

Appendix E2
Preliminary Drainage Study

PRELIMINARY DRAINAGE STUDY

FOR

ASHLEY FURNITURE HOMESTORE

APN: 276-131-92

Prepared For:

**HMC CONSTRUCTION
1461 E. COOLEY DRIVE, STE. 230
COLTON, CA 92324**

Prepared By:

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REDLANDS, CA 92373
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June 2022

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DRAINAGE STUDY ASHLEY FURNITURE HOMESTORE

PURPOSE AND SCOPE

The following drainage study has been conducted on behalf of the HMC Construction. This drainage study is for the proposed expansion of the Ashley Homestore located in Colton, CA. The project site falls under the APNs 276-131-92 and 276-131-90. The project site is located at 755 & 855 Ashley Way.

The purpose of this drainage study is to determine the required drainage improvements for the project site. The scope of work consists of the following:

1. Perform undeveloped and developed studies for the 100-year storm event using the rational method to determine the required mitigation
2. If necessary, route the storms through each WQMP basin to determine the amount of mitigation taking place within each basin.

EXISTING DRAINAGE CONDITIONS

The project site is currently a developed and operating site, housing two Ashley Furniture Homestore buildings located at 755 and 855 Ashley Way. Existing drainage facilities comprise od inlets, storm drains, ribbon gutters, etc. are already constructed and operating at the project site. Nearly the entirety of the existing project site is comprised of impervious area, with only minimal amounts of landscaping.

The existing Site is broken up into three distinct drainage areas. The northern portion of the project site is comprised of a building located at 755 Ashley Way and parking lot. This area drains to a number of drainage inlets located in the parking lot areas. These inlets convey stormwater via underground storm drains, westerly, where the flows are discharged into the existing storm drain system within the adjacent property. Note the adjacent property is also owned by Ashley.

The southern portion of the project site drains to the southwest corner of the parking lot by way of a number of ribbon gutters. Storm water from this portion of the project site is discharged directly into Ashley Way at the driveway entrance at the southwest corner of the project site.

The middle portion of the project site (area between the two buildings) generally drains from east to west. Flows from this part of the project site discharge directly into the adjacent property to the west, where they are directed to an inlet and into an existing storm drain system.

METHODOLOGY / PROPOSED DRAINAGE FACILITIES

As the project site is already developed with drainage facilities already constructed and operating, the requirement for redevelopment is to upsize any existing drainage facilities as needed due to increased flows generated by the proposed project redevelopment. However, due to having increased the number of landscape areas within the parking lot and around the buildings, the post-project condition has a decreased impervious footprint from that of the pre-project condition. In conjunction with this decreased impervious footprint, the flow paths within each of the drainage areas have generally been elongated and flattened, resulting in decreased flows generated in the post-project condition.

The intent of this drainage study is to show that the stormwater runoff generated by the post-project condition is lower than that generated by the pre-project condition. This will show that the drainage facilities already handling the stormwater runoff generated by the pre-project condition are sufficient to meet the post-project condition and need not be upsized. As such, no additional mitigation is required by the project site, however, a number of drainage facilities will still be required to meet WQMP needs. The Final Drainage Study will be conducted in order to determine size these WQMP facilities and the conveyances used to direct the stormwater to them.

RATIONAL METHOD

The following is a summary of the rational method calculations that can be found within the Appendix E of this report. A breakdown of each drainage area can be found within the drainage maps located in Appendix D of this report.

Rational

Pre-Project

Area	Storm Event	Peak Flow (CFS)	Time of Concentration (Min.)
A1	100-Year 1-Hour	9.920	3.962
B1		5.200	5.401
C1		0.707	7.263
Total	100-Year 1-Hour	15.827	

Post-Project

Area	Storm Event	Peak Flow (CFS)	Time of Concentration (Min.)
A1	100-Year 1-Hour	6.348	8.161
B1		4.812	6.181
C1		0.694	7.452
Total	100-Year 1-Hour	11.854	

Figure 1: Developed Rational Summary Table

As discussed previously in the PURPOSE & SCOPE section of this report, the Rational Method was used in order to determine the required mitigation from the project site. As seen in the above tables, the peak flow generated by each drainage area in the post-project condition is less than that generated by the pre-project condition. As such, not mitigation is required as the existing drainage facilities already being used to manage the stormwater runoff will now each experience decreased flow rates.

Conveyances directing stormwater to each WQMP facility will need to be sized to handle the peak flows generated by the post-Project 100-Year 1-Hour storm event as shown above. No further drainage facilities are required beyond those outlined within the Water Quality Management Plan (WQMP).

