

VICINITY MAP
1"=1000'

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.

Name Date

Owner's Statement:

The Owner will comply with the requirements of the Grading and Erosion Control Plan.

Name 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 completeness and/ or accuracy of this document.

Filed in accordance with the requirements of the El Paso County Land Development Code, Drainage Criteria Manual, Volumes 1 and 2, and Engineering Criteria Manual as amended.

In accordance with ECM Section 1.12, these construction documents will be valid for construction for a period of 2 years from the date signed by the El Paso County Engineer. If construction has not started within those 2 years, the plans will need to be resubmitted for approval, including payment of review fees at the Planning and Community Development Directors discretion.

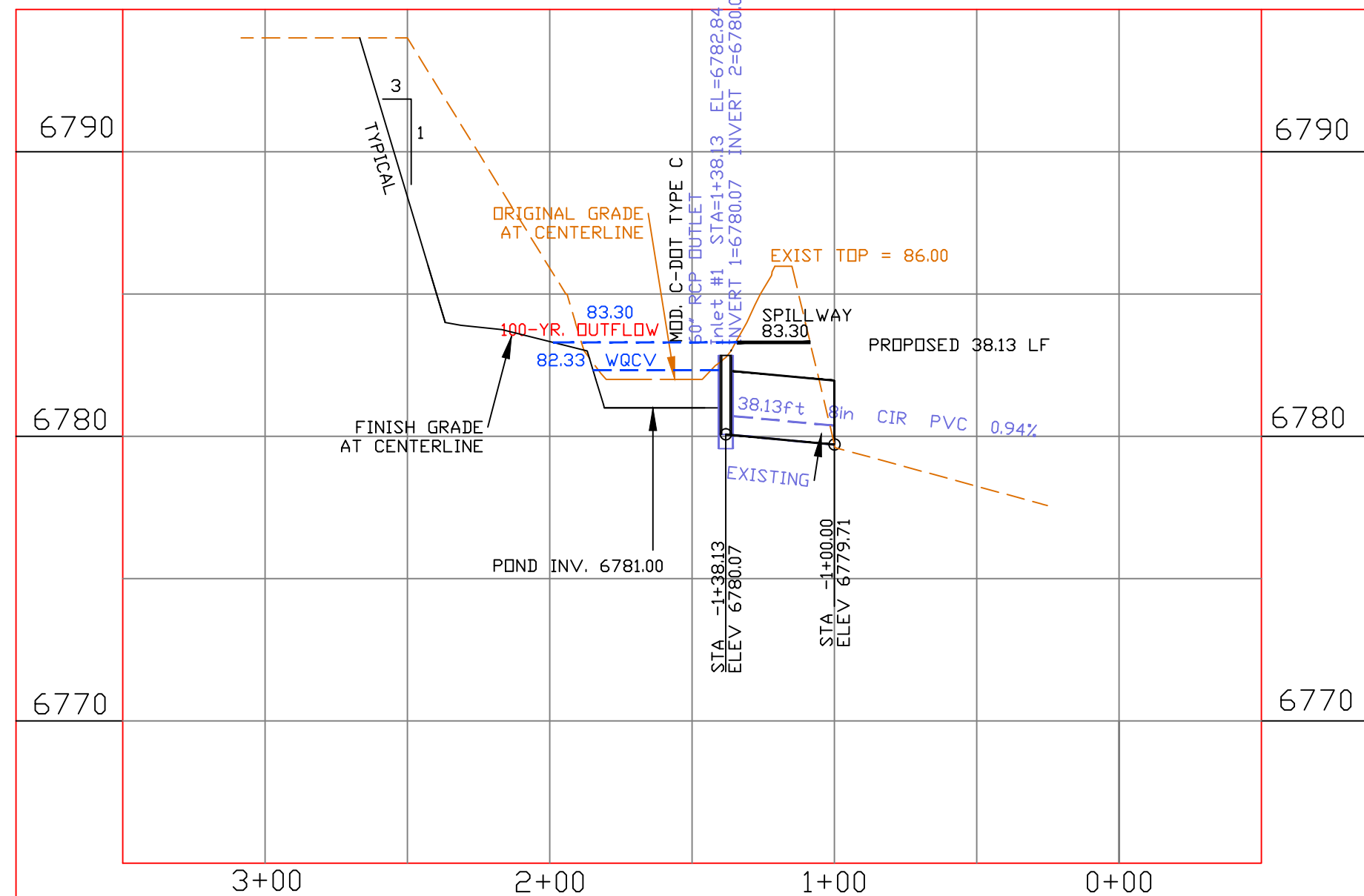
Jennifer Irvine, P.E. Date
County Engineer / ECM Administrator

