

**STORM WATER MANAGEMENT PLAN
(SWMP)
Liberty Tree Academy
Project Number: PPR-18-023**

September 2018

Prepared for:

Liberty Tree Academy
8579 Eastonville Road
Peyton, CO 80831

Prepared by:

Matrix Design Group, LLC
1601 Blake Street, Suite 200
Denver, CO 80202

Engineer's Statement:

This SWMP was prepared under my direction and supervision and is correct to the best of my knowledge and belief. The SWMP has been prepared according to the criteria established by the County criteria.

David Kline, P.E.
Matrix Design Group, LLC
1601 Blake Street, Suite 200
Denver, CO 80202

Owner's Statement:

The Owner will comply with the requirements of the SWMP.

Liberty Tree Academy
8579 Eastonville Road
Peyton, CO 80831

Contractors Statement:

The Contractor will comply with the requirements of the SWMP.

Terry Jenni
Canyon Building and Design
3040 N. 44th Street, Suite 4
Phoenix, AZ 85018

TABLE OF CONTENTS

	<u>Page</u>
TABLE OF CONTENTS-----	1
3. SITE DESCRIPTION-----	2
4. NARRATIVE DESCRIPTION-----	2
5. PHASING PLAN-----	2
6. PROPOSED SEQUENCE -----	2
7. DISTURBANCE AREA -----	3
8. RUNOFF COEFFICIENTS-----	3
9. SOIL EROSION POTENTIAL -----	3
10. EXISTING VEGETATION-----	3
11. POTENTIAL POLLUTION, MATERIAL HANDLING, SPILL PREVENTION -----	4
12. MATERIAL HANDLING-----	6
13. SPILL PREVENTION -----	6
14. STORM WATER POLLUTION CONTROL -----	6
15. NON-STORM DISCHARGE-----	6
16. STORM WATER OUTFALL -----	6
17. STORM WATER MANAGEMET PLAN-----	6
18. BMP NARRATIVE (STRUCTURAL)-----	6
19. BMP NARRATIVE (NON-STRUCTURAL)-----	7
20. TECHNICAL DETAILS-----	7
21. SWMP REVISION PROCEDURE-----	7
22. FINAL STABILIZATION -----	8
23. VEGETATIVE COVERAGE -----	8
24. INSPECTION PROCEDURE-----	8
25. RECORD KEEPING-----	8
26. ENGINEER’S ESTIMATE FOR INSTALLATION AND MAINTENANCE OF SWMP CONTROLS-----	8
APPENDIX A - SWMP CHECKLIST	
APPENDIX B – SWMP INTIAL AND FINAL STAGE PLANS	

3. SITE DESCRIPTION

The approximate latitude and longitude are 38°57'35"N and 104°35'11", which is in Township 12S, and Range 64W, Section 32, SW Quarter. The lot is situated along the east side of Eastonville Road from Tex Tan Road to Snaffle Bit Road. The project area is located east, south, and north of residential parcels. Unplatted agricultural land exists to the east of the site. The project is situated in Woodmen Hills Filing No. 10 (Plat Number 10942). To the north is Woodmen Hills Filing No. 11 (Plat Number 11258).

4. NARRATIVE DESCRIPTION

The construction activity includes, clearing and grubbing and implementation temporary stabilization. Once the initial phase of the storm water management system is in place construction activities include, site grading, site detention pond and outfall structures, wet and dry utilities, shallow retaining wall, curb gutter and asphalt pavement. Completion of the project will include final stabilization and removal of temporary control measures.

5. PHASING PLAN

The project is proposed to be construction in one phase. No phasing plan is proposed.

6. PROPOSED SEQUENCE

It is anticipated that Liberty Tree Academy will be constructed during the fall of 2018. The construction for the initial site grading is anticipated to take one month to complete. The final stabilization of the initial site grading is approximate and will likely occur during the spring of 2019.

Anticipated initial construction activities will include; installation of perimeter site erosion controls, clearing and grubbing, excavating and fill placement for the initial site grading plans. The site will be seeded and mulched once the initial site grading has been completed.

The suggested construction approach for erosion control measures:

1. Install construction fence, silt fence, and sediment control logs along the perimeter of the site area to be disturbed as shown on the SWMP. If any BMP requires modification, the plan shall be red lined and approval shall be obtained from the County's SWMP inspector prior to proceeding, unless it is an emergency situation that requires immediate attention. The contractor shall document all changes to the SWMP. The contractor shall not disturb any areas that are not identified on the SWMP without approval from the agency. Construction debris and trash shall be disposed of in appropriate trash containers. The contractor shall document reoccurring sediment and erosion control problem areas.
2. Once the perimeter erosion controls have been installed, the clearing and grubbing of the site as identified on the SWMP may commence. Topsoil to be reused shall be removed and stockpiled in the designated location on site per SWMP. All soil stockpiles shall be at no slope greater than 3:1 and have perimeter control at all times. Locations must be redlined on the plans and approved by the agency SWMP inspector. The stockpiles shall be located more than fifty feet from any drainage way or adjacent swale or ditch and shall have silt fence and or sediment control logs at the toes to prevent sediment runoff from the stockpile.

3. When the clearing and grubbing is complete, the construction of the initial site grading plan may be conducted. This includes excavation and fill of material across the site as required. Additional or modification of existing erosion control facilities will be required. The Interim Stage SWMP indicate the placement of new erosion control facilities according to the agency SWMP criteria that will likely be required. The contractor shall be responsible for documenting changes, additions and reoccurring sediment and erosion control problem areas. The contractor shall document the above on the SWMP as needed.
4. The initial site grading area can be completely seeded and mulched once the final grading has been completed. All disturbed areas on the site shall be seeded and mulched according to the agency SWMP Criteria.
5. Once approved by the agency, the erosion control measures installed in the Initial and Interim Stages can be removed by the contractor. Any disturbance encountered while removal of said erosion control facilities will require the areas to be seeded and mulched. The final site grading stabilization shall be in accordance with the final SWMP and Standard Notes.

7. DISTURBANCE AREA

The total parcel area is 10.7 acres of which 3.4 acres are proposed for this project. The remaining are may be developed at a future date under separate entitlement.

8. RUNOFF COEFFICIENTS

See Soil Erosion Potential below.

9. SOIL EROSION POTENTIAL

According to National Resources Conservation Service (NRCS) soil datasets, the predominant soil type is Columbine gravelly sandy loam, 0 to 3 percent slopes. This soil type is generally consistent with a Type A hydrologic soil group (HSG). NRCS soil data was obtained from the Soil Survey Geographic (SSURGO) Database for Arapahoe County, Colorado. The spatial dataset was last updated September 23, 2016 (version 7) and the tabular dataset was last updated October 10, 2017 (version 14).

Slopes across the property typically range from 1-5%, with some local slopes along the eastern edge of the property at 4:1, which are associated with the drainage channel. Soil erosion is controlled by BMP and storm water discharge is similar to existing conditions.

10. EXISTING VEGETATION

The ground cover currently consists of native grasses, including Blue Grama with a few dispersed alders and other plant species consistent with pasture land in the Colorado Semi-arid plains environment. Willows line the drainageway on the east side of the site. The percent of ground cover is estimated at 85%.

11. POTENTIAL POLLUTION, MATERIAL HANDLING, SPILL PREVENTION

All disturbed and stored soils:

Potential during all phases of construction activities, including but not limited to excavating, grading, cutting, filling, landscaping, etc. Potential pollutants include disturbed eroded sediment entering state waterways, inlets and sewers.

BMPs

Sediment control and stockpile containment may include usage of: silt fence, temporary berms, temporary sediment basin, gravel bags, check dams, landforms, asphalt diversion berms, and inlet protection as outlined in the SWMP Report.

Erosion Control may include: soil roughening, mulch/mulch tackifier application, seeding/mulching, temporary slope drains, and vegetative buffers.

Administrative BMPs include site management and limiting number and locations of stockpiles. Phased construction to reduce the amount of open area at any given time.

Vehicle tracking of sediments:

Potential during all construction activities.

BMPs

Sediment control including: vehicle tracking pads, street sweeping, and inlet protection.

Administrative BMPs include minimizing the number of entry and exit points, adding orange perimeter fence to define construction entries/exits and establish perimeter control, and require equipment to be cleaned prior to arrival on site.

Management of contaminated soils:

If contaminated soils/water are encountered, all activity shall be stopped until the situation can be assessed. The General Contractor or Superintendent will be contacted for further direction.

Loading and unloading operations:

Potential during delivery and staging of materials, equipment, soil, debris, etc.