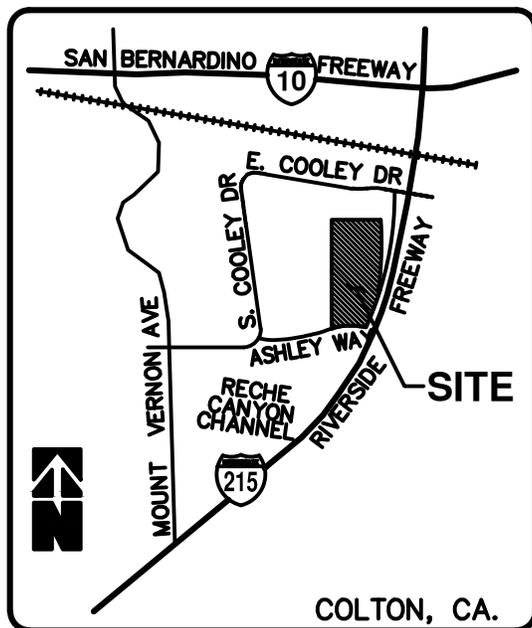
CONCLUSION

The above discussed analysis and proposed improvements will provide that this site will be developed in conformance with applicable regulations.

APPENDICES

APPENDIX "A"

VICINITY MAP



VICINITY MAP

NTS

APPENDIX "B"

NOAA POINT PRECIPITATION



NOAA Atlas 14, Volume 6, Version 2
Location name: Colton, California, USA*
Latitude: 34.0574°, Longitude: -117.2994°
Elevation: 966.63 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 Tryppaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aerals](#)

