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NOTE: ALL EXISTING UNDERGROUND AND ABOVE GROUND UTILITY LOCATIONS, INVERTS AND SIZES ARE APPROXIMATE ONLY AND MUST BE FIELD VERIFIED PRIOR TO CONSTRUCTION. THE IN POINTS SHALL BE POTHOLED AND LOCATIONS, INVERTS AND SIZES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

VOLLMER SUBSTATION

EL PASO COUNTY, CO

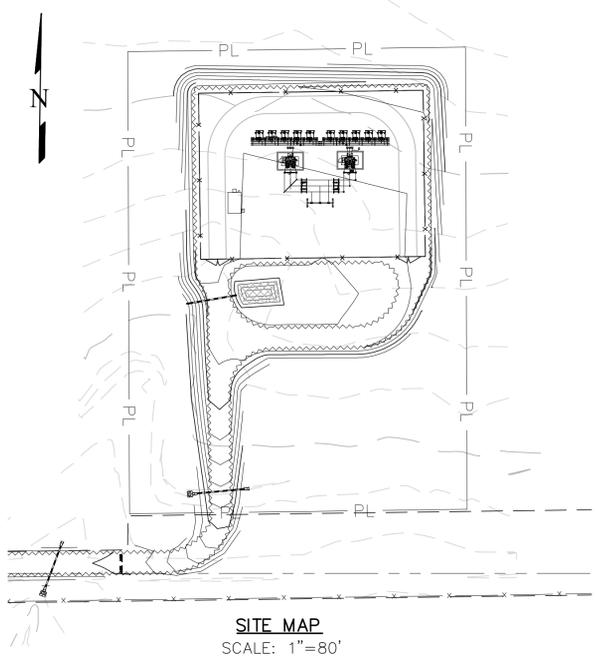
GRADING, EROSION, & SEDIMENT CONTROL PLAN

MARCH 2020

STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

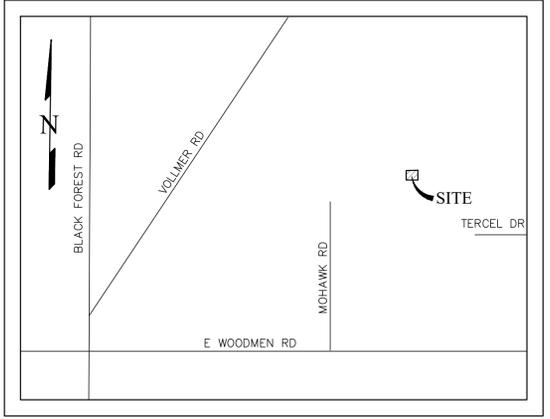
- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF SITE WATERS, INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING 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 TO REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. DURING CONSTRUCTION THE SWMP IS THE RESPONSIBILITY OF THE DESIGNATED STORMWATER MANAGER, SHALL BE LOCATED ON SITE AT ALL TIMES AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMPS AS INDICATED ON THE 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 DSD INSPECTIONS STAFF.
- SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 21 CALENDAR DAYS AFTER FINAL GRADING, OR FINAL EARTH DISTURBANCE, HAS BEEN COMPLETED. DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED WITHIN 21 DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEEDDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPS SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND ESTABLISHED.
- TEMPORARY SOIL EROSION CONTROL FACILITIES SHALL BE REMOVED AND EARTH DISTURBANCE AREAS GRADED AND STABILIZED WITH PERMANENT SOIL EROSION CONTROL MEASURES PURSUANT TO STANDARDS AND SPECIFICATION PRESCRIBED IN THE DCM VOLUME II AND THE ENGINEERING CRITERIA MANUAL (ECM) APPENDIX I.
- ALL PERSONS ENGAGED IN EARTH DISTURBANCE SHALL IMPLEMENT AND MAINTAIN ACCEPTABLE SOIL EROSION AND SEDIMENT CONTROL MEASURES INCLUDING BMPS IN CONFORMANCE WITH THE EROSION CONTROL TECHNICAL STANDARDS OF THE DRAINAGE CRITERIA MANUAL (DCM) VOLUME II AND IN ACCORDANCE WITH THE STORMWATER MANAGEMENT PLAN (SWMP).
- ALL TEMPORARY EROSION CONTROL FACILITIES INCLUDING BMPS AND ALL PERMANENT FACILITIES INTENDED TO CONTROL EROSION OF ANY EARTH DISTURBANCE OPERATIONS, SHALL BE INSTALLED AS DEFINED IN THE APPROVED PLANS, THE SWMP AND THE DCM VOLUME II AND MAINTAINED THROUGHOUT THE DURATION OF THE EARTH DISTURBANCE OPERATION.
- ANY EARTH DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY REDUCE 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.
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE DESIGNED TO LIMIT THE DISCHARGE TO A NON-EROSIVE VELOCITY.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO RUNOFF TO STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.
- EROSION CONTROL BLANKETING IS TO BE USED ON SLOPES STEEPER THAN 3:1.
- BUILDING, CONSTRUCTION, EXCAVATION, OR OTHER 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. BMPS MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- VEHICLE TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFFSITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- 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.
- THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, AND SAND THAT MAY ACCUMULATE IN THE STORM SEWER OR OTHER DRAINAGE CONVEYANCE SYSTEM 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 CHEMICALS ARE TO BE USED BY THE CONTRACTOR, WHICH HAVE THE POTENTIAL TO BE RELEASED IN STORMWATER UNLESS PERMISSION FOR THE USE OF A SPECIFIC CHEMICAL IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING THE USE OF SUCH CHEMICALS, SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS SHALL HAVE ADEQUATE PROTECTION SO AS TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE FLOW LINE OF THE CURB AND GUTTER OR IN THE DITCHLINE.
- INDIVIDUALS 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 INCLUDED IN THE DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, OR COUNTY AGENCIES, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO ACTUAL CONSTRUCTION THE PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY TERRACON CONSULTANTS, INC. AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB 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



GENERAL NOTES

- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ALONG THE SITE. THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE PLANS IS NOT TO BE CONSIDERED AS THE NON-EXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UNDERGROUND UTILITIES.
- THE CONTRACTOR WILL TAKE THE NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES, BUILDINGS, FENCES, AND ROADWAYS FROM DAMAGE DUE TO THIS OPERATION. ANY DAMAGE TO THE ABOVE WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, AND ANY SERVICE DISRUPTION WILL BE SETTLED BY THE CONTRACTOR.
- BULK GRADING SHALL BE COMPLETED TO A SUBGRADE TOLERANCE OF PLUS OR MINUS 0.2'.
- CONTRACTOR TO OBTAIN COPIES OF THE SOILS REPORT FROM THE GEOTECHNICAL ENGINEER AND TO BE KEPT ONSITE DURING ALL EARTHWORK OPERATIONS.
- MAXIMUM CUT/FILL SLOPES SHALL NOT EXCEED 3:1, UNLESS OTHERWISE NOTED.
- ALL OF THE LAND SURROUNDING THE SITE IS UNPLATTED.



DESCRIPTION OF ACTIVITIES:

THE DEVELOPER PROPOSES TO CONSTRUCT AN ELECTRIC SUBSTATION, GRAVEL ACCESS ROAD, AND A SERIES OF POWER POLES LEADING TO THE SUBSTATION. THE SITE CONSISTS OF 5 ACRES OF UNDEVELOPED PRAIRIE AREA LOCATED IN THE NORTHWEST PART OF EL PASO COUNTY, APPROXIMATELY 3,600 FEET EAST OF THE NORTH END OF MOHAWK ROAD. A WATER QUALITY SAND FILTER IS PROPOSED TO BE LOCATED NEAR THE CENTER OF THE SITE.

THE SITE CURRENTLY CONSISTS OF NATIVE GRASSES WITH AN ESTIMATED COVERAGE AREA OF APPROXIMATELY 95%. THERE ARE NO EROSION CONTROL MEASURES CURRENTLY IN PLACE.

