



Know what's below.  
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# HAY CREEK VALLEY

## EL PASO COUNTY, COLORADO

# FINAL GRADING & EROSION CONTROL PLANS

## DECEMBER 2023

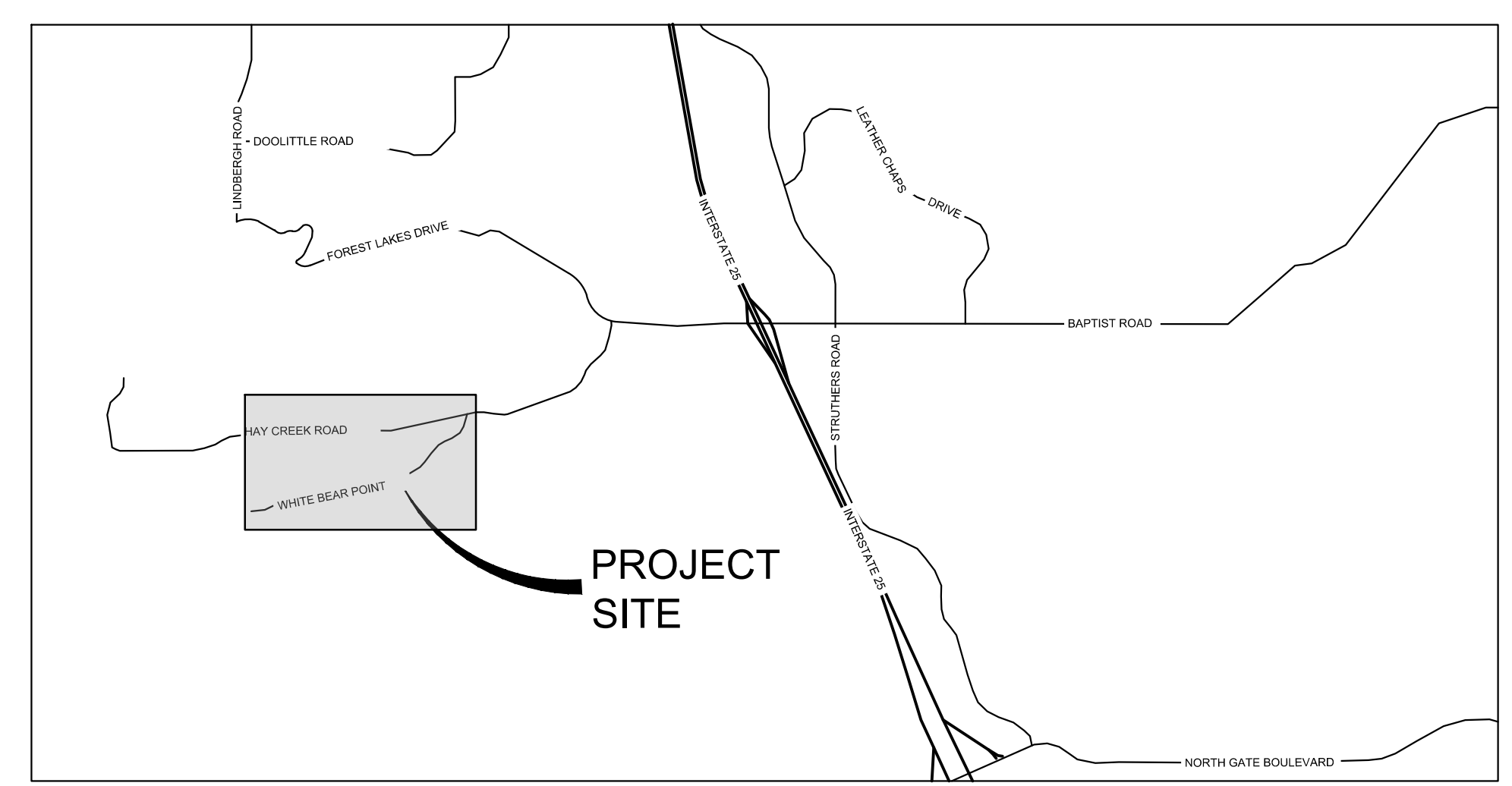
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ECN01-ECN03	DETAILS	10-12

**AGENCY CONTACT INFO**

<b>OWNER/DEVELOPER</b>	VIEW HOMES, INC. 555 MIDDLE CREEK PARKWAY, SUITE 500 COLORADO SPRINGS, CO 80921 TIM BUSCHAR, (719)-382-9433
<b>CIVIL ENGINEER</b>	MATRIX DESIGN GROUP 2435 RESEARCH PARKWAY, SUITE 300 COLORADO SPRINGS, CO 80920 (719)-575-0100
<b>ELECTRIC</b>	MOUNTAIN VIEW ELECTRIC ASSOCIATION 15706 JACKSON CREEK PARKWAY, SUITE 100 MONUMENT, CO 80132 GINA PERRY, (719) 494-2636
<b>GAS</b>	BLACK HILLS ENERGY 105 S VICTORIA AVENUE PUEBLO, CO 81003 (800) 303-0752
<b>ENGINEERING</b>	EL PASO COUNTY PUBLIC WORKS DEPARTMENT 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 (719) 520-6460
<b>TRAFFIC</b>	EL PASO COUNTY PUBLIC WORKS DEPARTMENT 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 (719) 520-6460
<b>DRAINAGE</b>	EL PASO COUNTY PUBLIC WORKS DEPARTMENT 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 (719) 520-6460
<b>FIRE DEPARTMENT</b>	MONUMENT FIRE DISTRICT 16055 OLD FOREST POINT, SUITE 102 MONUMENT, CO 80132 (719)-484-0911



**SITE MAP**  
1" = 500'



**VICINITY MAP**  
N.T.S.

**OWNER/DEVELOPER'S STATEMENT:**

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

NAME \_\_\_\_\_ DATE \_\_\_\_\_

TIM BUSCHAR, (719)-382-9433  
VIEW HOMES, INC.  
555 MIDDLE CREEK PARKWAY, SUITE 500  
COLORADO SPRINGS, CO 80921

**DESIGN 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.

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

JEFFREY A. ODOR, PE #39265  
FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC.

**EL PASO COUNTY:**

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

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

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

JOSHUA PALMER, P.E. \_\_\_\_\_ DATE \_\_\_\_\_  
COUNTY ENGINEER / ECM ADMINISTRATOR

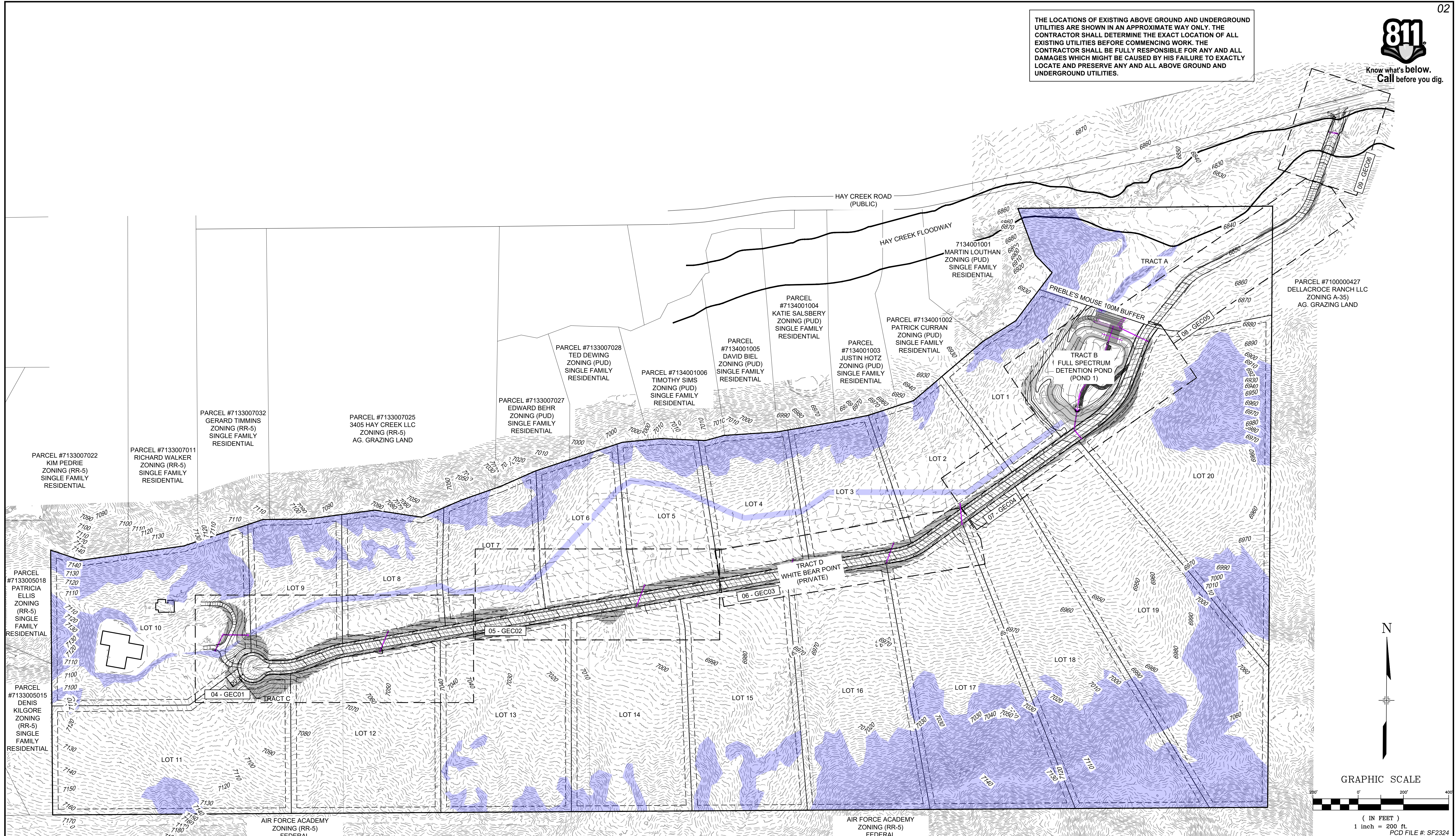
PCD FILE #: SF2324

REFERENCE DRAWINGS	NO.	DATE	DESCRIPTION	BY	SHEET KEY	BENCHMARK	PREPARED BY:	SEAL	HAY CREEK VALLEY			
X-TITLE-CD X-886-PR-SITE FEMA_X3 X-886-066-EX-MAP-1 164022-01 Hay Creek Road BMDY X-886-ALTA-SURVEY Hay Creek BFEs						PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS BASED ON AN OPUS DERIVED ELEVATION ON CONTROL POINT 10, A NO. 5 REBAR HAVING AN ELEVATION OF 5769.92.	MATRIX Excellence by Design	<b>PRELIMINARY</b> THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE	EL PASO COUNTY, COLORADO FINAL GRADING & EROSION CONTROL PLANS			
<b>COMPUTER FILE MANAGEMENT</b>									TITLE SHEET			
FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\TS01.dwg									DESIGNED BY: CVW	SCALE	DATE ISSUED: DECEMBER 2023	DRAWING No.
CTB FILE: Matrix.ctb									DRAWN BY: CVW	HORIZ. N/A	01 OF 12	TS01
PLOT DATE: 12/5/2023 12:49 PM									CHECKED BY: JAO	VERT. N/A		
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.									FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 22.886.076			

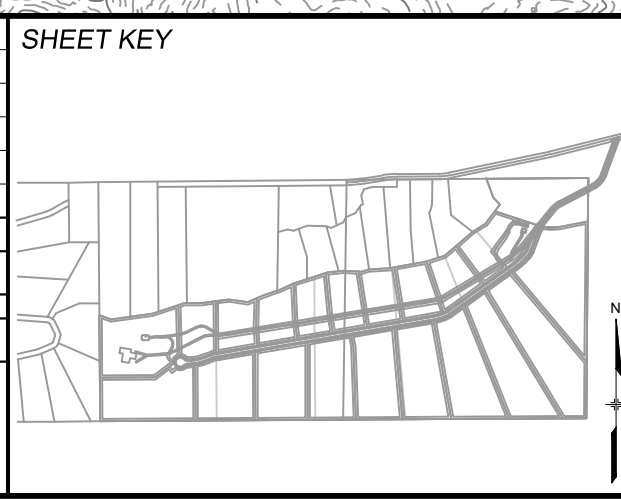


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REVISIONS			
COMPUTER FILE MANAGEMENT			
FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\TS01.dwg			
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**BENCHMARK**  
PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS BASED ON AN OPUS DERIVED ELEVATION ON CONTROL POINT 10, A NO. 5 REBAR HAVING AN ELEVATION OF 5769.92.

**BASIS OF BEARING**  
THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO, BEING MONUMENTED ON THE EASTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "NOLTE PLS25955 C1/4 S22 T16S, R65W 1999, "AND THE WESTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "SSS PLS 16154 1/4 S21 S22 T15S, R65W 2000, "BEING ASSUMED TO BEAR S89°54'42"W, A DISTANCE OF 2,627.78 FEET.

PREPARED BY:

Excellence by Design

SEAL

**PRELIMINARY**  
THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE

FOR AND ON BEHALF OF  
MATRIX DESIGN GROUP, INC.  
PROJECT No. 22.886.076

**HAY CREEK VALLEY**

EL PASO COUNTY, COLORADO  
FINAL GRADING & EROSION CONTROL PLANS

**KEY MAP**

DESIGNED BY: CVW	SCALE: 1"=200'	DATE ISSUED: DECEMBER 2023	DRAWING No. GN01
DRAWN BY: CVW	HORIZ. N/A	SHEET 02 OF 12	
CHECKED BY: JAO	VERT. N/A		



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GENERAL CONSTRUCTION NOTES:

- 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.
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- 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 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.
- 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 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.
- 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 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.
- 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 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 OR 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 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 MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
- 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.
- 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 REQUIREMENTS. 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.
- TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- 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.
- THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
- 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.
- 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 FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
- 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 THE 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.

- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
- 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.

THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY CTL THOMPSON, DATED SEPTEMBER 19, 2023, 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 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  
WQCD - PERMITS  
4300 CHERRY CREEK DRIVE SOUTH  
DENVER, CO 80246-1530  
ATTN: PERMITS UNIT

NRCS SOIL SURVEY FOR EL PASO COUNTY

SOIL ID NO.	SOIL TYPE	HYDROLOGIC CLASSIFICATION
38	JARRE-TECOLOTE COMPLEX (8%-65% SLOPES)	B
71	PRING COARSE SANDY LOAM (3%-8% SLOPES)	B
93	TOMAH-CROWFOOT COMPLEX (8%-15% SLOPES)	B

TIMING

ANTICIPATED STARTING AND COMPLETION TIME PERIOD OF SITE GRADING:  
WINTER 2024 THRU FALL 2024

EXPECTED DATE ON WHICH THE FINAL STABILIZATION WILL BE COMPLETED:  
FALL 2024

AREAS

TOTAL DISTURBED AREA: 17.28 ACRES

RECEIVING WATERS

NAME OF RECEIVING WATERS  
HAY CREEK (ULTIMATE)

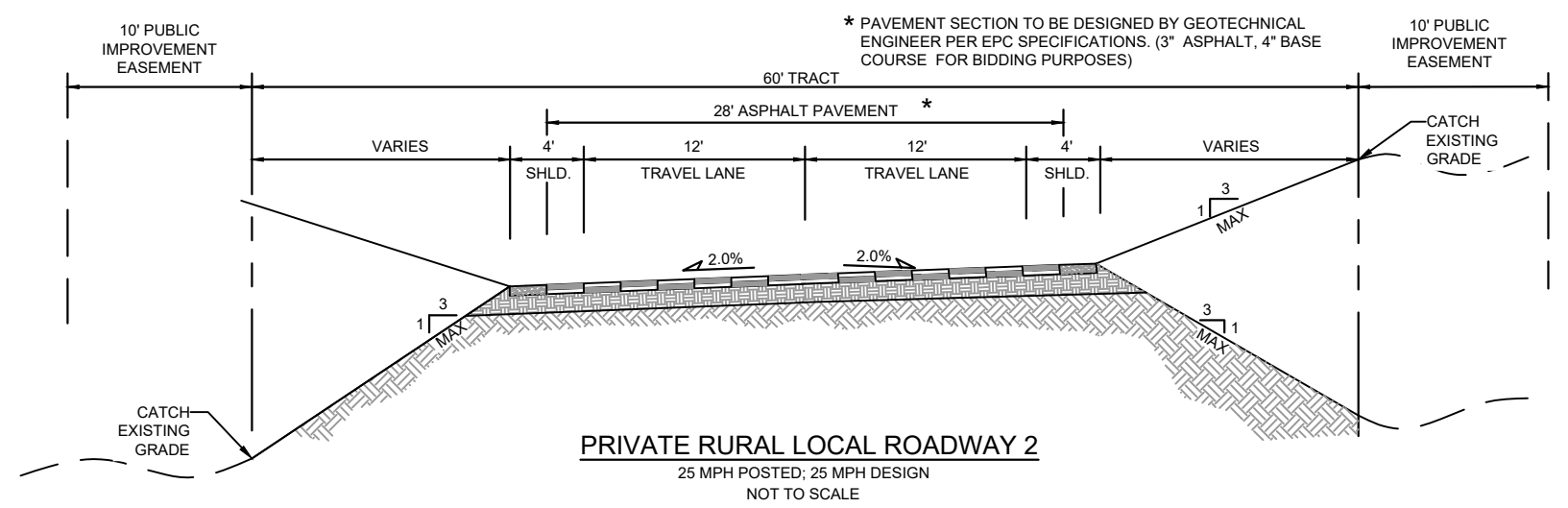
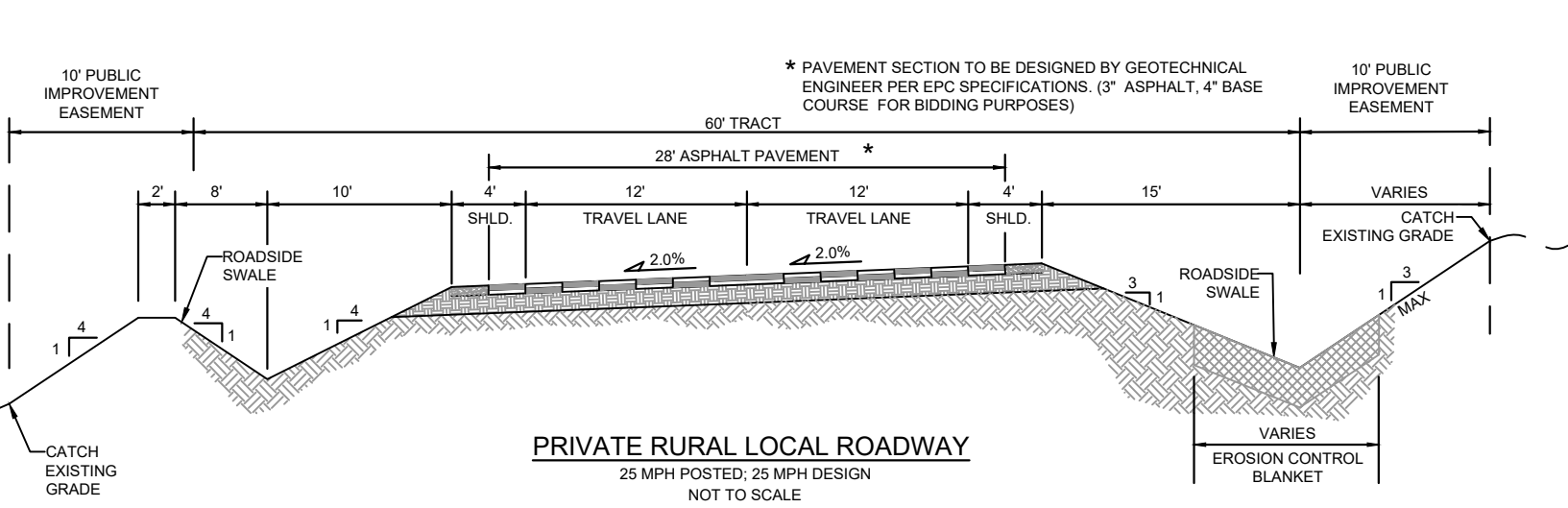
ENGINEER'S NOTES:

THE EXISTING VEGETATION CONSISTS OF MODERATELY DENSE NATIVE GRASSES AND SHRUBS. BASED ON SITE VISITS AND A REVIEW OF AERIAL PHOTOGRAPHY, THE VEGETATIVE COVER AT HAY CREEK VALLEY IS APPROXIMATELY 80%.

ABBREVIATIONS

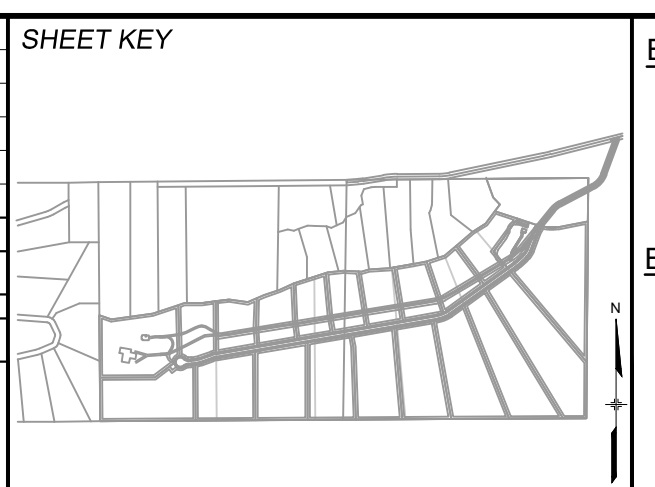
BOW	BOTTOM OF WALL	PL	PROPERTY LINE
EL	ELEVATION	PSI	POUNDS PER SQUARE INCH
EX	EXISTING	RCP	REINFORCED CONCRETE PIPE
HORIZ	HORIZONTAL	SHLDR	SHOULDER
INV	INVERT	TOW	TOP OF WALL
MIN	MINIMUM	TYP	TYPICAL
N,S,E,W	NORTH,SOUTH,EAST,WEST		

TYPICAL ROADWAY CROSS SECTIONS



PCD FILE #: SF2324

No.	DATE	DESCRIPTION	BY
REVISIONS			
COMPUTER FILE MANAGEMENT			
FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\TS01.dwg			
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**BENCHMARK**  
PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS BASED ON AN OPUS DERIVED ELEVATION ON CONTROL POINT 10, A NO. 5 REBAR HAVING AN ELEVATION OF 5769.92.

**BASIS OF BEARING**  
THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO, BEING MONUMENTED ON THE EASTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "NOLTE PL252955 C1/4 S22 T16S, R65W 1999," AND THE WESTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "SSS PLS 16154 1/4 S21 S22 T15S, R65W 2000," BEING ASSUMED TO BEAR S89°54'42"W, A DISTANCE OF 2,627.78 FEET.

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FOR AND ON BEHALF OF  
MATRIX DESIGN GROUP, INC.  
PROJECT No. 22.886.076

DESIGNED BY: CVW  
DRAWN BY: CVW  
CHECKED BY: JAO

SCALE  
HORIZ N/A  
VERT. N/A

DATE ISSUED: DECEMBER 2023  
SHEET 03 OF 12

DRAWING No. GN02

**HAY CREEK VALLEY**

EL PASO COUNTY, COLORADO  
FINAL GRADING & EROSION CONTROL PLANS

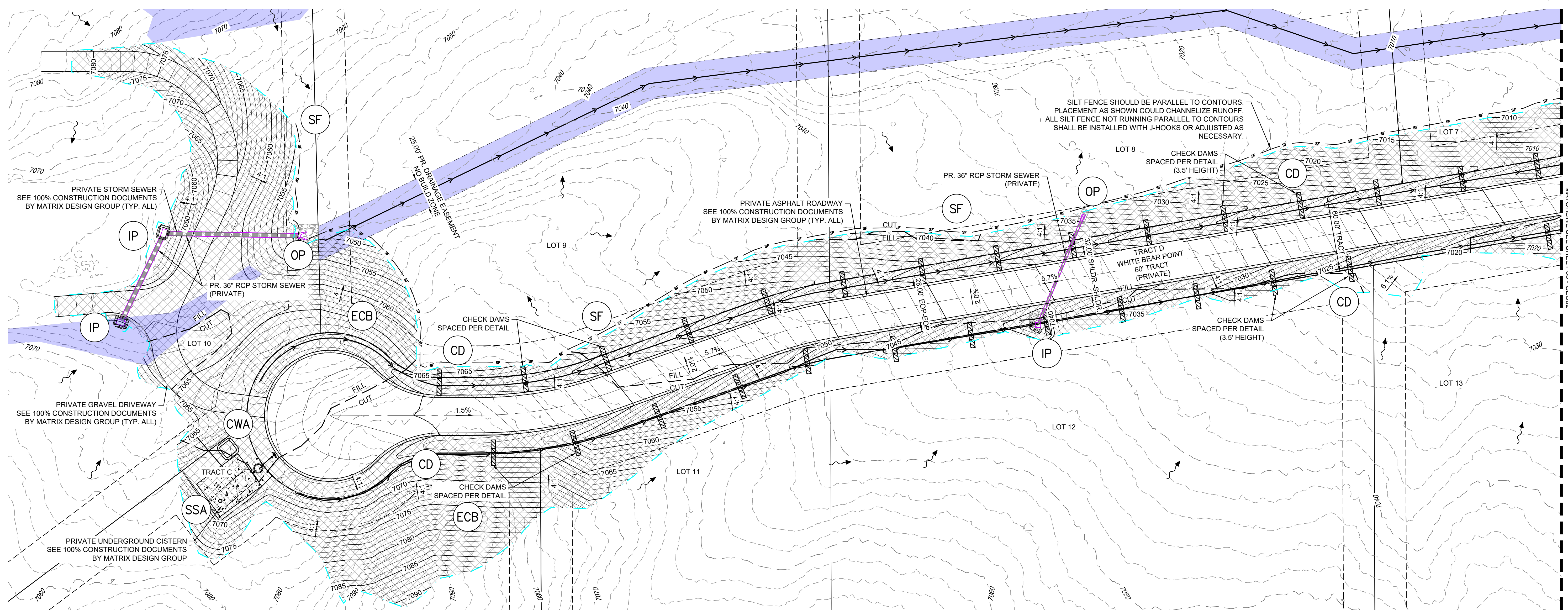
**GENERAL NOTES**





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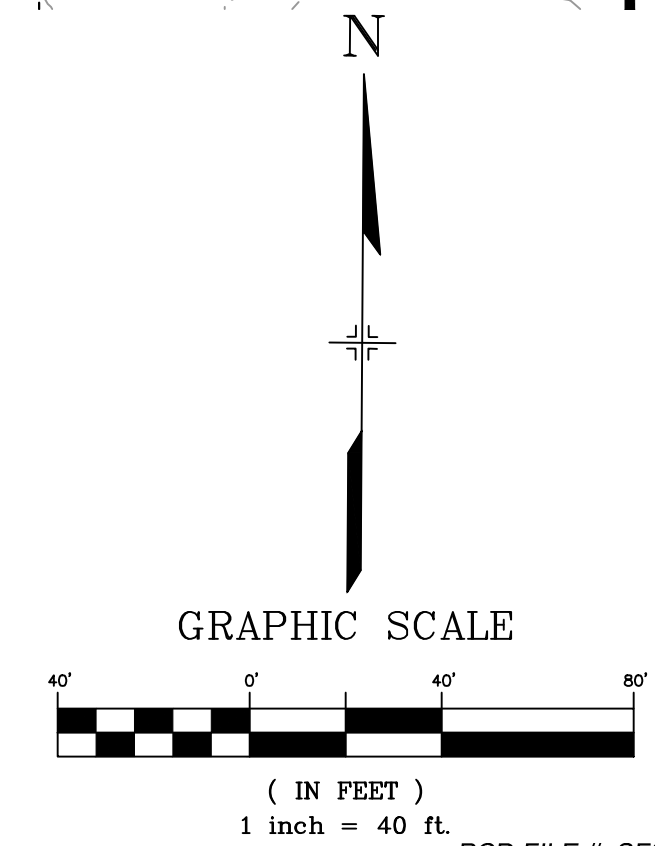


EROSION CONTROL LEGEND

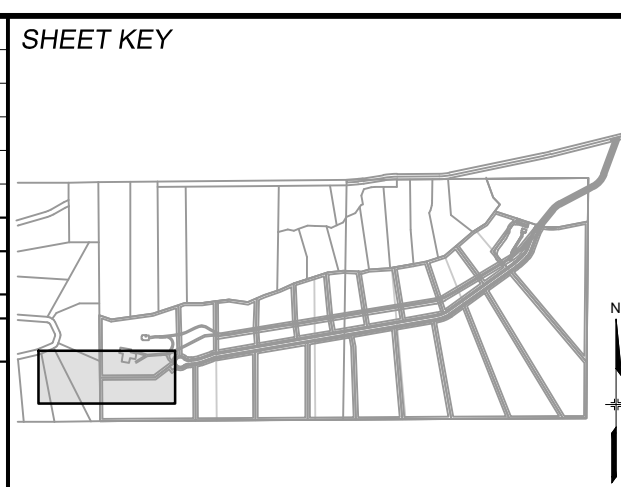
Legend defining symbols for erosion control measures: PS (Permanent Seeding), SF (Silt Fence), ECB (Erosion Control Blanket), OP (Outlet Protection), IP (Inlet Protection), VTC (Vehicle Tracking Control), CD (Check Dam), MU (Mulching), TSB (Temporary Sediment Basin), CWA (Concrete Washout), SSA (Stockpile Management / Stabilized Staging Area), HP (High Point / Low Point), LP (Low Point), and various boundary lines like drainage swales and floodplains.