BMPs

Loading and unloading operations shall occur within the disturbance limits of the project using designated vehicle tracking pads.

Administrative BMPs include site management to minimize the number of areas at which loading/unloading occurs. Education as to where access points are on the project to prevent vehicle tracking. After each loading and unloading operation, the immediate area should be checked for materials potentially spilled, leaked, or lost and cleaned up.

Outdoor storage activities (building materials, fertilizers, chemicals etc.):

Potential during all phases of construction activities including delivery, staging/storage and use of various materials.

BMPs

Containment of the storage or staging areas using temporary berms. Use of secondary containment device for storage of chemicals and petroleum products. Chemicals shall not be used, stored or stockpiled within 50 feet of state waters.

<p>Administrative BMPs include site management to ensure limited amount of materials are stored on site and are placed in proper designated areas.</p>
<p>Vehicle and equipment maintenance and fueling: Potential during all phases of construction activities during fueling of equipment or vehicles and equipment or vehicle repair activities.</p> <p><u>BMPs</u> Limit areas where fueling occurs (no less than 50 feet from any state water, inlet, or flowline). Ensure Spill Response Kit is accessible where fueling is taking place. Use of plastic sheeting, drip pans, dirt berms and other measures to contain fluids.</p> <p>Administrative BMPs include site management to limit equipment and vehicle maintenance that occurs on site.</p>
<p>Significant dust or particulate generating processes: Potential during clearing and grubbing, cut/fill activities, saw cutting/sanding work, and final stabilization.</p> <p><u>BMPs</u> Water truck for use as needed to minimize dust production, limiting speeds to 30 mph or less, minimizing exposed surfaces, using pickup broom or vacuum during or immediately following saw cutting, and revegetation with seed and mulch.</p>
<p>On-site waste management practices (waste piles, liquid wastes, dumpsters, etc.): Potential during all phases of construction including clearing and grubbing, demolition, infrastructure construction, etc.</p> <p><u>BMPs</u> Trash receptacles will be placed on site and garbage disposed of when full. Public trash will be routinely picked up around the site (daily) and disposed of in proper containers. Waste piles shall be placed a minimum of 50 feet from state wastes contained by earthen berms, silt fence, erosion control logs, and/or landforms. Waste piles shall be placed in areas where stormwater runoff would not result in contamination of state waters.</p> <p>Liquid wastes will be contained and removed from site and properly disposed of by the contractor/sub-contractor generating wastes.</p>
<p>Concrete truck/equipment washing: Potential during and after concrete pours.</p> <p><u>BMPs</u> Concrete washout areas will be provided on site prior to any concrete improvements. The BMP will be clearly marked and maintained in accordance with the standard BMP detail contained in the SWMP.</p>
<p>Dedicated asphalt and concrete batch plants: Not applicable. There will not be a dedicated batch plant on site.</p>
<p>Non-industrial waste sources such as worker trash and portable toilets: Potential during all phases of construction.</p> <p><u>BMPs</u> Cleanup of trash will occur daily. A dumpster will be placed on site at the construction trailer. This will be emptied on a weekly basis and more often if waste amounts warrant extra pick-ups.</p>

Portable toilets will be located a minimum of 50 feet from state waters. They shall be adequately staked and cleaned on a weekly basis. They will be inspected daily for spills.

Administrative BMPs will include site management practices to ensure workers are placing trash in the appropriate dumpsters. Monitoring to ensure trash dumpsters are removed from the site when full. Monitoring to ensure portable toilets are cleaned as needed and repaired or removed if found to be leaking.

12. MATERIAL HANDLING

See previous section Potential pollution, Material Handling, Spill Prevention.

13. SPILL PREVENTION

See previous section Potential pollution, Material Handling, Spill Prevention.

14. STORM WATER POLLUTION CONTROL

See previous section Potential pollution, Material Handling, Spill Prevention.

15. NON-STORM DISCHARGE

There are no existing spring or irrigation located on site.

16. STORM WATER OUTFALL

The project falls within the Bennett Ranch Drainage Basin and the major basin is presented and discussed in the Bennett Ranch Drainage Basin Planning Study (El Paso County 2001).

17. STORM WATER MANAGEMET PLAN

See appendix B.

18. BMP NARRATIVE (STRUCTURAL)

The listed items below are proposed for this project.

Construction Fence will be used to delineate the limits of construction.

Vehicle Tracking Control will be installed at all construction entrances. Stabilized construction site access must be created for any sites where mud or dirt can be tracked onto public roads, where dust can be problematic during dry weather and on site adjacent to water bodies. The purpose is to reduce or eliminate sediment being tracked onto public roadways by construction vehicles.

Stabilized Staging Area will be provided near the main access point and should connect to the vehicle tracking control. The Stabilized Staging Area should be the location used for chemical storage.

Reinforced Rock Berm for Culvert Protection will be installed upstream of existing and proposed culverts. A reinforced rock berm placed in front of a culvert can reduce sediment in the runoff approaching the culvert.

Erosion Control Blanket will be provided on all slopes steeper than 4:1 and within roadside ditches. Erosion control blanket is a Fibrous blanket of straw, jute, coconut or excelsior material trenched in and staked down over prepared, seeded soil. The blanket reduces both wind and water erosion and helps to establish vegetation.

Surface Roughening shall be provided on all disturbed areas. Surface roughening consists of creating a series of grooves or furrows on the contour in all disturbed, graded areas to trap rainfall and reduce the formation of rill and gully erosion.

Concrete Washout Area must be installed and maintained before any concrete is placed on site. Concrete washout activities must be conducted in a manner that does not contribute pollutants to surface waters or stormwater runoff. The area shall be bermed to totally contain wash water. Water is allowed to infiltrate in the ground or evaporate and the dried concrete waste shall be properly disposed.

Stockpile Management will be provided for all stockpiles. Stockpiles will be located on site as indicated on the SWMP; however, exact locations may be adjusted based on current conditions and construction phasing.

Street Sweeping will be provided for paved and impervious surfaces which are adjacent to construction site. Either sweeping by hand or use of Street Sweepers is acceptable. Street sweepers using water while sweeping is preferred in order to minimize dust. Streets shall not be washed with water under any circumstances.

19. BMP NARRATIVE (NON-STRUCTURAL)

Seeding and Mulching shall be provided on all areas that are not to be paved, sodded, landscaped or otherwise stabilized in an approved manner in accordance the SWMP. Seeding and mulching consists of drill seeding disturbed areas with grasses and crimping in straw mulch to provide immediate protection against raindrop and wind erosion and, as the grass cover becomes established, to provide long-term stabilization of exposed soils.

20. TECHNICAL DETAILS

See SWMP in Appendix B.

21. SWMP REVISION PROCEDURE

SWMP changes addressing BMP installation and/or implementation are often required to be made in response to changing conditions, or when current BMPs are determined ineffective. The majority of SWMP revisions to address these changes can be made immediately with quick in-the-field revisions to the SWMP. In the less common scenario where more complex development of materials to modify the SWMP is necessary, SWMP revisions shall be made in accordance with the following requirements:

- 1) the SWMP shall be revised as soon as practicable, but in no case more than 72 hours after the change(s) in BMP installation and/or implementation occur at the site, and
- 2) a notation must be included in the SWMP prior to the site change(s) that includes the time and date of the change(s) in the field, an identification of the BMP(s) removed or added, and the location(s) of those BMP(s).

22. FINAL STABILIZATION

After the site grading construction is completed, the provided erosion control facilities identified on the SWMP should effectively stabilize the site and provide permanent stabilization. Criteria requires that the areas be drill seeded or crimp mulched. Stabilization needs to occur within 30 days from the start of land disturbance activities or within seven days of the substantial completion of grading, whichever comes first. Once the site grading is complete and the Final Stage SWMP have been constructed, previously installed erosion control measures may be removed, but must be approved by the agency. The site is owned and maintained by Liberty Tree Academy.

23. VEGETATIVE COVERAGE

A sediment basin is required and the project and presented in the plans. The proposed pond includes adding a spillway and inlet structure with a micropool. Reference the Drainage report for other stormwater considerations.

Vegetative coverage is based on the development final landscaped area and the final stabilization plan in the SWMP.

24. INSPECTION PROCEDURE

The General Contractor, as well as representatives from governing agencies, shall make routine checks of all control measures. A designated representative from the General Contractor's staff shall inspect BMPs regularly, not exceeding 7 days and within 24 hours after storm. When and where exceptions to the inspection schedule are necessary due to holidays, weather, or other unforeseen incidents, exceptions to the schedule will be documented. Inspections will also be conducted after each storm event. These inspections shall be kept on-site in a written or previously approved format and conducted during the progress of the work.

