



**US Army Corps
of Engineers®
Albuquerque District
Project**

PUBLIC NOTICE

Permit Application No.: SPA-2011-00543-SCO
Project Name: Kettle Creek Stabilization Project
Applicant: Colorado Springs Utilities
Waterway: Kettle Creek
Public Notice Date: December 8, 2011
Comment Due Date: December 29, 2011
USACE Contact Phone: (719) 543-6914

Reply To:

Southern Colorado Regulatory Office
US Army Corps of Engineers, Albuquerque District
200 South Santa Fe Avenue, Suite 301
Pueblo, Colorado 81003-4270

PERMIT APPLICATION UNDER SECTION 404 OF THE CLEAN WATER ACT (33 USC 1344)

Summary of Proposed Project: We are requesting public comment on the following project before the above comment due date. The application is for a permit to place dredged/fill material into waters of the U.S. associated with the construction of a single grouted sloping boulder drop structure to protect an existing sanitary sewer crossing in Kettle Creek located in Colorado Springs, Colorado. Details of the proposed project are provided below.

Name of Applicant: Colorado Springs Utilities, 121 South Tejon Street, Fourth Floor, Post Office Box 1103, Mail Code 940, Colorado Springs, Colorado 80901.

Location: The project is located in Kettle Creek immediately downstream of Colorado State Highway 83 in Section 29, Township 12 South, Range 66 West, El Paso County, Colorado.

Description of Work: The project will involve the construction of a single grouted sloping boulder drop structure. The structure will be approximately 86-foot-long and include a sheet pile cutoff wall driven into the bedrock and a 9-foot riprap apron for scour protection. The sloping grouted boulder portion of the structure will be approximately 37 feet long and will drop approximately 9.8 feet from crest to toe. Most of the face of the sloping boulders will be buried in order to ensure protection of the utility crossing from future channel degradation. Temporary stream diversions will be constructed to allow flow to pass while the structures are under construction. A total of approximately 0.03 acre of temporary and 0.12 acre of permanent impacts to waters of the U.S. are proposed for this project.

NEWS RELEASE

CESPA-RD-SC
SPA-2011-00543-SCO

Purpose and Need: The stated purpose of this project is to stabilize Kettle Creek to protect an existing sanitary sewer line crossing.

Mitigation: Areas temporarily disturbed during construction and access will be revegetated using native seed mixes, as appropriate, for the areas disturbed. Compensatory mitigation for the permanent loss of approximately 0.08 acre of wetlands will be undertaken concurrently with the project construction. Weeds and other noxious plant species will be controlled post-construction in the project area until native communities are established.

Plans and Data: Drawings showing the location of the work site and other data are enclosed with this notice. If additional information is desired, it may be obtained from the applicant, or from:

Joshua G. Carpenter
U.S. Army Corps of Engineers
Southern Colorado Regulatory Office
200 South Santa Fe Avenue, Suite 301
Pueblo, Colorado 81003-4270
(719) 543-6914
Fax No. (719) 543-9475
E-mail: Joshua.G.Carpenter@usace.army.mil

Statement of Findings: The District Engineer has consulted the National Register of Historic Places and no properties listed in the Register are present at the site of the proposed construction. Consultation with the Colorado State Historic Preservation Office (SHPO) has not revealed any pending nominations. This constitutes the extent of cultural resource investigations by the District Engineer. It is possible, however, that presently unknown archeological, scientific, prehistoric, or historic data may be inadvertently lost or destroyed by the work accomplished under the requested permit. In the event that cultural resources are found, the SHPO will be contacted for advice on the appropriate action to be taken.

This project is located immediately downstream of designated critical habitat for Preble's meadow jumping mouse (*Zapus hudsonius preblei*). A biological assessment has been prepared by the applicant, and the Corps has initiated consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act.

The applicant has applied to the Colorado Department of Public Health and Environment for certification that this work is in compliance with applicable State water quality standards. The applicant is responsible for obtaining all other required Federal, state, and local authorizations for this work.

In accordance with environmental procedures and documentation required by the National Environmental Policy Act of 1969, an environmental assessment will be prepared for this project. Upon completion, the assessment may be seen at the U.S. Army Corps of Engineers, Albuquerque District Office, at the address given above.

NEWS RELEASE

CESPA-RD-SC
SPA-2011-00543-SCO

Comments: Any comments concerning this project should be received by the District Engineer no later than December 29, 2011. Comments received after the end of the Public Notice comment period will not be considered. However, more time may be given if a request, with a valid reason, is received prior to the suspense date. The Corps of Engineers is soliciting comments from the public; federal, state, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed below. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. The evaluation of the impact of this activity will include application of the guidelines promulgated by the Administrator, EPA, under authority of Section 404(b) of the Clean Water Act. All factors relevant to the proposal and the cumulative effects will be considered; among these are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

If the District Engineer determines that the project complies with the 404(b) (1) guidelines, he will grant the permit unless issuance would be contrary to the public interest.

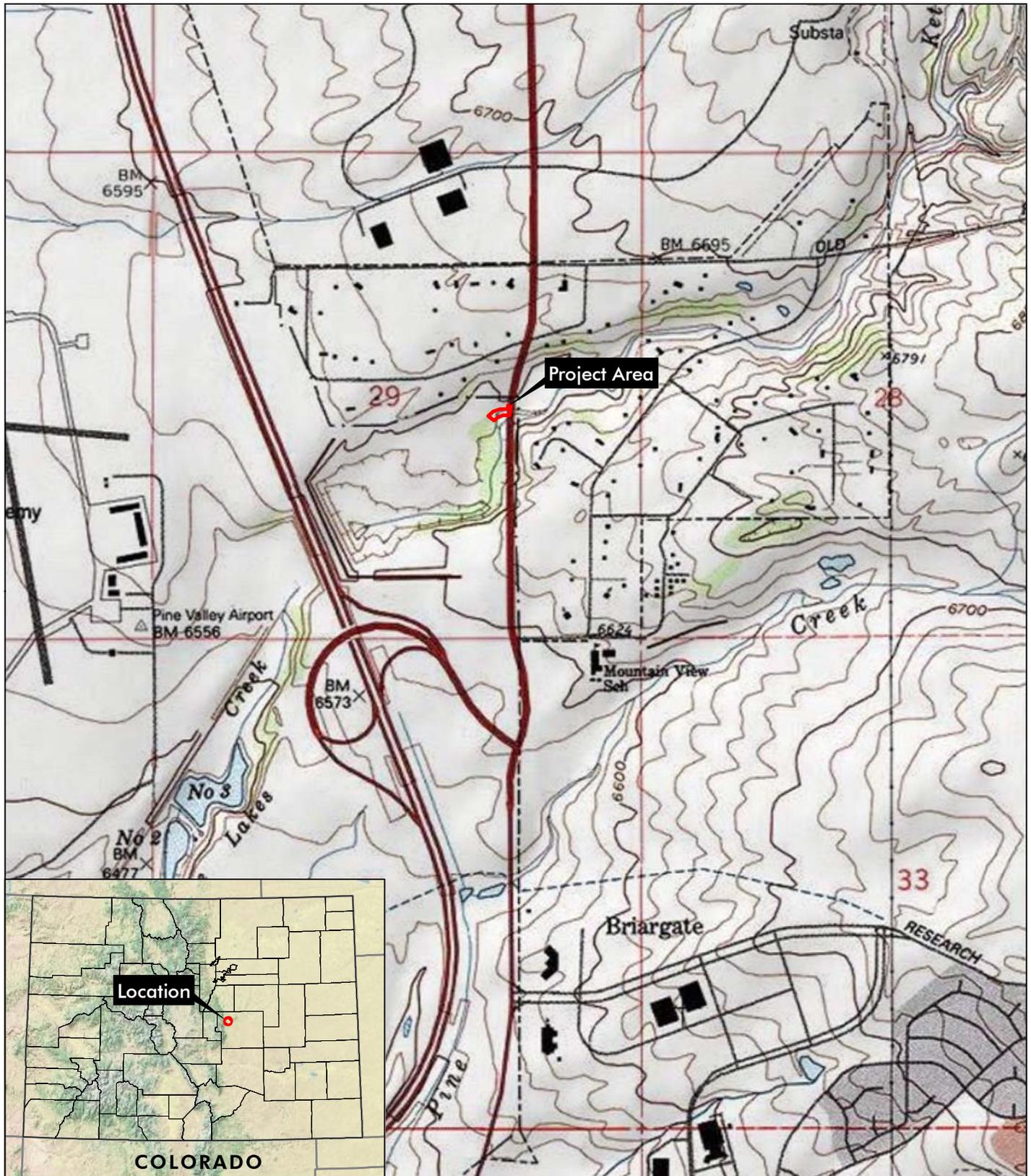
Any person may request a public hearing. The request must be submitted, in writing, to the District Engineer within 21 days of the date of this notice and must clearly set forth the reasons for holding a public hearing.

