

LEGAL DESCRIPTION: GRANDVIEW RESERVE PHASE 2

A TRACT OF LAND BEING A PORTION SECTION 21, AND A PORTION OF THE NORTHEAST QUARTER OF SECTION 28, TOWNSHIP 12 SOUTH, RANGE 64 WEST OF THE 6TH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO, BEING DESCRIBED AS FOLLOWS:

BASIS OF BEARINGS:

THE EAST LINE OF SECTION 21, TOWNSHIP 12 SOUTH, RANGE 64 WEST OF THE 6TH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO, BEING MONUMENTED AT THE SOUTHERLY END BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED ACCORDINGLY, "PLS 30087," AND BEING MONUMENTED AT THE NORTHERLY END BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED ACCORDINGLY, "PLS 30087," BEING ASSUMED TO BEAR N00°52'26"W, A DISTANCE OF 5,290.17 FEET.

COMMENCING AT THE SOUTHEAST CORNER OF SECTION 21, TOWNSHIP 12 SOUTH, RANGE 64 WEST OF THE 6TH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO;
 THENCE N00°52'26"W ON THE EAST LINE OF SAID SECTION 21, A DISTANCE OF 2,645.09 FEET TO A POINT ON THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 21; THENCE N89°50'58"W, ON SAID NORTH LINE, A DISTANCE OF 2,471.08 FEET TO THE POINT OF BEGINNING; THENCE ON THE ARC OF A CURVE TO THE RIGHT WHOSE CENTER BEARS S24°25'09"W, HAVING A DELTA OF 21°22'37", A RADIUS OF 1,061.00 FEET, A DISTANCE OF 395.86 FEET TO A POINT OF TANGENT; THENCE S44°12'14"E A DISTANCE OF 446.79 FEET TO A POINT OF CURVE; THENCE ON THE ARC OF A CURVE TO THE RIGHT HAVING A DELTA OF 31°01'27", A RADIUS OF 1,261.00 FEET, A DISTANCE OF 682.80 FEET TO A POINT OF TANGENT; THENCE S13°10'46"E A DISTANCE OF 235.68 FEET TO A POINT OF CURVE; THENCE ON THE ARC OF A CURVE TO THE LEFT HAVING A DELTA OF 57°06'29", A RADIUS OF 839.00 FEET, A DISTANCE OF 836.25 FEET TO A POINT OF CURVE; THENCE S19°42'45"W A DISTANCE OF 111.00 FEET; THENCE S23°10'57"W A DISTANCE OF 204.59 FEET TO A POINT OF CURVE; THENCE ON THE ARC OF A CURVE TO THE LEFT HAVING A DELTA OF 29°56'47", A RADIUS OF 142.50 FEET A DISTANCE OF 74.48 FEET TO A POINT OF TANGENT; THENCE S06°45'50"E A DISTANCE OF 66.21 FEET; THENCE S54°32'52"E A DISTANCE OF 5.87 FEET; THENCE S14°14'45"E A DISTANCE OF 65.01 FEET; THENCE S28°43'11"W A DISTANCE OF 325.08 FEET TO A POINT ON CURVE; THENCE ON THE ARC OF A CURVE TO THE LEFT WHOSE CENTER BEARS S03°47'46"W, HAVING A DELTA OF 76°32'04", A RADIUS OF 60.00 FEET A DISTANCE OF 80.15 FEET TO A POINT ON CURVE; THENCE N72°44'18"W A DISTANCE OF 15.00 FEET; THENCE S65°27'05"W A DISTANCE OF 122.04 FEET; THENCE N31°44'28"W A DISTANCE OF 23.97 FEET TO A POINT ON CURVE; THENCE ON THE ARC OF A CURVE TO THE LEFT WHOSE CENTER BEARS S58°25'43"W, HAVING A DELTA OF 12°10'43", A RADIUS OF 1,363.49 FEET A DISTANCE OF 289.82 FEET TO A POINT ON CURVE; THENCE ON THE ARC OF A CURVE TO THE LEFT WHOSE CENTER BEARS S49°18'50"W, HAVING A DELTA OF 28°23'43", A RADIUS OF 1,668.20 FEET A DISTANCE OF 768.52 FEET TO A POINT ON CURVE; THENCE N60°22'39"W A DISTANCE OF 211.52 FEET; THENCE N53°13'21"W A DISTANCE OF 159.27 FEET TO A POINT OF CURVE SAID POINT BEING ON THE EASTERLY BOUNDARY LINE OF THE TRACT OF LAND DESCRIBED IN THE DOCUMENT RECORDED UNDER RECEPTION NUMBER 223014483, RECORDS OF EL PASO COUNTY, COLORADO; THENCE ON SAID EASTERLY BOUNDARY LINE THE FOLLOWING NINE (9) COURSES:

1. N49°18'05"W A DISTANCE OF 309.26 FEET TO A POINT OF CURVE;
2. ON THE ARC OF A CURVE TO THE RIGHT HAVING A DELTA OF 55°09'30", A RADIUS OF 550.00 FEET, A DISTANCE OF 529.48 FEET TO A POINT OF TANGENT;
3. N05°51'25"E A DISTANCE OF 481.83 FEET TO A POINT OF CURVE;
4. ON THE ARC OF A CURVE TO THE LEFT HAVING DELTA OF 11°17'04", A RADIUS OF 1,140.00 FEET, A DISTANCE OF 224.52 FEET TO A POINT OF TANGENT;
5. N05°25'39"W A DISTANCE OF 185.30 FEET TO A POINT OF CURVE;
6. ON THE ARC OF A CURVE TO THE RIGHT HAVING A DELTA OF 32°15'55", A RADIUS OF 250.00 FEET, A DISTANCE OF 140.78 FEET TO A POINT OF TANGENT;
7. N26°50'16"E A DISTANCE OF 203.39 FEET;
8. N78°54'36"W A DISTANCE OF 120.75 FEET;
9. N11°05'24"E A DISTANCE OF 36.85 FEET TO A POINT ON THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 21;

THENCE CONTINUING N11°05'24"E A DISTANCE OF 93.15 FEET; THENCE S78°54'36"E A DISTANCE OF 146.34 FEET TO A POINT OF CURVE; THENCE ON THE ARC OF A CURVE TO THE RIGHT, HAVING A DELTA OF 11°57'41", A RADIUS OF 1,050.00 A DISTANCE OF 219.21 FEET TO A POINT ON THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 21; THENCE S89°50'58"E ON SAID NORTH LINE A DISTANCE OF 27.49 FEET TO THE POINT OF BEGINNING;

CONTAINING A CALCULATED AREA OF 2,993.622 SQUARE FEET OR 68.724 ACRES, MORE OR LESS.

FLOODPLAIN NOTES:

1. **THIS PROPERTY IS LOCATED WITHIN A DESIGNED FEMA FLOODPLAIN AS DETERMINED BY THE FLOOD INSURANCE RATE MAP, COMMUNITY MAP NUMBERS '08041C0556G' AND '08041C0552G' EFFECTIVE DATE 7, 2018.**
2. **THE EXISTING FLOODPLAIN BOUNDARIES WILL BE REVISED VIA A LOMR MODELING THE PROPOSED IMPROVEMENTS TO ESTABLISH FLOOD ELEVATIONS AND THEN PROCESSED THROUGH TO FEMA TO ESTABLISH ZONE AE FLOODPLAIN LIMITS. NO GRADING WILL TAKE PLACE WITHIN THE EXISTING FLOODPLAIN LIMITS UNTIL THE CLOMR HAS BEEN APPROVED.**
3. **THOSE LOTS EITHER PARTIALLY OR ENTIRELY LOCATED WITHIN THE CURRENT FLOODPLAIN SHALL NOT BE PLATTED UNTIL THE FLOODPLAIN BOUNDARY REVISION PROCESS IS COMPLETED EFFECTIVELY REMOVING THE FLOODPLAIN LIMITS FROM THESE LOTS.**
4. **THE SUBMITTAL AND REVIEW OF THE FLOODPLAIN REVISION OCCUR INDEPENDENTLY OF THIS PRELIMINARY PLAN AND SHALL BE APPROVED PRIOR TO THE PLATTING OF ANY LOTS CURRENTLY LOCATED WITHIN FLOODPLAIN BOUNDARIES.**
5. **NO STRUCTURES OR SOLID FENCES ARE PERMITTED WITHIN THE DESIGNATED FLOODPLAIN AREA.**

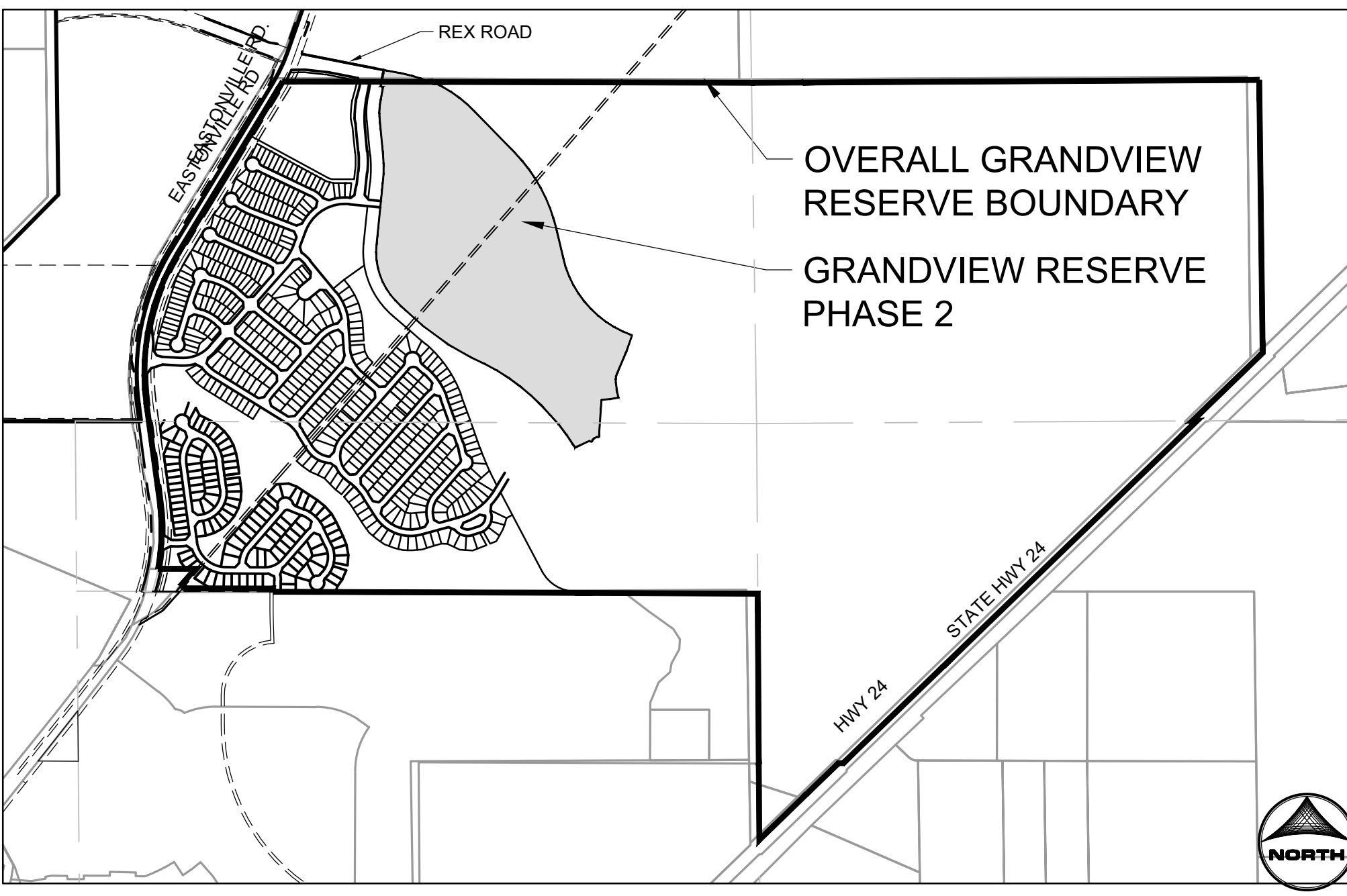
GEOTECH NOTE:

THE FOLLOWING CONCLUSIONS/RECOMMENDATIONS FROM THE SOILS REPORT ARE UTILIZED IN THE GRADING DESIGN OF THIS PLAN SET: 3:1 MAXIMUM PERMISSIBLE SLOPE. DEWATERING IS REQUIRED IF GROUNDWATER IS DISCOVERED DURING GRADING, THE PROPERTY DOES NOT FALL WITHIN A GEOLOGICAL HAZARD AREA.

DEWATERING OPERATIONS ARE TO BE AS FOLLOWS: LOCATION OF DIVERSION IS THE ADJACENT CONSTRUCTED CHANNEL AT THE SOUTH AND SOUTHEAST PROPERTY BOUNDARY. GROUNDWATER IS THE ONLY ALLOWABLE DISCHARGE (NO NON-STORMWATER IS TO BE DISCHARGED).

