

Attn: Jeff Rice
Department of Public Works
3275 Akers Drive
Colorado Springs, CO 80922
O: (719) 520-6460



VARIANCE REQUEST FOR DEIM SUBDIVISION (SF2515)

Dear Mr. Rice,

We respectfully submit this request for a variance from the following criteria:

1. El Paso County Drainage Criteria Manual, Volume 1, Table 6-4: Local road culvert crossings to not exceed a 6" overtopping depth in the street.
2. El Paso County Drainage Criteria Manual, Volume 1, Table 6-5: HW/D ratio must be 1.5 or less, unless approved by County.
3. El Paso County Drainage Criteria Manual, Volume 1, Table 10-3: Maximum open channel velocity of 2.5 ft/s for sandy loam soils.
4. El Paso County Engineering Criteria Manual, Section 3.2.3: Adequate drainage designs shall provide for removal of runoff from the roadway or the upstream end of any development, and for carrying runoff water from the upstream side to the downstream side. These functions shall be accomplished without causing objectionable backwater, causing excessive or increased velocities, creating damages to downstream ownerships, unduly affecting the safe operation of traffic on the roadway, damaging the roadway or damaging water quality.

The culvert crossing presented in the attached exhibits is an existing 20" RCP culvert with flared end sections on the upstream and downstream ends. The existing flow at the culvert per the attached LOMR is 287 cfs. Based upon a culvert capacity analysis, the culvert conveys 17.04 cfs. The remaining 256.96 cfs overtops Sundance Ranch Lane at a depth of 0.59'.

The variance request is to allow for the additional 0.09' or 1-2/25" of overtopping depth, a HW/D ratio of 1.83 and a culvert discharge velocity of 8.20 ft/s. The variance request is based upon the following considerations:

1. The culvert and Sundance Ranch Lane are privately owned and maintained by Cherokee Metro District. They are not located within the boundary of the proposed development. Therefore, the developer does not have jurisdiction to improve the roadway nor the culvert.
2. The existing condition of the culvert is not eroded and has stabilized, existing vegetation on the upstream and downstream ends. There are no signs of degradation to Sundance Ranch Lane.
3. The flow tributary to the culvert is an offsite, existing condition that is not affected by the development as the culvert crossing is located upstream of the development.
4. The additional 1-2/25" of overtopping depth does not present a hazardous condition to vehicular traffic using the roadway.

The approval of this variance will not result in a change in peak flows to East Cherry Creek or water quality in East Cherry Creek.

Attached exhibits are as follows:

1. Vicinity Map
2. Proposed Drainage Map
3. Culvert Exhibit
4. Hydraulic Culvert Analysis
5. LOMR
6. Culvert Photographs

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Nick Jokerst".

NICHOLAS JOKERST, PE

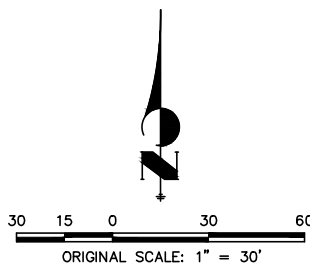
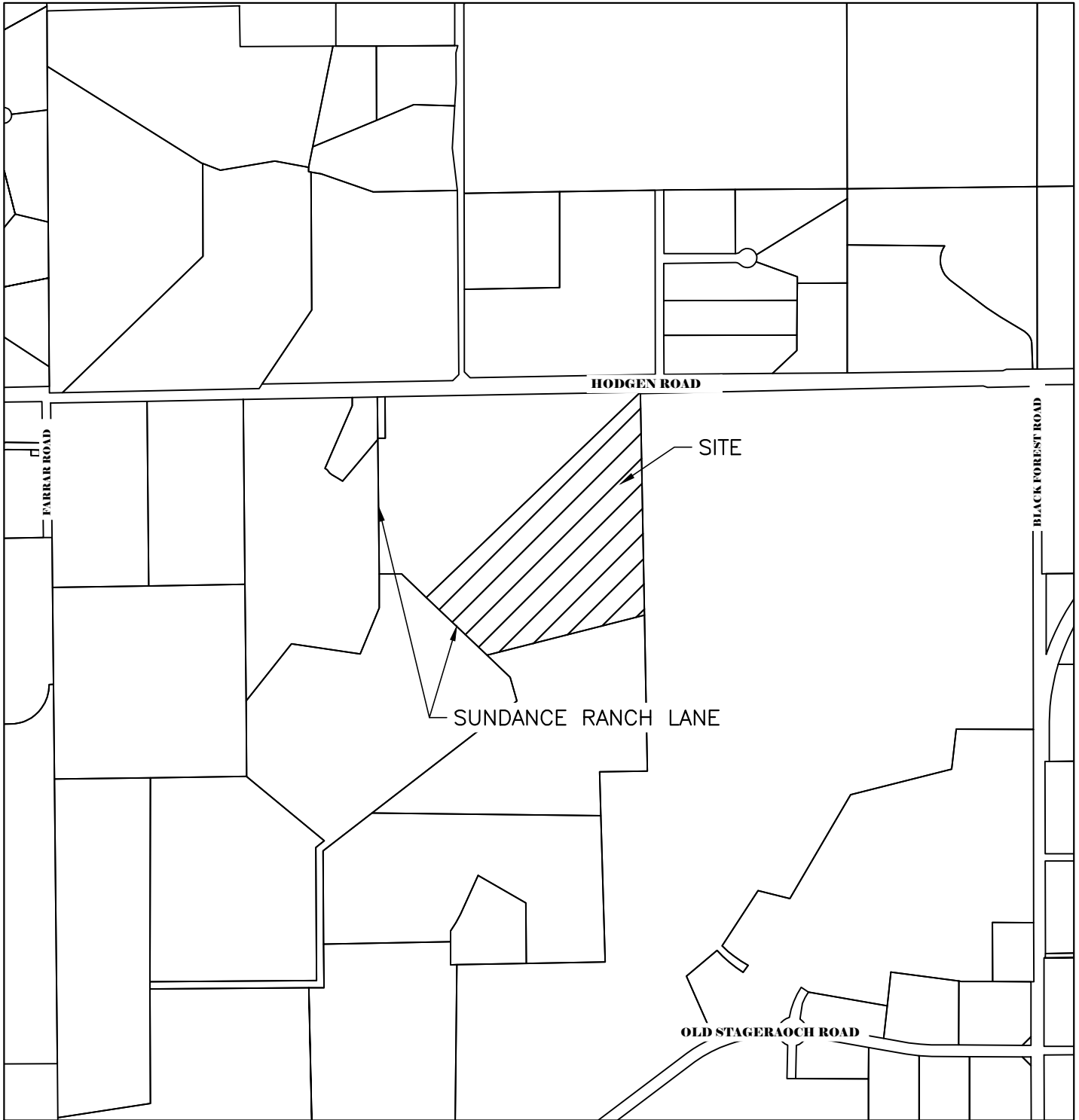
All Terrain Engineering LLC