Jason D. Williams
Lieutenant Colonel, U.S. Army
District Commander

Enclosures

NEWS RELEASE

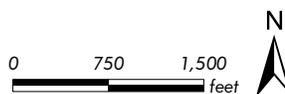
CESPA-RD-SC
SPA-2011-00543-SCO

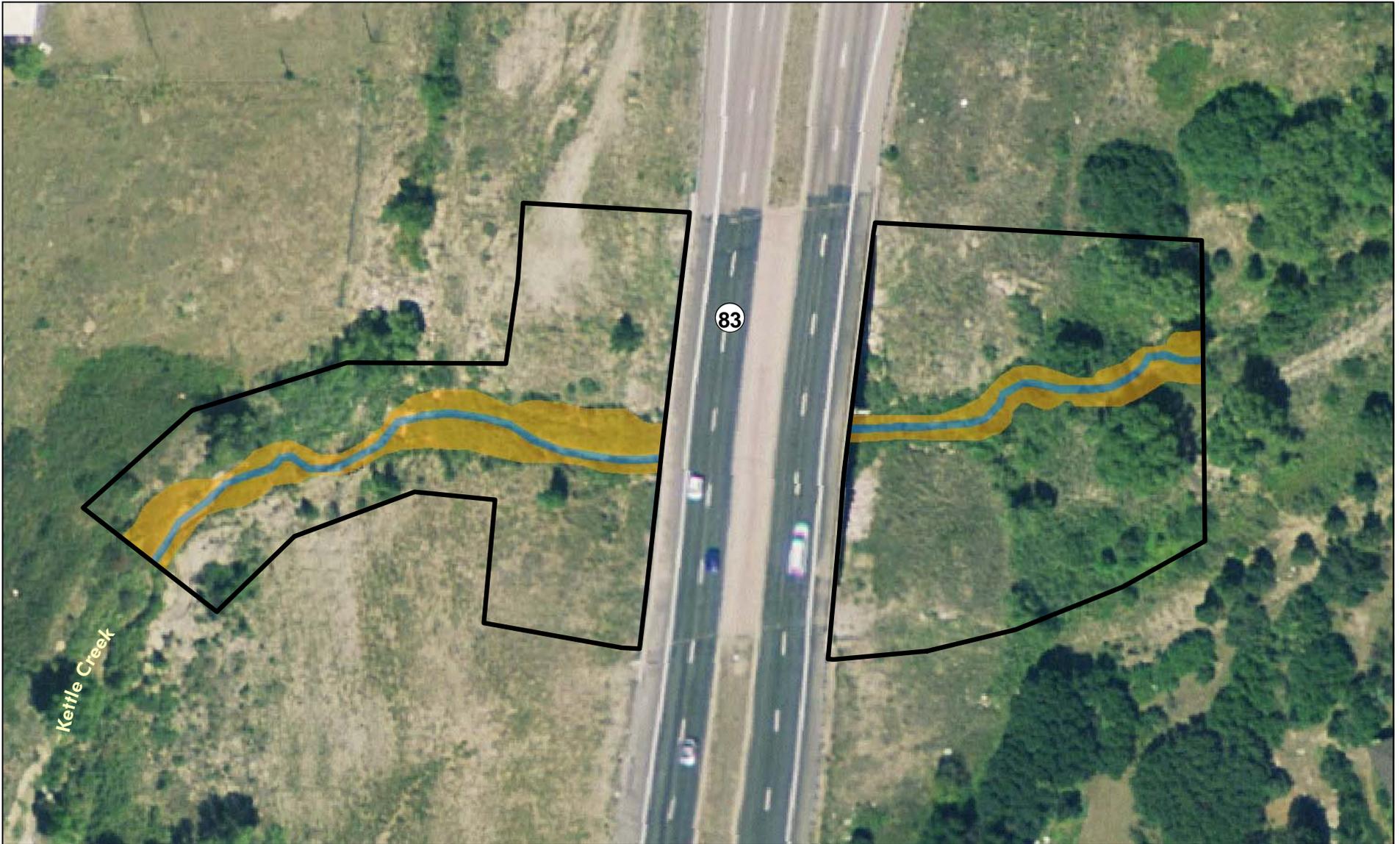


Kettle Creek Crossing Stabilization at State Highway 83

Section 29, T12S, R66W; 6th PM
 UTM NAD 83: Zone 13N; 517407mE, 4314137mN
 Latitude, Longitude: 38.976039°N, 104.799046°W
 USGS Pikeview, CO Quadrangle
 El Paso County, Colorado

Kettle Creek Stabilization Project in Colorado
 Springs, El Paso County, Colorado
 Applicant: Colorado Springs Utilities
 Application No.: SPA-2011-00543-SCO
 Title Sheet
 Sheet 1 of 11 December 2011





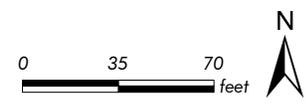
Kettle Creek

83

Kettle Creek Crossing Stabilization at State Highway 83

-  Approximate Project Limits
-  Waters of the U.S.
-  Wetland

Kettle Creek Stabilization Project in Colorado Springs, El Paso County, Colorado
 Applicant: Colorado Springs Utilities
 Application No.: SPA-2011-00543-SCO
 WOUS Delineation Map
 Sheet 2 of 11 December 2011





Colorado Springs Utilities
It's how we're all connected



KETTLE CREEK CROSSING STABILIZATION AT COLORADO HIGHWAY 83

WORK ORDER No. XXXXXXX
PROJECT No. 2009-XXXX



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPROVED FOR CONSTRUCTION

SIGNED: _____ DATE: _____
COLORADO SPRINGS UTILITIES

SIGNED: _____ DATE: _____
COLORADO SPRINGS DEPARTMENT OF ENGINEERING

STATEMENT: THE CITY OF COLORADO SPRINGS RECOGNIZES THE DESIGN ENGINEER AS HAVING RESPONSIBILITY FOR THE DESIGN; THE CITY HAS LIMITED ITS SCOPE OF REVIEW ACCORDINGLY. RESUBMITTAL REQUIRED IF CONSTRUCTION HAS NOT COMMENCED WITHIN 180 DAYS AFTER THE REVIEW DATE.

INDEX OF SHEETS

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Kettle Creek Stabilization Project in Colorado Springs, El Paso County, Colorado
Applicant: Colorado Springs Utilities
Application No.: SPA-2011-00543-SCO
Title Sheet
Sheet 3 of 11 December 2011

BENCHMARK:
FACILITIES INFORMATION MANAGEMENT SYSTEM (FIMS)
SURVEY CONTROL NETWORK MONUMENT RECORD
MONUMENT NAME (FH04)

BERNTSEN TOP SECURITY MONUMENT IN MONUMENT BOX LOCATED IN THE MEDIAN OF INTERQUEST PKWY, 25' +/- W. OF LIGHT POLE # R18548. 550' E. OF FEDERAL DRIVE.
6711.49 U.S. SURVEY FEET

DRAFT
100% SUBMITTAL

FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.



Matrix Design Group, Inc.
Integrated Design Solutions 2435 Research Parkway, Suite 300
Colorado Springs, CO 80920
Phone 719-575-0100
Fax 719-575-0208

KETTLE CREEK CROSSING STABILIZATION
AT COLORADO HIGHWAY 83

TITLE SHEET

DESIGNED BY: GGS	SCALE	DATE ISSUED: AUGUST 2010	1
DRAWN BY: MAK	HORIZ:	MDG PROJECT NO.: 09.222.002	
CHECKED BY: TF	VERT:		



Know what's below.
Call before you dig.