**GRANDVIEW RESERVE PHASE 2
EARLY GRADING AND EROSION CONTROL PLAN**

A TRACT OF LAND BEING A PORTION OF SECTION 21, AND A PORTION OF THE NORTH HALF OF SECTION 28, TOWNSHIP 12 SOUTH, RANGE 66 WEST, AND A PORTION OF SECTIONS 30 AND 31, TOWNSHIP 11 SOUTH, RANGE 64 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO



VICINITY MAP
1"=1000'

SHEET INDEX

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PROJECT CONTACTS:

OWNER:
MELODY HOMES, INC., A DELAWARE CORPORATION.
9555 S. KINGSTON COURT, STE 200
ENGLEWOOD, CO 80112

DEVELOPER:
D.R. HORTON
9555 S. KINGSTON COURT
ENGLEWOOD, CO 80112
PH. 303.503.4903

PLANNER/LANDSCAPE ARCHITECT:
HR GREEN DEVELOPMENT, LLC
1975 RESEARCH PARKWAY, STE 230
COLORADO SPRINGS, CO 80920
ATTN: PHIL STUEPFERT

CIVIL ENGINEER:
HR GREEN DEVELOPMENT, LLC
1975 RESEARCH PARKWAY, STE 230
COLORADO SPRINGS, CO 80920
ATTN: KEN HUHN

GRADING AND EROSION CONTROL NOTES:

1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
2. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE, AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
3. A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OF CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD. ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND THE EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.
5. CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
6. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
7. TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
8. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
9. ALL PERMANENT STORMWATER FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OF FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
10. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED. COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OF WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSEEN PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
12. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.
13. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
14. DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
15. EROSION BLANKET OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED OR DISCHARGED AT THIS SITE.
17. WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY OR OTHER PUBLIC WAY. UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN, CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP PROPERLY AND PROPERLY DISPOSED OF IMMEDIATELY.
19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION, DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF THE SITE DEVELOPMENT.
20. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN AN EAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABEL.
21. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ONSITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S) SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
22. BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRED ADEQUATE SECONDARY PROTECTION TO CONTAIN AL SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
24. OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS) AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS RULES OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES OR REGULATIONS SHALL APPLY.
25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
26. PRIOR TO CONSTRUCTION THE PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
27. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
28. THE SOILS REPORT FOR THE SITE HAS BEEN PREPARED BY CTL THOMPSON AND SHALL BE CONSIDERED A PART OF THESE PLANS.
29. AT LEAST (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

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

ADDRESSED
 Change to "Josh Palmer, P.E."

EL PASO COUNTY:

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

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

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

JENNIFER IRVINE, P.E. _____ DATE _____
 COUNTY ENGINEER/ECM ADMINISTRATOR

ADDRESSED
 Add text:
 EDRP Filing No.: PUDSP236

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

DEVELOPER/OWNER SIGNATURE: _____ DATE: _____

NAME OF DEVELOPER/OWNER: _____ PHONE: _____

TITLE: _____

EMAIL: _____

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

KENNETH M. HUHN, P.E. _____ DATE _____
 KHUHN@HRGREEN.COM
 COLORADO P.E. 0054022

HR GREEN Xrefs: wpl-saron.dwg1_Plot_PUD; xcrow:662.202; vicinity_map; xcrow:F1; xcrow:F2; xcrow:F3; xcrow:F4; xcrow:F5; xcrow:F6; xcrow:F7; xcrow:F8; xcrow:F9; xcrow:F10; xcrow:F11; xcrow:F12; xcrow:F13; xcrow:F14; xcrow:F15; xcrow:F16; xcrow:F17; xcrow:F18; xcrow:F19; xcrow:F20; xcrow:F21; xcrow:F22; xcrow:F23; xcrow:F24; xcrow:F25; xcrow:F26; xcrow:F27; xcrow:F28; xcrow:F29; xcrow:F30; xcrow:F31; xcrow:F32; xcrow:F33; xcrow:F34; xcrow:F35; xcrow:F36; xcrow:F37; xcrow:F38; xcrow:F39; xcrow:F40; xcrow:F41; xcrow:F42; xcrow:F43; xcrow:F44; xcrow:F45; xcrow:F46; xcrow:F47; xcrow:F48; xcrow:F49; xcrow:F50; xcrow:F51; xcrow:F52; xcrow:F53; xcrow:F54; xcrow:F55; xcrow:F56; xcrow:F57; xcrow:F58; xcrow:F59; xcrow:F60; xcrow:F61; xcrow:F62; xcrow:F63; xcrow:F64; xcrow:F65; xcrow:F66; xcrow:F67; xcrow:F68; xcrow:F69; xcrow:F70; xcrow:F71; xcrow:F72; xcrow:F73; xcrow:F74; xcrow:F75; xcrow:F76; xcrow:F77; xcrow:F78; xcrow:F79; xcrow:F80; xcrow:F81; xcrow:F82; xcrow:F83; xcrow:F84; xcrow:F85; xcrow:F86; xcrow:F87; xcrow:F88; xcrow:F89; xcrow:F90; xcrow:F91; xcrow:F92; xcrow:F93; xcrow:F94; xcrow:F95; xcrow:F96; xcrow:F97; xcrow:F98; xcrow:F99; xcrow:F100; HR GREEN Xrefs: wpl-saron.dwg1_Plot_PUD; xcrow:662.202; vicinity_map; xcrow:F1; xcrow:F2; xcrow:F3; xcrow:F4; xcrow:F5; xcrow:F6; xcrow:F7; xcrow:F8; xcrow:F9; xcrow:F10; xcrow:F11; xcrow:F12; xcrow:F13; xcrow:F14; xcrow:F15; xcrow:F16; xcrow:F17; xcrow:F18; xcrow:F19; xcrow:F20; xcrow:F21; xcrow:F22; xcrow:F23; xcrow:F24; xcrow:F25; xcrow:F26; xcrow:F27; xcrow:F28; xcrow:F29; xcrow:F30; xcrow:F31; xcrow:F32; xcrow:F33; xcrow:F34; xcrow:F35; xcrow:F36; xcrow:F37; xcrow:F38; xcrow:F39; xcrow:F40; xcrow:F41; xcrow:F42; xcrow:F43; xcrow:F44; xcrow:F45; xcrow:F46; xcrow:F47; xcrow:F48; xcrow:F49; xcrow:F50; xcrow:F51; xcrow:F52; xcrow:F53; xcrow:F54; xcrow:F55; xcrow:F56; xcrow:F57; xcrow:F58; xcrow:F59; xcrow:F60; xcrow:F61; xcrow:F62; xcrow:F63; xcrow:F64; xcrow:F65; xcrow:F66; xcrow:F67; xcrow:F68; xcrow:F69; xcrow:F70; xcrow:F71; xcrow:F72; xcrow:F73; xcrow:F74; xcrow:F75; xcrow:F76; xcrow:F77; xcrow:F78; xcrow:F79; xcrow:F80; xcrow:F81; xcrow:F82; xcrow:F83; xcrow:F84; xcrow:F85; xcrow:F86; xcrow:F87; xcrow:F88; xcrow:F89; xcrow:F90; xcrow:F91; xcrow:F92; xcrow:F93; xcrow:F94; xcrow:F95; xcrow:F96; xcrow:F97; xcrow:F98; xcrow:F99; xcrow:F100; HUH, KEN, 12/18/2023 7:13 AM

DRAWN BY: DLH	JOB DATE: 12/14/23	BAR IS ONE INCH ON OFFICIAL DRAWINGS.
APPROVED: KMH	JOB NUMBER: 201662.2	0" = 1"
CAD DATE: 12/18/2023		IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
CAD FILE: J:\2020\201662\CAD\DWG\CIPUD_Phase_2_662.202\GEC_Early_Grading\Cover_EarlyGEC		

NO.	DATE	BY	REVISION DESCRIPTION

HRGreen
 HR GREEN - COLORADO SPRINGS
 1975 RESEARCH PKWY SUITE 230
 COLORADO SPRINGS CO 80920
 PHONE: 719.300.4140
 FAX: 713.965.0044

GRANDVIEW RESERVE - PHASE 2
 D.R. HORTON
 EL PASO COUNTY, CO

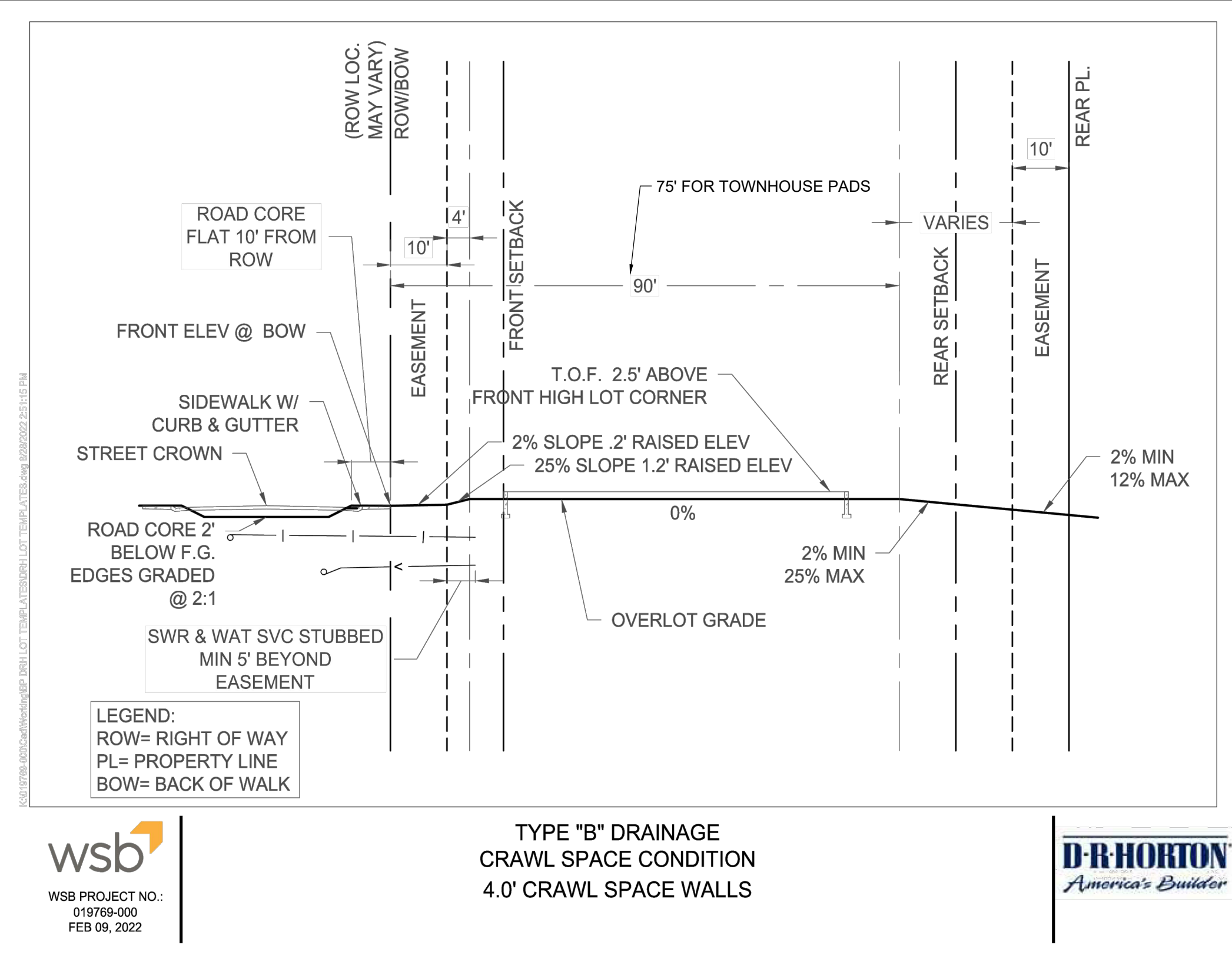
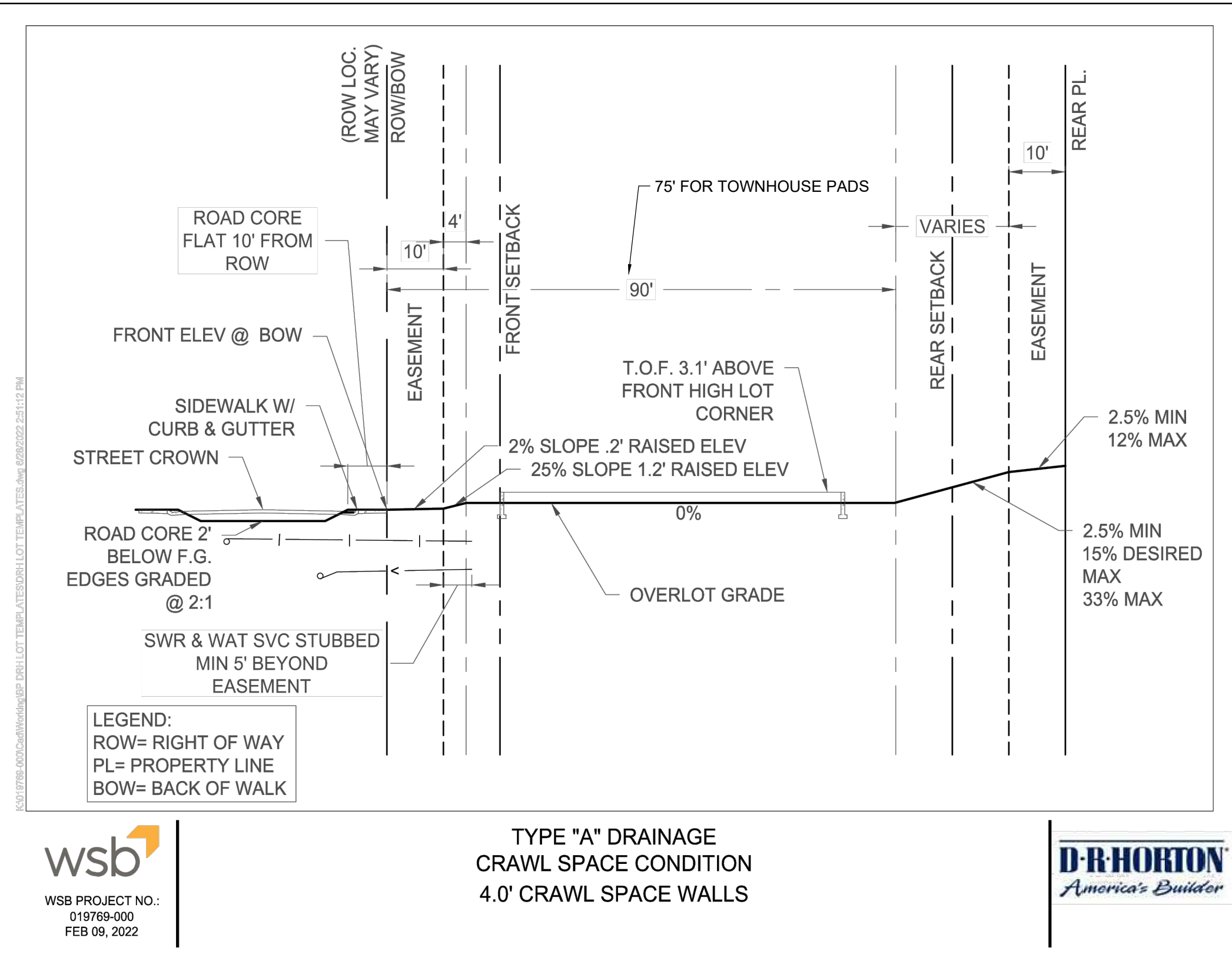
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EARLY GRADING & EROSION CONTROL PLANS
 COVER