25. RECORD KEEPING

See Inspection Procedures above.

26. ENGINEER'S ESTIMATE FOR INSTALLATION AND MAINTENANCE OF SWMP CONTROLS

El Paso County

SWMP Permit - Cost Opinion Spreadsheet

Project Information	
Liberty Tree Academy	9/4/2018
Project Name	Date

Section 1 - Grading and Erosion Control BMPs	Quantity	Units		Price		
Permanent Seeding* (inc. noxious weed mgmnt.)	1.60	AC	@	\$ 582	=	\$ 931.20
Mulching*	1.61	AC	@	\$ 507	=	\$ 816.27
Permanent Erosion Control Blanket*	438.00	SY	@	\$ 6	=	\$ 2,628.00
Temporary Erosion Control Blanket		SY	@	\$ 3	=	\$
Vehicle Tracking Control	1.00	EA	@	\$ 1,625	=	\$ 1,625.00
Safety Fence	626.00	LF	@	\$ 3	=	\$ 1,878.00
Silt Fence	1,856.00	LF	@	\$ 4	=	\$ 7,424.00
Temporary Seeding	1.00	AC	@	\$ 485	=	\$ 485.00
Temporary Mulch	1.00	AC	@	\$ 507	=	\$ 507.00
Erosion Bales		EA	@	\$ 21	=	\$
Erosion Logs	246.00	LF	@	\$ 6	=	\$ 1,476.00
Inlet Protection		EA	@	\$ 153	=	\$
Sediment Basin	1.00	EA	@	\$ 1,625	=	\$ 1,625.00
Concrete Washout Basin	1.00	EA	@	\$ 776	=	\$ 776.00
			@	\$	=	\$
				Total BMP Cost	=	\$ 20,171.47
				10% Contingency	=	\$ 2,017.15
				Total Cost	=	\$ 22,188.62

**APPENDIX A
SWMP CHECK LIST**

EL PASO COUNTY STORMWATER MANAGEMENT PLAN CHECKLIST

Revised 5/21/07

1) Applicant (owner/ designated operator), Prepared By, SWMP Administrator, and Contractor Information.



2) Table of Contents.



3) Site description and location to include vicinity map (not just Section, Township, Range)



for map see SWMP in appendix B.

4) Narrative description of construction activities proposed (e.g., may include clearing and grubbing, temporary stabilization, road grading, utility / storm installation, final grading, final stabilization, and removal of temporary control measures).



5) Phasing plan – may require separate drawings indicating initial, interim, and final site phases for larger projects. Provide “living maps” that can be revised in the field as conditions dictate.



not applicable

6) Proposed sequence for major activities: Provide a construction schedule of anticipated starting and completion dates for each stage of land-disturbing activity depicting conservation measures anticipated, including the expected date on which the final stabilization will be completed.



7) Estimates of the total site area and area to undergo disturbance.



8) An estimate of runoff coefficients before and after project construction (may not be required with next State update).



not applicable, see section 9.

9) Soil erosion potential and potential impacts upon discharge.



10) A description of existing vegetation at the site and percent ground cover.



11) The location and description of any other potential pollution sources such as fueling (mobile or stationary), chemical storage, etc.



12) Material handling to include spill prevention and response procedures.

See Section #11

13) Spill prevention and pollution controls for dedicated batch plants.

See Section #11

14) Other SW pollutant control measures to include waste disposal and off site soil tracking.

See Section #11

15) The location and description of any anticipated non-stormwater components of discharge (springs, irrigation, etc.).

16) The name of ultimate receiving waters; size, type and location of stormwater outfall or storm sewer system discharge.

17) SWMP Map to include:

a) construction boundaries

b) all areas of disturbance

c) areas of cut and fill

d) areas used for storage of building materials, soils or wastes (stockpiles)

e) location of any dedicated asphalt / concrete batch plants (Not Applicable) (No Batch Plants) (See Pg #5)

f) major erosion control facilities or structures (sedimentation ponds, etc.)

See permanent Water Quality Detention Ponds

g) springs, streams, wetlands and other surface waters

No Spring or Wetlands - see Drainage Report for Basins

h) boundaries of FEMA mapped 100 year flood plain

Not Applicable - See Drainage Report

18) Narrative description of structural BMPs to be used, including silt fence, straw bales, check dams, sediment basins, drainage swales, etc. Ensure method is ECM / DCM approved.

19) Description of non-structural BMPs to be used including seeding, mulching, protection of existing vegetation, site watering, sod placement, etc.

20) Technical drawing details for BMP installation and maintenance.

Presented in Plans, See appendix B

21) Procedure for how the SWMP will be revised.

22) Description of Final Stabilization and Long-term Stormwater Quality (describe measures to control SW pollutants after construction operations have been completed.

23) Provide for vegetative cover density to be 70% of pre-disturbed levels.

24) Outline of permit holder inspection procedures to install, maintain, and effectively operate BMPs, to manage erosion and sediment.

25) Record keeping procedures identified to include signature on inspection logs and location of SWMP records on-site.

Please note: all items need to be addressed. If not applicable, explain; simply identifying "not applicable" will not satisfy CDPHE requirement of explanation.

**APPENDIX B
STORM WATER MANAGEMENT PLAN**

LIBERTY TREE ACADEMY STORMWATER MANAGEMENT PLAN

TOWN OF PEYTON, EL PASO COUNTY FINAL FOR CONSTRUCTION AUGUST 2018

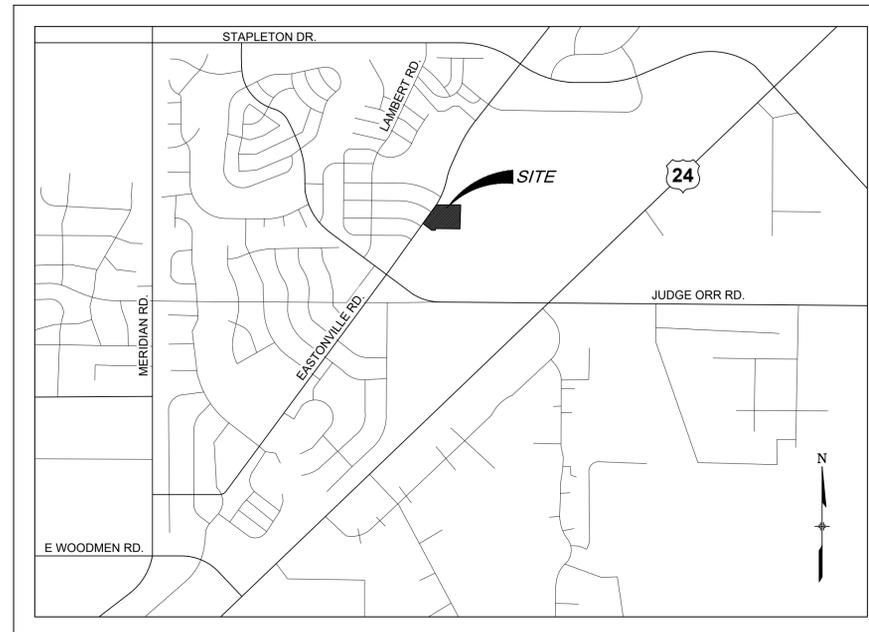


INDEX OF SHEETS

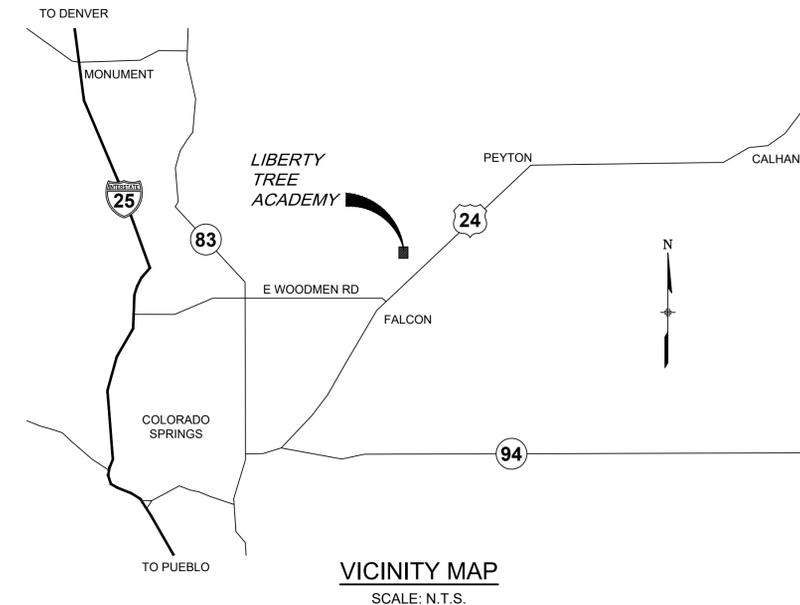
DRAWING NO.	DRAWING DESCRIPTION	SHEET NO.
TS01	TITLE SHEET	1
ECGN01	EROSION CONTROL GENERAL NOTES	2
EC01	INITIAL EROSION CONTROL PLAN	3
EC02	FINAL EROSION CONTROL PLAN	4
ECDT01-ECDT04	EROSION CONTROL DETAILS	5-8

LAND USE SUMMARY

PARCEL AREA:	10.7 acres
PROJECT AREA:	3.4 acres
BUILDING AREA (PHASE 1):	41,585 sf
FAR:	0.28



LOCATION MAP
SCALE: N.T.S.



