

FISHERS CANYON CREEK CHANNEL IMPROVEMENT PLANS

A PORTION OF THE WESTERN ONE-HALF (W. 1/2) OF SECTION 4, TOWNSHIP 15 SOUTH, RANGE 66 WEST OF THE 6TH P.M.
COUNTY OF EL PASO, STATE OF COLORADO

PROJECT DESCRIPTION:

FISHERS CANYON APARTMENTS IS A MULTI-FAMILY RESIDENTIAL DEVELOPMENT THAT PROPOSES 336 DWELLING UNITS ALONG THE FISHERS CANYON CREEK CORRIDOR. THE PROJECT EMBRACES FISHERS CANYON CREEK TRIBUTARY TO THE WEST AND FISHERS CANYON CREEK TO THE NORTH WITH CREEK IMPROVEMENTS.

FLOODPLAIN

A PORTION OF THIS PROPERTY IS LOCATED WITHIN ZONE AE PER FEMA FLOOD INSURANCE RATE MAP NUMBER 08041C0743G, DATED 12/07/2018.

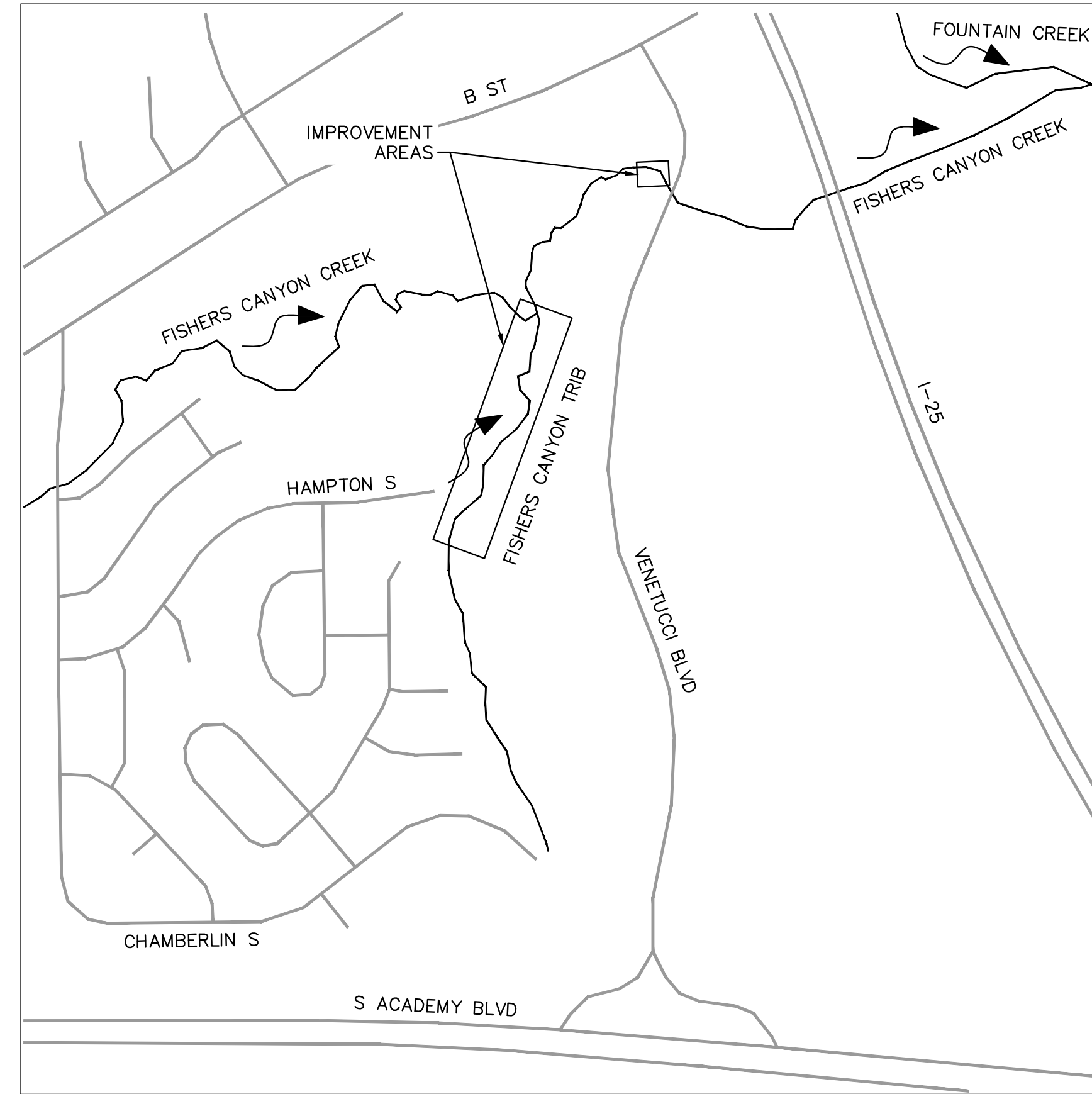
BASIS OF BEARING:

COMMENCING AT THE NORTHWESTERLY CORNER OF SOUTH ACADEMY HIGHLANDS FILING NO. 4 RECORDED UNDER RECEPTION NO. 222714970, EL PASO COUNTY, COLORADO; THENCE N 53° 59' 29" E, ALONG THE NORTHERLY LINE OF SAID SOUTH ACADEMY HIGHLANDS FILING NO. 4 (BASIS OF BEARING), A DISTANCE OF 226.24 FEET TO THE POINT OF BEGINNING.

BASIS OF ELEVATIONS: ELEVATIONS ARE BASED UPON COLORADO SPRINGS UTILITIES MONUMENT F159, A 3-1/4" ALUMINUM CAP IN RANGE BOX. (ELEVATION=5797.28 NAVD 88)

BENCHMARK

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G1.9	GEC DETAILS
G1.10	GEC DETAILS



VICINITY MAP
1" = 500'

DESIGN TEAM CONTACTS:

DEVELOPER/OWNER:
CS 2005 INVESTMENT, LLC
1480 HUMBOLDT STREET
DENVER, CO 80218
TEL: (303) 503-1016
CONTACT: CHAD ELLINGTON

ENGINEER:
KIMLEY-HORN AND ASSOCIATES, INC.
6200 SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, CO 80111
TEL: (303) 228-2300
EMAIL: FRANS.LAMBRECHSTEN@KIMLEY-HORN.COM
CONTACT: FRANS LAMBRECHSTEN, PE, CFM

SURVEYOR:
BARRON LAND
2790 NORTH ACADEMY BOULEVARD, SUITE 311
COLORADO SPRINGS, CO 80917
TEL: (719) 360-6827
EMAIL: CONTACT@BARRONLAND.COM
CONTACT: SPENCER BARRON

AGENCY CONTACTS:

EL PASO COUNTY DEPT. PUBLIC WORKS:
TEL: (719) 520-7877
EMAIL: JEFFRICE@ELPASOCO.COM
CONTACT: JEFFREY RICE, PE, CFM

COLORADO SPRINGS UTILITIES:
1521 HANCOCK EXPRESSWAY
MAIL CODE 1812
COLORADO SPRINGS, CO 80903
PHONE: 719.668.8769

STRATMOOR HILLS WATER & SANITATION:
1811 B STREET
COLORADO SPRINGS, CO 80906
PHONE: 719.576.0311

DEVELOPER'S/OWNER'S SIGNATURE BLOCK

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN AND ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

OWNER SIGNATURE _____ DATE _____

ENGINEER'S SIGNATURE BLOCK

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLANS AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

FRANS J LAMBRECHTSEN, PE -- KIMLEY-HORN AND ASSOCIATES, INC. DATE _____

EL PASO COUNTY

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT. 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.

IN ACCORDANCE WITH EOM SECTION 1.1.2, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

COUNTY ENGINEER/ECM ADMINISTRATOR _____ DATE _____



EL PASO COUNTY PCD
FILE NO.: CDR246.

Kimley-Horn
2024 KIMLEY-HORN AND ASSOCIATES, INC.
2 North Nevada Avenue, Suite 900
Colorado Springs, Colorado 80903 (719) 453-0180

DESIGNED BY: DCM
DRAWN BY: LWM
CHECKED BY: DCM
DATE: 12/18/2024

FISHERS CANYON CREEK
CHANNEL IMPROVEMENT PLANS
EL PASO COUNTY, COLORADO
COVER

PRELIMINARY
FOR REVIEW ONLY
NOT FOR
CONSTRUCTION
Kimley-Horn
Kimley-Horn and Associates, Inc.

PROJECT NO.
196825001

SHEET
C1.0

NO.	REVISION	BY	DATE	APPR.

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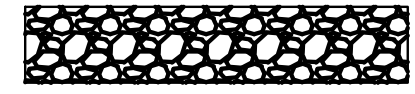




GENERAL NOTES

1. THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR TO CALL FOR UTILITY LOCATOR AT LEAST 3 CALENDAR DAYS BEFORE EARTHWORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES. IN THE EVENT THAT THE CONTRACTOR UTILITY VERIFICATION RESULTS IN EXISTING STRUCTURES OR UTILITIES BEING IN CONFLICT WITH THE PROPOSED WORK OF THIS CONTRACT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY UTILITIES AND COORDINATE ANY NEEDED MODIFICATIONS TO THE PROPOSED WORK AS DIRECTED BY AFFECTED AGENCY OR UTILITY.
2. THE CONTRACTOR SHALL COORDINATE WITH ALL AFFECTED UTILITY OWNERS TO ESTABLISH THE REQUIREMENTS AND METHODS TO ACCOMMODATE THE PROTECTION, TEMPORARY SUPPORT, ADJUSTMENT OR RELOCATION OF UTILITIES PRIOR TO THE START OF CONSTRUCTION.
3. OVERHEAD UTILITIES ARE NOT INDICATED ON PROFILE OR SECTION DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING AND MAINTAINING IN CONTINUOUS OPERATION, ALL EXISTING STRUCTURES. NOT ALL POTENTIALLY IMPACTED STRUCTURES MAY BE SHOWN ON THE DRAWINGS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY AND PROTECT ALL STRUCTURES INCLUDING BUT NOT LIMITED TO STREETS, CURB AND GUTTER, BRIDGE PIERS AND ABUTMENTS, CREEK BANK PROTECTION OF VARIOUS TYPES, CREEK DROP STRUCTURES, SIGNS, PEDESTRIAN WALKS, RETAINING WALLS AND FENCING. IN THE EVENT THAT A STRUCTURE OR UTILITY IS DAMAGED DURING CONSTRUCTION THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER OF THE FACILITY IN WRITING AND COORDINATE AND COOPERATE WITH NEEDED REPAIRS PER THE APPROPRIATE SPECIFICATIONS ACCORDING TO THE OWNER'S DIRECTION.
5. THE CONTRACTOR SHALL CONFIRM THE RECEIPT OF ALL NECESSARY PERMITS AND APPROVALS BEFORE THE START OF CONSTRUCTION.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS OF EL PASO COUNTY AND THE MILE HIGH FLOOD DISTRICT, AS NOTED, UNLESS SPECIFICALLY DETAILED OTHERWISE ON THESE PLANS AND ASSOCIATED SPECIFICATIONS.
7. THE CONTRACTOR SHALL MAINTAIN AT THE SITE AT ALL TIMES ONE SIGNED COPY OF THE PROJECT DRAWINGS AND SPECIFICATIONS, ONE COPY OF THE STORMWATER MANAGEMENT PLAN AND ONE COPY OF ALL REQUIRED PERMITS.










8. THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN SUCH A WAY THAT THE AREA OF DISTURBANCE IS MINIMIZED. ALL EXISTING TREES, SHRUBS AND VEGETATION SHALL BE PROTECTED UNLESS OTHERWISE NOTED ON THE DRAWINGS. NO TREES SHALL BE REMOVED WITHOUT APPROVAL. DESIGNATED ACCESS SHALL BE MINIMAL AND AGREED UPON WITH THE ENGINEER PRIOR TO CONSTRUCTION ACTIVITIES.
9. FOR ALL SITE GRADING, SMOOTH, PARABOLIC TRANSITIONS SHALL BE MADE BETWEEN CHANGES IN SLOPE.
10. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING STABLE EXCAVATIONS AND TEMPORARY SLOPES AND FOR SATISFYING ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS. THIS INCLUDES BUT IS NOT LIMITED TO BENCHING, SHORING, AND SLOPING AS NEEDED FOR CONSTRUCTION.
11. CONSTRUCTION OF THE PROPOSED WORK WILL TAKE PLACE WITHIN THE CHANNEL AND WATER CONTROL MEASURES WILL BE REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCEPTANCE AND CONTROL OF DRAINAGE WATER FROM AREAS ADJACENT TO FISHERS CANYON CREEK AND FOR FLOW WITHIN FISHERS CANYON CREEK AND ITS TRIBUTARIES INCLUDING STORMWATER OUTFALLS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ESTABLISHING MEANS AND METHODS OF GROUND AND SURFACE WATER CONTROL APPROPRIATE FOR CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT DRAWINGS AND SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS AND PERMITS.
12. THE CONTRACTOR SHALL PREPARE AND MAINTAIN THE STORMWATER MANAGEMENT PLAN AND OBTAIN THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT THROUGH THE COLORADO DEPARTMENT OF PUBLIC HEALTH (CDPHE) AND ALL OTHER APPROPRIATE FEDERAL, STATE AND LOCAL PERMITS. ADDITIONAL INFORMATION IS PROVIDED ON THE GRADING AND EROSION CONTROL PLANS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT DRAWINGS TO BE MAINTAINED AND SUBMITTED TO EL PASO COUNTY.
14. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ON-SITE SURVEY CONTROL AND CONSTRUCTION STAKING.
15. CONTRACTOR SHALL FENCE OFF CRITICAL AREAS TO BE PROTECTED AT THE DISCRETION OF EL PASO COUNTY.

16. THE CONTRACTOR SHALL DEVELOP A TRAFFIC CONTROL PLAN FOR PLANNED ACCESS TO THE SITE AND FOR EXITING AND ENTERING PUBLIC ROADS.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND MAINTAINING PHYSICAL AND LEGAL ACCESS TO THE PROJECT SITE AND SHALL LIMIT TRANSPORTATION TO AND FROM THE SITE TO THOSE APPROVED BY EL PASO COUNTY.
18. THE CONTRACTOR SHALL TAKE MEASURES TO PREVENT AND MANAGE SPILLS OF TOXIC MATERIALS, SUCH AS EQUIPMENT FUELS.
19. ALL MATERIALS USED SHALL BE NEW AND WITHOUT FLAWS OR DEFECTS OF ANY TYPE AND SHALL BE THE BEST OF THEIR CLASS AND KIND.
20. WORK INCLUDES FURNISHING OF LABOR, MATERIALS, TOOLS, AND EQUIPMENT TO COMPLETE THE CONSTRUCTION OF ALL ELEMENTS OF THE DESIGN PLANS.

CHANNEL IMPROVEMENTS LEGEND

SYMBOL OR LINETYPE	DESCRIPTION
-----XXXX-----	PROPOSED CHANNEL MAJOR CONTOUR
-----XXXX-----	PROPOSED CHANNEL MINOR CONTOUR
-----XXXX-----	PROPOSED SITE MAJOR CONTOUR
-----XXXX-----	PROPOSED SITE MINOR CONTOUR
-----10+00-----	PROPOSED STREAM CENTERLINE ALIGNMENT
	PROPOSED RIPRAP
	PROPOSED GROUTED BOULDER DROP STRUCTURE
	PROPOSED SHEETPILE CUTOFF WALL
-----LDA-----	PROPOSED LIMIT OF CHANNEL DISTURBANCE
	PROPOSED RIPARIAN SEED MIX
	PROPOSED UPLAND SEED MIX

EXISTING SURVEY LEGEND:

SYMBOL OR LINETYPE	DESCRIPTION
-----XXXX-----	EXISTING MAJOR CONTOUR
-----XXXX-----	EXISTING MINOR CONTOUR
-----	PROPERTY LINE
-----G-----	GAS LINE
-----W-----	WATER LINE
-----OH-----	OVERHEAD POWER
-----ST-----	STORM LINE
-----E-----	UNDERGROUND POWER LINE
-----SS-----	SANITARY LINE
-----FO-----	COMMUNICATION LINE, FIBER OPTIC
-----T-----	COMMUNICATION LINE, TELEPHONE
=====	CURB AND GUTTER
	TREE/SHRUB
	SIGN
	TRAFFIC SIGNAL
	GAS VALVE
	LIGHT POLE
	POWER POLE
	GUY WIRE
	WATER VALVE
	FIRE HYDRANT
-----	EXISTING 100-YEAR FEMA BOUNDARY

ABBREVIATIONS

AC	ASPHALT CONCRETE
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
APPROX	APPROXIMATE OR APPROXIMATELY
BP OR BOP	BEGINNING OF PROJECT
BCR	BEGIN CURB RADIUS
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CL	CENTERLINE
CLR	CLEARANCE
CONC	CONCRETE
DWG	DRAWING
DR	DRIVE
EA	EACH
EP OR EOP	END OF PROJECT
ECR	END CURB RADIUS
ELEV OR EL	ELEVATION
ESMT	EASEMENT
EW	EACH WAY
EX	EXISTING
FES	FLARED END SECTION
FL	FLOWLINE
FT	FOOT/FEET
HMA	HOT MIX ASPHALT
HCL	HORIZONTAL CONTROL LINE
K	VERTICAL CURVE RATIO
LT	LEFT
ME	MATCH EXISTING
MAX	MAXIMUM
MIN	MINIMUM

LEGEND NOTES:

1. THIS IS A STANDARD DRAWING SHOWING COMMON SYMBOLOGY. ALL SYMBOLS ARE NOT NECESSARILY USED ON THIS PROJECT.
2. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH DRAWING FOR USAGE.
3. THESE ABBREVIATIONS APPLY TO THE ENTIRE SET OF CONTRACT DRAWINGS.
4. LISTING OF ABBREVIATIONS DOES NOT IMPLY THAT ALL ABBREVIATIONS ARE USED IN THE CONTRACT DRAWINGS.
5. ABBREVIATIONS SHOWN ON THIS SHEET INCLUDE VARIATIONS OF A WORD. FOR EXAMPLE, "MOD" MAY MEAN MODIFY OR MODIFICATION; "INC" MAY MEAN INCLUDED OR INCLUDING AND "REINF" MAY MEAN EITHER REINFORCE OR REINFORCING.

MISC. ABBREVIATIONS

⊙	AT
∅	PHASE, DIAMETER
&	AND
'	FEET, MINUTES
"	INCHES, SECONDS
°	DEGREE
#	NUMBER
CL	CENTERLINE



DESIGNED BY: DCM
DRAWN BY: LWM
CHECKED BY: DCM
DATE: 12/18/2024

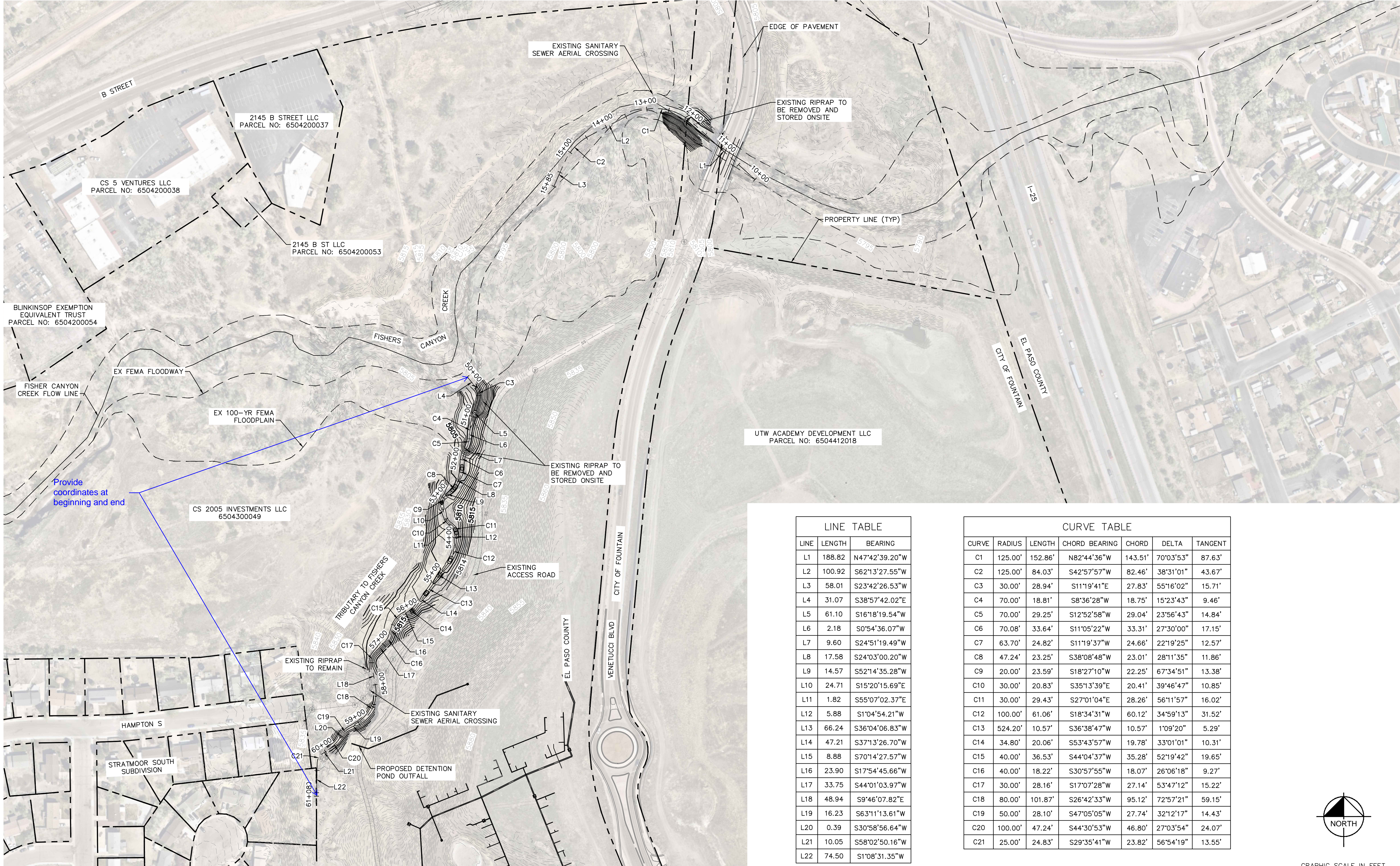
FISHERS CANYON CREEK
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EL PASO COUNTY, COLORADO
GENERAL NOTES

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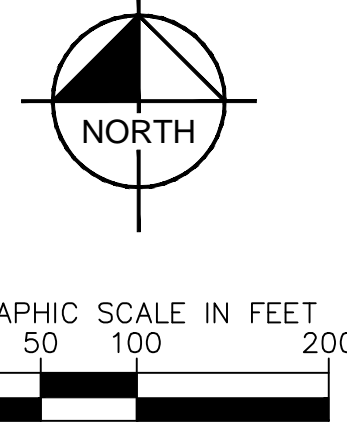
SHEET
C1.1

NO.	REVISION	BY	DATE	APPR.



LINE TABLE		
LINE	LENGTH	BEARING
L1	188.82	N47°42'39.20"W
L2	100.92	S62°13'27.55"W
L3	58.01	S23°42'26.53"W
L4	31.07	S38°57'42.02"E
L5	61.10	S16°18'19.54"W
L6	2.18	S0°54'36.07"W
L7	9.60	S24°51'19.49"W
L8	17.58	S24°03'00.20"W
L9	14.57	S52°14'35.28"W
L10	24.71	S15°20'15.69"E
L11	1.82	S55°07'02.37"E
L12	5.88	S1°04'54.21"W
L13	66.24	S36°04'06.83"W
L14	47.21	S37°13'26.70"W
L15	8.88	S70°14'27.57"W
L16	23.90	S17°54'45.66"W
L17	33.75	S44°01'03.97"W
L18	48.94	S9°46'07.82"E
L19	16.23	S63°11'13.61"W
L20	0.39	S30°58'56.64"W
L21	10.05	S58°02'50.16"W
L22	74.50	S1°08'31.35"W

CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C1	125.00'	152.86'	N82°44'36"W	143.51'	70°03'53"	87.63'
C2	125.00'	84.03'	S42°57'57"W	82.46'	38°31'01"	43.67'
C3	30.00'	28.94'	S11°19'41"E	27.83'	55°16'02"	15.71'
C4	70.00'	18.81'	S8°36'28"W	18.75'	15°23'43"	9.46'
C5	70.00'	29.25'	S12°52'58"W	29.04'	23°56'43"	14.84'
C6	70.08'	33.64'	S11°05'22"W	33.31'	27°30'00"	17.15'
C7	63.70'	24.82'	S11°19'37"W	24.66'	22°19'25"	12.57'
C8	47.24'	23.25'	S38°08'48"W	23.01'	28°11'35"	11.86'
C9	20.00'	23.59'	S18°27'10"W	22.25'	67°34'51"	13.38'
C10	30.00'	20.83'	S35°13'39"E	20.41'	39°46'47"	10.85'
C11	30.00'	29.43'	S27°01'04"E	28.26'	56°11'57"	16.02'
C12	100.00'	61.06'	S18°34'31"W	60.12'	34°59'13"	31.52'
C13	524.20'	10.57'	S36°38'47"W	10.57'	1°09'20"	5.29'
C14	34.80'	20.06'	S53°43'57"W	19.78'	33°01'01"	10.31'
C15	40.00'	36.53'	S44°04'37"W	35.28'	52°19'42"	19.65'
C16	40.00'	18.22'	S30°57'55"W	18.07'	26°06'18"	9.27'
C17	30.00'	28.16'	S17°07'28"W	27.14'	53°47'12"	15.22'
C18	80.00'	101.87'	S26°42'33"W	95.12'	72°57'21"	59.15'
C19	50.00'	28.10'	S47°05'05"W	27.74'	32°12'17"	14.43'
C20	100.00'	47.24'	S44°30'53"W	46.80'	27°03'54"	24.07'
C21	25.00'	24.83'	S29°35'41"W	23.82'	56°54'19"	13.55'



NO.	REVISION	BY	DATE	APPR.

Kimley»Horn
 2024 KIMLEY-HORN AND ASSOCIATES, INC.
 2 North Nevada Avenue, Suite 900
 Colorado Springs, Colorado 80903 (719) 453-0180

DESIGNED BY: DCM
 DRAWN BY: LWN
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FISHERS CANYON CREEK
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 EL PASO COUNTY, COLORADO
EX. CONDITION & SURVEY CONTROL

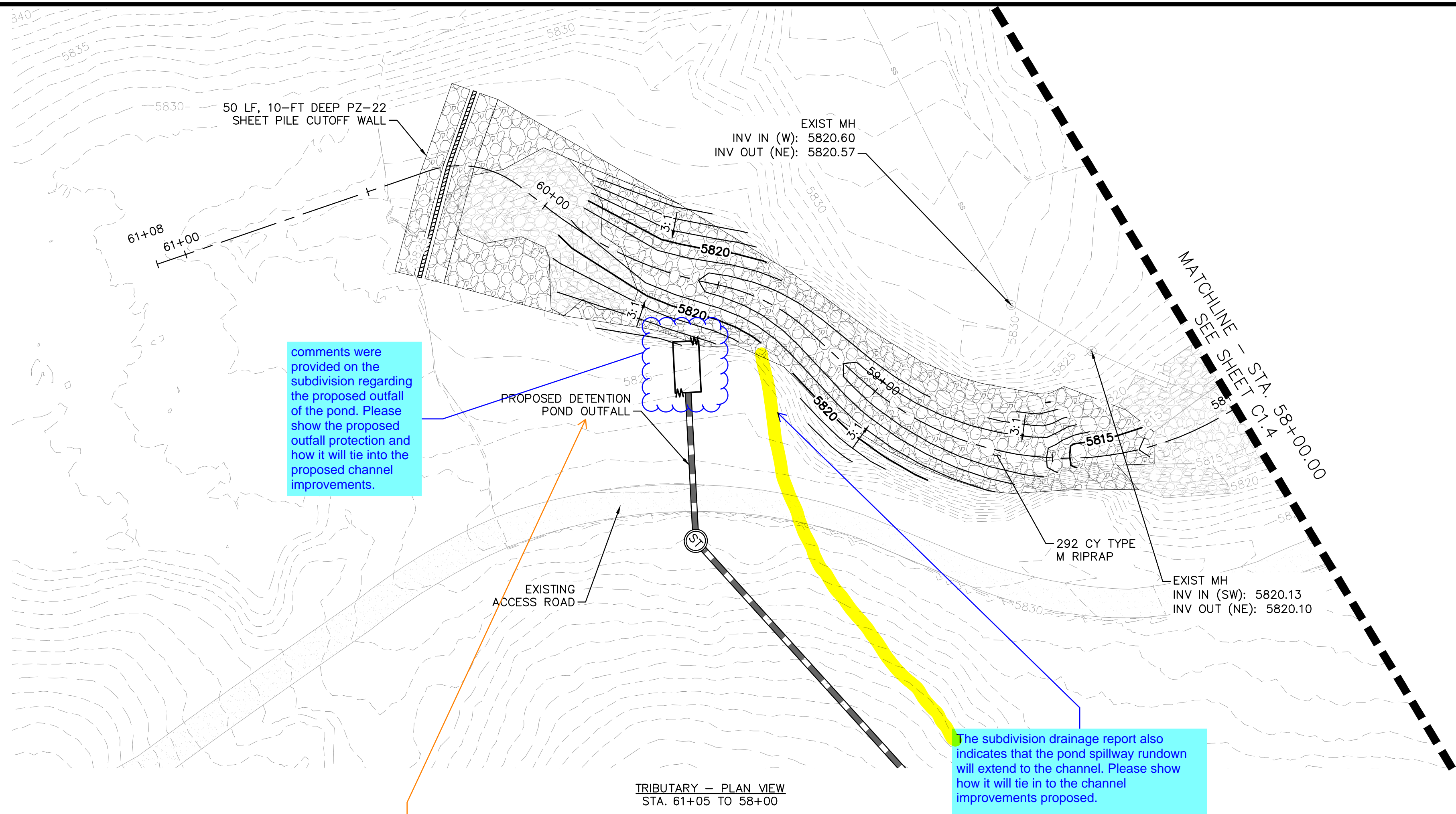
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PROJECT NO.
 196825001

SHEET
C1.2

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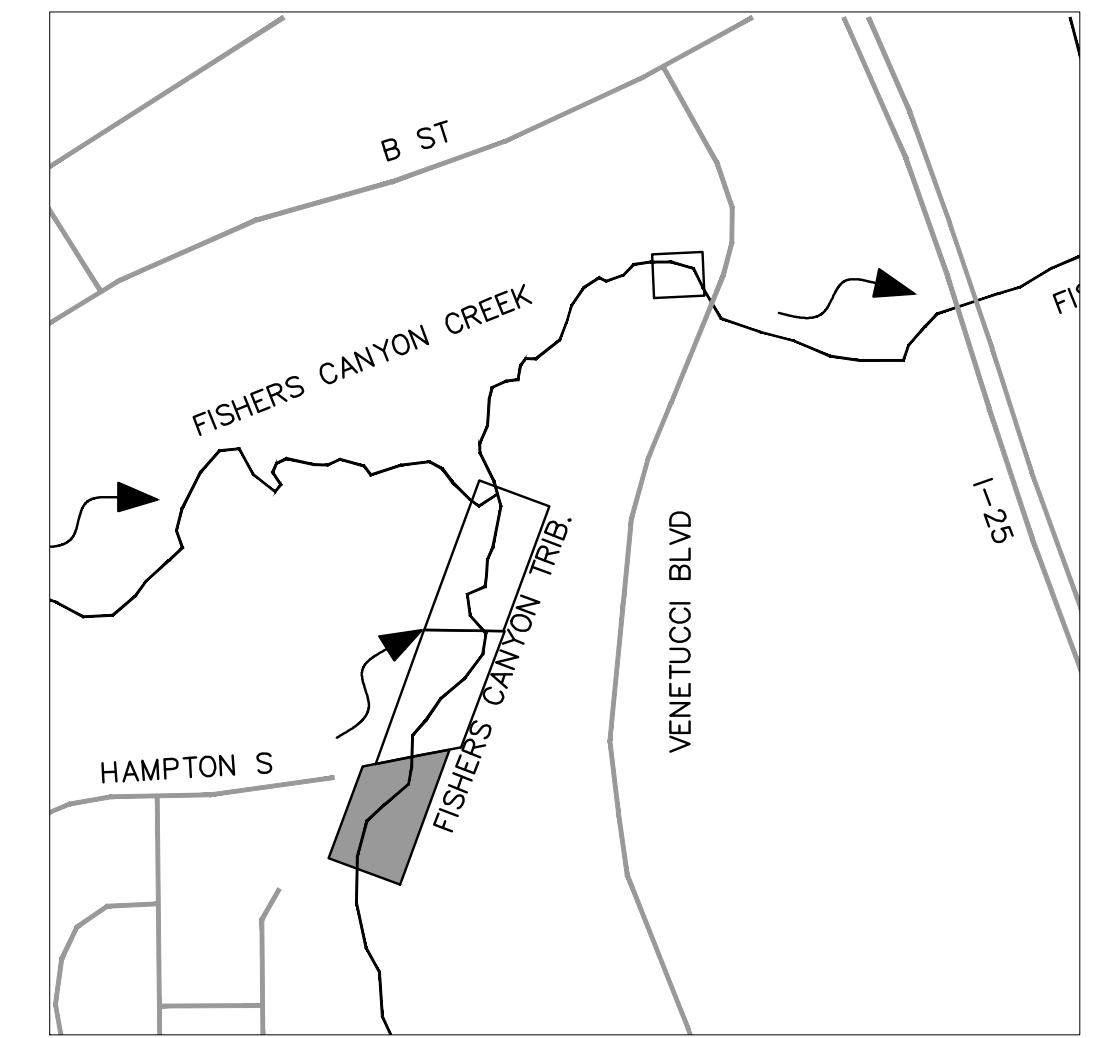




comments were provided on the subdivision regarding the proposed outfall of the pond. Please show the proposed outfall protection and how it will tie into the proposed channel improvements.

