# SUGAR CREEK SEDIMENT MITIGATION PILOT PROJECT CONTRACT DRAWINGS FOR CONSTRUCTION

# **NOVEMBER 2012**

# **APPROVALS**

COALITION FOR THE UPPER SOUTH PLATTE

JONATHAN BRUNO, DIRECTOR OF OPERATIONS

**DOUGLAS COUNTY** 

GARTH ENGLUND. P.E., SPECIAL PROJECTS ENGINEER

CHATFIELD REALLOCATION PROJECT WATER PROVIDERS

 $TROUT \\ UNLIMITED$ 

RICK McLOUD, P.E., PROJECT REPRESENTATIVE

CH2M HILL

KYLE HAMILTON, P.E., SENIOR PROJECT MANAGER

# CHATFIELD REALLOCATION PROJECT WATER PROVIDERS DOUGLAS COUNTY



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# **PROJECT PARTNERS**

**VICINITY MAP** 

PROJECT LOCATION



396845 / 39594

### **GENERAL NOTES**

- IT IS THE INTENT OF THESE PLANS TO SHOW ALL EXISTING UTILITIES. HOWEVER IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION, WHETHER SHOWN ON THESE PLANS OR NOT. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 811. PRIOR TO DIGGING. THE ENGINEER AND OWNER SHALL BE NOTIFIED OF ANY POTENTIAL CONFLICTS.
- ALL EXISTING UTILITIES SHALL BE PROTECTED BY THE CONTRACTOR IN PLACE. PROTECTION OF EXISTING UTILITIES SHALL BE INCLUDED IN THE MOBILIZATION BID ITEM.
- EXISTING FACILITIES NOT INDICATED TO BE REMOVED SHALL BE PROTECTED IN PLACE OR REMOVED AND REPLACED IN KIND, AS APPROVED BY THE ENGINEER.
- ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY OWNER AND/OR ITS AUTHORIZED REPRESENTATIVES. OWNER RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DO NOT CONFORM TO THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL NOTIFY OWNER 48 HOURS PRIOR TO STARTING CONSTRUCTION.
- THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE PLANS, ALL CONSTRUCTION CONTRACT DOCUMENTS, AND ONE (1) COPY OF ALL REQUIRED PERMITS AT THE JOB SITE AT
- THE FINAL FILL AND EXCAVATION SLOPES, LINES AND GRADES SHOWN ON THE DRAWINGS ARE THE NEAT LINES FOR PAY PURPOSES AND ARE THE STEEPEST SLOPES PERMITTED UNLESS APPROVED BY THE ENGINEER. FLATTER SLOPES MAY BE NECESSARY, AS DETERMINED BY THE CONTRACTOR. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING STABLE EXCAVATIONS AND TEMPORARY SLOPES AND FOR SATISFYING ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS. TEMPORARY EXCAVATIONS SHALL PROVIDE AT MINIMUM, THE TRENCH DIMENSIONS AND CLEARANCES SHOWN OR SPECIFIED. TEMPORARY CONSTRUCTION SLOPES SHALL BE SLOPED, SHORED, SHEETED, AND/OR BRACED IN ACCORDANCE WITH STABILITY REQUIREMENTS AND APPLICABLE REGULATIONS, AND SHALL BE NO STEEPER THAN THE MINIMUM SLOPES SHOWN OR SPECIFIED WITHOUT THE APPROVAL OF THE ENGINEER. ANY SUCH APPROVALS BY THE ENGINEER WILL NOT RELIEVE THE CONTRACTOR FROM SOLE RESPONSIBILITY FOR PROVIDING STABLE EXCAVATIONS AND TEMPORARY SLOPES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACCEPTANCE AND CONTROL OF DRAINAGE WATER FROM AREAS ADJACENT TO AND WITHIN THE PROJECT SITE(S). THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING METHODS BY WHICH CHANNEL FLOW, SURFACE RUNOFF, AND SUBSURFACE SEEPAGE WILL BE TEMPORARILY DIVERTED, DETAINED OR OTHERWISE CONTROLLED. WATER CONTROL SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS, AS WELL AS ALL APPLICABLE PERMIT CONDITIONS. TEMPORARY WATER CONTROL SYSTEMS SHALL NOT CAUSE INCREASED FLOODING OR AFFECT NORMAL FLOW CHARACTERISTICS DURING CONSTRUCTION. ANY DAMAGE TO THE WORK RESULTING FROM BASE FLOWS OR FLOOD FLOWS SHALL BE CORRECTED BY THE CONTRACTOR AT THE CONTRACTOR'S SOLE COST.
- THE CONTRACTOR IS ADVISED THAT THE STOCKPILING AND USE OF MATERIAL AND/OR EQUIPMENT WITHIN OR NEAR THE CREEK CREATES POTENTIAL OBSTRUCTIONS TO THE FLOW OF THE STREAM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONDUCT THE WORK IN A MANNER THAT MINIMIZES THE REDUCTION IN CHANNEL CAPACITY AT ALL TIMES. THE CONTRACTOR IS ADVISED THAT THE STORAGE OF FUELS. CHEMICALS, TRASH, DEBRIS, CONSTRUCTION. MATERIAL, VEHICLES, AND EQUIPMENT SHALL BE PROHIBITED WITHIN THE CHANNEL AND OVERBANKS AT ALL TIMES EXCEPT AS IS ESSENTIAL TO THE PROGRESS OF THE WORK. UNDER NO CIRCUMSTANCE SHALL ANY OF THE ABOVE MENTIONED MATERIALS BE STORED OVERNIGHT WITHIN THE CHANNEL OR OVERBANKS
- 10. CONTRACTOR SHALL PROVIDE PEDESTRIAN AND VEHICULAR SIGNAGE THAT CLEARLY IDENTIFIES THE CONSTRUCTION ZONE THROUGHOUT PROJECT. CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY.
- 11. ALL EXCESS EARTHEN MATERIAL SHALL BE HAULED OFF SITE. DISPOSAL LOCATION AND ALL APPLICABLE PERMITS ARE CONTRACTOR'S RESPONSIBILITY. THE COST FOR HAUL OFF SITE OF MATERIAL DISPLACED BY RIPRAP OR OTHER IMPROVEMENTS SHALL BE INCLUDED IN THOSE BID ITEMS.
- 12. CONTRACTOR SHALL PROTECT ALL EXISTING CURB, GUTTER AND PAVEMENT AT ALL ACCESS POINTS FROM DAMAGE BY EQUIPMENT OR CONSTRUCTION OPERATIONS. ALL CURB, GUTTER AND PAVEMENT DAMAGED BY THE CONTRACTOR SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
- 13. ALL RIPRAP SHALL BE SOIL RIPRAP AND CONSIST OF 65% RIPRAP AND 35% NATIVE SOIL, AND SHALL BE COMPACTED.
- 14. FILL SHALL BE COMPACTED PER THE SPECIFICATIONS.
- 15. CONSTRUCTION STAKING AND SURVEY SHALL BE PROVIDED BY THE CONTRACTOR
- 16. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FOR THIS PROJECT
- 17. CONTRACTOR SHALL BE LICENSED TO PERFORM WORK IN THE PROJECT AREA, AS REQUIRED.
- 18. NEW FILL SHOULD BE CONTINUOUSLY BENCHED INTO EXISTING SLOPES EXCEEDING 4 HORIZONTAL TO 1 VERTICAL A BENCH HEIGHT BETWEEN 1 AND 2 FEET SHOULD BE USED. PROPER COMPACTION IS FREQUENTLY DIFFICULT TO ACHIEVE AT THE EDGES OF FILL SLOPES. FOR THIS REASON OVERBUILD FILL SLOPES 1 TO 2 FEET AND CUT THE SLOPE SURFACE BACK TO THE GRADES SHOWN. FILLS SHOULD BE PLACED IN UNIFORM LIFTS NOT EXCEEDING 8 INCHES LOOSE AND SHOULD BE COMPACTED TO THE MOISTURE AND DENSITY REQUIREMENTS PER THE SPECIFICATIONS
- 19. VISITS TO THE JOB SITE BY THE ENGINEER TO OBSERVE THE CONSTRUCTION DO NOT IN ANY WAY MEAN THAT THE ENGINEER IS GUARANTOR OF CONTRACTOR'S WORK NOR RESPONSIBLE FOR THE COMPREHENSIVE OR SPECIAL INSPECTIONS, COORDINATION, SUPERVISION, NOR THE SAFETY AT THE JOB SITE.
- 20. SITE ACCESS AND STAGING SHALL BE PER THE CONSTRUCTION DOCUMENTS, UNLESS ALTERNATIVE ACCESS AND STAGING ARE APPROVED BY OWNER
- 21. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF MISCELLANEOUS TRASH AND DEBRIS FROM PROJECT AREA PRIOR TO CONSTRUCTION. THIS SHALL BE PAID FOR IN THE CLEARING AND GRUBBING BID ITEM.
- 22. RIPRAP AND BOULDERS SHALL MEET THE SPECIFICATIONS AND REQUIRED DIMENSIONS.
- 23 THE TOP OF SLOPES SHALL BE SMOOTHED BY GRADING A SMOOTH CURVE FROM 2' BELOW THE TOP OF SLOPE TO 2' BEYOND THE TOP OF SLOPE. THIS DOES NOT APPLY WHERE TREE PROTECTION AREAS LIMIT GRADING.
- 24. WATER CONTROL SHALL BE MAINTAINED SO THAT GROUNDWATER IS MIN 1' BELOW THE WORKING SURFACE.
- 25. NO WORK SHALL OCCUR BELOW THE TOP OF THE CREEK BANK.
- 26. REMOVE ALL BMPS AT THE END OF CONSTRUCTION UNLESS OTHERWISE INDICATED BY OWNER.
- 27. IF ANY SUSPECTED CULTURAL OR HISTORIC FINDINGS ARE UNCOVERED DURING CONSTRUCTION, STOP CONSTRUCTION

### **ACCESS AND STAGING**

- 1. CONTRACTOR SHALL COORDINATE SITE ACCESS AND ANY STAGING EFFORTS WITH OWNER AND ENGINEER
- 2. CONTRACTOR SHALL NOTIFY OWNER AT LEAST 10 DAYS PRIOR TO ACCESSING SITE FOR PROPERTY OWNER NOTIFICATION.
- 3. ORANGE CONSTRUCTION FENCE SHALL BE INSTALLED PER THE CONTRACT DRAWINGS AND APPROVED BY OWNER OR ENGINEER PRIOR TO OTHER CONSTRUCTION ACTIVITIES

### STRUCTURAL NOTES

CLEARANCE FOR REINFORCEMENT BARS, UNLESS SHOWN OTHERWISE,

\*WHEN PLACED ON GROUND: \*ALL OTHER CONCETE SURFACES: #5 BAR OR SMALLER — 1 1/2' #6 BAR OR SMALLER

- ALL BENDS UNLESS OTHERWISE SHOWN SHALL BE A 90 DEGREE STANDARD HOOK AS DEFINED IN LATEST EDITION OF ACI 318.
- ALL WALL CORNER AND WALL INTERSECTION REINFORCEMENT BARS SHALL BE CONTINUOUS AROUND CORNERS AND THROUGH COLUMNS OR PILASTERS. REINFORCEMENT SHALL BE EXTENDED INTO CONNECTING WALLS AND LAPPED ON THE OPPOSITE FACE OF THE
- VERTICAL WALL BARS SHALL BE LAPPED WITH DOWELS FROM BASE SLABS AND EXTENDED INTO THE TOP FACE OF ROOF SLABS AND LAPPED WITH TOP SLAB REINFORCEMENT. PROVIDE A MINIMUM OF TWO FULL HEIGHT VERTICAL BARS WITH MATCHING DOWELS AT WALL ENDS CORNERS AND INTERSECTIONS WITH SIZE TO MATCH TYPICAL VERTICAL REINFORCING STEEL SHOWN.
- UNLESS INDICATED OTHERWISE, CONTRACTOR MAY SPLICE CONTINUOUS SLAB OR LONGITUDINAL BEAM BARS AT LOCATIONS OF HIS CHOOSING EXCEPT THAT TOP BAR SPLICES SHALL BE LOCATED AT MIDSPAN AND BOTTOM BAR SPLICES SHALL BE LOCATED AT SUPPORTS. ALL REINFORCEMENT BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING REQUIREMENT

GRADE 60 R	EINFORCING S	STEEL								
BAR SIZE		#3	#4	#5	#6	#7	#8	#9	#10	#11
LAP SPLICE	LENGTH									
SPACING <6"	TOP BARS *	1'-4"	2'-0"	3'-0"	4'-0"	5'-10"	6'-8"	7'-6"	8'-4"	9'-2"
	OTHER BARS	1'-4"	1'-7"	2'-3"	3'-1"	4'-6"	5'-2"	5'-10"	6'-5"	7'-1"
SPACING ≥6"	TOP BARS *	1'-4"	1'-7"	2'-0"	2'-5"	3'-6"	4'-0"	5'-0"	6'-0"	7'-1"
	OTHER BARS	1'-4"	1'-4"	1'-7"	1'-10"	2'-9"	3'-1"	3'-10"	4'-7"	5'-5"
EMBEDMEN <sup>*</sup>	LENGTH									
SPACING <6"	TOP BARS *	1'-0"	1'-7"	2'-3"	3'-1"	4'-6"	5'-2"	5'-10"	6'-5"	7'-1"
	OTHER BARS	1'-0"	1'-2"	1'-9"	2'-5"	3'-6"	4'-0"	4'-6"	5'-0"	5'-5"
SPACING ≥6"	TOP BARS *	1'-0"	1'-3"	1'-7"	1'-10"	2'-9"	3'-1"	3'-10"	4'-7"	5'-5"
	OTHER BARS	1'-0"	1'-0"	1'-2"	1'-5"	2'-1"	2'-5"	2'-11"	3'-7"	4'-2"

- TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.
- 6. CONCRETE SHALL BE CDOT CLASS D.
- REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF ASTM A615, GRADE 60.
- USE FORM LINER RELEASE AGENT PER FORM LINER MANUFACTURER RECOMMENDATIONS.

### ABBREVIATIONS

AISI APPROX ASTM  BMPS CONC CMP CTR CL CCP CU DIA DWG E EA EC EF EL EW	AMERICAN IRON AND STEEL INSTITAPPROXIMATELY AMERICAN SOCIETY FOR TESTING AND MATERIALS BEST MANAGEMENT PRACTICES CONCRETE CORRUGATED METAL PIPE CENTER CENTER CENTER CENTER CONTROL POINT COLD WORKED DIAMETER DRAWING EASTING EACH EROSION CONTROL EACH FACE ELEVATION EACH WAY

HORIZONTAL H INV INVERT NORTHING MAX MAXIMUM MIN MINIMUM NTS NOT TO SCALE ON CENTER OC REINF REINFORCING SLOPE STAINLESS STEEL SST STA STATION STD TYP STANDARD TYPICAL US FOREST SERVICE USES POINT OF INTERSECTION WELDED WIRE FABRIC WWF

EWEF EACH WAY EACH FACE

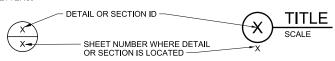
FLARED END SECTION

**EXISTING** 

EXST

### LEGEND

TYPICAL SECTIONS AND DETAIL CALLOUTS FOLLOW THE GENERAL FORMAT SHOWN BELOW. DETAILS ARE IDENTIFIED WITH NUMBERS AND CROSS SECTION CUTS ARE IDENTIFIED BY



SURVEY CONTROL POINT Δ

GAME & FISH MONUMENTS (STAMPED - PIKE NF FISHERIES)

MILE POST MARKER

T-POST (CULVERT MARKERS)

TELEPHONE PEDESTAL

WILLOW CLUSTER

CONIFER TREE (SIZE NOTED)

(B DECIDUOUS TREE (SIZE NOTED)

### **EROSION CONTROL NOTES**

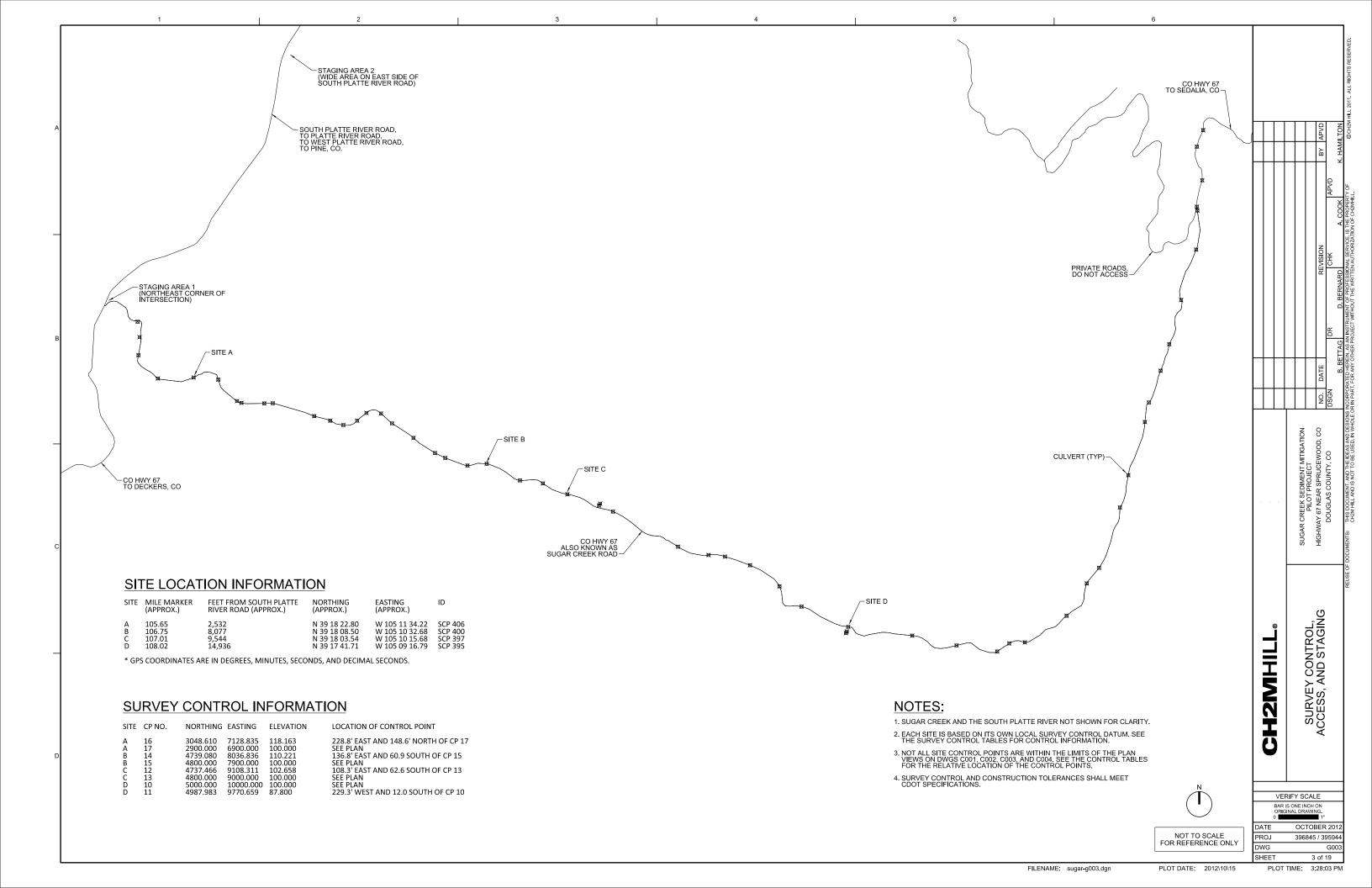
- DEWATERING AND TEMPORARY EROSION CONTROL FOR CONSTRUCTION WITHIN THE STREAM BED SHALL BE IN ACCORDANCE WITH THE DRAINAGEWAY CONTRACTOR CONTRACT SPECIFICATIONS AND ALL STATE, CITY, COUNTY, AND FEDERAL REGULATIONS
- 2. EROSION AND SEDIMENT CONTROL SYSTEMS AND WASHOUT AREAS SHALL BE INSTALLED PRIOR TO START OF WORK
- 3. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT ALL SITE ENTRANCES.
- GRAVEL FILTRATION PACKS SHALL BE USED AT ALL PUMPS
- THE CONTRACTOR IS RESPONSIBLE FOR ANY TRACKING OF SEDIMENT ONTO AREA STREETS AND/OR PARKING LOTS. STREETS AND PARKING LOTS ARE TO BE KEPT CLEAN THROUGHOUT BUILD OUT AND SHALL BE CLEANED AT THE DIRECTION OF THE OWNER, CONTRACTOR SHALL CLEAN STREETS AND/OR PARKING LOTS EACH DAY, OR AS NEEDED.
- EROSION AND SEDIMENT CONTROL STRUCTURES ARE TO BE INSPECTED AND MAINTAINED REGULARLY AND AFTER EVERY RUNOFF EVENT AND SHALL BE CONTINUOUSLY
- CONCRETE WASH WATER SHALL NOT BE DISCHARGED TO STATE WATERS OR TO STORM SEWER SYSTEMS, AND SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS AT CONTRACTOR'S EXPENSE. CONTRACTOR MAY WASH OUT AREA CONCRETE AT AT STAGING AREA PER DOUGLAS COUNTY REQUIREMENTS.
- 8. THE QUANTITY OF MATERIALS STORED ON 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. MATERIALS SHALL NOT BE STORED WITHIN THE CHANNEL LIMITS.
- SPILL PREVENTION AND CONTAINMENT MEASURES SHALL BE USED AT STORAGE, EQUIPMENT FUELING, AND SERVICING AREAS TO PREVENT THE POLLUTION OF ANY STATE WATERS. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY
  AFTER DISCOVERY, OR CONTAINED UNTIL APPROPRIATE CLEANUP METHODS CAN BE EMPLOYED. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE FOLLOWED, ALONG WITH PROPER DISPOSAL METHODS. EQUIPMENT SHALL NOT BE FUELED OR SERVICED OUTSIDE OF THE STAGING AREA.
- 10. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS RELATED TO EROSION CONTROL
- 11. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATION AND FOR THE SHORTEST PRACTICAL PERIOD OF TIME.
- 12. ANY AND ALL STOCKPILES SHALL BE LOCATED AND PROTECTED FROM EROSIVE ELEMENTS, USE APPROPRIATE BMPS FOR SOIL CONTAINMENT.
- 13. ANY RUTS OR DAMAGE TO VEGETATED AREAS SHALL BE RESTORED TO PRE-PROJECT GRADES.

