SAND CREEK STABILIZATION & EROSION CONTROL PROJECT WEST FORK SAND CREEK TO PLATTE AVENUE FOR CONSTRUCTION - 2017

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ENVIRONMENTAL

DENVER, CO 80206

CONTACT: MARY POWELL

CORVUS ENVIROMENTAL CONSULTING, LLC. 3570 E. 12TH AVENUE. SUITE 318

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COVER SHEET

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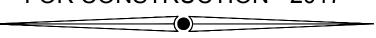
CITY OF COLORADO SPRINGS
30 S. NEVADA AVE., SUITE 401
COLORADO SPRINGS, CO 80903
(719) 385-5980

SAND CREEK STABILIZATION & EROSION CONTROL PROJECT

SHEET

DRAWING NUMBER:

ID-100 SHEET NUMBER: 1



PREPARED FOR: CITY OF COLORADO SPRINGS, COLORADO STORMWATER/WATER RESOURCES ENGINEERING

APPROVED BY

CENTURY LINK

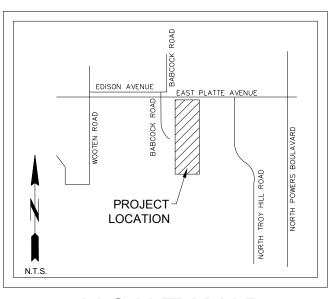
CITY OF COLORADO SPRINGS ENGINEERING DIVISION	DATE
COLORADO SPRINGS UTILITIES WATER RESOURCES - WATER	DATE
COLORADO SPRINGS UTILITIES WATER RESOURCES - WASTEWATER	DATE
COLORADO SPRINGS UTILITIES ELECTRIC DEPARTMENT	DATE

COLORADO SPRINGS UTILITIES	DATE
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CITY OF COLORADO SPRINGS	DATE
CITY OF COLORADO SPRINGS	DATE
CITY OF COLORADO SPRINGS PARKS AND RECREATION DEPARTMENT	DATE
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CAUTION - NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD.

THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE



VICINITY MAP



DATE

AGENCY REFERRALS

CITY OF COLORADO SPRINGS 30 S. NEVADA AVE., SUITE 401 COLORADO SPRINGS, CO. 80903 (719) 719-385-5980 CONTACT: ADAM COPPER, PE

COLORADO SPRINGS UTILITIES

OLYMPIC CITY USA	111 S. CASCADE AVENUE COLORADO SPRINGS, CO 80903 (719) 448-4800 CONTACT: KYLE HINTON

RESPEC
720 S COLORADO BLVD., SUITE 410S
DENVER, CO 80246
(303) 757-3655

CIVIL ENGINEER

VIVID ENGINEERING GROUP INC. 1053 FLKTON DRIVE COLORADO SPRINGS, CO 80907

GEOTECHNICAL ENGINEER

CLARK LAND SURVEYING, INC CONTACT: RUSS CLARK, PLS

177 S TIFFANY DR UNIT 1 PUEBLO WEST, CO 81007 (719) 582-1270

CONTACT: BRYSEN MUSTAIN CONTACT: WALTER PENNINGTON, P.E.

GENERAL NOTES:

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, THE CITY OF COLORADO SPRINGS, ENGINEERING DIVISION (CITY) CRITERIA UNLESS OTHERWISE NOTED ON THE DRAWINGS OR IN THE CONTRACT DOCUMENTS
- 2. DIMENSIONS AND NOTATIONS SUPERSEDE SCALE OF THE DRAWINGS.
- 3. THE CONTRACTOR SHALL NOTIFY THE CITY A MINIMUM OF 48 HOURS PRIOR TO STARTING CONSTRUCTION, THE CITY'S PHONE NUMBER IS (719) 578-6606.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCEPTANCE, CONVEYANCE, AND CONTROL OF ALL SURFACE AND SUBSURFACE WATER FLOWS IN AND ENTERING SAND CREEK DRAINAGE FACILITIES AFFECTED BY THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OPERATIONS OR ANY OTHER ACCEPTABLE MEANS TO PREVENT POLLUTION OF SAND CREEK IN ACCORDANCE WITH THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT PERMIT REQUIREMENTS. THE CONTRACTOR SHALL SUBMIT A WATER MANAGEMENT PLAN AND CANNOT BEGIN CONSTRUCTION UNTIL THE PLAN IS APPROVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE INCLUDING DAMAGE TO STRUCTURES, LOSS OF TOPSOIL, AND LOSS OF SEED CAUSED BY FLOWS UNTIL THE PROJECT IS ACCEPTED BY THE OWNER. ALL WORK
- UNDERGROUND UTILITIES IN THE AREA OF CONSTRUCTION HAVE BEEN LOCATED FROM FIELD INVESTIGATION AND THE AVAILABLE UTILITY RECORDS. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THE LOCATION AND PROTECTION OF ANY UTILITIES AFFECTED BY THE EXECUTION OF THIS CONTRACT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING 811 CENTRAL LOCATES AND AGENCIES AND FOR THE COORDINATION OF ALL WORK IN THE
- 6. THE CONTRACTOR SHALL NOTE THAT ALL UTILITIES MAY NOT APPEAR ON THESE PLANS AND THAT HE POTENTIAL CONFLICT WITH UTILITIES SHALL BE CONSIDERED IN THE PREPARATION OF COST
- THE CONTRACTOR SHALL CONTACT ALL UTILITY OWNERS FOR INSPECTION WHEN WORK IS SCHEDULED ADJACENT TO THE UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING AFFECTED UTILITIES IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, AND THE REQUIREMENTS OF THE UTILITY OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE AND COSTS ASSOCIATED WITH INTERRUPTED OR LOST SERVICE DUE TO DAMAGE TO THESE FACILITIES AND SHALL HOLD THE OWNER AND THE OWNER'S REPRESENTATIVES HARMLESS FOR DAMAGE ARISING FROM FAILURE TO PROTECT UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SCHEDULE UTILITY ADJUSTMENTS TO ELIMINATE
- 8. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE OWNER. THE OWNER RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE STANDARDS AND SPECIFICATIONS SHOWN IN THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE APPROVED PLANS, ONE (1) COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS, AND A COPY OF ANY PERMITS NEEDED AT THE JOB SITE AT ALL TIMES.
- 10. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL PERMITS, LICENSE FEES, AND BONDS THAT ARE NECESSARY TO COMPLETE THE CONSTRUCTION OF THIS PROJECT
- 11. A PLAN FOR TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE SUBMITTED TO THE CITY FOR PROVAL WITH THE PERMIT APPLICATION.
- 12. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL MEET WITH THE OWNER'S REPRESENTATIVE AND RECORD NOTES OF EXISTING CONDITIONS OF THE SITE AND ADJACENT PROPERTY.
- 13. THE CONTRACTOR SHALL REFER TO THE CONTRACT SPECIFICATIONS FOR DESCRIPTION OF MATERIALS REFERRED TO BY SIZE, CLASS, TYPE, DESCRIPTION, OR OTHERWISE SPECIFIED ON
- 14. THE CONTRACTOR IS RESPONSIBLE FOR SAVING AND PROTECTING ALL EXISTING TREES AND VEGETATION WHERE REMOVAL FOR CONSTRUCTION IS NOT MANDATORY ALL TREES TO BE REMOVED WILL BE MARKED BY THE OWNER PRIOR TO REMOVAL.
- 15. UNAUTHORIZED CHANGES AND USES: THE ENGINEER WHO PREPARED THESE PLANS WILL NOT BE RESPONSIBLE OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS AND SPECIFICATIONS MUST BE IN WRITING AND MUST BE APPROVED BY THE OWNER AND THE PREPARER OF THESE PLANS
- 16. THE CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE IMMEDIATELY OF ANY FIELD
- 17 THE CONTRACTOR SHALL PERFORM ALL WORK WITHIN THE CONSTRUCTION LIMITS AS SHOWN ON THE DRAWINGS AND DISCUSSED IN THE CONTRACT DRAWINGS. IF THE CONTRACTOR DAMAGES ANY EXISTING SITE OR PUBLIC AMENITIES (PAVEMENTS, CURBS, CURB AND GUTTER, SOD, TREES, FENCES, UTILITIES, ETC) OUTSIDE OR WITHIN THE EASEMENTS OR CONSTRUCTION LIMITS, HE SHALL REMOVE AND REPAIR SUCH TO THE SATISFACTION OF THE INDIVIDUAL PROPERTY OWNERS AT THE CONTRACTOR'S EXPENSE
- 18. ITEMS TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR, UNLESS NOTED
- 19 THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE TEMPORARY EROSION CONTROL MEASURES (WIND AND WATER) DURING THE FULL TERM OF CONSTRUCTION IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.
- 20. ALL DISTURBED AREAS SHALL BE SEEDED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS N EROSION CONTROL MAT (ORTH AMERICAN GREEN SC 150 BN OR APPROVED EQUAL) SHALL BE INSTALLED ON ALL CHANNEL BANKS AND AREAS WITH SLOPES 3H TO 1V OR STEEPER.
- THE EXACT LIMITS OF THE CONTRACTOR'S PARKING AND STAGING AREA FOR MATERIAL STOCKPILING, OFFICE TRAILERS, AND PARKING FOR PUBLIC SHALL BE SUBMITTED BY THE CONTRACTOR FOR THE REVIEW AND THE APPROVAL OF THE OWNER'S REPRESENTATIVE.
- 22. ALL REQUIRED UTILITIES FOR THE CONTRACTOR'S STAGING AREA SHALL BE ARRANGED BY THE CONTRACTOR DIRECTLY WITH THE APPROPRIATE UTILITY AGENCY. UTILITY ARRANGEMENTS SHALL BE SUBJECT TO THE APPROVAL OF THE CONTRACTOR TO ENCLOSE AND SET UP HIS OPERATIONAL AREA. ADDITIONALLY, THE CONTRACTOR SHALL RESTORE THE SITE TO ITS ORIGINAL CONDITION TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE UPON COMPLETION OF THE CONTRACT WORK.
- 23. WASTE MATERIAL PRODUCED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE LEGALLY DISPOSED OF OFF THE PROJECT SITE OR AS DIRECTED BY THE OWNERS REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
- 24. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND GULATIONS THAT ARE PERTINENT TO THIS WORK
- 25. THE CONTRACTOR SHALL BE RESPONSIBLE TO CLEANUP ANY TRASH ON THE SITE OR ADJACENT PROPERTIES AND STREETS AS A RESULT OF CONSTRUCTION

- 26. ANY CONSTRUCTION DEBRIS OR MUD TRACKING ONTO THE PUBLIC RIGHT-OF-WAY, RESULTING FROM THE PROJECT, SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR. THE CONTRACTOR SHALL IMMEDIATELY FIX ANY EXCAVATION, OR PAVEMENT FAILURE CAUSED BY THE PROJECT AND SHALL PROPERLY BARRICADE THE SITE UNTIL CONSTRUCTION IS COMPLETE.
- 27. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS AT AND ADJACENT TO THE JOB SITE, INCLUDING BUT NOT LIMITED TO TRENCH EXCAVATIONS AND SHORING, TRAFFIC CONTROL, SECURITY, AND SAFETY OF ALL PERSONS AND PROPERTY, DURING THE PERFORMANCE OF THE WORK THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO NORMAL WORKING HOURS. THE DUTY OF THE OWNERS TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN OR NEAR THE CONSTRUCTION SITE
- 28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY NEEDED DEWATERING OPERATIONS INCLUDING ANY REQUIRED PERMITS FOR DEWATERING OPERATIONS
- ALL GRADES SHOWN ARE FINISHED GRADES, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- ALL CONTOURS AND ELEVATIONS WITHIN THE LIMITS OF THE GROUTED BOULDER DROP STRUCTURE ARE TOP OF GROUT ELEVATIONS.
- 31. ALL SLOPES SHOWN ARE DIAGRAMMATIC AND SHALL BE ROUNDED AT TOP AND BOTTOM.
- 32. NATIVE SEED MIX TO BE USED SHALL BE A MODIFIED "EL PASO MIX" IN ACCORDANCE WITH THE
- 33. THE EXISTING FLOODPLAIN DELINEATED IN THESE DRAWINGS IS DIGITIZED FROM THE REGULATORY FLOODPLAIN RECOGNIZED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

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LEGEND ABBREVIATIONS ____ xxxx ____ EXISTING MAJOR CONTOURS ASBESTOS CEMENT BM BENCHMARK ---- EXISTING MINOR CONTOURS BOP BOTTOM OF PIPE / BEGINNING OF PROJECT XXXX — PROPOSED MAJOR CONTOURS вос BACK OF CURB C&G **CURB AND GUTTER** PROPOSED MINOR CONTOURS CONCRETE BOX CULVERT CBC ALIGNMENT CENTERLINE CDPHE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT EX ROW / PROPERTY LINE CES CUBIC FEET PER SECOND EX EASEMENT CHAN CHANNEL CENTERLINE EX LOT LINE CLR _ . . _ . . _ . . _ GRADING LIMITS CORRUGATED METAL PIPE CMP CORRUGATED METAL ARCH CMPA WORK LIMITS CONC CONCRETE LIMITS OF AS-BUILT SURVEY CONTROL POINT CY **CUBIC YARDS** PROPOSED 100-YR FLOODPLAIN DEPTH REGULATORY FLOODPLAIN DEMOLISH DEMO DND DO NOT DISTURB EX STORM EACH EX FIBER OPTIC EΒ **EASTBOUND** EG EXISTING GROUND EX WATER **ELEVATION** EX FIBER OPTIC ELEV **ELEVATION** FOR EDGE OF ROAD EX GAS ____ UG _____ UG ____ EDGE OF PAVEMENT EOP **EX SANITARY SEWER** ESMT EASEMENT **EACH WAY** EX ELECTRIC FX/FXIST EXISTING EX DITCH FLARED END SECTION FES FLOW LINE EX FENCE FL FIBER OPTIC FT HBP FFFT HOT BITUMINOUS PAVEMENT HGL HYDRAULIC GRADE LINE EX RIPRAP INV INVERT LINEAL FEET EX CONCRETE LF LIMITS OF CONSTRUCTION LOC PROPOSED RIPRAP TYPE L MAX MAXIMIIM MAINTENANCE PROPOSED RIPRAP TYPE M MAINT MATCH EXISTING ELEVATION PROPOSED RIPRAP (CROSS SECTION) МН MANHOLE MIN MINIMUM PROPOSED BEDDING (TYPE M) NB NORTHBOUND NTS NOT TO SCALE PROPOSED CONCRETE PED **PEDESTAL** PH PP PHASE PROPOSED BOULDERS POWER POLE POLYVINYL CHLORIDE PIPE PWMD PUEBLO WEST METRO DISTRICT TREE PROTECTION O100 100 YEAR PEAK DISCHARGE SEE DETAIL RCP REINFORCED CONCRETE PIPE RT RIGHT TREE REMOVAL REGIONAL TRANSPORTATION DISTRICT RTD RIGHT-OF-WAY ROW SLOPE [PERCENTAGE] SAN SANITARY [SEWER] **LEGEND** SOUTHBOUND STONE MASTIC ASPHALT SMA SANITARY SEWER **DETAIL** STATION SWMP STORM WATER MANAGEMENT PLAN SY SQUARE YARDS NUMBER FOR DETAILS OR ENLARGED AREAS TO BE REMOVED TBR&R TO BE REMOVED AND REPLACED DWG. ON WHICH DETAIL OCCURS TELEPED TELEPHONE PEDESTAL TOP OF CURB TOC TOWN OF ERIE TOE TOF TOG TOP OF GROUT TOP OF PIPE/TOWN OF PARKER TOP SECTION TOS TOP OF SLAB TOP OF WALL TOW THW TOP OF HEADWALL TWW TOP OF WINGWALL NUMBER DWG. ON WHICH TYP **TYPICAL UDFCD** URBAN DRAINAGE AND FLOOD CONTROL DISTRICT SECTION OCCURS VCP VITRIFIED CLAY PIPE W WIDTH WESTBOUND WB WATER SURFACE ELEVATION WSEL

