

**Drainage Memo
for
Lot 1, Seder Subdivision
(A Replat of Lot 7, Akers Acres Subdivision No. 1)
2725 Akers Drive
El Paso County, Colorado 80922**

Prepared for:
CES Property Endeavors, LLC
7755 Gary Watson Point
Colorado Springs, Colorado 80915

Prepared by:
Kiowa
Engineering Corporation

1604 South 21st Street
Colorado Springs, Colorado 80904
(719) 630-7342

Kiowa Project No. 24060
January 31, 2025

PCD File PPR255

STATEMENTS AND APPROVALS

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 any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

Kiowa Engineering Corporation, 1604 South 21st Street, Colorado Springs, Colorado 80904

[Redacted Signature]

January 31, 2025
Date

Andrew W. McCord (PE #25057)
For and on Behalf of Kiowa Engineering Corporation

DEVELOPER'S STATEMENT:

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

CES Property Endeavors, LLC
Name of Developer

[Redacted Signature]

[Redacted Signature]

Authorized Signature

Date

Printed Name: Cory Shorette

Title: President

Address: 9818 Morning Vista Drive, Peyton, Colorado 80831

EL PASO COUNTY:

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

Joshua Palmer, P.E.
El Paso County Engineer/ECM Administrator

Date

I. General Description

This drainage memo studies a portion of the Seder Subdivision, namely Lot 1. Lot 1 of Seder Subdivision currently contains the northern portion of the subdivision access off Akers Drive, a gravel parking area, a building, gravel storage area, and some lawn areas. The development of the site is a proposed attached building addition with patios and sidewalks, paved parking area to the west with paved access off Akers Drive, retaining walls to effectively flatten the site, and landscaped areas. This drainage memo is in support of the Site Development Plan being submitted for Lot 1, Seder Subdivision. This memo has been prepared in accordance with County's Drainage Criteria Manual (DCM) Volume 1 (revised January 2021) and Volume 2 (revised December 2020) and is being submitted for approval. The property is currently platted as Lot 1 Seder Subdivision. The existing conditions are depicted in the attached Existing Site Conditions Figure 3 as well as the proposed conditions depicted on the attached Proposed Site Layout Figure 4. It is not proposed to replat the current plat with this development.

How does the runoff from the site get to the existing sand filter basin? Currently the proposed contours appears to sheet flow off-site and do not appear to flow to the east.

II. Location

The project site is in the Southeast Quarter of Section 32, Township 13 South, Range 65 West of the 6th Principal Meridian, El Paso County, Colorado and is currently platted. The site is currently owned by CES Property Endeavors, LLC, and is currently platted as Lot 1 Seder Subdivision. The site encompasses an area of 2.763 acres. There is a shared Roadway & Maintenance easement located just south of the property and the southwest corner of the property which encompasses 2,100 sf or 0.048 acres. We are including the shared Roadway & Maintenance easement in our drainage analysis of the property for a total area of 2.811 acres. The site is bordered to the west by Akers Drive and residential subdivision (Hannah Ridge at Feathergrass Filing No. 1), to the north by undeveloped property (Lot 6 Akera Acres Subdivision No. 1), to the east by Lot 2 Seder Subdivision (currently rehabilitated but undeveloped), and to the south by ABC Roofing Supply Company. The project site is currently developed with a building, gravel parking, and storage areas. The site drains generally from the west to east and to an existing water quality (sand filter basin)/detention facility located in the southeast corner of Lot 2 that outfalls to an existing inlet on Marksheffel Road. The detention facility discharges east to Sand Creek, then Fountain Creek, and ultimately to the Arkansas River. The location of the site is depicted in the attached Vicinity Map (Figure 1),

III. Drainage Memo Justification

The most recently approved drainage report that studied the Seder Subdivision site was the *Final Drainage Letter Seder Subdivision (A Replat of Lot 7, Akers Acres Subdivision No. 1)*, prepared by Baseline Engineering Corporation, and approved 2/7/2024. hereafter referred to as 'report.' This report was for the 9.34-acre parcel of property located between Akers Drive and Marksheffel Road to the east. This report analyzed the entire Seder Subdivision. The subdivision contains an existing water quality (sand filter basin)/detention facility located in the southeast corner of Lot 2 adjacent to Marksheffel Road.

