STANDARD CONSTRUCTION NOTES:

- ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT. BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLCARADO SPRINGS.
- CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL THE INCLUDING THE FOLLOWING: AL ALL INKL INKLUURNS INL FULLOWING: 3.1 EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM) 3.2 CITY OF COLORADO SPRINGS/EL PASO COUNTY ENGINEERING CRITERIA MANUAL VOLUMES 1 AND 2. 3.3 COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION. 3.4 CDOT MAS STANDARDS.

- 4. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ACCURACY SHOW EXISTING CONDITION BOTH ONSITE AND OFFSITE ON THE CONSTRUCTION PLANS. ANY MODIFICATION NECESSARY DUE TO CONFLICT OMISSIONS OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPERS RESPONSIBILITY TO RECTIFY.
- ONCE THE ESQCP HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMPS AS INDICATED ON TH GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT I THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND FLACE WITH COUNTY PCD INSPECTIONS STAFF.
- 6. IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORM WATER QUALITY CONTROL PERMIT (ESQCP), US ARMY CORPS OF ENGINEER ISSUED 401 AND/OR 404 PERMITS AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- 7. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE CONSTRUCTION SITE AT APPROVED CONSTRUCTION ACCESS POINTS
- 8. ANY TEMPORARY SIGNAGE AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOW AND MUTCD CRITERIA.
- 9. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRE BY EL PASO COUNTY DOT INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- 10. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFFSITE DISTURBANCE GRADING, OR CONSTRUCTION.
- GRADING AND EROSION CONTROL NOTES: 1. STORWWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE ORNINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORWWATER MANAGEMENT PLAN (SWWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORWWATER QUALITY CONTROL PERMIT (ESOCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION, MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFED STORWWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- 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 CEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND ELE PASO COUNTY MIL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING THE MAD PLACE WITH COUNTY STAFF.
- 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.
- ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTUBBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE STEE 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 STORMWATEM MANAGEMENT PLAN.
- TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
- FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHEVED WHEN ALL GROUND DISTURBING ACTIVITES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR FOLVINALENT PREMAINTEN ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
- ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION
- EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST FRACTICAL 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. 10.
- COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILITATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILITATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRUINTS, ALL AREAS DESIGNATED FOR INFILITATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
- 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.
- 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 WAY EP PRESENT, OR WITHIN SO FEET OF A SURFACE WATER GOOY, CREEK OR STREAM. 13.
- DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE. 15
- EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY RECURREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- 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. 17
- TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY. 18.
- 19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT
- 20. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL MANUFACTURER'S LABELS.
- 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. 21.
- BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITES. 22.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES 23. OWNER /DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER OLIALITY CONTROL ACT" (TITLE 25 ARTICLE 8 CRS) AND THE "CLEAN 24
- OWNER/DEVELOPER AND THER AGENTS SHALL COMPLY WITH THE COLORADO WATER GUALIT COUNTIOL ACT (THE 25, ARTICLE 8, GKS), AND THE CLEAN WATER ACT (33 USC 1344), IN ADDITION TO THE REQUIRENTS OF THE LAND DEVELOPMENT CODE, DCM VQLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAN, 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 RESTRICTUE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- 25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
- 26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- 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. 27.
- THE SOLLS REPORT FOR THIS SITE HAS BEEN PREPARED BY CTL THOMPSON, INC., TITLED GEOLOGIC HAZARD EVALUATION AND, PRELIMINARY GEOTECHNICAL INVESTICATION, CROSSROADS NORTH. MARKSHEFFEL ROAD AND STATE HIGHWAY 24, EL PASO COUNTY, COLORADO, DATED OCTOBER 6, 2020, AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADD 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: 29.

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

ALL PERMANENT CONTROL MEASURES REQUIRE AN ANNUAL INSPECTION AND APPLICABLE MAINTENANCE PER THE CITY MS4 PERMIT AND THE COLORADO SPRINGS ARPORT INDUSTRIAL STORMWATER PERMIT. ALL COLORADO SPRINGS ARPORT TENANTS WITH PERMANENT CONTROL MEASURES NEED TO SUBMIT ALL ANNUAL INSPECTION AND MAINTENANCE FORMS TO AIRPORT ENVIRONMENTAL ANNUALLY BY MAY 15TH SO ALL DOCUMENTATION CAN BE SUBMITTED TO CITY SWENT PRIOR TO THE END OF MAY EACH YEAR.

CROSSROADS NORTH

COUNTY OF EL PASO. STATE OF COLORADO

EARLY GRADING & EROSION CONTROL PLANS UPDATE NOTED. FOR IN THE PROCESS OF WRITING.

MARCH 2022 (3 OMAHA BLVD SITE GALLEY R PETERSON AIF

OWNER/DEVEL

CIVIL ENGIN

COUNTY EN

TRAFFIC EN

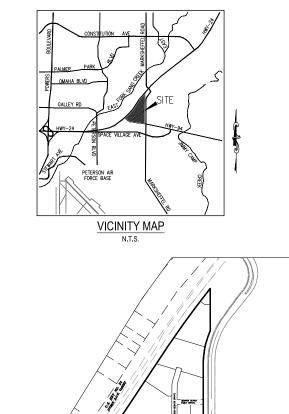
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SHEET INDEX SHEET 1 COUNTY TITLE SHEET SHEET 2 CITY TITLE SHEET SHEET 3 GRADING & EROSION CONTROL PLAN SHEET 4 GRADING & EROSION CONTROL DETAILS SHEET 5 GRADING & EROSION CONTROL DETAILS SHEET 7 GRADING & EROSION CONTROL DETAILS SHEET 8 GRADING & EROSION CONTROL DETAILS SHEET 8 GRADING & EROSION CONTROL DETAILS

ADDITIONAL NOTES:

THERE ARE NO BATCH PLANTS ON SITE.

STAGING, PORTABLE TOILETS, STOCKPILE, AND CONCRETE WASHOUT AREAS TO BE DETERMINED BY CONTRACTOR IN THE FIELD. THE LOCATIONS SHALL BE DELINEATED ON THIS PLAN BY THE CONTRACTOR.

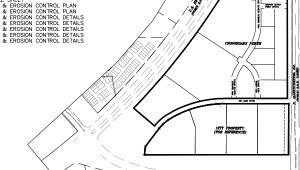
THE EROSION CONTROL DELINEATED ON THIS PLAN SHALL BE REGULARLY UPDATED BY THE CONTRACTOR.

EXISTING SITE TERRAIN GENERALLY SLOPES FROM NORTH TO SOUTHWEST AT GRADE RATES THAT VARY BETWEEN 2% TO 9%.

NO PORTION OF THIS PROPERTY IS LOCATED WITHIN A DESIGNATED FEMA

NO FORIDIN OF THIS FROFENT IS LOCATED WITHIN A DESIGNATED FEMA FLOODPLAIN IN ACCORDANCE WITH FLOOD INSURANCE RATE MAPS (FIRM) 08041007546, 08041007546, & 08041007586 EFFECTIVE DATES DECEMBER 7, 2018.

EXISTING, ON-SITE VEGETATION CONSISTS OF SPARSE NATIVE GRASSES (APPROX. 60% COVER). A VISUAL, POST CONSTRUCTION OCMPARISON CAN BE MADE TO ADJACENT, UNDEVELOPED PROPERTY.



SITE MAP NTS

PUBLIC RAR. FURIER

QUALIFIED STORMWATER MANAGER'S INSPECTIONS AND MAINTENANCE OF BMP'S: MAKE THOROUGH INSPECTION OF THE STORNWATER MANAGEMENT SYSTEM AFTER EACH PRECIPITATION EVENT THAT CAUSES RUNOFF.

2.) IF ANY DEFICIENCIES ARE NOTED, THEY MUST BE CORRECTED

3.) RECORDS OF THE SIGNED SITE INSPECTIONS OR MODIFICATIONS MUST BE KEPT AT THE SITE UNLESS AN ALTERNATE PLACE IS APPROVED BY THE EL PASO COUNTY INSPECTOR AND MUST BE MADE AVAILABLE UPON REQUEST.

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

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

1. NATIONAL GEODETIC VERTICAL DATUM OF 1929; BENCHMARK R-76 IS A DISK SET IN TOP OF A CONCRETE MONUMENT STAMED R 76 1935", IS PROLECTE -0.25, AND IS LOCATED -160' SOUTH OF THE CENTER OF HWY 24 ON THE NORTH SIDE OF SPACE VILLAGE AVENUE ELV:6286.32'

THE SOUTHEASTERLY LINE OF CDDT RIGHT OF WAY SH-24 (PROJECT NO. NH0243-058: UNIT 2) FROM STA. 320-28.40 (12500' RT) TO STA. 327-6156 (125.00' RT), MONUMENTED AT BOTH FOINTS WITH 3-1/4' ALUMINUL CODT MONUMENTS STAMPED PTS. 23381' AND BEARS N33350'S' A DISTANCE OF 733.37'. THE UNIT OF MEASUREMENT IS THE U.S. SURVEY FOOT.

