

# LORSON BOULEVARD BRIDGE over EAST FORK JIMMY CAMP CREEK

## EL PASO COUNTY, COLORADO

### PREPARED FOR LORSON DEVELOPMENT

#### GENERAL NOTES

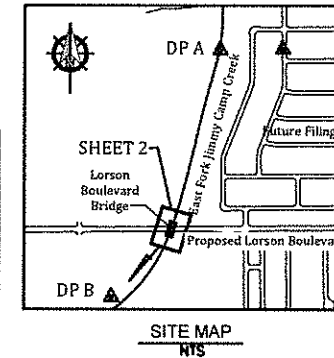
- Profile design lines are based on centerline, as shown, unless otherwise noted.
- All new construction to conform to the specifications of El Paso County Department of Public Works. Any asphalt removed is to be replaced to meet the specifications of the El Paso County Public Works Department.
- For pavement design, curb and gutter, and sidewalks see individual plan and profile sheets. Pavement design to be based on Resistance Value "R" derived from Hveem tests and are to be approved by the Engineering Division of the El Paso County Planning and Community Development prior to work above subgrade.
- At intersections, all curb returns will have 20-foot radius unless otherwise noted.
- All existing utilities have been shown according to the best available information. The contractor is responsible for field location and verification prior to beginning work. If it appears that there could be a conflict with any utilities, whether indicated on the plans or not, the contractor is to notify the engineer and owner immediately. The contractor is responsible for the protection and repair (if necessary) of all utilities.
- A Pre-Construction meeting shall be held with the El Paso County Planning and Community Development and Widefield Water and Sanitation District prior to any construction.
- Approved plans, Engineering Criteria Manual, etc. is required to be on-site at all times during construction.
- All necessary permits, such as SWMP, ESQCP, Fugitive Dust, Access, C.O.E. 404, etc. shall be obtained prior to construction.
- All handicap ramps to be per El Paso County Standard SD\_2-40.
- The contractor shall coordinate locations and layout with the El Paso County Planning and Community Development on the placement of any pedestrian ramps prior to construction of the curb.
- Where appropriate, neatly saw cut all existing concrete and asphalt. Repair/replace all disturbed existing items with like materials and thicknesses.
- All disturbed areas shall be revegetated with native grasses within 21 days of excavation per Erosion Control Plan.
- The prepared Erosion/Sediment Control Plan is to be considered a part of these plans and its requirements adhered to during the construction of this project.
- All storm and sanitary sewer pipe lengths and slopes are figured from center of manhole or bend. Pipe lengths are given as a horizontal length.
- All storm sewer bedding to be per CDOT Standards.
- All storm sewer pipe shall be Class III B Wall unless otherwise shown on the storm sewer plan and profile sheets.
- All ways and bends used in construction of storm sewer facilities shall be factory fabricated, unless approved by the El Paso County Development Services Department.
- Construction and materials used in all storm and sanitary sewer manholes shall be per specifications. Storm sewer radial deflections to be grouted or installed per manufacturer's recommendations.
- Storm sewer manholes sizes as follows unless otherwise shown:
  - 18" thru 36" use 48" I.D. manhole
  - 42" thru 48" use 60" I.D. manhole
  - 54" thru 60" use 72" I.D. manhole
 NOTE: Manhole sizes tabulated here shall be increased, if necessary, to accommodate incoming laterals.
- All horizontal stationing is based on the "Face of Curb", unless otherwise shown.
- All vertical design and top of curb are based on the design point shown in the typical cross section.
- The curb line design point is located at the intersection of the face and top of curb for the Type III Standard 6-inch vertical curb. See typical street section for design point locations.
- Vertical curb to be used between curb returns (CR) and at curb inlets. Transitions from ramp to vertical curb shall be 10-feet unless otherwise approved by the El Paso County Public Services Department. All other curb & gutter to be ramp curb & gutter.
- Cross pans to be per El Paso County Standard Detail SD\_2-26.
- Contractor responsible for meeting all Widefield Water and Sanitation District criteria when connecting to existing stubs.
- Curb returns shall be straight graded from CR to CR unless otherwise noted.
- Inlets are Type "R" inlets (CDOT STD M-604-12) unless otherwise noted.

**BENCHMARK:** Monument is located at the Northwest corner of the intersection of Powers Boulevard and Fontaine Street. The monument is a 3-inch aluminum cap (FIMS ID #206). Located 51.3 feet west of the west edge of asphalt of Powers Blvd and 65.5 feet north of the north edge of asphalt of Fontaine Street. Elevation=5897.89 feet (NGVD 1929, 1960 Adj.)

**Basis of Bearing:** All bearings used herein are based on an assumed bearing of N89°42'02" E, a distance of 1873.45 feet between the northeasterly corner of Pioneer Landing at Lorson Ranch Filing No. 1, as recorded under Reception No. 210713013 of the records of the El Paso County Clerk and Recorder, as monumented by a rebar and orange surveyors cap stamped "Rampart PLS 26965", from which the east one-quarter corner (E $\frac{1}{4}$ ) of said section 14, as monumented by a 2-1/2" pipe with galvanized screw on cap only partially stamped.

#### EL PASO COUNTY STANDARD NOTES

- All drainage and roadway construction shall meet the standards and specifications of the City of Colorado Springs/El Paso County Drainage Criteria Manual, Volumes 1 and 2, and the El Paso County Engineering Criteria Manual.
- Contractor shall be responsible for the notification and field notification of all existing utilities, whether shown on the plans or not, before beginning construction. Location of existing utilities shall be verified by the contractor prior to construction. Call 811 to contact the Utility Notification Center of Colorado (UNCC).
- Contractor shall keep a copy of these approved plans, the Grading and Erosion Control Plan, the Stormwater Management Plan (SWMP), the soils and geotechnical report, and the appropriate design and construction standards and specifications at the job site at all times, including the following:
  - El Paso County Engineering Criteria Manual (ECM)
  - City of Colorado Springs/El Paso County Drainage Criteria Manual, Volumes 1 and 2
  - Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction
  - CDOT M & S Standards
- Notwithstanding anything depicted in these plans in words or graphic representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code, the Engineering Criteria Manual, the Drainage Criteria Manual, and the Drainage Criteria Manual Volume 2. Any deviations from regulations and standards must be requested, and approved, in writing. Any modifications necessary to meet criteria after-the-fact will be entirely the developer's responsibility to rectify.
- It is the design engineer's responsibility to accurately show existing conditions, both onsite and offsite, on the construction plans. Any modifications necessary due to conflicts, omissions, or changed conditions will be entirely the developer's responsibility to rectify.
- Contractor shall schedule a pre-construction meeting with El Paso County Planning and Community Development (PCD) - Inspections, prior to starting construction.
- It is the contractor's responsibility to understand the requirements of all jurisdictional agencies and to obtain all required permits, including but not limited to El Paso County Erosion and Stormwater Quality Control Permit (ESQCP), Regional Building Floodplain Development Permit, U.S. Army Corps of Engineers-issued 401 and/or 404 permits, and county and state fugitive dust permits.
- Contractor shall not deviate from the plans without first obtaining written approval from the design engineer and PCD. Contractor shall notify the design engineer immediately upon discovery of any errors or inconsistencies.
- All storm drain pipe shall be Class III RCP unless otherwise noted and approved by PCD.
- Contractor shall coordinate geotechnical testing per ECM standards. Pavement design shall be approved by El Paso County PCD prior to placement of curb and gutter and pavement.
- All construction traffic must enter/exit the site at approved construction access points.
- Sight visibility triangles as identified in the plans shall be provided at all intersections. Obstructions greater than 18 inches above flowline are not allowed within sight triangles.
- Signing and striping shall comply with El Paso County Department of Public Works and MUTCD criteria. [If applicable, additional signing and striping notes will be provided.]
- Contractor shall obtain any permits required by El Paso County Department of Public Works, including Work Within the Right-of-Way and Special Transport permits.
- The limits of construction shall remain within the property line unless otherwise noted. The owner/developer shall obtain written permission and easements, where required, from adjoining property owner(s) prior to any off-site disturbance, grading, or construction.



#### INDEX OF SHEETS

- Cover Sheet
- Plan and Profile
- General Bridge Plan
- Structure Layout
- Foundation Plan and Sections
- Sections & Typical Details
- Roadway Details
- Grading and Erosion Control Plan
- Erosion Control Details
- Erosion Control Details

#### STATEMENTS

##### Design Engineer's Statement:

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.

Richard N. Wray, P.E. #19310 Date  
For and on behalf of Kiowa Engineering Corp.

##### Owner/Developer's Statement:

I, the owner/developer have read and will comply with all of the requirements specified in these detailed plans and specifications.

Jeff Mark  
Lorson Development  
212 N. Wahsatch Ave. Suite 301  
Colorado Springs, Colorado 80903

##### El Paso County:

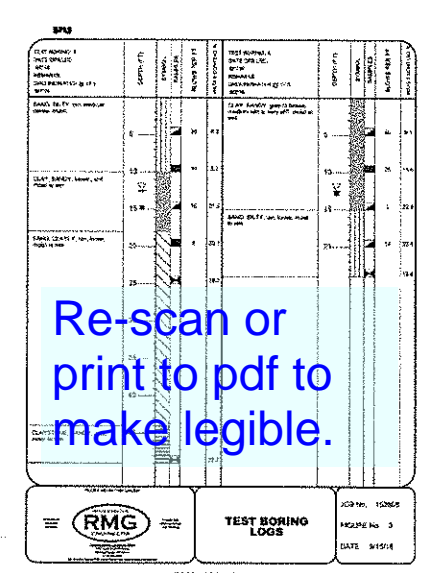
County plan review is provided only for general conformance with County Design Criteria. The County is not responsible for the accuracy and adequacy of the design, dimensions, and/or elevations which shall be confirmed at the job site. The County through the approval of this document assumes no responsibility 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, and Engineering Criteria Manual as amended.

In accordance with ECM Section 1.12, 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 Directors discretion.

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

ABBREVIATIONS	
ASSY	= ASSEMBLY
BNDY	= BOUNDARY
SOP	= BOTTOM OF PIPE
CL	= CENTERLINE
CR	= CONCRETE REVERSE ANCHOR
CTWB	= CONCRETE THRUST BLOCK
CR	= POINT OF CURB RETURN
DI	= DUCTILE IRON PIPE
EL	= ELEVATION
ESMT	= EASEMENT
EX	= EXISTING
FC	= FACE OF CURB
FES	= FLARED END SECTION
FLC	= FLANGE
FL	= FLOWLINE
GB	= GRADE BREAK
HP	= HIGH POINT
HORIZ	= HORIZONTAL
HYD	= HYDRANT
ID	= INSIDE DIAMETER
LT	= LEFT
LF	= LINEAR FEET
LP	= LOW POINT
MAX	= MAXIMUM
MH	= MANHOLE
MIN	= MINIMUM
MTS	= NOT TO SCALE
OD	= OUTSIDE DIAMETER
PC	= POINT OF HORIZONTAL CURVATURE
PP	= PROPOSED
PT	= POINT OF HORIZONTAL TANGENCY
PVC	= POLY VINYL CHLORIDE PIPE
PVC	= POINT OF VERTICAL CURVATURE
PVI	= POINT OF VERTICAL INTERSECTION
PVT	= POINT OF VERTICAL TANGENCY
RCP	= REINFORCED CONCRETE PIPE
RCB	= REINFORCED CONCRETE BOX
RCP	= REINFORCED CONCRETE PIPE
ROW	= RIGHT OF WAY
RT	= RIGHT
SHT	= SHEET
SS	= SANITARY SEWER
STA	= STATION
STD	= STANDARD
TA	= TOP OF ASPHALT
TC	= TOP OF CURB
TOP	= TOP OF PIPE
TOR	= TOP OF ROCK
TYP	= TYPICAL
VC	= VERTICAL CURVE
VERT	= VERTICAL



**SOILS DESCRIPTION**

- CLAYEY SAND
- CLAYSTONE
- SANDY CLAY
- SILT SAND
- SILT TO CLAYEY SAND

**SYMBOLS AND NOTES**

- STANDARD PENETROMETER TEST - MADE BY STRIKING A 140 LB. HANNIBAL HAMMER INTO THE SOIL BY HAND AT A RATE OF 20 BLENDS PER MINUTE. NUMBER OF BLENDS INDICATED BY THE NUMBER OF BLENDS PER FOOT (NUMBER OF BLENDS INDICATED).
- UNSATURATED CALIFORNIA SAMPLE - MADE BY DRIVING A HANNIBAL HAMMER INTO THE SOIL BY HAND AT A RATE OF 20 BLENDS PER MINUTE. NUMBER OF BLENDS INDICATED BY THE NUMBER OF BLENDS PER FOOT (NUMBER OF BLENDS INDICATED).
- FREE WATER TABLE
- DEPTH AT WHICH BORING CAVED
- BLANK - DISTURBED BULK SAMPLE
- AND - UNDER-CUTTING
- WATER CONTENT (%)

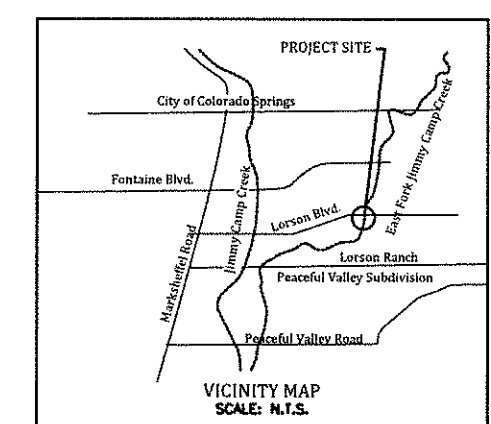
**RMG** ENGINEERING

EXPLANATION OF TEST BORING LOGS

JOB NO. 17001  
DATE 02/25/18

SUMMARY OF DESIGN FLOWS (cfs)					
DP	EPC FIS <sup>(1)</sup>	2014 DPBS			
		5yr	10yr	5yr	10yr
A	NR	2600	5200	100	1860 4530
B	NR	2800	5500	100	1870 4570

- DESIGN OF MAJOR DRAINAGEWAYS AND LORSON BRIDGE BASED ON 100-YEAR FIS DISCHARGES.
- ALL DISCHARGES REPRESENT EXISTING BASIN DEVELOPMENT CONDITIONS.