INDEX TO SHEETS

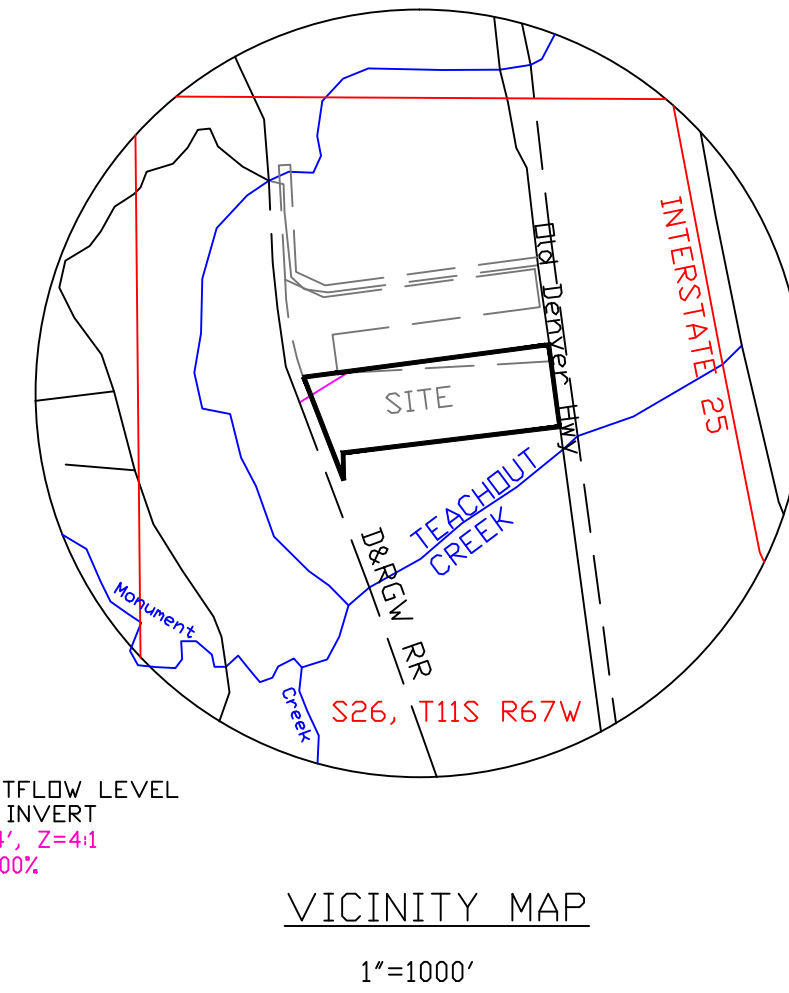
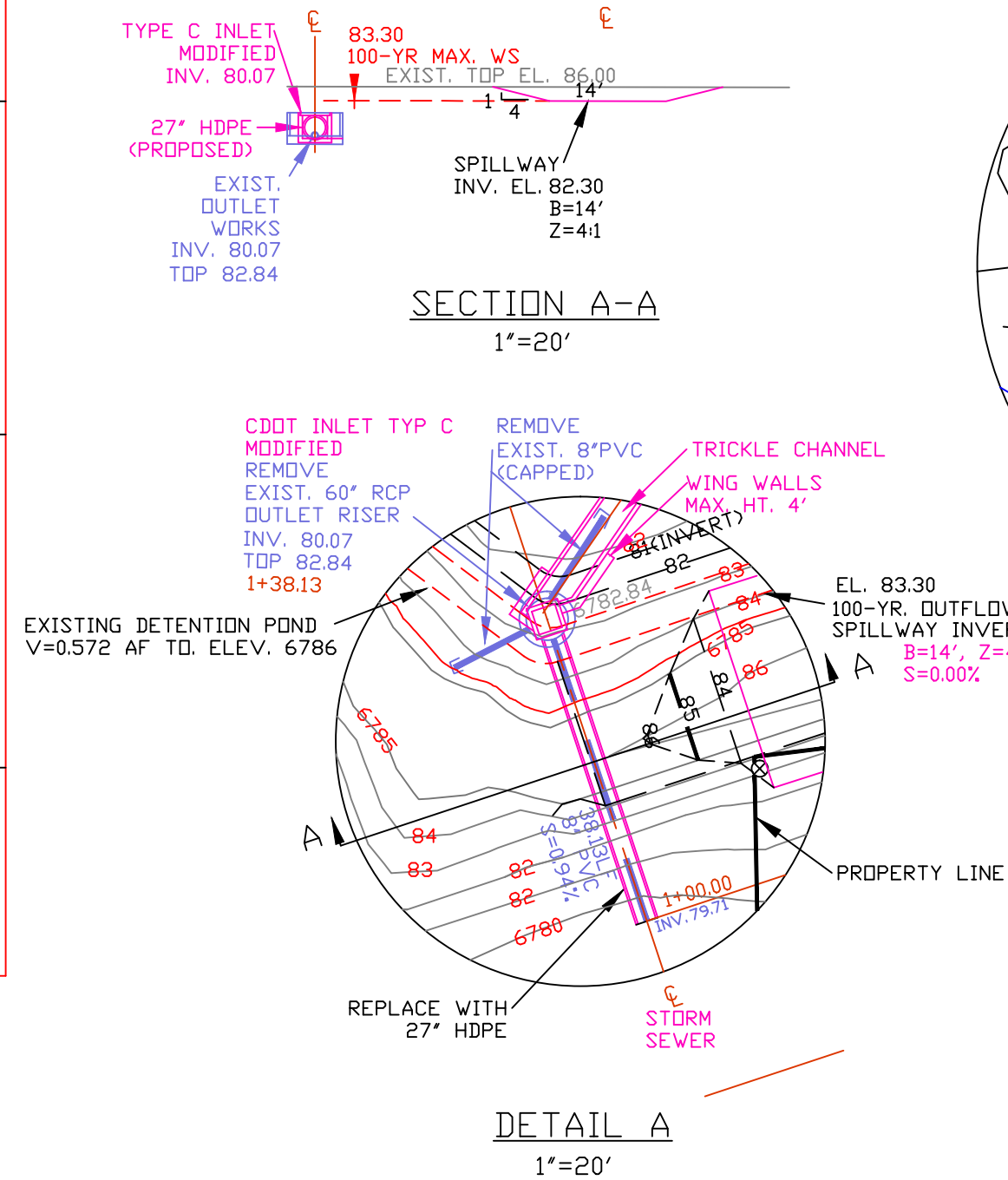
SHEET	TITLE
1	COVER SHEET
2	GRADING AND EROSION CONTROL PLAN
3	EROSION CONTROL DETAILS

Prepared by the Office of:
Oliver E. Watts, Consulting Engineer, Inc.
614 Elkton Drive, Colorado Springs, CO 80907
719-593-0173
ollewatts@aol.com
Celebrating over 40 years in business

	DRAWN BY: O.E. WATTS	APPROVED BY:	REVISIONS	OLIVER E. WATTS CONSULTING ENGINEER COLORADO SPRINGS	PROJECT 16140 OLD DENVER ROAD PART NW1/4 SEC. 26, T.11S., R.67W, 6TH P.M. EL PASO COUNTY	SHT. NAME CONSTRUCTION DOCUMENT COVER SHEET	SHT. NO. 1 OF 3	
	DATE: 10-23-19	PROJ. NO.						
	DWG. NO.: 17-4958-06	DWG.						



