

C:\0700744 SOUTH PLANT 85-87\dwg\Const Dwg\GEC\GR01.dwg Plotstamp: 5/28/2021 8:51 AM

STANDARD CONSTRUCTION NOTES:

1. 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.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD LOCATION 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 SPRINGS.
3. 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 TIME INCLUDING THE FOLLOWING:
 - 3.1 EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
 - 3.2 CITY OF COLORADO SPRINGS/EL PASO COUNTY ENGINEERING CRITERIA MANUAL VOLUMES 1 AND 2.
 - 3.3 COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.
 - 3.4 CDOT M&S STANDARDS
4. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ACCURACY SHOW EXISTING CONDITION BOTH ONSITE AND OFFSITE ON THE CONSTRUCTION PLANS. ANY MODIFICATION NECESSARY DUE TO CONFLICT OMISSIONS OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPERS RESPONSIBILITY TO RECTIFY.
5. ONCE THE ESQOP HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMPs AS INDICATED ON THE GEO. 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 PCO INSPECTIONS STAFF.
6. IT IS THE CONTRACTORS 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 STORM WATER QUALITY CONTROL PERMIT (ESQCP), US ARMY CORPS OF ENGINEER ISSUED 401 AND/OR 404 PERMITS AND COUNTY AND STATE FUGITIVE DUST PERMITS.
7. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE CONSTRUCTION SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
8. ANY TEMPORARY SIGNAGE AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOW AND MUTCD CRITERIA.
9. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRE BY EL PASO COUNTY DOT INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
10. 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 OFFSITE DISTURBANCE GRADING, OR CONSTRUCTION.

GRADING AND EROSION CONTROL NOTES:

1. 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.
2. 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.
3. 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. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
4. ONCE THE ESQOP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEO. 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 STAFF.
5. CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
6. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
7. TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
8. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
9. ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
10. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE 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. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
11. COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATION COVERED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENEED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
12. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.
13. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
14. DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
15. EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
16. 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 MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
17. WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
20. 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.
21. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ONSITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
22. BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
24. OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE LAND DEVELOPMENT CODE, DOM VOLUME 1 AND THE ECM APPENDIX 1. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
27. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ENTECH ENGINEERS, ENTITLED "SOILS, GEOLOGY, AND GEOLOGIC HAZARD STUDY", DATED JANUARY 22ND, 2021, AND SHALL BE CONSIDERED A PART OF THESE PLANS.
29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (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
WOOD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT

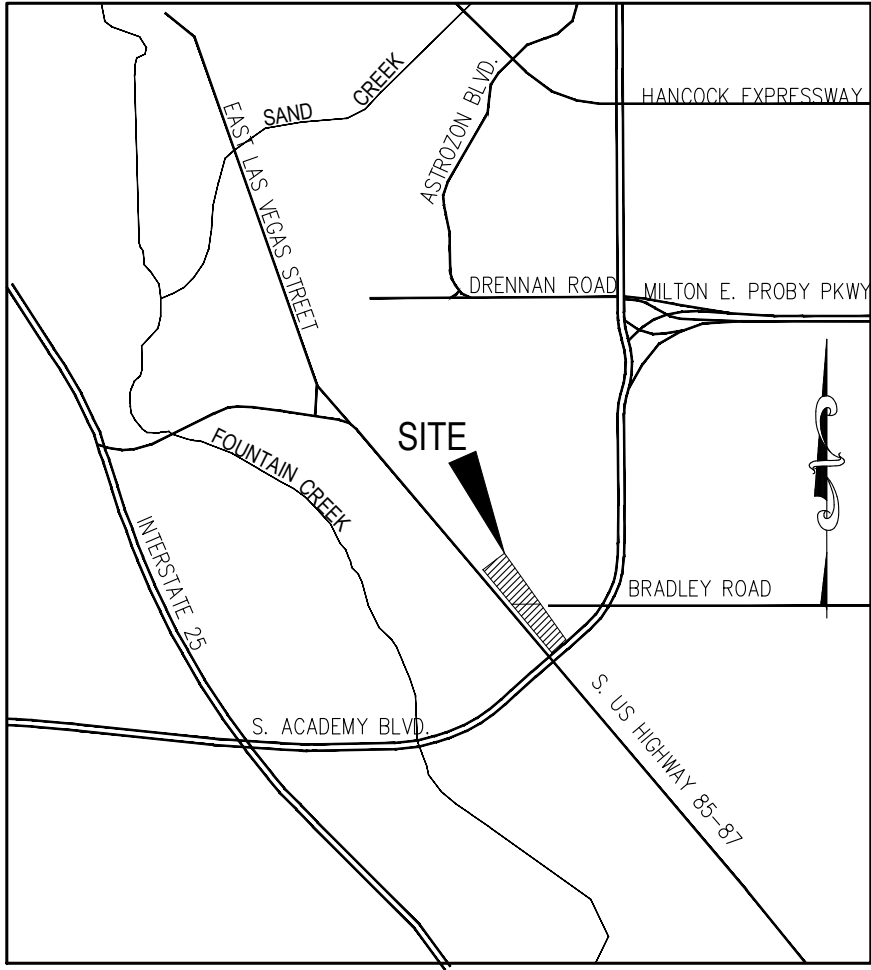
COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WOOD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT

BRADLEY POINT FILING NO. 1

COUNTY OF EL PASO, STATE OF COLORADO

GRADING/EROSION CONTROL PLANS

MAY 2021



VICINITY MAP
N.T.S.



SITE MAP
N.T.S.

ADDITIONAL NOTES:

STAGING AREA TO BE DETERMINED BY CONTRACTOR IN THE FIELD. THE LOCATIONS SHALL BE DELINEATED ON THIS PLAN BY THE CONTRACTOR.

THE EROSION CONTROL DELINEATED ON THIS PLAN SHALL BE REGULARLY UPDATED BY THE CONTRACTOR.