EROSION CONTROL MEASURES SHALL BE IMPLEMENTED IN A MANNER THAT WILL PROTECT PROPERTIES AND PUBLIC FACILITIES FROM THE ADVERSE EFFECTS OF EROSION AND SEDIMENTATION AS A RESULT OF CONSTRUCTION AND EARTHWORK ACTIVITIES. IT IS ANTICIPATED THAT CONSTRUCTION ACTIVITIES WILL OCCUR BETWEEN FALL OF 2020 AND FALL 2021, AT WHICH POINT IT WILL BE CONSIDERED COMPLETED.

CONSTRUCTION PHASING IS ANTICIPATED TO OCCUR AS FOLLOWS:
PHASE 1:
PRIOR TO START OF CONSTRUCTION, INITIAL EROSION CONTROL MEASURES TO BE INSTALLED INCLUDE, BUT NOT LIMITED TO VEHICLE TRACKING CONTROL (VTC) PADS AT THE SITE EXIT POINT ONTO PAVEMENT, SILT FENCE (SF) ALONG THE PROPERTY BOUNDARY ON THE SOUTH SIDE OF THE DISTURBED AREAS, A STAGING AREA (SSA) WHICH WILL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED. ALSO INCLUDED IN THIS PHASE WILL BE INSTALLATION OF SILT FENCE (SF) AROUND THE BASE OF THE DIRT STOCKPILE AREA. UNTIL THE STOCKPILE HAS BEEN REMOVED, THE SILT FENCE SHALL REMAIN IN PLACE AND BE MAINTAINED IN SUCH A WAY AS TO REDUCE TRANSFERENCE OF SEDIMENTATION OVER THE SITE.

PHASE 2:
SEDIMENT CONTROL LOGS (SCL) ALONG THE NEWLY GRADED SWALES AND ACCESS ROAD SHALL BE INSTALLED. THE PROPOSED SAND FILTER WILL BE GRADED IN AND PROTECTED WITH SILT FENCE (SF). ALL PREVIOUSLY INSTALLED BMP'S SHALL REMAIN IN PLACE UNTIL A LATER PHASE.

PHASE 3:
ANY AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL BE SEEDDED IN ORDER TO ESTABLISH A VEGETATIVE COVER UNTIL THE FINAL LANDSCAPING IS INSTALLED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMP'S SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND VEGETATION HAS BEEN ESTABLISHED TO 70% ON AREAS NOT COVERED BY GRAVEL. ONCE VEGETATIVE COVER HAS BEEN ESTABLISHED AT 70% OF THE DISTURBED AREAS, SILT FENCE WILL BE REMOVED FROM THE DIRT STOCKPILE AREA. THE DIRT STOCKPILE (SP) WILL BE REMOVED AND RE-VEGETATED AS PART OF THIS PHASE.

PHASE 4:
FINAL CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED AT THIS POINT. THE VEHICLE TRACKING CONTROL PADS, SEDIMENT CONTROL LOGS AND STAGING AREAS HAVE ALL BEEN REMOVED AND PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

THE TOTAL AREA TO BE DISTURBED IS 15.5± ACRES (PORTION OF SITE PLUS ACCESS ROAD AND TEMPORARY CONSTRUCTION ROAD). THE PORTION OF THE SITE BEING DEVELOPED SHALL BE MAINTAINED TO REDUCE SEDIMENTATION FROM MIGRATING TO OFF-SITE OR DOWNSTREAM CREEK BEDS.

THE SOILS ON THIS SITE ARE NOTED AS TYPE 19, COLUMBINE GRAVELLY SANDY LOAM W/0-3 PERCENT SLOPES. A SOILS MAP HAS BEEN INCLUDED IN THE FINAL DRAINAGE REPORT. EXISTING SITE VEGETATION CONSISTS OF NATIVE GRASSES. THERE ARE NO WETLANDS ON THIS SITE.

THERE ARE NO POTENTIAL POLLUTANTS EXISTING OR PROPOSED FOR STORAGE ON THIS SITE.

THE RECEIVING WATERS FOR THIS AREA IS SAND CREEK. PER THE FINAL DRAINAGE REPORT, ALL OF THE SITE FLOWS TO THE SOUTH AND OFFSITE.

THE PROPERTY OWNER OR OWNERS REPRESENTATIVE IS RESPONSIBLE FOR INSPECTING AND MAINTAINING THE SITE ON A REGULAR BASIS. INITIAL CRITERIA FOR THE OCCURRENCE OF INSPECTIONS IS AS FOLLOWS:
ONCE EVERY 14 DAYS OR
AFTER ANY PRECIPITATION OR SNOWMELT EVENT THAT SIGNIFICANT ENOUGH TO CAUSE SURFACE EROSION.
A WRITTEN RECORD OF INSPECTIONS SHALL BE KEPT BY THE OWNER OR OWNERS REPRESENTATIVE AND MADE AVAILABLE TO THE COUNTY UPON REQUEST. THIS WILL CONTINUE UNTIL THE SITE IS STABILIZED AND THE STOCKPILE IS NO LONGER NEEDED.

EROSION CONTROL COST OPINION

1.	0 LF--SILT FENCE @ \$4.00/LF	\$	0
2.	7,520 LF--SEDIMENT CONTROL LOGS \$4.00/LF	\$	30,080
3.	1 EA--VEHICLE TRACKING CONTROL @ \$1,325/ENTRANCE	\$	1,325
4.	1.2 AC--DRILL SEED & MULCH @ \$4,500/AC	\$	5,400
5.	1 EA--CONCRETE WASHOUT @ \$760/EA	\$	760
6.	1 EA--FUEL SPILL KIT @ \$200/EA	\$	200
7.	40% MAINTENANCE AND REPLACEMENT	\$	15,106
TOTAL			\$ 52,871

SHEET INDEX

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EROSION AND SEDIMENT CONTROL PLAN	5 OF 7
EROSION CONTROL DETAILS	6 OF 7
EROSION CONTROL DETAILS	7 OF 7

SITE DATA

OWNER/PETITIONER:
MOUNTAIN VIEW ELECTRIC ASSOCIATION
11140 E. WOODMAN RD
PEYTON, CO 80931
MR. DAVID WALDNER, (719) 495-2283

PREPARER:
TERRA NOVA ENGINEERING, INC.
125 N. WAHSATCH AVE.
COLORADO SPRINGS, CO 80903
(719) 635-6422 OFFICE
(719) 499-2255 MOBILE

LEGAL DESCRIPTION

CURRENT PARCEL (NOT SITE'S PARCEL): W2E2, W2 W/WR SEC 34-12-65, EX TR 4 CONV BY REC #210065613

AREA

TOTAL AREA TO BE CLEARED, EXCAVATED, GRADED OR DISTURBED IS 21.6 ACRES.

VOLUME

EARTHWORK VOLUMES: 4522 CU YD CUT, 6027 CU YD FILL, +1505 CU YD NET (FILL)

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 REPORT.

L DUCETT, P.E. #523339
FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

OWNER'S STATEMENT

THE OWNER WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

OWNER NAME: _____ DATE: _____

SIGNED BY: _____

TITLE: _____

ADDRESS: _____

EL PASO COUNTY APPROVAL

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, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

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

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

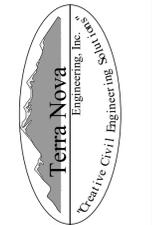
DATE _____

COUNTY PROJECT #: AASI 19-006

NO.	REVISIONS	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE ENGINEERING DIVISION OF EL PASO COUNTY, TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE ONLY FOR THE PROJECT AND COST DESCRIBED BY WRITTEN AUTHORIZATION.

