DRAINAGE LETTER

D & K AKERS SUBDIVISION
LOTS 3A & 3B

2875 Akers Dr
Colorado Springs, CO

PREPARED FOR:
D & K Akers, LLC
2875 Akers Drive
Colorado Springs, CO 80922

PREPARED BY:
Galloway & Company, Inc.
1155 Kelly Johnson Blvd, Suite 305
Colorado Springs, CO 80920
Tele: (719) 900-7220
Attn: Brady Shyrock
Email: bradyshyrock@gallowayus.com

DATE:
June 06, 2022

PCD Filing No.: SF-21-39

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 El Paso County for drainage reports and said report is in conformity with the applicable master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

06/06/2022

Brady A. Shyrock, PE #38164
For and on behalf of Galloway & Company, Inc.

Date

DEVELOPER'S CERTIFICATION

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

By: _____

Address: D & K Akers, LLC.
2875 Akers Drive
Colorado Springs, CO

06/06/2022

Date

EL PASO COUNTY CERTIFICATION

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

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

Date

TABLE OF CONTENTS

Appendix:

- Flood Insurance Rate Maps
- El Paso County Drainage Basin Map
- 2021 Drainage Basin Fees
- Rational Calculations

I. Introduction

This document is to serve as the Drainage Letter (DL) for the replat of Lot 3 Akers Acres Subdivision. The replatted subdivision name is D & K Akers Subdivision, Lots 3a & 3b.

The purpose of the replat is to subdivider the existing lot into 2 separate lots. No proposed improvements are being proposed at this time.

A drainage letter, rather than a drainage report, is being provided for the replatted subdivision as the drainage patterns and features are not being altered in any way. The condition of the site is currently half developed with a warehouse / materials storage facility located at the west end of the existing lot, the eastern half is completely undeveloped and is covered in grass. Justification and descriptions are added within this document.

The purpose of this Drainage Letter (DL) is to identify and analyze on and offsite drainage patterns, locate and identify tributary and downstream drainage features and facilities associated with D & K Akers Subdivision, Lots 3a & 3b. Runoff quantities, hydraulics analyses, and proposed facilities have been calculated using the City of Colorado Springs Drainage Criteria Manual (DCM) Volumes 1 & 2, dated May 2014, and revised January 2021.

II. General Location and Description

The D & K Akers Subdivision, Lots 3a & 3b property consists of 9.784 acres and is located in the East Half of Section 32, Township 13 South, Range 65 West of the 6th Principal Meridian, in the City of Colorado Springs, El Paso County, Colorado. The development site is located at the southeast corner of the intersection of Akers Drive and Gil Johnson Point in Colorado Springs, Colorado. This site is bounded by Gil Johnson Point to the north, Akers Drive to the west, construction companies to the south and north, and Marksheffel Road to the east. A vicinity map is shown below:

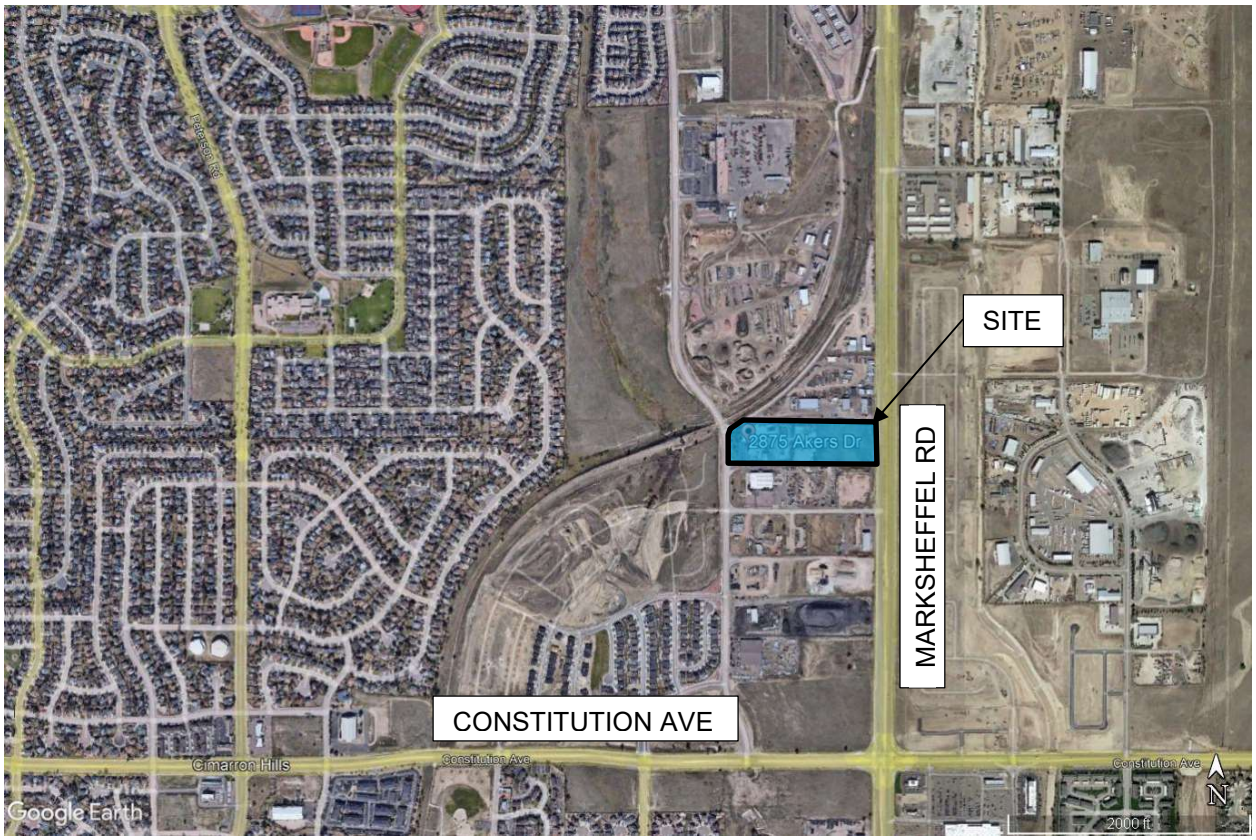


Figure 1 – Vicinity Map

III. Existing Drainage Conditions

Overall Basin Description

The site lies within the Sand Creek Drainage Basin. There is no record of an approved drainage report for this site. Based on this report, existing topography, and planned future development, no off-site basins will impact the site. Stormwater from this site generally drains from west to east and will be routed to a proposed onsite Full Spectrum Detention Facility (FSD) designated as FSD-1.