VICINITY MAP
SCALE: N.T.S.

CIVIL ENGINEER
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LANDSCAPE ARCHITECT
MATRIX DESIGN GROUP
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DENVER, CO. 80202
PH: 303-572-0200
FAX: 303-572-0202
CONTACT: TERESA ROBERSON
TERESA_ROBERSON@MATRIXDESIGNGROUP.COM

LEGAL DESCRIPTION:
LOT 1178, WOODMEN HILLS FILING NO. 10
COUNTY OF EL PASO
STATE OF COLORADO

BASIS OF BEARING:
BASIS OF BEARINGS: BEARINGS ARE BASED ON GRID BEARINGS OF THE COLORADO STATE PLANE CENTRAL ZONE, BASED ON THE EAST LINE OF LOT 1178 OF THE PLAT OF WOODMEN HILLS FILING NO. 10 AS RECORDED ON JULY 13, 2001 IN THE OFFICE OF THE EL PASO COUNTY CLERK AND RECORDER UNDER RECEPTION NUMBER 201098618, MONUMENTED ON THE NORTH END BY A FOUND 2-1/2" ALUMINUM CAP STAMPED "PLS 38160" AND ON THE SOUTH END BY A FOUND 1-1/2" ALUMINUM CAP STAMPED "PLS 32822", AND BEARS SOUTH 00°24'21" EAST A DISTANCE OF 1116.46 FEET.

BENCHMARK:
BENCHMARK IS DERIVED FROM AN ONLINE POSITIONING USER SERVICE PROVIDED BY THE NATIONAL GEODETIC SURVEY PERFORMED ON A SET #5 REBAR LOCATED ON THE EAST SIDE OF EASTONVILLE ROAD NEAR THE SOUTH PCR APPROXIMATELY 20 FEET SOUTH OF A SANITARY MANHOLE AND 12 FEET EAST OF A FIRE HYDRANT. THE ELEVATION DERIVED FROM THE STATIC SOLUTION IS 6960.52 U.S. SURVEY FEET (NAVD 88).

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, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

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

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.

 _____ DATE 8/10/2018
DAVID KLINE, P.E., PTOE

OWNER'S STATEMENT:

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

 _____ DATE 8/10/2018
LIBERTY TREE ACADEMY COMPANY

No.	DATE	DESCRIPTION	BY
REVISIONS			
COMPUTER FILE MANAGEMENT			
FILE NAME: R:118.995.001 (Liberty Tree Academy)\Dwg\Construction Plans\SWMP\SWMP-TS01.dwg			
CTB FILE: ---			
PLOT DATE: August 31, 2018 9:24:04 AM			
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.			

SHEET KEY



PREPARED FOR:
LIBERTY TREE ACADEMY

PREPARED BY:
Matrix DESIGN GROUP
AN EMPLOYEE-OWNED COMPANY

SEAL



FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 18.995.001

LIBERTY TREE ACADEMY

TOWN OF PEYTON, EL PASO COUNTY
STORMWATER MANAGEMENT PLAN, PCD FILE NO. PPR-18-023

TITLE SHEET

DESIGNED BY:	ACR	SCALE:	DATE ISSUED:	AUGUST 2018	DRAWING No.
DRAWN BY:	ACR	HORIZ.	NA	1	OF 8
CHECKED BY:	DRK	VERT.	NA	1	OF 8

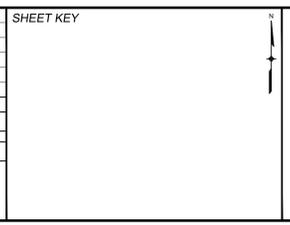
TS01



STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS:

1. CONSTRUCTION MAY NOT COMMENCE UNTIL A CONSTRUCTION PERMIT IS OBTAINED FROM PLANNING AND COMMUNITY DEVELOPMENT (PCD) AND A PRECONSTRUCTION CONFERENCE IS HELD WITH PCD INSPECTIONS.
2. 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.
3. 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.
4. 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.
5. 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 PCD INSPECTIONS STAFF.
6. 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 SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPS SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND ESTABLISHED.
7. 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.
8. 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).
9. 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.
10. 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.
11. 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.
12. 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.
13. EROSION CONTROL BLANKETING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
14. 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. BMP'S MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
15. VEHICLE TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFFSITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
17. 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.
18. 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.
19. 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.
20. 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.
21. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE FLOW LINE OF THE CURB AND GUTTER OR IN THE DITCHLINE.
22. 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.
23. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
24. PRIOR TO ACTUAL CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
25. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
26. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY EARTH ENGINEERING CONSULTANTS, LLC ON APRIL 12, 2018, AND SHALL BE CONSIDERED A PART OF THESE PLANS.
27. 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

REFERENCE DRAWINGS			
X:995 MDG22x34			
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REVISIONS			
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LIBERTY TREE ACADEMY