EXISTING SITE TERRIAN GENERALLY SLOPES FROM NORTH TO SOUTHEAST AT GRADE RATES THAT VARY BETWEEN 0.7% TO 10%.

THERE ARE NO BATCH PLANTS ON SITE.

AREAS LEFT OPEN FOR 30 DAYS OR MORE, OTHER THAN FOR UTILITY AND DRAINAGE CONSTRUCTION SHALL BE SEEDED AND/OR MULCHED.

NO PORTION OF THIS PROPERTY IS LOCATED WITHIN A DESIGNATED FEMA FLOODPLAIN IN ACCORDANCE WITH FLOOD INSURANCE RATE MAPS (FIRM) 08041C0744 G, EFFECTIVE DATE DECEMBER 7, 2018.

SHEET INDEX

SHEET 1	TITLE SHEET
SHEET 2	GRADING & EROSION CONTROL PLAN
SHEET 3	GRADING & EROSION CONTROL DETAILS
SHEET 4	GRADING & EROSION CONTROL DETAILS
SHEET 5	GRADING & EROSION CONTROL DETAILS

BENCHMARKS

1. CONTROL DISK SET IN ABUTMENT OF BRIDGE
N: 1341598.37
E: 3210918.78
ELEV: 5782.74'

AGENCIES

OWNER/DEVELOPER:	STEPHEN J. SCHNURR 2010 FOX MOUNTAIN POINT COLORADO SPRINGS, CO 80906 STEPHEN J. SCHNURR (719) 491-3101
CIVIL ENGINEER:	M & S CIVIL CONSULTANTS, INC. 212 N. WAHSATCH AVE, SUITE 305 COLORADO SPRINGS, CO 80903 VIRGIL A. SANCHEZ P.E. (719) 955-5485
WATER RESOURCES:	SECURITY WATER AND SANITATION DISTRICT 231 SECURITY BOULEVARD COLORADO SPRINGS, CO 80911 ROY HEALD (719) 392-3475
COUNTY ENGINEERING:	EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT 2880 INTERNATIONAL CIRCLE, SUITE 110 COLORADO SPRINGS, CO 80910 GILBERT LAFORCE (719) 520-7945
TRAFFIC ENGINEERING:	EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 JENNIFER IRVINE, P.E. (719) 520-6460
FIRE DISTRICT:	SECURITY FIRE DEPARTMENT 400 SECURITY BOULEVARD SECURITY, CO 80911 BRANDON SULLIVAN (719) 392-7121
GAS DEPARTMENT:	COLORADO SPRINGS UTILITIES 1521 HANCOCK EXPRESSWAY COLORADO SPRINGS, CO 80903 (719) 668-7640
ELECTRIC DEPARTMENT:	COLORADO SPRINGS UTILITIES 1521 HANCOCK EXPRESSWAY COLORADO SPRINGS, CO 80903 (719) 668-7640
COMMUNICATIONS:	TBD (U.N.C.C. LOCATORS) (800) 922-1987 AT&T (LOCATORS) (719) 635-3674

ENGINEER'S STATEMENT:

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

DEVELOPER'S STATEMENT:

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

STEPHEN J. SHNURR
BRADLEY POINT, LLC
2010 FOX MOUNTAIN POINT
COLORADO SPRINGS, CO 80906
(719) 491-3101

EL PASO COUNTY:

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

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH 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 DIRECTOR'S DISCRETION.

4.) INSPECTIONS MUST TAKE PLACE WHERE CONSTRUCTION ACTIVITY IS COMPLETE, BUT LOT IS NOT SOLD

5.) MONTHLY INSPECTIONS MUST TAKE PLACE ON SITE WHERE CONSTRUCTION ACTIVITY IS COMPLETE, BUT VEGETATIVE COVER IS STILL BEING ESTABLISHED.

6.) MAINTENANCE OF CONTROL MEASURES CAN BE FOUND IN CONSTRUCTION DETAILS SECTION

7.) INFORMATION REGARDING DETAILED INSTALLATION OF BMP'S AND ALL OTHER IMPORTANT ASPECTS OF THESE PROCEDURES SHOULD BE REFERRED TO IN STORM WATER MANAGEMENT PLAN

EL PASO COUNTY FILE NO. MS-21-002

BRADLEY POINT FILING NO. 1	
GRADING & EROSION CONTROL PLAN	
PROJECT NO: 70-074	DATE: 5/27/21
DESIGNED BY: VAS	HORIZONTAL: N/A
DRAWN BY: CWV	VERTICAL: N/A
CHECKED BY:	SHEET 1 OF 5
GR01	
212 N. WAHSATCH AVE, STE 305 COLORADO SPRINGS, CO 80903 PHONE: 719.955.5485	
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.	
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160	
REVISIONS:	NO. DATE: BY: DESCRIPTION:
THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.	
CAUTION	

SC-1 Silt Fence (SF)