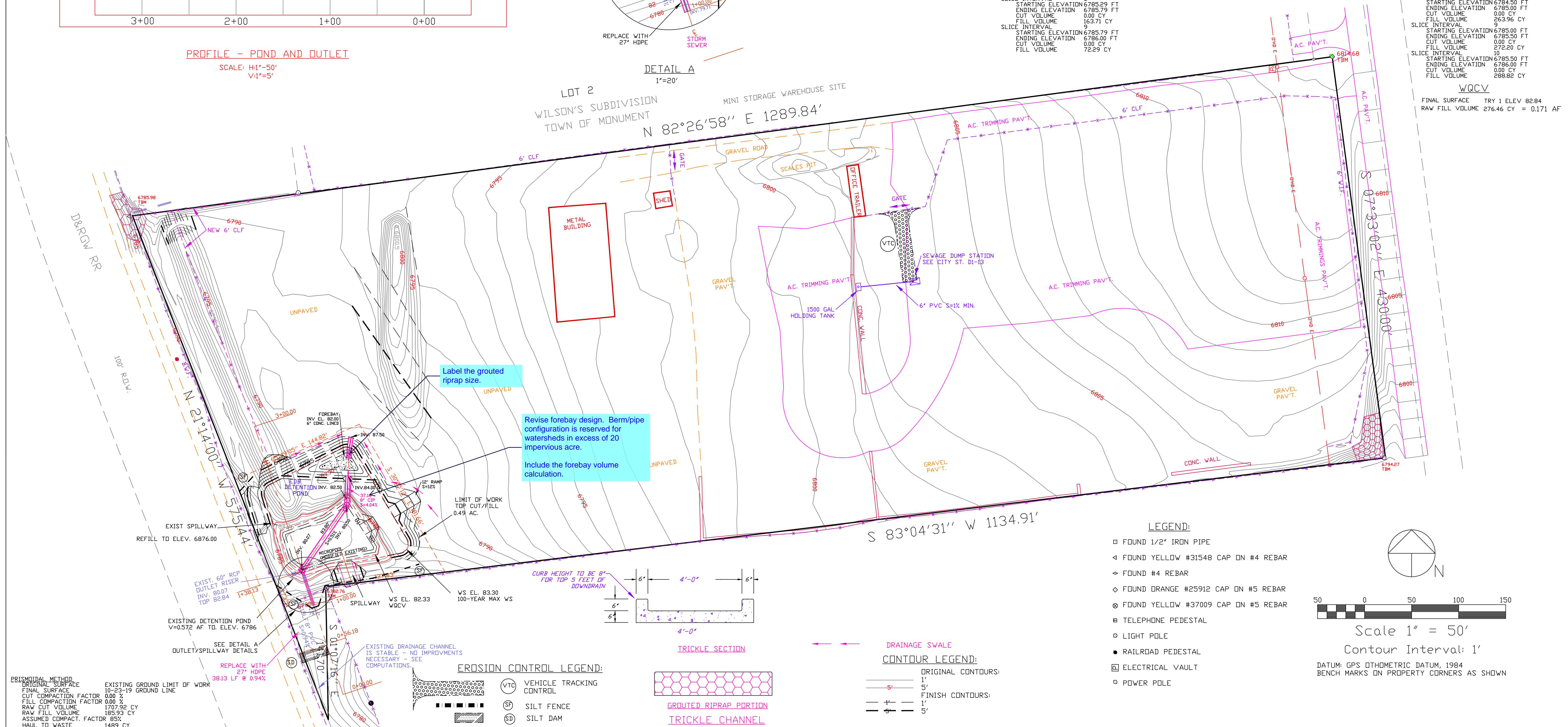
PROFILE - POND AND OUTLET
SCALE: H1"=50'
V1"=5'



EXISTING		WQCV	
PRISMOIDAL METHOD	EXISTING DETENTION POND	PRISMOIDAL METHOD	TRY 1 POND
ORIGINAL SURFACE	TOP OF POND	ORIGINAL SURFACE	TRY 1 ELEV 82.84
CUT COMPACTION FACTOR 0.00 %		CUT COMPACTION FACTOR 0.00 %	
FILL COMPACTION FACTOR 0.00 %		FILL COMPACTION FACTOR 0.00 %	
RAW CUT VOLUME 0.00 CY		RAW CUT VOLUME 0.00 CY	
RAW FILL VOLUME 922.57 CY	0.572 AF	RAW FILL VOLUME 276.46 CY	= 0.171 AF
VOLUME BY SLICE METHOD		VOLUME BY SLICE METHOD	
SLICE INTERVAL 1		SLICE INTERVAL 1	
STARTING ELEVATION 6781.79 FT		STARTING ELEVATION 6781.00 FT	
ENDING ELEVATION 6782.29 FT		ENDING ELEVATION 6781.50 FT	
CUT VOLUME 0.00 CY		CUT VOLUME 0.00 CY	
FILL VOLUME 24.82 CY		FILL VOLUME 64.15 CY	
SLICE INTERVAL 2		SLICE INTERVAL 2	
STARTING ELEVATION 6782.29 FT		STARTING ELEVATION 6781.50 FT	
ENDING ELEVATION 6782.79 FT		ENDING ELEVATION 6782.00 FT	
CUT VOLUME 0.00 CY		CUT VOLUME 0.00 CY	
FILL VOLUME 70.86 CY		FILL VOLUME 73.66 CY	
SLICE INTERVAL 3		SLICE INTERVAL 3	
STARTING ELEVATION 6782.79 FT		STARTING ELEVATION 6782.00 FT	
ENDING ELEVATION 6783.29 FT		ENDING ELEVATION 6782.50 FT	
CUT VOLUME 0.00 CY		CUT VOLUME 0.00 CY	
FILL VOLUME 94.75 CY		FILL VOLUME 78.91 CY	
SLICE INTERVAL 4		SLICE INTERVAL 4	
STARTING ELEVATION 6783.29 FT		STARTING ELEVATION 6782.50 FT	
ENDING ELEVATION 6783.79 FT		ENDING ELEVATION 6783.00 FT	
CUT VOLUME 0.00 CY		CUT VOLUME 0.00 CY	
FILL VOLUME 106.98 CY		FILL VOLUME 88.96 CY	
SLICE INTERVAL 5		SLICE INTERVAL 5	
STARTING ELEVATION 6783.79 FT		STARTING ELEVATION 6783.00 FT	
ENDING ELEVATION 6784.29 FT		ENDING ELEVATION 6783.50 FT	
CUT VOLUME 0.00 CY		CUT VOLUME 0.00 CY	
FILL VOLUME 116.14 CY		FILL VOLUME 102.6 CY	
SLICE INTERVAL 6		SLICE INTERVAL 6	
STARTING ELEVATION 6784.29 FT		STARTING ELEVATION 6783.50 FT	
ENDING ELEVATION 6784.79 FT		ENDING ELEVATION 6784.00 FT	
CUT VOLUME 0.00 CY		CUT VOLUME 0.00 CY	
FILL VOLUME 126.96 CY		FILL VOLUME 111.14 CY	
SLICE INTERVAL 7		SLICE INTERVAL 7	
STARTING ELEVATION 6784.79 FT		STARTING ELEVATION 6784.00 FT	
ENDING ELEVATION 6785.29 FT		ENDING ELEVATION 6784.50 FT	
CUT VOLUME 0.00 CY		CUT VOLUME 0.00 CY	
FILL VOLUME 146.06 CY		FILL VOLUME 127.85 CY	
SLICE INTERVAL 8		SLICE INTERVAL 8	
STARTING ELEVATION 6785.29 FT		STARTING ELEVATION 6784.50 FT	
ENDING ELEVATION 6785.79 FT		ENDING ELEVATION 6785.00 FT	
CUT VOLUME 0.00 CY		CUT VOLUME 0.00 CY	
FILL VOLUME 163.71 CY		FILL VOLUME 143.96 CY	
SLICE INTERVAL 9		SLICE INTERVAL 9	
STARTING ELEVATION 6785.79 FT		STARTING ELEVATION 6785.00 FT	
ENDING ELEVATION 6786.29 FT		ENDING ELEVATION 6785.50 FT	
CUT VOLUME 0.00 CY		CUT VOLUME 0.00 CY	
FILL VOLUME 172.29 CY		FILL VOLUME 152.20 CY	
SLICE INTERVAL 10		SLICE INTERVAL 10	
STARTING ELEVATION 6786.29 FT		STARTING ELEVATION 6785.50 FT	
ENDING ELEVATION 6786.79 FT		ENDING ELEVATION 6786.00 FT	
CUT VOLUME 0.00 CY		CUT VOLUME 0.00 CY	
FILL VOLUME 180.87 CY		FILL VOLUME 160.82 CY	