GENERAL NOTES:

- THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR TO CALL FOR UTILITY LOCATOR AT LEAST 2 BUSINESS DAYS BEFORE EXCAVATION. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS 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 WILL IMMEDIATELY NOTIFY THE ENGINEER AND COORDINATE ANY NEEDED MODIFICATIONS TO THE PROPOSED WORK.
- BEFORE THE START OF CONSTRUCTION, 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.
- OVERHEAD UTILITIES ARE NOT INDICATED ON PROFILE OR SECTION DRAWINGS.
- CONTRACTOR IS ADVISED THAT CONCRETE ENCASED WATER AND SANITARY SEWER LINES ARE EXPOSED IN THE PROJECT AREA. CARE AND SPECIAL MEASURES DURING CONSTRUCTION WILL BE REQUIRED TO PROTECT THESE LINES. MINIMUM DEPTHS OF COVER ARE REQUIRED FOR THE PASSAGE OF CONSTRUCTION EQUIPMENT AND PASSAGE MAY BE PROHIBITED IN SOME AREAS. CONTRACTOR TO COORDINATE PROTECTION OF THESE LINES WITH COLORADO SPRINGS UTILITIES.
- 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 AND MAKE REPAIRS IN ACCORDANCE WITH THE OWNER'S REQUIREMENTS.
- THE CONTRACTOR SHALL CONFIRM THE RECEIPT OF ALL NECESSARY PERMITS AND APPROVALS BEFORE THE START OF CONSTRUCTION.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS OF COLORADO SPRINGS UTILITIES UNLESS SPECIFICALLY DETAILED OTHERWISE ON THESE PLANS AND ASSOCIATED SPECIFICATIONS. ANY ELEMENT OF CONSTRUCTION WHICH IS NOT ADDRESSED EITHER BY THESE PLANS AND SPECIFICATIONS OR BY THE STANDARDS OF COLORADO SPRINGS UTILITIES SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS.
- THE CONTRACTOR SHALL MAINTAIN AT THE SITE AT ALL TIMES ONE SIGNED COPY OF THE PROJECT DRAWINGS AND SPECIFICATIONS, ONE COPY OF CURRENT COLORADO SPRINGS UTILITIES STANDARDS, ONE COPY OF CITY OF COLORADO SPRINGS STANDARD SPECIFICATIONS AND ONE COPY OF ALL REQUIRED PERMITS.
- THE CONTRACTOR SHALL CONDUCT HIS 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 OF THE ENGINEER AND CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT WETLAND VEGETATION AT CHANNEL EDGE.
- FOR ALL SITE GRADING, SMOOTH, PARABOLIC TRANSITIONS SHALL BE MADE BETWEEN CHANGES IN SLOPE.
- THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF PROPERTY ABUTTING OR AFFECTED BY THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF ONE WEEK ADVANCED WRITTEN NOTICE PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING STABLE EXCAVATIONS AND TEMPORARY SLOPES AND FOR SATISFYING ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
- CONSTRUCTION OF THE PROPOSED WORK WILL TAKE PLACE WITHIN THE KETTLE CREEK 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 KETTLE CREEK AND FOR FLOW WITHIN KETTLE 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 ALL PERMITS.
- BEDROCK INFORMATION SHOWN ON THE DRAWINGS IS APPROXIMATE. ACTUAL ELEVATIONS MAY VARY FROM THOSE SHOWN ON THE PLANS. A GEOTECHNICAL REPORT IS AVAILABLE FOR REVIEW BY THE CONTRACTOR.
- CONCRETE, RIPRAP AND OTHER DEBRIS MAY BE ENCOUNTERED DURING EXCAVATION AND SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY DISPOSE OF OFF-SITE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT DRAWINGS TO BE SUBMITTED TO THE ENGINEER.

ABBREVIATIONS

APPROX. CL	APPROXIMATE CENTERLINE	MAX MIN	MAXIMUM MINIMUM	SSMH SD	SANITARY SEWER MANHOLE STORM SEWER
DIM DIST.	DIMENSION DISTANCE	N	NORTH/ NORTHING	STA	STATION
E	EAST/ EASTING	N,S,E,W	NORTH, SOUTH, EAST, WEST	THK	THICK
EL. / ELEV	ELEVATION	NO.	NUMBER	TYP	TYPICAL
EST.	ESTIMATE	NTS	NOT TO SCALE	U/G	UNDERGROUND
EX/EXIST	EXISTING	O.C.	ON CENTER	VERT	VERTICAL
FT. / '	FEET	O/H	OVERHEAD		
HORIZ	HORIZONTAL	PH	POT HOLE		
IN. / "	INCHES	PP	POWER POLE		
INV	INVERT	PL	PROPERTY LINE		
LT	LEFT	PKWY	PARKWAY		
LF	LINEAR FEET	RT	RIGHT		
MH	MANHOLE	ROW	RIGHT-OF-WAY		
		SAN SEW	SANITARY SEWER		
		SS	SANITARY SEWER		

STANDARD SYMBOLS

CENTERLINE	— — — — —
FENCE	- x - x - x - x - x -
EXISTING SANITARY SEWER	— ss —
EXISTING STORM SEWER	— [dashed] —
GAS	— G —
ELECTRIC (O/H OR U/G*)	— E —
TELEPHONE (O/H OR U/G*)	— T —
TELEVISION CABLE	— TV —
EXISTING WATER	— E-W —
RIGHT-OF-WAY (ROW)	— — — — —
SANITARY SEWER MANHOLE	⊙
PROPOSED CONTOUR	— — — — —
EXISTING CONTOUR	- - - - -

LEGEND

	PROPOSED 30" MIN. DIM. GROUTED BOULDERS
	PROPOSED TYPE H PLAIN RIPRAP
	PROPOSED TYPE H SOIL RIPRAP
	BORING LOCATION AND NUMBER

Kettle Creek Stabilization Project in Colorado Springs, El Paso County, Colorado
 Applicant: Colorado Springs Utilities
 Application No.: SPA-2011-00543-SCO
 Legend & General Notes
 Sheet 4 of 11 December 2011

BENCHMARK:
 FACILITIES INFORMATION MANAGEMENT SYSTEM (FIMS)
 SURVEY CONTROL NETWORK MONUMENT RECORD
 MONUMENT NAME (FH04)
 BERNTSEN TOP SECURITY MONUMENT IN MONUMENT BOX LOCATED IN THE MEDIAN OF INTERQUEST PKWY, 25' +/- W. OF LIGHT POLE # R18548. 550' E. OF FEDERAL DRIVE.
 6711.49 U.S. SURVEY FEET

