



July 7, 2023

El Paso County
Planning & Community Development
2880 International Circle, Suite 110
Colorado Springs, CO 80910

Attn.: Project Manager

RE: Timberline Storage Yard
Private Detention/Stormwater Quality Pond

Dear Project Manager:

Per the approved construction drawings for "Timberline Storage Yard" improvements were made to construct a water quality facility in compliance with the current El Paso County Drainage Criteria and the approved Final Drainage Report for this project.

Based upon this information and periodic site visits to the project during significant/key phases of the stormwater BMP installation, M&S Civil Consultants, Inc. is of the opinion that the stormwater BMPs have been constructed in general compliance with the approved design plans, and specifications as filed with El Paso County.

Statement Of Engineer In Responsible Charge

To the best of my knowledge, information and belief, for the referenced project above, the improvements have been constructed in general compliance with the approved design plans and specifications as filed with El Paso County to provide the required storage volume and meet the required release rates documented by the SDI design form, the stage areas, elevations and outlet dimensions. In addition, to the best of my knowledge, information and belief, for the referenced project above, the site and adjacent properties (as affected by work performed under the County permit) are stable with respect to settlement and subsidence, sloughing of cut and fill slopes, revegetation or other ground cover, and that the improvements (public improvements, common development improvements, site grading and paving) meet or exceed the minimum design requirements.

Virgil A. Sanchez
Colorado P.E. No.37160
For and on behalf of M&S Civil
Consultants, Inc.



AS-BUILT ENGINEERING RECORD DRAWINGS

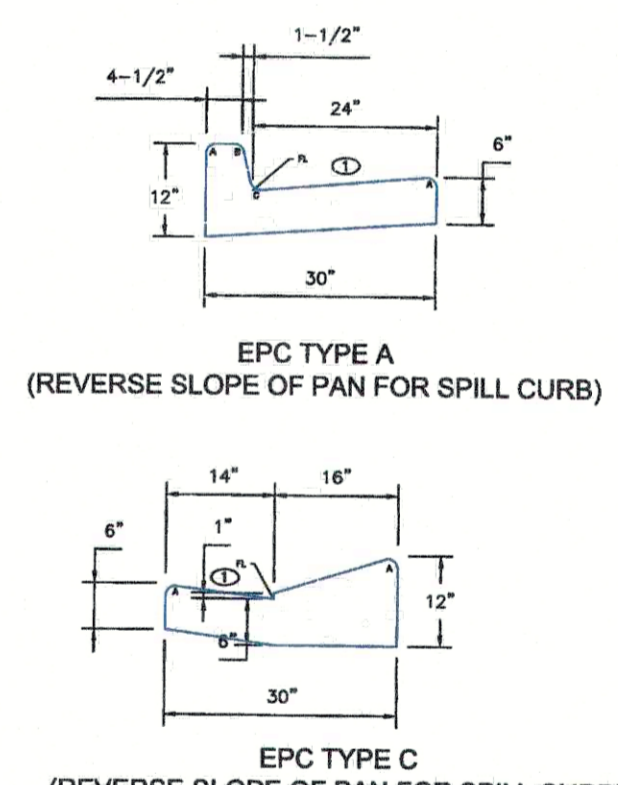
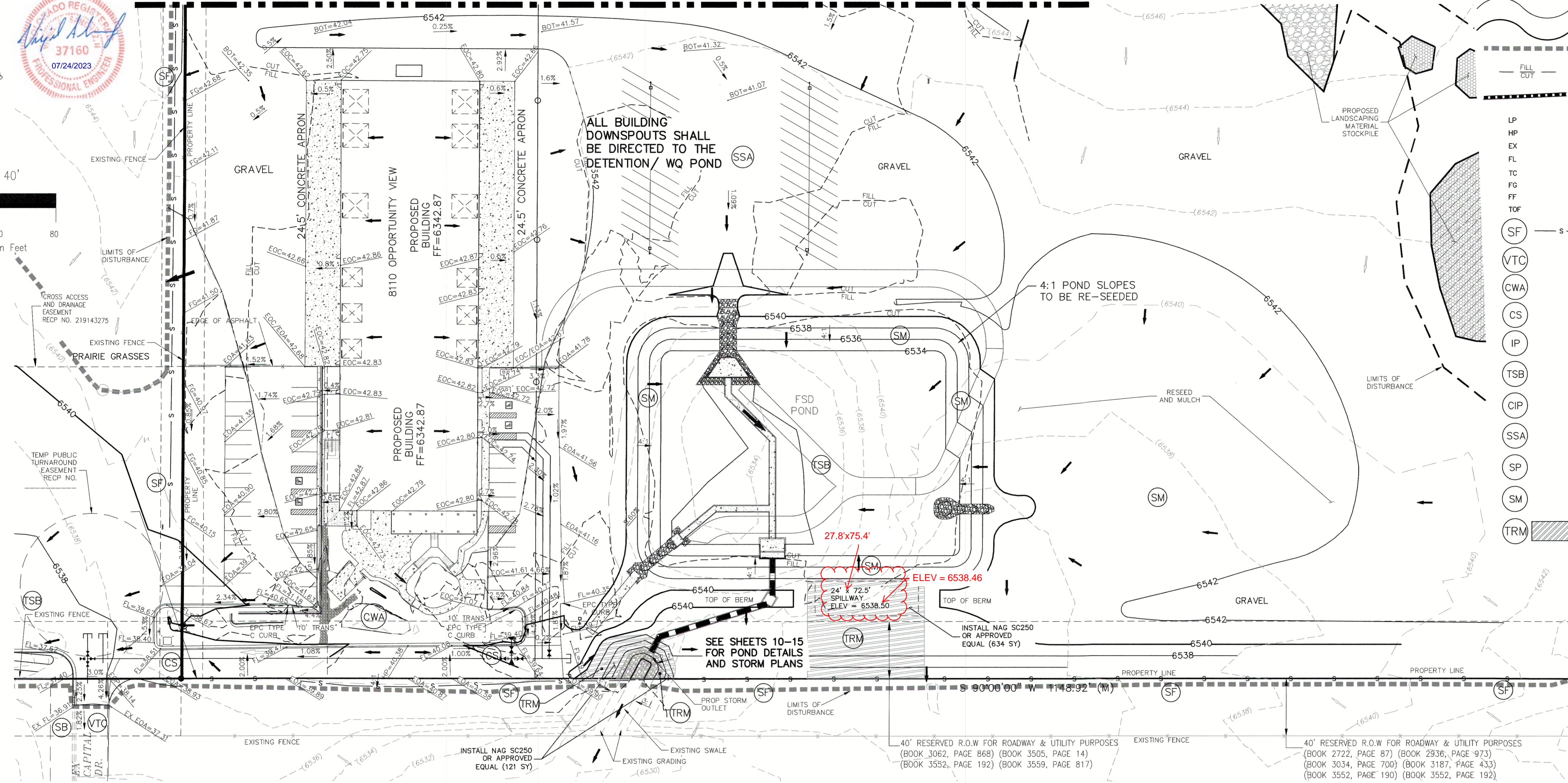
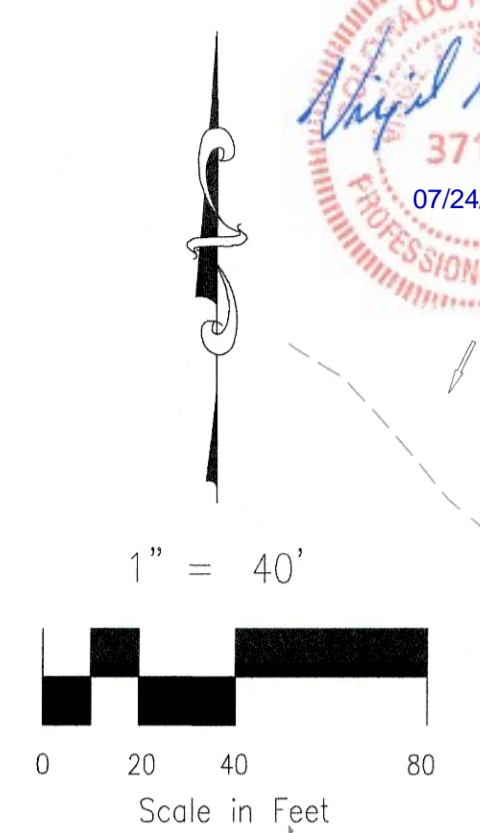
TIMBERLINE STORAGE YARD

GRADING AND EROSION CONTROL PLAN

SEE SHEET GR02

LEGEND

- EX MAJ CONT
- EX MIN CONT
- PROP MAJ CONT
- PROP MIN CONT
- LIMITS OF DISTURBANCE
- CUT FILL LINE
- PROPOSED STORM SEWER INLET WITH PIPE
- LP LOW POINT
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- EX EXISTING
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- FG FINISH GRADE
- FF FINISH FLOOR
- TOF TOP OF FOOTING
- S SILT FENCE - INITIAL
- VTC VEHICLE TRACKING CONTROL - INITIAL
- CWA CONCRETE WASH-OUT BASIN - INITIAL
- CS CURB SOCKS - INITIAL/INTERIM
- IP INLET PROTECTION - INITIAL
- TSB TEMPORARY SEDIMENT BASIN - INTERIM
- CIP CULVERT INLET PROTECTION - INITIAL
- SSA STABILIZED STAGING & STORAGE AREA - INITIAL
- SP TEMPORARY STOCK PILE AREA - INITIAL
- SM SEEDING & MULCHING - PERM
- TRM NORTH AMERICAN GREEN SC250 PERMANENT EROSION CONTROL BLANKET (OR APPROVED EQUAL) - PERM



CONTACTS

- OWNER**
TIMBERLINE LANDSCAPING, INC.
8110 OPPORTUNITY VIEW
COLORADO SPRINGS, CO 80939
- CIVIL ENGINEER**
MS CIVIL CONSULTANTS, INC.
102 E. PINES PEAK AVE. STE 306
COLORADO SPRINGS, CO 80903
VIRGIL A. SANCHEZ, P.E.
719-491-0818
- WATER AND WASTEWATER**
CHEROKEE METROPOLITAN DISTRICT
6250 PALMER PARK BOULEVARD
COLORADO SPRINGS, CO 80915-1721
JONATHAN SMITH
719-597-5080
- COUNTY ENGINEER**
EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT
2880 INTERNATIONAL CIRCLE, SUITE 110
COLORADO SPRINGS, COLORADO 80910
719-520-6300
- FIRE DEPARTMENT**
CIMARRON HILLS FIRE DEPARTMENT
1835 TUSSEKIE PLACE
COLORADO SPRINGS, CO 80915
719-591-0980
- TELEPHONE COMPANY**
U.S. WEST COMMUNICATIONS (LOCATORS)
800-922-1987
AT&T (LOCATORS)
719-635-3674

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10 OF 16	TIMBERLINE FULL SPECTRUM DET. POND 1 SITE PLAN
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DESIGN ENGINEER'S STATEMENT

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLANS AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.



VIRGIL A. SANCHEZ, COLORADO P.E. #37160
FOR AND ON BEHALF OF M & S CIVIL CONSULTANTS, INC. DATE

NOTE:

- THE PARTIES RESPONSIBLE FOR THIS PLAN HAVE FAMILIARIZED THEMSELVES WITH ALL CURRENT ACCESSIBILITY CRITERIA AND SPECIFICATIONS AND THE PROPOSED PLAN REFLECTS ALL SITE ELEMENTS REQUIRED BY THE APPLICABLE ADA DESIGN STANDARDS AND GUIDELINES AS PUBLISHED BY THE UNITED STATES DEPARTMENT OF JUSTICE. APPROVAL OF THIS PLAN BY EL PASO COUNTY DOES NOT ASSURE COMPLIANCE WITH THE ADA OR ANY REGULATION OR GUIDELINES ENACTED OR PROMULGATED UNDER OR WITH RESPECT TO SUCH LAWS.
- ADDITIONAL NOTES:**
STAGING AREA TO BE DETERMINED BY CONTRACTOR IN THE FIELD. THE LOCATIONS SHALL BE DELINEATED ON THIS PLAN BY THE CONTRACTOR.
- THE EROSION CONTROL DELINEATED ON THIS PLAN SHALL BE REGULARLY UPDATED BY THE CONTRACTOR.
- TEMPORARY SEDIMENT TRAP LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR IN THE FIELD.
- EXISTING SITE TERRAIN GENERALLY SLOPES FROM NORTH TO SOUTH AT GRADE RATES THAT VARY BETWEEN 2% TO 7%.
- THERE ARE NO BATCH PLANTS ON SITE.
- AREAS LEFT OPEN FOR 30 DAYS OR MORE, OTHER THAN FOR UTILITY AND DRAINAGE CONSTRUCTION SHALL BE SEEDING AND/OR MULCHED.
- NO PORTION OF THIS PROPERTY IS LOCATED WITHIN A DESIGNATED FEMA FLOODPLAIN IN ACCORDANCE WITH FLOOD INSURANCE RATE MAPS (FIRM) 08041C0543F, EFFECTIVE DATE DECEMBER 7, 2018.

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 nor does it affirm that sufficient easements or other permissions exist for any off site work.

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

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



JENNIFER IRVINE, P.E.
COUNTY PROJECT ENGINEER SIGNATURE

OWNER/DEVELOPER'S STATEMENT:

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN AND ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

OWNER SIGNATURE: _____ DATE: 4/8/2020

EL PASO COUNTY FILE NO. PPR 19-042

TIMBERLINE STORAGE YARD

GRADING AND EROSION CONTROL PLAN

PROJECT NO. 43-095 DATE: 03/30/2020

DESIGNED BY: GW HORIZONTAL SCALE: 1"=40'

DRAWN BY: CW VERTICAL SCALE: VAS

CHECKED BY: _____

SHEET 1 OF 16 **GR01**

102 E. PINES PEAK AVE. 3RD FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.555.5485

FOR AND ON BEHALF OF
M&S CIVIL CONSULTANTS,
INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS:

NO.	DATE	DESCRIPTION

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

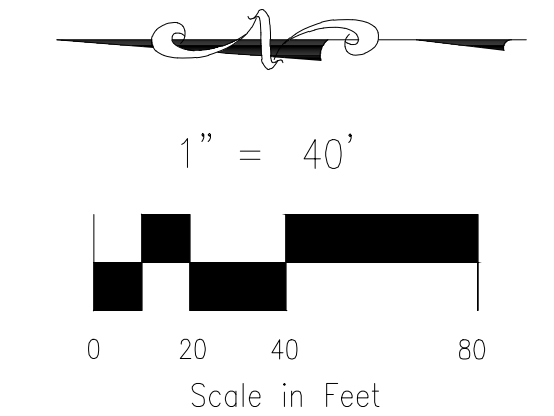
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TIMBERLINE STORAGE YARD

GRADING AND EROSION CONTROL PLAN



LEGEND	
LP	LOW POINT
HP	HIGH POINT
EX	EXISTING
FL	FLOWLINE
TC	TOP OF CURB
EX MIN CONT	FINISH GRADE
PROP MAJ CONT	FINISH FLOOR
PROP MIN CONT	TOP OF FOOTING
---	SILT FENCE - INITIAL
---	VEHICLE TRACKING CONTROL - INITIAL
---	CONCRETE WASH-OUT BASIN - INITIAL
---	STRAW BALE - INITIAL
---	INLET PROTECTION - INITIAL
---	TEMPORARY SEDIMENT BASIN - INTERIM
---	CULVERT INLET PROTECTION - INITIAL
---	STABILIZED STAGING & STORAGE AREA - INITIAL
---	TEMPORARY STOCK PILE AREA - INITIAL
---	NORTH AMERICAN GREEN SC250 PERMANENT EROSION CONTROL BLANKET (OR APPROVED EQUAL) - PERM
---	PROPOSED STORM SEWER INLET WITH PIPE
---	PROPOSED MAJ CONT
---	PROPOSED MIN CONT
---	LIMITS OF DISTURBANCE
---	CUT FILL LINE
---	FILL
---	CUT
---	PROPERTY LINE
---	EXISTING FENCE
---	PROPOSED LANDSCAPING MATERIAL STOCKPILE
---	MODULAR BLOCK LANDSCAPE MATERIAL BAYS
---	TEMPORARY BUILDINGS
---	TRUCK WASH AREA
---	15' RAILROAD SPUR EASEMENT (BOOK 2722, PAGE 86) (BOOK 3505, PAGE 9)
---	15' RAILROAD SPUR EASEMENT (BOOK 2722, PAGE 86) (BOOK 3505, PAGE 9)

ADDITIONAL NOTES:
STAGING, STORAGE AND STOCKPILE AREAS TO BE DETERMINED BY CONTRACTOR IN THE FIELD. THE LOCATIONS SHALL BE DELINEATED ON THIS PLAN BY THE CONTRACTOR.

THE EROSION CONTROL DELINEATED ON THIS PLAN SHALL BE REGULARLY UPDATED BY THE CONTRACTOR.

ALL TEMPORARY OR PERMANENT GRADING DISTURBANCES SHALL BE RE-SEEDING AND MULCHED PER EL PASO COUNTY CRITERIA AND SPECIFICATIONS.

CONSTRUCTION NOTES:
NO WETLANDS ARE TO BE PERMANENTLY DISTURBED PER THIS GRADING PLAN.

ALL RIPRAP SHOWN ON THE PLANS SHALL BE TYPE 'M'. RIPRAP SHALL BE PLACED IN THE LOCATIONS INDICATED BY THE PLAN OR IN AREAS AS THE CONTRACTOR SEES FIT TO CONTROL EROSION. ALL RIPRAP SHALL BE PLACED AT A MINIMUM THICKNESS OF 2.0' DEEP.

AREAS OUTSIDE OF THE CONSTRUCTION SITE BOUNDARY PROTECTED BY SILT FENCE, GRADING LIMITS AND/OR LIMITS OF DISTURBANCE AS SHOWN ON PLANS.

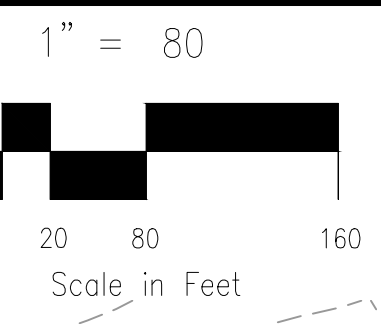
FOR STORM SEWER AND POND CONSTRUCTION DRAWINGS AND DETAILS, SEE THESE PLANS, BY M&S CIVIL CONSULTANTS, INC.

TIMBERLINE STORAGE YARD	
GRADING AND EROSION CONTROL PLAN	
PROJECT NO. 43-095	DATE: 03/30/2020
DESIGNED BY: GW	SCALE: HORIZONTAL: 1"=40' VERTICAL: N/A
DRAWN BY: VAS	SHEET 2 OF 16
CHECKED BY:	GR02
102 E. Pikes Peak Ave., 5th Floor Colorado Springs, CO 80903 PHONE: 719.555.5485	
 CIVIL CONSULTANTS, INC.	
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.	
APPROVED BY:	DATE:
BY: DESCRIPTION:	
NO. DATE:	
THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.	
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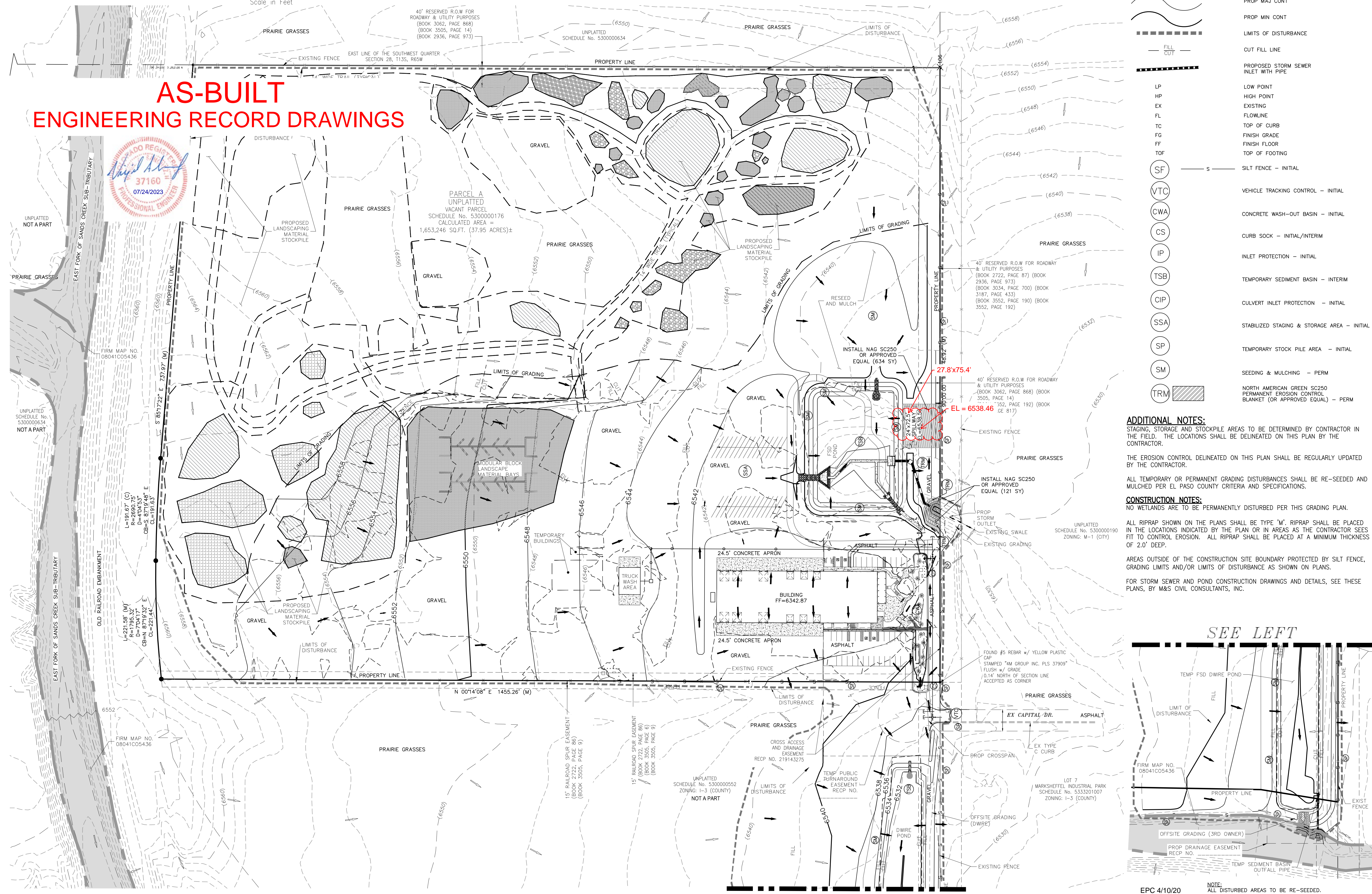
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TIMBERLINE STORAGE YARD

OVERALL GRADING AND EROSION CONTROL PLAN



**AS-BUILT
ENGINEERING RECORD DRAWINGS**



LEGEND	
	EX MAJ CONT
	EX MIN CONT
	PROP MAJ CONT
	PROP MIN CONT
	LIMITS OF DISTURBANCE
	CUT FILL LINE
	PROPOSED STORM SEWER INLET WITH PIPE
	LOW POINT
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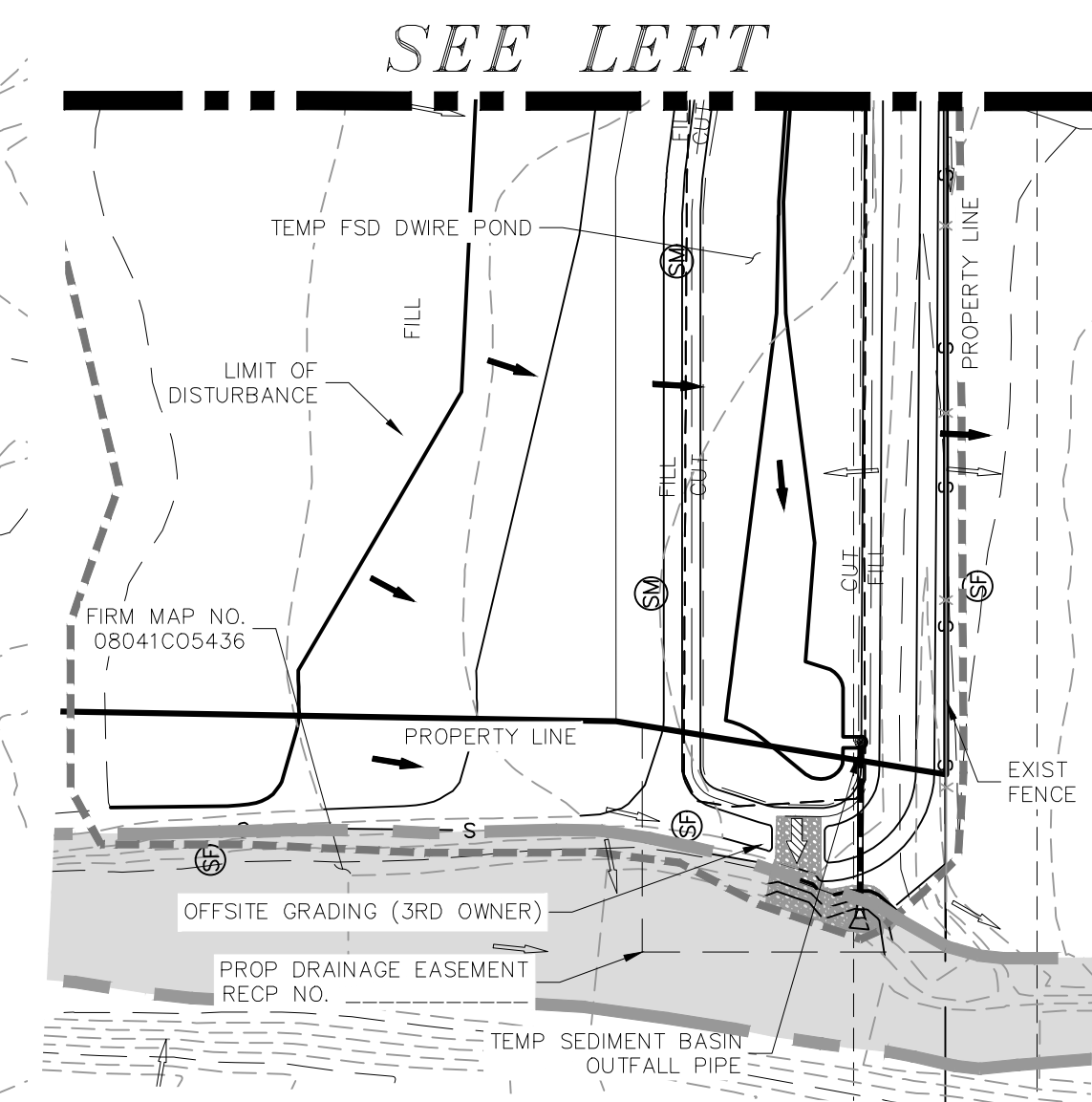
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FOR STORM SEWER AND POND CONSTRUCTION DRAWINGS AND DETAILS, SEE THESE PLANS, BY M&S CIVIL CONSULTANTS, INC.