BMP SEQUENCING table with columns for INITIAL, INTERIM, and FINAL stages, and rows for Silt Fence, Check Dams, and Erosion Control Blankets.

NOTES: 1. SEE CHECK DAM (CD) DETAIL EC-12 ON SHEET ECN01 FOR SPACING. 2. ALL EROSION CONTROL BLANKET SHALL BE INSPECTED 24-MONTHS AFTER INSTALLATION. EROSION CONTROL BLANKET MAY BE REQUIRED TO BE RE-INSTALLED PER MANUFACTURER SPECIFICATIONS.



REFERENCE DRAWINGS, SHEET KEY, and COMPUTER FILE MANAGEMENT table with columns for No., DATE, DESCRIPTION, and BY.



BENCHMARK: PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS BASED ON AN OPUS DERIVED ELEVATION ON CONTROL POINT 10, A NO. 5 REBAR HAVING AN ELEVATION OF 5769.92. BASIS OF BEARING: THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO...

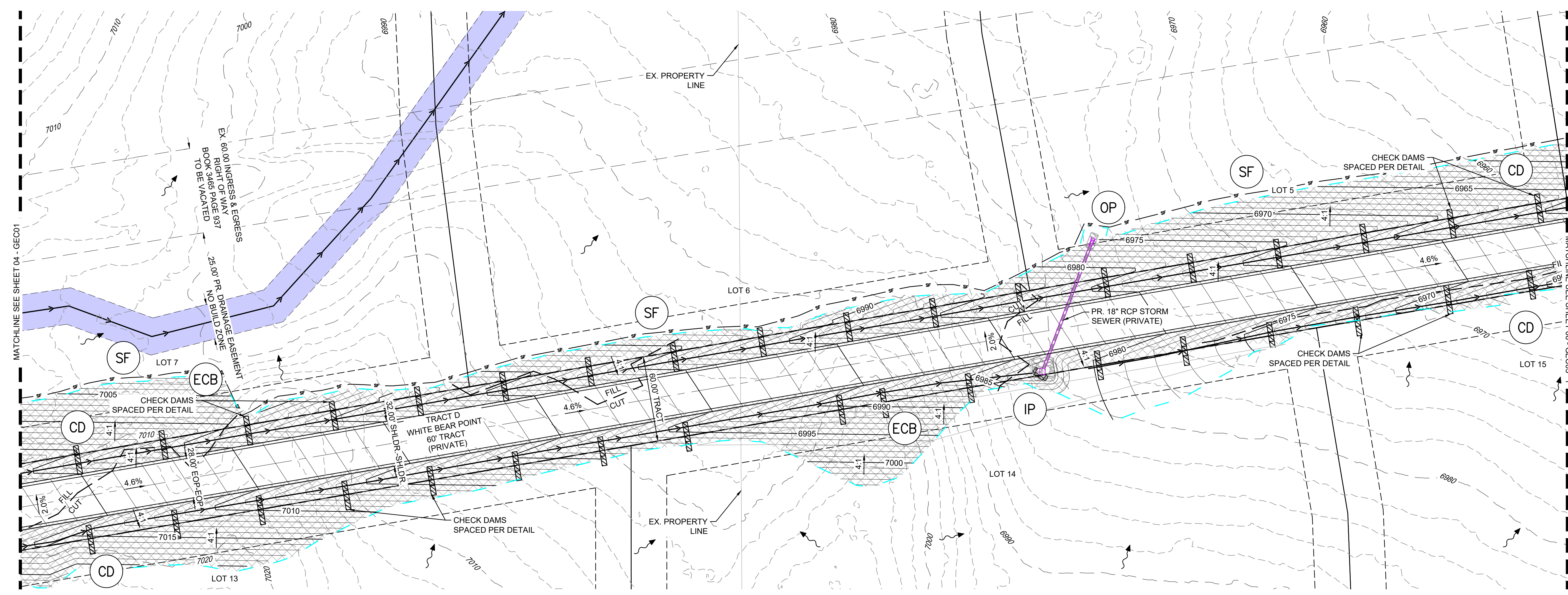
PREPARED BY: Matrix Excellence by Design. SEAL: PRELIMINARY THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE. FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 22.886.076

HAY CREEK VALLEY EL PASO COUNTY, COLORADO FINAL GRADING & EROSION CONTROL PLANS GRADING & EROSION CONTROL PLAN. DESIGNED BY: CVW, DRAWN BY: CVW, CHECKED BY: JAO, SCALE: HORIZ 1"=40', VERT. N/A, DATE ISSUED: DECEMBER 2023, SHEET 04 OF 12, DRAWING No. GEC01



Know what's below.  
Call before you dig.

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BMP SEQUENCING	
INITIAL	SILT FENCE, VEHICLE TRACKING, TEMP SEDIMENT BASINS
INTERIM	CHECK DAMS, CONCRETE WASHOUT, INLET/OUTLET PROTECTION, STOCKPILES, STAGING, ROUGH CUT STREET CONTROL
FINAL	EROSION CONTROL BLANKETS, SEEDING & MULCHING, PERMANENT CONTROL MEASURE(S)

NOTES:  
 1. SEE CHECK DAM (CD) DETAIL EC-12 ON SHEET ECN01 FOR SPACING.  
 2. ALL EROSION CONTROL BLANKET SHALL BE INSPECTED 24-MONTHS AFTER INSTALLATION. EROSION CONTROL BLANKET MAY BE REQUIRED TO BE RE-INSTALLED PER MANUFACTURER SPECIFICATIONS.

### EROSION CONTROL LEGEND

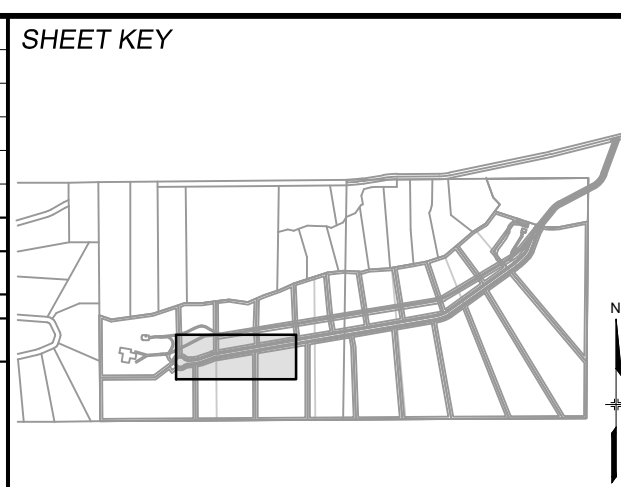
SF	SILT FENCE	MU	MULCHING
ECB	EROSION CONTROL BLANKET	TSB	TEMPORARY SEDIMENT BASIN
OP	OUTLET PROTECTION	CWA	CONCRETE WASHOUT
IP	INLET PROTECTION	SSA	STOCKPILE MANAGEMENT / STABILIZED STAGING AREA
VTC	VEHICLE TRACKING CONTROL	HP	HIGH POINT / LOW POINT
	PROPOSED RIP RAP		PROPOSED CONTOURS
CD	CHECK DAM		EXISTING FENCE
			PROPOSED STORM DRAIN
			NO BUILD ZONE (SLOPE GREATER THAN 29.99%)

GRAPHIC SCALE  
( IN FEET )  
1 inch = 40 ft.

PCD FILE #: SF2324

	EXISTING CONTOURS
	DRAINAGE SWALE
	SLOPE LABEL
	OVERLAND FLOW
	LIMITS OF DISTURBANCE/ CONSTRUCTION SITE BOUNDARY
	PROJECT BOUNDARY LINE
	OVERFLOW ROUTE
	CUT/FILL LINE
	100 YEAR FLOODPLAIN BOUNDARY
	MATCHLINE
	PROPOSED LOT/TRACT LINE
	EASEMENT
	PROPOSED BUILDING SETBACK

No.	DATE	DESCRIPTION	BY
COMPUTER FILE MANAGEMENT			
FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\GEC01.dwg			
CTB FILE: Matrix.ctb			
PLOT DATE: 12/5/2023 12:49 PM			
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.			



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PREPARED BY:

Excellence by Design

SEAL

**PRELIMINARY**  
 THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE

FOR AND ON BEHALF OF  
 MATRIX DESIGN GROUP, INC.  
 PROJECT No. 22.886.076

**HAY CREEK VALLEY**

EL PASO COUNTY, COLORADO  
 FINAL GRADING & EROSION CONTROL PLANS

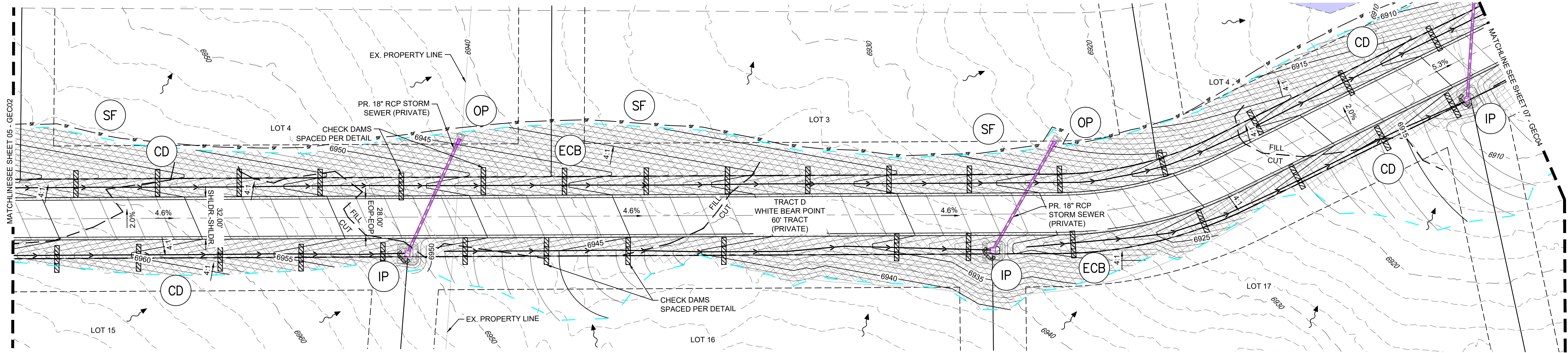
**GRADING & EROSION CONTROL PLAN**

DESIGNED BY: CVW	SCALE: 1" = 40'	DATE ISSUED: DECEMBER 2023	DRAWING No. GEC02
DRAWN BY: CVW	HORIZ. N/A	SHEET 05 OF 12	
CHECKED BY: JAO	VERT. N/A		



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BMP SEQUENCING	
INITIAL	SILT FENCE, VEHICLE TRACKING, TEMP SEDIMENT BASINS
INTERIM	CHECK DAMS, CONCRETE WASHOUT, INLET/OUTLET PROTECTION, STOCKPILES, STAGING, ROUGH CUT STREET CONTROL
FINAL	EROSION CONTROL BLANKETS, SEEDING & MULCHING, PERMANENT CONTROL MEASURE(S)

**NOTES:**  
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### EROSION CONTROL LEGEND

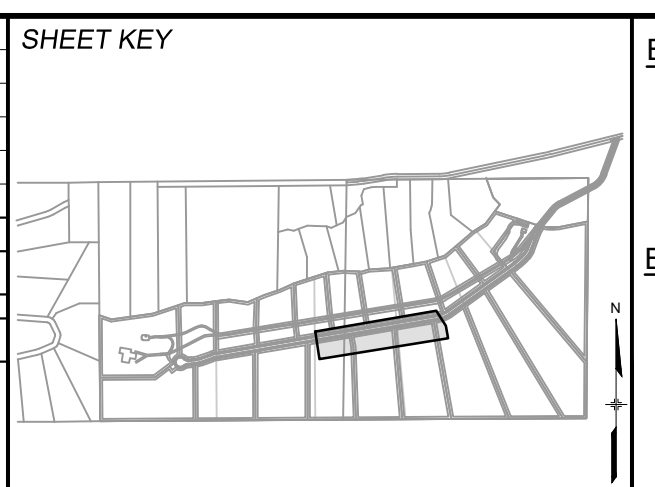
SF	PERMANENT SEEDING (PS)	MU	MULCHING
TSB	SILT FENCE	TSB	TEMPORARY SEDIMENT BASIN
ECB	EROSION CONTROL BLANKET	CWA	CONCRETE WASHOUT
OP	OUTLET PROTECTION	SSA	STOCKPILE MANAGEMENT / STABILIZED STAGING AREA
IP	INLET PROTECTION	HP	HIGH POINT / LOW POINT
VTC	VEHICLE TRACKING CONTROL	LP	PROPOSED CONTOURS
RIP RAP	PROPOSED RIP RAP	FENCE	EXISTING FENCE
CD	CHECK DAM	SD	EXISTING STORM DRAIN
		PSD	PROPOSED STORM DRAIN
		NO BLDZ	NO BUILD ZONE (SLOPE GREATER THAN 29.99%)

**GRAPHIC SCALE**  
 ( IN FEET )  
 1 inch = 40 ft.

PCD FILE #: SF2324

NO.	DATE	DESCRIPTION	BY
REVISIONS			

**COMPUTER FILE MANAGEMENT**  
 FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\GEC01.dwg  
 CTB FILE: Matrix.ctb  
 PLOT DATE: 12/5/2023 12:49 PM  
 THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.