The project area has been divided into five (5) sub-basins. Below is a summary description of those sub-basins.

Basin A (0.69 acres, Q5 = 0.8 cfs and Q100 = 2.3 cfs) is developed and comprised of the northwest corner of the site which includes half of the existing warehouse structure. This sub-basin conveys runoff to the northwest via sheet flow to an existing roadside swale along Gil Johnson Point.

Basin B (1.70 acres, Q5 = 2.3 cfs and Q100 = 6.0 cfs) is developed and includes the south half of the existing warehouse, the entire parking lot, approximately one-half of the private, and the southwest portion of the storage yard. This sub-basin directs runoff to the west via sheet flow to existing curb & gutter at the southwest corner of the property where runoff is conveyed downstream within Akers Drive.

Basin C (0.36 acres, Q5 = 0.1 cfs and Q100 = 0.9 cfs) is located in the north-central portion of the site and is utilized as storage yard with no impervious surfaces. This sub-basin directs runoff to the northeast via sheet flow where existing flows discharge to the adjacent property to the north.

Basin D (4.92 acres, Q5 = 2.1 cfs and Q100 = 11.1 cfs) lies in the middle portion of the project site where approximately one-half of the sub-basin is utilized for storage yard (with no impervious surfaces) and the remainder is undeveloped covered in grass. The flows from this sub-basin are conveyed the east and south via sheet flow and discharge to the adjacent property to the south.

Basin E (1.60 acres, Q5 = 0.5 cfs and Q100 = 3.6 cfs) is undeveloped and is situated in the northeast corner of the site. Runoff form this sub-basin are conveyed to the east via sheet flow and discharge to Marksheffel Road right-of-way (ROW), where an existing curb inlet intercepts street flow.

IV. Drainage Plan

No proposed changes are being made to the existing site and there will not be any changes to existing drainage patterns. The only change being proposed as part of this **DL** is the subdivision of the property for future development. No ground disturbance or improvements are being proposed with the replat, therefore no proposed drainage analysis is being provided.

Any future on-site construction, improvements, or land disturbance, external to the existing buildings, differing from what is proposed within this drainage letter, will require a separate Final Drainage Report, Grading Erosion Storm Quality Control Plans and at a minimum provide water quality detention on-site, and Full Spectrum Detention in accordance with current County criteria.

A copy of the proposed replat has been included for reference within the Appendix.

V. Four Step Process

The Four Step Process is used to minimize the adverse impacts of urbanization and is a vital component of developing a balanced, sustainable project. Below identifies the approach to the four-step process:

1. Employ Runoff Reduction Practices

This step uses Low Impact Development (LID) practices to reduce runoff at the source. Optimally, runoff is routed through pervious areas to promote infiltration rather than creating point discharges that are directly connected to impervious areas. Grass buffers and swales are used where practical on-site. Stormwater from the site will be routed via sheet flow to the east of the project site to Marksheffel Road ROW, where it will discharge into the existing ROW and be captured by existing storm sewer infrastructure within Marksheffel Road.

2. Implement BMP's That Provide a Water Quality Capture Volume with Slow Release

This step utilizes formalized water quality capture volume to slow the release of runoff from the site. Stormwater from this site will be conveyed down the grassed hill on the eastern portion of the site, then downstream to the location of existing treatment.

3. Stabilize Drainageways

This step implements stabilization to channels to accommodate developed flows while protecting infrastructure and controlling sediment loading from erosion in the drainageways. There are no existing drainageways located on-site. Runoff from the site will sheet flow down the grassed hill to the east, where it discharges into existing Marksheffel Road ROW.

4. Implement Site Specific and Other Source Control BMPs

The proposed replat site will consist of private access drives, future commercial development, and open spaces. Outdoor storage will be limited. Trash enclosures will be constructed to contain waste material from the tenants in the existing development.

VI. Floodplain Statement

No portion of the project sit lies within the 100-year floodplain as defined by the FIRM Map numbers 08041C0543G and 08041C0756G effective December 7, 2018. A copy of the FIRM Panels are included in **Appendix A.**

VII. Basin Fees

No drainage fees were assessed previously for this property. Per Appendix L of the DCM, Section 3.13a: "*Vacations, **Replats**, Drainage Districts, and Irrigation Companies*", drainage basin fees are applicable to this site. The project site is located within the Sand Creek Drainage Basin. The 2021 basin fee for the Sand Creek Drainage Basin is $20,387/acre of impervious land. The 2021 bridge fee for the Sand Creek Drainage Basin is $8,339/acre of impervious land. Sand Creek does not include pond land, pond facility, or surcharge fees. The total platted acreage for the two lots within the proposed subdivision are 9.26± acres. Lot 3A is comprised of 5.00± acres and Lot 3B has 4.26± acres. The percent impervious for Lot 3A is calculated according to zoning of industrial use with 85% imperviousness. Therefore, the impervious acreage is 5.00 acres x 85% = 4.25 acres.

D & K Akers Subdivision, Lot 3A Drainage Letter 2021 Original Drainage Fees						
	Impervious Area (Ac.)	Fee/ Impervious Acre	Bridge Fee/ Impervious Acre	Fee Due	Fee Due at Platting	Drainage Fee Credit
Sand Creek Drainage Fee Basin						
Drainage Fee	4.25	$20,387	$8,339	$122,085.50	$122,085.50	$0.00
				$122,085.50	***$122,085.50***	***$0.00***

VIII. Conclusions

There are no improvements being proposed to the site as part of the subdivision (replat). The site, in its present condition, does not adversely impact any adjacent properties or downstream facilities. It is respectfully requested that El Paso County recognize that no modifications or improvements are being proposed with this subdivision, and therefore, no further or additional drainage calculations are warranted.

IX. References

1. *City of Colorado Springs/County of El Paso Drainage Criteria Manual*, October 1991.

2. *Drainage Criteria Manual, Volume 2*, City of Colorado Springs, November 2002.

3. *Engineering Criteria Manual*, El Paso County, Adopted December 23, 2004, Revised December 13, 2016.

4. Flood Insurance Rate Maps – El Paso County, Colorado and Incorporated Areas Community Panel Nos. 08041C0543G and 08041C0756G effective December 7, 2018.

Appendix

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the **North American Vertical Datum of 1988 (NAVD88)**. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at http://www.ngs.noaa.gov/.

Base Map information shown on this FIRM was provided in digital format by El Paso County, Colorado Springs Utilities, and Anderson Consulting Engineers, Inc. These data are current as of 2008.