EPC 4/10/20
NOTE: ALL DISTURBED AREAS TO BE RE-SEEDED.
EL PASO COUNTY FILE NO. PPR 19-042

TIMBERLINE STORAGE YARD	
OVERALL GRADING AND EROSION CONTROL PLAN	DATE: 03/30/2020
PROJECT NO. 43-095	SCALE: HORIZONTAL: 1"=80' VERTICAL: N/A
DESIGNED BY: GW	CHECKED BY: N/A
DRAWN BY: VAS	SHEET 3 OF 16
CHECKED BY:	GR03

102 E. PILES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.555.5485

M&S CIVIL CONSULTANTS, INC.
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APPROV. BY:	DATE:

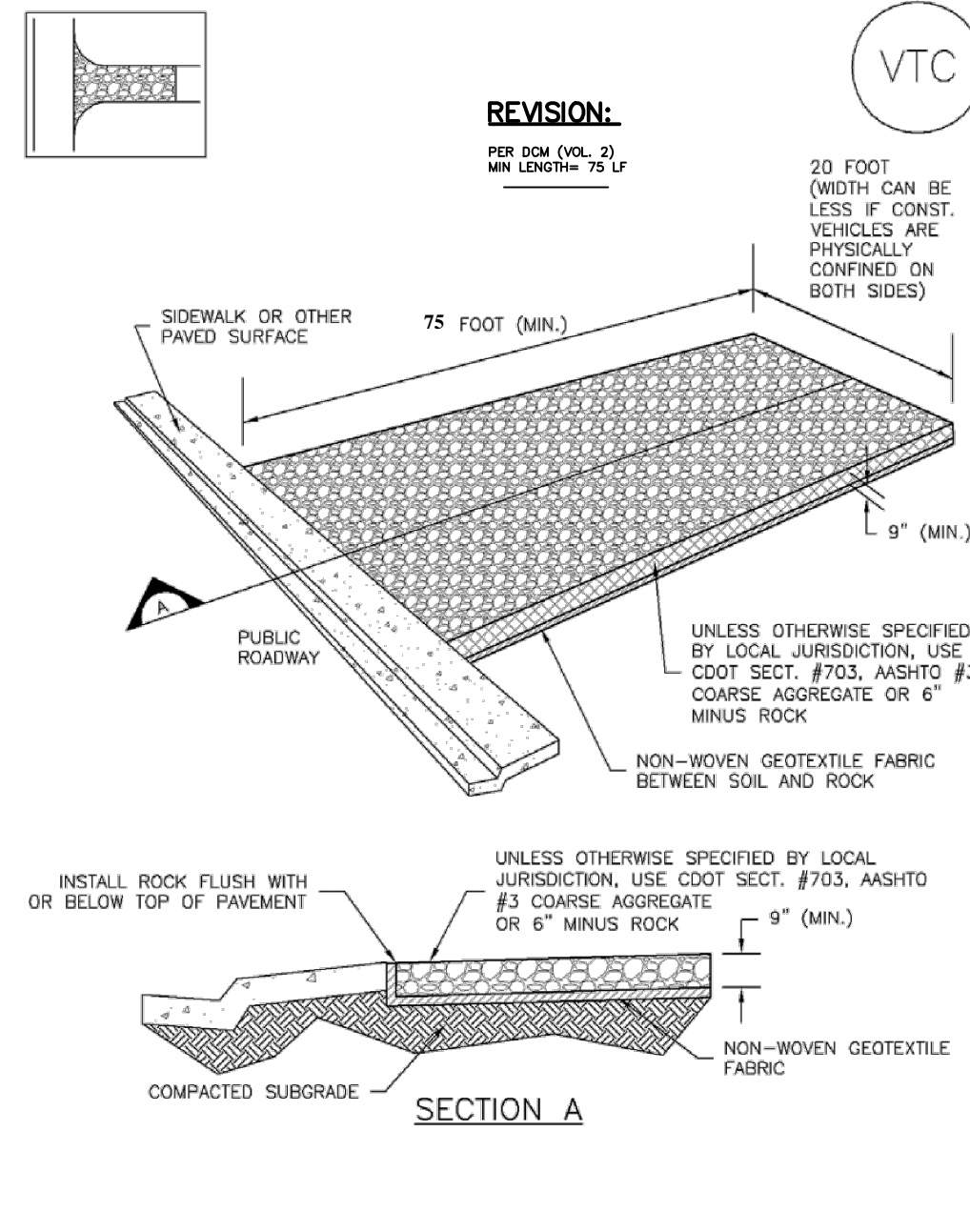
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CAUTION

AS-BUILT ENGINEERING RECORD DRAWINGS



Vehicle Tracking Control (VTC) SM-4

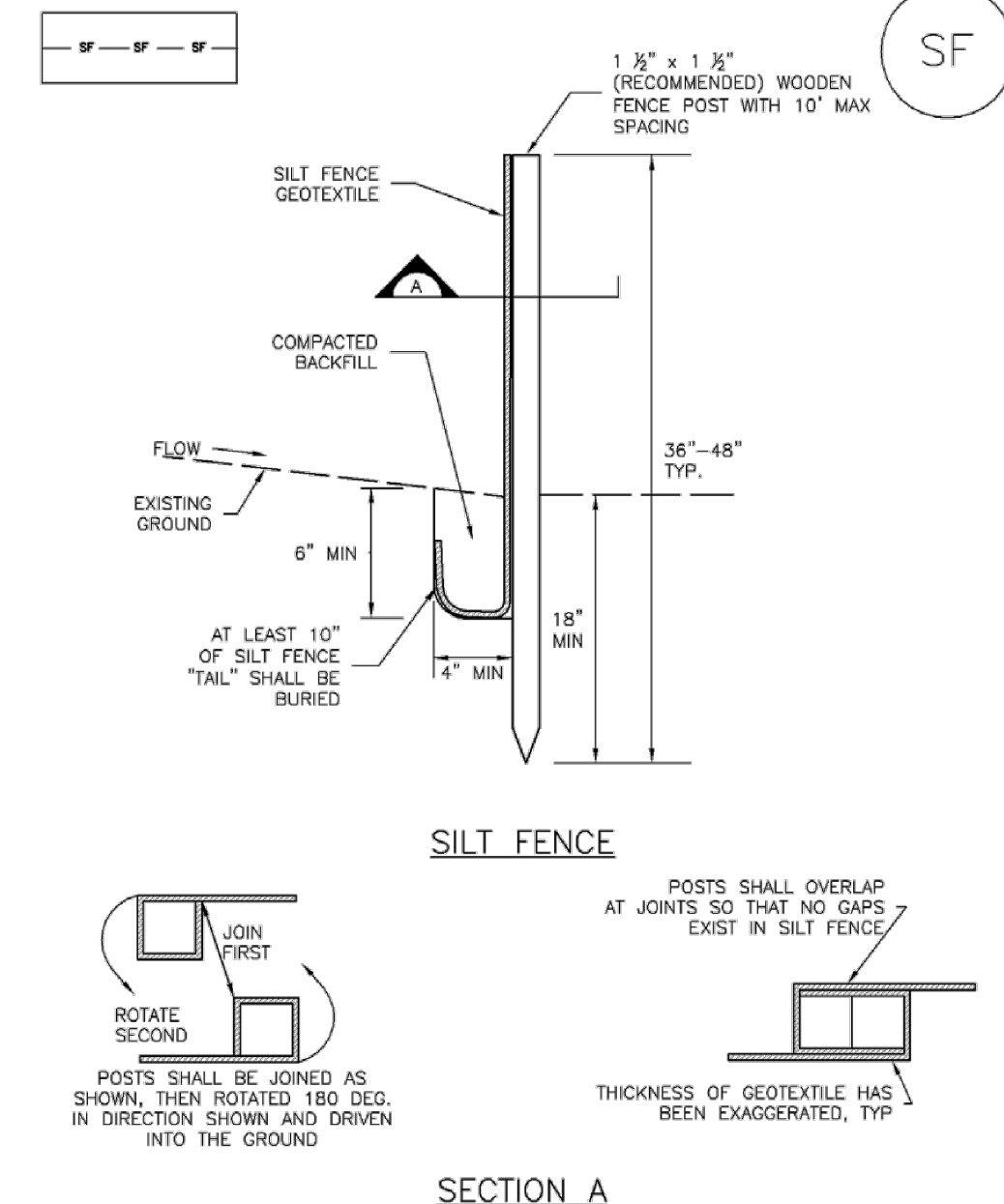


VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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

INITIAL

Silt Fence (SF) SC-1

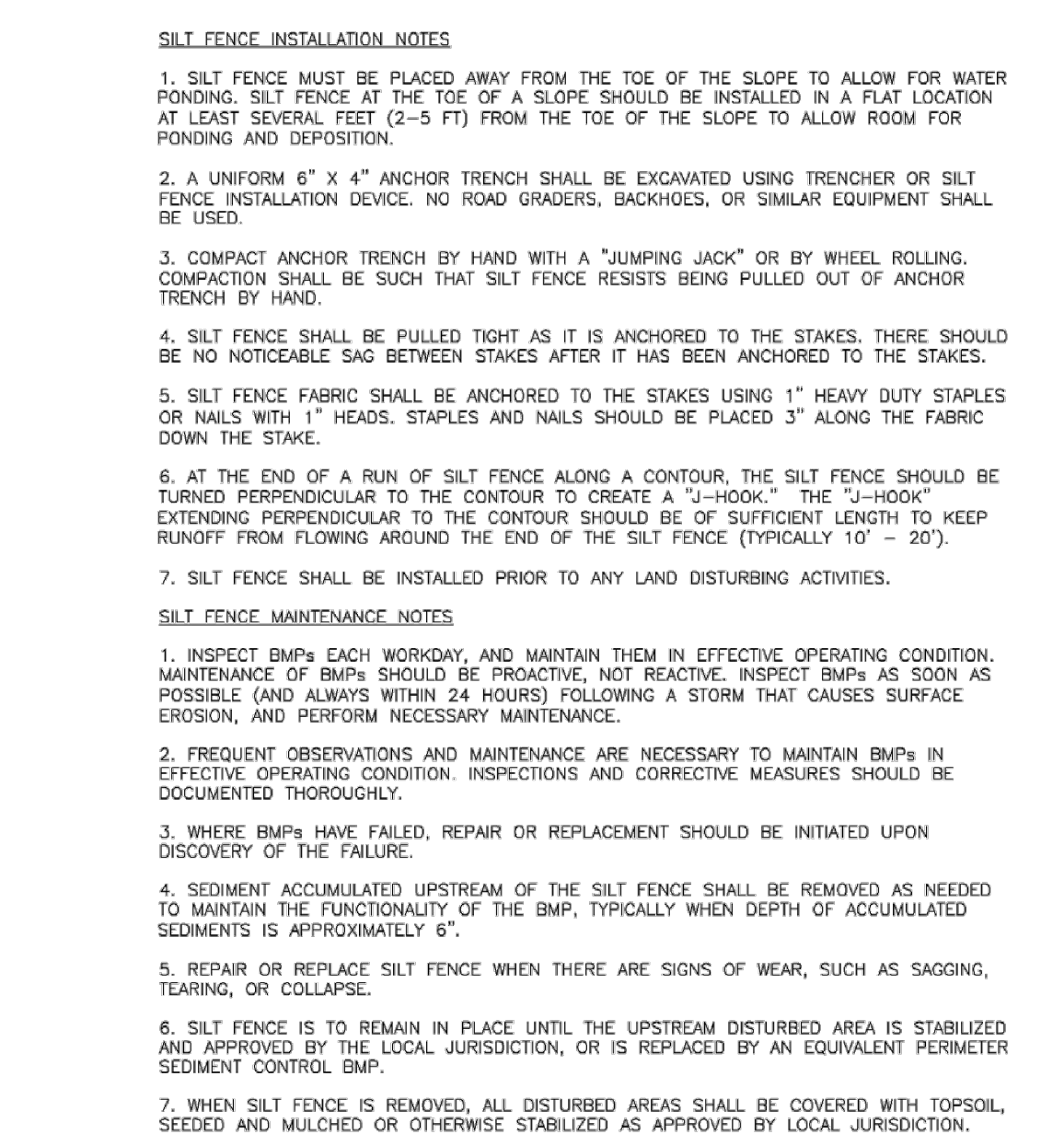


SF-1. SILT FENCE

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

INITIAL

Silt Fence (SF) SC-1



SF-4. SILT FENCE

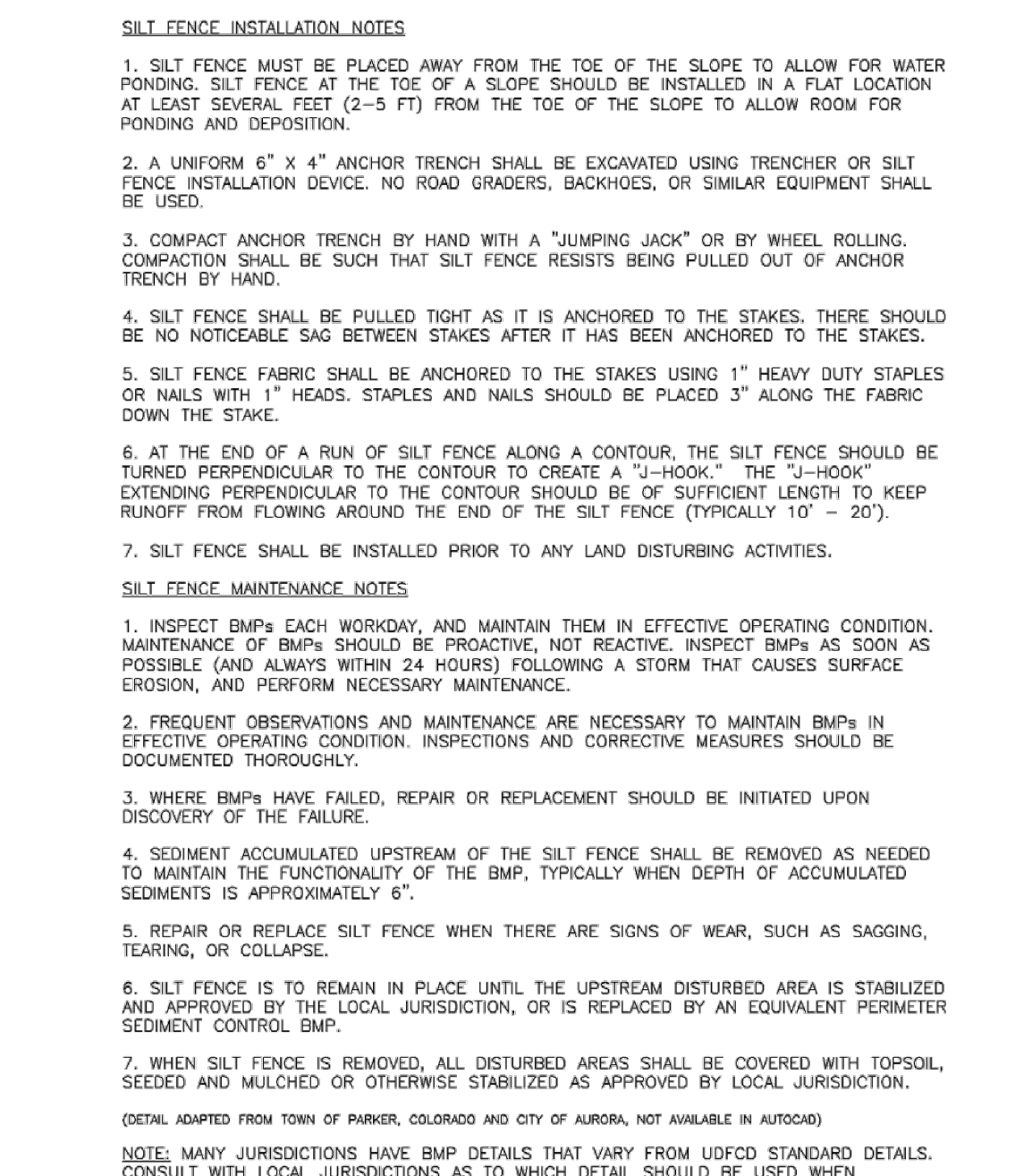
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SF-4

INITIAL

GRADING AND EROSION CONTROL NOTES:

- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP IS APPROVED AND A 'NOTICE TO PROCEED' HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.
- CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT WOULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
- ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
- TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE DRAINAGE DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
- FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
- ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT AFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE EGM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
- EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
- COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK, OR STREAM.
- DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
- EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
- THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
- NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE EGM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ON-SITE, AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
- OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE 'COLORADO WATER QUALITY CONTROL ACT' (TITLE 25, ARTICLE 8, CRS), AND THE 'CLEAN WATER ACT' (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, FROM VOLUME II AND THE EGM APPENDIX. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO CONSTRUCTION THE PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- THE SITE REPORT FOR THIS SITE HAS BEEN PREPARED BY CTL THOMPSON, INC., ENTITLED GEOTECHNICAL INVESTIGATION TIMBERLINE LANDSCAPING OFFICE AND WAREHOUSE, DATED MAY 5, 2017, AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:
COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WOOD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATtn: PERMITS UNIT

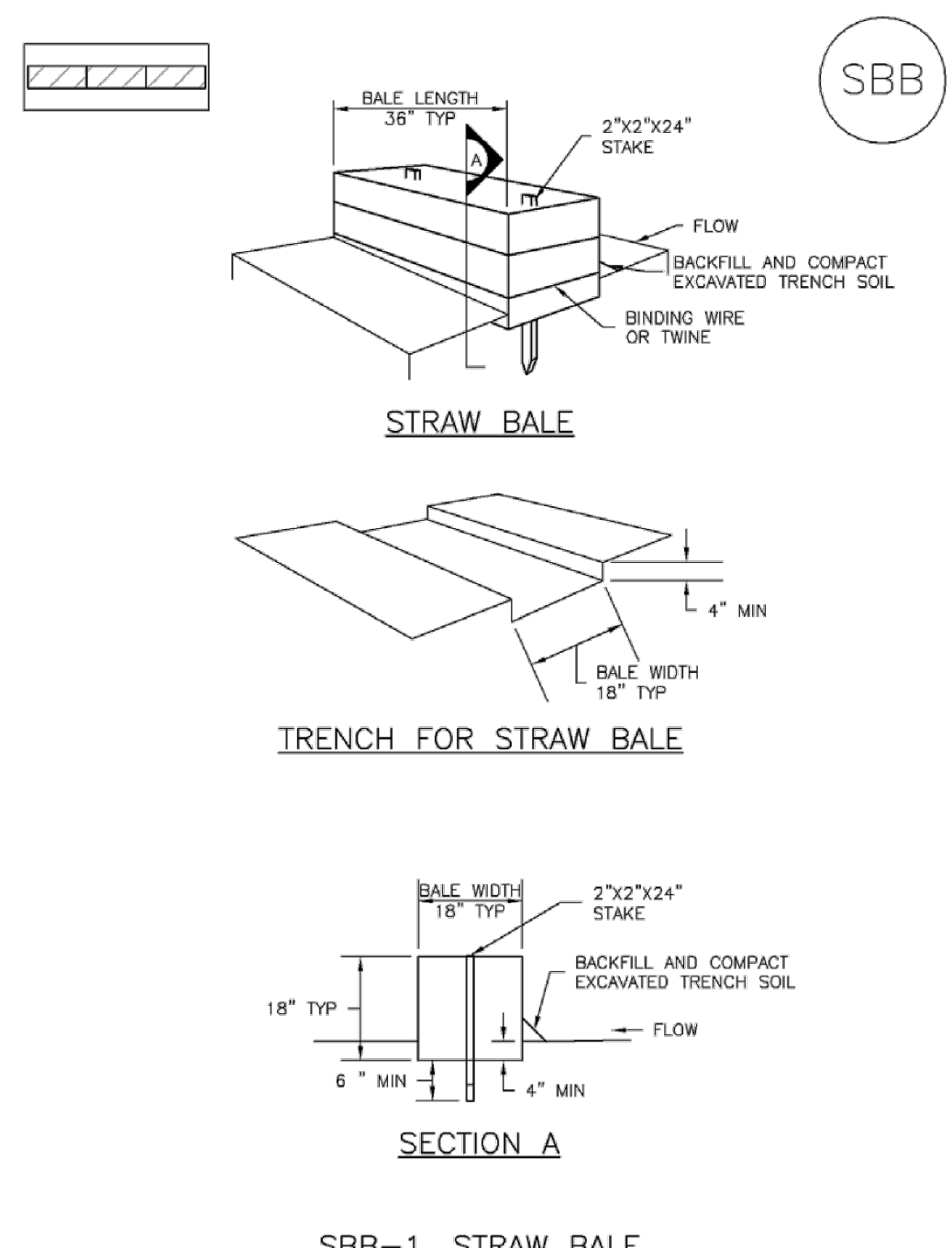
SC-1 Silt Fence (SF)



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

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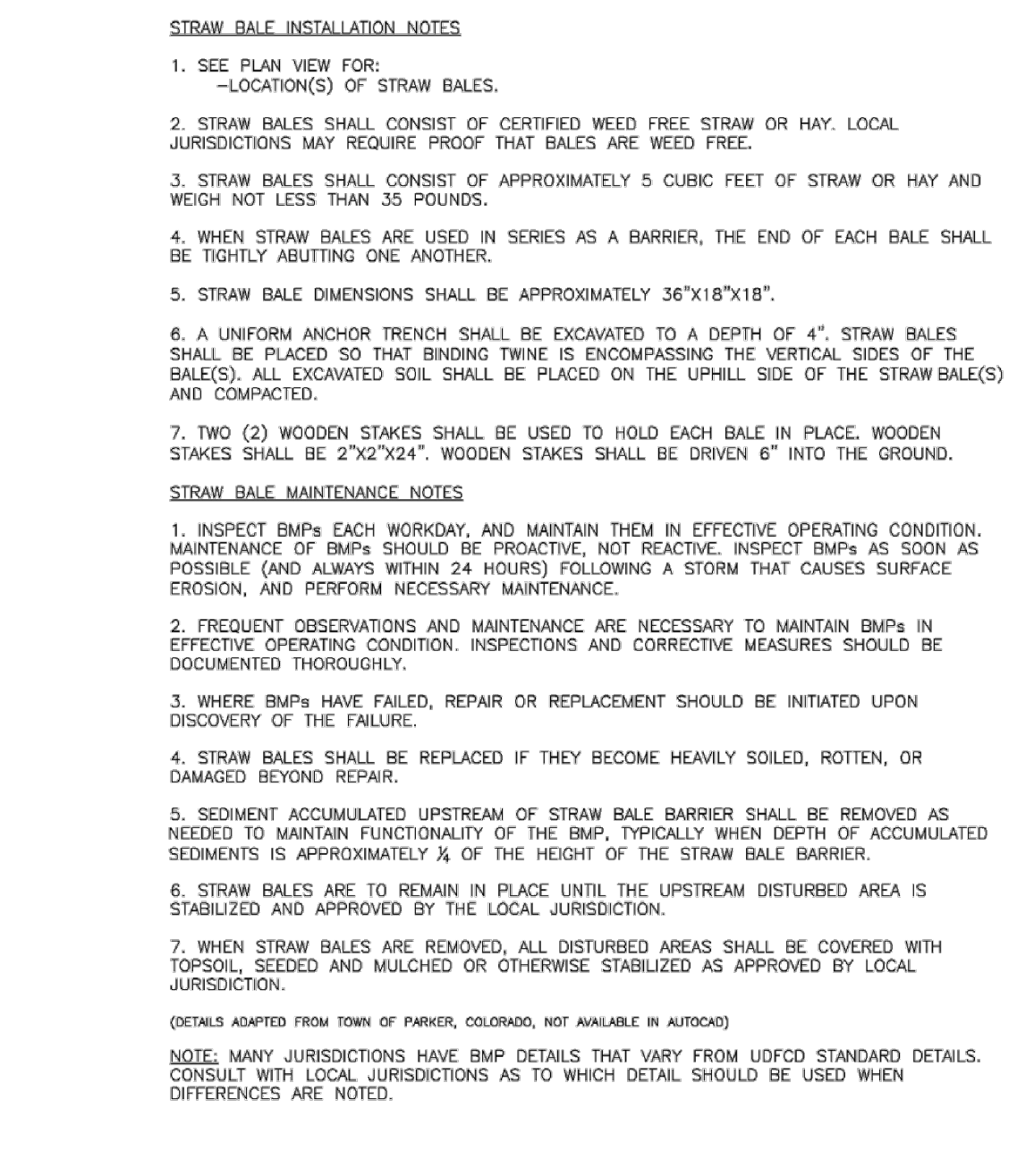
SC-3 Straw Bale Barrier (SBB)



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

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Straw Bale Barrier (SBB) SC-3



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

INITIAL

TIMBERLINE STORAGE YARD	
GRADING AND EROSION CONTROL DETAILS	DATE: 03/30/2020
PROJECT NO. 43-095	SCALE: HORIZONTAL: N/A VERTICAL: N/A
DESIGNED BY: GW	SHEET 6 OF 16
DRAWN BY: GW	GR06
CHECKED BY: VAS	
102 E. PINE PEAK AVE., 5TH FLOOR COLORADO SPRINGS, CO 80903 PHONE: 719.555.5485	
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.	
REVISIONS:	DATE:
BY:	DESCRIPTION:
APPROVED BY:	DATE:
THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARED OF THESE PLANS.	
CAUTION	

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AS-BUILT ENGINEERING RECORD DRAWINGS



EC-6 Rolled Erosion Control Products (RECP)

Turf Reinforcement Mat (TRM): A rolled erosion control product composed of non-degradable synthetic fibers, filaments, mats, wire mesh, and/or other elements, processed into a permanent, three-dimensional matrix of sufficient thickness. TRMs, which may be supplemented with degradable components, are designed to impart immediate erosion protection, enhance vegetation establishment and provide long-term functionality by permanently reinforcing vegetation during and after maturation. Note: TRMs are typically used in hydraulic applications, such as high flow ditches and channels, steep slopes, stream banks, and shorelines, where erosive forces may exceed the limits of natural, unreinforced vegetation or in areas where limited vegetation establishment is anticipated.

Tables RECP-1 and RECP-2 provide guidelines for selecting rolled erosion control products appropriate to site conditions and desired longevity. Table RECP-1 is for conditions where natural vegetation alone will provide permanent erosion control, whereas Table RECP-2 is for conditions where vegetation alone will not be adequately stable to provide long-term erosion protection due to flow or other conditions.

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

PERM

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

Table RECP-1. ECTC Standard Specification for Temporary Rolled Erosion Control Products
(Adapted from Erosion Control Technology Council 2005)

Product Description	Slope Applications*	Channel Applications*	Minimum Tensile Strength ¹	Expected Longevity
	Maximum Gradient	C Factor ^{2,3}	Max. Shear Stress ^{4,5,6}	
Mulch Control Mats	5:1 (H:V)	≤0.10 @ 5:1	0.25 lbs/ft ² (12 Pa)	5 lbs/ft (0.073 kN/m)
Netless Rolled Erosion Control Blankets	4:1 (H:V)	≤0.10 @ 4:1	0.5 lbs/ft ² (24 Pa)	5 lbs/ft (0.073 kN/m)
Single-net Erosion Control Blankets & Open Weave Textiles	3:1 (H:V)	≤0.15 @ 3:1	1.5 lbs/ft ² (72 Pa)	50 lbs/ft (0.73 kN/m)
Double-net Erosion Control Blankets	2:1 (H:V)	≤0.20 @ 2:1	1.75 lbs/ft ² (84 Pa)	75 lbs/ft (1.09 kN/m)
Mulch Control Mats	5:1 (H:V)	≤0.10 @ 5:1	0.25 lbs/ft ² (12 Pa)	25 lbs/ft (0.36 kN/m)
Erosion Control Blankets & Open Weave Textiles (slowly degrading)	1.5:1 (H:V)	≤0.25 @ 1.5:1	2.00 lbs/ft ² (96 Pa)	100 lbs/ft (1.45 kN/m)
Erosion Control Blankets & Open Weave Textiles	1:1 (H:V)	≤0.25 @ 1:1	2.25 lbs/ft ² (108 Pa)	125 lbs/ft (1.82 kN/m)

* C Factor and shear stress for mulch control nettings must be obtained with netting used in conjunction with pre-applied mulch material. (See Section 5.3 of Chapter 7 Construction BMPs for more information on the C Factor.)

- Minimum Average Roll Values, Machine direction using ECTC Mod. ASTM D 5035.
- C Factor calculated as ratio of soil loss from RECP protected slope (tested at specified or greater gradient, H:V) to ratio of soil loss from unprotected (control) plot in large-scale testing.
- Required minimum shear stress RECP (unvegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in) soil loss) during a 30-minute flow event in large-scale testing.
- The permissible shear stress levels established for each performance category are based on historical experience with products characterized by Manning's roughness coefficients in the range of 0.01 - 0.05.
- Acceptable large-scale test methods may include ASTM D 6459, or other independent testing deemed acceptable by the engineer.
- Per the engineer's discretion. Recommended acceptable large-scale testing protocol may include ASTM D 6460, or other independent testing deemed acceptable by the engineer.