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PREPARED BY:

**Matrix**  
 Excellence by Design

SEAL

**PRELIMINARY**  
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FOR AND ON BEHALF OF  
 MATRIX DESIGN GROUP, INC.  
 PROJECT No. 22.886.076

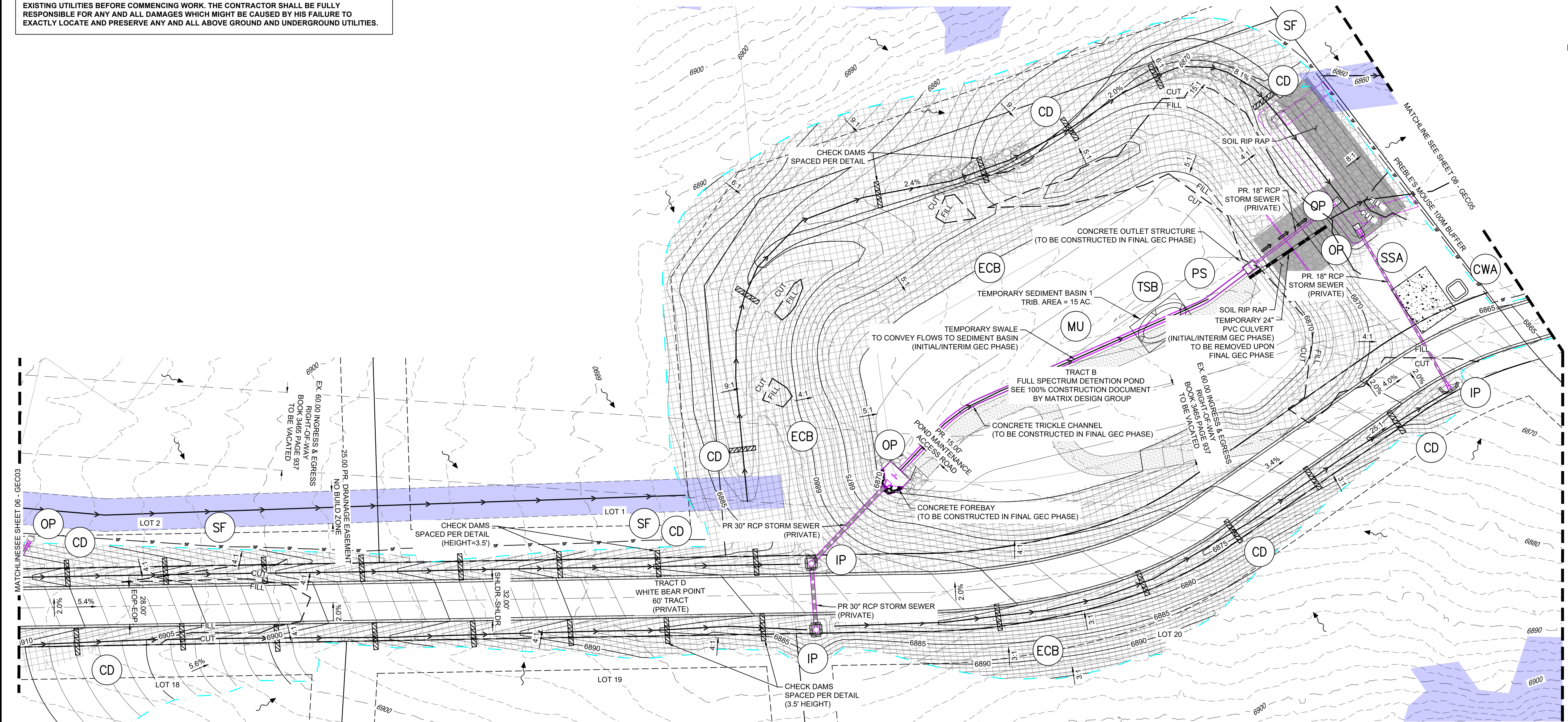
**HAY CREEK VALLEY**  
 EL PASO COUNTY, COLORADO  
 FINAL GRADING & EROSION CONTROL PLANS

**GRADING & EROSION CONTROL PLAN**

DESIGNED BY: CVW	SCALE: 1" = 40'	DATE ISSUED: DECEMBER 2023	DRAWING No. GEC03
DRAWN BY: CVW	HORIZ. 1" = 40'	SHEET 06 OF 12	
CHECKED BY: JAO	VERT. N/A		



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ID	BASIN BOTTOM WIDTH (FT)	SPILLWAY CREST LENGTH (FT)	HOLE DIAMETER (IN)	# ROWS OF HOLES	REQUIRED VOLUME (CF)
1	73.25	22	1 3/16	5	41,070

INITIAL	SILT FENCE, VEHICLE TRACKING, TEMP SEDIMENT BASINS
INTERIM	CHECK DAMS, CONCRETE WASHOUT, INLET/OUTLET PROTECTION, STOCKPILES, STAGING, ROUGH CUT STREET CONTROL
FINAL	EROSION CONTROL BLANKETS, SEEDING & MULCHING, PERMANENT CONTROL MEASURE(S)

NOTES:  
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### EROSION CONTROL LEGEND

SF	SILT FENCE	MU	MULCHING
ECB	EROSION CONTROL BLANKET	TSB	TEMPORARY SEDIMENT BASIN
OP	OUTLET PROTECTION	CWA	CONCRETE WASHOUT
IP	INLET PROTECTION	SSA	STOCKPILE MANAGEMENT / STABILIZED STAGING AREA
VTC	VEHICLE TRACKING CONTROL	HP	HIGH POINT / LOW POINT
CD	CHECK DAM	LP	LOW POINT
	PROPOSED RIP RAP		PROPOSED CONTOURS
	PROPOSED STORM DRAIN		EXISTING FENCE
	NO BUILD ZONE (SLOPE GREATER THAN 29.99%)		EXISTING STORM DRAIN

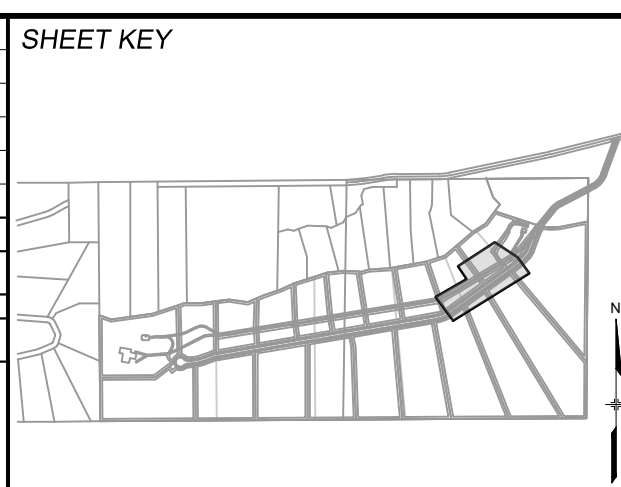
	EXISTING CONTOURS
	DRAINAGE SWALE
	SLOPE LABEL
	OVERLAND FLOW
	LIMITS OF DISTURBANCE/ CONSTRUCTION SITE BOUNDARY
	PROJECT BOUNDARY LINE
	OVERFLOW ROUTE
	CUT/FILL LINE
	100 YEAR FLOODPLAIN BOUNDARY
	MATCHLINE
	PROPOSED LOT/TRACT LINE
	EASEMENT
	PROPOSED BUILDING SETBACK

GRAPHIC SCALE  
 1 inch = 40 ft.

PCD FILE #: SF2324

No.	DATE	DESCRIPTION	BY
REVISIONS			

COMPUTER FILE MANAGEMENT  
 FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\GEC01.dwg  
 CTB FILE: Matrix.ctb  
 PLOT DATE: 12/5/2023 12:49 PM  
 THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.



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SEAL  
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FOR AND ON BEHALF OF  
 MATRIX DESIGN GROUP, INC.  
 PROJECT No. 22.886.076

**HAY CREEK VALLEY**  
 EL PASO COUNTY, COLORADO  
 FINAL GRADING & EROSION CONTROL PLANS

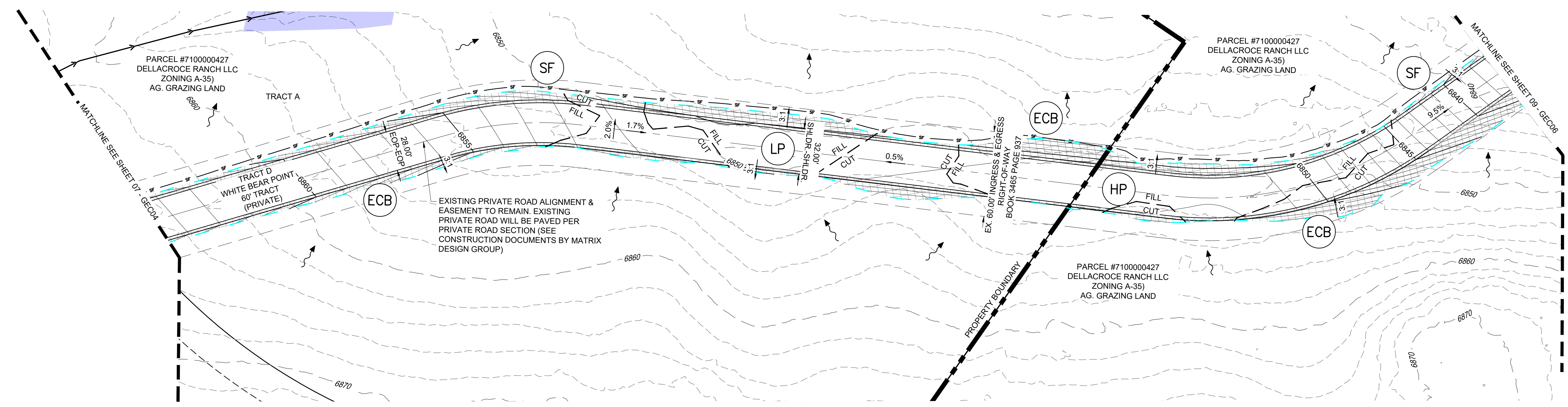
**GRADING & EROSION CONTROL PLAN**

DESIGNED BY: CVW	SCALE: 1" = 40'	DATE ISSUED: DECEMBER 2023	DRAWING No. GEC04
DRAWN BY: CVW	HORIZ. 1" = 40'	SHEET 07 OF 12	
CHECKED BY: JAO	VERT. N/A		



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BMP SEQUENCING	
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INTERIM	CHECK DAMS, CONCRETE WASHOUT, INLET/OUTLET PROTECTION, STOCKPILES, STAGING, ROUGH CUT STREET CONTROL
FINAL	EROSION CONTROL BLANKETS, SEEDING & MULCHING, PERMANENT CONTROL MEASURE(S)

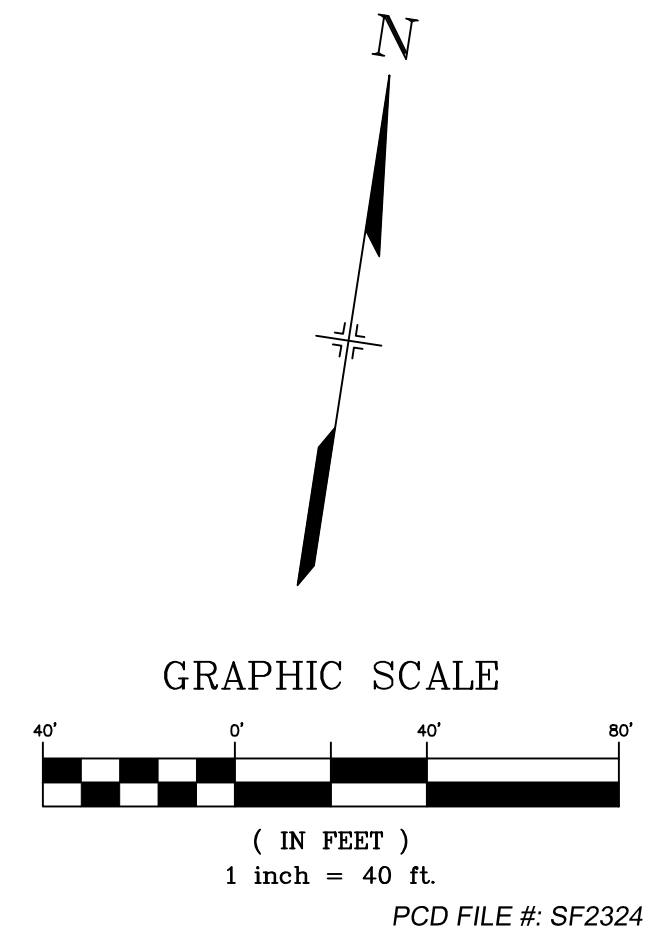
NOTES:  
 1. SEE CHECK DAM (CD) DETAIL EC-12 ON SHEET ECN01 FOR SPACING.  
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### EROSION CONTROL LEGEND

SF	PERMANENT SEEDING	MU	MULCHING
SF	SILT FENCE	TSB	TEMPORARY SEDIMENT BASIN
ECB	EROSION CONTROL BLANKET	CWA	CONCRETE WASHOUT
OP	OUTLET PROTECTION	SSA	STOCKPILE MANAGEMENT / STABILIZED STAGING AREA
IP	INLET PROTECTION	HP	HIGH POINT / LOW POINT
VTC	VEHICLE TRACKING CONTROL	LP	PROPOSED CONTOURS
CD	CHECK DAM		EXISTING FENCE
			EXISTING STORM DRAIN
			PROPOSED STORM DRAIN
			NO BUILD ZONE (SLOPE GREATER THAN 29.99%)

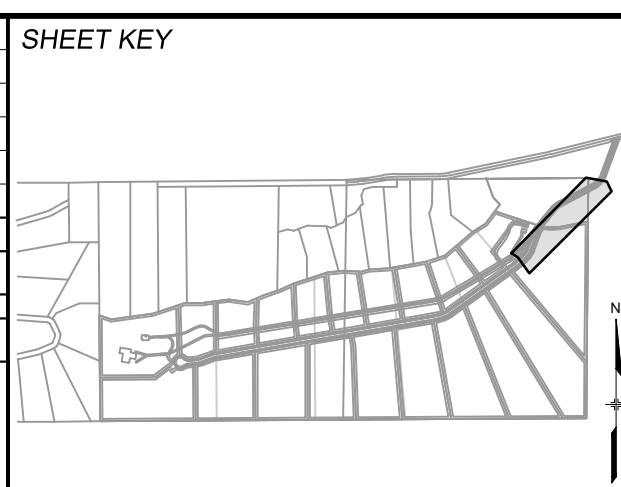
	EXISTING CONTOURS
	DRAINAGE SWALE
	SLOPE LABEL
	OVERLAND FLOW
	LIMITS OF DISTURBANCE/ CONSTRUCTION SITE BOUNDARY
	PROJECT BOUNDARY LINE
	OVERFLOW ROUTE
	CUT/FILL LINE
	100 YEAR FLOODPLAIN BOUNDARY
	MATCHLINE
	PROPOSED LOT/TRACT LINE
	EASEMENT
	PROPOSED BUILDING SETBACK



No.	DATE	DESCRIPTION	BY
REVISIONS			

COMPUTER FILE MANAGEMENT	
FILE NAME:	S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\GEC01.dwg
CTB FILE:	Matrix.ctb
PLOT DATE:	12/5/2023 12:50 PM
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PREPARED BY:  
**Matrix**  
 Excellence by Design

SEAL  
**PRELIMINARY**  
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FOR AND ON BEHALF OF  
 MATRIX DESIGN GROUP, INC.  
 PROJECT No. 22.886.076

**HAY CREEK VALLEY**  
 EL PASO COUNTY, COLORADO  
 FINAL GRADING & EROSION CONTROL PLANS

**GRADING & EROSION CONTROL PLAN**

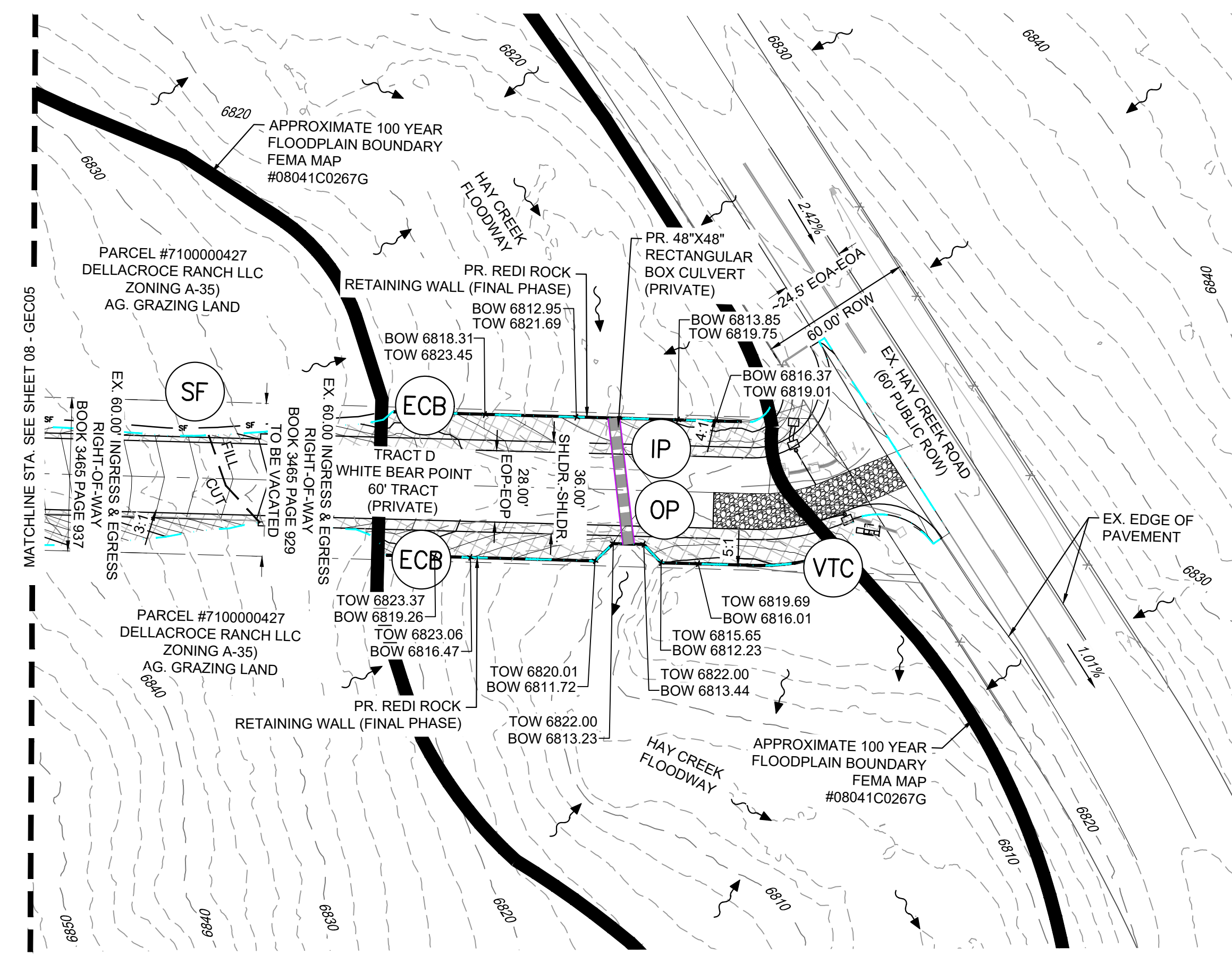
DESIGNED BY:	CVV	SCALE:	DATE ISSUED:	DECEMBER 2023	DRAWING No.
DRAWN BY:	CJV	HORIZ. 1" = 40'	SHEET	08 OF 12	GEC05
CHECKED BY:	JAO	VERT. N/A			





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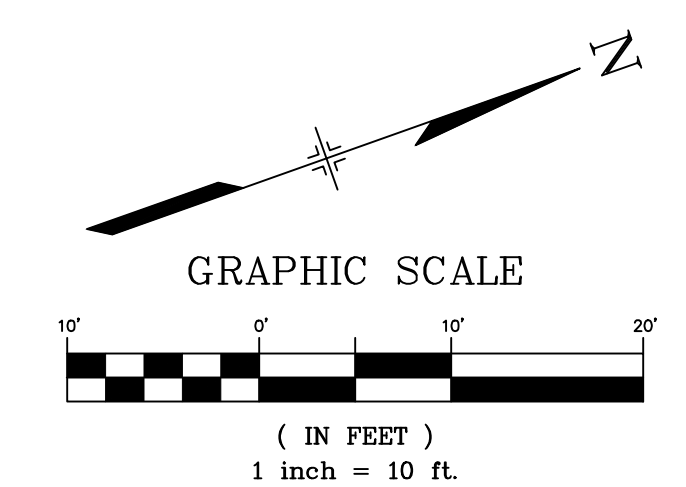


BMP SEQUENCING	
INITIAL	SILT FENCE, VEHICLE TRACKING, TEMP SEDIMENT BASINS
INTERIM	CHECK DAMS, CONCRETE WASHOUT, INLET/OUTLET PROTECTION, STOCKPILES, STAGING, ROUGH CUT STREET CONTROL
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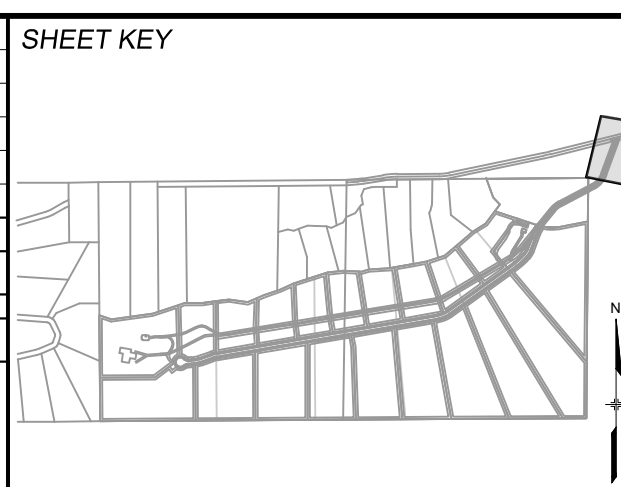
### EROSION CONTROL LEGEND

SF	SILT FENCE	PS	PERMANENT SEEDING	MU	MULCHING	TSB	TEMPORARY SEDIMENT BASIN	CWA	CONCRETE WASHOUT	SSA	STOCKPILE MANAGEMENT / STABILIZED STAGING AREA	HP	HIGH POINT / LOW POINT	LP	LOW POINT / HIGH POINT
ECB	EROSION CONTROL BLANKET	IP	INLET PROTECTION	VTC	VEHICLE TRACKING CONTROL		PROPOSED RIP RAP	CD	CHECK DAM		EXISTING CONTOURS		DRAINAGE SWALE		SLOPE LABEL
OUT	OUTLET PROTECTION		EXISTING FENCE		PROPOSED STORM DRAIN		NO BUILD ZONE (SLOPE GREATER THAN 29.99 %)		EXISTING STORM DRAIN		EXISTING FENCE		PROPOSED LOT/TRACT LINE		EASEMENT
	LIMITS OF DISTURBANCE / CONSTRUCTION SITE BOUNDARY		PROJECT BOUNDARY LINE		OVERFLOW ROUTE		CUT/FILL LINE		100 YEAR FLOODPLAIN BOUNDARY		MATCHLINE		PROPOSED BUILDING SETBACK		EXISTING FENCE



PCD FILE #: SF2324

NO.	DATE	DESCRIPTION	BY
REVISIONS			
COMPUTER FILE MANAGEMENT			
FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\GEC01.dwg			
CTB FILE: Matrix.ctb			
PLOT DATE: 12/5/2023 12:50 PM			
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PREPARED BY:

Excellence by Design

SEAL

**PRELIMINARY**  
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**HAY CREEK VALLEY**

EL PASO COUNTY, COLORADO  
 FINAL GRADING & EROSION CONTROL PLANS

**GRADING & EROSION CONTROL PLAN**

DESIGNED BY: CVW	SCALE: 1" = 40'	DATE ISSUED: DECEMBER 2023	DRAWING No. GEC06
DRAWN BY: CVW	HORIZ. N/A	SHEET 09 OF 12	
CHECKED BY: JAO	VERT. N/A		



Know what's below. Call before you dig.

**EC-6 Rolled Erosion Control Products (RECP)**

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

- ECB type
- Slope or channel type

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 recommendations.

**Maintenance and Removal**

Inspection of erosion control blankets and other RECPs include:

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

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

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

**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-5

**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 EROSION CONTROL BLANKET (COCONUT, OR EXCELLENT)
  - TYPE OF EROSION CONTROL BLANKET (COCONUT, OR EXCELLENT)
  - AREA A IS SQUARE YARDS OF EACH TYPE OF ECB.
- USE NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR ECB, ALTHOUGH SOME APPLICATIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE EROSION IS SEVERE ON THE PLANS, THE PERMITS SHALL PLACE TRENCH AND TRENCH FILL, STRAW, STRAW COCOON, AND SEEDING AND MULCHING. SEEDING SHALL BE SMOOTH AND MUST BE FOR ECB INSTALLATION AND THE ECB SHALL BE FULL CONTACT WITH SEEDING. NO GAPS OR JOINTS SHALL EXIST UNDER THE BLANKET.
- PERMITS ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECB TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECB EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELLENT ECB.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECB TOGETHER FOR ECB ON COCONUT AND EXCELLENT ECB.
- MATERIAL SPECIFICATIONS OF ECB SHALL CONFORM TO TABLE EC-6-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECB SHALL BE RESEEDED AND MULCHED.
- DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

**TABLE EC-6-1. EROSION CONTROL MATERIAL SPECIFICATIONS**

TYPE	COCONUT CONTENT (%)	STRAW CONTENT (%)	EXCELLENT CONTENT (%)	RECOMMENDED NETTING
STRAW	-	100	-	NATURAL
STRAW-COCONUT	30R MIN	70R MAX	-	COARSELY WOVEN POLYPROPYLENE
COCONUT	100R	-	-	NATURAL
EXCELLENT	-	-	100R	NATURAL

NOTE: PERMITS SHALL BE USED TO VERIFY THAT THE MATERIALS MEET THE SPECIFICATIONS LISTED ABOVE.

**EC-6 Rolled Erosion Control Products (RECP)**

**EROSION CONTROL BLANKET MAINTENANCE NOTES**

- INSPECT ECBs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF ECBs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT ECBs AS SOON AS POSSIBLE AND ALWAYS WITHIN 24 HOURS FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- PERMITS OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN ECBs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE ECBs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ECB SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUIRED TO BE REMOVED BY THE LOCAL JURISDICTION.
- WHERE REMOVAL OF ECBs OR OTHERWISE DISTURBED AREAS ARE REQUIRED TO MAINTAIN PERMITS, ANY DISTURBED AREAS SHALL BE RESEEDED AND MULCHED TO CREATE A VOID UNDER THE BLANKET. THE RESEEDING AND MULCHING SHALL BE SMOOTH AND MUST BE FOR ECB INSTALLATION AND THE ECB SHALL BE FULL CONTACT WITH SEEDING. NO GAPS OR JOINTS SHALL EXIST UNDER THE BLANKET.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USFC STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

DETAILS ADAPTED FROM USFC MANUAL, COCONUT AND STRAW PERMITS, NOT AVAILABLE IN ARCHIVE

**EC-8 Temporary Outlet Protection (TOP)**

**TEMPORARY OUTLET PROTECTION PLAN**

**SECTION A**

**TABLE OP-1. TEMPORARY OUTLET PROTECTION SIZING TABLE**

PIPE DIAMETER (INCHES)	DESIGN Q (CFS)	ANCHOR LENGTH (FT)	RRPWP (DO) DIAMETER (INCHES)
8	2.5	5	4
12	5	10	4
18	10	10	6
24	20	20	12
30	30	30	18

OP-1. TEMPORARY OUTLET PROTECTION

**EC-8 Temporary Outlet Protection (TOP)**

**TEMPORARY OUTLET PROTECTION INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF OUTLET PROTECTION
  - DIMENSIONS OF OUTLET PROTECTION
- BEFORE BEING INSTALLED FOR USE WITH SLOPE < 1:1 USE ADDITIONAL CALCULATION OF RRPWP SIZING AND OUTLET PROTECTION DIMENSIONS REQUIRED FOR STEEPER SLOPES.
- TEMPORARY OUTLET PROTECTION INFORMATION IS FOR OUTLETS INTENDED TO BE UTILIZED LESS THAN 3 YEARS.

