PRELIMINARY DRAINAGE REPORT
FOR
MAYBERRY APARTMENTS & TOWNHOMES
A PORTION OF MAYBERRY,
COLORADO SPRINGS FILING NO. 1A
EL PASO COUNTY, COLORADO

Prepared for:

Mayberry Communities, LLC
3296 Divine Heights, #207
Colorado Springs, CO 80922

Prepared by:

R&R Engineers-Surveyors

1635 W. 13th Ave., Suite 310
Denver, CO 80204
Contact: Clif Dayton, P.E.
Phone: 303-753-6730
MC22068

March 21, 2023

Signature Page

Engineer's Statement

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the County for drainage reports and said report is in conformity with the master of the drainage basin. I accept responsibility for liability caused by negligent acts, errors or omissions on my part in preparing this report.

SIGNATURE (Affix Seal): _____

       Clif Dayton, P.E.

       Colorado P.E. No. 48189   Date

Developer's Statement:

I, the developer have read and will comply with all of the requirements specified in this drainage report and plan.

By:

_____

John Mick   Date

Mayberry Communities, LLC

3296 Divine Heights, #207, Colorado Springs, CO 80922

El Paso County's Statement

Filed in accordance with the requirements of the El Paso County Land Development Code, Drainage Criteria Manual, Volumes 1 and 2, and Engineering Criteria Manual as amended.

_____

Joshua Palmer, P.E.   Date

County Engineer/ECM Administrator

Conditions:

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APPENDIX B – Hydrology Calculations
APPENDIX C – Drainage Maps

1   General Location and Description

1.1   Site Location

The proposed Mayberry Apartments & Townhomes project (hereafter, the Site) is located within a portion of Mayberry, Colorado Springs, Filing No. 1A, in the Northwest corner of Section 14, Township 14 South, Range 63 West of the 6th P.M., El Paso County, Colorado (see Vicinity Map in Appendix A). The Site is located at the Southeast corner of New Log Road and State Highway 94 and is approximately 8.31 acres in size.

The Site is bounded to the north by State Highway 94 and to the west, south, and east by Mayberry Filing No. 1 (residential).

1.2   Description of Property

The total area of the property is 8.31 acres, with a majority of the site being disturbed as a part of this development. The proposed development includes the construction of four apartment buildings, each having 27 units, 38 townhomes, a clubhouse, parking lot, drive aisles, and associated utilities.

The existing terrain of the Site generally slopes from the northwest to southeast at grades ranging from 1%-25%. The existing Site ground coverage consists of native grasses, brush, and vegetation where the site has not already been cleared due to the overlot grading being done as part of the overall development. Under existing conditions, the Site's stormwater runoff surface flows east to an existing 24" flared end section located at the southeast corner of the site and onto the adjacent street located east of the site.

The Soil Survey of El Paso County Area, Colorado, prepared by the U.S. Department of Agriculture Soil Conservation Service, shows the site is underlain by Blakeland loamy sand, 1 to 9 percent slopes, and Truckton-Bresser complex, eroded – both included in Hydrologic Soil Group A. The NRCS Soils Survey Report for this site is included in Appendix A.

The drainage for this site was analyzed as part of the master drainage study for the Mayberry Phase 1 PUD, titled "Preliminary Drainage Report Amendment for Mayberry, Colorado Springs – Phase 1 PUD" prepared by JPS Engineering, dated May 5, 2021, revised February 15, 2022. This report will be used for drainage conformance purposes.

There are no existing irrigation facilities or canals on the Site.

The current zoning is PUD.

2   Drainage Basins and Sub-Basins

2.1   Major Basin Descriptions

Existing available drainage studies that impact the site are:
- "Final Drainage Report for Mayberry, Colorado Springs – Filing No. 1A Replat" prepared by JPS Engineering, dated November 19, 2021, revised April 8, 2022, and El Paso County approved June 27, 2022.

- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), El Paso County, Colorado and Incorporated Areas, Panel 810 of 1300, Map No. 08041C0810G (December 2018).

2.2   Sub-basin Description

Historically, on-site stormwater sheet flows northwest to southeast and is captured by the existing 24" flared end section, built as part of Mayberry Filing No. 1A that conveys flows to existing Detention Pond C1 (see Drainage maps from Mayberry Filing No. 1A Drainage report in Appendix C). This project area is encompassed by Mayberry Filing No. 1A drainage basins C1.1 and C1.2. Basin C1.1 contained a norther portion of Tract K, which ultimately gets captured by the existing 10' Type R inlet at design point C1.1. Basin C1.2 contains majority of Tract K, which ultimately gets captured by the existing 24" flared end section at design point C1.2C. Both basins are tributary to the existing detention pond, Pond C1, which has been sized adequately to treat this site in the proposed conditions.

Under proposed conditions, the majority of runoff will sheet flow from the parking areas and be directed to a series of storm inlets. All stormwater captured within the proposed storm network will tie into the existing Mayberry Filing 1A storm network at the southeast corner of the site.

3   Drainage Design Criteria

3.1   Development Criteria Reference

The Site's drainage analysis is performed in accordance with the current El Paso County Drainage Criteria Manual (DCM) and Mile High Flood District (MHFD) "Urban Storm Drainage Criteria Manual" (USDCM).

The drainage design for the Site is influenced by the following previous study: • "Final Drainage Report for Mayberry, Colorado Springs – Filing No. 1A Replat" prepared by JPS Engineering, dated November 19, 2021, revised April 8, 2022.

The proposed site corresponds to basins C1.1 (Design Point C1.1) & C1.2 (Design Point C1.2) from the JPS report. Majority of the project site falls within basin C1.2, which had an allowance of 16.88 cfs for the 5-year storm and 35.87 cfs for the 100-year storm as determined by JPS. See Appendix B for the approved Drainage Report supporting calculations.

3.2   Hydrologic Criteria

Calculations were performed to determine the existing and proposed runoff quantities for the 5-yr (minor storm) and 100-yr (major storm) 1-hour storm events for developed conditions using the Rational Method as required by El Paso County for basins containing less than 100 acres. Percent imperviousness and runoff coefficients for different land uses were calculated using Eq 5-2 of the DCM. Times of concentration (t_c) were calculated as described in Section 5.2.3 of the DCM. Rainfall intensity (i) was calculated using the IDF equations in Figure 5-1. Figures and equations used are included in Appendix B. Flows will ultimately be routed to the existing Detention Pond C1, that has been sized for this developed site accordingly.

4   Drainage Facility Design

4.1   Existing Drainage Conditions

The Site is located within the Mayberry Colorado Springs development and is currently undeveloped. This site is located within the basins designated as C1.1 and C1.2 in the Filing No. 1A approved Drainage Report. See existing drainage map done by JPS in Appendix C.

Basin C1.1 is a total of 9.38 acres, which of that total 1.2 acres was designated as commercial with s 5-year and 100-year composite runoff coefficient of 0.49 and 0.62 respectively (Q_5 = 5.43 cfs, Q_{100} = 18.04 cfs). This basin is ultimately captured by the existing 10' Type R inlet at design point C1.1 along Cattlemen Run. The proposed basin, OS.1 contains 0.57 acres, with a weighted 5-year and 100-year runoff coefficient of 0.41 and 0.59, respectively. Proposed Basin OS.1 will ultimately be captured by the existing 10' type R inlet, which will remain in compliance with the Filing 1A Drainage Report as the total area, flow, and runoff coefficients remain below the allowable values.

Basin C1.2 is a total of 7.97 acres, all designated as commercial (Q_5 = 16.88 cfs, Q_{100} = 35.87 cfs). The proposed design point, number 35, represents all the combined stormwater tying into the existing Filing No. 1A storm network in Market Place Drive which has a 5-year and 100-year combined flow of 15.10 cfs and 31.65 cfs respectively, which remains below and in compliance with he Filing No. 1A drainage report.

4.2   Proposed On-Site Basins

Refer to the Proposed Drainage Map located in Appendix C for drainage basin locations and boundaries.

Parking Lot Basins:

Basin A.1 (0.13 ac) is located near the northwest corner of the parking lot. Land use type is a mix of landscape and hardscape. Surface runoff (sheet flow) will be captured by proposed curb & gutter and will be conveyed to a proposed Type R Inlet in a sump. Should this inlet become clogged or otherwise nonfunctional, stormwater will overtop into Basin A.6. (Q_5=0.33 cfs, Q_{100}=0.80 cfs).

Basin A.2 (0.48 ac) is located near the north side of the parking lot. Land use type is a mix of landscape and hardscape. Surface runoff (sheet flow) will be captured by proposed curb & gutter and will be conveyed to a proposed Type R Curb Inlet in a sump. Should this inlet become clogged or otherwise nonfunctional, stormwater will overtop into Basin A.3. (Q_5=1.21 cfs, Q_{100}=3.0 cfs).

Basin A.3 (0.61 ac) is located near the northeast corner of the parking lot. Land use type is a mix of landscape and hardscape. Surface runoff (sheet flow) will be captured by proposed curb & gutter and concrete v-pans and will be conveyed to a proposed Type 13 Valley Inlet located at the center of the basin. Should this inlet become clogged or otherwise nonfunctional, stormwater will overtop into Basin A.4. (Q_5=1.80 cfs, Q_{100}=3.60 cfs).

Basin A.4 (0.72 ac) is located near the center and east portions of the parking lot. Land use type is a mix of landscape, hardscape, and roofs. Surface runoff (sheet flow) will be captured by proposed curb & gutter and will be conveyed to a proposed Type C Inlet located in a low-point within the drive aisle. Should this inlet become clogged or otherwise nonfunctional, stormwater will overtop into Basin A.5. (Q_5=1.45 cfs, Q_{100}=3.30 cfs).

Basin A.5 (0.51 ac) is located near the center of the parking lot. Land use type is a mix of landscape and hardscape. Surface runoff (sheet flow) will be captured by proposed curb & gutter and will be conveyed to a proposed Type R Curb Inlet located at the southeast corner of the basin in a sump. Should this inlet become clogged or otherwise nonfunctional, stormwater will overtop into Basin A.10. (Q_5=1.39 cfs, Q_{100}=3.20 cfs).

Basin A.6 (0.43 ac) is located in the center and west portions of the parking lot. Land use type is hardscape, landscape, and roofs. Surface runoff (sheet flow) will be captured by proposed curb & gutter and will be conveyed to a proposed Type R inlet located at the west side of the basin in a sump. Should this inlet become clogged or otherwise nonfunctional, stormwater will overtop into basin A.7. (Q_5=1.29 cfs, Q_{100}=2.80 cfs).