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PERM

SM-6 Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

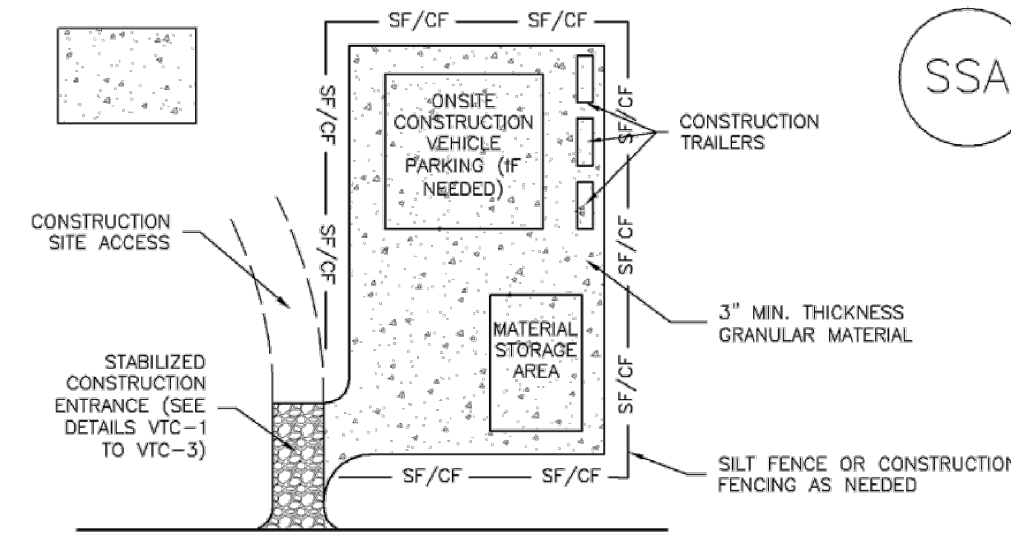
6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM 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)

SM-6 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 SSA-3

INITIAL

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

Table RECP-2. ECTC Standard Specification for Permanent Rolled Erosion Control Products
(Adapted from: Erosion Control Technology Council 2005)

Product Type	Slope Applications	Channel Applications	Minimum Tensile Strength ³
TRMs with a minimum thickness of 0.25 inches (6.35 mm) per ASTM D 6525 and UV stability of 80% per ASTM D 4355 (500 hours exposure).	0.5:1 (H:V)	Maximum Shear Stress ^{4,5}	125 lbs/ft (1.82 kN/m)
	0.5:1 (H:V)	6.0 lbs/ft ² (288 Pa)	150 lbs/ft (2.19 kN/m)
	0.5:1 (H:V)	10.0 lbs/ft ² (480 Pa)	175 lbs/ft (2.55 kN/m)

- For TRMs containing degradable components, all property values must be obtained on the non-degradable portion of the matting alone.
- Minimum Average Roll Values, machine direction only for tensile strength determination using ASTM D 6818 (Supersedes Mod. ASTM D 5035 for RECPs)
- Field conditions with high loading and/or high survivability requirements may warrant the use of a TRM with a tensile strength of 44 kN/m (3,000 lb/ft) or greater.
- Required minimum shear stress TRM (fully vegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in) soil loss) during a 30-minute flow event in large scale testing.
- Acceptable large-scale testing protocols may include ASTM D 6460, or other independent testing deemed acceptable by the engineer.

Design and Installation

RECPs should be installed according to manufacturer's specifications and guidelines. Regardless of the type of product used, it is important to ensure no gaps or voids exist under the material and that all corners of the material are secured using stakes and trenching. Continuous contact between the product and the soil is necessary to avoid failure. Never use metal stakes to secure temporary erosion control products. Often wooden stakes are used to anchor RECPs; however, wooden stakes may present installation and maintenance challenges and generally take a long time to biodegrade. Some local jurisdictions have had favorable experiences using biodegradable stakes.

This BMP Fact Sheet provides design details for several commonly used ECB applications, including:

- ECB-1 Pipe Outlet to Drainageway
- ECB-2 Small Ditch or Drainageway
- ECB-3 Outside of Drainageway

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

PERM

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

Minimizing Long-Term Stabilization Requirements

- Utilize off-site parking and restrict vehicle access to the site.
- Use construction mats in lieu of rock when staging is provided in an area that will not be disturbed otherwise.
- Consider use of a bermed contained area for materials and equipment that do not require a stabilized surface.
- Consider phasing of staging areas to avoid disturbance in an area that will not be otherwise disturbed.

See Detail SSA-1 for a typical stabilized staging area and SSA-2 for a stabilized staging area when materials staging in roadways is required.

Maintenance and Removal

Maintenance of stabilized staging areas includes maintaining a stable surface cover of gravel, repairing perimeter controls, and following good housekeeping practices.

When construction is complete, debris, unused stockpiles and materials should be recycled or properly disposed. In some cases, this will require disposal of contaminated soil from equipment leaks in an appropriate landfill. Staging areas should then be permanently stabilized with vegetation or other surface cover planned for the development.

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

INITIAL

Extended Detention Basin (EDB) T-5

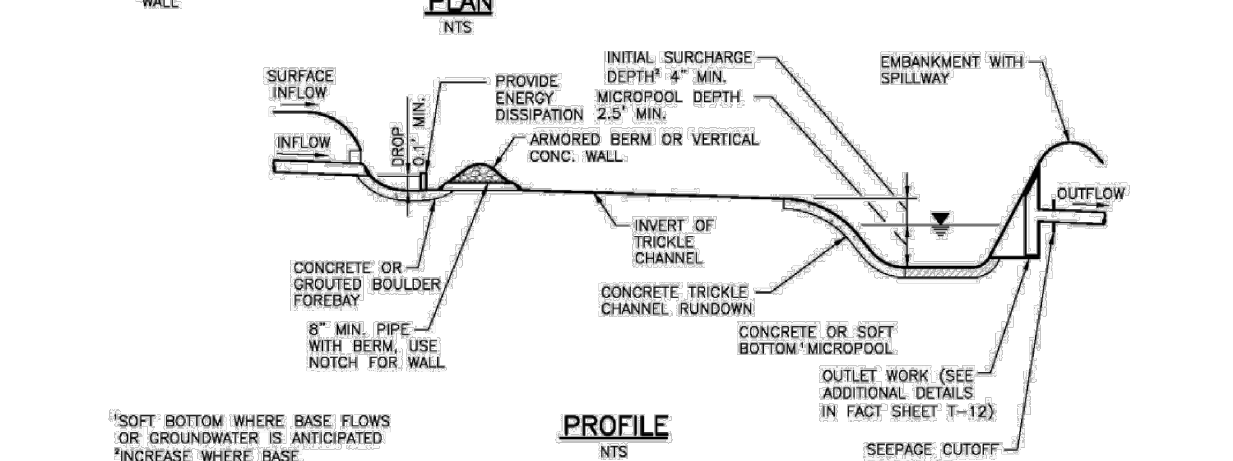
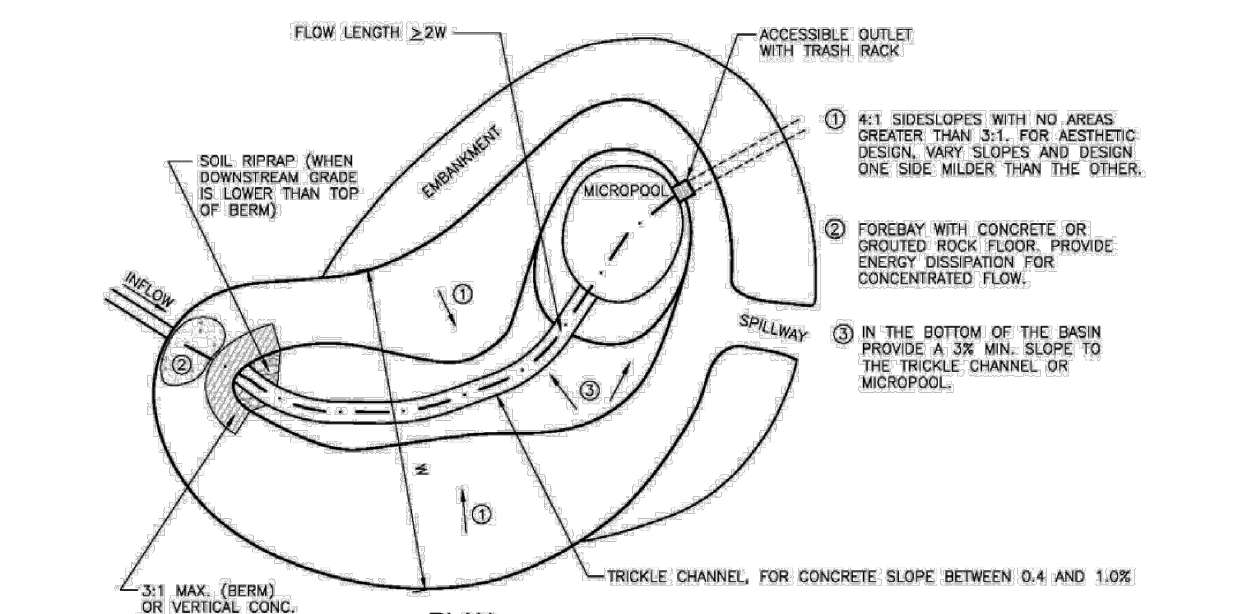


FIGURE EDB-3 EXTENDED DETENTION BASIN

Figure EDB-3. Extended Detention Basin (EDB) Plan and Profile

Additional Details are provided in BMP Fact Sheet T-12. This includes outlet structure details including orifice plates and trash racks.

November 2015 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 EDB-11

PERM

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 (I.E., 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)

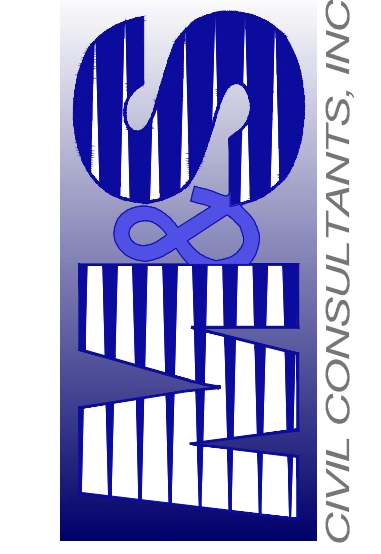
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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

INITIAL

TIMBERLINE STORAGE YARD
GRADING AND EROSION CONTROL DETAILS
PROJECT NO. 43-095
DATE: 03/30/2020
SCALE: HORIZONTAL: N/A
VERTICAL: N/A
DESIGNED BY: GW
DRAWN BY: GW
CHECKED BY: VAS
SHEET 9 OF 18
GR07

102 E. Pikes Peak Ave., 5th Floor
Colorado Springs, CO 80903
PHONE: 719.555.5485



FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.



NO.	DATE	APPROVED BY	DATE	DESCRIPTION

CAUTION

AS-BUILT ENGINEERING RECORD DRAWINGS



STANDARD CONSTRUCTION NOTES:

- ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
- CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIME INCLUDING THE FOLLOWING:
 - EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
 - CITY OF COLORADO SPRINGS/EL PASO COUNTY ENGINEERING CRITERIA MANUAL VOLUMES 1 AND 2.
 - COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.
 - CDOT M&S STANDARDS.
- IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ACCURACY SHOW EXISTING CONDITION BOTH ONSITE AND OFFSITE ON THE CONSTRUCTION PLANS. ANY MODIFICATION NECESSARY DUE TO CONFLICT OMISSIONS OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPERS RESPONSIBILITY TO RECTIFY.
- IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORM WATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, US ARMY CORPS OF ENGINEER ISSUED 401 AND/OR 404 PERMITS AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- ANY TEMPORARY SIGNAGE AND STRIPING SHALL COMPLY WITH EL PASO COUNTY PCD AND MUTCD CRITERIA.
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DPW INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFFSITE DISTURBANCE GRADING, OR CONSTRUCTION.

STORM SEWER GENERAL NOTES

- ALL STATIONING IS ALONG STORM SEWER CENTERLINE UNLESS OTHERWISE INDICATED. ALL ELEVATIONS ARE INVERT UNLESS OTHERWISE INDICATED.
- ALL STORM SEWER BENDS AND WYES SHOWN ON THE PLAN SHALL BE PREFABRICATED.
- HORIZONTAL AND VERTICAL BENDS ARE INDICATED ON THE PLANS.
- JOINTS SHALL BE IN ACCORDANCE WITH ASTM C443 "STANDARD SPECIFICATIONS FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKET." IN NO CASE SHALL THE MAXIMUM JOINT OPENING FOR STRAIGHT ALIGNMENT EXCEED 1 INCH OR ONE AND ONE-HALF INCH ON CURVED ALIGNMENT.
- INLET DIMENSIONS SHOWN ON PLANS REFER TO DISTANCES FROM INSIDE FACES OF BOX BETWEEN THE WIDTHS AND LENGTHS.
- ALL STORM SEWER SHALL BE A MINIMUM OF CLASS III REINFORCED CONCRETE PIPE. SPECIFIC SEGMENTS OF STORM SEWER SHALL BE REQUIRED TO BE CONSTRUCTED OF A MINIMUM OF 5000 PSI CONCRETE DUE TO EXCESSIVE VELOCITIES. REFER TO ADDITIONAL NOTES WITHIN CONSTRUCTION PLANS.
- SINCE ALL PIPE ENTRIES INTO THE BASE ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK.
- STEPS SHALL BE REQUIRED WHEN THE MANHOLE DEPTH EXCEEDS 3'-6" AND SHALL BE IN ACCORDANCE WITH AASHTO M 199.
- ALL REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. VERTICAL STEEL SHALL BE PLACED AT $\frac{1}{4}$ OF WALL. ALL BARS SHALL HAVE A 2" MINIMUM CLEARANCE.
- FLOW CHANNELS AND INVERTS SHALL BE FORMED BY SHAPING WITH CLASS B CONCRETE OR APPROVED GROUT.
- CHECK WITH THE LOCAL GOVERNMENT AUTHORITY FOR ANY ADDITIONAL STORM SEWER SPECIFICATIONS, DETAILS, OR REGULATIONS.
- THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ALL PREFABRICATED STRUCTURES TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

STRUCTURAL CONCRETE NOTES:

- ALL CONSTRUCTION INVOLVING THE PLACEMENT OF STRUCTURAL CONCRETE SHALL BE COMPLETED IN ACCORDANCE WITH STANDARD SPECIFICATIONS, AND AS SUPPLEMENTED BY THE COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION.
- STEEL REINFORCING SHALL BE GRADE 60 FOR ALL REINFORCING STEEL GREATER THAN #4. SPLICING, LAP SPLICING SHALL BE MINIMUM IN THE FOLLOWING TABLE UNLESS OTHERWISE SPECIFIED:

BAR SIZE	#4	#5	#6	#7	#8
SPLICE LENGTH	1'-9"	2'-2"	2'-7"	3'-4"	4'-3"

 ALL REINFORCING SHALL HAVE A 2-INCH MINIMUM COVER UNLESS OTHERWISE SPECIFIED. ALL REINFORCED STEEL TO BE EPOXY COATED.
- CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f_c) OF 4,000 PSI AT 28 DAYS. ALL CONCRETE PLACED AGAINST SOIL SHALL BE TYPE II PORTLAND CEMENT. ALL EXPOSED CORNERS SHALL BE FORMED WITH A 3/4" CHAMFER UNLESS OTHERWISE SPECIFIED.
- EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213.
- BACKFILL AGAINST STRUCTURES SHALL NOT COMMENCE UNTIL ALL SUPPORTING DIAPHRAGMS ARE IN PLACE AND CONCRETE HAS OBTAINED ITS FULL SEVEN DAY STRENGTH. BACKFILL SHALL BE PLACED EQUALLY ON EACH SIDE OF RETAINING WALL STRUCTURES AND CUTOFF WALLS UNTIL THE FINAL GRADE IS REACHED.
- FOOTING EXCAVATIONS SHALL BE EXAMINED BY THE GEOTECHNICAL ENGINEER WITH A 24-HOUR MINIMUM NOTIFICATION FOR SOIL AND/OR CONCRETE TESTING. PLACEMENT OF CONCRETE IN THE ABSENCE OF TESTING SHALL BE COMPLETED AT THE SOLE RISK OF THE CONTRACTOR.
- PRIOR TO THE PLACEMENT OF CONCRETE IN AREAS WHERE SOIL IS PRESENT, THE SOIL SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 6-INCHES. THE MOISTURE CONTENT SHALL BE ADJUSTED TO WITHIN PLUS OR MINUS 2 PERCENT OF THE OPTIMUM MOISTURE CONTENT AND RECOMPACTED TO AT LEAST 95 PERCENT RELATIVE COMPACTION (AASHTO-T-180).

ABBREVIATIONS
 EC -- EPOXY COATED O.F. -- OUTSIDE FACE E.F. -- EACH FACE E.W. -- EACH WAY I.F. -- INSIDE FACE N.F. -- NEAR FACE
 T.O.C. -- TOP OF CONCRETE B.O.C. -- BOTTOM OF CONCRETE CONT. -- CONTINUOUS

TIMBERLINE STORAGE YARD

GENERAL NOTES AND DETAILS

PROJECT NO. 43-095	SCALE:	DATE: 03/30/2020
DESIGNED BY: ET	HORIZONTAL: N/A	
DRAWN BY: ELY	VERTICAL: N/A	
CHECKED BY: VAS		ST01
		SHEET 8 OF 16

102 E PILES PEAK AVE., 5TH FLOOR
 COLORADO SPRINGS, CO 80903
 PHONE: 719.555.5485

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

MIRCIL A. SANCHEZ, COLORADO P.E. NO. 37160

NO.	DESCRIPTION	BY:	DATE:	DATE:

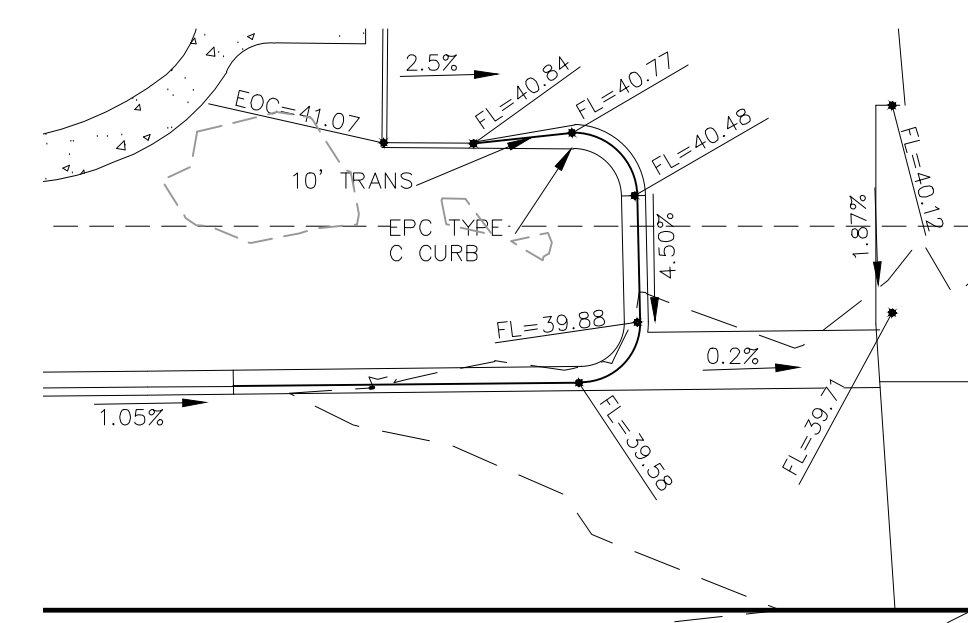
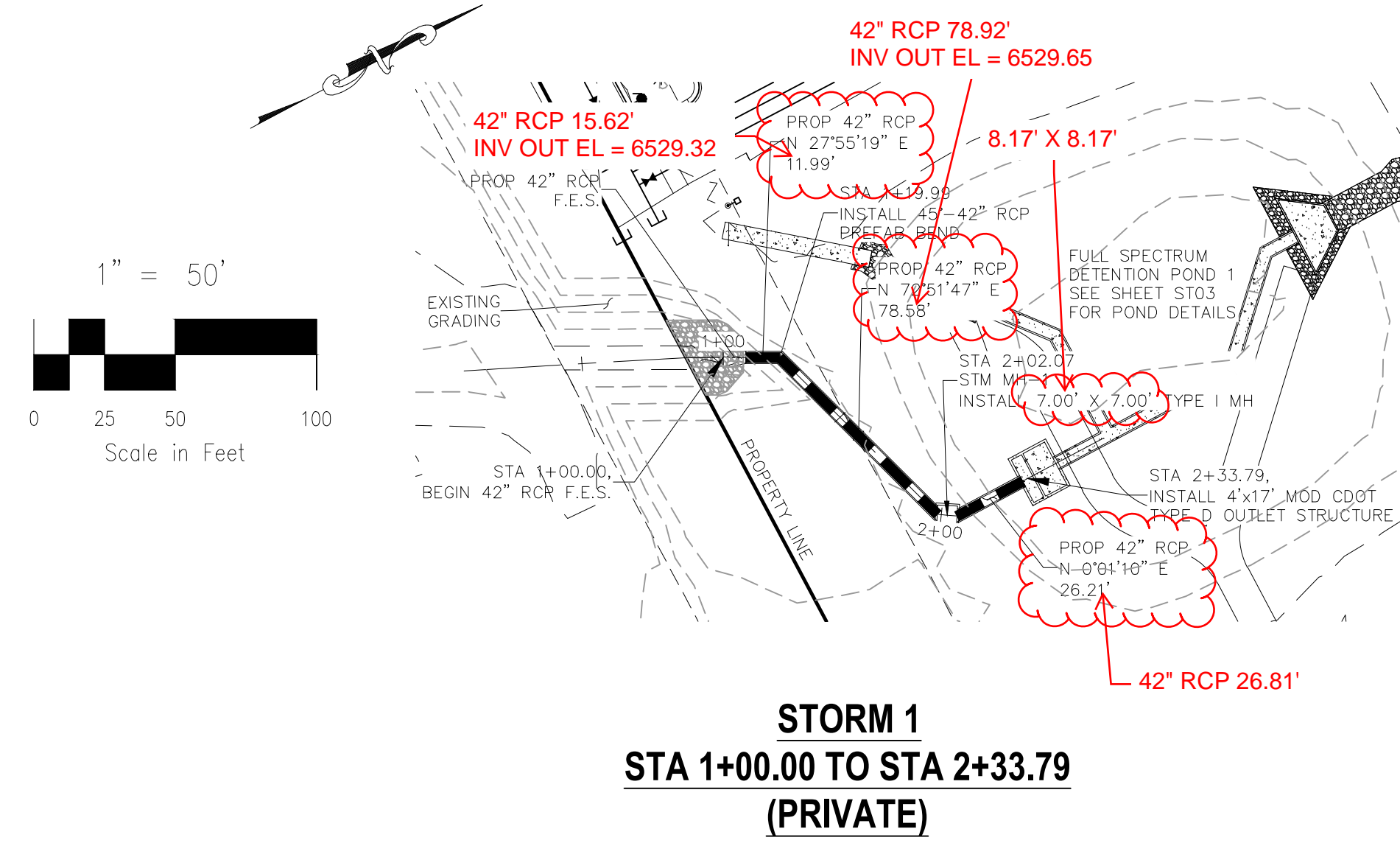
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CAUTION

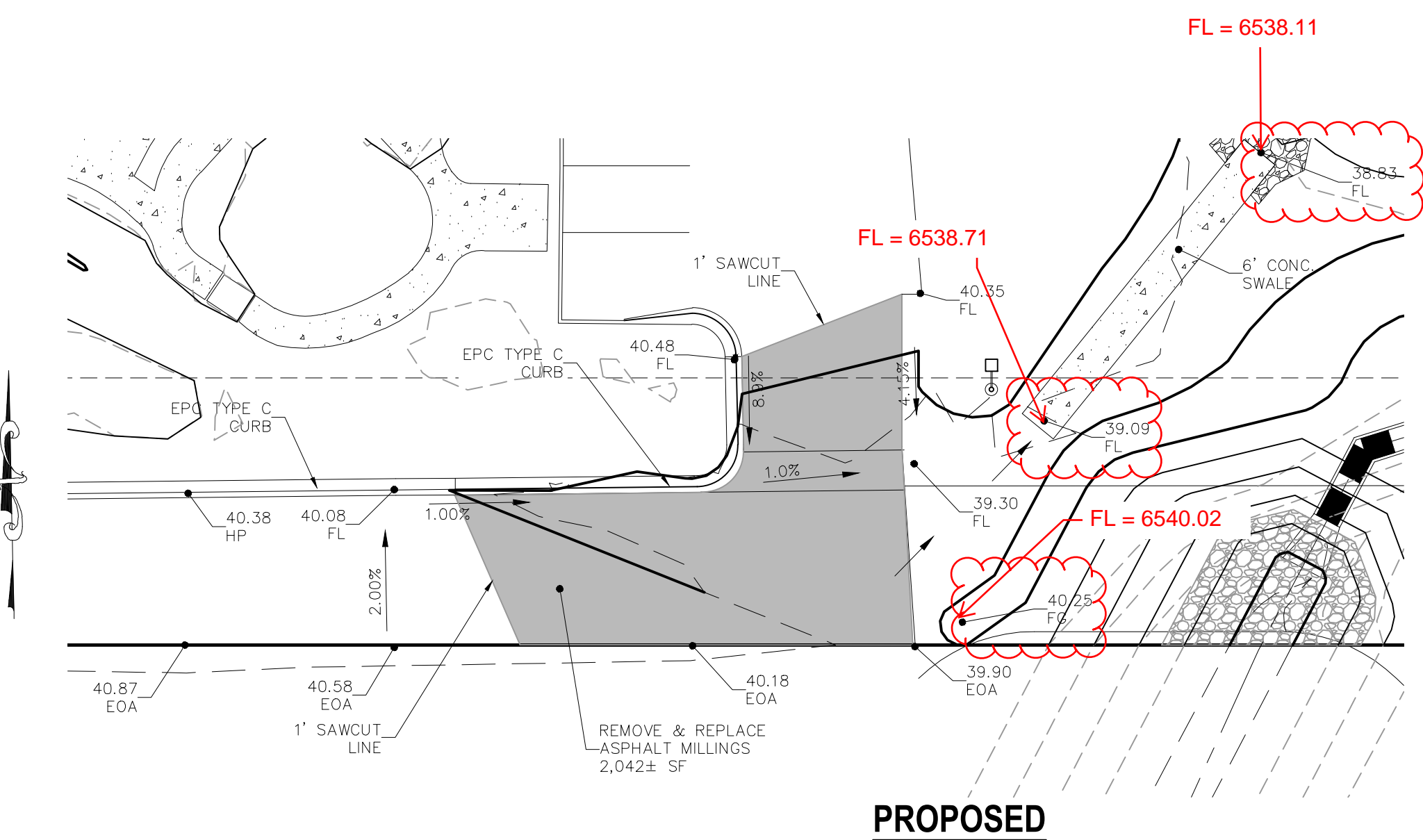
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AS-BUILT ENGINEERING RECORD DRAWINGS

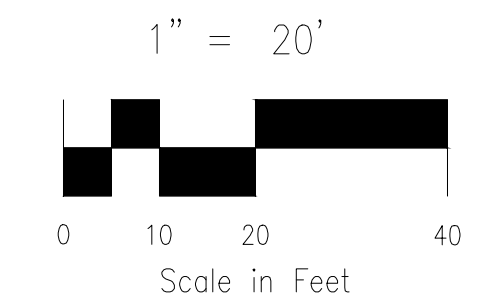


EXISTING



PROPOSED

ASPHALT DEMO PLAN
 OPPORTUNITY VIEW
 EAST ENTRANCE



TIMBERLINE STORAGE YARD	
STORM SEWER PLANS	
PROJECT NO. 43-095	DATE: 03/30/2020
DESIGNED BY: DLM	HORIZONTAL SCALE: 1"=50'
DRAWN BY: DLM	VERTICAL SCALE: 1"=5'
CHECKED BY: VAS	SHEET 9 OF 16
	ST02

102 E. Pikes Peak Ave., 5th Floor
 Colorado Springs, CO 80903
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MAS & S CONSULTANTS, INC.

FOR AND ON BEHALF OF
 MAS & S CONSULTANTS, INC.