PREPARED BY:
Matrix DESIGN GROUP
 AN EMPLOYEE-OWNED COMPANY

SEAL

FOR AND ON BEHALF OF
 MATRIX DESIGN GROUP, INC.
 PROJECT No. 18.995.001

LIBERTY TREE ACADEMY

TOWN OF PEYTON, EL PASO COUNTY
 STORMWATER MANAGEMENT PLAN, PCD FILE NO. PPR-18-023

EROSION CONTROL NOTES

DESIGNED BY:	ACR	SCALE:	DATE ISSUED:	AUGUST 2018	DRAWING No.
DRAWN BY:	ACR	HORIZ.			ECGN01
CHECKED BY:	DRK	VERT.		2 OF 8	

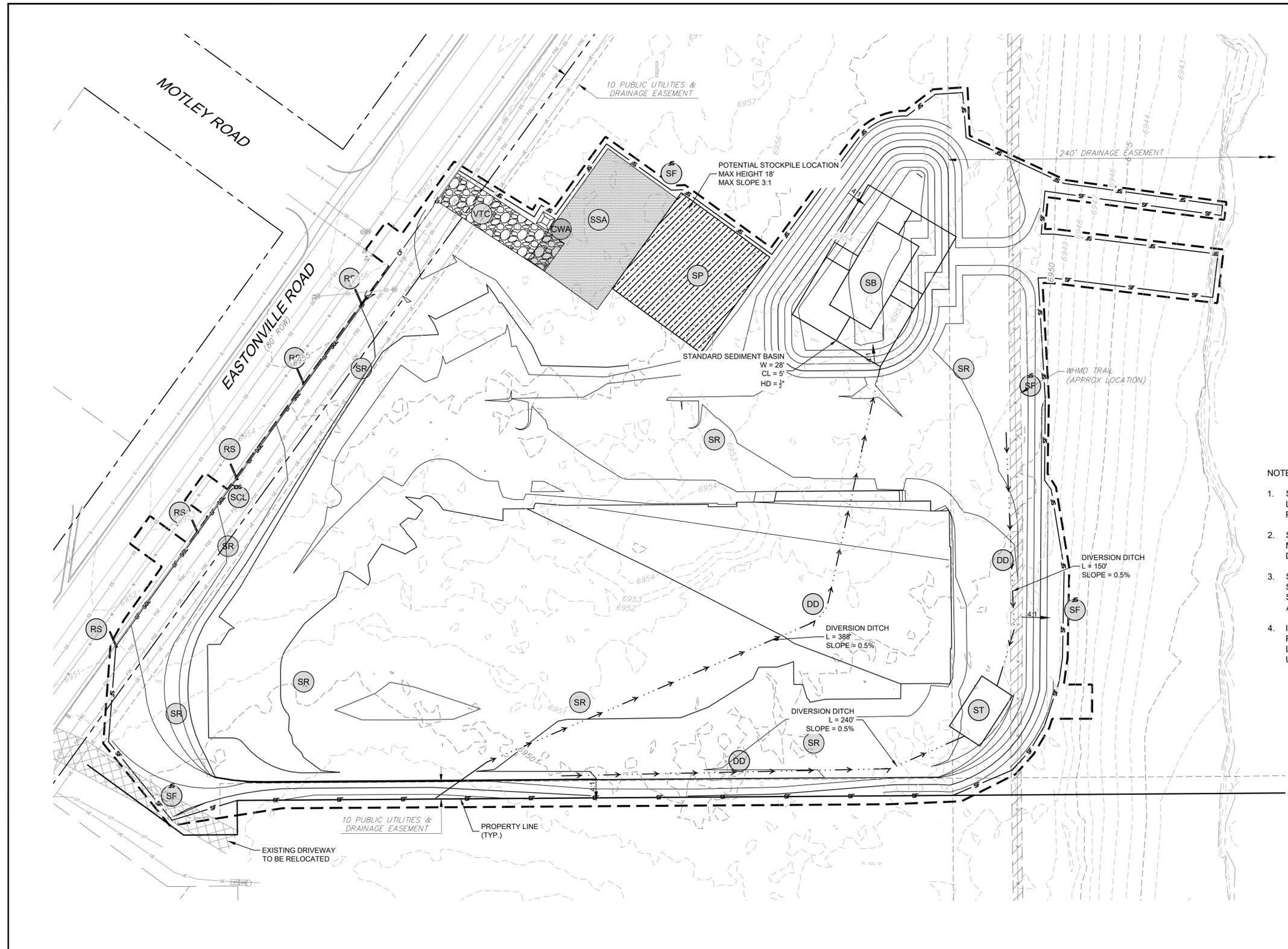


BMP LEGEND

- CWA CONCRETE WASHOUT AREA
- DD DIVERSION DITCH
- ECB EROSION CONTROL BLANKET
- SB SEDIMENT BASIN
- SCL SEDIMENT CONTROL LOG
- ST SEDIMENT TRAP
- SM SEEDING AND MULCHING
- SF SILT FENCE
- SSA STABILIZED STAGING AREA
- SR SURFACE ROUGHING
- VTC VEHICLE TRACKING CONTROL
- RS ROCK SOCK
- CF CONSTRUCTION FENCE
- LOC LIMITS OF CONSTRUCTION
- EXISTING 1' CONTOURS
- EXISTING 5' CONTOURS
- PROPOSED 1' CONTOURS
- PROPOSED 5' CONTOURS

NOTES:

1. SUGGESTED VTC LOCATIONS ARE SHOWN ON THE PLAN. THE EXACT LOCATIONS MAY VARY DUE TO PHASING, BUT MUST BE PROVIDED AT ALL POINTS OF ACCESS.
2. SUGGESTED STOCKPILE LOCATIONS ARE SHOWN ON PLAN. EXACT LOCATIONS MAY VARY WITHIN THE PROJECT LIMITS. SEE THE STOCKPILE MANAGEMENT DETAIL FOR ADDITIONAL INFORMATION.
3. SUGGESTED CONCRETE WASHOUT AND STABILIZED STAGING AREAS ARE SHOWN ON PLAN. EXACT LOCATIONS MAY VARY WITHIN THE PROJECT LIMITS. SEE THE CONCRETE WASHOUT AND STABILIZED STAGING AREA DETAIL FOR ADDITIONAL INFORMATION.
4. INLET PROTECTION, CURB SOCKS, AND PERIMETER CONTROL TO BE INSTALLED PRIOR TO DEMOLITION. SILT FENCE MAY BE USED AS PERIMETER CONTROL IN LANDSCAPED AREAS. ROCK SOCKS AND CONSTRUCTION FENCING SHOULD BE USED AS PERIMETER CONTROL ON IMPERVIOUS SURFACES.



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SHEET KEY	
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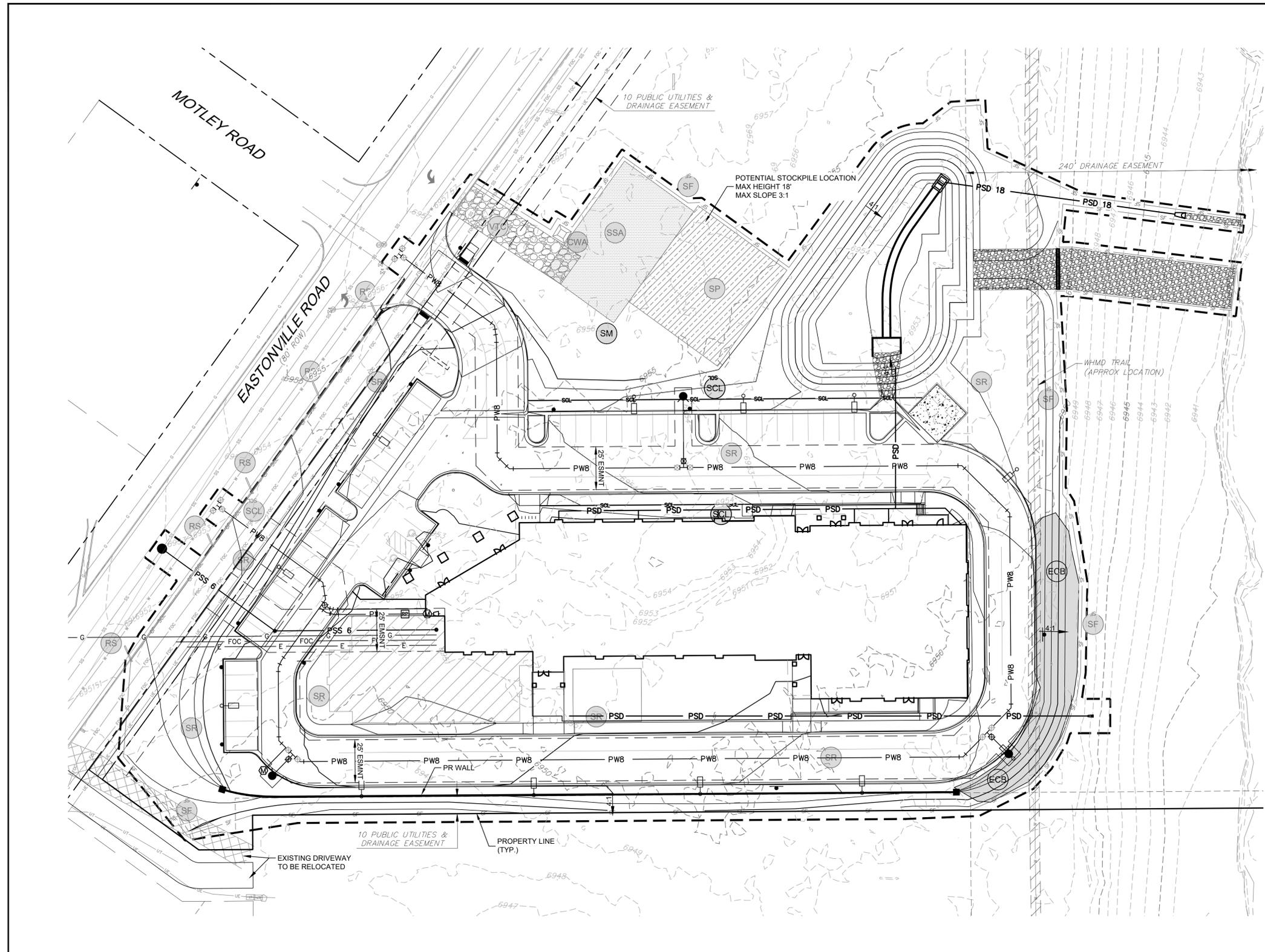
FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 18.995.001

LIBERTY TREE ACADEMY

TOWN OF PEYTON, EL PASO COUNTY
STORMWATER MANAGEMENT PLAN, PCD FILE NO. PPR-18-023

INITIAL EROSION CONTROL PLAN
SITE PREP, DEMO, AND GRADING

DESIGNED BY: ACR	SCALE: HORIZ. 1" = 30'	DATE ISSUED: AUGUST 2018	DRAWING No. EC01
DRAWN BY: ACR	VERT. NA	SHEET 3 OF 8	
CHECKED BY: DRK			

