

Site Coordinates (Lat/Long): 38.76473, -104.61765
Address: 11295 Bradley Rd, El Paso County, CO

Rolling Meadows Substation
Construction of a New Electrical Substation
including Grading, Drainage, and Surface Improvements
El Paso County, Colorado

PCD FILE NO. PPR 2619

Construction Plans prepared in cooperation with:



OWNER'S STATEMENT:

I, the owner/developer have read and will comply with the requirements of the grading and erosion control plan.

Alfred L. Ray

H. Steven Gray, Vice President
Tri-State Generation and Transmission Association, Inc.
1100 W. 116th Ave, Westminster, CO 80234

8/31/2025

Date _____

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. sod 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.

Dana Schult

David Schieldt, P.E. #47195

04-27-2026
Date

Date _____

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 construction of the project. The project shall be filed in accordance with the requirements of the El Paso County Land Development Code, Drainage Criteria Manual Volumes 1 and 2, and Engineering Criteria Manual, as amended.

In accordance with EDCM Section 112, 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 commenced within the 2-year period, the County Engineer will be required to conduct a review review fees at the Planning and Community Development Director's discretion.

Joshua J. Palmer, P.E.
County Engineer Signature/ECM Administrator

Oct

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S1183-A-01-002	CONSTRUCTION NOTES
S1183-A-01-003	EXISTING CONDITIONS
S1183-A-01-004	SITE LAYOUT
S1183-A-01-005	GRADING PLAN
S1183-A-01-006	SUBDRAIN PLANS
S1183-A-01-007	EDB-1 GRADING
S1183-A-01-008	LEVEL SPREADER PLAN
S1183-A-01-009	CIVIL DETAILS
S1183-A-01-010	DRAINAGE DETAILS
S1183-A-01-011	OUTLET STRUCTURE DETAILS
S1183-A-01-012	EROSION CONTROL PLAN
S1183-A-01-013	EROSION CONTROL DETAILS
S1183-A-01-014	EROSION CONTROL DETAILS

COORDINATE SYSTEM: Colorado State Plane Central Zone
SCALE FACTOR: 1.0003223877
VERTICAL DATUM = NAVD88
HORIZONTAL DATUM = NAD 83

NOTE:
ORIGINAL SITE COORDINATES HAVE BEEN ADJUSTED FROM GRID TO GROUND.

A HORIZONTAL ADJUSTMENT WAS MADE BY APPLYING A GROUND SCALE FACTOR OF 1.0003223877, WHICH IS EQUIVALENT TO A NORTHING OFFSET OF 432,070', AND AN EASTING OFFSET OF 1047,946'.

A VERTICAL ADJUSTMENT OF +3.353' WAS APPLIED TO CONVERT VERTICAL DATUM FROM NGVD29.

ROLLING MEADOWS SUBSTATION

115/12.47KV
COVER CLEFT

TRI-STATE GENERATION & TRANSMISSION

ASSOCIATION, INCORPORATED

TRI-STATE

Generation and Transmission
Association, Inc.

116th Ave.
Box 33695

er, Colorado 80233
303-452-6111

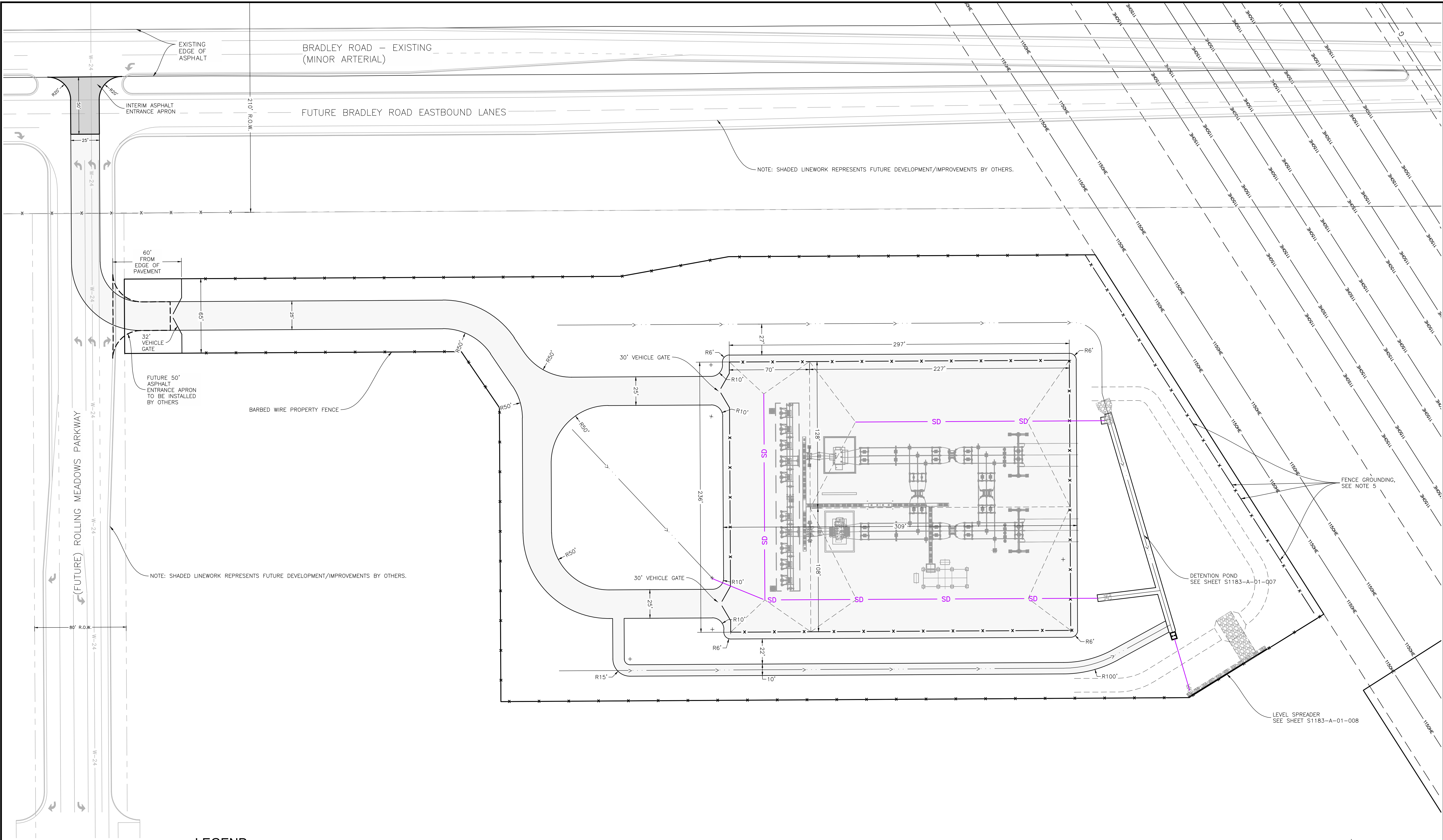
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 DME

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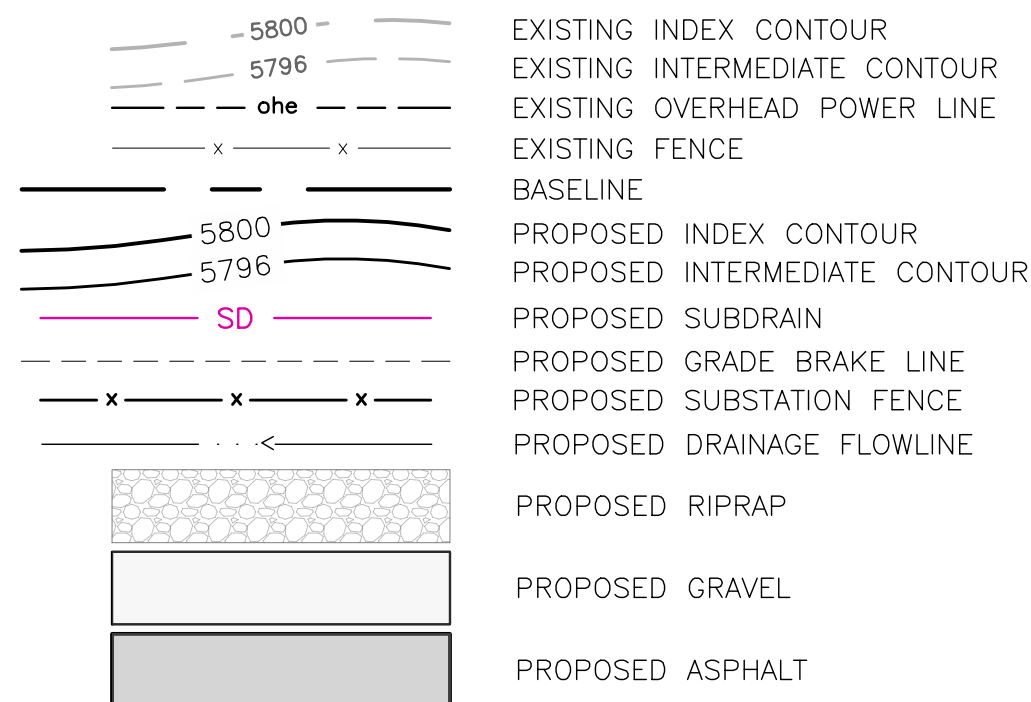
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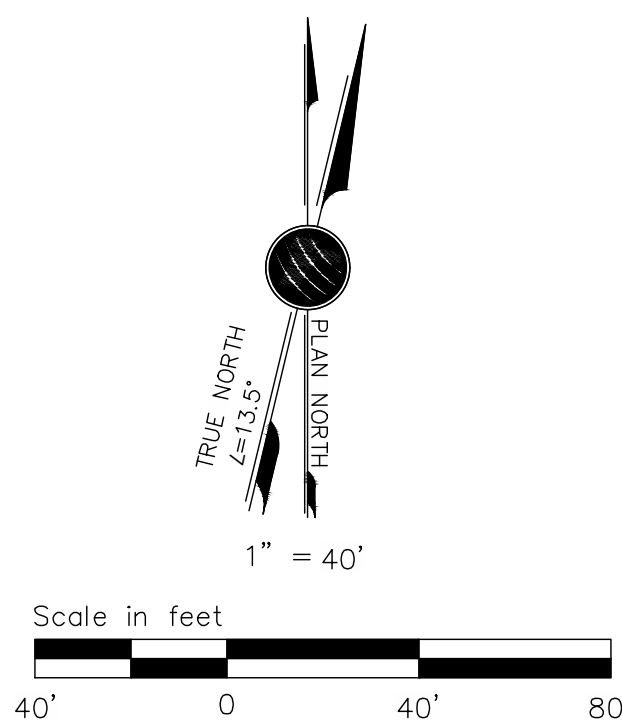


LEGEND



NOTE:

- THE HORIZONTAL LOCATION FOR THE CONTROL POINT AT THE INTERSECTION OF THE TWO BASELINES IS FIXED. LOCATIONS FOR OTHER CONTROL POINTS MAY BE ADJUSTED ALONG THE BASELINE AS NECESSARY TO PROVIDE FOR CLEAR LINES OF SIGHT AROUND EXISTING VEGETATION TO REMAIN.
- SURVEYOR SHALL SET THE CONTROL POINTS OUTSIDE THE SUBSTATION SECURITY FENCE IN-THE-FIELD, AND REPORT THE COORDINATES AND ELEVATIONS TO THE OWNER'S AUTHORIZED TECHNICAL REPRESENTATIVE (OATR).
- COORDINATE SYSTEM: COLORADO STATE PLANE CENTRAL ZONE
SCALE FACTOR = 1.0003223877
VERTICAL DATUM = NAVD88
HORIZONTAL DATUM = NAD 83
- SHADED LINEWORK REPRESENTS FUTURE DEVELOPMENT BY OTHERS.
- GROUND SUBSTATION FENCE 20' FROM OUTER OVERHEAD TRANSMISSION LINES, (4) LOCATIONS



ROLLING MEADOWS SUBSTATION
115/12.47KV
SITE LAYOUT

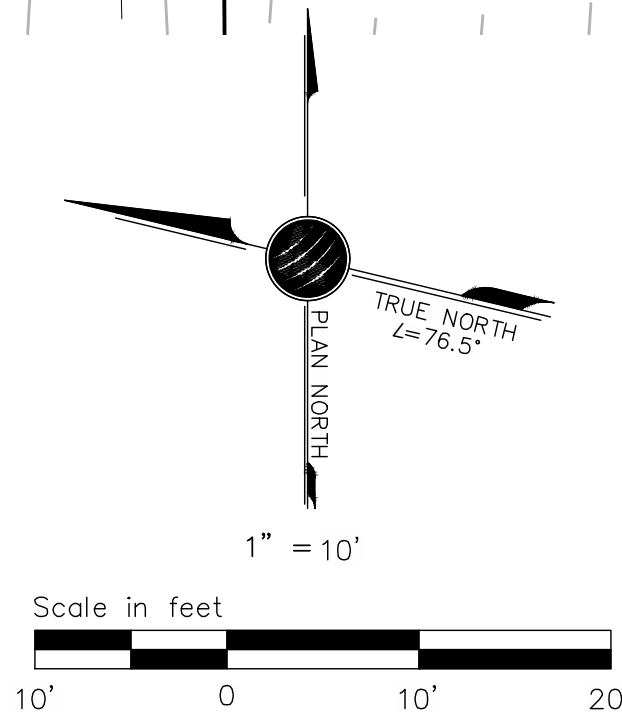
TRI-STATE GENERATION & TRANSMISSION
ASSOCIATION, INCORPORATED
1100 W. 116th Ave.
P.O. Box 33695
Denver, Colorado 80233
303-452-6111

TRI-STATE
Generation and Transmission
Association, Inc.
A Touchstone Energy Cooperative