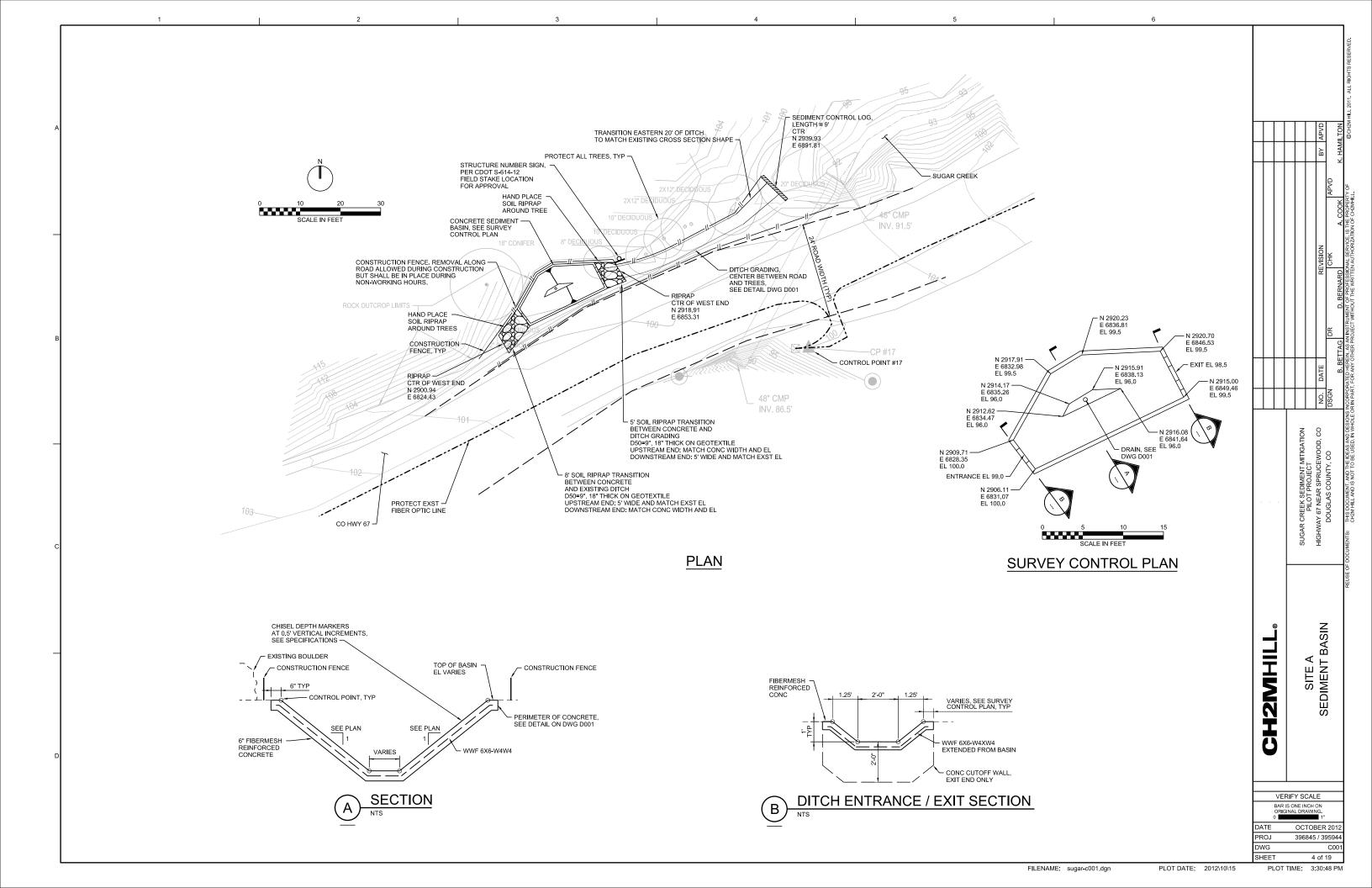
EWOOD, CO WAY 67 NEAR SPRUCE DOUGLAS COUNTY, ENERAL NOTES AN SPECIFICATIONS

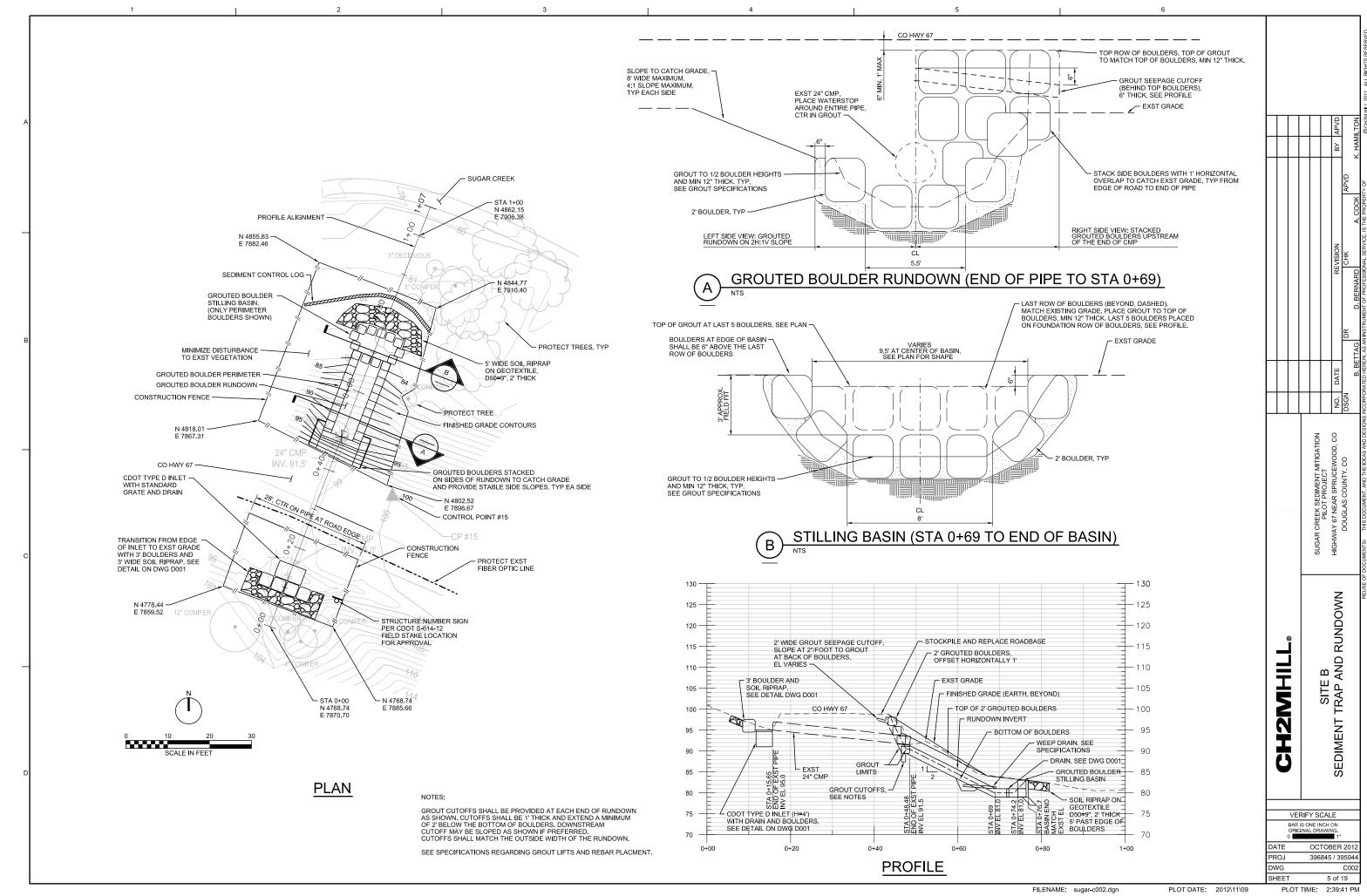
VERIFY SCALE BAR IS ONE INCH OF DATE OCTOBER 201 396845 / 395944 ROJ WG G00: 2 of 19 SHEET

2MHILL

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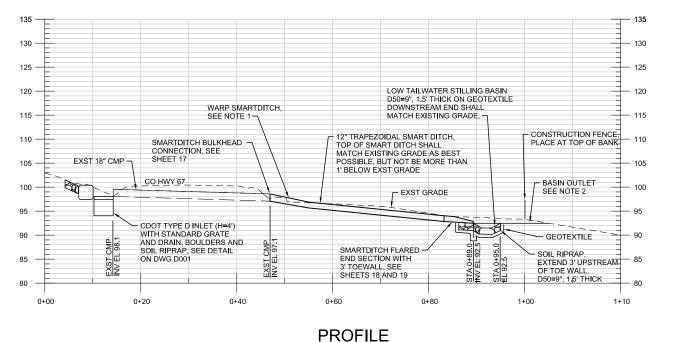






AFTER CONSTRUCITON, REMOVE FENCE AND SEDIMENT CONTROL LOG, PLANT THREE ROWS OF WILLOW STAKES AT 1' OC AT THE - STA 1+00 N 4853.03 E 9010.91 TOP OF BANK BETWEEN LIMITS OF CONSTRUCTION FENCE -- PROTECT SHRUB SEDIMENT CONTROL LOG -STILLING BASIN SOIL RIPRAP D50=9", 1.5' THICK ON GEOTEXTILE. SEE UDFCD FIGURE HS-19. SMARTDITCH FLARED END SECTION, FIELD ADJUST PER USFS IF REQUESTED. PLACED SOIL RIPRAP 2' WIDE ON SIDES OF SUGAR CREEK FLARED END SECTION. -STAKE ALIGNMENT FOR -USFS APPROVAL PRIOR TO INSTALLATION N 4829.09 - LOCAL GRADING TO CATCH GRADE, TYP EA SIDE CONSTRUCTION FENCE -- PROTECT TREES, PLACE CONSTRUCTION FENCE ON WEST SIDE, TYP RADIUS = 20' 14'-0" (TYP) איי מברומנוסנוס - N 4813.65 12" TRAPEZOIDAL E 9016.12 SMARTDITCH, SEE SHEET 16 - SMARTDITCH CONNECTION TO EXST PIPE USING HDPE COLLARS AND MASTIC SEALANT, SEE SHEET 17 CONTROL POINT #13 -CO HWY 67 -PROTECT POST AND CABLE FENCE 18" CMP PROFILE ALIGNMENT INV. 97.11 CDOT TYPE D INLET -WITH STANDARD GRATE AND DRAIN PROTECT EXST - CONSTRUCTION FENCE STRUCTURE NUMBER SIGN, PER CDOT S-614-12 FIELD STAKE LOCATION FOR APPROVAL E 8993.18 -3' BOULDERS AND SOIL RIPRAP TO TRANSITION GRADE, SEE DETAIL ON DWG D001 N 4753.98 STA 0+00 -24" DECIDUOUS N 4754.64 E 9005.29 PROTECT TREES, -

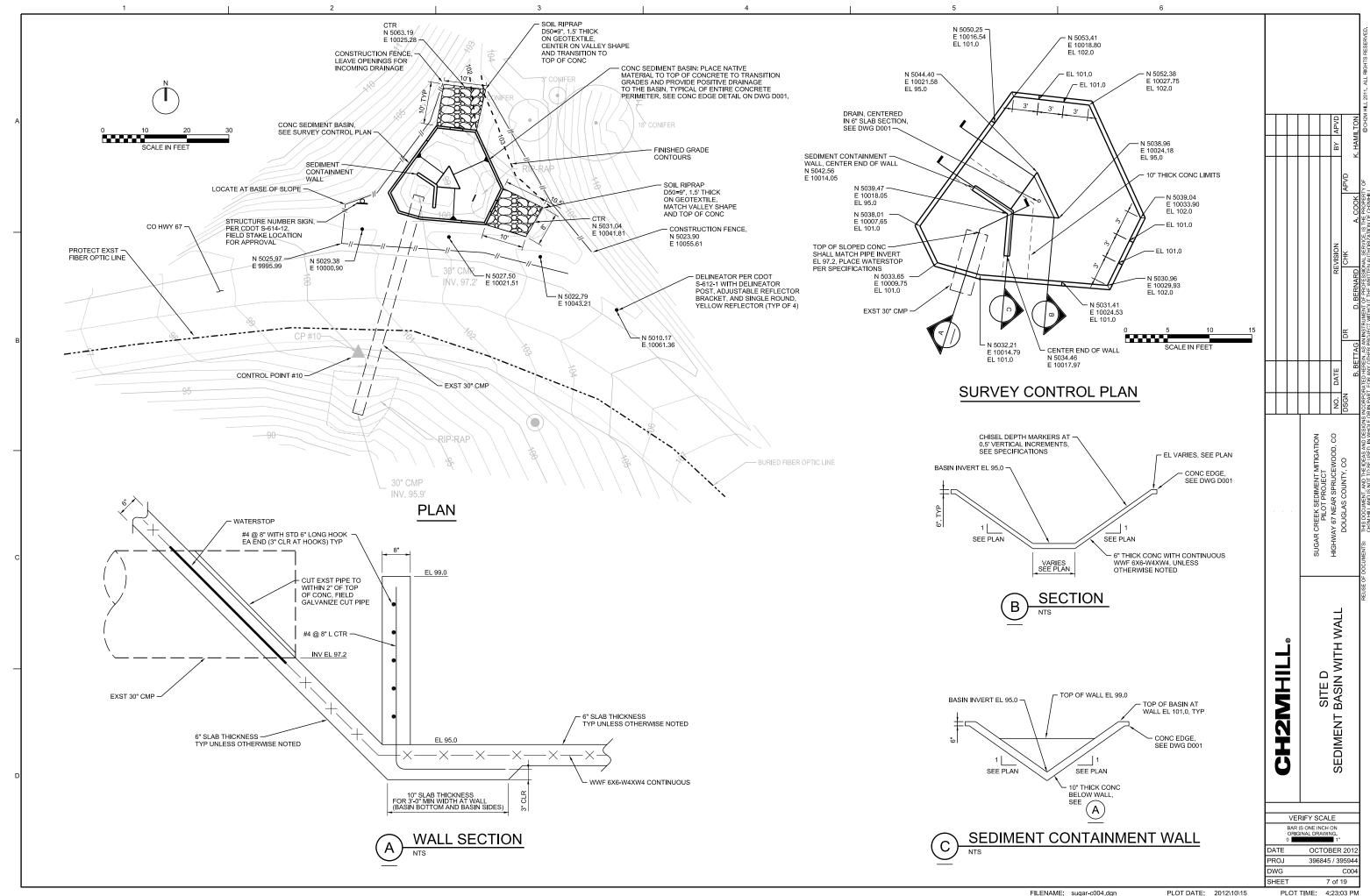
**PLAN** 

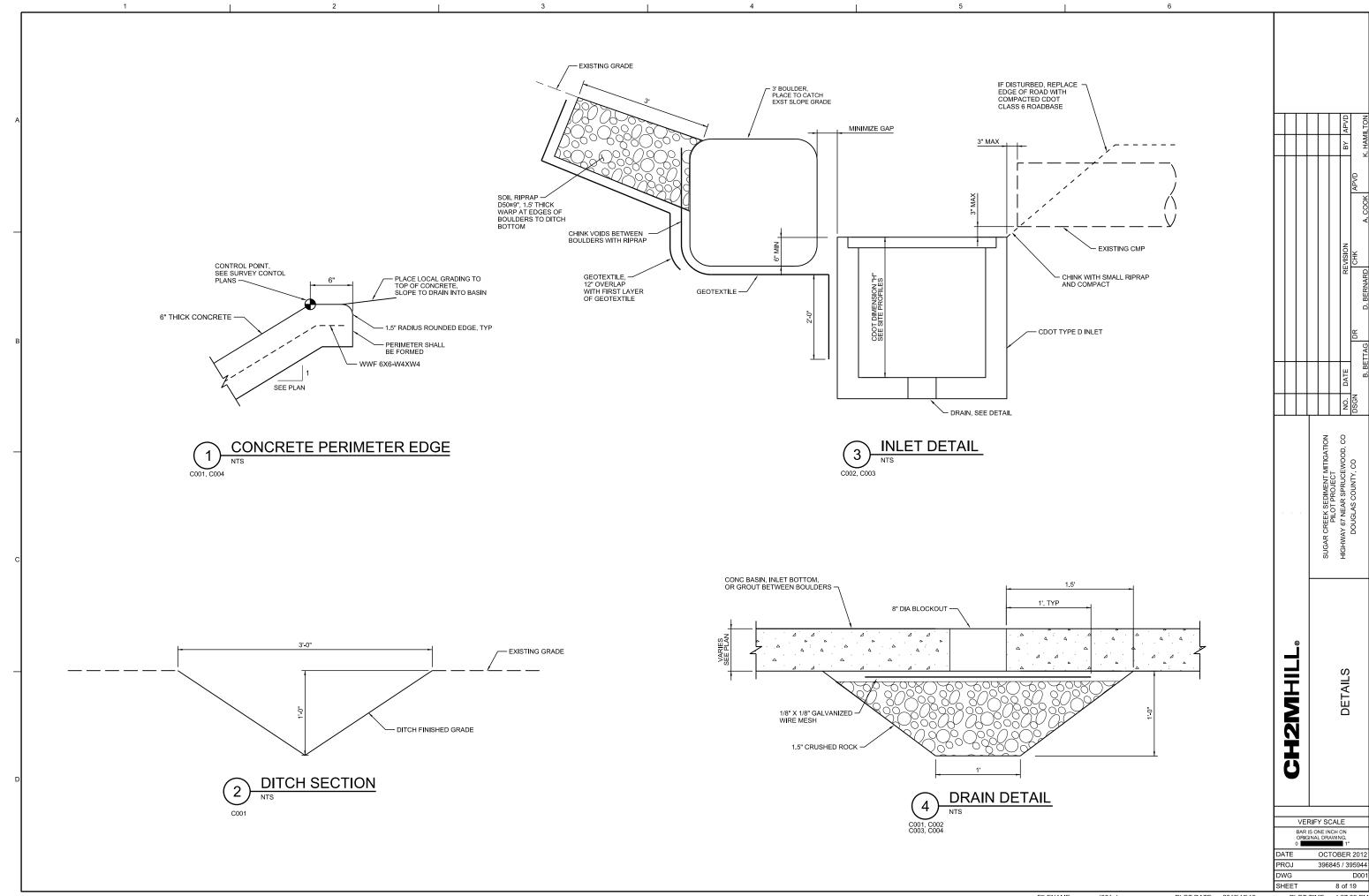


# NOTES:

- WARP SMARTDITCH VERTICALLY OVER 20' WITH SMOOTH VERTICAL CURVES UNTIL TOP OF SMARTDITCH MATCHES EXST GRADE. COMPACT NATIVE MATERIAL AROUND PIPE AND SIDES OF SMARTDITCH TO TRANSITION GRADES AT MAX 4H:1V SLOPES.
- 2. SHOVEL EXCAVATE BASIN OUTLET TO EDGE OF CREEK, 8' WIDE BOTTOM, 4H:1V SIDE SLOPES TO CATCH GRADE, CONSTANT CHANNEL BOTTOM EL OF 92.5. NO EXCAVATION BELOW THE ORDINARY HIGH WATER MARK ALLOWED. USFS STAFF SHALL BE ON SITE DURING THIS WORK FOR APPROVAL.

SUGAR CREEK SEDIMENT MITIGATION PILOT PROJECT HIGHWAY 67 NEAR SPRUCEWOOD, DOUGLAS COUNTY, CO SMARTDITCH CHZMHILL SITE C TRAP AND SEDIMENT VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1 DATE OCTOBER 2012 PROJ 396845 / 395944 DWG C003 SHEET 6 of 19 PLOT TIME: 4:18:09 PM





FILENAME: sugar-d001.dgn

PLOT DATE: 2012\10\15

PLOT TIME: 4:27:02 PM

## **GRADING, EROSION, AND SEDIMENT CONTROL (GESC) GENERAL NOTES**

- THE DOUGLAS COUNTY ENGINEER'S SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE DOUGLAS COUNTY PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION, HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL COMPLIANCE WITH THE DOUGLAS COUNTY SUBDIVISION REGULATIONS AND/OR THE GRADING, EROSION AND SEDIMENT CONTROL (GESC) CRITERIA MANUAL. THE DOUGLAS COUNTY ENGINEER, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY (OTHER THAN AS STATED ABOVE) FOR THE COMPLETENESS AND/OR
- 2. THE ADEQUACY OF THIS GESC PLAN LIES WITH THE ORIGINAL DESIGN ENGINEER. THE GESC PLAN SHALL BE CONSIDERED VALID FOR TWO (2) YEARS FROM THE DATE OF ACCEPTANCE BY
- RE-ACCEPTANCE BY DOUGLAS COUNTY. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE DOUGLAS COUNTY ENGINEERING
- DIVISION. DOUGLAS COUNTY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE GESC MANUAL, GESC PLAN OR GESC PERMIT.
- THE PLACEMENT OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs) SHALL BE IN ACCORDANCE WITH THE DOUGLAS COUNTY - ACCEPTED GESC PLAN AND THE DOUGLAS COUNTY GESC MANUAL. ANY VARIATION IN MATERIAL, TYPE OR LOCATION OF EROSION AND SEDIMENT CONTROL BMPs FROM THE DOUGLAS COUNTY - ACCEPTED GESC PLAN WILL REQUIRE APPROVAL FROM AN ACCOUNTABLE REPRESENTATIVE OF THE
- AFTER THE GESC PLAN HAS BEEN ACCEPTED, THE GESC PERMIT APPLIED FOR, FEES AND FISCAL SECURITY SUBMITTED TO THE COUNTY, AND THE GESC FIELD MANUAL OBTAINED AND REVIEWED, THE CONTRACTOR MAY INSTALL THE INITIAL—STAGE EROSION AND SEDIMENT CONTROL BMPS INDICATED ON THE ACCEPTED GESC PLAN.