TOTAL POND	
PRISMOIDAL METHOD	TRY 1 POND
ORIGINAL SURFACE	TRY 1 TOP 6786
CUT COMPACTION FACTOR 0.00 %	
FILL COMPACTION FACTOR 0.00 %	
RAW CUT VOLUME 0.00 CY	
RAW FILL VOLUME 1699.63 CY	1.053 AF
VOLUME BY SLICE METHOD	
SLICE INTERVAL 1	
STARTING ELEVATION 6781.00 FT	
ENDING ELEVATION 6781.50 FT	
CUT VOLUME 0.00 CY	
FILL VOLUME 64.15 CY	
SLICE INTERVAL 2	
STARTING ELEVATION 6781.50 FT	
ENDING ELEVATION 6782.00 FT	
CUT VOLUME 0.00 CY	
FILL VOLUME 73.66 CY	
SLICE INTERVAL 3	
STARTING ELEVATION 6782.00 FT	
ENDING ELEVATION 6782.50 FT	
CUT VOLUME 0.00 CY	
FILL VOLUME 78.91 CY	
SLICE INTERVAL 4	
STARTING ELEVATION 6782.50 FT	
ENDING ELEVATION 6783.00 FT	
CUT VOLUME 0.00 CY	
FILL VOLUME 88.96 CY	
SLICE INTERVAL 5	
STARTING ELEVATION 6783.00 FT	
ENDING ELEVATION 6783.50 FT	
CUT VOLUME 0.00 CY	
FILL VOLUME 102.6 CY	
SLICE INTERVAL 6	
STARTING ELEVATION 6783.50 FT	
ENDING ELEVATION 6784.00 FT	
CUT VOLUME 0.00 CY	
FILL VOLUME 111.14 CY	
SLICE INTERVAL 7	
STARTING ELEVATION 6784.00 FT	
ENDING ELEVATION 6784.50 FT	
CUT VOLUME 0.00 CY	
FILL VOLUME 127.85 CY	
SLICE INTERVAL 8	
STARTING ELEVATION 6784.50 FT	
ENDING ELEVATION 6785.00 FT	
CUT VOLUME 0.00 CY	
FILL VOLUME 143.96 CY	
SLICE INTERVAL 9	
STARTING ELEVATION 6785.00 FT	
ENDING ELEVATION 6785.50 FT	
CUT VOLUME 0.00 CY	
FILL VOLUME 152.20 CY	
SLICE INTERVAL 10	
STARTING ELEVATION 6785.50 FT	
ENDING ELEVATION 6786.00 FT	
CUT VOLUME 0.00 CY	
FILL VOLUME 160.82 CY	

WQCV
FINAL SURFACE TRY 1 ELEV 82.84
RAW FILL VOLUME 276.46 CY = 0.171 AF



PRISMOIDAL METHOD
ORIGINAL SURFACE
FINAL SURFACE
CUT COMPACTION FACTOR 0.00 %
FILL COMPACTION FACTOR 0.00 %
RAW CUT VOLUME 1707.39 CY
RAW FILL VOLUME 1853.93 CY
ASSUMED COMPACT. FACTOR 85%
HAUL TO WASTE 1489 CY

EXISTING GROUND LIMIT OF WORK
10-23-19 GROUND LINE
CUT COMPACTION FACTOR 0.00 %
FILL COMPACTION FACTOR 0.00 %
RAW CUT VOLUME 1707.39 CY
RAW FILL VOLUME 1853.93 CY
ASSUMED COMPACT. FACTOR 85%
HAUL TO WASTE 1489 CY

EROSION CONTROL LEGEND:
VTC VEHICLE TRACKING CONTROL
SF SILT FENCE
SD SILT DAM

TRICKLE SECTION
DRAINAGE SWALE
CONTOUR LEGEND:
ORIGINAL CONTOURS:
1' 5'
FINISH CONTOURS:
1' 5'

LEGEND:
□ FOUND 1/2" IRON PIPE
◀ FOUND YELLOW #31548 CAP ON #4 REBAR
◀ FOUND #4 REBAR
◀ FOUND ORANGE #25912 CAP ON #5 REBAR
◀ FOUND YELLOW #37009 CAP ON #5 REBAR
■ TELEPHONE PEDESTAL
● LIGHT POLE
● RAILROAD PEDESTAL
■ ELECTRICAL VAULT
○ POWER POLE

Scale 1" = 50'
Contour Interval: 1'
DATUM: GPS OTHMETRIC DATUM, 1984
BENCH MARKS ON PROPERTY CORNERS AS SHOWN

CONSTRUCTION DOCUMENT
GRADING AND EROSION CONTROL PLAN

SH. NO.
2
OF
3

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 ditch line.