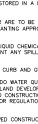
2. #4 REBAR IN AIR LANE NEAR ELECTRIC VAULT ON HILL N: 57321.99 E: 39206.06

FLEV: 6374.05'

BASIS OF BEARINGS:

BENCHMARK(S)

JENNIFER COUNTY



				PLAN	10
for early grading reque	est has been updated in the Land Develo	pment			GRO
port that only addresse	s the early grading drainage impact.			CONTRO	03/24/2022
e Report associated w	ith the preliminary plan is still required.		NORTH		03/24, T 1 OF
TING.				ROSION	C DATE:
WNER/DEVELOPER:	COLORADO SPRINGS EQUITIES LLC 90 SOUTH CASCADE, SUITE 1500 COLORADO SPRINGS, CO 80903 DANNY MIENTKA (719) 475-7621		CROSSROADS	З К П	SCALE: HORIZONTAI N/A VERTICAL: N/A
CIVIL ENGINEER:	M & S CIVIL CONSULTANTS, INC. 212 N. WAHSATCH AVENUE, SUITE 305 COLORADO SPRINGS, CO 80903 VIRGIL A. SANCHEZ P.E. (719) 955-5485		CR	GRADING	
COUNTY ENGINEERING:	EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT 2880 INTERNATIONAL CIRCLE, SUITE 110 COLORADO SPRINGS, CO 80910 GLEBERT LAFORCE (719) 520-7945			\succ	
RAFFIC ENGINEERING:	EL PASO COUNTY PUBLIC SERVICES & TRAI 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 JENNIFER IRVINE (719) 520 6460	NS. DEPOT		EAF	PROJECT NO DESIGNED BY DRAWN BY: CHECKED BY
VATER RESOURCES:	CHEROKEE METRO DISTRICT 6250 PALMER PARK COLORADO SPRINGS, CO 80905 (719) 597-5080		VE STE 305	COLORADO SPRINGS, CO 80903 PHONE: 719,955,5485	
IRE DISTRICT:	FALCON FIRE PROTECTION DISTRICT 2710 CAPITAL DRIVE COLORADO SPRINGS, CO 80939 (719) 495-4050		иансатон а	ADO SPRING 719.955.5486	
GAS DEPARTMENT:	COLORADO SPRINGS UTILITIES 7710 DURANT DR. COLORADO SPRINGS, CO 80947 TIM WENDT (719) 668-3556		N N C1C	COLOR/	
ELECTRIC DEPARTMENT:	COLORADO SPRINGS UTILITIES 7710 DURANT DRIVE. COLORADO SPRINGS, CO 80947 (719) 668-3556			N 1	<u>i</u> z
OMMUNICATIONS:	QWEST COMMUNICATIONS (U.N.C.C. LOCATORS) (800) 922-1987 AT&T (LOCATORS) (719) 635-3674				CONSULTANTS, INC
CORRECT TO THE BEST O THE CRITERIA ESTABLISH	ON CONTROL PLAN WAS PREPARED UNDER MY F WY KNOWLEGE AND BELEF. SAID PLAN HA: D BY THE COUNTY FOR GRADING AND EROSION LLABILITY CAUSED BY ANY NECLIGENT ACTS, EF	S BEEN PREPARED ACCORDING TO CONTROL PLANS. I ACCEPT	37160	FOR AND ON BEHALF OF	CIVIL
VIRGIL A. SANCHEZ, COLO FOR AND ON BEHALF OF	RADO P.E. NO. 37160 M&S CIVIL CONSULTANTS, INC.	DATE	ġ		
DEVELOPER'S STA	HAVE READ AND WILL COMPLY WITH THE REQU	JIREMENTS	SANCHEZ, COLORADO P.E.		
COLORADO SPRINGS EQUIT	IES LLC	DATE	∢		
DANNY MIENKTA 90 SOUTH CASCADE AVE. COLORADO SPRINGS, CO (719) 745-7621	SUITE 1500 00903		VIRGIL		~
EL PASO COUNT			DATE:		TO OR PREPARER
COUNTY IS NOT RESPONS ELEVATIONS WHICH SHAL	PROVIDED ONLY FOR GENERAL CONFORMANCE I IBLE FOR THE ACCURACY AND ADEQUACY OF I BE CONFIRMED AT THE JOB SITE. THE COUNT RESPONSIBILITY FOR COMPLETENESS AND/OR A	HE DESIGN, DIMENSIONS, AND/OR TY THROUGH THE APPROVAL OF THIS	APRV'D. BY:		HANGES BY THE
DRAINAGE CRITERIA MANU IN ACCORDANCE WITH EC CONSTRUCTION FOR A PI CONSTRUCTION HAS NOT	TH THE REQUIREMENTS OF THE EL PASO CONT AL VOLUES 1 AND 2, AND ENGINEERING CRITE M SECTION 1.12, THESE CONSTRUCTION DOCUME ROD OF 2 VERS FROM THE DATE SCINED BY STARTED WITHIN THOSE 2 VERS, THE PLANS STARTED WITHIN THOSE 2 VERS, THE PLANS WENT OF REVIEW FEES AT THE PLANNING AND	ERIA MANUAL AS AMENDED. INTS WILL BE VALID FOR THE EL PASO COUNTY ENGINEER. IF WILL NEED TO BE RESUBMITTED FOR			LUABLE FOR, UNAUTHORIZED CI TING AND MUST BE APPROVED CI
JENNIFER IRVINE, P.E.		DATE			Responsible, or s must be in writ
COUNTY ENGINEER/ECM	DMINISTRATOR				BE RESP
	Replace with				S WLL NOT BE R
	Joshua Palmer, P.E. Interim County Engineer/I	ECM Administrator	110N:		THESE PLANS
		FOR LOCATING & MARKING GAS, ELECTRIC, WATER &	BY: DESCRIPTION		THE ENCINEER PREPARING T USES OF THESE PLANS. AI
		FOR BURIED UTILITY INFORMATION 48 HRS BEFORE YOU DIG	REVISIONS: 40. DATE:		THE ENGINE USES OF THE
EL PASO CO	UNTY FILE NO. SP 20-207	CALL 1-800-922-1987	NO.		CAUTION

GRADING GENERAL NOTES:

- ANY LAND DISTURBANCE BY ANY OWNER, DEVELOPER, BUILDER, CONTRACTOR, OR OTHER PERSON SHALL COMPLY WITH THE BASIC GRADING, EROSION AND STORMWATER CUALITY CONTROL REQUIREMENTS AND GENERAL PROHIBITIONS NOTED IN THE DRAINAGE CRITERIA MANUAL VOLUME II. 1.
- NO CLEARING, GRADING, EXCAVATION, FILLING OR OTHER LAND DISTURBING ACTIVITIES SHALL BE PERMITTEE UNTIL, SIGNOFF AND ACCEPTANCE OF THE GRADING PLAN AND EROSION AND STORMWATER QUALITY CONTROL PLAN IS RECEIVED FROM CITY ENGINEERING.
- THE INSTALLATION OF THE FIRST LEVEL OF TEMPORARY EROSION CONTROL FACILITIES AND BMP'S SHALL BE INSTALLED AND INSPECTED PRIOR TO ANY EARTH DISTURBANCE OPERATIONS TAKING PLACE. CALL CITY STORWINGTE INSPECTIONS, 385-5977, 48 HOURS PRIOR TO CONSTRUCTION.
- SEDIMENT (MUD AND DIRT) TRANSPORTED ONTO A PUBLIC ROAD, REGARDLESS OF THE SIZE OF THE SIZE, SHALL BE CLEARED AT THE END OF EACH DAY.
- CONCRETE WASH WATER SHALL NOT BE DISCHARGED TO OR ALLOWED TO RUNOFF TO STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. 5.
- SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN TWENTY-ONE (21) CALENDAR DAYS AFTER FINAL GRADING OR FINAL EARTH DISTURBANCE HAS BEEN COMPLETED. DISTURBANCE AREAS AND STOCKHELS WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MUCHED WITHIN 21 DAYS AFTER INTERIM GRADING, AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMP'S SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.
- THE GRADING AND EROSION CONTROL PLAN WILL BE SUBJECT TO RE-REVIEW AND RE-ACCEPTANCE BY THE CITY OF COLORADO SPRINGS ENGINEERING. SHOULD ANY OF THE FOLLOWING OCCUR: GRADING DOES NOT COMMENCE WITHIN 12 MONTHS OF THE CITY ENGINEER'S ACCEPTANCE OF THE PLAN. A CHANGE IN PROPERTY OWNERSHIP, PROPOSED DEVELOPMENT CHANGES, OR PROPOSED GRADING REVISIONS.
- THE PLAN SHALL NOT SUBSTAINTALLY, ON THO CHANGE THE OPEN OF COVER, OR ACCESS EXISTING UTILITY LINES. ACCEPTANCE OF THIS PLAN DOES NOT CONSTITUTE APPROVAL TO GRADE IN ANY UTILITY EASEMENT OR RICHT-OF-WAY. APPROVALS TO GRADE WITHIN UTILITY EASEMENTS WUST BE OBTINUED FROM THE APPROPRIATE UTILITY COMPANY. IT IS NOT PERMISSIBLE FOR ANY PERSON TO MODIFY THE GRADE OF THE EARTH ON ANY COLORADO SPRINGS UTILITIES EASEMENTS MIGHT-OF-WAY WITHOUT THEIR WRITTEN APPROVAL. THE PLAN SHALL NOT INCREASE OF UNDERT WATER TOWARDS UTILITY FACLITIES. ANY CHANGES TO EXISTING UTILITY FACLITIES TO ACCOMMODATE THE PLAN MUST BE APPROVED BY THE AFFECTED UTILITY OWNER PRORT TO MCLERKNING THE PLAN. THE COST TO RELOCATE OR PROTECT EMISTING UTILITIES OR TO PROVIDE INTERIM ACCESS IS THE APPLICANTE EXPENSE.
- TIMING: CROSSROADS NORTH