**TEMPORARY OUTLET PROTECTION INSPECTION AND MAINTENANCE NOTES**

- INSPECT ECBs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF ECBs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT ECBs AS SOON AS POSSIBLE AND ALWAYS WITHIN 24 HOURS FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- PERMITS OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN ECBs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE ECBs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

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

DETAILS ADAPTED FROM USFC MANUAL, COCONUT AND STRAW PERMITS, NOT AVAILABLE IN ARCHIVE

**EC-9 Rough Cut Street Control (RCS)**

**ROUGH CUT STREET CONTROL PLAN**

**SECTION A**

**SECTION B**

**TABLE EC-9-1. ROUGH CUT STREET CONTROL**

TABLE EC-9-1	LOWER SLOPE (1:1)	SPACING (FT)
30-30	3	100
31-40	3	200
41-50	3	300
51-60	5	100
61-70	5	200
71-80	7	25

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**EC-9 Rough Cut Street Control (RCS)**

**ROUGH CUT STREET CONTROL INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF ROUGH CUT STREET CONTROL MEASURES
- ROUGH CUT STREET CONTROL SHALL BE INSTALLED AFTER A ROAD HAS BEEN CUT IN AND WILL NOT BE PLACED FOR MORE THAN 14 DAYS OR FOR TEMPORARY CONSTRUCTION PILES THAT WILL NOT RECEIVE ROAD USE.

**ROUGH CUT STREET CONTROL INSPECTION AND MAINTENANCE NOTES**

- INSPECT ECBs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF ECBs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT ECBs AS SOON AS POSSIBLE AND ALWAYS WITHIN 24 HOURS FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- PERMITS OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN ECBs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE ECBs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USFC STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

**EC-8 Concrete Washout Area (CWA)**

**CONCRETE WASHOUT AREA PLAN**

**SECTION A**

**CWA-1. CONCRETE WASHOUT AREA**

**CWA INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION
- DO NOT LOCATE AN UNREINFORCED CWA WITHIN 40' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 10' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONDITIONS MAKE THIS IMPROBABLE, OR IF PERMIT REGULATIONS REQUIRE, THE CWA SHALL BE INSTALLED WITH AN IMPROVED DESIGN TO BE FULLY PROTECTED BY SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT CANES OR A LINED WASHOUT STORAGE AND PUMP PILE.
- THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
- CWA SHALL INCLUDE A FLAT SUBGRADE, NOT LESS THAN 1/4" SLOPE, AND SHALL BE AT LEAST 3" DEEP.
- SEED SUBGRADE WITH SEED AND SOIL OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
- VEHICLE TRACING AND SHALL BE SLOPED TO DRAIN TOWARDS THE CWA.
- SEED SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND AT THE END OF THE CWA AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP TRUCKS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

**EC-8 Concrete Washout Area (CWA)**

**CWA MAINTENANCE NOTES**

- INSPECT ECBs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF ECBs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT ECBs AS SOON AS POSSIBLE AND ALWAYS WITHIN 24 HOURS FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- PERMITS OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN ECBs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE ECBs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- THE CWA SHALL BE REPAIRED, CLEANED, OR REGRADED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. MAINTENANCE ACCOMPLISHED IN PAV, SHALL BE REPAIRED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2".
- CONCRETE WASHOUT AREAS SHALL BE REPAIRED WITH A WATER-TIGHT CONCRETE AND COVERED WITH AN APPROPRIATE PERMITS FROM THE JOB SITE IN A WATER-TIGHT MANNER.
- THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
- WHEN THE CWA IS REMOVED, THE DISTURBED AREA WITH TOP SOIL, SEED, AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

DETAILS ADAPTED FROM USFC MANUAL, COCONUT AND STRAW PERMITS, NOT AVAILABLE IN ARCHIVE

**EC-8 Check Dams (CD)**

**CHECK DAM ELEVATION VIEW**

**SECTION A**

**SECTION B**

**CD-1. CHECK DAM**

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**EC-12 Check Dams (CD)**

**CHECK DAM INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF CHECK DAM
  - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM)
  - CHECK DAM CREST LENGTH (CL) AND DEPTH (D)
- CHECK DAMS INDICATED ON INITIAL SWMP SHALL BE INSTALLED AFTER CONSTRUCTION FORCE BEYOND THE UPSTREAM LAND COVERING ACTIVITIES.
- RRPWP UTILIZED FOR CHECK DAMS SHOULD BE OF APPROPRIATE SIZE FOR THE APPLICATION. TYPICAL TYPES OF RRPWP USED FOR CHECK DAMS ARE TYPE M (DOO 12") OR TYPE L (DOO 8").
- REPAIR MAT SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1".
- THE FEET OF THE CHECK DAM SHALL BE A MINIMUM OF 1' 6" HIGHER THAN THE CENTER OF THE CHECK DAM.

**CHECK DAM MAINTENANCE NOTES**

- INSPECT ECBs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF ECBs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT ECBs AS SOON AS POSSIBLE AND ALWAYS WITHIN 24 HOURS FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- PERMITS OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN ECBs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE ECBs 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 3/4 OF THE HEIGHT OF THE CREST.

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

DETAILS ADAPTED FROM USFC MANUAL, COCONUT AND STRAW PERMITS, NOT AVAILABLE IN ARCHIVE

**EC-12 Check Dams (CD)**

**REINFORCED CHECK DAM ELEVATION VIEW**

**SECTION A**

**REINFORCED CHECK DAM INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF CHECK DAM
  - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM)
  - CHECK DAM CREST LENGTH (CL) AND DEPTH (D)
- CHECK DAMS INDICATED ON THE SWMP SHALL BE INSTALLED PRIOR TO AN UPSTREAM LAND COVERING ACTIVITIES.
- REINFORCED CHECK DAMS, GROUND SHALL BE OBTAINED THROUGH WIRE NETTING WITH A MINIMUM OF 1/4" CREST LENGTH (CL) AND DEPTH (D). OTHER APPROVED MEANS SHALL BE USED AT ALL OTHER LOCATIONS.
- THE CHECK DAM SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1' 6".
- SCOTCHLITE 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**

- INSPECT ECBs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF ECBs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT ECBs AS SOON AS POSSIBLE AND ALWAYS WITHIN 24 HOURS FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- PERMITS OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN ECBs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE ECBs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF REINFORCED CHECK DAMS SHALL BE REMOVED AS NECESSARY TO MAINTAIN THE EFFECTIVENESS OF BMP. TYPICALLY WITHIN THE UPSTREAM SCOURMENT OR OTHERWISE STABILIZED AS APPROVED BY THE LOCAL JURISDICTION.
- REPAIR OR REPLACE REINFORCED CHECK DAMS WHEN THERE ARE SIGNS OF DAMAGE SUCH AS HOLES IN THE GROUND 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 REQUIRED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDING AND MULCHING AND COVERED WITH A SCOTCHLITE BLANKET, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

DETAILS ADAPTED FROM USFC MANUAL, COCONUT AND STRAW PERMITS, NOT AVAILABLE IN ARCHIVE

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

**EC-12 Silt Fence (SF)**

**SILT FENCE**

**SECTION A**

**SF-1. SILT FENCE**

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**EC-12 Silt Fence (SF)**

**SILT FENCE INSTALLATION NOTES**

- SILT FENCE SHALL BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER FLOW. SILT FENCE SHALL BE THE TOP OF A SLOPE STABILIZED BY MATERIAL TO A FLAT LOCATION AT LEAST 3 FEET (3-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR CHANNELING AND PROTECTION.
- A UNIFORM 6" x 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRACTOR OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, SHOVELS, OR STRAW EQUIPMENT SHALL BE USED.
- CONCRETE ANCHOR TRENCHES BY HAND WITH A SHARPENED POINT OR BY ANCHOR TRENCHER SHOULD BE SUCH THAT SILT FENCE POSTS BEING PULLED OUT OF THE TRENCHES.
- SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STRIKES. THERE SHOULD BE NO GAPS BETWEEN STRIKES AFTER IT HAS BEEN ANCHORED TO THE TRENCHES.
- SILT FENCE FABRIC SHALL BE ANCHORED TO THE STRIKES USING 1" HEAVY DUTY STAPLES OR WALLS WITH 1" HEADS. STAPLES AND WALLS SHOULD BE PLACED 3' ALONG THE FABRIC FROM THE STRIKES.
- AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TRENCHED PERPENDICULAR TO THE CONTOUR TO CREATE A "U-SHORE" OR "U-SHOOT" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNWAY FROM FORMING AROUND THE END OF THE SILT FENCE (TYPICALLY 1' - 3').
- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

**SILT FENCE MAINTENANCE NOTES**

- INSPECT ECBs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF ECBs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT ECBs AS SOON AS POSSIBLE AND ALWAYS WITHIN 24 HOURS FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- PERMITS OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN ECBs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE ECBs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NECESSARY TO MAINTAIN THE EFFECTIVENESS OF THE SILT FENCE. TYPICALLY WITHIN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1' 6".
- REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TRENCHING, OR COLLAPSE.
- SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERMANENT SEDIMENT CONTROL BMP.
- WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDING AND MULCHING OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

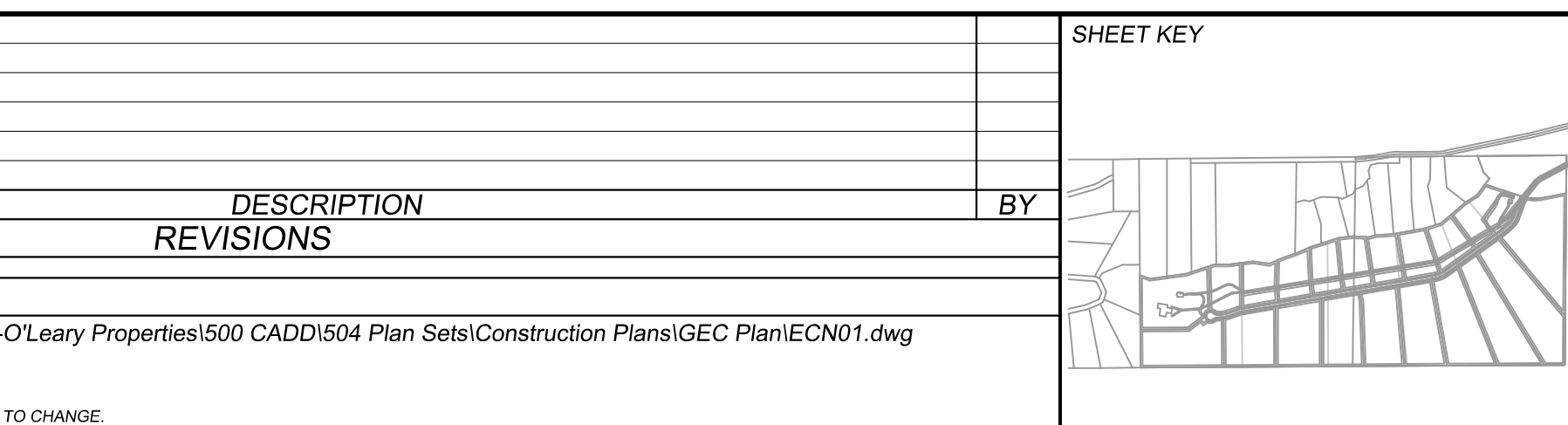
**REFERENCE DRAWINGS**

X-TITLE-CD  
X-888-FR-SITE  
FE8A.XS  
X-888-066-EX-MAP-1  
164022-01 Hay Creek Road BNY  
X-888-ALTA-SURVEY  
Hay Creek BNS

No.	DATE	DESCRIPTION
		REVISIONS

**COMPUTER FILE MANAGEMENT**

FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\ECN01.dwg  
CTB FILE: Matrix.ctb  
PLOT DATE: 12/5/2023 12:50 PM  
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.



**BENCHMARK**

PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS BASED ON AN OPUS DERIVED ELEVATION ON CONTROL POINT 10, A NO. 5 REBAR HAVING AN ELEVATION OF 5769.92.

**BASIS OF BEARING**

THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO, BEING MONUMENTED ON THE EASTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "NOLTE PL25955 C1/4 S22 T165, R65W 1999," AND THE WESTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "SSS PLS 16154 1/4 S21 S22 T165, R65W 2000," BEING ASSUMED TO BEAR S89°54'42"W, A DISTANCE OF 2,627.78 FEET.

**SEAL**

**PRELIMINARY**  
THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE

FOR AND ON BEHALF OF  
MATRIX DESIGN GROUP, INC.  
PROJECT No. 22.886.076

PREPARED BY:  
**Matrix**  
Excellence by Design

**HAY CREEK VALLEY**

EL PASO COUNTY, COLORADO  
FINAL GRADING & EROSION CONTROL PLANS

**DETAILS**

DESIGNED BY:	SCALE:	DATE ISSUED:	DRAWING No.
CVV	HORIZ. N/A	DECEMBER 2023	ECN01
CHECKED BY:	VERT. N/A	10 OF 12 SHEET	

PCD FILE #: SF2324



Know what's below. Call before you dig.

**SC-6 Inlet Protection (IP)**

IP-3. Rock Sock Inlet Protection for Sump/Area Inlet  
 IP-4. Silt Fence Inlet Protection for Sump/Area Inlet  
 IP-5. Over-excavation Inlet Protection  
 IP-6. Straw Bale Inlet Protection for Sump/Area Inlet  
 CIP-1. Culvert Inlet Protection

Proprietary 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.

**Inlets Located in a Sump**

When applying inlet protection in sump conditions, it is important that the inlet continue to function during larger runoff events. For each inlet, 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 clogged with sediment, runoff will enter the inlet and may bypass it, possibly 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 gravel surfaces), sediment control logs/bars, or devices 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.

**Inlets Located on a Slope**

For curb and gutter inlets on open grading slopes, block and rock sock inlet protection is recommended in conjunction with curb socks in the gutter leading to the inlet. For inlets located along unpaved roads, also see the Check Dam Fact Sheet.

**Maintenance and Removal**

Inlet protection frequently. Inspection and maintenance guidance includes:

- Inspect for tears that can result in sediment directly entering the inlet, as well as result in the contents of the BMP (e.g., gravel) washing into the inlet.
- Check for improper installation resulting in untreated flows bypassing the BMP and directly entering the inlet or bypassing to an unprotected inlet. For silt fence, 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 can occur following heavy events even if the BMP was or is properly installed. Track and equipment may also crush or displace the BMP.
- Monitor sediment accumulation upstream of the inlet protection.

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**Inlet Protection (IP) SC-6**

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.

Proprietary 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 settling 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.

**Inlets Located in a Sump**

When applying inlet protection in sump conditions, it is important that the inlet continue to function during larger runoff events. For each inlet, 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 clogged with sediment, runoff will enter the inlet and may bypass it, possibly 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 gravel surfaces), sediment control logs/bars, or devices 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.