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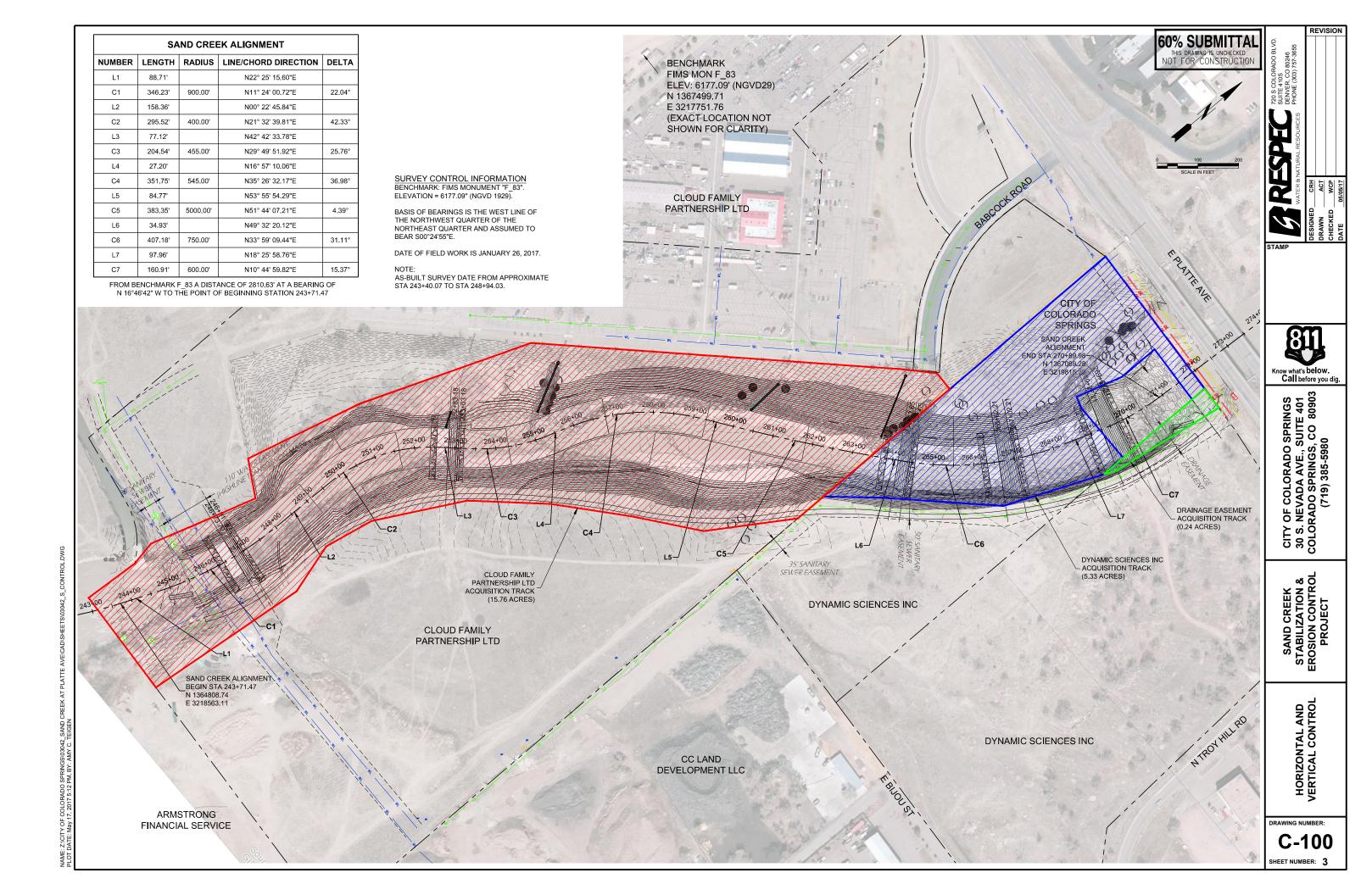
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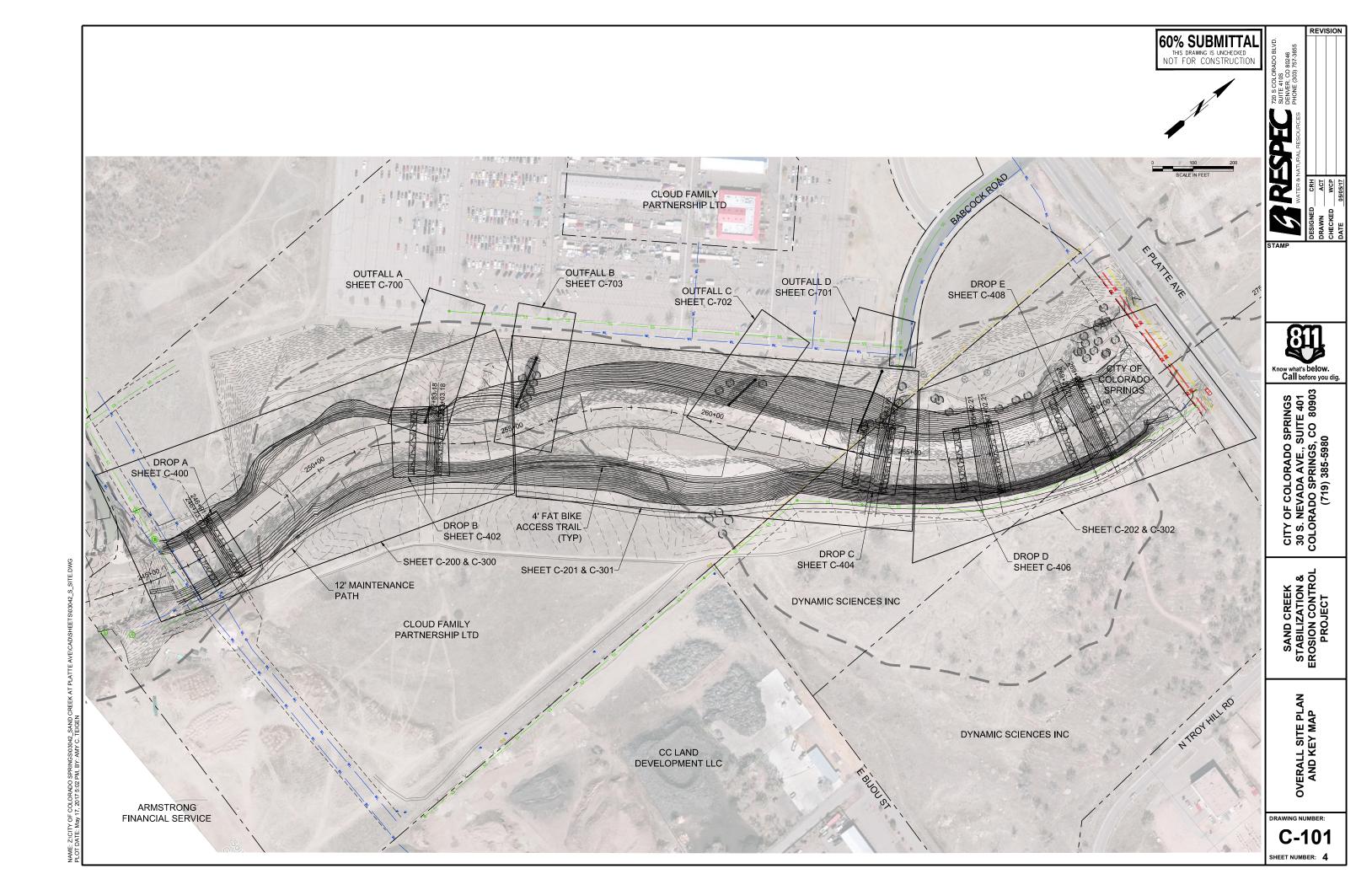
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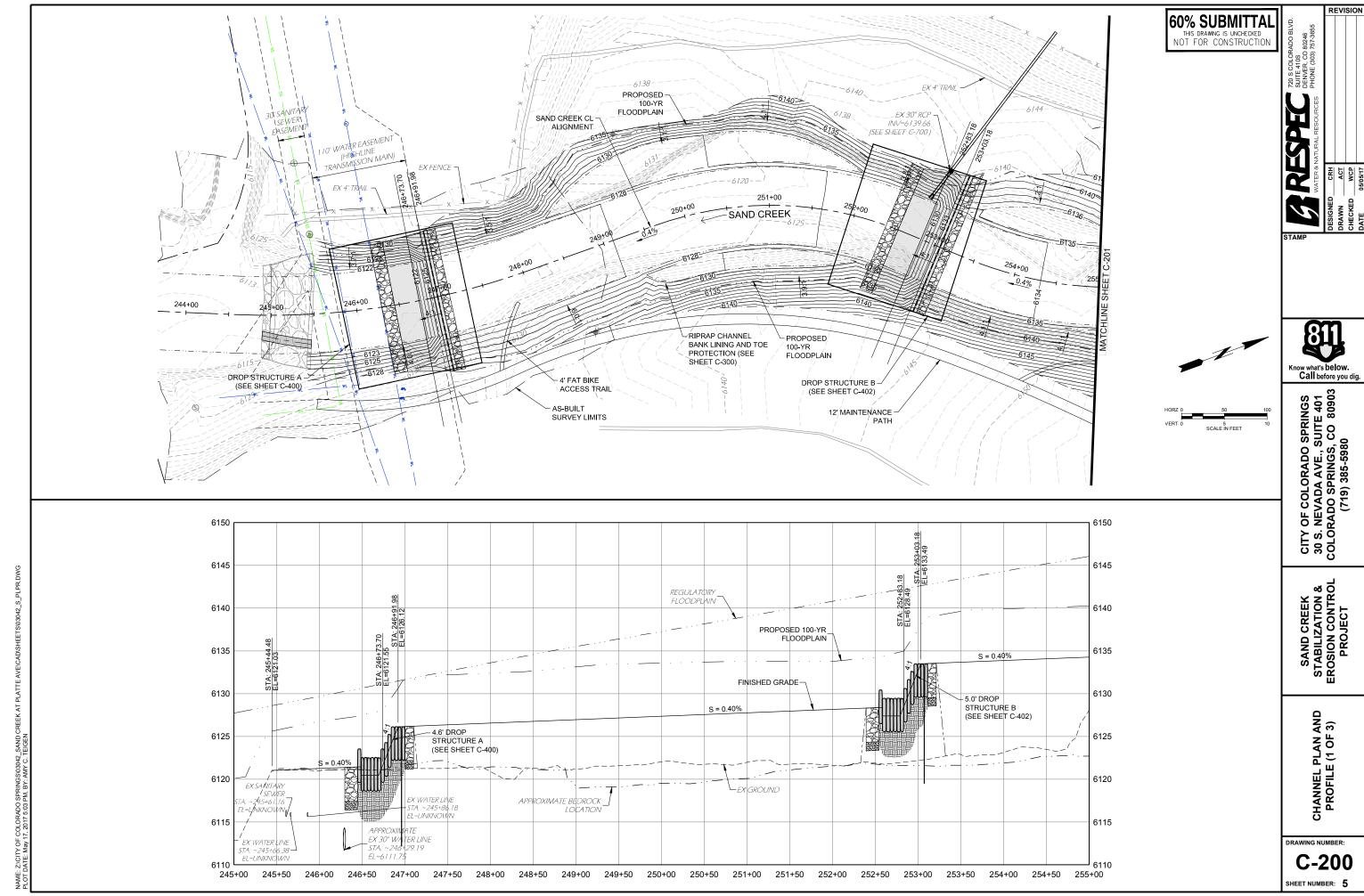
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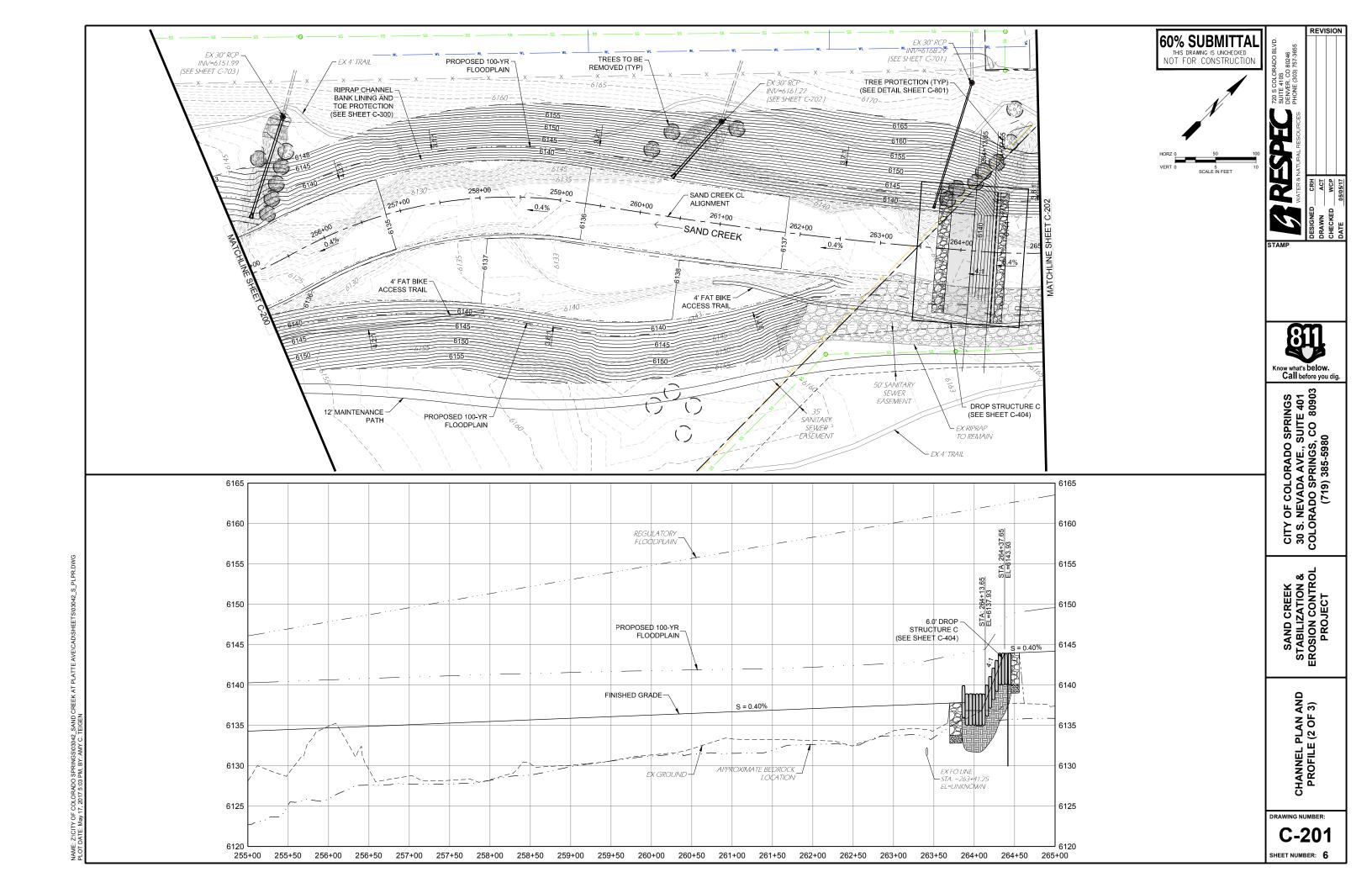
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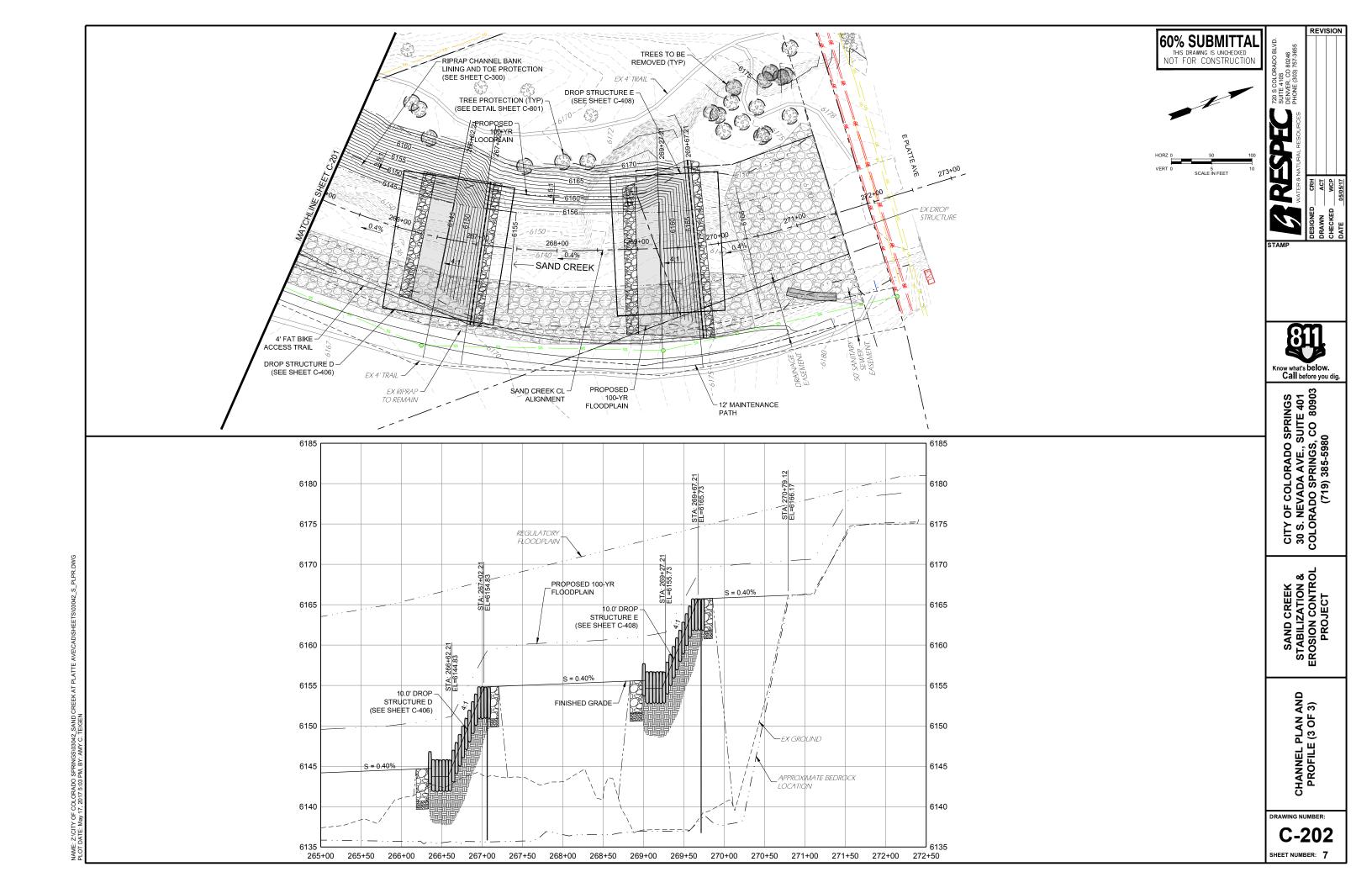
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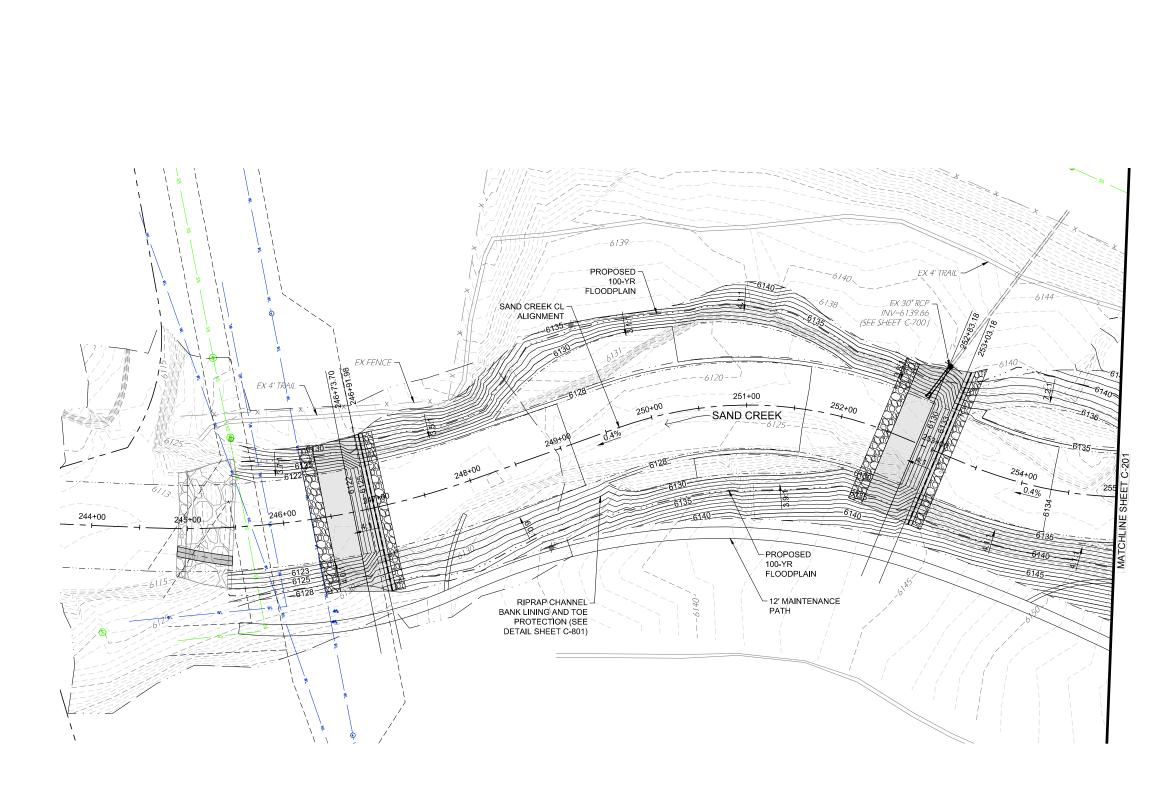