PREPARED FOR:
MVEA
ATTN: DAVE WALDNER
11140 E. WOODMEN RD
PEYTON, CO 80831
(719) 495-2283



721 S. 2960 STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422
FAK: 719-635-6426
www.tnva-inc.com

VOLLMER SUBSTATION
GRADING, EROSION, & SEDIMENT CONTROL PLAN
COVER SHEET

DESIGNED BY	LD
DRAWN BY	DLF
CHECKED BY	LD
H-SCALE	AS SHOWN
V-SCALE	NA
JOB NO.	1845.00
DATE ISSUED	03/18/20
SHEET NO.	1 OF 7

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

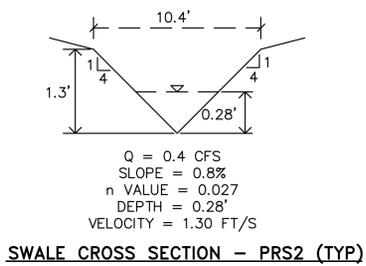
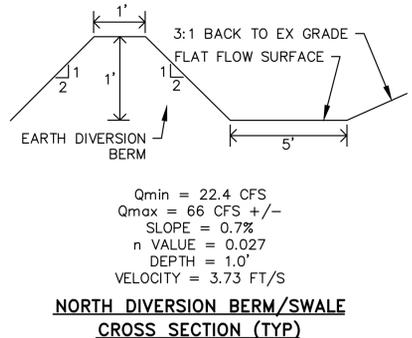
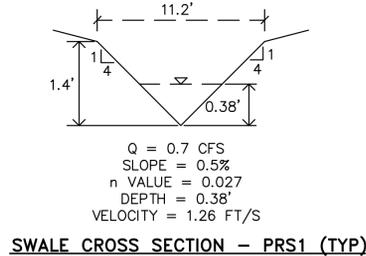
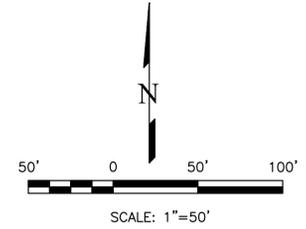
L. DUCETT, P.E.
COLORADO P.E. NO. 32339

VOLLMER SUBSTATION

EL PASO COUNTY, CO

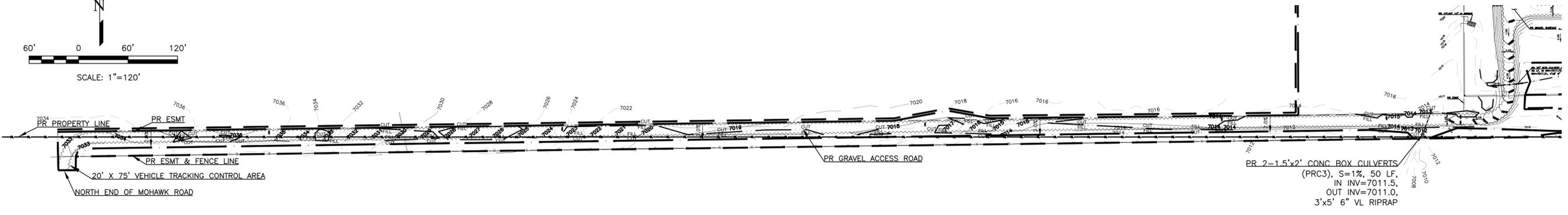
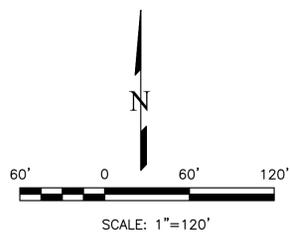
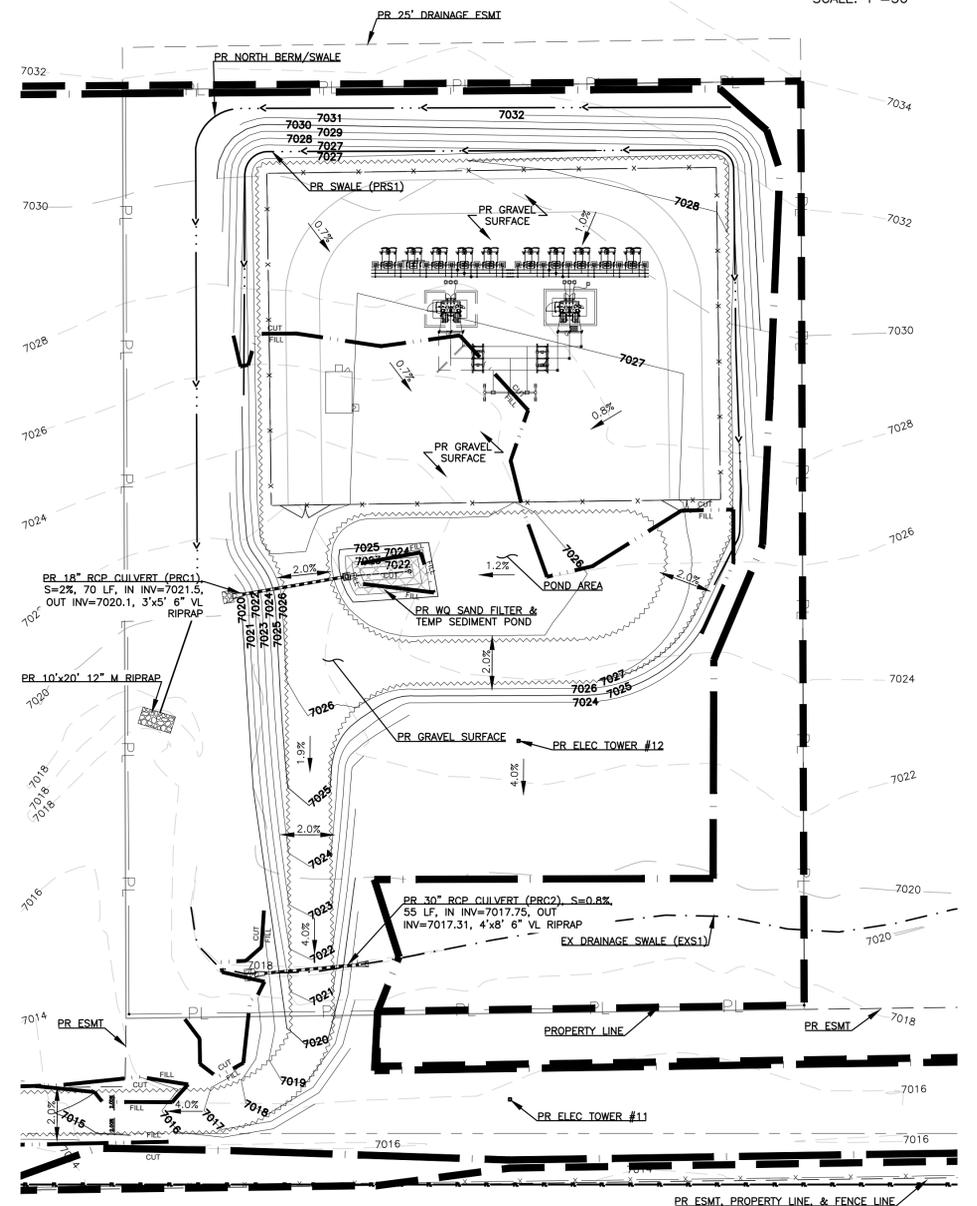
GRADING, EROSION, & SEDIMENT CONTROL PLAN

MARCH 2020



LEGEND

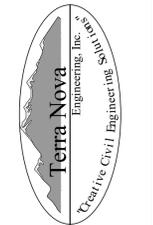
- 7262 — EXISTING 2' CONTOUR
- 7260 — EXISTING 10' CONTOUR
- ← FLOW DIRECTION
- SURFACE FLOW CHANNEL
- X FENCE LINE
- 7261 — PROPOSED 1' CONTOUR
- 7265 — PROPOSED 5' CONTOUR
- PROPOSED EDGE OF GRAVEL
- PROJECT BOUNDARY
- LIMITS OF DISTURBANCE
- CUT/FILL LINE
- PR PROPOSED
- EX EXISTING



REVISIONS	NO.	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE RELEVANT AGENCIES OR TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE ONLY FOR THE PROJECT AND MOST RECENT WRITTEN AUTHORIZATION.