**DEVELOPER:**  
Lorson Development  
212 N. Wahsatch #301  
Colorado Springs, CO  
80903

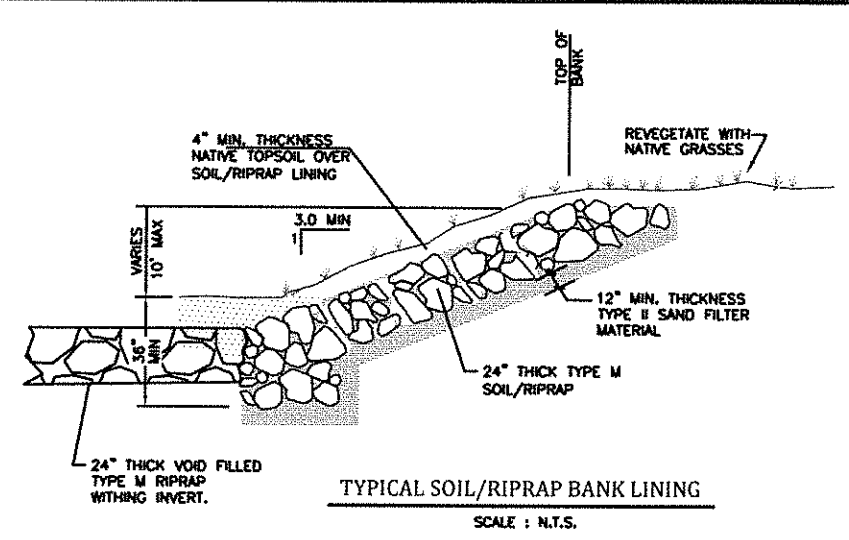
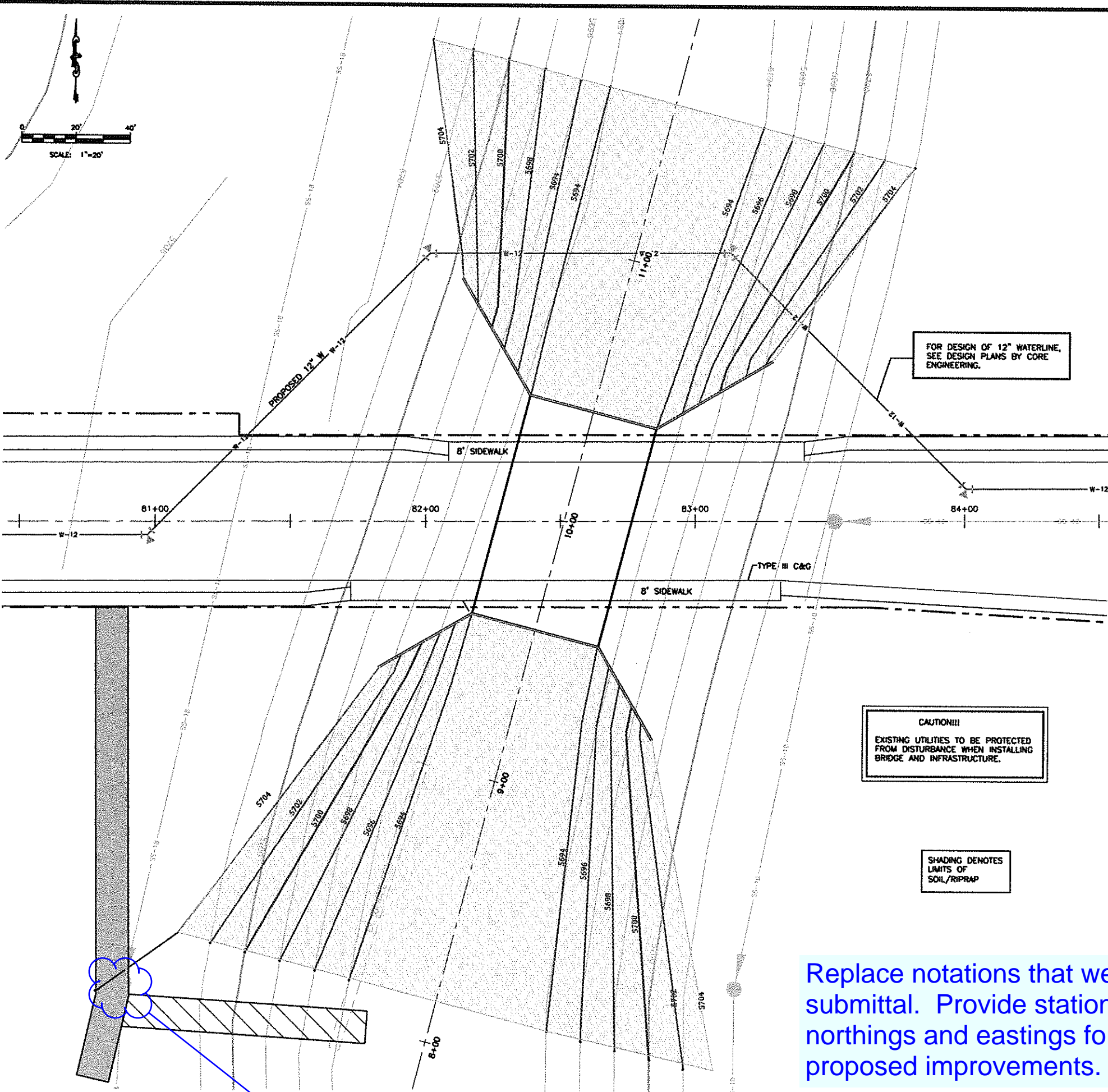
**PREPARED BY:**  
**Kiowa**  
Engineering Corporation  
1804 South 21st Street,  
Colorado Springs, Colorado 80904  
(719) 630-7342

Kiowa Project No. 17001  
Feb. 25, 2018

PCD FILE # CDR-18-002







**SOIL RIPRAP**

THE SOIL MATERIAL SHALL BE NATIVE OR TOPSOIL AND MIXED WITH SIXTY FIVE PERCENT (65%) RIPRAP AND THIRTY FIVE PERCENT (35%) SOIL BY VOLUME.

SOIL RIPRAP SHALL CONSIST OF A UNIFORM MIXTURE OF SOIL AND RIPRAP WITHOUT VOIDS.

CONTRACTOR SHALL COOPERATE WITH ENGINEER IN OBTAINING AND PROVIDING SAMPLES OF ALL SPECIFIED MATERIALS.

CONTRACTOR SHALL SUBMIT CERTIFIED LABORATORY TEST CERTIFICATES FOR ALL ITEMS REQUIRED FOR SOIL RIPRAP.

RIPRAP USED SHALL BE THE TYPE DESIGNATED ON THE DRAWINGS AND SHALL CONFORM TO TABLE SHOWN TO THE RIGHT.

THE RIPRAP DESIGNATION AND TOTAL THICKNESS OF RIPRAP SHALL BE AS SHOWN ON THE DRAWINGS. THE MAXIMUM STONE SIZE SHALL NOT LARGER THAN THE THICKNESS OF THE RIPRAP.

NEITHER WIDTH NOR THICKNESS OF A SINGLE STONE OF RIPRAP SHALL BE LESS THAN ONE-THIRD ( $\frac{1}{3}$ ) OF ITS LENGTH.

THE SPECIFIC GRAVITY OF THE RIPRAP SHALL BE TWO AND ONE-HALF (2.5) OR GREATER.

MINIMUM DENSITY FOR ACCEPTABLE RIPRAP SHALL BE ONE HUNDRED AND SIXTY FIVE (165) POUNDS PER CUBIC FOOT.

RIPRAP SPECIFIC GRAVITY SHALL BE ACCORDING TO THE BULK-SATURATED, SURFACE-DRY BASIS, IN ACCORDANCE WITH AASHTO T85.

THE RIPRAP SHALL HAVE A PERCENTAGE LOSS OF NOT MORE THAN FORTY PERCENT (40%) AFTER FIVE HUNDRED (500) REVOLUTIONS WHEN TESTED IN ACCORDANCE WITH AASHTO T96.

THE RIPRAP SHALL HAVE A PERCENTAGE LOSS OF NOT MORE THAN TEN (10%) AFTER FIVE (5) CYCLES WHEN TESTED IN ACCORDANCE WITH AASHTO T104 FOR LEDGE ROCK USING SODIUM SULFATE.

THE RIPRAP SHALL HAVE A PERCENTAGE LOSS OF NOT MORE THAN TEN PERCENT (10%) AFTER TWELVE (12) CYCLES OF FREEZING AND THAWING WHEN TESTED IN ACCORDANCE WITH AASHTO T103 FOR LEDGE ROCK, PROCEDURE A. ROCK SHALL BE FREE FROM CALCITE INTRUSIONS.

**GRADATION:**

A. EACH LOAD OF RIPRAP SHALL BE REASONABLY WELL GRADED FROM THE SMALLEST TO THE LARGEST SIZE SPECIFIED.

B. STONES SMALLER THAN THE TWO TO TEN PERCENT (2%-10%) SIZE WILL NOT BE PERMITTED IN AN AMOUNT EXCEEDING TEN PERCENT (10%) BY WEIGHT OF EACH LOAD.

C. CONTROL OF GRADATION SHALL BE BY VISUAL INSPECTION. HOWEVER IN THE EVENT THE ENGINEER DETERMINES THE RIPRAP TO BE UNACCEPTABLE, THE ENGINEER SHALL PICK TWO (2) RANDOM TRUCKLOADS TO BE DUMPED AND CHECKED FOR GRADATION.

1) MECHANICAL EQUIPMENT AND LABOR NEEDED TO ASSIST IN CHECKING GRADATION SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST.

CONCRETE RUBBLE AND/OR BROKEN ASPHALT PAVEMENT SHALL NOT BE ACCEPTABLE FOR USE AS AN ALTERNATIVE TO ROCK RIPRAP.

ROUNDED RIPRAP (RIVER ROCK) IS NOT ACCEPTABLE, UNLESS SPECIFICALLY DESIGNATED ON THE DRAWINGS.

FOR DESIGN OF 12" WATERLINE, SEE DESIGN PLANS BY CORE ENGINEERING.

**CAUTION!!!**  
EXISTING UTILITIES TO BE PROTECTED FROM DISTURBANCE WHEN INSTALLING BRIDGE AND INFRASTRUCTURE.

SHADING DENOTES LIMITS OF SOIL/RIPRAP

Replace notations that were on the previous submittal. Provide stations and offsets and/or northings and eastings for all features of the proposed improvements.

