of streams before confluence:
        8.658        5.830
Effective area values after confluence:
       11.668       14.488
Results of confluence:
Total flow rate =     37.692(CFS)
Time of concentration =    11.470 min.
Effective stream area after confluence =     11.668(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.131(In/Hr)
Study area total (this main stream) =      14.49(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      106.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of street segment elevation =  2883.800(Ft.)
End of street segment elevation =  2881.300(Ft.)
Length of street segment  =   166.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
```

```
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     38.742(CFS)
Depth of flow =   1.025(Ft.), Average velocity =   8.347(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.26(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.858(Ft.)
Flow velocity =   8.35(Ft/s)
Travel time =    0.33 min.     TC =   11.80  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.131(In/Hr)
Rainfall intensity =      3.465(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.866
Subarea runoff =      1.910(CFS) for    1.530(Ac.)
Total runoff =     39.602(CFS)
Effective area this stream =       13.20(Ac.)
Total Study Area (Main Stream No. 1) =       17.24(Ac.)
Area averaged Fm value =    0.131(In/Hr)
Street flow at end of street =     39.602(CFS)
Half street flow at end of street =     19.801(CFS)
Depth of flow =   1.037(Ft.), Average velocity =   8.399(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.27(Ft.)
Flow width (from curb towards crown)=   2.870(Ft.)


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Process from Point/Station      106.000 to Point/Station      107.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  2881.300(Ft.)
End of street segment elevation =  2877.200(Ft.)
Length of street segment  =   276.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     41.287(CFS)
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Depth of flow =   1.063(Ft.), Average velocity =   8.456(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.28(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.897(Ft.)
Flow velocity =   8.46(Ft/s)
Travel time =    0.54 min.     TC =   12.35  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.500
SCS curve number for soil(AMC 2)  = 72.00
Adjusted SCS curve number for AMC 3 = 88.60
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.109(In/Hr)
Rainfall intensity =      3.357(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.866
Subarea runoff =      3.195(CFS) for    1.530(Ac.)
Total runoff =     42.796(CFS)
Effective area this stream =       14.73(Ac.)
Total Study Area (Main Stream No. 1) =       18.77(Ac.)
Area averaged Fm value =    0.129(In/Hr)
Street flow at end of street =     42.796(CFS)
Half street flow at end of street =     21.398(CFS)
Depth of flow =   1.083(Ft.), Average velocity =   8.541(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.29(Ft.)
Flow width (from curb towards crown)=   2.917(Ft.)


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Process from Point/Station      107.000 to Point/Station      108.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
PARK subarea
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) = 0.8500     Max loss rate(Fm)=     0.374(In/Hr)
Time of concentration =    12.35 min.
Rainfall intensity =      3.357(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.862
Subarea runoff =      2.524(CFS) for    0.940(Ac.)
Total runoff =     45.320(CFS)
Effective area this stream =       15.67(Ac.)
Total Study Area (Main Stream No. 1) =       19.71(Ac.)
Area averaged Fm value =    0.143(In/Hr)
End of computations, Total Study Area =           19.71 (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) = 0.517
Area averaged SCS curve number =  68.6
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San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study Date: 06/17/19

TRACT NO. 20280
PROPOSED CONDITION, ON-SITE AREA
10-YEAR STORM , 1-Hour

Program License Serial Number 6385

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.630 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

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Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.5000 Max loss rate(Fm)= 0.274(In/Hr)
Initial subarea data:
Initial area flow distance = 470.600(Ft.)
Top (of initial area) elevation = 2907.300(Ft.)
Bottom (of initial area) elevation = 2897.000(Ft.)
Difference in elevation = 10.300(Ft.)
Slope = 0.02189 s(%)= 2.19
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.794 min.
Rainfall intensity = 2.241(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.790
Subarea runoff = 4.708(CFS)
Total initial stream area = 2.660(Ac.)
Pervious area fraction = 0.500
Initial area Fm value = 0.274(In/Hr)

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Process from Point/Station 102.000 to Point/Station 103.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 2897.000(Ft.)
Downstream point/station elevation = 2892.700(Ft.)
Pipe length = 310.00(Ft.) Manning's N = 0.013

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No. of pipes = 1  Required pipe flow  =     4.708(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     4.708(CFS)
Normal flow depth in pipe =    8.54(In.)
Flow top width inside pipe =   14.85(In.)
Critical Depth =   10.56(In.)
Pipe flow velocity =      6.53(Ft/s)
Travel time through pipe =    0.79 min.
Time of concentration (TC) =    10.59 min.


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Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.660(Ac.)
Runoff from this stream =      4.708(CFS)
Time of concentration =   10.59 min.
Rainfall intensity =     2.122(In/Hr)
Area averaged loss rate (Fm) =    0.2740(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      4.71     2.660     10.59    0.274      2.122
Qmax(1) =
           1.000 *    1.000 *     4.708) + =       4.708

Total of 1 streams to confluence:
Flow rates before confluence point:
       4.708
Maximum flow rates at confluence using above data:
        4.708
Area of streams before confluence:
        2.660
Effective area values after confluence:
        2.660
Results of confluence:
Total flow rate =      4.708(CFS)
Time of concentration =    10.586 min.
Effective stream area after confluence =      2.660(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.274(In/Hr)
Study area total (this main stream) =       2.66(Ac.)


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Process from Point/Station      103.100 to Point/Station      103.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.274(In/Hr)
Initial subarea data:
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Initial area flow distance =   648.400(Ft.)
Top (of initial area) elevation =  2905.300(Ft.)
Bottom (of initial area) elevation =  2895.000(Ft.)
Difference in elevation =    10.300(Ft.)
Slope =    0.01589  s(%)=       1.59
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.871 min.
Rainfall intensity =      1.958(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.774
Subarea runoff =      4.215(CFS)
Total initial stream area =        2.780(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.274(In/Hr)


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Process from Point/Station      103.200 to Point/Station      103.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  2895.000(Ft.)
Downstream point/station elevation =  2892.700(Ft.)
Pipe length  =    55.70(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     4.215(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     4.215(CFS)
Normal flow depth in pipe =    5.42(In.)
Flow top width inside pipe =   16.52(In.)
Critical Depth =    9.44(In.)
Pipe flow velocity =      9.40(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =    11.97 min.


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Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.780(Ac.)
Runoff from this stream =      4.215(CFS)
Time of concentration =   11.97 min.
Rainfall intensity =     1.947(In/Hr)
Area averaged loss rate (Fm) =    0.2740(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      4.71     2.660     10.59    0.274      2.122
2      4.21     2.780     11.97    0.274      1.947
Qmax(1) =
           1.000 *    1.000 *     4.708) +
           1.105 *    0.884 *     4.215) + =       8.825
Qmax(2) =
           0.905 *    1.000 *     4.708) +
           1.000 *    1.000 *     4.215) + =       8.477

Total of 2 streams to confluence:
Flow rates before confluence point:
       4.708       4.215
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Maximum flow rates at confluence using above data:
        8.825        8.477
Area of streams before confluence:
        2.660        2.780
Effective area values after confluence:
        5.119        5.440
Results of confluence:
Total flow rate =      8.825(CFS)
Time of concentration =    10.586 min.
Effective stream area after confluence =      5.119(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.274(In/Hr)
Study area total (this main stream) =       5.44(Ac.)


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Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  2892.700(Ft.)
Downstream point/station elevation =  2888.300(Ft.)
Pipe length  =   290.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     8.825(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     8.825(CFS)
Normal flow depth in pipe =   10.91(In.)
Flow top width inside pipe =   17.59(In.)
Critical Depth =   13.80(In.)
Pipe flow velocity =      7.88(Ft/s)
Travel time through pipe =    0.61 min.
Time of concentration (TC) =    11.20 min.


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Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      5.119(Ac.)
Runoff from this stream =      8.825(CFS)
Time of concentration =   11.20 min.
Rainfall intensity =     2.040(In/Hr)
Area averaged loss rate (Fm) =    0.2740(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      8.82     5.119     11.20    0.274      2.040
Qmax(1) =
           1.000 *    1.000 *     8.825) + =       8.825

Total of 1 streams to confluence:
Flow rates before confluence point:
       8.825
Maximum flow rates at confluence using above data:
        8.825
Area of streams before confluence:
        5.119
Effective area values after confluence:
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        5.119
Results of confluence:
Total flow rate =      8.825(CFS)
Time of concentration =    11.199 min.
Effective stream area after confluence =      5.119(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.274(In/Hr)
Study area total (this main stream) =       5.12(Ac.)


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Process from Point/Station      104.100 to Point/Station      104.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.274(In/Hr)
Initial subarea data:
Initial area flow distance =   867.200(Ft.)
Top (of initial area) elevation =  2904.000(Ft.)
Bottom (of initial area) elevation =  2891.700(Ft.)
Difference in elevation =    12.300(Ft.)
Slope =    0.01418  s(%)=       1.42
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   13.641 min.
Rainfall intensity =      1.777(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.761
Subarea runoff =      6.006(CFS)
Total initial stream area =        4.440(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.274(In/Hr)


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Process from Point/Station      104.200 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  2891.700(Ft.)
Downstream point/station elevation =  2888.300(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     6.006(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     6.006(CFS)
Normal flow depth in pipe =    5.87(In.)
Flow top width inside pipe =   16.88(In.)
Critical Depth =   11.35(In.)
Pipe flow velocity =     12.00(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =    13.72 min.


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Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      4.440(Ac.)
Runoff from this stream =      6.006(CFS)
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Time of concentration =   13.72 min.
Rainfall intensity =     1.770(In/Hr)
Area averaged loss rate (Fm) =    0.2740(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      8.82     5.119     11.20    0.274      2.040
2      6.01     4.440     13.72    0.274      1.770
Qmax(1) =
           1.000 *    1.000 *     8.825) +
           1.180 *    0.816 *     6.006) + =      14.613
Qmax(2) =
           0.847 *    1.000 *     8.825) +
           1.000 *    1.000 *     6.006) + =      13.482

Total of 2 streams to confluence:
Flow rates before confluence point:
       8.825       6.006
Maximum flow rates at confluence using above data:
       14.613       13.482
Area of streams before confluence:
        5.119        4.440
Effective area values after confluence:
        8.744        9.559
Results of confluence:
Total flow rate =     14.613(CFS)
Time of concentration =    11.199 min.
Effective stream area after confluence =      8.744(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.274(In/Hr)
Study area total (this main stream) =       9.56(Ac.)


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Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  2888.300(Ft.)
Downstream point/station elevation =  2883.800(Ft.)
Pipe length  =   298.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    14.613(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    14.613(CFS)
Normal flow depth in pipe =   13.57(In.)
Flow top width inside pipe =   20.08(In.)
Critical Depth =   17.01(In.)
Pipe flow velocity =      8.88(Ft/s)
Travel time through pipe =    0.56 min.
Time of concentration (TC) =    11.76 min.


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Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      8.744(Ac.)
Runoff from this stream =     14.613(CFS)
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Time of concentration =   11.76 min.
Rainfall intensity =     1.972(In/Hr)
Area averaged loss rate (Fm) =    0.2740(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     14.61     8.744     11.76    0.274      1.972
Qmax(1) =
           1.000 *    1.000 *    14.613) + =      14.613

Total of 1 streams to confluence:
Flow rates before confluence point:
      14.613
Maximum flow rates at confluence using above data:
       14.613
Area of streams before confluence:
        8.744
Effective area values after confluence:
        8.744
Results of confluence:
Total flow rate =     14.613(CFS)
Time of concentration =    11.758 min.
Effective stream area after confluence =      8.744(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.274(In/Hr)
Study area total (this main stream) =       8.74(Ac.)


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Process from Point/Station      105.100 to Point/Station      105.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.274(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  2906.800(Ft.)
Bottom (of initial area) elevation =  2904.100(Ft.)
Difference in elevation =     2.700(Ft.)
Slope =    0.00270  s(%)=       0.27
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   20.122 min.
Rainfall intensity =      1.354(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.718
Subarea runoff =      2.876(CFS)
Total initial stream area =        2.960(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.274(In/Hr)


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Process from Point/Station      105.200 to Point/Station      105.300
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
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Top of street segment elevation =  2904.100(Ft.)
End of street segment elevation =  2885.000(Ft.)
Length of street segment  =   754.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      4.056(CFS)
Depth of flow =   0.288(Ft.), Average velocity =   4.863(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.121(Ft.)
Flow velocity =   4.86(Ft/s)
Travel time =    2.58 min.     TC =   22.71  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.274(In/Hr)
Rainfall intensity =      1.244(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.702
Subarea runoff =      2.213(CFS) for    2.870(Ac.)
Total runoff =      5.089(CFS)
Effective area this stream =        5.83(Ac.)
Total Study Area (Main Stream No. 1) =       15.71(Ac.)
Area averaged Fm value =    0.274(In/Hr)
Street flow at end of street =      5.089(CFS)
Half street flow at end of street =      2.544(CFS)
Depth of flow =   0.319(Ft.), Average velocity =   5.268(Ft/s)
Flow width (from curb towards crown)=   2.152(Ft.)


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Process from Point/Station      105.300 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
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Upstream point/station elevation =  2885.000(Ft.)
Downstream point/station elevation =  2883.800(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.089(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     5.089(CFS)
Normal flow depth in pipe =    7.10(In.)
Flow top width inside pipe =   17.59(In.)
Critical Depth =   10.42(In.)
Pipe flow velocity =      7.86(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =    22.82 min.
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Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
____________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      5.830(Ac.)
Runoff from this stream =      5.089(CFS)
Time of concentration =   22.82 min.
Rainfall intensity =     1.239(In/Hr)
Area averaged loss rate (Fm) =    0.2740(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     14.61     8.744     11.76    0.274      1.972
2      5.09     5.830     22.82    0.274      1.239
Qmax(1) =
           1.000 *    1.000 *    14.613) +
           1.758 *    0.515 *     5.089) + =      19.223
Qmax(2) =
           0.569 *    1.000 *    14.613) +
           1.000 *    1.000 *     5.089) + =      13.399

Total of 2 streams to confluence:
Flow rates before confluence point:
      14.613       5.089
Maximum flow rates at confluence using above data:
       19.223       13.399
Area of streams before confluence:
        8.744        5.830
Effective area values after confluence:
       11.747       14.574
Results of confluence:
Total flow rate =     19.223(CFS)
Time of concentration =    11.758 min.
Effective stream area after confluence =     11.747(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.274(In/Hr)
Study area total (this main stream) =      14.57(Ac.)


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Process from Point/Station      105.000 to Point/Station      106.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
____________________________________________________________________________
Top of street segment elevation =  2883.800(Ft.)
End of street segment elevation =  2881.300(Ft.)
Length of street segment  =   166.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
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 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     19.542(CFS)
Depth of flow =   0.716(Ft.), Average velocity =   6.845(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.11(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.549(Ft.)
Flow velocity =   6.84(Ft/s)
Travel time =    0.40 min.     TC =   12.16  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.274(In/Hr)
Rainfall intensity =      1.925(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.772
Subarea runoff =      0.511(CFS) for    1.530(Ac.)
Total runoff =     19.734(CFS)
Effective area this stream =       13.28(Ac.)
Total Study Area (Main Stream No. 1) =       17.24(Ac.)
Area averaged Fm value =    0.274(In/Hr)
Street flow at end of street =     19.734(CFS)
Half street flow at end of street =      9.867(CFS)
Depth of flow =   0.720(Ft.), Average velocity =   6.865(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.11(Ft.)
Flow width (from curb towards crown)=   2.553(Ft.)


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Process from Point/Station      106.000 to Point/Station      107.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  2881.300(Ft.)
End of street segment elevation =  2877.200(Ft.)
Length of street segment  =   276.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     20.475(CFS)
Depth of flow =   0.736(Ft.), Average velocity =   6.908(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.12(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.570(Ft.)
Flow velocity =   6.91(Ft/s)
```

```
Travel time =    0.67 min.     TC =   12.83  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.500
SCS curve number for soil(AMC 2)  = 72.00
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.251(In/Hr)
Rainfall intensity =      1.855(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.768
Subarea runoff =      1.366(CFS) for    1.530(Ac.)
Total runoff =     21.101(CFS)
Effective area this stream =       14.81(Ac.)
Total Study Area (Main Stream No. 1) =       18.77(Ac.)
Area averaged Fm value =    0.272(In/Hr)
Street flow at end of street =     21.101(CFS)
Half street flow at end of street =     10.550(CFS)
Depth of flow =   0.748(Ft.), Average velocity =   6.970(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.12(Ft.)
Flow width (from curb towards crown)=   2.581(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      108.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
PARK subarea
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) = 0.8500     Max loss rate(Fm)=     0.624(In/Hr)
Time of concentration =    12.83 min.
Rainfall intensity =      1.855(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.758
Subarea runoff =      1.041(CFS) for    0.940(Ac.)
Total runoff =     22.142(CFS)
Effective area this stream =       15.75(Ac.)
Total Study Area (Main Stream No. 1) =       19.71(Ac.)
Area averaged Fm value =    0.293(In/Hr)
End of computations, Total Study Area =           19.71 (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) = 0.517
Area averaged SCS curve number =  68.6
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study Date: 06/17/19

TRACT NO. 20280
PROPOSED CONDITION, ON-SITE AREA
2-YEAR STORM , 1-Hour

Program License Serial Number 6385

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 1 hour rainfall = 0.370 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Adjusted SCS curve number for AMC 1 = 49.80
Pervious ratio(Ap) = 0.5000 Max loss rate(Fm)= 0.406(In/Hr)
Initial subarea data:
Initial area flow distance = 470.600(Ft.)
Top (of initial area) elevation = 2907.300(Ft.)
Bottom (of initial area) elevation = 2897.000(Ft.)
Difference in elevation = 10.300(Ft.)
Slope = 0.02189 s(%)= 2.19
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.794 min.
Rainfall intensity = 1.316(In/Hr) for a 2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.622
Subarea runoff = 2.178(CFS)
Total initial stream area = 2.660(Ac.)
Pervious area fraction = 0.500
Initial area Fm value = 0.406(In/Hr)

++
Process from Point/Station 102.000 to Point/Station 103.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 2897.000(Ft.)
Downstream point/station elevation = 2892.700(Ft.)

```
Pipe length  =   310.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.178(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.178(CFS)
Normal flow depth in pipe =    6.13(In.)
Flow top width inside pipe =   12.00(In.)
Critical Depth =    7.57(In.)
Pipe flow velocity =      5.39(Ft/s)
Travel time through pipe =    0.96 min.
Time of concentration (TC) =    10.75 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.660(Ac.)
Runoff from this stream =      2.178(CFS)
Time of concentration =   10.75 min.
Rainfall intensity =     1.233(In/Hr)
Area averaged loss rate (Fm) =    0.4060(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      2.18     2.660     10.75    0.406      1.233
Qmax(1) =
           1.000 *    1.000 *     2.178) + =       2.178

Total of 1 streams to confluence:
Flow rates before confluence point:
       2.178
Maximum flow rates at confluence using above data:
        2.178
Area of streams before confluence:
        2.660
Effective area values after confluence:
        2.660
Results of confluence:
Total flow rate =      2.178(CFS)
Time of concentration =    10.752 min.
Effective stream area after confluence =      2.660(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.406(In/Hr)
Study area total (this main stream) =       2.66(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.100 to Point/Station      103.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 1 = 49.80
```

Pervious ratio(Ap) = 0.5000 Max loss rate(Fm)= 0.406(In/Hr)
Initial subarea data:
Initial area flow distance = 648.400(Ft.)
Top (of initial area) elevation = 2905.300(Ft.)
Bottom (of initial area) elevation = 2895.000(Ft.)
Difference in elevation = 10.300(Ft.)
Slope = 0.01589 s(%)= 1.59
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.871 min.
Rainfall intensity = 1.150(In/Hr) for a 2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.582
Subarea runoff = 1.862(CFS)
Total initial stream area = 2.780(Ac.)
Pervious area fraction = 0.500
Initial area Fm value = 0.406(In/Hr)

++
Process from Point/Station 103.200 to Point/Station 103.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
_____
Upstream point/station elevation = 2895.000(Ft.)
Downstream point/station elevation = 2892.700(Ft.)
Pipe length = 55.70(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 1.862(CFS)
Given pipe size = 18.00(In.)
Calculated individual pipe flow = 1.862(CFS)
Normal flow depth in pipe = 3.59(In.)
Flow top width inside pipe = 14.39(In.)
Critical Depth = 6.16(In.)
Pipe flow velocity = 7.42(Ft/s)
Travel time through pipe = 0.13 min.
Time of concentration (TC) = 12.00 min.

++
Process from Point/Station 103.000 to Point/Station 103.000
**** CONFLUENCE OF MINOR STREAMS ****
_____
Along Main Stream number: 1 in normal stream number 2
Stream flow area = 2.780(Ac.)
Runoff from this stream = 1.862(CFS)
Time of concentration = 12.00 min.
Rainfall intensity = 1.142(In/Hr)
Area averaged loss rate (Fm) = 0.4060(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

Stream No.	Flow rate (CFS)	Area (Ac.)	TC (min)	Fm (In/Hr)	Rainfall Intensity (In/Hr)
1	2.18	2.660	10.75	0.406	1.233
2	1.86	2.780	12.00	0.406	1.142

Qmax(1) =
1.000 * 1.000 * 2.178) +
1.124 * 0.896 * 1.862) + = 4.054
Qmax(2) =
0.890 * 1.000 * 2.178) +
1.000 * 1.000 * 1.862) + = 3.801

Total of 2 streams to confluence:

```
Flow rates before confluence point:
       2.178       1.862
Maximum flow rates at confluence using above data:
        4.054        3.801
Area of streams before confluence:
        2.660        2.780
Effective area values after confluence:
        5.152        5.440
Results of confluence:
Total flow rate =      4.054(CFS)
Time of concentration =    10.752 min.
Effective stream area after confluence =      5.152(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.406(In/Hr)
Study area total (this main stream) =       5.44(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  2892.700(Ft.)
Downstream point/station elevation =  2888.300(Ft.)
Pipe length  =   290.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     4.054(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     4.054(CFS)
Normal flow depth in pipe =    9.09(In.)
Flow top width inside pipe =   10.28(In.)
Critical Depth =   10.23(In.)
Pipe flow velocity =      6.34(Ft/s)
Travel time through pipe =    0.76 min.
Time of concentration (TC) =    11.51 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      5.152(Ac.)
Runoff from this stream =      4.054(CFS)
Time of concentration =   11.51 min.
Rainfall intensity =     1.175(In/Hr)
Area averaged loss rate (Fm) =    0.4060(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      4.05     5.152     11.51    0.406      1.175
Qmax(1) =
           1.000 *    1.000 *     4.054) + =       4.054

Total of 1 streams to confluence:
Flow rates before confluence point:
       4.054
Maximum flow rates at confluence using above data:
        4.054
Area of streams before confluence:
```

```
        5.152
Effective area values after confluence:
        5.152
Results of confluence:
Total flow rate =      4.054(CFS)
Time of concentration =    11.515 min.
Effective stream area after confluence =      5.152(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.406(In/Hr)
Study area total (this main stream) =       5.15(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.100 to Point/Station      104.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 1 = 49.80
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.406(In/Hr)
Initial subarea data:
Initial area flow distance =   867.200(Ft.)
Top (of initial area) elevation =  2904.000(Ft.)
Bottom (of initial area) elevation =  2891.700(Ft.)
Difference in elevation =    12.300(Ft.)
Slope =    0.01418  s(%)=       1.42
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   13.641 min.
Rainfall intensity =      1.044(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.550
Subarea runoff =      2.548(CFS)
Total initial stream area =        4.440(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.406(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.200 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  2891.700(Ft.)
Downstream point/station elevation =  2888.300(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.548(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     2.548(CFS)
Normal flow depth in pipe =    3.80(In.)
Flow top width inside pipe =   14.69(In.)
Critical Depth =    7.26(In.)
Pipe flow velocity =      9.38(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =    13.74 min.


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Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
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```
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      4.440(Ac.)
Runoff from this stream =      2.548(CFS)
Time of concentration =   13.74 min.
Rainfall intensity =     1.038(In/Hr)
Area averaged loss rate (Fm) =    0.4060(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      4.05     5.152     11.51    0.406      1.175
2      2.55     4.440     13.74    0.406      1.038
Qmax(1) =
           1.000 *    1.000 *     4.054) +
           1.216 *    0.838 *     2.548) + =       6.650
Qmax(2) =
           0.822 *    1.000 *     4.054) +
           1.000 *    1.000 *     2.548) + =       5.881

Total of 2 streams to confluence:
Flow rates before confluence point:
       4.054       2.548
Maximum flow rates at confluence using above data:
        6.650        5.881
Area of streams before confluence:
        5.152        4.440
Effective area values after confluence:
        8.873        9.592
Results of confluence:
Total flow rate =      6.650(CFS)
Time of concentration =    11.515 min.
Effective stream area after confluence =      8.873(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.406(In/Hr)
Study area total (this main stream) =       9.59(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  2888.300(Ft.)
Downstream point/station elevation =  2883.800(Ft.)
Pipe length  =   298.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     6.650(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     6.650(CFS)
Normal flow depth in pipe =   10.50(In.)
Flow top width inside pipe =   13.75(In.)
Critical Depth =   12.45(In.)
Pipe flow velocity =      7.24(Ft/s)
Travel time through pipe =    0.69 min.
Time of concentration (TC) =    12.20 min.


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Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
```

```
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      8.873(Ac.)
Runoff from this stream =      6.650(CFS)
Time of concentration =   12.20 min.
Rainfall intensity =     1.128(In/Hr)
Area averaged loss rate (Fm) =    0.4060(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      6.65     8.873     12.20    0.406      1.128
Qmax(1) =
           1.000 *    1.000 *     6.650) + =       6.650

Total of 1 streams to confluence:
Flow rates before confluence point:
       6.650
Maximum flow rates at confluence using above data:
        6.650
Area of streams before confluence:
        8.873
Effective area values after confluence:
        8.873
Results of confluence:
Total flow rate =      6.650(CFS)
Time of concentration =    12.200 min.
Effective stream area after confluence =      8.873(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.406(In/Hr)
Study area total (this main stream) =       8.87(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.100 to Point/Station      105.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 1 = 49.80
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.406(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  2906.800(Ft.)
Bottom (of initial area) elevation =  2904.100(Ft.)
Difference in elevation =     2.700(Ft.)
Slope =    0.00270  s(%)=       0.27
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   20.122 min.
Rainfall intensity =      0.795(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff =      1.059(CFS)
Total initial stream area =        2.960(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.406(In/Hr)
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Process from Point/Station      105.200 to Point/Station      105.300
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of street segment elevation =  2904.100(Ft.)
End of street segment elevation =  2885.000(Ft.)
Length of street segment  =   754.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      1.380(CFS)
Depth of flow =   0.188(Ft.), Average velocity =   3.278(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.022(Ft.)
Flow velocity =   3.28(Ft/s)
Travel time =    3.83 min.     TC =   23.96  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 1 = 49.80
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.406(In/Hr)
Rainfall intensity =      0.704(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.450
Subarea runoff =      0.787(CFS) for    2.870(Ac.)
Total runoff =      1.846(CFS)
Effective area this stream =        5.83(Ac.)
Total Study Area (Main Stream No. 1) =       15.71(Ac.)
Area averaged Fm value =    0.406(In/Hr)
Street flow at end of street =      1.846(CFS)
Half street flow at end of street =      0.923(CFS)
Depth of flow =   0.209(Ft.), Average velocity =   3.653(Ft/s)
Flow width (from curb towards crown)=   2.043(Ft.)


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Process from Point/Station      105.300 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =  2885.000(Ft.)
Downstream point/station elevation =  2883.800(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.846(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     1.846(CFS)
Normal flow depth in pipe =    4.19(In.)
Flow top width inside pipe =   15.22(In.)
```

```
Critical Depth =    6.13(In.)
Pipe flow velocity =      5.91(Ft/s)
Travel time through pipe =    0.16 min.
Time of concentration (TC) =    24.11 min.


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Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      5.830(Ac.)
Runoff from this stream =      1.846(CFS)
Time of concentration =   24.11 min.
Rainfall intensity =     0.700(In/Hr)
Area averaged loss rate (Fm) =    0.4060(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      6.65     8.873     12.20    0.406      1.128
2      1.85     5.830     24.11    0.406      0.700
Qmax(1) =
           1.000 *    1.000 *     6.650) +
           2.453 *    0.506 *     1.846) + =       8.942
Qmax(2) =
           0.408 *    1.000 *     6.650) +
           1.000 *    1.000 *     1.846) + =       4.557

Total of 2 streams to confluence:
Flow rates before confluence point:
       6.650       1.846
Maximum flow rates at confluence using above data:
        8.942        4.557
Area of streams before confluence:
        8.873        5.830
Effective area values after confluence:
       11.823       14.703
Results of confluence:
Total flow rate =      8.942(CFS)
Time of concentration =    12.200 min.
Effective stream area after confluence =     11.823(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.406(In/Hr)
Study area total (this main stream) =      14.70(Ac.)


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Process from Point/Station      105.000 to Point/Station      106.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of street segment elevation =  2883.800(Ft.)
End of street segment elevation =  2881.300(Ft.)
Length of street segment  =   166.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
```

```
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      9.014(CFS)
Depth of flow =   0.478(Ft.), Average velocity =   5.383(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.311(Ft.)
Flow velocity =   5.38(Ft/s)
Travel time =    0.51 min.     TC =   12.71  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 1 = 49.80
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.406(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =      8.296(CFS)
therefore the upstream flow rate of Q =      8.942(CFS) is being used
Rainfall intensity =      1.096(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.567
Subarea runoff =      0.000(CFS) for    1.530(Ac.)
Total runoff =      8.942(CFS)
Effective area this stream =       13.35(Ac.)
Total Study Area (Main Stream No. 1) =       17.24(Ac.)
Area averaged Fm value =    0.406(In/Hr)
Street flow at end of street =      8.942(CFS)
Half street flow at end of street =      4.471(CFS)
Depth of flow =   0.476(Ft.), Average velocity =   5.369(Ft/s)
Flow width (from curb towards crown)=   2.309(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  2881.300(Ft.)
End of street segment elevation =  2877.200(Ft.)
Length of street segment  =   276.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      9.006(CFS)
Depth of flow =   0.479(Ft.), Average velocity =   5.356(Ft/s)
```

```
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.313(Ft.)
Flow velocity =   5.36(Ft/s)
Travel time =    0.86 min.     TC =   13.57  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.500
SCS curve number for soil(AMC 2)  = 72.00
Adjusted SCS curve number for AMC 1 = 53.40
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.384(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =      8.620(CFS)
therefore the upstream flow rate of Q =      8.942(CFS) is being used
Rainfall intensity =      1.047(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.553
Subarea runoff =      0.000(CFS) for    1.530(Ac.)
Total runoff =      8.942(CFS)
Effective area this stream =       14.88(Ac.)
Total Study Area (Main Stream No. 1) =       18.77(Ac.)
Area averaged Fm value =    0.404(In/Hr)
Street flow at end of street =      8.942(CFS)
Half street flow at end of street =      4.471(CFS)
Depth of flow =   0.477(Ft.), Average velocity =   5.344(Ft/s)
Flow width (from curb towards crown)=   2.311(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      108.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
PARK subarea
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 1 = 36.00
Pervious ratio(Ap) = 0.8500     Max loss rate(Fm)=     0.808(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =      8.822(CFS)
therefore the upstream flow rate of Q =      8.942(CFS) is being used
Time of concentration =    13.57 min.
Rainfall intensity =      1.047(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.532
Subarea runoff =      0.000(CFS) for    0.940(Ac.)
Total runoff =      8.942(CFS)
Effective area this stream =       15.82(Ac.)
Total Study Area (Main Stream No. 1) =       19.71(Ac.)
Area averaged Fm value =    0.428(In/Hr)
End of computations, Total Study Area =           19.71 (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) = 0.517
Area averaged SCS curve number =  68.6
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 01/29/20

TRACT NO. 20280
PROPOSED CONDITION, ON-SITE AREA
2-HOUR, 100-Year Storm

Program License Serial Number 4009

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 2 hour rainfall = 1.410 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.5000 Max loss rate(Fm)= 0.131(In/Hr)
Initial subarea data:
Initial area flow distance = 470.600(Ft.)
Top (of initial area) elevation = 2907.300(Ft.)
Bottom (of initial area) elevation = 2897.000(Ft.)
Difference in elevation = 10.300(Ft.)
Slope = 0.02189 s(%)= 2.19
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.794 min.
Rainfall intensity = 5.015(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.877
Subarea runoff = 11.692(CFS)
Total initial stream area = 2.660(Ac.)
Pervious area fraction = 0.500
Initial area Fm value = 0.131(In/Hr)

++
Process from Point/Station 102.000 to Point/Station 103.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 2897.000(Ft.)
Downstream point/station elevation = 2892.700(Ft.)

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Pipe length  =   310.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    11.692(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    11.692(CFS)
Normal flow depth in pipe =   13.95(In.)
Flow top width inside pipe =   15.04(In.)
Critical Depth =   15.62(In.)
Pipe flow velocity =      7.96(Ft/s)
Travel time through pipe =    0.65 min.
Time of concentration (TC) =    10.44 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.660(Ac.)
Runoff from this stream =     11.692(CFS)
Time of concentration =   10.44 min.
Rainfall intensity =     4.795(In/Hr)
Area averaged loss rate (Fm) =    0.1308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     11.69     2.660     10.44    0.131      4.795
Qmax(1) =
           1.000 *    1.000 *    11.692) + =      11.692

Total of 1 streams to confluence:
Flow rates before confluence point:
      11.692
Maximum flow rates at confluence using above data:
       11.692
Area of streams before confluence:
        2.660
Effective area values after confluence:
        2.660
Results of confluence:
Total flow rate =     11.692(CFS)
Time of concentration =    10.443 min.
Effective stream area after confluence =      2.660(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.131(In/Hr)
Study area total (this main stream) =       2.66(Ac.)


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Process from Point/Station      103.100 to Point/Station      103.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
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Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.131(In/Hr)
Initial subarea data:
Initial area flow distance =   648.400(Ft.)
Top (of initial area) elevation =  2905.300(Ft.)
Bottom (of initial area) elevation =  2895.000(Ft.)
Difference in elevation =    10.300(Ft.)
Slope =    0.01589  s(%)=       1.59
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.871 min.
Rainfall intensity =      4.383(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.873
Subarea runoff =     10.639(CFS)
Total initial stream area =        2.780(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.131(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.200 to Point/Station      103.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  2895.000(Ft.)
Downstream point/station elevation =  2892.700(Ft.)
Pipe length  =    55.70(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    10.639(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =    10.639(CFS)
Normal flow depth in pipe =    8.99(In.)
Flow top width inside pipe =   18.00(In.)
Critical Depth =   15.03(In.)
Pipe flow velocity =     12.07(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =    11.95 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.780(Ac.)
Runoff from this stream =     10.639(CFS)
Time of concentration =   11.95 min.
Rainfall intensity =     4.363(In/Hr)
Area averaged loss rate (Fm) =    0.1308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     11.69     2.660     10.44    0.131      4.795
2     10.64     2.780     11.95    0.131      4.363
Qmax(1) =
          1.000 *    1.000 *    11.692) +
          1.102 *    0.874 *    10.639) + =      21.939
Qmax(2) =
          0.908 *    1.000 *    11.692) +
          1.000 *    1.000 *    10.639) + =      21.251

Total of 2 streams to confluence:
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```
Flow rates before confluence point:
      11.692      10.639
Maximum flow rates at confluence using above data:
       21.939       21.251
Area of streams before confluence:
        2.660        2.780
Effective area values after confluence:
        5.090        5.440
Results of confluence:
Total flow rate =     21.939(CFS)
Time of concentration =    10.443 min.
Effective stream area after confluence =      5.090(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.131(In/Hr)
Study area total (this main stream) =       5.44(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  2892.700(Ft.)
Downstream point/station elevation =  2888.300(Ft.)
Pipe length  =   290.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    21.939(CFS)
Nearest computed pipe diameter  =     24.00(In.)
Calculated individual pipe flow  =    21.939(CFS)
Normal flow depth in pipe =   16.05(In.)
Flow top width inside pipe =   22.59(In.)
Critical Depth =   20.08(In.)
Pipe flow velocity =      9.83(Ft/s)
Travel time through pipe =    0.49 min.
Time of concentration (TC) =    10.93 min.


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Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      5.090(Ac.)
Runoff from this stream =     21.939(CFS)
Time of concentration =   10.93 min.
Rainfall intensity =     4.643(In/Hr)
Area averaged loss rate (Fm) =    0.1308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     21.94     5.090     10.93    0.131      4.643
Qmax(1) =
           1.000 *    1.000 *    21.939) + =      21.939

Total of 1 streams to confluence:
Flow rates before confluence point:
      21.939
Maximum flow rates at confluence using above data:
       21.939
Area of streams before confluence:
```

```
        5.090
Effective area values after confluence:
        5.090
Results of confluence:
Total flow rate =     21.939(CFS)
Time of concentration =    10.935 min.
Effective stream area after confluence =      5.090(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.131(In/Hr)
Study area total (this main stream) =       5.09(Ac.)


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Process from Point/Station      104.100 to Point/Station      104.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.131(In/Hr)
Initial subarea data:
Initial area flow distance =   867.200(Ft.)
Top (of initial area) elevation =  2904.000(Ft.)
Bottom (of initial area) elevation =  2891.700(Ft.)
Difference in elevation =    12.300(Ft.)
Slope =    0.01418  s(%)=       1.42
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   13.641 min.
Rainfall intensity =      3.977(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.870
Subarea runoff =     15.369(CFS)
Total initial stream area =        4.440(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.131(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.200 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  2891.700(Ft.)
Downstream point/station elevation =  2888.300(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    15.369(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =    15.369(CFS)
Normal flow depth in pipe =    9.93(In.)
Flow top width inside pipe =   17.90(In.)
Critical Depth =   16.95(In.)
Pipe flow velocity =     15.38(Ft/s)
Travel time through pipe =    0.06 min.
Time of concentration (TC) =    13.70 min.


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Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
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Along Main Stream number: 1 in normal stream number 2
Stream flow area =      4.440(Ac.)
Runoff from this stream =     15.369(CFS)
Time of concentration =   13.70 min.
Rainfall intensity =     3.965(In/Hr)
Area averaged loss rate (Fm) =    0.1308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     21.94     5.090     10.93    0.131      4.643
2     15.37     4.440     13.70    0.131      3.965
Qmax(1) =
           1.000 *    1.000 *    21.939) +
           1.177 *    0.798 *    15.369) + =      36.374
Qmax(2) =
           0.850 *    1.000 *    21.939) +
           1.000 *    1.000 *    15.369) + =      34.012

Total of 2 streams to confluence:
Flow rates before confluence point:
      21.939      15.369
Maximum flow rates at confluence using above data:
       36.374       34.012
Area of streams before confluence:
        5.090        4.440
Effective area values after confluence:
        8.634        9.530
Results of confluence:
Total flow rate =     36.374(CFS)
Time of concentration =    10.935 min.
Effective stream area after confluence =      8.634(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.131(In/Hr)
Study area total (this main stream) =       9.53(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  2888.300(Ft.)
Downstream point/station elevation =  2883.800(Ft.)
Pipe length  =   298.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    36.374(CFS)
Nearest computed pipe diameter  =     27.00(In.)
Calculated individual pipe flow  =    36.374(CFS)
Normal flow depth in pipe =   21.14(In.)
Flow top width inside pipe =   22.26(In.)
Critical Depth =   24.45(In.)
Pipe flow velocity =     10.90(Ft/s)
Travel time through pipe =    0.46 min.
Time of concentration (TC) =    11.39 min.


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Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
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```
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      8.634(Ac.)
Runoff from this stream =     36.374(CFS)
Time of concentration =   11.39 min.
Rainfall intensity =     4.512(In/Hr)
Area averaged loss rate (Fm) =    0.1308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     36.37     8.634     11.39    0.131      4.512
Qmax(1) =
           1.000 *    1.000 *    36.374) + =      36.374

Total of 1 streams to confluence:
Flow rates before confluence point:
      36.374
Maximum flow rates at confluence using above data:
       36.374
Area of streams before confluence:
        8.634
Effective area values after confluence:
        8.634
Results of confluence:
Total flow rate =     36.374(CFS)
Time of concentration =    11.391 min.
Effective stream area after confluence =      8.634(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.131(In/Hr)
Study area total (this main stream) =       8.63(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.100 to Point/Station      105.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.131(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  2906.800(Ft.)
Bottom (of initial area) elevation =  2904.100(Ft.)
Difference in elevation =     2.700(Ft.)
Slope =    0.00270  s(%)=       0.27
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   20.122 min.
Rainfall intensity =      3.029(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.861
Subarea runoff =      7.722(CFS)
Total initial stream area =        2.960(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.131(In/Hr)
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Process from Point/Station      105.200 to Point/Station      105.300
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of street segment elevation =  2904.100(Ft.)
End of street segment elevation =  2885.000(Ft.)
Length of street segment  =   754.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     11.055(CFS)
Depth of flow =   0.464(Ft.), Average velocity =   6.855(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.298(Ft.)
Flow velocity =   6.85(Ft/s)
Travel time =    1.83 min.     TC =   21.96  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.131(In/Hr)
Rainfall intensity =      2.850(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.859
Subarea runoff =      6.546(CFS) for    2.870(Ac.)
Total runoff =     14.268(CFS)
Effective area this stream =        5.83(Ac.)
Total Study Area (Main Stream No. 1) =       15.71(Ac.)
Area averaged Fm value =    0.131(In/Hr)
Street flow at end of street =     14.268(CFS)
Half street flow at end of street =      7.134(CFS)
Depth of flow =   0.530(Ft.), Average velocity =   7.441(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.01(Ft.)
Flow width (from curb towards crown)=   2.363(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.300 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =  2885.000(Ft.)
Downstream point/station elevation =  2883.800(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    14.268(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =    14.268(CFS)
```

```
Normal flow depth in pipe =   13.59(In.)
Flow top width inside pipe =   15.48(In.)
Critical Depth =   16.66(In.)
Pipe flow velocity =      9.96(Ft/s)
Travel time through pipe =    0.09 min.
Time of concentration (TC) =    22.05 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      5.830(Ac.)
Runoff from this stream =     14.268(CFS)
Time of concentration =   22.05 min.
Rainfall intensity =     2.842(In/Hr)
Area averaged loss rate (Fm) =    0.1308(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     36.37     8.634     11.39    0.131      4.512
2     14.27     5.830     22.05    0.131      2.842
Qmax(1) =
           1.000 *    1.000 *    36.374) +
           1.616 *    0.517 *    14.268) + =      48.286
Qmax(2) =
           0.619 *    1.000 *    36.374) +
           1.000 *    1.000 *    14.268) + =      36.776

Total of 2 streams to confluence:
Flow rates before confluence point:
      36.374      14.268
Maximum flow rates at confluence using above data:
       48.286       36.776
Area of streams before confluence:
        8.634        5.830
Effective area values after confluence:
       11.646       14.464
Results of confluence:
Total flow rate =     48.286(CFS)
Time of concentration =    11.391 min.
Effective stream area after confluence =     11.646(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.131(In/Hr)
Study area total (this main stream) =      14.46(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      106.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  2883.800(Ft.)
End of street segment elevation =  2881.300(Ft.)
Length of street segment  =   166.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
```

```
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     49.679(CFS)
Depth of flow =   1.166(Ft.), Average velocity =   8.946(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.33(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   3.000(Ft.)
Flow velocity =   8.95(Ft/s)
Travel time =    0.31 min.     TC =   11.70  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.131(In/Hr)
Rainfall intensity =      4.428(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.873
Subarea runoff =      2.669(CFS) for    1.530(Ac.)
Total runoff =     50.956(CFS)
Effective area this stream =       13.18(Ac.)
Total Study Area (Main Stream No. 1) =       17.24(Ac.)
Area averaged Fm value =    0.131(In/Hr)
Street flow at end of street =     50.956(CFS)
Half street flow at end of street =     25.478(CFS)
Depth of flow =   1.182(Ft.), Average velocity =   9.008(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.34(Ft.)
Flow width (from curb towards crown)=   3.015(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  2881.300(Ft.)
End of street segment elevation =  2877.200(Ft.)
Length of street segment  =   276.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
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 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     53.125(CFS)
Depth of flow =   1.212(Ft.), Average velocity =   9.067(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.36(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   3.045(Ft.)
Flow velocity =   9.07(Ft/s)
Travel time =    0.51 min.     TC =   12.21  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.500
SCS curve number for soil(AMC 2)  = 72.00
Adjusted SCS curve number for AMC 3 = 88.60
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.109(In/Hr)
Rainfall intensity =      4.298(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.873
Subarea runoff =      4.231(CFS) for    1.530(Ac.)
Total runoff =     55.187(CFS)
Effective area this stream =       14.71(Ac.)
Total Study Area (Main Stream No. 1) =       18.77(Ac.)
Area averaged Fm value =    0.128(In/Hr)
Street flow at end of street =     55.187(CFS)
Half street flow at end of street =     27.593(CFS)
Depth of flow =   1.236(Ft.), Average velocity =   9.162(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.37(Ft.)
Flow width (from curb towards crown)=   3.069(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      108.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
PARK subarea
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) = 0.8500     Max loss rate(Fm)=     0.374(In/Hr)
Time of concentration =    12.21 min.
Rainfall intensity =      4.298(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.870
Subarea runoff =      3.320(CFS) for    0.940(Ac.)
Total runoff =     58.507(CFS)
Effective area this stream =       15.65(Ac.)
Total Study Area (Main Stream No. 1) =       19.71(Ac.)
Area averaged Fm value =    0.143(In/Hr)
End of computations, Total Study Area =           19.71 (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) = 0.517
```

Area averaged SCS curve number = 68.6

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 01/29/20

TRACT NO. 20280
PROPOSED CONDITION, ON-SITE AREA
2-Hour, 10-Year Storm

Program License Serial Number 4009

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 2 hour rainfall = 0.831 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

++

Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.5000 Max loss rate(Fm)= 0.274(In/Hr)
Initial subarea data:
Initial area flow distance = 470.600(Ft.)
Top (of initial area) elevation = 2907.300(Ft.)
Bottom (of initial area) elevation = 2897.000(Ft.)
Difference in elevation = 10.300(Ft.)
Slope = 0.02189 s(%)= 2.19
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.794 min.
Rainfall intensity = 2.955(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.817
Subarea runoff = 6.420(CFS)
Total initial stream area = 2.660(Ac.)
Pervious area fraction = 0.500
Initial area Fm value = 0.274(In/Hr)

++

Process from Point/Station 102.000 to Point/Station 103.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

```
Upstream point/station elevation =  2897.000(Ft.)
Downstream point/station elevation =  2892.700(Ft.)
Pipe length  =   310.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     6.420(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     6.420(CFS)
Normal flow depth in pipe =   10.57(In.)
Flow top width inside pipe =   13.69(In.)
Critical Depth =   12.26(In.)
Pipe flow velocity =      6.95(Ft/s)
Travel time through pipe =    0.74 min.
Time of concentration (TC) =    10.54 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.660(Ac.)
Runoff from this stream =      6.420(CFS)
Time of concentration =   10.54 min.
Rainfall intensity =     2.808(In/Hr)
Area averaged loss rate (Fm) =    0.2740(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      6.42     2.660     10.54    0.274      2.808
Qmax(1) =
           1.000 *    1.000 *     6.420) + =       6.420

Total of 1 streams to confluence:
Flow rates before confluence point:
       6.420
Maximum flow rates at confluence using above data:
        6.420
Area of streams before confluence:
        2.660
Effective area values after confluence:
        2.660
Results of confluence:
Total flow rate =      6.420(CFS)
Time of concentration =    10.537 min.
Effective stream area after confluence =      2.660(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.274(In/Hr)
Study area total (this main stream) =       2.66(Ac.)


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Process from Point/Station      103.100 to Point/Station      103.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
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```
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.274(In/Hr)
Initial subarea data:
Initial area flow distance =   648.400(Ft.)
Top (of initial area) elevation =  2905.300(Ft.)
Bottom (of initial area) elevation =  2895.000(Ft.)
Difference in elevation =    10.300(Ft.)
Slope =    0.01589  s(%)=       1.59
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.871 min.
Rainfall intensity =      2.583(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.805
Subarea runoff =      5.778(CFS)
Total initial stream area =        2.780(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.274(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.200 to Point/Station      103.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =  2895.000(Ft.)
Downstream point/station elevation =  2892.700(Ft.)
Pipe length  =    55.70(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.778(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     5.778(CFS)
Normal flow depth in pipe =    6.40(In.)
Flow top width inside pipe =   17.23(In.)
Critical Depth =   11.12(In.)
Pipe flow velocity =     10.26(Ft/s)
Travel time through pipe =    0.09 min.
Time of concentration (TC) =    11.96 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.780(Ac.)
Runoff from this stream =      5.778(CFS)
Time of concentration =   11.96 min.
Rainfall intensity =     2.570(In/Hr)
Area averaged loss rate (Fm) =    0.2740(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      6.42     2.660     10.54    0.274      2.808
2      5.78     2.780     11.96    0.274      2.570
Qmax(1) =
```

```
           1.000 *    1.000 *     6.420) +
           1.104 *    0.881 *     5.778) + =      12.038
Qmax(2) =
           0.906 *    1.000 *     6.420) +
           1.000 *    1.000 *     5.778) + =      11.593

Total of 2 streams to confluence:
Flow rates before confluence point:
       6.420       5.778
Maximum flow rates at confluence using above data:
       12.038       11.593
Area of streams before confluence:
        2.660        2.780
Effective area values after confluence:
        5.109        5.440
Results of confluence:
Total flow rate =     12.038(CFS)
Time of concentration =    10.537 min.
Effective stream area after confluence =      5.109(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.274(In/Hr)
Study area total (this main stream) =       5.44(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  2892.700(Ft.)
Downstream point/station elevation =  2888.300(Ft.)
Pipe length  =   290.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    12.038(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    12.038(CFS)
Normal flow depth in pipe =   13.73(In.)
Flow top width inside pipe =   15.31(In.)
Critical Depth =   15.79(In.)
Pipe flow velocity =      8.32(Ft/s)
Travel time through pipe =    0.58 min.
Time of concentration (TC) =    11.12 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      5.109(Ac.)
Runoff from this stream =     12.038(CFS)
Time of concentration =   11.12 min.
Rainfall intensity =     2.704(In/Hr)
Area averaged loss rate (Fm) =    0.2740(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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

```
1     12.04     5.109     11.12    0.274      2.704
Qmax(1) =
           1.000 *    1.000 *    12.038) + =      12.038

Total of 1 streams to confluence:
Flow rates before confluence point:
      12.038
Maximum flow rates at confluence using above data:
       12.038
Area of streams before confluence:
        5.109
Effective area values after confluence:
        5.109
Results of confluence:
Total flow rate =     12.038(CFS)
Time of concentration =    11.119 min.
Effective stream area after confluence =      5.109(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.274(In/Hr)
Study area total (this main stream) =       5.11(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.100 to Point/Station      104.200
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.274(In/Hr)
Initial subarea data:
Initial area flow distance =   867.200(Ft.)
Top (of initial area) elevation =  2904.000(Ft.)
Bottom (of initial area) elevation =  2891.700(Ft.)
Difference in elevation =    12.300(Ft.)
Slope =    0.01418  s(%)=       1.42
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   13.641 min.
Rainfall intensity =      2.344(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.795
Subarea runoff =      8.271(CFS)
Total initial stream area =        4.440(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.274(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.200 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =  2891.700(Ft.)
Downstream point/station elevation =  2888.300(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     8.271(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     8.271(CFS)
```

```
Normal flow depth in pipe =    6.96(In.)
Flow top width inside pipe =   17.53(In.)
Critical Depth =   13.37(In.)
Pipe flow velocity =     13.11(Ft/s)
Travel time through pipe =    0.07 min.
Time of concentration (TC) =    13.71 min.


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Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      4.440(Ac.)
Runoff from this stream =      8.271(CFS)
Time of concentration =   13.71 min.
Rainfall intensity =     2.335(In/Hr)
Area averaged loss rate (Fm) =    0.2740(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     12.04     5.109     11.12    0.274      2.704
2      8.27     4.440     13.71    0.274      2.335
Qmax(1) =
           1.000 *    1.000 *    12.038) +
           1.179 *    0.811 *     8.271) + =      19.946
Qmax(2) =
           0.848 *    1.000 *    12.038) +
           1.000 *    1.000 *     8.271) + =      18.482

Total of 2 streams to confluence:
Flow rates before confluence point:
      12.038       8.271
Maximum flow rates at confluence using above data:
       19.946       18.482
Area of streams before confluence:
        5.109        4.440
Effective area values after confluence:
        8.710        9.549
Results of confluence:
Total flow rate =     19.946(CFS)
Time of concentration =    11.119 min.
Effective stream area after confluence =      8.710(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.274(In/Hr)
Study area total (this main stream) =       9.55(Ac.)


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Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =  2888.300(Ft.)
Downstream point/station elevation =  2883.800(Ft.)
Pipe length  =   298.00(Ft.)   Manning's N = 0.013
```

No. of pipes = 1 Required pipe flow =   19.946(CFS)
Nearest computed pipe diameter =   24.00(In.)
Calculated individual pipe flow =   19.946(CFS)
Normal flow depth in pipe =   15.05(In.)
Flow top width inside pipe =   23.21(In.)
Critical Depth =   19.26(In.)
Pipe flow velocity =   9.62(Ft/s)
Travel time through pipe =   0.52 min.
Time of concentration (TC) =   11.63 min.

++
Process from Point/Station   105.000 to Point/Station   105.000
**** CONFLUENCE OF MINOR STREAMS ****
____
Along Main Stream number: 1 in normal stream number 1
Stream flow area =   8.710(Ac.)
Runoff from this stream =   19.946(CFS)
Time of concentration =   11.63 min.
Rainfall intensity =   2.620(In/Hr)
Area averaged loss rate (Fm) =   0.2740(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

Stream No.	Area (Ac.)	Flow rate (CFS)	TC (min)	Fm (In/Hr)	Rainfall Intensity (In/Hr)
1	19.95	8.710	11.63	0.274	2.620

Qmax(1) =
           1.000 *   1.000 *   19.946) + =   19.946

Total of 1 streams to confluence:
Flow rates before confluence point:
      19.946
Maximum flow rates at confluence using above data:
       19.946
Area of streams before confluence:
        8.710
Effective area values after confluence:
        8.710
Results of confluence:
Total flow rate =   19.946(CFS)
Time of concentration =   11.635 min.
Effective stream area after confluence =   8.710(Ac.)
Study area average Pervious fraction(Ap) = 0.500
Study area average soil loss rate(Fm) =   0.274(In/Hr)
Study area total (this main stream) =   8.71(Ac.)

++
Process from Point/Station   105.100 to Point/Station   105.200
**** INITIAL AREA EVALUATION ****
____
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000

```
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.274(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  2906.800(Ft.)
Bottom (of initial area) elevation =  2904.100(Ft.)
Difference in elevation =     2.700(Ft.)
Slope =    0.00270  s(%)=       0.27
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   20.122 min.
Rainfall intensity =      1.785(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.762
Subarea runoff =      4.026(CFS)
Total initial stream area =        2.960(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.274(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.200 to Point/Station      105.300
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of street segment elevation =  2904.100(Ft.)
End of street segment elevation =  2885.000(Ft.)
Length of street segment  =   754.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      5.725(CFS)
Depth of flow =   0.337(Ft.), Average velocity =   5.489(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.170(Ft.)
Flow velocity =   5.49(Ft/s)
Travel time =    2.29 min.     TC =   22.41  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.274(In/Hr)
Rainfall intensity =      1.656(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.751
Subarea runoff =      3.223(CFS) for    2.870(Ac.)
Total runoff =      7.250(CFS)
Effective area this stream =        5.83(Ac.)
Total Study Area (Main Stream No. 1) =       15.71(Ac.)
```

```
Area averaged Fm value =    0.274(In/Hr)
Street flow at end of street =      7.250(CFS)
Half street flow at end of street =      3.625(CFS)
Depth of flow =   0.377(Ft.), Average velocity =   5.953(Ft/s)
Flow width (from curb towards crown)=   2.210(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.300 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =  2885.000(Ft.)
Downstream point/station elevation =  2883.800(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     7.250(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     7.250(CFS)
Normal flow depth in pipe =    8.65(In.)
Flow top width inside pipe =   17.99(In.)
Critical Depth =   12.50(In.)
Pipe flow velocity =      8.63(Ft/s)
Travel time through pipe =    0.11 min.
Time of concentration (TC) =    22.52 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      5.830(Ac.)
Runoff from this stream =      7.250(CFS)
Time of concentration =   22.52 min.
Rainfall intensity =     1.650(In/Hr)
Area averaged loss rate (Fm) =    0.2740(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     19.95     8.710     11.63    0.274      2.620
2      7.25     5.830     22.52    0.274      1.650
Qmax(1) =
           1.000 *    1.000 *    19.946) +
           1.705 *    0.517 *     7.250) + =      26.331
Qmax(2) =
           0.587 *    1.000 *    19.946) +
           1.000 *    1.000 *     7.250) + =      18.951

Total of 2 streams to confluence:
Flow rates before confluence point:
      19.946       7.250
Maximum flow rates at confluence using above data:
       26.331       18.951
Area of streams before confluence:
        8.710        5.830
Effective area values after confluence:
```

```
       11.722       14.540
Results of confluence:
Total flow rate =     26.331(CFS)
Time of concentration =    11.635 min.
Effective stream area after confluence =     11.722(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.274(In/Hr)
Study area total (this main stream) =      14.54(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      106.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of street segment elevation =  2883.800(Ft.)
End of street segment elevation =  2881.300(Ft.)
Length of street segment  =   166.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     26.896(CFS)
Depth of flow =   0.847(Ft.), Average velocity =   7.521(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.17(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.680(Ft.)
Flow velocity =   7.52(Ft/s)
Travel time =    0.37 min.     TC =   12.00  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.274(In/Hr)
Rainfall intensity =      2.563(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.804
Subarea runoff =      0.974(CFS) for    1.530(Ac.)
Total runoff =     27.305(CFS)
Effective area this stream =       13.25(Ac.)
Total Study Area (Main Stream No. 1) =       17.24(Ac.)
Area averaged Fm value =    0.274(In/Hr)
Street flow at end of street =     27.305(CFS)
Half street flow at end of street =     13.653(CFS)
Depth of flow =   0.853(Ft.), Average velocity =   7.554(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.18(Ft.)
```

Flow width (from curb towards crown)=   2.687(Ft.)

++
Process from Point/Station   106.000 to Point/Station   107.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
_____
Top of street segment elevation = 2881.300(Ft.)
End of street segment elevation = 2877.200(Ft.)
Length of street segment =   276.000(Ft.)
Height of curb above gutter flowline =   6.0(In.)
Width of half street (curb to crown) = 23.000(Ft.)
Distance from crown to crossfall grade break = 11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz) =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline = 2.000(In.)
 Manning's N in gutter = 0.0150
 Manning's N from gutter to grade break = 0.0130
 Manning's N from grade break to crown = 0.0150
Estimated mean flow rate at midpoint of street =   28.392(CFS)
Depth of flow =   0.874(Ft.), Average velocity =   7.602(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =   0.19(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.708(Ft.)
Flow velocity =   7.60(Ft/s)
Travel time =   0.61 min.   TC =   12.61 min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.500
SCS curve number for soil(AMC 2) = 72.00
Pervious ratio(Ap) = 0.5000   Max loss rate(Fm)=   0.251(In/Hr)
Rainfall intensity =   2.477(In/Hr) for a   10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.801
Subarea runoff =   2.031(CFS) for   1.530(Ac.)
Total runoff =   29.336(CFS)
Effective area this stream =   14.78(Ac.)
Total Study Area (Main Stream No. 1) =   18.77(Ac.)
Area averaged Fm value =   0.272(In/Hr)
Street flow at end of street =   29.336(CFS)
Half street flow at end of street =   14.668(CFS)
Depth of flow =   0.889(Ft.), Average velocity =   7.674(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =   0.19(Ft.)
Flow width (from curb towards crown)=   2.723(Ft.)

++
Process from Point/Station   107.000 to Point/Station   108.000
**** SUBAREA FLOW ADDITION ****
_____

```
PARK subarea
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) = 0.8500     Max loss rate(Fm)=     0.624(In/Hr)
Time of concentration =    12.61 min.
Rainfall intensity =      2.477(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.794
Subarea runoff =      1.567(CFS) for    0.940(Ac.)
Total runoff =     30.904(CFS)
Effective area this stream =       15.72(Ac.)
Total Study Area (Main Stream No. 1) =       19.71(Ac.)
Area averaged Fm value =    0.293(In/Hr)
End of computations, Total Study Area =           19.71 (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) = 0.517
Area averaged SCS curve number =  68.6
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 01/29/20

TRACT NO. 20280
PROPOSED CONDITION, ON-SITE AREA
2-Hours, 2-YEAR STORM

Program License Serial Number 4009

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

Rational hydrology study storm event year is 2.0
Computed rainfall intensity:
Storm year = 2.00 2 hour rainfall = 0.504 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Adjusted SCS curve number for AMC 1 = 49.80
Pervious ratio(Ap) = 0.5000 Max loss rate(Fm)= 0.406(In/Hr)
Initial subarea data:
Initial area flow distance = 470.600(Ft.)
Top (of initial area) elevation = 2907.300(Ft.)
Bottom (of initial area) elevation = 2897.000(Ft.)
Difference in elevation = 10.300(Ft.)
Slope = 0.02189 s(%)= 2.19
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.794 min.
Rainfall intensity = 1.792(In/Hr) for a 2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.696
Subarea runoff = 3.319(CFS)
Total initial stream area = 2.660(Ac.)
Pervious area fraction = 0.500
Initial area Fm value = 0.406(In/Hr)

++
Process from Point/Station 102.000 to Point/Station 103.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 2897.000(Ft.)
Downstream point/station elevation = 2892.700(Ft.)

```
Pipe length  =   310.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.319(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     3.319(CFS)
Normal flow depth in pipe =    8.05(In.)
Flow top width inside pipe =   11.28(In.)
Critical Depth =    9.36(In.)
Pipe flow velocity =      5.92(Ft/s)
Travel time through pipe =    0.87 min.
Time of concentration (TC) =    10.67 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.660(Ac.)
Runoff from this stream =      3.319(CFS)
Time of concentration =   10.67 min.
Rainfall intensity =     1.689(In/Hr)
Area averaged loss rate (Fm) =    0.4060(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      3.32     2.660     10.67    0.406      1.689
Qmax(1) =
           1.000 *    1.000 *     3.319) + =       3.319

Total of 1 streams to confluence:
Flow rates before confluence point:
       3.319
Maximum flow rates at confluence using above data:
        3.319
Area of streams before confluence:
        2.660
Effective area values after confluence:
        2.660
Results of confluence:
Total flow rate =      3.319(CFS)
Time of concentration =    10.667 min.
Effective stream area after confluence =      2.660(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.406(In/Hr)
Study area total (this main stream) =       2.66(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.100 to Point/Station      103.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 1 = 49.80
```

Pervious ratio(Ap) = 0.5000 Max loss rate(Fm)= 0.406(In/Hr)
Initial subarea data:
Initial area flow distance = 648.400(Ft.)
Top (of initial area) elevation = 2905.300(Ft.)
Bottom (of initial area) elevation = 2895.000(Ft.)
Difference in elevation = 10.300(Ft.)
Slope = 0.01589 s(%)= 1.59
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.871 min.
Rainfall intensity = 1.567(In/Hr) for a 2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.667
Subarea runoff = 2.904(CFS)
Total initial stream area = 2.780(Ac.)
Pervious area fraction = 0.500
Initial area Fm value = 0.406(In/Hr)

++
Process from Point/Station 103.200 to Point/Station 103.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****

Upstream point/station elevation = 2895.000(Ft.)
Downstream point/station elevation = 2892.700(Ft.)
Pipe length = 55.70(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 2.904(CFS)
Given pipe size = 18.00(In.)
Calculated individual pipe flow = 2.904(CFS)
Normal flow depth in pipe = 4.49(In.)
Flow top width inside pipe = 15.57(In.)
Critical Depth = 7.76(In.)
Pipe flow velocity = 8.45(Ft/s)
Travel time through pipe = 0.11 min.
Time of concentration (TC) = 11.98 min.

++
Process from Point/Station 103.000 to Point/Station 103.000
**** CONFLUENCE OF MINOR STREAMS ****

Along Main Stream number: 1 in normal stream number 2
Stream flow area = 2.780(Ac.)
Runoff from this stream = 2.904(CFS)
Time of concentration = 11.98 min.
Rainfall intensity = 1.557(In/Hr)
Area averaged loss rate (Fm) = 0.4060(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

Stream No.	Area (Ac.)	Flow rate (CFS)	TC (min)	Fm (In/Hr)	Rainfall Intensity (In/Hr)
1	3.32	2.660	10.67	0.406	1.689
2	2.90	2.780	11.98	0.406	1.557

Qmax(1) =
1.000 * 1.000 * 3.319) +
1.115 * 0.890 * 2.904) + = 6.201
Qmax(2) =
0.897 * 1.000 * 3.319) +
1.000 * 1.000 * 2.904) + = 5.882

Total of 2 streams to confluence:

```
Flow rates before confluence point:
       3.319       2.904
Maximum flow rates at confluence using above data:
        6.201        5.882
Area of streams before confluence:
        2.660        2.780
Effective area values after confluence:
        5.135        5.440
Results of confluence:
Total flow rate =      6.201(CFS)
Time of concentration =    10.667 min.
Effective stream area after confluence =      5.135(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.406(In/Hr)
Study area total (this main stream) =       5.44(Ac.)


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Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  2892.700(Ft.)
Downstream point/station elevation =  2888.300(Ft.)
Pipe length  =   290.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     6.201(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     6.201(CFS)
Normal flow depth in pipe =    9.96(In.)
Flow top width inside pipe =   14.17(In.)
Critical Depth =   12.06(In.)
Pipe flow velocity =      7.17(Ft/s)
Travel time through pipe =    0.67 min.
Time of concentration (TC) =    11.34 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      5.135(Ac.)
Runoff from this stream =      6.201(CFS)
Time of concentration =   11.34 min.
Rainfall intensity =     1.618(In/Hr)
Area averaged loss rate (Fm) =    0.4060(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      6.20     5.135     11.34    0.406      1.618
Qmax(1) =
           1.000 *    1.000 *     6.201) + =       6.201

Total of 1 streams to confluence:
Flow rates before confluence point:
       6.201
Maximum flow rates at confluence using above data:
        6.201
Area of streams before confluence:
```

```
        5.135
Effective area values after confluence:
        5.135
Results of confluence:
Total flow rate =      6.201(CFS)
Time of concentration =    11.341 min.
Effective stream area after confluence =      5.135(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.406(In/Hr)
Study area total (this main stream) =       5.14(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.100 to Point/Station      104.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 1 = 49.80
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.406(In/Hr)
Initial subarea data:
Initial area flow distance =   867.200(Ft.)
Top (of initial area) elevation =  2904.000(Ft.)
Bottom (of initial area) elevation =  2891.700(Ft.)
Difference in elevation =    12.300(Ft.)
Slope =    0.01418  s(%)=       1.42
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   13.641 min.
Rainfall intensity =      1.422(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.643
Subarea runoff =      4.058(CFS)
Total initial stream area =        4.440(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.406(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.200 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =  2891.700(Ft.)
Downstream point/station elevation =  2888.300(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     4.058(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     4.058(CFS)
Normal flow depth in pipe =    4.80(In.)
Flow top width inside pipe =   15.92(In.)
Critical Depth =    9.25(In.)
Pipe flow velocity =     10.74(Ft/s)
Travel time through pipe =    0.09 min.
Time of concentration (TC) =    13.73 min.


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Process from Point/Station      104.000 to Point/Station      104.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
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Along Main Stream number: 1 in normal stream number 2
Stream flow area =      4.440(Ac.)
Runoff from this stream =      4.058(CFS)
Time of concentration =   13.73 min.
Rainfall intensity =     1.415(In/Hr)
Area averaged loss rate (Fm) =    0.4060(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1      6.20     5.135     11.34    0.406      1.618
2      4.06     4.440     13.73    0.406      1.415
Qmax(1) =
           1.000 *    1.000 *     6.201) +
           1.200 *    0.826 *     4.058) + =      10.226
Qmax(2) =
           0.833 *    1.000 *     6.201) +
           1.000 *    1.000 *     4.058) + =       9.224

Total of 2 streams to confluence:
Flow rates before confluence point:
       6.201       4.058
Maximum flow rates at confluence using above data:
       10.226        9.224
Area of streams before confluence:
        5.135        4.440
Effective area values after confluence:
        8.803        9.575
Results of confluence:
Total flow rate =     10.226(CFS)
Time of concentration =    11.341 min.
Effective stream area after confluence =      8.803(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.406(In/Hr)
Study area total (this main stream) =       9.58(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =  2888.300(Ft.)
Downstream point/station elevation =  2883.800(Ft.)
Pipe length  =   298.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    10.226(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =    10.226(CFS)
Normal flow depth in pipe =   12.09(In.)
Flow top width inside pipe =   16.90(In.)
Critical Depth =   14.78(In.)
Pipe flow velocity =      8.10(Ft/s)
Travel time through pipe =    0.61 min.
Time of concentration (TC) =    11.95 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
```

```
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      8.803(Ac.)
Runoff from this stream =     10.226(CFS)
Time of concentration =   11.95 min.
Rainfall intensity =     1.559(In/Hr)
Area averaged loss rate (Fm) =    0.4060(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     10.23     8.803     11.95    0.406      1.559
Qmax(1) =
           1.000 *    1.000 *    10.226) + =      10.226

Total of 1 streams to confluence:
Flow rates before confluence point:
      10.226
Maximum flow rates at confluence using above data:
       10.226
Area of streams before confluence:
        8.803
Effective area values after confluence:
        8.803
Results of confluence:
Total flow rate =     10.226(CFS)
Time of concentration =    11.954 min.
Effective stream area after confluence =      8.803(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.406(In/Hr)
Study area total (this main stream) =       8.80(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.100 to Point/Station      105.200
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 1 = 49.80
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.406(In/Hr)
Initial subarea data:
Initial area flow distance =  1000.000(Ft.)
Top (of initial area) elevation =  2906.800(Ft.)
Bottom (of initial area) elevation =  2904.100(Ft.)
Difference in elevation =     2.700(Ft.)
Slope =    0.00270  s(%)=       0.27
TC = k(0.389)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   20.122 min.
Rainfall intensity =      1.083(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.563
Subarea runoff =      1.803(CFS)
Total initial stream area =        2.960(Ac.)
Pervious area fraction = 0.500
Initial area Fm value =    0.406(In/Hr)
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Process from Point/Station      105.200 to Point/Station      105.300
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of street segment elevation =  2904.100(Ft.)
End of street segment elevation =  2885.000(Ft.)
Length of street segment  =   754.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      2.478(CFS)
Depth of flow =   0.234(Ft.), Average velocity =   4.071(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.068(Ft.)
Flow velocity =   4.07(Ft/s)
Travel time =    3.09 min.     TC =   23.21  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 1 = 49.80
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.406(In/Hr)
Rainfall intensity =      0.980(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.527
Subarea runoff =      1.208(CFS) for    2.870(Ac.)
Total runoff =      3.011(CFS)
Effective area this stream =        5.83(Ac.)
Total Study Area (Main Stream No. 1) =       15.71(Ac.)
Area averaged Fm value =    0.406(In/Hr)
Street flow at end of street =      3.011(CFS)
Half street flow at end of street =      1.506(CFS)
Depth of flow =   0.254(Ft.), Average velocity =   4.371(Ft/s)
Flow width (from curb towards crown)=   2.087(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      105.300 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =  2885.000(Ft.)
Downstream point/station elevation =  2883.800(Ft.)
Pipe length  =    55.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.011(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     3.011(CFS)
Normal flow depth in pipe =    5.37(In.)
Flow top width inside pipe =   16.47(In.)
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Critical Depth =    7.92(In.)
Pipe flow velocity =      6.80(Ft/s)
Travel time through pipe =    0.13 min.
Time of concentration (TC) =    23.34 min.


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Process from Point/Station      105.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      5.830(Ac.)
Runoff from this stream =      3.011(CFS)
Time of concentration =   23.34 min.
Rainfall intensity =     0.976(In/Hr)
Area averaged loss rate (Fm) =    0.4060(In/Hr)
Area averaged Pervious ratio (Ap) = 0.5000
Summary of stream data:

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


1     10.23     8.803     11.95    0.406      1.559
2      3.01     5.830     23.34    0.406      0.976
Qmax(1) =
           1.000 *    1.000 *    10.226) +
           2.023 *    0.512 *     3.011) + =      13.346
Qmax(2) =
           0.494 *    1.000 *    10.226) +
           1.000 *    1.000 *     3.011) + =       8.066

Total of 2 streams to confluence:
Flow rates before confluence point:
      10.226       3.011
Maximum flow rates at confluence using above data:
       13.346        8.066
Area of streams before confluence:
        8.803        5.830
Effective area values after confluence:
       11.789       14.633
Results of confluence:
Total flow rate =     13.346(CFS)
Time of concentration =    11.954 min.
Effective stream area after confluence =     11.789(Ac.)
Study area average Pervious fraction(Ap) =  0.500
Study area average soil loss rate(Fm) =    0.406(In/Hr)
Study area total (this main stream) =      14.63(Ac.)


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Process from Point/Station      105.000 to Point/Station      106.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Top of street segment elevation =  2883.800(Ft.)
End of street segment elevation =  2881.300(Ft.)
Length of street segment  =   166.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
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Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     13.401(CFS)
Depth of flow =   0.587(Ft.), Average velocity =   6.103(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.04(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.420(Ft.)
Flow velocity =   6.10(Ft/s)
Travel time =    0.45 min.     TC =   12.41  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 1 = 49.80
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.406(In/Hr)
The area added to the existing stream causes a
a lower flow rate of Q =     13.342(CFS)
therefore the upstream flow rate of Q =     13.346(CFS) is being used
Rainfall intensity =      1.519(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.659
Subarea runoff =      0.000(CFS) for    1.530(Ac.)
Total runoff =     13.346(CFS)
Effective area this stream =       13.32(Ac.)
Total Study Area (Main Stream No. 1) =       17.24(Ac.)
Area averaged Fm value =    0.406(In/Hr)
Street flow at end of street =     13.346(CFS)
Half street flow at end of street =      6.673(CFS)
Depth of flow =   0.586(Ft.), Average velocity =   6.095(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.04(Ft.)
Flow width (from curb towards crown)=   2.419(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      106.000 to Point/Station      107.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =  2881.300(Ft.)
End of street segment elevation =  2877.200(Ft.)
Length of street segment  =   276.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  23.000(Ft.)
Distance from crown to crossfall grade break  =  11.000(Ft.)
Slope from gutter to grade break (v/hz) =   1.000
Slope from grade break to crown (v/hz)  =   1.000
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   2.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0150
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 Manning's N from gutter to grade break =  0.0130
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =     13.817(CFS)
Depth of flow =   0.599(Ft.), Average velocity =   6.131(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.05(Ft.)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.432(Ft.)
Flow velocity =   6.13(Ft/s)
Travel time =    0.75 min.     TC =   13.16  min.
 Adding area flow to street
RESIDENTIAL(5 - 7 dwl/acre)
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.500
Decimal fraction soil group D = 0.500
SCS curve number for soil(AMC 2)  = 72.00
Adjusted SCS curve number for AMC 1 = 53.40
Pervious ratio(Ap) = 0.5000     Max loss rate(Fm)=     0.384(In/Hr)
Rainfall intensity =      1.458(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.651
Subarea runoff =      0.742(CFS) for    1.530(Ac.)
Total runoff =     14.088(CFS)
Effective area this stream =       14.85(Ac.)
Total Study Area (Main Stream No. 1) =       18.77(Ac.)
Area averaged Fm value =    0.404(In/Hr)
Street flow at end of street =     14.088(CFS)
Half street flow at end of street =      7.044(CFS)
Depth of flow =   0.605(Ft.), Average velocity =   6.168(Ft/s)
Warning: depth of flow exceeds top of curb
Distance that curb overflow reaches into property =    0.05(Ft.)
Flow width (from curb towards crown)=   2.438(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      108.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
PARK subarea
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 1 = 36.00
Pervious ratio(Ap) = 0.8500     Max loss rate(Fm)=     0.808(In/Hr)
Time of concentration =    13.16 min.
Rainfall intensity =      1.458(In/Hr) for a     2.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.636
Subarea runoff =      0.550(CFS) for    0.940(Ac.)
Total runoff =     14.638(CFS)
Effective area this stream =       15.79(Ac.)
Total Study Area (Main Stream No. 1) =       19.71(Ac.)
Area averaged Fm value =    0.428(In/Hr)
End of computations, Total Study Area =           19.71 (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.
```

Off-Site
Cahuenga Road

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study Date: 06/20/19

TRACT NO. 20280
POST-DEVELOPMENT CONDITION
CAHUENGA ROAD
100-YEAR STORM

Program License Serial Number 6385

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.110 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++

Process from Point/Station 301.000 to Point/Station 302.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.026(In/Hr)
Initial subarea data:
Initial area flow distance = 352.300(Ft.)
Top (of initial area) elevation = 2900.000(Ft.)
Bottom (of initial area) elevation = 2896.000(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.01135 s(%)= 1.14
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.773 min.
Rainfall intensity = 4.641(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.895
Subarea runoff = 1.827(CFS)
Total initial stream area = 0.440(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.026(In/Hr)

++

Process from Point/Station 302.000 to Point/Station 303.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation = 2896.000(Ft.)
End of street segment elevation = 2871.300(Ft.)

```
Length of street segment  =  1509.700(Ft.)
Height of curb above gutter flowline  =    8.0(In.)
Width of half street (curb to crown)  =  32.000(Ft.)
Distance from crown to crossfall grade break  =  15.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   0.000(Ft.)
Slope from curb to property line (v/hz) =   0.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0130
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      4.105(CFS)
Depth of flow =   0.286(Ft.), Average velocity =   2.683(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   7.989(Ft.)
Flow velocity =   2.68(Ft/s)
Travel time =    9.38 min.     TC =   17.15  min.
 Adding area flow to street
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.026(In/Hr)
Rainfall intensity =      2.667(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.891
Subarea runoff =      4.376(CFS) for    2.170(Ac.)
Total runoff =      6.203(CFS)
Effective area this stream =        2.61(Ac.)
Total Study Area (Main Stream No. 1) =        2.61(Ac.)
Area averaged Fm value =    0.026(In/Hr)
Street flow at end of street =      6.203(CFS)
Half street flow at end of street =      3.102(CFS)
Depth of flow =   0.320(Ft.), Average velocity =   2.926(Ft/s)
Flow width (from curb towards crown)=   9.661(Ft.)
End of computations, Total Study Area =            2.61 (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 =  69.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study Date: 06/20/19

TRACT NO. 20280
POST-DEVELOPMENT CONDITION
CAHUENGA ROAD
10-YEAR STORM

Program License Serial Number 6385

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.630 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

++
Process from Point/Station 301.000 to Point/Station 302.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.055(In/Hr)
Initial subarea data:
Initial area flow distance = 352.300(Ft.)
Top (of initial area) elevation = 2900.000(Ft.)
Bottom (of initial area) elevation = 2896.000(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.01135 s(%)= 1.14
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.773 min.
Rainfall intensity = 2.634(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.881
Subarea runoff = 1.021(CFS)
Total initial stream area = 0.440(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.055(In/Hr)

++
Process from Point/Station 302.000 to Point/Station 303.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation = 2896.000(Ft.)
End of street segment elevation = 2871.300(Ft.)
Length of street segment = 1509.700(Ft.)

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Height of curb above gutter flowline  =    8.0(In.)
Width of half street (curb to crown)  =  32.000(Ft.)
Distance from crown to crossfall grade break  =  15.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   0.000(Ft.)
Slope from curb to property line (v/hz) =   0.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0130
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      2.248(CFS)
Depth of flow =   0.243(Ft.), Average velocity =   2.403(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   5.841(Ft.)
Flow velocity =   2.40(Ft/s)
Travel time =   10.47 min.     TC =   18.25  min.
 Adding area flow to street
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.055(In/Hr)
Rainfall intensity =      1.450(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.866
Subarea runoff =      2.255(CFS) for    2.170(Ac.)
Total runoff =      3.276(CFS)
Effective area this stream =        2.61(Ac.)
Total Study Area (Main Stream No. 1) =        2.61(Ac.)
Area averaged Fm value =    0.055(In/Hr)
Street flow at end of street =      3.276(CFS)
Half street flow at end of street =      1.638(CFS)
Depth of flow =   0.270(Ft.), Average velocity =   2.567(Ft/s)
Flow width (from curb towards crown)=   7.152(Ft.)
End of computations, Total Study Area =            2.61 (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 =  69.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2004 Version 7.0
Rational Hydrology Study Date: 01/29/20

TRACT NO. 20280
POST-DEVELOPMENT CONDITION
CAHUENGA ROAD
2-Hour, 100-Year Storm

Program License Serial Number 4009

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

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 2 hour rainfall = 1.410 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

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Process from Point/Station 301.000 to Point/Station 302.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.026(In/Hr)
Initial subarea data:
Initial area flow distance = 352.300(Ft.)
Top (of initial area) elevation = 2900.000(Ft.)
Bottom (of initial area) elevation = 2896.000(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.01135 s(%)= 1.14
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.773 min.
Rainfall intensity = 5.895(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.896
Subarea runoff = 2.324(CFS)
Total initial stream area = 0.440(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.026(In/Hr)

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Process from Point/Station 302.000 to Point/Station 303.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation = 2896.000(Ft.)
End of street segment elevation = 2871.300(Ft.)
Length of street segment = 1509.700(Ft.)
Height of curb above gutter flowline = 8.0(In.)
Width of half street (curb to crown) = 32.000(Ft.)
Distance from crown to crossfall grade break = 15.000(Ft.)
Slope from gutter to grade break (v/hz) = 0.020
Slope from grade break to crown (v/hz) = 0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line = 0.000(Ft.)
Slope from curb to property line (v/hz) = 0.000
Gutter width = 2.000(Ft.)
Gutter hike from flowline = 2.000(In.)
Manning's N in gutter = 0.0130
Manning's N from gutter to grade break = 0.0150
Manning's N from grade break to crown = 0.0150
Estimated mean flow rate at midpoint of street = 5.246(CFS)
Depth of flow = 0.306(Ft.), Average velocity = 2.823(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width = 8.959(Ft.)
Flow velocity = 2.82(Ft/s)
Travel time = 8.91 min. TC = 16.69 min.
Adding area flow to street
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Adjusted SCS curve number for AMC 3 = 86.20
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.026(In/Hr)
Rainfall intensity = 3.454(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 = 5.727(CFS) for 2.170(Ac.)
Total runoff = 8.051(CFS)
Effective area this stream = 2.61(Ac.)
Total Study Area (Main Stream No. 1) = 2.61(Ac.)
Area averaged Fm value = 0.026(In/Hr)
Street flow at end of street = 8.051(CFS)
Half street flow at end of street = 4.025(CFS)
Depth of flow = 0.343(Ft.), Average velocity = 3.099(Ft/s)
Flow width (from curb towards crown)= 10.826(Ft.)
End of computations, Total Study Area = 2.61 (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 = 69.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2014 Version 9.0
Rational Hydrology Study Date: 06/20/19

TRACT NO. 20280
POST-DEVELOPMENT CONDITION
CAHUENGA ROAD
10-YEAR STORM

Program License Serial Number 6385

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

Rational hydrology study storm event year is 10.0
Computed rainfall intensity:
Storm year = 10.00 1 hour rainfall = 0.630 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 2

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Process from Point/Station 301.000 to Point/Station 302.000
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 69.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.055(In/Hr)
Initial subarea data:
Initial area flow distance = 352.300(Ft.)
Top (of initial area) elevation = 2900.000(Ft.)
Bottom (of initial area) elevation = 2896.000(Ft.)
Difference in elevation = 4.000(Ft.)
Slope = 0.01135 s(%)= 1.14
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.773 min.
Rainfall intensity = 2.634(In/Hr) for a 10.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.881
Subarea runoff = 1.021(CFS)
Total initial stream area = 0.440(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.055(In/Hr)

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Process from Point/Station 302.000 to Point/Station 303.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****

Top of street segment elevation = 2896.000(Ft.)
End of street segment elevation = 2871.300(Ft.)
Length of street segment = 1509.700(Ft.)

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Height of curb above gutter flowline  =    8.0(In.)
Width of half street (curb to crown)  =  32.000(Ft.)
Distance from crown to crossfall grade break  =  15.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =   0.000(Ft.)
Slope from curb to property line (v/hz) =   0.000
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  2.000(In.)
 Manning's N in gutter =  0.0130
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      2.248(CFS)
Depth of flow =   0.243(Ft.), Average velocity =   2.403(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   5.841(Ft.)
Flow velocity =   2.40(Ft/s)
Travel time =   10.47 min.     TC =   18.25  min.
 Adding area flow to street
COMMERCIAL subarea type
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2)  = 69.00
Pervious ratio(Ap) = 0.1000     Max loss rate(Fm)=     0.055(In/Hr)
Rainfall intensity =      1.450(In/Hr) for a    10.0 year storm
Effective runoff coefficient used for area,(total area with modified
rational method)(Q=KCIA) is C = 0.866
Subarea runoff =      2.255(CFS) for    2.170(Ac.)
Total runoff =      3.276(CFS)
Effective area this stream =        2.61(Ac.)
Total Study Area (Main Stream No. 1) =        2.61(Ac.)
Area averaged Fm value =    0.055(In/Hr)
Street flow at end of street =      3.276(CFS)
Half street flow at end of street =      1.638(CFS)
Depth of flow =   0.270(Ft.), Average velocity =   2.567(Ft/s)
Flow width (from curb towards crown)=   7.152(Ft.)
End of computations, Total Study Area =            2.61 (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 =  69.0
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Area averaged pervious area fraction(Ap) = 0.517
Area averaged SCS curve number = 68.6

DAVID EVANS AND ASSOCIATES INC.

Appendix-5:

Unit Hydrograph Method Calculation

(Post-Development Condition)

On-Site Area: 100 & 10 – Year Storm

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

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Study date 06/17/19

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

Program License Serial Number 6385

TRACT NO. 20280
UNIT HYDROGRAPH METHOD
POST-DEVELOPMENT CONDITION, ON-STE AREA
100-YEAR STORM

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		
19.71	1	1.11
Rainfall data for year 100		
19.71	6	2.10
Rainfall data for year 100		
19.71	24	3.47

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******** 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)
69.0	86.2	19.71	1.000	0.262	0.500	0.131

Area-averaged adjusted loss rate Fm (In/Hr) = 0.131

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

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC3)	S	Pervious Yield Fr
9.86	0.500	69.0	86.2	1.60	0.602
9.86	0.500	98.0	98.0	0.20	0.933

Area-averaged catchment yield fraction, Y = 0.767
Area-averaged low loss fraction, Yb = 0.233
User entry of time of concentration = 0.210 (hours)
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Watershed area = 19.71(Ac.)
Catchment Lag time = 0.168 hours
Unit interval = 15.000 minutes
Unit interval percentage of lag time = 148.8095
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.131(In/Hr)
Average low loss rate fraction (Yb) = 0.233 (decimal)
MOUNTAIN S-Graph Selected
Computed peak 5-minute rainfall = 0.527(In)
Computed peak 30-minute rainfall = 0.902(In)
Specified peak 1-hour rainfall = 1.110(In)
Computed peak 3-hour rainfall = 1.641(In)
Specified peak 6-hour rainfall = 2.100(In)
Specified peak 24-hour rainfall = 3.470(In)

Rainfall depth area reduction factors:
Using a total area of 19.71(Ac.) (Ref: fig. E-4)

5-minute factor = 0.999 Adjusted rainfall = 0.526(In)
30-minute factor = 0.999 Adjusted rainfall = 0.901(In)
1-hour factor = 0.999 Adjusted rainfall = 1.109(In)
3-hour factor = 1.000 Adjusted rainfall = 1.641(In)
6-hour factor = 1.000 Adjusted rainfall = 2.100(In)
24-hour factor = 1.000 Adjusted rainfall = 3.470(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 = 79.46 (CFS))	
1	33.785	26.844
2	71.370	29.863
3	83.179	9.383
4	89.476	5.003
5	93.725	3.376
6	96.732	2.389
7	100.000	1.195

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7317	0.0838
2	0.9008	0.0479
3	1.0173	0.0353
4	1.1090	0.0286
5	1.2008	0.0292
6	1.2815	0.0259
7	1.3539	0.0234
8	1.4199	0.0214
9	1.4808	0.0198

10	1.5375	0.0185
11	1.5907	0.0174
12	1.6408	0.0164
13	1.6882	0.0155
14	1.7333	0.0148
15	1.7764	0.0142
16	1.8177	0.0136
17	1.8573	0.0130
18	1.8955	0.0126
19	1.9323	0.0121
20	1.9679	0.0117
21	2.0024	0.0114
22	2.0358	0.0110
23	2.0683	0.0107
24	2.0999	0.0104
25	2.1312	0.0103
26	2.1617	0.0101
27	2.1914	0.0098
28	2.2205	0.0096
29	2.2489	0.0094
30	2.2767	0.0092
31	2.3039	0.0090
32	2.3305	0.0088
33	2.3567	0.0087
34	2.3823	0.0085
35	2.4075	0.0083
36	2.4322	0.0082
37	2.4564	0.0080
38	2.4803	0.0079
39	2.5037	0.0078
40	2.5268	0.0076
41	2.5495	0.0075
42	2.5718	0.0074
43	2.5939	0.0073
44	2.6156	0.0072
45	2.6369	0.0071
46	2.6580	0.0070
47	2.6788	0.0069
48	2.6993	0.0068
49	2.7196	0.0067
50	2.7395	0.0066
51	2.7593	0.0065
52	2.7788	0.0065
53	2.7980	0.0064
54	2.8170	0.0063
55	2.8358	0.0062
56	2.8544	0.0062
57	2.8727	0.0061
58	2.8909	0.0060
59	2.9089	0.0060
60	2.9266	0.0059
61	2.9442	0.0058
62	2.9616	0.0058
63	2.9788	0.0057
64	2.9959	0.0057
65	3.0127	0.0056
66	3.0294	0.0056
67	3.0460	0.0055
68	3.0624	0.0054
69	3.0786	0.0054
70	3.0947	0.0053
71	3.1107	0.0053

72	3.1265	0.0053
73	3.1421	0.0052
74	3.1577	0.0052
75	3.1730	0.0051
76	3.1883	0.0051
77	3.2034	0.0050
78	3.2185	0.0050
79	3.2333	0.0049
80	3.2481	0.0049
81	3.2628	0.0049
82	3.2773	0.0048
83	3.2917	0.0048
84	3.3060	0.0048
85	3.3202	0.0047
86	3.3343	0.0047
87	3.3483	0.0047
88	3.3622	0.0046
89	3.3760	0.0046
90	3.3897	0.0046
91	3.4033	0.0045
92	3.4168	0.0045
93	3.4302	0.0045
94	3.4435	0.0044
95	3.4568	0.0044
96	3.4699	0.0044

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0131	0.0031	0.0101
2	0.0133	0.0031	0.0102
3	0.0134	0.0031	0.0103
4	0.0136	0.0032	0.0104
5	0.0137	0.0032	0.0105
6	0.0138	0.0032	0.0106
7	0.0140	0.0033	0.0107
8	0.0142	0.0033	0.0109
9	0.0143	0.0033	0.0110
10	0.0145	0.0034	0.0111
11	0.0147	0.0034	0.0113
12	0.0148	0.0035	0.0114
13	0.0150	0.0035	0.0115
14	0.0152	0.0035	0.0117
15	0.0154	0.0036	0.0118
16	0.0156	0.0036	0.0120
17	0.0158	0.0037	0.0121
18	0.0160	0.0037	0.0123
19	0.0163	0.0038	0.0125
20	0.0165	0.0038	0.0126
21	0.0167	0.0039	0.0128
22	0.0170	0.0039	0.0130
23	0.0172	0.0040	0.0132
24	0.0175	0.0041	0.0134
25	0.0178	0.0041	0.0136
26	0.0181	0.0042	0.0139
27	0.0184	0.0043	0.0141
28	0.0187	0.0044	0.0143
29	0.0190	0.0044	0.0146
30	0.0194	0.0045	0.0149
31	0.0198	0.0046	0.0152
32	0.0201	0.0047	0.0154

33	0.0205	0.0048	0.0158
34	0.0210	0.0049	0.0161
35	0.0214	0.0050	0.0164
36	0.0219	0.0051	0.0168
37	0.0224	0.0052	0.0172
38	0.0229	0.0053	0.0176
39	0.0235	0.0055	0.0180
40	0.0241	0.0056	0.0185
41	0.0247	0.0058	0.0190
42	0.0254	0.0059	0.0195
43	0.0262	0.0061	0.0201
44	0.0270	0.0063	0.0207
45	0.0279	0.0065	0.0214
46	0.0288	0.0067	0.0221
47	0.0298	0.0069	0.0229
48	0.0309	0.0072	0.0237
49	0.0317	0.0074	0.0243
50	0.0330	0.0077	0.0253
51	0.0346	0.0081	0.0265
52	0.0363	0.0084	0.0278
53	0.0383	0.0089	0.0294
54	0.0405	0.0094	0.0311
55	0.0433	0.0101	0.0332
56	0.0464	0.0108	0.0356
57	0.0505	0.0117	0.0387
58	0.0551	0.0128	0.0423
59	0.0615	0.0143	0.0472
60	0.0695	0.0162	0.0533
61	0.0819	0.0191	0.0628
62	0.0896	0.0208	0.0687
63	0.1218	0.0284	0.0935
64	0.2607	0.0327	0.2280
65	0.6348	0.0327	0.6021
66	0.0927	0.0216	0.0711
67	0.0684	0.0159	0.0525
68	0.0544	0.0127	0.0418
69	0.0459	0.0107	0.0352
70	0.0402	0.0094	0.0309
71	0.0360	0.0084	0.0276
72	0.0328	0.0076	0.0252
73	0.0308	0.0072	0.0236
74	0.0286	0.0067	0.0220
75	0.0268	0.0062	0.0206
76	0.0253	0.0059	0.0194
77	0.0240	0.0056	0.0184
78	0.0228	0.0053	0.0175
79	0.0218	0.0051	0.0167
80	0.0209	0.0049	0.0160
81	0.0201	0.0047	0.0154
82	0.0193	0.0045	0.0148
83	0.0186	0.0043	0.0143
84	0.0180	0.0042	0.0138
85	0.0175	0.0041	0.0134
86	0.0169	0.0039	0.0130
87	0.0164	0.0038	0.0126
88	0.0160	0.0037	0.0123
89	0.0156	0.0036	0.0119
90	0.0152	0.0035	0.0116
91	0.0148	0.0034	0.0114
92	0.0145	0.0034	0.0111
93	0.0141	0.0033	0.0108
94	0.0138	0.0032	0.0106

95	0.0135	0.0031	0.0104
96	0.0133	0.0031	0.0102

Total soil rain loss = 0.66(In)
Total effective rainfall = 2.81(In)
Peak flow rate in flood hydrograph = 24.59(CFS)

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

Hydrograph in 15 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	7.5	15.0	22.5	30.0
0+15	0.0056	0.27	Q				
0+30	0.0175	0.57	Q				
0+45	0.0314	0.68	Q				
1+ 0	0.0466	0.73	Q				
1+15	0.0626	0.77	VQ				
1+30	0.0792	0.81	VQ				
1+45	0.0963	0.83	VQ				
2+ 0	0.1136	0.84	Q				
2+15	0.1311	0.85	|Q				
2+30	0.1488	0.86	|Q				
2+45	0.1667	0.87	|Q				
3+ 0	0.1848	0.88	|Q				
3+15	0.2031	0.89	|Q				
3+30	0.2216	0.90	|Q				
3+45	0.2404	0.91	|QV				
4+ 0	0.2594	0.92	|QV				
4+15	0.2787	0.93	|QV				
4+30	0.2982	0.94	|QV				
4+45	0.3180	0.96	|QV				
5+ 0	0.3380	0.97	|QV				
5+15	0.3584	0.98	|Q V				
5+30	0.3790	1.00	|Q V				
5+45	0.3999	1.01	|Q V				
6+ 0	0.4212	1.03	|Q V				
6+15	0.4428	1.05	|Q V				
6+30	0.4647	1.06	|Q V				
6+45	0.4870	1.08	|Q V				
7+ 0	0.5097	1.10	|Q V				
7+15	0.5328	1.12	|Q V				
7+30	0.5562	1.14	|Q V				
7+45	0.5801	1.16	|Q V				
8+ 0	0.6045	1.18	|Q V				
8+15	0.6293	1.20	|Q V				
8+30	0.6546	1.23	|Q V				
8+45	0.6804	1.25	|Q V				
9+ 0	0.7068	1.28	|Q V				
9+15	0.7338	1.31	|Q V				
9+30	0.7614	1.34	|Q V				
9+45	0.7896	1.37	|Q V				
10+ 0	0.8185	1.40	|Q V				
10+15	0.8482	1.44	|Q V				
10+30	0.8787	1.47	|Q V				
10+45	0.9100	1.52	| Q V				
11+ 0	0.9422	1.56	| Q V				
11+15	0.9754	1.61	| Q V				

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  11+30       1.0097      1.66  | Q     V |          |          |          |
  11+45       1.0451      1.72  | Q      V|          |          |          |
  12+ 0       1.0818      1.78  | Q      V|          |          |          |
  12+15       1.1197      1.83  | Q      V|          |          |          |
  12+30       1.1588      1.89  | Q       V          |          |          |
  12+45       1.1995      1.97  | Q       V          |          |          |
  13+ 0       1.2421      2.06  | Q       V          |          |          |
  13+15       1.2868      2.16  | Q       |V         |          |          |
  13+30       1.3339      2.28  |  Q      |V         |          |          |
  13+45       1.3838      2.42  |  Q      | V        |          |          |
  14+ 0       1.4370      2.57  |  Q      | V        |          |          |
  14+15       1.4941      2.77  |  Q      |  V       |          |          |
  14+30       1.5561      3.00  |  Q      |  V       |          |          |
  14+45       1.6241      3.29  |   Q     |   V      |          |          |
  15+ 0       1.6998      3.67  |   Q     |    V     |          |          |
  15+15       1.7864      4.19  |    Q    |    V     |          |          |
  15+30       1.8842      4.74  |     Q   |     V    |          |          |
  15+45       2.0025      5.72  |      Q  |      V   |          |          |
  16+ 0       2.2135     10.21  |         |  Q     V |          |          |
  16+15       2.7215     24.59  |         |         |   V      | Q        |
  16+30       3.1955     22.94  |         |         |       V Q           |
  16+45       3.4203     10.88  |         |   Q     |         V           |
  17+ 0       3.5741      7.44  |        Q|         |          V          |
  17+15       3.6925      5.73  |      Q  |         |          | V        |
  17+30       3.7852      4.49  |    Q    |         |          |  V       |
  17+45       3.8528      3.27  |   Q     |         |          |   V      |
  18+ 0       3.9007      2.32  |  Q      |         |          |   V      |
  18+15       3.9437      2.08  | Q       |         |          |   V      |
  18+30       3.9831      1.91  | Q       |         |          |    V     |
  18+45       4.0196      1.77  | Q       |         |          |    V     |
  19+ 0       4.0536      1.65  | Q       |         |          |    V     |
  19+15       4.0857      1.55  | Q       |         |          |     V    |
  19+30       4.1159      1.47  |Q        |         |          |     V    |
  19+45       4.1447      1.39  |Q        |         |          |     V    |
  20+ 0       4.1721      1.33  |Q        |         |          |     V    |
  20+15       4.1984      1.27  |Q        |         |          |      V   |
  20+30       4.2235      1.22  |Q        |         |          |      V   |
  20+45       4.2478      1.17  |Q        |         |          |      V   |
  21+ 0       4.2711      1.13  |Q        |         |          |      V   |
  21+15       4.2937      1.09  |Q        |         |          |      V   |
  21+30       4.3155      1.06  |Q        |         |          |       V  |
  21+45       4.3366      1.02  |Q        |         |          |       V  |
  22+ 0       4.3572      0.99  |Q        |         |          |       V  |
  22+15       4.3771      0.97  |Q        |         |          |       V  |
  22+30       4.3965      0.94  |Q        |         |          |       V  |
  22+45       4.4155      0.92  |Q        |         |          |        V |
  23+ 0       4.4339      0.89  |Q        |         |          |        V |
  23+15       4.4519      0.87  |Q        |         |          |        V |
  23+30       4.4695      0.85  |Q        |         |          |        V |
  23+45       4.4868      0.83  |Q        |         |          |        V |
  24+ 0       4.5036      0.82  |Q        |         |          |        V |
  24+15       4.5146      0.53  Q         |         |          |        V |
  24+30       4.5192      0.22  Q         |         |          |        V |
  24+45       4.5218      0.12  Q         |         |          |        V |
  25+ 0       4.5232      0.07  Q         |         |          |        V |
  25+15       4.5240      0.04  Q         |         |          |        V |
  25+30       4.5242      0.01  Q         |         |          |         V
-------------------------------------------------------------------------
```

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

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Study date 06/17/19

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

Program License Serial Number 6385

TRACT NO. 20280
UNIT HYDROGRAGH METHOD
POST-DEVELOPMENT CONDITION, ON-SITE AREA
10-YEAR STORM

Storm Event Year = 10

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 10		
19.71	1	0.63
Rainfall data for year 10		
19.71	6	1.26
Rainfall data for year 10		
19.71	24	2.16

++

******** 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)
69.0	69.0	19.71	1.000	0.548	0.500	0.274

Area-averaged adjusted loss rate Fm (In/Hr) = 0.274

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

Area (Ac.)	Area Fract	SCS CN (AMC2)	SCS CN (AMC2)	S	Pervious Yield Fr
9.86	0.500	69.0	69.0	4.49	0.128
9.86	0.500	98.0	98.0	0.20	0.895

Area-averaged catchment yield fraction, Y = 0.511
Area-averaged low loss fraction, Yb = 0.489
User entry of time of concentration = 0.210 (hours)
++
Watershed area = 19.71(Ac.)
Catchment Lag time = 0.168 hours
Unit interval = 15.000 minutes
Unit interval percentage of lag time = 148.8095
Hydrograph baseflow = 0.00(CFS)
Average maximum watershed loss rate(Fm) = 0.274(In/Hr)
Average low loss rate fraction (Yb) = 0.489 (decimal)
MOUNTAIN S-Graph Selected
Computed peak 5-minute rainfall = 0.298(In)
Computed peak 30-minute rainfall = 0.511(In)
Specified peak 1-hour rainfall = 0.629(In)
Computed peak 3-hour rainfall = 0.963(In)
Specified peak 6-hour rainfall = 1.260(In)
Specified peak 24-hour rainfall = 2.160(In)

Rainfall depth area reduction factors:
Using a total area of 19.71(Ac.) (Ref: fig. E-4)

5-minute factor = 0.999 Adjusted rainfall = 0.298(In)
30-minute factor = 0.999 Adjusted rainfall = 0.510(In)
1-hour factor = 0.999 Adjusted rainfall = 0.628(In)
3-hour factor = 1.000 Adjusted rainfall = 0.963(In)
6-hour factor = 1.000 Adjusted rainfall = 1.260(In)
24-hour factor = 1.000 Adjusted rainfall = 2.160(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 = 79.46 (CFS))	
1	33.785	26.844
2	71.370	29.863
3	83.179	9.383
4	89.476	5.003
5	93.725	3.376
6	96.732	2.389
7	100.000	1.195

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.4146	0.0475
2	0.5104	0.0272
3	0.5765	0.0200
4	0.6284	0.0162
5	0.6853	0.0181
6	0.7356	0.0162
7	0.7810	0.0147
8	0.8226	0.0135
9	0.8611	0.0125

10	0.8971	0.0117
11	0.9309	0.0111
12	0.9629	0.0105
13	0.9933	0.0100
14	1.0223	0.0095
15	1.0500	0.0091
16	1.0766	0.0088
17	1.1022	0.0084
18	1.1269	0.0081
19	1.1508	0.0079
20	1.1739	0.0076
21	1.1963	0.0074
22	1.2181	0.0072
23	1.2393	0.0070
24	1.2599	0.0068
25	1.2801	0.0067
26	1.2998	0.0065
27	1.3190	0.0064
28	1.3377	0.0062
29	1.3561	0.0061
30	1.3741	0.0060
31	1.3918	0.0058
32	1.4090	0.0057
33	1.4260	0.0056
34	1.4427	0.0055
35	1.4590	0.0054
36	1.4751	0.0053
37	1.4909	0.0052
38	1.5064	0.0052
39	1.5217	0.0051
40	1.5368	0.0050
41	1.5516	0.0049
42	1.5662	0.0048
43	1.5806	0.0048
44	1.5948	0.0047
45	1.6088	0.0046
46	1.6226	0.0046
47	1.6362	0.0045
48	1.6497	0.0045
49	1.6629	0.0044
50	1.6760	0.0044
51	1.6890	0.0043
52	1.7018	0.0043
53	1.7145	0.0042
54	1.7270	0.0042
55	1.7393	0.0041
56	1.7516	0.0041
57	1.7637	0.0040
58	1.7756	0.0040
59	1.7875	0.0039
60	1.7992	0.0039
61	1.8108	0.0039
62	1.8223	0.0038
63	1.8336	0.0038
64	1.8449	0.0037
65	1.8561	0.0037
66	1.8671	0.0037
67	1.8781	0.0036
68	1.8889	0.0036
69	1.8997	0.0036
70	1.9103	0.0035
71	1.9209	0.0035

72	1.9314	0.0035
73	1.9417	0.0035
74	1.9520	0.0034
75	1.9623	0.0034
76	1.9724	0.0034
77	1.9824	0.0033
78	1.9924	0.0033
79	2.0023	0.0033
80	2.0121	0.0033
81	2.0219	0.0032
82	2.0315	0.0032
83	2.0411	0.0032
84	2.0507	0.0032
85	2.0601	0.0031
86	2.0695	0.0031
87	2.0788	0.0031
88	2.0881	0.0031
89	2.0973	0.0031
90	2.1064	0.0030
91	2.1155	0.0030
92	2.1245	0.0030
93	2.1334	0.0030
94	2.1423	0.0030
95	2.1512	0.0029
96	2.1599	0.0029

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0088	0.0043	0.0045
2	0.0089	0.0043	0.0045
3	0.0090	0.0044	0.0046
4	0.0090	0.0044	0.0046
5	0.0091	0.0045	0.0047
6	0.0092	0.0045	0.0047
7	0.0093	0.0046	0.0048
8	0.0094	0.0046	0.0048
9	0.0095	0.0047	0.0049
10	0.0096	0.0047	0.0049
11	0.0098	0.0048	0.0050
12	0.0099	0.0048	0.0050
13	0.0100	0.0049	0.0051
14	0.0101	0.0049	0.0052
15	0.0102	0.0050	0.0052
16	0.0103	0.0051	0.0053
17	0.0105	0.0051	0.0054
18	0.0106	0.0052	0.0054
19	0.0108	0.0053	0.0055
20	0.0109	0.0053	0.0056
21	0.0111	0.0054	0.0057
22	0.0112	0.0055	0.0057
23	0.0114	0.0056	0.0058
24	0.0115	0.0056	0.0059
25	0.0117	0.0057	0.0060
26	0.0119	0.0058	0.0061
27	0.0121	0.0059	0.0062
28	0.0123	0.0060	0.0063
29	0.0125	0.0061	0.0064
30	0.0127	0.0062	0.0065
31	0.0130	0.0063	0.0066
32	0.0132	0.0065	0.0068

33	0.0135	0.0066	0.0069
34	0.0137	0.0067	0.0070
35	0.0140	0.0068	0.0072
36	0.0143	0.0070	0.0073
37	0.0146	0.0071	0.0075
38	0.0150	0.0073	0.0076
39	0.0153	0.0075	0.0078
40	0.0157	0.0077	0.0080
41	0.0161	0.0079	0.0082
42	0.0165	0.0081	0.0084
43	0.0170	0.0083	0.0087
44	0.0175	0.0085	0.0089
45	0.0180	0.0088	0.0092
46	0.0186	0.0091	0.0095
47	0.0193	0.0094	0.0099
48	0.0199	0.0097	0.0102
49	0.0207	0.0101	0.0106
50	0.0215	0.0105	0.0110
51	0.0225	0.0110	0.0115
52	0.0235	0.0115	0.0120
53	0.0248	0.0121	0.0127
54	0.0262	0.0128	0.0134
55	0.0279	0.0136	0.0142
56	0.0297	0.0145	0.0152
57	0.0322	0.0157	0.0165
58	0.0350	0.0171	0.0179
59	0.0389	0.0190	0.0199
60	0.0436	0.0213	0.0223
61	0.0510	0.0249	0.0261
62	0.0524	0.0256	0.0268
63	0.0690	0.0337	0.0353
64	0.1477	0.0685	0.0792
65	0.3597	0.0685	0.2912
66	0.0558	0.0272	0.0285
67	0.0430	0.0210	0.0220
68	0.0346	0.0169	0.0177
69	0.0295	0.0144	0.0151
70	0.0260	0.0127	0.0133
71	0.0234	0.0114	0.0120
72	0.0214	0.0104	0.0109
73	0.0198	0.0097	0.0101
74	0.0185	0.0090	0.0095
75	0.0174	0.0085	0.0089
76	0.0165	0.0080	0.0084
77	0.0156	0.0076	0.0080
78	0.0149	0.0073	0.0076
79	0.0143	0.0070	0.0073
80	0.0137	0.0067	0.0070
81	0.0132	0.0064	0.0067
82	0.0127	0.0062	0.0065
83	0.0123	0.0060	0.0063
84	0.0119	0.0058	0.0061
85	0.0115	0.0056	0.0059
86	0.0112	0.0055	0.0057
87	0.0109	0.0053	0.0056
88	0.0106	0.0052	0.0054
89	0.0103	0.0050	0.0053
90	0.0101	0.0049	0.0052
91	0.0098	0.0048	0.0050
92	0.0096	0.0047	0.0049
93	0.0094	0.0046	0.0048
94	0.0092	0.0045	0.0047