SPRING 2022 - WINTER 2023 ANTICIPATED STARTING AND COMPLETION TIME PERIOD OF SITE GRADING:

SPRING 2023 EXPECTED DATE ON WHICH THE FINAL STABILIZATION WILL BE COMPLETED:

AREAS: CROSSROADS NORTH

TOTAL AREA OF THE SITE TO BE CLEARED, EXCAVATED OR GRADED: ~64.9 AC CITY PROPERTY OF THE SITE TO BE CLEARED, EXCAVATED OR GRADED: ~19 AC

RECEIVING WATERS: SAND CREEK VIA EAST FORK SAND CREEK SUBTRIBUTARY JIMNY CAMP CREEK

SOIL TYPES: BLAKELAND LOAMY SAND-HYDROLOGIC SOIL GROUP A

EROSION CONTROL NOTES:

- 1. AT ALL TIMES DURING THE CONSTRUCTION OF THE PROJECT, EROSION AND SEDIMENT CONTROL SYSTEMS SHALL BE MAINTAINED TO PREVENT DAMAGING FLOWS ON THE SITE AND IN THE WATERSHED BELOW THE SITE. CONTROL SYSTEMS SHALL BE INSTALLED FIRIT OF STIPPING OF NATURE VECETATIVE COVER AND AS GRADING PROGRESSES. CONTROL SYSTEMS SHALL INCLUDE, AS A MINIMUM, STRAW BALE SEDIMENT TRAPS (OR EQUAL) ALONG NATURAL DERINAGE WAYS PRIOR TO GRADING AND UTILIZATION OF DESIGNED STORM DEFINITION BASINS PRIOR TO FINAL GRADING REVEGETATION. AS AN AVERAGE, SEDIMENT TRAPS WITH A CAPACITY OF 15 CUBIC YAROS SHALL BE PROVIDED FOR EACH ACRE OF DISTURBED SOL.
- 2. ALL SEDIMENT TRAPS WILL BE CLEANED AND MAINTAINED TO PROVIDE ADEQUATE PROTECTION FROM SOIL LOSS UNTIL SUCH TIME AS THEY ARE NO LONGER NEEDED.
- WHERE AREAS ARE TO BE LEFT BARE FOR EXTENDED PERIODS (TOPSOIL, STOCKPILES, EMPTY LOTS, RICHTS-OF-WAY, HOME SITES AWAITING PURCHASE, ETC.) MECHANICAL MULCHING (STRAW CRIMP) IN ACCORDANCE WITH CODT STANDARD SPECIFICATIONS SHALL BE APPLIED WITHIN 30 DAYS AFTER INAL GRADE IS REACHED ON ANY PORTION OF THE SITE. SOIL STABILIZATION MEASURES SHALL BE APPLIED WITHIN 30 DAYS TO DISTURBED AREAS WHICH MAY NOT BE AT FINAL GRADE BUT WILL BE LEFT DORMANT FOR LONGER THAN 60 DAYS. З.
- TOPSOIL WILL BE STOCKPILED AND USED AS A TOP DRESSING OVER CUT AND FILL AREAS TO HELP IN THE ESTABLISHMENT OF ADAPTED VECETATION. TOPSOIL STOCKPILE WILL BE SEEDED AND/OR MULCHED TO MINIMIZE SOIL LOSS UNTIL TOPSOIL IS USED.
- 5. TEMPORARY STOCKPILES (8' MAX. HEIGHT) DUE TO UTILITY CONSTRUCTION SHALL BE KEPT MOIST BY THE CONTRACTOR TO PREVENT BLOWING SOILS.
- 6. AREAS LEFT OPEN FOR 30 DAYS OR MORE, OTHER THAN FOR UTILITY AND DRAINAGE CONSTRUCTION SHALL BE SEEDED AND/OR MULCHED.
- THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING MEASURES TO PREVENT EROSION OF DISTURBED SOIL BY ABNORMAL WINDS.
- 8. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AT THE TIME OF CONSTRUCTION.
- 9. "ALL UTILITY INSTALLATIONS WITHIN THE LIMITS OF DISTURBANCE SHOWN ON THE PLAN ARE COVERED UNDER THIS PLAN. LOCATIONS OF UTILITES WITHIN LIMITS OF DISTURBANCE MAY BE MODIFED AFTER PLAN APPROVAL AS A FIELD CHANCE. UTILITY INSTALLATIONS RELATED TO PRIVATE DEVELOPMENT THAT EXTEND BEYOND THE LIMITS OF DISTURBANCE SHOWN ON THIS PLAN ARE CONSIDERED TO BE PART OF THE LARCER DEVELOPMENT, AND THEREFORE REQUIRE A PLAN MODIFICATION OR SEPARATE PLAN FOR THE ADDITIONAL DISTURBANCE AREA."
- "APPLICANT REPRESENTS AND WARRANTS THAT THEY HAVE THE LEGAL AUTHORITY TO GRADE AND/OR CONSTRUCT IMPROVEMENTS ON ADJACENT PROPERTY." THE CITY HAS NOT REVIEWED THE DEVELOPER'S AUTHORITY TO MODIFY ADJACENT PROPERTY."
- 11. ALL PERMANENT CONTROL MEASURES REQUIRE AN ANNUAL INSPECTION AND APPLICABLE MAINTENANCE PER THE CITY MS4 PERMIT AND THE COLORADO STRINGS AIRPORT INDUSTRIAL STORWATER PERMIT. ALL COLORADO SPRINGS AIRPORT TENANTS WITH PERMANENT CONTROL MEASURES NEED TO SUBWIT ALL ANNUAL INSPECTION AND MAINTENANCE FORMS TO AIRPORT ENVRONMENTAL ANNUALLY BY MAY 15TH SO ALL DOCUMENTATION CAN BE SUBWITTED TO CITY SWENT PRICH TO THE END OF MAY EACH YEAR.

ADDITIONAL NOTES:

STAGING, PORTABLE TOILETS, STOCKPILE, AND CONCRETE WASHOUT AREAS TO BE DETERMINED BY CONTRACTOR IN THE FIELD. THE LOCATIONS SHALL BE DELINEATED ON THIS PLAN BY THE CONTRACTOR.

THE EROSION CONTROL DELINEATED ON THIS PLAN SHALL BE REGULARLY UPDATED BY THE CONTRACTOR. EXISTING SITE TERRAIN GENERALLY SLOPES FROM NORTH TO SOUTHWEST AT GRADE RATES THAT VARY BETWEEN 2% TO 9%.

THERE ARE NO BATCH PLANTS ON SITE.

NO PORTION OF THIS PROPERTY IS LOCATED WITHIN A DESIGNATED FEMA FLOODPLAIN IN ACCORDANCE WITH FLOOD INSURANCE RATE MAPS (FIRM) 08041C0754G, 08041C0756G, & 08041C0758G EFFECTIVE DATES DECEMBER 7, 2018. EXISTING, ON-SITE VEGETATION CONSISTS OF SPARSE NATIVE GRASSES (APPROX. 60% COVER). A VISUAL, POST CONSTRUCTION OCMPARISON CAN BE MADE TO ADJACENT, UNDEVELOPED PROPERTY.

QUALIFIED STORMWATER MANAGER'S INSPECTIONS AND MAINTENANCE OF CCM'S: 1.) MAKE THOROUGH INSPECTION OF THE STORMWATER MANAGEMENT SYSTEM AFTER EACH PRECIPITATION EVENT THAT CAUSES RUNOFF.