SHEET
CV
 1

LEGEND

<p>MATCH LINE PHASE LINE SECTION LINE PROPERTY LINE EASEMENT LINE RIGHT OF WAY CENTERLINE CHAIN LINK FENCE WOODEN FENCE ROD IRON FENCE GUARDRAIL CABLE TV U.G. ELECTRIC OVERHEAD ELECTRIC FIBER OPTIC GAS MAIN SANITARY SEWER STORM DRAIN TELEPHONE WATER MAIN SWALE TRAIL CURB & GUTTER DRAINAGE BASIN INDEX CONTOUR INTER. CONTOUR 100-YR FLOODPLAIN FLOODWAY</p> <p>EDGE OF WETLANDS</p> <p>DRAINAGE</p> <p>DRAINAGE BASIN</p> <p>BASIN TAG</p> <p>DESIGN POINT</p>	<p>EXISTING</p> <p>PROPOSED</p>	<p>STORM SEWER</p> <p>MANHOLE STORM INLET FLARED END SECTION RIPRAP</p> <p>SANITARY SEWER</p> <p>CLEAN OUT MANHOLE PLUG</p> <p>WATER</p> <p>FIRE HYDRANT FIRE DEPT. CONNECTION GATE VALVE MANHOLE METER TEE REDUCER</p> <p>DRY UTILITIES</p> <p>ELECTRIC METER ELECTRIC PEDESTAL ELECTRICAL CABINET ELECTRIC VAULT FIBER OPTIC PULL BOX FIBER OPTIC MANHOLE FIBER OPTIC PEDESTAL FIBER OPTIC SIGN FIBER OPTIC VAULT GAS METER GAS SIGN GAS VAULT TELEPHONE CABINET TELEPHONE MANHOLE TELEPHONE SIGNAL/MAST TELEPHONE SIGN TELEPHONE PEDESTAL TRANSFORMER LIGHT POLE FIBER OPTIC VAULT</p>	<p>EXISTING</p> <p>PROPOSED</p> <p>MISCELLANEOUS</p> <p>SIGN BOLLARD ACCESSIBLE PARKING</p>
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DRAWN BY: DLH	JOB DATE: 12/4/2023	BAR IS ONE INCH ON OFFICIAL DRAWINGS.
APPROVED: KMH	JOB NUMBER: 201662.2	0" = 1"
CAD DATE: 12/18/2023	IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.	
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NO.	DATE	BY	REVISION DESCRIPTION

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GRANDVIEW RESERVE - PHASE 2
D.R. HORTON
EL PASO COUNTY, CO



EARLY GRADING & EROSION CONTROL PLANS
TYPICAL SECTION

GEC Checklist Item W, Show VTC here or provide construction fencing, barricades, and/or signage at access points not to be used for construction.

EX. PROP INFO: OWNER: JMK HOLDINGS LLC ZONING: A35 PLAT NO.: - AREA: 186.58 ACRES SCHEDULE NO.: 420000461

Check dams to be installed a minimum of every 1.5' of vertical fall. Note spacing and/or include a table for multiple slopes, based on your selected detail, per the example table provided:

Space temporary check dams in ditches per the following table:

Slope of Ditch Flow Line	2%	3%	4%	5%	6%	Reference	Type
Spacing (ft) (H = 0.5ft)	25	16.7	12.5	10	8.3	CDOT, MHD, DCMv2	SCL (9" Straw Matts, buried 3")
Spacing (ft) (H = 1.5ft)	75	50	37.5	30	25	MHD	Rock
Spacing (ft) (H = 2.0ft)	100	67	50	40	33	CDOT	Rock
Spacing (ft) (H = to convey 2-yr flow)	TBD	TBD	TBD	TBD	TBD	DCMv2	Rock

GRADING & EROSION CONTROL PLAN NOTES:

- SEE SHEETS 7-11 FOR EL PASO COUNTY GRADING AND EROSION CONTROL DETAILS.
- ALL STORMWATER MANAGEMENT MEASURES SHOWN ON THIS PLAN MUST BE INSTALLED AND MAINTAINED PER THE EL PASO COUNTY GRADING AND EROSION CONTROL DETAILS.
- NO NOTABLE VEGETATION FOUND WITHIN SITE EXCEPT FOR NATIVE GRASSES/WEEDS.
- AREA WITHIN LIMITS OF DISTURBANCE TO BE CLEARED, GRUBBED AND STOCKPILED PRIOR TO IMPORT OF ANY FILL.
- ALL 3:1 SLOPES MUST BE RECEIVE SLOPE TRACKING TREATMENT AND EROSION CONTROL BLANKET.
- STOCKPILES REQUIRED DURING ONSITE CONSTRUCTION ACTIVITIES WILL BE PLACED AT THE DISCRETION OF THE CONTRACTOR. STOCKPILING OF MATERIAL MUST NOT OCCUR OUTSIDE THE LIMITS OF DISTURBANCE SHOWN ON THIS PLAN.
- NON-STRUCTURAL CONTROLS (I.E. STREET SWEEPING) WILL BE AT THE DISCRETION OF THE PROJECT'S CERTIFIED GEC ADMINISTRATOR THROUGHOUT THE DURATION OF LAND DISTURBING ACTIVITIES.
- THERE ARE NO ANTICIPATED ASPHALT AND/OR CONCRETE BATCH PLANTS, OR MASONRY MIX STATIONS ASSOCIATED WITH THIS PROJECT. IF THE CONTRACTOR REQUIRES A ASPHALT/CONCRETE BATCH PLANTS OR MASONRY MIX STATIONS, THESE PLANS WILL BE AMENDED AS REQUIRED.
- THERE ARE NO EXISTING PRESERVATION EASEMENTS LOCATED ON SITE.

PROJECT INFO:

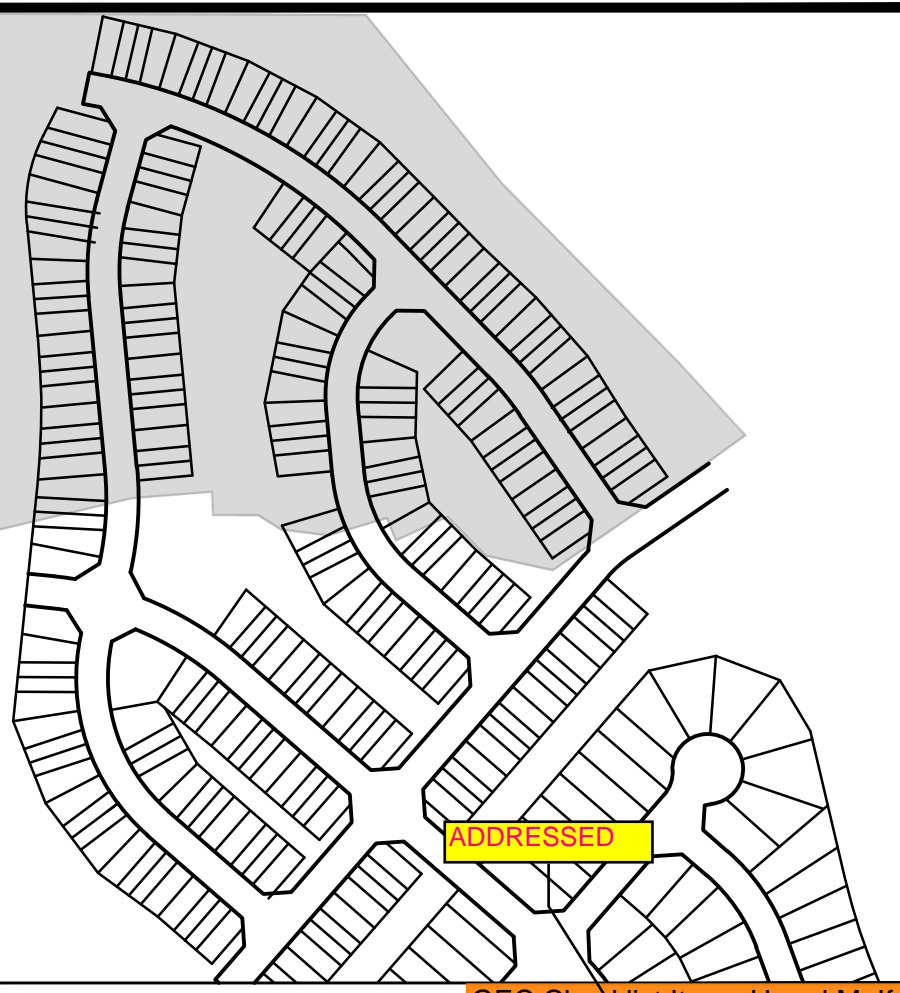
TOTAL DISTURBANCE AREA = 68.28 AC
 RECEIVING WATERS: BLACK SQUIRREL CREEK
 ANTICIPATED START OF CONSTRUCTION: SPRING 2025
 ANTICIPATED END OF LAND DISTURBANCE: SUMMER 2025
 ANTICIPATED FINAL STABILIZATION: FALL 2025

Does not match what is shown on Page 2 of the ESQCP. Please revise to remove discrepancy.

HRG Addressed, area updated to 68.1 acres on all documents

ADDRESSED - NO SCL REMOVED FROM LEGEND - CF IS SHOWN ON PLANS JUST NOT THIS SHEET

Show locations on plans. They are both shown on the FAE form.