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	0.098 (0.082-0.119)	0.127 (0.106-0.155)	0.166 (0.138-0.202)	0.198 (0.163-0.243)	0.241 (0.192-0.307)	0.275 (0.214-0.357)	0.310 (0.235-0.413)	0.346 (0.255-0.475)	0.396 (0.279-0.566)	0.435 (0.296-0.645)
10-min	0.141 (0.117-0.171)	0.183 (0.152-0.222)	0.238 (0.197-0.290)	0.283 (0.233-0.348)	0.346 (0.275-0.439)	0.394 (0.307-0.512)	0.444 (0.337-0.592)	0.496 (0.366-0.680)	0.567 (0.400-0.812)	0.623 (0.425-0.924)
15-min	0.170 (0.142-0.207)	0.221 (0.184-0.268)	0.288 (0.239-0.350)	0.343 (0.282-0.421)	0.418 (0.332-0.531)	0.477 (0.371-0.619)	0.537 (0.407-0.716)	0.600 (0.442-0.823)	0.686 (0.484-0.982)	0.754 (0.514-1.12)
30-min	0.256 (0.213-0.310)	0.331 (0.275-0.402)	0.431 (0.358-0.525)	0.514 (0.422-0.631)	0.627 (0.498-0.797)	0.715 (0.556-0.929)	0.805 (0.611-1.07)	0.899 (0.663-1.23)	1.03 (0.726-1.47)	1.13 (0.770-1.68)
60-min	0.371 (0.309-0.450)	0.480 (0.399-0.583)	0.625 (0.519-0.761)	0.745 (0.613-0.915)	0.909 (0.722-1.16)	1.04 (0.806-1.35)	1.17 (0.886-1.56)	1.30 (0.961-1.79)	1.49 (1.05-2.13)	1.64 (1.12-2.43)
2-hr	0.531 (0.442-0.644)	0.681 (0.566-0.827)	0.878 (0.728-1.07)	1.04 (0.856-1.28)	1.26 (1.00-1.60)	1.43 (1.11-1.86)	1.61 (1.22-2.14)	1.79 (1.32-2.45)	2.04 (1.44-2.92)	2.23 (1.52-3.31)
3-hr	0.654 (0.544-0.793)	0.835 (0.694-1.01)	1.07 (0.890-1.31)	1.27 (1.04-1.56)	1.53 (1.22-1.95)	1.74 (1.35-2.26)	1.95 (1.48-2.60)	2.17 (1.60-2.97)	2.46 (1.74-3.53)	2.69 (1.84-3.99)
6-hr	0.909 (0.757-1.10)	1.16 (0.964-1.41)	1.49 (1.23-1.81)	1.75 (1.44-2.15)	2.12 (1.68-2.69)	2.40 (1.86-3.11)	2.68 (2.03-3.57)	2.97 (2.19-4.08)	3.37 (2.38-4.83)	3.68 (2.51-5.46)
12-hr	1.20 (1.00-1.46)	1.54 (1.28-1.87)	1.98 (1.64-2.41)	2.34 (1.92-2.87)	2.82 (2.24-3.58)	3.19 (2.48-4.14)	3.57 (2.70-4.75)	3.95 (2.91-5.42)	4.47 (3.16-6.40)	4.88 (3.32-7.23)
24-hr	1.60 (1.42-1.84)	2.06 (1.82-2.38)	2.67 (2.35-3.09)	3.16 (2.77-3.69)	3.83 (3.24-4.61)	4.33 (3.59-5.33)	4.85 (3.93-6.10)	5.37 (4.23-6.95)	6.08 (4.60-8.20)	6.63 (4.85-9.24)
2-day	1.94 (1.71-2.23)	2.54 (2.24-2.93)	3.33 (2.94-3.85)	3.97 (3.48-4.63)	4.85 (4.11-5.84)	5.52 (4.58-6.79)	6.21 (5.03-7.82)	6.91 (5.45-8.95)	7.87 (5.96-10.6)	8.61 (6.30-12.0)
3-day	2.06 (1.83-2.38)	2.75 (2.43-3.17)	3.66 (3.22-4.23)	4.40 (3.85-5.13)	5.43 (4.60-6.54)	6.22 (5.16-7.65)	7.03 (5.70-8.86)	7.88 (6.21-10.2)	9.03 (6.84-12.2)	9.94 (7.27-13.9)
4-day	2.20 (1.95-2.54)	2.96 (2.62-3.42)	3.97 (3.51-4.60)	4.81 (4.21-5.61)	5.97 (5.05-7.19)	6.87 (5.70-8.45)	7.80 (6.32-9.82)	8.76 (6.91-11.3)	10.1 (7.64-13.6)	11.1 (8.15-15.5)
7-day	2.53 (2.24-2.91)	3.44 (3.04-3.97)	4.66 (4.11-5.39)	5.67 (4.96-6.62)	7.08 (5.99-8.53)	8.17 (6.78-10.1)	9.31 (7.54-11.7)	10.5 (8.27-13.6)	12.1 (9.17-16.3)	13.4 (9.81-18.7)
10-day	2.74 (2.42-3.16)	3.76 (3.32-4.34)	5.12 (4.52-5.93)	6.26 (5.48-7.30)	7.84 (6.64-9.44)	9.08 (7.53-11.2)	10.4 (8.39-13.0)	11.7 (9.22-15.1)	13.5 (10.3-18.3)	15.0 (11.0-20.9)
20-day	3.33 (2.95-3.84)	4.62 (4.09-5.33)	6.36 (5.61-7.36)	7.82 (6.84-9.12)	9.86 (8.35-11.9)	11.5 (9.52-14.1)	13.1 (10.6-16.6)	14.9 (11.8-19.3)	17.4 (13.1-23.4)	19.3 (14.1-26.9)
30-day	3.95 (3.49-4.55)	5.49 (4.85-6.33)	7.57 (6.68-8.76)	9.33 (8.16-10.9)	11.8 (9.99-14.2)	13.7 (11.4-16.9)	15.8 (12.8-19.9)	17.9 (14.1-23.2)	20.9 (15.8-28.2)	23.3 (17.1-32.5)
45-day	4.72 (4.18-5.44)	6.54 (5.78-7.54)	9.01 (7.94-10.4)	11.1 (9.70-12.9)	14.0 (11.9-16.9)	16.4 (13.6-20.1)	18.8 (15.3-23.7)	21.4 (16.9-27.7)	25.1 (19.0-33.8)	28.0 (20.5-39.0)
60-day	5.52 (4.89-6.36)	7.58 (6.71-8.75)	10.4 (9.17-12.0)	12.8 (11.2-14.9)	16.1 (13.7-19.5)	18.8 (15.6-23.2)	21.7 (17.6-27.3)	24.7 (19.4-31.9)	28.9 (21.8-38.9)	32.2 (23.6-45.0)