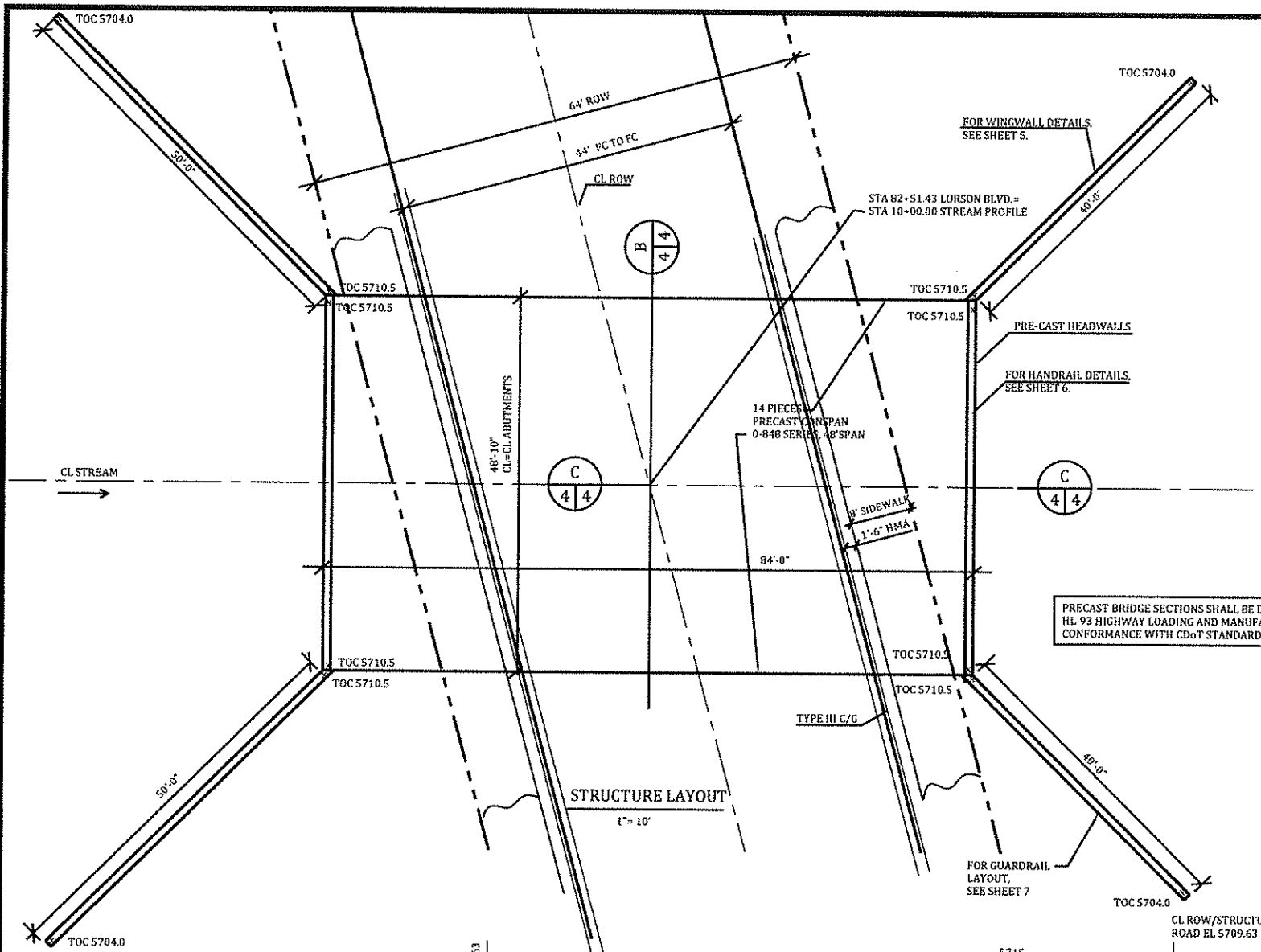
RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	D <sub>50</sub> (INCHES)
TYPE VL	70-100	12	6
	50-70	9	
	35-50	6	
	2-10	2	
TYPE L	70-100	15	9
	50-70	12	
	35-50	9	
	2-10	3	
TYPE M	70-100	21	12
	50-70	18	
	35-50	12	
	2-10	4	
TYPE H	70-100	30	18
	50-70	24	
	35-50	18	
	2-10	6	
TYPE VH	70-100	41	24
	50-70	33	
	35-50	24	
	2-10	9	

\*D<sub>50</sub> = MEAN PARTICLE SIZE

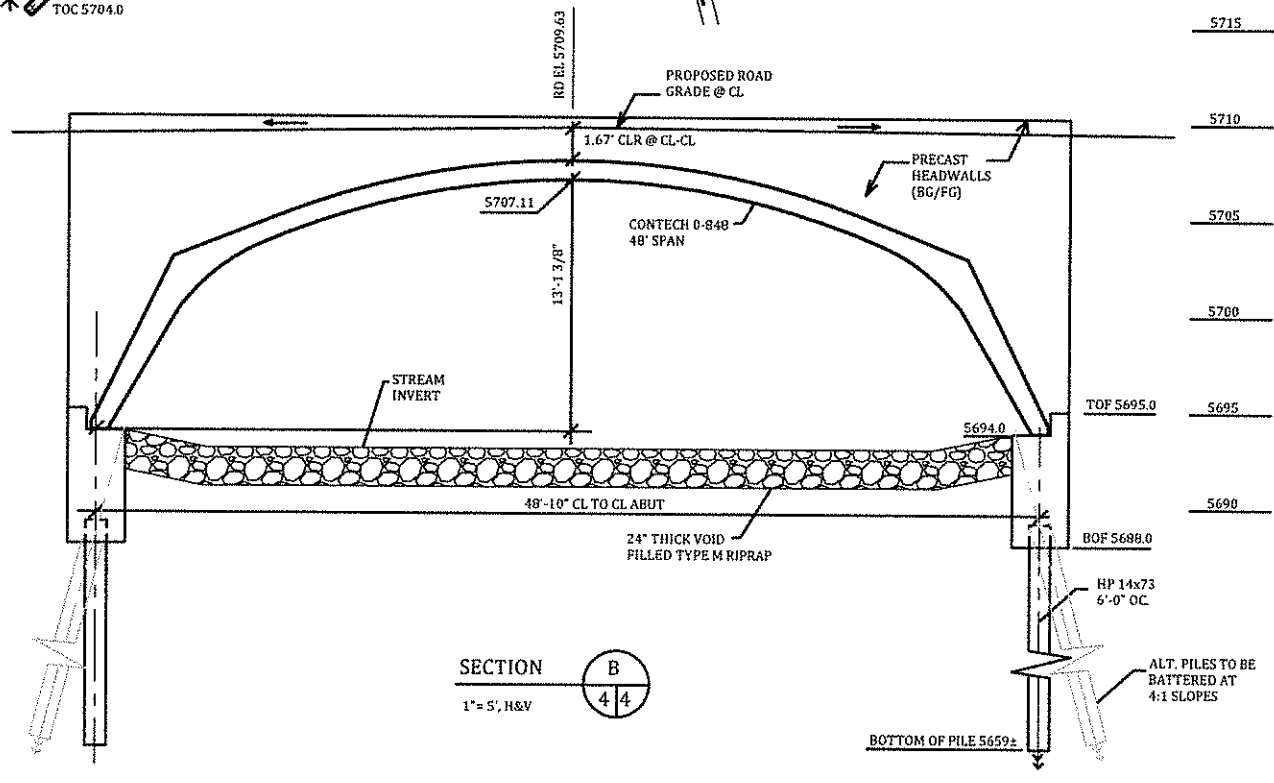
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Date:	2/26/18
Design:	RNW
Drawn:	EAK
Check:	RNW
Revisions:	

Is manhole at grade? Detail access road as appropriate.

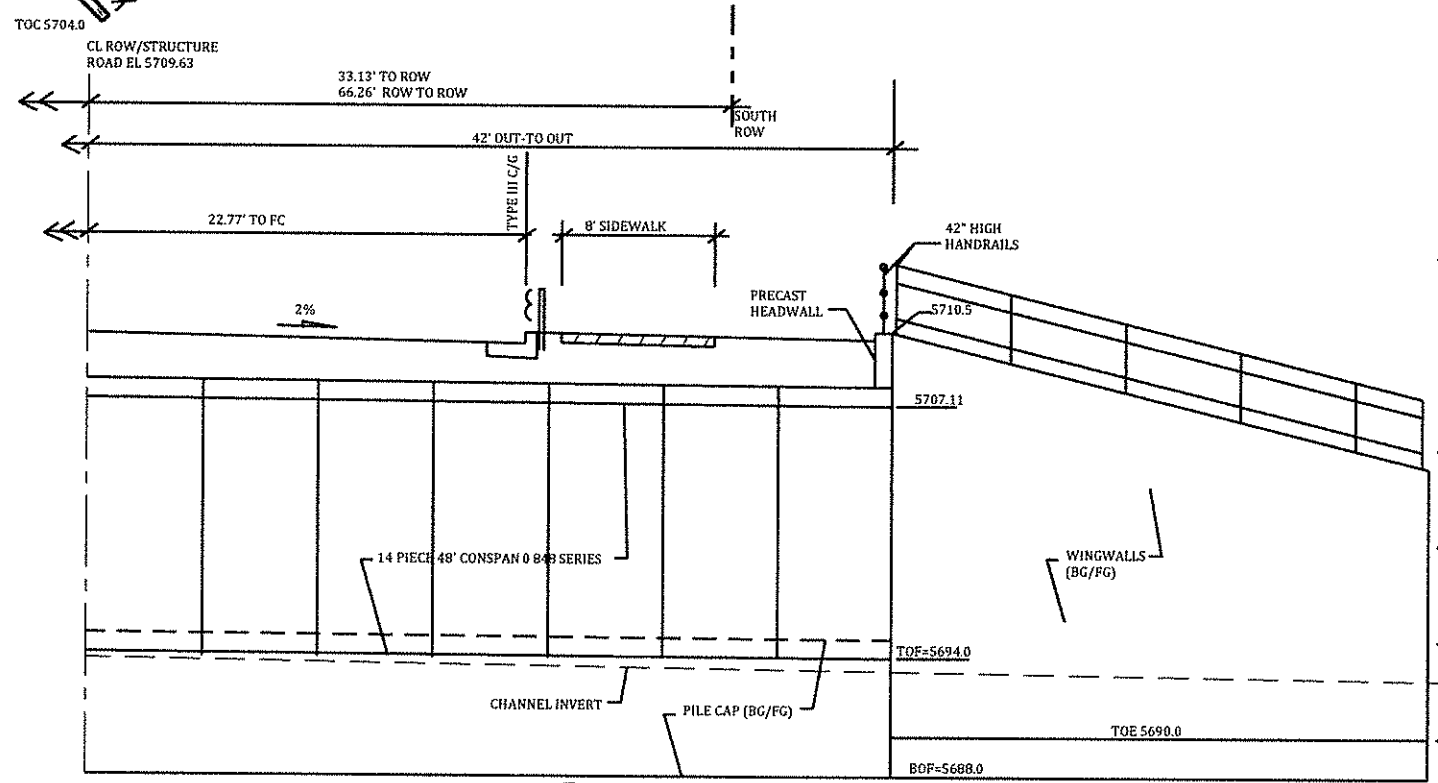
**LORSON RANCH  
LORSON BOULEVARD BRIDGE  
BRIDGE STRUCTURE LAYOUT**  
EL PASO COUNTY, COLORADO



PRECAST BRIDGE SECTIONS SHALL BE DESIGNED TO MEET HL-93 HIGHWAY LOADING AND MANUFACTURED IN CONFORMANCE WITH CDOT STANDARD SPECIFICATIONS.