95	0.0090	0.0044	0.0046
96	0.0089	0.0043	0.0045

Total soil rain loss = 0.94(In)
Total effective rainfall = 1.22(In)
Peak flow rate in flood hydrograph = 10.81(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 15 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 5.0 10.0 15.0 20.0
0+15	0.0025	0.12	Q
0+30	0.0078	0.26	Q
0+45	0.0140	0.30	Q
1+ 0	0.0207	0.33	Q
1+15	0.0278	0.34	Q
1+30	0.0352	0.36	Q
1+45	0.0428	0.37	Q
2+ 0	0.0505	0.37	QV
2+15	0.0583	0.38	QV
2+30	0.0661	0.38	QV
2+45	0.0741	0.38	QV
3+ 0	0.0821	0.39	QV
3+15	0.0902	0.39	QV
3+30	0.0984	0.40	Q V
3+45	0.1067	0.40	Q V
4+ 0	0.1151	0.41	Q V
4+15	0.1236	0.41	Q V
4+30	0.1323	0.42	Q V
4+45	0.1410	0.42	Q V
5+ 0	0.1499	0.43	Q V
5+15	0.1588	0.43	Q V
5+30	0.1679	0.44	Q V
5+45	0.1772	0.45	Q V
6+ 0	0.1865	0.45	Q V
6+15	0.1960	0.46	Q V
6+30	0.2057	0.47	Q V
6+45	0.2155	0.47	Q V
7+ 0	0.2254	0.48	Q V
7+15	0.2355	0.49	Q V
7+30	0.2458	0.50	Q V
7+45	0.2563	0.51	|Q V
8+ 0	0.2670	0.52	|Q V
8+15	0.2778	0.53	|Q V
8+30	0.2889	0.54	|Q V
8+45	0.3002	0.55	|Q V
9+ 0	0.3117	0.56	|Q V
9+15	0.3234	0.57	|Q V
9+30	0.3355	0.58	|Q V
9+45	0.3477	0.59	|Q V
10+ 0	0.3603	0.61	|Q V
10+15	0.3732	0.62	|Q V
10+30	0.3864	0.64	|Q V
10+45	0.4000	0.66	|Q V
11+ 0	0.4139	0.67	|Q V
11+15	0.4283	0.69	|Q V

```
  11+30       0.4431      0.72  |Q       V|         |         |         |
  11+45       0.4584      0.74  |Q       V|         |         |         |
  12+ 0       0.4742      0.76  |Q       V|         |         |         |
  12+15       0.4905      0.79  |Q        V         |         |         |
  12+30       0.5075      0.82  |Q        V         |         |         |
  12+45       0.5251      0.85  |Q        V         |         |         |
  13+ 0       0.5436      0.89  |Q         V        |         |         |
  13+15       0.5629      0.94  |Q        |V        |         |         |
  13+30       0.5832      0.98  |Q        |V        |         |         |
  13+45       0.6047      1.04  | Q       | V       |         |         |
  14+ 0       0.6275      1.10  | Q       | V       |         |         |
  14+15       0.6519      1.18  | Q       |  V      |         |         |
  14+30       0.6783      1.28  | Q       |  V      |         |         |
  14+45       0.7071      1.39  | Q       |   V     |         |         |
  15+ 0       0.7390      1.54  |  Q      |    V    |         |         |
  15+15       0.7752      1.75  |  Q      |    V    |         |         |
  15+30       0.8150      1.93  |  Q      |     V   |         |         |
  15+45       0.8611      2.23  |   Q     |      V  |         |         |
  16+ 0       0.9377      3.71  |      Q  |        V|         |         |
  16+15       1.1612     10.81  |         |         Q V       |         |
  16+30       1.3794     10.56  |         |         |Q      V |         |
  16+45       1.4783      4.79  |        Q|         |         V         |
  17+ 0       1.5452      3.24  |     Q   |         |          V        |
  17+15       1.5968      2.50  |   Q     |         |          | V      |
  17+30       1.6375      1.97  |  Q      |         |          |  V     |
  17+45       1.6672      1.44  | Q       |         |          |   V    |
  18+ 0       1.6878      1.00  |Q        |         |          |   V    |
  18+15       1.7063      0.90  |Q        |         |          |   V    |
  18+30       1.7233      0.82  |Q        |         |          |    V   |
  18+45       1.7391      0.76  |Q        |         |          |    V   |
  19+ 0       1.7538      0.71  |Q        |         |          |    V   |
  19+15       1.7677      0.67  |Q        |         |          |     V  |
  19+30       1.7808      0.64  |Q        |         |          |     V  |
  19+45       1.7933      0.61  |Q        |         |          |     V  |
  20+ 0       1.8053      0.58  |Q        |         |          |     V  |
  20+15       1.8167      0.55  |Q        |         |          |      V |
  20+30       1.8277      0.53  |Q        |         |          |      V |
  20+45       1.8383      0.51  |Q        |         |          |      V |
  21+ 0       1.8486      0.50  Q         |         |          |      V |
  21+15       1.8585      0.48  Q         |         |          |      V |
  21+30       1.8681      0.46  Q         |         |          |       V|
  21+45       1.8774      0.45  Q         |         |          |       V|
  22+ 0       1.8864      0.44  Q         |         |          |       V|
  22+15       1.8952      0.43  Q         |         |          |       V|
  22+30       1.9038      0.42  Q         |         |          |       V|
  22+45       1.9122      0.41  Q         |         |          |        V|
  23+ 0       1.9204      0.40  Q         |         |          |        V|
  23+15       1.9284      0.39  Q         |         |          |        V|
  23+30       1.9362      0.38  Q         |         |          |        V|
  23+45       1.9438      0.37  Q         |         |          |        V|
  24+ 0       1.9513      0.36  Q         |         |          |        V|
  24+15       1.9562      0.24  Q         |         |          |        V|
  24+30       1.9582      0.10  Q         |         |          |        V|
  24+45       1.9594      0.06  Q         |         |          |        V|
  25+ 0       1.9600      0.03  Q         |         |          |        V|
  25+15       1.9604      0.02  Q         |         |          |        V|
  25+30       1.9605      0.01  Q         |         |          |        V|
-------------------------------------------------------------------------
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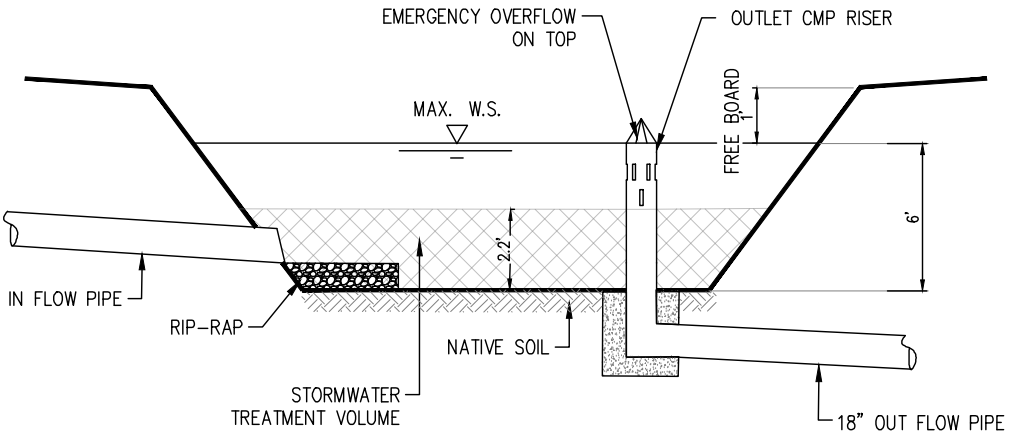
DAVID EVANS AND ASSOCIATES INC.

Appendix-6:

Basin Size & Basin Routing Analysis



INFILTRATION/DETENTION BASIN DETAIL

N.T.S

Infiltration/Detention Basin Table:

Elevation (ft.)	Basin Area (sf)	Depth (ft.)	Basin Volume (cft)	Basin Volume (ac-ft)	Outlet Flow* (cfs)
2868	7,344	-	-	-	0.00
2869	10,040	1.00	8,692	0.20	0.00
2870	12,965	2.00	23,005	0.53	0.00
2871	16,120	3.00	37,548	0.86	1.00
2872	19,506	4.00	55,361	1.27	26.38
2873	23,162	5.00	76,695	1.76	37.31

Note: ** Orifice Calculation for 30" CMP Standing Outlet Pipe*

30" CMP Stading Pipe Circular Orifice

Project Description

Solve For	Discharge

Input Data

Headwater Elevation	4.00	ft
Centroid Elevation	3.00	ft
Tailwater Elevation	1.00	ft
Discharge Coefficient	0.67	
Diameter	2.50	ft

Results

Discharge	26.38	ft^3/s
Headwater Height Above Centroid	1.00	ft
Tailwater Height Above Centroid	-2.00	ft
Flow Area	4.91	ft^2
Velocity	5.37	ft/s

Outlet Flow Calculation for 30" Circular Orifice

Project Description

Solve For	Discharge

Input Data

Headwater Elevation	5.00	ft
Centroid Elevation	3.00	ft
Tailwater Elevation	1.00	ft
Discharge Coefficient	0.67	
Diameter	2.50	ft

Results

Discharge	37.31	ft^3/s
Headwater Height Above Centroid	2.00	ft
Tailwater Height Above Centroid	-2.00	ft
Flow Area	4.91	ft^2
Velocity	7.60	ft/s

FLOOD HYDROGRAPH ROUTING PROGRAM
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Study date: 06/17/19

TRACT NO. 20280
BASIN ROUTING
100-YEAR STORM

Program License Serial Number 6385

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

From study/file name: UN20280100.rte
**********HYDROGRAPH DATA**********
Number of intervals = 102
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 24.588 (CFS)
Total volume = 4.524 (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 = 102
Hydrograph time unit = 15.000 (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
1.000	0.200	0.010	0.200	0.200
2.000	0.530	0.020	0.530	0.530
3.000	0.860	1.000	0.850	0.870
4.000	1.270	26.360	0.998	1.542
5.000	1.760	37.310	1.375	2.145

Hydrograph Detention Basin Routing

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

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	6.1	12.29	18.44	24.59	Depth (Ft.)
0.250	0.27	0.00	0.003	O					0.01
0.500	0.57	0.00	0.012	O					0.06
0.750	0.68	0.00	0.024	O					0.12
1.000	0.73	0.00	0.039	O					0.19
1.250	0.77	0.00	0.054	OI					0.27
1.500	0.81	0.00	0.071	OI					0.35
1.750	0.83	0.00	0.088	OI					0.44
2.000	0.84	0.01	0.105	OI					0.52
2.250	0.85	0.01	0.122	OI					0.61
2.500	0.86	0.01	0.139	OI					0.70
2.750	0.87	0.01	0.157	OI					0.78
3.000	0.88	0.01	0.175	OI					0.87
3.250	0.89	0.01	0.193	OI					0.96
3.500	0.90	0.01	0.211	OI					1.03
3.750	0.91	0.01	0.229	OI					1.09
4.000	0.92	0.01	0.248	OI					1.15
4.250	0.93	0.01	0.267	OI					1.20
4.500	0.94	0.01	0.286	OI					1.26
4.750	0.96	0.01	0.306	OI					1.32
5.000	0.97	0.01	0.325	OI					1.38
5.250	0.98	0.01	0.345	OI					1.44
5.500	1.00	0.02	0.365	OI					1.50
5.750	1.01	0.02	0.386	OI					1.56
6.000	1.03	0.02	0.407	OI					1.63
6.250	1.05	0.02	0.428	OI					1.69
6.500	1.06	0.02	0.449	OI					1.75
6.750	1.08	0.02	0.471	OI					1.82
7.000	1.10	0.02	0.493	OI					1.89
7.250	1.12	0.02	0.515	OI					1.96
7.500	1.14	0.04	0.538	OI					2.02
7.750	1.16	0.11	0.560	OI					2.09
8.000	1.18	0.17	0.581	OI					2.16
8.250	1.20	0.23	0.602	OI					2.22
8.500	1.23	0.29	0.621	OI					2.28
8.750	1.25	0.35	0.640	OI					2.33
9.000	1.28	0.40	0.659	OI					2.39
9.250	1.31	0.45	0.676	OI					2.44
9.500	1.34	0.51	0.694	OI					2.50
9.750	1.37	0.56	0.711	OI					2.55
10.000	1.40	0.61	0.727	OI					2.60
10.250	1.44	0.65	0.744	OI					2.65
10.500	1.47	0.70	0.760	OI					2.70
10.750	1.52	0.75	0.776	OI					2.74
11.000	1.56	0.80	0.791	|OI					2.79
11.250	1.61	0.84	0.807	|OI					2.84
11.500	1.66	0.89	0.823	|OI					2.89
11.750	1.72	0.94	0.839	|OI					2.94
12.000	1.78	0.99	0.855	|OI					2.99
12.250	1.83	1.45	0.867	|OI					3.02
12.500	1.89	1.77	0.872	| O					3.03
12.750	1.97	1.90	0.874	| O					3.04
13.000	2.06	1.99	0.876	| O					3.04
13.250	2.16	2.08	0.878	| O					3.04
13.500	2.28	2.19	0.879	| O					3.05

13.750	2.42	2.31	0.881	O					3.05
14.000	2.57	2.45	0.884	O					3.06
14.250	2.77	2.62	0.886	O					3.06
14.500	3.00	2.83	0.890	O					3.07
14.750	3.29	3.07	0.894	O					3.08
15.000	3.67	3.39	0.899	O					3.09
15.250	4.19	3.81	0.905	OI					3.11
15.500	4.74	4.32	0.914	OI					3.13
15.750	5.72	5.03	0.925	OI					3.16
16.000	10.21	7.32	0.962	O I					3.25
16.250	24.59	15.18	1.089		O			I	3.56
16.500	22.94	21.87	1.197				OI		3.82
16.750	10.88	18.00	1.135	I		O			3.67
17.000	7.44	11.11	1.023	I O					3.40
17.250	5.73	7.58	0.966	I O					3.26
17.500	4.49	5.65	0.935	I O					3.18
17.750	3.27	4.27	0.913	IO					3.13
18.000	2.32	3.12	0.894	IO					3.08
18.250	2.08	2.40	0.883	IO					3.06
18.500	1.91	2.08	0.878	O					3.04
18.750	1.77	1.89	0.874	O					3.04
19.000	1.65	1.75	0.872	O					3.03
19.250	1.55	1.63	0.870	O					3.02
19.500	1.47	1.54	0.869	O					3.02
19.750	1.39	1.45	0.867	O					3.02
20.000	1.33	1.38	0.866	O					3.01
20.250	1.27	1.32	0.865	O					3.01
20.500	1.22	1.26	0.864	O					3.01
20.750	1.17	1.21	0.863	O					3.01
21.000	1.13	1.16	0.863	O					3.01
21.250	1.09	1.12	0.862	O					3.00
21.500	1.06	1.08	0.861	O					3.00
21.750	1.02	1.05	0.861	O					3.00
22.000	0.99	1.02	0.860	O					3.00
22.250	0.97	1.00	0.860	O					3.00
22.500	0.94	1.00	0.859	O					3.00
22.750	0.92	0.99	0.857	O					2.99
23.000	0.89	0.99	0.856	O					2.99
23.250	0.87	0.98	0.854	O					2.98
23.500	0.85	0.97	0.851	O					2.97
23.750	0.83	0.97	0.849	O					2.97
24.000	0.82	0.96	0.846	O					2.96
24.250	0.53	0.94	0.840	IO					2.94
24.500	0.22	0.91	0.829	IO					2.91
24.750	0.12	0.86	0.814	IO					2.86
25.000	0.07	0.82	0.799	IO					2.81
25.250	0.04	0.77	0.783	IO					2.77
25.500	0.01	0.73	0.768	O					2.72
25.750	0.00	0.68	0.754	O					2.68
26.000	0.00	0.64	0.740	O					2.64
26.250	0.00	0.61	0.727	O					2.60
26.500	0.00	0.57	0.715	O					2.56
26.750	0.00	0.54	0.704	O					2.53
27.000	0.00	0.50	0.693	O					2.49
27.250	0.00	0.47	0.683	O					2.46
27.500	0.00	0.45	0.673	O					2.43
27.750	0.00	0.42	0.664	O					2.41
28.000	0.00	0.39	0.656	O					2.38
28.250	0.00	0.37	0.648	O					2.36
28.500	0.00	0.35	0.641	O					2.34
28.750	0.00	0.33	0.634	O					2.31
29.000	0.00	0.31	0.627	O					2.29

29.250	0.00	0.29	0.621	O	|	|	|	2.28
29.500	0.00	0.27	0.615	O	|	|	|	2.26
29.750	0.00	0.26	0.610	O	|	|	|	2.24
30.000	0.00	0.24	0.605	O	|	|	|	2.23
30.250	0.00	0.23	0.600	O	|	|	|	2.21
30.500	0.00	0.21	0.595	O	|	|	|	2.20
30.750	0.00	0.20	0.591	O	|	|	|	2.18
31.000	0.00	0.19	0.587	O	|	|	|	2.17
31.250	0.00	0.18	0.583	O	|	|	|	2.16
31.500	0.00	0.17	0.579	O	|	|	|	2.15
31.750	0.00	0.16	0.576	O	|	|	|	2.14
32.000	0.00	0.15	0.573	O	|	|	|	2.13
32.250	0.00	0.14	0.570	O	|	|	|	2.12
32.500	0.00	0.13	0.567	O	|	|	|	2.11
32.750	0.00	0.12	0.565	O	|	|	|	2.10
33.000	0.00	0.12	0.562	O	|	|	|	2.10
33.250	0.00	0.11	0.560	O	|	|	|	2.09
33.500	0.00	0.10	0.558	O	|	|	|	2.08
33.750	0.00	0.10	0.556	O	|	|	|	2.08
34.000	0.00	0.09	0.554	O	|	|	|	2.07
34.250	0.00	0.08	0.552	O	|	|	|	2.07
34.500	0.00	0.08	0.550	O	|	|	|	2.06
34.750	0.00	0.08	0.549	O	|	|	|	2.06
35.000	0.00	0.07	0.547	O	|	|	|	2.05
35.250	0.00	0.07	0.546	O	|	|	|	2.05
35.500	0.00	0.06	0.544	O	|	|	|	2.04
35.750	0.00	0.06	0.543	O	|	|	|	2.04
36.000	0.00	0.06	0.542	O	|	|	|	2.04
36.250	0.00	0.05	0.541	O	|	|	|	2.03
36.500	0.00	0.05	0.540	O	|	|	|	2.03
36.750	0.00	0.05	0.539	O	|	|	|	2.03
37.000	0.00	0.04	0.538	O	|	|	|	2.02
37.250	0.00	0.04	0.537	O	|	|	|	2.02
37.500	0.00	0.04	0.536	O	|	|	|	2.02
37.750	0.00	0.04	0.535	O	|	|	|	2.02
38.000	0.00	0.03	0.535	O	|	|	|	2.01
38.250	0.00	0.03	0.534	O	|	|	|	2.01
38.500	0.00	0.03	0.533	O	|	|	|	2.01
38.750	0.00	0.03	0.533	O	|	|	|	2.01
39.000	0.00	0.03	0.532	O	|	|	|	2.01
39.250	0.00	0.02	0.532	O	|	|	|	2.01
39.500	0.00	0.02	0.531	O	|	|	|	2.00
39.750	0.00	0.02	0.531	O	|	|	|	2.00
40.000	0.00	0.02	0.530	O	|	|	|	2.00
40.250	0.00	0.02	0.530	O	|	|	|	2.00
40.500	0.00	0.02	0.529	O	|	|	|	2.00
40.750	0.00	0.02	0.529	O	|	|	|	2.00
41.000	0.00	0.02	0.529	O	|	|	|	2.00
41.250	0.00	0.02	0.528	O	|	|	|	1.99
41.500	0.00	0.02	0.528	O	|	|	|	1.99
41.750	0.00	0.02	0.527	O	|	|	|	1.99
42.000	0.00	0.02	0.527	O	|	|	|	1.99
42.250	0.00	0.02	0.527	O	|	|	|	1.99
42.500	0.00	0.02	0.526	O	|	|	|	1.99
42.750	0.00	0.02	0.526	O	|	|	|	1.99
43.000	0.00	0.02	0.525	O	|	|	|	1.99
43.250	0.00	0.02	0.525	O	|	|	|	1.98
43.500	0.00	0.02	0.524	O	|	|	|	1.98
43.750	0.00	0.02	0.524	O	|	|	|	1.98
44.000	0.00	0.02	0.524	O	|	|	|	1.98
44.250	0.00	0.02	0.523	O	|	|	|	1.98
44.500	0.00	0.02	0.523	O	|	|	|	1.98

44.750	0.00	0.02	0.522	O	|	|	|	1.98
45.000	0.00	0.02	0.522	O	|	|	|	1.98
45.250	0.00	0.02	0.522	O	|	|	|	1.97
45.500	0.00	0.02	0.521	O	|	|	|	1.97
45.750	0.00	0.02	0.521	O	|	|	|	1.97
46.000	0.00	0.02	0.520	O	|	|	|	1.97
46.250	0.00	0.02	0.520	O	|	|	|	1.97
46.500	0.00	0.02	0.520	O	|	|	|	1.97
46.750	0.00	0.02	0.519	O	|	|	|	1.97
47.000	0.00	0.02	0.519	O	|	|	|	1.97
47.250	0.00	0.02	0.518	O	|	|	|	1.96
47.500	0.00	0.02	0.518	O	|	|	|	1.96
47.750	0.00	0.02	0.518	O	|	|	|	1.96
48.000	0.00	0.02	0.517	O	|	|	|	1.96
48.250	0.00	0.02	0.517	O	|	|	|	1.96
48.500	0.00	0.02	0.516	O	|	|	|	1.96
48.750	0.00	0.02	0.516	O	|	|	|	1.96
49.000	0.00	0.02	0.516	O	|	|	|	1.96
49.250	0.00	0.02	0.515	O	|	|	|	1.95
49.500	0.00	0.02	0.515	O	|	|	|	1.95
49.750	0.00	0.02	0.514	O	|	|	|	1.95
50.000	0.00	0.02	0.514	O	|	|	|	1.95
50.250	0.00	0.02	0.514	O	|	|	|	1.95
50.500	0.00	0.02	0.513	O	|	|	|	1.95
50.750	0.00	0.02	0.513	O	|	|	|	1.95
51.000	0.00	0.02	0.512	O	|	|	|	1.95
51.250	0.00	0.02	0.512	O	|	|	|	1.95
51.500	0.00	0.02	0.511	O	|	|	|	1.94
51.750	0.00	0.02	0.511	O	|	|	|	1.94
52.000	0.00	0.02	0.511	O	|	|	|	1.94
52.250	0.00	0.02	0.510	O	|	|	|	1.94
52.500	0.00	0.02	0.510	O	|	|	|	1.94
52.750	0.00	0.02	0.509	O	|	|	|	1.94
53.000	0.00	0.02	0.509	O	|	|	|	1.94
53.250	0.00	0.02	0.509	O	|	|	|	1.94
53.500	0.00	0.02	0.508	O	|	|	|	1.93
53.750	0.00	0.02	0.508	O	|	|	|	1.93
54.000	0.00	0.02	0.507	O	|	|	|	1.93
54.250	0.00	0.02	0.507	O	|	|	|	1.93
54.500	0.00	0.02	0.507	O	|	|	|	1.93
54.750	0.00	0.02	0.506	O	|	|	|	1.93
55.000	0.00	0.02	0.506	O	|	|	|	1.93
55.250	0.00	0.02	0.505	O	|	|	|	1.93
55.500	0.00	0.02	0.505	O	|	|	|	1.92
55.750	0.00	0.02	0.505	O	|	|	|	1.92
56.000	0.00	0.02	0.504	O	|	|	|	1.92
56.250	0.00	0.02	0.504	O	|	|	|	1.92
56.500	0.00	0.02	0.504	O	|	|	|	1.92
56.750	0.00	0.02	0.503	O	|	|	|	1.92
57.000	0.00	0.02	0.503	O	|	|	|	1.92
57.250	0.00	0.02	0.502	O	|	|	|	1.92
57.500	0.00	0.02	0.502	O	|	|	|	1.91
57.750	0.00	0.02	0.502	O	|	|	|	1.91
58.000	0.00	0.02	0.501	O	|	|	|	1.91
58.250	0.00	0.02	0.501	O	|	|	|	1.91
58.500	0.00	0.02	0.500	O	|	|	|	1.91
58.750	0.00	0.02	0.500	O	|	|	|	1.91
59.000	0.00	0.02	0.500	O	|	|	|	1.91
59.250	0.00	0.02	0.499	O	|	|	|	1.91
59.500	0.00	0.02	0.499	O	|	|	|	1.91
59.750	0.00	0.02	0.498	O	|	|	|	1.90
60.000	0.00	0.02	0.498	O	|	|	|	1.90

60.250	0.00	0.02	0.498	O	|	|	|	1.90
60.500	0.00	0.02	0.497	O	|	|	|	1.90
60.750	0.00	0.02	0.497	O	|	|	|	1.90
61.000	0.00	0.02	0.496	O	|	|	|	1.90
61.250	0.00	0.02	0.496	O	|	|	|	1.90
61.500	0.00	0.02	0.496	O	|	|	|	1.90
61.750	0.00	0.02	0.495	O	|	|	|	1.89
62.000	0.00	0.02	0.495	O	|	|	|	1.89
62.250	0.00	0.02	0.494	O	|	|	|	1.89
62.500	0.00	0.02	0.494	O	|	|	|	1.89
62.750	0.00	0.02	0.494	O	|	|	|	1.89
63.000	0.00	0.02	0.493	O	|	|	|	1.89
63.250	0.00	0.02	0.493	O	|	|	|	1.89
63.500	0.00	0.02	0.492	O	|	|	|	1.89
63.750	0.00	0.02	0.492	O	|	|	|	1.89
64.000	0.00	0.02	0.492	O	|	|	|	1.88
64.250	0.00	0.02	0.491	O	|	|	|	1.88
64.500	0.00	0.02	0.491	O	|	|	|	1.88
64.750	0.00	0.02	0.491	O	|	|	|	1.88
65.000	0.00	0.02	0.490	O	|	|	|	1.88
65.250	0.00	0.02	0.490	O	|	|	|	1.88
65.500	0.00	0.02	0.489	O	|	|	|	1.88
65.750	0.00	0.02	0.489	O	|	|	|	1.88
66.000	0.00	0.02	0.489	O	|	|	|	1.87
66.250	0.00	0.02	0.488	O	|	|	|	1.87
66.500	0.00	0.02	0.488	O	|	|	|	1.87
66.750	0.00	0.02	0.487	O	|	|	|	1.87
67.000	0.00	0.02	0.487	O	|	|	|	1.87
67.250	0.00	0.02	0.487	O	|	|	|	1.87
67.500	0.00	0.02	0.486	O	|	|	|	1.87
67.750	0.00	0.02	0.486	O	|	|	|	1.87
68.000	0.00	0.02	0.486	O	|	|	|	1.87
68.250	0.00	0.02	0.485	O	|	|	|	1.86
68.500	0.00	0.02	0.485	O	|	|	|	1.86
68.750	0.00	0.02	0.484	O	|	|	|	1.86
69.000	0.00	0.02	0.484	O	|	|	|	1.86
69.250	0.00	0.02	0.484	O	|	|	|	1.86
69.500	0.00	0.02	0.483	O	|	|	|	1.86
69.750	0.00	0.02	0.483	O	|	|	|	1.86
70.000	0.00	0.02	0.482	O	|	|	|	1.86
70.250	0.00	0.02	0.482	O	|	|	|	1.85
70.500	0.00	0.02	0.482	O	|	|	|	1.85
70.750	0.00	0.02	0.481	O	|	|	|	1.85
71.000	0.00	0.02	0.481	O	|	|	|	1.85
71.250	0.00	0.02	0.481	O	|	|	|	1.85
71.500	0.00	0.02	0.480	O	|	|	|	1.85
71.750	0.00	0.02	0.480	O	|	|	|	1.85
72.000	0.00	0.02	0.479	O	|	|	|	1.85
72.250	0.00	0.02	0.479	O	|	|	|	1.85
72.500	0.00	0.02	0.479	O	|	|	|	1.84
72.750	0.00	0.02	0.478	O	|	|	|	1.84
73.000	0.00	0.02	0.478	O	|	|	|	1.84
73.250	0.00	0.02	0.477	O	|	|	|	1.84
73.500	0.00	0.02	0.477	O	|	|	|	1.84
73.750	0.00	0.02	0.477	O	|	|	|	1.84
74.000	0.00	0.02	0.476	O	|	|	|	1.84
74.250	0.00	0.02	0.476	O	|	|	|	1.84
74.500	0.00	0.02	0.476	O	|	|	|	1.84
74.750	0.00	0.02	0.475	O	|	|	|	1.83
75.000	0.00	0.02	0.475	O	|	|	|	1.83
75.250	0.00	0.02	0.474	O	|	|	|	1.83
75.500	0.00	0.02	0.474	O	|	|	|	1.83

75.750	0.00	0.02	0.474	O	|	|	|	1.83
76.000	0.00	0.02	0.473	O	|	|	|	1.83
76.250	0.00	0.02	0.473	O	|	|	|	1.83
76.500	0.00	0.02	0.473	O	|	|	|	1.83
76.750	0.00	0.02	0.472	O	|	|	|	1.82
77.000	0.00	0.02	0.472	O	|	|	|	1.82
77.250	0.00	0.02	0.471	O	|	|	|	1.82
77.500	0.00	0.02	0.471	O	|	|	|	1.82
77.750	0.00	0.02	0.471	O	|	|	|	1.82
78.000	0.00	0.02	0.470	O	|	|	|	1.82
78.250	0.00	0.02	0.470	O	|	|	|	1.82
78.500	0.00	0.02	0.470	O	|	|	|	1.82
78.750	0.00	0.02	0.469	O	|	|	|	1.82
79.000	0.00	0.02	0.469	O	|	|	|	1.81
79.250	0.00	0.02	0.468	O	|	|	|	1.81
79.500	0.00	0.02	0.468	O	|	|	|	1.81
79.750	0.00	0.02	0.468	O	|	|	|	1.81
80.000	0.00	0.02	0.467	O	|	|	|	1.81
80.250	0.00	0.02	0.467	O	|	|	|	1.81
80.500	0.00	0.02	0.467	O	|	|	|	1.81
80.750	0.00	0.02	0.466	O	|	|	|	1.81
81.000	0.00	0.02	0.466	O	|	|	|	1.81
81.250	0.00	0.02	0.465	O	|	|	|	1.80
81.500	0.00	0.02	0.465	O	|	|	|	1.80
81.750	0.00	0.02	0.465	O	|	|	|	1.80
82.000	0.00	0.02	0.464	O	|	|	|	1.80
82.250	0.00	0.02	0.464	O	|	|	|	1.80
82.500	0.00	0.02	0.464	O	|	|	|	1.80
82.750	0.00	0.02	0.463	O	|	|	|	1.80
83.000	0.00	0.02	0.463	O	|	|	|	1.80
83.250	0.00	0.02	0.462	O	|	|	|	1.80
83.500	0.00	0.02	0.462	O	|	|	|	1.79
83.750	0.00	0.02	0.462	O	|	|	|	1.79
84.000	0.00	0.02	0.461	O	|	|	|	1.79
84.250	0.00	0.02	0.461	O	|	|	|	1.79
84.500	0.00	0.02	0.461	O	|	|	|	1.79
84.750	0.00	0.02	0.460	O	|	|	|	1.79
85.000	0.00	0.02	0.460	O	|	|	|	1.79
85.250	0.00	0.02	0.459	O	|	|	|	1.79
85.500	0.00	0.02	0.459	O	|	|	|	1.79
85.750	0.00	0.02	0.459	O	|	|	|	1.78
86.000	0.00	0.02	0.458	O	|	|	|	1.78
86.250	0.00	0.02	0.458	O	|	|	|	1.78
86.500	0.00	0.02	0.458	O	|	|	|	1.78
86.750	0.00	0.02	0.457	O	|	|	|	1.78
87.000	0.00	0.02	0.457	O	|	|	|	1.78
87.250	0.00	0.02	0.457	O	|	|	|	1.78
87.500	0.00	0.02	0.456	O	|	|	|	1.78
87.750	0.00	0.02	0.456	O	|	|	|	1.78
88.000	0.00	0.02	0.455	O	|	|	|	1.77
88.250	0.00	0.02	0.455	O	|	|	|	1.77
88.500	0.00	0.02	0.455	O	|	|	|	1.77
88.750	0.00	0.02	0.454	O	|	|	|	1.77
89.000	0.00	0.02	0.454	O	|	|	|	1.77
89.250	0.00	0.02	0.454	O	|	|	|	1.77
89.500	0.00	0.02	0.453	O	|	|	|	1.77
89.750	0.00	0.02	0.453	O	|	|	|	1.77
90.000	0.00	0.02	0.453	O	|	|	|	1.77
90.250	0.00	0.02	0.452	O	|	|	|	1.76
90.500	0.00	0.02	0.452	O	|	|	|	1.76
90.750	0.00	0.02	0.451	O	|	|	|	1.76
91.000	0.00	0.02	0.451	O	|	|	|	1.76

91.250	0.00	0.02	0.451	O	|	|	|	1.76
91.500	0.00	0.02	0.450	O	|	|	|	1.76
91.750	0.00	0.02	0.450	O	|	|	|	1.76
92.000	0.00	0.02	0.450	O	|	|	|	1.76
92.250	0.00	0.02	0.449	O	|	|	|	1.76
92.500	0.00	0.02	0.449	O	|	|	|	1.75
92.750	0.00	0.02	0.449	O	|	|	|	1.75
93.000	0.00	0.02	0.448	O	|	|	|	1.75
93.250	0.00	0.02	0.448	O	|	|	|	1.75
93.500	0.00	0.02	0.447	O	|	|	|	1.75
93.750	0.00	0.02	0.447	O	|	|	|	1.75
94.000	0.00	0.02	0.447	O	|	|	|	1.75
94.250	0.00	0.02	0.446	O	|	|	|	1.75
94.500	0.00	0.02	0.446	O	|	|	|	1.75
94.750	0.00	0.02	0.446	O	|	|	|	1.74
95.000	0.00	0.02	0.445	O	|	|	|	1.74
95.250	0.00	0.02	0.445	O	|	|	|	1.74
95.500	0.00	0.02	0.445	O	|	|	|	1.74
95.750	0.00	0.02	0.444	O	|	|	|	1.74
96.000	0.00	0.02	0.444	O	|	|	|	1.74
96.250	0.00	0.02	0.443	O	|	|	|	1.74
96.500	0.00	0.02	0.443	O	|	|	|	1.74
96.750	0.00	0.02	0.443	O	|	|	|	1.74
97.000	0.00	0.02	0.442	O	|	|	|	1.73
97.250	0.00	0.02	0.442	O	|	|	|	1.73
97.500	0.00	0.02	0.442	O	|	|	|	1.73
97.750	0.00	0.02	0.441	O	|	|	|	1.73
98.000	0.00	0.02	0.441	O	|	|	|	1.73
98.250	0.00	0.02	0.441	O	|	|	|	1.73
98.500	0.00	0.02	0.440	O	|	|	|	1.73
98.750	0.00	0.02	0.440	O	|	|	|	1.73
99.000	0.00	0.02	0.440	O	|	|	|	1.73
99.250	0.00	0.02	0.439	O	|	|	|	1.72
99.500	0.00	0.02	0.439	O	|	|	|	1.72
99.750	0.00	0.02	0.438	O	|	|	|	1.72
100.000	0.00	0.02	0.438	O	|	|	|	1.72
100.250	0.00	0.02	0.438	O	|	|	|	1.72
100.500	0.00	0.02	0.437	O	|	|	|	1.72
100.750	0.00	0.02	0.437	O	|	|	|	1.72
101.000	0.00	0.02	0.437	O	|	|	|	1.72
101.250	0.00	0.02	0.436	O	|	|	|	1.72
101.500	0.00	0.02	0.436	O	|	|	|	1.72
101.750	0.00	0.02	0.436	O	|	|	|	1.71
102.000	0.00	0.02	0.435	O	|	|	|	1.71
102.250	0.00	0.02	0.435	O	|	|	|	1.71
102.500	0.00	0.02	0.435	O	|	|	|	1.71
102.750	0.00	0.02	0.434	O	|	|	|	1.71
103.000	0.00	0.02	0.434	O	|	|	|	1.71
103.250	0.00	0.02	0.434	O	|	|	|	1.71
103.500	0.00	0.02	0.433	O	|	|	|	1.71
103.750	0.00	0.02	0.433	O	|	|	|	1.71
104.000	0.00	0.02	0.432	O	|	|	|	1.70
104.250	0.00	0.02	0.432	O	|	|	|	1.70
104.500	0.00	0.02	0.432	O	|	|	|	1.70
104.750	0.00	0.02	0.431	O	|	|	|	1.70
105.000	0.00	0.02	0.431	O	|	|	|	1.70
105.250	0.00	0.02	0.431	O	|	|	|	1.70
105.500	0.00	0.02	0.430	O	|	|	|	1.70
105.750	0.00	0.02	0.430	O	|	|	|	1.70
106.000	0.00	0.02	0.430	O	|	|	|	1.70
106.250	0.00	0.02	0.429	O	|	|	|	1.69
106.500	0.00	0.02	0.429	O	|	|	|	1.69

106.750	0.00	0.02	0.429	O	|	|	|	1.69
107.000	0.00	0.02	0.428	O	|	|	|	1.69
107.250	0.00	0.02	0.428	O	|	|	|	1.69
107.500	0.00	0.02	0.428	O	|	|	|	1.69
107.750	0.00	0.02	0.427	O	|	|	|	1.69
108.000	0.00	0.02	0.427	O	|	|	|	1.69
108.250	0.00	0.02	0.427	O	|	|	|	1.69
108.500	0.00	0.02	0.426	O	|	|	|	1.69
108.750	0.00	0.02	0.426	O	|	|	|	1.68
109.000	0.00	0.02	0.425	O	|	|	|	1.68
109.250	0.00	0.02	0.425	O	|	|	|	1.68
109.500	0.00	0.02	0.425	O	|	|	|	1.68
109.750	0.00	0.02	0.424	O	|	|	|	1.68
110.000	0.00	0.02	0.424	O	|	|	|	1.68
110.250	0.00	0.02	0.424	O	|	|	|	1.68
110.500	0.00	0.02	0.423	O	|	|	|	1.68
110.750	0.00	0.02	0.423	O	|	|	|	1.68
111.000	0.00	0.02	0.423	O	|	|	|	1.67
111.250	0.00	0.02	0.422	O	|	|	|	1.67
111.500	0.00	0.02	0.422	O	|	|	|	1.67
111.750	0.00	0.02	0.422	O	|	|	|	1.67
112.000	0.00	0.02	0.421	O	|	|	|	1.67
112.250	0.00	0.02	0.421	O	|	|	|	1.67
112.500	0.00	0.02	0.421	O	|	|	|	1.67
112.750	0.00	0.02	0.420	O	|	|	|	1.67
113.000	0.00	0.02	0.420	O	|	|	|	1.67
113.250	0.00	0.02	0.420	O	|	|	|	1.67
113.500	0.00	0.02	0.419	O	|	|	|	1.66
113.750	0.00	0.02	0.419	O	|	|	|	1.66
114.000	0.00	0.02	0.419	O	|	|	|	1.66
114.250	0.00	0.02	0.418	O	|	|	|	1.66
114.500	0.00	0.02	0.418	O	|	|	|	1.66
114.750	0.00	0.02	0.418	O	|	|	|	1.66
115.000	0.00	0.02	0.417	O	|	|	|	1.66
115.250	0.00	0.02	0.417	O	|	|	|	1.66
115.500	0.00	0.02	0.416	O	|	|	|	1.66
115.750	0.00	0.02	0.416	O	|	|	|	1.65
116.000	0.00	0.02	0.416	O	|	|	|	1.65
116.250	0.00	0.02	0.415	O	|	|	|	1.65
116.500	0.00	0.02	0.415	O	|	|	|	1.65
116.750	0.00	0.02	0.415	O	|	|	|	1.65
117.000	0.00	0.02	0.414	O	|	|	|	1.65
117.250	0.00	0.02	0.414	O	|	|	|	1.65
117.500	0.00	0.02	0.414	O	|	|	|	1.65
117.750	0.00	0.02	0.413	O	|	|	|	1.65
118.000	0.00	0.02	0.413	O	|	|	|	1.65
118.250	0.00	0.02	0.413	O	|	|	|	1.64
118.500	0.00	0.02	0.412	O	|	|	|	1.64
118.750	0.00	0.02	0.412	O	|	|	|	1.64
119.000	0.00	0.02	0.412	O	|	|	|	1.64
119.250	0.00	0.02	0.411	O	|	|	|	1.64
119.500	0.00	0.02	0.411	O	|	|	|	1.64
119.750	0.00	0.02	0.411	O	|	|	|	1.64
120.000	0.00	0.02	0.410	O	|	|	|	1.64
120.250	0.00	0.02	0.410	O	|	|	|	1.64
120.500	0.00	0.02	0.410	O	|	|	|	1.64
120.750	0.00	0.02	0.409	O	|	|	|	1.63
121.000	0.00	0.02	0.409	O	|	|	|	1.63
121.250	0.00	0.02	0.409	O	|	|	|	1.63
121.500	0.00	0.02	0.408	O	|	|	|	1.63
121.750	0.00	0.02	0.408	O	|	|	|	1.63
122.000	0.00	0.02	0.408	O	|	|	|	1.63

122.250	0.00	0.02	0.407	O	|	|	|	1.63
122.500	0.00	0.02	0.407	O	|	|	|	1.63
122.750	0.00	0.02	0.407	O	|	|	|	1.63
123.000	0.00	0.02	0.406	O	|	|	|	1.63
123.250	0.00	0.02	0.406	O	|	|	|	1.62
123.500	0.00	0.02	0.406	O	|	|	|	1.62
123.750	0.00	0.02	0.405	O	|	|	|	1.62
124.000	0.00	0.02	0.405	O	|	|	|	1.62
124.250	0.00	0.02	0.405	O	|	|	|	1.62
124.500	0.00	0.02	0.404	O	|	|	|	1.62
124.750	0.00	0.02	0.404	O	|	|	|	1.62
125.000	0.00	0.02	0.404	O	|	|	|	1.62
125.250	0.00	0.02	0.403	O	|	|	|	1.62
125.500	0.00	0.02	0.403	O	|	|	|	1.62
125.750	0.00	0.02	0.403	O	|	|	|	1.61
126.000	0.00	0.02	0.402	O	|	|	|	1.61
126.250	0.00	0.02	0.402	O	|	|	|	1.61
126.500	0.00	0.02	0.402	O	|	|	|	1.61
126.750	0.00	0.02	0.401	O	|	|	|	1.61
127.000	0.00	0.02	0.401	O	|	|	|	1.61
127.250	0.00	0.02	0.401	O	|	|	|	1.61
127.500	0.00	0.02	0.400	O	|	|	|	1.61
127.750	0.00	0.02	0.400	O	|	|	|	1.61
128.000	0.00	0.02	0.400	O	|	|	|	1.60
128.250	0.00	0.02	0.399	O	|	|	|	1.60
128.500	0.00	0.02	0.399	O	|	|	|	1.60
128.750	0.00	0.02	0.399	O	|	|	|	1.60
129.000	0.00	0.02	0.398	O	|	|	|	1.60
129.250	0.00	0.02	0.398	O	|	|	|	1.60
129.500	0.00	0.02	0.398	O	|	|	|	1.60
129.750	0.00	0.02	0.397	O	|	|	|	1.60
130.000	0.00	0.02	0.397	O	|	|	|	1.60
130.250	0.00	0.02	0.397	O	|	|	|	1.60
130.500	0.00	0.02	0.396	O	|	|	|	1.59
130.750	0.00	0.02	0.396	O	|	|	|	1.59
131.000	0.00	0.02	0.396	O	|	|	|	1.59
131.250	0.00	0.02	0.395	O	|	|	|	1.59
131.500	0.00	0.02	0.395	O	|	|	|	1.59
131.750	0.00	0.02	0.395	O	|	|	|	1.59
132.000	0.00	0.02	0.394	O	|	|	|	1.59
132.250	0.00	0.02	0.394	O	|	|	|	1.59
132.500	0.00	0.02	0.394	O	|	|	|	1.59
132.750	0.00	0.02	0.393	O	|	|	|	1.59
133.000	0.00	0.02	0.393	O	|	|	|	1.59
133.250	0.00	0.02	0.393	O	|	|	|	1.58
133.500	0.00	0.02	0.392	O	|	|	|	1.58
133.750	0.00	0.02	0.392	O	|	|	|	1.58
134.000	0.00	0.02	0.392	O	|	|	|	1.58
134.250	0.00	0.02	0.391	O	|	|	|	1.58
134.500	0.00	0.02	0.391	O	|	|	|	1.58
134.750	0.00	0.02	0.391	O	|	|	|	1.58
135.000	0.00	0.02	0.390	O	|	|	|	1.58
135.250	0.00	0.02	0.390	O	|	|	|	1.58
135.500	0.00	0.02	0.390	O	|	|	|	1.58
135.750	0.00	0.02	0.389	O	|	|	|	1.57
136.000	0.00	0.02	0.389	O	|	|	|	1.57
136.250	0.00	0.02	0.389	O	|	|	|	1.57
136.500	0.00	0.02	0.388	O	|	|	|	1.57
136.750	0.00	0.02	0.388	O	|	|	|	1.57
137.000	0.00	0.02	0.388	O	|	|	|	1.57
137.250	0.00	0.02	0.388	O	|	|	|	1.57
137.500	0.00	0.02	0.387	O	|	|	|	1.57

137.750	0.00	0.02	0.387	O	|	|	|	1.57
138.000	0.00	0.02	0.387	O	|	|	|	1.57
138.250	0.00	0.02	0.386	O	|	|	|	1.56
138.500	0.00	0.02	0.386	O	|	|	|	1.56
138.750	0.00	0.02	0.386	O	|	|	|	1.56
139.000	0.00	0.02	0.385	O	|	|	|	1.56
139.250	0.00	0.02	0.385	O	|	|	|	1.56
139.500	0.00	0.02	0.385	O	|	|	|	1.56
139.750	0.00	0.02	0.384	O	|	|	|	1.56
140.000	0.00	0.02	0.384	O	|	|	|	1.56
140.250	0.00	0.02	0.384	O	|	|	|	1.56
140.500	0.00	0.02	0.383	O	|	|	|	1.56
140.750	0.00	0.02	0.383	O	|	|	|	1.55
141.000	0.00	0.02	0.383	O	|	|	|	1.55
141.250	0.00	0.02	0.382	O	|	|	|	1.55
141.500	0.00	0.02	0.382	O	|	|	|	1.55
141.750	0.00	0.02	0.382	O	|	|	|	1.55
142.000	0.00	0.02	0.381	O	|	|	|	1.55
142.250	0.00	0.02	0.381	O	|	|	|	1.55
142.500	0.00	0.02	0.381	O	|	|	|	1.55
142.750	0.00	0.02	0.380	O	|	|	|	1.55
143.000	0.00	0.02	0.380	O	|	|	|	1.55
143.250	0.00	0.02	0.380	O	|	|	|	1.54
143.500	0.00	0.02	0.379	O	|	|	|	1.54
143.750	0.00	0.02	0.379	O	|	|	|	1.54
144.000	0.00	0.02	0.379	O	|	|	|	1.54
144.250	0.00	0.02	0.379	O	|	|	|	1.54
144.500	0.00	0.02	0.378	O	|	|	|	1.54
144.750	0.00	0.02	0.378	O	|	|	|	1.54
145.000	0.00	0.02	0.378	O	|	|	|	1.54
145.250	0.00	0.02	0.377	O	|	|	|	1.54
145.500	0.00	0.02	0.377	O	|	|	|	1.54
145.750	0.00	0.02	0.377	O	|	|	|	1.54
146.000	0.00	0.02	0.376	O	|	|	|	1.53
146.250	0.00	0.02	0.376	O	|	|	|	1.53
146.500	0.00	0.02	0.376	O	|	|	|	1.53
146.750	0.00	0.02	0.375	O	|	|	|	1.53
147.000	0.00	0.02	0.375	O	|	|	|	1.53
147.250	0.00	0.02	0.375	O	|	|	|	1.53
147.500	0.00	0.02	0.374	O	|	|	|	1.53
147.750	0.00	0.02	0.374	O	|	|	|	1.53
148.000	0.00	0.02	0.374	O	|	|	|	1.53
148.250	0.00	0.02	0.373	O	|	|	|	1.53
148.500	0.00	0.02	0.373	O	|	|	|	1.52
148.750	0.00	0.02	0.373	O	|	|	|	1.52
149.000	0.00	0.02	0.373	O	|	|	|	1.52
149.250	0.00	0.02	0.372	O	|	|	|	1.52
149.500	0.00	0.02	0.372	O	|	|	|	1.52
149.750	0.00	0.02	0.372	O	|	|	|	1.52
150.000	0.00	0.02	0.371	O	|	|	|	1.52
150.250	0.00	0.02	0.371	O	|	|	|	1.52
150.500	0.00	0.02	0.371	O	|	|	|	1.52
150.750	0.00	0.02	0.370	O	|	|	|	1.52
151.000	0.00	0.02	0.370	O	|	|	|	1.52
151.250	0.00	0.02	0.370	O	|	|	|	1.51
151.500	0.00	0.02	0.369	O	|	|	|	1.51
151.750	0.00	0.02	0.369	O	|	|	|	1.51
152.000	0.00	0.02	0.369	O	|	|	|	1.51
152.250	0.00	0.02	0.368	O	|	|	|	1.51
152.500	0.00	0.02	0.368	O	|	|	|	1.51
152.750	0.00	0.02	0.368	O	|	|	|	1.51
153.000	0.00	0.02	0.368	O	|	|	|	1.51

153.250	0.00	0.02	0.367	O	|	|	|	1.51
153.500	0.00	0.02	0.367	O	|	|	|	1.51
153.750	0.00	0.02	0.367	O	|	|	|	1.50
154.000	0.00	0.02	0.366	O	|	|	|	1.50
154.250	0.00	0.02	0.366	O	|	|	|	1.50
154.500	0.00	0.02	0.366	O	|	|	|	1.50
154.750	0.00	0.02	0.365	O	|	|	|	1.50
155.000	0.00	0.02	0.365	O	|	|	|	1.50
155.250	0.00	0.01	0.365	O	|	|	|	1.50
155.500	0.00	0.01	0.364	O	|	|	|	1.50
155.750	0.00	0.01	0.364	O	|	|	|	1.50
156.000	0.00	0.01	0.364	O	|	|	|	1.50
156.250	0.00	0.01	0.363	O	|	|	|	1.50
156.500	0.00	0.01	0.363	O	|	|	|	1.49
156.750	0.00	0.01	0.363	O	|	|	|	1.49
157.000	0.00	0.01	0.363	O	|	|	|	1.49
157.250	0.00	0.01	0.362	O	|	|	|	1.49
157.500	0.00	0.01	0.362	O	|	|	|	1.49
157.750	0.00	0.01	0.362	O	|	|	|	1.49
158.000	0.00	0.01	0.361	O	|	|	|	1.49
158.250	0.00	0.01	0.361	O	|	|	|	1.49
158.500	0.00	0.01	0.361	O	|	|	|	1.49
158.750	0.00	0.01	0.360	O	|	|	|	1.49
159.000	0.00	0.01	0.360	O	|	|	|	1.49
159.250	0.00	0.01	0.360	O	|	|	|	1.48
159.500	0.00	0.01	0.359	O	|	|	|	1.48
159.750	0.00	0.01	0.359	O	|	|	|	1.48
160.000	0.00	0.01	0.359	O	|	|	|	1.48
160.250	0.00	0.01	0.359	O	|	|	|	1.48
160.500	0.00	0.01	0.358	O	|	|	|	1.48
160.750	0.00	0.01	0.358	O	|	|	|	1.48
161.000	0.00	0.01	0.358	O	|	|	|	1.48
161.250	0.00	0.01	0.357	O	|	|	|	1.48
161.500	0.00	0.01	0.357	O	|	|	|	1.48
161.750	0.00	0.01	0.357	O	|	|	|	1.47
162.000	0.00	0.01	0.356	O	|	|	|	1.47
162.250	0.00	0.01	0.356	O	|	|	|	1.47
162.500	0.00	0.01	0.356	O	|	|	|	1.47
162.750	0.00	0.01	0.356	O	|	|	|	1.47
163.000	0.00	0.01	0.355	O	|	|	|	1.47
163.250	0.00	0.01	0.355	O	|	|	|	1.47
163.500	0.00	0.01	0.355	O	|	|	|	1.47
163.750	0.00	0.01	0.354	O	|	|	|	1.47
164.000	0.00	0.01	0.354	O	|	|	|	1.47
164.250	0.00	0.01	0.354	O	|	|	|	1.47
164.500	0.00	0.01	0.353	O	|	|	|	1.46
164.750	0.00	0.01	0.353	O	|	|	|	1.46
165.000	0.00	0.01	0.353	O	|	|	|	1.46
165.250	0.00	0.01	0.352	O	|	|	|	1.46
165.500	0.00	0.01	0.352	O	|	|	|	1.46
165.750	0.00	0.01	0.352	O	|	|	|	1.46
166.000	0.00	0.01	0.352	O	|	|	|	1.46
166.250	0.00	0.01	0.351	O	|	|	|	1.46
166.500	0.00	0.01	0.351	O	|	|	|	1.46
166.750	0.00	0.01	0.351	O	|	|	|	1.46
167.000	0.00	0.01	0.350	O	|	|	|	1.46
167.250	0.00	0.01	0.350	O	|	|	|	1.45
167.500	0.00	0.01	0.350	O	|	|	|	1.45
167.750	0.00	0.01	0.349	O	|	|	|	1.45
168.000	0.00	0.01	0.349	O	|	|	|	1.45
168.250	0.00	0.01	0.349	O	|	|	|	1.45
168.500	0.00	0.01	0.349	O	|	|	|	1.45

168.750	0.00	0.01	0.348	O	|	|	|	1.45
169.000	0.00	0.01	0.348	O	|	|	|	1.45
169.250	0.00	0.01	0.348	O	|	|	|	1.45
169.500	0.00	0.01	0.347	O	|	|	|	1.45
169.750	0.00	0.01	0.347	O	|	|	|	1.45
170.000	0.00	0.01	0.347	O	|	|	|	1.44
170.250	0.00	0.01	0.346	O	|	|	|	1.44
170.500	0.00	0.01	0.346	O	|	|	|	1.44
170.750	0.00	0.01	0.346	O	|	|	|	1.44
171.000	0.00	0.01	0.346	O	|	|	|	1.44
171.250	0.00	0.01	0.345	O	|	|	|	1.44
171.500	0.00	0.01	0.345	O	|	|	|	1.44
171.750	0.00	0.01	0.345	O	|	|	|	1.44
172.000	0.00	0.01	0.344	O	|	|	|	1.44
172.250	0.00	0.01	0.344	O	|	|	|	1.44
172.500	0.00	0.01	0.344	O	|	|	|	1.44
172.750	0.00	0.01	0.343	O	|	|	|	1.43
173.000	0.00	0.01	0.343	O	|	|	|	1.43
173.250	0.00	0.01	0.343	O	|	|	|	1.43
173.500	0.00	0.01	0.343	O	|	|	|	1.43
173.750	0.00	0.01	0.342	O	|	|	|	1.43
174.000	0.00	0.01	0.342	O	|	|	|	1.43
174.250	0.00	0.01	0.342	O	|	|	|	1.43
174.500	0.00	0.01	0.341	O	|	|	|	1.43
174.750	0.00	0.01	0.341	O	|	|	|	1.43
175.000	0.00	0.01	0.341	O	|	|	|	1.43
175.250	0.00	0.01	0.341	O	|	|	|	1.43
175.500	0.00	0.01	0.340	O	|	|	|	1.42
175.750	0.00	0.01	0.340	O	|	|	|	1.42
176.000	0.00	0.01	0.340	O	|	|	|	1.42
176.250	0.00	0.01	0.339	O	|	|	|	1.42
176.500	0.00	0.01	0.339	O	|	|	|	1.42
176.750	0.00	0.01	0.339	O	|	|	|	1.42
177.000	0.00	0.01	0.338	O	|	|	|	1.42
177.250	0.00	0.01	0.338	O	|	|	|	1.42
177.500	0.00	0.01	0.338	O	|	|	|	1.42
177.750	0.00	0.01	0.338	O	|	|	|	1.42
178.000	0.00	0.01	0.337	O	|	|	|	1.42
178.250	0.00	0.01	0.337	O	|	|	|	1.42
178.500	0.00	0.01	0.337	O	|	|	|	1.41
178.750	0.00	0.01	0.336	O	|	|	|	1.41
179.000	0.00	0.01	0.336	O	|	|	|	1.41
179.250	0.00	0.01	0.336	O	|	|	|	1.41
179.500	0.00	0.01	0.336	O	|	|	|	1.41
179.750	0.00	0.01	0.335	O	|	|	|	1.41
180.000	0.00	0.01	0.335	O	|	|	|	1.41
180.250	0.00	0.01	0.335	O	|	|	|	1.41
180.500	0.00	0.01	0.334	O	|	|	|	1.41
180.750	0.00	0.01	0.334	O	|	|	|	1.41
181.000	0.00	0.01	0.334	O	|	|	|	1.41
181.250	0.00	0.01	0.334	O	|	|	|	1.40
181.500	0.00	0.01	0.333	O	|	|	|	1.40
181.750	0.00	0.01	0.333	O	|	|	|	1.40
182.000	0.00	0.01	0.333	O	|	|	|	1.40
182.250	0.00	0.01	0.332	O	|	|	|	1.40
182.500	0.00	0.01	0.332	O	|	|	|	1.40
182.750	0.00	0.01	0.332	O	|	|	|	1.40
183.000	0.00	0.01	0.331	O	|	|	|	1.40
183.250	0.00	0.01	0.331	O	|	|	|	1.40
183.500	0.00	0.01	0.331	O	|	|	|	1.40
183.750	0.00	0.01	0.331	O	|	|	|	1.40
184.000	0.00	0.01	0.330	O	|	|	|	1.39

184.250	0.00	0.01	0.330	O	|	|	|	1.39
184.500	0.00	0.01	0.330	O	|	|	|	1.39
184.750	0.00	0.01	0.329	O	|	|	|	1.39
185.000	0.00	0.01	0.329	O	|	|	|	1.39
185.250	0.00	0.01	0.329	O	|	|	|	1.39
185.500	0.00	0.01	0.329	O	|	|	|	1.39
185.750	0.00	0.01	0.328	O	|	|	|	1.39
186.000	0.00	0.01	0.328	O	|	|	|	1.39
186.250	0.00	0.01	0.328	O	|	|	|	1.39
186.500	0.00	0.01	0.327	O	|	|	|	1.39
186.750	0.00	0.01	0.327	O	|	|	|	1.39
187.000	0.00	0.01	0.327	O	|	|	|	1.38
187.250	0.00	0.01	0.327	O	|	|	|	1.38
187.500	0.00	0.01	0.326	O	|	|	|	1.38
187.750	0.00	0.01	0.326	O	|	|	|	1.38
188.000	0.00	0.01	0.326	O	|	|	|	1.38
188.250	0.00	0.01	0.325	O	|	|	|	1.38
188.500	0.00	0.01	0.325	O	|	|	|	1.38
188.750	0.00	0.01	0.325	O	|	|	|	1.38
189.000	0.00	0.01	0.325	O	|	|	|	1.38
189.250	0.00	0.01	0.324	O	|	|	|	1.38
189.500	0.00	0.01	0.324	O	|	|	|	1.38
189.750	0.00	0.01	0.324	O	|	|	|	1.38
190.000	0.00	0.01	0.323	O	|	|	|	1.37
190.250	0.00	0.01	0.323	O	|	|	|	1.37
190.500	0.00	0.01	0.323	O	|	|	|	1.37
190.750	0.00	0.01	0.323	O	|	|	|	1.37
191.000	0.00	0.01	0.322	O	|	|	|	1.37
191.250	0.00	0.01	0.322	O	|	|	|	1.37
191.500	0.00	0.01	0.322	O	|	|	|	1.37
191.750	0.00	0.01	0.321	O	|	|	|	1.37
192.000	0.00	0.01	0.321	O	|	|	|	1.37
192.250	0.00	0.01	0.321	O	|	|	|	1.37
192.500	0.00	0.01	0.321	O	|	|	|	1.37
192.750	0.00	0.01	0.320	O	|	|	|	1.36
193.000	0.00	0.01	0.320	O	|	|	|	1.36
193.250	0.00	0.01	0.320	O	|	|	|	1.36
193.500	0.00	0.01	0.320	O	|	|	|	1.36
193.750	0.00	0.01	0.319	O	|	|	|	1.36
194.000	0.00	0.01	0.319	O	|	|	|	1.36
194.250	0.00	0.01	0.319	O	|	|	|	1.36
194.500	0.00	0.01	0.318	O	|	|	|	1.36
194.750	0.00	0.01	0.318	O	|	|	|	1.36
195.000	0.00	0.01	0.318	O	|	|	|	1.36
195.250	0.00	0.01	0.318	O	|	|	|	1.36
195.500	0.00	0.01	0.317	O	|	|	|	1.36
195.750	0.00	0.01	0.317	O	|	|	|	1.35
196.000	0.00	0.01	0.317	O	|	|	|	1.35
196.250	0.00	0.01	0.316	O	|	|	|	1.35
196.500	0.00	0.01	0.316	O	|	|	|	1.35
196.750	0.00	0.01	0.316	O	|	|	|	1.35
197.000	0.00	0.01	0.316	O	|	|	|	1.35
197.250	0.00	0.01	0.315	O	|	|	|	1.35
197.500	0.00	0.01	0.315	O	|	|	|	1.35
197.750	0.00	0.01	0.315	O	|	|	|	1.35
198.000	0.00	0.01	0.314	O	|	|	|	1.35
198.250	0.00	0.01	0.314	O	|	|	|	1.35
198.500	0.00	0.01	0.314	O	|	|	|	1.35
198.750	0.00	0.01	0.314	O	|	|	|	1.34
199.000	0.00	0.01	0.313	O	|	|	|	1.34
199.250	0.00	0.01	0.313	O	|	|	|	1.34
199.500	0.00	0.01	0.313	O	|	|	|	1.34

199.750	0.00	0.01	0.313	O	|	|	|	1.34
200.000	0.00	0.01	0.312	O	|	|	|	1.34
200.250	0.00	0.01	0.312	O	|	|	|	1.34
200.500	0.00	0.01	0.312	O	|	|	|	1.34
200.750	0.00	0.01	0.311	O	|	|	|	1.34
201.000	0.00	0.01	0.311	O	|	|	|	1.34
201.250	0.00	0.01	0.311	O	|	|	|	1.34
201.500	0.00	0.01	0.311	O	|	|	|	1.34
201.750	0.00	0.01	0.310	O	|	|	|	1.33
202.000	0.00	0.01	0.310	O	|	|	|	1.33
202.250	0.00	0.01	0.310	O	|	|	|	1.33
202.500	0.00	0.01	0.309	O	|	|	|	1.33
202.750	0.00	0.01	0.309	O	|	|	|	1.33
203.000	0.00	0.01	0.309	O	|	|	|	1.33
203.250	0.00	0.01	0.309	O	|	|	|	1.33
203.500	0.00	0.01	0.308	O	|	|	|	1.33
203.750	0.00	0.01	0.308	O	|	|	|	1.33
204.000	0.00	0.01	0.308	O	|	|	|	1.33
204.250	0.00	0.01	0.308	O	|	|	|	1.33
204.500	0.00	0.01	0.307	O	|	|	|	1.33
204.750	0.00	0.01	0.307	O	|	|	|	1.32
205.000	0.00	0.01	0.307	O	|	|	|	1.32
205.250	0.00	0.01	0.306	O	|	|	|	1.32
205.500	0.00	0.01	0.306	O	|	|	|	1.32
205.750	0.00	0.01	0.306	O	|	|	|	1.32
206.000	0.00	0.01	0.306	O	|	|	|	1.32
206.250	0.00	0.01	0.305	O	|	|	|	1.32
206.500	0.00	0.01	0.305	O	|	|	|	1.32
206.750	0.00	0.01	0.305	O	|	|	|	1.32
207.000	0.00	0.01	0.305	O	|	|	|	1.32
207.250	0.00	0.01	0.304	O	|	|	|	1.32
207.500	0.00	0.01	0.304	O	|	|	|	1.32
207.750	0.00	0.01	0.304	O	|	|	|	1.31
208.000	0.00	0.01	0.303	O	|	|	|	1.31
208.250	0.00	0.01	0.303	O	|	|	|	1.31
208.500	0.00	0.01	0.303	O	|	|	|	1.31
208.750	0.00	0.01	0.303	O	|	|	|	1.31
209.000	0.00	0.01	0.302	O	|	|	|	1.31
209.250	0.00	0.01	0.302	O	|	|	|	1.31
209.500	0.00	0.01	0.302	O	|	|	|	1.31
209.750	0.00	0.01	0.302	O	|	|	|	1.31
210.000	0.00	0.01	0.301	O	|	|	|	1.31
210.250	0.00	0.01	0.301	O	|	|	|	1.31
210.500	0.00	0.01	0.301	O	|	|	|	1.31
210.750	0.00	0.01	0.301	O	|	|	|	1.30
211.000	0.00	0.01	0.300	O	|	|	|	1.30
211.250	0.00	0.01	0.300	O	|	|	|	1.30
211.500	0.00	0.01	0.300	O	|	|	|	1.30
211.750	0.00	0.01	0.299	O	|	|	|	1.30
212.000	0.00	0.01	0.299	O	|	|	|	1.30
212.250	0.00	0.01	0.299	O	|	|	|	1.30
212.500	0.00	0.01	0.299	O	|	|	|	1.30
212.750	0.00	0.01	0.298	O	|	|	|	1.30
213.000	0.00	0.01	0.298	O	|	|	|	1.30
213.250	0.00	0.01	0.298	O	|	|	|	1.30
213.500	0.00	0.01	0.298	O	|	|	|	1.30
213.750	0.00	0.01	0.297	O	|	|	|	1.29
214.000	0.00	0.01	0.297	O	|	|	|	1.29
214.250	0.00	0.01	0.297	O	|	|	|	1.29
214.500	0.00	0.01	0.296	O	|	|	|	1.29
214.750	0.00	0.01	0.296	O	|	|	|	1.29
215.000	0.00	0.01	0.296	O	|	|	|	1.29

215.250	0.00	0.01	0.296	O	|	|	|	1.29
215.500	0.00	0.01	0.295	O	|	|	|	1.29
215.750	0.00	0.01	0.295	O	|	|	|	1.29
216.000	0.00	0.01	0.295	O	|	|	|	1.29
216.250	0.00	0.01	0.295	O	|	|	|	1.29
216.500	0.00	0.01	0.294	O	|	|	|	1.29
216.750	0.00	0.01	0.294	O	|	|	|	1.29
217.000	0.00	0.01	0.294	O	|	|	|	1.28
217.250	0.00	0.01	0.294	O	|	|	|	1.28
217.500	0.00	0.01	0.293	O	|	|	|	1.28
217.750	0.00	0.01	0.293	O	|	|	|	1.28
218.000	0.00	0.01	0.293	O	|	|	|	1.28
218.250	0.00	0.01	0.292	O	|	|	|	1.28
218.500	0.00	0.01	0.292	O	|	|	|	1.28
218.750	0.00	0.01	0.292	O	|	|	|	1.28
219.000	0.00	0.01	0.292	O	|	|	|	1.28
219.250	0.00	0.01	0.291	O	|	|	|	1.28
219.500	0.00	0.01	0.291	O	|	|	|	1.28
219.750	0.00	0.01	0.291	O	|	|	|	1.28
220.000	0.00	0.01	0.291	O	|	|	|	1.27
220.250	0.00	0.01	0.290	O	|	|	|	1.27
220.500	0.00	0.01	0.290	O	|	|	|	1.27
220.750	0.00	0.01	0.290	O	|	|	|	1.27
221.000	0.00	0.01	0.290	O	|	|	|	1.27
221.250	0.00	0.01	0.289	O	|	|	|	1.27
221.500	0.00	0.01	0.289	O	|	|	|	1.27
221.750	0.00	0.01	0.289	O	|	|	|	1.27
222.000	0.00	0.01	0.289	O	|	|	|	1.27
222.250	0.00	0.01	0.288	O	|	|	|	1.27
222.500	0.00	0.01	0.288	O	|	|	|	1.27
222.750	0.00	0.01	0.288	O	|	|	|	1.27
223.000	0.00	0.01	0.288	O	|	|	|	1.27
223.250	0.00	0.01	0.287	O	|	|	|	1.26
223.500	0.00	0.01	0.287	O	|	|	|	1.26
223.750	0.00	0.01	0.287	O	|	|	|	1.26
224.000	0.00	0.01	0.286	O	|	|	|	1.26
224.250	0.00	0.01	0.286	O	|	|	|	1.26
224.500	0.00	0.01	0.286	O	|	|	|	1.26
224.750	0.00	0.01	0.286	O	|	|	|	1.26
225.000	0.00	0.01	0.285	O	|	|	|	1.26
225.250	0.00	0.01	0.285	O	|	|	|	1.26
225.500	0.00	0.01	0.285	O	|	|	|	1.26
225.750	0.00	0.01	0.285	O	|	|	|	1.26
226.000	0.00	0.01	0.284	O	|	|	|	1.26
226.250	0.00	0.01	0.284	O	|	|	|	1.25
226.500	0.00	0.01	0.284	O	|	|	|	1.25
226.750	0.00	0.01	0.284	O	|	|	|	1.25
227.000	0.00	0.01	0.283	O	|	|	|	1.25
227.250	0.00	0.01	0.283	O	|	|	|	1.25
227.500	0.00	0.01	0.283	O	|	|	|	1.25
227.750	0.00	0.01	0.283	O	|	|	|	1.25
228.000	0.00	0.01	0.282	O	|	|	|	1.25
228.250	0.00	0.01	0.282	O	|	|	|	1.25
228.500	0.00	0.01	0.282	O	|	|	|	1.25
228.750	0.00	0.01	0.282	O	|	|	|	1.25
229.000	0.00	0.01	0.281	O	|	|	|	1.25
229.250	0.00	0.01	0.281	O	|	|	|	1.25
229.500	0.00	0.01	0.281	O	|	|	|	1.24
229.750	0.00	0.01	0.281	O	|	|	|	1.24
230.000	0.00	0.01	0.280	O	|	|	|	1.24
230.250	0.00	0.01	0.280	O	|	|	|	1.24
230.500	0.00	0.01	0.280	O	|	|	|	1.24

230.750	0.00	0.01	0.279	O	|	|	|	1.24
231.000	0.00	0.01	0.279	O	|	|	|	1.24
231.250	0.00	0.01	0.279	O	|	|	|	1.24
231.500	0.00	0.01	0.279	O	|	|	|	1.24
231.750	0.00	0.01	0.278	O	|	|	|	1.24
232.000	0.00	0.01	0.278	O	|	|	|	1.24
232.250	0.00	0.01	0.278	O	|	|	|	1.24
232.500	0.00	0.01	0.278	O	|	|	|	1.24
232.750	0.00	0.01	0.277	O	|	|	|	1.23
233.000	0.00	0.01	0.277	O	|	|	|	1.23
233.250	0.00	0.01	0.277	O	|	|	|	1.23
233.500	0.00	0.01	0.277	O	|	|	|	1.23
233.750	0.00	0.01	0.276	O	|	|	|	1.23
234.000	0.00	0.01	0.276	O	|	|	|	1.23
234.250	0.00	0.01	0.276	O	|	|	|	1.23
234.500	0.00	0.01	0.276	O	|	|	|	1.23
234.750	0.00	0.01	0.275	O	|	|	|	1.23
235.000	0.00	0.01	0.275	O	|	|	|	1.23
235.250	0.00	0.01	0.275	O	|	|	|	1.23
235.500	0.00	0.01	0.275	O	|	|	|	1.23
235.750	0.00	0.01	0.274	O	|	|	|	1.23
236.000	0.00	0.01	0.274	O	|	|	|	1.22
236.250	0.00	0.01	0.274	O	|	|	|	1.22
236.500	0.00	0.01	0.274	O	|	|	|	1.22
236.750	0.00	0.01	0.273	O	|	|	|	1.22
237.000	0.00	0.01	0.273	O	|	|	|	1.22
237.250	0.00	0.01	0.273	O	|	|	|	1.22
237.500	0.00	0.01	0.273	O	|	|	|	1.22
237.750	0.00	0.01	0.272	O	|	|	|	1.22
238.000	0.00	0.01	0.272	O	|	|	|	1.22
238.250	0.00	0.01	0.272	O	|	|	|	1.22
238.500	0.00	0.01	0.272	O	|	|	|	1.22
238.750	0.00	0.01	0.271	O	|	|	|	1.22
239.000	0.00	0.01	0.271	O	|	|	|	1.22
239.250	0.00	0.01	0.271	O	|	|	|	1.21
239.500	0.00	0.01	0.271	O	|	|	|	1.21
239.750	0.00	0.01	0.270	O	|	|	|	1.21
240.000	0.00	0.01	0.270	O	|	|	|	1.21
240.250	0.00	0.01	0.270	O	|	|	|	1.21
240.500	0.00	0.01	0.270	O	|	|	|	1.21
240.750	0.00	0.01	0.269	O	|	|	|	1.21
241.000	0.00	0.01	0.269	O	|	|	|	1.21
241.250	0.00	0.01	0.269	O	|	|	|	1.21
241.500	0.00	0.01	0.269	O	|	|	|	1.21
241.750	0.00	0.01	0.268	O	|	|	|	1.21
242.000	0.00	0.01	0.268	O	|	|	|	1.21
242.250	0.00	0.01	0.268	O	|	|	|	1.21
242.500	0.00	0.01	0.268	O	|	|	|	1.20
242.750	0.00	0.01	0.267	O	|	|	|	1.20
243.000	0.00	0.01	0.267	O	|	|	|	1.20
243.250	0.00	0.01	0.267	O	|	|	|	1.20
243.500	0.00	0.01	0.267	O	|	|	|	1.20
243.750	0.00	0.01	0.266	O	|	|	|	1.20
244.000	0.00	0.01	0.266	O	|	|	|	1.20
244.250	0.00	0.01	0.266	O	|	|	|	1.20
244.500	0.00	0.01	0.266	O	|	|	|	1.20
244.750	0.00	0.01	0.265	O	|	|	|	1.20
245.000	0.00	0.01	0.265	O	|	|	|	1.20
245.250	0.00	0.01	0.265	O	|	|	|	1.20
245.500	0.00	0.01	0.265	O	|	|	|	1.20
245.750	0.00	0.01	0.264	O	|	|	|	1.20
246.000	0.00	0.01	0.264	O	|	|	|	1.19

246.250	0.00	0.01	0.264	O	|	|	|	1.19
246.500	0.00	0.01	0.264	O	|	|	|	1.19
246.750	0.00	0.01	0.263	O	|	|	|	1.19
247.000	0.00	0.01	0.263	O	|	|	|	1.19
247.250	0.00	0.01	0.263	O	|	|	|	1.19
247.500	0.00	0.01	0.263	O	|	|	|	1.19
247.750	0.00	0.01	0.262	O	|	|	|	1.19
248.000	0.00	0.01	0.262	O	|	|	|	1.19
248.250	0.00	0.01	0.262	O	|	|	|	1.19
248.500	0.00	0.01	0.262	O	|	|	|	1.19
248.750	0.00	0.01	0.261	O	|	|	|	1.19
249.000	0.00	0.01	0.261	O	|	|	|	1.19
249.250	0.00	0.01	0.261	O	|	|	|	1.18
249.500	0.00	0.01	0.261	O	|	|	|	1.18
249.750	0.00	0.01	0.260	O	|	|	|	1.18
250.000	0.00	0.01	0.260	O	|	|	|	1.18
250.250	0.00	0.01	0.260	O	|	|	|	1.18
250.500	0.00	0.01	0.260	O	|	|	|	1.18
250.750	0.00	0.01	0.259	O	|	|	|	1.18
251.000	0.00	0.01	0.259	O	|	|	|	1.18
251.250	0.00	0.01	0.259	O	|	|	|	1.18
251.500	0.00	0.01	0.259	O	|	|	|	1.18
251.750	0.00	0.01	0.258	O	|	|	|	1.18
252.000	0.00	0.01	0.258	O	|	|	|	1.18
252.250	0.00	0.01	0.258	O	|	|	|	1.18
252.500	0.00	0.01	0.258	O	|	|	|	1.18
252.750	0.00	0.01	0.258	O	|	|	|	1.17
253.000	0.00	0.01	0.257	O	|	|	|	1.17
253.250	0.00	0.01	0.257	O	|	|	|	1.17
253.500	0.00	0.01	0.257	O	|	|	|	1.17
253.750	0.00	0.01	0.257	O	|	|	|	1.17
254.000	0.00	0.01	0.256	O	|	|	|	1.17
254.250	0.00	0.01	0.256	O	|	|	|	1.17
254.500	0.00	0.01	0.256	O	|	|	|	1.17
254.750	0.00	0.01	0.256	O	|	|	|	1.17
255.000	0.00	0.01	0.255	O	|	|	|	1.17
255.250	0.00	0.01	0.255	O	|	|	|	1.17
255.500	0.00	0.01	0.255	O	|	|	|	1.17
255.750	0.00	0.01	0.255	O	|	|	|	1.17
256.000	0.00	0.01	0.254	O	|	|	|	1.16
256.250	0.00	0.01	0.254	O	|	|	|	1.16
256.500	0.00	0.01	0.254	O	|	|	|	1.16
256.750	0.00	0.01	0.254	O	|	|	|	1.16
257.000	0.00	0.01	0.253	O	|	|	|	1.16
257.250	0.00	0.01	0.253	O	|	|	|	1.16
257.500	0.00	0.01	0.253	O	|	|	|	1.16
257.750	0.00	0.01	0.253	O	|	|	|	1.16
258.000	0.00	0.01	0.252	O	|	|	|	1.16
258.250	0.00	0.01	0.252	O	|	|	|	1.16
258.500	0.00	0.01	0.252	O	|	|	|	1.16
258.750	0.00	0.01	0.252	O	|	|	|	1.16
259.000	0.00	0.01	0.252	O	|	|	|	1.16
259.250	0.00	0.01	0.251	O	|	|	|	1.16
259.500	0.00	0.01	0.251	O	|	|	|	1.15
259.750	0.00	0.01	0.251	O	|	|	|	1.15
260.000	0.00	0.01	0.251	O	|	|	|	1.15
260.250	0.00	0.01	0.250	O	|	|	|	1.15
260.500	0.00	0.01	0.250	O	|	|	|	1.15
260.750	0.00	0.01	0.250	O	|	|	|	1.15
261.000	0.00	0.01	0.250	O	|	|	|	1.15
261.250	0.00	0.01	0.249	O	|	|	|	1.15
261.500	0.00	0.01	0.249	O	|	|	|	1.15

261.750	0.00	0.01	0.249	O	|	|	|	1.15
262.000	0.00	0.01	0.249	O	|	|	|	1.15
262.250	0.00	0.01	0.248	O	|	|	|	1.15
262.500	0.00	0.01	0.248	O	|	|	|	1.15
262.750	0.00	0.01	0.248	O	|	|	|	1.15
263.000	0.00	0.01	0.248	O	|	|	|	1.14
263.250	0.00	0.01	0.247	O	|	|	|	1.14
263.500	0.00	0.01	0.247	O	|	|	|	1.14
263.750	0.00	0.01	0.247	O	|	|	|	1.14
264.000	0.00	0.01	0.247	O	|	|	|	1.14
264.250	0.00	0.01	0.247	O	|	|	|	1.14
264.500	0.00	0.01	0.246	O	|	|	|	1.14
264.750	0.00	0.01	0.246	O	|	|	|	1.14
265.000	0.00	0.01	0.246	O	|	|	|	1.14
265.250	0.00	0.01	0.246	O	|	|	|	1.14
265.500	0.00	0.01	0.245	O	|	|	|	1.14
265.750	0.00	0.01	0.245	O	|	|	|	1.14
266.000	0.00	0.01	0.245	O	|	|	|	1.14
266.250	0.00	0.01	0.245	O	|	|	|	1.14
266.500	0.00	0.01	0.244	O	|	|	|	1.13
266.750	0.00	0.01	0.244	O	|	|	|	1.13
267.000	0.00	0.01	0.244	O	|	|	|	1.13
267.250	0.00	0.01	0.244	O	|	|	|	1.13
267.500	0.00	0.01	0.243	O	|	|	|	1.13
267.750	0.00	0.01	0.243	O	|	|	|	1.13
268.000	0.00	0.01	0.243	O	|	|	|	1.13
268.250	0.00	0.01	0.243	O	|	|	|	1.13
268.500	0.00	0.01	0.243	O	|	|	|	1.13
268.750	0.00	0.01	0.242	O	|	|	|	1.13
269.000	0.00	0.01	0.242	O	|	|	|	1.13
269.250	0.00	0.01	0.242	O	|	|	|	1.13
269.500	0.00	0.01	0.242	O	|	|	|	1.13
269.750	0.00	0.01	0.241	O	|	|	|	1.13
270.000	0.00	0.01	0.241	O	|	|	|	1.12
270.250	0.00	0.01	0.241	O	|	|	|	1.12
270.500	0.00	0.01	0.241	O	|	|	|	1.12
270.750	0.00	0.01	0.240	O	|	|	|	1.12
271.000	0.00	0.01	0.240	O	|	|	|	1.12
271.250	0.00	0.01	0.240	O	|	|	|	1.12
271.500	0.00	0.01	0.240	O	|	|	|	1.12
271.750	0.00	0.01	0.240	O	|	|	|	1.12
272.000	0.00	0.01	0.239	O	|	|	|	1.12
272.250	0.00	0.01	0.239	O	|	|	|	1.12
272.500	0.00	0.01	0.239	O	|	|	|	1.12
272.750	0.00	0.01	0.239	O	|	|	|	1.12
273.000	0.00	0.01	0.238	O	|	|	|	1.12
273.250	0.00	0.01	0.238	O	|	|	|	1.12
273.500	0.00	0.01	0.238	O	|	|	|	1.11
273.750	0.00	0.01	0.238	O	|	|	|	1.11
274.000	0.00	0.01	0.237	O	|	|	|	1.11
274.250	0.00	0.01	0.237	O	|	|	|	1.11
274.500	0.00	0.01	0.237	O	|	|	|	1.11
274.750	0.00	0.01	0.237	O	|	|	|	1.11
275.000	0.00	0.01	0.237	O	|	|	|	1.11
275.250	0.00	0.01	0.236	O	|	|	|	1.11
275.500	0.00	0.01	0.236	O	|	|	|	1.11
275.750	0.00	0.01	0.236	O	|	|	|	1.11
276.000	0.00	0.01	0.236	O	|	|	|	1.11
276.250	0.00	0.01	0.235	O	|	|	|	1.11
276.500	0.00	0.01	0.235	O	|	|	|	1.11
276.750	0.00	0.01	0.235	O	|	|	|	1.11
277.000	0.00	0.01	0.235	O	|	|	|	1.11

277.250	0.00	0.01	0.234	O	|	|	|	1.10
277.500	0.00	0.01	0.234	O	|	|	|	1.10
277.750	0.00	0.01	0.234	O	|	|	|	1.10
278.000	0.00	0.01	0.234	O	|	|	|	1.10
278.250	0.00	0.01	0.234	O	|	|	|	1.10
278.500	0.00	0.01	0.233	O	|	|	|	1.10
278.750	0.00	0.01	0.233	O	|	|	|	1.10
279.000	0.00	0.01	0.233	O	|	|	|	1.10
279.250	0.00	0.01	0.233	O	|	|	|	1.10
279.500	0.00	0.01	0.232	O	|	|	|	1.10
279.750	0.00	0.01	0.232	O	|	|	|	1.10
280.000	0.00	0.01	0.232	O	|	|	|	1.10
280.250	0.00	0.01	0.232	O	|	|	|	1.10
280.500	0.00	0.01	0.232	O	|	|	|	1.10
280.750	0.00	0.01	0.231	O	|	|	|	1.09
281.000	0.00	0.01	0.231	O	|	|	|	1.09
281.250	0.00	0.01	0.231	O	|	|	|	1.09
281.500	0.00	0.01	0.231	O	|	|	|	1.09
281.750	0.00	0.01	0.230	O	|	|	|	1.09
282.000	0.00	0.01	0.230	O	|	|	|	1.09
282.250	0.00	0.01	0.230	O	|	|	|	1.09
282.500	0.00	0.01	0.230	O	|	|	|	1.09
282.750	0.00	0.01	0.229	O	|	|	|	1.09
283.000	0.00	0.01	0.229	O	|	|	|	1.09
283.250	0.00	0.01	0.229	O	|	|	|	1.09
283.500	0.00	0.01	0.229	O	|	|	|	1.09
283.750	0.00	0.01	0.229	O	|	|	|	1.09
284.000	0.00	0.01	0.228	O	|	|	|	1.09
284.250	0.00	0.01	0.228	O	|	|	|	1.09
284.500	0.00	0.01	0.228	O	|	|	|	1.08
284.750	0.00	0.01	0.228	O	|	|	|	1.08
285.000	0.00	0.01	0.227	O	|	|	|	1.08
285.250	0.00	0.01	0.227	O	|	|	|	1.08
285.500	0.00	0.01	0.227	O	|	|	|	1.08
285.750	0.00	0.01	0.227	O	|	|	|	1.08
286.000	0.00	0.01	0.227	O	|	|	|	1.08
286.250	0.00	0.01	0.226	O	|	|	|	1.08
286.500	0.00	0.01	0.226	O	|	|	|	1.08
286.750	0.00	0.01	0.226	O	|	|	|	1.08
287.000	0.00	0.01	0.226	O	|	|	|	1.08
287.250	0.00	0.01	0.225	O	|	|	|	1.08
287.500	0.00	0.01	0.225	O	|	|	|	1.08
287.750	0.00	0.01	0.225	O	|	|	|	1.08
288.000	0.00	0.01	0.225	O	|	|	|	1.08
288.250	0.00	0.01	0.225	O	|	|	|	1.07
288.500	0.00	0.01	0.224	O	|	|	|	1.07
288.750	0.00	0.01	0.224	O	|	|	|	1.07
289.000	0.00	0.01	0.224	O	|	|	|	1.07
289.250	0.00	0.01	0.224	O	|	|	|	1.07
289.500	0.00	0.01	0.223	O	|	|	|	1.07
289.750	0.00	0.01	0.223	O	|	|	|	1.07
290.000	0.00	0.01	0.223	O	|	|	|	1.07
290.250	0.00	0.01	0.223	O	|	|	|	1.07
290.500	0.00	0.01	0.223	O	|	|	|	1.07
290.750	0.00	0.01	0.222	O	|	|	|	1.07
291.000	0.00	0.01	0.222	O	|	|	|	1.07
291.250	0.00	0.01	0.222	O	|	|	|	1.07
291.500	0.00	0.01	0.222	O	|	|	|	1.07
291.750	0.00	0.01	0.221	O	|	|	|	1.07
292.000	0.00	0.01	0.221	O	|	|	|	1.06
292.250	0.00	0.01	0.221	O	|	|	|	1.06
292.500	0.00	0.01	0.221	O	|	|	|	1.06

292.750	0.00	0.01	0.221	O	|	|	|	1.06
293.000	0.00	0.01	0.220	O	|	|	|	1.06
293.250	0.00	0.01	0.220	O	|	|	|	1.06
293.500	0.00	0.01	0.220	O	|	|	|	1.06
293.750	0.00	0.01	0.220	O	|	|	|	1.06
294.000	0.00	0.01	0.219	O	|	|	|	1.06
294.250	0.00	0.01	0.219	O	|	|	|	1.06
294.500	0.00	0.01	0.219	O	|	|	|	1.06
294.750	0.00	0.01	0.219	O	|	|	|	1.06
295.000	0.00	0.01	0.219	O	|	|	|	1.06
295.250	0.00	0.01	0.218	O	|	|	|	1.06
295.500	0.00	0.01	0.218	O	|	|	|	1.06
295.750	0.00	0.01	0.218	O	|	|	|	1.05
296.000	0.00	0.01	0.218	O	|	|	|	1.05
296.250	0.00	0.01	0.218	O	|	|	|	1.05
296.500	0.00	0.01	0.217	O	|	|	|	1.05
296.750	0.00	0.01	0.217	O	|	|	|	1.05
297.000	0.00	0.01	0.217	O	|	|	|	1.05
297.250	0.00	0.01	0.217	O	|	|	|	1.05
297.500	0.00	0.01	0.216	O	|	|	|	1.05
297.750	0.00	0.01	0.216	O	|	|	|	1.05
298.000	0.00	0.01	0.216	O	|	|	|	1.05
298.250	0.00	0.01	0.216	O	|	|	|	1.05
298.500	0.00	0.01	0.216	O	|	|	|	1.05
298.750	0.00	0.01	0.215	O	|	|	|	1.05
299.000	0.00	0.01	0.215	O	|	|	|	1.05
299.250	0.00	0.01	0.215	O	|	|	|	1.05
299.500	0.00	0.01	0.215	O	|	|	|	1.04
299.750	0.00	0.01	0.214	O	|	|	|	1.04
300.000	0.00	0.01	0.214	O	|	|	|	1.04
300.250	0.00	0.01	0.214	O	|	|	|	1.04
300.500	0.00	0.01	0.214	O	|	|	|	1.04
300.750	0.00	0.01	0.214	O	|	|	|	1.04
301.000	0.00	0.01	0.213	O	|	|	|	1.04
301.250	0.00	0.01	0.213	O	|	|	|	1.04
301.500	0.00	0.01	0.213	O	|	|	|	1.04
301.750	0.00	0.01	0.213	O	|	|	|	1.04
302.000	0.00	0.01	0.213	O	|	|	|	1.04
302.250	0.00	0.01	0.212	O	|	|	|	1.04
302.500	0.00	0.01	0.212	O	|	|	|	1.04
302.750	0.00	0.01	0.212	O	|	|	|	1.04
303.000	0.00	0.01	0.212	O	|	|	|	1.04
303.250	0.00	0.01	0.211	O	|	|	|	1.03
303.500	0.00	0.01	0.211	O	|	|	|	1.03
303.750	0.00	0.01	0.211	O	|	|	|	1.03
304.000	0.00	0.01	0.211	O	|	|	|	1.03
304.250	0.00	0.01	0.211	O	|	|	|	1.03
304.500	0.00	0.01	0.210	O	|	|	|	1.03
304.750	0.00	0.01	0.210	O	|	|	|	1.03
305.000	0.00	0.01	0.210	O	|	|	|	1.03
305.250	0.00	0.01	0.210	O	|	|	|	1.03
305.500	0.00	0.01	0.210	O	|	|	|	1.03
305.750	0.00	0.01	0.209	O	|	|	|	1.03
306.000	0.00	0.01	0.209	O	|	|	|	1.03
306.250	0.00	0.01	0.209	O	|	|	|	1.03
306.500	0.00	0.01	0.209	O	|	|	|	1.03
306.750	0.00	0.01	0.209	O	|	|	|	1.03
307.000	0.00	0.01	0.208	O	|	|	|	1.03
307.250	0.00	0.01	0.208	O	|	|	|	1.02
307.500	0.00	0.01	0.208	O	|	|	|	1.02
307.750	0.00	0.01	0.208	O	|	|	|	1.02
308.000	0.00	0.01	0.207	O	|	|	|	1.02

308.250	0.00	0.01	0.207	O	|	|	|	1.02
308.500	0.00	0.01	0.207	O	|	|	|	1.02
308.750	0.00	0.01	0.207	O	|	|	|	1.02
309.000	0.00	0.01	0.207	O	|	|	|	1.02
309.250	0.00	0.01	0.206	O	|	|	|	1.02
309.500	0.00	0.01	0.206	O	|	|	|	1.02
309.750	0.00	0.01	0.206	O	|	|	|	1.02
310.000	0.00	0.01	0.206	O	|	|	|	1.02
310.250	0.00	0.01	0.206	O	|	|	|	1.02
310.500	0.00	0.01	0.205	O	|	|	|	1.02
310.750	0.00	0.01	0.205	O	|	|	|	1.02
311.000	0.00	0.01	0.205	O	|	|	|	1.01
311.250	0.00	0.01	0.205	O	|	|	|	1.01
311.500	0.00	0.01	0.205	O	|	|	|	1.01
311.750	0.00	0.01	0.204	O	|	|	|	1.01
312.000	0.00	0.01	0.204	O	|	|	|	1.01
312.250	0.00	0.01	0.204	O	|	|	|	1.01
312.500	0.00	0.01	0.204	O	|	|	|	1.01
312.750	0.00	0.01	0.203	O	|	|	|	1.01
313.000	0.00	0.01	0.203	O	|	|	|	1.01
313.250	0.00	0.01	0.203	O	|	|	|	1.01
313.500	0.00	0.01	0.203	O	|	|	|	1.01
313.750	0.00	0.01	0.203	O	|	|	|	1.01
314.000	0.00	0.01	0.202	O	|	|	|	1.01
314.250	0.00	0.01	0.202	O	|	|	|	1.01
314.500	0.00	0.01	0.202	O	|	|	|	1.01
314.750	0.00	0.01	0.202	O	|	|	|	1.01
315.000	0.00	0.01	0.202	O	|	|	|	1.00
315.250	0.00	0.01	0.201	O	|	|	|	1.00
315.500	0.00	0.01	0.201	O	|	|	|	1.00
315.750	0.00	0.01	0.201	O	|	|	|	1.00
316.000	0.00	0.01	0.201	O	|	|	|	1.00
316.250	0.00	0.01	0.201	O	|	|	|	1.00
316.500	0.00	0.01	0.200	O	|	|	|	1.00
316.750	0.00	0.01	0.200	O	|	|	|	1.00
317.000	0.00	0.01	0.200	O	|	|	|	1.00
317.250	0.00	0.01	0.200	O	|	|	|	1.00
317.500	0.00	0.01	0.200	O	|	|	|	1.00
317.750	0.00	0.01	0.199	O	|	|	|	1.00
318.000	0.00	0.01	0.199	O	|	|	|	1.00
318.250	0.00	0.01	0.199	O	|	|	|	0.99
318.500	0.00	0.01	0.199	O	|	|	|	0.99
318.750	0.00	0.01	0.198	O	|	|	|	0.99
319.000	0.00	0.01	0.198	O	|	|	|	0.99
319.250	0.00	0.01	0.198	O	|	|	|	0.99
319.500	0.00	0.01	0.198	O	|	|	|	0.99
319.750	0.00	0.01	0.198	O	|	|	|	0.99
320.000	0.00	0.01	0.197	O	|	|	|	0.99
320.250	0.00	0.01	0.197	O	|	|	|	0.99
320.500	0.00	0.01	0.197	O	|	|	|	0.99
320.750	0.00	0.01	0.197	O	|	|	|	0.98
321.000	0.00	0.01	0.197	O	|	|	|	0.98
321.250	0.00	0.01	0.196	O	|	|	|	0.98
321.500	0.00	0.01	0.196	O	|	|	|	0.98
321.750	0.00	0.01	0.196	O	|	|	|	0.98
322.000	0.00	0.01	0.196	O	|	|	|	0.98
322.250	0.00	0.01	0.196	O	|	|	|	0.98
322.500	0.00	0.01	0.195	O	|	|	|	0.98
322.750	0.00	0.01	0.195	O	|	|	|	0.98
323.000	0.00	0.01	0.195	O	|	|	|	0.98
323.250	0.00	0.01	0.195	O	|	|	|	0.97
323.500	0.00	0.01	0.195	O	|	|	|	0.97

323.750	0.00	0.01	0.194	O	|	|	|	0.97
324.000	0.00	0.01	0.194	O	|	|	|	0.97
324.250	0.00	0.01	0.194	O	|	|	|	0.97
324.500	0.00	0.01	0.194	O	|	|	|	0.97
324.750	0.00	0.01	0.194	O	|	|	|	0.97
325.000	0.00	0.01	0.193	O	|	|	|	0.97
325.250	0.00	0.01	0.193	O	|	|	|	0.97
325.500	0.00	0.01	0.193	O	|	|	|	0.97
325.750	0.00	0.01	0.193	O	|	|	|	0.96
326.000	0.00	0.01	0.193	O	|	|	|	0.96
326.250	0.00	0.01	0.192	O	|	|	|	0.96
326.500	0.00	0.01	0.192	O	|	|	|	0.96
326.750	0.00	0.01	0.192	O	|	|	|	0.96
327.000	0.00	0.01	0.192	O	|	|	|	0.96
327.250	0.00	0.01	0.192	O	|	|	|	0.96
327.500	0.00	0.01	0.191	O	|	|	|	0.96
327.750	0.00	0.01	0.191	O	|	|	|	0.96
328.000	0.00	0.01	0.191	O	|	|	|	0.96
328.250	0.00	0.01	0.191	O	|	|	|	0.95
328.500	0.00	0.01	0.191	O	|	|	|	0.95
328.750	0.00	0.01	0.190	O	|	|	|	0.95
329.000	0.00	0.01	0.190	O	|	|	|	0.95
329.250	0.00	0.01	0.190	O	|	|	|	0.95
329.500	0.00	0.01	0.190	O	|	|	|	0.95
329.750	0.00	0.01	0.190	O	|	|	|	0.95
330.000	0.00	0.01	0.189	O	|	|	|	0.95
330.250	0.00	0.01	0.189	O	|	|	|	0.95
330.500	0.00	0.01	0.189	O	|	|	|	0.95
330.750	0.00	0.01	0.189	O	|	|	|	0.94
331.000	0.00	0.01	0.189	O	|	|	|	0.94
331.250	0.00	0.01	0.188	O	|	|	|	0.94
331.500	0.00	0.01	0.188	O	|	|	|	0.94
331.750	0.00	0.01	0.188	O	|	|	|	0.94
332.000	0.00	0.01	0.188	O	|	|	|	0.94
332.250	0.00	0.01	0.188	O	|	|	|	0.94
332.500	0.00	0.01	0.188	O	|	|	|	0.94
332.750	0.00	0.01	0.187	O	|	|	|	0.94
333.000	0.00	0.01	0.187	O	|	|	|	0.94
333.250	0.00	0.01	0.187	O	|	|	|	0.93
333.500	0.00	0.01	0.187	O	|	|	|	0.93
333.750	0.00	0.01	0.187	O	|	|	|	0.93
334.000	0.00	0.01	0.186	O	|	|	|	0.93
334.250	0.00	0.01	0.186	O	|	|	|	0.93
334.500	0.00	0.01	0.186	O	|	|	|	0.93
334.750	0.00	0.01	0.186	O	|	|	|	0.93
335.000	0.00	0.01	0.186	O	|	|	|	0.93
335.250	0.00	0.01	0.185	O	|	|	|	0.93
335.500	0.00	0.01	0.185	O	|	|	|	0.93
335.750	0.00	0.01	0.185	O	|	|	|	0.93
336.000	0.00	0.01	0.185	O	|	|	|	0.92
336.250	0.00	0.01	0.185	O	|	|	|	0.92
336.500	0.00	0.01	0.184	O	|	|	|	0.92
336.750	0.00	0.01	0.184	O	|	|	|	0.92
337.000	0.00	0.01	0.184	O	|	|	|	0.92
337.250	0.00	0.01	0.184	O	|	|	|	0.92
337.500	0.00	0.01	0.184	O	|	|	|	0.92
337.750	0.00	0.01	0.184	O	|	|	|	0.92
338.000	0.00	0.01	0.183	O	|	|	|	0.92
338.250	0.00	0.01	0.183	O	|	|	|	0.92
338.500	0.00	0.01	0.183	O	|	|	|	0.91
338.750	0.00	0.01	0.183	O	|	|	|	0.91
339.000	0.00	0.01	0.183	O	|	|	|	0.91

339.250	0.00	0.01	0.182	O	|	|	|	0.91
339.500	0.00	0.01	0.182	O	|	|	|	0.91
339.750	0.00	0.01	0.182	O	|	|	|	0.91
340.000	0.00	0.01	0.182	O	|	|	|	0.91
340.250	0.00	0.01	0.182	O	|	|	|	0.91
340.500	0.00	0.01	0.181	O	|	|	|	0.91
340.750	0.00	0.01	0.181	O	|	|	|	0.91
341.000	0.00	0.01	0.181	O	|	|	|	0.91
341.250	0.00	0.01	0.181	O	|	|	|	0.90
341.500	0.00	0.01	0.181	O	|	|	|	0.90
341.750	0.00	0.01	0.180	O	|	|	|	0.90
342.000	0.00	0.01	0.180	O	|	|	|	0.90
342.250	0.00	0.01	0.180	O	|	|	|	0.90
342.500	0.00	0.01	0.180	O	|	|	|	0.90
342.750	0.00	0.01	0.180	O	|	|	|	0.90
343.000	0.00	0.01	0.180	O	|	|	|	0.90
343.250	0.00	0.01	0.179	O	|	|	|	0.90
343.500	0.00	0.01	0.179	O	|	|	|	0.90
343.750	0.00	0.01	0.179	O	|	|	|	0.90
344.000	0.00	0.01	0.179	O	|	|	|	0.89
344.250	0.00	0.01	0.179	O	|	|	|	0.89
344.500	0.00	0.01	0.178	O	|	|	|	0.89
344.750	0.00	0.01	0.178	O	|	|	|	0.89
345.000	0.00	0.01	0.178	O	|	|	|	0.89
345.250	0.00	0.01	0.178	O	|	|	|	0.89
345.500	0.00	0.01	0.178	O	|	|	|	0.89
345.750	0.00	0.01	0.178	O	|	|	|	0.89
346.000	0.00	0.01	0.177	O	|	|	|	0.89
346.250	0.00	0.01	0.177	O	|	|	|	0.89
346.500	0.00	0.01	0.177	O	|	|	|	0.88
346.750	0.00	0.01	0.177	O	|	|	|	0.88
347.000	0.00	0.01	0.177	O	|	|	|	0.88
347.250	0.00	0.01	0.176	O	|	|	|	0.88
347.500	0.00	0.01	0.176	O	|	|	|	0.88
347.750	0.00	0.01	0.176	O	|	|	|	0.88
348.000	0.00	0.01	0.176	O	|	|	|	0.88
348.250	0.00	0.01	0.176	O	|	|	|	0.88
348.500	0.00	0.01	0.176	O	|	|	|	0.88
348.750	0.00	0.01	0.175	O	|	|	|	0.88
349.000	0.00	0.01	0.175	O	|	|	|	0.88
349.250	0.00	0.01	0.175	O	|	|	|	0.87
349.500	0.00	0.01	0.175	O	|	|	|	0.87
349.750	0.00	0.01	0.175	O	|	|	|	0.87
350.000	0.00	0.01	0.174	O	|	|	|	0.87
350.250	0.00	0.01	0.174	O	|	|	|	0.87
350.500	0.00	0.01	0.174	O	|	|	|	0.87
350.750	0.00	0.01	0.174	O	|	|	|	0.87
351.000	0.00	0.01	0.174	O	|	|	|	0.87
351.250	0.00	0.01	0.174	O	|	|	|	0.87
351.500	0.00	0.01	0.173	O	|	|	|	0.87
351.750	0.00	0.01	0.173	O	|	|	|	0.87
352.000	0.00	0.01	0.173	O	|	|	|	0.87
352.250	0.00	0.01	0.173	O	|	|	|	0.86
352.500	0.00	0.01	0.173	O	|	|	|	0.86
352.750	0.00	0.01	0.172	O	|	|	|	0.86
353.000	0.00	0.01	0.172	O	|	|	|	0.86
353.250	0.00	0.01	0.172	O	|	|	|	0.86
353.500	0.00	0.01	0.172	O	|	|	|	0.86
353.750	0.00	0.01	0.172	O	|	|	|	0.86
354.000	0.00	0.01	0.172	O	|	|	|	0.86
354.250	0.00	0.01	0.171	O	|	|	|	0.86
354.500	0.00	0.01	0.171	O	|	|	|	0.86

354.750	0.00	0.01	0.171	O	|	|	|	0.86
355.000	0.00	0.01	0.171	O	|	|	|	0.85
355.250	0.00	0.01	0.171	O	|	|	|	0.85
355.500	0.00	0.01	0.171	O	|	|	|	0.85
355.750	0.00	0.01	0.170	O	|	|	|	0.85
356.000	0.00	0.01	0.170	O	|	|	|	0.85
356.250	0.00	0.01	0.170	O	|	|	|	0.85
356.500	0.00	0.01	0.170	O	|	|	|	0.85
356.750	0.00	0.01	0.170	O	|	|	|	0.85
357.000	0.00	0.01	0.169	O	|	|	|	0.85
357.250	0.00	0.01	0.169	O	|	|	|	0.85
357.500	0.00	0.01	0.169	O	|	|	|	0.85
357.750	0.00	0.01	0.169	O	|	|	|	0.84
358.000	0.00	0.01	0.169	O	|	|	|	0.84
358.250	0.00	0.01	0.169	O	|	|	|	0.84
358.500	0.00	0.01	0.168	O	|	|	|	0.84
358.750	0.00	0.01	0.168	O	|	|	|	0.84
359.000	0.00	0.01	0.168	O	|	|	|	0.84
359.250	0.00	0.01	0.168	O	|	|	|	0.84
359.500	0.00	0.01	0.168	O	|	|	|	0.84
359.750	0.00	0.01	0.168	O	|	|	|	0.84
360.000	0.00	0.01	0.167	O	|	|	|	0.84
360.250	0.00	0.01	0.167	O	|	|	|	0.84
360.500	0.00	0.01	0.167	O	|	|	|	0.84
360.750	0.00	0.01	0.167	O	|	|	|	0.83
361.000	0.00	0.01	0.167	O	|	|	|	0.83
361.250	0.00	0.01	0.167	O	|	|	|	0.83
361.500	0.00	0.01	0.166	O	|	|	|	0.83
361.750	0.00	0.01	0.166	O	|	|	|	0.83
362.000	0.00	0.01	0.166	O	|	|	|	0.83
362.250	0.00	0.01	0.166	O	|	|	|	0.83
362.500	0.00	0.01	0.166	O	|	|	|	0.83
362.750	0.00	0.01	0.165	O	|	|	|	0.83
363.000	0.00	0.01	0.165	O	|	|	|	0.83
363.250	0.00	0.01	0.165	O	|	|	|	0.83
363.500	0.00	0.01	0.165	O	|	|	|	0.82
363.750	0.00	0.01	0.165	O	|	|	|	0.82
364.000	0.00	0.01	0.165	O	|	|	|	0.82
364.250	0.00	0.01	0.164	O	|	|	|	0.82
364.500	0.00	0.01	0.164	O	|	|	|	0.82
364.750	0.00	0.01	0.164	O	|	|	|	0.82
365.000	0.00	0.01	0.164	O	|	|	|	0.82
365.250	0.00	0.01	0.164	O	|	|	|	0.82
365.500	0.00	0.01	0.164	O	|	|	|	0.82
365.750	0.00	0.01	0.163	O	|	|	|	0.82
366.000	0.00	0.01	0.163	O	|	|	|	0.82
366.250	0.00	0.01	0.163	O	|	|	|	0.82
366.500	0.00	0.01	0.163	O	|	|	|	0.81
366.750	0.00	0.01	0.163	O	|	|	|	0.81
367.000	0.00	0.01	0.163	O	|	|	|	0.81
367.250	0.00	0.01	0.162	O	|	|	|	0.81
367.500	0.00	0.01	0.162	O	|	|	|	0.81
367.750	0.00	0.01	0.162	O	|	|	|	0.81
368.000	0.00	0.01	0.162	O	|	|	|	0.81
368.250	0.00	0.01	0.162	O	|	|	|	0.81
368.500	0.00	0.01	0.162	O	|	|	|	0.81
368.750	0.00	0.01	0.161	O	|	|	|	0.81
369.000	0.00	0.01	0.161	O	|	|	|	0.81
369.250	0.00	0.01	0.161	O	|	|	|	0.81
369.500	0.00	0.01	0.161	O	|	|	|	0.80
369.750	0.00	0.01	0.161	O	|	|	|	0.80
370.000	0.00	0.01	0.161	O	|	|	|	0.80

370.250	0.00	0.01	0.160	O	|	|	|	0.80
370.500	0.00	0.01	0.160	O	|	|	|	0.80
370.750	0.00	0.01	0.160	O	|	|	|	0.80
371.000	0.00	0.01	0.160	O	|	|	|	0.80
371.250	0.00	0.01	0.160	O	|	|	|	0.80
371.500	0.00	0.01	0.160	O	|	|	|	0.80
371.750	0.00	0.01	0.159	O	|	|	|	0.80
372.000	0.00	0.01	0.159	O	|	|	|	0.80
372.250	0.00	0.01	0.159	O	|	|	|	0.80
372.500	0.00	0.01	0.159	O	|	|	|	0.79
372.750	0.00	0.01	0.159	O	|	|	|	0.79
373.000	0.00	0.01	0.159	O	|	|	|	0.79
373.250	0.00	0.01	0.158	O	|	|	|	0.79
373.500	0.00	0.01	0.158	O	|	|	|	0.79
373.750	0.00	0.01	0.158	O	|	|	|	0.79
374.000	0.00	0.01	0.158	O	|	|	|	0.79
374.250	0.00	0.01	0.158	O	|	|	|	0.79
374.500	0.00	0.01	0.158	O	|	|	|	0.79
374.750	0.00	0.01	0.157	O	|	|	|	0.79
375.000	0.00	0.01	0.157	O	|	|	|	0.79
375.250	0.00	0.01	0.157	O	|	|	|	0.79
375.500	0.00	0.01	0.157	O	|	|	|	0.78
375.750	0.00	0.01	0.157	O	|	|	|	0.78
376.000	0.00	0.01	0.157	O	|	|	|	0.78
376.250	0.00	0.01	0.157	O	|	|	|	0.78
376.500	0.00	0.01	0.156	O	|	|	|	0.78
376.750	0.00	0.01	0.156	O	|	|	|	0.78
377.000	0.00	0.01	0.156	O	|	|	|	0.78
377.250	0.00	0.01	0.156	O	|	|	|	0.78
377.500	0.00	0.01	0.156	O	|	|	|	0.78
377.750	0.00	0.01	0.156	O	|	|	|	0.78
378.000	0.00	0.01	0.155	O	|	|	|	0.78
378.250	0.00	0.01	0.155	O	|	|	|	0.78
378.500	0.00	0.01	0.155	O	|	|	|	0.78
378.750	0.00	0.01	0.155	O	|	|	|	0.77
379.000	0.00	0.01	0.155	O	|	|	|	0.77
379.250	0.00	0.01	0.155	O	|	|	|	0.77
379.500	0.00	0.01	0.154	O	|	|	|	0.77
379.750	0.00	0.01	0.154	O	|	|	|	0.77
380.000	0.00	0.01	0.154	O	|	|	|	0.77
380.250	0.00	0.01	0.154	O	|	|	|	0.77
380.500	0.00	0.01	0.154	O	|	|	|	0.77
380.750	0.00	0.01	0.154	O	|	|	|	0.77
381.000	0.00	0.01	0.153	O	|	|	|	0.77
381.250	0.00	0.01	0.153	O	|	|	|	0.77
381.500	0.00	0.01	0.153	O	|	|	|	0.77
381.750	0.00	0.01	0.153	O	|	|	|	0.76
382.000	0.00	0.01	0.153	O	|	|	|	0.76
382.250	0.00	0.01	0.153	O	|	|	|	0.76
382.500	0.00	0.01	0.153	O	|	|	|	0.76
382.750	0.00	0.01	0.152	O	|	|	|	0.76
383.000	0.00	0.01	0.152	O	|	|	|	0.76
383.250	0.00	0.01	0.152	O	|	|	|	0.76
383.500	0.00	0.01	0.152	O	|	|	|	0.76
383.750	0.00	0.01	0.152	O	|	|	|	0.76
384.000	0.00	0.01	0.152	O	|	|	|	0.76
384.250	0.00	0.01	0.151	O	|	|	|	0.76
384.500	0.00	0.01	0.151	O	|	|	|	0.76
384.750	0.00	0.01	0.151	O	|	|	|	0.76
385.000	0.00	0.01	0.151	O	|	|	|	0.75
385.250	0.00	0.01	0.151	O	|	|	|	0.75
385.500	0.00	0.01	0.151	O	|	|	|	0.75

385.750	0.00	0.01	0.150	O	|	|	|	0.75
386.000	0.00	0.01	0.150	O	|	|	|	0.75
386.250	0.00	0.01	0.150	O	|	|	|	0.75
386.500	0.00	0.01	0.150	O	|	|	|	0.75
386.750	0.00	0.01	0.150	O	|	|	|	0.75
387.000	0.00	0.01	0.150	O	|	|	|	0.75
387.250	0.00	0.01	0.150	O	|	|	|	0.75
387.500	0.00	0.01	0.149	O	|	|	|	0.75
387.750	0.00	0.01	0.149	O	|	|	|	0.75
388.000	0.00	0.01	0.149	O	|	|	|	0.75
388.250	0.00	0.01	0.149	O	|	|	|	0.74
388.500	0.00	0.01	0.149	O	|	|	|	0.74
388.750	0.00	0.01	0.149	O	|	|	|	0.74
389.000	0.00	0.01	0.148	O	|	|	|	0.74
389.250	0.00	0.01	0.148	O	|	|	|	0.74
389.500	0.00	0.01	0.148	O	|	|	|	0.74
389.750	0.00	0.01	0.148	O	|	|	|	0.74
390.000	0.00	0.01	0.148	O	|	|	|	0.74
390.250	0.00	0.01	0.148	O	|	|	|	0.74
390.500	0.00	0.01	0.148	O	|	|	|	0.74
390.750	0.00	0.01	0.147	O	|	|	|	0.74
391.000	0.00	0.01	0.147	O	|	|	|	0.74
391.250	0.00	0.01	0.147	O	|	|	|	0.74
391.500	0.00	0.01	0.147	O	|	|	|	0.73
391.750	0.00	0.01	0.147	O	|	|	|	0.73
392.000	0.00	0.01	0.147	O	|	|	|	0.73
392.250	0.00	0.01	0.146	O	|	|	|	0.73
392.500	0.00	0.01	0.146	O	|	|	|	0.73
392.750	0.00	0.01	0.146	O	|	|	|	0.73
393.000	0.00	0.01	0.146	O	|	|	|	0.73
393.250	0.00	0.01	0.146	O	|	|	|	0.73
393.500	0.00	0.01	0.146	O	|	|	|	0.73
393.750	0.00	0.01	0.146	O	|	|	|	0.73
394.000	0.00	0.01	0.145	O	|	|	|	0.73
394.250	0.00	0.01	0.145	O	|	|	|	0.73
394.500	0.00	0.01	0.145	O	|	|	|	0.73
394.750	0.00	0.01	0.145	O	|	|	|	0.72
395.000	0.00	0.01	0.145	O	|	|	|	0.72
395.250	0.00	0.01	0.145	O	|	|	|	0.72
395.500	0.00	0.01	0.145	O	|	|	|	0.72
395.750	0.00	0.01	0.144	O	|	|	|	0.72
396.000	0.00	0.01	0.144	O	|	|	|	0.72
396.250	0.00	0.01	0.144	O	|	|	|	0.72
396.500	0.00	0.01	0.144	O	|	|	|	0.72
396.750	0.00	0.01	0.144	O	|	|	|	0.72
397.000	0.00	0.01	0.144	O	|	|	|	0.72
397.250	0.00	0.01	0.144	O	|	|	|	0.72
397.500	0.00	0.01	0.143	O	|	|	|	0.72
397.750	0.00	0.01	0.143	O	|	|	|	0.72
398.000	0.00	0.01	0.143	O	|	|	|	0.72
398.250	0.00	0.01	0.143	O	|	|	|	0.71
398.500	0.00	0.01	0.143	O	|	|	|	0.71
398.750	0.00	0.01	0.143	O	|	|	|	0.71
399.000	0.00	0.01	0.142	O	|	|	|	0.71
399.250	0.00	0.01	0.142	O	|	|	|	0.71
399.500	0.00	0.01	0.142	O	|	|	|	0.71
399.750	0.00	0.01	0.142	O	|	|	|	0.71
400.000	0.00	0.01	0.142	O	|	|	|	0.71
400.250	0.00	0.01	0.142	O	|	|	|	0.71
400.500	0.00	0.01	0.142	O	|	|	|	0.71
400.750	0.00	0.01	0.141	O	|	|	|	0.71
401.000	0.00	0.01	0.141	O	|	|	|	0.71

401.250	0.00	0.01	0.141	O	|	|	|	0.71
401.500	0.00	0.01	0.141	O	|	|	|	0.71
401.750	0.00	0.01	0.141	O	|	|	|	0.70
402.000	0.00	0.01	0.141	O	|	|	|	0.70
402.250	0.00	0.01	0.141	O	|	|	|	0.70
402.500	0.00	0.01	0.140	O	|	|	|	0.70
402.750	0.00	0.01	0.140	O	|	|	|	0.70
403.000	0.00	0.01	0.140	O	|	|	|	0.70
403.250	0.00	0.01	0.140	O	|	|	|	0.70
403.500	0.00	0.01	0.140	O	|	|	|	0.70
403.750	0.00	0.01	0.140	O	|	|	|	0.70
404.000	0.00	0.01	0.140	O	|	|	|	0.70
404.250	0.00	0.01	0.139	O	|	|	|	0.70
404.500	0.00	0.01	0.139	O	|	|	|	0.70
404.750	0.00	0.01	0.139	O	|	|	|	0.70
405.000	0.00	0.01	0.139	O	|	|	|	0.69
405.250	0.00	0.01	0.139	O	|	|	|	0.69
405.500	0.00	0.01	0.139	O	|	|	|	0.69
405.750	0.00	0.01	0.139	O	|	|	|	0.69
406.000	0.00	0.01	0.138	O	|	|	|	0.69
406.250	0.00	0.01	0.138	O	|	|	|	0.69
406.500	0.00	0.01	0.138	O	|	|	|	0.69
406.750	0.00	0.01	0.138	O	|	|	|	0.69
407.000	0.00	0.01	0.138	O	|	|	|	0.69
407.250	0.00	0.01	0.138	O	|	|	|	0.69
407.500	0.00	0.01	0.138	O	|	|	|	0.69
407.750	0.00	0.01	0.137	O	|	|	|	0.69
408.000	0.00	0.01	0.137	O	|	|	|	0.69
408.250	0.00	0.01	0.137	O	|	|	|	0.69
408.500	0.00	0.01	0.137	O	|	|	|	0.68
408.750	0.00	0.01	0.137	O	|	|	|	0.68
409.000	0.00	0.01	0.137	O	|	|	|	0.68
409.250	0.00	0.01	0.137	O	|	|	|	0.68
409.500	0.00	0.01	0.136	O	|	|	|	0.68
409.750	0.00	0.01	0.136	O	|	|	|	0.68
410.000	0.00	0.01	0.136	O	|	|	|	0.68
410.250	0.00	0.01	0.136	O	|	|	|	0.68
410.500	0.00	0.01	0.136	O	|	|	|	0.68
410.750	0.00	0.01	0.136	O	|	|	|	0.68
411.000	0.00	0.01	0.136	O	|	|	|	0.68
411.250	0.00	0.01	0.135	O	|	|	|	0.68