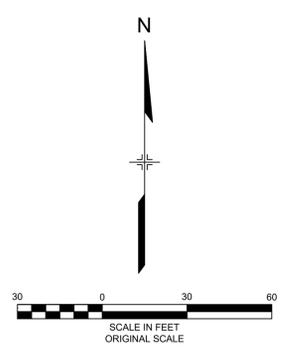


BMP LEGEND

[Symbol]	(CWA)	CONCRETE WASHOUT AREA
[Symbol]	(DD)	DIVERSION DITCH
[Symbol]	(ECB)	EROSION CONTROL BLANKET
[Symbol]	(SB)	SEDIMENT BASIN
[Symbol]	(SCL)	SEDIMENT CONTROL LOG
[Symbol]	(ST)	SEDIMENT TRAP
[Symbol]	(SM)	SEEDING AND MULCHING
[Symbol]	(SF)	SILT FENCE
[Symbol]	(SSA)	STABILIZED STAGING AREA
[Symbol]	(SR)	SURFACE ROUGHING
[Symbol]	(VTC)	VEHICLE TRACKING CONTROL
[Symbol]	(RS)	ROCK SOCKS
[Symbol]	(CF)	CONSTRUCTION FENCE
[Symbol]	(LOC)	LIMITS OF CONSTRUCTION
[Symbol]		EXISTING 1' CONTOURS
[Symbol]		EXISTING 5' CONTOURS
[Symbol]		PROPOSED 1' CONTOURS
[Symbol]		PROPOSED 5' CONTOURS

NOTES:

1. SUGGESTED VTC LOCATIONS ARE SHOWN ON THE PLAN. THE EXACT LOCATIONS MAY VARY DUE TO PHASING, BUT MUST BE PROVIDED AT ALL POINTS OF ACCESS.
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3. SUGGESTED CONCRETE WASHOUT AND STABILIZED STAGING AREAS ARE SHOWN ON PLAN. EXACT LOCATIONS MAY VARY WITHIN THE PROJECT LIMITS. SEE THE CONCRETE WASHOUT AND STABILIZED STAGING AREA DETAIL FOR ADDITIONAL INFORMATION.
4. INLET PROTECTION, CURB SOCKS, AND PERIMETER CONTROL TO BE INSTALLED PRIOR TO DEMOLITION. SILT FENCE MAY BE USED AS PERIMETER CONTROL IN LANDSCAPED AREAS. ROCK SOCKS AND CONSTRUCTION FENCING SHOULD BE USED AS PERIMETER CONTROL ON IMPERVIOUS SURFACES.



REFERENCE DRAWINGS

X-995-PR-SWMP
X-995-EX-BASE
X-995-EX-MAP
X-995-MDG22X34
X-995-PR-UTL
X-995-PR-BASE
X-995-PR-GRAD

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PROJECT No. 18.995.001

LIBERTY TREE ACADEMY

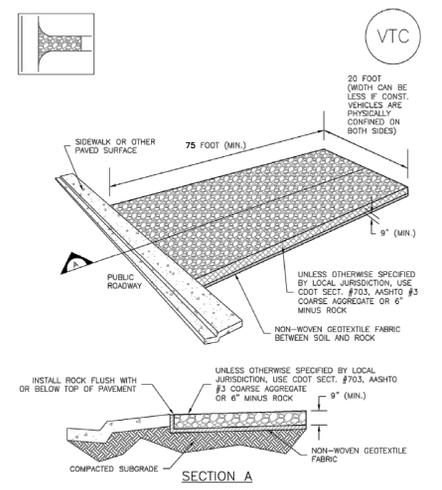
TOWN OF PEYTON, EL PASO COUNTY
STORMWATER MANAGEMENT PLAN, PCD FILE NO. PPR-18-023

FINAL EROSION CONTROL PLAN
PERMANENT SITE STABILIZATION

DESIGNED BY:	ACR	SCALE:	DATE ISSUED:	AUGUST 2018	DRAWING No.
DRAWN BY:	ACR	HORIZ. 1" = 30'	SHEET	4 OF 8	EC02
CHECKED BY:	DRK	VERT. NA			



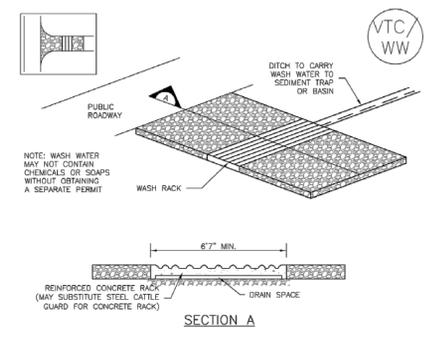
Vehicle Tracking Control (VTC) SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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

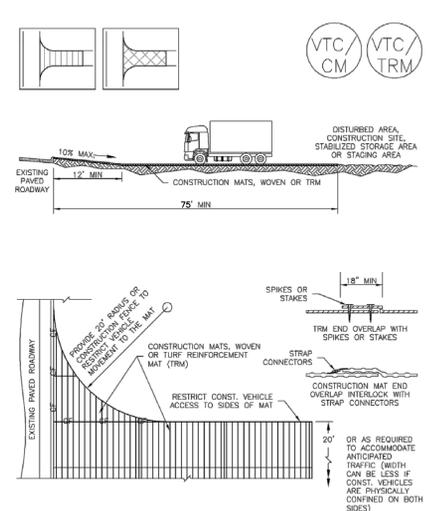
SM-4 Vehicle Tracking Control (VTC)



VTC-2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK

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)

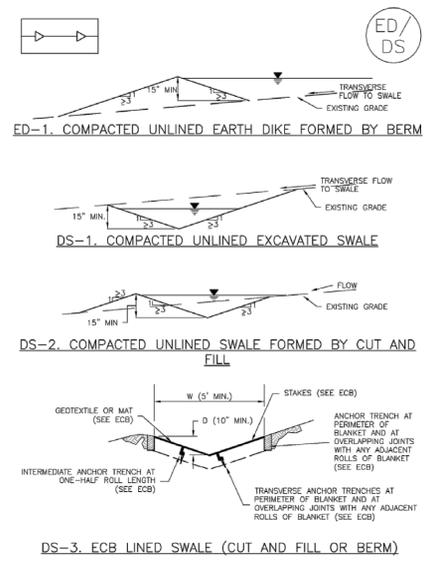
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 VTC-5

SM-4 Vehicle Tracking Control (VTC)

- STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
 - TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM.
 - CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
 - A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
 - STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
 - A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
 - UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
- STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
 - SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USFCO STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AIRBORN)

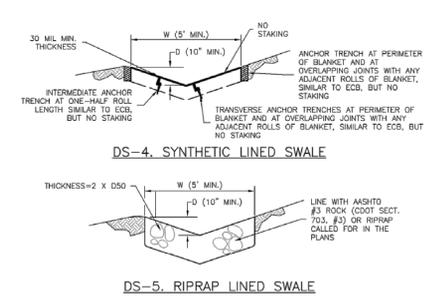
VTC-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

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



November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 ED/DS-3

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



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

ED/DS-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

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

- EARTH DIKE AND DRAINAGE SWALE 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.
 - SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION, IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.
 - WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USFCO STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF COLORADO SPRING, COLORADO, NOT AVAILABLE IN AIRBORN)

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 ED/DS-5

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.

Mulch can be applied either using standard mechanical dry application methods or using hydromulching 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, hydromulching 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	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

June 2012 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 MU-1

REFERENCE DRAWINGS

X:995 MDG22x34

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SHEET KEY

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SEAL

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MATRIX DESIGN GROUP, INC.
PROJECT No. 18.995.001

LIBERTY TREE ACADEMY

TOWN OF PEYTON, EL PASO COUNTY
STORMWATER MANAGEMENT PLAN, PCD FILE NO. PPR-18-023

EROSION CONTROL DETAILS

DESIGNED BY:	ACR	SCALE:	DATE ISSUED:	AUGUST 2018	DRAWING No.
DRAWN BY:	ACR	HORIZ.	VERT.	NA	5 OF 8
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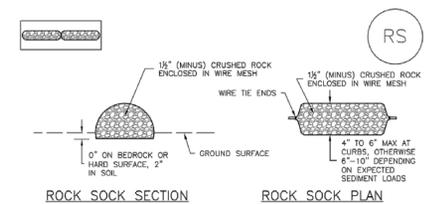
EC-4 Mulching (MU)

- 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 crimpers must be capable of tucking 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 2000 pounds per acre may be required for effective hydroseeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation 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 jute, straw-coconut, coconut fiber, or excelsior can be used instead of mulch. (See the ECM/TRM BMP for more information.)
- Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed tackifiers. Manufacturer's recommendations should be followed at all times. (See the Soil Binder BMP for more information on general types of tackifiers.)
- Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full coverage of exposed soil on the area it is applied.