2.) IF ANY DEFICIENCIES ARE NOTED, THEY MUST BE CORRECTED IMMEDIATELY AFTER BEING NOTED

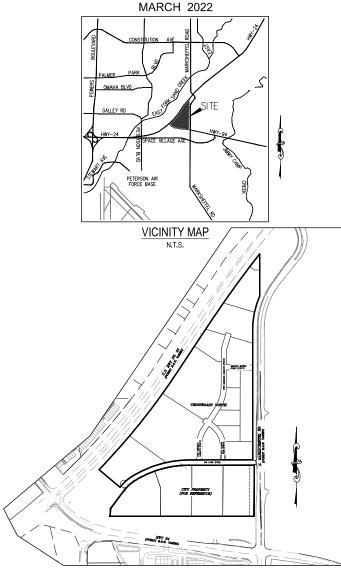
3.) RECORDS OF THE SIGNED SITE INSPECTIONS OR MODIFICATIONS MUST BE KEPT AT THE SITE UNLESS AN ALTERNATE PLACE IS APPROVED BY THE EL PASO COUNTY INSPECTOR AND MUST BE MADE AVAILABLE UPON REQUEST. 4.) INSPECTIONS MUST TAKE PLACE WHERE CONSTRUCTION ACTIVITY IS COMPLETE, BUT LOT IS NOT SOLD

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

CROSSROADS NORTH

CITY OF COLORADO SPRINGS, COUNTY OF EL PASO, STATE OF COLORADO





SITE MAP N.T.S.

BASIS OF BEARINGS:

BENCHMARK(S)

ELEV:6286.32

THE SOUTHEASTERLY LINE OF CDOT RIGHT OF WAY SH-24 (PROJECT NO. NH0243-058: UNIT 2) FROM STA. 320+28.40 (125.00° RT) TO STA. 327+61.58 (125.00° RT), MONUMENTED AT BOTH POINTS WITH 3-1-44 ALUMINUM CDOT MONUMENTS STAMPED 'PLS 25381' AND BEARS N3335'09°E A DISTANCE OF 733.37', THE UNIT OF MEASUREMENT IS THE U.S. SURVEY FOOT.

1. NATIONAL GEODETIC VERTICAL DATUM OF 1929; BENCHMARK R-76 IS A DISK SET IN TOP OF A CONCRETE MONUMENT STAMPED "R 76 1935", IS PROJECTED ~0.25, AND IS LOCATED ~160' SOUTH OF THE CENTER OF HWY 24 ON THE NORTH SIDE OF SPACE VILLAGE AVENUE

2. #4 REBAR IN AIR LANE NEAR ELECTRIC VAULT ON HILL TOP N: 57321.99 E: 39206.06 ELEV: 6374.05'

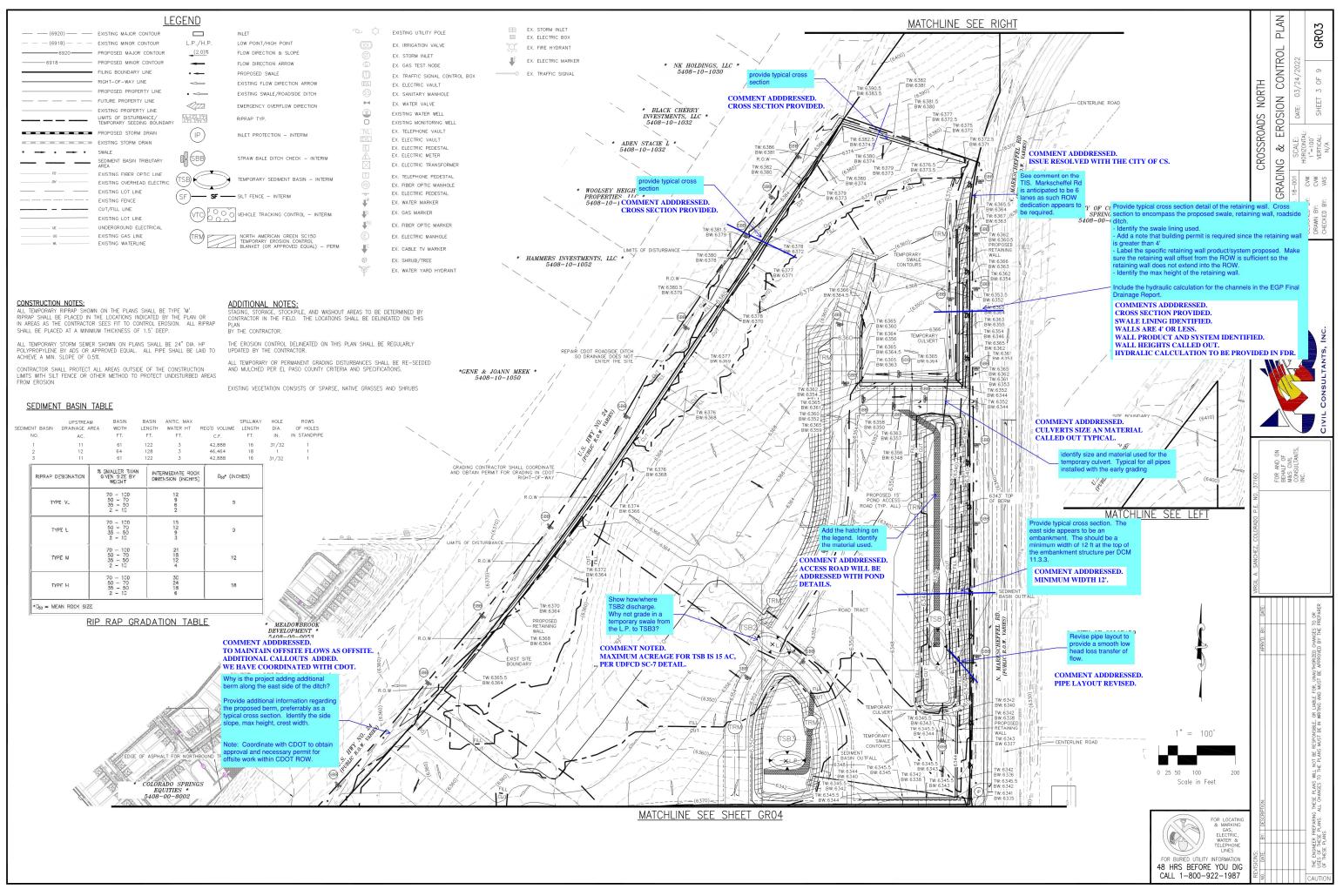
CITY OF COLORADO SPRINGS GRADING & EROSION CONTROL REVIEW:

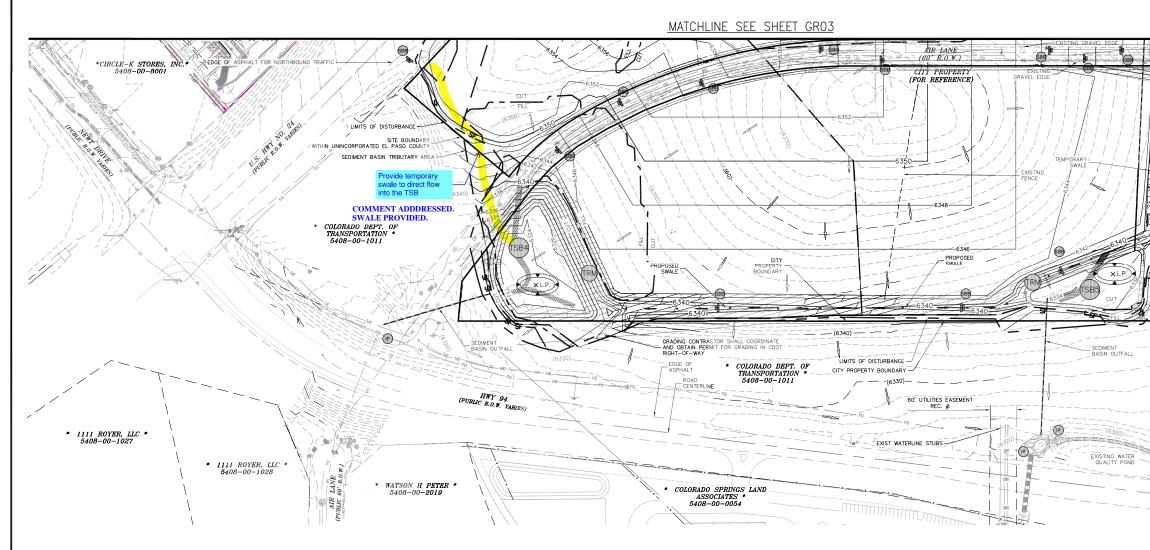
THIS GRADING PLAN IS FILED IN ACCORDANCE CITY CODE. THIS PLAN IS REVIEWED IN ACCORDANCE WITH THE STORWWATER CONSTRUCTION MANUAL; LATEST REVISIONS

FOR THE	SWENT	MANAGER	DATE
NOTES: _			

APPLICANT REPRESENTS AND WARRANTS THAT THEY HAVE THE LEGAL AUTHORITY TO GRADE AND/OR CONSTRUCT IMPROVEMENTS ON ADJACENT PROPERTY. THE CITY HAS NOT REVIEWED THE DEVELOPERS AUTHORITY TO MODIFY THE ADJACENT PROPERTY.