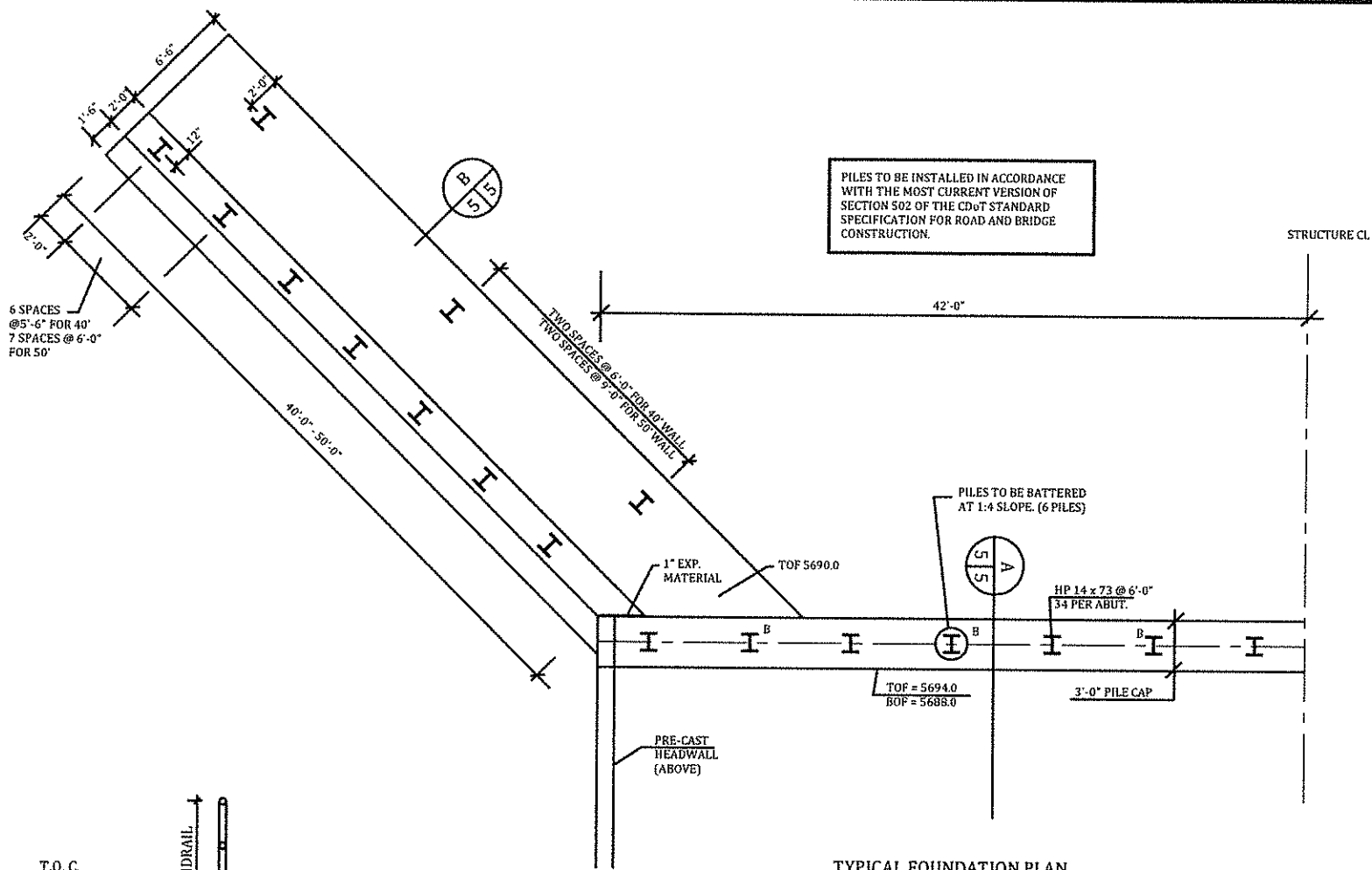


SECTION B  
1" = 5', H&V



SECTION C  
1" = 5', H&V

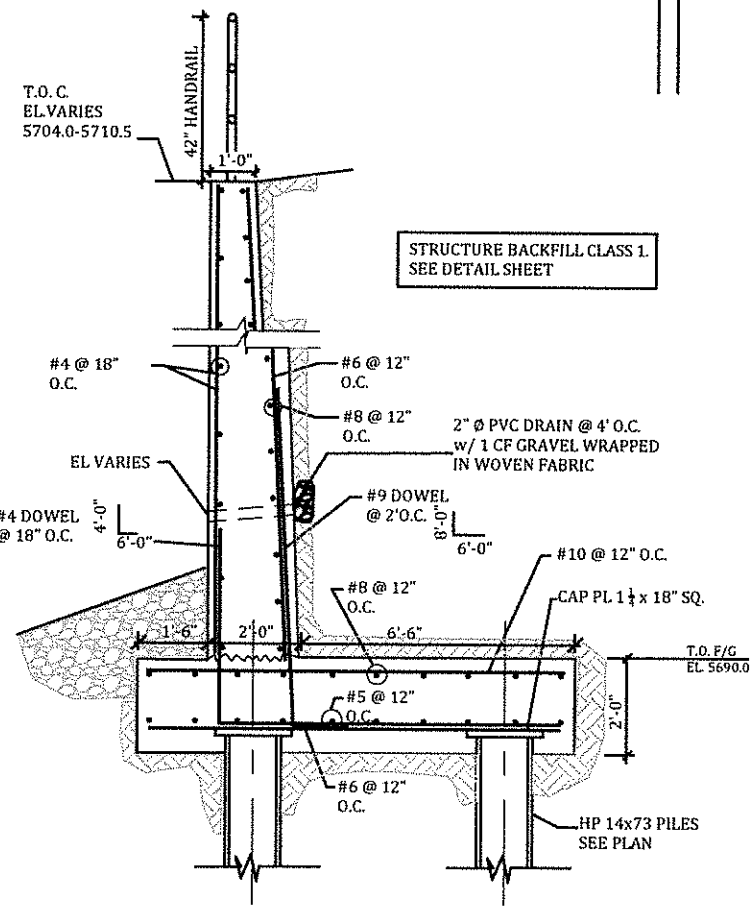
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Date:	2/26/18
Design:	RNW
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Revisions:	



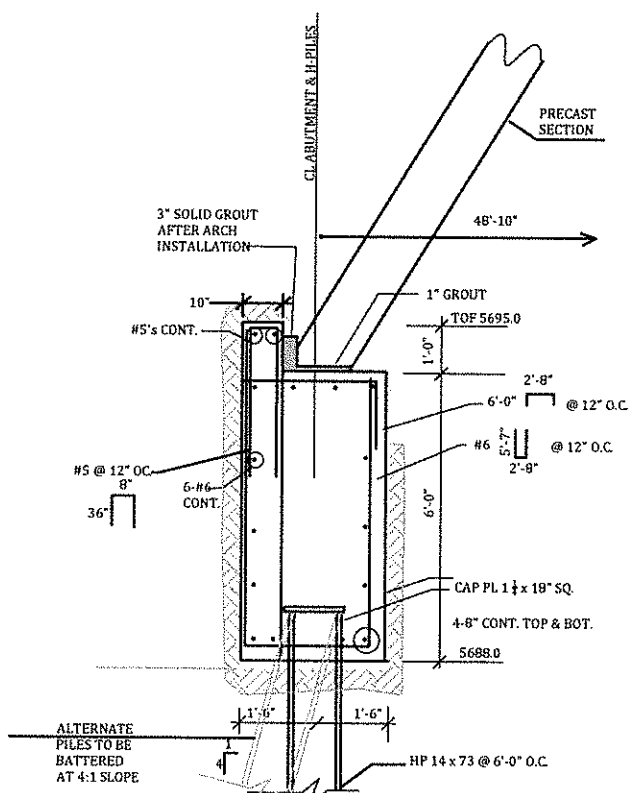
PILES TO BE INSTALLED IN ACCORDANCE WITH THE MOST CURRENT VERSION OF SECTION 502 OF THE CDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.

PILES TO BE BATTERED AT 1:4 SLOPE. (6 PILES)

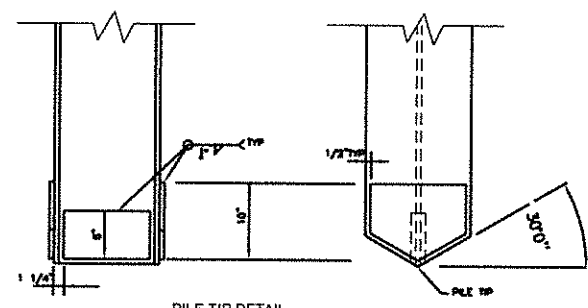
TYPICAL FOUNDATION PLAN  
1" = 5'



SECTION B  
1" = 2', H&V



FOUNDATION SECTION A  
1" = 2'



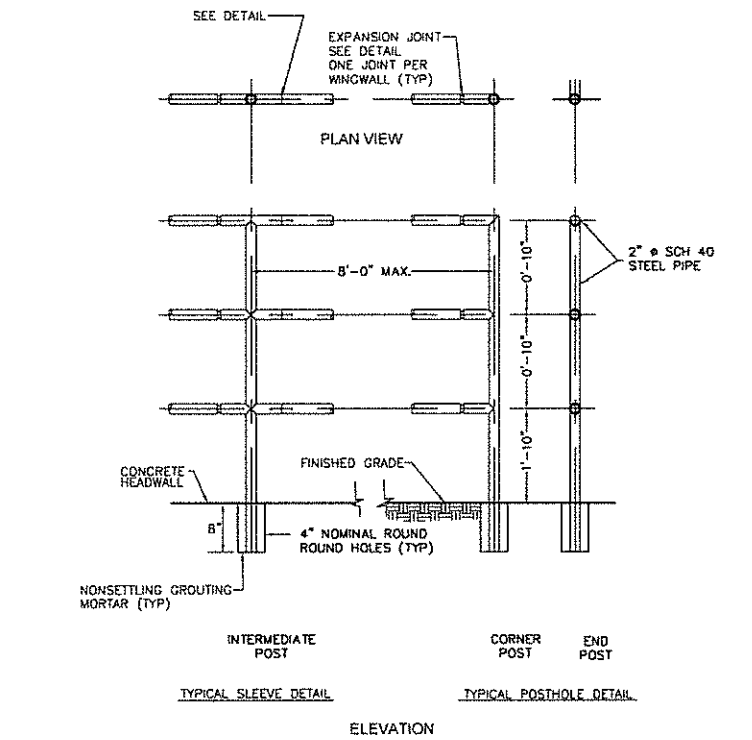
PILE TIP DETAIL  
SCALE: N.T.S.  
AN APPROVED COMMERCIAL PILE MAY BE USED

LORSON RANCH  
LORSON BOULEVARD BRIDGE  
FOUNDATION PLAN & SECTIONS  
EL PASO COUNTY, COLORADO

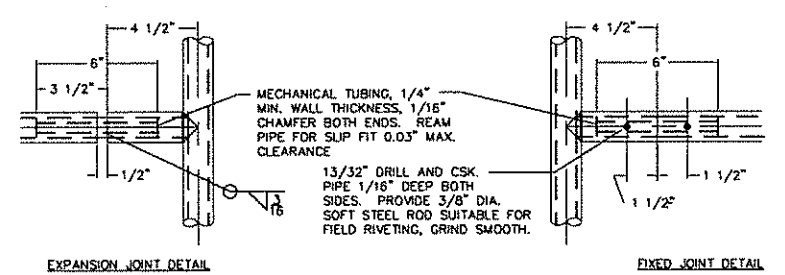
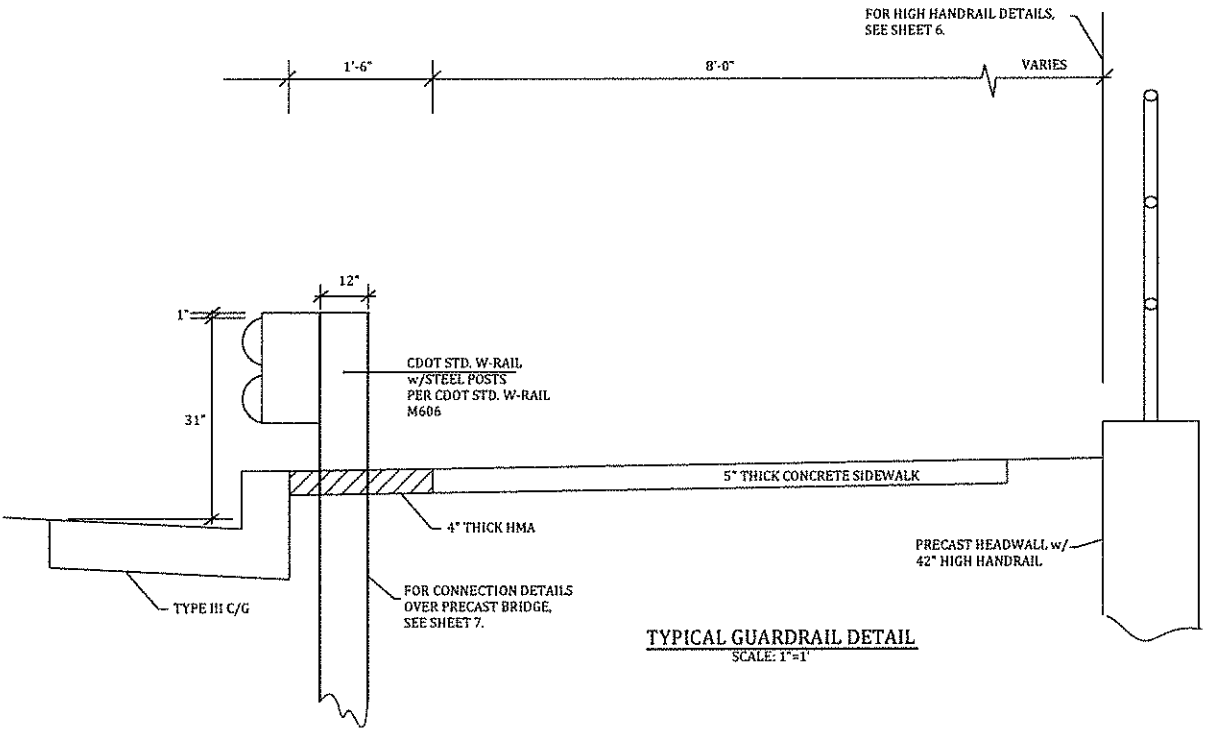
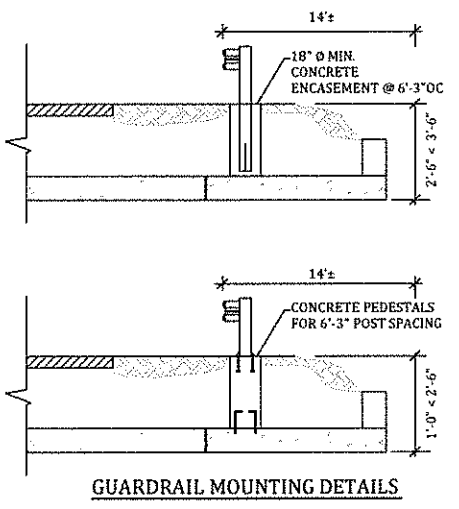
Project No.:	17001
Date:	2/26/18
Design:	RNW
Drawn:	EAK
Check:	RNW
Revisions:	