njokerst@allterraineng.com

530.391.7635

DEIM SUBDIVISION

VICINITY MAP



VICINITY MAP

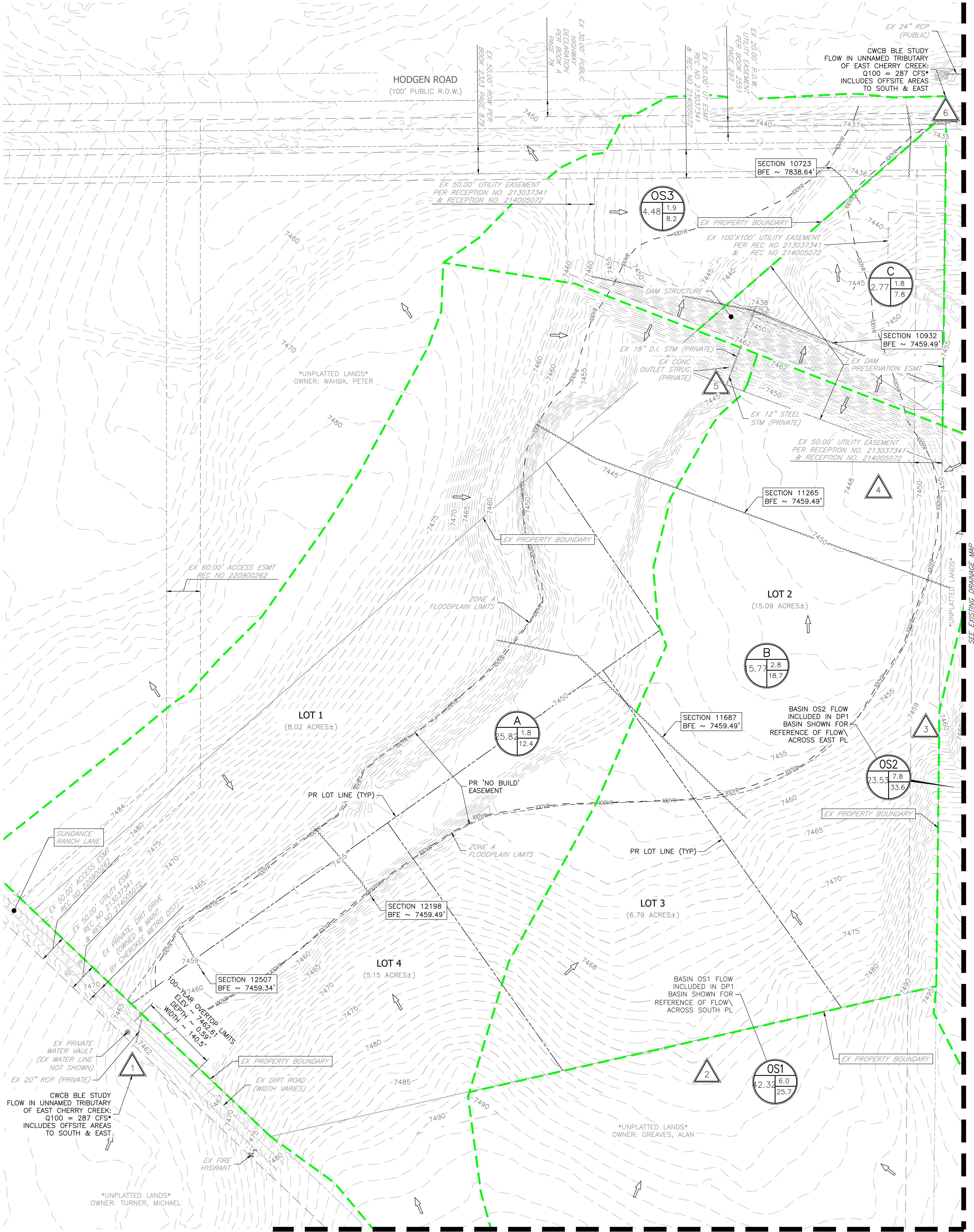
DEIM SUBDIVISION
 JOB NO. 24034
 LOCATION: EPC
 02/11/2025
 SHEET: 1