Basin A.7 (0.42 ac) is located at the center of the parking lot. Land use type is roof coverage, hardscape, and landscape. Surface runoff (sheet flow) will be captured by proposed curb & gutter and will be conveyed to a proposed Type C inlet located at a low-point within the drive aisle. Should this inlet become clogged or otherwise nonfunctional, stormwater will overtop into basin A.6. (Q_5=1.18 cfs, Q_{100}=2.60 cfs).

Basin A.8 (0.67 ac) is located at the south side of the parking lot. Land use type is roof coverage, hardscape, and landscape. Surface runoff (sheet flow) will be captured by proposed curb & gutter and will be conveyed to a proposed Type R inlet located in a sump. Should this inlet become clogged or otherwise nonfunctional, stormwater will overtop into basin A.10. (Q_5=1.60 cfs, Q_{100}=3.70 cfs).

Basin A.9 (0.31 ac) is located at the center of the parking lot. Land use type is roof coverage, hardscape, and landscape. Surface runoff (sheet flow) will be captured by proposed curb & gutter and will be conveyed to a proposed Type R inlet located in a sump. Should this inlet become clogged or otherwise nonfunctional, stormwater will overtop into basin A.9. (Q_5=0.87 cfs, Q_{100}=1.90 cfs).

Basin A.10 (0.16 ac) is located in the southeast corner of the site. Land use type is roof coverage, hardscape, and landscape. Surface runoff (sheet flow) will be captured by proposed curb & gutter and a concrete pan and will be conveyed to a proposed Type C inlet located in a sump. Should this inlet become clogged or otherwise nonfunctional, stormwater will overtop into Village Main Street. (Q_5=0.97 cfs, Q_{100}=2.20 cfs).

Apartment Buildings:

Each apartment building has a roof drain system that will tie into the underground perimeter drain which will contain a series of Nyloplast grate inlets where necessary to obtain positive drainage away from the building. Below is a list with charts associated to each building apartment building:

Apartment Building 1:
Basin B.1 (0.38 ac) is the entire roof coverage of Building 1 which will be collected by a series of roof drains that ultimately discharge into the perimeter drain. (Q_5=1.75 cfs, Q_{100}=2.70 cfs). There perimeter drain has basins as follows in the chart below:

Basin	Area (acres)	5-YR (cfs)	100-YR (cfs
C.11	0.13	0.010	0.298
C.12	0.09	0.050	0.292
C.14	0.05	0.022	0.152
C.21	0.02	0.002	0.052

Apartment Building 2:
Basin B.2 (0.38 ac) is the entire roof coverage of Building 1 which will be collected by a series of roof drains that ultimately discharge into the perimeter drain. (Q_5=1.75 cfs, Q_{100}=2.70 cfs). There perimeter drain has basins as follows in the chart below:

Basin	Area (acres)	5-YR (cfs)	100-YR (cfs)
C.13	0.01	0.006	0.035
C.15	0.04	0.004	0.107
C.16	0.18	0.039	0.426

Apartment Building 3:
Basin B.3 (0.38 ac) is the entire roof coverage of Building 1 which will be collected by a series of roof drains that ultimately discharge into the perimeter drain. (Q_5=1.75 cfs, Q_{100}=2.70 cfs). There perimeter drain has basins as follows in the chart below:

Basin	Area (acres)	5-YR (cfs)	100-YR (cfs)
C.17	0.01	0.001	0.030
C.18	0.18	0.065	0.468
C.20	0.03	0.003	0.075

Apartment Building 4:
Basin B.4 (0.38 ac) is the entire roof coverage of Building 1 which will be collected by a series of roof drains that ultimately discharge into the perimeter drain. (Q_5=1.75 cfs, Q_{100}=2.70 cfs). There perimeter drain has basins as follows in the chart below:

Basin	Area (acres)	5-YR (cfs)	100-YR (cfs)
C.19	0.15	0.346	0.881

Clubhouse:
Basin B.5 (0.14 ac) is the entire roof coverage of the clubhouse which will be collected by a series of roof drains that will ultimately discharge into the main storm network at design point 27.

Offsite Basins:

Basin OS.1 (0.57 ac) is located along the north and east edges of the site. Land use type is a mix of hardscape, landscape, gravel, and roof coverage. Surface runoff (sheet flow) flows within grass swales and across asphalt until ultimately it is concentrated at the northern curb & gutter along Cattlemen Run. The stormwater will be collected by an existing 10' type R inlet at design point C1.1.

Basin OS.2 (0.62 ac) is located on the south side of the site. Land use type is hardscape, landscape, and roof coverage. Surface runoff will sheetflow across grass lawns until ultimately it becomes concentrated at the northern curb & gutter of Village Main Street. The stormwater will be collected by an existing 10' Type R inlet at design point C1.2.

5   Conclusion

The Mayberry Apartments & Townhomes development site contains 8.31 acres and is proposed to be developed as a residential site containing four apartment buildings, 38 townhomes, and associated amenity areas. This Site and report are in conformance with the design standards of the El Paso County Drainage Criteria Manual, "Preliminary Drainage Report Amendment for Mayberry, Colorado Springs – Phase 1 PUD", and all other applicable reports. The run-off from this development will be collected via curb/gutter and storm inlets and will drain to Detention Pond C1. Runoff will be discharged from the extended detention basin to the southeast. The runoff from this development will have no adverse impacts on downstream facilities nor surrounding developments.

All drainage facilities described herein and shown on the included drainage plans are subject to change due to final design considerations. Any changes that are made after approval of this report will require an addendum to this report.

This drainage analysis has been prepared in accordance with the current El Paso County Drainage Criteria Manual and the Urban Storm Drainage Criteria Manual. Supporting information is included in the Appendix.

References

1. City of Colorado Springs & El Paso County "Drainage Criteria Manual," revised October 12, 1994.

2. City of Colorado Springs "Drainage Criteria Manual, Volumes 1 and 2," revised May, 2014.

3. El Paso County "Engineering Criteria Manual," January 9, 2006.

4. USDA/NRCS, "Soil Survey of El Paso County Area, Colorado," June, 1981.

5. JPS Engineering, Inc., "Final Drainage Report for Mayberry, Colorado Springs – Filing No. 1A Replat", dated November 19, 2021, revised April 8, 2022, approved by EPC June 6, 2022.

APPENDIX A

VICINITY MAP
FEMA FIRM MAP
SOILS MAP

VICINITY MAP
SCALE 1" = 5,000'

Labels within vicinity map:
- McDANIELS RD.
- CO-94
- PEYTON HWY
- S. LOG RD.
- N. ELLICOTT HWY.
- HANDLE RD.
- PROJECT LOCATION

SITE MAP
SCALE 1" = 500'

Labels within site map:
- PROJECT LOCATION
- NORTH 1/4 CORNER, SEC. 14-T14S-R63W FOUND REBAR w/ 2" ALUMINUM CAP (PLS 11624) IN MONUMENT BOX
- N. LINE, NE 1/4, SEC. 14-T14S-R63W
- CO-94
- FILING 1
- CATTLEMEN RUN
- FILING 2
- FILING 2A
- FILING 4
- MARKET PL
- INDIAN GRASS
- GARDEN PARK
- BLANKET FLOWER
- ACHITSON
- GALVESTON
- UNION PACIFIC
- VILLAGE MAIN
- FILING 1A
- FILING 3
- SOLAIRE LOOP
- EL RENO
- MAYBERRY DR
- C-E 1/16TH CORNER, (SE. CORNER, WEST 1/2, NE 1/4) SEC. 14-T14S-R63W FOUND 3/4" REBAR w/ 2-1/2" ALUMINUM CAP (PLS 38560)
- CENTER CORNER, SEC. 14-T14S-R63W FOUND 3/4" REBAR w/ 2-1/2" ALUMINUM CAP (PLS 38560)
- DETENTION POND D

Title Block

SITE MAP

MAYBERRY APARTMENTS

3296 DEVINE HEIGHTS #208
COLORADO SPRINGS, CO 80922

R&R ENGINEERS SURVEYORS INC
WWW.RRENGINEERS.COM

REVISIONS
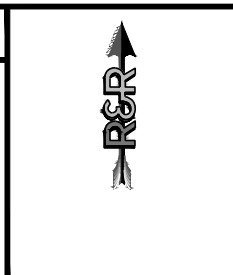
JOB NO.	MC22068
DATE	3-6-2023
DRN	CJB	CHK	CD

EXHIBIT NAME
SITE MAP

SHEET NO. 1 OF 1

38° 50' 24" N
38° 50' 24" N

104° 26' 11" W
104° 25' 18" W

548900 549000 549100 549200 549300 549400 549500 549600 549700 549800 549900 550000 550100

4299100
4299000
4298900
4298800
4298700
4298600
4298500
4298400

94

State Highway 94

8

100

Soil Map may not be valid at this scale.

38° 49' 56" N
38° 49' 56" N

104° 26' 11" W
104° 25' 18" W

Map Scale: 1:5,910 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100   200   300

Feet
0   250   500   1000   1500

Map projection: Web Mercator   Corner coordinates: WGS84   Edge tics: UTM Zone 13N WGS84