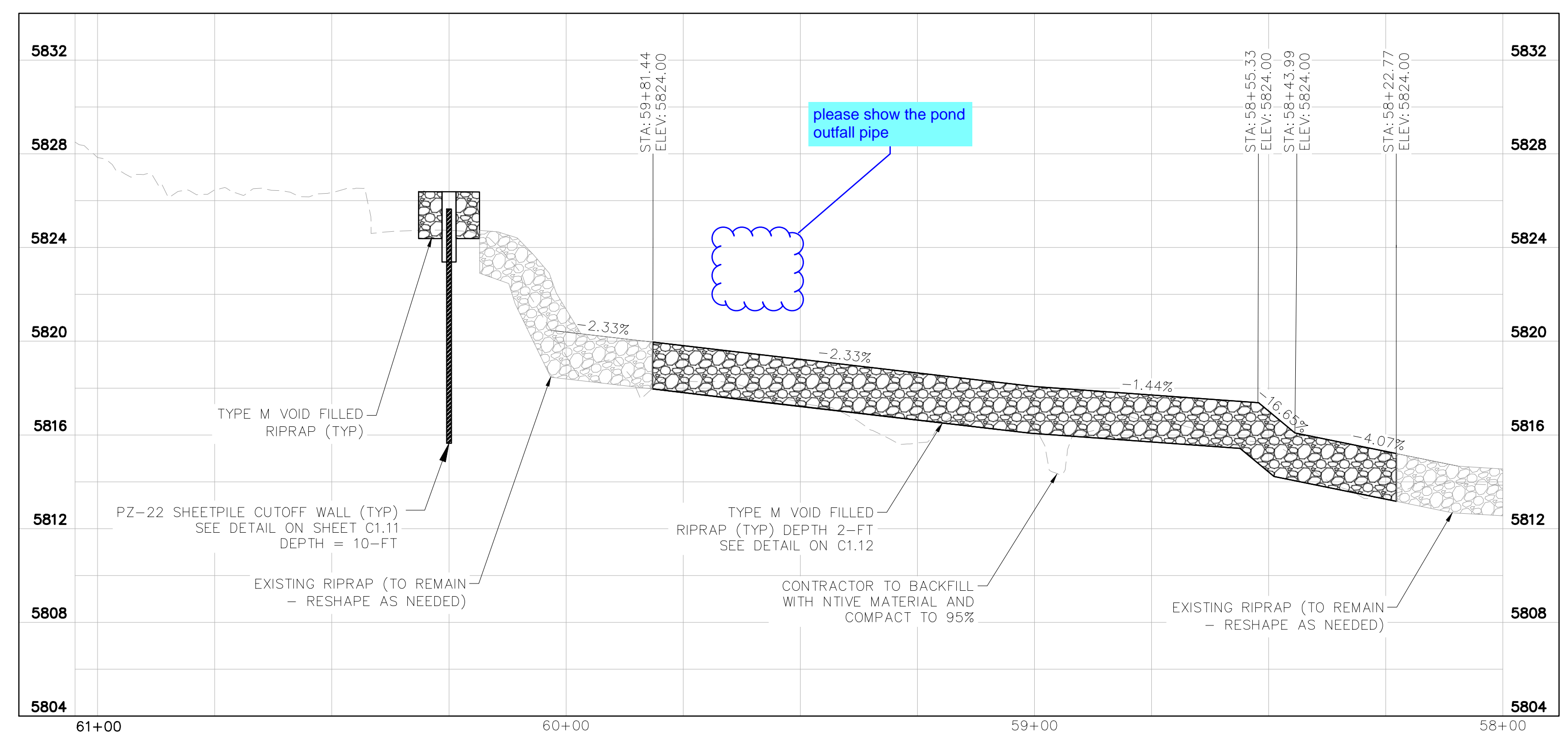
Clarify that this is not to be constructed with the channel improvements.

The subdivision drainage report also indicates that the pond spillway rundown will extend to the channel. Please show how it will tie in to the channel improvements proposed.

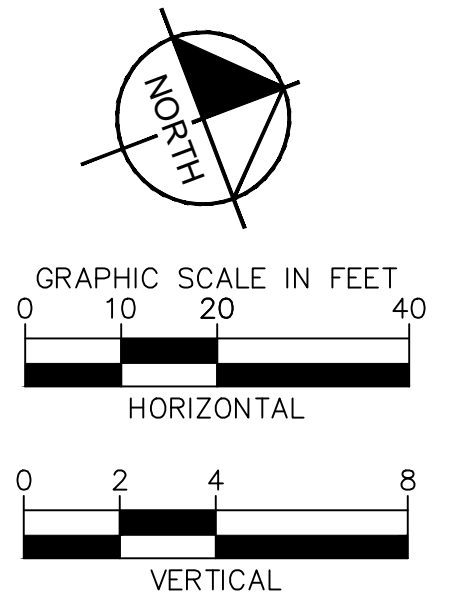


KEY MAP
N.T.S.

- NOTES**
- SEE SHEET C1.11 FOR RIPRAP PLACEMENT DETAILS AND SPECIFICATIONS.
 - SEE SHEET C1.12 FOR SHEET PILE CUTOFF WALL AND CONCRETE CAP DETAILS.
 - CONTRACTOR TO RESHAPE EXISTING RIPRAP TO CREATE A SMOOTH TRANSITION AND CONNECTION WITH THE PROPOSED CUT-OFF WALL AND PROPOSED RIPRAP. IF AT THE TIME OF CONSTRUCTION RIPRAP HAS WASHED CONTRACTOR TO ADD ADDITIONAL RIPRAP AS NECESSARY.



TRIBUTARY - PROFILE VIEW
STA. 61+00 TO 58+00



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CHANNEL IMPROVEMENT PLANS
EL PASO COUNTY, COLORADO
PLAN AND PROFILE

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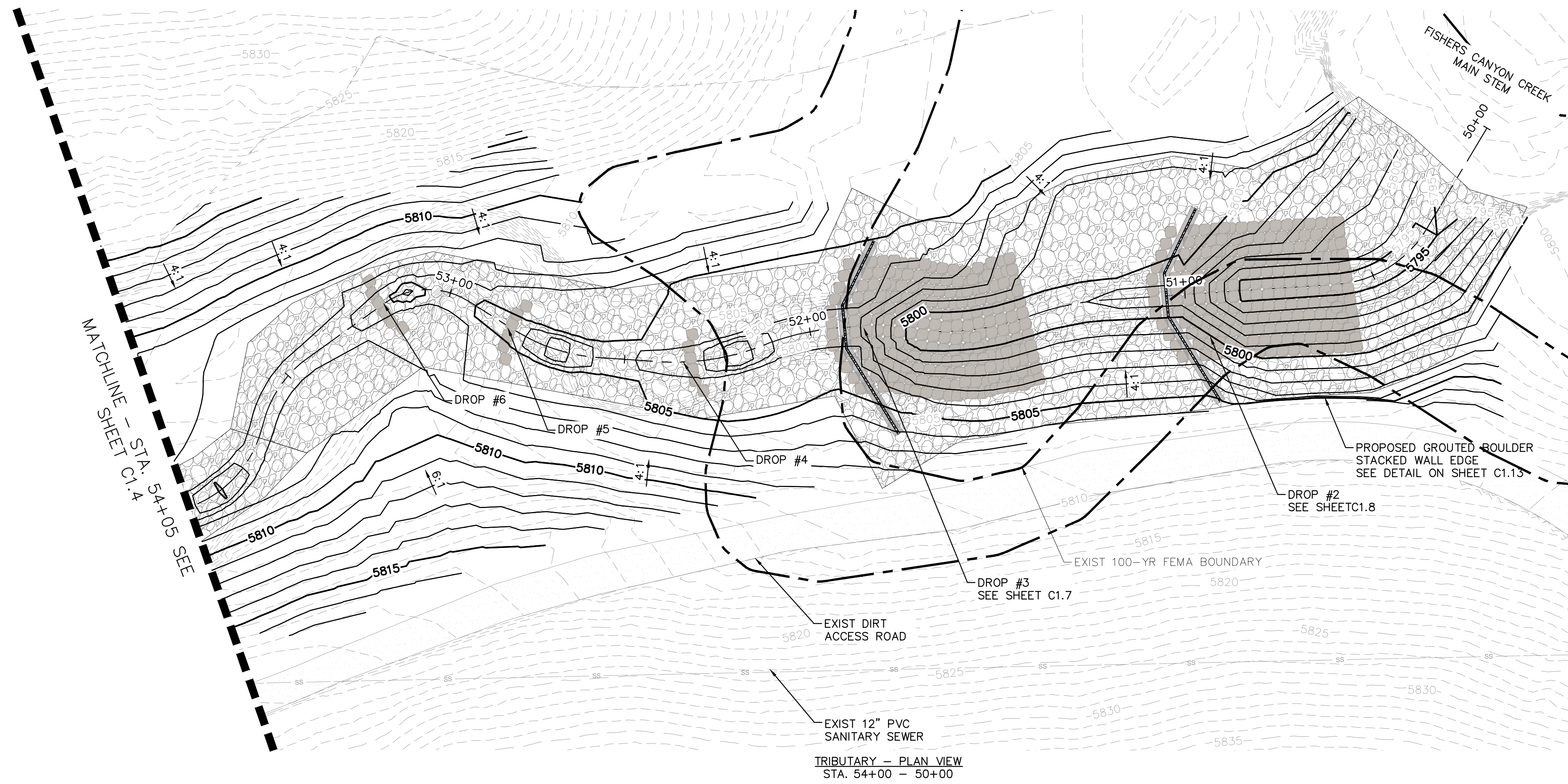
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SHEET
C1.3

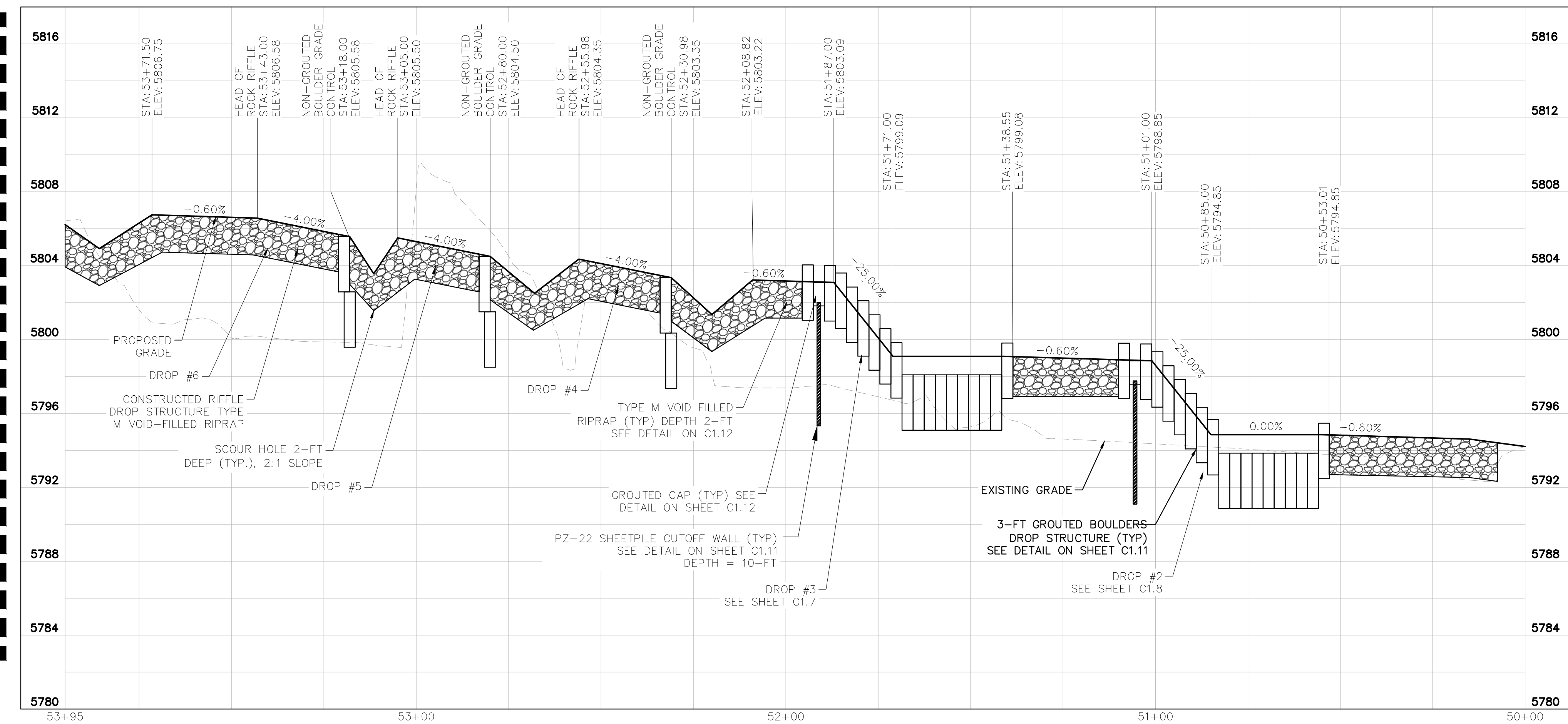
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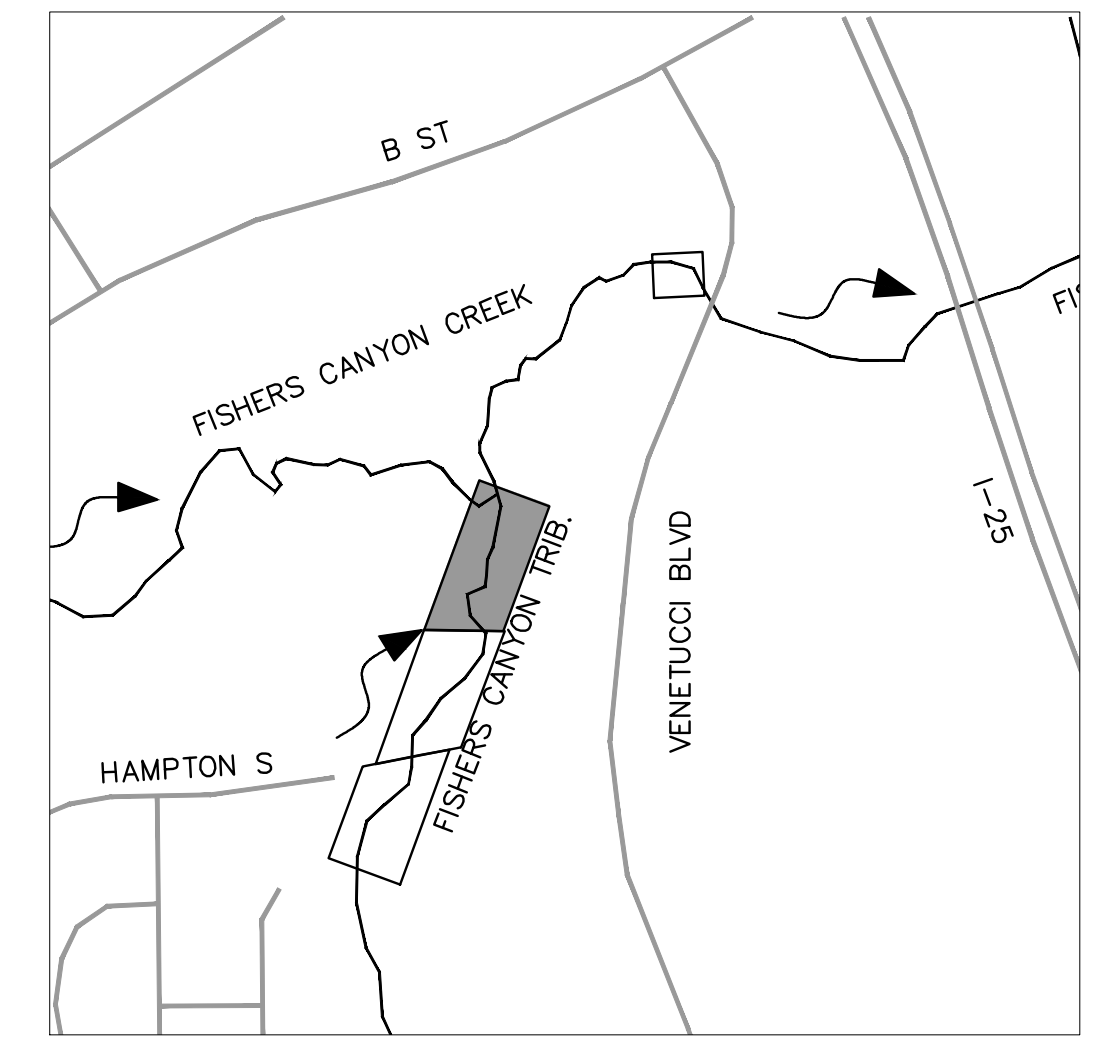
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TRIBUTARY - PLAN VIEW
STA. 54+00 - 50+00

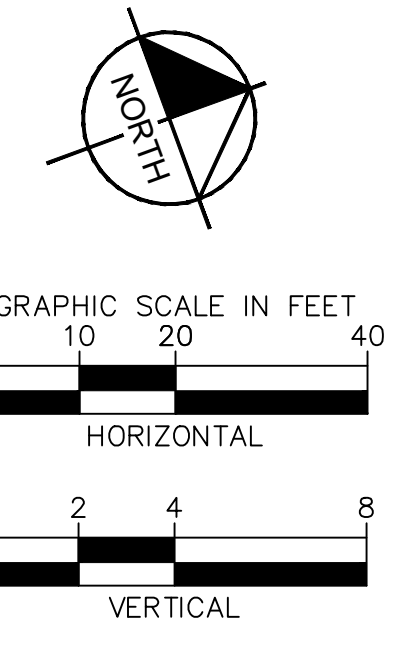


TRIBUTARY - PROFILE VIEW
STA. 54+00 TO 50+00



KEY MAP
N.T.S.

- NOTES**
- SEE SHEET C1.11 FOR RIFFLE-POOL DETAILS.
 - SEE SHEET C1.11 FOR RIPRAP PLACEMENT DETAILS AND SPECIFICATIONS.
 - SEE SHEET C1.12 FOR SHEET PILE CUTOFF WALL AND CONCRETE CAP DETAILS.



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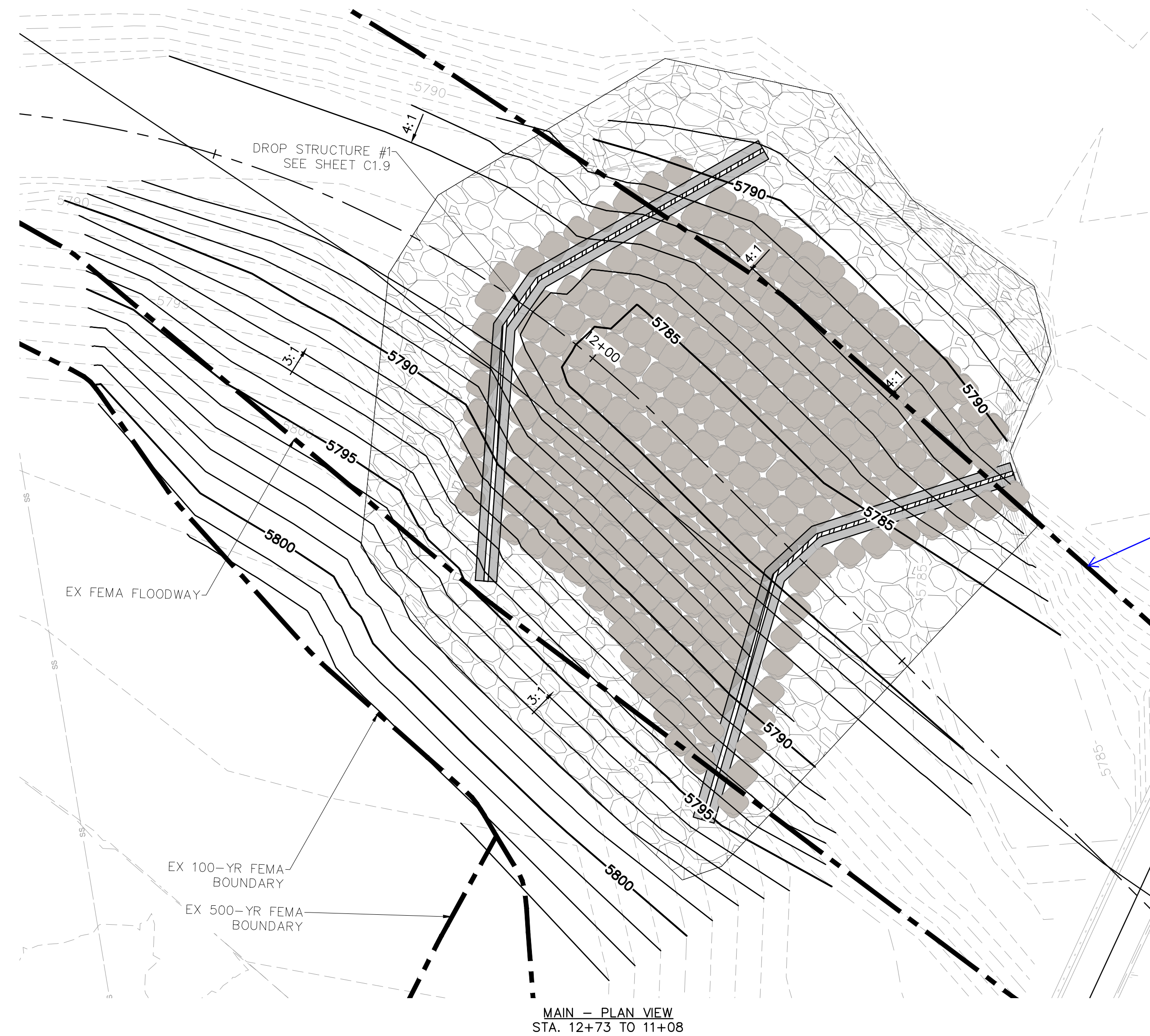
FISHERS CANYON CREEK
CHANNEL IMPROVEMENT PLANS
EL PASO COUNTY, COLORADO
PLAN AND PROFILE

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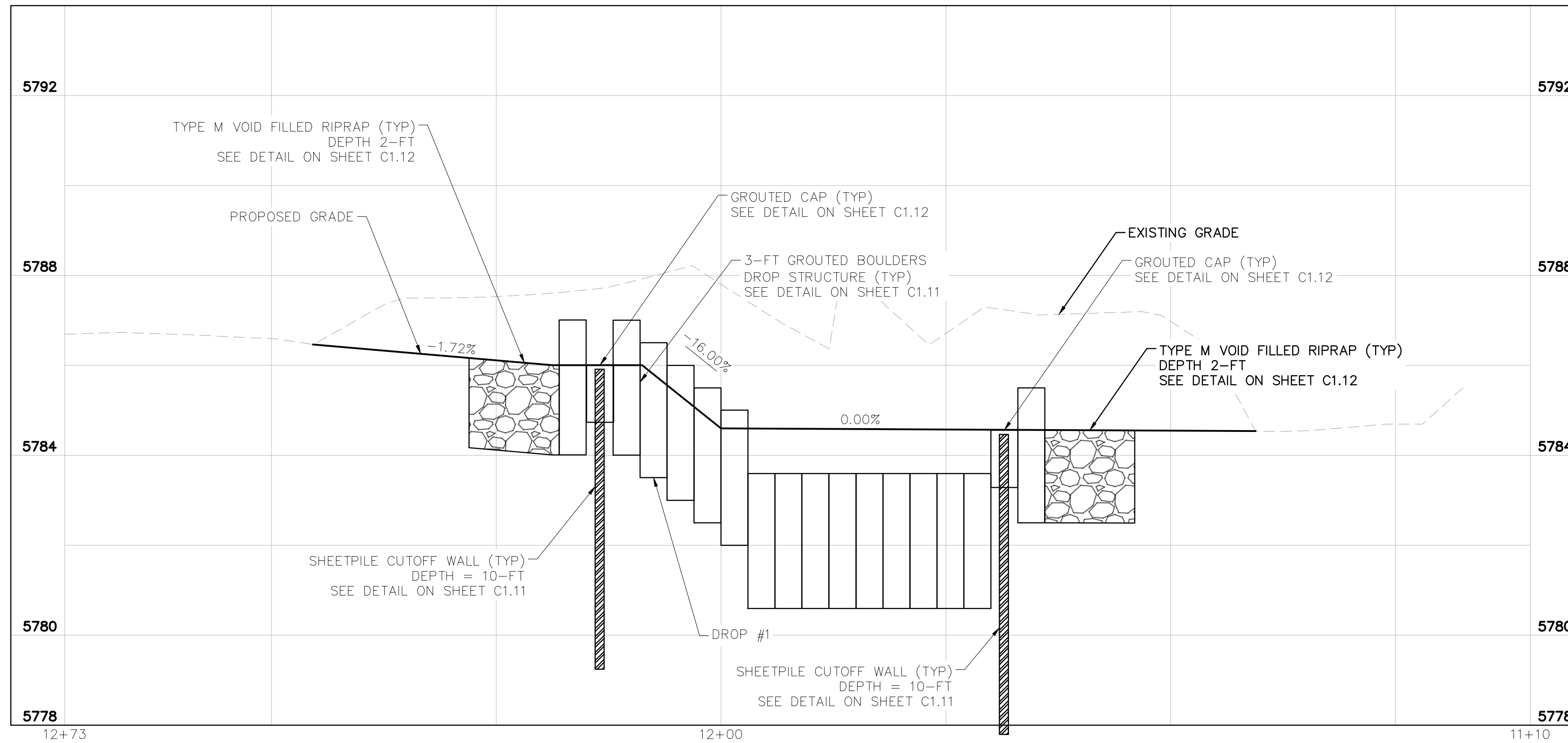
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196825001

SHEET
C1.5

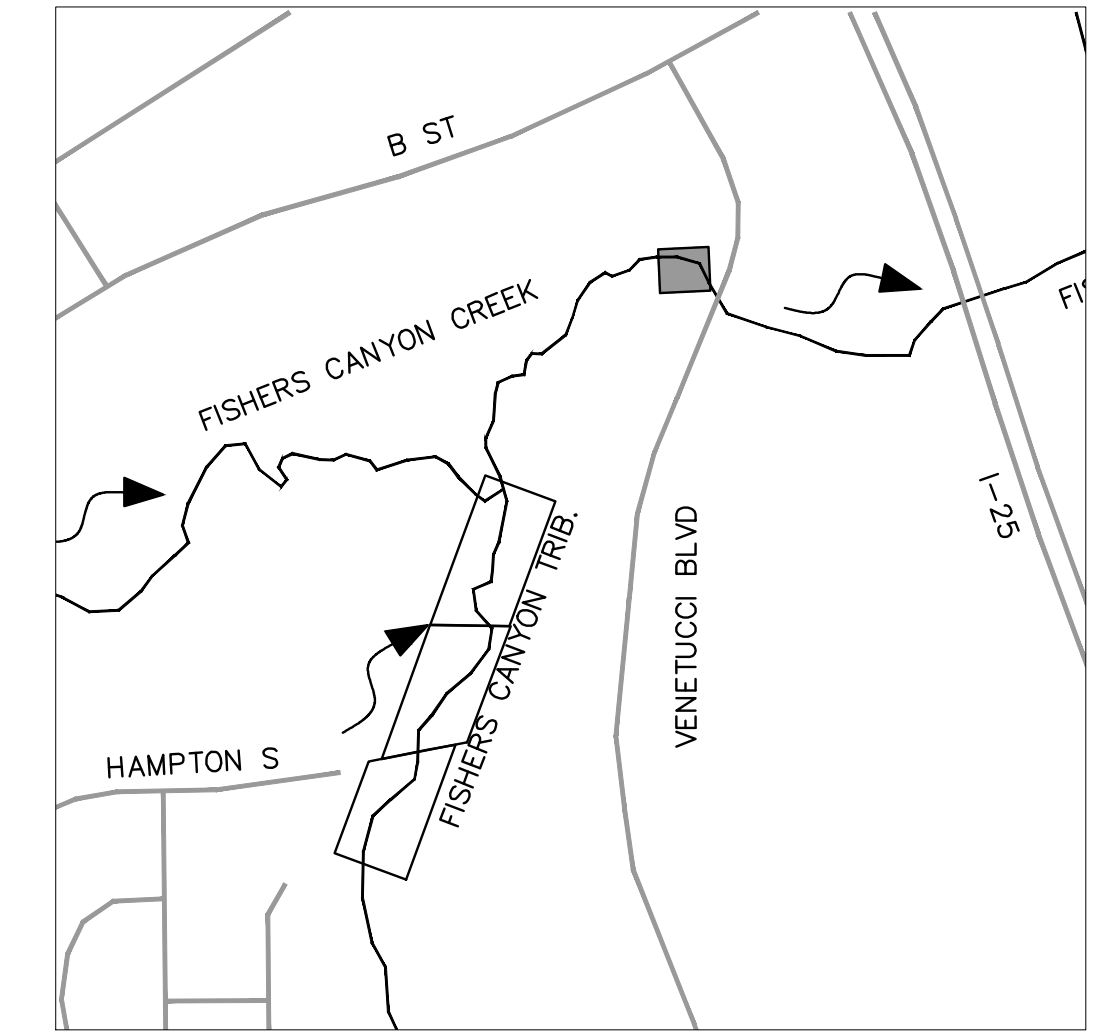
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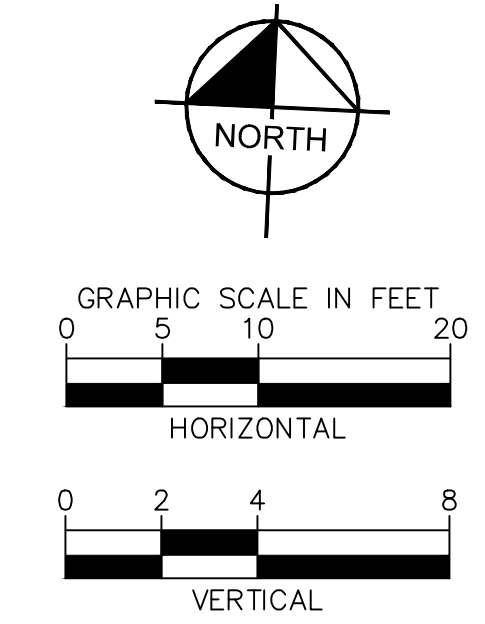
MAIN - PLAN VIEW
STA. 12+73 TO 11+08