SHEET

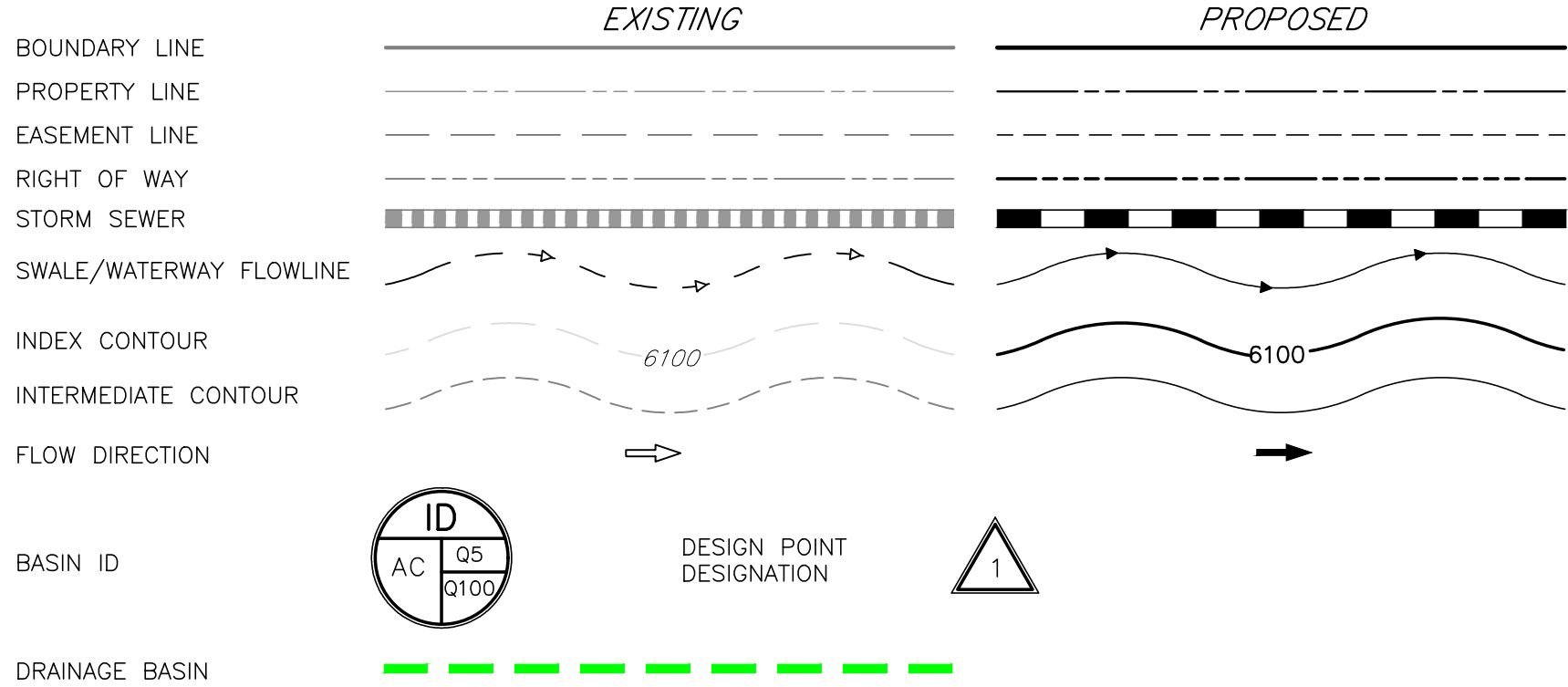


DEIM SUBDIVISION

PROPOSED DRAINAGE MAP



LEGEND



PROPOSED CONDITIONS - BASIN SUMMARY TABLE								
Tributary Sub-basin	Area (acres)	Percent Impervious	C _s	C ₁₀₀	t _c (min)	Q _s (cfs)	Q ₁₀₀ (cfs)	
A	25.82	3%	0.10	0.37	68.8	3.1	19.7	
B	15.77	5%	0.11	0.38	43.9	3.5	19.8	
C	2.77	2%	0.09	0.36	31.4	0.9	5.7	
OS1	43.32	2%	0.09	0.36	44.4	7.7	51.4	
OS2	23.53	2%	0.09	0.36	39.3	4.4	29.5	
OS3	4.48	7%	0.14	0.39	31.9	1.6	7.8	

DRAINAGE MAP NOTES

- THE CWCB BLE STUDY HAS ESTABLISHED THE EXISTING 100-YEAR FLOW IN THE UNNAMED TRIBUTARY OF EAST CHERRY CREEK. THE FLOW (287 CFS) INCLUDES ALL ONSITE AND OFFSITE AREAS TRIBUTARY TO DP6.
- BASIN FLOW ANALYSIS IS TO DEMONSTRATE ONSITE & ADJACENT AREA CONTRIBUTION TO TOTAL FLOW OF 287 CFS & TO PROVIDE A PROPOSED CONDITION INCREASE TO ONSITE FLOW.

PROPOSED CONDITIONS - DESIGN POINT SUMMARY TABLE		
DP#	Q _s -YR	Q ₁₀₀ -YR
1	NA	287
2	7.7	51.4
3	4.4	29.5
4	11.1	72
5	9.7	62.3
6	20.2	288.1

FLOW COMPARISON - DP6		
Condition	Q _s -YR	Q ₁₀₀ -YR
Existing	19	287
Proposed	20.2	288.1
% Increase	5.94%	0.38%