USDA **Natural Resources**
      Conservation Service

Web Soil Survey
National Cooperative Soil Survey

4/5/2022
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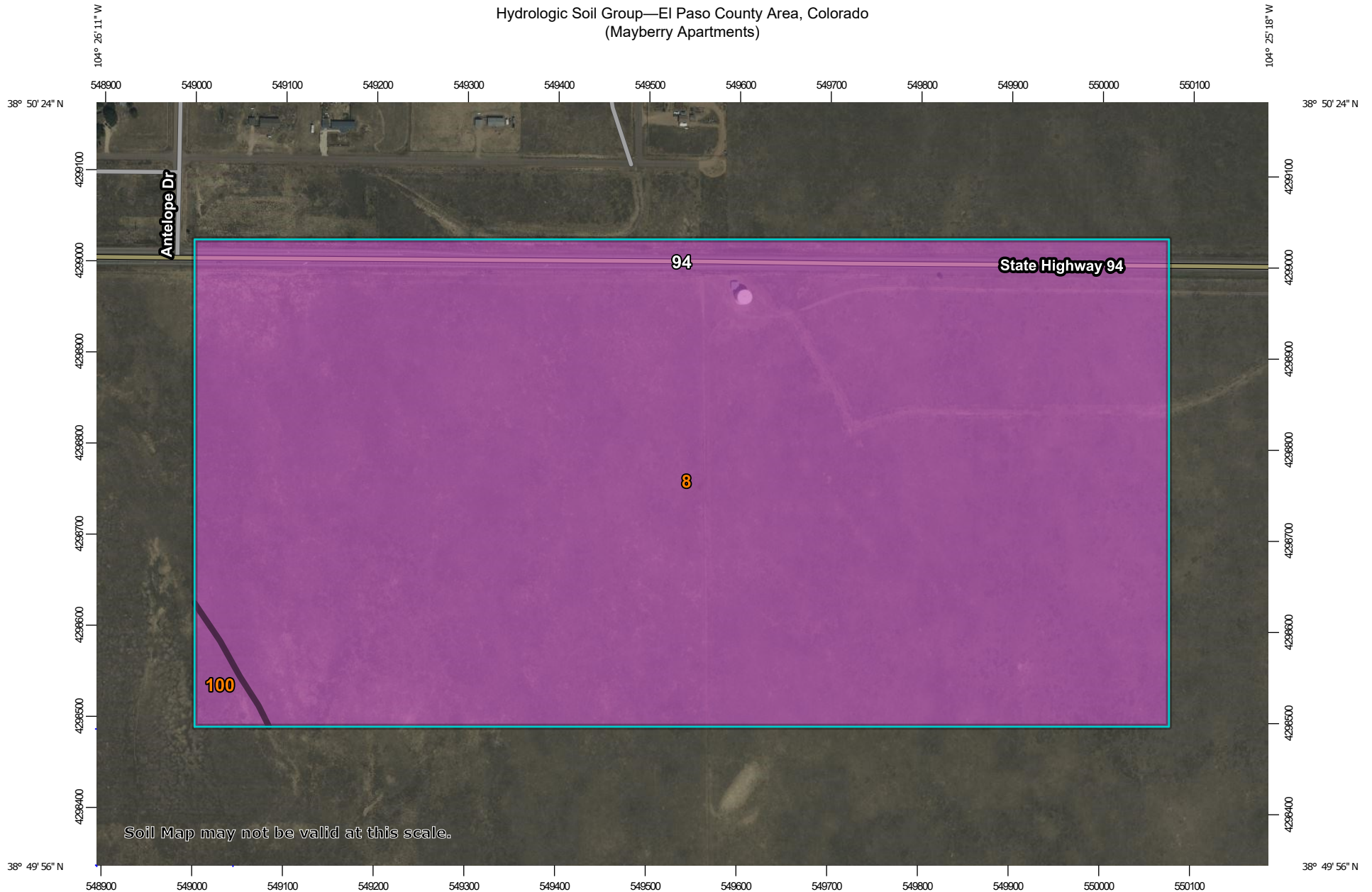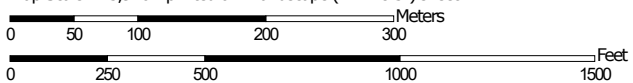
MAP LEGEND

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: El Paso County Area, Colorado
Survey Area Data: Version 19, Aug 31, 2021

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

Date(s) aerial images were photographed: Sep 11, 2018—Oct 20, 2018

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.

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Web Soil Survey
National Cooperative Soil Survey

4/5/2022
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Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	A	141.2	99.0%
100	Truckton-Bresser complex, eroded	A	1.4	1.0%
Totals for Area of Interest			**142.6**	**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

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Web Soil Survey
National Cooperative Soil Survey

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Map Scale: 1:5,910 if printed on A landscape (11" x 8.5") sheet.

Meters
0   50   100   200   300

Feet
0   250   500   1000   1500

Map projection: Web Mercator   Corner coordinates: WGS84   Edge tics: UTM Zone 13N WGS84

USDA **Natural Resources**
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MAP LEGEND

MAP INFORMATION
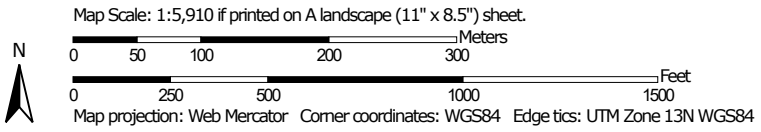
**Area of Interest (AOI)**
☐ Area of Interest (AOI)

Soils

Soil Rating Polygons

▢ .02
▢ .05
▢ .10
▢ .15
▢ .17
▢ .20
▢ .24
▢ .28
▢ .32
▢ .37
▢ .43
▢ .49
▢ .55
▢ .64
▢ Not rated or not available

Soil Rating Lines

〰 .02
〰 .05
〰 .10
〰 .15
〰 .17
〰 .20

〰 .24
〰 .28
〰 .32
〰 .37
〰 .43
〰 .49
〰 .55
〰 .64
〰 Not rated or not available

Soil Rating Points

■ .02
■ .05
■ .10
■ .15
■ .17
■ .20
■ .24
■ .28
■ .32
■ .37
■ .43
■ .49
■ .55
■ .64
☐ Not rated or not available

Water Features

〰 Streams and Canals

Transportation
+++ Rails
〰 Interstate Highways
〰 US Routes
〰 Major Roads
〰 Local Roads

Background
▨ Aerial Photography

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Coordinate System: Web Mercator (EPSG:3857)

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Date(s) aerial images were photographed: Sep 11, 2018—Oct 20, 2018

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.

K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	.10	141.2	99.0%
100	Truckton-Bresser complex, eroded	.24	1.4	1.0%
Totals for Area of Interest			**142.6**	**100.0%**

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

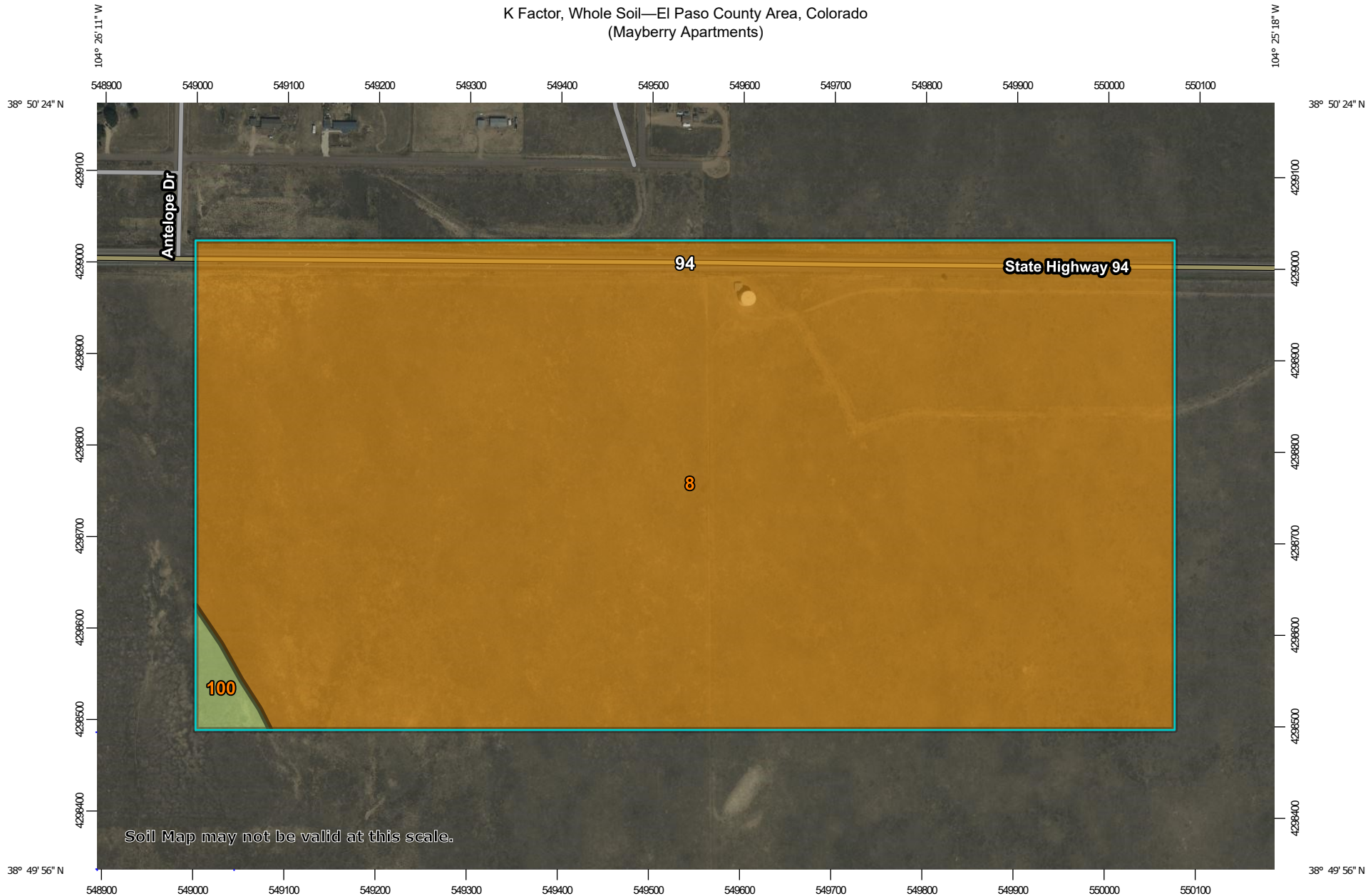Factor K does not apply to organic horizons and is not reported for those layers.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

El Paso County Vertical Datum Offset Table

Flooding Source	Vertical Datum Offset (ft)

REFER TO SECTION 3.3 OF THE EL PASO COUNTY FLOOD INSURANCE STUDY FOR STREAM BY STREAM VERTICAL DATUM CONVERSION INFORMATION

Panel Location Map

THIS PANEL SHOWN AT A
SCALE OF 1"=500'
ON MAP NUMBER 08041C0807

THIS PANEL SHOWN AT A
SCALE OF 1"=500'
ON MAP NUMBER 08041C0809

ZONE A

ZONE AE

EL PASO COUNTY
UNINCORPORATED AREAS
080059

ANTELOPE PARK

Ellicott Consolidated

JOINS PANEL 0595
JOINS PANEL 0805
JOINS PANEL 0830
JOINS PANEL 0820

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 13 SOUTH, RANGE 63 WEST, AND TOWNSHIP 14 SOUTH, RANGE 63 WEST.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain boundary
	Floodway boundary
	Zone D Boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
~~ 513 ~~~	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

(A)————(A)	Cross section line
(23)----------(23)	Transect line
97° 07' 30.00" 32° 22' 30.00"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000m N	1000-meter Universal Transverse Mercator grid ticks, zone 13
6000000 FT	5000-foot grid ticks: Colorado State Plane coordinate system, central zone (FIPSZONE 0502), Lambert Conformal Conic Projection
DX5510 ⨯	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
MARCH 17, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
DECEMBER 7, 2018 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

500	0	1000	2000
FEET
METERS

APPENDIX B

SITE HYDROLOGY CALCULATIONS

Table 6-6. Runoff Coefficients for Rational Method
(Source: UDFCD 2001)