**LORSON RANCH  
LORSON BOULEVARD BRIDGE  
SECTIONS AND TYPICAL DETAILS  
EL PASO COUNTY, COLORADO**

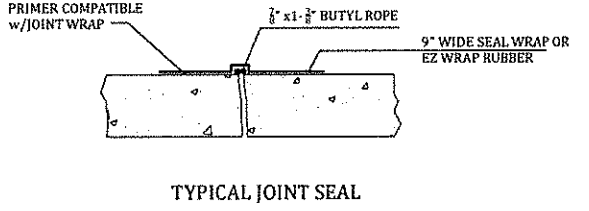
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Revisions:



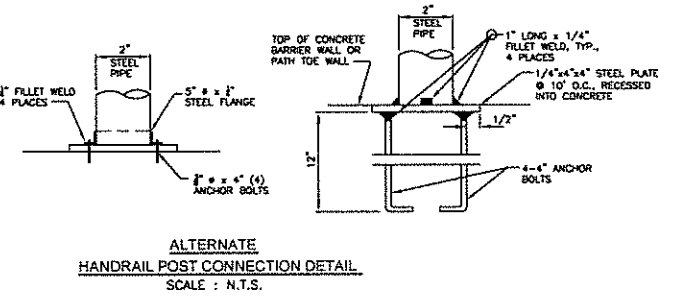
NOTE: GUARDRAIL POST SPACING OVER THE PRECAST SECTIONS SHALL BE IN CONFORMANCE WITH CDOT M-606.



HANDRAIL DETAIL  
SCALE: N.T.S.



TYPICAL JOINT SEAL

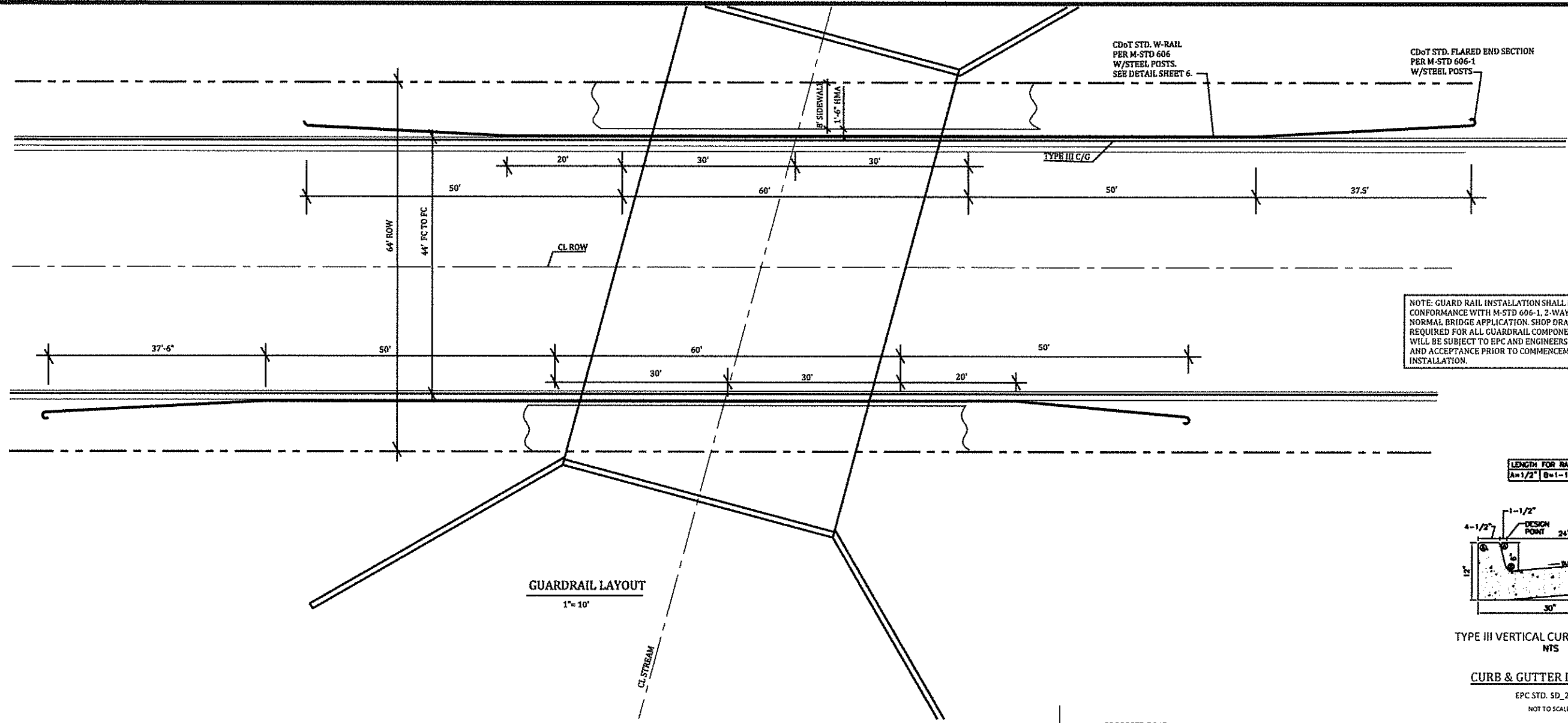


ALTERNATE  
HANDRAIL POST CONNECTION DETAIL  
SCALE: N.T.S.

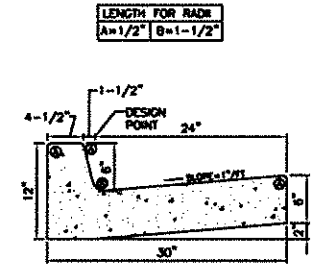
HANDRAIL FINISH SHALL BE ONE COAT METAL PRIMER AND TWO COATS SHERWIN WILLIAMS "BRIDGE GREEN" COLOR, ACROLON 218 HS ACRYLIC POLYURETHANE, SEMI-GLOSS. COLOR SHALL BE VERIFIED BY THE ENGINEER.

BRIDGE GREEN CUSTOM MANUAL MATCH			
B44 COLORANT	OZ	32	54
LB-LAMP BLACK	2	16	--
PG-PHTH GREEN	10	--	--
TW-WHITE	2	46	--
YO-YELLOW OX	--	50	--
PB-PHTH	--	50	--
4 GALLON KIT	ULTRADEEP		
B65T00654	640335618		

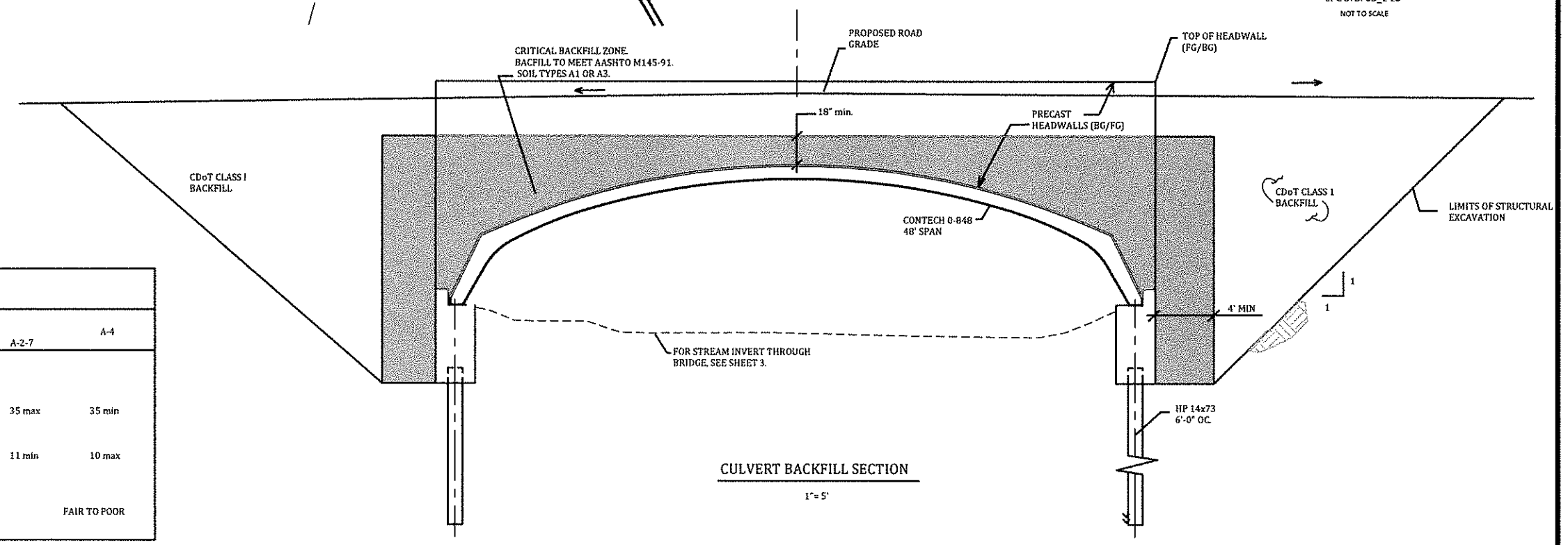
**LORSON RANCH  
LORSON BOULEVARD BRIDGE  
ROADWAY DETAILS  
EL PASO COUNTY, COLORADO**



NOTE: GUARD RAIL INSTALLATION SHALL BE IN CONFORMANCE WITH M-STD 606-1, 2-WAY NORMAL BRIDGE APPLICATION SHOP DRAWINGS REQUIRED FOR ALL GUARDRAIL COMPONENTS WILL BE SUBJECT TO EPC AND ENGINEERS REVIEW AND ACCEPTANCE PRIOR TO COMMENCEMENT OF INSTALLATION.