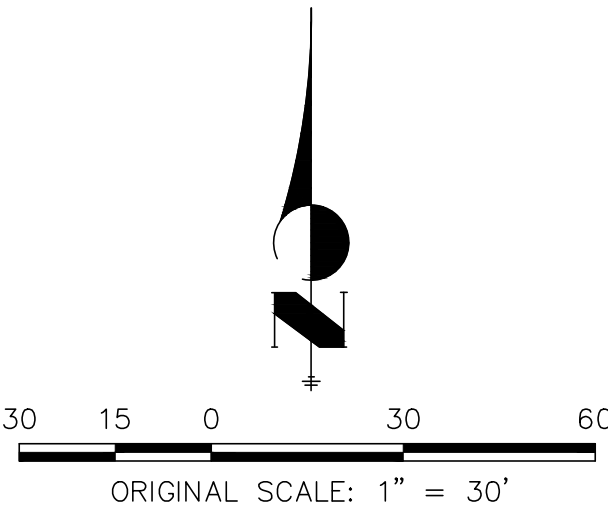
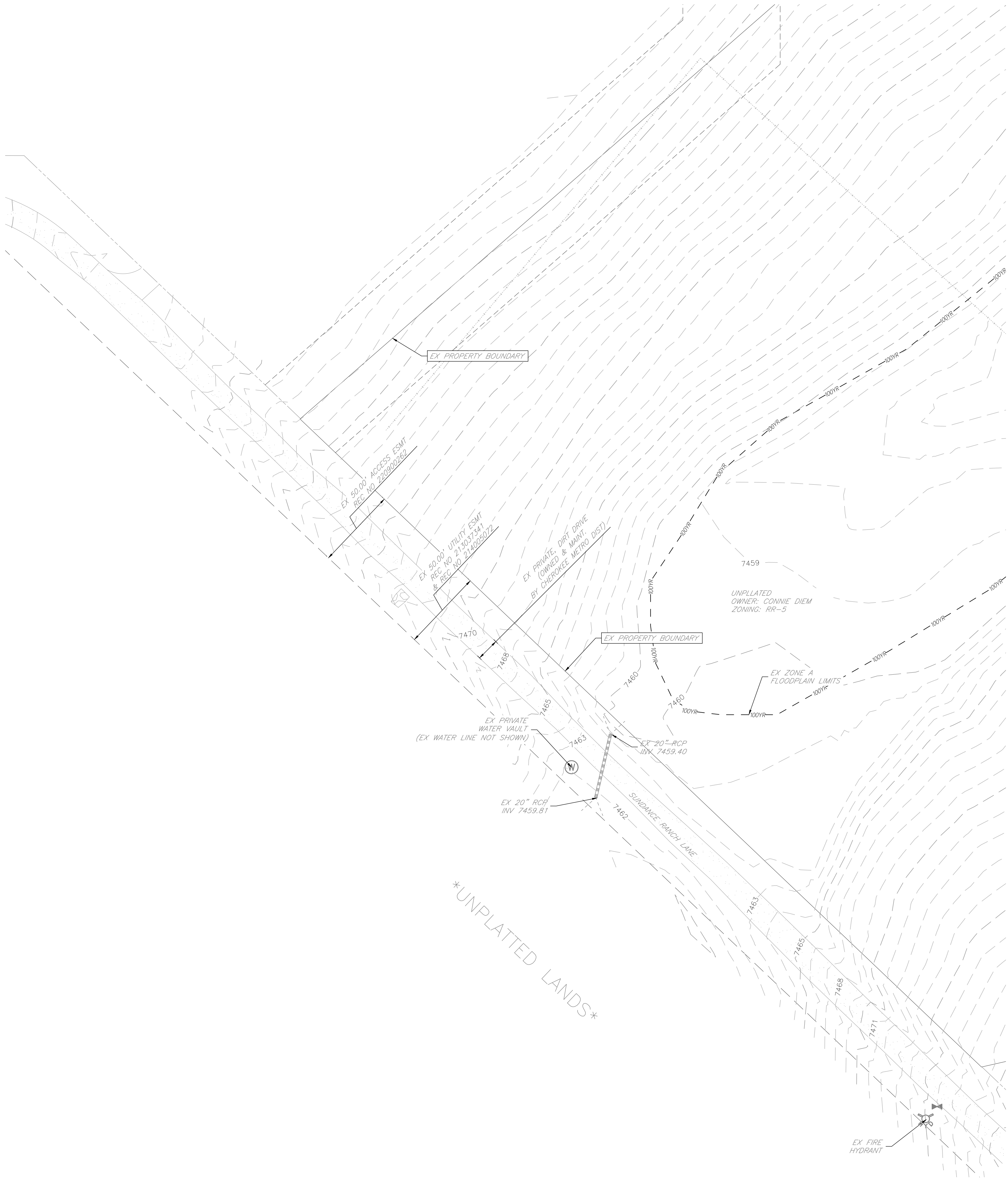


PROPOSED DRAINAGE MAP

DEIM SUBDIVISION		SHEET 1
JOB NO. 24034		
LOCATION: EPC		
03/28/2025		



DEIM SUBDIVISION
EXISTING CULVERT WAIVER EXHIBIT



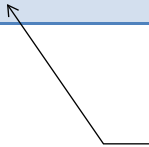
EXISTING CULVERT WAIVER EXHIBIT	
DEIM SUBDIVISION	
JOB NO. 25034	SHEET
LOCATION: EPC	1
02/11/2025	



HY-8 Culvert Analysis Report

Table 1 - Project Headwater Table

Crossing Name	Culvert Name	Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	HW / D (ft)	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Outlet Velocity (ft/s)
Ex 20" RCP	Culvert 1	287.00	17.04	8052.02	592.21	464.337	354.62	1.67	1.67	1.67	131.03



REMAINING 256.96 CFS
OVERTOPS SUNDANCE RANCH LANE
SEE OVERTOPPING ANALYSIS

Crossing Input: Ex 20" RCP

Parameter	Value	Units
DISCHARGE DATA		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	285.000	cfs
Design Flow	287.000	cfs
Maximum Flow	290.000	cfs
TAILWATER DATA		
Channel Type	Irregular Channel	
Irregular Channel	Define...	
Rating Curve	View...	
ROADWAY DATA		
Roadway Profile Shape	Irregular	
Irregular Shape	Define...	
Roadway Surface	Paved	
Top Width	12.000	ft