Virgil A. Sanchez, Colorado P.E. No. 37160

NO.	DATE	BY	DESCRIPTION	APPROVED BY	DATE

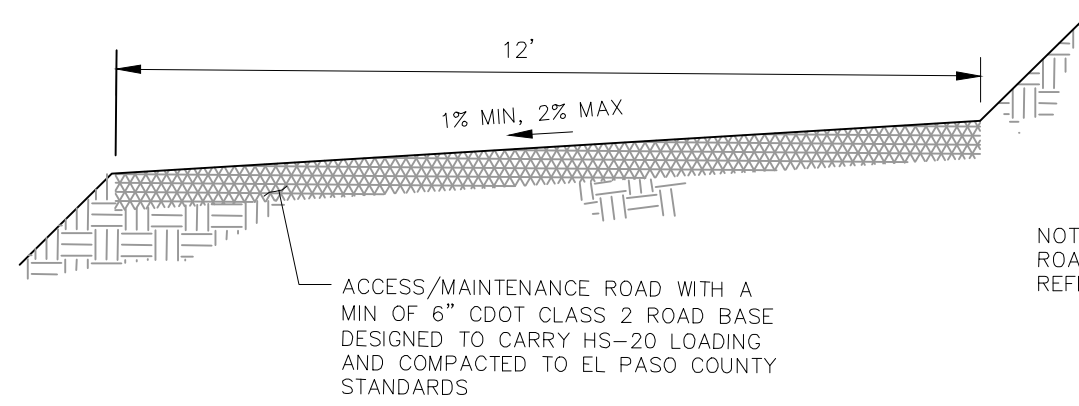
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CAUTION

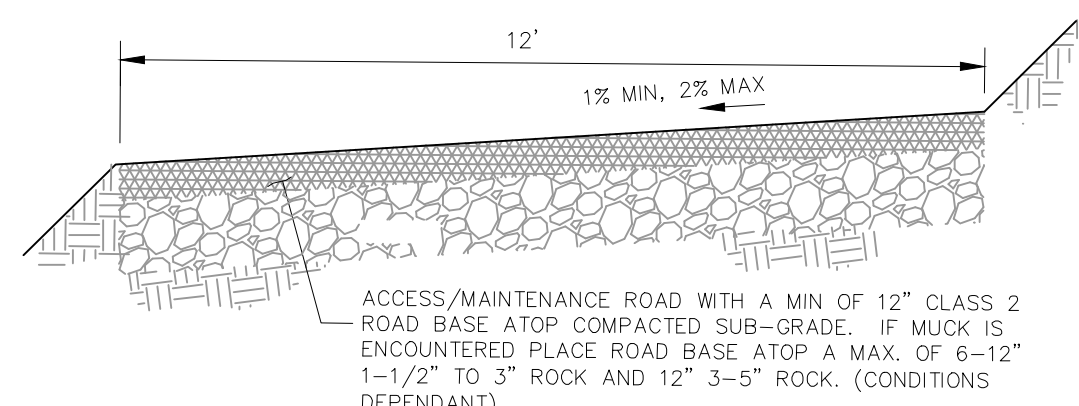
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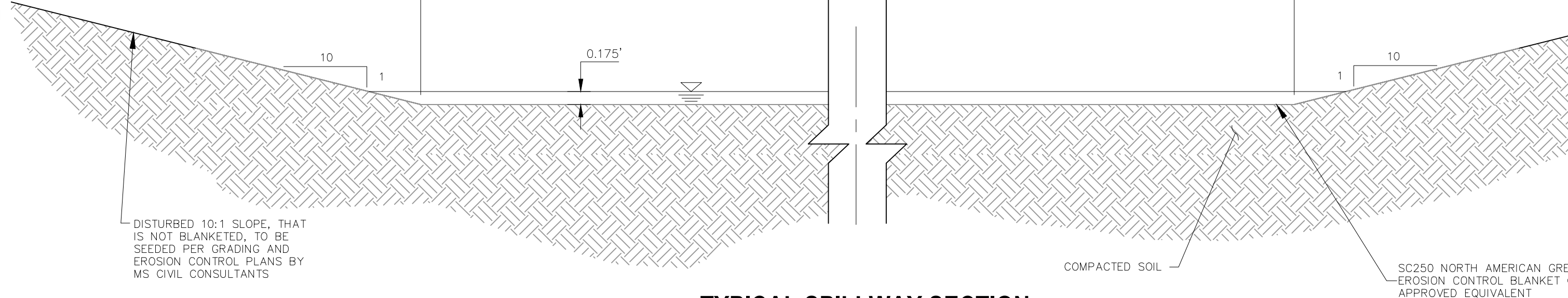
TIMBERLINE STORAGE YARD
 FULL SPECTRUM DET. POND 1 SITE PLAN
 PROJECT NO. 43-095
 DATE: 03/30/2020
 SCALE: HORIZONTAL: 1"=20' VERTICAL: N/A
 DESIGNED BY: DLM
 DRAWN BY: DLM
 CHECKED BY: VAS
 SHEET 10 OF 16
 ST03



MAINTENANCE & ACCESS ROAD ABOVE EURV TYPICAL SECTION
 NOT TO SCALE

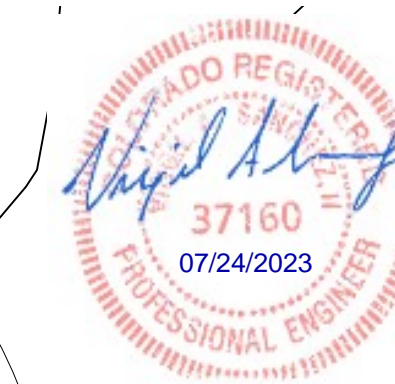


MAINTENANCE & ACCESS ROAD BELOW EURV TYPICAL SECTION
 NOT TO SCALE

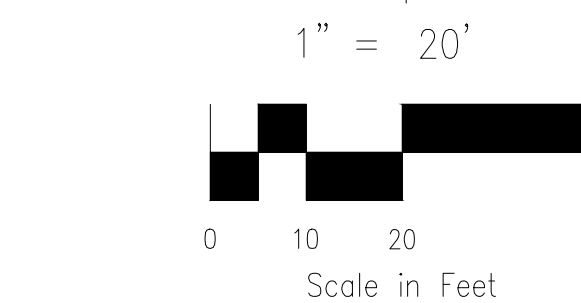


TYPICAL SPILLWAY SECTION
 NOT TO SCALE

AS-BUILT ENGINEERING RECORD DRAWINGS



WQ WATER SURFACE EL = 6533.39
 100-YR WATER SURFACE EL = 6536.38
 SPILLWAY CREST EL = 6538.46



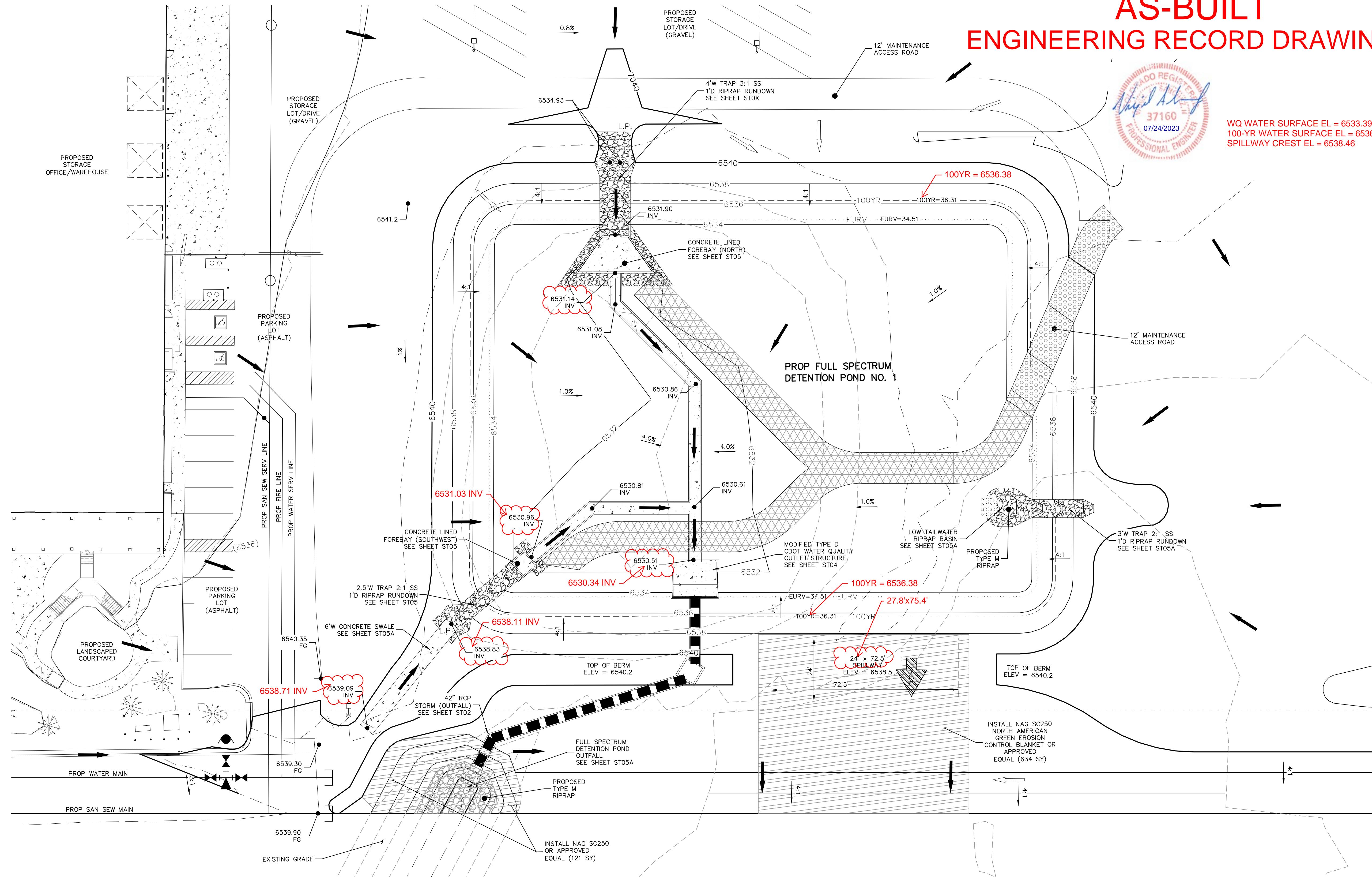
POND 1 FULL SPECTRUM DETENTION BASIN DATA

WQ WATER SURFACE EL	= 6533.40
WQ VOLUME	= 0.623 AC-FT.
EURV WATER SURFACE EL	= 6534.51
EURV VOLUME	= 1.350 AC-FT.
100-YR WATER SURFACE EL	= 6536.31
SPILLWAY CREST EL	= 6538.50
TOP OF EMBANKMENT EL	= 6540.20
100-YR INFLOW	= 123.9 CFS
100-YR RELEASE	= 71.5 CFS

- GRADING NOTES:**
- ALL PROPOSED CONTOURS ARE TO FINISHED GRADE.
 - EARTHEN CUT AND FILL SLOPES SHALL BE 3:1 MAXIMUM. SLOPES IN EXCESS OF 4:1 SHALL BE COVERED WITH SOIL RETENTION BLANKET OVER 4" MIN. THICKNESS OF TOPSOIL AND SEEDED.
 - IF THE PROJECT IS CONSTRUCTED DURING THE SUMMER WHEN SEEDING IS NOT ALLOWED, APPLY 1-1/2 TONS OF CERTIFIED WEED FREE MULCH PER ACRE MECHANICALLY CRIMPED INTO THE SOIL IN COMBINATION WITH AN ORGANIC MULCH TACKIFIER.
 - PRIOR TO ANY CONSTRUCTION ACTIVITIES THE PROPOSED SILT FENCE SHOWN ON THE EROSION CONTROL SHEET SHALL BE CONSTRUCTED. THE FENCE SHALL BE REMOVED UPON THE LATER OF STABILIZATION OF THE SITE OR COMPLETION OF CONSTRUCTION.
 - TO REDUCE THE POTENTIAL FOR CLOGGING OF DEBRIS GRATES, NO STRAW MULCH SHALL BE USED WITHIN THE EURV OR WCWV OF A DETENTION BASIN. INSTEAD, EROSION CONTROL BLANKETS SHALL BE INSTALLED FOR A WIDTH OF AT LEAST 6 FEET ON EITHER SIDE OF CONCRETE LOW-FLOW CHANNELS. THE BLANKETS SHALL COMPLY WITH THE MATERIALS AND INSTALLATION REQUIREMENTS FOR EROSION CONTROL BLANKETS (STRAW COCONUT OR 100 PERCENT COCONUT). SITE-SPECIFIC CONDITIONS MAY REQUIRE ADDITIONAL BLANKET OR OTHER EROSION CONTROL MEASURES.

LEGEND

EX	EXISTING
FUT	FUTURE
PROP	PROPOSED
(Solid line)	PROP MAJ CONT
(Dashed line)	PROP MIN CONT
(Dotted line)	EXIST MAJ CONT
(Dash-dot line)	EXIST MIN CONT
(Hatched pattern)	RIPRAP
(Cross-hatched pattern)	SC250 NORTH AMERICAN GREEN EROSION CONTROL BLANKET OR EQUIVALENT
(Diagonal lines)	MAINTENANCE & ACCESS RD ABOVE EURV
(Cross-hatched pattern)	MAINTENANCE & ACCESS RD BELOW EURV
(Dotted pattern)	CONC LOW FLOW CHANNEL
(Arrow)	EX. FLOW ARROW
(Arrow)	PROP. FLOW ARROW
(Solid line)	PROPERTY LINE
(Thick dashed line)	PROP STORM SEWER PIPE
(Thin dashed line)	EASEMENT LINE



FULL SPECTRUM DETENTION POND 1 SITE PLAN
 SCALE 1"=20'

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PROJ. A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS:

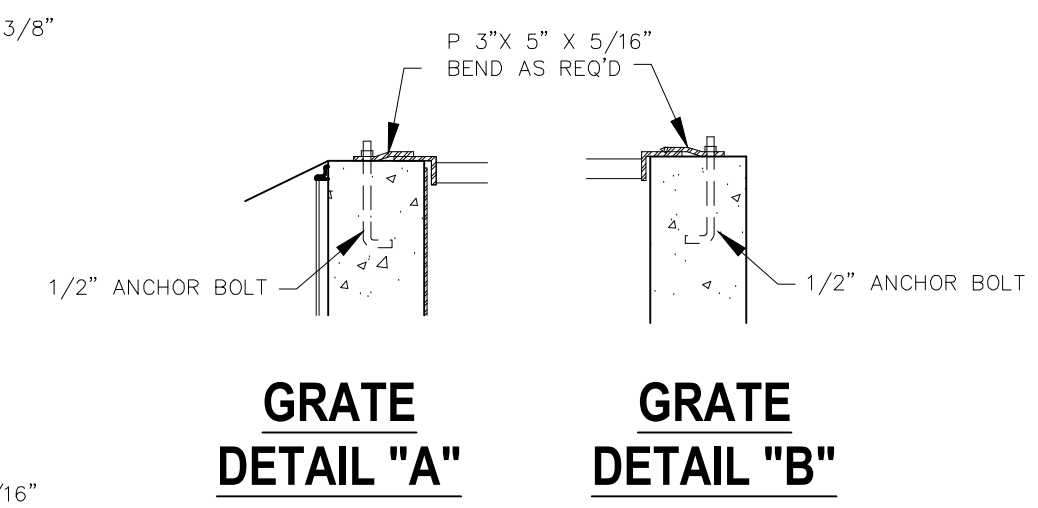
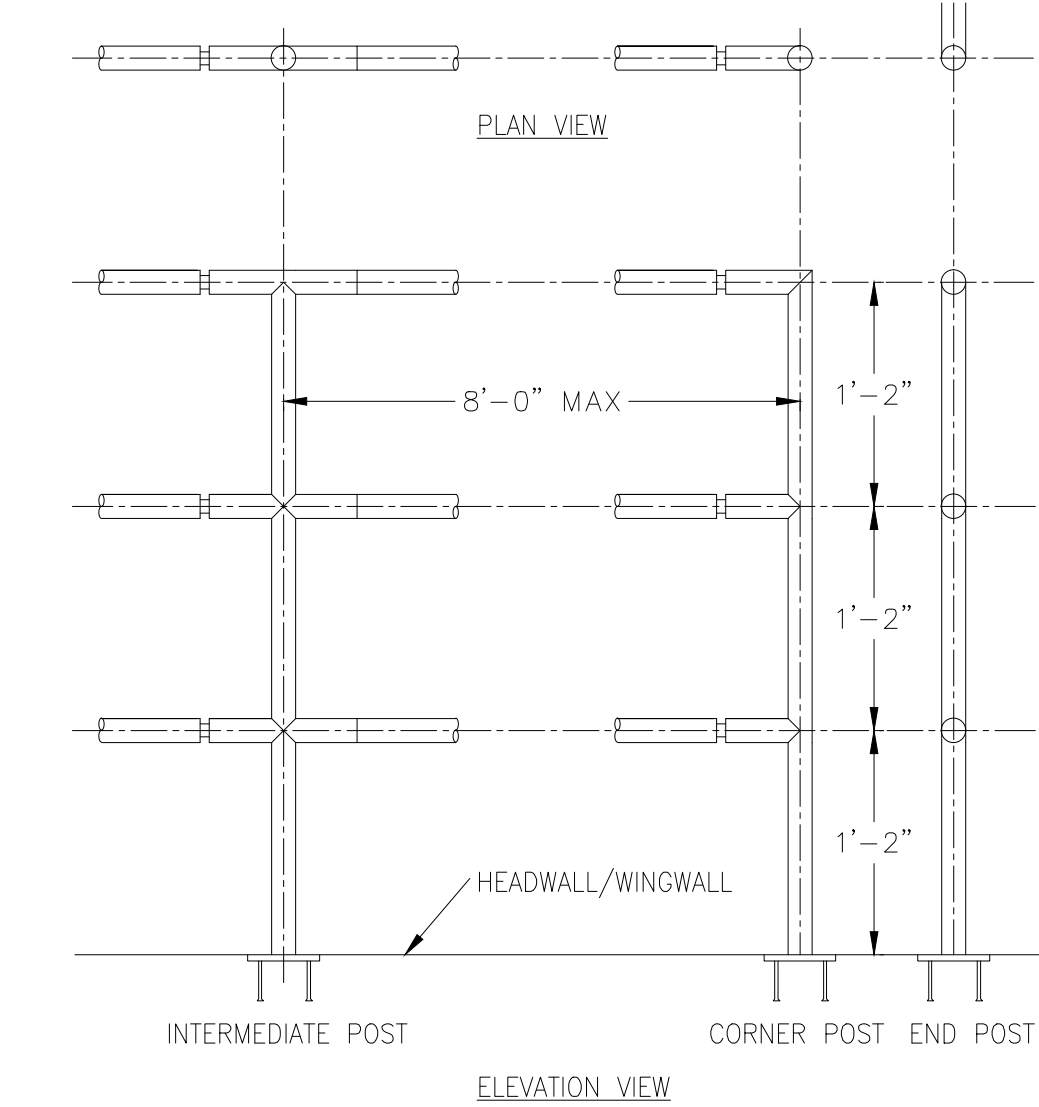
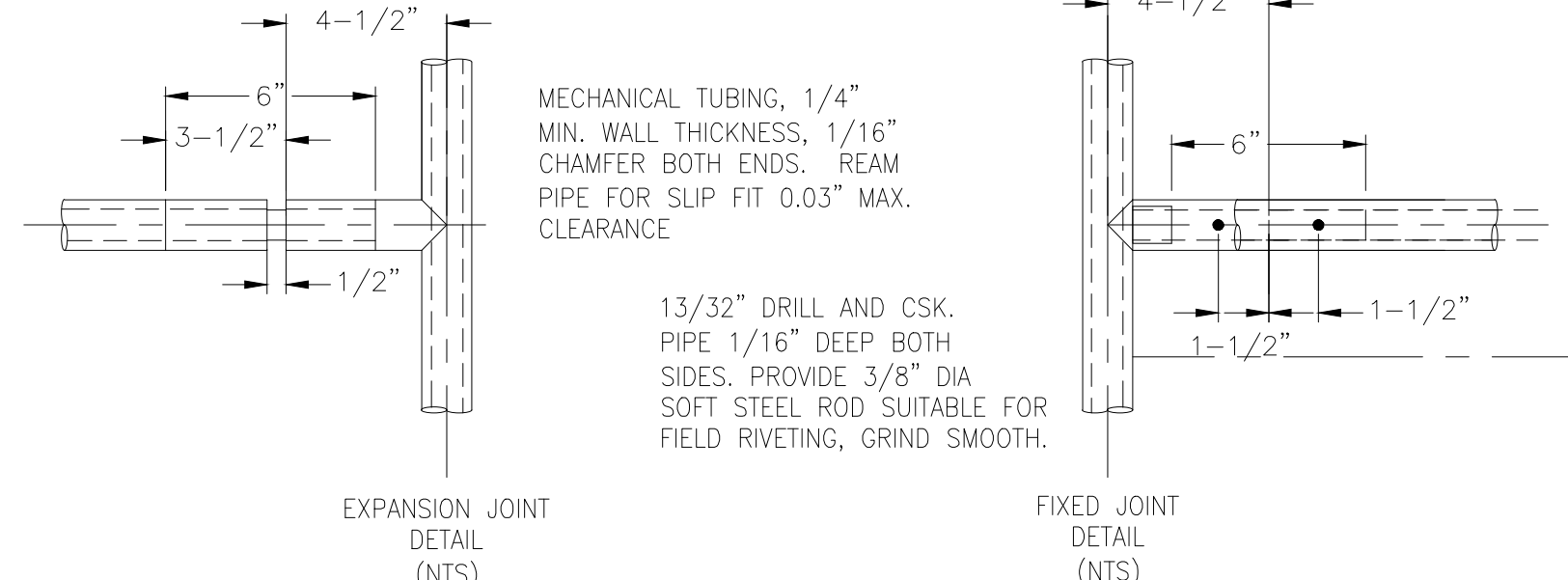
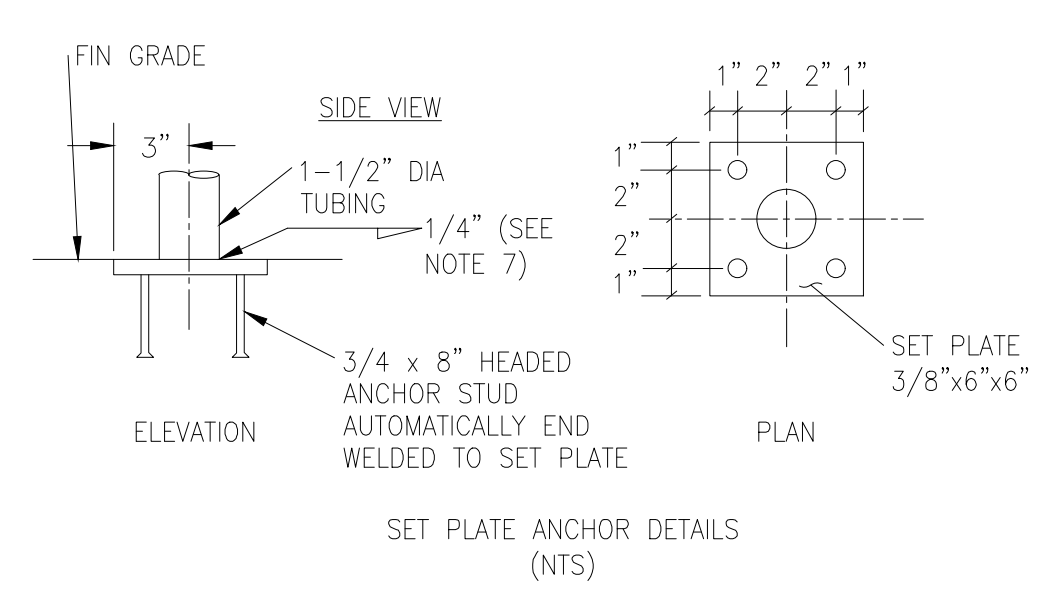
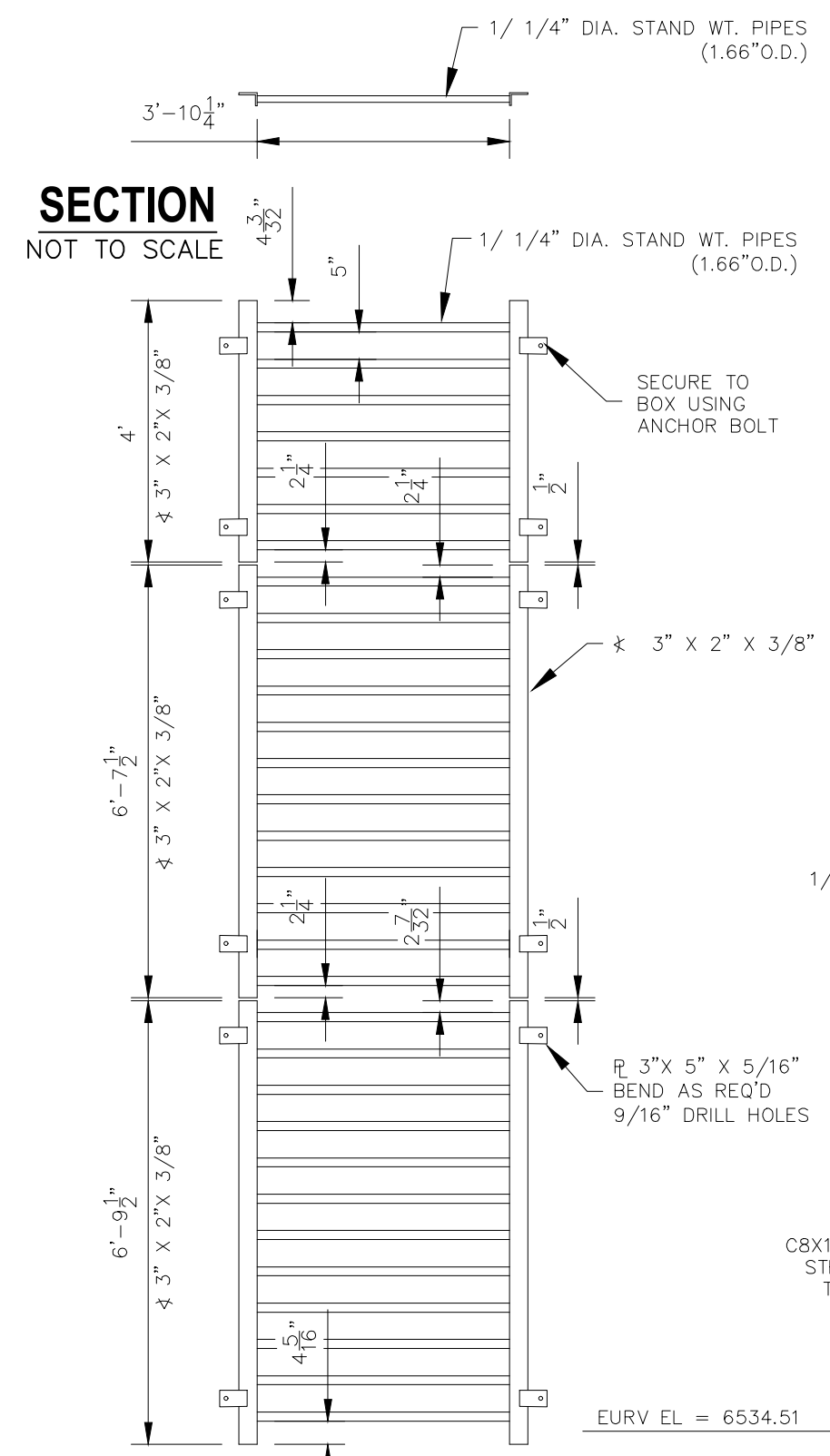
NO.	DATE	BY	DESCRIPTION	APPROV. BY	DATE