DOUGLAS COUNTY ENGINEERING DIVISION.

- THE FIRST BMP TO BE INSTALLED ON THE SITE SHALL BE CONSTRUCTION FENCE, MARKERS, OR OTHER APPROVED MEANS OF DEFINING THE LIMITS OF CONSTRUCTION, INCLUDING CONSTRUCTION LIMITS ADJACENT TO STREAM CORRIDORS AND OTHER AREAS TO BE PRESERVED.
- AFTER INSTALLATION OF THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPs, THE PERMITTEE SHALL CALL THE DOUGLAS COUNTY ENGINEERING PERMITS TECHNICIAN AT 303-660-7487 TO SCHEDULE A PRECONSTRUCTION MEETING AT THE PROJECT SITE. THE REQUEST SHALL BE MADE A MINIMUM OF THREE BUSINESS DAYS PRIOR TO THE REQUESTED MEETING TIME. NO CONSTRUCTION ACTIVITIES SHALL BE PLANNED WITHIN 24 HOURS AFTER THE
- 10. THE OWNER OR OWNER'S REPRESENTATIVE, THE GESC MANAGER, THE GENERAL CONTRACTOR, AND THE GRADING SUBCONTRACTOR, IF DIFFERENT FROM THE GENERAL CONTRACTOR, MUST ATTEND THE PRECONSTRUCTION MEETING. F ANY OF THE REQUIRED PARTICIPANTS FAIL TO ATTEND THE PRECONSTRUCTION MEETING, OR IF THE GESC FIELD MANUAL IS NOT ON SITE, OR IF THE INSTALLATION OF THE INITIAL BMPs ARE NOT APPROVED BY THE DOUGLAS COUNTY GESC INSPECTOR, THE APPLICANT WILL HAVE TO PAY A REINSPECTION FEE, ADDRESS ANY PROBLEMS WITH BMP INSTALLATION, AND CALL TO RESCHEDULE THE MEETING, WITH A CORRESPONDING DELAY IN THE START OF CONSTRUCTION. DOUGLAS COUNTY STRONGLY ENCOURAGES THE APPLICANT TO HAVE THE ENGINEER OF RECORD AT THE PRECONSTRUCTION MEETING. FAILURE OF THE ENGINEER OF RECORD TO ATTEND MAY RESULT IN A DELAY OF THE START OF CONSTRUCTION.
- CONSTRUCTION SHALL NOT BEGIN UNTIL THE DOUGLAS COUNTY GESC INSPECTOR APPROVES THE INSTALLATION OF THE INITIAL BMPs AND THE APPROVED GESC PERMIT IS PICKED UP FROM THE COUNTY AND IS IN-HAND ON THE SITE. THE COMPLETED PERMIT WILL BE AVAILABLE WITHIN 24-HOURS AFTER THE INSTALLATION OF THE
- THE GESC MANAGER SHALL STRICTLY ADHERE TO THE DOUGLAS COUNTY-APPROVED LIMITS OF CONSTRUCTION AT ALL TIMES. THE DOUGLAS COUNTY ENGINEERING DIVISION MUST APPROVE ANY CHANGES TO THE LIMITS OF CONSTRUCTION AND, AT THE DISCRETION OF THE ENGINEERING DIVISION, ADDITIONAL EROSION/SEDIMENT
- 13. THE MAXIMUM AREA OF CONSTRUCTION SHALL BE LIMITED TO 40 ACRES (70 ACRES IF APPROVED FOR SOIL MITIGATION OPERATIONS) TO REDUCE THE AMOUNT OF LAND DISTURBED AT ANY ONE TIME. LARGER SITES SHALL BE DIVIDED INTO PHASES THAT ARE EACH 40 (OR 70) ACRES OR LESS IN SIZE. THESE PROJECTS SHALL CONDUCT GRADING ACTIVITIES IN ACCORDANCE WITH THE ACCEPTED GESC PLAN. BMP INSTALLATION AND APPROVAL BY DOUGLAS COUNTY AT THE START AND COMPLETION OF EACH PHASE SHALL BE CONDUCTED IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN THE GESC MANUAL AND/OR GESC FIELD MANUAL.
- 14. PRIOR TO ACTUAL CONSTRUCTION, THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES. FOR INFORMATION, CONTACT THE DENVER INTER-UTILITY GROUP AT 1-800-922-1987 OR FAX AT (303)534-6700.
- 15. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE
- 16. THE GESC PERMIT SHALL BE VALID FOR A PERIOD OF ONE (1) YEAR.
- 17. A COPY OF THE GESC PERMIT, ACCEPTED GESC PLANS AND THE GESC FIELD MANUAL SHALL BE ON SITE AT ALL
- 18. THE GESC MANAGER SHALL BE RESPONSIBLE FOR ENSURING THAT THE SITE REMAINS IN COMPLIANCE WITH THE GESC PERMIT AND SHALL BE THE PERMITTEE'S CONTACT PERSON WITH THE COUNTY FOR ALL MATTERS PERTAINING TO THE GESC PERMIT. THE GESC MANAGER SHALL BE PRESENT AT THE SITE THE MAJORITY OF THE TIME AND SHALL BE AVAILABLE THROUGH A 24-HOUR CONTACT NUMBER. IN THE EVENT THAT THE CONTRACTOR'S GESC MANAGER IS NOT ON SITE AND CANNOT BE REACHED DURING A VIOLATION, THE ALTERNATI GESC MANAGER SHALL BE CONTACTED. IF NEITHER THE GESC MANAGER NOR ALTERNATE GESC MANAGER CAN BE CONTACTED DURING ANY VIOLATION, A STOP WORK ORDER SHALL BE ISSUED.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE THROUGH THE DOUGLAS COUNTY-APPROVED ACCESS POINT. A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL ACCESS POINTS ON THE SITE. ADDITIONAL STABILIZED CONSTRUCTION ENTRANCES MAY BE ADDED WITH AUTHORIZATION FROM THE DOUGLAS COUNTY

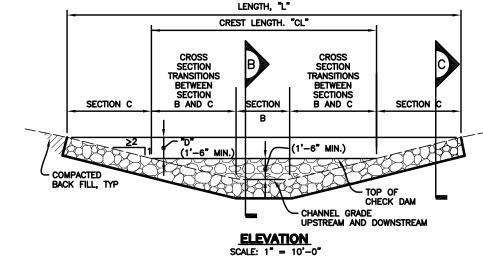
- 20. THE GESC MANAGER IS RESPONSIBLE FOR CLEANUP OF SEDIMENT OR CONSTRUCTION DEBRIS TRACKED ONTO ADJACENT PAVED AREAS. PAVED AREAS INCLUDING STREETS ARE TO BE KEPT CLEAN THROUGHOUT BUILD-OUT AND SHALL BE CLEANED, WITH A STREET SWEEPER OR SIMILAR DEVICE, AT FIRST NOTICE OF ACCIDENTAL TRACKING OR AT THE DISCRETION OF THE DOUGLAS COUNTY GESC INSPECTOR. STREET WASHING IS NOT ALLOWED. DOUGLAS COUNTY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO ENSURE AREA STREETS ARE KEPT FREE OF SEDIMENT AND/OR CONSTRUCTION DEBRIS.
- 21. APPROVED EROSION AND SEDIMENT CONTROL BMPs SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THIS PROJECT. AT A MINIMUM, THE GESC MANAGER SHALL INSPECT ALL BMPs IN ACCORDANCE WITH THE ACCEPTED GESC PLAN AND GESC MANUAL. ALL NECESSARY MAINTENANCE AND REPAIR ACTIVITIES SHALL BE COMPLETED WITHIN 48 HOURS FOR LEVEL III VIOLATIONS, AND IMMEDIATELY FOR LEVEL II VIOLATIONS, OR AS DIRECTED BY A DOUGLAS COUNTY GESC INSPECTOR. ACCUMULATED SEDIMENT AND CONSTRUCTION DEBRIS SHALL BE REMOVED AND PROPERLY DISPOSED.
- 22. STRAW BALES ARE NOT A DOUGLAS COUNTY GESC-ACCEPTED SEDIMENT CONTROL BMP. 23. TOPSOIL SHALL BE STRIPPED AND STOCKPILED IN THE LOCATION SHOWN ON THE ACCEPTED GESC PLAN. THE GESC MANAGER SHALL SCHEDULE AN INSPECTION WITH THE DOUGLAS COUNTY GESC INSPECTOR AS SOON AS TOPSOIL STRIPPING IS COMPLETED. FAILURE TO SCHEDULE SUCH INSPECTION OR FAILURE TO STOCKPILE TOPSOIL
- SHALL RESULT IN ISSUANCE OF A STOP WORK ORDER. THE STOP WORK ORDER SHALL REMAIN IN PLACE UNTIL TOPSOIL IS STOCKPILED ON SITE OR APPROPRIATE SOIL AMENDMENTS ARE STOCKPILED ON SITE. THE ACCEPTED GESC PLAN MAY REQUIRE CHANGES OR ALTERATIONS AFTER APPROVAL TO MEET CHANGING SITE OR PROJECT CONDITIONS OR TO ADDRESS INEFFICIENCIES IN DESIGN OR INSTALLATION. THE GESC MANAGER
- SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER AND DOUGLAS COUNTY ENGINEERING FOR ANY
- 25. LINING OF TEMPORARY SWALES AND DITCHES SHALL BE IN ACCORDANCE WITH THE GESC CRITERIA MANUAL. 26. NO PERMANENT EARTH SLOPES GREATER THAN 3:1 SHALL BE ALLOWED.
- 27. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE LIMITS OF CONSTRUCTION DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE GESC MANAGER. THE GESC MANAGER SHALL BE HELD RESPONSIBLE FOR OBTAINING ACCESS RIGHTS TO ADJACENT PROPERTY, IF NEEDED, AND REMEDIATING ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, PROPERTIES, ETC. RESULTING FROM WORK DONE AS PART OF THIS
- 28. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- SOILS THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE SEEDED AND MULCHED WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION. NO STOCKPILES SHALL BE PLACED WITHIN ONE HUNDRED (100) FEET OF A DRAINAGE WAY UNLESS APPROVED BY THE DOUGLAS COUNTY ENGINEERING DIVISION.
- ALL CHEMICAL OR HAZARDOUS MATERIAL SPILLS WHICH MAY ENTER WATERS OF THE STATE OF COLORADO, WHICH INCLUDE BUT ARE NOT LIMITED TO, SURFACE WATER, GROUND WATER AND DRY GULLIES OR STORM SEWER O SURFACE WATER, SHALL BE IMMEDIATELY REPORTED TO THE CDPHE PER CRS 25-8-601, AND DOUGLAS COUNTY. RELEASES OF PETROLEUM PRODUCTS AND CERTAIN HAZARDOUS SUBSTANCES LISTED UNDER THE FEDERAL CLEAN WATER ACT (40 CFR PART 116) MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER AS WELL AS THE COPHE. CONTACT INFORMATION FOR COHPE, DOUGLAS COUNTY AND THE NATIONAL RESPONSE CENTER CAN BE FOUND IN APPENDIX A. SPILLS THAT POSE AN IMMEDIATE RISK TO HUMAN LIFE SHALL BE REPORTED TO 911. FAILURE TO REPORT AND CLEAN UP ANY SPILL SHALL RESULT IN ISSUANCE OF A STOP
- ALL WORK ON SITE SHALL STAY A MINIMUM OF ONE HUNDRED (100) FEET AWAY FROM ANY DRAINAGE WAY, WETLAND, ETC. UNLESS OTHERWISE NOTED ON AN ACCEPTED DOUGLAS COUNTY GESC PLAN. ALL PROJECTS SHALL BALANCE EARTHWORK QUANTITIES ON SITE. IN THE EVENT A VARIANCE IS GRANTED BY THE COUNTY ENGINEER TO ALLOW IMPORT OR EXPORT OF MATERIAL, THE PERMITEE SHALL HAVE A GESC PERMIT IN HAND FOR THE IMPORT OR EXPORT SITE PRIOR TO ANY TRANSPORTING OF EARTHEN MATERIAL. THE GESC

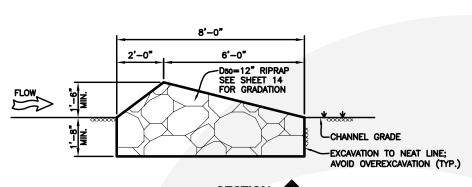
MANAGER SHALL NOTIFY THE DOUGLAS COUNTY GESC INSPECTOR OF THE LOCATION AND PERMIT NUMBERS OF

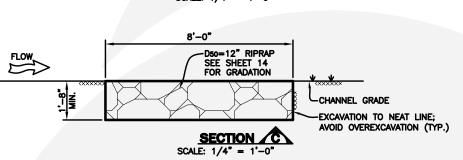
- BOTH THE EXPORTING AND IMPORTING SITES PRIOR TO ANY IMPORT/ EXPORT OPERATIONS. THE USE OF REBAR, STEEL STAKES OR STEEL FENCE POSTS FOR STAKING OR SUPPORT OF ANY EROSION OR SEDIMENT CONTROL BMP IS PROHIBITED (EXCEPT STEEL TEE-POSTS FOR USE IN SUPPORTING CONSTRUCTION
- THE CLEANING OF CONCRETE DELIVERY TRUCK CHUTES IS RESTRICTED TO APPROVED CONCRETE WASH OUT LOCATIONS ON THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CONCRETE TO THE STORM SEWER
- SYSTEM IS PROHIBITED. ALL CONCRETE WASTE SHALL BE PROPERLY CLEANED UP AND DISPOSED AT AN 35. ALL DEWATERING ON SITE SHALL BE COORDINATED WITH A DOUGLAS COUNTY GESC INSPECTOR AND BE FREE OF
- ALL PERMANENT INSTALLATIONS OF PIPES FOR STORM SEWERS, SLOPE DRAINS, AND CULVERTS, TOGETHER WITH
- RIPRAP APRONS OR OTHER INLET AND OUTLET PROTECTION, REQUIRE INSPECTION BY DOUGLAS COUNTY ENGINEERING (SEPARATE FROM GESC INSPECTIONS).
- ALL DISTURBED AREAS SHALL BE DRILL SEEDED AND CRIMP MULCHED IN ACCORDANCE WITH THE GESC CRITERIA MANUAL WITHIN THIRTY DAYS OF INITIAL EXPOSURE OR WITHIN SEVEN DAYS OF SUBSTANTIAL COMPLETION (AS DEFINED BY DOUGLAS COUNTY) OF AN AREA, WHICHEVER IS LESS. THIS MAY REQUIRE MULTIPLE MOBILIZATIONS

HYDRAULIC SEEDING AND HYDRAULIC MULCHING ARE NOT AN ACCEPTABLE METHOD OF SEEDING OR MULCHING IN

- DOUGLAS COUNTY. 39. NO CURB AND GUTTER PERMITS SHALL BE ISSUED UNTIL ALL DISTURBED AREAS ARE DRILL SEEDED AND CRIMP
- 40. NO PAVING PERMITS SHALL BE ISSUED UNTIL ALL INTERIM INLET PROTECTION IS INSTALLED AND APPROVED BY
- 41. A FINAL GESC INSPECTION SHALL BE CONDUCTED A MINIMUM OF TWO WEEKS PRIOR TO THE ANTICIPATED REQUEST FOR CERTIFICATE OR TEMPORARY CERTIFICATE OF OCCUPANCY OR INITIAL ACCEPTANCE.







- CHECK DAM INSTALLATION NOTES
- 1. SEE PLAN VIEW FOR:

   LOCATIONS OF CHECK DAMS.

   CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM).

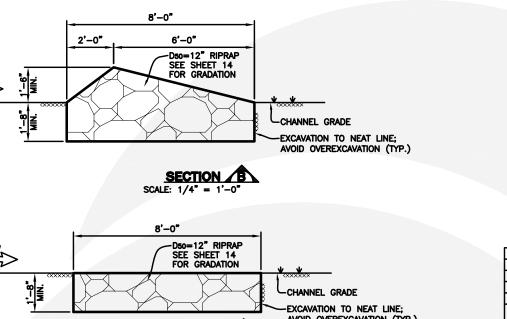
   LENGTH, "L", CREST LENGTH, "CL", AND DEPTH, "D".
- 2. CHECK DAMS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND-DISTURBING ACTIVITIES.
- 3. RIPRAP UTILIZED FOR CHECK DAMS SHALL HAVE A D MEDIAN STONE SIZE OF 12". 4. RIPRAP PAD SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'-8".
- 5. THE ENDS OF THE CHECK DAM SHALL BE A MINIMUM OF 1'-6" HIGHER THAN THE CENTER OF THE CHECK DAM.

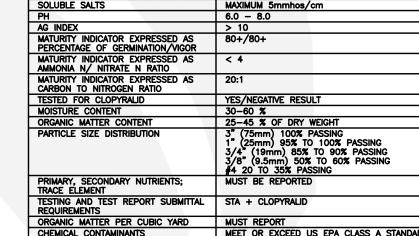
- PLASTIC 5-GALLON BUCKET WITH

LOWEST SUBGRADE ELEVATION TO BE DEWATERED

- CHECK DAM MAINTENANCE NOTES THE GESC MANAGER SHALL INSPECT CHECK DAMS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
- SEDIMENT ACCUMULATED UPSTREAM OF CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CHECK DAM IS WITHIN \$\frac{1}{2}\$ OF THE HEIGHT OF THE CREST.
- 3. CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY.
- WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACK FILL. ANY DISTURBED AREA SHALL BE SEEDED AND MULCHED AND COVERED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY. (CD)

CHECK DAM





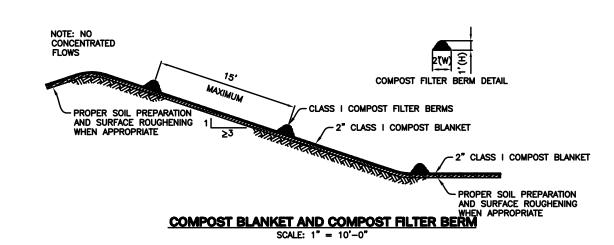
NOTE: CLOPYRALID IS THE COMMON NAME OF A HERBICIDE THAT WEEDS SUCH AS DANDELIONS, CLOVER AND THISTLE.