Land Use or Surface Characteristics	Percent Impervious	Runoff Coefficients											
		2-year		5-year		10-year		25-year		50-year		100-year	
		HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D
Business													
Commercial Areas	95	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.87	0.87	0.88	0.88	0.89
Neighborhood Areas	70	0.45	0.49	0.49	0.53	0.53	0.57	0.58	0.62	0.60	0.65	0.62	0.68
Residential													
1/8 Acre or less	65	0.41	0.45	0.45	0.49	0.49	0.54	0.54	0.59	0.57	0.62	0.59	0.65
1/4 Acre	40	0.23	0.28	0.30	0.35	0.36	0.42	0.42	0.50	0.46	0.54	0.50	0.58
1/3 Acre	30	0.18	0.22	0.25	0.30	0.32	0.38	0.39	0.47	0.43	0.52	0.47	0.57
1/2 Acre	25	0.15	0.20	0.22	0.28	0.30	0.36	0.37	0.46	0.41	0.51	0.46	0.56
1 Acre	20	0.12	0.17	0.20	0.26	0.27	0.34	0.35	0.44	0.40	0.50	0.44	0.55
Industrial													
Light Areas	80	0.57	0.60	0.59	0.63	0.63	0.66	0.66	0.70	0.68	0.72	0.70	0.74
Heavy Areas	90	0.71	0.73	0.73	0.75	0.75	0.77	0.78	0.80	0.80	0.82	0.81	0.83
Parks and Cemeteries	7	0.05	0.09	0.12	0.19	0.20	0.29	0.30	0.40	0.34	0.46	0.39	0.52
Playgrounds	13	0.07	0.13	0.16	0.23	0.24	0.31	0.32	0.42	0.37	0.48	0.41	0.54
Railroad Yard Areas	40	0.23	0.28	0.30	0.35	0.36	0.42	0.42	0.50	0.46	0.54	0.50	0.58
Undeveloped Areas													
Historic Flow Analysis-- Greenbelts, Agriculture	2	0.03	0.05	0.09	0.16	0.17	0.26	0.26	0.38	0.31	0.45	0.36	0.51
Pasture/Meadow	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50
Forest	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50
Exposed Rock	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Offsite Flow Analysis (when landuse is undefined)	45	0.26	0.31	0.32	0.37	0.38	0.44	0.44	0.51	0.48	0.55	0.51	0.59
Streets													
Paved	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Gravel	80	0.57	0.60	0.59	0.63	0.63	0.66	0.66	0.70	0.68	0.72	0.70	0.74
Drive and Walks	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Roofs	90	0.71	0.73	0.73	0.75	0.75	0.77	0.78	0.80	0.80	0.82	0.81	0.83
Lawns	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50

Figure 6-5. Colorado Springs Rainfall Intensity Duration Frequency
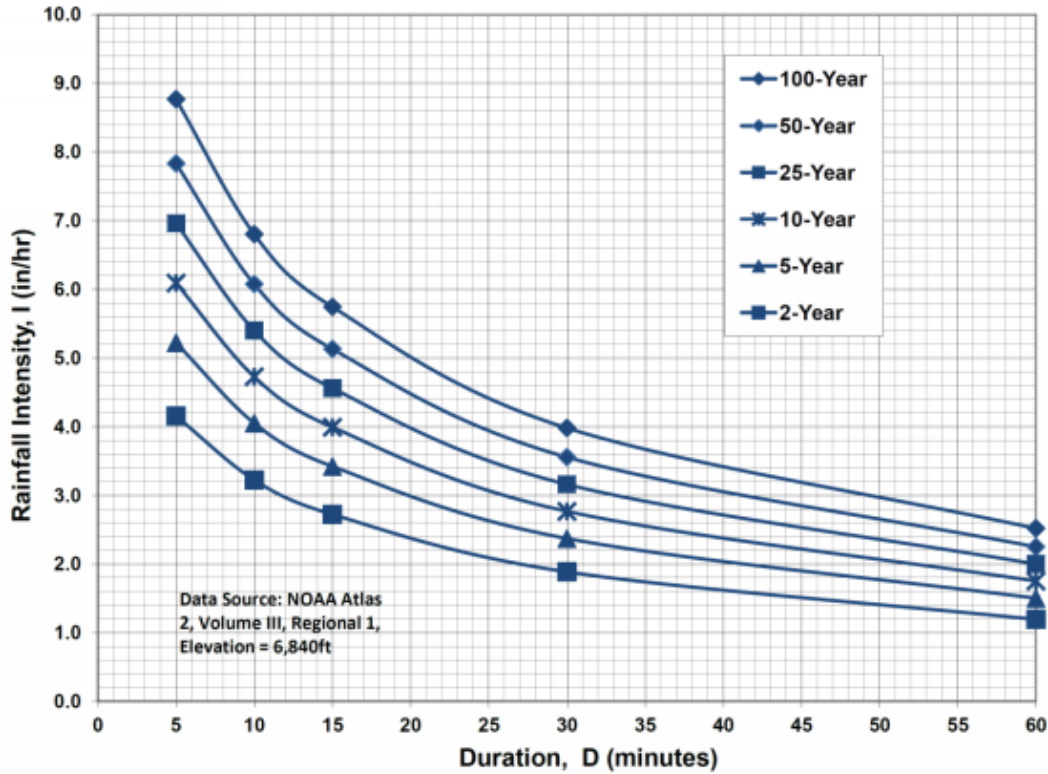
IDF Equations

$$I_{100} = -2.52 \ln(D) + 12.735$$

$$I_{50} = -2.25 \ln(D) + 11.375$$

$$I_{25} = -2.00 \ln(D) + 10.111$$

$$I_{10} = -1.75 \ln(D) + 8.847$$

$$I_{5} = -1.50 \ln(D) + 7.583$$

$$I_{2} = -1.19 \ln(D) + 6.035$$

Note: Values calculated by equations may not precisely duplicate values read from figure.

MAYBERRY, COLORADO SPRINGS (ELLICOTT TOWN CENTER)
COMPOSITE RUNOFF COEFFICIENTS

DEVELOPED CONDITIONS
5-YEAR C VALUES

BASIN	TOTAL AREA (AC)	(AC)	SUB-AREA 1 DEVELOPMENT/ COVER	C	AREA (AC)	SUB-AREA 2 DEVELOPMENT/ COVER	C	(AC)	SUB-AREA 3 DEVELOPMENT/ COVER	C	WEIGHTED C VALUE
A1A	2.80	0.9	ROADWAY	0.9	1.9	GRASS	0.08				0.355
C1.2	7.97	8.0	COMMERCIAL	0.49							0.490
C1.7A	0.58	0.6	SF LOTS (1/6-AC)	0.375							0.375
C1.7B	4.34	4.3	COMMERCIAL	0.49							0.490
C1.7A,C1.7B	4.92										0.476
C1.2,C1.7	12.89										0.485
C1.3	3.02	3.0	SF LOTS (1/6-AC)	0.375							0.375
C1.2,C1.3,C1.7	15.91										0.464
C1.4	3.23	3.2	SF LOTS (1/6-AC)	0.375							0.375
C1.2-C1.4,C1.7	19.14										0.449
C1.5	3.18	3.2	SF LOTS (1/6-AC)	0.375							0.375
C1.2-C1.5,C1.7	22.32										0.438
C1.1	9.38	3.0	RESIDENTIAL	0.375	1.2	COMMERCIAL	0.49	5.2	OPEN SPACE	0.08	0.226
C1.6	3.01	3.0	SF LOTS (1/6-AC)	0.375							0.375
C1.1,C1.6	12.39										0.262
C1.1-C1.7	34.71										0.376
C1.8	3.89	3.9	SF LOTS (1/6-AC)	0.375							0.375
C1.9	4.39	4.4	SF LOTS (1/6-AC)	0.375							0.375
C1.8-C1.9	8.28										0.375
C1.1-C1.9	42.99										**0.375**
C1.10	1.82	1.8	SF LOTS (1/6-AC)	0.375							0.375
C1.1-C1.10	44.81										**0.375**
C2.1	2.55	1.6	RESIDENTIAL	0.375	1.0	OPEN SPACE	0.08				0.259
C2.2	1.99	2.0	SF LOTS (1/6-AC)	0.375							0.375
C2.1-C2.2	4.54										0.310
C2.3	3.01	3.0	SF LOTS (1/6-AC)	0.375							0.375
C2.5	6.43	6.4	SF LOTS (1/6-AC)	0.375							0.375
C2.1-C2.3,C2.5	13.98										0.354
C2.4	2.89	2.9	SF LOTS (1/6-AC)	0.375							0.375
C2.1-C2.5	16.87										0.358
C3	20.25	20.3	PARK / OS	0.08							0.080
C2.1-C2.5,C3	37.12										0.206

MAYBERRY, COLORADO SPRINGS (ELLICOTT TOWN CENTER)
COMPOSITE RUNOFF COEFFICIENTS

DEVELOPED CONDITIONS
100-YEAR C VALUES

BASIN	TOTAL AREA (AC)	(AC)	SUB-AREA 1 DEVELOPMENT/ COVER	C	AREA (AC)	SUB-AREA 2 DEVELOPMENT/ COVER	C	(AC)	SUB-AREA 3 DEVELOPMENT/ COVER	C	WEIGHTED C VALUE
A1A	2.80	0.9	ROADWAY	0.96	1.9	GRASS	0.35				0.555
C1.2	7.97	8.0	COMMERCIAL	0.62							0.620
C1.7A	0.58	0.6	SF LOTS (1/6-AC)	0.545							0.545
C1.7B	4.34	4.3	COMMERCIAL	0.62							0.620
C1.7A,C1.7B	4.92										0.611
C1.2,C1.7	12.89										0.617
C1.3	3.02	3.0	SF LOTS (1/6-AC)	0.545							0.545
C1.2,C1.3,C1.7	15.91										0.603
C1.4	3.23	3.2	SF LOTS (1/6-AC)	0.545							0.545
C1.2-C1.4,C1.7	19.14										0.593
C1.5	3.18	3.2	SF LOTS (1/6-AC)	0.545							0.545
C1.2-C1.5,C1.7	22.32										0.586
C1.1	9.38	3.0	RESIDENTIAL	0.545	1.2	COMMERCIAL	0.62	5.2	OPEN SPACE	0.35	0.447
C1.6	3.01	3.0	SF LOTS (1/6-AC)	0.545							0.545
C1.1,C1.6	12.39										0.471
C1.1-C1.7	34.71										0.545
C1.8	3.89	3.9	SF LOTS (1/6-AC)	0.545							0.545
C1.9	4.39	4.4	SF LOTS (1/6-AC)	0.545							0.545
C1.8-C1.9	8.28										0.545
C1.1-C1.9	42.99										**0.545**
C1.10	1.82	1.8	SF LOTS (1/6-AC)	0.545							0.545
C1.1-C1.10	44.81										**0.545**
C2.1	2.55	1.6	SF LOTS (1/6-AC)	0.545	1.0	OPEN SPACE	0.35				0.469
C2.2	1.99	2.0	SF LOTS (1/6-AC)	0.545							0.545
C2.1-C2.3	4.54										0.502
C2.3	3.01	3.0	SF LOTS (1/6-AC)	0.545							0.545
C2.5	6.43	6.4	SF LOTS (1/6-AC)	0.545							0.545
C2.1-C2.3,C2.5	13.98										0.531
C2.4	2.89	2.9	SF LOTS (1/6-AC)	0.545							0.545
C2.1-C2.5	16.87										0.533
C3	20.25	20.3	PARK / OS	0.35							0.350
C2.1-C2.5,C3	37.12										0.433