AGENCIES				PLAN		GR02
OWNER:	COLORADO SPRINGS EQUITIES 90 SOUTH CASCADE, SUITE 1 COLORADO SPRINGS, CO 809 DANNY MIENTKA (719) 475-7	500 03		ITROL	52	<u>ه</u>
CIVIL ENGINEER:	M & S CIVIL CONSULTANTS, 212 N. WAHSATCH AVENUE, S COLORADO SPRINGS, CO 809 VIRGIL A. SANCHEZ P.E. (719	SUITE 305 D3	ORTH	EROSION CONTRO	03/24/22	2 OF
ENGINEERING DIVISION:	CITY OF COLORADO SPRINGS 30 S. NEVADA AVE., SUITE 4 COLORADO SPRINGS, CO 809 PATRICK MORRIS (719) 385-		N SOADS	ROSIO	DATE:	SHEET
TRAFFIC ENGINEERING:	CITY OF COLORADO SPRINGS 30 S. NEVADA AVE., SUITE 4 COLORADO SPRINGS, CO 809 ZAKER ALAZZEH (719) 385-1	D1 D3	CROSSROADS NORTH	ઝ	SCALE: HORIZONTAL:	VERTICAL: VAS
DEVELOPMENT SERVICES:	COLORADO SPRINGS UTILITIES 1521 HANCOCK EXPRESSIMAY COLORADO SPRINGS, CO 809 MIKE GACKLE (719) 668-826	03		GRADING	¢	CVW VAS
GAS DEPARTMENT:	COLORADO SPRINGS UTILITIES 7710 DURANT DR. COLORADO SPRINGS, CO 809 TIM WENDT (719) 668-3556			\succ	PROJECT NO. DESIGNED BY:	DRAWN BY: CHECKED BY:
ELECTRIC DEPARTMENT:	COLORADO SPRINGS UTILITIES 7710 DURANT DR. COLORADO SPRINGS, CO 809 SARAH LABARRE (719) 668	20	CTF 205			20
COMMUNICATIONS:	QWEST COMMUNICATIONS (U.N.C.C. LOCATORS) (800) 9 AT&T (LOCATORS) (719) 635	22-1987	DID N WAHSATCH AVE STF 200	COLORADO SPRINGS, CO 80903 PHONE: 719,955,5485		
			7M N CIG	COLORAL PHONE: 7		
CROSSROADS NOR (5) EA INLET PROTECTION (1) VT DEVICES © \$1325, (14) STRAW BALES © \$16 (19) ACRES RESEEDING © (669) LF SILT FENCE © \$1 (0) CONCRETE WASHOUT A (2) TEMPORARY SEDIMENT	/EA \$.00/EA \$ \$525.00/AC \$ 25.50/LF \$ REA \$760/EA \$	550.00 1325.00 252.00 9,975.00 1672.50 0.00 4,000.00				CONSULTANTS, INC.
SUBTOTAL: MAINTENANCE 40% TOTAL:	\$ \$ \$	17,774.50 7,109.80 <u>24,884.30</u>				CIVIL CONS
COST WILL NOT VARY FRO OPTIONS REPRESENT OUR THE CONSTRUCTION INDUS GRADING PLAN / ENGINEER'S STATEMENT: THIS EROSION CONTROL/ AND SUPERVISION AND BELIEF. IF INDICATED GRA THE WORK WILL NOT F PROPERTY, OR ADVERSE	ANNOT AND DOES NOT GUARAN W THESE OPTIONS OF PROBABLI BEST JUDGMENT AS A DESIGN IRY AND IN THIS DEVELOPMENT EROSION CONTROL STA GRADING PLAN WAS PREPARED S CORRECT TO THE BEST OF DING IS PERFORMED IN ACCORI DING IS PERFORMED IN ACCORI DING IS PERFORMED IN ACCORI LY AFFECT THE SAFETY, USE TANNEL OR OTHER PROPERTY.	Y CONSTRUCTION COST. THESE PROFESSIONAL FAMILIAR WITH 	3IL A. SANCHEZ, COLORADO P.E. NO. 37160	FOR AND ON BEHALF OF M&S CIVIL	CONSULTANTS INC.	
			VIRGIL			
VIRGIL A. SANCHEZ, COL	ORADO P.E. #37160	DATE	BY: DATE:			Jes to or The preparer
OWNER'S STATEM		GRADING AND FROSION	APRV'D.			ROVED BY .
OWNER SIGNATURE:	WNER/DEVELOPER EMAIL: DAN	9)-475-7621	PTION:			S THEEE PLANS MILL NOT BE RESPONSIBLE, OR LUARLE FOR, UNUTHORIZED CHANGES ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE
	STATEMENT: THE CITY OF COLORADO SPRINGS RECOGNIZES THE DESIGN ENGINEER AS HAVING RESPONSIBILITY FOR THE DESIGN: THE CITY HAS UNITED ITS SCOPE OF REVIEW ACCORDINGLY. RESUBMITTAL REQUIRED IF CONSTRUCTION HAS NOT COMMENCED WITHIN 180 DAYS AFTER APPROVAL DATE.	FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES FOR BURED UTILITY INFORMATION 48 HRS BEFORE YOU DIG CALL 1-800-922-1987	REVISIONS: NO. DATE: BY: DESCRIPTION			THE ENGINEER PREPARING USES OF THESE PLANS. A OF THESE PLANS.



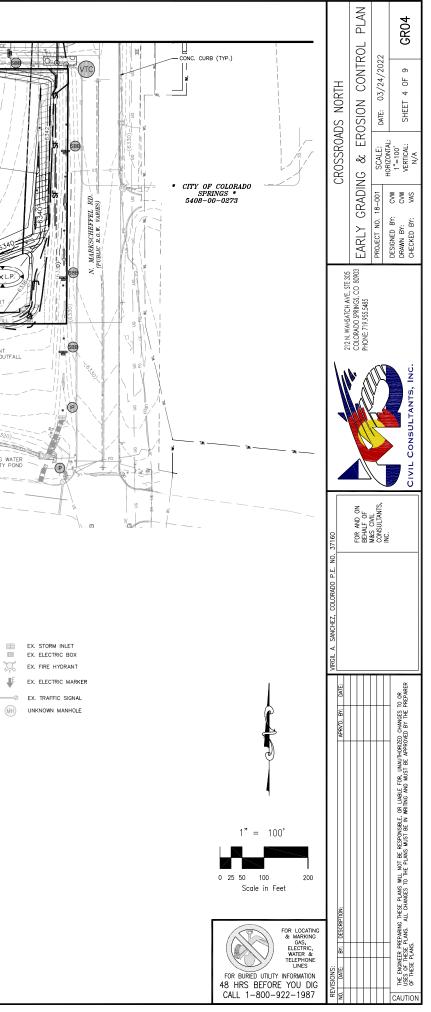


ADDITIONAL NOTES: STACING, STORAGE, STOCKPILE, AND WASHOUT AREAS TO BE DETERMINED BY CONTRACTOR IN THE FIELD. THE LOCATIONS SHALL BE DELINEATED ON THIS PLAN BY THE CONTRACTOR.	
THE EROSION CONTROL DELINEATED ON THIS PLAN SHALL BE REGULARLY UPDATED BY THE CONTRACTOR.	
ALL TEMPORARY OR PERMANENT GRADING DISTURBANCES SHALL BE RE-SEEDED AND MULCHED PER CITY OF COLORADO SPRINGS DCM CRITERIA AND SPECIFICATIONS.	
EXISTING VEGETATION CONSISTS OF SPARSE, NATIVE GRASSES AND SHRUBS	
CONSTRUCTION NOTES: ALL TEMPORARY RIPRAP SHOWN ON THE PLANS SHALL BE TYPE 'M'. RIPRAP SHALL BE PLACED IN THE LOCATIONS INDICATED BY THE PLAN OR IN AREAS AS THE CONTRACTOR SEES FIT TO CONTROL EROSION. ALL RIPRAP SHALL BE PLACED AT A MINIMUM THICKNESS OF 1.5' DEEP.	
ALL TEMPORARY STORM SEWER SHOWN ON PLANS SHALL BE 24" DIA. HP POLYPROPYLENE BY ADS OR APPROVED EQUAL. ALL PIPE SHALL BE LAID TO ACHIEVE A MIN. SLOPE OF 0.5%.	
CONTRACTOR SHALL PROTECT ALL AREAS OUTSIDE OF THE CONSTRUCTION LIMITS WITH SILT FENCE OR OTHER METHOD TO PROTECT UNDISTURBED AREAS FROM EROSION.	
SEDIMENT BASIN TABLE	
SEDIMENT BASIN DRAINAGE AREA WIDTH LENGTH WATER HT REQ'D VOLUME LENGTH DIA. OF H NO. AC. FT. FT. FT. C.F. FT. IN. IN STA)WS IOLES NDPIPE
	1 1

(6920)	EXISTING MAJOR CONTOUR
— — — (6918) — — —	EXISTING MINOR CONTOUR
6920	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	FILING BOUNDARY LINE
	RIGHT-OF-WAY LINE
	PROPOSED PROPERTY LINE
	FUTURE PROPERTY LINE
	EXISTING PROPERTY LINE LIMITS OF DISTURBANCE/ TEMPORARY SEEDING BOUNDAR'
	PROPOSED STORM DRAIN
	EXISTING STORM DRAIN
	SWALE
	SEDIMENT BASIN TRIBUTARY AREA
FO	EXISTING FIBER OPTIC LINE
OH	EXISTING OVERHEAD ELECTRIC
	EXISTING LOT LINE
	EXISTING FENCE
	CUT/FILL LINE
	EXISTING LOT LINE
UE	UNDERGROUND ELECTRICAL
UG	EXISTING GAS LINE EXISTING WATERLINE