Mention all reports. the most recent report did not provide calculations for the existing sand filter basin so it does not have full engineering information for the site. Add the EDARP project number when referencing existing projects/reports.

The Final Drainage Letter analyzed the entire property. Of interest is the Drainage Plan in the 'report' does show a potential future building east of the existing building on Lot 1. Lot 1 is almost entirely with Sub-basin A. Sub-basin A shows an impervious area of 60% in the report's calculations. The three other 'minor' sub-basin that comprise Lot 2 show very small imperviousness values. A value of 60% Imperviousness for Lot 2 is effectively the value used throughout the approved Drainage Letter.

In our analysis of the proposed developed layout for Lot 1, an impervious value that was equal to or less than 60% would mean that the proposed site was equal to or an improvement over the approved report calculations. Our Runoff Coefficient and Percent Impervious Calculations are shown as Table 1. The impervious value for the entirety of Lot 1 is 41.7% and for Sub-basin A is 44.8%. Using the most conservative values in the Baseline and Kiowa calculations, it is shown that future developed impervious value of 45% is less than the report imperviousness value of 60%. Therefore, the Baseline report should remain as the governing approved report for the entirety of the Seder Subdivision.

IV. Floodplain Statement

According to the Federal Emergency Management Agency (FEMA), the proposed development does not lie within a designated floodplain. The Floodplain Insurance Rate Map (FIRM) for El Paso County panel 08041C0756G dated December 7, 2018, was reviewed to determine any potential floodplain delineation. A FEMA National Flood Hazard Firmette can be found in the Appendix on Figure 2.

V. Drainage Fees

The site lies within the Sand Creek Drainage Basin, which has 2025 Drainage Fees of \$27,554 per impervious acre and 2025 Bridge Fees of \$11,270 per impervious acre. Drainage fees have been paid with the previous platting of Lot 1, Seder Subdivision. While the impervious acreage has decreased slightly from the previously paid fees, no reduction or repayment of fees is authorized by the County.

Discuss and state that the existing detention pond is functioning properly and can accept flow from the site and is detaining and releasing as required

State the flows from the lot and if they are less or more then the original approved drainage report. Reference or list the excerpt from the report.

Include 4 step process

Add statement that the stormwater runoff will not have adverse impacts to adjacent or downstream properties

See comments on final drainage map. Please update narrative as applicable.

For future submittal ensure all appendix pages are rotated for readability.

APPENDIX

Figure 1: Vicinity Map

Figure 2: FEMA National Flood Hazard Firmette

Figure 3 – Existing Site Conditions

Figure 4 – Proposed Site Layout

Table 1 - Developed Condition – Percent Impervious Calculation

Table 2 – Currently Approved Drainage Report's Impervious Values

2725 Akers Dr Vicinity Map



0.2 0 0.12 Miles

NAD_1983_StatePlane_Colorado_Central_FIPS_0502_Feet
 © Latitude Geographics Group Ltd.

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104° 41' 15.00"
30.00"