COMPOST BLANKET (2)

NIMUM MANUFACTURING/PRODUCTION

RISK FACTOR RELATING TO PLANT

GERMINATION AND HEALTH



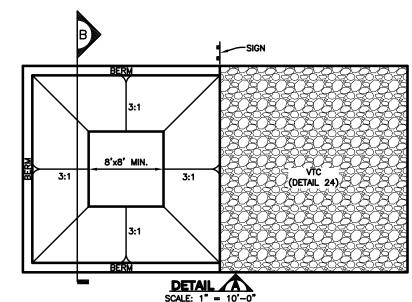
### COMPOST BLANKET NOTES:

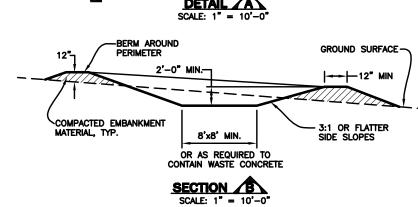
- 1. SEE PLAN VIEW FOR AREA OF COMPOST BLANKET 2. MAY BE USED IN PLACE OF STRAW MULCH OR EROSION CONTROL BLANKET IN AREAS WHERE ACCESS IS DIFFICULT DUE TO LANDSCAPING OR OTHER OBJECTS OR IN AREAS WHERE A SMOOTH TURF GRASS FINISH IS DESIRED.
- SHALL ONLY BE UTILIZED IN AREAS WHERE SHEET FLOW CONDITIONS PREVAIL; SHALL BE PROHIBITED IN AREAS OF POSSIBLE CONCENTRATED FLOW.
- SOIL PREPARATION SHALL BE COMPLETE PER THE SPECIFICATIONS OUTLINED IN THESE CRITERIA PRIOR TO APPLICATION.
- 5. WHEN TURF GRASS FINISH IS NOT DESIRED, SURFACE ROUGHENING ON SLOPES SHALL TAKE PLACE PRIOR TO APPLICATION.
- 6. SHALL BE EVENLY APPLIED AT A DEPTH OF 2 INCH.
- 7. MAYBE APPLIED UTILIZING PNEUMATIC BLOWER, OR BY HAND
- 8. SEEDING SHALL BE DRILLED PRIOR TO THE APPLICATION OF COMPOST OR SEED MAY BE COMBINED AND BLOWN WITH THE PNEUMATIC BLOWER.
- 9. COMPOST FILTER BERM SHALL BE UTILIZED ON SLOPES WITH A MAXIMUM SPACING OF 15 FEET PER THE REQUIREMENTS FOUND IN THE COMPOST FILTER BERM SECTION.
- 10. THE GESC MANAGER SHALL INSPECT WEEKLY, DURING AND AFTER ANY STORM EVENT. PARAMETERS COMPOST USED IN THE APPLICATION OF THE COMPOST BLA COMPOST AS DEFINED BY THE FOLLOWING PHYSICAL, CHEM

F THE COMPOST BLANKET SHALL BE A CLASS I	PAR
ING PHYSICAL, CHEMICAL, AND BIOLOGICAL PARAMETERS:	MIN
CLASS I COMPOST FOR COMPOST BLANKET	SOL
STABLE TO VERY STABLE	PH
MAXIMUM 5mmhos/cm	AG
6.0 - 8.0	MAT
> 10	PER
80+/80+	MAT
001/001	AMM
< 4	MAT
	TES
20:1	MOI
	ORG
YES/NEGATIVE RESULT	PAR
30-60 %	PAR
25-45 % OF DRY WEIGHT	
3" (75mm) 100% PASSING	
1" (25mm) 95% TO 100% PASSING 3/4" (19mm) 85% TO 90% PASSING	
3/4" (19mm) 85% 10 90% PASSING 3/8" (9.5mm) 50% TO 60% PASSING	PRII
#4 20 TO 35% PASSING	TRA
MUST BE REPORTED	TES
MOST DE REFORTED	REQ
STA + CLOPYRALID	ORG
	CHE
MUST REPORT	MIN
MEET OR EXCEED US EPA CLASS A STANDARD.	REQ
40 CFR 503.1 TABLES 1 & 3 LEVELS	I KEG
FULLY PERMITTED UNDER COLORADO DEPARTMENT	RISH
OF PUBLIC HEALTH AND ENVIRONMENT, HAZARDOUS	GER
MATERIALS AND WASTE MANAGEMENT DIVISION	NOTE:
LOW	.1012.
A HERBICIDE THAT KILLS BROAD-LEAVED	

POSSESSION OF A VALID NOTICE OF AUTHORIZATION (NOA) FOR THE UNRESTRICTED USE AND DISTRIBUTION BY THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT. THE NOA SHALL BE PROVIDED UPON REQUEST TO DOUGLAS COUNTY.

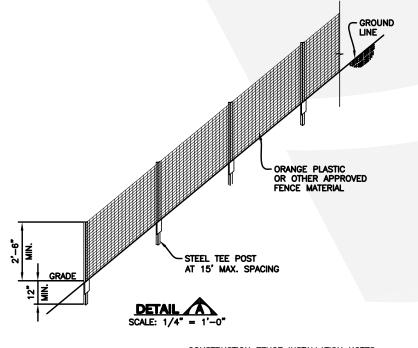
COMPOST FILTER BERM (3)





# CONCRETE WASHOUT AREA INSTALLATION NOTES

- SEE PLAN VIEW FOR:
   LOCATIONS OF CONCRETE WASHOUT AREA.
- 2. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE. 3. VEHICLE TRACKING CONTROL (DETAIL 24) IS REQUIRED AT THE ACCESS POINT.
- 4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
- EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION.
- AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
- WASHOUT AREA



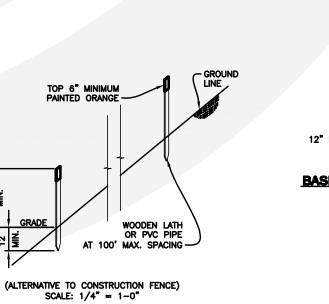


- SEE PLAN VIEW FOR:

   TYPE OF CONSTRUCTION LIMIT INDICATOR (FENCE OR MARKERS
   LOCATION AND LENGTH OF FENCE OR LINE OF MARKERS.
- 3. STEEL TEE POSTS SHALL BE UTILIZED FOR SUPPORT OF CONSTRUCTION FENCE. MAXIMUM SPACING FOR TEE POSTS SHALL BE 15'.
- CONSTRUCTION FENCE MAINTENANCE NOTES FENCE OR MARKERS SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF ANY DISTURBED AREA EXISTS AFTER FENCE REMOVAL, IT SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.







DETAIL SHEET

<u>NO.</u>

**(1)** 

**(1)** 

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**Particol** 

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**500000** 

<u>NO.</u>

**BMP LEGEND** 

(CD) CHECK DAM

**DW**) DEWATERING

INLET PROTECTION

(DD) DIVERSION DITCH

(SB) SEDIMENT BASIN

ST ) SEDIMENT TRAP

(SF) SILT FENCE

(CB) COMPOST BLANKET

(CFB) COMPOST FILTER BERM

(CF) CONSTRUCTION FENCE

(CM) CONSTRUCTION MARKERS

(ECB) EROSION CONTROL BLANKET

(RCD) REINFORCED CHECK DAM

(RRB) REINFORCED ROCK BERM

(SCL) SEDIMENT CONTROL LOG

(SM) SEEDING AND MULCHING

(SR) SURFACE ROUGHENING

TERRACING

(TSD) TEMPORARY SLOPE DRAIN

(TSC) TEMPORARY STREAM CROSSING

(VTC) VEHICLE TRACKING CONTROL

LIMITS OF CONSTRUCTION

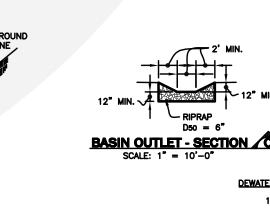
VTC WITH WHEEL WASH

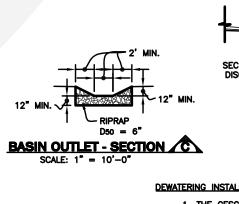
ROCK AND RIPRAP GRADATIONS

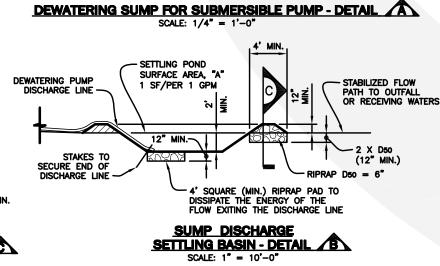
STABILIZED STAGING AREA

RRB FOR CULVERT PROTECTION

(CWA) CONCRETE WASHOUT AREA



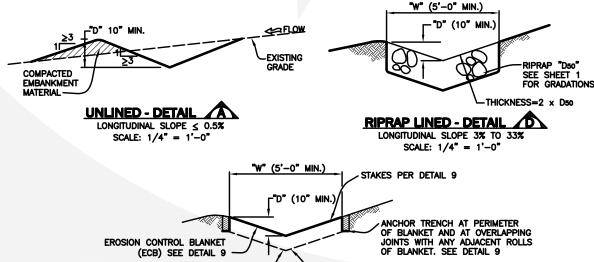


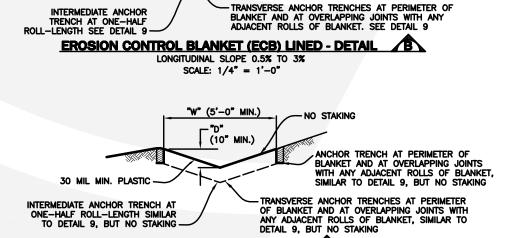


LID W/ HOLE CUT FOR SUCTION LINE

**ALTERNATIVE FOR DRAINING POND ALREADY FILLED WITH WATER** 

- 1. THE GESC MANAGER SHALL OBTAIN A CONSTRUCTION DISCHARGE (DEWATERING) PERMIT FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT PRIOR TO ANY DEWATERING OPERATIONS. ALL DEWATERING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE DISCHARGE PERMIT AND SHALL BE COORDINATED WITH THE DOUGLAS COUNTY GESC INSPECTOR.
- DEWATERING OPERATIONS SHALL USE ONE OR MORE OF THE DEWATERING SUMPS SHOWN ABOVE OR OTHER MEANS APPROVED BY THE COUNTY TO REDUCE THE PUMPING OF SEDIMENT, AND SHALL PROVIDE A TEMPORARY BASIN FOR SETTLING PUMPED DISCHARGES PRIOR TO RELEASE OFF SITE OR TO A RECEIVING WATER. SEDIMENT BASIN PER DETAIL 14 MAY BE USED IN LIEU OF SUMP DISCHARGE SETTLING BASIN SHOWN ABOVE. 4. A 4' SQUARE RIPRAP PAD SHALL BE PLACED AT DISCHARGE POINT.
- THE DISCHARGE END OF THE LINE SHALL BE STAKED IN PLACES TO PREVENT MOVEMENT OF RIPRAP PAD.
- 2. TEMPORARY SETTLING BASINS SHALL BE REMOVED WHEN NO LONGER NEEDED FOR DEWATERING OPERATIONS. ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY. DW DEWATERING 7





PLASTIC LINED - DETAIL C

LONGITUDINAL SLOPE 3% TO 33% SCALE: 1/4" = 1'-0"

- 1. SEE PLAN VIEW FOR:

   LOCATION OF DIVERSION DITCH.

   TYPE OF DITCH (UNLINED, ECB LINED, PLASTIC LINED OR RIPRAP LINED).

   LENGTH OF EACH TYPE OF DITCH.

   DEPTH, "D", AND WIDTH, "W" DIMENSIONS.

   FOR ECB LINED DITCH, EROSION CONTROL BLANKET TYPE (SEE DETAIL 9).

   FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, "D50".
- 2. SEE DRAINAGE PLANS FOR DETAILS OF ANY PERMANENT CONVEYANCE FACILITIES OR DIVERSION DITCHES EXCEEDING A 2-YEAR FLOW RATE OF 10 CFS.
- 3. DIVERSION DITCHES INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES. 4. FOR ECB LINED DITCHES, INSTALLATION OF EROSION CONTROL BLANKET SHALL CONFORM TO THE REQUIREMENTS OF DETAIL 9.
- 5. IN LOCATIONS WHERE CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION DITCH, THE PERMITTEES SHALL INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12-INCHES.
- THE GESC MANAGER SHALL INSPECT DIVERSION DITCHES WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
- 2. DIVERSION DITCHES ARE TO REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION, OR, IF APPROVED BY THE COUNTY, LEFT IN PLACE.
- 3. IF DIVERSION DITCHES ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMI MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

DD DIVERSION DITCH 8

COMPOST FILTER BERM NOTES:

- 1. SEE PLAN VEW FOR LENGTH OF COMPOST FILTER BERM. 2. SHALL BE APPLIED TO ALL SLOPES RECEIVING A COMPOST BLANKET AT 15' INCREMENTS.
- 3. FILTER BERMS SHALL RUN PARALLEL TO THE CONTOUR.
- 4. FILTER BERMS SHALL BE A MINIMUM OF 1' H  $\times$  2' W. 5. FILTER BERMS SHALL BE APPLIED UTILIZING PNEUMATIC BLOWER, OR BY HAND.
- 6. SHALL ONLY BE UTILIZED IN AREAS WHERE SHEET FLOW CONDITIONS PREVAIL; SHALL BE PROHIBITED IN AREAS OF POSSIBLE CONCENTRATED FLOW.
- SOIL PREPARATION SHALL BE COMPLETE PER THE SPECIFICATIONS OUTLINED IN THESE CRITERIA PRIOR TO APPLICATION.
- 8. WHEN TURF GRASS FINISH IS NOT DESIRED, SURFACE ROUGHENING ON SLOPES SHALL TAKE PLACE PRIOR TO APPLICATION.
- SEEDING SHALL BE DRILLED BEFORE THE APPLICATION OF COMPOST OR SEED MAY BE COMBINED AND BLOWN WITH THE PNEUMATIC BLOWER.

10. THE GESC MANAGER SHALL INSPECT	WEEKLY, DURING AND AFTER ANY STORM EVENT.
	OF THE COMPOST BLANKET SHALL BE A CLASS I OWING PHYSICAL, CHEMICAL, AND BIOLOGICAL PARAMI
PARAMETERS	CLASS I COMPOST FOR COMPOST FILTER BERM

PARAMETERS	CLASS I COMPOSI FOR COMPOSI FILIER BERM
MINIMUM STABILITY INDICATOR	STABLE TO VERY STABLE
SOLUBLE SALTS	MAXIMUM 5mmhos/cm
PH	6.0 - 8.0
AG INDEX	> 10
MATURITY INDICATOR EXPRESSED AS PERCENTAGE OF GERMINATION/VIGOR	80+/80+
MATURITY INDICATOR EXPRESSED AS AMMONIA N/ NITRATE N RATIO	< 4
MATURITY INDICATOR EXPRESSED AS CARBON TO NITROGEN RATIO	20:1
TESTED FOR CLOPYRALID	YES/NEGATIVE RESULT
MOISTURE CONTENT	30-60 %
ORGANIC MATTER CONTENT	25-45 % OF DRY WEIGHT
PARTICLE SIZE DISTRIBUTION	3" (75mm) 100% PASSING 1" (25mm) 95% TO 100% PASSING 3/4" (19mm) 85% TO 90% PASSING 3/8" (9.5mm) 50% TO 60% PASSING #4 20 TO 35% PASSING
PRIMARY, SECONDARY NUTRIENTS; TRACE ELEMENT	MUST BE REPORTED
TESTING AND TEST REPORT SUBMITTAL REQUIREMENTS	STA + CLOPYRALID
ORGANIC MATTER PER CUBIC YARD	MUST REPORT
CHEMICAL CONTAMINANTS	MEET OR EXCEED US EPA CLASS A STANDARD, 40 CFR 503.1 TABLES 1 & 3 LEVELS
MINIMUM MANUFACTURING/PRODUCTION REQUIREMENT	FULLY PERMITTED UNDER COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, HAZARDOU MATERIALS AND WASTE MANAGEMENT DIVISION
RISK FACTOR RELATING TO PLANT GERMINATION AND HEALTH	LOW
	JTILIZED IT SHALL BE PRODUCED BY A FACILITY IN

NOTE: A LAB TEST DETAILING THE CHEMICAL, PHYSICAL, AND BIOLOGICAL PARAMETERS SHALL BE PROVIDED UPON REQUEST BY DOUGLAS COUNTY.

# TABLE 1. RIPRAP GRADATIONS

D50 MEDIAN STONE SIZE (INCHES)	% OF MATERIAL SMALLER THAN TYPICAL STONE	TYPICAL STONE EQUIVALENT DIAMETER (INCHES)	TYPICAL STONE WEIGHT (POUNDS)
6	70 - 100 50 - 70 35 - 50 2 - 10	12 9 6 2	85 35 10 0.4
9	70 - 100 50 - 70 35 - 50 2 - 10	15 12 9 3	160 85 35 1.3
12	70 - 100 50 - 70 35 - 50 2 - 10	21 18 12 4	440 275 85 3
18	100 50 - 70 35 - 50 2 - 10	30 24 18 6	1280 650 275 10
24	100 50 - 70 35 - 50 2 - 10	42 33 24 9	3500 1700 650 35

# TABLE 2. RIPRAP BEDDING

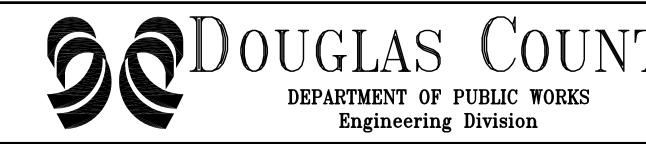
SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES		
	CLASS A		
3"	100		
1 1/2"	20 - 90		
NO. 4	0 - 20		
NO. 200	0 - 3		
MATCHES SPECIFICATIONS FOR CDOT CLASS A FILTER MATERIAL AND UDFCD TYPE 1 BEDDING. ALL ROCK SHALL BE FRACTURED FACE. ALL SIDES.			

# Table 3. 1 1/2" Crushed Rock

SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES			
	NO. 4			
2"	100			
_				
1 1/2"	90 - 100			
1"	20 - 55			
3/4"	0 - 15			
3/4" 3/8"	0 - 5			
MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.				

**ROCK AND RIPRAP GRADATIONS** 

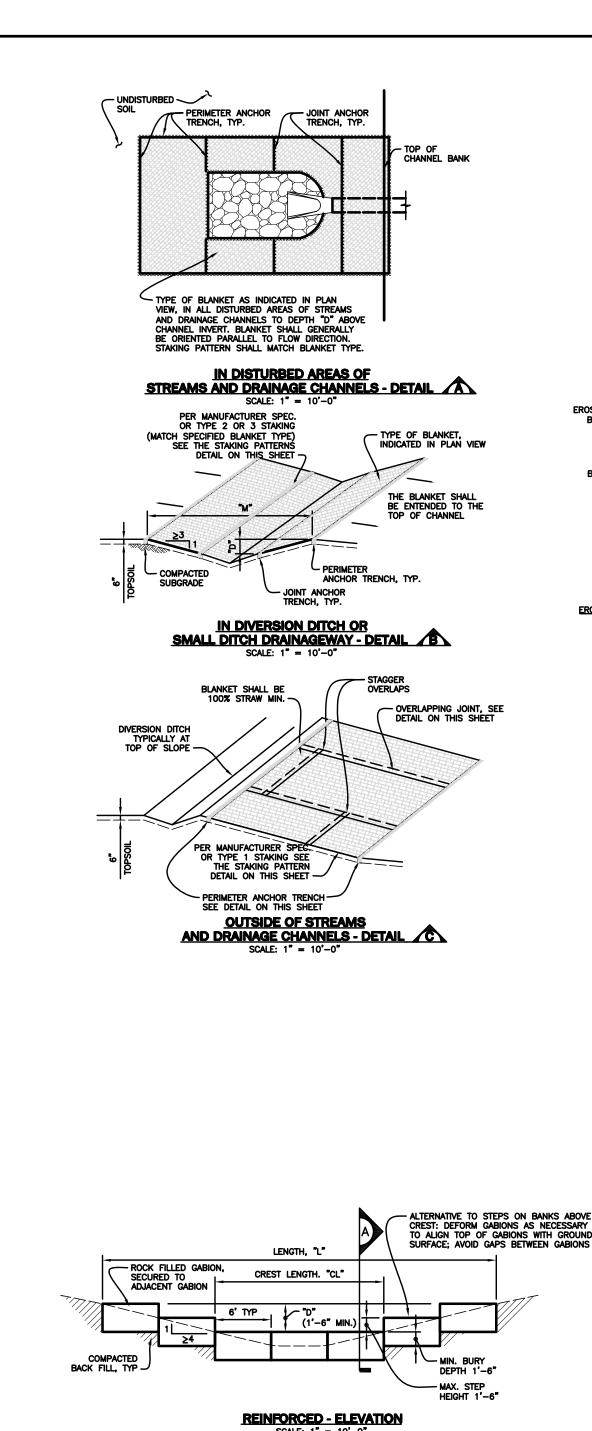
	Sheet Revisions	NOTE: SCALES
$\bigcup$		SHOWN ARE FOR 24"x36"
$\bigcup$		SHEETS; ADJUST
$\bigcup$		ACCORDINGLY FOR 11"x17"
$\bigcap$		SHEETS.



GESC GRADING, EROSION, AND SEDIMENT CONTROL **SEDIMENT CONTROL** 

**GESC PLAN** STANDARD NOTES AND DETAILS

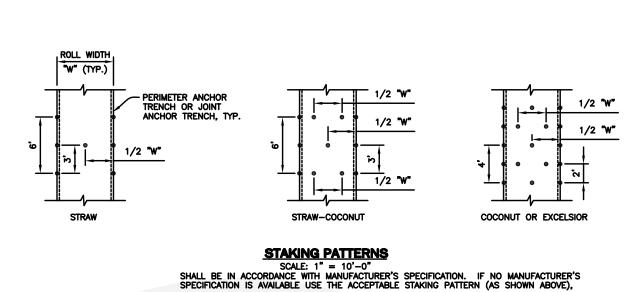
SHEET 1 OF 3

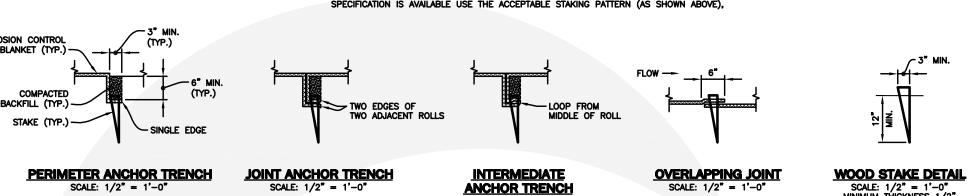


BLOW UP OF TWISTED WIRE GABION

SCALE: NTS

REINFORCED CHECK DAM INSTALLATION NOTES





EROSION CONTROL BLANKET INSTALLATION NOTES

- 1. SEE PLAN VIEW FOR:

   LOCATION OF PERIMETER OF EROSION CONTROL BLANKET.

   TYPE OF BLANKET (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).

   AREA "A" IN SQUARE YARDS OF EACH TYPE OF BLANKET.
- 3. IN AREAS WHERE EROSION CONTROL BLANKET IS SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING BELOW THE BLANKET IN ACCORDANCE WITH THE REQUIREMENTS OF DETAIL 17, SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO BLANKET INSTALLATION AND THE BLANKET SHALL BE IN FULL CONTACT WITH SUBGRADE, NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- 4. PERIMETER ANCHOR TRENCH SHALL BE USED AT OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- 5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER (LONGITUDINALL) AND TRANSVERSELY) FOR ALL BLANKETS EXCEPT STRAW, WHICH MAY USE AN OVERLAPPING JOINT.
- 6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF THE ROLL LENGTH FO COCONUT AND EXCELSIOR BLANKETS. 7. THE OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER FOR BLANKETS ON SLOPES.
- 8. MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKET SHALL CONFORM TO TABLE 7.1.