Maintenance and Removal

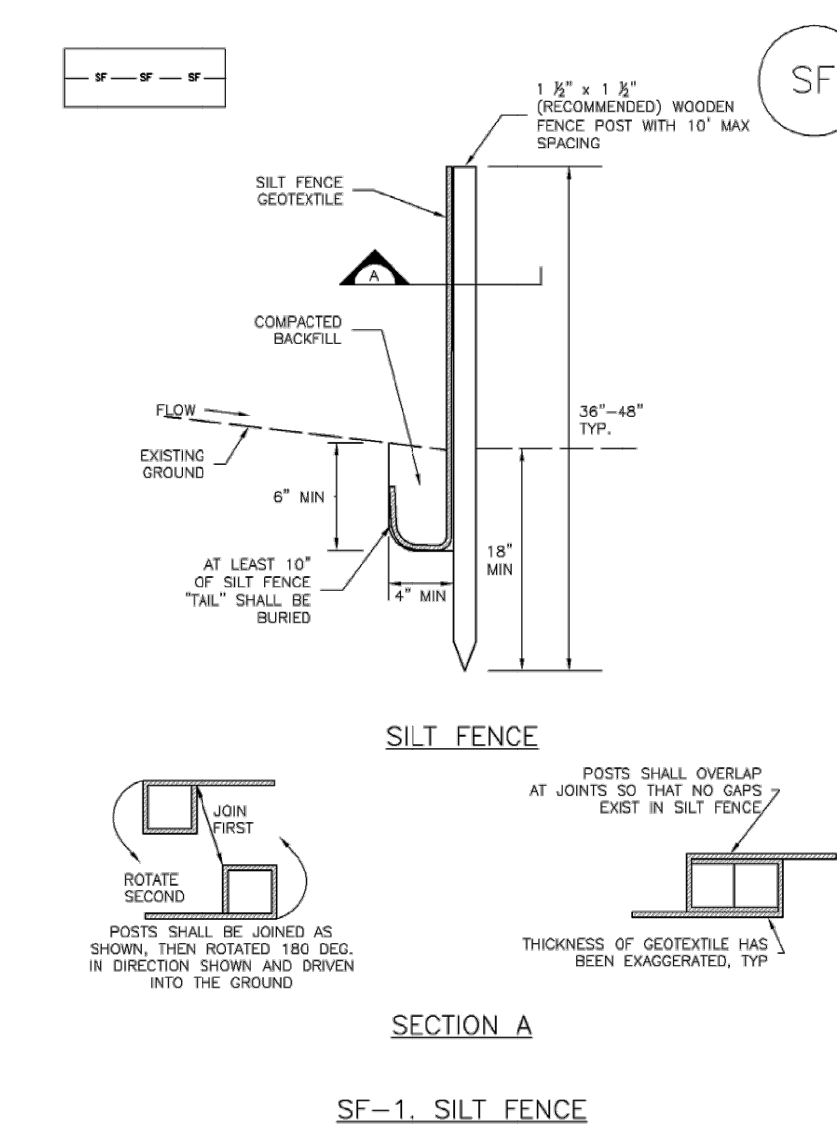
Inspection of silt fence includes observing the material for tears or holes and checking for slumping, fence and undercut areas bypassing flows. Repair of silt fence typically involves replacing the damaged section with a new section. Sediment accumulated behind silt fence should be removed, as needed to maintain BMP effectiveness, typically before it reaches a depth of 6 inches.

Silt fence may be removed when the upstream area has reached final stabilization.



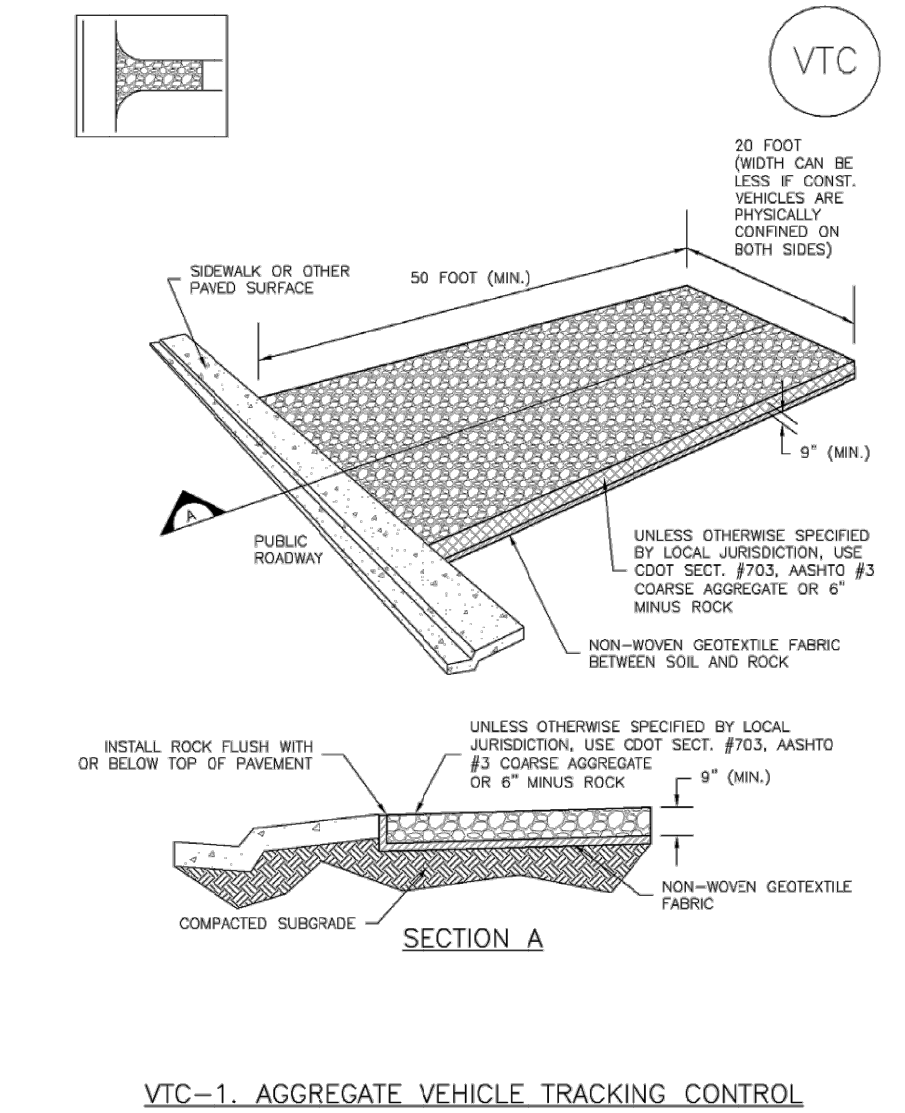
Photograph SF-2: When silt fence is not installed along the contour, a "J-hook" installation may be appropriate to ensure that the BMP does not create concentrated flow parallel to the silt fence. Photo courtesy of Tom Goss.

Silt Fence (SF) SC-1



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

Vehicle Tracking Control (VTC) SM-4



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

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

SM-4 Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
 - TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT, OR TRM).
- DETAIL IS INTENDED FOR PAVES WITH SLOPE < 10%. ADDITIONAL EVALUATION OF RIPRAP SIZING AND OUTLET PROTECTION DIMENSIONS REQUIRED FOR STEEPER SLOPES.
- A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.

- STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

- A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.

- UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, #705, OR #3 COARSE AGGREGATE OR 6" MINUS ROCK.

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

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

- ROCK SHALL BE REAPPLIED OR REGRADDED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

- AT THE END OF THE DAY BY SHOVELING OR SWEEPING, SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

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

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

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

SC-1 Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

- SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-3 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

- A UNIFORM 6" x 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD CONDUITS, DITCHES, OR SIMILAR EQUIPMENT SHALL BE USED.

- COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

- SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

- SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

- 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 "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').

- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT 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 ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

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

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

- SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

- 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 PERIMETER SEDIMENT CONTROL BMP.

- WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEED, AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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.

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

Temporary Outlet Protection (TOP) EC-8

TEMPORARY OUTLET PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
 - TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT, OR TRM).
- DETAIL IS INTENDED FOR PAVES WITH SLOPE < 10%. ADDITIONAL EVALUATION OF RIPRAP SIZING AND OUTLET PROTECTION DIMENSIONS REQUIRED FOR STEEPER SLOPES.
- TEMPORARY OUTLET PROTECTION INFORMATION IS FOR OUTLETS INTENDED TO BE UTILIZED LESS THAN 2 YEARS.

TEMPORARY OUTLET PROTECTION INSPECTION AND MAINTENANCE NOTES

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

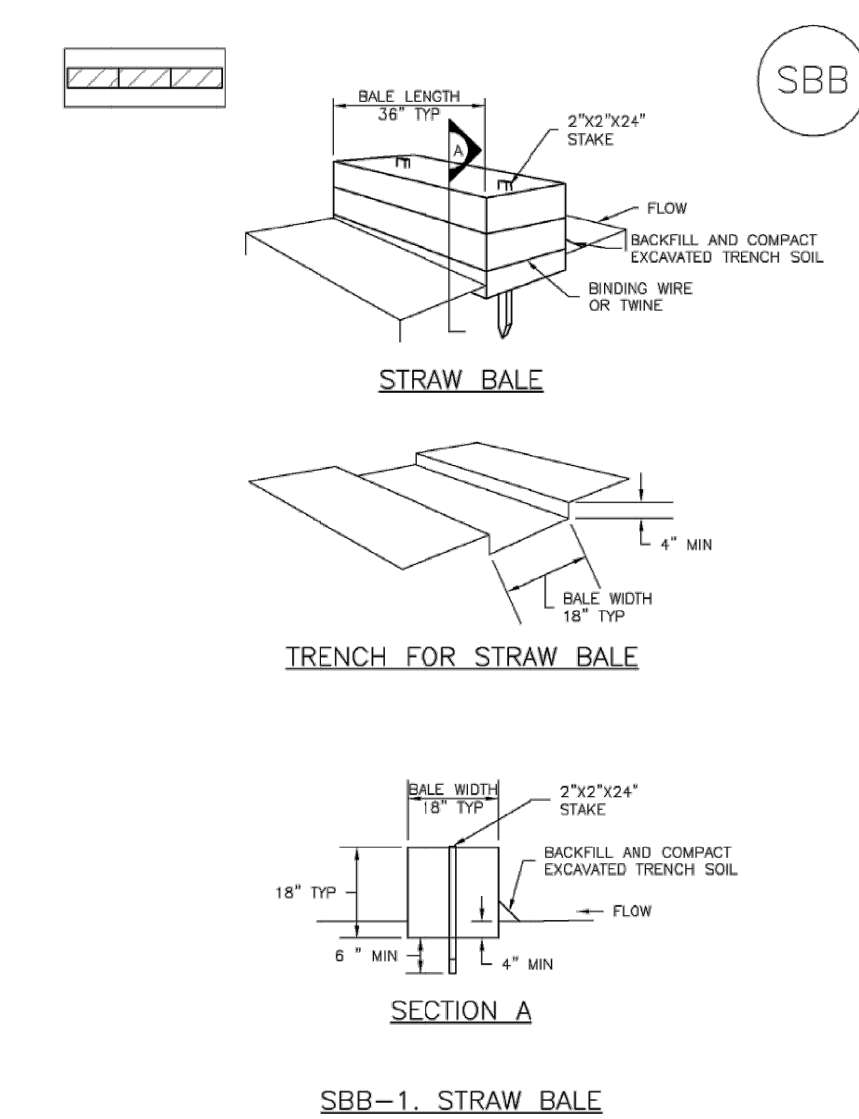
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NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

