FINAL DRAINAGE REPORT
FOR
MAYBERRY, COLORADO SPRINGS – FILING NO. 2

Prepared for:

Colorado Springs Mayberry, LLC
32823 Temecula Parkway
Temecula, CA 92592

March 28, 2019
Revised July 19, 2019
Revised October 27, 2020

Prepared by:

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JPS Project No. 030502
EPC Project No. SF1910

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DRAINAGE STATEMENT

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 plan of the drainage basin. I accept responsibility for liability caused by negligent acts, errors or omissions on my part in preparing this report.

COLORADO REGISTERED JOHN P. SCHWAB 29891 PROFESSIONAL ENGINEER

4/28/20

John P. Schwab, P.E. #29891

Developer's Statement:

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

By: Rick Scott

4-27-2020

Printed Name: Date

Colorado Springs Mayberry LLC
32823 Temecula Parkway, Temecula, CA 92592

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.

APPROVED
Engineering Department
11/05/2020 5:59:47 PM
dsdnijkamp
EPC Planning & Community Development Department

Jennifer Irvine, P.E.
County Engineer / ECM Administrator

Date

Conditions:

I. GENERAL LOCATION AND DESCRIPTION

A. Background

Mayberry, Colorado Springs, formerly known as "Ellicott Town Center" (ETC) is a proposed subdivision located west of Ellicott, Colorado in El Paso County. The development is located on the south side of State Highway 94, approximately 1-1/2 miles west of Ellicott Highway (see vicinity map in Appendix B). The approved Ellicott Town Center PUD includes a total of 1,048 single-family dwelling units and 32 acres of commercial space. Colorado Springs Mayberry, LLC is moving forward with development of Ellicott Town Center Filing No. 1, consisting of 98 single-family residential lots near the north boundary of the project. Filing No. 1 was approved by the Board of County Commissioners on April 12, 2007 (Resolution No. 07-132) and is currently pending recording.

Mayberry, Colorado Springs Filing No. 2 consists of a replat of Tract L and Tract Q of Mayberry, Colorado Springs Filing No. 1, creating 3 commercial lots along the extension of Cattlemen Run on the west side of Springs Road. While the Filing No. 2 replat comprises a total of 85.8 acres including several tracts for future development, the actual development area within this plat is limited to 3 new commercial lots comprising a total of 2.8 acres.

B. Scope

This report is provided in support of the subdivision plat for "Mayberry, Colorado Springs Filing No. 2." The report is intended to fulfill the El Paso County requirements for a Final Drainage Report (FDR). The report will provide a summary of site drainage issues impacting the proposed development, including analysis of impacts from upstream drainage patterns, site-specific developed drainage patterns, and impacts on downstream facilities. This FDR report was prepared based on the guidelines and criteria presented in the El Paso County Drainage Criteria Manual, providing final design of required drainage facilities for this phase of the project.

JPS Engineering prepared the "Final Drainage Report for Mayberry, Colorado Springs Filing No. 1" which includes the storm drainage and detention facilities serving the area within Filing No. 2. Drainage calculations for these facilities are included in the FDR for Filing No. 1, so the scope of this Final Drainage Report is limited accordingly.

C. Site Location and Description

The Mayberry, Colorado Springs (fka "Ellicott Town Center") property comprises the west half of Section 14 along with the contiguous east quarter of Section 15, as well the west half of the northeast quarter of Section 14, Township 14 South, Range 63 West of the 6th Principal Meridian. The site is located at an elevation of approximately 6,060 feet above mean sea level. The 550.6-acre site is currently undeveloped, with the exception of an abandoned concrete batch plant and several storage buildings in vicinity of Springs Road, and the existing Viewpoint Water Tank site at the northwest corner of the parcel.

State Highway 94 borders the parcel to the north, and unplatted agricultural properties (zoned A35) border this parcel on the east and south sides. Unplatted property zoned RR5 borders the overall ETC parcel to the west.

Filing No. 1 includes 98 single-family residential lots at the north end of the development, and Filing No. 2 comprises 3 commercial lots along Springs Road in the northeast area of the development. The primary access to Mayberry, Colorado Springs Filing No. 2 will be provided by Springs Road extending south from SH94. Site improvements will include overlot grading and curb, gutter, and asphalt paving of the roads within the site.

The intermittent streams throughout this area drain into the Black Squirrel Creek Basin which ultimately outfalls into the Arkansas River. The entire Filing No. 2 site is located within the Ellicott Consolidated Drainage Basin (CHBS1200). This basin conveys surface drainage to the West Fork of Black Squirrel Creek, which is located east of this parcel between the site and Ellicott Highway.

The terrain is generally flat with gentle northwest to southeast slopes ranging from one to two percent. Historic drainage patterns from the site are conveyed overland to the south and east boundaries of the site. The entire site is covered with native grasses, except for the existing water tank site at the northwest corner of the parcel.

D. General Soil Conditions

According to the Soil Survey of El Paso County prepared by the Soil Conservation Service, on-site soils within the Filing No. 2 area are comprised primarily of "Truckton loamy sand (type 95)" soils (see Appendix A). These soils are characterized as well-drained loamy sand with rapid permeability, slow surface runoff rates, and moderate hazard of erosion. These soils are classified as hydrologic soils group "A" for drainage analysis purposes.

E. References

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

El Paso County "Engineering Criteria Manual," December 13, 2016.

El Paso County Resolution No. 15-042 (El Paso County adoption of "Chapter 6: Hydrology" and "Chapter 13, Section 3.2.1: Full Spectrum Detention" of the City of Colorado Springs Drainage Criteria Manual dated May 2014).

FEMA, Flood Insurance Rate Map (FIRM) Number 08041C0810G, December 7, 2018.

JPS Engineering, "Preliminary and Final Drainage Report for Mayberry, Colorado Springs Filing No. 1," October 27, 2020.

JPS Engineering, "Master Development Drainage Plan for Ellicott Town Center," November 22, 2005 (Approved by El Paso County 12/02/05).

JPS Engineering, "Master Development Drainage Plan and Preliminary Drainage Report for Springs East Village," March 21, 2002 (Approved by El Paso County 10/23/02).

JPS Engineering, "Master Development Drainage Plan and Preliminary Drainage Report for Viewpoint Village," January 28, 2002 (Approved by El Paso County 9/11/02).

JPS Engineering, "Preliminary Drainage Report for Ellicott Town Center - Phase 1," January 15, 2007.

JPS Engineering, "Preliminary and Final Drainage Report for Ellicott Town Center Filing No. 1," January 15, 2019.

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

II. DRAINAGE BASINS AND SUB-BASINS

A. Major Basin Description

The proposed development lies within the Ellicott Consolidated Drainage Basin (CHBS1200) as classified by El Paso County. This basin is comprised of the area tributary to the West Fork of Black Squirrel Creek, with the majority of the basin bounded by SH94 to the north and Ellicott Highway to the east. No drainage planning study has been completed for the Ellicott Consolidated Drainage Basin or any adjacent drainage basins.

The Ellicott Consolidated Drainage Basin comprises a tributary area of about 13 square miles, or 8,320 acres. The proposed subdivision represents a total of 551 acres of development, or 7 percent of the total basin area. An "on-site" drainage planning approach has been proposed based on the relatively small developed area in comparison to the remaining undeveloped basin area, which is primarily agricultural land.

The overall ETC site historically consists of five major basins conveying flows towards the south and eastern boundaries of the site, as shown in Figure EX2. Drainage from this site flows southeasterly to existing natural drainage channels flowing towards Black Squirrel Creek.

B. Floodplain Impacts

The project site is not impacted by any 100-year floodplain limits as delineated by the Federal Emergency Management Agency (FEMA). The site is located approximately one mile southwest of the 100-year floodplain limits for the West Fork of Black Squirrel Creek. The floodplain limits in the vicinity of the site are shown in Flood Insurance Rate Map (FIRM) Number 08041C0810G dated December 7, 2018 (see Appendix B).

C. Sub-Basin Description

The developed drainage basins lying within the proposed development are depicted in Figure D1. The overall ETC site layout has been delineated into several drainage basins (A-E) based on the proposed road layout and grading scheme. The natural drainage patterns will be impacted through development by site grading and concentration of runoff in subdivision street gutters, storm drains, and channels. The majority of sub-basins drain to the southeast, collecting in the interior roads and drainage channels. On-site flows will be diverted to proposed detention ponds located at the south and east boundaries of the site, and detained runoff flows will discharge to the southeast, following historic drainage paths.

Mayberry, Colorado Springs Filing No. 2 is located within Basins C and D, and developed drainage impacts from this part of the site will ultimately be mitigated by routing developed flows through Detention Pond D at the southeast corner of the site.

III. DRAINAGE DESIGN CRITERIA

A. Development Criteria Reference

The Ellicott Consolidated Drainage Basin has not had a Drainage Basin Planning Study performed for the basin. The majority of areas within the basin are comprised of agricultural lands and rural residential uses.

The "Master Development Drainage Plan (MDDP) for Ellicott Town Center" was approved by El Paso County concurrent with the Sketch Plan and Overall PUD, and a Preliminary Drainage Report for Phase One was approved with the Phase One PUD and Preliminary Plan. This "Final Drainage Report for Mayberry, Colorado Springs Filing No. 2" fully conforms to the previously approved MDDP.

B. Hydrologic Criteria

SCS procedures were utilized for analysis of major basin flows impacting the site. In accordance with El Paso County drainage criteria, SCS hydrologic calculations were based on the following assumptions:

- Design storm (minor) 5-year
- Design storm (major) 100-year
- Storm distribution SCS Type IIA (eastern Colorado)
- 100-year, 24-hour rainfall 4.4 inches per hour (NOAA isopluvial map)
- 5-year, 24-hour rainfall 2.6 inches per hour (NOAA isopluvial map)
- Hydrologic soil type B
- SCS curve number - undeveloped conditions 61 (pasture / range)
- SCS curve number - developed conditions 80 (1/8-1/4 acre lots)
- SCS curve number - developed conditions 92 (commercial areas)

Rational method procedures were utilized for calculation of peak flows within the on-site drainage basins. Rational method hydrologic calculations were based on the following assumptions:

- Design storm (minor) 5-year
- Design storm (major) 100-year
- Rainfall Intensities El Paso County I-D-F Curve
- Hydrologic soil type A

	C5	C100
• Runoff Coefficients - undeveloped:		
Existing pasture/range areas	0.25	0.35
• Runoff Coefficients - developed:		
Proposed Residential (1/8-1/4 acre lots)	0.375	0.545
Proposed Neighborhood Commercial (70% impervious)	0.49	0.62

Commercial areas within Filing No. 2 have been modeled as neighborhood commercial based on anticipated impervious areas in the range of 70 percent. Future drainage reports associated with each site development plan shall identify site-specific runoff coefficients for comparison to the subdivision drainage report. If greater overall impervious areas are developed, then future site plans may need to mitigate for the increase or ensure that downstream drainage facilities have adequate capacity.