GEC LEGEND:

- CWA CONCRETE WASHOUT AREA
- ED/DS EARTH DIKE & DRAINAGE SWALE
- IP INLET PROTECTION
- CIP CULVERT INLET PROTECTION
- SCL SEDIMENT CONTROL LOG
- SF SILT FENCE
- CF CONSTRUCTION FENCE
- SSA STABILIZED STAGING AREA
- SP STOCKPILE PROTECTION
- VTC VEHICLE TRACKING CONTROL
- LOD LIMITS OF CONSTRUCTION (CUT/FILL LIMIT)
- SM TEMPORARY SEEDING AND MULCHING
- PT PORTABLE TOILET
- CD CHECK DAM
- TSB TEMPORARY SEDIMENT BASIN
- ECB EROSION CONTROL BLANKET
- SR SURFACE ROUGHENING
- TW/BW ELEVATION OF TOP/BOTTOM OF WALL DO NOT DISTURB/ PROPOSED WORK BY OTHERS
- AREA OF CUT
- PROP FLOW DIRECTION
- EX FLOW DIRECTION
- EX FLOODPLAIN
- PR. FLOWLINE OF CHANNEL B

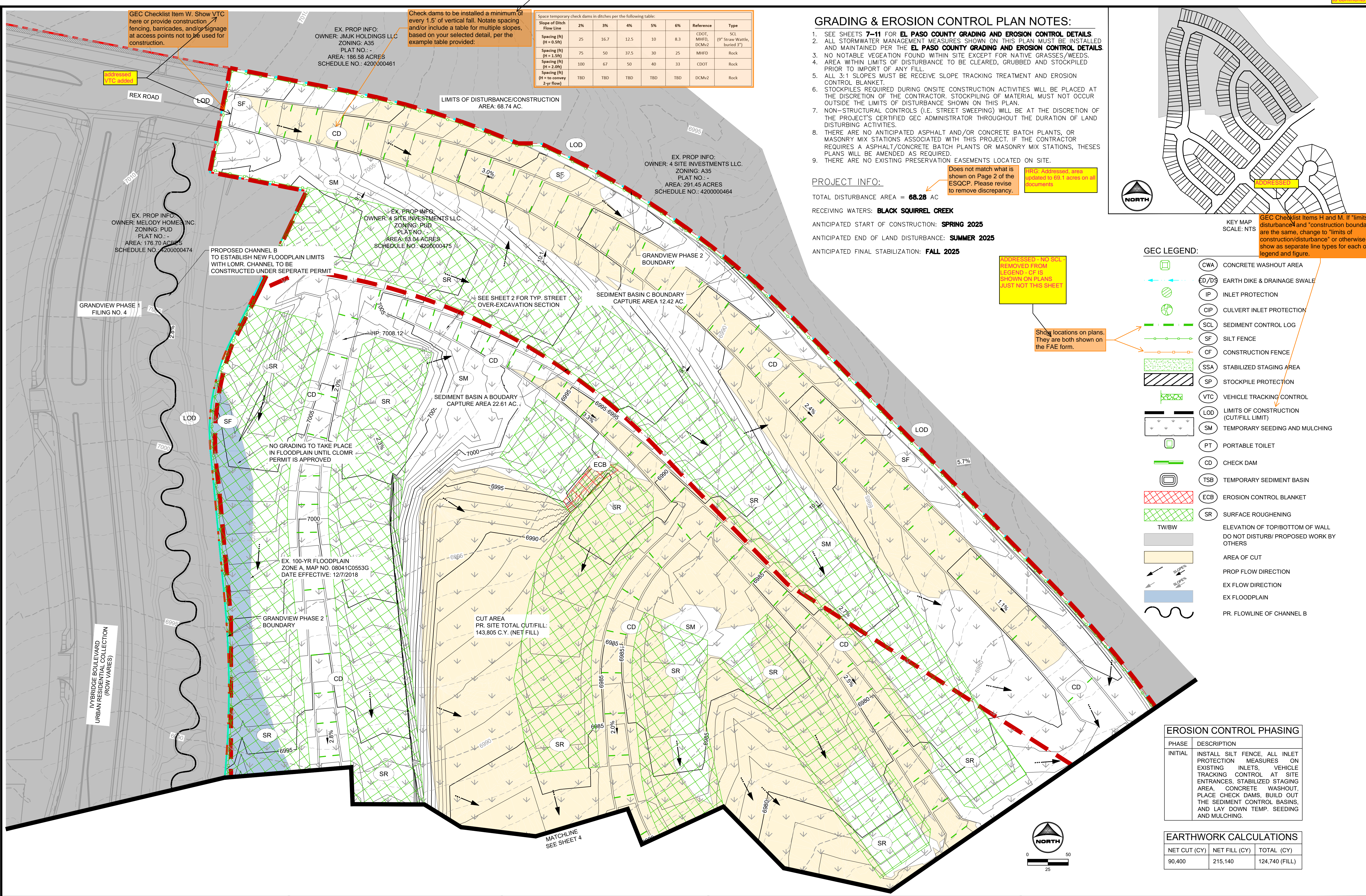
GEC Checklist Items H and M. If "limits of disturbance" and "construction boundary" are the same, change to "limits of construction/disturbance" or otherwise show as separate line types for each on the legend and figure.

EROSION CONTROL PHASING

PHASE	DESCRIPTION
INITIAL	INSTALL SILT FENCE, ALL INLET PROTECTION MEASURES ON EXISTING INLETS, VEHICLE TRACKING CONTROL AT SITE ENTRANCES, STABILIZED STAGING AREA, CONCRETE WASHOUT, PLACE CHECK DAMS, BUILD OUT THE SEDIMENT CONTROL BASINS, AND LAY DOWN TEMP. SEEDING AND MULCHING.

EARTHWORK CALCULATIONS

NET CUT (CY)	NET FILL (CY)	TOTAL (CY)
90,400	215,140	124,740 (FILL)



IVYBRIDGE BOULEVARD URBAN RESIDENTIAL COLLECTION (ROW VARIES)

EX. 100-YR FLOODPLAIN ZONE A, MAP NO. 08041C0553G DATE EFFECTIVE: 12/7/2018

CUT AREA PR. SITE TOTAL CUT/FILL: 143,805 C.Y. (NET FILL)

MATCHLINE SEE SHEET 4



DRAWN BY: DLH JOB DATE: 12/18/23
 APPROVED: KMH JOB NUMBER: 201662.2
 CAD DATE: 12/18/2023
 CAD FILE: J:\2020\201662\CAD\DWG\CIPUD_Phase_2_662.202\GEC_Early_Grading\GEC_EarlyGrading

BAR IS ONE INCH ON OFFICIAL DRAWINGS.
 IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

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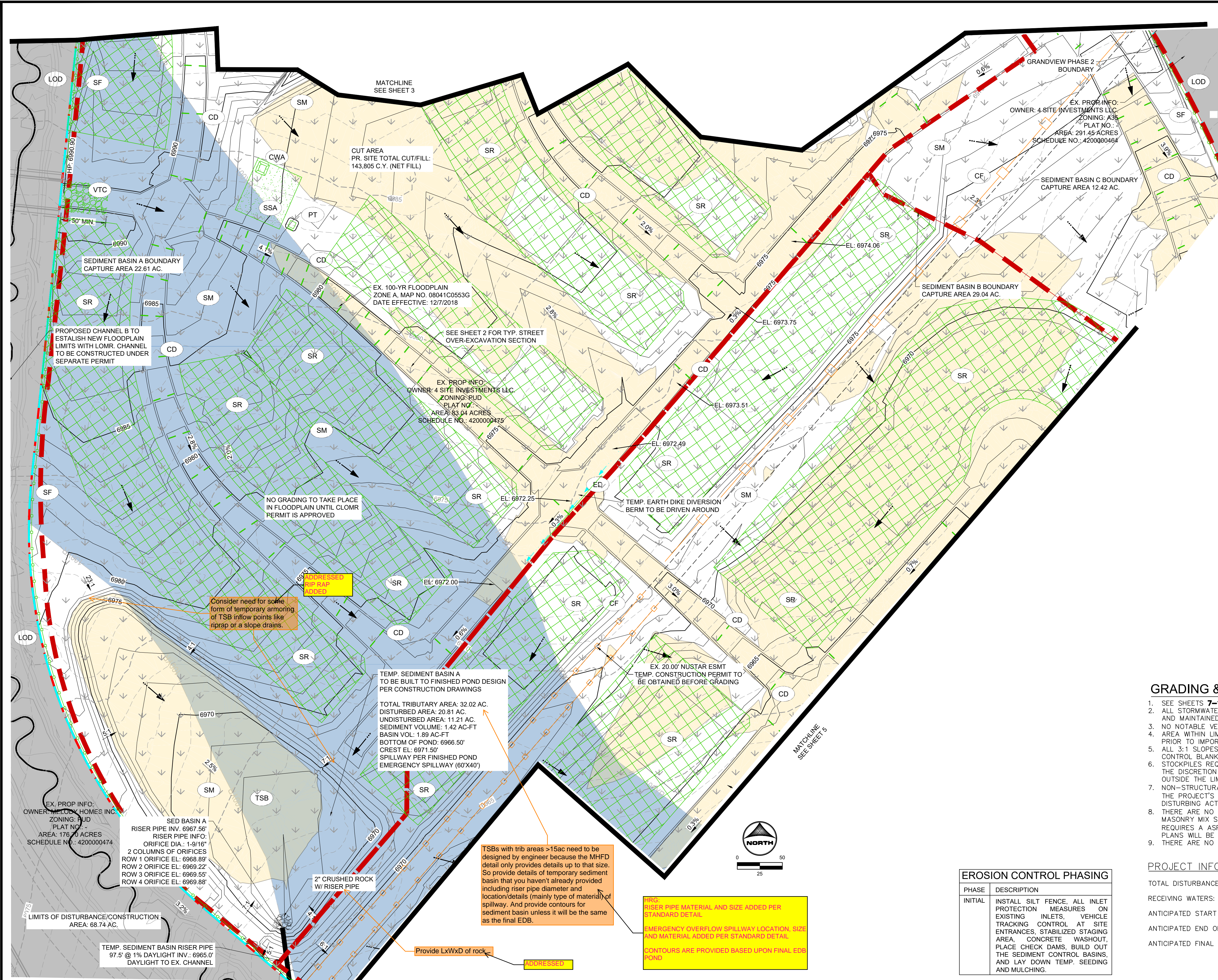
HRGreen
 HR GREEN - COLORADO SPRINGS
 1975 RESEARCH PKWY SUITE 230
 COLORADO SPRINGS CO 80920
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GRANDVIEW RESERVE - PHASE 2
 D.R. HORTON
 EL PASO COUNTY, CO

D-R HORTON
 America's Builder

EARLY GRADING & EROSION CONTROL PLANS
 GEC INITIAL

SHEET
 GEC
 3



- GEC LEGEND:**
- CWA CONCRETE WASHOUT AREA
 - ED/DS EARTH DIKE & DRAINAGE SWALE
 - IP INLET PROTECTION
 - CIP CULVERT INLET PROTECTION
 - SCL SEDIMENT CONTROL LOG
 - SF SILT FENCE
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 - SP STOCKPILE PROTECTION
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 - LOD LIMITS OF CONSTRUCTION (CUT/FILL LIMIT)
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 - TSB TEMPORARY SEDIMENT BASIN
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 - SR SURFACE ROUGHENING
 - TW/BW ELEVATION OF TOP/BOTTOM OF WALL
DO NOT DISTURB/ PROPOSED WORK BY OTHERS
 - AREA OF CUT
 - PROP FLOW DIRECTION
 - EX FLOW DIRECTION
 - EX FLOODPLAIN
 - PR. FLOWLINE OF CHANNEL B

- GRADING & EROSION CONTROL PLAN NOTES:**
- SEE SHEETS 7-11 FOR EL PASO COUNTY GRADING AND EROSION CONTROL DETAILS.
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 - THERE ARE NO EXISTING PRESERVATION EASEMENTS LOCATED ON SITE.

PROJECT INFO:

TOTAL DISTURBANCE AREA = **68.28** AC

RECEIVING WATERS: **BLACK SQUIRREL CREEK**

ANTICIPATED START OF CONSTRUCTION: **SPRING 2025**

ANTICIPATED END OF LAND DISTURBANCE: **SUMMER 2025**

ANTICIPATED FINAL STABILIZATION: **FALL 2025**

EROSION CONTROL PHASING

PHASE	DESCRIPTION
INITIAL	INSTALL SILT FENCE, ALL INLET PROTECTION MEASURES ON EXISTING INLETS, VEHICLE TRACKING CONTROL AT SITE ENTRANCES, STABILIZED STAGING AREA, CONCRETE WASHOUT, PLACE CHECK DAMS, BUILD OUT THE SEDIMENT CONTROL BASINS, AND LAY DOWN TEMP. SEEDING AND MULCHING.