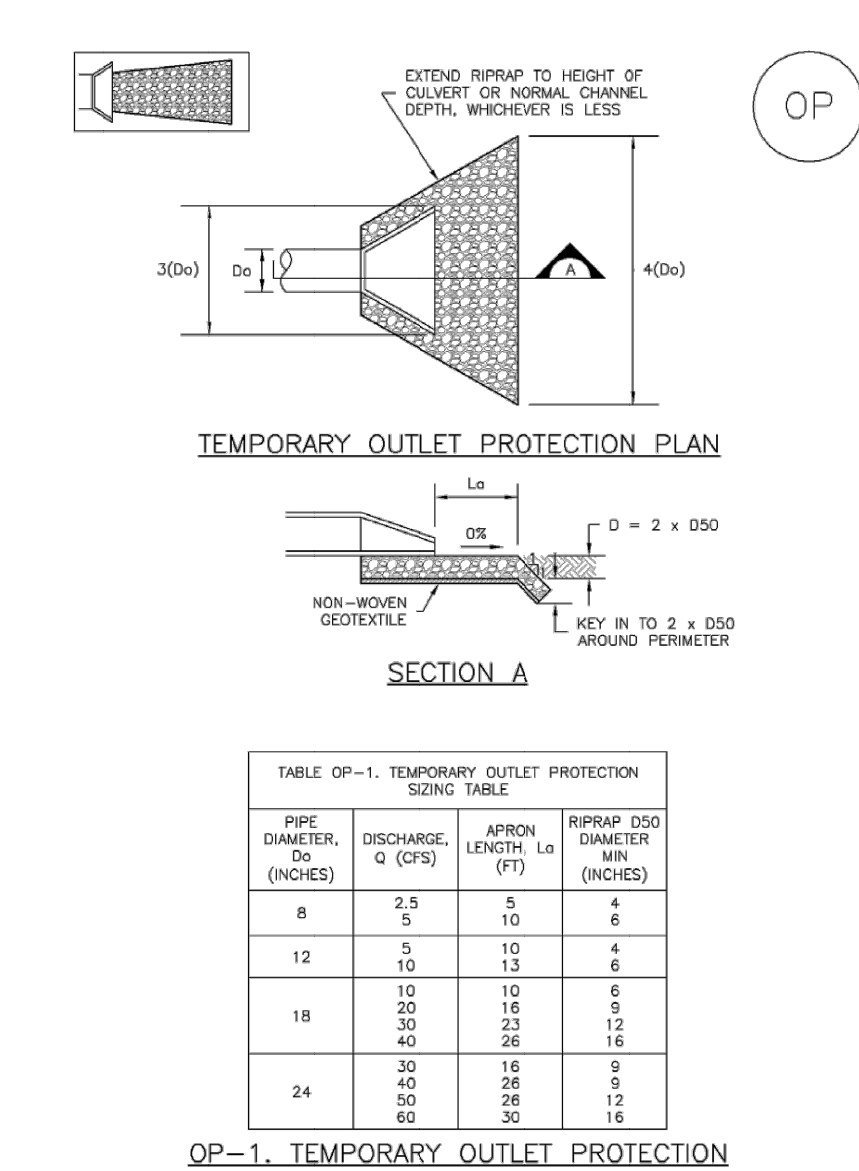
(DETAILS ADAPTED FROM ARIZONA, COLORADO AND CITY OF ARAPAHO, NOT AVAILABLE IN AUTOCAD)

SC-3 Straw Bale Barrier (SBB)



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

EC-8 Temporary Outlet Protection (TOP)



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

Straw Bale Barrier (SBB) SC-3

STRAW BALE INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION(S) OF STRAW BALES.
- STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.

- STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.

- WHEN STRAW BALES ARE USED IN SERIES AS A BARRIER, THE END OF EACH BALE SHALL BE TIGHTLY ADJUTING ONE ANOTHER.

- STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".

- A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PLACED SO THAT ENDING THREE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALES). ALL EXCAVATED SOIL SHALL BE PLACED ON THE UPBAIL SIDE OF THE STRAW BALES) AND COMPACTED.

- TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"x2"x24". WOODEN STAKES SHALL BE DRIVEN 6" INTO THE GROUND.

STRAW BALE MAINTENANCE NOTES

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

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

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

- STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR DAMAGED BEYOND REPAIR.

- SEDIMENT ACCUMULATED UPSTREAM OF STRAW BALE BARRIER SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6" OF THE HEIGHT OF THE STRAW BALE BARRIER.

- STRAW BALES ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

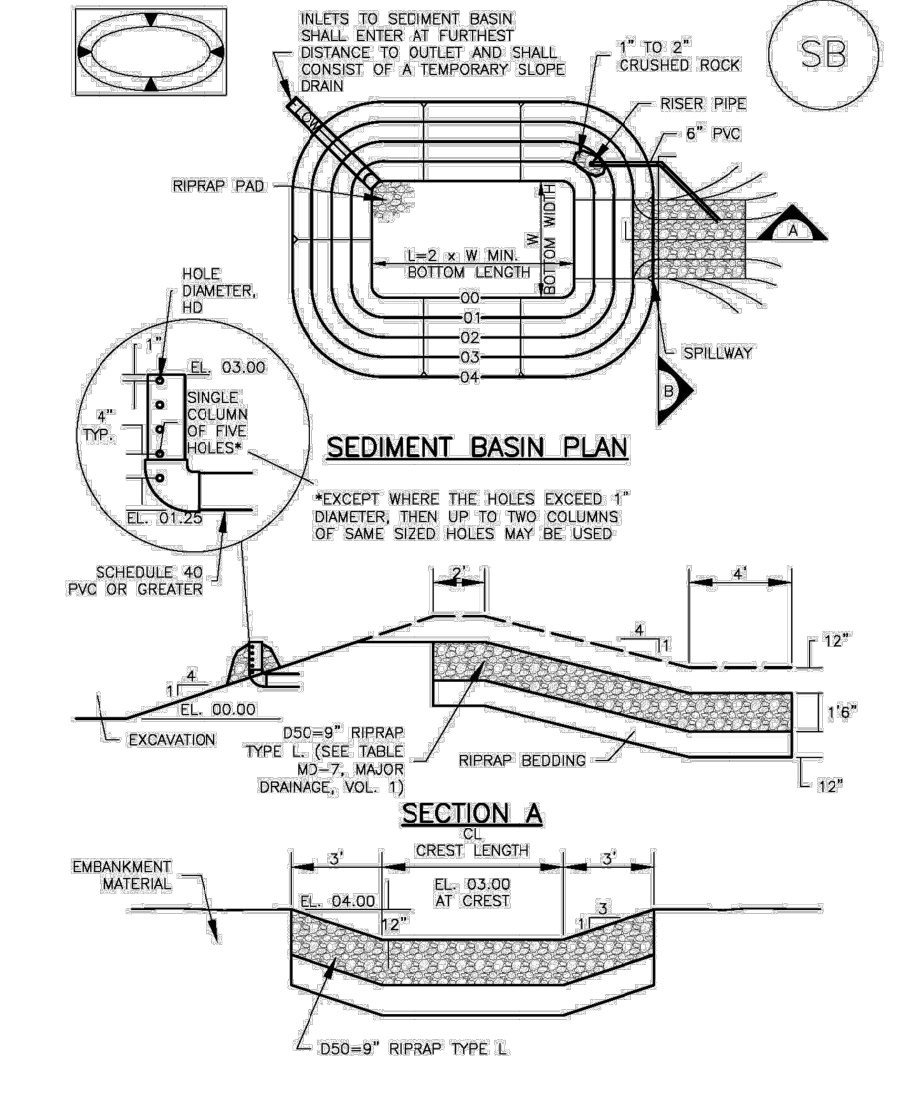
- WHEN STRAW BALES ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEED, AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