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CAUTION

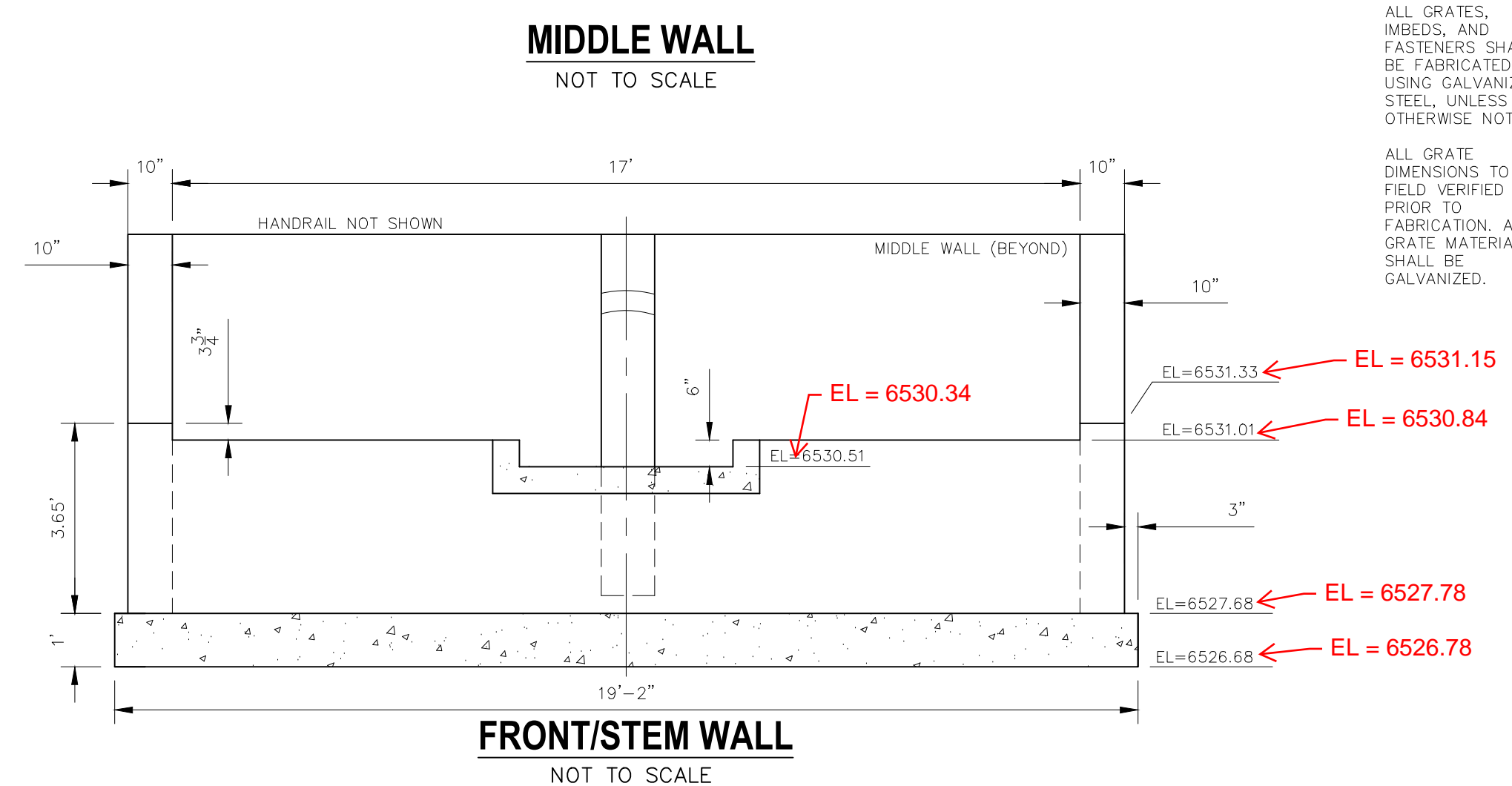
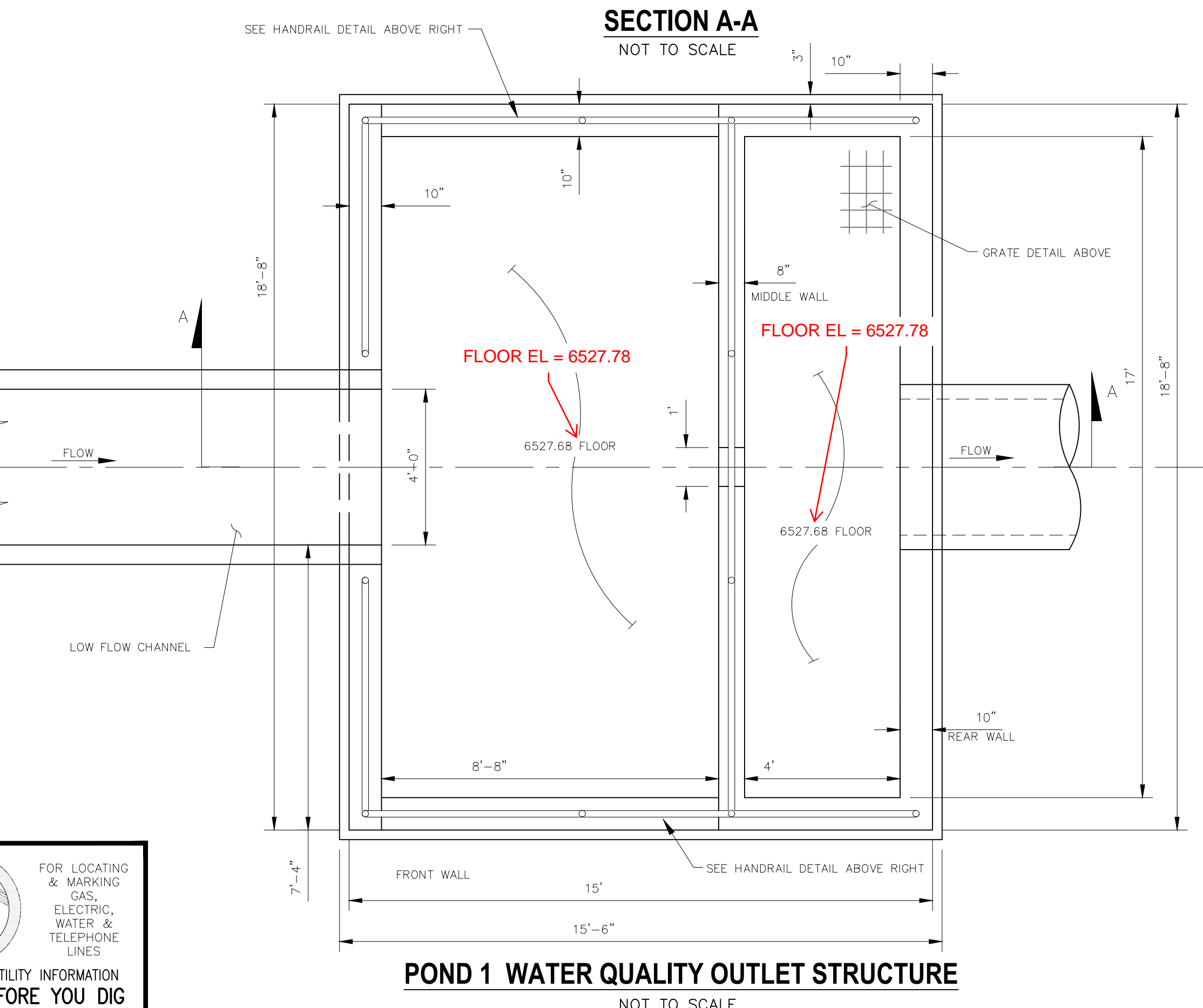
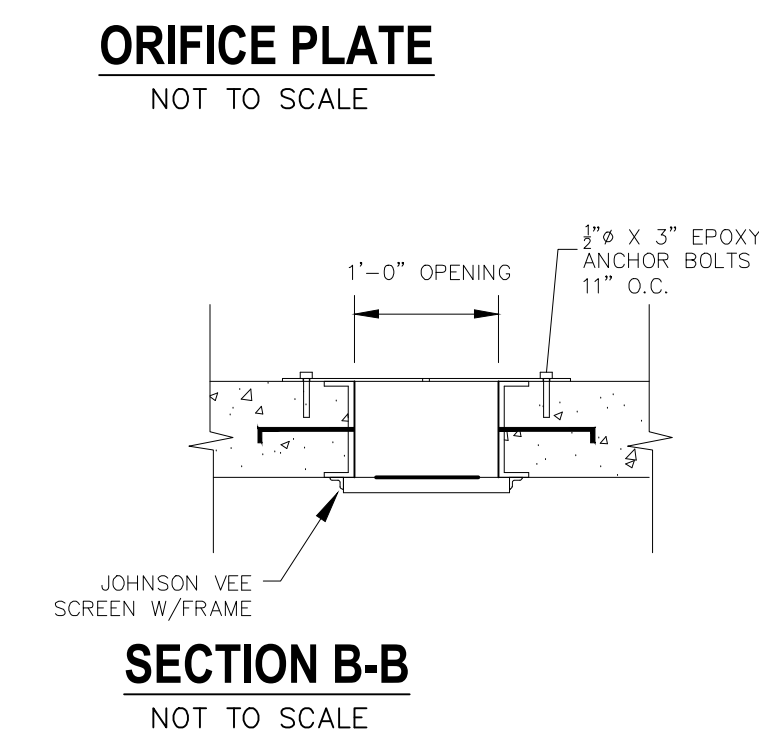
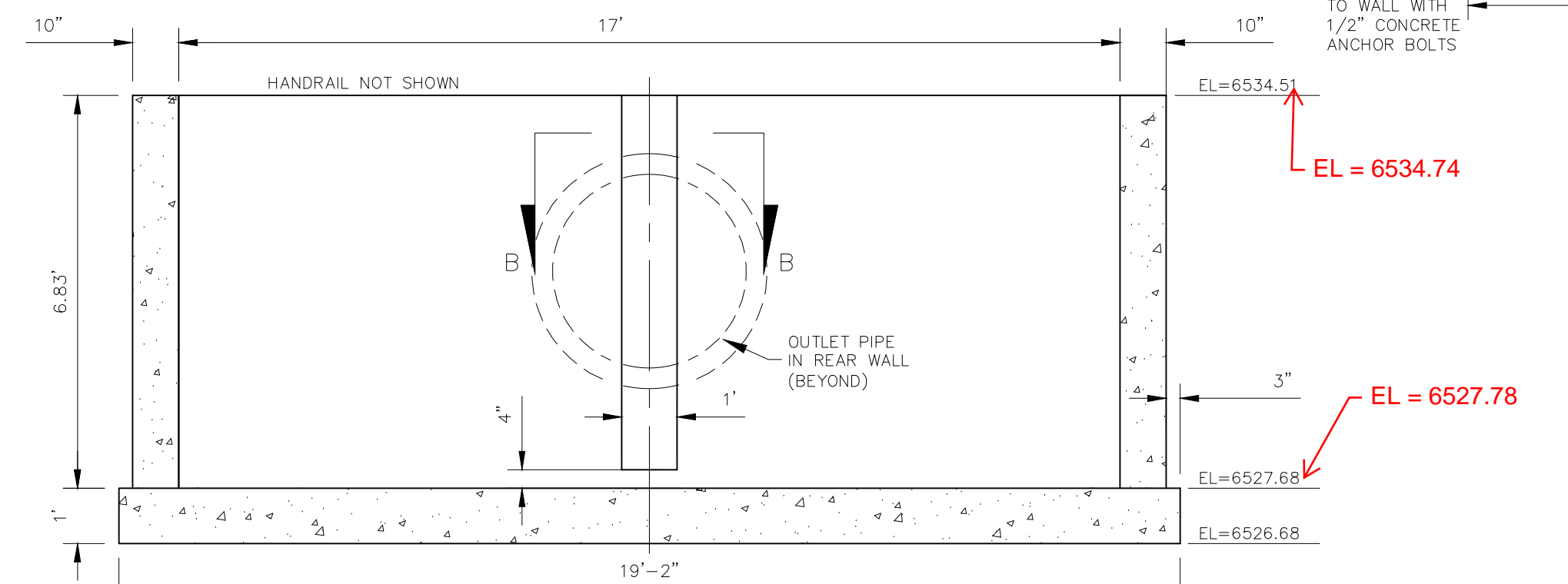
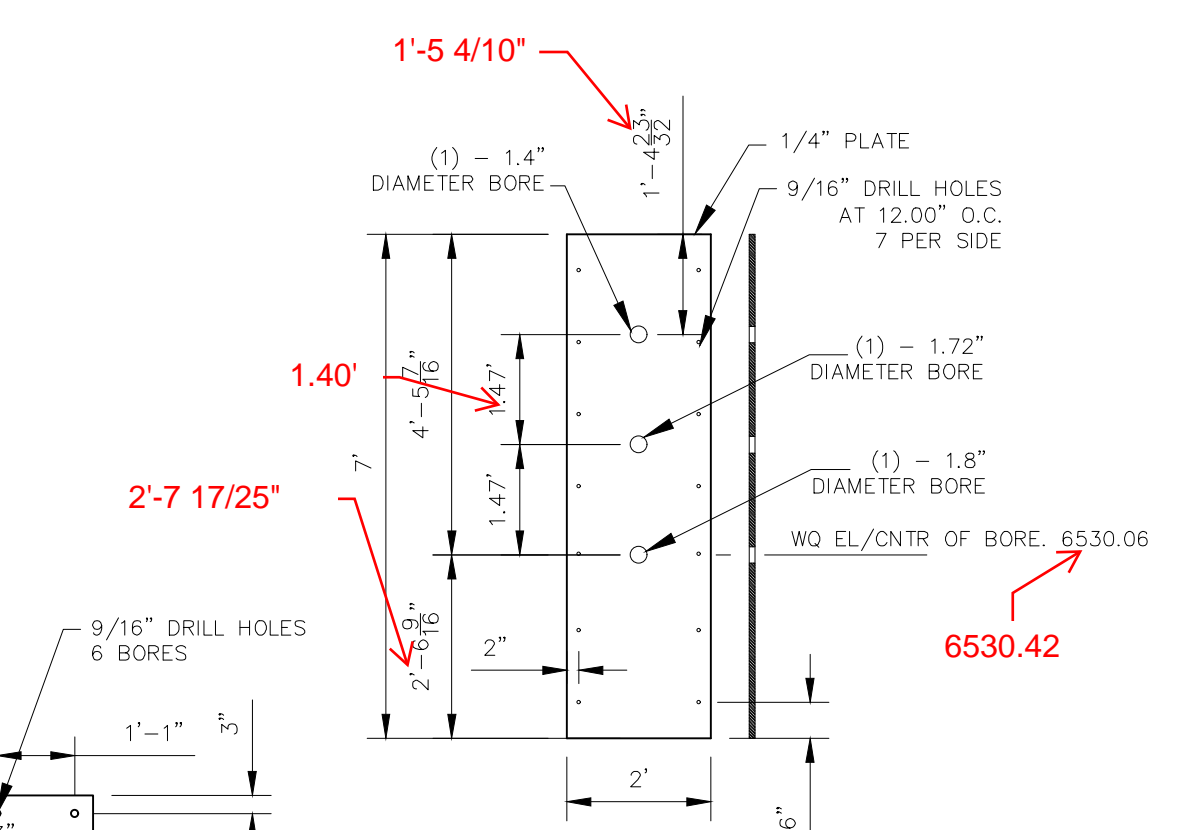
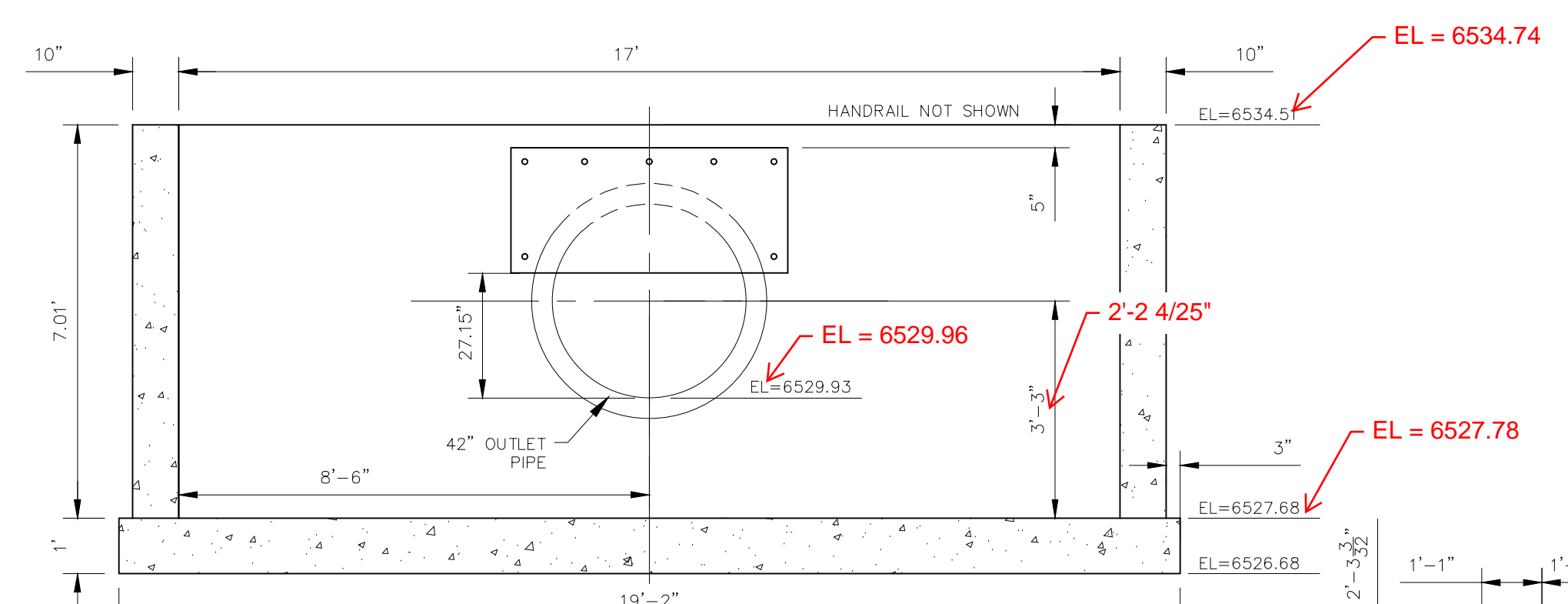
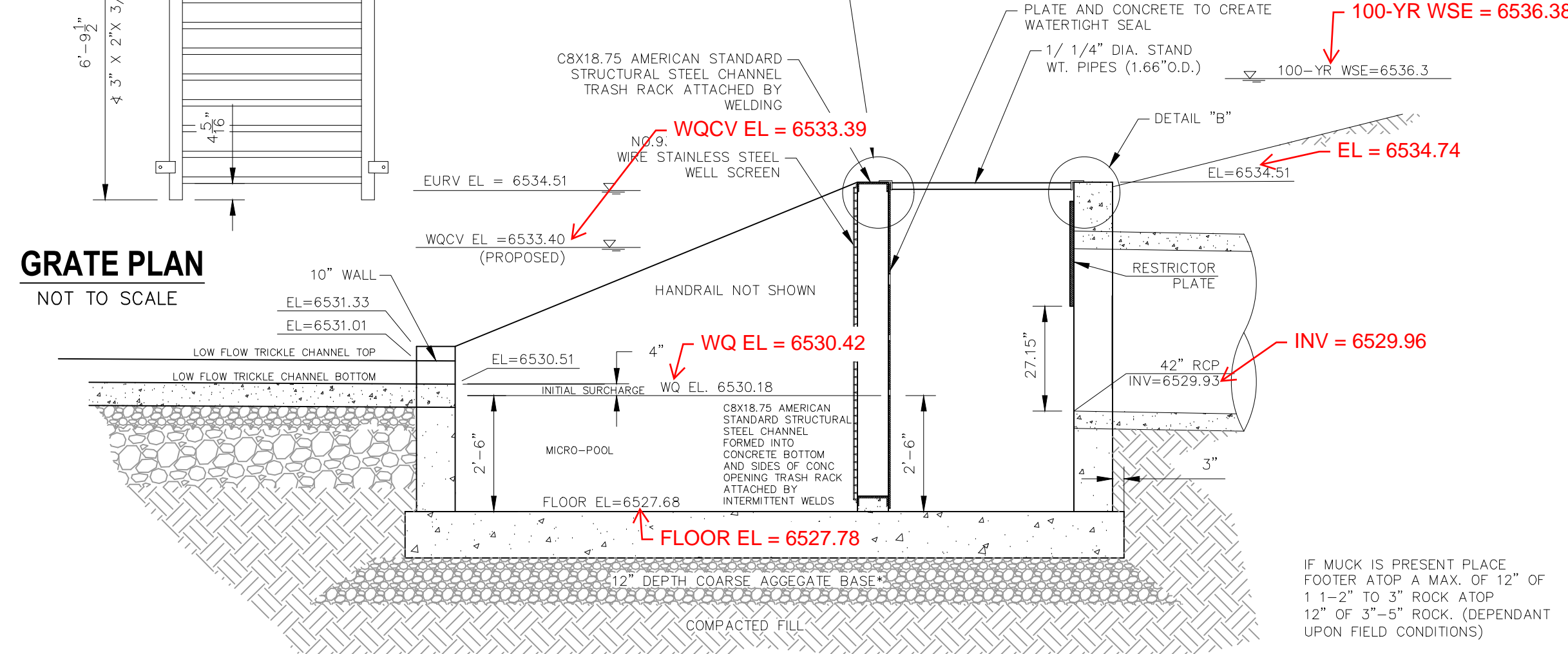
EPC 4/10/20

AS-BUILT ENGINEERING RECORD DRAWINGS



- WELD PLATES MAY BE SUBSTITUTED FOR PIPE EMBEDMENT.
- CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION.
- DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH AASHTO STANDARDS.
- HANDRAIL DESIGN SHALL BE COMPATIBLE WITH THE DESIGN OF THE WINGWALLS AND HEADWALLS.
- RAILING POSTS SHALL BE SET TO NORMAL TO GRADE. RAILS SHALL RUN PARALLEL TO THE SLOPES OF THE TOP OF WALLS.
- ALL RAILS SHALL BE FREE OF ANY SHARP EDGES OR CORNERS.