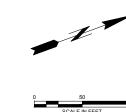








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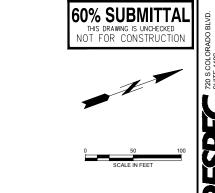
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SAND CREEK
STABILIZATION &
EROSION CONTROL
PROJECT

RIPRAP LAYOUT PLAN (1 OF 3)

DRAWING NUMBER:

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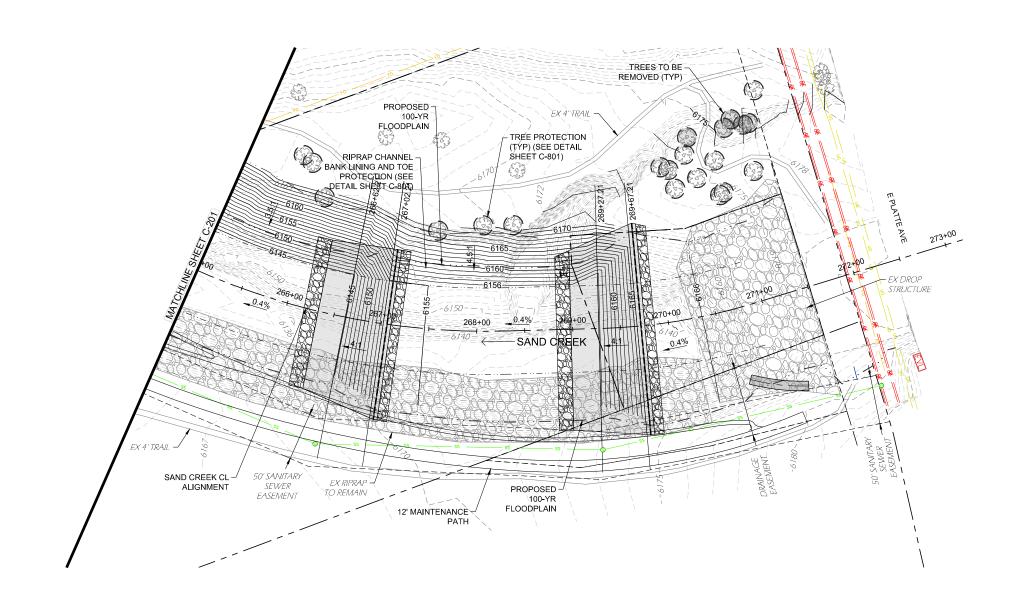
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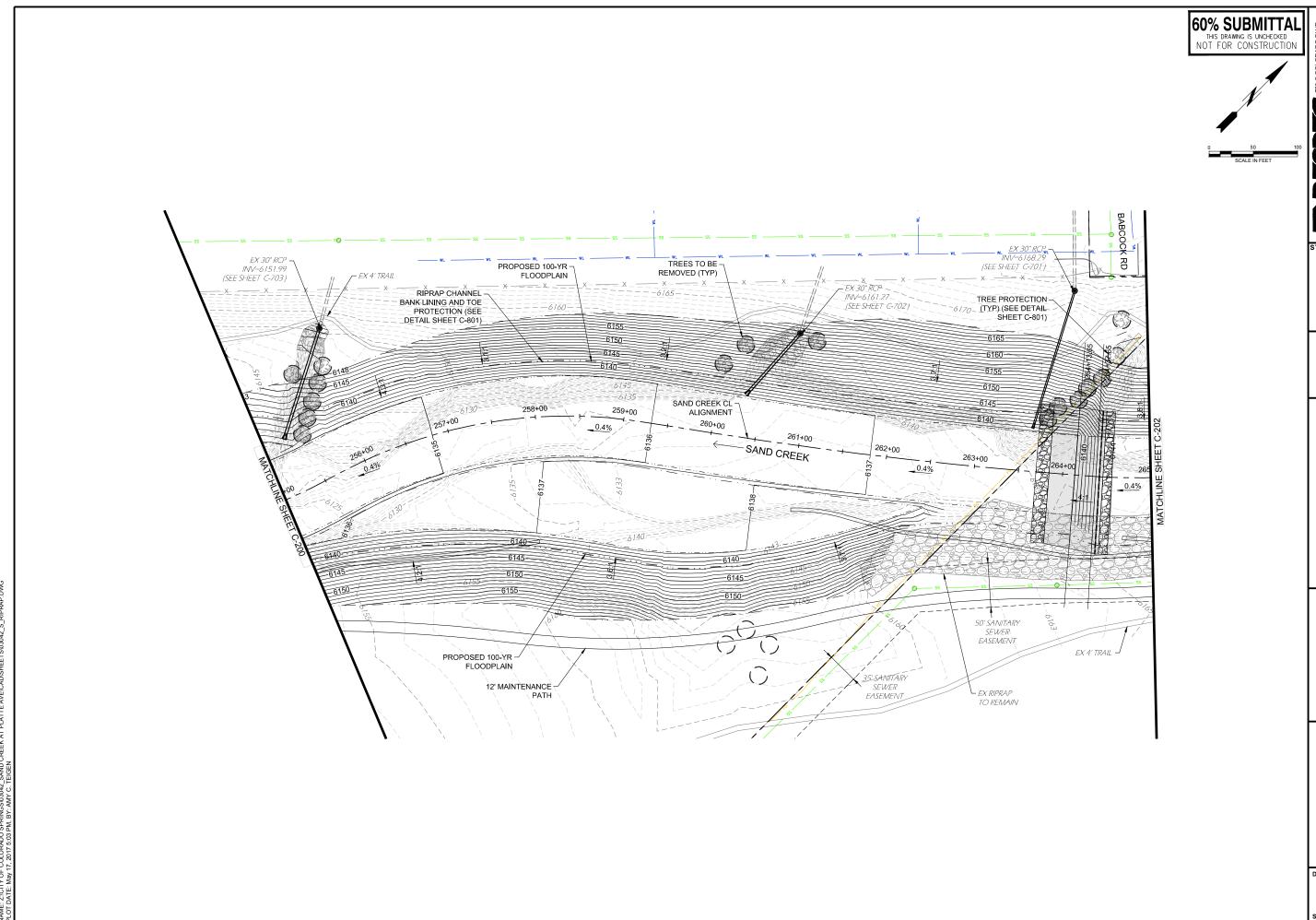
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RIPRAP LAYOUT PLAN (3 OF 3)

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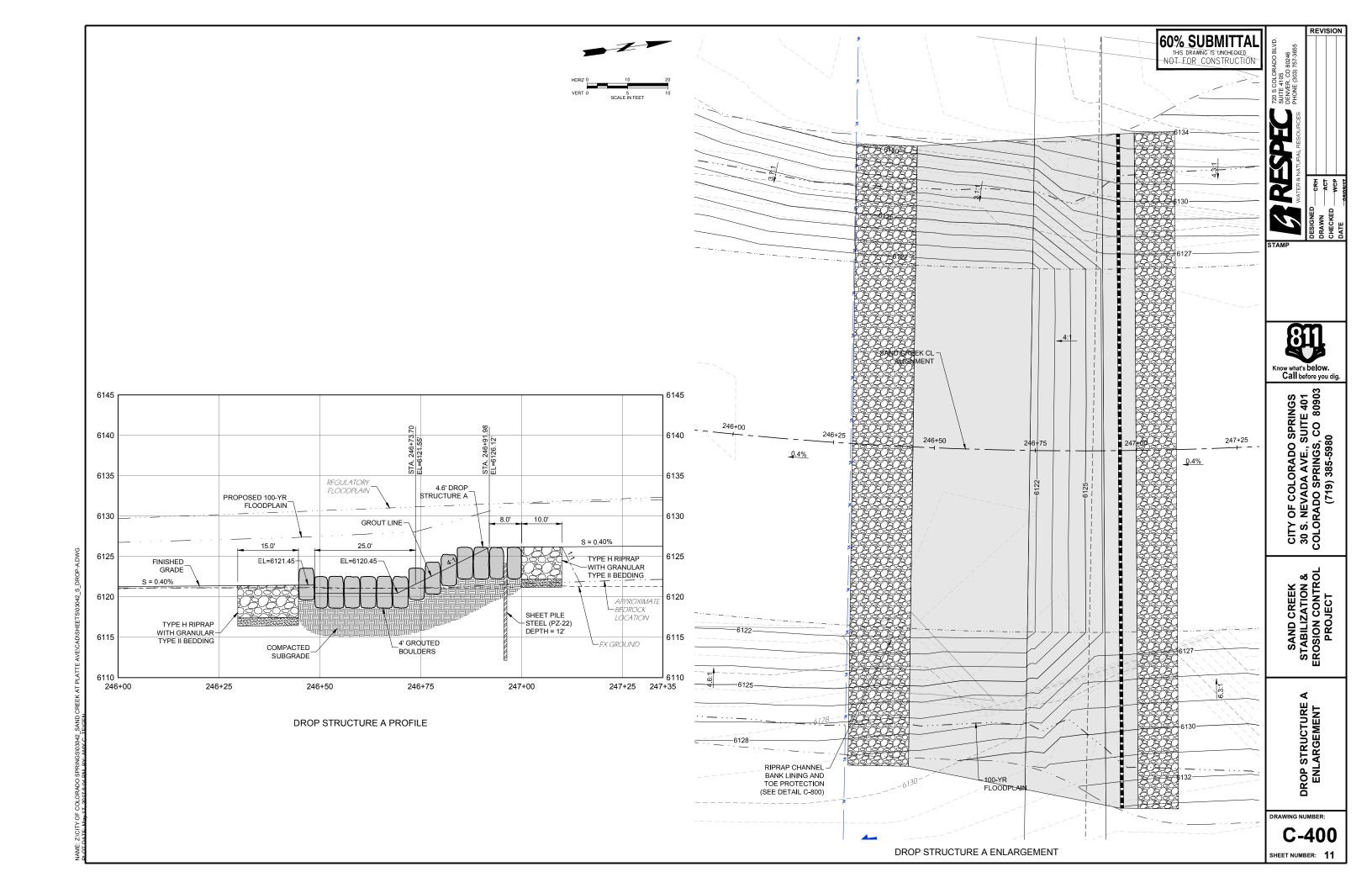
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SAND CREEK
STABILIZATION &
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RIPRAP LAYOUT PLAN (2 OF 3)

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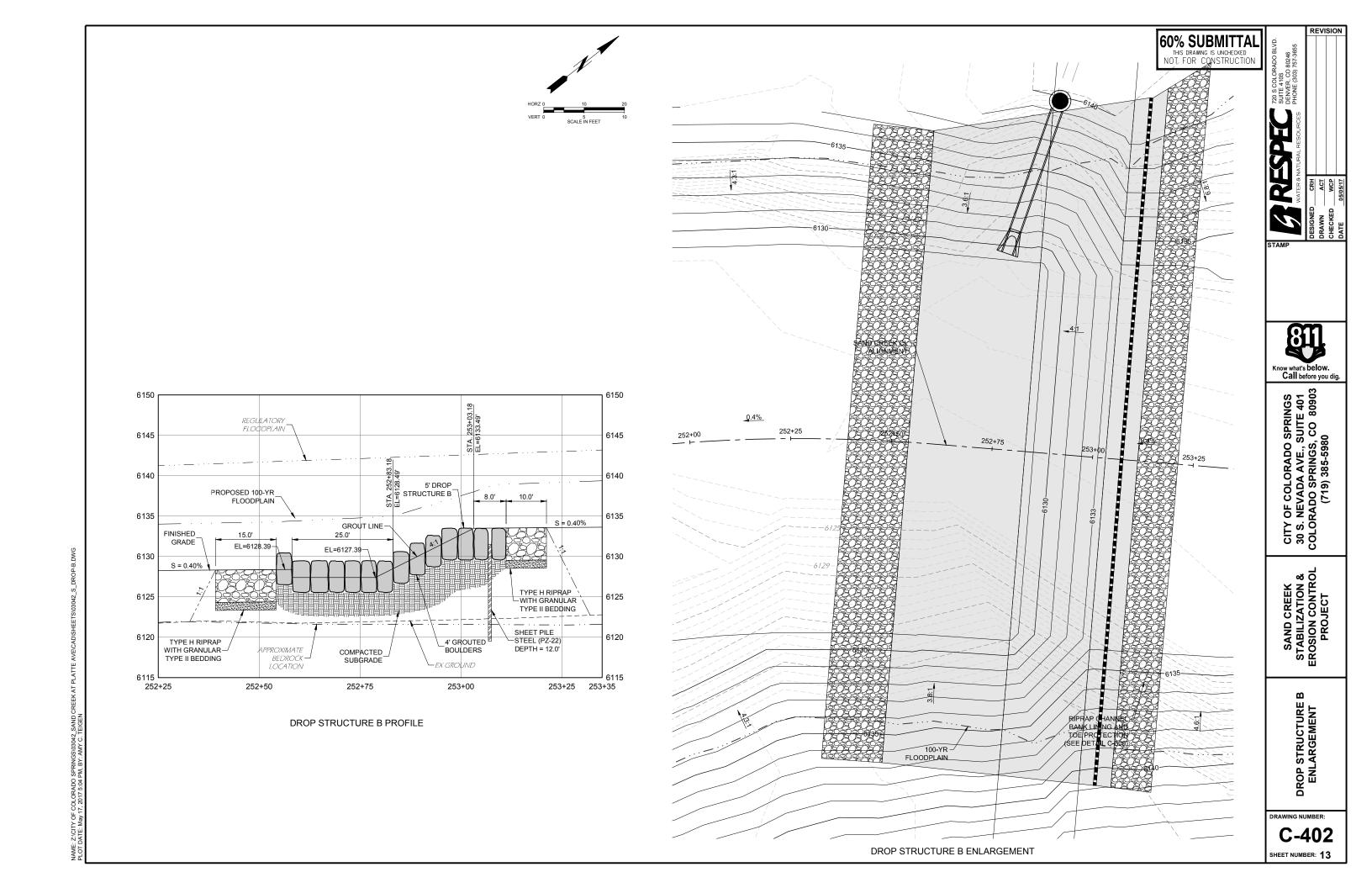
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SAND CREEK
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DROP STRUCTURE A SECTIONS