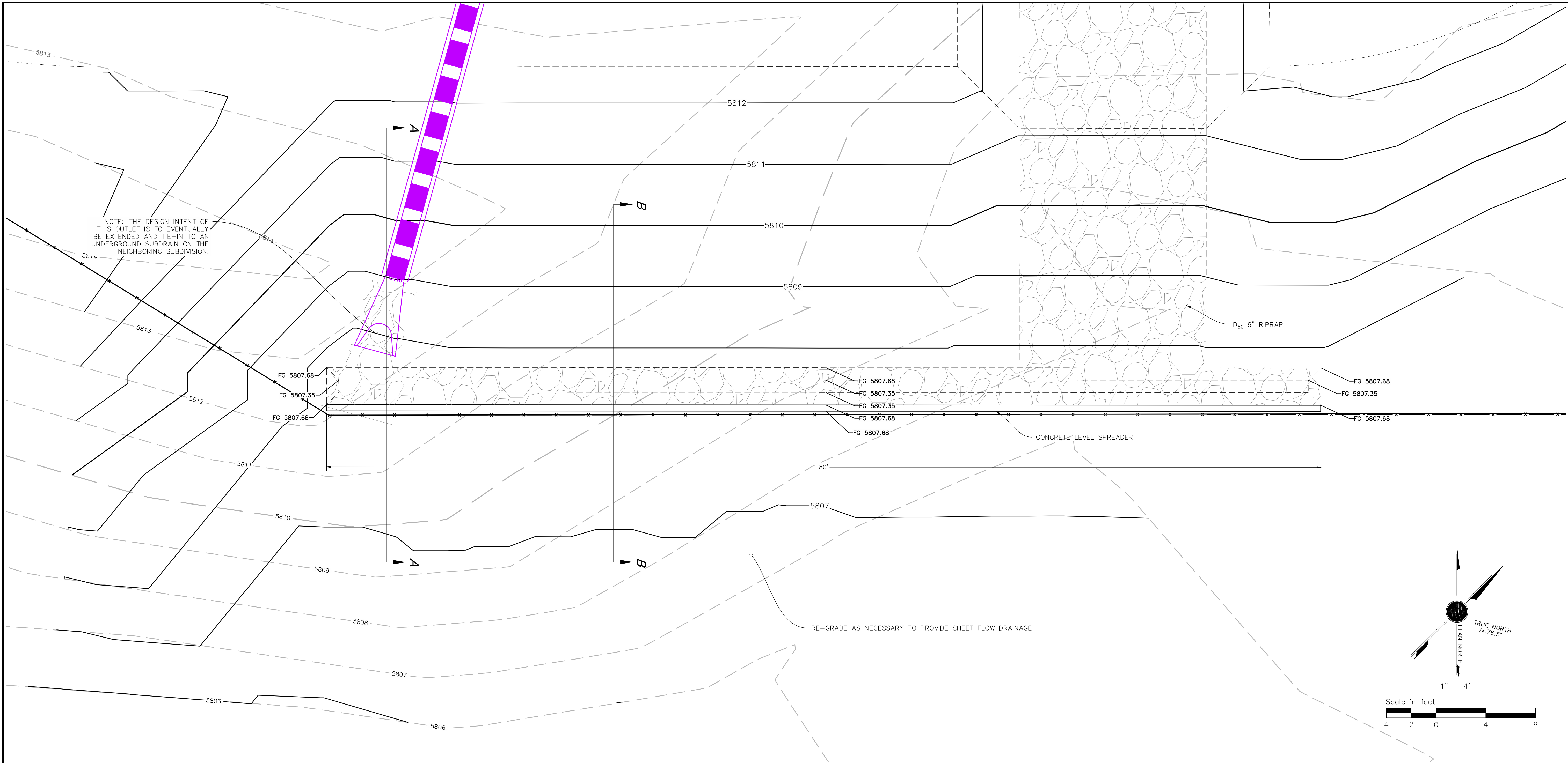
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Appd: DWS Date: 08/28/26

S1183-A-01-004

Revision		M.F.	
No.	Date	Dwn.	Appd.
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5			
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Reference Drawings		Drawing Title	
Dwg. No.	Mfr.		



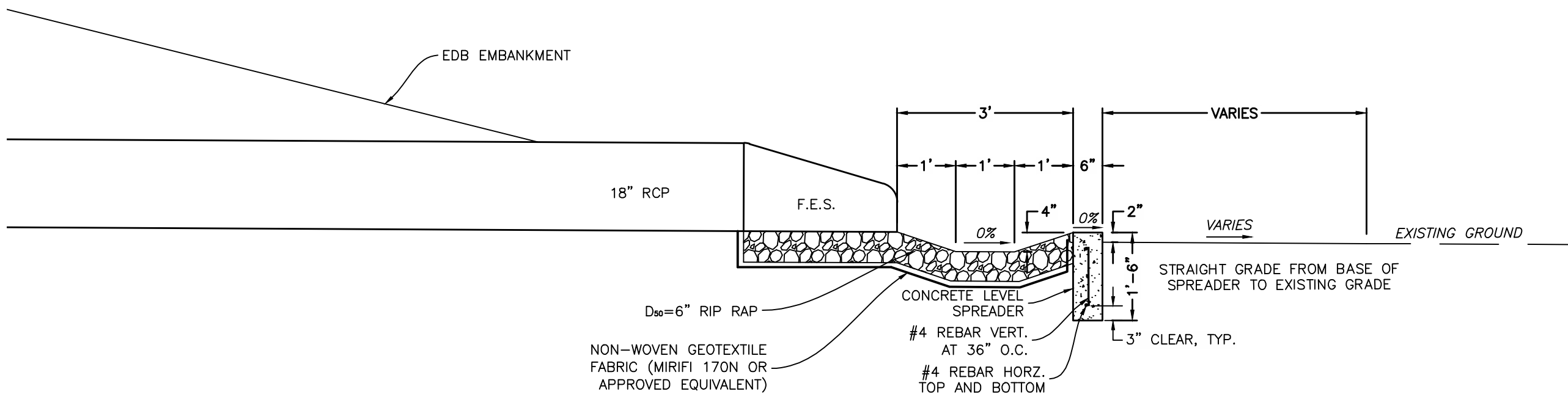
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Dwn. TMC	Date 05/28/26			6			
Appd. DWS	Date 08/28/26			5			
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1100 W. 116th Ave. P.O. Box 33695 Denver, Colorado 80233 303-452-6111		TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INCORPORATED					
UPDATED BY: WLDGATE 8/27/2026 4:43 PM		Contract: 4713		No.	Date	Dwn.	Appd.
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				M.F.			
				Dwg. No.		Mfr.	Drawing Title
				Reference Drawings			



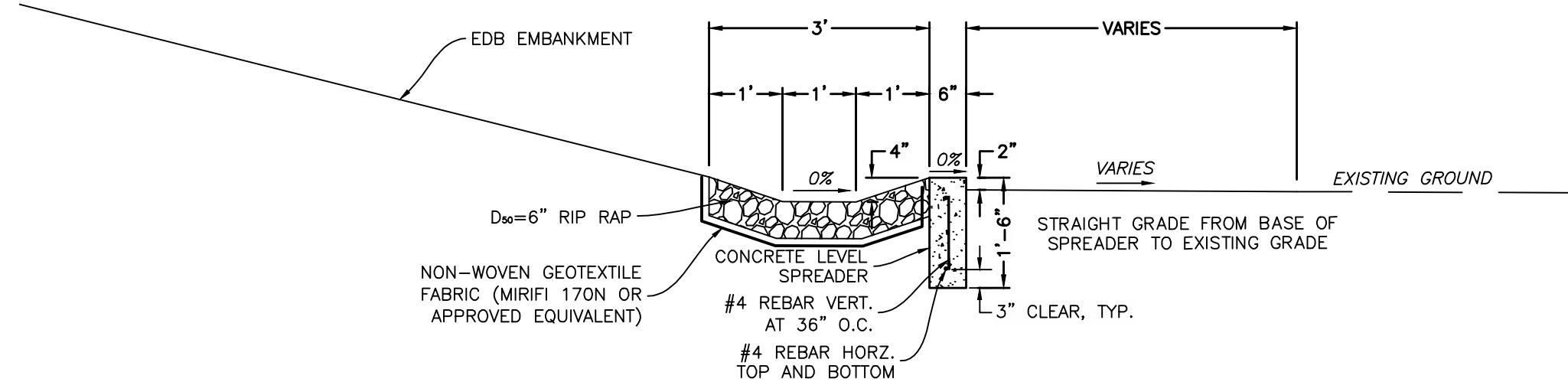
LEGEND

- 5800 - EXISTING INDEX CONTOUR
- 5796 - EXISTING INTERMEDIATE CONTOUR
- oh - EXISTING OVERHEAD POWER LINE
- x - x - EXISTING FENCE
- BASELINE
- 5800 - PROPOSED INDEX CONTOUR
- 5796 - PROPOSED INTERMEDIATE CONTOUR
- SD - PROPOSED SUBDRAIN
- - - PROPOSED GRADE BRAKE LINE
- - - PROPOSED SUBSTATION FENCE
- - - PROPOSED DRAINAGE FLOWLINE
- PROPOSED RIPRAP

- NOTE:
- THE HORIZONTAL LOCATION FOR THE CONTROL POINT AT THE INTERSECTION OF THE TWO BASELINES IS FIXED. LOCATIONS FOR OTHER CONTROL POINTS MAY BE ADJUSTED ALONG THE BASELINE AS NECESSARY TO PROVIDE FOR CLEAR LINES OF SIGHT AROUND EXISTING VEGETATION TO REMAIN.
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 - COORDINATE SYSTEM: COLORADO STATE PLANE CENTRAL ZONE
SCALE FACTOR = 1.0003223877
VERTICAL DATUM = NAVD83
HORIZONTAL DATUM = NAD 83



SECTION A-A
CONCRETE LEVEL SPREADER SECTION
N.T.S.



SECTION B-B
CONCRETE LEVEL SPREADER SECTION
N.T.S.

ROLLING MEADOWS SUBSTATION 115/12.47KV LEVEL SPREADER PLAN		TRI-STATE Generation and Transmission Association, Inc. 1100 W. 116th Ave. P.O. Box 33695 Denver, Colorado 80233 303-452-6111		PATH: \\QMS1\Projects\Active Projects\2024\2028-1552 Rolling Meadows Substation\Facility Civil\Sheets\51183-A-01-SHEETS.dwg	
115/12.47KV LEVEL SPREADER PLAN		TRI-STATE Generation and Transmission Association, Incorporated		UPDATED BY: WLDGATE	
115/12.47KV LEVEL SPREADER PLAN		TRI-STATE Generation and Transmission Association, Incorporated		8/27/2026 4:43 PM	
115/12.47KV LEVEL SPREADER PLAN		TRI-STATE Generation and Transmission Association, Incorporated		Contract: 4713	
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115/12.47KV LEVEL SPREADER PLAN		TRI-STATE Generation and Transmission Association, Incorporated		Date	
115/12.47KV LEVEL SPREADER PLAN		TRI-STATE Generation and Transmission Association, Incorporated		Dwn.	
115/12.47KV LEVEL SPREADER PLAN		TRI-STATE Generation and Transmission Association, Incorporated		Appd.	
115/12.47KV LEVEL SPREADER PLAN		TRI-STATE Generation and Transmission Association, Incorporated		Revision	
115/12.47KV LEVEL SPREADER PLAN		TRI-STATE Generation and Transmission Association, Incorporated		M.F.	
115/12.47KV LEVEL SPREADER PLAN		TRI-STATE Generation and Transmission Association, Incorporated		Dwg. No.	
115/12.47KV LEVEL SPREADER PLAN		TRI-STATE Generation and Transmission Association, Incorporated		Mfr.	
115/12.47KV LEVEL SPREADER PLAN		TRI-STATE Generation and Transmission Association, Incorporated		Drawing Title	

51183-A-01-008

08/28/26

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DWS

51183-A-01-008

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DWS

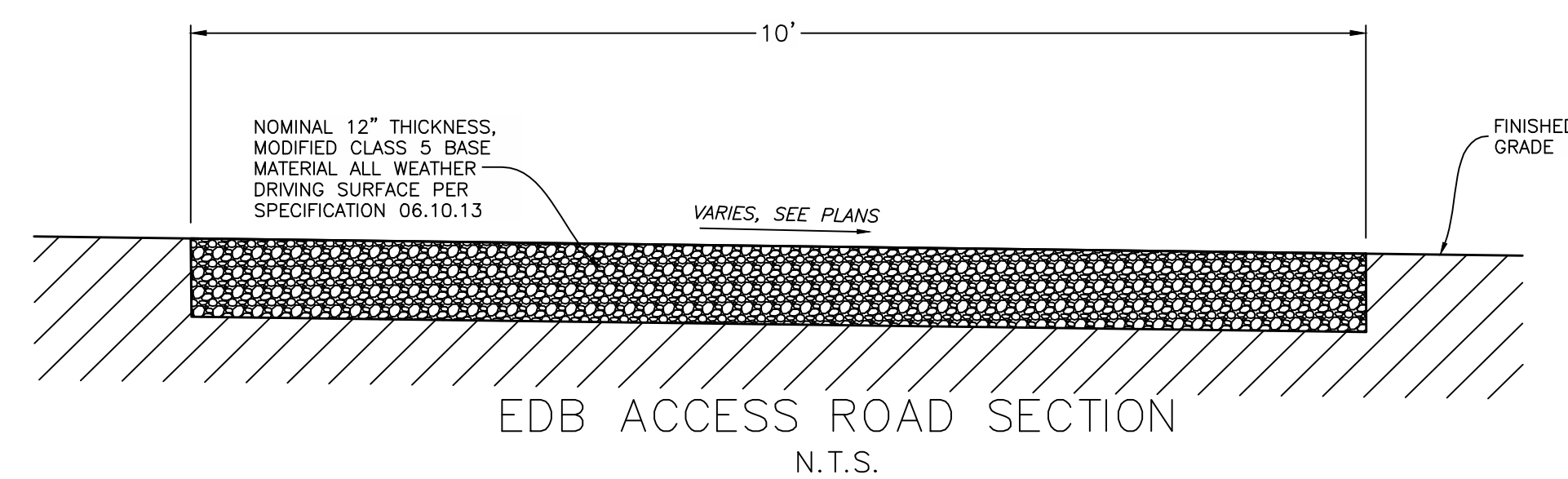
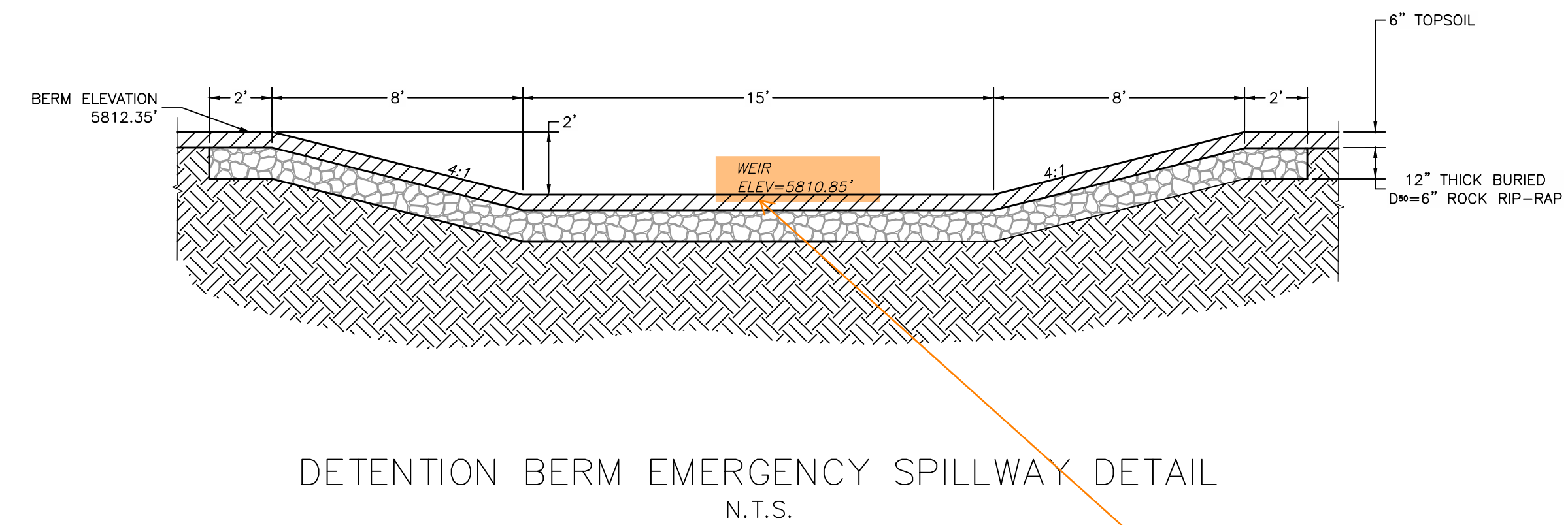
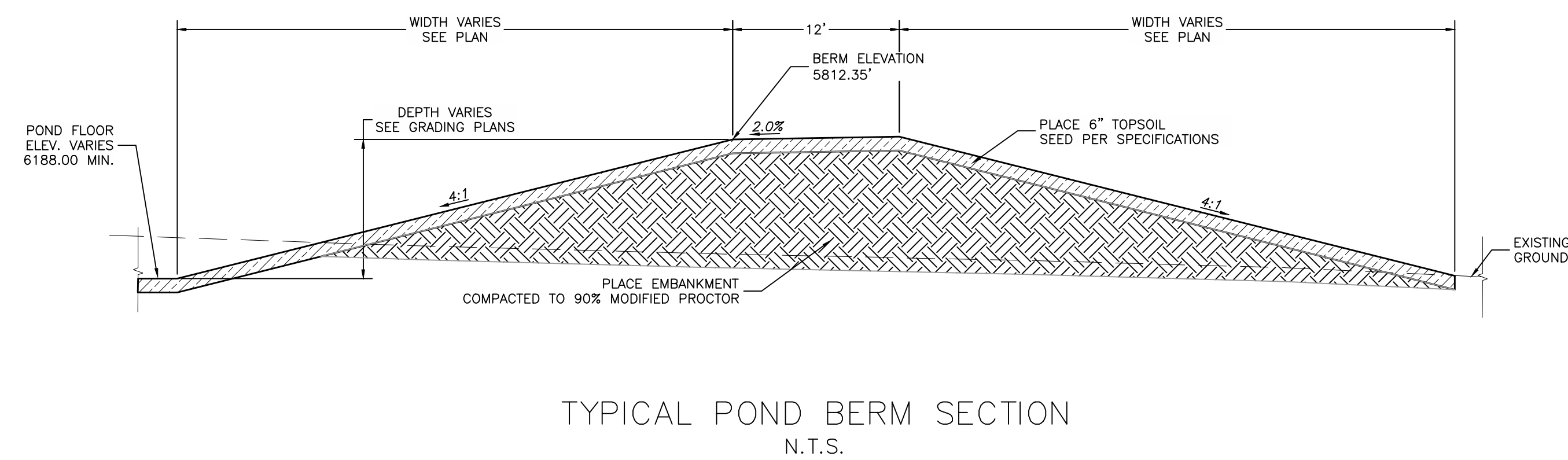
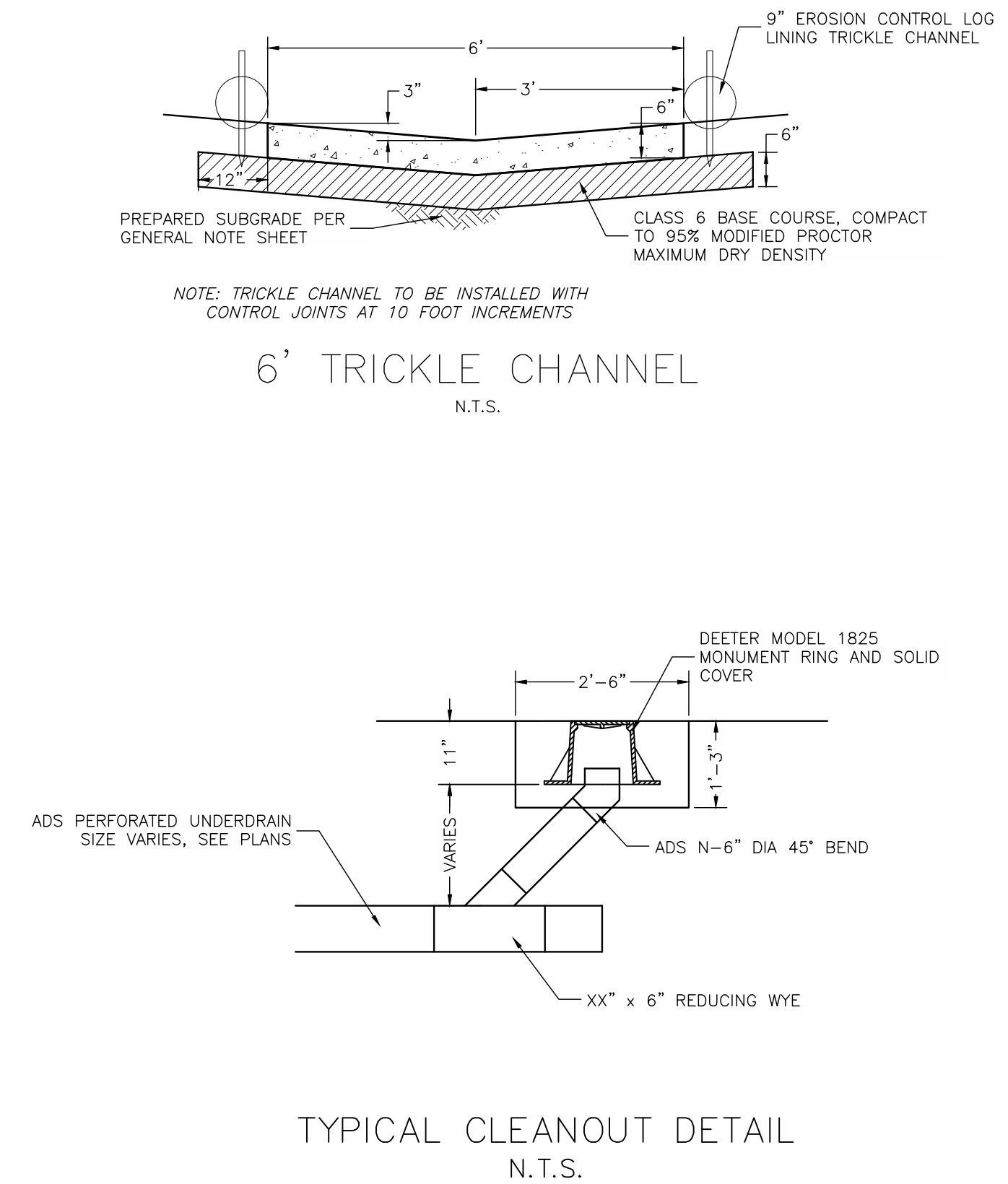
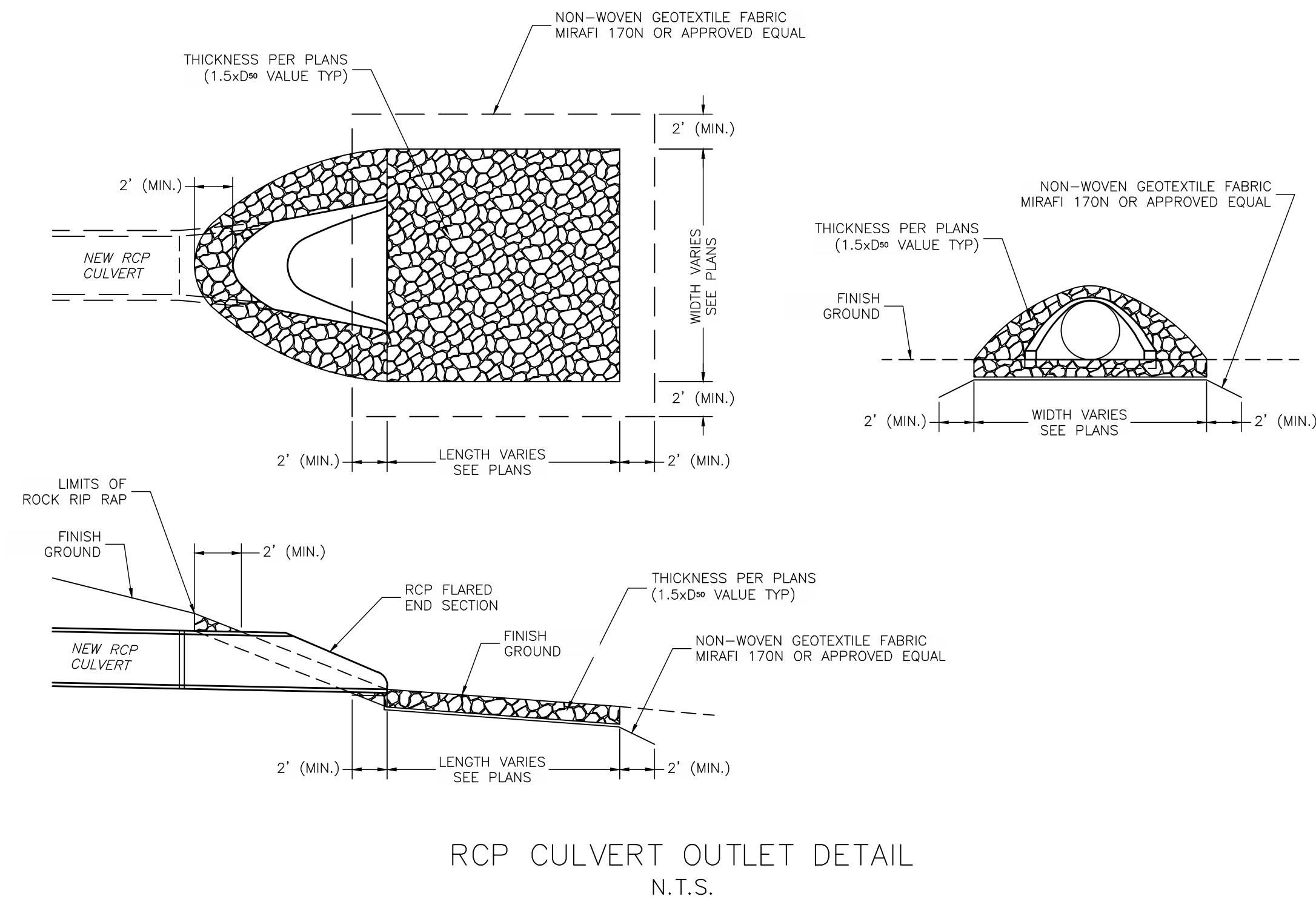
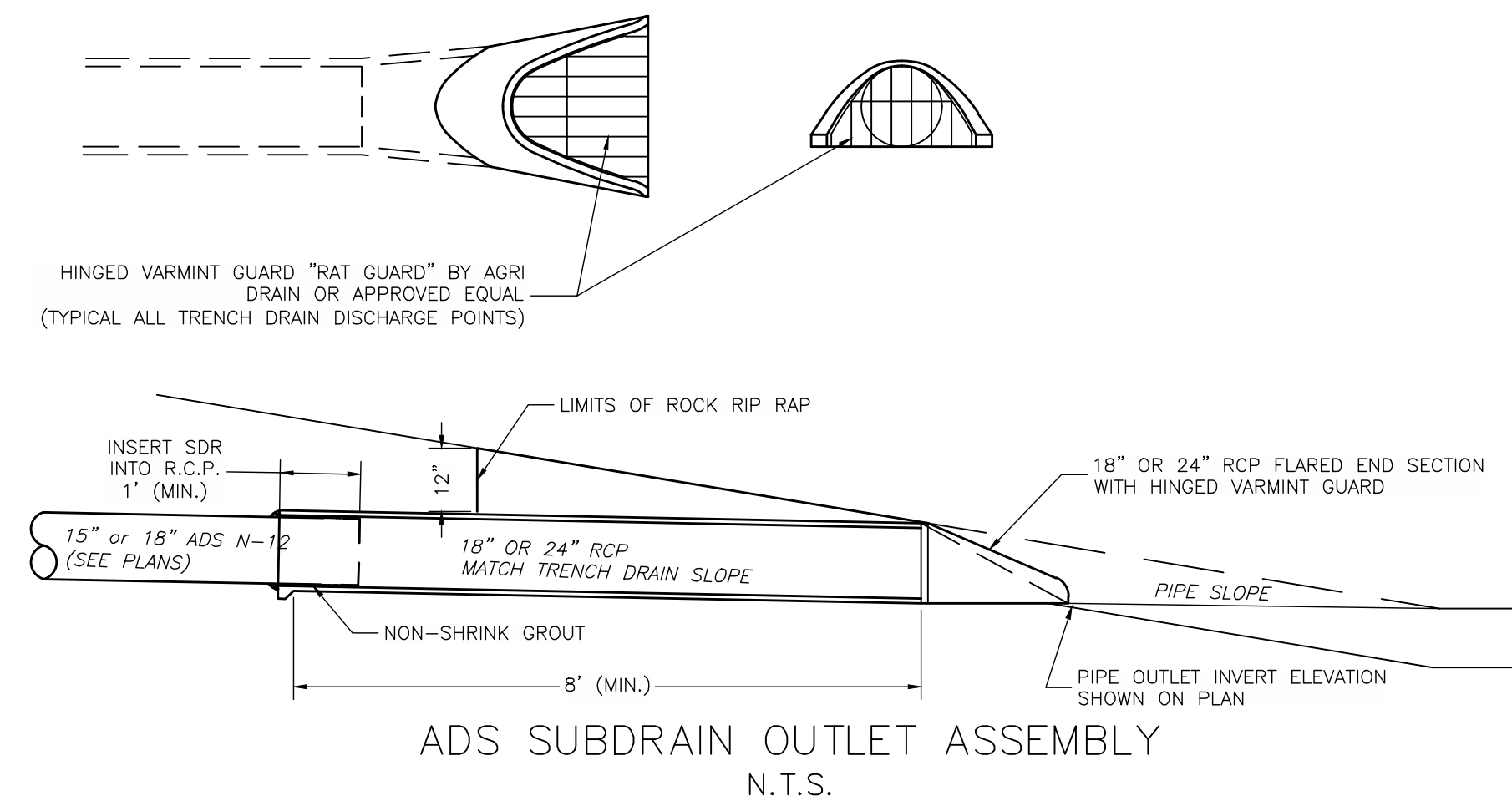


PIPE, AGGREGATE, & FABRIC INSTALLATION NOTES:

1. LAY FABRIC IN TRENCH PRIOR TO PLACEMENT OF AGGREGATE.
2. INSTALL PERFORATED PIPE TO DESIGN GRADES WITH PERFORATIONS PER DETAIL.
3. BACKFILL TO DESIGN SURFACE GRADES AND ELEVATIONS WITH 1/2" CRUSHED AGGREGATE PER SPECIFICATIONS.

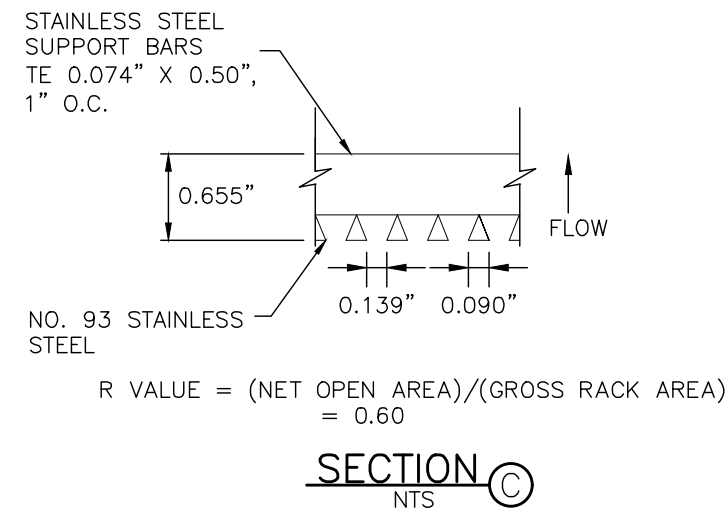
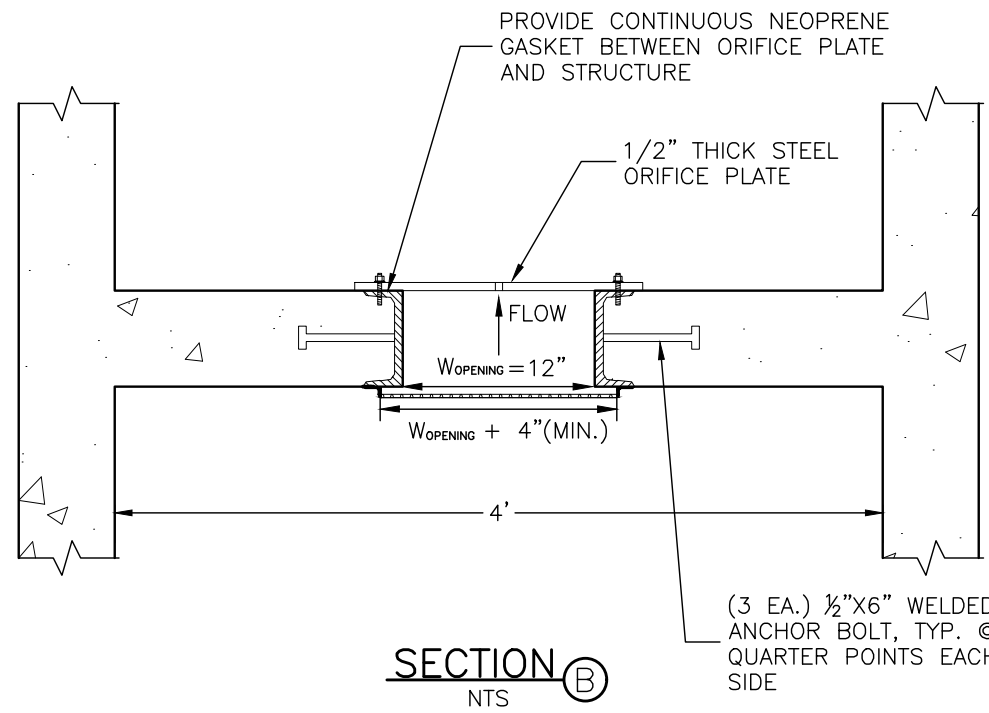


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Appd. DWS	Date: 08/28/26			5				
1100 W. 116th Ave. P.O. Box 33695 Denver, Colorado 80233 303-452-6111		TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INCORPORATED		4				
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								Reference Drawings
								Drawing Title



Per calcs this should be 5811.1. The calcs show the spillway invert at 3.08 ft from stage = 0 (3808.02).

[illegible]



ORIFICE PLATE NOTES:

1. PROVIDE CONTINUOUS NEOPRENE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE. THE GASKET SHALL BE MADE OF 1/4-INCH THICK, 60 DUROMETER EPDM RUBBER IN A CONTINUOUS SHEET THE SIZE OF THE ORIFICE PLATE. THE SHEET SHALL BE PLACED BETWEEN THE ORIFICE PLATE AND THE CONCRETE WALL, WITH THE WIDTH OF THE OVERLAP BETWEEN THE PLATE AND THE CONCRETE. OPENINGS SHALL BE CUT INTO THE SHEET CORRESPONDING TO THE PLATE BOLT HOLES AND THE CONCRETE WALL OPENING. CUTS MADE EITHER BY THE CONTRACTOR IN THE FIELD OR BY THE MANUFACTURER, OR EQUIVALENT GASKET APPROVED BY EPC. NOTE THAT CAULK IS NOT AN APPROVED EQUIVALENT AND WILL NOT BE ACCEPTED BY EPC.
2. BOLT PLATE TO CONCRETE 12" MAX. ON CENTER.

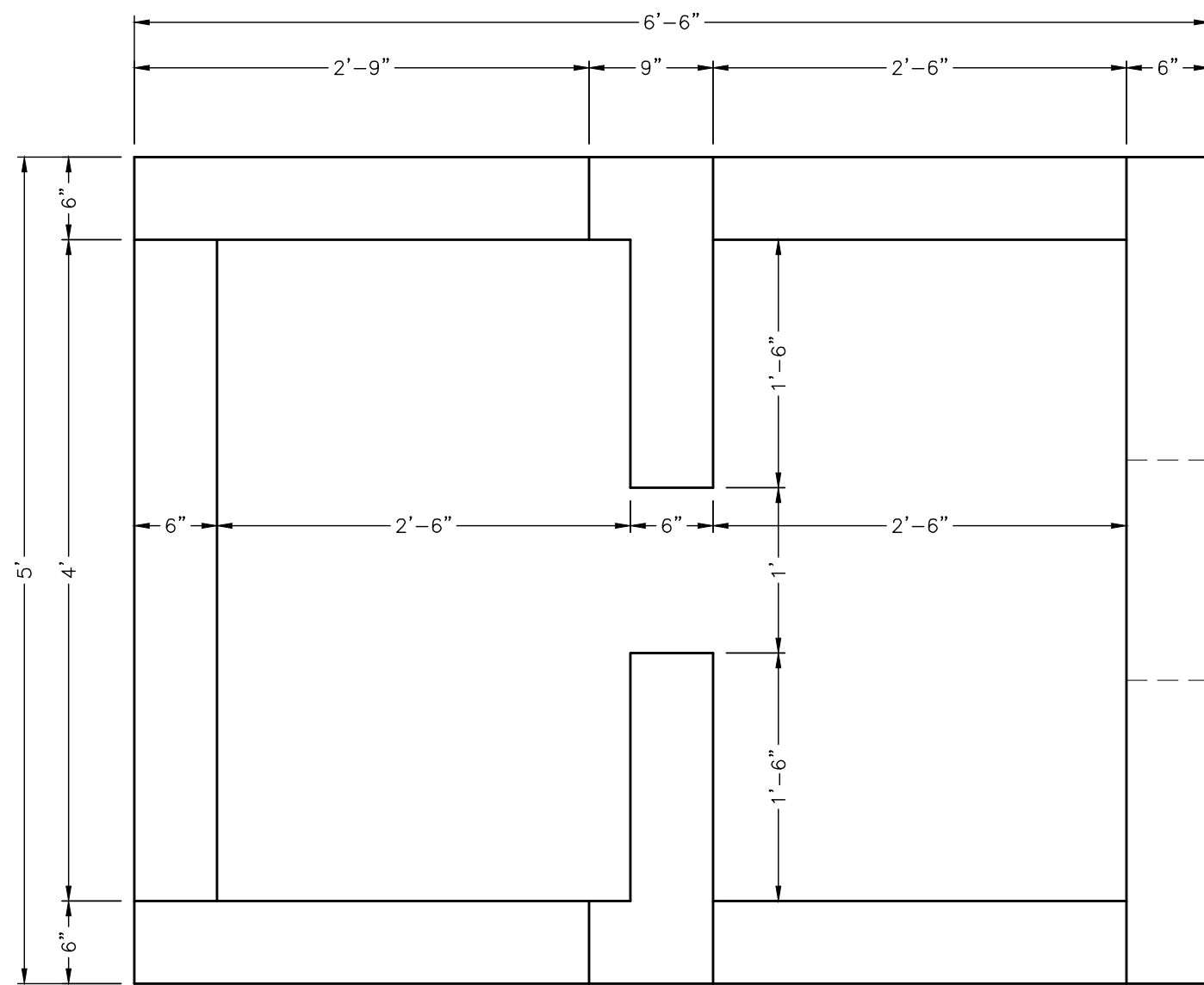
WQCV TRASH RACKS:

1. WELL-SCREEN TRASH RACKS SHALL BE STAINLESS STEEL AND SHALL BE ATTACHED BY INTERMITTENT WELDS ALONG THE EDGE OF THE MOUNTING FRAME.
2. TRASH RACK OPEN AREAS ARE FOR SPECIFIED TRASH RACK MATERIALS. TOTAL TRASH RACK SIZE MAY NEED TO BE ADJUSTED FOR MATERIALS HAVING DIFFERENT OPEN AREA/GROSS AREA RATIO (R VALUE).
3. STRUCTURAL DESIGN OF TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK.

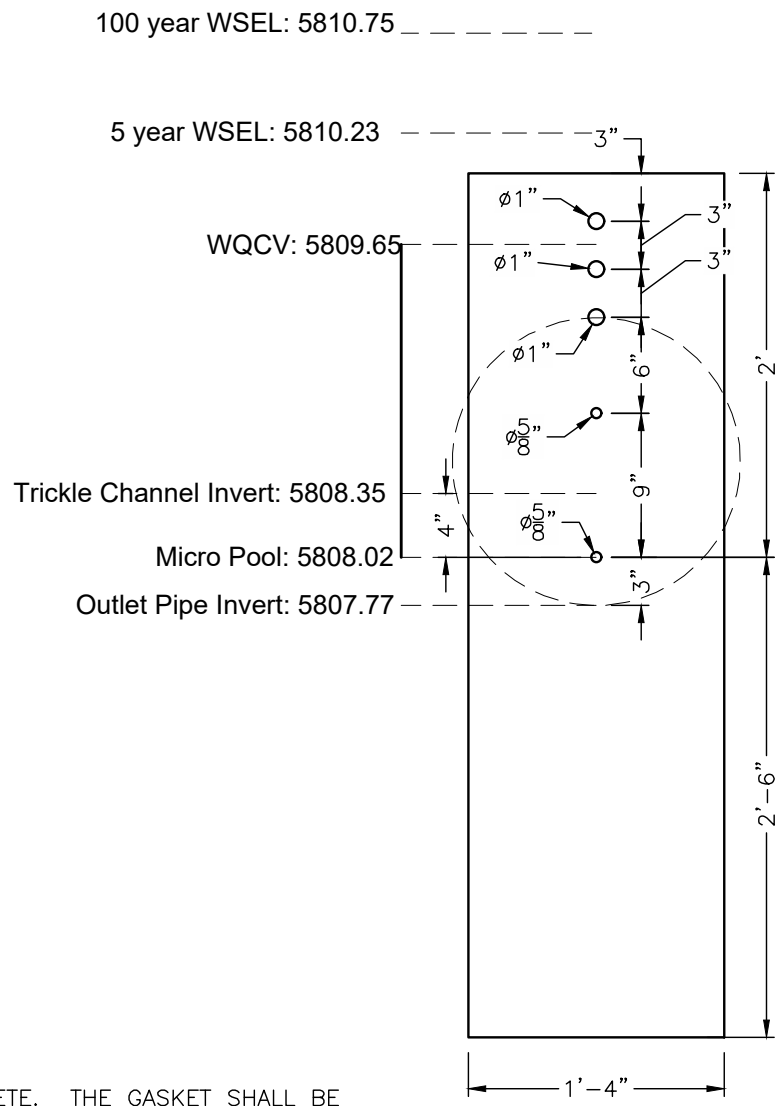
OVERFLOW SAFETY GRATES:

1. ALL SAFETY GRATES SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE OR BOLTABLE ACCESS PANELS.
2. SAFETY GRATES SHALL BE STAINLESS STEEL, ALUMINUM, OR STEEL. STEEL GRATES SHALL BE HOT DIP GALVANIZED AND MAY BE HOT POWDER COATED AFTER GALVANIZING.
3. SAFETY GRATES SHALL BE DESIGNED SUCH THAT THE DIAGONAL DIMENSION OF EACH OPENING IS SMALLER THAN THE DIAMETER OF THE OUTLET PIPE.
4. STRUCTURAL DESIGN OF SAFETY GRATES SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK.

ORIFICE PLATE AND TRASH RACK
DETAILS AND NOTES

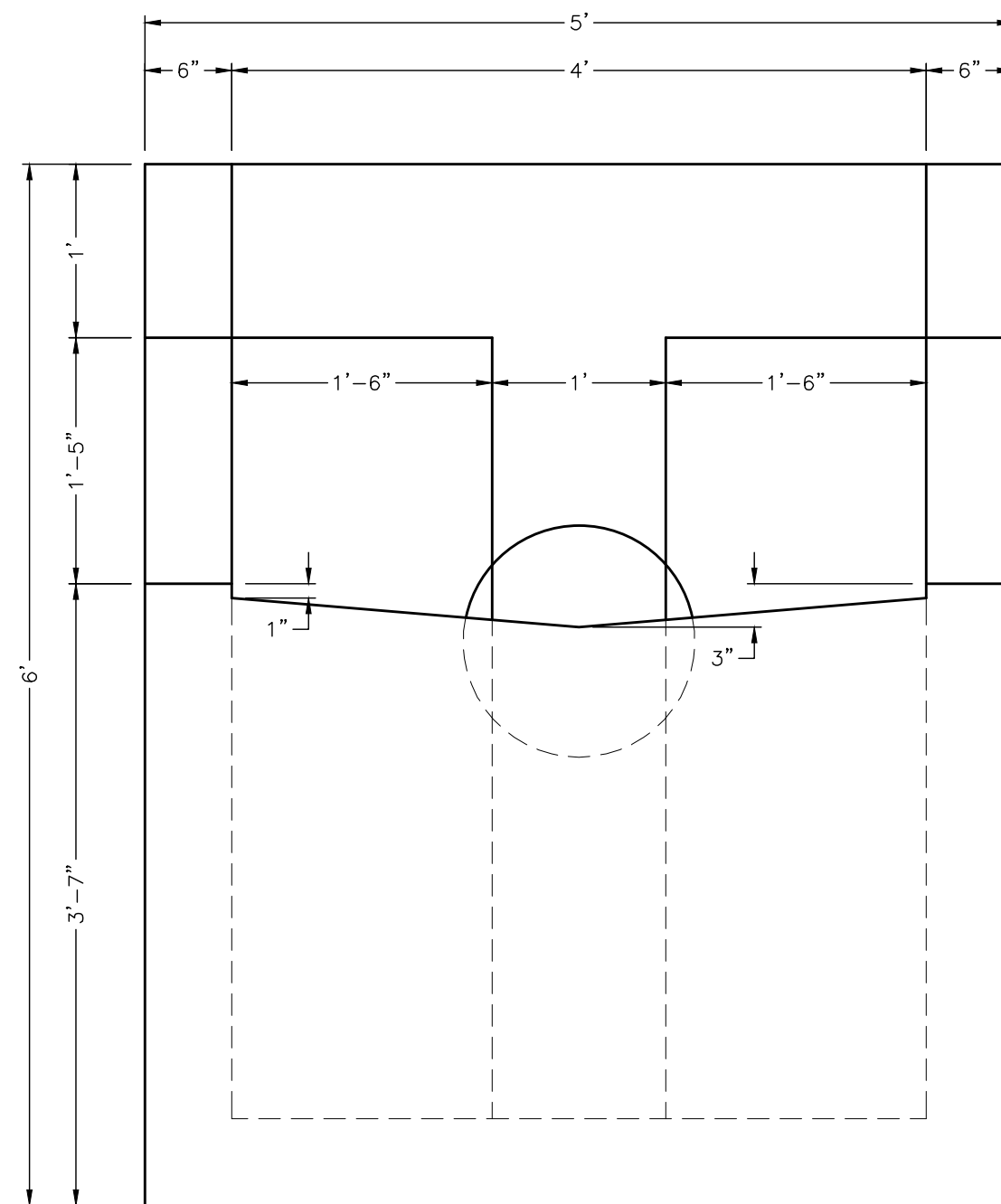


CONCRETE OUTLET STRUCTURE
TOP VIEW
N.T.S.

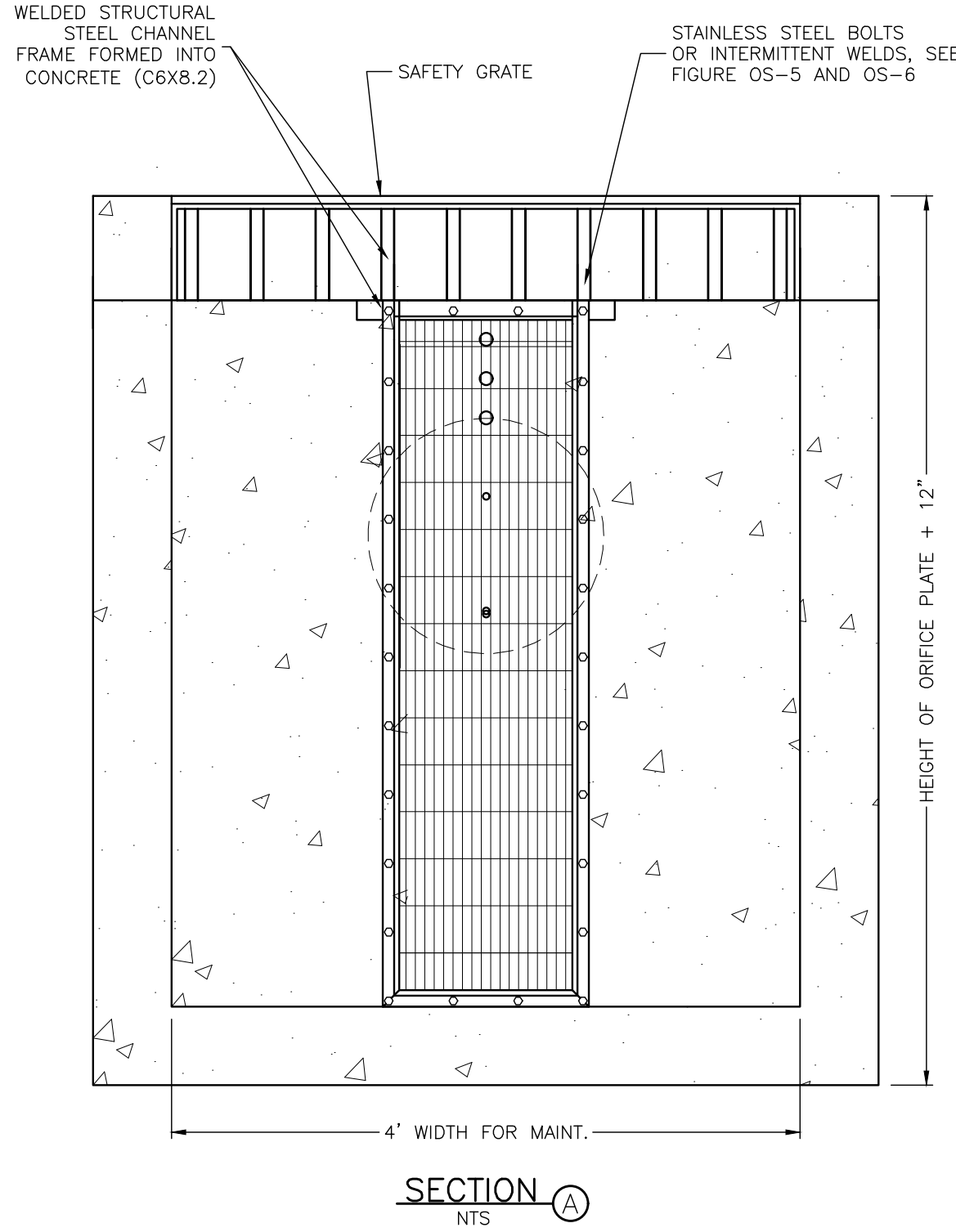


ORIFICE PLATE

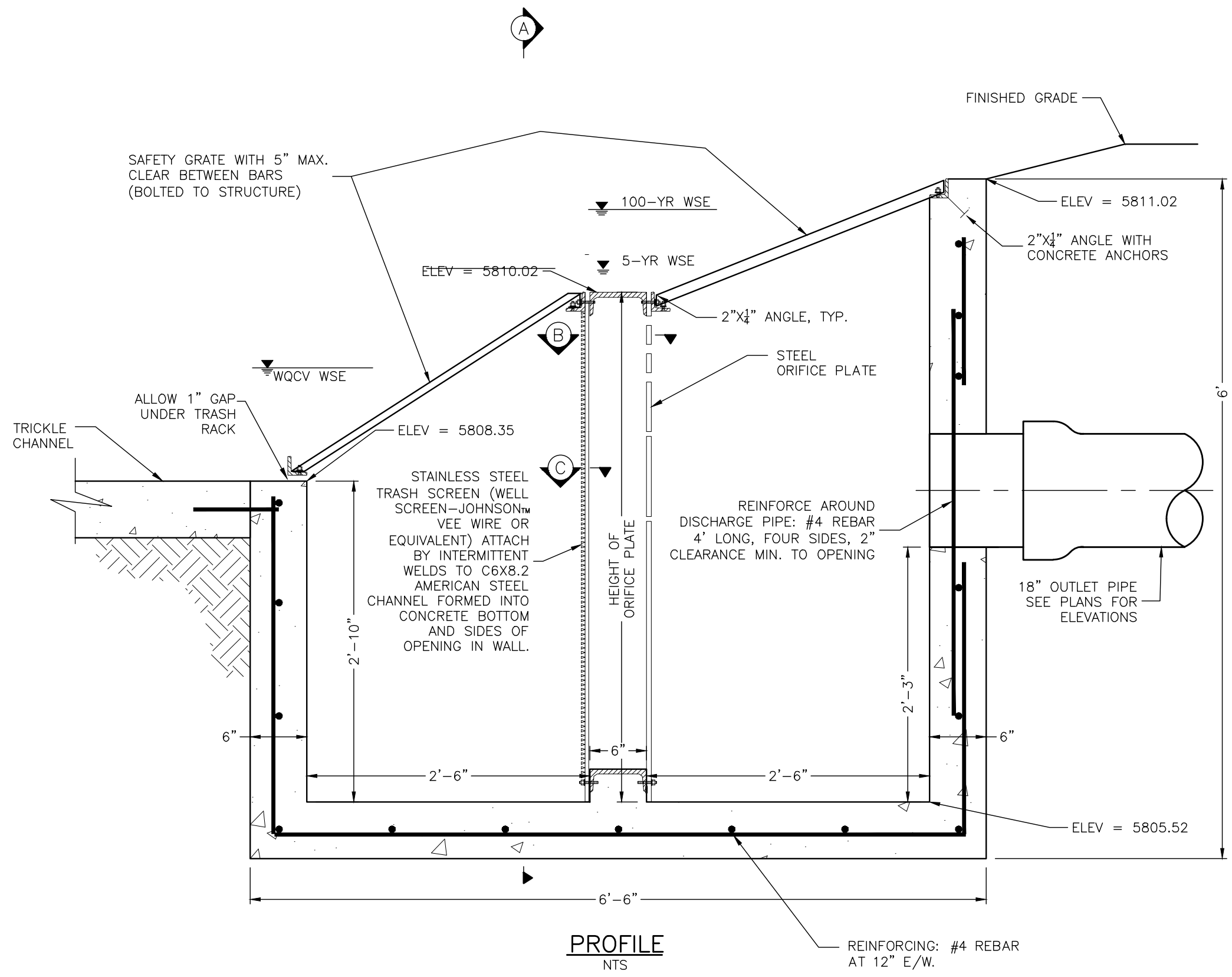
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5 year WSEL: 5810.23
WQCV: 5809.65
Trickle Channel Invert: 5808.35
Micro Pool: 5808.02
Outlet Pipe Invert: 5807.77



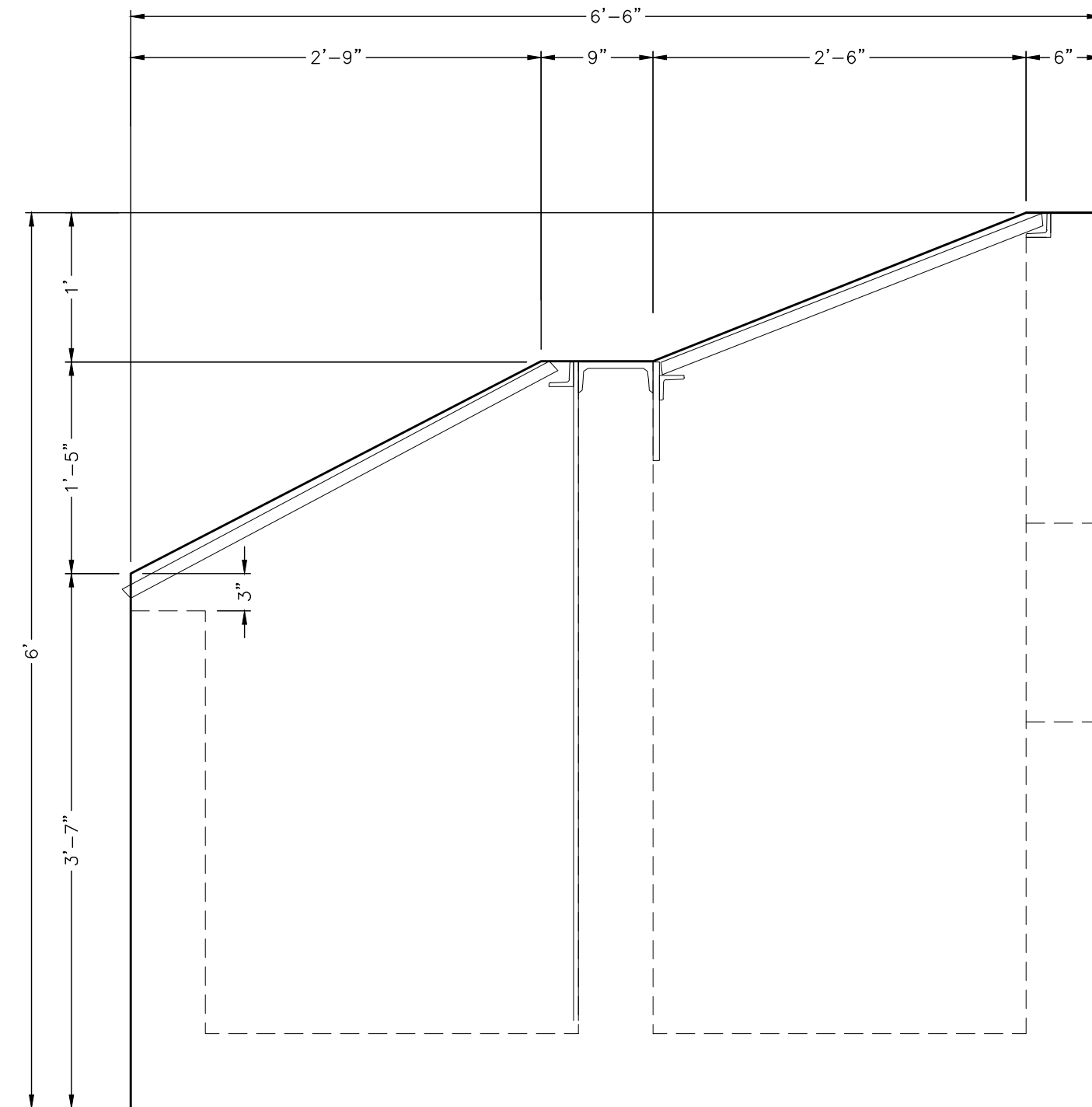
CONCRETE OUTLET STRUCTURE
FRONT VIEW
N.T.S.



SECTION A
NTS



PROFILE
NTS



CONCRETE OUTLET STRUCTURE
SIDE VIEW
N.T.S.

ROLLING MEADOWS SUBSTATION 115/12.47KV OUTLET STRUCTURE DETAILS							TRI-STATE Generation and Transmission Association, Inc. 1100 W. 116th Ave. P.O. Box 33895 Denver, Colorado 80233 303-452-6111		Dwn: TMC Appd: DWS		Date: 08/28/26 Date: 08/28/26	
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Revision							M.F.		Dwg. No.		Reference Drawings	
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Drawing Title												

LEGEND

PROPERTY BOUNDARY
LIMITS OF CONSTRUCTION / DISTURBANCE
TOE OF FILL SLOPE
TOP OF CUT SLOPE

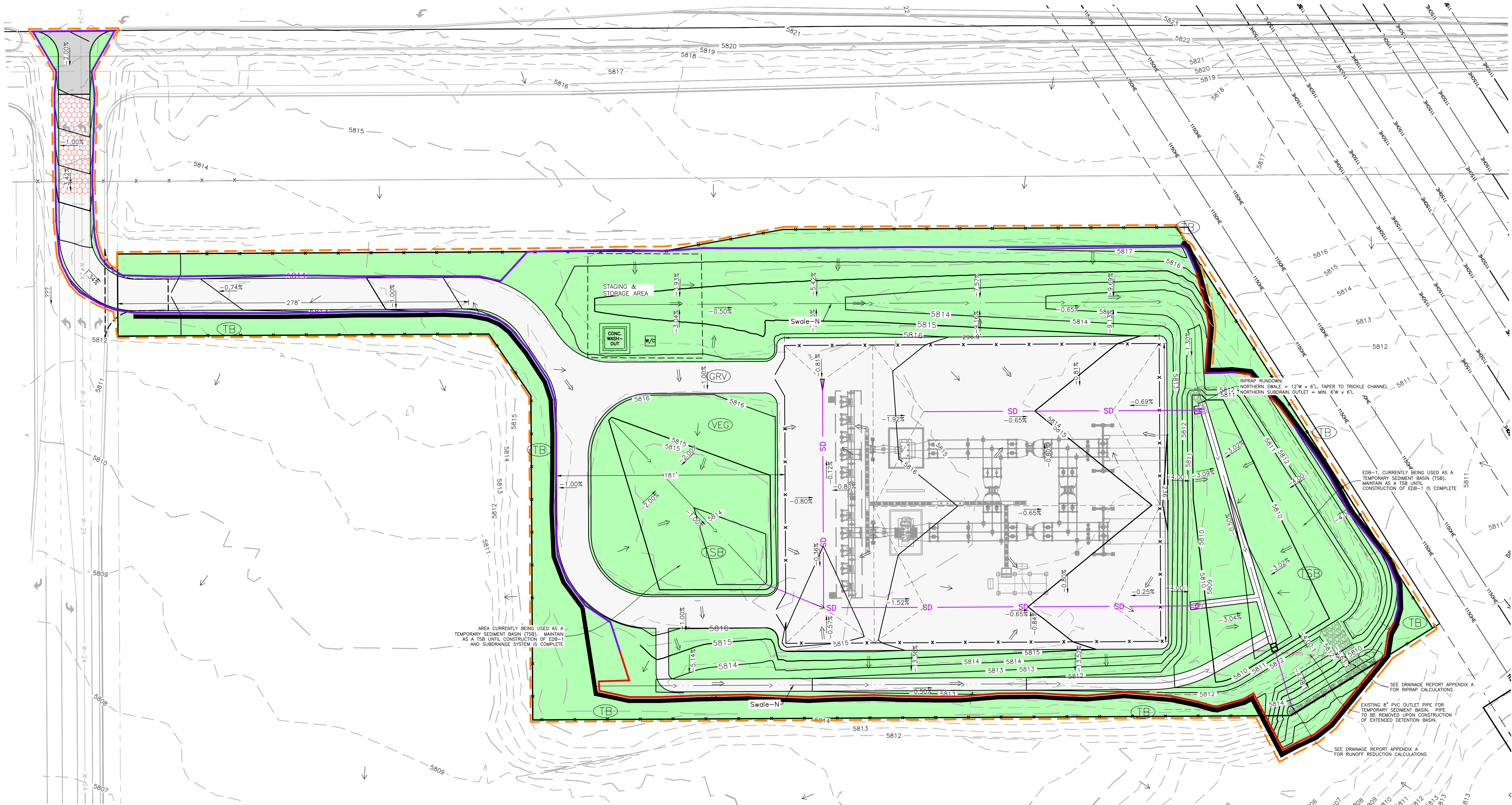
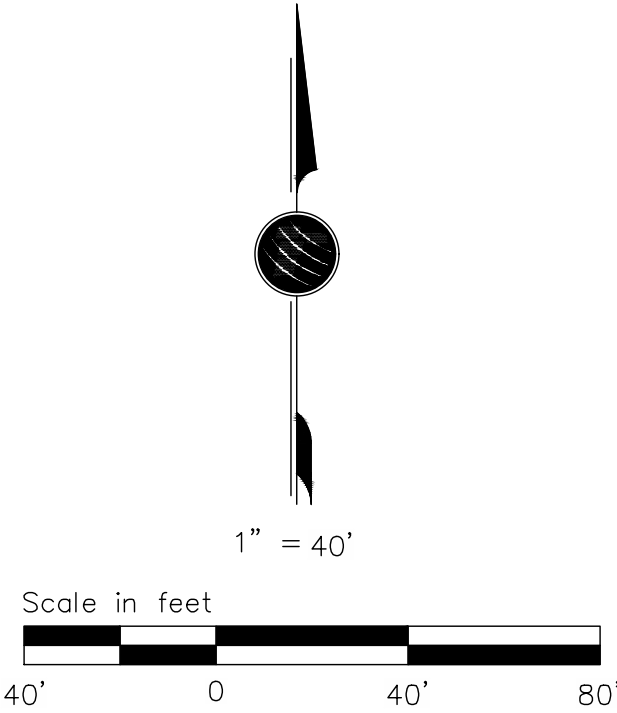
(TB) TOPSOIL BERM (INITIAL/INTERIM)
(ST) SEDIMENT TRAP (INITIAL/INTERIM - PREVIOUSLY INSTALLED BY OTHERS)
(TSB) TEMPORARY SEDIMENT BASIN (INITIAL/INTERIM - PREVIOUSLY INSTALLED BY OTHERS)
(VEG) SEEDING (FINAL)
(GRV) GRAVEL (FINAL)
T/P TRACKING PAD (INITIAL/INTERIM)

CONC. WASH-OUT CONCRETE WASHOUT (WITH LOCATION SIGN)

EXISTING OVERHEAD POWER LINE
EXISTING SILT FENCE
EXISTING OUTLET PIPE
EXISTING UTILITY POLE
EXISTING GUY ANCHOR
EXISTING INDEX CONTOUR
EXISTING INTERMEDIATE CONTOUR
EXISTING DRAINAGE FLOWLINE

PROPOSED SUBDRAIN LINE
PROPOSED FENCE
PROPOSED INDEX CONTOUR
PROPOSED INTERMEDIATE CONTOUR
PROPOSED DRAINAGE FLOWLINE
PROPOSED DRAINAGE FLOW ARROW
EXISTING DRAINAGE FLOW ARROW

- NOTES:
- EXISTING VEGETATION CONSISTS OF NATIVE GRASSES AND WEEDS AT 50-60% GROUND COVER.
 - NO BATCH PLANTS WILL BE UTILIZED ON SITE.
 - NO PART OF THE SITE LIES WITHIN THE FEMA 100 YEAR FLOODPLAIN.
 - TEMPORARY SEDIMENT BASINS MUST BE MAINTAINED PRIOR TO COMPLETION OF EXTENDED DETENTION BASIN AND SUBDRAINAGE SYSTEM.
 - SEEDING SHALL BE WEED-FREE HAY MULCH AT 5,000 LBS PER ACRE WHEN DISTRIBUTED UNIFORMLY. CONTRACTOR SHALL UTILIZE EL PASO COUNTY CONSERVATION DISTRICT'S NATIVE SHOTGUN MIX



ROLLING MEADOWS SUBSTATION

EROSION CONTROL PLAN

115/12.47KV

TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INCORPORATED

1100 W. 116th Ave.
P.O. Box 33895
Denver, Colorado 80233
303-452-6111

UPDATED BY: WLDGATE 8/27/2026 4:43 PM Contract: 4713

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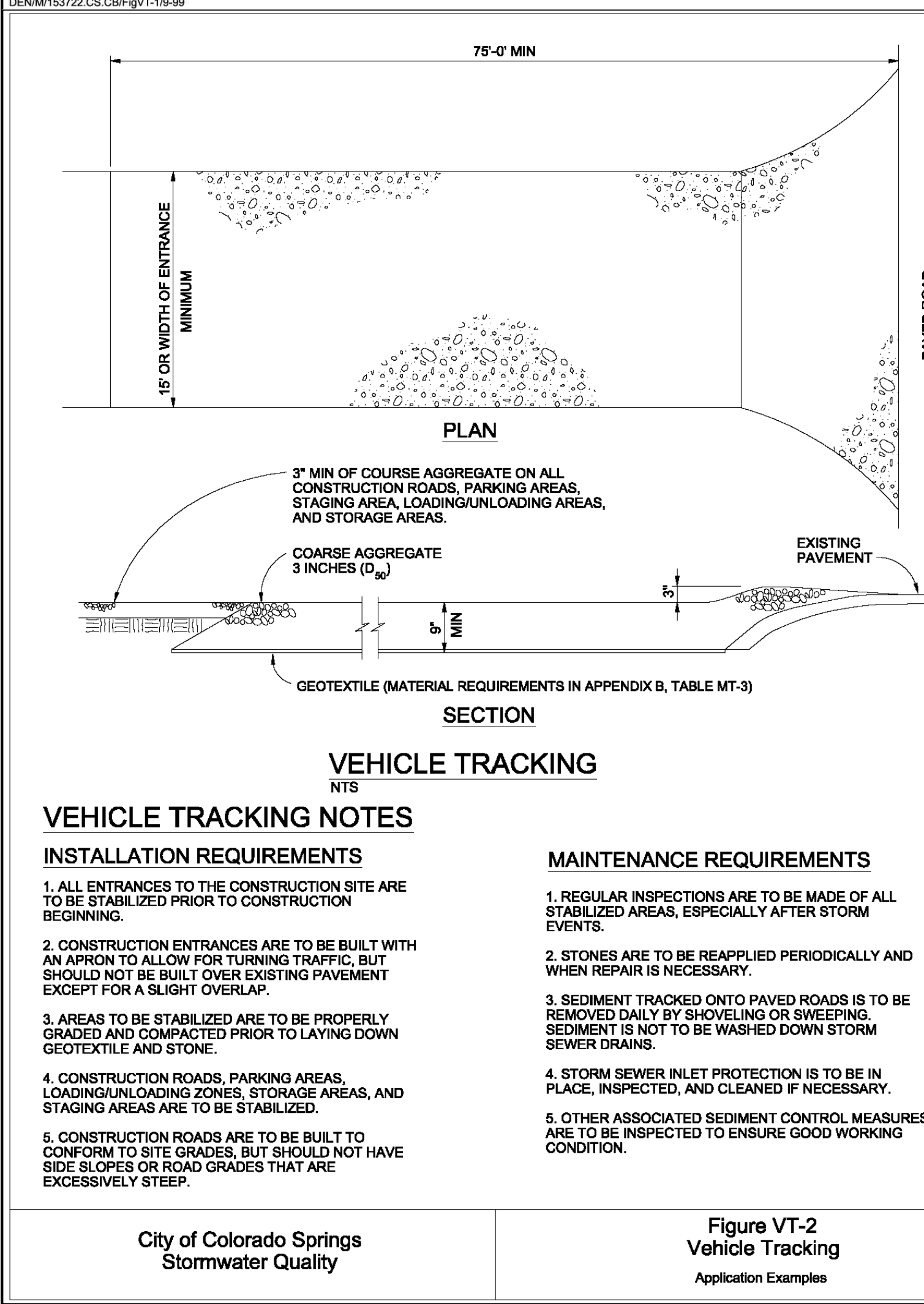
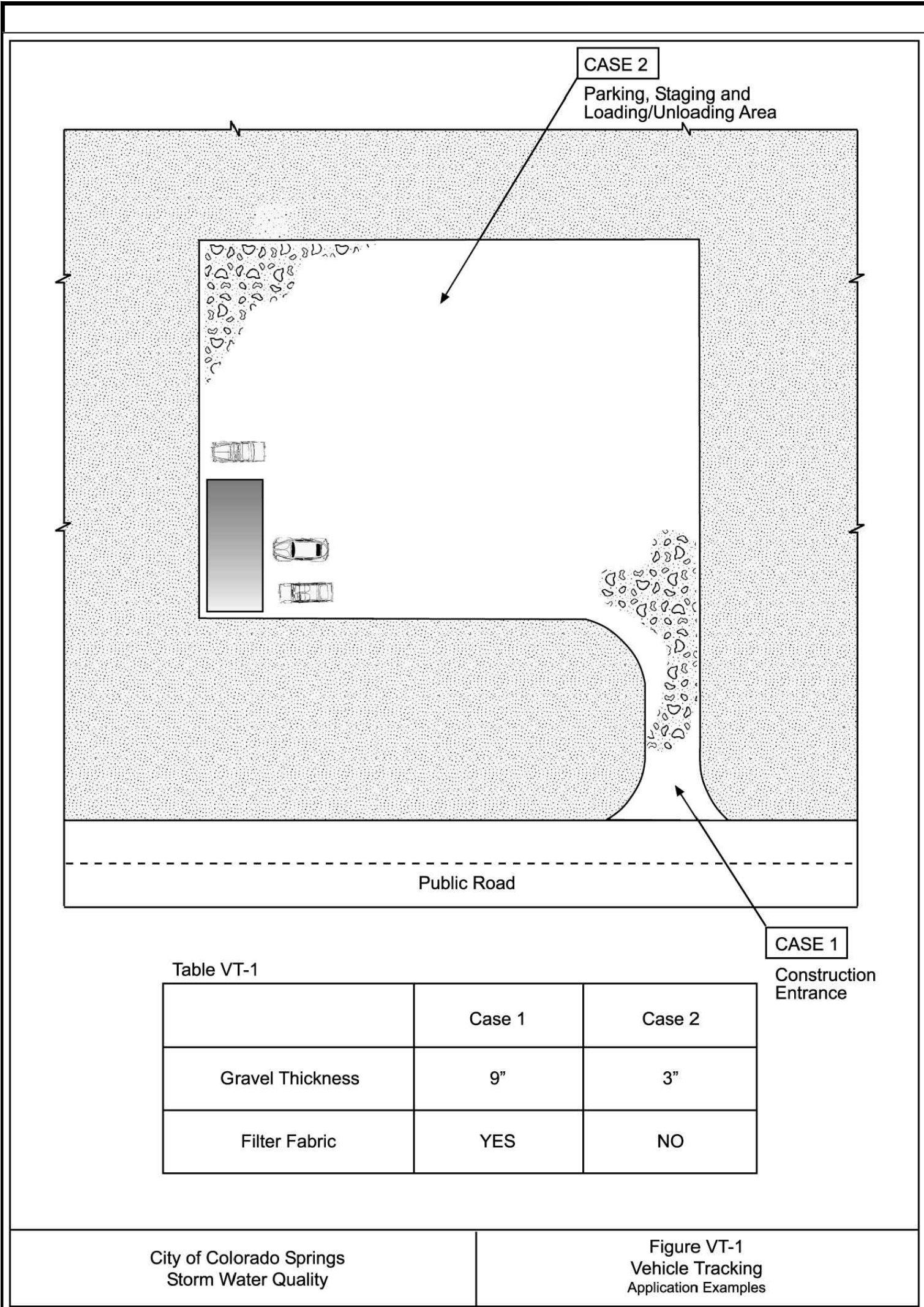
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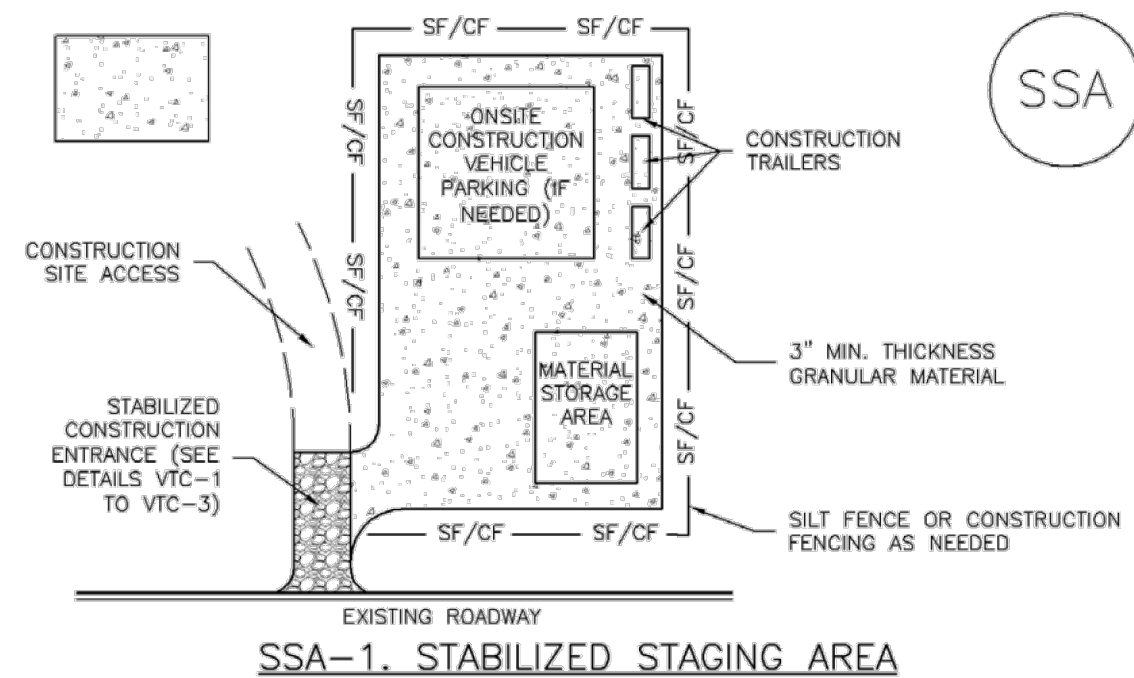
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S1183-A-01-012



Stabilized Staging Area (SSA)

SM-6

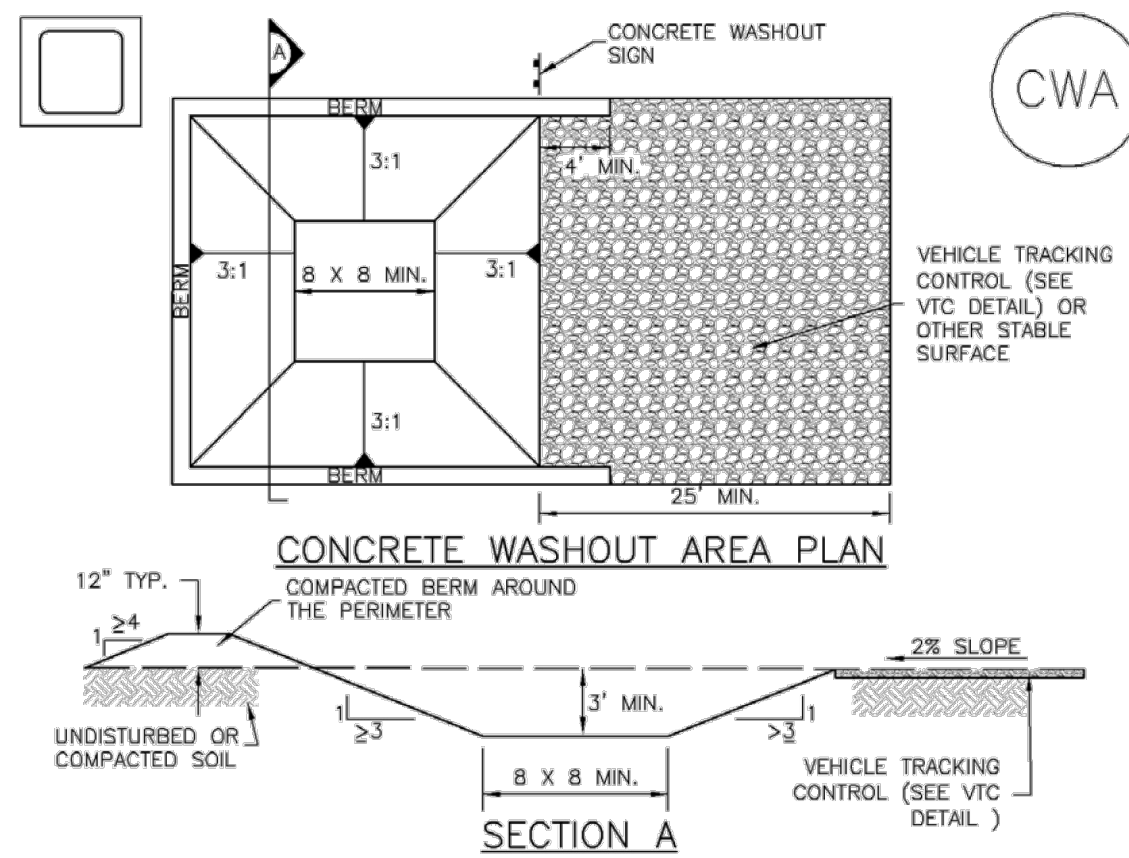


- SSA-1. STABILIZED STAGING AREA**
- STABILIZED STAGING AREA INSTALLATION NOTES**
- SEE PLAN VIEW FOR
-LOCATION OF STAGING AREA(S).
-CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
 - STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE 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
Urban Storm Drainage Criteria Manual Volume 3

Concrete Washout Area (CWA)

MM-1

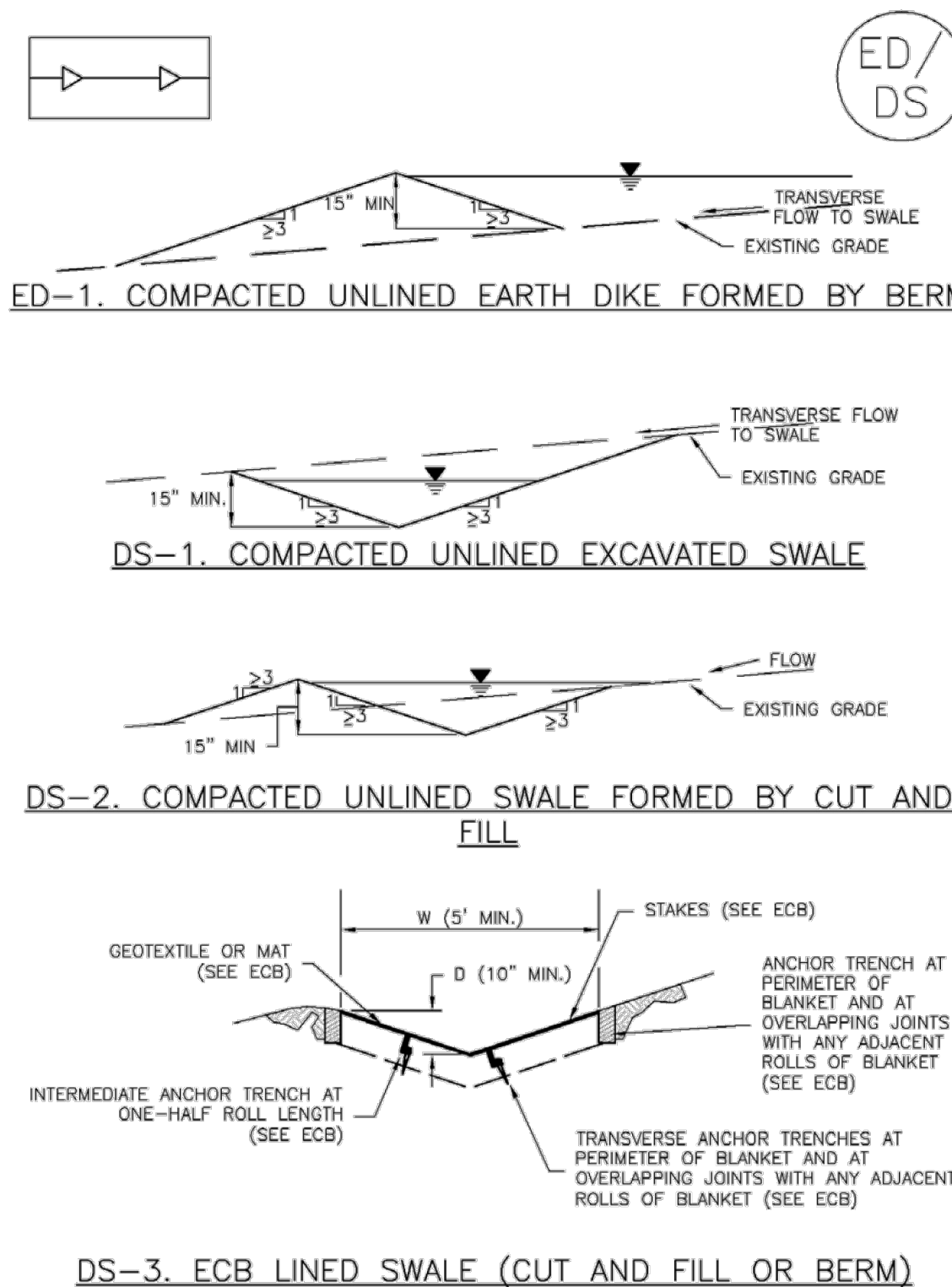


- CWA-1. CONCRETE WASHOUT AREA**
- CWA INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
-CWA INSTALLATION LOCATION.
 - DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
 - THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
 - CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
 - BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
 - VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
 - SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
 - USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

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Earth Dikes and Drainage Swales (ED/DS)

EC-10



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Stabilized Staging Area (SSA)

Concrete Washout Area (CWA)

Earth Dikes and Drainage Swales (ED/DS)

- 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 DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

- 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.

- 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.
- (DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF COLORADO SPRINGS, 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.