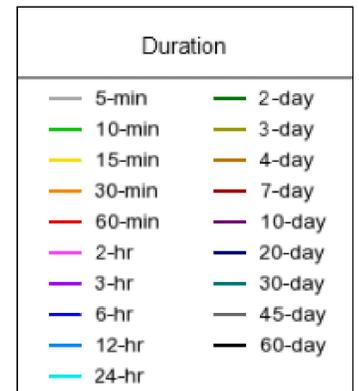
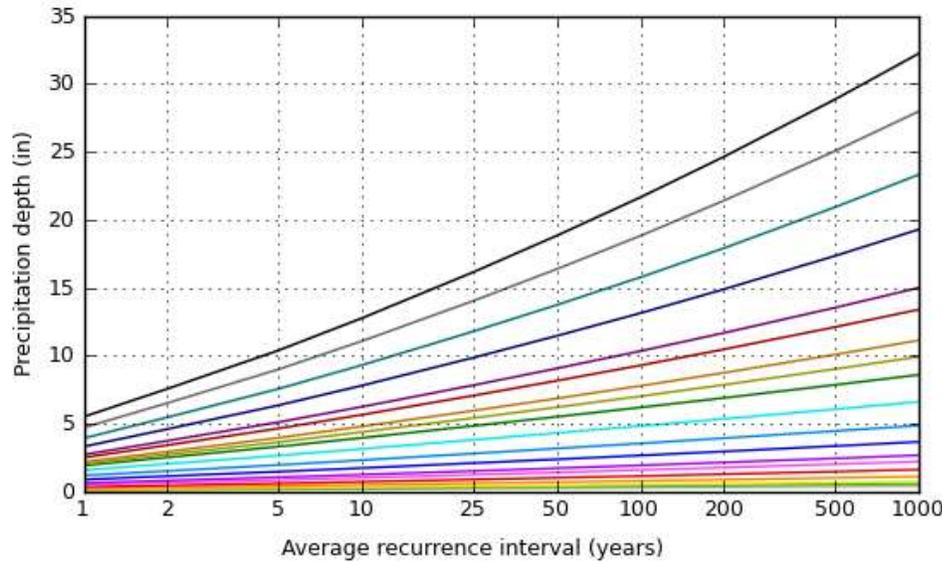
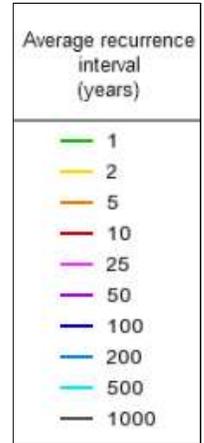
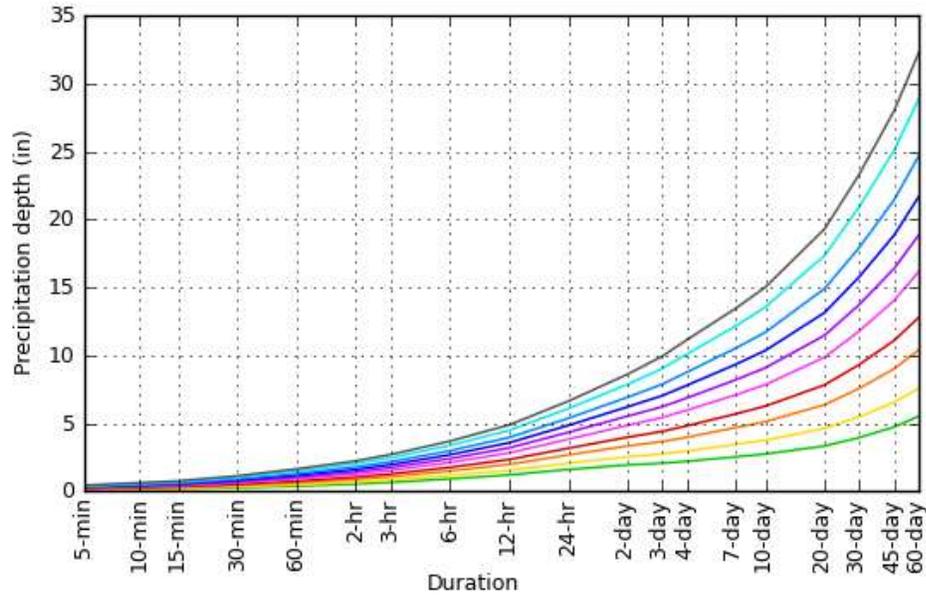
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average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

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PF graphical

PDS-based depth-duration-frequency (DDF) curves

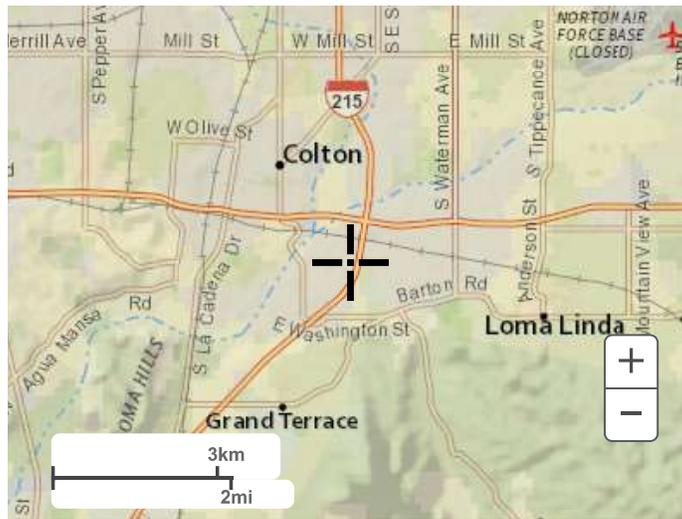
Latitude: 34.0574°, Longitude: -117.2994°