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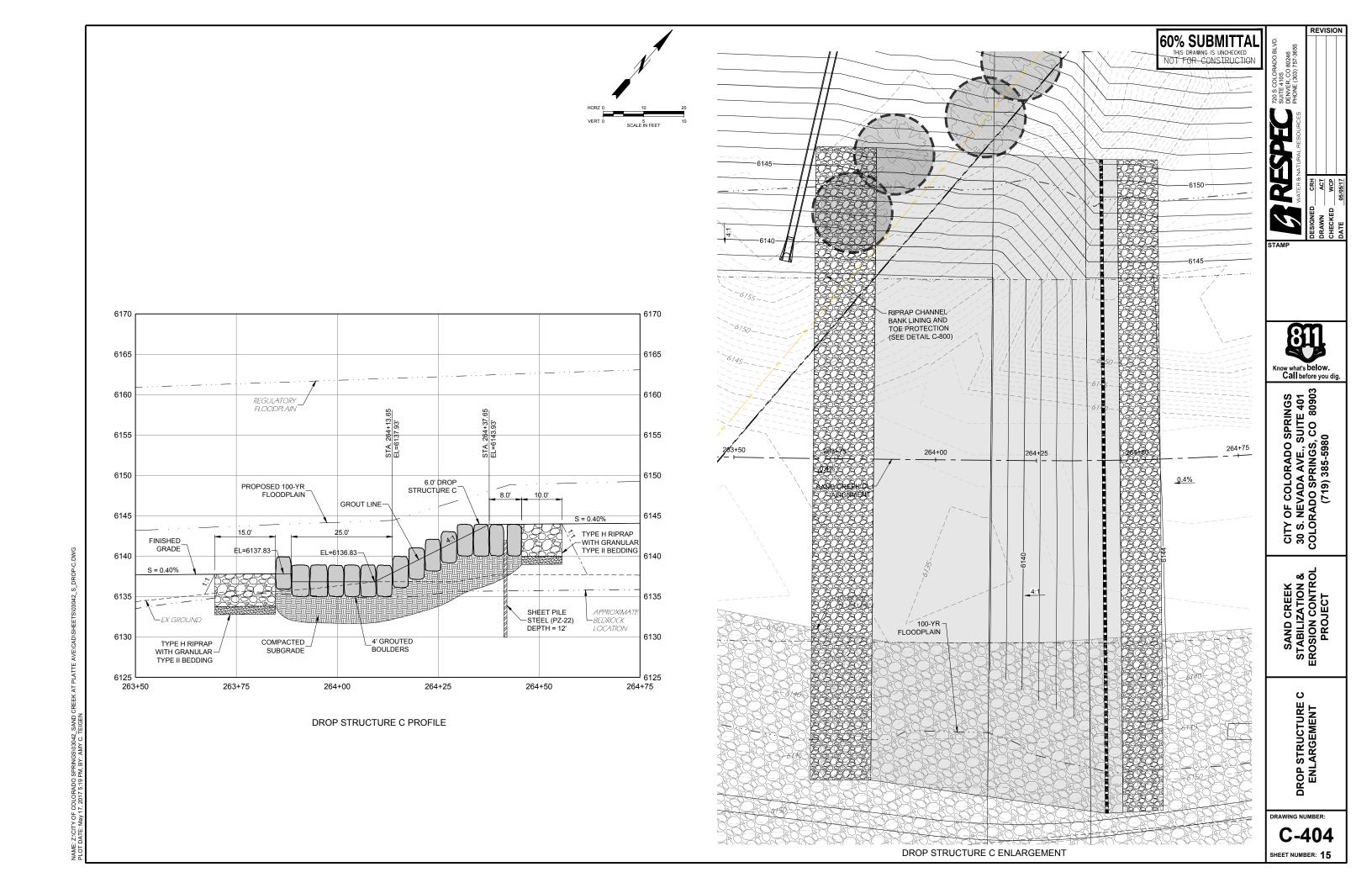
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SAND CREEK
STABILIZATION &
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DROP STRUCTURE B SECTIONS

DRAWING NUMBER:

C-403



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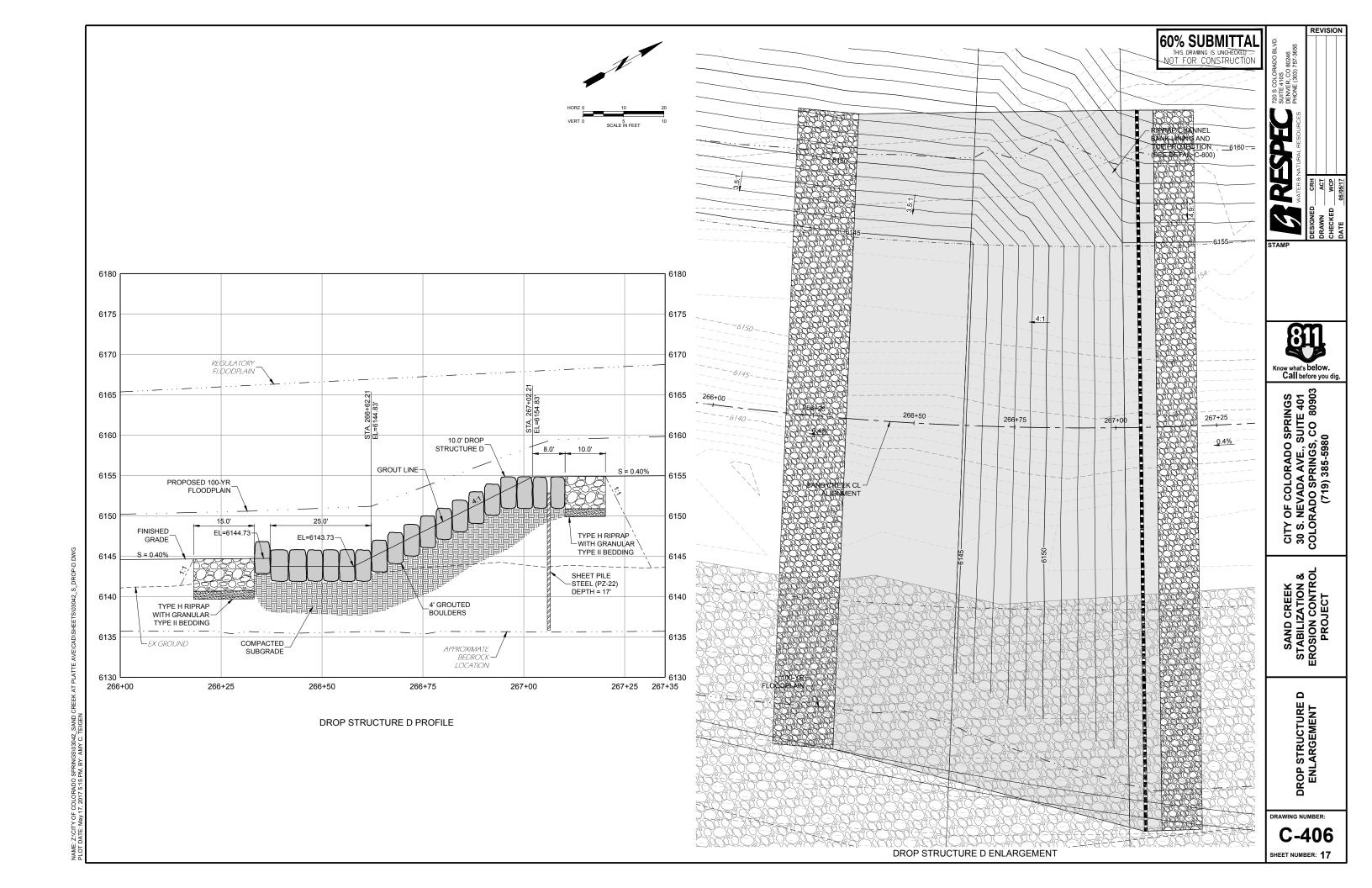
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SAND CREEK
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DROP STRUCTURE C SECTIONS

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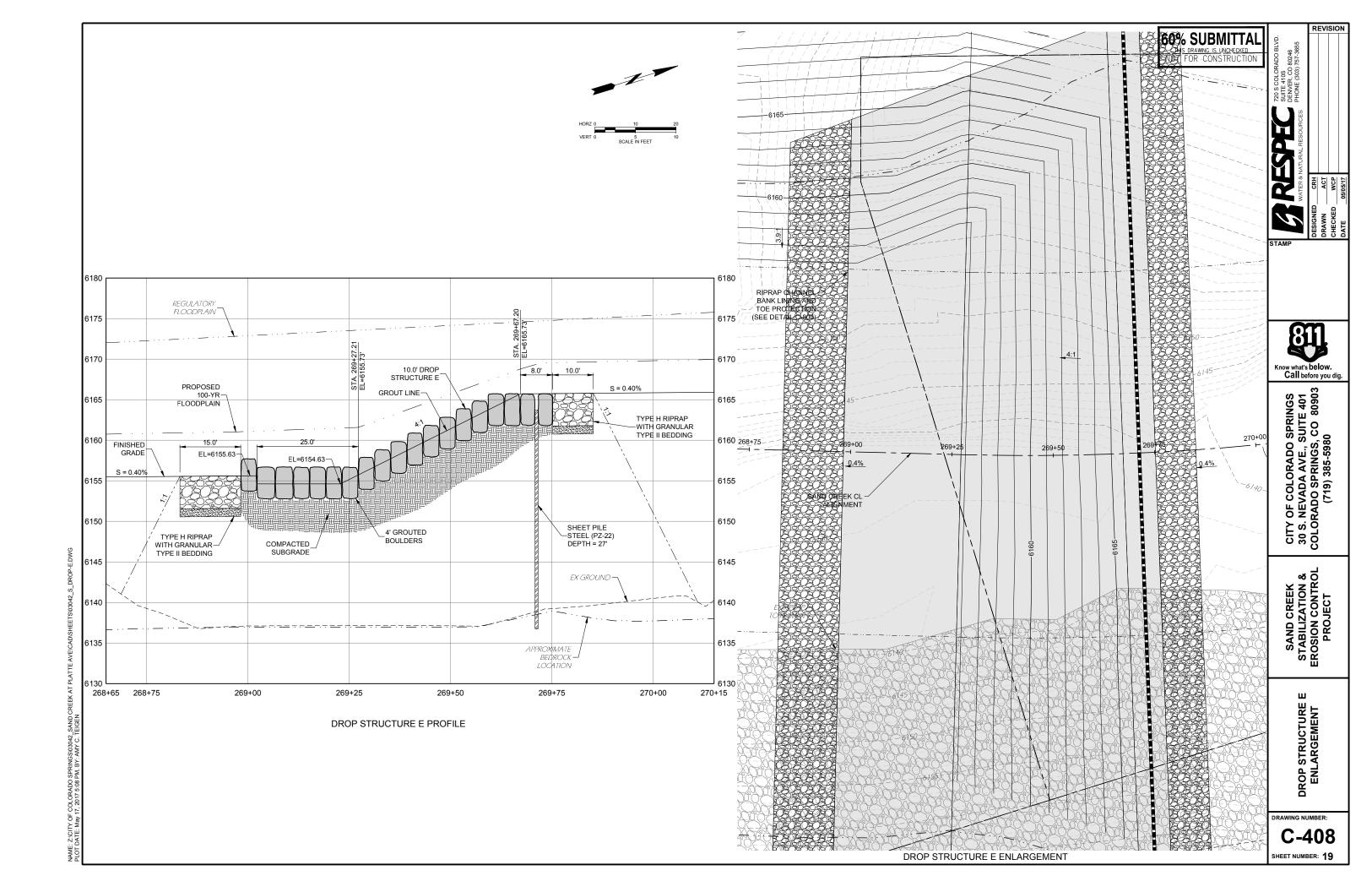
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SAND CREEK
STABILIZATION &
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DROP STRUCTURE D SECTIONS

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DROP STRUCTURE E SECTIONS

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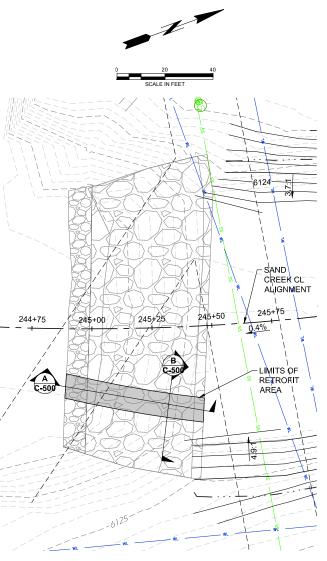
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EXISTING DROP STRUCTURE RETROFITS

RAWING NUMBER

C-500

245+50 245+25 244+75



EXISTING DROP STRUCTURE RETROFIT - DOWNSTREAM

AND GROUT (TYP) EX GROUT - EX BOULDERS TRAIL RETROFIT AREA C-500/ POWER WASH GROUT AND APPLY SIKADUR 32. ± - MOD EPOXY BONDING AGENT PRIOR TO PLACING GROUT FOR RETROFIT TRAIL.

COLORED GROUT DAVIS COLORS #641 (YOSEMITE BROWN) OR EQUIVALENT

C-500/

NO MORE THAN 3-4" VERTICAL

DROP BETWEEN BOULDER FACE -

COLORED GROUT DAVIS COLORS #641 (YOSEMITE BROWN) OR EQUIVALENT

NO MORE THAN 2" VERTICAL DROP BETWEEN BOULDER -FACE AND GROUT (TYP)

SLOPE VARIES SEE PLANS

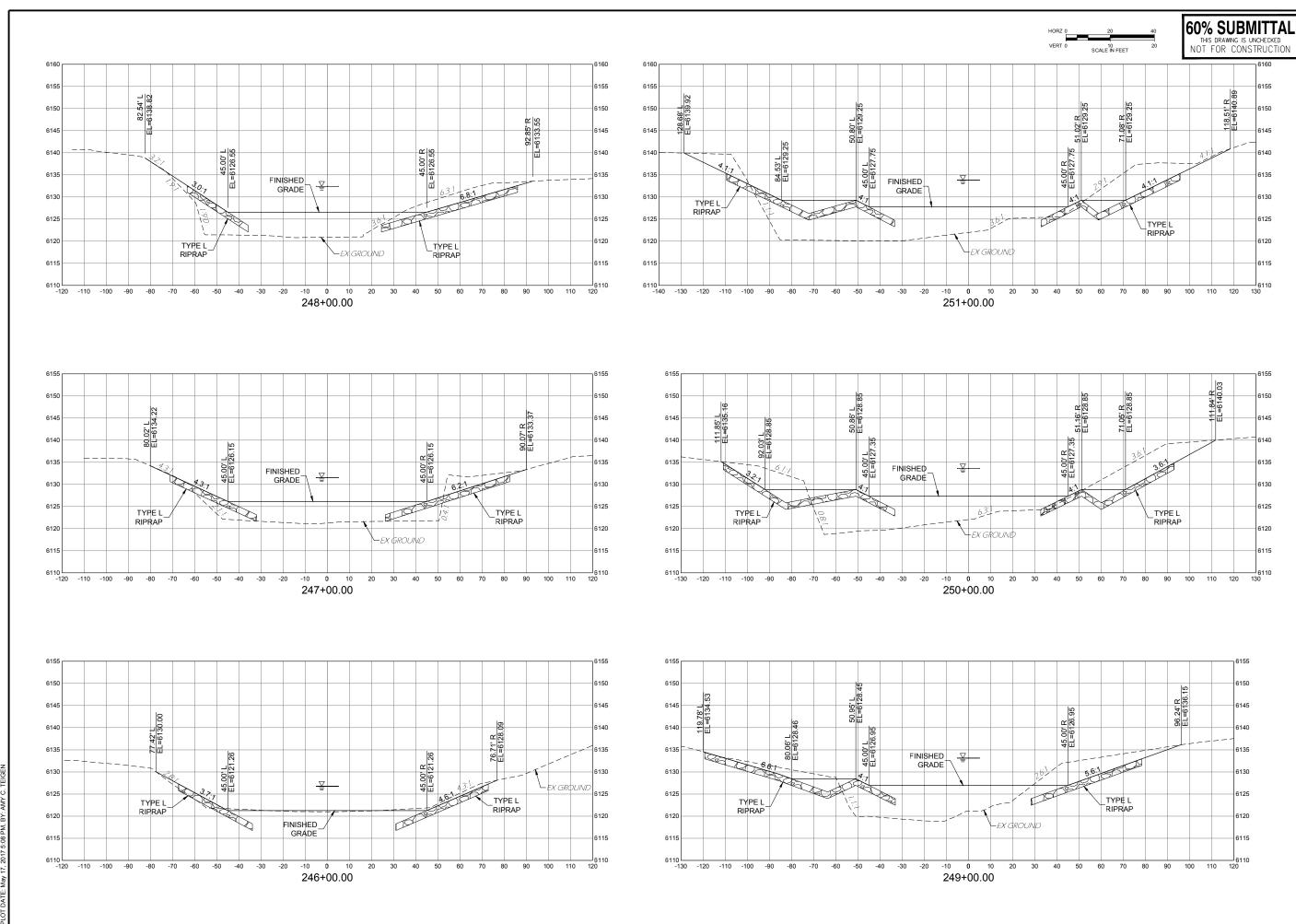
EX BOULDERS

10' TRAIL RETROFIT AREA

TRAIL RETROFIT AREA

271+75 270+00 SAND CREEK CL ALIGNMENT EX BOULDER DROP STRUCTURE LIMITS OF TRAIL RETROFIT AREA -PROPOSED 100-YR FLOODPLAIN - EX SANITARY SEWER EASEMENT EX SANITARY SEWER

EXISTING DROP STRUCTURE RETROFIT - UPSTREAM



ACT

ACT

ACT

WATER & NATURAL RESOURCES

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DESIGNED CRH
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CHECKED WCP

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SAND CREEK STABILIZATION & EROSION CONTROL PROJECT

SAND CREEK
STABILIZATION &
EROSION CONTROL
PROJECT

ECTIONS (1 OF 7)

DRAWING NUMBER:

C-600
SHEET NUMBER: 22



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WATER & NATURAL RESOURCES

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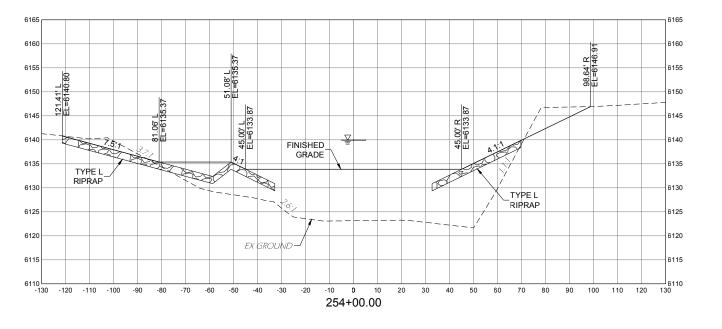
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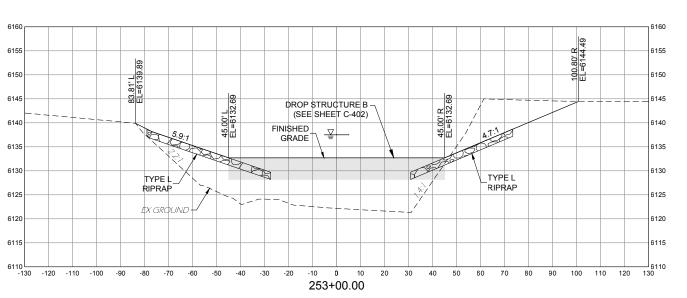
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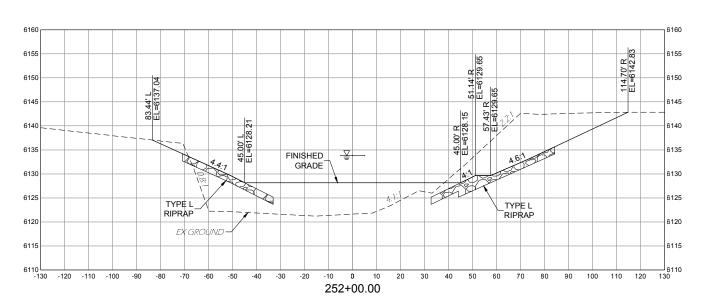
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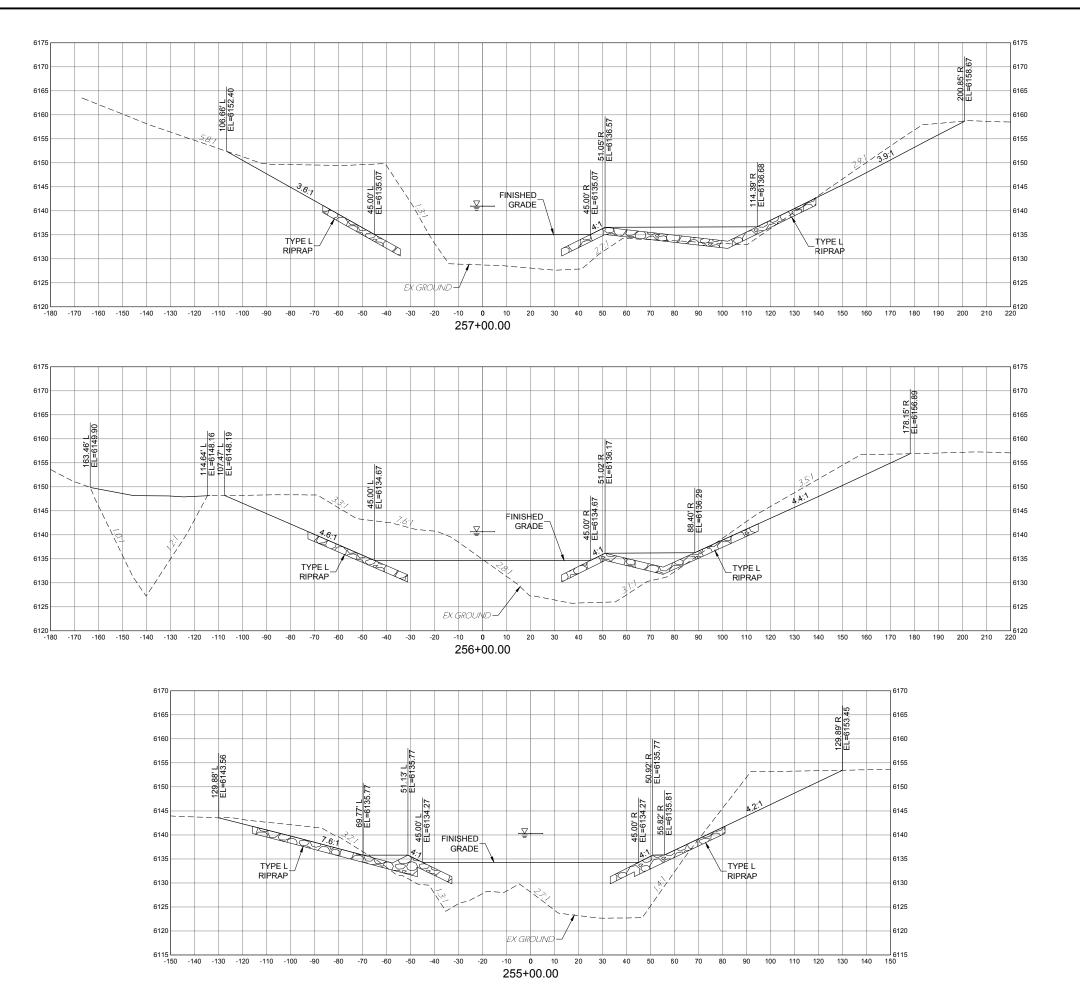
ECTIONS (2 OF 7)

C-601









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10 SCALE IN FEET

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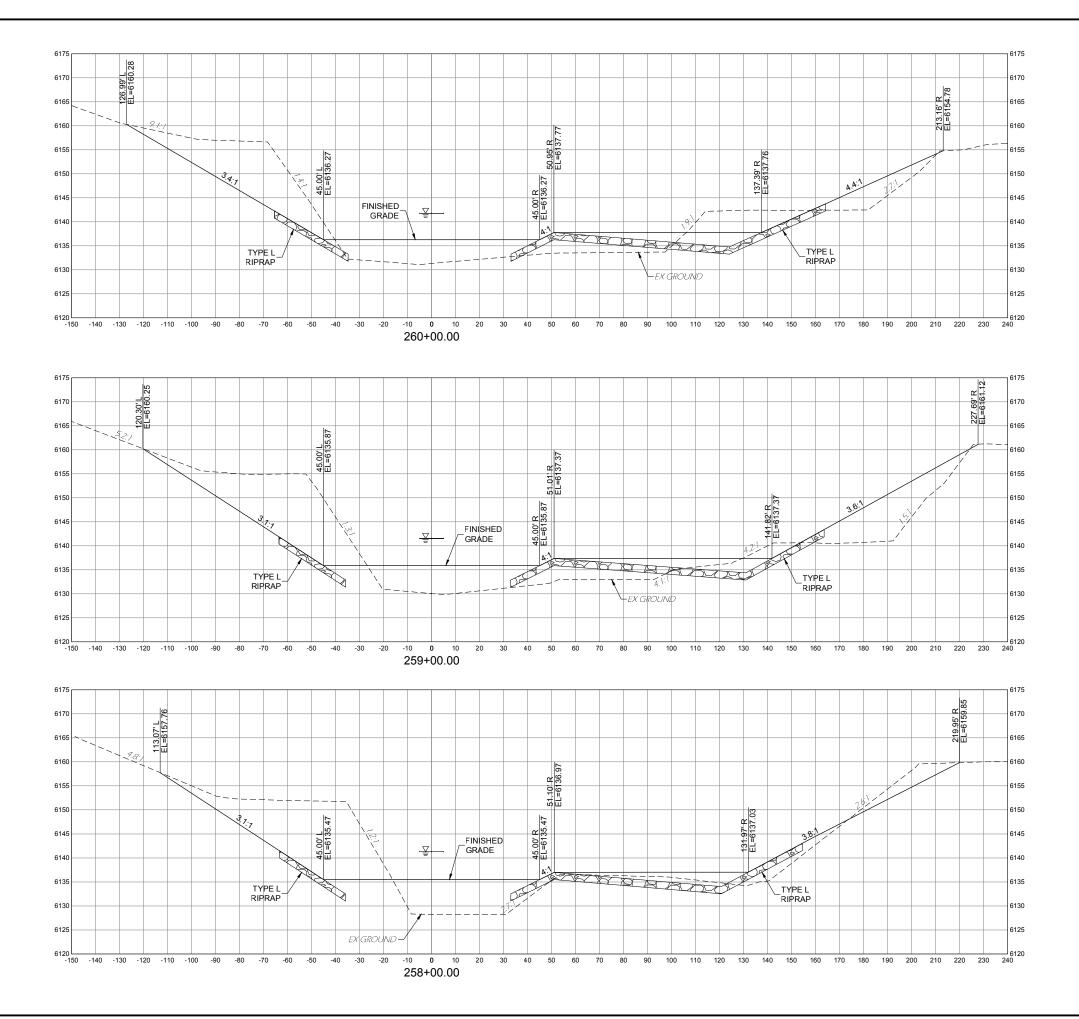
SAND CREEK STABILIZATION & EROSION CONTROL PROJECT

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OF

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C-602 SHEET NUMBER: 24



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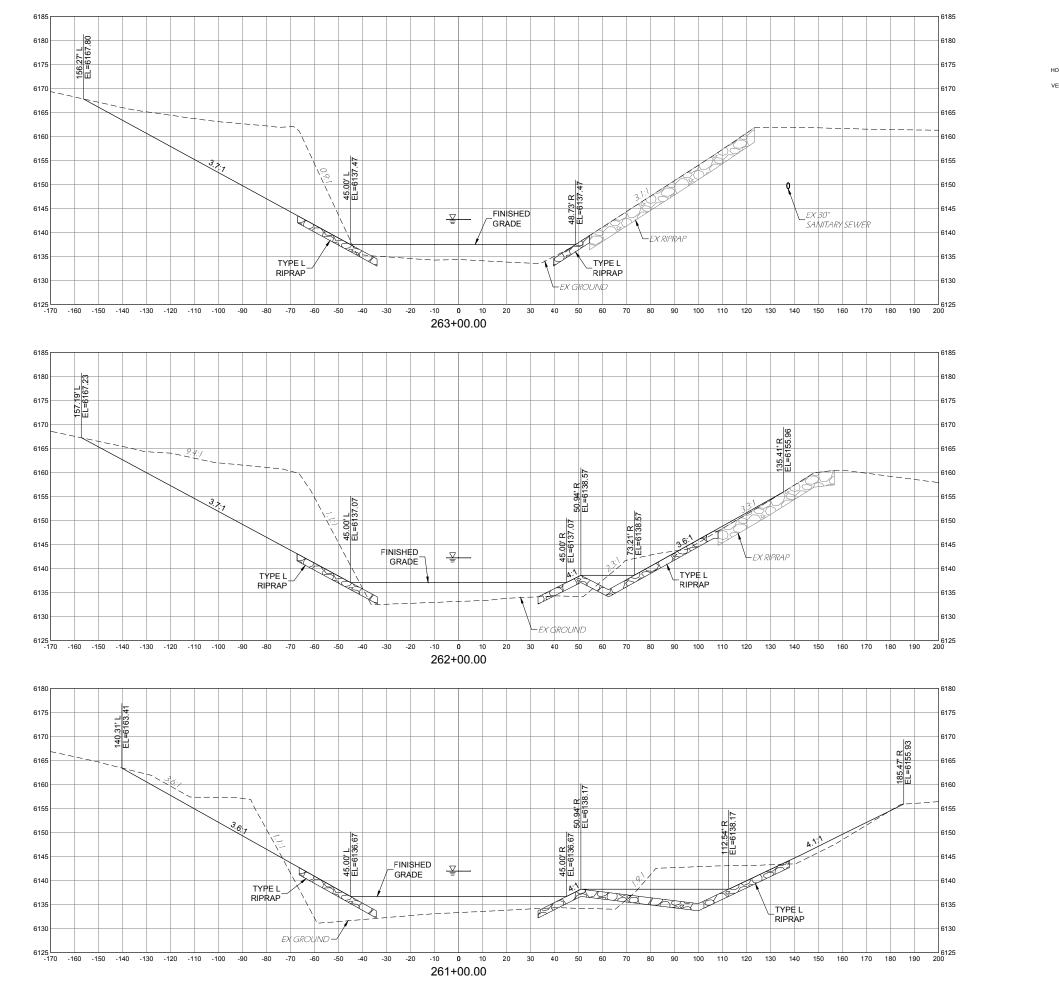
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DRAWING NUMBER:

C-603 SHEET NUMBER: 25



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VERT 0 20
VERT 0 10
SCALE IN FEET

RESPEC
WATER & NATURAL RESOURCES

REVISION

DESIGN

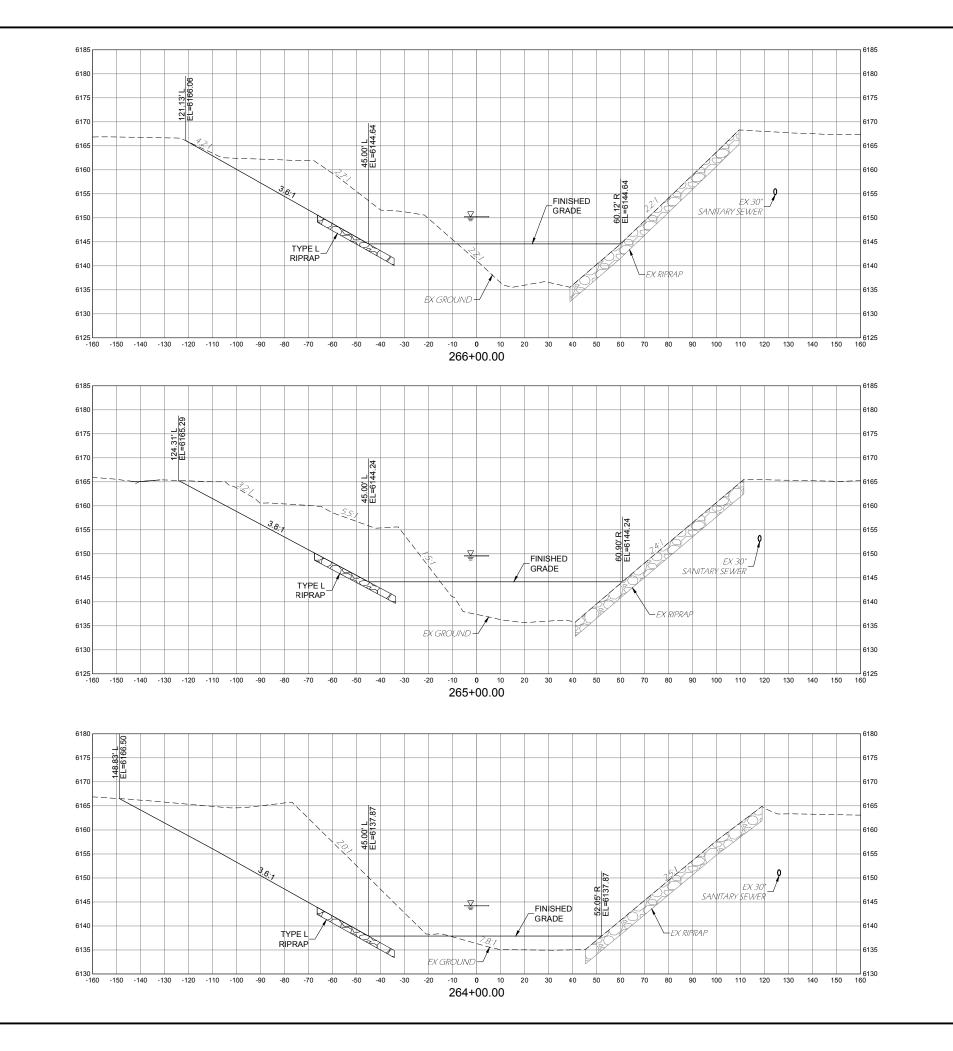
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SECTIONS (5 OF 7)

C-604



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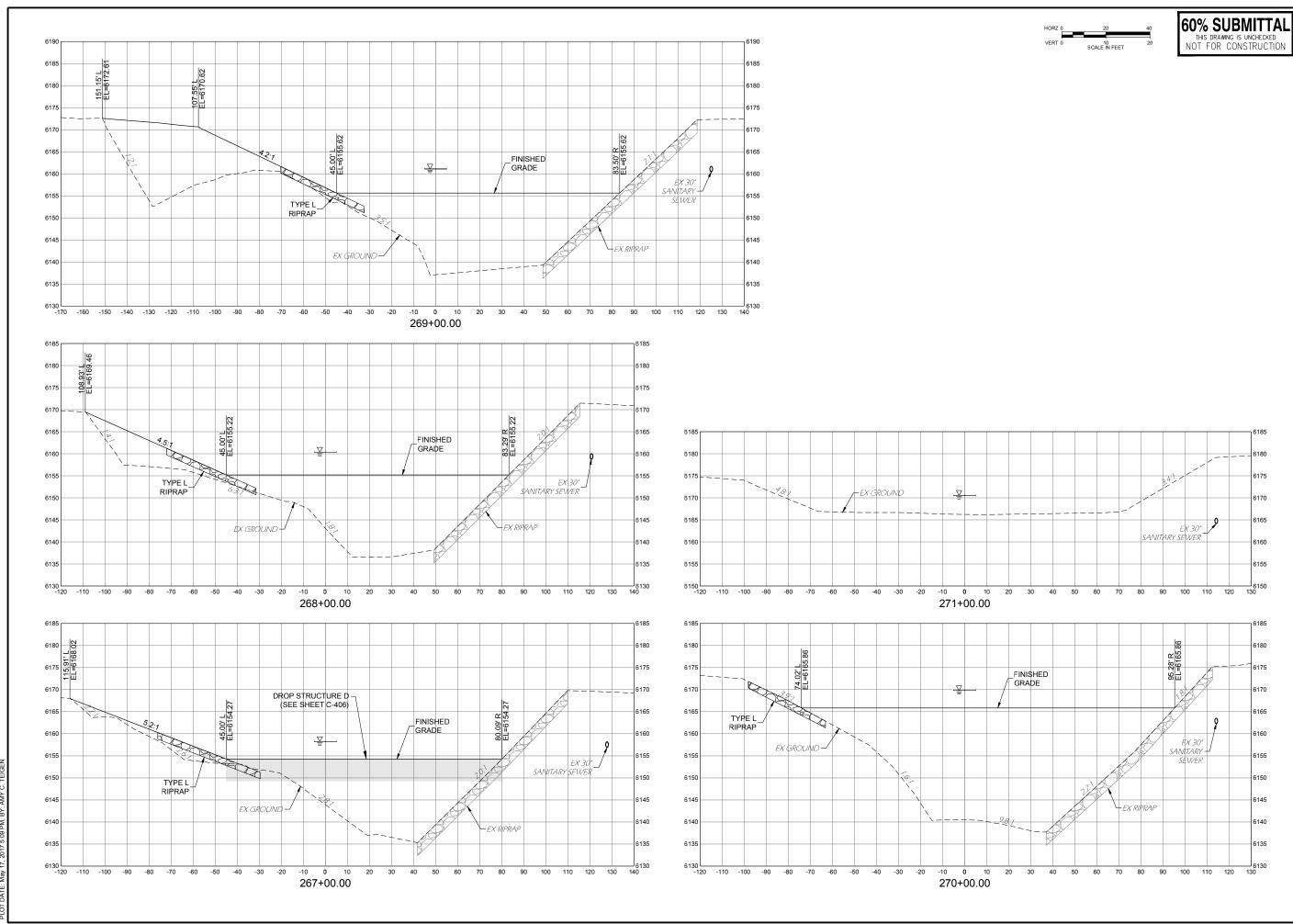
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PROJECT

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DRAWING NUMBER:

C-605 SHEET NUMBER: 27



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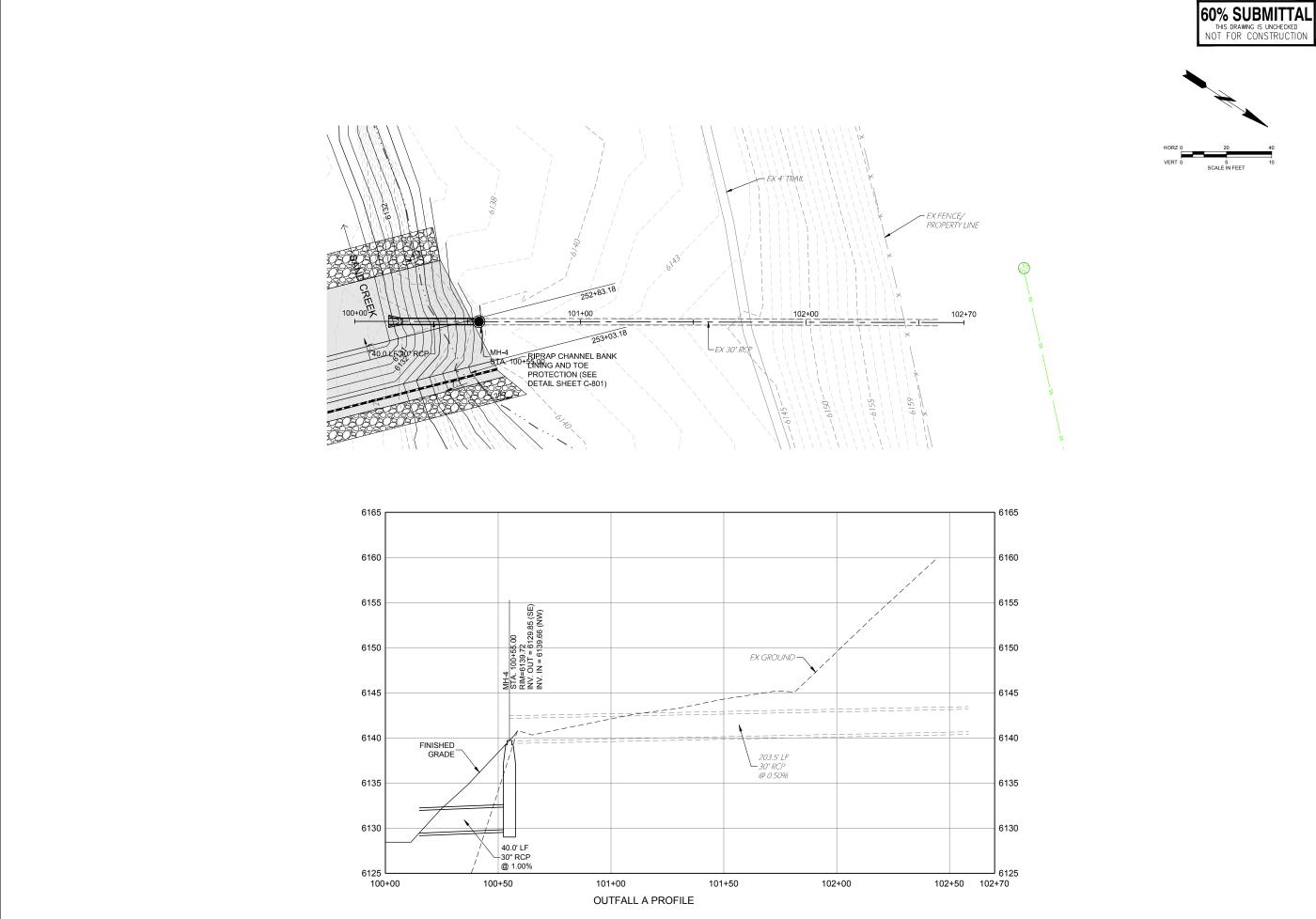
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EROSION CONTROL
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RAWING NUMBER:

C-606 SHEET NUMBER: 28



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RESPECTION WATER & NATURAL RESOURCE

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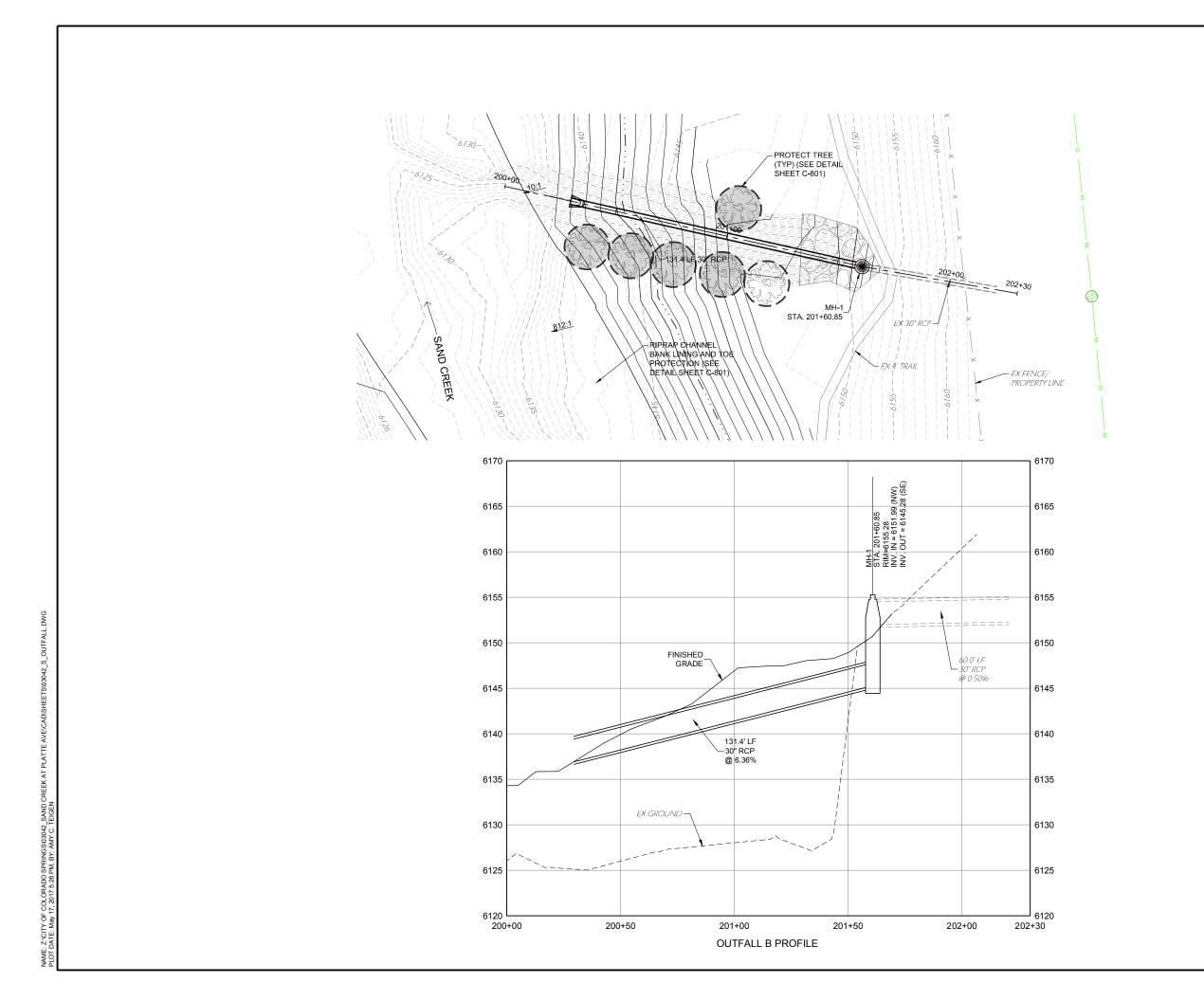
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PROJECT

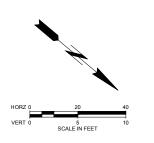
OUTFALL A -PLAN & PROFILE

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C-700



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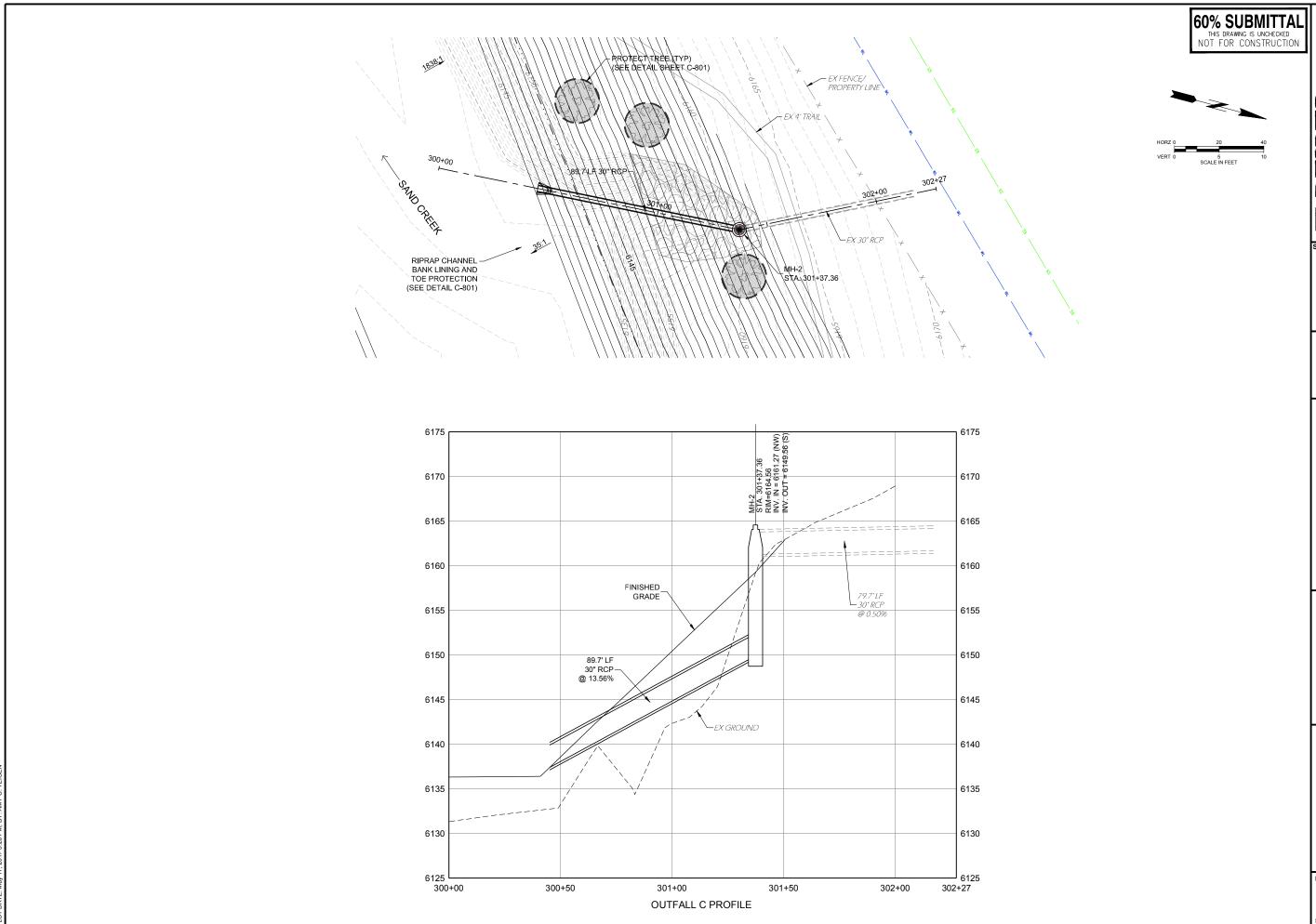
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OUTFALL B -PLAN & PROFILE

DRAWING NUMBER: C-701



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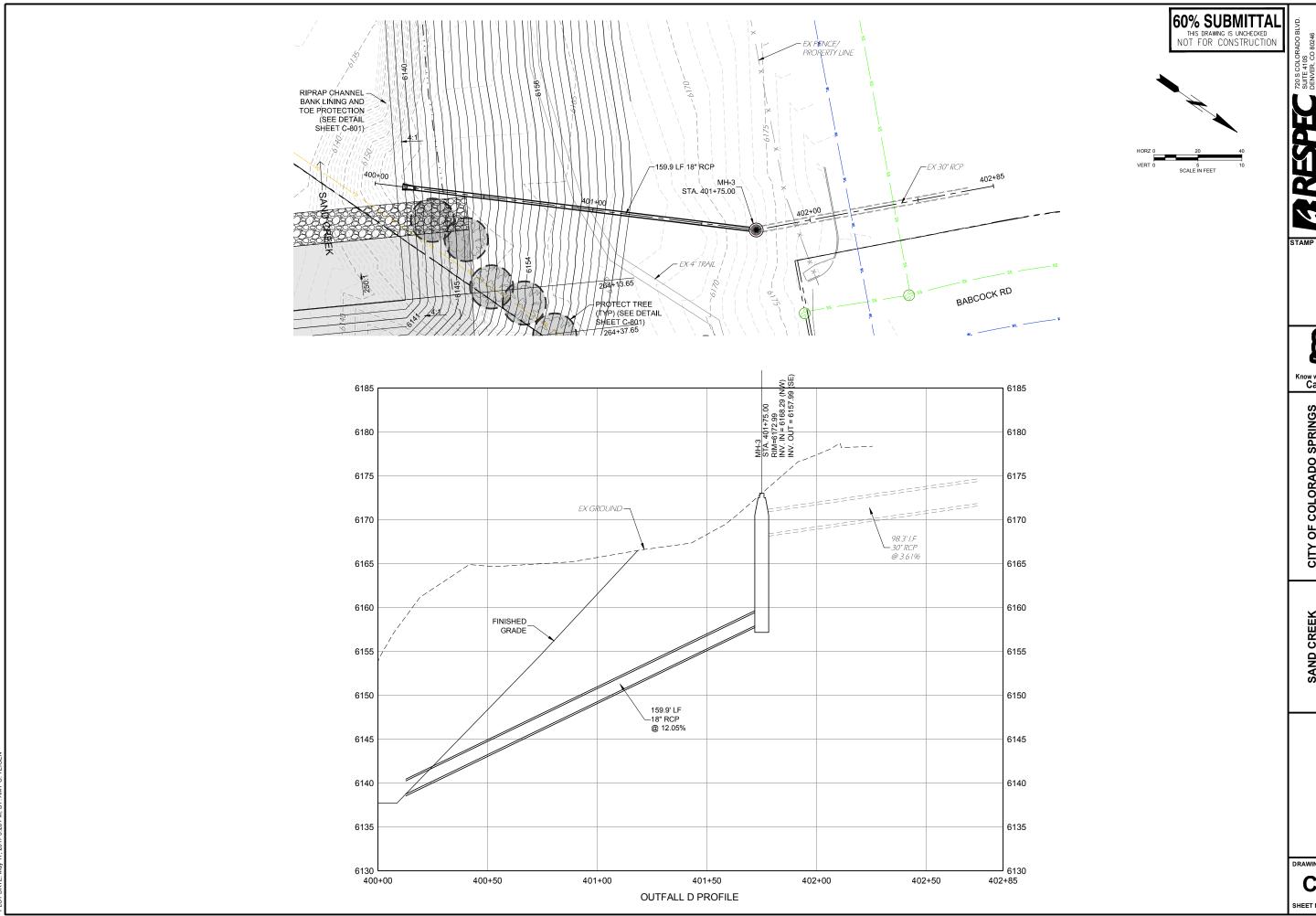
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OUTFALL C -PLAN & PROFILE