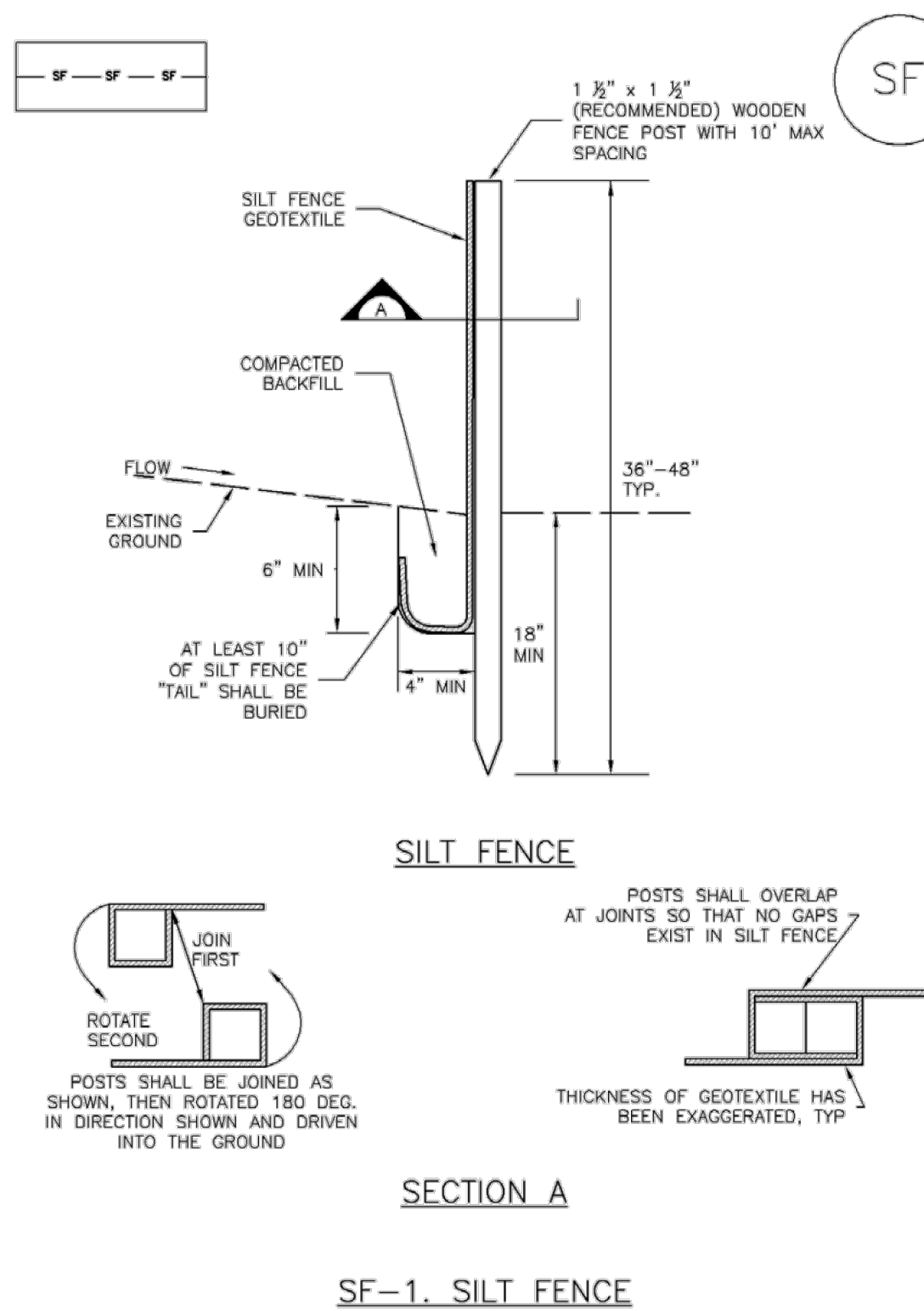
SSA-4 Urban Drainage and Flood Control District
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CWA-4 Urban Drainage and Flood Control District
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Silt Fence (SF)

SC-1



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Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

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

SILT FENCE MAINTENANCE NOTES

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. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

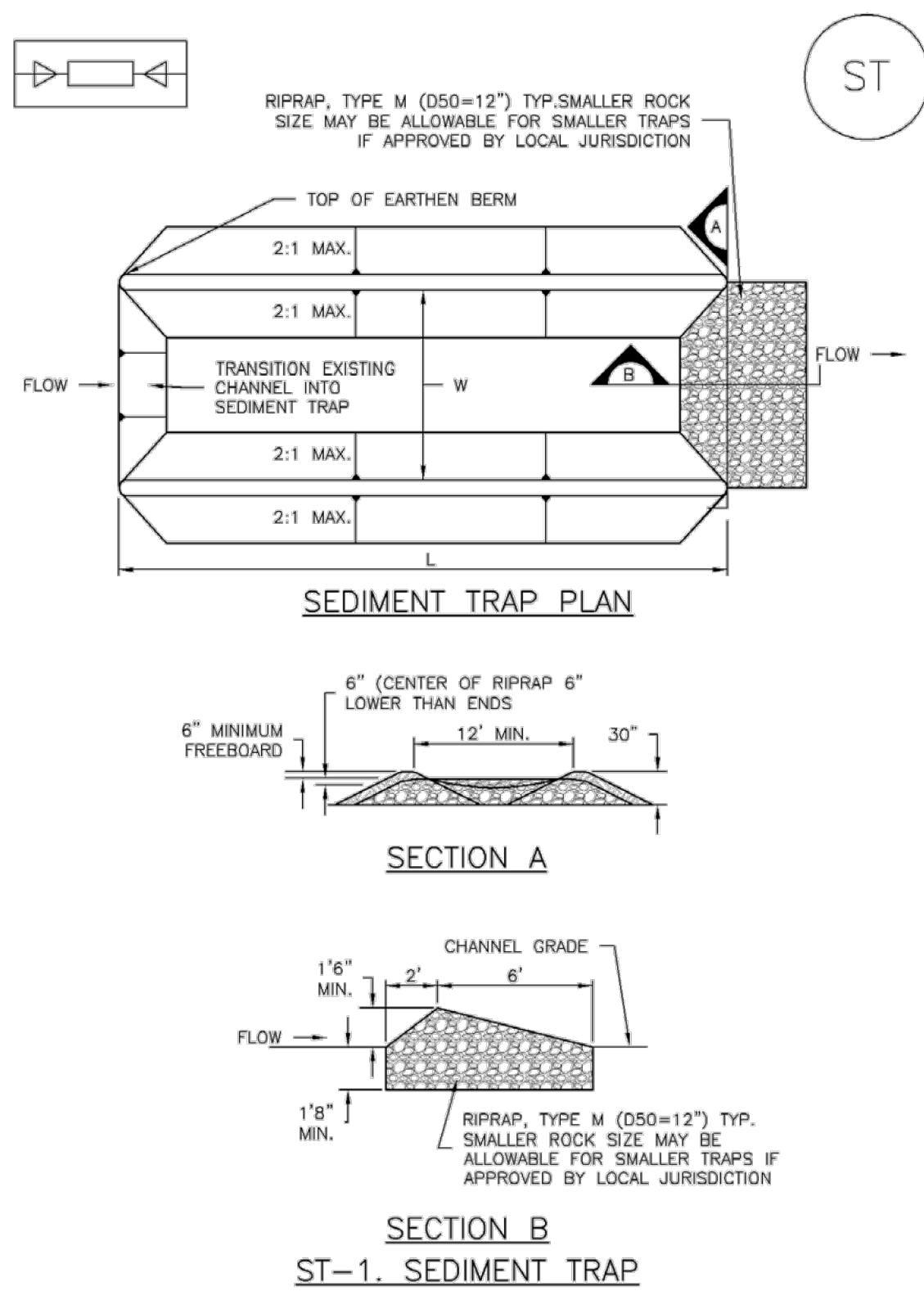
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Sediment Trap (ST)



ST-2 Urban Drainage and Flood Control District
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Sediment Trap (ST)

SEDIMENT TRAP INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
-LOCATION, LENGTH AND WIDTH OF SEDIMENT TRAP.
2. ONLY USE FOR DRAINAGE AREAS LESS THAN 1 ACRE.
3. SEDIMENT TRAPS SHALL BE INSTALLED PRIOR TO ANY UPGRADE LAND-DISTURBING ACTIVITIES.
4. 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.
5. 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.
6. THE TOP OF THE EARTHEN BERM SHALL BE A MINIMUM OF 6" HIGHER THAN THE TOP OF THE RIPRAP OUTLET STRUCTURE.
7. 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

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. 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.
5. SEDIMENT TRAPS SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
6. 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 AUTOCAD)

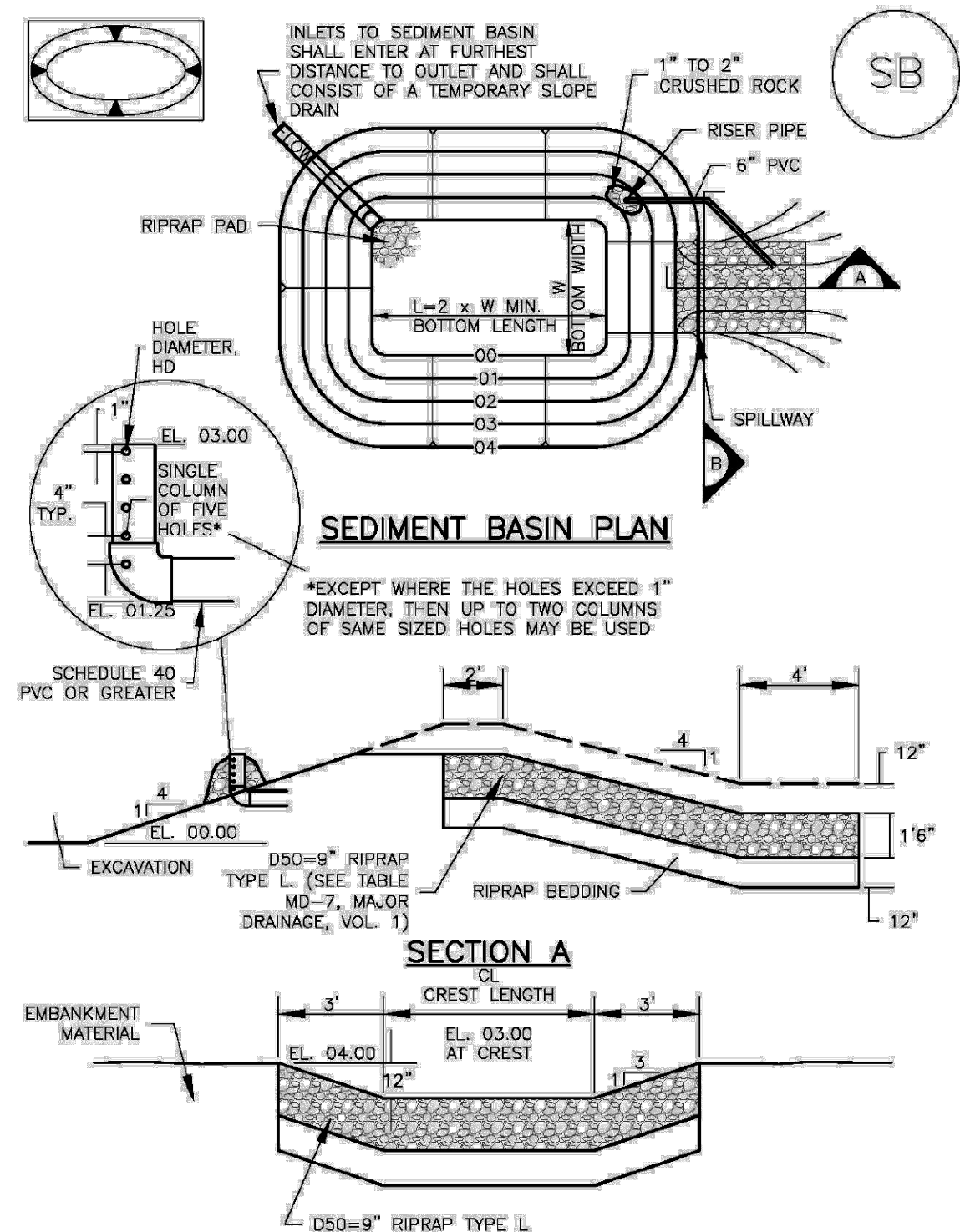
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Sediment Basin (SB)

SC-7



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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 (HD), (in)
1	12 1/2	2	9/32
2	21	3	1 1/8
3	28	5	1 1/2
4	33 1/2	6	1 5/8
5	38 1/2	8	1 3/4
6	43	9	1 7/8
7	47 1/2	11	2
8	51	12	2 1/8
9	55	13	2 1/4
10	58 1/2	15	2 1/2
11	61	16	2 3/4
12	64	18	2 7/8
13	67 1/2	19	3
14	70 1/2	21	3 1/8
15	73 1/2	22	3 1/4

SEDIMENT BASIN INSTALLATION NOTES

1. 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.
2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON BASINS AS A STORMWATER CONTROL.
4. 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.
5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
6. PIPE SCH 40 OR GREATER SHALL BE USED.
7. 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.

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Sediment Basin (SB)

SC-7

SEDIMENT BASIN 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. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).
5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
6. 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.

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SB-7

NOTE: FOR RE-SEEDING, CONTRACTOR SHALL UTILIZE EL PASO COUNTY CONSERVATION DISTRICT'S NATIVE SHOTGUN MIX. CONTRACTOR SHALL UTILIZE BELOW TABLE FOR APPLICATION RATES.

DISTURBED AREAS SHALL BE MULCHED AFTER SEEDING WITH WEED-FREE HAY MULCH AT 5,000 LBS PER ACRE WHEN DISTRIBUTED UNIFORMLY.

Chapter 5
Native Vegetation Requirements and Guidelines

Table 5-1. El Paso County Conservation District All-Purpose Mix for Upland, Transition and Permanent Control Measure Areas

Common Name	Scientific Name	Growth Season / Form	% of Mix	Pounds PLS		
				Irrigated broadcast hydroseeded	Non-irrigated broadcast hydroseeded	Non-irrigated drilled
				80 seeds/sq ft	40 seeds/sq ft	20 seeds/sq ft
Bluestem, big	<i>Andropogon gerardii</i>	Warm, sod	20	4.4	2.2	1.1
Gramma, blue	<i>Bouteloua gracilis</i>	Warm, bunch	10	0.5	0.25	0.13
Green needlegrass ²	<i>Nassella viridula</i>	Cool, bunch	10	2	1	0.5
Wheatgrass, western ²	<i>Pascopyrum smithii</i>	Cool, sod	20	6.4	3.2	1.6
Gramma, sideoats	<i>Bouteloua curtipendula</i>	Warm, bunch	10	2	1	0.5
Switchgrass ²	<i>Panicum virgatum</i>	Warm, bunch/sod	10	0.8	0.4	0.2
Prairie sandreed	<i>Calamagrostis longifolia</i>	Warm, sod	10	1.2	0.6	0.3
Yellow indiagrass ²	<i>Sorghastrum nutans</i>	Warm, sod	10	2	1	0.5
Seed rate (lbs PLS/acre)				19.3	9.7	4.8

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.

²Species that will do well in the bottom of pond areas.

City of Colorado Springs
Stormwater Enterprise

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Stormwater Construction Manual
December 2020

ROLLING MEADOWS SUBSTATION

EROSION CONTROL DETAILS

TRI-STATE

Generation and Transmission Association, Inc.

A Touchstone Energy Cooperative

1100 W. 116th Ave.
P.O. Box 33695
Denver, Colorado 80233
303-452-6111Dwn:
TMC/WLDate:
08/28/26Appd:
DWSDate:
08/28/26

S1183-A-01-014