**Inlets Located on a Slope**

For curb and gutter inlets on open grading slopes, block and rock sock inlet protection is recommended in conjunction with curb socks in the gutter leading to the inlet. For inlets located along unpaved roads, also see the Check Dam Fact Sheet.

**Maintenance and Removal**

Inlet protection frequently. Inspection and maintenance guidance includes:

- Inspect for tears that can result in sediment directly entering the inlet, as well as result in the contents of the BMP (e.g., gravel) washing into the inlet.
- Check for improper installation resulting in untreated flows bypassing the BMP and directly entering the inlet or bypassing to an unprotected inlet. For silt fence, 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 can occur following heavy events even if the BMP was or is properly installed. Track and equipment may also crush or displace the BMP.
- Monitor sediment accumulation upstream of the inlet protection.

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**SC-6 Inlet Protection (IP)**

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

ROCK SOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- CONCRETE "THICK" BLOCKS SHALL BE Laid ON THEIR SIDE AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
- GRAVEL BARS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.

**IP-2. CURB SOCK SOCKS UPSTREAM OF INLET PROTECTION**

CURB SOCK SOCK INLET PROTECTION INSTALLATION NOTES

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

IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- STRAW MATS/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

IP-4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

- SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- POINTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES OF A BARRIAGE WALL.
- STRAW MATS/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

IP-5. OVER-EXCAVATION INLET PROTECTION

OVER-EXCAVATION INLET PROTECTION INSTALLATION NOTES

- THIS FORM OF INLET PROTECTION IS REMAINING APPLICABLE FOR SITES THAT HAVE NOT MET FINAL STABILIZATION REQUIREMENTS.
- WHEN USING FOR CONCENTRATED FLOW, SHAPE BARS IN 2:1 RATIO WITH LENGTH ORIENTED TOWARD DIRECTION OF FLOW.
- SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVER-EXCAVATED AREA.

IP-6. STRAW BALE FOR SUMP INLET PROTECTION

STRAW BALE BARRIAGE INLET PROTECTION INSTALLATION NOTES

- SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH CHAINS OF BALES TIGHTLY ABUTTING ONE ANOTHER.

IP-7 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

**Inlet Protection (IP) SC-6**

**IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION**

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- STRAW MATS/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

**IP-4. SILT FENCE FOR SUMP INLET PROTECTION**

SILT FENCE INLET PROTECTION INSTALLATION NOTES

- SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- POINTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES OF A BARRIAGE WALL.
- STRAW MATS/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

**IP-5. OVER-EXCAVATION INLET PROTECTION**

OVER-EXCAVATION INLET PROTECTION INSTALLATION NOTES

- THIS FORM OF INLET PROTECTION IS REMAINING APPLICABLE FOR SITES THAT HAVE NOT MET FINAL STABILIZATION REQUIREMENTS.
- WHEN USING FOR CONCENTRATED FLOW, SHAPE BARS IN 2:1 RATIO WITH LENGTH ORIENTED TOWARD DIRECTION OF FLOW.
- SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVER-EXCAVATED AREA.

**IP-6. STRAW BALE FOR SUMP INLET PROTECTION**

STRAW BALE BARRIAGE INLET PROTECTION INSTALLATION NOTES

- SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH CHAINS OF BALES TIGHTLY ABUTTING ONE ANOTHER.

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**SC-6 Inlet Protection (IP)**

**IP-5. OVER-EXCAVATION INLET PROTECTION**

OVER-EXCAVATION INLET PROTECTION INSTALLATION NOTES

- THIS FORM OF INLET PROTECTION IS REMAINING APPLICABLE FOR SITES THAT HAVE NOT MET FINAL STABILIZATION REQUIREMENTS.
- WHEN USING FOR CONCENTRATED FLOW, SHAPE BARS IN 2:1 RATIO WITH LENGTH ORIENTED TOWARD DIRECTION OF FLOW.
- SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVER-EXCAVATED AREA.

**IP-6. STRAW BALE FOR SUMP INLET PROTECTION**

STRAW BALE BARRIAGE INLET PROTECTION INSTALLATION NOTES

- SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH CHAINS OF BALES TIGHTLY ABUTTING ONE ANOTHER.

IP-7 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

**Inlet Protection (IP) SC-6**

**CIP-1. CULVERT INLET PROTECTION**

CULVERT INLET PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION OF CULVERT INLET PROTECTION.
- SEE ROCK SOCK DESIGN DETAIL FOR ROCK SOCK DESIGN REQUIREMENTS AND JOINING DETAIL.

CULVERT INLET PROTECTION MAINTENANCE NOTES

- INSPECT BALES EACH MONTH, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BALES SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BALES AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- PROVIDE OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BALES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BALES HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 8 INCHES ABOVE THE HEIGHT OF THE ROCK SOCK.
- CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED BY THE LOCAL JURISDICTION.

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

IP-7 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

**SC-6 Inlet Protection (IP)**

**GENERAL INLET PROTECTION INSTALLATION NOTES**

- SEE PLAN VIEW FOR LOCATION OF INLET PROTECTION.
- INLET PROTECTION SHALL BE INSTALLED PROPERLY AFTER INLET CONSTRUCTION OR FINISH IS COMPLETE (TYPICALLY WITHIN 48 HOURS OF A RAINFALL/WINDY EVENT IS FORECAST). INITIAL INLET PROTECTION PRIOR TO COMPLETION OF INLET CONSTRUCTION IS ACCEPTABLE.
- WHERE BALES HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN IT REACHES NO MORE THAN HALF THE STORAGE CAPACITY OF THE INLET PROTECTION. FOR SILT FENCE, 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 CAN OCCUR FOLLOWING HEAVY EVENTS EVEN IF THE BMP WAS OR IS PROPERLY INSTALLED. TRACK AND EQUIPMENT MAY ALSO CRUSH OR DISPLACE THE BMP.
- MONITOR SEDIMENT ACCUMULATION UPSTREAM OF THE INLET PROTECTION.

IP-8 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

**SC-7 Sediment Basin (SB)**

**Maintenance and Removal**

Drudge sediment from the basin, as needed to maintain BMP effectiveness, typically when the design storage volume is no more than one-third filled with sediment.

Inspect the sediment basin embankments for stability and seepage.

Inspect the inlet and outlet of the basin, repair damage, and remove debris. Remove, clean and replace the gravel around the outlet on a regular basis to remove the accumulated sediment within it and keep the outlet functioning.

Be aware that removal of a sediment basin may require dewatering and associated permit requirements.

Do not remove a sediment basin until the upstream area has been stabilized with vegetation.

Final disposition of the sediment basin depends on whether the basin will be converted to a permanent post-construction stormwater basin or whether the basin area will be returned to grade. For basins being converted to permanent detention basins, remove accumulated sediment and reconfigure the basin and outlet to meet the requirements of the final design for the detention facility. If the sediment basin is not to be used as a permanent detention facility, fill the excavated area with soil and stabilize with vegetation.

SB-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

**Sediment Basin (SB) SC-7**

**SEDIMENT BASIN PLAN**

INLETS TO SEDIMENT BASIN SHALL BE LOCATED AT EACH CORNER OF THE BASIN AND SHALL CONSIST OF A CONCRETE CURB AND 4" PVC RISER PIPE.

OUTLET SHALL BE LOCATED AT THE END OF THE BASIN AND SHALL CONSIST OF A CONCRETE CURB AND 4" PVC RISER PIPE.

SEDIMENT BASIN INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION OF SEDIMENT BASIN.
- TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
- FOR STANDARD BASIN, BOTTOM WIDTH IN CREST LENGTH AND HOLE DIMENSIONS SHALL BE AS SHOWN. FOR NONSTANDARD BASIN, SEE CONSTRUCTION DIMENSIONS FOR BASIN INCLUDING RISER HEIGHT, NUMBER OF COLUMNS IN HOLE DIMENSION PD AND PIPE DIMENSION D.
- FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
- SEDIMENT BASIN SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DEVELOPING ACTIVITY THAT RESULTS IN SOIL EROSION AS A STORMWATER CONTROL MEASURE.
- EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF ORGANIC MATERIALS, AND ROCKS OR CONCRETES GREATER THAN 1 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PERCENT OF NO. 200 SIEVE.
- EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH LOCAL JURISDICTION.
- PVC 4" OR GREATER SHALL BE USED.
- THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASINS FOR DRAINAGE AREAS LESS THAN 10 ACRES. SEE CONSTRUCTION DIMENSIONS FOR NONSTANDARD SEDIMENT BASINS. SEE LOCAL JURISDICTION DETAILS FOR ANY SEDIMENT BASINS THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 10 ACRES.

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

**SC-7 Sediment Basin (SB)**

**TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN**

Basin Area (Acres)	Basin Length (ft)	Basin Width (ft)	Basin Depth (ft)	Basin Volume (cu yd)
1	12.9	2	2	10
2	18.1	2	2	20
3	21.2	2	2	30
4	23.7	2	2	40
5	25.7	2	2	50
6	27.4	2	2	60
7	28.8	2	2	70
8	30.0	2	2	80
9	31.1	2	2	90
10	32.0	2	2	100
11	32.8	2	2	110
12	33.5	2	2	120
13	34.1	2	2	130
14	34.7	2	2	140
15	35.2	2	2	150
16	35.7	2	2	160
17	36.2	2	2	170
18	36.6	2	2	180
19	37.0	2	2	190
20	37.4	2	2	200
21	37.8	2	2	210
22	38.2	2	2	220
23	38.5	2	2	230
24	38.9	2	2	240
25	39.2	2	2	250
26	39.5	2	2	260
27	39.8	2	2	270
28	40.1	2	2	280
29	40.4	2	2	290
30	40.7	2	2	300

SB-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

**Sediment Basin (SB) SC-7**

**SEDIMENT BASIN MAINTENANCE NOTES**

- INSPECT BALES EACH MONTH, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BALES SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BALES AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- PROVIDE OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BALES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BALES HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN IT REACHES NO MORE THAN HALF THE STORAGE CAPACITY OF THE BASIN. FOR SILT FENCE, 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 CAN OCCUR FOLLOWING HEAVY EVENTS EVEN IF THE BMP WAS OR IS PROPERLY INSTALLED. TRACK AND EQUIPMENT MAY ALSO CRUSH OR DISPLACE THE BMP.
- MONITOR SEDIMENT ACCUMULATION UPSTREAM OF THE INLET PROTECTION.

SB-7 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

**Vehicle Tracking Control (VTC) SM-4**

**VTC-1. AGGREGATE VEHICLE TRACKING CONTROL**

75 FOOT (MIN.)

INSTALL ROCK FLOOR WITH OR BELOW TOP OF PAVEMENT

UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTIONS USE 100# GRADE 4 REBAR WITH 6" SPACING AND 18" COARSE AGGREGATE OR 6" MINUS ROCK

NON-WOVEN GEOTEXTILE FABRIC BETWEEN SOIL AND ROCK

NON-WOVEN GEOTEXTILE FABRIC UNDER SUBGRADE

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

**SM-4 Vehicle Tracking Control (VTC)**

**VTC-2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK**

WASH RACK

NOTE: WASH RACKS MAY NOT BE USED IN AREAS WHERE THERE IS A HIGH RISK OF POLLUTION. WASH RACKS SHOULD BE INSTALLED IN AREAS WHERE THERE IS A HIGH RISK OF POLLUTION.

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

**Vehicle Tracking Control (VTC) SM-4**

**VTC-3. VEHICLE TRACKING CONTROL W/ CONSTRUCTION MAT OR TURF REINFORCEMENT MAT (TRM)**

CONSTRUCTION MAT WITH STRIP CONNECTORS

STRIP CONNECTORS

TRM END OVERLAP WITH STRIP CONNECTORS

OR AS REQUIRED TO ACCOMMODATE TRAFFIC LOADS

OR AS REQUIRED TO ACCOMMODATE TRAFFIC LOADS

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

**SM-4 Vehicle Tracking Control (VTC)**

**STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES**

- SEE PLAN VIEW FOR LOCATION OF CONSTRUCTION ENTRANCE/EXIT.
- CONSTRUCTION MAT OR TRM SHALL BE USED ON SOFT SURFACES (CONCRETE ENTRANCE/EXIT ARE ONLY TO BE USED ON SOFT SURFACES).
- CONSTRUCTION MAT OR TRM SHALL BE USED ON SOFT SURFACES (CONCRETE ENTRANCE/EXIT ARE ONLY TO BE USED ON SOFT SURFACES).
- STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAY.
- STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND-DEVELOPING ACTIVITY.
- 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 SPEC. #57 AGGREGATE #3 COARSE AGGREGATE OR 6" MINUS ROCK.

**STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES**

- INSPECT BALES EACH MONTH, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BALES SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BALES AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- PROVIDE OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BALES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BALES HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SHALL BE REPLACED OR REGRADED AS NECESSARY TO MAINTAIN A CONSISTENT DEPTH.
- SEDIMENT ACCUMULATED ON PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND THE END OF THE DAY BY DOWNSWEEPING OR BLOWING. SEDIMENT MAY NOT BE BLOWN INTO THE ADJACENT ROADWAY.

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

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

**Stabilized Staging Area (SSA) SM-6**

**SSA-1. STABILIZED STAGING AREA**

**STABILIZED STAGING AREA INSTALLATION NOTES**

- SEE PLAN VIEW FOR LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
- STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE, OVERSEEING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
- STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
- ROCK SHALL BE REPLACED OR REGRADED AS NECESSARY TO MAINTAIN A CONSISTENT DEPTH.
- UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SPEC. #57 AGGREGATE #3 COARSE AGGREGATE OR 6" MINUS ROCK.
- ADDITIONAL REBAR SHALL BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCE.