DRAWING NUMBER: C-702



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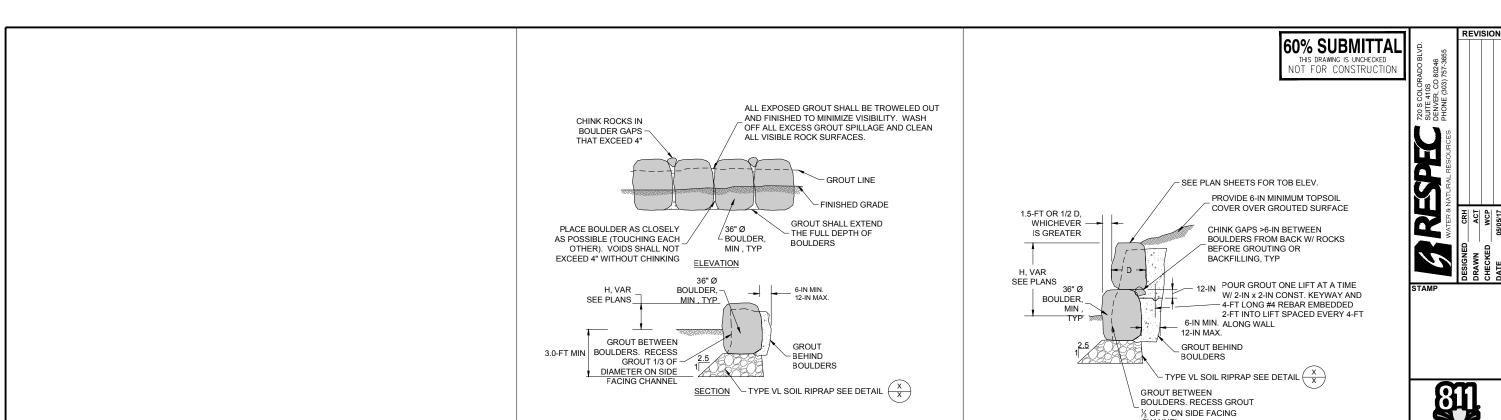
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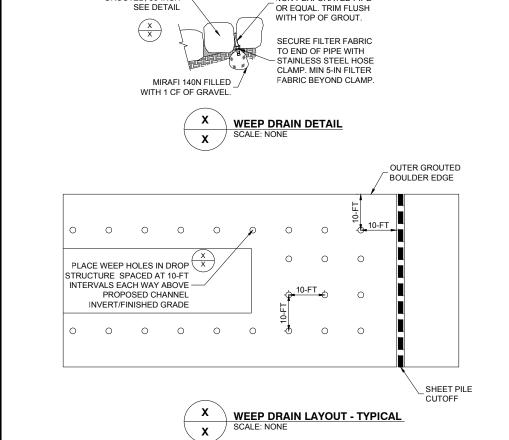
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EROSION CONTROL
PROJECT

OUTFALL D -PLAN & PROFILE

DRAWING NUMBER: C-703



BOULDER EDGING DETAIL

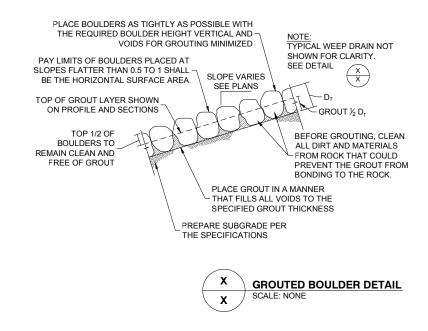


3-IN MIN HDPE

NON-PERFORATED PIPE

BOULDERS.

GROUTED, 36-INCH



MATERIAL SPECIFICATIONS 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 CÉMENT.

3 A MAXIMUM OF 25% TYPE F FLY ASH MAY BE SUBSTITUTED FOR THE PORTLAND CEMENT.

- GROUT SHALL BE TYPE A AND THE AGGREGATE SHALL BE COMPRISED OF 70% NATURAL SAND (FINES) AND 30% 3/8 -INCH ROCK (COARSE).
- THE GROUT SLUMP SHALL BE 4-INCHES TO 6-INCHES.
- AIR ENTRAINMENT SHALL BE 5.5%-7.5%.
- TO CONTROL SHRINKAGE AND CRACKING, 1.5 POUNDS OF FIBERMESH, OR EQUIVALENT, SHALL BE USED PER CUBIC YARD OF GROUT.

PLACEMENT SPECIFICATIONS

GROUTED BOULDER WALL DETAIL

- ALL TYPE A GROUT SHALL BE DELIVERED BY MEANS OF A LOW PRESSURE (LESS THAN 10 PSI) GROUT PUMP USING A 2-INCH DIAMETER
- 2. 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 GROUT FILLS, WHILE VIBRATING GROUT INTO PLACE USING A PENCIL VIBRATOR.
- AFTER GROUT PLACEMENT, EXPOSED BOULDER FACES SHALL BE CLEANED WITH A WET BROOM.
- ALL GROUT BETWEEN BOULDERS SHALL BE TREATED WITH A BROOM FINISH.
- 5. ALL FINISHED GROUT SURFACES SHALL BE SPRAYED WITH A CLEAR LIQUID MEMBRANE CURING COMPOUND AS SPECIFIED IN ASTM
- 6. 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.
- 7. CLEAN BOULDERS BY BRUSHING AND WASHING BEFORE GROUTING.



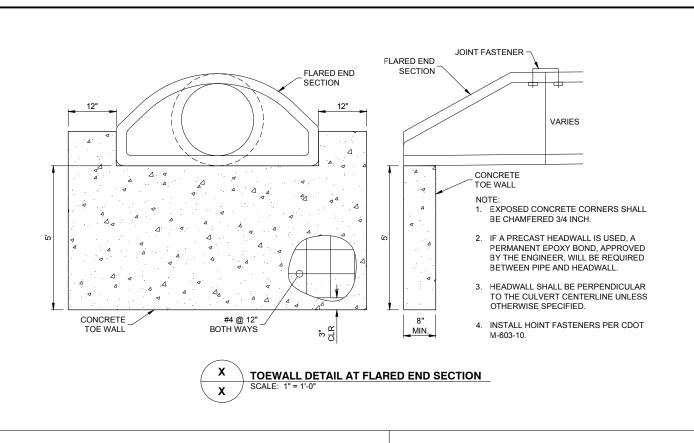
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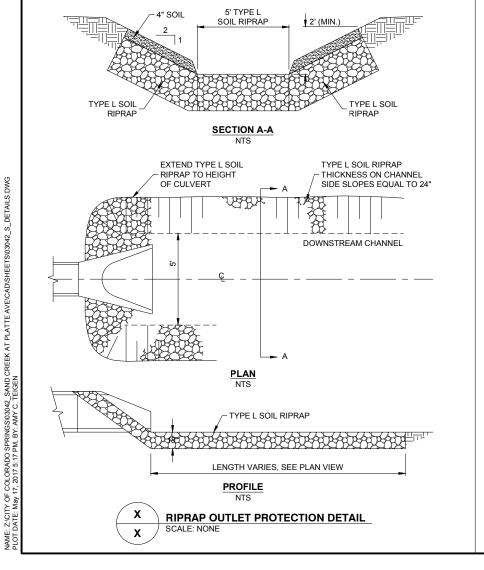
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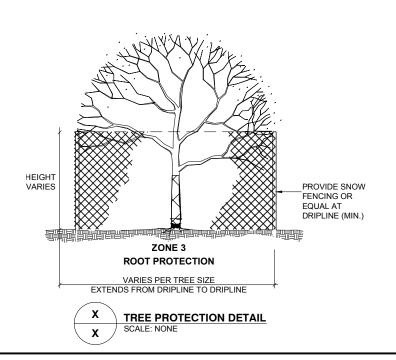
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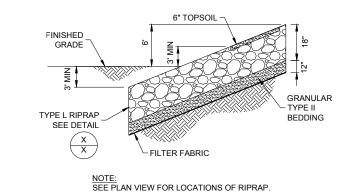
4 P Σ .AILS

RAWING NUMBER C-800









SCALE: NONE

PREPARED SUBGRADE, TYP SEE SPECIFICATIONS

TYPE II GRANULAR

RIPRAP

SOIL RIPRAP

BEDDING MATERIAL, TYP

LARGER ROCK

AT SURFACE

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NOTES:

RIPRAP CHANNEL BANK LINING

AND TOE PROTECTION DETAIL

RIPRAP AND BURIED RIPRAP ARE APPLICABLE TO FLAT OR SLOPED AREAS. REFER TO THE GRADING PLAN FOR ACTUAL LOCATION AND LIMITS.

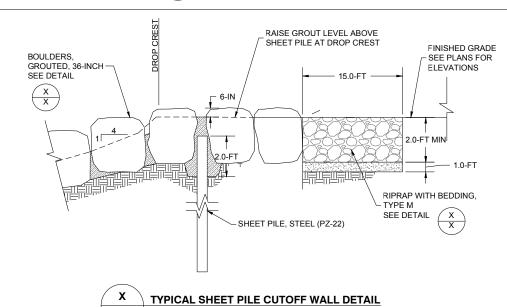
2. REFER TO SPECIFICATIONS FOR MATERIALS AND PLACEMENT REQUIREMENTS FOR RIPRAP AND GRANULAR BEDDING MATERIAL.

GENERAL PLACEMENT TECHNIQUES SHOULD RESULT IN LARGER ROCK AT THE SURFACE AND ROCK SECURELY INTERLOCKED AT THE DESIGN THICKNESS AND GRADE COMPACTION AND LEVELING SHOULD RESULT IN MINIMAL VOIDS AND PROJECTIONS ABOVE GRADE. TYPICAL FOR BOTH RIPRAP AND BURIED RIPRAP.

NATIVE MATERIAL. FILL VOIDS WITH SOIL AND COMPACT WITH WATER.

RIPRAP/BEDDING	G THICKNES	S TABLE
RIPRAP TYPE	Tr*	T *
TYPE H RIPRAP	3-FT	1-FT
TYPE H SOIL RIPRAP	3-FT	N/A
TYPE M RIPRAP	2-FT	1-FT
TYPE M SOIL RIPRAP	2-FT	N/A
TYPE L RIPRAP	1.5-FT	6-IN
TYPE L SOIL RIPRAP	1.5-FT	N/A
TYPE VL RIPRAP	1-FT	6-IN
TVDE VILCOII DIDDAD	1_FT	NI/A





SAND CREEK
STABILIZATION &
EROSION CONTROL
PROJECT

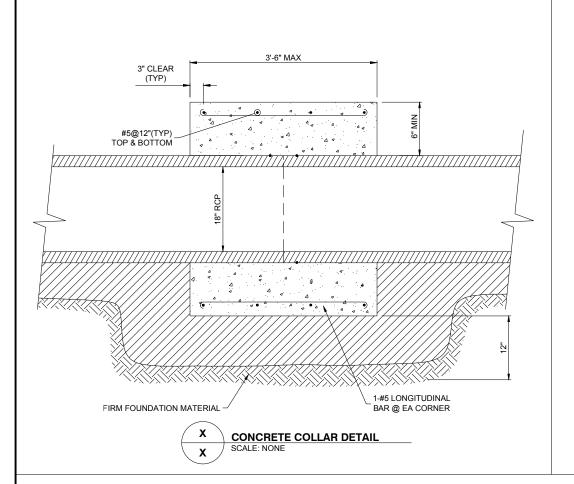
P 8 AILS

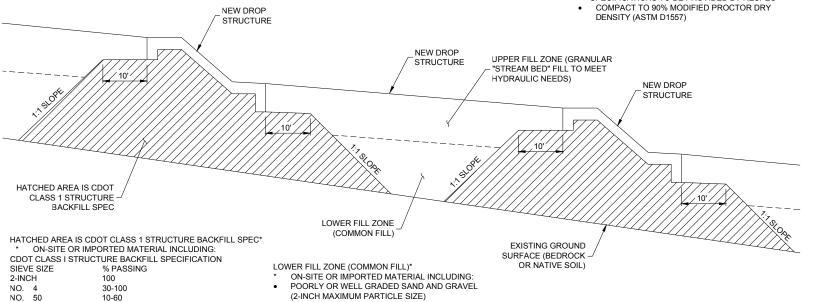
RAWING NUMBER

C-801 SHEET NUMBER: 34

SOIL RIPRAP AS INDICATED ON PLANS SHALL BE MIXED AT THE PROJECT SITE AT A 35/65 FILL MATERIAL FOR RIPRAP VOIDS SHALL BE DRY SOIL/ROCK RATIO BY VOLUME. DESIGN RIPRAP 6" TOPSOIL **GRADE** SLOPE VARIES

TYPE VL SOIL RIPRAP





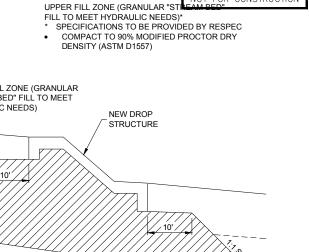
PROCESSED SANDSTONE/CLAYSTONE BEDROCK

(PROCESSED TO SOIL-LIKE CONSISTENCY WITH MAXIMUM PARATICLE SIZE OF 3-INCHES) COMPACT TO 90% MODIFIED PROCTOR DRY

ZONED BACKFILL DETAIL

LEAN TO FAT CLAY

DENSITY (ASTM D1557)



ALL FILL TO BE PROPERLY BENCHED INTO SLOPES (SEE SECTION 4.2.9 OF GEOTECHNICAL REPORT)

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4 Ы 3 **DETAILS** CIVIL

DRAWING NUMBER:

C-802 SHEET NUMBER: 35

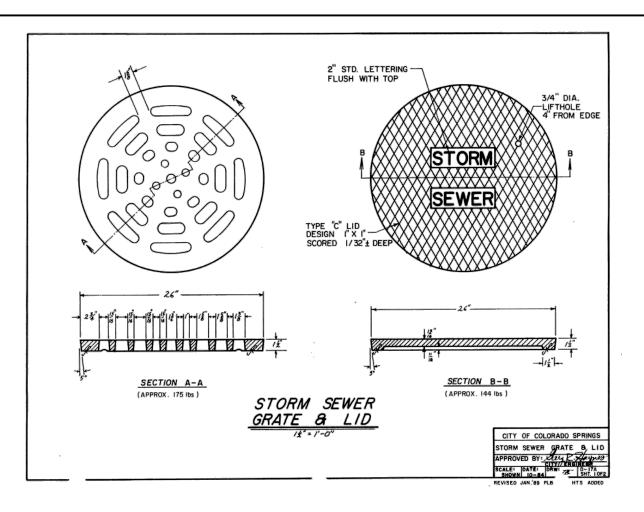
30-100 10-60

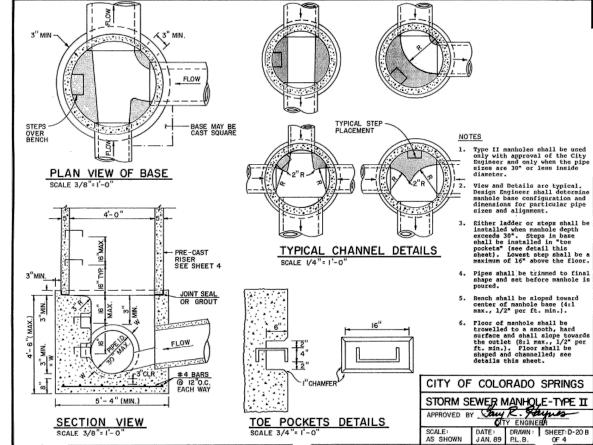
CAN BE USED AS STRUCTURE BACKFILL. COMPACT TO 95% MODIFIED PROCTOR DRY DENSITY

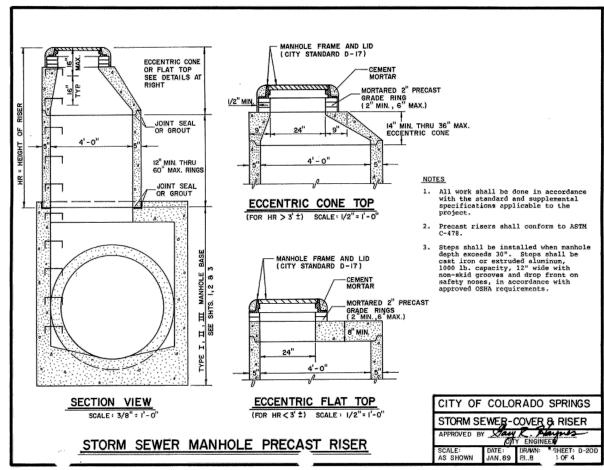
NO. 200 5-20
LIQUID LIMIT ≤ 35, PLASTICITY INDEX ≤ 6
• ON-SITE SAND SOILS MEETING SM, SP-SM CLASSIFICATION

NO. 4 NO. 50 NO. 200

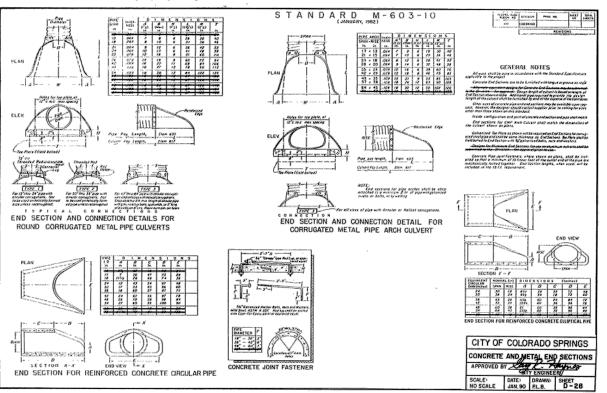
(ASTM D1557)







Adopted from and in conformance with the State of Colorado Department of Highways with Revisions by the City of Colorado Springs Engineering Division



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EROSION CONTROI COVER SHEET

EC-100

PREPARED FOR:

CITY OF COLORADO SPRINGS, COLORADO STORMWATER/WATER RESOURCES ENGINEERING

ENGINEER'S STATEMENT

"THIS EROSION AND STORMWATER QUALITY CONTROL/GRADING PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. IF SUCH WORK IS PERFORMED IN ACCORDANCE WITH THE GRADING AND EROSION CONTROL PLAN, THE WORK WILL NOT BECOME A HAZARD TO LIFE AND LIMB, ENDANGER PROPERTY, OR ADVERSELY AFFECT THE SAFETY, USE, OR STABILITY OF A PUBLIC WAY, DRAINAGE CHANNEL, OR OTHER PROPERTY.