MAIN - PROFILE VIEW
STA. 12+73 TO 11+10



KEY MAP
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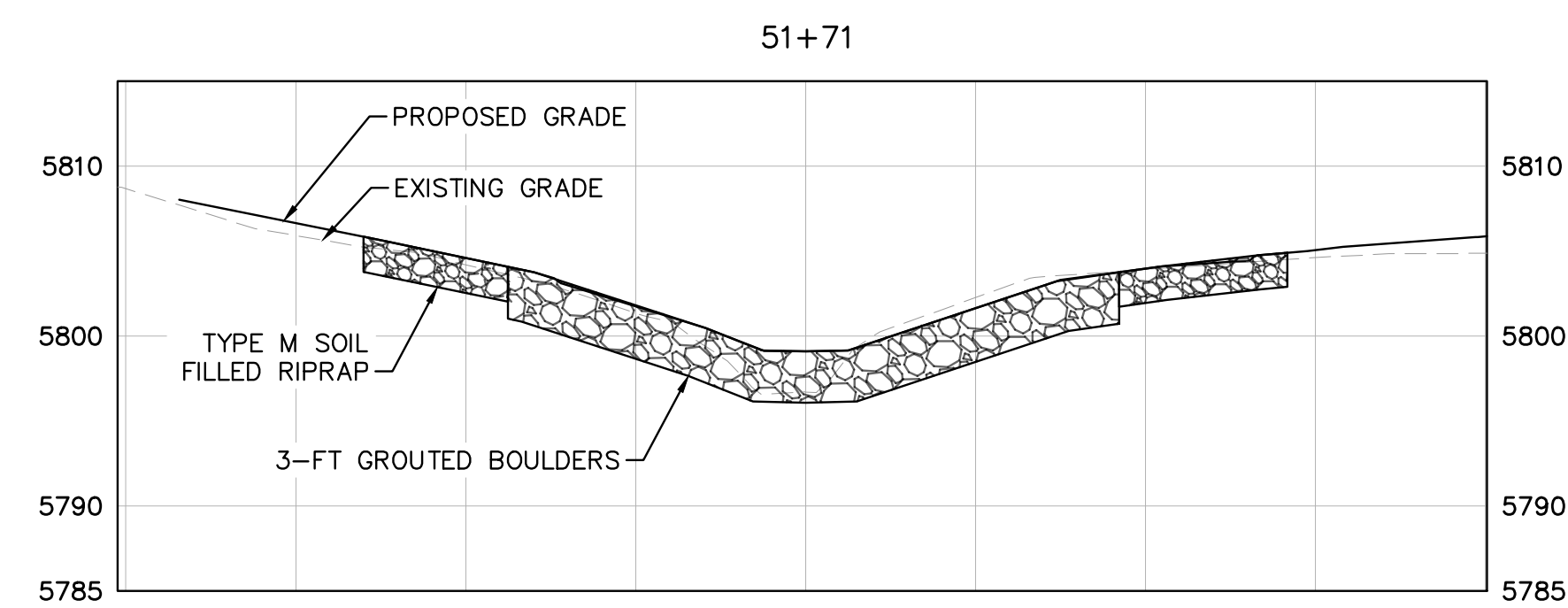
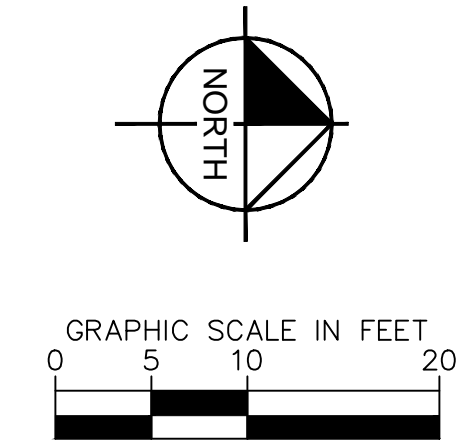
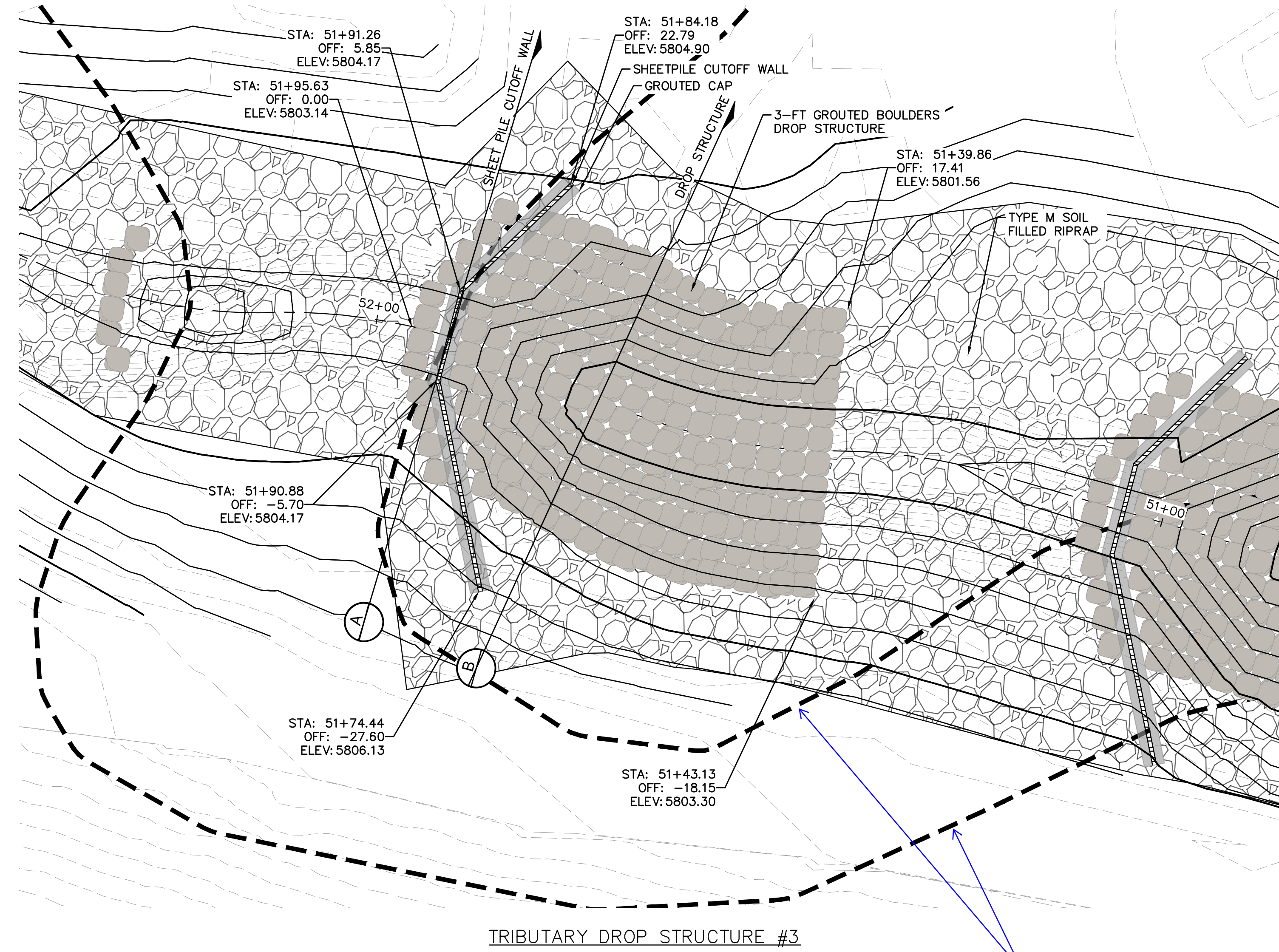
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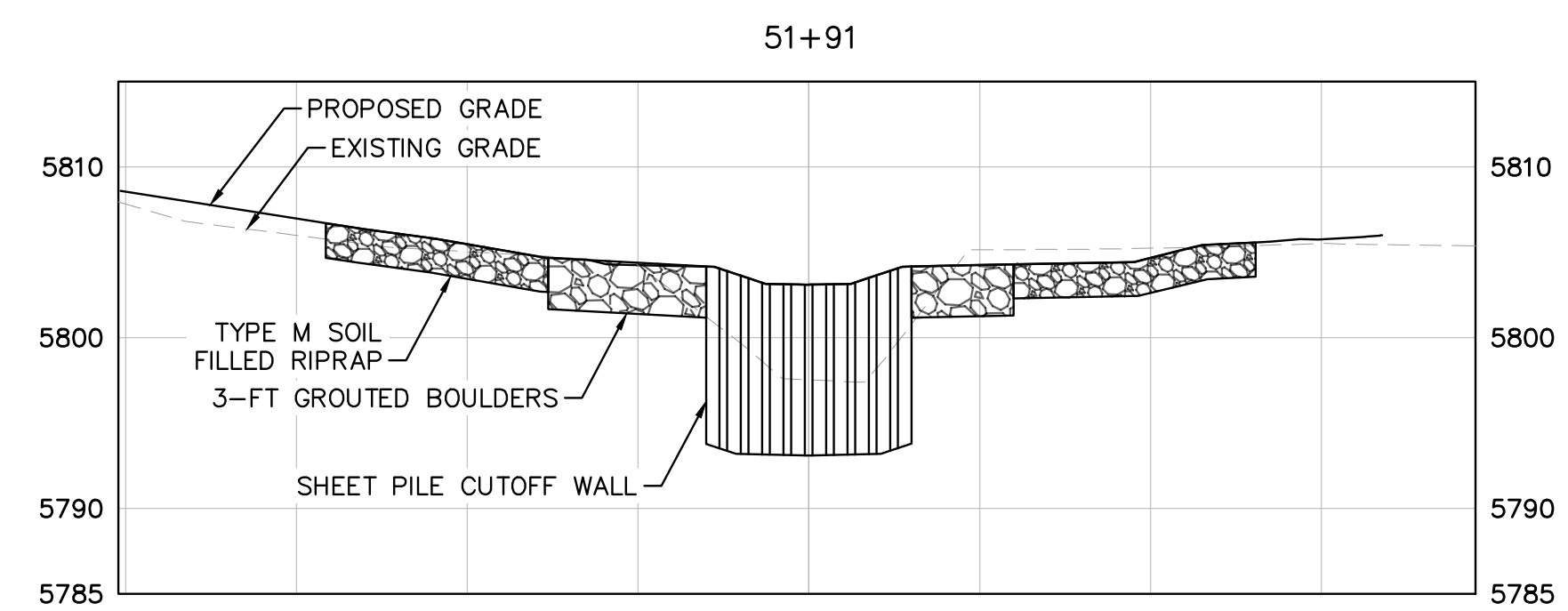
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SECTION A

B



SECTION B

A



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FISHERS CANYON CREEK
CHANNEL IMPROVEMENT PLANS
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ENLARGED DROP STRUCTURE 3

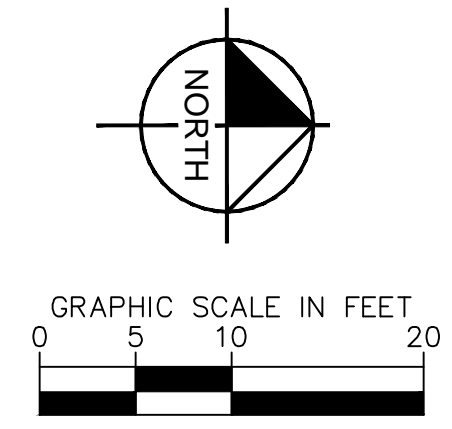
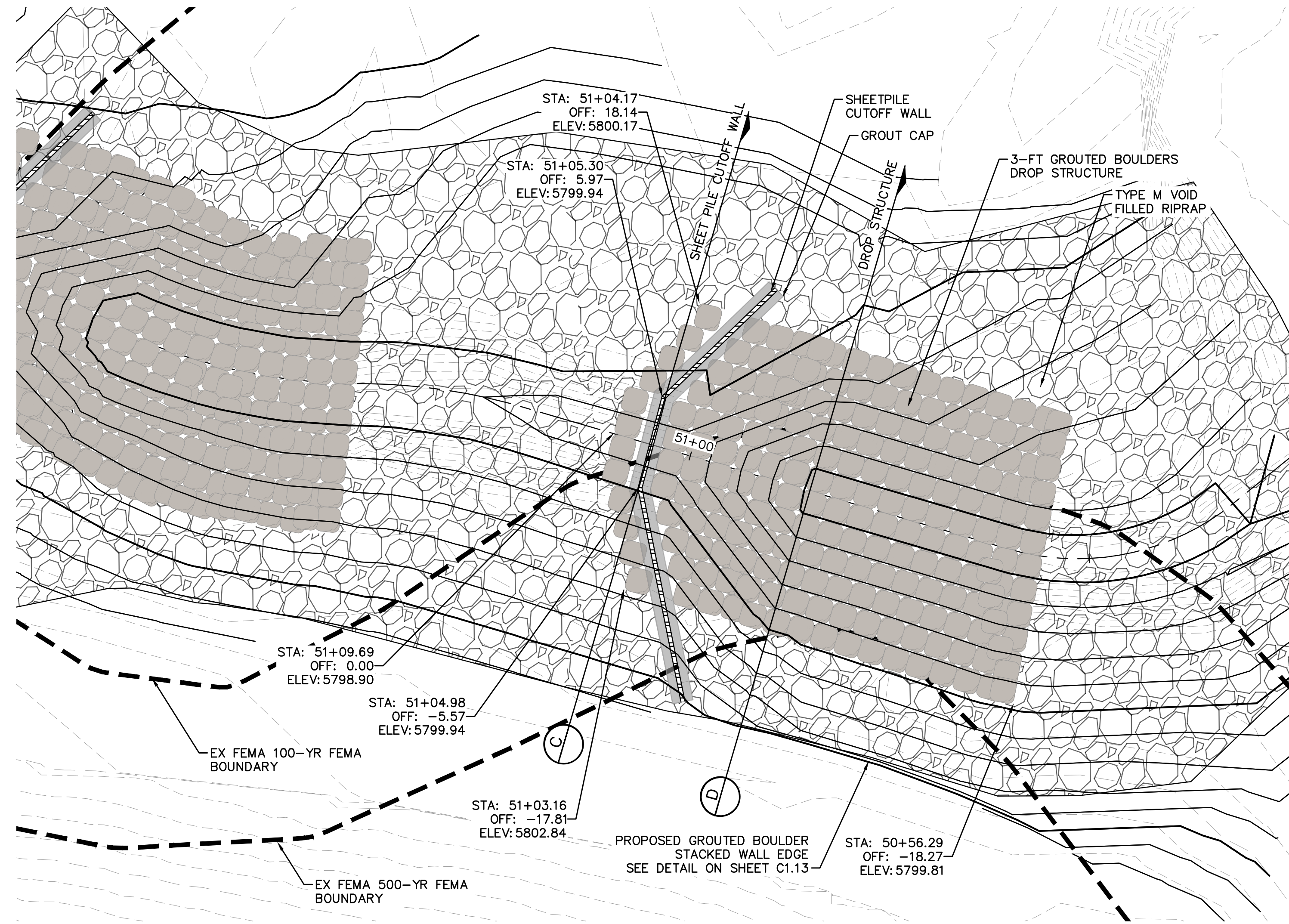
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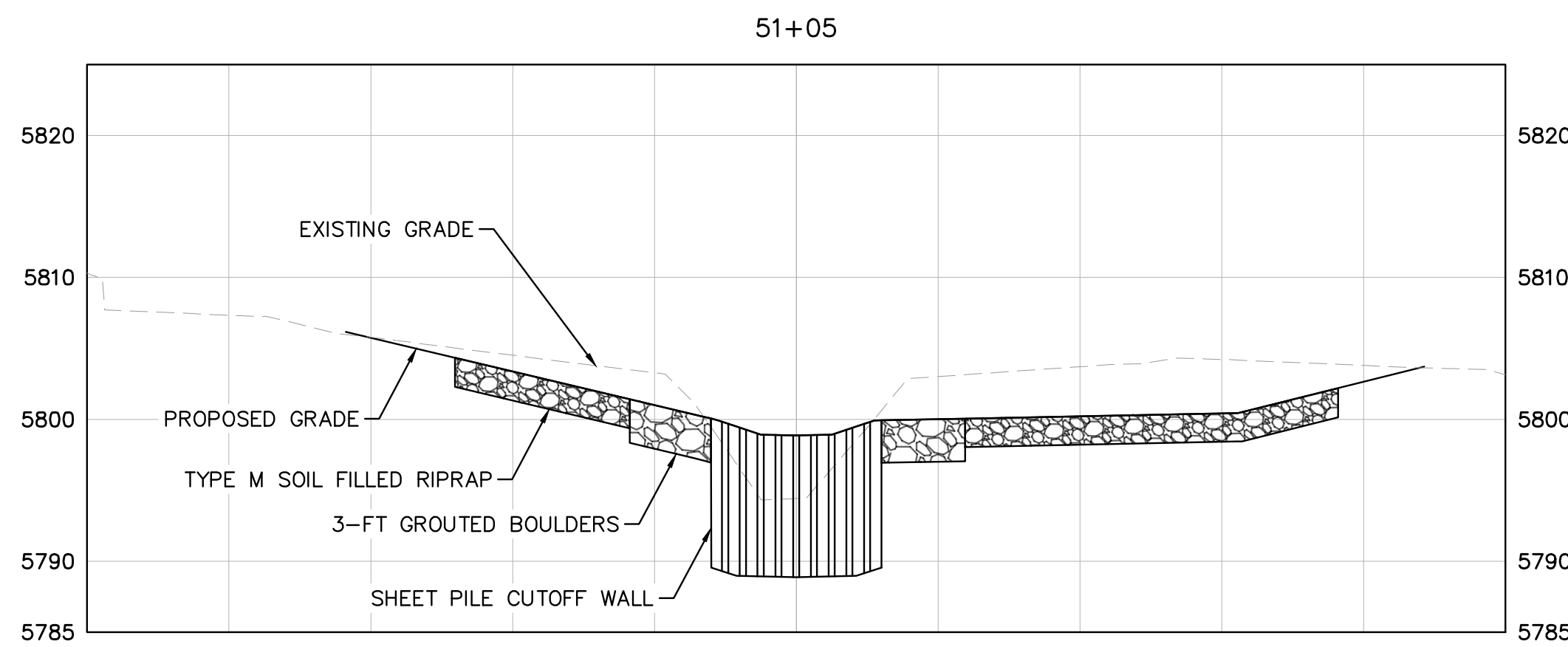
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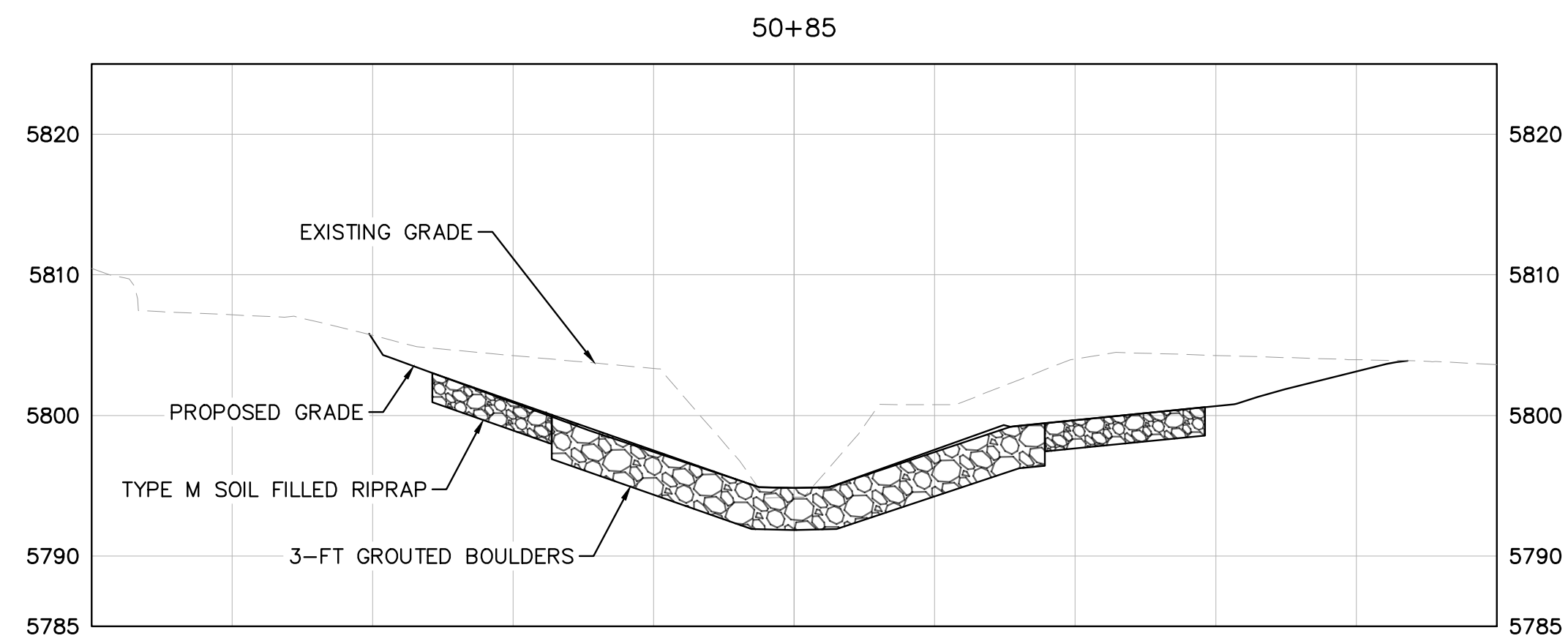
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TRIBUTARY DROP STRUCTURE #2



SECTION C



SECTION D



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EL PASO COUNTY, COLORADO
ENLARGED DROP STRUCTURE 2

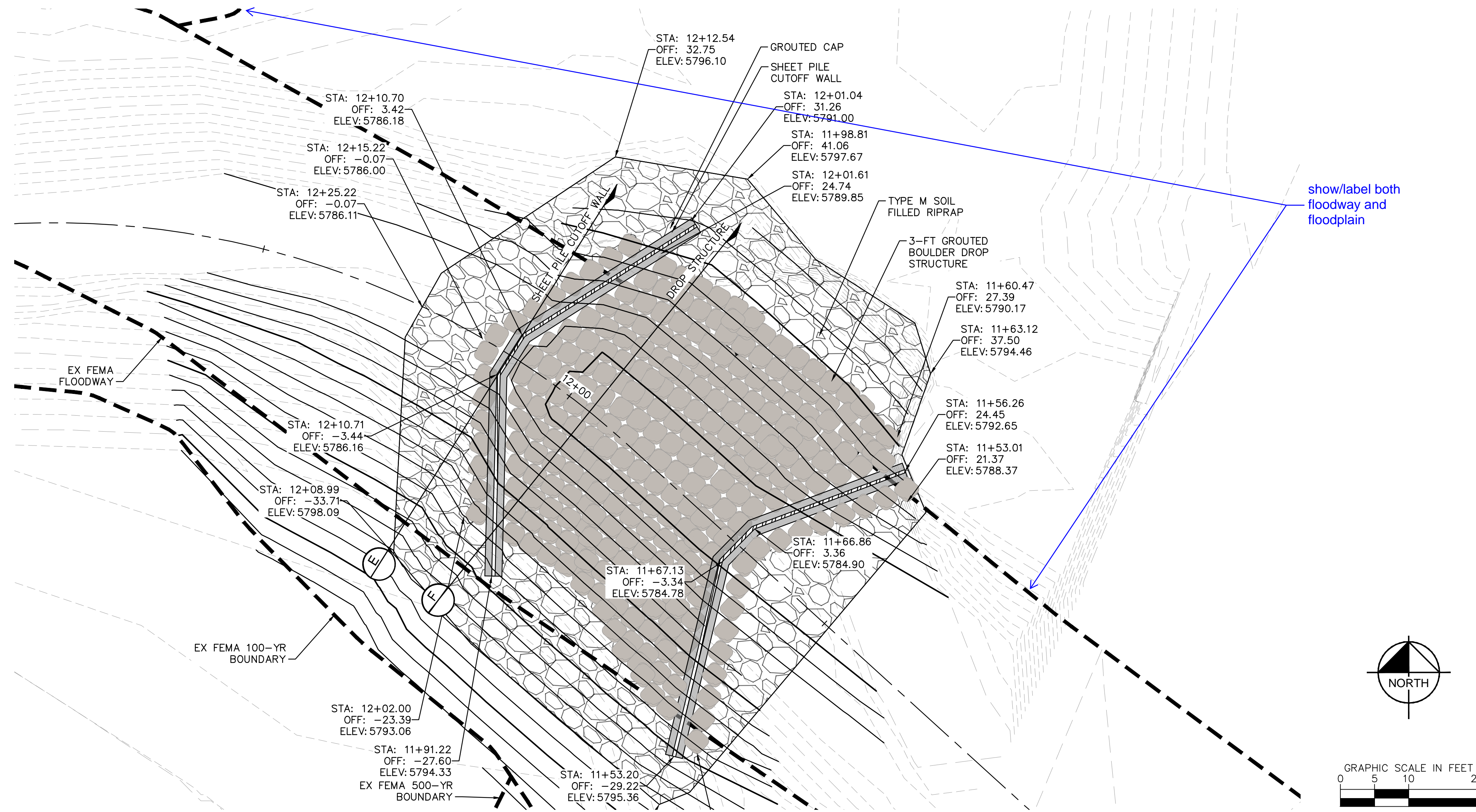
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SHEET
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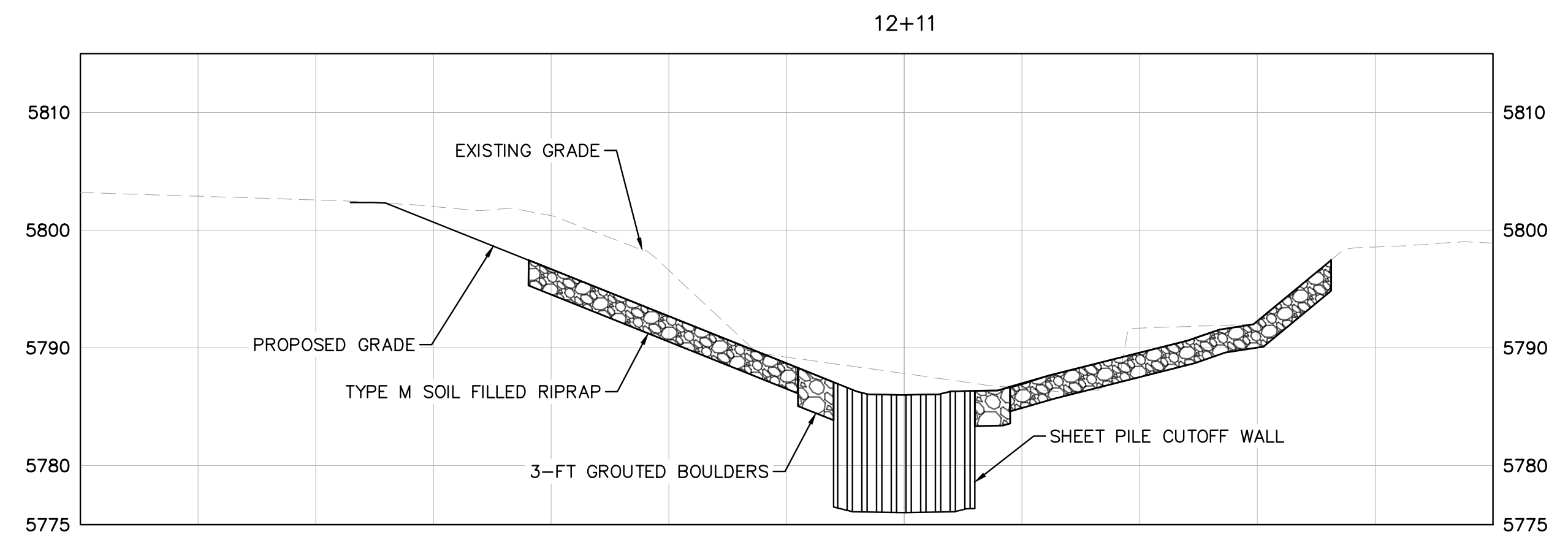
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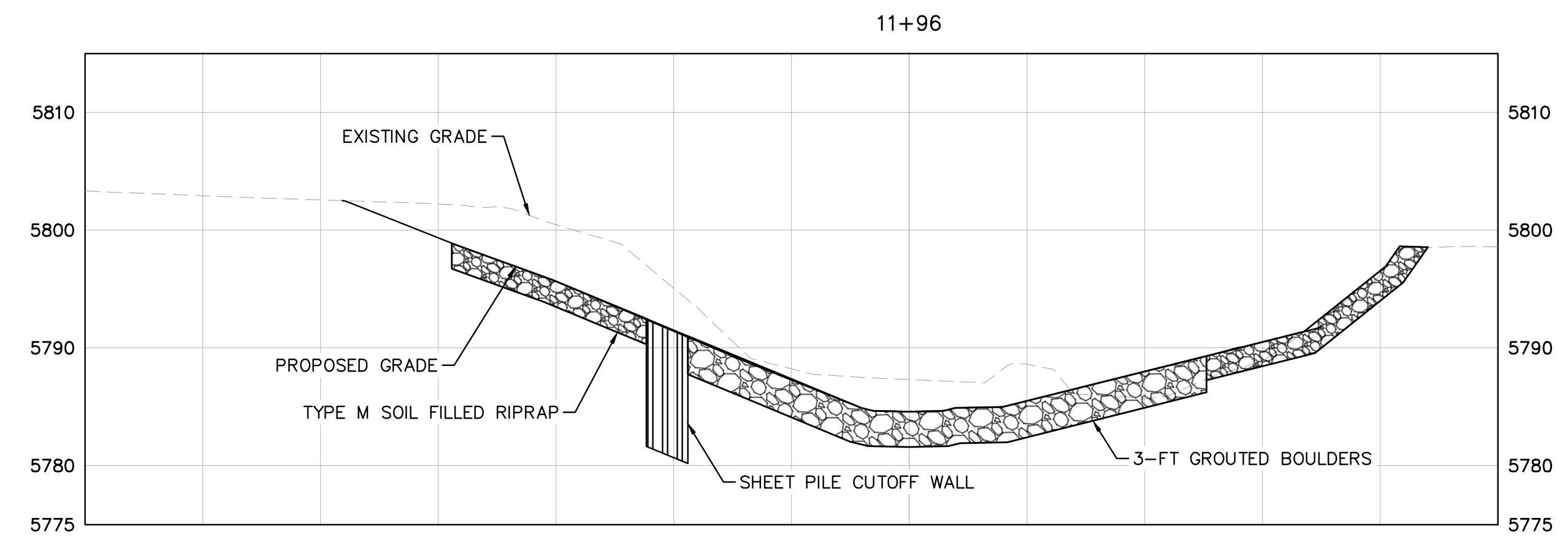


show/label both floodway and floodplain

MAIN CHANNEL DROP STRUCTURE #1



SECTION E



SECTION F

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FISHERS CANYON CREEK
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 EL PASO COUNTY, COLORADO
ENLARGED DROP STRUCTURE 1