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Maps & aeriels

Small scale terrain



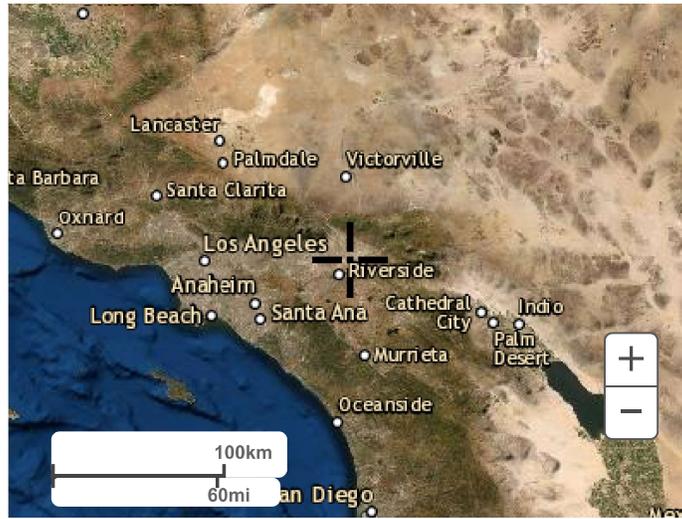
Large scale terrain



Large scale map



Large scale aerial



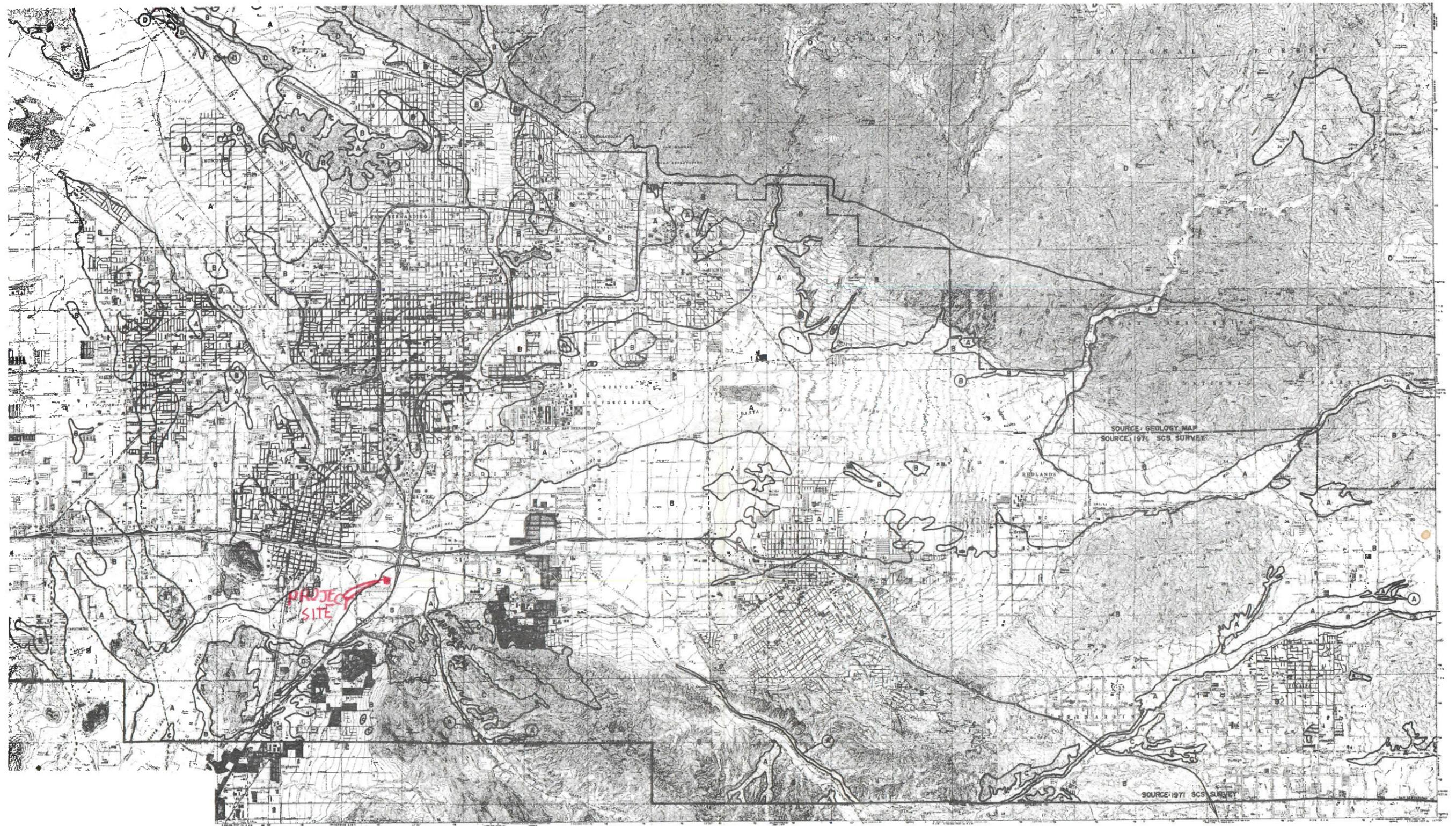
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APPENDIX "C"