ELECTRONIC DR

AK RS DR

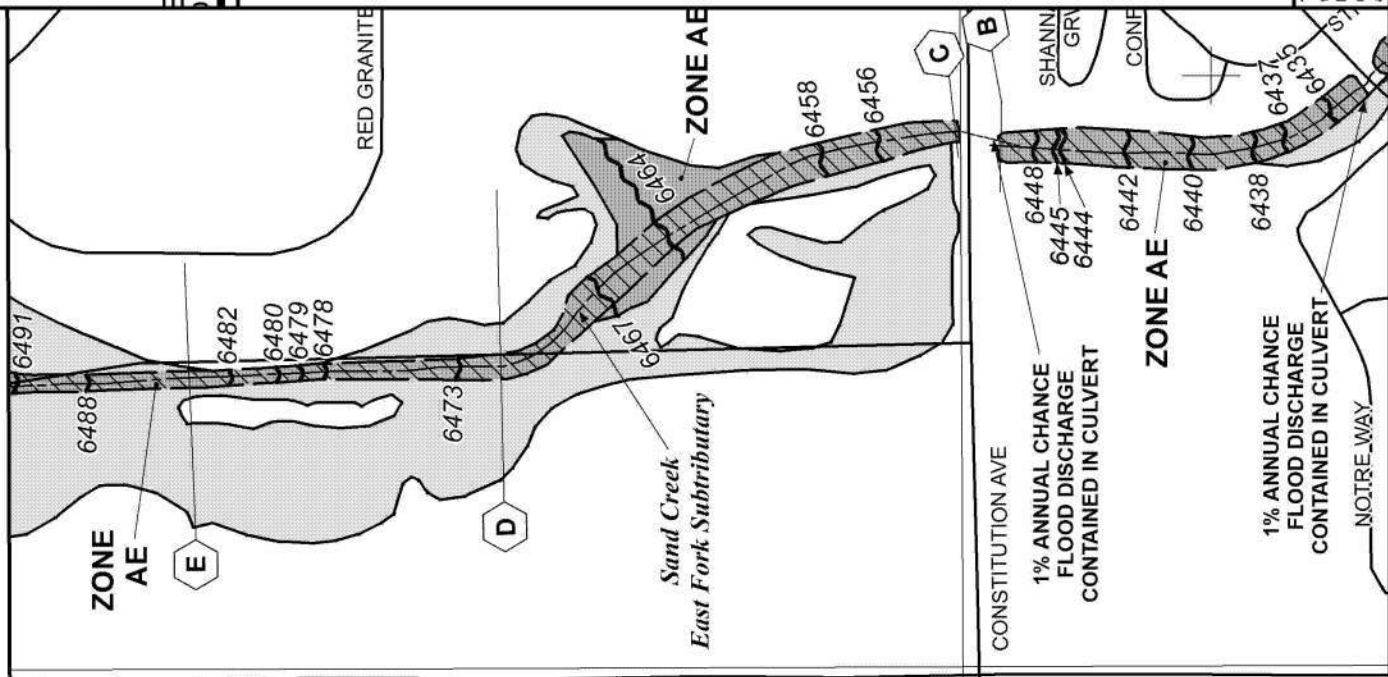
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EL PASO COUNTY
UNINCORPORATED AREAS
080059

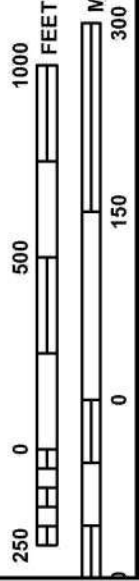
T. 13 S.
T. 14 S.

Tributary To
Sand Creek - East Fork
Reach No. 6

LIMIT OF



MAP SCALE 1" = 500'



NFIP

PANEL 0756G

NATIONAL FLOOD INSURANCE PROGRAM

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	080058	0756	G

Notice: This map was released 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