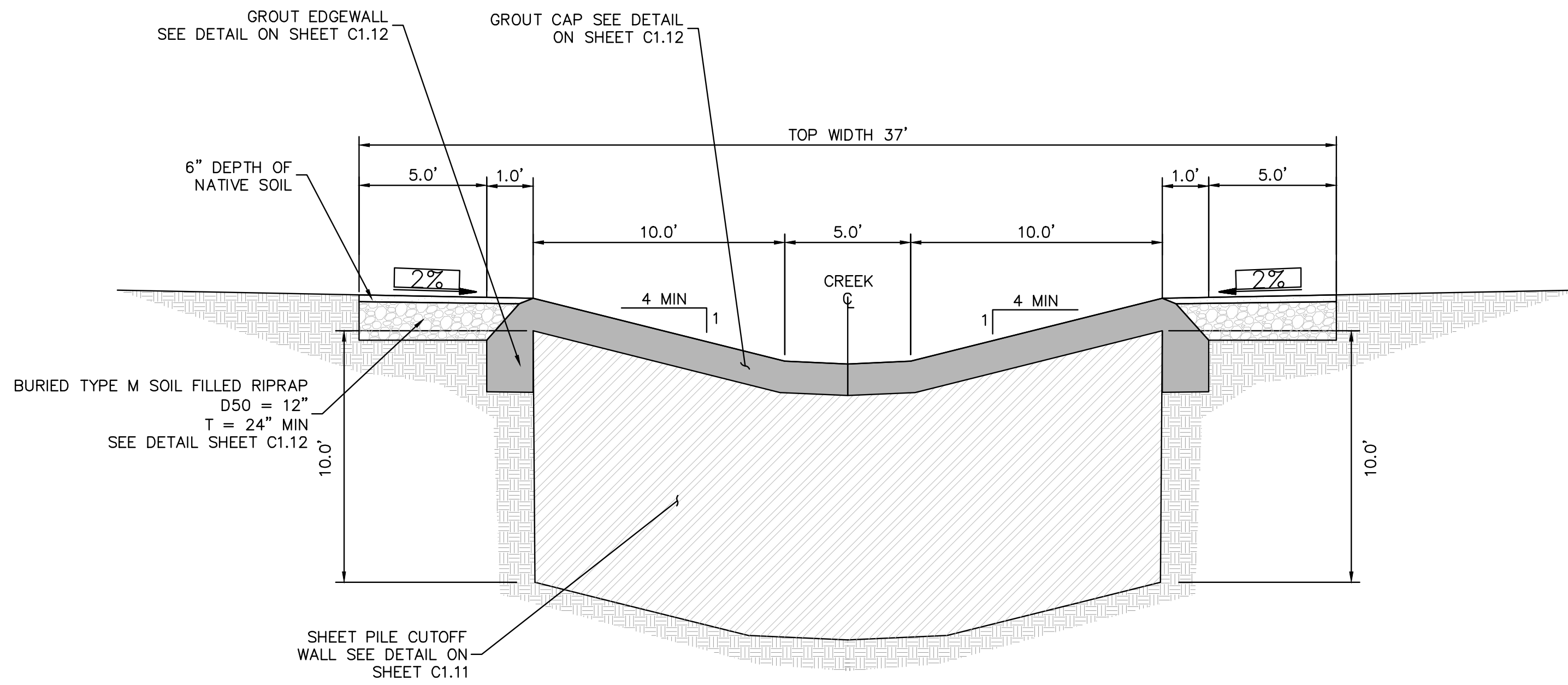
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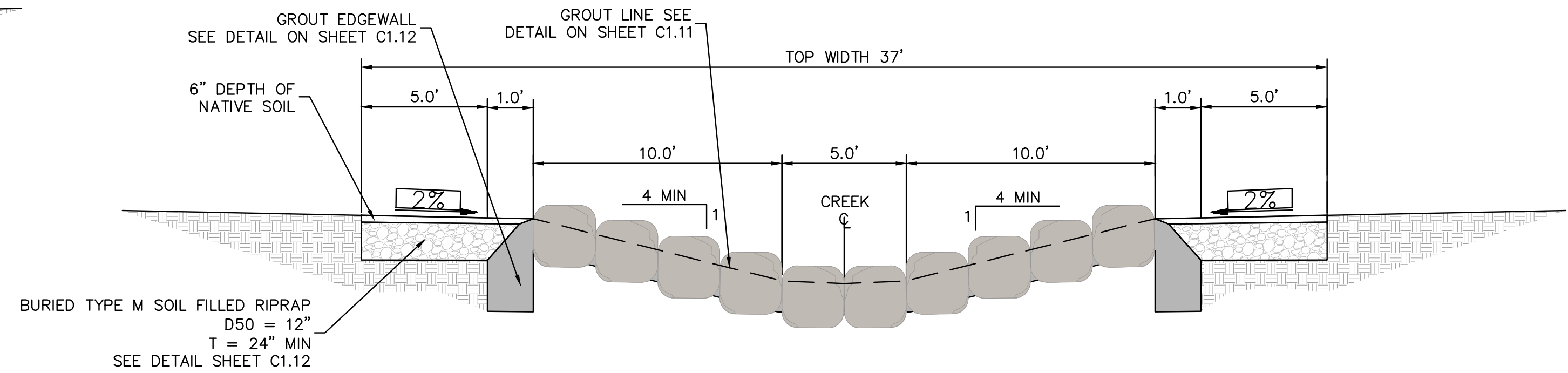
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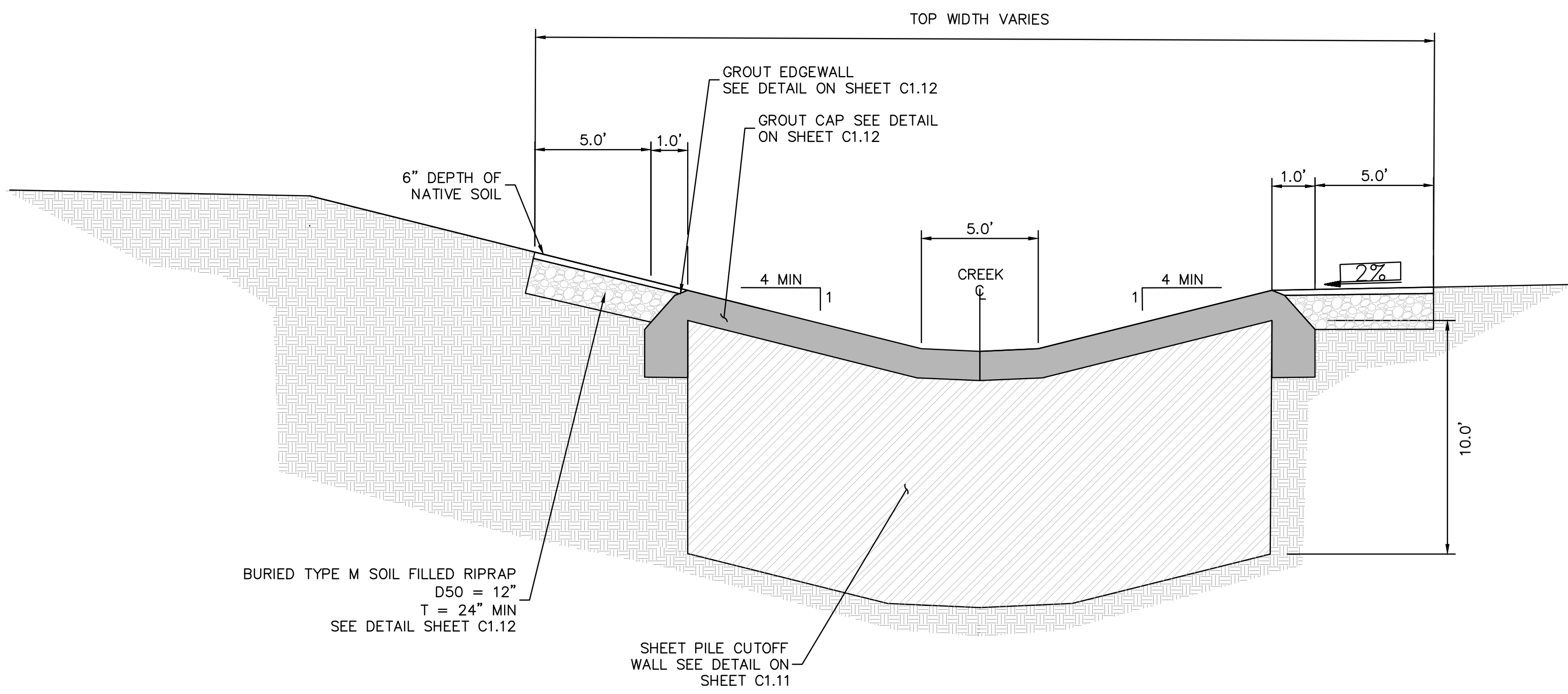
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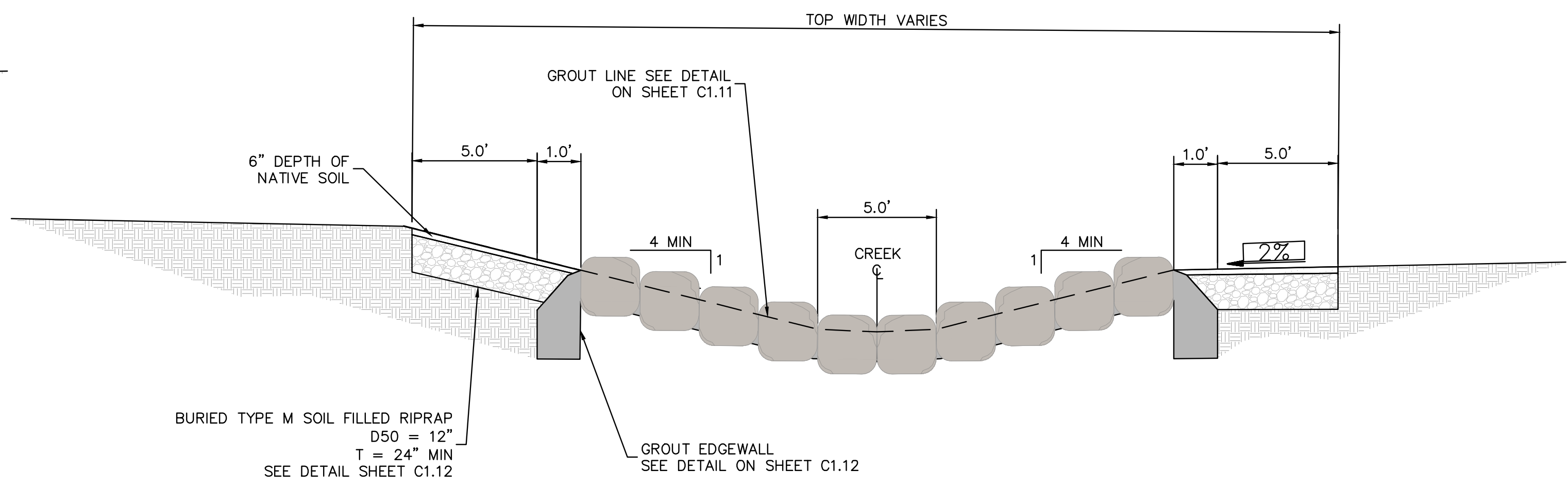
A FISHERS CANYON CREEK TRIBUTARY TYPICAL DROP STRUCTURE - SHEET PILE CUTOFF WALL NTS



B FISHERS CANYON CREEK TRIBUTARY TYPICAL DROP STRUCTURE - GROUTED BOULDER DROP NTS



C FISHERS CANYON CREEK TYPICAL DROP STRUCTURE - SHEET PILE CUTOFF WALL NTS



D FISHERS CANYON CREEK TYPICAL DROP STRUCTURE - GROUTED BOULDER DROP NTS



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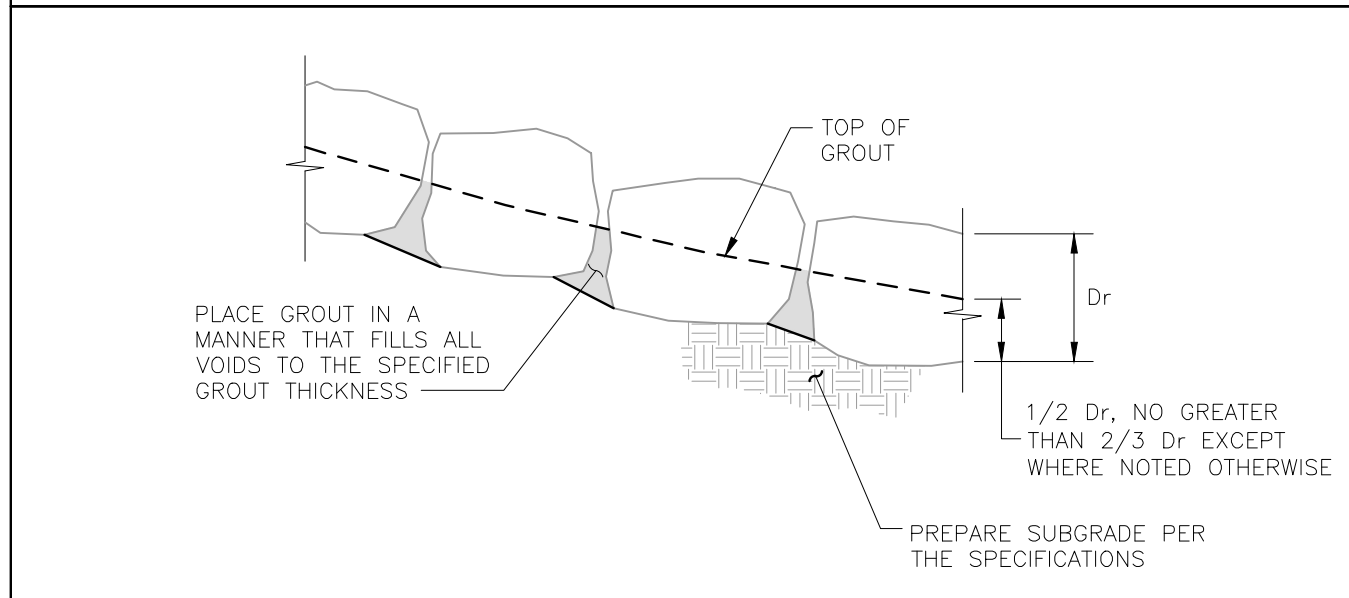
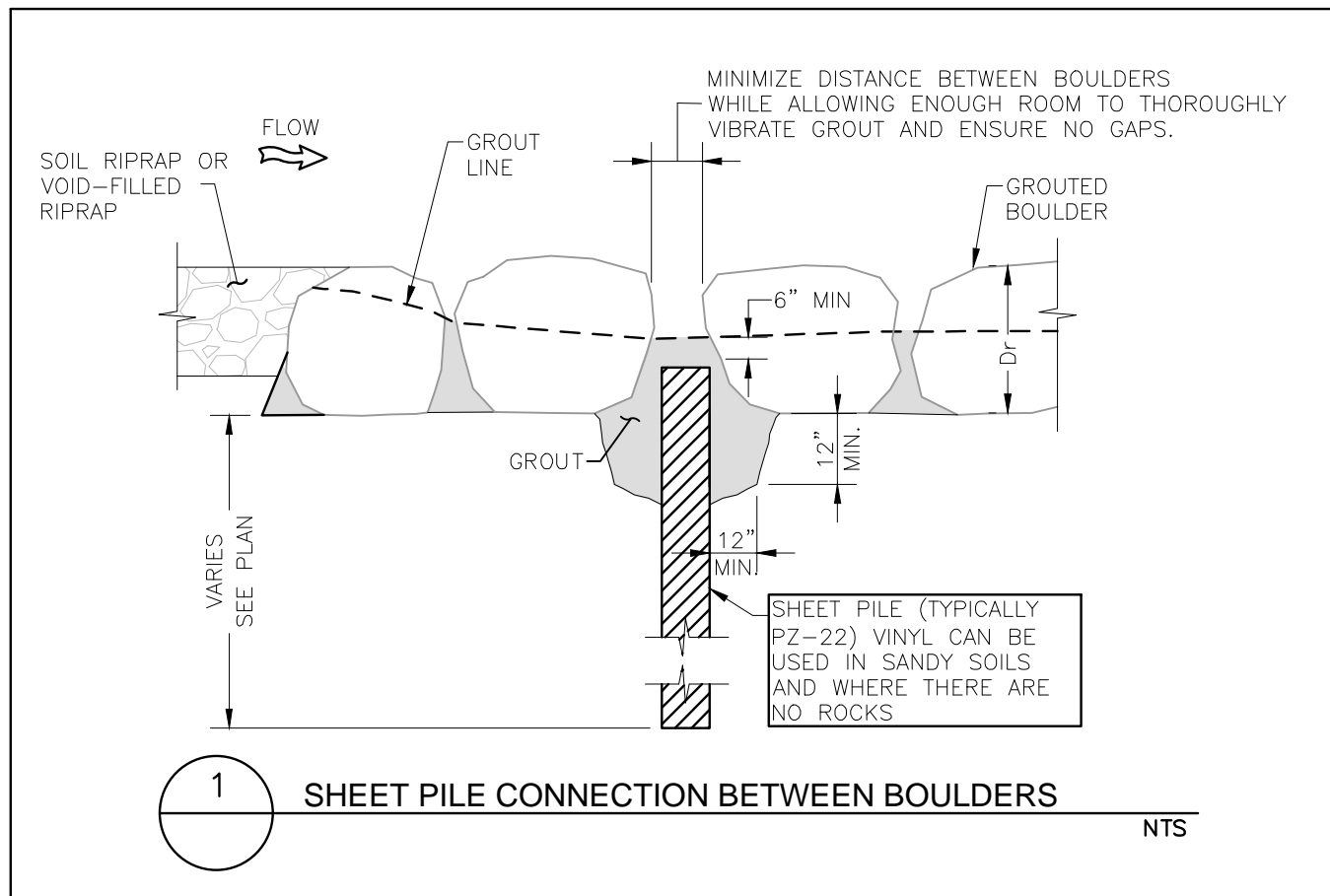
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FISHERS CANYON CREEK
 CHANNEL IMPROVEMENT PLANS
 EL PASO COUNTY, COLORADO
 TYPICAL SECTIONS

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BOULDER PLACEMENT NOTES:

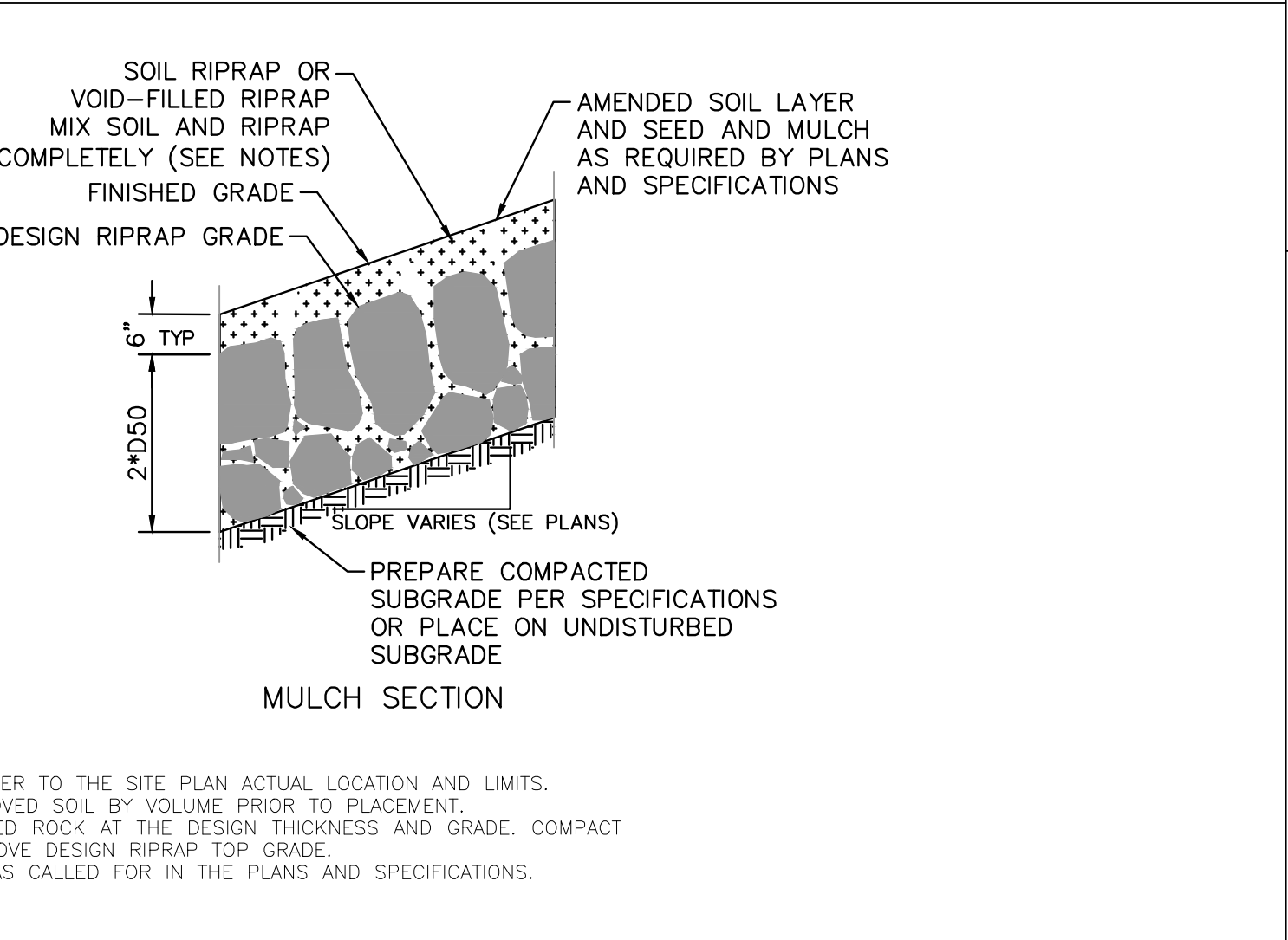
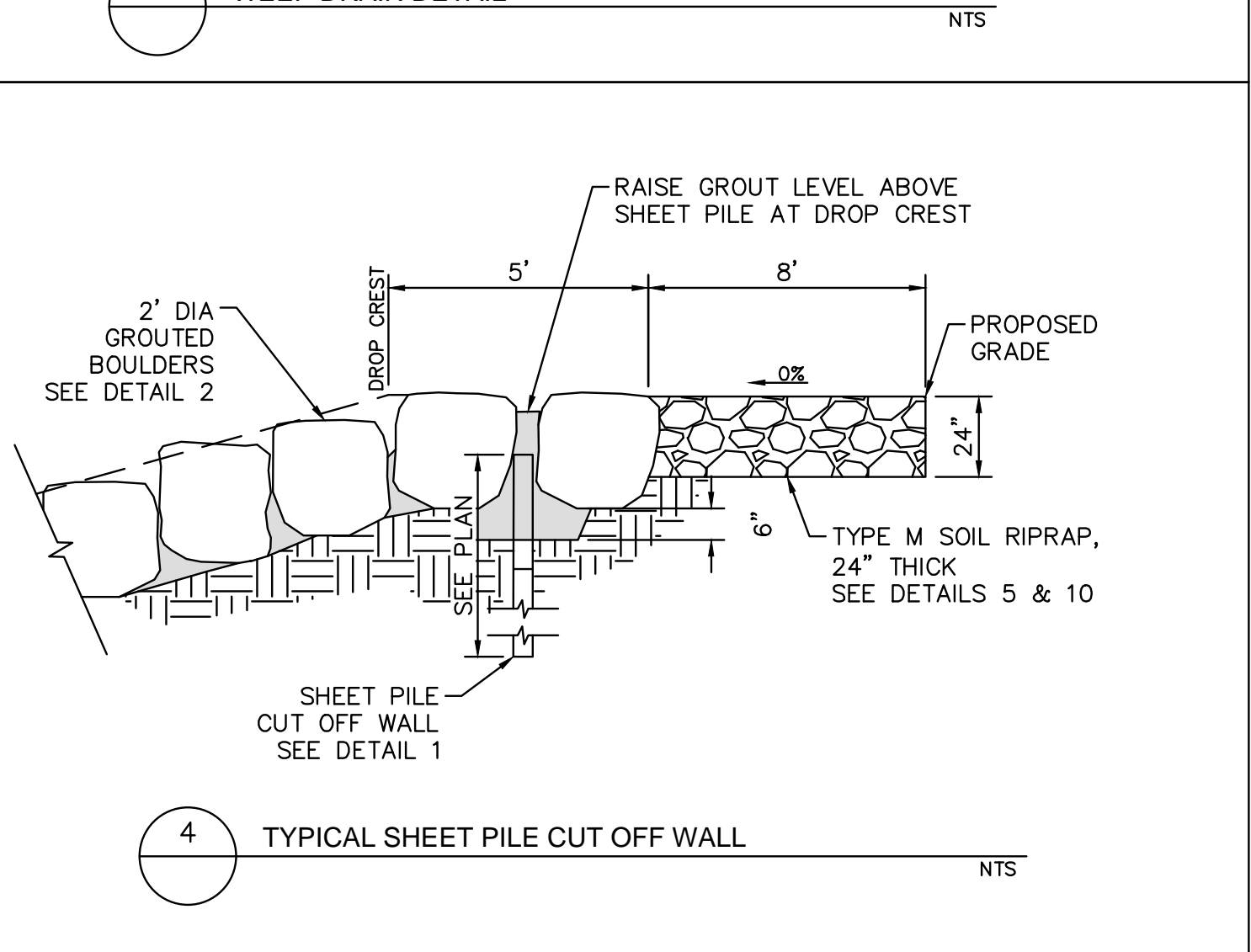
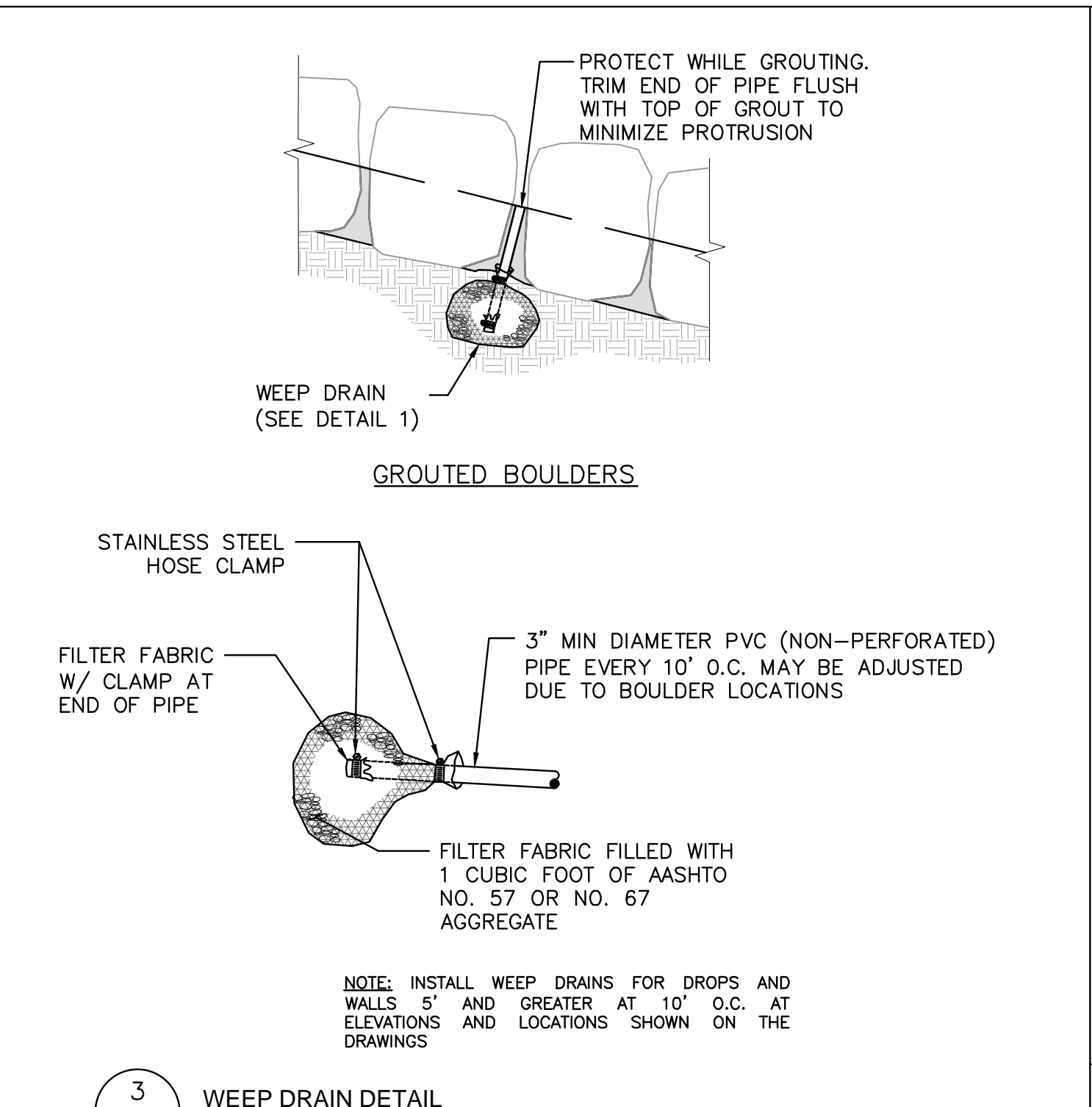
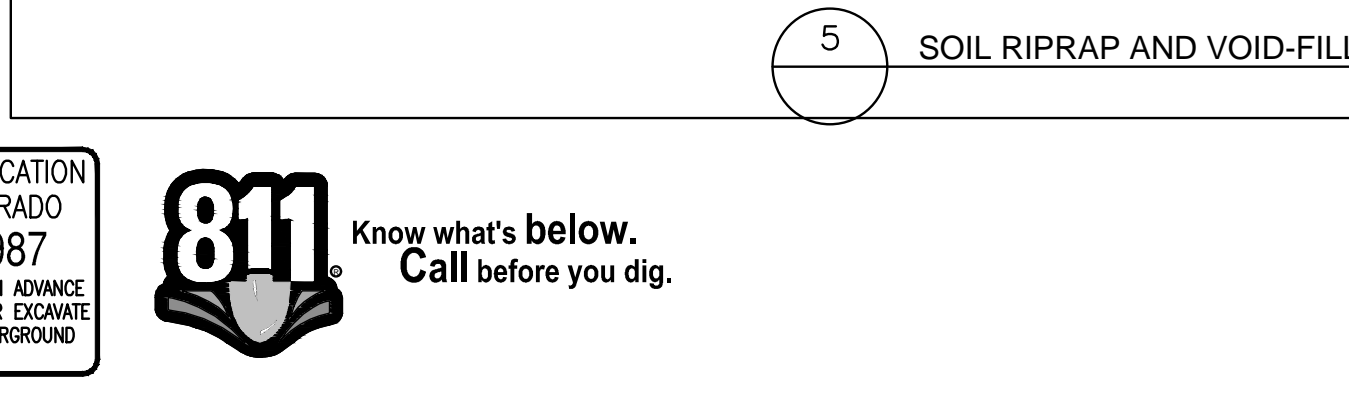
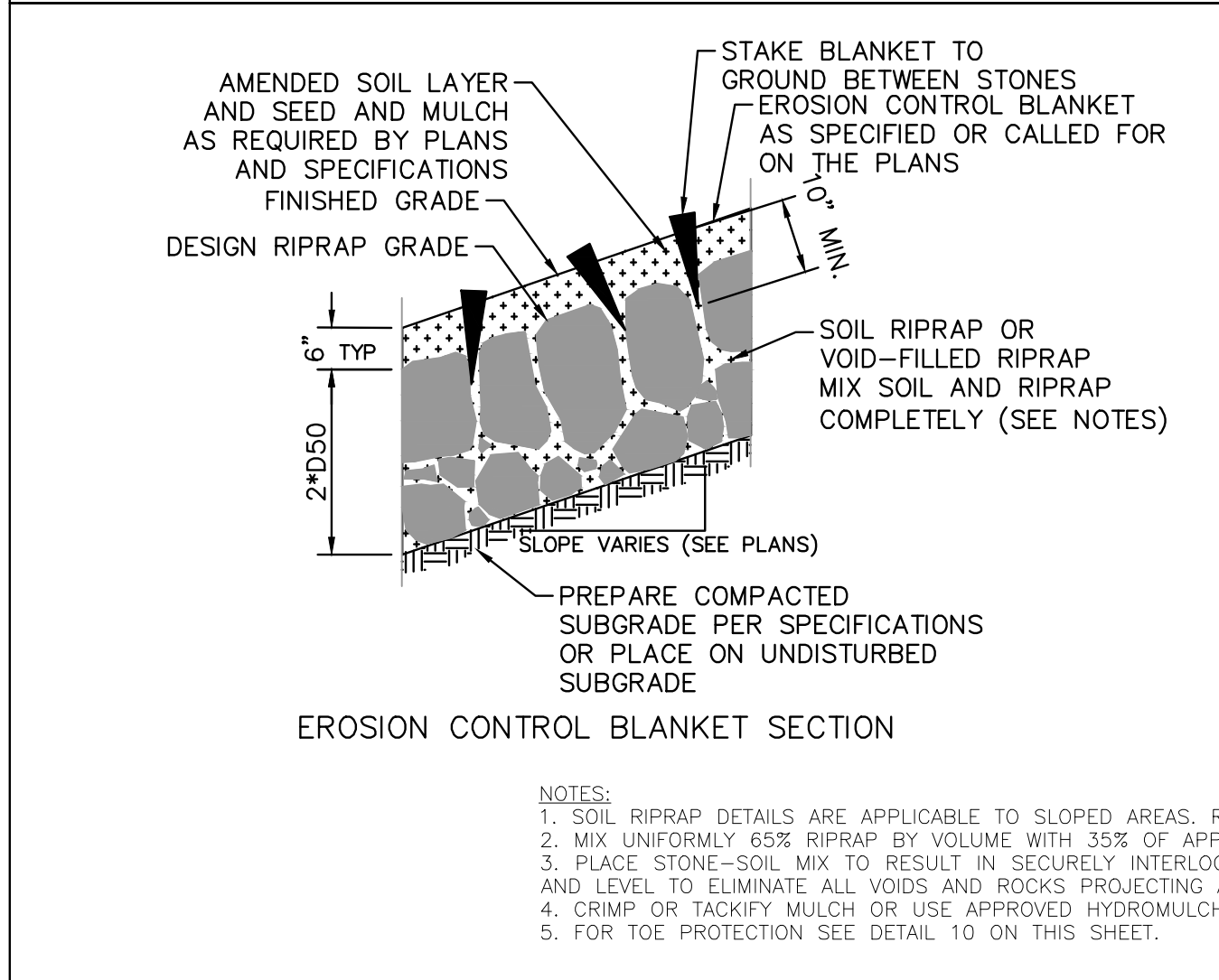
1. PLACE BOULDERS WITH THE REQUIRED BOULDER HEIGHT VERTICAL. PLACE BOULDERS AS TIGHTLY TOGETHER AS POSSIBLE (WITHOUT TOUCHING) WHILE PROVIDING ENOUGH ROOM BETWEEN THEM TO THOROUGHLY VIBRATE THE GROUT AND TO ENSURE NO GAPS IN THE GROUT. THE SMALL DIMENSION OF A 2X4 CAN BE USED AS A GUIDE TO CHECK MINIMUM SPACING.
2. BEFORE GROUING, CLEAN ALL DIRT AND MATERIAL FROM ROCK THAT COULD PREVENT THE GROUT FROM BINDING TO THE ROCK. KEEP BOULDERS FROM TOUCHING. AVOID SLIDING BOULDERS AGAINST SUBGRADE TO PROPERLY POSITION.