Hydrologic calculations are enclosed in Appendix A, and peak design flows are identified on the drainage basin drawings. While the hydrologic modeling spreadsheets in Appendix A provide comprehensive preliminary information for the overall Ellicott Town Center project, only the design points associated with Basins C and D are applicable to this Final Drainage Report.

IV. DRAINAGE PLANNING FOUR STEP PROCESS

El Paso County Drainage Criteria require drainage planning to include a Four Step Process for receiving water protection that focuses on reducing runoff volumes, treating the water quality capture volume (WQCV), stabilizing drainageways, and implementing long-term source controls.

As stated in DCM Volume 2, the Four Step Process is applicable to all new and re-development projects with construction activities that disturb 1 acre or greater or that disturb less than 1 acre but are part of a larger common plan of development. The Four Step Process has been implemented as follows in the planning of this project:

Step 1: Employ Runoff Reduction Practices

- Minimize Impacts: The approved Ellicott Town Center PUD includes significant open space, play areas, and parks, resulting in a moderate level of impervious site development.

- Minimize Directly Connected Impervious Areas (MDCIA): The proposed development will include landscaped areas adjoining the proposed building and parking lots, providing for impervious areas to drain across pervious areas where feasible.
- Grass Swales: The proposed drainage plan incorporates grass-lined swales in selected locations to encourage stormwater infiltration while providing positive drainage through the site.

Step 2: Stabilize Drainageways

- Proper erosion control measures will be implemented along the grass-lined drainage channels to provide stabilized drainageways within the site.

Step 3: Provide Water Quality Capture Volume (WQCV)

- EDB: The developed areas of the site will drain through proposed Full-Spectrum Extended Detention Basins (EDB) southeast of the developed areas. Site drainage will be routed through the extended detention basins, which will capture and slowly release the WQCV over an extended release period.

Step 4: Consider Need for Industrial and Commercial BMPs

- Industrial and/or commercial land uses within Filing No. 2 will be required to implement and maintain a Stormwater Management Plan (SWMP) including proper housekeeping procedures and other measures for protection of stormwater quality.

V. GENERAL DRAINAGE RECOMMENDATIONS

The developed drainage plan for the site is to provide and maintain positive drainage away from structures and conform to the established drainage patterns for the overall site. JPS Engineering recommends that positive drainage be established and maintained away from all structures within the site in conformance with applicable building codes and geotechnical engineering recommendations.

Site grading and drainage improvements performed as a part of subdivision infrastructure development includes overlot grading and subdivision drainage improvements depicted on the subdivision construction drawings. Individual lot grading is the sole responsibility of the individual builders and property owners. Final grading of each home site should establish proper protective slopes and positive drainage in accordance with HUD guidelines and building codes. In general, main floor elevations for each home should be established approximately 2 feet above the top of curb of the adjoining street.

In general, we recommend a minimum of 6 inches clearance from the top of concrete foundation walls to adjacent finished site grades. Positive drainage slopes should be maintained away from all structures, with a minimum recommended slope of 5 percent for the first 10 feet away from buildings in landscaped areas, a minimum recommended slope of 2 percent for the first 10 feet away from buildings in paved areas, and a minimum slope of 1 percent for paved areas beyond buildings.

VI. DRAINAGE FACILITY DESIGN

A. General Concept

Consistent with generally accepted practices in eastern El Paso County, the general concept for management of stormwater from development of Ellicott Town Center will be to construct several stormwater detention ponds along the south and east boundaries of the site to mitigate the impacts of developed runoff from the site.

Development of the Mayberry, Colorado Springs project will require site grading and paving, resulting in additional impervious areas across the site. The general drainage pattern will consist of grading away from building sites to swales and gutters along the internal roads within the subdivision, conveying runoff flows through the site. Runoff from the site will flow by street gutters to curb inlets at low points and road intersections, thence by storm drains and drainage channels to the proposed detention ponds. The storm inlets and storm sewer system within the development will be designed as the "minor" drainage system, sized for 5-year developed peak flows. The internal road system, drainage channels, and detention ponds will be designed as the "major" drainage system, sized for 100-year peak flows. Street flows within subdivision streets will be maintained below allowable levels in accordance with El Paso County drainage criteria.

B. Specific Details

1. Existing Drainage Conditions

Historic drainage conditions are depicted in Figure EX2. There are no existing drainage facilities within the undeveloped site. Site drainage historically flows southeasterly across the site within existing grass-lined drainage swales and channels.

The proposed Filing No. 2 site is not impacted by any off-site drainage areas.

As detailed in the "Master Development Drainage Plan for Ellicott Town Center" (MDDP), off-site flows from Basin EC11 cross State Highway 94 in a triple 30-inch CMP culvert crossing west of the Filing No. 2 site, and continue flowing southeasterly through an existing grass-lined swale across Basin D to Design Point #5, with historic peak flows of Q_5 = 14.6 cfs and Q_{100} = 97.5 cfs (SCS Method).

Off-site flows from Basin EC10 cross State Highway 94 in another triple 30-inch CMP culvert crossing east of the Filing No. 2 site. These flows drain through an existing grass-lined swale across Basin E to Design Point #6, with historic peak flows of Q_5 = 5.3 cfs and Q_{100} = 37.1 cfs (SCS Method). As shown on Sheet EX2, two existing driveway culverts on the south side of SH94 convey flows from the roadside ditch on the south side of SH94 easterly to converge with the existing swale on the downstream side of the triple 30-inch CMP culverts, combining with Basin EC10. These flows continue southeasterly in the existing swale within Basin E.

Future development of the area east of Tract A, Filing No. 2 (developed Basin D1.6) will include a diversion channel to route the historic flow from off-site Basin EC10 east along the northern property line and then south along the eastern property line such that no developed flows are discharged into Basin E. Future developed flows from Tract A (developed Basin D1.1) and the other developed areas to the south and east will be conveyed southeasterly to Detention Pond D.

Historic drainage from Basins D and E flows southeast to the westerly ditch along "Old" Log Road, then turns east and follows the southerly ditch of Handle Road to its confluence with the main channel of the Middle Fork of Black Squirrel Creek.

2. Developed Drainage Conditions

The developed drainage basins and projected flows are shown in Figures D1, D1.01, and D1.12 (Appendix B). The development of Mayberry, Colorado Springs Filing No. 2 lies within Sub-Basins C2.7-C2.8 and D1.1-D1.3 as shown on the enclosed Drainage Plans. Flows from this phase of the project impact only Design Point #5 in the overall drainage analysis (Sheet D1).

The proposed commercial Lots 1-3 along the west side of Springs Road are located within Basins C2.6-C2.8. Developed drainage from these basins will sheet flow southeasterly. Filing No. 2 infrastructure improvements will be limited to the short segment of Cattlemen Run on the west side of Springs Road, and a short extension of Bottle Brush Street south of Cattlemen Run. Drainage conveyance will be provided by surface drainage to the curb and gutter along these streets and interim drainage ditches along the future streets. There are no significant drainage improvements required for development of Filing No. 2.

Street drainage will be conveyed easterly along Cattlemen Run and Village Main Street, and southerly along Bottle Brush Street and Springs Road, to the downstream storm sewer system at the intersection of Springs Road and Village Main Street. Combined flows from Basins C2.6-C2.8 will drain to Temporary Detention Pond C2.8 at the northwest corner of Springs Road and Village Main Street. Developed peak flows entering Detention Pond C2.8 at Design Point #C2.8A are calculated as Q_5 = 11.9 cfs and Q_{100} = 26.7 cfs (Rational Method).

Storm sewer C2.8 consists of a 30-inch RCP storm sewer extending east along Village Main Street. This storm sewer will discharge to an interim drainage swale flowing southeast to daylight with Filing No. 1 construction. Future phases of the project will include extension of this storm sewer system to an ultimate outfall flowing south to Detention Pond D.

Future commercial development areas along the east side of Springs Road are located within Basins D1.1-D1.3. Developed drainage from these basins will flow southeasterly to a future storm sewer system draining to Detention Pond D.

Combined flows from Basins C2.6-C2.8 and D1.1-D1.3 will drain to the future storm sewer system at Design Point #D1.3A. Developed peak flows at Design Point #D1.3A are calculated as Q_5 = 23.5 cfs and Q_{100} = 52.4 cfs (Rational Method).

Future Detention Pond D will ultimately mitigate developed drainage impacts from Filing No. 2 and the adjoining commercial and residential development areas, and the net discharge downstream of Design Point #5 will remain at historic levels.

Street capacity and storm sewer calculations for the downstream drainage systems are provided in the Final Drainage Report for Ellicott Town Center Filing No. 1.

3. Emergency Conditions Analysis

In the event of clogging, the storm inlets south of the Filing No. 2 development area will overflow to the adjoining public streets, and flow southeasterly to existing grass-lined drainage swales. Emergency overflows would sheet flow southeasterly along the public streets, ultimately flowing into Detention Pond D.

There are no significant upstream developed areas and no off-site detention facilities impacting the Filing No. 2 area.

C. Detention Ponds

The total developed storm runoff downstream of the Filing No. 2 site will be maintained at historic levels by routing flows through Detention Pond C2.8 located south of the Filing No. 2 development area. Temporary Detention Pond C2.8 will be constructed at the northwest corner of Springs Road and Village Main Street with the initial phase of development (Filing No. 1), and this temporary pond will be maintained by the Developer. This pond will meet stormwater detention and water quality requirements for the interim development areas east of the Filing No. 1 lots until Detention Pond D is constructed during a future development phase. Future Detention Pond D will ultimately mitigate developed drainage impacts from the development areas south and east of Filing No. 1.