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.

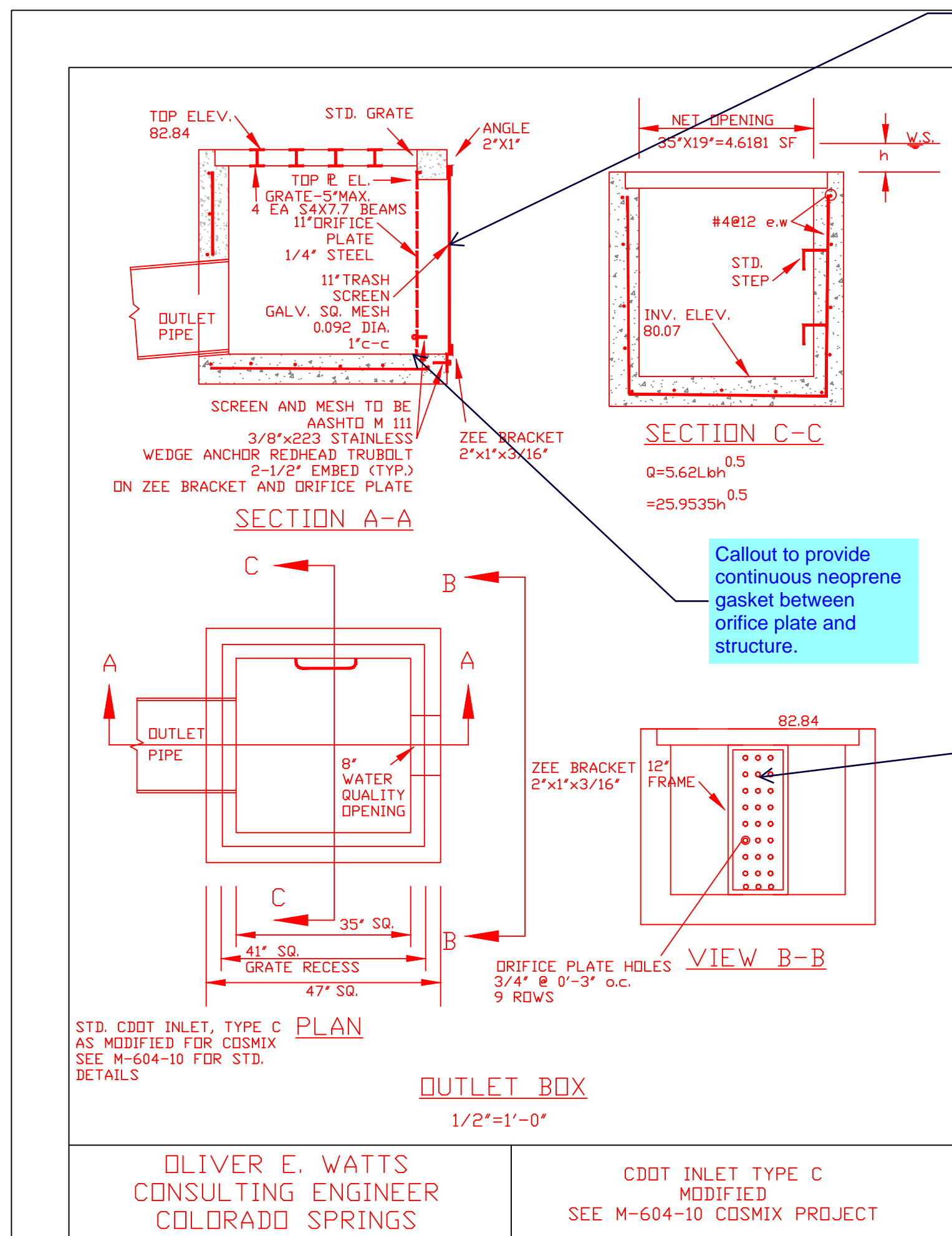
24. Prior to actual construction the permittee shall verify the location of existing utilities.

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 Group_____ 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



Replace trash rack. Galvanized square mesh screen is not trash rack. Use either a No. 93 Johnson Vee Wire Stainless Steel Well Screen or Amico Klemp SR Series Aluminum Bar Grate. See the standard outlet structures details in Appendix F.

Callout to provide continuous neoprene gasket between orifice plate and structure.

The orifice plate design will likely be revised. Outlet structure will be reviewed on the resubmittal.