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

MU-2 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 June 2012

SC-5 Rock Sock (RS)



ROCK SOCK JOINTING

ANY GAP AT JOINT SHALL BE FILLED WITH AN ADEQUATE AMOUNT OF 1/2" (MINUS) CRUSHED ROCK AND WRAPPED WITH ADDITIONAL WIRE MESH SECURED TO ENDS OF ROCK REINFORCED SOCK, AS AN ALTERNATIVE TO FILLING JOINTS BETWEEN ADJOINING ROCK SOCKS WITH CRUSHED ROCK AND ADDITIONAL WIRE WRAPPING, ROCK SOCKS CAN BE OVERLAPPED (TYPICALLY 12-INCH OVERLAP) TO AVOID GAPS.

GRADATION TABLE	
SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
NO. 4	100
2"	90 - 100
1 1/2"	20 - 50
3/4"	0 - 15
0 - 5	0 - 5

MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER ASTM 443. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.

- ROCK SOCK INSTALLATION NOTES**
- SEE PLAN VIEW FOR: -LOCATION(S) OF ROCK SOCKS.
 - CRUSHED ROCK SHALL BE 1/2" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1/2" MINUS).
 - WIRE MESH SHALL BE FABRICATED OF 10 GAGE POLYURETHANE MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF 1"; RECOMMENDED MINIMUM ROLL WIDTH OF 48".
 - WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.
 - SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.
- RS-1. ROCK SOCK PERIMETER CONTROL**

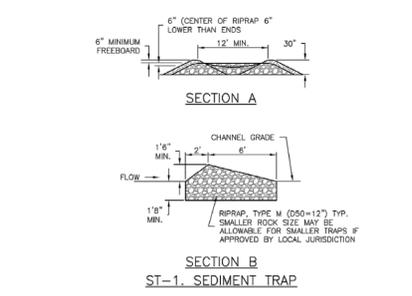
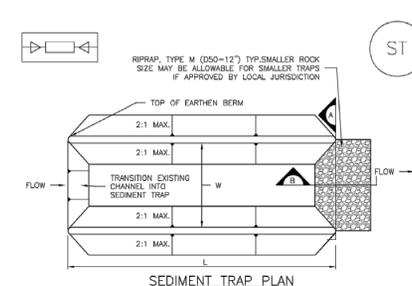
RS-2 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 November 2010

Rock Sock (RS) SC-5

- ROCK SOCK MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.
 - SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS 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 ROCK SOCK.
 - ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
 - WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF ALBUQUERQUE, COLORADO, NOT AVAILABLE IN ALBUQUERQUE)
- 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.
- NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE SOUTHERN METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS. HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

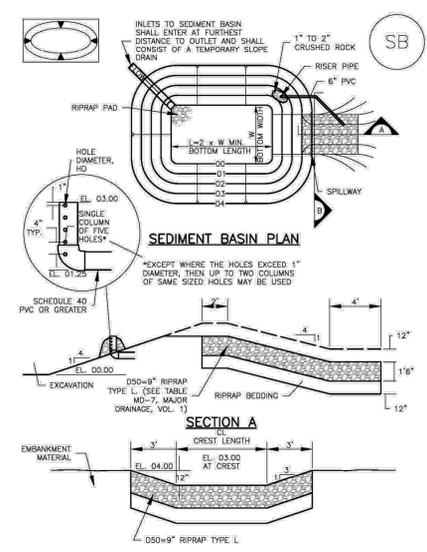
November 2010 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 RS-3

SC-8 Sediment Trap (ST)



ST-2 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 November 2010

Sediment Basin (SB) SC-7



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

SC-7 Sediment Basin (SB)

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (DHD), (ft)
1	12 1/2	2	1/2
2	21	3	3/4
3	28	5	1
4	33 1/2	6	1 1/4
5	38 1/2	8	1 1/2
6	43	9	1 3/4
7	47 1/2	11	1 3/4
8	51	12	1 3/4
9	55	13	1 3/4
10	58 1/2	15	1 3/4
11	61	16	1 3/4
12	64	18	1 3/4
13	67 1/2	19	1 3/4
14	70 1/2	21	1 3/4
15	73 1/2	22	1 3/4

- 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 W, CREST LENGTH CL, AND HOLE DIAMETER, HD. -FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
 - FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
 - SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON OR BAINS AS A STORMWATER CONTROL.
 - EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
 - EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
 - PIPE SOH 40 OR GREATER SHALL BE USED.
 - THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

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 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 IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS. TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (E.I. TWO FEET BELOW THE SPILLWAY CREST).
 - SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
 - WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)
- 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.

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

Sediment Trap (ST) SC-8

- SEDIMENT TRAP INSTALLATION NOTES**
- SEE PLAN VIEW FOR: -LOCATION, LENGTH AND WIDTH OF SEDIMENT TRAP.
 - ONLY USE FOR DRAINAGE AREAS LESS THAN 1 ACRE.
 - SEDIMENT TRAPS SHALL BE INSTALLED PRIOR TO ANY UPGRADED LAND-DISTURBING ACTIVITIES.
 - SEDIMENT TRAP BERM SHALL BE CONSTRUCTED FROM MATERIAL FROM EXCAVATION. THE BERM SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
 - SEDIMENT TRAP OUTLET TO BE CONSTRUCTED OF RIPRAP, TYPE M (D50=12") TYP. SMALLER ROCK SIZE MAY BE ALLOWABLE FOR SMALLER TRAPS IF APPROVED BY LOCAL JURISDICTION.
 - THE TOP OF THE EARTHEN BERM SHALL BE A MINIMUM OF 6" HIGHER THAN THE TOP OF THE RIPRAP OUTLET STRUCTURE.
 - THE ENDS OF THE RIPRAP OUTLET STRUCTURE SHALL BE A MINIMUM OF 6" HIGHER THAN THE CENTER OF THE OUTLET STRUCTURE.
- SEDIMENT TRAP 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.
 - REMOVE SEDIMENT ACCUMULATED IN TRAP AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP. TYPICALLY WHEN THE SEDIMENT DEPTH REACHES 1/2 THE HEIGHT OF THE RIPRAP OUTLET.
 - SEDIMENT TRAPS SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
 - WHEN SEDIMENT TRAPS ARE REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN ALBUQUERQUE)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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

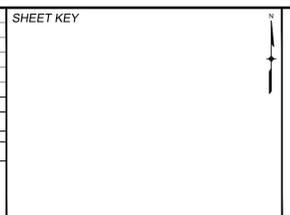


REFERENCE DRAWINGS

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LIBERTY TREE ACADEMY

PREPARED BY:
Matrix DESIGN GROUP
AN EMPLOYEE-OWNED COMPANY

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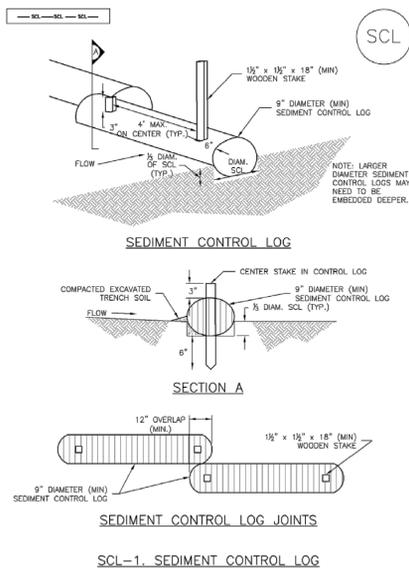
FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 18.995.001

LIBERTY TREE ACADEMY
TOWN OF PEYTON, EL PASO COUNTY
STORMWATER MANAGEMENT PLAN, PCD FILE NO. PPR-18-023

EROSION CONTROL DETAILS

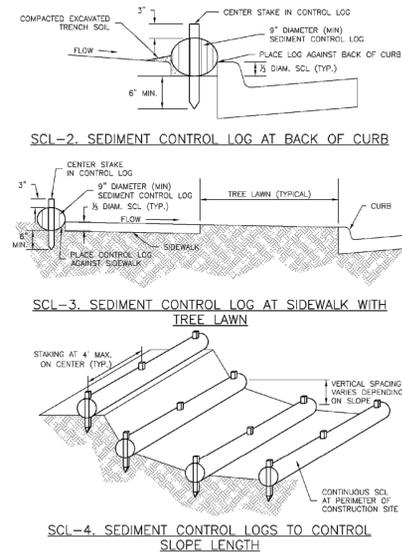
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Sediment Control Log (SCL) SC-2