**TYPE III VERTICAL CURB AND GUTTER NTS**  
CURB & GUTTER DETAILS  
EPC STD. 5D\_2-20  
NOT TO SCALE



**CULVERT BACKFILL SECTION**  
1" = 5'

BACKFILL DESCRIPTION (AASHTO M 145-91)								
GROUP CLASSIFICATION	A-1		A-3	A-2		A-2-7		A-4
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7	
SIEVE ANALYSIS (100% PASSING 3" SIEVE)								
NO. 10	50 max		51 max	35 max	35 max	35 max	35 max	35 min
NO. 40	30 max	50 max	10 mac					
NO. 200	15 max	25 max						
CHARACTERISTICS OF FRACTION PASSING NO. 40								
LIQUID LIMIT			40 max	41 max	11 min	11 min		10 max
USUAL TYPES OF SIGNIFICANT CONSTITUENT MATERIALS								
	GRAVEL & SAND		SAND					
GENERAL RATING AS SUB-GRADE			EXCELLENT TO GOOD				FAIR TO POOR	

Project No.:	17001
Date:	2/26/18
Design:	RNW
Drawn:	EAK
Check:	RNW
Revisions:	

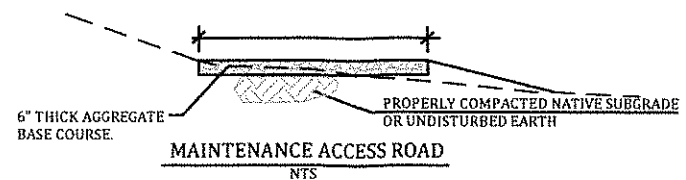
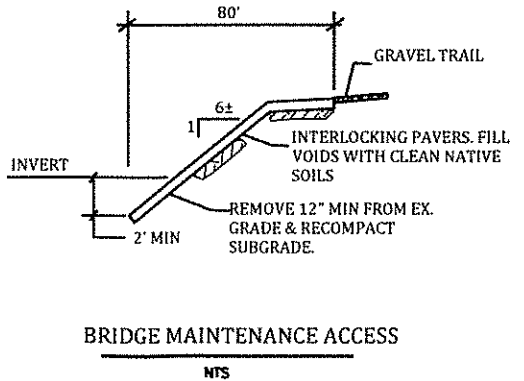
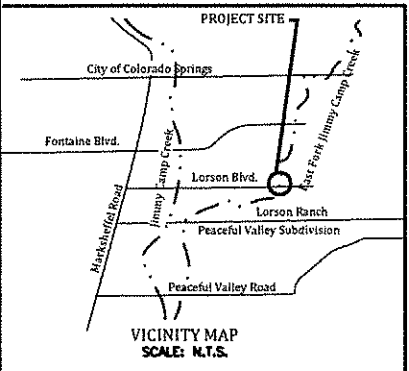
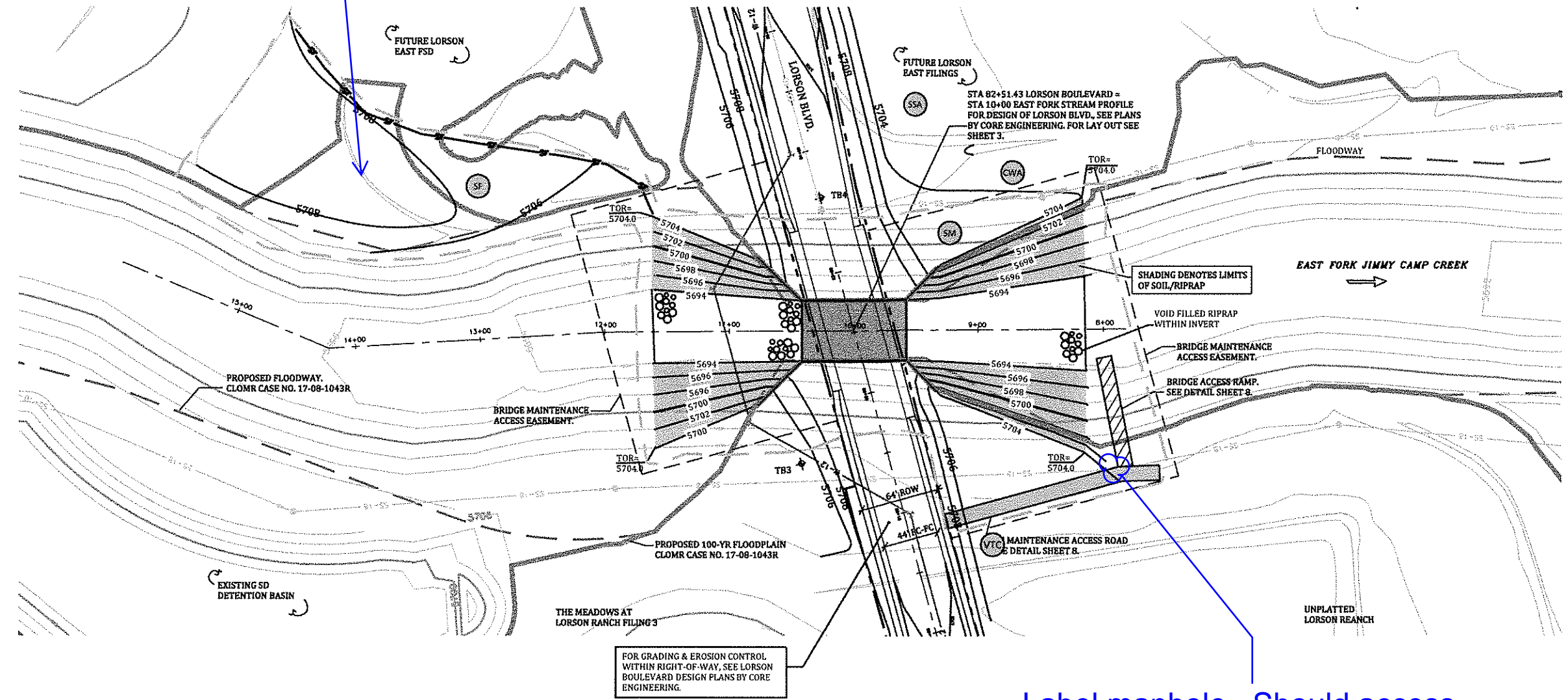


**LORSON RANCH  
LORSON BOULEVARD BRIDGE  
GRADING PLAN & EROSION CONTROL PLAN  
EL PASO COUNTY, COLORADO**

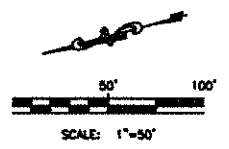
Project No.:	17001
Date:	2/26/18
Design:	RNW
Drawn:	EAK
Check:	RNW
Revisions:	

Seeding and mulching?

Label manhole. Should access road go around manhole?

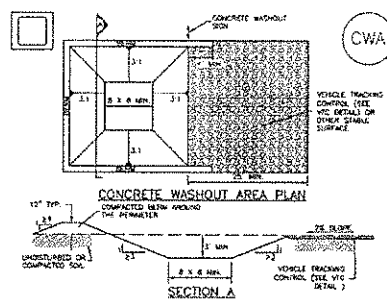


- LEGEND**
- LIMITS OF DISTURBANCE
  - - - RIGHT-OF-WAY LINE
  - (VTC) VEHICLE TRACKING CONTROL
  - (CWA) CONCRETE WASHOUT AREA
  - (SSA) STABILIZED STAGING AREA
  - (SF) SILT FENCE
  - (SM) SEED AND MULCH
  - EXISTING INDEX CONTOUR
  - EXISTING INTERMEDIATE CONTOUR
- TOR=TOP OF ROCK





Concrete Washout Area (CWA) MM-1



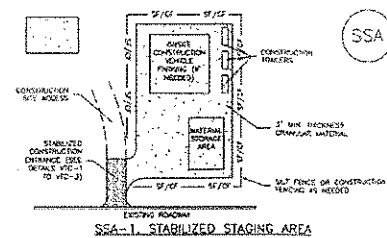
CWA-1. CONCRETE WASHOUT AREA

- CONCRETE WASHOUT AREA**
- DESIGN/INSTALLATION NOTES**
- SEE PLAN VIEW FOR CWA INSTALLATION LOCATION.
  - DO NOT LOCATE AN UNLINED CWA WITHIN 100' OF ANY NATURAL DRAINAGE PATHWAY OR WATERWAY. DO NOT LOCATE WITHIN 100' OF ANY WELLS OR GRABING WATER SOURCES. IF SITE CONDITIONS MAKE THIS IMPRACTICAL, OR IF MOST FEASIBLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (18 MIL MIN. THICKNESS) OR SOILScape ACCORDING TO SOME PRE-APPROVED CONCRETE WASHOUT DESIGN OR A LINED AREA GROUND STORAGE ATE SHOULD BE USED.
  - THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
  - CWA SHALL INCLUDE A FLAT SUBSTRATE AT LEAST 1/2" IN THICKNESS. IF NOT SUFFICIENT, LEADING OUT OF THE SURFACE BY SHALL BE 3" OR FLATTER. THE TOP SHALL BE AT LEAST 3" DEEP.
  - SEAL SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 12".
  - VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
  - WEARS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE AT THE CWA AND RELOCATED, AS NECESSARY TO ELUSTRATE PROTECT THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP TRUCKS.
  - USE EXHAUSTED MATERIAL FOR REPAIR/REPAIR CONSTRUCTION.

MM-1 Concrete Washout Area (CWA)

- CONCRETE WASHOUT AREA**
- DESIGN/INSTALLATION NOTES**
- INSPECT BAPS EACH FREQUENT, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BAPS SHOULD BE IMMEDIATE, NOT REACTIVE. INSPECT BAPS AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  - PRELIMINARY OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BAPS IN EFFECTIVE OPERATING CONDITION. INSPECTION AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - WHERE BAPS HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON OCCURRENCE OF THE FAILURE.
  - THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN THE BAPS BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2".
  - CONCRETE WASHOUT WASTE MIXTURES OF CONCRETE AND ALL OTHER SOLIDS IN THE SUBSTRATE MUST BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
  - THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
  - WHEN THE CWA IS REMOVED, COVER THE EXPOSED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
- DETAILS SHOWN FROM STANDARD SPECIFICATIONS, CODES AND THE CITY OF DENVER, COLORADO, NOT SHOWN IN NOTES.
- NOTE: MANY JURISDICTIONS HAVE BAP DETAILS THAT VARY FROM LOCAL STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Stabilized Staging Area (SSA) SM-6



SSA-1. STABILIZED STAGING AREA

- STABILIZED STAGING AREA**
- DESIGN/INSTALLATION NOTES**
- SEE PLAN VIEW FOR LOCATION OF STAGING AREAS.
  - CONTRACTOR MUST REPORT LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
  - STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. CONSIDERING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
  - STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
  - THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" DEEP GRANULAR MATERIAL.
  - THICKNESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION. ROCK SHALL CONSIST OF 0.5" TO 1.5" SIZES, UNLESS AS OTHERWISE APPROVED OR 3" (MINIMUM) ROCK.
  - ADDITIONAL PERMEABLE BAPS MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO BUT FENCE AND CONSTRUCTION FENCING.
- CONCRETE WASHOUT AREA**
- DESIGN/INSTALLATION NOTES**
- INSPECT BAPS EACH FREQUENT, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BAPS SHOULD BE IMMEDIATE, NOT REACTIVE. INSPECT BAPS AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  - PRELIMINARY OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BAPS IN EFFECTIVE OPERATING CONDITION. INSPECTION AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - WHERE BAPS HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON OCCURRENCE OF THE FAILURE.
  - THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN THE BAPS BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2".
  - CONCRETE WASHOUT WASTE MIXTURES OF CONCRETE AND ALL OTHER SOLIDS IN THE SUBSTRATE MUST BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
  - THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
  - WHEN THE CWA IS REMOVED, COVER THE EXPOSED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
- DETAILS SHOWN FROM STANDARD SPECIFICATIONS, CODES AND THE CITY OF DENVER, COLORADO, NOT SHOWN IN NOTES.
- NOTE: MANY JURISDICTIONS HAVE BAP DETAILS THAT VARY FROM LOCAL STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SM-6 Stabilized Staging Area (SSA)

- STABILIZED STAGING AREA**
- DESIGN/INSTALLATION NOTES**
- STABILIZED STAGING AREA SHALL BE DESIGNED TO PROVIDE PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
  - THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE FURNISHED ON, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDS AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.
- NOTE: MANY JURISDICTIONS PROMOTE THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTY WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.
- NOTE: MANY JURISDICTIONS HAVE BAP DETAILS THAT VARY FROM LOCAL STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- DETAILS SHOWN FROM STANDARD SPECIFICATIONS, CODES AND THE CITY OF DENVER, COLORADO, NOT SHOWN IN NOTES.