MATERIAL SPECIFICATIONS:

1. ALL GROUT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH EQUAL TO 3200 PSI.
2. ONE CUBIC YARD OF GROUT SHALL HAVE A MINIMUM OF SIX (6) SACKS OF TYPE II PORTLAND CEMENT.
3. A MAXIMUM OF 25% TYPE F FLY ASH MAY BE SUBSTITUTED FOR THE PORTLAND CEMENT.
4. THE AGGREGATE SHALL BE COMPRISED OF 70% NATURAL SAND (FINES) AND 30% 3/8-INCH ROCK (COARSE).
5. THE GROUT SLUMP SHALL BE BETWEEN 4-INCHES TO 6-INCHES.
6. AIR ENTRAINMENT SHALL BE BETWEEN 5.5% AND 7.5%.
7. TO CONTROL SHRINKAGE AND CRACKING, 1.5 POUNDS OF FIBERMESH, OR EQUIVALENT, SHALL BE USED PER CUBIC YARD OF GROUT.
8. COLOR ADDITIVE IN REQUIRED AMOUNTS SHALL BE USED WHEN SO SPECIFIED BY CONTRACT.

GROUT PLACEMENT SPECIFICATIONS:

1. SPECIAL PROCEDURES SHALL BE REQUIRED FOR GROUT PLACEMENT WHEN THE AIR TEMPERATURES ARE LESS THAN 40°F OR GREATER THAN 90°F. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER OF THE PROCEDURES TO BE USED FOR PROTECTING THE GROUT.
2. GROUT SHALL BE DELIVERED BY MEANS OF A LOW PRESSURE (LESS THAN 10 PSI) GROUT PUMP USING A 2-INCH DIAMETER (MAXIMUM) NOZZLE.
3. FULL DEPTH PENETRATION OF THE GROUT INTO THE BOULDER VOIDS SHALL BE ACHIEVED BY INJECTING GROUT STARTING WITH THE NOZZLE NEAR THE BOTTOM AND RAISING IT AS THE GROUT FILLS, WHILE VIBRATING GROUT INTO PLACE USING A PENCIL VIBRATOR.
4. ALL GROUT BETWEEN BOULDERS SHALL BE TREATED WITH A BROOM FINISH.
5. AFTER GROUT PLACEMENT, EXPOSED BOULDER FACES SHALL BE CLEANED AND FREE OF GROUT.
6. ALL FINISHED GROUT SURFACES SHALL BE SPRAYED WITH A CLEAR LIQUID MEMBRANE CURING COMPOUND AS SPECIFIED IN ASTM C309.

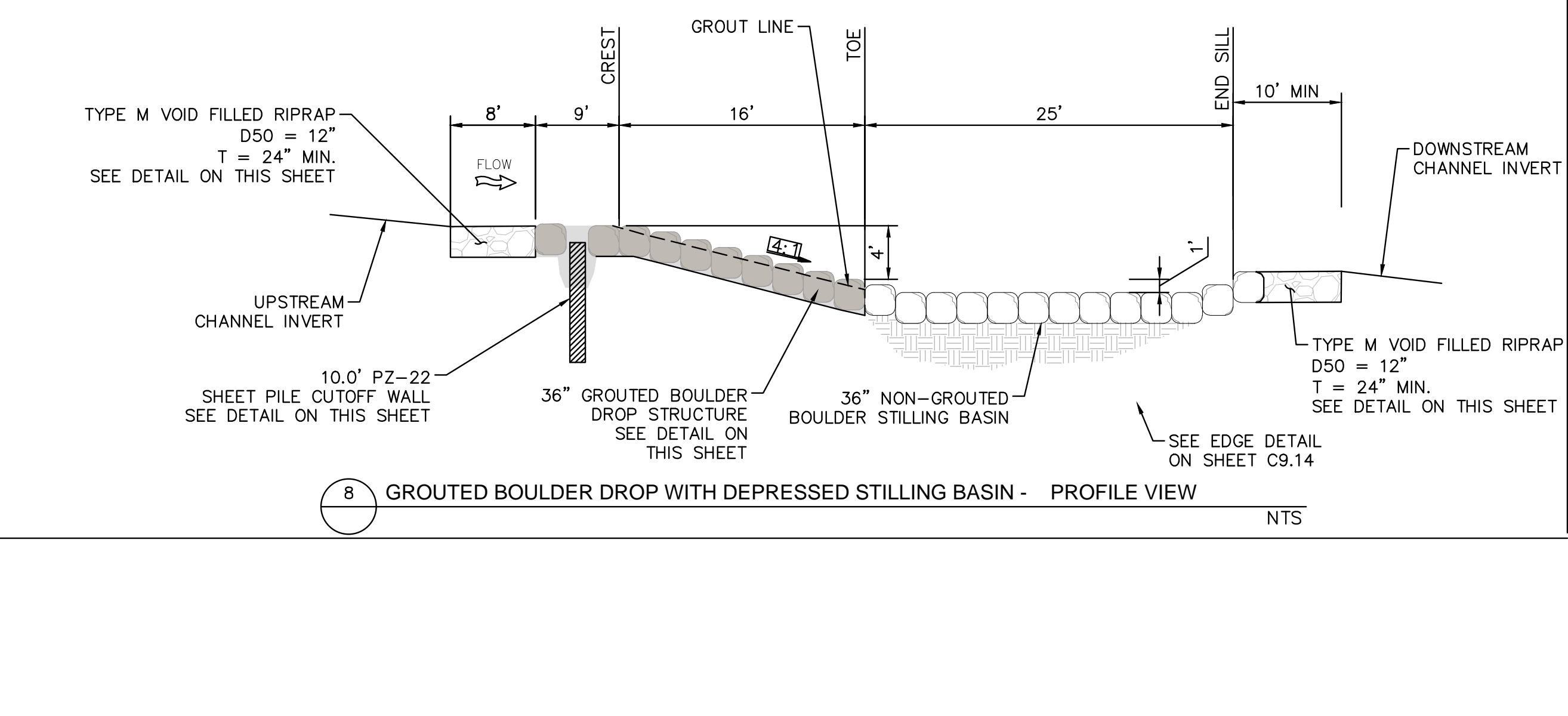


TYPE M VOID-FILLED RIPRAP MIX DESCRIPTION		
APPROXIMATE PROPORTIONS (LOADER BUCKETS)	MATERIAL TYPE	MATERIAL DESCRIPTION
5	RIPRAP	TYPE M RIPRAP (D50= 12 INCHES)
1	RIPRAP	TYPE L RIPRAP (D50= 9 INCHES)
3	VOID-FILLED MATERIAL	7-INCH MINUS CRUSHED ROCK SURGE (100% PASSING 7-INCH SIEVE, 80-100% PASSING 6-INCH SIEVE, 35-50% PASSING 3-INCH SIEVE, 10-20% PASSING 1.5-INCH SIEVE)
1	VOID-FILLED MATERIAL	2 TO 4-INCH COBBLE (ROUND WASHED RIVER ROCK THAT IS WELL-GRADED, 100% PASSING 6-INCH SIEVE, 35-50% PASSING 3-INCH SIEVE, 5-20% PASSING 2-INCH SIEVE)
1	VOID-FILLED MATERIAL	4-INCH MINUS PIT RUN SURGE (ROUND RIVER ROCK AND SAND, WELL GRADED, 90-100% PASSING 4-INCH SIEVE, 70-80% PASSING 1.5-INCH SIEVE, 40-60% PASSING 3/8-INCH SIEVE, 10-30% PASSING #16 SIEVE).
1.5	VOID-FILLED MATERIAL	TYPE II BEDDING
0.5	VOID-FILLED MATERIAL	NATIVE TOPSOIL
TOP LAYER	TOP DRESSING	ADDITIONAL 4 TO 12-INCH COBBLES (ROUND WASHED RIVER ROCK THAT IS WELL GRADED, 80-100% PASSING 12-INCH SIEVE, 35-50% PASSING 6-INCH SIEVE, 5-20% PASSING 4-INCH SIEVE) SHALL BE MIXED IN ON THE SURFACE OF THE VOID-FILLED RIPRAP (COVERING APPROXIMATELY 30% OF THE SURFACE) PRIOR TO COMPACTION OF THE VOID-FILLED RIPRAP. COBBLES SHALL BE FULLY EMBEDDED INTO THE MASS OF THE VOID-FILLED RIPRAP

NOTE: MIX PROPORTIONS ARE APPROXIMATE AND SUBJECT TO FIELD ADJUSTMENT BY THE ENGINEER OR OWNER

VOID-FILLED RIPRAP REPLACEMENT NOTES:

1. LABORATORY TEST CERTIFICATES AND GRADATIONS FOR ALL MATERIALS INCLUDED IN THE VOID-FILLED RIPRAP MIX SHALL BE SUBMITTED FOR REVIEW. FOR THE 7-INCH MINUS CRUSHED SURGE AND THE 4-INCH MINUS PIT RUN SURGE MATERIALS, PROVIDE SAMPLES IN 5-GALLON BUCKETS FOR REVIEW.
2. THE GOAL OF MIXING IS TO FILL THE VOIDS OF THE BASE RIPRAP MATERIAL WITHOUT DISPLACING THE RIPRAP. THE INTERLOCKING NATURE OF RIPRAP IN THE MIXED MATERIAL NEEDS TO REMAIN ESSENTIALLY THE SAME AS IF THE RIPRAP WAS PLACED WITHOUT VOID-FILLED MATERIAL.
3. THE SPECIFIED MIX PROPORTIONS ARE NOTED AS APPROXIMATE BECAUSE THE TWO SURGE MATERIALS VARY SOMEWHAT BETWEEN DIFFERENT SUPPLIERS AND VARIATIONS IN GRAVEL PITS. THE SURGE MATERIALS ARE ONLY PROCESSED THROUGH ONE SCREEN SIZE (7-INCH MINUS OR 4-INCH MINUS), SO THE GRADATIONS VARY. IT IS IMPORTANT THAT THE DESIGN ENGINEER IS ON-SITE DURING THE MIXING OPERATION TO MAKE ADJUSTMENTS TO THE PROPORTIONS IF NECESSARY. THE AMOUNT OF COBBLES IN THE 4-INCH MINUS PIT RUN SURGE MATERIAL DICTATES THE ADDITION OR REDUCTION IN THE AMOUNT OF 2 TO 4-INCH COBBLE MATERIAL.
4. VOID-FILLED RIPRAP MATERIAL CAN BE CHALLENGING TO PLACE BECAUSE IT HAS A TENDENCY TO SEGREGATE. THE FINER SANDS AND GRAVELS TEND TO SEPARATE FROM THE LARGER RIPRAP. CONTRACTORS SHALL TAKE CARE TO MINIMIZE SEGREGATION WHEN HAULING THE MIXED MATERIAL FROM STOCKPILE TO THE INSTALLATION LOCATION.
5. THE LOOSE MATERIAL IS TO BE PLACED IN A SINGLE LIFT OR SUFFICIENT HEIGHT SUCH THAT FINAL GRADE WILL BE ACHIEVED UPON COMPACTION. IN MOST CASES, SOME ADDITIONAL MIXING WITH A TRACK EXCAVATOR IS NEEDED AFTER THE INITIAL PLACEMENT TO MAKE SURE THAT VOID-FILLED RIPRAP CONSISTS PRIMARILY OF THE SMALLER VOID-FILL MATERIALS. THE GOAL IS TO COMPLETELY FILL THE RIPRAP VOIDS WITHOUT DISPLACING THE RIPRAP. IN SOME CASES, ADDITIONAL VOID-FILLING MAY BE NECESSARY AFTER THE VOID-FILLED RIPRAP HAS BEEN PLACED BECAUSE THE FINES HAVE A TENDENCY TO MIGRATE TO THE BOTTOM. IN THESE SITUATIONS, A 50:50 MIXTURE OF THE PIT RUN AND TYPE II BEDDING CAN BE SPRINKLED ON THE SURFACE AND WASHED IN WITH WATER USING A HIGH PRESSURE HOSE TO FILL ANY SMALL VOIDS THAT MAY EXIST BELOW THE SURFACE. OTHER THAN FILLING VOIDS THAT MAY EXTEND DOWN INTO THE VOID-FILLED RIPRAP, NOT MUCH OF THIS MATERIAL SHOULD BE LEFT ON THE SURFACE, AS IT WILL WASH AWAY DURING RUNOFF EVENTS.
6. AFTER THE VOID-FILLED RIPRAP MATERIAL HAS BEEN LOOSELY PLACED (PRIOR TO COMPACTION), A TOP DRESSING OF THE LARGE COBBLES CAN BE MIXED IN ON THE SURFACE FOR A MORE NATURAL RIVER BED LOOK, IF DESIRED. THIS IS USUALLY DONE BY SPRINKLING COBBLES SUCH THAT THEY COVER APPROXIMATELY 30-PERCENT OF THE SURFACE.
7. THE LAST STEP IS TO COMPACT THE LOOSELY PLACED VOID-FILLED RIPRAP MATERIAL. WATER CAN BE ADDED, IF NECESSARY, SO THAT THE MOISTURE CONTENT OF THE MIXTURE IS AT OPTIMUM CONDITIONS DURING THE COMPACTION PROCESS.
8. IT IS IMPORTANT THAT THE FINISHED TOP ELEVATIONS OF THE VOID-FILLED RIPRAP LAYER CLOSELY MATCH DESIGN GRADES TO WITHIN A TOLERANCE OF 0.10 FEET, HAVING TIGHT ELEVATION TOLERANCES HELPS TO MINIMIZE DEVELOPMENT OF FLOW CONCENTRATIONS. IF THE COMPACTED MATERIAL ENDS UP BELOW FINAL GRADE, IT IS NOT ACCEPTABLE TO ALLOW PLACEMENT OF ONLY THE SMALLER VOID-FILLED MATERIAL OR ADDITIONAL TOP DRESSING COBBLES TO ACHIEVE FINAL GRADE. IN SUCH CASES IT IS NECESSARY TO ADD MORE STANDARD SIZE VOID-FILLED RIPRAP MATERIAL AND REMIX THE ENTIRE THICKNESS OF ROCK TO ACHIEVE THE DESIGN SECTION. CONTRACTOR SHALL INSTALL A TEST SECTION OF THE VOID-FILLED RIPRAP MATERIAL AT THE BEGINNING OF THE PROJECT FOR REVIEW AND APPROVAL BY THE DESIGN ENGINEER.



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DATE: 12/18/2024

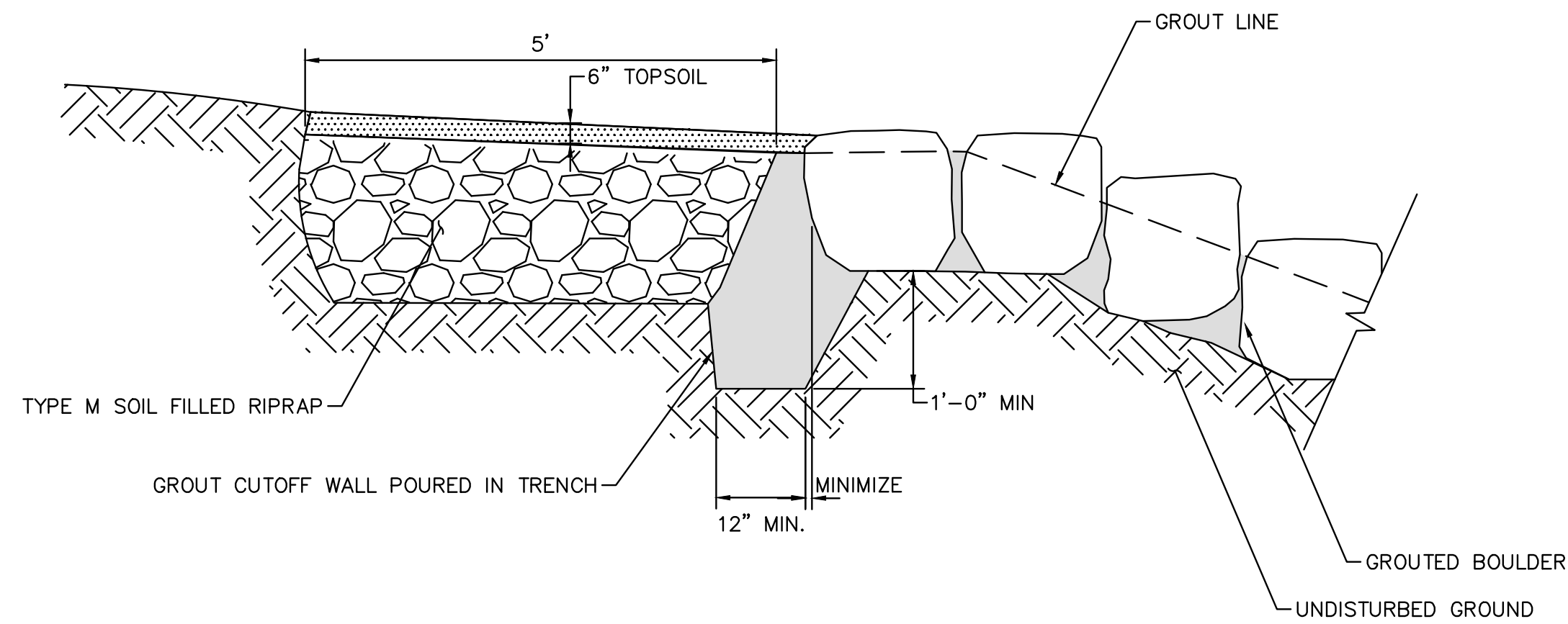
FISHERS CANYON CREEK CHANNEL IMPROVEMENT PLANS EL PASO COUNTY, COLORADO CHANNEL DETAILS

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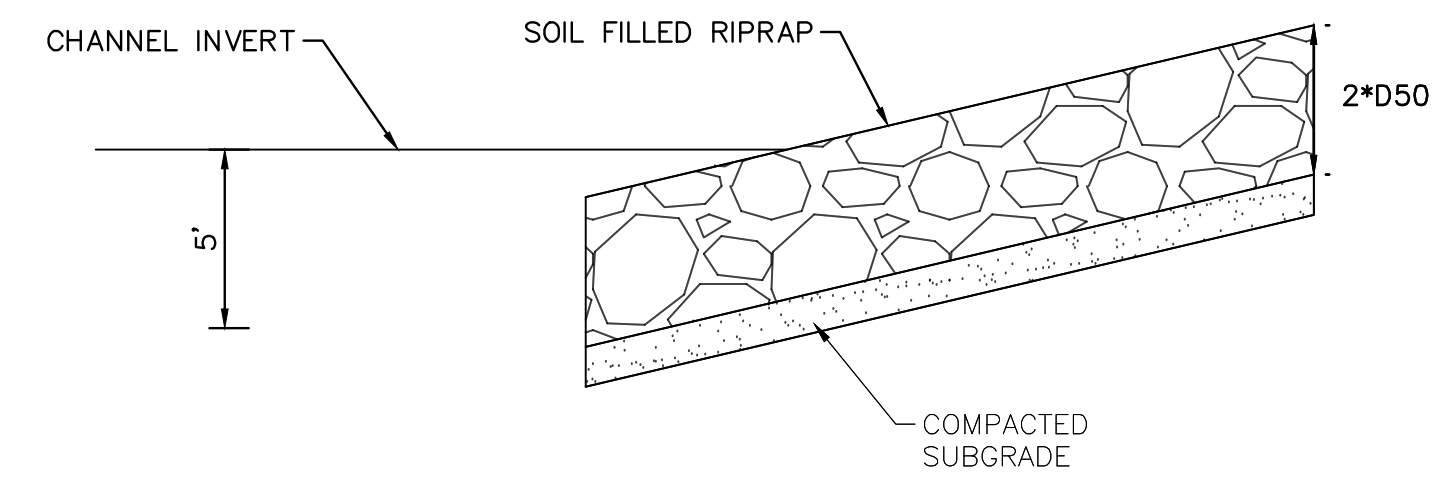
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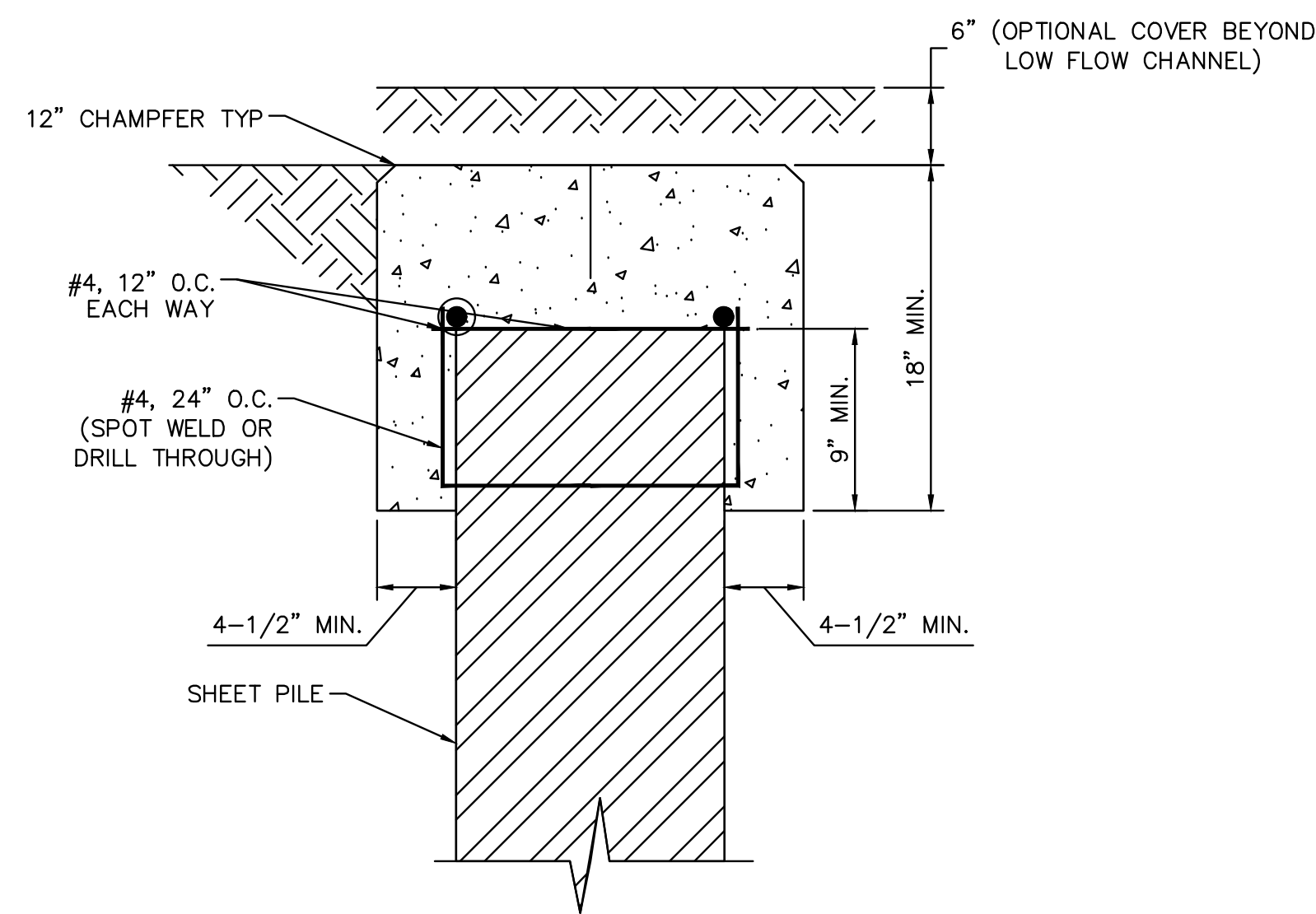
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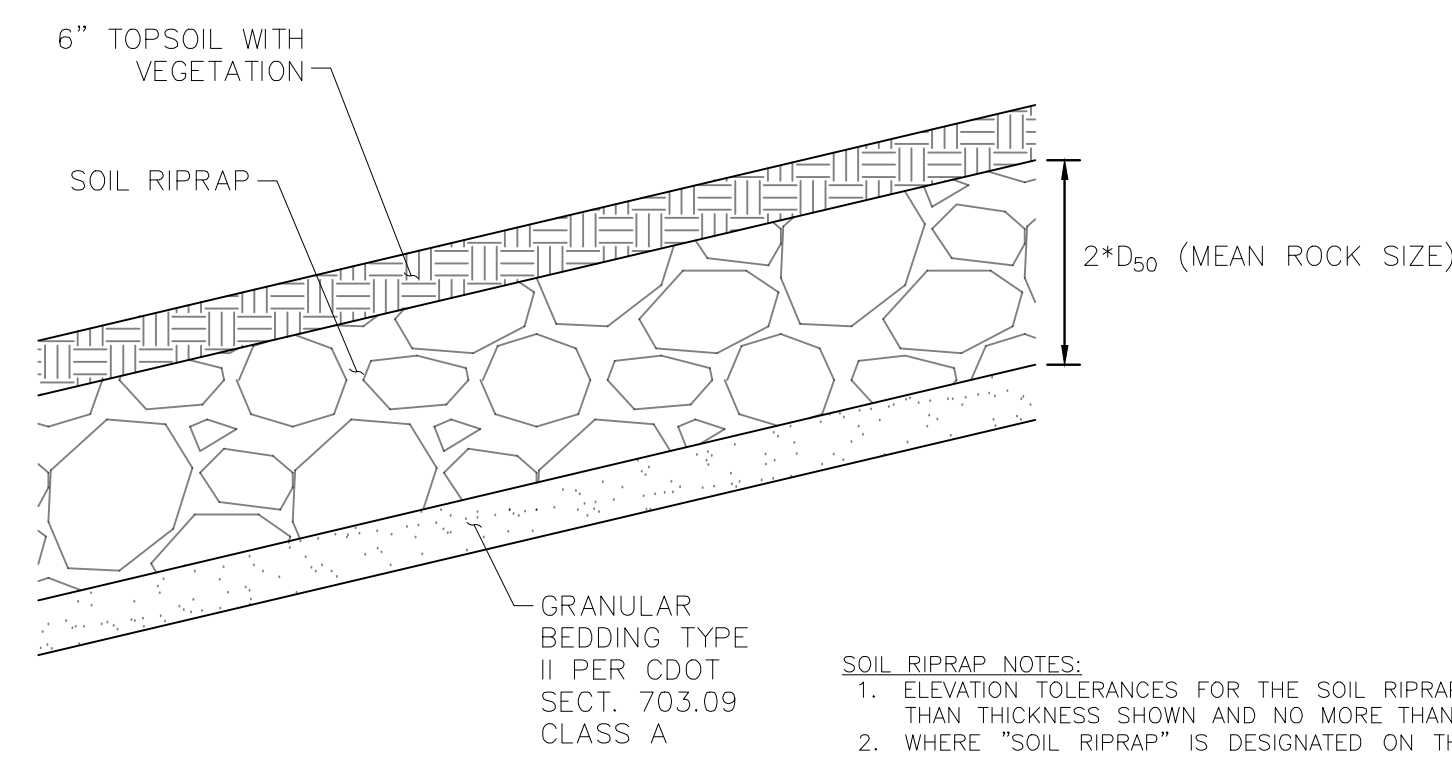
9 STRUCTURE EDGE WALL DETAIL (GSB) NTS



10 TOE-IN CHANNEL DETAIL NTS



11 CONCRETE SHEET PILE CAP DETAIL NTS



12 SOIL FILLED RIPRAP DETAIL NTS

GRADATION FOR GRANULAR BEDDING	
U.S. STANDARD SIEVE SIZE	TYPE II CDOT SECT. 703.09 CLASS A
3 INCHES	90 - 100
1½ INCHES	-
¾ INCHES	20 - 90
¾ INCHES	-
#4	0 - 20
#16	-
#50	-
#100	-
#200	0 - 3

- SOIL RIPRAP NOTES:**
- ELEVATION TOLERANCES FOR THE SOIL RIPRAP SHALL BE 0.10 FEET. THICKNESS OF SOIL RIPRAP SHALL BE NO LESS THAN THICKNESS SHOWN AND NO MORE THAN 2-INCHES GREATER THAN THE THICKNESS SHOWN.
 - WHERE "SOIL RIPRAP" IS DESIGNATED ON THE CONTRACT DRAWINGS, RIPRAP VOIDS ARE TO BE FILLED WITH NATIVE SOIL. THE RIPRAP SHALL BE PRE-MIXED WITH THE NATIVE SOIL AT THE FOLLOWING PROPORTIONS BY VOLUME: 65 PERCENT RIPRAP AND 35 PERCENT SOIL. THE SOIL USED FOR MIXING SHALL BE NATIVE TOPSOIL AND SHALL HAVE A MINIMUM FINES CONTENT OF 15 PERCENT. THE SOIL RIPRAP SHALL BE INSTALLED IN A MANNER THAT RESULTS IN A DENSE, INTERLOCKED LAYER OF RIPRAP WITH RIPRAP VOIDS FILLED COMPLETELY WITH SOIL. SEGREGATION OF MATERIALS SHALL BE AVOIDED AND IN NO CASE SHALL THE COMBINED MATERIAL CONSIST PRIMARILY OF SOIL; THE DENSITY AND INTERLOCKING NATURE OF RIPRAP IN THE MIXED MATERIAL SHALL ESSENTIALLY BE THE SAME AS IF THE RIPRAP WAS PLACED WITHOUT SOIL.
 - A SURFACE LAYER OF TOPSOIL SHALL BE PLACED OVER THE SOIL RIPRAP ACCORDING TO THE THICKNESS SPECIFIED ON THE CONTRACT DRAWINGS. THE TOPSOIL SURFACE LAYER SHALL BE COMPACTED TO APPROXIMATELY 85% OF MAXIMUM DENSITY AND WITHIN TWO PERCENTAGE POINTS OF OPTIMUM MOISTURE IN ACCORDANCE WITH ASTM D698. TOPSOIL SHALL BE ADDED TO ANY AREAS THAT SETTLE.
 - ALL SOIL RIPRAP THAT IS BURIED WITH TOPSOIL SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ANY TOPSOIL PLACEMENT.
 - TOPSOIL TO BE PLACED ATOP SOIL RIPRAP AND CONTRACTOR TO ENSURE PERMANENT SEEDING IS APPLIED TO ALL SOIL RIPRAP. CONTRACTOR TO ENSURE FINAL VEGETATION STANDARDS ARE MET PER EL PASO COUNTY REQUIREMENTS.
 - RIPRAP SHALL BE PLACED SO THAT TOP OF RIPRAP IS FLUSH WITH PROPOSED OR EXISTING GRADE.
 - AT THE UPSTREAM AND DOWNSTREAM TERMINATION OF RIPRAP LINING, THE THICKNESS SHALL BE INCREASED 50% FOR AT LEAST 5 LINEAR FEET TO PREVENT UNDERCUTTING.
 - THE PLACEMENT OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.