	LEGEND
	INLET
L.P./H.P.	LOW POINT/HIGH POINT
(2.0)%	FLOW DIRECTION & SLOPE
4	FLOW DIRECTION ARROW
• 🛶	PROPOSED SWALE
V	EXISTING FLOW DIRECTION ARROW
• ~>==	EXISTING SWALE/ROADSIDE DITCH
	EMERGENCY OVERFLOW DIRECTION
	RIPRAP TYP.
QWA	CONCRETE WASHOUT AREA - INTERIM
IP	INLET PROTECTION - INTERIM
	STRAW BALE DITCH CHECK - INTERIM
	TEMPORARY SEDIMENT BASIN - INTERIM
(SF)	SILT FENCE - INTERIM
	VEHICLE TRACKING CONTROL - INTERIM
	NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET (OR APPROVED EQUAL) - PERM

\$ A	EXISTING UTILITY POLE
ICV	EX. IRRIGATION VALVE
ST	EX. STORM INLET
G	EX. GAS TEST NODE
T	EX. TRAFFIC SIGNAL CONTROL
EVL	EX. ELECTRIC VAULT
SS	EX. SANITARY MANHOLE
M	EX. WATER VALVE
W	EXISTING WATER WELL
Ō	EXISTING MONITORING WELL
TVL	EX. TELEPHONE VAULT
EVL	EX. ELECTRIC VAULT
E	EX. ELECTRIC PEDESTAL
<u>Æ</u>	EX. ELECTRIC METER
\bowtie	EX. ELECTRIC TRANSFORMER
T	EX. TELEPHONE PEDESTAL
(FO)	EX. FIBER OPTIC MANHOLE
	EX. ELECTRIC PEDESTAL
4 "	EX. WATER MARKER
₽G	EX. GAS MARKER
₽ F0	EX. FIBER OPTIC MARKER
E	EX. ELECTRIC MANHOLE
↓ C	EX. CABLE TV MARKER
G	EX. SHRUB/TREE
W	EX. WATER YARD HYDRANT



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

soil amendments and rototill them into the soil to a depth of 6 inches or more

Topsoil should be salvaged during grading operations for use and spread on areas to be revegetated later. Topsoil should be viewed as an important resource to be utilized for vegetation establishment, due to its water-holding capacity, structure, texture, organic matter content, biological activity, and nutrient content. The rooting depth of most native grasses in the semi-arid Denver metropolitan area is 6 to 18 inches. At a nimum, the upper 6 inches of topsoil should be stripped, stockpiled, and ultimately respread across areas that will be revegetated.

Where topsoil is not available, subsoils should be amended to provide an appropriate plant-growth medium. Organic matter, such as well digested compost, can be added to improve soil characteristics conducive to plant growth. Other treatments can be used to adjust soil pH conditions when needed. Soil testing, which is typically inexpensive, should be completed to determine and optimize the types and unts of amendments that are required.

If the disturbed ground surface is compacted, rip or rototill the surface prior to placing topsoil. If adding compost to the existing soil surface, rototilling is necessary. Surface roughening will assist in placement of a stable topsoil layer on steeper slopes, and allow infiltration and root penetration to greater depth.

Prior to seeding, the soil surface should be rough and the seedbed should be firm, but neither too loose nor compacted. The upper layer of soil should be in a condition suitable for seeding at the proper depth and conducive to plant growth. Seed-to-soil contact is the key to good germination.

Seed Mix for Temporary Vegetation

To provide temporary vegetative cover on disturbed areas which will not be paved, built upon, or fully landscaped or worked for an extended period (typically 30 days or more), plant an annual grass appropriate for the time of planting and mulch the planted areas. Annual grasses suitable for the Denver metropolitan area are listed in Table TS/PS-1. These are to be considered only as general necompendations when specific design guidance for a particular site is not available. Local governments typically specify seed mixes appropriate for their jurisdiction.

Seed Mix for Permanent Revegetation

To provide vegetative cover on disturbed areas that have reached final grade, a perennial grass mix should To provide vegetative cover on disturbed areas that have reached that grade, a perennial grass mix should be established. Permanent seeding should be performed promptly (typically within 14 days) after reaching final grade. Each site will have different characteristics and a landscape professional or the local jurisdiction should be contacted to determine the most suitable seed mix for a specific resterment dation, one of the perennial grass mixes appropriate for site conditions and growth season listed in Table TS/PS-2 can be used. The pure live seed (PLS) rates of application recommended in these tables are considered to be absolute minimum rates for seed applied using proper drill-seeding

If desired for wildlife habitat or landscape diversity, shrubs such as rubber rabbitbrush (*Chrysothamnua* nauseosus), fourwing saltbush (*Atriplex canescens*) and skunkbrush sumac (*Rhus trilobata*) could be added to the upland seedmixes at 0.25, 0.5 and 1 pound PLS/acre, respectively. In riparian zones, planting root socie of such as a construction of the society of th

TS/PS-2	Urban Drainage and Flood Control District
	Urban Storm Drainage Criteria Manual Volume 3

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

June 2012

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses (cont.)

Common Name	Botanical Name	Growth Season ^b	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
Blue grama	Bouteloua gracilis	Warm	Sod-forming bunchgrass	825,000	0.5
Camper little bluestem	Schizachyrium scoparium 'Camper'	Warm	Bunch	240,000	1.0
Prairie sandreed	Calamovilfa longifolia	Warm	Open sod	274,000	1.0
Sand dropseed	Sporobolus cryptandrus	Cool	Bunch	5,298,000	0.25
Vaughn sideoats grama	Bouteloua curtipendula 'Vaughn'	Warm	Sod	191,000	2.0
Arriba western wheatgrass	Agropyron smithii 'Arriba'	Cool	Sod	110,000	5.5
Total					10.25
Heavy Clay, Rocky Foothill Seed N	4ix				
Ephriam crested wheatgrass ^d	Agropyron cristatum 'Ephriam'	Cool	Sod	175,000	1.5
Oahe Intermediate wheatgrass	Agropyron intermedium 'Oahe'	Cool	Sod	115,000	5.5
Vaughn sideoats grama ^e	Bouteloua curtipendula 'Vaughn'	Warm	Sod	191,000	2.0
Lincoln smooth brome	Bromus inermis leyss 'Lincoln'	Cool	Sod	130,000	3.0
Arriba western wheatgrass	Agropyron smithii 'Arriba'	Cool	Sod	110,000	5.5
Total					17.5
doubled if seed is broadcast and sl through hydraulic seeding. Hydra hydraulic seeding is used, hydraul ^b See Table TS/PS-3 for seeding da	ulic seeding may be substituted ic mulching should be done as a	for drilling on	ly where slopes a		
^o If site is to be irrigated, the transit	ion turf seed rates should be dou	ibled.			
d Crested wheatgrass should not be	used on slopes steeper than 6H	to 1V.			
^e Can substitute 0.5 lbs PLS of blue	grama for the 2.0 lbs PLS of V	aughn sideoats	grama.		
	ban Drainage and Flood C Storm Drainage Criteria				TS/PS-5

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

Seeding dates for the highest success probability of perennial species along the Front Range are generally second gauges for the inginest success probability of percential species along the Front Kange are general in the spring from April through early May and in the fail after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dat

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 [°]	Planting Depth (inches)
1. Oats	Cool	35 - 50	1 - 2
2. Spring wheat	Cool	25 - 35	1 - 2
Spring barley	Cool	25 - 35	1 - 2
4. Annual ryegrass	Cool	10 - 15	1/2
5. Millet	Warm	3 - 15	1/2 - 3/4
6. Sudangrass	Warm	5-10	1/2 - 3/4
7. Sorghum	Warm	5-10	1/2 - 3/4
8. Winter wheat	Cool	20-35	1 - 2
9. Winter barley	Cool	20-35	1 - 2
10. Winter rye	Cool	20-35	1 - 2
11. Triticale	Cool	25-40	1 - 2
Successful seeding of an usually produce enough of wind and water erosion for is not disturbed or mower	lead-plant resi or an additiona	due to provide protect al year. This assumes	ion from

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 encapsulat the mulch. i hetel