411.500	0.00	0.01	0.135	O	|	|	|	0.68
411.750	0.00	0.01	0.135	O	|	|	|	0.68
412.000	0.00	0.01	0.135	O	|	|	|	0.68
412.250	0.00	0.01	0.135	O	|	|	|	0.67
412.500	0.00	0.01	0.135	O	|	|	|	0.67
412.750	0.00	0.01	0.135	O	|	|	|	0.67
413.000	0.00	0.01	0.134	O	|	|	|	0.67
413.250	0.00	0.01	0.134	O	|	|	|	0.67
413.500	0.00	0.01	0.134	O	|	|	|	0.67
413.750	0.00	0.01	0.134	O	|	|	|	0.67
414.000	0.00	0.01	0.134	O	|	|	|	0.67
414.250	0.00	0.01	0.134	O	|	|	|	0.67
414.500	0.00	0.01	0.134	O	|	|	|	0.67
414.750	0.00	0.01	0.133	O	|	|	|	0.67
415.000	0.00	0.01	0.133	O	|	|	|	0.67
415.250	0.00	0.01	0.133	O	|	|	|	0.67
415.500	0.00	0.01	0.133	O	|	|	|	0.67
415.750	0.00	0.01	0.133	O	|	|	|	0.66
416.000	0.00	0.01	0.133	O	|	|	|	0.66
416.250	0.00	0.01	0.133	O	|	|	|	0.66
416.500	0.00	0.01	0.133	O	|	|	|	0.66

416.750	0.00	0.01	0.132	O	|	|	|	0.66
417.000	0.00	0.01	0.132	O	|	|	|	0.66
417.250	0.00	0.01	0.132	O	|	|	|	0.66
417.500	0.00	0.01	0.132	O	|	|	|	0.66
417.750	0.00	0.01	0.132	O	|	|	|	0.66
418.000	0.00	0.01	0.132	O	|	|	|	0.66
418.250	0.00	0.01	0.132	O	|	|	|	0.66
418.500	0.00	0.01	0.131	O	|	|	|	0.66
418.750	0.00	0.01	0.131	O	|	|	|	0.66
419.000	0.00	0.01	0.131	O	|	|	|	0.66
419.250	0.00	0.01	0.131	O	|	|	|	0.66
419.500	0.00	0.01	0.131	O	|	|	|	0.65
419.750	0.00	0.01	0.131	O	|	|	|	0.65
420.000	0.00	0.01	0.131	O	|	|	|	0.65
420.250	0.00	0.01	0.130	O	|	|	|	0.65
420.500	0.00	0.01	0.130	O	|	|	|	0.65
420.750	0.00	0.01	0.130	O	|	|	|	0.65
421.000	0.00	0.01	0.130	O	|	|	|	0.65
421.250	0.00	0.01	0.130	O	|	|	|	0.65
421.500	0.00	0.01	0.130	O	|	|	|	0.65
421.750	0.00	0.01	0.130	O	|	|	|	0.65
422.000	0.00	0.01	0.130	O	|	|	|	0.65
422.250	0.00	0.01	0.129	O	|	|	|	0.65
422.500	0.00	0.01	0.129	O	|	|	|	0.65
422.750	0.00	0.01	0.129	O	|	|	|	0.65
423.000	0.00	0.01	0.129	O	|	|	|	0.65
423.250	0.00	0.01	0.129	O	|	|	|	0.64
423.500	0.00	0.01	0.129	O	|	|	|	0.64
423.750	0.00	0.01	0.129	O	|	|	|	0.64
424.000	0.00	0.01	0.128	O	|	|	|	0.64
424.250	0.00	0.01	0.128	O	|	|	|	0.64
424.500	0.00	0.01	0.128	O	|	|	|	0.64
424.750	0.00	0.01	0.128	O	|	|	|	0.64
425.000	0.00	0.01	0.128	O	|	|	|	0.64
425.250	0.00	0.01	0.128	O	|	|	|	0.64
425.500	0.00	0.01	0.128	O	|	|	|	0.64
425.750	0.00	0.01	0.128	O	|	|	|	0.64
426.000	0.00	0.01	0.127	O	|	|	|	0.64
426.250	0.00	0.01	0.127	O	|	|	|	0.64
426.500	0.00	0.01	0.127	O	|	|	|	0.64
426.750	0.00	0.01	0.127	O	|	|	|	0.64
427.000	0.00	0.01	0.127	O	|	|	|	0.63
427.250	0.00	0.01	0.127	O	|	|	|	0.63
427.500	0.00	0.01	0.127	O	|	|	|	0.63
427.750	0.00	0.01	0.127	O	|	|	|	0.63
428.000	0.00	0.01	0.126	O	|	|	|	0.63
428.250	0.00	0.01	0.126	O	|	|	|	0.63
428.500	0.00	0.01	0.126	O	|	|	|	0.63
428.750	0.00	0.01	0.126	O	|	|	|	0.63
429.000	0.00	0.01	0.126	O	|	|	|	0.63
429.250	0.00	0.01	0.126	O	|	|	|	0.63
429.500	0.00	0.01	0.126	O	|	|	|	0.63
429.750	0.00	0.01	0.125	O	|	|	|	0.63
430.000	0.00	0.01	0.125	O	|	|	|	0.63
430.250	0.00	0.01	0.125	O	|	|	|	0.63
430.500	0.00	0.01	0.125	O	|	|	|	0.63
430.750	0.00	0.01	0.125	O	|	|	|	0.62
431.000	0.00	0.01	0.125	O	|	|	|	0.62
431.250	0.00	0.01	0.125	O	|	|	|	0.62
431.500	0.00	0.01	0.125	O	|	|	|	0.62
431.750	0.00	0.01	0.124	O	|	|	|	0.62
432.000	0.00	0.01	0.124	O	|	|	|	0.62

432.250	0.00	0.01	0.124	O	|	|	|	0.62
432.500	0.00	0.01	0.124	O	|	|	|	0.62
432.750	0.00	0.01	0.124	O	|	|	|	0.62
433.000	0.00	0.01	0.124	O	|	|	|	0.62
433.250	0.00	0.01	0.124	O	|	|	|	0.62
433.500	0.00	0.01	0.124	O	|	|	|	0.62
433.750	0.00	0.01	0.123	O	|	|	|	0.62
434.000	0.00	0.01	0.123	O	|	|	|	0.62
434.250	0.00	0.01	0.123	O	|	|	|	0.62
434.500	0.00	0.01	0.123	O	|	|	|	0.62
434.750	0.00	0.01	0.123	O	|	|	|	0.61
435.000	0.00	0.01	0.123	O	|	|	|	0.61
435.250	0.00	0.01	0.123	O	|	|	|	0.61
435.500	0.00	0.01	0.123	O	|	|	|	0.61
435.750	0.00	0.01	0.122	O	|	|	|	0.61
436.000	0.00	0.01	0.122	O	|	|	|	0.61
436.250	0.00	0.01	0.122	O	|	|	|	0.61
436.500	0.00	0.01	0.122	O	|	|	|	0.61
436.750	0.00	0.01	0.122	O	|	|	|	0.61
437.000	0.00	0.01	0.122	O	|	|	|	0.61
437.250	0.00	0.01	0.122	O	|	|	|	0.61
437.500	0.00	0.01	0.122	O	|	|	|	0.61
437.750	0.00	0.01	0.121	O	|	|	|	0.61
438.000	0.00	0.01	0.121	O	|	|	|	0.61
438.250	0.00	0.01	0.121	O	|	|	|	0.61
438.500	0.00	0.01	0.121	O	|	|	|	0.61
438.750	0.00	0.01	0.121	O	|	|	|	0.60
439.000	0.00	0.01	0.121	O	|	|	|	0.60
439.250	0.00	0.01	0.121	O	|	|	|	0.60
439.500	0.00	0.01	0.121	O	|	|	|	0.60
439.750	0.00	0.01	0.120	O	|	|	|	0.60
440.000	0.00	0.01	0.120	O	|	|	|	0.60
440.250	0.00	0.01	0.120	O	|	|	|	0.60
440.500	0.00	0.01	0.120	O	|	|	|	0.60
440.750	0.00	0.01	0.120	O	|	|	|	0.60
441.000	0.00	0.01	0.120	O	|	|	|	0.60
441.250	0.00	0.01	0.120	O	|	|	|	0.60
441.500	0.00	0.01	0.120	O	|	|	|	0.60
441.750	0.00	0.01	0.119	O	|	|	|	0.60
442.000	0.00	0.01	0.119	O	|	|	|	0.60
442.250	0.00	0.01	0.119	O	|	|	|	0.60
442.500	0.00	0.01	0.119	O	|	|	|	0.60
442.750	0.00	0.01	0.119	O	|	|	|	0.59
443.000	0.00	0.01	0.119	O	|	|	|	0.59
443.250	0.00	0.01	0.119	O	|	|	|	0.59
443.500	0.00	0.01	0.119	O	|	|	|	0.59
443.750	0.00	0.01	0.118	O	|	|	|	0.59
444.000	0.00	0.01	0.118	O	|	|	|	0.59
444.250	0.00	0.01	0.118	O	|	|	|	0.59
444.500	0.00	0.01	0.118	O	|	|	|	0.59
444.750	0.00	0.01	0.118	O	|	|	|	0.59
445.000	0.00	0.01	0.118	O	|	|	|	0.59
445.250	0.00	0.01	0.118	O	|	|	|	0.59
445.500	0.00	0.01	0.118	O	|	|	|	0.59
445.750	0.00	0.01	0.117	O	|	|	|	0.59
446.000	0.00	0.01	0.117	O	|	|	|	0.59
446.250	0.00	0.01	0.117	O	|	|	|	0.59
446.500	0.00	0.01	0.117	O	|	|	|	0.59
446.750	0.00	0.01	0.117	O	|	|	|	0.58
447.000	0.00	0.01	0.117	O	|	|	|	0.58
447.250	0.00	0.01	0.117	O	|	|	|	0.58
447.500	0.00	0.01	0.117	O	|	|	|	0.58

447.750	0.00	0.01	0.116	O	|	|	|	0.58
448.000	0.00	0.01	0.116	O	|	|	|	0.58
448.250	0.00	0.01	0.116	O	|	|	|	0.58
448.500	0.00	0.01	0.116	O	|	|	|	0.58
448.750	0.00	0.01	0.116	O	|	|	|	0.58
449.000	0.00	0.01	0.116	O	|	|	|	0.58
449.250	0.00	0.01	0.116	O	|	|	|	0.58
449.500	0.00	0.01	0.116	O	|	|	|	0.58
449.750	0.00	0.01	0.116	O	|	|	|	0.58
450.000	0.00	0.01	0.115	O	|	|	|	0.58
450.250	0.00	0.01	0.115	O	|	|	|	0.58
450.500	0.00	0.01	0.115	O	|	|	|	0.58
450.750	0.00	0.01	0.115	O	|	|	|	0.58
451.000	0.00	0.01	0.115	O	|	|	|	0.57
451.250	0.00	0.01	0.115	O	|	|	|	0.57
451.500	0.00	0.01	0.115	O	|	|	|	0.57
451.750	0.00	0.01	0.115	O	|	|	|	0.57
452.000	0.00	0.01	0.114	O	|	|	|	0.57
452.250	0.00	0.01	0.114	O	|	|	|	0.57
452.500	0.00	0.01	0.114	O	|	|	|	0.57
452.750	0.00	0.01	0.114	O	|	|	|	0.57
453.000	0.00	0.01	0.114	O	|	|	|	0.57
453.250	0.00	0.01	0.114	O	|	|	|	0.57
453.500	0.00	0.01	0.114	O	|	|	|	0.57
453.750	0.00	0.01	0.114	O	|	|	|	0.57
454.000	0.00	0.01	0.114	O	|	|	|	0.57
454.250	0.00	0.01	0.113	O	|	|	|	0.57
454.500	0.00	0.01	0.113	O	|	|	|	0.57
454.750	0.00	0.01	0.113	O	|	|	|	0.57
455.000	0.00	0.01	0.113	O	|	|	|	0.57
455.250	0.00	0.01	0.113	O	|	|	|	0.56
455.500	0.00	0.01	0.113	O	|	|	|	0.56
455.750	0.00	0.01	0.113	O	|	|	|	0.56
456.000	0.00	0.01	0.113	O	|	|	|	0.56
456.250	0.00	0.01	0.112	O	|	|	|	0.56
456.500	0.00	0.01	0.112	O	|	|	|	0.56
456.750	0.00	0.01	0.112	O	|	|	|	0.56
457.000	0.00	0.01	0.112	O	|	|	|	0.56
457.250	0.00	0.01	0.112	O	|	|	|	0.56
457.500	0.00	0.01	0.112	O	|	|	|	0.56
457.750	0.00	0.01	0.112	O	|	|	|	0.56
458.000	0.00	0.01	0.112	O	|	|	|	0.56
458.250	0.00	0.01	0.112	O	|	|	|	0.56
458.500	0.00	0.01	0.111	O	|	|	|	0.56
458.750	0.00	0.01	0.111	O	|	|	|	0.56
459.000	0.00	0.01	0.111	O	|	|	|	0.56
459.250	0.00	0.01	0.111	O	|	|	|	0.56
459.500	0.00	0.01	0.111	O	|	|	|	0.55
459.750	0.00	0.01	0.111	O	|	|	|	0.55
460.000	0.00	0.01	0.111	O	|	|	|	0.55
460.250	0.00	0.01	0.111	O	|	|	|	0.55
460.500	0.00	0.01	0.110	O	|	|	|	0.55
460.750	0.00	0.01	0.110	O	|	|	|	0.55
461.000	0.00	0.01	0.110	O	|	|	|	0.55
461.250	0.00	0.01	0.110	O	|	|	|	0.55
461.500	0.00	0.01	0.110	O	|	|	|	0.55
461.750	0.00	0.01	0.110	O	|	|	|	0.55
462.000	0.00	0.01	0.110	O	|	|	|	0.55
462.250	0.00	0.01	0.110	O	|	|	|	0.55
462.500	0.00	0.01	0.110	O	|	|	|	0.55
462.750	0.00	0.01	0.109	O	|	|	|	0.55
463.000	0.00	0.01	0.109	O	|	|	|	0.55

463.250	0.00	0.01	0.109	O	|	|	|	0.55
463.500	0.00	0.01	0.109	O	|	|	|	0.55
463.750	0.00	0.01	0.109	O	|	|	|	0.55
464.000	0.00	0.01	0.109	O	|	|	|	0.54
464.250	0.00	0.01	0.109	O	|	|	|	0.54
464.500	0.00	0.01	0.109	O	|	|	|	0.54
464.750	0.00	0.01	0.109	O	|	|	|	0.54
465.000	0.00	0.01	0.108	O	|	|	|	0.54
465.250	0.00	0.01	0.108	O	|	|	|	0.54
465.500	0.00	0.01	0.108	O	|	|	|	0.54
465.750	0.00	0.01	0.108	O	|	|	|	0.54
466.000	0.00	0.01	0.108	O	|	|	|	0.54
466.250	0.00	0.01	0.108	O	|	|	|	0.54
466.500	0.00	0.01	0.108	O	|	|	|	0.54
466.750	0.00	0.01	0.108	O	|	|	|	0.54
467.000	0.00	0.01	0.108	O	|	|	|	0.54
467.250	0.00	0.01	0.107	O	|	|	|	0.54
467.500	0.00	0.01	0.107	O	|	|	|	0.54
467.750	0.00	0.01	0.107	O	|	|	|	0.54
468.000	0.00	0.01	0.107	O	|	|	|	0.54
468.250	0.00	0.01	0.107	O	|	|	|	0.54
468.500	0.00	0.01	0.107	O	|	|	|	0.53
468.750	0.00	0.01	0.107	O	|	|	|	0.53
469.000	0.00	0.01	0.107	O	|	|	|	0.53
469.250	0.00	0.01	0.107	O	|	|	|	0.53
469.500	0.00	0.01	0.106	O	|	|	|	0.53
469.750	0.00	0.01	0.106	O	|	|	|	0.53
470.000	0.00	0.01	0.106	O	|	|	|	0.53
470.250	0.00	0.01	0.106	O	|	|	|	0.53
470.500	0.00	0.01	0.106	O	|	|	|	0.53
470.750	0.00	0.01	0.106	O	|	|	|	0.53
471.000	0.00	0.01	0.106	O	|	|	|	0.53
471.250	0.00	0.01	0.106	O	|	|	|	0.53
471.500	0.00	0.01	0.106	O	|	|	|	0.53
471.750	0.00	0.01	0.105	O	|	|	|	0.53
472.000	0.00	0.01	0.105	O	|	|	|	0.53
472.250	0.00	0.01	0.105	O	|	|	|	0.53
472.500	0.00	0.01	0.105	O	|	|	|	0.53
472.750	0.00	0.01	0.105	O	|	|	|	0.53
473.000	0.00	0.01	0.105	O	|	|	|	0.52
473.250	0.00	0.01	0.105	O	|	|	|	0.52
473.500	0.00	0.01	0.105	O	|	|	|	0.52
473.750	0.00	0.01	0.105	O	|	|	|	0.52
474.000	0.00	0.01	0.105	O	|	|	|	0.52
474.250	0.00	0.01	0.104	O	|	|	|	0.52
474.500	0.00	0.01	0.104	O	|	|	|	0.52
474.750	0.00	0.01	0.104	O	|	|	|	0.52
475.000	0.00	0.01	0.104	O	|	|	|	0.52
475.250	0.00	0.01	0.104	O	|	|	|	0.52
475.500	0.00	0.01	0.104	O	|	|	|	0.52
475.750	0.00	0.01	0.104	O	|	|	|	0.52
476.000	0.00	0.01	0.104	O	|	|	|	0.52
476.250	0.00	0.01	0.104	O	|	|	|	0.52
476.500	0.00	0.01	0.103	O	|	|	|	0.52
476.750	0.00	0.01	0.103	O	|	|	|	0.52
477.000	0.00	0.01	0.103	O	|	|	|	0.52
477.250	0.00	0.01	0.103	O	|	|	|	0.52
477.500	0.00	0.01	0.103	O	|	|	|	0.52
477.750	0.00	0.01	0.103	O	|	|	|	0.51
478.000	0.00	0.01	0.103	O	|	|	|	0.51
478.250	0.00	0.01	0.103	O	|	|	|	0.51
478.500	0.00	0.01	0.103	O	|	|	|	0.51

478.750	0.00	0.01	0.102	O	|	|	|	0.51
479.000	0.00	0.01	0.102	O	|	|	|	0.51
479.250	0.00	0.01	0.102	O	|	|	|	0.51
479.500	0.00	0.01	0.102	O	|	|	|	0.51
479.750	0.00	0.01	0.102	O	|	|	|	0.51
480.000	0.00	0.01	0.102	O	|	|	|	0.51
480.250	0.00	0.01	0.102	O	|	|	|	0.51
480.500	0.00	0.01	0.102	O	|	|	|	0.51
480.750	0.00	0.01	0.102	O	|	|	|	0.51
481.000	0.00	0.01	0.102	O	|	|	|	0.51
481.250	0.00	0.01	0.101	O	|	|	|	0.51
481.500	0.00	0.01	0.101	O	|	|	|	0.51
481.750	0.00	0.01	0.101	O	|	|	|	0.51
482.000	0.00	0.01	0.101	O	|	|	|	0.51
482.250	0.00	0.01	0.101	O	|	|	|	0.50
482.500	0.00	0.01	0.101	O	|	|	|	0.50
482.750	0.00	0.01	0.101	O	|	|	|	0.50
483.000	0.00	0.01	0.101	O	|	|	|	0.50
483.250	0.00	0.01	0.101	O	|	|	|	0.50
483.500	0.00	0.01	0.100	O	|	|	|	0.50
483.750	0.00	0.01	0.100	O	|	|	|	0.50
484.000	0.00	0.01	0.100	O	|	|	|	0.50
484.250	0.00	0.01	0.100	O	|	|	|	0.50
484.500	0.00	0.01	0.100	O	|	|	|	0.50
484.750	0.00	0.00	0.100	O	|	|	|	0.50
485.000	0.00	0.00	0.100	O	|	|	|	0.50
485.250	0.00	0.00	0.100	O	|	|	|	0.50
485.500	0.00	0.00	0.100	O	|	|	|	0.50
485.750	0.00	0.00	0.100	O	|	|	|	0.50
486.000	0.00	0.00	0.099	O	|	|	|	0.50
486.250	0.00	0.00	0.099	O	|	|	|	0.50
486.500	0.00	0.00	0.099	O	|	|	|	0.50
486.750	0.00	0.00	0.099	O	|	|	|	0.50
487.000	0.00	0.00	0.099	O	|	|	|	0.50
487.250	0.00	0.00	0.099	O	|	|	|	0.49
487.500	0.00	0.00	0.099	O	|	|	|	0.49
487.750	0.00	0.00	0.099	O	|	|	|	0.49
488.000	0.00	0.00	0.099	O	|	|	|	0.49
488.250	0.00	0.00	0.099	O	|	|	|	0.49
488.500	0.00	0.00	0.098	O	|	|	|	0.49
488.750	0.00	0.00	0.098	O	|	|	|	0.49
489.000	0.00	0.00	0.098	O	|	|	|	0.49
489.250	0.00	0.00	0.098	O	|	|	|	0.49
489.500	0.00	0.00	0.098	O	|	|	|	0.49
489.750	0.00	0.00	0.098	O	|	|	|	0.49
490.000	0.00	0.00	0.098	O	|	|	|	0.49
490.250	0.00	0.00	0.098	O	|	|	|	0.49
490.500	0.00	0.00	0.098	O	|	|	|	0.49
490.750	0.00	0.00	0.098	O	|	|	|	0.49
491.000	0.00	0.00	0.097	O	|	|	|	0.49
491.250	0.00	0.00	0.097	O	|	|	|	0.49
491.500	0.00	0.00	0.097	O	|	|	|	0.49
491.750	0.00	0.00	0.097	O	|	|	|	0.49
492.000	0.00	0.00	0.097	O	|	|	|	0.49
492.250	0.00	0.00	0.097	O	|	|	|	0.48
492.500	0.00	0.00	0.097	O	|	|	|	0.48
492.750	0.00	0.00	0.097	O	|	|	|	0.48
493.000	0.00	0.00	0.097	O	|	|	|	0.48
493.250	0.00	0.00	0.097	O	|	|	|	0.48
493.500	0.00	0.00	0.096	O	|	|	|	0.48
493.750	0.00	0.00	0.096	O	|	|	|	0.48
494.000	0.00	0.00	0.096	O	|	|	|	0.48

494.250	0.00	0.00	0.096	O	|	|	|	0.48
494.500	0.00	0.00	0.096	O	|	|	|	0.48
494.750	0.00	0.00	0.096	O	|	|	|	0.48
495.000	0.00	0.00	0.096	O	|	|	|	0.48
495.250	0.00	0.00	0.096	O	|	|	|	0.48
495.500	0.00	0.00	0.096	O	|	|	|	0.48
495.750	0.00	0.00	0.096	O	|	|	|	0.48
496.000	0.00	0.00	0.095	O	|	|	|	0.48
496.250	0.00	0.00	0.095	O	|	|	|	0.48
496.500	0.00	0.00	0.095	O	|	|	|	0.48
496.750	0.00	0.00	0.095	O	|	|	|	0.48
497.000	0.00	0.00	0.095	O	|	|	|	0.48
497.250	0.00	0.00	0.095	O	|	|	|	0.47
497.500	0.00	0.00	0.095	O	|	|	|	0.47
497.750	0.00	0.00	0.095	O	|	|	|	0.47
498.000	0.00	0.00	0.095	O	|	|	|	0.47
498.250	0.00	0.00	0.095	O	|	|	|	0.47
498.500	0.00	0.00	0.094	O	|	|	|	0.47
498.750	0.00	0.00	0.094	O	|	|	|	0.47
499.000	0.00	0.00	0.094	O	|	|	|	0.47
499.250	0.00	0.00	0.094	O	|	|	|	0.47
499.500	0.00	0.00	0.094	O	|	|	|	0.47
499.750	0.00	0.00	0.094	O	|	|	|	0.47
500.000	0.00	0.00	0.094	O	|	|	|	0.47
500.250	0.00	0.00	0.094	O	|	|	|	0.47
500.500	0.00	0.00	0.094	O	|	|	|	0.47
500.750	0.00	0.00	0.094	O	|	|	|	0.47
501.000	0.00	0.00	0.093	O	|	|	|	0.47
501.250	0.00	0.00	0.093	O	|	|	|	0.47
501.500	0.00	0.00	0.093	O	|	|	|	0.47
501.750	0.00	0.00	0.093	O	|	|	|	0.47
502.000	0.00	0.00	0.093	O	|	|	|	0.47
502.250	0.00	0.00	0.093	O	|	|	|	0.46
502.500	0.00	0.00	0.093	O	|	|	|	0.46
502.750	0.00	0.00	0.093	O	|	|	|	0.46
503.000	0.00	0.00	0.093	O	|	|	|	0.46
503.250	0.00	0.00	0.093	O	|	|	|	0.46
503.500	0.00	0.00	0.093	O	|	|	|	0.46
503.750	0.00	0.00	0.092	O	|	|	|	0.46
504.000	0.00	0.00	0.092	O	|	|	|	0.46
504.250	0.00	0.00	0.092	O	|	|	|	0.46
504.500	0.00	0.00	0.092	O	|	|	|	0.46
504.750	0.00	0.00	0.092	O	|	|	|	0.46
505.000	0.00	0.00	0.092	O	|	|	|	0.46
505.250	0.00	0.00	0.092	O	|	|	|	0.46
505.500	0.00	0.00	0.092	O	|	|	|	0.46
505.750	0.00	0.00	0.092	O	|	|	|	0.46
506.000	0.00	0.00	0.092	O	|	|	|	0.46
506.250	0.00	0.00	0.091	O	|	|	|	0.46
506.500	0.00	0.00	0.091	O	|	|	|	0.46
506.750	0.00	0.00	0.091	O	|	|	|	0.46
507.000	0.00	0.00	0.091	O	|	|	|	0.46
507.250	0.00	0.00	0.091	O	|	|	|	0.46
507.500	0.00	0.00	0.091	O	|	|	|	0.45
507.750	0.00	0.00	0.091	O	|	|	|	0.45
508.000	0.00	0.00	0.091	O	|	|	|	0.45
508.250	0.00	0.00	0.091	O	|	|	|	0.45
508.500	0.00	0.00	0.091	O	|	|	|	0.45
508.750	0.00	0.00	0.091	O	|	|	|	0.45
509.000	0.00	0.00	0.090	O	|	|	|	0.45
509.250	0.00	0.00	0.090	O	|	|	|	0.45
509.500	0.00	0.00	0.090	O	|	|	|	0.45

509.750	0.00	0.00	0.090	O	|	|	|	0.45
510.000	0.00	0.00	0.090	O	|	|	|	0.45
510.250	0.00	0.00	0.090	O	|	|	|	0.45
510.500	0.00	0.00	0.090	O	|	|	|	0.45
510.750	0.00	0.00	0.090	O	|	|	|	0.45
511.000	0.00	0.00	0.090	O	|	|	|	0.45
511.250	0.00	0.00	0.090	O	|	|	|	0.45
511.500	0.00	0.00	0.090	O	|	|	|	0.45
511.750	0.00	0.00	0.089	O	|	|	|	0.45
512.000	0.00	0.00	0.089	O	|	|	|	0.45
512.250	0.00	0.00	0.089	O	|	|	|	0.45
512.500	0.00	0.00	0.089	O	|	|	|	0.45
512.750	0.00	0.00	0.089	O	|	|	|	0.45
513.000	0.00	0.00	0.089	O	|	|	|	0.44
513.250	0.00	0.00	0.089	O	|	|	|	0.44
513.500	0.00	0.00	0.089	O	|	|	|	0.44
513.750	0.00	0.00	0.089	O	|	|	|	0.44
514.000	0.00	0.00	0.089	O	|	|	|	0.44
514.250	0.00	0.00	0.088	O	|	|	|	0.44
514.500	0.00	0.00	0.088	O	|	|	|	0.44
514.750	0.00	0.00	0.088	O	|	|	|	0.44
515.000	0.00	0.00	0.088	O	|	|	|	0.44
515.250	0.00	0.00	0.088	O	|	|	|	0.44
515.500	0.00	0.00	0.088	O	|	|	|	0.44
515.750	0.00	0.00	0.088	O	|	|	|	0.44
516.000	0.00	0.00	0.088	O	|	|	|	0.44
516.250	0.00	0.00	0.088	O	|	|	|	0.44
516.500	0.00	0.00	0.088	O	|	|	|	0.44
516.750	0.00	0.00	0.088	O	|	|	|	0.44
517.000	0.00	0.00	0.087	O	|	|	|	0.44
517.250	0.00	0.00	0.087	O	|	|	|	0.44
517.500	0.00	0.00	0.087	O	|	|	|	0.44
517.750	0.00	0.00	0.087	O	|	|	|	0.44
518.000	0.00	0.00	0.087	O	|	|	|	0.44
518.250	0.00	0.00	0.087	O	|	|	|	0.44
518.500	0.00	0.00	0.087	O	|	|	|	0.43
518.750	0.00	0.00	0.087	O	|	|	|	0.43
519.000	0.00	0.00	0.087	O	|	|	|	0.43
519.250	0.00	0.00	0.087	O	|	|	|	0.43
519.500	0.00	0.00	0.087	O	|	|	|	0.43
519.750	0.00	0.00	0.087	O	|	|	|	0.43
520.000	0.00	0.00	0.086	O	|	|	|	0.43
520.250	0.00	0.00	0.086	O	|	|	|	0.43
520.500	0.00	0.00	0.086	O	|	|	|	0.43
520.750	0.00	0.00	0.086	O	|	|	|	0.43
521.000	0.00	0.00	0.086	O	|	|	|	0.43
521.250	0.00	0.00	0.086	O	|	|	|	0.43
521.500	0.00	0.00	0.086	O	|	|	|	0.43
521.750	0.00	0.00	0.086	O	|	|	|	0.43
522.000	0.00	0.00	0.086	O	|	|	|	0.43
522.250	0.00	0.00	0.086	O	|	|	|	0.43
522.500	0.00	0.00	0.086	O	|	|	|	0.43
522.750	0.00	0.00	0.085	O	|	|	|	0.43
523.000	0.00	0.00	0.085	O	|	|	|	0.43
523.250	0.00	0.00	0.085	O	|	|	|	0.43
523.500	0.00	0.00	0.085	O	|	|	|	0.43
523.750	0.00	0.00	0.085	O	|	|	|	0.43
524.000	0.00	0.00	0.085	O	|	|	|	0.42
524.250	0.00	0.00	0.085	O	|	|	|	0.42
524.500	0.00	0.00	0.085	O	|	|	|	0.42
524.750	0.00	0.00	0.085	O	|	|	|	0.42
525.000	0.00	0.00	0.085	O	|	|	|	0.42

525.250	0.00	0.00	0.085	O	|	|	|	0.42
525.500	0.00	0.00	0.084	O	|	|	|	0.42
525.750	0.00	0.00	0.084	O	|	|	|	0.42
526.000	0.00	0.00	0.084	O	|	|	|	0.42
526.250	0.00	0.00	0.084	O	|	|	|	0.42
526.500	0.00	0.00	0.084	O	|	|	|	0.42
526.750	0.00	0.00	0.084	O	|	|	|	0.42
527.000	0.00	0.00	0.084	O	|	|	|	0.42
527.250	0.00	0.00	0.084	O	|	|	|	0.42
527.500	0.00	0.00	0.084	O	|	|	|	0.42
527.750	0.00	0.00	0.084	O	|	|	|	0.42
528.000	0.00	0.00	0.084	O	|	|	|	0.42
528.250	0.00	0.00	0.084	O	|	|	|	0.42
528.500	0.00	0.00	0.083	O	|	|	|	0.42
528.750	0.00	0.00	0.083	O	|	|	|	0.42
529.000	0.00	0.00	0.083	O	|	|	|	0.42
529.250	0.00	0.00	0.083	O	|	|	|	0.42
529.500	0.00	0.00	0.083	O	|	|	|	0.42
529.750	0.00	0.00	0.083	O	|	|	|	0.41
530.000	0.00	0.00	0.083	O	|	|	|	0.41
530.250	0.00	0.00	0.083	O	|	|	|	0.41
530.500	0.00	0.00	0.083	O	|	|	|	0.41
530.750	0.00	0.00	0.083	O	|	|	|	0.41
531.000	0.00	0.00	0.083	O	|	|	|	0.41
531.250	0.00	0.00	0.082	O	|	|	|	0.41
531.500	0.00	0.00	0.082	O	|	|	|	0.41
531.750	0.00	0.00	0.082	O	|	|	|	0.41
532.000	0.00	0.00	0.082	O	|	|	|	0.41
532.250	0.00	0.00	0.082	O	|	|	|	0.41
532.500	0.00	0.00	0.082	O	|	|	|	0.41
532.750	0.00	0.00	0.082	O	|	|	|	0.41
533.000	0.00	0.00	0.082	O	|	|	|	0.41
533.250	0.00	0.00	0.082	O	|	|	|	0.41
533.500	0.00	0.00	0.082	O	|	|	|	0.41
533.750	0.00	0.00	0.082	O	|	|	|	0.41
534.000	0.00	0.00	0.082	O	|	|	|	0.41
534.250	0.00	0.00	0.081	O	|	|	|	0.41
534.500	0.00	0.00	0.081	O	|	|	|	0.41
534.750	0.00	0.00	0.081	O	|	|	|	0.41
535.000	0.00	0.00	0.081	O	|	|	|	0.41
535.250	0.00	0.00	0.081	O	|	|	|	0.41
535.500	0.00	0.00	0.081	O	|	|	|	0.41
535.750	0.00	0.00	0.081	O	|	|	|	0.40
536.000	0.00	0.00	0.081	O	|	|	|	0.40
536.250	0.00	0.00	0.081	O	|	|	|	0.40
536.500	0.00	0.00	0.081	O	|	|	|	0.40
536.750	0.00	0.00	0.081	O	|	|	|	0.40
537.000	0.00	0.00	0.081	O	|	|	|	0.40
537.250	0.00	0.00	0.080	O	|	|	|	0.40
537.500	0.00	0.00	0.080	O	|	|	|	0.40
537.750	0.00	0.00	0.080	O	|	|	|	0.40
538.000	0.00	0.00	0.080	O	|	|	|	0.40
538.250	0.00	0.00	0.080	O	|	|	|	0.40
538.500	0.00	0.00	0.080	O	|	|	|	0.40
538.750	0.00	0.00	0.080	O	|	|	|	0.40
539.000	0.00	0.00	0.080	O	|	|	|	0.40
539.250	0.00	0.00	0.080	O	|	|	|	0.40
539.500	0.00	0.00	0.080	O	|	|	|	0.40
539.750	0.00	0.00	0.080	O	|	|	|	0.40
540.000	0.00	0.00	0.080	O	|	|	|	0.40
540.250	0.00	0.00	0.079	O	|	|	|	0.40
540.500	0.00	0.00	0.079	O	|	|	|	0.40

540.750	0.00	0.00	0.079	O	|	|	|	0.40
541.000	0.00	0.00	0.079	O	|	|	|	0.40
541.250	0.00	0.00	0.079	O	|	|	|	0.40
541.500	0.00	0.00	0.079	O	|	|	|	0.40
541.750	0.00	0.00	0.079	O	|	|	|	0.39
542.000	0.00	0.00	0.079	O	|	|	|	0.39
542.250	0.00	0.00	0.079	O	|	|	|	0.39
542.500	0.00	0.00	0.079	O	|	|	|	0.39
542.750	0.00	0.00	0.079	O	|	|	|	0.39
543.000	0.00	0.00	0.079	O	|	|	|	0.39
543.250	0.00	0.00	0.078	O	|	|	|	0.39
543.500	0.00	0.00	0.078	O	|	|	|	0.39
543.750	0.00	0.00	0.078	O	|	|	|	0.39
544.000	0.00	0.00	0.078	O	|	|	|	0.39
544.250	0.00	0.00	0.078	O	|	|	|	0.39
544.500	0.00	0.00	0.078	O	|	|	|	0.39
544.750	0.00	0.00	0.078	O	|	|	|	0.39
545.000	0.00	0.00	0.078	O	|	|	|	0.39
545.250	0.00	0.00	0.078	O	|	|	|	0.39
545.500	0.00	0.00	0.078	O	|	|	|	0.39
545.750	0.00	0.00	0.078	O	|	|	|	0.39
546.000	0.00	0.00	0.078	O	|	|	|	0.39
546.250	0.00	0.00	0.078	O	|	|	|	0.39
546.500	0.00	0.00	0.077	O	|	|	|	0.39
546.750	0.00	0.00	0.077	O	|	|	|	0.39
547.000	0.00	0.00	0.077	O	|	|	|	0.39
547.250	0.00	0.00	0.077	O	|	|	|	0.39
547.500	0.00	0.00	0.077	O	|	|	|	0.39
547.750	0.00	0.00	0.077	O	|	|	|	0.39
548.000	0.00	0.00	0.077	O	|	|	|	0.38
548.250	0.00	0.00	0.077	O	|	|	|	0.38
548.500	0.00	0.00	0.077	O	|	|	|	0.38
548.750	0.00	0.00	0.077	O	|	|	|	0.38
549.000	0.00	0.00	0.077	O	|	|	|	0.38
549.250	0.00	0.00	0.077	O	|	|	|	0.38
549.500	0.00	0.00	0.076	O	|	|	|	0.38
549.750	0.00	0.00	0.076	O	|	|	|	0.38
550.000	0.00	0.00	0.076	O	|	|	|	0.38
550.250	0.00	0.00	0.076	O	|	|	|	0.38
550.500	0.00	0.00	0.076	O	|	|	|	0.38
550.750	0.00	0.00	0.076	O	|	|	|	0.38
551.000	0.00	0.00	0.076	O	|	|	|	0.38
551.250	0.00	0.00	0.076	O	|	|	|	0.38
551.500	0.00	0.00	0.076	O	|	|	|	0.38
551.750	0.00	0.00	0.076	O	|	|	|	0.38
552.000	0.00	0.00	0.076	O	|	|	|	0.38
552.250	0.00	0.00	0.076	O	|	|	|	0.38
552.500	0.00	0.00	0.076	O	|	|	|	0.38
552.750	0.00	0.00	0.075	O	|	|	|	0.38
553.000	0.00	0.00	0.075	O	|	|	|	0.38
553.250	0.00	0.00	0.075	O	|	|	|	0.38
553.500	0.00	0.00	0.075	O	|	|	|	0.38
553.750	0.00	0.00	0.075	O	|	|	|	0.38
554.000	0.00	0.00	0.075	O	|	|	|	0.38
554.250	0.00	0.00	0.075	O	|	|	|	0.38
554.500	0.00	0.00	0.075	O	|	|	|	0.37
554.750	0.00	0.00	0.075	O	|	|	|	0.37
555.000	0.00	0.00	0.075	O	|	|	|	0.37
555.250	0.00	0.00	0.075	O	|	|	|	0.37
555.500	0.00	0.00	0.075	O	|	|	|	0.37
555.750	0.00	0.00	0.075	O	|	|	|	0.37
556.000	0.00	0.00	0.074	O	|	|	|	0.37

556.250	0.00	0.00	0.074	O	|	|	|	0.37
556.500	0.00	0.00	0.074	O	|	|	|	0.37
556.750	0.00	0.00	0.074	O	|	|	|	0.37
557.000	0.00	0.00	0.074	O	|	|	|	0.37
557.250	0.00	0.00	0.074	O	|	|	|	0.37
557.500	0.00	0.00	0.074	O	|	|	|	0.37
557.750	0.00	0.00	0.074	O	|	|	|	0.37
558.000	0.00	0.00	0.074	O	|	|	|	0.37
558.250	0.00	0.00	0.074	O	|	|	|	0.37
558.500	0.00	0.00	0.074	O	|	|	|	0.37
558.750	0.00	0.00	0.074	O	|	|	|	0.37
559.000	0.00	0.00	0.074	O	|	|	|	0.37
559.250	0.00	0.00	0.073	O	|	|	|	0.37
559.500	0.00	0.00	0.073	O	|	|	|	0.37
559.750	0.00	0.00	0.073	O	|	|	|	0.37
560.000	0.00	0.00	0.073	O	|	|	|	0.37
560.250	0.00	0.00	0.073	O	|	|	|	0.37
560.500	0.00	0.00	0.073	O	|	|	|	0.37
560.750	0.00	0.00	0.073	O	|	|	|	0.37
561.000	0.00	0.00	0.073	O	|	|	|	0.36
561.250	0.00	0.00	0.073	O	|	|	|	0.36
561.500	0.00	0.00	0.073	O	|	|	|	0.36
561.750	0.00	0.00	0.073	O	|	|	|	0.36
562.000	0.00	0.00	0.073	O	|	|	|	0.36
562.250	0.00	0.00	0.073	O	|	|	|	0.36
562.500	0.00	0.00	0.072	O	|	|	|	0.36
562.750	0.00	0.00	0.072	O	|	|	|	0.36
563.000	0.00	0.00	0.072	O	|	|	|	0.36
563.250	0.00	0.00	0.072	O	|	|	|	0.36
563.500	0.00	0.00	0.072	O	|	|	|	0.36
563.750	0.00	0.00	0.072	O	|	|	|	0.36
564.000	0.00	0.00	0.072	O	|	|	|	0.36
564.250	0.00	0.00	0.072	O	|	|	|	0.36
564.500	0.00	0.00	0.072	O	|	|	|	0.36
564.750	0.00	0.00	0.072	O	|	|	|	0.36
565.000	0.00	0.00	0.072	O	|	|	|	0.36
565.250	0.00	0.00	0.072	O	|	|	|	0.36
565.500	0.00	0.00	0.072	O	|	|	|	0.36
565.750	0.00	0.00	0.072	O	|	|	|	0.36
566.000	0.00	0.00	0.071	O	|	|	|	0.36
566.250	0.00	0.00	0.071	O	|	|	|	0.36
566.500	0.00	0.00	0.071	O	|	|	|	0.36
566.750	0.00	0.00	0.071	O	|	|	|	0.36
567.000	0.00	0.00	0.071	O	|	|	|	0.36
567.250	0.00	0.00	0.071	O	|	|	|	0.36
567.500	0.00	0.00	0.071	O	|	|	|	0.36
567.750	0.00	0.00	0.071	O	|	|	|	0.35
568.000	0.00	0.00	0.071	O	|	|	|	0.35
568.250	0.00	0.00	0.071	O	|	|	|	0.35
568.500	0.00	0.00	0.071	O	|	|	|	0.35
568.750	0.00	0.00	0.071	O	|	|	|	0.35
569.000	0.00	0.00	0.071	O	|	|	|	0.35
569.250	0.00	0.00	0.070	O	|	|	|	0.35
569.500	0.00	0.00	0.070	O	|	|	|	0.35
569.750	0.00	0.00	0.070	O	|	|	|	0.35
570.000	0.00	0.00	0.070	O	|	|	|	0.35
570.250	0.00	0.00	0.070	O	|	|	|	0.35
570.500	0.00	0.00	0.070	O	|	|	|	0.35
570.750	0.00	0.00	0.070	O	|	|	|	0.35
571.000	0.00	0.00	0.070	O	|	|	|	0.35
571.250	0.00	0.00	0.070	O	|	|	|	0.35
571.500	0.00	0.00	0.070	O	|	|	|	0.35

571.750	0.00	0.00	0.070	O	|	|	|	0.35
572.000	0.00	0.00	0.070	O	|	|	|	0.35
572.250	0.00	0.00	0.070	O	|	|	|	0.35
572.500	0.00	0.00	0.070	O	|	|	|	0.35
572.750	0.00	0.00	0.069	O	|	|	|	0.35
573.000	0.00	0.00	0.069	O	|	|	|	0.35
573.250	0.00	0.00	0.069	O	|	|	|	0.35
573.500	0.00	0.00	0.069	O	|	|	|	0.35
573.750	0.00	0.00	0.069	O	|	|	|	0.35
574.000	0.00	0.00	0.069	O	|	|	|	0.35
574.250	0.00	0.00	0.069	O	|	|	|	0.35
574.500	0.00	0.00	0.069	O	|	|	|	0.34
574.750	0.00	0.00	0.069	O	|	|	|	0.34
575.000	0.00	0.00	0.069	O	|	|	|	0.34
575.250	0.00	0.00	0.069	O	|	|	|	0.34
575.500	0.00	0.00	0.069	O	|	|	|	0.34
575.750	0.00	0.00	0.069	O	|	|	|	0.34
576.000	0.00	0.00	0.069	O	|	|	|	0.34
576.250	0.00	0.00	0.068	O	|	|	|	0.34
576.500	0.00	0.00	0.068	O	|	|	|	0.34
576.750	0.00	0.00	0.068	O	|	|	|	0.34
577.000	0.00	0.00	0.068	O	|	|	|	0.34
577.250	0.00	0.00	0.068	O	|	|	|	0.34
577.500	0.00	0.00	0.068	O	|	|	|	0.34
577.750	0.00	0.00	0.068	O	|	|	|	0.34
578.000	0.00	0.00	0.068	O	|	|	|	0.34
578.250	0.00	0.00	0.068	O	|	|	|	0.34
578.500	0.00	0.00	0.068	O	|	|	|	0.34
578.750	0.00	0.00	0.068	O	|	|	|	0.34
579.000	0.00	0.00	0.068	O	|	|	|	0.34
579.250	0.00	0.00	0.068	O	|	|	|	0.34
579.500	0.00	0.00	0.068	O	|	|	|	0.34
579.750	0.00	0.00	0.068	O	|	|	|	0.34
580.000	0.00	0.00	0.067	O	|	|	|	0.34
580.250	0.00	0.00	0.067	O	|	|	|	0.34
580.500	0.00	0.00	0.067	O	|	|	|	0.34
580.750	0.00	0.00	0.067	O	|	|	|	0.34
581.000	0.00	0.00	0.067	O	|	|	|	0.34
581.250	0.00	0.00	0.067	O	|	|	|	0.34
581.500	0.00	0.00	0.067	O	|	|	|	0.34
581.750	0.00	0.00	0.067	O	|	|	|	0.33
582.000	0.00	0.00	0.067	O	|	|	|	0.33
582.250	0.00	0.00	0.067	O	|	|	|	0.33
582.500	0.00	0.00	0.067	O	|	|	|	0.33
582.750	0.00	0.00	0.067	O	|	|	|	0.33
583.000	0.00	0.00	0.067	O	|	|	|	0.33
583.250	0.00	0.00	0.067	O	|	|	|	0.33
583.500	0.00	0.00	0.066	O	|	|	|	0.33
583.750	0.00	0.00	0.066	O	|	|	|	0.33
584.000	0.00	0.00	0.066	O	|	|	|	0.33
584.250	0.00	0.00	0.066	O	|	|	|	0.33
584.500	0.00	0.00	0.066	O	|	|	|	0.33
584.750	0.00	0.00	0.066	O	|	|	|	0.33
585.000	0.00	0.00	0.066	O	|	|	|	0.33
585.250	0.00	0.00	0.066	O	|	|	|	0.33
585.500	0.00	0.00	0.066	O	|	|	|	0.33
585.750	0.00	0.00	0.066	O	|	|	|	0.33
586.000	0.00	0.00	0.066	O	|	|	|	0.33
586.250	0.00	0.00	0.066	O	|	|	|	0.33
586.500	0.00	0.00	0.066	O	|	|	|	0.33
586.750	0.00	0.00	0.066	O	|	|	|	0.33
587.000	0.00	0.00	0.066	O	|	|	|	0.33

587.250	0.00	0.00	0.065	O	|	|	|	0.33
587.500	0.00	0.00	0.065	O	|	|	|	0.33
587.750	0.00	0.00	0.065	O	|	|	|	0.33
588.000	0.00	0.00	0.065	O	|	|	|	0.33
588.250	0.00	0.00	0.065	O	|	|	|	0.33
588.500	0.00	0.00	0.065	O	|	|	|	0.33
588.750	0.00	0.00	0.065	O	|	|	|	0.33
589.000	0.00	0.00	0.065	O	|	|	|	0.32
589.250	0.00	0.00	0.065	O	|	|	|	0.32
589.500	0.00	0.00	0.065	O	|	|	|	0.32
589.750	0.00	0.00	0.065	O	|	|	|	0.32
590.000	0.00	0.00	0.065	O	|	|	|	0.32
590.250	0.00	0.00	0.065	O	|	|	|	0.32
590.500	0.00	0.00	0.065	O	|	|	|	0.32
590.750	0.00	0.00	0.065	O	|	|	|	0.32
591.000	0.00	0.00	0.064	O	|	|	|	0.32
591.250	0.00	0.00	0.064	O	|	|	|	0.32
591.500	0.00	0.00	0.064	O	|	|	|	0.32
591.750	0.00	0.00	0.064	O	|	|	|	0.32
592.000	0.00	0.00	0.064	O	|	|	|	0.32
592.250	0.00	0.00	0.064	O	|	|	|	0.32
592.500	0.00	0.00	0.064	O	|	|	|	0.32
592.750	0.00	0.00	0.064	O	|	|	|	0.32
593.000	0.00	0.00	0.064	O	|	|	|	0.32
593.250	0.00	0.00	0.064	O	|	|	|	0.32
593.500	0.00	0.00	0.064	O	|	|	|	0.32
593.750	0.00	0.00	0.064	O	|	|	|	0.32
594.000	0.00	0.00	0.064	O	|	|	|	0.32
594.250	0.00	0.00	0.064	O	|	|	|	0.32
594.500	0.00	0.00	0.064	O	|	|	|	0.32
594.750	0.00	0.00	0.063	O	|	|	|	0.32
595.000	0.00	0.00	0.063	O	|	|	|	0.32
595.250	0.00	0.00	0.063	O	|	|	|	0.32
595.500	0.00	0.00	0.063	O	|	|	|	0.32
595.750	0.00	0.00	0.063	O	|	|	|	0.32
596.000	0.00	0.00	0.063	O	|	|	|	0.32
596.250	0.00	0.00	0.063	O	|	|	|	0.32
596.500	0.00	0.00	0.063	O	|	|	|	0.31
596.750	0.00	0.00	0.063	O	|	|	|	0.31
597.000	0.00	0.00	0.063	O	|	|	|	0.31
597.250	0.00	0.00	0.063	O	|	|	|	0.31
597.500	0.00	0.00	0.063	O	|	|	|	0.31
597.750	0.00	0.00	0.063	O	|	|	|	0.31
598.000	0.00	0.00	0.063	O	|	|	|	0.31
598.250	0.00	0.00	0.063	O	|	|	|	0.31
598.500	0.00	0.00	0.062	O	|	|	|	0.31
598.750	0.00	0.00	0.062	O	|	|	|	0.31
599.000	0.00	0.00	0.062	O	|	|	|	0.31
599.250	0.00	0.00	0.062	O	|	|	|	0.31
599.500	0.00	0.00	0.062	O	|	|	|	0.31
599.750	0.00	0.00	0.062	O	|	|	|	0.31
600.000	0.00	0.00	0.062	O	|	|	|	0.31
600.250	0.00	0.00	0.062	O	|	|	|	0.31
600.500	0.00	0.00	0.062	O	|	|	|	0.31
600.750	0.00	0.00	0.062	O	|	|	|	0.31
601.000	0.00	0.00	0.062	O	|	|	|	0.31
601.250	0.00	0.00	0.062	O	|	|	|	0.31
601.500	0.00	0.00	0.062	O	|	|	|	0.31
601.750	0.00	0.00	0.062	O	|	|	|	0.31
602.000	0.00	0.00	0.062	O	|	|	|	0.31
602.250	0.00	0.00	0.062	O	|	|	|	0.31
602.500	0.00	0.00	0.061	O	|	|	|	0.31

602.750	0.00	0.00	0.061	O	|	|	|	0.31
603.000	0.00	0.00	0.061	O	|	|	|	0.31
603.250	0.00	0.00	0.061	O	|	|	|	0.31
603.500	0.00	0.00	0.061	O	|	|	|	0.31
603.750	0.00	0.00	0.061	O	|	|	|	0.31
604.000	0.00	0.00	0.061	O	|	|	|	0.31
604.250	0.00	0.00	0.061	O	|	|	|	0.31
604.500	0.00	0.00	0.061	O	|	|	|	0.30
604.750	0.00	0.00	0.061	O	|	|	|	0.30
605.000	0.00	0.00	0.061	O	|	|	|	0.30
605.250	0.00	0.00	0.061	O	|	|	|	0.30
605.500	0.00	0.00	0.061	O	|	|	|	0.30
605.750	0.00	0.00	0.061	O	|	|	|	0.30
606.000	0.00	0.00	0.061	O	|	|	|	0.30
606.250	0.00	0.00	0.061	O	|	|	|	0.30
606.500	0.00	0.00	0.060	O	|	|	|	0.30
606.750	0.00	0.00	0.060	O	|	|	|	0.30
607.000	0.00	0.00	0.060	O	|	|	|	0.30
607.250	0.00	0.00	0.060	O	|	|	|	0.30
607.500	0.00	0.00	0.060	O	|	|	|	0.30
607.750	0.00	0.00	0.060	O	|	|	|	0.30
608.000	0.00	0.00	0.060	O	|	|	|	0.30
608.250	0.00	0.00	0.060	O	|	|	|	0.30
608.500	0.00	0.00	0.060	O	|	|	|	0.30
608.750	0.00	0.00	0.060	O	|	|	|	0.30
609.000	0.00	0.00	0.060	O	|	|	|	0.30
609.250	0.00	0.00	0.060	O	|	|	|	0.30
609.500	0.00	0.00	0.060	O	|	|	|	0.30
609.750	0.00	0.00	0.060	O	|	|	|	0.30
610.000	0.00	0.00	0.060	O	|	|	|	0.30
610.250	0.00	0.00	0.060	O	|	|	|	0.30
610.500	0.00	0.00	0.059	O	|	|	|	0.30
610.750	0.00	0.00	0.059	O	|	|	|	0.30
611.000	0.00	0.00	0.059	O	|	|	|	0.30
611.250	0.00	0.00	0.059	O	|	|	|	0.30
611.500	0.00	0.00	0.059	O	|	|	|	0.30
611.750	0.00	0.00	0.059	O	|	|	|	0.30
612.000	0.00	0.00	0.059	O	|	|	|	0.30
612.250	0.00	0.00	0.059	O	|	|	|	0.30
612.500	0.00	0.00	0.059	O	|	|	|	0.29
612.750	0.00	0.00	0.059	O	|	|	|	0.29
613.000	0.00	0.00	0.059	O	|	|	|	0.29
613.250	0.00	0.00	0.059	O	|	|	|	0.29
613.500	0.00	0.00	0.059	O	|	|	|	0.29
613.750	0.00	0.00	0.059	O	|	|	|	0.29
614.000	0.00	0.00	0.059	O	|	|	|	0.29
614.250	0.00	0.00	0.059	O	|	|	|	0.29
614.500	0.00	0.00	0.058	O	|	|	|	0.29
614.750	0.00	0.00	0.058	O	|	|	|	0.29
615.000	0.00	0.00	0.058	O	|	|	|	0.29
615.250	0.00	0.00	0.058	O	|	|	|	0.29
615.500	0.00	0.00	0.058	O	|	|	|	0.29
615.750	0.00	0.00	0.058	O	|	|	|	0.29
616.000	0.00	0.00	0.058	O	|	|	|	0.29
616.250	0.00	0.00	0.058	O	|	|	|	0.29
616.500	0.00	0.00	0.058	O	|	|	|	0.29
616.750	0.00	0.00	0.058	O	|	|	|	0.29
617.000	0.00	0.00	0.058	O	|	|	|	0.29
617.250	0.00	0.00	0.058	O	|	|	|	0.29
617.500	0.00	0.00	0.058	O	|	|	|	0.29
617.750	0.00	0.00	0.058	O	|	|	|	0.29
618.000	0.00	0.00	0.058	O	|	|	|	0.29

618.250	0.00	0.00	0.058	O	|	|	|	0.29
618.500	0.00	0.00	0.058	O	|	|	|	0.29
618.750	0.00	0.00	0.057	O	|	|	|	0.29
619.000	0.00	0.00	0.057	O	|	|	|	0.29
619.250	0.00	0.00	0.057	O	|	|	|	0.29
619.500	0.00	0.00	0.057	O	|	|	|	0.29
619.750	0.00	0.00	0.057	O	|	|	|	0.29
620.000	0.00	0.00	0.057	O	|	|	|	0.29
620.250	0.00	0.00	0.057	O	|	|	|	0.29
620.500	0.00	0.00	0.057	O	|	|	|	0.29
620.750	0.00	0.00	0.057	O	|	|	|	0.28
621.000	0.00	0.00	0.057	O	|	|	|	0.28
621.250	0.00	0.00	0.057	O	|	|	|	0.28
621.500	0.00	0.00	0.057	O	|	|	|	0.28
621.750	0.00	0.00	0.057	O	|	|	|	0.28
622.000	0.00	0.00	0.057	O	|	|	|	0.28
622.250	0.00	0.00	0.057	O	|	|	|	0.28
622.500	0.00	0.00	0.057	O	|	|	|	0.28
622.750	0.00	0.00	0.057	O	|	|	|	0.28
623.000	0.00	0.00	0.056	O	|	|	|	0.28
623.250	0.00	0.00	0.056	O	|	|	|	0.28
623.500	0.00	0.00	0.056	O	|	|	|	0.28
623.750	0.00	0.00	0.056	O	|	|	|	0.28
624.000	0.00	0.00	0.056	O	|	|	|	0.28
624.250	0.00	0.00	0.056	O	|	|	|	0.28
624.500	0.00	0.00	0.056	O	|	|	|	0.28
624.750	0.00	0.00	0.056	O	|	|	|	0.28
625.000	0.00	0.00	0.056	O	|	|	|	0.28
625.250	0.00	0.00	0.056	O	|	|	|	0.28
625.500	0.00	0.00	0.056	O	|	|	|	0.28
625.750	0.00	0.00	0.056	O	|	|	|	0.28
626.000	0.00	0.00	0.056	O	|	|	|	0.28
626.250	0.00	0.00	0.056	O	|	|	|	0.28
626.500	0.00	0.00	0.056	O	|	|	|	0.28
626.750	0.00	0.00	0.056	O	|	|	|	0.28
627.000	0.00	0.00	0.056	O	|	|	|	0.28
627.250	0.00	0.00	0.055	O	|	|	|	0.28
627.500	0.00	0.00	0.055	O	|	|	|	0.28
627.750	0.00	0.00	0.055	O	|	|	|	0.28
628.000	0.00	0.00	0.055	O	|	|	|	0.28
628.250	0.00	0.00	0.055	O	|	|	|	0.28
628.500	0.00	0.00	0.055	O	|	|	|	0.28
628.750	0.00	0.00	0.055	O	|	|	|	0.28
629.000	0.00	0.00	0.055	O	|	|	|	0.28
629.250	0.00	0.00	0.055	O	|	|	|	0.28
629.500	0.00	0.00	0.055	O	|	|	|	0.27
629.750	0.00	0.00	0.055	O	|	|	|	0.27
630.000	0.00	0.00	0.055	O	|	|	|	0.27
630.250	0.00	0.00	0.055	O	|	|	|	0.27
630.500	0.00	0.00	0.055	O	|	|	|	0.27
630.750	0.00	0.00	0.055	O	|	|	|	0.27
631.000	0.00	0.00	0.055	O	|	|	|	0.27
631.250	0.00	0.00	0.055	O	|	|	|	0.27
631.500	0.00	0.00	0.055	O	|	|	|	0.27
631.750	0.00	0.00	0.054	O	|	|	|	0.27
632.000	0.00	0.00	0.054	O	|	|	|	0.27
632.250	0.00	0.00	0.054	O	|	|	|	0.27
632.500	0.00	0.00	0.054	O	|	|	|	0.27
632.750	0.00	0.00	0.054	O	|	|	|	0.27
633.000	0.00	0.00	0.054	O	|	|	|	0.27
633.250	0.00	0.00	0.054	O	|	|	|	0.27
633.500	0.00	0.00	0.054	O	|	|	|	0.27

633.750	0.00	0.00	0.054	O	|	|	|	0.27
634.000	0.00	0.00	0.054	O	|	|	|	0.27
634.250	0.00	0.00	0.054	O	|	|	|	0.27
634.500	0.00	0.00	0.054	O	|	|	|	0.27
634.750	0.00	0.00	0.054	O	|	|	|	0.27
635.000	0.00	0.00	0.054	O	|	|	|	0.27
635.250	0.00	0.00	0.054	O	|	|	|	0.27
635.500	0.00	0.00	0.054	O	|	|	|	0.27
635.750	0.00	0.00	0.054	O	|	|	|	0.27
636.000	0.00	0.00	0.054	O	|	|	|	0.27
636.250	0.00	0.00	0.053	O	|	|	|	0.27
636.500	0.00	0.00	0.053	O	|	|	|	0.27
636.750	0.00	0.00	0.053	O	|	|	|	0.27
637.000	0.00	0.00	0.053	O	|	|	|	0.27
637.250	0.00	0.00	0.053	O	|	|	|	0.27
637.500	0.00	0.00	0.053	O	|	|	|	0.27
637.750	0.00	0.00	0.053	O	|	|	|	0.27
638.000	0.00	0.00	0.053	O	|	|	|	0.27
638.250	0.00	0.00	0.053	O	|	|	|	0.27
638.500	0.00	0.00	0.053	O	|	|	|	0.26
638.750	0.00	0.00	0.053	O	|	|	|	0.26
639.000	0.00	0.00	0.053	O	|	|	|	0.26
639.250	0.00	0.00	0.053	O	|	|	|	0.26
639.500	0.00	0.00	0.053	O	|	|	|	0.26
639.750	0.00	0.00	0.053	O	|	|	|	0.26
640.000	0.00	0.00	0.053	O	|	|	|	0.26
640.250	0.00	0.00	0.053	O	|	|	|	0.26
640.500	0.00	0.00	0.053	O	|	|	|	0.26
640.750	0.00	0.00	0.052	O	|	|	|	0.26
641.000	0.00	0.00	0.052	O	|	|	|	0.26
641.250	0.00	0.00	0.052	O	|	|	|	0.26
641.500	0.00	0.00	0.052	O	|	|	|	0.26
641.750	0.00	0.00	0.052	O	|	|	|	0.26
642.000	0.00	0.00	0.052	O	|	|	|	0.26
642.250	0.00	0.00	0.052	O	|	|	|	0.26
642.500	0.00	0.00	0.052	O	|	|	|	0.26
642.750	0.00	0.00	0.052	O	|	|	|	0.26
643.000	0.00	0.00	0.052	O	|	|	|	0.26
643.250	0.00	0.00	0.052	O	|	|	|	0.26
643.500	0.00	0.00	0.052	O	|	|	|	0.26
643.750	0.00	0.00	0.052	O	|	|	|	0.26
644.000	0.00	0.00	0.052	O	|	|	|	0.26
644.250	0.00	0.00	0.052	O	|	|	|	0.26
644.500	0.00	0.00	0.052	O	|	|	|	0.26
644.750	0.00	0.00	0.052	O	|	|	|	0.26
645.000	0.00	0.00	0.052	O	|	|	|	0.26
645.250	0.00	0.00	0.051	O	|	|	|	0.26
645.500	0.00	0.00	0.051	O	|	|	|	0.26
645.750	0.00	0.00	0.051	O	|	|	|	0.26
646.000	0.00	0.00	0.051	O	|	|	|	0.26
646.250	0.00	0.00	0.051	O	|	|	|	0.26
646.500	0.00	0.00	0.051	O	|	|	|	0.26
646.750	0.00	0.00	0.051	O	|	|	|	0.26
647.000	0.00	0.00	0.051	O	|	|	|	0.26
647.250	0.00	0.00	0.051	O	|	|	|	0.26
647.500	0.00	0.00	0.051	O	|	|	|	0.26
647.750	0.00	0.00	0.051	O	|	|	|	0.25
648.000	0.00	0.00	0.051	O	|	|	|	0.25
648.250	0.00	0.00	0.051	O	|	|	|	0.25
648.500	0.00	0.00	0.051	O	|	|	|	0.25
648.750	0.00	0.00	0.051	O	|	|	|	0.25
649.000	0.00	0.00	0.051	O	|	|	|	0.25

649.250	0.00	0.00	0.051	O	|	|	|	0.25
649.500	0.00	0.00	0.051	O	|	|	|	0.25
649.750	0.00	0.00	0.051	O	|	|	|	0.25
650.000	0.00	0.00	0.050	O	|	|	|	0.25
650.250	0.00	0.00	0.050	O	|	|	|	0.25
650.500	0.00	0.00	0.050	O	|	|	|	0.25
650.750	0.00	0.00	0.050	O	|	|	|	0.25
651.000	0.00	0.00	0.050	O	|	|	|	0.25
651.250	0.00	0.00	0.050	O	|	|	|	0.25
651.500	0.00	0.00	0.050	O	|	|	|	0.25
651.750	0.00	0.00	0.050	O	|	|	|	0.25
652.000	0.00	0.00	0.050	O	|	|	|	0.25
652.250	0.00	0.00	0.050	O	|	|	|	0.25
652.500	0.00	0.00	0.050	O	|	|	|	0.25
652.750	0.00	0.00	0.050	O	|	|	|	0.25
653.000	0.00	0.00	0.050	O	|	|	|	0.25
653.250	0.00	0.00	0.050	O	|	|	|	0.25
653.500	0.00	0.00	0.050	O	|	|	|	0.25
653.750	0.00	0.00	0.050	O	|	|	|	0.25
654.000	0.00	0.00	0.050	O	|	|	|	0.25
654.250	0.00	0.00	0.050	O	|	|	|	0.25
654.500	0.00	0.00	0.050	O	|	|	|	0.25
654.750	0.00	0.00	0.050	O	|	|	|	0.25
655.000	0.00	0.00	0.049	O	|	|	|	0.25
655.250	0.00	0.00	0.049	O	|	|	|	0.25
655.500	0.00	0.00	0.049	O	|	|	|	0.25
655.750	0.00	0.00	0.049	O	|	|	|	0.25
656.000	0.00	0.00	0.049	O	|	|	|	0.25
656.250	0.00	0.00	0.049	O	|	|	|	0.25
656.500	0.00	0.00	0.049	O	|	|	|	0.25
656.750	0.00	0.00	0.049	O	|	|	|	0.25
657.000	0.00	0.00	0.049	O	|	|	|	0.25
657.250	0.00	0.00	0.049	O	|	|	|	0.25
657.500	0.00	0.00	0.049	O	|	|	|	0.24
657.750	0.00	0.00	0.049	O	|	|	|	0.24
658.000	0.00	0.00	0.049	O	|	|	|	0.24
658.250	0.00	0.00	0.049	O	|	|	|	0.24
658.500	0.00	0.00	0.049	O	|	|	|	0.24
658.750	0.00	0.00	0.049	O	|	|	|	0.24
659.000	0.00	0.00	0.049	O	|	|	|	0.24
659.250	0.00	0.00	0.049	O	|	|	|	0.24
659.500	0.00	0.00	0.049	O	|	|	|	0.24
659.750	0.00	0.00	0.049	O	|	|	|	0.24
660.000	0.00	0.00	0.048	O	|	|	|	0.24
660.250	0.00	0.00	0.048	O	|	|	|	0.24
660.500	0.00	0.00	0.048	O	|	|	|	0.24
660.750	0.00	0.00	0.048	O	|	|	|	0.24
661.000	0.00	0.00	0.048	O	|	|	|	0.24
661.250	0.00	0.00	0.048	O	|	|	|	0.24
661.500	0.00	0.00	0.048	O	|	|	|	0.24
661.750	0.00	0.00	0.048	O	|	|	|	0.24
662.000	0.00	0.00	0.048	O	|	|	|	0.24
662.250	0.00	0.00	0.048	O	|	|	|	0.24
662.500	0.00	0.00	0.048	O	|	|	|	0.24
662.750	0.00	0.00	0.048	O	|	|	|	0.24
663.000	0.00	0.00	0.048	O	|	|	|	0.24
663.250	0.00	0.00	0.048	O	|	|	|	0.24
663.500	0.00	0.00	0.048	O	|	|	|	0.24
663.750	0.00	0.00	0.048	O	|	|	|	0.24
664.000	0.00	0.00	0.048	O	|	|	|	0.24
664.250	0.00	0.00	0.048	O	|	|	|	0.24
664.500	0.00	0.00	0.048	O	|	|	|	0.24

664.750	0.00	0.00	0.048	O	|	|	|	0.24
665.000	0.00	0.00	0.047	O	|	|	|	0.24
665.250	0.00	0.00	0.047	O	|	|	|	0.24
665.500	0.00	0.00	0.047	O	|	|	|	0.24
665.750	0.00	0.00	0.047	O	|	|	|	0.24
666.000	0.00	0.00	0.047	O	|	|	|	0.24
666.250	0.00	0.00	0.047	O	|	|	|	0.24
666.500	0.00	0.00	0.047	O	|	|	|	0.24
666.750	0.00	0.00	0.047	O	|	|	|	0.24
667.000	0.00	0.00	0.047	O	|	|	|	0.24
667.250	0.00	0.00	0.047	O	|	|	|	0.24
667.500	0.00	0.00	0.047	O	|	|	|	0.23
667.750	0.00	0.00	0.047	O	|	|	|	0.23
668.000	0.00	0.00	0.047	O	|	|	|	0.23
668.250	0.00	0.00	0.047	O	|	|	|	0.23
668.500	0.00	0.00	0.047	O	|	|	|	0.23
668.750	0.00	0.00	0.047	O	|	|	|	0.23
669.000	0.00	0.00	0.047	O	|	|	|	0.23
669.250	0.00	0.00	0.047	O	|	|	|	0.23
669.500	0.00	0.00	0.047	O	|	|	|	0.23
669.750	0.00	0.00	0.047	O	|	|	|	0.23
670.000	0.00	0.00	0.046	O	|	|	|	0.23
670.250	0.00	0.00	0.046	O	|	|	|	0.23
670.500	0.00	0.00	0.046	O	|	|	|	0.23
670.750	0.00	0.00	0.046	O	|	|	|	0.23
671.000	0.00	0.00	0.046	O	|	|	|	0.23
671.250	0.00	0.00	0.046	O	|	|	|	0.23
671.500	0.00	0.00	0.046	O	|	|	|	0.23
671.750	0.00	0.00	0.046	O	|	|	|	0.23
672.000	0.00	0.00	0.046	O	|	|	|	0.23
672.250	0.00	0.00	0.046	O	|	|	|	0.23
672.500	0.00	0.00	0.046	O	|	|	|	0.23
672.750	0.00	0.00	0.046	O	|	|	|	0.23
673.000	0.00	0.00	0.046	O	|	|	|	0.23
673.250	0.00	0.00	0.046	O	|	|	|	0.23
673.500	0.00	0.00	0.046	O	|	|	|	0.23
673.750	0.00	0.00	0.046	O	|	|	|	0.23
674.000	0.00	0.00	0.046	O	|	|	|	0.23
674.250	0.00	0.00	0.046	O	|	|	|	0.23
674.500	0.00	0.00	0.046	O	|	|	|	0.23
674.750	0.00	0.00	0.046	O	|	|	|	0.23
675.000	0.00	0.00	0.046	O	|	|	|	0.23
675.250	0.00	0.00	0.045	O	|	|	|	0.23
675.500	0.00	0.00	0.045	O	|	|	|	0.23
675.750	0.00	0.00	0.045	O	|	|	|	0.23
676.000	0.00	0.00	0.045	O	|	|	|	0.23
676.250	0.00	0.00	0.045	O	|	|	|	0.23
676.500	0.00	0.00	0.045	O	|	|	|	0.23
676.750	0.00	0.00	0.045	O	|	|	|	0.23
677.000	0.00	0.00	0.045	O	|	|	|	0.23
677.250	0.00	0.00	0.045	O	|	|	|	0.23
677.500	0.00	0.00	0.045	O	|	|	|	0.23
677.750	0.00	0.00	0.045	O	|	|	|	0.23
678.000	0.00	0.00	0.045	O	|	|	|	0.22
678.250	0.00	0.00	0.045	O	|	|	|	0.22
678.500	0.00	0.00	0.045	O	|	|	|	0.22
678.750	0.00	0.00	0.045	O	|	|	|	0.22
679.000	0.00	0.00	0.045	O	|	|	|	0.22
679.250	0.00	0.00	0.045	O	|	|	|	0.22
679.500	0.00	0.00	0.045	O	|	|	|	0.22
679.750	0.00	0.00	0.045	O	|	|	|	0.22
680.000	0.00	0.00	0.045	O	|	|	|	0.22

680.250	0.00	0.00	0.045	O	|	|	|	0.22
680.500	0.00	0.00	0.045	O	|	|	|	0.22
680.750	0.00	0.00	0.044	O	|	|	|	0.22
681.000	0.00	0.00	0.044	O	|	|	|	0.22
681.250	0.00	0.00	0.044	O	|	|	|	0.22
681.500	0.00	0.00	0.044	O	|	|	|	0.22
681.750	0.00	0.00	0.044	O	|	|	|	0.22
682.000	0.00	0.00	0.044	O	|	|	|	0.22
682.250	0.00	0.00	0.044	O	|	|	|	0.22
682.500	0.00	0.00	0.044	O	|	|	|	0.22
682.750	0.00	0.00	0.044	O	|	|	|	0.22
683.000	0.00	0.00	0.044	O	|	|	|	0.22
683.250	0.00	0.00	0.044	O	|	|	|	0.22
683.500	0.00	0.00	0.044	O	|	|	|	0.22
683.750	0.00	0.00	0.044	O	|	|	|	0.22
684.000	0.00	0.00	0.044	O	|	|	|	0.22
684.250	0.00	0.00	0.044	O	|	|	|	0.22
684.500	0.00	0.00	0.044	O	|	|	|	0.22
684.750	0.00	0.00	0.044	O	|	|	|	0.22
685.000	0.00	0.00	0.044	O	|	|	|	0.22
685.250	0.00	0.00	0.044	O	|	|	|	0.22
685.500	0.00	0.00	0.044	O	|	|	|	0.22
685.750	0.00	0.00	0.044	O	|	|	|	0.22
686.000	0.00	0.00	0.044	O	|	|	|	0.22
686.250	0.00	0.00	0.043	O	|	|	|	0.22
686.500	0.00	0.00	0.043	O	|	|	|	0.22
686.750	0.00	0.00	0.043	O	|	|	|	0.22
687.000	0.00	0.00	0.043	O	|	|	|	0.22
687.250	0.00	0.00	0.043	O	|	|	|	0.22
687.500	0.00	0.00	0.043	O	|	|	|	0.22
687.750	0.00	0.00	0.043	O	|	|	|	0.22
688.000	0.00	0.00	0.043	O	|	|	|	0.22
688.250	0.00	0.00	0.043	O	|	|	|	0.22
688.500	0.00	0.00	0.043	O	|	|	|	0.22
688.750	0.00	0.00	0.043	O	|	|	|	0.22
689.000	0.00	0.00	0.043	O	|	|	|	0.21
689.250	0.00	0.00	0.043	O	|	|	|	0.21
689.500	0.00	0.00	0.043	O	|	|	|	0.21
689.750	0.00	0.00	0.043	O	|	|	|	0.21
690.000	0.00	0.00	0.043	O	|	|	|	0.21
690.250	0.00	0.00	0.043	O	|	|	|	0.21
690.500	0.00	0.00	0.043	O	|	|	|	0.21
690.750	0.00	0.00	0.043	O	|	|	|	0.21
691.000	0.00	0.00	0.043	O	|	|	|	0.21
691.250	0.00	0.00	0.043	O	|	|	|	0.21
691.500	0.00	0.00	0.043	O	|	|	|	0.21
691.750	0.00	0.00	0.042	O	|	|	|	0.21
692.000	0.00	0.00	0.042	O	|	|	|	0.21
692.250	0.00	0.00	0.042	O	|	|	|	0.21
692.500	0.00	0.00	0.042	O	|	|	|	0.21
692.750	0.00	0.00	0.042	O	|	|	|	0.21
693.000	0.00	0.00	0.042	O	|	|	|	0.21
693.250	0.00	0.00	0.042	O	|	|	|	0.21
693.500	0.00	0.00	0.042	O	|	|	|	0.21
693.750	0.00	0.00	0.042	O	|	|	|	0.21
694.000	0.00	0.00	0.042	O	|	|	|	0.21
694.250	0.00	0.00	0.042	O	|	|	|	0.21
694.500	0.00	0.00	0.042	O	|	|	|	0.21
694.750	0.00	0.00	0.042	O	|	|	|	0.21
695.000	0.00	0.00	0.042	O	|	|	|	0.21
695.250	0.00	0.00	0.042	O	|	|	|	0.21
695.500	0.00	0.00	0.042	O	|	|	|	0.21

695.750	0.00	0.00	0.042	O	|	|	|	0.21
696.000	0.00	0.00	0.042	O	|	|	|	0.21
696.250	0.00	0.00	0.042	O	|	|	|	0.21
696.500	0.00	0.00	0.042	O	|	|	|	0.21
696.750	0.00	0.00	0.042	O	|	|	|	0.21
697.000	0.00	0.00	0.042	O	|	|	|	0.21
697.250	0.00	0.00	0.042	O	|	|	|	0.21
697.500	0.00	0.00	0.041	O	|	|	|	0.21
697.750	0.00	0.00	0.041	O	|	|	|	0.21
698.000	0.00	0.00	0.041	O	|	|	|	0.21
698.250	0.00	0.00	0.041	O	|	|	|	0.21
698.500	0.00	0.00	0.041	O	|	|	|	0.21
698.750	0.00	0.00	0.041	O	|	|	|	0.21
699.000	0.00	0.00	0.041	O	|	|	|	0.21
699.250	0.00	0.00	0.041	O	|	|	|	0.21
699.500	0.00	0.00	0.041	O	|	|	|	0.21
699.750	0.00	0.00	0.041	O	|	|	|	0.21
700.000	0.00	0.00	0.041	O	|	|	|	0.21
700.250	0.00	0.00	0.041	O	|	|	|	0.21
700.500	0.00	0.00	0.041	O	|	|	|	0.20
700.750	0.00	0.00	0.041	O	|	|	|	0.20
701.000	0.00	0.00	0.041	O	|	|	|	0.20
701.250	0.00	0.00	0.041	O	|	|	|	0.20
701.500	0.00	0.00	0.041	O	|	|	|	0.20
701.750	0.00	0.00	0.041	O	|	|	|	0.20
702.000	0.00	0.00	0.041	O	|	|	|	0.20
702.250	0.00	0.00	0.041	O	|	|	|	0.20
702.500	0.00	0.00	0.041	O	|	|	|	0.20
702.750	0.00	0.00	0.041	O	|	|	|	0.20
703.000	0.00	0.00	0.041	O	|	|	|	0.20
703.250	0.00	0.00	0.041	O	|	|	|	0.20
703.500	0.00	0.00	0.040	O	|	|	|	0.20
703.750	0.00	0.00	0.040	O	|	|	|	0.20
704.000	0.00	0.00	0.040	O	|	|	|	0.20
704.250	0.00	0.00	0.040	O	|	|	|	0.20
704.500	0.00	0.00	0.040	O	|	|	|	0.20
704.750	0.00	0.00	0.040	O	|	|	|	0.20
705.000	0.00	0.00	0.040	O	|	|	|	0.20
705.250	0.00	0.00	0.040	O	|	|	|	0.20
705.500	0.00	0.00	0.040	O	|	|	|	0.20
705.750	0.00	0.00	0.040	O	|	|	|	0.20
706.000	0.00	0.00	0.040	O	|	|	|	0.20
706.250	0.00	0.00	0.040	O	|	|	|	0.20
706.500	0.00	0.00	0.040	O	|	|	|	0.20
706.750	0.00	0.00	0.040	O	|	|	|	0.20
707.000	0.00	0.00	0.040	O	|	|	|	0.20
707.250	0.00	0.00	0.040	O	|	|	|	0.20
707.500	0.00	0.00	0.040	O	|	|	|	0.20
707.750	0.00	0.00	0.040	O	|	|	|	0.20
708.000	0.00	0.00	0.040	O	|	|	|	0.20
708.250	0.00	0.00	0.040	O	|	|	|	0.20
708.500	0.00	0.00	0.040	O	|	|	|	0.20
708.750	0.00	0.00	0.040	O	|	|	|	0.20
709.000	0.00	0.00	0.040	O	|	|	|	0.20
709.250	0.00	0.00	0.040	O	|	|	|	0.20
709.500	0.00	0.00	0.039	O	|	|	|	0.20
709.750	0.00	0.00	0.039	O	|	|	|	0.20
710.000	0.00	0.00	0.039	O	|	|	|	0.20
710.250	0.00	0.00	0.039	O	|	|	|	0.20
710.500	0.00	0.00	0.039	O	|	|	|	0.20
710.750	0.00	0.00	0.039	O	|	|	|	0.20
711.000	0.00	0.00	0.039	O	|	|	|	0.20

711.250	0.00	0.00	0.039	O	|	|	|	0.20
711.500	0.00	0.00	0.039	O	|	|	|	0.20
711.750	0.00	0.00	0.039	O	|	|	|	0.20
712.000	0.00	0.00	0.039	O	|	|	|	0.20
712.250	0.00	0.00	0.039	O	|	|	|	0.20
712.500	0.00	0.00	0.039	O	|	|	|	0.20
712.750	0.00	0.00	0.039	O	|	|	|	0.19
713.000	0.00	0.00	0.039	O	|	|	|	0.19
713.250	0.00	0.00	0.039	O	|	|	|	0.19
713.500	0.00	0.00	0.039	O	|	|	|	0.19
713.750	0.00	0.00	0.039	O	|	|	|	0.19
714.000	0.00	0.00	0.039	O	|	|	|	0.19
714.250	0.00	0.00	0.039	O	|	|	|	0.19
714.500	0.00	0.00	0.039	O	|	|	|	0.19
714.750	0.00	0.00	0.039	O	|	|	|	0.19
715.000	0.00	0.00	0.039	O	|	|	|	0.19
715.250	0.00	0.00	0.039	O	|	|	|	0.19
715.500	0.00	0.00	0.039	O	|	|	|	0.19
715.750	0.00	0.00	0.038	O	|	|	|	0.19
716.000	0.00	0.00	0.038	O	|	|	|	0.19
716.250	0.00	0.00	0.038	O	|	|	|	0.19
716.500	0.00	0.00	0.038	O	|	|	|	0.19
716.750	0.00	0.00	0.038	O	|	|	|	0.19
717.000	0.00	0.00	0.038	O	|	|	|	0.19
717.250	0.00	0.00	0.038	O	|	|	|	0.19
717.500	0.00	0.00	0.038	O	|	|	|	0.19
717.750	0.00	0.00	0.038	O	|	|	|	0.19
718.000	0.00	0.00	0.038	O	|	|	|	0.19
718.250	0.00	0.00	0.038	O	|	|	|	0.19
718.500	0.00	0.00	0.038	O	|	|	|	0.19
718.750	0.00	0.00	0.038	O	|	|	|	0.19
719.000	0.00	0.00	0.038	O	|	|	|	0.19
719.250	0.00	0.00	0.038	O	|	|	|	0.19
719.500	0.00	0.00	0.038	O	|	|	|	0.19
719.750	0.00	0.00	0.038	O	|	|	|	0.19
720.000	0.00	0.00	0.038	O	|	|	|	0.19
720.250	0.00	0.00	0.038	O	|	|	|	0.19
720.500	0.00	0.00	0.038	O	|	|	|	0.19
720.750	0.00	0.00	0.038	O	|	|	|	0.19
721.000	0.00	0.00	0.038	O	|	|	|	0.19
721.250	0.00	0.00	0.038	O	|	|	|	0.19
721.500	0.00	0.00	0.038	O	|	|	|	0.19
721.750	0.00	0.00	0.038	O	|	|	|	0.19
722.000	0.00	0.00	0.038	O	|	|	|	0.19
722.250	0.00	0.00	0.037	O	|	|	|	0.19
722.500	0.00	0.00	0.037	O	|	|	|	0.19
722.750	0.00	0.00	0.037	O	|	|	|	0.19
723.000	0.00	0.00	0.037	O	|	|	|	0.19
723.250	0.00	0.00	0.037	O	|	|	|	0.19
723.500	0.00	0.00	0.037	O	|	|	|	0.19
723.750	0.00	0.00	0.037	O	|	|	|	0.19
724.000	0.00	0.00	0.037	O	|	|	|	0.19
724.250	0.00	0.00	0.037	O	|	|	|	0.19
724.500	0.00	0.00	0.037	O	|	|	|	0.19
724.750	0.00	0.00	0.037	O	|	|	|	0.19
725.000	0.00	0.00	0.037	O	|	|	|	0.19
725.250	0.00	0.00	0.037	O	|	|	|	0.19
725.500	0.00	0.00	0.037	O	|	|	|	0.18
725.750	0.00	0.00	0.037	O	|	|	|	0.18
726.000	0.00	0.00	0.037	O	|	|	|	0.18
726.250	0.00	0.00	0.037	O	|	|	|	0.18
726.500	0.00	0.00	0.037	O	|	|	|	0.18

726.750	0.00	0.00	0.037	O	|	|	|	0.18
727.000	0.00	0.00	0.037	O	|	|	|	0.18
727.250	0.00	0.00	0.037	O	|	|	|	0.18
727.500	0.00	0.00	0.037	O	|	|	|	0.18
727.750	0.00	0.00	0.037	O	|	|	|	0.18
728.000	0.00	0.00	0.037	O	|	|	|	0.18
728.250	0.00	0.00	0.037	O	|	|	|	0.18
728.500	0.00	0.00	0.037	O	|	|	|	0.18
728.750	0.00	0.00	0.036	O	|	|	|	0.18
729.000	0.00	0.00	0.036	O	|	|	|	0.18
729.250	0.00	0.00	0.036	O	|	|	|	0.18
729.500	0.00	0.00	0.036	O	|	|	|	0.18
729.750	0.00	0.00	0.036	O	|	|	|	0.18
730.000	0.00	0.00	0.036	O	|	|	|	0.18
730.250	0.00	0.00	0.036	O	|	|	|	0.18
730.500	0.00	0.00	0.036	O	|	|	|	0.18
730.750	0.00	0.00	0.036	O	|	|	|	0.18
731.000	0.00	0.00	0.036	O	|	|	|	0.18
731.250	0.00	0.00	0.036	O	|	|	|	0.18
731.500	0.00	0.00	0.036	O	|	|	|	0.18
731.750	0.00	0.00	0.036	O	|	|	|	0.18
732.000	0.00	0.00	0.036	O	|	|	|	0.18
732.250	0.00	0.00	0.036	O	|	|	|	0.18
732.500	0.00	0.00	0.036	O	|	|	|	0.18
732.750	0.00	0.00	0.036	O	|	|	|	0.18
733.000	0.00	0.00	0.036	O	|	|	|	0.18
733.250	0.00	0.00	0.036	O	|	|	|	0.18
733.500	0.00	0.00	0.036	O	|	|	|	0.18
733.750	0.00	0.00	0.036	O	|	|	|	0.18
734.000	0.00	0.00	0.036	O	|	|	|	0.18
734.250	0.00	0.00	0.036	O	|	|	|	0.18
734.500	0.00	0.00	0.036	O	|	|	|	0.18
734.750	0.00	0.00	0.036	O	|	|	|	0.18
735.000	0.00	0.00	0.036	O	|	|	|	0.18
735.250	0.00	0.00	0.036	O	|	|	|	0.18
735.500	0.00	0.00	0.035	O	|	|	|	0.18
735.750	0.00	0.00	0.035	O	|	|	|	0.18
736.000	0.00	0.00	0.035	O	|	|	|	0.18
736.250	0.00	0.00	0.035	O	|	|	|	0.18
736.500	0.00	0.00	0.035	O	|	|	|	0.18
736.750	0.00	0.00	0.035	O	|	|	|	0.18
737.000	0.00	0.00	0.035	O	|	|	|	0.18
737.250	0.00	0.00	0.035	O	|	|	|	0.18
737.500	0.00	0.00	0.035	O	|	|	|	0.18
737.750	0.00	0.00	0.035	O	|	|	|	0.18
738.000	0.00	0.00	0.035	O	|	|	|	0.18
738.250	0.00	0.00	0.035	O	|	|	|	0.18
738.500	0.00	0.00	0.035	O	|	|	|	0.18
738.750	0.00	0.00	0.035	O	|	|	|	0.17
739.000	0.00	0.00	0.035	O	|	|	|	0.17
739.250	0.00	0.00	0.035	O	|	|	|	0.17
739.500	0.00	0.00	0.035	O	|	|	|	0.17
739.750	0.00	0.00	0.035	O	|	|	|	0.17
740.000	0.00	0.00	0.035	O	|	|	|	0.17
740.250	0.00	0.00	0.035	O	|	|	|	0.17
740.500	0.00	0.00	0.035	O	|	|	|	0.17
740.750	0.00	0.00	0.035	O	|	|	|	0.17
741.000	0.00	0.00	0.035	O	|	|	|	0.17
741.250	0.00	0.00	0.035	O	|	|	|	0.17
741.500	0.00	0.00	0.035	O	|	|	|	0.17
741.750	0.00	0.00	0.035	O	|	|	|	0.17
742.000	0.00	0.00	0.035	O	|	|	|	0.17

742.250	0.00	0.00	0.034	O	|	|	|	0.17
742.500	0.00	0.00	0.034	O	|	|	|	0.17
742.750	0.00	0.00	0.034	O	|	|	|	0.17
743.000	0.00	0.00	0.034	O	|	|	|	0.17
743.250	0.00	0.00	0.034	O	|	|	|	0.17
743.500	0.00	0.00	0.034	O	|	|	|	0.17
743.750	0.00	0.00	0.034	O	|	|	|	0.17
744.000	0.00	0.00	0.034	O	|	|	|	0.17
744.250	0.00	0.00	0.034	O	|	|	|	0.17
744.500	0.00	0.00	0.034	O	|	|	|	0.17
744.750	0.00	0.00	0.034	O	|	|	|	0.17
745.000	0.00	0.00	0.034	O	|	|	|	0.17
745.250	0.00	0.00	0.034	O	|	|	|	0.17
745.500	0.00	0.00	0.034	O	|	|	|	0.17
745.750	0.00	0.00	0.034	O	|	|	|	0.17
746.000	0.00	0.00	0.034	O	|	|	|	0.17
746.250	0.00	0.00	0.034	O	|	|	|	0.17
746.500	0.00	0.00	0.034	O	|	|	|	0.17
746.750	0.00	0.00	0.034	O	|	|	|	0.17
747.000	0.00	0.00	0.034	O	|	|	|	0.17
747.250	0.00	0.00	0.034	O	|	|	|	0.17
747.500	0.00	0.00	0.034	O	|	|	|	0.17
747.750	0.00	0.00	0.034	O	|	|	|	0.17
748.000	0.00	0.00	0.034	O	|	|	|	0.17
748.250	0.00	0.00	0.034	O	|	|	|	0.17
748.500	0.00	0.00	0.034	O	|	|	|	0.17
748.750	0.00	0.00	0.034	O	|	|	|	0.17
749.000	0.00	0.00	0.034	O	|	|	|	0.17
749.250	0.00	0.00	0.034	O	|	|	|	0.17
749.500	0.00	0.00	0.033	O	|	|	|	0.17
749.750	0.00	0.00	0.033	O	|	|	|	0.17
750.000	0.00	0.00	0.033	O	|	|	|	0.17
750.250	0.00	0.00	0.033	O	|	|	|	0.17
750.500	0.00	0.00	0.033	O	|	|	|	0.17
750.750	0.00	0.00	0.033	O	|	|	|	0.17
751.000	0.00	0.00	0.033	O	|	|	|	0.17
751.250	0.00	0.00	0.033	O	|	|	|	0.17
751.500	0.00	0.00	0.033	O	|	|	|	0.17
751.750	0.00	0.00	0.033	O	|	|	|	0.17
752.000	0.00	0.00	0.033	O	|	|	|	0.17
752.250	0.00	0.00	0.033	O	|	|	|	0.17
752.500	0.00	0.00	0.033	O	|	|	|	0.17
752.750	0.00	0.00	0.033	O	|	|	|	0.17
753.000	0.00	0.00	0.033	O	|	|	|	0.16
753.250	0.00	0.00	0.033	O	|	|	|	0.16
753.500	0.00	0.00	0.033	O	|	|	|	0.16
753.750	0.00	0.00	0.033	O	|	|	|	0.16
754.000	0.00	0.00	0.033	O	|	|	|	0.16
754.250	0.00	0.00	0.033	O	|	|	|	0.16
754.500	0.00	0.00	0.033	O	|	|	|	0.16
754.750	0.00	0.00	0.033	O	|	|	|	0.16
755.000	0.00	0.00	0.033	O	|	|	|	0.16
755.250	0.00	0.00	0.033	O	|	|	|	0.16
755.500	0.00	0.00	0.033	O	|	|	|	0.16
755.750	0.00	0.00	0.033	O	|	|	|	0.16
756.000	0.00	0.00	0.033	O	|	|	|	0.16
756.250	0.00	0.00	0.033	O	|	|	|	0.16
756.500	0.00	0.00	0.033	O	|	|	|	0.16
756.750	0.00	0.00	0.032	O	|	|	|	0.16
757.000	0.00	0.00	0.032	O	|	|	|	0.16
757.250	0.00	0.00	0.032	O	|	|	|	0.16
757.500	0.00	0.00	0.032	O	|	|	|	0.16

757.750	0.00	0.00	0.032	O	|	|	|	0.16
758.000	0.00	0.00	0.032	O	|	|	|	0.16
758.250	0.00	0.00	0.032	O	|	|	|	0.16
758.500	0.00	0.00	0.032	O	|	|	|	0.16
758.750	0.00	0.00	0.032	O	|	|	|	0.16
759.000	0.00	0.00	0.032	O	|	|	|	0.16
759.250	0.00	0.00	0.032	O	|	|	|	0.16
759.500	0.00	0.00	0.032	O	|	|	|	0.16
759.750	0.00	0.00	0.032	O	|	|	|	0.16
760.000	0.00	0.00	0.032	O	|	|	|	0.16
760.250	0.00	0.00	0.032	O	|	|	|	0.16
760.500	0.00	0.00	0.032	O	|	|	|	0.16
760.750	0.00	0.00	0.032	O	|	|	|	0.16
761.000	0.00	0.00	0.032	O	|	|	|	0.16
761.250	0.00	0.00	0.032	O	|	|	|	0.16
761.500	0.00	0.00	0.032	O	|	|	|	0.16
761.750	0.00	0.00	0.032	O	|	|	|	0.16
762.000	0.00	0.00	0.032	O	|	|	|	0.16
762.250	0.00	0.00	0.032	O	|	|	|	0.16
762.500	0.00	0.00	0.032	O	|	|	|	0.16
762.750	0.00	0.00	0.032	O	|	|	|	0.16
763.000	0.00	0.00	0.032	O	|	|	|	0.16
763.250	0.00	0.00	0.032	O	|	|	|	0.16
763.500	0.00	0.00	0.032	O	|	|	|	0.16
763.750	0.00	0.00	0.032	O	|	|	|	0.16
764.000	0.00	0.00	0.032	O	|	|	|	0.16
764.250	0.00	0.00	0.031	O	|	|	|	0.16
764.500	0.00	0.00	0.031	O	|	|	|	0.16
764.750	0.00	0.00	0.031	O	|	|	|	0.16
765.000	0.00	0.00	0.031	O	|	|	|	0.16
765.250	0.00	0.00	0.031	O	|	|	|	0.16
765.500	0.00	0.00	0.031	O	|	|	|	0.16
765.750	0.00	0.00	0.031	O	|	|	|	0.16
766.000	0.00	0.00	0.031	O	|	|	|	0.16
766.250	0.00	0.00	0.031	O	|	|	|	0.16
766.500	0.00	0.00	0.031	O	|	|	|	0.16
766.750	0.00	0.00	0.031	O	|	|	|	0.16
767.000	0.00	0.00	0.031	O	|	|	|	0.16
767.250	0.00	0.00	0.031	O	|	|	|	0.16
767.500	0.00	0.00	0.031	O	|	|	|	0.16
767.750	0.00	0.00	0.031	O	|	|	|	0.16
768.000	0.00	0.00	0.031	O	|	|	|	0.16
768.250	0.00	0.00	0.031	O	|	|	|	0.15
768.500	0.00	0.00	0.031	O	|	|	|	0.15
768.750	0.00	0.00	0.031	O	|	|	|	0.15
769.000	0.00	0.00	0.031	O	|	|	|	0.15
769.250	0.00	0.00	0.031	O	|	|	|	0.15
769.500	0.00	0.00	0.031	O	|	|	|	0.15
769.750	0.00	0.00	0.031	O	|	|	|	0.15
770.000	0.00	0.00	0.031	O	|	|	|	0.15
770.250	0.00	0.00	0.031	O	|	|	|	0.15
770.500	0.00	0.00	0.031	O	|	|	|	0.15
770.750	0.00	0.00	0.031	O	|	|	|	0.15
771.000	0.00	0.00	0.031	O	|	|	|	0.15
771.250	0.00	0.00	0.031	O	|	|	|	0.15
771.500	0.00	0.00	0.031	O	|	|	|	0.15
771.750	0.00	0.00	0.031	O	|	|	|	0.15
772.000	0.00	0.00	0.031	O	|	|	|	0.15
772.250	0.00	0.00	0.030	O	|	|	|	0.15
772.500	0.00	0.00	0.030	O	|	|	|	0.15
772.750	0.00	0.00	0.030	O	|	|	|	0.15
773.000	0.00	0.00	0.030	O	|	|	|	0.15

773.250	0.00	0.00	0.030	O	|	|	|	0.15
773.500	0.00	0.00	0.030	O	|	|	|	0.15
773.750	0.00	0.00	0.030	O	|	|	|	0.15
774.000	0.00	0.00	0.030	O	|	|	|	0.15
774.250	0.00	0.00	0.030	O	|	|	|	0.15
774.500	0.00	0.00	0.030	O	|	|	|	0.15
774.750	0.00	0.00	0.030	O	|	|	|	0.15
775.000	0.00	0.00	0.030	O	|	|	|	0.15
775.250	0.00	0.00	0.030	O	|	|	|	0.15
775.500	0.00	0.00	0.030	O	|	|	|	0.15
775.750	0.00	0.00	0.030	O	|	|	|	0.15
776.000	0.00	0.00	0.030	O	|	|	|	0.15
776.250	0.00	0.00	0.030	O	|	|	|	0.15
776.500	0.00	0.00	0.030	O	|	|	|	0.15
776.750	0.00	0.00	0.030	O	|	|	|	0.15
777.000	0.00	0.00	0.030	O	|	|	|	0.15
777.250	0.00	0.00	0.030	O	|	|	|	0.15
777.500	0.00	0.00	0.030	O	|	|	|	0.15
777.750	0.00	0.00	0.030	O	|	|	|	0.15
778.000	0.00	0.00	0.030	O	|	|	|	0.15
778.250	0.00	0.00	0.030	O	|	|	|	0.15
778.500	0.00	0.00	0.030	O	|	|	|	0.15
778.750	0.00	0.00	0.030	O	|	|	|	0.15
779.000	0.00	0.00	0.030	O	|	|	|	0.15
779.250	0.00	0.00	0.030	O	|	|	|	0.15
779.500	0.00	0.00	0.030	O	|	|	|	0.15
779.750	0.00	0.00	0.030	O	|	|	|	0.15
780.000	0.00	0.00	0.030	O	|	|	|	0.15
780.250	0.00	0.00	0.029	O	|	|	|	0.15
780.500	0.00	0.00	0.029	O	|	|	|	0.15
780.750	0.00	0.00	0.029	O	|	|	|	0.15
781.000	0.00	0.00	0.029	O	|	|	|	0.15
781.250	0.00	0.00	0.029	O	|	|	|	0.15
781.500	0.00	0.00	0.029	O	|	|	|	0.15
781.750	0.00	0.00	0.029	O	|	|	|	0.15
782.000	0.00	0.00	0.029	O	|	|	|	0.15
782.250	0.00	0.00	0.029	O	|	|	|	0.15
782.500	0.00	0.00	0.029	O	|	|	|	0.15
782.750	0.00	0.00	0.029	O	|	|	|	0.15
783.000	0.00	0.00	0.029	O	|	|	|	0.15
783.250	0.00	0.00	0.029	O	|	|	|	0.15
783.500	0.00	0.00	0.029	O	|	|	|	0.15
783.750	0.00	0.00	0.029	O	|	|	|	0.15
784.000	0.00	0.00	0.029	O	|	|	|	0.15
784.250	0.00	0.00	0.029	O	|	|	|	0.14
784.500	0.00	0.00	0.029	O	|	|	|	0.14
784.750	0.00	0.00	0.029	O	|	|	|	0.14
785.000	0.00	0.00	0.029	O	|	|	|	0.14
785.250	0.00	0.00	0.029	O	|	|	|	0.14
785.500	0.00	0.00	0.029	O	|	|	|	0.14
785.750	0.00	0.00	0.029	O	|	|	|	0.14
786.000	0.00	0.00	0.029	O	|	|	|	0.14
786.250	0.00	0.00	0.029	O	|	|	|	0.14
786.500	0.00	0.00	0.029	O	|	|	|	0.14
786.750	0.00	0.00	0.029	O	|	|	|	0.14
787.000	0.00	0.00	0.029	O	|	|	|	0.14
787.250	0.00	0.00	0.029	O	|	|	|	0.14
787.500	0.00	0.00	0.029	O	|	|	|	0.14
787.750	0.00	0.00	0.029	O	|	|	|	0.14
788.000	0.00	0.00	0.029	O	|	|	|	0.14
788.250	0.00	0.00	0.029	O	|	|	|	0.14
788.500	0.00	0.00	0.028	O	|	|	|	0.14

788.750	0.00	0.00	0.028	O	|	|	|	0.14
789.000	0.00	0.00	0.028	O	|	|	|	0.14
789.250	0.00	0.00	0.028	O	|	|	|	0.14
789.500	0.00	0.00	0.028	O	|	|	|	0.14
789.750	0.00	0.00	0.028	O	|	|	|	0.14
790.000	0.00	0.00	0.028	O	|	|	|	0.14
790.250	0.00	0.00	0.028	O	|	|	|	0.14
790.500	0.00	0.00	0.028	O	|	|	|	0.14
790.750	0.00	0.00	0.028	O	|	|	|	0.14
791.000	0.00	0.00	0.028	O	|	|	|	0.14
791.250	0.00	0.00	0.028	O	|	|	|	0.14
791.500	0.00	0.00	0.028	O	|	|	|	0.14
791.750	0.00	0.00	0.028	O	|	|	|	0.14
792.000	0.00	0.00	0.028	O	|	|	|	0.14
792.250	0.00	0.00	0.028	O	|	|	|	0.14
792.500	0.00	0.00	0.028	O	|	|	|	0.14
792.750	0.00	0.00	0.028	O	|	|	|	0.14
793.000	0.00	0.00	0.028	O	|	|	|	0.14
793.250	0.00	0.00	0.028	O	|	|	|	0.14
793.500	0.00	0.00	0.028	O	|	|	|	0.14
793.750	0.00	0.00	0.028	O	|	|	|	0.14
794.000	0.00	0.00	0.028	O	|	|	|	0.14
794.250	0.00	0.00	0.028	O	|	|	|	0.14
794.500	0.00	0.00	0.028	O	|	|	|	0.14
794.750	0.00	0.00	0.028	O	|	|	|	0.14
795.000	0.00	0.00	0.028	O	|	|	|	0.14
795.250	0.00	0.00	0.028	O	|	|	|	0.14
795.500	0.00	0.00	0.028	O	|	|	|	0.14
795.750	0.00	0.00	0.028	O	|	|	|	0.14
796.000	0.00	0.00	0.028	O	|	|	|	0.14
796.250	0.00	0.00	0.028	O	|	|	|	0.14
796.500	0.00	0.00	0.028	O	|	|	|	0.14
796.750	0.00	0.00	0.028	O	|	|	|	0.14
797.000	0.00	0.00	0.028	O	|	|	|	0.14
797.250	0.00	0.00	0.027	O	|	|	|	0.14
797.500	0.00	0.00	0.027	O	|	|	|	0.14
797.750	0.00	0.00	0.027	O	|	|	|	0.14
798.000	0.00	0.00	0.027	O	|	|	|	0.14
798.250	0.00	0.00	0.027	O	|	|	|	0.14
798.500	0.00	0.00	0.027	O	|	|	|	0.14
798.750	0.00	0.00	0.027	O	|	|	|	0.14
799.000	0.00	0.00	0.027	O	|	|	|	0.14
799.250	0.00	0.00	0.027	O	|	|	|	0.14
799.500	0.00	0.00	0.027	O	|	|	|	0.14
799.750	0.00	0.00	0.027	O	|	|	|	0.14
800.000	0.00	0.00	0.027	O	|	|	|	0.14
800.250	0.00	0.00	0.027	O	|	|	|	0.14
800.500	0.00	0.00	0.027	O	|	|	|	0.14
800.750	0.00	0.00	0.027	O	|	|	|	0.14
801.000	0.00	0.00	0.027	O	|	|	|	0.14
801.250	0.00	0.00	0.027	O	|	|	|	0.14
801.500	0.00	0.00	0.027	O	|	|	|	0.14
801.750	0.00	0.00	0.027	O	|	|	|	0.13
802.000	0.00	0.00	0.027	O	|	|	|	0.13
802.250	0.00	0.00	0.027	O	|	|	|	0.13
802.500	0.00	0.00	0.027	O	|	|	|	0.13
802.750	0.00	0.00	0.027	O	|	|	|	0.13
803.000	0.00	0.00	0.027	O	|	|	|	0.13
803.250	0.00	0.00	0.027	O	|	|	|	0.13
803.500	0.00	0.00	0.027	O	|	|	|	0.13
803.750	0.00	0.00	0.027	O	|	|	|	0.13
804.000	0.00	0.00	0.027	O	|	|	|	0.13

804.250	0.00	0.00	0.027	O	|	|	|	0.13
804.500	0.00	0.00	0.027	O	|	|	|	0.13
804.750	0.00	0.00	0.027	O	|	|	|	0.13
805.000	0.00	0.00	0.027	O	|	|	|	0.13
805.250	0.00	0.00	0.027	O	|	|	|	0.13
805.500	0.00	0.00	0.027	O	|	|	|	0.13
805.750	0.00	0.00	0.027	O	|	|	|	0.13
806.000	0.00	0.00	0.027	O	|	|	|	0.13
806.250	0.00	0.00	0.026	O	|	|	|	0.13
806.500	0.00	0.00	0.026	O	|	|	|	0.13
806.750	0.00	0.00	0.026	O	|	|	|	0.13
807.000	0.00	0.00	0.026	O	|	|	|	0.13
807.250	0.00	0.00	0.026	O	|	|	|	0.13
807.500	0.00	0.00	0.026	O	|	|	|	0.13
807.750	0.00	0.00	0.026	O	|	|	|	0.13
808.000	0.00	0.00	0.026	O	|	|	|	0.13
808.250	0.00	0.00	0.026	O	|	|	|	0.13
808.500	0.00	0.00	0.026	O	|	|	|	0.13
808.750	0.00	0.00	0.026	O	|	|	|	0.13
809.000	0.00	0.00	0.026	O	|	|	|	0.13
809.250	0.00	0.00	0.026	O	|	|	|	0.13
809.500	0.00	0.00	0.026	O	|	|	|	0.13
809.750	0.00	0.00	0.026	O	|	|	|	0.13
810.000	0.00	0.00	0.026	O	|	|	|	0.13
810.250	0.00	0.00	0.026	O	|	|	|	0.13
810.500	0.00	0.00	0.026	O	|	|	|	0.13
810.750	0.00	0.00	0.026	O	|	|	|	0.13
811.000	0.00	0.00	0.026	O	|	|	|	0.13
811.250	0.00	0.00	0.026	O	|	|	|	0.13
811.500	0.00	0.00	0.026	O	|	|	|	0.13
811.750	0.00	0.00	0.026	O	|	|	|	0.13
812.000	0.00	0.00	0.026	O	|	|	|	0.13
812.250	0.00	0.00	0.026	O	|	|	|	0.13
812.500	0.00	0.00	0.026	O	|	|	|	0.13
812.750	0.00	0.00	0.026	O	|	|	|	0.13
813.000	0.00	0.00	0.026	O	|	|	|	0.13
813.250	0.00	0.00	0.026	O	|	|	|	0.13
813.500	0.00	0.00	0.026	O	|	|	|	0.13
813.750	0.00	0.00	0.026	O	|	|	|	0.13
814.000	0.00	0.00	0.026	O	|	|	|	0.13
814.250	0.00	0.00	0.026	O	|	|	|	0.13
814.500	0.00	0.00	0.026	O	|	|	|	0.13
814.750	0.00	0.00	0.026	O	|	|	|	0.13
815.000	0.00	0.00	0.026	O	|	|	|	0.13
815.250	0.00	0.00	0.026	O	|	|	|	0.13
815.500	0.00	0.00	0.025	O	|	|	|	0.13
815.750	0.00	0.00	0.025	O	|	|	|	0.13
816.000	0.00	0.00	0.025	O	|	|	|	0.13
816.250	0.00	0.00	0.025	O	|	|	|	0.13
816.500	0.00	0.00	0.025	O	|	|	|	0.13
816.750	0.00	0.00	0.025	O	|	|	|	0.13
817.000	0.00	0.00	0.025	O	|	|	|	0.13
817.250	0.00	0.00	0.025	O	|	|	|	0.13
817.500	0.00	0.00	0.025	O	|	|	|	0.13
817.750	0.00	0.00	0.025	O	|	|	|	0.13
818.000	0.00	0.00	0.025	O	|	|	|	0.13
818.250	0.00	0.00	0.025	O	|	|	|	0.13
818.500	0.00	0.00	0.025	O	|	|	|	0.13
818.750	0.00	0.00	0.025	O	|	|	|	0.13
819.000	0.00	0.00	0.025	O	|	|	|	0.13
819.250	0.00	0.00	0.025	O	|	|	|	0.13
819.500	0.00	0.00	0.025	O	|	|	|	0.13

819.750	0.00	0.00	0.025	O	|	|	|	0.13
820.000	0.00	0.00	0.025	O	|	|	|	0.13
820.250	0.00	0.00	0.025	O	|	|	|	0.12
820.500	0.00	0.00	0.025	O	|	|	|	0.12
820.750	0.00	0.00	0.025	O	|	|	|	0.12
821.000	0.00	0.00	0.025	O	|	|	|	0.12
821.250	0.00	0.00	0.025	O	|	|	|	0.12
821.500	0.00	0.00	0.025	O	|	|	|	0.12
821.750	0.00	0.00	0.025	O	|	|	|	0.12
822.000	0.00	0.00	0.025	O	|	|	|	0.12
822.250	0.00	0.00	0.025	O	|	|	|	0.12
822.500	0.00	0.00	0.025	O	|	|	|	0.12
822.750	0.00	0.00	0.025	O	|	|	|	0.12
823.000	0.00	0.00	0.025	O	|	|	|	0.12
823.250	0.00	0.00	0.025	O	|	|	|	0.12
823.500	0.00	0.00	0.025	O	|	|	|	0.12
823.750	0.00	0.00	0.025	O	|	|	|	0.12
824.000	0.00	0.00	0.025	O	|	|	|	0.12
824.250	0.00	0.00	0.025	O	|	|	|	0.12
824.500	0.00	0.00	0.025	O	|	|	|	0.12
824.750	0.00	0.00	0.025	O	|	|	|	0.12
825.000	0.00	0.00	0.025	O	|	|	|	0.12
825.250	0.00	0.00	0.024	O	|	|	|	0.12
825.500	0.00	0.00	0.024	O	|	|	|	0.12
825.750	0.00	0.00	0.024	O	|	|	|	0.12
826.000	0.00	0.00	0.024	O	|	|	|	0.12
826.250	0.00	0.00	0.024	O	|	|	|	0.12
826.500	0.00	0.00	0.024	O	|	|	|	0.12
826.750	0.00	0.00	0.024	O	|	|	|	0.12
827.000	0.00	0.00	0.024	O	|	|	|	0.12
827.250	0.00	0.00	0.024	O	|	|	|	0.12
827.500	0.00	0.00	0.024	O	|	|	|	0.12
827.750	0.00	0.00	0.024	O	|	|	|	0.12
828.000	0.00	0.00	0.024	O	|	|	|	0.12
828.250	0.00	0.00	0.024	O	|	|	|	0.12
828.500	0.00	0.00	0.024	O	|	|	|	0.12
828.750	0.00	0.00	0.024	O	|	|	|	0.12
829.000	0.00	0.00	0.024	O	|	|	|	0.12
829.250	0.00	0.00	0.024	O	|	|	|	0.12
829.500	0.00	0.00	0.024	O	|	|	|	0.12
829.750	0.00	0.00	0.024	O	|	|	|	0.12
830.000	0.00	0.00	0.024	O	|	|	|	0.12
830.250	0.00	0.00	0.024	O	|	|	|	0.12
830.500	0.00	0.00	0.024	O	|	|	|	0.12
830.750	0.00	0.00	0.024	O	|	|	|	0.12
831.000	0.00	0.00	0.024	O	|	|	|	0.12
831.250	0.00	0.00	0.024	O	|	|	|	0.12
831.500	0.00	0.00	0.024	O	|	|	|	0.12
831.750	0.00	0.00	0.024	O	|	|	|	0.12
832.000	0.00	0.00	0.024	O	|	|	|	0.12
832.250	0.00	0.00	0.024	O	|	|	|	0.12
832.500	0.00	0.00	0.024	O	|	|	|	0.12
832.750	0.00	0.00	0.024	O	|	|	|	0.12
833.000	0.00	0.00	0.024	O	|	|	|	0.12
833.250	0.00	0.00	0.024	O	|	|	|	0.12
833.500	0.00	0.00	0.024	O	|	|	|	0.12
833.750	0.00	0.00	0.024	O	|	|	|	0.12
834.000	0.00	0.00	0.024	O	|	|	|	0.12
834.250	0.00	0.00	0.024	O	|	|	|	0.12
834.500	0.00	0.00	0.024	O	|	|	|	0.12
834.750	0.00	0.00	0.024	O	|	|	|	0.12
835.000	0.00	0.00	0.024	O	|	|	|	0.12

835.250	0.00	0.00	0.023	O	|	|	|	0.12
835.500	0.00	0.00	0.023	O	|	|	|	0.12
835.750	0.00	0.00	0.023	O	|	|	|	0.12
836.000	0.00	0.00	0.023	O	|	|	|	0.12
836.250	0.00	0.00	0.023	O	|	|	|	0.12
836.500	0.00	0.00	0.023	O	|	|	|	0.12
836.750	0.00	0.00	0.023	O	|	|	|	0.12
837.000	0.00	0.00	0.023	O	|	|	|	0.12
837.250	0.00	0.00	0.023	O	|	|	|	0.12
837.500	0.00	0.00	0.023	O	|	|	|	0.12
837.750	0.00	0.00	0.023	O	|	|	|	0.12
838.000	0.00	0.00	0.023	O	|	|	|	0.12
838.250	0.00	0.00	0.023	O	|	|	|	0.12
838.500	0.00	0.00	0.023	O	|	|	|	0.12
838.750	0.00	0.00	0.023	O	|	|	|	0.12
839.000	0.00	0.00	0.023	O	|	|	|	0.12
839.250	0.00	0.00	0.023	O	|	|	|	0.12
839.500	0.00	0.00	0.023	O	|	|	|	0.12
839.750	0.00	0.00	0.023	O	|	|	|	0.12
840.000	0.00	0.00	0.023	O	|	|	|	0.12
840.250	0.00	0.00	0.023	O	|	|	|	0.12
840.500	0.00	0.00	0.023	O	|	|	|	0.11
840.750	0.00	0.00	0.023	O	|	|	|	0.11
841.000	0.00	0.00	0.023	O	|	|	|	0.11
841.250	0.00	0.00	0.023	O	|	|	|	0.11
841.500	0.00	0.00	0.023	O	|	|	|	0.11
841.750	0.00	0.00	0.023	O	|	|	|	0.11
842.000	0.00	0.00	0.023	O	|	|	|	0.11
842.250	0.00	0.00	0.023	O	|	|	|	0.11
842.500	0.00	0.00	0.023	O	|	|	|	0.11
842.750	0.00	0.00	0.023	O	|	|	|	0.11
843.000	0.00	0.00	0.023	O	|	|	|	0.11
843.250	0.00	0.00	0.023	O	|	|	|	0.11
843.500	0.00	0.00	0.023	O	|	|	|	0.11
843.750	0.00	0.00	0.023	O	|	|	|	0.11
844.000	0.00	0.00	0.023	O	|	|	|	0.11
844.250	0.00	0.00	0.023	O	|	|	|	0.11
844.500	0.00	0.00	0.023	O	|	|	|	0.11
844.750	0.00	0.00	0.023	O	|	|	|	0.11
845.000	0.00	0.00	0.023	O	|	|	|	0.11
845.250	0.00	0.00	0.023	O	|	|	|	0.11
845.500	0.00	0.00	0.023	O	|	|	|	0.11
845.750	0.00	0.00	0.022	O	|	|	|	0.11
846.000	0.00	0.00	0.022	O	|	|	|	0.11
846.250	0.00	0.00	0.022	O	|	|	|	0.11
846.500	0.00	0.00	0.022	O	|	|	|	0.11
846.750	0.00	0.00	0.022	O	|	|	|	0.11
847.000	0.00	0.00	0.022	O	|	|	|	0.11
847.250	0.00	0.00	0.022	O	|	|	|	0.11
847.500	0.00	0.00	0.022	O	|	|	|	0.11
847.750	0.00	0.00	0.022	O	|	|	|	0.11
848.000	0.00	0.00	0.022	O	|	|	|	0.11
848.250	0.00	0.00	0.022	O	|	|	|	0.11
848.500	0.00	0.00	0.022	O	|	|	|	0.11
848.750	0.00	0.00	0.022	O	|	|	|	0.11
849.000	0.00	0.00	0.022	O	|	|	|	0.11
849.250	0.00	0.00	0.022	O	|	|	|	0.11
849.500	0.00	0.00	0.022	O	|	|	|	0.11
849.750	0.00	0.00	0.022	O	|	|	|	0.11
850.000	0.00	0.00	0.022	O	|	|	|	0.11
850.250	0.00	0.00	0.022	O	|	|	|	0.11
850.500	0.00	0.00	0.022	O	|	|	|	0.11

850.750	0.00	0.00	0.022	O	|	|	|	0.11
851.000	0.00	0.00	0.022	O	|	|	|	0.11
851.250	0.00	0.00	0.022	O	|	|	|	0.11
851.500	0.00	0.00	0.022	O	|	|	|	0.11
851.750	0.00	0.00	0.022	O	|	|	|	0.11
852.000	0.00	0.00	0.022	O	|	|	|	0.11
852.250	0.00	0.00	0.022	O	|	|	|	0.11
852.500	0.00	0.00	0.022	O	|	|	|	0.11
852.750	0.00	0.00	0.022	O	|	|	|	0.11
853.000	0.00	0.00	0.022	O	|	|	|	0.11
853.250	0.00	0.00	0.022	O	|	|	|	0.11
853.500	0.00	0.00	0.022	O	|	|	|	0.11
853.750	0.00	0.00	0.022	O	|	|	|	0.11
854.000	0.00	0.00	0.022	O	|	|	|	0.11
854.250	0.00	0.00	0.022	O	|	|	|	0.11
854.500	0.00	0.00	0.022	O	|	|	|	0.11
854.750	0.00	0.00	0.022	O	|	|	|	0.11
855.000	0.00	0.00	0.022	O	|	|	|	0.11
855.250	0.00	0.00	0.022	O	|	|	|	0.11
855.500	0.00	0.00	0.022	O	|	|	|	0.11
855.750	0.00	0.00	0.022	O	|	|	|	0.11
856.000	0.00	0.00	0.022	O	|	|	|	0.11
856.250	0.00	0.00	0.022	O	|	|	|	0.11
856.500	0.00	0.00	0.022	O	|	|	|	0.11
856.750	0.00	0.00	0.021	O	|	|	|	0.11
857.000	0.00	0.00	0.021	O	|	|	|	0.11
857.250	0.00	0.00	0.021	O	|	|	|	0.11
857.500	0.00	0.00	0.021	O	|	|	|	0.11
857.750	0.00	0.00	0.021	O	|	|	|	0.11
858.000	0.00	0.00	0.021	O	|	|	|	0.11
858.250	0.00	0.00	0.021	O	|	|	|	0.11
858.500	0.00	0.00	0.021	O	|	|	|	0.11
858.750	0.00	0.00	0.021	O	|	|	|	0.11
859.000	0.00	0.00	0.021	O	|	|	|	0.11
859.250	0.00	0.00	0.021	O	|	|	|	0.11
859.500	0.00	0.00	0.021	O	|	|	|	0.11
859.750	0.00	0.00	0.021	O	|	|	|	0.11
860.000	0.00	0.00	0.021	O	|	|	|	0.11
860.250	0.00	0.00	0.021	O	|	|	|	0.11
860.500	0.00	0.00	0.021	O	|	|	|	0.11
860.750	0.00	0.00	0.021	O	|	|	|	0.11
861.000	0.00	0.00	0.021	O	|	|	|	0.11
861.250	0.00	0.00	0.021	O	|	|	|	0.11
861.500	0.00	0.00	0.021	O	|	|	|	0.11
861.750	0.00	0.00	0.021	O	|	|	|	0.11
862.000	0.00	0.00	0.021	O	|	|	|	0.11
862.250	0.00	0.00	0.021	O	|	|	|	0.11
862.500	0.00	0.00	0.021	O	|	|	|	0.10
862.750	0.00	0.00	0.021	O	|	|	|	0.10
863.000	0.00	0.00	0.021	O	|	|	|	0.10
863.250	0.00	0.00	0.021	O	|	|	|	0.10
863.500	0.00	0.00	0.021	O	|	|	|	0.10
863.750	0.00	0.00	0.021	O	|	|	|	0.10
864.000	0.00	0.00	0.021	O	|	|	|	0.10
864.250	0.00	0.00	0.021	O	|	|	|	0.10
864.500	0.00	0.00	0.021	O	|	|	|	0.10
864.750	0.00	0.00	0.021	O	|	|	|	0.10
865.000	0.00	0.00	0.021	O	|	|	|	0.10
865.250	0.00	0.00	0.021	O	|	|	|	0.10
865.500	0.00	0.00	0.021	O	|	|	|	0.10
865.750	0.00	0.00	0.021	O	|	|	|	0.10
866.000	0.00	0.00	0.021	O	|	|	|	0.10

866.250	0.00	0.00	0.021	O	|	|	|	| 0.10
866.500	0.00	0.00	0.021	O	|	|	|	| 0.10
866.750	0.00	0.00	0.021	O	|	|	|	| 0.10
867.000	0.00	0.00	0.021	O	|	|	|	| 0.10
867.250	0.00	0.00	0.021	O	|	|	|	| 0.10
867.500	0.00	0.00	0.021	O	|	|	|	| 0.10
867.750	0.00	0.00	0.021	O	|	|	|	| 0.10
868.000	0.00	0.00	0.021	O	|	|	|	| 0.10
868.250	0.00	0.00	0.020	O	|	|	|	| 0.10
868.500	0.00	0.00	0.020	O	|	|	|	| 0.10
868.750	0.00	0.00	0.020	O	|	|	|	| 0.10
869.000	0.00	0.00	0.020	O	|	|	|	| 0.10
869.250	0.00	0.00	0.020	O	|	|	|	| 0.10
869.500	0.00	0.00	0.020	O	|	|	|	| 0.10
869.750	0.00	0.00	0.020	O	|	|	|	| 0.10
870.000	0.00	0.00	0.020	O	|	|	|	| 0.10
870.250	0.00	0.00	0.020	O	|	|	|	| 0.10
870.500	0.00	0.00	0.020	O	|	|	|	| 0.10
870.750	0.00	0.00	0.020	O	|	|	|	| 0.10
871.000	0.00	0.00	0.020	O	|	|	|	| 0.10
871.250	0.00	0.00	0.020	O	|	|	|	| 0.10