PREPARED FOR:
MVEA
ATTN: DAVE WALDNER
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www.tneshinc.com

VOLLMER SUBSTATION
GRADING, EROSION, & SEDIMENT CONTROL PLAN
GRADING PLAN

DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE AS SHOWN
V-SCALE NA
JOB NO. 1845.00
DATE ISSUED 03/18/20
SHEET NO. 2 OF 7

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L. DUCETT, P.E.
COLORADO P.E. NO. 32339

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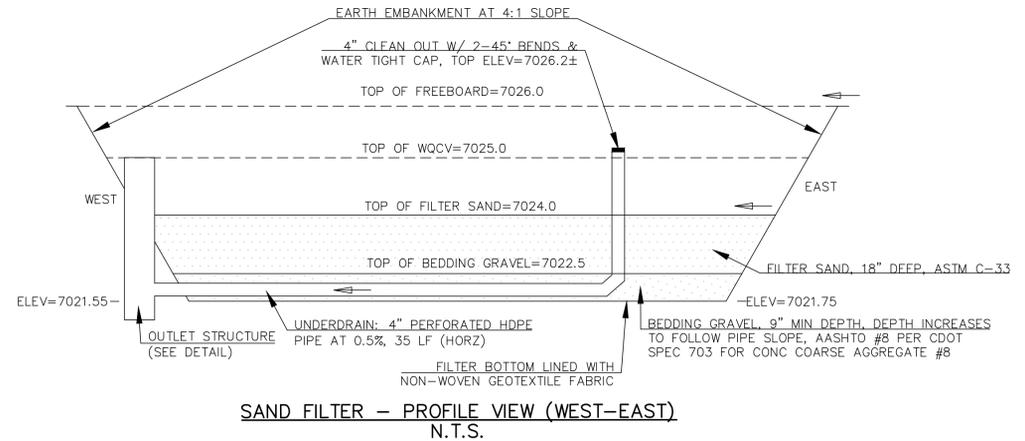
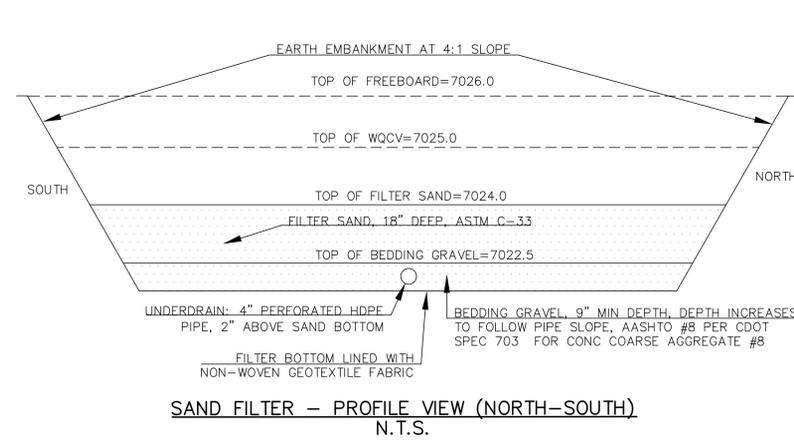
EL PASO COUNTY, CO

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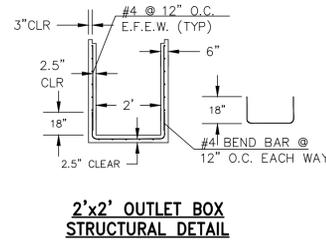
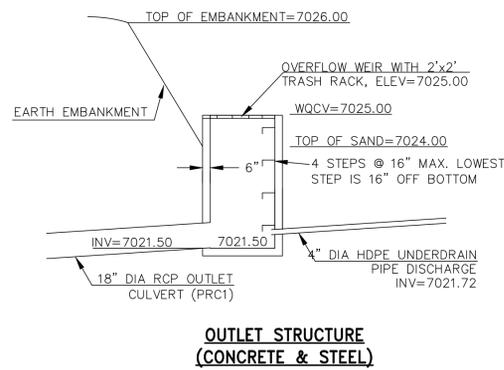
NOTES

1. PROTECT SAND FILTER FROM SEDIMENT LOADING DURING CONSTRUCTION ACTIVITIES. SITE MUST BE STABILIZED BEFORE ALLOWING FLOW INTO THE SAND FILTER.

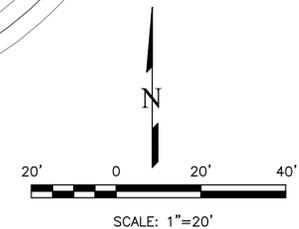
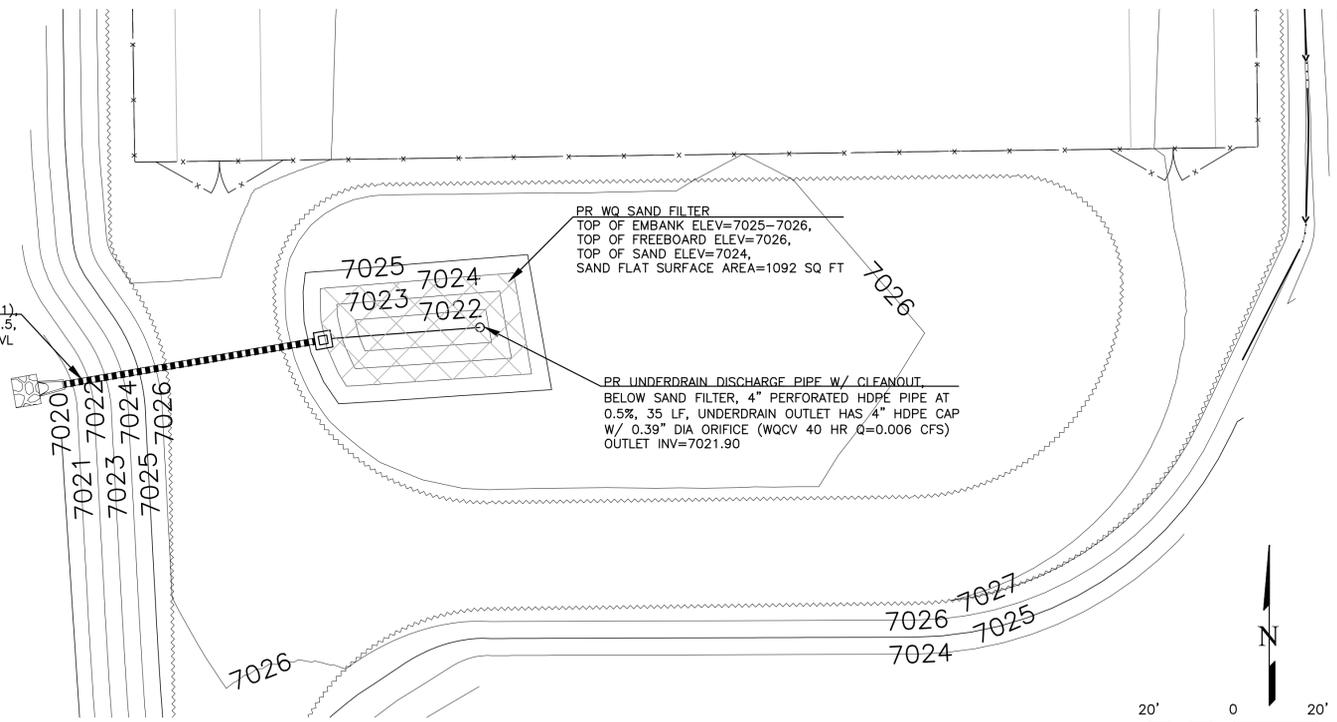