GROUND SURFACE

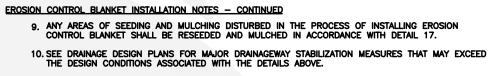
**DETAIL**SCALE: 1" = 5'-0"

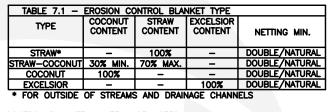
**SECTION D**SCALE: 1/4" = 1'-0'

ANY GAP AT JOINT SHALL BE
FILLED WITH 1 1/2" CRUSHED
ROCK AND WRAPPED WITH
ADDITIONAL WIRE MESH
SECURED TO ENDS OF ROCK
REINFORCED BERM

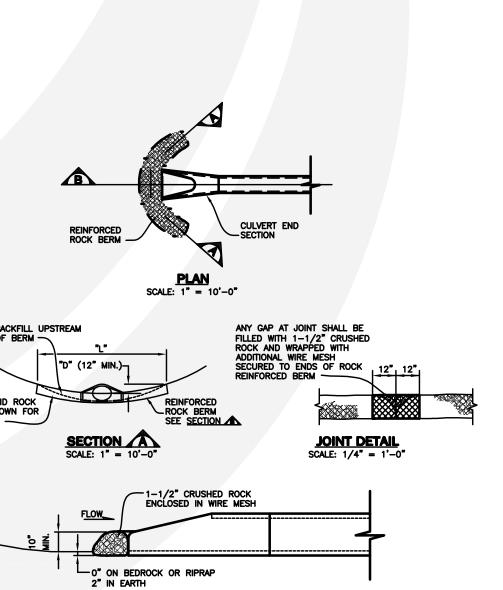
-1-1/2" CRUSHED ROCK ENCLOSED IN WIRE MESH

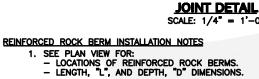
GROUND SURFACE





- EROSION CONTROL BLANKET MAINTENANCE NOTES
- THE GESC MANAGER SHALL INSPECT EROSION CONTROL BLANKETS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS AS NECESSARY.
- 2. EROSION CONTROL BLANKET IS TO BE LEFT IN PLACE UNLESS REQUESTED TO BE REMOVED BY THE COUNTY.
- . ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE RE-INSTALLED. ANY SUBGRADE AREAS BELOW THE BLANKET THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE EROSION CONTROL BLANKET REINSTALLED.

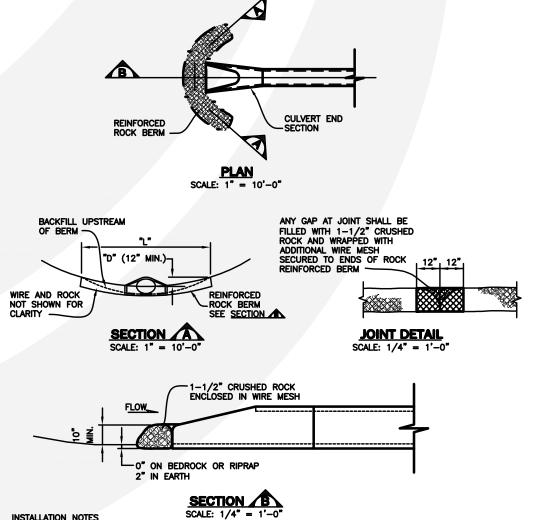




0" IN BED ROCK 2" IN SOIL -

WIRE AND ROCK NOT SHOWN FOR CLARITY —

- 2. REINFORCED ROCK BERM SECTION APPLIES TO CULVERT INLET FILTER AND INLET PROTECTION.
- CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 1 (1-1/2" MINUS). RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
- 4. WIRE MESH SHALL BE FABRICATED OF 10 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"). ROLL WIDTH SHALL BE 48-INCHES.
- 5. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM. 6. FOR CONCENTRATED FLOW AREAS THE ENDS OF THE REINFORCED ROCK BERM SHALL BE 12" HIGHER THAN THE CENTER OF THE BERM.
- REINFORCED ROCK BERM MAINTENANCE NOTES
- THE GESC MANAGER SHALL INSPECT REINFORCED ROCK BERM WEEKLY,
  DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT
  AS NECESSARY.
- SEDIMENT ACCUMULATED UPSTREAM OF REINFORCED ROCK BERM SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF FILTER IS WITHIN 5 INCHES OF THE CREST.
- 3. REINFORCED ROCK BERMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED.
- WHEN REINFORCED ROCK BERMS ARE REMOVED, ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY. RRB REINFORCED ROCK BERM 12

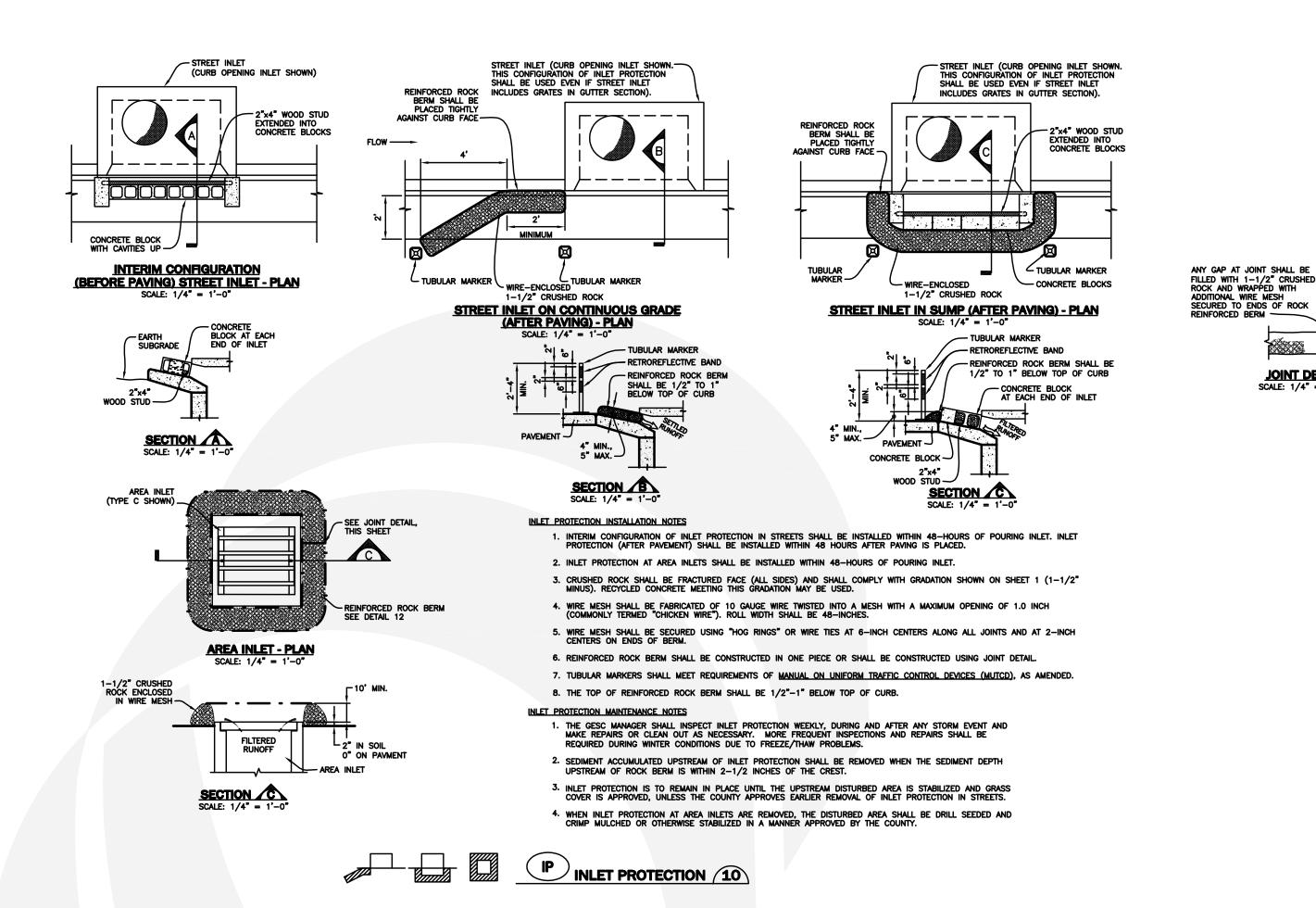


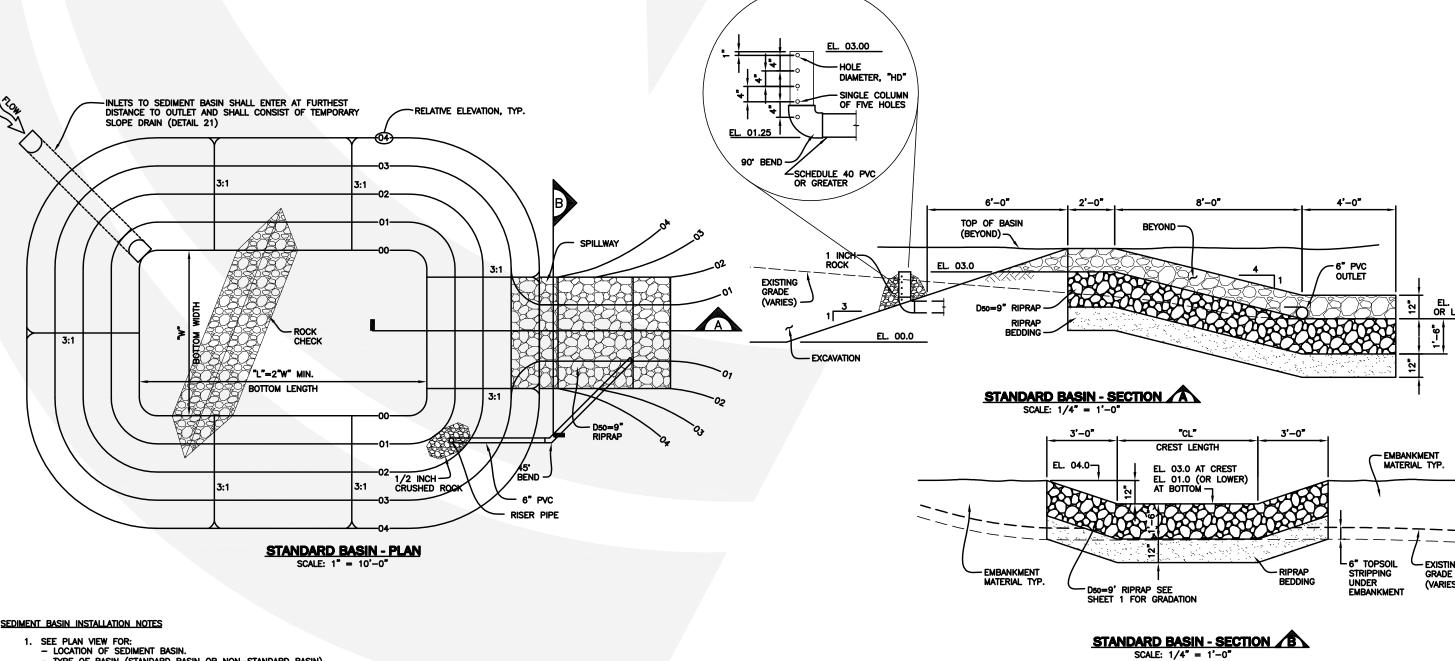
NSTALLATION NOTES SEE PLAN VIEW FOR:
 LOCATIONS OF CULVERT INLET FILTERS.
 LENGTH, "L", AND DEPTH, "D".

- WIRE MESH SHALL BE FABRICATED OF 10 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE").
- 4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
- 5. THE ENDS OF THE REINFORCED ROCK BERM SHALL BE 12" HIGHER THAN THE CENTER OF THE BERM. 1. THE GESC MANAGER SHALL INSPECT CULVERT INLET FILTER WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
- 2. SEDIMENT ACCUMULATED UPSTREAM OF CULVERT INLET FILTER SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF FILTER IS  $\frac{1}{2}$  THE HEIGHT OF THE REINFORCED ROCK BERM.
- RRB FOR CULVERT PROTECTION ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY.

4. WHEN CULVERT INLET FILTERS ARE REMOVED, ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

RRC RRB FOR CULVERT PROTECTION 13





- 1. SEE PLAN VIEW FOR:

   LOCATION OF SEDIMENT BASIN.

   TYPE OF BASIN (STANDARD BASIN OR NON-STANDARD BASIN).

   FOR STANDARD BASIN, CREST LENGTH, "CL", BOTTOM WIDTH, "W", AND HOLE DIAMETER, "HD".

   FOR NON-STANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR BASIN INCLUDING RISER HEIGHT,
- 2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.

- THE DETAILS SHOWN ON THIS SHEET PERTAIN TO STANDARD SEDIMENT BASIN(S) IDENTIFIED ON THE GESC PLAN VIEW DRAWINGS USED FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

- 1. THE GESC MANAGER SHALL INSPECT SEDIMENT BASIN WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
- SEDIMENT ACCUMULATED IN SEDIMENT BASIN SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS WITHIN 2.0 FEET OF THE CREST OF THE SPILLWAY.
- SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY.
- 4. IF SEDIMENT BASINS ARE REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

SB SEDIMENT BASIN (14)

Sheet Revisions NOTE: SCALES SHOWN ARE FOR 24"x36" HEETS; ADJUS **ACCORDINGLY** FOR 11"x17" SHEETS.

REINFORCED - SECTION SCALE: 1/4" = 1'-0"

CHECK DAMS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND-DISTURBING ACTIVITIES.

6. EROSION BLANKET SHALL BE PLACED IN THE REINFORCED CHECK DAM TRENCH EXTENDING
A MINIMUM OF 1'-6" ON BOTH THE UPSTREAM AND DOWNSTREAM SIDES OF THE REINFORCED CHECK DAM.

THE GESC MANAGER SHALL INSPECT CHECK DAMS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.

2. SEDIMENT ACCUMULATED UPSTREAM OF CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CHECK DAM IS WITHIN  $\frac{1}{2}$  OF THE HEIGHT OF THE CREST.

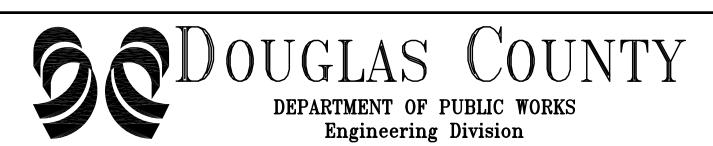
B. WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACK FILL. ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED AND COVERED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

3. CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY.

REINFORCED CHECK DAM 11

4. RIPRAP UTILIZED FOR CHECK DAMS SHALL HAVE A  ${\rm D_{80}}$  MEDIAN STONE SIZE OF 6".

5. THE CHECK DAM SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'-6".

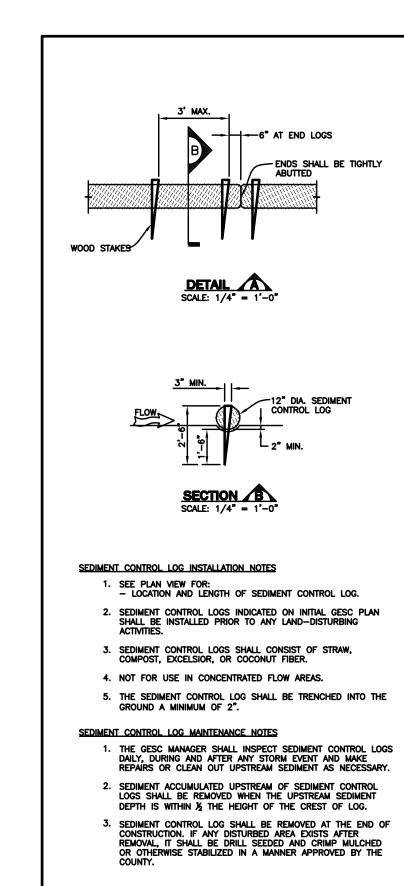




**GESC PLAN** STANDARD NOTES AND DETAILS

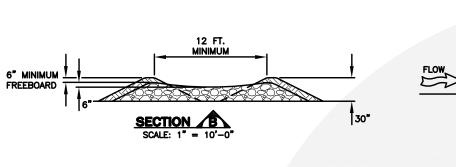
SHEET 2 OF 3

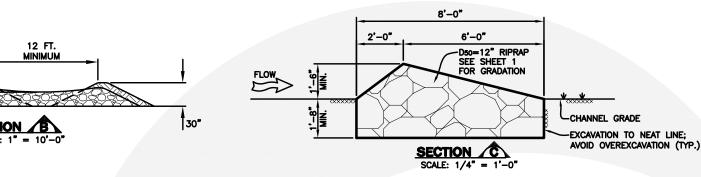
JOINT DETAIL



(SCL) SEDIMENT CONTROL LOG (15)

2:1MAX. 2:1MAX. 2:1MAX. TRANSITION EXISTING CHANNEL INTO SEDIMENT TRAP 2:1MAX. 2:1MAX.





# SEDIMENT TRAP INSTALLATION NOTES

- 2. SEDIMENT TRAPS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES
- 3. SEDIMENT TRAP BERM SHALL BE CONSTRUCTED FROM MATERIAL FROM EXCAVATION. THE BERM SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
- 4. RIPRAP OUTLET SHALL BE CONSTRUCTED WITH  $D_{60}$ =12" RIPRAP WITH A MINIMUM OVERFLOW OF 6".
- 5. THE TOP OF THE EARTHEN BERM SHALL BE A MINIMUM OF 6" HIGHER THAN THE TOP OF THE RIPRAP OUTLET STRUCTURE.

# 6. THE ENDS OF THE RIPRAP OUTLET STRUCTURE SHALL BE MINIMUM OF 6" HIGHER THAN THE CENTER OF THE OUTLET STRUCTURE.

- SEDIMENT TRAP MAINTENANCE NOTES

# SEDIMENT TRAP

### SEEDING AND MULCHING INSTALLATION NOTES

- SEE PLAN VIEW FOR:

   AREA OF SEEDING AND MULCHING.
   TYPE OF SEED MIX (PERMANENT, TEMPORARY, OR LOW-GROWTH).
- ALL BRANDS FURNISHED SHALL BE FREE FROM SUCH NOXIOUS SEEDS AS RUSSIAN OR CANADIAN THISTLE, COARSE FESCUE, EUROPEAN BINDWEED, JOHNSON GRASS, KNAP WEED AND LEAFY SPURGE.
- 3. THE SEEDER SHALL FURNISH TO THE CONTRACTOR A SIGNED STATEMENT CERTIFYING THAT THE SEED FURNISHED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY. SEED WHICH HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED IN TRANSIT OR IN STORAGE WILL NOT BE ACCEPTABLE. SEED TICKETS SHALL BE PROVIDED TO DOUGLAS COUNTY UPON REQUEST.
- 4. DRILL SEEDING MIX SHALL CONFORM TO THE TABLE ON THE RIGHT:
- 5. IF THE SEED AVAILABLE ON THE MARKET DOES NOT MEET THE MINIMUM PURITY AND GERMINATION PERCENTAGES SPECIFIED, THE SUBCONTRACTOR MUST COMPENSATE FOR A LESSER PERCENTAGE OF PURITY OR GERMINATION BY FURNISHING SUFFICIENT ADDITIONAL SEED TO EQUAL THE SPECIFIED PRODUCT. THE TAGS FROM THE SEED MIXES MUST BE SUPPLIED TO CONTRACTOR AND FORWARDED TO THE DOUGLAS COUNTY GESC INSPECTOR.
- THE FORMULA USED FOR DETERMINING THE QUANTITY OF PURE LIVE SEED (PLS) SHALL BI (POUNDS OF SEED) X (PURITY) X (GERMINATION) = POUNDS OF PURE LIVE SEED (PLS).
- 8. ALL AREAS TO BE SEEDED AND MULCHED SHALL HAVE NATIVE TOPSOIL OR APPROVED SOIL AMENDMENTS SPREAD TO A DEPTH OF AT LEAST 6 INCHES (LOOSE DEPTH). HAUL ROADS AND OTHER COMPACTED AREAS SHALL BE LOOSENED TO A DEPTH OF 6 INCHES PRIOR TO SPREADING TOPSOIL
- D. SOIL IS TO BE THOROUGHLY LOOSENED (TILLED) TO A DEPTH OF AT LEAST 6 INCHES PRIOR TO SEEDING. THE TOP 6 INCHES OF THE SEED BED SHALL BE FREE OF ROCKS GREATER THAN 4 INCHES AND SOIL CLODS GREATER THAN 2 INCHES. SEEDING OVER ANY COMPACTED AREAS THAT HAVEN'T BEEN THOROUGHLY LOOSENED SHALL BE REJECTED.
- . SEED IS TO BE APPLIED USING A MECHANICAL DRILL TO A DEPTH OF 1/4 INCH. ROW SPACING SHALL BE NO MORE THAN 6 INCHES. MATERIAL USED FOR MULCH SHALL CONSIST OF LONG-STEMMED STRAW. AT LEAST 50 PERCENT OF THE MULCH, BY WEIGHT, SHALL BE 10 INCHES OR MORE IN LENGTH. MULCH SHALL BE APPLIED AND MECHANICALLY ANCHORED TO A DEPTH OF AT LEAST 2 INCHES. MULCH SHALL BE APPLIED AT A RATE OF 4000 LB. OF STRAW REP. ACRE.