871.500	0.00	0.00	0.020	O	|	|	|	| 0.10
871.750	0.00	0.00	0.020	O	|	|	|	| 0.10
872.000	0.00	0.00	0.020	O	|	|	|	| 0.10
872.250	0.00	0.00	0.020	O	|	|	|	| 0.10
872.500	0.00	0.00	0.020	O	|	|	|	| 0.10
872.750	0.00	0.00	0.020	O	|	|	|	| 0.10
873.000	0.00	0.00	0.020	O	|	|	|	| 0.10
873.250	0.00	0.00	0.020	O	|	|	|	| 0.10
873.500	0.00	0.00	0.020	O	|	|	|	| 0.10
873.750	0.00	0.00	0.020	O	|	|	|	| 0.10
874.000	0.00	0.00	0.020	O	|	|	|	| 0.10
874.250	0.00	0.00	0.020	O	|	|	|	| 0.10

Remaining water in basin = 0.02 (Ac.Ft)

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

Number of intervals = 3497
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 21.875 (CFS)
Total volume = 4.504 (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

****

FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2014
Study date: 06/17/19

TRACT NO. 20280
BASIN ROUTING
10-YEAR STORM

Program License Serial Number 6385

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

From study/file name: UN2028010.rte
**********HYDROGRAPH DATA**********
Number of intervals = 102
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 10.814 (CFS)
Total volume = 1.960 (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 = 102
Hydrograph time unit = 15.000 (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
1.000	0.200	0.010	0.200	0.200
2.000	0.530	0.020	0.530	0.530
3.000	0.860	1.000	0.850	0.870
4.000	1.270	26.360	0.998	1.542
5.000	1.760	37.310	1.375	2.145

Hydrograph Detention Basin Routing

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

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	2.7	5.41	8.11	10.81	Depth (Ft.)
0.250	0.12	0.00	0.001	O	|	|	|	|	0.01
0.500	0.26	0.00	0.005	O	|	|	|	|	0.03
0.750	0.30	0.00	0.011	O	|	|	|	|	0.05
1.000	0.33	0.00	0.017	O	|	|	|	|	0.09
1.250	0.34	0.00	0.024	OI	|	|	|	|	0.12
1.500	0.36	0.00	0.031	OI	|	|	|	|	0.16
1.750	0.37	0.00	0.039	OI	|	|	|	|	0.19
2.000	0.37	0.00	0.047	OI	|	|	|	|	0.23
2.250	0.38	0.00	0.054	OI	|	|	|	|	0.27
2.500	0.38	0.00	0.062	OI	|	|	|	|	0.31
2.750	0.38	0.00	0.070	OI	|	|	|	|	0.35
3.000	0.39	0.00	0.078	OI	|	|	|	|	0.39
3.250	0.39	0.00	0.086	OI	|	|	|	|	0.43
3.500	0.40	0.00	0.094	OI	|	|	|	|	0.47
3.750	0.40	0.01	0.102	OI	|	|	|	|	0.51
4.000	0.41	0.01	0.110	OI	|	|	|	|	0.55
4.250	0.41	0.01	0.118	OI	|	|	|	|	0.59
4.500	0.42	0.01	0.127	OI	|	|	|	|	0.63
4.750	0.42	0.01	0.135	OI	|	|	|	|	0.68
5.000	0.43	0.01	0.144	OI	|	|	|	|	0.72
5.250	0.43	0.01	0.153	OI	|	|	|	|	0.76
5.500	0.44	0.01	0.162	OI	|	|	|	|	0.81
5.750	0.45	0.01	0.171	OI	|	|	|	|	0.85
6.000	0.45	0.01	0.180	OI	|	|	|	|	0.90
6.250	0.46	0.01	0.189	OI	|	|	|	|	0.95
6.500	0.47	0.01	0.198	OI	|	|	|	|	0.99
6.750	0.47	0.01	0.208	OI	|	|	|	|	1.02
7.000	0.48	0.01	0.218	OI	|	|	|	|	1.05
7.250	0.49	0.01	0.227	OI	|	|	|	|	1.08
7.500	0.50	0.01	0.237	OI	|	|	|	|	1.11
7.750	0.51	0.01	0.248	OI	|	|	|	|	1.14
8.000	0.52	0.01	0.258	OI	|	|	|	|	1.18
8.250	0.53	0.01	0.268	OI	|	|	|	|	1.21
8.500	0.54	0.01	0.279	OI	|	|	|	|	1.24
8.750	0.55	0.01	0.290	OI	|	|	|	|	1.27
9.000	0.56	0.01	0.301	OI	|	|	|	|	1.31
9.250	0.57	0.01	0.313	OI	|	|	|	|	1.34
9.500	0.58	0.01	0.324	OI	|	|	|	|	1.38
9.750	0.59	0.01	0.336	OI	|	|	|	|	1.41
10.000	0.61	0.01	0.348	OI	|	|	|	|	1.45
10.250	0.62	0.01	0.361	OI	|	|	|	|	1.49
10.500	0.64	0.02	0.373	OI	|	|	|	|	1.53
10.750	0.66	0.02	0.386	OI	|	|	|	|	1.56
11.000	0.67	0.02	0.400	OI	|	|	|	|	1.61
11.250	0.69	0.02	0.414	O I	|	|	|	|	1.65
11.500	0.72	0.02	0.428	O I	|	|	|	|	1.69
11.750	0.74	0.02	0.443	O I	|	|	|	|	1.73
12.000	0.76	0.02	0.458	O I	|	|	|	|	1.78
12.250	0.79	0.02	0.473	O I	|	|	|	|	1.83
12.500	0.82	0.02	0.490	O I	|	|	|	|	1.88
12.750	0.85	0.02	0.507	O I	|	|	|	|	1.93
13.000	0.89	0.02	0.524	O I	|	|	|	|	1.98
13.250	0.94	0.06	0.542	O I	|	|	|	|	2.04
13.500	0.98	0.11	0.560	O I	|	|	|	|	2.09

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13.750    1.04    0.16      0.578  O  I    |        |        |        |     2.15
14.000    1.10    0.22      0.597  O  I    |        |        |        |     2.20
14.250    1.18    0.27      0.615  O  I    |        |        |        |     2.26
14.500    1.28    0.33      0.634  O  I    |        |        |        |     2.32
14.750    1.39    0.39      0.655  |O  I   |        |        |        |     2.38
15.000    1.54    0.45      0.676  |O  I   |        |        |        |     2.44
15.250    1.75    0.53      0.700  |O   I  |        |        |        |     2.52
15.500    1.93    0.60      0.726  |O   I  |        |        |        |     2.60
15.750    2.23    0.69      0.756  | O   I |        |        |        |     2.68
16.000    3.71    0.83      0.802  | O     | I      |        |        |     2.82
16.250   10.81    3.75      0.904  |       |  O     |        |        I     3.11
16.500   10.56    9.16      0.992  |       |        |        |  O   I|     3.32
16.750    4.79    8.00      0.973  |       |     I  |      O|        |     3.28
17.000    3.24    4.89      0.923  |       |I    O  |        |        |     3.15
17.250    2.50    3.31      0.897  |       I|O      |        |        |     3.09
17.500    1.97    2.47      0.884  |    I O|        |        |        |     3.06
17.750    1.44    1.87      0.874  |   IO  |        |        |        |     3.03
18.000    1.00    1.36      0.866  | I O   |        |        |        |     3.01
18.250    0.90    1.04      0.861  | IO    |        |        |        |     3.00
18.500    0.82    0.99      0.857  | O     |        |        |        |     2.99
18.750    0.76    0.98      0.853  | O     |        |        |        |     2.98
19.000    0.71    0.97      0.849  | O     |        |        |        |     2.97
19.250    0.67    0.95      0.843  |IO     |        |        |        |     2.95
19.500    0.64    0.93      0.837  |IO     |        |        |        |     2.93
19.750    0.61    0.91      0.831  |IO     |        |        |        |     2.91
20.000    0.58    0.89      0.824  |IO     |        |        |        |     2.89
20.250    0.55    0.87      0.818  |IO     |        |        |        |     2.87
20.500    0.53    0.86      0.811  |IO     |        |        |        |     2.85
20.750    0.51    0.84      0.805  |IO     |        |        |        |     2.83
21.000    0.50    0.82      0.798  |IO     |        |        |        |     2.81
21.250    0.48    0.80      0.791  |IO     |        |        |        |     2.79
21.500    0.46    0.78      0.785  |IO     |        |        |        |     2.77
21.750    0.45    0.76      0.778  |IO     |        |        |        |     2.75
22.000    0.44    0.74      0.772  |IO     |        |        |        |     2.73
22.250    0.43    0.72      0.766  |IO     |        |        |        |     2.72
22.500    0.42    0.70      0.760  |IO     |        |        |        |     2.70
22.750    0.41    0.69      0.754  |IO     |        |        |        |     2.68
23.000    0.40    0.67      0.748  |O      |        |        |        |     2.66
23.250    0.39    0.65      0.743  |O      |        |        |        |     2.64
23.500    0.38    0.64      0.737  |O      |        |        |        |     2.63
23.750    0.37    0.62      0.732  |O      |        |        |        |     2.61
24.000    0.36    0.61      0.727  |O      |        |        |        |     2.60
24.250    0.24    0.59      0.721  IO      |        |        |        |     2.58
24.500    0.10    0.56      0.713  IO      |        |        |        |     2.55
24.750    0.06    0.53      0.703  IO      |        |        |        |     2.52
25.000    0.03    0.50      0.693  IO      |        |        |        |     2.49
25.250    0.02    0.48      0.683  IO      |        |        |        |     2.46
25.500    0.01    0.45      0.674  IO      |        |        |        |     2.44
25.750    0.00    0.42      0.665  IO      |        |        |        |     2.41
26.000    0.00    0.40      0.657  IO      |        |        |        |     2.38
26.250    0.00    0.37      0.649  IO      |        |        |        |     2.36
26.500    0.00    0.35      0.641  IO      |        |        |        |     2.34
26.750    0.00    0.33      0.634  O       |        |        |        |     2.32
27.000    0.00    0.31      0.628  O       |        |        |        |     2.30
27.250    0.00    0.29      0.621  O       |        |        |        |     2.28
27.500    0.00    0.27      0.616  O       |        |        |        |     2.26
27.750    0.00    0.26      0.610  O       |        |        |        |     2.24
28.000    0.00    0.24      0.605  O       |        |        |        |     2.23
28.250    0.00    0.23      0.600  O       |        |        |        |     2.21
28.500    0.00    0.21      0.595  O       |        |        |        |     2.20
28.750    0.00    0.20      0.591  O       |        |        |        |     2.19
29.000    0.00    0.19      0.587  O       |        |        |        |     2.17
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29.250	0.00	0.18	0.583	O	|	|	|	2.16
29.500	0.00	0.17	0.580	O	|	|	|	2.15
29.750	0.00	0.16	0.576	O	|	|	|	2.14
30.000	0.00	0.15	0.573	O	|	|	|	2.13
30.250	0.00	0.14	0.570	O	|	|	|	2.12
30.500	0.00	0.13	0.567	O	|	|	|	2.11
30.750	0.00	0.12	0.565	O	|	|	|	2.11
31.000	0.00	0.12	0.562	O	|	|	|	2.10
31.250	0.00	0.11	0.560	O	|	|	|	2.09
31.500	0.00	0.10	0.558	O	|	|	|	2.08
31.750	0.00	0.10	0.556	O	|	|	|	2.08
32.000	0.00	0.09	0.554	O	|	|	|	2.07
32.250	0.00	0.09	0.552	O	|	|	|	2.07
32.500	0.00	0.08	0.550	O	|	|	|	2.06
32.750	0.00	0.08	0.549	O	|	|	|	2.06
33.000	0.00	0.07	0.547	O	|	|	|	2.05
33.250	0.00	0.07	0.546	O	|	|	|	2.05
33.500	0.00	0.06	0.544	O	|	|	|	2.04
33.750	0.00	0.06	0.543	O	|	|	|	2.04
34.000	0.00	0.06	0.542	O	|	|	|	2.04
34.250	0.00	0.05	0.541	O	|	|	|	2.03
34.500	0.00	0.05	0.540	O	|	|	|	2.03
34.750	0.00	0.05	0.539	O	|	|	|	2.03
35.000	0.00	0.04	0.538	O	|	|	|	2.02
35.250	0.00	0.04	0.537	O	|	|	|	2.02
35.500	0.00	0.04	0.536	O	|	|	|	2.02
35.750	0.00	0.04	0.535	O	|	|	|	2.02
36.000	0.00	0.03	0.535	O	|	|	|	2.01
36.250	0.00	0.03	0.534	O	|	|	|	2.01
36.500	0.00	0.03	0.533	O	|	|	|	2.01
36.750	0.00	0.03	0.533	O	|	|	|	2.01
37.000	0.00	0.03	0.532	O	|	|	|	2.01
37.250	0.00	0.03	0.532	O	|	|	|	2.01
37.500	0.00	0.02	0.531	O	|	|	|	2.00
37.750	0.00	0.02	0.531	O	|	|	|	2.00
38.000	0.00	0.02	0.530	O	|	|	|	2.00
38.250	0.00	0.02	0.530	O	|	|	|	2.00
38.500	0.00	0.02	0.529	O	|	|	|	2.00
38.750	0.00	0.02	0.529	O	|	|	|	2.00
39.000	0.00	0.02	0.529	O	|	|	|	2.00
39.250	0.00	0.02	0.528	O	|	|	|	1.99
39.500	0.00	0.02	0.528	O	|	|	|	1.99
39.750	0.00	0.02	0.527	O	|	|	|	1.99
40.000	0.00	0.02	0.527	O	|	|	|	1.99
40.250	0.00	0.02	0.527	O	|	|	|	1.99
40.500	0.00	0.02	0.526	O	|	|	|	1.99
40.750	0.00	0.02	0.526	O	|	|	|	1.99
41.000	0.00	0.02	0.525	O	|	|	|	1.99
41.250	0.00	0.02	0.525	O	|	|	|	1.98
41.500	0.00	0.02	0.525	O	|	|	|	1.98
41.750	0.00	0.02	0.524	O	|	|	|	1.98
42.000	0.00	0.02	0.524	O	|	|	|	1.98
42.250	0.00	0.02	0.523	O	|	|	|	1.98
42.500	0.00	0.02	0.523	O	|	|	|	1.98
42.750	0.00	0.02	0.522	O	|	|	|	1.98
43.000	0.00	0.02	0.522	O	|	|	|	1.98
43.250	0.00	0.02	0.522	O	|	|	|	1.97
43.500	0.00	0.02	0.521	O	|	|	|	1.97
43.750	0.00	0.02	0.521	O	|	|	|	1.97
44.000	0.00	0.02	0.520	O	|	|	|	1.97
44.250	0.00	0.02	0.520	O	|	|	|	1.97
44.500	0.00	0.02	0.520	O	|	|	|	1.97

44.750	0.00	0.02	0.519	O	|	|	|	1.97
45.000	0.00	0.02	0.519	O	|	|	|	1.97
45.250	0.00	0.02	0.518	O	|	|	|	1.96
45.500	0.00	0.02	0.518	O	|	|	|	1.96
45.750	0.00	0.02	0.518	O	|	|	|	1.96
46.000	0.00	0.02	0.517	O	|	|	|	1.96
46.250	0.00	0.02	0.517	O	|	|	|	1.96
46.500	0.00	0.02	0.516	O	|	|	|	1.96
46.750	0.00	0.02	0.516	O	|	|	|	1.96
47.000	0.00	0.02	0.516	O	|	|	|	1.96
47.250	0.00	0.02	0.515	O	|	|	|	1.95
47.500	0.00	0.02	0.515	O	|	|	|	1.95
47.750	0.00	0.02	0.514	O	|	|	|	1.95
48.000	0.00	0.02	0.514	O	|	|	|	1.95
48.250	0.00	0.02	0.514	O	|	|	|	1.95
48.500	0.00	0.02	0.513	O	|	|	|	1.95
48.750	0.00	0.02	0.513	O	|	|	|	1.95
49.000	0.00	0.02	0.512	O	|	|	|	1.95
49.250	0.00	0.02	0.512	O	|	|	|	1.95
49.500	0.00	0.02	0.512	O	|	|	|	1.94
49.750	0.00	0.02	0.511	O	|	|	|	1.94
50.000	0.00	0.02	0.511	O	|	|	|	1.94
50.250	0.00	0.02	0.510	O	|	|	|	1.94
50.500	0.00	0.02	0.510	O	|	|	|	1.94
50.750	0.00	0.02	0.510	O	|	|	|	1.94
51.000	0.00	0.02	0.509	O	|	|	|	1.94
51.250	0.00	0.02	0.509	O	|	|	|	1.94
51.500	0.00	0.02	0.508	O	|	|	|	1.93
51.750	0.00	0.02	0.508	O	|	|	|	1.93
52.000	0.00	0.02	0.508	O	|	|	|	1.93
52.250	0.00	0.02	0.507	O	|	|	|	1.93
52.500	0.00	0.02	0.507	O	|	|	|	1.93
52.750	0.00	0.02	0.506	O	|	|	|	1.93
53.000	0.00	0.02	0.506	O	|	|	|	1.93
53.250	0.00	0.02	0.506	O	|	|	|	1.93
53.500	0.00	0.02	0.505	O	|	|	|	1.92
53.750	0.00	0.02	0.505	O	|	|	|	1.92
54.000	0.00	0.02	0.504	O	|	|	|	1.92
54.250	0.00	0.02	0.504	O	|	|	|	1.92
54.500	0.00	0.02	0.504	O	|	|	|	1.92
54.750	0.00	0.02	0.503	O	|	|	|	1.92
55.000	0.00	0.02	0.503	O	|	|	|	1.92
55.250	0.00	0.02	0.502	O	|	|	|	1.92
55.500	0.00	0.02	0.502	O	|	|	|	1.92
55.750	0.00	0.02	0.502	O	|	|	|	1.91
56.000	0.00	0.02	0.501	O	|	|	|	1.91
56.250	0.00	0.02	0.501	O	|	|	|	1.91
56.500	0.00	0.02	0.500	O	|	|	|	1.91
56.750	0.00	0.02	0.500	O	|	|	|	1.91
57.000	0.00	0.02	0.500	O	|	|	|	1.91
57.250	0.00	0.02	0.499	O	|	|	|	1.91
57.500	0.00	0.02	0.499	O	|	|	|	1.91
57.750	0.00	0.02	0.498	O	|	|	|	1.90
58.000	0.00	0.02	0.498	O	|	|	|	1.90
58.250	0.00	0.02	0.498	O	|	|	|	1.90
58.500	0.00	0.02	0.497	O	|	|	|	1.90
58.750	0.00	0.02	0.497	O	|	|	|	1.90
59.000	0.00	0.02	0.496	O	|	|	|	1.90
59.250	0.00	0.02	0.496	O	|	|	|	1.90
59.500	0.00	0.02	0.496	O	|	|	|	1.90
59.750	0.00	0.02	0.495	O	|	|	|	1.89
60.000	0.00	0.02	0.495	O	|	|	|	1.89

60.250	0.00	0.02	0.494	O	|	|	|	1.89
60.500	0.00	0.02	0.494	O	|	|	|	1.89
60.750	0.00	0.02	0.494	O	|	|	|	1.89
61.000	0.00	0.02	0.493	O	|	|	|	1.89
61.250	0.00	0.02	0.493	O	|	|	|	1.89
61.500	0.00	0.02	0.493	O	|	|	|	1.89
61.750	0.00	0.02	0.492	O	|	|	|	1.89
62.000	0.00	0.02	0.492	O	|	|	|	1.88
62.250	0.00	0.02	0.491	O	|	|	|	1.88
62.500	0.00	0.02	0.491	O	|	|	|	1.88
62.750	0.00	0.02	0.491	O	|	|	|	1.88
63.000	0.00	0.02	0.490	O	|	|	|	1.88
63.250	0.00	0.02	0.490	O	|	|	|	1.88
63.500	0.00	0.02	0.489	O	|	|	|	1.88
63.750	0.00	0.02	0.489	O	|	|	|	1.88
64.000	0.00	0.02	0.489	O	|	|	|	1.87
64.250	0.00	0.02	0.488	O	|	|	|	1.87
64.500	0.00	0.02	0.488	O	|	|	|	1.87
64.750	0.00	0.02	0.487	O	|	|	|	1.87
65.000	0.00	0.02	0.487	O	|	|	|	1.87
65.250	0.00	0.02	0.487	O	|	|	|	1.87
65.500	0.00	0.02	0.486	O	|	|	|	1.87
65.750	0.00	0.02	0.486	O	|	|	|	1.87
66.000	0.00	0.02	0.486	O	|	|	|	1.87
66.250	0.00	0.02	0.485	O	|	|	|	1.86
66.500	0.00	0.02	0.485	O	|	|	|	1.86
66.750	0.00	0.02	0.484	O	|	|	|	1.86
67.000	0.00	0.02	0.484	O	|	|	|	1.86
67.250	0.00	0.02	0.484	O	|	|	|	1.86
67.500	0.00	0.02	0.483	O	|	|	|	1.86
67.750	0.00	0.02	0.483	O	|	|	|	1.86
68.000	0.00	0.02	0.482	O	|	|	|	1.86
68.250	0.00	0.02	0.482	O	|	|	|	1.85
68.500	0.00	0.02	0.482	O	|	|	|	1.85
68.750	0.00	0.02	0.481	O	|	|	|	1.85
69.000	0.00	0.02	0.481	O	|	|	|	1.85
69.250	0.00	0.02	0.481	O	|	|	|	1.85
69.500	0.00	0.02	0.480	O	|	|	|	1.85
69.750	0.00	0.02	0.480	O	|	|	|	1.85
70.000	0.00	0.02	0.479	O	|	|	|	1.85
70.250	0.00	0.02	0.479	O	|	|	|	1.85
70.500	0.00	0.02	0.479	O	|	|	|	1.84
70.750	0.00	0.02	0.478	O	|	|	|	1.84
71.000	0.00	0.02	0.478	O	|	|	|	1.84
71.250	0.00	0.02	0.478	O	|	|	|	1.84
71.500	0.00	0.02	0.477	O	|	|	|	1.84
71.750	0.00	0.02	0.477	O	|	|	|	1.84
72.000	0.00	0.02	0.476	O	|	|	|	1.84
72.250	0.00	0.02	0.476	O	|	|	|	1.84
72.500	0.00	0.02	0.476	O	|	|	|	1.84
72.750	0.00	0.02	0.475	O	|	|	|	1.83
73.000	0.00	0.02	0.475	O	|	|	|	1.83
73.250	0.00	0.02	0.474	O	|	|	|	1.83
73.500	0.00	0.02	0.474	O	|	|	|	1.83
73.750	0.00	0.02	0.474	O	|	|	|	1.83
74.000	0.00	0.02	0.473	O	|	|	|	1.83
74.250	0.00	0.02	0.473	O	|	|	|	1.83
74.500	0.00	0.02	0.473	O	|	|	|	1.83
74.750	0.00	0.02	0.472	O	|	|	|	1.82
75.000	0.00	0.02	0.472	O	|	|	|	1.82
75.250	0.00	0.02	0.471	O	|	|	|	1.82
75.500	0.00	0.02	0.471	O	|	|	|	1.82

75.750	0.00	0.02	0.471	O	|	|	|	1.82
76.000	0.00	0.02	0.470	O	|	|	|	1.82
76.250	0.00	0.02	0.470	O	|	|	|	1.82
76.500	0.00	0.02	0.470	O	|	|	|	1.82
76.750	0.00	0.02	0.469	O	|	|	|	1.82
77.000	0.00	0.02	0.469	O	|	|	|	1.81
77.250	0.00	0.02	0.468	O	|	|	|	1.81
77.500	0.00	0.02	0.468	O	|	|	|	1.81
77.750	0.00	0.02	0.468	O	|	|	|	1.81
78.000	0.00	0.02	0.467	O	|	|	|	1.81
78.250	0.00	0.02	0.467	O	|	|	|	1.81
78.500	0.00	0.02	0.467	O	|	|	|	1.81
78.750	0.00	0.02	0.466	O	|	|	|	1.81
79.000	0.00	0.02	0.466	O	|	|	|	1.81
79.250	0.00	0.02	0.465	O	|	|	|	1.80
79.500	0.00	0.02	0.465	O	|	|	|	1.80
79.750	0.00	0.02	0.465	O	|	|	|	1.80
80.000	0.00	0.02	0.464	O	|	|	|	1.80
80.250	0.00	0.02	0.464	O	|	|	|	1.80
80.500	0.00	0.02	0.464	O	|	|	|	1.80
80.750	0.00	0.02	0.463	O	|	|	|	1.80
81.000	0.00	0.02	0.463	O	|	|	|	1.80
81.250	0.00	0.02	0.462	O	|	|	|	1.80
81.500	0.00	0.02	0.462	O	|	|	|	1.79
81.750	0.00	0.02	0.462	O	|	|	|	1.79
82.000	0.00	0.02	0.461	O	|	|	|	1.79
82.250	0.00	0.02	0.461	O	|	|	|	1.79
82.500	0.00	0.02	0.461	O	|	|	|	1.79
82.750	0.00	0.02	0.460	O	|	|	|	1.79
83.000	0.00	0.02	0.460	O	|	|	|	1.79
83.250	0.00	0.02	0.460	O	|	|	|	1.79
83.500	0.00	0.02	0.459	O	|	|	|	1.79
83.750	0.00	0.02	0.459	O	|	|	|	1.78
84.000	0.00	0.02	0.458	O	|	|	|	1.78
84.250	0.00	0.02	0.458	O	|	|	|	1.78
84.500	0.00	0.02	0.458	O	|	|	|	1.78
84.750	0.00	0.02	0.457	O	|	|	|	1.78
85.000	0.00	0.02	0.457	O	|	|	|	1.78
85.250	0.00	0.02	0.457	O	|	|	|	1.78
85.500	0.00	0.02	0.456	O	|	|	|	1.78
85.750	0.00	0.02	0.456	O	|	|	|	1.78
86.000	0.00	0.02	0.455	O	|	|	|	1.77
86.250	0.00	0.02	0.455	O	|	|	|	1.77
86.500	0.00	0.02	0.455	O	|	|	|	1.77
86.750	0.00	0.02	0.454	O	|	|	|	1.77
87.000	0.00	0.02	0.454	O	|	|	|	1.77
87.250	0.00	0.02	0.454	O	|	|	|	1.77
87.500	0.00	0.02	0.453	O	|	|	|	1.77
87.750	0.00	0.02	0.453	O	|	|	|	1.77
88.000	0.00	0.02	0.453	O	|	|	|	1.77
88.250	0.00	0.02	0.452	O	|	|	|	1.76
88.500	0.00	0.02	0.452	O	|	|	|	1.76
88.750	0.00	0.02	0.451	O	|	|	|	1.76
89.000	0.00	0.02	0.451	O	|	|	|	1.76
89.250	0.00	0.02	0.451	O	|	|	|	1.76
89.500	0.00	0.02	0.450	O	|	|	|	1.76
89.750	0.00	0.02	0.450	O	|	|	|	1.76
90.000	0.00	0.02	0.450	O	|	|	|	1.76
90.250	0.00	0.02	0.449	O	|	|	|	1.76
90.500	0.00	0.02	0.449	O	|	|	|	1.75
90.750	0.00	0.02	0.449	O	|	|	|	1.75
91.000	0.00	0.02	0.448	O	|	|	|	1.75

91.250	0.00	0.02	0.448	O	|	|	|	1.75
91.500	0.00	0.02	0.447	O	|	|	|	1.75
91.750	0.00	0.02	0.447	O	|	|	|	1.75
92.000	0.00	0.02	0.447	O	|	|	|	1.75
92.250	0.00	0.02	0.446	O	|	|	|	1.75
92.500	0.00	0.02	0.446	O	|	|	|	1.75
92.750	0.00	0.02	0.446	O	|	|	|	1.74
93.000	0.00	0.02	0.445	O	|	|	|	1.74
93.250	0.00	0.02	0.445	O	|	|	|	1.74
93.500	0.00	0.02	0.445	O	|	|	|	1.74
93.750	0.00	0.02	0.444	O	|	|	|	1.74
94.000	0.00	0.02	0.444	O	|	|	|	1.74
94.250	0.00	0.02	0.444	O	|	|	|	1.74
94.500	0.00	0.02	0.443	O	|	|	|	1.74
94.750	0.00	0.02	0.443	O	|	|	|	1.74
95.000	0.00	0.02	0.442	O	|	|	|	1.73
95.250	0.00	0.02	0.442	O	|	|	|	1.73
95.500	0.00	0.02	0.442	O	|	|	|	1.73
95.750	0.00	0.02	0.441	O	|	|	|	1.73
96.000	0.00	0.02	0.441	O	|	|	|	1.73
96.250	0.00	0.02	0.441	O	|	|	|	1.73
96.500	0.00	0.02	0.440	O	|	|	|	1.73
96.750	0.00	0.02	0.440	O	|	|	|	1.73
97.000	0.00	0.02	0.440	O	|	|	|	1.73
97.250	0.00	0.02	0.439	O	|	|	|	1.72
97.500	0.00	0.02	0.439	O	|	|	|	1.72
97.750	0.00	0.02	0.439	O	|	|	|	1.72
98.000	0.00	0.02	0.438	O	|	|	|	1.72
98.250	0.00	0.02	0.438	O	|	|	|	1.72
98.500	0.00	0.02	0.437	O	|	|	|	1.72
98.750	0.00	0.02	0.437	O	|	|	|	1.72
99.000	0.00	0.02	0.437	O	|	|	|	1.72
99.250	0.00	0.02	0.436	O	|	|	|	1.72
99.500	0.00	0.02	0.436	O	|	|	|	1.72
99.750	0.00	0.02	0.436	O	|	|	|	1.71
100.000	0.00	0.02	0.435	O	|	|	|	1.71
100.250	0.00	0.02	0.435	O	|	|	|	1.71
100.500	0.00	0.02	0.435	O	|	|	|	1.71
100.750	0.00	0.02	0.434	O	|	|	|	1.71
101.000	0.00	0.02	0.434	O	|	|	|	1.71
101.250	0.00	0.02	0.434	O	|	|	|	1.71
101.500	0.00	0.02	0.433	O	|	|	|	1.71
101.750	0.00	0.02	0.433	O	|	|	|	1.71
102.000	0.00	0.02	0.432	O	|	|	|	1.70
102.250	0.00	0.02	0.432	O	|	|	|	1.70
102.500	0.00	0.02	0.432	O	|	|	|	1.70
102.750	0.00	0.02	0.431	O	|	|	|	1.70
103.000	0.00	0.02	0.431	O	|	|	|	1.70
103.250	0.00	0.02	0.431	O	|	|	|	1.70
103.500	0.00	0.02	0.430	O	|	|	|	1.70
103.750	0.00	0.02	0.430	O	|	|	|	1.70
104.000	0.00	0.02	0.430	O	|	|	|	1.70
104.250	0.00	0.02	0.429	O	|	|	|	1.69
104.500	0.00	0.02	0.429	O	|	|	|	1.69
104.750	0.00	0.02	0.429	O	|	|	|	1.69
105.000	0.00	0.02	0.428	O	|	|	|	1.69
105.250	0.00	0.02	0.428	O	|	|	|	1.69
105.500	0.00	0.02	0.428	O	|	|	|	1.69
105.750	0.00	0.02	0.427	O	|	|	|	1.69
106.000	0.00	0.02	0.427	O	|	|	|	1.69
106.250	0.00	0.02	0.427	O	|	|	|	1.69
106.500	0.00	0.02	0.426	O	|	|	|	1.69

106.750	0.00	0.02	0.426	O	|	|	|	1.68
107.000	0.00	0.02	0.425	O	|	|	|	1.68
107.250	0.00	0.02	0.425	O	|	|	|	1.68
107.500	0.00	0.02	0.425	O	|	|	|	1.68
107.750	0.00	0.02	0.424	O	|	|	|	1.68
108.000	0.00	0.02	0.424	O	|	|	|	1.68
108.250	0.00	0.02	0.424	O	|	|	|	1.68
108.500	0.00	0.02	0.423	O	|	|	|	1.68
108.750	0.00	0.02	0.423	O	|	|	|	1.68
109.000	0.00	0.02	0.423	O	|	|	|	1.67
109.250	0.00	0.02	0.422	O	|	|	|	1.67
109.500	0.00	0.02	0.422	O	|	|	|	1.67
109.750	0.00	0.02	0.422	O	|	|	|	1.67
110.000	0.00	0.02	0.421	O	|	|	|	1.67
110.250	0.00	0.02	0.421	O	|	|	|	1.67
110.500	0.00	0.02	0.421	O	|	|	|	1.67
110.750	0.00	0.02	0.420	O	|	|	|	1.67
111.000	0.00	0.02	0.420	O	|	|	|	1.67
111.250	0.00	0.02	0.420	O	|	|	|	1.67
111.500	0.00	0.02	0.419	O	|	|	|	1.66
111.750	0.00	0.02	0.419	O	|	|	|	1.66
112.000	0.00	0.02	0.419	O	|	|	|	1.66
112.250	0.00	0.02	0.418	O	|	|	|	1.66
112.500	0.00	0.02	0.418	O	|	|	|	1.66
112.750	0.00	0.02	0.418	O	|	|	|	1.66
113.000	0.00	0.02	0.417	O	|	|	|	1.66
113.250	0.00	0.02	0.417	O	|	|	|	1.66
113.500	0.00	0.02	0.417	O	|	|	|	1.66
113.750	0.00	0.02	0.416	O	|	|	|	1.66
114.000	0.00	0.02	0.416	O	|	|	|	1.65
114.250	0.00	0.02	0.415	O	|	|	|	1.65
114.500	0.00	0.02	0.415	O	|	|	|	1.65
114.750	0.00	0.02	0.415	O	|	|	|	1.65
115.000	0.00	0.02	0.414	O	|	|	|	1.65
115.250	0.00	0.02	0.414	O	|	|	|	1.65
115.500	0.00	0.02	0.414	O	|	|	|	1.65
115.750	0.00	0.02	0.413	O	|	|	|	1.65
116.000	0.00	0.02	0.413	O	|	|	|	1.65
116.250	0.00	0.02	0.413	O	|	|	|	1.64
116.500	0.00	0.02	0.412	O	|	|	|	1.64
116.750	0.00	0.02	0.412	O	|	|	|	1.64
117.000	0.00	0.02	0.412	O	|	|	|	1.64
117.250	0.00	0.02	0.411	O	|	|	|	1.64
117.500	0.00	0.02	0.411	O	|	|	|	1.64
117.750	0.00	0.02	0.411	O	|	|	|	1.64
118.000	0.00	0.02	0.410	O	|	|	|	1.64
118.250	0.00	0.02	0.410	O	|	|	|	1.64
118.500	0.00	0.02	0.410	O	|	|	|	1.64
118.750	0.00	0.02	0.409	O	|	|	|	1.63
119.000	0.00	0.02	0.409	O	|	|	|	1.63
119.250	0.00	0.02	0.409	O	|	|	|	1.63
119.500	0.00	0.02	0.408	O	|	|	|	1.63
119.750	0.00	0.02	0.408	O	|	|	|	1.63
120.000	0.00	0.02	0.408	O	|	|	|	1.63
120.250	0.00	0.02	0.407	O	|	|	|	1.63
120.500	0.00	0.02	0.407	O	|	|	|	1.63
120.750	0.00	0.02	0.407	O	|	|	|	1.63
121.000	0.00	0.02	0.406	O	|	|	|	1.63
121.250	0.00	0.02	0.406	O	|	|	|	1.62
121.500	0.00	0.02	0.406	O	|	|	|	1.62
121.750	0.00	0.02	0.405	O	|	|	|	1.62
122.000	0.00	0.02	0.405	O	|	|	|	1.62

122.250	0.00	0.02	0.405	O	|	|	|	1.62
122.500	0.00	0.02	0.404	O	|	|	|	1.62
122.750	0.00	0.02	0.404	O	|	|	|	1.62
123.000	0.00	0.02	0.404	O	|	|	|	1.62
123.250	0.00	0.02	0.403	O	|	|	|	1.62
123.500	0.00	0.02	0.403	O	|	|	|	1.62
123.750	0.00	0.02	0.403	O	|	|	|	1.61
124.000	0.00	0.02	0.402	O	|	|	|	1.61
124.250	0.00	0.02	0.402	O	|	|	|	1.61
124.500	0.00	0.02	0.402	O	|	|	|	1.61
124.750	0.00	0.02	0.401	O	|	|	|	1.61
125.000	0.00	0.02	0.401	O	|	|	|	1.61
125.250	0.00	0.02	0.401	O	|	|	|	1.61
125.500	0.00	0.02	0.400	O	|	|	|	1.61
125.750	0.00	0.02	0.400	O	|	|	|	1.61
126.000	0.00	0.02	0.400	O	|	|	|	1.61
126.250	0.00	0.02	0.399	O	|	|	|	1.60
126.500	0.00	0.02	0.399	O	|	|	|	1.60
126.750	0.00	0.02	0.399	O	|	|	|	1.60
127.000	0.00	0.02	0.398	O	|	|	|	1.60
127.250	0.00	0.02	0.398	O	|	|	|	1.60
127.500	0.00	0.02	0.398	O	|	|	|	1.60
127.750	0.00	0.02	0.397	O	|	|	|	1.60
128.000	0.00	0.02	0.397	O	|	|	|	1.60
128.250	0.00	0.02	0.397	O	|	|	|	1.60
128.500	0.00	0.02	0.396	O	|	|	|	1.60
128.750	0.00	0.02	0.396	O	|	|	|	1.59
129.000	0.00	0.02	0.396	O	|	|	|	1.59
129.250	0.00	0.02	0.395	O	|	|	|	1.59
129.500	0.00	0.02	0.395	O	|	|	|	1.59
129.750	0.00	0.02	0.395	O	|	|	|	1.59
130.000	0.00	0.02	0.394	O	|	|	|	1.59
130.250	0.00	0.02	0.394	O	|	|	|	1.59
130.500	0.00	0.02	0.394	O	|	|	|	1.59
130.750	0.00	0.02	0.393	O	|	|	|	1.59
131.000	0.00	0.02	0.393	O	|	|	|	1.59
131.250	0.00	0.02	0.393	O	|	|	|	1.58
131.500	0.00	0.02	0.392	O	|	|	|	1.58
131.750	0.00	0.02	0.392	O	|	|	|	1.58
132.000	0.00	0.02	0.392	O	|	|	|	1.58
132.250	0.00	0.02	0.391	O	|	|	|	1.58
132.500	0.00	0.02	0.391	O	|	|	|	1.58
132.750	0.00	0.02	0.391	O	|	|	|	1.58
133.000	0.00	0.02	0.390	O	|	|	|	1.58
133.250	0.00	0.02	0.390	O	|	|	|	1.58
133.500	0.00	0.02	0.390	O	|	|	|	1.58
133.750	0.00	0.02	0.389	O	|	|	|	1.57
134.000	0.00	0.02	0.389	O	|	|	|	1.57
134.250	0.00	0.02	0.389	O	|	|	|	1.57
134.500	0.00	0.02	0.389	O	|	|	|	1.57
134.750	0.00	0.02	0.388	O	|	|	|	1.57
135.000	0.00	0.02	0.388	O	|	|	|	1.57
135.250	0.00	0.02	0.388	O	|	|	|	1.57
135.500	0.00	0.02	0.387	O	|	|	|	1.57
135.750	0.00	0.02	0.387	O	|	|	|	1.57
136.000	0.00	0.02	0.387	O	|	|	|	1.57
136.250	0.00	0.02	0.386	O	|	|	|	1.56
136.500	0.00	0.02	0.386	O	|	|	|	1.56
136.750	0.00	0.02	0.386	O	|	|	|	1.56
137.000	0.00	0.02	0.385	O	|	|	|	1.56
137.250	0.00	0.02	0.385	O	|	|	|	1.56
137.500	0.00	0.02	0.385	O	|	|	|	1.56

137.750	0.00	0.02	0.384	O	|	|	|	1.56
138.000	0.00	0.02	0.384	O	|	|	|	1.56
138.250	0.00	0.02	0.384	O	|	|	|	1.56
138.500	0.00	0.02	0.383	O	|	|	|	1.56
138.750	0.00	0.02	0.383	O	|	|	|	1.55
139.000	0.00	0.02	0.383	O	|	|	|	1.55
139.250	0.00	0.02	0.382	O	|	|	|	1.55
139.500	0.00	0.02	0.382	O	|	|	|	1.55
139.750	0.00	0.02	0.382	O	|	|	|	1.55
140.000	0.00	0.02	0.381	O	|	|	|	1.55
140.250	0.00	0.02	0.381	O	|	|	|	1.55
140.500	0.00	0.02	0.381	O	|	|	|	1.55
140.750	0.00	0.02	0.380	O	|	|	|	1.55
141.000	0.00	0.02	0.380	O	|	|	|	1.55
141.250	0.00	0.02	0.380	O	|	|	|	1.54
141.500	0.00	0.02	0.380	O	|	|	|	1.54
141.750	0.00	0.02	0.379	O	|	|	|	1.54
142.000	0.00	0.02	0.379	O	|	|	|	1.54
142.250	0.00	0.02	0.379	O	|	|	|	1.54
142.500	0.00	0.02	0.378	O	|	|	|	1.54
142.750	0.00	0.02	0.378	O	|	|	|	1.54
143.000	0.00	0.02	0.378	O	|	|	|	1.54
143.250	0.00	0.02	0.377	O	|	|	|	1.54
143.500	0.00	0.02	0.377	O	|	|	|	1.54
143.750	0.00	0.02	0.377	O	|	|	|	1.54
144.000	0.00	0.02	0.376	O	|	|	|	1.53
144.250	0.00	0.02	0.376	O	|	|	|	1.53
144.500	0.00	0.02	0.376	O	|	|	|	1.53
144.750	0.00	0.02	0.375	O	|	|	|	1.53
145.000	0.00	0.02	0.375	O	|	|	|	1.53
145.250	0.00	0.02	0.375	O	|	|	|	1.53
145.500	0.00	0.02	0.374	O	|	|	|	1.53
145.750	0.00	0.02	0.374	O	|	|	|	1.53
146.000	0.00	0.02	0.374	O	|	|	|	1.53
146.250	0.00	0.02	0.373	O	|	|	|	1.53
146.500	0.00	0.02	0.373	O	|	|	|	1.52
146.750	0.00	0.02	0.373	O	|	|	|	1.52
147.000	0.00	0.02	0.373	O	|	|	|	1.52
147.250	0.00	0.02	0.372	O	|	|	|	1.52
147.500	0.00	0.02	0.372	O	|	|	|	1.52
147.750	0.00	0.02	0.372	O	|	|	|	1.52
148.000	0.00	0.02	0.371	O	|	|	|	1.52
148.250	0.00	0.02	0.371	O	|	|	|	1.52
148.500	0.00	0.02	0.371	O	|	|	|	1.52
148.750	0.00	0.02	0.370	O	|	|	|	1.52
149.000	0.00	0.02	0.370	O	|	|	|	1.52
149.250	0.00	0.02	0.370	O	|	|	|	1.51
149.500	0.00	0.02	0.369	O	|	|	|	1.51
149.750	0.00	0.02	0.369	O	|	|	|	1.51
150.000	0.00	0.02	0.369	O	|	|	|	1.51
150.250	0.00	0.02	0.368	O	|	|	|	1.51
150.500	0.00	0.02	0.368	O	|	|	|	1.51
150.750	0.00	0.02	0.368	O	|	|	|	1.51
151.000	0.00	0.02	0.368	O	|	|	|	1.51
151.250	0.00	0.02	0.367	O	|	|	|	1.51
151.500	0.00	0.02	0.367	O	|	|	|	1.51
151.750	0.00	0.02	0.367	O	|	|	|	1.50
152.000	0.00	0.02	0.366	O	|	|	|	1.50
152.250	0.00	0.02	0.366	O	|	|	|	1.50
152.500	0.00	0.02	0.366	O	|	|	|	1.50
152.750	0.00	0.02	0.365	O	|	|	|	1.50
153.000	0.00	0.02	0.365	O	|	|	|	1.50

153.250	0.00	0.01	0.365	O	|	|	|	1.50
153.500	0.00	0.01	0.364	O	|	|	|	1.50
153.750	0.00	0.01	0.364	O	|	|	|	1.50
154.000	0.00	0.01	0.364	O	|	|	|	1.50
154.250	0.00	0.01	0.363	O	|	|	|	1.50
154.500	0.00	0.01	0.363	O	|	|	|	1.49
154.750	0.00	0.01	0.363	O	|	|	|	1.49
155.000	0.00	0.01	0.363	O	|	|	|	1.49
155.250	0.00	0.01	0.362	O	|	|	|	1.49
155.500	0.00	0.01	0.362	O	|	|	|	1.49
155.750	0.00	0.01	0.362	O	|	|	|	1.49
156.000	0.00	0.01	0.361	O	|	|	|	1.49
156.250	0.00	0.01	0.361	O	|	|	|	1.49
156.500	0.00	0.01	0.361	O	|	|	|	1.49
156.750	0.00	0.01	0.360	O	|	|	|	1.49
157.000	0.00	0.01	0.360	O	|	|	|	1.49
157.250	0.00	0.01	0.360	O	|	|	|	1.48
157.500	0.00	0.01	0.359	O	|	|	|	1.48
157.750	0.00	0.01	0.359	O	|	|	|	1.48
158.000	0.00	0.01	0.359	O	|	|	|	1.48
158.250	0.00	0.01	0.359	O	|	|	|	1.48
158.500	0.00	0.01	0.358	O	|	|	|	1.48
158.750	0.00	0.01	0.358	O	|	|	|	1.48
159.000	0.00	0.01	0.358	O	|	|	|	1.48
159.250	0.00	0.01	0.357	O	|	|	|	1.48
159.500	0.00	0.01	0.357	O	|	|	|	1.48
159.750	0.00	0.01	0.357	O	|	|	|	1.47
160.000	0.00	0.01	0.356	O	|	|	|	1.47
160.250	0.00	0.01	0.356	O	|	|	|	1.47
160.500	0.00	0.01	0.356	O	|	|	|	1.47
160.750	0.00	0.01	0.356	O	|	|	|	1.47
161.000	0.00	0.01	0.355	O	|	|	|	1.47
161.250	0.00	0.01	0.355	O	|	|	|	1.47
161.500	0.00	0.01	0.355	O	|	|	|	1.47
161.750	0.00	0.01	0.354	O	|	|	|	1.47
162.000	0.00	0.01	0.354	O	|	|	|	1.47
162.250	0.00	0.01	0.354	O	|	|	|	1.47
162.500	0.00	0.01	0.353	O	|	|	|	1.46
162.750	0.00	0.01	0.353	O	|	|	|	1.46
163.000	0.00	0.01	0.353	O	|	|	|	1.46
163.250	0.00	0.01	0.352	O	|	|	|	1.46
163.500	0.00	0.01	0.352	O	|	|	|	1.46
163.750	0.00	0.01	0.352	O	|	|	|	1.46
164.000	0.00	0.01	0.352	O	|	|	|	1.46
164.250	0.00	0.01	0.351	O	|	|	|	1.46
164.500	0.00	0.01	0.351	O	|	|	|	1.46
164.750	0.00	0.01	0.351	O	|	|	|	1.46
165.000	0.00	0.01	0.350	O	|	|	|	1.46
165.250	0.00	0.01	0.350	O	|	|	|	1.45
165.500	0.00	0.01	0.350	O	|	|	|	1.45
165.750	0.00	0.01	0.349	O	|	|	|	1.45
166.000	0.00	0.01	0.349	O	|	|	|	1.45
166.250	0.00	0.01	0.349	O	|	|	|	1.45
166.500	0.00	0.01	0.349	O	|	|	|	1.45
166.750	0.00	0.01	0.348	O	|	|	|	1.45
167.000	0.00	0.01	0.348	O	|	|	|	1.45
167.250	0.00	0.01	0.348	O	|	|	|	1.45
167.500	0.00	0.01	0.347	O	|	|	|	1.45
167.750	0.00	0.01	0.347	O	|	|	|	1.45
168.000	0.00	0.01	0.347	O	|	|	|	1.44
168.250	0.00	0.01	0.346	O	|	|	|	1.44
168.500	0.00	0.01	0.346	O	|	|	|	1.44

168.750	0.00	0.01	0.346	O	|	|	|	1.44
169.000	0.00	0.01	0.346	O	|	|	|	1.44
169.250	0.00	0.01	0.345	O	|	|	|	1.44
169.500	0.00	0.01	0.345	O	|	|	|	1.44
169.750	0.00	0.01	0.345	O	|	|	|	1.44
170.000	0.00	0.01	0.344	O	|	|	|	1.44
170.250	0.00	0.01	0.344	O	|	|	|	1.44
170.500	0.00	0.01	0.344	O	|	|	|	1.44
170.750	0.00	0.01	0.344	O	|	|	|	1.43
171.000	0.00	0.01	0.343	O	|	|	|	1.43
171.250	0.00	0.01	0.343	O	|	|	|	1.43
171.500	0.00	0.01	0.343	O	|	|	|	1.43
171.750	0.00	0.01	0.342	O	|	|	|	1.43
172.000	0.00	0.01	0.342	O	|	|	|	1.43
172.250	0.00	0.01	0.342	O	|	|	|	1.43
172.500	0.00	0.01	0.341	O	|	|	|	1.43
172.750	0.00	0.01	0.341	O	|	|	|	1.43
173.000	0.00	0.01	0.341	O	|	|	|	1.43
173.250	0.00	0.01	0.341	O	|	|	|	1.43
173.500	0.00	0.01	0.340	O	|	|	|	1.43
173.750	0.00	0.01	0.340	O	|	|	|	1.42
174.000	0.00	0.01	0.340	O	|	|	|	1.42
174.250	0.00	0.01	0.339	O	|	|	|	1.42
174.500	0.00	0.01	0.339	O	|	|	|	1.42
174.750	0.00	0.01	0.339	O	|	|	|	1.42
175.000	0.00	0.01	0.339	O	|	|	|	1.42
175.250	0.00	0.01	0.338	O	|	|	|	1.42
175.500	0.00	0.01	0.338	O	|	|	|	1.42
175.750	0.00	0.01	0.338	O	|	|	|	1.42
176.000	0.00	0.01	0.337	O	|	|	|	1.42
176.250	0.00	0.01	0.337	O	|	|	|	1.42
176.500	0.00	0.01	0.337	O	|	|	|	1.41
176.750	0.00	0.01	0.336	O	|	|	|	1.41
177.000	0.00	0.01	0.336	O	|	|	|	1.41
177.250	0.00	0.01	0.336	O	|	|	|	1.41
177.500	0.00	0.01	0.336	O	|	|	|	1.41
177.750	0.00	0.01	0.335	O	|	|	|	1.41
178.000	0.00	0.01	0.335	O	|	|	|	1.41
178.250	0.00	0.01	0.335	O	|	|	|	1.41
178.500	0.00	0.01	0.334	O	|	|	|	1.41
178.750	0.00	0.01	0.334	O	|	|	|	1.41
179.000	0.00	0.01	0.334	O	|	|	|	1.41
179.250	0.00	0.01	0.334	O	|	|	|	1.40
179.500	0.00	0.01	0.333	O	|	|	|	1.40
179.750	0.00	0.01	0.333	O	|	|	|	1.40
180.000	0.00	0.01	0.333	O	|	|	|	1.40
180.250	0.00	0.01	0.332	O	|	|	|	1.40
180.500	0.00	0.01	0.332	O	|	|	|	1.40
180.750	0.00	0.01	0.332	O	|	|	|	1.40
181.000	0.00	0.01	0.332	O	|	|	|	1.40
181.250	0.00	0.01	0.331	O	|	|	|	1.40
181.500	0.00	0.01	0.331	O	|	|	|	1.40
181.750	0.00	0.01	0.331	O	|	|	|	1.40
182.000	0.00	0.01	0.330	O	|	|	|	1.40
182.250	0.00	0.01	0.330	O	|	|	|	1.39
182.500	0.00	0.01	0.330	O	|	|	|	1.39
182.750	0.00	0.01	0.329	O	|	|	|	1.39
183.000	0.00	0.01	0.329	O	|	|	|	1.39
183.250	0.00	0.01	0.329	O	|	|	|	1.39
183.500	0.00	0.01	0.329	O	|	|	|	1.39
183.750	0.00	0.01	0.328	O	|	|	|	1.39
184.000	0.00	0.01	0.328	O	|	|	|	1.39

184.250	0.00	0.01	0.328	O	|	|	|	1.39
184.500	0.00	0.01	0.327	O	|	|	|	1.39
184.750	0.00	0.01	0.327	O	|	|	|	1.39
185.000	0.00	0.01	0.327	O	|	|	|	1.38
185.250	0.00	0.01	0.327	O	|	|	|	1.38
185.500	0.00	0.01	0.326	O	|	|	|	1.38
185.750	0.00	0.01	0.326	O	|	|	|	1.38
186.000	0.00	0.01	0.326	O	|	|	|	1.38
186.250	0.00	0.01	0.325	O	|	|	|	1.38
186.500	0.00	0.01	0.325	O	|	|	|	1.38
186.750	0.00	0.01	0.325	O	|	|	|	1.38
187.000	0.00	0.01	0.325	O	|	|	|	1.38
187.250	0.00	0.01	0.324	O	|	|	|	1.38
187.500	0.00	0.01	0.324	O	|	|	|	1.38
187.750	0.00	0.01	0.324	O	|	|	|	1.38
188.000	0.00	0.01	0.323	O	|	|	|	1.37
188.250	0.00	0.01	0.323	O	|	|	|	1.37
188.500	0.00	0.01	0.323	O	|	|	|	1.37
188.750	0.00	0.01	0.323	O	|	|	|	1.37
189.000	0.00	0.01	0.322	O	|	|	|	1.37
189.250	0.00	0.01	0.322	O	|	|	|	1.37
189.500	0.00	0.01	0.322	O	|	|	|	1.37
189.750	0.00	0.01	0.322	O	|	|	|	1.37
190.000	0.00	0.01	0.321	O	|	|	|	1.37
190.250	0.00	0.01	0.321	O	|	|	|	1.37
190.500	0.00	0.01	0.321	O	|	|	|	1.37
190.750	0.00	0.01	0.320	O	|	|	|	1.36
191.000	0.00	0.01	0.320	O	|	|	|	1.36
191.250	0.00	0.01	0.320	O	|	|	|	1.36
191.500	0.00	0.01	0.320	O	|	|	|	1.36
191.750	0.00	0.01	0.319	O	|	|	|	1.36
192.000	0.00	0.01	0.319	O	|	|	|	1.36
192.250	0.00	0.01	0.319	O	|	|	|	1.36
192.500	0.00	0.01	0.318	O	|	|	|	1.36
192.750	0.00	0.01	0.318	O	|	|	|	1.36
193.000	0.00	0.01	0.318	O	|	|	|	1.36
193.250	0.00	0.01	0.318	O	|	|	|	1.36
193.500	0.00	0.01	0.317	O	|	|	|	1.36
193.750	0.00	0.01	0.317	O	|	|	|	1.35
194.000	0.00	0.01	0.317	O	|	|	|	1.35
194.250	0.00	0.01	0.316	O	|	|	|	1.35
194.500	0.00	0.01	0.316	O	|	|	|	1.35
194.750	0.00	0.01	0.316	O	|	|	|	1.35
195.000	0.00	0.01	0.316	O	|	|	|	1.35
195.250	0.00	0.01	0.315	O	|	|	|	1.35
195.500	0.00	0.01	0.315	O	|	|	|	1.35
195.750	0.00	0.01	0.315	O	|	|	|	1.35
196.000	0.00	0.01	0.315	O	|	|	|	1.35
196.250	0.00	0.01	0.314	O	|	|	|	1.35
196.500	0.00	0.01	0.314	O	|	|	|	1.35
196.750	0.00	0.01	0.314	O	|	|	|	1.34
197.000	0.00	0.01	0.313	O	|	|	|	1.34
197.250	0.00	0.01	0.313	O	|	|	|	1.34
197.500	0.00	0.01	0.313	O	|	|	|	1.34
197.750	0.00	0.01	0.313	O	|	|	|	1.34
198.000	0.00	0.01	0.312	O	|	|	|	1.34
198.250	0.00	0.01	0.312	O	|	|	|	1.34
198.500	0.00	0.01	0.312	O	|	|	|	1.34
198.750	0.00	0.01	0.311	O	|	|	|	1.34
199.000	0.00	0.01	0.311	O	|	|	|	1.34
199.250	0.00	0.01	0.311	O	|	|	|	1.34
199.500	0.00	0.01	0.311	O	|	|	|	1.34

199.750	0.00	0.01	0.310	O	|	|	|	1.33
200.000	0.00	0.01	0.310	O	|	|	|	1.33
200.250	0.00	0.01	0.310	O	|	|	|	1.33
200.500	0.00	0.01	0.310	O	|	|	|	1.33
200.750	0.00	0.01	0.309	O	|	|	|	1.33
201.000	0.00	0.01	0.309	O	|	|	|	1.33
201.250	0.00	0.01	0.309	O	|	|	|	1.33
201.500	0.00	0.01	0.308	O	|	|	|	1.33
201.750	0.00	0.01	0.308	O	|	|	|	1.33
202.000	0.00	0.01	0.308	O	|	|	|	1.33
202.250	0.00	0.01	0.308	O	|	|	|	1.33
202.500	0.00	0.01	0.307	O	|	|	|	1.33
202.750	0.00	0.01	0.307	O	|	|	|	1.32
203.000	0.00	0.01	0.307	O	|	|	|	1.32
203.250	0.00	0.01	0.307	O	|	|	|	1.32
203.500	0.00	0.01	0.306	O	|	|	|	1.32
203.750	0.00	0.01	0.306	O	|	|	|	1.32
204.000	0.00	0.01	0.306	O	|	|	|	1.32
204.250	0.00	0.01	0.305	O	|	|	|	1.32
204.500	0.00	0.01	0.305	O	|	|	|	1.32
204.750	0.00	0.01	0.305	O	|	|	|	1.32
205.000	0.00	0.01	0.305	O	|	|	|	1.32
205.250	0.00	0.01	0.304	O	|	|	|	1.32
205.500	0.00	0.01	0.304	O	|	|	|	1.32
205.750	0.00	0.01	0.304	O	|	|	|	1.31
206.000	0.00	0.01	0.304	O	|	|	|	1.31
206.250	0.00	0.01	0.303	O	|	|	|	1.31
206.500	0.00	0.01	0.303	O	|	|	|	1.31
206.750	0.00	0.01	0.303	O	|	|	|	1.31
207.000	0.00	0.01	0.302	O	|	|	|	1.31
207.250	0.00	0.01	0.302	O	|	|	|	1.31
207.500	0.00	0.01	0.302	O	|	|	|	1.31
207.750	0.00	0.01	0.302	O	|	|	|	1.31
208.000	0.00	0.01	0.301	O	|	|	|	1.31
208.250	0.00	0.01	0.301	O	|	|	|	1.31
208.500	0.00	0.01	0.301	O	|	|	|	1.31
208.750	0.00	0.01	0.301	O	|	|	|	1.30
209.000	0.00	0.01	0.300	O	|	|	|	1.30
209.250	0.00	0.01	0.300	O	|	|	|	1.30
209.500	0.00	0.01	0.300	O	|	|	|	1.30
209.750	0.00	0.01	0.299	O	|	|	|	1.30
210.000	0.00	0.01	0.299	O	|	|	|	1.30
210.250	0.00	0.01	0.299	O	|	|	|	1.30
210.500	0.00	0.01	0.299	O	|	|	|	1.30
210.750	0.00	0.01	0.298	O	|	|	|	1.30
211.000	0.00	0.01	0.298	O	|	|	|	1.30
211.250	0.00	0.01	0.298	O	|	|	|	1.30
211.500	0.00	0.01	0.298	O	|	|	|	1.30
211.750	0.00	0.01	0.297	O	|	|	|	1.29
212.000	0.00	0.01	0.297	O	|	|	|	1.29
212.250	0.00	0.01	0.297	O	|	|	|	1.29
212.500	0.00	0.01	0.297	O	|	|	|	1.29
212.750	0.00	0.01	0.296	O	|	|	|	1.29
213.000	0.00	0.01	0.296	O	|	|	|	1.29
213.250	0.00	0.01	0.296	O	|	|	|	1.29
213.500	0.00	0.01	0.295	O	|	|	|	1.29
213.750	0.00	0.01	0.295	O	|	|	|	1.29
214.000	0.00	0.01	0.295	O	|	|	|	1.29
214.250	0.00	0.01	0.295	O	|	|	|	1.29
214.500	0.00	0.01	0.294	O	|	|	|	1.29
214.750	0.00	0.01	0.294	O	|	|	|	1.29
215.000	0.00	0.01	0.294	O	|	|	|	1.28

215.250	0.00	0.01	0.294	O	|	|	|	1.28
215.500	0.00	0.01	0.293	O	|	|	|	1.28
215.750	0.00	0.01	0.293	O	|	|	|	1.28
216.000	0.00	0.01	0.293	O	|	|	|	1.28
216.250	0.00	0.01	0.293	O	|	|	|	1.28
216.500	0.00	0.01	0.292	O	|	|	|	1.28
216.750	0.00	0.01	0.292	O	|	|	|	1.28
217.000	0.00	0.01	0.292	O	|	|	|	1.28
217.250	0.00	0.01	0.291	O	|	|	|	1.28
217.500	0.00	0.01	0.291	O	|	|	|	1.28
217.750	0.00	0.01	0.291	O	|	|	|	1.28
218.000	0.00	0.01	0.291	O	|	|	|	1.27
218.250	0.00	0.01	0.290	O	|	|	|	1.27
218.500	0.00	0.01	0.290	O	|	|	|	1.27
218.750	0.00	0.01	0.290	O	|	|	|	1.27
219.000	0.00	0.01	0.290	O	|	|	|	1.27
219.250	0.00	0.01	0.289	O	|	|	|	1.27
219.500	0.00	0.01	0.289	O	|	|	|	1.27
219.750	0.00	0.01	0.289	O	|	|	|	1.27
220.000	0.00	0.01	0.289	O	|	|	|	1.27
220.250	0.00	0.01	0.288	O	|	|	|	1.27
220.500	0.00	0.01	0.288	O	|	|	|	1.27
220.750	0.00	0.01	0.288	O	|	|	|	1.27
221.000	0.00	0.01	0.288	O	|	|	|	1.27
221.250	0.00	0.01	0.287	O	|	|	|	1.26
221.500	0.00	0.01	0.287	O	|	|	|	1.26
221.750	0.00	0.01	0.287	O	|	|	|	1.26
222.000	0.00	0.01	0.286	O	|	|	|	1.26
222.250	0.00	0.01	0.286	O	|	|	|	1.26
222.500	0.00	0.01	0.286	O	|	|	|	1.26
222.750	0.00	0.01	0.286	O	|	|	|	1.26
223.000	0.00	0.01	0.285	O	|	|	|	1.26
223.250	0.00	0.01	0.285	O	|	|	|	1.26
223.500	0.00	0.01	0.285	O	|	|	|	1.26
223.750	0.00	0.01	0.285	O	|	|	|	1.26
224.000	0.00	0.01	0.284	O	|	|	|	1.26
224.250	0.00	0.01	0.284	O	|	|	|	1.25
224.500	0.00	0.01	0.284	O	|	|	|	1.25
224.750	0.00	0.01	0.284	O	|	|	|	1.25
225.000	0.00	0.01	0.283	O	|	|	|	1.25
225.250	0.00	0.01	0.283	O	|	|	|	1.25
225.500	0.00	0.01	0.283	O	|	|	|	1.25
225.750	0.00	0.01	0.283	O	|	|	|	1.25
226.000	0.00	0.01	0.282	O	|	|	|	1.25
226.250	0.00	0.01	0.282	O	|	|	|	1.25
226.500	0.00	0.01	0.282	O	|	|	|	1.25
226.750	0.00	0.01	0.282	O	|	|	|	1.25
227.000	0.00	0.01	0.281	O	|	|	|	1.25
227.250	0.00	0.01	0.281	O	|	|	|	1.25
227.500	0.00	0.01	0.281	O	|	|	|	1.24
227.750	0.00	0.01	0.281	O	|	|	|	1.24
228.000	0.00	0.01	0.280	O	|	|	|	1.24
228.250	0.00	0.01	0.280	O	|	|	|	1.24
228.500	0.00	0.01	0.280	O	|	|	|	1.24
228.750	0.00	0.01	0.279	O	|	|	|	1.24
229.000	0.00	0.01	0.279	O	|	|	|	1.24
229.250	0.00	0.01	0.279	O	|	|	|	1.24
229.500	0.00	0.01	0.279	O	|	|	|	1.24
229.750	0.00	0.01	0.278	O	|	|	|	1.24
230.000	0.00	0.01	0.278	O	|	|	|	1.24
230.250	0.00	0.01	0.278	O	|	|	|	1.24
230.500	0.00	0.01	0.278	O	|	|	|	1.24

230.750	0.00	0.01	0.277	O	|	|	|	1.23
231.000	0.00	0.01	0.277	O	|	|	|	1.23
231.250	0.00	0.01	0.277	O	|	|	|	1.23
231.500	0.00	0.01	0.277	O	|	|	|	1.23
231.750	0.00	0.01	0.276	O	|	|	|	1.23
232.000	0.00	0.01	0.276	O	|	|	|	1.23
232.250	0.00	0.01	0.276	O	|	|	|	1.23
232.500	0.00	0.01	0.276	O	|	|	|	1.23
232.750	0.00	0.01	0.275	O	|	|	|	1.23
233.000	0.00	0.01	0.275	O	|	|	|	1.23
233.250	0.00	0.01	0.275	O	|	|	|	1.23
233.500	0.00	0.01	0.275	O	|	|	|	1.23
233.750	0.00	0.01	0.274	O	|	|	|	1.23
234.000	0.00	0.01	0.274	O	|	|	|	1.22
234.250	0.00	0.01	0.274	O	|	|	|	1.22
234.500	0.00	0.01	0.274	O	|	|	|	1.22
234.750	0.00	0.01	0.273	O	|	|	|	1.22
235.000	0.00	0.01	0.273	O	|	|	|	1.22
235.250	0.00	0.01	0.273	O	|	|	|	1.22
235.500	0.00	0.01	0.273	O	|	|	|	1.22
235.750	0.00	0.01	0.272	O	|	|	|	1.22
236.000	0.00	0.01	0.272	O	|	|	|	1.22
236.250	0.00	0.01	0.272	O	|	|	|	1.22
236.500	0.00	0.01	0.272	O	|	|	|	1.22
236.750	0.00	0.01	0.271	O	|	|	|	1.22
237.000	0.00	0.01	0.271	O	|	|	|	1.22
237.250	0.00	0.01	0.271	O	|	|	|	1.21
237.500	0.00	0.01	0.271	O	|	|	|	1.21
237.750	0.00	0.01	0.270	O	|	|	|	1.21
238.000	0.00	0.01	0.270	O	|	|	|	1.21
238.250	0.00	0.01	0.270	O	|	|	|	1.21
238.500	0.00	0.01	0.270	O	|	|	|	1.21
238.750	0.00	0.01	0.269	O	|	|	|	1.21
239.000	0.00	0.01	0.269	O	|	|	|	1.21
239.250	0.00	0.01	0.269	O	|	|	|	1.21
239.500	0.00	0.01	0.269	O	|	|	|	1.21
239.750	0.00	0.01	0.268	O	|	|	|	1.21
240.000	0.00	0.01	0.268	O	|	|	|	1.21
240.250	0.00	0.01	0.268	O	|	|	|	1.21
240.500	0.00	0.01	0.268	O	|	|	|	1.20
240.750	0.00	0.01	0.267	O	|	|	|	1.20
241.000	0.00	0.01	0.267	O	|	|	|	1.20
241.250	0.00	0.01	0.267	O	|	|	|	1.20
241.500	0.00	0.01	0.267	O	|	|	|	1.20
241.750	0.00	0.01	0.266	O	|	|	|	1.20
242.000	0.00	0.01	0.266	O	|	|	|	1.20
242.250	0.00	0.01	0.266	O	|	|	|	1.20
242.500	0.00	0.01	0.266	O	|	|	|	1.20
242.750	0.00	0.01	0.265	O	|	|	|	1.20
243.000	0.00	0.01	0.265	O	|	|	|	1.20
243.250	0.00	0.01	0.265	O	|	|	|	1.20
243.500	0.00	0.01	0.265	O	|	|	|	1.20
243.750	0.00	0.01	0.264	O	|	|	|	1.20
244.000	0.00	0.01	0.264	O	|	|	|	1.19
244.250	0.00	0.01	0.264	O	|	|	|	1.19
244.500	0.00	0.01	0.264	O	|	|	|	1.19
244.750	0.00	0.01	0.263	O	|	|	|	1.19
245.000	0.00	0.01	0.263	O	|	|	|	1.19
245.250	0.00	0.01	0.263	O	|	|	|	1.19
245.500	0.00	0.01	0.263	O	|	|	|	1.19
245.750	0.00	0.01	0.262	O	|	|	|	1.19
246.000	0.00	0.01	0.262	O	|	|	|	1.19

246.250	0.00	0.01	0.262	O	|	|	|	1.19
246.500	0.00	0.01	0.262	O	|	|	|	1.19
246.750	0.00	0.01	0.261	O	|	|	|	1.19
247.000	0.00	0.01	0.261	O	|	|	|	1.19
247.250	0.00	0.01	0.261	O	|	|	|	1.18
247.500	0.00	0.01	0.261	O	|	|	|	1.18
247.750	0.00	0.01	0.260	O	|	|	|	1.18
248.000	0.00	0.01	0.260	O	|	|	|	1.18
248.250	0.00	0.01	0.260	O	|	|	|	1.18
248.500	0.00	0.01	0.260	O	|	|	|	1.18
248.750	0.00	0.01	0.259	O	|	|	|	1.18
249.000	0.00	0.01	0.259	O	|	|	|	1.18
249.250	0.00	0.01	0.259	O	|	|	|	1.18
249.500	0.00	0.01	0.259	O	|	|	|	1.18
249.750	0.00	0.01	0.259	O	|	|	|	1.18
250.000	0.00	0.01	0.258	O	|	|	|	1.18
250.250	0.00	0.01	0.258	O	|	|	|	1.18
250.500	0.00	0.01	0.258	O	|	|	|	1.18
250.750	0.00	0.01	0.258	O	|	|	|	1.17
251.000	0.00	0.01	0.257	O	|	|	|	1.17
251.250	0.00	0.01	0.257	O	|	|	|	1.17
251.500	0.00	0.01	0.257	O	|	|	|	1.17
251.750	0.00	0.01	0.257	O	|	|	|	1.17
252.000	0.00	0.01	0.256	O	|	|	|	1.17
252.250	0.00	0.01	0.256	O	|	|	|	1.17
252.500	0.00	0.01	0.256	O	|	|	|	1.17
252.750	0.00	0.01	0.256	O	|	|	|	1.17
253.000	0.00	0.01	0.255	O	|	|	|	1.17
253.250	0.00	0.01	0.255	O	|	|	|	1.17
253.500	0.00	0.01	0.255	O	|	|	|	1.17
253.750	0.00	0.01	0.255	O	|	|	|	1.17
254.000	0.00	0.01	0.254	O	|	|	|	1.16
254.250	0.00	0.01	0.254	O	|	|	|	1.16
254.500	0.00	0.01	0.254	O	|	|	|	1.16
254.750	0.00	0.01	0.254	O	|	|	|	1.16
255.000	0.00	0.01	0.253	O	|	|	|	1.16
255.250	0.00	0.01	0.253	O	|	|	|	1.16
255.500	0.00	0.01	0.253	O	|	|	|	1.16
255.750	0.00	0.01	0.253	O	|	|	|	1.16
256.000	0.00	0.01	0.252	O	|	|	|	1.16
256.250	0.00	0.01	0.252	O	|	|	|	1.16
256.500	0.00	0.01	0.252	O	|	|	|	1.16
256.750	0.00	0.01	0.252	O	|	|	|	1.16
257.000	0.00	0.01	0.252	O	|	|	|	1.16
257.250	0.00	0.01	0.251	O	|	|	|	1.16
257.500	0.00	0.01	0.251	O	|	|	|	1.15
257.750	0.00	0.01	0.251	O	|	|	|	1.15
258.000	0.00	0.01	0.251	O	|	|	|	1.15
258.250	0.00	0.01	0.250	O	|	|	|	1.15
258.500	0.00	0.01	0.250	O	|	|	|	1.15
258.750	0.00	0.01	0.250	O	|	|	|	1.15
259.000	0.00	0.01	0.250	O	|	|	|	1.15
259.250	0.00	0.01	0.249	O	|	|	|	1.15
259.500	0.00	0.01	0.249	O	|	|	|	1.15
259.750	0.00	0.01	0.249	O	|	|	|	1.15
260.000	0.00	0.01	0.249	O	|	|	|	1.15
260.250	0.00	0.01	0.248	O	|	|	|	1.15
260.500	0.00	0.01	0.248	O	|	|	|	1.15
260.750	0.00	0.01	0.248	O	|	|	|	1.15
261.000	0.00	0.01	0.248	O	|	|	|	1.14
261.250	0.00	0.01	0.247	O	|	|	|	1.14
261.500	0.00	0.01	0.247	O	|	|	|	1.14

261.750	0.00	0.01	0.247	O	|	|	|	1.14
262.000	0.00	0.01	0.247	O	|	|	|	1.14
262.250	0.00	0.01	0.247	O	|	|	|	1.14
262.500	0.00	0.01	0.246	O	|	|	|	1.14
262.750	0.00	0.01	0.246	O	|	|	|	1.14
263.000	0.00	0.01	0.246	O	|	|	|	1.14
263.250	0.00	0.01	0.246	O	|	|	|	1.14
263.500	0.00	0.01	0.245	O	|	|	|	1.14
263.750	0.00	0.01	0.245	O	|	|	|	1.14
264.000	0.00	0.01	0.245	O	|	|	|	1.14
264.250	0.00	0.01	0.245	O	|	|	|	1.14
264.500	0.00	0.01	0.244	O	|	|	|	1.13
264.750	0.00	0.01	0.244	O	|	|	|	1.13
265.000	0.00	0.01	0.244	O	|	|	|	1.13
265.250	0.00	0.01	0.244	O	|	|	|	1.13
265.500	0.00	0.01	0.243	O	|	|	|	1.13
265.750	0.00	0.01	0.243	O	|	|	|	1.13
266.000	0.00	0.01	0.243	O	|	|	|	1.13
266.250	0.00	0.01	0.243	O	|	|	|	1.13
266.500	0.00	0.01	0.243	O	|	|	|	1.13
266.750	0.00	0.01	0.242	O	|	|	|	1.13
267.000	0.00	0.01	0.242	O	|	|	|	1.13
267.250	0.00	0.01	0.242	O	|	|	|	1.13
267.500	0.00	0.01	0.242	O	|	|	|	1.13
267.750	0.00	0.01	0.241	O	|	|	|	1.13
268.000	0.00	0.01	0.241	O	|	|	|	1.12
268.250	0.00	0.01	0.241	O	|	|	|	1.12
268.500	0.00	0.01	0.241	O	|	|	|	1.12
268.750	0.00	0.01	0.240	O	|	|	|	1.12
269.000	0.00	0.01	0.240	O	|	|	|	1.12
269.250	0.00	0.01	0.240	O	|	|	|	1.12
269.500	0.00	0.01	0.240	O	|	|	|	1.12
269.750	0.00	0.01	0.240	O	|	|	|	1.12
270.000	0.00	0.01	0.239	O	|	|	|	1.12
270.250	0.00	0.01	0.239	O	|	|	|	1.12
270.500	0.00	0.01	0.239	O	|	|	|	1.12
270.750	0.00	0.01	0.239	O	|	|	|	1.12
271.000	0.00	0.01	0.238	O	|	|	|	1.12
271.250	0.00	0.01	0.238	O	|	|	|	1.12
271.500	0.00	0.01	0.238	O	|	|	|	1.11
271.750	0.00	0.01	0.238	O	|	|	|	1.11
272.000	0.00	0.01	0.237	O	|	|	|	1.11
272.250	0.00	0.01	0.237	O	|	|	|	1.11
272.500	0.00	0.01	0.237	O	|	|	|	1.11
272.750	0.00	0.01	0.237	O	|	|	|	1.11
273.000	0.00	0.01	0.237	O	|	|	|	1.11
273.250	0.00	0.01	0.236	O	|	|	|	1.11
273.500	0.00	0.01	0.236	O	|	|	|	1.11
273.750	0.00	0.01	0.236	O	|	|	|	1.11
274.000	0.00	0.01	0.236	O	|	|	|	1.11
274.250	0.00	0.01	0.235	O	|	|	|	1.11
274.500	0.00	0.01	0.235	O	|	|	|	1.11
274.750	0.00	0.01	0.235	O	|	|	|	1.11
275.000	0.00	0.01	0.235	O	|	|	|	1.11
275.250	0.00	0.01	0.234	O	|	|	|	1.10
275.500	0.00	0.01	0.234	O	|	|	|	1.10
275.750	0.00	0.01	0.234	O	|	|	|	1.10
276.000	0.00	0.01	0.234	O	|	|	|	1.10
276.250	0.00	0.01	0.234	O	|	|	|	1.10
276.500	0.00	0.01	0.233	O	|	|	|	1.10
276.750	0.00	0.01	0.233	O	|	|	|	1.10
277.000	0.00	0.01	0.233	O	|	|	|	1.10

277.250	0.00	0.01	0.233	O	|	|	|	1.10
277.500	0.00	0.01	0.232	O	|	|	|	1.10
277.750	0.00	0.01	0.232	O	|	|	|	1.10
278.000	0.00	0.01	0.232	O	|	|	|	1.10
278.250	0.00	0.01	0.232	O	|	|	|	1.10
278.500	0.00	0.01	0.232	O	|	|	|	1.10
278.750	0.00	0.01	0.231	O	|	|	|	1.09
279.000	0.00	0.01	0.231	O	|	|	|	1.09
279.250	0.00	0.01	0.231	O	|	|	|	1.09
279.500	0.00	0.01	0.231	O	|	|	|	1.09
279.750	0.00	0.01	0.230	O	|	|	|	1.09
280.000	0.00	0.01	0.230	O	|	|	|	1.09
280.250	0.00	0.01	0.230	O	|	|	|	1.09
280.500	0.00	0.01	0.230	O	|	|	|	1.09
280.750	0.00	0.01	0.229	O	|	|	|	1.09
281.000	0.00	0.01	0.229	O	|	|	|	1.09
281.250	0.00	0.01	0.229	O	|	|	|	1.09
281.500	0.00	0.01	0.229	O	|	|	|	1.09
281.750	0.00	0.01	0.229	O	|	|	|	1.09
282.000	0.00	0.01	0.228	O	|	|	|	1.09
282.250	0.00	0.01	0.228	O	|	|	|	1.09
282.500	0.00	0.01	0.228	O	|	|	|	1.08
282.750	0.00	0.01	0.228	O	|	|	|	1.08
283.000	0.00	0.01	0.227	O	|	|	|	1.08
283.250	0.00	0.01	0.227	O	|	|	|	1.08
283.500	0.00	0.01	0.227	O	|	|	|	1.08
283.750	0.00	0.01	0.227	O	|	|	|	1.08
284.000	0.00	0.01	0.227	O	|	|	|	1.08
284.250	0.00	0.01	0.226	O	|	|	|	1.08
284.500	0.00	0.01	0.226	O	|	|	|	1.08
284.750	0.00	0.01	0.226	O	|	|	|	1.08
285.000	0.00	0.01	0.226	O	|	|	|	1.08
285.250	0.00	0.01	0.225	O	|	|	|	1.08
285.500	0.00	0.01	0.225	O	|	|	|	1.08
285.750	0.00	0.01	0.225	O	|	|	|	1.08
286.000	0.00	0.01	0.225	O	|	|	|	1.08
286.250	0.00	0.01	0.225	O	|	|	|	1.07
286.500	0.00	0.01	0.224	O	|	|	|	1.07
286.750	0.00	0.01	0.224	O	|	|	|	1.07
287.000	0.00	0.01	0.224	O	|	|	|	1.07
287.250	0.00	0.01	0.224	O	|	|	|	1.07
287.500	0.00	0.01	0.223	O	|	|	|	1.07
287.750	0.00	0.01	0.223	O	|	|	|	1.07
288.000	0.00	0.01	0.223	O	|	|	|	1.07
288.250	0.00	0.01	0.223	O	|	|	|	1.07
288.500	0.00	0.01	0.223	O	|	|	|	1.07
288.750	0.00	0.01	0.222	O	|	|	|	1.07
289.000	0.00	0.01	0.222	O	|	|	|	1.07
289.250	0.00	0.01	0.222	O	|	|	|	1.07
289.500	0.00	0.01	0.222	O	|	|	|	1.07
289.750	0.00	0.01	0.221	O	|	|	|	1.07
290.000	0.00	0.01	0.221	O	|	|	|	1.06
290.250	0.00	0.01	0.221	O	|	|	|	1.06
290.500	0.00	0.01	0.221	O	|	|	|	1.06
290.750	0.00	0.01	0.221	O	|	|	|	1.06
291.000	0.00	0.01	0.220	O	|	|	|	1.06
291.250	0.00	0.01	0.220	O	|	|	|	1.06
291.500	0.00	0.01	0.220	O	|	|	|	1.06
291.750	0.00	0.01	0.220	O	|	|	|	1.06
292.000	0.00	0.01	0.220	O	|	|	|	1.06
292.250	0.00	0.01	0.219	O	|	|	|	1.06
292.500	0.00	0.01	0.219	O	|	|	|	1.06

292.750	0.00	0.01	0.219	O	|	|	|	1.06
293.000	0.00	0.01	0.219	O	|	|	|	1.06
293.250	0.00	0.01	0.218	O	|	|	|	1.06
293.500	0.00	0.01	0.218	O	|	|	|	1.06
293.750	0.00	0.01	0.218	O	|	|	|	1.05
294.000	0.00	0.01	0.218	O	|	|	|	1.05
294.250	0.00	0.01	0.218	O	|	|	|	1.05
294.500	0.00	0.01	0.217	O	|	|	|	1.05
294.750	0.00	0.01	0.217	O	|	|	|	1.05
295.000	0.00	0.01	0.217	O	|	|	|	1.05
295.250	0.00	0.01	0.217	O	|	|	|	1.05
295.500	0.00	0.01	0.216	O	|	|	|	1.05
295.750	0.00	0.01	0.216	O	|	|	|	1.05
296.000	0.00	0.01	0.216	O	|	|	|	1.05
296.250	0.00	0.01	0.216	O	|	|	|	1.05
296.500	0.00	0.01	0.216	O	|	|	|	1.05
296.750	0.00	0.01	0.215	O	|	|	|	1.05
297.000	0.00	0.01	0.215	O	|	|	|	1.05
297.250	0.00	0.01	0.215	O	|	|	|	1.05
297.500	0.00	0.01	0.215	O	|	|	|	1.04
297.750	0.00	0.01	0.215	O	|	|	|	1.04
298.000	0.00	0.01	0.214	O	|	|	|	1.04
298.250	0.00	0.01	0.214	O	|	|	|	1.04
298.500	0.00	0.01	0.214	O	|	|	|	1.04
298.750	0.00	0.01	0.214	O	|	|	|	1.04
299.000	0.00	0.01	0.213	O	|	|	|	1.04
299.250	0.00	0.01	0.213	O	|	|	|	1.04
299.500	0.00	0.01	0.213	O	|	|	|	1.04
299.750	0.00	0.01	0.213	O	|	|	|	1.04
300.000	0.00	0.01	0.213	O	|	|	|	1.04
300.250	0.00	0.01	0.212	O	|	|	|	1.04
300.500	0.00	0.01	0.212	O	|	|	|	1.04
300.750	0.00	0.01	0.212	O	|	|	|	1.04
301.000	0.00	0.01	0.212	O	|	|	|	1.04
301.250	0.00	0.01	0.212	O	|	|	|	1.03
301.500	0.00	0.01	0.211	O	|	|	|	1.03
301.750	0.00	0.01	0.211	O	|	|	|	1.03
302.000	0.00	0.01	0.211	O	|	|	|	1.03
302.250	0.00	0.01	0.211	O	|	|	|	1.03
302.500	0.00	0.01	0.210	O	|	|	|	1.03
302.750	0.00	0.01	0.210	O	|	|	|	1.03
303.000	0.00	0.01	0.210	O	|	|	|	1.03
303.250	0.00	0.01	0.210	O	|	|	|	1.03
303.500	0.00	0.01	0.210	O	|	|	|	1.03
303.750	0.00	0.01	0.209	O	|	|	|	1.03
304.000	0.00	0.01	0.209	O	|	|	|	1.03
304.250	0.00	0.01	0.209	O	|	|	|	1.03
304.500	0.00	0.01	0.209	O	|	|	|	1.03
304.750	0.00	0.01	0.209	O	|	|	|	1.03
305.000	0.00	0.01	0.208	O	|	|	|	1.03
305.250	0.00	0.01	0.208	O	|	|	|	1.02
305.500	0.00	0.01	0.208	O	|	|	|	1.02
305.750	0.00	0.01	0.208	O	|	|	|	1.02
306.000	0.00	0.01	0.207	O	|	|	|	1.02
306.250	0.00	0.01	0.207	O	|	|	|	1.02
306.500	0.00	0.01	0.207	O	|	|	|	1.02
306.750	0.00	0.01	0.207	O	|	|	|	1.02
307.000	0.00	0.01	0.207	O	|	|	|	1.02
307.250	0.00	0.01	0.206	O	|	|	|	1.02
307.500	0.00	0.01	0.206	O	|	|	|	1.02
307.750	0.00	0.01	0.206	O	|	|	|	1.02
308.000	0.00	0.01	0.206	O	|	|	|	1.02

308.250	0.00	0.01	0.206	O	|	|	|	1.02
308.500	0.00	0.01	0.205	O	|	|	|	1.02
308.750	0.00	0.01	0.205	O	|	|	|	1.02
309.000	0.00	0.01	0.205	O	|	|	|	1.01
309.250	0.00	0.01	0.205	O	|	|	|	1.01
309.500	0.00	0.01	0.205	O	|	|	|	1.01
309.750	0.00	0.01	0.204	O	|	|	|	1.01
310.000	0.00	0.01	0.204	O	|	|	|	1.01
310.250	0.00	0.01	0.204	O	|	|	|	1.01
310.500	0.00	0.01	0.204	O	|	|	|	1.01
310.750	0.00	0.01	0.203	O	|	|	|	1.01
311.000	0.00	0.01	0.203	O	|	|	|	1.01
311.250	0.00	0.01	0.203	O	|	|	|	1.01
311.500	0.00	0.01	0.203	O	|	|	|	1.01
311.750	0.00	0.01	0.203	O	|	|	|	1.01
312.000	0.00	0.01	0.202	O	|	|	|	1.01
312.250	0.00	0.01	0.202	O	|	|	|	1.01
312.500	0.00	0.01	0.202	O	|	|	|	1.01
312.750	0.00	0.01	0.202	O	|	|	|	1.01
313.000	0.00	0.01	0.202	O	|	|	|	1.00
313.250	0.00	0.01	0.201	O	|	|	|	1.00
313.500	0.00	0.01	0.201	O	|	|	|	1.00
313.750	0.00	0.01	0.201	O	|	|	|	1.00
314.000	0.00	0.01	0.201	O	|	|	|	1.00
314.250	0.00	0.01	0.201	O	|	|	|	1.00
314.500	0.00	0.01	0.200	O	|	|	|	1.00
314.750	0.00	0.01	0.200	O	|	|	|	1.00
315.000	0.00	0.01	0.200	O	|	|	|	1.00
315.250	0.00	0.01	0.200	O	|	|	|	1.00
315.500	0.00	0.01	0.200	O	|	|	|	1.00
315.750	0.00	0.01	0.199	O	|	|	|	1.00
316.000	0.00	0.01	0.199	O	|	|	|	1.00
316.250	0.00	0.01	0.199	O	|	|	|	0.99
316.500	0.00	0.01	0.199	O	|	|	|	0.99
316.750	0.00	0.01	0.199	O	|	|	|	0.99
317.000	0.00	0.01	0.198	O	|	|	|	0.99
317.250	0.00	0.01	0.198	O	|	|	|	0.99
317.500	0.00	0.01	0.198	O	|	|	|	0.99
317.750	0.00	0.01	0.198	O	|	|	|	0.99
318.000	0.00	0.01	0.197	O	|	|	|	0.99
318.250	0.00	0.01	0.197	O	|	|	|	0.99
318.500	0.00	0.01	0.197	O	|	|	|	0.99
318.750	0.00	0.01	0.197	O	|	|	|	0.98
319.000	0.00	0.01	0.197	O	|	|	|	0.98
319.250	0.00	0.01	0.196	O	|	|	|	0.98
319.500	0.00	0.01	0.196	O	|	|	|	0.98
319.750	0.00	0.01	0.196	O	|	|	|	0.98
320.000	0.00	0.01	0.196	O	|	|	|	0.98
320.250	0.00	0.01	0.196	O	|	|	|	0.98
320.500	0.00	0.01	0.195	O	|	|	|	0.98
320.750	0.00	0.01	0.195	O	|	|	|	0.98
321.000	0.00	0.01	0.195	O	|	|	|	0.98
321.250	0.00	0.01	0.195	O	|	|	|	0.97
321.500	0.00	0.01	0.195	O	|	|	|	0.97
321.750	0.00	0.01	0.194	O	|	|	|	0.97
322.000	0.00	0.01	0.194	O	|	|	|	0.97
322.250	0.00	0.01	0.194	O	|	|	|	0.97
322.500	0.00	0.01	0.194	O	|	|	|	0.97
322.750	0.00	0.01	0.194	O	|	|	|	0.97
323.000	0.00	0.01	0.193	O	|	|	|	0.97
323.250	0.00	0.01	0.193	O	|	|	|	0.97
323.500	0.00	0.01	0.193	O	|	|	|	0.97

323.750	0.00	0.01	0.193	O	|	|	|	0.96
324.000	0.00	0.01	0.193	O	|	|	|	0.96
324.250	0.00	0.01	0.192	O	|	|	|	0.96
324.500	0.00	0.01	0.192	O	|	|	|	0.96
324.750	0.00	0.01	0.192	O	|	|	|	0.96
325.000	0.00	0.01	0.192	O	|	|	|	0.96
325.250	0.00	0.01	0.192	O	|	|	|	0.96
325.500	0.00	0.01	0.191	O	|	|	|	0.96
325.750	0.00	0.01	0.191	O	|	|	|	0.96
326.000	0.00	0.01	0.191	O	|	|	|	0.96
326.250	0.00	0.01	0.191	O	|	|	|	0.95
326.500	0.00	0.01	0.191	O	|	|	|	0.95
326.750	0.00	0.01	0.190	O	|	|	|	0.95
327.000	0.00	0.01	0.190	O	|	|	|	0.95
327.250	0.00	0.01	0.190	O	|	|	|	0.95
327.500	0.00	0.01	0.190	O	|	|	|	0.95
327.750	0.00	0.01	0.190	O	|	|	|	0.95
328.000	0.00	0.01	0.189	O	|	|	|	0.95
328.250	0.00	0.01	0.189	O	|	|	|	0.95
328.500	0.00	0.01	0.189	O	|	|	|	0.95
328.750	0.00	0.01	0.189	O	|	|	|	0.94
329.000	0.00	0.01	0.189	O	|	|	|	0.94
329.250	0.00	0.01	0.189	O	|	|	|	0.94
329.500	0.00	0.01	0.188	O	|	|	|	0.94
329.750	0.00	0.01	0.188	O	|	|	|	0.94
330.000	0.00	0.01	0.188	O	|	|	|	0.94
330.250	0.00	0.01	0.188	O	|	|	|	0.94
330.500	0.00	0.01	0.188	O	|	|	|	0.94
330.750	0.00	0.01	0.187	O	|	|	|	0.94
331.000	0.00	0.01	0.187	O	|	|	|	0.94
331.250	0.00	0.01	0.187	O	|	|	|	0.93
331.500	0.00	0.01	0.187	O	|	|	|	0.93
331.750	0.00	0.01	0.187	O	|	|	|	0.93
332.000	0.00	0.01	0.186	O	|	|	|	0.93
332.250	0.00	0.01	0.186	O	|	|	|	0.93
332.500	0.00	0.01	0.186	O	|	|	|	0.93
332.750	0.00	0.01	0.186	O	|	|	|	0.93
333.000	0.00	0.01	0.186	O	|	|	|	0.93
333.250	0.00	0.01	0.185	O	|	|	|	0.93
333.500	0.00	0.01	0.185	O	|	|	|	0.93
333.750	0.00	0.01	0.185	O	|	|	|	0.93
334.000	0.00	0.01	0.185	O	|	|	|	0.92
334.250	0.00	0.01	0.185	O	|	|	|	0.92
334.500	0.00	0.01	0.184	O	|	|	|	0.92
334.750	0.00	0.01	0.184	O	|	|	|	0.92
335.000	0.00	0.01	0.184	O	|	|	|	0.92
335.250	0.00	0.01	0.184	O	|	|	|	0.92
335.500	0.00	0.01	0.184	O	|	|	|	0.92
335.750	0.00	0.01	0.184	O	|	|	|	0.92
336.000	0.00	0.01	0.183	O	|	|	|	0.92
336.250	0.00	0.01	0.183	O	|	|	|	0.92
336.500	0.00	0.01	0.183	O	|	|	|	0.91
336.750	0.00	0.01	0.183	O	|	|	|	0.91
337.000	0.00	0.01	0.183	O	|	|	|	0.91
337.250	0.00	0.01	0.182	O	|	|	|	0.91
337.500	0.00	0.01	0.182	O	|	|	|	0.91
337.750	0.00	0.01	0.182	O	|	|	|	0.91
338.000	0.00	0.01	0.182	O	|	|	|	0.91
338.250	0.00	0.01	0.182	O	|	|	|	0.91
338.500	0.00	0.01	0.181	O	|	|	|	0.91
338.750	0.00	0.01	0.181	O	|	|	|	0.91
339.000	0.00	0.01	0.181	O	|	|	|	0.91

339.250	0.00	0.01	0.181	O	|	|	|	0.90
339.500	0.00	0.01	0.181	O	|	|	|	0.90
339.750	0.00	0.01	0.181	O	|	|	|	0.90
340.000	0.00	0.01	0.180	O	|	|	|	0.90
340.250	0.00	0.01	0.180	O	|	|	|	0.90
340.500	0.00	0.01	0.180	O	|	|	|	0.90
340.750	0.00	0.01	0.180	O	|	|	|	0.90
341.000	0.00	0.01	0.180	O	|	|	|	0.90
341.250	0.00	0.01	0.179	O	|	|	|	0.90
341.500	0.00	0.01	0.179	O	|	|	|	0.90
341.750	0.00	0.01	0.179	O	|	|	|	0.90
342.000	0.00	0.01	0.179	O	|	|	|	0.89
342.250	0.00	0.01	0.179	O	|	|	|	0.89
342.500	0.00	0.01	0.178	O	|	|	|	0.89
342.750	0.00	0.01	0.178	O	|	|	|	0.89
343.000	0.00	0.01	0.178	O	|	|	|	0.89
343.250	0.00	0.01	0.178	O	|	|	|	0.89
343.500	0.00	0.01	0.178	O	|	|	|	0.89
343.750	0.00	0.01	0.178	O	|	|	|	0.89
344.000	0.00	0.01	0.177	O	|	|	|	0.89
344.250	0.00	0.01	0.177	O	|	|	|	0.89
344.500	0.00	0.01	0.177	O	|	|	|	0.89
344.750	0.00	0.01	0.177	O	|	|	|	0.88
345.000	0.00	0.01	0.177	O	|	|	|	0.88
345.250	0.00	0.01	0.176	O	|	|	|	0.88
345.500	0.00	0.01	0.176	O	|	|	|	0.88
345.750	0.00	0.01	0.176	O	|	|	|	0.88
346.000	0.00	0.01	0.176	O	|	|	|	0.88
346.250	0.00	0.01	0.176	O	|	|	|	0.88
346.500	0.00	0.01	0.176	O	|	|	|	0.88
346.750	0.00	0.01	0.175	O	|	|	|	0.88
347.000	0.00	0.01	0.175	O	|	|	|	0.88
347.250	0.00	0.01	0.175	O	|	|	|	0.88
347.500	0.00	0.01	0.175	O	|	|	|	0.87
347.750	0.00	0.01	0.175	O	|	|	|	0.87
348.000	0.00	0.01	0.174	O	|	|	|	0.87
348.250	0.00	0.01	0.174	O	|	|	|	0.87
348.500	0.00	0.01	0.174	O	|	|	|	0.87
348.750	0.00	0.01	0.174	O	|	|	|	0.87
349.000	0.00	0.01	0.174	O	|	|	|	0.87
349.250	0.00	0.01	0.174	O	|	|	|	0.87
349.500	0.00	0.01	0.173	O	|	|	|	0.87
349.750	0.00	0.01	0.173	O	|	|	|	0.87
350.000	0.00	0.01	0.173	O	|	|	|	0.87
350.250	0.00	0.01	0.173	O	|	|	|	0.86
350.500	0.00	0.01	0.173	O	|	|	|	0.86
350.750	0.00	0.01	0.172	O	|	|	|	0.86
351.000	0.00	0.01	0.172	O	|	|	|	0.86
351.250	0.00	0.01	0.172	O	|	|	|	0.86
351.500	0.00	0.01	0.172	O	|	|	|	0.86
351.750	0.00	0.01	0.172	O	|	|	|	0.86
352.000	0.00	0.01	0.172	O	|	|	|	0.86
352.250	0.00	0.01	0.171	O	|	|	|	0.86
352.500	0.00	0.01	0.171	O	|	|	|	0.86
352.750	0.00	0.01	0.171	O	|	|	|	0.86
353.000	0.00	0.01	0.171	O	|	|	|	0.85
353.250	0.00	0.01	0.171	O	|	|	|	0.85
353.500	0.00	0.01	0.171	O	|	|	|	0.85
353.750	0.00	0.01	0.170	O	|	|	|	0.85
354.000	0.00	0.01	0.170	O	|	|	|	0.85
354.250	0.00	0.01	0.170	O	|	|	|	0.85
354.500	0.00	0.01	0.170	O	|	|	|	0.85

354.750	0.00	0.01	0.170	O	|	|	|	0.85
355.000	0.00	0.01	0.169	O	|	|	|	0.85
355.250	0.00	0.01	0.169	O	|	|	|	0.85
355.500	0.00	0.01	0.169	O	|	|	|	0.85
355.750	0.00	0.01	0.169	O	|	|	|	0.84
356.000	0.00	0.01	0.169	O	|	|	|	0.84
356.250	0.00	0.01	0.169	O	|	|	|	0.84
356.500	0.00	0.01	0.168	O	|	|	|	0.84
356.750	0.00	0.01	0.168	O	|	|	|	0.84
357.000	0.00	0.01	0.168	O	|	|	|	0.84
357.250	0.00	0.01	0.168	O	|	|	|	0.84
357.500	0.00	0.01	0.168	O	|	|	|	0.84
357.750	0.00	0.01	0.168	O	|	|	|	0.84
358.000	0.00	0.01	0.167	O	|	|	|	0.84
358.250	0.00	0.01	0.167	O	|	|	|	0.84
358.500	0.00	0.01	0.167	O	|	|	|	0.84
358.750	0.00	0.01	0.167	O	|	|	|	0.83
359.000	0.00	0.01	0.167	O	|	|	|	0.83
359.250	0.00	0.01	0.167	O	|	|	|	0.83
359.500	0.00	0.01	0.166	O	|	|	|	0.83
359.750	0.00	0.01	0.166	O	|	|	|	0.83
360.000	0.00	0.01	0.166	O	|	|	|	0.83
360.250	0.00	0.01	0.166	O	|	|	|	0.83
360.500	0.00	0.01	0.166	O	|	|	|	0.83
360.750	0.00	0.01	0.166	O	|	|	|	0.83
361.000	0.00	0.01	0.165	O	|	|	|	0.83
361.250	0.00	0.01	0.165	O	|	|	|	0.83
361.500	0.00	0.01	0.165	O	|	|	|	0.82
361.750	0.00	0.01	0.165	O	|	|	|	0.82
362.000	0.00	0.01	0.165	O	|	|	|	0.82
362.250	0.00	0.01	0.164	O	|	|	|	0.82
362.500	0.00	0.01	0.164	O	|	|	|	0.82
362.750	0.00	0.01	0.164	O	|	|	|	0.82
363.000	0.00	0.01	0.164	O	|	|	|	0.82
363.250	0.00	0.01	0.164	O	|	|	|	0.82
363.500	0.00	0.01	0.164	O	|	|	|	0.82
363.750	0.00	0.01	0.163	O	|	|	|	0.82
364.000	0.00	0.01	0.163	O	|	|	|	0.82
364.250	0.00	0.01	0.163	O	|	|	|	0.82
364.500	0.00	0.01	0.163	O	|	|	|	0.81
364.750	0.00	0.01	0.163	O	|	|	|	0.81
365.000	0.00	0.01	0.163	O	|	|	|	0.81
365.250	0.00	0.01	0.162	O	|	|	|	0.81
365.500	0.00	0.01	0.162	O	|	|	|	0.81
365.750	0.00	0.01	0.162	O	|	|	|	0.81
366.000	0.00	0.01	0.162	O	|	|	|	0.81
366.250	0.00	0.01	0.162	O	|	|	|	0.81
366.500	0.00	0.01	0.162	O	|	|	|	0.81
366.750	0.00	0.01	0.161	O	|	|	|	0.81
367.000	0.00	0.01	0.161	O	|	|	|	0.81
367.250	0.00	0.01	0.161	O	|	|	|	0.81
367.500	0.00	0.01	0.161	O	|	|	|	0.80
367.750	0.00	0.01	0.161	O	|	|	|	0.80
368.000	0.00	0.01	0.161	O	|	|	|	0.80
368.250	0.00	0.01	0.160	O	|	|	|	0.80
368.500	0.00	0.01	0.160	O	|	|	|	0.80
368.750	0.00	0.01	0.160	O	|	|	|	0.80
369.000	0.00	0.01	0.160	O	|	|	|	0.80
369.250	0.00	0.01	0.160	O	|	|	|	0.80
369.500	0.00	0.01	0.160	O	|	|	|	0.80
369.750	0.00	0.01	0.159	O	|	|	|	0.80
370.000	0.00	0.01	0.159	O	|	|	|	0.80

370.250	0.00	0.01	0.159	O	|	|	|	0.80
370.500	0.00	0.01	0.159	O	|	|	|	0.79
370.750	0.00	0.01	0.159	O	|	|	|	0.79
371.000	0.00	0.01	0.159	O	|	|	|	0.79
371.250	0.00	0.01	0.158	O	|	|	|	0.79
371.500	0.00	0.01	0.158	O	|	|	|	0.79
371.750	0.00	0.01	0.158	O	|	|	|	0.79
372.000	0.00	0.01	0.158	O	|	|	|	0.79
372.250	0.00	0.01	0.158	O	|	|	|	0.79
372.500	0.00	0.01	0.158	O	|	|	|	0.79
372.750	0.00	0.01	0.157	O	|	|	|	0.79
373.000	0.00	0.01	0.157	O	|	|	|	0.79
373.250	0.00	0.01	0.157	O	|	|	|	0.79
373.500	0.00	0.01	0.157	O	|	|	|	0.79
373.750	0.00	0.01	0.157	O	|	|	|	0.78
374.000	0.00	0.01	0.157	O	|	|	|	0.78
374.250	0.00	0.01	0.157	O	|	|	|	0.78
374.500	0.00	0.01	0.156	O	|	|	|	0.78
374.750	0.00	0.01	0.156	O	|	|	|	0.78
375.000	0.00	0.01	0.156	O	|	|	|	0.78
375.250	0.00	0.01	0.156	O	|	|	|	0.78
375.500	0.00	0.01	0.156	O	|	|	|	0.78
375.750	0.00	0.01	0.156	O	|	|	|	0.78
376.000	0.00	0.01	0.155	O	|	|	|	0.78
376.250	0.00	0.01	0.155	O	|	|	|	0.78
376.500	0.00	0.01	0.155	O	|	|	|	0.78
376.750	0.00	0.01	0.155	O	|	|	|	0.77
377.000	0.00	0.01	0.155	O	|	|	|	0.77
377.250	0.00	0.01	0.155	O	|	|	|	0.77
377.500	0.00	0.01	0.154	O	|	|	|	0.77
377.750	0.00	0.01	0.154	O	|	|	|	0.77
378.000	0.00	0.01	0.154	O	|	|	|	0.77
378.250	0.00	0.01	0.154	O	|	|	|	0.77
378.500	0.00	0.01	0.154	O	|	|	|	0.77
378.750	0.00	0.01	0.154	O	|	|	|	0.77
379.000	0.00	0.01	0.153	O	|	|	|	0.77
379.250	0.00	0.01	0.153	O	|	|	|	0.77
379.500	0.00	0.01	0.153	O	|	|	|	0.77
379.750	0.00	0.01	0.153	O	|	|	|	0.77
380.000	0.00	0.01	0.153	O	|	|	|	0.76
380.250	0.00	0.01	0.153	O	|	|	|	0.76
380.500	0.00	0.01	0.153	O	|	|	|	0.76
380.750	0.00	0.01	0.152	O	|	|	|	0.76
381.000	0.00	0.01	0.152	O	|	|	|	0.76
381.250	0.00	0.01	0.152	O	|	|	|	0.76
381.500	0.00	0.01	0.152	O	|	|	|	0.76
381.750	0.00	0.01	0.152	O	|	|	|	0.76
382.000	0.00	0.01	0.152	O	|	|	|	0.76
382.250	0.00	0.01	0.151	O	|	|	|	0.76
382.500	0.00	0.01	0.151	O	|	|	|	0.76
382.750	0.00	0.01	0.151	O	|	|	|	0.76
383.000	0.00	0.01	0.151	O	|	|	|	0.75
383.250	0.00	0.01	0.151	O	|	|	|	0.75
383.500	0.00	0.01	0.151	O	|	|	|	0.75
383.750	0.00	0.01	0.150	O	|	|	|	0.75
384.000	0.00	0.01	0.150	O	|	|	|	0.75
384.250	0.00	0.01	0.150	O	|	|	|	0.75
384.500	0.00	0.01	0.150	O	|	|	|	0.75
384.750	0.00	0.01	0.150	O	|	|	|	0.75
385.000	0.00	0.01	0.150	O	|	|	|	0.75
385.250	0.00	0.01	0.150	O	|	|	|	0.75
385.500	0.00	0.01	0.149	O	|	|	|	0.75

385.750	0.00	0.01	0.149	O	|	|	|	0.75
386.000	0.00	0.01	0.149	O	|	|	|	0.75
386.250	0.00	0.01	0.149	O	|	|	|	0.74
386.500	0.00	0.01	0.149	O	|	|	|	0.74
386.750	0.00	0.01	0.149	O	|	|	|	0.74
387.000	0.00	0.01	0.148	O	|	|	|	0.74
387.250	0.00	0.01	0.148	O	|	|	|	0.74
387.500	0.00	0.01	0.148	O	|	|	|	0.74
387.750	0.00	0.01	0.148	O	|	|	|	0.74
388.000	0.00	0.01	0.148	O	|	|	|	0.74
388.250	0.00	0.01	0.148	O	|	|	|	0.74
388.500	0.00	0.01	0.148	O	|	|	|	0.74
388.750	0.00	0.01	0.147	O	|	|	|	0.74
389.000	0.00	0.01	0.147	O	|	|	|	0.74
389.250	0.00	0.01	0.147	O	|	|	|	0.74
389.500	0.00	0.01	0.147	O	|	|	|	0.73
389.750	0.00	0.01	0.147	O	|	|	|	0.73
390.000	0.00	0.01	0.147	O	|	|	|	0.73
390.250	0.00	0.01	0.147	O	|	|	|	0.73
390.500	0.00	0.01	0.146	O	|	|	|	0.73
390.750	0.00	0.01	0.146	O	|	|	|	0.73
391.000	0.00	0.01	0.146	O	|	|	|	0.73
391.250	0.00	0.01	0.146	O	|	|	|	0.73
391.500	0.00	0.01	0.146	O	|	|	|	0.73
391.750	0.00	0.01	0.146	O	|	|	|	0.73
392.000	0.00	0.01	0.145	O	|	|	|	0.73
392.250	0.00	0.01	0.145	O	|	|	|	0.73
392.500	0.00	0.01	0.145	O	|	|	|	0.73
392.750	0.00	0.01	0.145	O	|	|	|	0.73
393.000	0.00	0.01	0.145	O	|	|	|	0.72
393.250	0.00	0.01	0.145	O	|	|	|	0.72
393.500	0.00	0.01	0.145	O	|	|	|	0.72
393.750	0.00	0.01	0.144	O	|	|	|	0.72
394.000	0.00	0.01	0.144	O	|	|	|	0.72
394.250	0.00	0.01	0.144	O	|	|	|	0.72
394.500	0.00	0.01	0.144	O	|	|	|	0.72
394.750	0.00	0.01	0.144	O	|	|	|	0.72
395.000	0.00	0.01	0.144	O	|	|	|	0.72
395.250	0.00	0.01	0.144	O	|	|	|	0.72
395.500	0.00	0.01	0.143	O	|	|	|	0.72
395.750	0.00	0.01	0.143	O	|	|	|	0.72
396.000	0.00	0.01	0.143	O	|	|	|	0.72
396.250	0.00	0.01	0.143	O	|	|	|	0.71
396.500	0.00	0.01	0.143	O	|	|	|	0.71
396.750	0.00	0.01	0.143	O	|	|	|	0.71
397.000	0.00	0.01	0.142	O	|	|	|	0.71
397.250	0.00	0.01	0.142	O	|	|	|	0.71
397.500	0.00	0.01	0.142	O	|	|	|	0.71
397.750	0.00	0.01	0.142	O	|	|	|	0.71
398.000	0.00	0.01	0.142	O	|	|	|	0.71
398.250	0.00	0.01	0.142	O	|	|	|	0.71
398.500	0.00	0.01	0.142	O	|	|	|	0.71
398.750	0.00	0.01	0.141	O	|	|	|	0.71
399.000	0.00	0.01	0.141	O	|	|	|	0.71
399.250	0.00	0.01	0.141	O	|	|	|	0.71
399.500	0.00	0.01	0.141	O	|	|	|	0.71
399.750	0.00	0.01	0.141	O	|	|	|	0.70
400.000	0.00	0.01	0.141	O	|	|	|	0.70
400.250	0.00	0.01	0.141	O	|	|	|	0.70
400.500	0.00	0.01	0.140	O	|	|	|	0.70
400.750	0.00	0.01	0.140	O	|	|	|	0.70
401.000	0.00	0.01	0.140	O	|	|	|	0.70

401.250	0.00	0.01	0.140	O	|	|	|	0.70
401.500	0.00	0.01	0.140	O	|	|	|	0.70
401.750	0.00	0.01	0.140	O	|	|	|	0.70
402.000	0.00	0.01	0.140	O	|	|	|	0.70
402.250	0.00	0.01	0.139	O	|	|	|	0.70
402.500	0.00	0.01	0.139	O	|	|	|	0.70
402.750	0.00	0.01	0.139	O	|	|	|	0.70
403.000	0.00	0.01	0.139	O	|	|	|	0.69
403.250	0.00	0.01	0.139	O	|	|	|	0.69
403.500	0.00	0.01	0.139	O	|	|	|	0.69
403.750	0.00	0.01	0.139	O	|	|	|	0.69
404.000	0.00	0.01	0.138	O	|	|	|	0.69
404.250	0.00	0.01	0.138	O	|	|	|	0.69
404.500	0.00	0.01	0.138	O	|	|	|	0.69
404.750	0.00	0.01	0.138	O	|	|	|	0.69
405.000	0.00	0.01	0.138	O	|	|	|	0.69
405.250	0.00	0.01	0.138	O	|	|	|	0.69
405.500	0.00	0.01	0.138	O	|	|	|	0.69
405.750	0.00	0.01	0.137	O	|	|	|	0.69
406.000	0.00	0.01	0.137	O	|	|	|	0.69
406.250	0.00	0.01	0.137	O	|	|	|	0.69
406.500	0.00	0.01	0.137	O	|	|	|	0.68
406.750	0.00	0.01	0.137	O	|	|	|	0.68
407.000	0.00	0.01	0.137	O	|	|	|	0.68
407.250	0.00	0.01	0.137	O	|	|	|	0.68
407.500	0.00	0.01	0.136	O	|	|	|	0.68
407.750	0.00	0.01	0.136	O	|	|	|	0.68
408.000	0.00	0.01	0.136	O	|	|	|	0.68
408.250	0.00	0.01	0.136	O	|	|	|	0.68
408.500	0.00	0.01	0.136	O	|	|	|	0.68
408.750	0.00	0.01	0.136	O	|	|	|	0.68
409.000	0.00	0.01	0.136	O	|	|	|	0.68
409.250	0.00	0.01	0.135	O	|	|	|	0.68
409.500	0.00	0.01	0.135	O	|	|	|	0.68
409.750	0.00	0.01	0.135	O	|	|	|	0.68
410.000	0.00	0.01	0.135	O	|	|	|	0.68
410.250	0.00	0.01	0.135	O	|	|	|	0.67
410.500	0.00	0.01	0.135	O	|	|	|	0.67
410.750	0.00	0.01	0.135	O	|	|	|	0.67
411.000	0.00	0.01	0.134	O	|	|	|	0.67
411.250	0.00	0.01	0.134	O	|	|	|	0.67
411.500	0.00	0.01	0.134	O	|	|	|	0.67
411.750	0.00	0.01	0.134	O	|	|	|	0.67
412.000	0.00	0.01	0.134	O	|	|	|	0.67
412.250	0.00	0.01	0.134	O	|	|	|	0.67
412.500	0.00	0.01	0.134	O	|	|	|	0.67
412.750	0.00	0.01	0.134	O	|	|	|	0.67
413.000	0.00	0.01	0.133	O	|	|	|	0.67
413.250	0.00	0.01	0.133	O	|	|	|	0.67
413.500	0.00	0.01	0.133	O	|	|	|	0.67
413.750	0.00	0.01	0.133	O	|	|	|	0.66
414.000	0.00	0.01	0.133	O	|	|	|	0.66
414.250	0.00	0.01	0.133	O	|	|	|	0.66
414.500	0.00	0.01	0.133	O	|	|	|	0.66
414.750	0.00	0.01	0.132	O	|	|	|	0.66
415.000	0.00	0.01	0.132	O	|	|	|	0.66
415.250	0.00	0.01	0.132	O	|	|	|	0.66
415.500	0.00	0.01	0.132	O	|	|	|	0.66
415.750	0.00	0.01	0.132	O	|	|	|	0.66
416.000	0.00	0.01	0.132	O	|	|	|	0.66
416.250	0.00	0.01	0.132	O	|	|	|	0.66
416.500	0.00	0.01	0.131	O	|	|	|	0.66

416.750	0.00	0.01	0.131	O	|	|	|	0.66
417.000	0.00	0.01	0.131	O	|	|	|	0.66
417.250	0.00	0.01	0.131	O	|	|	|	0.66
417.500	0.00	0.01	0.131	O	|	|	|	0.65
417.750	0.00	0.01	0.131	O	|	|	|	0.65
418.000	0.00	0.01	0.131	O	|	|	|	0.65
418.250	0.00	0.01	0.131	O	|	|	|	0.65
418.500	0.00	0.01	0.130	O	|	|	|	0.65
418.750	0.00	0.01	0.130	O	|	|	|	0.65
419.000	0.00	0.01	0.130	O	|	|	|	0.65
419.250	0.00	0.01	0.130	O	|	|	|	0.65
419.500	0.00	0.01	0.130	O	|	|	|	0.65
419.750	0.00	0.01	0.130	O	|	|	|	0.65
420.000	0.00	0.01	0.130	O	|	|	|	0.65
420.250	0.00	0.01	0.129	O	|	|	|	0.65
420.500	0.00	0.01	0.129	O	|	|	|	0.65
420.750	0.00	0.01	0.129	O	|	|	|	0.65
421.000	0.00	0.01	0.129	O	|	|	|	0.65
421.250	0.00	0.01	0.129	O	|	|	|	0.64
421.500	0.00	0.01	0.129	O	|	|	|	0.64
421.750	0.00	0.01	0.129	O	|	|	|	0.64
422.000	0.00	0.01	0.128	O	|	|	|	0.64
422.250	0.00	0.01	0.128	O	|	|	|	0.64
422.500	0.00	0.01	0.128	O	|	|	|	0.64
422.750	0.00	0.01	0.128	O	|	|	|	0.64
423.000	0.00	0.01	0.128	O	|	|	|	0.64
423.250	0.00	0.01	0.128	O	|	|	|	0.64
423.500	0.00	0.01	0.128	O	|	|	|	0.64
423.750	0.00	0.01	0.128	O	|	|	|	0.64
424.000	0.00	0.01	0.127	O	|	|	|	0.64
424.250	0.00	0.01	0.127	O	|	|	|	0.64
424.500	0.00	0.01	0.127	O	|	|	|	0.64
424.750	0.00	0.01	0.127	O	|	|	|	0.64
425.000	0.00	0.01	0.127	O	|	|	|	0.63
425.250	0.00	0.01	0.127	O	|	|	|	0.63
425.500	0.00	0.01	0.127	O	|	|	|	0.63
425.750	0.00	0.01	0.127	O	|	|	|	0.63
426.000	0.00	0.01	0.126	O	|	|	|	0.63
426.250	0.00	0.01	0.126	O	|	|	|	0.63
426.500	0.00	0.01	0.126	O	|	|	|	0.63
426.750	0.00	0.01	0.126	O	|	|	|	0.63
427.000	0.00	0.01	0.126	O	|	|	|	0.63
427.250	0.00	0.01	0.126	O	|	|	|	0.63
427.500	0.00	0.01	0.126	O	|	|	|	0.63
427.750	0.00	0.01	0.125	O	|	|	|	0.63
428.000	0.00	0.01	0.125	O	|	|	|	0.63
428.250	0.00	0.01	0.125	O	|	|	|	0.63
428.500	0.00	0.01	0.125	O	|	|	|	0.63
428.750	0.00	0.01	0.125	O	|	|	|	0.62
429.000	0.00	0.01	0.125	O	|	|	|	0.62
429.250	0.00	0.01	0.125	O	|	|	|	0.62
429.500	0.00	0.01	0.125	O	|	|	|	0.62
429.750	0.00	0.01	0.124	O	|	|	|	0.62
430.000	0.00	0.01	0.124	O	|	|	|	0.62
430.250	0.00	0.01	0.124	O	|	|	|	0.62
430.500	0.00	0.01	0.124	O	|	|	|	0.62
430.750	0.00	0.01	0.124	O	|	|	|	0.62
431.000	0.00	0.01	0.124	O	|	|	|	0.62
431.250	0.00	0.01	0.124	O	|	|	|	0.62
431.500	0.00	0.01	0.124	O	|	|	|	0.62