Culvert Input: Ex 20" RCP

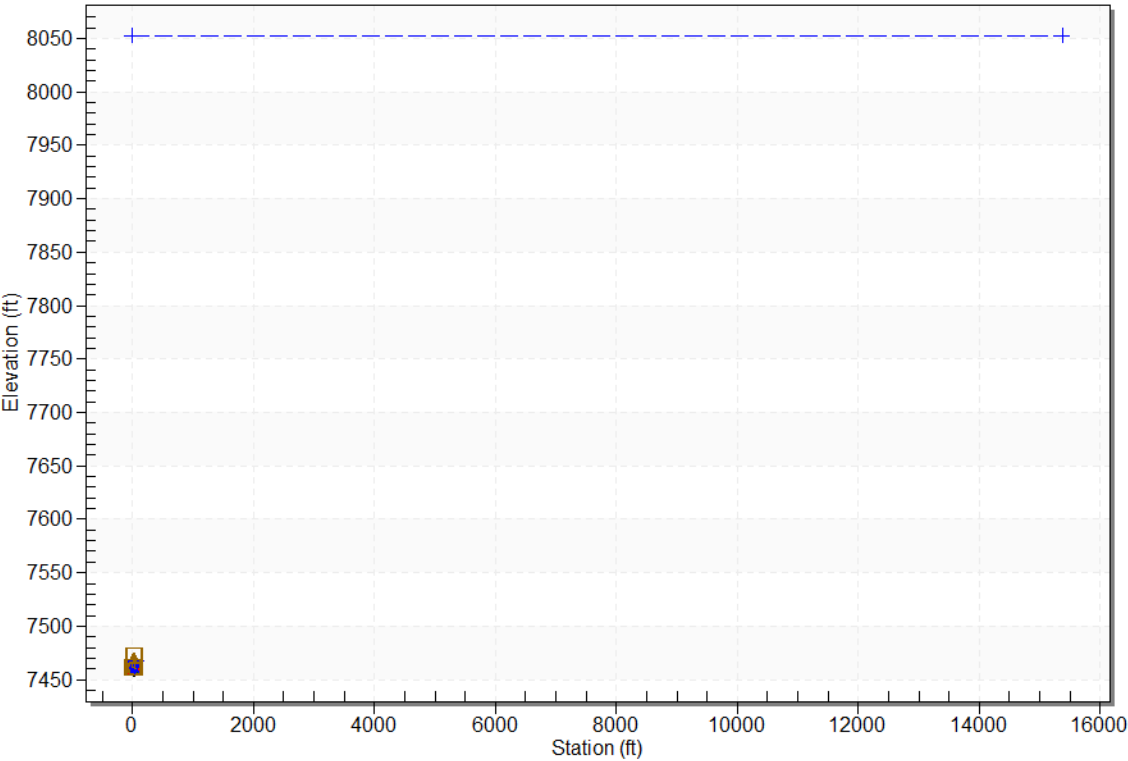
Parameter	Value	Units
CULVERT DATA		
Name	Culvert 1	
Shape	Circular	
Material	Concrete	
Diameter	1.670	ft
Embedment Depth	0.000	in
Manning's n	0.012	
Culvert Type	Straight	
Inlet Configuration	Grooved End Projecting (Ke=0.2)	
Inlet Depression?	No	
SITE DATA		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	7459.810	ft
Outlet Station	40.130	ft
Outlet Elevation	7459.400	ft
Number of Barrels	1	
Computed Culvert Slope	0.010217	ft/ft

Table 2 - Culvert Summary Table: Culvert 1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	HW / D (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
285.00	17.02	7462.86	3.05	2.768	1.83	7-M2c	1.67	1.50	1.50	0.87	8.19	4.84
285.50	17.03	7462.86	3.05	2.769	1.83	7-M2c	1.67	1.50	1.50	0.87	8.19	4.85
286.00	17.03	7462.87	3.06	2.770	1.83	7-M2c	1.67	1.50	1.50	0.87	8.19	4.85
286.50	17.03	7462.87	3.06	2.771	1.83	7-M2c	1.67	1.51	1.51	0.87	8.20	4.85
287.00	17.04	8052.02	592.21	464.33	354.62	6-FFc	1.67	1.67	1.67	0.87	131.03	4.85
287.50	17.04	7462.87	3.06	2.772	1.83	7-M2c	1.67	1.51	1.51	0.87	8.20	4.86
288.00	17.04	7462.87	3.06	2.773	1.83	7-M2c	1.67	1.51	1.51	0.87	8.20	4.86
288.50	17.05	7462.87	3.06	2.774	1.83	7-M2c	1.67	1.51	1.51	0.87	8.20	4.86
289.00	17.05	7462.87	3.06	2.775	1.83	7-M2c	1.67	1.51	1.51	0.87	8.20	4.86
289.50	17.06	7462.87	3.06	2.775	1.83	7-M2c	1.67	1.51	1.51	0.87	8.20	4.87
290.00	17.06	7462.87	3.06	2.776	1.83	7-M2c	1.67	1.51	1.51	0.87	8.21	4.87
290.00	17.06	7462.87	3.06	2.776	1.83	7-M2c	1.67	1.51	1.51	0.87	8.21	4.87

Water Surface Profile Plot for Culvert: Culvert 1

Crossing - Ex 20" RCP, Design Discharge - 287.0 cfs
Culvert - Culvert 1, Culvert Discharge - 17.0 cfs