DRAFT
 100% SUBMITTAL

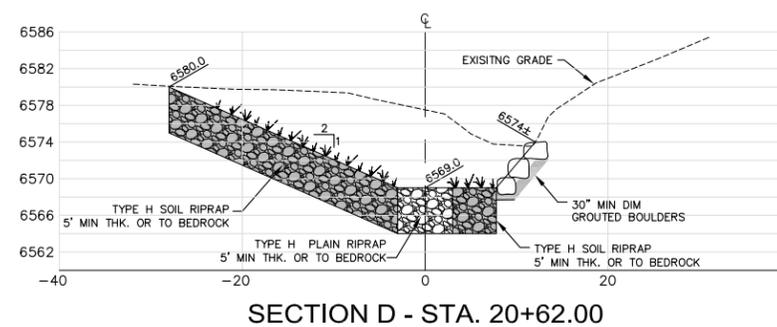
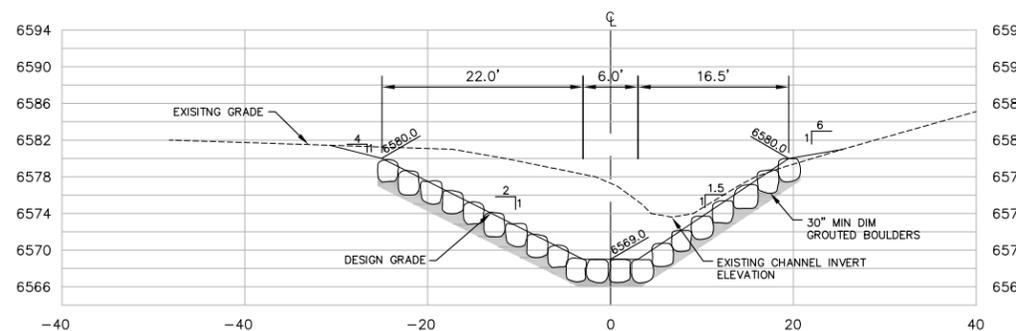
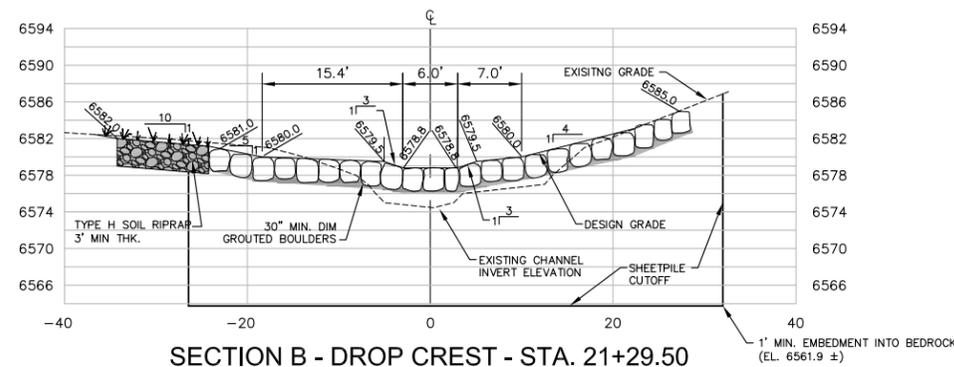
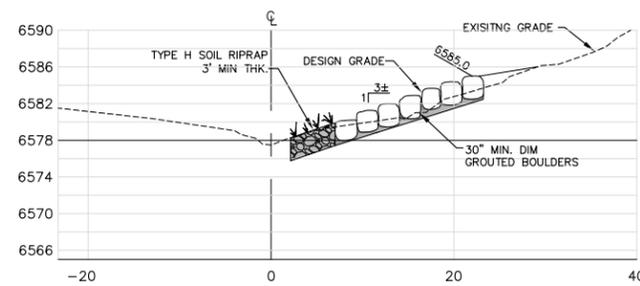
FOR AND ON BEHALF OF
 MATRIX DESIGN GROUP, INC.

Matrix Design Group, Inc.
 Integrated Design Solutions 2435 Research Parkway, Suite 300
 Colorado Springs, CO 80920
 Phone 719-575-0100
 Fax 719-575-0208

KETTLE CREEK CROSSING STABILIZATION AT COLORADO HIGHWAY 83			
LEGEND & GENERAL NOTES			
DESIGNED BY: GGS	SCALE	DATE ISSUED: AUGUST 2010	2
DRAWN BY: MAK	HORIZ: NA	MDG PROJECT NO.: 09.222.002	
CHECKED BY: TF	VERT: NA		



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NOTE: ALL SECTIONS ORIENTED LOOKING DOWNSTREAM

Kettle Creek Stabilization Project in Colorado Springs, El Paso County, Colorado
 Applicant: Colorado Springs Utilities
 Application No.: SPA-2011-00543-SCO
 Drop Structure Sections
 Sheet 6 of 11 December 2011

BENCHMARK:
 FACILITIES INFORMATION MANAGEMENT SYSTEM (FIMS)
 SURVEY CONTROL NETWORK MONUMENT RECORD
 MONUMENT NAME (FH04)
 BERNTSEN TOP SECURITY MONUMENT IN MONUMENT
 BOX LOCATED IN THE MEDIAN OF INTERQUEST PKWY,
 25' +/- W. OF LIGHT POLE # R18548. 550' E. OF
 FEDERAL DRIVE.
 6711.49 U.S. SURVEY FEET

DRAFT
 100% SUBMITTAL

FOR AND ON BEHALF OF
 MATRIX DESIGN GROUP, INC.

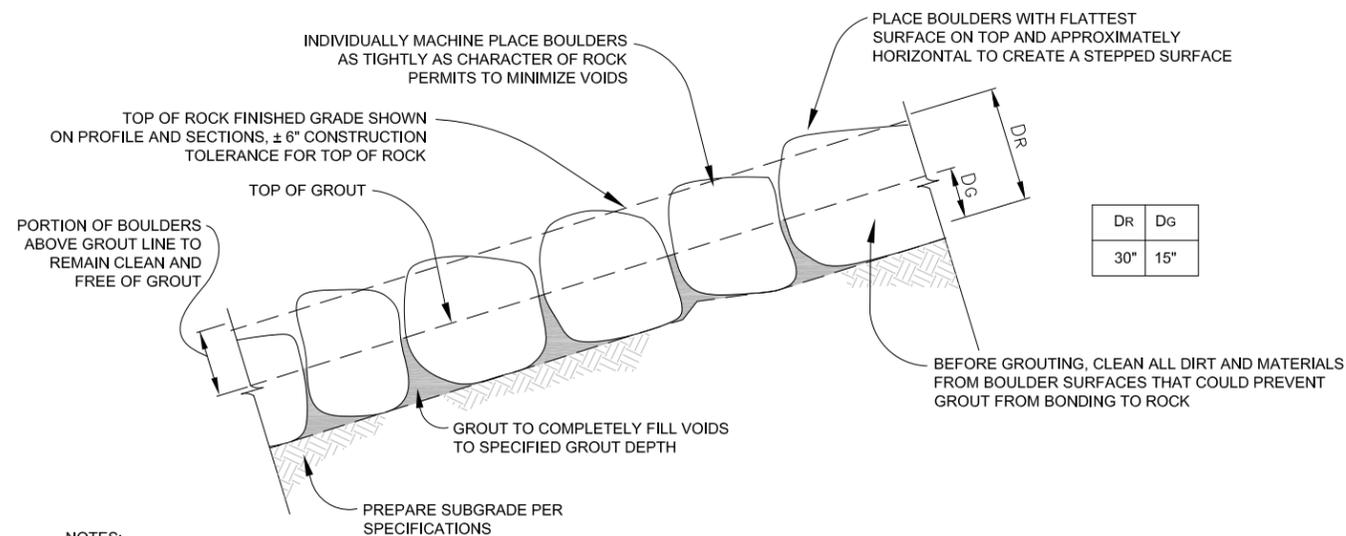


Matrix Design Group, Inc.
 Integrated Design Solutions 2435 Research Parkway, Suite 300
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KETTLE CREEK CROSSING STABILIZATION
 AT COLORADO HIGHWAY 83

DROP STRUCTURE
 SECTIONS

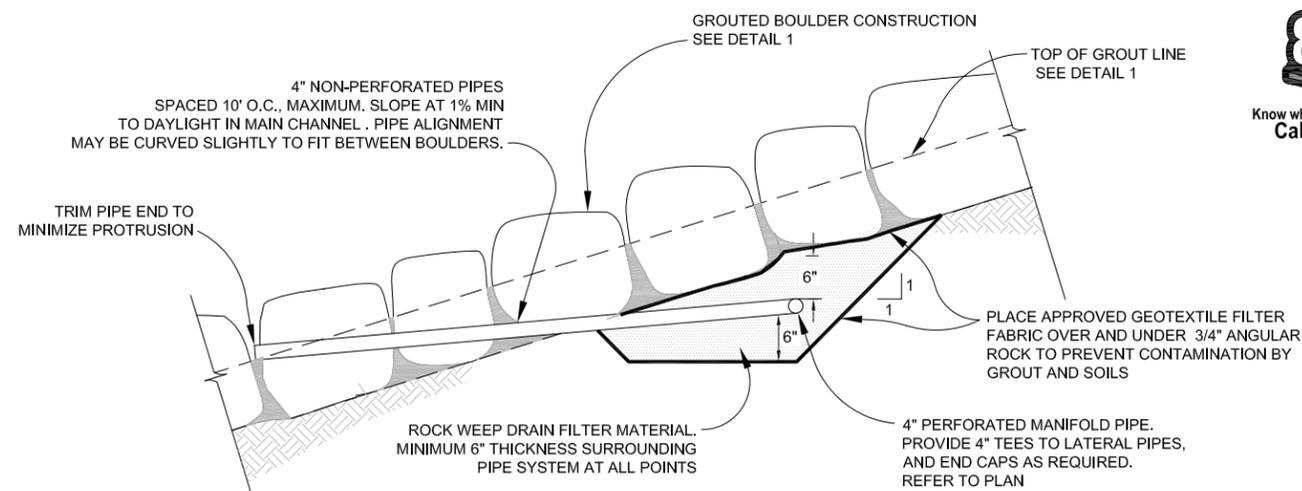
DESIGNED BY: GGS	SCALE	DATE ISSUED: AUGUST 2010
DRAWN BY: MAK	HORIZ: 1"=10'	MDG PROJECT NO.: 09.222.002
CHECKED BY: TF	VERT: 1"=10'	



NOTES:
BOULDER SIZES SPECIFIED ON THE DRAWINGS ARE THE MINIMUM ACCEPTABLE BOULDER DIMENSIONS MEASURED ALONG ANY AXIS OF THE BOULDER. BOULDERS MAY BE LARGER BUT NOT SMALLER IN ANY DIMENSION THAN THE SPECIFIED MINIMUM SIZE.