GRATE PLAN
NOT TO SCALE



TRASH SCREEN DETAIL
NOT TO SCALE

NOTE: CENTER ORIFICE PLATE AND TRASH SCREEN HORIZONTALLY ACROSS 1'-0" OPENING IN STRUCTURE

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TIMBERLINE STORAGE YARD
FULL SPECTRUM DETENTION POND DETAILS

PROJECT NO. 43-095
DATE: 03/30/2020
SCALE: HORIZONTAL: N/A
VERTICAL: N/A
DESIGNED BY: ET
DRAWN BY: DLM
CHECKED BY: VAS

102 E. PILES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.555.5485

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

MIRCEL A. SANCHEZ, COLORADO P.E. NO. 37160

NO.	DATE	BY	DESCRIPTION

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CAUTION

AS-BUILT ENGINEERING RECORD DRAWINGS

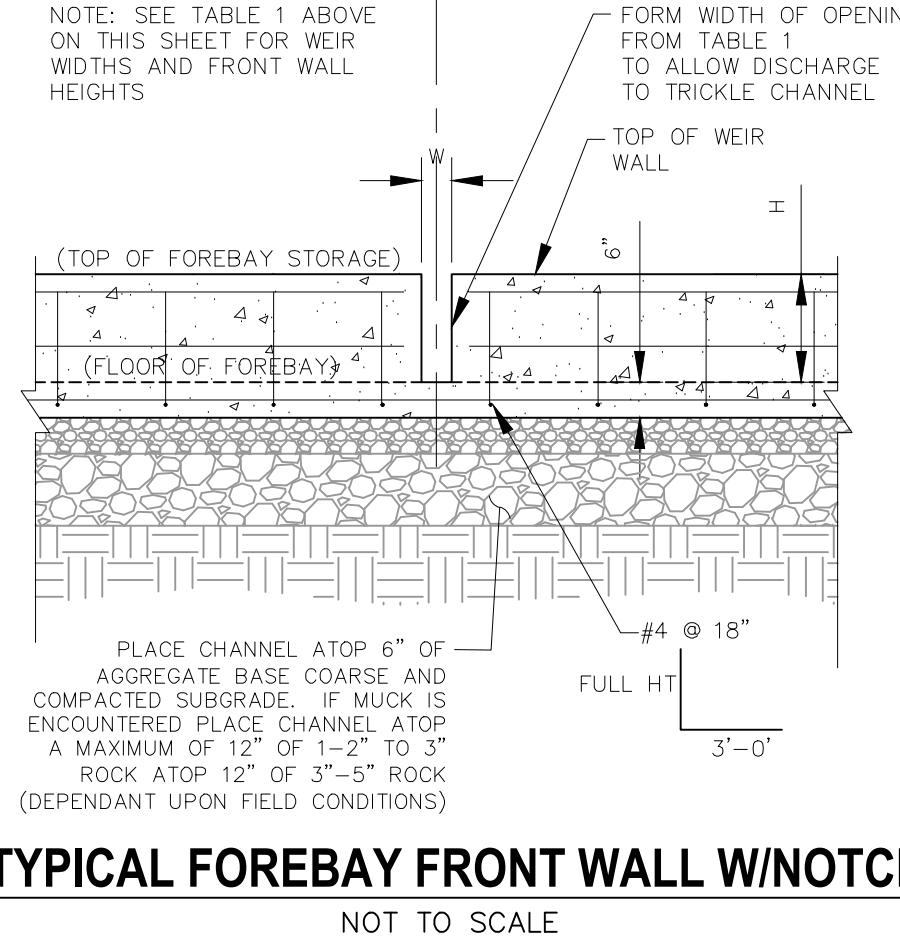
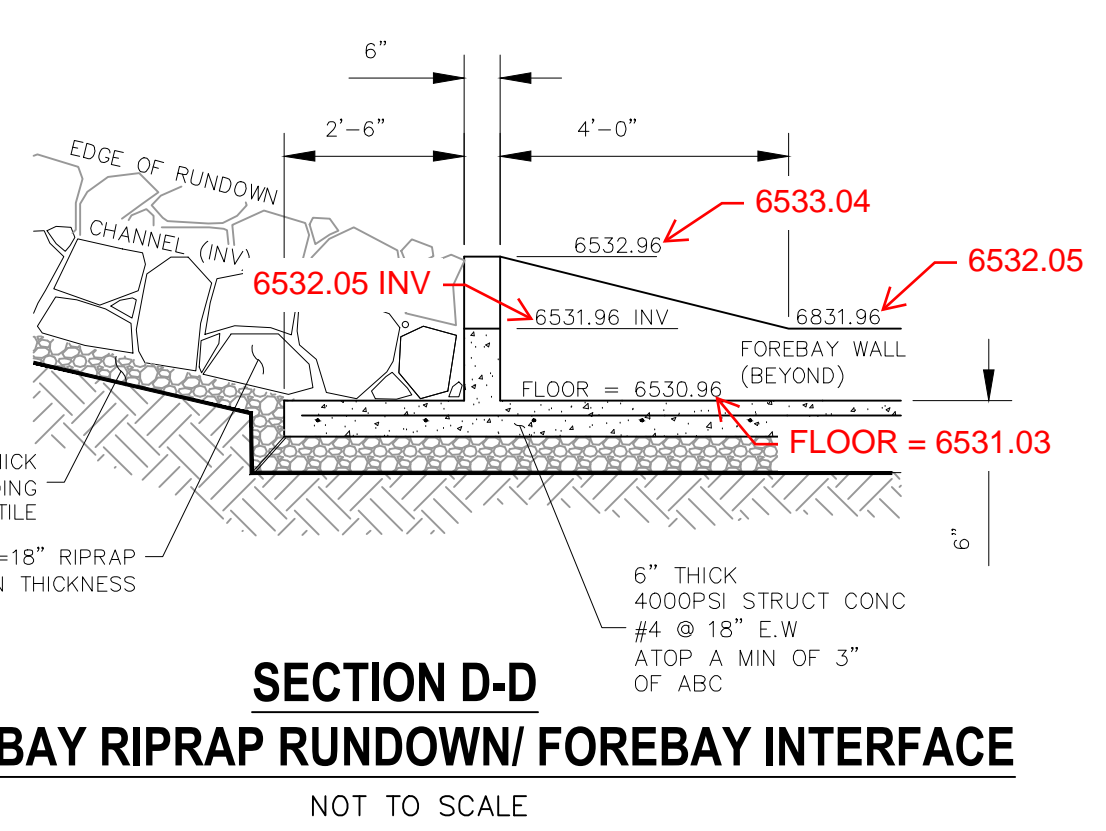
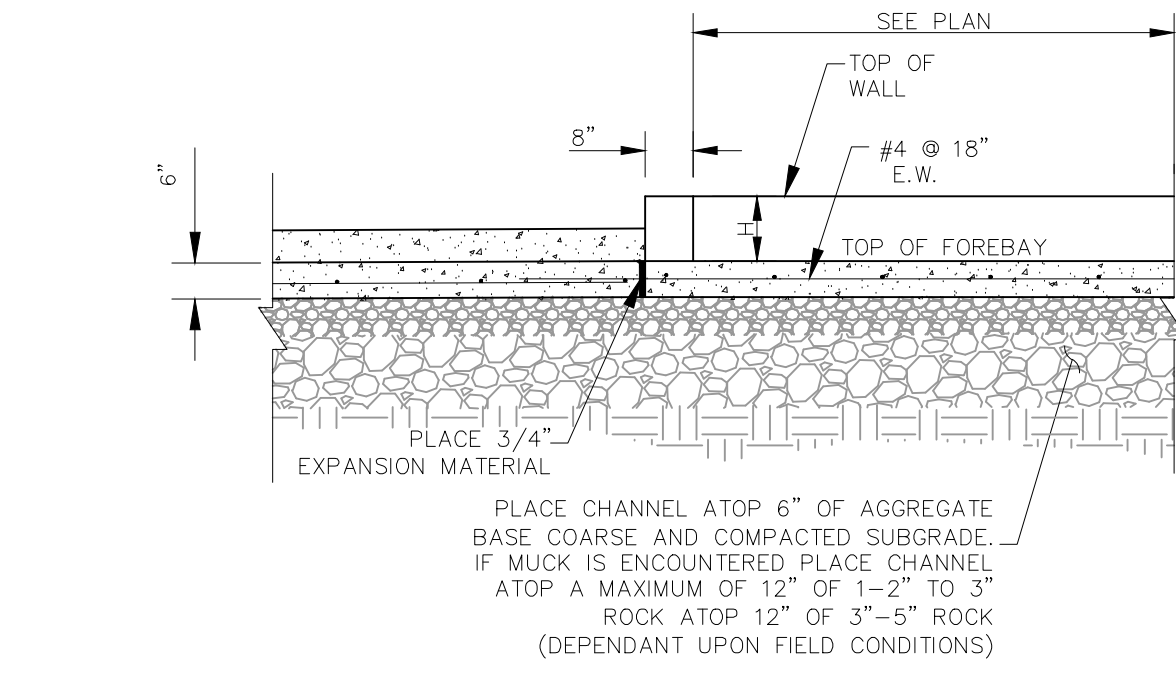
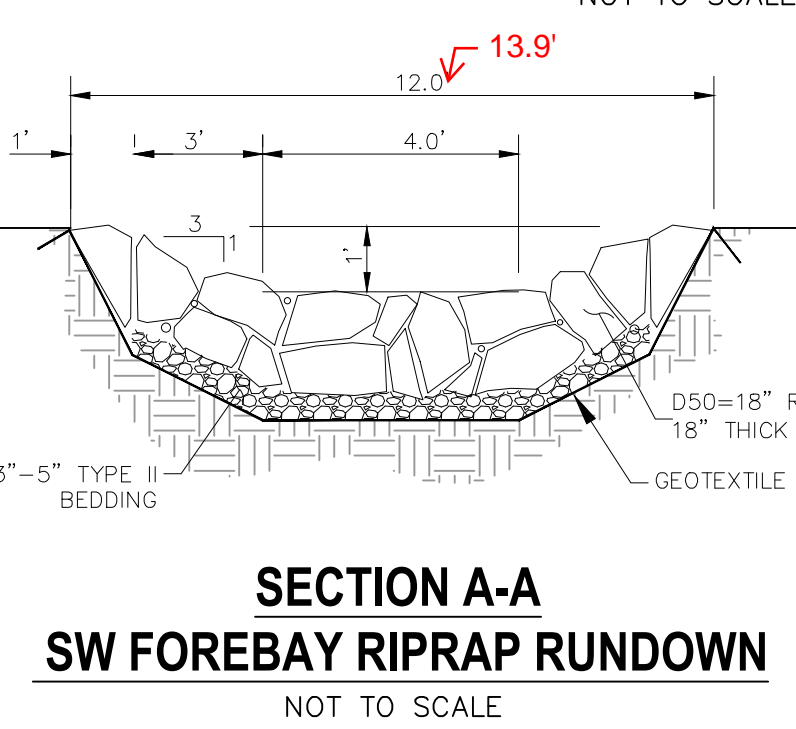
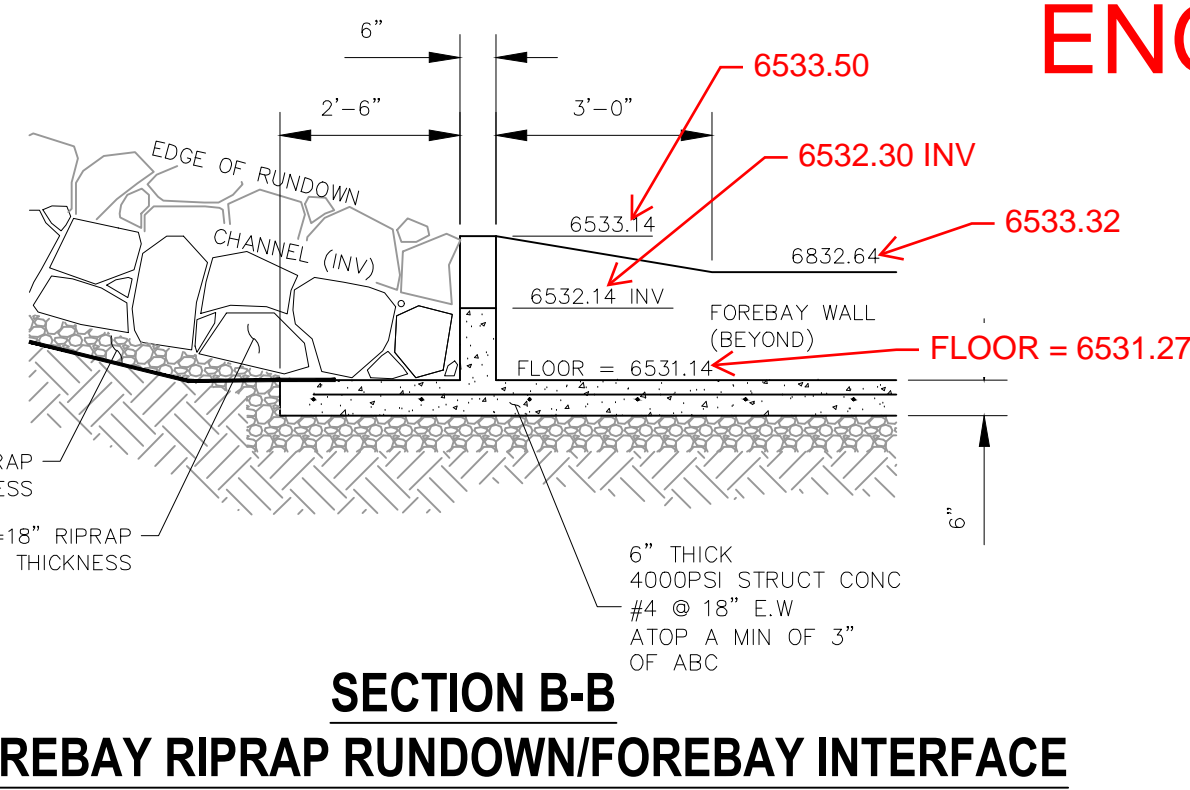
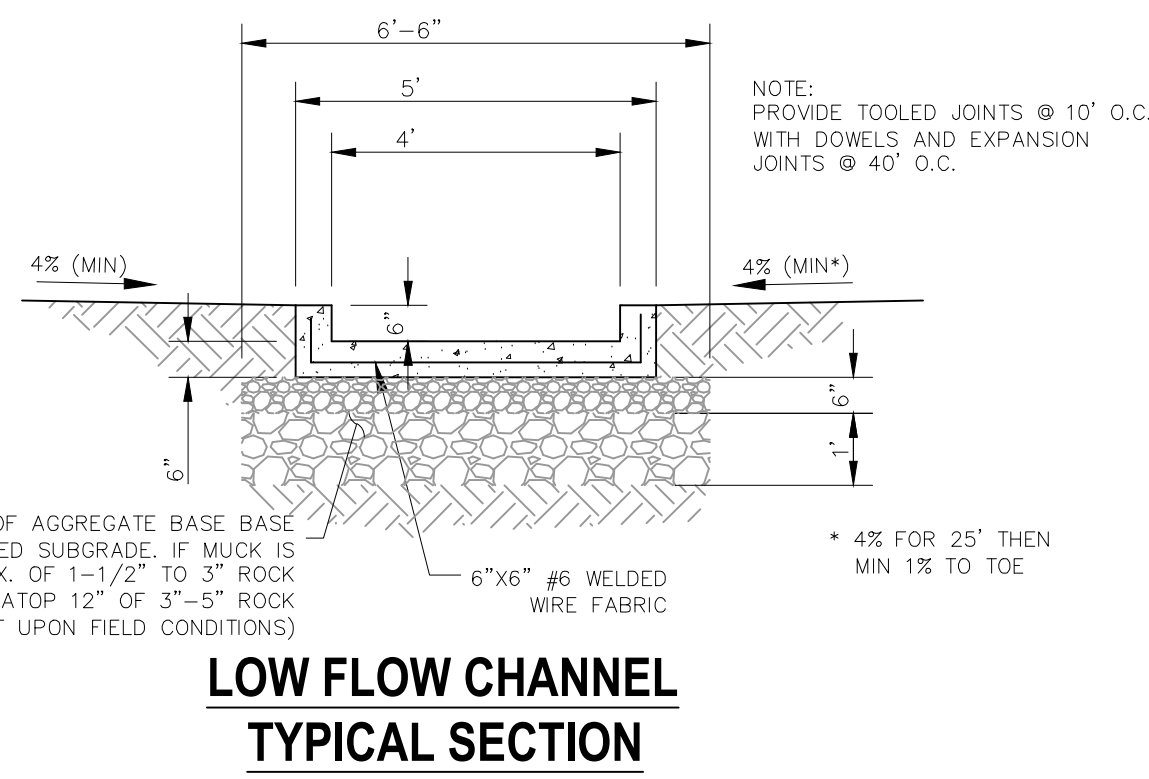
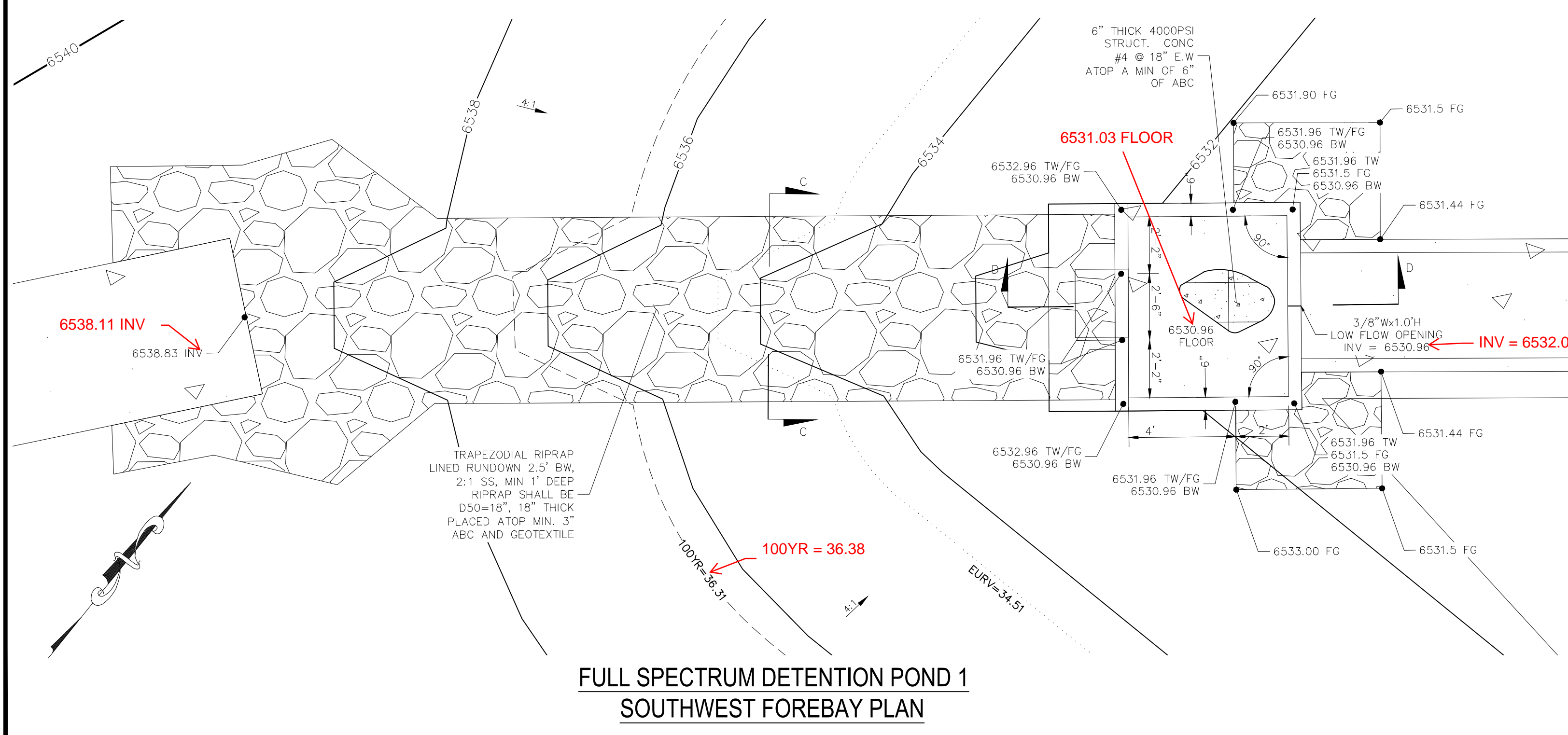
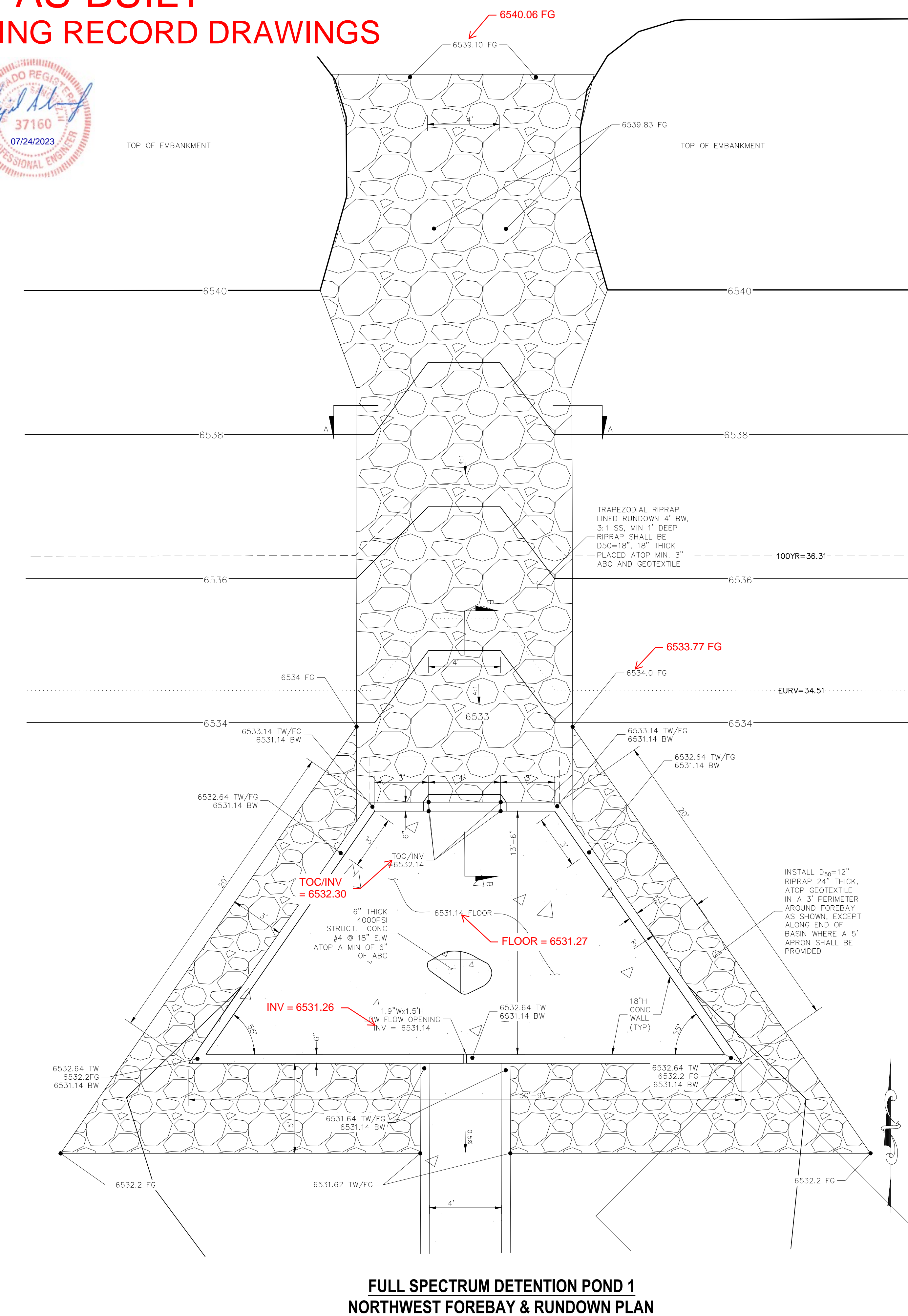


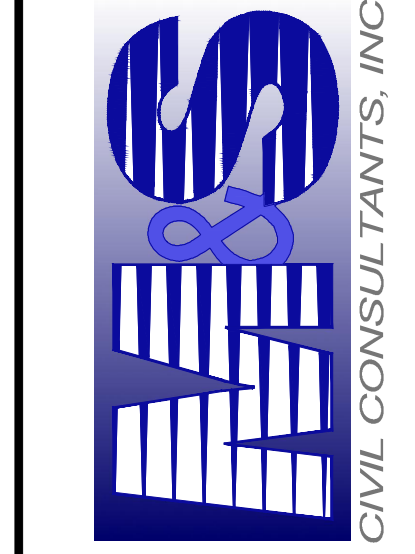
TABLE 1

FOREBAY	WIDTH (W)	HEIGHT (H)
N	1.9'	1.5'
S.W.	3/8"	1.0'



TIMBERLINE STORAGE YARD
FULL SPECTRUM DETENTION POND DETAILS
PROJECT NO. 43-095
SCALE: HORIZONTAL: N/A, VERTICAL: N/A
DESIGNED BY: ET
DRAWN BY: DLM
CHECKED BY: VAS
DATE: 03/30/2020
SHEET 12 OF 16
ST05

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Colorado Springs, CO 80903
PHONE: 719.555.4465



FOR AND ON BEHALF OF
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ARCHIT. A. SANCHEZ, COLORADO P.E. NO. 37160

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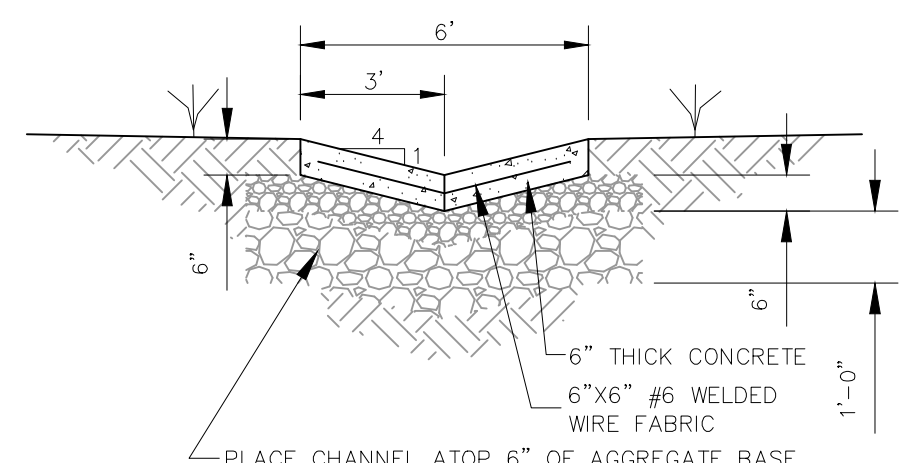
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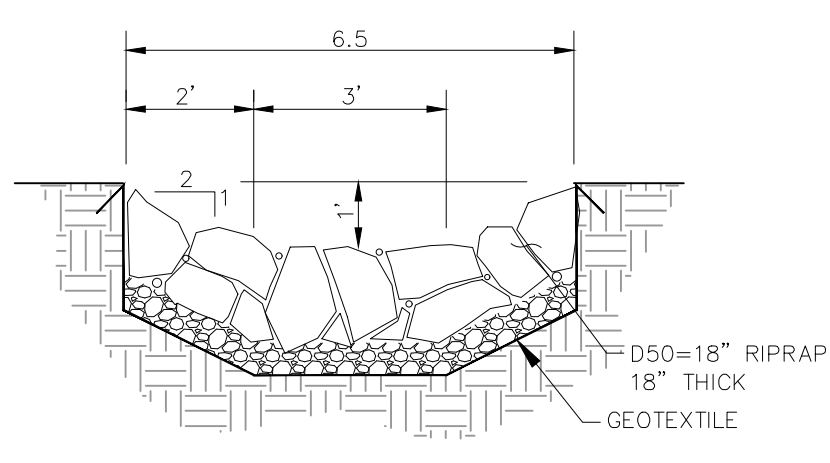
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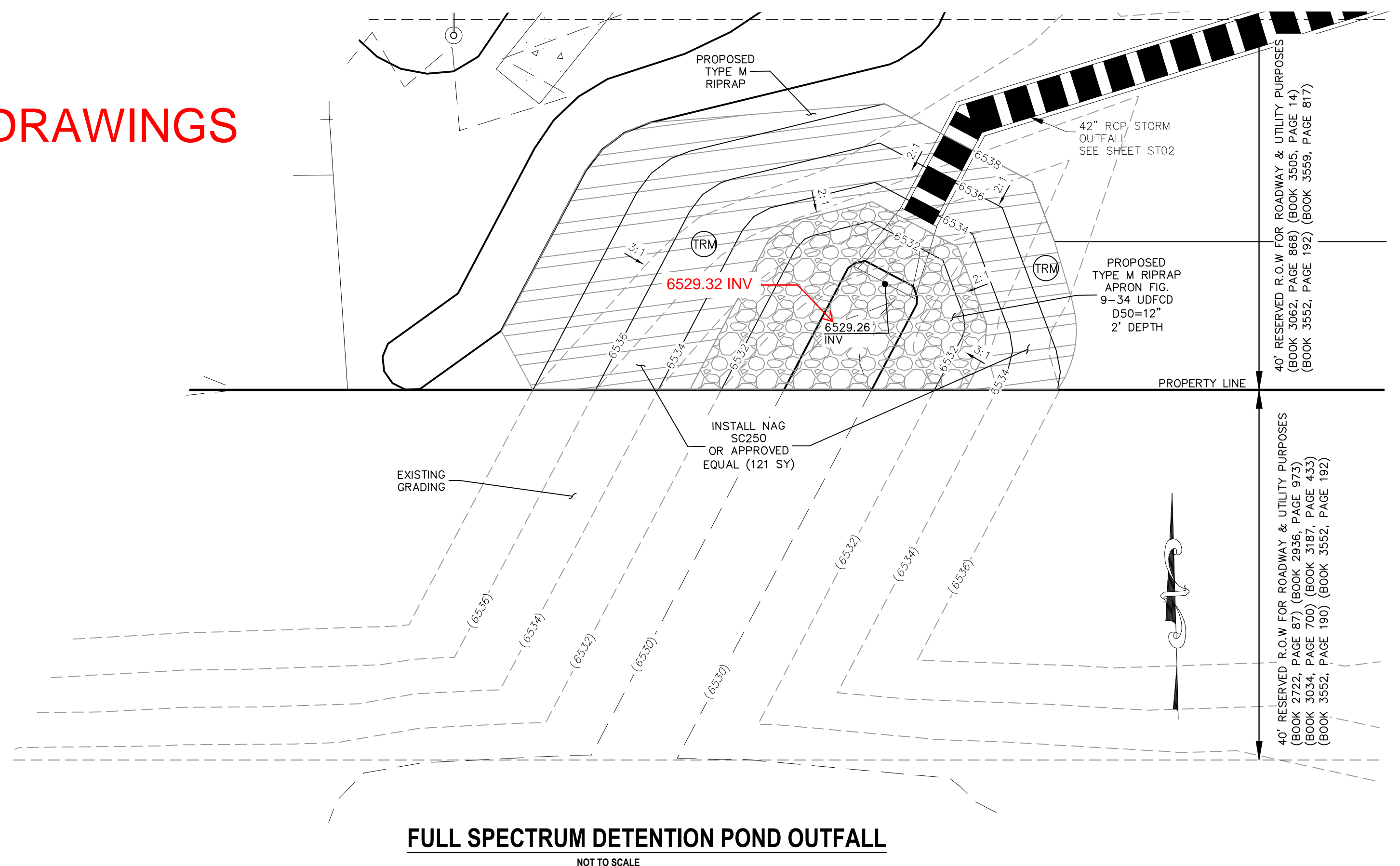
AS-BUILT ENGINEERING RECORD DRAWINGS



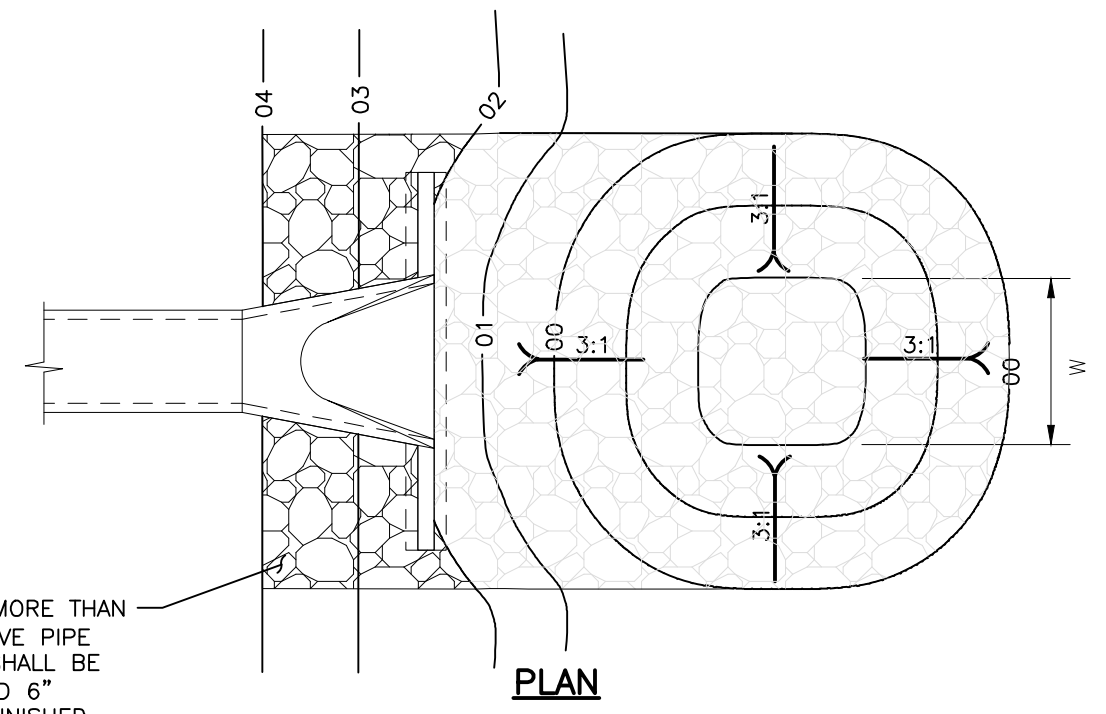
**CONCRETE SWALE
TYPICAL SECTION**
NOT TO SCALE