RIP RAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WIEGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	D50* (INCHES)
TYPE VL	70 - 100	12	6
	50 - 70	9	
	35 - 50	6	
	2 - 10	2	
TYPE L	70 - 100	15	9
	50 - 70	12	
	35 - 50	9	
	2 - 10	3	
TYPE M	70 - 100	21	12
	50 - 70	18	
	35 - 50	12	
	2 - 10	4	
TYPE H	70 - 100	30	18
	50 - 70	24	
	35 - 50	18	
	2 - 10	6	

*D50 = MEAN ROCK SIZE

13 RIPRAP SIZING DETAIL NTS



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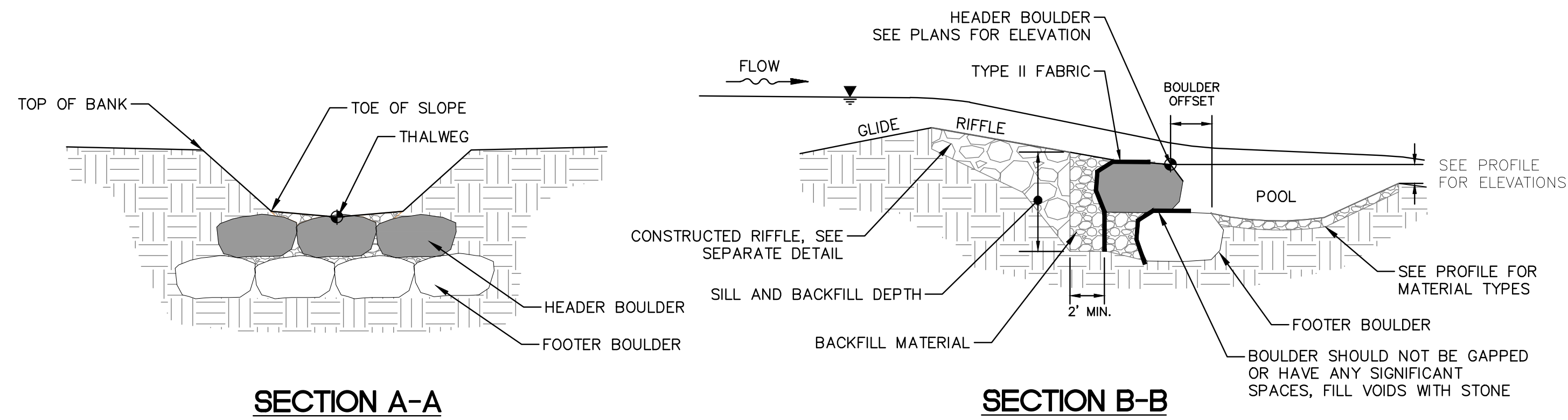
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 CHANNEL IMPROVEMENT PLANS
 EL PASO COUNTY, COLORADO
 CHANNEL DETAILS

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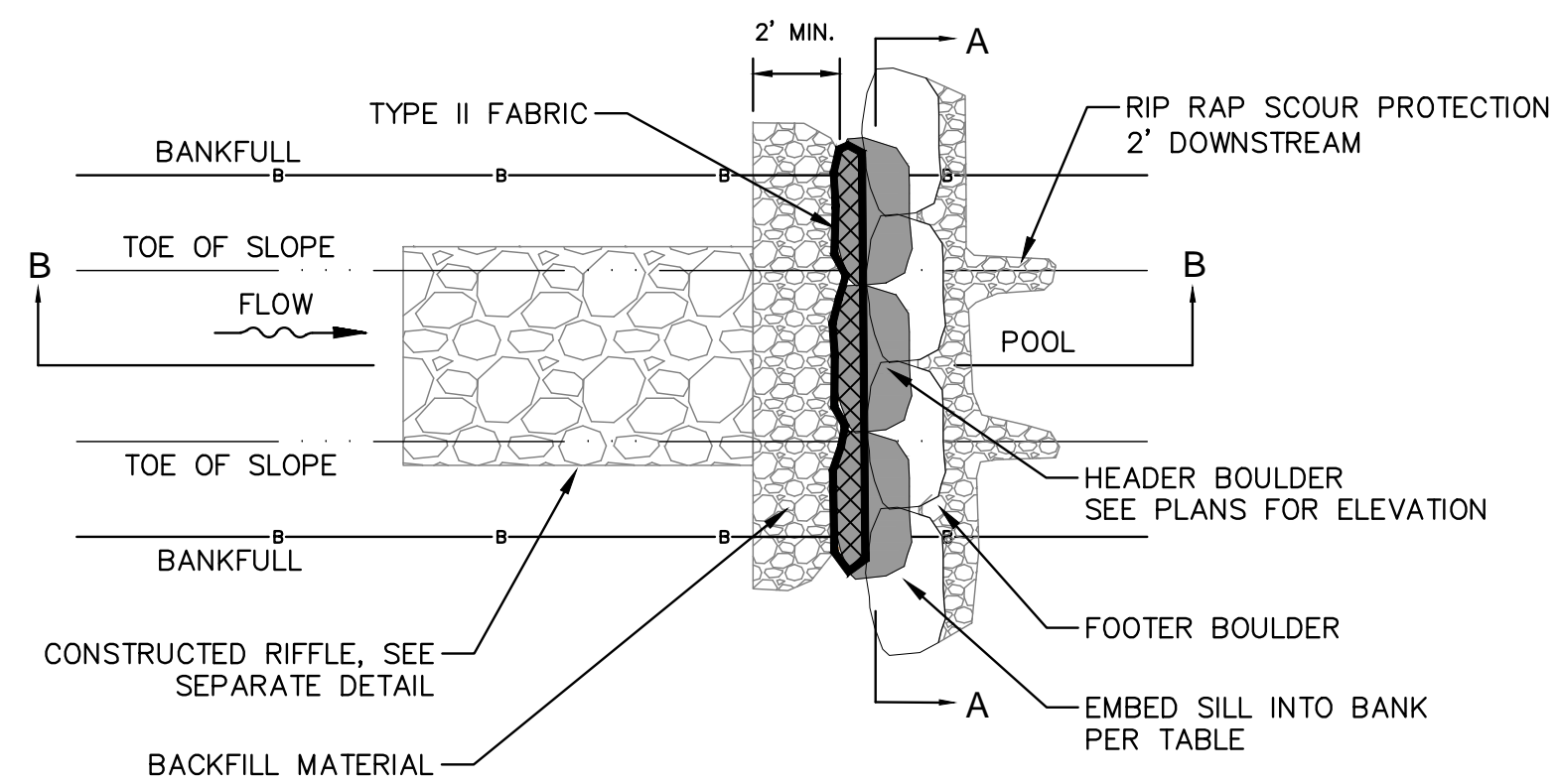
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SECTION A-A

SECTION B-B



PLAN VIEW

NOTES:

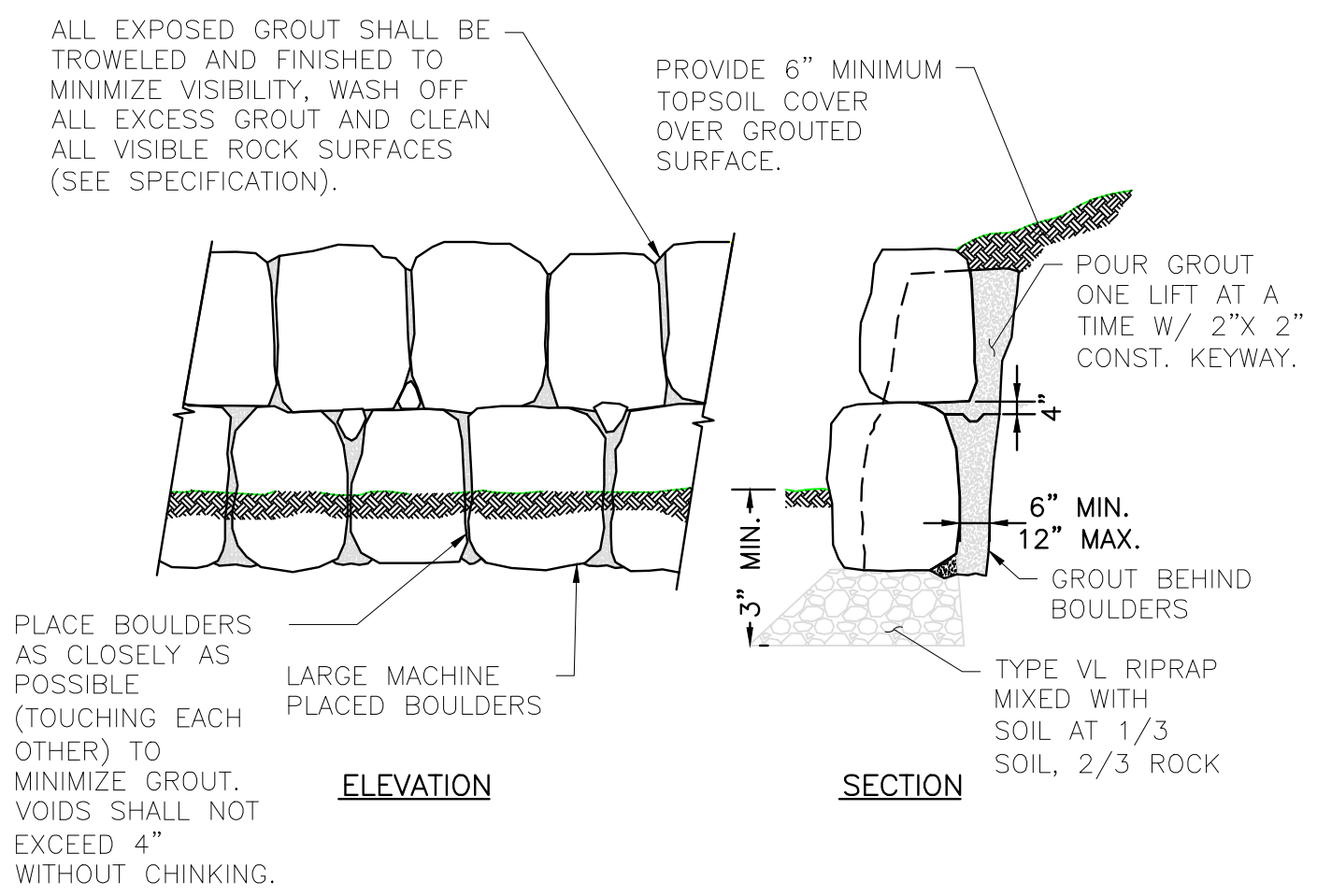
1. A ROCK SILL MAY BE USED ALONE OR IN COMBINATION WITH A CONSTRUCTED RIFFLE.
2. NO PART OF THE SILL SHALL BE PLACED ABOVE THE ELEVATION OF THE UPSTREAM AND/OR ADJACENT STREAM BED.
3. A FOOTER BOULDER IS NOT REQUIRED IF THE HEADER BOULDER DEPTH EXCEEDS SPECIFIED SILL DEPTH.
4. THE ROCK SILL IS GENERALLY CONSTRUCTED AS FOLLOWS:
 - A. OVER-EXCAVATE STREAM BED TO A DEPTH EQUAL TO THE TOTAL THICKNESS OF THE HEADER AND FOOTER BOULDERS.
 - B. PLACE FOOTER BOULDERS. THERE SHALL BE NO GAPS BETWEEN BOULDERS.
 - C. INSTALL FILTER FABRIC.
 - D. PLACE BACKFILL MATERIAL BEHIND THE FOOTER BOULDERS.
 - E. INSTALL HEADER BOULDERS ON TOP OF AND SET SLIGHTLY BACK FROM THE FOOTER BOULDERS (SUCH THAT PART OF THE HEADER BOULDER IS RESTING ON THE BACKFILL MATERIAL). HEADER BOULDERS SHALL SPAN THE SEAMS OF THE FOOTER BOULDERS. THERE SHALL NOT BE A SEAM IN THE CENTER OF THE STREAM BED (AT THE THALWEG). THERE SHALL BE NO GAPS BETWEEN BOULDERS OR THALWEG SEAM BETWEEN HEADERS.
 - F. INSTALL FILTER FABRIC.
 - G. PLACE BACKFILL MATERIAL BEHIND HEADER BOULDERS ENSURING THAT ANY VOIDS BETWEEN THE BOULDERS ARE FILLED.

DESIGN VARIABLES

BOULDER DIMENSIONS	3' X 3' X 3'
BACKFILL MATERIAL ¹	B, 57, E
SILL AND BACKFILL DEPTH	1.5'
BOULDER OFFSET	3"
EMBEDDED LENGTH INTO BANK	3'

14 NON-GROUTED BOULDER GRADE CONTROL

NTS



ELEVATION

SECTION

15 GROUTED BOULDER STACKED WALL EDGE

NTS



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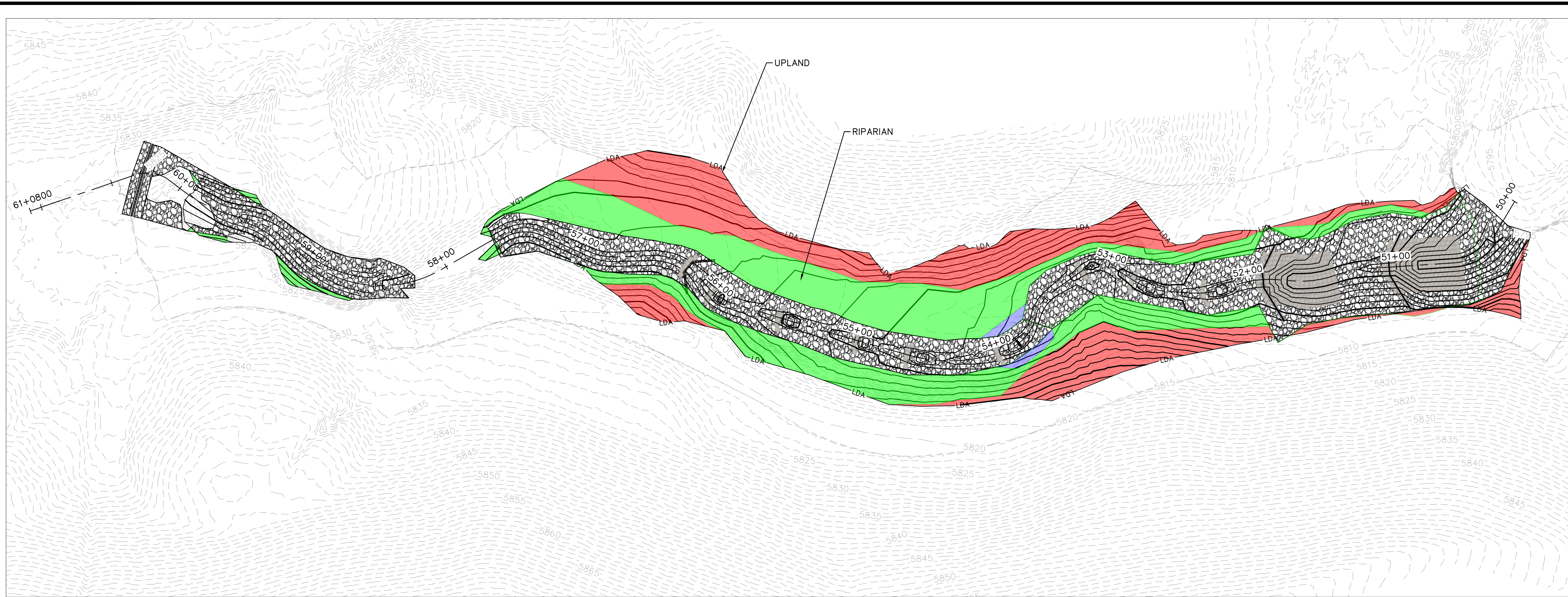
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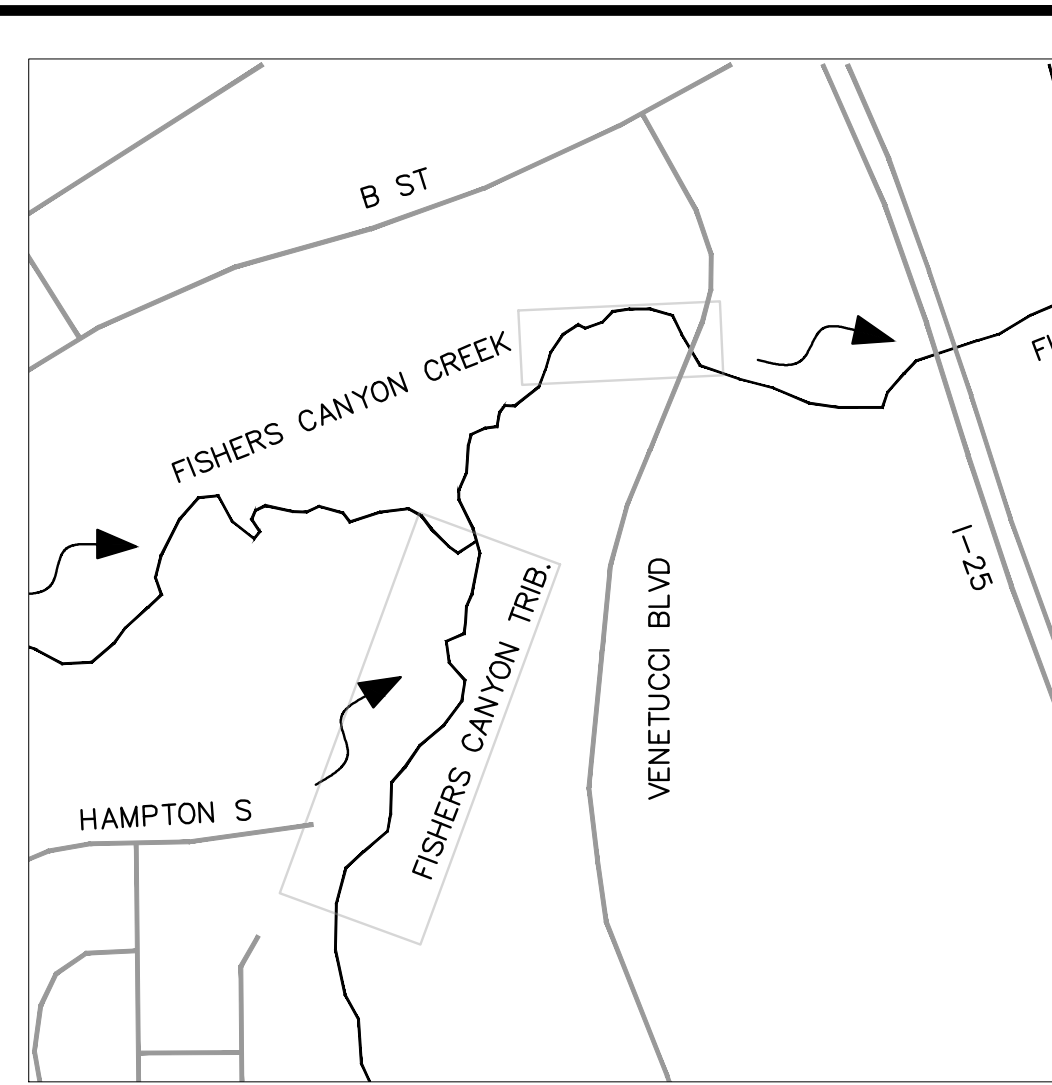
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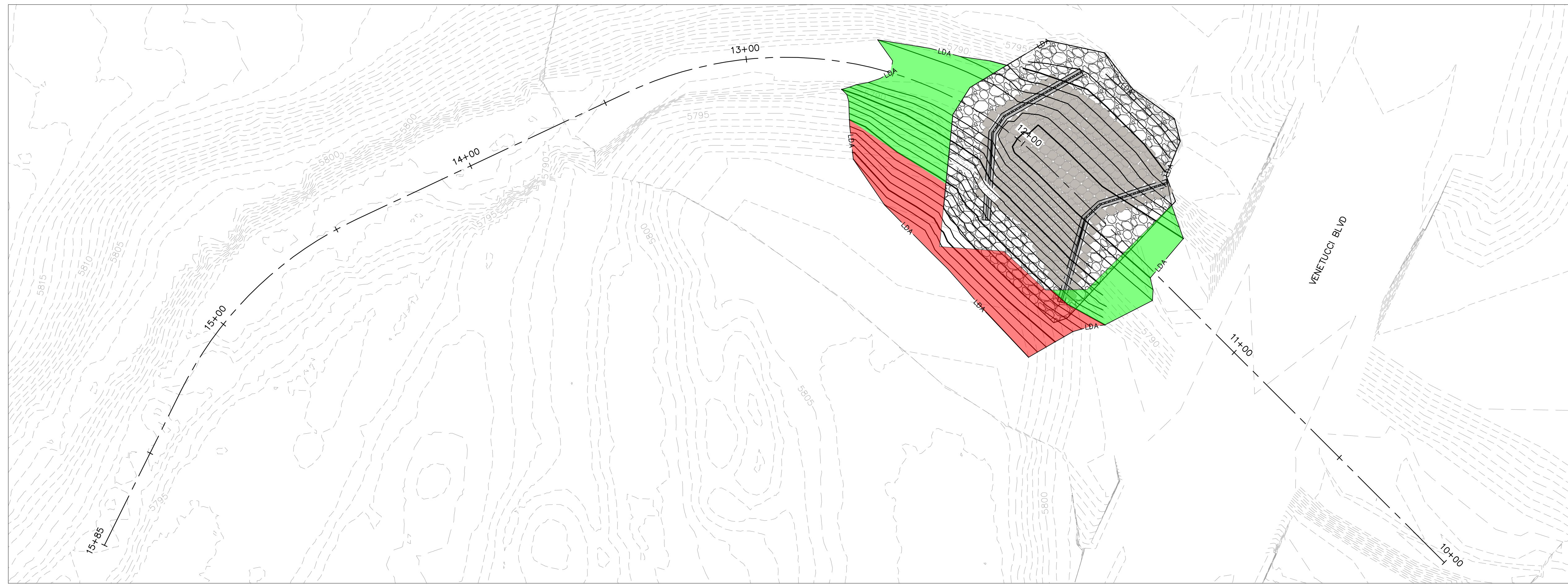
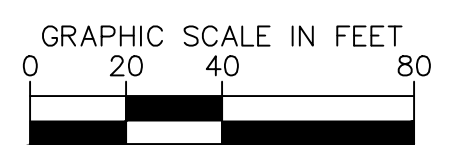
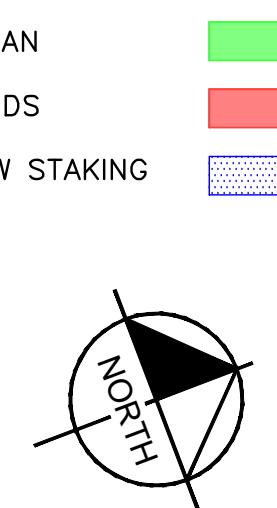


TRIBUTARY — PLAN VIEW

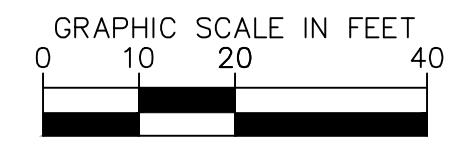
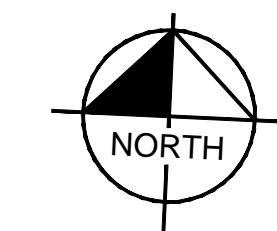


KEY MAP
N.T.S.

LEGEND:
 RIPARIAN
 UPLANDS
 WILLOW STAKING



MAIN — PLAN VIEW



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 EL PASO COUNTY, COLORADO
 REVEGETATION - TRIBUTARY & MAIN

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SHEET
 L2.1

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Table A-2. Upland area seed mix – sandy soil

Common Name	Scientific Name	Growth Season	Growth Form	% Mix	Lb/ac (PLS ¹)
Grasses					
Switchgrass	<i>Panicum virgatum</i>	Warm	Sod/Bunch	15	2.3
Prairie sandreed	<i>Calamovilfa longifolia</i>	Warm	Sod	10	2.2
Sideoats grama	<i>Bouteloua curtipendula</i>	Warm	Sod	10	3.1
Blue grama	<i>Bouteloua gracilis</i>	Warm	Sod	10	0.7
Indian ricegrass	<i>Oryzopsis hymenoides</i>	Cool	Bunch	10	4.3
Western wheatgrass	<i>Pascopyrum smithii</i>	Cool	Sod	10	5.5
Little bluestem	<i>Schizachyrium scoparium</i>	Warm	Bunch	10	2.3
Sand dropseed	<i>Sporobolus cryptandrus</i>	Warm	Bunch	10	0.1
Green needlegrass	<i>Stipa viridula</i>	Cool	Bunch	10	3.3
Herbaceous/Wildflowers					
Pasture sage	<i>Artemisia frigida</i>			1	0.1
Blanket flower	<i>Gaillardia aristata</i>			2	0.9
Tansy aster	<i>Maceranthera tanacetifolia</i>			2	0.2
TOTAL PLS POUNDS/ACRE				100	25

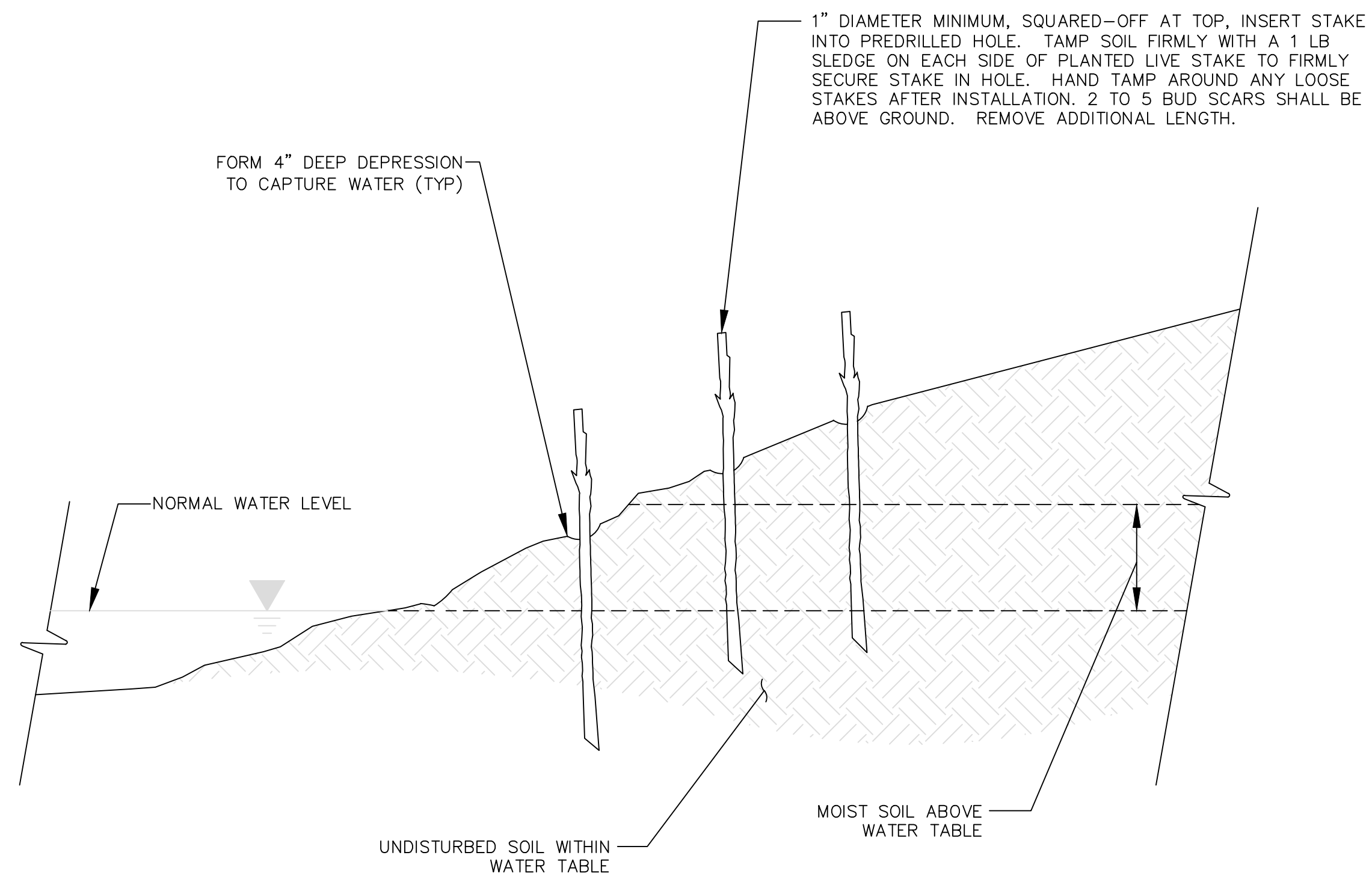
PLS = Pure Live Seed – If broadcast seeding, double the rate

Table A-5. Riparian area seed mix – sandy soil

(Recommended for middle to upper terraces and slopes above 5-year flood elevations.)

Common Name	Scientific Name	Growth Season	Growth Form	% Mix	Lb/ac (PLS ¹)
Sand dropseed	<i>Sporobolus</i>	Warm	Bunch	20	0.2
Switchgrass	<i>Panicum virgatum</i>	Warm	Sod/Bunch	20	3.1
Blue grama	<i>Bouteloua gracilis</i>	Warm	Sod	15	1.1
Canada wildrye	<i>Elymus canadensis</i>	Cool	Bunch	10	5.2
Sand bluestem	<i>Andropogon hallii</i>	Warm	Bunch	10	5.3
Western wheatgrass	<i>Pascopyrum smithii</i>	Cool	Sod	10	5.5
Yellow Indiangrass	<i>Sorghastrum nutans</i>	Warm	Sod	10	3.5
Wildflowers					
Blanket flower	<i>Gaillardia aristata</i>			1	0.5
Rocky Mountain	<i>Penstemon strictus</i>			1	0.1
Purple prairie clover	<i>Dalea purpurea</i>			1	0.3
Mexican hat	<i>Ratibida columnifera</i>			1	0.1
Western yarrow	<i>Achillea millefolium</i>			1	0.02
TOTAL PLS POUNDS/ACRE				100	24.92

¹PLS = Pure Live Seed – If broadcast seeding, double the rate



NOTES

- HARVEST AND PLANT WILLOW LIVE STAKES DURING DORMANT SEASON
- WILLOW STAKE SHALL HAVE CUT END ON AN ANGLE TO SIGNIFY PLANTING END.
- USE HEALTHY, STRAIGHT, AND LIVE WOOD AT 2 TO 3 YEARS OLD (½”-1” DIA.).
- MAKE CLEAN CUTS AND DO NOT DAMAGE STAKES OR SPLIT ENDS.
- PLACE CUTTINGS IN 5 GALLON PAILS OR TRASHCANS WITH WATER IMMEDIATELY AFTER HARVESTING.
- SOAK CUTTINGS FOR 24 HOURS (MIN.) PRIOR TO INSTALLATION.
- STORE CUT WILLOWS WITH LOWER ENDS IN WATER FOR NO LONGER THAN 7 DAYS BEFORE PLANTING. DO NOT STORE WILLOW BUNDLES HORIZONTALLY AS SOME WILLOWS WILL DROWN AND OTHERS WILL DRY OUT
- LENGTH OF STAKES SHALL BE 2’ (MIN.). PRE-DRILL HOLES WITH STEEL REBAR.
- PLANT AT LEAST ¾ LENGTH OF STAKE INTO MOIST SOIL.