LORSON RANCH  
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EL PASO COUNTY, COLORADO

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Check:	RNW
Revisions:	

**SEEDING AND MULCHING INSTALLATION NOTES**

- SEE PLAN VIEW FOR AREA OF SEEDING AND MULCHING.
- ALL BRANDS FURNISHED SHALL BE FREE FROM SUCH NOXIOUS SEEDS AS RUSSIAN OR CANADIAN THISTLE, COARSE FESCUE, EUROPEAN BINDWEED, JOHNSON GRASS, KNAP WEEED AND LEAFY SPURGE.
- THE SEEDER SHALL FURNISH TO THE CONTRACTOR A SIGNED STATEMENT CERTIFYING THAT THE SEED FURNISHED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY. SEED WHICH HAS BECOME WET, MOLDY OR OTHERWISE DAMAGED IN TRANSIT OR IN STORAGE WILL NOT BE ACCEPTABLE. SEED TICKETS SHALL BE PROVIDED TO REGULATING AGENCY UPON REQUEST.
- DRILL SEEDING MIX SHALL CONFORM TO THE TABLE ON THE RIGHT.
- IF THE SEED AVAILABLE ON THE MARKET DOES NOT MEET THE MINIMUM PURITY AND GERMINATION PERCENTAGES SPECIFIED, THE SUBCONTRACTOR MUST COMPENSATE FOR A LESSER PERCENTAGE OF PURITY OR GERMINATION BY FURNISHING SUFFICIENT ADDITIONAL SEED TO EQUAL THE SPECIFIED PRODUCT. THE TAGS FROM THE SEED MIXES MUST BE SUPPLIED TO CONTRACTOR AND FORWARDED TO THE REGULATING AGENCY'S GESC INSPECTOR.
- THE FORMULA USED FOR DETERMINING THE QUANTITY OF PURE LIVE SEED (PLS) SHALL BE: (POUNDS OF SEED X (PURITY) X (GERMINATION)) = POUNDS OF PURE LIVE SEED (PLS).
- PERMANENT SEED MIX SHALL BE USED UNLESS OTHERWISE APPROVED BY THE REGULATING AGENCY.
- ALL AREAS TO BE SEEDING AND MULCHED SHALL HAVE NATIVE TOPSOIL OR APPROVED SOIL AMENDMENTS SPREAD TO A DEPTH OF AT LEAST 6 INCHES LOOSE DEPTH. HAIL ROADS AND OTHER COMPACTED AREAS SHALL BE LOOSENED TO A DEPTH OF 6 INCHES PRIOR TO SPREADING TOPSOIL.
- SOIL IS TO BE THOROUGHLY LOOSENED (TILLED) TO A DEPTH OF AT LEAST 6 INCHES PRIOR TO SEEDING. THE TOP 6 INCHES OF THE SEED BED SHALL BE FREE OF ROCKS GREATER THAN 4 INCHES AND SOIL CLOSURE GREATER THAN 2 INCHES. SEEDING OVER ANY COMPACTED AREAS THAT HAVEN'T BEEN THOROUGHLY LOOSENED SHALL BE REJECTED.
- SEED IS TO BE APPLIED USING A MECHANICAL DRILL TO A DEPTH OF 1/4 INCH. ROW SPACING SHALL BE NO MORE THAN 6 INCHES. MATERIAL USED FOR MULCH SHALL CONSIST OF LONG-STEAMED STRAW AT LEAST 50 PERCENT OF THE MULCH. BY WEIGHT, SHALL BE 10 INCHES OR MORE IN LENGTH. MULCH SHALL BE APPLIED AND MECHANICALLY ANCHORED TO A DEPTH OF AT LEAST 2 INCHES. MULCH SHALL BE APPLIED AT A RATE OF 4000 LB. OF STRAW PER ACRE.
- IF THE PERMITTEE DEMONSTRATES TO THE REGULATING AGENCY THAT IT IS NOT POSSIBLE TO DRILL SEED, SEED IS TO BE UNIFORMLY BROADCAST AT TWO TIMES THE DRILLED RATE, THEN LIGHTLY HARROWED TO PROVIDE A SEED DEPTH OF APPROXIMATELY 1/4 INCH, THEN ROLLED TO COMPACT, THEN MULCHED AS SPECIFIED ABOVE.
- SEEDING AND MULCHING SHALL BE COMPLETED WITHIN 30 DAYS OF INITIAL EXPOSURE OR 7 DAYS AFTER GRADING IS SUBSTANTIALLY COMPLETE IN A GIVEN AREA AS DEFINED BY THE REGULATING AGENCY. THIS MAY REQUIRE MULTIPLE MOBILIZATIONS FOR SEEDING AND MULCHING.
- MULCH SHALL BE APPLIED WITHIN 24 HOURS OF SEEDING.
- TACKIFIER SHOULD BE UTILIZED TO HELP WITH STRAW DISPLACEMENT.

**SEEDING AND MULCH NTS**

**SEEDING AND MULCHING MAINTENANCE NOTES**

- SEEDING AND MULCHED AREAS SHALL BE INSPECTED FOR REQUIRED COVERAGE MONTHLY FOR A PERIOD OF TWO YEARS FOLLOWING INITIAL SEEDING. REPAIRS AND RE-SEEDING AND MULCHING SHALL BE UNDERTAKEN AFTER THE FIRST GROWING SEASON FOR ANY AREAS FAILING TO MEET THE REQUIRED COVERAGE.
- REQUIRED COVERAGE FOR STANDARD, OPEN SPACE AND LOW-GROWTH SEED MIXES SHALL BE DEFINED AS FOLLOWS:
  - THREE (3) PLANTS PER SQUARE FOOT WITH A MINIMUM HEIGHT OF 3 INCHES. THE 3 PLANTS PER SQUARE FOOT SHALL BE OF THE VARIETY AND SPECIES FOUND IN THE DOUGLAS COUNTY APPROVED MIX.
  - NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FOOT BY TWO-FOOT OR EQUIVALENT).
  - FREE OF ERODED AREAS.
  - FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC CRITERIA MANUAL.
- REQUIRED COVERAGE FOR TURF GRASS AREAS SHALL BE DEFINED AS FOLLOWS:
  - AT LEAST 80% VEGETATIVE COVER OF GRASS SPECIES PLANTED.
  - NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FOOT BY TWO-FOOT OR EQUIVALENT).
  - FREE OF ERODED AREAS.
  - FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC CRITERIA MANUAL.
- RILL AND GULLY EROSION SHALL BE FILLED WITH TOPSOIL PRIOR TO RESEEDING. THE RESEEDING METHOD SHALL BE APPROVED BY THE COUNTY.

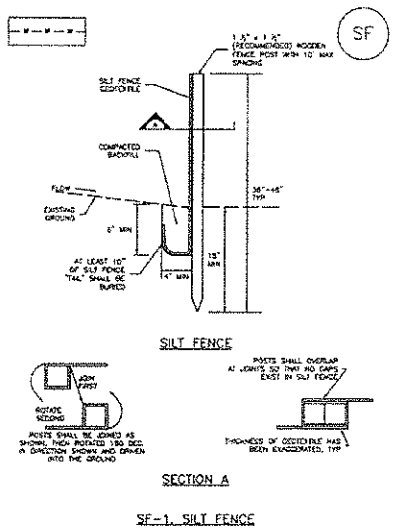


**Silt Fence (SF)**

**SC-1**

**SC-1**

**Silt Fence (SF)**

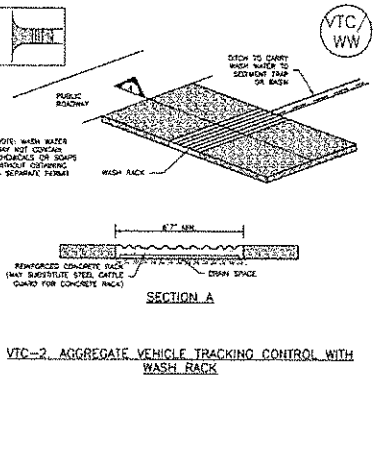
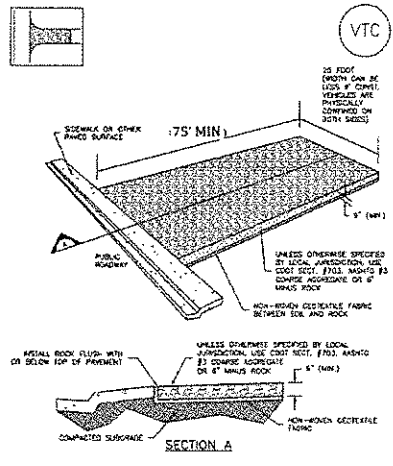


- SILT FENCE SHALL BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER FLOWING. SILT FENCE IS TO BE INSTALLED IN A FLAT LOCATION AT LEAST 10 FT FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PILING AND DEPOSITION.
  - A UNIFORM 6" x 6" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILENT TRENCH INSTALLATION DEVICE. NO ROAD SCAVERS, DRUMMERS, OR SIMILAR EQUIPMENT SHALL BE USED.
  - CONTRACTOR AND/OR TRENCHER BY HAND WITH A "JUMPING JACK" OR BY WHOLE ROLLING. COMPACTOR SHALL BE SUCH THAT SILT FENCE REMAINS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
  - SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE SLOPE. THERE SHOULD BE NO INTERLUCE AND/OR GAPS UNDER SILT FENCE. SILT FENCE SHALL BE MECHANICALLY ANCHORED TO THE SLOPE USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE SLOPE.
  - AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "JUNCTION." THE "JUNCTION" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNWAY FROM PLUNGING AROUND THE END OF THE SILT FENCE (ESPECIALLY TO - S3).
  - SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- SILT FENCE MAINTENANCE NOTES**
- INSPECT SILT FENCE REGULARLY AND MAINTAIN FROM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE SHALL BE PERFORMED BY TRENCHING AND REPAIRING. SILT FENCE SHALL BE AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE).
  - PERMITTEE OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN SILT FENCE IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - WHEN SILT FENCE HAS FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON OCCURRENCE OF THE FAILURE.
  - SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NOTICED TO MAINTAIN THE FUNCTIONALITY OF THE SILT FENCE, ESPECIALLY WHEN DEPTH OF ACCUMULATED SEDIMENT IS APPROXIMATELY 4".
  - REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
  - SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERMITTED SEDIMENT CONTROL BARR.
  - WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE RESEED WITH TOPSOIL, SEEDED AND MULCHED AS OTHERWISE SPECIFIED BY LOCAL JURISDICTION.
- NOTE: MANY JURISDICTIONS HAVE DIFFERENT DETAILS THAT VARY FROM USDC STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

**Vehicle Tracking Control (VTC)**

**SM-4**

**SM-4 Vehicle Tracking Control (VTC)**



**VTC-1. AGGREGATE VEHICLE TRACKING CONTROL**

**PROJECT SPECIFIC GRADING AND EROSION CONTROL NOTES**

**STANDARD EPC GRADING AND EROSION CONTROL NOTES**

- All earthwork required of this construction shall be completed in accordance with all applicable sections of the Project Specifications and Soil Investigation Report (Geotechnical Report).
- Rubbish (including timber, concrete rubble, tires, brush, and asphalt) shall not be backfilled adjacent to any of the structures or be in the placement of any undisturbed fill. The Contractor shall be responsible for the removal and hauling of such materials to a suitable spot area. Costs associated with the removal of such materials shall be paid for as documented in the Project Specifications.
- Excess excavation shall become the property of the Contractor and shall be disposed of at the Contractor's expense. The cost of haulage and spoiling of excess excavated materials shall be paid for as documented in the Project Specifications.
- Water shall be used as a dust palliative as required and shall be included in the cost for earthwork item(s). No separate payment will be made for dust control associated with the site construction.
- The road grades shall be cleared of vegetation and the topsoil stockpiled for later use.
- All grading shall be in conformance with the Geotechnical Report for the area.
- Placement of fill for roadway embankments shall be completed in conformance with the Geotechnical Report.
- Grading contours shown on this plan are to final grade.
- Compaction under filled areas, including roadway and detention basin embankments, shall be 95 percent of the maximum Standard Proctor Density (ASTM D699) at two (2) percent of optimum moisture content.
- No rubble or debris shall be placed in the backfill under any of the proposed buildings, streets, curb & gutter, sidewalk and drainage structures or within five (5) feet of a building footprint. Properly graded rubble may be used in some locations as specified and verified by the Geotechnical Engineer.
- Contractor is responsible for reviewing the site prior to bidding to verify site conditions.
- Contractor is responsible for providing erosion control measures as approved by the El Paso County PCD Engineering Division and as may be required by the El Paso County Inspector.
- All slopes equal to or greater than 3:1 shall require anchored soil retention blanket (SRB), Geocoir 700 or equal.
- The Developer is responsible for maintaining erosion control measures until a mature stage of vegetation is established.
- All soils used for fill must be approved by a representative of the Geotechnical Engineer.
- All natural ground to receive fill must be properly scarified, watered and compacted prior to placing fill.
- The Contractor is solely responsible for the design, maintenance and operation of any required dewatering system. The Contractor shall perform such independent investigation as he deems necessary to satisfy himself as to the subsurface groundwater conditions and unstable soil conditions to be encountered throughout the construction. Contractor shall coordinate the dewatering system with El Paso County when associated with public facilities.
- No fill shall be placed, spread or rolled while it is frozen, thawing or during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations shall not be resumed until a representative of the Geotechnical Engineer indicates that the moisture content and density of the previously placed fill are as specified. Fill surfaces may be scarified and recompact after rainfall if necessary, to obtain proper moisture density relation.
- Additional erosion control structures and/or grading may be required at the time of construction.
- Sediment removal for erosion control facilities shall be performed continuously for proper function.
- Base mapping was provided by Core Engineering. The date of the last survey update was January 2016.
- Proposed Construction Schedule:
  - Begin Construction: pending
  - End Construction: pending
  - Total Site Area = 5 Acres
  - Area to be disturbed = 2.5 Acres (est.)
  - Existing 100-year runoff coefficient = 0.25
  - Proposed 100-year runoff coefficient = 0.25
  - Existing Hydrologic Soil Groups: B/C
  - (B) ASSAULTON SANDY LOAM
  - (C) MANZANIST CLAY LOAM
- Site is currently undeveloped and covered with native grasses on moderate to steep slopes (3%-8%).
- Site is located in the Jimmy Camp Creek Drainage Basin.