**SECTION C-C
SW FOREBAY RIPRAP RUNDOWN**
NOT TO SCALE

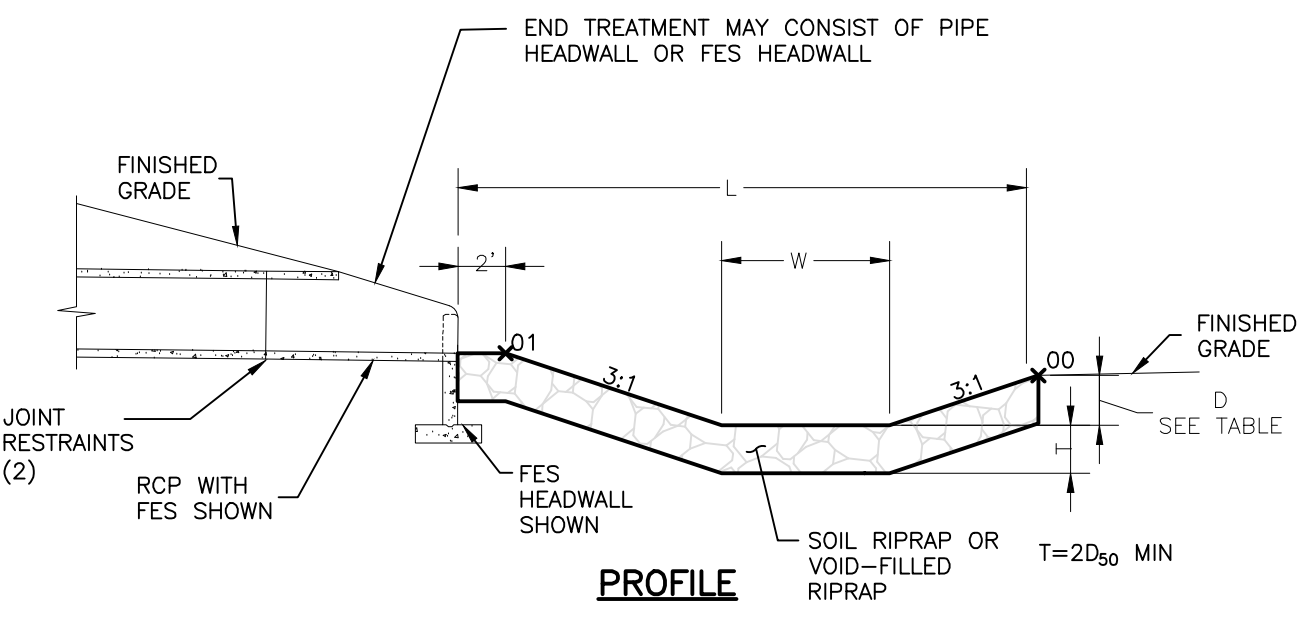


FULL SPECTRUM DETENTION POND OUTFALL
NOT TO SCALE



RIPRAP MORE THAN 1.0' ABOVE PIPE INVERT SHALL BE INSTALLED 6" BELOW FINISHED GRADE AND BURIED WITH TOPSOIL

PLAN



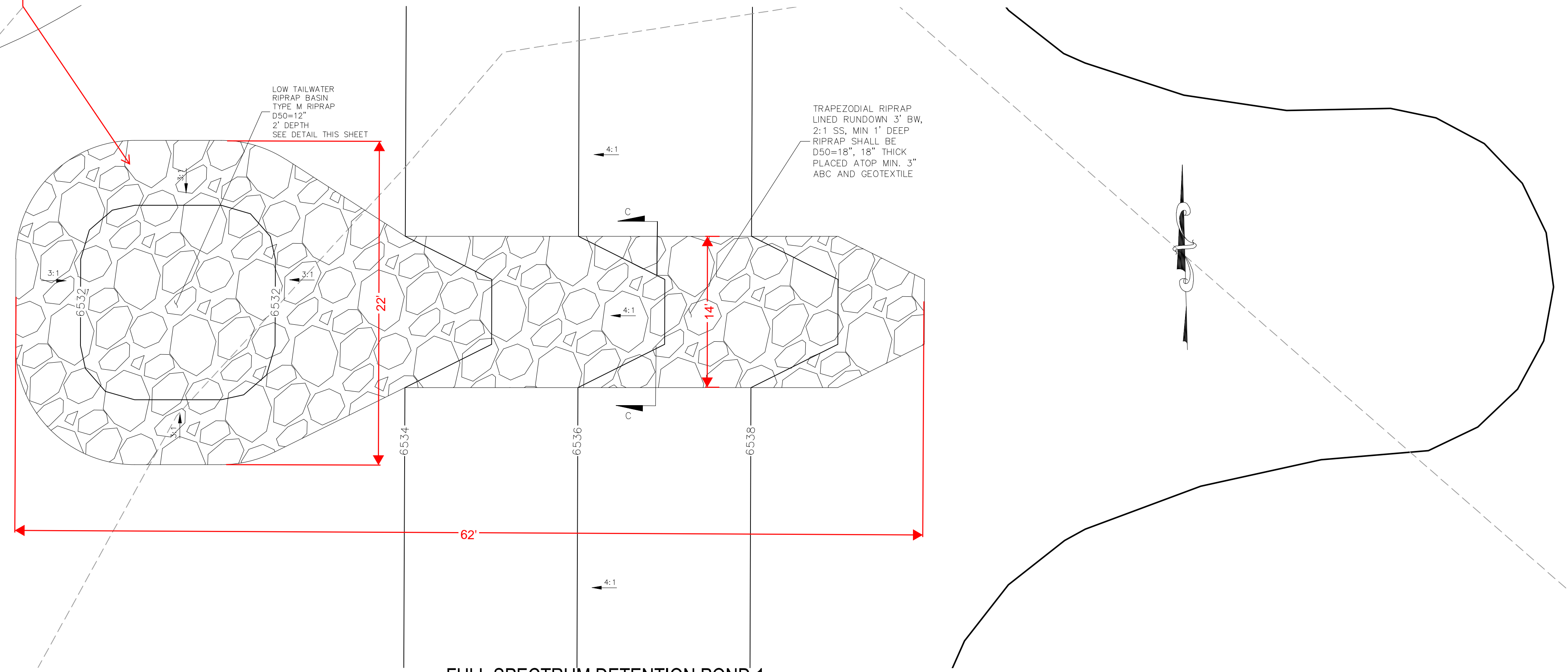
PROFILE

PIPE SIZE OR BOX HEIGHT	D	W*	L
18" - 24"	1'-0"	4'	15'
30" - 36"	1'-6"	6'	20'
42" - 48"	2'-0"	7'	24'
54" - 60"	2'-6"	8'	28'
66" - 72"	3'-0"	9'	32'

* IF OUTLET PIPE IS A BOX CULVERT WITH A WIDTH GREATER THAN W, THEN W = CULVERT WIDTH

LOW TAILWATER RIPRAP BASIN
LOW TAILWATER RIPRAP BASIN FIG. 9-37
NOT TO SCALE

THE AS-BUILT SOUTHEAST LOW TAILWATER RIPRAP BASIN EXCEEDS THE DESIGNED SOUTHEAST LOW TAILWATER RIPRAP BASIN.



**FULL SPECTRUM DETENTION POND 1
SOUTHEAST LOW TAILWATER RIPRAP BASIN**
NOT TO SCALE

TIMBERLINE STORAGE YARD
FULL SPECTRUM DET. POND 1 DETAILS
PROJECT NO. 43-095
SCALE: HORIZONTAL: N/A
DATE: 03/30/2020
DESIGNED BY: DLM
DRAWN BY: DLM
CHECKED BY: VAS
SHEET 13 OF 16
ST05A

102 E. PILES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.555.5485
MA&S
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF
MA&S CIVIL CONSULTANTS, INC.
MARIO REGIS FERRER
PROFESSIONAL ENGINEER
NO. 37160
EPC 4/10/20

NO.	DATE	BY	DESCRIPTION	APPROVED BY	DATE

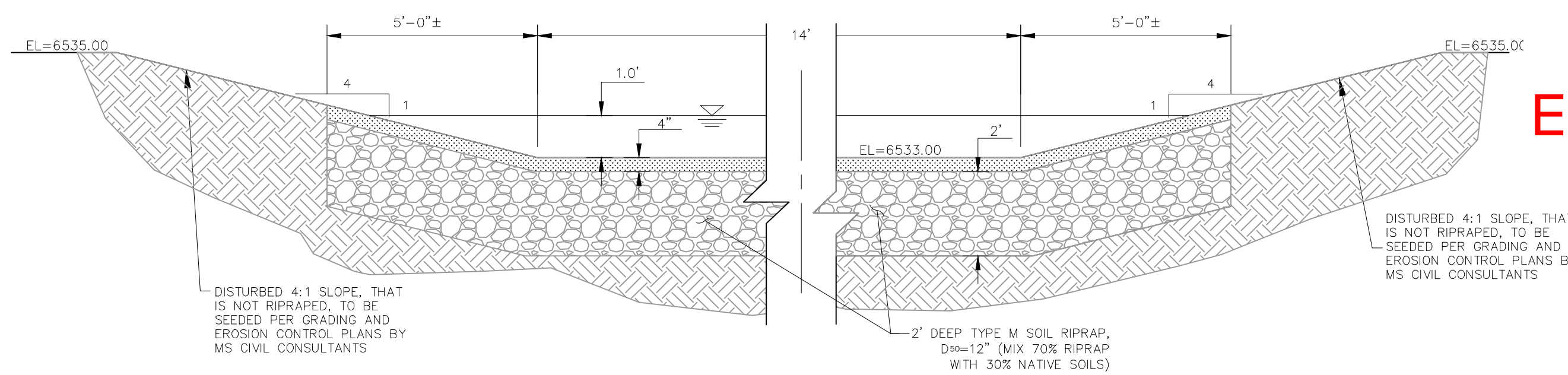
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CAUTION

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AS-BUILT ENGINEERING RECORD DRAWINGS



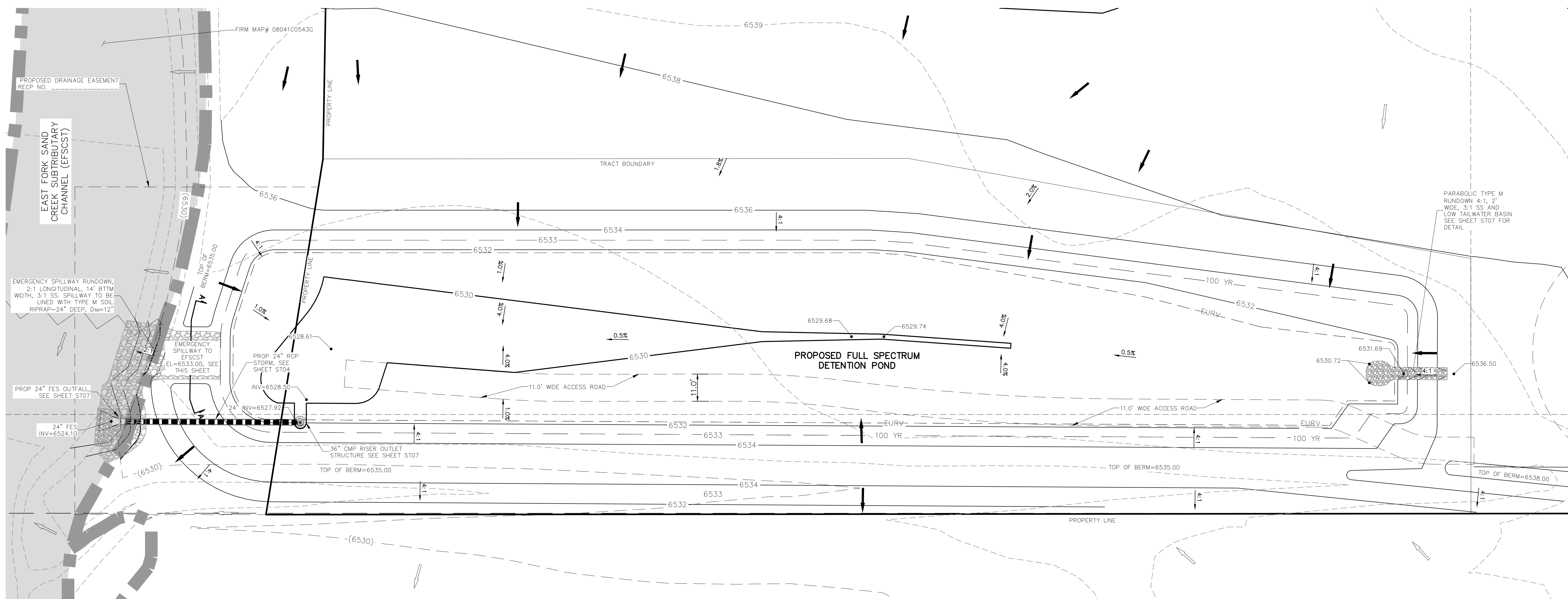
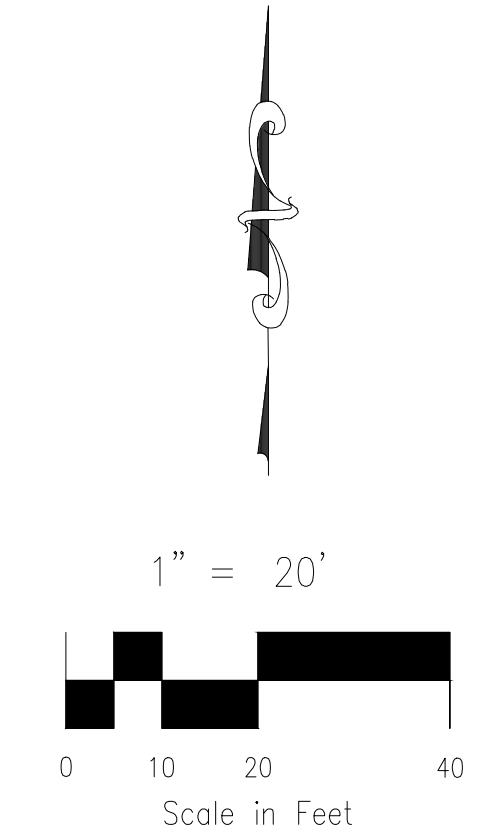
SECTION A-A, EMERGENCY SPILLWAY
NOT TO SCALE

THE POND ON THIS PAGE IS NOT BEING CERTIFIED FOR THE TIMBERLINE PROJECT SINCE THIS POND IS PART OF A DIFFERENT COUNTY PROJECT (DWIRE).

FULL SPECTRUM DETENTION POND DATA	
WQ WATER SURFACE EL=6530.74	
WQ VOLUME=0.256 AC-FT	
EURV WATER SURFACE EL=6531.69	
EURV VOLUME=0.710 AC-FT	
100-YR WATER SURFACE EL=6532.95	
SPILLWAY CREST EL=6533.00	
TOP OF EMBANKMENT EL=6535.00	
100-YR VOLUME=1.628 AC-FT	
100-YR INFLOW=41.9 CFS	
100-YR RELEASE=16.0 CFS	

LEGEND

- EX EXISTING
- PROP PROPOSED
- 6536 PROP MAJ CONT
- (6536) PROP MIN CONT
- (6536) EXIST MAJ CONT
- (6536) EXIST MIN CONT
- 100 YR 100YR FLOODPLAIN
- RIPRAP TYP.
- STABILIZED MAINTENANCE ROAD ABOVE EURV
- STABILIZED MAINT. ROAD BELOW EURV
- CONCRETE LOW FLOW CHANNEL
- SC250 EROSION CONTROL MATTING
- EX. FLOW ARROW
- PROP. FLOW ARROW
- PROPERTY LINE
- PROP STORM SEWER PIPE



FULL SPECTRUM DETENTION POND SITE PLAN
SCALE 1"=20'

TIMBERLINE STORAGE YARD	
STORM SEWER PLANS	
PROJECT NO. 43-095	DATE: 03/30/2020
DESIGNED BY: CMN	HORIZONTAL SCALE: 1"=20'
DRAWN BY: CMN	VERTICAL SCALE: N/A
CHECKED BY: VAS	SHEET 14 OF 16
	ST06

20 BOULDER CRESCENT, SUITE 110
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PHONE: 719.555.4485

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FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

Virgil A. Sanchez, Colorado P.E. No. 37160

NO.	DATE	BY	DESCRIPTION

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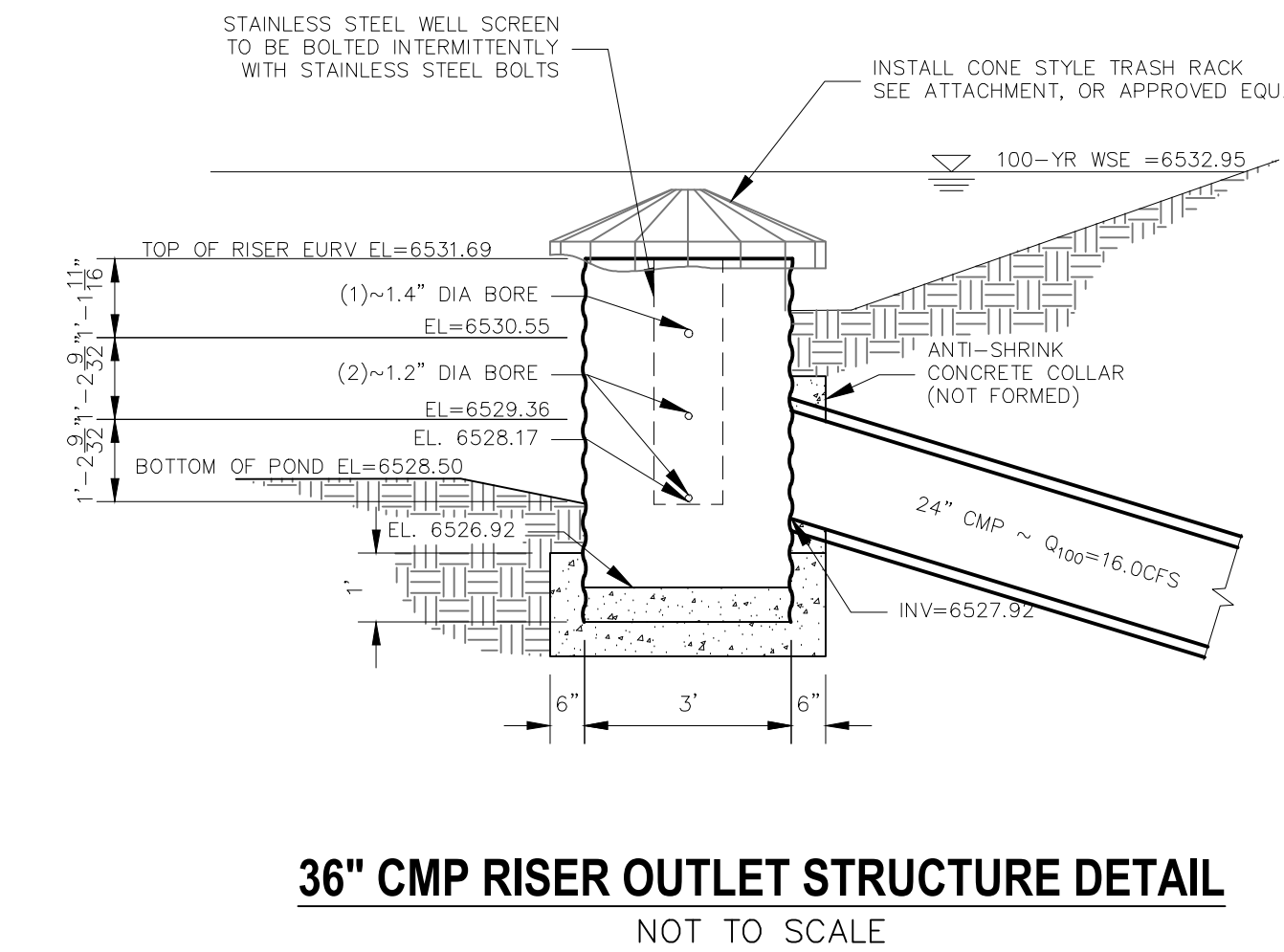
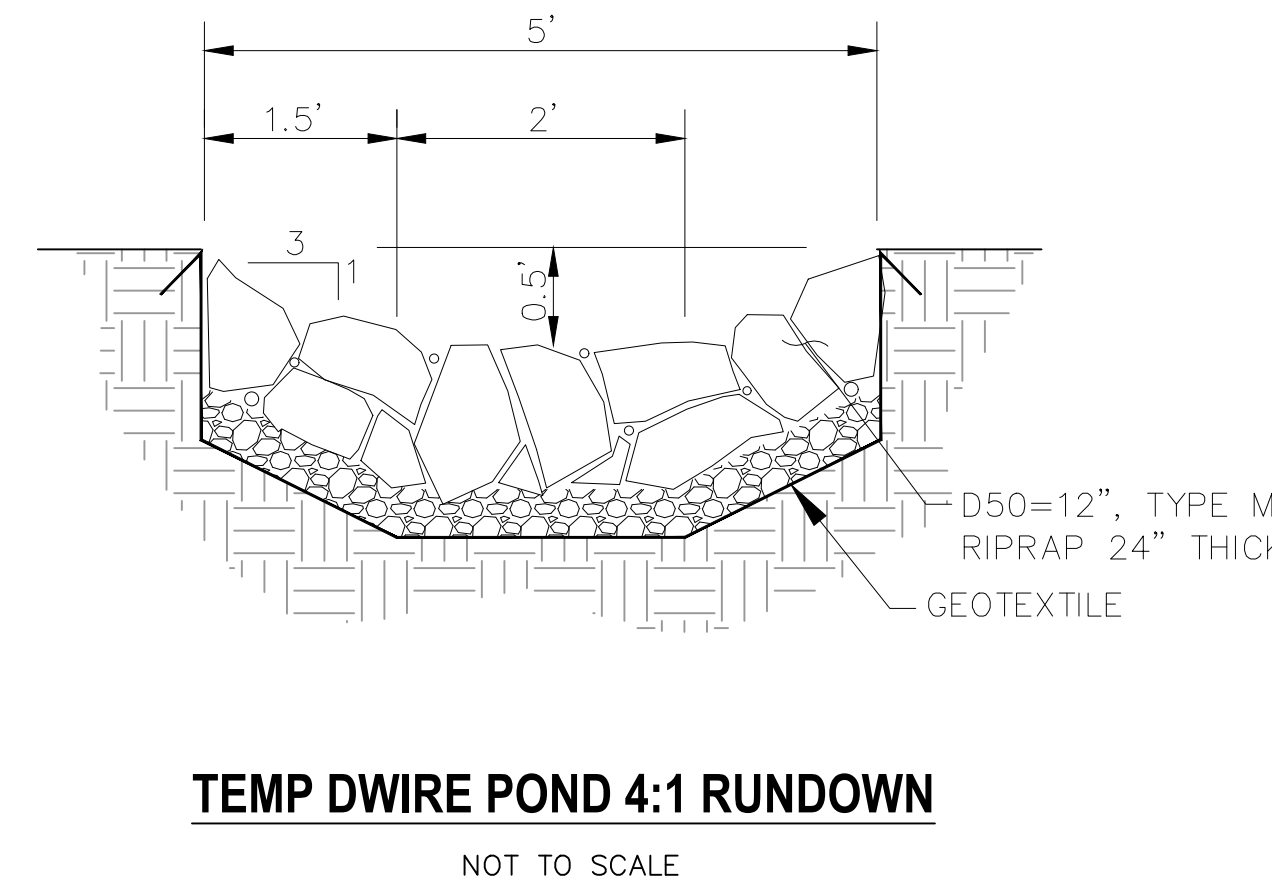
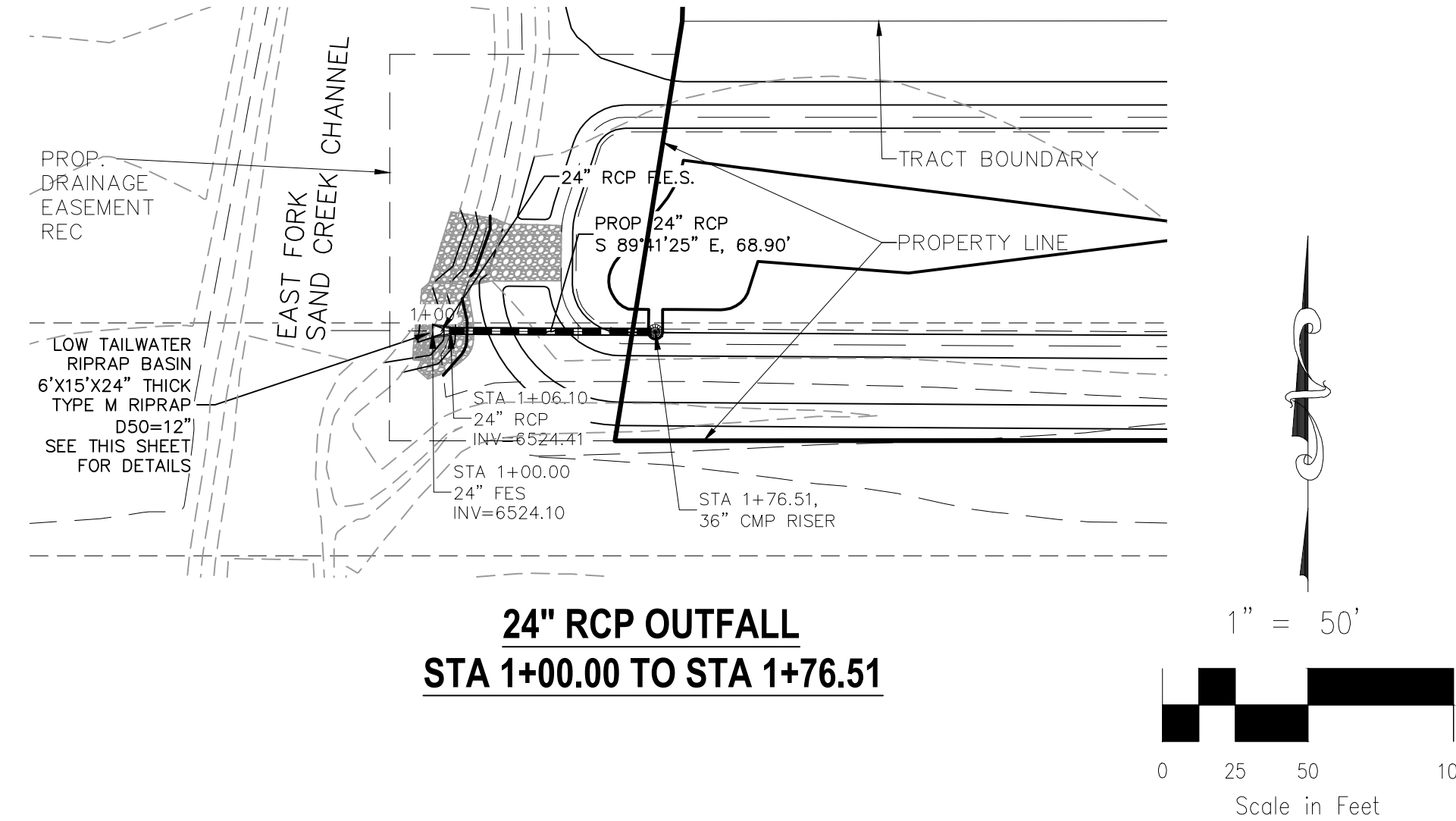
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STATEMENT:
THE CITY OF COLORADO SPRINGS RECOGNIZES THE DESIGN ENGINEER AS HAVING RESPONSIBILITY FOR THE DESIGN; THE CITY HAS LIMITED ITS SCOPE OF REVIEW ACCORDINGLY. RESUBMITTAL REQUIRED IF CONSTRUCTION HAS NOT COMMENCED WITHIN 180 DAYS AFTER APPROVAL DATE.