Design details for Detention Pond C2.8 are included in the Final Drainage Report for Ellicott Town Center Filing No. 1.

Based on the proposed approach of reducing developed flows to historic levels at the site boundaries, no significant downstream drainage impacts are anticipated, and no downstream drainage improvements are proposed.

VII. EROSION & SEDIMENT CONTROL

The Contractor will be required to implement best management practices (BMP's) for erosion control during construction. The proposed erosion control plan for this filing is included in the Grading & Erosion Control (GEC) Plans for Mayberry, Colorado Springs Filing No. 1. Erosion

control measures will include installation of silt fence at the toe of disturbed slopes and other appropriate Best Management Practices (BMP's). Cut and fill slopes will be stabilized during excavation as necessary and vegetation will be established for stabilization of the disturbed areas. Additionally, gravel vehicle tracking pads will be installed at construction access points and inlet protection will be provided to minimize conveyance of sediment into storm inlets.

Construction of the proposed stormwater detention pond will be phased at the beginning of overlot grading work to serve as a temporary sediment pond during the construction phase. Accumulated sediment will have to be removed from the pond prior to completion of sitework to restore design capacity of the detention pond.

VIII. COST ESTIMATE AND DRAINAGE FEES

The developer will pay all capital costs for Filing No. 2 roadway and infrastructure improvements. Storm drainage and detention facilities serving Filing No. 2 will be constructed as a part of Filing No. 1 development, so there are no public drainage improvements included with Filing No. 2.

The Mayberry, Colorado Springs Filing No. 2 parcel is located entirely within the Ellicott Consolidated Drainage Basin, which currently does not have a drainage or bridge fee requirement. As such, no basin fees are applicable.

IX. SUMMARY

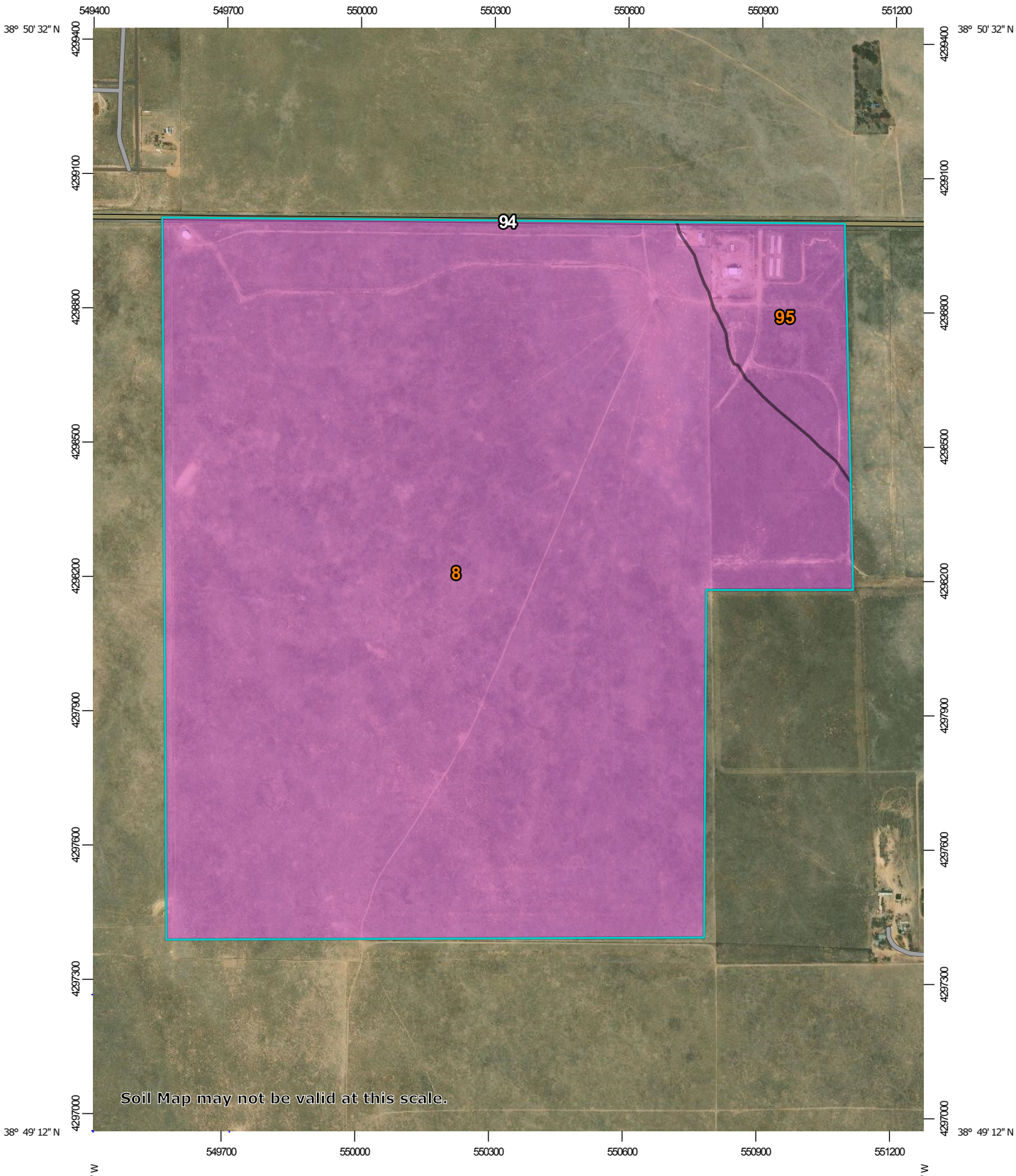
Mayberry, Colorado Springs Filing No. 2 consists of 3 commercial lots on the west side of Springs Road. The proposed development will generate an increase in undetained developed runoff from the site, which will be mitigated through on-site stormwater detention facilities.

The proposed drainage patterns will remain consistent with historic conditions, and new drainage facilities constructed to El Paso County standards will safely convey runoff to adequate outfalls. Construction of the proposed Detention Pond C2.8 during Filing No. 1 development will also serve to mitigate developed drainage impacts from Mayberry, Colorado Springs Filing No. 2, maintaining developed drainage discharges below historic levels. Construction and proper maintenance of the proposed drainage and erosion control facilities will ensure that this subdivision has no significant adverse drainage impacts on downstream or surrounding areas.

APPENDIX A

HYDROLOGIC CALCULATIONS

Hydrologic Soil Group—El Paso County Area, Colorado
(Ellicott Town Center)



Map Scale: 1:12,000 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 150 300 600 900

Feet
0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N 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: El Paso County Area, Colorado
Survey Area Data: Version 16, Sep 10, 2018

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

Date(s) aerial images were photographed: Jun 7, 2016—Aug 17, 2017

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
8	Blakeland loamy sand, 1 to 9 percent slopes	A	516.4	94.1%
95	Truckton loamy sand, 1 to 9 percent slopes	A	32.5	5.9%
Totals for Area of Interest			**548.9**	**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

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

3.2 Time of Concentration

One of the basic assumptions underlying the Rational Method is that runoff is a function of the average rainfall rate during the time required for water to flow from the hydraulically most remote part of the drainage area under consideration to the design point. However, in practice, the time of concentration can be an empirical value that results in reasonable and acceptable peak flow calculations.

For urban areas, the time of concentration (t_c) consists of an initial time or overland flow time (t_i) plus the travel time (t_t) in the storm sewer, paved gutter, roadside drainage ditch, or drainage channel. For non-urban areas, the time of concentration consists of an overland flow time (t_i) plus the time of travel in a concentrated form, such as a swale or drainageway. The travel portion (t_t) of the time of concentration can be estimated from the hydraulic properties of the storm sewer, gutter, swale, ditch, or drainageway. Initial time, on the other hand, will vary with surface slope, depression storage, surface cover, antecedent rainfall, and infiltration capacity of the soil, as well as distance of surface flow. The time of concentration is represented by Equation 6-7 for both urban and non-urban areas.

$$t_c = t_i + t_t \quad \text{(Eq. 6-7)}$$

Where:

t_c = time of concentration (min)

t_i = overland (initial) flow time (min)

t_t = travel time in the ditch, channel, gutter, storm sewer, etc. (min)

3.2.1 Overland (Initial) Flow Time

The overland flow time, t_i, may be calculated using Equation 6-8.

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L}}{S^{0.33}} \quad \text{(Eq. 6-8)}$$

Where:

t_i = overland (initial) flow time (min)
C_5 = runoff coefficient for 5-year frequency (see Table 6-6)
L = length of overland flow (300 ft maximum for non-urban land uses, 100 ft maximum for urban land uses)
S = average basin slope (ft/ft)

Note that in some urban watersheds, the overland flow time may be very small because flows quickly concentrate and channelize.

3.2.2 Travel Time

For catchments with overland and channelized flow, the time of concentration needs to be considered in combination with the travel time, t_t, which is calculated using the hydraulic properties of the swale, ditch, or channel. For preliminary work, the overland travel time, t_t, can be estimated with the help of Figure 6-25 or Equation 6-9 (Guo 1999).

$$V = C_v S_w^{0.5} \quad \text{(Eq. 6-9)}$$

Where:

V = velocity (ft/s)

C_v = conveyance coefficient (from Table 6-7)

S_w = watercourse slope (ft/ft)

Table 6-7. Conveyance Coefficient, C_v

Type of Land Surface	C_v
Heavy meadow	2.5
Tillage/field	5
Riprap (not buried)*	6.5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

* For buried riprap, select C_v value based on type of vegetative cover.

The travel time is calculated by dividing the flow distance (in feet) by the velocity calculated using Equation 6-9 and converting units to minutes.

The time of concentration (t_c) is then the sum of the overland flow time (t_i) and the travel time (t_t) per Equation 6-7.