See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

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

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses

Common ^a Name	Botanical Name	Growth Season ^b	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Alakali Soil Seed Mix					
Alkali sacaton	Sporobolus airoides	Cool	Bunch	1,750,000	0.25
Basin wildrye	Elymus cinereus	Cool	Bunch	165,000	2.5
Sodar streambank wheatgrass	Agropyron riparium 'Sodar'	Cool	Sod	170,000	2.5
Jose tall wheatgrass	Agropyron elongatum 'Jose'	Cool	Bunch	79,000	7.0
Arriba western wheatgrass	Agropyron smithii 'Arriba'	Cool	Sod	110,000	5.5
Total					17.75
Fertile Loamy Soil Seed Mix					
Ephriam crested wheatgrass	Agropyron cristatum 'Ephriam'	Cool	Sod	175,000	2.0
Dural hard fescue	Festuca ovina 'duriuscula'	Cool	Bunch	565,000	1.0
Lincoln smooth brome	Bromus inermis leyss 'Lincoln'	Cool	Sod	130,000	3.0
Sodar streambank wheatgrass	Agropyron riparium 'Sodar'	Cool	Sod	170,000	2.5
Arriba western wheatgrass	Agropyron smithii 'Arriba'	Cool	Sod	110,000	7.0
Total					15.5
High Water Table Soil Seed Mix	κ				
Meadow foxtail	Alopecurus pratensis	Cool	Sod	900,000	0.5
Redtop	Agrostis alba	Warm	Open sod	5,000,000	0.25
Reed canarygrass	Phalaris arundinacea	Cool	Sod	68,000	0.5
Lincoln smooth brome	Bromus inermis leyss 'Lincoln'	Cool	Sod	130,000	3.0
Pathfinder switchgrass	Panicum virgatum 'Pathfinder'	Warm	Sod	389,000	1.0
Alkar tall wheatgrass	Agropyron elongatum 'Alkar'	Cool	Bunch	79,000	5.5
Total					10.75
Transition Turf Seed Mix ^c					
Ruebens Canadian bluegrass	Poa compressa 'Ruebens'	Cool	Sod	2,500,000	0.5
Dural hard fescue	Festuca ovina 'duriuscula'	Cool	Bunch	565,000	1.0
Citation perennial ryegrass	Lolium perenne 'Citation'	Cool	Sod	247,000	3.0
Lincoln smooth brome	Bromus inermis leyss 'Lincoln'	Cool	Sod	130,000	3.0
Total					7.5

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

Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses

	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses		
Seeding Dates	Warm	Cool	Warm	Cool	
January 1–March 15			~	~	
March 16–April 30	4	1,2,3	~	√	
May 1–May 15	4		~		
May 16–June 30	4,5,6,7				
July 1–July 15	5,6,7				
July 16-August 31					
September 1-September 30		8,9,10,11			
October 1-December 31			✓	√	

TS/PS-6

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote esta of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the Mulching BMP Fact Sheet 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.

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

Protect seeded areas from construction equipment and vehicle access.

Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be

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- anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or anchore (and not hereby placed) in the subject in the subject interval of a complexity in the subject in the su have to be weighted to afford proper soil penetration.
- Grass hav may be used in place of straw; however, because hav is comprised of the entire plant including Grass may may be deal in place of many lowering, occase may is scongized or internet plant interacting seed, mulching with hay may seed the site with non-native grass species which might in time out-compete the native seed. Alternatively, native species of grass hay may be purchased, but can be difficult to find and are more expensive than straw. Purchasing and utilizing a certified weed-free straw is an easier and less costly mulching method. When using grass hay, follow the same guidelines as for straw (provided above)
- · On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory On share a cass succeed from the wind and nearly fution, spraying a destinet on the much is satisfact for holding it in place. For steep slopes and special situations where greater control is needed, erosion control blankets anchored with stakes should be used instead of mulch.
- Hydraulic mulching consists of wood cellulose fibers mixed with water and a tackifying agent and should be applied at a rate of no less than 1,500 pounds per acre (1,425 lbs of fibers mixed with at least 75 lbs of tackifter) with a hydraulic mulcher. For steep slopes, up to 2000 pounds per acre may be required for effective hydroseeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation whether hydroseeding. should be avoided
- Erosion control mats, blankets, or nets are recommended to help stabilize steep slopes (generally 3:1 and steeper) and waterways. Depending on the product, these may be used alone or in conjunction with grass steeper and what ways is Depending on the product, indee may be used above on monjaneous will gass or straw mulch. Normally, use of these products will be restricted to relatively small areas. Biodegradable mats made of straw and jute, straw-coconut, coconut fiber, or excelsior can be used instead of mulch. (See the ECM/TRM BMP for more information.)
- Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed tackifiers. Manufacturer's recommendations should be followed at all times. (See the Soil Binder BMP for more information on general types of tackifiers.)
- Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and
 allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for
 temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full
 coverage of exposed soil on the area it is applied.

Maintenance and Removal

MU-2

TS/PS-4

EC-4

After mulching, the bare ground surface should not be more than 10 percent exposed. Reapply mulch, as needed, to cover bare area

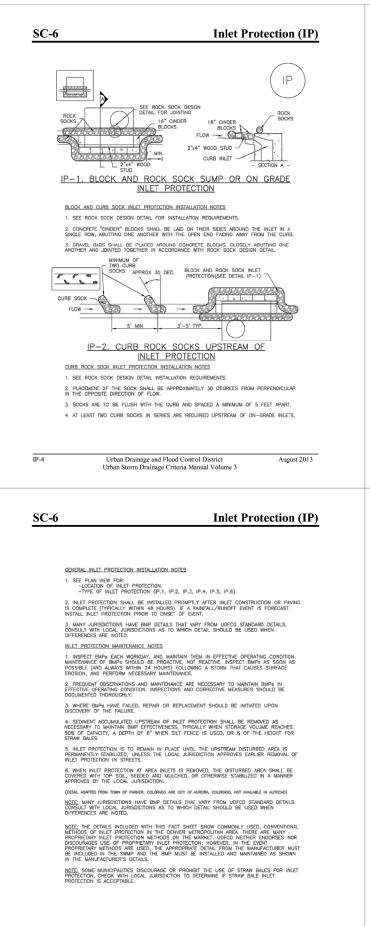
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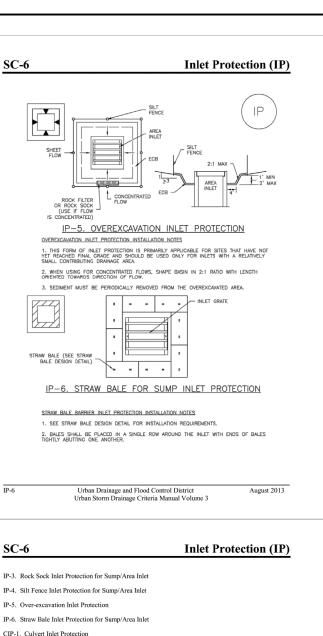
Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 June 2012

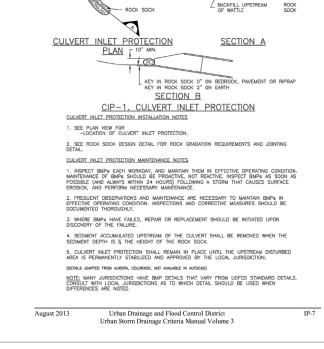
June 2012

Mulching (MU)

	CROSSROADS NORTH	GRADING & EROSION CONTROL DETAILS	19	r: cvw : cvw
		212 N. WAHSAICH AVE., SIE 305 COLORADO SPRINGS, CO 80903 PHONE: 719,955,5485		DESIGNED B DRAWN BY: CHECKED BY
				CIVIL CONSULTANTS, INC.
	P.E. NO. 37160	FOR AND ON BEHALF OF	M&S CIVIL CONSULTANTS, INC.	
	VIRGIL A. SANCHEZ, COLORADO P.E			
	APRV'D. BY: DATE:			UTHORIZED CHANGES TO OR APPROVED BY THE PREPARER
				The Enconeer preparing these planes will not be responsible or limble for, unauthorized changes to or uses of these planes. All changes to the planes must be in waiting and wust be approved by the prepare of these planes.
FOR LOCATING	DESCRIPTION:			RING THESE PLANS WIL







Inlet Protection (IP)

Inlet Protection (IP)

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SC-6

SC-6

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D (12" MIN.) -

- Remove sediment accumulation from the area upstream of the inlet protection, as needed to maintain BMP effectiveness, typically when it reaches no more than half the storage capacity of the inlet protection. For silt fence, remove sediment when it accumulates to a depth of no more than 6 inches. Remove sediment accumulation from the area upstream of the inlet protection as needed to maintain the functionality of the BMP.
- Propriety inlet protection devices should be inspected and maintained in accordance with manufacturer specifications. If proprietary inlet insert devices are used, sediment should be removed in a timely manner to prevent devices from breaking and spilling sediment into the storm drain.

Inlet protection must be removed and properly disposed of when the drainage area for the inlet has reached final stabilization

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Urban Drainage and Flood Control District

Propriety inlet protection devices should be installed in accordance with manufacturer specifications.

More information is provided below on selecting inlet protection for sump and on-grade locations.

When applying inlet protection in sump conditions, it is important that the inlet continue to function When applying intel protection in sump conditions, it is important that the indet continue to function during larger runoff events. For curb inlets, the maximum height of the protective barrier should be lower than the top of the curb opening to allow overflow into the inlet during larger storms without excessive localized flooding. If the inlet protection height is greater than the curb elevation, particularly if the filter becomes cloged with sediment, runoff will not enert the inlet and may bypass it, possible causing localized flooding, public safety issues, and downstream erosion and damage from bypassed flows.

Area inlets located in a sump setting can be protected through the use of silt fence, concrete block and

rock socks (on paved surfaces), sediment control logs/straw wattles embedded in the adjacent soil and stacked around the area inlet (on pervious surfaces), over-excavation around the inlet, and proprietary products providing equivalent functions.

in conjunction with curb socks in the gutter leading to the inlet. For inlets located along unpaved roads,

Inspect for tears that can result in sediment directly entering the inlet, as well as result in the contents

 Check for improper installation resulting in untreated flows bypassing the BMP and directly entering the inlet or bypassing to an unprotected downstream inlet. For example, silt fence that has not been properly trenched around the inlet can result in flows under the silt fence and directly into the inlet.

Look for displaced BMPs that are no longer protecting the inlet. Displacement may occur following
larger storm events that wash away or reposition the inlet protection. Traffic or equipment may also
crush or displace the BMP.

For curb and gutter inlets on paved sloping streets, block and rock sock inlet protection is recon

Inspect inlet protection frequently. Inspection and maintenance guidance includes:

Inlets Located in a Sump

Inlets Located on a Slope

IP-2

also see the Check Dam Fact Sheet.

Maintenance and Removal

of the BMP (e.g., gravel) washing into the inlet.

Monitor sediment accumulation upgradient of the inlet protection.

IP-8

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Vehicle Tracking Control (VTC)

Rolled Erosion Control Products (RECP) EC-6

For other types of RECPs including TRMs, these design details are intended to serve as general guidelines for design and installation; however, engineers should adhere to manufacturer's installation

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

Erosion control blankets and other RECPs that are biodegradable typically do not need to be removed

after construction. If they must be removed, then an alternate soil stabilization method should be installed

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

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

· Check for damaged or loose stakes and secure loose portions of the blanket.

ECB type

Slope or channel type

Maintenance and Removal

Inspection of erosion control blankets and other RECPs includes:

ecommendation

pattern.

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promptly following removal.

Rolled Erosion Control Products (RECP) EC-6

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

 SEE FLAN VIEW FOR -LCCARION OF CONSTRUCTION ENTRANCE(S)/EXIT(S). -TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TFM).

 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 LUMITED VEHICULAR ACCESS.

3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.

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

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

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

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENENCE NOTES 1. INSPECT BIMP EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MINTENIARCE OF BIMP SHOULD BE PROACTIVE, ON FRACTIVE, INSPECT BIMP AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE ENGSION, AND PERFORM INCECSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMP® 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. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

5. SEDIMEN" 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.

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

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

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EC-6 Rolled Erosion Control Products (RECP)

 Turf Reinforcement Mat (TRM): A rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh, and/or other elements, processed into a permanent, threedimensional matrix of sufficient thickness. TRMs, which may be supplemented with degradable components, are designed to impart immediate erosion protection, enhance vegetation establishment and provide long-term functionality by permanently reinforcing vegetation during and after maturation. Note: TRMs are typically used in hydraulic applications, such as high flow ditches and channels, steep slopes, stream banks, and shorelines, where erosive forces may exceed the limits of natural, unreinforced vegetation or in areas where limited vegetation establishment is anticipated.

Tables RECP-1 and RECP-2 provide guidelines for selecting rolled erosion control products appropriate to site conditions and desired longevity. Table RECP-1 is for conditions where natural vegetation alone will provide permanent erosion control, whereas Table RECP-2 is for conditions where vegetation alone will not be adequately stable to provide long-term erosion protection due to flow or other conditions.

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RECP-5

RECP-3

Rolled Erosion Control Products (RECP) EC-6

Table RECP-1. ECTC Standard Specification for Temporary Rolled Erosion Control Products (Adapted from Erosion Control Technology Council 2005)

Product Description	Slope Applications*		Channel Applications*	Minimum Tensile Strength ¹	Expected Longevity	
	Maximum Gradient	C Factor ^{2,5}	Max. Shear Stress ^{3,4,6}			
Mulch Control Nets	5:1 (H:V)	≤0.10 @ 5:1	0.25 lbs/ft ² (12 Pa)	5 lbs/ft (0.073 kN/m)		
Netless Rolled Erosion Control Blankets	4:1 (H:V)	≤0.10 @ 4:1	0.5 lbs/ft ² (24 Pa)	5 lbs/ft (0.073 kN/m)	Up to 12	
Single-net Erosion Control Blankets & Open Weave Textiles	3:1 (H:V)	≤0.15 @ 3:1	1.5 lbs/ft ² (72 Pa)	50 lbs/ft (0.73 kN/m)	months	
Double-net Erosion Control Blankets	2:1 (H:V)	≤0.20 @ 2:1	1.75 lbs/ft ² (84 Pa)	75 lbs/ft (1.09 kN/m)		
Mulch Control Nets	5:1 (H:V)	≤0.10 @ 5:1	0.25 lbs/ft ² (12 Pa)	25 lbs/ft (0.36 kN/m)	24 months	
Erosion Control Blankets & Open Weave Textiles (slowly degrading)	1.5:1 (H:V)	≤0.25 @ 1.5:1	2.00 lbs/ft ² (96 Pa)	100 lbs/ft (1.45 kN/m)	24 months	
Erosion Control Blankets & Open Weave Textiles	1:1 (H:V)	≤0.25 @ 1:1	2.25 lbs/ft ² (108 Pa)	125 lbs/ft (1.82 kN/m)	36 months	

* C Factor and shear stress for mulch control nettings must be obtained with netting used in conjunction with pre-applied mulch material. (See Section 5.3 of Chapter 7 Construction BMPs for more information on the C Factor.)

¹ Minimum Average Roll Values, Machine direction using ECTC Mod. ASTM D 5035.
² C Factor calculated as ratio of soil loss from RECP protected slope (tested at specified or greater gradient, It.') to ratio of soil loss from unprotected (control) plot in large-scale testing.

³ Required minimum shear stress RECP (unvegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in) soil loss) during a 30-minute flow event in large-scale testing.
⁴ The permissible shear stress levels established for each performance category are based on historical experience with products characterized by Manning's roughness coefficients in the range of 0.01 - 0.05

⁵ Acceptable large-scale test methods may include ASTM D 6459, or other independent testing deemed acceptable by the engineer. ⁶ Part the argument's discretion. Parcompanded acceptable large scale testing protocol may include AST.

 6 Per the engineer's discretion. Recommended acceptable large-scale testing protocol may include ASTM D 6460, or other independent testing deemed acceptable by the engineer.

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 EROSION CONTROL BLANKET MAINTENANCE NOTES

 INSPECT BMP6 EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMP8 SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMP8 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 BMP8 IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. Where BMP_9 have failed, repair or replacement should be initiated upon discovery of the failure.

4. ECB: SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.

5. ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPARED OR REINSTALED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVIDI OF GRASS SHALL BE REPARED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.

NOTE: MANY JURISDICTIONS HAVE BWP 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)

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

EC-6 Rolled Erosion Control Products (RECP)

Table RECP-2. ECTC Standard Specification for Permanent¹ Rolled Erosion Control Products (Adapted from: Erosion Control Technology Council 2005)

Product Type	Slope Applications	Channel Applications	
	Maximum Gradient	Maximum Shear Stress ^{4,5}	Minimum Tensile Strength ^{2,3}
TRMs with a minimum thickness of 0.25 inches (6.35 mm) per ASTM D 6525 and UV stability of 80% per ASTM D 4355 (500 hours exposure).	0.5:1 (H:V)	6.0 lbs/ft ² (288 Pa)	125 lbs/ft (1.82 kN/m)
	0.5:1 (H:V)	8.0 lbs/ft ² (384 Pa)	150 lbs/ft (2.19 kN/m)
	0.5:1 (H:V)	10.0 lbs/ft ² (480 Pa)	175 lbs/ft (2.55 kN/m)

¹ For TRMs containing degradable components, all property values must be obtained on the nondegradable portion of the matting alone.

² Minimum Average Roll Values, machine direction only for tensile strength determination using <u>ASTM</u> <u>D 6818</u> (Supersedes Mod. <u>ASTM D 5035</u> for RECPs)

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

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

⁵ Acceptable large-scale testing protocols may include <u>ASTM D 6460</u>, or other independent testing deemed acceptable by the engineer.

Design and Installation

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

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

- ECB-1 Pipe Outlet to Drainageway
- ECB-2 Small Ditch or Drainageway

ECB-3 Outside of Drainageway

RECP-4

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REC

VTC-6

	CROSSROADS NORTH	GRADING & EROSION CONTROL DETAILS	PROJECT NO. 18-001 DESIGNED BY: CVW	
	P.E. NO. 37160	FOR AND ON EDRAUE OF BEHALF OF HONE 7193555465	Mass Civit Consultarins Inc.	CIVIL CONSULTANTS, INC.
FOR LOCATING GAS, ELECTRIC, WATER & FOR BURIED UTILITY INFORMATION 48 HRS BEFORE YOU DIG CALL 1-800-922-1987	REVISIONS: AND DESCRPTION: AND			THE DAVAREES PREAVANG THESE PLANS WILL NOT BE RESPONSIBLE, OF UNALE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITNG AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