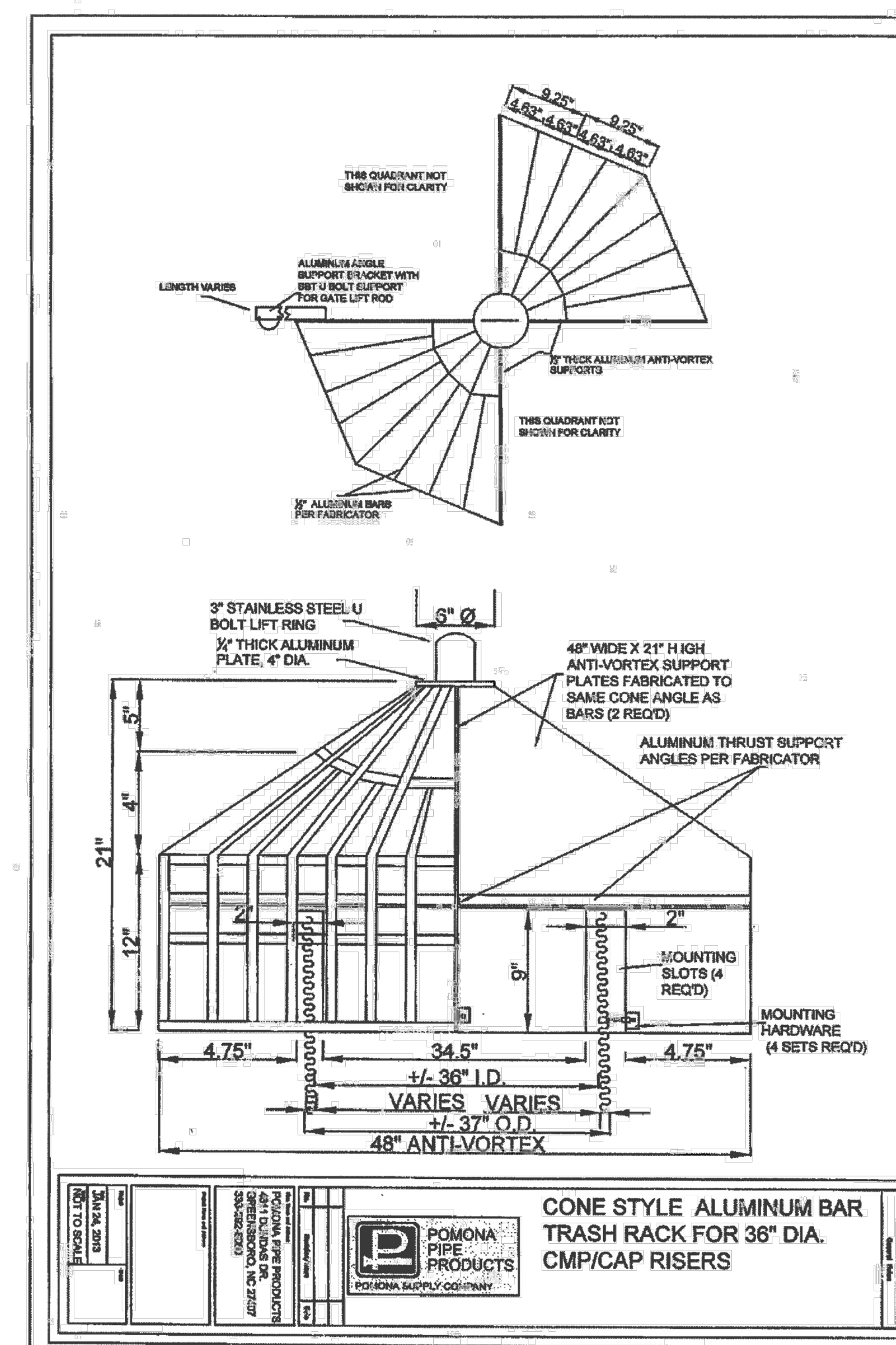
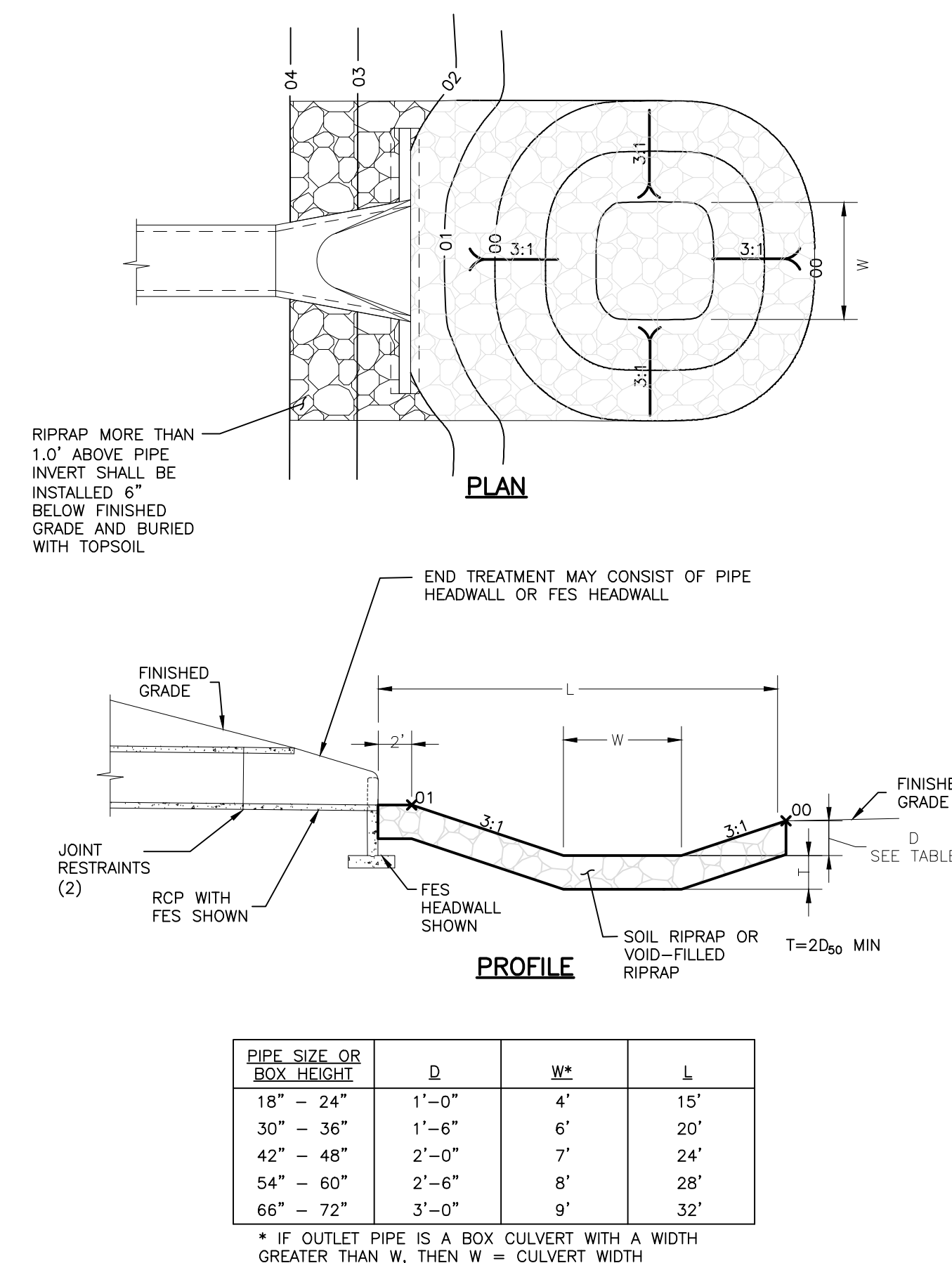
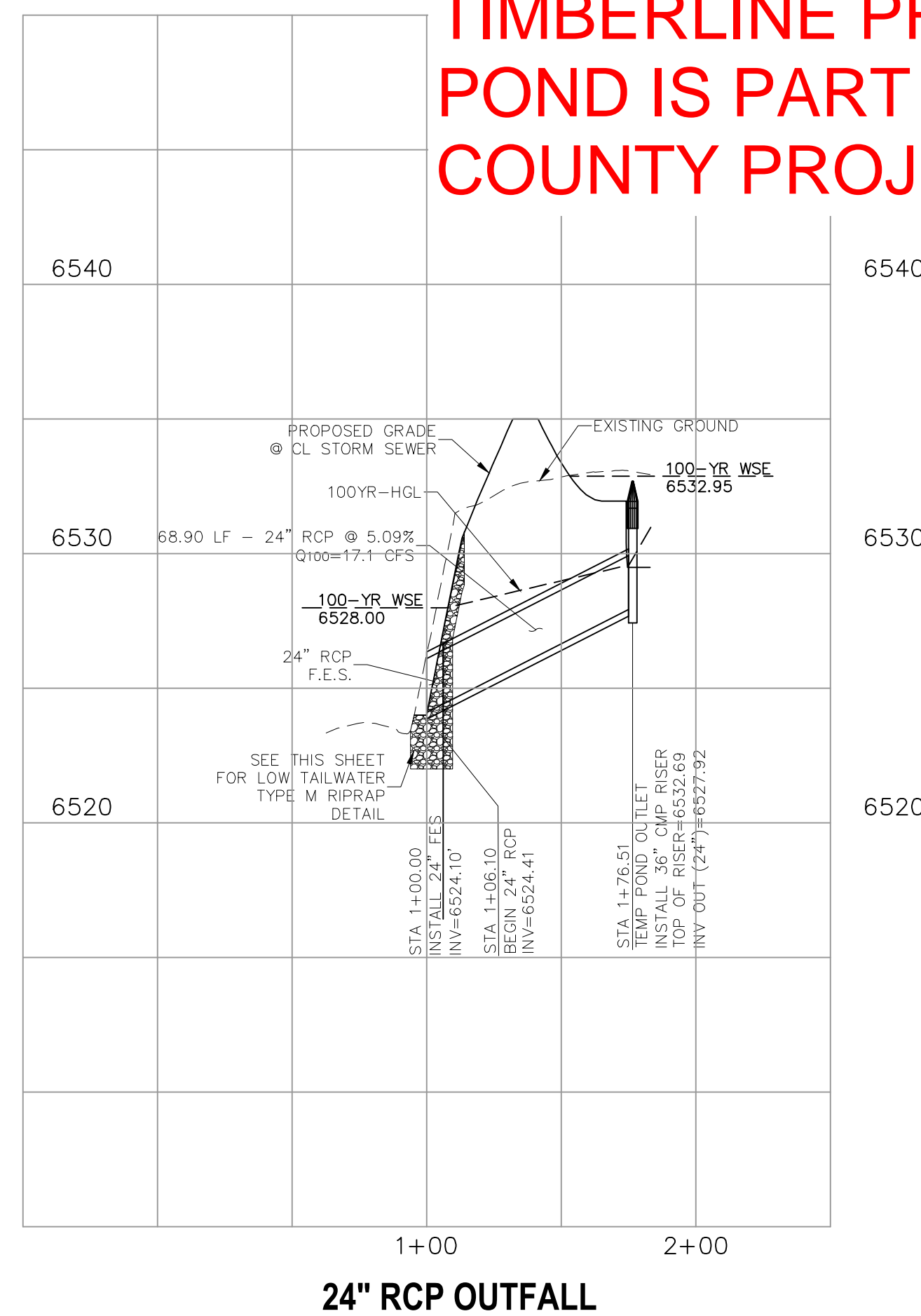
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AS-BUILT ENGINEERING RECORD DRAWINGS



THE POND ON THIS PAGE IS NOT BEING CERTIFIED FOR THE TIMBERLINE PROJECT SINCE THIS POND IS PART OF A DIFFERENT COUNTY PROJECT (DWIRE).



TIMBERLINE STORAGE YARD
STORM SEWER PLANS

PROJECT NO. 43-095
DATE: 03-30-20
SCALE: HORIZONTAL: 1"=50' VERTICAL: 1"=5'
DESIGNED BY: GT
DRAWN BY: JWP
CHECKED BY: GT

20 BOULDER CRESCENT, SUITE 110
COLORADO SPRINGS, CO 80903
PHONE: 719.555.5485

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

MICHEL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS:

NO.	DATE	BY	DESCRIPTION

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

STATEMENT:
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AS-BUILT ENGINEERING RECORD DRAWINGS



GENERAL NOTES, DESIGN TABLE, TYPICAL SECTION, TYPICAL CULVERT LAYOUT, DESIGN DATA, and various diagrams for Wingwalls for Pipe or Box Culverts. Includes a table for concrete and steel quantities.

GENERAL NOTES, TRANSVERSE CROSS SECTION, LONGITUDINAL CROSS SECTION, GRATE INSTALLATION DETAIL, and diagrams for Inlet, Type D. Includes a table for concrete and steel quantities.

Computer File Information, Sheet Revisions, Colorado Department of Transportation logo, Project Development Branch SRJ/LTA, WINGWALLS FOR PIPE OR BOX CULVERTS, STANDARD PLAN NO. M-601-20, Sheet No. 1 of 1.

Computer File Information, Sheet Revisions, Colorado Department of Transportation logo, Project Development Branch SRJ/LTA, INLET, TYPE D, STANDARD PLAN NO. M-604-11, Sheet No. 1 of 1.

GENERAL NOTES, PLAN VIEW, SECTION A-A REGULAR INLET, SECTION A-A INLET WITH DROP BOX, CURB FACE ASSEMBLY, SECTION B-B END VIEW, and diagrams for Curb Inlet Type R. Includes a table for concrete and steel quantities.

GENERAL NOTES, TABLE ONE - BAR LIST FOR CURB INLETS, TABLE TWO - BARS AND CHANNELS, PLAN VIEW, ELEVATION VIEW, and diagrams for Curb Inlet Type R. Includes a table for concrete and steel quantities.

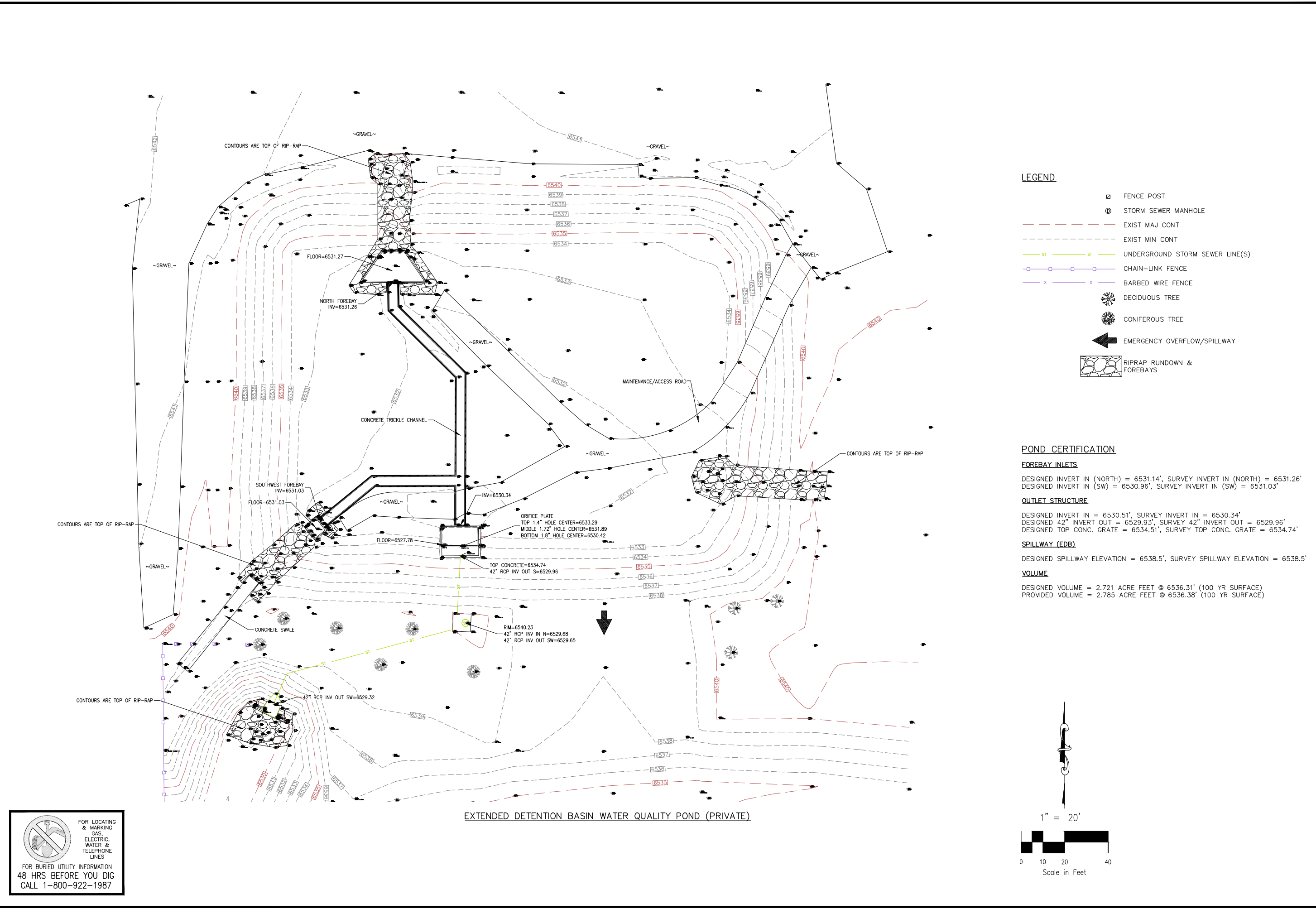
Computer File Information, Sheet Revisions, Colorado Department of Transportation logo, Project Development Branch SRJ/LTA, CURB INLET TYPE R, STANDARD PLAN NO. M-604-12, Sheet No. 1 of 2.

Computer File Information, Sheet Revisions, Colorado Department of Transportation logo, Project Development Branch SRJ/LTA, CURB INLET TYPE R, STANDARD PLAN NO. M-604-12, Sheet No. 2 of 2.

DWIRE STORAGE YARD, STANDARD DETAILS, PROJECT NO. 43-117, SCALE: 03-30-2020, SHEET 16 OF 16, CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC., REVISIONS, DATE, BY: DESCRIPTION, THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS.

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LEGEND

- FENCE POST
- ⊙ STORM SEWER MANHOLE
- - - - - EXIST MAJ CONT
- - - - - EXIST MIN CONT
- ST UNDERGROUND STORM SEWER LINE(S)
- CHAIN-LINK FENCE
- x BARBED WIRE FENCE
- ☼ DECIDUOUS TREE
- ☼ CONIFEROUS TREE
- ← EMERGENCY OVERFLOW/SPILLWAY
- ▨ RIPRAP RUNDOWN & FOREBAYS

POND CERTIFICATION

FOREBAY INLETS

DESIGNED INVERT IN (NORTH) = 6531.14', SURVEY INVERT IN (NORTH) = 6531.26'
 DESIGNED INVERT IN (SW) = 6530.96', SURVEY INVERT IN (SW) = 6531.03'

OUTLET STRUCTURE

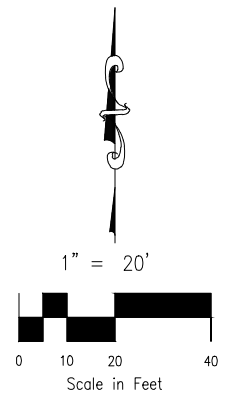
DESIGNED INVERT IN = 6530.51', SURVEY INVERT IN = 6530.34'
 DESIGNED 42" INVERT OUT = 6529.93', SURVEY 42" INVERT OUT = 6529.96'
 DESIGNED TOP CONC. GRATE = 6534.51', SURVEY TOP CONC. GRATE = 6534.74'

SPILLWAY (EDB)

DESIGNED SPILLWAY ELEVATION = 6538.5', SURVEY SPILLWAY ELEVATION = 6538.5'

VOLUME

DESIGNED VOLUME = 2.721 ACRE FEET @ 6536.31' (100 YR SURFACE)
 PROVIDED VOLUME = 2.785 ACRE FEET @ 6536.38' (100 YR SURFACE)



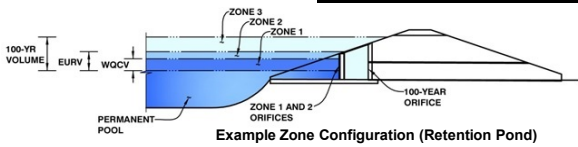
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TIMBERLINE STORAGE YARD	
WATER QUALITY POND 1 CERTIFICATION	
PROJECT NO. 43-095	DATE: 05/12/2023
DESIGNED BY: TAU	SCALE: HORIZONTAL: 1"=20'
DRAWN BY: TAU	VERTICAL: 1"=5'
CHECKED BY: DLM	SHEET 1 OF 1
2120 N. WATCH AVE. STE 305 COLORADO SPRINGS, CO 80903 PHONE 719.555.5465	
M&S CIVIL CONSULTANTS, INC.	
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.	
VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160	
NO. _____	DATE: _____
BY: _____	APPROV. BY: _____
DESCRIPTION: _____	DATE: _____
THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARED OF THESE PLANS.	
CAUTION	

Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)

Project: Timberline Storage
Basin ID: FSD Pond 1



	Stage (ft)	Zone Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	3.29	0.668	Orifice Plate
Zone 2 (EURV)	4.41	0.737	Orifice Plate
Zone 3 (100-year)	6.84	1.928	Weir&Pipe (Restrict)
		3.333	Total

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)
Underdrain Orifice Diameter =	N/A	inches

Calculated Parameters for Underdrain

Underdrain Orifice Area =	N/A	ft ²
Underdrain Orifice Centroid =	N/A	feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Invert of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate =	4.41	ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing =	19.60	inches
Orifice Plate: Orifice Area per Row =	N/A	inches

Calculated Parameters for Plate

WQ Orifice Area per Row =	N/A	ft ²
Elliptical Half-Width =	N/A	feet
Elliptical Slot Centroid =	N/A	feet
Elliptical Slot Area =	N/A	ft ²

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.47	2.94					
Orifice Area (sq. inches)	2.51	2.30	1.50					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	N/A	N/A	inches

Calculated Parameters for Vertical Orifice

	Not Selected	Not Selected	
Vertical Orifice Area =	N/A	N/A	ft ²
Vertical Orifice Centroid =	N/A	N/A	feet

User Input: Overflow Weir (Dropbox) and Grate (Flat or Sloped)

	Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	4.41	N/A	ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	17.00	N/A	feet
Overflow Weir Slope =	0.00	N/A	H:V (enter zero for flat grate)
Horiz. Length of Weir Sides =	4.00	N/A	feet
Overflow Grate Open Area % =	70%	N/A	% grate open area/total area
Debris Clogging % =	50%	N/A	%

Calculated Parameters for Overflow Weir

	Zone 3 Weir	Not Selected	
Height of Grate Upper Edge, H ₁ =	4.41	N/A	feet
Overflow Weir Slope Length =	4.00	N/A	feet
Grate Open Area / 100-yr Orifice Area =	7.24	N/A	should be ≥ 4
Overflow Grate Open Area w/o Debris =	47.60	N/A	ft ²
Overflow Grate Open Area w/ Debris =	23.80	N/A	ft ²

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	0.25	N/A	ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter =	42.00	N/A	inches
Restrictor Plate Height Above Pipe Invert =	27.15		inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

	Zone 3 Restrictor	Not Selected	
Outlet Orifice Area =	6.58	N/A	ft ²
Outlet Orifice Centroid =	1.28	N/A	feet
Half-Central Angle of Restrictor Plate on Pipe =	1.87	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage =	6.85	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	72.50	feet
Spillway End Slopes =	10.00	H:V
Freeboard above Max Water Surface =	0.67	feet

Calculated Parameters for Spillway

Spillway Design Flow Depth =	0.65	feet
Stage at Top of Freeboard =	8.17	feet
Basin Area at Top of Freeboard =	0.98	acres

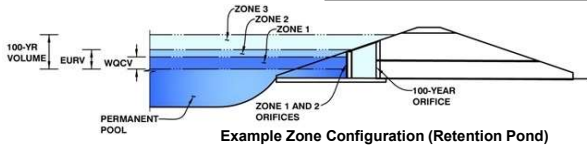
Routed Hydrograph Results

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period									
One-Hour Rainfall Depth (in)	0.53	1.07	1.19	1.50	1.75	2.00	2.25	2.52	0.00
Calculated Runoff Volume (acre-ft)	0.668	1.406	1.016	1.450	2.269	4.027	5.340	7.102	0.000
OPTIONAL Override Runoff Volume (acre-ft)									
Inflow Hydrograph Volume (acre-ft)	0.668	1.406	1.016	1.451	2.270	4.030	5.336	7.108	#N/A
Predevelopment Unit Peak Flow, q (cfs/acre)	0.00	0.00	0.01	0.02	0.16	0.53	0.78	1.12	0.00
Predevelopment Peak Q (cfs)	0.0	0.0	0.6	1.2	10.5	33.6	49.9	71.5	0.0
Peak Inflow Q (cfs)	12.1	25.2	18.3	26.0	40.4	71.2	93.7	123.9	#N/A
Peak Outflow Q (cfs)	0.3	0.4	0.3	0.4	15.9	47.0	65.5	71.5	#N/A
Ratio Peak Outflow to Predevelopment Q	N/A	N/A	N/A	0.3	1.5	1.4	1.3	1.0	#N/A
Structure Controlling Flow	Plate	Plate	Plate	Plate	Overflow Grate 1	Overflow Grate 1	Outlet Plate 1	Outlet Plate 1	#N/A
Max Velocity through Grate 1 (fps)	N/A	N/A	N/A	N/A	0.3	1.0	1.4	1.5	#N/A
Max Velocity through Grate 2 (fps)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	#N/A
Time to Drain 97% of Inflow Volume (hours)	40	64	52	65	64	60	57	54	#N/A
Time to Drain 99% of Inflow Volume (hours)	42	68	55	69	69	67	65	64	#N/A
Maximum Ponding Depth (ft)	3.22	4.33	3.77	4.39	4.72	5.05	5.31	6.13	#N/A
Area at Maximum Ponding Depth (acres)	0.55	0.71	0.66	0.71	0.73	0.75	0.77	0.83	#N/A
Maximum Volume Stored (acre-ft)	0.623	1.350	0.965	1.392	1.623	1.875	2.066	2.721	#N/A

Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)

Project: Timberline Storage (Amended)
Basin ID: FSD Pond 1



	Stage (ft)	Zone Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	3.04	0.668	Orifice Plate
Zone 2 (EURV)	4.17	0.737	Orifice Plate
Zone 3 (100-year)	6.60	1.928	Weir&Pipe (Restrict)
		3.333	Total

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)
Underdrain Orifice Diameter =	N/A	inches

Calculated Parameters for Underdrain		
Underdrain Orifice Area =	N/A	ft ²
Underdrain Orifice Centroid =	N/A	feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Invert of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate =	4.32	ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing =	N/A	inches
Orifice Plate: Orifice Area per Row =	N/A	inches

Calculated Parameters for Plate		
WQ Orifice Area per Row =	N/A	ft ²
Elliptical Half-Width =	N/A	feet
Elliptical Slot Centroid =	N/A	feet
Elliptical Slot Area =	N/A	ft ²

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.47	2.87					
Orifice Area (sq. inches)	2.54	2.32	1.54					

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	N/A	N/A	inches

Calculated Parameters for Vertical Orifice			
Vertical Orifice Area =	Not Selected	Not Selected	ft ²
Vertical Orifice Centroid =	N/A	N/A	feet

User Input: Overflow Weir (Dropbox) and Grate (Flat or Sloped)

	Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	4.32	N/A	ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	17.00	N/A	feet
Overflow Weir Slope =	0.00	N/A	H:V (enter zero for flat grate)
Horiz. Length of Weir Sides =	4.00	N/A	feet
Overflow Grate Open Area % =	70%	N/A	%, grate open area/total area
Debris Clogging % =	50%	N/A	%

Calculated Parameters for Overflow Weir			
Height of Grate Upper Edge, H _g =	4.32	N/A	feet
Over Flow Weir Slope Length =	4.00	N/A	feet
Grate Open Area / 100-yr Orifice Area =	7.24	N/A	should be ≥ 4
Overflow Grate Open Area w/o Debris =	47.60	N/A	ft ²
Overflow Grate Open Area w/ Debris =	23.80	N/A	ft ²

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	0.46	N/A	ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter =	42.00	N/A	inches
Restrictor Plate Height Above Pipe Invert =	27.15		inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate			
Outlet Orifice Area =	6.58	N/A	ft ²
Outlet Orifice Centroid =	1.28	N/A	feet
Half-Central Angle of Restrictor Plate on Pipe =	1.87	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage =	8.08	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	72.50	feet
Spillway End Slopes =	10.00	H:V
Freeboard above Max Water Surface =	0.67	feet

Calculated Parameters for Spillway		
Spillway Design Flow Depth =	0.65	feet
Stage at Top of Freeboard =	9.40	feet
Basin Area at Top of Freeboard =	1.14	acres

Routed Hydrograph Results

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period =									
One-Hour Rainfall Depth (in) =	0.53	1.07	1.19	1.50	1.75	2.00	2.25	2.52	0.00
Calculated Runoff Volume (acre-ft) =	0.668	1.406	1.016	1.450	2.269	4.027	5.340	7.102	0.000
OPTIONAL Override Runoff Volume (acre-ft) =									
Inflow Hydrograph Volume (acre-ft) =	0.668	1.406	1.016	1.451	2.270	4.030	5.336	7.108	#N/A
Predevelopment Unit Peak Flow, q (cfs/acre) =	0.00	0.00	0.01	0.02	0.16	0.53	0.78	1.12	0.00
Predevelopment Peak Q (cfs) =	0.0	0.0	0.6	1.2	10.5	33.6	49.9	71.5	0.0
Peak Inflow Q (cfs) =	12.1	25.2	18.3	26.0	40.4	71.2	93.7	123.9	#N/A
Peak Outflow Q (cfs) =	0.3	0.4	0.3	0.4	13.5	45.3	66.1	71.8	#N/A
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.3	1.3	1.3	1.3	1.0	#N/A
Structure Controlling Flow =	Plate	Plate	Plate	Plate	Overflow Grate 1	Overflow Grate 1	Outlet Plate 1	Outlet Plate 1	#N/A
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	0.3	1.0	1.4	1.5	#N/A
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	#N/A
Time to Drain 97% of Inflow Volume (hours) =	45	70	58	71	73	67	64	61	#N/A
Time to Drain 99% of Inflow Volume (hours) =	47	74	61	75	79	76	75	73	#N/A
Maximum Ponding Depth (ft) =	2.97	4.09	3.53	4.15	4.60	4.95	5.17	5.96	#N/A
Area at Maximum Ponding Depth (acres) =	0.55	0.71	0.66	0.71	0.74	0.76	0.78	0.83	#N/A
Maximum Volume Stored (acre-ft) =	0.630	1.349	0.964	1.391	1.717	1.980	2.157	2.785	#N/A