TEMP. SEDIMENT BASIN A TO BE BUILT TO FINISHED POND DESIGN PER CONSTRUCTION DRAWINGS

TOTAL TRIBUTARY AREA: 32.02 AC.
 DISTURBED AREA: 20.81 AC.
 UNDISTURBED AREA: 11.21 AC.
 SEDIMENT VOLUME: 1.42 AC-FT
 BASIN VOL: 1.89 AC-FT
 BOTTOM OF POND: 6966.50'
 CREST EL: 6971.50'
 SPILLWAY PER FINISHED POND EMERGENCY SPILLWAY (60'X40')

EX. PROP INFO: OWNER: MELODY HOMES INC. ZONING: PUD PLAT NO.: AREA: 176.70 ACRES SCHEDULE NO.: 4200000474

SED BASIN A RISER PIPE INV. 6967.56' RISER PIPE INFO: ORIFICE DIA.: 1-9/16" 2 COLUMNS OF ORIFICES ROW 1 ORIFICE EL: 6968.89' ROW 2 ORIFICE EL: 6969.22' ROW 3 ORIFICE EL: 6969.55' ROW 4 ORIFICE EL: 6969.88'

LIMITS OF DISTURBANCE/CONSTRUCTION AREA: 68.74 AC.

TEMP. SEDIMENT BASIN RISER PIPE 97.5' @ 1% DAYLIGHT INV.: 6965.0' DAYLIGHT TO EX. CHANNEL

TSBs with trib areas >15ac need to be designed by engineer because the MFD detail only provides details up to that size. So provide details of temporary sediment basin that you haven't already provided including riser pipe diameter and location/details (mainly type of material) of spillway. And provide contours for sediment basin unless it will be the same as the final EDB.

HRG RISER PIPE MATERIAL AND SIZE ADDED PER STANDARD DETAIL

EMERGENCY OVERFLOW SPILLWAY LOCATION, SIZE AND MATERIAL ADDED PER STANDARD DETAIL

CONTOURS ARE PROVIDED BASED UPON FINAL EDB POND

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 APPROVED: KMH JOB NUMBER: 201662.2
 CAD DATE: 12/18/2023
 CAD FILE: J:\2020\201662\CAD\DWG\CIPUD_Phase_2_662.202\GEC_Early_Grading\GEC_EarlyGrading.dwg

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GRANDVIEW RESERVE - PHASE 2
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Surface Roughening (SR) EC-1

SR-1. SURFACE ROUGHENING FOR STEEP SLOPES (3:1 OR STEEPER)

SR-2. SURFACE ROUGHENING FOR LOW SLOPES (LESS THAN 3:1)

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

EC-1 Surface Roughening (SR)

SURFACE ROUGHENING INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATIONS OF SURFACE ROUGHENING.
- SURFACE ROUGHENING SHALL BE PROVIDED PROMPTLY AFTER COMPLETION OF FINISHED GRADING (FOR AREAS NOT RECEIVING TOPSOIL) OR PRIOR TO TOPSOIL PLACEMENT OR ANY FORECASTED RAIN EVENT.
- AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOD WILL BE PLACED WITHOUT DELAY IN THE CONSTRUCTION SEQUENCE, SURFACE ROUGHENING IS NOT REQUIRED.
- DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.
- A FARMING DISK SHALL NOT BE USED FOR SURFACE ROUGHENING.

SURFACE ROUGHENING MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACE UPON DISCOVERY OF THE FAILURE.
- VEHICLES AND EQUIPMENT 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.
- IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER RILL EROSION.

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

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

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

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses

Species ^a (Common name)	Growth Season ^b	Pounds of Pure Live Seed (PLS)/acre ^c	Planting Depth (inches)
1. Oats	Cool	35 - 50	1 - 2
2. Spring wheat	Cool	25 - 35	1 - 2
3. Spring barley	Cool	25 - 35	1 - 2
4. Annual ryegrass	Cool	10 - 15	½
5. Millet	Warm	3 - 15	½ - ¾
6. Winter wheat	Cool	20 - 35	1 - 2
7. Winter barley	Cool	20 - 35	1 - 2
8. Winter rye	Cool	20 - 35	1 - 2
9. Triticale	Cool	25 - 40	1 - 2

^a Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

^b See Table TS/PS-2 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

^c Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

November 2021 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 TS/PS-4

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-2. Seeding Dates for Annual and Perennial Grasses

Seeding Dates	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
	Warm	Cool	Warm	Cool
January 1–March 15			✓	✓
March 16–April 30		1,2,3	✓	✓
May 1–May 15			✓	
May 16–June 30	5			
July 1–July 15	5			
July 16–August 31				
September 1–September 30			6, 7, 8, 9	
October 1–December 31			✓	✓

Mulch

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the USDCM Volume 2 *Revegetation* Chapter and Volume 3 *Mulching BMP Fact Sheet (EC-04)* for additional guidance.

Maintenance and Removal

Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

If a temporary annual seed was planted, the area should be reseeded with the desired perennial mix when there will be no further work in the area. To minimize competition between annual and perennial species, the annual mix needs time to mature and die before seeding the perennial mix. To increase success of the perennial mix, it should be seeded during the appropriate seeding dates the second year after the temporary annual mix was seeded. Alternatively, if this timeline is not feasible, the annual mix seed heads should be removed and then the area seeded with the perennial mix.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

January 2021 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 TS/PS-5

EC-6 Rolled Erosion Control Products (RECP)

ECB-1. PIPE OUTLET TO DRAINAGEWAY

ECB-2. SMALL DITCH OR DRAINAGEWAY

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

EC-6 Rolled Erosion Control Products (RECP)

ECB-3. OUTSIDE OF DRAINAGEWAY

STAKING PATTERNS BY ECB TYPE

STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

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

EC-6 Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF ECB.
 - TYPE OF ECB (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).
 - AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEDED AND MULCHED.
- DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB-1. ECB MATERIAL SPECIFICATIONS

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

*STRAW ECBs MAY ONLY BE USED SLOPE OF STRAIGHT AND CHANNEL CHANNELS. ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS.

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 RECP-8

EC-6 Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
- ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN BEYOND OF GRASS SHALL BE REPAIRED, RESEDED AND MULCHED AND THE ECB REINSTALLED.

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

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

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

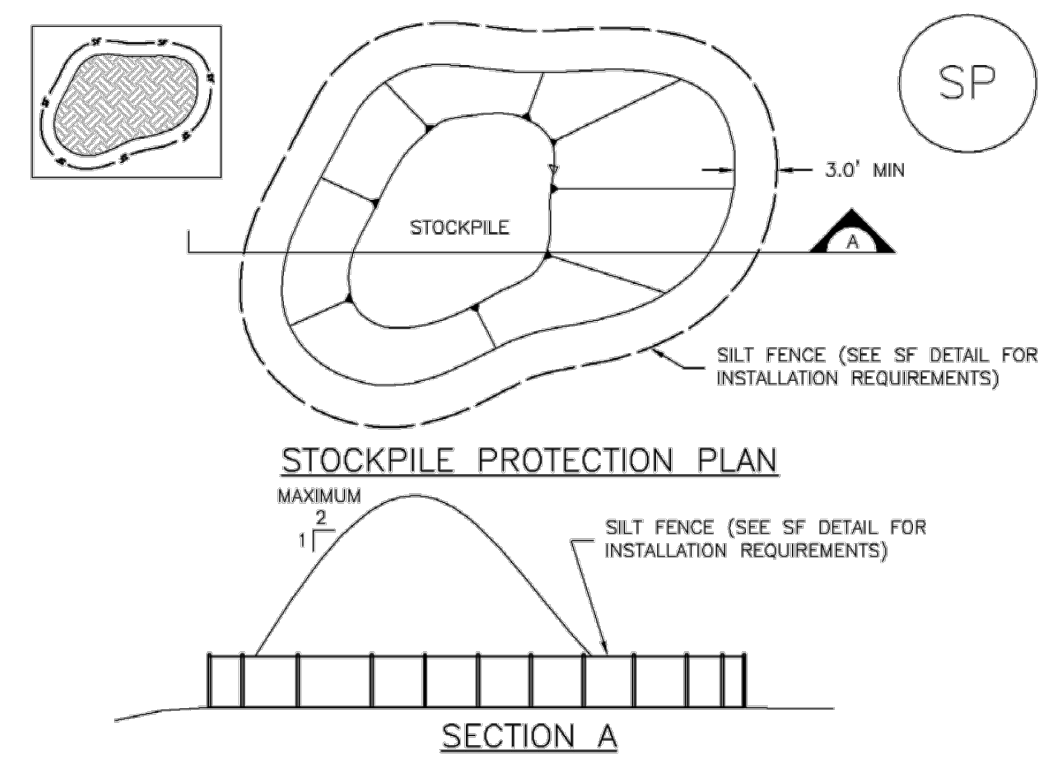
MM-1 Concrete Washout Area (CWA)

CWA MAINTENANCE NOTES

- 1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE, CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
(Detail adapted from Douglas County, Colorado and the City of Parker, Colorado, not available in AutoCAD).
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

CWA-4 Urban Drainage and Flood Control District November 2010
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Stockpile Management (SP) MM-2



SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

- 1. SEE PLAN VIEW FOR:
- LOCATION OF STOCKPILES
- TYPE OF STOCKPILE PROTECTION.
2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNDRIFT CONTROLS INCLUDING PERIMETER CONTROL ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

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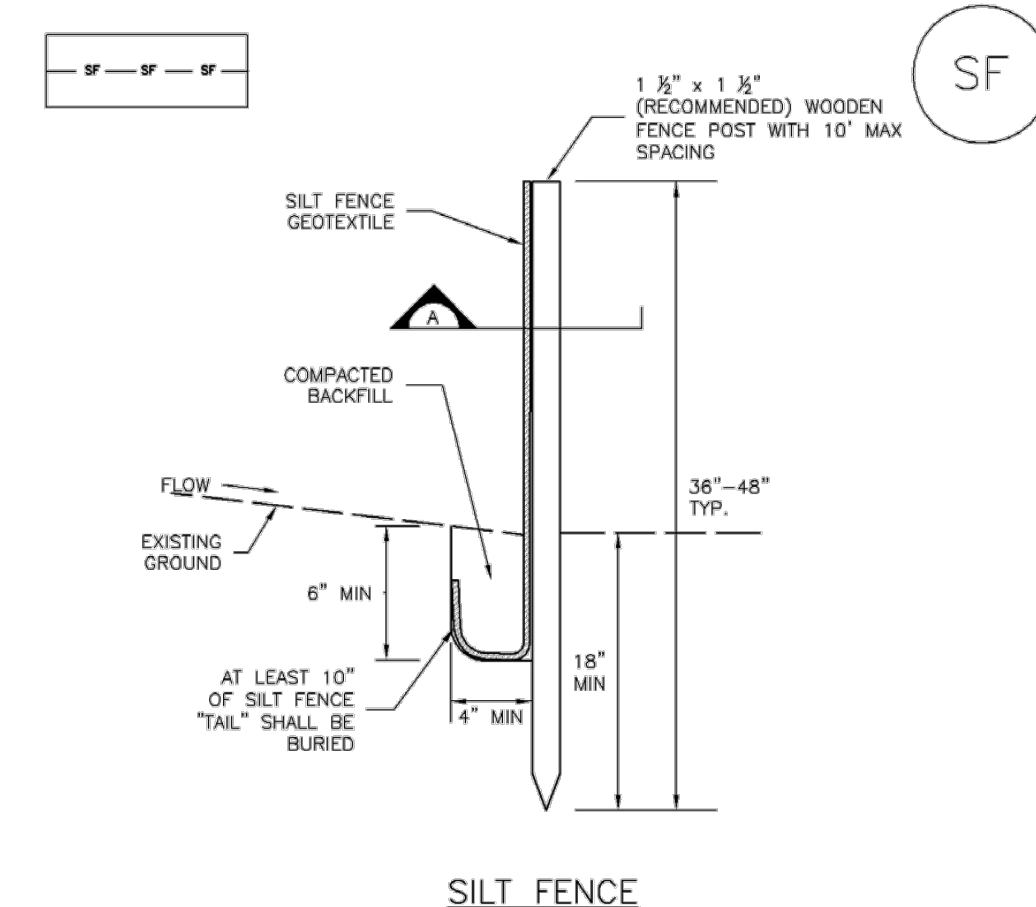
MM-2 Stockpile Management (SM)

STOCKPILE PROTECTION MAINTENANCE NOTES

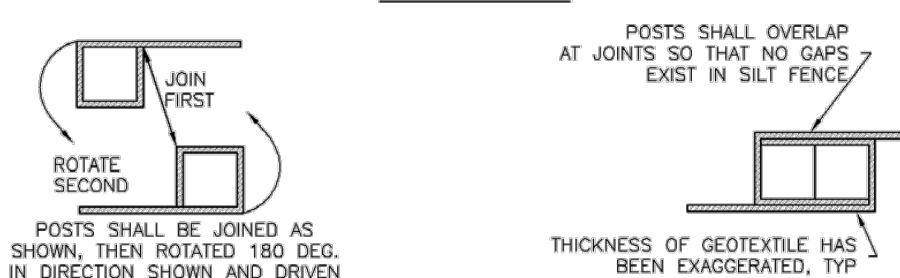
- 1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.
(Details adapted from Parker, Colorado, not available in AutoCAD).
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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Silt Fence (SF) SC-1



SILT FENCE



SECTION A

SF-1. SILT FENCE

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SC-1 Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