LEGEND

— X —	FENCE LINE
— 7261 —	PROPOSED 1' CONTOUR
— 7265 —	PROPOSED 5' CONTOUR
~~~~~	PROPOSED EDGE OF GRAVEL
PR	PROPOSED
EX	EXISTING



PR 18" RCP CULVERT (PRC1)  
S=2%, 70 LF, IN INV=7021.5,  
OUT INV=7020.1, 3'x5' 6" VL  
RIPRAP



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PREPARED FOR:  
**MVEA**  
ATTN: **DAVE WALDNER**  
11140 E. WOODMEN RD  
PEYTON, CO 80831  
(719) 495-2283



721 S. 2960 STREET  
COLORADO SPRINGS, CO 80904  
OFFICE: 719-635-6422  
FAX: 719-635-6426  
www.tnva.com

**VOLLMER SUBSTATION**

GRADING, EROSION, & SEDIMENT CONTROL PLAN  
SAND FILTER DETAILS

DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE AS SHOWN
V-SCALE NA
JOB NO. 1845.00
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SHEET NO. 3 OF 7

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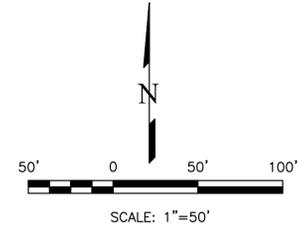
L. DUCETT, P.E.  
COLORADO P.E. NO. 32339

# VOLLMER SUBSTATION

## EL PASO COUNTY, CO

### GRADING, EROSION, & SEDIMENT CONTROL PLAN

#### MARCH 2020



#### LEGEND

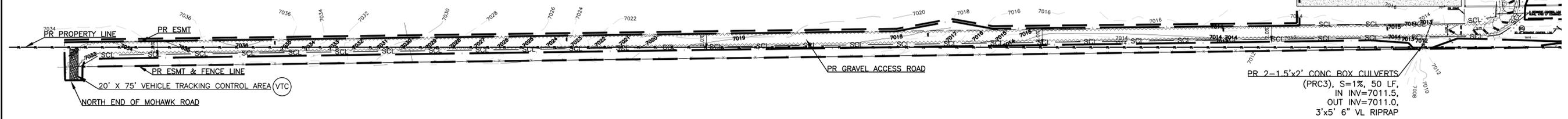
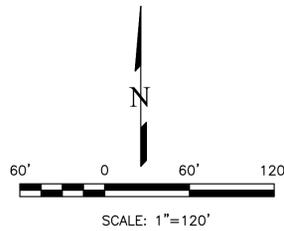
- 7262 — EXISTING 2' CONTOUR
- 7260 — EXISTING 10' CONTOUR
- ← FLOW DIRECTION
- — SURFACE FLOW CHANNEL
- X — FENCE LINE
- 7261 — PROPOSED 1' CONTOUR
- 7265 — PROPOSED 5' CONTOUR
- — PROPOSED EDGE OF GRAVEL
- — PROJECT BOUNDARY
- — LIMITS OF DISTURBANCE
- PR PROPOSED
- EX EXISTING

#### EROSION CONTROL LEGEND

KEY	TITLE	SYMBOL	IMPLEMENTATION PHASE
(SF)	SILT FENCE	— SF —	INITIAL
(SSA)	STABILIZED STAGING AREA	[Stippled Area]	INITIAL
(VTC)	VEHICLE TRACKING CONTROL	[Cross-hatched Area]	INITIAL
(SP)	STOCKPILE MANAGEMENT WITH PROTECTION	[Hatched Area]	INITIAL
(CWA)	CONCRETE WASHOUT AREA	[Oval Area]	INITIAL
(SCL)	SEDIMENT CONTROL LOG	— SCL —	INITIAL
(PS) (MU)	PERMANENT SEEDING AND MULCHING	[Stippled Area]	FINAL

#### NOTES

- PROTECT SAND FILTER FROM SEDIMENT LOADING DURING CONSTRUCTION ACTIVITIES. SITE MUST BE STABILIZED BEFORE ALLOWING FLOW INTO THE SAND FILTER.
- CONTRACTOR MAY, AT THEIR OPTION, SUBSTITUTE WATTLES FOR SILT FENCE OR SILT FENCE FOR WATTLES.
- EXISTING VEGETATION IS NATIVE GRASSES.



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MVEA  
ATTN: DAVE WALDNER  
11140 E. WOODMEN RD  
PEYTON, CO 80831  
(719) 495-2283

Terra Nova Engineering, Inc.  
721 S. 2900 STREET  
COLORADO SPRINGS, CO 80904  
OFFICE: 719-635-6422  
FAX: 719-635-6426  
www.tneshinc.com

VOLLMER SUBSTATION  
GRADING, EROSION, & SEDIMENT CONTROL PLAN  
EROSION AND SEDIMENT CONTROL PLAN

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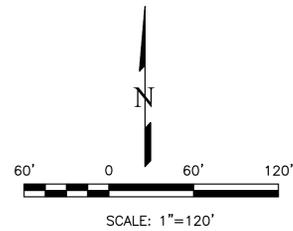
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# VOLLMER SUBSTATION

## EL PASO COUNTY, CO

# GRADING, EROSION, & SEDIMENT CONTROL PLAN

## MARCH 2020



### NOTES

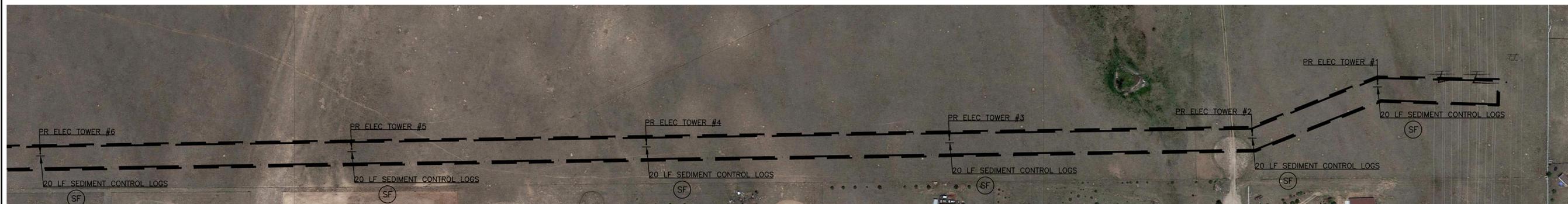
1. PROTECT SAND FILTER FROM SEDIMENT LOADING DURING CONSTRUCTION ACTIVITIES. SITE MUST BE STABILIZED BEFORE ALLOWING FLOW INTO THE SAND FILTER.
2. CONTRACTOR MAY, AT THEIR OPTION, SUBSTITUTE WATTLES FOR SILT FENCE OR SILT FENCE FOR WATTLES.
3. EXISTING VEGETATION IS NATIVE GRASSES.
4. AERIAL IMAGES ARE FROM JUNE 2017.
5. PLACEMENT OF EROSION CONTROLS ALONG THE PROPOSED ELECTRIC TOWER ROUTE IS BASED ON INSPECTION OF THE SITE AND NOT TOPOGRAPHIC INFO. EROSION CONTROL LOCATIONS MAY NEED TO BE ADJUSTED SO THEY ARE PLACED ON THE DOWNHILL SIDE OF THE DISTURBED AREA. THE CONTRACTOR SHALL USE THEIR BEST JUDGEMENT ON PLACING THE EROSION CONTROLS TO OFFER THE BEST PROTECTION TO DOWNSTREAM AREAS.
6. CONTRACTOR TO MARK UP PLANS SHOWING THE ACTUAL FIELD INSTALLATION OF EROSION CONTROL BMPs.

### EROSION CONTROL LEGEND

KEY	TITLE	SYMBOL	IMPLEMENTATION PHASE
(SF)	SILT FENCE	—SF—	INITIAL
(SSA)	STABILIZED STAGING AREA	[Pattern]	INITIAL
(VTC)	VEHICLE TRACKING CONTROL	[Pattern]	INITIAL
(SP)	STOCKPILE MANAGEMENT WITH PROTECTION	[Pattern]	INITIAL
(CWA)	CONCRETE WASHOUT AREA	[Symbol]	INITIAL
(SCL)	SEDIMENT CONTROL LOG	—SCL—	INITIAL
(PS) (MU)	PERMANENT SEEDING AND MULCHING	[Symbol]	FINAL

### LEGEND

- 7262 — EXISTING 2' CONTOUR
- 7260 — EXISTING 10' CONTOUR
- ← FLOW DIRECTION
- — — SURFACE FLOW CHANNEL
- X FENCE LINE
- 7261 — PROPOSED 1' CONTOUR
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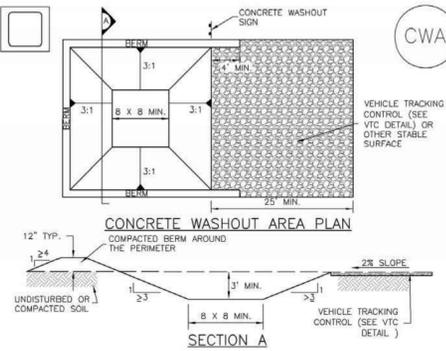
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**Concrete Washout Area (CWA) MM-1**



**CWA-1. CONCRETE WASHOUT AREA**

**CWA INSTALLATION NOTES**

- SEE PLAN VIEW FOR: -CWA INSTALLATION LOCATION.
- DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (18 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
- THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
- CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
- BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 12".
- VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

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**MM-1 Concrete Washout Area (CWA)**

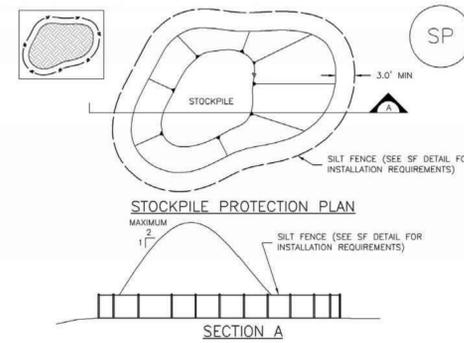
**CWA MAINTENANCE NOTES**

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
- CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
- THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
- WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD).  
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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**Stockpile Management (SP) MM-2**



**SP-1. STOCKPILE PROTECTION**

**STOCKPILE PROTECTION INSTALLATION NOTES**

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

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**MM-2 Stockpile Management (SM)**

**STOCKPILE PROTECTION MAINTENANCE NOTES**

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

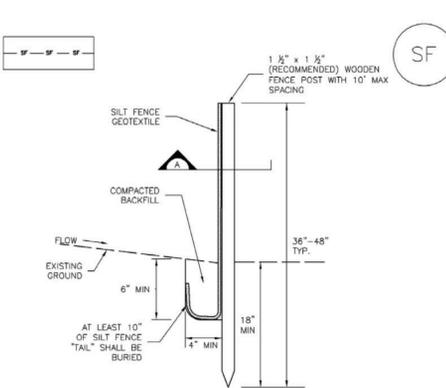
**STOCKPILE PROTECTION MAINTENANCE NOTES**

- IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
- STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD).  
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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**Silt Fence (SF) SC-1**