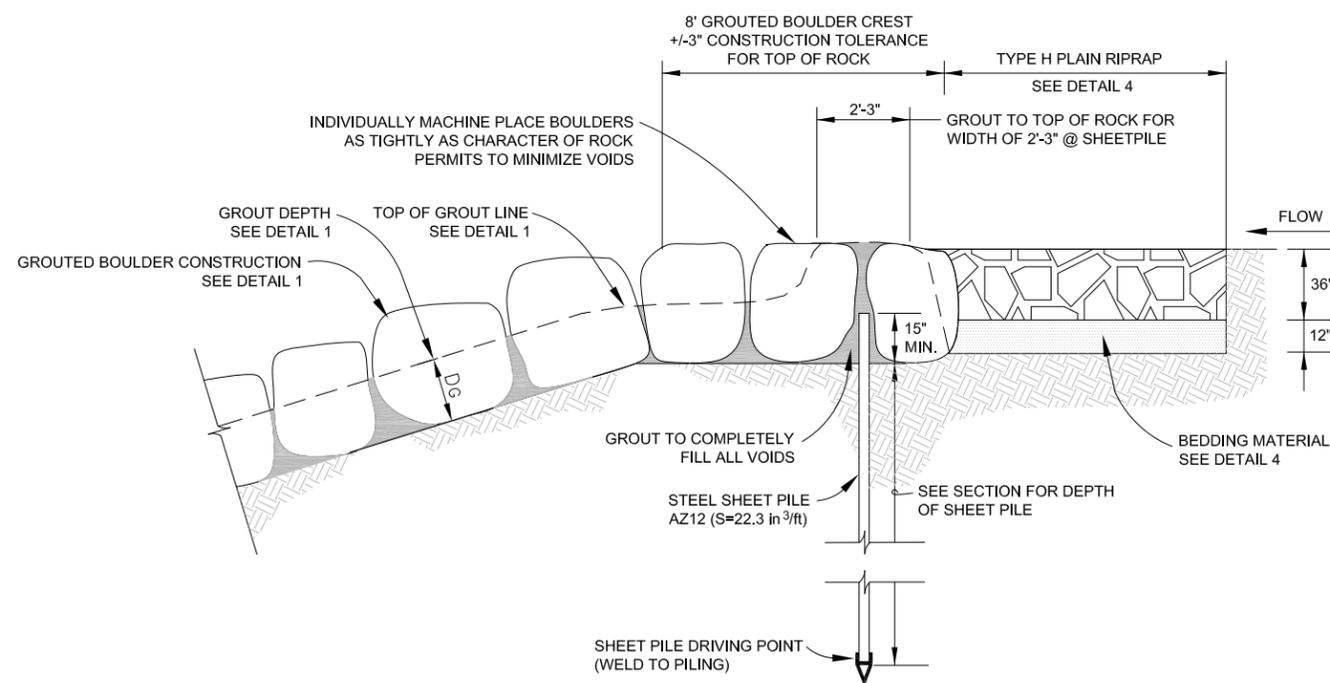
GRouted BOULDER PLACEMENT DETAIL 1

NTS



WEEP DRAIN SYSTEM DETAIL 2

NTS



GRouted BOULDER STRUCTURE CREST DETAIL 3

NTS

Kettle Creek Stabilization Project in Colorado Springs, El Paso County, Colorado
 Applicant: Colorado Springs Utilities
 Application No.: SPA-2011-00543-SCO
 Grouted Rock Details
 Sheet 7 of 11 December 2011

BENCHMARK:
 FACILITIES INFORMATION MANAGEMENT SYSTEM (FIMS)
 SURVEY CONTROL NETWORK MONUMENT RECORD
 MONUMENT NAME (FH04)
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DRAFT
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 FOR AND ON BEHALF OF
 MATRIX DESIGN GROUP, INC.



Matrix Design Group, Inc.
 Integrated Design Solutions 2435 Research Parkway, Suite 300
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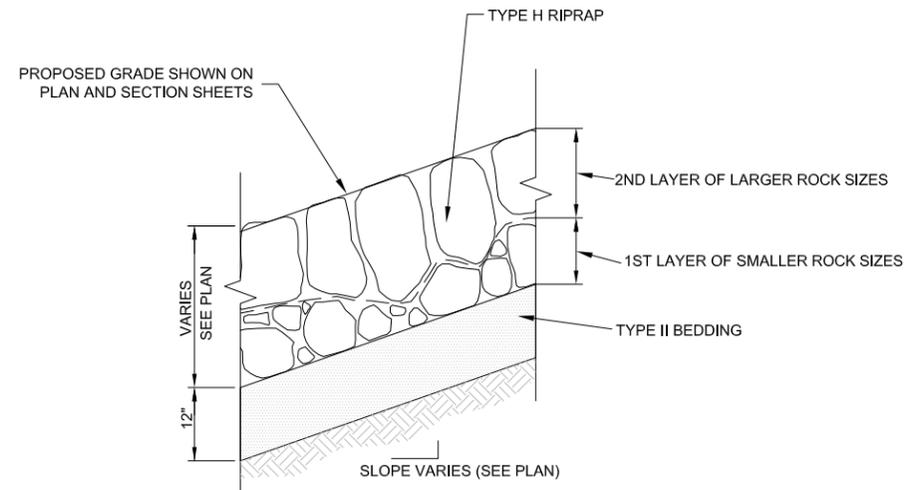
KETTLE CREEK CROSSING STABILIZATION
 AT COLORADO HIGHWAY 83

GRouted ROCK
 DETAILS

DESIGNED BY: GGS	SCALE	DATE ISSUED: AUGUST 2010
DRAWN BY: MAK	HORIZ: NTS	
CHECKED BY: TF	VERT:	MDG PROJECT NO.: 09.222.002

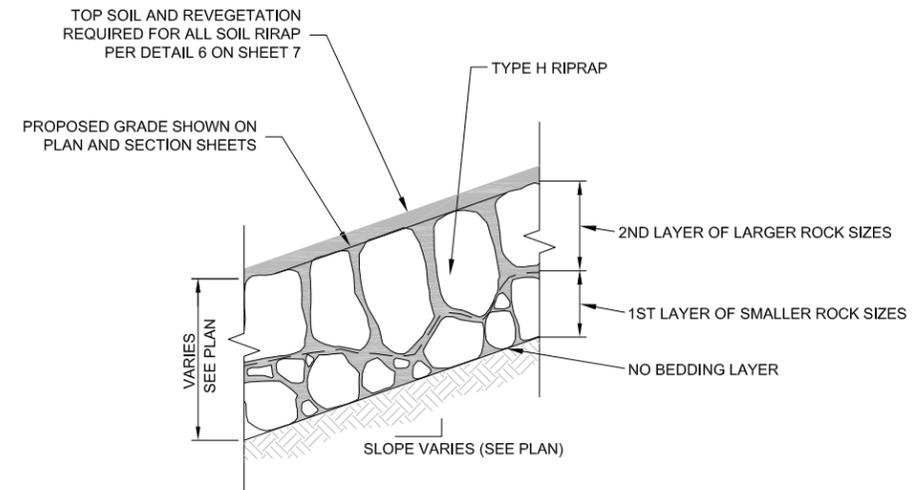


Know what's below.
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PLAIN RIPRAP DETAIL 4

NTS



SOIL RIPRAP DETAIL 5

NTS

NOTES:

1. PLACE RIPRAP IN TWO LIFTS (MINIMUM). FIRST LIFT SHALL CONSIST OF SMALLER ROCK SIZES, SECOND LIFT SHALL BE THE LARGER SIZES IN GRADATION. GENERAL PLACEMENT TECHNIQUES SHOULD RESULT IN THE LARGEST ROCK FRAGMENTS BEING ON THE SURFACE, SECURELY INTERLOCKED AT THE DESIGN THICKNESS AND GRADE. COMPACTION AND LEVELING SHOULD RESULT IN MINIMAL VOIDS AND PROJECTIONS ABOVE GRADE. ANY POCKETS OF SMALL ROCK SHALL BE REWORKED AT THE DIRECTION OF THE ENGINEER.