431.750	0.00	0.01	0.123	O	|	|	|	0.62
432.000	0.00	0.01	0.123	O	|	|	|	0.62

432.250	0.00	0.01	0.123	O	|	|	|	0.62
432.500	0.00	0.01	0.123	O	|	|	|	0.62
432.750	0.00	0.01	0.123	O	|	|	|	0.61
433.000	0.00	0.01	0.123	O	|	|	|	0.61
433.250	0.00	0.01	0.123	O	|	|	|	0.61
433.500	0.00	0.01	0.123	O	|	|	|	0.61
433.750	0.00	0.01	0.122	O	|	|	|	0.61
434.000	0.00	0.01	0.122	O	|	|	|	0.61
434.250	0.00	0.01	0.122	O	|	|	|	0.61
434.500	0.00	0.01	0.122	O	|	|	|	0.61
434.750	0.00	0.01	0.122	O	|	|	|	0.61
435.000	0.00	0.01	0.122	O	|	|	|	0.61
435.250	0.00	0.01	0.122	O	|	|	|	0.61
435.500	0.00	0.01	0.122	O	|	|	|	0.61
435.750	0.00	0.01	0.121	O	|	|	|	0.61
436.000	0.00	0.01	0.121	O	|	|	|	0.61
436.250	0.00	0.01	0.121	O	|	|	|	0.61
436.500	0.00	0.01	0.121	O	|	|	|	0.61
436.750	0.00	0.01	0.121	O	|	|	|	0.60
437.000	0.00	0.01	0.121	O	|	|	|	0.60
437.250	0.00	0.01	0.121	O	|	|	|	0.60
437.500	0.00	0.01	0.121	O	|	|	|	0.60
437.750	0.00	0.01	0.120	O	|	|	|	0.60
438.000	0.00	0.01	0.120	O	|	|	|	0.60
438.250	0.00	0.01	0.120	O	|	|	|	0.60
438.500	0.00	0.01	0.120	O	|	|	|	0.60
438.750	0.00	0.01	0.120	O	|	|	|	0.60
439.000	0.00	0.01	0.120	O	|	|	|	0.60
439.250	0.00	0.01	0.120	O	|	|	|	0.60
439.500	0.00	0.01	0.120	O	|	|	|	0.60
439.750	0.00	0.01	0.119	O	|	|	|	0.60
440.000	0.00	0.01	0.119	O	|	|	|	0.60
440.250	0.00	0.01	0.119	O	|	|	|	0.60
440.500	0.00	0.01	0.119	O	|	|	|	0.60
440.750	0.00	0.01	0.119	O	|	|	|	0.59
441.000	0.00	0.01	0.119	O	|	|	|	0.59
441.250	0.00	0.01	0.119	O	|	|	|	0.59
441.500	0.00	0.01	0.119	O	|	|	|	0.59
441.750	0.00	0.01	0.118	O	|	|	|	0.59
442.000	0.00	0.01	0.118	O	|	|	|	0.59
442.250	0.00	0.01	0.118	O	|	|	|	0.59
442.500	0.00	0.01	0.118	O	|	|	|	0.59
442.750	0.00	0.01	0.118	O	|	|	|	0.59
443.000	0.00	0.01	0.118	O	|	|	|	0.59
443.250	0.00	0.01	0.118	O	|	|	|	0.59
443.500	0.00	0.01	0.118	O	|	|	|	0.59
443.750	0.00	0.01	0.117	O	|	|	|	0.59
444.000	0.00	0.01	0.117	O	|	|	|	0.59
444.250	0.00	0.01	0.117	O	|	|	|	0.59
444.500	0.00	0.01	0.117	O	|	|	|	0.59
444.750	0.00	0.01	0.117	O	|	|	|	0.58
445.000	0.00	0.01	0.117	O	|	|	|	0.58
445.250	0.00	0.01	0.117	O	|	|	|	0.58
445.500	0.00	0.01	0.117	O	|	|	|	0.58
445.750	0.00	0.01	0.116	O	|	|	|	0.58
446.000	0.00	0.01	0.116	O	|	|	|	0.58
446.250	0.00	0.01	0.116	O	|	|	|	0.58
446.500	0.00	0.01	0.116	O	|	|	|	0.58
446.750	0.00	0.01	0.116	O	|	|	|	0.58
447.000	0.00	0.01	0.116	O	|	|	|	0.58
447.250	0.00	0.01	0.116	O	|	|	|	0.58
447.500	0.00	0.01	0.116	O	|	|	|	0.58

447.750	0.00	0.01	0.116	O	|	|	|	0.58
448.000	0.00	0.01	0.115	O	|	|	|	0.58
448.250	0.00	0.01	0.115	O	|	|	|	0.58
448.500	0.00	0.01	0.115	O	|	|	|	0.58
448.750	0.00	0.01	0.115	O	|	|	|	0.58
449.000	0.00	0.01	0.115	O	|	|	|	0.57
449.250	0.00	0.01	0.115	O	|	|	|	0.57
449.500	0.00	0.01	0.115	O	|	|	|	0.57
449.750	0.00	0.01	0.115	O	|	|	|	0.57
450.000	0.00	0.01	0.114	O	|	|	|	0.57
450.250	0.00	0.01	0.114	O	|	|	|	0.57
450.500	0.00	0.01	0.114	O	|	|	|	0.57
450.750	0.00	0.01	0.114	O	|	|	|	0.57
451.000	0.00	0.01	0.114	O	|	|	|	0.57
451.250	0.00	0.01	0.114	O	|	|	|	0.57
451.500	0.00	0.01	0.114	O	|	|	|	0.57
451.750	0.00	0.01	0.114	O	|	|	|	0.57
452.000	0.00	0.01	0.114	O	|	|	|	0.57
452.250	0.00	0.01	0.113	O	|	|	|	0.57
452.500	0.00	0.01	0.113	O	|	|	|	0.57
452.750	0.00	0.01	0.113	O	|	|	|	0.57
453.000	0.00	0.01	0.113	O	|	|	|	0.57
453.250	0.00	0.01	0.113	O	|	|	|	0.56
453.500	0.00	0.01	0.113	O	|	|	|	0.56
453.750	0.00	0.01	0.113	O	|	|	|	0.56
454.000	0.00	0.01	0.113	O	|	|	|	0.56
454.250	0.00	0.01	0.112	O	|	|	|	0.56
454.500	0.00	0.01	0.112	O	|	|	|	0.56
454.750	0.00	0.01	0.112	O	|	|	|	0.56
455.000	0.00	0.01	0.112	O	|	|	|	0.56
455.250	0.00	0.01	0.112	O	|	|	|	0.56
455.500	0.00	0.01	0.112	O	|	|	|	0.56
455.750	0.00	0.01	0.112	O	|	|	|	0.56
456.000	0.00	0.01	0.112	O	|	|	|	0.56
456.250	0.00	0.01	0.112	O	|	|	|	0.56
456.500	0.00	0.01	0.111	O	|	|	|	0.56
456.750	0.00	0.01	0.111	O	|	|	|	0.56
457.000	0.00	0.01	0.111	O	|	|	|	0.56
457.250	0.00	0.01	0.111	O	|	|	|	0.56
457.500	0.00	0.01	0.111	O	|	|	|	0.55
457.750	0.00	0.01	0.111	O	|	|	|	0.55
458.000	0.00	0.01	0.111	O	|	|	|	0.55
458.250	0.00	0.01	0.111	O	|	|	|	0.55
458.500	0.00	0.01	0.111	O	|	|	|	0.55
458.750	0.00	0.01	0.110	O	|	|	|	0.55
459.000	0.00	0.01	0.110	O	|	|	|	0.55
459.250	0.00	0.01	0.110	O	|	|	|	0.55
459.500	0.00	0.01	0.110	O	|	|	|	0.55
459.750	0.00	0.01	0.110	O	|	|	|	0.55
460.000	0.00	0.01	0.110	O	|	|	|	0.55
460.250	0.00	0.01	0.110	O	|	|	|	0.55
460.500	0.00	0.01	0.110	O	|	|	|	0.55
460.750	0.00	0.01	0.109	O	|	|	|	0.55
461.000	0.00	0.01	0.109	O	|	|	|	0.55
461.250	0.00	0.01	0.109	O	|	|	|	0.55
461.500	0.00	0.01	0.109	O	|	|	|	0.55
461.750	0.00	0.01	0.109	O	|	|	|	0.55
462.000	0.00	0.01	0.109	O	|	|	|	0.54
462.250	0.00	0.01	0.109	O	|	|	|	0.54
462.500	0.00	0.01	0.109	O	|	|	|	0.54
462.750	0.00	0.01	0.109	O	|	|	|	0.54
463.000	0.00	0.01	0.108	O	|	|	|	0.54

463.250	0.00	0.01	0.108	O	|	|	|	0.54
463.500	0.00	0.01	0.108	O	|	|	|	0.54
463.750	0.00	0.01	0.108	O	|	|	|	0.54
464.000	0.00	0.01	0.108	O	|	|	|	0.54
464.250	0.00	0.01	0.108	O	|	|	|	0.54
464.500	0.00	0.01	0.108	O	|	|	|	0.54
464.750	0.00	0.01	0.108	O	|	|	|	0.54
465.000	0.00	0.01	0.108	O	|	|	|	0.54
465.250	0.00	0.01	0.107	O	|	|	|	0.54
465.500	0.00	0.01	0.107	O	|	|	|	0.54
465.750	0.00	0.01	0.107	O	|	|	|	0.54
466.000	0.00	0.01	0.107	O	|	|	|	0.54
466.250	0.00	0.01	0.107	O	|	|	|	0.54
466.500	0.00	0.01	0.107	O	|	|	|	0.53
466.750	0.00	0.01	0.107	O	|	|	|	0.53
467.000	0.00	0.01	0.107	O	|	|	|	0.53
467.250	0.00	0.01	0.107	O	|	|	|	0.53
467.500	0.00	0.01	0.106	O	|	|	|	0.53
467.750	0.00	0.01	0.106	O	|	|	|	0.53
468.000	0.00	0.01	0.106	O	|	|	|	0.53
468.250	0.00	0.01	0.106	O	|	|	|	0.53
468.500	0.00	0.01	0.106	O	|	|	|	0.53
468.750	0.00	0.01	0.106	O	|	|	|	0.53
469.000	0.00	0.01	0.106	O	|	|	|	0.53
469.250	0.00	0.01	0.106	O	|	|	|	0.53
469.500	0.00	0.01	0.106	O	|	|	|	0.53
469.750	0.00	0.01	0.105	O	|	|	|	0.53
470.000	0.00	0.01	0.105	O	|	|	|	0.53
470.250	0.00	0.01	0.105	O	|	|	|	0.53
470.500	0.00	0.01	0.105	O	|	|	|	0.53
470.750	0.00	0.01	0.105	O	|	|	|	0.53
471.000	0.00	0.01	0.105	O	|	|	|	0.52
471.250	0.00	0.01	0.105	O	|	|	|	0.52
471.500	0.00	0.01	0.105	O	|	|	|	0.52
471.750	0.00	0.01	0.105	O	|	|	|	0.52
472.000	0.00	0.01	0.105	O	|	|	|	0.52
472.250	0.00	0.01	0.104	O	|	|	|	0.52
472.500	0.00	0.01	0.104	O	|	|	|	0.52
472.750	0.00	0.01	0.104	O	|	|	|	0.52
473.000	0.00	0.01	0.104	O	|	|	|	0.52
473.250	0.00	0.01	0.104	O	|	|	|	0.52
473.500	0.00	0.01	0.104	O	|	|	|	0.52
473.750	0.00	0.01	0.104	O	|	|	|	0.52
474.000	0.00	0.01	0.104	O	|	|	|	0.52
474.250	0.00	0.01	0.104	O	|	|	|	0.52
474.500	0.00	0.01	0.103	O	|	|	|	0.52
474.750	0.00	0.01	0.103	O	|	|	|	0.52
475.000	0.00	0.01	0.103	O	|	|	|	0.52
475.250	0.00	0.01	0.103	O	|	|	|	0.52
475.500	0.00	0.01	0.103	O	|	|	|	0.52
475.750	0.00	0.01	0.103	O	|	|	|	0.51
476.000	0.00	0.01	0.103	O	|	|	|	0.51
476.250	0.00	0.01	0.103	O	|	|	|	0.51
476.500	0.00	0.01	0.103	O	|	|	|	0.51
476.750	0.00	0.01	0.102	O	|	|	|	0.51
477.000	0.00	0.01	0.102	O	|	|	|	0.51
477.250	0.00	0.01	0.102	O	|	|	|	0.51
477.500	0.00	0.01	0.102	O	|	|	|	0.51
477.750	0.00	0.01	0.102	O	|	|	|	0.51
478.000	0.00	0.01	0.102	O	|	|	|	0.51
478.250	0.00	0.01	0.102	O	|	|	|	0.51
478.500	0.00	0.01	0.102	O	|	|	|	0.51

478.750	0.00	0.01	0.102	O	|	|	|	0.51
479.000	0.00	0.01	0.102	O	|	|	|	0.51
479.250	0.00	0.01	0.101	O	|	|	|	0.51
479.500	0.00	0.01	0.101	O	|	|	|	0.51
479.750	0.00	0.01	0.101	O	|	|	|	0.51
480.000	0.00	0.01	0.101	O	|	|	|	0.51
480.250	0.00	0.01	0.101	O	|	|	|	0.51
480.500	0.00	0.01	0.101	O	|	|	|	0.50
480.750	0.00	0.01	0.101	O	|	|	|	0.50
481.000	0.00	0.01	0.101	O	|	|	|	0.50
481.250	0.00	0.01	0.101	O	|	|	|	0.50
481.500	0.00	0.01	0.100	O	|	|	|	0.50
481.750	0.00	0.01	0.100	O	|	|	|	0.50
482.000	0.00	0.01	0.100	O	|	|	|	0.50
482.250	0.00	0.01	0.100	O	|	|	|	0.50
482.500	0.00	0.01	0.100	O	|	|	|	0.50
482.750	0.00	0.00	0.100	O	|	|	|	0.50
483.000	0.00	0.00	0.100	O	|	|	|	0.50
483.250	0.00	0.00	0.100	O	|	|	|	0.50
483.500	0.00	0.00	0.100	O	|	|	|	0.50
483.750	0.00	0.00	0.100	O	|	|	|	0.50
484.000	0.00	0.00	0.099	O	|	|	|	0.50
484.250	0.00	0.00	0.099	O	|	|	|	0.50
484.500	0.00	0.00	0.099	O	|	|	|	0.50
484.750	0.00	0.00	0.099	O	|	|	|	0.50
485.000	0.00	0.00	0.099	O	|	|	|	0.50
485.250	0.00	0.00	0.099	O	|	|	|	0.49
485.500	0.00	0.00	0.099	O	|	|	|	0.49
485.750	0.00	0.00	0.099	O	|	|	|	0.49
486.000	0.00	0.00	0.099	O	|	|	|	0.49
486.250	0.00	0.00	0.099	O	|	|	|	0.49
486.500	0.00	0.00	0.098	O	|	|	|	0.49
486.750	0.00	0.00	0.098	O	|	|	|	0.49
487.000	0.00	0.00	0.098	O	|	|	|	0.49
487.250	0.00	0.00	0.098	O	|	|	|	0.49
487.500	0.00	0.00	0.098	O	|	|	|	0.49
487.750	0.00	0.00	0.098	O	|	|	|	0.49
488.000	0.00	0.00	0.098	O	|	|	|	0.49
488.250	0.00	0.00	0.098	O	|	|	|	0.49
488.500	0.00	0.00	0.098	O	|	|	|	0.49
488.750	0.00	0.00	0.098	O	|	|	|	0.49
489.000	0.00	0.00	0.097	O	|	|	|	0.49
489.250	0.00	0.00	0.097	O	|	|	|	0.49
489.500	0.00	0.00	0.097	O	|	|	|	0.49
489.750	0.00	0.00	0.097	O	|	|	|	0.49
490.000	0.00	0.00	0.097	O	|	|	|	0.49
490.250	0.00	0.00	0.097	O	|	|	|	0.48
490.500	0.00	0.00	0.097	O	|	|	|	0.48
490.750	0.00	0.00	0.097	O	|	|	|	0.48
491.000	0.00	0.00	0.097	O	|	|	|	0.48
491.250	0.00	0.00	0.097	O	|	|	|	0.48
491.500	0.00	0.00	0.096	O	|	|	|	0.48
491.750	0.00	0.00	0.096	O	|	|	|	0.48
492.000	0.00	0.00	0.096	O	|	|	|	0.48
492.250	0.00	0.00	0.096	O	|	|	|	0.48
492.500	0.00	0.00	0.096	O	|	|	|	0.48
492.750	0.00	0.00	0.096	O	|	|	|	0.48
493.000	0.00	0.00	0.096	O	|	|	|	0.48
493.250	0.00	0.00	0.096	O	|	|	|	0.48
493.500	0.00	0.00	0.096	O	|	|	|	0.48
493.750	0.00	0.00	0.096	O	|	|	|	0.48
494.000	0.00	0.00	0.095	O	|	|	|	0.48

494.250	0.00	0.00	0.095	O	|	|	|	0.48
494.500	0.00	0.00	0.095	O	|	|	|	0.48
494.750	0.00	0.00	0.095	O	|	|	|	0.48
495.000	0.00	0.00	0.095	O	|	|	|	0.48
495.250	0.00	0.00	0.095	O	|	|	|	0.47
495.500	0.00	0.00	0.095	O	|	|	|	0.47
495.750	0.00	0.00	0.095	O	|	|	|	0.47
496.000	0.00	0.00	0.095	O	|	|	|	0.47
496.250	0.00	0.00	0.095	O	|	|	|	0.47
496.500	0.00	0.00	0.094	O	|	|	|	0.47
496.750	0.00	0.00	0.094	O	|	|	|	0.47
497.000	0.00	0.00	0.094	O	|	|	|	0.47
497.250	0.00	0.00	0.094	O	|	|	|	0.47
497.500	0.00	0.00	0.094	O	|	|	|	0.47
497.750	0.00	0.00	0.094	O	|	|	|	0.47
498.000	0.00	0.00	0.094	O	|	|	|	0.47
498.250	0.00	0.00	0.094	O	|	|	|	0.47
498.500	0.00	0.00	0.094	O	|	|	|	0.47
498.750	0.00	0.00	0.094	O	|	|	|	0.47
499.000	0.00	0.00	0.093	O	|	|	|	0.47
499.250	0.00	0.00	0.093	O	|	|	|	0.47
499.500	0.00	0.00	0.093	O	|	|	|	0.47
499.750	0.00	0.00	0.093	O	|	|	|	0.47
500.000	0.00	0.00	0.093	O	|	|	|	0.47
500.250	0.00	0.00	0.093	O	|	|	|	0.46
500.500	0.00	0.00	0.093	O	|	|	|	0.46
500.750	0.00	0.00	0.093	O	|	|	|	0.46
501.000	0.00	0.00	0.093	O	|	|	|	0.46
501.250	0.00	0.00	0.093	O	|	|	|	0.46
501.500	0.00	0.00	0.093	O	|	|	|	0.46
501.750	0.00	0.00	0.092	O	|	|	|	0.46
502.000	0.00	0.00	0.092	O	|	|	|	0.46
502.250	0.00	0.00	0.092	O	|	|	|	0.46
502.500	0.00	0.00	0.092	O	|	|	|	0.46
502.750	0.00	0.00	0.092	O	|	|	|	0.46
503.000	0.00	0.00	0.092	O	|	|	|	0.46
503.250	0.00	0.00	0.092	O	|	|	|	0.46
503.500	0.00	0.00	0.092	O	|	|	|	0.46
503.750	0.00	0.00	0.092	O	|	|	|	0.46
504.000	0.00	0.00	0.092	O	|	|	|	0.46
504.250	0.00	0.00	0.091	O	|	|	|	0.46
504.500	0.00	0.00	0.091	O	|	|	|	0.46
504.750	0.00	0.00	0.091	O	|	|	|	0.46
505.000	0.00	0.00	0.091	O	|	|	|	0.46
505.250	0.00	0.00	0.091	O	|	|	|	0.46
505.500	0.00	0.00	0.091	O	|	|	|	0.46
505.750	0.00	0.00	0.091	O	|	|	|	0.45
506.000	0.00	0.00	0.091	O	|	|	|	0.45
506.250	0.00	0.00	0.091	O	|	|	|	0.45
506.500	0.00	0.00	0.091	O	|	|	|	0.45
506.750	0.00	0.00	0.091	O	|	|	|	0.45
507.000	0.00	0.00	0.090	O	|	|	|	0.45
507.250	0.00	0.00	0.090	O	|	|	|	0.45
507.500	0.00	0.00	0.090	O	|	|	|	0.45
507.750	0.00	0.00	0.090	O	|	|	|	0.45
508.000	0.00	0.00	0.090	O	|	|	|	0.45
508.250	0.00	0.00	0.090	O	|	|	|	0.45
508.500	0.00	0.00	0.090	O	|	|	|	0.45
508.750	0.00	0.00	0.090	O	|	|	|	0.45
509.000	0.00	0.00	0.090	O	|	|	|	0.45
509.250	0.00	0.00	0.090	O	|	|	|	0.45
509.500	0.00	0.00	0.090	O	|	|	|	0.45

509.750	0.00	0.00	0.089	O	|	|	|	0.45
510.000	0.00	0.00	0.089	O	|	|	|	0.45
510.250	0.00	0.00	0.089	O	|	|	|	0.45
510.500	0.00	0.00	0.089	O	|	|	|	0.45
510.750	0.00	0.00	0.089	O	|	|	|	0.45
511.000	0.00	0.00	0.089	O	|	|	|	0.44
511.250	0.00	0.00	0.089	O	|	|	|	0.44
511.500	0.00	0.00	0.089	O	|	|	|	0.44
511.750	0.00	0.00	0.089	O	|	|	|	0.44
512.000	0.00	0.00	0.089	O	|	|	|	0.44
512.250	0.00	0.00	0.088	O	|	|	|	0.44
512.500	0.00	0.00	0.088	O	|	|	|	0.44
512.750	0.00	0.00	0.088	O	|	|	|	0.44
513.000	0.00	0.00	0.088	O	|	|	|	0.44
513.250	0.00	0.00	0.088	O	|	|	|	0.44
513.500	0.00	0.00	0.088	O	|	|	|	0.44
513.750	0.00	0.00	0.088	O	|	|	|	0.44
514.000	0.00	0.00	0.088	O	|	|	|	0.44
514.250	0.00	0.00	0.088	O	|	|	|	0.44
514.500	0.00	0.00	0.088	O	|	|	|	0.44
514.750	0.00	0.00	0.088	O	|	|	|	0.44
515.000	0.00	0.00	0.087	O	|	|	|	0.44
515.250	0.00	0.00	0.087	O	|	|	|	0.44
515.500	0.00	0.00	0.087	O	|	|	|	0.44
515.750	0.00	0.00	0.087	O	|	|	|	0.44
516.000	0.00	0.00	0.087	O	|	|	|	0.44
516.250	0.00	0.00	0.087	O	|	|	|	0.44
516.500	0.00	0.00	0.087	O	|	|	|	0.43
516.750	0.00	0.00	0.087	O	|	|	|	0.43
517.000	0.00	0.00	0.087	O	|	|	|	0.43
517.250	0.00	0.00	0.087	O	|	|	|	0.43
517.500	0.00	0.00	0.087	O	|	|	|	0.43
517.750	0.00	0.00	0.087	O	|	|	|	0.43
518.000	0.00	0.00	0.086	O	|	|	|	0.43
518.250	0.00	0.00	0.086	O	|	|	|	0.43
518.500	0.00	0.00	0.086	O	|	|	|	0.43
518.750	0.00	0.00	0.086	O	|	|	|	0.43
519.000	0.00	0.00	0.086	O	|	|	|	0.43
519.250	0.00	0.00	0.086	O	|	|	|	0.43
519.500	0.00	0.00	0.086	O	|	|	|	0.43
519.750	0.00	0.00	0.086	O	|	|	|	0.43
520.000	0.00	0.00	0.086	O	|	|	|	0.43
520.250	0.00	0.00	0.086	O	|	|	|	0.43
520.500	0.00	0.00	0.086	O	|	|	|	0.43
520.750	0.00	0.00	0.085	O	|	|	|	0.43
521.000	0.00	0.00	0.085	O	|	|	|	0.43
521.250	0.00	0.00	0.085	O	|	|	|	0.43
521.500	0.00	0.00	0.085	O	|	|	|	0.43
521.750	0.00	0.00	0.085	O	|	|	|	0.43
522.000	0.00	0.00	0.085	O	|	|	|	0.43
522.250	0.00	0.00	0.085	O	|	|	|	0.42
522.500	0.00	0.00	0.085	O	|	|	|	0.42
522.750	0.00	0.00	0.085	O	|	|	|	0.42
523.000	0.00	0.00	0.085	O	|	|	|	0.42
523.250	0.00	0.00	0.085	O	|	|	|	0.42
523.500	0.00	0.00	0.084	O	|	|	|	0.42
523.750	0.00	0.00	0.084	O	|	|	|	0.42
524.000	0.00	0.00	0.084	O	|	|	|	0.42
524.250	0.00	0.00	0.084	O	|	|	|	0.42
524.500	0.00	0.00	0.084	O	|	|	|	0.42
524.750	0.00	0.00	0.084	O	|	|	|	0.42
525.000	0.00	0.00	0.084	O	|	|	|	0.42

525.250	0.00	0.00	0.084	O				0.42
525.500	0.00	0.00	0.084	O				0.42
525.750	0.00	0.00	0.084	O				0.42
526.000	0.00	0.00	0.084	O				0.42
526.250	0.00	0.00	0.084	O				0.42
526.500	0.00	0.00	0.083	O				0.42
526.750	0.00	0.00	0.083	O				0.42
527.000	0.00	0.00	0.083	O				0.42
527.250	0.00	0.00	0.083	O				0.42
527.500	0.00	0.00	0.083	O				0.42
527.750	0.00	0.00	0.083	O				0.42
528.000	0.00	0.00	0.083	O				0.41
528.250	0.00	0.00	0.083	O				0.41
528.500	0.00	0.00	0.083	O				0.41
528.750	0.00	0.00	0.083	O				0.41
529.000	0.00	0.00	0.083	O				0.41
529.250	0.00	0.00	0.082	O				0.41
529.500	0.00	0.00	0.082	O				0.41
529.750	0.00	0.00	0.082	O				0.41
530.000	0.00	0.00	0.082	O				0.41
530.250	0.00	0.00	0.082	O				0.41
530.500	0.00	0.00	0.082	O				0.41
530.750	0.00	0.00	0.082	O				0.41
531.000	0.00	0.00	0.082	O				0.41
531.250	0.00	0.00	0.082	O				0.41
531.500	0.00	0.00	0.082	O				0.41
531.750	0.00	0.00	0.082	O				0.41
532.000	0.00	0.00	0.082	O				0.41
532.250	0.00	0.00	0.081	O				0.41
532.500	0.00	0.00	0.081	O				0.41
532.750	0.00	0.00	0.081	O				0.41
533.000	0.00	0.00	0.081	O				0.41
533.250	0.00	0.00	0.081	O				0.41
533.500	0.00	0.00	0.081	O				0.41
533.750	0.00	0.00	0.081	O				0.40
534.000	0.00	0.00	0.081	O				0.40
534.250	0.00	0.00	0.081	O				0.40
534.500	0.00	0.00	0.081	O				0.40
534.750	0.00	0.00	0.081	O				0.40
535.000	0.00	0.00	0.081	O				0.40
535.250	0.00	0.00	0.080	O				0.40
535.500	0.00	0.00	0.080	O				0.40
535.750	0.00	0.00	0.080	O				0.40
536.000	0.00	0.00	0.080	O				0.40
536.250	0.00	0.00	0.080	O				0.40
536.500	0.00	0.00	0.080	O				0.40
536.750	0.00	0.00	0.080	O				0.40
537.000	0.00	0.00	0.080	O				0.40
537.250	0.00	0.00	0.080	O				0.40
537.500	0.00	0.00	0.080	O				0.40
537.750	0.00	0.00	0.080	O				0.40
538.000	0.00	0.00	0.080	O				0.40
538.250	0.00	0.00	0.079	O				0.40
538.500	0.00	0.00	0.079	O				0.40
538.750	0.00	0.00	0.079	O				0.40
539.000	0.00	0.00	0.079	O				0.40
539.250	0.00	0.00	0.079	O				0.40
539.500	0.00	0.00	0.079	O				0.40
539.750	0.00	0.00	0.079	O				0.39
540.000	0.00	0.00	0.079	O				0.39
540.250	0.00	0.00	0.079	O				0.39
540.500	0.00	0.00	0.079	O				0.39

540.750	0.00	0.00	0.079	O	|	|	|	0.39
541.000	0.00	0.00	0.079	O	|	|	|	0.39
541.250	0.00	0.00	0.079	O	|	|	|	0.39
541.500	0.00	0.00	0.078	O	|	|	|	0.39
541.750	0.00	0.00	0.078	O	|	|	|	0.39
542.000	0.00	0.00	0.078	O	|	|	|	0.39
542.250	0.00	0.00	0.078	O	|	|	|	0.39
542.500	0.00	0.00	0.078	O	|	|	|	0.39
542.750	0.00	0.00	0.078	O	|	|	|	0.39
543.000	0.00	0.00	0.078	O	|	|	|	0.39
543.250	0.00	0.00	0.078	O	|	|	|	0.39
543.500	0.00	0.00	0.078	O	|	|	|	0.39
543.750	0.00	0.00	0.078	O	|	|	|	0.39
544.000	0.00	0.00	0.078	O	|	|	|	0.39
544.250	0.00	0.00	0.078	O	|	|	|	0.39
544.500	0.00	0.00	0.077	O	|	|	|	0.39
544.750	0.00	0.00	0.077	O	|	|	|	0.39
545.000	0.00	0.00	0.077	O	|	|	|	0.39
545.250	0.00	0.00	0.077	O	|	|	|	0.39
545.500	0.00	0.00	0.077	O	|	|	|	0.39
545.750	0.00	0.00	0.077	O	|	|	|	0.39
546.000	0.00	0.00	0.077	O	|	|	|	0.38
546.250	0.00	0.00	0.077	O	|	|	|	0.38
546.500	0.00	0.00	0.077	O	|	|	|	0.38
546.750	0.00	0.00	0.077	O	|	|	|	0.38
547.000	0.00	0.00	0.077	O	|	|	|	0.38
547.250	0.00	0.00	0.077	O	|	|	|	0.38
547.500	0.00	0.00	0.077	O	|	|	|	0.38
547.750	0.00	0.00	0.076	O	|	|	|	0.38
548.000	0.00	0.00	0.076	O	|	|	|	0.38
548.250	0.00	0.00	0.076	O	|	|	|	0.38
548.500	0.00	0.00	0.076	O	|	|	|	0.38
548.750	0.00	0.00	0.076	O	|	|	|	0.38
549.000	0.00	0.00	0.076	O	|	|	|	0.38
549.250	0.00	0.00	0.076	O	|	|	|	0.38
549.500	0.00	0.00	0.076	O	|	|	|	0.38
549.750	0.00	0.00	0.076	O	|	|	|	0.38
550.000	0.00	0.00	0.076	O	|	|	|	0.38
550.250	0.00	0.00	0.076	O	|	|	|	0.38
550.500	0.00	0.00	0.076	O	|	|	|	0.38
550.750	0.00	0.00	0.075	O	|	|	|	0.38
551.000	0.00	0.00	0.075	O	|	|	|	0.38
551.250	0.00	0.00	0.075	O	|	|	|	0.38
551.500	0.00	0.00	0.075	O	|	|	|	0.38
551.750	0.00	0.00	0.075	O	|	|	|	0.38
552.000	0.00	0.00	0.075	O	|	|	|	0.38
552.250	0.00	0.00	0.075	O	|	|	|	0.38
552.500	0.00	0.00	0.075	O	|	|	|	0.37
552.750	0.00	0.00	0.075	O	|	|	|	0.37
553.000	0.00	0.00	0.075	O	|	|	|	0.37
553.250	0.00	0.00	0.075	O	|	|	|	0.37
553.500	0.00	0.00	0.075	O	|	|	|	0.37
553.750	0.00	0.00	0.075	O	|	|	|	0.37
554.000	0.00	0.00	0.074	O	|	|	|	0.37
554.250	0.00	0.00	0.074	O	|	|	|	0.37
554.500	0.00	0.00	0.074	O	|	|	|	0.37
554.750	0.00	0.00	0.074	O	|	|	|	0.37
555.000	0.00	0.00	0.074	O	|	|	|	0.37
555.250	0.00	0.00	0.074	O	|	|	|	0.37
555.500	0.00	0.00	0.074	O	|	|	|	0.37
555.750	0.00	0.00	0.074	O	|	|	|	0.37
556.000	0.00	0.00	0.074	O	|	|	|	0.37

556.250	0.00	0.00	0.074	O	|	|	|	0.37
556.500	0.00	0.00	0.074	O	|	|	|	0.37
556.750	0.00	0.00	0.074	O	|	|	|	0.37
557.000	0.00	0.00	0.074	O	|	|	|	0.37
557.250	0.00	0.00	0.073	O	|	|	|	0.37
557.500	0.00	0.00	0.073	O	|	|	|	0.37
557.750	0.00	0.00	0.073	O	|	|	|	0.37
558.000	0.00	0.00	0.073	O	|	|	|	0.37
558.250	0.00	0.00	0.073	O	|	|	|	0.37
558.500	0.00	0.00	0.073	O	|	|	|	0.37
558.750	0.00	0.00	0.073	O	|	|	|	0.37
559.000	0.00	0.00	0.073	O	|	|	|	0.36
559.250	0.00	0.00	0.073	O	|	|	|	0.36
559.500	0.00	0.00	0.073	O	|	|	|	0.36
559.750	0.00	0.00	0.073	O	|	|	|	0.36
560.000	0.00	0.00	0.073	O	|	|	|	0.36
560.250	0.00	0.00	0.073	O	|	|	|	0.36
560.500	0.00	0.00	0.073	O	|	|	|	0.36
560.750	0.00	0.00	0.072	O	|	|	|	0.36
561.000	0.00	0.00	0.072	O	|	|	|	0.36
561.250	0.00	0.00	0.072	O	|	|	|	0.36
561.500	0.00	0.00	0.072	O	|	|	|	0.36
561.750	0.00	0.00	0.072	O	|	|	|	0.36
562.000	0.00	0.00	0.072	O	|	|	|	0.36
562.250	0.00	0.00	0.072	O	|	|	|	0.36
562.500	0.00	0.00	0.072	O	|	|	|	0.36
562.750	0.00	0.00	0.072	O	|	|	|	0.36
563.000	0.00	0.00	0.072	O	|	|	|	0.36
563.250	0.00	0.00	0.072	O	|	|	|	0.36
563.500	0.00	0.00	0.072	O	|	|	|	0.36
563.750	0.00	0.00	0.072	O	|	|	|	0.36
564.000	0.00	0.00	0.071	O	|	|	|	0.36
564.250	0.00	0.00	0.071	O	|	|	|	0.36
564.500	0.00	0.00	0.071	O	|	|	|	0.36
564.750	0.00	0.00	0.071	O	|	|	|	0.36
565.000	0.00	0.00	0.071	O	|	|	|	0.36
565.250	0.00	0.00	0.071	O	|	|	|	0.36
565.500	0.00	0.00	0.071	O	|	|	|	0.36
565.750	0.00	0.00	0.071	O	|	|	|	0.35
566.000	0.00	0.00	0.071	O	|	|	|	0.35
566.250	0.00	0.00	0.071	O	|	|	|	0.35
566.500	0.00	0.00	0.071	O	|	|	|	0.35
566.750	0.00	0.00	0.071	O	|	|	|	0.35
567.000	0.00	0.00	0.071	O	|	|	|	0.35
567.250	0.00	0.00	0.071	O	|	|	|	0.35
567.500	0.00	0.00	0.070	O	|	|	|	0.35
567.750	0.00	0.00	0.070	O	|	|	|	0.35
568.000	0.00	0.00	0.070	O	|	|	|	0.35
568.250	0.00	0.00	0.070	O	|	|	|	0.35
568.500	0.00	0.00	0.070	O	|	|	|	0.35
568.750	0.00	0.00	0.070	O	|	|	|	0.35
569.000	0.00	0.00	0.070	O	|	|	|	0.35
569.250	0.00	0.00	0.070	O	|	|	|	0.35
569.500	0.00	0.00	0.070	O	|	|	|	0.35
569.750	0.00	0.00	0.070	O	|	|	|	0.35
570.000	0.00	0.00	0.070	O	|	|	|	0.35
570.250	0.00	0.00	0.070	O	|	|	|	0.35
570.500	0.00	0.00	0.070	O	|	|	|	0.35
570.750	0.00	0.00	0.069	O	|	|	|	0.35
571.000	0.00	0.00	0.069	O	|	|	|	0.35
571.250	0.00	0.00	0.069	O	|	|	|	0.35
571.500	0.00	0.00	0.069	O	|	|	|	0.35

571.750	0.00	0.00	0.069	O	|	|	|	0.35
572.000	0.00	0.00	0.069	O	|	|	|	0.35
572.250	0.00	0.00	0.069	O	|	|	|	0.35
572.500	0.00	0.00	0.069	O	|	|	|	0.34
572.750	0.00	0.00	0.069	O	|	|	|	0.34
573.000	0.00	0.00	0.069	O	|	|	|	0.34
573.250	0.00	0.00	0.069	O	|	|	|	0.34
573.500	0.00	0.00	0.069	O	|	|	|	0.34
573.750	0.00	0.00	0.069	O	|	|	|	0.34
574.000	0.00	0.00	0.069	O	|	|	|	0.34
574.250	0.00	0.00	0.068	O	|	|	|	0.34
574.500	0.00	0.00	0.068	O	|	|	|	0.34
574.750	0.00	0.00	0.068	O	|	|	|	0.34
575.000	0.00	0.00	0.068	O	|	|	|	0.34
575.250	0.00	0.00	0.068	O	|	|	|	0.34
575.500	0.00	0.00	0.068	O	|	|	|	0.34
575.750	0.00	0.00	0.068	O	|	|	|	0.34
576.000	0.00	0.00	0.068	O	|	|	|	0.34
576.250	0.00	0.00	0.068	O	|	|	|	0.34
576.500	0.00	0.00	0.068	O	|	|	|	0.34
576.750	0.00	0.00	0.068	O	|	|	|	0.34
577.000	0.00	0.00	0.068	O	|	|	|	0.34
577.250	0.00	0.00	0.068	O	|	|	|	0.34
577.500	0.00	0.00	0.068	O	|	|	|	0.34
577.750	0.00	0.00	0.068	O	|	|	|	0.34
578.000	0.00	0.00	0.067	O	|	|	|	0.34
578.250	0.00	0.00	0.067	O	|	|	|	0.34
578.500	0.00	0.00	0.067	O	|	|	|	0.34
578.750	0.00	0.00	0.067	O	|	|	|	0.34
579.000	0.00	0.00	0.067	O	|	|	|	0.34
579.250	0.00	0.00	0.067	O	|	|	|	0.34
579.500	0.00	0.00	0.067	O	|	|	|	0.34
579.750	0.00	0.00	0.067	O	|	|	|	0.33
580.000	0.00	0.00	0.067	O	|	|	|	0.33
580.250	0.00	0.00	0.067	O	|	|	|	0.33
580.500	0.00	0.00	0.067	O	|	|	|	0.33
580.750	0.00	0.00	0.067	O	|	|	|	0.33
581.000	0.00	0.00	0.067	O	|	|	|	0.33
581.250	0.00	0.00	0.067	O	|	|	|	0.33
581.500	0.00	0.00	0.066	O	|	|	|	0.33
581.750	0.00	0.00	0.066	O	|	|	|	0.33
582.000	0.00	0.00	0.066	O	|	|	|	0.33
582.250	0.00	0.00	0.066	O	|	|	|	0.33
582.500	0.00	0.00	0.066	O	|	|	|	0.33
582.750	0.00	0.00	0.066	O	|	|	|	0.33
583.000	0.00	0.00	0.066	O	|	|	|	0.33
583.250	0.00	0.00	0.066	O	|	|	|	0.33
583.500	0.00	0.00	0.066	O	|	|	|	0.33
583.750	0.00	0.00	0.066	O	|	|	|	0.33
584.000	0.00	0.00	0.066	O	|	|	|	0.33
584.250	0.00	0.00	0.066	O	|	|	|	0.33
584.500	0.00	0.00	0.066	O	|	|	|	0.33
584.750	0.00	0.00	0.066	O	|	|	|	0.33
585.000	0.00	0.00	0.066	O	|	|	|	0.33
585.250	0.00	0.00	0.065	O	|	|	|	0.33
585.500	0.00	0.00	0.065	O	|	|	|	0.33
585.750	0.00	0.00	0.065	O	|	|	|	0.33
586.000	0.00	0.00	0.065	O	|	|	|	0.33
586.250	0.00	0.00	0.065	O	|	|	|	0.33
586.500	0.00	0.00	0.065	O	|	|	|	0.33
586.750	0.00	0.00	0.065	O	|	|	|	0.33
587.000	0.00	0.00	0.065	O	|	|	|	0.32

587.250	0.00	0.00	0.065	O	|	|	|	0.32
587.500	0.00	0.00	0.065	O	|	|	|	0.32
587.750	0.00	0.00	0.065	O	|	|	|	0.32
588.000	0.00	0.00	0.065	O	|	|	|	0.32
588.250	0.00	0.00	0.065	O	|	|	|	0.32
588.500	0.00	0.00	0.065	O	|	|	|	0.32
588.750	0.00	0.00	0.065	O	|	|	|	0.32
589.000	0.00	0.00	0.064	O	|	|	|	0.32
589.250	0.00	0.00	0.064	O	|	|	|	0.32
589.500	0.00	0.00	0.064	O	|	|	|	0.32
589.750	0.00	0.00	0.064	O	|	|	|	0.32
590.000	0.00	0.00	0.064	O	|	|	|	0.32
590.250	0.00	0.00	0.064	O	|	|	|	0.32
590.500	0.00	0.00	0.064	O	|	|	|	0.32
590.750	0.00	0.00	0.064	O	|	|	|	0.32
591.000	0.00	0.00	0.064	O	|	|	|	0.32
591.250	0.00	0.00	0.064	O	|	|	|	0.32
591.500	0.00	0.00	0.064	O	|	|	|	0.32
591.750	0.00	0.00	0.064	O	|	|	|	0.32
592.000	0.00	0.00	0.064	O	|	|	|	0.32
592.250	0.00	0.00	0.064	O	|	|	|	0.32
592.500	0.00	0.00	0.064	O	|	|	|	0.32
592.750	0.00	0.00	0.063	O	|	|	|	0.32
593.000	0.00	0.00	0.063	O	|	|	|	0.32
593.250	0.00	0.00	0.063	O	|	|	|	0.32
593.500	0.00	0.00	0.063	O	|	|	|	0.32
593.750	0.00	0.00	0.063	O	|	|	|	0.32
594.000	0.00	0.00	0.063	O	|	|	|	0.32
594.250	0.00	0.00	0.063	O	|	|	|	0.32
594.500	0.00	0.00	0.063	O	|	|	|	0.31
594.750	0.00	0.00	0.063	O	|	|	|	0.31
595.000	0.00	0.00	0.063	O	|	|	|	0.31
595.250	0.00	0.00	0.063	O	|	|	|	0.31
595.500	0.00	0.00	0.063	O	|	|	|	0.31
595.750	0.00	0.00	0.063	O	|	|	|	0.31
596.000	0.00	0.00	0.063	O	|	|	|	0.31
596.250	0.00	0.00	0.063	O	|	|	|	0.31
596.500	0.00	0.00	0.062	O	|	|	|	0.31
596.750	0.00	0.00	0.062	O	|	|	|	0.31
597.000	0.00	0.00	0.062	O	|	|	|	0.31
597.250	0.00	0.00	0.062	O	|	|	|	0.31
597.500	0.00	0.00	0.062	O	|	|	|	0.31
597.750	0.00	0.00	0.062	O	|	|	|	0.31
598.000	0.00	0.00	0.062	O	|	|	|	0.31
598.250	0.00	0.00	0.062	O	|	|	|	0.31
598.500	0.00	0.00	0.062	O	|	|	|	0.31
598.750	0.00	0.00	0.062	O	|	|	|	0.31
599.000	0.00	0.00	0.062	O	|	|	|	0.31
599.250	0.00	0.00	0.062	O	|	|	|	0.31
599.500	0.00	0.00	0.062	O	|	|	|	0.31
599.750	0.00	0.00	0.062	O	|	|	|	0.31
600.000	0.00	0.00	0.062	O	|	|	|	0.31
600.250	0.00	0.00	0.062	O	|	|	|	0.31
600.500	0.00	0.00	0.061	O	|	|	|	0.31
600.750	0.00	0.00	0.061	O	|	|	|	0.31
601.000	0.00	0.00	0.061	O	|	|	|	0.31
601.250	0.00	0.00	0.061	O	|	|	|	0.31
601.500	0.00	0.00	0.061	O	|	|	|	0.31
601.750	0.00	0.00	0.061	O	|	|	|	0.31
602.000	0.00	0.00	0.061	O	|	|	|	0.31
602.250	0.00	0.00	0.061	O	|	|	|	0.31
602.500	0.00	0.00	0.061	O	|	|	|	0.30

602.750	0.00	0.00	0.061	O	|	|	|	0.30
603.000	0.00	0.00	0.061	O	|	|	|	0.30
603.250	0.00	0.00	0.061	O	|	|	|	0.30
603.500	0.00	0.00	0.061	O	|	|	|	0.30
603.750	0.00	0.00	0.061	O	|	|	|	0.30
604.000	0.00	0.00	0.061	O	|	|	|	0.30
604.250	0.00	0.00	0.061	O	|	|	|	0.30
604.500	0.00	0.00	0.060	O	|	|	|	0.30
604.750	0.00	0.00	0.060	O	|	|	|	0.30
605.000	0.00	0.00	0.060	O	|	|	|	0.30
605.250	0.00	0.00	0.060	O	|	|	|	0.30
605.500	0.00	0.00	0.060	O	|	|	|	0.30
605.750	0.00	0.00	0.060	O	|	|	|	0.30
606.000	0.00	0.00	0.060	O	|	|	|	0.30
606.250	0.00	0.00	0.060	O	|	|	|	0.30
606.500	0.00	0.00	0.060	O	|	|	|	0.30
606.750	0.00	0.00	0.060	O	|	|	|	0.30
607.000	0.00	0.00	0.060	O	|	|	|	0.30
607.250	0.00	0.00	0.060	O	|	|	|	0.30
607.500	0.00	0.00	0.060	O	|	|	|	0.30
607.750	0.00	0.00	0.060	O	|	|	|	0.30
608.000	0.00	0.00	0.060	O	|	|	|	0.30
608.250	0.00	0.00	0.060	O	|	|	|	0.30
608.500	0.00	0.00	0.059	O	|	|	|	0.30
608.750	0.00	0.00	0.059	O	|	|	|	0.30
609.000	0.00	0.00	0.059	O	|	|	|	0.30
609.250	0.00	0.00	0.059	O	|	|	|	0.30
609.500	0.00	0.00	0.059	O	|	|	|	0.30
609.750	0.00	0.00	0.059	O	|	|	|	0.30
610.000	0.00	0.00	0.059	O	|	|	|	0.30
610.250	0.00	0.00	0.059	O	|	|	|	0.30
610.500	0.00	0.00	0.059	O	|	|	|	0.29
610.750	0.00	0.00	0.059	O	|	|	|	0.29
611.000	0.00	0.00	0.059	O	|	|	|	0.29
611.250	0.00	0.00	0.059	O	|	|	|	0.29
611.500	0.00	0.00	0.059	O	|	|	|	0.29
611.750	0.00	0.00	0.059	O	|	|	|	0.29
612.000	0.00	0.00	0.059	O	|	|	|	0.29
612.250	0.00	0.00	0.059	O	|	|	|	0.29
612.500	0.00	0.00	0.058	O	|	|	|	0.29
612.750	0.00	0.00	0.058	O	|	|	|	0.29
613.000	0.00	0.00	0.058	O	|	|	|	0.29
613.250	0.00	0.00	0.058	O	|	|	|	0.29
613.500	0.00	0.00	0.058	O	|	|	|	0.29
613.750	0.00	0.00	0.058	O	|	|	|	0.29
614.000	0.00	0.00	0.058	O	|	|	|	0.29
614.250	0.00	0.00	0.058	O	|	|	|	0.29
614.500	0.00	0.00	0.058	O	|	|	|	0.29
614.750	0.00	0.00	0.058	O	|	|	|	0.29
615.000	0.00	0.00	0.058	O	|	|	|	0.29
615.250	0.00	0.00	0.058	O	|	|	|	0.29
615.500	0.00	0.00	0.058	O	|	|	|	0.29
615.750	0.00	0.00	0.058	O	|	|	|	0.29
616.000	0.00	0.00	0.058	O	|	|	|	0.29
616.250	0.00	0.00	0.058	O	|	|	|	0.29
616.500	0.00	0.00	0.058	O	|	|	|	0.29
616.750	0.00	0.00	0.057	O	|	|	|	0.29
617.000	0.00	0.00	0.057	O	|	|	|	0.29
617.250	0.00	0.00	0.057	O	|	|	|	0.29
617.500	0.00	0.00	0.057	O	|	|	|	0.29
617.750	0.00	0.00	0.057	O	|	|	|	0.29
618.000	0.00	0.00	0.057	O	|	|	|	0.29

618.250	0.00	0.00	0.057	O	|	|	|	0.29
618.500	0.00	0.00	0.057	O	|	|	|	0.29
618.750	0.00	0.00	0.057	O	|	|	|	0.28
619.000	0.00	0.00	0.057	O	|	|	|	0.28
619.250	0.00	0.00	0.057	O	|	|	|	0.28
619.500	0.00	0.00	0.057	O	|	|	|	0.28
619.750	0.00	0.00	0.057	O	|	|	|	0.28
620.000	0.00	0.00	0.057	O	|	|	|	0.28
620.250	0.00	0.00	0.057	O	|	|	|	0.28
620.500	0.00	0.00	0.057	O	|	|	|	0.28
620.750	0.00	0.00	0.057	O	|	|	|	0.28
621.000	0.00	0.00	0.056	O	|	|	|	0.28
621.250	0.00	0.00	0.056	O	|	|	|	0.28
621.500	0.00	0.00	0.056	O	|	|	|	0.28
621.750	0.00	0.00	0.056	O	|	|	|	0.28
622.000	0.00	0.00	0.056	O	|	|	|	0.28
622.250	0.00	0.00	0.056	O	|	|	|	0.28
622.500	0.00	0.00	0.056	O	|	|	|	0.28
622.750	0.00	0.00	0.056	O	|	|	|	0.28
623.000	0.00	0.00	0.056	O	|	|	|	0.28
623.250	0.00	0.00	0.056	O	|	|	|	0.28
623.500	0.00	0.00	0.056	O	|	|	|	0.28
623.750	0.00	0.00	0.056	O	|	|	|	0.28
624.000	0.00	0.00	0.056	O	|	|	|	0.28
624.250	0.00	0.00	0.056	O	|	|	|	0.28
624.500	0.00	0.00	0.056	O	|	|	|	0.28
624.750	0.00	0.00	0.056	O	|	|	|	0.28
625.000	0.00	0.00	0.056	O	|	|	|	0.28
625.250	0.00	0.00	0.055	O	|	|	|	0.28
625.500	0.00	0.00	0.055	O	|	|	|	0.28
625.750	0.00	0.00	0.055	O	|	|	|	0.28
626.000	0.00	0.00	0.055	O	|	|	|	0.28
626.250	0.00	0.00	0.055	O	|	|	|	0.28
626.500	0.00	0.00	0.055	O	|	|	|	0.28
626.750	0.00	0.00	0.055	O	|	|	|	0.28
627.000	0.00	0.00	0.055	O	|	|	|	0.28
627.250	0.00	0.00	0.055	O	|	|	|	0.28
627.500	0.00	0.00	0.055	O	|	|	|	0.27
627.750	0.00	0.00	0.055	O	|	|	|	0.27
628.000	0.00	0.00	0.055	O	|	|	|	0.27
628.250	0.00	0.00	0.055	O	|	|	|	0.27
628.500	0.00	0.00	0.055	O	|	|	|	0.27
628.750	0.00	0.00	0.055	O	|	|	|	0.27
629.000	0.00	0.00	0.055	O	|	|	|	0.27
629.250	0.00	0.00	0.055	O	|	|	|	0.27
629.500	0.00	0.00	0.055	O	|	|	|	0.27
629.750	0.00	0.00	0.054	O	|	|	|	0.27
630.000	0.00	0.00	0.054	O	|	|	|	0.27
630.250	0.00	0.00	0.054	O	|	|	|	0.27
630.500	0.00	0.00	0.054	O	|	|	|	0.27
630.750	0.00	0.00	0.054	O	|	|	|	0.27
631.000	0.00	0.00	0.054	O	|	|	|	0.27
631.250	0.00	0.00	0.054	O	|	|	|	0.27
631.500	0.00	0.00	0.054	O	|	|	|	0.27
631.750	0.00	0.00	0.054	O	|	|	|	0.27
632.000	0.00	0.00	0.054	O	|	|	|	0.27
632.250	0.00	0.00	0.054	O	|	|	|	0.27
632.500	0.00	0.00	0.054	O	|	|	|	0.27
632.750	0.00	0.00	0.054	O	|	|	|	0.27
633.000	0.00	0.00	0.054	O	|	|	|	0.27
633.250	0.00	0.00	0.054	O	|	|	|	0.27
633.500	0.00	0.00	0.054	O	|	|	|	0.27

633.750	0.00	0.00	0.054	O	|	|	|	0.27
634.000	0.00	0.00	0.054	O	|	|	|	0.27
634.250	0.00	0.00	0.053	O	|	|	|	0.27
634.500	0.00	0.00	0.053	O	|	|	|	0.27
634.750	0.00	0.00	0.053	O	|	|	|	0.27
635.000	0.00	0.00	0.053	O	|	|	|	0.27
635.250	0.00	0.00	0.053	O	|	|	|	0.27
635.500	0.00	0.00	0.053	O	|	|	|	0.27
635.750	0.00	0.00	0.053	O	|	|	|	0.27
636.000	0.00	0.00	0.053	O	|	|	|	0.27
636.250	0.00	0.00	0.053	O	|	|	|	0.27
636.500	0.00	0.00	0.053	O	|	|	|	0.26
636.750	0.00	0.00	0.053	O	|	|	|	0.26
637.000	0.00	0.00	0.053	O	|	|	|	0.26
637.250	0.00	0.00	0.053	O	|	|	|	0.26
637.500	0.00	0.00	0.053	O	|	|	|	0.26
637.750	0.00	0.00	0.053	O	|	|	|	0.26
638.000	0.00	0.00	0.053	O	|	|	|	0.26
638.250	0.00	0.00	0.053	O	|	|	|	0.26
638.500	0.00	0.00	0.053	O	|	|	|	0.26
638.750	0.00	0.00	0.052	O	|	|	|	0.26
639.000	0.00	0.00	0.052	O	|	|	|	0.26
639.250	0.00	0.00	0.052	O	|	|	|	0.26
639.500	0.00	0.00	0.052	O	|	|	|	0.26
639.750	0.00	0.00	0.052	O	|	|	|	0.26
640.000	0.00	0.00	0.052	O	|	|	|	0.26
640.250	0.00	0.00	0.052	O	|	|	|	0.26
640.500	0.00	0.00	0.052	O	|	|	|	0.26
640.750	0.00	0.00	0.052	O	|	|	|	0.26
641.000	0.00	0.00	0.052	O	|	|	|	0.26
641.250	0.00	0.00	0.052	O	|	|	|	0.26
641.500	0.00	0.00	0.052	O	|	|	|	0.26
641.750	0.00	0.00	0.052	O	|	|	|	0.26
642.000	0.00	0.00	0.052	O	|	|	|	0.26
642.250	0.00	0.00	0.052	O	|	|	|	0.26
642.500	0.00	0.00	0.052	O	|	|	|	0.26
642.750	0.00	0.00	0.052	O	|	|	|	0.26
643.000	0.00	0.00	0.052	O	|	|	|	0.26
643.250	0.00	0.00	0.052	O	|	|	|	0.26
643.500	0.00	0.00	0.051	O	|	|	|	0.26
643.750	0.00	0.00	0.051	O	|	|	|	0.26
644.000	0.00	0.00	0.051	O	|	|	|	0.26
644.250	0.00	0.00	0.051	O	|	|	|	0.26
644.500	0.00	0.00	0.051	O	|	|	|	0.26
644.750	0.00	0.00	0.051	O	|	|	|	0.26
645.000	0.00	0.00	0.051	O	|	|	|	0.26
645.250	0.00	0.00	0.051	O	|	|	|	0.26
645.500	0.00	0.00	0.051	O	|	|	|	0.26
645.750	0.00	0.00	0.051	O	|	|	|	0.25
646.000	0.00	0.00	0.051	O	|	|	|	0.25
646.250	0.00	0.00	0.051	O	|	|	|	0.25
646.500	0.00	0.00	0.051	O	|	|	|	0.25
646.750	0.00	0.00	0.051	O	|	|	|	0.25
647.000	0.00	0.00	0.051	O	|	|	|	0.25
647.250	0.00	0.00	0.051	O	|	|	|	0.25
647.500	0.00	0.00	0.051	O	|	|	|	0.25
647.750	0.00	0.00	0.051	O	|	|	|	0.25
648.000	0.00	0.00	0.051	O	|	|	|	0.25
648.250	0.00	0.00	0.050	O	|	|	|	0.25
648.500	0.00	0.00	0.050	O	|	|	|	0.25
648.750	0.00	0.00	0.050	O	|	|	|	0.25
649.000	0.00	0.00	0.050	O	|	|	|	0.25

649.250	0.00	0.00	0.050	O	|	|	|	0.25
649.500	0.00	0.00	0.050	O	|	|	|	0.25
649.750	0.00	0.00	0.050	O	|	|	|	0.25
650.000	0.00	0.00	0.050	O	|	|	|	0.25
650.250	0.00	0.00	0.050	O	|	|	|	0.25
650.500	0.00	0.00	0.050	O	|	|	|	0.25
650.750	0.00	0.00	0.050	O	|	|	|	0.25
651.000	0.00	0.00	0.050	O	|	|	|	0.25
651.250	0.00	0.00	0.050	O	|	|	|	0.25
651.500	0.00	0.00	0.050	O	|	|	|	0.25
651.750	0.00	0.00	0.050	O	|	|	|	0.25
652.000	0.00	0.00	0.050	O	|	|	|	0.25
652.250	0.00	0.00	0.050	O	|	|	|	0.25
652.500	0.00	0.00	0.050	O	|	|	|	0.25
652.750	0.00	0.00	0.050	O	|	|	|	0.25
653.000	0.00	0.00	0.049	O	|	|	|	0.25
653.250	0.00	0.00	0.049	O	|	|	|	0.25
653.500	0.00	0.00	0.049	O	|	|	|	0.25
653.750	0.00	0.00	0.049	O	|	|	|	0.25
654.000	0.00	0.00	0.049	O	|	|	|	0.25
654.250	0.00	0.00	0.049	O	|	|	|	0.25
654.500	0.00	0.00	0.049	O	|	|	|	0.25
654.750	0.00	0.00	0.049	O	|	|	|	0.25
655.000	0.00	0.00	0.049	O	|	|	|	0.25
655.250	0.00	0.00	0.049	O	|	|	|	0.25
655.500	0.00	0.00	0.049	O	|	|	|	0.24
655.750	0.00	0.00	0.049	O	|	|	|	0.24
656.000	0.00	0.00	0.049	O	|	|	|	0.24
656.250	0.00	0.00	0.049	O	|	|	|	0.24
656.500	0.00	0.00	0.049	O	|	|	|	0.24
656.750	0.00	0.00	0.049	O	|	|	|	0.24
657.000	0.00	0.00	0.049	O	|	|	|	0.24
657.250	0.00	0.00	0.049	O	|	|	|	0.24
657.500	0.00	0.00	0.049	O	|	|	|	0.24
657.750	0.00	0.00	0.049	O	|	|	|	0.24
658.000	0.00	0.00	0.048	O	|	|	|	0.24
658.250	0.00	0.00	0.048	O	|	|	|	0.24
658.500	0.00	0.00	0.048	O	|	|	|	0.24
658.750	0.00	0.00	0.048	O	|	|	|	0.24
659.000	0.00	0.00	0.048	O	|	|	|	0.24
659.250	0.00	0.00	0.048	O	|	|	|	0.24
659.500	0.00	0.00	0.048	O	|	|	|	0.24
659.750	0.00	0.00	0.048	O	|	|	|	0.24
660.000	0.00	0.00	0.048	O	|	|	|	0.24
660.250	0.00	0.00	0.048	O	|	|	|	0.24
660.500	0.00	0.00	0.048	O	|	|	|	0.24
660.750	0.00	0.00	0.048	O	|	|	|	0.24
661.000	0.00	0.00	0.048	O	|	|	|	0.24
661.250	0.00	0.00	0.048	O	|	|	|	0.24
661.500	0.00	0.00	0.048	O	|	|	|	0.24
661.750	0.00	0.00	0.048	O	|	|	|	0.24
662.000	0.00	0.00	0.048	O	|	|	|	0.24
662.250	0.00	0.00	0.048	O	|	|	|	0.24
662.500	0.00	0.00	0.048	O	|	|	|	0.24
662.750	0.00	0.00	0.048	O	|	|	|	0.24
663.000	0.00	0.00	0.047	O	|	|	|	0.24
663.250	0.00	0.00	0.047	O	|	|	|	0.24
663.500	0.00	0.00	0.047	O	|	|	|	0.24
663.750	0.00	0.00	0.047	O	|	|	|	0.24
664.000	0.00	0.00	0.047	O	|	|	|	0.24
664.250	0.00	0.00	0.047	O	|	|	|	0.24
664.500	0.00	0.00	0.047	O	|	|	|	0.24

664.750	0.00	0.00	0.047	O	|	|	|	0.24
665.000	0.00	0.00	0.047	O	|	|	|	0.24
665.250	0.00	0.00	0.047	O	|	|	|	0.24
665.500	0.00	0.00	0.047	O	|	|	|	0.23
665.750	0.00	0.00	0.047	O	|	|	|	0.23
666.000	0.00	0.00	0.047	O	|	|	|	0.23
666.250	0.00	0.00	0.047	O	|	|	|	0.23
666.500	0.00	0.00	0.047	O	|	|	|	0.23
666.750	0.00	0.00	0.047	O	|	|	|	0.23
667.000	0.00	0.00	0.047	O	|	|	|	0.23
667.250	0.00	0.00	0.047	O	|	|	|	0.23
667.500	0.00	0.00	0.047	O	|	|	|	0.23
667.750	0.00	0.00	0.047	O	|	|	|	0.23
668.000	0.00	0.00	0.046	O	|	|	|	0.23
668.250	0.00	0.00	0.046	O	|	|	|	0.23
668.500	0.00	0.00	0.046	O	|	|	|	0.23
668.750	0.00	0.00	0.046	O	|	|	|	0.23
669.000	0.00	0.00	0.046	O	|	|	|	0.23
669.250	0.00	0.00	0.046	O	|	|	|	0.23
669.500	0.00	0.00	0.046	O	|	|	|	0.23
669.750	0.00	0.00	0.046	O	|	|	|	0.23
670.000	0.00	0.00	0.046	O	|	|	|	0.23
670.250	0.00	0.00	0.046	O	|	|	|	0.23
670.500	0.00	0.00	0.046	O	|	|	|	0.23
670.750	0.00	0.00	0.046	O	|	|	|	0.23
671.000	0.00	0.00	0.046	O	|	|	|	0.23
671.250	0.00	0.00	0.046	O	|	|	|	0.23
671.500	0.00	0.00	0.046	O	|	|	|	0.23
671.750	0.00	0.00	0.046	O	|	|	|	0.23
672.000	0.00	0.00	0.046	O	|	|	|	0.23
672.250	0.00	0.00	0.046	O	|	|	|	0.23
672.500	0.00	0.00	0.046	O	|	|	|	0.23
672.750	0.00	0.00	0.046	O	|	|	|	0.23
673.000	0.00	0.00	0.046	O	|	|	|	0.23
673.250	0.00	0.00	0.045	O	|	|	|	0.23
673.500	0.00	0.00	0.045	O	|	|	|	0.23
673.750	0.00	0.00	0.045	O	|	|	|	0.23
674.000	0.00	0.00	0.045	O	|	|	|	0.23
674.250	0.00	0.00	0.045	O	|	|	|	0.23
674.500	0.00	0.00	0.045	O	|	|	|	0.23
674.750	0.00	0.00	0.045	O	|	|	|	0.23
675.000	0.00	0.00	0.045	O	|	|	|	0.23
675.250	0.00	0.00	0.045	O	|	|	|	0.23
675.500	0.00	0.00	0.045	O	|	|	|	0.23
675.750	0.00	0.00	0.045	O	|	|	|	0.23
676.000	0.00	0.00	0.045	O	|	|	|	0.22
676.250	0.00	0.00	0.045	O	|	|	|	0.22
676.500	0.00	0.00	0.045	O	|	|	|	0.22
676.750	0.00	0.00	0.045	O	|	|	|	0.22
677.000	0.00	0.00	0.045	O	|	|	|	0.22
677.250	0.00	0.00	0.045	O	|	|	|	0.22
677.500	0.00	0.00	0.045	O	|	|	|	0.22
677.750	0.00	0.00	0.045	O	|	|	|	0.22
678.000	0.00	0.00	0.045	O	|	|	|	0.22
678.250	0.00	0.00	0.045	O	|	|	|	0.22
678.500	0.00	0.00	0.045	O	|	|	|	0.22
678.750	0.00	0.00	0.044	O	|	|	|	0.22
679.000	0.00	0.00	0.044	O	|	|	|	0.22
679.250	0.00	0.00	0.044	O	|	|	|	0.22
679.500	0.00	0.00	0.044	O	|	|	|	0.22
679.750	0.00	0.00	0.044	O	|	|	|	0.22
680.000	0.00	0.00	0.044	O	|	|	|	0.22

680.250	0.00	0.00	0.044	O	|	|	|	0.22
680.500	0.00	0.00	0.044	O	|	|	|	0.22
680.750	0.00	0.00	0.044	O	|	|	|	0.22
681.000	0.00	0.00	0.044	O	|	|	|	0.22
681.250	0.00	0.00	0.044	O	|	|	|	0.22
681.500	0.00	0.00	0.044	O	|	|	|	0.22
681.750	0.00	0.00	0.044	O	|	|	|	0.22
682.000	0.00	0.00	0.044	O	|	|	|	0.22
682.250	0.00	0.00	0.044	O	|	|	|	0.22
682.500	0.00	0.00	0.044	O	|	|	|	0.22
682.750	0.00	0.00	0.044	O	|	|	|	0.22
683.000	0.00	0.00	0.044	O	|	|	|	0.22
683.250	0.00	0.00	0.044	O	|	|	|	0.22
683.500	0.00	0.00	0.044	O	|	|	|	0.22
683.750	0.00	0.00	0.044	O	|	|	|	0.22
684.000	0.00	0.00	0.044	O	|	|	|	0.22
684.250	0.00	0.00	0.043	O	|	|	|	0.22
684.500	0.00	0.00	0.043	O	|	|	|	0.22
684.750	0.00	0.00	0.043	O	|	|	|	0.22
685.000	0.00	0.00	0.043	O	|	|	|	0.22
685.250	0.00	0.00	0.043	O	|	|	|	0.22
685.500	0.00	0.00	0.043	O	|	|	|	0.22
685.750	0.00	0.00	0.043	O	|	|	|	0.22
686.000	0.00	0.00	0.043	O	|	|	|	0.22
686.250	0.00	0.00	0.043	O	|	|	|	0.22
686.500	0.00	0.00	0.043	O	|	|	|	0.22
686.750	0.00	0.00	0.043	O	|	|	|	0.22
687.000	0.00	0.00	0.043	O	|	|	|	0.21
687.250	0.00	0.00	0.043	O	|	|	|	0.21
687.500	0.00	0.00	0.043	O	|	|	|	0.21
687.750	0.00	0.00	0.043	O	|	|	|	0.21
688.000	0.00	0.00	0.043	O	|	|	|	0.21
688.250	0.00	0.00	0.043	O	|	|	|	0.21
688.500	0.00	0.00	0.043	O	|	|	|	0.21
688.750	0.00	0.00	0.043	O	|	|	|	0.21
689.000	0.00	0.00	0.043	O	|	|	|	0.21
689.250	0.00	0.00	0.043	O	|	|	|	0.21
689.500	0.00	0.00	0.043	O	|	|	|	0.21
689.750	0.00	0.00	0.042	O	|	|	|	0.21
690.000	0.00	0.00	0.042	O	|	|	|	0.21
690.250	0.00	0.00	0.042	O	|	|	|	0.21
690.500	0.00	0.00	0.042	O	|	|	|	0.21
690.750	0.00	0.00	0.042	O	|	|	|	0.21
691.000	0.00	0.00	0.042	O	|	|	|	0.21
691.250	0.00	0.00	0.042	O	|	|	|	0.21
691.500	0.00	0.00	0.042	O	|	|	|	0.21
691.750	0.00	0.00	0.042	O	|	|	|	0.21
692.000	0.00	0.00	0.042	O	|	|	|	0.21
692.250	0.00	0.00	0.042	O	|	|	|	0.21
692.500	0.00	0.00	0.042	O	|	|	|	0.21
692.750	0.00	0.00	0.042	O	|	|	|	0.21
693.000	0.00	0.00	0.042	O	|	|	|	0.21
693.250	0.00	0.00	0.042	O	|	|	|	0.21
693.500	0.00	0.00	0.042	O	|	|	|	0.21
693.750	0.00	0.00	0.042	O	|	|	|	0.21
694.000	0.00	0.00	0.042	O	|	|	|	0.21
694.250	0.00	0.00	0.042	O	|	|	|	0.21
694.500	0.00	0.00	0.042	O	|	|	|	0.21
694.750	0.00	0.00	0.042	O	|	|	|	0.21
695.000	0.00	0.00	0.042	O	|	|	|	0.21
695.250	0.00	0.00	0.042	O	|	|	|	0.21
695.500	0.00	0.00	0.042	O	|	|	|	0.21

695.750	0.00	0.00	0.041	O	|	|	|	0.21
696.000	0.00	0.00	0.041	O	|	|	|	0.21
696.250	0.00	0.00	0.041	O	|	|	|	0.21
696.500	0.00	0.00	0.041	O	|	|	|	0.21
696.750	0.00	0.00	0.041	O	|	|	|	0.21
697.000	0.00	0.00	0.041	O	|	|	|	0.21
697.250	0.00	0.00	0.041	O	|	|	|	0.21
697.500	0.00	0.00	0.041	O	|	|	|	0.21
697.750	0.00	0.00	0.041	O	|	|	|	0.21
698.000	0.00	0.00	0.041	O	|	|	|	0.21
698.250	0.00	0.00	0.041	O	|	|	|	0.21
698.500	0.00	0.00	0.041	O	|	|	|	0.20
698.750	0.00	0.00	0.041	O	|	|	|	0.20
699.000	0.00	0.00	0.041	O	|	|	|	0.20
699.250	0.00	0.00	0.041	O	|	|	|	0.20
699.500	0.00	0.00	0.041	O	|	|	|	0.20
699.750	0.00	0.00	0.041	O	|	|	|	0.20
700.000	0.00	0.00	0.041	O	|	|	|	0.20
700.250	0.00	0.00	0.041	O	|	|	|	0.20
700.500	0.00	0.00	0.041	O	|	|	|	0.20
700.750	0.00	0.00	0.041	O	|	|	|	0.20
701.000	0.00	0.00	0.041	O	|	|	|	0.20
701.250	0.00	0.00	0.041	O	|	|	|	0.20
701.500	0.00	0.00	0.040	O	|	|	|	0.20
701.750	0.00	0.00	0.040	O	|	|	|	0.20
702.000	0.00	0.00	0.040	O	|	|	|	0.20
702.250	0.00	0.00	0.040	O	|	|	|	0.20
702.500	0.00	0.00	0.040	O	|	|	|	0.20
702.750	0.00	0.00	0.040	O	|	|	|	0.20
703.000	0.00	0.00	0.040	O	|	|	|	0.20
703.250	0.00	0.00	0.040	O	|	|	|	0.20
703.500	0.00	0.00	0.040	O	|	|	|	0.20
703.750	0.00	0.00	0.040	O	|	|	|	0.20
704.000	0.00	0.00	0.040	O	|	|	|	0.20
704.250	0.00	0.00	0.040	O	|	|	|	0.20
704.500	0.00	0.00	0.040	O	|	|	|	0.20
704.750	0.00	0.00	0.040	O	|	|	|	0.20
705.000	0.00	0.00	0.040	O	|	|	|	0.20
705.250	0.00	0.00	0.040	O	|	|	|	0.20
705.500	0.00	0.00	0.040	O	|	|	|	0.20
705.750	0.00	0.00	0.040	O	|	|	|	0.20
706.000	0.00	0.00	0.040	O	|	|	|	0.20
706.250	0.00	0.00	0.040	O	|	|	|	0.20
706.500	0.00	0.00	0.040	O	|	|	|	0.20
706.750	0.00	0.00	0.040	O	|	|	|	0.20
707.000	0.00	0.00	0.040	O	|	|	|	0.20
707.250	0.00	0.00	0.040	O	|	|	|	0.20
707.500	0.00	0.00	0.039	O	|	|	|	0.20
707.750	0.00	0.00	0.039	O	|	|	|	0.20
708.000	0.00	0.00	0.039	O	|	|	|	0.20
708.250	0.00	0.00	0.039	O	|	|	|	0.20
708.500	0.00	0.00	0.039	O	|	|	|	0.20
708.750	0.00	0.00	0.039	O	|	|	|	0.20
709.000	0.00	0.00	0.039	O	|	|	|	0.20
709.250	0.00	0.00	0.039	O	|	|	|	0.20
709.500	0.00	0.00	0.039	O	|	|	|	0.20
709.750	0.00	0.00	0.039	O	|	|	|	0.20
710.000	0.00	0.00	0.039	O	|	|	|	0.20
710.250	0.00	0.00	0.039	O	|	|	|	0.20
710.500	0.00	0.00	0.039	O	|	|	|	0.20
710.750	0.00	0.00	0.039	O	|	|	|	0.19
711.000	0.00	0.00	0.039	O	|	|	|	0.19

711.250	0.00	0.00	0.039	O	|	|	|	0.19
711.500	0.00	0.00	0.039	O	|	|	|	0.19
711.750	0.00	0.00	0.039	O	|	|	|	0.19
712.000	0.00	0.00	0.039	O	|	|	|	0.19
712.250	0.00	0.00	0.039	O	|	|	|	0.19
712.500	0.00	0.00	0.039	O	|	|	|	0.19
712.750	0.00	0.00	0.039	O	|	|	|	0.19
713.000	0.00	0.00	0.039	O	|	|	|	0.19
713.250	0.00	0.00	0.039	O	|	|	|	0.19
713.500	0.00	0.00	0.039	O	|	|	|	0.19
713.750	0.00	0.00	0.038	O	|	|	|	0.19
714.000	0.00	0.00	0.038	O	|	|	|	0.19
714.250	0.00	0.00	0.038	O	|	|	|	0.19
714.500	0.00	0.00	0.038	O	|	|	|	0.19
714.750	0.00	0.00	0.038	O	|	|	|	0.19
715.000	0.00	0.00	0.038	O	|	|	|	0.19
715.250	0.00	0.00	0.038	O	|	|	|	0.19
715.500	0.00	0.00	0.038	O	|	|	|	0.19
715.750	0.00	0.00	0.038	O	|	|	|	0.19
716.000	0.00	0.00	0.038	O	|	|	|	0.19
716.250	0.00	0.00	0.038	O	|	|	|	0.19
716.500	0.00	0.00	0.038	O	|	|	|	0.19
716.750	0.00	0.00	0.038	O	|	|	|	0.19
717.000	0.00	0.00	0.038	O	|	|	|	0.19
717.250	0.00	0.00	0.038	O	|	|	|	0.19
717.500	0.00	0.00	0.038	O	|	|	|	0.19
717.750	0.00	0.00	0.038	O	|	|	|	0.19
718.000	0.00	0.00	0.038	O	|	|	|	0.19
718.250	0.00	0.00	0.038	O	|	|	|	0.19
718.500	0.00	0.00	0.038	O	|	|	|	0.19
718.750	0.00	0.00	0.038	O	|	|	|	0.19
719.000	0.00	0.00	0.038	O	|	|	|	0.19
719.250	0.00	0.00	0.038	O	|	|	|	0.19
719.500	0.00	0.00	0.038	O	|	|	|	0.19
719.750	0.00	0.00	0.038	O	|	|	|	0.19
720.000	0.00	0.00	0.038	O	|	|	|	0.19
720.250	0.00	0.00	0.037	O	|	|	|	0.19
720.500	0.00	0.00	0.037	O	|	|	|	0.19
720.750	0.00	0.00	0.037	O	|	|	|	0.19
721.000	0.00	0.00	0.037	O	|	|	|	0.19
721.250	0.00	0.00	0.037	O	|	|	|	0.19
721.500	0.00	0.00	0.037	O	|	|	|	0.19
721.750	0.00	0.00	0.037	O	|	|	|	0.19
722.000	0.00	0.00	0.037	O	|	|	|	0.19
722.250	0.00	0.00	0.037	O	|	|	|	0.19
722.500	0.00	0.00	0.037	O	|	|	|	0.19
722.750	0.00	0.00	0.037	O	|	|	|	0.19
723.000	0.00	0.00	0.037	O	|	|	|	0.19
723.250	0.00	0.00	0.037	O	|	|	|	0.19
723.500	0.00	0.00	0.037	O	|	|	|	0.18
723.750	0.00	0.00	0.037	O	|	|	|	0.18
724.000	0.00	0.00	0.037	O	|	|	|	0.18
724.250	0.00	0.00	0.037	O	|	|	|	0.18
724.500	0.00	0.00	0.037	O	|	|	|	0.18
724.750	0.00	0.00	0.037	O	|	|	|	0.18
725.000	0.00	0.00	0.037	O	|	|	|	0.18
725.250	0.00	0.00	0.037	O	|	|	|	0.18
725.500	0.00	0.00	0.037	O	|	|	|	0.18
725.750	0.00	0.00	0.037	O	|	|	|	0.18
726.000	0.00	0.00	0.037	O	|	|	|	0.18
726.250	0.00	0.00	0.037	O	|	|	|	0.18
726.500	0.00	0.00	0.037	O	|	|	|	0.18

726.750	0.00	0.00	0.036	O	|	|	|	0.18
727.000	0.00	0.00	0.036	O	|	|	|	0.18
727.250	0.00	0.00	0.036	O	|	|	|	0.18
727.500	0.00	0.00	0.036	O	|	|	|	0.18
727.750	0.00	0.00	0.036	O	|	|	|	0.18
728.000	0.00	0.00	0.036	O	|	|	|	0.18
728.250	0.00	0.00	0.036	O	|	|	|	0.18
728.500	0.00	0.00	0.036	O	|	|	|	0.18
728.750	0.00	0.00	0.036	O	|	|	|	0.18
729.000	0.00	0.00	0.036	O	|	|	|	0.18
729.250	0.00	0.00	0.036	O	|	|	|	0.18
729.500	0.00	0.00	0.036	O	|	|	|	0.18
729.750	0.00	0.00	0.036	O	|	|	|	0.18
730.000	0.00	0.00	0.036	O	|	|	|	0.18
730.250	0.00	0.00	0.036	O	|	|	|	0.18
730.500	0.00	0.00	0.036	O	|	|	|	0.18
730.750	0.00	0.00	0.036	O	|	|	|	0.18
731.000	0.00	0.00	0.036	O	|	|	|	0.18
731.250	0.00	0.00	0.036	O	|	|	|	0.18
731.500	0.00	0.00	0.036	O	|	|	|	0.18
731.750	0.00	0.00	0.036	O	|	|	|	0.18
732.000	0.00	0.00	0.036	O	|	|	|	0.18
732.250	0.00	0.00	0.036	O	|	|	|	0.18
732.500	0.00	0.00	0.036	O	|	|	|	0.18
732.750	0.00	0.00	0.036	O	|	|	|	0.18
733.000	0.00	0.00	0.036	O	|	|	|	0.18
733.250	0.00	0.00	0.036	O	|	|	|	0.18
733.500	0.00	0.00	0.035	O	|	|	|	0.18
733.750	0.00	0.00	0.035	O	|	|	|	0.18
734.000	0.00	0.00	0.035	O	|	|	|	0.18
734.250	0.00	0.00	0.035	O	|	|	|	0.18
734.500	0.00	0.00	0.035	O	|	|	|	0.18
734.750	0.00	0.00	0.035	O	|	|	|	0.18
735.000	0.00	0.00	0.035	O	|	|	|	0.18
735.250	0.00	0.00	0.035	O	|	|	|	0.18
735.500	0.00	0.00	0.035	O	|	|	|	0.18
735.750	0.00	0.00	0.035	O	|	|	|	0.18
736.000	0.00	0.00	0.035	O	|	|	|	0.18
736.250	0.00	0.00	0.035	O	|	|	|	0.18
736.500	0.00	0.00	0.035	O	|	|	|	0.18
736.750	0.00	0.00	0.035	O	|	|	|	0.17
737.000	0.00	0.00	0.035	O	|	|	|	0.17
737.250	0.00	0.00	0.035	O	|	|	|	0.17
737.500	0.00	0.00	0.035	O	|	|	|	0.17
737.750	0.00	0.00	0.035	O	|	|	|	0.17
738.000	0.00	0.00	0.035	O	|	|	|	0.17
738.250	0.00	0.00	0.035	O	|	|	|	0.17
738.500	0.00	0.00	0.035	O	|	|	|	0.17
738.750	0.00	0.00	0.035	O	|	|	|	0.17
739.000	0.00	0.00	0.035	O	|	|	|	0.17
739.250	0.00	0.00	0.035	O	|	|	|	0.17
739.500	0.00	0.00	0.035	O	|	|	|	0.17
739.750	0.00	0.00	0.035	O	|	|	|	0.17
740.000	0.00	0.00	0.035	O	|	|	|	0.17
740.250	0.00	0.00	0.034	O	|	|	|	0.17
740.500	0.00	0.00	0.034	O	|	|	|	0.17
740.750	0.00	0.00	0.034	O	|	|	|	0.17
741.000	0.00	0.00	0.034	O	|	|	|	0.17
741.250	0.00	0.00	0.034	O	|	|	|	0.17
741.500	0.00	0.00	0.034	O	|	|	|	0.17
741.750	0.00	0.00	0.034	O	|	|	|	0.17
742.000	0.00	0.00	0.034	O	|	|	|	0.17

742.250	0.00	0.00	0.034	O				0.17
742.500	0.00	0.00	0.034	O				0.17
742.750	0.00	0.00	0.034	O				0.17
743.000	0.00	0.00	0.034	O				0.17
743.250	0.00	0.00	0.034	O				0.17
743.500	0.00	0.00	0.034	O				0.17
743.750	0.00	0.00	0.034	O				0.17
744.000	0.00	0.00	0.034	O				0.17
744.250	0.00	0.00	0.034	O				0.17
744.500	0.00	0.00	0.034	O				0.17
744.750	0.00	0.00	0.034	O				0.17
745.000	0.00	0.00	0.034	O				0.17
745.250	0.00	0.00	0.034	O				0.17
745.500	0.00	0.00	0.034	O				0.17
745.750	0.00	0.00	0.034	O				0.17
746.000	0.00	0.00	0.034	O				0.17
746.250	0.00	0.00	0.034	O				0.17
746.500	0.00	0.00	0.034	O				0.17
746.750	0.00	0.00	0.034	O				0.17
747.000	0.00	0.00	0.034	O				0.17
747.250	0.00	0.00	0.034	O				0.17
747.500	0.00	0.00	0.033	O				0.17
747.750	0.00	0.00	0.033	O				0.17
748.000	0.00	0.00	0.033	O				0.17
748.250	0.00	0.00	0.033	O				0.17
748.500	0.00	0.00	0.033	O				0.17
748.750	0.00	0.00	0.033	O				0.17
749.000	0.00	0.00	0.033	O				0.17
749.250	0.00	0.00	0.033	O				0.17
749.500	0.00	0.00	0.033	O				0.17
749.750	0.00	0.00	0.033	O				0.17
750.000	0.00	0.00	0.033	O				0.17
750.250	0.00	0.00	0.033	O				0.17
750.500	0.00	0.00	0.033	O				0.17
750.750	0.00	0.00	0.033	O				0.17
751.000	0.00	0.00	0.033	O				0.16
751.250	0.00	0.00	0.033	O				0.16
751.500	0.00	0.00	0.033	O				0.16
751.750	0.00	0.00	0.033	O				0.16
752.000	0.00	0.00	0.033	O				0.16
752.250	0.00	0.00	0.033	O				0.16
752.500	0.00	0.00	0.033	O				0.16
752.750	0.00	0.00	0.033	O				0.16
753.000	0.00	0.00	0.033	O				0.16
753.250	0.00	0.00	0.033	O				0.16
753.500	0.00	0.00	0.033	O				0.16
753.750	0.00	0.00	0.033	O				0.16
754.000	0.00	0.00	0.033	O				0.16
754.250	0.00	0.00	0.033	O				0.16
754.500	0.00	0.00	0.033	O				0.16
754.750	0.00	0.00	0.032	O				0.16
755.000	0.00	0.00	0.032	O				0.16
755.250	0.00	0.00	0.032	O				0.16
755.500	0.00	0.00	0.032	O				0.16
755.750	0.00	0.00	0.032	O				0.16
756.000	0.00	0.00	0.032	O				0.16
756.250	0.00	0.00	0.032	O				0.16
756.500	0.00	0.00	0.032	O				0.16
756.750	0.00	0.00	0.032	O				0.16
757.000	0.00	0.00	0.032	O				0.16
757.250	0.00	0.00	0.032	O				0.16
757.500	0.00	0.00	0.032	O				0.16

757.750	0.00	0.00	0.032	O	|	|	|	0.16
758.000	0.00	0.00	0.032	O	|	|	|	0.16
758.250	0.00	0.00	0.032	O	|	|	|	0.16
758.500	0.00	0.00	0.032	O	|	|	|	0.16
758.750	0.00	0.00	0.032	O	|	|	|	0.16
759.000	0.00	0.00	0.032	O	|	|	|	0.16
759.250	0.00	0.00	0.032	O	|	|	|	0.16
759.500	0.00	0.00	0.032	O	|	|	|	0.16
759.750	0.00	0.00	0.032	O	|	|	|	0.16
760.000	0.00	0.00	0.032	O	|	|	|	0.16
760.250	0.00	0.00	0.032	O	|	|	|	0.16
760.500	0.00	0.00	0.032	O	|	|	|	0.16
760.750	0.00	0.00	0.032	O	|	|	|	0.16
761.000	0.00	0.00	0.032	O	|	|	|	0.16
761.250	0.00	0.00	0.032	O	|	|	|	0.16
761.500	0.00	0.00	0.032	O	|	|	|	0.16
761.750	0.00	0.00	0.032	O	|	|	|	0.16
762.000	0.00	0.00	0.032	O	|	|	|	0.16
762.250	0.00	0.00	0.031	O	|	|	|	0.16
762.500	0.00	0.00	0.031	O	|	|	|	0.16
762.750	0.00	0.00	0.031	O	|	|	|	0.16
763.000	0.00	0.00	0.031	O	|	|	|	0.16
763.250	0.00	0.00	0.031	O	|	|	|	0.16
763.500	0.00	0.00	0.031	O	|	|	|	0.16
763.750	0.00	0.00	0.031	O	|	|	|	0.16
764.000	0.00	0.00	0.031	O	|	|	|	0.16
764.250	0.00	0.00	0.031	O	|	|	|	0.16
764.500	0.00	0.00	0.031	O	|	|	|	0.16
764.750	0.00	0.00	0.031	O	|	|	|	0.16
765.000	0.00	0.00	0.031	O	|	|	|	0.16
765.250	0.00	0.00	0.031	O	|	|	|	0.16
765.500	0.00	0.00	0.031	O	|	|	|	0.16
765.750	0.00	0.00	0.031	O	|	|	|	0.16
766.000	0.00	0.00	0.031	O	|	|	|	0.16
766.250	0.00	0.00	0.031	O	|	|	|	0.15
766.500	0.00	0.00	0.031	O	|	|	|	0.15
766.750	0.00	0.00	0.031	O	|	|	|	0.15
767.000	0.00	0.00	0.031	O	|	|	|	0.15
767.250	0.00	0.00	0.031	O	|	|	|	0.15
767.500	0.00	0.00	0.031	O	|	|	|	0.15
767.750	0.00	0.00	0.031	O	|	|	|	0.15
768.000	0.00	0.00	0.031	O	|	|	|	0.15
768.250	0.00	0.00	0.031	O	|	|	|	0.15
768.500	0.00	0.00	0.031	O	|	|	|	0.15
768.750	0.00	0.00	0.031	O	|	|	|	0.15
769.000	0.00	0.00	0.031	O	|	|	|	0.15
769.250	0.00	0.00	0.031	O	|	|	|	0.15
769.500	0.00	0.00	0.031	O	|	|	|	0.15
769.750	0.00	0.00	0.031	O	|	|	|	0.15
770.000	0.00	0.00	0.031	O	|	|	|	0.15
770.250	0.00	0.00	0.030	O	|	|	|	0.15
770.500	0.00	0.00	0.030	O	|	|	|	0.15
770.750	0.00	0.00	0.030	O	|	|	|	0.15
771.000	0.00	0.00	0.030	O	|	|	|	0.15
771.250	0.00	0.00	0.030	O	|	|	|	0.15
771.500	0.00	0.00	0.030	O	|	|	|	0.15
771.750	0.00	0.00	0.030	O	|	|	|	0.15
772.000	0.00	0.00	0.030	O	|	|	|	0.15
772.250	0.00	0.00	0.030	O	|	|	|	0.15
772.500	0.00	0.00	0.030	O	|	|	|	0.15
772.750	0.00	0.00	0.030	O	|	|	|	0.15
773.000	0.00	0.00	0.030	O	|	|	|	0.15

773.250	0.00	0.00	0.030	O	|	|	|	0.15
773.500	0.00	0.00	0.030	O	|	|	|	0.15
773.750	0.00	0.00	0.030	O	|	|	|	0.15
774.000	0.00	0.00	0.030	O	|	|	|	0.15
774.250	0.00	0.00	0.030	O	|	|	|	0.15
774.500	0.00	0.00	0.030	O	|	|	|	0.15
774.750	0.00	0.00	0.030	O	|	|	|	0.15
775.000	0.00	0.00	0.030	O	|	|	|	0.15
775.250	0.00	0.00	0.030	O	|	|	|	0.15
775.500	0.00	0.00	0.030	O	|	|	|	0.15
775.750	0.00	0.00	0.030	O	|	|	|	0.15
776.000	0.00	0.00	0.030	O	|	|	|	0.15
776.250	0.00	0.00	0.030	O	|	|	|	0.15
776.500	0.00	0.00	0.030	O	|	|	|	0.15
776.750	0.00	0.00	0.030	O	|	|	|	0.15
777.000	0.00	0.00	0.030	O	|	|	|	0.15
777.250	0.00	0.00	0.030	O	|	|	|	0.15
777.500	0.00	0.00	0.030	O	|	|	|	0.15
777.750	0.00	0.00	0.030	O	|	|	|	0.15
778.000	0.00	0.00	0.030	O	|	|	|	0.15
778.250	0.00	0.00	0.029	O	|	|	|	0.15
778.500	0.00	0.00	0.029	O	|	|	|	0.15
778.750	0.00	0.00	0.029	O	|	|	|	0.15
779.000	0.00	0.00	0.029	O	|	|	|	0.15
779.250	0.00	0.00	0.029	O	|	|	|	0.15
779.500	0.00	0.00	0.029	O	|	|	|	0.15
779.750	0.00	0.00	0.029	O	|	|	|	0.15
780.000	0.00	0.00	0.029	O	|	|	|	0.15
780.250	0.00	0.00	0.029	O	|	|	|	0.15
780.500	0.00	0.00	0.029	O	|	|	|	0.15
780.750	0.00	0.00	0.029	O	|	|	|	0.15
781.000	0.00	0.00	0.029	O	|	|	|	0.15
781.250	0.00	0.00	0.029	O	|	|	|	0.15
781.500	0.00	0.00	0.029	O	|	|	|	0.15
781.750	0.00	0.00	0.029	O	|	|	|	0.15
782.000	0.00	0.00	0.029	O	|	|	|	0.15
782.250	0.00	0.00	0.029	O	|	|	|	0.14
782.500	0.00	0.00	0.029	O	|	|	|	0.14
782.750	0.00	0.00	0.029	O	|	|	|	0.14
783.000	0.00	0.00	0.029	O	|	|	|	0.14
783.250	0.00	0.00	0.029	O	|	|	|	0.14
783.500	0.00	0.00	0.029	O	|	|	|	0.14
783.750	0.00	0.00	0.029	O	|	|	|	0.14
784.000	0.00	0.00	0.029	O	|	|	|	0.14
784.250	0.00	0.00	0.029	O	|	|	|	0.14
784.500	0.00	0.00	0.029	O	|	|	|	0.14
784.750	0.00	0.00	0.029	O	|	|	|	0.14
785.000	0.00	0.00	0.029	O	|	|	|	0.14
785.250	0.00	0.00	0.029	O	|	|	|	0.14
785.500	0.00	0.00	0.029	O	|	|	|	0.14
785.750	0.00	0.00	0.029	O	|	|	|	0.14
786.000	0.00	0.00	0.029	O	|	|	|	0.14
786.250	0.00	0.00	0.029	O	|	|	|	0.14
786.500	0.00	0.00	0.028	O	|	|	|	0.14
786.750	0.00	0.00	0.028	O	|	|	|	0.14
787.000	0.00	0.00	0.028	O	|	|	|	0.14
787.250	0.00	0.00	0.028	O	|	|	|	0.14
787.500	0.00	0.00	0.028	O	|	|	|	0.14
787.750	0.00	0.00	0.028	O	|	|	|	0.14
788.000	0.00	0.00	0.028	O	|	|	|	0.14
788.250	0.00	0.00	0.028	O	|	|	|	0.14
788.500	0.00	0.00	0.028	O	|	|	|	0.14

788.750	0.00	0.00	0.028	O	|	|	|	0.14
789.000	0.00	0.00	0.028	O	|	|	|	0.14
789.250	0.00	0.00	0.028	O	|	|	|	0.14
789.500	0.00	0.00	0.028	O	|	|	|	0.14
789.750	0.00	0.00	0.028	O	|	|	|	0.14
790.000	0.00	0.00	0.028	O	|	|	|	0.14
790.250	0.00	0.00	0.028	O	|	|	|	0.14
790.500	0.00	0.00	0.028	O	|	|	|	0.14
790.750	0.00	0.00	0.028	O	|	|	|	0.14
791.000	0.00	0.00	0.028	O	|	|	|	0.14
791.250	0.00	0.00	0.028	O	|	|	|	0.14
791.500	0.00	0.00	0.028	O	|	|	|	0.14
791.750	0.00	0.00	0.028	O	|	|	|	0.14
792.000	0.00	0.00	0.028	O	|	|	|	0.14
792.250	0.00	0.00	0.028	O	|	|	|	0.14
792.500	0.00	0.00	0.028	O	|	|	|	0.14
792.750	0.00	0.00	0.028	O	|	|	|	0.14
793.000	0.00	0.00	0.028	O	|	|	|	0.14
793.250	0.00	0.00	0.028	O	|	|	|	0.14
793.500	0.00	0.00	0.028	O	|	|	|	0.14
793.750	0.00	0.00	0.028	O	|	|	|	0.14
794.000	0.00	0.00	0.028	O	|	|	|	0.14
794.250	0.00	0.00	0.028	O	|	|	|	0.14
794.500	0.00	0.00	0.028	O	|	|	|	0.14
794.750	0.00	0.00	0.028	O	|	|	|	0.14
795.000	0.00	0.00	0.028	O	|	|	|	0.14
795.250	0.00	0.00	0.027	O	|	|	|	0.14
795.500	0.00	0.00	0.027	O	|	|	|	0.14
795.750	0.00	0.00	0.027	O	|	|	|	0.14
796.000	0.00	0.00	0.027	O	|	|	|	0.14
796.250	0.00	0.00	0.027	O	|	|	|	0.14
796.500	0.00	0.00	0.027	O	|	|	|	0.14
796.750	0.00	0.00	0.027	O	|	|	|	0.14
797.000	0.00	0.00	0.027	O	|	|	|	0.14
797.250	0.00	0.00	0.027	O	|	|	|	0.14
797.500	0.00	0.00	0.027	O	|	|	|	0.14
797.750	0.00	0.00	0.027	O	|	|	|	0.14
798.000	0.00	0.00	0.027	O	|	|	|	0.14
798.250	0.00	0.00	0.027	O	|	|	|	0.14
798.500	0.00	0.00	0.027	O	|	|	|	0.14
798.750	0.00	0.00	0.027	O	|	|	|	0.14
799.000	0.00	0.00	0.027	O	|	|	|	0.14
799.250	0.00	0.00	0.027	O	|	|	|	0.14
799.500	0.00	0.00	0.027	O	|	|	|	0.14
799.750	0.00	0.00	0.027	O	|	|	|	0.13
800.000	0.00	0.00	0.027	O	|	|	|	0.13
800.250	0.00	0.00	0.027	O	|	|	|	0.13
800.500	0.00	0.00	0.027	O	|	|	|	0.13
800.750	0.00	0.00	0.027	O	|	|	|	0.13
801.000	0.00	0.00	0.027	O	|	|	|	0.13
801.250	0.00	0.00	0.027	O	|	|	|	0.13
801.500	0.00	0.00	0.027	O	|	|	|	0.13
801.750	0.00	0.00	0.027	O	|	|	|	0.13
802.000	0.00	0.00	0.027	O	|	|	|	0.13
802.250	0.00	0.00	0.027	O	|	|	|	0.13
802.500	0.00	0.00	0.027	O	|	|	|	0.13
802.750	0.00	0.00	0.027	O	|	|	|	0.13
803.000	0.00	0.00	0.027	O	|	|	|	0.13
803.250	0.00	0.00	0.027	O	|	|	|	0.13
803.500	0.00	0.00	0.027	O	|	|	|	0.13
803.750	0.00	0.00	0.027	O	|	|	|	0.13
804.000	0.00	0.00	0.027	O	|	|	|	0.13

804.250	0.00	0.00	0.026	O	|	|	|	0.13
804.500	0.00	0.00	0.026	O	|	|	|	0.13
804.750	0.00	0.00	0.026	O	|	|	|	0.13
805.000	0.00	0.00	0.026	O	|	|	|	0.13
805.250	0.00	0.00	0.026	O	|	|	|	0.13
805.500	0.00	0.00	0.026	O	|	|	|	0.13
805.750	0.00	0.00	0.026	O	|	|	|	0.13
806.000	0.00	0.00	0.026	O	|	|	|	0.13
806.250	0.00	0.00	0.026	O	|	|	|	0.13
806.500	0.00	0.00	0.026	O	|	|	|	0.13
806.750	0.00	0.00	0.026	O	|	|	|	0.13
807.000	0.00	0.00	0.026	O	|	|	|	0.13
807.250	0.00	0.00	0.026	O	|	|	|	0.13
807.500	0.00	0.00	0.026	O	|	|	|	0.13
807.750	0.00	0.00	0.026	O	|	|	|	0.13
808.000	0.00	0.00	0.026	O	|	|	|	0.13
808.250	0.00	0.00	0.026	O	|	|	|	0.13
808.500	0.00	0.00	0.026	O	|	|	|	0.13
808.750	0.00	0.00	0.026	O	|	|	|	0.13
809.000	0.00	0.00	0.026	O	|	|	|	0.13
809.250	0.00	0.00	0.026	O	|	|	|	0.13
809.500	0.00	0.00	0.026	O	|	|	|	0.13
809.750	0.00	0.00	0.026	O	|	|	|	0.13
810.000	0.00	0.00	0.026	O	|	|	|	0.13
810.250	0.00	0.00	0.026	O	|	|	|	0.13
810.500	0.00	0.00	0.026	O	|	|	|	0.13
810.750	0.00	0.00	0.026	O	|	|	|	0.13
811.000	0.00	0.00	0.026	O	|	|	|	0.13
811.250	0.00	0.00	0.026	O	|	|	|	0.13
811.500	0.00	0.00	0.026	O	|	|	|	0.13
811.750	0.00	0.00	0.026	O	|	|	|	0.13
812.000	0.00	0.00	0.026	O	|	|	|	0.13
812.250	0.00	0.00	0.026	O	|	|	|	0.13
812.500	0.00	0.00	0.026	O	|	|	|	0.13
812.750	0.00	0.00	0.026	O	|	|	|	0.13
813.000	0.00	0.00	0.026	O	|	|	|	0.13
813.250	0.00	0.00	0.026	O	|	|	|	0.13
813.500	0.00	0.00	0.025	O	|	|	|	0.13
813.750	0.00	0.00	0.025	O	|	|	|	0.13
814.000	0.00	0.00	0.025	O	|	|	|	0.13
814.250	0.00	0.00	0.025	O	|	|	|	0.13
814.500	0.00	0.00	0.025	O	|	|	|	0.13
814.750	0.00	0.00	0.025	O	|	|	|	0.13
815.000	0.00	0.00	0.025	O	|	|	|	0.13
815.250	0.00	0.00	0.025	O	|	|	|	0.13
815.500	0.00	0.00	0.025	O	|	|	|	0.13
815.750	0.00	0.00	0.025	O	|	|	|	0.13
816.000	0.00	0.00	0.025	O	|	|	|	0.13
816.250	0.00	0.00	0.025	O	|	|	|	0.13
816.500	0.00	0.00	0.025	O	|	|	|	0.13
816.750	0.00	0.00	0.025	O	|	|	|	0.13
817.000	0.00	0.00	0.025	O	|	|	|	0.13
817.250	0.00	0.00	0.025	O	|	|	|	0.13
817.500	0.00	0.00	0.025	O	|	|	|	0.13
817.750	0.00	0.00	0.025	O	|	|	|	0.13
818.000	0.00	0.00	0.025	O	|	|	|	0.13
818.250	0.00	0.00	0.025	O	|	|	|	0.12
818.500	0.00	0.00	0.025	O	|	|	|	0.12
818.750	0.00	0.00	0.025	O	|	|	|	0.12
819.000	0.00	0.00	0.025	O	|	|	|	0.12
819.250	0.00	0.00	0.025	O	|	|	|	0.12
819.500	0.00	0.00	0.025	O	|	|	|	0.12

819.750	0.00	0.00	0.025	O	|	|	|	0.12
820.000	0.00	0.00	0.025	O	|	|	|	0.12
820.250	0.00	0.00	0.025	O	|	|	|	0.12
820.500	0.00	0.00	0.025	O	|	|	|	0.12
820.750	0.00	0.00	0.025	O	|	|	|	0.12
821.000	0.00	0.00	0.025	O	|	|	|	0.12
821.250	0.00	0.00	0.025	O	|	|	|	0.12
821.500	0.00	0.00	0.025	O	|	|	|	0.12
821.750	0.00	0.00	0.025	O	|	|	|	0.12
822.000	0.00	0.00	0.025	O	|	|	|	0.12
822.250	0.00	0.00	0.025	O	|	|	|	0.12
822.500	0.00	0.00	0.025	O	|	|	|	0.12
822.750	0.00	0.00	0.025	O	|	|	|	0.12
823.000	0.00	0.00	0.025	O	|	|	|	0.12
823.250	0.00	0.00	0.024	O	|	|	|	0.12
823.500	0.00	0.00	0.024	O	|	|	|	0.12
823.750	0.00	0.00	0.024	O	|	|	|	0.12
824.000	0.00	0.00	0.024	O	|	|	|	0.12
824.250	0.00	0.00	0.024	O	|	|	|	0.12
824.500	0.00	0.00	0.024	O	|	|	|	0.12
824.750	0.00	0.00	0.024	O	|	|	|	0.12
825.000	0.00	0.00	0.024	O	|	|	|	0.12
825.250	0.00	0.00	0.024	O	|	|	|	0.12
825.500	0.00	0.00	0.024	O	|	|	|	0.12
825.750	0.00	0.00	0.024	O	|	|	|	0.12
826.000	0.00	0.00	0.024	O	|	|	|	0.12
826.250	0.00	0.00	0.024	O	|	|	|	0.12
826.500	0.00	0.00	0.024	O	|	|	|	0.12
826.750	0.00	0.00	0.024	O	|	|	|	0.12
827.000	0.00	0.00	0.024	O	|	|	|	0.12
827.250	0.00	0.00	0.024	O	|	|	|	0.12
827.500	0.00	0.00	0.024	O	|	|	|	0.12
827.750	0.00	0.00	0.024	O	|	|	|	0.12
828.000	0.00	0.00	0.024	O	|	|	|	0.12
828.250	0.00	0.00	0.024	O	|	|	|	0.12
828.500	0.00	0.00	0.024	O	|	|	|	0.12
828.750	0.00	0.00	0.024	O	|	|	|	0.12
829.000	0.00	0.00	0.024	O	|	|	|	0.12
829.250	0.00	0.00	0.024	O	|	|	|	0.12
829.500	0.00	0.00	0.024	O	|	|	|	0.12
829.750	0.00	0.00	0.024	O	|	|	|	0.12
830.000	0.00	0.00	0.024	O	|	|	|	0.12
830.250	0.00	0.00	0.024	O	|	|	|	0.12
830.500	0.00	0.00	0.024	O	|	|	|	0.12
830.750	0.00	0.00	0.024	O	|	|	|	0.12
831.000	0.00	0.00	0.024	O	|	|	|	0.12
831.250	0.00	0.00	0.024	O	|	|	|	0.12
831.500	0.00	0.00	0.024	O	|	|	|	0.12
831.750	0.00	0.00	0.024	O	|	|	|	0.12
832.000	0.00	0.00	0.024	O	|	|	|	0.12
832.250	0.00	0.00	0.024	O	|	|	|	0.12
832.500	0.00	0.00	0.024	O	|	|	|	0.12
832.750	0.00	0.00	0.024	O	|	|	|	0.12
833.000	0.00	0.00	0.024	O	|	|	|	0.12
833.250	0.00	0.00	0.023	O	|	|	|	0.12
833.500	0.00	0.00	0.023	O	|	|	|	0.12
833.750	0.00	0.00	0.023	O	|	|	|	0.12
834.000	0.00	0.00	0.023	O	|	|	|	0.12
834.250	0.00	0.00	0.023	O	|	|	|	0.12
834.500	0.00	0.00	0.023	O	|	|	|	0.12
834.750	0.00	0.00	0.023	O	|	|	|	0.12
835.000	0.00	0.00	0.023	O	|	|	|	0.12

835.250	0.00	0.00	0.023	O	|	|	|	0.12
835.500	0.00	0.00	0.023	O	|	|	|	0.12
835.750	0.00	0.00	0.023	O	|	|	|	0.12
836.000	0.00	0.00	0.023	O	|	|	|	0.12
836.250	0.00	0.00	0.023	O	|	|	|	0.12
836.500	0.00	0.00	0.023	O	|	|	|	0.12
836.750	0.00	0.00	0.023	O	|	|	|	0.12
837.000	0.00	0.00	0.023	O	|	|	|	0.12
837.250	0.00	0.00	0.023	O	|	|	|	0.12
837.500	0.00	0.00	0.023	O	|	|	|	0.12
837.750	0.00	0.00	0.023	O	|	|	|	0.12
838.000	0.00	0.00	0.023	O	|	|	|	0.12
838.250	0.00	0.00	0.023	O	|	|	|	0.12
838.500	0.00	0.00	0.023	O	|	|	|	0.11
838.750	0.00	0.00	0.023	O	|	|	|	0.11
839.000	0.00	0.00	0.023	O	|	|	|	0.11
839.250	0.00	0.00	0.023	O	|	|	|	0.11
839.500	0.00	0.00	0.023	O	|	|	|	0.11
839.750	0.00	0.00	0.023	O	|	|	|	0.11
840.000	0.00	0.00	0.023	O	|	|	|	0.11
840.250	0.00	0.00	0.023	O	|	|	|	0.11
840.500	0.00	0.00	0.023	O	|	|	|	0.11
840.750	0.00	0.00	0.023	O	|	|	|	0.11
841.000	0.00	0.00	0.023	O	|	|	|	0.11
841.250	0.00	0.00	0.023	O	|	|	|	0.11
841.500	0.00	0.00	0.023	O	|	|	|	0.11
841.750	0.00	0.00	0.023	O	|	|	|	0.11
842.000	0.00	0.00	0.023	O	|	|	|	0.11
842.250	0.00	0.00	0.023	O	|	|	|	0.11
842.500	0.00	0.00	0.023	O	|	|	|	0.11
842.750	0.00	0.00	0.023	O	|	|	|	0.11
843.000	0.00	0.00	0.023	O	|	|	|	0.11
843.250	0.00	0.00	0.023	O	|	|	|	0.11
843.500	0.00	0.00	0.023	O	|	|	|	0.11
843.750	0.00	0.00	0.022	O	|	|	|	0.11
844.000	0.00	0.00	0.022	O	|	|	|	0.11
844.250	0.00	0.00	0.022	O	|	|	|	0.11
844.500	0.00	0.00	0.022	O	|	|	|	0.11
844.750	0.00	0.00	0.022	O	|	|	|	0.11
845.000	0.00	0.00	0.022	O	|	|	|	0.11
845.250	0.00	0.00	0.022	O	|	|	|	0.11
845.500	0.00	0.00	0.022	O	|	|	|	0.11
845.750	0.00	0.00	0.022	O	|	|	|	0.11
846.000	0.00	0.00	0.022	O	|	|	|	0.11
846.250	0.00	0.00	0.022	O	|	|	|	0.11
846.500	0.00	0.00	0.022	O	|	|	|	0.11
846.750	0.00	0.00	0.022	O	|	|	|	0.11
847.000	0.00	0.00	0.022	O	|	|	|	0.11
847.250	0.00	0.00	0.022	O	|	|	|	0.11
847.500	0.00	0.00	0.022	O	|	|	|	0.11
847.750	0.00	0.00	0.022	O	|	|	|	0.11
848.000	0.00	0.00	0.022	O	|	|	|	0.11
848.250	0.00	0.00	0.022	O	|	|	|	0.11
848.500	0.00	0.00	0.022	O	|	|	|	0.11
848.750	0.00	0.00	0.022	O	|	|	|	0.11
849.000	0.00	0.00	0.022	O	|	|	|	0.11
849.250	0.00	0.00	0.022	O	|	|	|	0.11
849.500	0.00	0.00	0.022	O	|	|	|	0.11
849.750	0.00	0.00	0.022	O	|	|	|	0.11
850.000	0.00	0.00	0.022	O	|	|	|	0.11
850.250	0.00	0.00	0.022	O	|	|	|	0.11
850.500	0.00	0.00	0.022	O	|	|	|	0.11

850.750	0.00	0.00	0.022	O	|	|	|	0.11
851.000	0.00	0.00	0.022	O	|	|	|	0.11
851.250	0.00	0.00	0.022	O	|	|	|	0.11
851.500	0.00	0.00	0.022	O	|	|	|	0.11
851.750	0.00	0.00	0.022	O	|	|	|	0.11
852.000	0.00	0.00	0.022	O	|	|	|	0.11
852.250	0.00	0.00	0.022	O	|	|	|	0.11
852.500	0.00	0.00	0.022	O	|	|	|	0.11
852.750	0.00	0.00	0.022	O	|	|	|	0.11
853.000	0.00	0.00	0.022	O	|	|	|	0.11
853.250	0.00	0.00	0.022	O	|	|	|	0.11
853.500	0.00	0.00	0.022	O	|	|	|	0.11
853.750	0.00	0.00	0.022	O	|	|	|	0.11
854.000	0.00	0.00	0.022	O	|	|	|	0.11
854.250	0.00	0.00	0.022	O	|	|	|	0.11
854.500	0.00	0.00	0.022	O	|	|	|	0.11
854.750	0.00	0.00	0.021	O	|	|	|	0.11
855.000	0.00	0.00	0.021	O	|	|	|	0.11
855.250	0.00	0.00	0.021	O	|	|	|	0.11
855.500	0.00	0.00	0.021	O	|	|	|	0.11
855.750	0.00	0.00	0.021	O	|	|	|	0.11
856.000	0.00	0.00	0.021	O	|	|	|	0.11
856.250	0.00	0.00	0.021	O	|	|	|	0.11
856.500	0.00	0.00	0.021	O	|	|	|	0.11
856.750	0.00	0.00	0.021	O	|	|	|	0.11
857.000	0.00	0.00	0.021	O	|	|	|	0.11
857.250	0.00	0.00	0.021	O	|	|	|	0.11
857.500	0.00	0.00	0.021	O	|	|	|	0.11
857.750	0.00	0.00	0.021	O	|	|	|	0.11
858.000	0.00	0.00	0.021	O	|	|	|	0.11
858.250	0.00	0.00	0.021	O	|	|	|	0.11
858.500	0.00	0.00	0.021	O	|	|	|	0.11
858.750	0.00	0.00	0.021	O	|	|	|	0.11
859.000	0.00	0.00	0.021	O	|	|	|	0.11
859.250	0.00	0.00	0.021	O	|	|	|	0.11
859.500	0.00	0.00	0.021	O	|	|	|	0.11
859.750	0.00	0.00	0.021	O	|	|	|	0.11
860.000	0.00	0.00	0.021	O	|	|	|	0.11
860.250	0.00	0.00	0.021	O	|	|	|	0.11
860.500	0.00	0.00	0.021	O	|	|	|	0.10
860.750	0.00	0.00	0.021	O	|	|	|	0.10
861.000	0.00	0.00	0.021	O	|	|	|	0.10
861.250	0.00	0.00	0.021	O	|	|	|	0.10
861.500	0.00	0.00	0.021	O	|	|	|	0.10
861.750	0.00	0.00	0.021	O	|	|	|	0.10
862.000	0.00	0.00	0.021	O	|	|	|	0.10
862.250	0.00	0.00	0.021	O	|	|	|	0.10
862.500	0.00	0.00	0.021	O	|	|	|	0.10
862.750	0.00	0.00	0.021	O	|	|	|	0.10
863.000	0.00	0.00	0.021	O	|	|	|	0.10
863.250	0.00	0.00	0.021	O	|	|	|	0.10
863.500	0.00	0.00	0.021	O	|	|	|	0.10
863.750	0.00	0.00	0.021	O	|	|	|	0.10
864.000	0.00	0.00	0.021	O	|	|	|	0.10
864.250	0.00	0.00	0.021	O	|	|	|	0.10
864.500	0.00	0.00	0.021	O	|	|	|	0.10
864.750	0.00	0.00	0.021	O	|	|	|	0.10
865.000	0.00	0.00	0.021	O	|	|	|	0.10
865.250	0.00	0.00	0.021	O	|	|	|	0.10
865.500	0.00	0.00	0.021	O	|	|	|	0.10
865.750	0.00	0.00	0.021	O	|	|	|	0.10
866.000	0.00	0.00	0.021	O	|	|	|	0.10

866.250	0.00	0.00	0.020	O	|	|	|	0.10
866.500	0.00	0.00	0.020	O	|	|	|	0.10
866.750	0.00	0.00	0.020	O	|	|	|	0.10
867.000	0.00	0.00	0.020	O	|	|	|	0.10
867.250	0.00	0.00	0.020	O	|	|	|	0.10
867.500	0.00	0.00	0.020	O	|	|	|	0.10
867.750	0.00	0.00	0.020	O	|	|	|	0.10
868.000	0.00	0.00	0.020	O	|	|	|	0.10
868.250	0.00	0.00	0.020	O	|	|	|	0.10
868.500	0.00	0.00	0.020	O	|	|	|	0.10
868.750	0.00	0.00	0.020	O	|	|	|	0.10
869.000	0.00	0.00	0.020	O	|	|	|	0.10
869.250	0.00	0.00	0.020	O	|	|	|	0.10
869.500	0.00	0.00	0.020	O	|	|	|	0.10
869.750	0.00	0.00	0.020	O	|	|	|	0.10
870.000	0.00	0.00	0.020	O	|	|	|	0.10
870.250	0.00	0.00	0.020	O	|	|	|	0.10
870.500	0.00	0.00	0.020	O	|	|	|	0.10
870.750	0.00	0.00	0.020	O	|	|	|	0.10
871.000	0.00	0.00	0.020	O	|	|	|	0.10
871.250	0.00	0.00	0.020	O	|	|	|	0.10
871.500	0.00	0.00	0.020	O	|	|	|	0.10
871.750	0.00	0.00	0.020	O	|	|	|	0.10
872.000	0.00	0.00	0.020	O	|	|	|	0.10
872.250	0.00	0.00	0.020	O	|	|	|	0.10

Remaining water in basin = 0.02 (Ac.Ft)

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

Number of intervals = 3489
Time interval = 15.0 (Min.)
Maximum/Peak flow rate = 9.160 (CFS)
Total volume = 1.941 (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

****

DAVID EVANS AND ASSOCIATES INC.

Appendix-7:

Project Site Precipitations

NOAA Atlas 14

NOAA Atlas 14, Volume 6, Version 2
Location name: Victorville, California, USA*
Latitude: 34.5431°, Longitude: -117.3356°
Elevation: 2893.23 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	0.102 (0.084-0.125)	0.139 (0.115-0.171)	0.191 (0.157-0.235)	0.237 (0.193-0.293)	0.303 (0.239-0.387)	0.357 (0.276-0.467)	0.416 (0.314-0.557)	0.480 (0.352-0.661)	0.573 (0.403-0.822)	0.651 (0.443-0.966)
10-min	0.146 (0.121-0.179)	0.200 (0.164-0.244)	0.274 (0.225-0.337)	0.339 (0.277-0.420)	0.434 (0.342-0.555)	0.512 (0.395-0.669)	0.596 (0.449-0.798)	0.688 (0.505-0.947)	0.821 (0.578-1.18)	0.933 (0.634-1.38)
15-min	0.177 (0.146-0.216)	0.241 (0.199-0.296)	0.332 (0.273-0.408)	0.410 (0.334-0.508)	0.525 (0.414-0.671)	0.619 (0.478-0.809)	0.721 (0.544-0.965)	0.832 (0.610-1.15)	0.993 (0.699-1.43)	1.13 (0.767-1.67)
30-min	0.236 (0.195-0.289)	0.322 (0.265-0.394)	0.443 (0.364-0.544)	0.547 (0.446-0.678)	0.700 (0.552-0.896)	0.826 (0.638-1.08)	0.962 (0.725-1.29)	1.11 (0.814-1.53)	1.33 (0.933-1.90)	1.51 (1.02-2.23)
60-min	0.271 (0.224-0.332)	0.370 (0.305-0.454)	0.509 (0.418-0.625)	0.629 (0.513-0.780)	0.805 (0.635-1.03)	0.950 (0.734-1.24)	1.11 (0.834-1.48)	1.28 (0.936-1.76)	1.52 (1.07-2.19)	1.73 (1.18-2.57)
2-hr	0.377 (0.311-0.461)	0.504 (0.415-0.617)	0.680 (0.559-0.835)	0.831 (0.678-1.03)	1.05 (0.827-1.34)	1.23 (0.947-1.60)	1.41 (1.07-1.89)	1.62 (1.19-2.23)	1.91 (1.34-2.74)	2.15 (1.46-3.19)
3-hr	0.445 (0.367-0.544)	0.591 (0.488-0.725)	0.793 (0.652-0.974)	0.965 (0.787-1.20)	1.21 (0.955-1.55)	1.41 (1.09-1.84)	1.62 (1.22-2.17)	1.84 (1.35-2.54)	2.16 (1.52-3.10)	2.42 (1.65-3.59)
6-hr	0.596 (0.492-0.729)	0.791 (0.652-0.969)	1.06 (0.868-1.30)	1.28 (1.04-1.58)	1.59 (1.26-2.04)	1.84 (1.42-2.41)	2.10 (1.59-2.81)	2.38 (1.74-3.27)	2.76 (1.95-3.96)	3.07 (2.09-4.56)
12-hr	0.756 (0.624-0.925)	1.01 (0.837-1.24)	1.36 (1.12-1.67)	1.65 (1.34-2.04)	2.04 (1.61-2.61)	2.35 (1.82-3.07)	2.67 (2.01-3.57)	3.00 (2.20-4.13)	3.45 (2.43-4.95)	3.81 (2.59-5.66)
24-hr	0.963 (0.854-1.11)	1.32 (1.17-1.52)	1.78 (1.57-2.06)	2.16 (1.89-2.51)	2.67 (2.26-3.22)	3.07 (2.55-3.77)	3.47 (2.82-4.38)	3.89 (3.07-5.04)	4.46 (3.37-6.03)	4.91 (3.58-6.86)
2-day	1.09 (0.968-1.26)	1.51 (1.34-1.74)	2.07 (1.83-2.39)	2.53 (2.22-2.95)	3.16 (2.68-3.80)	3.64 (3.03-4.48)	4.14 (3.36-5.22)	4.66 (3.67-6.04)	5.37 (4.06-7.25)	5.92 (4.33-8.28)
3-day	1.19 (1.06-1.37)	1.66 (1.47-1.91)	2.29 (2.02-2.64)	2.80 (2.45-3.26)	3.51 (2.98-4.23)	4.06 (3.37-4.99)	4.63 (3.75-5.83)	5.22 (4.11-6.76)	6.03 (4.56-8.14)	6.67 (4.87-9.32)
4-day	1.27 (1.12-1.46)	1.77 (1.57-2.04)	2.44 (2.15-2.82)	2.99 (2.62-3.48)	3.74 (3.17-4.50)	4.32 (3.59-5.31)	4.92 (3.99-6.20)	5.55 (4.37-7.18)	6.40 (4.84-8.64)	7.07 (5.16-9.88)
7-day	1.36 (1.21-1.57)	1.89 (1.67-2.17)	2.58 (2.27-2.97)	3.14 (2.75-3.65)	3.90 (3.31-4.70)	4.49 (3.72-5.52)	5.08 (4.12-6.40)	5.69 (4.49-7.38)	6.52 (4.93-8.81)	7.17 (5.23-10.0)
10-day	1.44 (1.27-1.65)	1.98 (1.75-2.28)	2.69 (2.38-3.11)	3.27 (2.86-3.81)	4.05 (3.43-4.88)	4.65 (3.86-5.71)	5.25 (4.25-6.61)	5.87 (4.62-7.60)	6.70 (5.06-9.04)	7.33 (5.36-10.2)
20-day	1.65 (1.46-1.89)	2.29 (2.03-2.64)	3.14 (2.77-3.62)	3.83 (3.36-4.46)	4.78 (4.05-5.75)	5.50 (4.57-6.77)	6.24 (5.06-7.86)	7.00 (5.51-9.07)	8.02 (6.06-10.8)	8.80 (6.43-12.3)
30-day	1.85 (1.64-2.13)	2.60 (2.31-3.00)	3.62 (3.19-4.18)	4.46 (3.91-5.19)	5.63 (4.77-6.78)	6.54 (5.43-8.05)	7.48 (6.06-9.43)	8.46 (6.67-11.0)	9.80 (7.41-13.2)	10.8 (7.92-15.1)
45-day	2.13 (1.89-2.46)	3.04 (2.69-3.50)	4.28 (3.78-4.95)	5.35 (4.69-6.23)	6.88 (5.83-8.28)	8.11 (6.73-9.97)	9.40 (7.61-11.8)	10.8 (8.48-13.9)	12.7 (9.59-17.1)	14.2 (10.4-19.9)
60-day	2.32 (2.06-2.67)	3.32 (2.94-3.82)	4.74 (4.18-5.47)	5.98 (5.24-6.97)	7.80 (6.61-9.40)	9.31 (7.73-11.4)	10.9 (8.85-13.8)	12.7 (9.99-16.4)	15.2 (11.5-20.5)	17.3 (12.6-24.1)

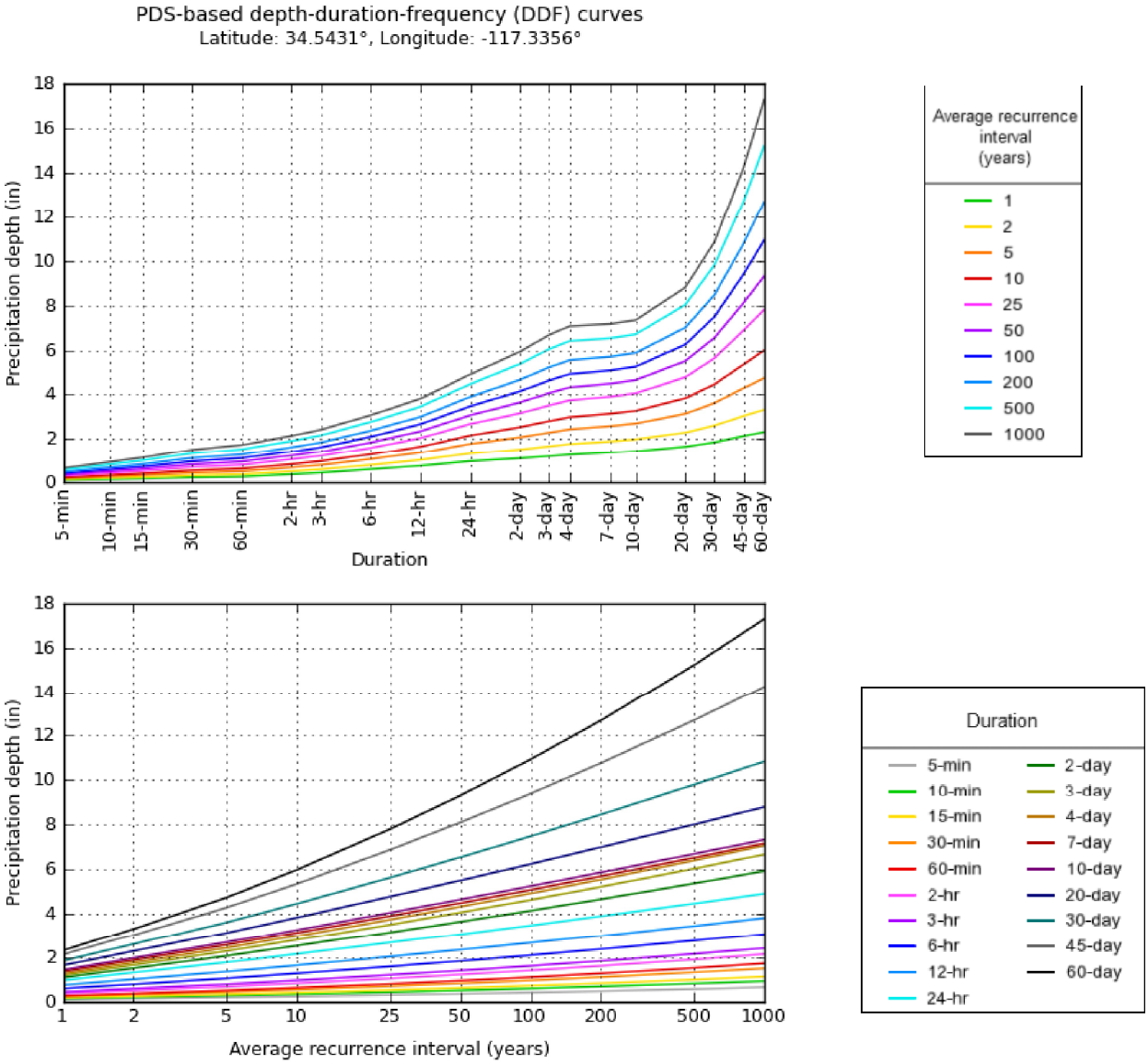
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

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.

Back to Top

PF graphical



NOAA Atlas 14, Volume 6, Version 2

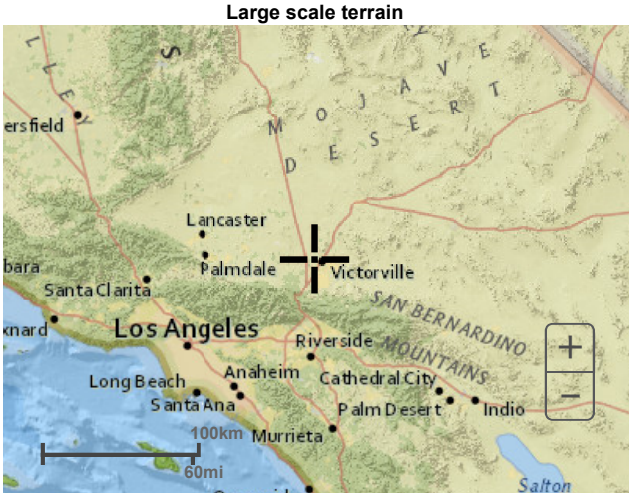
Created (GMT): Thu May 30 20:32:20 2019

Back to Top

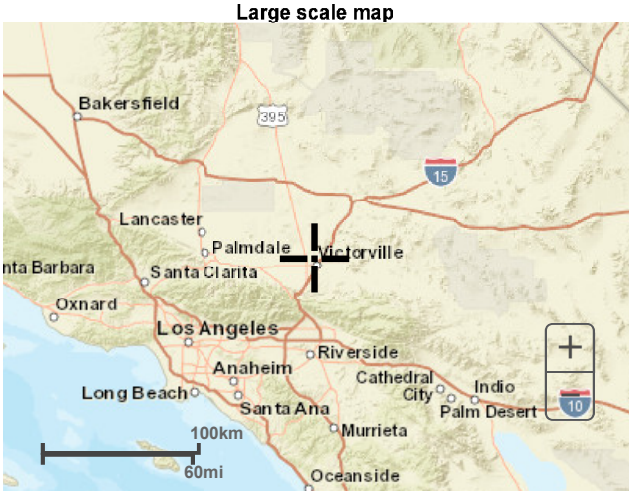
Maps & aerials

Small scale terrain

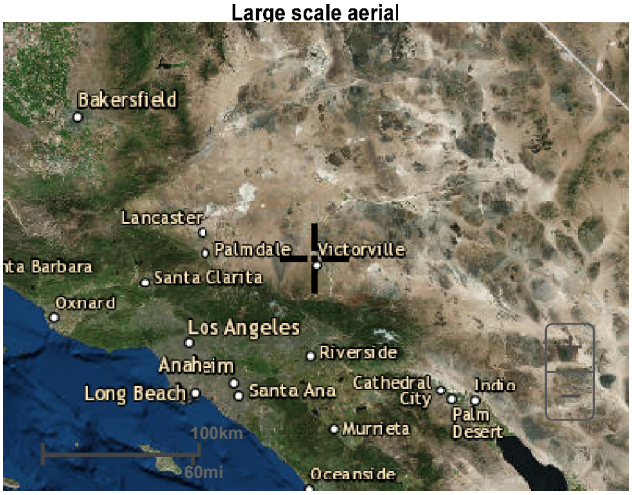
Large scale terrain



Large scale map



Large scale aerial



Back to Top

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

Disclaimer

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Appendix-8:

Reference

Hydrology Soil Group Maps
&
Soil Report

Map Scale: 1:1,480 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: San Bernardino County, California, Mojave River Area
Survey Area Data: Version 11, Sep 17, 2019

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

Date(s) aerial images were photographed: Feb 1, 2015—Feb 4, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
107	BRYMAN LOAMY FINE SAND, 5 TO 9 PERCENT SLOPES	C	2.4	57.9%
140	LAVIC LOAMY FINE SAND	B	1.8	42.1%
Totals for Area of Interest			**4.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

DAVID EVANS AND ASSOCIATES INC.

Soil Report

Converse Consultants
Geotechnical Engineering
Environmental & Groundwater Science
Inspection & Testing Services

UPDATED GEOTECHNICAL INVESTIGATION & WATER INFILTRATION TEST REPORT

APPROXIMATELY 20.60-ACRE RESIDENTIAL DEVELOPMENT

SOUTHEAST CORNER OF HOPLAND STREET AND CAHUENGA ROAD
CITY OF VICTORVILLE, SAN BERNARDINO COUNTY, CALIFORNIA

CONVERSE PROJECT NO. 19-81-173-01

Prepared For:

LANSING COMPANIES
12671 High Bluff Drive, Suite 150
San Diego, CA 92130

Presented By:

CONVERSE CONSULTANTS
2021 Rancho Drive, Suite 1
Redlands, CA 92373
909-796-0544

July 16, 2019

Converse Consultants
Geotechnical Engineering, Environmental & Groundwater Science, Inspection & Testing Services

July 16, 2019

Mr. Casey Malone
Project Manager
Lansing Companies
12671 High Bluff Drive, Suite 150
San Diego, CA 92130

Subject: **UPDATED GEOTECHNICAL INVESTIGATION AND WATER INFILTRATION TEST REPORT**
Approximately 20.60-Acre Residential Development
Southeast Corner of Hopland Street and Cahuenga Road
City of Victorville, San Bernardino County, California
Converse Project No. 19-81-173-01

Dear Mr. Malone:

Converse Consultants (Converse) has prepared this updated geotechnical investigation and water infiltration test report to present the findings, conclusions and recommendations for the approximately 20.60-Acre Residential Development project located on the southeast corner of Hopland Street and Cahuenga Road in the city of Victorville, San Bernardino County, California. This report is prepared in accordance with our proposal dated May 14, 2019 and your General Consultant Agreement dated May 16, 2019.

Converse Consultants prepared a geotechnical investigation report (05-81-351-01) for the subject site dated January 27, 2006 for Victory Ridge Estate Homes, LLC (Converse, 2006). A portion of the site was developed. This report includes design and construction recommendations for development of the remaining site.

Based upon our field investigation, laboratory data, and analyses, the proposed project is considered suitable from a geotechnical standpoint, provided the recommendations presented in this report are incorporated into the design and construction of the project.

We appreciate the opportunity to be of continued service to Lansing Companies. If you should have any questions, please contact the undersigned at 909-796-0544.

CONVERSE CONSULTANTS

Hashmi S. E. Quazi, PhD, PE, GE
Regional Manager/Principal Engineer

Dist.: 3/Addressee

PROFESSIONAL CERTIFICATION

This report has been prepared by the following professionals whose seals and signatures appear herein.

The findings, recommendations, specifications and professional opinions contained in this report were prepared in accordance with the generally accepted professional engineering and engineering geologic principle and practice in this area of Southern California. We make no other warranty, either expressed or implied.

Zahangir Alam, PhD, EIT
Senior Staff Engineer

James Burnham, PG
Project Geologist

Hashmi S. E. Quazi, PhD, PE, GE
Principal Engineer

EXECUTIVE SUMMARY

The following is a summary of our geotechnical investigation, conclusions and recommendations as presented in this report. Please refer to the pertinent section of the attached report for complete conclusions and recommendations. In the event of a conflict between this summary and the report, or an omission in the summary, the report shall prevail.

- The proposed 20.60-acre residential development site is located on the southeast corner of Hopland Street and Cahuenga Road in the City of Victorville, San Bernardino County, California. The site is irregularly shaped and is roughly bounded on the east by residential developments, Carmelia Drive, and vacant land; on the west by Cahuenga Road; on the north by residential developments and Hopland Street; and on the south by Tawney Ridge Lane. The site is presently vacant. The topography of the site is irregular, but generally trends downwards from approximately 2,910 feet above mean sea level (AMSL) along the eastern-most boundary to approximately 2,875 feet AMSL along the western-most boundary. The landscape is relatively flat and clear of major vegetation.

- It was planned to build 129 single-family, one- and two-story homes supported by conventional continuous and/or isolated footing foundations with slab-on-grade. It is our understanding that the development included driveways, in-tract streets with curbs and gutters, sidewalks, landscaped areas, and under- and above-ground utilities. We understand approximately 10-acre of the original 30-acre has been developed with 59 single-family homes, above and below ground utilities and interior streets. We are not aware when the site was graded and who provided observation and testing during grading and post-grading. The remaining 20.60-acre site will now be developed for 70 single-family homes supported by conventional continuous and/or isolated footing foundations with slab-on-grade. The project also includes streets, driveways, curb and gutter, sidewalks, landscape areas and above and underground utilities. A detention basin approximately between 6.5 to 8 feet deep is planned at the northeast corner of the site.

- Our scope of work included project set-up, subsurface exploration, percolation testing, laboratory testing, engineering analysis, and preparation of this report.

- For the previous investigation performed by Converse, a total of seven exploratory borings (BH-1 to BH-7) were drilled on December 7, 2005 across the project site, to depths of 16.5 to 51.5 feet below ground surface (bgs).
- Additionally, two exploratory borings (BH-8 and BH-9) were drilled on June 3, 2019 to investigate subsurface conditions at the project site. The borings were drilled to depths of 15.8 and 16.4 feet below existing ground surface (bgs). Two exploratory percolation test holes (PT-01 and PT-02) were drilled on June 3, 2019 to perform

percolation testing. Both percolation test borings were drilled to approximately 8.0 feet below the existing ground surface (bgs). The percolation test holes were re-drilled to 10 feet bgs on July 12, 2019. Logs of borings from the previous and present investigation are included in Appendix A, *Field Exploration*.

- The subsurface soil at the site consists primarily mixture of silt, sand, and gravel. Gravel up to 2 inches in largest dimension was encountered in most of the borings.

- Groundwater was not encountered during our current (2019) or previous (2006) field investigation to the maximum explored depths of 16.4 and 51.5 feet bgs, respectively. Current groundwater is expected to be deeper than 16.4 feet bgs. It should be noted that the groundwater level could vary depending upon the seasonal precipitation and possible groundwater pumping activity in the vicinity.

- The project site is not located within a currently mapped State of California Earthquake Fault Zone for surface fault rupture.

- Due to the absence of shallow groundwater, the project site is not considered susceptible to liquefaction.

- The risk to the site from lateral spreading, landsliding, seiches, tsunamis, and earthquake-induced flooding are considered to be low.

- The expansion index (EI) of soil samples from the upper 10 feet varied from 0 to 43, corresponding to very low to low expansion potential. The collapse potentials of the upper 10 feet soils were between 0.25 to 3.03 (including consolidation test) percent, indicating slight to moderate collapse potential.

- The sulfate contents of the sampled soils correspond to American Concrete Institute (ACI) exposure category S0 for these sulfate concentrations. No concrete type restrictions are specified for exposure category S0. A minimum compressive strength of 2,500 psi is recommended. The chloride contents of the sampled soils correspond to American Concrete Institute (ACI) exposure category C1 (concrete is exposed to moisture, but not to external sources of chlorides). For exposure category C1, ACI provides concrete compressive strength of at least 2,500 psi and a maximum chloride content of 0.3 percent.

- The measured value of the minimum electrical resistivity of the sample when saturated were 876 and 4,046 ohm-cm for the site. This indicates that the soils tested are mildly corrosive to severely corrosive to ferrous metals in contact with the soil. Converse does not practice in the area of corrosion consulting. A qualified corrosion consultant should provide appropriate corrosion mitigation measures for any ferrous metals in contact with the site soils.

- Prior to the start of construction, all existing underground utilities and appurtenances, if present, should be located at the project site. Such utilities should either be protected in-place or removed and replaced during construction as required by the project specifications. All excavations should be conducted in such a manner as not to cause loss of bearing and/or lateral support of existing utilities and structure (if any).

- Based on our subsurface exploration, we anticipate that the site soils will be excavatable with conventional heavy-duty earthmoving equipment. Difficult excavation may be encountered in areas of high concentration of granular materials.

- Excavated onsite earth materials cleared of deleterious matter can be moisture conditioned and re-used as compacted fill.

- About five feet of alluvial soils should be removed and replaced with compacted fill, prior to placing additional compacted fill.

- For building pads, deeper excavation may be required below finish grade in cut areas. If less than five feet is removed from original ground (og), excavation should continue to provide a minimum of two feet of compacted fill below bottom of footings. If more than five feet is removed, the bottom surface should be evaluated for suitability by the geotechnical consultant. All over-excavations should extend at least five feet or equal to the depth of over-excavation, whichever is greater, outside the building footprint.

- The cut portion of transition lots (and if necessary, the fill portion) should be excavated to a depth to provide a minimum of two feet of compacted fill beneath the entire pads.

- As a minimum, the upper three feet of surficial soils from all areas receiving asphalt concrete or Portland concrete paving, including driveways, sidewalks, street areas, curbs and gutters and other flatwork should be excavated, removed if necessary, and/or replaced as compacted fill. Such over-excavation should extend at least two feet beyond the pavement area edges.

- As a minimum, the upper three feet of surficial soils within two feet of either side of retaining/perimeter walls less than six feet in height, should be excavated, removed if necessary, and/or processed and replaced as compacted fill. The depth of the structural fill under retaining/perimeter wall footings should be at least two feet or equal to footing width, whichever is greater.

- Fill soils should be placed on scarified and recompacted excavation bottoms, moisture conditioned, and compacted to at least 90 percent of the laboratory maximum dry density. At least the upper 12 inches of fill beneath pavement intended to support

vehicle loads should be compacted to at least 95 percent of the laboratory maximum dry density.

- Residential one- or two-story wood-frame, lightly loaded structures may be supported on conventional continuous (strip) and/or isolated (spread) footings. Interior and exterior footings should be placed at least 12 inches and 18 inches, respectively, below lowest adjacent soil grade. Width of the continuous and isolated footings for one-story buildings should be at least 12 inches and 18 inches, respectively. Width of the continuous and isolated footings for two-story buildings should be at least 18 inches and 24 inches, respectively. Footings placed at a depth of 12 inches and 18 inches below lowest adjacent grade may be designed based on an allowable net bearing capacity of 2,000 pounds per square foot (psf).

- The total settlement of shallow footings from static structural loads and short-term settlement of properly compacted fill is anticipated to be one inch or less. The differential settlement resulting from static loads is anticipated to be 0.5 inches or less over a horizontal distance of 40 feet.

- Based on the observed high blow counts below 5 feet bgs in all borings and over-excavation recommendations, we anticipate the site will likely have negligible seismic settlement. For the design purpose, seismic settlement may be taken as 1 inch or less and the differential settlement may be taken as half of the total seismic settlement.

- The recommended infiltration rate is 0.17 inches/hour at 8 feet bgs or 1.01 inches per hour at 10 feet bgs at the location of the infiltration basin.

- Lateral earth pressures and pipe design parameters are presented in the text of this report.

- Pavement design recommendations are presented in the text of this report.

- Recommendations for temporary sloped excavations are provided in the text of this report.

Based on our investigation, it is our professional opinion that the site is suitable for the construction of the proposed building provided the recommendations presented in this geotechnical investigation report are implemented in the planning, design and construction of the project.

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 PROJECT BACKGROUND AND DESCRIPTION 1

3.0 SITE DESCRIPTION 2

4.0 SCOPE OF WORK 3

4.1 Document Review 3
4.2 Project Set-up 3
4.3 Subsurface Exploration 3
4.4 Laboratory Testing 4
4.5 Analysis and Report Preparation 4

5.0 SITE CONDITIONS 4

5.1 Subsurface Profile 4
5.2 Groundwater 5
5.3 Excavatability 5
5.4 Subsurface Variations 6

6.0 ENGINEERING GEOLOGY 6

6.1 Regional Geology 6
6.2 Site Geology 6
6.3 Flooding 6

7.0 FAULTING AND SEISMICITY 7

7.1 Faulting 7
7.2 CBC Seismic Design Parameters 7
7.3 Secondary Effects of Seismic Activity 8

8.0 LABORATORY TESTING 10

8.1 Physical Testing 10
8.2 Chemical Testing - Corrosivity Evaluation 11

9.0 PERCOLATION TESTING 11

10.0 EARTHWORK AND SITE GRADING RECOMMENDATIONS 12

10.1 General 12
10.2 Subgrade Preparation-Fill Areas 12
10.3 Over-excavation/Removal within Building Pads 13
10.4 Transition Lots 13
10.5 Over-excavation/Removal for Pavement Areas 13
10.6 Over-excavation/Removal for Retaining/Perimeter Walls 13
10.7 Engineered Fill 14
10.8 Compacted Fill Placement 14
10.9 Backfill Recommendations Behind Subterranean Wall 15

10.10 SHRINKAGE AND SUBSIDENCE 15
10.11 SITE DRAINAGE 16
10.12 UTILITY TRENCH BACKFILL 16

11.0 DESIGN RECOMMENDATIONS 18

11.1 SHALLOW FOUNDATION DESIGN PARAMETERS 18
11.2 LATERAL EARTH PRESSURES AND RESISTANCE TO LATERAL LOADS 19
11.3 SLABS-ON-GRADE 20
11.4 SETTLEMENT 21
11.5 PIPE DESIGN PARAMETERS 21
11.6 BEARING PRESSURE FOR ANCHOR AND THRUST BLOCKS 22
11.7 SOIL CORROSIVITY 22
11.8 PAVEMENT RECOMMENDATIONS 23
11.9 CONCRETE FLATWORK 24

12.0 CONSTRUCTION RECOMMENDATIONS 24

12.1 GENERAL 25
12.2 TEMPORARY SLOPED EXCAVATIONS 25

13.0 GEOTECHNICAL SERVICES DURING CONSTRUCTION 26

14.0 CLOSURE 26

15.0 REFERENCES 28

FIGURE

Following Page No.

Figure No. 1, Approximate Project Location Map 1
Figure No. 2a, Approximate Boring & Percolation Test Locations Map 3
Figure No. 2, Approximate Boring Locations Map (2006) 3

TABLES

Page No.

Table No. 1, Summary of USGS Groundwater Depth Data 5
Table No. 2, Summary of Regional Faults 7
Table No. 3, CBC Seismic Design Parameters 8
Table No. 4, Estimated Infiltration Rates 11
Table No. 5, Active and At-Rest Earth Pressures 19
Table No. 6, Soil Parameters for Pipe Design 22
Table No. 7, Recommended Preliminary Pavement Sections 23
Table No. 8, Slope Ratios for Temporary Excavations 25

APPENDICES

Appendix A.....Field Exploration
Appendix B.....Laboratory Testing Program
Appendix C .....Water Infiltration Testing

1.0 INTRODUCTION

This updated report contains the findings of the geotechnical investigation and percolation tests performed by Converse for the proposed residential development within a 20.60-acre site located on the southeast corner of Hopland Street and Cahuenga Road in the city of Victorville, San Bernardino County, California. The project location is shown in Figure No. 1, *Approximate Project Location Map.*

Converse Consultants investigated the site on December 7, 2005 by drilling seven exploratory borings ranging in depths from 16.5 to 51.5 feet below existing ground surface (bgs). A geotechnical investigation report was prepared for Victory Ridge Estate Homes, LLC (Converse, 2006).

The purpose of this investigation was to evaluate the current nature and engineering properties of the subsurface soils and groundwater conditions, and to provide updated geotechnical recommendations for the proposed residential development.

This report is written for the project described herein and is intended for use solely by Lansing Companies and their design team. It should not be used as a bidding document but may be made available to the potential contractors for information on factual data only. For bidding purposes, the contractors should be responsible for making their own interpretation of the data contained in this report.

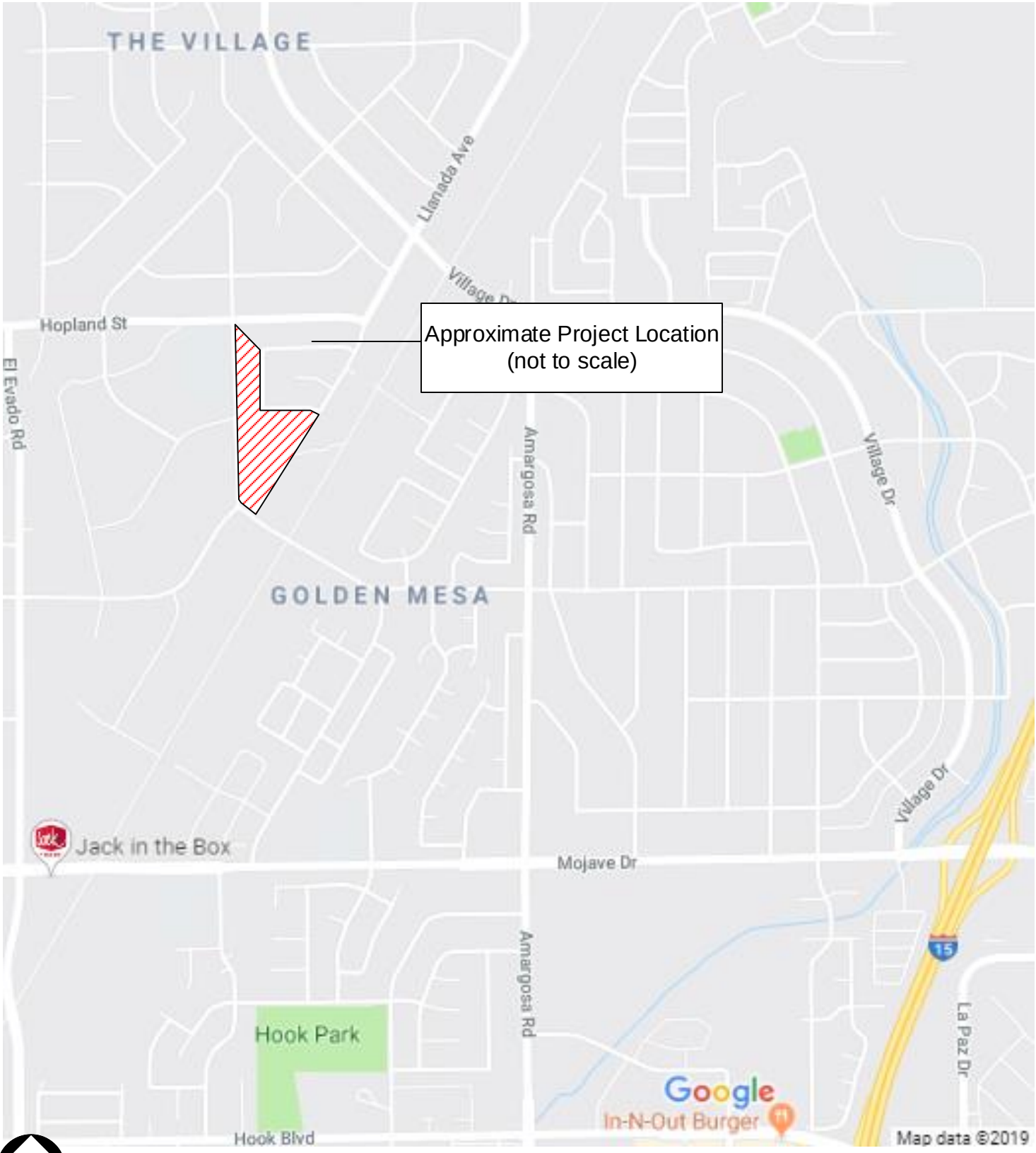
2.0 PROJECT BACKGROUND AND DESCRIPTION

The original approximately 30-acre site is located at the southeast corner of Hopland Street and Cahuenga Road in the City of Victorville, San Bernardino County, California.

It was planned to build 129 single-family, one- and two-story homes supported by conventional continuous and/or isolated footing foundations with slab-on-grade. It is our understanding that the development included driveways, in-tract streets with curbs and gutters, sidewalks, landscaped areas, and under- and above-ground utilities.

We understand approximately 10-acre of the original 30-acre has been developed with 59 single-family homes, above and below ground utilities and interior streets. We are not aware when the site was graded and who provided observation and testing during grading and post-grading.

The remaining 20.60-acre site will now be developed for 70 single-family homes supported by conventional continuous and/or isolated footing foundations with slab-on-grade. The project also includes streets, driveways, curb and gutter, sidewalks, landscape areas and above and underground utilities. A detention basin approximately between 6.5 to 8 feet deep is planned at the northeast corner of the site.



Approximate Project Location Map

Project: Approximately 20.60-Acre Residential Development
Location: City of Victorville, San Bernardino County, California

Project No
19-81-173-01

For: Lansing Companies

Converse Consultants

FIGURE NO.
1

Rough grading plans have not been prepared or reviewed at the time of this report. Based on our experience with similar projects, site development may include slopes and earth retaining walls (perimeter walls) less than six feet in height. These walls will be founded on conventional continuous footings.

3.0 SITE DESCRIPTION

The proposed 20.60-acre residential development site is irregularly shaped and is roughly bounded on the east by residential developments, Carmelia Drive, and vacant land; on the west by Cahuenga Road; on the north by residential developments and Hopland Street; and on the south by Tawney Ridge Lane. The site is presently vacant.

The topography of the site is irregular, but generally trends downwards from approximately 2,910 feet above mean sea level (AMSL) along the eastern-most boundary to approximately 2,875 feet AMSL along the western-most boundary. The landscape is relatively flat and clear of major vegetation. Few large boulders are randomly dispersed throughout the site and a large depression and gently sloping mound of soil is located roughly in the center of the site in the vicinity of boring BH-9. Short piles of undocumented fill soil are also present throughout the western portion of the site. The present site conditions are shown in Photograph 1 below.

Photograph No. 1, Present site conditions near center-west boundary, facing northwest.

4.0 SCOPE OF WORK

The scope of this investigation included project set-up, subsurface exploration, laboratory testing, engineering analysis, and preparation of this report, as described in the following sections.

4.1 Document Review

We reviewed geologic maps, aerial photographs, groundwater data, and other information pertaining to the project site to assist in the evaluation of geologic hazards that may be present. We used pertinent information (the documents cited in Section 15, *Reference*s) to understand the subsurface conditions and plan the investigation for this project.

4.2 Project Set-up

The project set-up consisted of the following tasks.

- Conducted a field reconnaissance and marked the boring locations such that the drill rig access to all locations was available.
- Notified Underground Service Alert (USA) at least 48 hours prior to drilling to clear the boring location of any conflict with existing underground utilities.
- Engaged a California-licensed driller to drill exploratory borings.

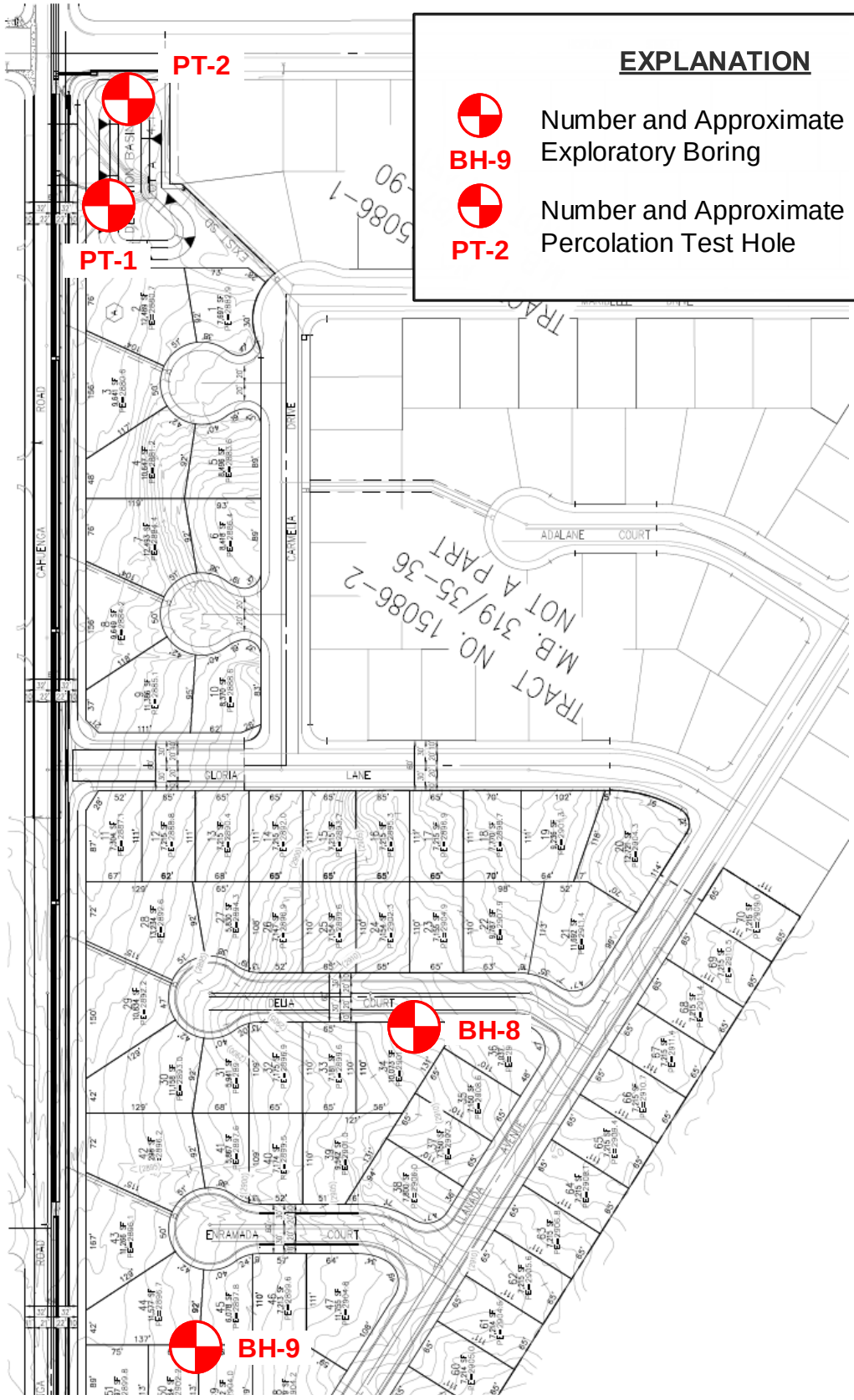
4.3 Subsurface Exploration

For the previous investigation performed by Converse, a total of seven exploratory borings (BH-1 to BH-7) were drilled on December 7, 2005 across the project site, to depths of 16.5 to 51.5 feet below ground surface (bgs).

Additionally, two exploratory borings (BH-8 and BH-9) were drilled on June 3, 2019 to investigate subsurface conditions at the project site. The borings were drilled to depths of 15.8 and 16.4 feet below existing ground surface (bgs).

Two exploratory percolation test holes (PT-01 and PT-02) were drilled on June 3, 2019 to perform percolation testing. Both percolation test borings were drilled to approximately 8.0 feet below the existing ground surface (bgs).

Approximate boring and percolation testing locations are indicated in Figure No. 2a, *Approximate Boring and Percolation Test Locations Map*. Previous (2006) approximate boring locations are also attached after Figure No. 2a. For a description of the field exploration and sampling program, see Appendix A, *Field Exploration*.



Approximate Boring and Percolation Test Locations Map

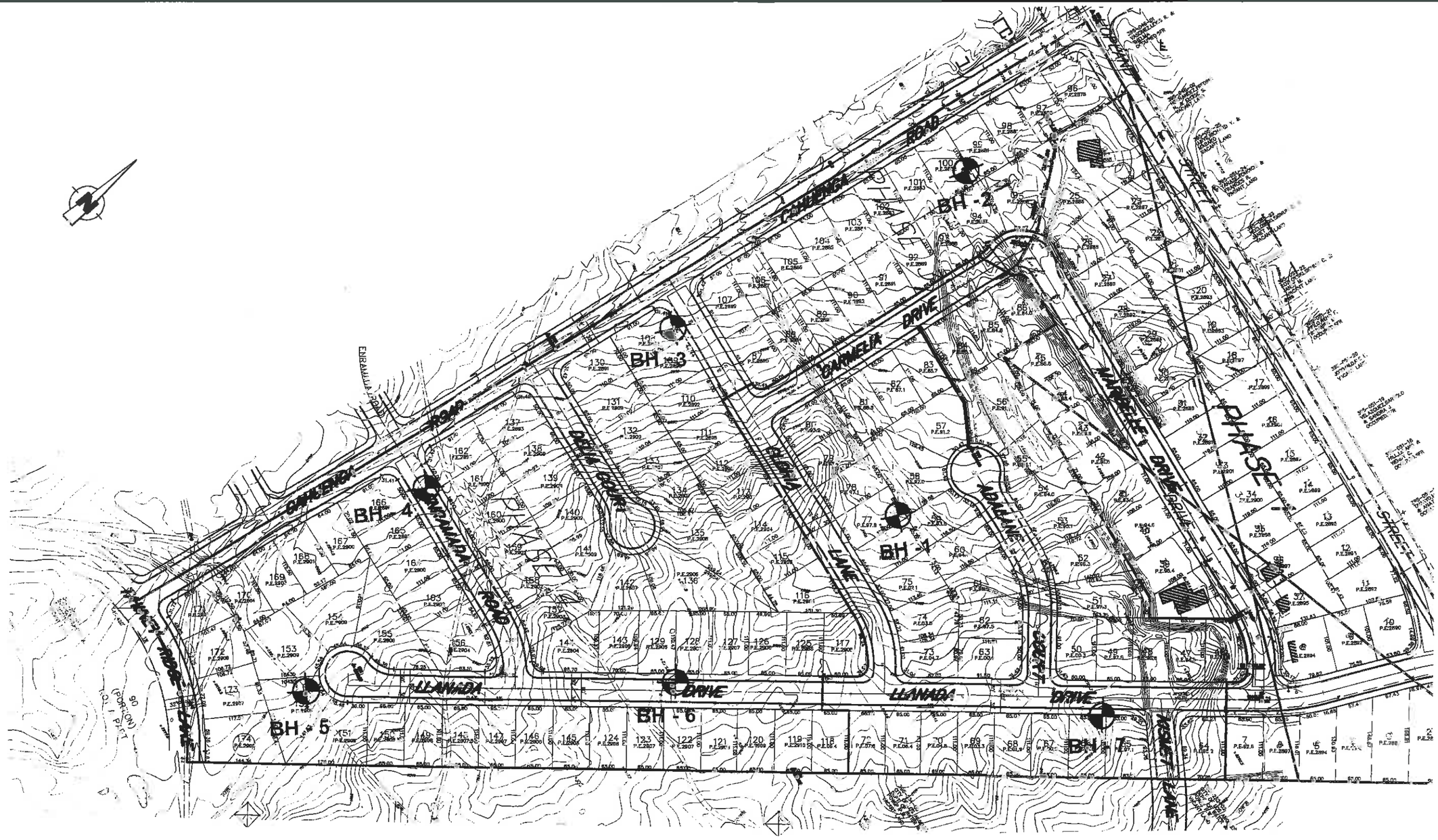
Project: Approximately 20.60-Acre Residential Development
Location: City of Victorville, San Bernardino County, California

For: Lansing Companies

Project No.
19-81-173-01

Converse Consultants

Figure No.
2a



APPROXIMATE BORING LOCATION MAP

EXPLANATION

BH - 1 Number and Approximate Boring Location

APRROXIMATELY 30 – ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Converse Consultants

Scale	NTS
Prepared By	KQ
Checked By	BAS
Approved By	RJR
Project No.	05-81-351-01
Figure No.	2

4.4 Laboratory Testing

Representative soil samples of the project site were tested in the laboratory to aid in the soils classification and to evaluate the relevant engineering properties of the site soils. These tests included the following.

- *In*-situ moisture contents and dry densities (ASTM D2216 and ASTM D7263)
- Expansion index (ASTM D4829)
- R-value (California Test Method 301)
- Soil corrosivity (California Tests 643, 422, and 417)
- Collapse Potential (ASTM Standard D4546)
- Grain size distribution (ASTM D6913)
- Maximum dry density and optimum-moisture content (ASTM D1557)
- Direct shear (ASTM D3080)

For *in-situ* moisture and dry density data, see the Logs of Borings in Appendix A, *Field Exploration*. For a description of the laboratory test methods and test results, see Appendix B, *Laboratory Testing Program.*

4.5 Analysis and Report Preparation

Data obtained from the field exploration and laboratory testing program was compiled and evaluated. Geotechnical analyses of the compiled data were performed, and this report was prepared to present our findings, conclusions and recommendations for the proposed project.

5.0 SITE CONDITIONS

A general description of the subsurface conditions and various materials encountered at the site during our field exploration is contained in this section.

5.1 Subsurface Profile

Based on the exploratory borings, test pits, and laboratory test results, the subsurface soil at the site consists primarily mixture of silt, sand, and gravel. Gravel up to 2 inches in largest dimension was encountered in most of the borings.

For a detailed description of the subsurface materials encountered in the exploratory borings, see Drawings No. A-2 through A-8 (2006) and A-9 through A-12 (2019), Logs of Borings, in Appendix A, Field Exploration.

5.2 Groundwater

Groundwater was not encountered during our current (2019) or previous (2006) field investigation to the maximum explored depths of 16.4 and 51.5 feet bgs, respectively. The GeoTracker database (SWRCB, 2019) was reviewed for groundwater data from sites within an approximately 1.0-mile radius of both the proposed development. Data in the following table was found on the National Water Information System (USGS, 2019a).

Table No. 1, Summary of USGS Groundwater Depth Data

Alignment No.	Location	Groundwater Depth Range (ft. bgs)	Date Range
343239117194801	West side of Torrance Ln. cross of Village Dr.	137.1-161.9	1992-2014
343149117205301	Approximately 600ft. West of El Evado Rd. between Mojave Dr. and Fontaine Way	143.1	1917
343145117204701	Approximately 15ft. East of El Evado Rd. between Mojave Dr. and Dumosa Drive	211-214	2006-2010
343146117194401	Approximately 15ft. East of El Evado Rd. between Mojave Dr. and Dumosa Drive	198.1-221	2004-2014

Based on available data, the historical high groundwater level reported at wells within approximately one mile of the site was approximately 137.1 feet bgs. Current groundwater is expected to be deeper than 16.4 feet bgs. It should be noted that the groundwater level could vary depending upon the seasonal precipitation and possible groundwater pumping activity in the vicinity.

5.3 Excavatability

The subsurface materials at the site are expected to be excavatable by conventional heavy-duty earth moving equipment. Difficult excavation may be encountered in areas of high concentration of granular materials.

The phrase “conventional heavy-duty excavation equipment” is intended to include commonly used equipment such as excavators, scrapers, and trenching machines. It does not include hydraulic hammers (“breakers”), jackhammers, blasting, or other specialized equipment and techniques used to excavate hard earth materials. Selection of an appropriate excavation equipment models should be done by an experienced earthwork contractor.

5.4 Subsurface Variations

Based on results of the subsurface exploration and our experience, some variations in the continuity and nature of subsurface conditions within the project site should be anticipated. Because of the uncertainties involved in the nature and depositional characteristics of the earth material, care should be exercised in interpolating or extrapolating subsurface conditions between or beyond the boring locations.

6.0 ENGINEERING GEOLOGY

The regional and local geology within the proposed project area are discussed below.

6.1 Regional Geology

The project site is located in the Mojave Desert Geomorphic Province of Southern California. The Mojave Desert is a broad interior region of isolated mountain ranges separated by wide desert plains. The area is roughly triangular shaped and bounded by the Garlock Fault on the north, the San Andreas Fault on the southwest, and the Colorado River on the east. The drainages are primarily closed and terminate in playas within the valley floors.

The province is a seismically active region primarily characterized by a series of northwest-southeast-trending strike-slip faults and east-west trending secondary faults. The most prominent of the nearby fault zones include the Helendale, Lenwood, Landers, and San Andreas Fault Zones, all of which have been known to be active during Quaternary time.

Extension of the region has resulted in exposure of basement rocks dating to the Precambrian age, deposition of young Holocene-aged sedimentary basins, and eruptions of volcanic units.

6.2 Site Geology

Loose to well-consolidated sand, silt, and pebble-cobble gravel. (Hernandez et al., 2008).

6.3 Flooding

Review of National Flood Insurance Rate Maps indicates that the project site is within a Flood Hazard Zone "X". The Zone “X” is designated as “Areas determined to be outside the 500-year floodplain (FEMA, 2008).

7.0 FAULTING AND SEISMICITY

The approximate distance and seismic characteristics of nearby faults as well as seismic design coefficients are presented in the following subsections.

7.1 Faulting

The proposed site is situated in a seismically active region. As is the case for most areas of Southern California, ground-shaking resulting from earthquakes associated with nearby and more distant faults may occur at the project site. During the life of the project, seismic activity associated with active faults can be expected to generate moderate to strong ground shaking at the site. Review of recent seismological and geophysical publications indicates that the seismic hazard for the project is high.

The project site is not located within a currently mapped State of California Earthquake Fault Zone for surface fault rupture. Table No. 2, *Summary of Regional Faults,* summarizes selected data of known faults capable of seismic activity within 50 kilometers of the site. The data presented below was calculated using the National Seismic Hazard Maps Database (USGS, 2008) and other published geologic data.

Table No. 2, Summary of Regional Faults

Fault Name and Section	Closest Distance (km)	Slip Sense	Length (km)	Slip Rate (mm/year)	Maximum Magnitude
North Frontal (West)	19.35	reverse	50	1	7.20
Helendale-So Lockhart	20.01	strike slip	114	0.6	7.40
Cleghorn	27.36	strike slip	25	3	6.80
S. San Andreas	31.19	strike slip	548	n/a	8.18
San Jacinto	34.44	strike slip	241	n/a	7.88
Cucamonga	41.09	thrust	28	5	6.70
Lenwood-Lockhart-Old Woman Springs	42.71	strike slip	145	0.9	7.50

(Source: https://earthquake.usgs.gov/cfusion/hazfaults_2008_search/)

7.2 CBC Seismic Design Parameters

Seismic parameters based on the 2016 California Building Code (CBSC, 2016) are provided in the following table were determined using the Seismic Design Maps application (OSHPD, 2019) and are presented in the following table.

Table No. 3, CBC Seismic Design Parameters

Seismic Parameters	
Site Coordinates	34.5409 N, 117.3393 W
Site Class	D
Risk Category	III
Mapped Short period (0.2-sec) Spectral Response Acceleration, S_s	1.424g
Mapped 1-second Spectral Response Acceleration, S_1	0.563g
Site Coefficient (from Table 1613.5.3(1)), F_a	1.0
Site Coefficient (from Table 1613.5.3(2)), F_v	1.5
MCE 0.2-sec period Spectral Response Acceleration, S_{MS}	1.424g
MCE 1-second period Spectral Response Acceleration, SM_1	0.845g
Design Spectral Response Acceleration for short period S_{DS}	0.950g
Design Spectral Response Acceleration for 1-second period, S_{D1}	0.563g
Maximum Peak Ground Acceleration, PGA_M	0.500g

7.3 Secondary Effects of Seismic Activity

In addition to ground shaking, effects of seismic activity on a project site may include surface fault rupture, soil liquefaction, landslides, lateral spreading, seismic settlement, tsunamis, seiches and earthquake-induced flooding. Results of a site-specific evaluation of each of the above secondary effects are explained below:

Surface Fault Rupture: The project site is not located within a currently designated State of California Earthquake Fault Zone. Based on review of existing geologic information, no major surface fault crosses through or extends toward the site. The potential for surface rupture resulting from the movement of a presently unrecognized fault beneath the site is not known with certainty but is considered very low.

Liquefaction: Liquefaction is defined as the phenomenon in a soil mass, because of the development of excess pore pressures, soil mass suffers a substantial reduction in its shear strength. During earthquakes, excess pore pressures in saturated soil deposits may develop as a result of induced cyclic shear stresses, resulting in liquefaction. Soil liquefaction occurs in submerged granular soils during or after strong ground shaking. There are several requirements for liquefaction to occur. They are as follows:

- Soils must be submerged
- Soils must be primarily granular
- Soils must be contractive, that is, loose to medium-dense

- Ground motion must be intense
- Duration of shaking must be sufficient for the soils to lose shear resistance

Groundwater was not encountered during our current (2019) or previous (2006) field investigation to a maximum depth of 16.4 and 51.5 feet bgs, respectively. Due to the absence of shallow groundwater, the project site is not considered susceptible to liquefaction (USGS, 2010a).

***Seismic Settlement**:* Dynamic dry settlement may occur in loose, granular, unsaturated soils during a large seismic event. Based on the observed high blow counts below 5 feet bgs in all borings and over-excavation recommendations, we anticipate the site will have negligible seismic settlement.

Landslides: Seismically induced landslides and other slope failures are common occurrences during or after earthquakes in areas of significant relief. The project site is not adjacent to any steep slopes. In the absence of significant ground slopes, the potential for seismically induced landslides to affect the proposed site is considered to be low.

Lateral Spreading: Seismically induced lateral spreading involves primarily lateral movement of earth materials due to ground shaking. It differs from the slope failure in that complete ground failure involving large movement does not occur due to the relatively smaller gradient of the initial ground surface. Lateral spreading is demonstrated by near-vertical cracks with predominantly horizontal movement of the soil mass involved. Due to the absence of shallow groundwater and lack of liquefaction potential, the risk for lateral spreading to affect the site is considered low.

Tsunamis: Tsunamis are tidal waves generated in large bodies of water by fault displacement or major ground movement. Based on the location of the site, tsunamis do not pose a hazard to this site.

Seiches: Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Review of the area adjacent to the site indicates that there are no significant up-gradient lakes or reservoirs with the potential of flooding the site.

Earthquake-Induced Flooding: This is flooding caused by failure of dams or other water-retaining structures as a result of earthquakes. Review of the area adjacent to the site indicates the site is not located in any potential inundation path of any reservoir. The potential for flooding of the site due to dam failure is considered very low (USGS, 2010b).

8.0 LABORATORY TESTING

Laboratory testing was performed to determine the physical and chemical characteristics and engineering properties of the subsurface soils. Tests results are included in Appendix A, *Field Exploration* and Appendix B, *Laboratory Testing Program*. Discussions of the various test results performed for the current investigation (2019) are presented below. The test results from previous investigation (Converse, 2006) are included in Appendix B, *Laboratory Testing Program.*

8.1 Physical Testing

Physical test results are presented as follows.

- *In-situ* Moisture and Dry Density – *In-situ* dry density and moisture content of the site soils were determined in accordance to ASTM Standard D2216 and D7263. Dry densities of the upper 10 feet soils ranged from 109 to 128 pounds per cubic foot (pcf) with moisture contents of 3 to 15 percent. Results are presented in the logs of borings in Appendix A, *Field Exploration.*
- Expansion Index – Two representative samples from the upper ten feet of the site soils was tested to evaluate Expansion Potential in accordance with ASTM Standard D4829. The values of the measured EI are 2 and 3, indicating very low expansion potential.
- R-value – One R-value test was performed on a representative bulk soil sample in accordance with California Test 301. The R-value of the sample tested was 66.
- Collapse – To evaluate the moisture sensitivity (collapse potential) of the encountered soils, three representative ring samples were loaded up to approximately 2 kips per square foot (ksf) in accordance with ASTM Standard D4546, allowed to stabilize under load, and then submerged. The collapse ranged from 0.40 to 2.1 percent, which corresponds to slight to moderate collapse potential.
- Grain Size Analysis – Two representative samples were tested to determine the relative grain size distribution in accordance with the ASTM Standard D6913. The test results are graphically presented in Drawing No. B-1, *Grain Size Distribution Results.*
- Maximum Dry Density and Optimum Moisture Content – Typical moisture-density relationship test was performed on a representative soil sample in accordance with ASTM Standard D1557. The result is presented in Drawing No. B-2, *Moisture-Density Relationship Results*, in Appendix B, *Laboratory Testing Program*. The laboratory maximum dry density and optimum moisture content of the sample tested was 133.0 pcf and 6.5 percent, respectively.
- Direct Shear – Two direct shear tests were performed on representative samples under soaked moisture condition in accordance with ASTM Standard D3080. The

results are presented in Drawings No. B-3 and B-4, *Direct Shear Test Results* in Appendix B, *Laboratory Testing Program*.

8.2 Chemical Testing - Corrosivity Evaluation

One soil sample was tested to determine minimum electrical resistivity, pH, and chemical content, including soluble sulfate and chloride concentrations. The purpose of these tests was to determine the corrosion potential of site soils when placed in contact with common construction materials. These tests were performed by AP Engineering and Testing, Inc. (Pomona, CA) in accordance with California Test Methods 643, 422, and 417. The test results are summarized in the following table and are presented in Appendix B, *Laboratory Testing Program.*

- The pH measurement of the tested sample was 9.3.
- The sulfate contents of the tested sample were 0.0051 percent by weight.
- The chloride concentrations of the tested sample were 42 ppm.
- The minimum electrical resistivity when saturated was 4,046 ohm-cm.

9.0 PERCOLATION TESTING

Two percolation tests (PT-01 and PT-02) were conducted on June 10, 2019 to evaluate water infiltration rate of the site. The infiltration rate at the depth tested in PT-02 was deemed insufficient for the project. The borings were re-drilled to a more coarse-grained soil layer two feet deeper. Two additional percolation tests were conducted on July 12, 2019. The measured percolation test data and calculations for conversion to infiltration rate, porosity correction, and factor of safety are shown on Plates No. 1 through 4, *Estimated Infiltration Rate from Percolation Test Data* and graphically represented on Plates No. 5 and 8, *Infiltration Rate Versus Time* in Appendix C, *Water Infiltration Testing*. The estimated infiltration rate at the test hole is presented in the following table.

Table No. 4, Estimated Infiltration Rates

Percolation Test	Depth (feet)	Soil Type	Infiltration Rate (inches/hour)
PT-01	8	Silty Sand (SM)	1.30
PT-02	8	Sandy Silt (ML)	0.17
PT-01 (2)	10	Silty Sand (SM)	1.27
PT-02 (2)	10	Silty Sand (SM)	1.01

Based on the calculated infiltration rate during the final respective intervals in each test, we recommend an infiltration rate of 0.17 inches per hour at a depth of 8 feet bgs and 1.01 inches per hour at a depth of 10 feet bgs in the area of the infiltration basin.

10.0 EARTHWORK AND SITE GRADING RECOMMENDATIONS

Earthwork recommendations for the project are presented in the following sections.

10.1 General

This section contains our general recommendations regarding earthwork and site grading for the proposed development. These recommendations are based on our experience with similar projects in the area and the results of our field exploration, laboratory testing, and data evaluation as presented in the preceding sections. These recommendations may need to be modified based on observation of the actual field conditions during grading. While a grading plan is not yet available, it is our present understanding that the import of soil will be required to achieve proposed design grades. All borrow soils should be tested and evaluated by the geotechnical consultant prior to importing to the site.

Prior to the start of construction, all existing underground utilities and appurtenances, if present, should be located at the project site. Such utilities should either be protected in-place or removed and replaced during construction as required by the project specifications. All excavations should be conducted in such a manner as not to cause loss of bearing and/or lateral support of existing utilities and structure (if any).

All debris, surface vegetation, deleterious material, surficial soils containing roots and perishable materials and demolished materials should be stripped and removed from the site.

The final bottom surfaces of all excavations should be observed to locate zones of overly saturated and/or loose unsuitable material of any origin and should be approved by the project geotechnical consultant prior to placing any fill and/or structures. Based on observations, removal of localized areas deeper than those documented may be required during grading. Some variations in the depth and lateral extent of over-excavation recommended in this report should be anticipated.

10.2 Subgrade Preparation-Fill Areas

About five feet of alluvial soils should be removed and replaced with compacted fill, prior to placing additional compacted fill. The actual depth of removal should be based on observations made during grading. The specific over-excavation recommendations are provided in later sections of this report.

10.3 Over-excavation/Removal within Building Pads

In cut areas, deeper excavation may be required below finish grade. If less than five feet is removed from original ground (og), excavation should continue to provide a minimum of two feet of compacted fill below bottom of footings. If more than five feet is removed, the bottom surface should be evaluated for suitability by the geotechnical consultant. All over-excavations should extend at least five feet or equal to the depth of over-excavation, whichever is greater, outside the building footprint. If future construction is permitted beyond the lateral over-excavation, over-excavation should extend 5 feet beyond the new limits.

If isolated pockets of very soft, loose, eroded, or pumping soil are encountered, the unstable soil should be excavated as needed to expose undisturbed, firm, and unyielding soils.

The contractor should determine the best manner to conduct the excavations, such that there are no losses of bearing and/or lateral support to the existing structures or utilities (if any).

10.4 Transition Lots

The cut portion of transition lots (and if necessary, the fill portion) should be excavated to a depth to provide a minimum of two feet of compacted fill beneath the entire pad.

10.5 Over-excavation/Removal for Pavement Areas

As a minimum, the upper three feet of surficial soils from all areas receiving asphalt concrete or Portland concrete paving, including driveways, sidewalks, street areas, curbs and gutters and other flatwork should be excavated, removed if necessary, and/or replaced as compacted fill. Such over-excavation should extend at least two feet beyond the pavement area edges.

10.6 Over-excavation/Removal for Retaining/Perimeter Walls

As a minimum, the upper three feet of surficial soils within two feet of either side of retaining/perimeter walls less than six feet in height, should be excavated, removed if necessary, and/or processed and replaced as compacted fill. The depth of the structural fill under retaining/perimeter wall footings should be at least two feet or equal to footing width, whichever is greater.

10.7 Engineered Fill

No fill or aggregate base should be placed until excavations and/or natural ground preparation have been observed by the geotechnical consultant. The native soils encountered within the project site are generally considered suitable for re-use as compacted fill. Excavated soils should be processed, including removal of roots and debris, removal of oversized particles, mixing, and moisture conditioning, before placing as compacted fill. On-site soils used as fill should meet the following criteria.

- No particles larger than 3 inches in largest dimension.
- Rocks larger than one inch should not be placed within the upper 12 inches of subgrade soils.
- Free of all organic matter, debris, or other deleterious material.
- Expansion index of 20 or less.
- Sand Equivalent greater than 15 (greater than 30 for pipe bedding).
- Contain less than 40 percent fines (passing #200 sieve).

Based on field investigation and laboratory testing results, on-site soils may be suitable as fill materials.

Imported materials, if required, should meet the above criteria prior to being used as compacted fill. Any imported fills should be tested and approved by geotechnical representative prior to delivery to the site.

10.8 Compacted Fill Placement

All surfaces to receive structural fills should be scarified to a depth of 12 inches. The soil should be moisture conditioned to within ±3 percent of optimum moisture content for coarse soils and 0 to 2 percent above optimum moisture content for fine soils. The scarified soils should be recompacted to at least 90 percent of the laboratory maximum dry density.

Fill soils should be mixed thoroughly, and moisture conditioned to within ±3 percent of optimum moisture content for coarse soils and 0 to 2 percent above optimum moisture content for fine soils. Fill soils should be evenly spread in horizontal lifts not exceeding 8 inches in uncompacted thickness.

All fill placed at the site should be compacted to at least 90 percent of the laboratory maximum dry densities as determined by ASTM Standard D1557 test method, unless a higher compaction is specified herein. At least the upper 12 inches of subgrade soils below footings, slabs and pavement finish grade should be compacted to at least 95 percent of the laboratory maximum dry density.

Fill materials should not be placed, spread or compacted during unfavorable weather conditions. When site grading is interrupted by heavy rain, filling operations should not resume until the geotechnical consultant approves the moisture and density conditions of the previously placed fill.

At the time of our field investigation, *in-situ* moisture content of the upper six and one-half feet of native soils ranged from 1 to 13 percent. The optimum moisture contents were between 6.5 and 8.0 percent. Therefore, moisture conditioning may be necessary prior to the material being placed as compacted fill. The amount of processing required for proper moisture conditioning at the site will depend on the variations in the *in-situ* moisture conditions, the equipment, and the processing method.

10.9 Backfill Recommendations Behind Subterranean Wall

Compaction of backfill adjacent to structural walls can produce excessive lateral pressures. Improper types and locations of compaction equipment and/or compaction techniques may damage the walls. The use of heavy compaction equipment should not be permitted within a horizontal distance of 5 feet from the wall. Backfill behind any structural walls within the recommended 5-foot zone should be compacted using lightweight construction equipment such as handheld compactors to avoid overstressing the walls. The compaction of wall backfill should be conducted procedure described in section 10.8 *Compaction fill placement*

10.10 Shrinkage and Subsidence

The volume of excavated and recompacted soils will decrease as a result of grading. The shrinkage would depend on, among other factors, the depth of cut and/or fill, and the grading method and equipment utilized. For preliminary estimation, shrinkage factors for various units of earth material at the site may be taken as presented below.

- The shrinkage factor (defined as a percentage of soil volume reduction when moisture conditioned and compacted to the average of 92 percent relative compaction) for the upper 5 feet of soils is estimated to range from 6 to 12 percent. An average value of 9 percent may be used for preliminary earthwork planning.
- Subsidence (defined as the settlement of native materials from the equipment load applied during grading) would depend on the construction methods including type of equipment utilized. Ground subsidence may be negligible as the site is previously graded.

Although these values are only approximate, they represent our best estimates of the factors to be used to calculate lost volume that may occur during grading. If more accurate shrinkage and subsidence factors are needed, it is recommended that field-testing using the actual equipment and grading techniques be conducted.

10.11 Site Drainage

Adequate positive drainage should be provided away from the site and excavation areas to prevent ponding and to reduce percolation of water into the foundation soils. Surface drainage should be directed to suitable non-erosive devices.

10.12 Utility Trench Backfill

The following sections present earthwork recommendations for utility trench backfill, including subgrade preparation and trench zone backfill.

Open cuts adjacent to existing roadways or structures are not recommended within a 1:1 (horizontal:vertical) plane extending down and away from the roadway or structure perimeter (if any).

Soils from the trench excavation should not be stockpiled more than 6 feet in height or within a horizontal distance from the trench edge equal to the depth of the trench. Soils should not be stockpiled behind the shoring, if any, within a horizontal distance equal to the depth of the trench, unless the shoring has been designed for such loads.

10.12.1 Pipeline Subgrade Preparation

The final subgrade surface should be level, firm, uniform, and free of loose materials and properly graded to provide uniform bearing and support to the entire section of the pipe placed on bedding material. Protruding oversize particles larger than 2 inches in dimension, if any, should be removed from the trench bottom and replaced with compacted on-site materials.

Any loose, soft and/or unsuitable materials encountered at the pipe subgrade should be removed and replaced with an adequate bedding material. During the digging of depressions for proper sealing of the pipe joints, the pipe should rest on a prepared bottom for as near its full length as is practicable.

10.12.2 Pipe Bedding

Bedding is defined as the material supporting and surrounding the pipe to 1 foot above the pipe. Recommendations for pipe bedding are provided below.

To provide uniform and firm support for the pipe, compacted granular materials such as clean sand, gravel or ¾-inch crushed aggregate, or crushed rock may be used as pipe bedding material. Typically, soils with sand equivalent value of 30 or more are used as pipe bedding material. The pipe designer should determine if the soils are suitable as pipe bedding material.

The type and thickness of the granular bedding placed underneath and around the pipe, if any, should be selected by the pipe designer. The load on the rigid pipes and deflection of flexible pipes and, hence, the pipe design, depends on the type and the amount of bedding placed underneath and around the pipe.

Bedding materials should be vibrated in-place to achieve compaction. Care should be taken to densify the bedding material below the springline of the pipe. Prior to placing the pipe bedding material, the pipe subgrade should be uniform and properly graded to provide uniform bearing and support to the entire section of the pipe placed on bedding material. During the digging of depressions for proper sealing of the pipe joints, the pipe should rest on a prepared bottom for as near its full length as is practicable.

Migration of fines from the surrounding native and/or fill soils must be considered in selecting the gradation of any imported bedding material. We recommend that the pipe bedding material should satisfy the following criteria to protect migration of fine materials.

i. $\frac{D15(F)}{D85(B)} \leq 5$

ii. $\frac{D50(F)}{D50(B)} < 25$

iii. Bedding Materials must have less than 5 percent minus 75 µm (No. 200) sieve to avoid internal movement of fines.

Where,
F = Bedding Material
B = Surrounding Native and/or Fill Soils
*D*15(F) = Particle size through which 15% of bedding material will pass
*D*85(B) = Particle size through which 85% of surrounding soil will pass
*D*50(F) = Particle size through which 50% of bedding material will pass
*D*50(B) = Particle size through which 50% of surrounding soil will pass

If the above criteria do not satisfy, commercially available geofabric used for filtration purposes (such as Mirafi 140N or equivalent) may be wrapped around the bedding material encasing the pipe to separate the bedding material from the surrounding native or fill soils.

10.12.3 Trench Zone Backfill

The trench zone is defined as the portion of the trench above the pipe bedding extending up to the final grade level of the trench surface. Excavated on-site soils free of oversize particles and deleterious matter may be used to backfill the trench zone. Trench backfill recommendations are presented below.

- Trench backfill should be compacted by mechanical methods, such as sheepsfoot, vibrating or pneumatic rollers or mechanical tampers to achieve the density specified herein.
- The contractor should select the equipment and processes to be used to achieve the specified density without damage to adjacent ground, structures, utilities and completed work.
- The field density of the compacted soil should be measured by the ASTM D1556 (Sand Cone) or ASTM D6938 (Nuclear Gauge) or equivalent.
- It should be the responsibility of the contractor to maintain safe working conditions during all phases of construction.
- Observations and field tests should be performed by the project soils consultant to confirm that the required degree of compaction has been obtained. Where compaction is less than that specified, additional compactive effort should be made with adjustment of the moisture content as necessary, until the specified compaction is obtained.

11.0 DESIGN RECOMMENDATIONS

The various design recommendations provided in this section are based on the assumption that the above earthwork and grading recommendations will be implemented in the project design and construction.

11.1 Shallow Foundation Design Parameters

Residential one- or two-story wood-frame, lightly loaded structures may be supported on conventional continuous (strip) and/or isolated (spread) footings.

Interior and exterior footings should be placed at least 12 inches and 18 inches, respectively, below lowest adjacent soil grade.

Width of the continuous and isolated footings for one-story buildings should be at least 12 inches and 18 inches, respectively. Width of the continuous and isolated footings for two-story buildings should be at least 18 inches and 24 inches, respectively.

Footings placed at a depth of 12 inches and 18 inches below lowest adjacent grade may be designed based on an allowable net bearing capacity of 2,000 pounds per square foot (psf).

The actual footing dimensions and reinforcement should be based on structural design. The allowable bearing capacity can be increased by 500 pounds per square foot (psf) with each foot of additional embedment and 100 psf with each foot of additional width up to a maximum of 3,000 psf.

The net allowable bearing values indicated above are for the dead loads and frequently applied live loads and are obtained by applying a factor of safety of 3.0 to the net ultimate bearing capacity. If normal code requirements are applied for design, the above vertical bearing value may be increased by 33 percent for short duration loadings, which will include loadings induced by wind or seismic forces.

11.2 Lateral Earth Pressures and Resistance to Lateral Loads

In the following subsections, the lateral earth pressures and resistance to lateral loads are estimated by using on-site native soils strength parameters obtained from laboratory testing.

11.2.1 Active Earth Pressures

The active earth pressure behind any buried wall or foundation depends primarily on the allowable wall movement, type of backfill materials, backfill slopes, wall or foundation inclination, surcharges, and any hydrostatic pressures. The lateral earth pressures are presented in the following table.

Table No. 5, Active and At-Rest Earth Pressures

Loading Conditions	Lateral Earth Pressure (psf/ft of depth)
Active earth conditions (wall is free to deflect at least 0.001 radian)	40
At-rest (wall is restrained)	60

These pressures assume a level ground surface behind the walls for a distance greater than the walls height and no surcharge and no hydrostatic pressure. If water pressure is allowed to build up behind the walls, the active pressures should be reduced by 50 percent and added to a full hydrostatic pressure to compute the design pressures against the walls.

11.2.2 Passive Earth Pressure

Resistance to lateral loads can be assumed to be provided by a combination of friction acting at the base of foundations and by passive earth pressure. A coefficient of friction of 0.35 between formed concrete and soil may be used with the dead load forces. An allowable passive earth pressure of 250 psf per foot of depth may be used for the sides of the footing poured against recompacted native soils. A factor of safety of 1.5 was applied in calculating passive earth pressure. The maximum value of the passive earth pressure should be limited to 2,000 psf.

Vertical and lateral bearing values indicated above are for the total dead loads and frequently applied live loads. If normal code requirements are applied for design, the above vertical bearing and lateral resistance values may be increased by 33 percent for short duration loading, which will include the effect of wind or seismic forces.

Due to the low overburden stress of the soil at shallow depth, the upper 1 foot of passive resistance should be neglected unless the soil is confined by pavement or slab.

11.3 Slabs-on-Grade

Slabs-on-grade should be supported on properly compacted fill. Compacted fill used to support slabs-on-grade should be placed and compacted in accordance with Section 10.8 *Compacted Fill Placement*.

Slabs-on-grade should have a minimum thickness of 4 inches for support of nominal live loads. Structural design elements of slabs-on-grade, including but not limited to thickness, reinforcement, joint spacing of more heavily-loaded slabs will be dependent upon the anticipated loading conditions and the modulus of subgrade reaction (200 kcf) of the supporting materials and should be designed by a structural engineer.

If moisture-sensitive flooring or environments are planned, slabs-on-grade should be protected by 10-mil-thick polyethylene vapor barriers. The sub-grade surface should be free of all exposed rocks or other sharp objects prior to placement of the barrier. The barrier should be overlain by 2 inches of sand, to minimize punctures and to aid in the concrete curing. At discretion of the structure engineer, the sand layer may be eliminated.

Slabs should be designed and constructed as promulgated by the American Concrete Institute (ACI) and the Portland Cement Association (PCA). Care should be taken during concrete placement to avoid slab curling. Prior to the slab pour, all utility trenches should be properly backfilled and compacted.

Subgrade for slabs-on-grade should be firm and uniform. All loose or disturbed soils including under-slab utility trench backfill should be recompacted.

In hot weather, the contractor should take appropriate curing precautions after placement of concrete to minimize cracking or curling of the slabs. The potential for slab cracking may be lessened by the addition of fiber mesh to the concrete and/or control of the water/cement ratio (maximum 0.45).

Concrete should be cured by protecting it against loss of moisture and rapid temperature change for at least 7 days after placement. Moist curing, waterproof paper, white polyethylene sheeting, white liquid membrane compound, or a combination thereof may be used after finishing operations have been completed. The edges of concrete slabs exposed after removal of forms should be immediately protected to provide continuous curing.

11.4 Settlement

The total settlement of shallow footings from static structural loads and short-term settlement of properly compacted fill is anticipated to be 1 inch or less. The differential settlement resulting from static loads is anticipated to be 0.5 inches or less over a horizontal distance of 40 feet.

Based on the observed high blow counts below 5 feet bgs in all borings and over-excavation recommendations, we anticipate the site may have negligible seismic settlement. For the design purpose, seismic settlement may be taken as 1 inch or less and the differential settlement may be taken as half of the total seismic settlement.

Generally, the static and dynamic settlement does not occur at the same time. For design purposes, the structural engineer should decide whether static and dynamic settlement will be combined or not.

11.5 Pipe Design Parameters

Structural design of pipelines requires proper evaluation of all possible loads acting on pipes. The stresses and strains induced on buried pipes depend on many factors, including the type of soil, density, bearing pressure, angle of internal friction, coefficient of passive earth pressure, and coefficient of friction at the interface between the backfill and native soils. The recommended values of the various soil parameters for the pipe design are provided in Table No. 6, *Soil Parameters for Pipe Design*.

Where pipelines are connecting to rigid structures near, or at its lower levels, and then are subjected to significant loads as the backfill is placed to finish grade, we recommend that provisions be incorporated in the design to provide support of these pipelines where they exit the structure. Consideration can be given to flexible connections, concrete slurry support beneath the pipes where they exit the structures, overlaying and supporting the pipes with a few inches of compressible material, (i.e. Styrofoam, or other materials), or other techniques. Automatic shutoffs should be installed to limit the potential leakage in the event of damage in a seismic event.

Table No. 6, Soil Parameters for Pipe Design

Soil Parameters	Parameters
Unit weight of compacted backfill (assuming 92% average relative compaction), γ	130 pcf
Angle of internal friction of soils, ϕ	30
Soil cohesion, c	50 pcf
Coefficient of friction between concrete and native soils, fs	0.30
Coefficient of friction between pipe and native soils, fs	0.25 for RCP/PVC/HDPE pipe
Bearing pressure against Alluvial Soils	2,000 psf
Coefficient of passive earth pressure, Kp	3.0
Coefficient of active earth pressure, Ka	0.33
Modulus of Soil Reaction, E'	1,500 psi

11.6 Bearing Pressure for Anchor and Thrust Blocks

An allowable net bearing pressure presented in Table No. 5, *Soil Parameters for Pipe Design* may be used for anchor and thrust block design against alluvial soils. Such thrust blocks should be at least 18 inches wide.

If normal code requirements are applied for design, the above recommended bearing capacity and passive resistances may be increased by 33 percent for short duration loading such as seismic or wind loading.

11.7 Soil Corrosivity

Two representative soil samples (one is 2006 and another in 2019) were evaluated for corrosivity with respect to common construction materials such as concrete and steel. The test results are presented in Appendix B, *Laboratory Testing Program* and design recommendations pertaining to soil corrosivity are presented below.

The sulfate contents of the sampled soils correspond to American Concrete Institute (ACI) exposure category S0 for these sulfate concentrations (ACI 318-14, Table 19.3.1.1). No concrete type restrictions are specified for exposure category S0 (ACI 318-14, Table 19.3.2.1). A minimum compressive strength of 2,500 psi is recommended.

We anticipate that concrete structures such as footings, slabs, and flatwork will be exposed to moisture from precipitation and irrigation. Based on the site location and the results of chloride testing of the site soils, we do not anticipate that concrete structures

will be exposed to external sources of chlorides, such as deicing chemicals, salt, brackish water, or seawater. ACI specifies exposure category C1 where concrete is exposed to moisture, but not to external sources of chlorides (ACI 318-14, Table 19.3.1.1). ACI provides concrete design recommendations in ACI 318-14, Table 19.3.2.1, including a compressive strength of at least 2,500 psi and a maximum chloride content of 0.3 percent.

The measured value of the minimum electrical resistivity of the sample when saturated were 876 and 4,046 ohm-cm for the site. This indicates that the soils tested are mildly corrosive to severely corrosive to ferrous metals in contact with the soil (Romanoff, 1957).

Converse does not practice in the area of corrosion consulting. A qualified corrosion consultant should provide appropriate corrosion mitigation measures for any ferrous metals in contact with the site soils.