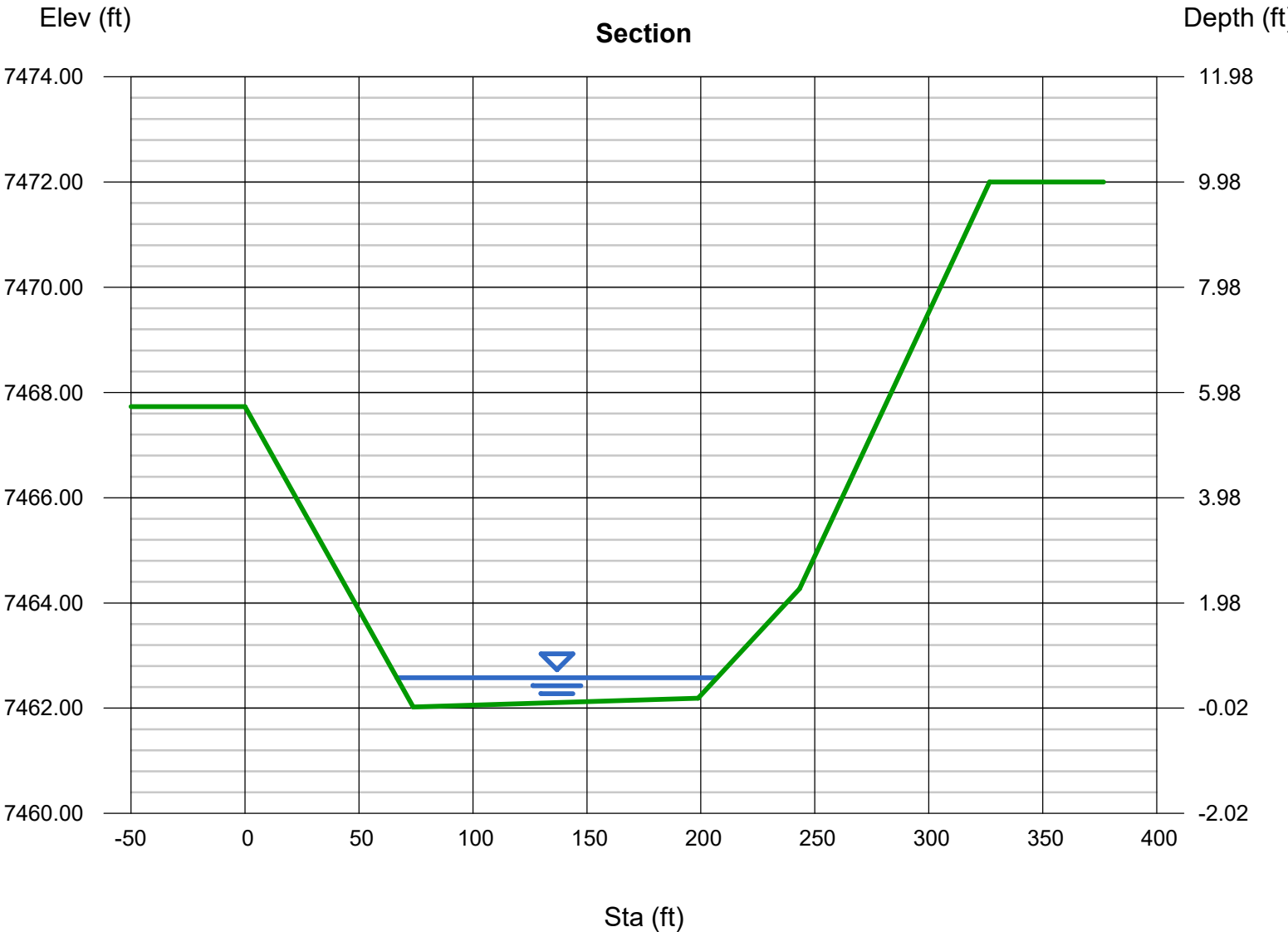
Channel Report

Sundance Ranch Lane Overtopping (Q100: DP1 - Culvert Flow = 257 cfs)

User-defined		Highlighted	
Invert Elev (ft)	= 7462.02	Depth (ft)	= 0.56
Slope (%)	= 2.00	Q (cfs)	= 257.00
N-Value	= 0.030	Area (sqft)	= 62.99
Calculations		Velocity (ft/s)	= 4.08
		Wetted Perim (ft)	= 140.53
		Crit Depth, Yc (ft)	= 0.59
		Top Width (ft)	= 140.50
		EGL (ft)	= 0.82
Compute by: Known Q			
Known Q (cfs) = 257.00			

(Sta, El, n)-(Sta, El, n)...

(0.00, 7467.73)-(73.85, 7462.02, 0.030)-(198.73, 7462.19, 0.030)-(243.38, 7464.27, 0.030)-(326.64, 7472.00, 0.030)





Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	El Paso County Colorado (Unincorporated Areas)	NO PROJECT	HYDRAULIC ANALYSIS HYDROLOGIC ANALYSIS UPDATED TOPOGRAPHIC DATA
	COMMUNITY NO.: 080039		
IDENTIFIER	Severe Subdivision	APPROXIMATE LATITUDE AND LONGITUDE: 38.372, -104.767 SOURCE: USGS QUADRANGLE DATUM: NAD 83	
ANNOTATED MAPPING ENCLOSURES		ANNOTATED STUDY ENCLOSURES	
TYPE: FIRM NO.: 08047C0005G DATE: December 7, 2018		DATE OF EFFECTIVE FLOOD INSURANCE STUDY: December 7, 2018 PROFILE: 450P SUMMARY OF DISCHARGES TABLE: 4	

Enclosures reflect changes to flooding sources affected by this revision.
* FIRM - Flood Insurance Rate Map

FLOODING SOURCE AND REVISED REACH

Unnamed Tributary to East Cherry Creek - From approximately 2,330 feet downstream of Hodgen Road to approximately 1,630 feet upstream of Hodgen Road

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Unnamed Tributary to East Cherry Creek	Zone A	Zone A	NONE	YES
	No BFEs*	BFEs	YES	NONE
	Zone A	Zone AE	YES	YES

* BFEs - Base Flood Elevations

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information Exchange toll free at 1-877-336-2627 (1-877-FEMA-MAP) or by letter addressed to the LOMR Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA, 22304-6426. Additional information about the NFIP is available on our website at <https://www.fema.gov/national-flood-insurance-program>

Patrick 'Rock' F. Seabolt, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration



Federal Emergency Management Agency
Washington, D.C. 20472

**LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)**

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance discharges computed in the submitted hydrologic model. Future development of projects upstream could cause increased discharges, which could cause increased flood hazards. A comprehensive study of your community's flood hazards would consider the cumulative effects of development on discharges and could, therefore, indicate that greater flood hazards exist in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA-MAP) or by letter addressed to the LOMR Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.