SM SEEDING AND MULCHING 17

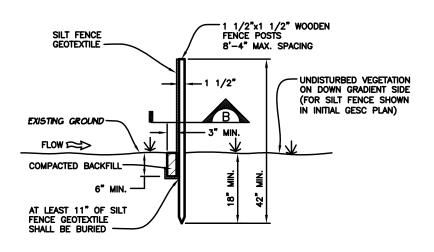
- 11. IF THE PERMITTEE DEMONSTRATES TO THE COUNTY THAT IT IS NOT POSSIBLE TO DRILL SEED, SEED IS TO BE UNIFORMLY BROADCAST AT TWO TIMES THE DRILLED RATE, THEN LIGHTLY HARROWED TO PROVIDE A SEED DEPTH OF APPROXIMATELY 1/4 INCH, THEN ROLLED TO COMPACT, THEN MULCHED AS SPECIFIED ABOVE.
- 12. SEEDING AND MULCHING SHALL BE COMPLETED WITHIN 30 DAYS OF INITIAL EXPOSURE OR 7 DAYS AFTER GRADING IS SUBSTANTIALLY COMPLETE IN A GIVEN AREA (AS DEFINED BY THE COUNTY). THIS MAY REQUIRE MULTIPLE MOBILIZATIONS FOR SEEDING AND MULCHING.
- 13. MULCH SHALL BE APPLIED WITHIN 24-HOURS OF SEEDING. 14. TACKIFIER SHOULD BE UTILIZED TO HELP WITH STRAW DISPLACEMENT.
- SEEDING AND MULCHING MAINTENANCE NOTES 1. SEEDED AND MULCHED AREAS SHALL BE INSPECTED FOR REQUIRED COVERAGE MONTHLY FOR A PERIOD OF TWO YEARS FOLLOWING INITIAL SEEDING. REPAIRS AND RE—SEEDING AND MULCHING SHALL BE UNDERTAKEN AFTER THE FIRST GROWING SEASON FOR ANY AREAS FAILING TO MEET THE REQUIRED COVERAGE.
- 2. REQUIRED COVERAGE FOR STANDARD, OPEN SPACE AND LOW GROWTH SEED MIXES SHALL BE DEFINED AS FOLLOWS:
- 1. THREE (3) PLANTS PER SQUARE FOOT WITH A MINIMUM HEIGHT OF 3 INCHES. THE 3 PLANTS PER SQUARE FOOT SHALL BE OF THE VARIETY AND SPECIES FOUND IN THE DOUGLAS COUNTY—APPROVED MIX.
- 2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FEET BY TWO-FEET OR 3. FREE OF ERODED AREAS.
- 4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC CRITERIA MANUAL.
- 3. REQUIRED COVERAGE FOR TURF GRASS AREAS SHALL BE DEFINED AS FOLLOWS: 1. AT LEAST 80% VEGETATIVE COVER OF GRASS SPECIES PLANTED.
- 2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FEET BY TWO-FEET OR
- 4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC CRITERIA MANUAL.
- RILL AND GULLY EROSION SHALL BE FILLED WITH TOPSOIL PRIOR TO RESEEDING. THE RESEEDING METHOD SHALL BE APPROVED BY THE COUNTY.

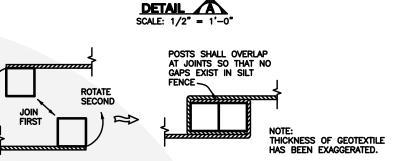
DOUGLAS COUNTY PERMANENT DRILL SEEDING MIX						
SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE		
BIG BLUESTEM	KAW	PNWS	10	1.1		
YELLOW INDIANGRASS	CHEYENNE	PNWS	10	1		
SWITCHGRASS	BLACKWELL	PNWS	10	0.4		
SIDEOATS GRAMA	VAUGHN	PNWB	10	0.9		
WESTERN WHEATGRASS	ARRIBA	PNCS	10	1.6		
BLUE GRAMA	HACHITA	PNWB	10	0.3		
THICKSPIKE WHEATGRASS	CRITANA	PNCS	10	1		
PRAIRIE SANDREED	GOSHEN	PNWS	10	0.7		
GREEN NEEDLEGRASS	LODORM	PNCB	10	1		
SLENDER WHEATGRASS	PRYOR	PNCB	5	0.6		
STREAMBANK WHEATGRASS	SODAR	PNCS	5	0.6		
			TOTAL	9.2		

DOUGLAS	COUNTY TEMPOR	ARY DRI	LL SEEDING	MIX
SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PL PER ACRE
SMOOTH BROMEGRASS	LINCOLN	PICS	30	3.9
INTERMEDIATE WHEATGRASS	OAHE	PICS	30	4.5
PUBESCENT WHEATGRASS	LUNA	PICS	30	4.2
ANNUAL RYEGRASS	N/A	AICB	10	0.8
			TOTAL	13.4

DOUGLAS	COUNTY LOW-GF	ROWTH D	RILL SEEDIN	NG MIX
SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
BUFFALOGRASS	TEXOKA	PNWS	20	3.2
BLUE GRAMA	HACHITA	PNWB	20	0.6
WESTERN WHEATGRASS	ARRIBA	PNCS	20	3.2
SIDEOATS GRAMA	VAUGHN	PNWB	20	1.8
THICKSPIKE WHEATGRASS	CRITANA	PNCS	10	1
STREAMBANK WHEATGRASS	SODAR	PNCS	10	1.2
			TOTAL	11.0

NOTES: P=PERENNIAL
A=ANNUAL
N=NATIVE I=INTRODUCED
W=WARM SEASON
C=COOL SEASON S=SOD FORMER
B=BUNCHGRASS



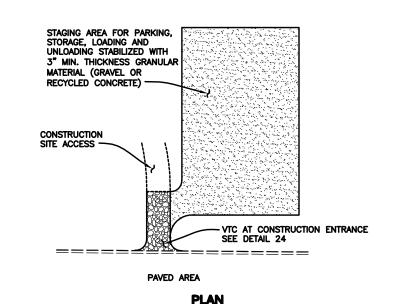


# JOINTS - SECTION B

# SILT FENCE INSTALLATION NOTES

- SEE PLAN VIEW FOR:
   LOCATION AND LENGTH OF FENCE.
- 2. ANCHOR TRENCH SHALL BE EXCAVATED WITH TRENCHER, OR WITH SILT FENCE INSTALLATION MACHINE; NO ROAD GRADERS, BACKHOES, ETC. SHALL BE USED. TRENCH SHALL BE COMPACTED BY HAND, WITH "JUMPING JACK", OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
- 3. SILT FENCE GEOTEXTILE SHALL MEET THE FOLLOWING REQUIREMENTS:
- 6-TO 12-GALLONS PER MINUTE PER SQUARE FOOT FLOW CAPACITY.
  90 LB. TENSILE STRENGTH PER ASTM D4622.
  UV DESIGN AT 500 HRS MIN. 70% STRENGTH RETAINED PER ASTM D 4355.
- 4. SILT FENCE INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
- 1. THE GESC MANAGER SHALL INSPECT SILT FENCE DAILY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
- 2. SEDIMENT ACCUMULATED UPSTREAM OF SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT REACHES A DEPTH OF 6-INCHES.
- SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.





# TABILIZED STAGING AREA INSTALLATION NOTES

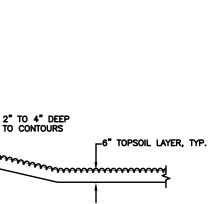
- SEE PLAN VIEW FOR GENERAL LOCATION OF STAGING AREA. CONTRACTOR MAY MODIFY LOCATION AND SIZE OF STABILIZED STAGING AREA WITH COUNTY APPROVAL.
- STABILIZED STAGING AREA SHALL BE LARGE ENOUGH TO FULLY CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING
- 3. IF REQUIRED BY THE COUNTY, SITE ACCESS ROADS SHALL BE STABILIZED IN THE SAME MANNER AS THE STAGING AREA.
- 4. STAGING AREA SHALL BE STABILIZED PRIOR TO ANY OTHER OPERATIONS ON THE SITE.
- 5. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM OF 3" OF GRANULAR MATERIAL (GRAVEL OR RECYCLED CONCRETE).

# STABILIZED STAGING AREA MAINTENANCE NOTES

- THE GESC MANAGER SHALL INSPECT THE STABILIZED STAGING AREA WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
- GESC MANAGER SHALL PROVIDE ADDITIONAL THICKNESS OF GRANULAR MATERIAL IF ANY RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.
- STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
- THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE COUNTY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE

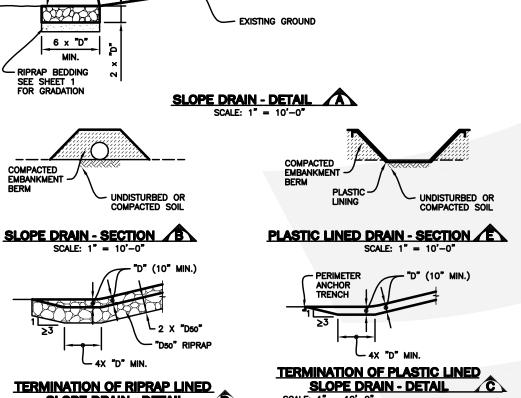


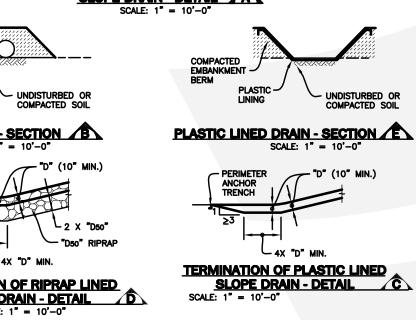




# SECTION A

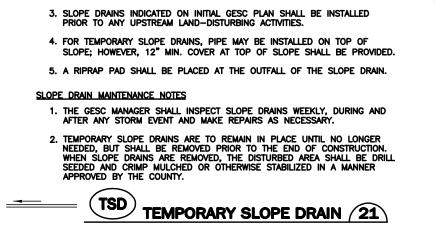
- SURFACE ROUGHENING INSTALLATION NOTES SURFACE ROUGHENING SHALL BE PROVIDED ON ALL FINISHED GRADES (SLOPES AND "FLAT" AREAS) WITHIN 2 DAYS OF COMPLETION OF FINISHED GRADE (FOR AREAS NOT RECEIVING TOPSOIL) OR WITHIN 2 DAYS OF TOPSOIL PLACEMENT.
- . AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOD IS TO BE PLACED WITHIN 7-DAYS OF FINISHED GRADING DO NOT NEED TO BE SURFACE ROUGHENED. DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.
- SURFACE ROUGHENING MAINTENANCE NOTES
- THE GESC MANAGER SHALL INSPECT THE SURFACE ROUGHENING WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
- 2. VEHICLES AND EQUIPMENT SHALL GENERALLY BE CONFINED TO ACCESS DRIVES AND SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
- IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE. 4. IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER ANY RILL
- SR SURFACE ROUGHENING (20)

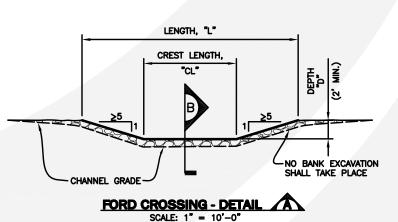


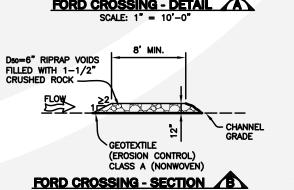


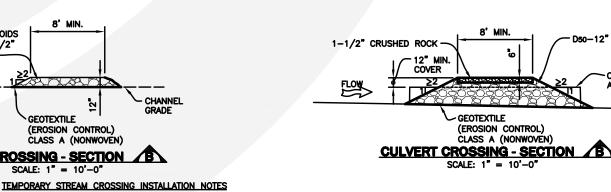
- SLOPE DRAIN DETAIL D SLOPE DRAIN INSTALLATION NOTES
- SEE PLAN VIEW FOR:

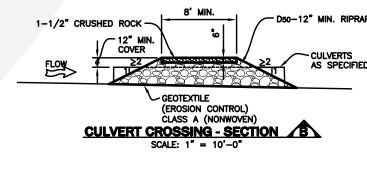
   LOCATION AND LENGTH OF SLOPE DRAIN.
   PIPE DIAMETER, "D", AND RIPRAP SIZE, "D50".
- 2. SLOPE DRAIN DIMENSIONS SHALL BE CONSIDERED MINIMUM DIMENSIONS CONTRACTOR MAY ELECT TO INSTALL LARGER FACILITIES. ANY DAMAGE SLOPE OR SLOPE DRAIN DURING RUNOFF EVENTS SHALL BE THE

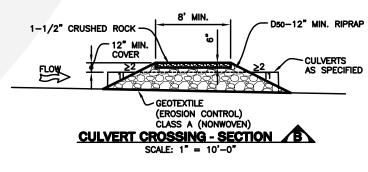




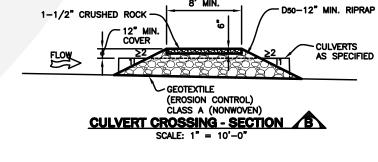


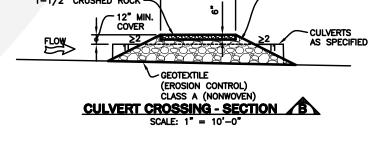


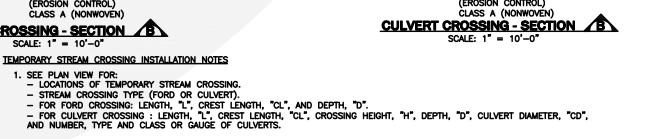




CULVERT CROSSING - DETAIL A





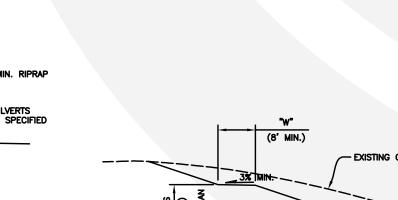


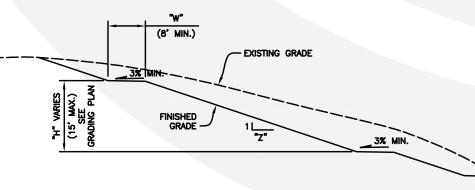
2. TEMPORARY STREAM CROSSING DIMENSIONS, D50, AND NUMBER OF CULVERTS INDICATED (FOR CULVERT CROSSING) SHALL BE CONSIDERED MINIMUM DIMENSIONS; ENGINEER MAY ELECT TO INSTALL LARGER FACILITIES. ANY DAMAGE TO STREAM CROSSING OR EXISTING STREAM CHANNEL DURING BASEFLOW OR FLOOD EVENTS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. 4. FOR A TEMPORARY STREAM CROSSING THAT WILL CARRY LOADS, THE TEMPORARY STREAM CROSSING MUST BE DESIGNED BY THE DESIGN ENGINEER.

TEMPORARY STREAM CROSSING MAINTENANCE NOTES THE GESC MANAGER SHALL INSPECT STREAM CROSSINGS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.

2. SEDIMENT ACCUMULATED UPSTREAM OF STREAM CROSSINGS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CROSSING IS WITHIN 6-INCHES OF THE CREST (FORD CROSSING) OR GREATER THAN AN AVERAGE DEPTH OF 12-INCHES (CULVERT CROSSING). 3. STREAM CROSSINGS ARE TO REMAIN IN PLACE UNTIL NO LONGER NEEDED, BUT SHALL BE REMOVED PRIOR TO THE END OF CONSTRUCTION.

4. WHEN STREAM CROSSINGS ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED AND COVERED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY. TSC TEMPORARY STREAM CROSSING (22)

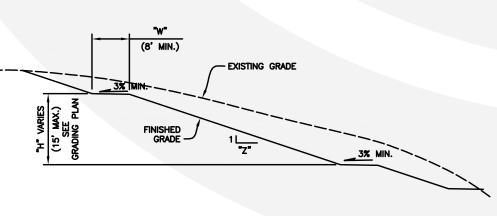




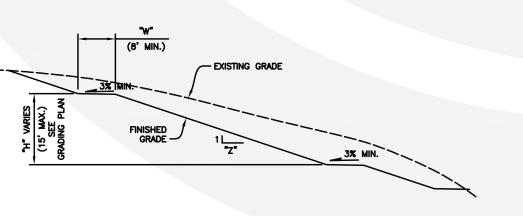
# SECTION A

- 1. SEE PLAN VIEW FOR:
- 2. TERRACING IS NOT REQUIRED FOR SLOPES OF 4 TO 1 OR FLATTER.
- TERRACING MAINTENANCE NOTES

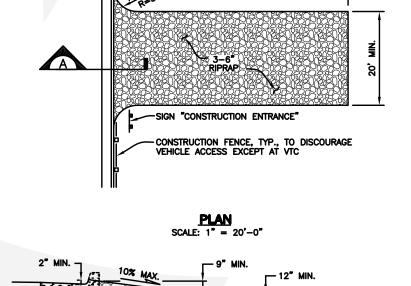




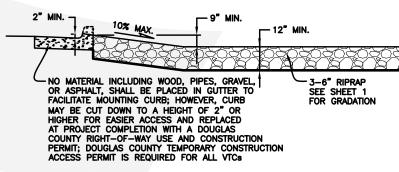
- WIDTH, "W", AND SLOPE, "Z".
- THE GESC MANAGER SHALL INSPECT THE SURFACE ROUGHENING WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.



- 3. EARTH (VEGETATED) SLOPES STEEPER THAN 3 TO 1 ARE NOT ALLOWED ON THE SITE.



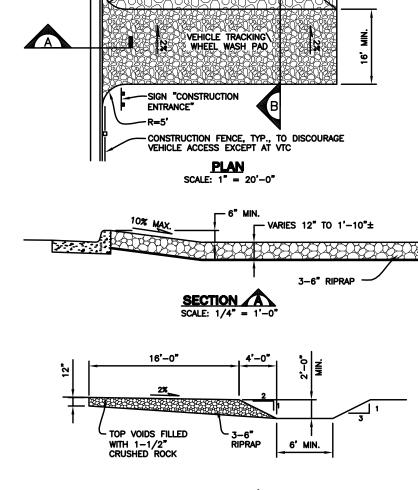
-STOP SIGN PER MUTCD STANDARDS



## SECTION A /EHICLE TRACKING CONTROL INSTALLATION NOTES 1. VEHICLE TRACKING CONTROL PADS SHALL BE INSTALLED AT EVERY ACCESS POINT TO SITE.

- 2. VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE OR BOULDERS WILL NOT BE ACCEPTABLE. THE STONES SHALL BE 3" WITH A MAXIMUM SIZE OF 6". THE STONE SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTIONS.
- ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED BY PERMITTEE.
- 4. A DOUGLAS COUNTY TEMPORARY CONSTRUCTION ACCESS PERMIT IS REQUIRED FOR EACH ACCESS PERMIT. 5. A STOP SIGN INSTALLED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED, SHALL BE INSTALLED FOR EXITING TRAFFIC AT THE VTC. VEHICLE TRACKING CONTROL MAINTENANCE NOTES
- 1. GESC MANAGER SHALL INSPECT VEHICLE TRACKING CONTROL DAILY. GRAVEL SURFACE SHALL BE CLEAN AND LOOSE ENOUGH TO RUT SLIGHTLY UNDER WHEEL LOADS AND CAUSE LOOSE GRAVEL TO DISLODGE MUD FROM TIRES. WHEN GRAVEL BECOMES COMPACTED OR FILLED WITH SEDIMENT SO THAT THE EFFECTIVENESS OF THE PAD IS DIMINISHED, CONTRACTOR SHALL RIP, TURN OVER, OR OTHERWISE LOOSEN GRAVEL, PLACE ADDITIONAL NEW GRAVEL, OR REPLACE WITH NEW GRAVEL AS NECESSARY TO RESTORE EFFECTIVENESS. VEHICLE TRACKING CONTROL SHALL BE REMOVED AT THE END OF CONSTRUCTION, THE GRAVEL MATERIAL REMOVED OR, IF APPROVED BY THE COUNTY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.





-STOP SIGN PER

# **SECTION B** SCALE: 1" = 10'-0"

ALTHOUGH NOT NORMALLY USED, THE COUNTY RESERVES THE RIGHT TO REQUIRE VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES AT SITES WHERE TRACKING ONTO PAVED AREAS BECOMES A SIGNIFICANT PROBLEM.

. IF VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES ARE REQUIRED, ALL WHEELS ON EVERY VEHICLE LEAVING THE SITE SHALL BE CLEANED OF MUD USING A PRESSURE-WASHER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A WATER SOURCE.

3. VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE OR BOULDERS WILL NOT BE ACCEPTABLE. THE STONES SHALL BE 3" WITH A MAXIMUM SIZE OF 6". THE STONE SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTIONS.

4. ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED B' CONTRACTOR. 5. A STOP SIGN INSTALLED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED, SHALL BE INSTALLED FOR EXITING TRAFFIC AT THE VTC.

VEHICLE TRACKING CONTROL WITH WHEEL WASH MAINTENANCE NOTES

GESC MANAGER SHALL INSPECT VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES DAILY. ACCUMULATED SEDIMENTS SHALL BE REMOVED FROM PAD SURFACE.

VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITY SHALL BE REMOVED AT THE END
OF CONSTRUCTION, THE RIPRAP MATERIAL REMOVED OR, IF APPROVED BY THE COUNTY,
USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR
OTHERWISE STABILIZED.