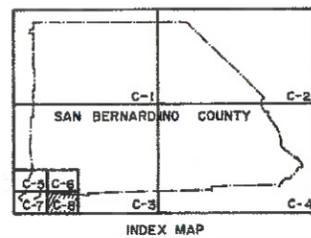
HYDROLOGIC SOIL MAP



SOURCE: GEOLOGY MAP
SOURCE: 1971 SCS SURVEY

SOURCE: 1971 SCS SURVEY

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL



- LEGEND
- SOIL GROUP BOUNDARY
 - A SOIL GROUP DESIGNATION
 - BOUNDARY OF INDICATED SOURCE

SCALE REDUCED BY 1/2

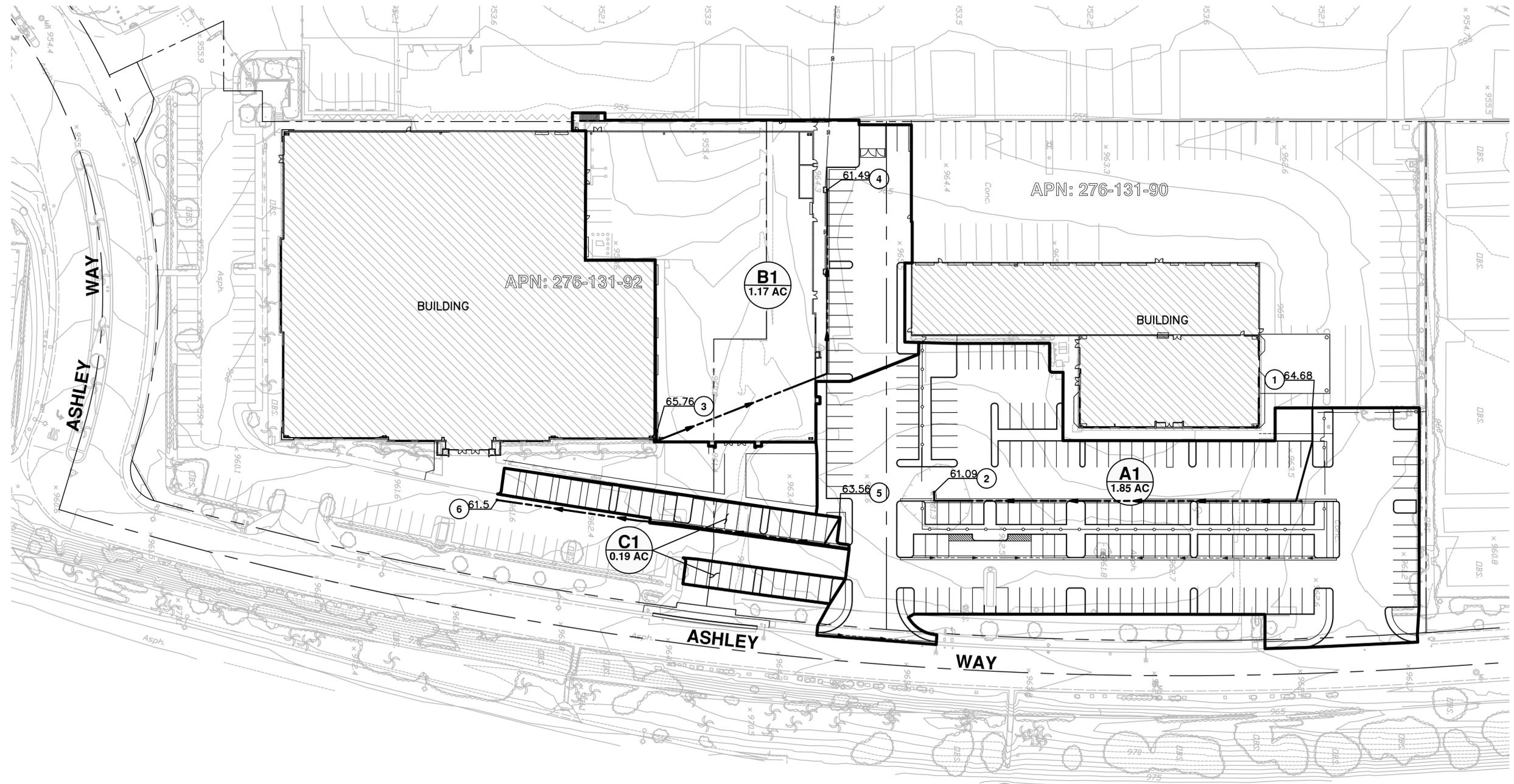
HYDROLOGIC SOILS GROUP MAP
FOR
SOUTHWEST-D AREA

APPENDIX "D"

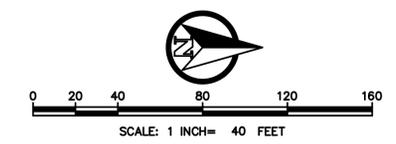
DRAINAGE MAPS

POST-PROJECT DRAINAGE MAP

CITY OF COLTON
 COUNTY OF SAN BERNARDINO, CALIFORNIA
 APN: 0163-281-31



- LEGEND**
- INDICATES DRAINAGE FLOW DIRECTION
 - INDICATES DRAINAGE AREA BOUNDARY
 - INDICATES BASIN AREA BOUNDARY
 - INDICATES LABEL DRAINAGE AREA AND ACREAGE
 - INDICATES NODE
 - INDICATES ELEVATION



BENCHMARK:		W.J. MCKEEVER, CIVIL ENGINEERING 31419 OUTER HIGHWAY 10, SUITE 2-200 REDLANDS, CA 92373 PH: (909) 389-0200 FAX: (909) 389-0201 EMAIL: OFFICE@W.MCKEEVERINC.COM WWW.MCKEEVERCIVILENGINEERING.COM PREPARED BY: STEVEN L. ELLIS R.C.E. NO. C 047255 DATE:	CITY OF COLTON PUBLIC WORKS DEPARTMENT CITY ENGINEER NAME: VICTOR ORTIZ, P.E. R.C.E.: 73848 EXPIRES: 06/30/23 ACCEPTED: DATE:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISION</th> <th>DATE</th> <th>APPR.</th> </tr> </thead> <tbody> <tr> <td colspan="3" style="text-align: center;">DRAINAGE MAP</td> </tr> <tr> <td colspan="3" style="text-align: center;">POST-PROJECT</td> </tr> <tr> <td colspan="3" style="text-align: center;">ASHLEY HOMESTORE</td> </tr> <tr> <td colspan="3" style="text-align: right;">PLAN NO. 0000</td> </tr> <tr> <td colspan="3" style="text-align: right;">SHEET 00 OF 00</td> </tr> </tbody> </table>	REVISION	DATE	APPR.	DRAINAGE MAP			POST-PROJECT			ASHLEY HOMESTORE			PLAN NO. 0000			SHEET 00 OF 00		
REVISION	DATE	APPR.																				
DRAINAGE MAP																						
POST-PROJECT																						
ASHLEY HOMESTORE																						
PLAN NO. 0000																						
SHEET 00 OF 00																						

APPENDIX "E"

RATIONAL METHOD CALCULATIONS

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

Program License Serial Number 6222

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

Ashley Homestore - Colton
Pre-Project
100-year 1-Hour

Rational hydrology study storm event year is 100.0
10 Year storm 1 hour rainfall = 0.745(In.)
100 Year storm 1 hour rainfall = 1.170(In.)
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.170 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 3

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

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.0390 Max loss rate(Fm)= 0.017 (In/Hr)
Initial subarea data:
Initial area flow distance = 109.930(Ft.)
Top (of initial area) elevation = 64.020(Ft.)
Bottom (of initial area) elevation = 61.500(Ft.)
Difference in elevation = 2.520(Ft.)
Slope = 0.02292 s(%)= 2.29
TC = k(0.284)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 3.962 min.
Rainfall intensity = 5.975(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.897
Subarea runoff = 9.920(CFS)
Total initial stream area = 1.850(Ac.)
Pervious area fraction = 0.039
Initial area Fm value = 0.017 (In/Hr)