2. ALL RIPRAP PLACEMENTS ARE TO BE COMPACTED BY FULL LOADING OF BACKHOE BUCKET AND APPROVED BY THE ENGINEER. ANY SOFT OR YIELDING AREAS WILL BE EXCAVATED, STABILIZED AND REINSTALLED.

3. NO BEDDING LAYER SHALL BE USED WITH SOIL RIPRAP.

4. **Type H Riprap ($d_{50}^* = 18$ inches)**

% Smaller (By Weight)	Intermediate Rock Dimension (inches)
70 - 100	30
50 - 70	24
35 - 50	18
2 - 10	6

* d_{50} = Mean Particle Size

Kettle Creek Stabilization Project in Colorado Springs, El Paso County, Colorado
 Applicant: Colorado Springs Utilities
 Application No.: SPA-2011-00543-SCO
 Riprap Details
 Sheet 8 of 11 December 2011

BENCHMARK:
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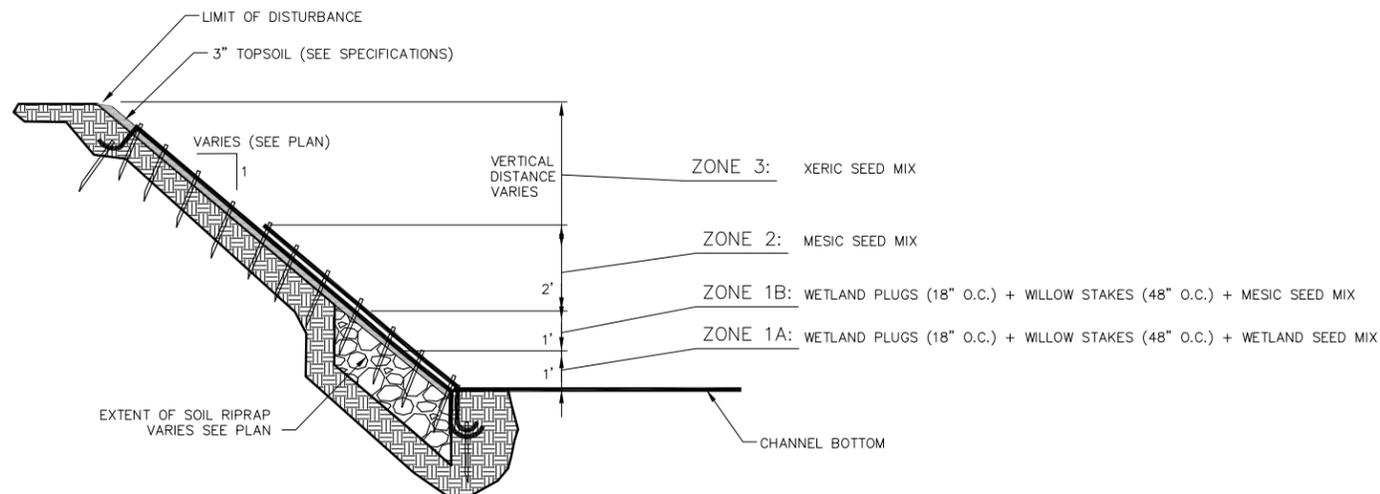
Matrix Design Group, Inc.

Integrated Design Solutions 2435 Research Parkway, Suite 300
 Colorado Springs, CO 80920
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KETTLE CREEK CROSSING STABILIZATION
AT COLORADO HIGHWAY 83

RIPRAP
DETAILS

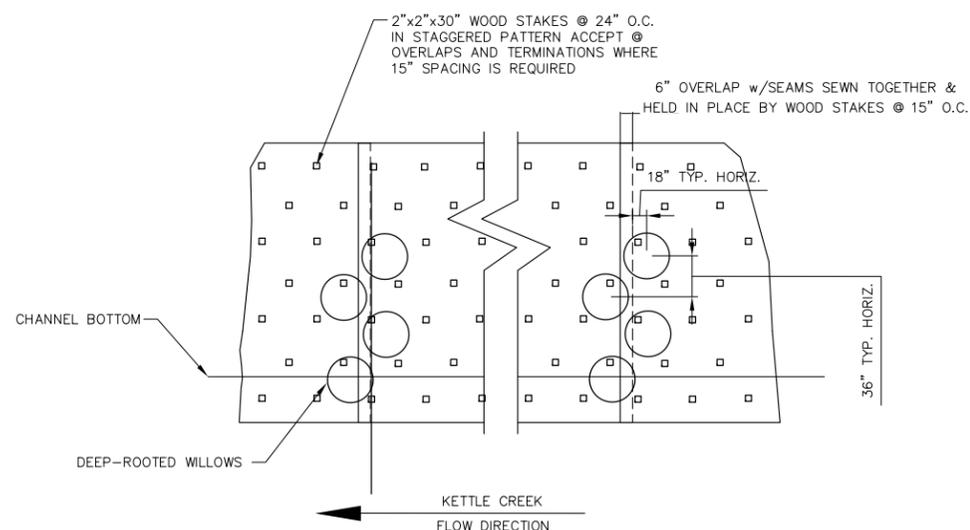
DESIGNED BY: GGS	SCALE	DATE ISSUED: AUGUST 2010
DRAWN BY: MAK	HORIZ: NTS	
CHECKED BY: TF	VERT:	MDG PROJECT NO.: 09.222.002



TYPICAL PLANTING SECTION

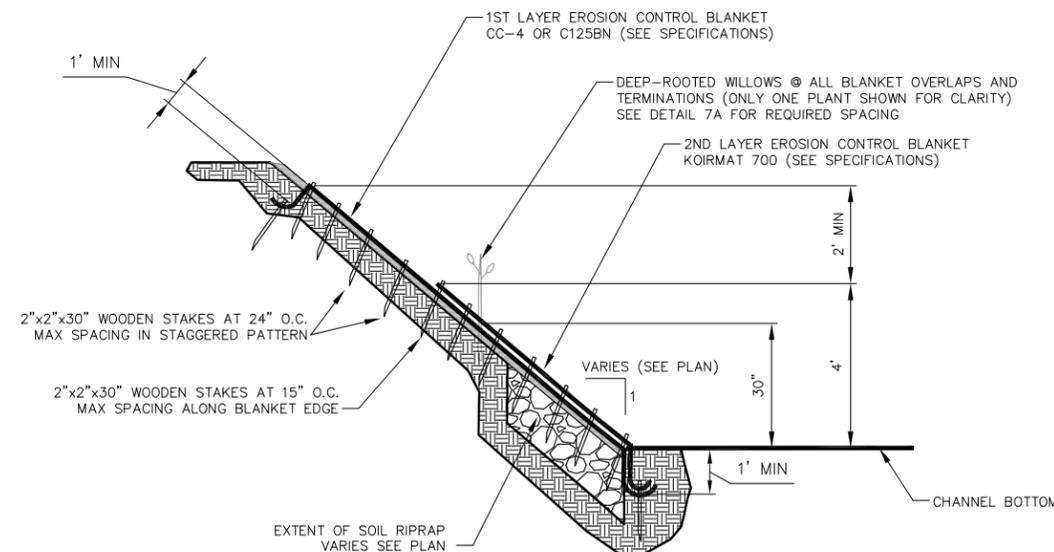
6

NTS



NOTES:

1. EROSION CONTROL BLANKET AND REVEGETATION IN ACCORDANCE WITH THESE DETAILS REQUIRED FOR ALL DISTURBED CHANNEL BANK AREAS.
2. EROSION CONTROL BLANKETS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURE'S RECOMMENDATIONS UNLESS OTHERWISE INDICATED ON THESE DRAWINGS OR IN THE PROJECT SPECIFICATIONS.
3. SHINGLE EROSION CONTROL BLANKET IN DOWNSTREAM DIRECTION WITH UPSTREAM BLANKET EDGE OVERLAPPING THE DOWNSTREAM BLANKET EDGE.
4. DEEP-ROOTED WILLOWS TO BE INSTALLED ALONG ALL BLANKET OVERLAPS AND TERMINATIONS WITHIN 30 VERTICAL INCHES OF CHANNEL BOTTOM.