WW VTC WITH WHEEL WASH 25

Sheet Revisions NOTE: SCALES SHOWN ARE FOR 24"x36' SHEETS; ADJUS **ACCORDINGLY** FOR 11"x17' SHEETS.



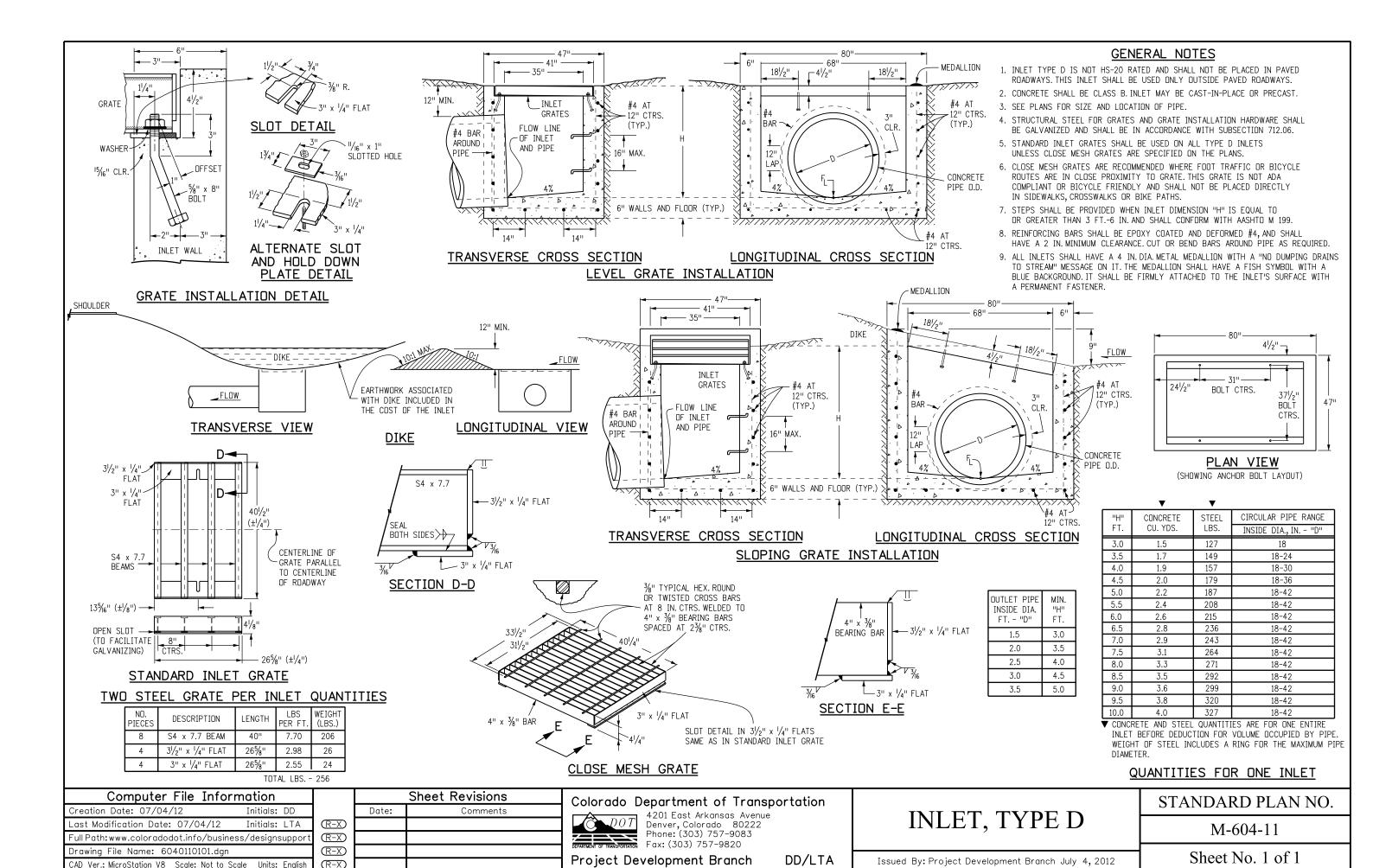
DEPARTMENT OF PUBLIC WORKS Engineering Division



GESC GRADING, EROSION, AND SEDIMENT CONTROL **SEDIMENT CONTROL** 

**GESC PLAN** STANDARD NOTES AND DETAILS

SHEET 3 OF 3



### SPACING FOR DELINEATOR POSTS ON HORIZONTAL CURVES

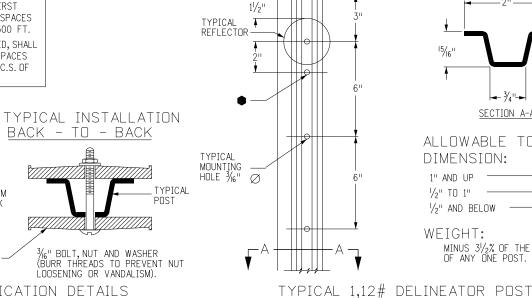
Jacobs In Advance of				
(FEET)         OF CURVE (FEET)         CURVE (FEET)         FIRST SECOND SPACE         THIR SPACE SPACE           20000         0°17'         300         300         300         300           17000         0°20'         300         300         300         300           14000         0°25'         300         300         300         300	* SPACING IN ADVANCE OF AND BEYOND CURVE (FEET)			
17000				
	) )			
10000         0° 34¹         299         300         300         300           8000         0° 43¹         267         300         300         300           6000         0° 57¹         231         300         300         300           5000         1° 09¹         211         300         300         300	) )			
4000         1° 26'         189         300         300         300           3500         1° 38'         176         300         300         300           3000         1° 55'         163         300         300         300           2500         2° 18'         148         297         300         300	) )			
2000         2° 52'         132         265         300         300           1800         3° 11'         125         251         300         300           1600         3° 35'         118         236         300         300           1400         4° 06'         110         220         300         300	)			
1200         4° 47'         102         203         300         300           1000         5° 44'         92         185         277         300           900         6° 22'         87         175         262         300           800         7° 10'         82         164         246         300	) )			
700         8° 11'         76         153         229         300           600         9° 33'         70         141         211         300           500         11° 28'         64         127         191         300           450         12° 44'         60         120         180         300	300 300			
400     14° 20'     56     112     168     300       350     16° 22'     52     104     156     300       300     19° 06'     47     95     142     285       250     22° 55'     42     85     127     255	) 5			
200 28° 39' 37 73 110 220 150 38° 12' 30 60 90 180 100 57° 18' 21 42 64 127 75 76° 24' 20 30 45 90	1			

- $^st$  ON CONVENTIONAL ROADWAYS OMIT THE "THIRD SPACE" AND DOUBLE THE SPACING "ON THE CURVE" AND "IN ADVANCE OF AND BEYOND THE CURVE" (300 MAX.)
- SPACING FOR CURVES NOT SHOWN MAY BE COMPUTED FROM THE FORMULA:  $S = 3\sqrt{R-50}$

SPACING IN ADVANCE OF AND BEYOND THE CURVE IS: FIRST SPACE = 2S, SECOND SPACE = 3S AND THIRD SPACE = 6S. SPACES SHOULD NOT BE LESS THAN 20 FT. OR GREATER THAN 300 FT. RESIDUAL SPACE AFTER "ON CURVE" SPACING IS APPLIED, SHALL BE DIVIDED EQUALLY AMONG ALL OF THE "ON CURVE" SPACES SO THAT THE LAST DELINEATOR FALLS AT THE P.T. OR C.S. OF THE CURVE.

### GENERAL NOTES

- 1. SEE THE TABULATION OF QUANTITIES INCLUDED IN THE PLANS FOR THE NUMBERS AND LOCATIONS OF DELINEATORS REQUIRED.
- 2. THE COLOR OF DELINEATORS SHALL, IN ALL CASES, CONFORM TO THE COLOR OF EDGE LINES, EXCEPT:
  - A. RED, GREEN AND BLUE DELINEATORS B. TYPE III DELINEATORS (3 YELLOW).
- 3. THE COLOR OF DELINEATOR POSTS AND ALL SPECIAL MOUNTING BRACKETS SHALL BE INTERSTATE GREEN.
- 4. DELINEATORS ARE MANDATORY ON ALL ROADWAYS ON THE STATE HIGHWAY SYSTEM, THEY ARE OPTIONAL WHERE FIXED SOURCE LIGHTING IS IN OPERATION: HOWEVER, ALL CONCRETE BARRIER AND TYPE 3 GUARDRAIL SHALL HAVE REFLECTORS OR SUPPLEMENTAL TABS.
- 5. TYPE I (YELLOW) DELINEATORS ARE MANDATORY ON THE LEFT SIDE OF EXPRESSWAY ROADWAYS (MEDIAN).
- 6. RED DELINEATORS MAY BE INSTALLED ON THE REVERSE SIDE OF ANY DELINEATOR AND/OR A SEPARATE POST ON ONE-WAY ROADWAYS OR RAMPS WHERE INVESTIGATION SHOWS A NEED FOR WRONG-WAY MOVEMENT PROTECTION
- 7. TYPE III (3-YELLOW) DELINEATORS ARE TO BE INSTALLED TO WARN OF THE EXISTENCE OF OBJECTS NOT ACTUALLY IN THE ROADWAY BUT THAT MAY BE SO CLOSE TO THE EDGE OF THE ROADWAY THAT THEY NEED A MARKER. THESE INCLUDE UNDERPASS PIERS, BRIDGE ABUTMENTS, HANDRAILS, AND CULVERTS HEADS. THE INSIDE EDGE OF THE MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION.
- 8. INTERCHANGE RAMPS SHALL BE DELINEATED ON THE RIGHT SIDE, THE LEFT SIDE, OR BOTH SIDES WITH TYPE I DELINEATORS OF THE APPROPRIATE COLOR (CRYSTAL OR YELLOW) AS ILLUSTRATED ON SHEET NUMBER 3.
- 9. FRONTAGE ROAD DELINEATORS ARE NOT TO BE INSTALLED WHERE THEY MIGHT BE MISLEADING TO MAINLINE TRAFFIC.
- 10. SPACING OF DELINEATORS FOR TUNNELS AND SNOW SHEDS SHALL BE AS SHOWN ON THE PLANS.
- 11. WHERE PRACTICABLE THE APPROACH ENDS OF ISLANDS AND MEDIANS SHOULD BE DELINEATED



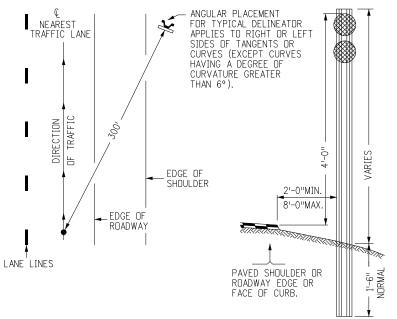
- 12. NORMAL SPACING WILL BE 528 FEET FOR TANGENT SECTIONS AND A 200 FOOT MINIMUM WILL APPLY TO A "LAST SPACE". (MAXIMUM SPACING IS ALSO 528 FEET.) AT ALL OTHER LOCATIONS, SUCH AS A & D LANES, RAMPS, WIDTH TRANSITIONS AND TURN LANES A "LAST SPACE" SHOULD NOT BE LESS THAN 50% OF THE SPACING SHOWN FOR
- 13. TYPE II DELINEATORS SHALL BE INSTALLED AT 100 FOOT SPACING ON ALL ACCELERATION LANES AND TAPERS, DECELERATION LANES AND TAPERS, AND LANE TRANSITIONS INVOLVING PAVEMENT WIDTH REDUCTIONS IN THE DIRECTION OF TRAFFIC. TYPE II DELINEATORS ARE NOT REQUIRED FOR REDIRECT TAPERS, FOR TRAFFIC MOVING IN THE DIRECTION OF WIDER PAVEMENT OR ON THE SIDE OF THE ROADWAY WHERE THE ALIGNMENT IS NOT AFFECTED BY THE LANE REDUCTION. TYPE II (YELLOW) DELINEATORS SHALL ONLY BE USED WHEN A RAISED OR DEPRESSED MEDIAN IS PRESENT. FOR WIDTH TRANSITIONS WHERE TRAFFIC MOVES IN THE DIRECTION OF WIDER PAVEMENT, THE NORMAL SPACING SHALL BE ADJUSTED SO THERE IS A DELINEATOR AT EACH OF THE ANGLE POINTS OF THE WIDTH TRANSITION
- 14. TYPE I DELINEATORS SHALL BE INSTALLED AT 100 FOOT SPACING ON INTERCHANGE RAMP TANGENT SECTION AND BY THE SPACING TABLE ON RAMP CURVES. SPACING "IN ADVANCE OF AND BEYOND CURVE" DOES NOT APPLY TO RAMP CURVES.
- 15. FOR SPACING ON A CURVE THAT FOLLOWS A TANGENT SECTION WITH SPACES SHORTER THAN THOSE SHOWN IN THE CURVE SPACING TABLE: MODIFY THE TABLE SO THAT THE CURVE SPACING IS NO GREATER THAN THE TANGENT SPACING.
- 16. WHERE GUARDRAIL INTRUDES INTO THE SPACE BETWEEN THE PAVEMENT EDGE AND THE LINE OF DELINEATORS, PLACE THE DELINEATORS IMMEDIATELY ABOVE OR BEHIND THE RAIL FACE, AND DELINEATOR SPACING SHALL BE THE SAME BEHIND THE RAIL FACE.
- 17. WHEN NORMAL SPACING FALLS ON AN INTERSECTING ROADWAY, DRIVEWAY, ETC. THE DELINEATOR MAY BE MOVED EITHER DIRECTION A DISTANCE NOT EXCEEDING ONE-QUARTER OF THE NORMAL SPACING.
- 18. THE ANGULAR PLACEMENT FOR ALL DELINEATORS SHOULD BE BY THE "TRAFFIC ORIENTING" METHOD: AIM THE FACE OF THE DELINEATOR AT THE CENTERLINE OF THE NEAREST LANE OF APPROACHING TRAFFIC AT A POINT 300 FEET AWAY (OR AS DIRECTED BY THE ENGINEER FOR SPECIAL OR LOCATIONS AND CURVES HAVING A DEGREE OF POST NOTES CURVATURE GREATER THAN 6 DEGREES).

### POSTS SHALL BE A UNIFORM FLANGED CHANNEL SECTION (U-SHAPE) MADE FROM HOT ROLLED STRUCTURAL STEEL, RE-ROLLED RAIL STEEL, OR NEW BILLET STEEL, HAVING A MINIMUM YIELD STRENGTH OF 30,000 PSI AND A MINIMUM TENSILE STRENGTH OF 50,000 PSI 2. POSTS SHALL BE SET IN DRILLED OR EXCAVATED HOLES, PLACED PLUMB AND FIRMLY TAMPED IN PLACE; OR

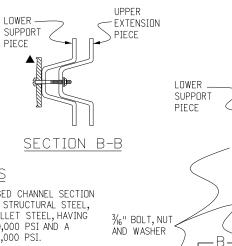
- MAY BE DRIVEN PLUMB 3. A MINIMUM OF 3 HOLES OF 3/6" DIAMETER, SPACED AS SHOWN, ARE REQUIRED FOR ALL DELINEATOR POSTS.
- AN ADDITIONAL HOLE IS REQUIRED WHEN THE ADJUSTABLE REFLECTOR BRACKET IS USED.

### DOUBLE HEIGHT POSTS

- 4. THE LOWER SECTION OF THE 2-POST COMBINATION SHALL BE INSTALLED ACCORDING TO THE SAME PLACEMENT SPECIFICATIONS AS A TYPICAL SINGLE POST INSTALLATION.
- ▲ 5. REFLECTORS SHALL BE MOUNTED AT THE CONNECTION OF THE POSTS AND AT THE TOP OF THE UPPER POST IN ACCORDANCE WITH THE APPROPRIATE CONFIGURATION FOR THE APPLICATION.
- 6. THE LENGTH OF THE UPPER EXTENSION PIECE SHALL NOT EXCEED 7 FEET.



TYPICAL DELINEATOR PLACEMENT



TYPICAL DOUBLE HEIGHT INSTALLATION

EXTENSION

–B-

PIECE

### TYPICAL INSTALLATION SINGLE DIRECTION MANDREL -' DIAMETER BLIND EXPANSION RIVET (DOMED HEAD ALLIMINUM WITH ALUMINUM BREAK STEM MANDREL).

%" TO 1⁄2" TYPICAL REFLECTOR - ALLIMTNLIM BREAK STEM

TYPICAL DELINEATOR FABRICATION DETAILS

Computer File Information Creation Date: 07/04/12 Initials: KEN (R-X)Last Modification Date: Initials: (R-X)Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans (R-X)Drawing File Name: S-612-01\_1of7.dgn (R-X)CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions Date: Comments

BACK - TO - BACK

'BOLT, NUT AND WASHER

LOOSENING OR VANDALISM

Colorado Department of Transportation

DIMENSION:

1" AND UP -

WEIGHT:

1/₂" TO 1" —



4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 Fax: (303) 757-9458

SECTION A-A

ALLOWABLE TOLERANCE

1/2" AND BELOW \_\_\_\_\_ ± 1/32"

MINUS  $3\frac{1}{2}$ % OF THE WEIGHT OF ANY ONE POST.

\_\_\_\_ ± ½6"

Safety & Traffic Engineering Branch KCM/KEN

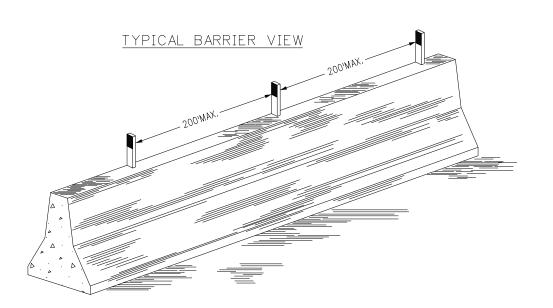
**DELINEATOR** INSTALLATIONS

Issued By: Safety & Traffic Engineering Branch July 4, 2012

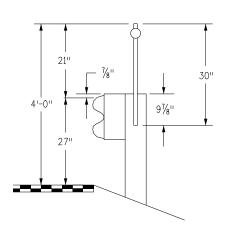
STANDARD PLAN NO

S-612-1

Sheet No. 1 of 7

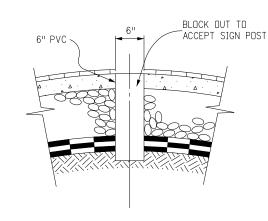


TYPICAL REFLECTOR DETAILS FOR CONCRETE BARRIER



TYPICAL GUARDRAIL
POST MOUNT DELINEATORS

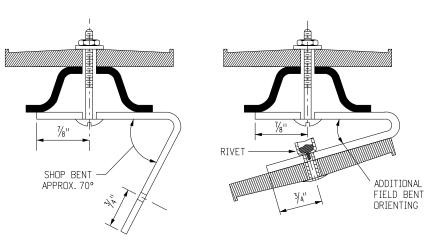
POST MOUNT DELINEATORS SHALL BE ATTACHED BY A METHOD APPROVED BY THE ENGINEER OR A METHOD REQUIRED BY THE DEVICE MANUFACTURER.



TYPICAL SLEEVE INSTALLATION FOR MEDIAN DELINEATOR POSTS

# PLAN VIEW 5" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 15/8" 1

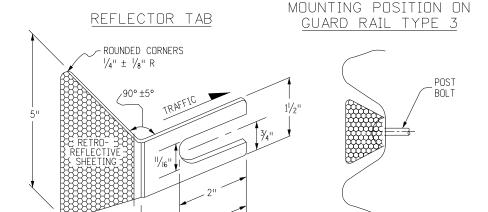
TYPICAL ADJUSTABLE REFLECTOR BRACKET



### TYPICAL BRACKET FABRICATION DETAILS

### BRACKET NOTES

- . THE ADJUSTABLE REFLECTOR BRACKET IS TO BE USED TO "TRAFFIC ORIENT" BACK-TO-BACK DELINEATORS USED ON CURVES.
- REFLECTOR BRACKETS SHALL BE FABRICATED FROM EITHER GALVANIZED STEEL NOT LESS THAN 16 GAGE, OR ALUMINUM NOT LESS THAN 0.100 INCH THICKNESS.
- 3. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED OR CADMIUM PLATED.
- 4. ALL BRACKET HOLES ARE  $^{3}\!\!/_{6}$  IN. DIAMETER AND DELINEATOR POSTS REQUIRE AN ADDITIONAL HOLE 2 IN. BELOW THE TOP HOLE PROVIDED IN THE POST
- 5. SHOP BEND THE BRACKET APPROX.70 DEGREES AS SHOWN, ATTACH TO THE DELINEATOR POST WITH  $\frac{3}{16}$  IN. BOLTS AND FIELD BEND AS NECESSARY TO TRAFFIC ORIENT. THEN THE BRACKET REFLECTOR CAN BE ATTACHED WITH A  $\frac{3}{16}$  IN. BLIND EXPANSION RIVET OR A BOLT.
- 6. BURR THE THREADS OF ALL BOLTS TO PREVENT NUT LOOSENING OR VANDALISM.



# TYPICAL GUARDRAIL REFLECTOR TAB

SEE THE APPROPRIATE GUARDRAIL STANDARD PLANS FOR REFLECTOR TAB FABRICATION AND PLACEMENT DETAILS.