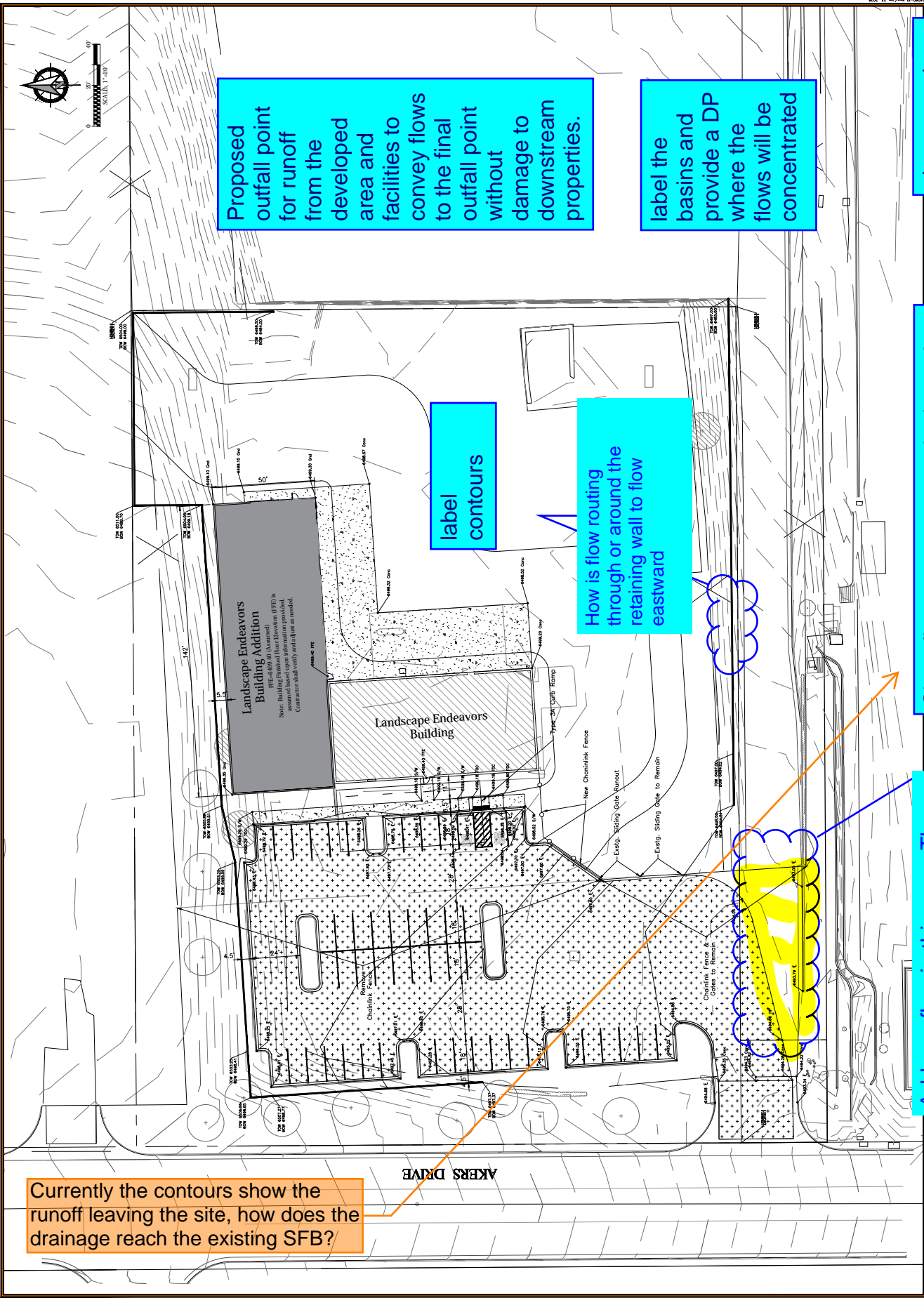
This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.

Figure 3



Provide existing condition drainage map Use excerpt from the original approved drainage report.

Imagery ©2025 Airbus, Map data ©2025 Google 20 ft



Proposed outfall point for runoff from the developed area and facilities to convey flows to the final outfall point without damage to downstream properties.

label the basins and provide a DP where the flows will be concentrated

show complete drainage map to the existing pond

label contours

How is flow routing through or around the retaining wall to flow eastward

Show flow arrows across the lot and to detention basin

Address flow in this area. The GEC plan shows this area not being paved or stabilized. Site flows cannot discharge to the ROW

Currently the contours show the runoff leaving the site, how does the drainage reach the existing SFB?

AKERS DRIVE

Table 1
Runoff Coefficient and Percent Impervious Calculation
Developed Condition

DEVELOPED RUNOFF COEFFICIENT SUMMARY

Basin / DP	Basin or DP Area (DP contributing basins)	Soil Type	Area 1 Land Use			Area 2 Land Use			Area 3 Land Use			Area 4 Land Use			Area 5 Land Use			Basin % Imperv						
			Land Use	% Area	Comp Land Use	Land Use	% Area	Comp Land Use	Land Use	% Area	Comp Land Use	Land Use	% Area	Comp Land Use	Land Use	% Area	Comp Land Use	C2	C5	C100				
All Disturbed Areas																								
A	110,077 sf	A	24%	24%	2%	1.40ac	55%	1%	80%	0.00ac	0%	0%	90%	0.27ac	11%	10%	100%	0.25ac	10%	10%	44.8%	0.40	0.43	0.61
D	6,848 sf	A	0%	0%	2%	0.15ac	97%	2%	80%	0.00ac	0%	0%	90%	0.00ac	3%	3%	100%	0.00ac	0%	0%	4.6%	0.05	0.11	0.37
E	2,181 sf	A	62%	62%	2%	0.03ac	38%	1%	80%	0.00ac	0%	0%	90%	0.00ac	0%	0%	100%	0.00ac	0%	0%	62.8%	0.56	0.59	0.64
F	3,533 sf	A	0%	0%	2%	0.08ac	100%	2%	80%	0.00ac	0%	0%	90%	0.00ac	0%	0%	100%	0.00ac	0%	0%	2.0%	0.03	0.09	0.17
Lot2	122,458 sf	A	23%	23%	2%	1.64ac	58%	1%	80%	0.00ac	0%	0%	90%	0.28ac	10%	9%	100%	0.25ac	9%	9%	41.7%	0.37	0.41	0.46
On-Site Summary	134,839 sf	A	23%	23%	2%	1.64ac	58%	1%	80%	0.00ac	0%	0%	90%	0.28ac	10%	9%	100%	0.25ac	9%	9%	41.7%	0.37	0.41	0.46
Tributary to Detention Basin: 2.81ac																								
Tributary to Detention Basin (Full Spectrum EDB Treatment): 2.81ac																								

Basin Runoff Coefficient is a weighted average.

Runoff Coefficients and Percent Impervious (DCM Table 6-6)

Land Use	Hydrologic Soil Type	%	Runoff Coef Calc Method: Weighted						
			C2	C5	C10	C25	C50	C100	
Business - Downtown	Abb	95%	0.79	0.81	0.83	0.85	0.87	0.88	
Business - Suburban	BD	70%	0.45	0.49	0.53	0.58	0.60	0.62	
Drives and Walks	DR	100%	0.89	0.90	0.92	0.94	0.95	0.96	
Streets - Gravel (Packed)	GR	80%	0.57	0.59	0.63	0.66	0.68	0.70	
Historic Flow Analysis	HI	2%	0.03	0.09	0.17	0.26	0.31	0.36	
Lawns (Match Historic Flow)	LA	2%	0.03	0.09	0.17	0.26	0.31	0.36	
Off-site flow-Underdeveloped	OF	45%	0.26	0.32	0.38	0.44	0.48	0.49	
Park	PA	7%	0.05	0.12	0.20	0.30	0.34	0.39	
Streets - Paved	PV	100%	0.89	0.90	0.92	0.94	0.95	0.96	
Roofs	RO	90%	0.71	0.73	0.75	0.78	0.80	0.81	

Equation:

$$C_c = (C1A1 + C2A2 + C3A3 + \dots + CnAn) / At$$

(City of Colorado Springs DCM Equation 6-6) Where:
 Cc = composite runoff coefficient for total area
 Ci = runoff coefficient for subarea (surface type or land use)
 Ai = area of surface type corresponding to Ci
 At = total area of all sub areas
 i = number of surface types in the drainage area

Add drainage map including these basins so this spreadsheet can be compared to the proposed drainage map.

Table 2

PROJECT: SEDER SUBDIVISION
 JOB NO.: 35072
 CALC. BY: SPC
 DATE: 8/15/2023



Light Green = FORMULA CELLS
 Blue = USER INPUT CELLS

Runoff Coefficients & Impervious Values for Rational Method - per CS DCM Vol I, Table 6-6.