11.8 Pavement Recommendations

Two soil samples (one in 2006 and another in 2019) were tested to determine the R-value of the subgrade soils. Based on laboratory testing, R-values were 16 and 46. For pavement design, we have utilized an R-value of 16 and design Traffic Indices (TIs) ranging from 5 to 10.

Based on the above information, asphalt concrete and aggregate base thickness results are presented using the Caltrans Highway Design Manual (Caltrans, 2017), Chapter 630 with a safety factor of 0.2 for asphalt concrete/aggregate base section and 0.1 for full depth asphalt concrete section. Preliminary asphalt concrete pavement sections are presented in the following table below.

Table No. 7, Recommended Preliminary Pavement Sections

	Traffic Index (TI)	Pavement Section		
		Option 1		Option 2
		Asphalt Concrete (inches)	Aggregate Base (inches)	Full AC Section (inches)
Design R-value 16	5	4.0	5.5	7.0
	6	4.0	9.5	9.0
	7	5.0	11.0	11.0
	8	6.0	13.0	13.5
	9	7.0	14.0	15.5
	10	8.0	15.0	17.5

At or near the completion of grading, subsurface samples should be tested to evaluate the actual subgrade R-value for final pavement design.

Prior to placement of aggregate base, at least the upper 12 inches of subgrade soils should be scarified, moisture-conditioned if necessary, and recompacted to at least 95 percent of the laboratory maximum dry density as defined by ASTM Standard D1557 test method.

Base materials should conform with Section 200-2.2,"*Crushed Aggregate Base*," of the current Standard Specifications for Public Works Construction (SSPWC; Public Works Standards, 2018) and should be placed in accordance with Section 301-2 of the SSPWC.

Asphaltic concrete materials should conform to Section 203 of the SSPWC and should be placed in accordance with Section 302-5 of the SSPWC.

11.9 Concrete Flatwork

Except as modified herein, concrete walks, driveways, access ramps, curb and gutters should be constructed in accordance with Section 303-5, *Concrete Curbs, Walks, Gutters, Cross-Gutters, Alley Intersections, Access Ramps, and Driveways*, of the Standard Specifications for Public Works Construction (Public Works Standards, 2018).

The subgrade soils under the above structures should consist of compacted fill placed as described in this report. Prior to placement of concrete, the upper 12 inches of subgrade soils should be moisture conditioned to between within 3 percent of optimum moisture content for coarse-grained soils and 0 and 2 percent above optimum for fine-grained soils.

The thickness of driveways for passenger vehicles should be at least 4 inches, or as required by the civil or structural engineer. Transverse control joints for driveways should be spaced not more than 10 feet apart. Driveways wider than 12 feet should be provided with longitudinal control joints.

Concrete walks subjected to pedestrian and bicycle loading should be at least 4 inches thick, or as required by the civil or structural engineer. Transverse joints should be spaced 15 feet or less and should be cut to a depth of one-fourth the slab thickness.

Positive drainage should be provided away from all driveways and sidewalks to prevent seepage of surface and/or subsurface water into the concrete base and/or subgrade.

12.0 CONSTRUCTION RECOMMENDATIONS

Temporary sloped excavation recommendations are presented in the following sections.

12.1 General

Prior to the start of construction, all existing underground utilities (if any) should be located at the project site. Such utilities should either be protected in-place or removed and replaced during construction as required by the project specifications.

Vertical braced excavations can be considered for the foundations. Sloped excavations may not be feasible in locations adjacent to existing utilities, pavement or structure (if any). Recommendations pertaining to temporary excavations are presented in this section.

Excavations near existing structures may require vertical side wall excavation. Where the side of the excavation is a vertical cut, it should be adequately supported by temporary shoring to protect workers and any adjacent structures.

All applicable requirements of the California Construction and General Industry Safety Orders, the Occupational Safety and Health Act, and the Construction Safety Act should be met. The soils exposed in cuts should be observed during excavation by the geotechnical consultant and the competent person designated by the contractor. If potentially unstable soil conditions are encountered, modifications of slope ratios for temporary cuts may be required.

12.2 Temporary Sloped Excavations

Temporary open-cut trenches may be constructed with side slopes as recommended in the following table. Temporary cuts encountering soft and wet fine-grained soils; dry loose, cohesionless soils or loose fill from trench backfill may have to be constructed at a flatter gradient than presented below.

Table No. 8, Slope Ratios for Temporary Excavations

Soil Type	OSHA Soil Type	Depth of Cut (feet)	Recommended Maximum Slope (Horizontal:Vertical)[1]
Silty Sand (SM), Sand with Silt (SP-SM), Clayey Sand (SC), Sandy Silt (ML) and Sand (SP)	C	0-10	1.5:1

[1] Slope ratio assumed to be uniform from top to toe of slope.

For steeper temporary construction slopes or deeper excavations, or unstable soil encountered during the excavation, shoring or trench shields should be provided by the contractor to protect the workers in the excavation. Design recommendations for temporary shoring are provided in the following section.
Surfaces exposed in slope excavations should be kept moist but not saturated to retard raveling and sloughing during construction. Adequate provisions should be made to

protect the slopes from erosion during periods of rainfall. Surcharge loads, including construction materials, should not be placed within 5 feet of the unsupported slope edge. Stockpiled soils with a height higher than 6 feet will require greater distance from trench edges.

13.0 GEOTECHNICAL SERVICES DURING CONSTRUCTION

The project geotechnical consultant should review plans and specifications as the project design progresses. Such review is necessary to identify design elements, assumptions, or new conditions which require revisions or additions to our geotechnical recommendations.

The project geotechnical consultant should be present to observe conditions during construction. Geotechnical observation and testing should be performed as needed to verify compliance with project specifications. Additional geotechnical recommendations may be required based on subsurface conditions encountered during construction.

14.0 CLOSURE

This report is prepared for the project described herein and is intended for use solely by Lansing Companies and their authorized agents, to assist in the design and construction of the proposed project. Our findings and recommendations were obtained in accordance with generally accepted professional principles practiced in geotechnical engineering. We make no other warranty, either expressed or implied.

Converse Consultants is not responsible or liable for any claims or damages associated with interpretation of available information provided to others. Site exploration identifies actual soil conditions only at those points where samples are taken, when they are taken. Data derived through sampling and laboratory testing is extrapolated by Converse employees who render an opinion about the overall soil conditions. Actual conditions in areas not sampled may differ. In the event that changes to the project occur, or additional, relevant information about the project is brought to our attention, the recommendations contained in this report may not be valid unless these changes and additional relevant information are reviewed and the recommendations of this report are modified or verified in writing. In addition, the recommendations can only be finalized by observing actual subsurface conditions revealed during construction. Converse cannot be held responsible for misinterpretation or changes to our recommendations made by others during construction.

As the project evolves, continued consultation and construction monitoring by a qualified geotechnical consultant should be considered an extension of geotechnical investigation services performed to date. The geotechnical consultant should review plans and specifications to verify that the recommendations presented herein have been

appropriately interpreted, and that the design assumptions used in this report are valid. Where significant design changes occur, Converse may be required to augment or modify the recommendations presented herein. Subsurface conditions may differ in some locations from those encountered in the explorations, and may require additional analyses and, possibly, modified recommendations.

Design recommendations given in this report are based on the assumption that the recommendations contained in this report are implemented. Additional consultation may be prudent to interpret Converse's findings for contractors, or to possibly refine these recommendations based upon the review of the actual site conditions encountered during construction. If the scope of the project changes, if project completion is to be delayed, or if the report is to be used for another purpose, this office should be consulted.

15.0 REFERENCES

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Appendix A

Field Exploration

APPENDIX A

FIELD EXPLORATION

Our field investigation included a site reconnaissance and a subsurface exploration program consisting of drilling soil borings. During the site reconnaissance, the surface conditions were noted, and the locations of the borings were selected. The borings were located using existing topography and boundary features and should be considered accurate only to the degree implied by the method used.

For the previous investigation performed by Converse, a total of seven exploratory borings (BH-1 to BH-7) were drilled on December 7, 2005 across the project site, to depths of 16.5 to 51.5 feet below ground surface (bgs).

Additionally, two exploratory borings (BH-8 and BH-9) were drilled on June 3, 2019 to investigate subsurface conditions at the project site. The borings were drilled to depths of 15.8 and 16.4 feet below existing ground surface (bgs).

Two exploratory percolation test holes (PT-01 and PT-02) were drilled on June 3, 2019 to perform percolation testing. Both percolation test borings were drilled to approximately 8.0 feet below the existing ground surface (bgs).

The borings were advanced using a truck-mounted drill rig equipped with 8-inch diameter hollow-stem augers for soils sampling. Encountered materials were continuously logged by a Converse geologist and classified in the field by visual classification in accordance with the Unified Soil Classification System. Where appropriate, the field descriptions and classifications have been modified to reflect laboratory test results.

Relatively undisturbed samples were obtained using California Modified Samplers (2.4 inches inside diameter and 3.0 inches outside diameter) lined with thin sample rings. The steel ring sampler was driven into the bottom of the borehole with successive drops of a 140-pound driving weight falling 30 inches. Blow counts at each sample interval are presented on the boring logs. Samples were retained in brass rings (2.4 inches inside diameter and 1.0 inch in height) and carefully sealed in waterproof plastic containers for shipment to the Converse laboratory. Bulk samples of typical soil types were also obtained.

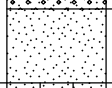
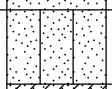
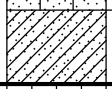
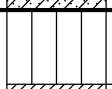
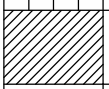
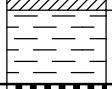
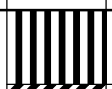
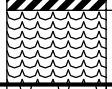
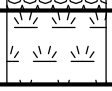
Standard Penetration Testing (SPT) was also performed in accordance with the ASTM Standard D1586 test method in boring BH-4 (2006) at depths of 20, 25, 30, 35, 40, 45 and 50 feet bgs using a standard (1.4 inches inside diameter and 2.0 inches outside diameter) split-barrel sampler. The mechanically driven hammer for the SPT sampler was 140 pounds, falling 30 inches for each blow. The recorded blow counts for every 6 inches for a total of 1.5 feet of sampler penetration are shown on the Logs of Borings.

The exact depths at which material changes occur cannot always be established accurately. Unless a more precise depth can be established by other means, changes in material conditions that occur between drive samples are indicated on the logs at the top of the next drive sample.

Following the completion of logging and sampling, the borings were backfilled with soil cuttings and tamped. If construction is delayed, the surface may settle over time. Therefore, we recommend the owner monitor the boring locations and backfill any depressions that might occur or provide protection around the boring locations to prevent trip and fall injuries from occurring near the area of any potential settlement.

For a key to soil symbols and terminology used in the boring logs, refer to Drawing No. A-1, *Unified Soil Classification and Key to Boring Log Symbols*. For logs of borings, see Drawings No. A-2 through A-8 (2006) and A-9 through A-12 (2019), Logs of Borings.

SOIL CLASSIFICATION CHART

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

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

BORING LOG SYMBOLS

SAMPLE TYPE

STANDARD PENETRATION TEST
Split barrel sampler in accordance with ASTM D-1586-84 Standard Test Method

DRIVE SAMPLE 2.42" I.D. sampler (CMS).

DRIVE SAMPLE No recovery

BULK SAMPLE

GROUNDWATER WHILE DRILLING

GROUNDWATER AFTER DRILLING

LABORATORY TESTING ABBREVIATIONS			
TEST TYPE (Results shown in Appendix B)		STRENGTH	
		Pocket Penetrometer	p
		Direct Shear	ds
		Direct Shear (single point)	ds*
		Unconfined Compression	uc
CLASSIFICATION		Triaxial Compression	tx
Plasticity	pi	Vane Shear	vs
Grain Size Analysis	ma	Consolidation	c
Passing No. 200 Sieve	wa	Collapse Test	col
Sand Equivalent	se	Resistance (R) Value	r
Expansion Index	ei	Chemical Analysis	ca
Compaction Curve	max	Electrical Resistivity	er
Hydrometer	h	Permeability	perm
Disturb	Dist.	Soil Cement	sc

Apparant Density	Very Loose	Loose	Medium	Dense	Very Dense
SPT (N)	< 4	4 - 11	11 - 30	31 - 50	> 50
CA Sampler	< 5	5 - 12	13 - 35	36 - 60	> 60
Relative Density (%)	< 20	20 - 40	40 - 60	60 - 80	> 80

Consistency	Very Soft	Soft	Medium	Stiff	Very Stiff	Hard
SPT (N)	< 2	2-4	5-8	9-15	16-30	> 30
CA Sampler	< 3	3-6	7-12	13-25	26-50	> 50

UNIFIED SOIL CLASSIFICATION AND KEY TO BORING LOG SYMBOLS

Converse Consultants

Approximately 20.60-Acre Residential Development
Southeast Corner of Hopland Street and Cahuenga Road
City of Victorville, San Bernardino County, California
For: Lansing Companies

Project No. **19-81-173-01**

Drawing No. **A-1**

Project ID: 19-81-173-01.GPJ; Template: KEY

Log of Boring No. BH - 1

Dates Drilled: 12/7/2005 Logged by: FA Checked By: RJR

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 2899 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6"	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
		ALLUVIUM (Qal) **SAND WITH SILT (SP-SM):** medium- to coarse-grained, some gravel, brown.						ma
			■		8/11/15	3	111	col
5			■		13/25/50 (6")	4	107	ds
		- orange brown	■		25/50 (6")	2	108	
10			■		25/50 (4")	4	106	
15			■		25/50 (5.5")	4	95	
20			■		30/50 (5")	5	96	
		End of Boring at 21.5 feet. Groundwater not encountered during drilling. Boring backfilled with soil cuttings on 12/7/05.						

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. **05-81-351-01**

Drawing No. **A - 2**

Log of Boring No. BH - 2

Dates Drilled: 12/7/2005 Logged by: FA Checked By: RJR

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 2879 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6"	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
		ALLUVIUM (Qal) **SILTY SAND (SM):** fine- to medium-grained, brown.						er, ca
			■		9/15/20	5	107	
5			■		7/15/21	8	113	col
			■		13/17/27	9	114	
10		some gravel	■		25/50 (3")	7	104	
15		**SAND (SP):** fine- to coarse-grained, orange brown.	■		25/50 (5")	1	102	
		End of Boring at 16.5 feet. Groundwater not encountered during drilling. Boring backfilled with soil cuttings on 12/7/05.						

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. 05-81-351-01

Drawing No. A - 3

Log of Boring No. BH - 3

Dates Drilled: 12/7/2005 Logged by: FA Checked By: RJR

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 2886 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6"	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
		ALLUVIUM (Qal) **SILTY SAND (SM):** fine- to medium-grained, brown.	■		3/5/9	4	102	ei
5		**SANDY SILT (ML):** fine-grained sand with clay, brown.	■		7/10/17	13	103	
		GRAVELLY SAND (SP): medium- to coarse-grained, light brown.	■		41/50 (6")	2	123	col
10		**SAND (SP):** fine-grained with gravel, pink brown.	■		22/50 (2")	4	107	
15		**SILTY SAND (SM):** fine- to medium-grained, brown.	■		16/50 (5")	5	107	
		End of Boring at 16.5 feet. Groundwater not encountered during drilling. Boring backfilled with soil cuttings on 12/7/05.						

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. **05-81-351-01**

Drawing No. **A - 4**

Log of Boring No. BH - 4

Dates Drilled: 12/7/2005 Logged by: FA Checked By: RJR

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 2892 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6"	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
		ALLUVIUM (Qal) **SILTY SAND (SM):** fine- to medium-grained, dark brown.			5/8/14	4	113	max, ds
5					15/17/27	6	120	c
		SAND WITH SILT (SP-SM): fine- to coarse-grained, some gravel, brown.			15/32/50 (5")	4	107	
10		**GRAVELLY SAND (SP):** medium- to coarse-grained, light gray.			30/50 (2")	2	113	
15		**SILTY SAND (SM):** fine-grained, light brown.			30/50 (3")	6	98	
20					41/50 (3")			
25		- fine- to medium-grained			50 (3")			
30		- medium- to coarse-grained, brown			50 (3")			

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. **05-81-351-01**

Drawing No. **A - 5a**

Log of Boring No. BH - 4

Dates Drilled: 12/7/2005 Logged by: FA Checked By: RJR

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 2892 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6"	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
		SILTY SAND (SM): fine-grained, light brown.	X		50 (2")			
40		- dark brown	X		50 (6")			
45		- brown	X		50 (5")			
50			X		55 (6")			
		End of Boring at 51.5 feet. Groundwater not encountered during drilling. Boring backfilled with soil cuttings on 12/7/05.						

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. **05-81-351-01**

Drawing No. **A - 5b**

Log of Boring No. BH - 5

Dates Drilled: 12/8/2005 Logged by: FA Checked By: RJR

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 2901 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6"	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
		ALLUVIUM (Qal) **CLAYEY SAND (SC):** fine- to coarse-grained, brown.	■	▨	27/50 (5")	13	122	r, ei
5		**SILTY SAND (SM):** fine- to medium-grained, brown.	■		50 (4")	7	102	col
			■		50 (6")	4	97	
10		**SANDY SILT (ML):** fine-grained sand with clay, light brown.	■		37/50 (2")	8	92	
15		**SILTY SAND (SM):** medium- to coarse-grained, brown.	■		50 (4")	5	98	
		End of Boring at 16.5 feet. Groundwater not encountered during drilling. Boring backfilled with soil cuttings on 12/8/05.						

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. **05-81-351-01**

Drawing No. **A - 6**

Log of Boring No. BH - 6

Dates Drilled: 12/7/2005 Logged by: FA Checked By: RJR

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 2916 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6"	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
		ALLUVIUM (Qal) **SILTY SAND (SM):** fine- to coarse-grained, brown.			6/15/25	3	111	ma
5		**GRAVELLY SAND (SP):** fine- to coarse-grained, orange brown.			25/36/37	2	112	
					18/37/50 (6")	2	125	
10		**SAND (SP):** medium- to coarse-grained, brown.			18/30/43	2	109	
15		**SANDY SILT (ML):** fine- to medium-grained sand, orange brown.			27/50 (3")	15	106	
		End of Boring at 16.5 feet. Groundwater not encountered during drilling. Boring backfilled with soil cuttings on 12/8/05.						

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. **05-81-351-01**

Drawing No. **A - 7**

Log of Boring No. BH - 7

Dates Drilled: 12/7/2005 Logged by: FA Checked By: RJR

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 2905 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6"	MOISTURE (%)	DRY UNIT WT. (pcf)	OTHER
		ALLUVIUM (Qal) **SAND WITH SILT (SP-SM):** fine- to coarse-grained, some gravel, brown.	■		5/8/23	2	116	
5			■	▨	17/37/50 (3")	1		dist.
			■	▨	37/50 (3")	3	110	col
10		**SANDY SILT (ML):** fine-grained sand with caliche, brown.	■		40/50 (3")	12	107	
15		- fine- to medium-grained	■		23/50 (5")	10	103	
		End of Boring at 16.5 feet. Groundwater not encountered during drilling. Boring backfilled with soil cuttings on 12/8/05.						

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. **05-81-351-01**

Drawing No. **A - 8**

Log of Boring No. BH-8

Dates Drilled: 6/3/2019 Logged by: Catherine Nelson Checked By: James Burnham

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 2901 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES: DRIVE	SAMPLES: BULK	BLOWS	MOISTURE	DRY UNIT WT. (pcf)	OTHER
		ALLUVIUM **SAND WITH SILT (SP-SM):** fine to coarse-grained, few gravel up to 2" in largest dimension, light brown.	■		12/20/28	3	109	
5		**SANDY SILT (ML):** fine to medium-grained sand, scattered gravel up to 1.5" in largest dimension, brown.	■	▨	12/47/50-4"	11	110	ds
			■	▨	17/50-4"	15	115	ei col
10		**SILTY SAND (SM):** fine to coarse-grained, brown.	■		25/50-4"	8	113	
15		- scattered gravel up to 1" in largest dimension	■		17/48/50-4"	7	124	
		End of boring at 16.4 feet bgs. No groundwater encountered. Borehole backfilled with soil cuttings and tamped on 06/10/2019.						

Converse Consultants

Approximately 20.60-Acre Residential Development
Southeast Corner of Hopland Street and Cahuenga Road
City of Victorville, San Bernardino County, California
For: Lansing Companies

Project No. 19-81-173-01

Drawing No. A-9

Log of Boring No. BH-9

Dates Drilled: 6/3/2019 Logged by: Catherine Nelson Checked By: James Burnham

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): 2901 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES: DRIVE	SAMPLES: BULK	BLOWS	MOISTURE	DRY UNIT WT. (pcf)	OTHER
		ALLUVIUM **SILTY SAND (SM):** fine to coarse-grained, brown.						r, ca, er ma, max
			■		7/10/14	4	113	col
5		**SAND WITH SILT (SP-SM):** fine to coarse-grained, brown.	■		7/15/26	3	119	ds
			■		35/50-5"	5	128	col
10		**SANDY SILT (ML):** fine-grained sand, brown.	■		22/48/50-3"	13	103	
15		**SILTY SAND (SM):** fine to coarse-grained, brown.	■		32/50-3"	7	95	
		End of boring at 15.8 feet bgs. No groundwater encountered. Borehole backfilled with soil cuttings and tamped on 06/10/2019.						

Converse Consultants

Approximately 20.60-Acre Residential Development
Southeast Corner of Hopland Street and Cahuenga Road
City of Victorville, San Bernardino County, California
For: Lansing Companies

Project No. 19-81-173-01

Drawing No. A-10

Log of Boring No. PT-01

Dates Drilled: 6/3/2019 Logged by: Catherine Nelson Checked By: James Burnham

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: N/A

Ground Surface Elevation (ft): 2877 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES: DRIVE	SAMPLES: BULK	BLOWS	MOISTURE	DRY UNIT WT. (pcf)	OTHER
5		**ALLUVIUM:** **SILTY SAND (SM):** fine to coarse-grained, scattered gravel up to 2" in largest dimension, brown.						ma
		End of boring at 8.0 feet bgs. No groundwater encountered. Borehole utilized for percolation testing on 06/10/2019. Backfilled with pea-gravel and soil cuttings on 06/10/2019.						

Converse Consultants

Approximately 20.60-Acre Residential Development
Southeast Corner of Hopland Street and Cahuenga Road
City of Victorville, San Bernardino County, California
For: Lansing Companies

Project No. 19-81-173-01

Drawing No. A-11

Log of Boring No. PT-02

Dates Drilled: 6/3/2019 Logged by: Catherine Nelson Checked By: James Burnham

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: N/A

Ground Surface Elevation (ft): 2876 Depth to Water (ft): NOT ENCOUNTERED

Depth (ft)	Graphic Log	SUMMARY OF SUBSURFACE CONDITIONS This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	SAMPLES: DRIVE	SAMPLES: BULK	BLOWS	MOISTURE	DRY UNIT WT. (pcf)	OTHER
5		**ALLUVIUM:** **SILTY SAND (SM):** fine to coarse-grained, scattered gravel up to 2" in largest dimension, brown.						ei
		End of boring at 8.0 feet bgs. No groundwater encountered. Borehole utilized for percolation testing on 06/10/2019. Backfilled with pea-gravel and soil cuttings on 06/10/2019.						

Converse Consultants

Approximately 20.60-Acre Residential Development
Southeast Corner of Hopland Street and Cahuenga Road
City of Victorville, San Bernardino County, California
For: Lansing Companies

Project No. 19-81-173-01

Drawing No. A-12

Appendix B

Laboratory Testing Program

APPENDIX B

LABORATORY TESTING PROGRAM

Tests were conducted in our laboratory on representative soil samples for the purpose of classification and evaluation of their physical properties and engineering characteristics. The amount and selection of tests were based on the geotechnical parameters required for this project. Test results are presented herein and on the Logs of Borings, in Appendix A, *Field Exploration*. The following is a summary of the various laboratory tests conducted for this project. The test results from previous investigation (Converse, 2006) are also included.

Moisture Content and Dry Density

In-situ dry density and moisture content tests were performed on relatively undisturbed ring samples, in accordance to ASTM Standard D2216 and D7263 to aid soils classification and to provide qualitative information on strength and compressibility characteristics of the site soils. For test results, see the Logs of Borings in Appendix A, Field Exploration.

Expansion Index

Four representative bulk samples were tested to evaluate the expansion potential of materials encountered at the site in accordance with ASTM D4829 Standard. The test results are presented in the following table.

Table No. B-1, Expansion Index Test Results

Boring No./Report	Depth (feet)	Soil Description	Expansion Index	Expansion Potential
BH-8/2019	5-10	Sandy Silt (ML)	3	Very Low
PT-02/2019	5-8	Silty Sand (SM)	2	Very Low
BH-3/2006	0-5	Silty Sand (SM)	0	Very Low
BH-5/2006	0-5	Clayey Sand (SC)	43	Low

R-value

Two representative bulk soil samples were tested for resistance value (R-value) in accordance with California Test Method CT301. The test provides a relative measure of

soil strength for use in pavement design. The test results are shown in the following table.

Table No. B-2, R-Value Test Results

Boring No./Report	Depth (feet)	Soil Classification	Measured R-value
BH-9/2019	0-5	Silty Sand (SM)	46
BH-5/2006	0-5	Clayey Sand (SC)	16

Soil Corrosivity

One representative soil sample (2019) was tested by AP Engineering and Testing, Inc. (Pomona, CA and One representative soil sample (2006) was tested by Anaheim Laboratory (Santa Ana, CA) in accordance with California Tests 663, 622, and 617, to determine minimum electrical resistivity, pH, and chemical content, including soluble sulfate and chloride concentrations. The purpose of these tests was to determine the corrosion potential of site soils when placed in contact with common construction materials such as concrete and steel. Test results are presented on the following table.

Table No. B-3, Summary of Corrosivity Test Results

Boring No./Report	Depth (feet)	pH	Soluble Sulfates (CA 617) (percent by weight)	Soluble Chlorides (CA 622) (ppm)	Min. Resistivity (CA 663) (Ohm-cm)
BH-9/2019	0-5	9.3	0.0051	42	4,046
BH-5/2006	0-5	8.8	0.0040	22	876

Collapse

To evaluate the moisture sensitivity (collapse/swell potential) of the encountered soils, eight collapse tests were performed in accordance with the ASTM Standard D4546 laboratory procedure. The sample was loaded to approximately 2 kips per square foot (ksf), allowed to stabilize under load, and then submerged. The test results including collapse test are presented in the following table.

Table No. B-4, Collapse Test Results

Boring No./Report	Depth (feet)	Soil Classification	Percent Swell (+) Percent Collapse (-)	Collapse Potential
BH-8/2019	7.5-9.0	Sandy Silt (ML)	-0.4	Slight
BH-9/2019	2.5-4.0	Silty Sand (SM)	-2.1	Moderate
BH-9/2019	7.5-9.0	Sand with Silt (SP-SM)	-0.6	Slight
BH-1/2006	2.0-3.5	Sand with Silt (SP-SM)	-0.8	Slight
BH-2/2006	5.0-6.5	Silty Sand (SM)	-0.4	Slight
BH-3/2006	7.0-8.5	Gravelly Sand (SP-P)	-0.35	Slight
*BH-4/2006	5.-6.5	Silty Sand (SM)	-0.25	Slight
BH-5/2006	5.0-6.5	Silty Sand (SM)	-3.03	Moderate
BH-7/2006	7.0-8.5	Sand with Silt (SP-SM)	-1.1	Slight

(*Result from consolidation test)

Grain-Size Analyses

To assist in classification of soils, mechanical grain-size analyses were performed on four select samples in accordance with the ASTM Standard D6913 test method. Grain-size curves are shown in Drawing No. B-1, *Grain Size Distribution Results* and results are presented in the following table.

Table No. B-5, Grain Size Distribution Test Results

Boring No./ Report	Depth (ft)	Soil Classification	% Gravel	% Sand	%Silt	%Clay
BH-9/2019	0-5	Silty Sand (SM)	0.0	83.0	17.0	
PT-01/2019	5-8	Silty Sand (SM)	1.0	79.0	20.0	
BH-1/2006	0-5	Sand with Silt (SP-SM)	13.8	76.6	9.6	
BH-6/2006	0-5	Silty Sand (SM)	6.9	73.5	19.6	

Maximum Dry Density and Optimum Moisture Content

Laboratory maximum dry density and optimum moisture content relationship tests were performed on two representative bulk soil samples. The test was conducted in accordance with ASTM Standard D1557 method. The test results are presented on Drawing No. B-2, *Moisture-Density Relationship Results,* and summarized in the following table.

Table No. B-6, Laboratory Maximum Density Test Results

Boring No./ Report	Depth (feet)	Soil Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
BH-9/2019	0-5	Silty Sand, Brown	133.0	6.5
BH-4/2006	0-5	Silty Sand, Dark Brown	134.5	8.0

Direct Shear

Three direct shear tests were performed on representative undisturbed samples and one on sample remolded to 90% of the laboratory maximum dry density under soaked moisture condition in accordance with ASTM Standard D3080. For each test, three samples contained in brass sampler rings were placed, one at a time, directly into the test apparatus and subjected to a range of normal loads appropriate for the anticipated conditions. The samples were then sheared at a constant strain rate of 0.01 and 0.02 inch/minute, depending on the sample. Shear deformation was recorded until a maximum of about 0.25-inch shear displacement was achieved. Ultimate strength was selected from the shear-stress deformation data and plotted to determine the shear strength parameters. For test data, including sample density and moisture content, see Drawings No. B-3 and B-4*, Direct Shear Test Results,* and the following table.

Table No. B-7, Direct Shear Test Results

Boring No./Report	Depth (feet)	Soil Description	Ultimate Strength Parameters	
			Friction Angle (degrees)	Cohesion (psf)
BH-8/2019	5.0-6.5	Sandy Silt (ML)	28	200
BH-9/2019	5.0-6.5	Sand with Silt (SP-SM)	30	120
BH-1/2006	5.0-6.5	Sand with Silt (SP-SM)	41	400
*BH-4/2006	5.0-6.5	Silty Sand (SM)	40	350

(*Sample remolded to 90% of the laboratory maximum dry density)

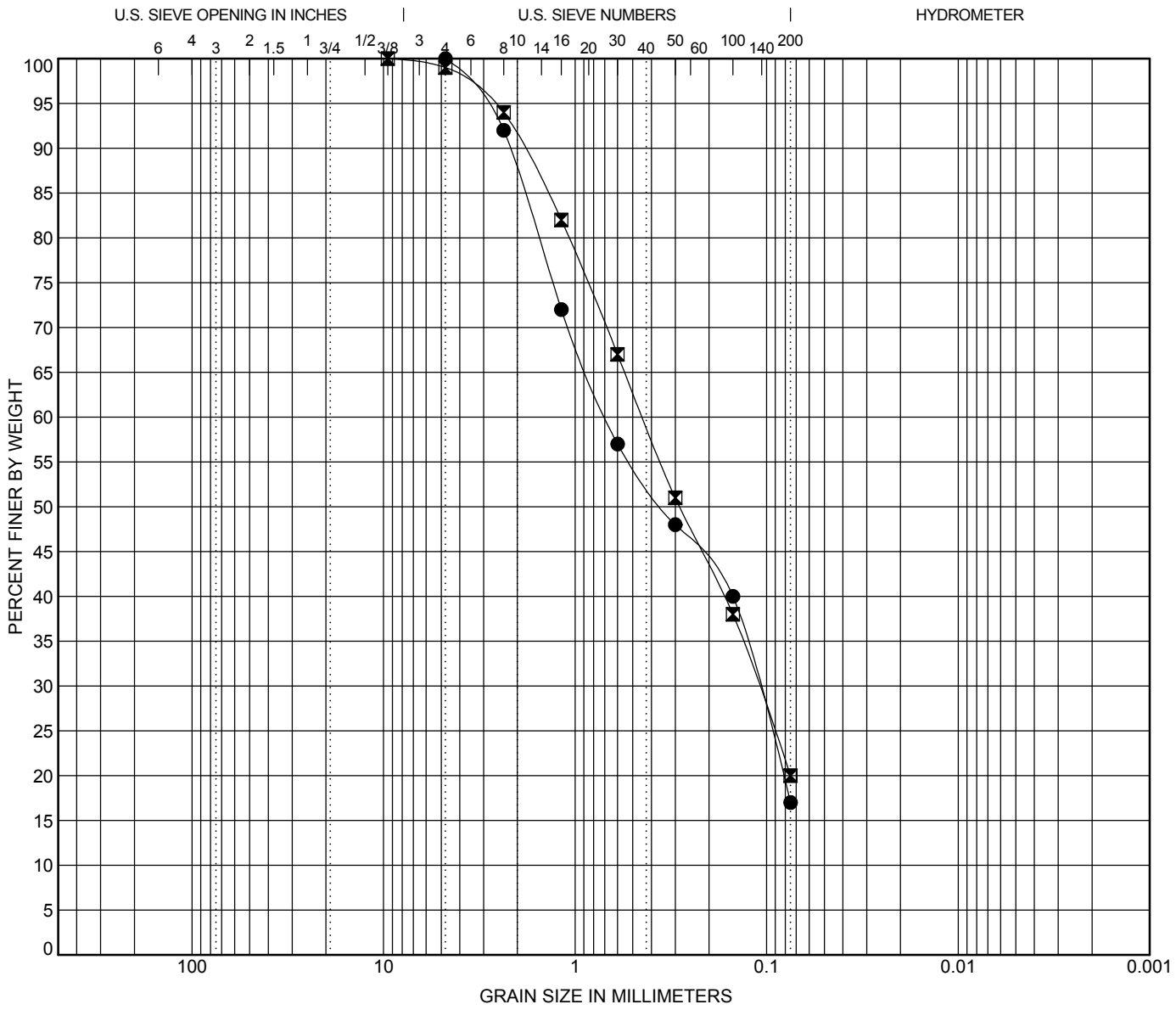
Consolidation

Consolidation test (2006) was performed on one selected sample in accordance with the ASTM Standard D2435 test method. Data obtained from this test performed on a relatively undisturbed soil sample was used to evaluate the settlement characteristics of the foundation soils under load. Preparation for this test involved trimming the sample and placing the one-inch high brass ring into the test apparatus, which contained porous stones, both top and bottom, to accommodate drainage during testing. Normal axial loads were applied to one end of the sample through the porous stones, and the resulting deflections were recorded at various time periods. The load was increased after the sample reached a reasonable state of equilibrium. Normal loads were applied

at a constant load-increment ratio, successive loads being generally twice the preceding load. The sample was tested at field and submerged conditions. The test result is presented in Drawing No. B-5, *Consolidation Test Results*.

Sample Storage

Soil samples currently stored in our laboratory will be discarded thirty days after the date of the final report, unless this office receives a specific request to retain the samples for a longer period.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth (ft)	Description	LL	PL	PI	Cc	Cu
●	**BH-9**	**0-5**	**SILTY SAND (SM)**					
⊠	**PT-01**	**5-8**	**SILTY SAND (SM)**					

	Boring No.	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH-9**	**0-5**	**4.75**	**0.687**	**0.111**		**0.0**	**83.0**	**17.0**	
⊠	**PT-01**	**5-8**	**9.5**	**0.443**	**0.11**		**1.0**	**79.0**	**20.0**	

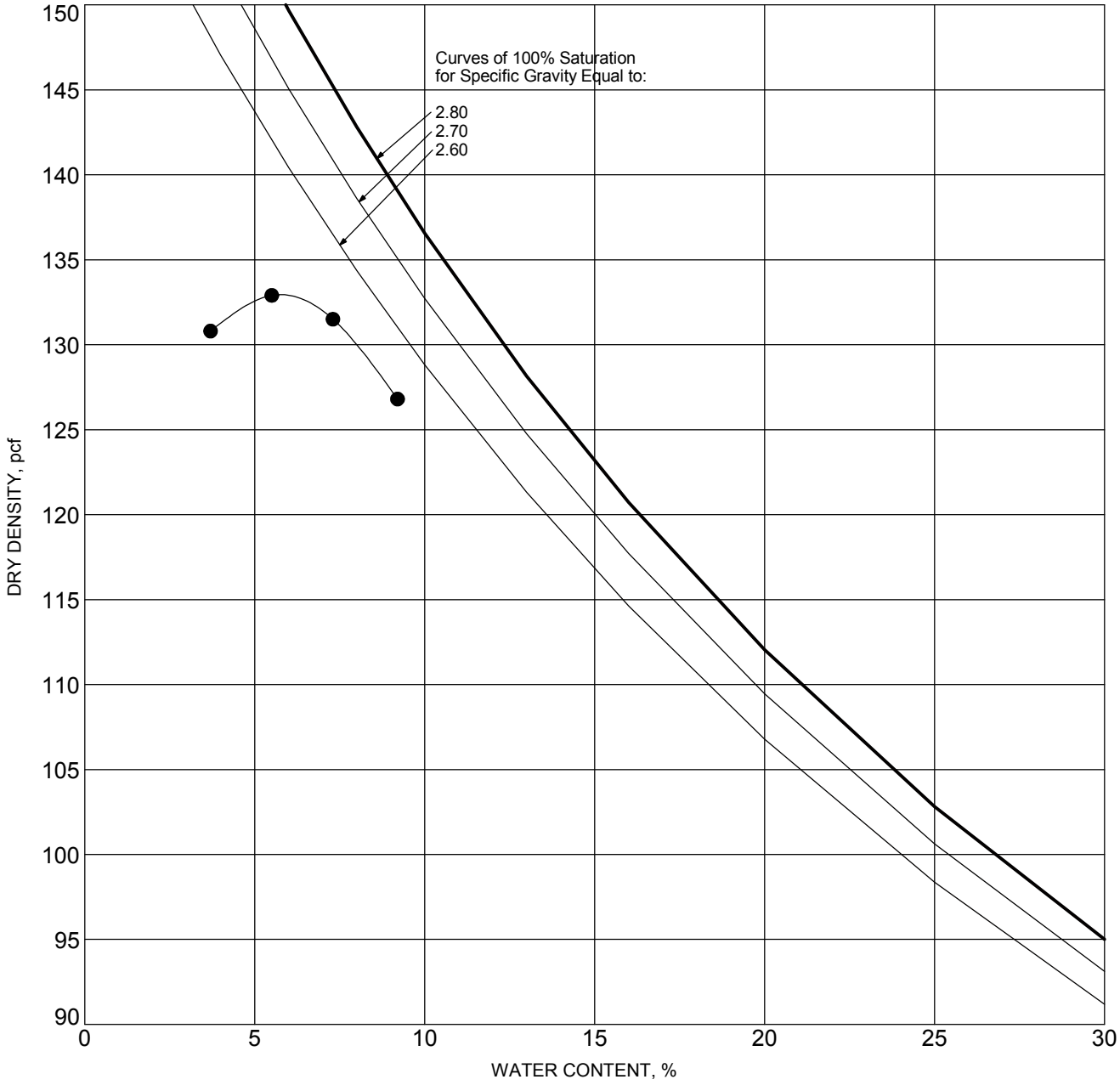
GRAIN SIZE DISTRIBUTION RESULTS

Converse Consultants

Approximately 20.60-Acre Residential Development
Southeast Corner of Hopland Street and Cahuenga Road
City of Victorville, San Bernardino County, California
For: Lansing Companies

Project No. **19-81-173-01**

Drawing No. **B-1**



SYMBOL	BORING NO.	DEPTH (ft)	DESCRIPTION	ASTM TEST METHOD	OPTIMUM WATER, %	MAXIMUM DRY DENSITY, pcf
●	**BH-9**	**0-5**	**SILTY SAND (SM), BROWN**	**D1557 -A**	**6.5**	**133.0**

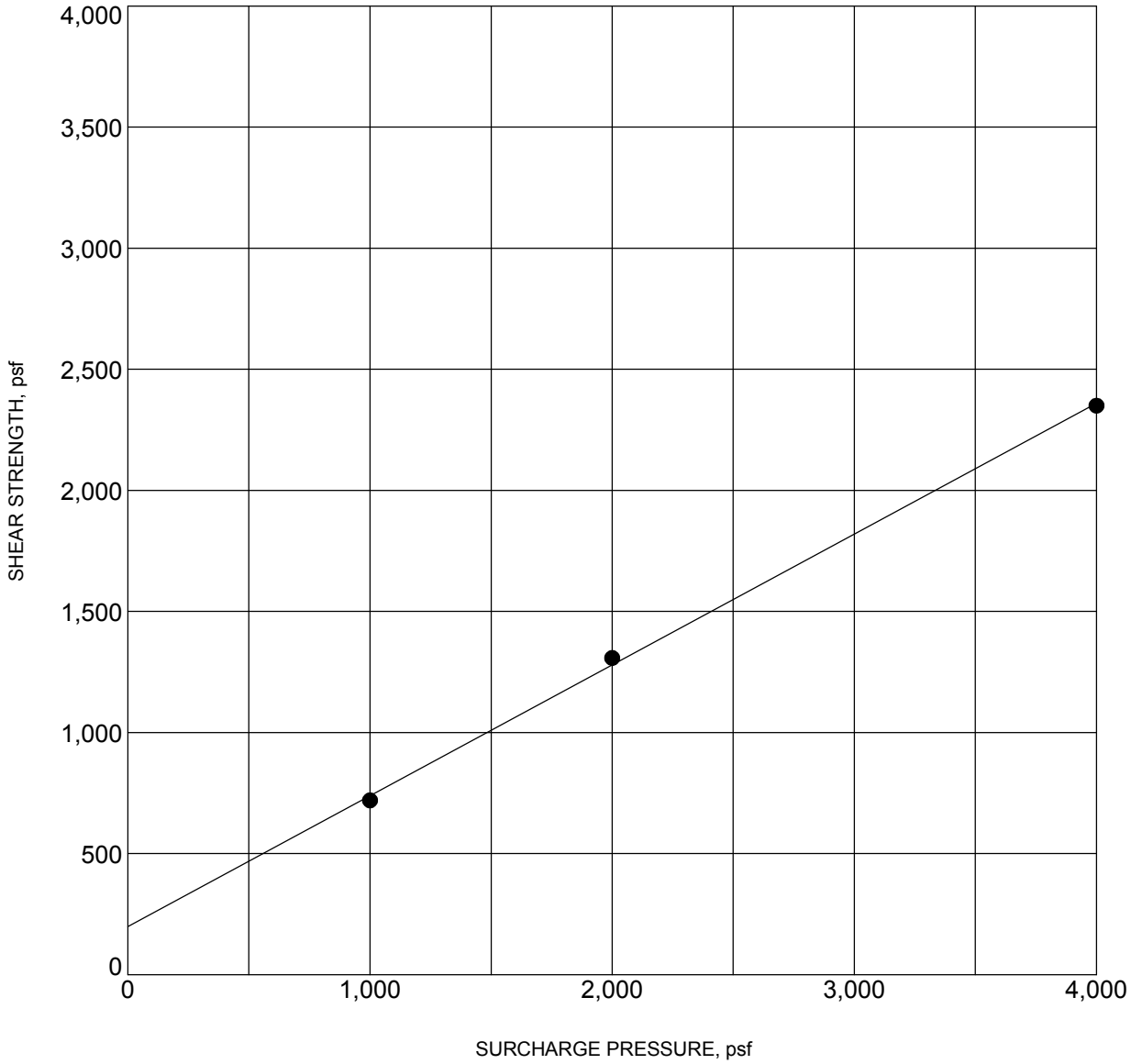
MOISTURE-DENSITY RELATIONSHIP RESULTS

Converse Consultants

Approximately 20.60-Acre Residential Development
Southeast Corner of Hopland Street and Cahuenga Road
City of Victorville, San Bernardino County, California
For: Lansing Companies

Project No.
19-81-173-01

Drawing No.
B-2



BORING NO.	:	**BH-8**	DEPTH (ft)	:	**5.0-6.5**
DESCRIPTION	:	**SANDY SILT (ML)**			
COHESION (psf)	:	**200**	FRICTION ANGLE (degrees):		**28**
MOISTURE CONTENT (%)	:	**11**	DRY DENSITY (pcf)	:	**113.0**

NOTE: Ultimate Strength.

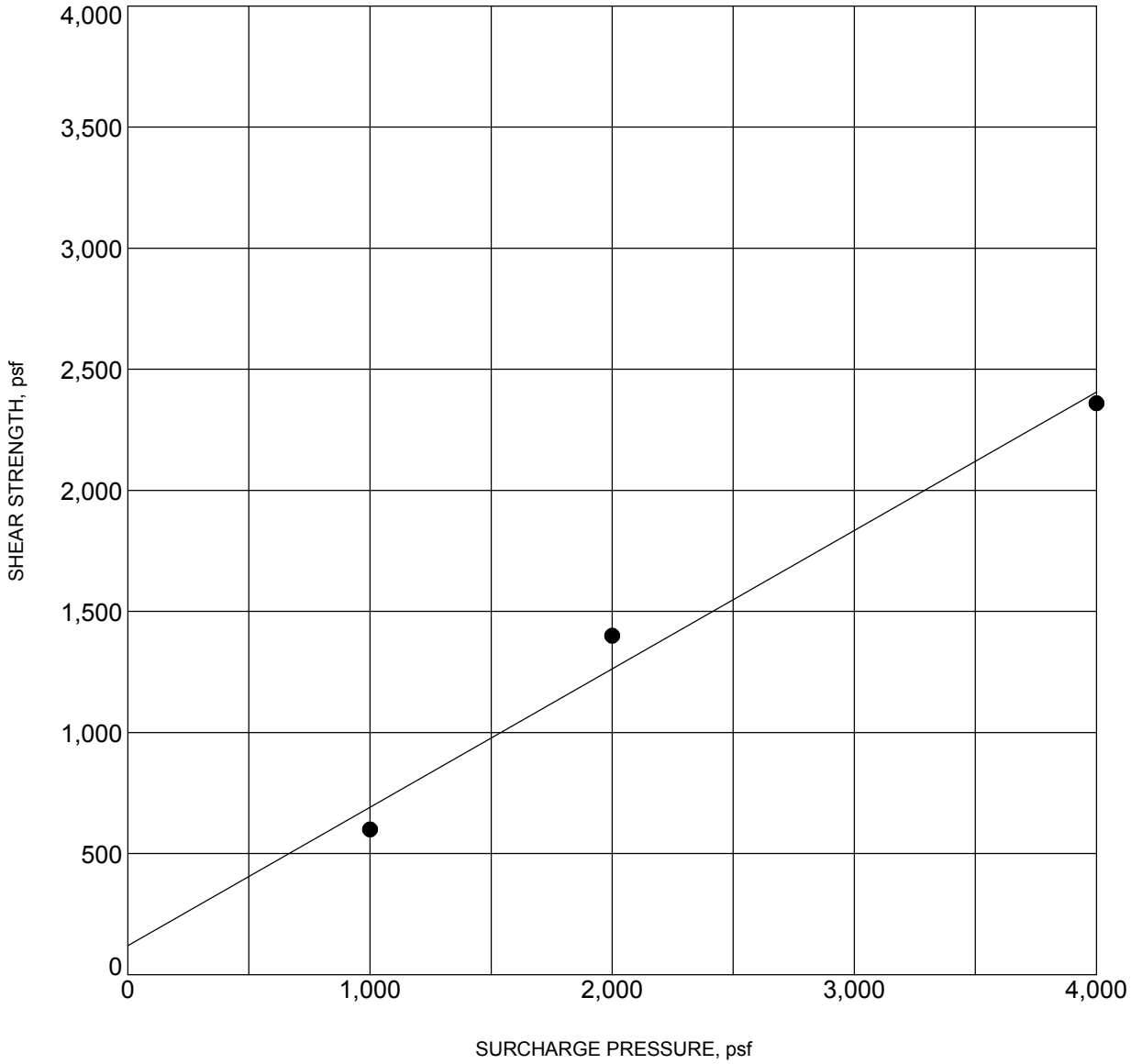
DIRECT SHEAR TEST RESULTS

Converse Consultants

Approximately 20.60-Acre Residential Development
Southeast Corner of Hopland Street and Cahuenga Road
City of Victorville, San Bernardino County, California
For: Lansing Companies

Project No. **19-81-173-01**

Drawing No. **B-3**



BORING NO.	:	**BH-9**	DEPTH (ft)	:	**5.0-6.5**
DESCRIPTION	:	**SAND WITH SILT (SP-SM)**			
COHESION (psf)	:	**120**	FRICTION ANGLE (degrees):		**30**
MOISTURE CONTENT (%)	:	**3.0**	DRY DENSITY (pcf)	:	**119.0**

NOTE: Ultimate Strength.

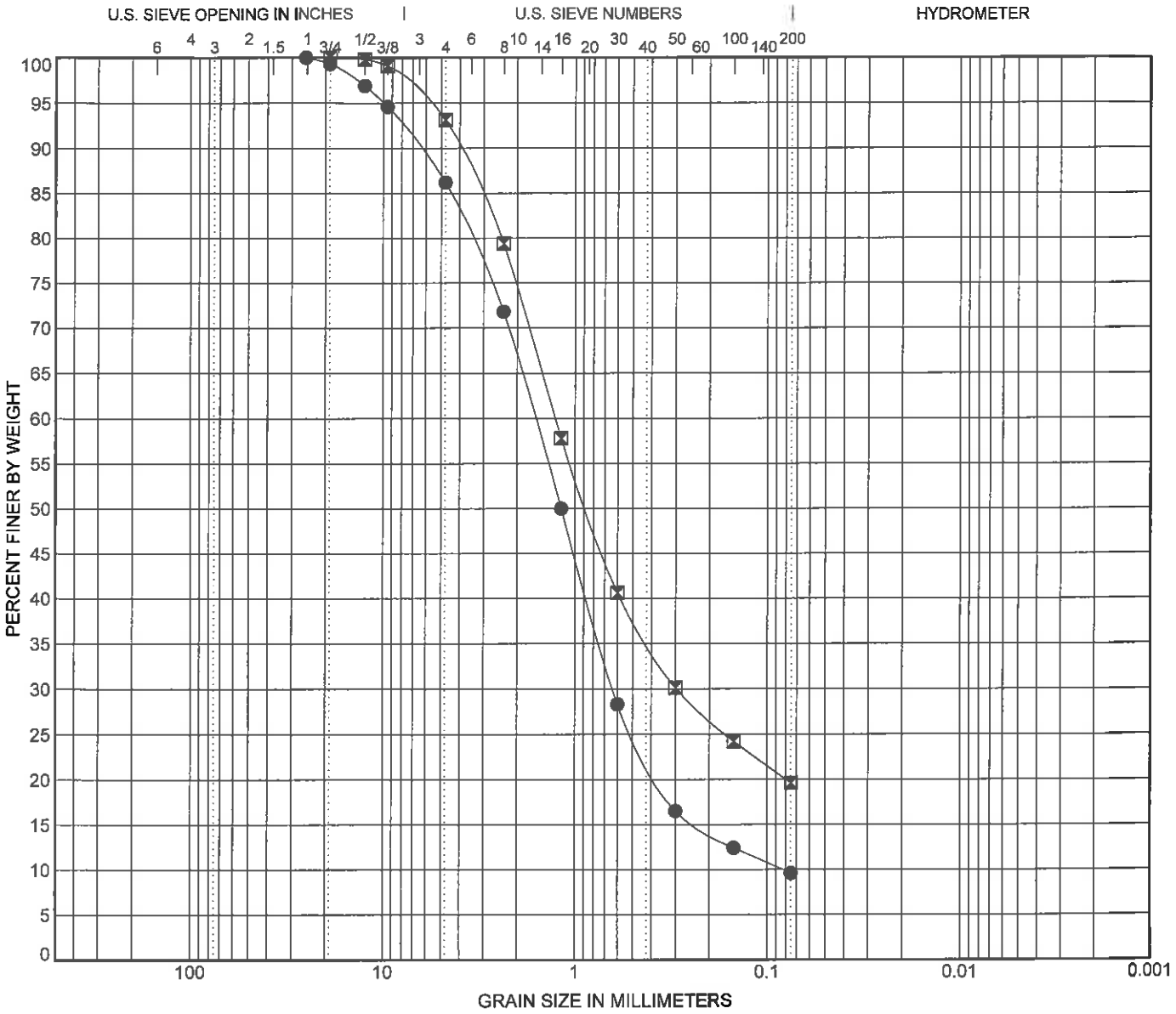
DIRECT SHEAR TEST RESULTS

Converse Consultants

Approximately 20.60-Acre Residential Development
Southeast Corner of Hopland Street and Cahuenga Road
City of Victorville, San Bernardino County, California
For: Lansing Companies

Project No. **19-81-173-01**

Drawing No. **B-4**



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth (ft)	Description	LL	PL	PI	Cc	Cu
●	**BH - 1**	**0 - 5'**	**SAND WITH SILT (SP-SM)**				**2.98**	**19.60**
⊠	**BH - 6**	**0 - 5'**	**SILTY SAND (SM)**					

	Boring No.	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH - 1**	**0 - 5'**	**25.4**	**1.622**	**0.633**	**0.083**	**13.8**	**76.6**	**9.6**	
⊠	**BH - 6**	**0 - 5'**	**19**	**1.266**	**0.296**		**6.9**	**73.5**	**19.6**	

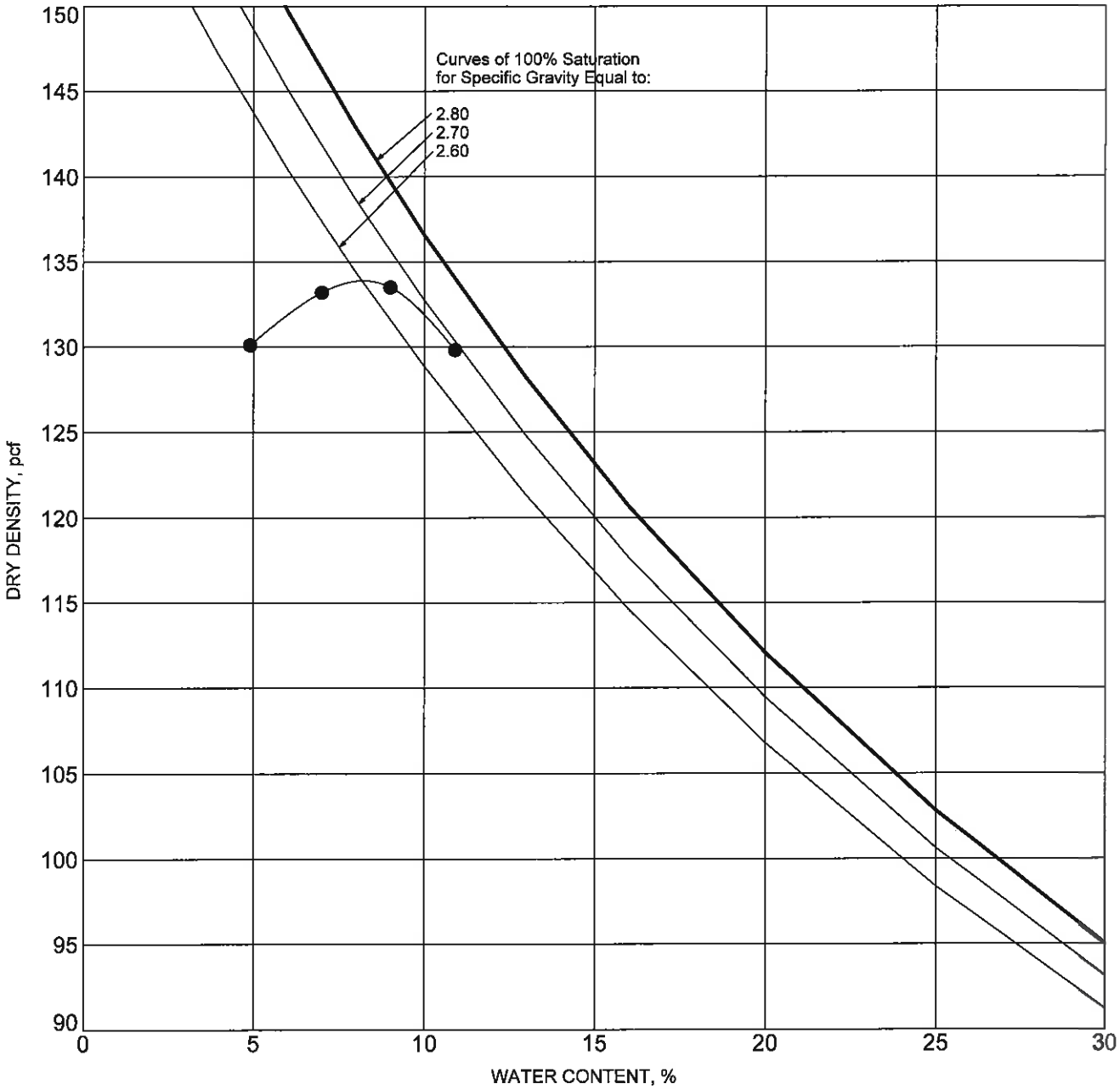
GRAIN SIZE DISTRIBUTION RESULTS

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. **05-81-351-01**

Drawing No. **B - 1**



SYMBOL	BORING NO.	DEPTH (ft)	DESCRIPTION	ASTM TEST METHOD	OPTIMUM WATER, %	MAXIMUM DRY DENSITY, pcf
●	BH - 4	0 - 5'	SILTY SAND (SM)	A	8.0	134.5

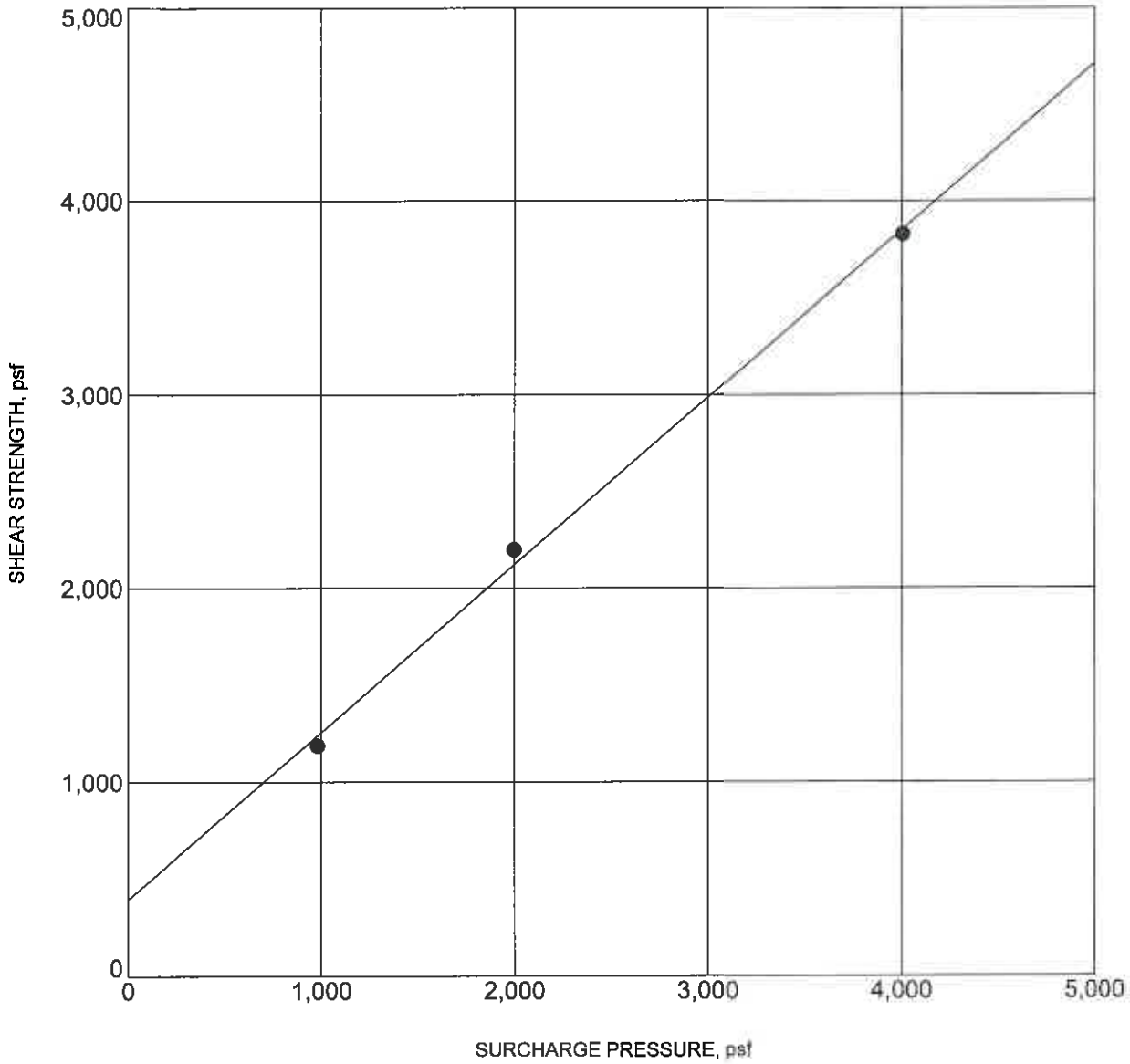
MOISTURE-DENSITY RELATIONSHIP RESULTS

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. **05-81-351-01**

Drawing No. **B - 2**



BORING NO. :	**BH - 1**	DEPTH (ft) :	**5.0 - 6.5'**
DESCRIPTION :	**SAND WITH SILT (SP-SM)**		
COHESION (psf) :	**400**	FRICTION ANGLE (degrees)	**41**
MOISTURE CONTENT (%) :	**3.6**	DRY DENSITY (pcf) :	**107.4**

NOTE: Ultimate Strength.

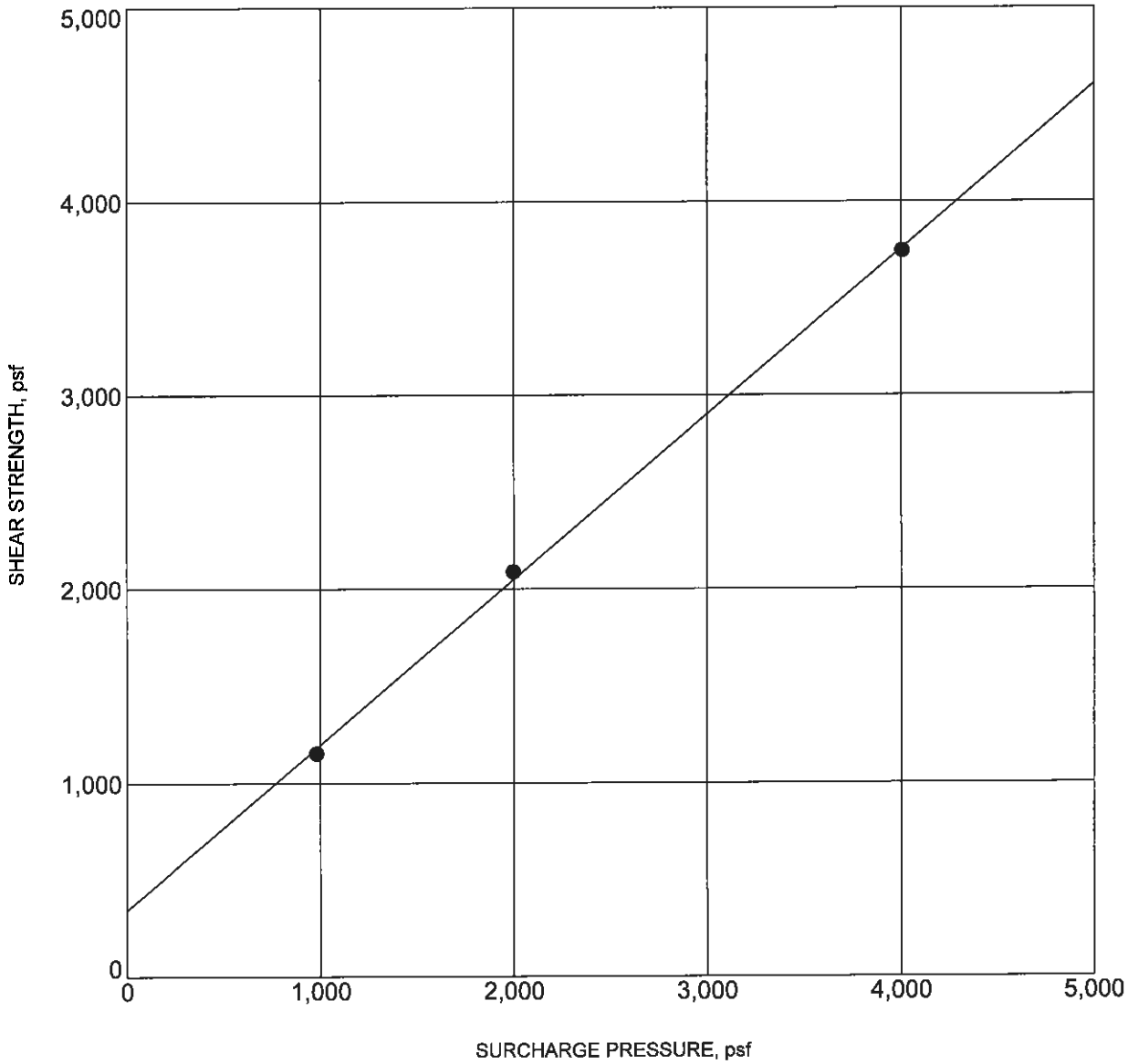
DIRECT SHEAR TEST RESULTS

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. **05-81-351-01**

Drawing No. **B - 3**



BORING NO. :	**BH - 4**	DEPTH (ft) :	**0 - 5'**
DESCRIPTION :	**SILTY SAND (SM)**		
COHESION (psf) :	**350**	FRICTION ANGLE (degrees) :	**40**
MOISTURE CONTENT (%) :	**8.5**	DRY DENSITY (pcf) :	**121.5**

NOTE: Ultimate Strength, Sample Remolded to 90% Relative Compaction

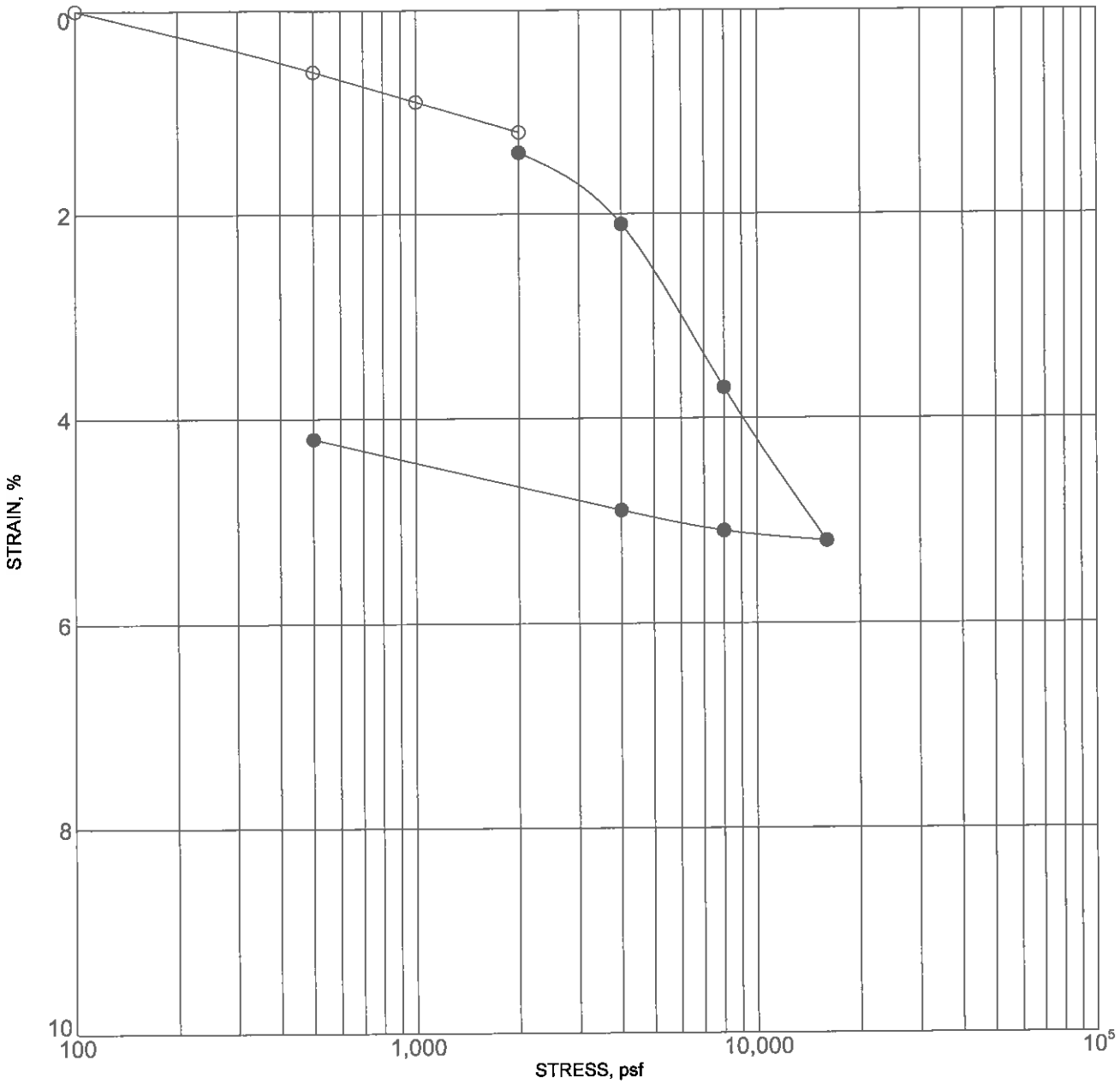
DIRECT SHEAR TEST RESULTS

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. **05-81-351-01**

Drawing No. **B - 4**



BORING NO. :	BH - 4	DEPTH (ft) :	5.0 - 6.5'
DESCRIPTION :	SILTY SAND (SM)		

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	5.8	119.8	41	0.377
FINAL	11.5	125	100	0.319

NOTE: Solid Circles Indicate Readings After Addition of Water

CONSOLIDATION TEST RESULTS

Converse Consultants

APRROXIMATELY 30 - ACRE SITE
City of Victorville, San Bernardino County, California
For: Victory Ridge

Project No. 05-81-351-01

Drawing No. B - 5

Appendix C

Water Filtration Testing

APPENDIX C

WATER INFILTRATION TESTING

Percolation testing was performed at two locations (PT-01 and PT-02) on June 10 and July 12, 2019 in general accordance with the San Bernardino County Technical Guidance Document for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans, Appendix VII, Infiltration Rate Evaluation Protocol and Factor of Safety Recommendations (San Bernardino County, 2011) for using a percolation testing method to estimate infiltration rates.

Upon completion of drilling the test hole, a 2-inch thick gravel layer was placed at the bottom of the hole and a 3.0-inch diameter perforated pipe was installed above the gravel to the ground surface. The boring annulus around the pipe was filled with gravel. The purpose of the pipe and gravel was to reduce the potential for erosion and caving due to the addition of water to the hole.

June 10, 2019

The test holes were presoaked by filling with water to at least 5 times the radius of the test holes. More than 6 inches of water seeped away from PT-01 in less than 25 minutes for 2 consecutive measurements, meeting the criteria for testing as “sandy soil”. Less than 6 inches of water seeped away from PT-02 in less than 25 minutes for 2 consecutive measurements, meeting the criteria for testing as “soil with fines”. Percolation testing was conducted immediately after presoaking. During testing, the water level and total depth of PT-01 was measured from the top of the pipe every 10 minutes for one hour. The water level and total depth of PT-02 was measured from the top of the pipe every 30 minutes for six hours. Following the completion of percolation testing, the pipes were left in the ground and the percolation test hole was backfilled with cutting soils.

July 12, 2019

The test holes were presoaked by filling with water to at least 5 times the radius of the test holes. More than 6 inches of water seeped away from PT-01 (2) and PT-02 (2) in less than 25 minutes for 2 consecutive measurements, meeting the criteria for testing as “sandy soil”. Percolation testing was conducted immediately after presoaking. During testing, the water level and total depth was measured from the top of the pipe every 10 minutes for one hour. Following the completion of percolation testing, the pipes were removed, and the test hole was backfilled with soil cuttings.

Percolation rates describe the movement of water horizontally and downward into the soil from a boring. Infiltration rates describe the downward movement of water through a horizontal surface, such as the floor of a retention basin. Percolation rates are related to infiltration rates but are generally higher and require conversion before use in design. The

percolation test data was used to estimate infiltration rates using the Porchet Inverse Borehole Method, in accordance with the San Bernardino County guidelines. A conversion factor derived from California Test 750 (Caltrans, 1986) was applied to adjust for the presence of the gravel and pipe within the borehole. A factor of safety of 3 was applied to the measured infiltration rates to account for subsurface variations, uncertainty in the test method, and future siltation. The infiltration structure designer should determine whether additional design-related safety factors are appropriate.

The measured percolation test data and calculations for conversion to infiltration rate, porosity correction, and factor of safety are shown on Plates No. 1 through 4, *Estimated Infiltration Rate from Percolation Test Data* and graphically represented on Plates No. 5 through 8, *Infiltration Rate Versus Time.* The estimated infiltration rate at the test holes and depths are presented in the following table.

Table No. C-1, Estimated Infiltration Rates

Percolation Test	Depth (feet)	Soil Type	Infiltration Rate (inches/hour)
PT-01	8	Silty Sand (SM)	1.30
PT-02	8	Sandy Silt (ML)	0.17
PT-01	10	Silty Sand (SM)	1.27
PT-02	10	Silty Sand (SM)	1.01

Based on the calculated infiltration rate during the final respective intervals in each test, we recommend an infiltration rate of 0.17 inches per hour at a depth of 8 feet bgs and 1.01 inches per hour at a depth of 10 feet bgs in the area of the basin.

Estimated Infiltration Rate from Percolation Test Data, PT-01

Project Name	20.6-acre development
Project Number	19-81-173-01
Test Number	PT-01
Personnel	Catherine Nelson
Presoak Date	6/10/2019
Test Date	6/10/2019

Shaded cells contain calculated values.

Test Hole Radius, r (inches)	4
Total Depth of Test hole, D_T (inches)	96
Inside Diameter of Pipe, I (inches)	2.00
Outside Diameter of Pipe, O (inches)	2.40
Porosity of Gravel, n	0.48
Porosity Correction Factor, C	0.50
Factor of Safety (FOS), F	2

Interval No.	Time Interval, Δt (min)	Initial Depth to Water, D_0 (inches)	Final Depth to Water, D_f (inches)	Elapsed Time (min)	Initial Height of Water, H_0 (inches)	Final Height of Water, H_f (inches)	Change in Height of Water, ΔH (inches)	Average Head Height, H_{avg} (inches)	Infiltration Rate, I_t (inches/hr)	Corrected Infiltration Rate, I_c (inches/hr)	Infiltration Rate with FOS, I_f (inches/hr)
1	25.00	31.20	80.28	25.00	64.80	15.72	49.08	40.26	5.57	2.78	1.39
2	25.00	31.20	79.56	50.00	64.80	16.44	48.36	40.62	5.45	2.72	1.36
3	10.00	31.20	59.88	60.00	64.80	36.12	28.68	50.46	6.56	3.28	1.64
4	10.00	31.20	59.40	70.00	64.80	36.60	28.20	50.70	6.42	3.21	1.60
5	10.00	31.20	57.36	80.00	64.80	38.64	26.16	51.72	5.84	2.92	1.46
6	10.00	31.20	56.16	90.00	64.80	39.84	24.96	52.32	5.51	2.75	1.38
7	10.00	31.20	55.44	100.00	64.80	40.56	24.24	52.68	5.32	2.66	1.33
8	10.00	31.20	55.08	110.00	64.80	40.92	23.88	52.86	5.22	2.61	1.30

Recommended Design Infiltration Rate (inches/hr)	**1.30**

Infiltration calculations are based on the Porchet Inverse Borehole Method presented in Santa Ana Regional Water Quality Control Board Technical Guidance Document, Appendix VII, Example VII.1.

$H_0 = D_T - D_0$

$H_f = D_T - D_f$

$\Delta H = H_0 - H_f$

$H_{avg} = (H_0 + H_f) / 2$

$I_t = (\Delta H * (60 * r)) / (\Delta t * (r + (2 * H_{avg}))$

Porosity conversion calculations are based on the method provided in Caltrans California Test 750.

$C = n * (1 - (O / (2 * r))^2) + (I / (2 * r))^2$

$I_c = I_t * C$

$I_f = I_C * F$

Plate No.

1

Estimated Infiltration Rate from Percolation Test Data, PT-02

Project Name	20.6-acre development
Project Number	19-81-173-01
Test Number	PT-02
Personnel	Catherine Nelson
Presoak Date	6/10/2019
Test Date	6/10/2019

Shaded cells contain calculated values.

Test Hole Radius, r (inches)	4
Total Depth of Test hole, D_T (inches)	96
Inside Diameter of Pipe, I (inches)	2.00
Outside Diameter of Pipe, O (inches)	2.40
Porosity of Gravel, n	0.48
Porosity Correction Factor, C	0.50
Factor of Safety (FOS), F	2

Interval No.	Time Interval, Δt (min)	Initial Depth to Water, D_0 (inches)	Final Depth to Water, D_f (inches)	Elapsed Time (min)	Initial Height of Water, H_0 (inches)	Final Height of Water, H_f (inches)	Change in Height of Water, ΔH (inches)	Average Head Height, H_{avg} (inches)	Infiltration Rate, I_t (inches/hr)	Corrected Infiltration Rate, I_c (inches/hr)	Infiltration Rate with FOS, I_f (inches/hr)
1	30.00	31.20	44.52	30.00	64.80	51.48	13.32	58.14	0.89	0.44	0.22
2	30.00	31.20	43.44	60.00	64.80	52.56	12.24	58.68	0.81	0.40	0.20
3	30.00	31.20	48.96	90.00	64.80	47.04	17.76	55.92	1.23	0.61	0.31
4	30.00	31.20	44.52	120.00	64.80	51.48	13.32	58.14	0.89	0.44	0.22
5	30.00	31.20	43.56	150.00	64.80	52.44	12.36	58.62	0.82	0.41	0.20
6	30.00	31.20	43.44	180.00	64.80	52.56	12.24	58.68	0.81	0.40	0.20
7	30.00	31.20	42.84	210.00	64.80	53.16	11.64	58.98	0.76	0.38	0.19
8	30.00	31.20	41.76	240.00	64.80	54.24	10.56	59.52	0.69	0.34	0.17
9	30.00	31.20	42.36	270.00	64.80	53.64	11.16	59.22	0.73	0.36	0.18
10	30.00	31.20	44.28	300.00	64.80	51.72	13.08	58.26	0.87	0.43	0.22
11	30.00	31.20	42.96	330.00	64.80	53.04	11.76	58.92	0.77	0.39	0.19
12	30.00	31.20	42.84	360.00	64.80	53.16	11.64	58.98	0.76	0.38	0.19

Recommended Design Infiltration Rate (inches/hr)	**0.17**

Infiltration calculations are based on the Porchet Inverse Borehole Method presented in Santa Ana Regional Water Quality Control Board Technical Guidance Document, Appendix VII, Example VII.1.

$H_0 = D_T - D_0$

$H_f = D_T - D_f$

$\Delta H = H_0 - H_f$

$H_{avg} = (H_0 + H_f) / 2$

$I_t = (\Delta H * (60 * r)) / (\Delta t * (r + (2 * H_{avg}))$

Porosity conversion calculations are based on the method provided in Caltrans California Test 750.

$C = n * (1 - (O / (2 * r))^2) + (I / (2 * r))^2$

$I_c = I_t * C$

$I_f = I_C * F$

Plate No.
2

Estimated Infiltration Rate from Percolation Test Data, PT-01 (2)

Project Name	20.6-acre development
Project Number	19-81-173-01
Test Number	PT-01 (2)
Personnel	Jay Burnham
Presoak Date	7/12/2019
Test Date	7/12/2019

Shaded cells contain calculated values.

Test Hole Radius, r (inches)	4
Total Depth of Test hole, D_T (inches)	120
Inside Diameter of Pipe, I (inches)	2.00
Outside Diameter of Pipe, O (inches)	2.40
Porosity of Gravel, n	0.48
Porosity Correction Factor, C	0.50
Factor of Safety (FOS), F	2

Interval No.	Time Interval, Δt (min)	Initial Depth to Water, D_0 (inches)	Final Depth to Water, D_f (inches)	Elapsed Time (min)	Initial Height of Water, H_0 (inches)	Final Height of Water, H_f (inches)	Change in Height of Water, ΔH (inches)	Average Head Height, H_{avg} (inches)	Infiltration Rate, I_t (inches/hr)	Corrected Infiltration Rate, I_c (inches/hr)	Infiltration Rate with FOS, I_f (inches/hr)
1	25.00	78.00	113.40	25.00	42.00	6.60	35.40	24.30	6.46	3.23	1.61
2	25.00	78.00	108.48	50.00	42.00	11.52	30.48	26.76	5.09	2.54	1.27
3	10.00	78.24	94.80	60.00	41.76	25.20	16.56	33.48	5.60	2.80	1.40
4	10.00	76.80	93.60	70.00	43.20	26.40	16.80	34.80	5.48	2.74	1.37
5	10.00	78.00	93.84	80.00	42.00	26.16	15.84	34.08	5.27	2.63	1.32
6	10.00	78.00	93.36	90.00	42.00	26.64	15.36	34.32	5.07	2.53	1.27
7	10.00	78.72	93.60	100.00	41.28	26.40	14.88	33.84	4.98	2.49	1.24
8	10.00	78.00	93.36	110.00	42.00	26.64	15.36	34.32	5.07	2.53	1.27

Recommended Design Infiltration Rate (inches/hr)	**1.27**

Infiltration calculations are based on the Porchet Inverse Borehole Method presented in Santa Ana Regional Water Quality Control Board Technical Guidance Document, Appendix VII, Example VII.1.

$H_0 = D_T - D_0$

$H_f = D_T - D_f$

$\Delta H = H_0 - H_f$

$H_{avg} = (H_0 + H_f) / 2$

$I_t = (\Delta H * (60 * r)) / (\Delta t * (r + (2 * H_{avg}))$

Porosity conversion calculations are based on the method provided in Caltrans California Test 750.

$C = n * (1 - (O / (2 * r))^2) + (I / (2 * r))^2$

$I_c = I_t * C$

$I_f = I_C * F$

Plate No.

3

Estimated Infiltration Rate from Percolation Test Data, PT-02 (2)

Project Name	20.6-acre development
Project Number	19-81-173-01
Test Number	PT-02 (2)
Personnel	Jay Burnham
Presoak Date	7/12/2019
Test Date	7/12/2019

Shaded cells contain calculated values.

Test Hole Radius, r (inches)	4
Total Depth of Test hole, D_T (inches)	120
Inside Diameter of Pipe, I (inches)	2.00
Outside Diameter of Pipe, O (inches)	2.40
Porosity of Gravel, n	0.48
Porosity Correction Factor, C	0.50
Factor of Safety (FOS), F	2

Interval No.	Time Interval, Δt (min)	Initial Depth to Water, D_0 (inches)	Final Depth to Water, D_f (inches)	Elapsed Time (min)	Initial Height of Water, H_0 (inches)	Final Height of Water, H_f (inches)	Change in Height of Water, ΔH (inches)	Average Head Height, H_{avg} (inches)	Infiltration Rate, I_t (inches/hr)	Corrected Infiltration Rate, I_c (inches/hr)	Infiltration Rate with FOS, I_f (inches/hr)
1	25.00	72.00	106.20	25.00	48.00	13.80	34.20	30.90	4.99	2.49	1.25
2	25.00	72.00	103.20	50.00	48.00	16.80	31.20	32.40	4.35	2.17	1.09
3	10.00	72.24	88.20	60.00	47.76	31.80	15.96	39.78	4.58	2.29	1.14
4	10.00	72.00	87.60	70.00	48.00	32.40	15.60	40.20	4.44	2.21	1.11
5	10.00	73.20	87.48	80.00	46.80	32.52	14.28	39.66	4.11	2.05	1.03
6	10.00	73.44	87.84	90.00	46.56	32.16	14.40	39.36	4.18	2.09	1.04
7	10.00	72.00	86.52	100.00	48.00	33.48	14.52	40.74	4.08	2.04	1.02
8	10.00	72.00	86.40	110.00	48.00	33.60	14.40	40.80	4.04	2.02	1.01

Recommended Design Infiltration Rate (inches/hr)	**1.01**

Infiltration calculations are based on the Porchet Inverse Borehole Method presented in Santa Ana Regional Water Quality Control Board Technical Guidance Document, Appendix VII, Example VII.1.

$H_0 = D_T - D_0$

$H_f = D_T - D_f$

$\Delta H = H_0 - H_f$

$H_{avg} = (H_0 + H_f) / 2$

$I_t = (\Delta H * (60 * r)) / (\Delta t * (r + (2 * H_{avg}))$

Porosity conversion calculations are based on the method provided in Caltrans California Test 750.

$C = n * (1 - (O / (2 * r))^2) + (I / (2 * r))^2$

$I_c = I_t * C$

$I_f = I_C * F$

Plate No.

4

Infiltration Rate versus Time, PT-01

Project Name	20.6-acre development
Project Number	19-81-173-01
Test Number	PT-01
Personnel	Catherine Nelson
Presoak Date	6/10/2019
Test Date	6/10/2019

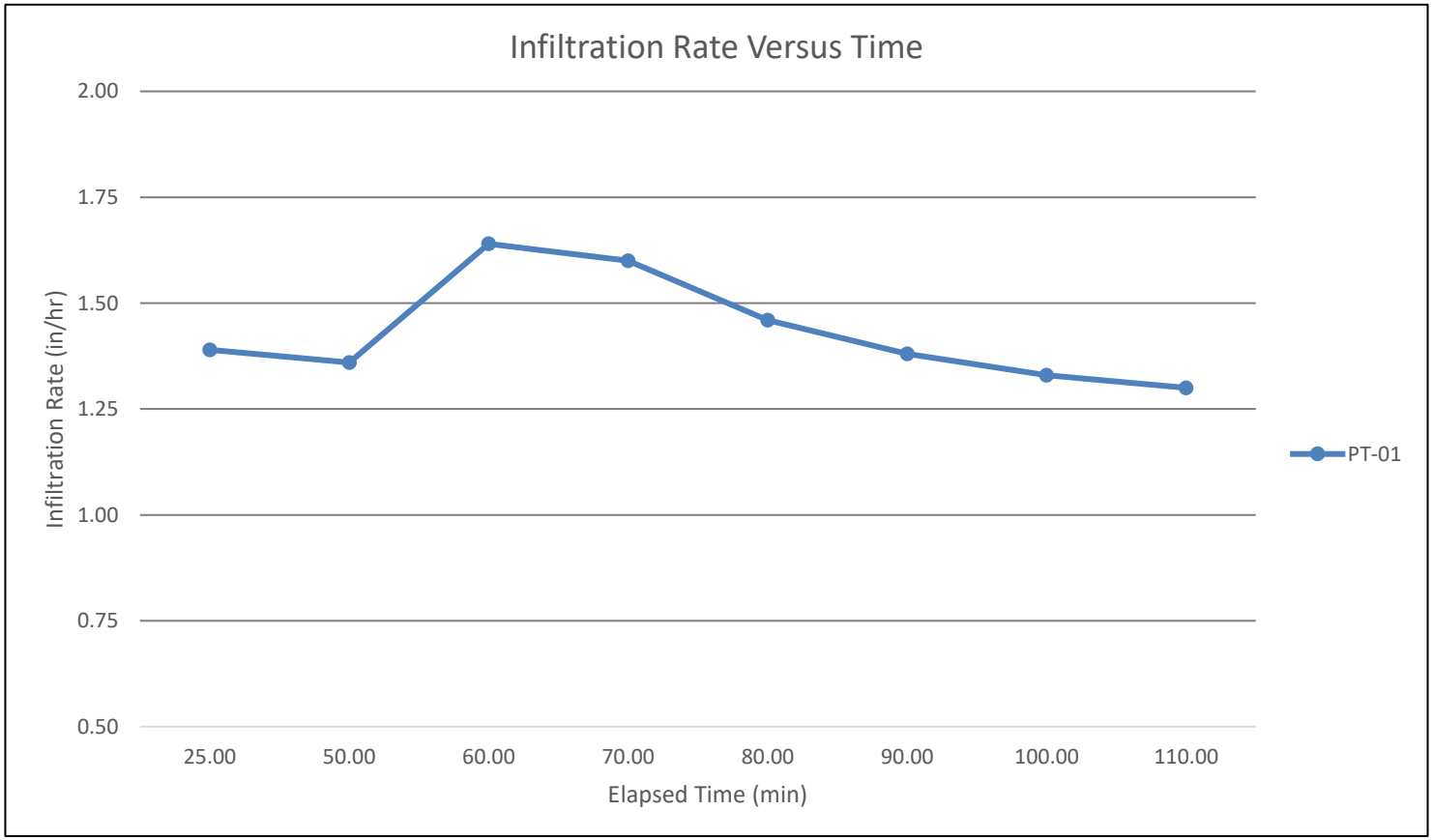


Plate No.
5

Infiltration Rate versus Time, PT-02

Project Name	20.6-acre development
Project Number	19-81-173-01
Test Number	PT-02
Test Location	
Personnel	Catherine Nelson
Presoak Date	6/10/2019
Test Date	6/10/2019

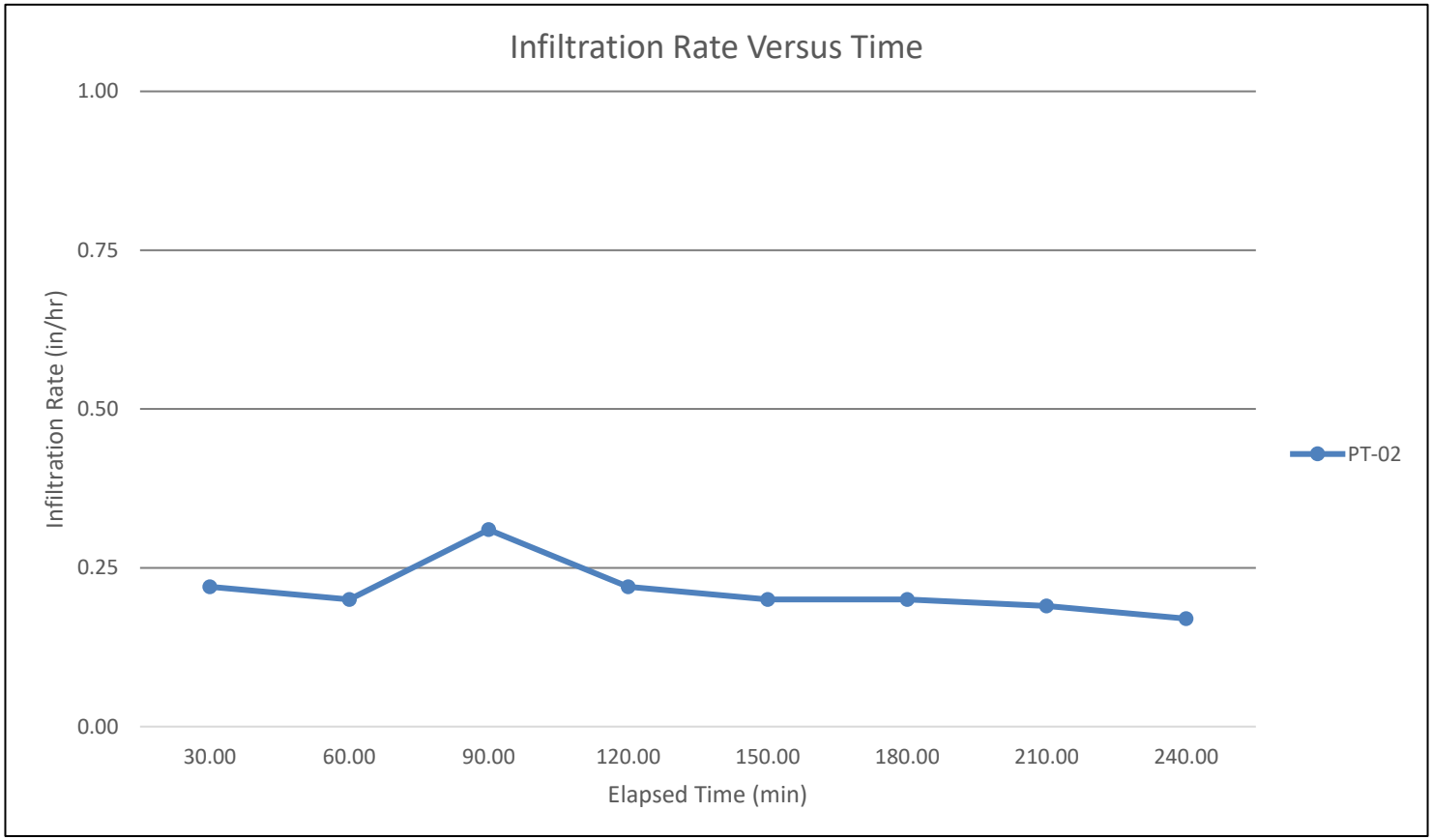


Plate No.
6

Infiltration Rate versus Time, PT-01

Project Name	20.6-acre development
Project Number	19-81-173-01
Test Number	PT-01 (2)
Personnel	Jay Burnham
Presoak Date	7/12/2019
Test Date	7/12/2019

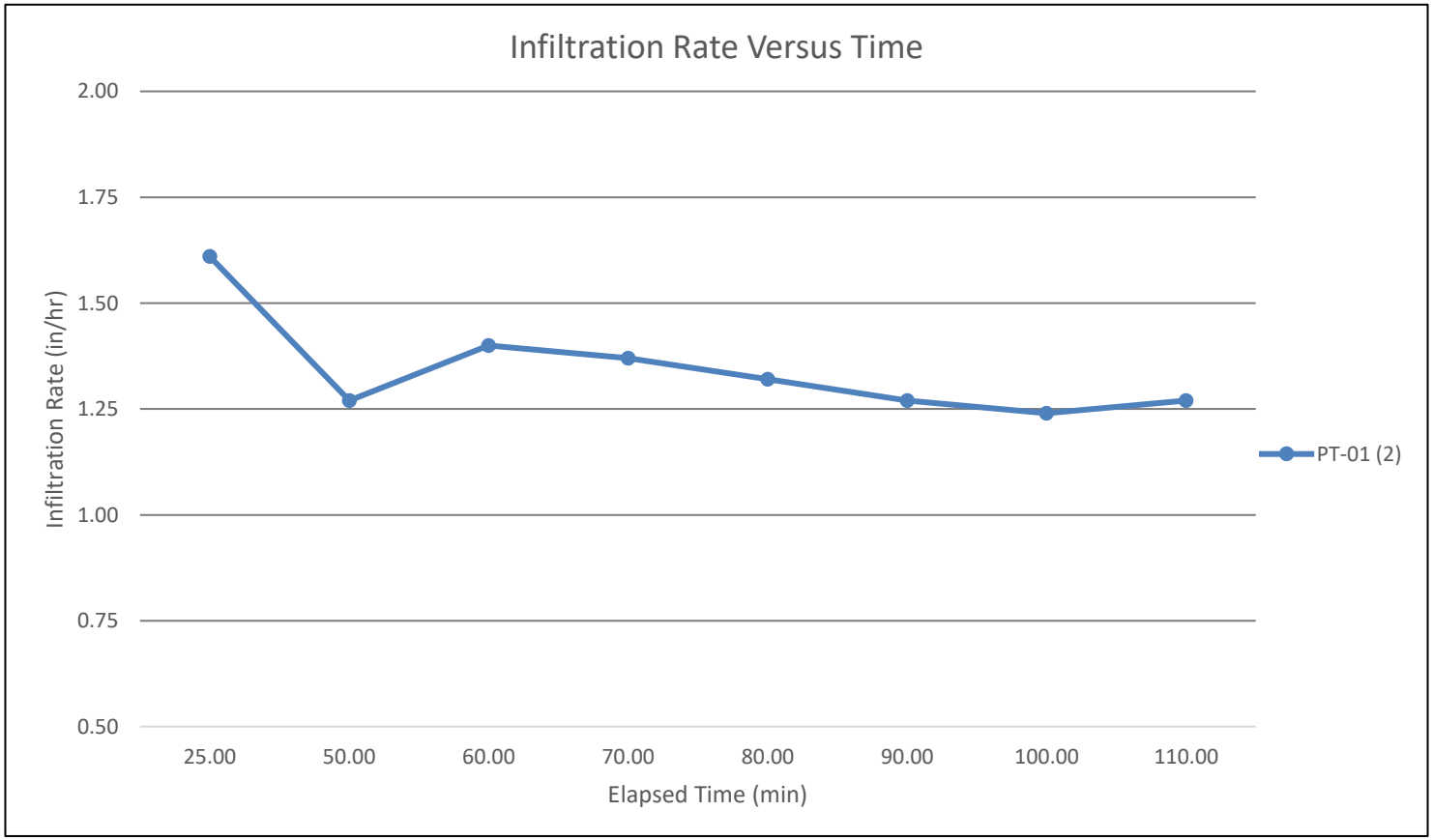


Plate No.
7

Infiltration Rate versus Time, PT-01

Project Name	20.6-acre development
Project Number	19-81-173-01
Test Number	PT-02 (2)
Personnel	Jay Burnham
Presoak Date	7/12/2019
Test Date	7/12/2019

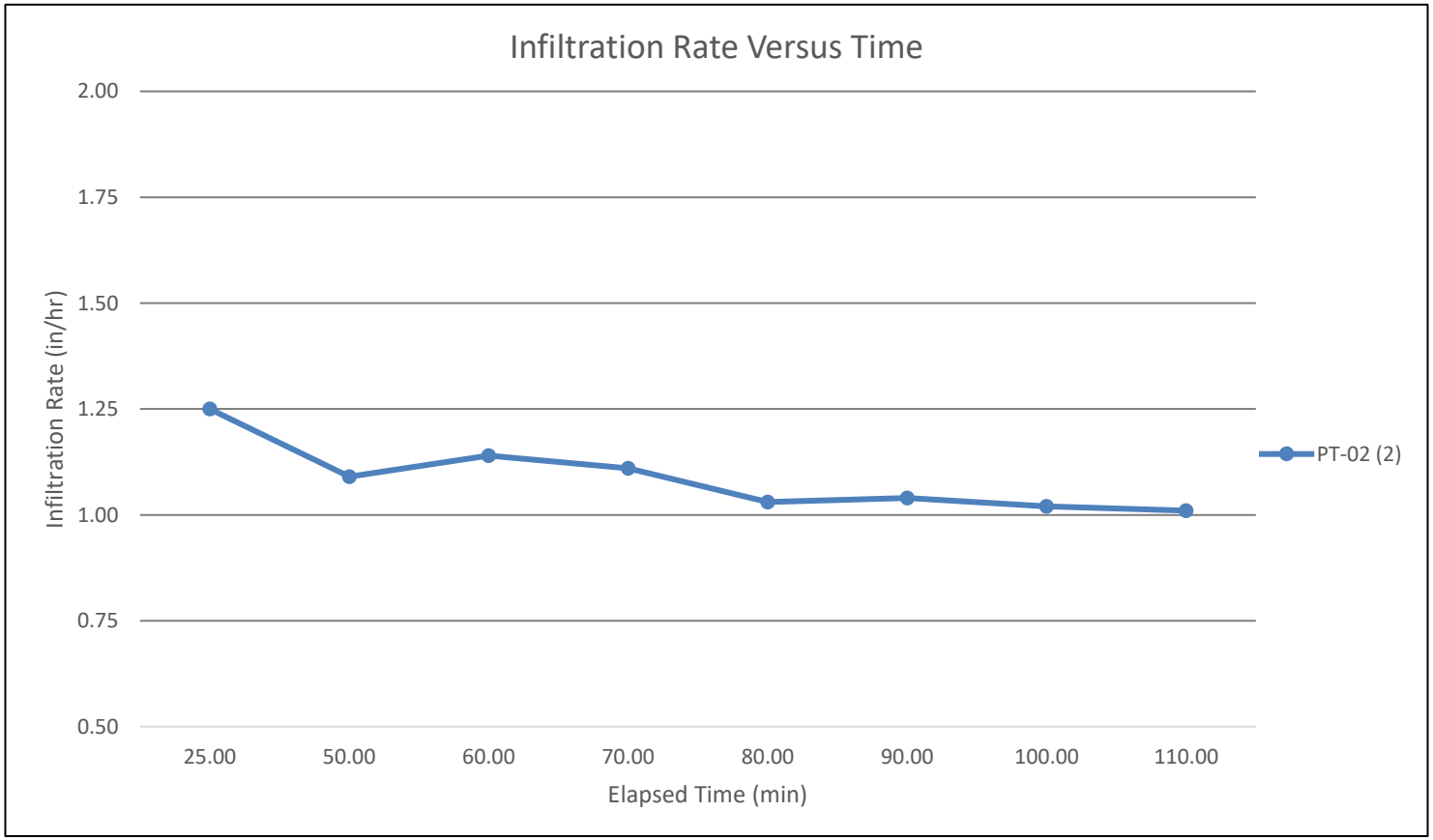


Plate No.
8

DAVID EVANS AND ASSOCIATES INC.

Appendix-9:

Reference

Storm Drain Improvement Plans
(Tract No. 15083-3)
&
City Watershed Map

CITY OF VICTORVILLE
STORM DRAIN IMPROVEMENT PLANS
TRACT NO. 15083-3

STORM DRAIN GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THESE PLANS AND SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THE CITY OF VICTORVILLE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST REVISIONS, AND STANDARD DRAWINGS ON FILE WITH THE CITY OF VICTORVILLE.
2. 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 CONTINUALLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER, THE ENGINEER, AND THE CITY 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.
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ANY PERMITS REQUIRED BY THE CITY OF VICTORVILLE ENGINEERING DEPARTMENT IN ORDER TO DO THE WORK SHOWN ON THESE PLANS.
4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT SURVEYING MONUMENTS IN PLACE AND THE CONTRACTOR SHALL BE FINANCIALLY RESPONSIBLE FOR RESETTING DAMAGED OR DESTROYED MONUMENTS.
5. JOSHUA TREES SHALL BE PROTECTED IN PLACE OR RELOCATED AS APPROVED BY THE PARKS DIVISION OF THE CITY OF VICTORVILLE DEPARTMENT OF COMMUNITY SERVICES, AT OWNER'S EXPENSE.
6. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE HIMSELF/HERSELF WITH THE JOB SITE AND ANY UNDERGROUND UTILITIES SHOWN OR NOT SHOWN ON THESE PLANS. CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT AT 1-800-227-2600 TO LOCATE UTILITIES AT LEAST TWO WORKING DAYS BEFORE DOING ANY EXCAVATION. ALL PIPELINES, SUBSTRUCTURES, OR UTILITIES OF ANY KIND, WHETHER SHOWN ON THESE PLANS OR NOT, SHALL BE PROTECTED IN PLACE OR, IF REQUIRED, BE REMOVED, RELOCATED OR REINFORCED TO THE SATISFACTION OF THE CITY ENGINEER AND THE COMPANY OWNING THE FACILITY, AT THE EXPENSE OF THE CONTRACTOR.
7. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE ENGINEER AND THE CITY OF VICTORVILLE.
8. THE CONTRACTOR SHALL GIVE THE CITY OF VICTORVILLE ENGINEERING DEPARTMENT AT LEAST TWO (2) WORKING DAYS NOTICE TO SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE INSPECTOR PRIOR TO START OF WORK.
9. THE CONTRACTOR SHALL NOTIFY THE CITY OF VICTORVILLE ENGINEERING DEPARTMENT AT LEAST 1 WORKING DAY PRIOR TO NECESSARY INSPECTIONS AT (760) 955-5158. A RE-INSPECTION FEE WILL BE RENDERED ON EACH OCCASION WHEN THE CONTRACTOR IS NOT READY FOR THE INSPECTION AT THE SCHEDULED TIME. NO FURTHER INSPECTIONS WILL BE PERFORMED UNTIL SAID RE-INSPECTION FEE IS PAID.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SOIL TESTING AND COMPACTION TESTING. A CERTIFICATE OF COMPACTIONS SIGNED BY A REGISTERED ENGINEER SHALL BE SUBMITTED FOR ALL TRENCH BACKFILLS.
11. EXISTING UTILITIES SHALL BE MAINTAINED IN PLACE AND IN OPERATION DURING CONSTRUCTION.
12. ALL EXCAVATIONS SHALL BE BACKFILLED AT THE END OF EACH WORKING DAY AND ROADS OPEN TO VEHICULAR TRAFFIC.
13. ANY RELOCATION OF EXISTING MAILBOXES, POWER POLES, STREET LIGHTS, FIRE HYDRANTS, SIGN POSTS, CONTEL TELEPHONE PEDESTALS, ETC., SHALL BE RELOCATED OR REMOVED AND REINSTALLED BY AND AT THE EXPENSE OF THE CONTRACTOR.
14. MANHOLE RIM ELEVATIONS SHALL BE STAKED IN THE FIELD AT TIME OF CONSTRUCTION.
15. STATIONS SHOWN ON PROFILE ARE ON CENTERLINE OF THE CONDUIT.
16. ADEQUATE STAKES SHALL BE SET BY THE ENGINEER TO ENABLE THE CONTRACTOR TO CONSTRUCT THE WORK TO PLAN AND GRADE.
17. INSTALL HOLD-DOWN BOLTS ON ALL MANHOLE COVERS.
18. IF AC OR PC IS TO BE PLACED DIRECTLY ON SUBSURFACE OF DRAINAGE FACILITIES, A SOIL STERILANT REGISTERED BY THE EPA FOR USE UNDER AC AND PC SHALL BE UNIFORMLY APPLIED AT THE MANUFACTURER'S RECOMMENDED RATE FOR THE FULL PAVEMENT WIDTH PRIOR TO PAVING.

NOTE: WHERE CONTRACTOR APPEARS YOU MAY SUBSTITUTE OWNER, DEVELOPER OR ENGINEER.

CAST-IN-PLACE PIPE NOTES

NOTE: CAST-IN-PLACE STORM DRAIN MAY BE USED IN LIEU OF RCP.

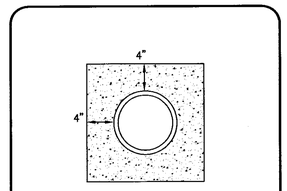
1. CIPCP INSTALLATION THE CONTRACTOR SHALL SUBMIT ONE COPY OF THE MANUFACTURER'S CIPCP (CAST IN PLACE NON-REINFORCED CONCRETE PIPE) INSTALLATION MANUAL TO THE ENGINEER 5 WORKING DAYS PRIOR TO THE INSTALLATION PROCESS. THE CONCRETE INSPECTOR SHALL PERFORM THE THICKNESS INSPECTIONS AS OUTLINED IN SECTION 306-4.7.2 (CIPCP THICKNESS TEST REQUIREMENTS)
2. CONSTRUCTION MATERIALS, METHODS AND TESTING SHALL CONFORM TO SECTION 306-5 OF THE STANDARD SPECIFICATIONS REGARDING CAST-IN-PLACE NONREINFORCED CONCRETE PIPE.
3. CAST-IN-PLACE PIPE SHALL NOT BE PLACED EXCEPT IN THE PRESENCE OF A CITY INSPECTOR OR OTHER CITY ENGINEER REPRESENTATIVE.
4. TRENCHING AND BACKFILLING SHALL NOT BE PERFORMED EXCEPT IN THE PRESENCE OF THE SOILS ENGINEER, AS DIRECTED BY THE CITY INSPECTOR OR OTHER CITY ENGINEER REPRESENTATIVE.
5. CAST-IN-PLACE PIPE MAY BE CONSTRUCTED ONLY IN GROUND CAPABLE OF STANDING UNSUPPORTED FROM THE BOTTOM OF THE TRENCH TO THE TOP OF THE PIPE WITHOUT SLOUGHING. THE GROUND SHALL NOT CONTAIN TRASH, DEBRIS, OR BITUMINOUS MATERIALS. EXPANSIVE SOILS SHALL BE THOROUGHLY MOISTENED BY PONDING TO COMPLETELY EXPAND THE SOILS AND THE MOISTURE MAINTAINED UNTIL THE CONCRETE IS PLACED. BACKFILLING WITH EXPANSIVE SOILS IS NOT PERMITTED.
6. CAST-IN-PLACE PIPE MAY BE CONSTRUCTED IN FILL PROVIDED THAT THE FILL IS CERTIFIED AND APPROVED AS MEETING THE DESIGN ASSUMPTIONS. IF THE MINIMUM SOILS PARAMETERS ASSUMED FOR THE DESIGN ARE NOT MET, REINFORCED CONCRETE PIPE SHALL BE SUBSTITUTED. CAST-IN-PLACE PIPE SHALL NOT BE CONSTRUCTED IN FILL THAT EXTENDS BELOW THE PIPE FOR A DISTANCE OF MORE THAN TWICE THE OUTSIDE PIPE DIAMETER.
7. CAST-IN-PLACE PIPE SHALL BE CONSTRUCTED IN GROUND, WHERE GROUNDWATER IS ABOVE THE BOTTOM OF THE PIPE, OR WHICH IS SATURATED OR CONTAINS WATER IN SUCH QUANTITIES AS TO BE HARMFUL TO THE CONCRETE.
8. BACKFILLING OF CAST-IN-PLACE PIPE SHALL NOT BE DONE UNTIL THE CONCRETE HAS DEVELOPED 80 PERCENT OF ITS DESIGN STRENGTH. NO TRAFFIC (INCLUDING CONSTRUCTION EQUIPMENT) SHALL BE PERMITTED ON TOP OF THE PIPE UNTIL THE CONCRETE HAS ATTAINED ITS DESIGN STRENGTH.
9. WATER DENSIFICATION METHODS OF BACKFILLING THE PIPE SHALL NOT BE PERMITTED. MECHANICAL COMPACTION WILL BE REQUIRED. AN 8 INCH LIFT OF LOOSE BACKFILL "SHADING" OVER THE PIPE WILL NOT BE PERMITTED 24 HOURS AFTER INITIAL PLACEMENT.
10. CONCRETE SHALL BE CLASS 560-C-3250 (MINIMUM) USING TYPE II CEMENT, UNLESS OTHERWISE NOTED.
11. FLY ASH, MEETING ASTM C 618, MAY BE USED TO SUBSTITUTE FOR CEMENT (UP TO 15 PERCENT OF CEMENT BY WEIGHT). WHEN FLY ASH IS USED, WATER REDUCING AGENTS MEETING ASTM C 494 MAY BE PERMITTED IN AN AMOUNT RECOMMENDED BY THE SUPPLIER AND APPROVED BY THE CITY INSPECTOR. NO OTHER ADMIXTURE SHALL BE USED IN ANY CLASS OF CONCRETE WITHOUT WRITTEN PERMISSION FROM THE CITY ENGINEER.
12. THE CITY INSPECTOR MAY REQUIRE DRILL HOLES AND/OR CORINGS AT ANY LOCATION AND INTERVAL TO DETERMINE THE WALL THICKNESS OF THE PIPE AND/OR THE COMPRESSIVE STRENGTH OF THE CONCRETE.
13. AT THE END OF ALL POURS AND THE END OF EACH WORKING DAY, THE CONTRACTOR SHALL INSTALL NO. 4 DOWELS, 24 INCHES LONG, 12 INCHES ON CENTER, AROUND THE CIRCUMFERENCE OF THE CAST-IN-PLACE PIPE.
14. ALL MANHOLES, JUNCTION STRUCTURES AND ANY OTHER STRUCTURES, ARE TO BE BUILT SEPARATE FROM THE CAST-IN-PLACE PIPE PER THE SPECIFIED DETAILS. NO CAST-IN-PLACE PIPE SHALL BE ALLOWED TO RUN THROUGH ANY STRUCTURE, NOR SHALL ANY STRUCTURE BE BUILT AROUND THE CAST-IN-PLACE PIPE. THE CAST-IN-PLACE PIPE IS TO BE STOPPED AND STARTED AT THE LIMITS OF THE STRUCTURE. IF THE CAST-IN-PLACE PIPE IS POURED THROUGH ANY STRUCTURE LOCATION, THE CAST-IN-PLACE PIPE SHALL BE CUT AND REMOVED AT THAT LOCATION BEFORE THE STRUCTURE IS CONSTRUCTED.
15. JUNCTION STRUCTURES SPECIFIED FOR REINFORCED CONCRETE PIPE SHALL BE SUBSTITUTED WITH THE FOLLOWING STRUCTURES FOR USE WITH CAST-IN-PLACE PIPE:
A. A SPECIFIED JUNCTION STRUCTURE NO. 4 (A.P.W.A. STANDARD PLAN 332-1) SHALL BE REPLACED WITH EITHER A JUNCTION STRUCTURE NO. 2 (A.P.W.A. STANDARD PLAN 331-2) OR A TRANSITION STRUCTURE NO. 3 (A.P.W.A. STANDARD PLAN 340-1). A.P.W.A. STANDARD PLAN 331-2, WHEN USED WITH CAST-IN-PLACE PIPE, SHALL BE MODIFIED TO INCLUDE CONCRETE BACKFILL 1 FOOT OVER THE CAST-IN-PLACE PIPE.
B. A SPECIFIED JUNCTION STRUCTURE NO. 2 (A.P.W.A. STANDARD PLAN 331-2) SHALL BE REPLACED WITH A TRANSITION STRUCTURE NO. 3 (A.P.W.A. STANDARD PLAN 340-1).
16.

VELOCITY (FT/SEC)	ADDITIONAL WALL THICKNESS	CONCRETE STRENGTH (LBS/SQ. IN.)
5	1/2	3,250
5 TO 10	1	3,250
10 TO 15	1-1/2	3,250
15 TO 20	2	3,250

THE ABOVE LISTED THICKNESSES ARE IN ADDITION TO THE STANDARD OR DESIGN THICKNESS AND SHALL APPLY TO THE LOWER 120° OF THE CONDUIT AND SHALL BE CONSIDERED SACRIFICIAL AND SHALL NOT BE INCLUDED IN A STRUCTURAL ANALYSIS.

RIP-RAP NOTES

1. ROCKS FOR GROUTED RIP-RAP SHALL BE A GOOD QUALITY BROKEN CONCRETE AND/OR RIVER RUN ROCK. THE SMALLEST DIMENSIONS SHALL EXCEED 3 INCHES AND THE LARGEST DIMENSION SHALL NOT EXCEED 18 INCHES. THE LARGEST DIMENSION SHALL NOT EXCEED 4 TIMES THE SMALLEST DIMENSION.
2. THERE SHALL BE A GROUT BED OF AT LEAST 2 INCHES BENEATH THE FIRST LAYER OF ROCK. ALL THE VOIDS BETWEEN THE ROCKS SHALL BE FILLED WITH GROUT. MAXIMUM SPACING BETWEEN ROCKS SHALL BE 2 INCHES.
3. SURFACE ROCKS SHALL BE IMBEDDED FROM 1/2 TO 2/3 OF THEIR MAXIMUM DIMENSION.
4. RIP-RAP STONE SHALL COMPLY WITH THOSE PROVISIONS OF SUBSECTION 200-1.6 OF THE STANDARD SPECIFICATIONS.



ENCASEMENT TO EXTEND 1' BEYOND NEAREST JOINT

DETAIL "C"
PIPE ENCASEMENT

LEGAL DESCRIPTION

IN THE CITY OF VICTORVILLE, TRACT MAP NO. 15083-3, BEING A SUBDIVISION OF LOTS 48 THROUGH 57, 76 THROUGH 82 AND LOT 90 OF TRACT MAP NO. 8399, AS PER PLAT RECORDED IN MAP BOOK 115, PAGES 83 THROUGH 97, OFFICIAL RECORDS OF SAN BERNARDINO COUNTY, STATE OF CALIFORNIA
JANUARY 1992

APN 395-221-10
395-231-04
395-231-05
395-234-01
395-234-02
395-234-03
395-234-04
395-245-04
395-245-05
395-245-06
395-246-02
395-246-07
395-254-02
395-254-03

SPECIAL NOTE "A"

WORK ON PUBLIC IMPROVEMENTS WITHIN PUBLIC RIGHT-OF-WAY MAY BE SUBJECT TO PAYMENT OF "PREVAILING WAGES". CONTACT THE DEPARTMENT OF INDUSTRIAL RELATIONS FOR A DETERMINATION REGARDING THE PAYMENT OF PREVAILING WAGES.

PRIVATE ENGINEER'S NOTICE TO CONTRACTOR

THE EXISTENCE AND LOCATION OF ANY AND ALL CONDUITS, UTILITY PIPES, AND STRUCTURES SHOWN ON THIS SET OF PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS AT THE TIME OF AT THE TIME OF DESIGN. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT AT THE TIME OF DESIGN EXCEPT AS SHOWN ON THIS SET OF PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ANY AND ALL UTILITY LINES SHOWN ON THIS SET OF PLANS. THE CONTRACTOR FURTHER ASSUMES ANY AND ALL LIABILITY AND RESPONSIBILITY FOR THE CONDUITS, UTILITY PIPES, AND STRUCTURES SHOWN ON THIS SET OF DRAWINGS.

THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT. THIS STIPULATION INCLUDES THE SAFETY OF ANY AND ALL PERSONS AND PROPERTY. THE CONTRACTOR SHALL FURTHER DEFEND, INDEMNIFY, AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, WITH THE EXCEPTION OF LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

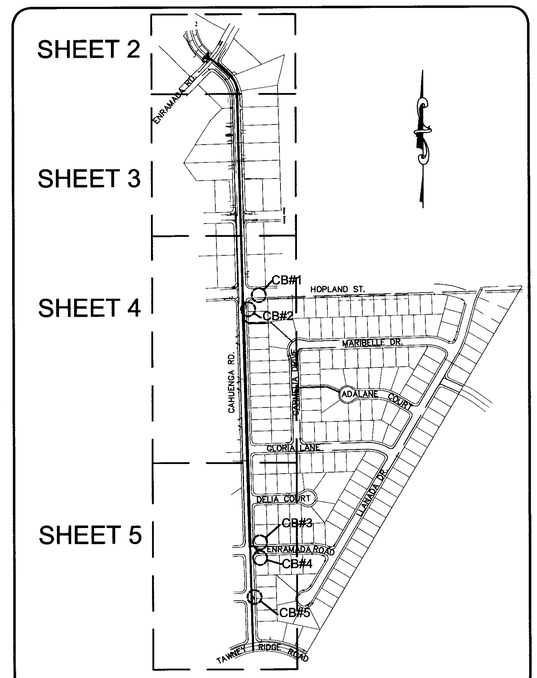
Bob Powell 10/26/07
ROBERT L. POWELL R.C.E. NUMBER C046111

CONSTRUCTION NOTES:

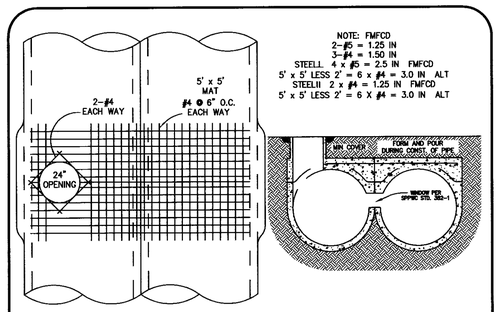
1. CONSTRUCT 24" RCP D-LOAD ON PLAN
2. CONSTRUCT 48" RCP OR CIPCP D-LOAD ON PLAN
3. CONSTRUCT DOUBLE 48" RCP OR CIPCP D-LOAD ON PLAN
4. CONSTRUCT 60" RCP OR CIPCP D-LOAD ON PLAN
5. CONSTRUCT MANHOLE PER SPPWC STD. PLAN NO 320-1. INSTALL HOLD-DOWN BOLTS.
6. CONSTRUCT REINFORCED CONCRETE BOX PER CALTRANS STD. D80.
7. CONSTRUCT MANHOLE PER SPPWC STD. PLAN 323-1. INSTALL HOLD-DOWN BOLTS.
8. CONSTRUCT CURB OPENING CATCH BASIN PER CITY OF VICTORVILLE STD. PLAN D-02
9. CONSTRUCT CURB OPENING CATCH BASIN W/ GRATING PER SPPWC STD. PLAN 302-2
10. CONSTRUCT JUNCTION STRUCTURE PER SPPWC STD PLAN 331-2
11. CONSTRUCT 36" CMP PIPE RISER WITH DEBRIS RACK PER CALTRANS STD. DWG. No. D93A
12. CONSTRUCT ENERGY DISSIPATOR - IMPACT BASIN W/ VERTICAL BAFFLE WALL PER SPPWC 384-2, W=10'
13. CONSTRUCT TRANSITION STRUCTURE PER SPPWC STD. PLAN NO. 340-1 MODIFIED PER DETAIL "A" ON SHEET NO. 1.
14. CONSTRUCT CONCRETE COLLAR FOR RCP PER SPPWC STD. 380-3
15. CONSTRUCT DRIVE APPROACH PER CITY OF VICTORVILLE STD. S-02
16. CONSTRUCT 6' CHAIN LINK FENCE AND GATE PER SPPWC 600-2
17. REMOVE AND REPLACE AC PAVEMENT PER CITY OF VICTORVILLE STD. NO. S-10 (SEE SHEET 11)
18. CONSTRUCT PIPE ENCASEMENT PER DETAIL 'C' ON SHT. 1
19. CONSTRUCT MANHOLE - LARGE SIDE INLET PER SPPWC 322-1. INSTALL HOLD DOWN BOLTS.
20. CONSTRUCT GUTTER DRAIN INLET DRY WELL SYSTEM PER CITY OF VICTORVILLE STD. D-06

UTILITY COMPANIES

CITY OF VICTORVILLE PUBLIC WORKS DEPT.	(760) 955-5208
SOUTHERN CALIFORNIA EDISON	(760) 951-3275
SOUTHWEST GAS CORPORATION	(760) 951-4016
CITY OF VICTORVILLE WATER DISTRICT	(760) 245-6424
VERIZON	(760) 245-0894
CHARTER COMMUNICATIONS	(760) 843-3054



INDEX MAP
SCALE 1:400



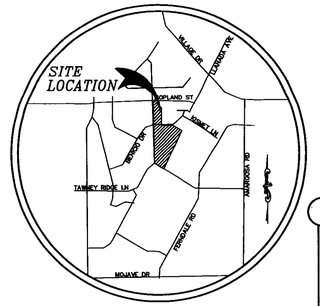
REINFORCED BOX ALTERNATE
POUR THROUGH MANHOLE
CAST IN PLACE CONCRETE PIPE
N.T.S.

BASIS OF BEARING

CENTER LINE OF CAHUENGA ROAD HAVING A BEARING OF N 01°31'10" W PER TRACT MAP NO. 15083-1

HYDRAULIC ELEMENTS
100 YEAR FREQUENCY STORM

LOCATION	PIPE REACH FROM STATION	PIPE REACH TO STATION	Q (CFS)	PIPE SIZE (INCHES)	VELOCITY (FPS)	FLOW CONDITION
LINE A	0+67.25	2+17.70	327.30	2X48	14.19	PARTIAL
	2+17.70	15+08.01	327.30	60	16.95	PARTIAL
	15+08.01	15+23.95	317.40	60	20.82	PARTIAL
	15+23.95	16+26.74	294.87	2X48	22.73	PARTIAL
	16+26.74	28+85.96	250.61	2X48	14.94	PARTIAL
	28+85.96	33+48.53	181.94	48	16.78	PARTIAL
	33+48.53	34+68.05	133.85	48	12.88	PARTIAL
LINE B	1+00.00	1+42.68	10	24	9.45	PARTIAL
LINE C	1+00.00	1+23.56	23	24	12.97	PARTIAL
LINE D	1+00.00	2+25.84	44.5	24	0.20	PARTIAL
LINE E	1+00.00	1+23.61	13	24	13.25	PARTIAL
	1+23.61	1+43.83	26	24	13.80	PARTIAL
LINE F	1+00.00	1+45.52	13	24	11.21	PARTIAL
LINE G	1+00.00	1+29.24	26	24	8.28	PARTIAL

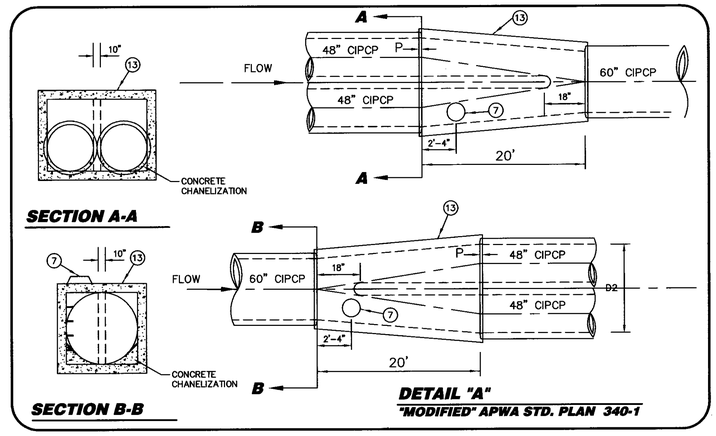


VICINITY MAP
NOT TO SCALE

UNDERGROUND SERVICE ALERT
call: TOLL FREE
1-800-422-4133
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK

CITY OF VICTORVILLE BENCH MARK V-4R
NORTH SIDE OF VILLAGE DRIVE AT AMARGOSA ROAD IN TOP OF CURB IN LINE WITH EASTERLY POLE LINE.
ELEVATION = 2855.95



DETAIL "A"
"MODIFIED" APWA STD. PLAN 340-1

LEGEND:

STORM DRAIN MAIN LINE	( ) EXISTING ELEVATION	SHT. SHEET	
W WATER MAIN	EX. EXISTING	NO. NUMBER	
TS TRAFFIC SIGNAL INTERCONNECT	EXIST. EXISTING	G.B. GRADE BREAK	
T G.T.E.	P.C.C. PORTLAND CONCRETE CEMENT	(EXIST.) FIRE HYDRANT	
G GAS MAIN	C.F. CURB FACE	FIRE HYDRANT	
S SEWER MAIN	P.T. POINT	STREET SIGN	
EXISTING EDGE OF PAVEMENT	STA. STATION	WV WATER VALVE	
XX XX XX EXISTING CHAIN LINK FENCE	CONST. CONSTRUCTION	GV GAS VALVE	
EXISTING CURB FACE	SIG. SIGNAL	POWER POLE	
CATCH BASIN	B.C.R. BEGIN CURB RETURN		
STORM DRAIN MANHOLE	E.C.R. END CURB RETURN		
SMH SANITARY SEWER MANHOLE	A.P.W.A. AMERICAN PUBLIC WORKS ASSOCIATION		
P.P. POWER POLE	C/L CENTERLINE		
	T.C. TOP OF CURB		
	F.S. FINISH SURFACE		

SHEET/SECTION INDEX

SHEET 1 - COVER SHEET
SHEET 2 - CHANNEL IMPROVEMENTS
LINE A FROM: STA. 0+67.25 TO: STA. 2+23.45
SHEET 3 - LINE A FROM: STA. 2+23.45 TO: STA. 11+48.95
SHEET 4 - LINE A FROM: STA. 11+48.95 TO: STA. 21+83.71
SHEET 5 - LINE A FROM: STA. 21+83.71 TO: STA. 34+68.20
SHEET 6 - LINE B FROM: STA. 1+00.00 TO: STA. 1+42.68
LINE C FROM: STA. 1+00.00 TO: STA. 1+23.56
LINE D FROM: STA. 1+00.00 TO: STA. 2+25.84
LINE E FROM: STA. 1+00.00 TO: STA. 1+43.83
LINE F FROM: STA. 1+00.00 TO: STA. 1+45.52
LINE G FROM: STA. 1+00.00 TO: STA. 1+29.24
SHEET 7-11 - APWA DETAILS

ESTIMATE OF QUANTITIES

60" RCP or CIPCP	1290 LF
2X48" RCP or CIPCP	1485 LF
48" RCP or CIPCP	575 LF

P-899

THESE QUANTITIES ARE FOR PLAN CHECK PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE HIS OWN QUANTITIES.

DEVELOPER:
F.A.S.T. BUILDING SYSTEMS, LCC
3300 IRVINE AVENUE, SUITE 225
NEWPORT BEACH, CA 92660
(805) 235-6654

CCL ENGINEERING, INC.
CIVIL ENGINEERING, LAND SURVEYING, GEOTECHNICAL ENGINEERING
43434 SAHUAYO STREET LANCASTER, CA. 93535 (661)949-9500 (661)949-8380 FAX
Bob Powell 10/26/07
ROBERT L. POWELL RCE C046111 DATE

REGISTERED PROFESSIONAL ENGINEER ROBERT L. POWELL C046111 Exp. 12-31-2008 CIVIL STATE OF CALIFORNIA

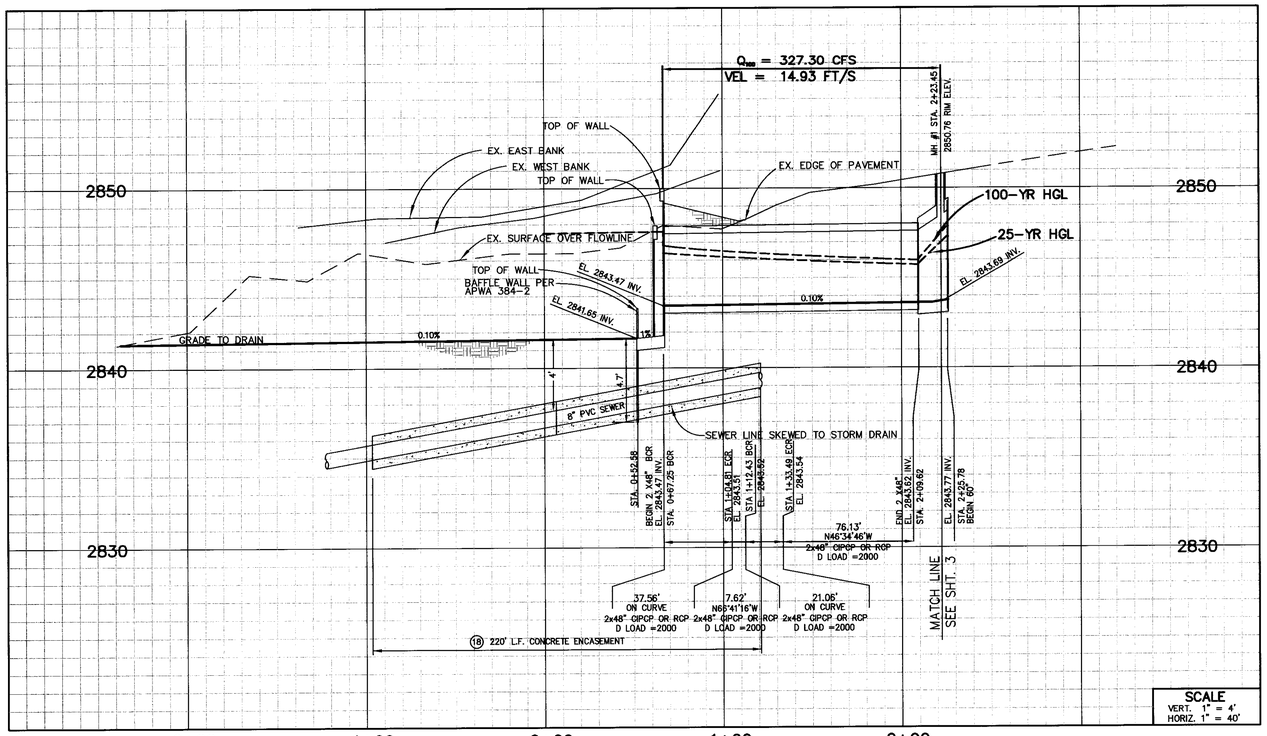
NO.	REVISIONS	BY	DATE

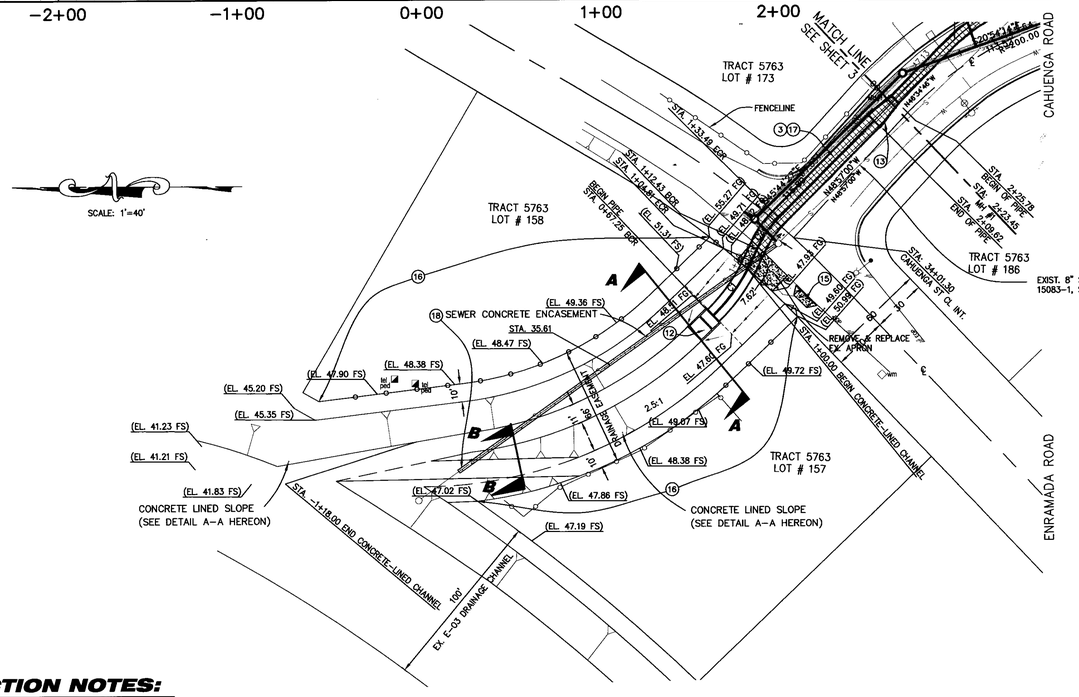
CITY OF VICTORVILLE
ENGINEERING DEPARTMENT
APPROVED
BY: John A. McGlade DATE: 5/7/08
JOHN A. McGLADE CITY ENGINEER
RCE 40935 EXP 3-31-09

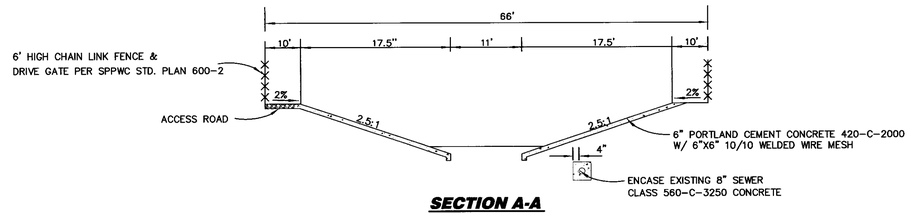
CITY OF VICTORVILLE
STORM DRAIN IMPROVEMENT PLAN
TRACT NO. 15083-3
COVER SHEET

CCL DWG FILE: PLOT DATE:

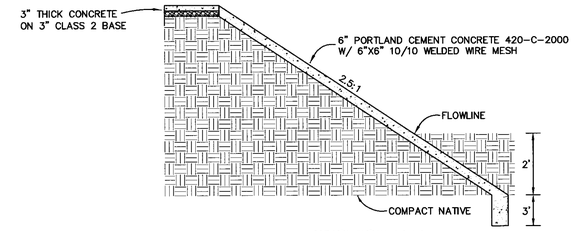
SCALE: 1" = 40'
DESIGNED: MH
DRAWN: VG
CHECKED: DL
CCL JN 1878F
SHEET NO.
1 OF 12





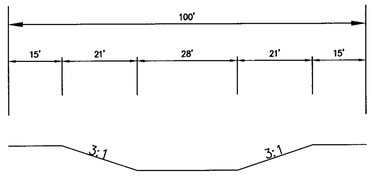


SECTION A-A
DRAINAGE EASEMENT



SECTION B-B
DRAINAGE EASEMENT

CURVE TABLE				
CURVE	LENGTH	RADIUS	DELTA	TANGENT