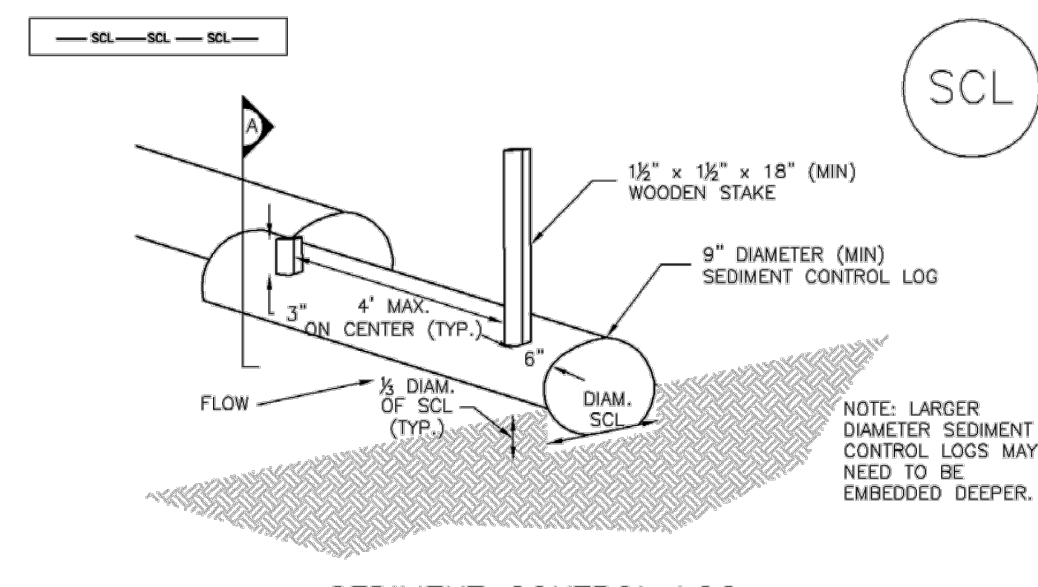
- 1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
2. A UNIFORM 6" x 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTATION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

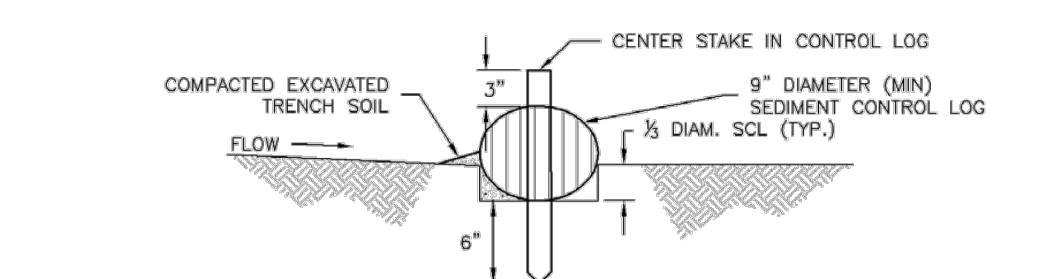
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3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
(Detail adapted from Town of Parker, Colorado and City of Aurora, not available in AutoCAD).
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SF-4 Urban Drainage and Flood Control District November 2010
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Sediment Control Log (SCL) SC-2



SEDIMENT CONTROL LOG



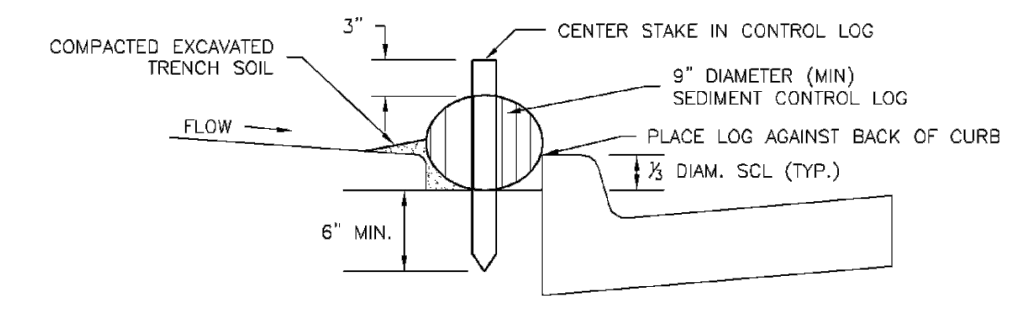
SECTION A

SEDIMENT CONTROL LOG JOINTS

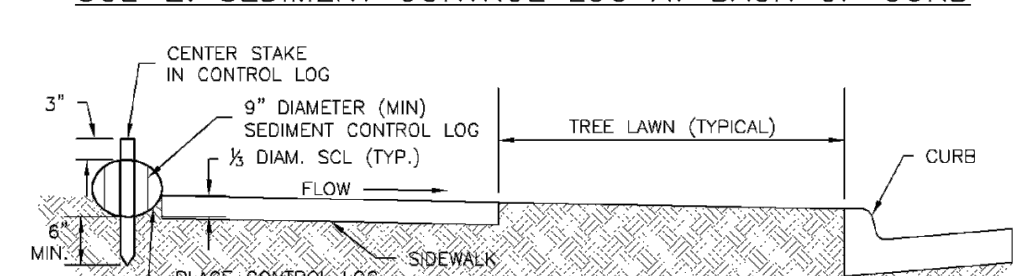
SCL-1. SEDIMENT CONTROL LOG

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

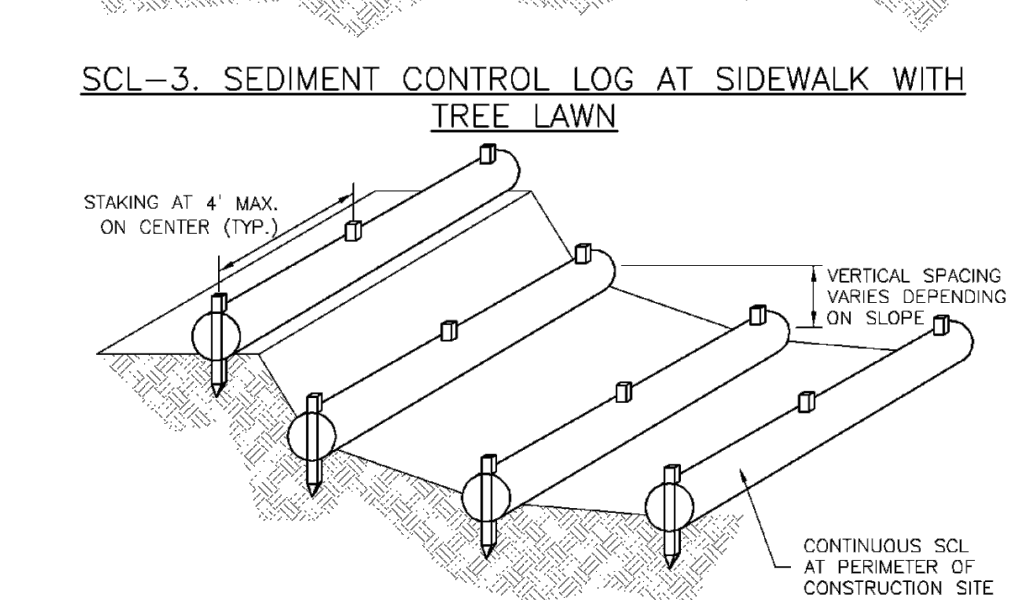
SC-2 Sediment Control Log (SCL)



SCL-2. SEDIMENT CONTROL LOG AT BACK OF CURB



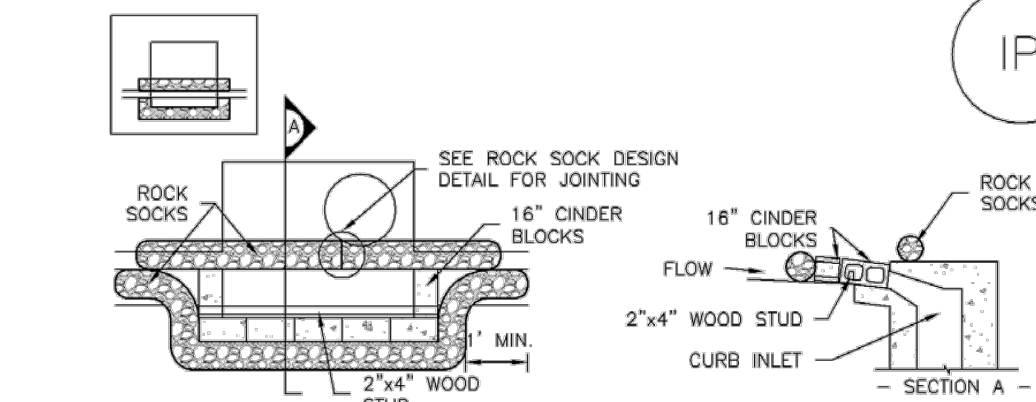
SCL-3. SEDIMENT CONTROL LOG AT SIDEWALK WITH TREE LAWN



SCL-4. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

SCL-4 Urban Drainage and Flood Control District November 2010
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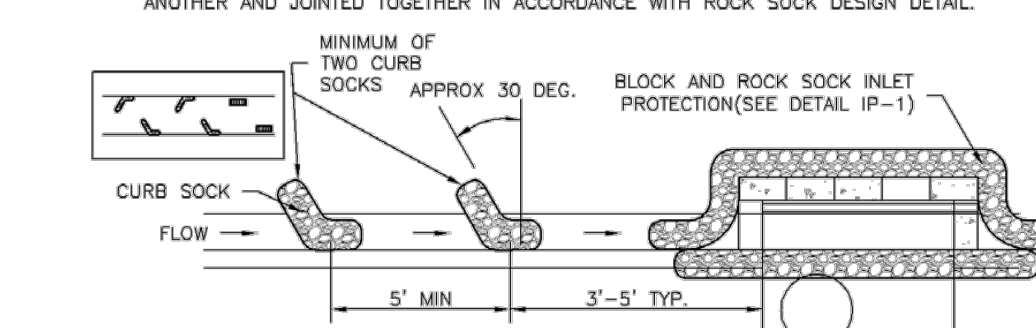
SC-6 Inlet Protection (IP)



IP-1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

- 1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

- 1. SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
3. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.
4. AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.

IP-4 Urban Drainage and Flood Control District August 2013
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Table with columns: NO., DATE, BY, REVISION DESCRIPTION.

HRGreen logo and address: 1975 RESEARCH PKWY SUITE 230 COLORADO SPRINGS CO 80920 PHONE: 719.300.4140 FAX: 713.965.0044

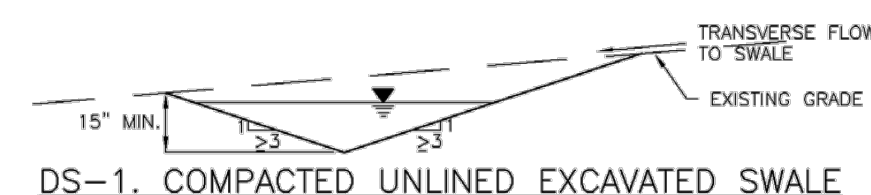
GRANDVIEW RESERVE - PHASE 2 D.R. HORTON EL PASO COUNTY, CO D-R-HORTON America's Builder

EARLY GRADING & EROSION CONTROL PLANS DETAILS SHEET DT 8

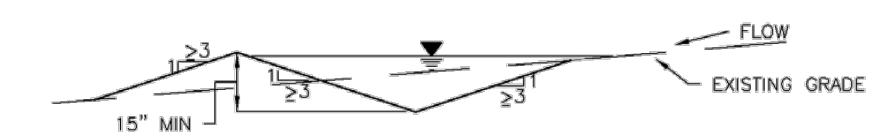
Earth Dikes and Drainage Swales (ED/DS) EC-10



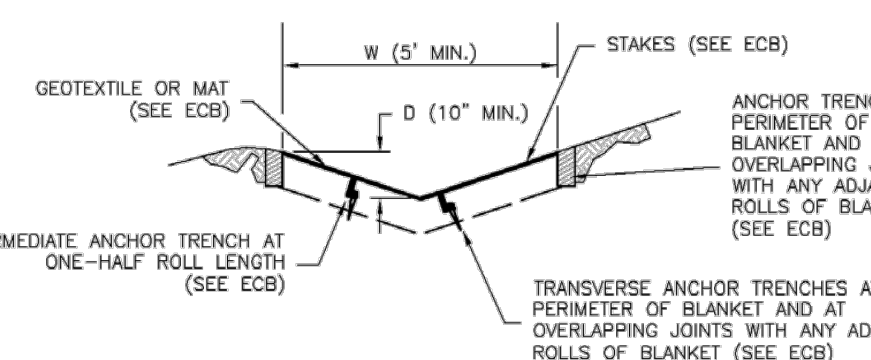
ED-1. COMPACTED UNLINED EARTH DIKE FORMED BY BERM