3.2.3 First Design Point Time of Concentration in Urban Catchments

Using this procedure, the time of concentration at the first design point (typically the first inlet in the system) in an urbanized catchment should not exceed the time of concentration calculated using Equation 6-10. The first design point is defined as the point where runoff first enters the storm sewer system.

$$t_c = \frac{L}{180} + 10 \qquad \text{(Eq. 6-10)}$$

Where:

t_c = maximum time of concentration at the first design point in an urban watershed (min)

L = waterway length (ft)

Equation 6-10 was developed using the rainfall-runoff data collected in the Denver region and, in essence, represents regional "calibration" of the Rational Method. Normally, Equation 6-10 will result in a lesser time of concentration at the first design point and will govern in an urbanized watershed. For subsequent design points, the time of concentration is calculated by accumulating the travel times in downstream drainageway reaches.

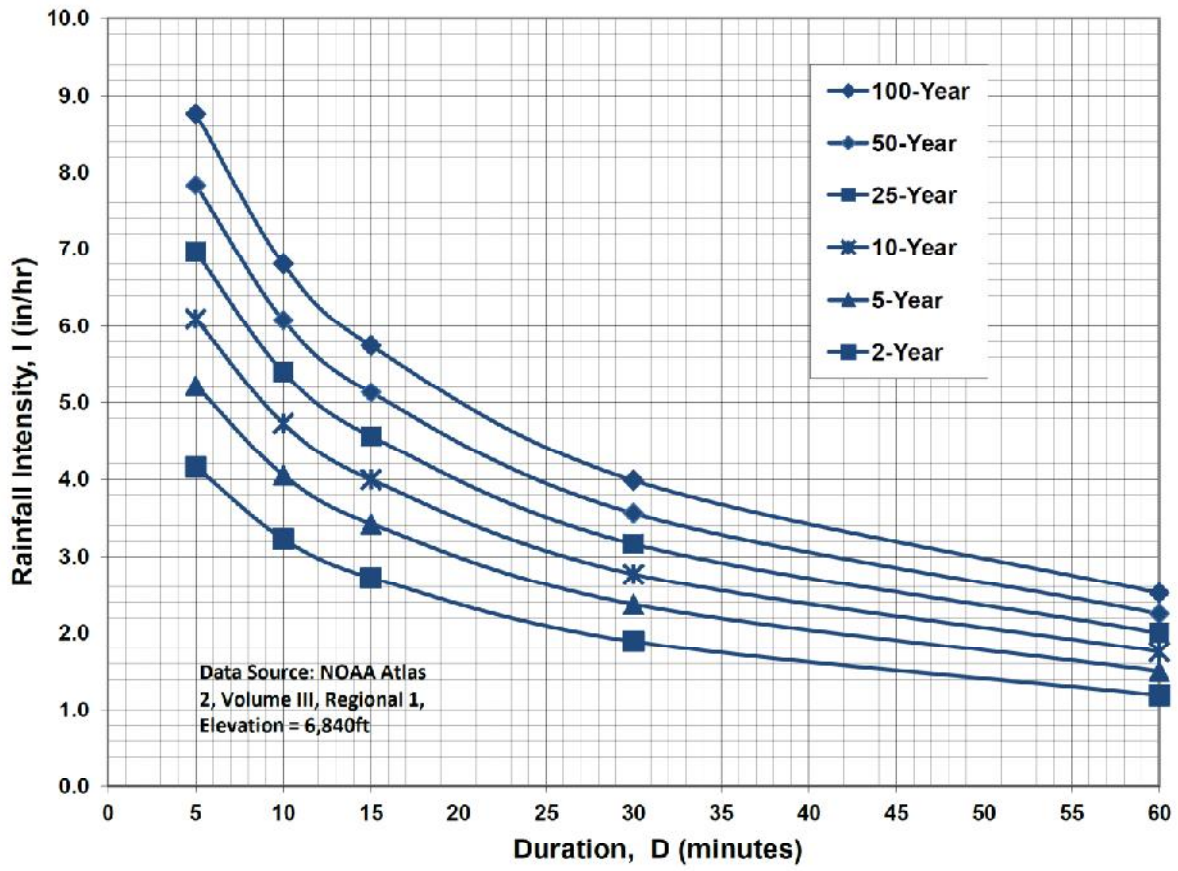
3.2.4 Minimum Time of Concentration

If the calculations result in a t_c of less than 10 minutes for undeveloped conditions, it is recommended that a minimum value of 10 minutes be used. The minimum t_c for urbanized areas is 5 minutes.

3.2.5 Post-Development Time of Concentration

As Equation 6-8 indicates, the time of concentration is a function of the 5-year runoff coefficient for a drainage basin. Typically, higher levels of imperviousness (higher 5-year runoff coefficients) correspond to shorter times of concentration, and lower levels of imperviousness correspond to longer times of

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	1.98	2.0	SF LOTS (1/6-AC)	0.375							0.375
C1.1,C1.6	11.36										0.252
C1.1-C1.7	33.68										0.376
C1.8	3.89	3.9	SF LOTS (1/6-AC)	0.375							0.375
C1.9	3.60	3.6	SF LOTS (1/6-AC)	0.375							0.375
C1.8-C1.9	7.49										0.375
C1.1-C1.9	41.17										**0.376**
C1.10	1.82	1.8	SF LOTS (1/6-AC)	0.375							0.375
C1.1-C1.10	42.99										**0.375**
C2.1	5.59	1.8	RESIDENTIAL	0.375	0.9	COMMERCIAL	0.49	2.9	OPEN SPACE	0.08	0.242
C2.2	4.03	4.0	SF LOTS (1/6-AC)	0.375							0.375
C2.3	2.76	2.8	SF LOTS (1/6-AC)	0.375							0.375
C2.1-C2.3	12.38										0.315
C2.4	4.98	5.0	SF LOTS (1/6-AC)	0.375							0.375
C2.5	4.12	4.1	SF LOTS (1/6-AC)	0.375							0.375
C2.1-C2.5	21.48										0.341
C3	20.25	20.3	PARK / OS	0.08							0.080
C2.1-C2.5,C3	41.73										0.214
C2.6	2.76	2.2	SF LOTS (1/6-AC)	0.375	0.6	COMM / LT INDUSTRIAL	0.59				0.422
C2.7	2.14	2.1	COMM / LT INDUSTRIAL	0.59							0.590
C2.8	3.00	1.7	SF LOTS (1/6-AC)	0.375	1.4	COMM / LT INDUSTRIAL	0.59				0.472
C2.6-C2.8	7.90										0.486

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	1.98	2.0	SF LOTS (1/6-AC)	0.545							0.545
C1.1,C1.6	11.36										0.464
C1.1-C1.7	33.68										0.545
C1.8	3.89	3.9	SF LOTS (1/6-AC)	0.545							0.545
C1.9	3.60	3.6	SF LOTS (1/6-AC)	0.545							0.545
C1.8-C1.9	7.49										0.545
C1.1-C1.9	41.17										**0.545**
C1.10	1.82	1.8	SF LOTS (1/6-AC)	0.545							0.545
C1.1-C1.10	42.99										**0.545**
C2.1	5.59	1.8	RESIDENTIAL	0.545	0.9	COMMERCIAL	0.62	2.9	OPEN SPACE	0.35	0.457
C2.2	4.03	4.0	SF LOTS (1/6-AC)	0.545							0.545
C2.3	2.76	2.8	SF LOTS (1/6-AC)	0.545							0.545
C2.1-C2.3	12.38										0.505
C2.4	4.98	5.0	SF LOTS (1/6-AC)	0.545							0.545
C2.5	4.12	4.1	SF LOTS (1/6-AC)	0.545							0.545
C2.1-C2.5	21.48										0.522
C3	20.25	20.3	PARK / OS	0.35							0.350
C2.1-C2.5,C3	41.73										0.439
C2.6	2.76	2.2	SF LOTS (1/6-AC)	0.545	0.6	COMM / LT INDUSTRIAL	0.7				0.579
C2.7	2.14	2.1	COMM / LT INDUSTRIAL	0.7							0.700
C2.8	3.00	1.7	SF LOTS (1/6-AC)	0.545	1.4	COMM / LT INDUSTRIAL	0.7				0.615
C2.6-C2.8	7.90										0.625

MAYBERRY, COLORADO SPRINGS (ELLICOTT TOWN CENTER)
IMPERVIOUS AREA CALCULATIONS

DEVELOPED CONDITIONS

BASIN	TOTAL AREA (AC)	(AC)	SUB-AREA 1 DEVELOPMENT/ COVER	IMP. AREA (%)	AREA (AC)	SUB-AREA 2 DEVELOPMENT/ COVER	IMP. AREA (%)	(AC)	SUB-AREA 3 DEVELOPMENT COVER	IMP. AREA (%)	WEIGHTED IMP. AREA (%)
A1A	2.80	0.9	ROADWAY	100	1.9	GRASS	0				33.571
C1.2	7.97	8.0	COMMERCIAL	70							70.000
C1.7A	0.58	0.6	SF LOTS (1/6-AC)	52.5							52.500
C1.7B	4.34	4.3	COMMERCIAL	70							70.000
C1.7A,C1.7B	4.92										67.937
C1.2,C1.7	12.89										69.213
C1.3	3.02	3.0	SF LOTS (1/6-AC)	52.5							52.500
C1.2,C1.3,C1.7	15.91										66.040
C1.4	3.23	3.2	SF LOTS (1/6-AC)	52.5							52.500
C1.2-C1.4,C1.7	19.14										63.755
C1.5	3.18	3.2	SF LOTS (1/6-AC)	52.5							52.500
C1.2-C1.5,C1.7	22.32										62.152
C1.1	9.38	3.0	RESIDENTIAL	52.5	1.2	COMMERCIAL	70	5.2	OPEN SPACE	0	25.672
C1.6	1.98	2.0	SF LOTS (1/6-AC)	52.5							52.500
C1.1,C1.6	11.36										30.348
C1.1-C1.7	33.68										51.424
C1.8	3.89	3.9	SF LOTS (1/6-AC)	52.5							52.500
C1.9	3.60	3.6	SF LOTS (1/6-AC)	52.5							52.500
C1.8-C1.9	7.49										52.500
C1.1-C1.9	41.17										51.620
C1.10	1.82	1.8	SF LOTS (1/6-AC)	52.5							52.500
C1.1-C1.10	**42.99**										**51.657**
C2.1	5.59	1.8	SF LOTS (1/6-AC)	52.5	0.9	COMMERCIAL	70	2.9	OPEN SPACE	0	28.426
C2.2	4.03	4.0	SF LOTS (1/6-AC)	52.5							52.500
C2.3	2.76	2.8	SF LOTS (1/6-AC)	52.5							52.500
C2.1-C2.3	12.38										41.630
C2.4	4.98	5.0	SF LOTS (1/6-AC)	52.5							52.500
C2.5	4.12	4.1	SF LOTS (1/6-AC)	52.5							52.500
C2.1-C2.5	21.48										46.235
C3	20.25	20.3	PARK / OS	0							0.000
C2.1-C2.5,C3	41.73										23.799
C2.6	2.76	2.2	SF LOTS (1/6-AC)	52.5	0.6	COMM / LT INDUSTRIAL	80				58.478
C2.7	2.14	2.1	COMM / LT INDUSTRIAL	80							80.000
C2.8	3.00	2.0	SF LOTS (1/6-AC)	52.5	1.0	COMM / LT INDUSTRIAL	80				61.667
C2.6-C2.8	7.90										65.519

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

DEVELOPED FLOWS

					Overland Flow			Channel flow										
BASIN	DESIGN POINT	AREA (AC)	C 5-YEAR	C 100-YEAR	LENGTH (FT)	SLOPE (FT/FT)	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	15.00	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	20.00	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	20.00	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	20.00	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	20.00	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	20.00	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	20.00	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	20.00	0.01	2.00	15.0	28.4	28.4	2.56	4.30	5.43	18.04
C1.6		1.98	0.375	0.545			0.0	280	20.00	0.01	2.00	2.3	2.3	5.0	5.17	8.68	3.84	9.37
C1.1,C1.6	C1.6B	11.36	0.252	0.464									30.7	30.7	2.44	4.10	7.00	21.62
C1.1-C1.7	C1.7A	33.68	0.376	0.545									30.7	30.7	2.44	4.10	30.96	75.30
C1.8		3.89	0.375	0.545			0.0	600	20.00	0.016	2.53	4.0	4.0	5.0	5.17	8.68	7.54	18.40
C1.9		3.60	0.375	0.545			0.0	580	20.00	0.012	2.19	4.4	4.4	5.0	5.17	8.68	6.98	17.03
C1.8,C1.9	C1.9A	7.49	0.375	0.545									8.4	8.4	4.40	7.38	12.35	30.14
C1.1-C1.9	**C1.9B**	**41.17**	**0.376**	**0.545**									**30.7**	**30.7**	**2.44**	**4.10**	**37.84**	**92.05**
C1.10	C1.10	1.82	0.375	0.545	50	0.020	7.5	1500	20.00	0.01	2.00	12.5	20.0	20.0	3.09	5.19	2.11	5.15
C1.1-C1.10	**C1.10A**	**42.99**	**0.375**	**0.545**									**30.7**	**30.7**	**2.44**	**4.10**	**39.41**	**96.12**
FILING NO. 2																		
C2.1		5.59	0.242	0.457	100	0.016	13.4	650	20.00	0.01	2.00	5.4	18.8	18.8	3.18	5.34	4.30	13.63
C2.2		4.03	0.375	0.545			0.0	460	20.00	0.01	2.00	3.8	3.8	5.0	5.17	8.68	7.81	19.06
C2.3		2.76	0.375	0.545			0.0	260	20.00	0.01	2.00	2.2	2.2	5.0	5.17	8.68	5.35	13.06
C2.1-C2.3	C2.3A	12.38	0.315	0.505									21.0	21.0	3.02	5.06	11.76	31.64
C2.4		4.98	0.375	0.545			0.0	560	20.00	0.012	2.19	4.3	4.3	5.0	5.17	8.68	9.65	23.56
C2.5		4.12	0.375	0.545			0.0	330	20.00	0.01	2.00	2.8	2.8	5.0	5.17	8.68	7.99	19.49
C2.1-C2.5	C2.5A	21.48	0.341	0.522									23.8	23.8	2.83	4.75	20.73	53.27

					Overland Flow			Channel flow										
BASIN	DESIGN POINT	AREA (AC)	C 5-YEAR	C 100-YEAR	LENGTH (FT)	SLOPE (FT/FT)	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)
C3		20.25	0.080	0.350			0.0	1050	15.00	0.011	1.57	11.1	11.1	11.1	3.97	6.66	6.43	47.23
Tc C2.5A TO DP-D2B								2450	15.00	0.01	1.50	27.2						
C2.1-C2.5,C3	C4.1	41.73	0.214	0.439									30.7	30.7	2.44	4.10	21.83	75.15
C2.6		2.76	0.422	0.579	100	0.020	9.9	550	20.00	0.016	2.53	3.6	13.5	13.5	3.68	6.18	4.29	9.88
C2.7		2.14	0.590	0.700	100	0.020	7.4	400	20.00	0.013	2.28	2.9	10.3	10.3	4.08	6.85	5.15	10.26
C2.8		3.00	0.472	0.615			0.0	250	20.00	0.012	2.19	1.9	1.9	5.0	5.17	8.68	7.32	16.01
C2.6-C2.8	C2.8A	7.90	0.486	0.625									15.4	15.4	3.48	5.85	13.37	28.87
D1.2		2.99	0.472	0.615			0.0	300	20.00	0.01	2.00	2.5	2.5	5.0	5.17	8.68	7.29	15.96
C2.6-C2.8,D1.2	D1.2A	10.89	0.482	0.622									17.9	17.9	3.26	5.47	17.10	37.04
D1.1	D1.1	3.60	0.590	0.700			0.0	750	20.00	0.011	2.10	6.0	6.0	6.0	4.91	8.24	10.42	20.76
D1.3		2.87	0.472	0.615			0.0	280	20.00	0.01	2.00	2.3	2.3	5.0	5.17	8.68	7.00	15.32
C2.6-C2.8,D1.1-D1.3	D1.3A	17.36	0.503	0.637									20.2	20.2	3.07	5.16	26.84	57.05
D1.4	D1.4	4.19	0.375	0.545			0.0	550	20.00	0.012	2.19	4.2	4.2	5.0	5.17	8.68	8.12	19.82
D1.5		5.09	0.375	0.545			0.0	280	20.00	0.01	2.00	2.3	2.3	5.0	5.17	8.68	9.87	24.08
D1.6		3.33	0.375	0.545			0.0	1060	20.00	0.01	2.00	8.8	8.8	8.8	4.32	7.25	5.39	13.15
C2.6-C2.8,D1.1-D1.6	D1.6A	29.97	0.449	0.598									24.4	24.4	2.79	4.69	37.56	83.97
PHASE 2																		
D2		44.58	0.341	0.523	100	0.020	11.0	1750	20.00	0.011	2.10	13.9	24.9	24.9	2.76	4.63	41.94	107.95
C2.6-C2.8,D1.1-D1.6,D2	D2A	74.55	0.385	0.553									4.3	5.0	5.17	8.68	148.35	357.81
C2,C3,D	**D2B**	**116.28**	**0.323**	**0.512**									**23.8**	**23.8**	**2.83**	**4.75**	**106.32**	**282.86**
C4	**C4**	**72.81**	**0.331**	**0.516**	**100**	**0.020**	**11.2**	**3000**	**20.00**	**0.011**	**2.10**	**23.8**	**35.0**	**35.0**	**2.25**	**3.77**	**54.21**	**141.81**
E	**E**	**2.37**	**0.114**	**0.372**			**0.0**	**1450**	**15.00**	**0.0083**	**1.37**	**17.7**	**17.7**	**17.7**	**3.27**	**5.50**	**0.88**	**4.85**

1) OVERLAND FLOW Tco = (0.395*(1.1-RUNOFF COEFFICIENT)*(OVERLAND FLOW LENGTH^(0.5)/(SLOPE^(0.333))
2) SCS VELOCITY = C * ((SLOPE(FT/FT)^0.5)
   C = 2.5 FOR HEAVY MEADOW
   C = 5 FOR TILLAGE/FIELD
   C = 7 FOR SHORT PASTURE AND LAWNS
   C = 10 FOR NEARLY BARE GROUND
   C = 15 FOR GRASSED WATERWAY
   C = 20 FOR PAVED AREAS AND SHALLOW PAVED SWALES
3) MANNING'S CHANNEL TRAVEL TIME = L/V (WHEN CHANNEL VELOCITY IS KNOWN)
4) Tc = Tco + Tt
*** IF TOTAL TIME OF CONCENTRATION IS LESS THAN 5 MINUTES, THEN 5 MINUTES IS USED
5) INTENSITY BASED ON I-D-F EQUATIONS IN CITY OF COLORADO SPRINGS DRAINAGE CRITERIA MANUAL
   $I_5 = -1.5 * \ln(Tc) + 7.583$
   $I_{100} = -2.52 * \ln(Tc) + 12.735$
6) Q = CiA

INTERIM PHASE 1 DETENTION POND C2.8:											
C2.6	2.76	2.8	VACANT	0							0.000
C2.7	2.14	2.1	COMM / LT INDUSTRIAL	80							80.000
C2.8	3.00	3.0	VACANT	0							0.000
C2.6-C2.8	7.90										21.671
D1.2	2.99	1.6	SF LOTS (1/6-AC)	52.5	1.4	COMM / LT INDUSTRIAL	80				64.916
C2.6-C2.8,D1.2	10.89										65.354
D1.1	3.60	3.6	COMM / LT INDUSTRIAL	80							80.000
D1.3	2.87	1.6	SF LOTS (1/6-AC)	52.5	1.3	COMM / LT INDUSTRIAL	80				64.861
C2.6-C2.8,D1.1-D1.3	17.36										68.309
D1.4	4.19	4.2	SF LOTS (1/6-AC)	52.5							52.500
D1.5	5.09	5.1	SF LOTS (1/6-AC)	52.5							52.500
D1.6	3.33	3.3	SF LOTS (1/6-AC)	52.5							52.500
C2.6-C2.8,D1.1-D1.6	29.97										61.657
D2	44.58	39.5	SF LOTS (1/6-AC)	52.5	5.1	LANDSCAPE/OS	0				46.494
C2.6-C2.8,D1.1-D1.6,D2	74.55										52.590
C2,C3,D	**116.28**										**42.257**
C1-C3,D	**159.27**										**44.795**
C4	**72.81**	61.9	MDR-RESIDENTIAL	52.5	10.9	LANDSCAPE/OS	0				**44.625**
E	2.4	0.3	MDR-RESIDENTIAL	52.5	2.1	OPEN SPACE	0				5.981

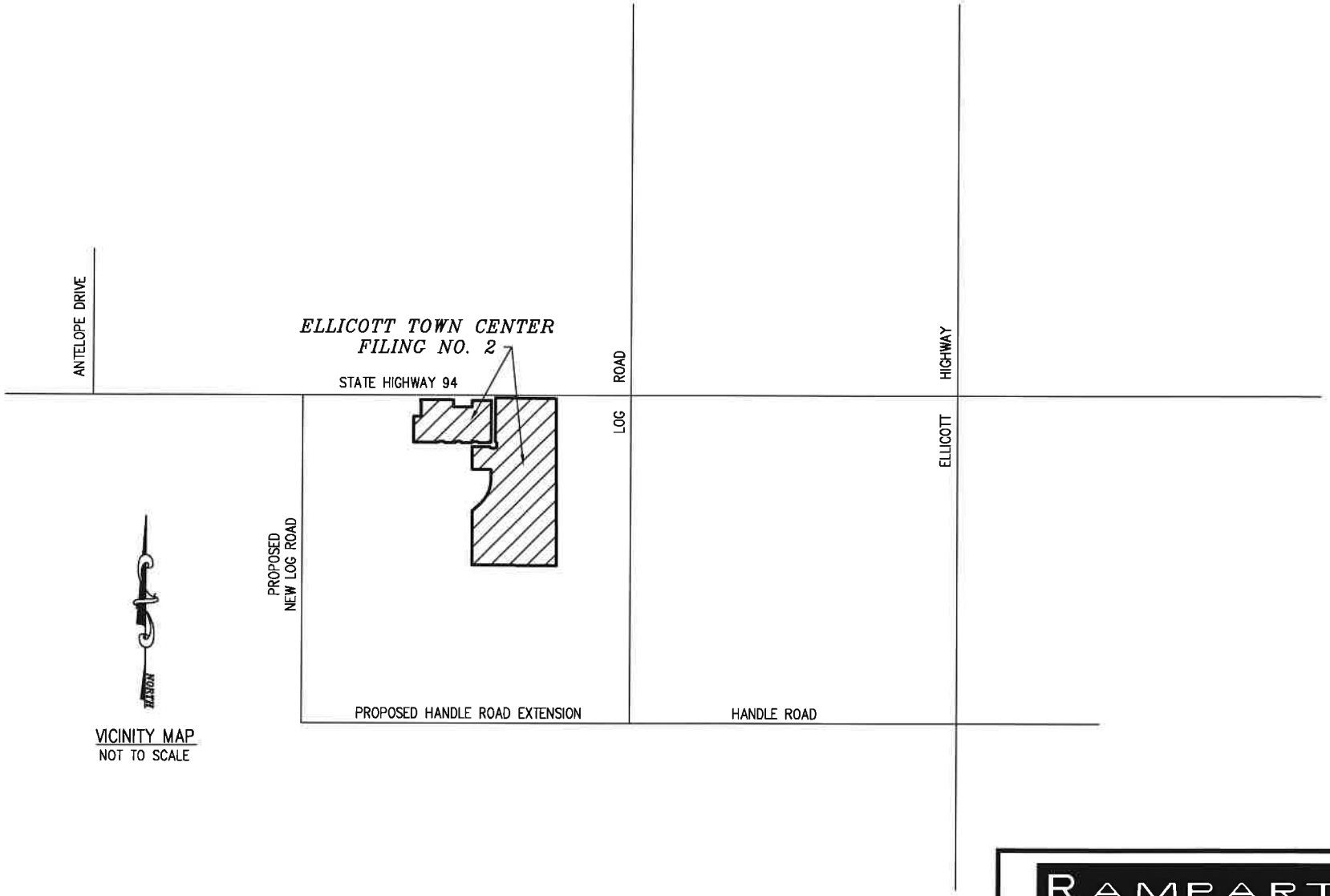
D1.2	2.99	1.6	SF LOTS (1/6-AC)	0.545	1.4	COMM / LT INDUSTRIAL	0.7				0.615
C2.6-C2.8,D1.2	10.89										0.622
D1.1	3.60	3.6	COMM / LT INDUSTRIAL	0.7							0.700
D1.3	2.87	1.6	SF LOTS (1/6-AC)	0.545	1.3	COMM / LT INDUSTRIAL	0.7				0.615
C2.6-C2.8,D1.1-D1.3	17.36										0.637
D1.4	4.19	4.2	SF LOTS (1/6-AC)	0.545							0.545
D1.5	5.09	5.1	SF LOTS (1/6-AC)	0.545							0.545
D1.6	3.33	3.3	SF LOTS (1/6-AC)	0.545							0.545
C2.6-C2.8,D1.1-D1.6	29.97										0.598
D2	44.58	39.5	MDR-RESIDENTIAL	0.545	5.1	LANDSCAPE/OS	0.35				0.523
C2.6-C2.8,D1.1-D1.6,D2	74.55										0.553
C2,C3,D	**116.28**										**0.512**
C1-C3,D	**159.27**										**0.521**
C4	72.81	61.9	MDR-RESIDENTIAL	0.545	10.9	LANDSCAPE/OS	0.35				0.516
E	2.4	0.3	MDR-RESIDENTIAL	0.545	2.1	OPEN SPACE	0.35				0.372

D1.2	2.99	1.6	SF LOTS (1/6-AC)	0.375	1.4	COMM / LT INDUSTRIAL	0.59				0.472
C2.6-C2.8,D1.2	10.89										0.482
D1.1	3.60	3.6	COMM / LT INDUSTRIAL	0.59							0.590
D1.3	2.87	1.6	SF LOTS (1/6-AC)	0.375	1.3	COMM / LT INDUSTRIAL	0.59				0.472
C2.6-C2.8,D1.1-D1.3	17.36										0.503
D1.4	4.19	4.2	SF LOTS (1/6-AC)	0.375							0.375
D1.5	5.09	5.1	SF LOTS (1/6-AC)	0.375							0.375
D1.6	3.33	3.3	SF LOTS (1/6-AC)	0.375							0.375
C2.6-C2.8,D1.1-D1.6	29.97										0.449
D2	44.58	39.5	MDR-RESIDENTIAL	0.375	5.1	LANDSCAPE/OS	0.08				0.341
C2.6-C2.8,D1.1-D1.6,D2	74.55										0.385
C2,C3,D	**116.28**										**0.323**
C1-C3,D	**159.27**										**0.337**
C4	72.81	61.9	MDR-RESIDENTIAL	0.375	10.9	LANDSCAPE/OS	0.08				0.331
E	2.4	0.3	MDR-RESIDENTIAL	0.375	2.1	OPEN SPACE	0.08				0.114

APPENDIX B

FIGURES

VICINITY MAP – ELLICOTT TOWN CENTER FILING NO. 2



VICINITY MAP
NOT TO SCALE

RAMPART
SURVEYS
P.O. Box 5101
Woodland Park, CO. 80866
(719) 687–0920

National Flood Hazard Layer FIRMette

FEMA

Legend

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

- **SPECIAL FLOOD HAZARD AREAS**
  - Without Base Flood Elevation (BFE) *Zone A, V, A99*
  - With BFE or Depth *Zone AE, AO, AH, VE, AR*
  - Regulatory Floodway
- **OTHER AREAS OF FLOOD HAZARD**
  - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
  - Future Conditions 1% Annual Chance Flood Hazard *Zone X*
  - Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
  - Area with Flood Risk due to Levee *Zone D*
- **OTHER AREAS**
  - NO SCREEN Area of Minimal Flood Hazard *Zone X*
  - Effective LOMRs
  - Area of Undetermined Flood Hazard *Zone D*
- **GENERAL STRUCTURES**
  - Channel, Culvert, or Storm Sewer
  - Levee, Dike, or Floodwall
- **OTHER FEATURES**
  - 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
  - Coastal Transect
  - 513 Base Flood Elevation Line (BFE)
  - Limit of Study
  - Jurisdiction Boundary
  - Coastal Transect Baseline
  - Profile Baseline
  - Hydrographic Feature
- **MAP PANELS**
  - Digital Data Available
  - No Digital Data Available
  - Unmapped

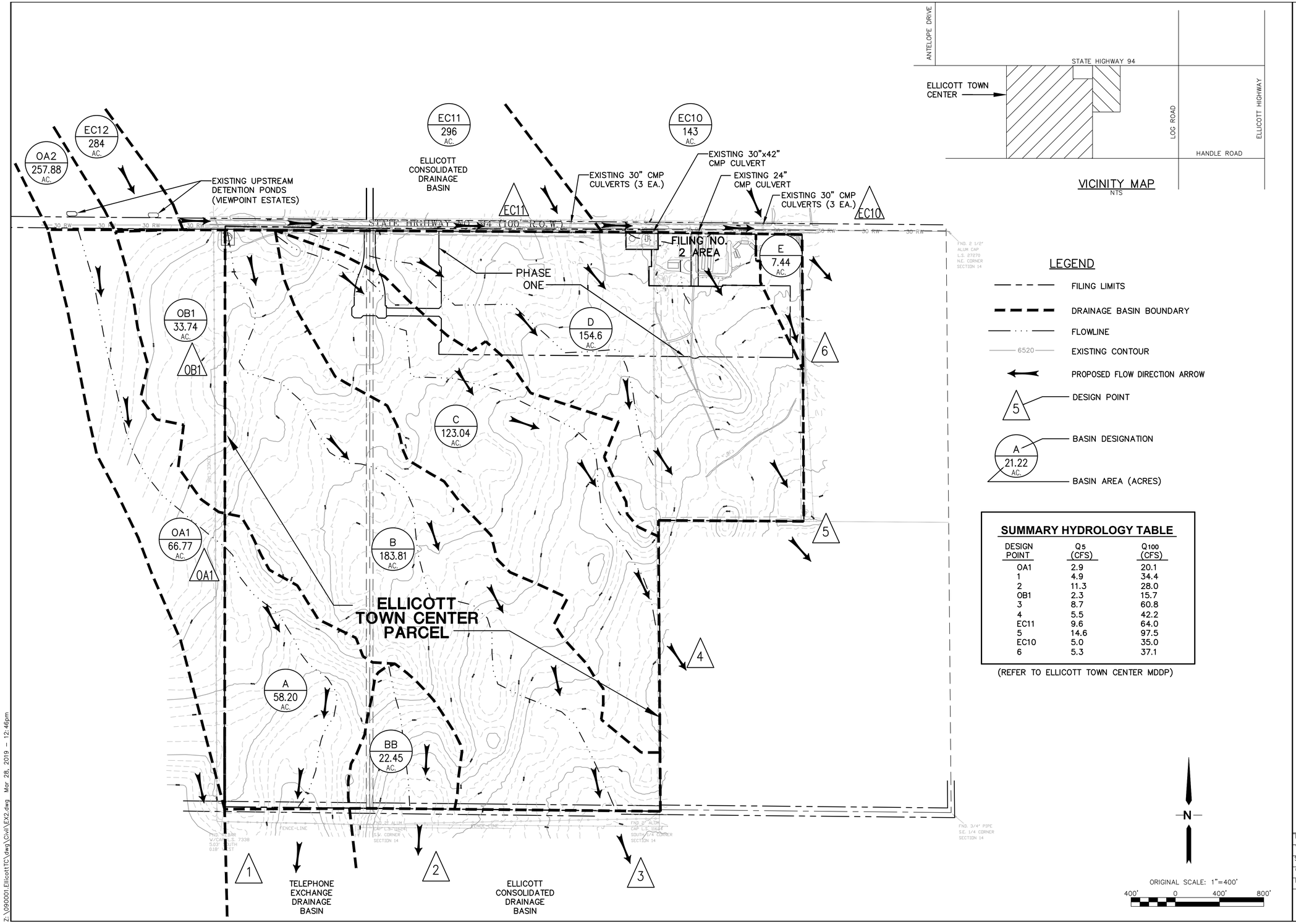
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/28/2019 at 2:50:04 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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



VICINITY MAP
NTS

LEGEND

- FILING LIMITS
- DRAINAGE BASIN BOUNDARY
- FLOWLINE
- 6520 EXISTING CONTOUR
- PROPOSED FLOW DIRECTION ARROW
- 5 DESIGN POINT
- A / 21.22 AC. BASIN DESIGNATION
- BASIN AREA (ACRES)

SUMMARY HYDROLOGY TABLE

DESIGN POINT	Q_5 (CFS)	Q_{100} (CFS)
OA1	2.9	20.1
1	4.9	34.4
2	11.3	28.0
OB1	2.3	15.7
3	8.7	60.8
4	5.5	42.2
EC11	9.6	64.0
5	14.6	97.5
EC10	5.0	35.0
6	5.3	37.1

(REFER TO ELLICOTT TOWN CENTER MDDP)

N

ORIGINAL SCALE: 1"=400'

400' 0 400' 800'

ELLICOTT TOWN CENTER

HISTORIC DRAINAGE PLAN

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

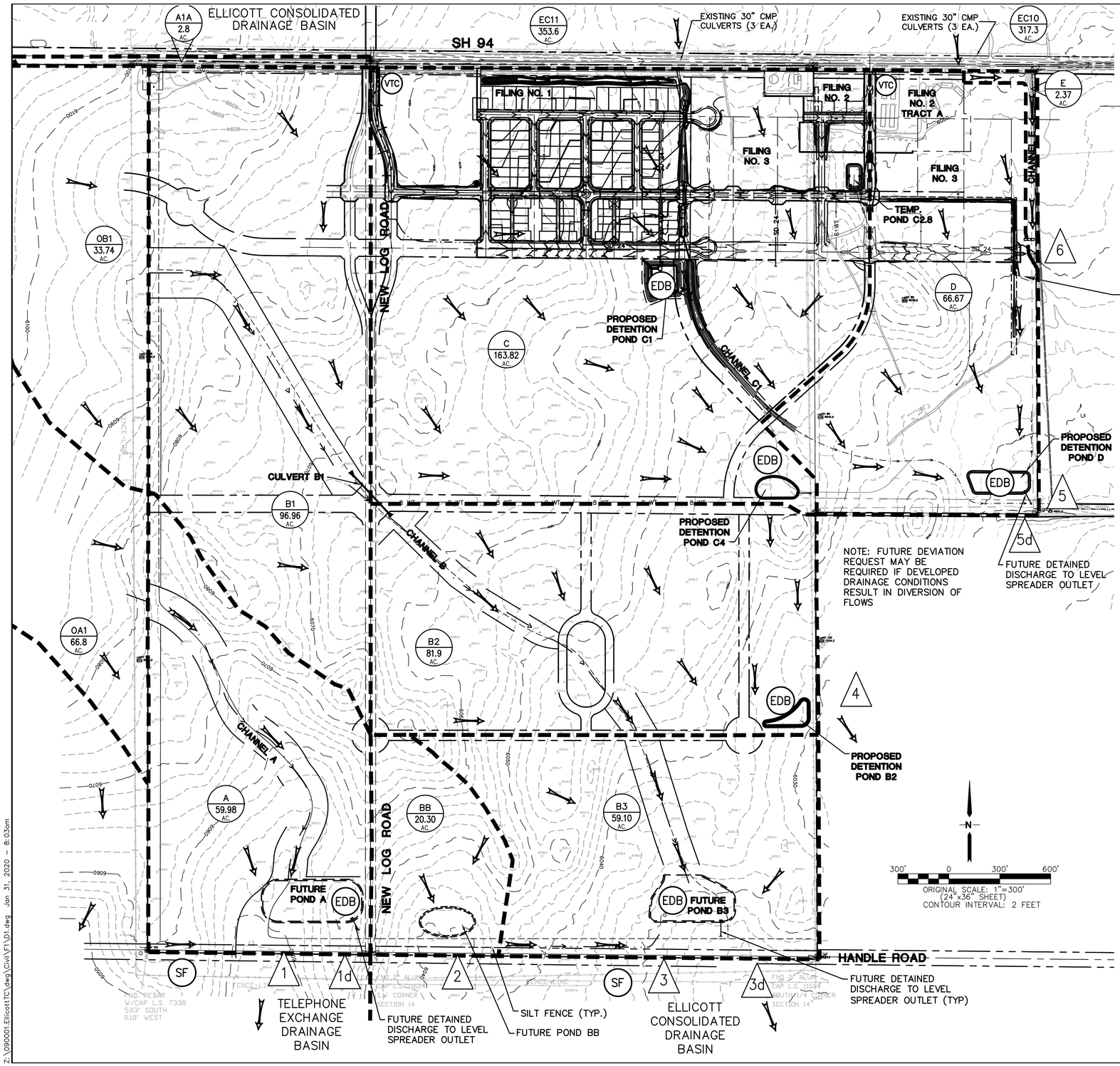
CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

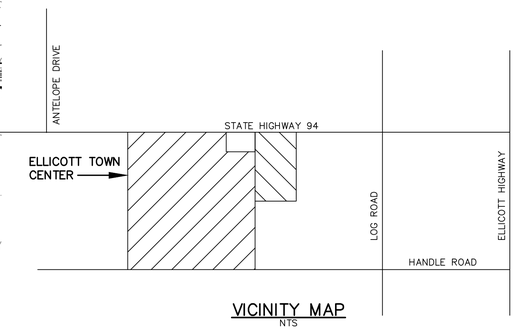
No.	REVISION	BY	DATE

HORZ. SCALE: 1"=400'	DRAWN: MJP
VERT. SCALE: N/A	DESIGNED: JPS
SURVEYED: UP&E	CHECKED: JPS
CREATED: 12/03/00	LAST MODIFIED: 3/28/19
PROJECT NO: 090001	MODIFIED BY: BJJ

SHEET: EX2

Z:\090001 Ellicott\TC\dwg\Civil\EX2.dwg Mar 28, 2019 - 12:46pm





VICINITY MAP
NTS

DIVERSION OF DEVELOPED FLOW FROM BASIN E TO BASIN D (TO DET. POND D) (5.1 AC)

LEGEND:

- FILING LIMITS
- DRAINAGE BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- PROPOSED FLOW DIRECTION ARROW
- 5 — DESIGN POINT
- 5d — "DETAINED" FLOW FROM DESIGN POINT
- OA1 / 66.8 AC. — DEVELOPED BASIN DESIGNATION; BASIN AREA (ACRES) * CALCULATED EQUIVALENT AREAS
- SILT FENCE
- STRAW BALES
- RIPRAP
- 6490 — EXISTING CONTOURS
- 6490 — PROPOSED CONTOURS
- 99.00 — PROPOSED SPOT ELEVATION (FLOWLINE)
- 1.5% — PROPOSED STREET PROFILE GRADE
- EDB — EXTENDED DETENTION BASIN

SUMMARY HYDROLOGY TABLE

DESIGN POINT	Q_5 (CFS)	Q_{100} (CFS)
1	11.3	51.9
1d	4.9	34.4
2	0	0
3	58.0	184.7
3d	8.7	60.8
4 (REFER TO MDDP)	5.8	12.3
5	226.6	461.4
5d	30.6	174.9
6	19.0	111.0

MAYBERRY, COLORADO SPRINGS

DEVELOPED DRAINAGE PLAN

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

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

No.	REVISION	BY	DATE

HORZ. SCALE:	1"=300'
VERT. SCALE:	N/A
SURVEYED:	UP&E
CREATED:	12/03/00
PROJECT NO:	090001
DRAWN:	MJP
DESIGNED:	JPS
CHECKED:	JPS
LAST MODIFIED:	1/30/20
MODIFIED BY:	BJJ

SHEET: D1

Z:\090001 Ellicott\TC\dwg\Civil\F1\D1.dwg Jan 31, 2020 - 8:03am

NOTE: MAINTAIN EXISTING ROADSIDE DITCH DRAINAGE PATTERNS & EXTEND EXISTING CULVERTS AS REQUIRED BASED ON SH94 IMPROVEMENTS; PROVIDE RIPRAP APRONS & EROSION CONTROL FOR ALL CULVERT EXTENSIONS

SH 94

SWALE ALONG NORTH SIDE OF BERM

EXISTING 30" CMP CULVERTS (3 EA.)

EXISTING 30" CMP CULVERTS (3 EA.)

TEMP. DETENTION POND C2.8

EC11 353.6 AC.

EC10 317.3 AC.

CULVERT A1A

C1.1 9.38 AC.

INLET C1.1

C2.1 5.59 AC.

FILING NO. 2

C2.7 2.14 AC.

FILING NO. 2

D1.1 3.60 AC.

D1.6 3.33 AC.

E 2.37 AC.

SPRINGS RD

FILING NO. 1

FIL. NO. 4

C1.2 7.97 AC.

C1.3 3.02 AC.

C1.4 3.23 AC.

C1.5 3.18 AC.

C1.6 1.98 AC.

C2.2 4.03 AC.

C2.3 2.76 AC.

C2.6 2.76 AC.

C2.8 3.00 AC.

D1.2 2.99 AC.

D1.3 2.87 AC.

D1.5 5.09 AC.

CHANNEL E

INLET C1.2

INLET C1.3

INLET C1.4

INLET C1.5

INLET C1.6

INLET C2.3 (FUTURE)

C2.8A

FUTURE INLET D1.3

D1.3A

INLET C1.7B

INLET C1.7A

C1.7B 4.34 AC.

C1.7A 0.58 AC.

C1.8 3.89 AC.

C1.9 3.60 AC.

CHANNEL C1

C2.4 4.98 AC.

FILING NO. 4

INLET C2.8B

C2.5 4.12 AC.

INLET C2.8A

FILING NO. 4

D1.4 4.19 AC.

FUTURE INLET D1.4

FUTURE INLET D1.6

C1.10 1.82 AC.

STORM SEWER C1.4A (36")

INLET C1.8

STORM SEWER C1.8 (24")

INTERIM SWALE TO POND C1

FUTURE INLET C1.10

C1

CULVERT C1.9 (30")

INLET C1.9

INLET C2.4 (FUTURE)

STORM SEWER C2.3A (FUTURE)

FUTURE STORM SEWER D1.4

TEMP. SWALE (PH. 1)

PROPOSED DETENTION POND C1 (5.0 AF)

C3 20.25 AC.

D2 44.58 AC.

FUTURE CHANNEL/STORM SEWER

NEW LOG ROAD

C4 72.81 AC.

CHANNEL C

FUTURE DETENTION POND /D (9.0 AF)

D2B

FUTURE DETENTION POND C4 (6.0 AF)

B2 81.9 AC.

MINOR DIVERSION OF FLOW TO DETENTION POND D TO CENTRALIZE DETENTION FACILITIES (NOTE: FUTURE DEVIATION MAY BE REQUIRED)

ANTELOPE DRIVE

STATE HIGHWAY 94

ELLICOTT TOWN CENTER

LOG ROAD

ELLICOTT HIGHWAY

HANDLE ROAD

VICINITY MAP
NTS

LEGEND:

- PROPERTY LINES
- DRAINAGE BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- PROPOSED FLOW DIRECTION ARROW
- DESIGN POINT
- DEVELOPED BASIN DESIGNATION
- BASIN AREA (ACRES)
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED STREET PROFILE GRADE

HYDROLOGY SUMMARY TABLE

DESIGN POINT	Q_5 (CFS)	Q_{100} (CFS)
C2.8A	13.4	28.9
D1.3A	26.8	57.1
D2B	106.3	282.9
5	226.6	461.4
6	19.0	111.0

ORIGINAL SCALE: 1"=200' (24"x36" SHEET)

200' 0 200' 400'

CONTOUR INTERVAL: 2 FEET

C:\Users\Owner\Dropbox\jpsprojects\090001 Ellicott TC\dwg\Civil\D1.01.DWG Sep 22, 2020 - 10:22am

JPS ENGINEERING

19 E. Willamette Ave.
Colorado Springs, CO
80903

PH: 719-477-9429
FAX: 719-471-0766
www.jpsengr.com

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

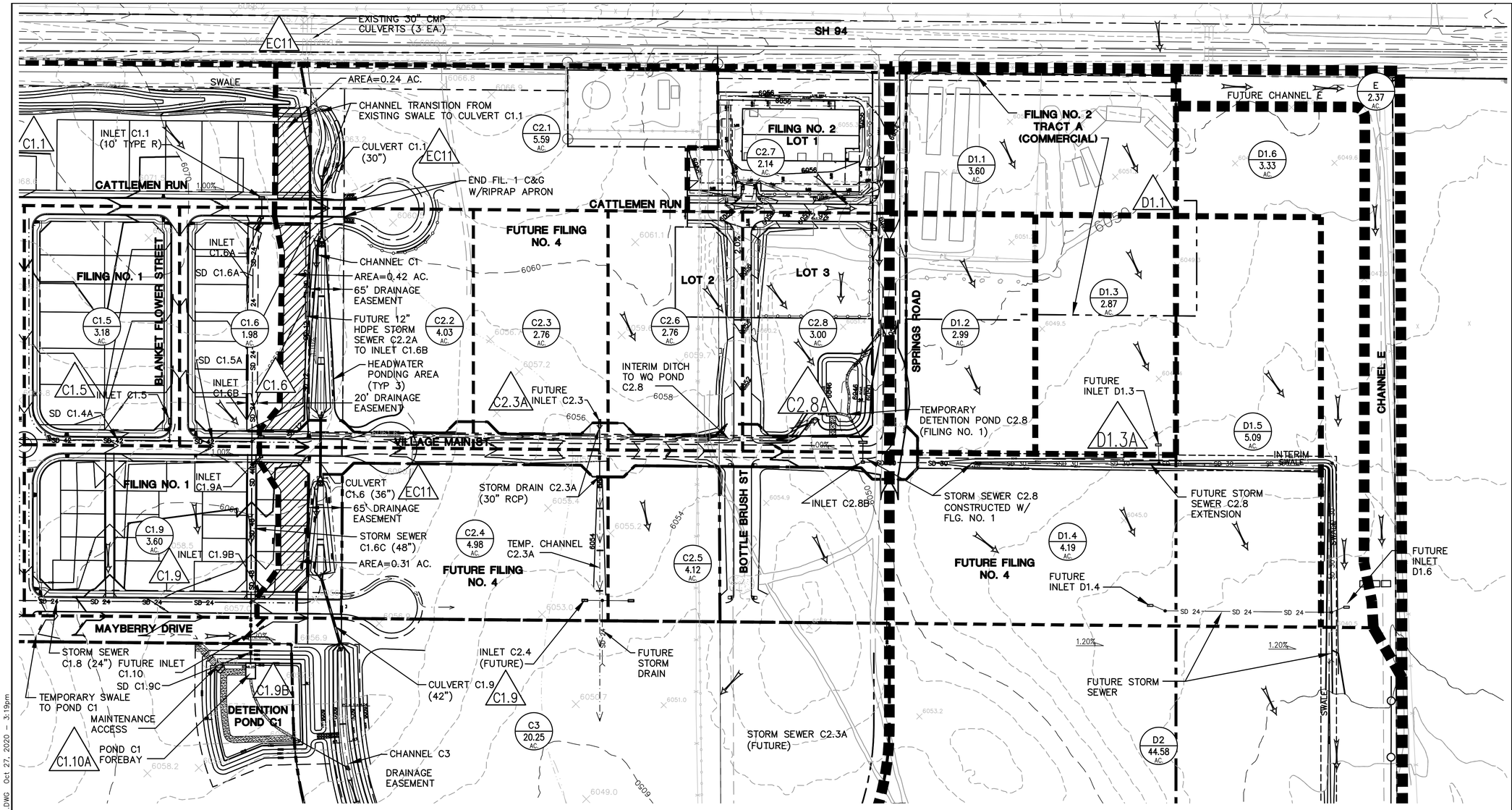
No.	REVISION	BY	DATE

MAYBERRY, COLORADO SPRINGS

PHASE 1 DEVELOPED DRAINAGE PLAN

HORZ. SCALE: 1"=200'	DRAWN: RMD
VERT. SCALE: N/A	DESIGNED: JPS
SURVEYED: UP&E	CHECKED: JPS
CREATED: 12/03/00	LAST MODIFIED: 9/22/20
PROJECT NO: 090001	MODIFIED BY: BJJ

SHEET: D1.01



N

ORIGINAL SCALE: 1"=100'

100' 0 100' 200'

CONTOUR INTERVAL: 2 FEET

LEGEND:

- PROPERTY LINES
- DRAINAGE BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- PROPOSED FLOW DIRECTION ARROW
- 6490 EXISTING CONTOURS
- 6490 PROPOSED CONTOURS
- 1.5% PROPOSED STREET PROFILE GRADE
- AREA EXCLUDED FROM WATER QUALITY FACILITIES
- C1.9 DESIGN POINT
- OA1 66.8 AC. DEVELOPED BASIN DESIGNATION
- BASIN AREA (ACRES)

SUMMARY HYDROLOGY TABLE

DESIGN POINT	Q5 (CFS)	Q100 (CFS)
C2.3A	11.8	31.6
C2.8A	13.4	28.9
D1.1	10.4	20.8
D1.3A	26.8	57.1

MAYBERRY, COLORADO SPRINGS - FILING NO. 1-2

EAST SITE / FILING NO. 2
DEVELOPED DRAINAGE PLAN

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

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

No.	REVISION	BY	DATE

HORZ. SCALE:	1"=100'	DRAWN:	BJJ
VERT. SCALE:	N/A	DESIGNED:	JPS
SURVEYED:	RAMPART	CHECKED:	JPS
CREATED:	3/28/19	LAST MODIFIED:	10/27/20
PROJECT NO:	090001	MODIFIED BY:	BJJ
SHEET:	D1.12		

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