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable, in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

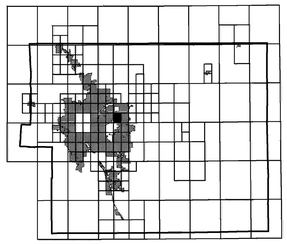
Contact **FEMA Map Service Center** (MSC) via the FEMA Map Information eXchange (FMIX) 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The MSC may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

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



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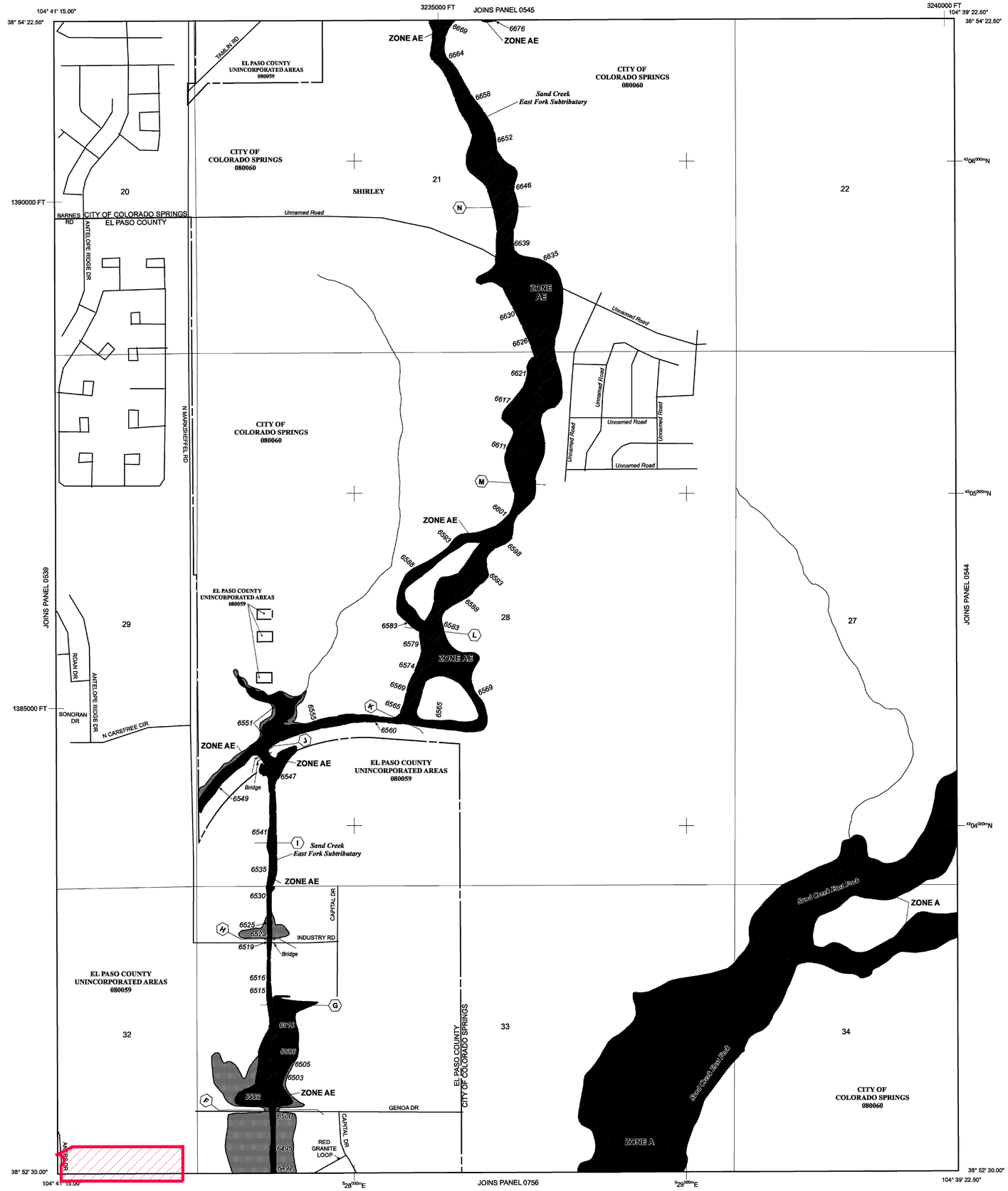

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 13 SOUTH, RANGE 65 WEST.

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)
4275000mN	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" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0543G

FIRM
FLOOD INSURANCE RATE MAP
EL PASO COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 543 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	080060	0543	G
EL PASO COUNTY	080059	0543	G

Notice: This map was reissued on 05/15/2020 to make a correction. This version replaces any previous versions. See the Notice-to-User Letter that accompanied this correction for details.

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08041C0543G

MAP REVISED
DECEMBER 7, 2018

Federal Emergency Management Agency

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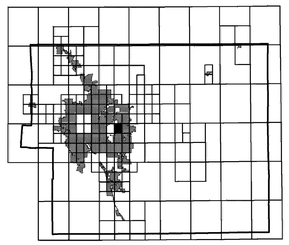