DS-1. COMPACTED UNLINED EXCAVATED SWALE



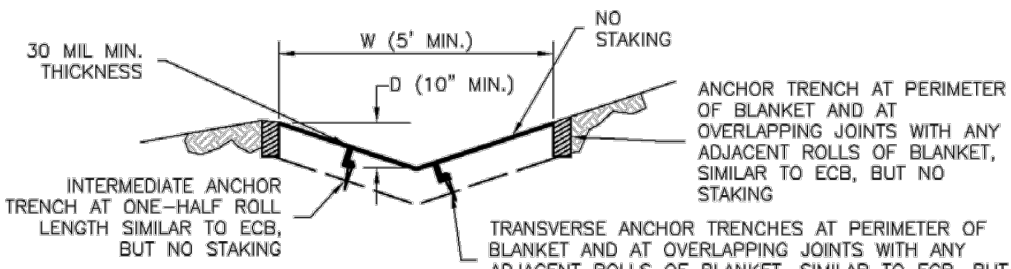
DS-2. COMPACTED UNLINED SWALE FORMED BY CUT AND FILL



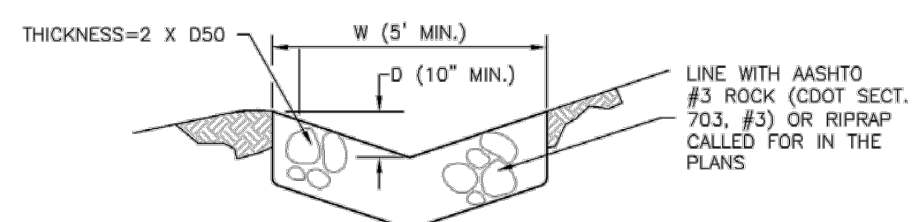
DS-3. ECB LINED SWALE (CUT AND FILL OR BERM)

November 2010 Urban Drainage and Flood Control District ED/DS-3
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EC-10 Earth Dikes and Drainage Swales (ED/DS)



DS-4. SYNTHETIC LINED SWALE



DS-5. RIPRAP LINED SWALE

EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

- SEE SITE PLAN FOR:
 - LOCATION OF DIVERSION SWALE
 - TYPE OF SWALE (UNLINED, COMPACTED AND/OR LINED)
 - LENGTH OF EACH SWALE
 - DEPTH, D, AND WIDTH, W, DIMENSIONS
 - FOR ECB/TRM LINED DITCH, SEE ECB DETAIL
 - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, D50.
- SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCEEDING 2-YEAR FLOW RATE OR 10 CFS.
- EARTH DIKES AND SWALES INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES IN PROXIMITY.
- EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.
- SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.
- FOR LINED DITCHES, INSTALLATION OF ECB/TRM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.
- WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

ED/DS-4 Urban Drainage and Flood Control District November 2010
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Earth Dikes and Drainage Swales (ED/DS) EC-10

EARTH DIKE AND DRAINAGE SWALE MAINTENANCE NOTES

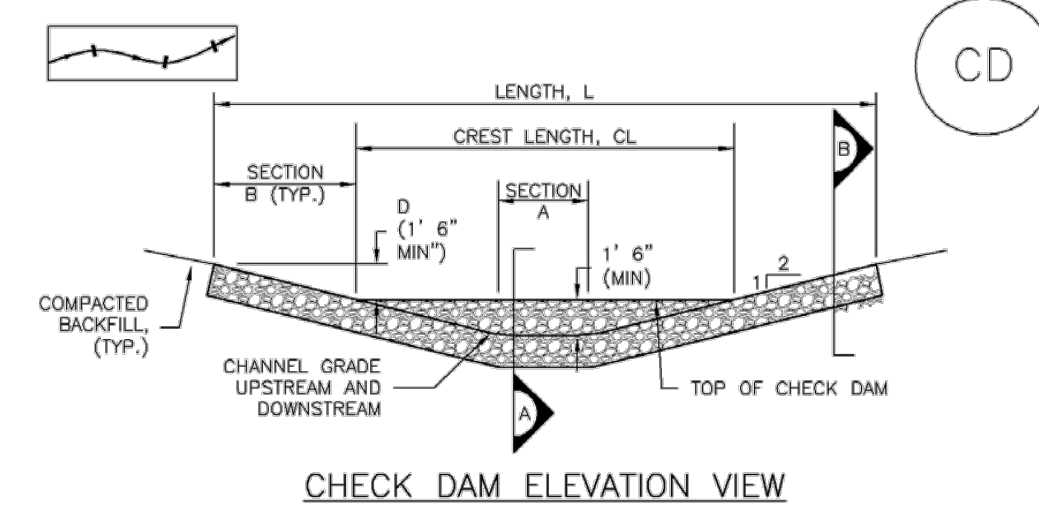
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- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.
- WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

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

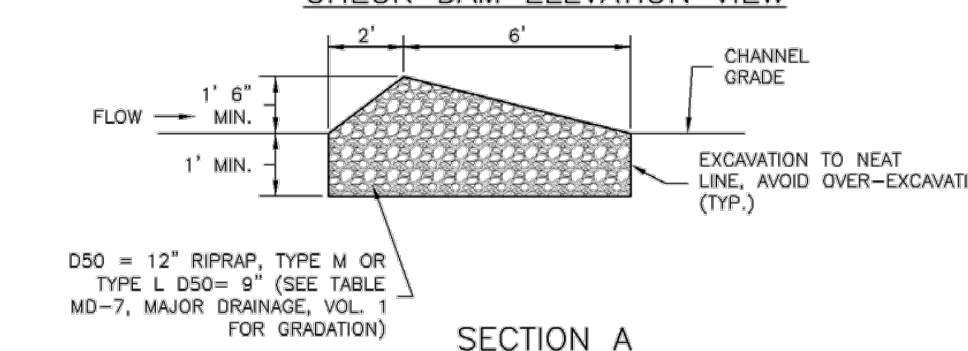
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November 2010 Urban Drainage and Flood Control District ED/DS-5
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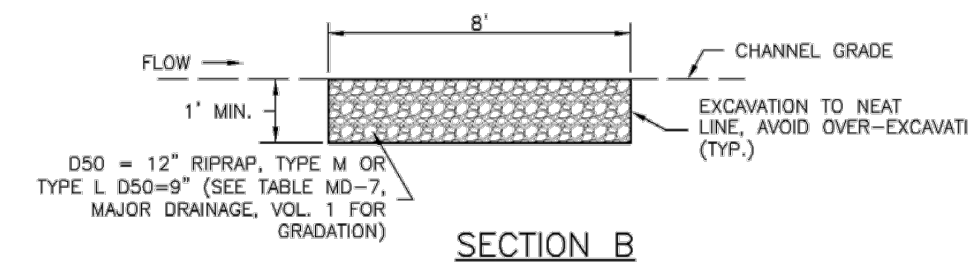
Check Dams (CD) EC-12



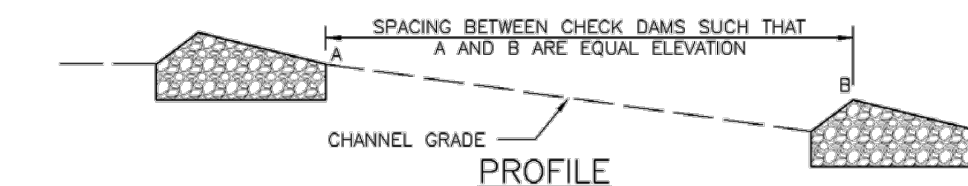
CHECK DAM ELEVATION VIEW



SECTION A



SECTION B



PROFILE

CD-1. CHECK DAM

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EC-12 Check Dams (CD)

CHECK DAM INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF CHECK DAMS
 - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM)
 - LENGTH (L), CREST LENGTH (CL), AND DEPTH (D).
- CHECK DAMS INDICATED ON INITIAL SWMP SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND DISTURBING ACTIVITIES.
- RIPRAP UTILIZED FOR CHECK DAMS SHOULD BE OF APPROPRIATE SIZE FOR THE APPLICATION. TYPICAL TYPES OF RIPRAP USED FOR CHECK DAMS ARE TYPE M (D50 12") OR TYPE L (D50 9").
- RIPRAP PAD SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'.
- THE ENDS OF THE CHECK DAM SHALL BE A MINIMUM OF 1' 6" HIGHER THAN THE CENTER OF THE CHECK DAM.

CHECK DAM MAINTENANCE NOTES

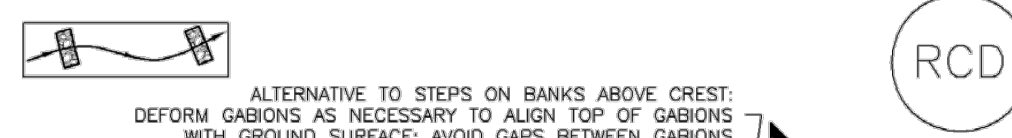
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- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF THE CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
- CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
- WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACKFILL. DISTURBED AREA SHALL BE SEEDED AND MULCHED AND COVERED WITH GEOTEXTILE OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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

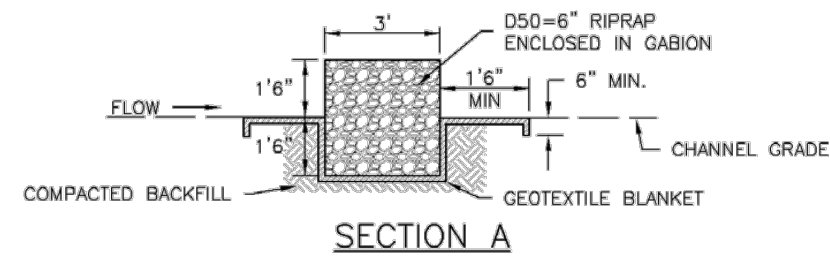
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CD-4 Urban Drainage and Flood Control District November 2010
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Check Dams (CD) EC-12



REINFORCED CHECK DAM ELEVATION VIEW



SECTION A

CD-2. REINFORCED CHECK DAM

REINFORCED CHECK DAM INSTALLATION NOTES

- 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).
- CHECK DAMS INDICATED ON THE SWMP SHALL BE INSTALLED PRIOR TO AN UPSTREAM LAND-DISTURBING ACTIVITIES.
- REINFORCED CHECK DAMS, GABIONS SHALL HAVE GALVANIZED TWISTED WIRE NETTING WITH A MAXIMUM OPENING DIMENSION OF .48" AND A MINIMUM WIRE THICKNESS OF 0.10". WIRE "HOG RINGS" AT 4' SPACING OR OTHER APPROVED MEANS SHALL BE USED AT ALL GABION SEAMS AND TO SECURE THE GABION TO THE ADJACENT SECTION.
- THE CHECK DAM SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1' 6".
- GEOTEXTILE 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.

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EC-12 Check Dams (CD)

REINFORCED CHECK DAM MAINTENANCE NOTES

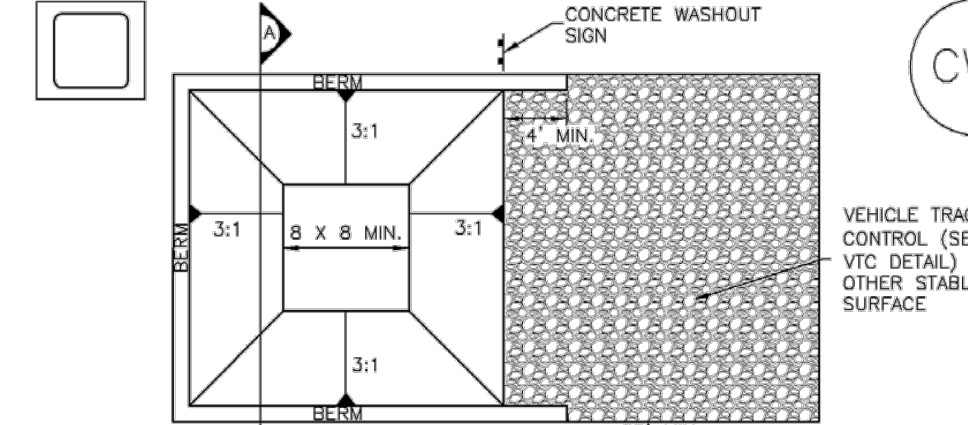
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- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF REINFORCED CHECK DAMS SHALL BE REMOVED AS NEEDED TO MAINTAIN THE EFFECTIVENESS OF BMP, TYPICALLY WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN 1/2 THE HEIGHT OF THE CREST.
- REPAIR OR REPLACE REINFORCED CHECK DAMS WHEN THERE ARE SIGNS OF DAMAGE SUCH AS HOLES IN THE GABION OR UNDERCUTTING.
- REINFORCED CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
- WHEN REINFORCED CHECK DAMS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, AND COVERED WITH A GEOTEXTILE BLANKET, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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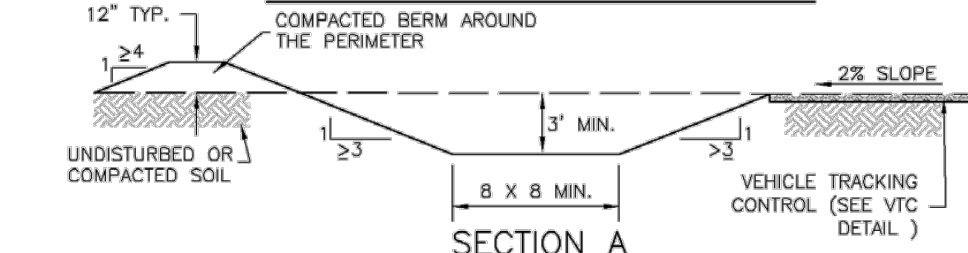
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CD-6 Urban Drainage and Flood Control District November 2010
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Concrete Washout Area (CWA) MM-1