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

SC-2 Sediment Control Log (SCL)



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

Sediment Control Log (SCL) SC-2

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 UPGRADED LAND-DISTURBING ACTIVITIES.
- SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELISOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NONKICK WEED SEEDS OR OBJECTS 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.
- IF 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 UPHILL 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 8" 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

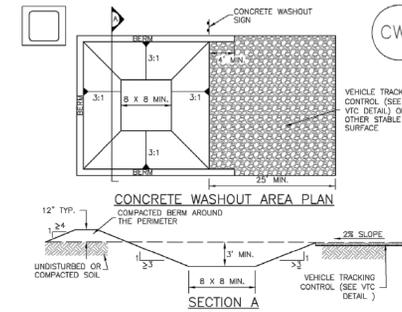
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS 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, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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

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

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

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 1000' 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 (1/8 MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE AREA 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" DEEP IF SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
- BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
- VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP TRUCKS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

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



MM-1 Concrete Washout Area (CWA)

CWA MAINTENANCE NOTES

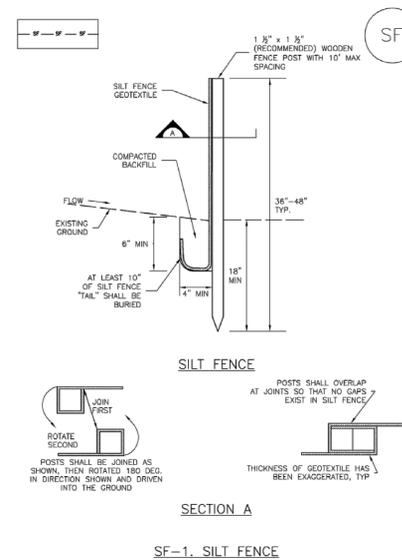
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS 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.

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

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

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

Silt Fence (SF) SC-1



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

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 ROPS, GRADERS, SHOVELS, OR SIMILAR EQUIPMENT SHALL BE USED.
- COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTOR 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 1/3.
- 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, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

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

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

REFERENCE DRAWINGS
X:995 MDG22x34

No.	DATE	DESCRIPTION	BY
REVISIONS			

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SHEET KEY



PREPARED FOR:
LIBERTY TREE ACADEMY

PREPARED BY:
Matrix DESIGN GROUP
AN EMPLOYEE-OWNED COMPANY

SEAL

FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 18.995.001

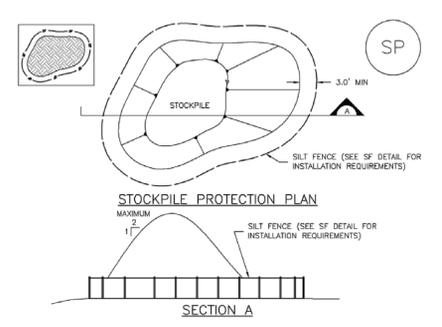
LIBERTY TREE ACADEMY
TOWN OF PEYTON, EL PASO COUNTY
STORMWATER MANAGEMENT PLAN, PCD FILE NO. PPR-18-023

EROSION CONTROL DETAILS

DESIGNED BY:	ACR	SCALE:	DATE ISSUED:	AUGUST 2018	DRAWING No.
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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 IMPVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
- STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS OR SOIL BRIDGES. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
- FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNDRIFT CONTROL INCLUDING PERIMETER CONTROL ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

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

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

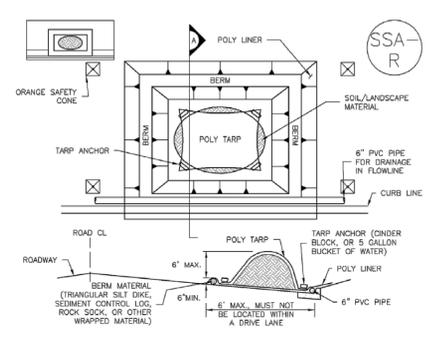
- IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
- STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUSTRO)

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.

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

Stockpile Management (SP) MM-2



MATERIALS STAGING IN ROADWAYS INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF MATERIAL STAGING AREA(S).
 - CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
- FEATURES MUST BE INSTALLED PRIOR TO EXCAVATION, EARTHWORK OR DELIVERY OF MATERIALS.
- MATERIALS MUST BE STATIONED ON THE POLY LINER. ANY INCIDENTAL MATERIALS DEPOSITED ON PAVED SECTION OR ALONG CURB LINE MUST BE CLEANED UP PROMPTLY.
- POLY LINER AND TARP COVER SHOULD BE OF SIGNIFICANT THICKNESS TO PREVENT DAMAGE OR LOSS OF INTEGRITY.
- SAND BAGS MAY BE SUBSTITUTED TO ANCHOR THE COVER TARP OR PROVIDE BERMING UNDER THE BASE LINER.
- FEATURE IS NOT INTENDED FOR USE WITH WET MATERIAL THAT WILL BE DRAINING AND/OR SPREADING OUT ON THE POLY LINER OR FOR EROSION MATERIALS.
- THIS FEATURE CAN BE USED FOR:
 - UTILITY REPAIRS.
 - WHEN OTHER STAGING LOCATIONS AND OPTIONS ARE LIMITED.
 - OTHER LIMITED APPLICATION AND SHORT DURATION STAGING.

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

MM-2 Stockpile Management (SM)

MATERIALS STAGING IN ROADWAY MAINTENANCE NOTES

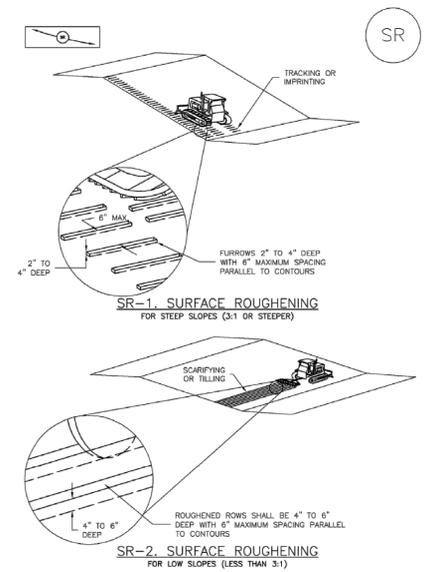
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS 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.
- INSPECT PVC PIPE ALONG CURB LINE FOR CLOGGING AND DEBRIS. REMOVE OBSTRUCTIONS PROMPTLY.
- CLEAN MATERIAL FROM PAVED SURFACES BY SWEEPING OR VACUUMING.

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

(DETAILS ADAPTED FROM AURORA, COLORADO)

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

Surface Roughening (SR) EC-1



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

EC-1 Surface Roughening (SR)

SURFACE ROUGHENING INSTALLATION NOTES

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

SURFACE ROUGHENING MAINTENANCE NOTES

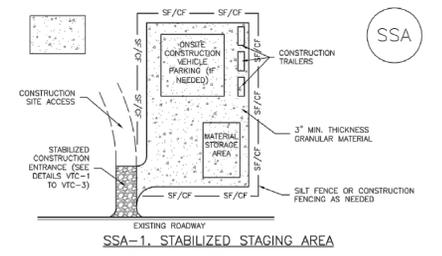
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACE UPON DISCOVERY OF THE FAILURE.
- VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
- IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.
- IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER RILL EROSION.

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

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.

SR-4 Urban Drainage and Flood Control District November 2010
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Stabilized Staging Area (SSA) SM-6



STABILIZED STAGING AREA INSTALLATION NOTES

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

STABILIZED STAGING AREA MAINTENANCE NOTES

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

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

SM-6 Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

- STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
- THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE 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 UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM BOULDER COUNTY, COLORADO, NOT AVAILABLE IN AUSTRO)

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

REFERENCE DRAWINGS

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SHEET KEY



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PROJECT No. 18.995.001

LIBERTY TREE ACADEMY

TOWN OF PEYTON, EL PASO COUNTY
STORMWATER MANAGEMENT PLAN, PCD FILE NO. PPR-18-023

EROSION CONTROL DETAILS

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