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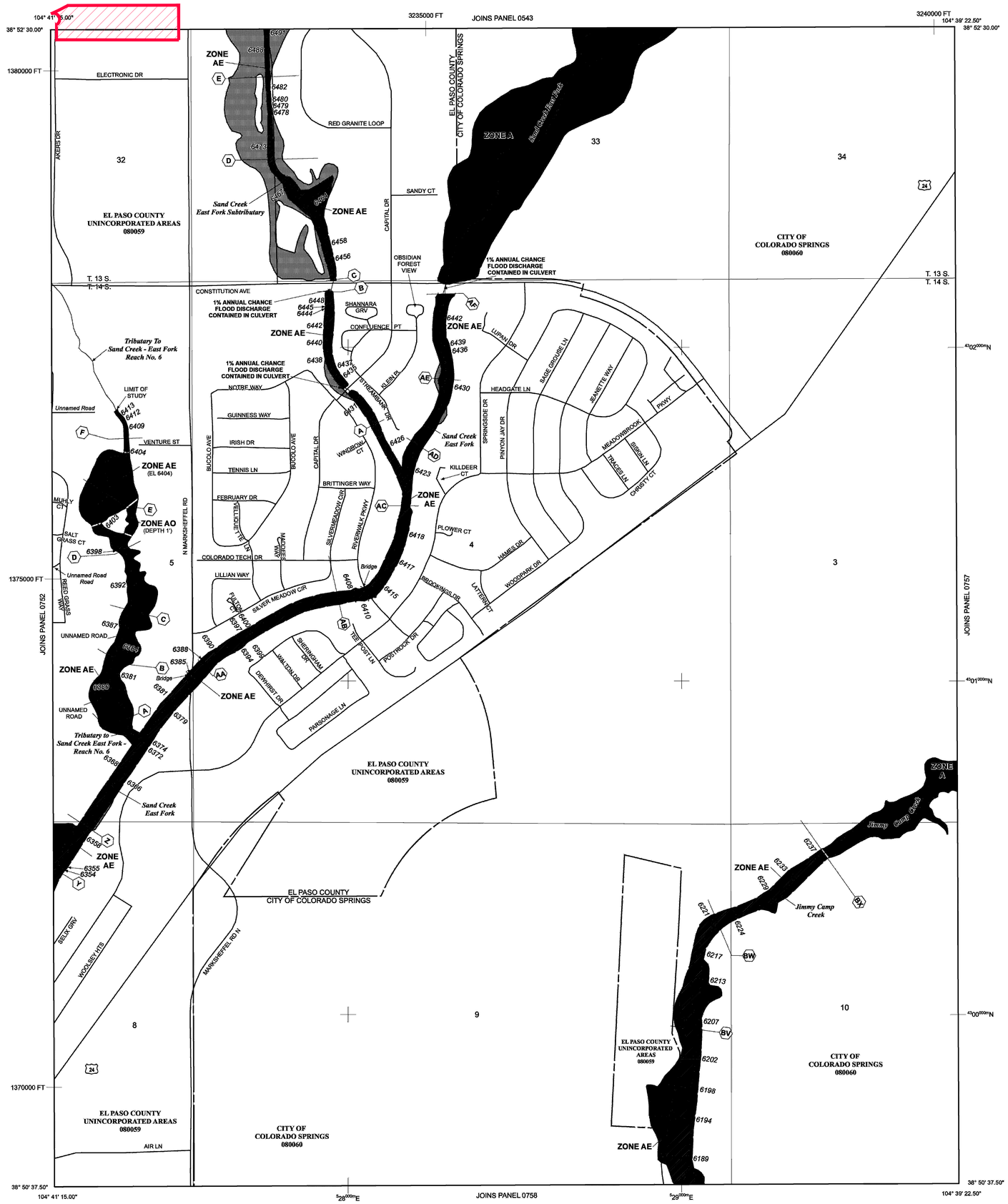

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 13 SOUTH, RANGE 65 WEST, AND TOWNSHIP 14 SOUTH, RANGE 65 WEST.

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	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)
4275000mN	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" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0756G

FIRM
FLOOD INSURANCE RATE MAP
EL PASO COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 756 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	080060	0756	G
EL PASO COUNTY	080059	0756	G

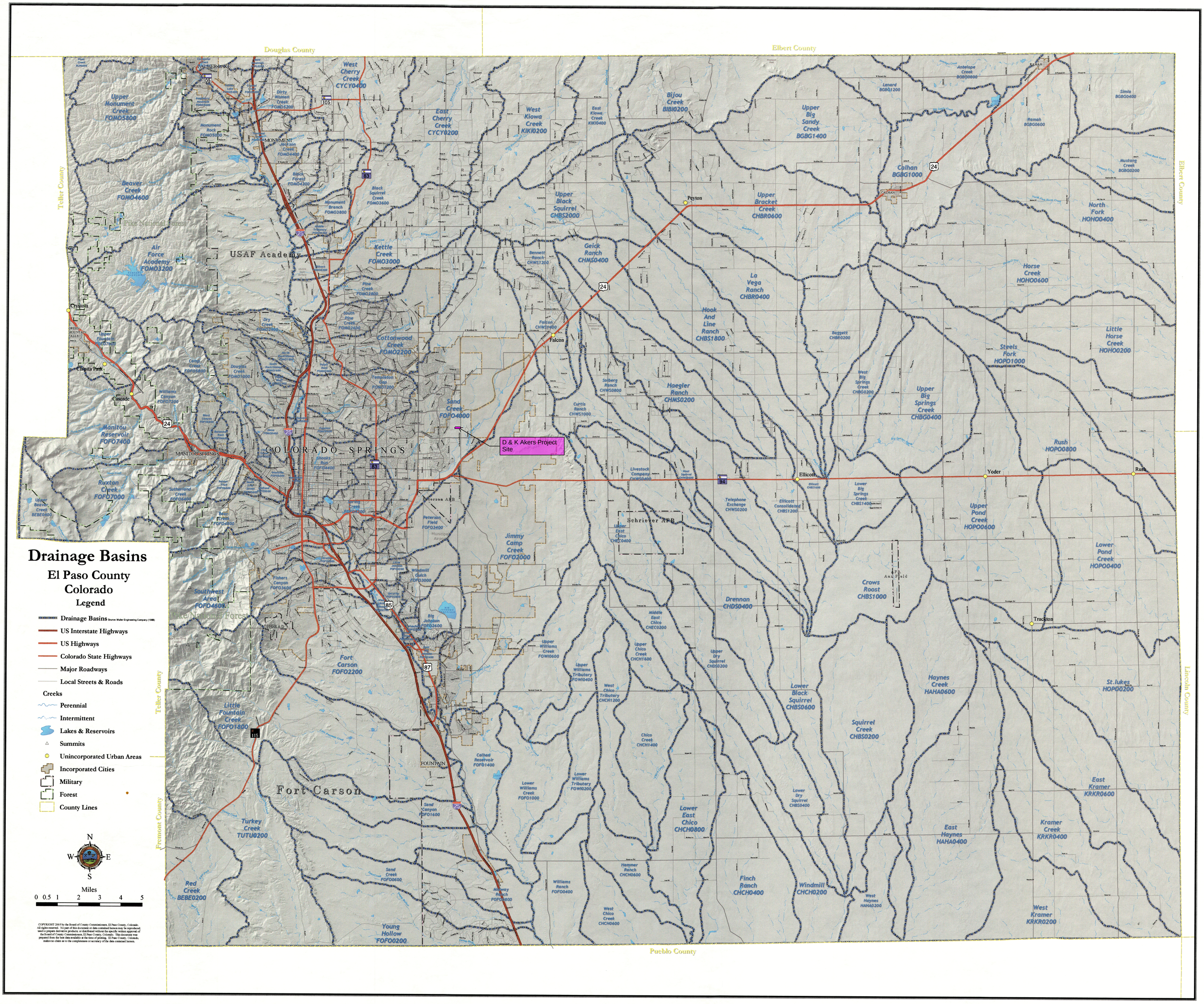
Notice: This map was reissued on 05/15/2020 to make a correction. This version replaces any previous versions. See the Notice-to-User Letter that accompanied this correction for details.

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08041C0756G

MAP REVISED
DECEMBER 7, 2018

Federal Emergency Management Agency


Douglas County
Elbert County
Teller County
Lincoln County
Pueblo County
Fremont County
Drainage Basins
El Paso County
Colorado
Legend
Drainage Basins
US Interstate Highways
US Highways
Colorado State Highways
Major Roadways
Local Streets & Roads
Creeks
Perennial
Intermittent
Lakes & Reservoirs
Summits
Unincorporated Urban Areas
Incorporated Cities
Military
Forest
County Lines
N
W
E
S
Miles
0 0.5 1 2 3 4 5
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D & K Akers Project Site
COLORADO SPRINGS
USAF Academy
Fort Carson
Peterson AFB
Schriever AFB
Pike National Forest
Cripple Creek
Victor
Cripple Creek Municipal Airport
Woodland Park
Divide
Florissant
Green Mountain Falls
Ute Pass
Cascade
Chipita Park
Manitou Springs
Crystola
Monument
Palmer Lake
Black Forest
Falcon
Peyton
Calhan
Ellicott
Yoder
Rush
Truckton
Fountain
Ramah
Simla
Antelope Creek BGBG0800
Lenard BGBG1200
Ramah BGBG0600
Mustang Creek BGBG0200
Bijou Creek BIBI0200
Upper Big Sandy Creek BGBG1400
Calhan BGBG1000
Upper Bracket Creek CHBR0600
North Fork HOHO0400
Horse Creek HOHO0600
Little Horse Creek HOHO0200
Steels Fork HOPO1000
Upper Big Springs Creek CHBG0400
Rush HOPO0800
Upper Pond Creek HOPO0600
Lower Pond Creek HOPO0400
St.lukes HOPO0200
East Kramer KRKR0600
Kramer Creek KRKR0400
West Kramer KRKR0200
Haynes Creek HAHA0600
East Haynes HAHA0400
West Haynes HAHA0200
Squirrel Creek CHBS0200
Lower Black Squirrel CHBS0600
Crows Roost CHBS1000
Drennan CHDS0400
Finch Ranch CHCH0400
Windmill CHCH0200
Lower East Chico CHCH0800
Lower Dry Squirrel CHBS0400
Haegler Ranch CHMS0200
Hook And Line Ranch CHBS1800
La Vega Ranch CHBR0400
Geick Ranch CHMS0400
Upper Black Squirrel CHBS2000
West Kiowa Creek KIKI0200
East Kiowa Creek KIKI0400
East Cherry Creek CYCY0200
West Cherry Creek CYCY0400
Upper Monument Creek FOMO5800
Beaver Creek FOMO4600
Air Force Academy FOMO3200
Kettle Creek FOMO3000
Cottonwood Creek FOMO2200
Sand Creek FOFO4000
Jimmy Camp Creek FOFO2000
Fort Carson FOFO2200
Little Fountain Creek FOFO1800
Turkey Creek TUTU0200
Red Creek BEBE0200
Young Hollow FOFO0200
Southwest Area FOFO4600
Manitou Reservoir FOFO7400
Ruxton Creek FOFO7000
Upper Beaver Creek BEBE0400
Williams Canyon FOFO7200
Douglas Creek FOMO1000
Dry Creek FOMO2000
Monument Branch FOMO3800
Black Squirrel Creek FOMO3600
Pine Creek FOMO2800
South Pine Creek FOMO2400
Templeton Gap FOMO1200
Sand Creek FOFO0600
Sand Canyon FOFO1600
Big Johnson FOFO2600
Windmill Gulch FOFO3000
Peterson Field FOFO3400
Fishers Canyon FOFO3600
Bear Creek FOFO4800
Sutherland Creek FOFO6400
Spring Creek FOFO6200
Calhan Reservoir FOFO1400
Lower Williams Creek FOFO1000
Williams Ranch FOFO0400
Midway Ranch FOFO0800
Upper Williams Creek FOWI0600
Upper Williams Tributary FOWI0400
Lower Williams Tributary FOWI0200
West Chico Tributary CHCH1200
Chico Creek CHCH1400
Upper Chico Creek CHCH1600
Middle East Chico CHEC0200
Upper East Chico CHEC0400
Upper Dry Squirrel CHDS0200
Hammer Ranch CHCH0600
West Chico Creek CHCH0600
Telephone Exchange CHWS0200
Ellicott Consolidated CHBS1200
Lower Big Springs Creek CHBS1400
Livestock Company CHWS0400
Curtis Ranch CHWS1000
Solberg Ranch CHWS0800
Bennett Ranch CHWS1200
Falcon CHWS1400
Baggett CHBR0200
West Big Springs Creek CHBG0200
Upper Bennett Creek CHBS0200
Upper East Chico CHEC0400
Cripple Creek FLFO0400
Fremont Creek FLFO0600
Dirty Woman Creek FOMO5200
Monument Rock FOMO5000
Jackson Creek FOMO4400
Black Forest FOMO4300
Pine Creek FOMO2800
Dry Creek FOMO2000
Douglas Creek FOMO1000
Templeton Gap FOMO1200
Cache Creek FOFO5800
Williams Canyon FOFO7200
Ruxton Creek FOFO7000
Sutherland Creek FOFO6400
Spring Creek FOFO6200
Bear Creek FOFO4800
Fishers Canyon FOFO3600
Windmill Gulch FOFO3000
Big Johnson FOFO2600
Sand Creek FOFO0600
Sand Canyon FOFO1600
Pike National Forest
Fort Carson
Schriever AFB
Peterson AFB
Municipal Airport
Cripple Creek Municipal Airport
Ellicott Municipal Airport
Calhan Municipal Airport
Ramah Municipal Airport
Fountain
Colorado Springs
Manitou Springs
Cripple Creek
Victor
Woodland Park
Divide
Florissant
Green Mountain Falls
Ute Pass
Cascade
Chipita Park
Crystola
Monument
Palmer Lake
Black Forest
Falcon
Peyton
Calhan
Ellicott
Yoder
Rush
Truckton
Fountain
Ramah
Simla

El Paso County Drainage Basin Fees

Resolution No. 20-424

Basin Number	Receiving Waters	Year Studied	Drainage Basin Name	2021 Drainage Fee (per Impervious Acre)	2021 Bridge Fee (per Impervious Acre)
Drainage Basins with DBPS's:					
CHMS0200	Chico Creek	2013	Haegler Ranch	$11,113	$1,640
CHWS1200	Chico Creek	2001	Bennett Ranch	$12,441	$4,772
CHWS1400	Chico Creek	2013	Falcon	$31,885	$4,380
FOFO2000	Fountain Creek	2001	West Fork Jimmy Camp Creek	$13,524	$4,001
FOFO2600	Fountain Creek	1991*	Big Johnson / Crews Gulch	$19,752	$2,551
FOFO2800	Fountain Creek	1988*	Widefield	$19,752	$0
FOFO2900	Fountain Creek	1988*	Security	$19,752	$0
FOFO3000	Fountain Creek	1991*	Windmill Gulch	$19,752	$296
FOFO3100 / FOFO3200	Fountain Creek	1988*	Carson Street / Little Johnson	$12,048	$0
FOFO3400	Fountain Creek	1984*	Peterson Field	$14,246	$1,080
FOFO3600	Fountain Creek	1991*	Fisher's Canyon	$19,752	$0
FOFO4000	Fountain Creek	1996	Sand Creek	$20,387	$8,339
FOFO4200	Fountain Creek	1977	Spring Creek	$10,244	$0
FOFO4600	Fountain Creek	1984*	Southwest Area	$19,752	$0
FOFO4800	Fountain Creek	1991	Bear Creek	$19,752	$1,080
FOFO5400	Fountain Creek	1977	21st Street	$5,942	$0
FOFO5600	Fountain Creek	1964	19th Street	$3,887	$0
FOFO5800	Fountain Creek	1964	Camp Creek	$2,189	$0
FOMO0400	Monument Creek	1986*	Mesa	$10,331	$0
FOMO1000	Monument Creek	1981	Douglas Creek	$12,421	$274
FOMO1200	Monument Creek	1977	Templeton Gap	$12,752	$296
FOMO1400	Monument Creek	1976	Pope's Bluff	$3,956	$675
FOMO1600	Monument Creek	1976	South Rockrimmon	$4,643	$0
FOMO1800	Monument Creek	1973	North Rockrimmon	$5,942	$0
FOMO2000	Monument Creek	1971	Pulpit Rock	$6,549	$0
FOMO2200	Monument Creek	1994	Cottonwood Creek / S. Pine	$19,752	$1,080
FOMO2400	Monument Creek	1966	Dry Creek	$15,592	$565
FOMO3600	Monument Creek	1989*	Black Squirrel Creek	$8,968	$565
FOMO3700	Monument Creek	1987*	Middle Tributary	$16,482	$0
FOMO3800	Monument Creek	1987*	Monument Branch	$19,752	$0
FOMO4000	Monument Creek	1996	Smith Creek	$8,052	$1,080
FOMO4200	Monument Creek	1989*	Black Forest	$19,752	$538
FOMO5200	Monument Creek	1993*	Dirty Woman Creek	$19,752	$1,080
FOMO5300	Fountain Creek	1993*	Crystal Creek	$19,752	$1,080
Miscellaneous Drainage Basins: [1]					
CHBS0800	Chico Creek		Book Ranch	$18,533	$2,683
CHEC0400	Chico Creek		Upper East Chico	$10,097	$293
CHWS0200	Chico Creek		Telephone Exchange	$11,093	$260
CHWS0400	Chico Creek		Livestock Company	$18,273	$217
CHWS0600	Chico Creek		West Squirrel	$9,525	$3,953
CHWS0800	Chico Creek		Solberg Ranch	$19,752	$0
FOFO1200	Fountain Creek		Crooked Canyon	$5,963	$0
FOFO1400	Fountain Creek		Calhan Reservoir	$4,979	$290
FOFO1600	Fountain Creek		Sand Canyon	$3,597	$0
FOFO2000	Fountain Creek		Jimmy Camp Creek[3]	$19,752	$924
FOFO2200	Fountain Creek		Fort Carson	$15,592	$565
FOFO2700	Fountain Creek		West Little Johnson	$1,301	$0
FOFO3800	Fountain Creek		Stratton	$9,474	$424
FOFO5000	Fountain Creek		Midland	$15,592	$565
FOFO6000	Fountain Creek		Palmer Trail	$15,592	$565
FOFO6800	Fountain Creek		Black Canyon	$15,592	$565
FOMO4600	Monument Creek		Beaver Creek	$11,808	$0
FOMO3000	Monument Creek		Kettle Creek	$10,666	$0
FOMO3400	Monument Creek		Elkhorn	$1,792	$0
FOMO5000	Monument Creek		Monument Rock	$8,561	$0
FOMO5400	Monument Creek		Palmer Lake	$13,689	$0
FOMO5600	Monument Creek		Raspberry Mountain	$4,605	$0
PLPL0200	Monument Creek		Bald Mountain	$9,813	$0
Interim Drainage Basins: [2]					
FOFO1800	Fountain Creek		Little Fountain Creek	$2,525	$0
FOMO4400	Monument Creek		Jackson Creek	$7,818	$0
FOMO4800	Monument Creek		Teachout Creek	$5,429	$816

1. The miscellaneous drainage fee previous to September 1999 resolution was the average of all drainage fees for basins with Basin Planning Studies performed within the last 14 years.

2. Interim Drainage Fees are based upon draft Drainage Basin Planning Studies or the Drainage Basin Identification and Fee Estimation Report. (Best available information suitable for setting a fee.)

3. This is an interim fee and will be adjusted when a DBPS is completed. In addition to the Drainage Fee a surety in the amount of $7,285 per impervious acre shall be provided to secure payment of additional fees in the event that the DBPS results in a fee greater than the current fee. Fees paid in excess of the future revised fee will be reimbursed. See Resolution 06-326 (9/14/06) and Resolution 16-320 (9/07/16).

EPC Stormwater Management *Jennifer Irvine, P.E.*

COMPOSITE % IMPERVIOUS CALCULATIONS: CURRENT/EXISTING CONDITIONS

Subdivision: D & K Akers Subdivison No. 1
Location: CO, Colorado Springs

Project Name: D & K Akers Subdivison No. 1
Project No.: DKA000001.20
Calculated By: TPT
Checked By: BAS
Date: 1/31/22

1	2	3	4	5	6	7	8	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Basin ID	**Total Area (ac)**	**Paved/Gravel Roads**			**Lawns/Undeveloped**			**Residential - 1/8 Acre**			**Residential - 1/4 Acre**			**Residential - 1/3 Acre**			**Residential - 1/2 Acre**			**Residential - 1 Acre**			**Basins Total Weighted % Imp.**
		% Imp.	**Area (ac)**	**Weighted % Imp.**	**% Imp.**	**Area (ac)**	**Weighted % Imp.**	**% Imp.**	**Area (ac)**	**Weighted % Imp.**	**% Imp.**	**Area (ac)**	**Weighted % Imp.**	**% Imp.**	**Area (ac)**	**Weighted % Imp.**	**% Imp.**	**Area (ac)**	**Weighted % Imp.**	**% Imp.**	**Area (ac)**	**Weighted % Imp.**	
A	0.69	100	0.00	0.0	2	0.51	1.5	65.0	0.18	17.0	40	0.00	0.0	30	0.00	0.0	25	0.00	0.0	20	0.00	0.0	18.5
B	1.70	100	0.47	27.6	2	1.16	1.4	65.0	0.07	2.7	40	0.00	0.0	30	0.00	0.0	25	0.00	0.0	20	0.00	0.0	31.7
C	0.36	100	0.00	0.0	2	0.36	2.0	65.0	0.00	0.0	40	0.00	0.0	30	0.00	0.0	25	0.00	0.0	20	0.00	0.0	2.0
D	4.92	100	0.18	3.7	2	4.74	1.9	65.0	0.00	0.0	40	0.00	0.0	30	0.00	0.0	25	0.00	0.0	20	0.00	0.0	5.6
E	1.60	100	0.00	0.0	2	1.60	2.0	65.0	0.00	0.0	40	0.00	0.0	30	0.00	0.0	25	0.00	0.0	20	0.00	0.0	2.0

Lot Type Identification:	
Lot Size (SF)	*Lot Size (Acre)*
0 - 8,167	1/8 Acre
8,168 - 12,704	1/4 Acre
12,705 - 18,149	1/3 Acre
18,150 - 32,670	1/2 Acre
32,671 - 43,560	1 Acre

NOTES:
% Impervious values are taken directly from Table 6-6 in the Colorado Springs DCM Vol. 1. CH. 6 (Referencing UDFCD 2001)

COMPOSITE RUNOFF COEFFICIENT CALCULATIONS: CURRENT/EXISTING CONDITIONS

Subdivision: D & K Akers Subdivison No. 1
Location: CO, Colorado Springs

1	2	3	4	5	6	7	8	9	10	11	27	28
Basin ID	**Total Area (ac)**	**Paved/Gravel Roads**			**Lawns/Undeveloped**			**Roofs**			**Composite C_5**	**Composite C_{100}**
		C_5	**C_{100}**	**Area (ac)**	**C_5**	**C_{100}**	**Area (ac)**	**C_5**	**C_{100}**	**Area (ac)**		
A	0.69	0.90	0.96	0.00	0.09	0.36	0.51	0.73	0.81	0.18	0.37	0.63
B	1.70	0.90	0.96	0.47	0.09	0.36	1.16	0.73	0.81	0.00	0.33	0.54
C	0.36	0.90	0.96	0.00	0.09	0.36	0.36	0.73	0.81	0.00	0.09	0.36
D	4.92	0.90	0.96	0.18	0.09	0.36	4.74	0.73	0.81	0.00	0.12	0.38
E	1.60	0.90	0.96	0.00	0.09	0.36	1.60	0.73	0.81	0.00	0.09	0.36

Lot Type Identification:	
Lot Size (SF)	*Lot Size (Acre)*
0 - 8,167	</= 1/8 Acre
8,168 - 12,704	1/4 Acre
12,705 - 18,149	1/3 Acre
18,150 - 32,670	1/2 Acre
32,671 - 43,560	1 Acre

NOTES:
C values are taken directly from Table 6-6 in the Colorado Springs DCM Vol. 1. CH. 6 (Referencing UDFCD 2001)
Coeffficients use HSG A&B soils - Refer to "Appendix A: Exhibits and Figures" for soil map

STANDARD FORM SF-2: CURRENT/EXISTING CONDITIONS
TIME OF CONCENTRATION

Subdivision: D & K Akers Subdivison No. 1
Location: CO, Colorado Springs

Project Name: D & K Akers Subdivison No. 1
Project No.: DKA000001.20
Calculated By: TPT
Checked By: BAS
Date: 1/31/22

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
SUB-BASIN						INITIAL/OVERLAND			TRAVEL TIME					Tc CHECK			
DATA						(T_i)			(T_t)					(URBANIZED BASINS)			FINAL
BASIN ID	D.A. (AC)	Hydrologic Soils Group	Impervious (%)	C_5	C_{100}	L (FT)	S (%)	T_i (MIN)	L (FT)	S (%)	Cv	VEL. (FPS)	T_t (MIN)	COMP. T_c (MIN)	TOTAL LENGTH(FT	Urbanized T_c (MIN)	T_c (MIN)
A	0.69	A	18.5	0.37	0.63	100	2.0	10.6	220	2.0	10	1.4	2.6	13.2	320.0	11.8	11.8
B	1.70	A	31.7	0.33	0.54	100	2.0	11.2	300	2.0	20	2.8	1.8	13.0	400.0	12.2	12.2
C	0.36	A	2.0	0.09	0.36	100	4.0	11.7	160	3.0	10	1.7	1.5	13.2	260.0	11.4	11.4
D	4.92	A	5.6	0.12	0.38	100	4.0	11.3	780	3.0	10	1.7	7.5	18.8	880.0	14.9	14.9
E	1.60	A	2.0	0.09	0.36	100	4.0	11.7	440	3.0	10	1.7	4.2	15.9	540.0	13.0	13.0

NOTES:

T_i = (0.395*(1.1 - C_5)*(L)^0.5)/((S)^0.33), S in ft/ft

T_t=L/60V (Velocity From Fig. 501)

Velocity V=Cv*S^0.5, S in ft/ft

Tc Check = 10+L/180

For Urbanized basins a minimum T_c of 5.0 minutes is required.

For non-urbanized basins a minimum T_c of 10.0 minutes is required

Type of Land Surface	Cv
Heavy Meadow	2.5
Tillage/field	5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

STANDARD FORM SF-3: CURRENT/EXISTING CONDITIONS

STORM DRAINAGE SYSTEM DESIGN

(RATIONAL METHOD PROCEDURE)

Subdivision: D & K Akers Subdivison No. 1
Location: CO, Colorado Springs
Design Storm: 5-Year

Project Name: D & K Akers Subdivison No. 1
Project No.: DKA000001.20
Calculated By: TPT
Checked By: BAS
Date: 1/31/22

STREET	Design Point	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		Basin ID	Area (Ac)	Runoff Coeff.	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Street Flow (cfs)	Design Flow (cfs)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	Tt (min)	
		A	0.69	0.37	11.8	0.26	3.88	1.0													
		B	1.70	0.33	12.2	0.56	3.83	2.1													
		C	0.36	0.09	11.4	0.03	3.93	0.1													
		D	4.92	0.12	14.9	0.59	3.53	2.1													
		E	1.60	0.09	13.0	0.14	3.74	0.5													

STANDARD FORM SF-3: CURRENT/EXISTING CONDITIONS

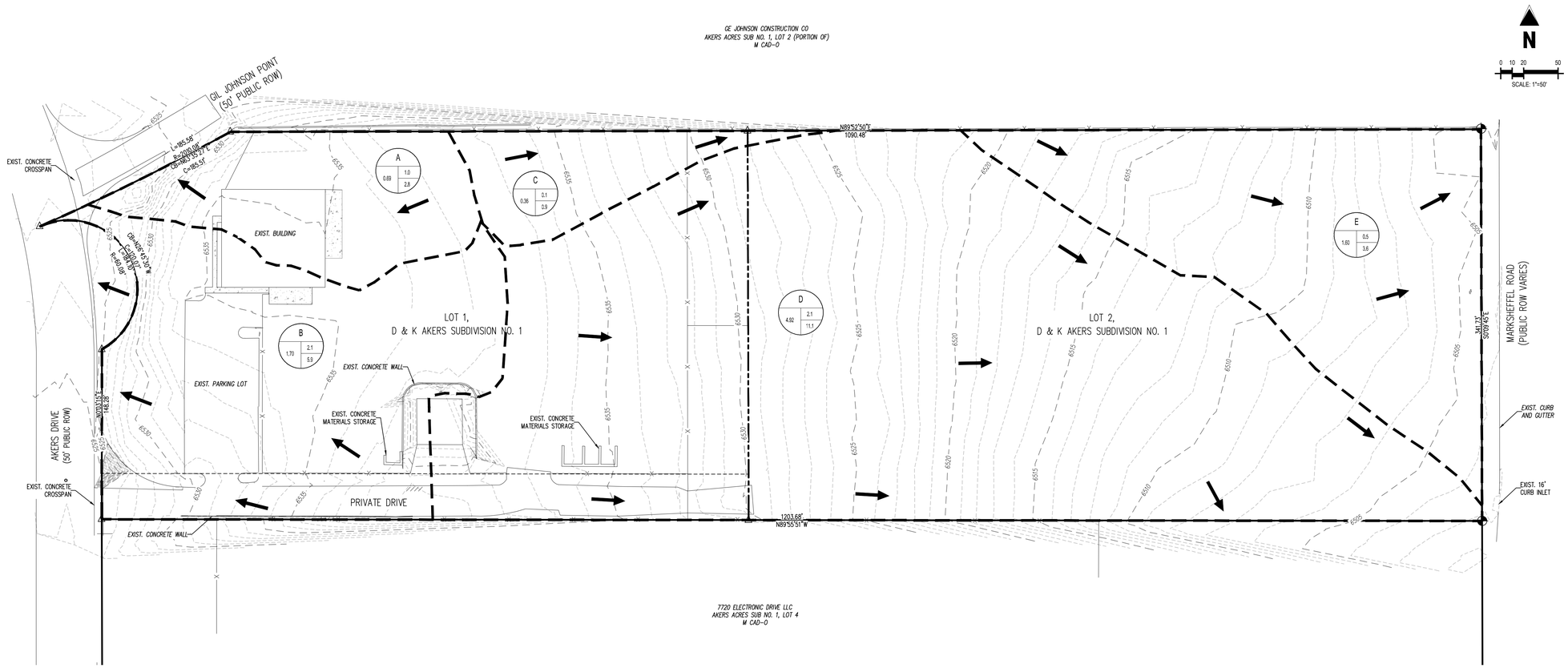
STORM DRAINAGE SYSTEM DESIGN

(RATIONAL METHOD PROCEDURE)

Subdivision: D & K Akers Subdivison No. 1
Location: CO, Colorado Springs
Design Storm: 100-Year

Project Name: D & K Akers Subdivison No. 1
Project No.: DKA000001.20
Calculated By: TPT
Checked By: BAS
Date: 1/31/22

STREET	Design Point	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		Basin ID	Area (Ac)	Runoff Coeff.	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Street Flow (cfs)	Design Flow (cfs)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	Tt (min)	
		A	0.69	0.63	11.8	0.43	6.52	2.8													
		B	1.70	0.54	12.2	0.92	6.43	5.9													
		C	0.36	0.36	11.4	0.13	6.59	0.9													
		D	4.92	0.38	14.9	1.87	5.93	11.1													
		E	1.60	0.36	13.0	0.58	6.27	3.6													



LEGEND

- PROPERTY BOUNDARY LINE
- PROPOSED LOT LINE
- EXISTING ASPHALT PAVEMENT EDGE
- EXISTING FENCE
- EXISTING BUILDING OUTLINE
- EXISTING CONCRETE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING STORM INLET
- DIRECTION OF RUNOFF
- BASIN DESIGNATION
- 5-YEAR RUNOFF IN CUBIC FEET PER SECOND
- 100-YEAR RUNOFF IN CUBIC FEET PER SECOND
- BASIN AREA IN ACRES

RUNOFF SUMMARY TABLE

Basin ID	Area (acres)	Q_5 (cfs)	Q_{100} (cfs)
A	0.69	1.0	2.8
B	1.70	2.1	5.9
C	0.36	0.1	0.9
D	4.92	2.1	11.1
E	1.60	0.5	3.6

Galloway
1155 Kelly Johnson Blvd., Suite 305
Colorado Springs, CO 80920
719.900.7220
GallowayUS.com

NOT FOR CONSTRUCTION

D & K AKERS SUBDIVISION
DRAINAGE MAP FOR
LOTS 1 & 2
D & K AKERS, LLC

2875 AKERS DRIVE
COLORADO SPRINGS, CO 80927, EL PASO COUNTY

#	Date	Issue / Description	Init.

Project No:	DKA000001
Drawn By:	TPT
Checked By:	CMD
Date:	SEPTEMBER 2020

DRAINAGE MAP

D1.0
Sheet 1 of 1