WILLOW LIVE STAKES (WLS)

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CHANNEL IMPROVEMENT PLANS
EL PASO COUNTY, COLORADO
REVEGETATION DETAILS

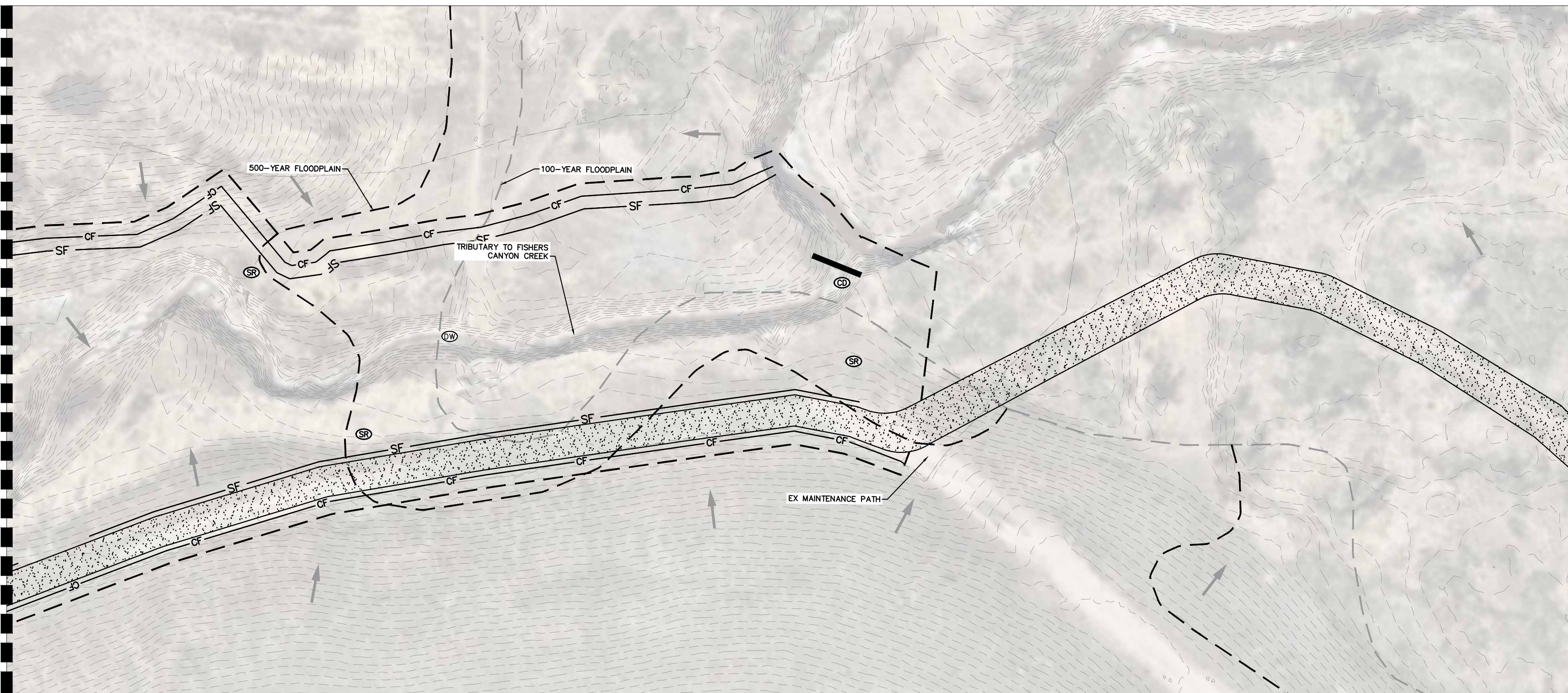
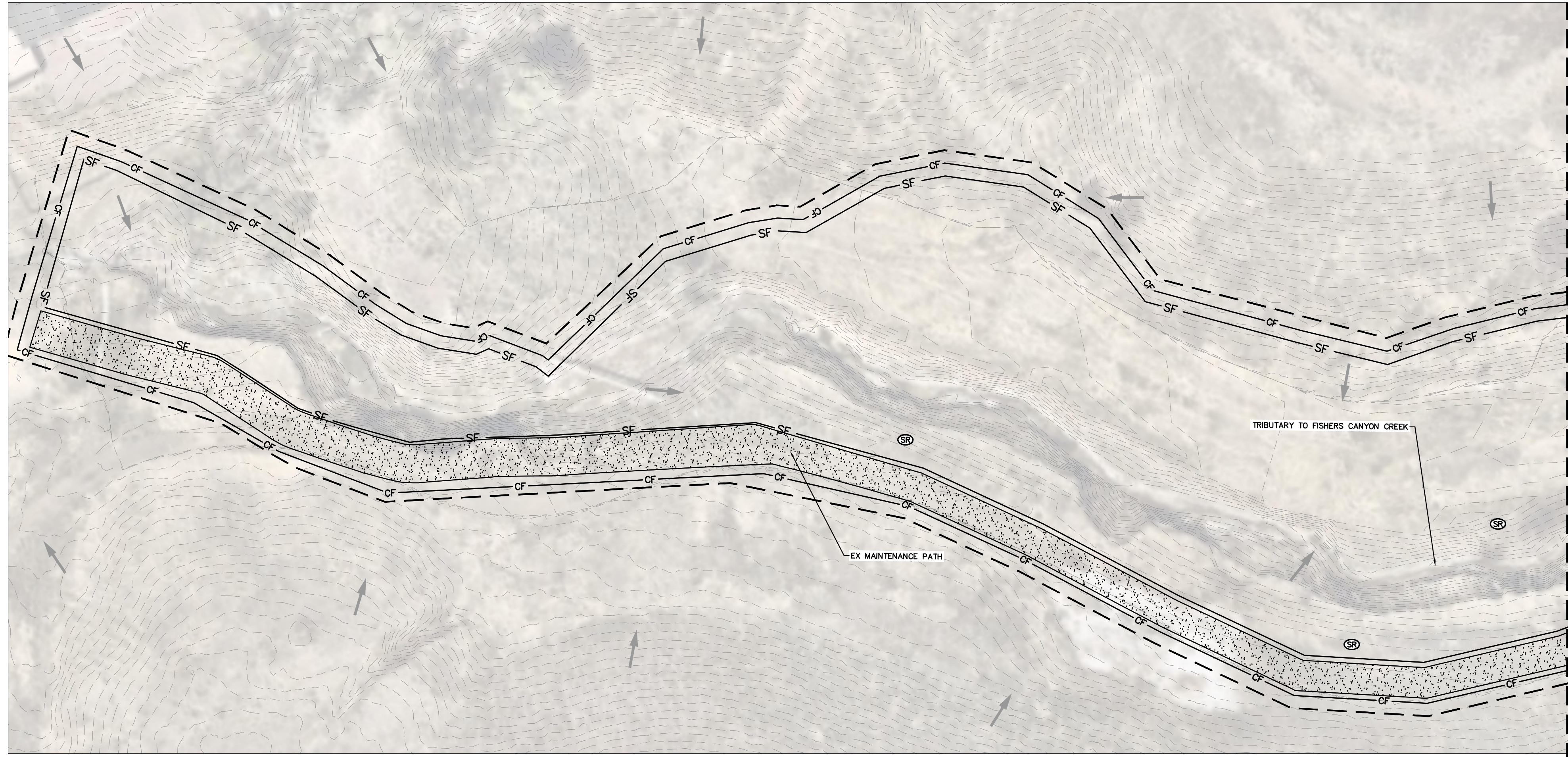
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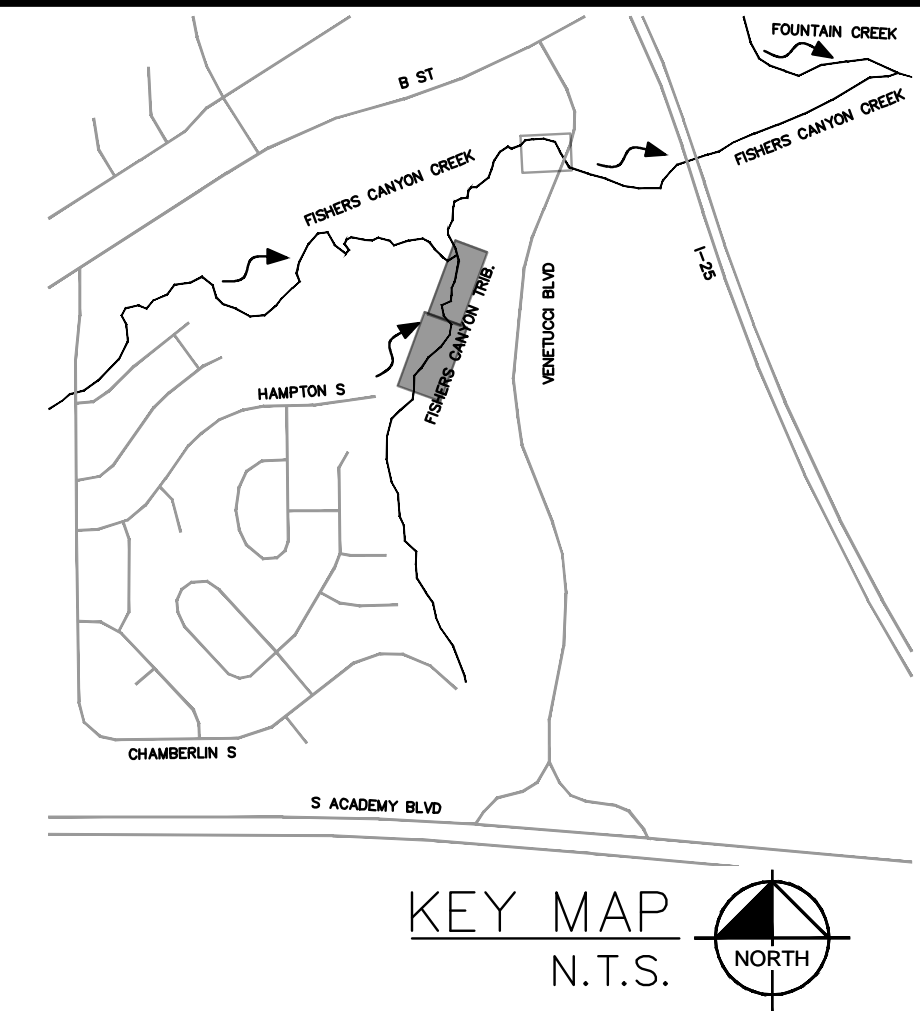
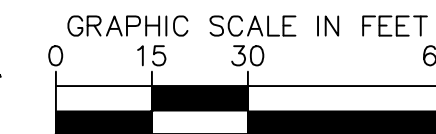
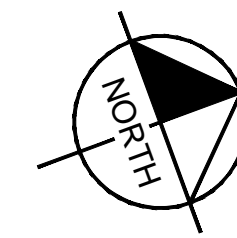


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LIMITS OF CONSTRUCTION

ONSITE DISTURBANCE = ±2.98 ACRES



LEGEND

- PROPERTY LINE
- (OD) LIMITS OF DISTURBANCE/CONSTRUCTION
- (SF) SILT FENCE
- (CF) CONSTRUCTION FENCE
- (CWA) CONCRETE WASHOUT AREA
- ▒ (SSA) STABILIZED STAGING AREA
- ▒ (VTC) VEHICLE TRACKING CONTROL
- ▒ (SP) SOIL STOCKPILE
- ⊙ (SM) SEEDING AND MULCH
- ⊙ (DW) DEWATERING
- ⊙ (CD) CHECK DAMS
- ⊙ (SR) SURFACE ROUGHENING
- ▒ (EXISTING) EXISTING MAINTENANCE PATH
- EXISTING FLOW ARROW
- - -64XX- - - EXISTING MINOR CONTOUR
- - -64XX- - - EXISTING MAJOR CONTOUR

MATCHLINE SEE BOTTOM LEFT

MATCHLINE SEE TOP RIGHT



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 Colorado Springs, Colorado 80903 (719) 453-0180

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**FISHERS CANYON CREEK
 GRADING AND EROSION CONTROL PLANS
 EL PASO COUNTY, COLORADO
 INITIAL GEC PLAN**

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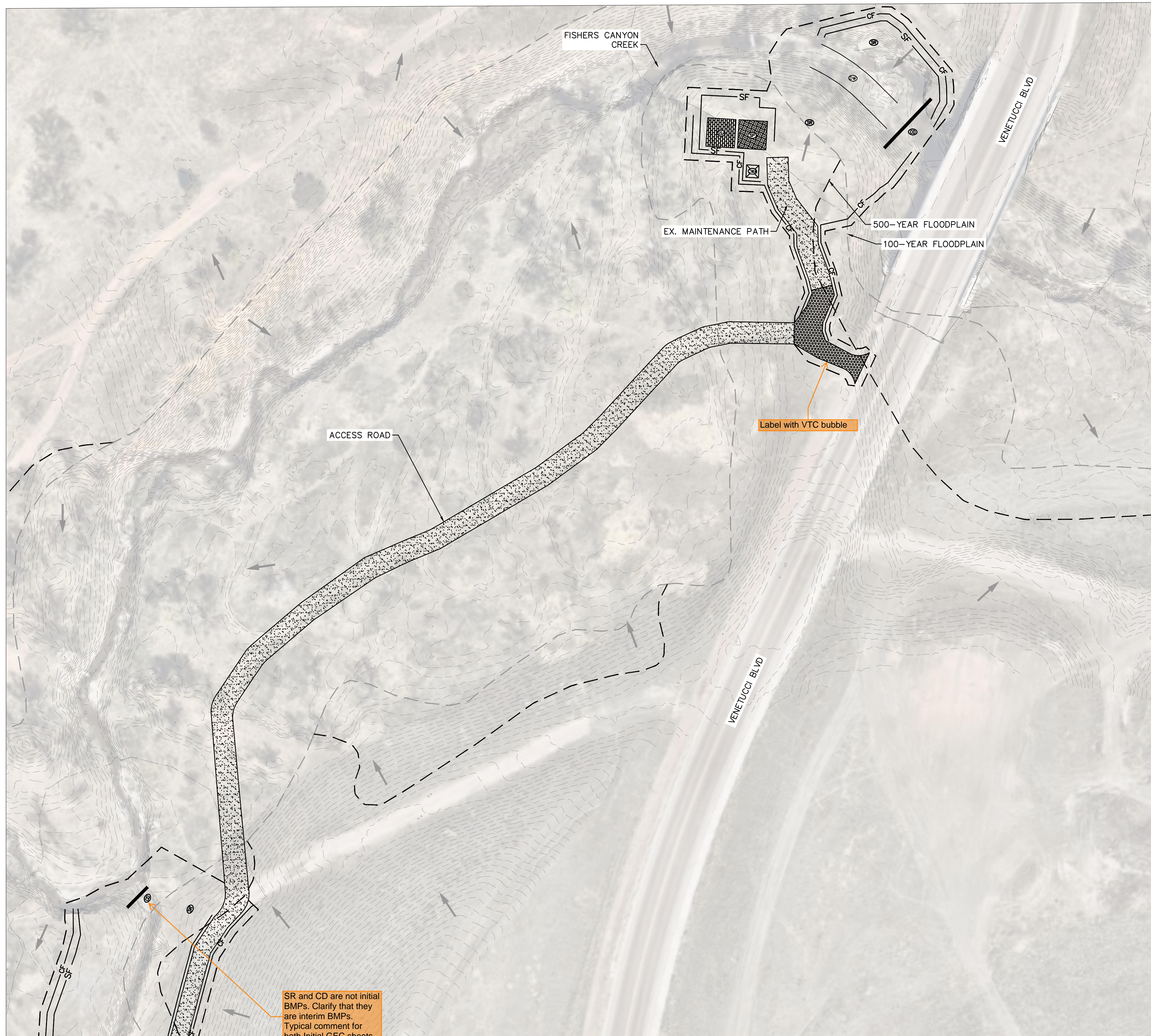
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SHEET
 G1.3

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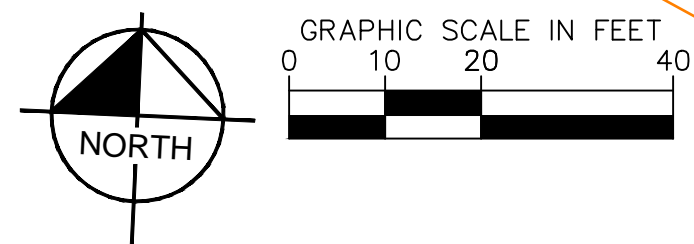


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SR and CD are not initial BMPs. Clarify that they are interim BMPs. Typical comment for both Initial GEC sheets

Label with VTC bubble

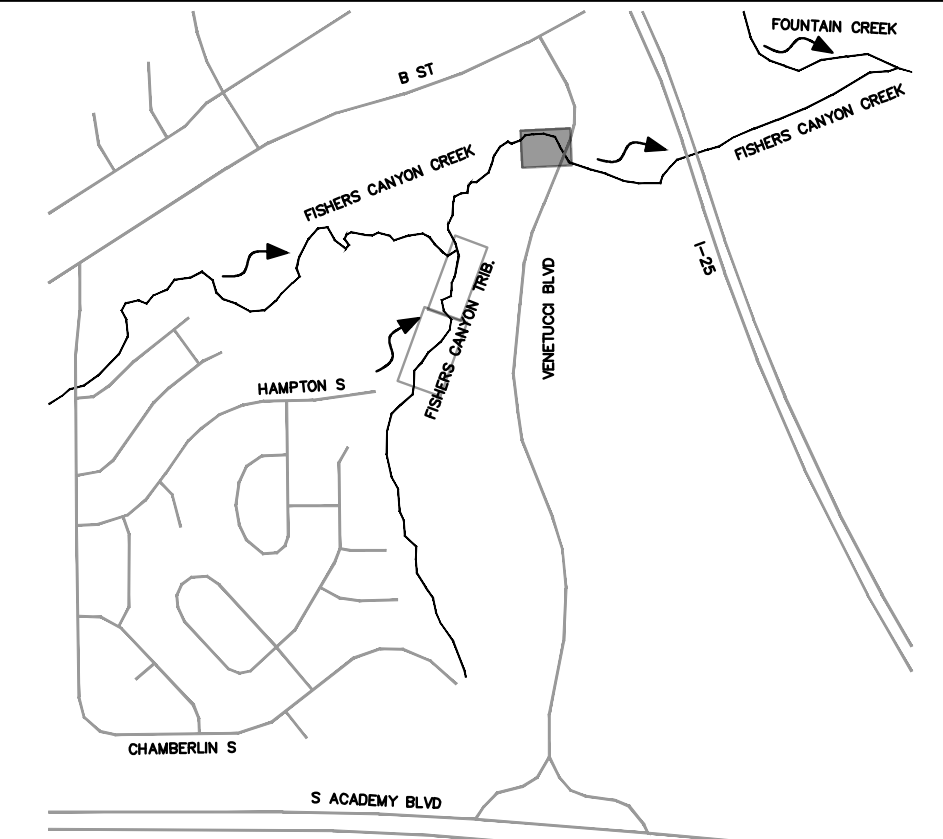


LOD cutoff. Show all of LOD



LIMITS OF CONSTRUCTION

ONSITE DISTURBANCE = ±0.48 ACRES



KEY MAP
N.T.S.

LEGEND

- PROPERTY LINE
- - - - - LIMITS OF DISTURBANCE/CONSTRUCTION
- - - - - SF SILT FENCE
- - - - - CF CONSTRUCTION FENCE
- [CWA] CONCRETE WASHOUT AREA
- [SSA] STABILIZED STAGING AREA
- [VTC] VEHICLE TRACKING CONTROL
- [SP] SOIL STOCKPILE
- [SM] SEEDING AND MULCH
- [DW] DEWATERING
- [CD] CHECK DAMS
- [SR] SURFACE ROUGHENING
- [EXISTING MAINTENANCE PATH]
- [EXISTING FLOW ARROW]
- - - - - -64XX EXISTING MINOR CONTOUR
- - - - - -64XX EXISTING MAJOR CONTOUR

NOTES

1. THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
2. ADJACENT STREETS SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES.
3. TEMPORARY STABILIZATION (TS) SHALL BE IMPLEMENTED WITHIN THE DISTURBED PORTIONS OF THE PROJECT SITE NO LATER THAN 14 DAYS FOLLOWING THE CEASE OF CONSTRUCTION ACTIVITIES WITHIN THE DISTURBED AREAS.
4. PERMANENT STABILIZATION (PS) MAY BE USED WITHIN AREAS OF TEMPORARY STABILIZATION (TS) AT THE CONTRACTOR'S DISCRETION. STABILIZATION SHALL BE APPLIED IN ACCORDANCE WITH APPLICABLE TEMPORARY STABILIZATION SEQUENCING REQUIREMENTS.
5. CONTRACTOR SHALL UTILIZE ROLLED EROSION CONTROL PRODUCTS (STRAW-SINGLE NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES) ON ALL SLOPES 3H:1V OR GREATER TO ACHIEVE REQUIRED STABILIZATION.
6. CONTRACTOR SHALL MAINTAIN ACCEPTABLE EROSION CONTROL PRACTICES WITHIN THE ANTICIPATED LIMITS OF CONSTRUCTION IDENTIFIED HEREIN. BEST MANAGEMENT PRACTICES AND STABILIZATION SHALL BE COMPLETED AS IDENTIFIED HEREIN IN ACCORDANCE WITH OWNER REQUIREMENTS.
7. SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
8. DEMOLITION, REMOVAL, OVEREXCAVATION AND SOIL TREATMENT SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS NOTED IN THE APPROVED PROJECT GEOTECHNICAL REPORT.
9. VEGETATION COVER IS ABOUT 90% CONSISTING OF NATIVE GRASSES, TREES AND SHRUBS, BASED ON VISUAL INSPECTION
10. NO ASPHALT OR CONCRETE BATCH PLANTS SHALL BE USED FOR THIS PROJECT.
11. REFERENCE SHEETS C1.3-C1.7 FOR STABILIZED DRAINAGE WAY CONSTRUCTION DESIGN

SURFACE ROUGHENING NOTES

1. STAIR STEP GRADING - USED ON SLOPES WITH GRADIENTS BETWEEN 3:1 AND 2:1 AND FOR SOIL CONTAINING A LARGE AMOUNT OF SMALL ROCKS. STAIRS ARE TO BE WIDE ENOUGH TO WORK WITH STANDARD EARTH MOVING EQUIPMENT.
2. GROOVE CUTTING - USED ON SLOPES WITH GRADIENTS BETWEEN 3:1 AND 2:1. GROOVES ARE TO BE AT LEAST 3 INCHES DEEP AND NO MORE THAN 15 INCHES APART.
3. TRACKING - USED ON SOILS WITH HIGHER SAND CONTENT DUE TO COMPACTION BY HEAVY MACHINERY.
4. REGULAR INSPECTIONS ARE TO BE MADE OF ALL SURFACE ROUGHENED AREAS.
5. SURFACE ROUGHENING IS TO BE REPEATED AS OFTEN AS NECESSARY.
6. VEHICLES OR EQUIPMENT IS NOT TO BE DRIVEN OVER AREAS THAT HAVE BEEN ROUGHENED.

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FISHERS CANYON CREEK
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EL PASO COUNTY, COLORADO
INITIAL GEC PLAN

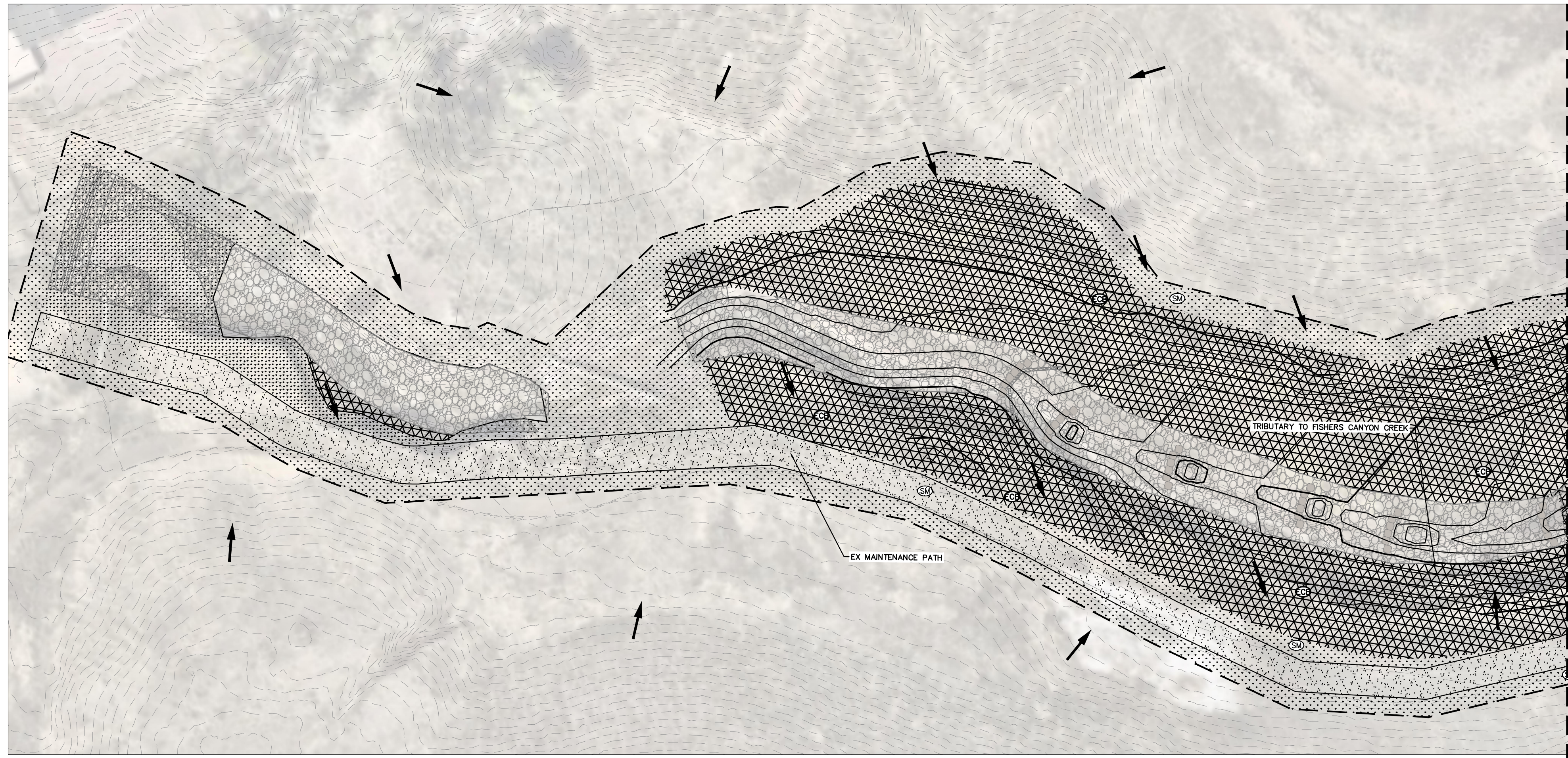
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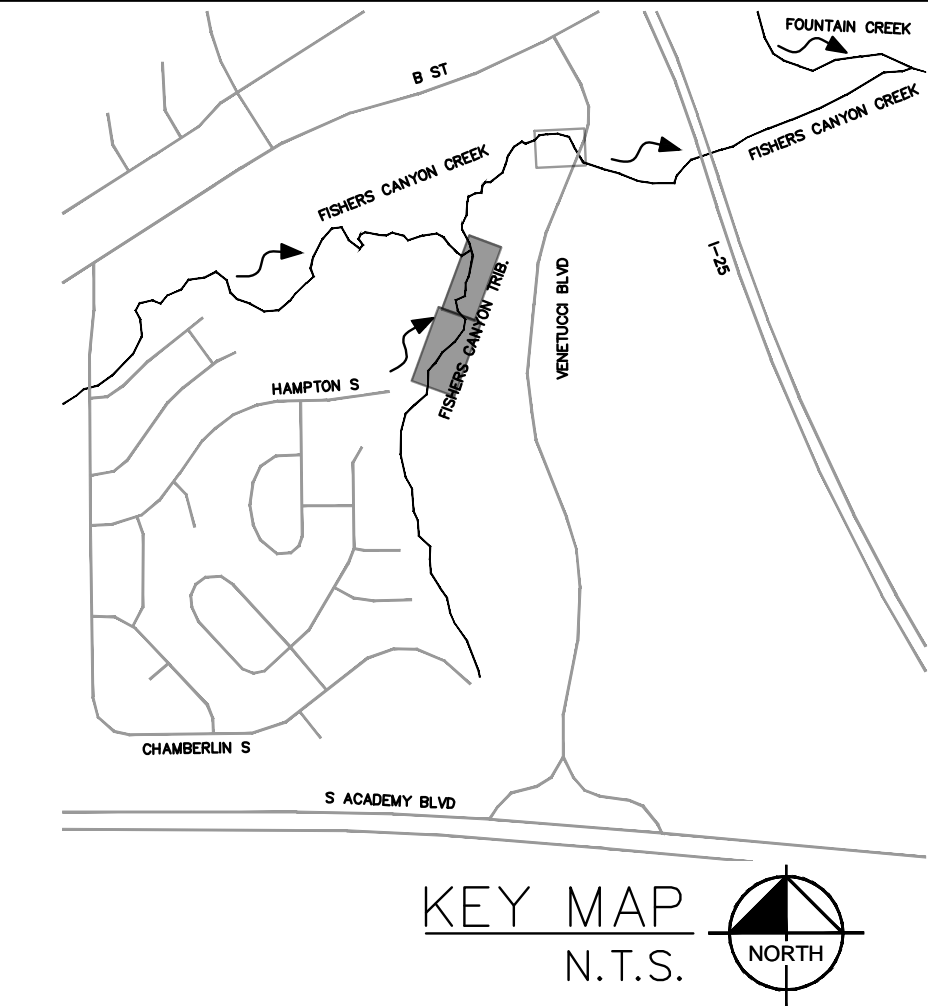
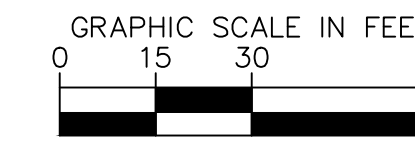
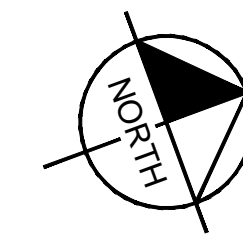
NO.	REVISION	BY	DATE	APPR.

Is this per sheet? Please clarify per sheet vs overall.



LIMITS OF CONSTRUCTION

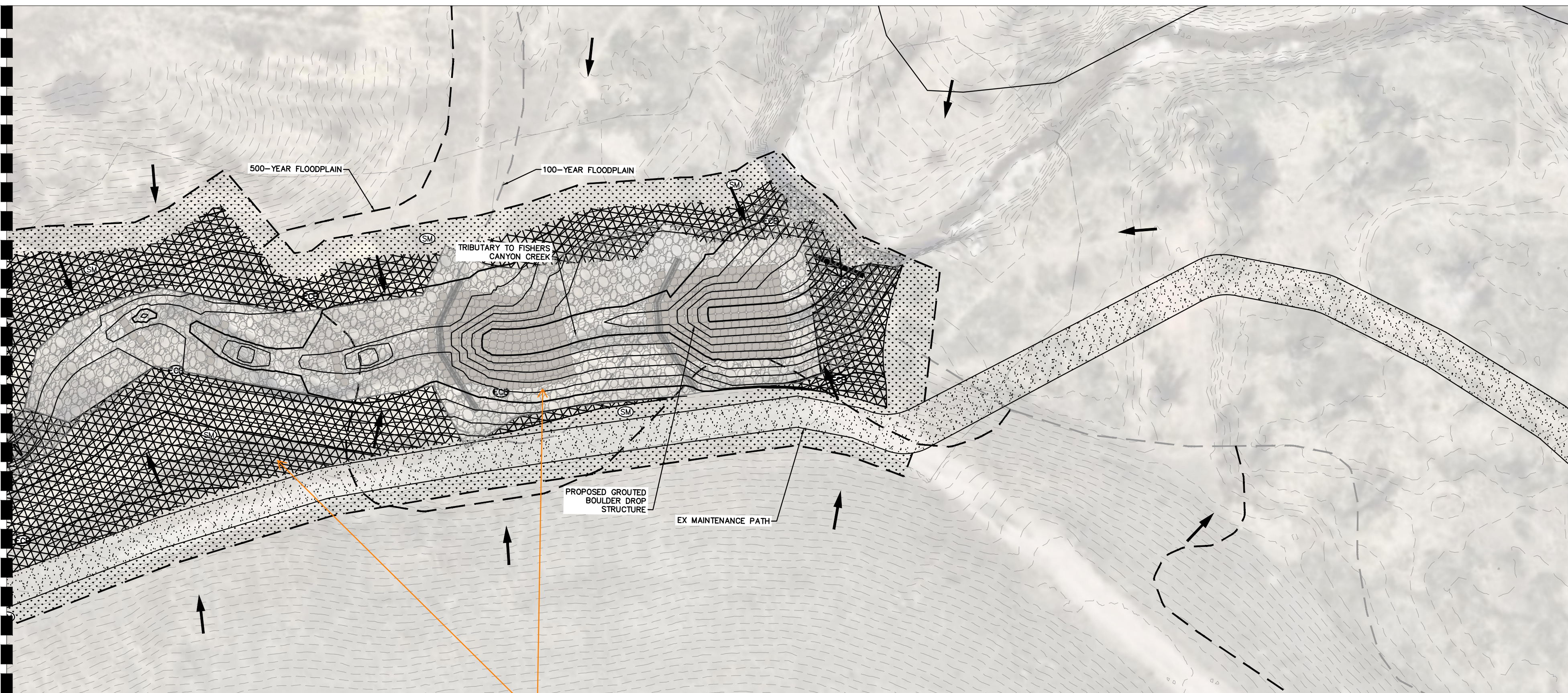
TOTAL ONSITE DISTURBANCE = ±2.98 ACRES



MATCHLINE
SEE BOTTOM LEFT

LEGEND

- PROPERTY LINE
- (dashed) LIMITS OF DISTURBANCE/CONSTRUCTION
- ⊙ (circle with dot) SILT FENCE
- ⊙ (circle with cross-hatch) CONSTRUCTION FENCE
- ⊙ (circle with dots) CONCRETE WASHOUT AREA
- ⊙ (circle with diagonal lines) STABILIZED STAGING AREA
- ⊙ (circle with grid) EROSION CONTROL BLANKET
- ▨ (hatched) RIPRAP
- ⊙ (circle with vertical lines) VEHICLE TRACKING CONTROL
- ⊙ (circle with horizontal lines) SOIL STOCKPILE
- ⊙ (circle with diagonal lines) SEEDING AND MULCH
- ⊙ (circle with vertical lines) CHECK DAMS
- ⊙ (circle with horizontal lines) SURFACE ROUGHENING
- ▨ (dotted) EXISTING MAINTENANCE PATH
- (solid arrow) EXISTING FLOW ARROW
- (dashed arrow) PROPOSED FLOW ARROW
- 64XX- (dashed line) EXISTING MINOR CONTOUR
- 64XX- (solid line) EXISTING MAJOR CONTOUR
- 54XX- (dashed line) PROPOSED MAJOR CONTOUR
- 54XX- (solid line) EXISTING MAJOR CONTOUR



MATCHLINE
SEE TOP RIGHT

Label approx grades of slopes.