MAYBERRY, COLORADO SPRINGS (ELLICOTT TOWN CENTER)
RATIONAL METHOD - HYDROLOGIC CALCULATIONS

DEVELOPED FLOWS

BASIN	DESIGN POINT	AREA (AC)	C 5-YEAR	C 100-YEAR	Overland Flow LENGTH (FT)	Overland Flow SLOPE (FT/FT)	Overland Flow Tco [1] (MIN)	CHANNEL LENGTH (FT)	CONVEYANCE COEFFICIENT C	SLOPE (FT/FT)	SCS [2] VELOCITY (FT/S)	Tt [3] (MIN)	TOTAL Tc [4] (MIN)	TOTAL Tc [4] (MIN)	INTENSITY [5] 5-YR (IN/HR)	INTENSITY [5] 100-YR (IN/HR)	PEAK FLOW Q5 [6] (CFS)	PEAK FLOW Q100 [6] (CFS)
FILING NO. 1																		
A1A	A1A	2.80	0.355	0.555	40	0.020	6.8	2035	15	0.011	1.57	21.6	28.4	28.4	2.56	4.30	2.55	6.68
C1.2	C1.2	7.97	0.490	0.620			0.0	1000	20	0.009	1.90	8.8	8.8	8.8	4.32	7.26	16.88	35.87
C1.7A	C1.7A	0.58	0.375	0.545			0.0	680	20	0.013	2.28	5.0	5.0	5.0	5.17	8.68	1.12	2.74
C1.7B	C1.7B	4.34	0.490	0.620	100	0.020	8.9	400	20	0.01	2.00	3.3	12.2	12.2	3.83	6.43	8.15	17.31
C1.7A,C1.7B	C1.7B1	4.92	0.476	0.611									12.2	12.2	3.83	6.43	8.97	19.33
C1.2,C1.7	C1.2D	12.89	0.485	0.617									12.2	12.2	3.83	6.43	23.95	51.15
C1.3		3.02	0.375	0.545			0.0	280	20	0.01	2.00	2.3	2.3	5.0	5.17	8.68	5.85	14.29
C1.2,C1.3,C1.7	C1.3A	15.91	0.464	0.603									14.5	14.5	3.57	5.99	26.34	57.47
C1.4		3.23	0.375	0.545			0.0	300	20	0.01	2.00	2.5	2.5	5.0	5.17	8.68	6.26	15.28
C1.2-C1.4,C1.7	C1.4A	19.14	0.449	0.593									17.0	17.0	3.33	5.59	28.62	63.45
C1.5		3.18	0.375	0.545			0.0	300	20	0.01	2.00	2.5	2.5	5.0	5.17	8.68	6.16	15.04
C1.2-C1.5,C1.7	C1.5A	22.32	0.438	0.586									19.5	19.5	3.12	5.25	30.55	68.61
C1.1	C1.1	9.38	0.226	0.447	100	0.017	13.4	1800	20	0.01	2.00	15.0	28.4	28.4	2.56	4.30	5.43	18.04
C1.6		3.01	0.375	0.545			0.0	450	20	0.01	2.00	3.8	3.8	5.0	5.17	8.68	5.83	14.24
C1.1,C1.6	C1.6C	12.39	0.262	0.471									32.2	32.2	2.38	3.99	7.72	23.28
C1.1-C1.7	C1.7C	34.71	0.376	0.545									32.2	32.2	2.38	3.99	31.02	75.46
C1.8		3.89	0.375	0.545			0.0	600	20	0.016	2.53	4.0	4.0	5.0	5.17	8.68	7.54	18.40
C1.9		4.39	0.375	0.545			0.0	580	20	0.012	2.19	4.4	4.4	5.0	5.17	8.68	8.51	20.77
C1.1-C1.7, C1.9	C1.9A	39.10	0.375	0.545				272	20	0.01	2.00	2.3	34.4	34.4	2.27	3.82	33.35	81.34
Tt C1.7C to Pond C1								450	20	0.01	2.00	3.8						
C1.1-C1.9	**C1.9B**	**42.99**	**0.375**	**0.545**									**35.9**	**35.9**	**2.21**	**3.71**	**35.65**	**86.95**
C1.10	C1.10	1.82	0.375	0.545	50	0.020	7.5	1500	20	0.01	2.00	12.5	20.0	20.0	3.09	5.19	2.11	5.15
C1.1-C1.10	**C1.10A**	**44.81**	**0.375**	**0.545**									**35.9**	**35.9**	**2.21**	**3.71**	**37.16**	**90.63**

POST-DEVELOPMENT C VALUES

Designer:	LAO
Company:	R&R Engineers-Surveyors
Date:	3/14/2023
Project:	MAYBERRY TRACT K APARTMENTS
Location:	EL PASO COUNTY, COLORADO

Global Parameters[1]

Land Use	% Imp.	C_5	C_{100}
Lawns	0	0.02	0.35
Paved	100	0.89	0.96
Roof	90	0.71	0.81
Gravel	80	0.57	0.7

Summary

Total Area (ac)	8.36
Composite Impervious	71.6%

[1] From Table 6-3 in MHFD Volume 1
[2] From Table 6-4 in MHFD Volume 1

Cells of this color are for required user-input
Cells of this color are for optional user-input

Basin Name	Area (ac)	NRCS Hydrologic Soil Group	Lawns Area (ac)	Lawns %	Paved Area (ac)	Paved %	Roof Area (ac)	Roof %	Gravel Area (ac)	Gravel %	% Check	Percent Imperviousness	Runoff Coefficient, C^2 2-yr	5-yr	10-yr	100-yr
A.1	0.14	A	0.04	28.6%	0.10	71.4%	0.00	0.0%	0.00	0.0%	100.00%	71.4%		0.51		0.79
A.2	0.48	A	0.09	18.8%	0.39	81.3%	0.00	0.0%	0.00	0.0%	100.00%	81.3%		0.58		0.85
A.3	0.61	A	0.09	14.8%	0.28	45.9%	0.24	39.3%	0.00	0.0%	100.00%	81.3%		0.68		0.81
A.4	0.72	A	0.18	25.0%	0.38	52.8%	0.16	22.2%	0.00	0.0%	100.00%	72.8%		0.58		0.77
A.5	0.51	A	0.05	9.8%	0.42	82.4%	0.04	7.8%	0.00	0.0%	100.00%	89.4%		0.66		0.89
A.6	0.43	A	0.04	9.3%	0.32	74.4%	0.07	16.3%	0.00	0.0%	100.00%	89.1%		0.68		0.88
A.7	0.42	A	0.06	14.3%	0.27	64.3%	0.09	21.4%	0.00	0.0%	100.00%	83.6%		0.65		0.84
A.8	0.67	A	0.13	19.4%	0.47	70.1%	0.07	10.4%	0.00	0.0%	100.00%	79.6%		0.59		0.83
A.9	0.31	A	0.03	9.7%	0.24	77.4%	0.04	12.9%	0.00	0.0%	100.00%	89.0%		0.67		0.88
A.10	0.33	A	0.04	12.1%	0.24	72.7%	0.05	15.2%	0.00	0.0%	100.00%	86.4%		0.65		0.86
B.1	0.38	A	0.00	0.0%	0.00	0.0%	0.38	100.0%	0.00	0.0%	100.00%	90.0%		0.89		0.81
B.2	0.38	A	0.00	0.0%	0.00	0.0%	0.38	100.0%	0.00	0.0%	100.00%	90.0%		0.89		0.81
B.3	0.38	A	0.00	0.0%	0.00	0.0%	0.38	100.0%	0.00	0.0%	100.00%	90.0%		0.89		0.81
B.4	0.38	A	0.00	0.0%	0.00	0.0%	0.38	100.0%	0.00	0.0%	100.00%	90.0%		0.89		0.81
B.5	0.14	A	0.00	0.0%	0.00	0.0%	0.14	100.0%	0.00	0.0%	100.00%	90.0%		0.89		0.81
C.11	0.13	A	0.13	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	100.00%	.0%		0.02		0.35
C.12	0.09	A	0.08	83.3%	0.01	7.8%	0.00	0.0%	0.01	8.9%	100.00%	14.9%		0.12		0.43
C.13	0.01	A	0.01	80.0%	0.00	0.0%	0.00	0.0%	0.00	20.0%	100.00%	16.0%		0.13		0.42
C.14	0.05	A	0.04	88.0%	0.01	12.0%	0.00	0.0%	0.00	0.0%	100.00%	12.0%		0.10		0.42
C.15	0.04	A	0.04	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	100.00%	.0%		0.02		0.35
C.16	0.18	A	0.17	94.4%	0.01	5.6%	0.00	0.0%	0.00	0.0%	100.00%	5.6%		0.06		0.38
C.17	0.01	A	0.01	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	100.00%	.0%		0.02		0.35
C.18	0.18	A	0.16	88.9%	0.02	11.1%	0.00	0.0%	0.00	0.0%	100.00%	11.1%		0.10		0.42
C.19	0.15	A	0.04	26.7%	0.11	73.3%	0.00	0.0%	0.00	0.0%	100.00%	73.3%		0.53		0.80
C.20	0.03	A	0.03	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	100.00%	.0%		0.02		0.35
C.21	0.02	A	0.02	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	100.00%	.0%		0.02		0.35
OS.1	0.57	A	0.26	45.6%	0.06	10.5%	0.14	24.6%	0.11	19.3%	100.00%	48.1%		0.41		0.59
OS.2	0.62	A	0.34	54.8%	0.11	17.7%	0.17	27.4%	0.00	0.0%	100.00%	42.4%		0.38		0.58

TIME OF CONCENTRATION

Designer: LAO
Company: R&R Engineers-Surveyors
Date: 3/14/2023
Project: MAYBERRY TRACT K APARTMENTS
Location: EL PASO COUNTY, COLORADO

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S_i^{0.33}}$$

$$t_t = \frac{L_t}{60K\sqrt{S_t}} = \frac{L_t}{60V_t}$$

$$\text{Regional } t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$$

Computed $t_c = t_i + t_t$

$t_{minimum} = 5$ (urban)
$t_{minimum} = 10$ (non-urban)