ENGINEER'S SIGNATURE

DATE

DEVELOPER'S/OWNER'S STATEMENT

"THE OWNER WILL COMPLY WITH THE

REQUIREMENTS OF THE EROSION AND STORMWATER QUALITY CONTROL PLAN INCLUDING TEMPORARY BMP INSPECTION REQUIREMENTS AND FINAL STABILIZATION REQUIREMENTS. I ACKNOWLEDGE THE RESPONSIBILITY TO DETERMINE WHETHER THE CONSTRUCTION ACTIVITIES ON THESE PLANS REQUIRE COLORADO DISCHARGE PERMIT SYSTEM (CDPS) PERMITTING FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY."

DEVELOPER'S/OWNER'S SIGNATURE

DATE

CITY ENGINEERING REVIEW STATEMENT

"THIS GRADING PLAN IS FILED IN ACCORDANCE WITH SECTION 7.7.1503 (ENACTED AS ORD. 82-56) OF THE CODE OF THE CITY OF COLORADO SPRINGS, 2001, AS AMENDED. EROSION CONTROL IS REVIEWED IN ACCORDANCE WITH THE DRAINAGE CRITERIA MANUAL, VOL. I (2012) AND VOL. II LATEST REVISIONS"

CITY ENGINEER'S SIGNATURE

DATE

PUBLIC PROJECT CONTRACTOR STATEMENT

"THE PUBLIC PROJECT CONTRACTOR WILL COMPLY WITH THE

REQUIREMENTS OF THE EROSION AND STORMWATER QUALITY CONTROL PLAN INCLUDING TEMPORARY BMP INSPECTION REQUIREMENTS AND FINAL STABILIZATION REQUIREMENTS. I ACKNOWLEDGE THE RESPONSIBILITY TO DETERMINE WHETHER THE CONSTRUCTION ACTIVITIES ON THESE PLANS REQUIRE COLORADO DISCHARGE PERMIT SYSTEM (CDPS) PERMITTING FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY.

CONTRACTOR'S SIGNATURE

DATE

CAUTION - NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD.

THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF LITH ITIES IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE

EDISON AVENUE FAST PLATTE AVENUE **PROJECT** LOCATION N.T.S.

VICINITY MAP

COLORADO SPRINGS OLYMPIC CITY USA

AGENCY REFERRALS

CITY OF COLORADO SPRINGS 30 S. NEVADA AVE., SUITE 401 COLORADO SPRINGS, CO. 80903 (719) 719-385-5980 CONTACT: ADAM COPPER, PE

COLORADO SPRINGS UTILITIES 111 S. CASCADE AVENUE COLORADO SPRINGS, CO 80903 (719) 448-4800 CONTACT: KYLE HINTON

	CIVIL	ENGINEER
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720 S COLORADO BLVD., SUITE 410S DENVER, CO 80246 CONTACT: WALTER PENNINGTON, P.E. VIVID ENGINEERING GROUP INC 1053 FLKTON DRIVE COLORADO SPRINGS, CO 80907 CONTACT: BRYSEN MUSTAIN

GEOTECHNICAL ENGINEER

CLARK LAND SURVEYING, INC 177 S TIFFANY DR UNIT 1 PUEBLO WEST, CO 81007 (719) 582-1270 CONTACT: RUSS CLARK, PLS

SURVEYOR

DENVER, CO 80206 **CONTACT: MARY POWELL**

SHEET INDEX

FROSION CONTROL PLAN

EROSION CONTROL COVER SHEET

EROSION AND SEDIMENT CONTROL DETAILS (1 OF 4)

EROSION AND SEDIMENT CONTROL DETAILS (3 OF 4)

EROSION AND SEDIMENT CONTROL DETAILS (4 OF 4)

SHEET # DRAWING # DESCRIPTION

EC-100

FC-101

EC-102

EC-104

EC-105

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CORVUS ENVIROMENTAL CONSULTING, LLC. 3570 E. 12TH AVENUE. SUITE 318

ENVIRONMENTAL

DRAWING NUMBER:

SUBSTANTIAL COMPETITION OF THE LANDSCAPE WORK.

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EROSION CONTROI PLAN

EC-101

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720 S COL SUITE 410 DENVER, 1 PHONE (30 ESPEC ~

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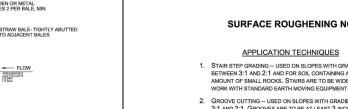
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SAND CREEK STABILIZATION & EROSION CONTRO PROJECT

EROSION AND SEDIMENT CONTROL DETAILS (2 OF 4)

EC-103



STRAW BALE BARRIER

"FEE | | | | |

STRAW BALE BARRIER NOTES

INSTALLATION REQUIREMENTS

 STRAW BALE BARRIERS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES. 2. BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF CERTIFIED WEED FREE HAY OR STRAW AND WEIGH NOT LESS THAN 35 POUNDS.

Case 4

Case 1 DA < 1.0 AC

OK (1)

OK (2)

(1) Temporary Swale or Slit Fence may be used as alternative to a Straw Bale Barrier.
(2) Straw Bale Check Dam may be used at low points.
(3) Sediment Basin is required for concentrated flow from drainage areas > 1.0 AC.

Placed around inlet. See Inlet Protection Fact Sheet.

Case 2

Placed on perimete

Case 2 DA > 1.0 AC

OK (1)

NO (3)

Figure SBB-1

Straw Bale Barrier Application Examples

Drainage area >1.0 AC See Table SBB-1

Case 5

At the top and/or toe of a steep slope.

Case 6

Case 1

Table SBB-1

Placed on perimeter Drainage area <1.0 AC See Table SBB-1

Continuous Grade

Area of Concentrated Flow

City of Colorado Springs

Case 3

Placed on contour

Construction Site Perimeter

5520

3. BALES ARE TO BE PLACED IN A SINGLE ROW WITH THE END OF THE BALES TIGHTLY ABUTTING ONE ANOTHER. 4. EACH BALE IS TO BE SECURELY ANCHORED WITH AT LEAST TWO STAKES AND THE FIRST STAKE IS TO BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.

5. STAKES ARE TO BE A MINIMUM OF 42 INCHES LONG. METAL STAKES SHALL BE STANDARD "" OF "TYPE WITH MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT. WOOD STAKES SHALL HAVE A MINIMUM DIAMETER OR CROSS SECTION DIMENSIO OF 2 INCH

6. BALES ARE TO BE BOUND WITH EITHER WIRE OR STRING AND ORIENTED SUCH THAT THE BINDINGS ARE AROUND THE SIDES AND NOT ALONG THE TOPS AND BOTTOMS OF THE BALE. 7. GAPS BETWEEN BALES ARE TO BE CHINKED (FILLED BY WEDGING) WITH STRAW OR THE SAME MATERIAL OF THE BALE.

8. END BALES ARE TO EXTEND UPSLOPE SO THE TRAPPED RUNOFF CANNOT FLOW AROUND THE ENDS OF THE BARRIER.

City of Colorado Springs

Stormwater Quality

MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT STRAW BALE BARRIERS IMMEDIATELY AFTER EACH RAINFALL, LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS NO RAINFALL.

2. DAMAGED OR INEFFECTIVE BARRIERS SHALL PROMPTLY BE REPAIRED, REPLACING BALES IF NECESSARY, AND UNENTRENCHED BALES NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIA

Figure SBB-2 Straw Bale Barrier

WOODEN OR METAL STAKES 2 PER BALE, MIN

Construction Detail and Maint Requirements

SURFACE ROUGHENING NOTES

APPLICATION TECHNIQUES

- 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
- 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.
- TRACKING USED ON SOILS WITH HIGHER SAND CONTENT DUE TO COMPACTION BY HEAVY MACHINERY.

MAINTENANCE REQUIREMENTS

- 1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL SURFACE ROUGHENED AREAS.
- 2. SURFACE ROUGHENING IS TO BE REPEATED AS OFTEN AS
- VEHICLES OR EQUIPMENT IS NOT TO BE DRIVEN OVER AREAS THAT HAVE BEEN ROUGHENED.
- 4. AS SURFACE ROUGHENING IS ONLY A TEMPORARY CONTROL, ADDITIONAL TREATMENTS MAY BE NECESSARY TO MAINTAIN THE SOIL SURFACE IN A ROUGHENED CONDITION.

RECOMMENDED ANNUAL GRASSES

SPECIES	GROWTH	SEEDING	POUNDS OF PURE	PLANTING
(COMMON NAME)	SEASON	DATE	LIVE SEED (PLS)	DEPTH
			(PLS/ACRE)	(INCHES)
1. OATS	COOL	MARCH 16 - APRIL 30	35-50	1-2
2. SPRING WHEAT	COOL	MARCH 16 - APRIL 30	25-35	1-2
3. SPRING BARLEY	COOL	MARCH 16 - APRIL 30	25-35	1-2
4. ANNUAL RYEGRASS	COOL	MARCH 16 - JUNE 30	10-15	1/2
5. MILLET	WARM	MAY 16 - JULY 15	3-15	1/2-3/4
6. SUDANGRASS	WARM	MAY 16 - JULY 15	5-10	1/2-3/4
7. SORGHUM	WARM	MAY 16 - JULY 15	5-10	1/2-3/4
8. WINTER WHEAT	COOL	SEPTEMBER 1 - 30	20-35	1-2
9. WINTER BARLEY	COOL	SEPTEMBER 1 - 30	20-35	1-2
10. WINTER RYE	COOL	SEPTEMBER 1 - 30	20-35	1-2
11. TRITICALE	COOL	SEPTEMBER 1 - 30	25-40	1-2

THIS TABLE WAS TAKEN FROM UDFCD FOR RECOMMENDED ANNUAL GRASSES FOR THE DENVER METROPOLITAN AREA. THIS TABLE MAY BE USED UNLESS A SITE-SPECIFIC SEED MIX IS REQUESTED AND APPROVED.

TABLE TS-1

TEMPORARY SEEDING NOTES MAINTENANCE REQUIREMENTS

INSTALLATION REQUIREMENTS

DISTURBED AREAS ARE TO BE SEEDED WITHIN 21 DAYS AFTER CONSTRUCTION ACTIVITY OR GRADING ENDS IF SEASON ALLOWS.

2. IF NECESSARY, SOIL IS TO BE CONDITIONED FOR PLANT GROWTH BY APPLYING TOPSOIL, FERTILIZER, OR LIME.

3. SOIL IS TO BE TILLED IMMEDIATELY PRIOR TO APPLYING SEEDS. COMPACT SOILS ESPECIALLY NEED TO BE LOOSENED.

5. ANNUAL GRASSES LISTED IN TABLE TS-1 ARE TO BE USED FOR TEMPORARY SEEDING. SEED MIXES ARE NOT TO CONTAIN ANY NOXIOUS WEED SEEDS INCLUDING RUSSIAN OR CANADIAN THISTLE, KNAPWEED, PURPLE LOOSESTRIFE, EUROPEAN BINDWEED, JOHNSON GRASS, AND LEAFY SPURGE.

6. TABLE TS-1 ALSO PROVIDES REQUIREMENTS FOR SEEDING RATES, SEEDING DATES, AND PLANTING DEPTHS FOR THE APPROVED TYPES OF ANNUAL GRASSES.

7. SEEDING IS TO BE APPLIED USING MECHANICAL TYPE DRILLS EXCEPT WHERE SLOPES ARE STEEP OI ACCESS IS LIMITED THEN HYDRAULIC SEEDING MAY BE USED.

8. ALL SEEDED AREAS ARE TO BE MULCHED (SEE FACTSHEET ON MULCHING). 9. IF HYDRAULIC SEEDING IS USED THEN HYDRAULIC MULCHING SHALL BE DONE SEPARATELY TO AVOID SEEDS BECOMING ENCAPSULATED IN THE MULCH. REGULAR INSPECTIONS ARE TO BE MADE OF ALL SEEDED AREAS TO ENSURE GROWTH.

3. SEEDED AREAS ARE NOT TO BE DRIVEN OVER WITH CONSTRUCTION EQUIPMENT OR VEHICLES.

City of Colorado Springs Stormwater Quality

Figure TS-1 Temporary Seeding Construction Detail and Maintenand Requirements

DRAWING NUMBER:

VEHICLE TRACKING CONTROL (SEE VTC

CWA

REVISION

SHEET NUMBER: 46

DRAWING NUMBER:

__ cr __ cr __ cr __ CF s' MIN. * MIN

CONSTRUCTION FENCE INSTALLATION NOTES

SEE PLAN VIEW FOR:

 LOCATION OF CONSTRUCTION FENCE.

2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

CF-1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR—GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.

4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10°.

5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

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MM-1

Concrete Washout Area (CWA)

CONSTRUCTION FENCE 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 JULYAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE ENGSION, AND PERFORM NECESSARY MAINTENANCE.

FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION, INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED TROPPOLICIALLY.

CWA INSTALLATION NOTES SEE PLAN VIEW FOR:
 CWA INSTALLATION LOCATION.

Concrete Washout Area (CWA)

CWA MAINTENANCE NOTES INSPECT BMP6 EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMP6 SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMP6 AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

CONCRETE WASHOUT AREA PLAN

8 X 8 MIN. SECTION A CWA-1. CONCRETE WASHOUT AREA

2. DO NOT LOCATE AN UNUNED CHA. WITHIN 400° OF ANY MALTON DRIMMOR PARHAMY OR WHETERODY, DO NOT LOCATE WITHIN 1,000° OF ANY MELLS OF DRIMMOR WATER SOURCES. IN THIS CHARMAN WATER SOURCES. IN THE CAMA MUST BE INSTALLED WITH AN IMPERMARBIE LINER (18 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABBICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.

CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.

5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.

7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.

3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION

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3, MIN'

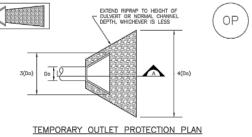
FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BINPS IN FEFFECTIVE OPERATING CONDITION, INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE ${\rm BMP_9}$ HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.

6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED. 7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY; COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD) 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.



EC-8

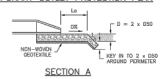


TABLE OP	-1. TEMPORA SIZING		ROTECTION
PIPE DIAMETER, Do (INCHES)	DISCHARGE, Q (CFS)	APRON LENGTH, La (FT)	RIPRAP D50 DIAMETER MIN (INCHES)
8	2.5	5	4
	5	10	6
12	5	10	4
	10	13	6
18	10	10	6
	20	16	9
	30	23	12
	40	26	16
24	30	16	9
	40	26	9
	50	26	12
	60	30	16

OP-1. TEMPORARY OUTLET PROTECTION

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

EC-8

Temporary Outlet Protection (TOP)

TEMPORARY OUTLET PROTECTION INSTALLATION NOTES

SEE PLAN VIEW FOR
 LOCATION OF GUTLET PROTECTION.
 DIMENSIONS OF GUTLET PROTECTION.

2. DETAIL IS INTENDED FOR PIPES WITH SLOPE \leq 10%, ADDITIONAL EVALUATION OF RIPRAP SIZING AND OUTLET PROTECTION DIMENSIONS REQUIRED FOR STEEPER SLOPES. 3. TEMPORARY OUTLET PROTECTION INFORMATION IS FOR OUTLETS INTENDED TO BE UTILIZED LESS THAN 2 YEARS.

TEMPORARY OUTLET PROTECTION INSPECTION AND MAINTENANCE NOTES

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION, INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THORAPILI-BY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

(DETAILS ADAPTED FROM AURORA, COLORADO AND PREVIOUS VERSION OF VOLUME 3, NOT AVAILABLE IN AUTOCAD)

November 2010

CWA-4

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TOP-3

November 2010

November 2010

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

Construction Fence (CF)

CF-2

WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

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 NOTEN.

SM-3

SSA

REVISION

DRAWING NUMBER:

SP STOCKPILE SILT FENCE (SEE SF DETAIL FOR STOCKPILE PROTECTION PLAN

> SECTION A SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

SEE PLAN VIEW FOR:
 LOCATION OF STOCKPILES,
 TYPE OF STOCKPILE PROTECTION.

3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS, SOLS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 80 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY BRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS), USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE A MORE LIMITED TIME PERIOD (TYPICALLY 30—60 DAYS).

November 2010

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Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

SSA-1. STABILIZED STAGING AREA

SEE PLAN VIEW FOR
 LICOATION OF STAGING AREA(S).
 CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURSDICTION.

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE, OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.

4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL. 5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK. 6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

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 INCESSARY MAINTENANCE.

FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION, INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

MM-2

Stockpile Management (SM)

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.

3. WHERE BMPs have Failed, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

STOCKPILE PROTECTION MAINTENANCE NOTES

STOCKPILE PROTECTION MAINTENANCE NOTES

4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SQIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.

5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

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 APE NOTED.

SM-6

Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

Stabilized Staging Area (SSA)

STABILIZED STAGING AREA INSTALLATION NOTES

STABILIZED STAGING AREA MAINTENANCE NOTES

STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGNIG AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VECETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

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

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