**STABILIZED STAGING AREA MAINTENANCE NOTES**

- INSPECT BALES EACH MONTH, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BALES SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BALES AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- PROVIDE OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BALES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BALES HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SHALL BE REPLACED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

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

**SM-6 Stabilized Staging Area (SSA)**

**STABILIZED STAGING AREA MAINTENANCE NOTES**

- INSPECT BALES EACH MONTH, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BALES SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BALES AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- PROVIDE OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BALES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BALES HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SHALL BE REPLACED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

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

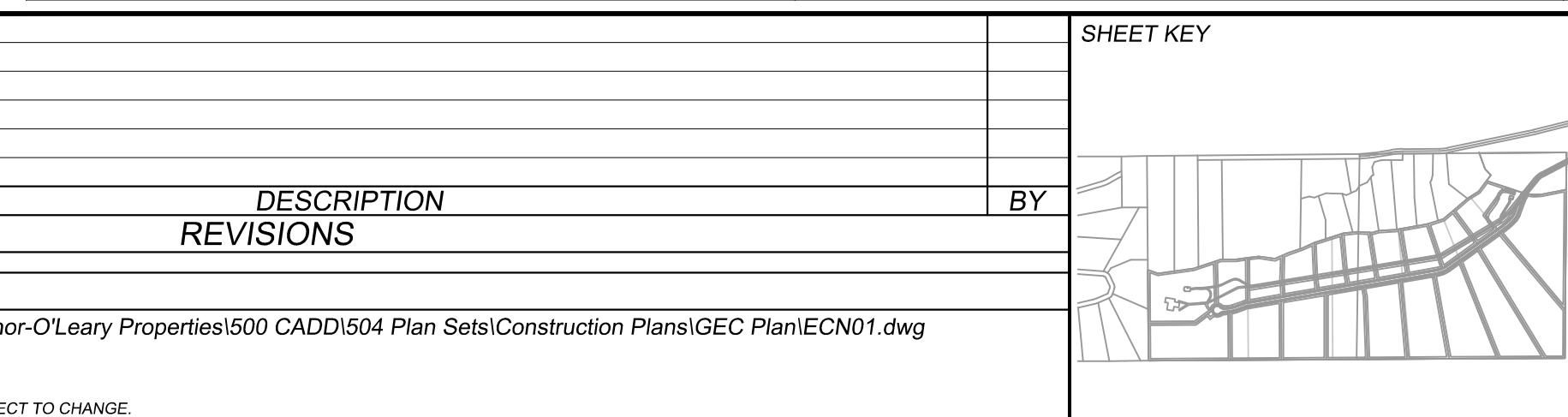
**REFERENCE DRAWINGS**

X-TITLE-CD  
 X-888-FR-SITE  
 FEMA-XS  
 X-888-06-EX-MAP-1  
 164022-01 Hay Creek Road BNSW  
 X-888-ALTA-SURVEY  
 Hay Creek BFEs

No.	DATE	DESCRIPTION
		REVISIONS

**COMPUTER FILE MANAGEMENT**

FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\ECN01.dwg  
 CTB FILE: Matrix.ctb  
 PLOT DATE: 12/5/2023 12:50 PM  
 THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.



**BENCHMARK**

PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS BASED ON AN OPUS DERIVED ELEVATION ON CONTROL POINT 10, A NO. 5 REBAR HAVING AN ELEVATION OF 5769.92.

**BASIS OF BEARING**

THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO, BEING MONUMENTED ON THE EASTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "NOLTE PL25955 C14 S22 T16S, R65W 1999," AND THE WESTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "SSS PL5 16154 1/4 S21 S22 T16S, R65W 2000," BEING ASSUMED TO BEAR S89°54'42"W, A DISTANCE OF 2,627.78 FEET.

PREPARED BY:  
**Matrix**  
 Excellence by Design

**SEAL**

**PRELIMINARY**  
 THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE

FOR AND ON BEHALF OF  
**MATRIX DESIGN GROUP, INC.**  
 PROJECT No. 22.886.076

DESIGNED BY: CVW  
 DRAWN BY: CVW  
 CHECKED BY: JAO

SCALE: HORIZ. N/A  
 VERT. N/A

DATE ISSUED: DECEMBER 2023  
 SHEET 11 OF 12

DRAWING No. ECN02

**HAY CREEK VALLEY**

**EL PASO COUNTY, COLORADO**

**FINAL GRADING & EROSION CONTROL PLANS**

**DETAILS**



Know what's below.  
Call before you dig.

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

**Description**

Temporary seeding can be used to stabilize disturbed areas that will be inactive for an extended period. Permanent seeding should be used to stabilize areas at final grade that will not be otherwise stabilized. Effective seeding includes preparing a seedbed, selecting an appropriate seed mixture, using proper planting techniques, and protecting the seeded area with mulch, geotextiles, or other appropriate measures.



Photograph TS/PS-1: Equipment used to drill seed. Photo courtesy of Douglas County.

**Appropriate Uses**

When the soil surface is disturbed and will remain inactive for an extended period (typically determined by local government requirements), protective stabilization measures, including planting a temporary seed mix, should be implemented. If the inactive period is short-lived (on the order of two weeks), techniques such as surface roughening may be appropriate. For longer periods of inactivity of up to one year, temporary seeding and mulching can provide effective erosion control. Permanent seeding should be used on finished areas that have not been otherwise stabilized.

The USDCM Volume 2 *Revegetation* Chapter contains suggested annual grains and native seed mixes to use for temporary seeding. Alternatively, local governments may have their own seed mixes and timelines for seeding. Check jurisdictional requirements for seeding and temporary stabilization.

**Design and Installation**

Effective seeding requires proper seedbed preparation, selecting an appropriate seed mixture, using appropriate seeding equipment to ensure proper coverage and density, and protecting seeded areas with mulch or fabric until plants are established.

The USDCM Volume 2 *Revegetation* Chapter contains detailed seed mixes, soil preparation practices, and seeding and mulching recommendations that should be referenced to supplement this fact sheet.

Drill seeding is the preferred seeding method. Hydroseeding is not recommended except in areas where steep slopes prevent use of drill seeding equipment, and even in those instances it is preferable to hand seed and mulch. Some jurisdictions do not allow hydroseeding or hydro-mulching.

**Seedbed Preparation**

Prior to seeding, ensure that areas to be revegetated have soil conditions capable of supporting vegetation. Overcut grading can result in loss of topsoil and compaction resulting in poor quality subsoils at the ground surface that

Temporary and Permanent Seeding	
Function	Yes
Erosion Control	Yes
Sediment Control	No
Silt/Material Management	No

January 2021	Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3	TS/PS-1
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**EC-2 Temporary and Permanent Seeding (TS/PS)**

have low nutrient value, little organic matter content, few soil microorganisms, rooting restrictions, and conditions less conducive to infiltration of precipitation. As a result, it is typically necessary to provide stockpiled topsoil, compost, or other soil amendments and install 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. If present, at a minimum of 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 amounts of amendments that are required.

If the disturbed ground surface is compacted, rip or retille the upper 12 inches of the surface prior to placing topsoil. If adding compost to the existing soil surface, retiling is necessary. Surface roughening will assist in placing a stable topsoil layer on steeper slopes, and allow infiltration and root penetration to greater depth. Topsoil should not be placed where either the salvaged topsoil or receiving ground are frozen or snow covered.

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 in the proper depth and conducive to plant growth. Seed-soil contact is the key to good germination.

Refer to MHRD's Topsoil Management Guidance for detailed information on topsoil assessment, design, and construction.

**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 match the planted area. Temporary grain seed mixes suitable for the Denver metropolitan area are listed in Table TS/PS-1. Native temporary seed mixes are provided in USDCM Volume 2, Chapter 13, Appendix A. These are to be considered only as general recommendations when specific design guidance for a particular site is not available. Local governments typically specify seed mixes appropriate for their jurisdiction.

**Permanent Revegetation**

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

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

recommendations when specific design guidance for a particular site is not available. Local governments typically specify seed mixes appropriate for their jurisdiction.

If desired for wildlife habitat or landscape diversity, shrubs such as rubber rabbitbrush (*Chrysothamnus nauseosus*), flowering rabbitbrush (*Lepidotea canescens*) and shrubby cinquefoil (*Rhus trilobata*) could be added to the upland seed mixes at 0.25, 0.5 and 1 pound PLS/acre, respectively. In riparian zones, planting root stock of such species as American plum (*Prunus americana*), woods rose (*Rosa woodsii*), plains cottonwood (*Populus sargentii*), and willow (*Salix spp.*) may be considered. On non-topsoiled upland sites, a legume such as Ladak alfalfa at 1 pound PLS/acre can be included as a source of nitrogen for perennial grasses.

Timing of seeding is an important aspect of the revegetation process. For upland and riparian areas on the Colorado Front Range, the suitable timing for seeding is from October through May. The most favorable time to plant non-irrigated areas is during the fall, so that seed can take advantage of winter and spring moisture. Seed should not be planted if the soil is frozen, snow covered, or wet.

Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-2 for appropriate seeding dates.

**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 match the planted area. Temporary grain seed mixes suitable for the Denver metropolitan area are listed in Table TS/PS-1. Native temporary seed mixes are provided in USDCM Volume 2, Chapter 13, Appendix A. These are to be considered only as general recommendations when specific design guidance for a particular site is not available. Local governments typically specify seed mixes appropriate for their jurisdiction.

**Permanent Revegetation**

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

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

Specie* (Common name)	Growth Season*	Pounds of Pure Live Seed (PLS)/acre	
		Planting Depth (feet)	Planting Depth (feet)
1. Oats	Cool	35-50	1-2
2. Spring wheat	Cool	25-35	1-2
3. Spring barley	Cool	25-35	1-2
4. Annual ryegrass	Cool	10-15	1/2
5. Millet	Warm	3-15	1/2-1
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. Tribble	Cool	25-40	1-2

\* 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.

† See Table TS/PS-2 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 Billion Drill or hydraulic seeding.

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

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

Seeding Dates	Annual Grasses (Oats are 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	3			
May 16-June 30	3			
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-oxic 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. Re seed 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 the 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. Re seed portions of the area 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.

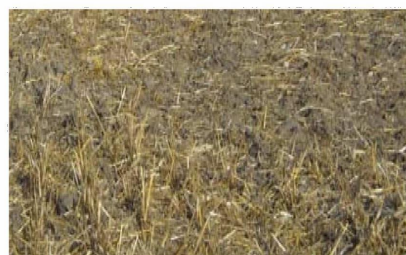
Protect seeded areas from construction equipment and vehicle access.

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**Mulching (MU) EC-4**

**Description**

Mulching consists of evenly applying straw, hay, shredded wood mulch, rock, bark or compost to disturbed soils and securing the mulch by crimping, tackifiers, netting or other measures. Mulching helps reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Although often applied in conjunction with temporary or permanent seeding, it can also be used for temporary stabilization of areas that cannot be reseeded due to seasonal constraints.



Photograph MU-1: An area that was recently seeded, mulched, and covered.

Mulch can be applied either using standard mechanical application methods or using hydro-mulching equipment that hydraulically applies a slurry of water, wood fiber mulch, and often a tackifier.

**Appropriate Uses**

Use mulch in conjunction with seeding to help protect the seedbed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where growing season constraints prevent effective reseeded. Disturbed areas should be properly mulched and tacked, or seeded, mulched and tacked promptly after final grade is reached (typically within no longer than 14 days) on portions of the site not otherwise permanently stabilized.

Standard dry mulching is encouraged in most jurisdictions; however, hydro-mulching may not be allowed in certain jurisdictions or may not be allowed near waterways.

Do not apply mulch during windy conditions.

**Design and Installation**

Prior to mulching, surface-roughen areas by rolling with a crimping or punching type roller or by track walking. Track walking should only be used where other methods are impractical because track walking with heavy equipment typically compacts the soil.

A variety of mulches can be used effectively at construction sites. Consider the following:

Mulch	
Function	Yes
Erosion Control	Yes
Sediment Control	Moderate
Silt/Material Management	No

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**EC-4 Mulching (MU)**

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 anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or with the aid of tackifiers or nets. Anchoring with a crimping implement is preferred, and is the recommended method for areas flatter than 3:1. Mechanical crimping may be capable of tacking the long mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may have to be weighted to afford proper soil penetration.

Grass hay may be used in place of straw; however, because hay is comprised of the entire plant including seed, mulching with hay may seed the site with non-native grass species which might in turn 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 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 tackifier) with a hydraulic mulcher. For steeper slopes, up to 2,000 pounds per acre may be required for effective hydroseeding. Hydro-mulch 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 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 or straw mulch. Normally, use of these products will be restricted to relatively small areas. Biodegradable mats made of straw and pine, 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.)

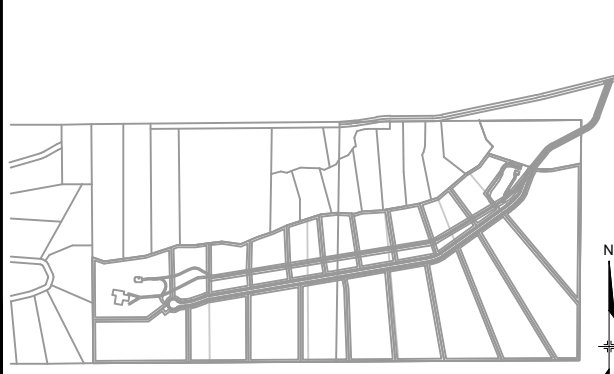
Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full coverage of exposed soil on the area it is applied.

**Maintenance and Removal**

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

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**SHEET KEY**



**BENCHMARK**

PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS BASED ON AN OPUS DERIVED ELEVATION ON CONTROL POINT 10, A NO. 5 REBAR HAVING AN ELEVATION OF 5769.92.

**BASIS OF BEARING**

THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO, BEING MONUMENTED ON THE EASTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "NOLTE PL252855 C1/4 S22 T165, R65W 1999," AND THE WESTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "SSS PLS 16154 1/4 S21 S22 T15S, R65W 2000," BEING ASSUMED TO BEAR S89°54'42"W, A DISTANCE OF 2,627.78 FEET.



**SEAL**

**PRELIMINARY**  
THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE

FOR AND ON BEHALF OF  
MATRIX DESIGN GROUP, INC.  
PROJECT No. 22.886.076

**HAY CREEK VALLEY**  
EL PASO COUNTY, COLORADO  
FINAL GRADING & EROSION CONTROL PLANS

<b>DETAILS</b>			
DESIGNED BY:	CVV	SCALE:	DATE ISSUED:
DRAWN BY:	CVV	HORIZ. N/A	DECEMBER 2023
CHECKED BY:	JAO	VERT. N/A	12 OF 12
DRAWING No.			<b>ECN03</b>

REFERENCE DRAWINGS		
X-TITLE-CD		
X-886-FR-SITE		
FEHA_JS		
X-886-066-EX-MAP-1		
164022-01 Hay Creek Road BNDY		
X-886-ALTA-SURVEY		
Hay Creek BFEs		

No.	DATE	DESCRIPTION	BY
<b>REVISIONS</b>			

COMPUTER FILE MANAGEMENT	
FILE NAME:	S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\ECN01.dwg
CTB FILE:	Matrix.ctb
PLOT DATE:	12/5/2023 12:50 PM
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.	