### BARRIER REFLECTOR NOTES

- . BARRIER REFLECTORS, REGARDLESS OF TYPE, SHALL MEET THE RETROREFLECTIVE QUALTITIES SPECIFIED IN SECTION 713 OF THE STANDARD SPECIFICATIONS FOR DELINEATOR REFLECTORS, AND BE PAID FOR AS DELINEATOR (TYPE \_) (BARRIER) (EACH). USE OF THESE REFLECTORS IS MANDATORY.
- 2. THE COLOR OF REFLECTIVE SURFACE SHALL MATCH THE COLOR OF THE ADJACENT EDGE LINE.
- 3. CONCRETE SURFACE PREPARATION, ADHESIVE, AND METHOD OF APPLICATION SHALL BE AS RECOMMENDED BY THE REFLECTOR MANUFACTURER
- 4. UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE ENGINEER, A 200 FOOT MAXIMUM TANGENT AND CURVE SPACING APPLIES TO BARRIER REFLECTORS.
- 5. TOP MOUNT REFLECTORS ARE STANDARD. SIDEMOUNT BARRIER REFLECTORS OR 6 INCH WIDE REFLECTOR STRIPS MAY BE REQUIRED IF SPECIFIED IN THE PLANS.
- MEDIAN BARRIER REFLECTORS SHALL BE TYPE II (YELLOW-YELLOW, BACK-TO-BACK).
- 7. FOR A TWO-WAY ROADWAY BARRIER, REFLECTORS SHALL BE TYPE II (CRYSTAL-CRYSTAL, BACK-TO-BACK).
- 8. FOR TEMPORARY CONCRETE BARRIER, RELFECTORS SHALL BE INSTALLED THAT MEET THE MINIMUM REQUIREMENTS OF STANDARD TYPICAL DELINEATOR INSTALLATIONS, EXCEPT THE MAXIMUM SPACING SHALL BE 50 FT., AND THEY WILL NOT BE PAID FOR, BUT ARE INCLUDED IN THE WORK.

Computer File Information				
Creation Date: 07/04/12	Initials: RPR			
Last Modification Date:	Initials:			
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Drawing File Name: S-612-01_4of7.dgn				
CAD Ver.: MicroStation V8 Scale: Not to	Scale Units: English			

	Sheet Revisions				
	Date:	Comments			
(R-X)					

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4201 East Arkansas Avenue
Denver, Colorado 80222

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Safety & Traffic Engineering Branch KCM/RPR

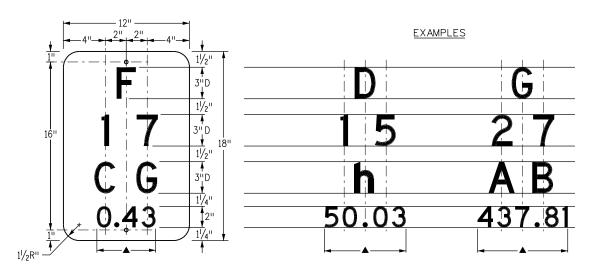
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<b>INSTALLATIONS</b>

S-612-1

Issued By: Safety & Traffic Engineering Branch July 04, 2006

Sheet No. 4 of 7

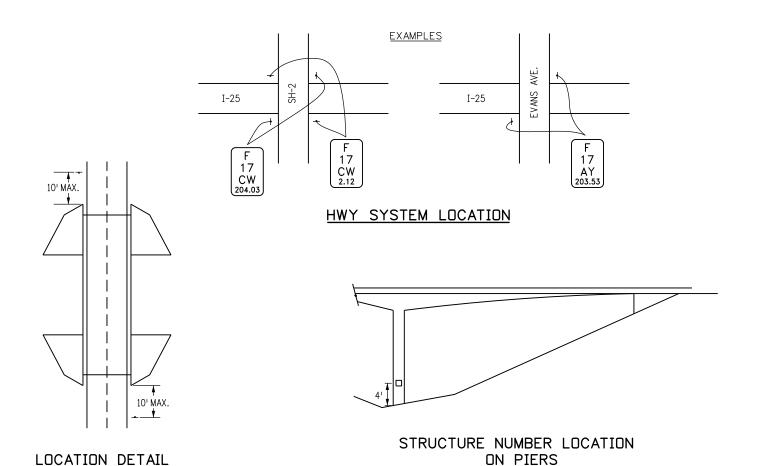
STANDARD PLAN NO.



STRUCTURE IDENTIFICATION PANEL

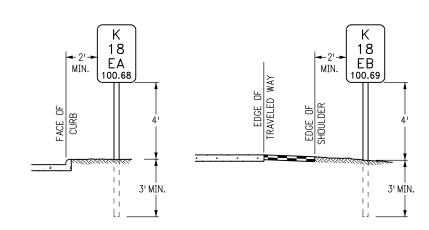
\* OPTICALLY CENTER

REQUIRED REFERENCE POINT



### GENERAL NOTES

- 1. SIGN PANEL SHALL BE FABRICATED FROM SINGLE SHEET ALUMINUM 0.080 IN. MINIMUM THICKNESS.
- 2. WHEN SIGN PANELS ARE NOT ATTACHED TO THE STRUCTURE, THEY SHALL BE FASTENED TO U-POSTS OR TO 2 IN. TUBULAR STEEL POSTS (P POSTS) IN ACCORDANCE WITH STANDARDS FOR CLASS I SIGNS. SEE STANDARD PLANS S-614-2 AND S-614-8 FOR DETAILS.
- 3. THE STRUCTURE NUMBER IS SHOWN ON THE PLANS.
- 4. ALL SIGNS SHALL BE FABRICATED USING RETROREFLECTIVE SHEETING CONFORMING TO ASTM D4956, TYPE I MINIMUM. THE SIGN SHALL HAVE WHITE REFLECTIVE SHEETING BACKGROUND WITH BLACK LETTERS.
- 5. STRUCTURE NUMBER IDENTIFICATION SIGN WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
- 6. IN ADDITION TO THE REQUIREMENTS STATED ABOVE, STRUCTURE NUMBERS FOR HIGHWAYS PASSING UNDER CROSSROADS ARE TO BE PLACED AT THE FOLLOWING POINTS USING TWO ½ IN. WIDE STAINLESS STEEL BANDS AND STAINLESS STEEL FLARED LEG BRACKETS WITH HEX HEAD BOLTS (BAND IT D315 OR EQUIVALENT):
  - A) FOR STRUCTURES OF THREE OF MORE SPANS, THE STRUCTURE NUMBER SHALL BE MOUNTED, FACING TRAFFIC, ON THE OUTSIDE FACE OF THE END COLUMN OF THE RIGHT HAND PIER.
  - B) FOR TWO SPAN STRUCTURES, THE STRUCTURE NUMBER SHALL BE MOUNTED, FACING TRAFFIC, ON THE OUTSIDE FACE OF EACH END COLUMN OF THE CENTER PIER.
  - C) FOR OVERHEAD SIGNS, THE STRUCTURE NUMBER SHALL BE MOUNTED DIRECTLY ON THE POST OR THE OUTSIDE POST OF A TWO-POST STRUCTURE.
- 7. THE STRUCTURE REFERENCE POINTS (MILE POINT) IN THE FIELD LOG OF STRUCTURES SHOW THREE PLACES AFTER DECIMAL POINT. THE LAST DIGIT IS TO BE DROPPED ON THIS PANEL (DO NOT ROUND OFF).
- 8. THIS STRUCTURE IDENTIFICATION SHALL BE DISPLAYED ON ALL STATE HIGHWAYS BUT NOT ON OFF-SYSTEM CROSSROADS.



VERTICAL AND LATERAL PLACEMENT DETAILS

-			
Computer File Infori	mation		
Creation Date: 07/04/12	Initials: KEN		
Last Modification Date:	Initials:		
Full Path: www.coloradodot.info/library/traffic/t	raffic-s-standard-plans		
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CAD Ver.: MicroStation V8 Scale: Not to S	cale Units: English		

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Colorado Department of Transportation



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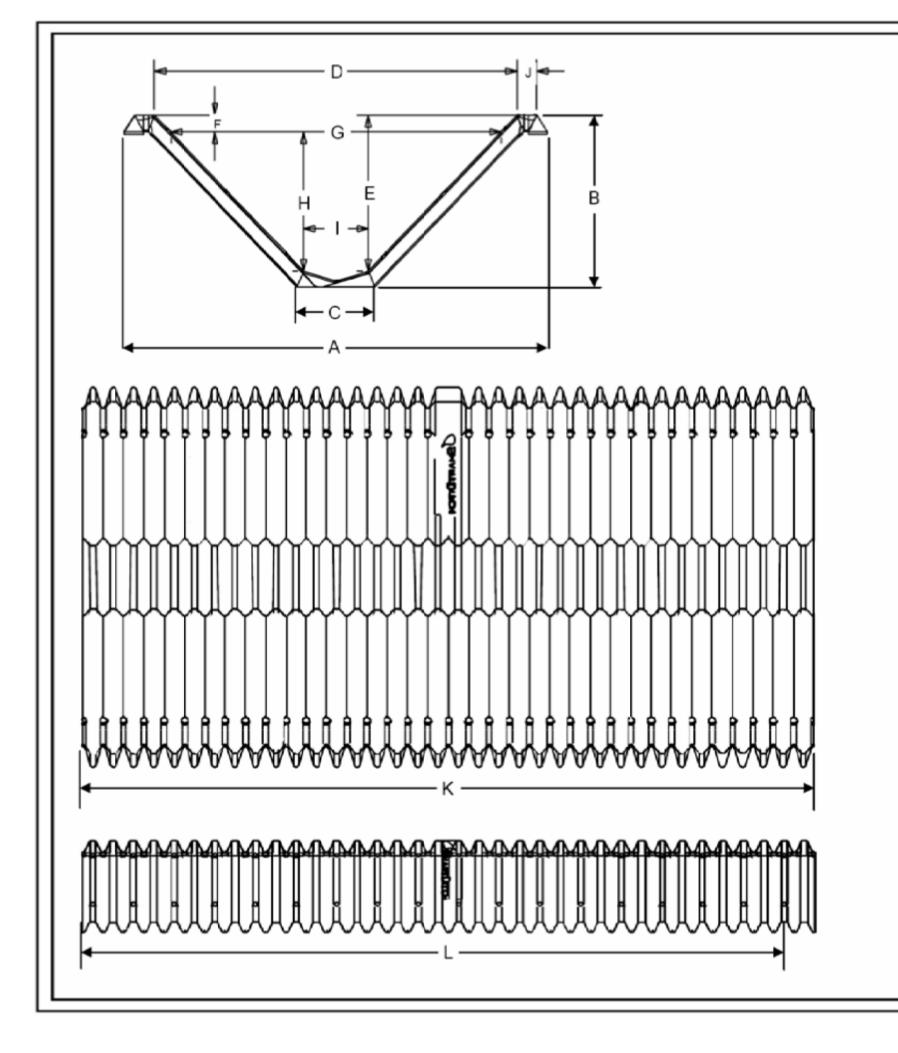
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STRUCTURE NUMBER INSTALLATION STANDARD PLAN NO

S-614-12

Issued By: Safety & Traffic Engineering Branch July 4, 2012

Sheet No. 1 of 1



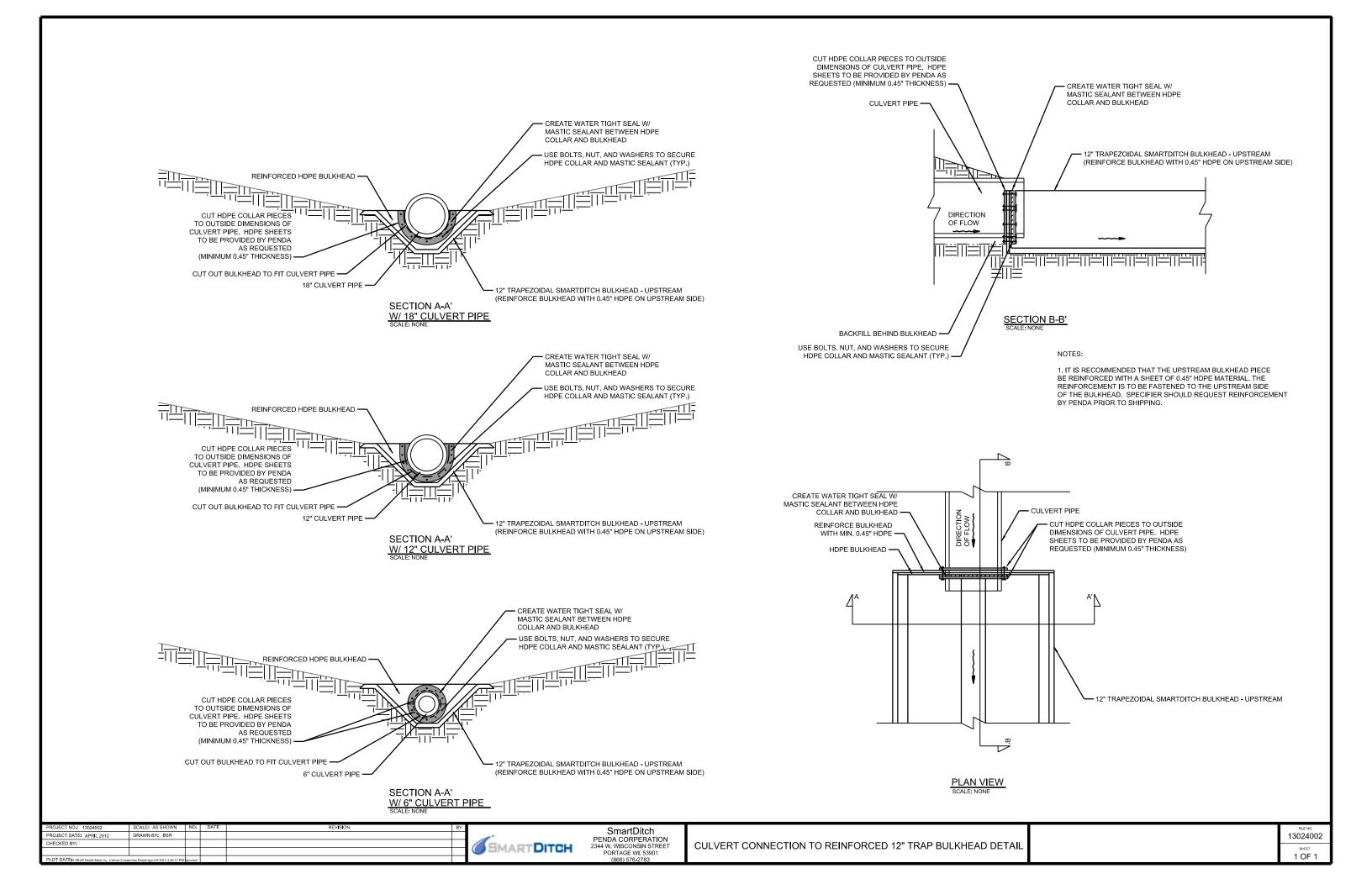
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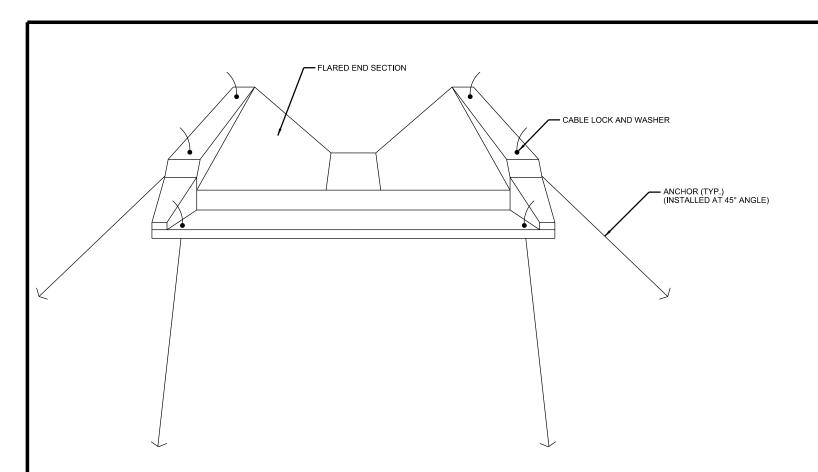
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Overall exterior width	A	50.0" (1270.0 mm)
Overall exterior height	В	16.25" (412.75 mm)
Bottom channel exterior width	С	10.0" (254.0 mm)
Channel top width	D	37.5" (952.5 mm)
Channel height (interior)	E	14.5" (368.3 mm)
Minimum freeboard	F	1.0" (25.4 mm)
Maximum flow area top width	G	34.5" (876.3 mm)
Maximum flow depth	н	13.5" (342.9 mm)
Bottom channel width (interior)	ı	8.0" (203.2 mm)
Top shoulder width (w/out knuckle)	J	4.5" (114.3 mm)
Overall exterior length	К	120.0" (3048.0 mm)
Lay length	L	112.0" (2844.8 mm)

CORPORATION 2344 W. Wisconsin St. P.O. Box 449 Portoge, WI 53901

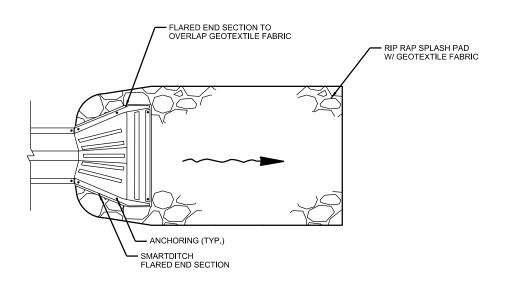
12" TRAPEZOIDAL STRAIGHT BLK

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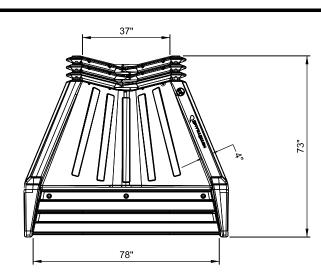




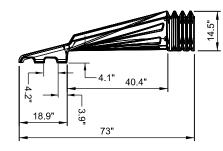
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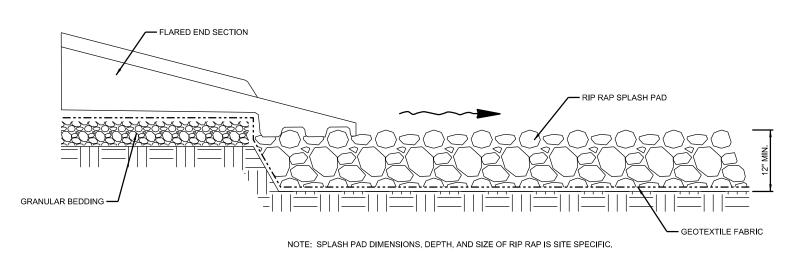
# DOWNSTREAM FLARED END SECTION AND SPLASH PAD DETAIL SCALE: NONE



# $\underset{\mathsf{NTS}}{\underline{\mathsf{12"}}}\,\mathsf{TRAPEZOIDAL}\,\mathsf{FLARED}\,\,\mathsf{END}\,\,\mathsf{SECTION}\,\mathsf{-}\,\mathsf{PLAN}\,\,\mathsf{VIEW}$



12" TRAPEZOIDAL FLARED END SECTION - PROFILE VIEW



 $\frac{\text{DOWNSTREAM FLARED END SECTION AND SPLASH PAD DETAIL - PROFILE VIEW}}{\text{SCALE: NONE}}$ 

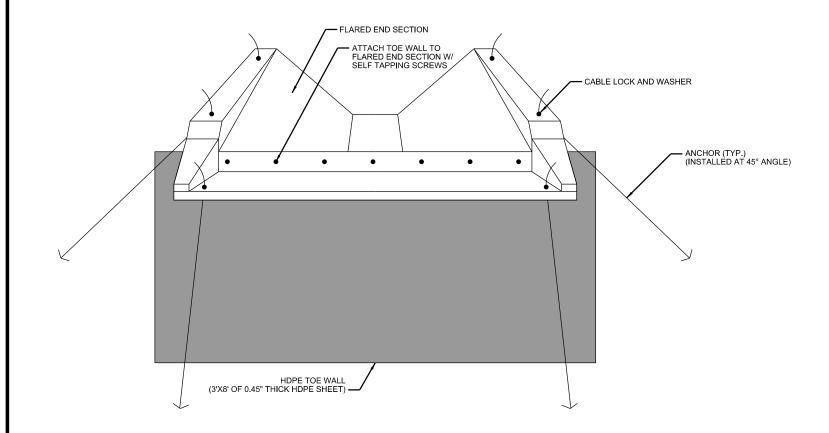
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CHECKED BY:						
PROJECT DATE: JANUARY 2012	DRAWN BY: BSR					1
PROJECT NO.: 13024002	SCALE: AS SHOWN	NO.	DATE	REVISION	BY	Г



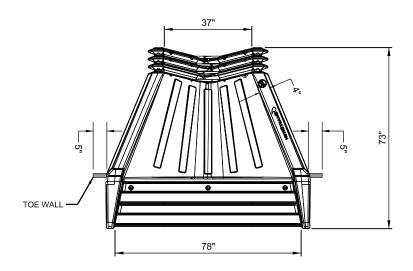
SmartDitch
PENDA CORPERATION
2344 W. WISCONSIN STREET
PORTAGE, WI, 53901

DOWNSTREAM FLARED END SECTION

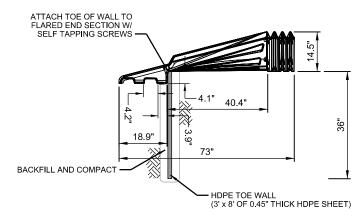
13024002 1 OF 1



DOWNSTREAM FLARED END SECTION - CROSS SECTION SCALE: NONE



12" TRAPEZOIDAL FLARED END SECTION - PLAN VIEW



12" TRAPEZOIDAL FLARED END SECTION - PROFILE VIEW