C1	37.56	100.00	21°31'09"	19.00
C2	21.06	60.00	20°06'30"	10.64



CHANNEL E-03

CONSTRUCTION NOTES:

(3) CONSTRUCT DOUBLE 48" RCP OR CIPCP D-LOAD ON PLAN
(12) CONSTRUCT ENERGY DISSIPATOR - IMPACT BASIN W/ VERTICAL BAFFLE WALL PER APWA 384-2, W=10'
(13) CONSTRUCT TRANSITION STRUCTURE PER APWA STD. PLAN NO. 340-1 MODIFIED PER DETAIL 'A' ON SHEET NO. 1.
(15) CONSTRUCT DRIVE APPROACH PER CITY OF VICTORVILLE STD. S-02
(16) CONSTRUCT 6' CHAIN LINK FENCE AND GATE PER APWA 600-2
(17) REMOVE AND REPLACE AC PAVEMENT PER CITY OF VICTORVILLE STD. NO. S-10 (SEE SHEET 11)
(18) CONSTRUCT PIPE ENCASEMENT PER DETAIL 'C' ON SHT. 1

P-899

DEVELOPER:
F.A.S.T. BUILDING SYSTEMS, LCC
3300 IRVINE AVENUE, SUITE 225
NEWPORT BEACH, CA 92660
(805) 235-6654

CCL ENGINEERING, INC.
CIVIL ENGINEERING, LAND SURVEYING, GEOTECHNICAL ENGINEERING
43434 SAHUAYO STREET, LANCASTER, CA. 93535
(661)949-9500 (661)949-8380 FAX
ROBERT L. POWELL RCE C046111 — DATE 10/24/07

REGISTERED PROFESSIONAL ENGINEER ROBERT L. POWELL C046111 Exp. 12-31-2008 CIVIL STATE OF CALIFORNIA

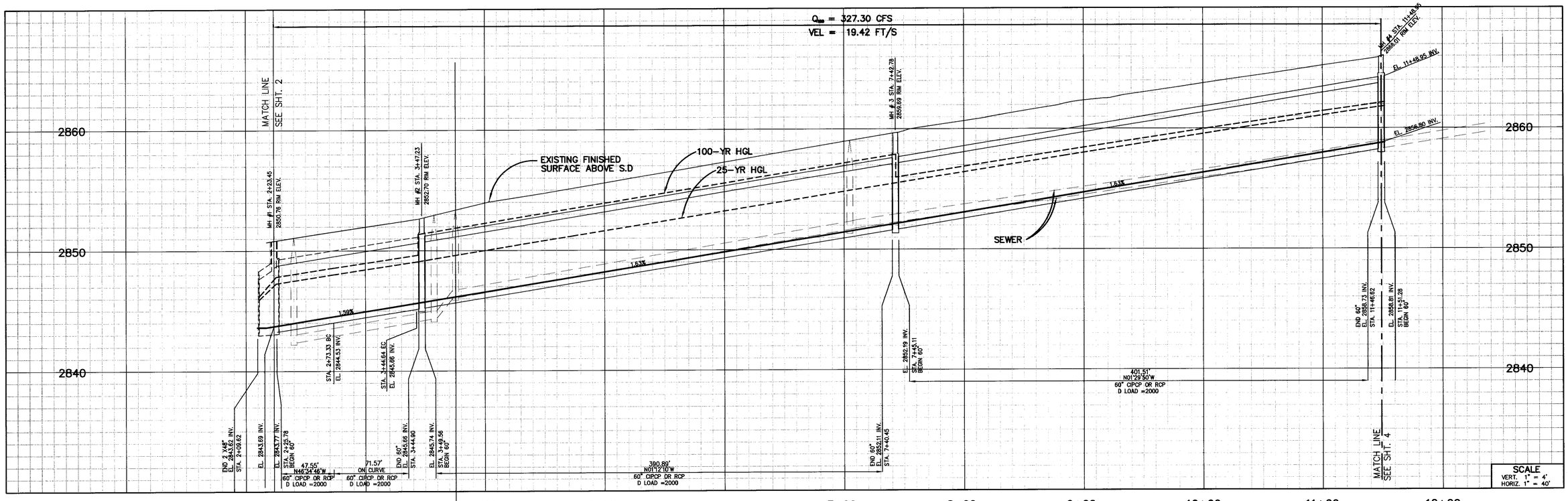
	BY	DATE

CITY OF VICTORVILLE
ENGINEERING DEPARTMENT
APPROVED
BY: JOHN A. McGLADE CITY ENGINEER RCE 40935 EXP 3-31-09 DATE: 5/7/08

CITY OF VICTORVILLE
STORM DRAIN IMPROVEMENT PLAN
TRACT NO. 15083-3
CHANNEL IMPROVEMENTS
LINE "A" FROM STA. 0+67.25 TO STA. 2+23.45

CCL DWG FILE: | PLOT DATE:

SCALE: 1" = 40'
DESIGNED: MH
DRAWN: VG
CHECKED: DL
CCL JN 1878F
SHEET NO.
2 OF 12



CURVE TABLE				
CURVE	LENGTH	RADIUS	DELTA	TANGENT
C1	71.31	100.00	40°51'21"	37.25

CONSTRUCTION NOTES:

(4) CONSTRUCT 60" CIPCP D-LOAD ON PLAN

(5) CONSTRUCT MANHOLE PER APWA STD. PLAN NO 320-1. INSTALL HOLD-DOWN BOLTS.

(17) REMOVE AND REPLACE AC PAVEMENT PER CITY OF VICTORVILLE STD. NO. S-10 (SEE SHEET 11)

ENRAMADA ROAD

P-899

DEVELOPER:
F.A.S.T. BUILDING SYSTEMS, LCC
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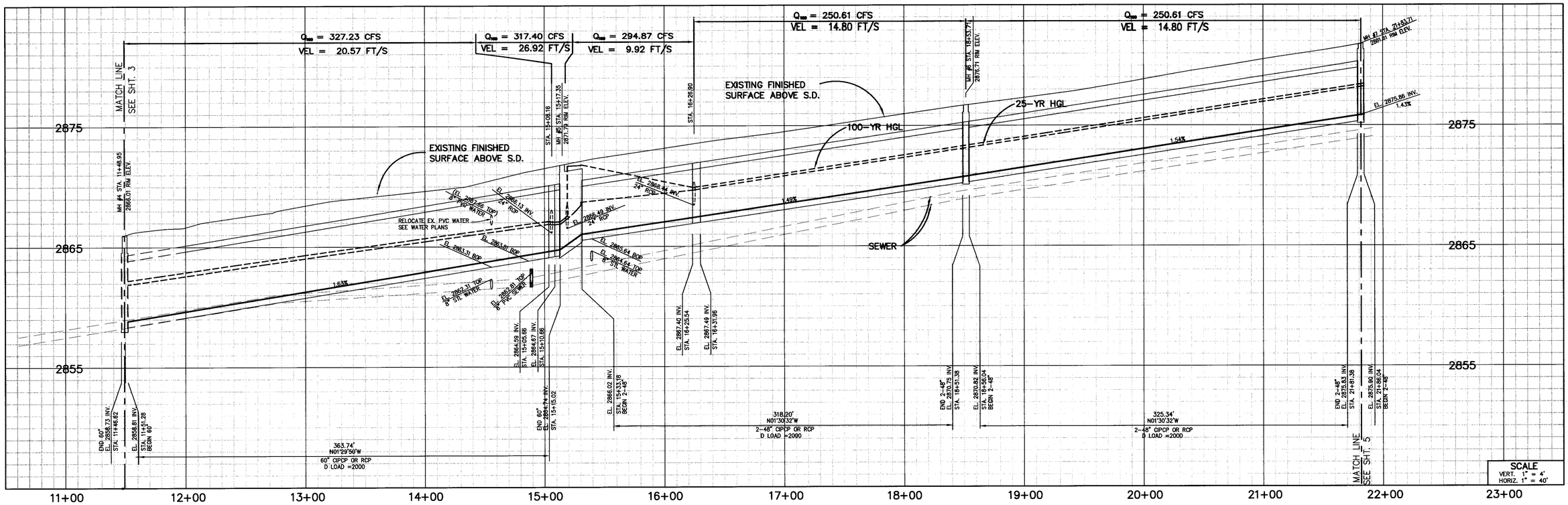
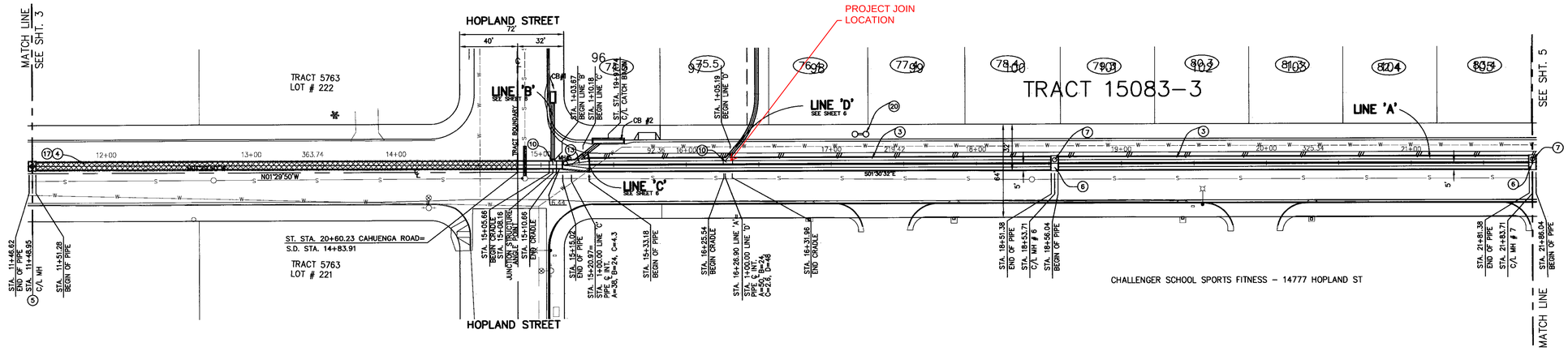
BY: JOHN A. McGLADE CITY ENGINEER RCE 40935 EXP 3-31-09 DATE: 5/7/08

CITY OF VICTORVILLE
STORM DRAIN IMPROVEMENT PLAN
TRACT NO. 15083-3
LINE "A" FROM STA. 2+23.45 TO STA. 11+48.95

CCL DWG FILE: | PLOT DATE:

SCALE: 1" = 40'
DESIGNED: MH
DRAWN: VG
CHECKED: DL
CCL JN 1878F
SHEET NO. 3 OF 12





CAHUENGA ROAD

CONSTRUCTION NOTES:

(3) CONSTRUCT DOUBLE 48" CIPCP D-LOAD ON PLAN
(4) CONSTRUCT 60" CIPCP D-LOAD ON PLAN
(5) CONSTRUCT MANHOLE PER APWA STD. PLAN NO 320-1. INSTALL HOLD-DOWN BOLTS.
(6) CONSTRUCT REINFORCED CONCRETE BOX PER CALTRANS STD. D80.
(7) CONSTRUCT MANHOLE PER APWA STD. PLAN 323-1. INSTALL HOLD-DOWN BOLTS.
(10) CONSTRUCT JUNCTION STRUCTURE PER APWA STD PLAN 331-2
(13) CONSTRUCT TRANSITION STRUCTURE PER APWA STD. PLAN NO. 340-1 MODIFIED PER DETAIL "A" ON SHEET NO. 1.
(17) REMOVE AND REPLACE AC PAVEMENT PER CITY OF VICTORVILLE STD. NO. S-10 (SEE SHEET 11)
(20) CONSTRUCT GUTTER DRAIN INLET DRY WELL SYSTEM PER CITY OF VICTORVILLE STD. D-06

SCALE: 1"=40'

P-899

DEVELOPER:
F.A.S.T. BUILDING SYSTEMS, LCC
3300 IRVINE AVENUE, SUITE 225
NEWPORT BEACH, CA 92660
(805) 235-6654

CCL ENGINEERING, INC.
CIVIL ENGINEERING, LAND SURVEYING, GEOTECHNICAL ENGINEERING
43434 SANUAYO STREET (661)949-9500
LANCASTER, CA. 93535 (661)949-8380 FAX
ROBERT L. POWELL RCE C046111 DATE 10/26/07

REGISTERED PROFESSIONAL ENGINEER ROBERT L. POWELL C046111 Exp. 12-31-2008 CIVIL STATE OF CALIFORNIA

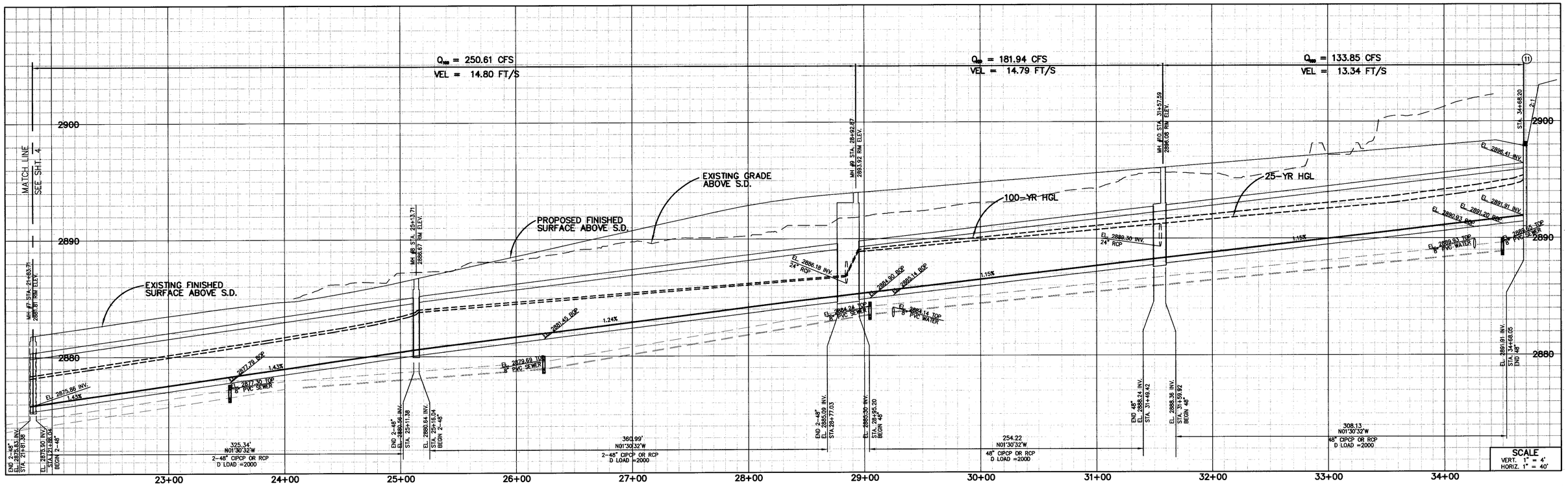
	BY	DATE

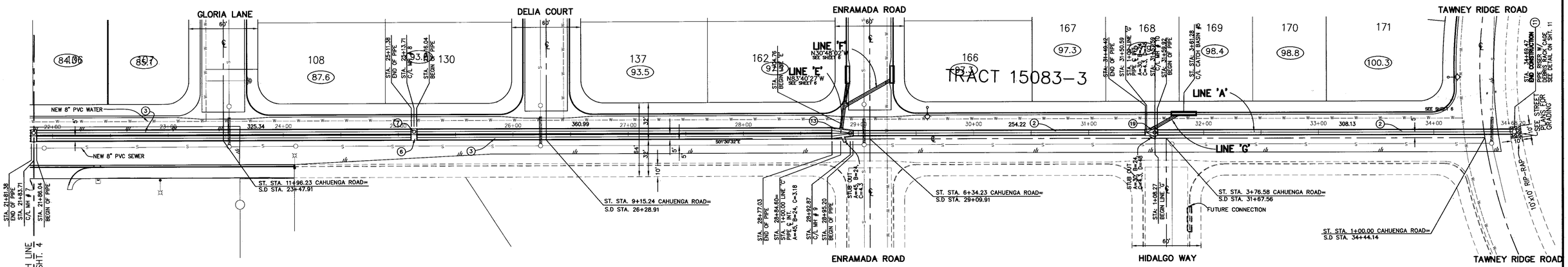
CITY OF VICTORVILLE
ENGINEERING DEPARTMENT
APPROVED
BY: JOHN A. McGLADE CITY ENGINEER RCE 40935 EXP 3-31-09 DATE: 5/7/08

CITY OF VICTORVILLE
STORM DRAIN IMPROVEMENT PLAN
TRACT NO. 15083-3
LINE "A" FROM STA. 11+48.95 TO STA. 21+83.71

CCL DWG FILE: PLOT DATE:

SCALE: 1" = 40'
DESIGNED: MH
DRAWN: VG
CHECKED: DL
CCL JN 1878F
SHEET NO.
4 OF 12





CAHUENGA ROAD

CONSTRUCTION NOTES:

(2) CONSTRUCT 48" CIPCP D-LOAD ON PLAN
(3) CONSTRUCT DOUBLE 48" CIPCP D-LOAD ON PLAN
(5) CONSTRUCT MANHOLE PER APWA STD. PLAN NO 320-1. INSTALL HOLD-DOWN BOLTS.
(6) CONSTRUCT REINFORCED CONCRETE BOX PER CALTRANS STD. D80.
(7) CONSTRUCT MANHOLE PER APWA STD. PLAN 323-1. INSTALL HOLD-DOWN BOLTS.
(10) CONSTRUCT JUNCTION STRUCTURE PER APWA STD PLAN 331-2
(11) CONSTRUCT 36" CMP PIPE RISER WITH DEBRIS RACK PER CALTRANS STD. DWG. No. D93A
(13) CONSTRUCT TRANSITION STRUCTURE PER APWA STD. PLAN NO. 340-1 MODIFIED PER DETAIL "A" ON SHEET NO. 1.
(19) CONSTRUCT MANHOLE - LARGE SIDE INLET PER APWA 322-1. INSTALL HOLD DOWN BOLTS.

SCALE: 1"=40'

P-899

DEVELOPER:
F.A.S.T. BUILDING SYSTEMS, LCC
3300 IRVINE AVENUE, SUITE 225
NEWPORT BEACH, CA 92660
(805) 235-6654

CCL
ENGINEERING, INC.
CIVIL ENGINEERING, LAND SURVEYING, GEOTECHNICAL ENGINEERING
43434 SAHUAYO STREET (661)949-8500
LANCASTER, CA. 93535 (661)949-8380 FAX
Bob Powell
ROBERT L. POWELL RCE C046111
10/26/07 DATE

REGISTERED PROFESSIONAL ENGINEER ROBERT L. POWELL C046111 Exp. 12-31-2008 CIVIL STATE OF CALIFORNIA

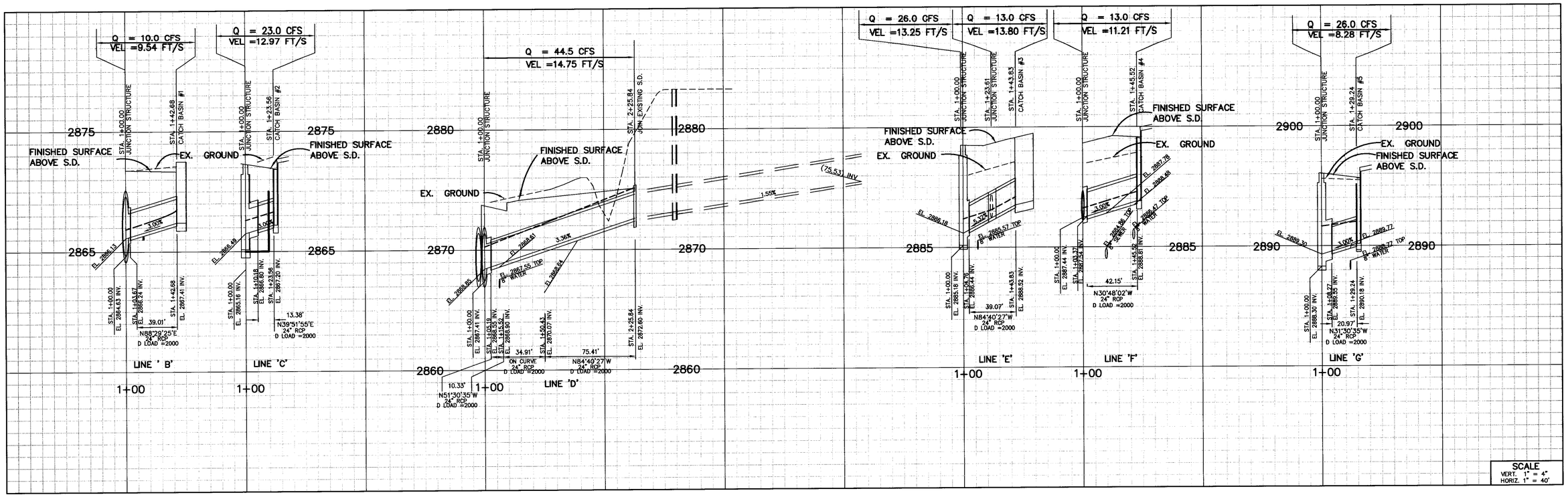
NO.	REVISIONS	BY	DATE

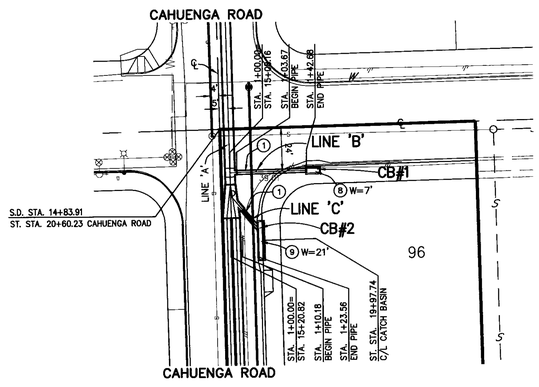
CITY OF VICTORVILLE
ENGINEERING DEPARTMENT
APPROVED
BY: John A. McGlade DATE: 5/7/08
JOHN A. McGLADE CITY ENGINEER
RCE 40935 EXP 3-31-09

CITY OF VICTORVILLE
STORM DRAIN IMPROVEMENT PLAN
TRACT NO. 15083-3
LINE "A" FROM STA. 21+83.71 TO STA. 34+69.47

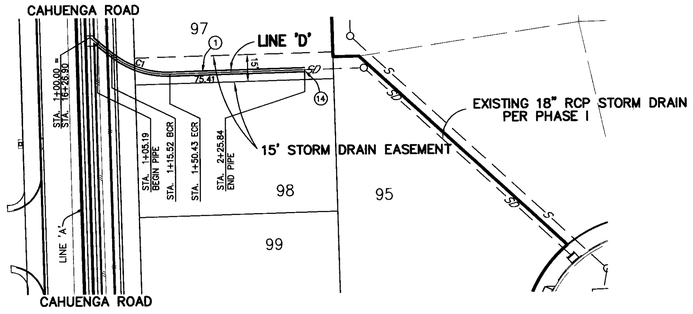
CCL DWG FILE: PLOT DATE:

SCALE: 1" = 40'
DESIGNED: MH
DRAWN: VG
CHECKED: DL
CCL JN 1878F
SHEET NO.
5 OF 12

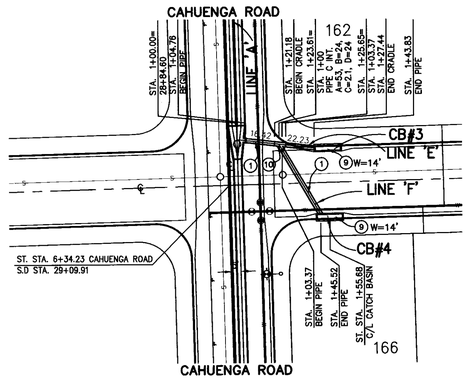




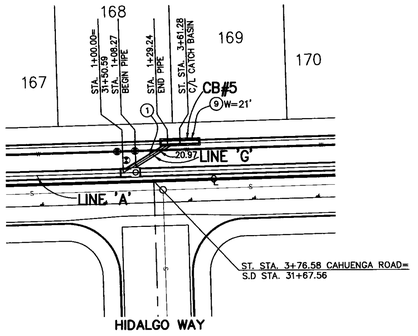
HOPLAND STREET



CURVE TABLE				
CURVE	LENGTH	RADIUS	DELTA	TANGENT
C1	34.91	50.00	40°00'00"	18.20



ENRAMADA ROAD



CAHUENGA ROAD

SCALE: 1"=40'

P-899

(1) CONSTRUCT 24" RCP D-LOAD ON PLAN
(8) CONSTRUCT CURB OPENING CATCH BASIN PER CITY OF VICTORVILLE STD. PLAN D-02
(9) CONSTRUCT CURB OPENING CATCH BASIN W/ GRATING PER APWA STD. PLAN 302-2
(10) CONSTRUCT JUNCTION STRUCTURE PER APWA STD PLAN 331-2 A= 53" B=24" C=3.37 D=24"
(14) CONSTRUCT CONCRETE COLLAR FOR RCP PER APWA STD. 380-3

DEVELOPER:
F.A.S.T. BUILDING SYSTEMS, LCC
3300 IRVINE AVENUE, SUITE 225
NEWPORT BEACH, CA 92660

CCL ENGINEERING, INC.
CIVIL ENGINEERING, LAND SURVEYING, GEOTECHNICAL ENGINEERING
43434 SAHUAYO STREET LANCASTER, CA. 93535
(661)949-9500 (661)949-8380 FAX
ROBERT L. POWELL RCE C046111
10/24/07 DATE

REGISTERED PROFESSIONAL ENGINEER ROBERT L. POWELL C046111 Exp. 12-31-2008 CIVIL STATE OF CALIFORNIA

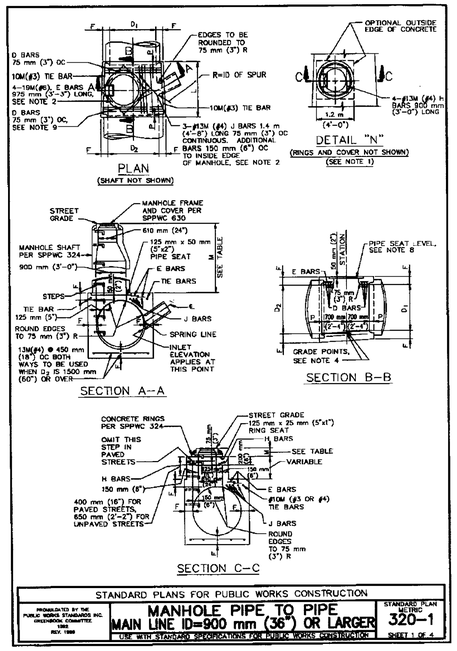
NO.	REVISIONS	BY	DATE

CITY OF VICTORVILLE
ENGINEERING DEPARTMENT
APPROVED
BY: John A. McGlade DATE: 5/7/08
JOHN A. McGLADE CITY ENGINEER
RCE 40935 EXP 3-31-09

CITY OF VICTORVILLE
STORM DRAIN IMPROVEMENT PLAN
TRACT NO. 15083-3

LINE B FROM: STA. 1+00.00 TO: STA. 1+42.68
LINE C FROM: STA. 1+00.00 TO: STA. 1+23.56
LINE D FROM: STA. 1+00.00 TO: STA. 2+25.84
LINE E FROM: STA. 1+00.00 TO: STA. 1+43.83
LINE F FROM: STA. 1+00.00 TO: STA. 1+45.52
LINE G FROM: STA. 1+00.00 TO: STA. 1+29.24

SCALE: 1" = 40'
DESIGNED: MH
DRAWN: VG
CHECKED: DL
CCL JN 1878F
SHEET NO.
6 OF 12



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. UNDERGROUND COMMITTEE 1996 REV. 1999

MANHOLE PIPE TO PIPE
MAIN LINE ID=900 mm (36") OR LARGER

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN METRIC 320-1

SHEET 1 OF 4

TABLE OF VALUES FOR F	
D_2	F
900 mm (36")	185 mm (6 1/2")
975 mm (39")	180 mm (7")
1050 mm (42")	190 mm (7 1/2")
1125 mm (45")	195 mm (7 3/4")
1200 mm (48")	200 mm (8")
1275 mm (51")	215 mm (8 1/2")
1350 mm (54")	230 mm (9")
1425 mm (57")	235 mm (9 1/4")
1500 mm (60")	240 mm (9 1/2")
1575 mm (63")	255 mm (10")
1650 mm (66")	260 mm (10 1/4")
1725 mm (69")	275 mm (10 3/4")
1800 mm (72")	280 mm (11")
1950 mm (78")	300 mm (11 3/4")
2100 mm (84")	320 mm (12 1/2")
2250 mm (90")	335 mm (13 1/4")
2400 mm (96")	355 mm (14")
2550 mm (102")	395 mm (15 1/2")
2700 mm (108")	405 mm (16")
2850 mm (114")	420 mm (16 1/2")
3000 mm (120")	430 mm (17")
3150 mm (126")	430 mm (17")
3300 mm (132")	445 mm (17 1/2")
3450 mm (138")	445 mm (17 1/2")
3600 mm (144")	455 mm (18")

TABLE OF VALUES FOR M (SEE NOTE 1)				
SECTION	PAVED STREET		UNPAVED STREET	
	MAX	MIN	MAX	MIN
A-A	-	867 mm (2'-10 1/2")	-	1050 mm (3'-5")
C-C	282 mm (11")	217 mm (8 1/2")	410 mm (16")	380 mm (15")

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

MANHOLE PIPE TO PIPE
MAIN LINE ID = 900 mm (36") OR LARGER

STANDARD PLAN METRIC 320-1

SHEET 2 OF 4

NOTES

1. WHEN DEPTH M FROM STREET GRADE TO THE TOP OF THE BOX IS LESS THAN 867 mm (2'-10 1/2") FOR PAVED STREETS OR 1060 mm (3'-6") FOR UNPAVED STREETS, CONSTRUCT MONOLITHIC SHAFT PER SECTION C-C AND DETAIL "N". SHAFT FOR ANY DEPTH OF MANHOLE MAY BE CONSTRUCTED PER SECTION C-C. WHEN DIAMETER D_1 IS 1200 mm (48") OR LESS, CENTER OF SHAFT MAY BE LOCATED PER NOTE 2.
2. CENTER OF MANHOLE SHAFT SHALL BE LOCATED OVER CENTER LINE OF STORM DRAIN WHEN DIAMETER D_1 IS 1200 mm (48") OR LESS, IN WHICH CASE PLACE E BARS SYMMETRICALLY AROUND SHAFT AT 45° WITH CENTERLINE AND OMIT J BARS.
3. L AND P SHALL HAVE THE FOLLOWING VALUES UNLESS OTHERWISE SHOWN ON THE PROJECT DRAWINGS:
   A. D_2=2400 mm (96") OR LESS, L=1.7 m (5'-6"), P=130 mm (5")
   B. D_2 OVER 2400 mm (96"), L=1.8 m (6'-0"), P=210 mm (8")
   L MAY BE INCREASED OR LOCATION OF MANHOLE SHIFTED TO MEET PIPE ENDS. WHEN L GREATER THAN THAT SHOWN ABOVE IS SPECIFIED, D BARS SHALL BE CONTINUED 150 mm (6") OC.
4. STATIONS OF MANHOLES SHOWN ON PLANS APPLY AT CENTERLINE OF SHAFT. ELEVATIONS ARE SHOWN AT CENTERLINE OF SHAFT AND REFER TO THE PROLONGED INVERT GRADE LINES.
5. REINFORCEMENT SHALL CONFORM TO ASTM A 615M, GRADE 300 (ASTM A 615, GRADE 40), AND SHALL TERMINATE 40 mm (1 1/2") CLEAR OF CONCRETE SURFACES UNLESS OTHERWISE SHOWN.
6. FLOOR OF MANHOLE SHALL BE STEEL TROWELED TO SPRING LINE.
7. BODY OF MANHOLE SHALL BE POURED IN ONE CONTINUOUS OPERATION EXCEPT THAT A CONSTRUCTION JOINT WITH A LONGITUDINAL KEYWAY MAY BE PLACED AT SPRING LINE.
8. THICKNESS OF THE DECK SHALL VARY WHEN NECESSARY TO PROVIDE A LEVEL SEAT BUT SHALL NOT BE LESS THAN THE TABULAR VALUES FOR F SHOWN ON SHEET 2.
9. D BARS SHALL BE #13M (#4) FOR D_2=975 mm (39") OR LESS, #16M (#5) FOR D_2= 1050 mm (42") TO 2100 mm (84") INCLUSIVE AND #19M (#6) FOR D_2= 2250 mm (90") OR OVER.
10. CENTERLINE OF INLET PIPE SHALL INTERSECT INSIDE FACE OF CONE AT SPRING LINE UNLESS OTHERWISE SHOWN.
11. STEPS SHALL CONFORM TO SPPWC 635 OR 636, UNLESS OTHERWISE SHOWN. STEPS SHALL BE UNIFORMLY SPACED 350 mm (14") TO 375 mm (15") OC. THE LOWEST STEP SHALL NOT BE MORE THAN 600 mm (24") ABOVE THE INVERT.
12. THE FOLLOWING CRITERIA SHALL BE USED FOR THIS MANHOLE:
    A. MAIN LINE = 900 mm (36") INSIDE DIAMETER OR LARGER, EXCEPT IF THE MAIN LINE RCP DOWNSTREAM OF MANHOLE IS 900 mm (36") TO 1050 mm (42") INSIDE DIAMETER AND THE MAIN LINE RCP UPSTREAM IS 825 mm (33") OR LESS SPPWC 321 SHALL BE USED.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

MANHOLE PIPE TO PIPE
MAIN LINE ID = 900 mm (36") OR LARGER

STANDARD PLAN METRIC 320-1

SHEET 3 OF 4

B. THE OUTSIDE DIAMETER OF THE LATERAL MUST BE LESS THAN OR EQUAL TO 1/2 THE INSIDE DIAMETER OF THE MAIN LINE. IF THE UPSTREAM AND DOWNSTREAM DIAMETERS OF THE MANHOLE ARE NOT THE SAME, THE GOVERNING INSIDE DIAMETER OF THE MAIN LINE SHALL BE CONSIDERED TO BE THAT WHERE THE EXTENDED CENTERLINE OF THE LATERAL ENTERS THE MANHOLE.
C. IN NO INSTANCE SHALL THE INSIDE DIAMETER OF THE LATERAL TO THE MANHOLE BE GREATER THAN 750 mm (30").

13. MANHOLE FRAME AND COVER SHALL CONFORM TO SPPWC 630 UNLESS OTHERWISE SHOWN.
14. MANHOLE SHAFT SHALL CONFORM TO SPPWC 324 UNLESS OTHERWISE SHOWN.
15. WHERE A MANHOLE SHAFT – 900 mm (36") WITHOUT REDUCER IS SPECIFIED REFER TO SPPWC 326.
16. WHERE A PRESSURE MANHOLE SHAFT – WITH ECCENTRIC REDUCER IS SPECIFIED REFER TO SPPWC 328.
17. WHERE A PRESSURE MANHOLE SHAFT – 914 mm (36") WITHOUT REDUCER IS SPECIFIED REFER TO SPPWC 329.
18. THE FOLLOWING SPPWC ARE INCORPORATED HEREIN:
    324 MANHOLE SHAFT – WITH ECCENTRIC REDUCER
    326 MANHOLE SHAFT – 900 mm (36") WITHOUT REDUCER
    328 PRESSURE MANHOLE SHAFT – WITH ECCENTRIC
    329 PRESSURE MANHOLE SHAFT 914 mm (36") WITHOUT REDUCER
    630 610 mm (24") MANHOLE FRAME AND COVER
    633 914 mm (36") MANHOLE FRAME AND COVER
    635 STEEL STEP
    636 POLYPROPYLENE PLASTIC STEP

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

MANHOLE PIPE TO PIPE
MAIN LINE ID = 900 mm (36") OR LARGER

STANDARD PLAN METRIC 320-1

SHEET 4 OF 4

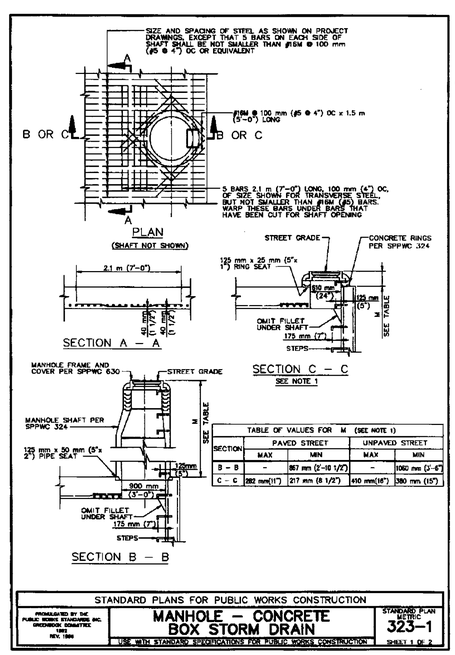


TABLE OF VALUES FOR M (SEE NOTE 1)				
SECTION	PAVED STREET		UNPAVED STREET	
	MAX	MIN	MAX	MIN
B – B	-	867 mm (2'-10 1/2")	-	1060 mm (3'-6")
C – C	282 mm(11")	217 mm (8 1/2")	410 mm(16")	380 mm (15")

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. UNDERGROUND COMMITTEE 1996 REV. 1999

MANHOLE – CONCRETE BOX STORM DRAIN

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN METRIC 323-1

SHEET 1 OF 2

NOTES

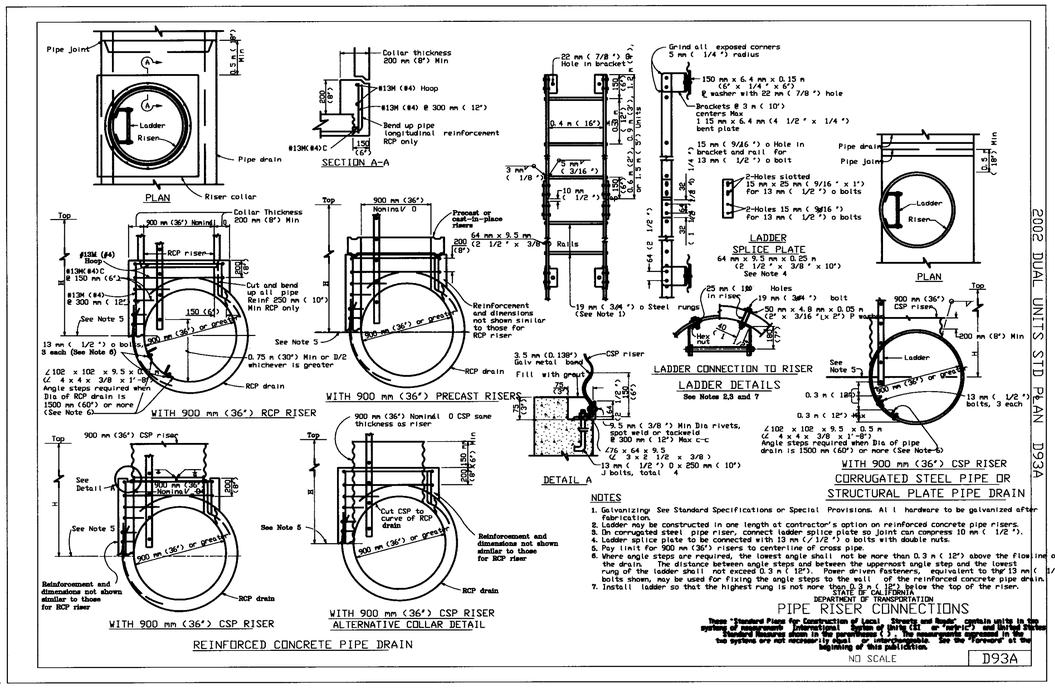
1. WHEN DEPTH M FROM STREET GRADE TO THE TOP OF THE BOX IS LESS THAN 867 mm (2'-10 1/2") FOR PAVED STREETS OR 1060 mm (3'-6") FOR UNPAVED STREETS, CONSTRUCT SHAFT PER SECTION C-C.
2. STATIONS OF MANHOLES SHOWN ON PLANS. APPLY AT CENTERLINE LINE OF SHAFT. ELEVATIONS ARE SHOWN AT CENTERLINE OF SHAFT.
3. REINFORCEMENT SHALL CONFORM TO ASTM A 615M, GRADE 300 (ASTM A 615, GRADE 40), AND SHALL TERMINATE 40 mm (1 1/2") CLEAR OF CONCRETE SURFACES UNLESS OTHERWISE SHOWN.
4. STEPS SHALL CONFORM TO SPPWC 635 OR 636. UNLESS OTHERWISE SHOWN, STEPS SHALL BE UNIFORMLY SPACED 350 mm (14") TO 375 mm (15") OC. THE LOWEST STEP SHALL NOT BE MORE THAN 800 mm (24") ABOVE THE INVERT.
5. MANHOLE FRAME AND COVER SHALL CONFORM TO SPPWC 630 UNLESS OTHERWISE SHOWN.
6. MANHOLE SHAFT SHALL CONFORM TO SPPWC 324 UNLESS OTHERWISE SHOWN.
7. WHERE A MANHOLE SHAFT – 900 mm (36") WITHOUT REDUCER IS SPECIFIED REFER TO SPPWC 326.
8. WHERE A PRESSURE MANHOLE SHAFT – WITH ECCENTRIC REDUCER IS SPECIFIED REFER TO SPPWC 328.
9. WHERE A PRESSURE MANHOLE SHAFT – 914 mm (36") WITHOUT REDUCER IS SPECIFIED REFER TO SPPWC 329.
10. THE FOLLOWING SPPWC ARE INCORPORATED HEREIN:
    324 MANHOLE SHAFT – WITH ECCENTRIC REDUCER
    326 MANHOLE SHAFT – 900 mm (36") WITHOUT REDUCER
    328 PRESSURE MANHOLE SHAFT – WITH ECCENTRIC
    329 PRESSURE MANHOLE SHAFT – 914 mm (36") WITHOUT REDUCER
    630 610 mm (24") MANHOLE FRAME AND COVER
    633 914 mm (36") MANHOLE FRAME AND COVER
    635 STEEL STEP
    636 POLYPROPYLENE PLASTIC STEP

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

MANHOLE – CONCRETE BOX STORM DRAIN

STANDARD PLAN METRIC 323-1

SHEET 2 OF 2



NOTES

1. Galvanizing: See Standard Specifications or Special Provisions. All hardware to be galvanized after fabrication.
2. Ladder may be constructed in one length at contractor's option on reinforced concrete pipe risers.
3. On corrugated steel pipe riser, connect ladder splice plate so joint can compress 10 mm (1/2 ").
4. Ladder splice plate to be connected with 13 mm (1/2 ") o bolts with double nuts.
5. Pay limit for 900 mm (36") risers to centerline of cross pipe.
6. Where angle steps are required, the lowest angle shall not be more than 0.3 m (12") above the flowline of the drain. The distance between angle steps and between the uppermost angle step and the lowest rung of the ladder shall not exceed 0.3 m (12"). Power driven fasteners, equivalent to the 13 mm (1/2 ") o bolts shown, may be used for fixing the angle steps to the wall of the reinforced concrete pipe drain.
7. Install ladder so that the highest rung is not more than 0.3 m (12") below the top of the riser.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PIPE RISER CONNECTIONS

These "Standard Plans for Construction of Local Streets and Roads" contain units in the system of measurements commonly known as Metric (SI or Système International d'Unités). Standard features shown in the specifications and on the standard plans are in accordance with the requirements expressed in the two systems and are considered adequate. See the "Foreword" at the beginning of this publication.

NO SCALE

D93A

2002 DUAL UNITS STD PLAN D93A

P899

SCALE: 1"=40'

DEVELOPER:

F.A.S.T. BUILDING SYSTEMS, LCC
3300 IRVINE AVENUE, SUITE 225
NEWPORT BEACH, CA 92660

CCL
ENGINEERING, INC.
CIVIL ENGINEERING, LAND SURVEYING, GEOTECHNICAL ENGINEERING
43434 SANJAYD STREET (661)949-9500
LANCASTER, CA. 93535 (661)949-8380 FAX

ROBERT L. POWELL RCE C046111 — 10/16/02 DATE

REGISTERED PROFESSIONAL ENGINEER ROBERT L. POWELL C046111 Exp. 12-31-2008 CIVIL STATE OF CALIFORNIA

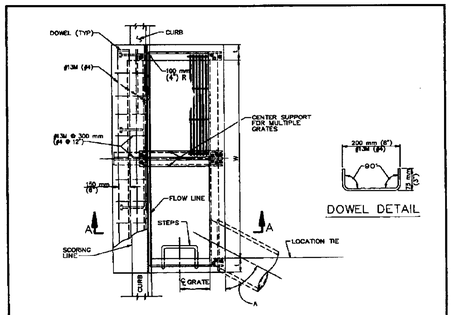
NO.	REVISIONS	BY	DATE

CITY OF VICTORVILLE
ENGINEERING DEPARTMENT

APPROVED
BY: JOHN A. McGLADE DATE: 5/7/03
JOHN A. McGLADE CITY ENGINEER
RCE 40935 EXP 3-31-09

CITY OF VICTORVILLE
STORM DRAIN IMPROVEMENT PLAN
TRACT NO. 15083-3
STANDARD PLANS

SCALE: 1" = 40'
DESIGNED: MH
DRAWN: VG
CHECKED: DL
CCL JN 1878F
SHEET NO.
7 OF 12



STRUCTURAL DATA

WALL AND SLAB DIMENSIONS AND REINFORCEMENT REQUIREMENTS

NO. OF GRATES	MAXIMUM V	t	REINFORCEMENT FOR WALLS AND SLABS
1–2	1.2 m (4')	150 mm(6")	NOT REQUIRED
1–2	2.4 m (8')	200 mm(8")	
1–2	3.6 m(12')	250 mm(10")	REQUIRED
3–4	1.2 m (4')	150 mm(6")	NOT REQUIRED
3–4	2.0 m (7')	200 mm(8")	
3–4	2.4 m (8')	200 mm(8")	REQUIRED
3–4	3.5 m (12')	250 mm(10")	
5–6	1.2 m (4')	150 mm(6")	NOT REQUIRED
5–6	1.8 m (6')	200 mm(8")	
5–6	2.4 m (8')	200 mm(8")	REQUIRED
5–6	3.5 m (12')	250 mm(10")	
> 6	1.2 m (4')	150 mm(6")	
> 6	2.4 m (8')	200 mm(8")	REQUIRED
> 6	3.5 m (12')	250 mm(10")	

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE PUBLIC WORKS STANDARDS, INC. GREENBOOK COMMITTEE 1964 REV. 1992, 1998

CURB OPENING CATCH BASIN WITH GRATING(S)

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN METRIC 302–2 SHEET 1 OF 2

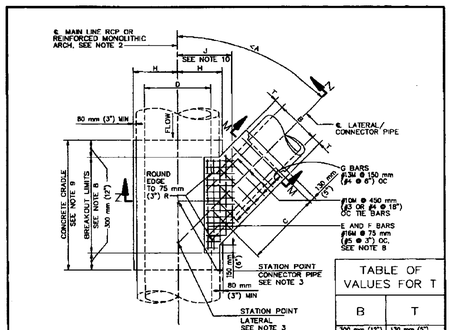
NOTES:

1. WHERE THE BASIN IS TO BE CONSTRUCTED WITHIN THE LIMITS OF EXISTING OR PROPOSED SIDEWALK OR IS CONTIGUOUS TO SUCH SIDEWALK, THE TOP SLAB OF THE BASIN MAY BE POURED EITHER MONOLITHIC WITH THE SIDEWALK OR SEPARATELY, USING THE SAME CLASS OF CONCRETE AS IN THE BASIN. WHEN POURED MONOLITHICALLY, THE SIDEWALK SHALL BE PROVIDED WITH A WEAKENED PLANE ON A 25 mm (1") DEEP SAWCUT CONTINUOUSLY AROUND THE EXTERNAL PERIMETER OF THE CATCH BASIN WALLS, INCLUDING ACROSS THE FULL WIDTH OF THE SIDEWALK. SURFACE OF EXPOSED CONCRETE SHALL CONFORM IN SLOPE, GRADE, COLOR, FINISH, AND SCORING TO EXISTING OR PROPOSED CURB AND WALK ADJACENT TO THE BASIN.
2. ALL CURVED CONCRETE SURFACES SHALL BE FORMED BY CURVED FORMS, AND SHALL NOT BE SHAPED BY PLASTERING.
3. ONE GRATING IS REQUIRED UNLESS OTHERWISE SHOWN ON THE PROJECT PLAN.
4. FLOOR OF BASIN SHALL BE GIVEN A STEEL TROWEL FINISH AND SHALL HAVE A LONGITUDINAL AND LATERAL SLOPE OF 1:12 MINIMUM AND 1:3 MAXIMUM, EXCEPT WHERE THE OUTLET GRADE EXCEEDS 8%, IN WHICH CASE, THE LONGITUDINAL SLOPE OF THE FLOOR SHALL BE THE SAME AS THE OUTLET GRADE. SLOPE FLOOR FROM ALL DIRECTIONS TO THE OUTLET.
5. DIMENSIONS:
   - V = THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT OF THE CATCH BASIN AT THE OUTLET = 1.35 m (4.5').
   - V_1 = THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT AT THE UPSTREAM END OF THE BASIN, AND SHALL BE DETERMINED BY THE REQUIREMENTS OF NOTE 4, BUT SHALL NOT BE LESS THAN CURB FACE PLUS 300 mm (12").
   - Y = THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT OF THE INLET, NOTED ON THE PLANS.
   - H = NOTED ON THE PROJECT PLANS.
   - W = 800 mm (2'–11 3/8") FOR ONE GRATING; ADD 1051 mm (3'–5 3/8") FOR EACH ADDITIONAL GRATING.
   - A = THE ANGLE, IN DEGREES, INTERCEPTED BY THE CENTERLINE OF THE CONNECTOR PIPE AND THE CATCH BASIN WALL TO WHICH THE CONNECTOR PIPE IS ATTACHED.
6. PLACE CONNECTOR PIPES AS INDICATED ON THE PLANS, UNLESS OTHERWISE SPECIFIED, THE CONNECTOR PIPE SHALL BE LOCATED AT THE DOWNSTREAM END OF THE BASIN, WHERE THE CONNECTOR PIPE IS SHOWN AT A CORNER, THE CENTERLINE OF THE PIPE SHALL INTERSECT THE INSIDE CORNER OF THE BASIN. THE PIPE MAY BE CUT AND TRIMMED AT A SKEW NECESSARY TO INSURE MINIMUM 80 mm (3") PIPE EMBEDMENT, ALL AROUND, WITHIN THE CATCH BASIN WALL, AND 75 mm (3") RADIUS OF ROUNDING OF STRUCTURE CONCRETE, ALL AROUND, ADJACENT TO PIPE ENDS. A MONOLITHIC CATCH BASIN CONNECTION SHALL BE USED TO JOIN THE CONNECTOR PIPE TO THE CATCH BASIN WHENEVER ANGLE A IS LESS THAN 70° OR GREATER THAN 110° OR WHENEVER THE CONNECTOR PIPE IS LOCATED IN A CORNER. THE OPTIONAL USE OF A MONOLITHIC CATCH BASIN CONNECTION IN ANY CASE IS PERMITTED. MONOLITHIC CATCH BASIN CONNECTIONS MAY BE CONSTRUCTED TO AVOID CUTTING STANDARD LENGTHS OF PIPE.
7. STEPS SHALL BE LOCATED AS SHOWN, IF THE CONNECTOR PIPE INTERFERES WITH THE STEPS, THEY SHALL BE LOCATED ON THE FRONT WALL AT THE CENTERLINE OF THE DOWNSTREAM GRATING. STEPS SHALL BE SPACED 300 mm (12") APART. THE TOP STEP SHALL BE 175 mm (7") BELOW THE TOP OF THE GRATING AND PROJECT 65 mm (2 1/2"). ALL OTHER STEPS SHALL PROJECT 130 mm (5").
8. DOWELS ARE REQUIRED AT EACH CORNER AND AT 2.1 m (7') ON CENTER (MAXIMUM) ALONG THE BACKWALL.
9. THE FOLLOWING SPPWC ARE INCORPORATED HEREIN:
   - 308 MONOLITHIC CATCH BASIN CONNECTION
   - 309 CATCH BASIN REINFORCEMENT
   - 310 CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR
   - 311 FRAME AND GRATING FOR CATCH BASINS
   - 635 STEEL STEP
   - 636 POLYPROPYLENE PLASTIC STEP

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

CURB OPENING CATCH BASIN WITH GRATING(S)

STANDARD PLAN METRIC 302–2 SHEET 2 OF 2



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE PUBLIC WORKS STANDARDS, INC. GREENBOOK COMMITTEE 1964 REV. 1998, 1999

JUNCTION STRUCTURE–PIPE TO PIPE INLET ID ≥ 600 mm (24") OR OD > 1/2 MAIN LINE ID

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN METRIC 331–2 SHEET 1 OF 2

TABLE OF VALUES FOR T	
B	T
300 mm (12")	130 mm (5")
375 mm (15")	130 mm (5")
450 mm (18")	130 mm (5")
525 mm (21")	130 mm (5")
600 mm (24")	140 mm (5 1/2")
675 mm (27")	140 mm (5 1/2")
750 mm (30")	150 mm (6")
825 mm (33")	170 mm (6 1/2")
900 mm (36")	170 mm (6 1/2")
975 mm (39")	180 mm (7")

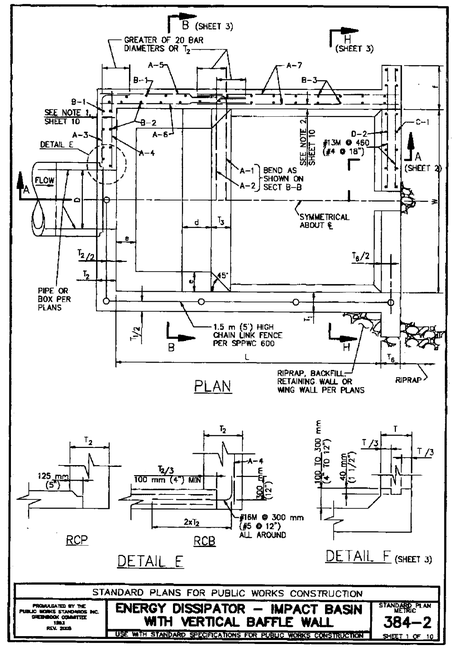
NOTES

1. THIS JUNCTION STRUCTURE SHALL BE USED WHEN THE OUTSIDE DIAMETER OF THE LATERAL IS GREATER THAN 1/2 THE INSIDE DIAMETER D OF THE MAIN LINE; OR WHEN THE INSIDE DIAMETER B OF THE LATERAL IS GREATER THAN 600 mm (24"). B SHALL NOT EXCEED 0.75 D OR 975 mm (39").
2. IF THE MAIN LINE IS A REINFORCED MONOLITHIC ARCH STORM DRAIN, D SHALL REFER TO THE CLEAR SPAN OF THE ARCH. REINFORCING STEEL SHALL BE CUT AND BENT INTO THE JUNCTION STRUCTURE IN THE SAME MANNER AS FOR A PIPE. A CONCRETE CRADLE IS NOT REQUIRED FOR A REINFORCED MONOLITHIC ARCH.
3. STATIONS SHOWN ON THE PLANS FOR LATERALS APPLY AT THE INTERSECTION OF CENTERLINES OF MAIN LINE AND LATERAL. STATIONS SHOWN ON THE PLANS FOR CATCH BASIN CONNECTOR PIPES APPLY AT THE INTERSECTION OF THE INSIDE WALL OF THE MAIN LINE WITH THE CONNECTOR PIPE CENTERLINE.
4. VALUES FOR A, B, C AND D SHALL BE SHOWN ON THE PLANS. ELEVATION R AND ELEVATION S SHALL BE SHOWN ONLY WHEN REQUIRED PER NOTE 5.
5. a. ELEVATIONS R AND S NEED NOT BE SHOWN ON THE PLANS IF THE INLET PIPE IS TO ENTER THE MAIN LINE RADIALLY.
   b. ELEVATION R SHALL BE SHOWN ON THE PLANS ONLY IF A STUB IS TO BE PROVIDED IN THE MAIN LINE FOR FUTURE CONNECTION OF AN INLET PIPE.
   c. ELEVATION S SHALL BE SHOWN ON THE PLANS IF AN INLET PIPE IS TO ENTER THE MAIN LINE OTHER THAN RADIALLY. INLET PIPE SHALL BE LAID ON A STRAIGHT GRADE FROM ELEVATION S TO THE CATCH BASIN OR GRADE BREAK IN LINE.
6. THE INLET PIPE SHALL ENTER THE MAIN LINE RADIALLY UNLESS OTHERWISE INDICATED. THE INLET PIPE MAY ENTER THE MAIN LINE OTHER THAN RADIALLY IF ANGLE A IS GREATER THAN 45°, B IS LESS THAN OR EQUAL TO 600 mm (24") AND THE OUTSIDE DIAMETER OF THE INLET PIPE IS LESS THAN 0.5 D; OTHERWISE, SPPWC 340 SHALL BE USED.
7. NO MORE THAN ONE OPENING SHALL BE MADE IN ANY ONE SECTION OF PIPE.
8. THE OPENING FOR THE BREAKOUT SHALL BE RECTANGULAR AND CUT NORMAL TO THE PIPE SURFACE WITHOUT DAMAGING THE REINFORCING STEEL. THE TRANSVERSE REINFORCEMENT OF THE MAIN LINE SHALL BE CUT AT THE CENTER OF THE OPENING AND BENT INTO THE TOP AND BOTTOM SLABS OF THE SPUR.
9. THE MAIN LINE SHALL BE REINFORCED WITH A CONCRETE CRADLE AND ENCASEMENT (AS APPLICABLE). A CONCRETE ENCASEMENT IS REQUIRED IF A JOINT IN THE MAIN LINE FALLS WITHIN THE LIMITS OF THE CRADLE. THE CONCRETE ENCASEMENT SHALL EXTEND 300 mm (12") ABOVE THE TOP OF THE MAIN LINE AND TO THE LIMITS OF THE CRADLE.
   IF CONNECTING TO AN EXISTING STORM DRAIN, PORTION OF CRADLE OPPOSITE INLET MAY BE OMITTED.
10. REINFORCING STEEL SHALL CONFORM TO ASTM A 615M, GRADE 300, (ASTM A 615, GRADE 40), AND BE PLACED 40 mm (1 1/2") CLEAR FROM CONCRETE SURFACES, UNLESS OTHERWISE SHOWN F BARS SHALL BE CARRIED TO A POINT NOT LESS THAN J DISTANCE FROM CENTER LINE WITH J=7D/12 + 150 mm (6").
11. FLOOR OF THE SPUR SHALL BE STEEL–TROWELED TO THE SPRING LINE OF THE SPUR.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

JUNCTION STRUCTURE–PIPE TO PIPE INLET ID ≥ 600 mm (24") OR OD > 1/2 MAIN LINE ID

STANDARD PLAN METRIC 331–2 SHEET 2 OF 2



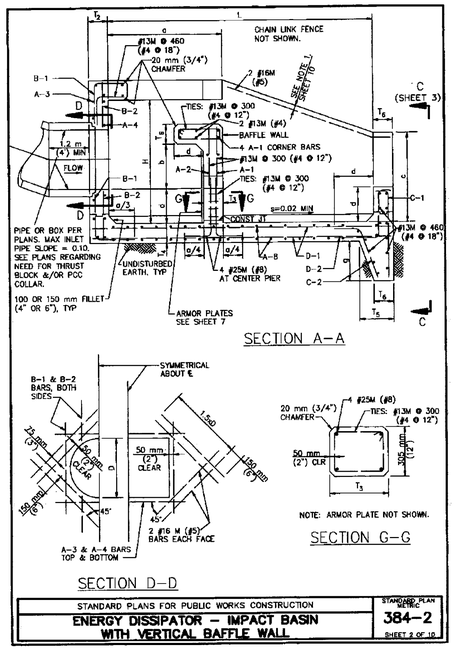
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE PUBLIC WORKS STANDARDS, INC. GREENBOOK COMMITTEE 1964 REV. 2003

ENERGY DISSIPATOR – IMPACT BASIN WITH VERTICAL BAFFLE WALL

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

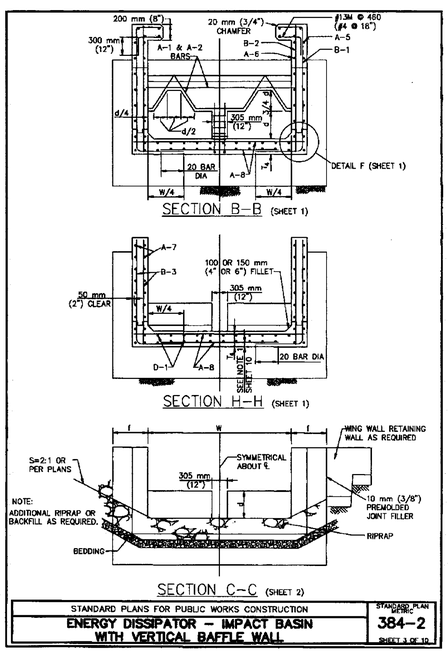
STANDARD PLAN METRIC 384–2 SHEET 1 OF 10



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

ENERGY DISSIPATOR – IMPACT BASIN WITH VERTICAL BAFFLE WALL

STANDARD PLAN METRIC 384–2 SHEET 2 OF 10



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

ENERGY DISSIPATOR – IMPACT BASIN WITH VERTICAL BAFFLE WALL

STANDARD PLAN METRIC 384–2 SHEET 3 OF 10

*SEE NOTES, SHEET 10

	WIDTH	1220 (4'–0")	1830 (6'–0")	2440 (8'–0")
DIMENSIONS	H	910 (3'–0")	1370 (4'–8")	1830 (6'–0")
	L	1680 (5'–6")	2440 (8'–0")	3510 (11'–6")
	a	610 (2'–0")	910 (3'–0")	1220 (4'–0")
	b	460 (1'–6")	690 (2'–3")	910 (3'–0")
	c	610 (2'–0")	910 (3'–0")	1220 (4'–0")
	d	200 (0'–8")	300 (1'–0")	410 (1'–4")
	e	100 (0'–4")	150 (0'–6")	200 (0'–8")
	f	610 (2'–0")	610 (2'–0")	610 (2'–0")
	g	910 (3'–0")	910 (3'–0")	910 (3'–0")
	T1*	200 (8")	200 (8")	200 (8")
	T2	200 (8")	200 (8")	200 (8")
	T3	200 (8")	200 (8")	200 (8")
	T4*	200 (8")	200 (8")	200 (8")
	T5	230 (9")	230 (9")	230 (9")
	T6	230 (9")	230 (9")	230 (9")
BAR DESIGNATION	WORKING STRESS DESIGN			
	A–1	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#16M @ 300 (#5 @ 12")
	A–2	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#16M @ 300 (#5 @ 12")
	A–3	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")
	A–4	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")
	A–5	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")
	A–6	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#16M @ 300 (#5 @ 12")
	A–7	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	A–8	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	B–1	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	B–2	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	B–3	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	C–1	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")
	C–2	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")
	D–1	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	D–2	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")
	STRENGTH DESIGN			
	A–1	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	A–2	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	A–3	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")
	A–4	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")
	A–5	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")
	A–6	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	A–7	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	A–8	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	B–1	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	B–2	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	B–3	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	C–1	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")
	C–2	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")
	D–1	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")	#13M @ 300 (#4 @ 12")
	D–2	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")	#13M @ 460 (#4 @ 18")
	DESIGN LOAD, IMPACT	10.8 kPa (225 PSF)	14.4 kPa (300 PSF)	18.0 kPa (375 PSF)

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

ENERGY DISSIPATOR – IMPACT BASIN WITH VERTICAL BAFFLE WALL

STANDARD PLAN METRIC 384–2 SHEET 4 OF 10

SCALE: 1"=40'

P-899

DEVELOPER:

F.A.S.T. BUILDING SYSTEMS, LCC
3300 IRVINE AVENUE, SUITE 225
NEWPORT BEACH, CA 92660

CCL ENGINEERING, INC.
CIVIL ENGINEERING, LAND SURVEYING, GEOTECHNICAL ENGINEERING
43434 SAHUAYO STREET (661)949-9500
LANCASTER, CA. 93535 (661)949-8300 FAX

Bob Powell 10/26/07
ROBERT L. POWELL RCE C046111 DATE

REGISTERED PROFESSIONAL ENGINEER ROBERT L. POWELL C046111 Exp. 12-31-2008 CIVIL STATE OF CALIFORNIA

NO.	REVISIONS	BY	DATE

CITY OF VICTORVILLE
ENGINEERING DEPARTMENT

APPROVED
BY: John A. McGlade DATE: 5/7/08
JOHN A. McGLADE CITY ENGINEER
RCE 40935 EXP 3-31-09

CITY OF VICTORVILLE
STORM DRAIN IMPROVEMENT PLAN
TRACT NO. 15083-3
STANDARD PLANS

SCALE: 1" = 40'
DESIGNED: MH
DRAWN: VG
CHECKED: DL
CCL JN 1878F
SHEET NO. 8 OF 12

*SEE NOTES, SHEET 10

	WIDTH	3050 (10'-0")		3660 (12'-0")		4270 (14'-0")	
DIMENSIONS	H	2280 (7'-6")		2740 (9'-0")		3200 (10'-6")	
	L	4110 (13'-6")		4880 (16'-0")		5640 (18'-6")	
	a	1520 (5'-0")		1830 (6'-0")		2130 (7'-0")	
	b	1140 (3'-9")		1370 (4'-6")		1600 (5'-3")	
	c	1520 (5'-0")		1830 (6'-0")		2130 (7'-0")	
	d	510 (1'-8")		610 (2'-0")		710 (2'-4")	
	e	250 (0'-10")		300 (1'-0")		360 (1'-2")	
	f	610 (2'-0")		760 (2'-6")		910 (3'-0")	
	g	1220 (4'-0")		1520 (5'-0")		1680 (5'-6")	
	T1*	230 (9")		230 (9")		250 (10")	
	T2	200 (8")		200 (8")		250 (10")	
	T3	200 (8")		230 (9")		300 (12")	
	T4*	200 (8")		220 (8.5")		220 (8.5")	
	T5	230 (9")		230 (9")		230 (9")	
	T6	230 (9")		230 (9")		230 (9")	
BAR DESIGNATION	WORKING STRESS DESIGN						
	A-1	#19M @ 300	(#6 @ 12")	#29M @ 460	(#9 @ 18")	#25M @ 300	(#8 @ 12")
	A-2	#22M @ 300	(#7 @ 12")	#29M @ 460	(#9 @ 18")	#25M @ 300	(#8 @ 12")
	A-3	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#13M @ 300	(#4 @ 12")
	A-4	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")
	A-5	#13M @ 460	(#4 @ 18")	#16M @ 300	(#5 @ 12")	#13M @ 300	(#4 @ 12")
	A-6	#22M @ 300	(#7 @ 12")	#29M @ 300	(#9 @ 12")	#29M @ 300	(#9 @ 12")
	A-7	#16M @ 360	(#5 @ 14")	#16M @ 300	(#5 @ 12")	#16M @ 250	(#5 @ 10")
	A-8	#16M @ 275	(#5 @ 11")	#22M @ 300	(#7 @ 12")	#25M @ 300	(#8 @ 12")
	B-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	B-2	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	B-3	#19M @ 460	(#6 @ 18")	#16M @ 300	(#5 @ 12")	#19M @ 380	(#6 @ 15")
	C-1	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")
	C-2	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")
	D-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	D-2	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")
	STRENGTH DESIGN						
	A-1	#16M @ 300	(#5 @ 12")	#19M @ 300	(#6 @ 12")	#25M @ 460	(#8 @ 18")
	A-2	#19M @ 300	(#6 @ 12")	#19M @ 300	(#6 @ 12")	#25M @ 460	(#8 @ 18")
	A-3	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")
	A-4	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")
	A-5	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")
	A-6	#19M @ 300	(#6 @ 12")	#22M @ 300	(#7 @ 12")	#25M @ 300	(#8 @ 12")
	A-7	#16M @ 300	(#5 @ 12")	#16M @ 300	(#5 @ 12")	#19M @ 275	(#6 @ 11")
	A-8	#13M @ 300	(#4 @ 12")	#16M @ 300	(#5 @ 12")	#19M @ 275	(#6 @ 11")
	B-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	B-2	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	B-3	#19M @ 460	(#6 @ 18")	#16M @ 300	(#5 @ 12")	#19M @ 380	(#6 @ 15")
	C-1	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")
	C-2	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")
	D-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	D-2	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")
	DESIGN LOAD, IMPACT	21.5 kPa	(450 PSF)	25.1 kPa	(525 PSF)	28.7 kPa	(600 PSF)

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
ENERGY DISSIPATOR – IMPACT BASIN WITH VERTICAL BAFFLE WALL
STANDARD PLAN METRIC 384-2
SHEET 5 OF 10

*SEE NOTES, SHEET 10

	WIDTH	4880 (16'-0")		5490 (18'-0")		6100 (20'-0")	
DIMENSIONS	H	3660 (12'-0")		4110 (13'-6")		4570 (15'-0")	
	L	6550 (21'-6")		7320 (24'-0")		8080 (26'-6")	
	a	2440 (8'-0")		2740 (9'-0")		3050 (10'-0")	
	b	1830 (6'-0")		2060 (6'-9")		2290 (7'-6")	
	c	2440 (8'-0")		2740 (9'-0")		3050 (10'-0")	
	d	810 (2'-8")		910 (3'-0")		1020 (3'-4")	
	e	410 (1'-4")		460 (1'-6")		510 (1'-8")	
	f	1070 (3'-6")		1070 (3'-6")		1070 (3'-6")	
	g	1830 (6'-0")		2130 (7'-0")		2290 (7'-6")	
	T1*	300 (12")		330 (13")		380 (15")	
	T2	250 (10")		300 (12")		300 (12")	
	T3	330 (13")		360 (14")		410 (16")	
	T4*	270 (10.5")		270 (10.5")		280 (11")	
	T5	250 (10")		280 (11")		330 (13")	
	T6	230 (9")		230 (9")		230 (9")	
BAR DESIGNATION	WORKING STRESS DESIGN						
	A-1	#29M @ 300	(#9 @ 12")	#32M @ 300	(#10 @ 12")	#25M @ 150	(#8 @ 6")
	A-2	#29M @ 300	(#9 @ 12")	#32M @ 300	(#10 @ 12")	#25M @ 150	(#8 @ 6")
	A-3	#16M @ 300	(#5 @ 12")	#16M @ 300	(#5 @ 12")	#13M @ 150	(#4 @ 12")
	A-4	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#13M @ 300	(#4 @ 12")
	A-5	#16M @ 300	(#5 @ 12")	#16M @ 300	(#5 @ 12")	#16M @ 300	(#5 @ 12")
	A-6	#29M @ 300	(#9 @ 12")	#25M @ 150	(#8 @ 6")	#29M @ 150	(#9 @ 6")
	A-7	#29M @ 300	(#9 @ 12")	#16M @ 200	(#5 @ 8")	#22M @ 360	(#7 @ 14")
	A-8	#29M @ 300	(#9 @ 12")	#25M @ 200	(#8 @ 8")	#25M @ 175	(#8 @ 7")
	B-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	B-2	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	B-3	#19M @ 300	(#6 @ 12")	#22M @ 410	(#7 @ 16")	#22M @ 360	(#7 @ 14")
	C-1	#13M @ 380	(#4 @ 15")	#13M @ 330	(#4 @ 13")	#13M @ 330	(#4 @ 13")
	C-2	#13M @ 380	(#4 @ 15")	#13M @ 330	(#4 @ 13")	#13M @ 330	(#4 @ 13")
	D-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	D-2	#13M @ 460	(#4 @ 18")	#13M @ 460	(#4 @ 18")	#19M @ 330	(#6 @ 13")
	STRENGTH DESIGN						
	A-1	#25M @ 300	(#8 @ 12")	#29M @ 300	(#9 @ 12")	#25M @ 200	(#8 @ 8")
	A-2	#25M @ 300	(#8 @ 12")	#29M @ 150	(#9 @ 6")	#22M @ 200	(#7 @ 8")
	A-3	#13M @ 300	(#4 @ 12")	#16M @ 300	(#5 @ 12")	#13M @ 200	(#4 @ 8")
	A-4	#13M @ 300	(#4 @ 12")	#13M @ 410	(#4 @ 16")	#13M @ 410	(#4 @ 16")
	A-5	#16M @ 200	(#5 @ 8")	#16M @ 200	(#5 @ 8")	#16M @ 200	(#5 @ 8")
	A-6	#29M @ 300	(#9 @ 12")	#29M @ 300	(#9 @ 12")	#29M @ 180	(#9 @ 7")
	A-7	#25M @ 410	(#8 @ 16")	#22M @ 300	(#7 @ 12")	#19M @ 200	(#6 @ 8")
	A-8	#25M @ 275	(#8 @ 11")	#29M @ 300	(#9 @ 12")	#25M @ 200	(#8 @ 8")
	B-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	B-2	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	B-3	#25M @ 460	(#8 @ 18")	#22M @ 300	(#7 @ 12")	#22M @ 360	(#7 @ 14")
	C-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 330	(#4 @ 13")
	C-2	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 330	(#4 @ 13")
	D-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	D-2	#19M @ 360	(#6 @ 14")	#22M @ 360	(#7 @ 14")	#25M @ 380	(#8 @ 15")
	DESIGN LOAD, IMPACT	32.3 kPa	(675 PSF)	35.9 kPa	(750 PSF)	39.5 kPa	(825 PSF)

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
ENERGY DISSIPATOR – IMPACT BASIN WITH VERTICAL BAFFLE WALL
STANDARD PLAN METRIC 384-2
SHEET 6 OF 10

*SEE NOTES, SHEET 10

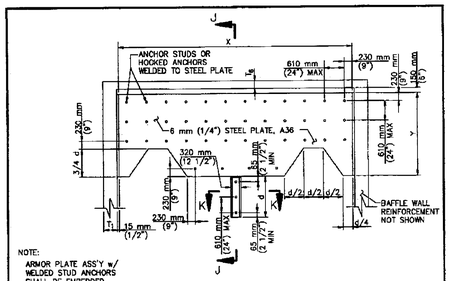
	WIDTH	6710 (22'-0")		7320 (24'-0")		7920 (26'-0")	
DIMENSIONS	H	5030 (16'-6")		5490 (18'-0")		5940 (19'-6")	
	L	8980 (29'-6")		9760 (32'-0")		10570 (35'-0")	
	a	3350 (11'-0")		3660 (12'-0")		3960 (13'-0")	
	b	2510 (8'-3")		2740 (9'-0")		2700 (9'-0")	
	c	3350 (11'-0")		3660 (12'-0")		3960 (13'-0")	
	d	1120 (3'-8")		1220 (4'-0")		1320 (4'-4")	
	e	560 (1'-10")		610 (2'-0")		660 (2'-2")	
	f	1220 (4'-0")		1370 (4'-6")		1370 (4'-6")	
	g	2440 (8'-0")		2590 (8'-6")		2900 (9'-6")	
	T1*	380 (15")		430 (17")		480 (18")	
	T2	330 (13")		330 (13")		330 (13")	
	T3	430 (17")		480 (18")		530 (21")	
	T4*	380 (15")		380 (14")		380 (15")	
	T5	380 (15")		430 (17")		480 (19")	
	T6	230 (9")		230 (9")		230 (9")	
BAR DESIGNATION	WORKING STRESS DESIGN						
	A-1	#29M @ 150	(#9 @ 6")	#29M @ 150	(#9 @ 6")	#25M @ 100	(#8 @ 4")
	A-2	#25M @ 150	(#8 @ 6")	#29M @ 150	(#9 @ 6")	#29M @ 150	(#9 @ 6")
	A-3	#13M @ 150	(#4 @ 6")	#16M @ 300	(#5 @ 12")	#19M @ 200	(#6 @ 8")
	A-4	#13M @ 300	(#4 @ 12")	#16M @ 300	(#5 @ 12")	#19M @ 410	(#6 @ 16")
	A-5	#16M @ 300	(#5 @ 12")	#13M @ 150	(#4 @ 6")	#25M @ 410	(#8 @ 16")
	A-6	#29M @ 150	(#9 @ 6")	#32M @ 150	(#10 @ 6")	#29M @ 100	(#9 @ 4")
	A-7	#29M @ 300	(#9 @ 12")	#25M @ 150	(#8 @ 6")	#22M @ 300	(#7 @ 8")
	A-8	#29M @ 200	(#9 @ 8")	#29M @ 175	(#9 @ 7")	#29M @ 150	(#9 @ 6")
	B-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	B-2	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	B-3	#25M @ 460	(#8 @ 18")	#22M @ 300	(#7 @ 12")	#22M @ 300	(#7 @ 12")
	C-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#16M @ 410	(#5 @ 16")
	C-2	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#16M @ 410	(#5 @ 16")
	D-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	D-2	#22M @ 360	(#7 @ 14")	#25M @ 380	(#8 @ 15")	#25M @ 380	(#8 @ 15")
	STRENGTH DESIGN						
	A-1	#29M @ 200	(#9 @ 8")	#29M @ 200	(#9 @ 8")	#32M @ 225	(#10 @ 9")
	A-2	#25M @ 200	(#8 @ 8")	#29M @ 200	(#9 @ 8")	#29M @ 200	(#9 @ 8")
	A-3	#13M @ 200	(#4 @ 8")	#16M @ 200	(#5 @ 8")	#25M @ 410	(#8 @ 16")
	A-4	#13M @ 410	(#4 @ 16")	#13M @ 410	(#4 @ 16")	#16M @ 410	(#5 @ 16")
	A-5	#16M @ 200	(#5 @ 8")	#16M @ 200	(#5 @ 8")	#16M @ 200	(#5 @ 8")
	A-6	#29M @ 200	(#9 @ 8")	#29M @ 180	(#9 @ 7")	#25M @ 180	(#8 @ 7")
	A-7	#25M @ 410	(#8 @ 16")	#22M @ 300	(#7 @ 12")	#19M @ 200	(#6 @ 8")
	A-8	#25M @ 275	(#8 @ 11")	#29M @ 300	(#9 @ 12")	#25M @ 200	(#8 @ 8")
	B-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	B-2	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	B-3	#25M @ 460	(#8 @ 18")	#22M @ 300	(#7 @ 12")	#22M @ 300	(#7 @ 12")
	C-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#16M @ 410	(#5 @ 16")
	C-2	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#16M @ 410	(#5 @ 16")
	D-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	D-2	#19M @ 360	(#6 @ 14")	#22M @ 360	(#7 @ 14")	#25M @ 380	(#8 @ 15")
	DESIGN LOAD, IMPACT	43.1 kPa	(900 PSF)	45.5 kPa	(950 PSF)	47.9 kPa	(1000 PSF)

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
ENERGY DISSIPATOR – IMPACT BASIN WITH VERTICAL BAFFLE WALL
STANDARD PLAN METRIC 384-2
SHEET 7 OF 10

*SEE NOTES, SHEET 10

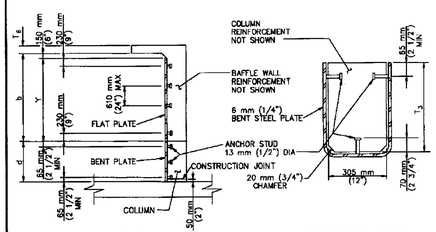
	WIDTH	8530 (28'-0")		9140 (30'-0")		9750 (32'-0")	
DIMENSIONS	H	6400 (21'-0")		6880 (22'-6")		7320 (24'-0")	
	L	11430 (37'-6")		12180 (40'-0")		12960 (42'-6")	
	a	4270 (14'-0")		4570 (15'-0")		4880 (16'-0")	
	b	3200 (10'-6")		3430 (11'-3")		3660 (12'-0")	
	c	4270 (14'-0")		4570 (15'-0")		4880 (16'-0")	
	d	1420 (4'-8")		1520 (5'-0")		1630 (5'-4")	
	e	710 (2'-4")		760 (2'-6")		810 (2'-8")	
	f	1520 (5'-0")		1680 (5'-6")		1830 (6'-0")	
	g	3050 (10'-0")		3260 (10'-8")		3350 (11'-0")	
	T1*	510 (20")		560 (22")		640 (25")	
	T2	360 (14")		380 (14")		360 (14")	
	T3	580 (23")		610 (24")		660 (26")	
	T4*	430 (17")		470 (18.5")		510 (20")	
	T5	530 (21")		610 (24")		660 (26")	
	T6	230 (9")		290 (10")		280 (11")	
BAR DESIGNATION	WORKING STRESS DESIGN						
	A-1	#29M @ 100	(#10 @ 4")	#32M @ 100	(#10 @ 4")	#32M @ 100	(#10 @ 4")
	A-2	#25M @ 100	(#8 @ 4")	#29M @ 100	(#9 @ 4")	#29M @ 100	(#9 @ 4")
	A-3	#19M @ 200	(#6 @ 8")	#16M @ 100	(#5 @ 4")	#16M @ 100	(#5 @ 4")
	A-4	#19M @ 300	(#6 @ 12")	#22M @ 300	(#7 @ 12")	#19M @ 200	(#6 @ 8")
	A-5	#22M @ 300	(#7 @ 12")	#22M @ 300	(#7 @ 12")	#25M @ 300	(#8 @ 12")
	A-6	#25M @ 100	(#8 @ 4")	#29M @ 100	(#9 @ 4")	#32M @ 100	(#10 @ 4")
	A-7	#25M @ 330	(#8 @ 13")	#25M @ 300	(#8 @ 12")	#25M @ 250	(#8 @ 10")
	A-8	#25M @ 100	(#8 @ 4")	#29M @ 125	(#9 @ 5")	#29M @ 100	(#9 @ 4")
	B-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 250	(#4 @ 10")
	B-2	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 250	(#4 @ 10")
	B-3	#25M @ 360	(#8 @ 14")	#25M @ 300	(#8 @ 12")	#25M @ 275	(#8 @ 11")
	C-1	#16M @ 380	(#5 @ 15")	#16M @ 300	(#5 @ 12")	#16M @ 300	(#5 @ 12")
	C-2	#16M @ 380	(#5 @ 15")	#16M @ 300	(#5 @ 12")	#16M @ 300	(#5 @ 12")
	D-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	D-2	#25M @ 380	(#8 @ 15")	#25M @ 380	(#8 @ 15")	#25M @ 250	(#8 @ 10")
	STRENGTH DESIGN						
	A-1	#29M @ 150	(#9 @ 6")	#25M @ 100	(#8 @ 4")	#29M @ 125	(#9 @ 5")
	A-2	#29M @ 200	(#9 @ 8")	#32M @ 200	(#10 @ 8")	#25M @ 125	(#8 @ 5")
	A-3	#25M @ 300	(#8 @ 12")	#22M @ 200	(#7 @ 8")	#25M @ 250	(#8 @ 10")
	A-4	#25M @ 300	(#8 @ 12")	#16M @ 200	(#5 @ 8")	#13M @ 125	(#4 @ 5")
	A-5	#22M @ 300	(#7 @ 12")	#13M @ 100	(#4 @ 4")	#16M @ 125	(#5 @ 5")
	A-6	#25M @ 330	(#8 @ 13")	#25M @ 100	(#8 @ 4")	#32M @ 125	(#10 @ 5")
	A-7	#25M @ 330	(#8 @ 13")	#25M @ 300	(#8 @ 12")	#25M @ 250	(#8 @ 10")
	A-8	#25M @ 275	(#8 @ 11")	#29M @ 330	(#9 @ 13")	#25M @ 150	(#8 @ 6")
	B-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 250	(#4 @ 10")
	B-2	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 250	(#4 @ 10")
	B-3	#25M @ 360	(#8 @ 14")	#25M @ 300	(#8 @ 12")	#25M @ 275	(#8 @ 11")
	C-1	#16M @ 380	(#5 @ 15")	#16M @ 300	(#5 @ 12")	#16M @ 300	(#5 @ 12")
	C-2	#16M @ 380	(#5 @ 15")	#16M @ 300	(#5 @ 12")	#16M @ 300	(#5 @ 12")
	D-1	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")	#13M @ 300	(#4 @ 12")
	D-2	#25M @ 380	(#8 @ 15")	#25M @ 380	(#8 @ 15")	#29M @ 460	(#9 @ 18")
	DESIGN LOAD, IMPACT	52.7 kPa	(1100 PSF)	57.5 kPa	(1200 PSF)	62.2 kPa	(1300 PSF)

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
ENERGY DISSIPATOR – IMPACT BASIN WITH VERTICAL BAFFLE WALL
STANDARD PLAN METRIC 384-2
SHEET 8 OF 10



NOTE:
ARMOR PLATE ASSY w/ WELDED STUD ANCHORS SHALL BE EMBEDDED INTO WET CONCRETE.

ARMOR PLATE DETAIL (SHT 2)



SECTION J-J SECTION K-K

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
ENERGY DISSIPATOR – IMPACT BASIN WITH VERTICAL BAFFLE WALL
STANDARD PLAN METRIC 384-2
SHEET 9 OF 10

ARMOR PLATE ANCHORS

WIDTH, mm	TOTAL BENT PLATE ANCHORS	FLAT PLATE ANCHORS ROW 1	ROW 2	ROW 3	ROW 4	ROW 5	ROW 6	ROW 7	X, mm	Y, mm
1220 (4'-0")	6	3	3						1190 (3'-11")	310 (1'-0")
1830 (6'-0")	8	4	4						1800 (5'-11")	540 (1'-9")
2440 (8'-0")	8	4	4						2410 (7'-11")	760 (2'-6")
3050 (10'-0")	6	9	6	3					3020 (9'-11")	990 (3'-3")
3660 (12'-0")	6	12	7	2	3				3630 (11'-11")	1220 (4'-0")
4270 (14'-0")	6	14	8	2	4				4240 (13'-11")	1450 (4'-9")
4880 (16'-0")	9	15	9	2	4				4850 (15'-11")	1680 (5'-6")
5490 (18'-0")	9	18	10	2	2	4			5460 (17'-11")	1910 (6'-3")
6100 (20'-0")	9	20	11	2	2	5			6070 (19'-11")	2140 (7'-0")
6710 (22'-0")	9	23	12	2	2	2	5		6680 (21'-11")	2360 (7'-9")
7320 (24'-0")	9	25	13	2	2	2	6		7290 (23'-11")	2590 (8'-6")
7920 (26'-0")	9	26	14	2	2	2	6		7890 (25'-11")	2820 (9'-3")
8530 (28'-0")	12	29	15	2	2	2	2	6	8500 (27'-11")	3050 (10'-0")
9140 (30'-0")	12	31	16	2	2	2	2	7	9130 (29'-11")	3280 (10'-9")
9750 (32'-0")	12	32	17	2	2	2	2	7	9720 (31'-11")	3510 (11'-6")

NOTES:

1. PCC COVER FOR RE-BAR SHALL BE 50 mm (2"), EXCEPT AS OTHERWISE NOTED. WHEN PCC WILL BE POURED AGAINST BARE EARTH, HOWEVER, INCREASE WALL THICKNESS SHOWN IN TABLES BY 25 mm (1") AND INCREASE PCC COVER TO 75 mm (3").
2. PCC COVER FOR RE-BAR WITHIN IMPACT CHAMBER SHALL BE 65 mm (2-1/2").
3. TABULATED REINFORCING BAR SPACING IS IN MILLIMETERS (INCHES).

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
ENERGY DISSIPATOR – IMPACT BASIN WITH VERTICAL BAFFLE WALL
STANDARD PLAN METRIC 384-2
SHEET 10OF 10

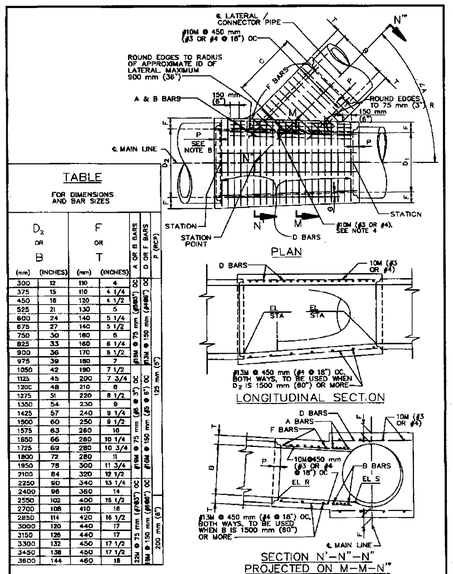


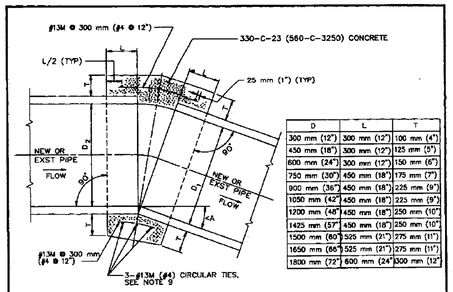
TABLE
FOR DIMENSIONS AND BAR SIZES

D2 OR B (mm)	D2 OR B (INCHES)	F OR T (mm)	F OR T (INCHES)	A & B BARS	D & F BARS	P (mm)
300	12	110	4	13	10	75
375	15	110	4 1/4	13	10	75
450	18	120	4 1/2	13	10	75
525	21	130	5	13	10	75
600	24	140	5 1/4	13	10	75
675	27	140	5 1/2	13	10	75
750	30	180	6	16	10	75
825	33	160	6 1/4	16	10	150
900	36	170	6 1/2	16	10	150
975	39	180	7	16	10	150
1050	42	190	7 1/2	16	10	150
1125	45	200	7 3/4	16	10	150
1200	48	210	8	16	10	150
1275	51	220	8 1/2	16	10	150
1350	54	230	9	16	10	150
1425	57	240	9 1/4	16	10	150
1500	60	250	9 1/2	16	10	150
1575	63	260	10	16	10	150
1650	66	280	10 1/4	16	10	150
1725	69	280	10 3/4	16	10	150
1800	72	280	11	16	10	150
1950	78	300	11 3/4	16	10	150
2100	84	320	12 1/2	16	10	150
2250	90	340	13 1/4	16	10	150
2400	96	360	14	16	10	150
2550	102	400	15 1/2	16	10	150
2700	108	410	16	16	10	150
2850	114	420	16 1/2	16	10	150
3000	120	440	17	16	10	150
3150	126	440	17	16	10	150
3300	132	450	17 1/2	16	10	150
3450	138	450	17 1/2	16	10	150
3600	144	460	18	16	10	150

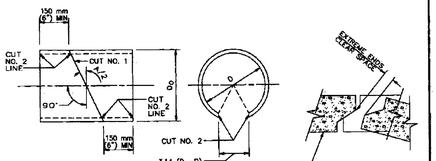
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. SPECIFICATIONS COMMITTEE 1983 REV. 1985
TRANSITION STRUCTURE PIPE TO PIPE
STANDARD PLAN METRIC 340-1
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION
SHEET 1 OF 2

NOTES

1. THE HORIZONTAL ANGLE OF CONVERGENCE OR DIVERGENCE, θ, SHALL NOT EXCEED 5° 45'.
2. VALUES FOR A, B, C, D1 AND D2 ARE SHOWN ON THE PLANS. ELEVATION R AND ELEVATION S ARE SHOWN WHEN REQUIRED BY NOTE 10.
3. FLOOR OF STRUCTURE SHALL BE STEEL TROWELED TO SPRING LINE.
4. REINFORCEMENT STEEL SHALL CONFORM TO ASTM A 615 M (A 615), GRADE 300 (40), AND SHALL TERMINATE 40 mm (1 1/2") CLEAR OF CONCRETE SURFACES UNLESS OTHERWISE SHOWN. LONGITUDINAL BARS SHALL BE #10M @ 450 mm (#3 OR #4 @ 18") OC OR LESS.
5. ELEVATION S APPLIES AT INSIDE WALL OF STRUCTURE.
6. TRANSITION STRUCTURE SHALL BE POURED IN ONE CONTINUOUS OPERATION, EXCEPT THAT THE CONTRACTOR SHALL HAVE THE OPTION OF PLACING AT THE SPRING LINE A CONSTRUCTION JOINT LONGITUDINAL KEYWAY.
7. THE LENGTH OF THE STRUCTURE MAY BE INCREASED AT THE OPTION OF THE CONTRACTOR TO MEET RCP ENDS, USING D BARS. LONGITUDINAL AND BOTTOM REINFORCEMENT IN EXTENDED PORTION OF SAME DIAMETER AND SPACING AS SPECIFIED IN THE TABLE, BUT ANY CHANGE IN THE LOCATION OF SPUR MUST BE APPROVED BY THE ENGINEER.
8. EMBEDMENT P SHALL BE AS SPECIFIED IN THE TABLE, UNLESS OTHERWISE SHOWN ON THE PLANS.
9. WHEN THERE IS NO SPUR REQUIRED, A & B BARS SHALL BE OMITTED.
10. WHEN ELEVATION R AND ELE



D	L	T
300 mm (12")	300 mm (12")	100 mm (4")
450 mm (18")	300 mm (12")	125 mm (5")
600 mm (24")	300 mm (12")	150 mm (6")
750 mm (30")	450 mm (18")	175 mm (7")
900 mm (36")	450 mm (18")	225 mm (9")
1050 mm (42")	450 mm (18")	225 mm (9")
1200 mm (48")	450 mm (18")	250 mm (10")
1425 mm (57")	450 mm (18")	250 mm (10")
1500 mm (60")	525 mm (21")	275 mm (11")
1650 mm (66")	525 mm (21")	275 mm (11")
1800 mm (72")	600 mm (24")	300 mm (12")



DETAIL "A" (SEE NOTE 10)
SONO-TUBE, OR EQUAL, INTERIOR FORM

CUT NO. 1: SAW THE TUBE AT AN ANGLE OF A/2 WITH THE TRANSVERSE PLANE. REVERSE ONE SECTION AND TAPE BOTH SECTIONS TOGETHER FORMING THE DEFLECTION ANGLE A.
CUT NO. 2: SAW THE TUBE LONGITUDINALLY REMOVING A STRIP 3.14 (D$_o$-D) WIDE ON THE SIDE OPPOSITE THE OPEN JOINT. BEND THE ENDS OF THE CUT TOGETHER AND INSERT THE TUBE IN THE PIPE.

DETAIL "B"
TYPICAL JOINT FOR REINFORCED CONCRETE PIPE

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		
PROMULGATED BY THE PUBLIC WORKS STANDARDS, INC. GREENBOOK COMMITTEE 1968 REV. 1984, 1997, 1999	CONCRETE COLLAR FOR RCP 300 mm (12") THROUGH 1800 mm (72") USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN METRIC 380-3 SHEET 1 OF 2

NOTES

1. A CONCRETE COLLAR IS REQUIRED WHERE THE CHANGE IN GRADE EXCEEDS 10%.
2. FOR CURVE JOINTS (SEE DETAIL B, SHEET 1)
   IF THE EXTREME ENDS OF THE PIPE LEAVE A CLEAR SPACE THAT IS GREATER THAN 25 mm (1"), BUT IS LESS THAN 75 mm (3") A CONCRETE COVER IS REQUIRED IN ACCORDANCE WITH SSPWC 306-1.2.4.
   IF THE EXTREME ENDS OF THE PIPE LEAVE A CLEAR SPACE THAT IS EQUAL TO OR GREATER THAN 75 mm (3"), BUT LESS THAN 150 mm (6"), A CONCRETE COLLAR IS REQUIRED. IF THE CLEAR SPACE IS 150 mm (6") OR GREATER, A TRANSITION STRUCTURE IS REQUIRED.
3. CONCRETE COLLAR SHALL NOT BE USED FOR A SIZE CHANGE ON THE MAIN LINE.
4. CONNECTOR PIPES
   A. WHERE PIPES OF DIFFERENT DIAMETERS ARE JOINED WITH A CONCRETE COLLAR, L AND T SHALL BE THOSE OF THE LARGER PIPE. $D=D_1$ OR D_2, WHICHEVER IS GREATER.
   B. WHEN D_1 IS EQUAL TO OR LESS THAN D_2, JOIN INVERTS AND WHEN D_1 IS GREATER THAN D_2, JOIN SOFFITS.
5. FOR PIPE LARGER THAN 1800 mm (72") SPECIAL COLLAR DETAILS ARE REQUIRED.
6. FOR PIPE SIZE NOT LISTED USE NEXT SIZE LARGER.
7. REINFORCEMENT SHALL CONFORM TO ASTM A 615 M (A 615) GRADE 300 (40).
8. WHERE REINFORCING IS REQUIRED THE DIAMETER OF THE CIRCULAR TIES SHALL BE D+(2X WALL THICKNESS) + T.
9. REINFORCING SHALL BE USED WHERE THE PIPE DIAMETER IS GREATER THAN 525 mm (21") AND ON ALL PIPES WHERE THE SPACES BETWEEN THE EXTREME OUTER ENDS IS 75 mm (3") OR LARGER.

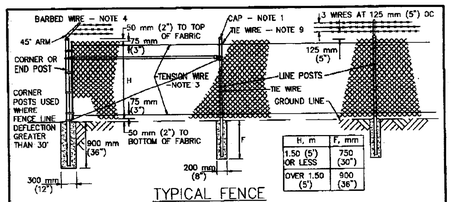
CIRCULAR TIES:

PIPE DIAMETER	NO. OF CIRCULAR TIES
525 mm (21") OR LESS	3
600 mm (24") TO 750 mm (30")	3
825 mm (33") TO 1425 mm (57")	4
1500 mm (60") TO 1800 mm (72")	5

WHERE THE SPACE BETWEEN PIPE ENDS EXCEEDS 75 mm (3"), THE NUMBER OF CIRCULAR TIES SHALL BE INCREASED TO MAINTAIN AN APPROXIMATE SPACING OF 150 mm (6") O.C.

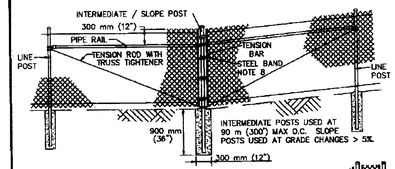
10. WHERE THE PIPE IS 525 mm (21") OR LESS IN DIAMETER AN INTERIOR FORM OF UNSEALED SONO-TUBE OR EQUAL SHALL BE USED TO PROVIDE A SMOOTH INTERIOR JOINT. THE PAPER FORM MAY BE LEFT IN PLACE (SEE DETAIL A). WHEN THE PIPE IS 600 mm (24") OR LARGER A REMOVABLE INTERIOR FORM SHALL BE USED OR THE INTERIOR JOINT SHALL BE COMPLETELY FILLED WITH MORTAR AND NEATLY POINTED.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		
	CONCRETE COLLAR FOR RCP 300 mm (12") THROUGH 1800 mm (72")	STANDARD PLAN METRIC 380-3 SHEET 2 OF 2

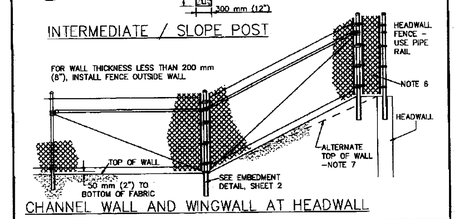


H, m	F, mm
1.50 (5') OR LESS	750 (30")
OVER 1.50 (5')	900 (36")

TYPICAL FENCE

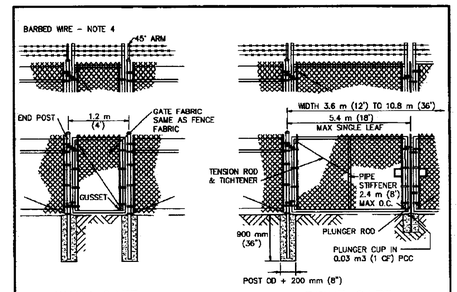


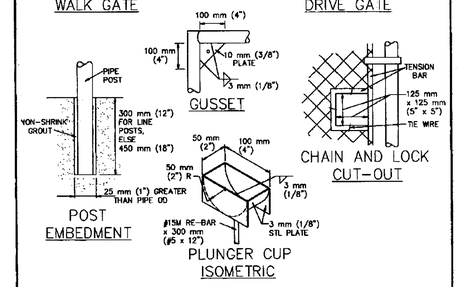
INTERMEDIATE / SLOPE POST



CHANNEL WALL AND WINGWALL AT HEADWALL

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		
PROMULGATED BY THE PUBLIC WORKS STANDARDS, INC. GREENBOOK COMMITTEE 1968 REV. 1985, 2005	CHAIN LINK FENCE AND GATES USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN METRIC 600-2 SHEET 1 OF 3



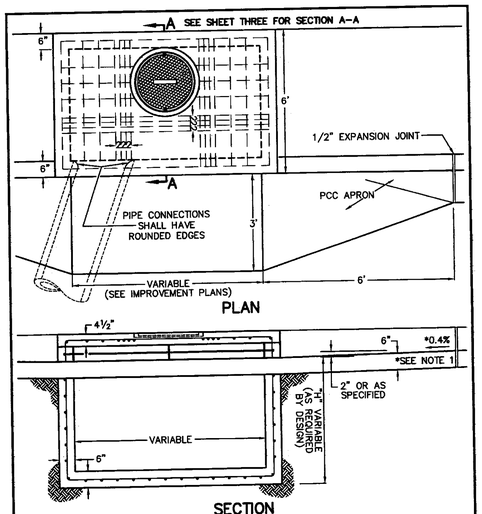


STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		
	CHAIN LINK FENCE AND GATES	STANDARD PLAN METRIC 600-2 SHEET 2 OF 3

NOTES:

1. SECURE DRIVE-FIT GALVANIZED CAP TO POST WITH 6 mm (1/4") ROUND-HEAD RIVET.
2. H DENOTES FABRIC WIDTH AND NOMINAL FENCE HEIGHT. H = 1.5 m (5') UNLESS OTHERWISE NOTED.
3. IF FENCE WITH TOP RAIL IS SPECIFIED, DELETE STEEL TENSION WIRE AT TOP, AND PIPE RAILS AT INTERMEDIATE, SLOPE, END AND CORNER POSTS. EXTEND TENSION ROD TO TOP RAIL.
4. BARBED WIRE SHALL BE USED ONLY WHEN SPECIFIED.
5. POST SPACING IS MAXIMUM 3.0 m (10').
6. FILL CLEAR OPENINGS GREATER THAN 75 mm (3") WITH FABRIC. FOR OPENINGS LESS THAN 450 mm (18"), TIE FABRIC TO POSTS.
7. USE ONE POST FOR COMBINED SLOPE AND CORNER POST IF TOP OF CHANNEL WALL IS CONSTRUCTED AS SHOWN FOR "ALTERNATE".
8. STEEL BANDS AT TENSION BARS SHALL BE 3 mm X 25 mm (1/8" x 1"), MINIMUM, SPACED AT MAXIMUM 400 mm (16").
9. SECURE TENSION WIRES TO EACH LINE POST WITH TIE WIRES.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		
	CHAIN LINK FENCE AND GATES	STANDARD PLAN METRIC 600-2 SHEET 3 OF 3

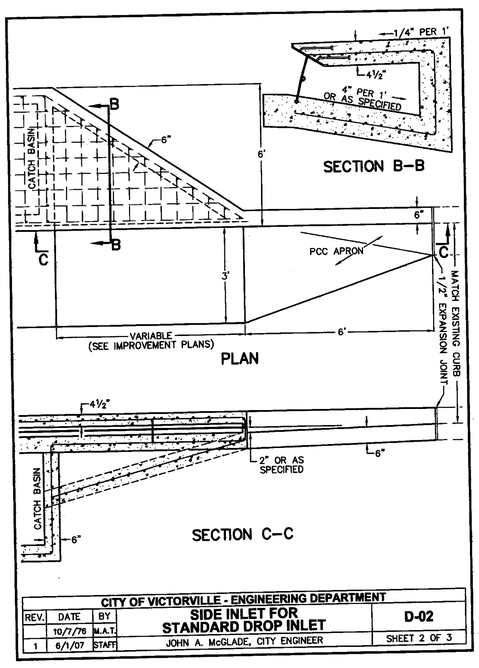


NOTES:

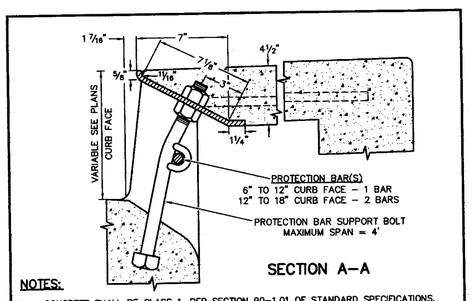
1. THE GUTTER CROSS SLOPE SHALL NOT EXCEED 8.33%. THE GUTTER FLOW LINE SHALL NOT BE LESS THAN 0.3% WITHIN 30 FEET OF THE EDGE OF THE DROP INLET OPENING. THE APRON TRANSITION MAY BE EXTENDED UP TO 15 FEET IN LENGTH.

REV.	DATE	BY
	1/26/65	J.H.F.
NOTES	5/1/77	M.A.T.
BOX WIDTH	3/21/78	K.S.S.
NOTES	7/1/94	D.G.H.
	6/1/07	STAFF

CITY OF VICTORVILLE - ENGINEERING DEPARTMENT		
	STANDARD DROP INLET	D-02
	JOHN A. McGLADE, CITY ENGINEER	SHEET 1 OF 3



CITY OF VICTORVILLE - ENGINEERING DEPARTMENT			
REV.	DATE	BY	
	10/7/76	M.A.T.	SIDE INLET FOR STANDARD DROP INLET
1	6/1/07	STAFF	JOHN A. McGLADE, CITY ENGINEER
			D-02
			SHEET 2 OF 3



NOTES:

1. CONCRETE SHALL BE CLASS 1, PER SECTION 90-1.01 OF STANDARD SPECIFICATIONS.
2. ALL CONCRETE SHALL HAVE 4% AIR ENTRAINMENT.
3. SEE DRAWING S-01 FOR EXPANSION JOINT DETAIL.
4. FLOOR SLOPE SHALL BE 1" PER FOOT TOWARD OUTLET OR AS SPECIFIED ON THE PLANS.
5. REINFORCING SHALL CONSIST OF NO. 4 DEFORMED BARS AT 6" CENTERS EACH WAY UNLESS OTHERWISE NOTED.
6. ALL STEEL REINFORCING SPLICES SHALL BE LAPPED 40 DIAMETERS.
7. ALL STEEL REINFORCING JOINTS SHALL BE BENT TO 1" RADIUS AND EITHER CONTINUED OR LAPPED 40 DIAMETERS.
8. COVER SHALL BE BOLTED DOWN WITH 2 SOCKET SET SCREW BOLTS PER DETAILS ON STANDARD DRAWING D-04.
9. FRAME AND COVER SHALL BE ALHAMBRA FOUNDRY NO. A1530B, GALVANIZED, 22" DIAMETER OPENING OR EQUAL.
10. CURB PROTECTION PLATE SHALL BE ALHAMBRA FOUNDRY NO. A3911 OR EQUAL. PROTECTION BAR SHALL BE ALHAMBRA FOUNDRY A1564 OR EQUAL. PROTECTION BAR SUPPORT BOLTS SHALL BE ALHAMBRA FOUNDRY A1572 OR EQUAL.
11. STEPS – NONE REQUIRED WHERE "H" IS 3'6" OR LESS. INSTALL ONE STEP 16"± ABOVE FLOOR WHEN "H" IS 3'6" TO 5'0". WHERE "H" IS MORE THAN 5'0", STEPS SHALL BE EVENLY SPACED AT 12"± INTERVALS FROM 16"± ABOVE FLOOR TO WITHIN 12"± OF THE TOP OF THE BOX. PLACE STEPS IN WALL WITHOUT PIPE OPENINGS.
12. ALL EXPOSED METAL PARTS SHALL BE GALVANIZED.

REV.	DATE	BY
	1/26/65	J.H.F.
NOTES	5/1/77	M.A.T.
NOTES	7/1/94	D.G.H.
	6/1/07	STAFF

CITY OF VICTORVILLE - ENGINEERING DEPARTMENT		
	STANDARD DROP INLET	D-02
	JOHN A. McGLADE, CITY ENGINEER	SHEET 3 OF 3

SCALE: 1"=40'

P-899

DEVELOPER:
F.A.S.T. BUILDING SYSTEMS, LCC
3300 IRVINE AVENUE, SUITE 225
NEWPORT BEACH, CA 92660

CCL ENGINEERING, INC.
CIVIL ENGINEERING, LAND SURVEYING, GEOTECHNICAL ENGINEERING
43434 SAHUAYO STREET, LANCASTER, CA. 93535
(661)949-9500 (661)949-8380 FAX
ROBERT L. POWELL RCE C046111 — DATE 10/26/07

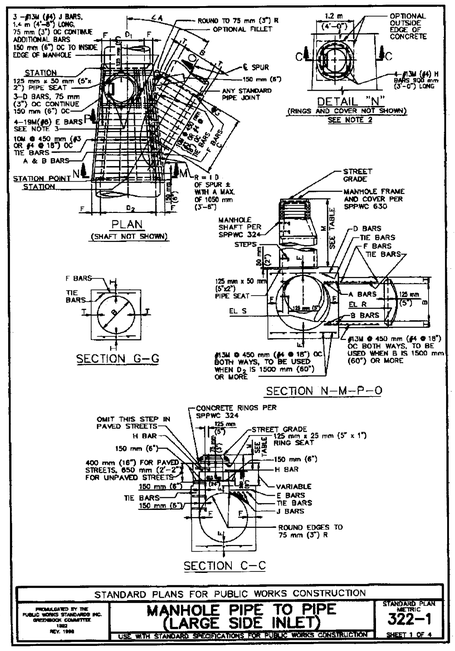
REGISTERED PROFESSIONAL ENGINEER ROBERT L. POWELL C046111 Exp. 12-31-2008 CIVIL STATE OF CALIFORNIA

NO.	REVISIONS	BY	DATE

CITY OF VICTORVILLE
ENGINEERING DEPARTMENT
APPROVED
BY: John A. McGlade DATE: 5/7/08
JOHN A. McGLADE CITY ENGINEER
RCE 40935 EXP 3-31-09

CITY OF VICTORVILLE
STORM DRAIN IMPROVEMENT PLAN
TRACT NO. 15083-3
STANDARD PLANS

SCALE: 1" = 40'
DESIGNED: MH
DRAWN: VG
CHECKED: DL
CCL JN 1878F
SHEET NO.
10 OF **12**



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PREPARED BY THE PUBLIC WORKS STANDARDS INC. ENGINEERING COMMITTEE 1992 REV. 1998

MANHOLE PIPE TO PIPE (LARGE SIDE INLET)

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN METRIC 322-1

SHEET 1 OF 4

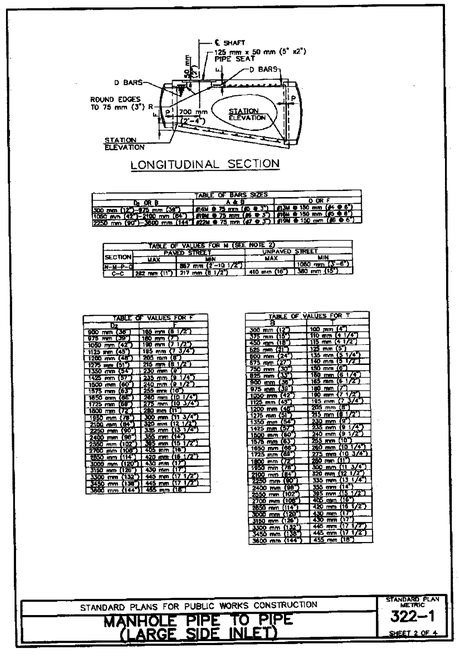


TABLE OF BARS SIZES		
D_1 OR D_2	E & F	J OR J'
900 mm (36") – 975 mm (39")	#16M @ 75 mm (#5 @ 3")	#16M @ 150 mm (#5 @ 6")
1050 mm (42") – 1200 mm (48")	#19M @ 75 mm (#6 @ 3")	#19M @ 150 mm (#6 @ 6")
2250 mm (90") – 3600 mm (144")	#22M @ 75 mm (#7 @ 3")	#19M @ 150 mm (#6 @ 6")

TABLE OF VALUES FOR W (SEE NOTE 2)		
SECTION	PAVED STREET MAX	UNPAVED STREET MIN
N–M–P–O	867 mm (2'-10 1/2")	1060 mm (3'-6")
C–C	280 mm (11")	517 mm (1 7/8") 450 mm (18") 380 mm (15")

TABLE OF VALUES FOR T	
D_1	T
900 mm (36")	165 mm (6 1/2")
975 mm (39")	180 mm (7")
1050 mm (42")	180 mm (7 1/2")
1125 mm (45")	195 mm (7 3/4")
1200 mm (48")	205 mm (8")
1275 mm (51")	215 mm (8 1/2")
1350 mm (54")	230 mm (9")
1425 mm (57")	245 mm (9 1/2")
1500 mm (60")	255 mm (10")
1575 mm (63")	265 mm (10 1/2")
1650 mm (66")	280 mm (11")
1725 mm (69")	295 mm (11 1/2")
1800 mm (72")	305 mm (12")
1875 mm (75")	320 mm (12 1/2")
1950 mm (78")	330 mm (13")
2025 mm (81")	345 mm (13 1/2")
2100 mm (84")	355 mm (14")
2175 mm (87")	370 mm (14 1/2")
2250 mm (90")	380 mm (15")
2325 mm (93")	395 mm (15 1/2")
2400 mm (96")	405 mm (16")
2475 mm (99")	420 mm (16 1/2")
2550 mm (102")	430 mm (17")
2625 mm (105")	445 mm (17 1/2")
2700 mm (108")	455 mm (18")

TABLE OF VALUES FOR Y	
D_1	Y
300 mm (12")	100 mm (4")
375 mm (15")	110 mm (4 1/2")
450 mm (18")	115 mm (4 1/2")
525 mm (21")	125 mm (5")
600 mm (24")	135 mm (5 1/2")
675 mm (27")	140 mm (5 1/2")
750 mm (30")	150 mm (6")
825 mm (33")	160 mm (6 1/2")
900 mm (36")	165 mm (6 1/2")
975 mm (39")	180 mm (7")
1050 mm (42")	185 mm (7 1/2")
1125 mm (45")	195 mm (7 3/4")
1200 mm (48")	205 mm (8")
1275 mm (51")	215 mm (8 1/2")
1350 mm (54")	230 mm (9")
1425 mm (57")	235 mm (9 1/2")
1500 mm (60")	250 mm (9 7/8")
1575 mm (63")	255 mm (10")
1650 mm (66")	265 mm (10 1/2")
1725 mm (69")	280 mm (11")
1800 mm (72")	290 mm (11 1/2")
1875 mm (75")	305 mm (12")
1950 mm (78")	315 mm (12 1/2")
2025 mm (81")	330 mm (13")
2100 mm (84")	340 mm (13 1/2")
2175 mm (87")	355 mm (14")
2250 mm (90")	365 mm (14 1/2")
2325 mm (93")	380 mm (15")
2400 mm (96")	390 mm (15 1/2")
2475 mm (99")	405 mm (16")
2550 mm (102")	415 mm (16 1/2")
2625 mm (105")	430 mm (17")
2700 mm (108")	440 mm (17 1/2")
2775 mm (111")	455 mm (18")
2850 mm (114")	465 mm (18")

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

MANHOLE PIPE TO PIPE (LARGE SIDE INLET)

STANDARD PLAN METRIC 322-1

SHEET 2 OF 4

NOTES

1. VALUES FOR A, B, C, D_1 D_2 ELEVATION R AND ELEVATION S ARE SHOWN ON THE PLANS. ELEVATION S APPLIES AT INSIDE WALL OF STRUCTURE.
2. WHEN DEPTH M FROM STREET GRADE TO THE TOP OF THE BOX IS LESS THAN 867 mm (2'-10 1/2") FOR PAVED STREETS OR 1060 mm (3'-6") FOR UNPAVED STREETS, CONSTRUCT MONOLITHIC SHAFT PER SECTION C–C AND DETAIL "N". SHAFT FOR ANY DEPTH OF MANHOLE MAY BE CONSTRUCTED PER SECTION C–C. WHEN DIAMETER D IS 1200 mm (48") OR LESS, CENTER OF SHAFT MAY BE LOCATED PER NOTE 3.
3. CENTER OF MANHOLE SHAFT SHALL BE LOCATED OVER CENTERLINE OF STORM DRAIN WHEN DIAMETER D, IS 1200 mm(48") OR LESS, IN WHICH CASE PLACE E BARS SYMMETRICALLY AROUND SHAFT AT 45° WITH CENTERLINE.
4. LENGTH OF MANHOLE MAY BE INCREASED AT OPTION TO MEET PIPE ENDS, BUT ANY CHANGE IN LOCATION OF SPUR MUST BE APPROVED BY THE ENGINEER.
5. P SHALL BE 125 mm (5") FOR D_2=2400 mm (96") OR LESS AND 200 mm (8") FOR D_2 OVER 2400 mm (96").
6. REINFORCEMENT SHALL CONFORM TO ASTM A 615M, GRADE 300 (ASTM A 615, GRADE 40), AND SHALL TERMINATE 40 mm (1 1/2") CLEAR OF CONCRETE SURFACES UNLESS OTHERWISE SHOWN.
7. FLOOR OF MANHOLE SHALL BE STEEL TROWELED TO SPRING LINE.
8. BODY OF MANHOLE SHALL BE POURED IN ONE CONTINUOUS OPERATION EXCEPT THAT A CONSTRUCTION JOINT WITH A LONGITUDINAL KEYWAY MAY BE PLACED AT SPRING LINE.
9. THICKNESS OF THE DECK SHALL VARY WHEN NECESSARY TO PROVIDE A LEVEL SEAT BUT SHALL NOT BE LESS THAN THE TABULAR VALUES OF F SHOWN ON TABLE, SHEET 1.
10. IF LATERALS ENTER ON BOTH SIDES OF MANHOLE, SHAFT SHALL BE LOCATED ON SIDE RECEIVING THE SMALLER LATERAL.
11. STEPS SHALL CONFORM TO SPPWC 635 OR 636. UNLESS OTHERWISE SHOWN, STEPS SHALL BE UNIFORMLY SPACED 350 mm (14") TO 375 mm (15") OC. THE LOWEST STEP SHALL NOT BE MORE THAN 600 mm (24") ABOVE THE INVERT.
12. THE FOLLOWING CRITERIA SHALL BE USED FOR THIS MANHOLE:
    A. THIS STANDARD PLAN IS USED WHEN SPPWC 320 IS INADEQUATE. MAIN LINE = 800 mm (36") INSIDE DIAMETER OR LARGER.
    B. LATERAL = 300 mm (12") TO 3600 mm (144") INSIDE DIAMETER; HOWEVER, THE INSIDE DIAMETER SHALL NOT EXCEED THE INSIDE DIAMETER OF THE MAIN LINE.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

MANHOLE PIPE TO PIPE (LARGE SIDE INLET)

STANDARD PLAN METRIC 322-1

SHEET 3 OF 4

13. MANHOLE FRAME AND COVER SHALL CONFORM TO SPPWC 630 UNLESS OTHERWISE SHOWN.
14. MANHOLE SHAFT SHALL CONFORM TO SPPWC 324 UNLESS OTHERWISE SHOWN.
15. WHERE A MANHOLE SHAFT – 900 mm (36") WITHOUT REDUCER IS SPECIFIED REFER TO SPPWC 326.
16. WHERE A PRESSURE MANHOLE SHAFT – WITH ECCENTRIC REDUCER IS SPECIFIED REFER TO SPPWC 328.
17. WHERE A PRESSURE MANHOLE SHAFT – 914 mm (36") WITHOUT REDUCER IS SPECIFIED REFER TO SPPWC 329.
18. THE FOLLOWING SPPWC ARE INCORPORATED HEREIN:

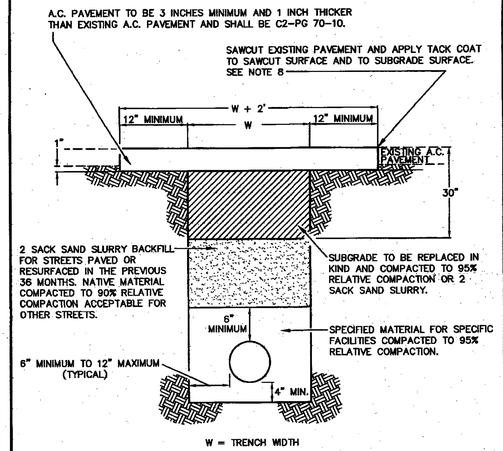
324	MANHOLE SHAFT – WITH ECCENTRIC REDUCER
326	MANHOLE SHAFT – 900 mm (36") WITHOUT REDUCER
328	PRESSURE MANHOLE SHAFT – WITH ECCENTRIC
329	PRESSURE MANHOLE SHAFT – 914 mm (36") WITHOUT REDUCER
630	610 mm (24") MANHOLE FRAME AND COVER
633	914 mm (36") MANHOLE FRAME AND COVER
635	STEEL STEP
636	POLYPROPYLENE PLASTIC STEP

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

MANHOLE PIPE TO PIPE (LARGE SIDE INLET)

STANDARD PLAN METRIC 322-1

SHEET 4 OF 4



TYPICAL SECTION

NOT TO SCALE

CITY OF VICTORVILLE - ENGINEERING DEPARTMENT

REV.	DATE	BY		
	9/11/89	Dablo	TRENCH BACKFILL AND PAVEMENT REPAIRS	S-10
1	6/1/07	STAFF	JOHN A. McGLADE, CITY ENGINEER	SHEET 1 OF 2

NOTES:

1. ALL EXCAVATIONS WITHIN THE CITY RIGHT–OF–WAY REQUIRE AN EXCAVATION PERMIT FROM THE ENGINEERING DEPARTMENT.
2. NOTIFY UNDERGROUND SERVICE ALERT (DigAlert) 2 WORKING DAYS PRIOR TO START OF EXCAVATION AT 1–800–227–2600.
3. NOTIFY ENGINEERING DEPARTMENT 1 WORKING DAY (24 HOURS) PRIOR TO START OF CONSTRUCTION TO ARRANGE INSPECTIONS BY CITY PUBLIC WORKS INSPECTORS.
4. ALL EXCAVATIONS SHALL BE MADE, PROTECTED AND SUPPORTED AS REQUIRED FOR SAFETY AS PRESCRIBED BY CAL OSHA.
5. TEMPORARY PAVING SHALL BE 2 SACK SAND SLURRY OR 2 INCH THICKNESS TEMPORARY ASPHALT OVER COMPACTED SUBGRADE TO TOP OF PAVEMENT TO PROVIDE A SAFE AND SMOOTH TRAVELED SURFACE. PERMANENT PAVING SHALL BE PLACED WITHIN 7 DAYS OF EXCAVATION. SEAL COAT PAVEMENT 6 INCHES BEYOND PAVEMENT REPAIR AREA.
6. ANY STREET PAVED OR RESURFACED IN THE PREVIOUS 36 MONTHS THAT IS TRENCHED FOR 300 FEET OR MORE IN A TRAVELED LANE OR EXTENDS MORE THAN 7 FEET FROM THE CURB FACE / EDGE OF PAVEMENT OR HAS MORE THAN 3 CROSS TRENCHES IN 300 FEET SHALL BE OVERLAID AS DIRECTED BY THE ENGINEER WITH A SELF PROPELLED PAVING MACHINE PER CALTRANS SECTION 39.
7. POT HOLES AND/OR NARROW TRENCH CUTS SHALL NOT BE ALLOWED IN P.C.C. IMPROVEMENTS. P.C.C. SHALL BE SAWCUT, REMOVED AND RECONSTRUCTED IN PANELS AT THE SCORE LINES, OR WEAKENED PLANE JOINTS, OR AT LEAST 10 FEET WIDE AND AS DIRECTED BY THE ENGINEER IN THE FIELD.
8. IF THE EDGE OF THE TRENCH REPAIR (W+2 FEET) IS 2 FEET OR LESS FROM THE LIP OF THE GUTTER OR 3' OR LESS FROM THE EDGE OF PAVEMENT, THE EXISTING PAVEMENT SHALL BE REMOVED AND REPLACED PER THE TYPICAL SECTION.
9. FOR NOMINAL PIPE DIAMETERS OF 12" OR LESS, TYPICAL COVER IS 36" UNLESS CIRCUMSTANCES WARRANT DIFFERENTLY OR OTHERWISE APPROVED BY THE CITY ENGINEER.

CITY OF VICTORVILLE - ENGINEERING DEPARTMENT

REV.	DATE	BY		
	9/11/89	Dablo	TRENCH BACKFILL AND PAVEMENT REPAIRS	S-10
1	7/25/07	STAFF	JOHN A. McGLADE, CITY ENGINEER	SHEET 2 OF 2

P-899

SCALE: 1"=40'

DEVELOPER:

F.A.S.T. BUILDING SYSTEMS, LCC
3300 IRVINE AVENUE, SUITE 225
NEWPORT BEACH, CA 92660

CCL ENGINEERING, INC.
CIVIL ENGINEERING, LAND SURVEYING, GEOTECHNICAL ENGINEERING
43434 SAHUAYO STREET, LANCASTER, CA. 93535
(661)949–9500
(661)949–8380 FAX

Bob Powell
ROBERT L. POWELL RCE C046111
10/26/07
DATE

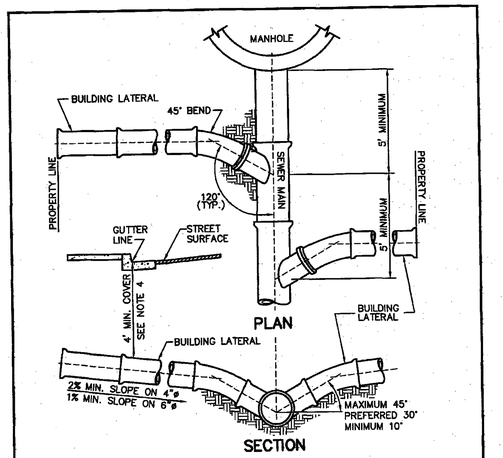
REGISTERED PROFESSIONAL ENGINEER ROBERT L. POWELL C046111 Exp. 12–31–2008 CIVIL STATE OF CALIFORNIA

NO.	REVISIONS	BY	DATE

CITY OF VICTORVILLE
ENGINEERING DEPARTMENT
APPROVED
BY: John A. McGlade
JOHN A. McGLADE CITY ENGINEER
RCE 40935 EXP 3–31–09
DATE: 5/7/08

CITY OF VICTORVILLE
STORM DRAIN IMPROVEMENT PLAN
TRACT NO. 15083-3
STANDARD PLANS

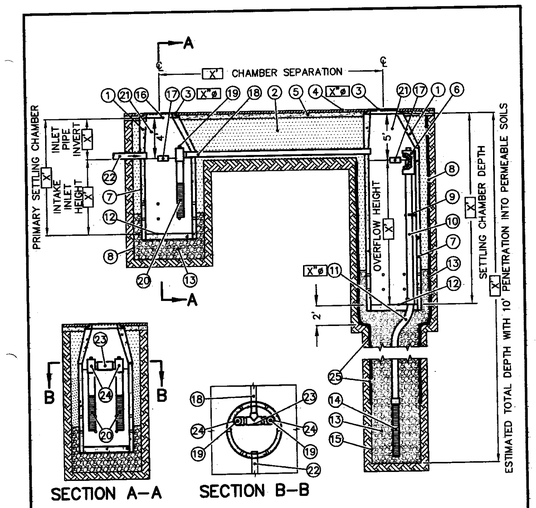
SCALE: 1" = 40'
DESIGNED: MH
DRAWN: VG
CHECKED: DL
CCL JN 1878F
SHEET NO.
11 OF **12**



NOTES:

1. USE FACTORY MADE WYES, FITTINGS AND SEWER LATERAL PIPE OF THE SAME MATERIAL AS THE MAIN LINE SEWER FOR NEW INSTALLATIONS OR USE COMPATIBLE WYES AND FITTINGS TO JOIN LATERALS AND MAIN LINE SEWERS OF DIFFERENT MATERIALS.
2. SEWER LATERALS ON EXISTING MAIN LINE SEWER SHALL USE SEWER SADDLES PER CITY STANDARD DRAWING SS-09.
3. PIPE BEDDING FOR LATERALS SHALL CONFORM TO STANDARD DRAWING SS-05.
4. COVER MAY BE REDUCED TO 3' IF CONCRETE ENCASED OR SPECIAL PIPE APPROVED BY THE ENGINEER IS USED.

REV.	DATE	BY	CITY OF VICTORVILLE - ENGINEERING DEPARTMENT	
	1/23/87		SEWER LATERALS	SS-03
1	3/22/93	D.G.H.	JOHN A. MCGLADE, CITY ENGINEER	SHEET 1 OF 1
2	6/1/07	STAFF		



NOTES:

1. CONSTRUCT DRY WELLS PER THE BID SPECIFICATIONS AND PLANS, COMPLETE IN PLACE. DETAILS ARE AS FOLLOWS:

INTERCEPTOR DEPTH = 10 FEET
OVERALL DEPTH = 75 FEET
SETTLING CHAMBER DEPTH = 18 FEET
EFFECTIVE SETTLING CAPACITY = 13 FEET

CONNECTOR PIPE = 4"ø
OVERFLOW PIPE = 6"ø
C.I. RING AND GRATE = 30"ø

REV.	DATE	BY	CITY OF VICTORVILLE - ENGINEERING DEPARTMENT	
	9/25/00	J.Z.	DRY WELL SYSTEM DETAILS	D-06
1	6/1/07	STAFF	JOHN A. McGLADE, CITY ENGINEER	SHEET 1 OF 2

ITEM NUMBERS:

1. MANHOLE CONE – MODIFIED FLAT BOTTOM. CITY OF VICTORVILLE STD. SS-1, MANHOLE SECTIONS AND CONES COULD BE SUBSTITUTED UPON WRITTEN APPROVAL.
2. STABILIZED BACKFILL – 2 SACK CONCRETE SLURRY.
3. BOLTED RING & GRATE/COVER – DIAMETER AS SHOWN. CLEAN CAST IRON WITH WORDING "CITY OF VICTORVILLE DRYWELL" IN RAISED LETTERS. BOLTED IN 2 LOCATIONS AND SECURED TO CONE WITH MORTAR. RIM ELEVATION ±0.02' OF PLANS, PER CITY STD. D-04.
4. GRADED BASIN OR PAVING (BY OTHERS).
5. COMPACTED BASE MATERIAL (BY OTHERS).
6. DEBRIS SHIELD – ROLLED 16 GA. STEEL X 24" LENGTH WITH VENTED ANTI-SIPHON AND INTERNAL .265" MAX. SWO FLATTENED EXPANDED STEEL SCREEN X 12" LENGTH. FUSION BONDED EPOXY COATED.
7. PRE-CAST LINER – 4000 PSI CONCRETE 48" ID. X 54" OD. CENTER IN HOLE AND ALIGN SECTIONS TO MAXIMIZE BEARING SURFACE.
8. MIN. 6' ø DRILLED SHAFT.
9. SUPPORT BRACKET – FORMED 12 GA. STEEL. FUSION BONDED EPOXY COATED.
10. OVERFLOW PIPE – SCH. 40 PVC MATED TO DRAINAGE PIPE AT BASE SEAL.
11. DRAINAGE PIPE – ADS HIGHWAY GRADE WITH COUPLER. SUSPEND PIPE DURING BACKFILL OPERATIONS TO PREVENT BUCKLING OR BREAKAGE. DIAMETER AS NOTED.
12. BASE SEAL – 4" THICK CONCRETE SLURRY.
13. ROCK – CLEAN AND WASHED 3/8" AGGREGATE.
14. DRAINAGE SCREEN – SCH. 40 PVC 0.120" SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. DIAMETER VARIES 96" OVERALL LENGTH WITH COUPLER.
15. MIN. 4' ø SHAFT – DRILLED TO MAINTAIN PERMEABILITY OF DRAINAGE SOILS.
16. FABRIC SEAL – U.V. RESISTANT GEOTEXTILE – TO BE REMOVED BY CUSTOMER AT PROJECT COMPLETION.
17. ABSORBENT – HYDROPHOBIC PETROCHEMICAL SPONGE. MIN. 128 OZ. CAPACITY.
18. CONNECTOR PIPE – 4" ø SCH. 40 PVC .
19. VENTED ANTI-SIPHON INTAKE.
20. INTAKE SCREEN – 6" ø SCH. 40 PVC 0.120" MODIFIED SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. 48" OVERALL LENGTH WITH END CAP.
21. FREEBOARD DEPTH VARIES WITH INLET PIPE ELEVATION. INCREASE PRIMARY/SECONDARY SETTLING CHAMBER DEPTHS AS NEEDED TO MAINTAIN ALL INLET PIPE ELEVATIONS ABOVE CONNECTOR PIPE OVERFLOW.
22. GUTTER DRAIN INLET – 8" SCH 40 PVC, PER CITY STD. D-07.
23. 6" X 4" REDUCING TEE – SCH. 40 PVC, WITH FLOW REGULATOR.
24. 6" TEE – SCH. 40 PVC.
25. NON-WOVEN GEOTEXTILE SLEEVE, MIRAFI 140 NL. MIN. 6 FT ø, HELD APPROX. 10 FEET OFF THE BOTTOM OF EXCAVATION.

REV.	DATE	BY	CITY OF VICTORVILLE - ENGINEERING DEPARTMENT	
	9/25/00	J.Z.	DRY WELL SYSTEM DETAILS	D-06
1	6/1/07	STAFF	JOHN A. McGLADE, CITY ENGINEER	SHEET 2 OF 2

P-899 SCALE: 1'=40'

DEVELOPER:
F.A.S.T. BUILDING SYSTEMS, LCC.
3300 IRVINE AVENUE, SUITE 225
NEWPORT BEACH, CA 92660

CCL ENGINEERING, INC.
CIVIL ENGINEERING, LAND SURVEYING, GEOTECHNICAL ENGINEERING
43434 SAHUAYO STREET (661)949-9500
LANCASTER, CA. 93535 (661)949-8380 FAX
ROBERT L. POWELL RCE C046111 — DATE 10/24/07

REGISTERED PROFESSIONAL ENGINEER — ROBERT L. POWELL — C046111 — Exp. 12-31-2008 — CIVIL — STATE OF CALIFORNIA

NO.	REVISIONS	BY	DATE

CITY OF VICTORVILLE
ENGINEERING DEPARTMENT
APPROVED
BY: John A. McGlade DATE: 5/1/08
JOHN A. McGLADE CITY ENGINEER
RCE 40935 EXP 3-31-09

CITY OF VICTORVILLE
STORM DRAIN IMPROVEMENT PLAN
TRACT NO. 15083-3
STANDARD PLANS

SCALE: 1" = 40'
DESIGNED: MH
DRAWN: VG
CHECKED: DL
CCL JN 1878F
SHEET NO.
12 OF 12

Stormwater Facility Mappi... Design Your Own Detenti... David Evans and Associat... City of Pomona - Plannin... Design Your Own Detenti... Google Maps Google Translate Google https--www.epa Insperity Portal Login

Stormwater Facility Mapping Tool

TOC | Find City | CITY OF VICTORVILLE | Locate | Clear

Clear All | Metadata

- Base Maps
  - Topo Map
  - Street Map
  - Aerial Map
- Base Data
  - Highways
    - Layer Info
  - Roads
  - County Maintained Roads
    - Metadata
  - City Limits
    - Metadata
  - Parcels
    - Metadata
  - County Owned Parcels
    - Metadata
  - SBCFCD Zones
    - Metadata
  - Thomas Brothers Index
    - Metadata
- Stormwater Data
  - Drainage Facilities
    - Metadata
    - EHM
    - Santa Ana River
    - Non-EHM (low)
    - Non-EHM (medium)
    - Non-EHM (high)
    - Non-EHM (default-high)
  - 2006 - 303d/TMDL
    - Metadata
  - Water Storage Facility
    - Metadata
    - Interim
    - Ultimate
    - Other