CONCRETE WASHOUT AREA PLAN



SECTION A

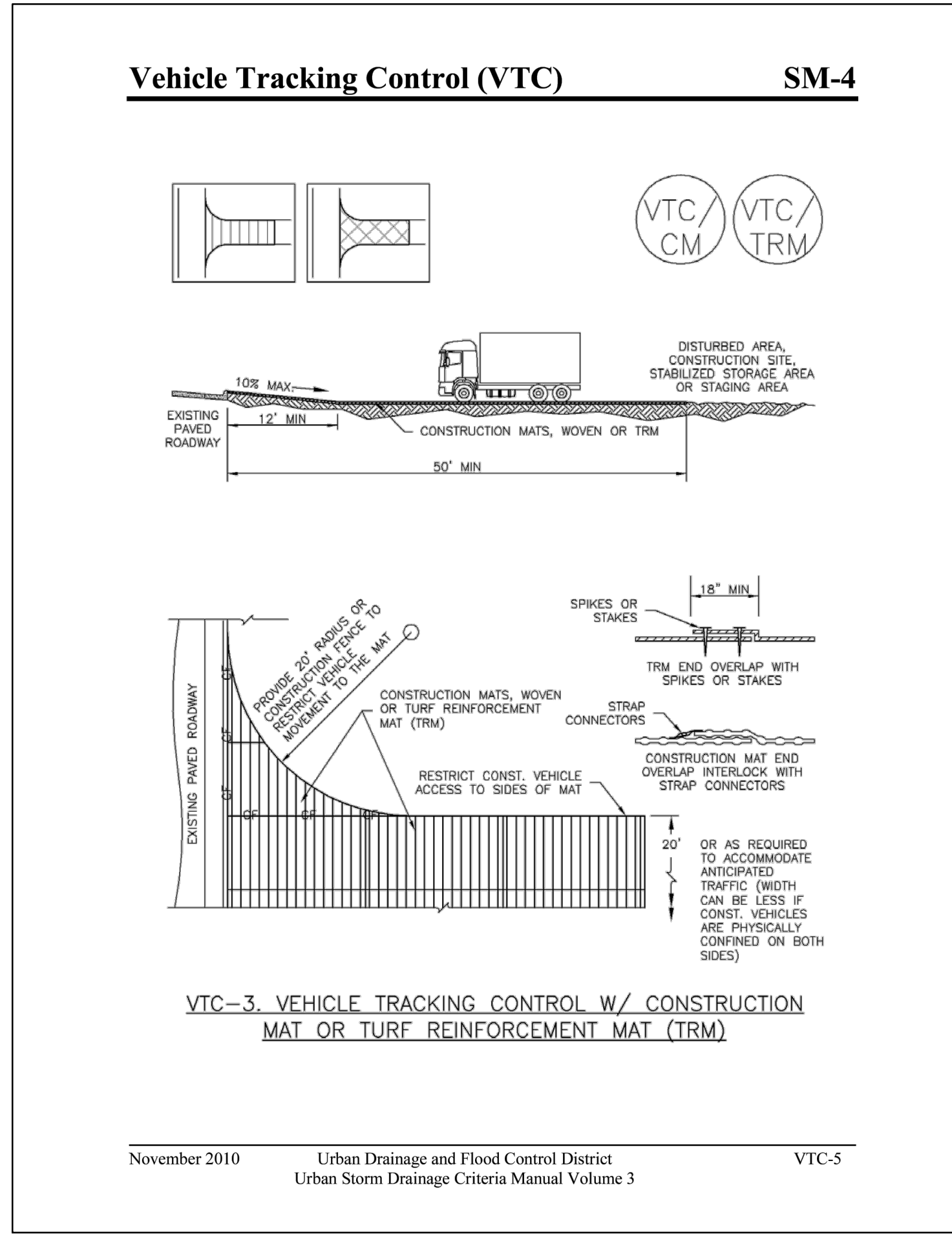
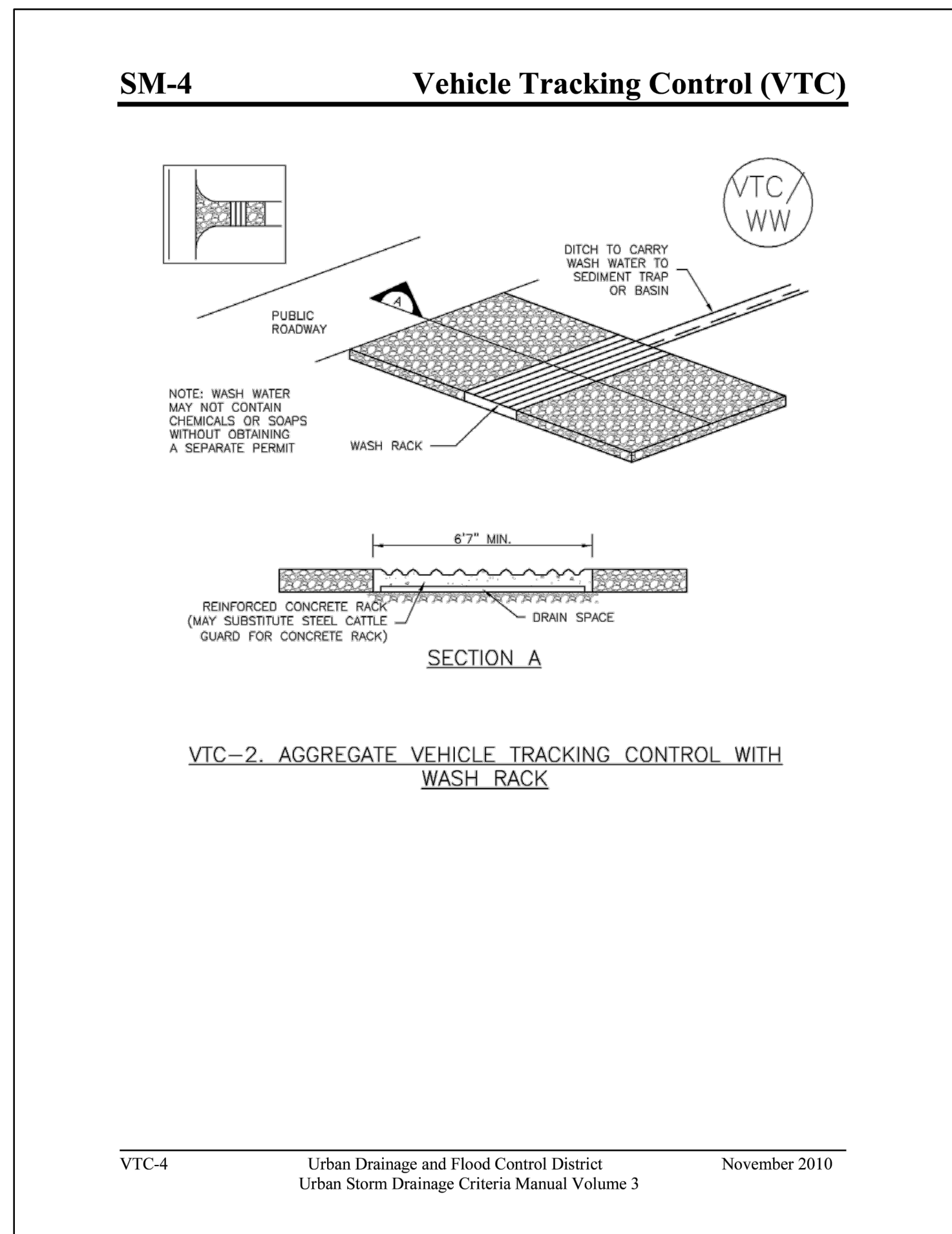
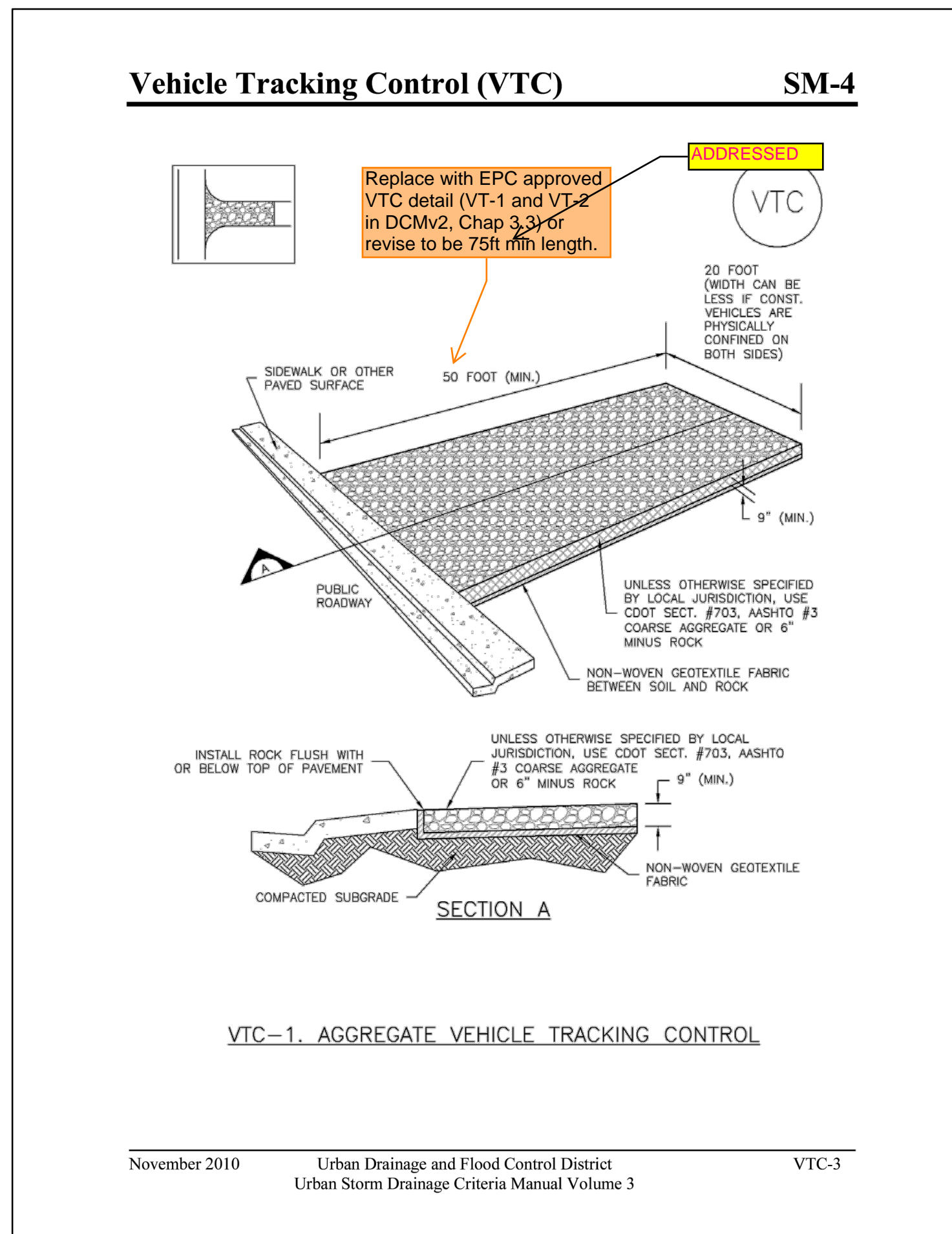
CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - CWA INSTALLATION LOCATION.
- DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (15 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
- THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
- CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
- BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
- VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

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SM-4 Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

- SEE PLAN VIEW FOR -LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S). -TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
- CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
- A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
- STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
- UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, ASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
- SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

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

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

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ADDRESSSED

GEC Checklist Item Z. Include details for the following BMP's. Examples of acceptable details for each are provided:

BMP	Detail # and Source
Stabilized Staging Area	MHFD (USDCM Vol 3: Chap 7) SM-6

NO.	DATE	BY	REVISION DESCRIPTION