Impervious Percentage	Impervious Percentage					Impervious Percentage	Impervious Percentage								
	C ₂	C ₅	C ₁₀	C ₂₅	C ₅₀		C ₁₀₀	C ₂	C ₅	C ₁₀	C ₂₅	C ₅₀	C ₁₀₀		
Drive and Walks	100%	0.89	0.90	0.92	0.94	0.95	0.96	I- Light Areas	80%	0.57	0.59	0.63	0.66	0.68	0.70
Roofs	90%	0.71	0.73	0.75	0.78	0.80	0.81	Land Use	0%	0.00	0.00	0.00	0.00	0.00	0.00
S- Gravel	80%	0.57	0.59	0.63	0.66	0.68	0.70	Land Use	0%	0.00	0.00	0.00	0.00	0.00	0.00
Lawns	0%	0.02	0.08	0.15	0.25	0.30	0.35	Land Use	0%	0.00	0.00	0.00	0.00	0.00	0.00

A or B

Hydrologic Soil Group

PROPOSED COMPOSITE IMPERVIOUSNESS

Basin	Area (ac)	Imp.	Weighted Impervious and C Values							Areas (ac)							
			C ₂	C ₅	C ₁₀	C ₂₅	C ₅₀	C ₁₀₀	Drive and Walks	Roofs	S- Gravel	Lawns	I- Light Areas	Land Use	Land Use	Land Use	
Existing Conditions Subbasins																	
A	3.45	60%	0.45	0.48	0.53	0.57	0.60	0.63	0.24	0.23	2.02	0.95					
B	3.19	75%	0.54	0.56	0.60	0.63	0.66	0.68			2.99	0.20					
C	1.59	59%	0.43	0.46	0.51	0.55	0.58	0.61			1.18	0.41					
D	1.03	7%	0.07	0.13	0.19	0.29	0.34	0.38	0.00		0.09	0.93					
E	0.05	0%	0.02	0.08	0.15	0.25	0.30	0.35				0.05					
F	0.08	0%	0.02	0.08	0.15	0.25	0.30	0.35				0.08					
OS-1	1.50	80%	0.57	0.59	0.63	0.66	0.68	0.70					1.50				
OS-2	7.88	80%	0.57	0.59	0.63	0.66	0.68	0.70					7.88				
LOT 1	2.76	71%	0.53	0.56	0.60	0.64	0.66	0.68	0.26	0.23	1.87	0.40					
EX. WQ BASIN	8.23	66%	0.48	0.51	0.55	0.59	0.62	0.64	0.24	0.23	6.20	1.56					

V1_Drainage Letter.pdf Markup Summary

eschoenheit (18)

Kiowa Project No. 24060
January 31, 2025

PCD File PPR255

Author: eschoenheit
Page Index: 1
Date: 2/18/2025 11:35:57 AM
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PCD File PPR255

to the criteria established by the County for draft the master plan of the drainage basin. I accept negligent acts, errors or omissions on my part in Kiowa Engineering Corporation, 1604 South 21st

Andrew W. McCord (PE #25057)
For and on behalf of Kiowa Engineering Corporation

DEVELOPER'S STATEMENT:
I, the above-mentioned, hereby accept and warrant that

Author: eschoenheit
Page Index: 2
Date: 2/18/2025 11:27:02 AM
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Drainage Engineering Corporation
The County Engineer has not yet signed any of the submitted applications for
Drainage Engineering Corporation
The County Engineer has not yet signed any of the submitted applications for
Drainage Engineering Corporation
The County Engineer has not yet signed any of the submitted applications for
Drainage Engineering Corporation
The County Engineer has not yet signed any of the submitted applications for
Drainage Engineering Corporation
The County Engineer has not yet signed any of the submitted applications for