NOTES

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2. ADJACENT STREETS SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES.
3. TEMPORARY STABILIZATION (TS) SHALL BE IMPLEMENTED WITHIN THE DISTURBED PORTIONS OF THE PROJECT SITE NO LATER THAN 14 DAYS FOLLOWING THE CEASE OF CONSTRUCTION ACTIVITIES WITHIN THE DISTURBED AREAS.
4. PERMANENT STABILIZATION (PS) MAY BE USED WITHIN AREAS OF TEMPORARY STABILIZATION (TS) AT THE CONTRACTOR'S DISCRETION. STABILIZATION SHALL BE APPLIED IN ACCORDANCE WITH APPLICABLE TEMPORARY STABILIZATION SEQUENCING REQUIREMENTS.
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7. ALL WORK IN THE HODGEN ROAD AND MERJAIN ROAD ROW REQUIRES A ROW PERMIT FROM EL PASO COUNTY. CONTRACTOR IS RESPONSIBLE FOR APPLYING FOR AND OBTAINING ALL NECESSARY ROW PERMITS.
8. SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
9. DEMOLITION, REMOVAL, OVEREXCAVATION AND SOIL TREATMENT SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS NOTED IN THE APPROVED PROJECT GEOTECHNICAL REPORT.
10. VEGETATION COVER IS ABOUT 90% CONSISTING OF NATIVE GRASSES, TREES AND SHRUBS, BASED ON VISUAL INSPECTION.
11. NO ASPHALT OR CONCRETE BATCH PLANTS SHALL BE USED FOR THIS PROJECT.
12. CHECK DAMS TO BE PLACED IN TEMPORARY AND PERMANENT DRAINAGE SWALES AND ROADSIDE DITCHES AND TO BE SPACED AS DEEMED NECESSARY. RIPRAP IN CHECK DAMS TO BE SUBSTITUTED WITH SCL.
13. TRM MATTING DEPICTED IN PLAN VIEW SHALL BE PLACED BY THE CONTRACTOR SUCH THAT IT COVERS THE CHANNEL BOTTOM EXTENDS 2 VERTICAL FEET UP THE SIDE SLOPES FROM THE TOE OF SLOPE.

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DRAWN BY: LWM
CHECKED BY: DCM
DATE: 12/18/2024

**FISHERS CANYON CREEK
GRADING AND EROSION CONTROL PLANS
EL PASO COUNTY, COLORADO
FINAL GEC PLAN**

PRELIMINARY
FOR REVIEW ONLY
NOT FOR
CONSTRUCTION

PROJECT NO.
196825001

SHEET
G1.5

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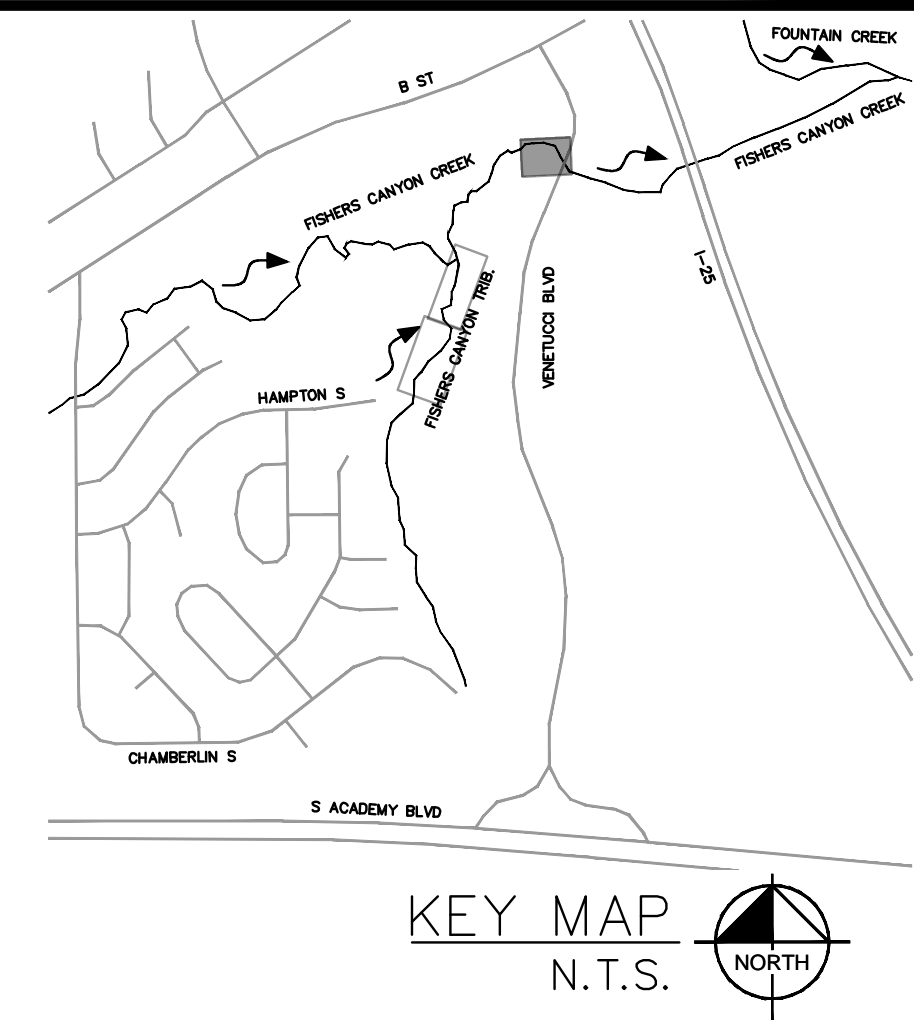


LIMITS OF CONSTRUCTION

TOTAL ONSITE DISTURBANCE = ±0.48 ACRES

Label approx grades of slopes.

BMP bubbles are not legible at this scale once printed for our field staff. Please enlarge all BMP bubbles.

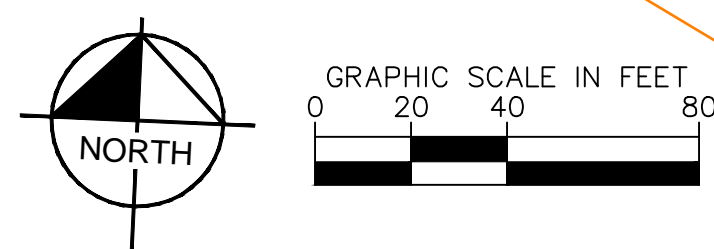


LEGEND

- PROPERTY LINE
- (dashed) LIMITS OF DISTURBANCE/CONSTRUCTION
- (SF) SILT FENCE
- (CF) CONSTRUCTION FENCE
- (SA) CONCRETE WASHOUT AREA
- (SSA) STABILIZED STAGING AREA
- (ECB) EROSION CONTROL BLANKET
- (RIP) RIPRAP
- (VTC) VEHICLE TRACKING CONTROL
- (SP) SOIL STOCKPILE
- (SM) SEEDING AND MULCH
- (CD) CHECK DAMS
- (SR) SURFACE ROUGHENING
- (dotted) EXISTING MAINTENANCE PATH
- (arrow) EXISTING FLOW ARROW
- (arrow) PROPOSED FLOW ARROW
- (-64XX-) EXISTING MINOR CONTOUR
- (-64XX-) EXISTING MAJOR CONTOUR
- (-54XX-) PROPOSED MAJOR CONTOUR
- (-54XX-) EXISTING MAJOR CONTOUR

NOTES

1. THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
2. ADJACENT STREETS SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES.
3. TEMPORARY STABILIZATION (TS) SHALL BE IMPLEMENTED WITHIN THE DISTURBED PORTIONS OF THE PROJECT SITE NO LATER THAN 14 DAYS FOLLOWING THE CEASE OF CONSTRUCTION ACTIVITIES WITHIN THE DISTURBED AREAS.
4. PERMANENT STABILIZATION (PS) MAY BE USED WITHIN AREAS OF TEMPORARY STABILIZATION (TS) AT THE CONTRACTOR'S DISCRETION. STABILIZATION SHALL BE APPLIED IN ACCORDANCE WITH APPLICABLE TEMPORARY STABILIZATION SEQUENCING REQUIREMENTS.
5. CONTRACTOR SHALL UTILIZE ROLLED EROSION CONTROL PRODUCTS (STRAW-SINGLE NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES) ON ALL SLOPES 3H:1V OR GREATER TO ACHIEVE REQUIRED STABILIZATION.
6. CONTRACTOR SHALL MAINTAIN ACCEPTABLE EROSION CONTROL PRACTICES WITHIN THE ANTICIPATED LIMITS OF CONSTRUCTION IDENTIFIED HEREIN. BEST MANAGEMENT PRACTICES AND STABILIZATION SHALL BE COMPLETED AS IDENTIFIED HEREIN IN ACCORDANCE WITH OWNER REQUIREMENTS.
7. ALL WORK IN THE HODGEN ROAD AND MERJAIN ROAD ROW REQUIRES A ROW PERMIT FROM EL PASO COUNTY. CONTRACTOR IS RESPONSIBLE FOR APPLYING FOR AND OBTAINING ALL NECESSARY ROW PERMITS.
8. SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
9. DEMOLITION, REMOVAL, OVEREXCAVATION AND SOIL TREATMENT SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS NOTED IN THE APPROVED PROJECT GEOTECHNICAL REPORT.
10. VEGETATION COVER IS ABOUT 90% CONSISTING OF NATIVE GRASSES, TREES AND SHRUBS, BASED ON VISUAL INSPECTION.
11. NO ASPHALT OR CONCRETE BATCH PLANTS SHALL BE USED FOR THIS PROJECT.
12. CHECK DAMS TO BE PLACED IN TEMPORARY AND PERMANENT DRAINAGE SWALES AND ROADSIDE DITCHES AND TO BE SPACED AS DEEMED NECESSARY. RIPRAP IN CHECK DAMS TO BE SUBSTITUTED WITH SCL.
13. TRM MATTING DEPICTED IN PLAN VIEW SHALL BE PLACED BY THE CONTRACTOR SUCH THAT IT COVERS THE CHANNEL BOTTOM EXTENDS 2 VERTICAL FEET UP THE SIDE SLOPES FROM THE TOE OF SLOPE.



Label approx slopes.

LOD cutoff, expand viewport to include all proposed work.



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Check Dams (CD)

EC-12

Description

Check dams are temporary grade control structures placed in drainage channels to limit the erosivity of stormwater by reducing flow velocity. Check dams are typically constructed from rock, gravel bags, sand bags, or sometimes, proprietary devices. Reinforced check dams are typically constructed from rock and wire gabion. Although the primary function of check dams is to reduce the velocity of concentrated flows, a secondary benefit is sediment trapping upstream of the structure.



Photograph CD-1. Rock check dams in a roadside ditch. Photo courtesy of WVE.

Appropriate Uses

Use as a grade control for temporary drainage ditches or swales until final soil stabilization measures are established upstream and downstream. Check dams can be used on mild or moderately steep slopes. Check dams may be used under the following conditions:

- As temporary grade control facilities along waterways until final stabilization is established.
- Along permanent swales that need protection prior to installation of a non-erodible lining.
- Along temporary channels, ditches or swales that need protection where construction of a non-erodible lining is not practicable.
- Reinforced check dams should be used in areas subject to high flow velocities.

Design and Installation

Place check dams at regularly spaced intervals along the drainage swale or ditch. Check dam heights should allow for pools to develop upstream of each check dam, extending to the downstream toe of the check dam immediately upstream.

When rock is used for the check dam, place rock mechanically or by hand. Do not dump rocks into the drainage channel. Where multiple check dams are used, the top of the lower dam should be at the same elevation as the toe of the upper dam.

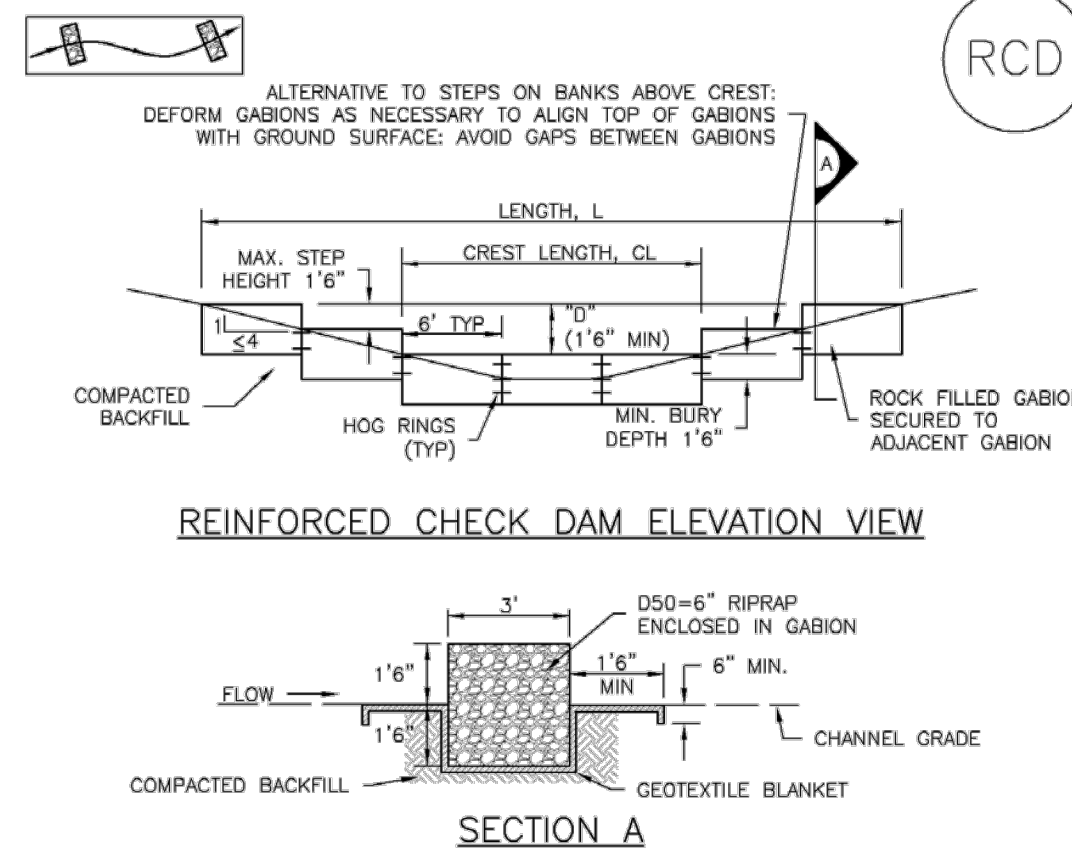
When reinforced check dams are used, install erosion control fabric under and around the check dam to prevent erosion on the upstream and downstream sides. Each section of the dam should be keyed in to reduce the potential for washout or undermining. A rock apron upstream and downstream of the dam may be necessary to further control erosion.

Check Dams	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 CD-1

Check Dams (CD)

EC-12



REINFORCED CHECK DAM INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATIONS OF CHECK DAMS.
 - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM).
 - LENGTH (L), CREST LENGTH (CL), AND DEPTH (D).
- CHECK DAMS INDICATED ON THE SWMP SHALL BE INSTALLED PRIOR TO AN UPSTREAM LAND-DISTURBING ACTIVITIES.
- REINFORCED CHECK DAMS, GABIONS SHALL HAVE GALVANIZED TWISTED WIRE NETTING WITH A MAXIMUM OPENING DIMENSION OF 4\"/>

CD-2. REINFORCED CHECK DAM

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 CD-5

EC-12

Check Dams (CD)

Design details with notes are provided for the following types of check dams:

- Rock Check Dams (CD-1)
- Reinforced Check Dams (CD-2)

Sediment control logs may also be used as check dams; however, silt fence is not appropriate for use as a check dam. Many jurisdictions also prohibit or discourage use of straw bales for this purpose.

Maintenance and Removal

Replace missing rocks causing voids in the check dam. If gravel bags or sandbags are used, replace or repair torn or displaced bags.

Remove accumulated sediment, as needed to maintain BMP effectiveness, typically before the sediment depth upstream of the check dam is within 1/2 of the crest height. Remove accumulated sediment prior to mulching, seeding, or chemical soil stabilization. Removed sediment can be incorporated into the earthwork with approval from the Project Engineer, or disposed of at an alternate location in accordance with the standard specifications.

Check dams constructed in permanent swales should be removed when perennial grasses have become established, or immediately prior to installation of a non-erodible lining. All of the rock and accumulated sediment should be removed, and the area seeded and mulched, or otherwise stabilized.

CD-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

EC-12

Check Dams (CD)

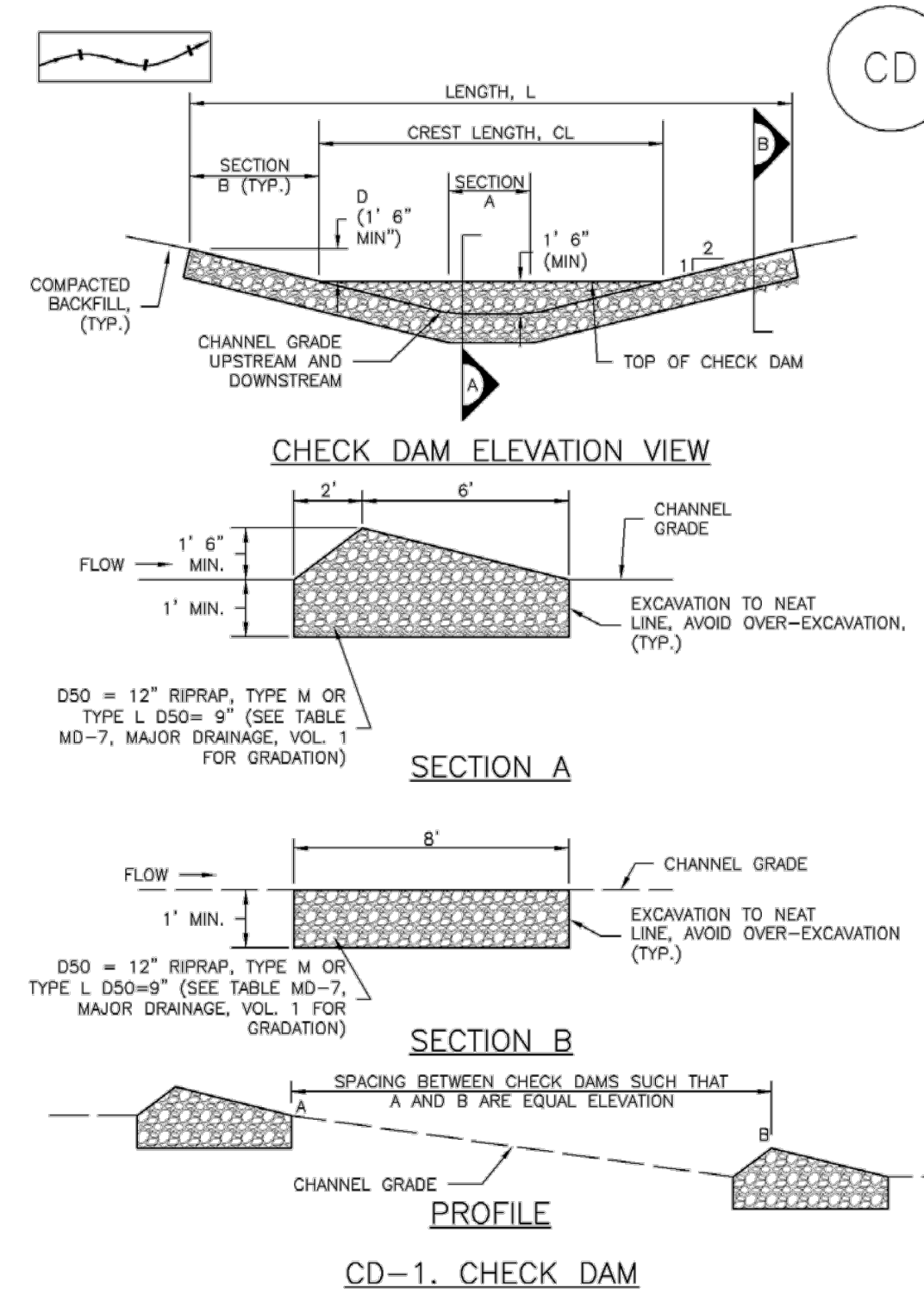
REINFORCED CHECK DAM MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - SEDIMENT ACCUMULATED UPSTREAM OF REINFORCED CHECK DAMS SHALL BE REMOVED AS NEEDED TO MAINTAIN THE EFFECTIVENESS OF BMP, TYPICALLY WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN 1/2 THE HEIGHT OF THE CREST.
 - REPAIR OR REPLACE REINFORCED CHECK DAMS WHEN THERE ARE SIGNS OF DAMAGE SUCH AS HOLES IN THE GABION OR UNDERCUTTING.
 - REINFORCED CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
 - WHEN REINFORCED CHECK DAMS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDING AND MULCHED, AND COVERED WITH A GEOTEXTILE BLANKET, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UIDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

CD-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Check Dams (CD)

EC-12



November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 CD-3

EC-12

Check Dams (CD)

CHECK DAM INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATIONS OF CHECK DAMS.
 - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM).
 - LENGTH (L), CREST LENGTH (CL), AND DEPTH (D).
- CHECK DAMS INDICATED ON INITIAL SWMP SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND DISTURBING ACTIVITIES.
- RIPRAP UTILIZED FOR CHECK DAMS SHOULD BE OF APPROPRIATE SIZE FOR THE APPLICATION. TYPICAL TYPES OF RIPRAP USED FOR CHECK DAMS ARE TYPE M (D50 12") OR TYPE L (D50 9").
- RIPRAP PAD SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'.
- THE ENDS OF THE CHECK DAM SHALL BE A MINIMUM OF 1' 6" HIGHER THAN THE CENTER OF THE CHECK DAM.

CHECK DAM MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF THE CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
- CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
- WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACKFILL. DISTURBED AREA SHALL BE SEEDING AND MULCHED AND COVERED WITH GEOTEXTILE OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UIDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

CD-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

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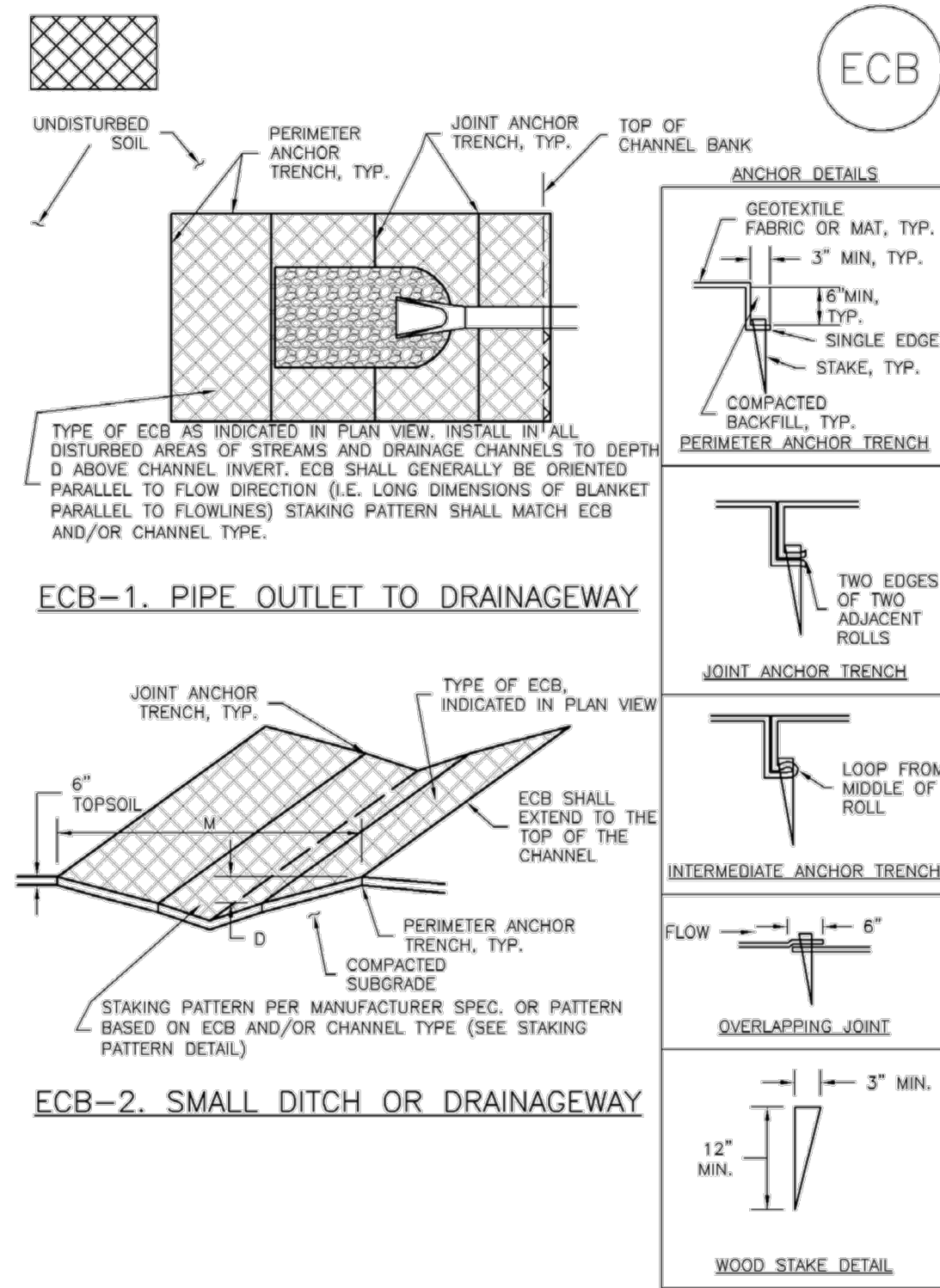
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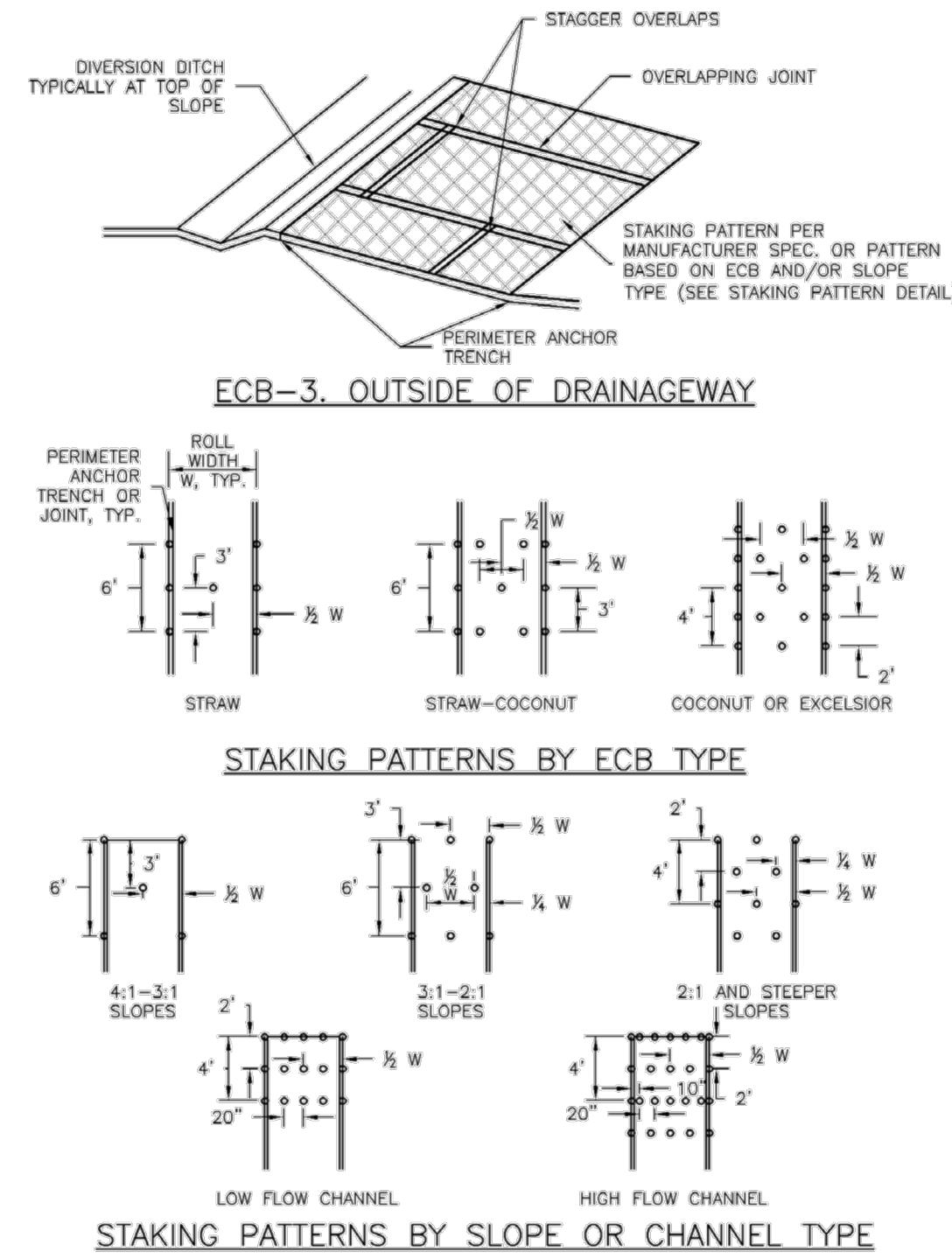
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EC-6 Rolled Erosion Control Products (RECP)



RECP-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Roller Erosion Control Products (RECP) EC-6



November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 RECP-7

EC-6 Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF ECB.
 - TYPE OF ECB (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).
 - AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEEDED AND MULCHED.
- DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB-1. ECB MATERIAL SPECIFICATIONS

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING**
STRAW*	-	100%	-	DOUBLE/NATURAL
STRAW-COCONUT	30% MIN	70% MAX	-	DOUBLE/NATURAL
COCONUT	100%	-	-	DOUBLE/NATURAL
EXCELSIOR	-	-	100%	DOUBLE/NATURAL

*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNELS.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS

RECP-8 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Roller Erosion Control Products (RECP) EC-6

EROSION CONTROL BLANKET MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
 - ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER COLORADO, NOT AVAILABLE IN AUTOCAD)

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 RECP-9

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