Selected $t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$

Cells of this color are for required user-input

Basin	Area	% Impervious	C5	Overland Flow Length L_i (ft)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)	Channelized Flow Length L_t (ft)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)	Remarks
A.1	0.14	71.4%	0.51	65.00	0.020	6.80	60.00	0.005	20	1.41	0.71	7.51	14.60	7.51	
A.2	0.48	81.3%	0.58	50.00	0.010	6.63	170.00	0.005	20	1.41	2.00	8.63	14.15	8.63	
A.3	0.61	81.3%	0.68	80.00	0.010	6.80	160.00	0.005	20	1.41	1.89	8.68	14.03	8.68	
A.4	0.72	72.8%	0.58	215.00	0.010	13.83	130.00	0.005	20	1.41	1.53	15.36	15.22	15.22	
A.5	0.51	89.4%	0.66	100.00	0.010	8.01	150.00	0.005	20	1.41	1.77	9.78	12.44	9.78	
A.6	0.43	89.1%	0.68	65.00	0.010	6.18	160.00	0.005	20	1.41	1.89	8.07	12.61	8.07	
A.7	0.42	83.6%	0.65	65.00	0.010	6.55	193.00	0.005	20	1.41	2.27	8.82	13.99	8.82	
A.8	0.67	79.6%	0.59	75.00	0.010	7.90	250.00	0.005	20	1.41	2.95	10.84	15.40	10.84	
A.9	0.31	89.0%	0.67	100.00	0.010	7.83	140.00	0.005	20	1.41	1.65	9.48	12.40	9.48	
A.10	0.33	86.4%	0.65	52.00	0.010	5.81	167.00	0.005	20	1.41	1.97	7.78	13.18	7.78	
B.1	0.38	90.0%	0.89	50.00	0.100	1.25	95.00	0.005	20	1.41	1.12	2.37	11.74	5.00	
B.2	0.38	90.0%	0.89	50.00	0.100	1.25	95.00	0.005	20	1.41	1.12	2.37	11.74	5.00	
B.3	0.38	90.0%	0.89	50.00	0.100	1.25	95.00	0.005	20	1.41	1.12	2.37	11.74	5.00	
B.4	0.38	90.0%	0.89	50.00	0.100	1.25	95.00	0.005	20	1.41	1.12	2.37	11.74	5.00	
B.5	0.14	90.0%	0.89	35.00	0.100	1.05	60.00	0.005	20	1.41	0.71	1.76	11.35	5.00	
C.11	0.13	.0%	0.02	36.00	0.020	9.31	137.00	0.020	7	0.99	2.31	11.61	27.79	11.61	
C.12	0.09	14.9%	0.12	21.00	0.020	6.43	78.00	0.020	7	0.99	1.31	7.75	24.30	7.75	
C.13	0.01	16.0%	0.13	16.00	0.020	5.57	16.00	0.020	7	0.99	0.27	5.84	23.45	5.84	
C.14	0.05	12.0%	0.10	35.00	0.020	8.47	36.00	0.020	7	0.99	0.61	9.08	24.36	9.08	
C.15	0.04	.0%	0.02	18.00	0.020	6.58	54.00	0.020	7	0.99	0.91	7.49	26.71	7.49	
C.16	0.18	5.6%	0.06	30.00	0.020	8.19	225.00	0.010	7	0.70	5.36	13.55	28.89	13.55	
C.17	0.01	.0%	0.02	10.00	0.020	4.91	25.00	0.020	7	0.99	0.42	5.33	26.33	5.33	
C.18	0.18	11.1%	0.10	30.00	0.020	7.89	225.00	0.010	7	0.70	5.36	13.25	27.66	13.25	
C.19	0.15	73.3%	0.53	57.00	0.010	7.82	35.00	0.020	7	0.99	0.59	8.41	13.75	8.41	
C.20	0.03	.0%	0.02	30.00	0.020	8.50	32.00	0.020	7	0.99	0.54	9.04	26.42	9.04	
C.21	0.02	.0%	0.02	25.00	0.020	7.76	27.00	0.020	7	0.99	0.45	8.21	26.35	8.21	
OS.1	0.57	48.1%	0.41	110.00	0.020	10.36	1330.00	0.010	20	2.00	11.08	21.44	31.92	21.44	
OS.2	0.62	42.4%	0.38	70.00	0.020	8.64	520.00	0.010	20	2.00	4.33	12.97	24.59	12.97	

STORM DRAINAGE SYSTEM DESIGN - 5-YEAR DESIGN STORM

Designer: LAO
Company: R&R Engineers-Surveyors
Date: 3/14/2023
Project: MAYBERRY TRACT K APARTMENTS
Location: EL PASO COUNTY, COLORADO

Cells of this color are for required user-input
Cells of this color are for optional user-input

$I_5 = -1.50 \ln(D) + 7.583$

DESGIN POINT	STREET/ CONTRIBUTING BASINS	Basin Name	Area (ac)	Coeff C	Tc (min)	C*A (ac)	I	Q (cfs)	Tc (min)	Sum Area (ac)	Sum C*A (ac)	I in/hr	Q cfs	Street Q cfs	Street Slope %	Length ft	Street Tt min	Design Q cfs	Slope %	PIPE SIZE	L ft	VEL ft/sec	Tt min	Remarks
		B.2	0.38	0.89	5.0	0.34	5.17	1.7																
1	B.2								5.0	0.4	0.338	5.17	1.7					1.7			112	5	0.4	
		C.15	0.04	0.02	7.5	0.00	4.56	0.004																
2	DP1, C.15								7.5	0.4	0.339	4.56	1.5					1.5			82	5	0.3	
		C.13	0.01	0.13	5.8	0.00	4.94	0.0																
3	DP3, C.13								7.8	0.4	0.340	4.51	1.5					1.5			184	5	0.6	
		C.16	0.18	0.06	13.6	0.01	3.67	0.0																
4	C.16								13.6	0.2	0.011	3.67	0.0					0.0			129	5	0.4	
5	DP4, DP3								14.0	0.6	0.35	3.63	1.3					1.3			12	5	0.04	
		A.1	0.14	0.51	7.5	0.07	4.56	0.3																
6	DP5, A.1								14.0	0.8	0.42	3.62	1.5					1.5			193	5	0.64	
		B.1	0.38	0.89	5.0	0.34	5.17	1.7										1.7						
7	B.1								5.0	0.4	0.338	5.17	1.7					1.7			144	5	0.48	
		C.11	0.13	0.02	11.6	0.00	3.90	0.0																
8	DP7, C.11								11.6	0.5	0.341	3.90	1.3					1.3			95	5	0.32	
		C.21	0.02	0.02	8.2	0.00	4.42	0.0																
9	DP8, C.21								11.9	0.5	0.341	3.86	1.3					1.3			75	5	0.25	
		C.12	0.09	0.12	7.7	0.01	4.51	0.0																
10	C.12								7.7	0.1	0.011	4.51	0.0					0.0			91	5	0.30	
		C.14	0.05	0.10	9.1	0.01	4.27	0.0																
11	DP10, C.14								12.2	0.6	0.35	3.83	1.4					1.4			162	5	0.54	
12	DP11, DP9								12.7	0.7	0.36	3.77	1.4					1.4			15	5	0.05	
		A.2	0.48	0.58	8.6	0.28	4.35	1.2										1.2						
13	DP12, A.2								12.8	1.2	0.64	3.76	2.4					2.4			32	5	0.11	
14	DP13, DP6								14.7	1.9	1.06	3.55	3.8					3.8			205	5	0.68	
		A.3	0.61	0.68	8.7	0.41	4.34	1.8										1.8						
15	DP14, A.3								15.3	2.6	1.48	3.49	5.2					5.2			193	5	0.64	
		A.4	0.72	0.58	15.2	0.42	3.50	1.455										1.5						
16	DP15, A.4								16.0	3.3	1.89	3.42	6.5					6.5			132	5	0.44	
		A.5	0.51	0.66	9.8	0.33	4.16	1.394										1.4						
17	DP16, A.5								16.4	3.8	2.23	3.38	7.5					7.5			32	5	0.11	
		B.3	0.38	0.89	5.0	0.34	5.17	1.748										1.7						
18	B.3								5.0	0.4	0.338	5.17	1.7					1.7			32	5	0.11	
		C.20	0.03	0.02	9.0	0.00	4.28	0.003																
19	DP18, C.20								9.0	0.4	0.339	4.28	1.5					1.5			76	5	0.25	
		C.17	0.01	0.02	5.3	0.00	5.07	0.001																
20	DP19, C.17								9.3	0.4	0.339	4.24	1.4					1.4			110	5	0.37	
		C.18	0.18	0.10	13.3	0.02	3.71	0.065										0.1						
21	C.18								13.3	0.2	0.017	3.71	0.1					0.1			224	5	0.75	
22	DP21, DP20								14.0	0.6	0.36	3.62	1.3					1.3			8	5	0.03	
		A.6	0.43	0.68	8.1	0.29	4.45	1.3										1.3						
23	DP22, A.6								14.0	1.0	0.65	3.62	2.3					2.3			22	5	0.07	
		A.7	0.42	0.65	8.8	0.27	4.32	1.2										1.2						
24	A.7								8.8	0.4	0.273	4.32	1.2								85	5	0.28	
25	DP23, DP24								14.1	1.5	0.920	3.61	3.3								136	5	0.45	
		B.5	0.14	0.89	5.0	0.12	5.17	0.6																
26	B.5								5.0	0.1	0.125	5.17	0.6					0.6			210	5	0.70	

No	Label															
27	DP26, DP24							14.6	1.6	1.0	3.57	3.7	3.7	167	5	0.56
	B.4	0.38	0.89	5.0	0.34	5.17	1.7						1.7			
28	B.4							5.0	0.4	0.338	5.17	1.7	1.7	204	5	0.68
	C.19	0.15	0.53	8.4	0.08	4.39	0.3						0.3			
29	DP 28, C.19							8.4	0.5	0.417	4.39	1.8	1.8	162	5	0.54
30	DP29							8.4	0.5	0.4	4.39	1.8	1.8	19	5	0.06
	A.8	0.67	0.59	10.8	0.40	4.01	1.6						1.6			
31	DP29, A.8							10.8	1.2	0.816	4.01	3.3	3.3	23	5	0.08
	A.9	0.31	0.67	9.5	0.21	4.21	0.9						0.9			
32	A.9							9.5	0.3	0.207	4.21	0.9	0.9	32	5	0.11
33	DP32, DP31, DP27							15.1	3.1	2.1	3.51	7.3	7.3	85	5	0.28
34	DP33, DP17							16.5	6.9	4.3	3.37	14.5	14.5	93	5	0.31
	A.10	0.33	0.65	7.8	0.22	4.51	1.0						1.0			
35	DP34, A.10							16.8	7.2	4.51	3.35	15.1	15.1	132	5	0.44
	OS.1	0.57	0.41	21.4	0.24	2.84	0.7						0.7			
36	OS.1							21.4	0.6	0.235	2.99	0.7	0.7			
	OS.2	0.62	0.38	13.0	0.24	3.64	0.9						0.9			
37	OS.2							13.0	0.6	0.236	3.74	0.9	0.9			

STORM DRAINAGE SYSTEM DESIGN - 100-YEAR DESIGN STORM

Cells of this color are for required user-input
Cells of this color are for optional user-input

$$I_{100} = -2.52 \ln(D) + 12.735$$

R&R ENGINEERS SURVEYORS INC

DESIGN POINT	STREET/ CONTRIBUTING BASINS	DIRECT RUNOFF Basin Name	Area (ac)	Coeff C	Tc (min)	C*A (ac)	I	Q (cfs)	TOTAL RUNOFF Tc (min)	Sum Area (ac)	Sum C*A (ac)	I in/hr	Q cfs	STREET BYPASS Street Q cfs	Street Slope %	Length ft	Street Tt min	PIPE Design Q cfs	Slope %	PIPE SIZE	TRAVEL TIME L ft	VEL ft/sec	Tt min	Remarks
		B.2	0.38	0.81	5.0	0.31	8.68	2.7										2.7						
1	B.2								5.0	0.4	0.308	8.68	2.7					2.7			112	5	0.4	
		C.15	0.04	0.35	7.5	0.01	7.66	0.1										0.1						
2	DP1, C.15								7.5	0.4	0.322	7.66	2.5					2.5			82	5	0.3	
		C.13	0.01	0.42	5.8	0.00	8.29	0.0										0.0						
3	DP3, C.13								7.8	0.4	0.326	7.57	2.5					2.5			184	5	0.6	
		C.16	0.18	0.38	13.6	0.07	6.17	0.4										0.4						
4	C.16								13.6	0.2	0.069	6.17	0.4					0.4			129	5	0.4	
5	DP4, DP3								14.0	0.6	0.40	6.09	2.4					2.4			12	5	0.04	
		A.1	0.14	0.79	7.5	0.11	7.66	0.8										0.8						
6	DP5, A.1								14.0	0.8	0.51	6.08	3.1					3.1			193	5	0.64	
		B.1	0.38	0.81	5.0	0.31	8.68	2.7										2.7						
7	B.1								5.0	0.4	0.308	8.68	2.7					2.7			144	5	0.48	
		C.11	0.13	0.35	11.6	0.05	6.56	0.3										0.3						
8	DP7, C.11								11.6	0.5	0.353	6.56	2.3					2.3			95	5	0.32	
		C.21	0.02	0.35	8.2	0.01	7.43	0.1										0.1						
9	DP8, C.21								11.9	0.5	0.360	6.49	2.3					2.3			75	5	0.25	
		C.12	0.09	0.43	7.7	0.04	7.58	0.3										0.3						
10	C.12								7.7	0.1	0.039	7.58	0.3					0.3			91	5	0.30	
		C.14	0.05	0.42	9.1	0.02	7.18	0.2										0.2						
11	DP10, C.14								12.2	0.6	0.40	6.44	2.6					2.6			162	5	0.54	
12	DP11, DP9								12.7	0.7	0.44	6.33	2.8					2.8			15	5	0.05	
		A.2	0.48	0.85	8.6	0.41	7.30	3.0										3.0						
13	DP12, A.2								12.8	1.2	0.84	6.32	5.3					5.3			32	5	0.11	
14	DP13, DP6								14.7	1.9	1.35	5.97	8.0					8.0			205	5	0.68	
		A.3	0.61	0.81	8.7	0.49	7.29	3.6										3.6						
15	DP14, A.3								15.3	2.6	1.84	5.85	10.8					10.8			193	5	0.64	
		A.4	0.72	0.77	15.2	0.56	5.87	3.27										3.3						
16	DP15, A.4								16.0	3.3	2.40	5.75	13.8					13.8			132	5	0.44	
		A.5	0.51	0.89	9.8	0.45	6.99	3.17										3.2						
17	DP16, A.5								16.4	3.8	2.85	5.68	16.2					16.2			32	5	0.11	
		B.3	0.38	0.81	5.0	0.31	8.68	2.67										2.7						
18	B.3								5.0	0.4	0.308	8.68	2.7					2.7			32	5	0.11	
		C.20	0.03	0.35	9.0	0.01	7.19	0.08										0.1						
19	DP18, C.20								9.0	0.4	0.318	7.19	2.3					2.3			76	5	0.25	
		C.17	0.01	0.35	5.3	0.00	8.52	0.03										0.0						
20	DP19, C.17								9.3	0.4	0.322	7.12	2.3					2.3			110	5	0.37	
		C.18	0.18	0.42	13.3	0.08	6.22	0.47										0.5						
21	C.18								13.3	0.2	0.075	6.22	0.5					0.5			224	5	0.75	
22	DP21, DP20								14.0	0.6	0.40	6.09	2.4					2.4			8	5	0.03	
		A.6	0.43	0.88	8.1	0.38	7.47	2.82										2.8						
23	DP22, A.6								14.0	1.0	0.77	6.08	4.7					4.7			22	5	0.07	
		A.7	0.42	0.84	8.8	0.35	7.25	2.56										2.6						
24	A.7								8.8	0.4	0.353	7.25	2.6					2.6			85	5	0.28	
25	DP23, DP24								14.1	1.5	1.128	6.07	6.8					6.8			136	5	0.45	
		B.5	0.14	0.81	5.0	0.11	8.68	1.0										1.0						
26	B.5								5.0	0.1	0.113	8.68	1.0					1.0			210	5	0.70	

No.	Name	Sub																					
27	DP26, DP24								14.6	1.6	1.2	5.99	7.4					7.4		167	5	0.56	
		B.4	0.38	0.81	5.0	0.31	8.68	2.7										2.7					
28	B.4								5.0	0.4	0.308	8.68	2.7					2.7		204	5	0.68	
		C.19	0.15	0.80	8.4	0.12	7.37	0.9										0.9					
29	DP 28, C.19								8.4	0.5	0.427	7.37	3.1					3.1		162	5	0.54	
30	DP29								8.4	0.5	0.4	7.37	3.1					3.1		19	5	0.06	
		A.8	0.67	0.83	10.8	0.55	6.73	3.7										3.7					
31	DP29, A.8								10.8	1.2	0.981	6.73	6.6					6.6		23	5	0.08	
		A.9	0.31	0.88	9.5	0.27	7.07	1.9										1.9					
32	A.9								9.5	0.3	0.273	7.07	1.9					1.9		32	5	0.11	
33	DP32, DP31, DP27								15.1	3.1	2.5	5.89	14.7					14.7		85	5	0.28	
34	DP33, DP17								16.5	6.9	5.3	5.66	30.3					30.3		93	5	0.31	
		A.10	0.33	0.86	7.8	0.28	7.57	2.2										2.2					
35	DP34, A.10								16.8	7.2	5.63	5.62	31.7					31.7		132	5	0.44	
		OS.1	0.57	0.59	21.4	0.34	5.01	1.7										1.7					
36	OS.1								21.4	0.6	0.339	5.01	1.7					1.7					
		OS.2	0.62	0.58	13.0	0.36	6.28	2.3										2.3					
37	OS.2								13.0	0.6	0.362	6.28	2.3					2.3					

APPENDIX C

DRAINAGE MAPS

MAYBERRY, COLORADO SPRINGS - FILING NO. 1

FILING NO. 1
DEVELOPED DRAINAGE PLAN

JPS ENGINEERING

19 E. Willamette Ave.
Colorado Springs, CO
80903
PH: 719-477-9429
FAX: 719-471-0766
www.jpsengr.com

SUMMARY HYDROLOGY TABLE

DESIGN POINT	Q5 (CFS)	Q100 (CFS)
EC11	24.4	149.5
C1.1	5.4	18.0
C1.2	16.9	35.9
C1.3	5.9	14.3
C1.4	6.3	15.3
C1.5	6.2	15.6
C1.6	3.8	9.4
C1.7A	1.1	2.7
C1.7B	8.2	17.3
C1.8	7.5	18.4
C1.9A	13.7	33.3
C1.9B	35.7	87.0
C1.10A	37.2	90.6

LEGEND:

— · — · — PROPERTY LINES

▬ ▬ ▬ DRAINAGE BASIN BOUNDARY

– – – SUB-BASIN BOUNDARY

← PROPOSED FLOW DIRECTION ARROW

△5 DESIGN POINT

OA1 / 66.8 AC. DEVELOPED BASIN DESIGNATION / BASIN AREA (ACRES)

—6490— EXISTING CONTOURS

—6490— PROPOSED CONTOURS

—1.5%→ PROPOSED STREET PROFILE GRADE

VICINITY MAP
NTS

ANTELOPE DRIVE
STATE HIGHWAY 94
MAYBERRY SITE
LOG ROAD
ELLICOTT HIGHWAY
HANDLE ROAD

ORIGINAL SCALE: 1"=100'
100' 0 100' 200'
CONTOUR INTERVAL: 2 FEET

Labels on plan: CULVERT A1A, Tc FLOW PATH (TYP.), MARKETPLACE DR, INDIAN GRASS ST, GARDEN PARK AVE, BLANKET FLOWER ST, ATCHISON WAY, GALVESTON TERRACE, CATTLEMEN RUN, VILLAGE MAIN ST, SOLAIRE LOOP, MAYBERRY DRIVE, NEW LOG ROAD, FILING NO. 1, FUTURE FILING NO. 3, DETENTION POND C1, CROSSPAN (TYP), STORM SEWER C1.4A (36"), STORM SEWER C1.8 (24"), INLET C1.8, SD_C1.9B (48"X76" HERCP), SD EC11 (30")

NOTE: ATCHISON WAY STREET CAPACITY IS SUFFICIENT TO CONVEY DEVELOPED UPSTREAM EMERGENCY CONDITION FLOWS PER FDR SEC. VI.B.3.

EXISTING 30" CMP CULVERTS (3 EA.)