Patrick "Rik" F. Seebit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration



Federal Emergency Management Agency
Washington, D.C. 20472

**LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)**

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Jeanine D. Peterson
Director, Mitigation Division
Federal Emergency Management Agency, Region VIII
Denver Federal Center, Building 710
P.O. Box 25267
Denver, CO 80225-0267
(303) 235-4830

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA.MAP) or by letter addressed to the LOMR Clearinghouse, 3001 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional information about the NFIP is available on our website at <https://www.fema.gov/national-flood-insurance-program>


Patrick 'Rick' F. Sacchi, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration



Federal Emergency Management Agency
Washington, D.C. 20472

**LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)**

PUBLIC NOTIFICATION OF REVISION

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below, and through FEMA's Flood Hazard Mapping website at https://www.floodmaps.fema.gov/libra/bfc_status/bfc_main.asp

LOCAL NEWSPAPER

Name: *Colorado Springs Gazette*

Dates: November 28, 2018 and December 5, 2018

Within 90 days of the second publication in the local newspaper, any interested party may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised flood hazard determination presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA-MAP) or by letter addressed to the LOMC Clearinghouse, 3001 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional information about the NFIP is available on our website at <https://www.fema.gov/national-flood-insurance-program>


Patrick "Pak" F. Sackel, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Flooding Source and LocationDrainage Area
(Square Miles)10-Year50-Year100-Year

Peak Discharges (Cubic Feet Per Second)

Unnamed Tributary to Black Squirrel Creek No. 2

At US Highway 24

At Rolling Thunder Way

At Woodmen Road

3.66
3.60
3.23--¹
--¹
--¹--¹
--¹
--¹1,225
1,717
1,482

Upper East Tributary to Chico Creek

At Barbwire Road

4.6

--¹--¹

705

Upper Fountain Creek (see Fountain Creek)