**SILT FENCE**



**SECTION A**

**SF-1. SILT FENCE**

**SC-1 Silt Fence (SF)**

**SILT FENCE INSTALLATION NOTES**

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

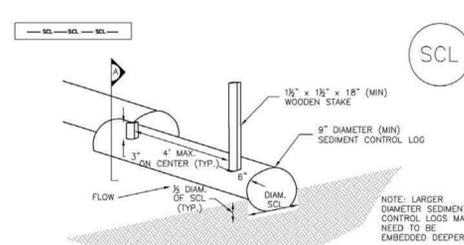
**SILT FENCE MAINTENANCE NOTES**

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

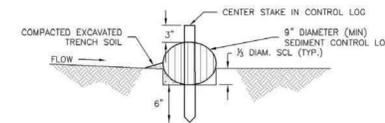
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**Sediment Control Log (SCL) SC-2**



**SEDIMENT CONTROL LOG**



**SECTION A**

**SEDIMENT CONTROL LOG JOINTS**

**SCL-1. SEDIMENT CONTROL LOG**

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Urban Storm Drainage Criteria Manual Volume 3

**SC-2 Sediment Control Log (SCL)**

**SEDIMENT CONTROL LOG INSTALLATION NOTES**

- SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
- SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADEMENT LAND-DISTURBING ACTIVITIES.
- SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELORON OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
- SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.
- IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/3 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING.
- THE UPSTREAM SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.
- FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

**SEDIMENT CONTROL LOG MAINTENANCE NOTES**

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/3 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
- SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

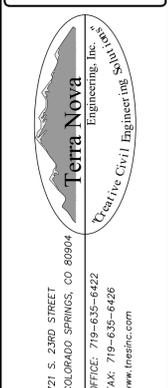
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Urban Storm Drainage Criteria Manual Volume 3

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ATTN: DAVE WALDNER  
11140 E. WOODMEN RD  
PEYTON, CO 80831  
(719) 495-2283



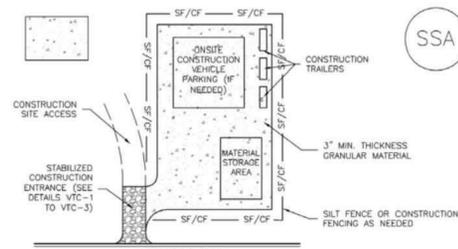
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**Stabilized Staging Area (SSA)**

**SM-6**



**SSA-1. STABILIZED STAGING AREA**

**STABILIZED STAGING AREA INSTALLATION NOTES**

1. SEE PLAN VIEW FOR LOCATION OF STAGING AREA(S). CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 8" (MINUS) ROCK.
6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

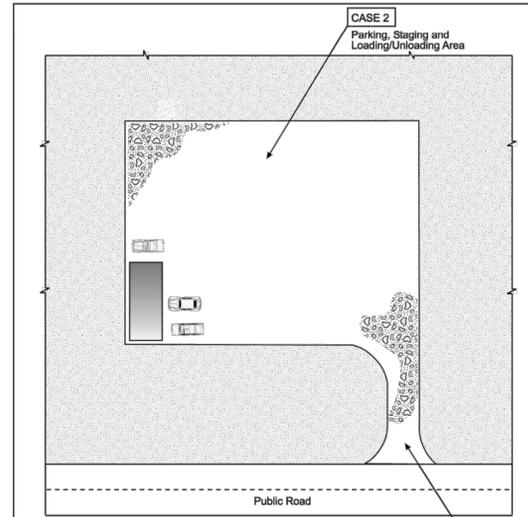
**STABILIZED STAGING AREA MAINTENANCE NOTES**

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

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

**STABILIZED STAGING AREA MAINTENANCE NOTES**

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
  6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.
- NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM IUDFD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM SOULAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

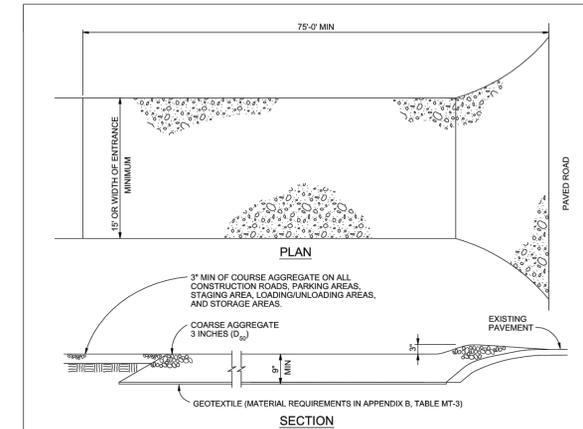


**Table VT-1**

	Case 1	Case 2
Gravel Thickness	9"	3"
Filter Fabric	YES	NO

City of Colorado Springs  
Storm Water Quality

Figure VT-1  
Vehicle Tracking  
Application Examples



**VEHICLE TRACKING**

**INSTALLATION REQUIREMENTS**

1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.
2. CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAP.
3. AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.
4. CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.
5. CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.

**MAINTENANCE REQUIREMENTS**

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL STABILIZED AREAS, ESPECIALLY AFTER STORM EVENTS.
2. STONES ARE TO BE REAPPLIED PERIODICALLY AND WHEN REPAIR IS NECESSARY.
3. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING. SEDIMENT IS NOT TO BE WASHED DOWN STORM SEWER DRAINS.
4. STORM SEWER INLET PROTECTION IS TO BE IN PLACE, INSPECTED, AND CLEANED IF NECESSARY.
5. OTHER ASSOCIATED SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED TO ENSURE GOOD WORKING CONDITION.

City of Colorado Springs  
Stormwater Quality

Figure VT-2  
Vehicle Tracking  
Application Examples

or irrigation to wet and settle the seed bed. Firming of the seedbed following seeding will improve results during dry or warm seeding times.

**Table 14-9. Recommended Seed Mix for High Water Table Conditions¹**

Common Name (Variety)	Scientific Name	Growth Season	Growth Form	Seeds/Lb	Lbs PLS/Acre Drilled	Lbs PLS/Acre Broadcast or Hydrosseeded
Redtop ²	<i>Agrostis alba</i>	Warm	Sod	5,000,000	0.1	0.2
Switchgrass (Pathfinder)	<i>Panicum virgatum</i>	Warm	Sod/Bunch	389,000	2.2	4.4
Western wheatgrass (Arriba)	<i>Pascopyrum smithii</i>	Cool	Sod	110,000	7.9	15.8
Indian saltgrass	<i>Distichlis spicata</i>	Warm	Sod	520,000	1.0	2.0
Woolly sedge	<i>Carex lanuginosa</i>	Cool	Sod	400,000	0.1	0.2
Baltic rush	<i>Juncus balticus</i>	Cool	Sod	109,300,000	0.1	0.2
Prairie cordgrass	<i>Spartina pectinata</i>	Cool	Sod	110,000	1.0	2.0
Annual rye	<i>Lolium multiflorum</i>	Cool	Cover crop	227,000	10.0	20.0
				<b>TOTAL</b>	<b>22.4</b>	<b>44.8</b>
<b>Wildflowers</b>						
Nuttall's sunflower	<i>Helianthus nuttallii</i>	---	---	250,000	0.10	0.20
Wild bergamot	<i>Monarda fistulosa</i>	---	---	1,450,000	0.12	0.24
Yarrow	<i>Achillea millefolium</i>	---	---	2,770,000	0.06	0.12
Blue vervain	<i>Verbena hastata</i>	---	---		0.12	0.24
				<b>TOTAL</b>	<b>0.40</b>	<b>0.80</b>

¹For portions of facilities located near or on the bottom or where wet soil conditions occur. Planting of potted nursery stock wetland plants 2-foot on-center is recommended for sites with wetland hydrology.  
²Non-native

**Table 14-10. Recommended Seed Mix for Transition Areas¹**

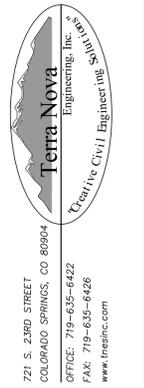
Common Name (Variety)	Scientific Name	Growth Season	Growth Form	Seeds/Lb	Lbs PLS/Acre Drilled	Lbs PLS/Acre Broadcast or Hydrosseeded
Sheep fescue (Durar)	<i>Festuca ovina</i>	Cool	Bunch	680,000	1.3	2.6
Western wheatgrass (Arriba)	<i>Pascopyrum smithii</i>	Cool	Sod	110,000	7.9	15.8
Alkali sacaton	<i>Spolobolus airoides</i>	Warm	Bunch	1,758,000	0.5	1.0
Slender wheatgrass	<i>Elymus trachycanthus</i>	Cool	Bunch	159,000	5.5	11.0
Canadian bluegrass (Rubens)	<i>Poa compressa</i>	Cool	Sod	2,500,000	0.3	0.6
Switchgrass (Pathfinder)	<i>Panicum virgatum</i>	Warm	Sod/Bunch	389,000	1.3	2.6