CULVERT HW EL=6066.1; 100 YEAR FLOW IS CONTAINED WITHIN TRACTS AND ROW

Basin designations: C1.1 9.38 AC, C1.2 7.97 AC, C1.3 3.02 AC, C1.4 3.23 AC, C1.5 3.18 AC, C1.6 3.01 AC, C1.7A 0.58 AC, C1.7B 4.34 AC, C1.8 3.89 AC, C1.9 4.39 AC, C1.10 1.82 AC, C2.1 2.55 AC, C2.2 1.99 AC, C2.3 3.01 AC, C2.4 2.89 AC, C2.5 6.27 AC, C2.6 4.56 AC, C3 20.25 AC

HORZ. SCALE: 1"=100'
VERT. SCALE: N/A
SURVEYED: RAMPART
CREATED: 12/03/00
PROJECT NO: 090001
DRAWN: BJJ
DESIGNED: JPS
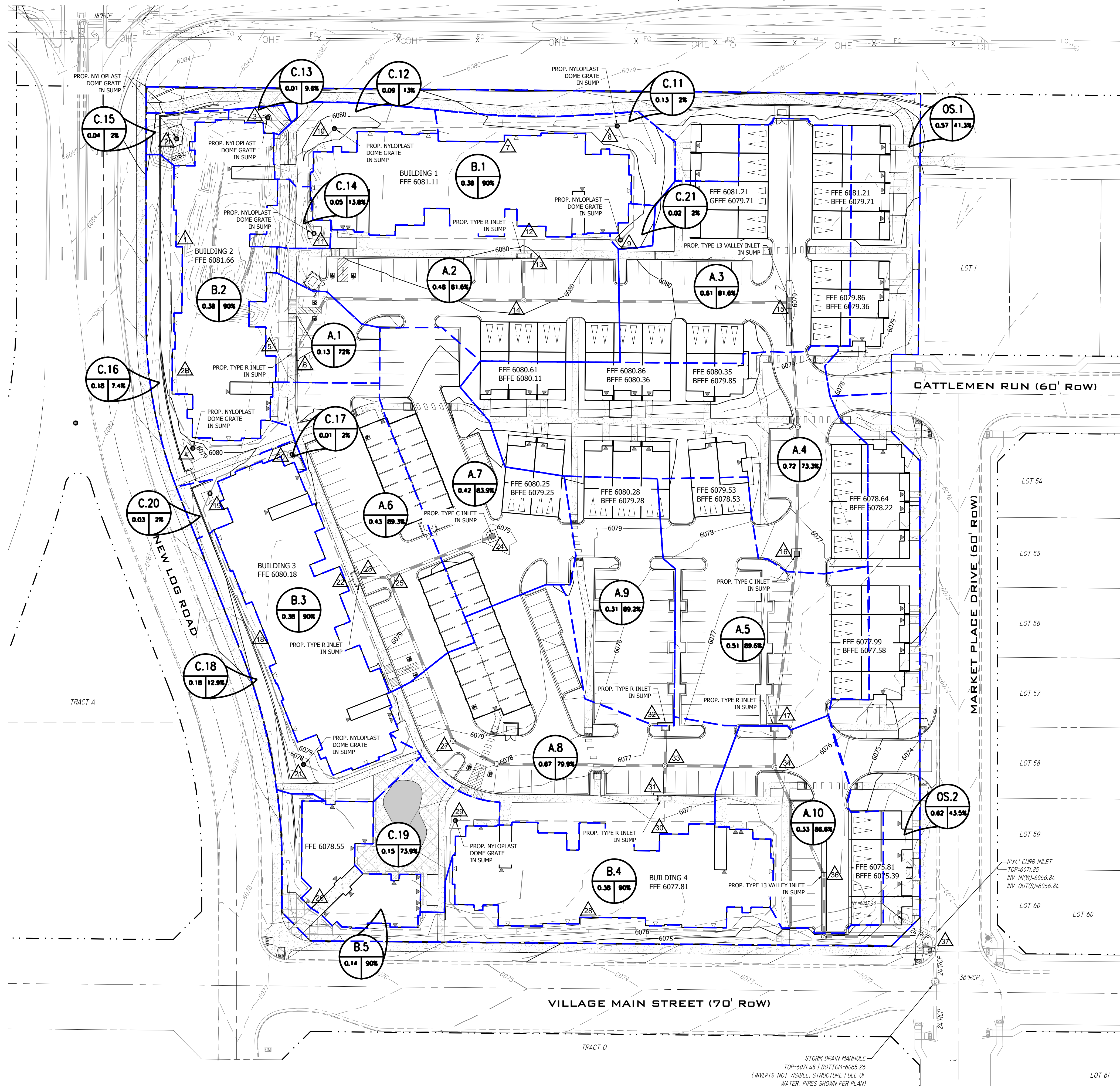CHECKED: JPS
LAST MODIFIED: 4/7/22
MODIFIED BY: JPS
SHEET: **D2.1**
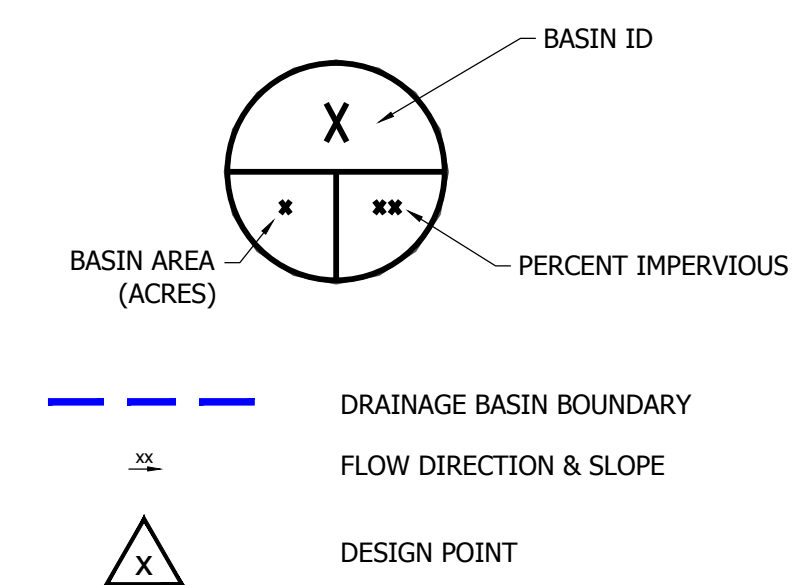
DRAINAGE MAP
MAYBERRY, COLORADO - TRACT K APARTMENTS

A REPLAT OF PART OF TRACT M AND ALL OF TRACT P, MAYBERRY, COLORADO SPRINGS FILING NO. 1, AND ALL OF TRACTS A, B, C AND D, MAYBERR, COLORADO SPRINGS FILING NO. 2,
AND THAT PART OF SPRINGS ROAD RIGHT-OF-WAY LYING SOUTH OF SAID TRACT A AND THAT PART OF VILLAGE MAIN STREET RIGHT-OF-WAY LYING EAST OF ATCHISON WAY
ALL LOCATED IN THE NORTH HALF OF SECTION 14, TOWNSHIP 14 SOUTH, RANGE 63 WEST OF THE 6TH PRINCIPAL MERIDIAN
COUNTY OF EL PASO (UNINCORPORATED), STATE OF COLORADO

LEGEND

- BASIN ID
- BASIN AREA (ACRES)
- PERCENT IMPERVIOUS
- DRAINAGE BASIN BOUNDARY
- FLOW DIRECTION & SLOPE
- DESIGN POINT

BASIN SUMMARY TABLE

Basin	Area (acres)	5-yr (cfs)	100-yr (cfs)
A.1	0.14	0.33	0.5
A.2	0.48	1.21	1.8
A.3	0.61	1.80	2.1
A.4	0.72	1.45	2.0
A.5	0.51	1.39	1.9
A.6	0.43	1.29	1.7
A.7	0.42	1.18	1.5
A.8	0.67	1.60	2.2
A.9	0.31	0.87	1.2
A.10	0.33	0.97	2.1
B.1	0.38	1.75	1.6
B.2	0.38	1.75	1.6
B.3	0.38	1.75	1.6
B.4	0.38	1.75	1.6
B.5	0.14	0.64	0.6
C.11	0.13	0.01	0.2
C.12	0.09	0.05	0.2
C.13	0.01	0.01	0.1
C.14	0.05	0.02	0.1
C.15	0.04	0.00	0.1
C.16	0.18	0.04	0.3
C.17	0.01	0.00	0.1
C.18	0.18	0.06	0.3
C.19	0.15	0.35	0.5
C.20	0.03	0.00	0.1
C.21	0.02	0.00	0.0
OS.1	0.57	0.67	1.6
OS.2	0.62	0.86	2.2

DESIGN POINT SUMMARY TABLE

Design Point	Contributing Basins	Area (acres)	5-yr (cfs)	100-yr (cfs)
1	B.2	0.38	1.72	2.63
2	DP1, C.15	0.42	1.53	2.44
3	DP3, C.13	0.43	1.52	2.44
4	C.16	0.18	0.04	0.41
5	DP4, DP3	0.61	1.23	2.34
6	DP5, A.1	0.75	1.48	2.98
7	B.1	0.38	1.72	2.63
8	DP7, C.11	0.51	1.30	2.27
9	DP8, C.21	0.53	1.29	2.28
10	C.12	0.09	0.05	0.29
11	DP10, C.14	0.62	1.32	2.51
12	DP11, DP9	0.71	1.33	2.70
13	DP12, A.2	1.19	2.35	5.19
14	DP13, DP6	1.94	3.66	7.80
15	DP14, A.3	2.55	4.98	10.43
16	DP15, A.4	3.27	6.26	13.32
17	DP16, A.5	3.78	7.27	15.63
18	B.3	0.38	1.72	2.63
19	DP18, C.20	0.41	1.43	2.26
20	DP19, C.17	0.42	1.42	2.26
21	C.18	0.18	0.06	0.46
22	DP21, DP20	0.60	1.25	2.35
23	DP22, A.6	1.03	2.27	4.57
24	A.7	0.42	1.16	2.52
26	B.5	0.14	0.63	0.97
27	DP26, DP24	1.59	3.61	7.20
28	B.4	0.38	1.72	2.63
29	DP 28, C.19	0.53	1.81	3.11
30	DP29	0.53	1.81	3.11
31	DP29, A.8	1.20	3.20	6.47
32	A.9	0.31	0.86	1.90
33	DP32, DP31, DP27	3.10	7.01	14.23
34	DP33, D.17	6.88	13.96	29.20
35	DP34, A.10	7.21	14.53	30.47
36	OS.1	0.57	0.67	1.62
37	OS.2	0.62	0.86	2.22

CATTLEMEN RUN (60' RoW)
MARKET PLACE DRIVE (60' RoW)
NEW LOG ROAD
VILLAGE MAIN STREET (70' RoW)
TRACT A
TRACT O

SCALE: 1" = 40'
0 40' 80' 120'

Know what's below. Call before you dig. 811

BUILDING 1 FFE 6081.11
BUILDING 2 FFE 6081.66
BUILDING 3 FFE 6080.18
BUILDING 4 FFE 6077.81

STORM DRAIN MANHOLE
TOP=6071.48 | BOTTOM=6065.26
(INVERTS NOT VISIBLE, STRUCTURE FULL OF WATER, PIPES SHOWN PER PLAN)