EROSION CONTROL BLANKET INSTALLATION - PLAN

7A

NTS

EROSION CONTROL BLANKET INSTALLATION - SECTION

7B

NTS

Kettle Creek Stabilization Project in Colorado Springs, El Paso County, Colorado
 Applicant: Colorado Springs Utilities
 Application No.: SPA-2011-00543-SCO
 Revegetation Details
 Sheet 9 of 11 December 2011

BENCHMARK:
 FACILITIES INFORMATION MANAGEMENT SYSTEM (FIMS)
 SURVEY CONTROL NETWORK MONUMENT RECORD
 MONUMENT NAME (FH04)
 BERTNSEN TOP SECURITY MONUMENT IN MONUMENT
 BOX LOCATED IN THE MEDIAN OF INTERQUEST PKWY,
 25' +/- W. OF LIGHT POLE # R18548. 550' E. OF
 FEDERAL DRIVE.
 6711.49 U.S. SURVEY FEET

DRAFT
 100% SUBMITTAL
 FOR AND ON BEHALF OF
 MATRIX DESIGN GROUP, INC.



Matrix Design Group, Inc.
 Integrated Design Solutions 2435 Research Parkway, Suite 300
 Colorado Springs, CO 80920
 Phone 719-575-0100
 Fax 719-575-0208

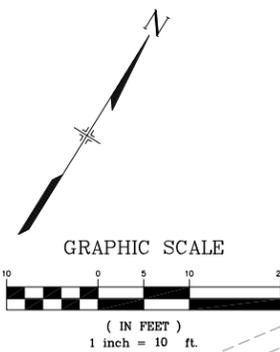
KETTLE CREEK CROSSING STABILIZATION
 AT COLORADO HIGHWAY 83

REVEGETATION DETAILS

DESIGNED BY: GGS	SCALE	DATE ISSUED: AUGUST 2010
DRAWN BY: MAK	HORIZ: NTS	MDG PROJECT NO.: 09.222.002
CHECKED BY: TF	VERT:	

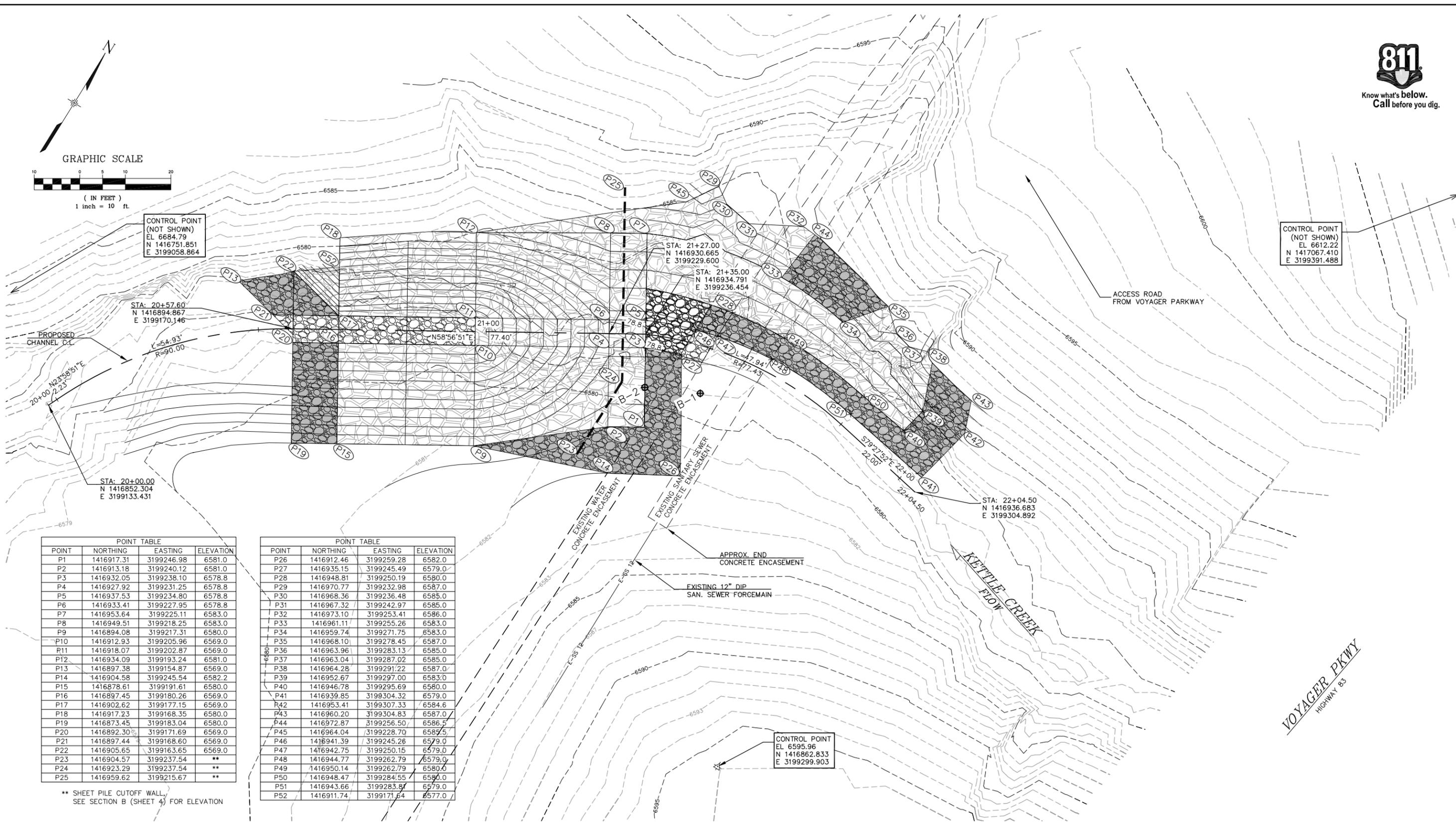


Know what's below.
Call before you dig.



CONTROL POINT
(NOT SHOWN)
EL 6684.79
N 1416751.851
E 3199058.864

CONTROL POINT
(NOT SHOWN)
EL 6612.22
N 1417067.410
E 3199391.488



POINT	NORTHING	EASTING	ELEVATION
P1	1416917.31	3199246.98	6581.0
P2	1416913.18	3199240.12	6581.0
P3	1416932.05	3199238.10	6578.8
P4	1416927.92	3199231.25	6578.8
P5	1416937.53	3199234.80	6578.8
P6	1416933.41	3199227.95	6578.8
P7	1416953.64	3199225.11	6583.0
P8	1416949.51	3199218.25	6583.0
P9	1416894.08	3199217.31	6580.0
P10	1416912.93	3199205.96	6569.0
P11	1416918.07	3199202.87	6569.0
P12	1416934.09	3199193.24	6581.0
P13	1416897.38	3199154.87	6569.0
P14	1416904.58	3199245.54	6582.2
P15	1416878.61	3199191.61	6580.0
P16	1416897.45	3199180.26	6569.0
P17	1416902.62	3199177.15	6569.0
P18	1416917.23	3199168.35	6580.0
P19	1416873.45	3199183.04	6580.0
P20	1416892.30	3199171.69	6569.0
P21	1416897.44	3199168.60	6569.0
P22	1416905.65	3199163.65	6569.0
P23	1416904.57	3199237.54	**
P24	1416923.29	3199237.54	**
P25	1416959.62	3199215.67	**