Annual rye	<i>Lolium multiflorum</i>	Cool	Cover crop	227,000	10.0	20.0
				<b>TOTAL</b>	<b>26.8</b>	<b>53.6</b>
<b>Wildflowers</b>						
Blanket flower	<i>Faillardia aristata</i>	---	---	132,000	0.25	0.50
Prairie coneflower	<i>Ratibida columnaris</i>	---	---	1,230,000	0.20	0.40
Purple prairie clover	<i>Petalostemum purpurea</i>	---	---	210,000	0.20	0.40
Gayfeather	<i>Liatrix punctata</i>	---	---	138,000	0.06	0.12
Flax	<i>Linum lewisii</i>	---	---	293,000	0.20	0.40
Penstemon	<i>Penstemon strictus</i>	---	---	592,000	0.20	0.40
Yarrow	<i>Achillea millefolium</i>	---	---	2,770,000	0.03	0.06
				<b>TOTAL</b>	<b>1.14</b>	<b>2.28</b>

¹For side slopes or between wet and dry areas.  
²Substitute 1.7 lbs PLS/acre of inland saltgrass (*Distichlis spicata*) in salty soils.

REVISIONS	NO.	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE REVIEW AGENCIES, THE TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE ONLY FOR THE PROJECT AND FOR THE PURPOSES SPECIFIED BY WRITTEN AUTHORIZATION.

PREPARED FOR:  
**MVEA**  
ATTN: DAVE WALDNER  
11140 E. WOODMEN RD  
PEYTON, CO 80831  
(719) 495-2283



721 S. 2900 STREET  
COLORADO SPRINGS, CO 80904  
OFFICE: 719-635-6422  
FAK: 719-635-6426  
www.tneshc.com

**VOLLMER SUBSTATION**  
GRADING, EROSION, & SEDIMENT CONTROL PLAN  
EROSION CONTROL DETAILS

DESIGNED BY LD  
DRAWN BY DLF  
CHECKED BY LD  
H-SCALE AS SHOWN  
V-SCALE NA  
JOB NO. 1845.00  
DATE ISSUED 03/18/20  
SHEET NO. 6 OF 7

N:\jobs\1845.00\Drawings\184500 GEC.dwg, 3/18/2020 1:56:11 PM

## MEMORANDUM

DATE: November 20, 2019

TO: Kari Parsons, PCD-Project Manager

FROM: Jeff Rice, PCD-Engineering  
719-520-7877

SUBJECT: AASI-19-006 - Vollmer-Vollmer 115Kv Tap  
First Submittal

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### **Engineering Division**

Planning and Community Development (PCD)-Engineering reviews plans and reports to ensure general conformance with El Paso County standards and criteria. The project engineer is responsible for compliance with all applicable criteria, including other governmental regulations. Notwithstanding anything depicted in the 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 (LDC), the Engineering Criteria Manual (ECM), the Drainage Criteria Manual (DCM), and the Drainage Criteria Manual Volume 2 (DCM2). Any deviations from regulations and standards must be requested, and approved by the ECM Administrator, in writing. Any modifications necessary to meet overlooked criteria after-the-fact will be entirely the developer's responsibility to rectify.

A written response to all comments and redlines is required for review of the re-submittal. Please arrange a meeting between the developer's team and County staff to review and discuss these comments and prepared revisions/responses prior to the next submittal.

**Terra Nova Engineering responses are shown in green times new roman font.**

**Note: The ECM was updated July 2, 2019 requiring updated plan requirements, checklists and forms in order for the County to maintain compliance with its MS4 permit. These comments reflect the updates.**

**Note: Planning comment under 2.303 #7e should be 7b for your response.**

### General

1. The developments driving the need for the substation and transmission line (Sterling Ranch and The Ranch) should be shown on Figure 3 (Vicinity Map with 2-Mile Radius).
2. See redlined site plan. Address the following concerns:
  - a. Future north-south road crossings of the proposed transmission line.
  - b. Collector road alignment shown on the 2018 Sterling Ranch Sketch Plan Amendment south of the proposed substation.
  - c. Conflict between the proposed east-west transmission line and a potential sanitary sewer force main (last submittal from Sterling Ranch).

### Local Infrastructure Impacts / Road Condition Survey/Assessment

1. Note: A traffic impact memorandum and a haul route exhibit were submitted with this application and were found to adequately address the project's anticipated impacts on local transportation facilities.
2. See Planning comments regarding additional information requested in the traffic impact memorandum.
3. A road condition survey is pending completion. Provide when available for comparison to post-construction conditions. Conditions of approval will be recommended by Staff.

#### Surface and Subsurface Drainage Analysis / Surface Water Quality / Drainage Report

1. Note: The drainage report will need to be updated to meet the criteria of a final drainage report at the Site Development Plan stage. For completion of this 1041 review (with the "not for construction" drainage report), ensure that the drainage design provided is complete enough that any revisions provided in the final report will not cause substantial changes to the site layout. PCD staff will conduct a detailed technical review of the final drainage report prior to its approval at the Site Development Plan stage. Cursory redlines have been provided in addition to these cursory comments:

Noted.

- a. The updated criteria required by the County's MS4 permit need to be met. Water quality treatment for all developed areas (including access roads) needs to be addressed. Reference <https://planningdevelopment.elpasoco.com/wp-content/uploads/Engineering/EngineeringDocuments/ECM-Revision-July-2019-Implementation-Directive-6.20.19.pdf>.  
Per the PBMP Applicability form, this access road is exempt.
  - b. The requirements of Colorado Revised Statute §37-92-602 (8) apply to the proposed sand filter basin. See summary requirements which can be found: [http://udfcd.org/wp-content/uploads/uploads/resources/guidance%20documents/UDFCD_Stormwater_Legislation_Memo_2016-03-09.pdf](http://udfcd.org/wp-content/uploads/uploads/resources/guidance%20documents/UDFCD_Stormwater_Legislation_Memo_2016-03-09.pdf).  
Noted. This requirement does not apply to a water quality sand filter.
  - c. Adequate conveyance needs to be provided for offsite flows diverted around the site. The proposed berm along the north property line needs to convey flow to the west on the subject property or obtain a drainage easement on the property to the north. Any changes to the manner or quantity of flows on any offsite properties requires drainage easements.  