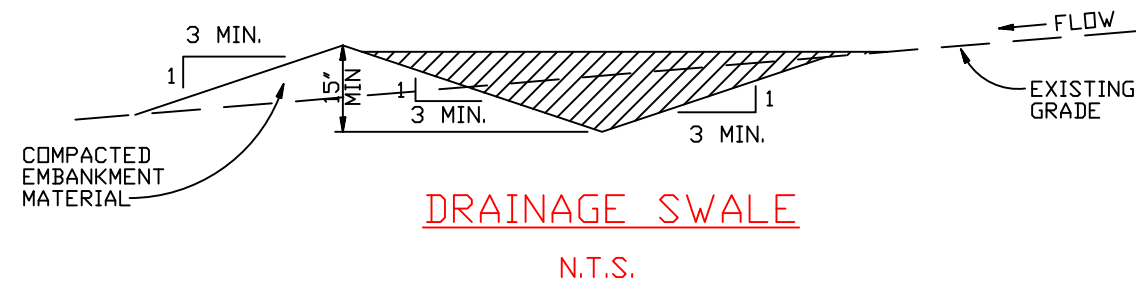
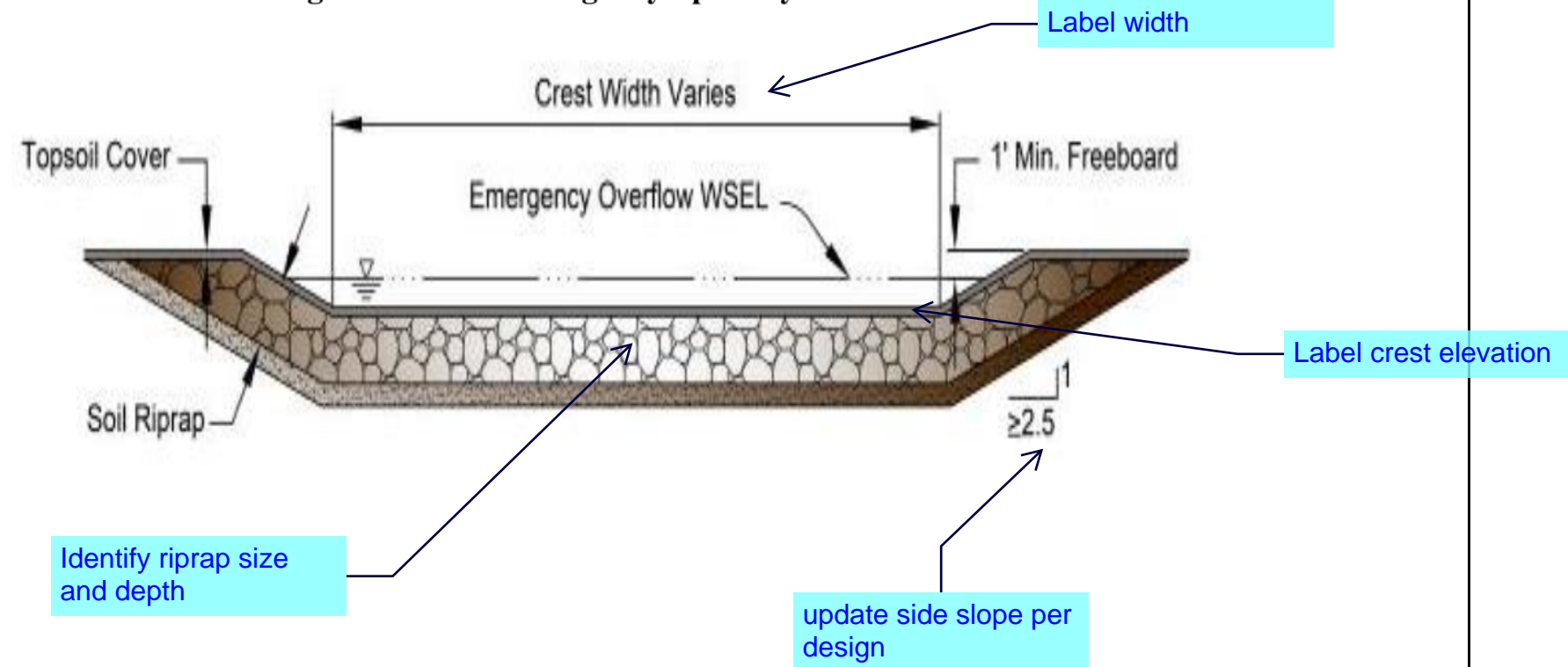