West Fork Black Squirrel Creek - Solberg Ranch East Tributary

At confluence with West Fork Black Squirrel Creek - Solberg Ranch Tributary

1.63

--¹--¹

784

West Fork Black Squirrel Creek - Solberg Ranch Tributary

Above Shocum Road

At confluence with West Fork Black Squirrel Creek - Solberg Ranch East Tributary

East Tributary

7.22
5.59--¹
--¹--¹
--¹2,184
1,847

West Fork Squirrel Creek - Solberg Ranch - West Unnamed Tributary

Tributary

1.5

--¹--¹

1,935

West Tributary to Black Squirrel Creek

At confluence with Black Squirrel Creek

0.59

--¹--¹

55

Widfield Creek

At confluence with Fountain Creek

15.1

4,660

7,700

10,000

Williams Canyon

At confluence with Fountain Creek

2.68

1,930

3,640

4,710

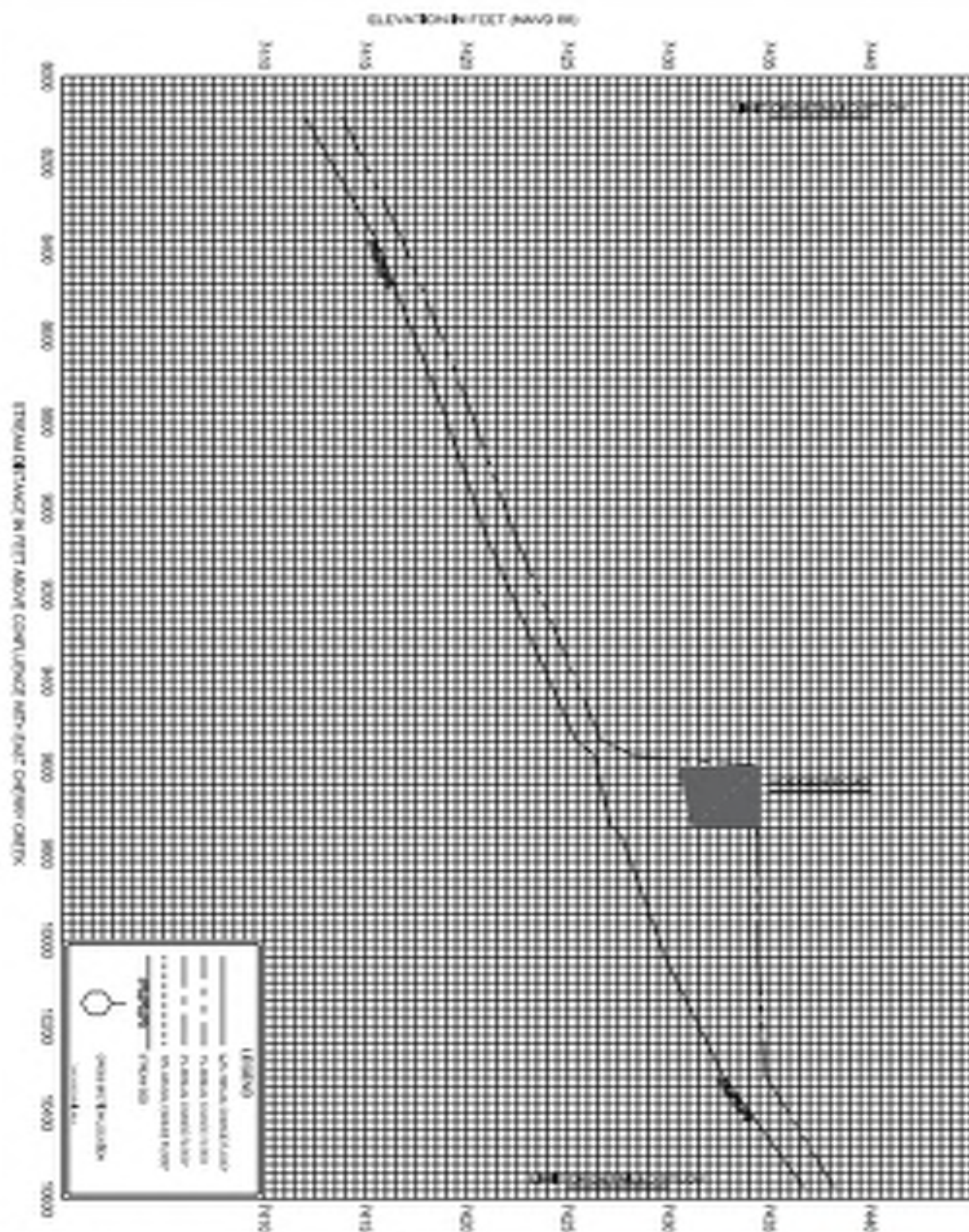
Unnamed Tributary to East Cherry Creek

Above confluence with Unnamed Tributary

At Hodgen Road

2.95
2.07--¹
--¹--¹
--¹357
287

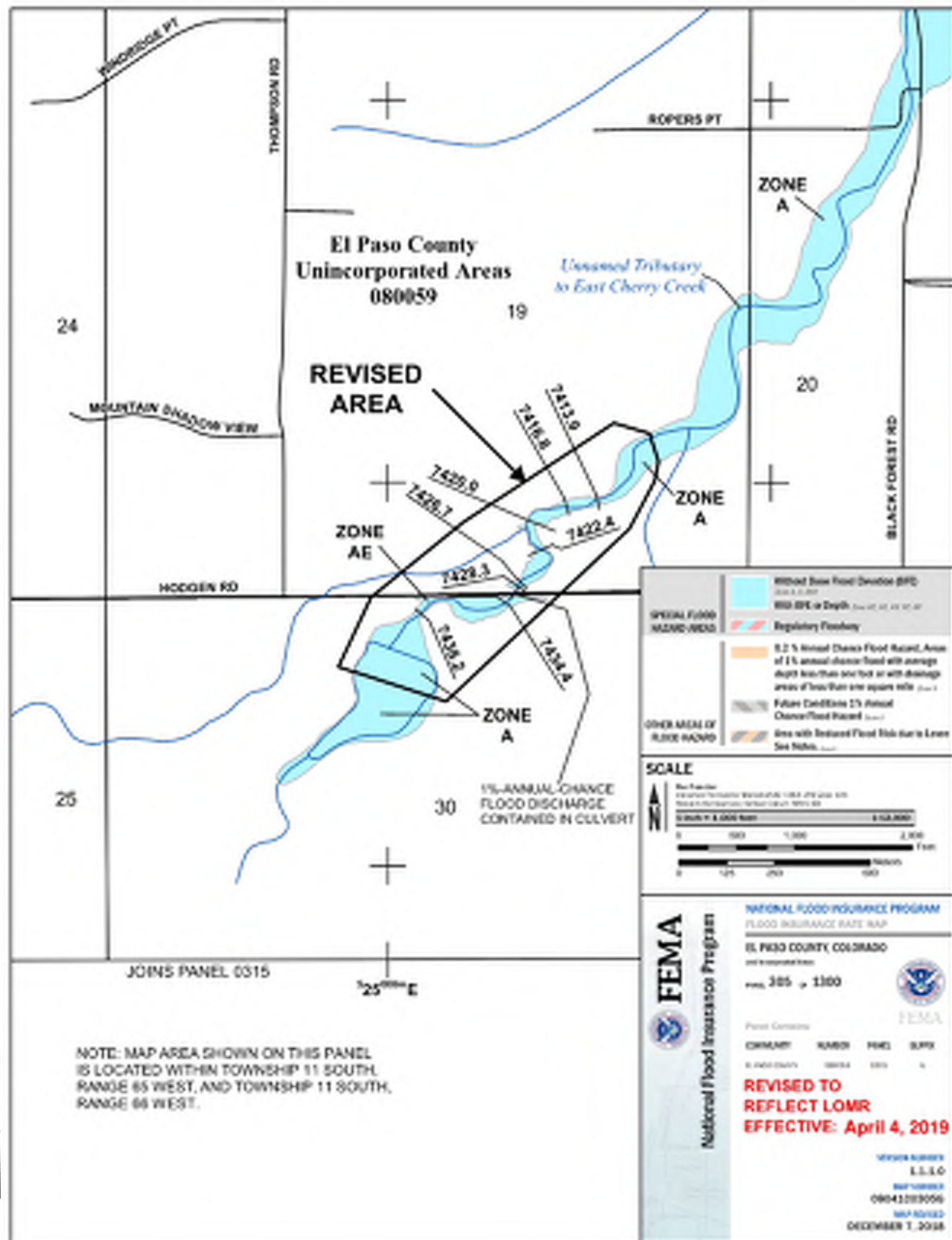
Data not available



450P

FEDERAL EMERGENCY MANAGEMENT AGENCY
EL PASO COUNTY, CO
 (AND INCORPORATED AREAS)

FLOOD PROFILES
 UNNAMED TRIBUTARY TO EAST CHERRY CREEK
 REVISION TO
 REFLECT LOSS
 EFFECTIVE: April 4, 2019



Sundance Ranch Lane, looking west from culvert crossing



Culvert Entrance



Culvert Outfall



Unnamed Tributary downstream of culvert