POINT	NORTHING	EASTING	ELEVATION
P26	1416912.46	3199259.28	6582.0
P27	1416935.15	3199245.49	6579.0
P28	1416948.81	3199250.19	6580.0
P29	1416970.77	3199232.98	6587.0
P30	1416968.36	3199236.48	6585.0
P31	1416967.32	3199242.97	6585.0
P32	1416973.10	3199253.41	6586.0
P33	1416961.11	3199255.26	6583.0
P34	1416959.74	3199271.75	6583.0
P35	1416968.10	3199278.45	6587.0
P36	1416963.96	3199283.13	6585.0
P37	1416963.04	3199287.02	6585.0
P38	1416964.28	3199291.22	6587.0
P39	1416952.67	3199297.00	6583.0
P40	1416946.78	3199295.69	6580.0
P41	1416939.85	3199304.32	6579.0
P42	1416953.41	3199307.33	6584.6
P43	1416960.20	3199304.83	6587.0
P44	1416972.87	3199256.50	6586.5
P45	1416964.04	3199228.70	6587.5
P46	1416941.39	3199245.26	6579.0
P47	1416942.75	3199250.15	6579.0
P48	1416944.77	3199262.79	6579.0
P49	1416950.14	3199262.79	6580.0
P50	1416948.47	3199284.55	6580.0
P51	1416943.66	3199283.87	6579.0
P52	1416911.74	3199171.64	6577.0

** SHEET PILE CUTOFF WALL,
SEE SECTION B (SHEET 4) FOR ELEVATION

Kettle Creek Stabilization Project in Colorado Springs, El Paso County, Colorado
 Applicant: Colorado Springs Utilities
 Application No.: SPA-2011-00543-SCO
 Construction Layout
 Sheet 10 of 11 December 2011

BENCHMARK:
 FACILITIES INFORMATION MANAGEMENT SYSTEM (FIMS)
 SURVEY CONTROL NETWORK MONUMENT RECORD
 MONUMENT NAME (FH04)
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**KETTLE CREEK CROSSING STABILIZATION
 AT COLORADO HIGHWAY 83**

CONSTRUCTION LAYOUT

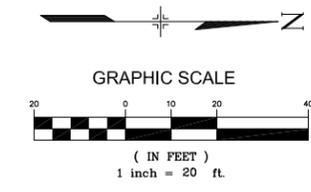
DESIGNED BY: GGS	SCALE: 1"=10'	DATE ISSUED: AUGUST 2010
DRAWN BY: MAK	HORIZ: NA	MDG PROJECT NO.: 09.222.002
CHECKED BY: TF	VERT: NA	

8

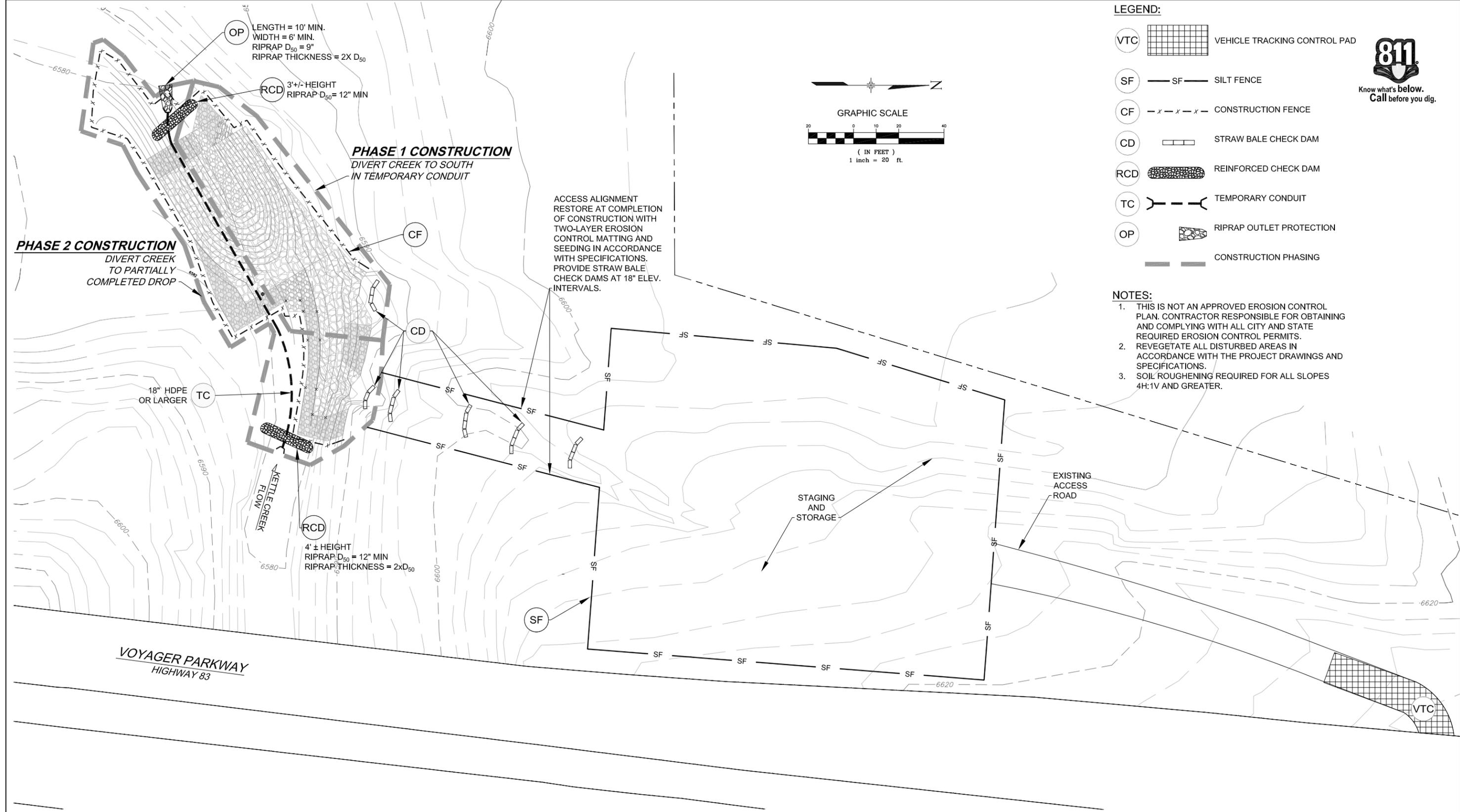


- LEGEND:**
- VTC VEHICLE TRACKING CONTROL PAD
 - SF SILT FENCE
 - CF CONSTRUCTION FENCE
 - CD STRAW BALE CHECK DAM
 - RCD REINFORCED CHECK DAM
 - TC TEMPORARY CONDUIT
 - OP RIPRAP OUTLET PROTECTION
 - CONSTRUCTION PHASING

- NOTES:**
1. THIS IS NOT AN APPROVED EROSION CONTROL PLAN. CONTRACTOR RESPONSIBLE FOR OBTAINING AND COMPLYING WITH ALL CITY AND STATE REQUIRED EROSION CONTROL PERMITS.
 2. REVEGETATE ALL DISTURBED AREAS IN ACCORDANCE WITH THE PROJECT DRAWINGS AND SPECIFICATIONS.
 3. SOIL ROUGHENING REQUIRED FOR ALL SLOPES 4H:1V AND GREATER.



ACCESS ALIGNMENT RESTORE AT COMPLETION OF CONSTRUCTION WITH TWO-LAYER EROSION CONTROL MATTING AND SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PROVIDE STRAW BALE CHECK DAMS AT 18" ELEV. INTERVALS.



Kettle Creek Stabilization Project in Colorado Springs, El Paso County, Colorado
 Applicant: Colorado Springs Utilities
 Application No.: SPA-2011-00543-SCO
 Erosion Control Plan
 Sheet 11 of 11 December 2011

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KETTLE CREEK CROSSING STABILIZATION
 AT COLORADO HIGHWAY 83

EROSION CONTROL PLAN

DESIGNED BY: GGS	SCALE: 1"=20'	DATE ISSUED: AUGUST 2010
DRAWN BY: MAK	HORIZ: NA	MDG PROJECT NO.: 09.222.002
CHECKED BY: TF	VERT: NA	