Figure 13-12c. Emergency Spillway Protection

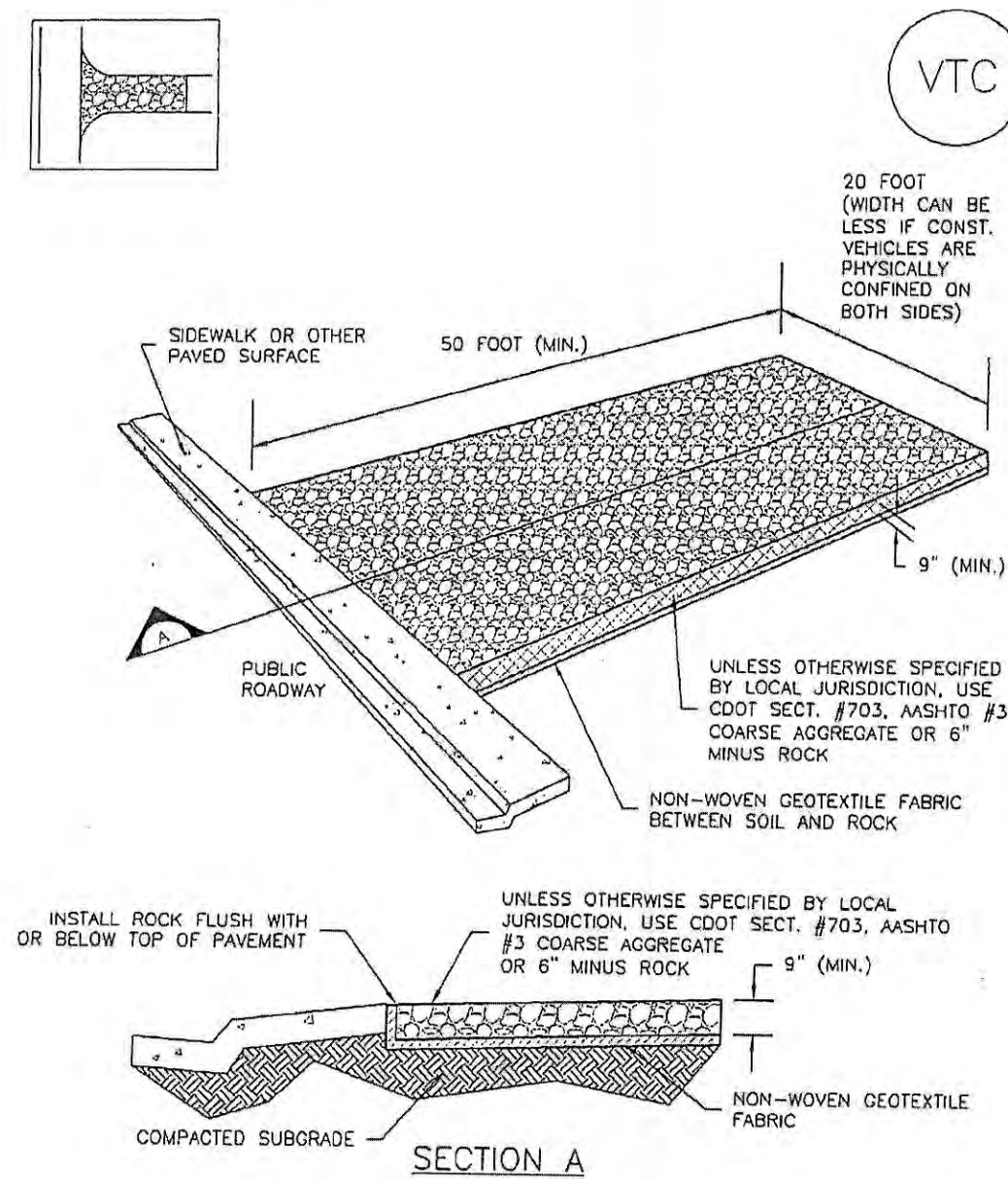


Prepared by the Office of:
Oliver E. Watts, Consulting Engineer, Inc.
614 Elkton Drive, Colorado Springs, CO 80907
719-593-0173
ollewatts@aol.com
Celebrating over 40 years in business

DRAWN BY: O.E. WATTS DATE: 10-23-19 DWG. NO.: 17-4958-05	APPROVED BY: PROJ. NO. DWG.	REVISIONS 5-15-20 REVISED PER CITY REVIEW COMMENTS DEW	OLIVER E. WATTS CONSULTING ENGINEER COLORADO SPRINGS	PROJECT 16140 OLD DENVER ROAD PART NW1/4 SEC. 26, T.11S., R.67W. 6TH P.M. EL PASO COUNTY	SHT. NAME CONSTRUCTION DOCUMENT EROSION CONTROL DETAILS	SHT. NO. 3 OF 3
--	-----------------------------------	---	--	---	---	--------------------------

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)

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.

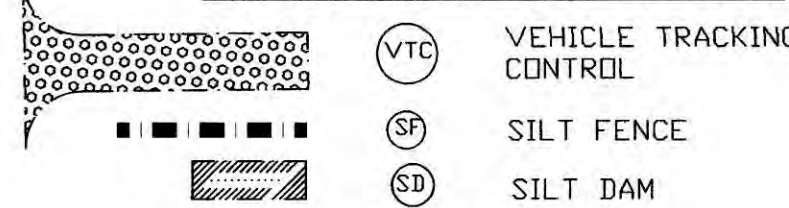
STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

- 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 UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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

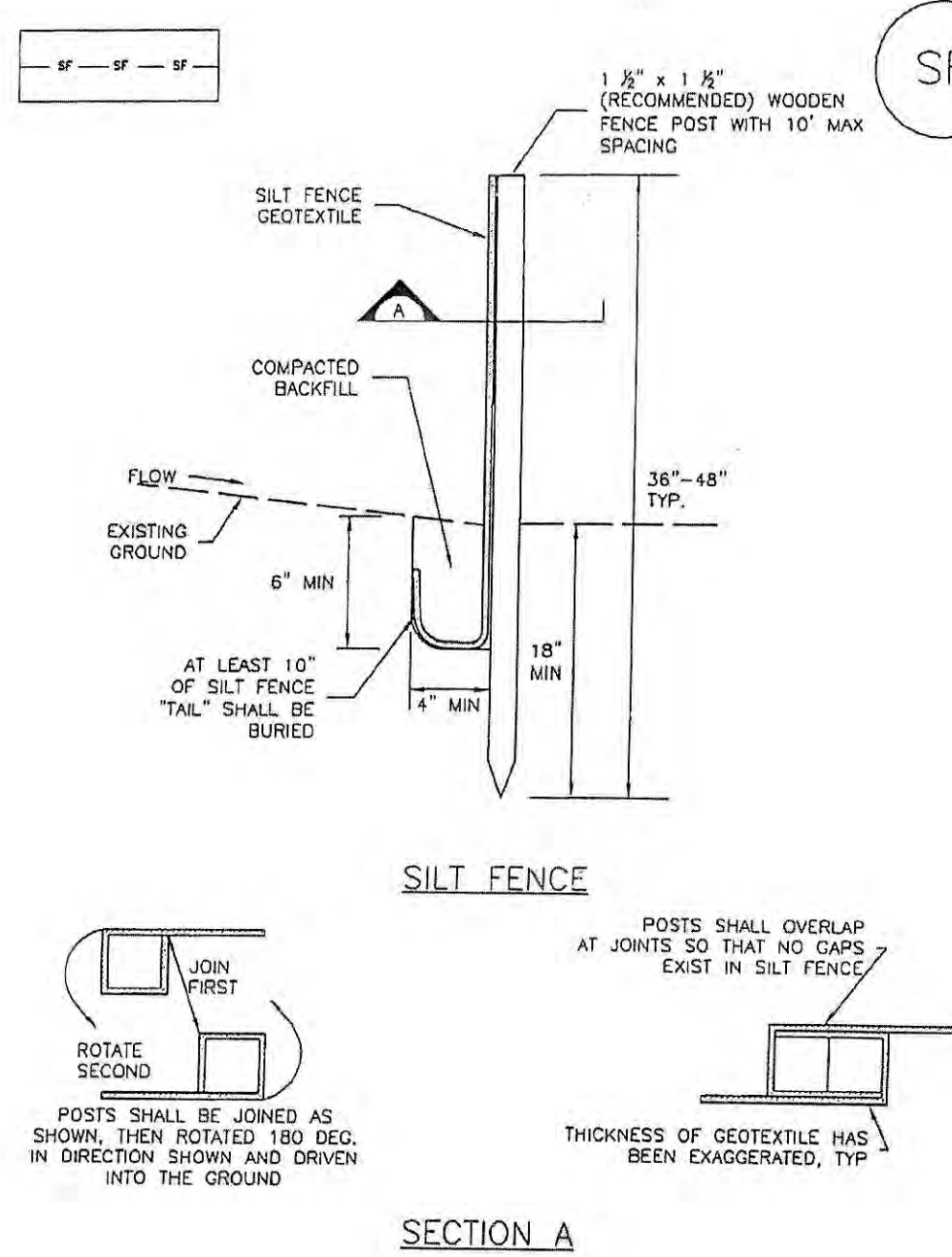
EROSION CONTROL LEGEND:



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

Silt Fence (SF)

SC-1



SF-1. SILT FENCE

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 ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
- COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
- SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
- SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
- AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

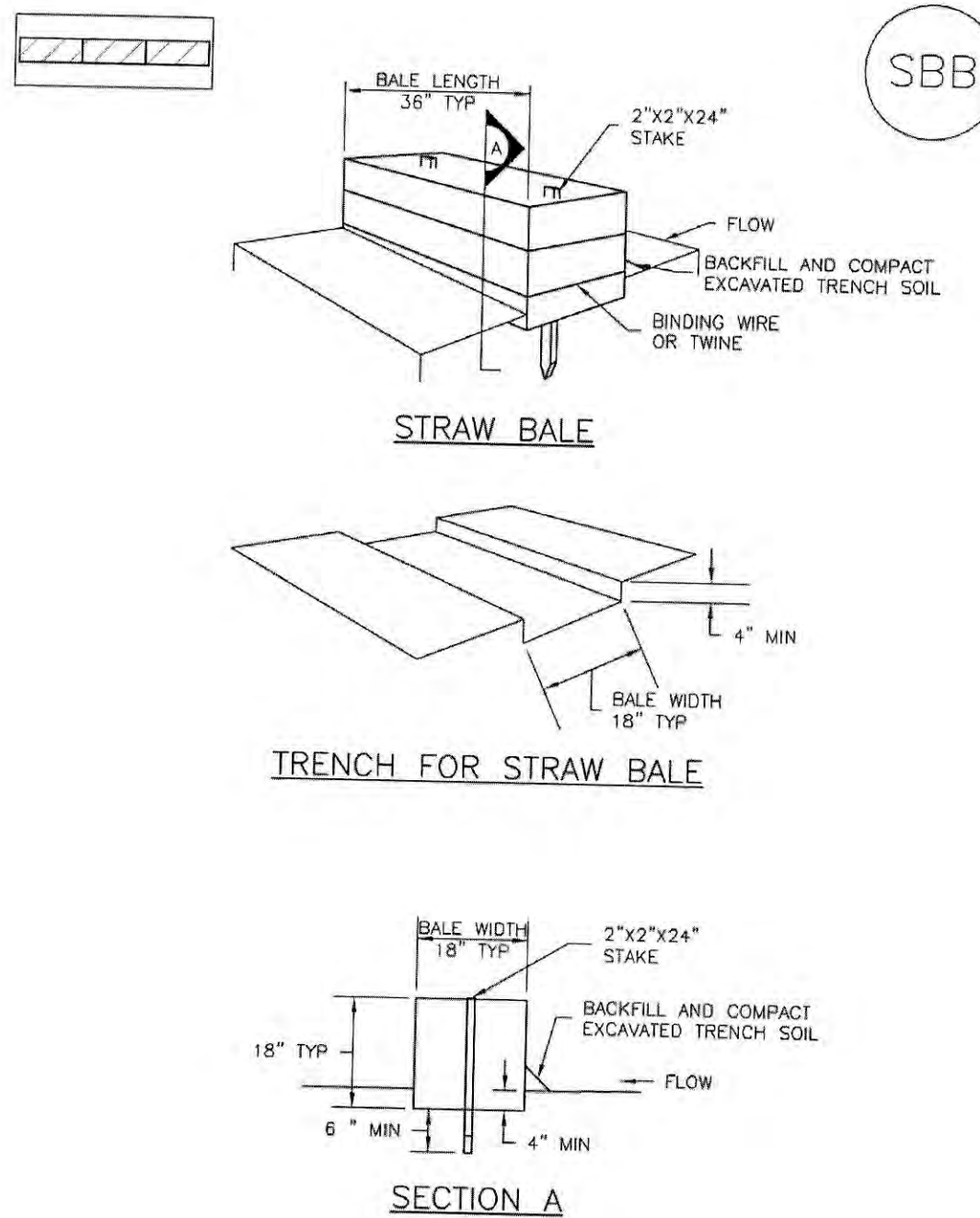
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS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

SC-3

Straw Bale Barrier (SBB)



SBB-1. STRAW BALE

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

Straw Bale Barrier (SBB)

SC-3

STRAW BALE INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION(S) OF STRAW BALES.
- STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
- STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
- WHEN STRAW BALES ARE USED IN SERIES AS A BARRIER, THE END OF EACH BALE SHALL BE TIGHTLY ABUTTING ONE ANOTHER.
- STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".
- A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PLACED SO THAT BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S). ALL EXCAVATED SOIL SHALL BE PLACED ON THE UPHILL SIDE OF THE STRAW BALE(S) AND COMPACTED.
- TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"x2"x24". WOODEN STAKES SHALL BE DRIVEN 6" INTO THE GROUND.

STRAW BALE 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.
- STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR DAMAGED BEYOND REPAIR.
- SEDIMENT ACCUMULATED UPSTREAM OF STRAW BALE BARRIER SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/4 OF THE HEIGHT OF THE STRAW BALE BARRIER.
- STRAW BALES ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
- WHEN STRAW BALES 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, 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.

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

DRAWN BY: D.E. WATTS
DATE: 10-28-19
DWG. NO.: 17-4958-04B
SURVEYED BY: DEW, ESV, 10-24-16, 1-24-17, 4-18-19

APPROVED BY:
PROJ. NO.
DWG.

REVISIONS

OLIVER E. WATTS
CONSULTING ENGINEER
COLORADO SPRINGS

PROJECT
16140 OLD DENVER ROAD
PART NW1/4 SEC. 26, T.11S., R.67W. 6TH P.M.
EL PASO COUNTY

SHT. NAME
CONSTRUCTION DOCUMENT
GRADING AND EROSION CONTROL PLAN

SHT. NO.
1
OF
1