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

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

Sediment Basin (SB) SC-7



SB-5 August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

EROSION CONTROL CRITERIA:

EROSION CONTROL MEASURES SHALL BE IMPLEMENTED IN A MANNER THAT WILL PROTECT PROPERTIES AND PUBLIC FACILITIES FROM THE ADVERSE EFFECTS OF EROSION AND SEDIMENTATION AS A RESULT OF CONSTRUCTION AND EARTHWORK ACTIVITIES WITHIN THE PROJECT SITE.

- PRIOR TO START OF GRADING OPERATIONS, LOCATE AND SET THE SEDIMENT BERM AND VEHICLE TRACKING CONTROL AS SHOWN ON THE EROSION CONTROL PLAN.
- THE SEDIMENT BERM SHALL BE KEPT IN PLACE AND MAINTAINED UNTIL EROSION AND SEDIMENTATION POTENTIAL IS MITIGATED. REMOVAL OF SILT AND SEDIMENT COLLECTED BY THE SEDIMENT BERM IS REQUIRED ONCE IT REACHES HALF THE HEIGHT OF THE SEDIMENT BERM.
- EROSION CONTROL DEVICES SHOULD BE CHECKED AFTER EVERY STORM OR NOT MORE THAN EVERY 14 DAYS. REPAIRS OR REPLACEMENT SHOULD BE MADE AS NECESSARY TO MAINTAIN PROPER PROTECTION.

SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN TWENTY-ONE (21) CALENDAR DAYS AFTER FINAL GRADING, OR FINAL EARTH DISTURBANCE HAS BEEN COMPLETED. DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT THE FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED WITHIN 21 DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMP'S SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.



FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
FOR BURIED UTILITY INFORMATION
48 HRS BEFORE YOU DIG
CALL 1-800-922-1987

BRADLEY POINT FILING NO. 1

GRADING & EROSION CONTROL DETAILS

PROJECT NO. 70-074

DATE: 5/27/21

SCALE: HORIZONTAL: N/A VERTICAL: N/A

DESIGNED BY: CWV

DRAWN BY: CWV

CHECKED BY: DLM

SHEET 3 OF 5

GR03

212 N. WAHATCH AVE., STE 305

COLORADO SPRINGS, CO 80903

PHONE: 719.555.5465

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

APPROVED BY: DATE:

REVISIONS:

NO. DATE: BY: DESCRIPTION:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

<div><div>Sediment Basin (SB)SC-7</div><div></div></div>	<div><div>SC-7Sediment Basin (SB)</div><div><table><tr><th colspan="5">TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN</th></tr><tr><th>Upstream Drainage Area (rounded to nearest acre), (ac)</th><th>Basin Bottom Width (W), (ft)</th><th>Sewer Crest Length (CL), (ft)</th><th>Hole Diameter (HD), (in)</th><th></th></tr><tr><td>1</td><td>12.8</td><td>2</td><td>3/4</td><td></td></tr><tr><td>2</td><td>28</td><td>3</td><td>1</td><td></td></tr><tr><td>3</td><td>38</td><td>4</td><td>1 1/4</td><td></td></tr><tr><td>4</td><td>47.8</td><td>5</td><td>1 1/2</td><td></td></tr><tr><td>5</td><td>58</td><td>6</td><td>1 3/4</td><td></td></tr><tr><td>6</td><td>67.8</td><td>7</td><td>1 3/4</td><td></td></tr><tr><td>7</td><td>77.8</td><td>8</td><td>2</td><td></td></tr><tr><td>8</td><td>87.8</td><td>9</td><td>2 1/4</td><td></td></tr><tr><td>9</td><td>97.8</td><td>10</td><td>2 1/2</td><td></td></tr><tr><td>10</td><td>107.8</td><td>11</td><td>2 3/4</td><td></td></tr><tr><td>11</td><td>117.8</td><td>12</td><td>3</td><td></td></tr><tr><td>12</td><td>127.8</td><td>13</td><td>3 1/4</td><td></td></tr><tr><td>13</td><td>137.8</td><td>14</td><td>3 1/2</td><td></td></tr><tr><td>14</td><td>147.8</td><td>15</td><td>3 3/4</td><td></td></tr></table><div><div>SEDIMENT BASIN INSTALLATION NOTES</div><div><div>1. SEE PLAN VIEW FOR: -LOCATION OF SEDIMENT BASIN. -TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN). -FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD. -FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLLARS N, HOLE DIAMETER HD AND PIPE DIAMETER D. 2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED. 3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS A STORMWATER CONTROL. 4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE. 5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D688. 6. PIPE SCH 40 OR GREATER SHALL BE USED. 7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASINS FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPLYWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASINS THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.</div></div></div></div></div>	TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN					Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Sewer Crest Length (CL), (ft)	Hole Diameter (HD), (in)		1	12.8	2	3/4		2	28	3	1		3	38	4	1 1/4		4	47.8	5	1 1/2		5	58	6	1 3/4		6	67.8	7	1 3/4		7	77.8	8	2		8	87.8	9	2 1/4		9	97.8	10	2 1/2		10	107.8	11	2 3/4		11	117.8	12	3		12	127.8	13	3 1/4		13	137.8	14	3 1/2		14	147.8	15	3 3/4		<div><div>Sediment Basin (SB)SC-7</div><div><div>SEDIMENT BASIN MAINTENANCE NOTES</div><div><div>1. INSPECT BMPs EACH WINTER, 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. 2. 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. 4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS. TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST). 5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION. 6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION. (DETAILS ADAPTED FROM SUDASIS COUNTY, COLORADO) NOTES: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USPCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.</div></div></div></div>	<div><div>EC-2Temporary and Permanent Seeding (TS/PS)</div><div><p>soil amendments and rototill them into the soil to a depth of 6 inches or more.</p><p>Topsoil should be salvaged during grading operations for use and spread on areas to be revegetated later. Topsoil should be viewed as an important resource to be utilized for vegetation establishment, due to its water-holding capacity, structure, texture, organic matter content, biological activity, and nutrient content. The rooting depth of most native grasses in the semi-arid Denver metropolitan area is 6 to 18 inches. At a minimum, the upper 6 inches of topsoil should be stripped, stockpiled, and ultimately respread across areas that will be revegetated.</p><p>Where topsoil is not available, subsoils should be amended to provide an appropriate plant-growth medium. Organic matter, such as well digested compost, can be added to improve soil characteristics conducive to plant growth. Other treatments can be used to adjust soil pH conditions when needed. Soil testing, which is typically inexpensive, should be completed to determine and optimize the types and amounts of amendments that are required.</p><p>If the disturbed ground surface is compacted, rip or rototill the surface prior to placing topsoil. If adding compost to the existing soil surface, rototilling is necessary. Surface roughening will assist in placement of a stable topsoil layer on steeper slopes, and allow infiltration and root penetration to greater depth.</p><p>Prior to seeding, the soil surface should be rough and the seedbed should be firm, but neither too loose nor compacted. The upper layer of soil should be in a condition suitable for seeding at the proper depth and conducive to plant growth. Seed-to-soil contact is the key to good germination.</p><p>Seed Mix for Temporary Vegetation</p><p>To provide temporary vegetative cover on disturbed areas which will not be paved, built upon, or fully landscaped or worked for an extended period (typically 30 days or more), plant an annual grass appropriate for the time of planting and mulch the planted areas. Annual grasses suitable for the Denver metropolitan area are listed in Table TS/PS-1. These are to be considered only as general recommendations when specific design guidance for a particular site is not available. Local governments typically specify seed mixes appropriate for their jurisdiction.</p><p>Seed Mix for Permanent Revegetation</p><p>To provide vegetative cover on disturbed areas that have reached final grade, a perennial grass mix should be established. Permanent seeding should be performed promptly (typically within 14 days) after reaching final grade. Each site will have different characteristics and a landscape professional or the local jurisdiction should be contacted to determine the most suitable seed mix for a specific site. In lieu of a specific recommendation, one of the perennial grass mixes appropriate for site conditions and growth season listed in Table TS/PS-2 can be used. The pure live seed (PLS) rates of application recommended in these tables are considered to be absolute minimum rates for seed applied using proper drill-seeding equipment.</p><p>If desired for wildlife habitat or landscape diversity, shrubs such as rubber rabbitbrush (<i>Chrysothamnus nauseosus</i>), fourwing saltbush (<i>Atriplex canescens</i>) and skunkbrush sumac (<i>Rhus trilobata</i>) could be added to the upland seedmixes at 0.25, 0.5 and 1 pound PLS/acre, respectively. In riparian zones, planting root stock of such species as American plum (<i>Prunus americana</i>), woods rose (<i>Rosa woodsii</i>), plains cottonwood (<i>Populus sargentii</i>), and willow (<i>Populus spp.</i>) may be considered. On non-topsoiled upland sites, a legume such as Ladak alfalfa at 1 pound PLS/acre can be included as a source of nitrogen for perennial grasses.</p></div></div>	<div><div>Temporary and Permanent Seeding (TS/PS)EC-2</div><div><p>Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.</p><p>Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses</p><table><tr><th>Species* (Common name)</th><th>Growth Season</th><th>Pounds of Pure Live Seed (PLS)/acre¹</th><th>Planting Depth (inches)</th></tr><tr><td>1. Oats</td><td>Cool</td><td>35 - 50</td><td>1 - 2</td></tr><tr><td>2. Spring wheat</td><td>Cool</td><td>25 - 35</td><td>1 - 2</td></tr><tr><td>3. 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This assumes that the cover is not disturbed or moved closer than 8 inches.</p><p>Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.</p><p>^b See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.</p><p>^c Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.</p></div></div>	Species* (Common name)	Growth Season	Pounds of Pure Live Seed (PLS)/acre ¹	Planting Depth (inches)	1. Oats	Cool	35 - 50	1 - 2	2. Spring wheat	Cool	25 - 35	1 - 2	3. Spring barley	Cool	25 - 35	1 - 2	4. Annual ryegrass	Cool	10 - 15	1/2	5. Millet	Warm	3 - 15	1/2 - 3/4	6. Sudangrass	Warm	5 - 10	1/2 - 3/4	7. 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Table RECP-2. ECTC Standard Specification for Permanent¹ Rolled Erosion Control Products
(Adapted from: Erosion Control Technology Council 2005)

¹ For TRMs containing degradable components, all property values must be obtained on the non-degradable portion of the mutting alone.

² Minimum Average Roll Values, machine direction only for tensile strength determination using [ASTM D 6818](#) (Supersedes Mod. [ASTM D 5035](#) for RECPs).

³ Field conditions with high loading and/or high survivability requirements may warrant the use of a TRM with a tensile strength of 44 kN/m (3,000 lb/ft) or greater.

⁴ Required minimum shear stress TRM (fully vegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in.) soil loss) during a 30-minute flow event in large scale testing.

⁵ Acceptable large-scale testing protocols may include [ASTM D 6460](#), or other independent testing deemed acceptable by the engineer.

RECPs should be installed according to manufacturer's specifications and guidelines. Regardless of the type of product used, it is important to ensure no gaps or voids exist under the material and that all corners of the material are secured using stakes and trenching. Continuous contact between the product and the soil is necessary to void failure. Never use metal stakes to secure temporary erosion control products. Often wooden stakes are used to anchor RECPs; however, wood stakes may present installation and maintenance challenges and generally take a long time to biodegrade. Some local jurisdictions have had favorable experiences using biodegradable stakes.