The berm was modified to include a swale, was extended south to the existing swale, and an offsite drainage easement has been added.
  - d. State Engineer's embankment construction permitting requirements apply.  
Noted.
2. The geotechnical report prepared by Terracon provides adequate subsurface drainage analysis.

#### Grading and Erosion Control Plan / Stormwater Management / SWMP

1. Note: All documents associated with obtaining a grading permit (ESQCP) and maintaining permanent stormwater quality facilities will need to be provided to meet County criteria at the Site Development Plan stage; these are cursory comments. The SWMP needs to address the complete project including substation, access roads, temporary construction roads, and towers.  
Per MVEA, they will not be building any temporary construction roads associated with this substation or the towers. The towers have been added to the SWMP. Additionally, a ~5 acre staging area has been added to the west of the substation.

2. Provide the following items with the Site Development Plan submittal:
  - a. The new PBMP Applicability Form, which can be found at:  
<https://planningdevelopment.elpasoco.com/wp-content/uploads/Engineering/EngineeringDocuments/PBMP-Applicability-Form.docx>.  
The form has been added. The project is exempt due to there being no paving.
  - b. GEC and SWMP checklists are required to be provided by the design engineer. Instructions are provided below the list of attachments. Checklists can be found at: [https://planningdevelopment.elpasoco.com/wp-content/uploads/Engineering/EngineeringDocuments/Copy-of-GEC-SWMP_Checklists.xlsx](https://planningdevelopment.elpasoco.com/wp-content/uploads/Engineering/EngineeringDocuments/Copy-of-GEC-SWMP_Checklists.xlsx).  
The checklists have been added.
    - i. Label the proposed final ground surface (gravel) in the substation area.  
Callouts added.
    - ii. The drainage diversion along north and west property lines with 138 acres of contributing area will require a designed conveyance.  
Swale added.
  - c. The updated ESQCP form can be found at  
<https://planningdevelopment.elpasoco.com/wp-content/uploads/Engineering/EngineeringDocuments/Erosion-and-Stormwater-Quality-Control-Permitrev.2019.docx>.  
The form has been added.

#### Attachments

1. Site Map redlines
2. Cursory Drainage Report redlines
3. Engineering Final Submittal Checklist (for Site Development Plan)

#### **Checklist Instructions:**

Complete and upload the attached SWMP and GEC Checklist (from the recent update to the ECM).

GEC and SWMP Checklist instructions:

1. The applicant shall insert into each box either of the following:
  - a. check mark or Y - this item has been addressed
  - b. N/A - This item does not apply to this project.
2. All checkboxes must be filled in. If necessary, provide comments at the end of the checklist.
3. The review engineer will verify each item by inserting one of the following:
  - a. check mark or Y - This item has been adequately addressed or agree that it does not apply
  - b. N - This item has not been adequately addressed.
4. A copy of the checklist will be returned to the applicant.
5. The checklist will be required to be updated and returned with the resubmittal.

SWMP Checklist caveat:

For "N/A". A statement or note is required specifying exactly why a checklist item is not applicable.

<b>Engineering Final Submittal Checklist for Electronic Submittals</b>	
<b>Check Box</b>	<b>Item: Report/Form</b>
<input type="checkbox"/>	Drainage Report (signed)
<input type="checkbox"/>	PBMP Applicability Form
<input type="checkbox"/>	Traffic Impact Study (signed)
<input type="checkbox"/>	Grading & Erosion Control Plan <b>and checklist</b> (signed)
<input type="checkbox"/>	<del>Street Construction Plans (signed)</del>
<input type="checkbox"/>	Deviation Request (signed)
<input type="checkbox"/>	MS4 Post Construction Form and SDI worksheet
<input type="checkbox"/>	Proof of embankment/pond submittal to State Engineer
<input type="checkbox"/>	ESQCP (signed)
<input type="checkbox"/>	* Financial Assurance Estimate, SIA (signed)
<input type="checkbox"/>	* Pond/BMP Maint. Agreement and Easement (signed)
<input type="checkbox"/>	* Operation & Maintenance Manual
<input type="checkbox"/>	AutoCAD base drawing (submitted to DPW)
<input type="checkbox"/>	<del>Pre-Development Site Grading Acknowledgement and Right of Access Form (signed)</del>
<input type="checkbox"/>	Other: Offsite Easements, Other Permits (FEMA LOMR, USACE, Floodplain...), Conditions of Approval, Street light license agreement, etc. _
<b>Pre-Construction Checklist:</b>	
<input type="checkbox"/>	Driveway/Access Permit (Temporary access permits to be obtained from EPC DPW)
<input type="checkbox"/>	Work Within the ROW Permit (DPW or CDOT)
<input type="checkbox"/>	* Stormwater Management Plan (SWMP) <b>and checklist</b> Submit to PCD-Inspections 2 weeks prior to precon.
<input type="checkbox"/>	* Colorado Discharge Permit (COR: _____ )
<input type="checkbox"/>	* County Construction Activity Permit
<input type="checkbox"/>	* CDPHE APEN – (if over 25 ac. or 6 mos.)
<input type="checkbox"/>	* Financial Surety (Letter of Credit/Bond/Collateral/Check)
<input type="checkbox"/>	Construction Permit Fee: <i>Site Development Plan Major</i> <span style="float: right;"><b>\$ 1,737.00</b></span> (Verify fees with Inspections Supervisor at time of scheduling)
<input type="checkbox"/>	Other: _____

* - required items to obtain an ESQCP

Permit Fee and Collateral must be separate checks

<b>Post Construction Submittal Checklist: (ECM 5.10.6)</b>	
<input type="checkbox"/>	As-Built Drawings
<input type="checkbox"/>	Pond Certification Letter
<input type="checkbox"/>	Acceptance Letter for wet utilities

-  = Need final / signed version

-  = complete, in file

-  = PCD Staff to provide

-  = Undetermined at this time

-  = Need later