- Construction may not commence until a Construction Permit is obtained from Planning and Community Development Department (PCD) and a Preconstruction Conference is held with PCD Inspectors.
- Stormwater discharges from construction sites shall not cause or threaten to cause pollution, contamination, or degradation of State Waters. All work and earth disturbance shall be done in a manner that minimizes pollution of any on-site or off-site waters, including wetlands.
- Notwithstanding anything depicted in these plans in words or graphic representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code, the Engineering Criteria Manual, the Drainage Criteria Manual, and the Drainage Criteria Manual Volume 2. Any deviations to regulations and standards must be requested, and approved in writing.
- A separate Stormwater Management Plan (SWMP) for this project shall be completed and an Erosion and Stormwater Quality Control Permit (ESQCP) issued prior to commencing construction. During construction the SWMP is the responsibility of the designated Stormwater Manager. The SWMP shall be located on site at all times and shall be kept up to date with work progress and changes in the field.
- Once the ESQCP has been issued, the contractor may install the initial stage erosion and sediment control BMPs as indicated on the GEC. A preconstruction meeting between the contractor, engineer, and El Paso County will be held prior to any construction. It is the responsibility of the applicant to coordinate the meeting time and place with County PCD inspections staff.
- Soil erosion control measures for all slopes, channels, ditches, or any disturbed land area shall be completed within 21 calendar days after final grading, or earth disturbance, has been completed. Disturbed areas and stockpiles, which are not at final grade but will remain dormant for longer than 30 days, shall also be mulched within 21 days after interim grading. And area that is going to remain an interim for more than 60 days shall also be seeded. All temporary soil erosion control measures and BMPs shall be maintained until permanent soil erosion control measures are implemented and established.
- Temporary soil erosion control facilities shall be removed and earth disturbance areas graded and stabilized with permanent soil erosion control measures pursuant to standards and specification prescribed in the DCM Volume II and the Engineering Criteria Manual (ECM) appendix I.
- All persons engaged with earth disturbance shall implement and maintain acceptable soil erosion and sediment control measures including BMPs in conformance with the erosion control technical standards in the Drainage Criteria Manual (DCM) Volume II and in accordance with the Stormwater Management Plan (SWMP).
- All temporary erosion control facilities including BMPs and all permanent facilities intended to control erosion of any earth disturbance operations shall be installed as defined in the approved plans, the SWMP and the DCM Volume II and maintained throughout the duration of the earth disturbance operation.
- Any earth disturbance shall be conducted in such a manner so as to effectively reduce accelerated soil erosion and resulting sedimentation. All disturbances shall be designed, constructed, and completed so that the exposed area of any disturbed land shall be limited to the shortest practical period of time.
- All temporary or permanent facilities designed and constructed for the conveyance of stormwater around, through, or from the earth disturbance area shall be designed to limit the discharge to a non-erosive velocity.
- Concrete wash water shall be contained and disposed of in accordance with the SWMP. No wash water shall be discharged to or allowed to runoff to State Waters, including any surface or subsurface storm drainage system or facilities.
- Erosion control blanketing is to be used on slopes steeper than 3:1.
- Building, construction, excavation, or other waste materials shall not be temporarily placed or stored in the roadway or adjacent public facility, unless in accordance with an approved Traffic Control Plan. BMPs may be required by El Paso County Department of Public Works if deemed necessary, based on specific conditions and circumstances.
- Vehicle tracking of soils and construction debris off-site shall be minimized. Materials tracked off-site shall be cleaned up and properly disposed of immediately.
- Contractor shall be responsible for the removal of all wastes from the construction site for disposal in accordance with local and State regulatory requirements. No construction debris, tree slash, building materials or unwanted building materials shall be buried, dumped, or discharged at the site.
- The owner, site developer, contractor, and/or their authorized agents shall be responsible for the removal of all construction debris, dirt, trash, rock, sediment, and sand that may accumulate in the storm sewer or other drainage conveyance and stormwater appurtenances as a result of site development.
- The quantity of materials stored on the project site shall be limited, as much as practical, to that quantity required to perform the work in an orderly sequence. All materials stored on-site shall be stored in a neat, orderly manner, in their original containers, with original manufacturer's labels.
- No chemicals are to be used by the contractor, which have the potential to be released in stormwater unless permission for the use of a specific chemical is granted in writing by the ECM Administrator. In granting the use of such chemicals, special conditions and monitoring may be required.
- Bulk storage structures for petroleum products and other chemicals shall have adequate protection so as to contain all spills and prevent any spilled material from entering State Waters, including any surface or subsurface storm drainage system or facilities.
- No person shall cause the impediment of stormwater flow in the flow line of the curb and gutter or in the ditchline.
- Individuals shall comply with the "Colorado Water Quality Control Act" (Title 25, Articles 6, 6.5, and 6.6) and the "Clean Water Act" (33 USC 1344), in addition to the requirements included in the DCM Volume II and the ECM Appendix I. All appropriate permits must be obtained by the Contractor prior to the construction (NPDES, Floodplain, 404, fugitive dust, etc.). In the event of conflicts between these requirements and laws, rules, or regulations of other Federal, State, or County Agencies, the more restrictive laws, rules, or regulations shall apply.
- All construction traffic must enter/exit the site at approved construction access points.
- Prior to actual construction the permittee shall verify the location of existing utilities.
- A water source shall be available on site during earthwork operations and utilized as required to minimize dust from earthwork equipment and wind.
- The soils report for this site entitled "Geotechnical Report Fontaine Boulevard Bridge over East Tributary Jimmy Camp Creek, Larson Ranch, El Paso County, Colorado, prepared by RMG engineers, Sept. 24, 2016 and shall be considered a part of these plans.
- At least ten days prior to the anticipated start of construction, for projects that will disturb 1 acre or more, the owner or operator of construction activity shall submit a permit application for stormwater discharge to the Colorado Department of Public Health and Environment, Water Quality Division. The application contains certification of completion of a stormwater management plan (SWMP), of which this grading and erosion control plan may be a part. For information or application materials contact: Colorado Department of Public Health and Environment Water Quality Control Division WQCD - Permits 4300 Cherry Creek Drive South Denver, Colorado 80246-1530 Attn: Permits Unit

**SEED MIX**

AREAS DISTURBED BY THE EARTHWORK SHALL BE PERMANENTLY REVEGETATED WITH NATIVE GRASSES. NATIVE SEED MIX FOR THIS PROJECT SHALL BE AS FOLLOWS:

SPECIES	Percentage	seeds/lb
WESTERN WHEAT GRASS	<i>Panicum umiditii</i>	3.0
SIEDATS GRAMA	<i>Bouteloua curtipendula</i>	2.0
SLENDER WHEAT GRASS	<i>Elymus trachycarpus</i>	2.0
LITTLE BLUESTEM	<i>Schizachyrium scoparium</i>	2.0
BLUE GRAMA	<i>Bouteloua gracilis</i>	0.5
SWITCH GRASS	<i>Panicum virgatum</i>	2.0
JUNE GRASS	<i>Xeriseta cristata</i>	0.5
SAND DROPSPEED	<i>Sporobolus cryptandrus</i>	0.5
		12.5 lbs

SEEDING APPLICATION: DRILL SEED 1/4" TO 1/2" INTO TOPSOIL. IN AREAS INACCESSIBLE TO A DRILL, HAND BROADCAST AT DOUBLE THE RATE AND RAKE 1/4" TO 1/2" INTO THE TOPSOIL.

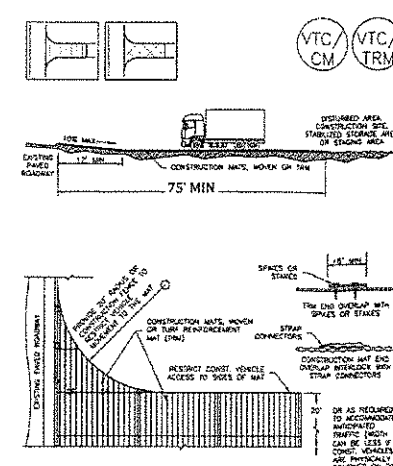
MULCHING APPLICATION: 1-1/2 TONS NATIVE HAY PER ACRE, MECHANICALLY CRIMPED INTO THE TOPSOIL OR HYDROMULCH.

**Vehicle Tracking Control (VTC)**

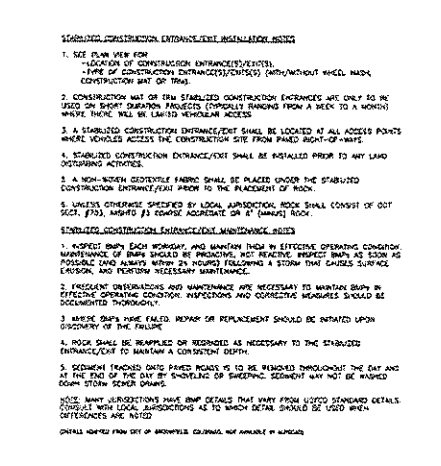
**SM-4**

**SM-4**

**Vehicle Tracking Control (VTC)**



**VTC-3. VEHICLE TRACKING CONTROL W/ CONSTRUCTION MAT OR TURF REINFORCEMENT MAT (TRM)**



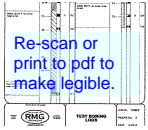
**Kiowa Engineering Corporation**  
 1804 South 21st Street  
 Colorado Springs, Colorado 80904  
 (719) 600-7342

**LORSON RANCH  
 LORSON BOULEVARD BRIDGE  
 EROSION CONTROL DETAILS  
 EL PASO COUNTY, COLORADO**

Project No.: 17001  
 Date: 2/26/18  
 Design: RNW  
 Drawn: EAK  
 Check: RNW  
 Revisions:

# Markup Summary

dsdrice (5)



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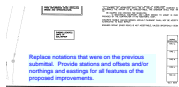
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**Author:** dsdrice

**Date:** 3/13/2018 2:51:14 PM

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Re-scan or print to pdf to make legible.



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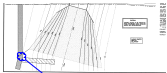
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**Author:** dsdrice

**Date:** 3/14/2018 8:55:28 AM

**Color:** ■

Replace notations that were on the previous submittal. Provide stations and offsets and/or northings and eastings for all features of the proposed improvements.



**Subject:** Cloud+

**Page Label:** 3

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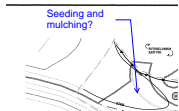
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**Author:** dsdrice

**Date:** 3/14/2018 8:52:30 AM

**Color:** ■

Is manhole at grade? Detail access road as appropriate.



**Subject:** Callout

**Page Label:** 8

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**Status:**

**Checkmark:** Unchecked

**Author:** dsdrice

**Date:** 3/13/2018 1:57:15 PM

**Color:** ■

Seeding and mulching?



**Subject:** Cloud+

**Page Label:** 8

**Lock:** Unlocked

**Status:**

**Checkmark:** Unchecked

**Author:** dsdrice

**Date:** 3/14/2018 8:58:53 AM

**Color:** ■

Label manhole. Should access road go around manhole?