++++
Process from Point/Station 3.000 to Point/Station 4.000
**** INITIAL AREA EVALUATION ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 56.00

Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.0520 Max loss rate(Fm)= 0.023(In/Hr)
Initial subarea data:
Initial area flow distance = 261.070(Ft.)
Top (of initial area) elevation = 62.660(Ft.)
Bottom (of initial area) elevation = 55.080(Ft.)
Difference in elevation = 7.580(Ft.)
Slope = 0.02903 s(%)= 2.90
TC = k(0.287)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.401 min.
Rainfall intensity = 4.961(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.896
Subarea runoff = 5.200(CFS)
Total initial stream area = 1.170(Ac.)
Pervious area fraction = 0.052
Initial area Fm value = 0.023(In/Hr)

+++++
Process from Point/Station 5.000 to Point/Station 6.000
**** INITIAL AREA EVALUATION ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.0440 Max loss rate(Fm)= 0.019(In/Hr)
Initial subarea data:
Initial area flow distance = 280.250(Ft.)
Top (of initial area) elevation = 63.560(Ft.)
Bottom (of initial area) elevation = 61.500(Ft.)
Difference in elevation = 2.060(Ft.)
Slope = 0.00735 s(%)= 0.74
TC = k(0.285)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.263 min.
Rainfall intensity = 4.153(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.896
Subarea runoff = 0.707(CFS)
Total initial stream area = 0.190(Ac.)
Pervious area fraction = 0.044
Initial area Fm value = 0.019(In/Hr)
End of computations, Total Study Area = 3.21 (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) = 0.044
Area averaged SCS curve number = 56.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 06/29/22

Program License Serial Number 6222

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

Ashley Homestore - Colton
Post-Project
100-year 1-Hour

Rational hydrology study storm event year is 100.0
10 Year storm 1 hour rainfall = 0.745(In.)
100 Year storm 1 hour rainfall = 1.170(In.)
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.170 (In.)
Slope used for rainfall intensity curve b = 0.6000
Soil antecedent moisture condition (AMC) = 3

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

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.1360 Max loss rate(Fm)= 0.060 (In/Hr)
Initial subarea data:
Initial area flow distance = 360.550(Ft.)
Top (of initial area) elevation = 64.680(Ft.)
Bottom (of initial area) elevation = 61.090(Ft.)
Difference in elevation = 3.590(Ft.)
Slope = 0.00996 s(%)= 1.00
TC = k(0.308)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 8.161 min.
Rainfall intensity = 3.873(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.886
Subarea runoff = 6.348(CFS)
Total initial stream area = 1.850(Ac.)
Pervious area fraction = 0.136
Initial area Fm value = 0.060 (In/Hr)

+++++
Process from Point/Station 3.000 to Point/Station 4.000
**** INITIAL AREA EVALUATION ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 56.00

Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.0130 Max loss rate(Fm)= 0.006(In/Hr)
Initial subarea data:
Initial area flow distance = 285.710(Ft.)
Top (of initial area) elevation = 65.760(Ft.)
Bottom (of initial area) elevation = 61.490(Ft.)
Difference in elevation = 4.270(Ft.)
Slope = 0.01495 s(%)= 1.49
TC = k(0.278)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 6.181 min.
Rainfall intensity = 4.576(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.899
Subarea runoff = 4.812(CFS)
Total initial stream area = 1.170(Ac.)
Pervious area fraction = 0.013
Initial area Fm value = 0.006(In/Hr)

+++++
Process from Point/Station 5.000 to Point/Station 6.000
**** INITIAL AREA EVALUATION ****

Soil classification AP and SCS values input by user
USER INPUT of soil data for subarea
SCS curve number for soil(AMC 2) = 56.00
Adjusted SCS curve number for AMC 3 = 75.80
Pervious ratio(Ap) = 0.0740 Max loss rate(Fm)= 0.033(In/Hr)
Initial subarea data:
Initial area flow distance = 280.250(Ft.)
Top (of initial area) elevation = 63.560(Ft.)
Bottom (of initial area) elevation = 61.500(Ft.)
Difference in elevation = 2.060(Ft.)
Slope = 0.00735 s(%)= 0.74
TC = k(0.293)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.452 min.
Rainfall intensity = 4.090(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.893
Subarea runoff = 0.694(CFS)
Total initial stream area = 0.190(Ac.)
Pervious area fraction = 0.074
Initial area Fm value = 0.033(In/Hr)
End of computations, Total Study Area = 3.21 (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) = 0.087
Area averaged SCS curve number = 56.0