Author: eschoenheit
Page Index: 2
Date: 2/18/2025 11:27:06 AM
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V. Drainage Fees
The County has within the last Creek Drainage Basin, which has 2025 to 2027 State requirements and 2025 State requirements (2025 State requirements) for the County Engineer to review and approve the drainage report. While the drainage report has not been signed by the County Engineer, the County Engineer has not yet signed any of the submitted applications for

Author: eschoenheit
Page Index: 4
Date: 2/18/2025 4:26:29 PM
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Discuss and state that the existing detention pond is functioning properly and can accept flow from the site and is detaining and releasing as required

Drainage fees have been paid with the previous platting of Lot 5, and while the drainage report has not been signed by the County Engineer, the County Engineer has not yet signed any of the submitted applications for

Author: eschoenheit
Page Index: 4
Date: 2/18/2025 4:26:30 PM
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State the flows from the lot and if they are less or more than the original approved drainage report. Reference or list the excerpt from the report.

Include a map process

Author: eschoenheit
Page Index: 4
Date: 2/18/2025 4:28:24 PM
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Include 4 step process

See comments on final drainage map. Please update narrative as applicable.

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Page Index: 4
Date: 2/18/2025 4:28:22 PM
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Add statement that the stormwater runoff will not have adverse impacts to adjacent or downstream properties

See comments on final drainage map. Please update narrative as applicable.

Author: eschoenheit
Page Index: 4
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See comments on final drainage map. Please update narrative as applicable.

Provide existing condition drainage map. Use excerpt from the original approved drainage report.

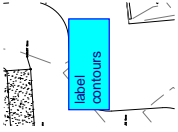
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Provide existing condition drainage map. Use excerpt from the original approved drainage report.



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Page Index: 9
Date: 2/18/2025 5:28:42 PM
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Show flow arrows across the lot and to detention basin



Author: eschoenheit
Page Index: 9
Date: 2/18/2025 4:21:17 PM
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label contours



Author: eschoenheit
Page Index: 9
Date: 2/18/2025 2:10:58 PM
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Proposed outfall point for runoff from the developed area and facilities to convey flows to the final outfall point without damage to downstream properties.



Author: eschoenheit
Page Index: 9
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Address flow in this area. The GEC plan shows this area not being paved or stabilized. Site flows cannot discharge to the ROW



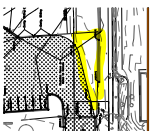
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How is flow routing through or around the retaining wall to flow eastward



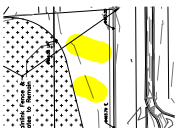
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show complete drainage map to the existing pond

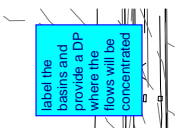


Author: eschoenheit
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label the basins and provide a DP where the flows will be concentrated



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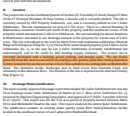


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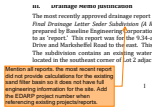
Mikayla Hartford (7)



Author: Mikayla Hartford
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Author: Mikayla Hartford
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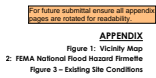
Author: Mikayla Hartford
Page Index: 3
Date: 2/19/2025 11:40:12 AM
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Mention all reports. the most recent report did not provide calculations for the existing sand filter basin so it does not have full engineering information for the site. Add the EDARP project number when referencing existing projects/reports.



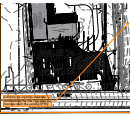
Author: Mikayla Hartford
Page Index: 3
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How does the runoff from the site get to the existing sand filter basin? Currently the proposed contours appears to sheet flow off-site and do not appear to flow to the east.



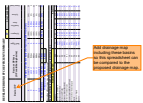
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Page Index: 5
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For future submittal ensure all appendix pages are rotated for readability.



Author: Mikayla Hartford
Page Index: 9
Date: 2/19/2025 11:42:36 AM
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Currently the contours show the runoff leaving the site, how does the drainage reach the existing SFB?



Author: Mikayla Hartford
Page Index: 10
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Add drainage map including these basins so this spreadsheet can be compared to the proposed drainage map.