This BMP Fact Sheet provides design details for several commonly used ECB applications, including:

ECB-1 Pipe Outlet to Drainageway

ECB-2 Small Ditch or Drainageway

EC-6 Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN FOR ECGS.
 - LOCATED FOR ECGS
 - TYPE OF ECGS (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSION).
 - AND 4 SQUARE YARDS FOR EACH TYPE OF ECG.
2. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
3. IN AREAS WHERE ECGS ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOWELS, AND MULCHING MATERIALS TO BE USED TO COVER ECGS TO PREVENT EROSION AND MULCHING.
4. ECGS SHALL BE SHOWN AND LOCATED ON THE PLANS. ECGS SHALL BE PLACED UNDER THE RECP. ECGS SHALL BE IN FULL CONTACT WITH SUBSTRATE AND CAPS SHALL BE FULLY SECURED TO ECGS.
5. PERMITTEE ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL PARKWAY AREAS.
6. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROADS OF ECGS TOGETHER (CONSIDERATIONS AND TRANSVERSELY FOR ALL ECGS EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT).
7. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HAIF ROAD LENGTH FOR ECGS EXCEPT STRAW WHICH MAY BE USED AT SPACING OF ONE-HAIF ROAD LENGTH.
8. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROADS OF ECGS TOGETHER ON CURVES.
9. MATERIAL SPECIFICATIONS OF ECGS SHALL CONFORM TO TABLE ECG-1.
10. ANY AREAS OF SEIZING AND MULCHING DESTROYED IN THE PROCESS OF INSTALLING ECGS SHALL BE RESEEDED AND MULCHED.
11. DETAILS ON DESIGN PLANS FOR EACH DRAINAGE STABILIZATION WILL OVEEN IF DIFFERENT FROM THOSE SPECIFIED.

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

*STREAM ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND GRABAGE CHANNEL.
**ALTERNATE BITTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS

RECP-8	Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3	November 2010
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Staking patterns are also provided in the design details according to these factors:

Staking patterns are also provided in the design details according to these factors:

- ECB type
- Slope or channel type

Inspection of erosion control blankets and other RECPs includes:

Inspection of erosion control blankets and other RECPs includes:

- Check for general signs of erosion, including voids beneath the mat. If voids are apparent, fill the void with suitable soil and replace the erosion control blanket, following the appropriate staking pattern.

Erosion control blankets and other RECPs that are biodegradable typically do not need to be removed after construction. If they must be removed, then an alternate soil stabilization method should be installed promptly following removal.

Turf reinforcement mats, although generally resistant to biodegradation, are typically left in place as a dense vegetated cover grows in through the mat matrix. The turf reinforcement mat provides long-term stability and helps the established vegetation resist erosive forces.

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

EROSION CONTROL BLANKET MAINTENANCE NOTES

1. INSPECT BMP EACH BOWDRAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE POSITIVE, NOT REACTIVE. INSPECT AS SOON AS POSSIBLE AFTER ANY WEATHER EVENTS, INCLUDING A STORM THAT CAUSED SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. 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 IDENTIFICATION OF THE FAILURE.
4. ECHO SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
5. ANY ECHO PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REPLACED WITHIN 30 DAYS OF THE DATE OF THE GOVTOTITLE THAT HAS PROMPTED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, REPLACED, OR BIODEGRADED WITHIN 30 DAYS OF THE DATE OF THE GOVTOTITLE.
- NOTE: WHILE JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USFCO STANDARD DETAILS, CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

November 2010	Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3	RECP-9
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RECP-6
Urban Drainage and Flood Control District
November 2010

Urban Storm Drainage Criteria Manual Volume 3

DIVISION DITCH
TYPICALLY AT TOP OF
SLOPE

STAGGER OVERLAPS

OVERLAPPING JOINT

STAKING PATTERN PER
MANUFACTURER'S SPEC. OR PATTERN
BASED ON ECB AND/OR SLOPE
TYPE (SEE STAKING PATTERN DETAIL)

PERIMETER ANCHOR
TRENCH

ECB-3. OUTSIDE OF DRAINAGEWAY

PERIMETER
ANCHOR
TRENCH OR
JOINT, TYP.

ROLL
METHOD

6'

3'

1'

3/4 W

STRAW

6'

3'

1/2 W

3'

3/4 W

STRAW-COCOON

6'

3'

1/2 W

3'

3/4 W

COCOON OR EXCLOSURE

2'

STAKING PATTERNS BY ECB TYPE

6'

3'

1/2 W

4:1-3:1
SLOPES

2'

1/2 W

3:1-2:1
SLOPES

6'

3'

1/2 W

3'

3/4 W

2:1 AND STEEPER
SLOPES

6'

3'

1/2 W

3'

3/4 W

2'

LOW FLOW CHANNEL

HIGH FLOW CHANNEL

STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

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



FOR BURIED UTILITY INFORMATION
48 HRS BEFORE YOU DIG
CALL 1-800-922-1987

FOR LOCATING
& MARKING
GAS,
ELECTRIC,
WATER &
TELEPHONE
LINES

REVISIONS:	NO.	DATE:

CAUTION

7160

FOR AND ON
BEHALF OF
M&S CIVIL
CONSULTANTS,

CIVIL CONSULTANTS, INC.

21212 N. WAHSATCH AVE., STE 305
 COLORADO SPRINGS, CO 80903
 PHONE: 719.955.5485

BRADLEY POINT FILING NO. 1

GRADING & EROSION CONTROL DETAILS

PROJECT NO. 70-074	SCALE:	DATE: 5/27/21
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DESIGNED BY:	CW	N/A
DRAWN BY:	CW	VERTICAL:
CHECKED BY:	DLM	N/A

SHEET 5 OF 5

REVISIONS:				APPR'D. BY:	DATE:
NO.	DATE:	BY:	DESCRIPTION:		

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION