

GENERAL NOTES

PRE-CONSTRUCTION MEETING AND CONSTRUCTION COMMENCEMENT:

- All construction methods and materials shall conform to the Construction Standards and Specifications of Roanoke County, the Western Virginia Water Authority, and the Virginia Department of Transportation.
- Stormwater Management Agreements with an attached 8 1/2" x 11" or 8 1/2" x 14" plat must be approved and recorded prior to the pre-construction meeting.
- Once all required items are submitted to the County of Roanoke, the developer must contact the Development Review Coordinator to indicate that a pre-construction meeting needs to be scheduled. The pre-construction meeting will be scheduled with the owner/developer two (2) working days later.
- All land disturbing projects that require approval of an erosion and sediment control plan, grading or clearing permit shall require that the applicant provide the name of an individual who will be responsible for land disturbing activities and that this individual hold a Responsible Land Disturber (RLD) Certificate from the Department of Environmental Quality. The Responsible Land Disturber can be anyone from the Project team that is certified by the Commonwealth of Virginia to be in charge of carrying out the land disturbing activity for the project.
- It is the responsibility of the owner/developer to notify the certified Responsible Land Disturber and the Utility Contractor to attend the pre-construction meeting.
- The Development Review Coordinator will schedule the pre-construction meeting with the County Review Engineer, the County Inspector, and the Western Virginia Water Authority and the Town of Vinton Public Works Department if applicable.
- An approved set of plans, Storm Water Pollution Prevention Plan (SWPPP), VSMP coverage letter, and all permits must be available and visibly posted at the construction site at all times.
- The developer and/or contractor shall supply all utility companies with copies of approved plans, advising them that all grading and installation shall conform to approved plans.
- The project engineer will inform the owner/developer verbally and in writing of the County's obligation to perform inspections on site. Everyone in the meeting will be required to sign a pre-construction checklist indicating their knowledge of Roanoke County's obligation to perform inspections on site.
- The Erosion Control Permit or Combined Erosion Control & VSMP Permit is given to the developer at this pre-construction meeting.
- Notify the County of Roanoke prior to beginning installation of ESC measures. The County will inspect initial installations to ensure compliance with approved plan prior to start of grading. The developer SHALL contact the project inspector 24 hours before beginning any grading or construction on the property.
- County inspectors must inspect storm drain / stormwater management / BMP installations during the process of installation. Please contact the site inspector 24 hours in advance.
- All work shall be subject to inspection by Roanoke County, the Western Virginia Water Authority and the Virginia Department of Transportation Inspectors.
- Contractors shall notify utilities of proposed construction at least two (2), but not more than ten (10) working days in advance. Area public utilities may be notified thru "Miss Utility": 1-800-552-7001 or VA 811.
- The 100 year Floodway shall be staked prior to any construction.
- Grade stakes shall be set for all curb and gutter, culvert, sanitary sewer and storm sewer at all times of construction.
- The Department of Community Development shall be notified when a spring is encountered during construction.
- Construction debris shall be containerized in accordance with the Virginia Litter Control Act. No less than one litter receptacle shall be provided on site.
- The contractor shall provide adequate means of cleaning mud from trucks and/or other equipment prior to entering public streets or rights of ways. It is the contractors responsibility to insure that the streets are in a clean, mud and dust free condition at all times.
- Plan approval in no way relieves the developer or contractors of the responsibilities contained within the erosion and sediment control or stormwater management policies.
- Field construction shall honor proposed drainage divides as shown on plans.
- Field corrections shall be approved by the Roanoke County Engineering Division and/or the Western Virginia Water Authority and the Professional of Record, prior to such construction.
- The developer or contractor shall supply the County and the Western Virginia Water Authority with correct As-Built plans before final acceptance.

VIRGINIA DEPARTMENT OF TRANSPORTATION:

- Plan approval by Roanoke County does not guarantee issuance of any permits by the Virginia Department of Transportation.
- A permit must be obtained from the Virginia Department of Transportation, Salem Residency Office prior to construction in the highway right-of-way.
- The preliminary pavement designs should be based on a predicted sub-grade CBR value of 7.0 and with a Resiliency Factor (RF) of 2.0 as shown in Appendix I of the 2000 Virginia Department of Transportation Pavement Design Guide for Subdivision and Secondary Roads. The sub-grade soil is to be tested by an independent laboratory and the results submitted to the Virginia Department of Transportation prior to base construction. Should the sub-grade CBR value and/or the RF value be less than the predicted values, additional base material will be required in accordance with Departmental specifications. Refer to the same manual as the number and locations of the required soil samples to be tested. All pavement designs shall be submitted to the Department for review and approval. The sub-grade shall be approved by the Virginia Department of Transportation prior to placement of the base. Base shall be approved by the Virginia Department of Transportation for depth, template, and compaction before the surface is applied.
- Standard guardrail with safety end sections may be required on fills or in areas where hazards exist as deemed necessary. After completion of rough grading operations, the County Engineer and Virginia Department of Transportation shall be contacted to schedule a field review. Where guard rail is warranted, the standard shoulder width shall be provided and the guard rail shall be installed in accordance with the 2001 VDOT Road and Bridge Standards as part of this development.
- Standard street and traffic control signs shall be erected at each intersection by the developer prior to final street acceptance.
- All traffic devices shall be in accordance with current edition of the "Manual on Uniform Traffic Control Devices" (MUTCD).
- All unsuitable material shall be removed from the construction limits of the roadway before placing embankment.

See Sheet N/A for Stormwater Site Statistics Table.
See Sheet N/A for New BMP Information Table.

The Project Engineer shall provide electronic copies of the approved plans to the Development Review Coordinator within 5 working days of the pre-construction meeting.
The notes on this sheet shall not be modified.



COUNTY OF ROANOKE, VA

NAME OF DEVELOPMENT	RESTORATION OF GLADE CREEK AT VINYARD PARK - PHASE II	I, _____, OWNER/DEVELOPER, AM AWARE OF THE SITE DESIGN REQUIREMENTS IMPOSED BY THIS SITE DEVELOPMENT PLAN AND OTHER APPLICABLE ROANOKE COUNTY CODES. I HEREBY CERTIFY THAT I AGREE TO COMPLY WITH THESE REQUIREMENTS AND THE THIRTY (30) POINTS SHOWN ON THIS COVER SHEET UNLESS MODIFIED IN ACCORDANCE WITH LOCAL LAW.
MAGISTERIAL DISTRICT(S)	VINTON	
OWNER (name, address, telephone)	ROANOKE COUNTY, VA, P.O. BOX 29800, ROANOKE, VA 24018-0798, 540.772.2083 ATTN: DAVID HENDERSON, COUNTY ENGINEER	
DEVELOPER (name, address, telephone)	ROANOKE COUNTY, VA, P.O. BOX 29800, ROANOKE, VA 24018-0798, 540.772.2083 ATTN: DAVID HENDERSON, COUNTY ENGINEER	
ENGINEER, ARCHITECT OR SURVEYOR (name, address, telephone)	BRYAN M. DICK, PE, FREESE AND NICHOLS, INC. 717 GREEN VALLEY ROAD SUITE 200, GREENSBORO, NC 27408 864.506.1465	
TAX MAP NO(S)	_060-12-09-01.00-0000	

WATER NOTES

All water facilities shall be constructed according to the Western Virginia Regional Design and Construction Standards (Latest Edition).

A minimum cover of three (3) feet is required over proposed lines.

Contractor shall be responsible for locating and uncovering valve vaults after paving and adjustment to final grade if necessary.

All existing utilities may not be shown in their exact location. The contractor shall comply with the (State Water Works Regulations, Section 12VAC5-590-1150, where lines cross.

All trenches in existing or future highway right-of-ways shall be compacted according to Virginia Department of Transportation standards.

Lines shall be staked prior to construction.

Water main shall be minimum Class 350 Ductile Iron in accordance to AWWA C151 or DR-14 PVC in accordance with AWWA C-900.

Ductile Iron Pipe in accordance with the Western Virginia Regional Design and Construction Standards shall be required for all pipe with a working pressure equal to or greater than 100 p.s.i.

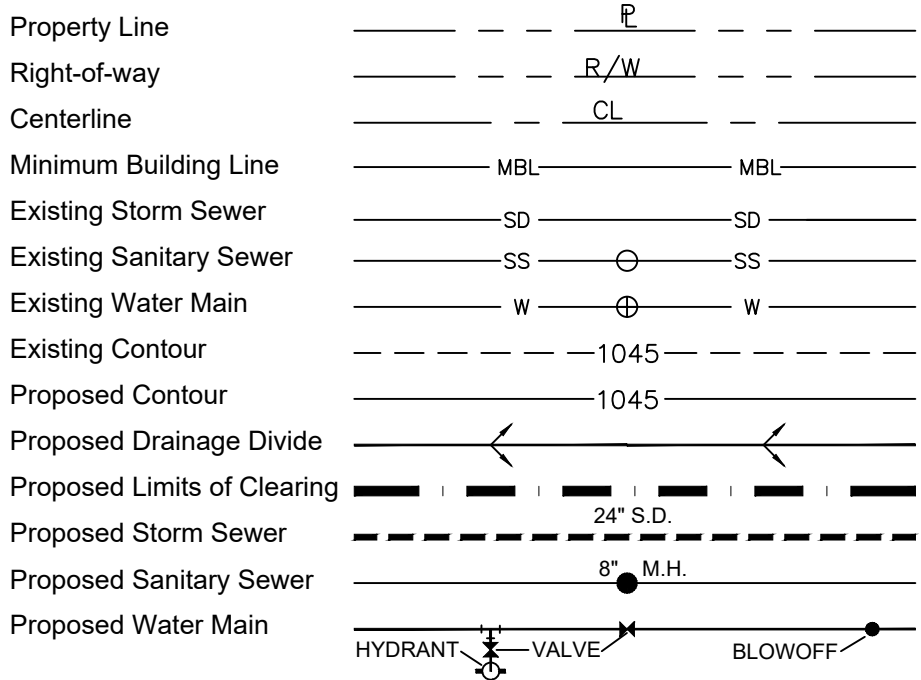
Western Virginia Water Authority
Availability letter number: N/A

(SEE T-2 FOR DETAILED MAP)



Vicinity Map
150 Berkley Rd NE

LEGEND



SEWER NOTES

All sanitary sewer facilities shall be installed according to the Western Virginia Regional Design and Construction Standards. (Latest Edition).

A minimum cover of three (3) feet is required over proposed lines.

Contractor shall be responsible for locating and uncovering all manholes after paving. Manhole tops shall be adjusted to grade if necessary.

All existing utilities may not be shown in their exact location. The contractor shall comply with (State Water Works Regulations, Section 12VAC5-590-1150, where lines cross.)

All trenches in existing or future rights-of-way shall be compacted according to Virginia Department of Transportation standards.

Lines shall be staked prior to construction.

PRIVATE UTILITIES

Underground utilities installed on private property or in private utility easements and building related storm drains shall be designed and installed per the current edition of the Virginia Uniform Statewide Building Code. Design and installation requirements issued by the Western Virginia Water Authority that meet or exceed the USBC requirements are acceptable for private utilities. All private utilities are to be permitted through and inspected by the Roanoke County Inspections Office. Vaults, valves and other devices installed by or under the control of the Western Virginia Water Authority may not substituted for the code required devices.

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SURVEY INFORMATION

Horizontal and vertical control surveys were performed in year: 2017
By: SURVEYING SOLUTIONS, PC, 307 EAST MAIN ST., YOUNGSVILLE NC 27596 VA # 002970

All vertical elevations must be referenced to the National Geodetic Vertical Datum of 1929 or 1988. All horizontal locations must be referenced to the North American Datum of 1927 or 1983.

Horizontal Datum: NAD 83 Vertical Datum: NAVD 88

Source of topographic mapping is dated: 10/19/2017

Boundary was performed by: SURVEYING SOLUTIONS, PC dated: 11/10/2017

Benchmark Information: FIRE STATION 8 (PID DF3611) ELEVATION=969.38
MEASURED THROUGH GPS OBSERVATION USING KEYNET RTK REAL TIME NETWORK CORRECTION

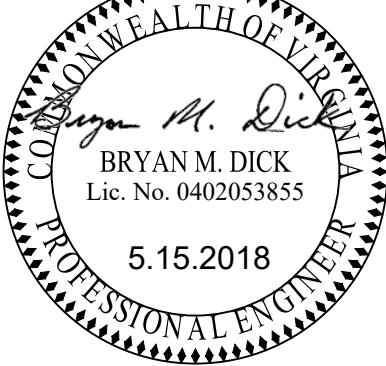
The professional seal and signature certifies the boundary survey and topographic mapping to be accurate and correct.

QUANTITY & COST ESTIMATE

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
CLEARING AND GRUBBING		AC			
EXCAVATION		C.Y.			
EMBANKMENT		C.Y.			
CURB INLET DI-		EA			
CURB INLET DI-		EA			
MANHOLE MH-		EA			
MANHOLE MH-		EA			
-IN. CONCRETE PIPE, CLASS III		LF			
-IN. CONCRETE PIPE, CLASS IV		LF			
-IN. C.M. CULVERT		LF			
-IN. C.M. CULVERT		LF			
BOX CULVERT		LS			
PAVED SWALE		LF			
RIPRAP - CLASS		SF			
PERMANENT GRASS SWALE		LF			
-IN. CONCRETE ENDWALL EW-		EA			
-IN. END SECTION ES-		EA			
HEADER CURB & GUTTER CG-		LF			
CURB & GUTTER CG-		LF			
VALLEY GUTTER		EA			
GRAVEL BASE		SY			
GRAVEL SHOULDER		SY			
SURFACE TREATMENT		SY			
-IN. BIT. CONC.: TYPE B-		SY			
-IN. BIT. CONC.: TYPE S-		SY			
-IN. BASE MATERIAL		C.Y.			
-IN. SUBBASE MATERIAL		C.Y.			
TRAFFIC BARRICADE		EA			
8" WATER LINE		LF			
6" WATER LINE		LF			
FIRE HYDRANT ASSEMBLIES		EA			
BLOW OFFS W/ VAULT, FRAME & COVER		EA			
-IN. GATE VALVES, W/ VAULT, FRAME & COVER		EA			
-IN. GATE VALVES, W/ VAULT, FRAME & COVER		EA			
8" SANITARY SEWER		LF			
STANDARD MANHOLE W/FRAME & COVER		EA			
SAMPLING MANHOLE/PORT		EA			
LANDSCAPING		LS			
AMENITIES (INCLUDING BUT NOT LIMITED TO TRAILS, ETC...)		LS			
STORMWATER MANAGEMENT		LS			
AS-BUILT PLANS (STORM SEWER SYSTEMS)		LS			
AS-BUILT PLANS (STORMWATER MANAGEMENT)		LS			
10% CONTINGENCY					
ESTIMATED TOTAL					

FREESE & NICHOLS
717 GREEN VALLEY RD, SUITE 200
GREENSBORO, NC 27408
864.506.1465 TEL
VA LICENSE # 0407007129

SURVEYING SOLUTIONS
precision. commitment. integrity.
307 E. Main Street
Youngsville, NC 27596
www.surveypc.com
919-554-0902



COUNTY COVER SHEET
FINAL PLAN SET
ISSUED FOR CONSTRUCTION
MAY 2018

RESTORATION OF GLADE CREEK AT
VINYARD PARK
PHASE II

SHEET
T-1

Clearing, grading, erosion control, stream restoration, drainage, landscaping, and other improvements as noted on the plans. This work will include all items necessary to construct the stream, and associated structures with the associated landscaping, plantings, seeding and live staking.

INSET SHEET
SPOIL AREA



TITLE SHEET

0.	T-2	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464
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FINAL PLAN SET



INSET SHEET
SPOIL AREA

—EXISTING PARKING LOT (MUST BE KEPT IN PUBLIC USE AND NOT DAMAGED)

STAGE AND
STOCKPILE
AREA - A

- LIMITS OF DISTURBANCE

EXISTING ACTIVITY FIELDS
NOT TO BE IMPACTED

STAGE AND -
STOCKPILE
AREA - B

—END CONSTRUCTION
STATION 35+80

BEGIN CONSTRUCTION
STATION 10+00

PEDESTRIAN CROSSING DURING NON-WORK HOURS

C-1 LIMIT DIST

LIMITS OF DISTURBANCE

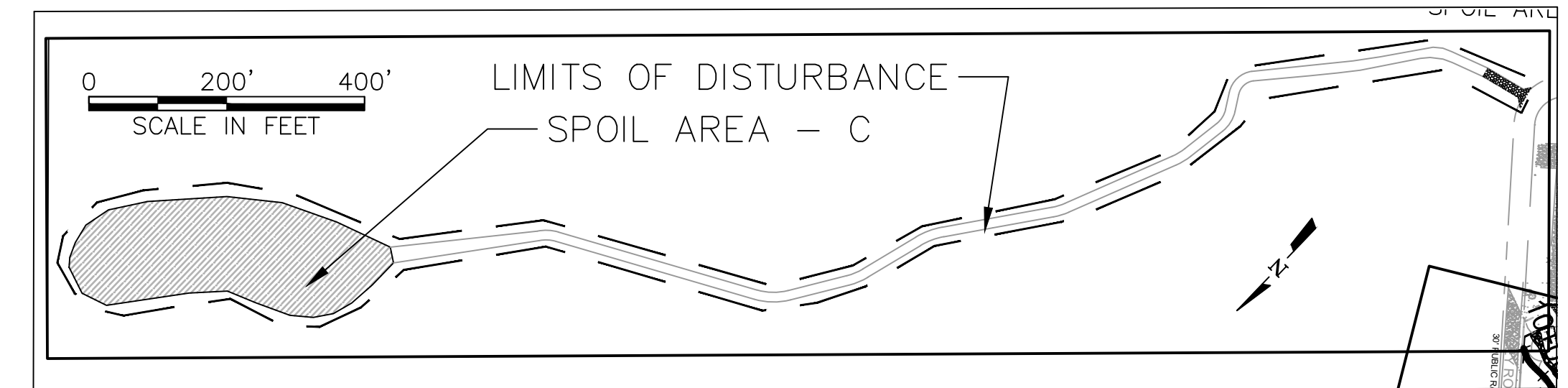
—EXISTING PARKING LOT (MUST BE KEPT IN PUBLIC USE AND NOT DAMAGED)

- LIMITS OF DISTURBANCE

CONSTRUCTION
FENCE

EXISTING ACTIVITY FIELDS
NOT TO BE IMPACTED

LAT. N: 37° 17' 10.9"
LONG. W: 79° 53' 31.5"



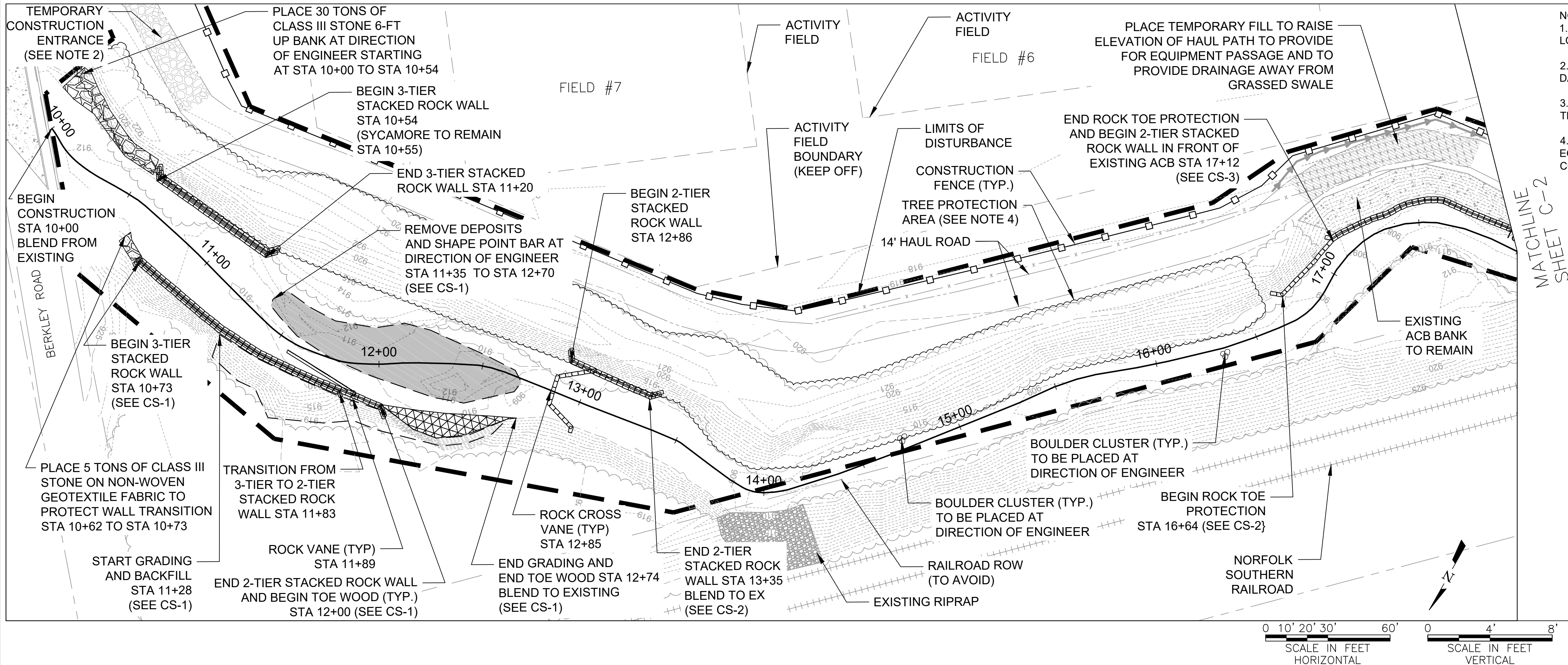
T-1.....	COUNTY COVER SHEET
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EC-8 THRU EC-10.....	EROSION CONTROL DETAILS
LD-1 THRU LD-2.....	LIMITS OF DISTURBANCE
LD-3.....	LIMITS OF DISTURBANCE - SPOIL AREA

DESIGN FIRM :  FREEZE AND NICHOLS	717 GREEN VALLEY RD., SUITE 200 GREENSBORO NC, 27408 864-506-1465 (TEL) VA LICENSE # 0407007129
ENGINEER CONTACT:	BRYAN DICK, PE (864-506-1465)

ACAD Rel: 21.0s (LMS Tech)
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 Last Saved: 3/5/2018 12:50 PM Saved By: 02298

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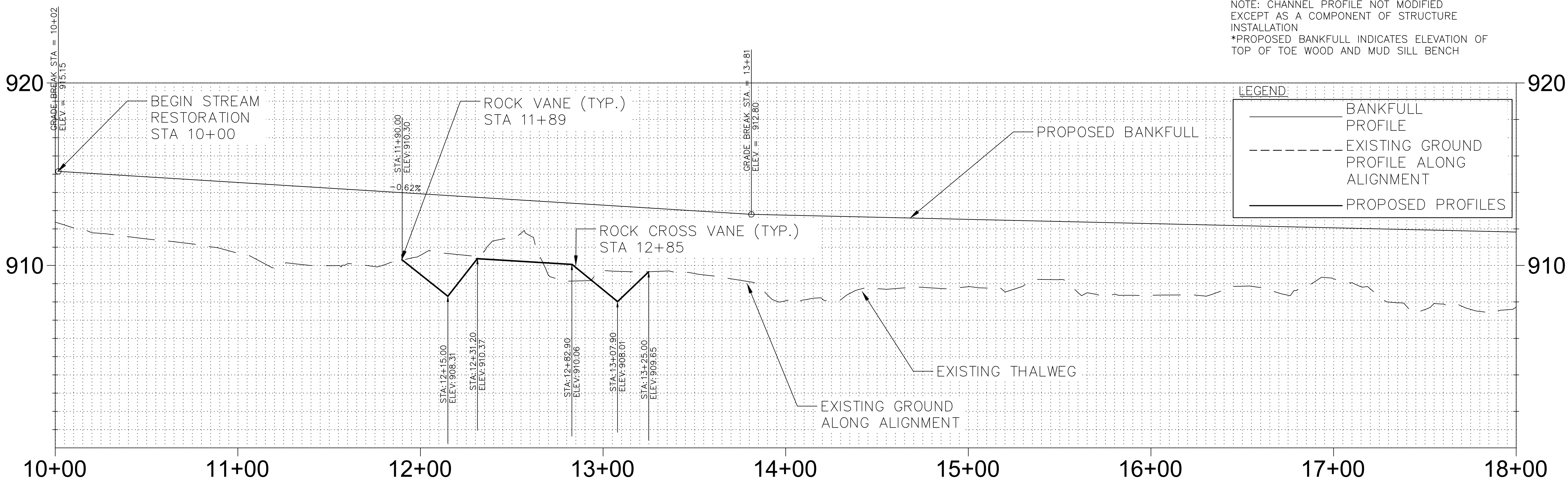
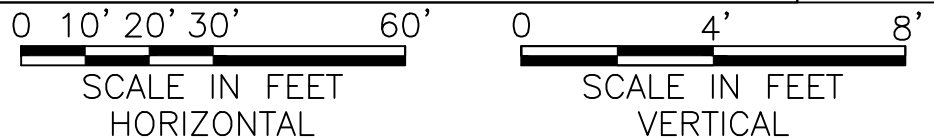
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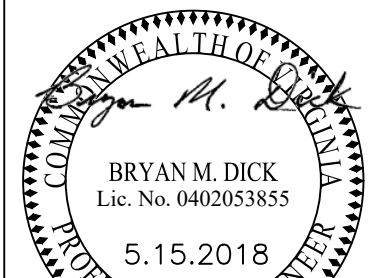
- NOTE:
1. CLEAN AND REPLACE GRAVEL IN THE PARKING LOTS AT COMPLIANCE OF PERMIT AS NECESSARY.
 2. CLEAN TEMPORARY CONSTRUCTION ACCESS DAILY.
 3. CONSTRUCTION ACTIVITY MUST NOT EXCEED THE LIMITS OF DISTURBANCE.
 4. SELECT TREE REMOVAL OR INTERMITTENT EQUIPMENT ACCESS PATH MAY BE ALLOWED AS COORDINATED WITH ENGINEER.

LEGEND

- LOG OR ROCK VANE (AS INDICATED ON SHEET)
- STACKED ROCK WALL OR ROCK TOE
- CLASS III STONE
- ROCK CROSS-VANE
- HAUL ROAD
- CONSTRUCTION FENCE
- STREAM ALIGNMENT
- LIMITS OF DISTURBANCE
- EXISTING MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- HAUL ROAD FILL
- GRADING LIMITS
- CONSTRUCTION ENTRANCE
- TREE PROTECTION AREA
- TOE WOOD



NOTE: CHANNEL PROFILE NOT MODIFIED EXCEPT AS A COMPONENT OF STRUCTURE INSTALLATION
*PROPOSED BANKFULL INDICATES ELEVATION OF TOP OF TOE WOOD AND MUD SILL BENCH



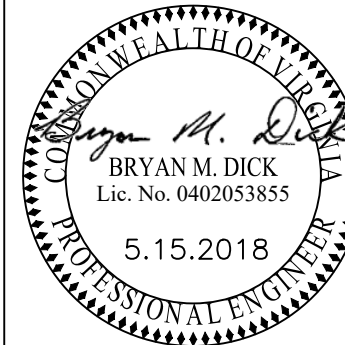
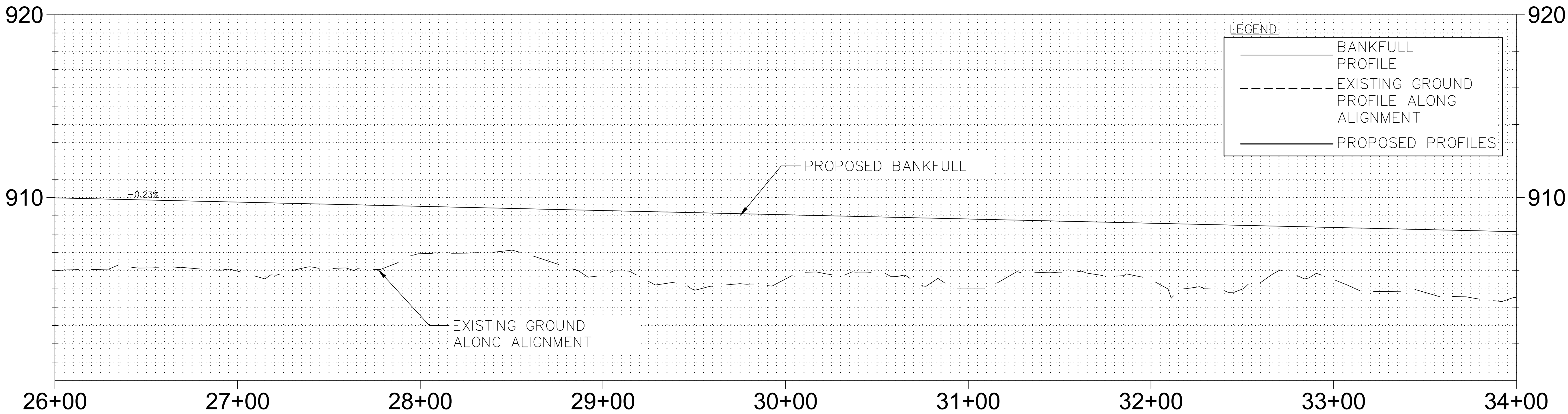
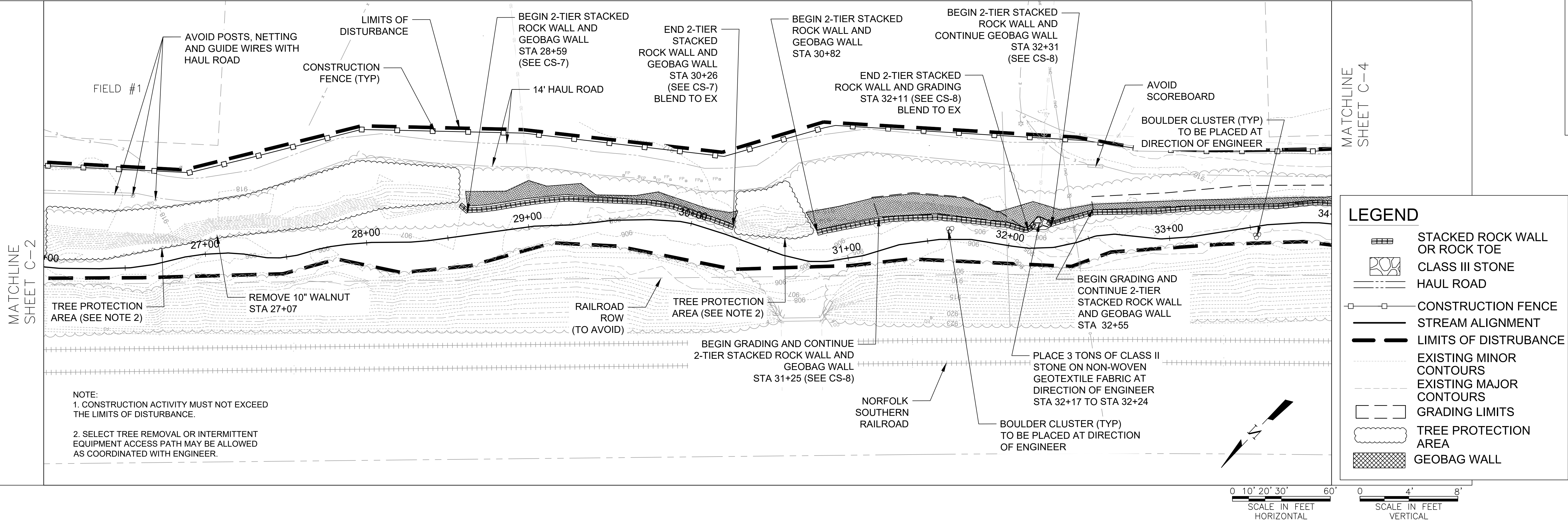
ROANOKE COUNTY, VIRGINIA
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL
PLAN AND PROFILE
STA 10+00 TO STA 18+00

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Bar is one inch on original drawing if not one inch on this sheet, adjust scale.									
C-1									
SEQ.									

ISSUED FOR CONSTRUCTION

FINAL PLAN SET

GENERAL ACCESS NOTE: NO ACCESS OF ANY KIND ON RXR RIGHT-OF-WAY (ROW) OR PARK ACTIVITY FIELD



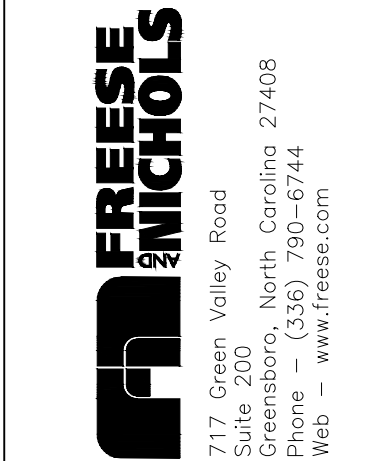
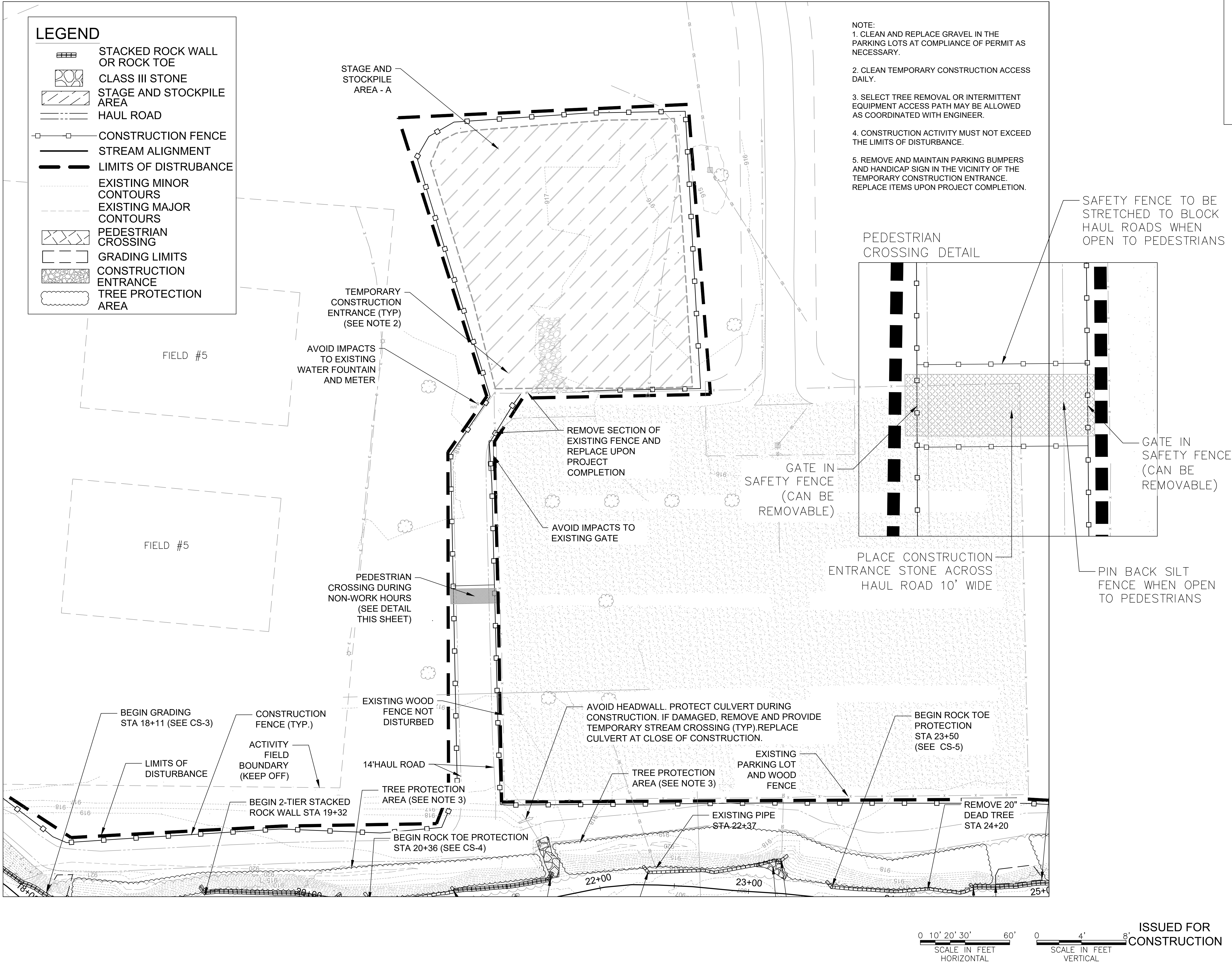
ROANOKE COUNTY, VIRGINIA
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL

PLAN AND PROFILE
STA 26+00 TO STA 34+00

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VERIFY SCALE: Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.									
SHEET C-3									
SEQ.									

FINAL PLAN SET

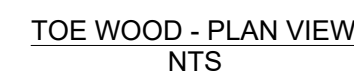
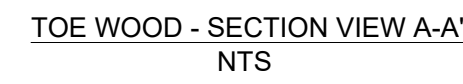
GENERAL ACCESS NOTE: NO ACCESS OF ANY KIND ON RXR RIGHT-OF-WAY (ROW) OR PARK ACTIVITY FIELD



ROANOKE COUNTY, VIRGINIA
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL
STAGE AND STOCKPILE AREA - A

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1. THE CONTRACTOR SHALL USE LOGS, TRUNKS WITH ROOTS, AND BRANCHES TO FORM THE "TOE WOOD" STREAMBANK TOE PROTECTION.
2. THE STREAMBANKS ABOVE THE TOE WOOD SHALL BE FORMED FROM SOIL LIFTS WRAPPED IN COIR MATTING.
3. TOP OF LOG FOR ROOT WAD SET AT NORMAL BASE FLOW ELEVATION OF CHANNEL.



TOE WOOD
SCALE: NTS

1. MAXIMUM SINGLE LENGTH OF MATTING/MESH IS 100'.
2. TOP AND BOTTOM EDGES OF MATTING/MESH SHALL BE KEYED IN.
3. COIR MATTING DETAIL SHOWN IS FOR PERMANENT INSTALLATION. TEMPORARY INSTALLATION FOR EROSION CONTROL PROTECTION AS STIPULATED SHALL BE TO THE EXTENT THAT THE PROJECT SITE NEEDS TO BE PROTECTED FOR EROSION AND SEDIMENT CONTROL DURING NON-WORKING HOURS.



COIR MATTING
SCALE: NTS



1. BOULDER CLUSTERS PLACED IN AREAS SHOWN ON PLANS.
2. CLUSTERS SHALL NOT BE PLACED CLOSER TO THE STREAMBANK TOE THAN A DISTANCE EQUAL TO 1/4 THE BOTTOM WIDTH OF THE CHANNEL.
3. NO BOULDER DIMENSION SHALL BE SMALLER THAN 24 INCHES.

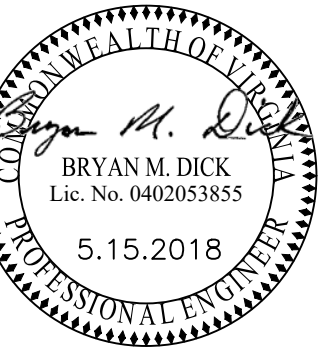


1. ALL LATERAL BRANCHES SHALL BE TRIMMED TO AVOID DAMAGE TO THE BARK RIDGE AND BRANCH COLLAR.
2. A MINIMUM OF TWO BUDS (ONE LATERAL PLUS ONE TERMINAL OR TWO TERMINAL) SHALL BE ABOVE THE PLANTING DEPTH.



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CONSTRUCTION

FINAL PLAN SET



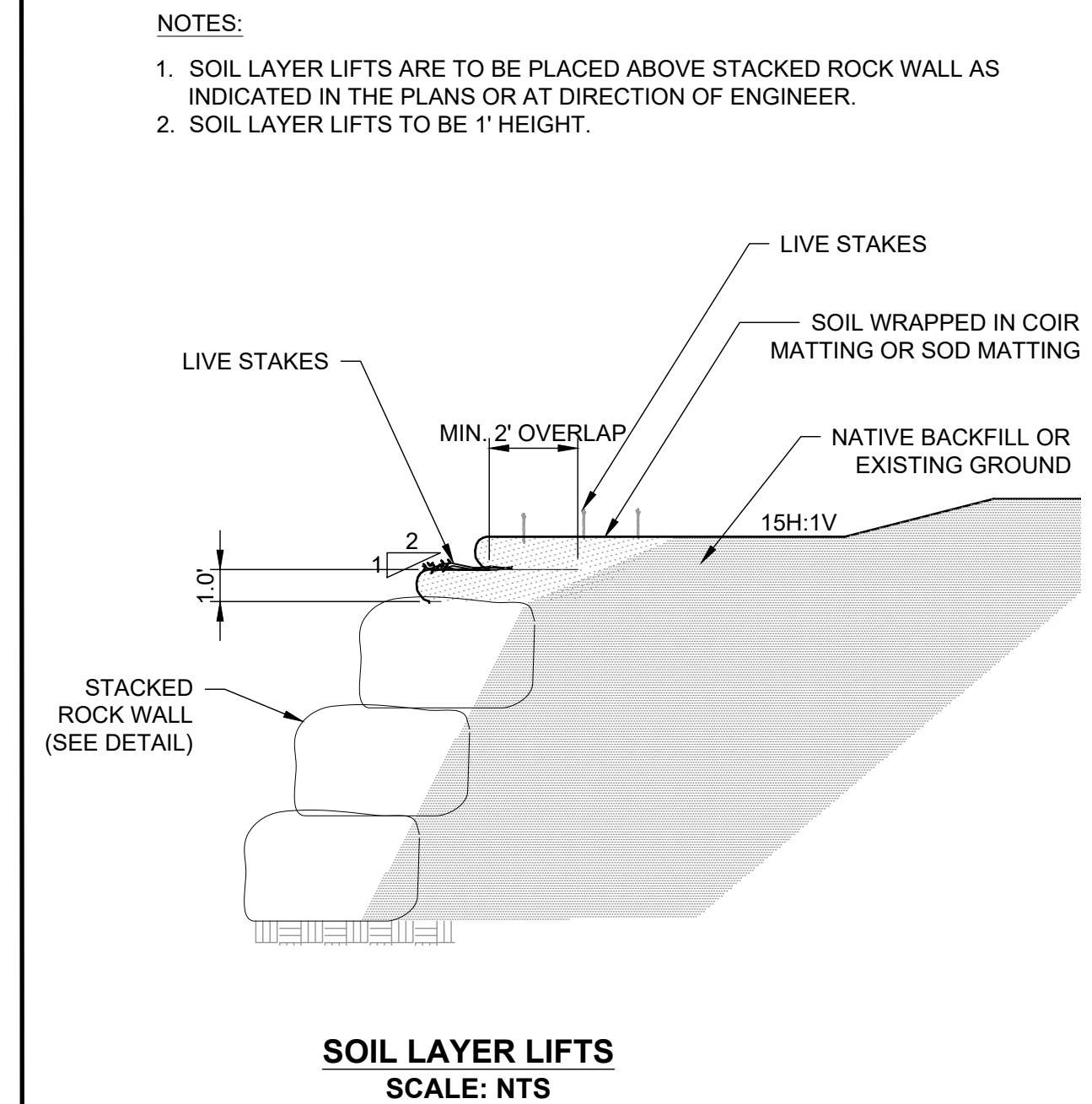
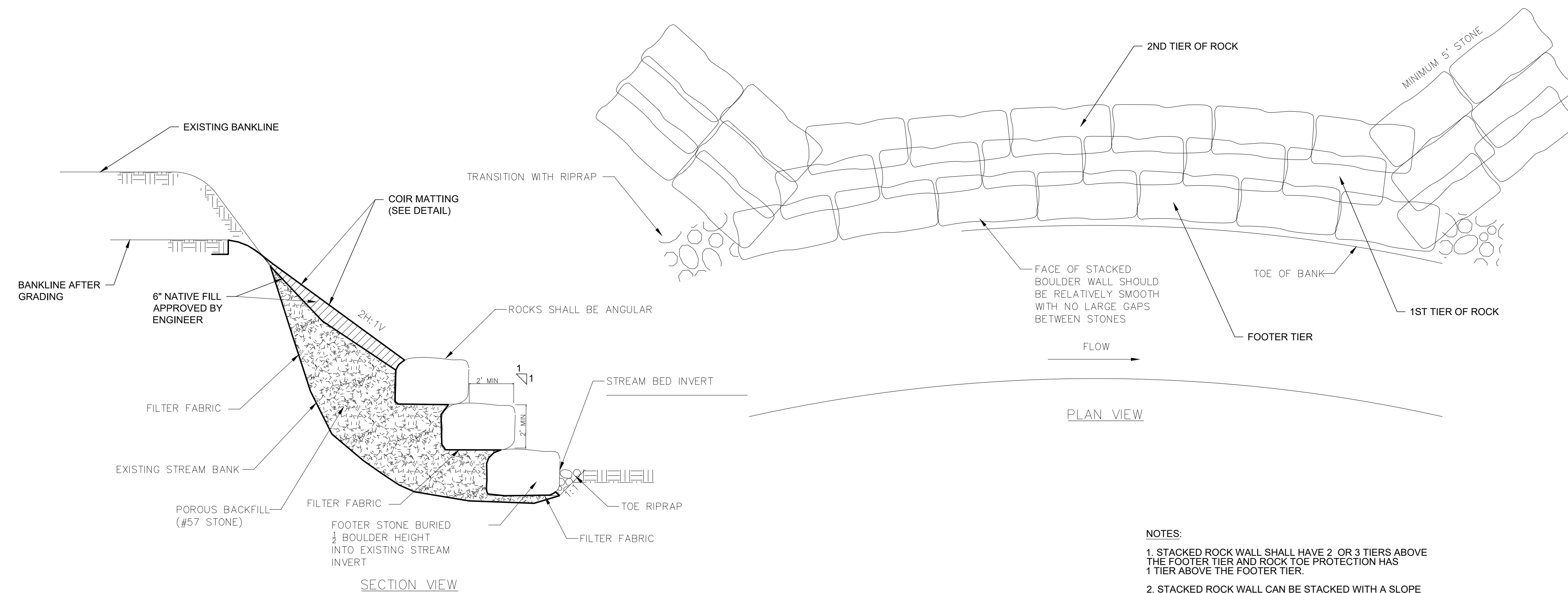
RESTORATION OF GLADE CREEK AT VINYARD PARK
ROANOKE COUNTY, VIRGINIA
PHASE II
CIVIL

GENERAL DETAILS

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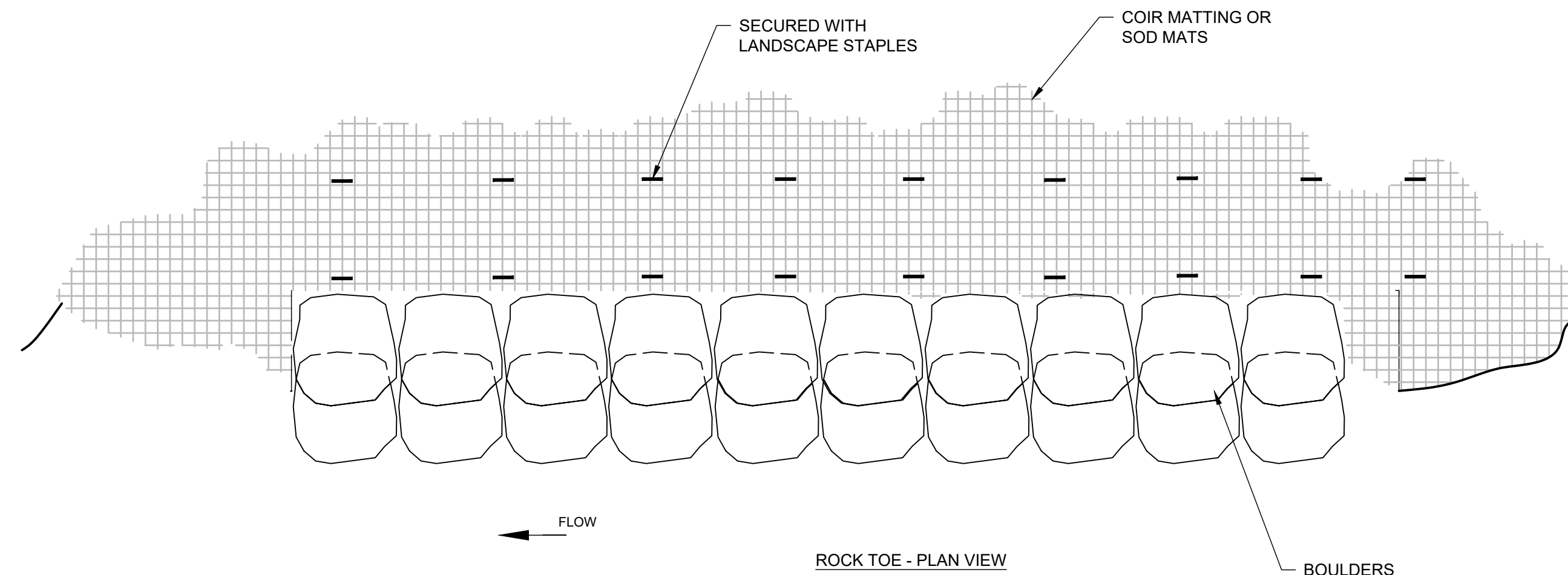
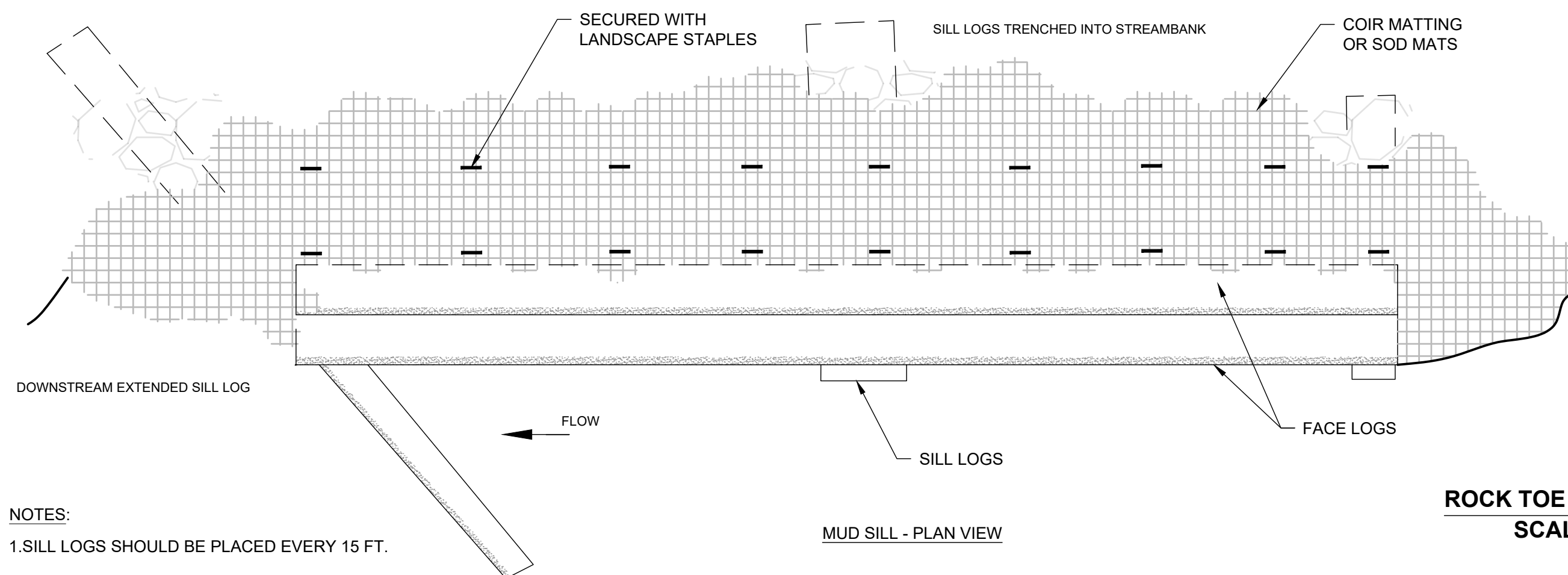
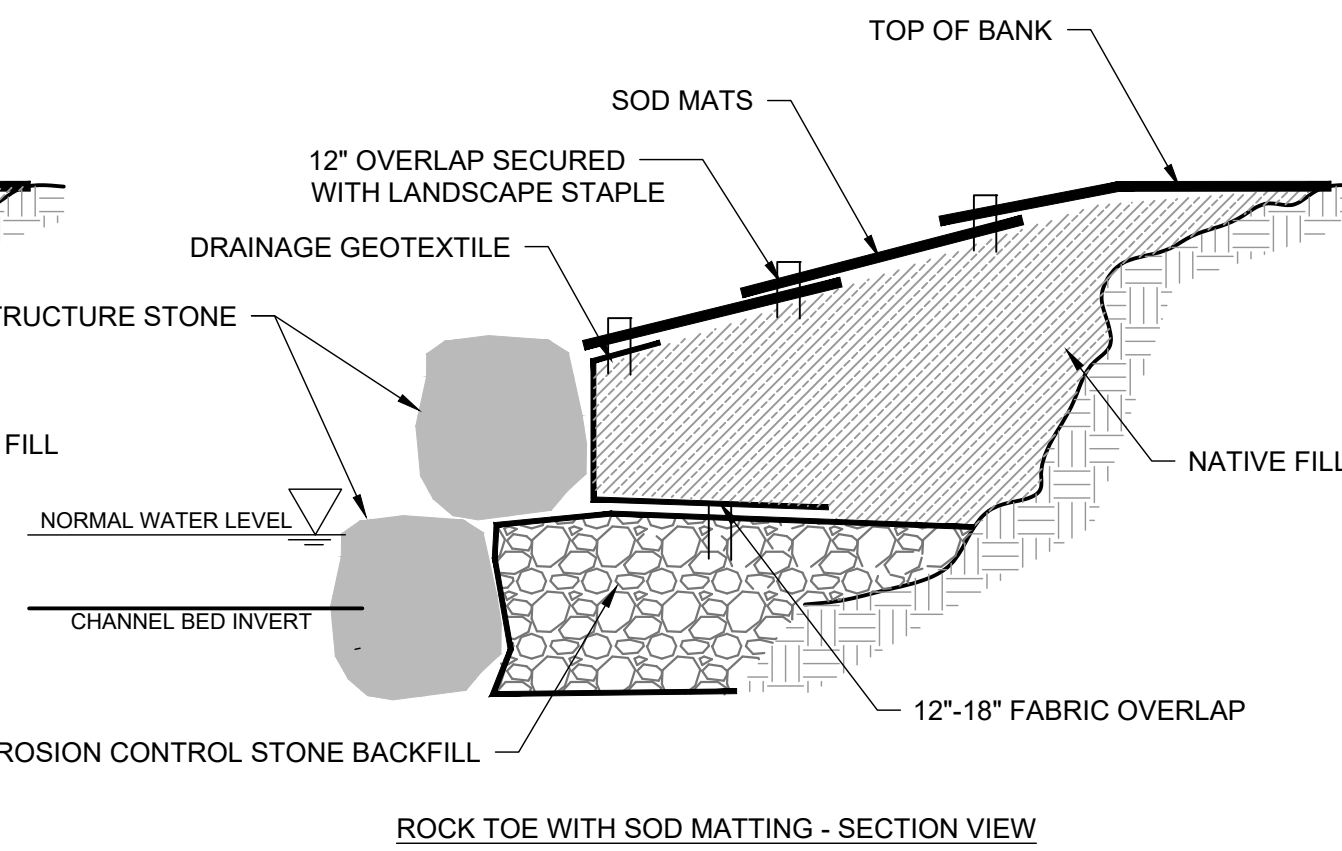
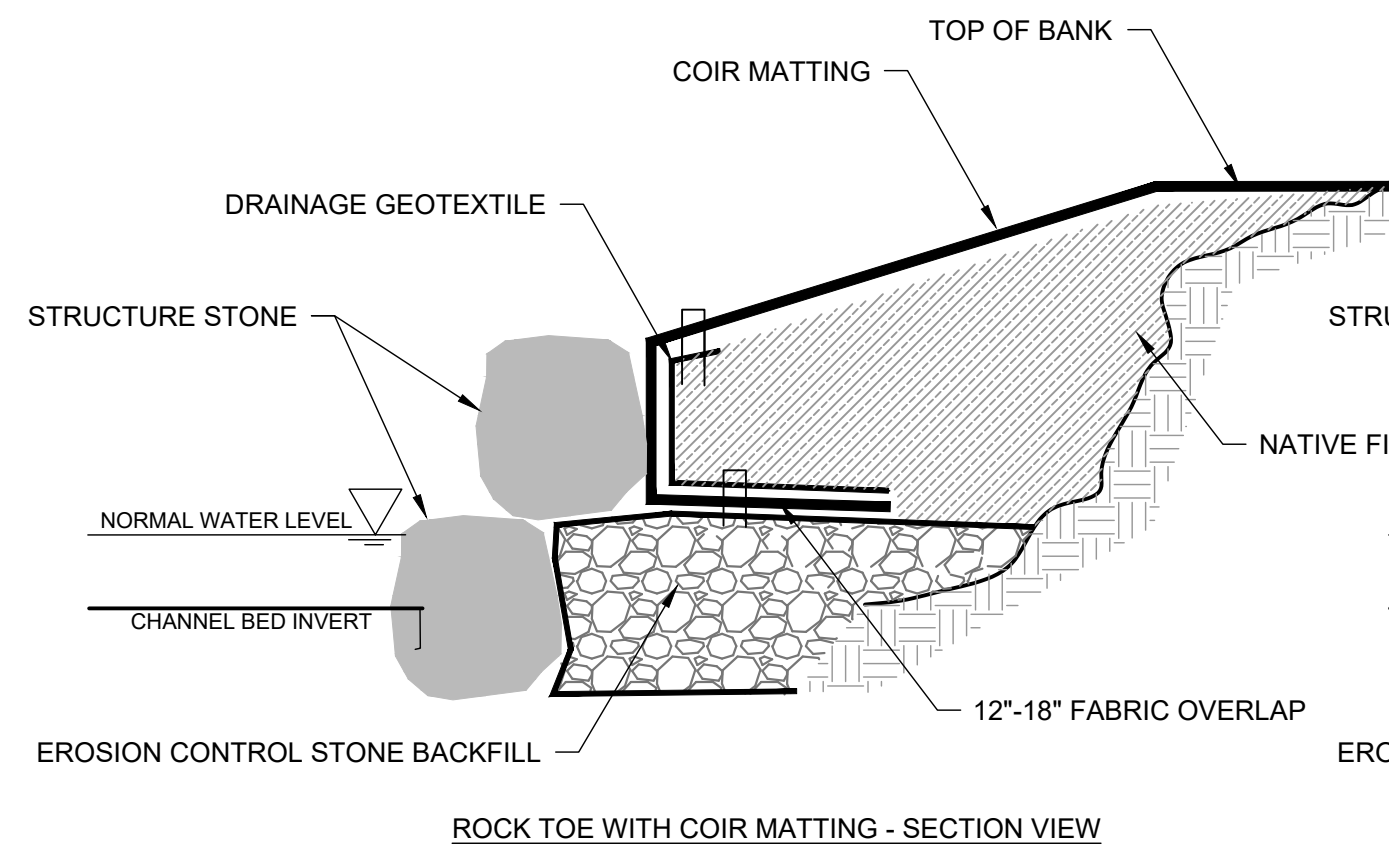
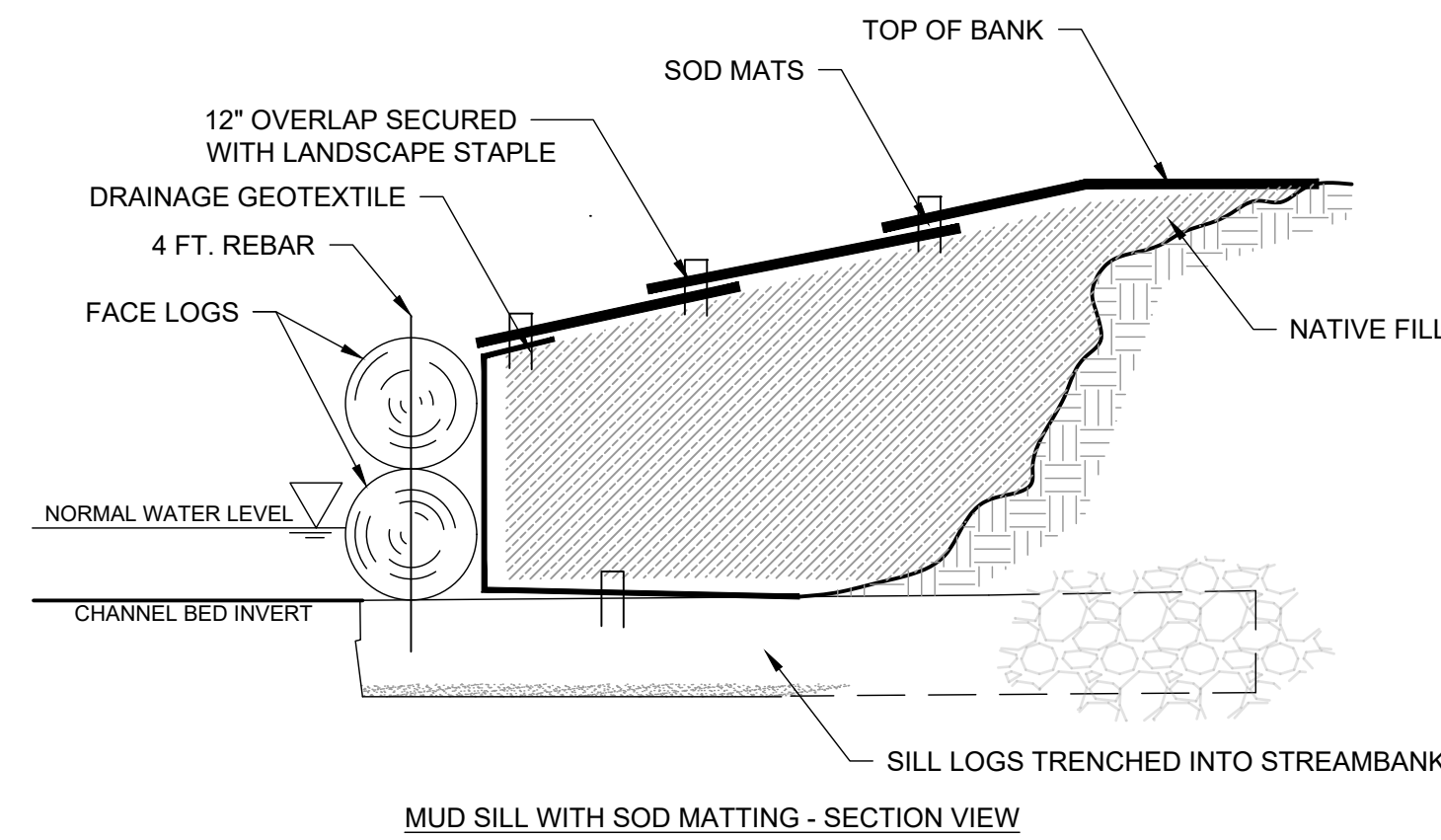
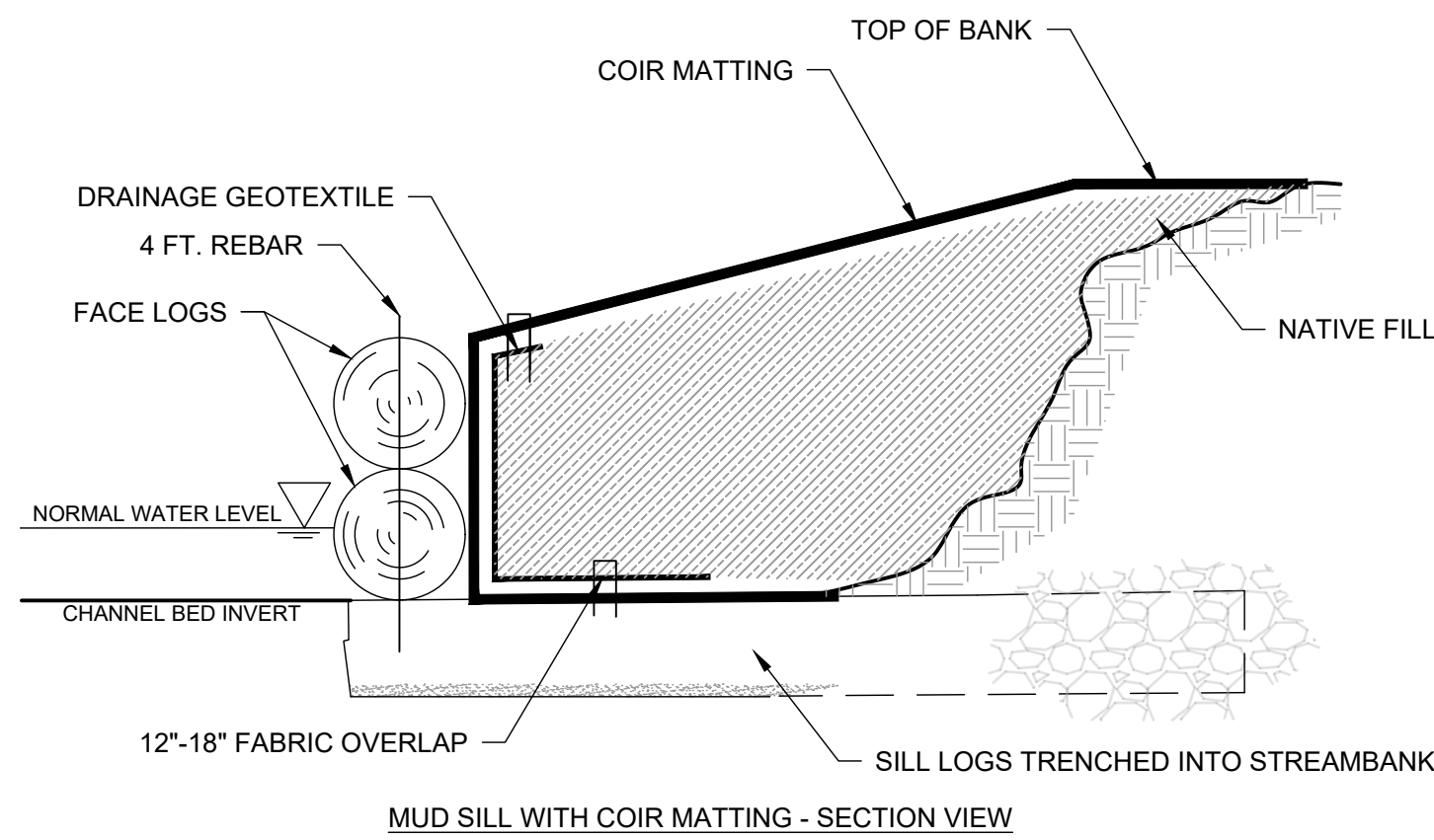
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STACKED ROCK WALL & ROCK TOE PROTECTION

NOTE: SCALE: NTS
STANDARD BOULDER SIZE IS 4'(L) X 3'(W) X 2'(H)

NOTES:

1. STACKED ROCK WALL SHALL HAVE 2 OR 3 TIERS ABOVE THE FOOTER TIER AND ROCK TOE PROTECTION HAS 1 TIER ABOVE THE FOOTER TIER.
2. STACKED ROCK WALL CAN BE STACKED WITH A SLOPE BETWEEN 0.5:1 (H:V) AND 2:1 (H:V) STEEP.



ISSUED FOR
CONSTRUCTION

FINAL PLAN SET

COMMONWEALTH OF CALIFORNIA
M. Dick
 BRYAN M. DICK
 Lic. No. 0402053855
 5.15.2018
 PROFESSIONAL ENGINEER

**IFREESSE
NICHOLS**

717 Green Valley Road
Suite 200
Greensboro, North Carolina 27408
Phone - (336) 790-6744
Web - www.ifreesse.com

RESTORATION OF GLADE CREEK AT VINYARD PARK

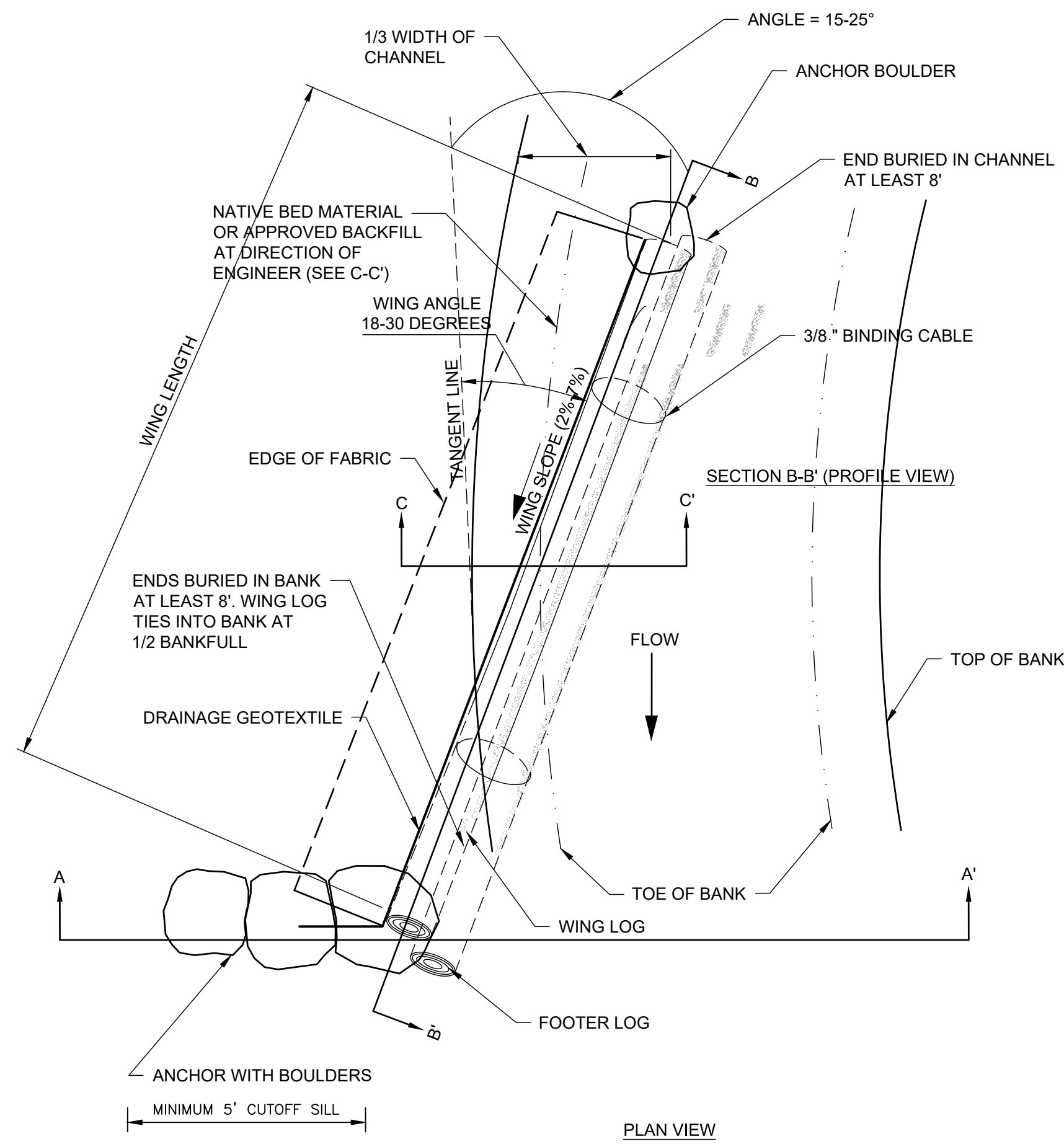
PHASE II

CIVIL

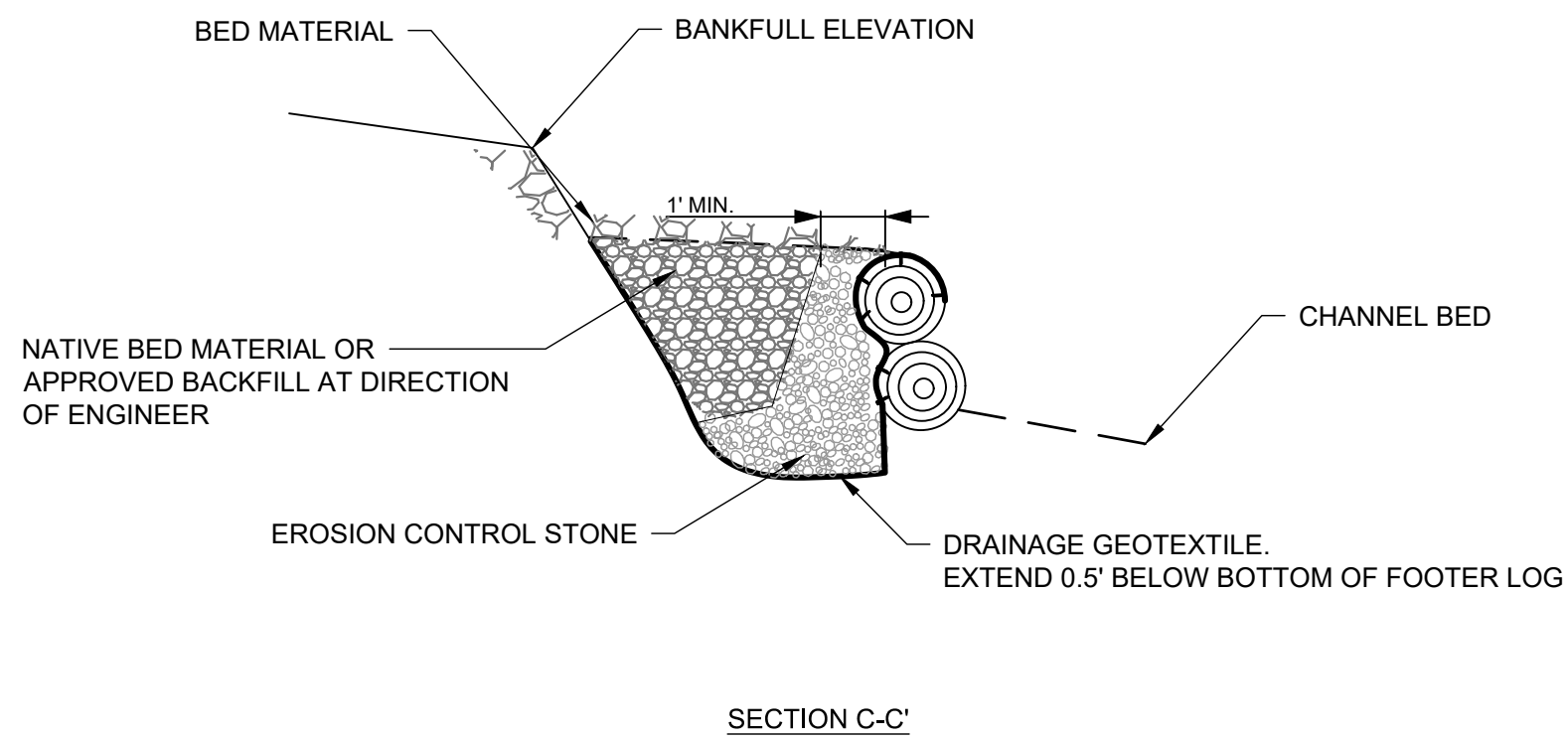
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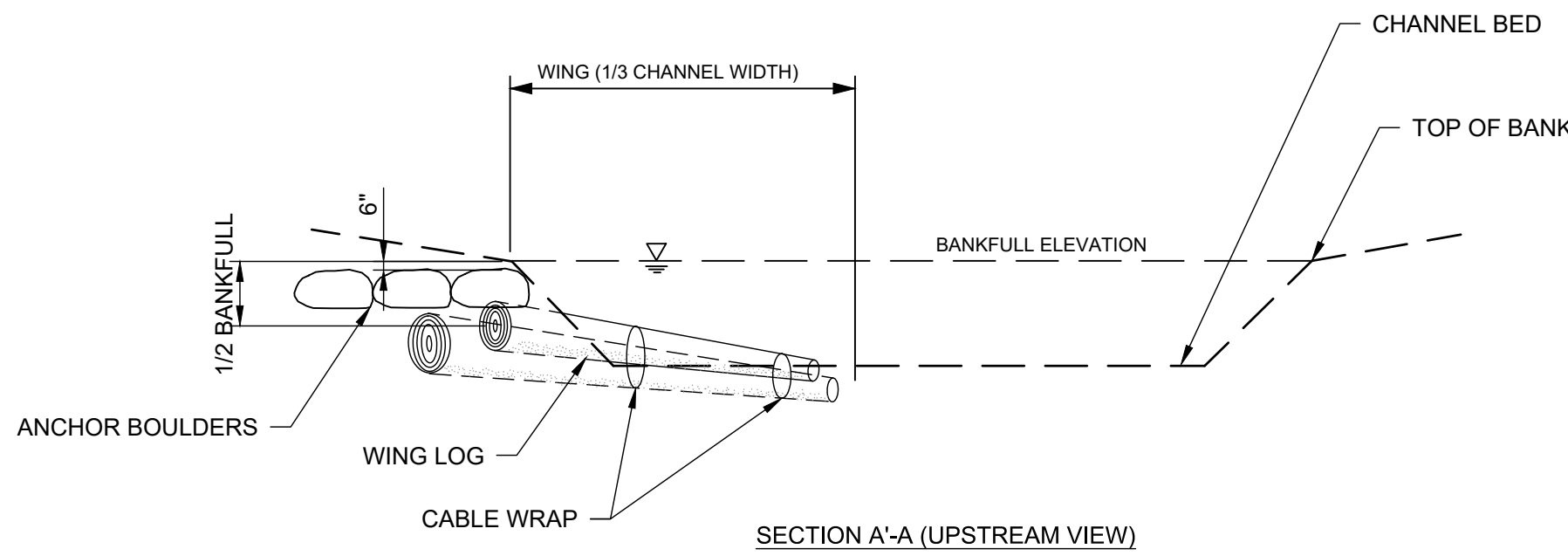
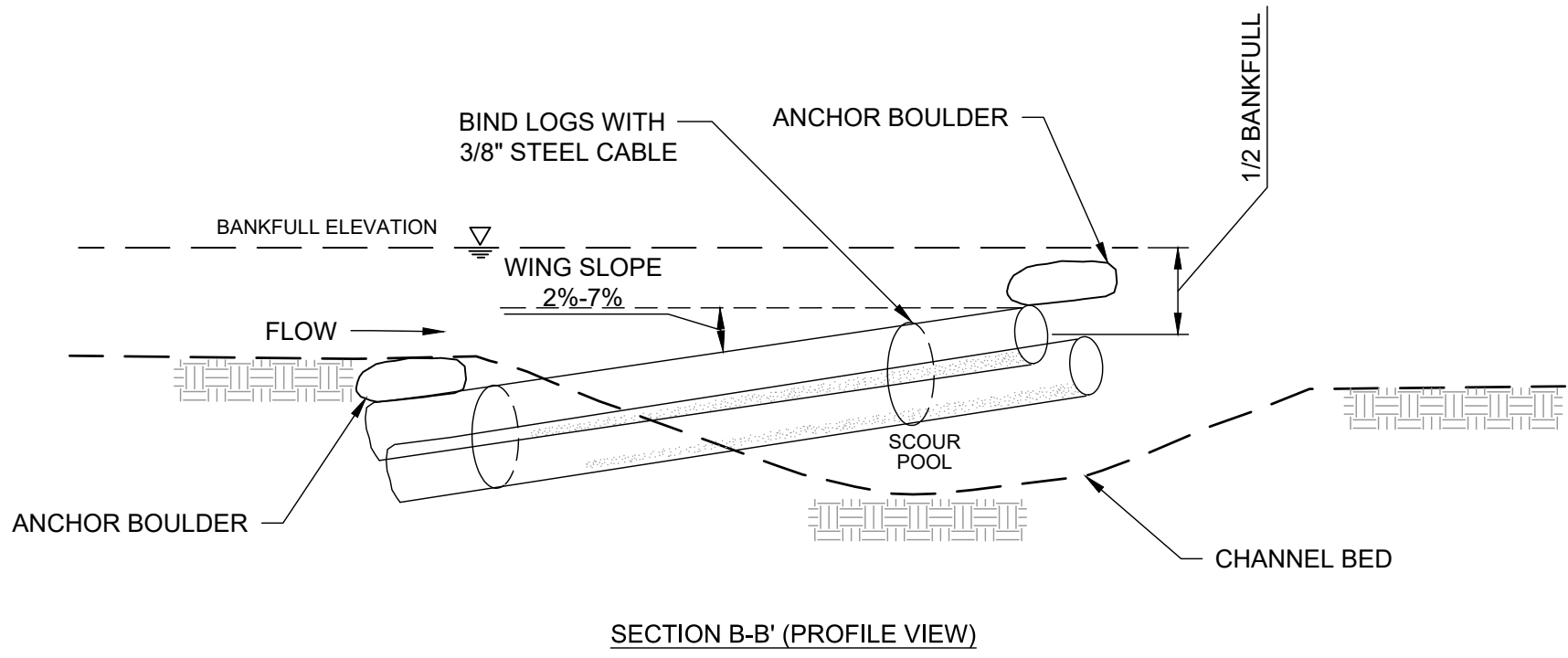
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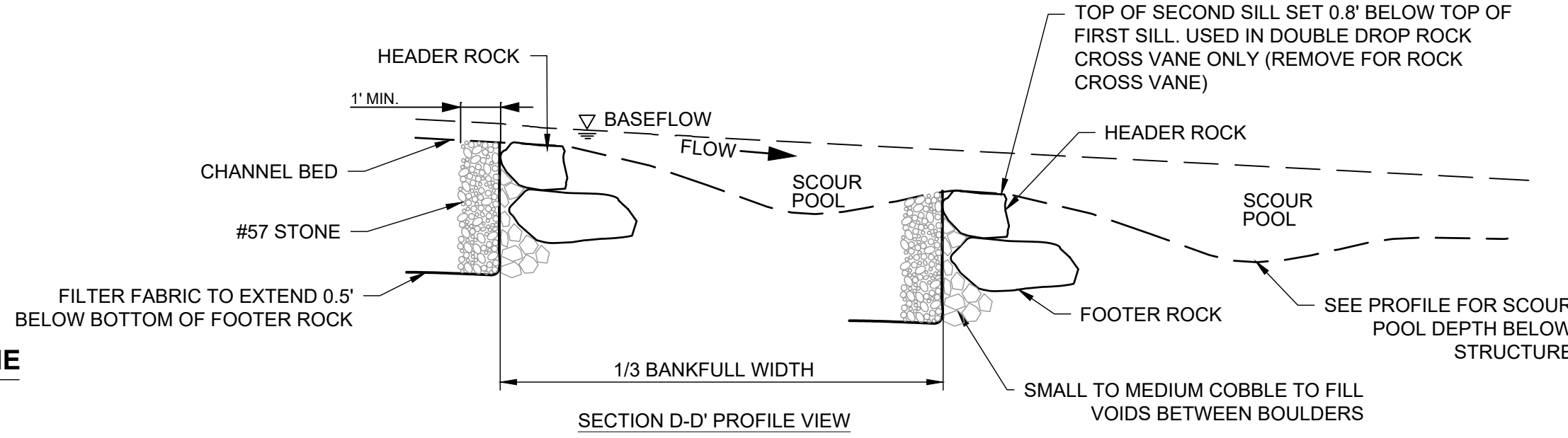
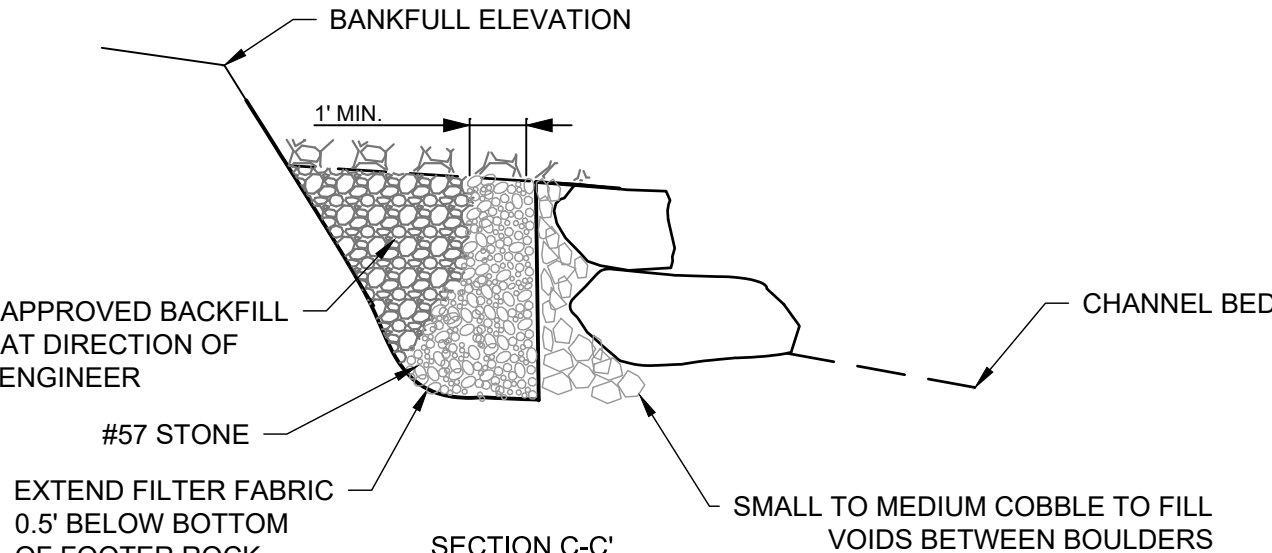
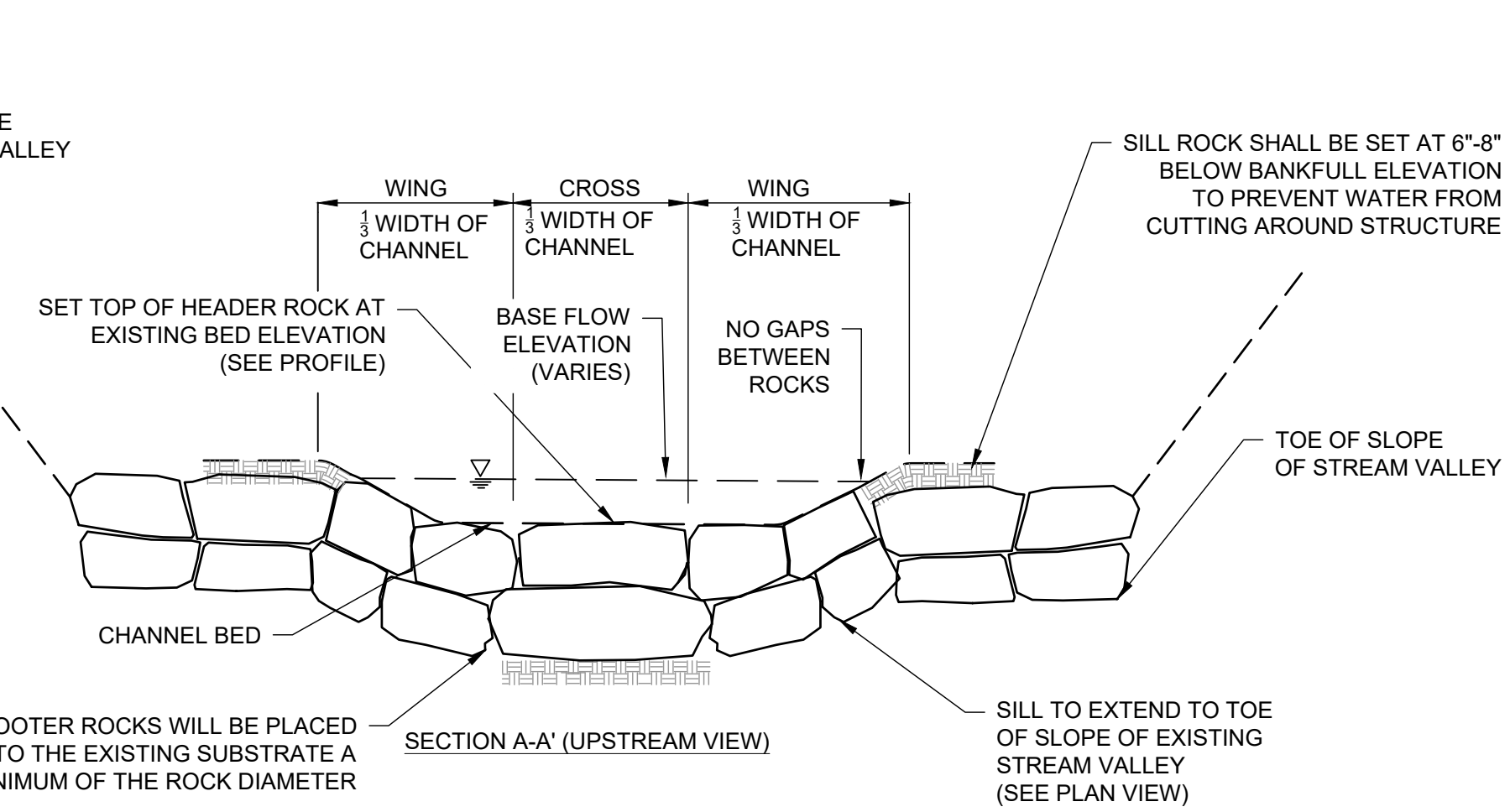
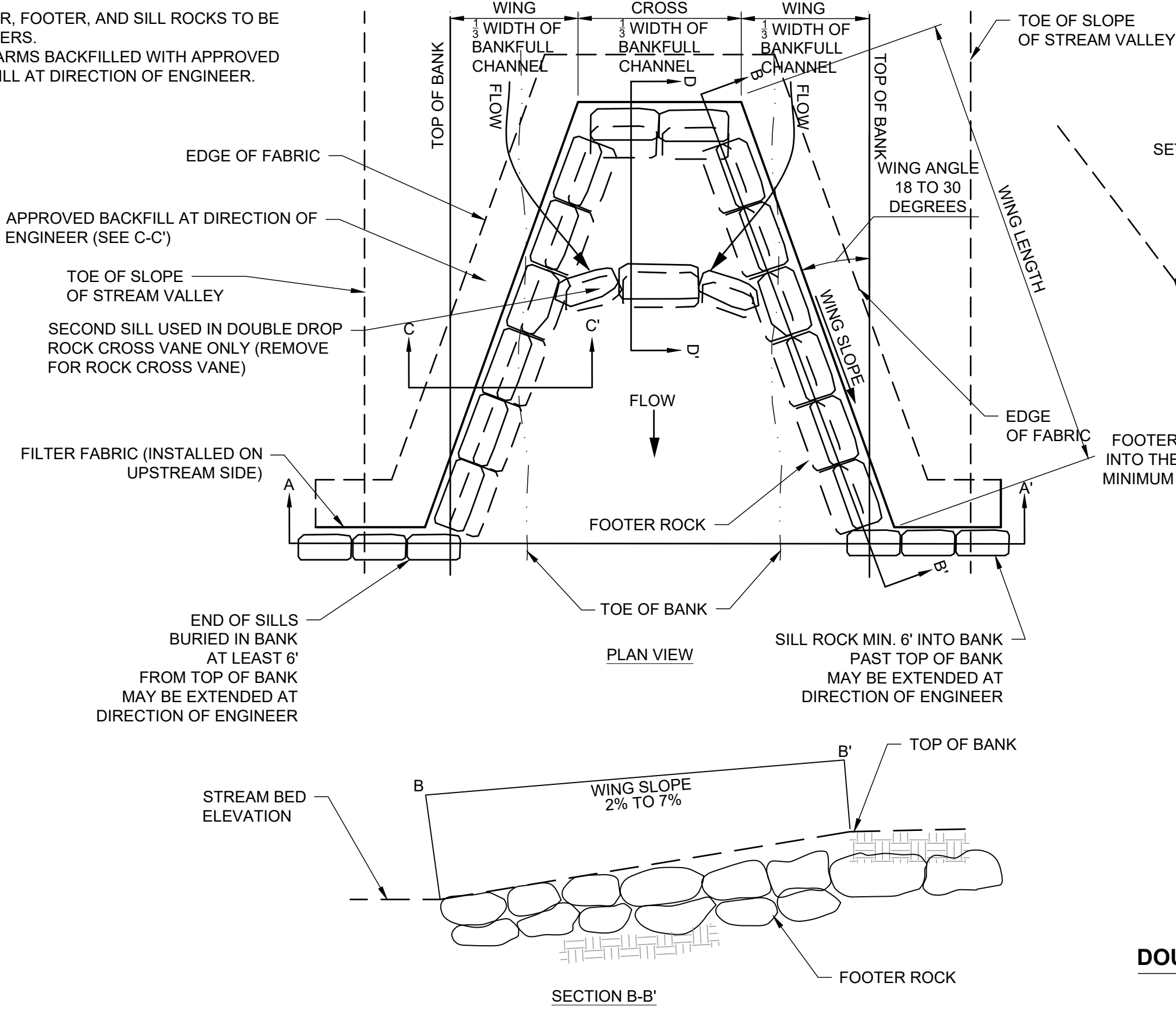
NOTES:
1) VANE ARMS BACKFILLED WITH NATIVE BED MATERIAL OR APPROVED BACKFILL AT DIRECTION OF ENGINEER
2) BANKFULL CHANNEL WIDTH INDICATES THE WIDTH OF THE PROPOSED CHANNEL AT THE SPECIFIC STRUCTURE LOCATION. THIS WIDTH MAY NOT NECESSARILY BE THE SAME AS THE TYPICAL CROSS-SECTION WIDTH SHOWN IN THE DETAILS.



LOG OR ROCK VANE
SCALE: NTS



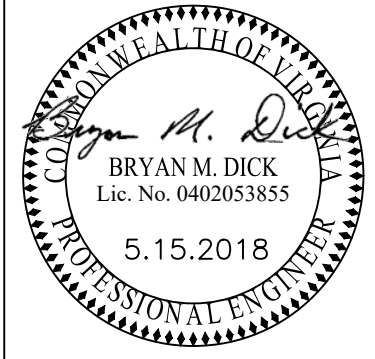
NOTE:
1. HEADER, FOOTER, AND SILL ROCKS TO BE BOULDERS.
2. VANE ARMS BACKFILLED WITH APPROVED BACKFILL AT DIRECTION OF ENGINEER.



DOUBLE DROP ROCK CROSS OR ROCK CROSS VANE
SCALE: NTS

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FINAL PLAN SET



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ROANOKE COUNTY, VIRGINIA
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL
GENERAL DETAILS

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NOTES:

1. GRADE AREA OF INSTALLATION AS SHOWN ON PLANS. REMOVE ALL ROCKS AND OTHER OBSTRUCTIONS SO THE MATERIAL WILL HAVE DIRECT CONTACT WITH SOIL.
2. BAGS ARE TO BE FILLED ONSITE WITH MODERATE DRAINED MATERIAL TO BE APPROVED BY ENGINEER. FOLLOW BAG FILLING PROCEDURE FROM ENVIROLOK, FLEX MSE, DELTALOK OR APPROVED EQUIVALENT.
3. GEOBAG WALL LAYERS SHOULD BE SOLID AND UNIFORM. FLATTEN GEOBAGS WITH HAND TAMPER OR EQUIVALENT AFTER PLACEMENT AND BEFORE PROCEEDING WITH CINCHING, TWINING, AND STAKING.
4. APPLY VERTICAL BAG STABILIZER ACCORDING TO INSTALLATION INSTRUCTIONS FROM ENVIROLOK, FLEX MSE, DELTALOK OR APPROVED EQUIVALENT.
5. TIGHTEN VERTICAL BAG STABILIZER THROUGHOUT THE CINCHING AND TWINING PROCESS. REFER TO MANUFACTURER INSTALLATION INSTRUCTIONS.
6. APPLY SEED AND VEGETATION ACCORDING TO WALL SYSTEM MANUFACTURER'S INSTRUCTIONS.
7. GEOBAGS WILL BE BUILT IN A MANNER THAT BLENDS WITH EXISTING BACKSLOPE. A MINIMUM OF 6 LIFTS (~3FT ABOVE ROCK WALL) AT ~1.5:1 (H:V) SLOPE UNLESS OTHERWISE SPECIFIED ON PLANS. MORE BAG LAYERS MAY BE USED AT DIRECTION OF ENGINEER.



3' PLATIPUS ANCHOR OR APPROVED EQUIVALENT (NOT USED ON FILL SECTIONS)

WRAP GEOGRID FABRIC AROUND BAG AND PROVIDE OVERLAP

PLATIPUS ANCHOR TO BE RUN THROUGH OVERLAP IN GEOGRID FABRIC, IN BETWEEN BAGS TO AVOID PUNCTURING THE BAG

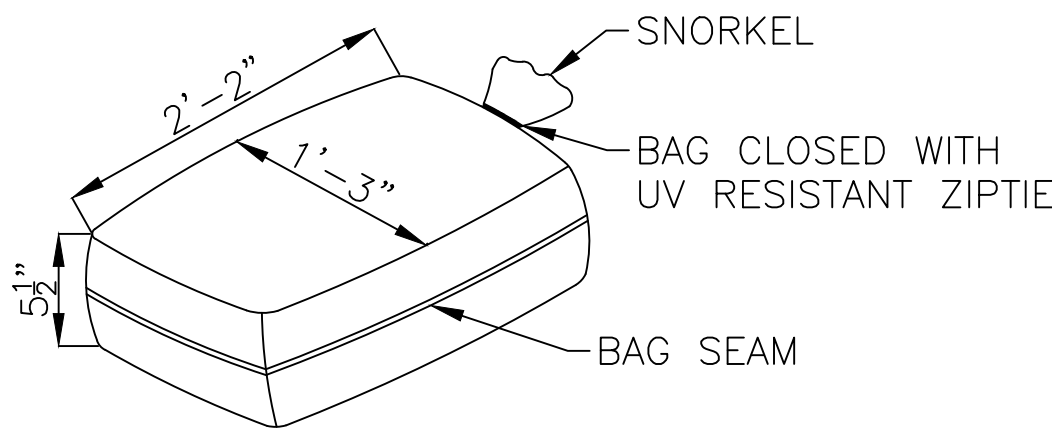
PLATIPUS ANCHOR EVERY FOURTH BAG (APPROX. 8') PLACED IN BETWEEN BAGS TO AVOID PUNCTURING (NOT USED ON FILL SECTIONS)

INSERT 2 GEOBAG ANCHOR DEVICES PER BAG

GEOBAG ANCHORING AND WRAPPING DETAIL

WRAP GEOGRID FABRIC AROUND BAGS, EVERY OTHER ROW

PLACE BAG ANCHOR DEVICE EVERY ROW TO CONNECT BAGS TOGETHER, PER MANUFACTURER GUIDANCE



TYPICAL GEOBAG

EXISTING TREES TO REMAIN UNLESS SPECIFIED ON THE PLANS OR DIRECTED BY THE ENGINEER

EXISTING GROUND

TRIM ROOTS AS NECESSARY TO PLACE GEOBAG ON SOIL

COIR FABRIC KEYED UNDER TOP BAG AND STAPLE TO FILL

0.5' MAX VARIES TO MEET EXISTING GRADE

LIVE PLANT MATERIAL (SEE PLANTING TABLE) BETWEEN COURSES

GEOGRID FABRIC WRAP AND SECURED TO EXISTING BANK WITH PLATIPUS ANCHOR. PLACE ANCHOR HORIZONTALLY EVERY FOURTH BAG (APPROX. 8 FT).

PLATIPUS ANCHORS

MATCH PRE CONSTRUCTION CONTOURS

SEE STACKED WALL DETAIL

WALL SYSTEM CROSS SECTION

FLOW

GEOBAG WALL (ONLY 2 ROWS SHOWN FOR CLARITY)

EXISTING STREAM BANK

WALL SYSTEM PLAN VIEW

EXISTING GROUND

PROPOSED GRADING

NATIVE MATERIAL COMPACTED TO 95% DENSITY

GEOGRID TIE BACK

MINIMUM 24" THICK APPROVED FREE-DRAINING BACKFILL (MAY BE AVAILABLE ON-SITE) AS APPROVED BY ENGINEER.

SEE STACKED WALL DETAIL

COIR FABRIC KEYED UNDER TOP BAG AND STAPLE TO FILL

LIVE PLANT MATERIAL (SEE PLANTING TABLE) BETWEEN COURSES

MATCH PRE CONSTRUCTION CONTOURS

WALL SYSTEM CROSS SECTION

GEOBAG WALL SYSTEM – BLEND TO EXISTING SECTIONS (ENVIROLOK, FLEX MSE, DELTALOK OR EQUIVALENT)

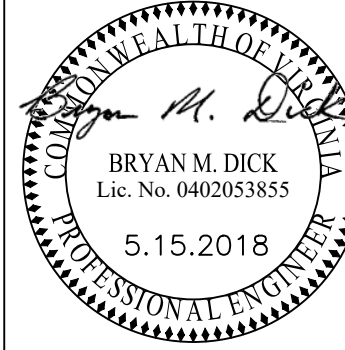
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GEOBAG WALL SYSTEM – FILL SECTIONS (ENVIROLOK, FLEX MSE, DELTALOK OR EQUIVALENT)

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ISSUED FOR CONSTRUCTION

FINAL PLAN SET

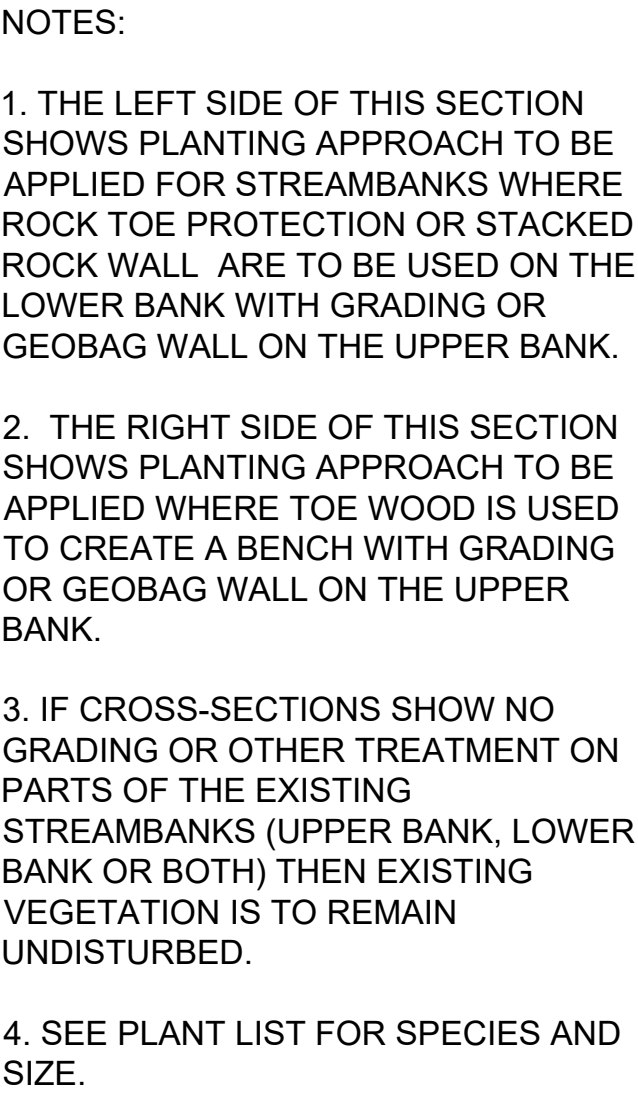


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RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL

GENERAL DETAILS

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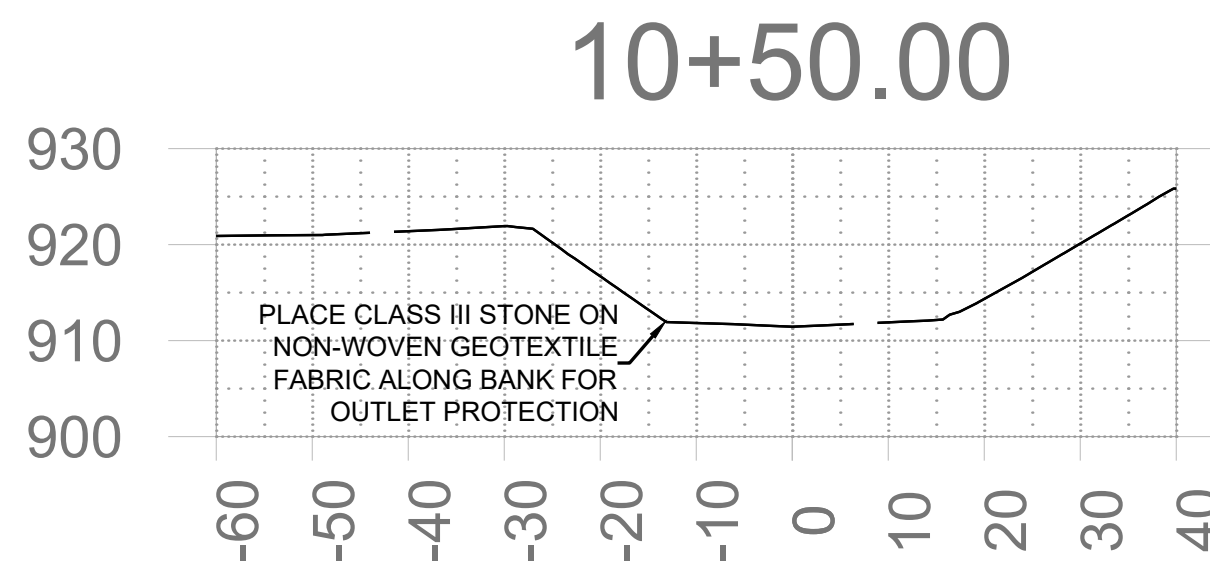
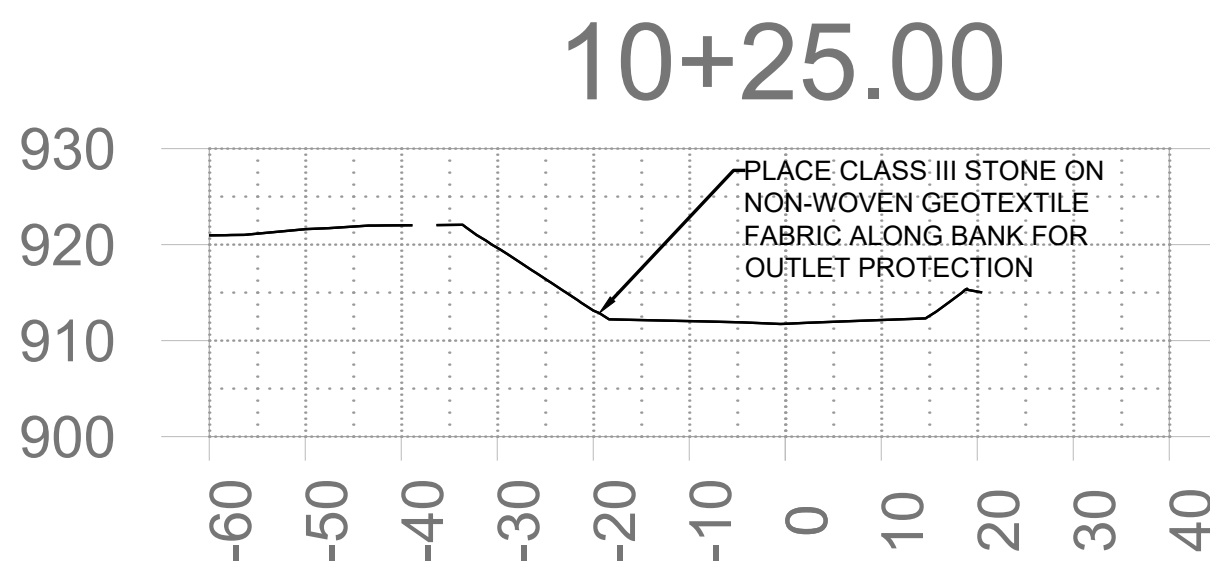
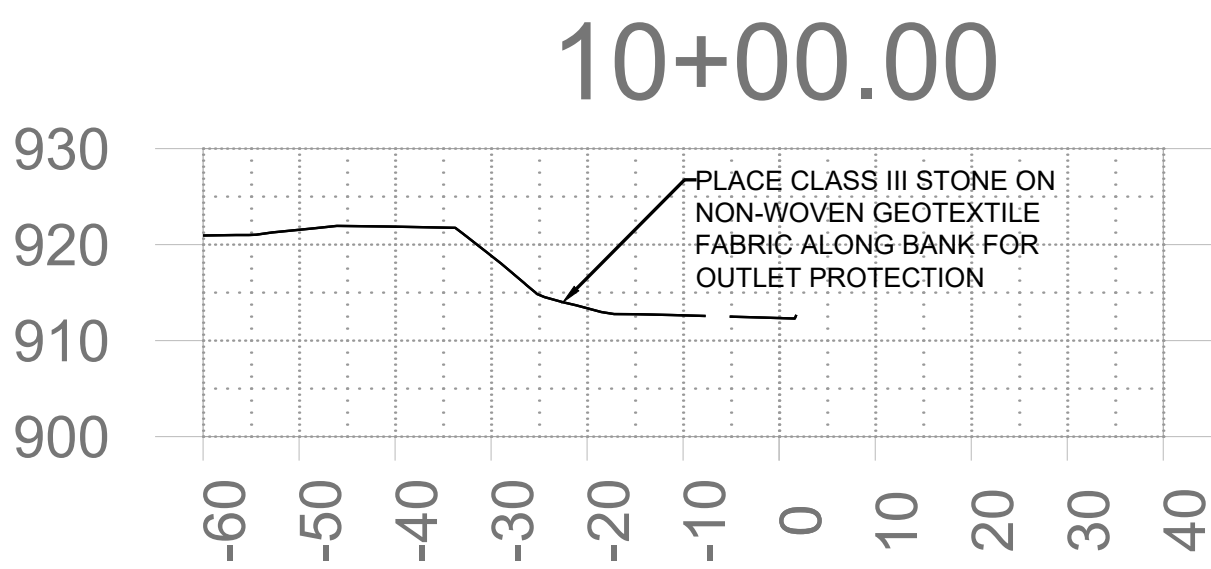
NOTES:

1. FOR PERMANENT SEEDING IN OTHER DISTURBED AREAS, SEE SHEET EC-8

FINAL PLAN SET

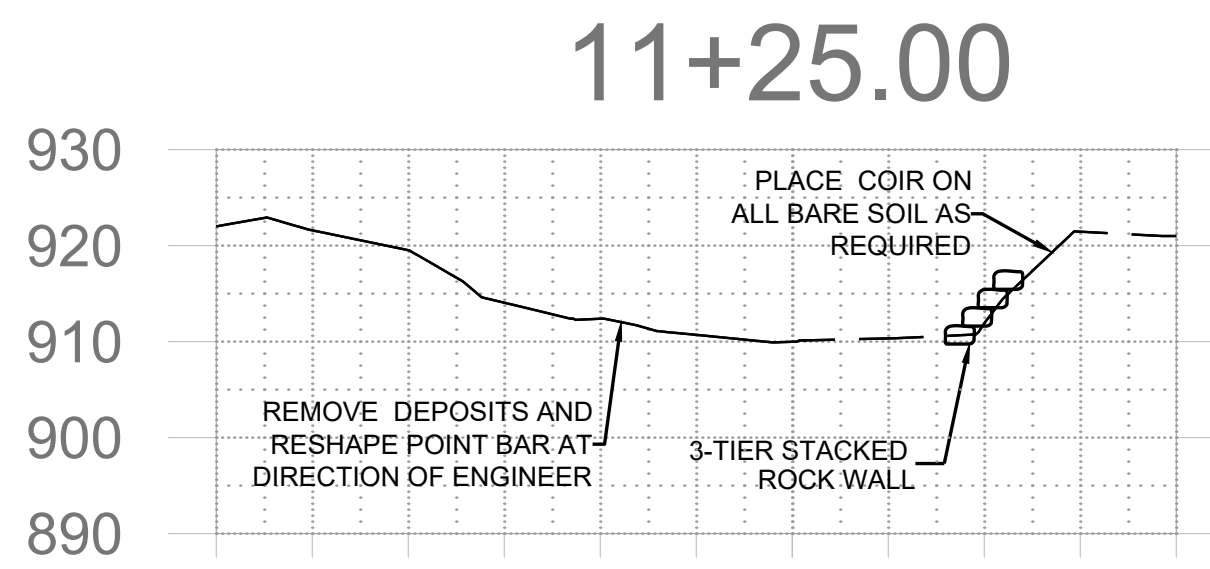
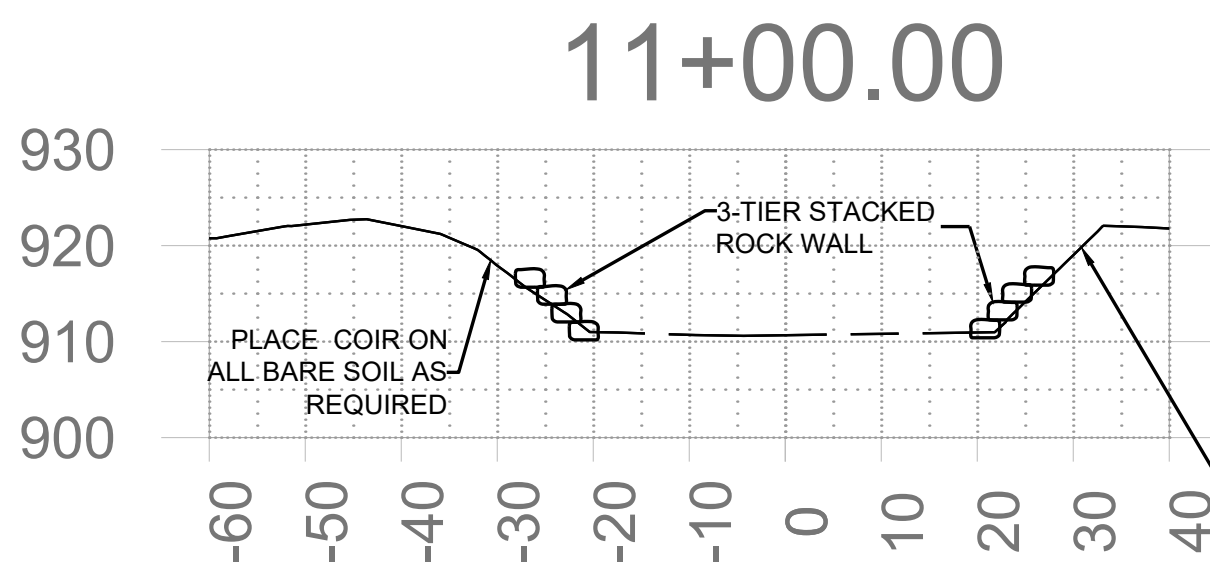
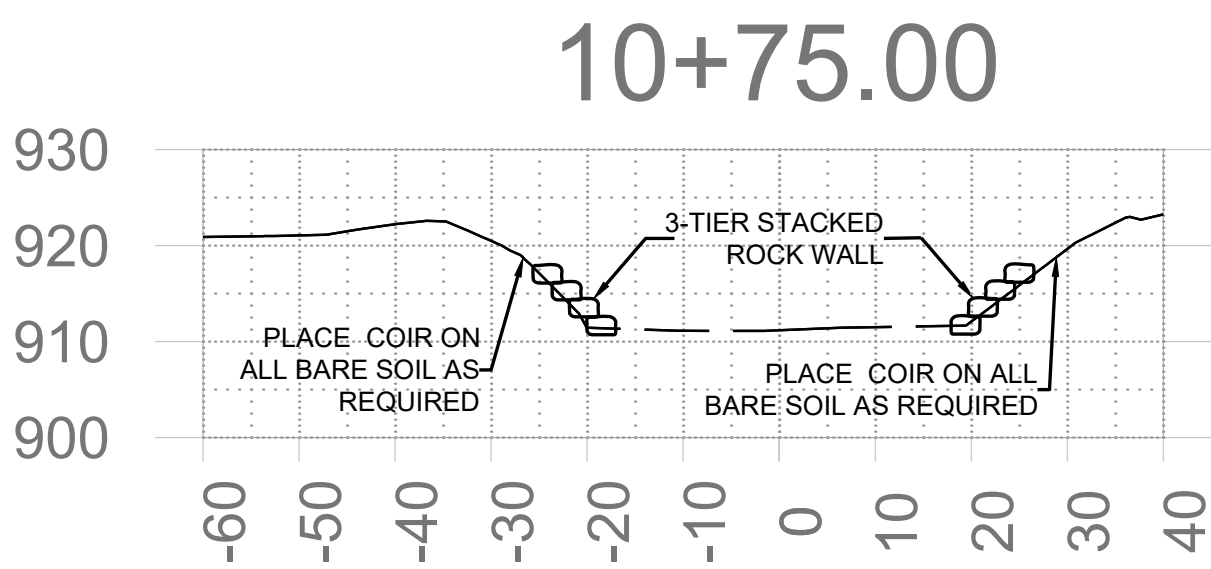
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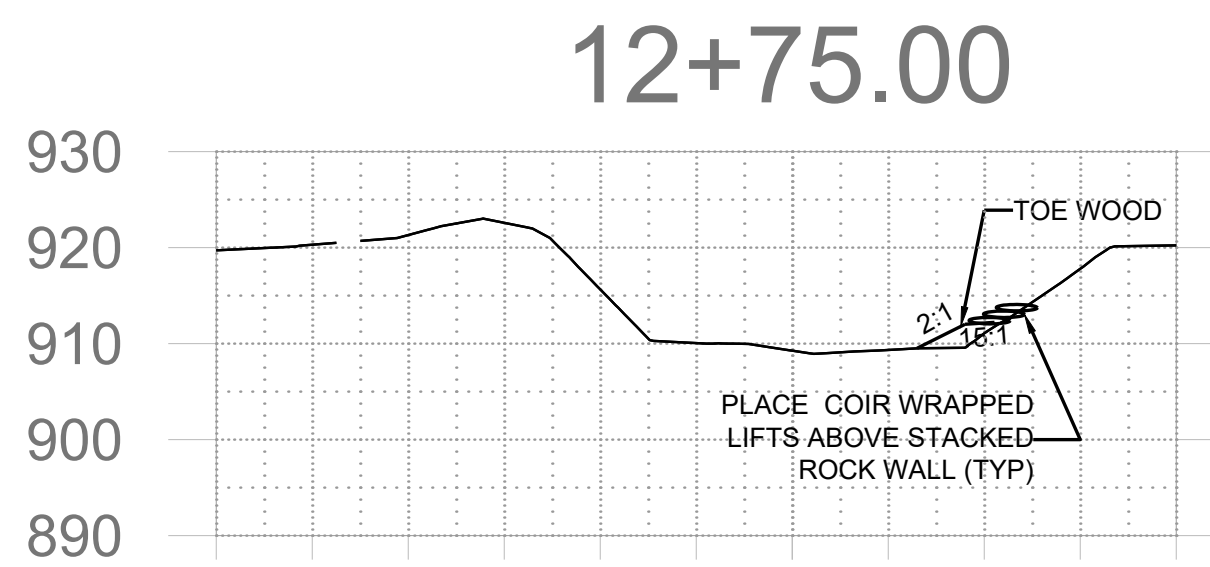
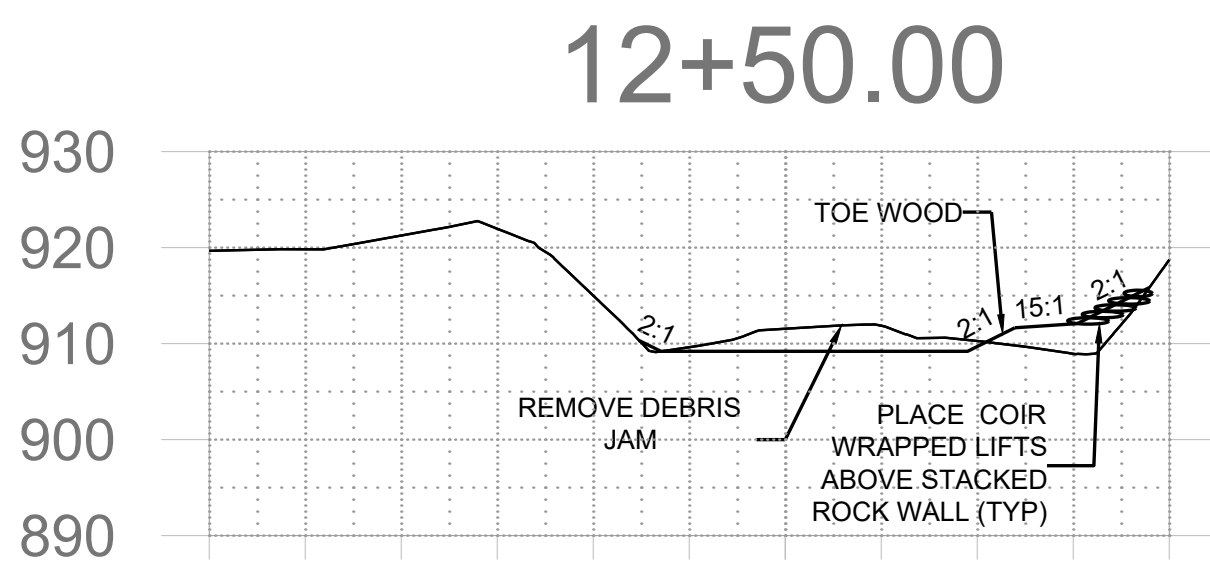
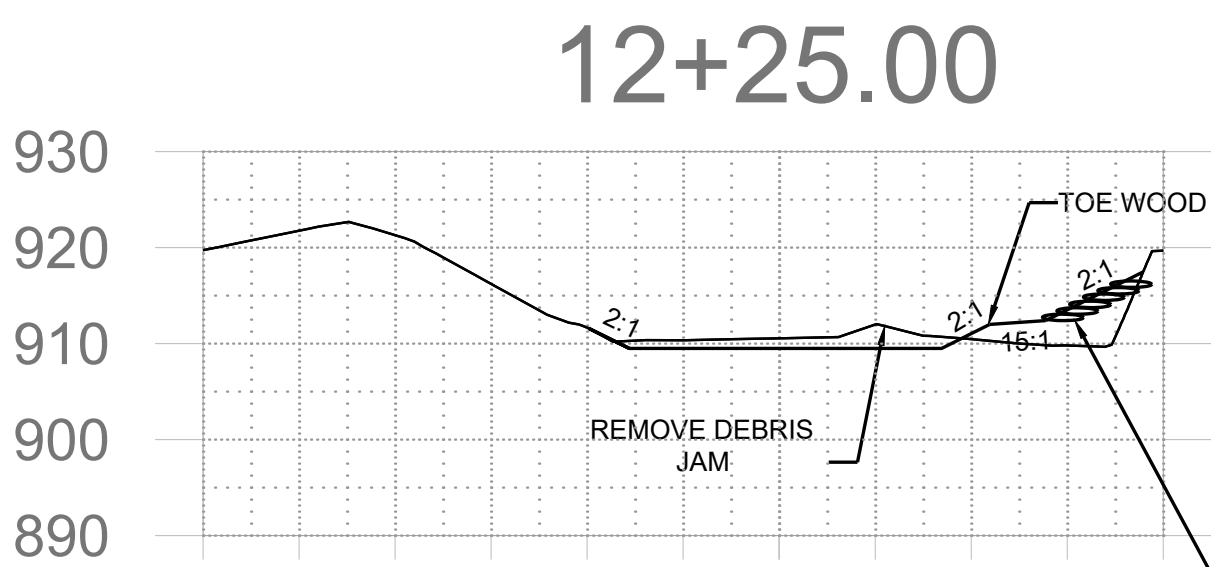
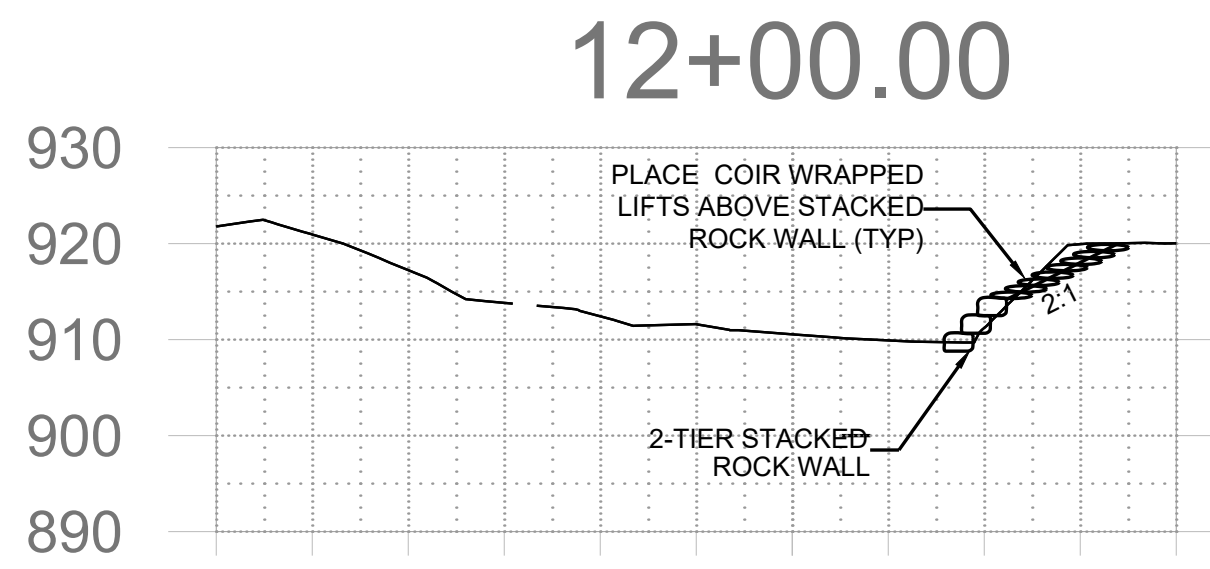
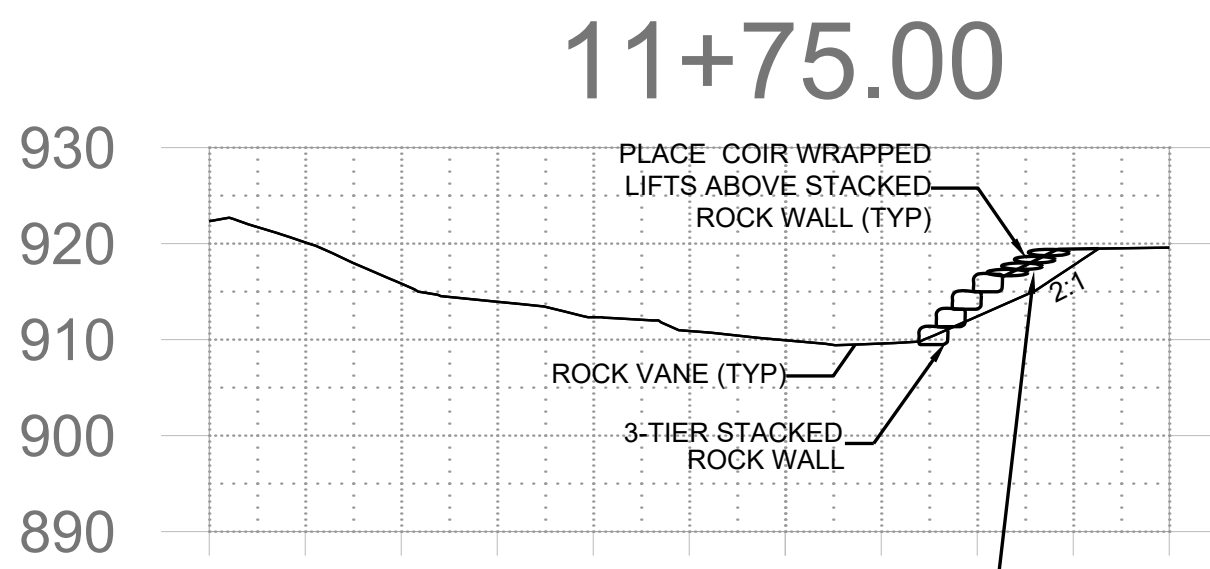
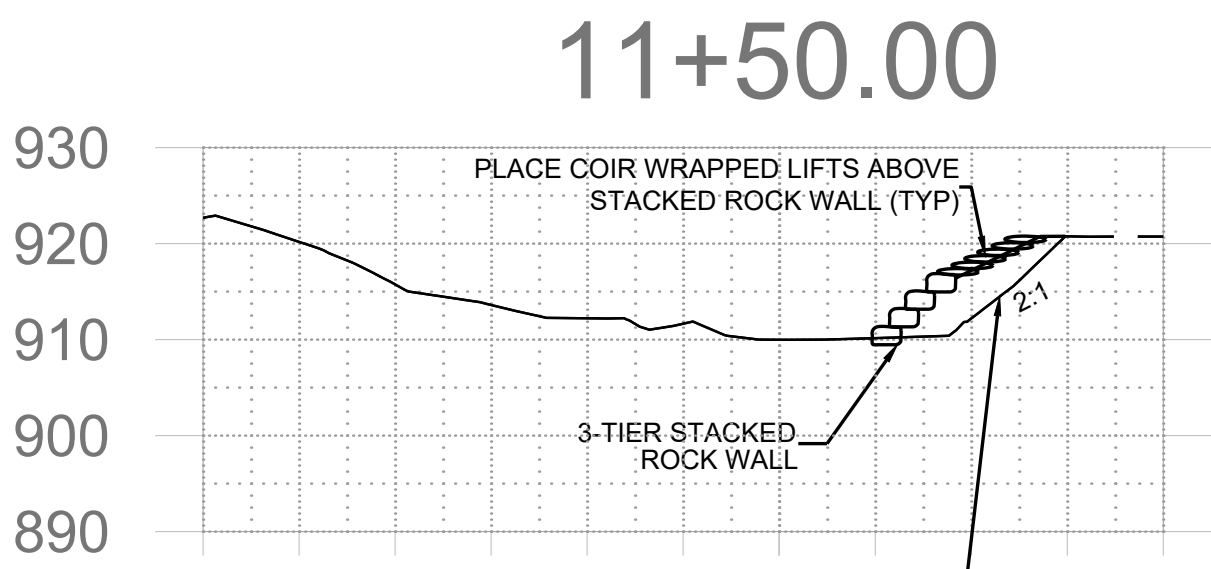


LEGEND

- EXISTING GROUND PROFILE ALONG ALIGNMENT
- PROPOSED PROFILES



- NOTE:
1. ALL GRADED SLOPES SHALL BE LINED WITH COIR MATTING PER THE DETAIL
 2. ALL STACKED ROCK WALL WILL BE BLENDED TO EXISTING GROUND AT TOP OF ROCK TO LIMIT EROSION AT TOP OF WALL
 3. PLACE SINGLE COIR WRAPPED LIFT ABOVE STACKED ROCK WALL AS REQUIRED



ISSUED FOR
CONSTRUCTION

FINAL PLAN SET



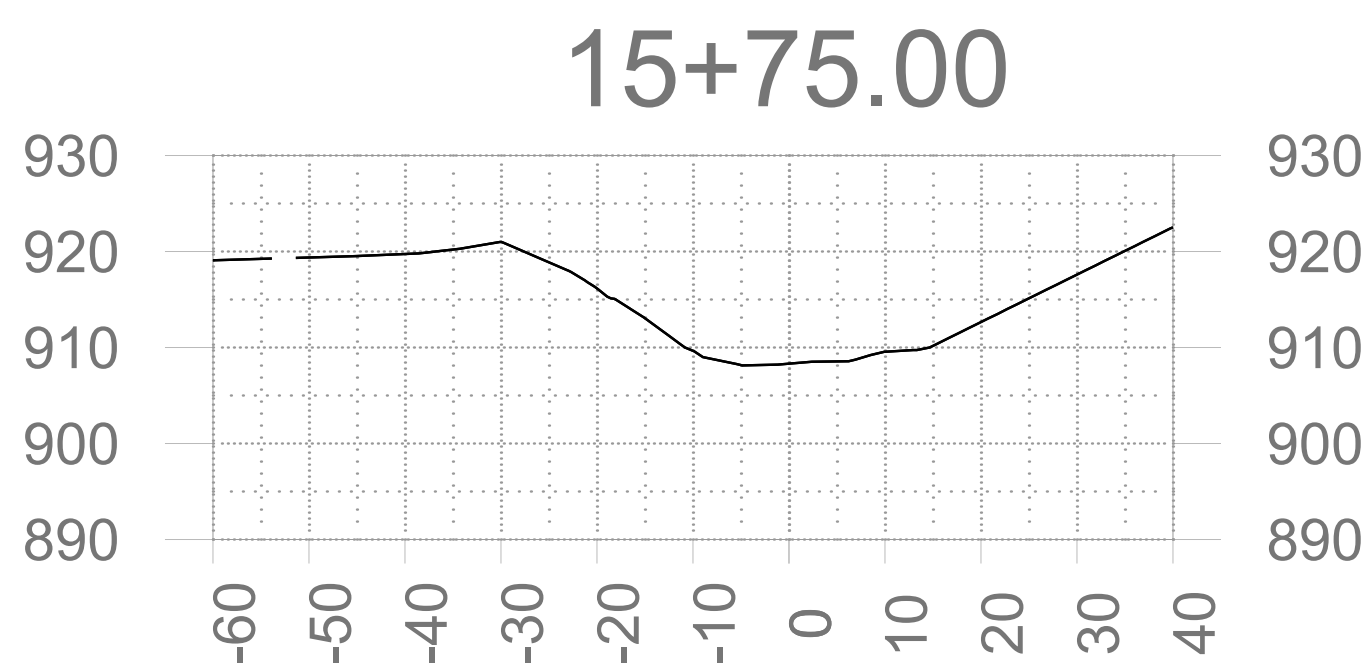
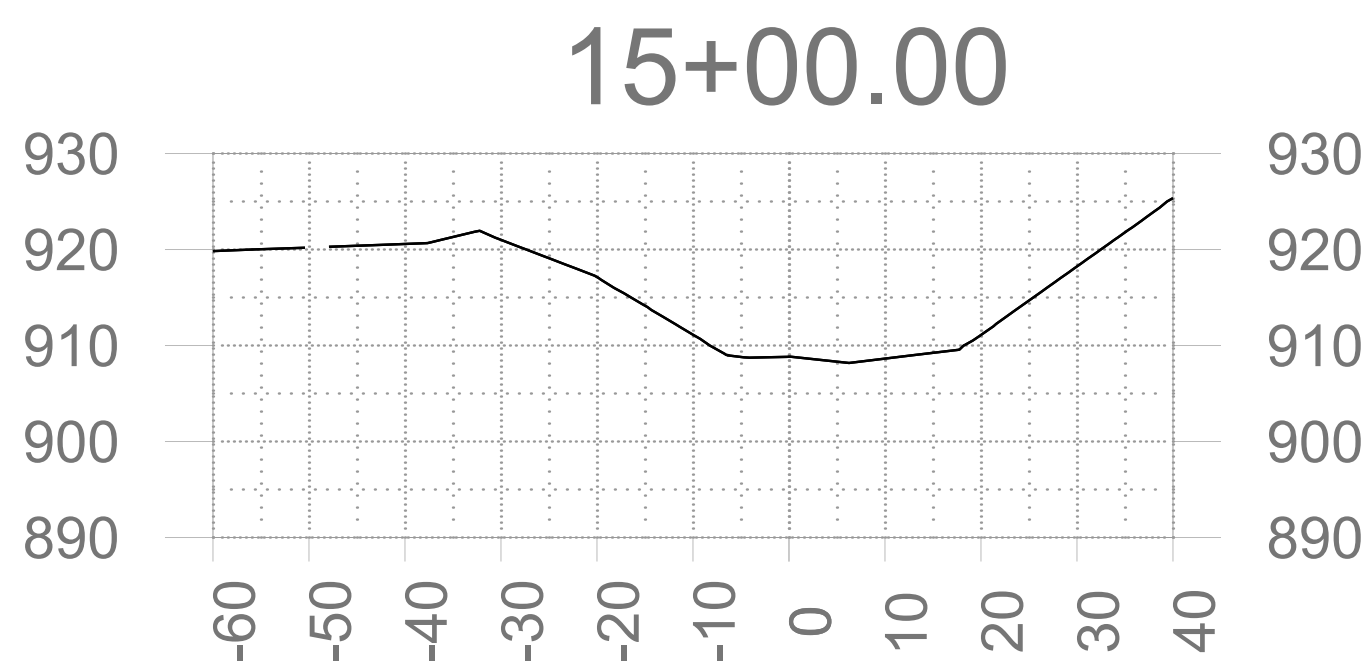
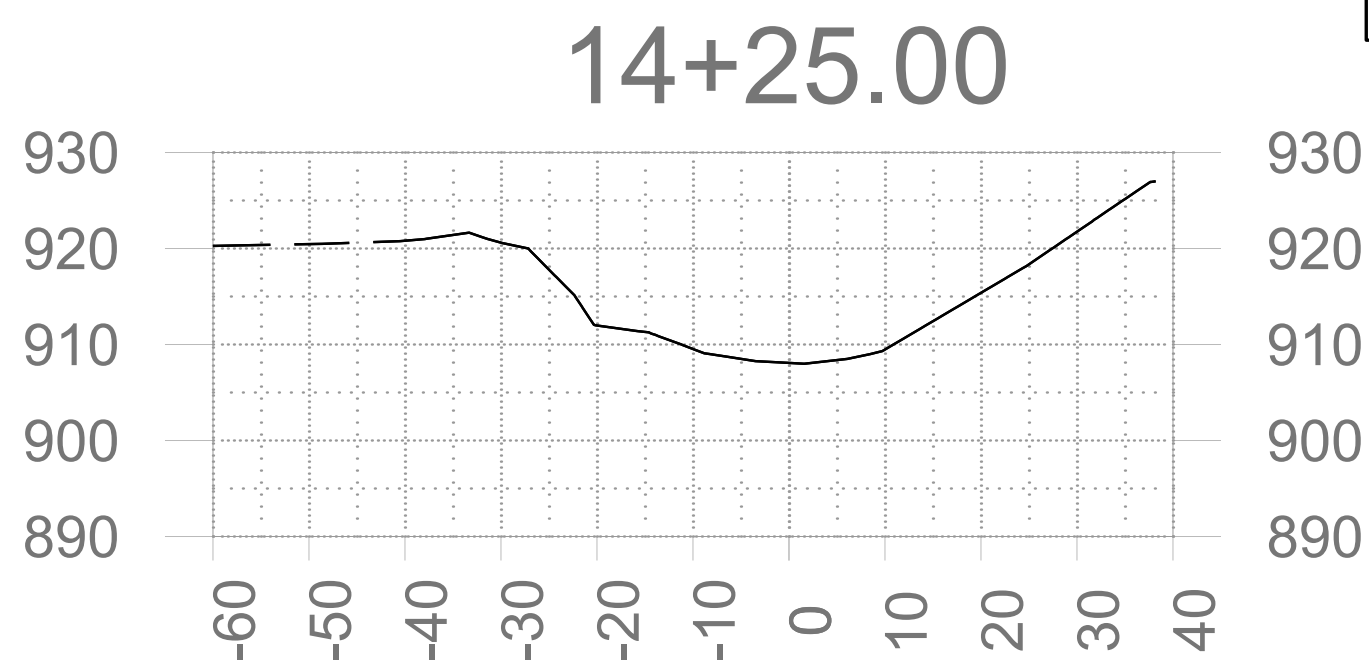
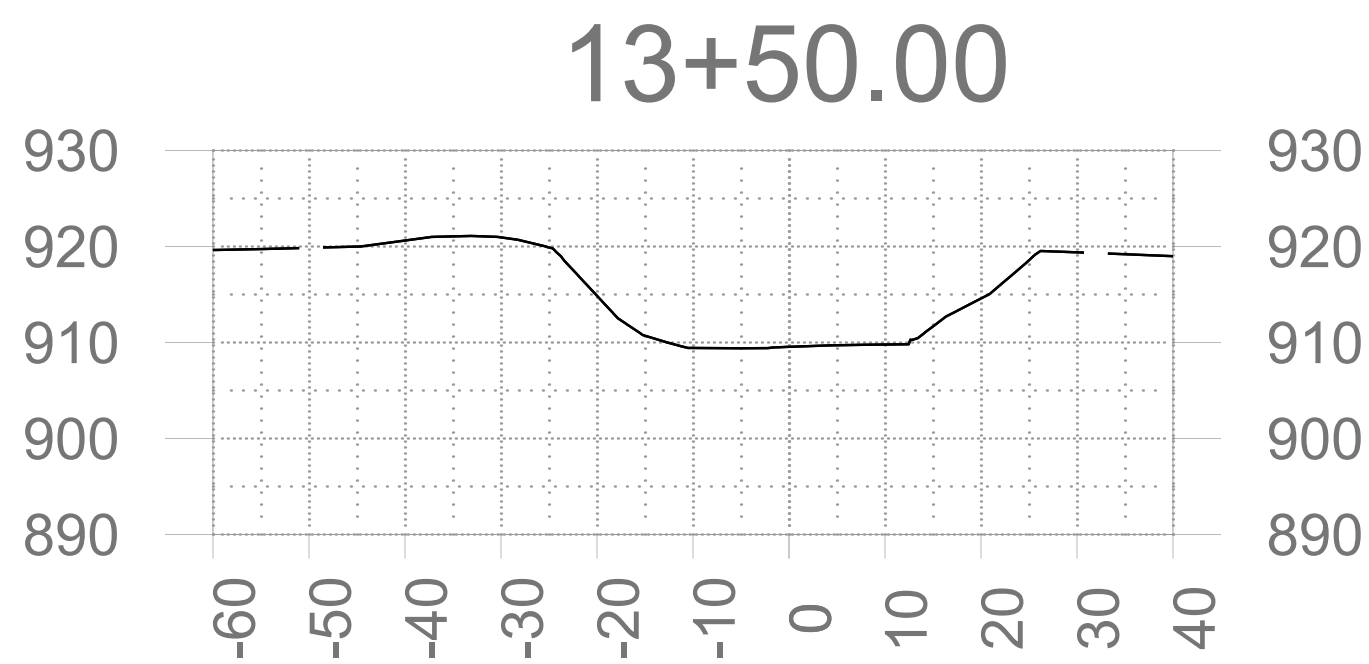
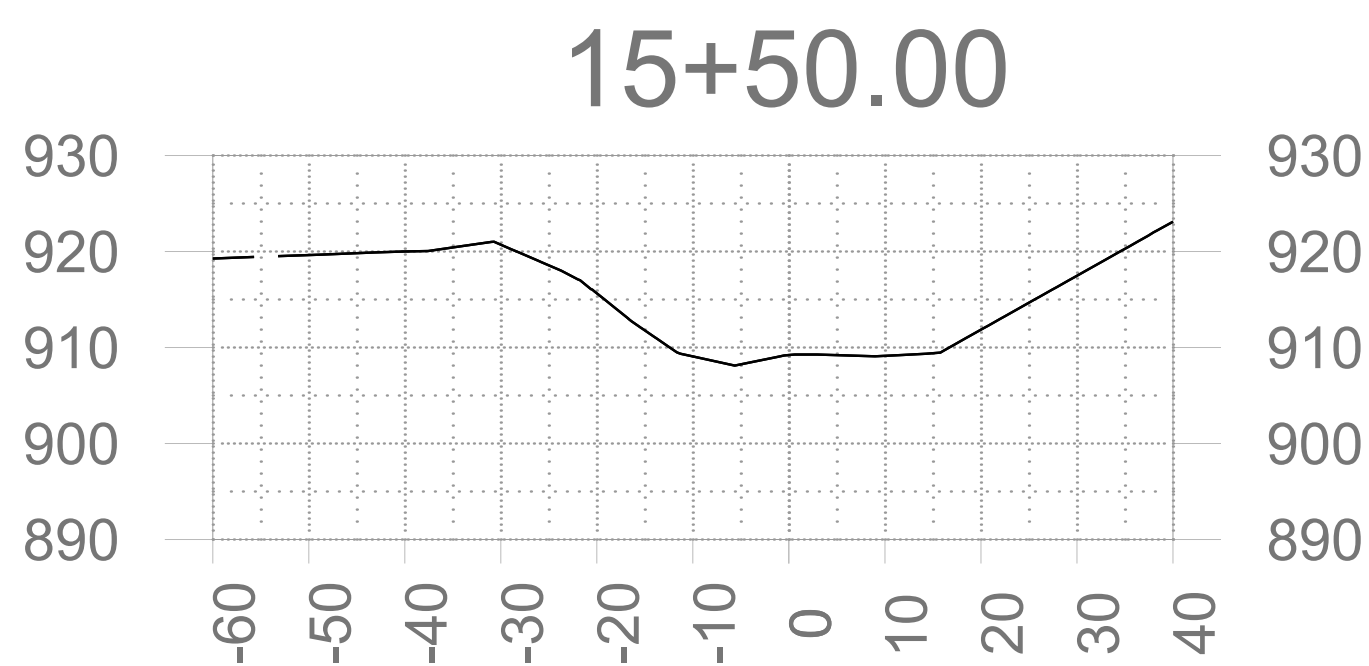
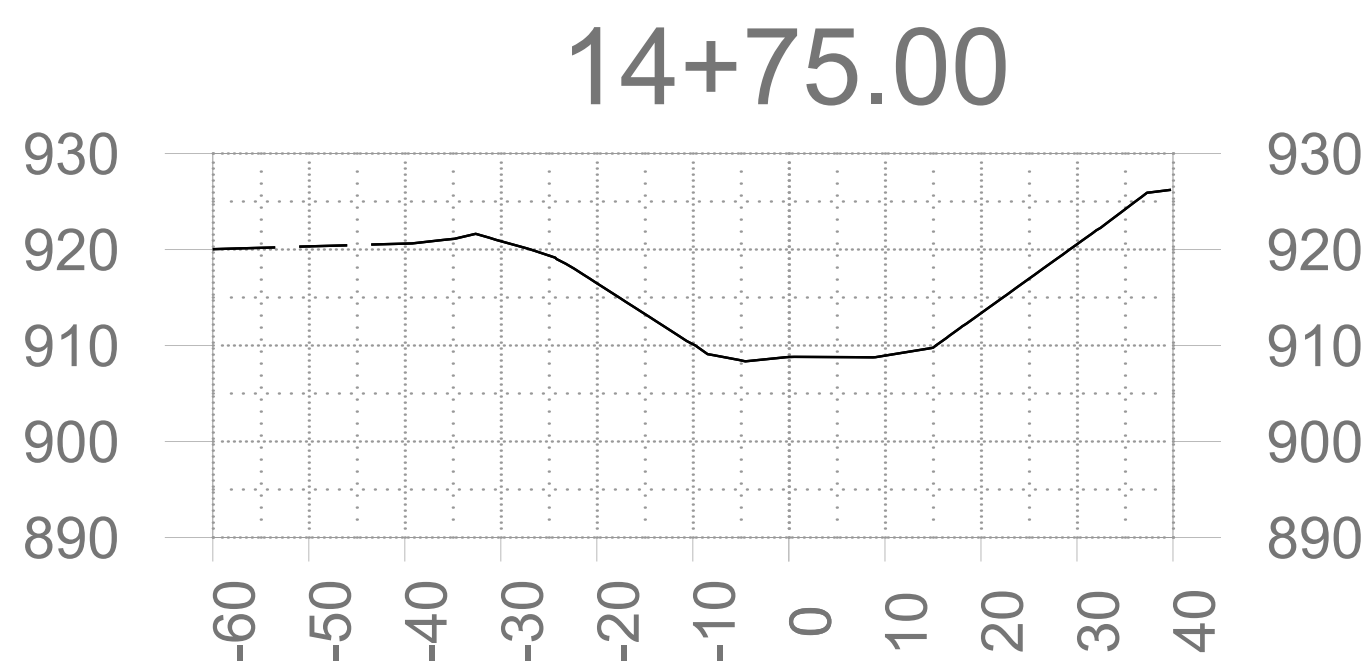
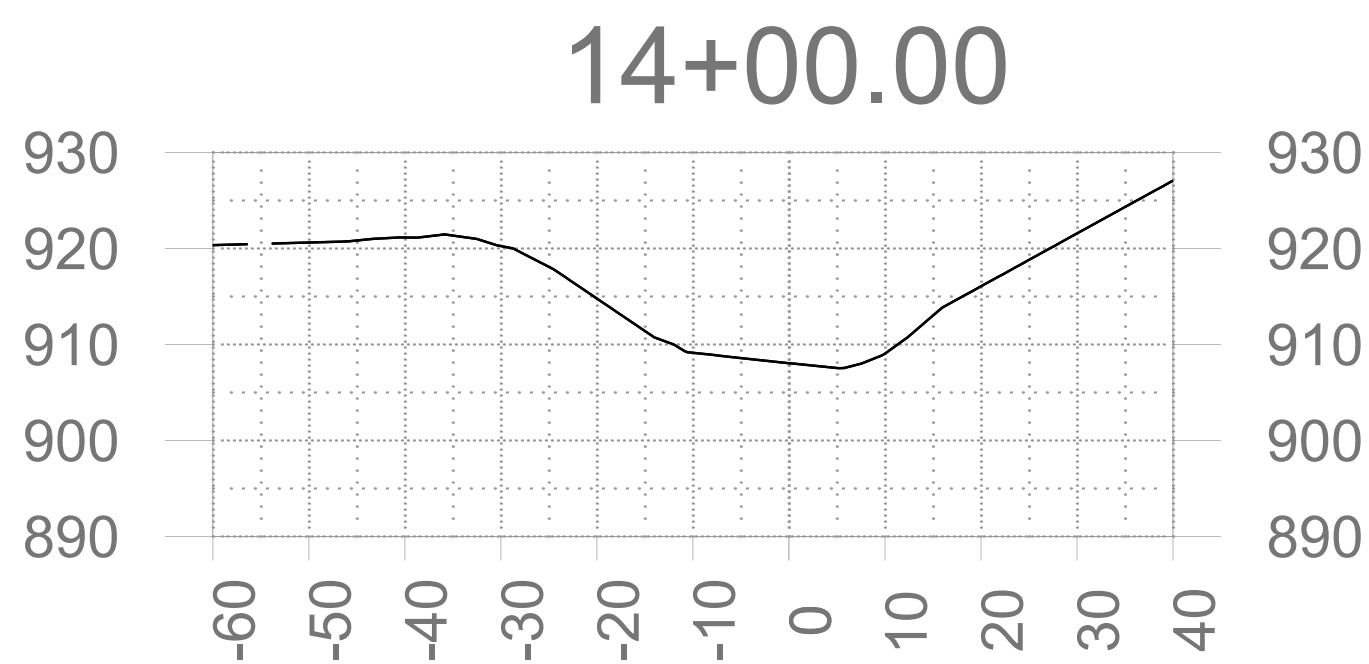
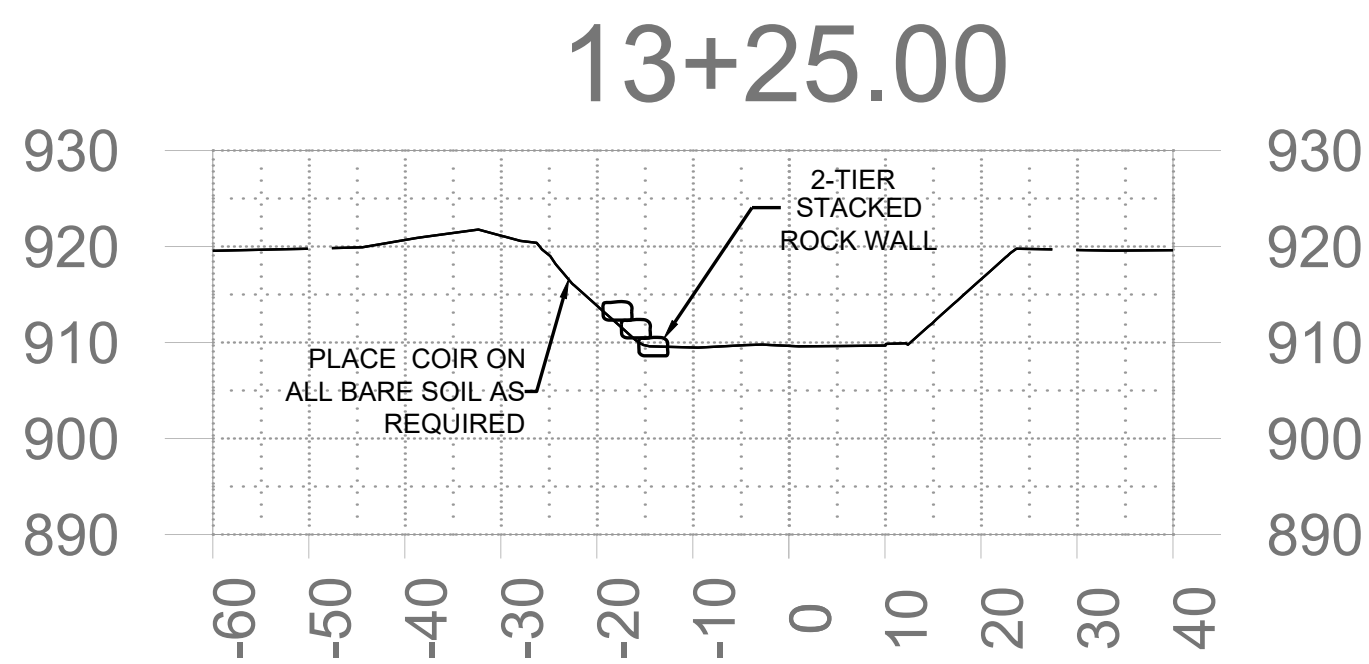
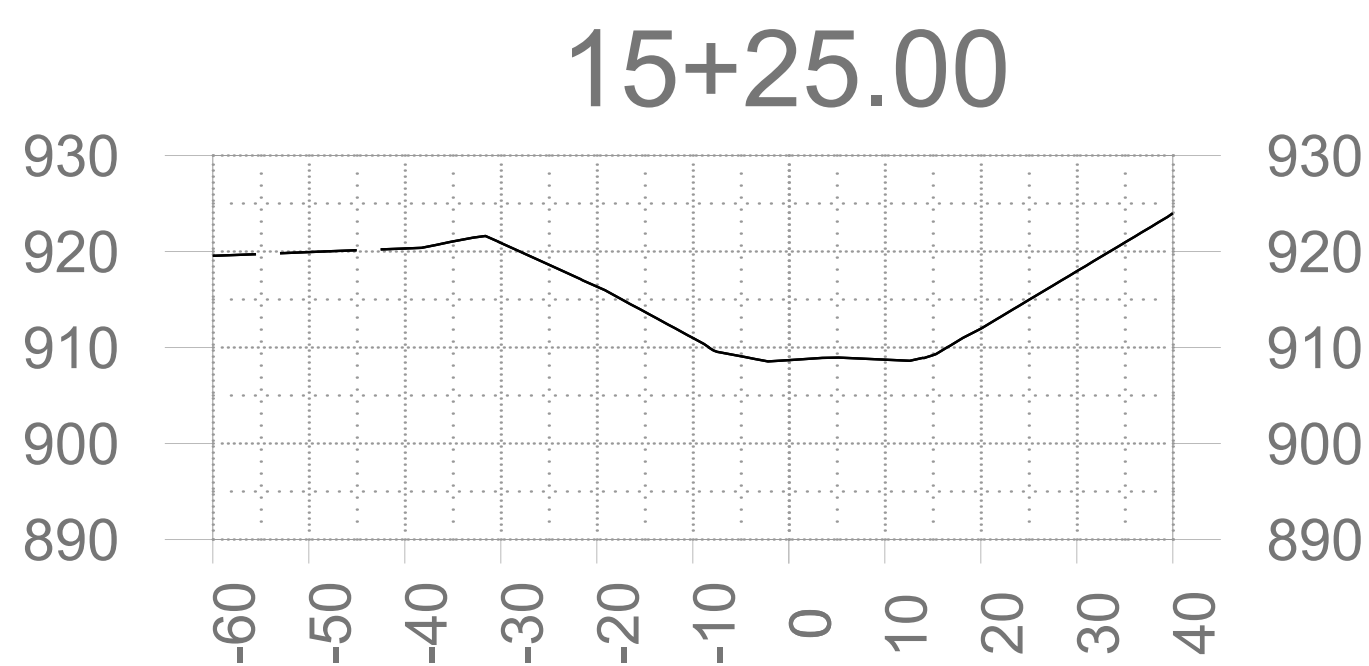
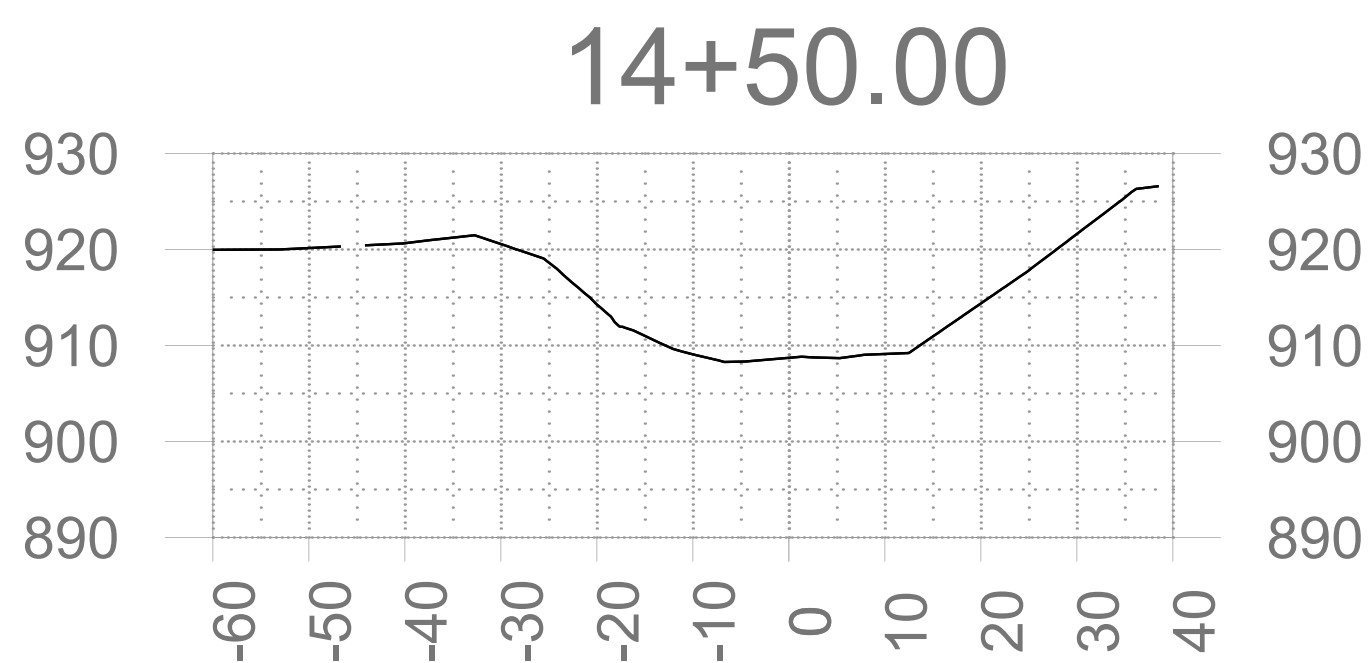
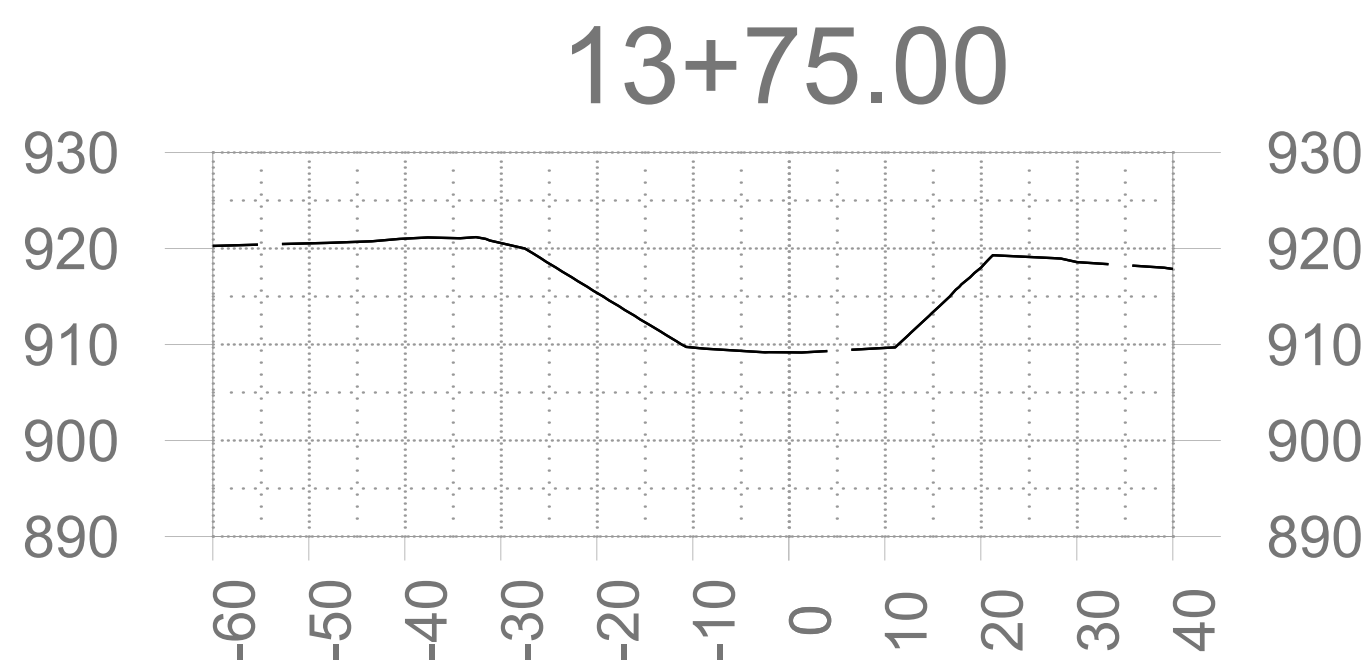
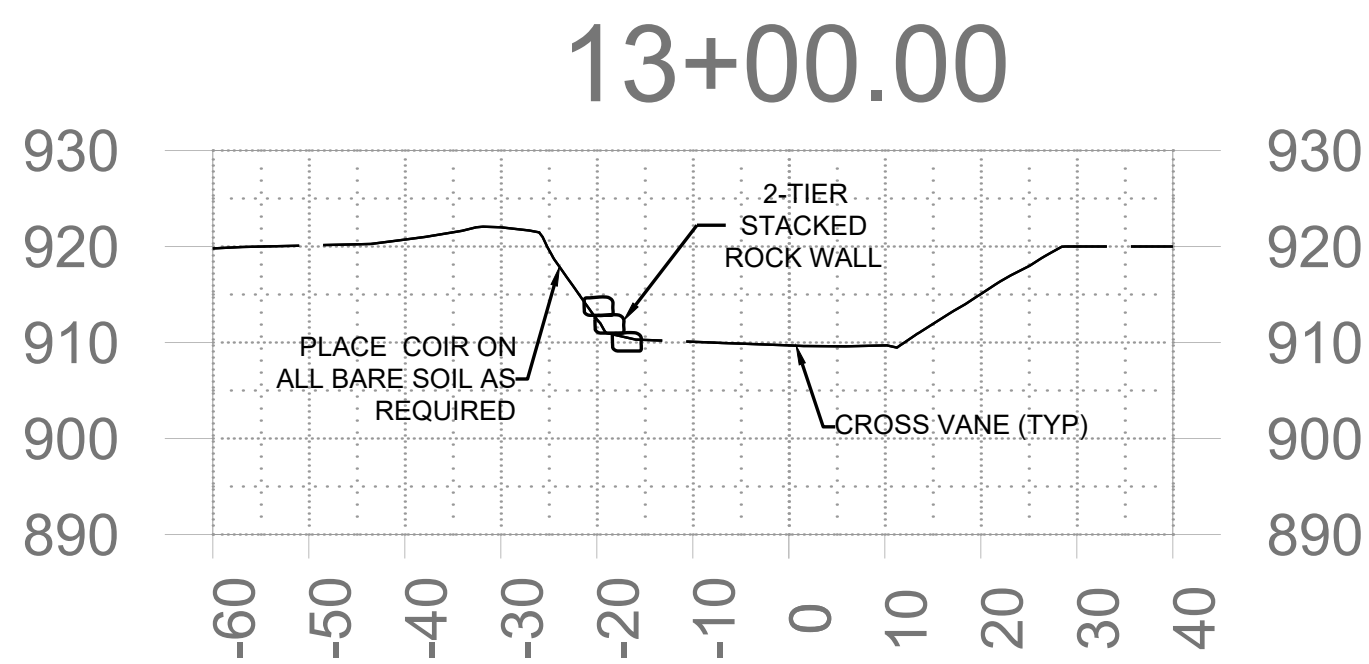
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL
DETAILED CROSS SECTIONS
STA 10+00 TO STA 12+75

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CS-1

SEQ.

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Last Saved: 5/11/2018 2:07 PM Saved By: 02298



LEGEND

----- EXISTING GROUND PROFILE ALONG ALIGNMENT

———— PROPOSED PROFILES

- NOTE:
1. ALL GRADED SLOPES SHALL BE LINED WITH COIR MATTING PER THE DETAIL
 2. ALL STACKED ROCK WALL WILL BE BLENDED TO EXISTING GROUND AT TOP OF ROCK TO LIMIT EROSION AT TOP OF WALL
 3. PLACE SINGLE COIR WRAPPED LIFT ABOVE STACKED ROCK WALL AS REQUIRED

ISSUED FOR CONSTRUCTION

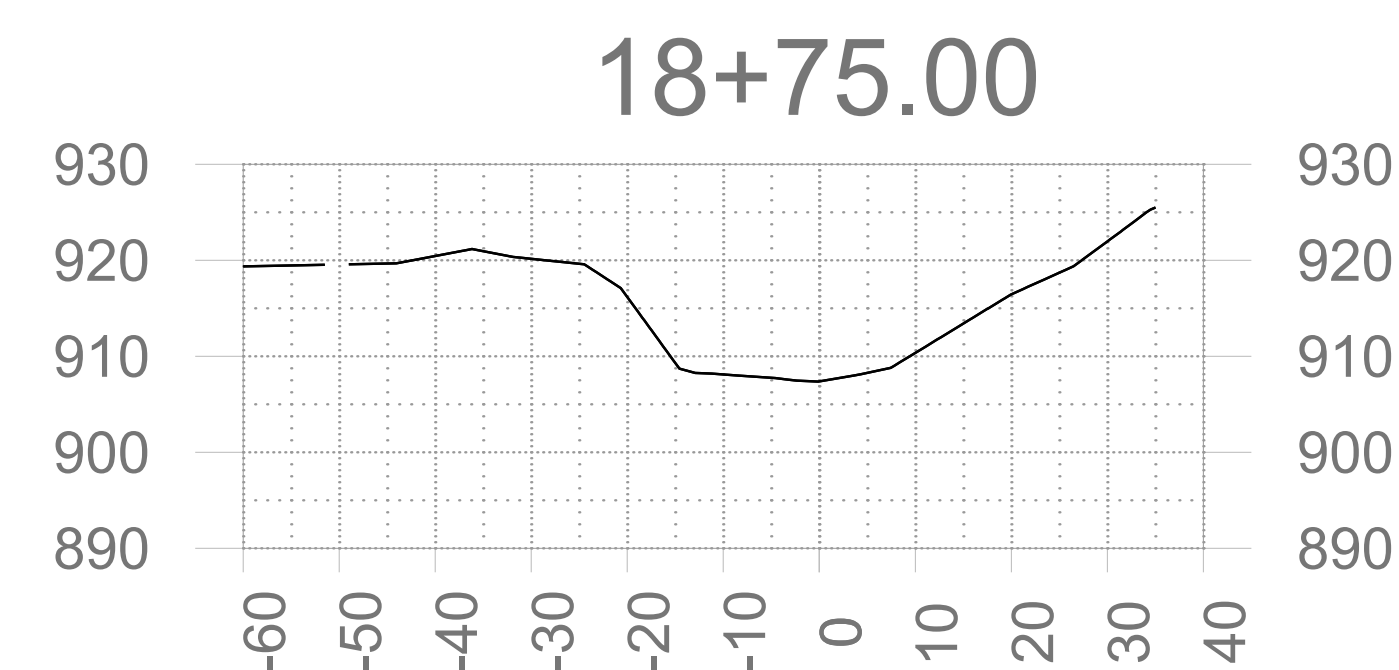
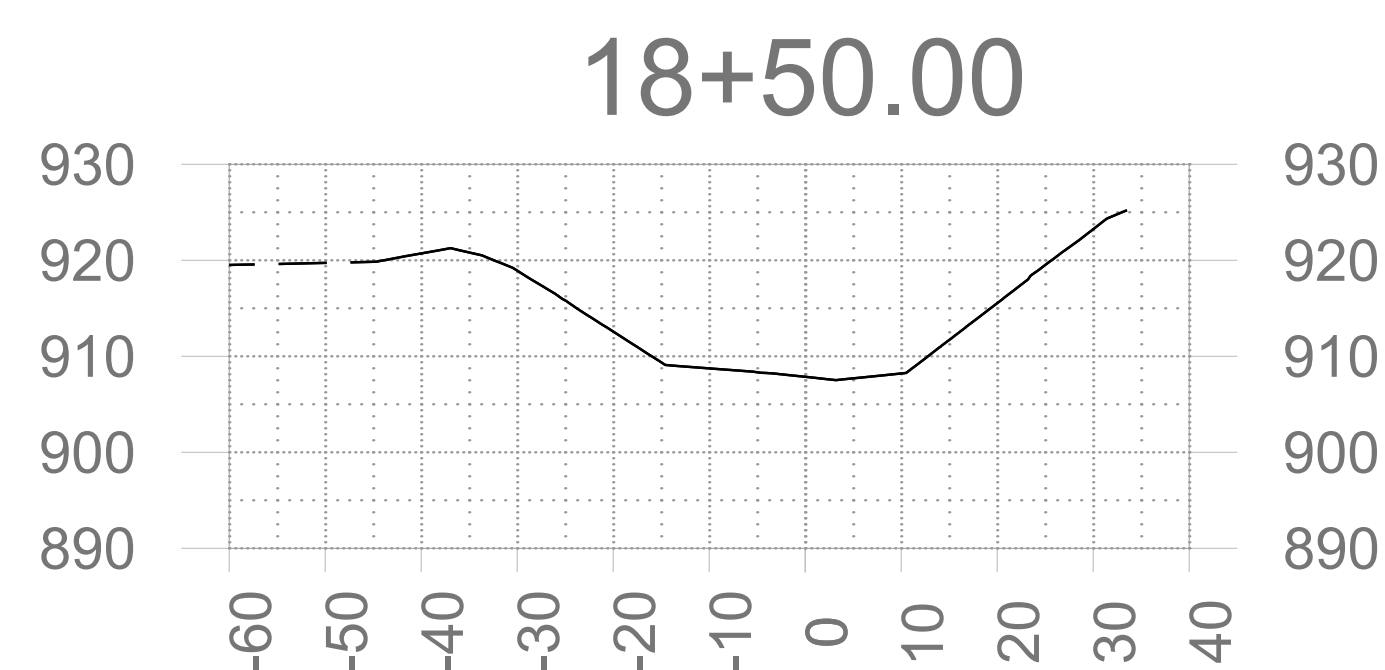
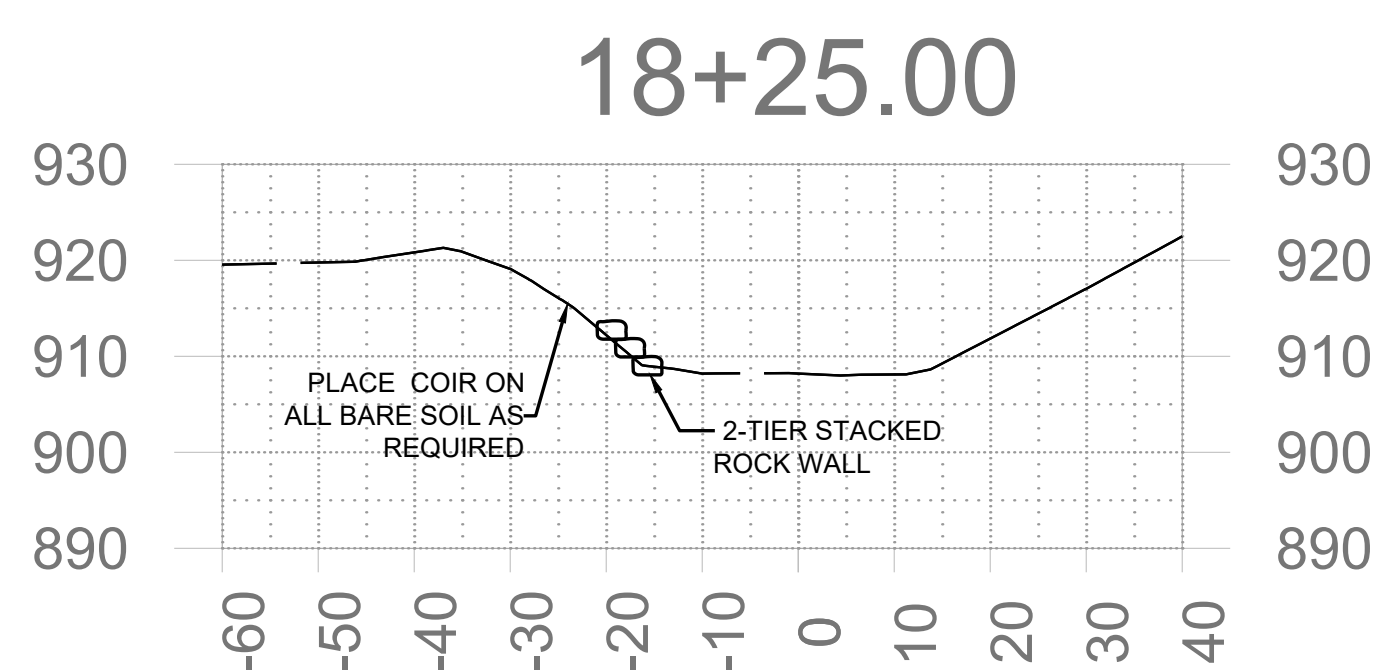
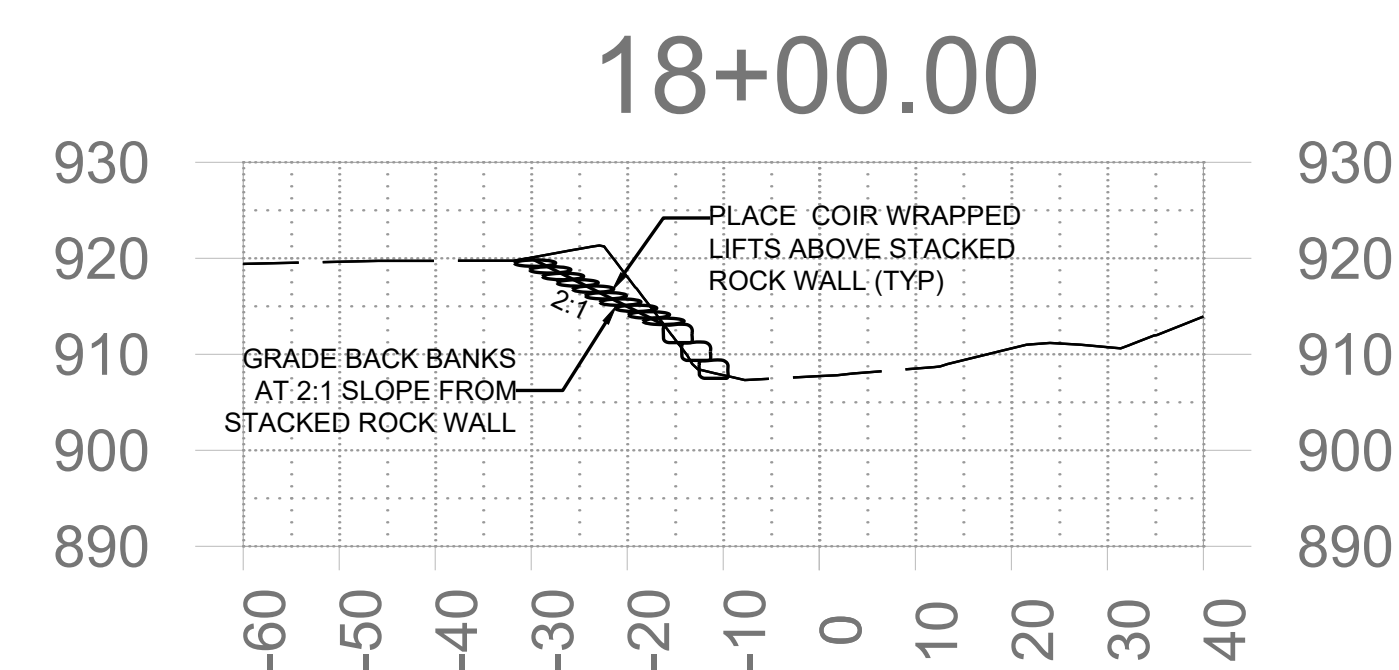
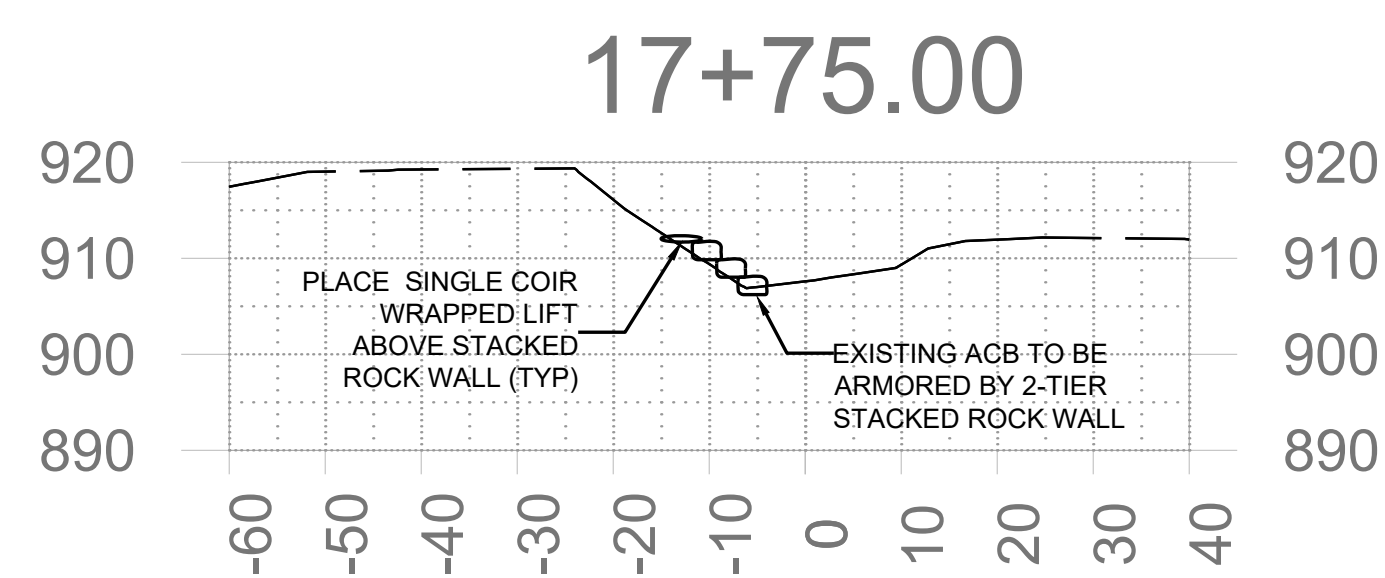
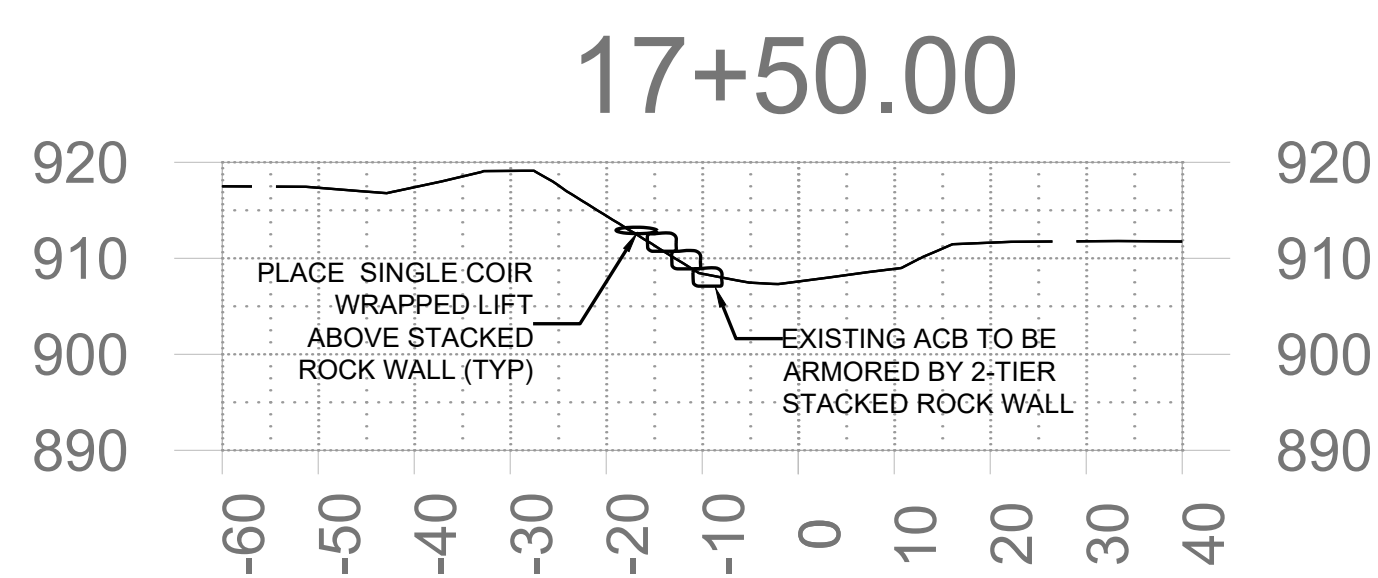
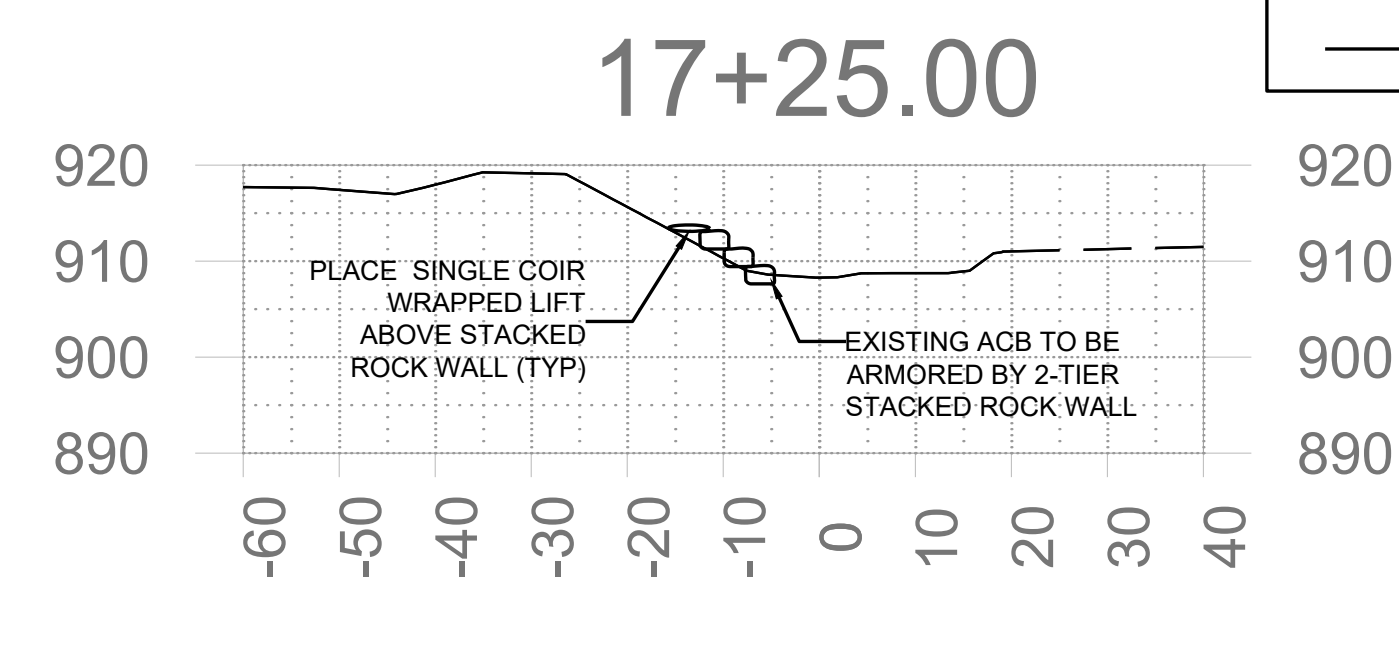
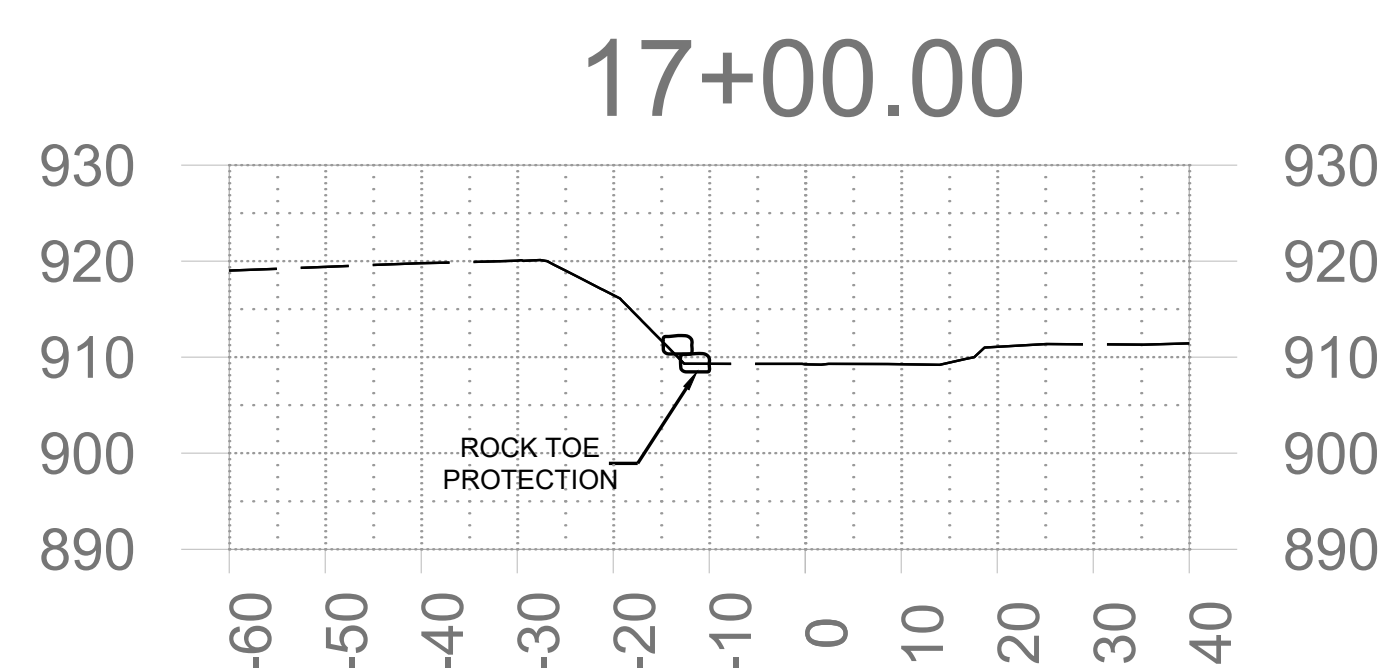
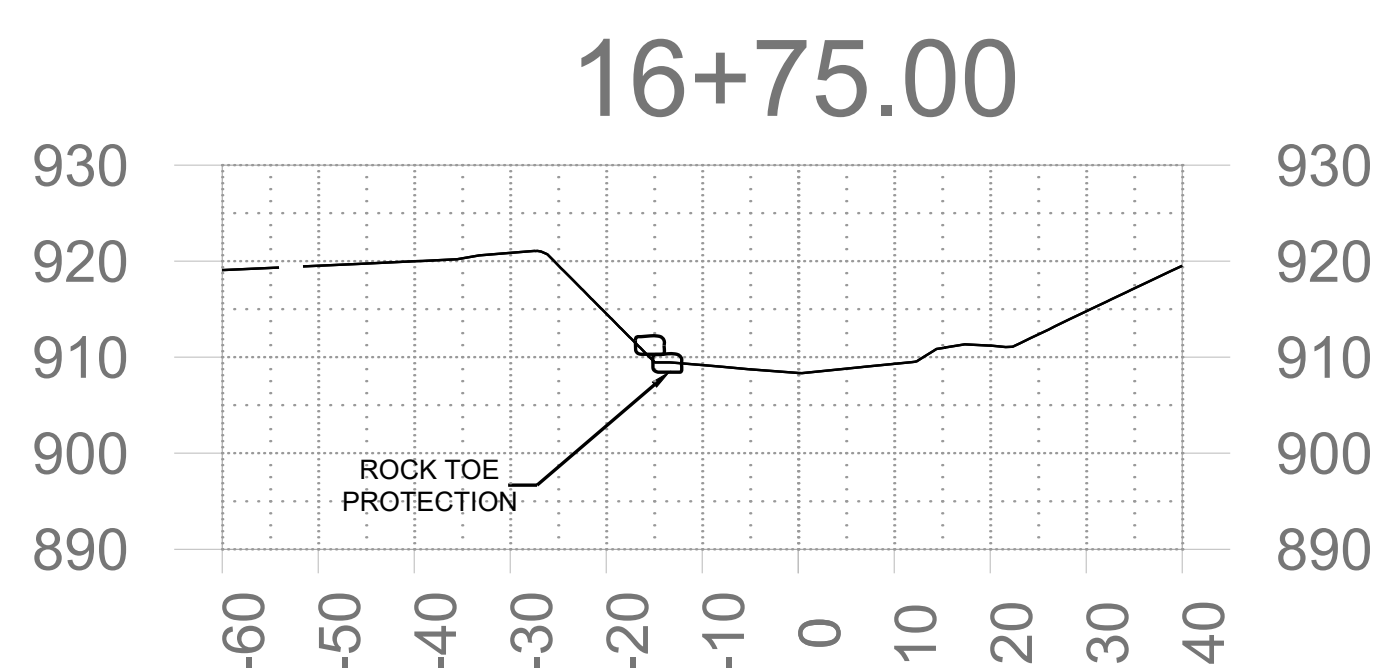
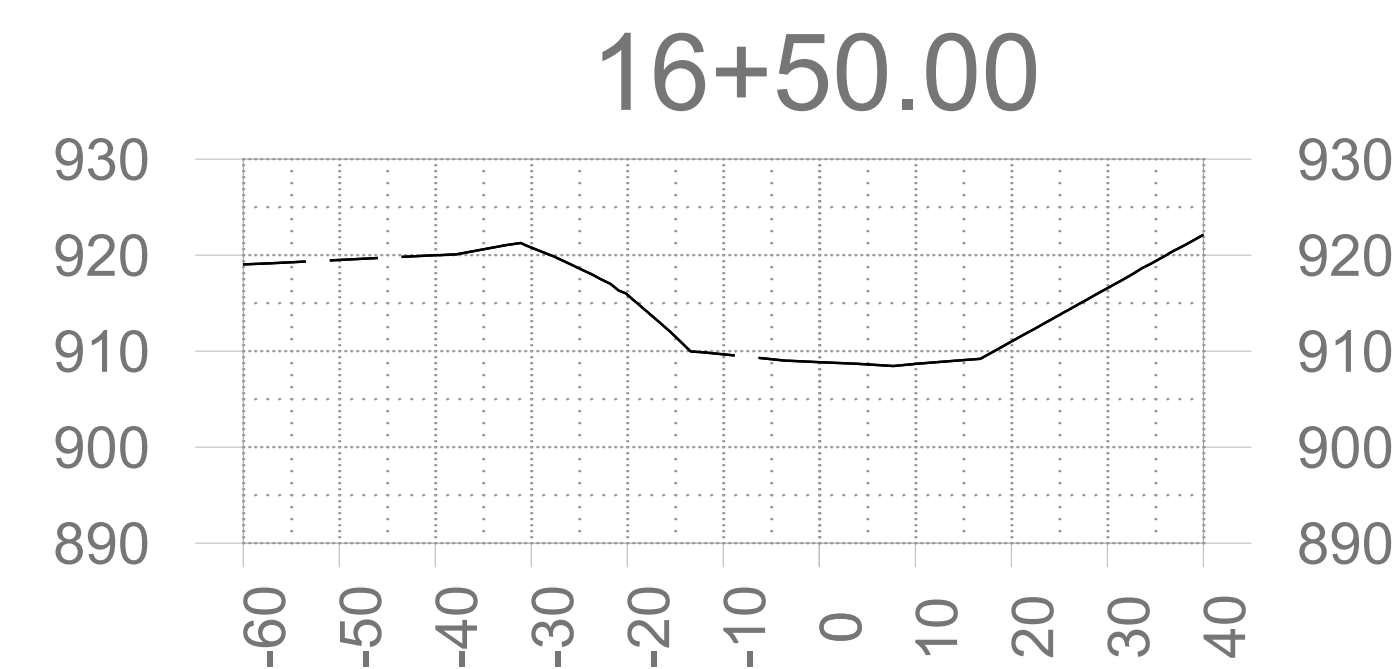
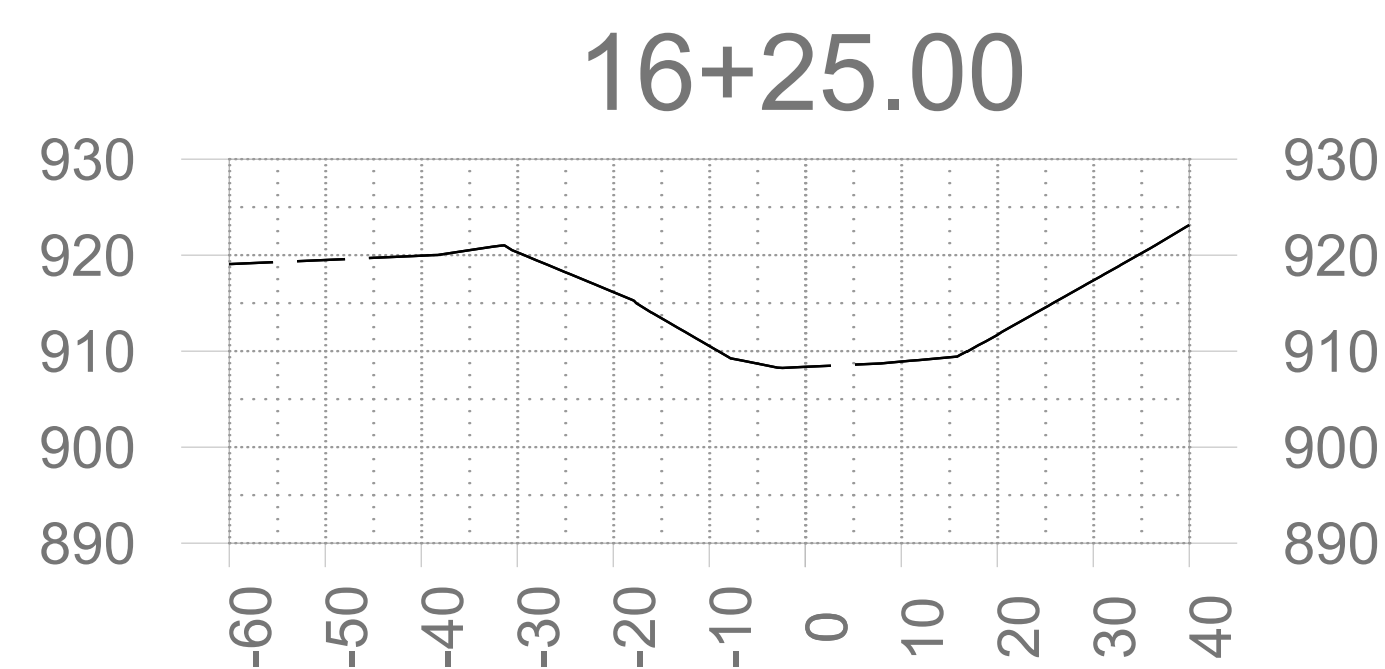
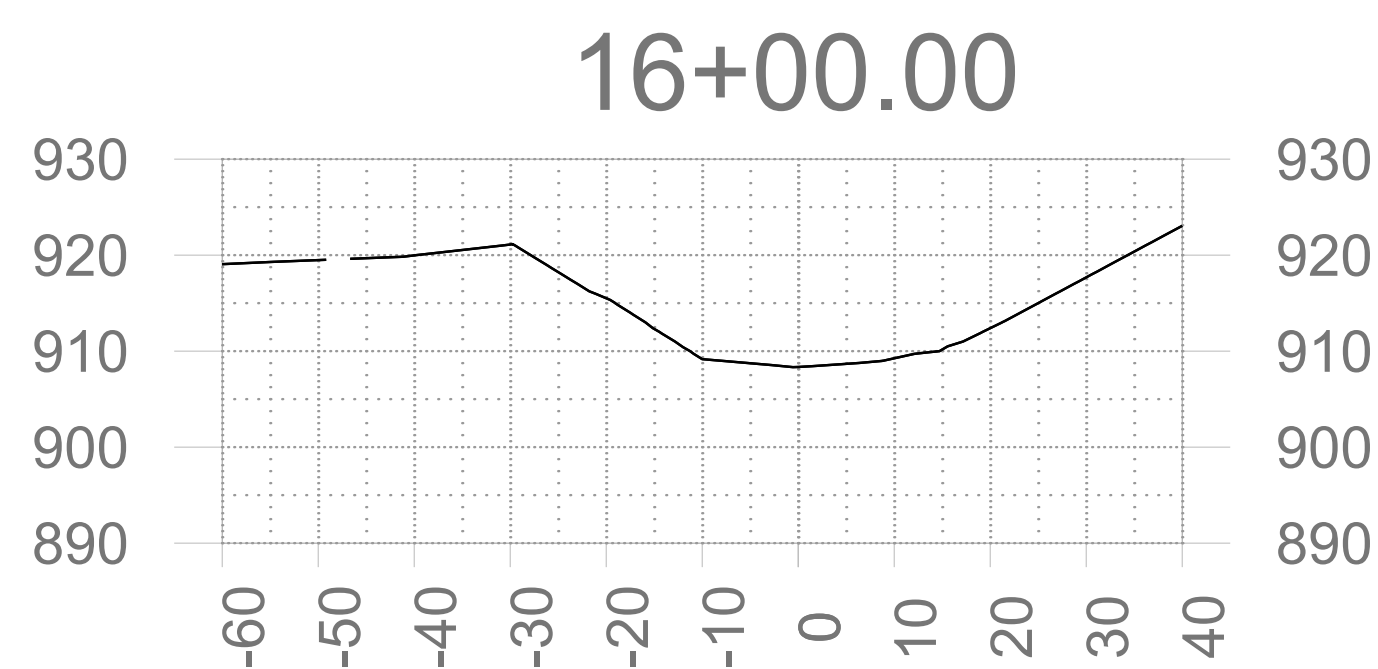
FINAL PLAN SET



FREESE & NICHOLS
717 Green Valley Road
Suite 200, North Carolina 27408
Phone - (336) 790-6744
Web - www.freese.com

ROANOKE COUNTY, VIRGINIA
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL
DETAILED CROSS SECTIONS
STA 13+00 TO STA 15+75
CTIONS.dwg

NO.	ISSUE	BY	DATE	PER JOB NO.	RNC16664
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				REVISED	
				CHECKED	BMD
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Bar is one inch on original drawing if not one inch on this sheet, adjust scale.					
VERIFY SCALE					
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CS-2					
SEQ.					



LEGEND

----- EXISTING GROUND
PROFILE ALONG
ALIGNMENT

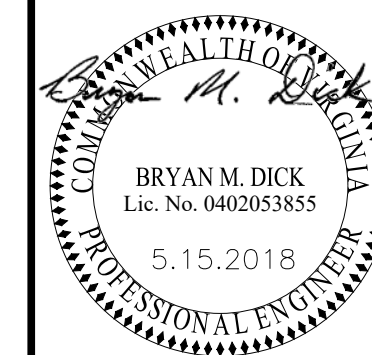
———— PROPOSED PROFILES

NOTE:

1. ALL GRADED SLOPES SHALL BE LINED WITH COIR MATTING PER THE DETAIL
2. ALL STACKED ROCK WALL WILL BE BLENDED TO EXISTING GROUND AT TOP OF ROCK TO LIMIT EROSION AT TOP OF WALL
3. PLACE SINGLE COIR WRAPPED LIFT ABOVE STACKED ROCK WALL AS REQUIRED

ISSUED FOR
CONSTRUCTION

FINAL PLAN SET



**FREESE
& NICHOLS**
717 Green Valley Road
Suite 200
Greensboro, North Carolina 27408
Phone - (336) 790-6744
Web - www.freee.com

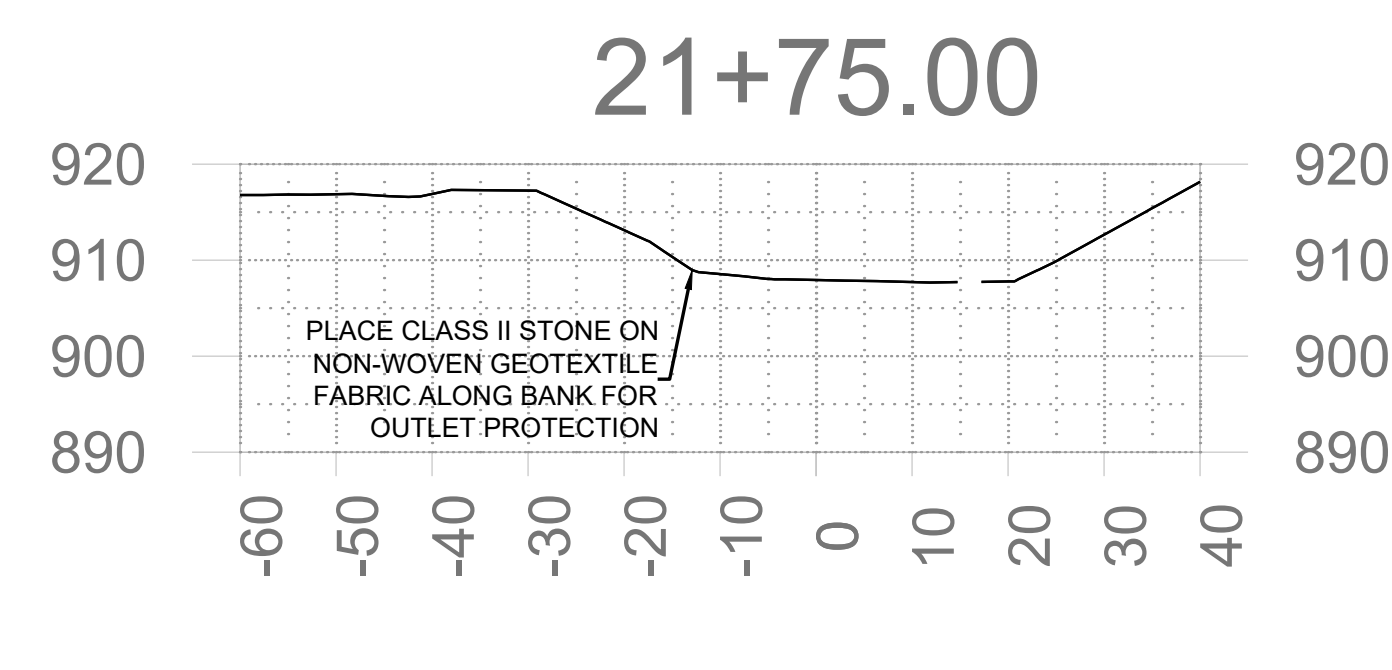
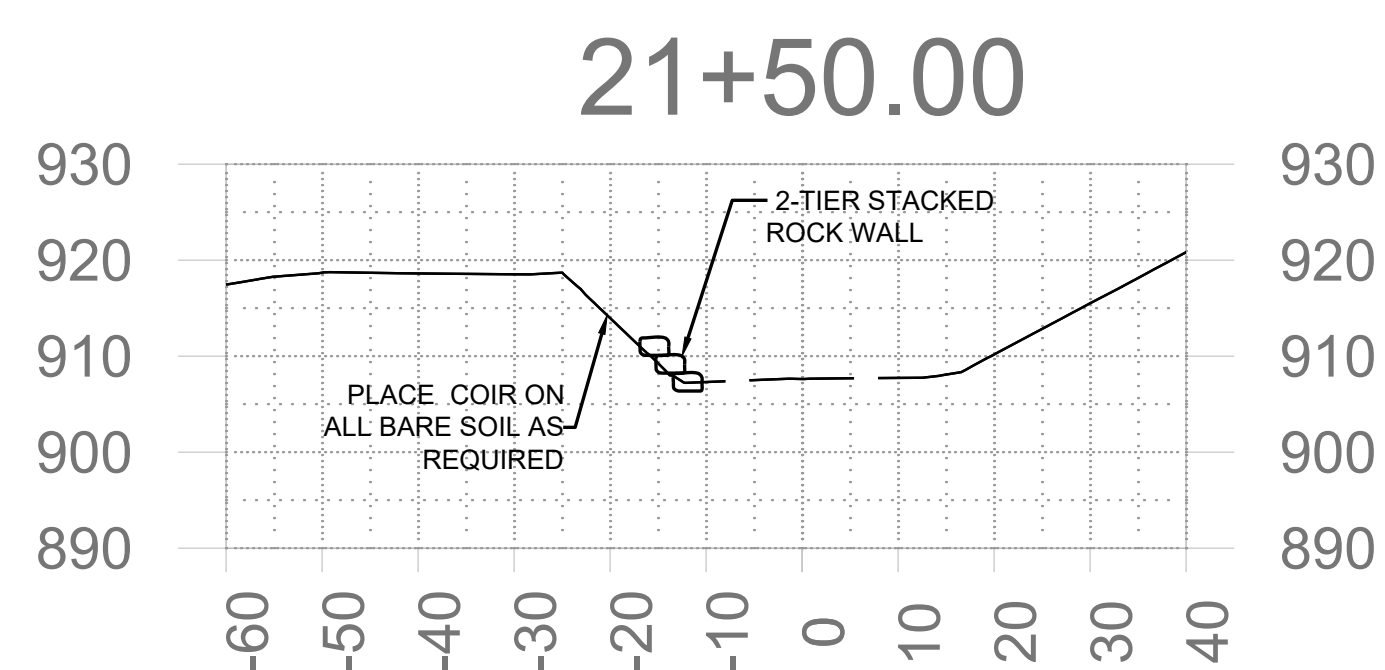
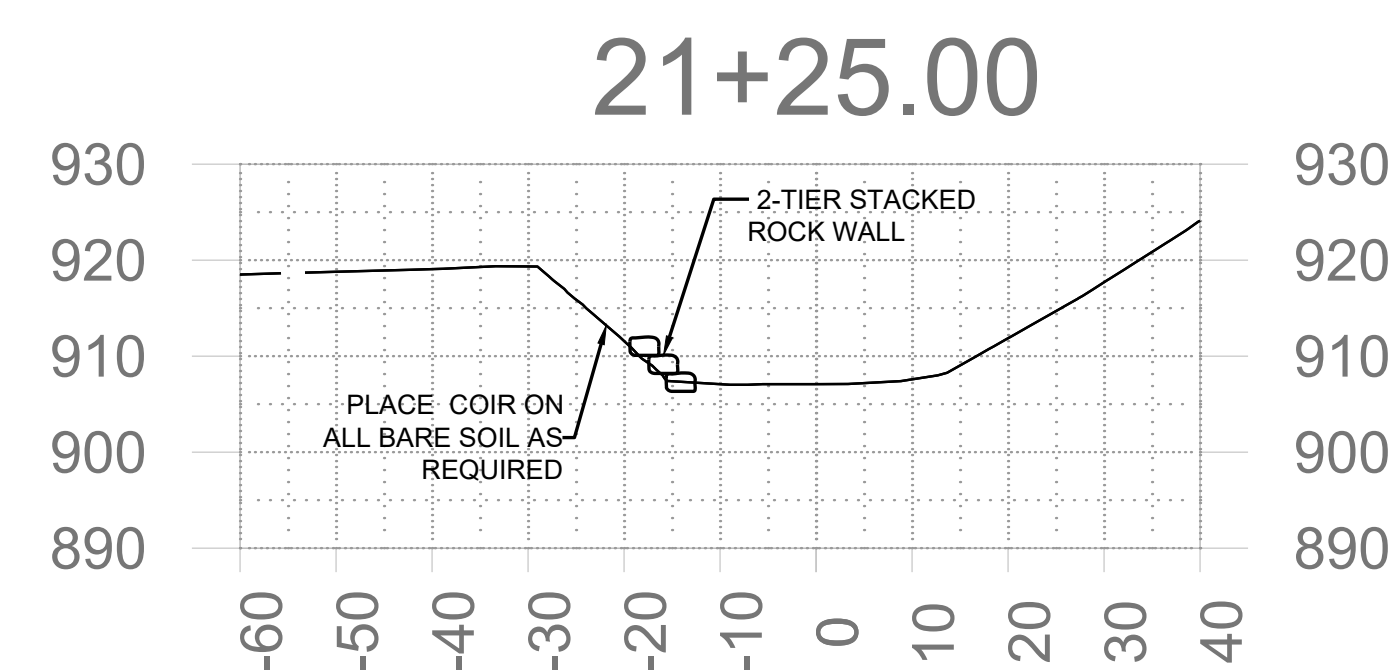
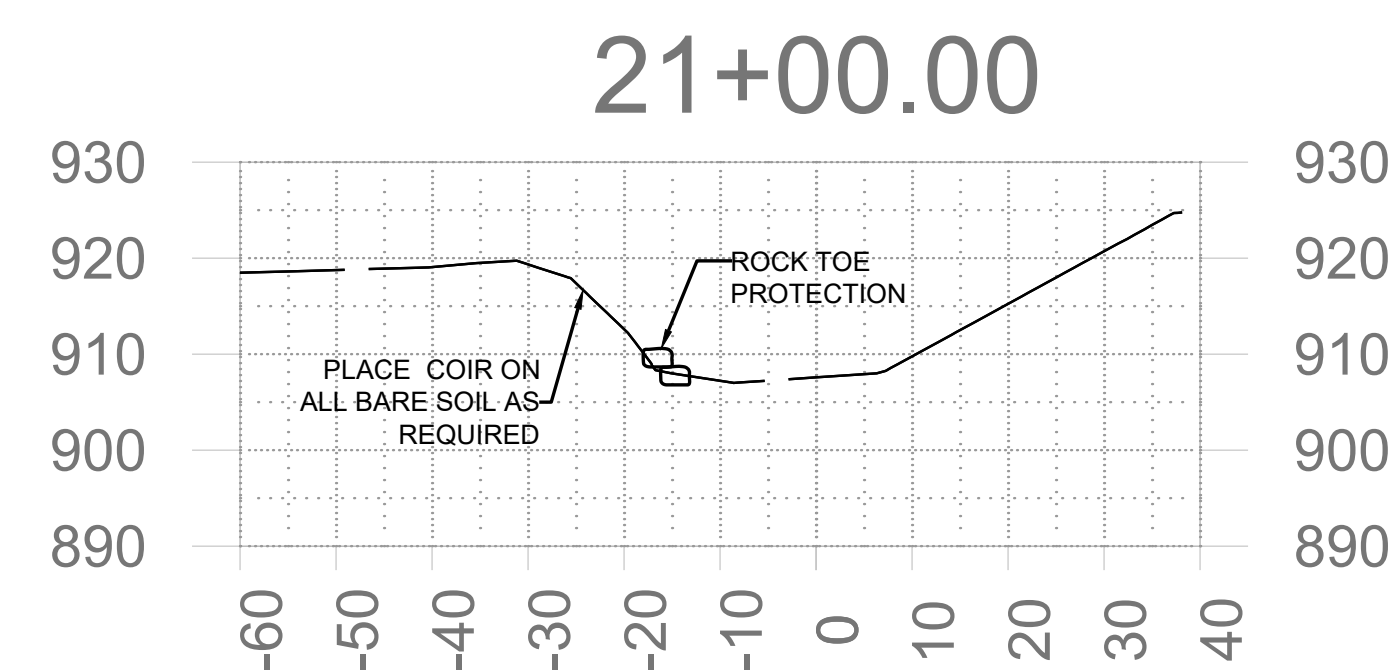
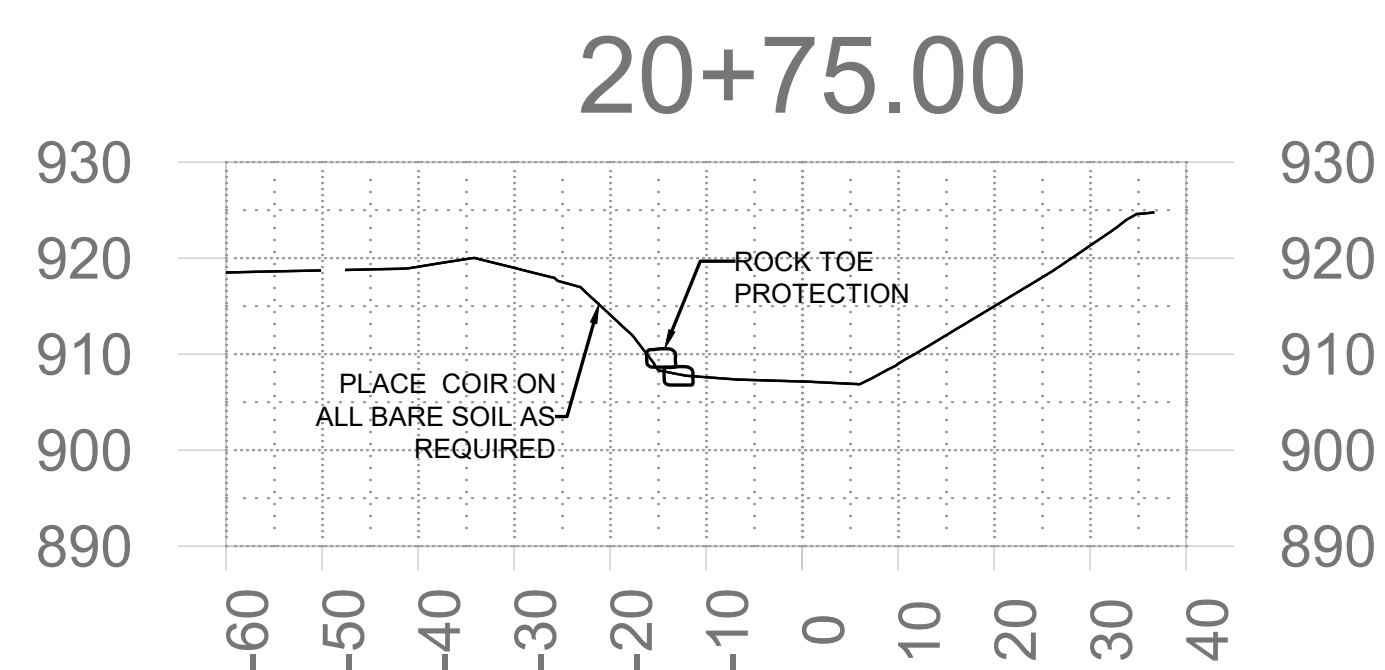
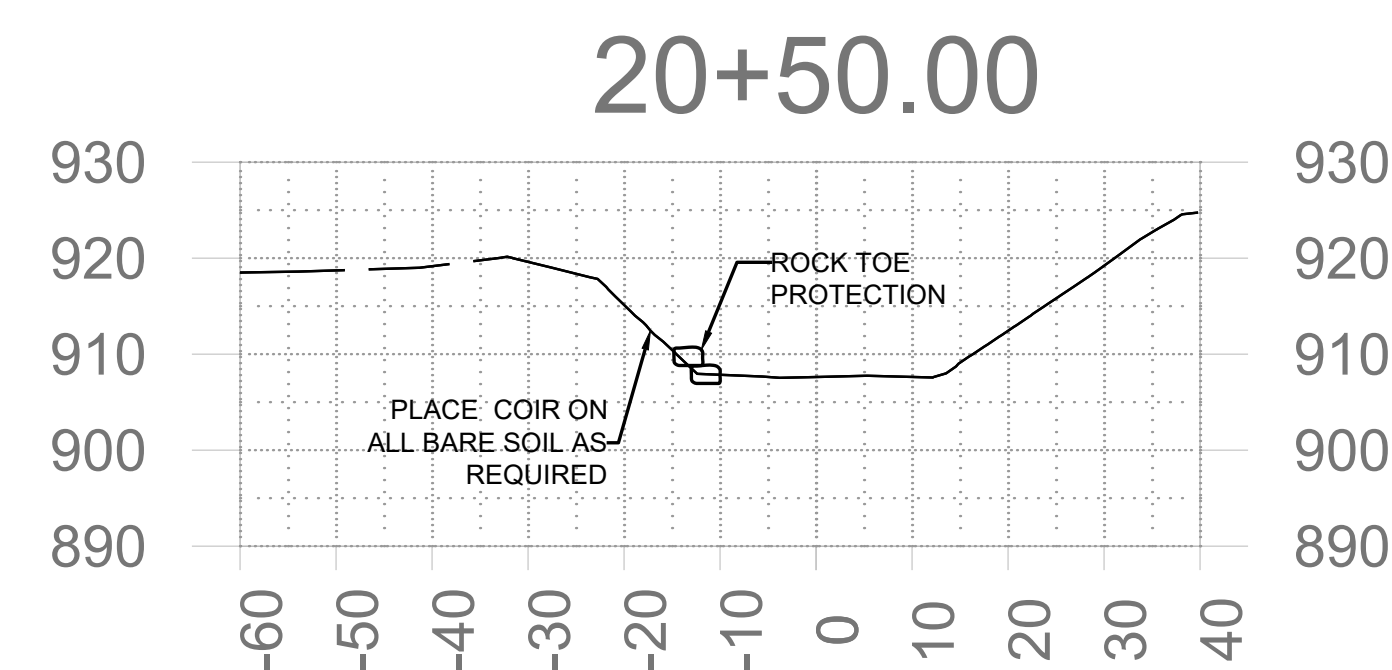
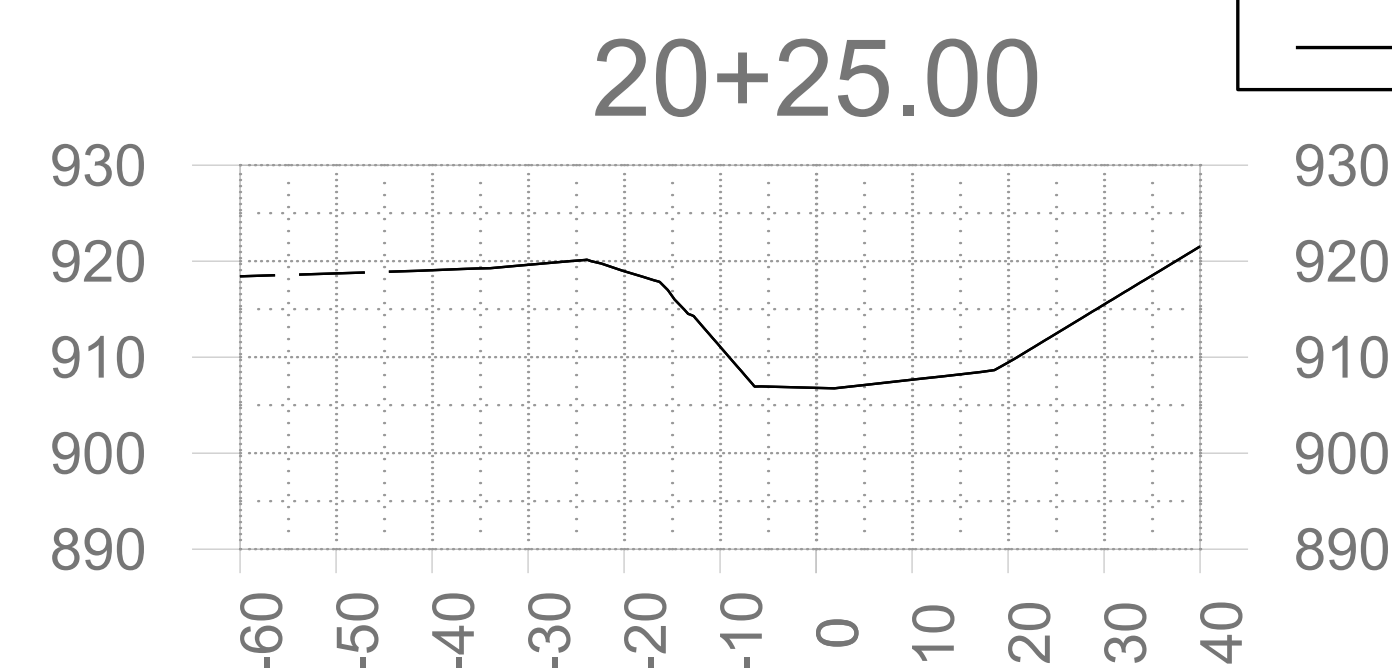
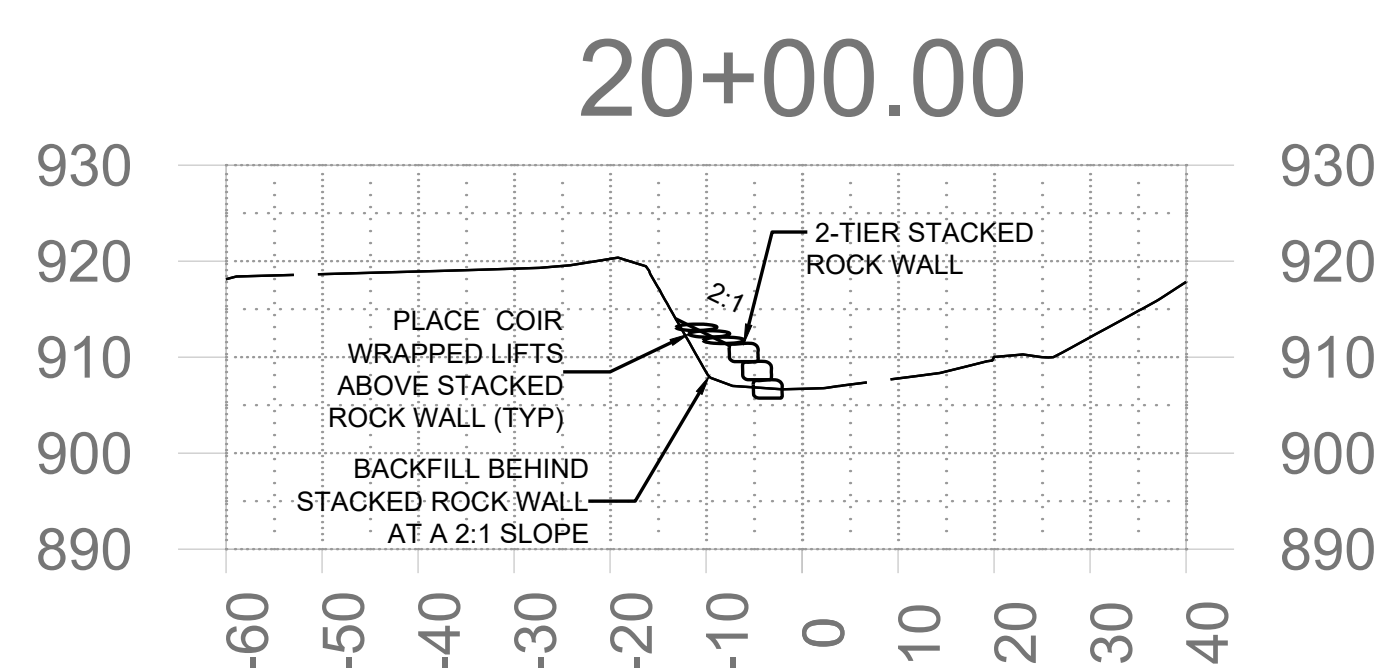
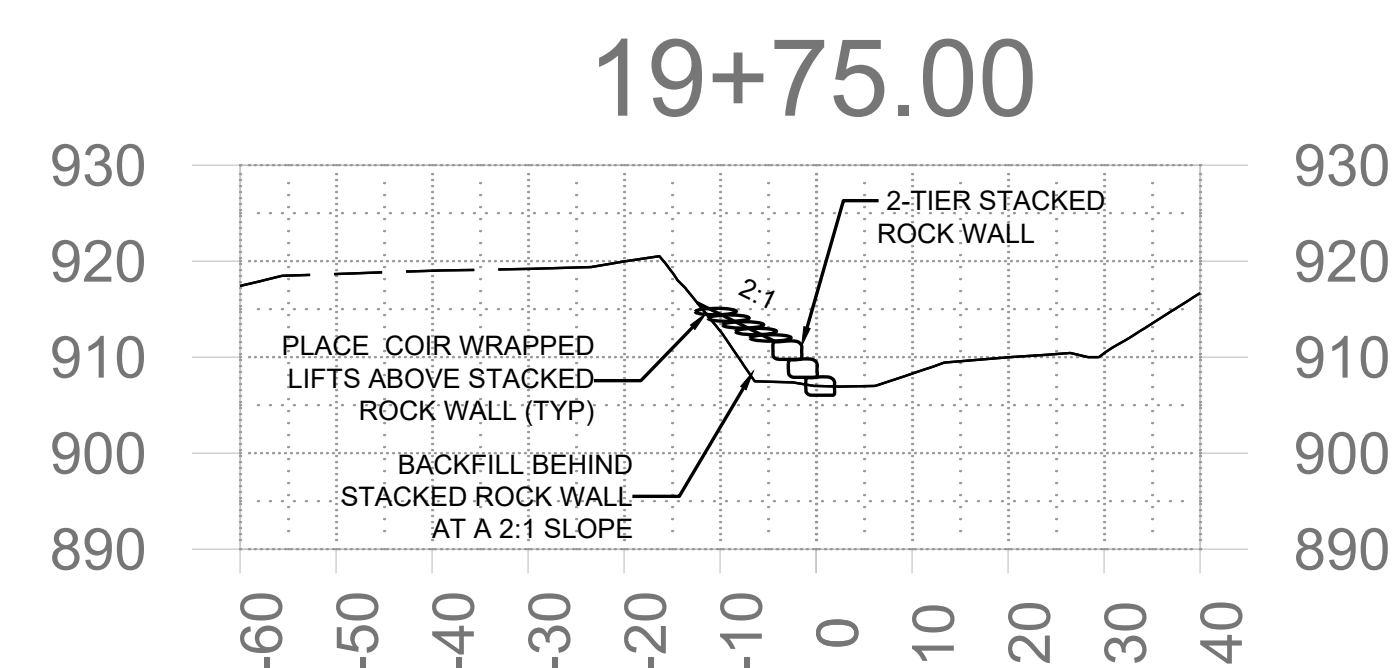
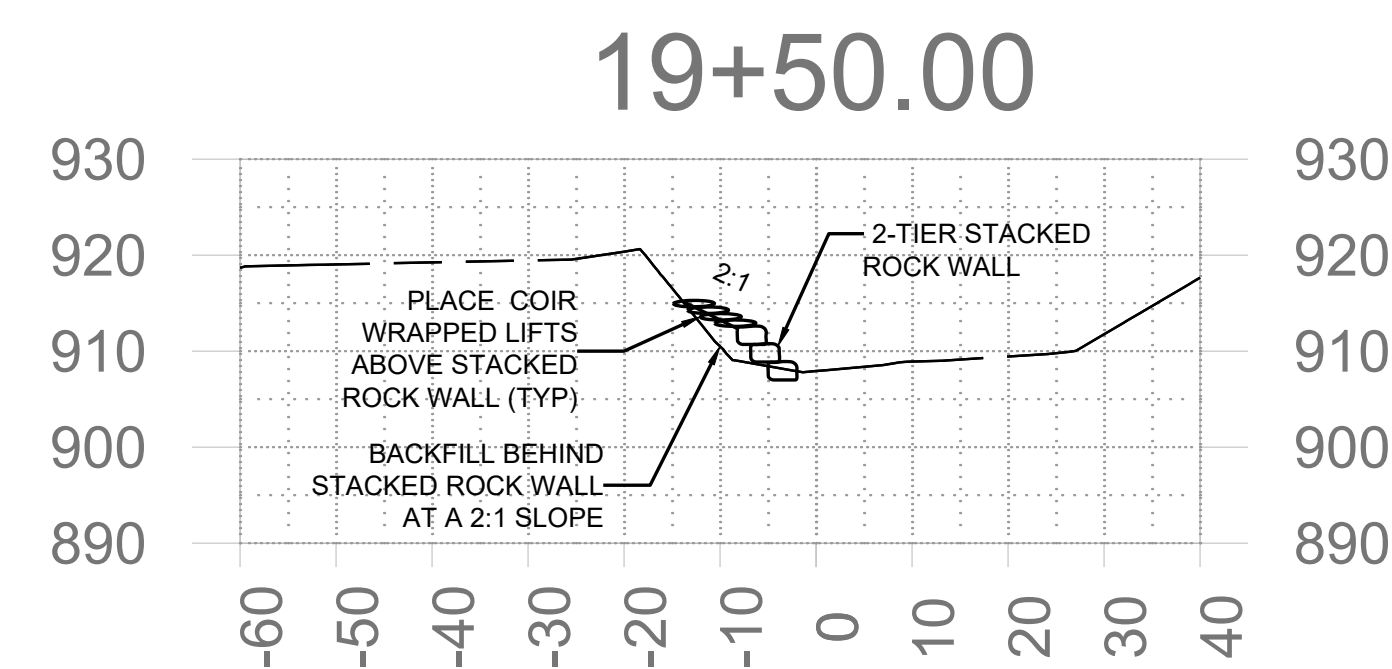
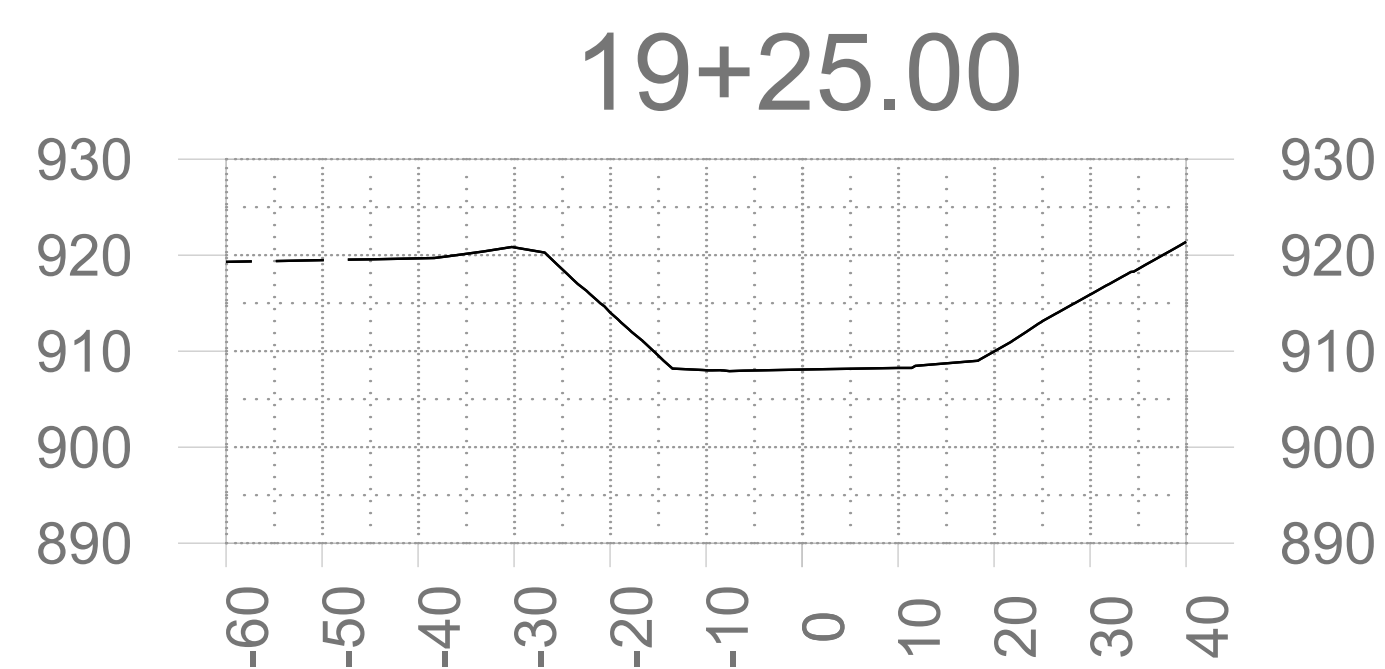
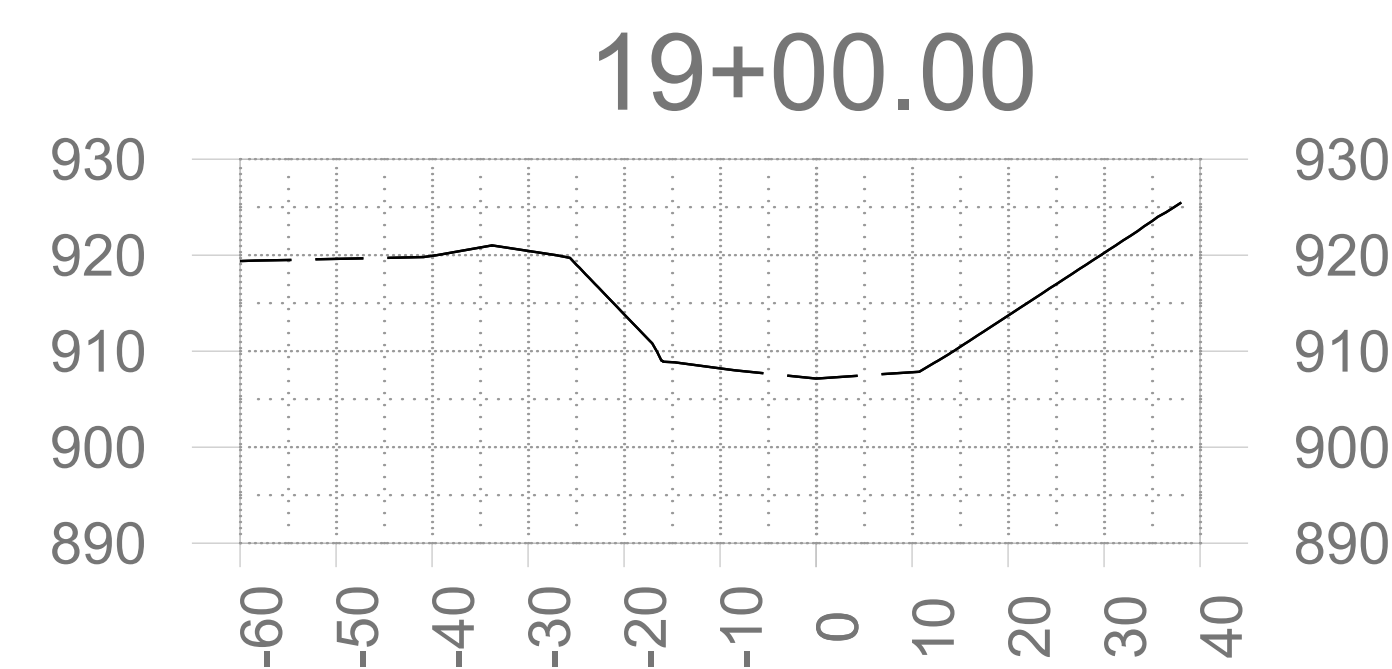
ROANOKE COUNTY, VIRGINIA
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL
DETAILED CROSS SECTIONS
STA 16+00 TO STA 18+75
J.S.dwg

NO.	ISSUE	BY	DATE	1&N JOB NO.
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				DATE 05.15.2018
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				DRAWN BMD
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				FILE NAME
				CS-1 DETAILED CROSS SECTION
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VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

CS-3

	SEQ.
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LEGEND

----- EXISTING GROUND
PROFILE ALONG
ALIGNMENT

———— PROPOSED PROFILES

NOTE:

1. ALL GRADED SLOPES SHALL BE LINED WITH COIR MATTING PER THE DETAIL
2. ALL STACKED ROCK WALL WILL BE BLENDED TO EXISTING GROUND AT TOP OF ROCK TO LIMIT EROSION AT TOP OF WALL
3. PLACE SINGLE COIR WRAPPED LIFT ABOVE STACKED ROCK WALL AS REQUIRED



**IREESE
NICHOLS**

717 Green Valley Road
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Greensboro, North Carolina 27408
Phone - (336) 790-6744
Web - www.ireese.com

RESTORATION OF GLADE CREEK AT VINYARD PARK PHASE II

CIVIL
DETAILED CROSS SECTIONS
STA 19+00 TO STA 21+75

RNC16684									
DATE	05.15.2018								
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DRAWN									
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FILE NAME									
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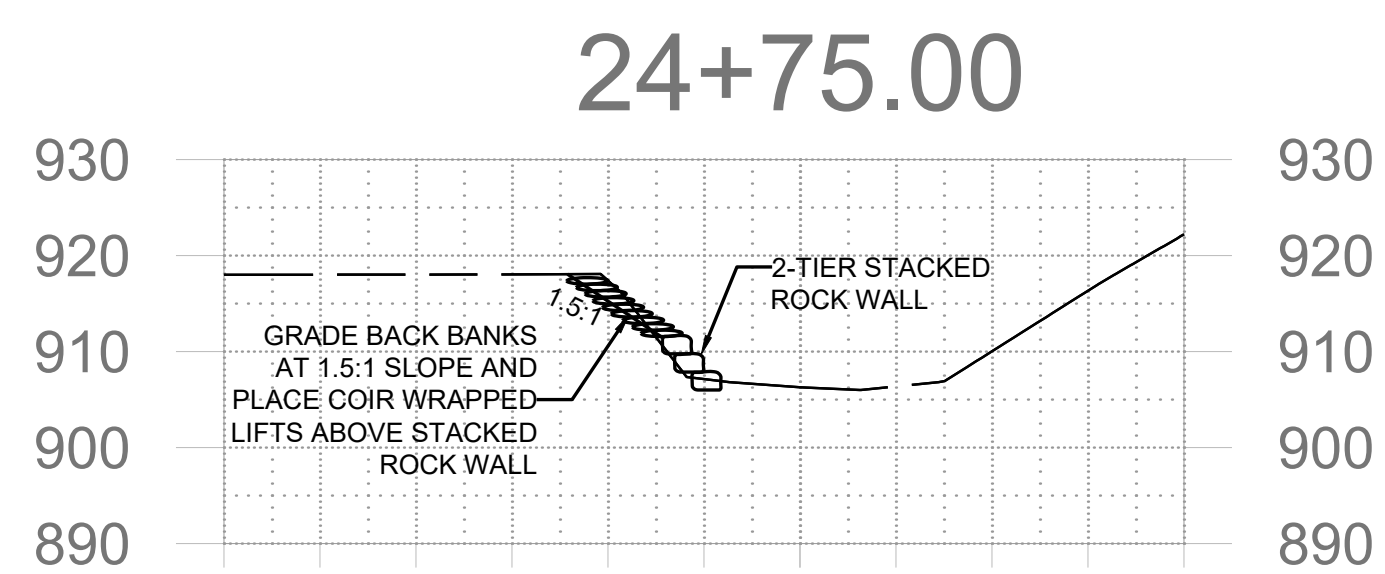
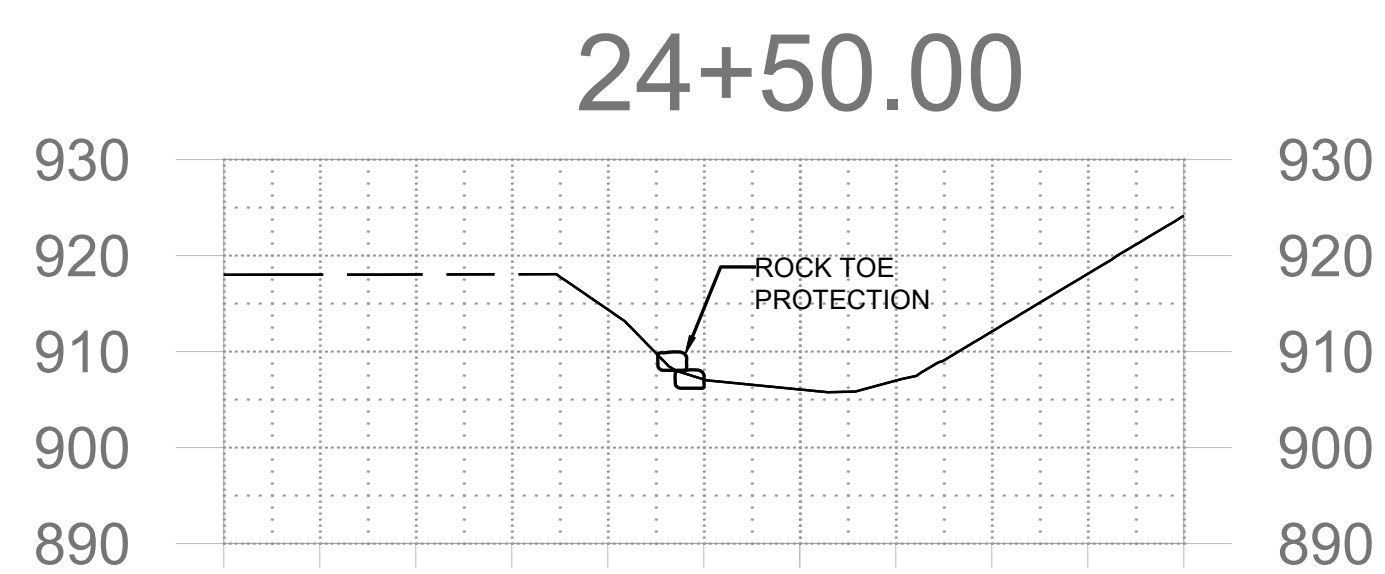
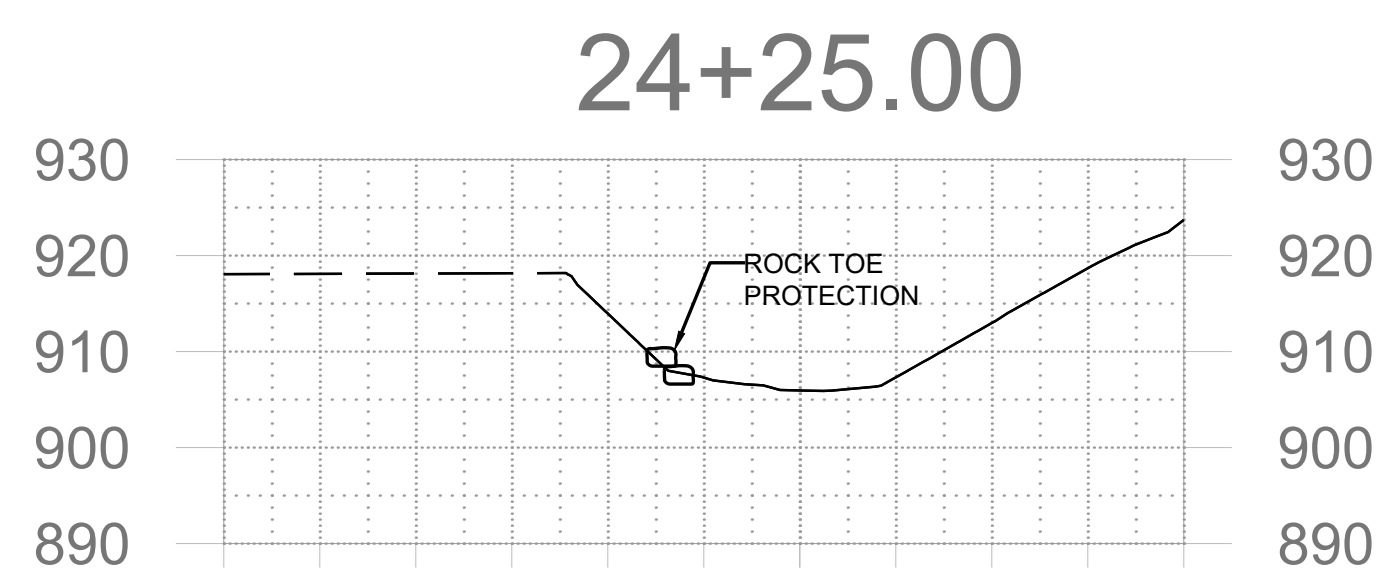
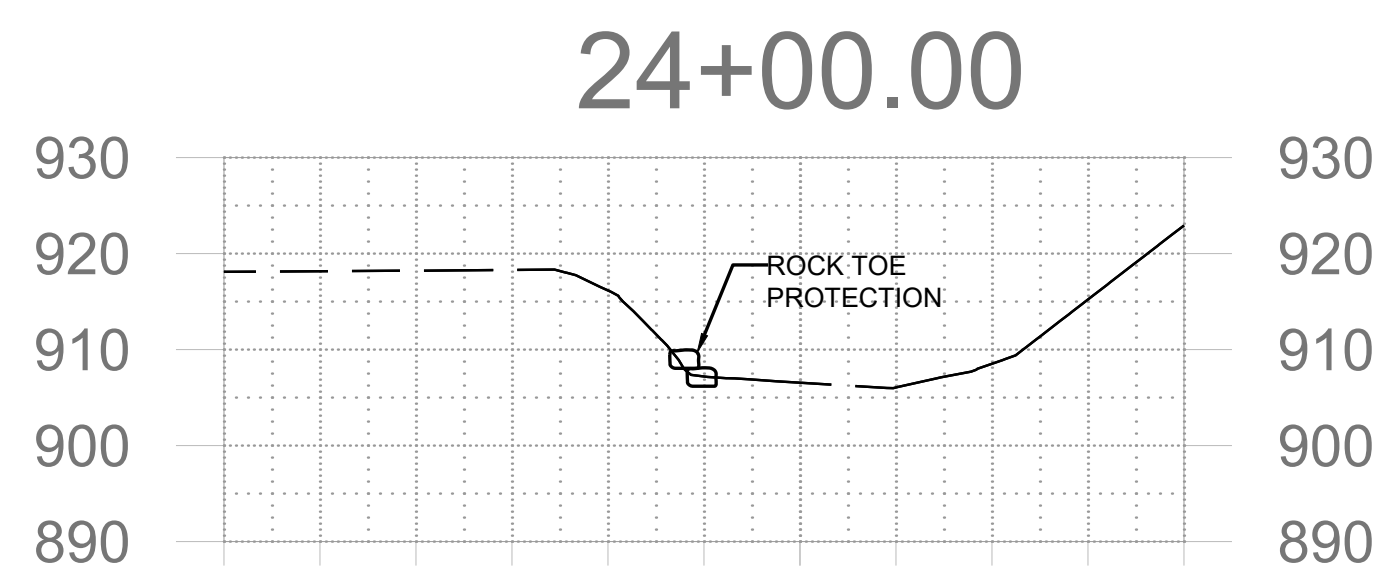
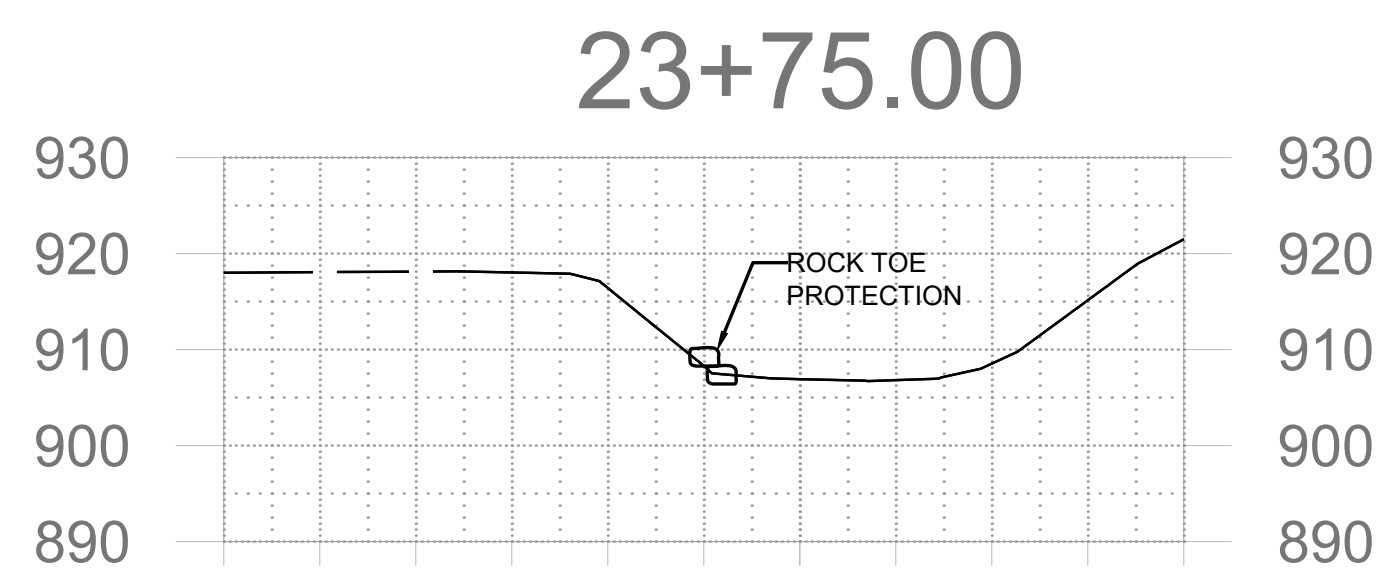
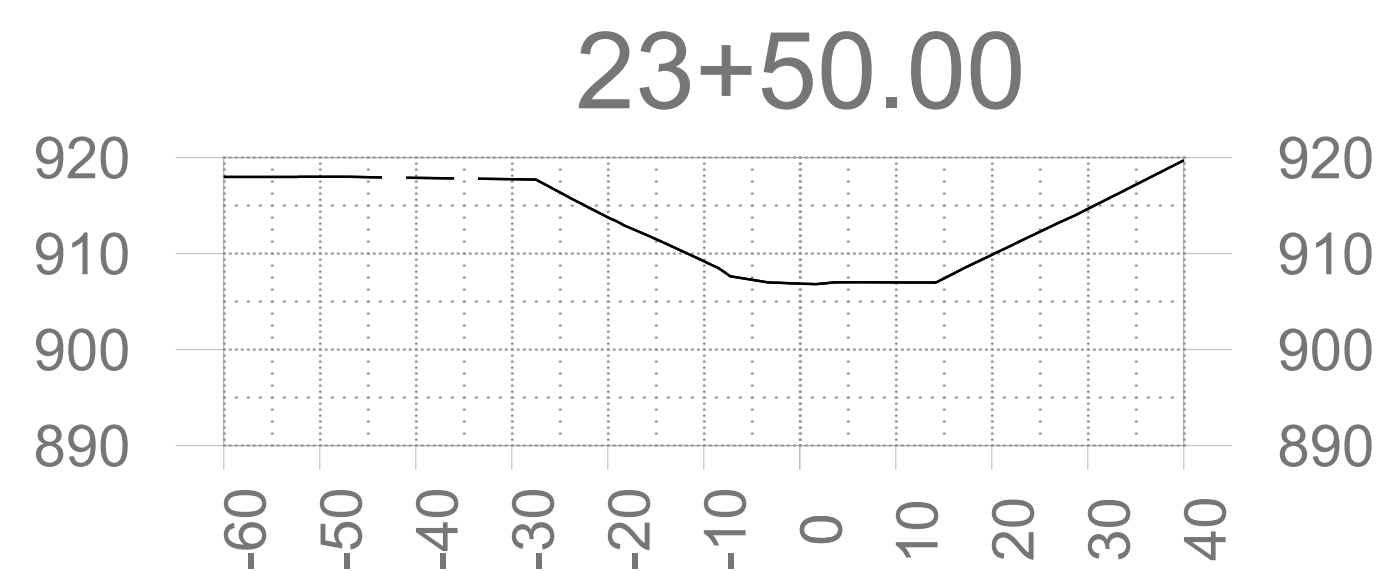
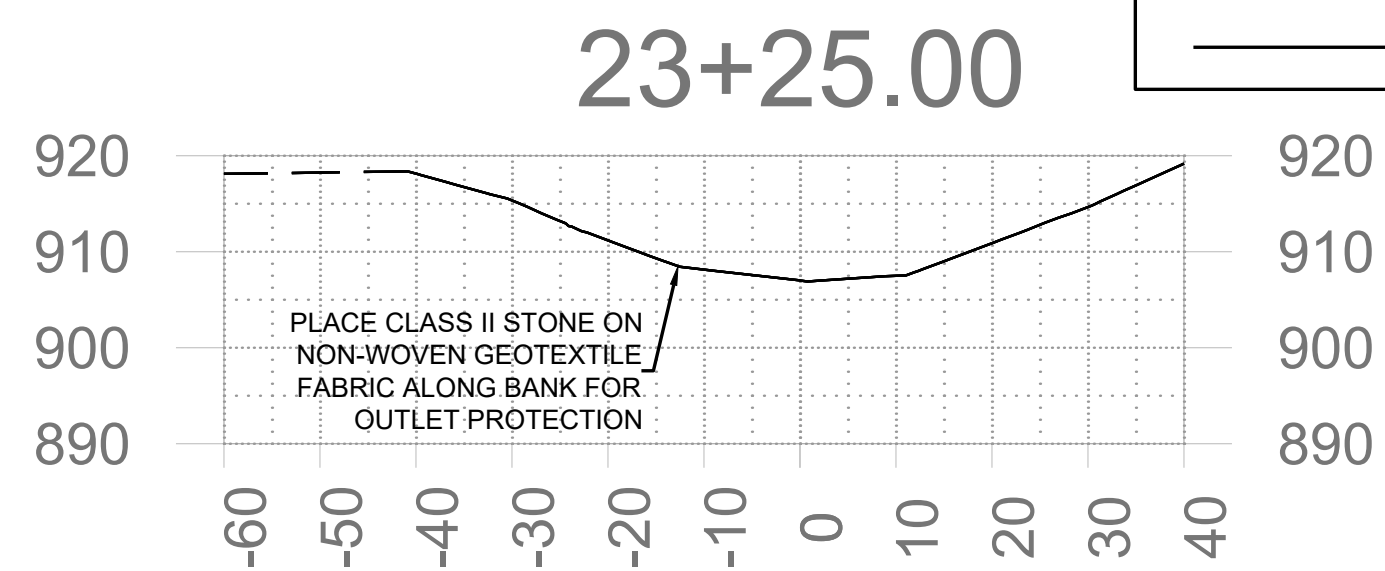
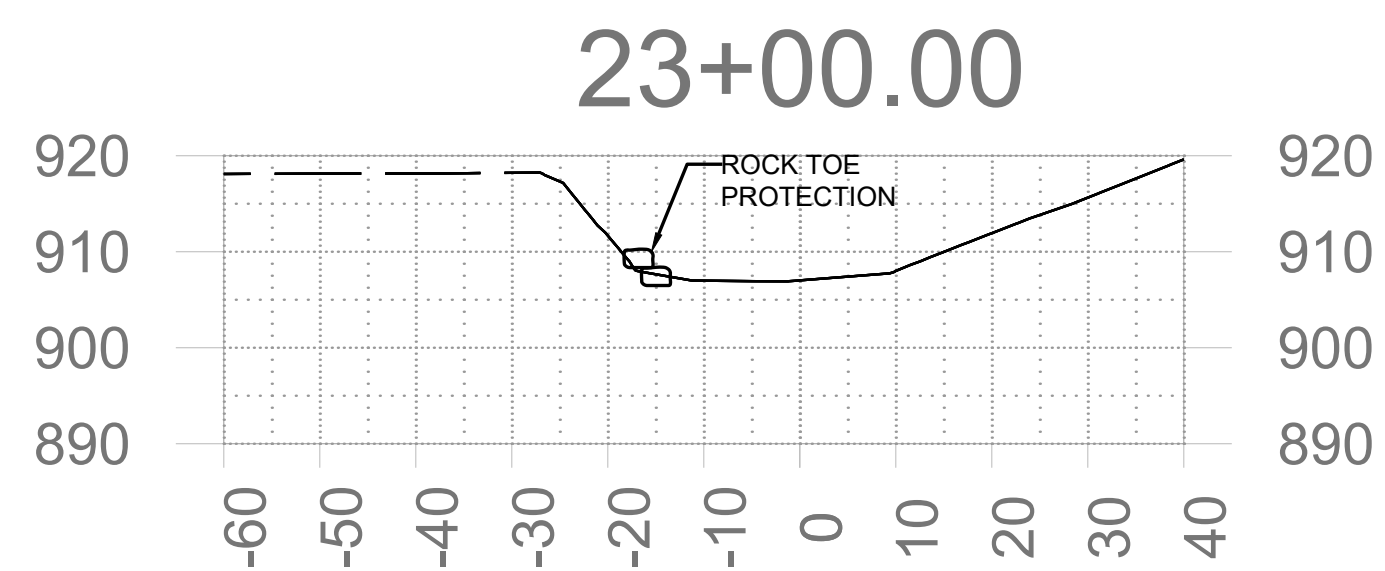
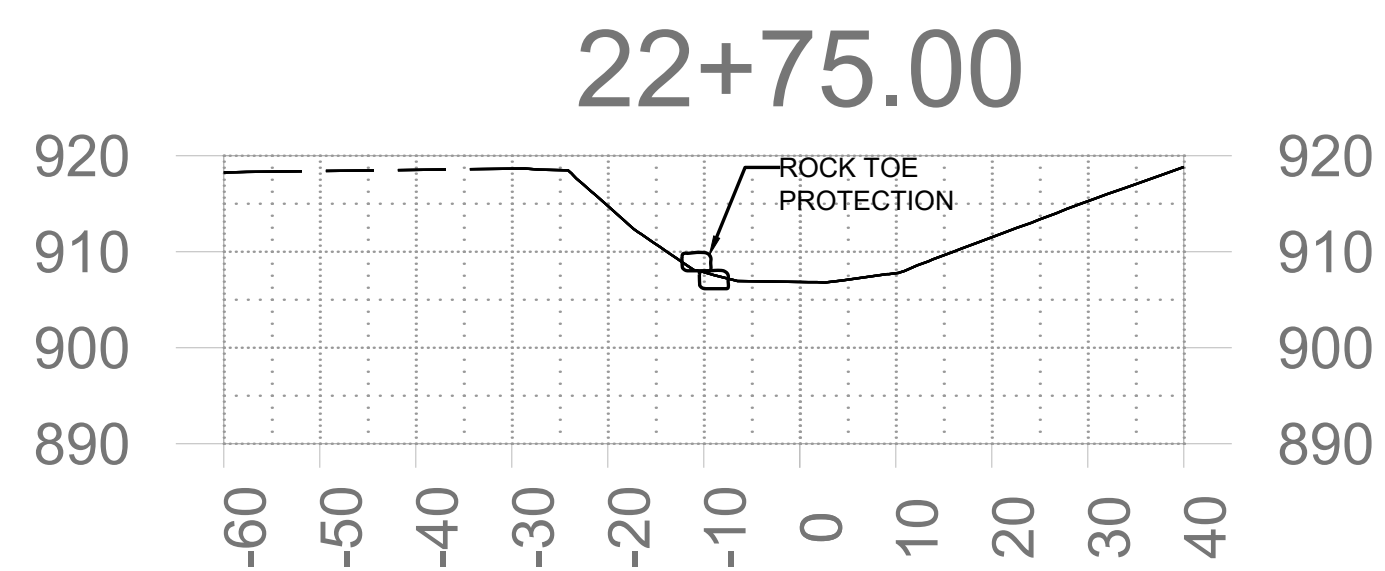
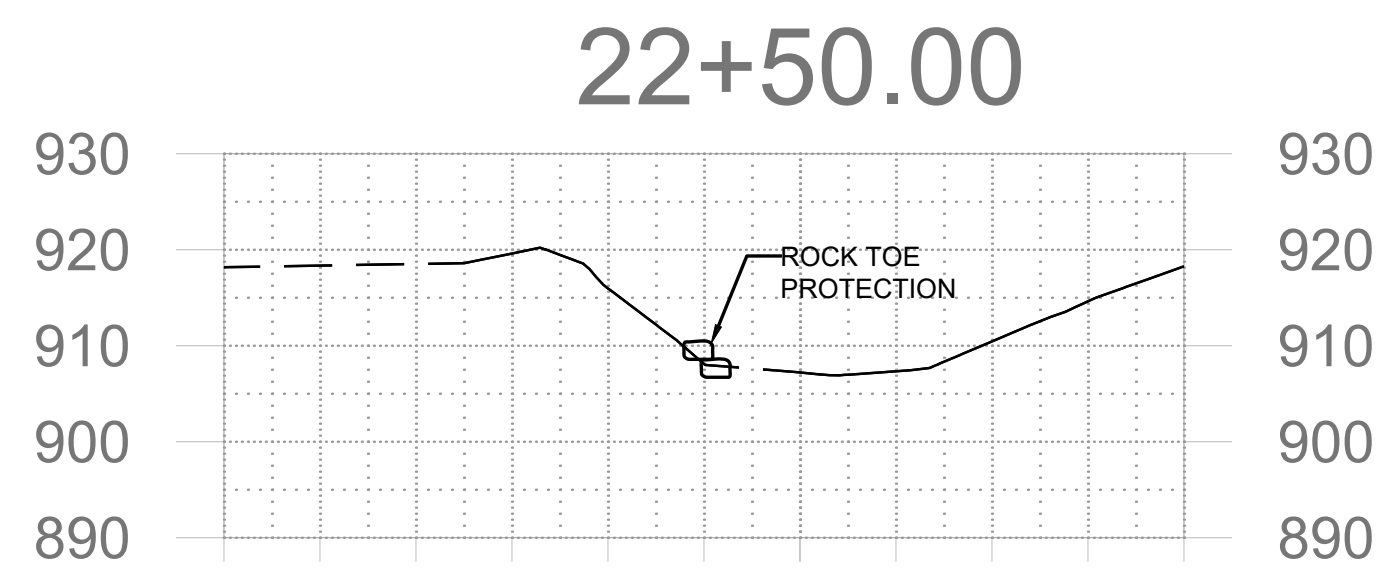
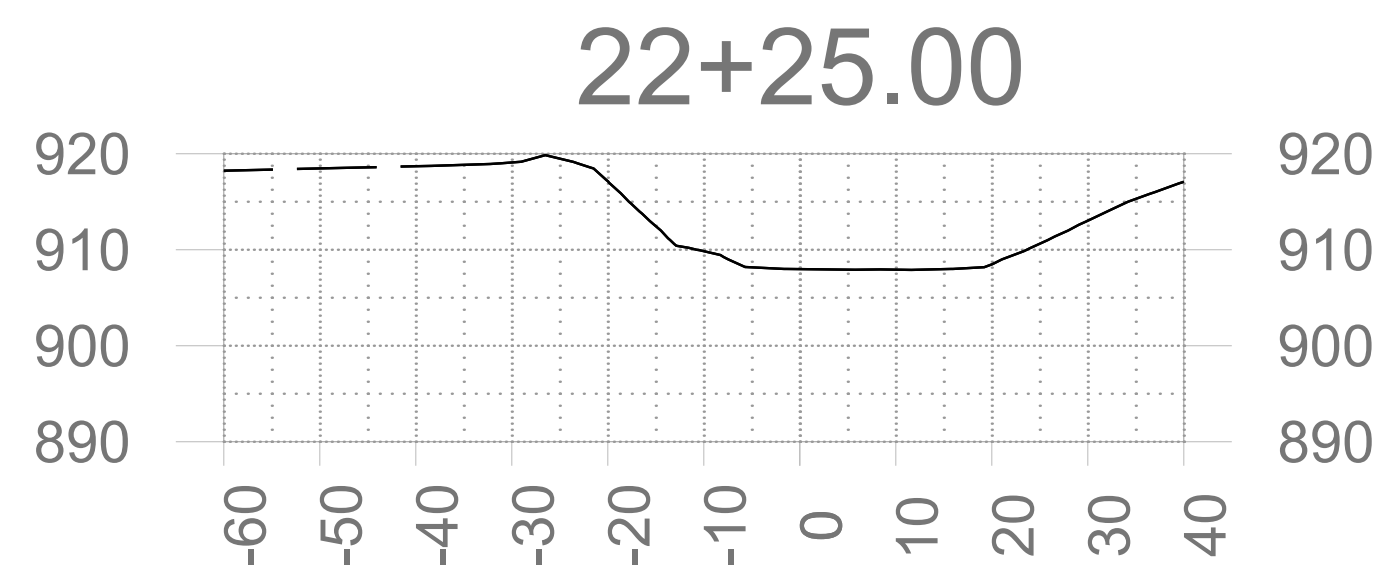
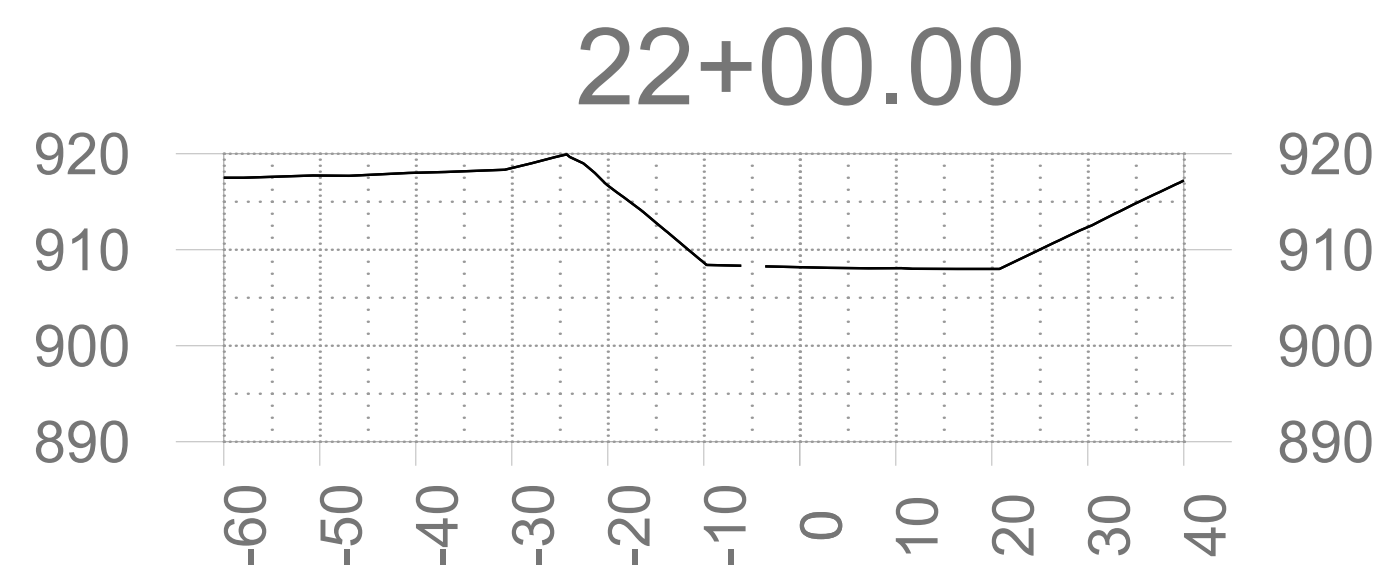
CS-4

ISSUED FOR
CONSTRUCTION

FINAL PLAN SET

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Filename: N:\SW\Drawings\CS-1 DETAILED CROSS SECTIONS.dwg
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LEGEND

----- EXISTING GROUND
PROFILE ALONG
ALIGNMENT

———— PROPOSED PROFILES

NOTE:

1. ALL GRADED SLOPES SHALL BE LINED WITH COIR MATTING PER THE DETAIL

2. ALL STACKED ROCK WALL WILL BE BLENDED TO EXISTING GROUND AT TOP OF ROCK TO LIMIT EROSION AT TOP OF WALL

3. PLACE SINGLE COIR WRAPPED LIFT ABOVE STACKED ROCK WALL AS REQUIRED

ISSUED FOR
CONSTRUCTION

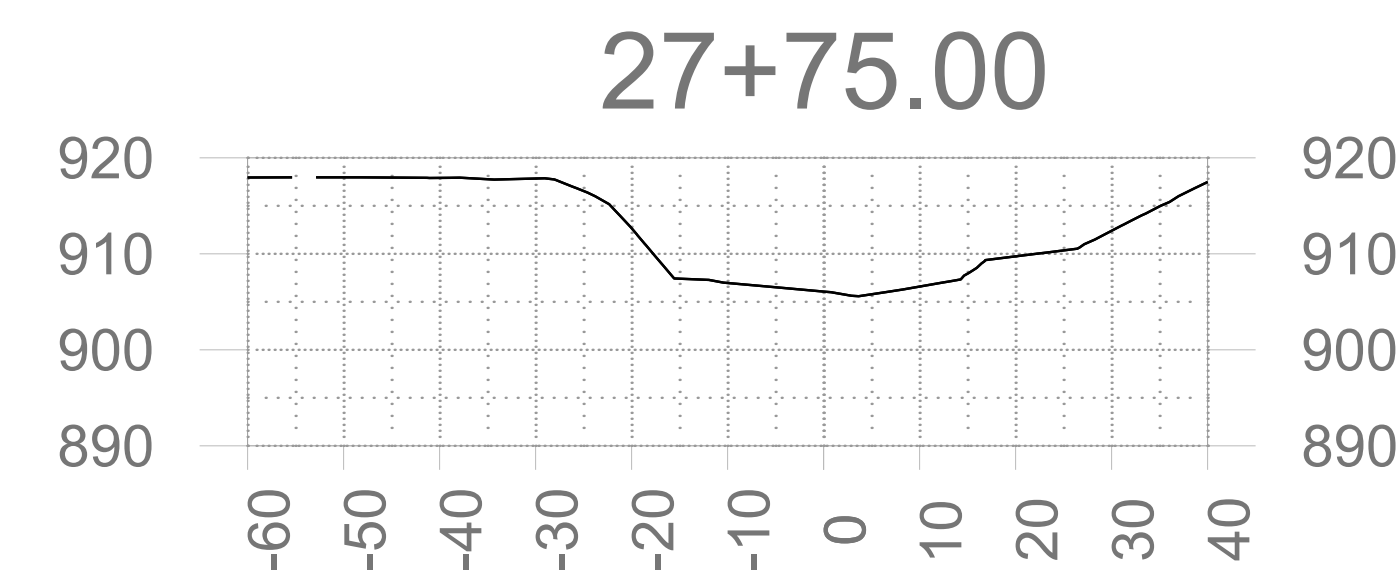
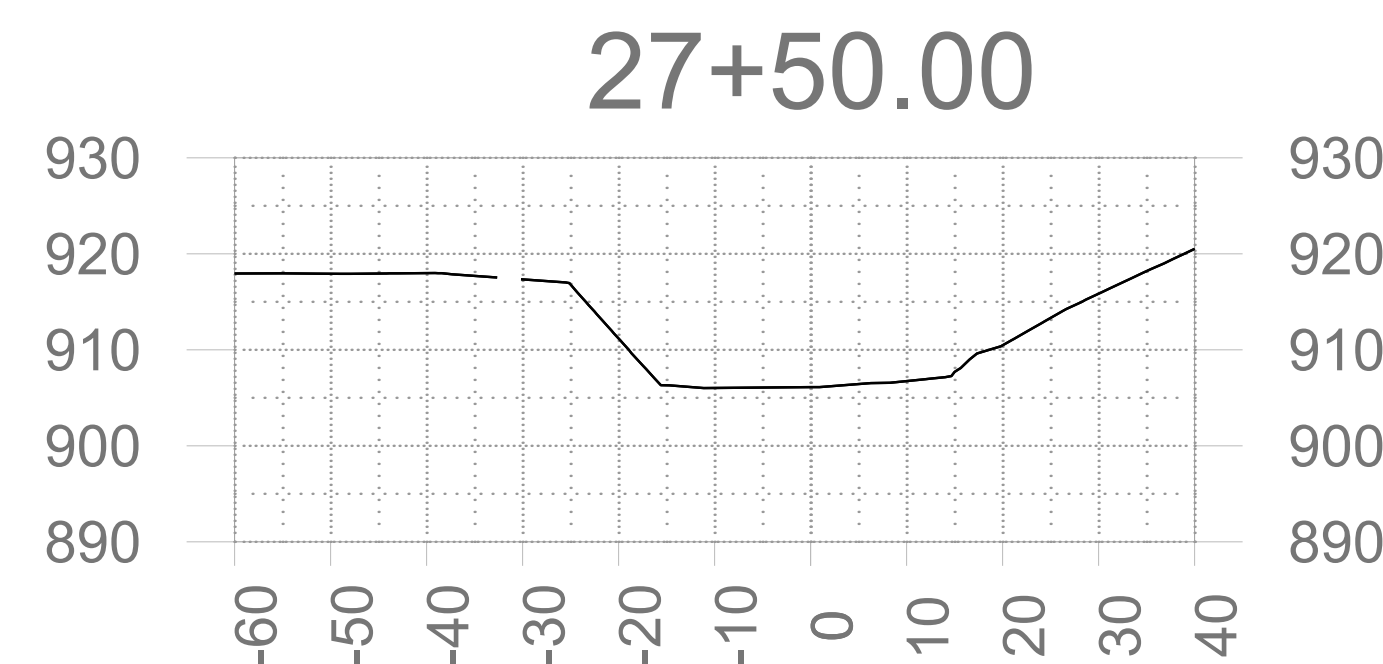
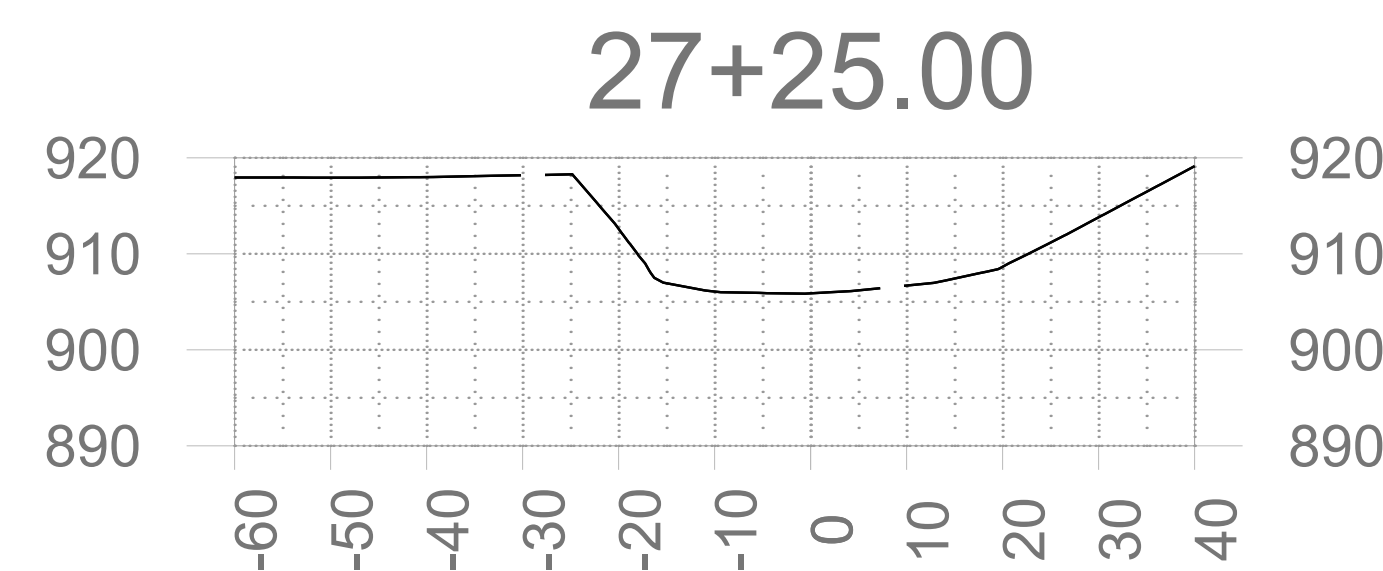
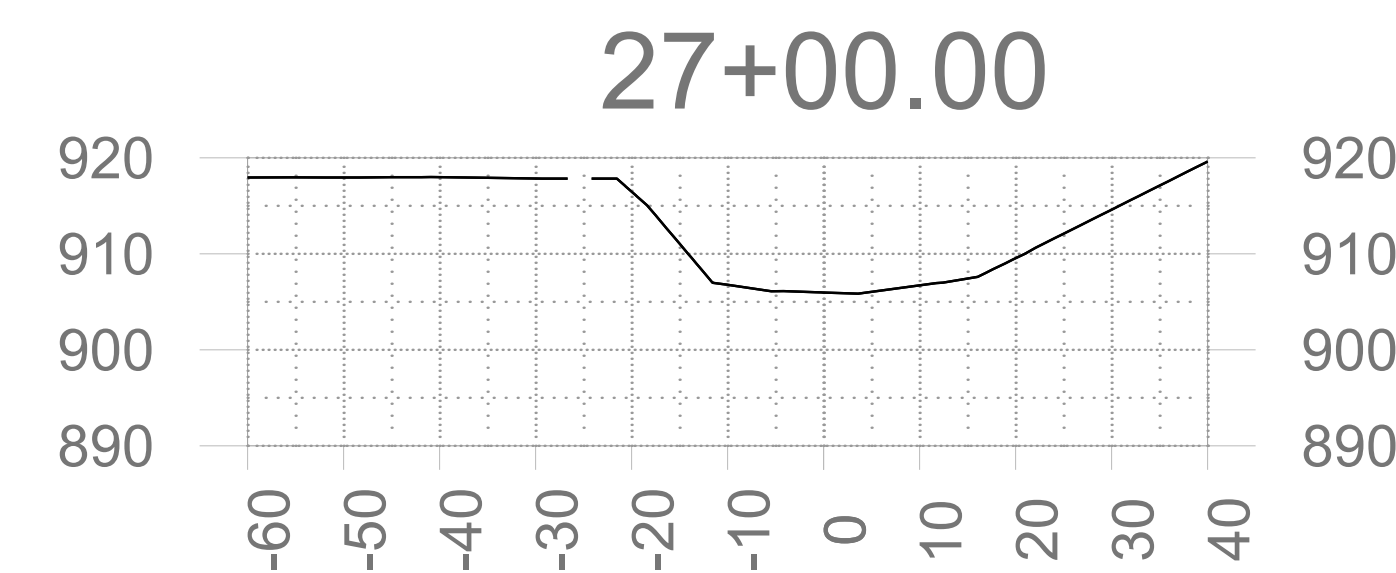
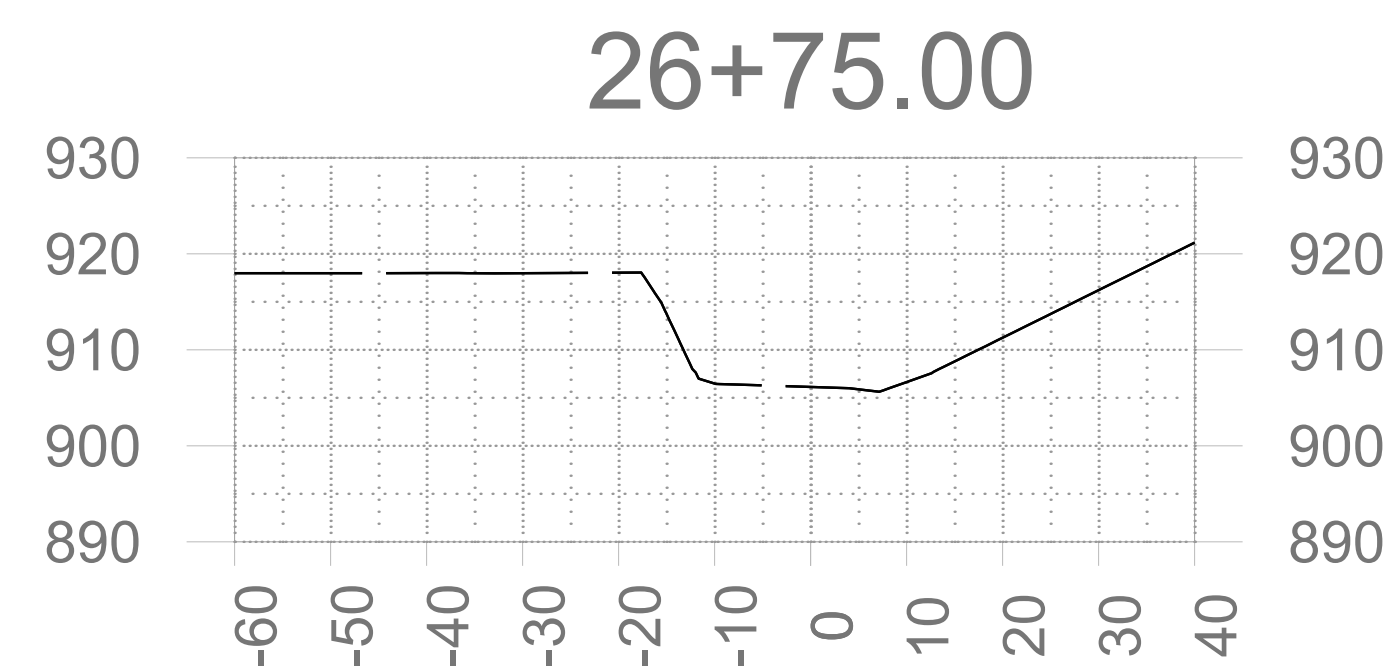
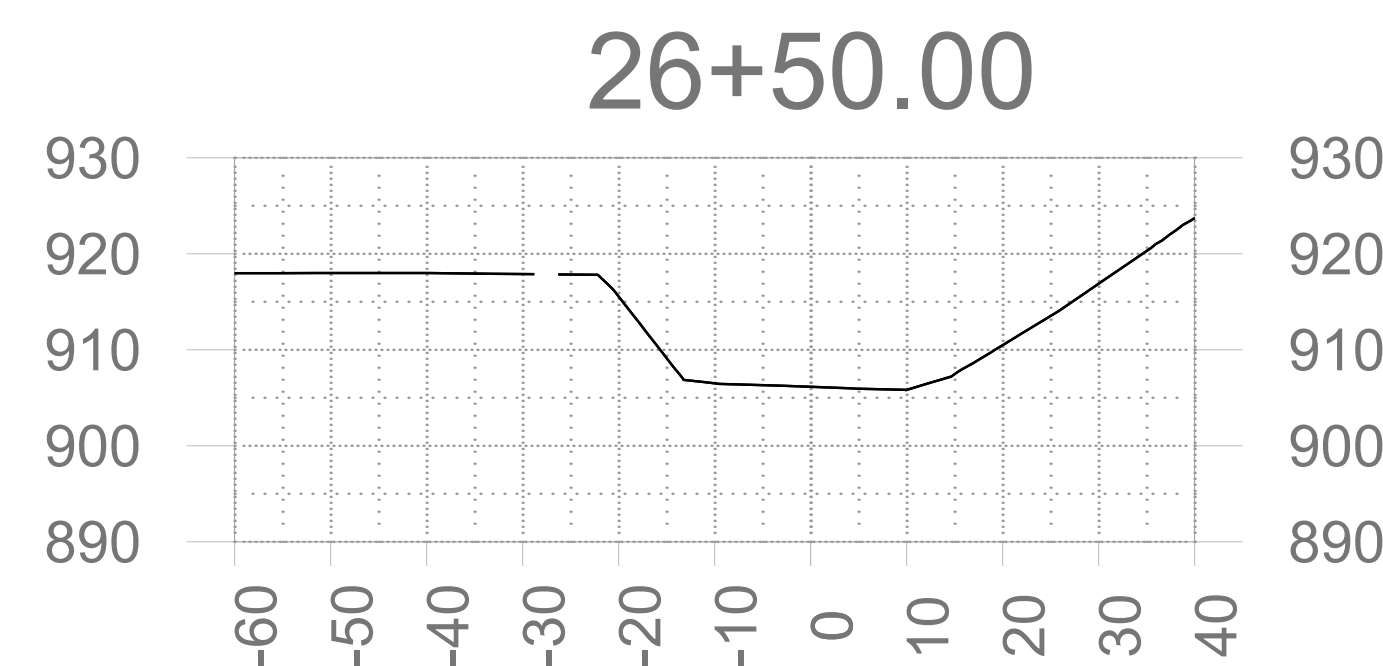
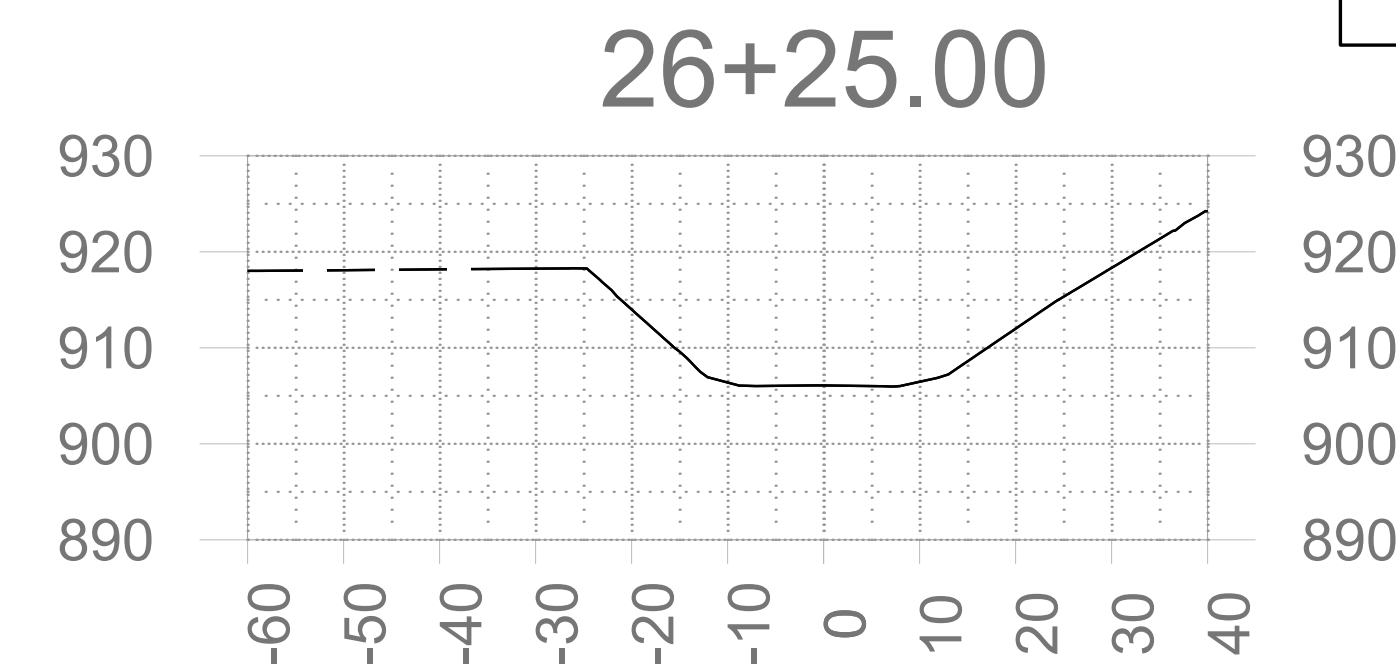
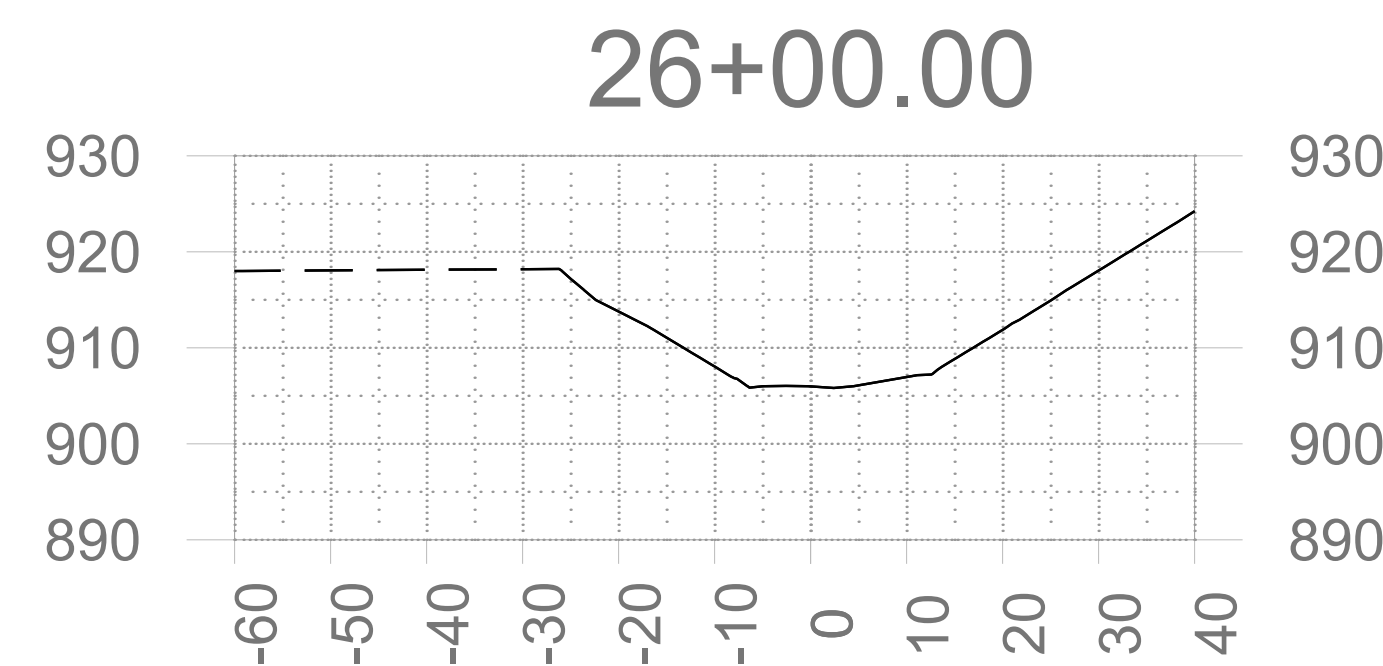
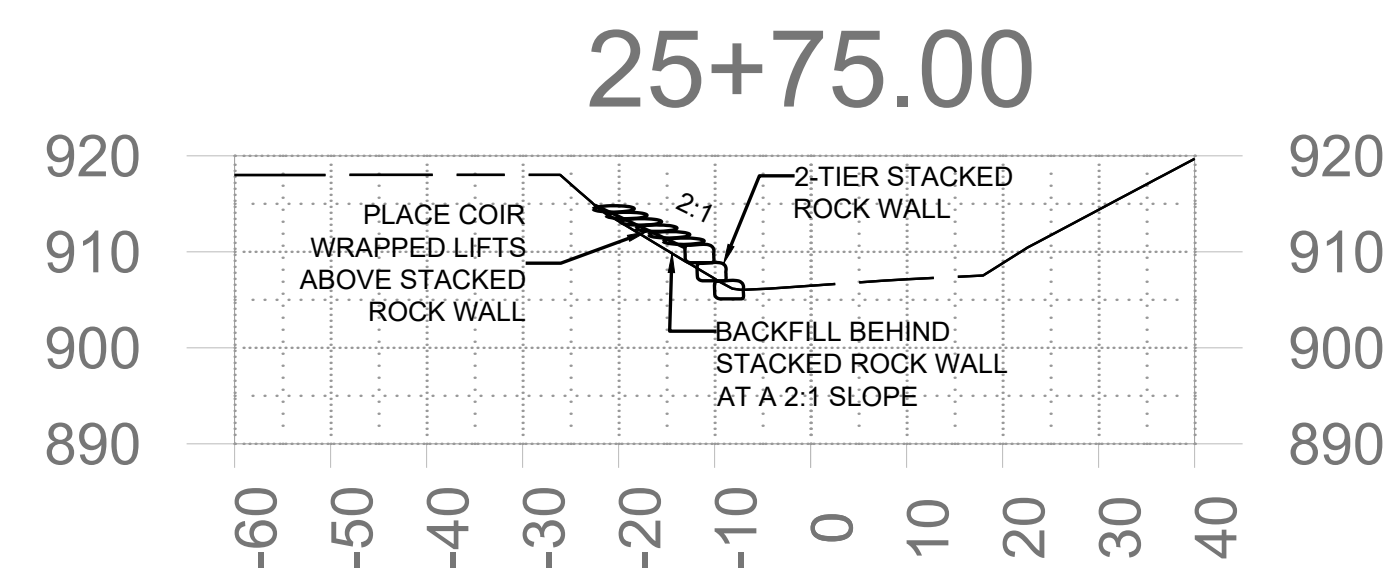
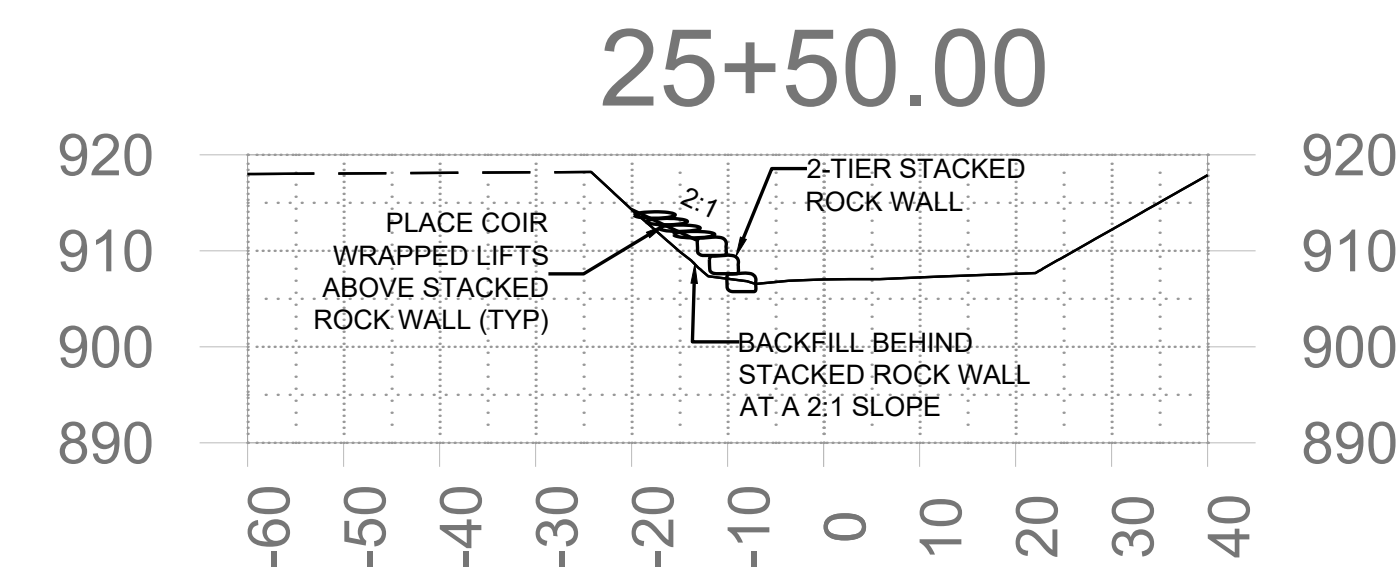
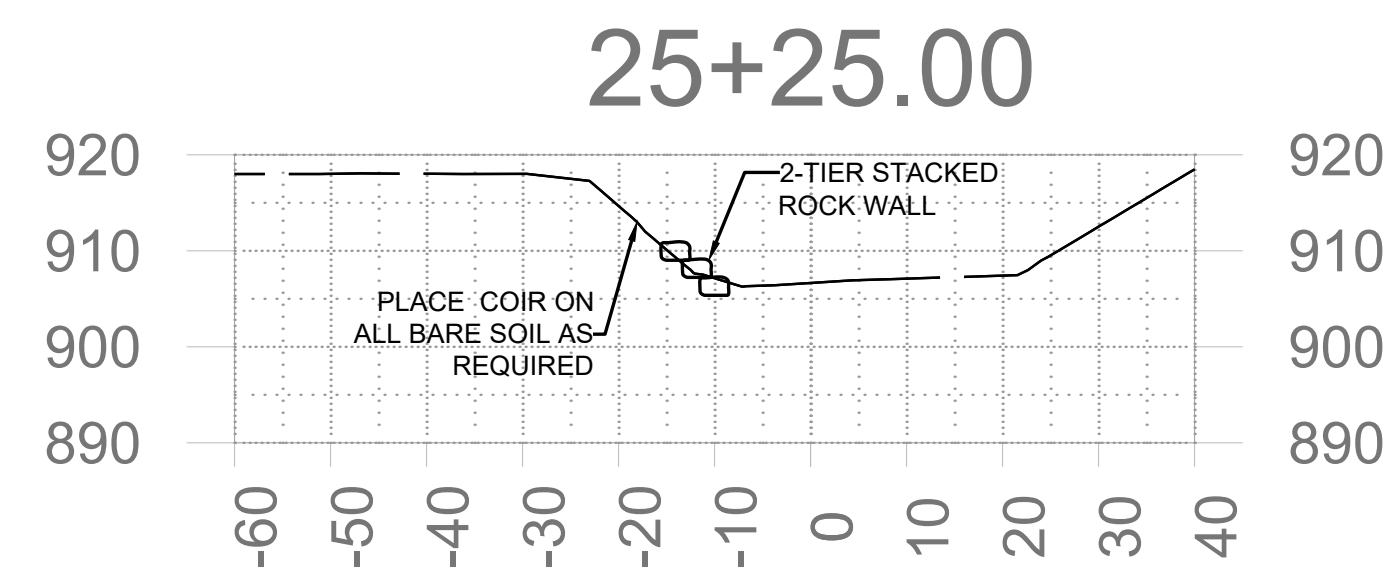
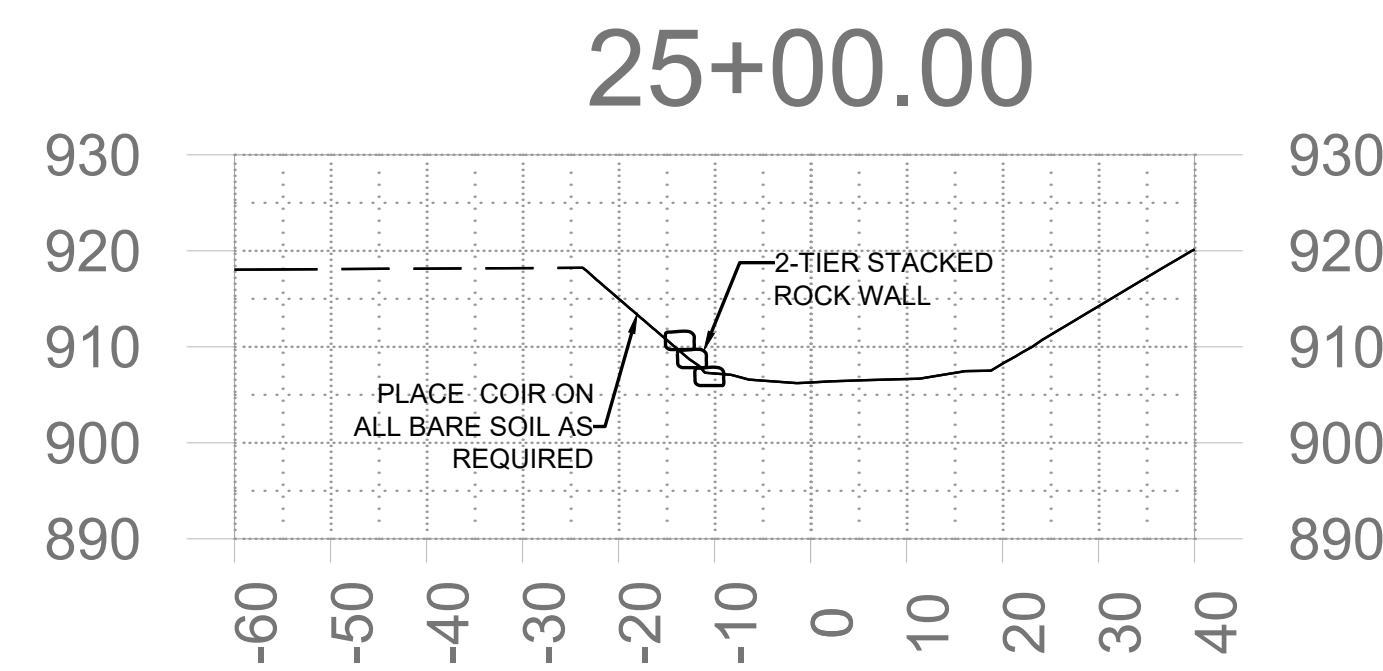
FINAL PLAN SET



RESTORATION OF GLADE CREEK AT VINYARD PARK
ROANOKE COUNTY, VIRGINIA
PHASE II
CIVIL
DETAILED CROSS SECTIONS
STA 22+00 TO STA 24+75
CTIONS.dwg

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9	ISSUE			CS-1 DETAILED CROSS S
10	ISSUE			CS-1 DETAILED CROSS S

CS-5
SEQ.



LEGEND

----- EXISTING GROUND
PROFILE ALONG
ALIGNMENT

———— PROPOSED PROFILES

NOTE:
1. ALL GRADED SLOPES
SHALL BE LINED WITH COIR
MATTING PER THE DETAIL

2. ALL STACKED ROCK WALL WILL BE BLENDED TO EXISTING GROUND AT TOP OF ROCK TO LIMIT EROSION AT TOP OF WALL

3. PLACE SINGLE COIR
WRAPPED LIFT ABOVE
STACKED ROCK WALL AS
REQUIRED

ISSUED FOR
CONSTRUCTION

FINAL PLAN SET



RESTORATION OF GLADE CREEK AT VINYARD PARK

PHASE II
CIVIL

DETAILED CROSS SECTIONS
STA 25+00 TO STA 27+75

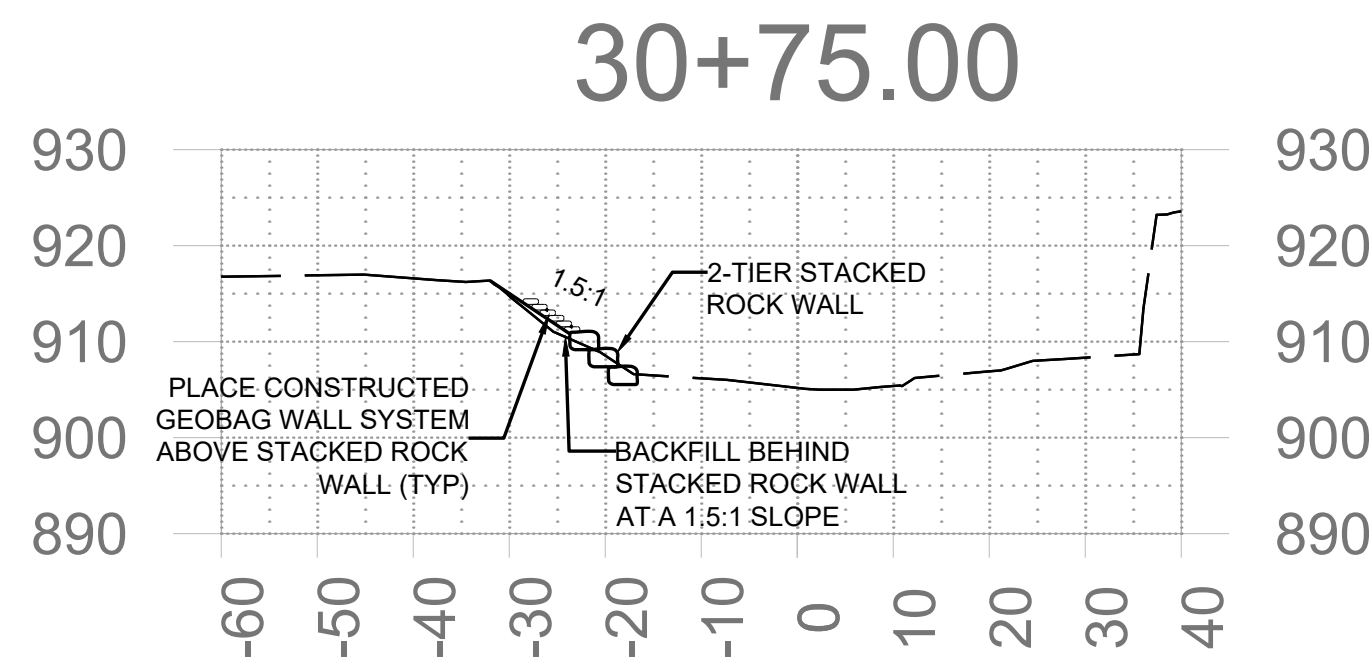
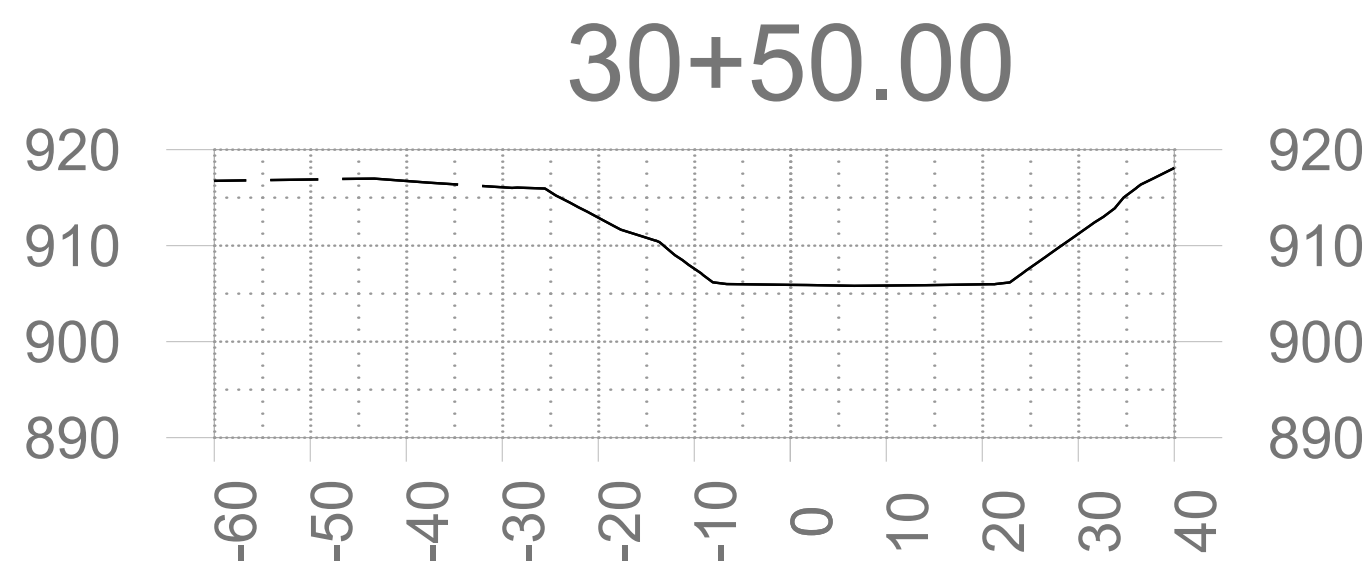
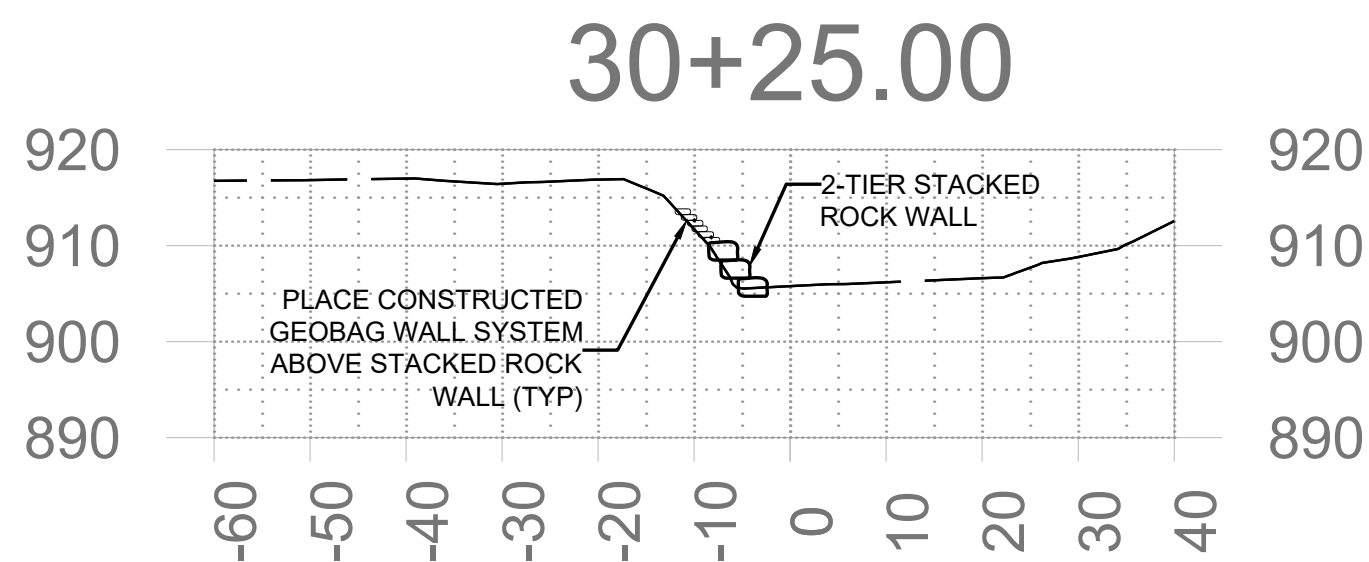
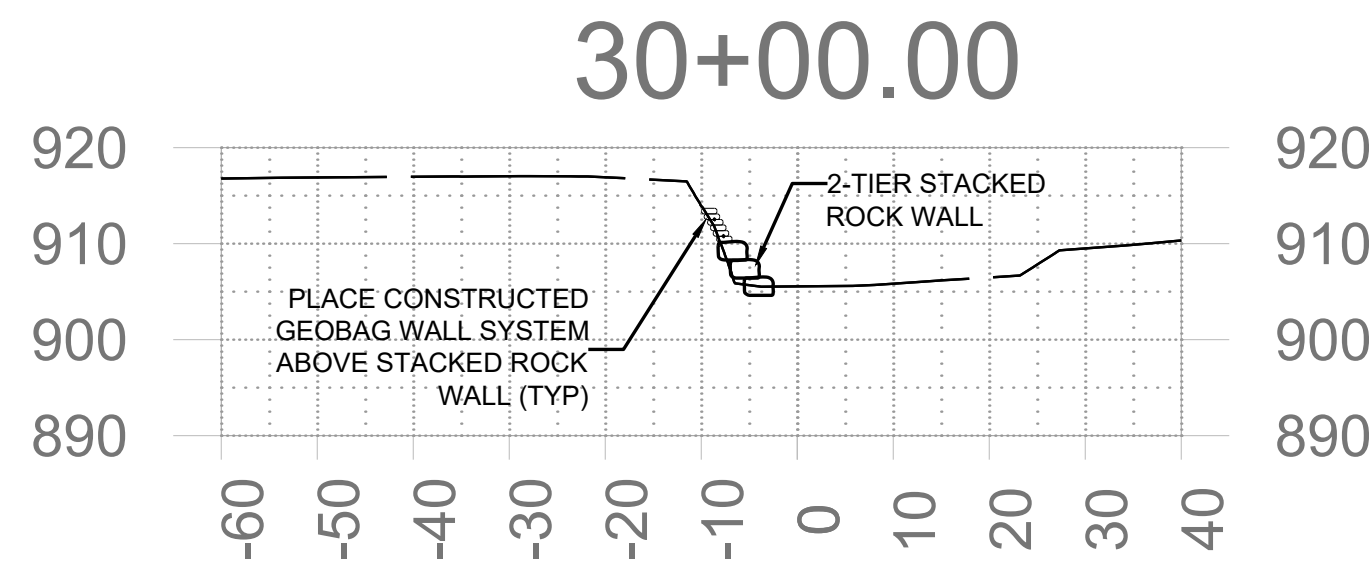
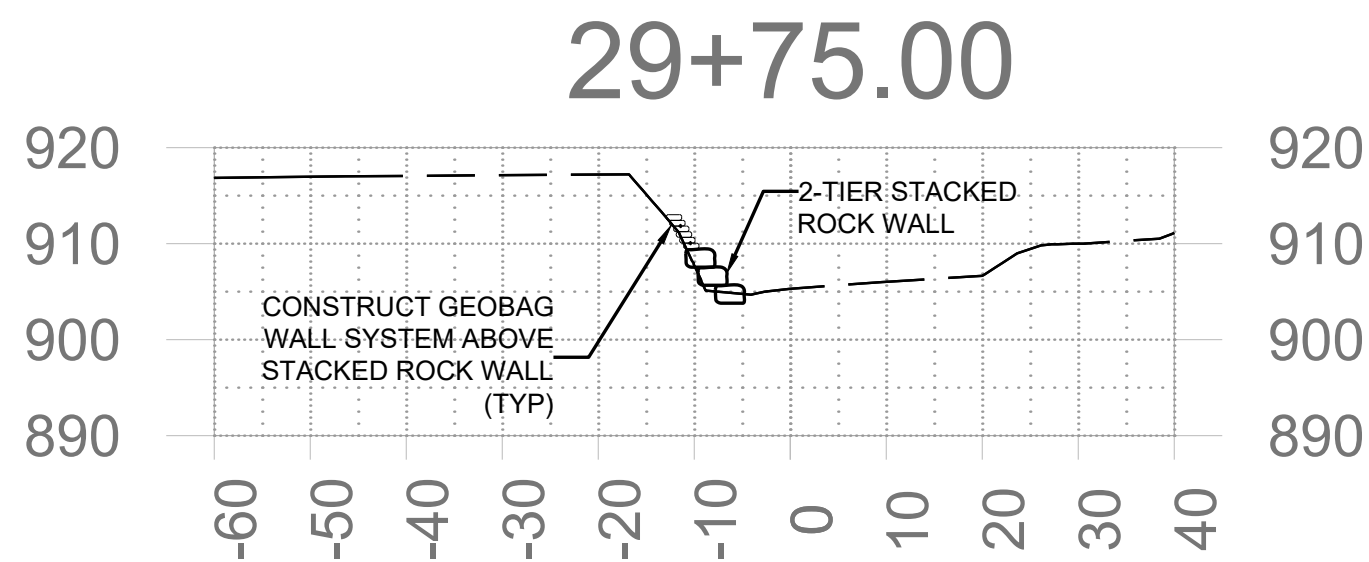
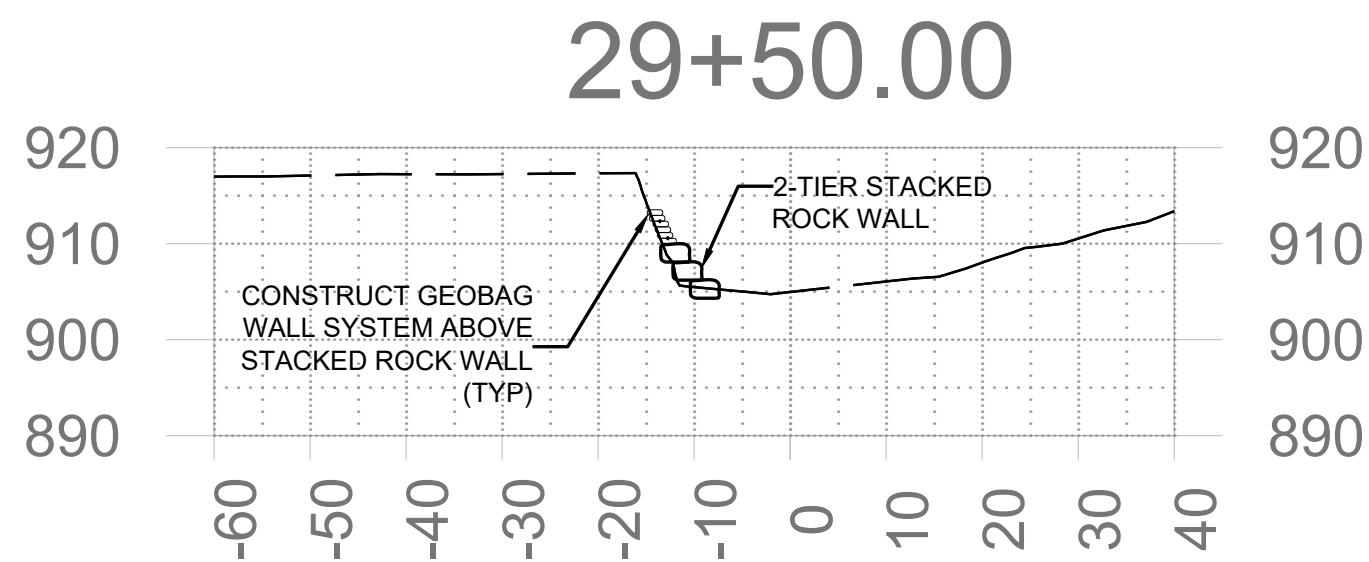
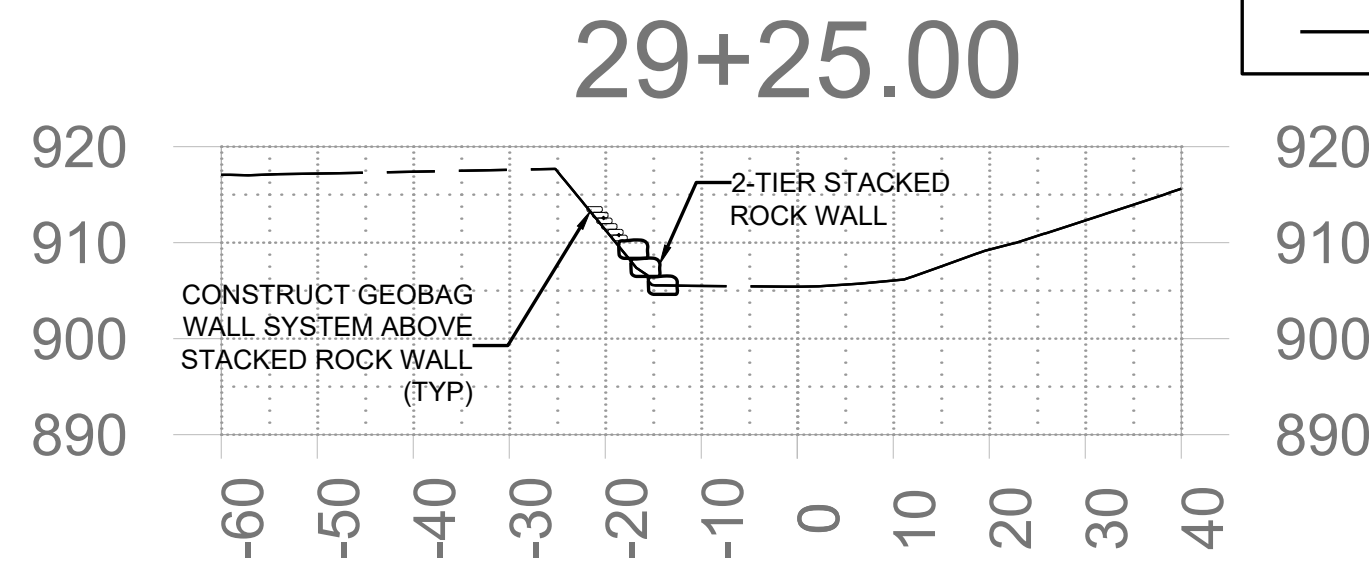
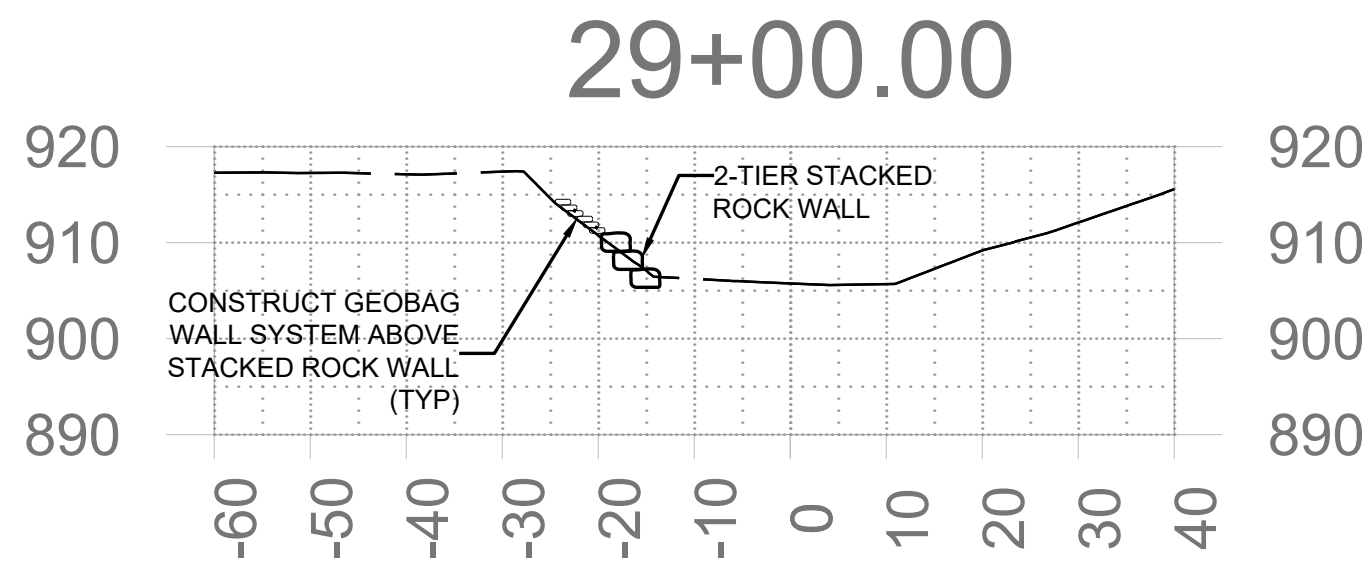
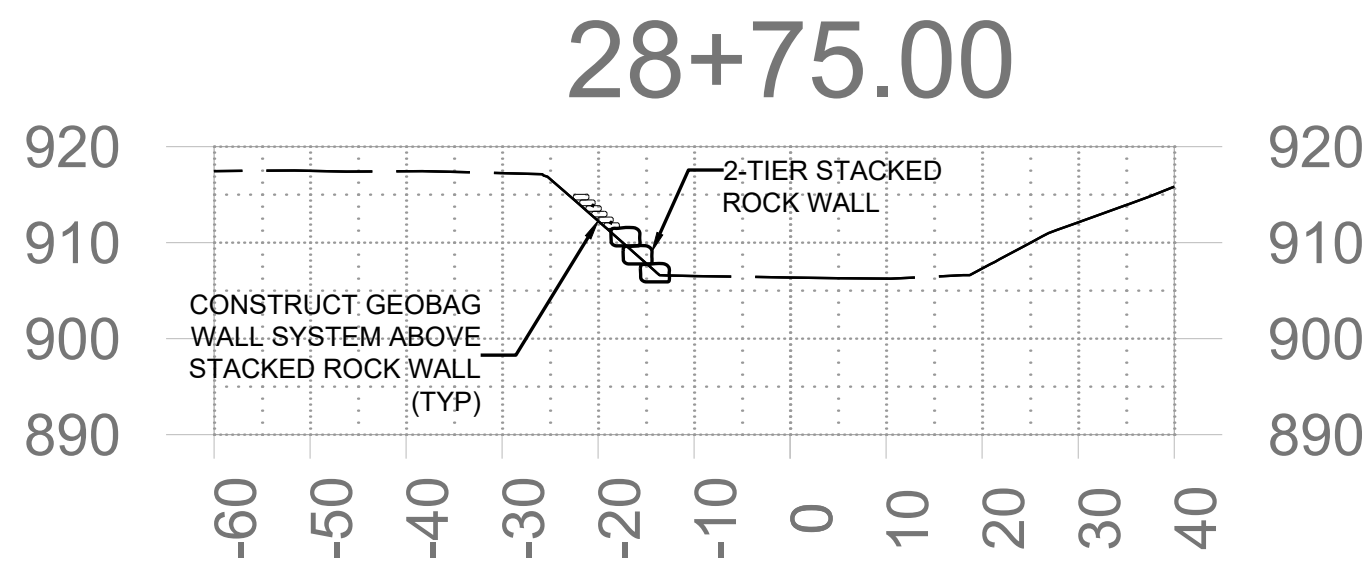
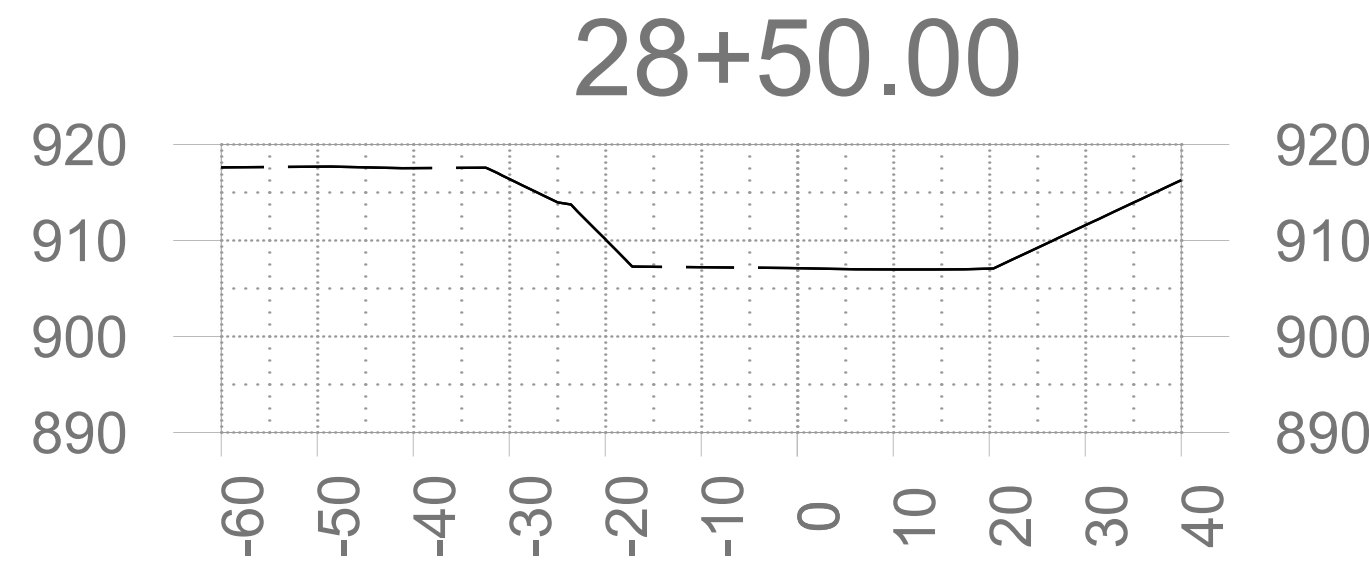
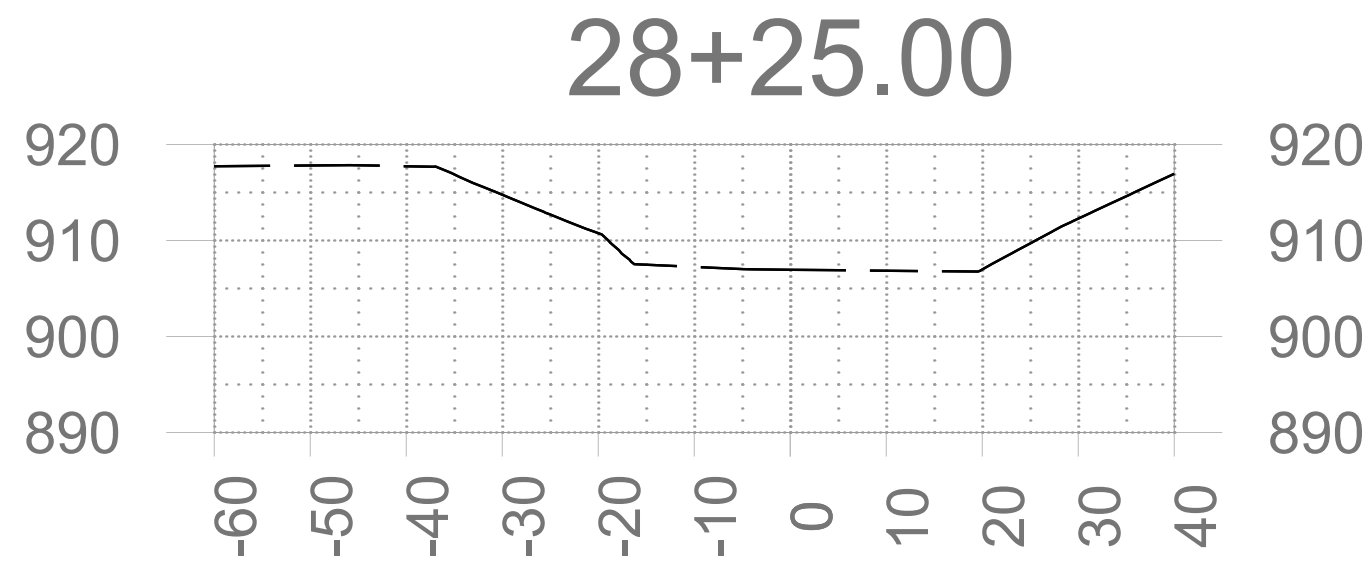
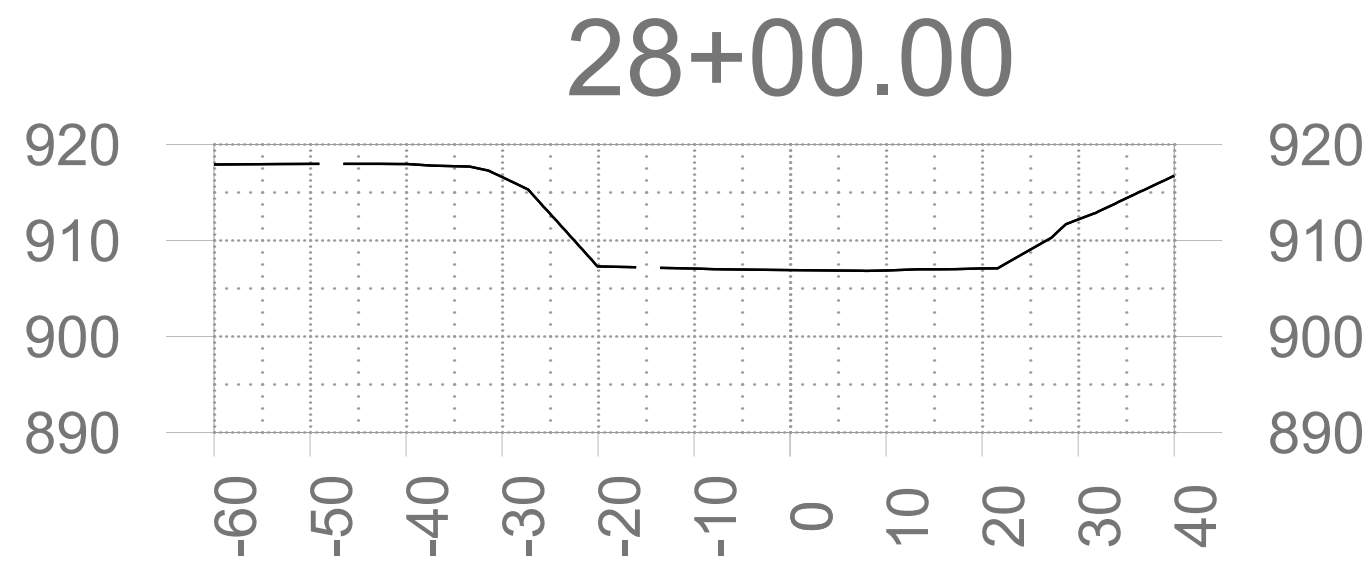
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CS-6

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LEGEND

- EXISTING GROUND PROFILE ALONG ALIGNMENT
- PROPOSED PROFILES

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ISSUED FOR
CONSTRUCTION

FINAL PLAN SET

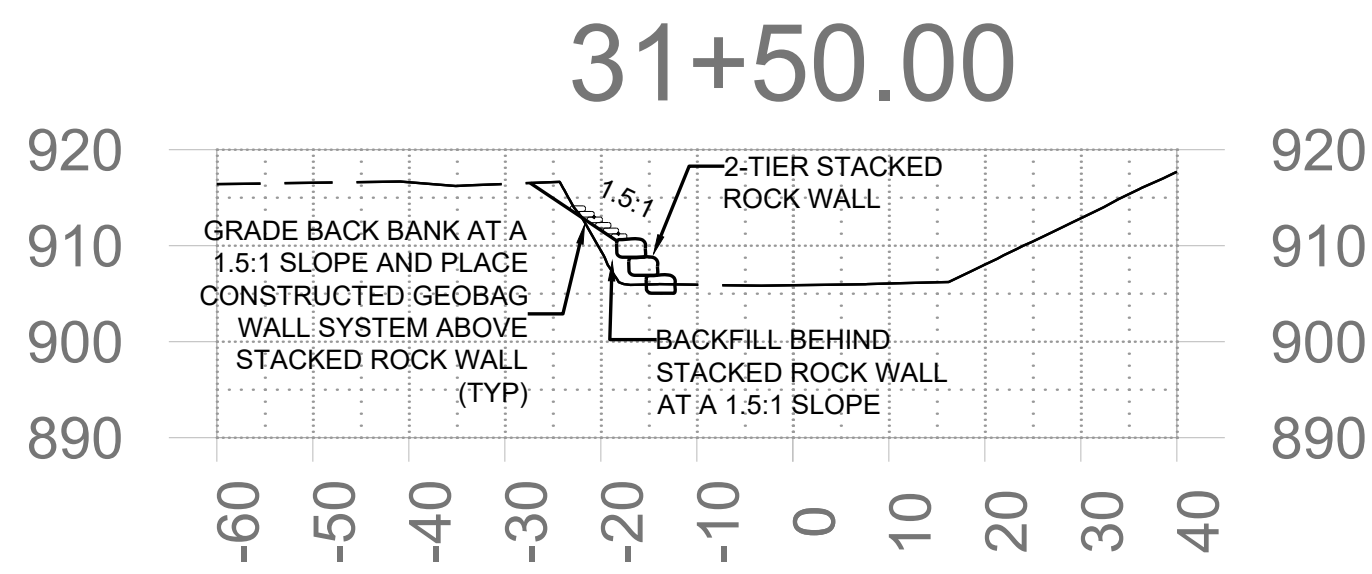
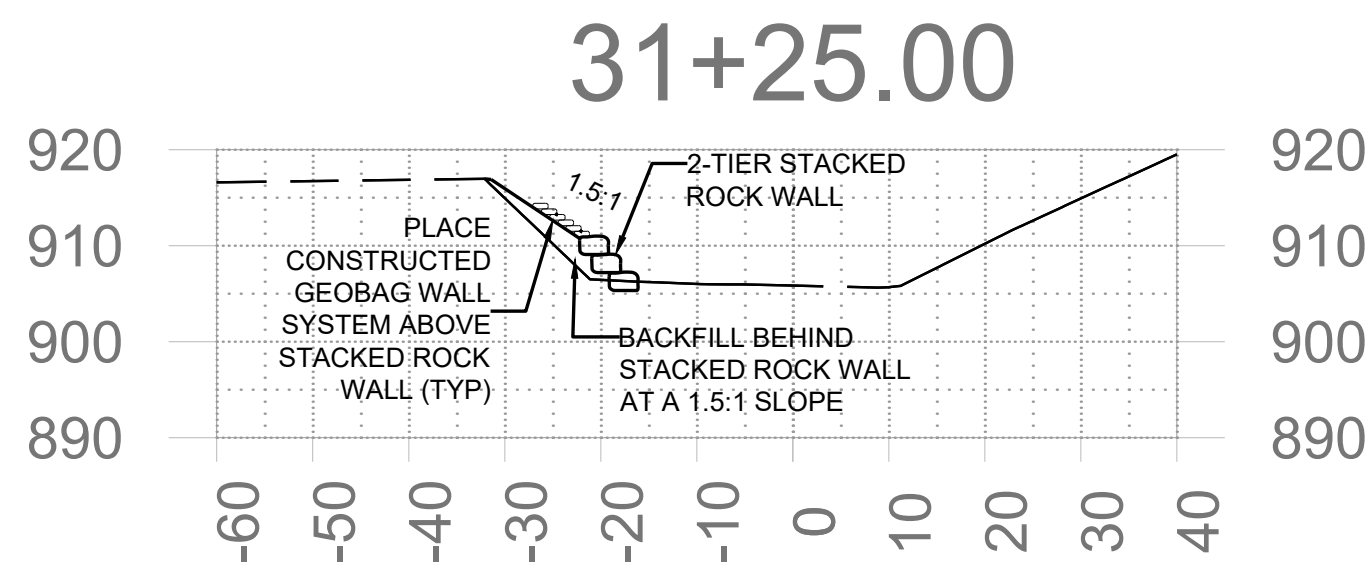
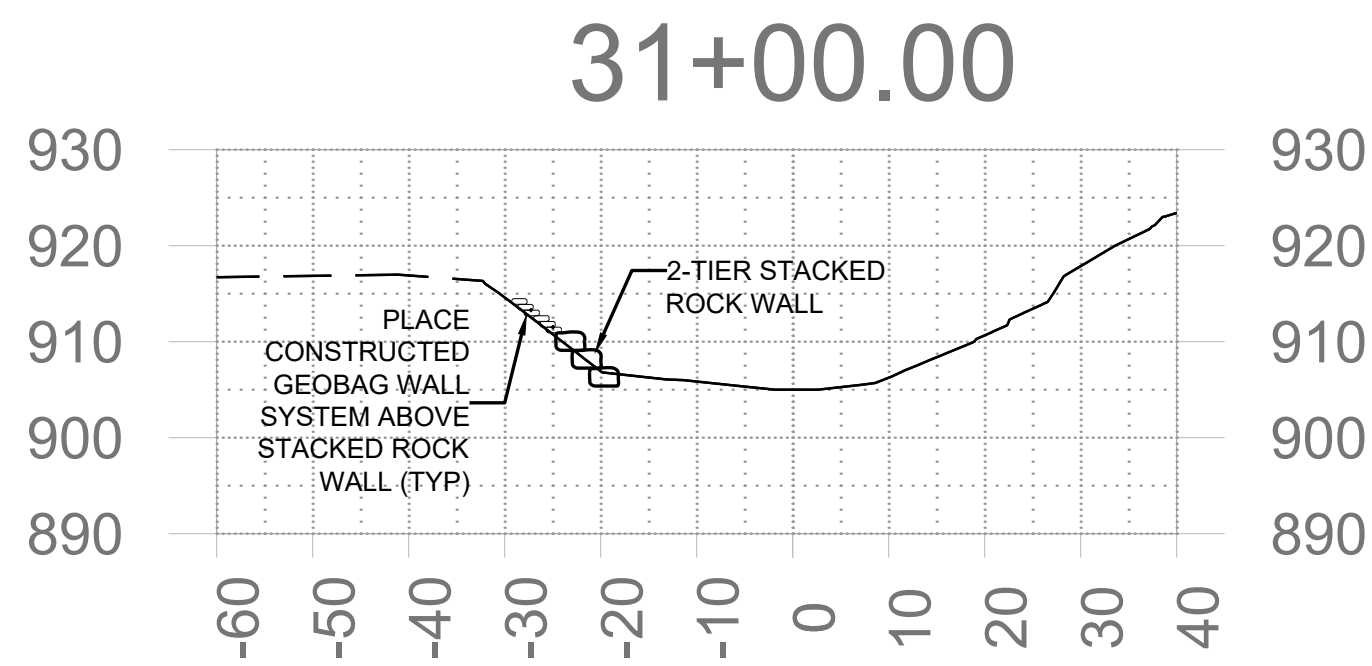


RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL

DETAILED CROSS SECTIONS
STA 28+00 TO STA 30+75

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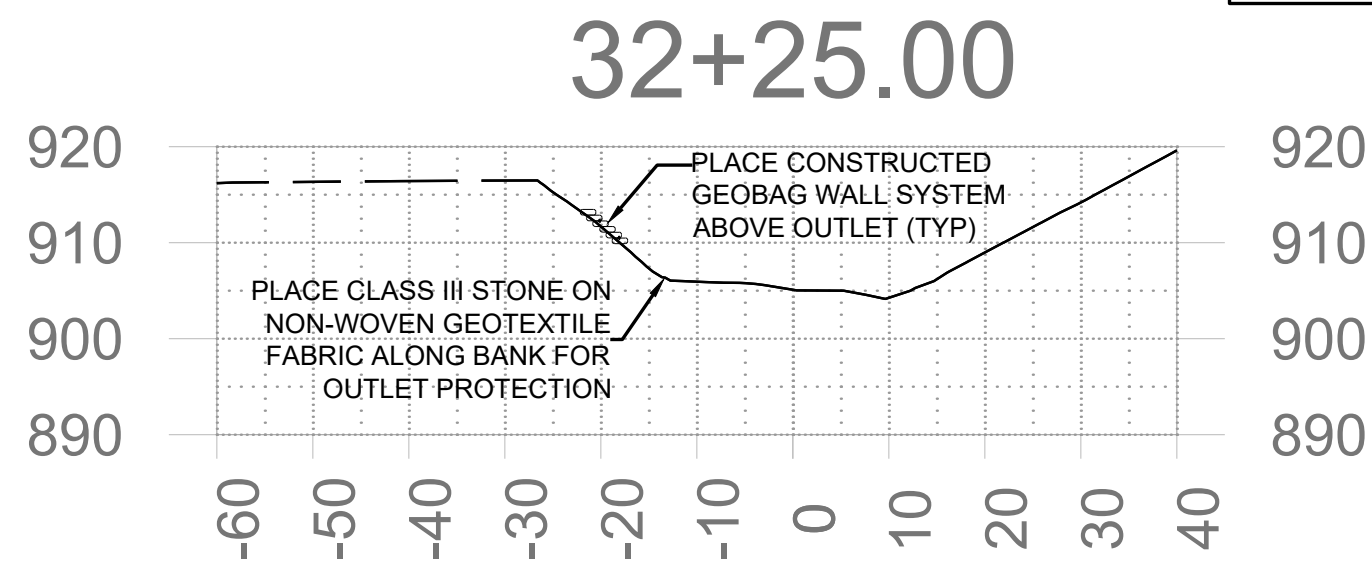
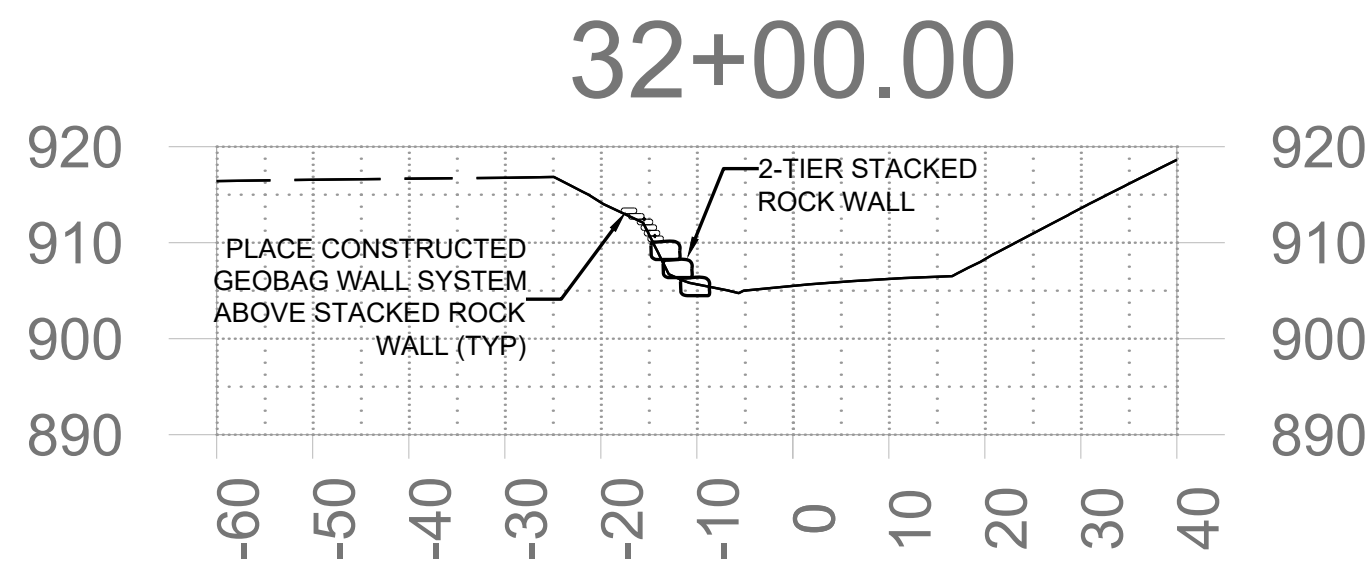
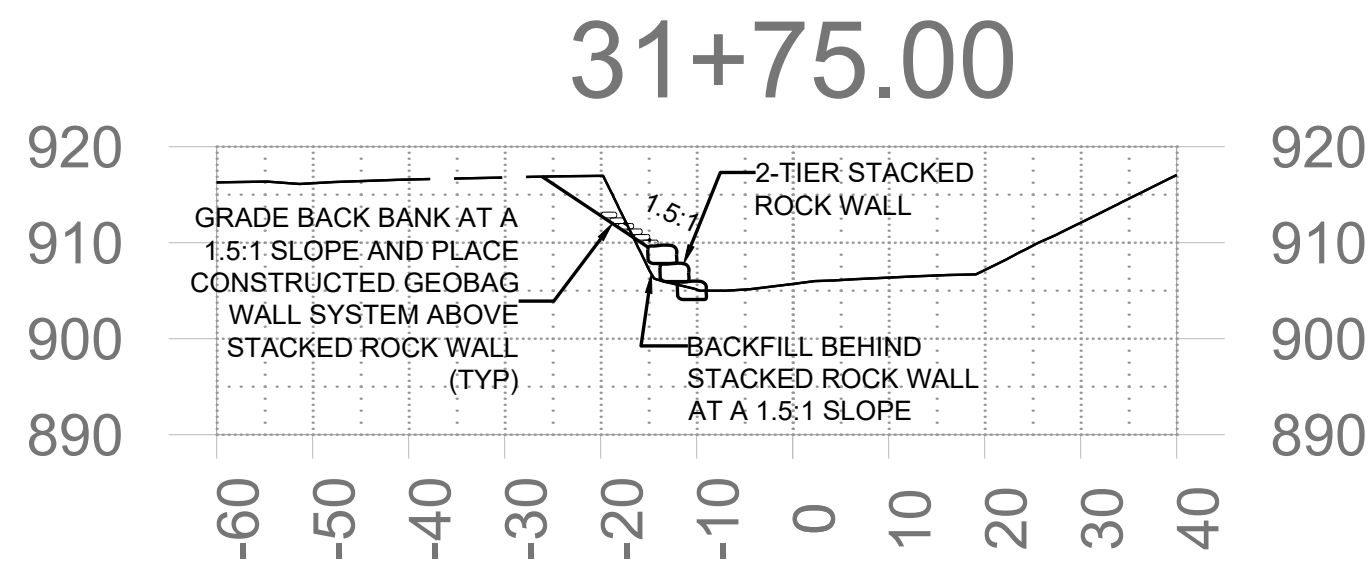
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LEGEND

----- EXISTING GROUND PROFILE ALONG ALIGNMENT

———— PROPOSED PROFILES



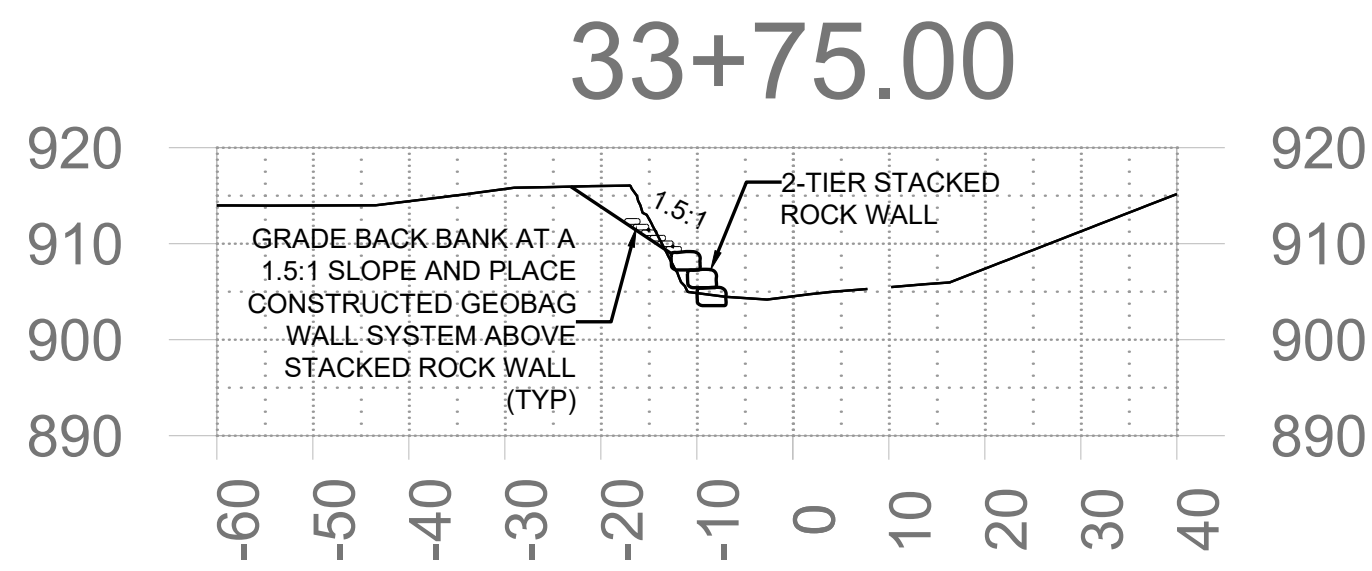
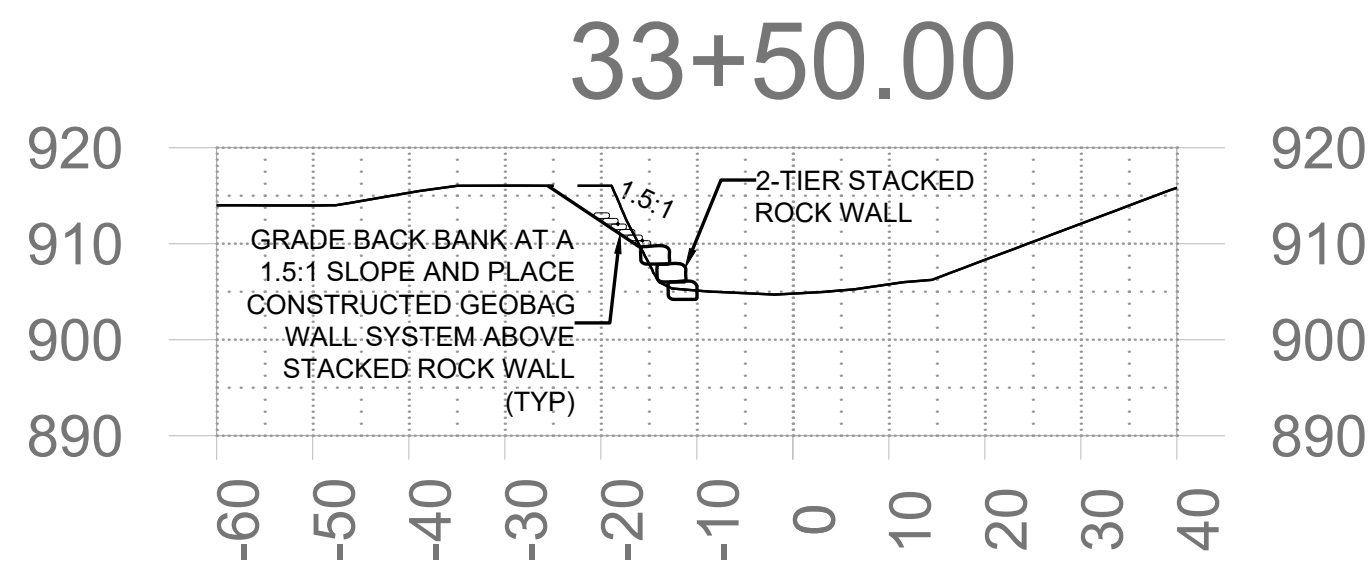
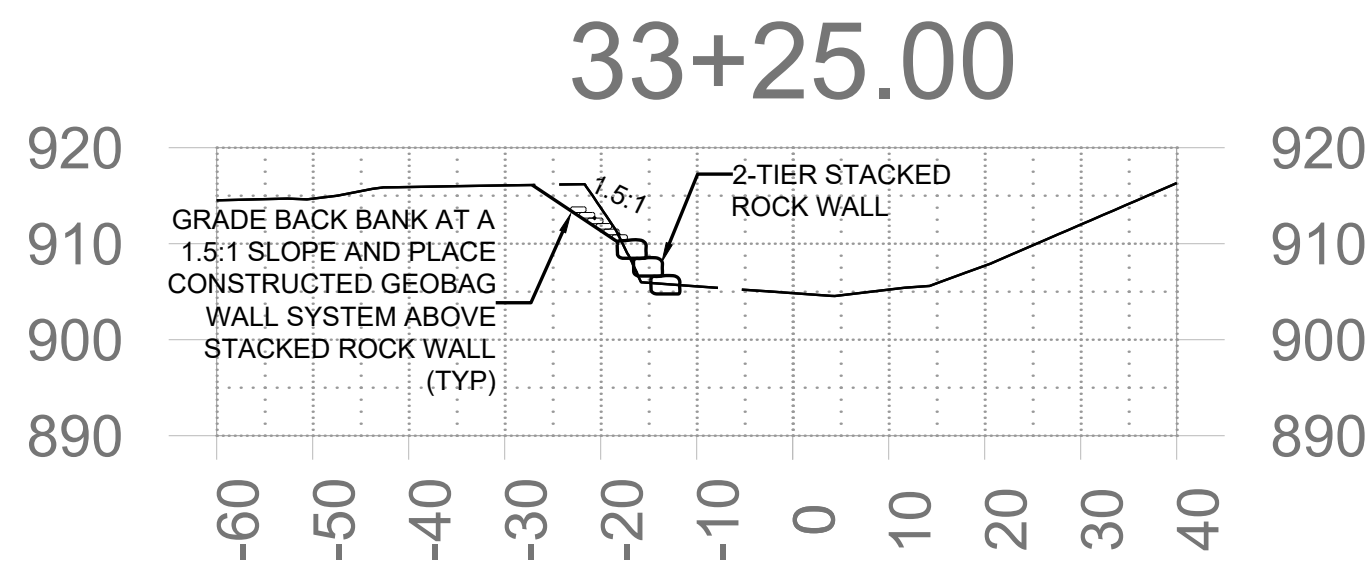
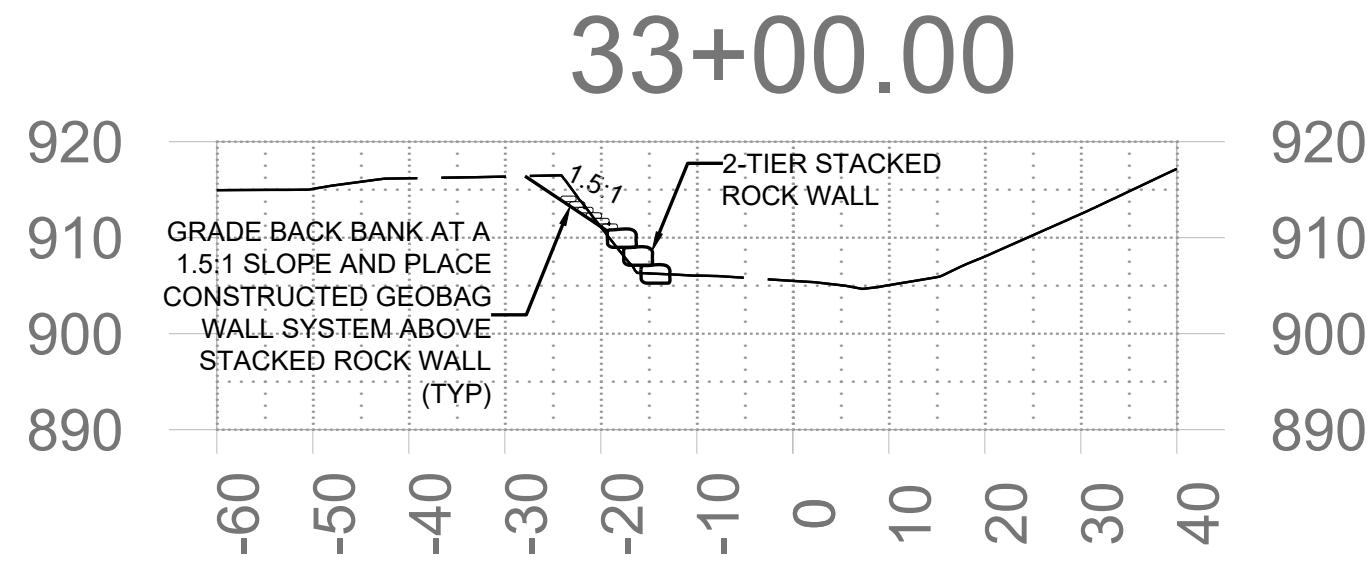
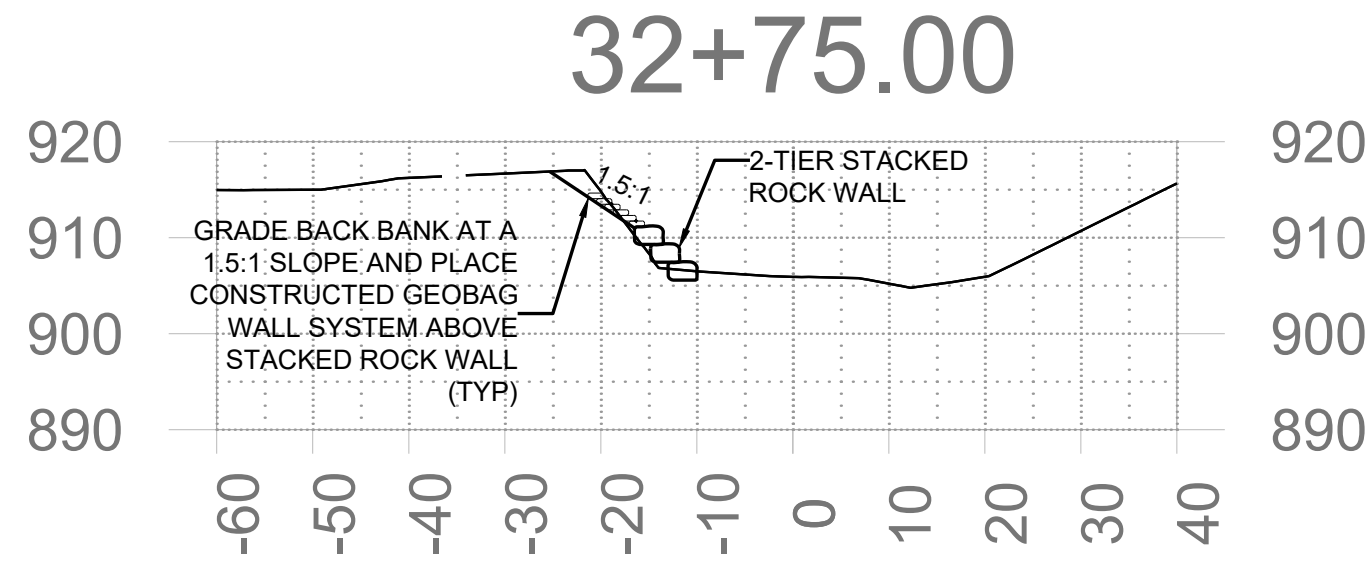
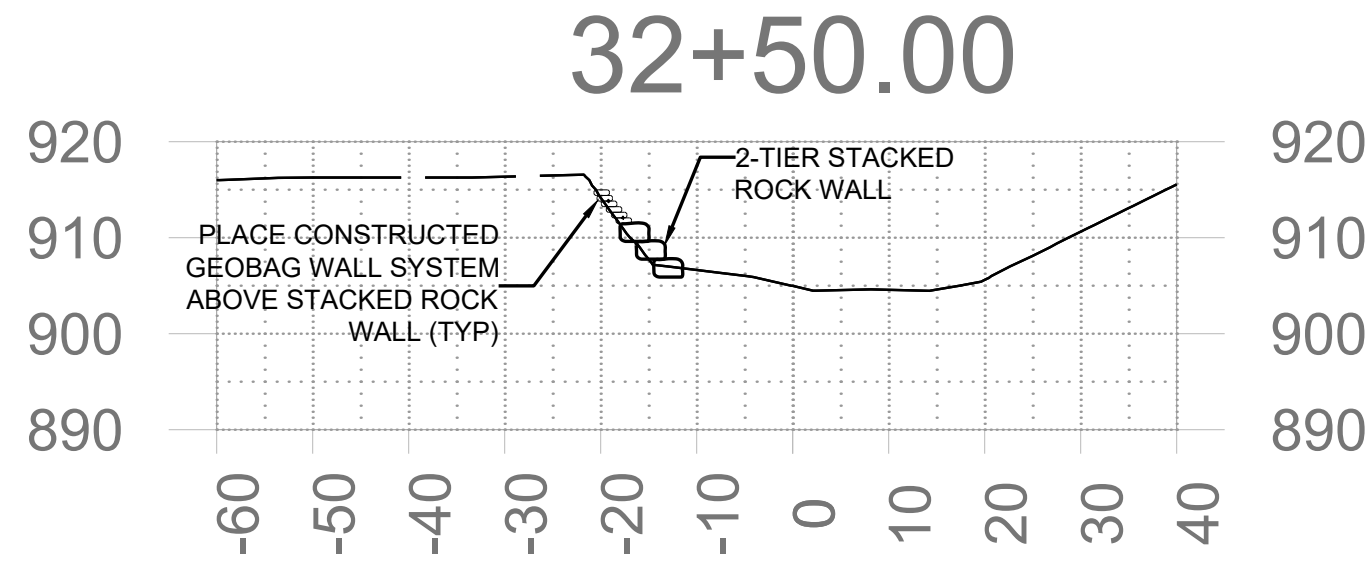
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ISSUED FOR CONSTRUCTION

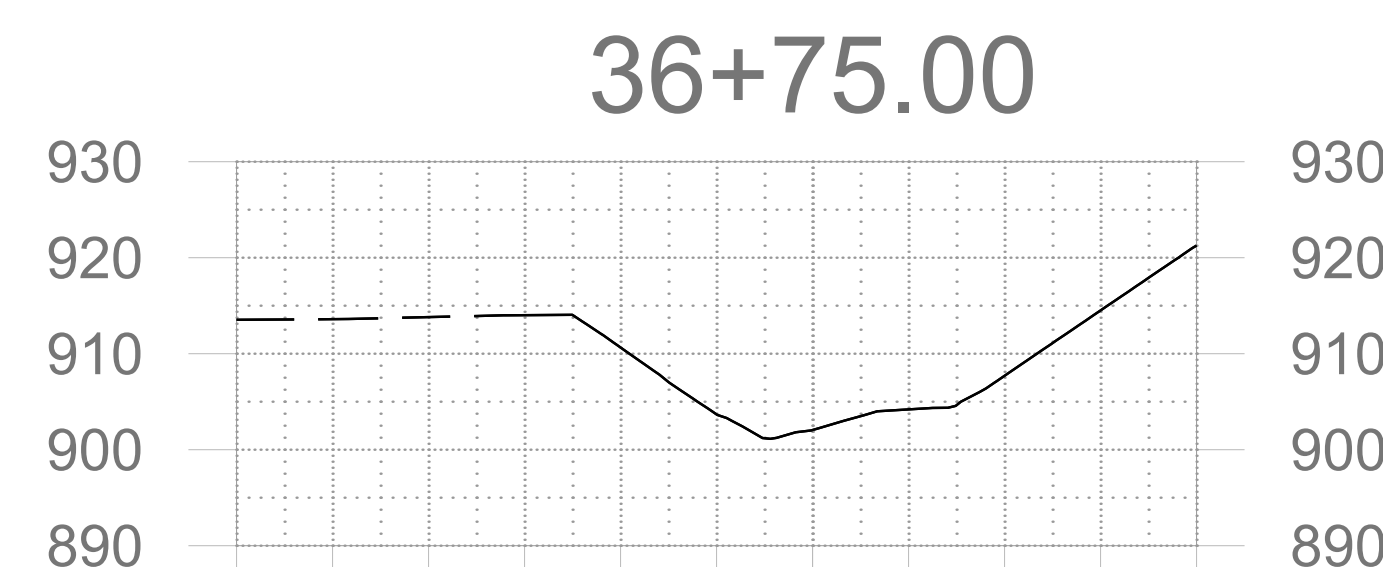
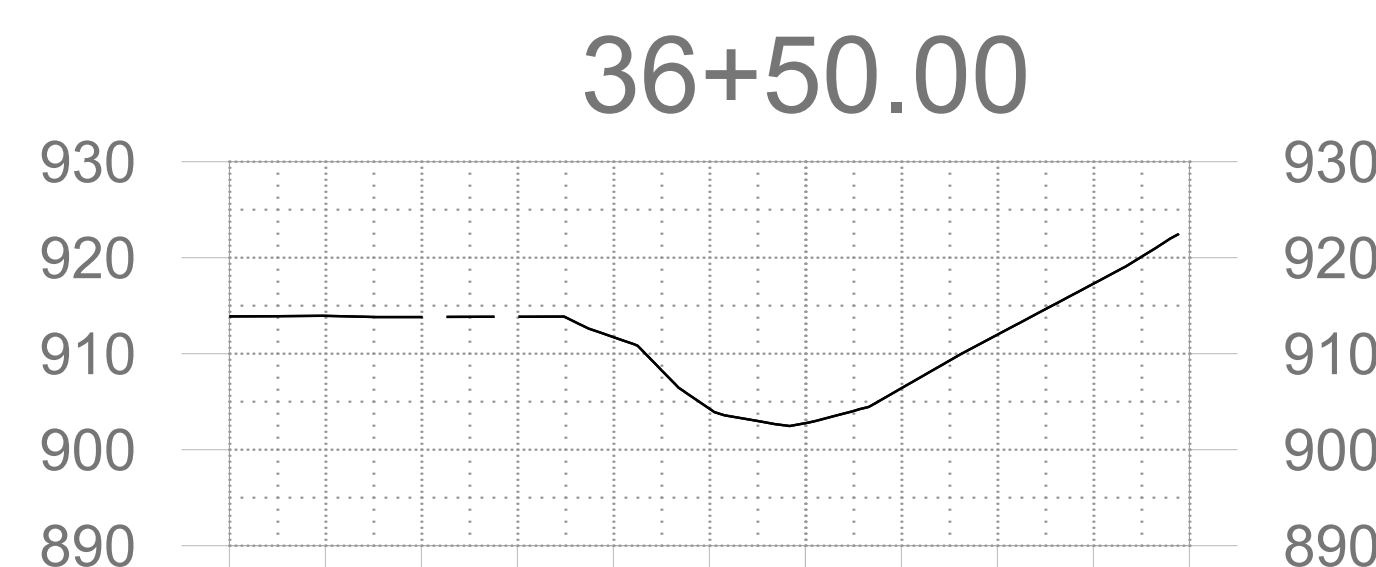
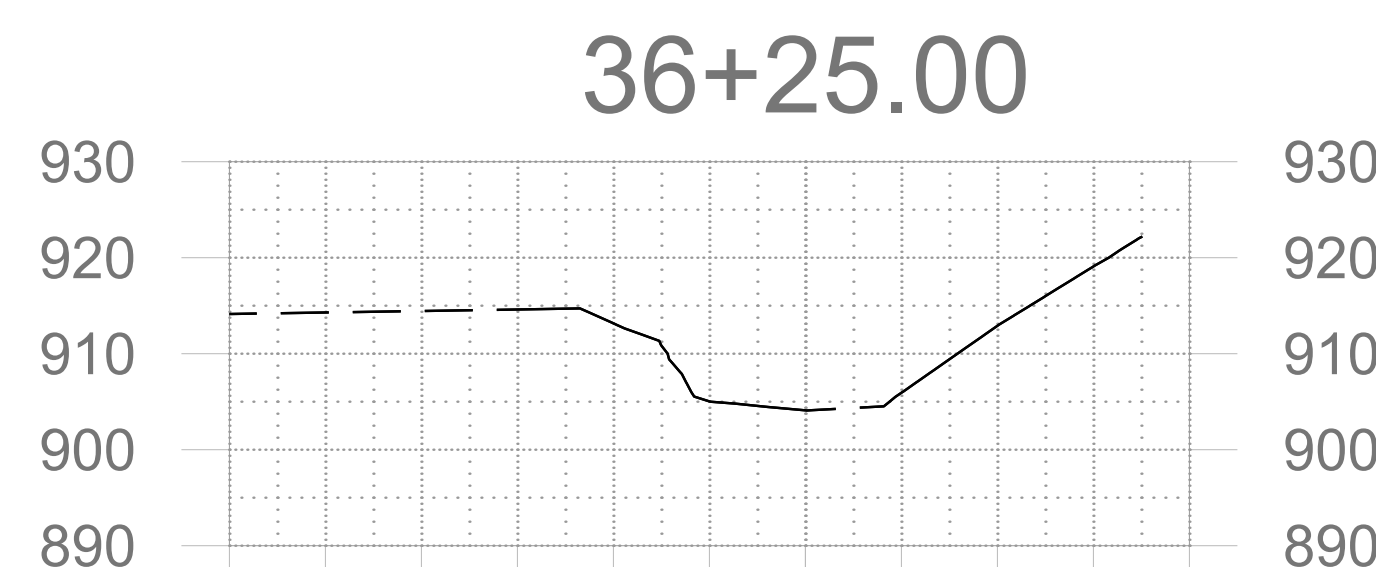
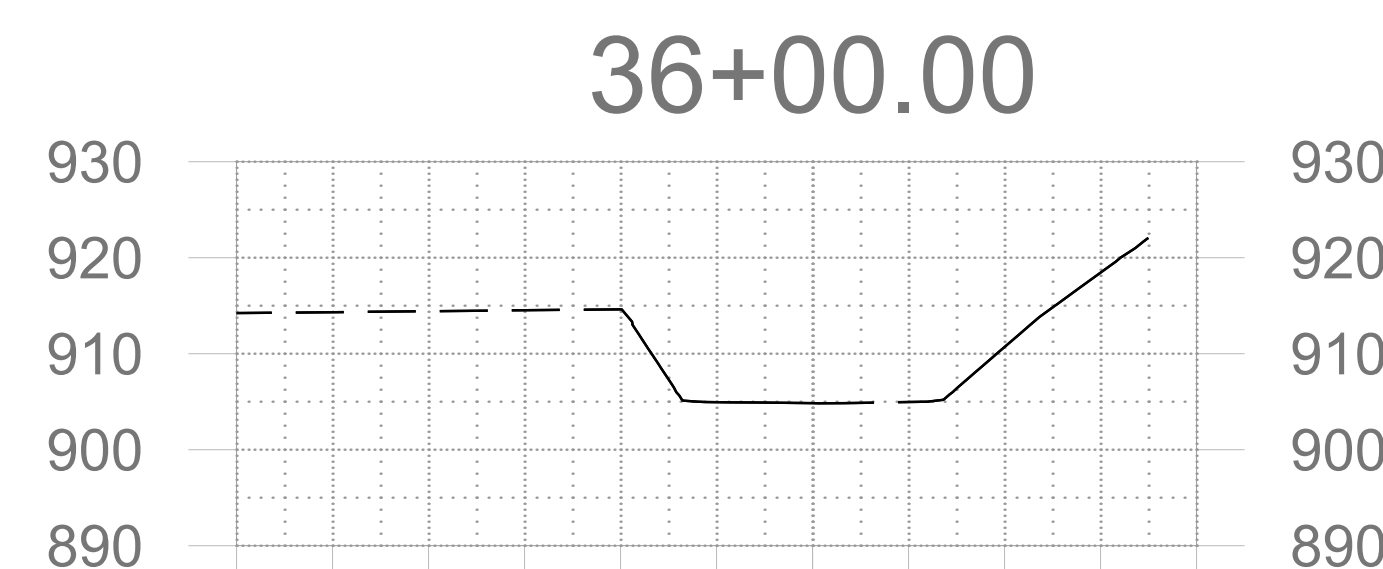
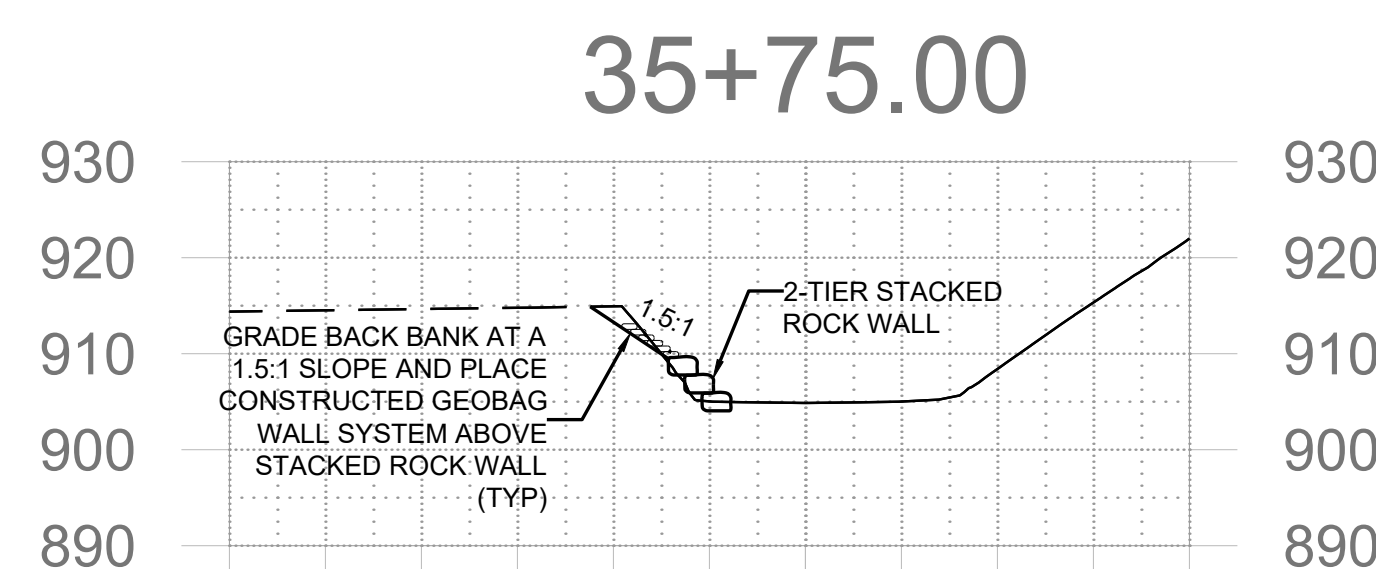
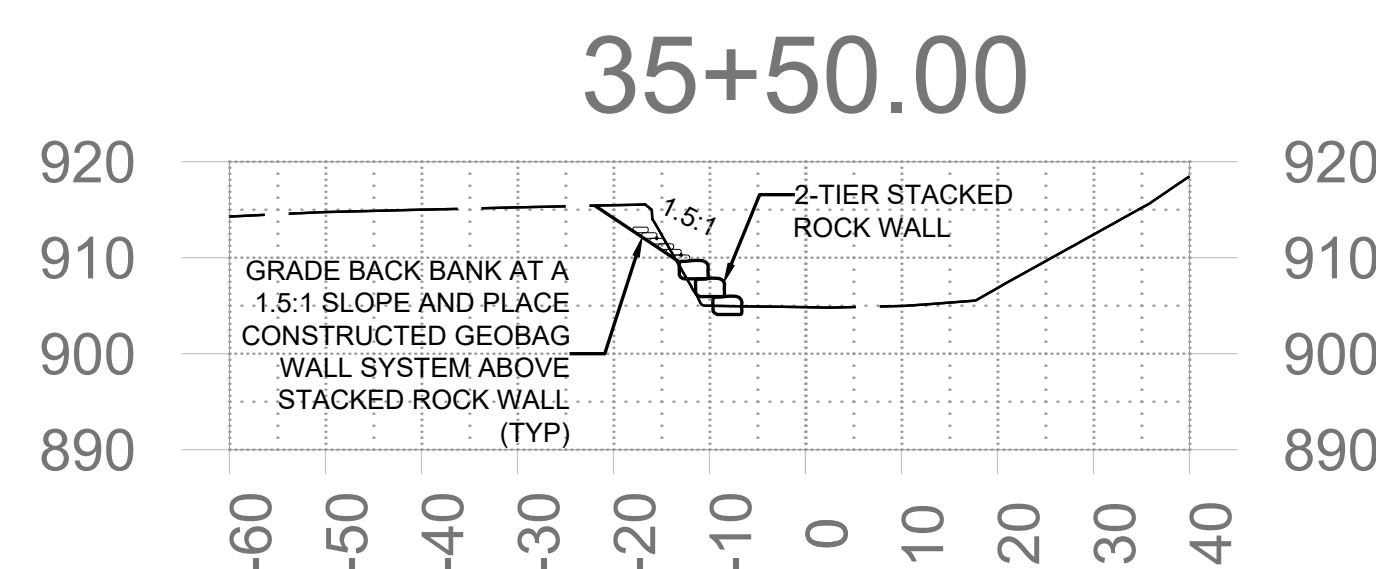
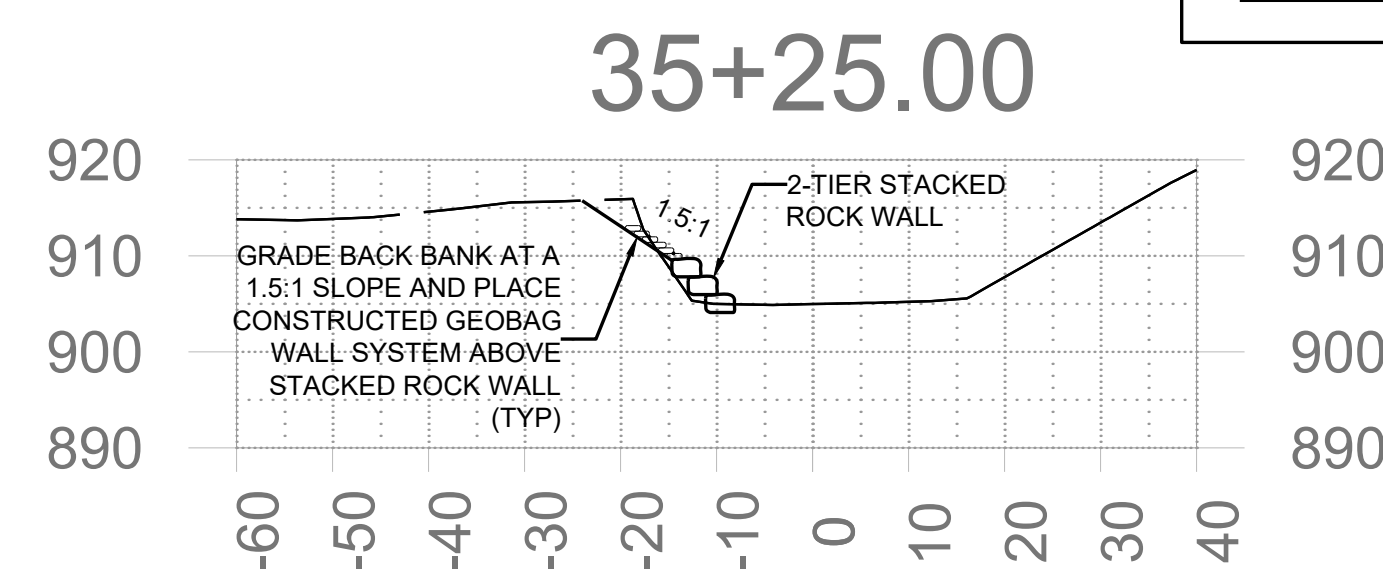
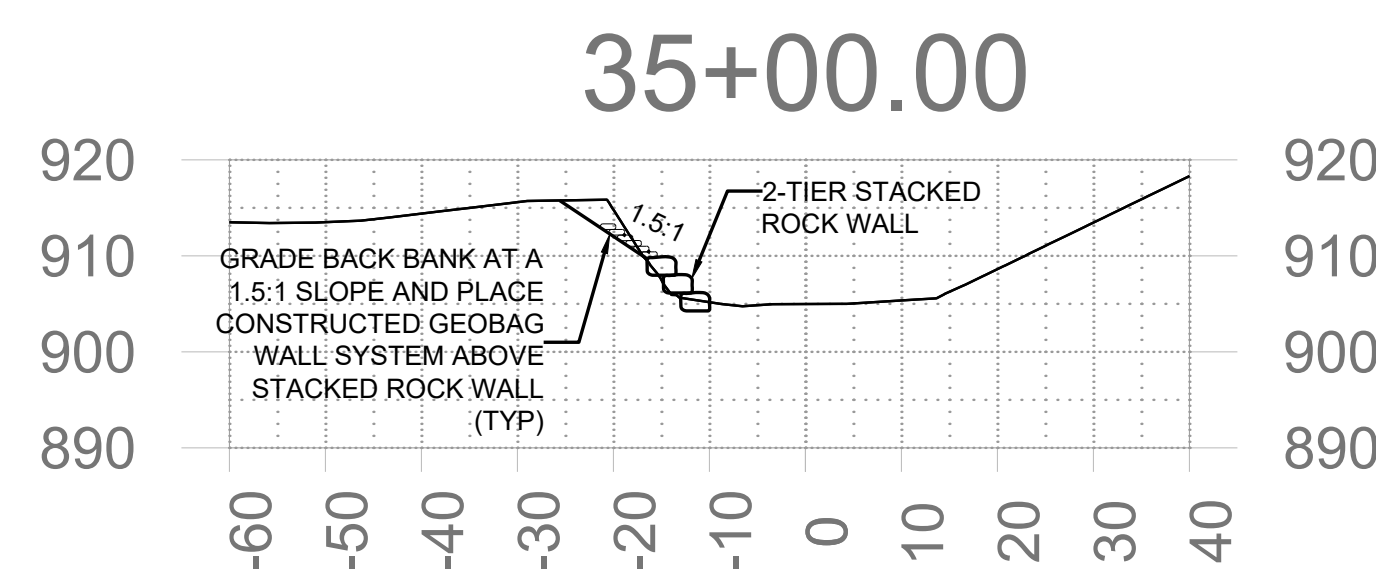
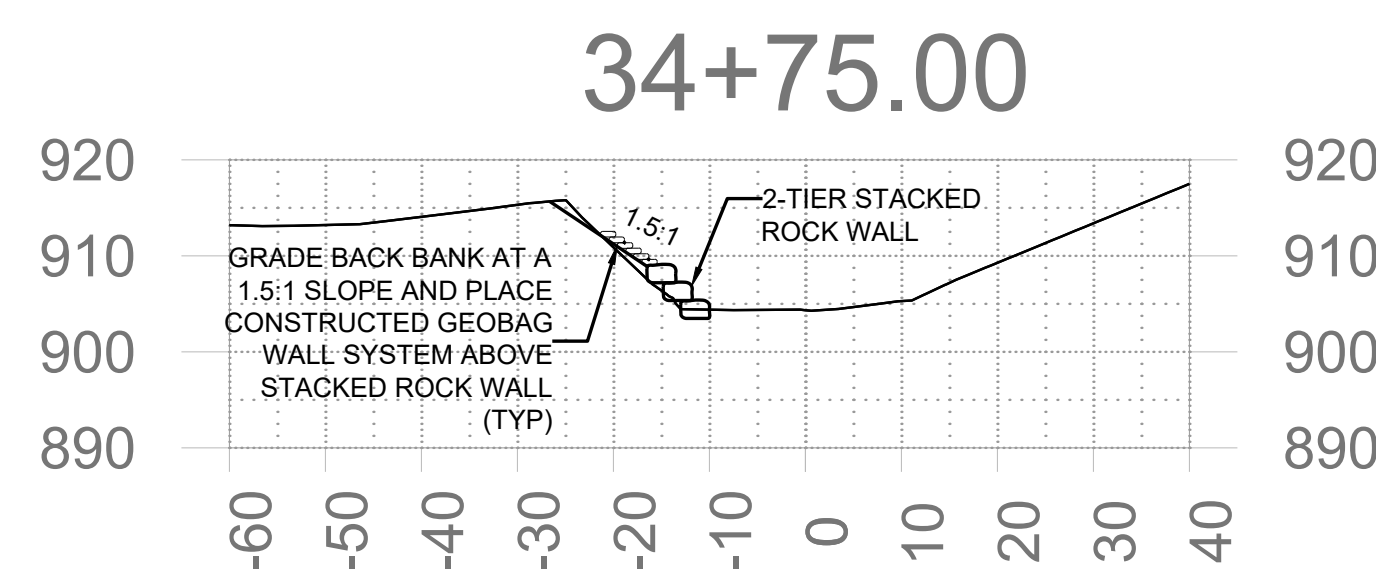
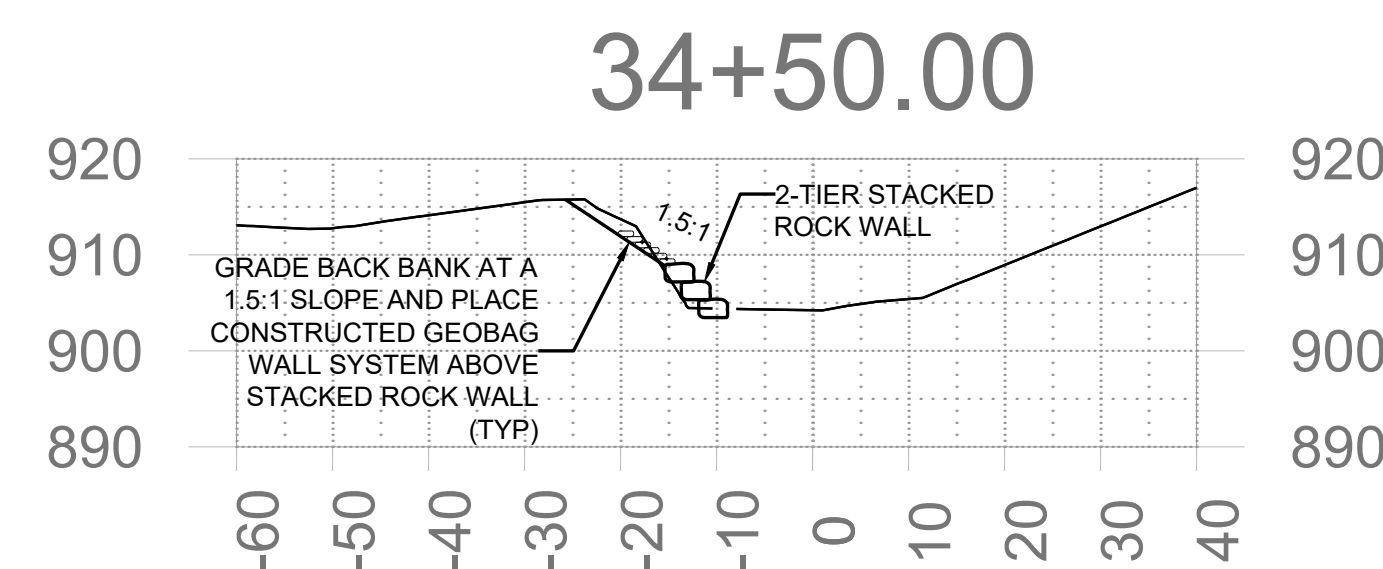
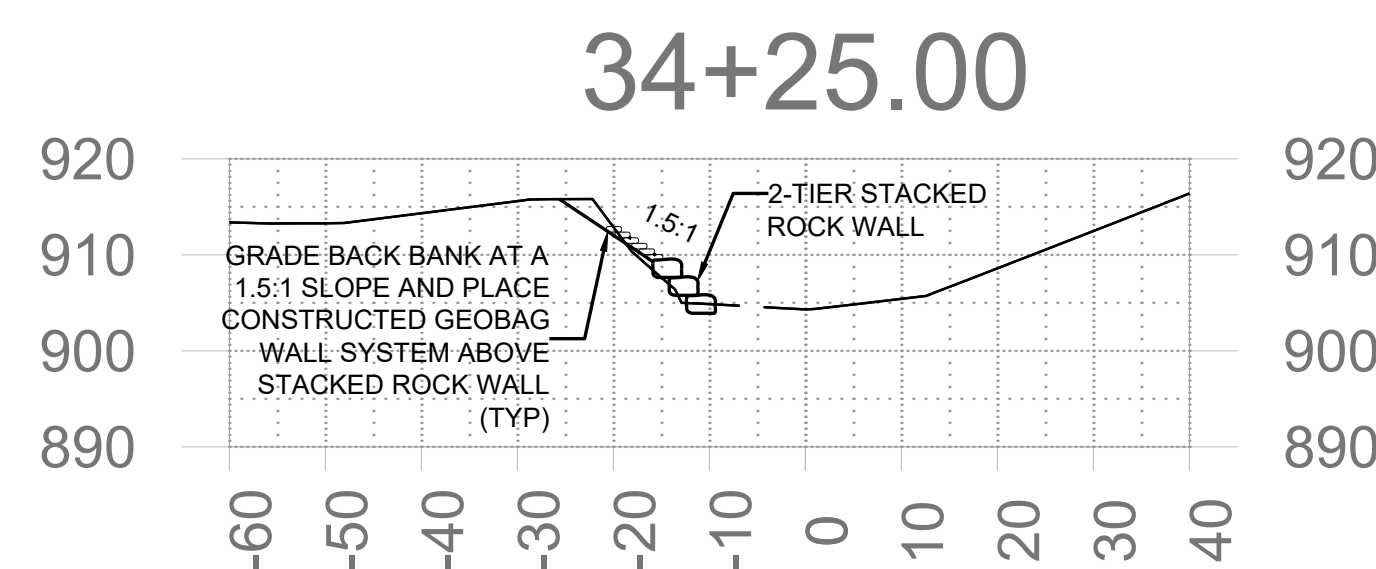
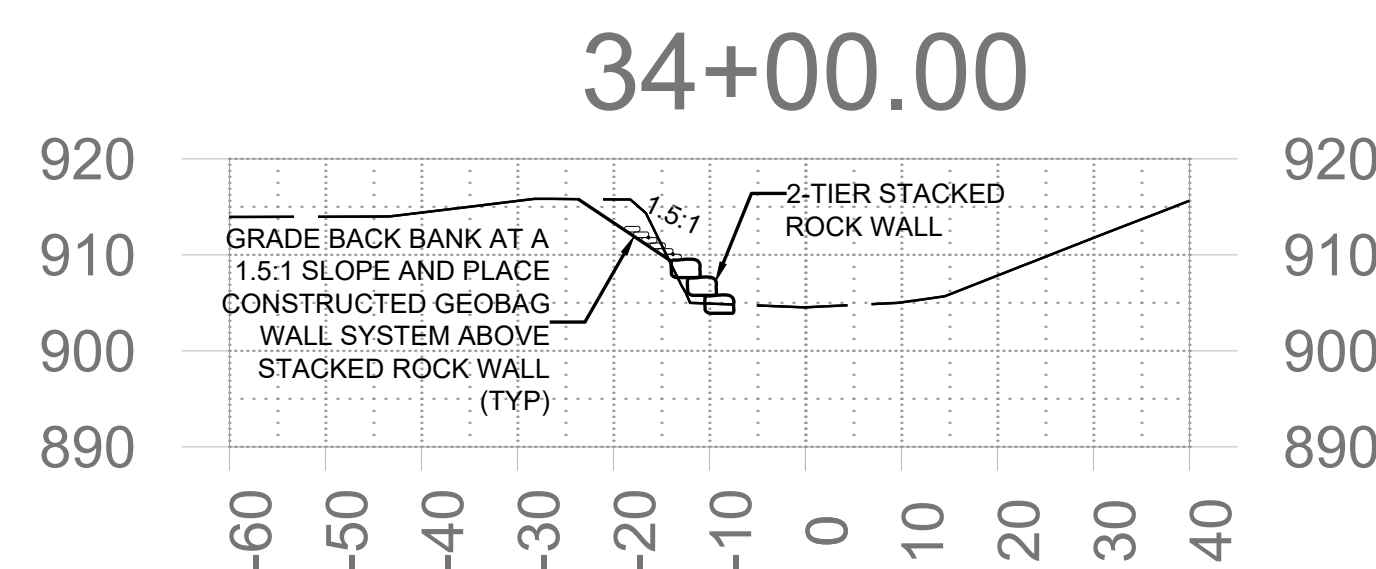
FINAL PLAN SET



FREES & NICHOLS
717 Green Valley Road
Suite 200, North Carolina 27408
Phone - (336) 790-6744
Web - www.freese.com

ROANOKE COUNTY, VIRGINIA
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL
DETAILED CROSS SECTIONS
STA 31+00 TO STA 33+75

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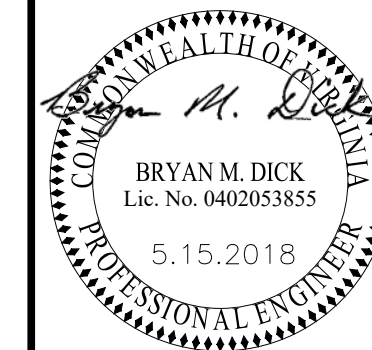
----- EXISTING GROUND
PROFILE ALONG
ALIGNMENT

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CONSTRUCTION

FINAL PLAN SET



ROANOKE COUNTY, VIRGINIA
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL

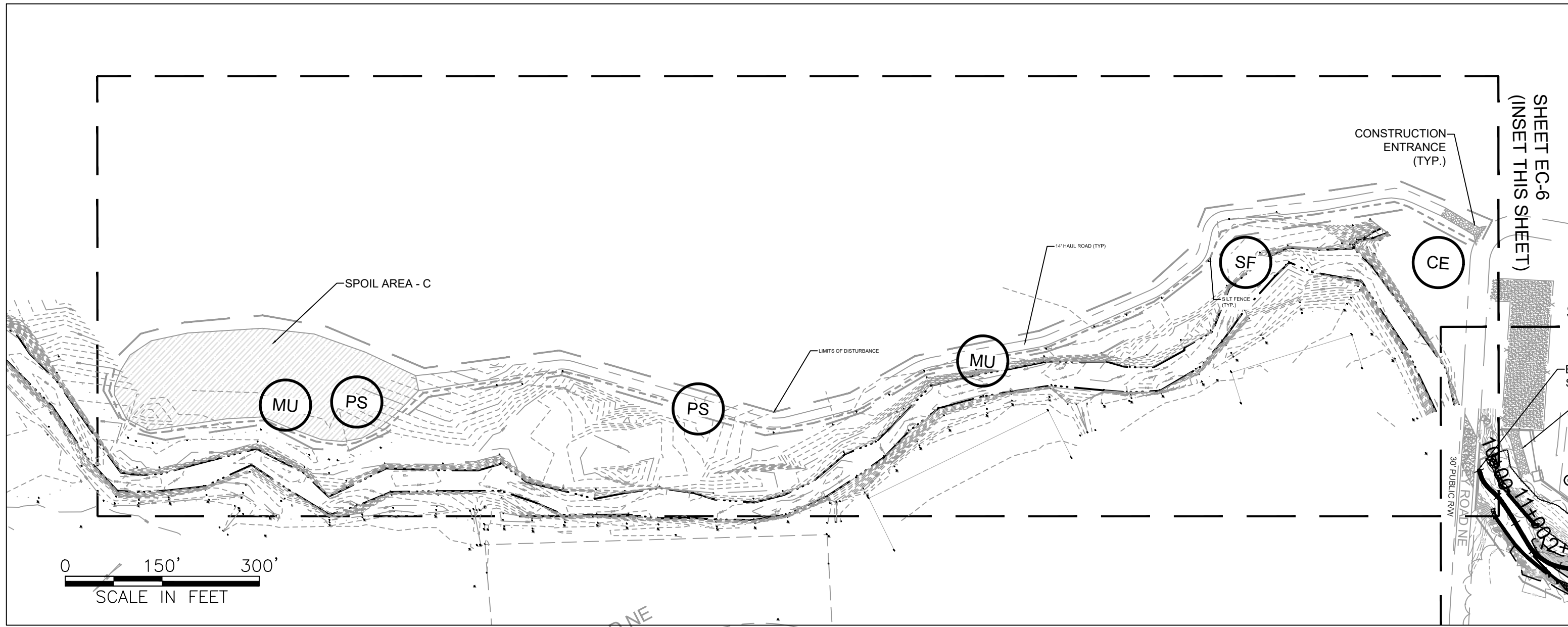
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DETAILED CROSS SECTIONS
STA 34+00 TO STA 36+75

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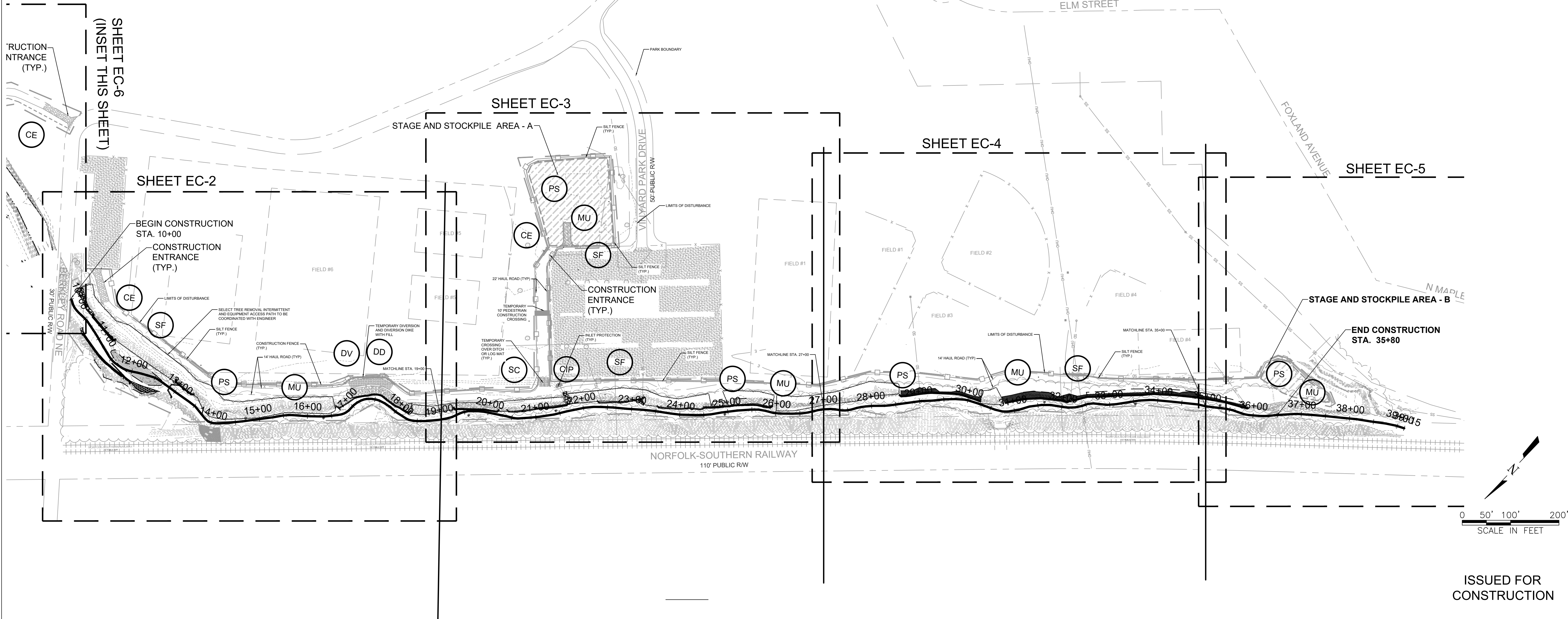
EROSION AND SEDIMENT CONTROL LEGEND		
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----	SILT FENCE	(SF)
-----	CONSTRUCTION FENCE	
-----	TEMPORARY STONE CONSTRUCTION ENTRANCE	(CE)
←→	TOPSOILING	(TO)
←→	TEMPORARY SEEDING	(TS)
←→	PERMANENT SEEDING	(PS)
←→	MULCHING	(MU)
○	CONSTRUCTION INLET PROTECTION	(CIP)
-----	TEMPORARY PEDESTRIAN CONSTRUCTION CROSSING	
-----	HAUL ROAD FILL	
-----	TEMPORARY STREAM CONSTRUCTION CROSSING	(SC)
←→	TEMPORARY PEDESTRIAN CONSTRUCTION CROSSING	(DV) (DD)
-----	SPOIL AREA	
-----	TREE PROTECTION AREA	



- NOTES THIS SHEET:
- SEE SHEET EC-6 FOR EROSION AND SEDIMENT CONTROL NOTES AND LEGEND.
 - OVERALL PLAN ONLY INCLUDES CONSTRUCTION ENTRANCES, STAGING AREAS, AND HAUL ROAD LOCATIONS. SEE LARGER SCALE PLANS FOR ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AND DEMOLITION.
 - DISTURB ONLY THE PATHWAY REQUIRED TO ACCESS THE STREAM AND DO NOT REMOVE TREES LARGER THAN 8" IN DIAMETER UNLESS INSTRUCTED BY THE ENGINEER OF RECORD.
 - ALL CONSTRUCTION ACTIVITIES TO STAY WITHIN LIMITS OF DISTURBANCE AND COORDINATES.
 - C-700 OR EQUIVALENT COIR MATTING IS REQUIRED ON ALL EXPOSED STREAMBANK SURFACES NOT PROTECTED BY OTHER MEASURES.
 - WHERE GRADING IS REQUIRED, GRADE TO DRAIN AND TRANSITION TO EXISTING GRADE.



ROANOKE COUNTY, VIRGINIA
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL
EROSION CONTROL
OVERALL PLAN



ISSUED FOR
CONSTRUCTION

FINAL PLAN SET

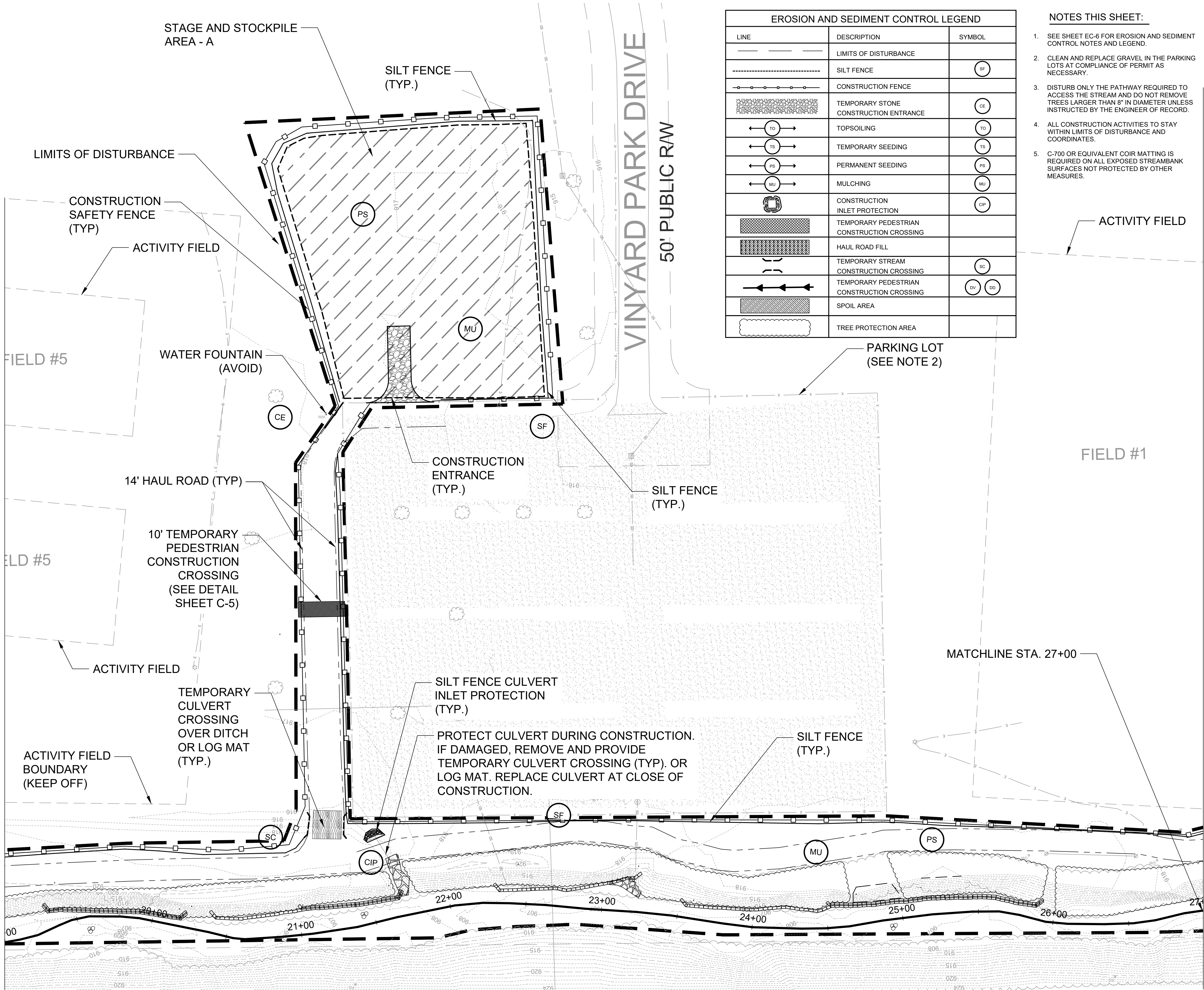
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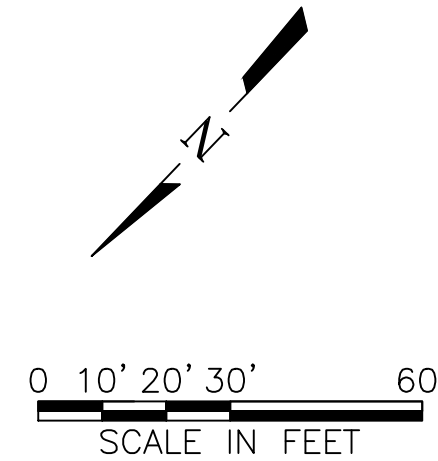
MATCHLINE
SHEET EC-2



EROSION AND SEDIMENT CONTROL LEGEND		
LINE	DESCRIPTION	SYMBOL
---	LIMITS OF DISTURBANCE	
---	SILT FENCE	SF
---	CONSTRUCTION FENCE	
[Pattern]	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
[Symbol]	TOPSOILING	TO
[Symbol]	TEMPORARY SEEDING	TS
[Symbol]	PERMANENT SEEDING	PS
[Symbol]	MULCHING	MU
[Symbol]	CONSTRUCTION INLET PROTECTION	CIP
[Pattern]	TEMPORARY PEDESTRIAN CONSTRUCTION CROSSING	
[Pattern]	HAUL ROAD FILL	
[Symbol]	TEMPORARY STREAM CONSTRUCTION CROSSING	SC
[Symbol]	TEMPORARY PEDESTRIAN CONSTRUCTION CROSSING	DV DD
[Pattern]	SPOIL AREA	
[Pattern]	TREE PROTECTION AREA	

- NOTES THIS SHEET:
- SEE SHEET EC-6 FOR EROSION AND SEDIMENT CONTROL NOTES AND LEGEND.
 - CLEAN AND REPLACE GRAVEL IN THE PARKING LOTS AT COMPLIANCE OF PERMIT AS NECESSARY.
 - DISTURB ONLY THE PATHWAY REQUIRED TO ACCESS THE STREAM AND DO NOT REMOVE TREES LARGER THAN 8" IN DIAMETER UNLESS INSTRUCTED BY THE ENGINEER OF RECORD.
 - ALL CONSTRUCTION ACTIVITIES TO STAY WITHIN LIMITS OF DISTURBANCE AND COORDINATES.
 - C-700 OR EQUIVALENT COIR MATTING IS REQUIRED ON ALL EXPOSED STREAMBANK SURFACES NOT PROTECTED BY OTHER MEASURES.

MATCHLINE
SHEET EC-4



ISSUED FOR
CONSTRUCTION

FINAL PLAN SET

ROANOKE COUNTY, VIRGINIA

RESTORATION OF GLADE CREEK AT VINYARD PARK

PHASE II

CIVIL

EROSION CONTROL

PLAN VIEW B

717 Green Valley Road
Suite 200, North Carolina 27108
Phone (336) 790-6744
Web - www.freeseandnichols.com

NO. ISSUE

DATE

BY

FILE NAME

RNC16684

DATE 05.15.2018

DESIGNED BMD

DRAWN EMD

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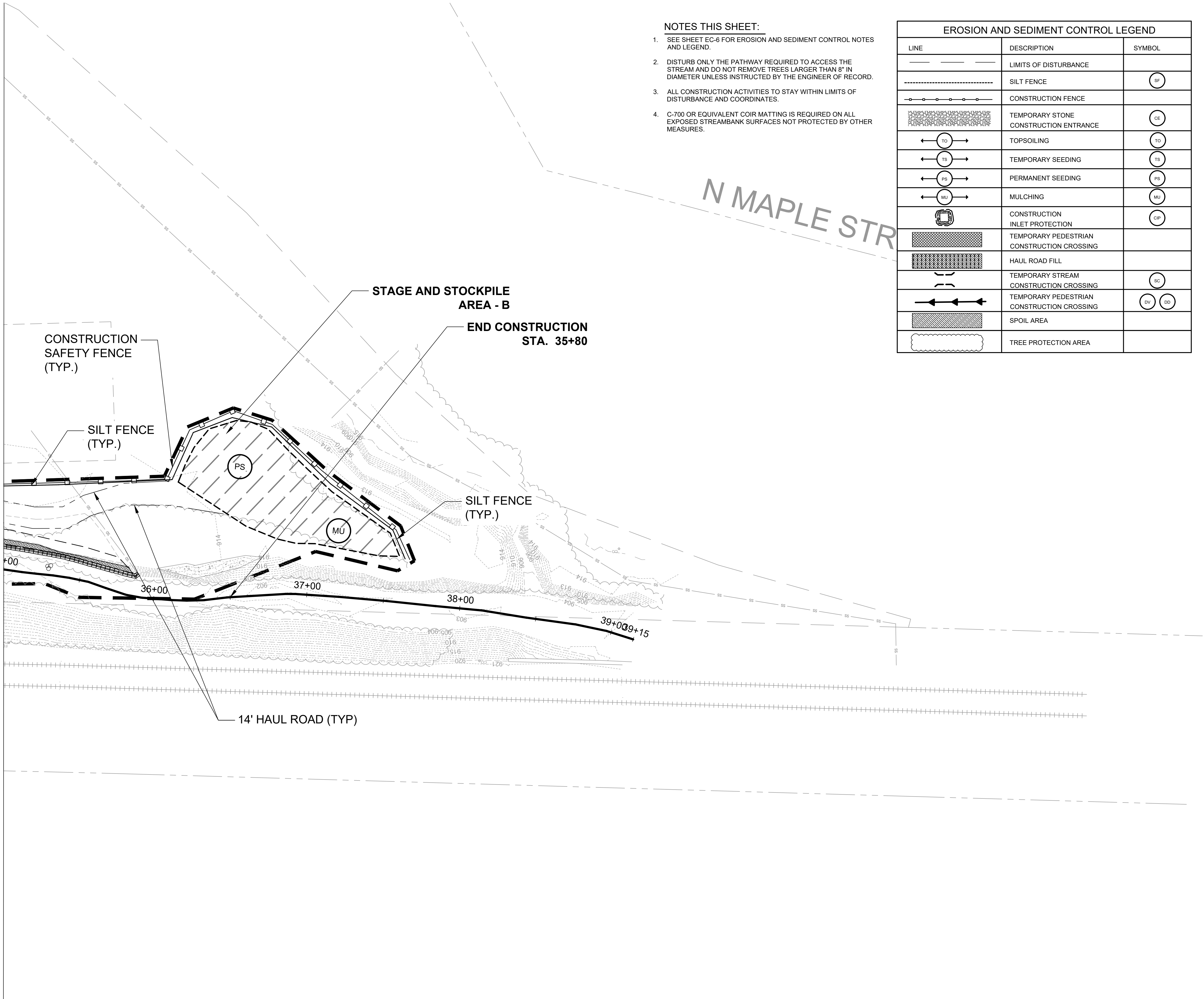
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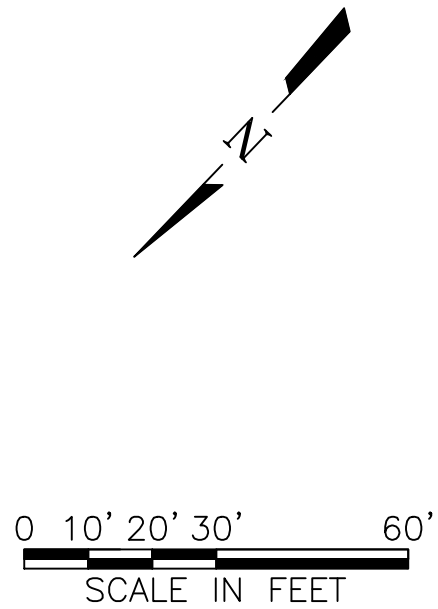
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MATCHLINE
SHEET EC-4



- NOTES THIS SHEET:
1. SEE SHEET EC-6 FOR EROSION AND SEDIMENT CONTROL NOTES AND LEGEND.
 2. DISTURB ONLY THE PATHWAY REQUIRED TO ACCESS THE STREAM AND DO NOT REMOVE TREES LARGER THAN 8" IN DIAMETER UNLESS INSTRUCTED BY THE ENGINEER OF RECORD.
 3. ALL CONSTRUCTION ACTIVITIES TO STAY WITHIN LIMITS OF DISTURBANCE AND COORDINATES.
 4. C-700 OR EQUIVALENT COIR MATTING IS REQUIRED ON ALL EXPOSED STREAMBANK SURFACES NOT PROTECTED BY OTHER MEASURES.

EROSION AND SEDIMENT CONTROL LEGEND		
LINE	DESCRIPTION	SYMBOL
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[Pattern]	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
[Symbol]	TOPSOILING	TO
[Symbol]	TEMPORARY SEEDING	TS
[Symbol]	PERMANENT SEEDING	PS
[Symbol]	MULCHING	MU
[Symbol]	CONSTRUCTION INLET PROTECTION	CIP
[Pattern]	TEMPORARY PEDESTRIAN CONSTRUCTION CROSSING	
[Pattern]	HAUL ROAD FILL	
[Symbol]	TEMPORARY STREAM CONSTRUCTION CROSSING	SC
[Symbol]	TEMPORARY PEDESTRIAN CONSTRUCTION CROSSING	DV DO
[Pattern]	SPOIL AREA	
[Pattern]	TREE PROTECTION AREA	



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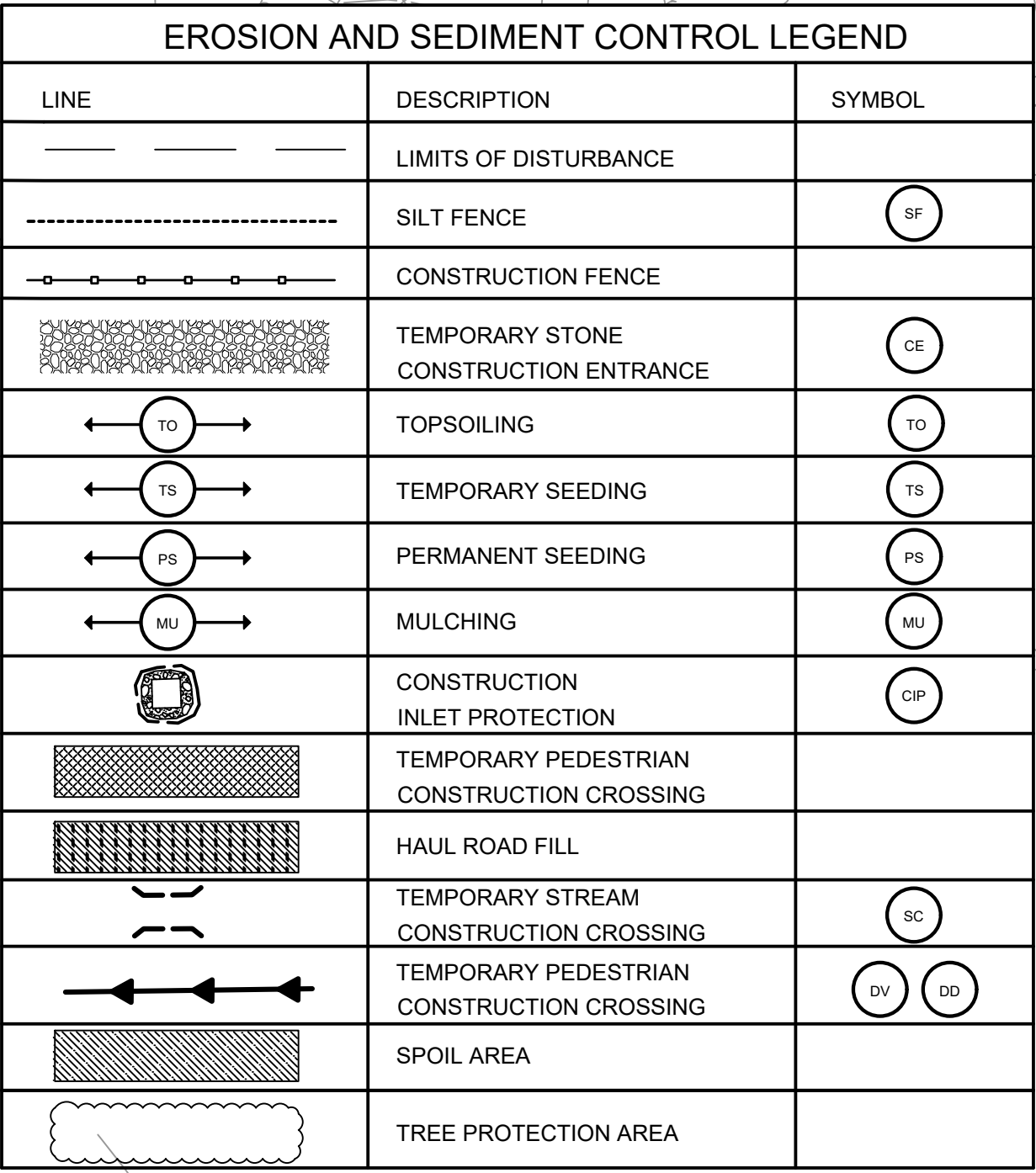
FINAL PLAN SET



FREES & NICHOLS
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ROANOKE COUNTY, VIRGINIA
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL
EROSION CONTROL
PLAN VIEW D

NO.	ISSUE	BY	DATE	F&N JOB NO.
				RNC16684
				DATE 05.15.2018
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NOTES THIS SHEET:

1. SEE SHEET EC-6 FOR EROSION AND SEDIMENT CONTROL NOTES AND LEGEND.
2. OVERALL PLAN ONLY INCLUDES CONSTRUCTION ENTRANCES, STAGING AREAS, AND HAUL ROAD LOCATIONS. SEE LARGER SCALE PLANS FOR ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AND DEMOLITION.
3. DISTURB ONLY THE PATHWAY REQUIRED TO ACCESS THE STREAM AND DO NOT REMOVE TREES LARGER THAN 8" IN DIAMETER UNLESS INSTRUCTED BY THE ENGINEER OF RECORD.
4. ALL CONSTRUCTION ACTIVITIES TO STAY WITHIN LIMITS OF DISTURBANCE AND COORDINATES.
5. C-700 OR EQUIVALENT COIR MATTING IS REQUIRED ON ALL EXPOSED STREAMBANK SURFACES NOT PROTECTED BY OTHER MEASURES.

COMMONWEALTH OF VIRGINIA
 BRYAN M. DICK
 Lic. No. 0402053855
 5.15.2018
 PROFESSIONAL ENGINEER



**FREASE
& NICHOLS**

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Web - www.freese.com

ROANOKE COUNTY, VIRGINIA

RESTORATION OF GLADE CREEK AT VINYARD PARK

PHASE II CIVIL

EROSION CONTROL
INSET SHEET - PLAN VIEW E

NO.	ISSUE	BY	DATE	FAM JOB NO.	RNC16684
				DATE	05.15.2018
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CONSTRUCTION

FINAL PLAN SET

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9. SEDIMENT CONTROL MEASURES MAY REQUIRE MINOR FIELD ADJUSTMENTS AT THE TIME OF CONSTRUCTION TO ENSURE THEIR INTENDED PURPOSE ARE ACCOMPLISHED. APPROVAL FROM CONSULTING ENGINEER AND ROANOKE COUNTY WILL BE REQUIRED FOR ALL DEVIATIONS FROM THE APPROVED PLANS.

18. THE LOCATION OF ALL OFF-SITE FILL OR BORROW AREAS ASSOCIATED WITH THE CONSTRUCTION PROJECT WILL BE PROVIDED TO THE ROANOKE COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT. AN EROSION CONTROL PLAN OR MEASURES MAY BE REQUIRED FOR THIS AREA.
19. ALL EARTHEN CONTROLS AND STRUCTURES SHALL BE STABILIZED IMMEDIATELY UPON INSTALLATION.

EROSION AND SEDIMENT CONTROL LEGEND	
LINE	DESCRIPTION
	LIMITS OF DISTURBANCE
	SILT FENCE
	CONSTRUCTION FENCE
	TEMPORARY STONE CONSTRUCTION ENTRANCE

Yes	N/A	4VAC50-30-40 Minimum Standards	Describe how MS is addressed on plan
X		MS1: Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.	SHOWN ON SHEETS EC-1, EC-2, EC-3 AND EC-4
X		MS2: During construction of the project, soil stock piles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.	SEE PROJECT SPECIFICATIONS
X		MS3: A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.	SHOWN ON SHEETS EC-1, EC-2, EC-3, EC-4 AND EC-6
X		MS4: Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.	SHOWN ON SHEETS EC-1, EC-2, EC-3 AND EC-4
X		MS5: Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.	
	X	<p>MS6: Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.</p> <p>a. The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres.</p> <p>b. Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall system shall, at a minimum, maintain the structural integrity of the basin during a 25-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.</p>	
X		MS7: Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.	
	X	MS8: Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.	
	X	MS9: Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.	
	X	MS10: All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.	
	X	MS11: Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.	
X		MS12: When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.	SHOWN ON SHEETS C-1 THRU C-9 AND EC-7
X		MS13: When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided.	
X		MS14: All applicable federal, state and local chapters pertaining to working in or crossing live watercourses shall be met.	SHOWN ON SHEETS C-1 THRU C-9
X		MS15: The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.	SHOWN ON SHEETS C-1 THRU C-9

EROSION AND SEDIMENT CONTROL MEASURES - UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION" (VESCH). THE MINIMUM STANDARDS OF THE VESCH SHALL BE ADHERED TO UNLESS OTHERWISE DIRECTED BY THE LOCAL PROGRAM ADMINISTRATOR.

PUMP-AROUND/DIVERSION....A TEMPORARY PUMPING SETUP TO DIVERT WATER AROUND IN-CHANNEL WORK TO PREVENT WATER FROM BECOMING SEDIMENT-LADEN.

E.) ONLY AFTER INSPECTION AND APPROVAL FROM THE LOCAL PROGRAM ADMINISTRATOR MAY ITEMS BE REMOVED FOLLOWING THE STABILIZATION OF THE CONTRIBUTING AREAS.

C) A REPORT SUMMARIZING THE SCOPE OF INSPECTIONS, NAME OF INSPECTOR, INSPECTOR'S QUALIFICATIONS, DATES OF INSPECTIONS, MAJOR OBSERVATIONS PERTAINING TO THE IMPLEMENTATION OF THESE EROSION CONTROL PLANS, AND ACTIONS TAKEN SHALL BE MADE AND RETAINED AS PART OF THESE PLANS. MAJOR OBSERVATIONS OF THESE REPORTS SHALL INCLUDE: THE LOCATIONS OF EXCESSIVE SEDIMENTATION FROM THE SITE; LOCATIONS OF CONTROLS IN NEED OF REPAIR; LOCATIONS OF RAILED OR INADEQUATE CONTROLS; AND LOCATIONS WHERE ADDITIONAL CONTROLS ARE NEEDED

Virginia Erosion and Sediment Control Plan Minimum Standards (MS) Checklist			
Yes	N/A	4VAC50-30-40 Minimum Standards	Describe how MS is addressed on plan
	X	<p>MS16: Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:</p> <ul style="list-style-type: none"> a. No more than 500 linear feet of trench may be opened at one time. b. Excavated material shall be placed on the uphill side of trenches. c. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property. d. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization. e. Restabilization shall be accomplished in accordance with this chapter. f. Applicable safety chapters shall be complied with. 	
X		<p>MS17: Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land- disturbing activities.</p>	SHOWN ON SHEETS EC-1, EC-3 AND EC-4
X		<p>MS18: All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the VESCP authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.</p>	ADDRESSED IN THE EROSION AND SEDIMENT CONTROL NARRATIVE AND NOTES THIS SHEET
X		<p>MS19: Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:</p> <ul style="list-style-type: none"> a. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed. b. Adequacy of all channels and pipes shall be verified in the following manner: <ul style="list-style-type: none"> 1) The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or 2) (a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks. (b) All previously constructed man-made channels shall be analyzed by the use of a ten-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and (c) Pipes and storm sewer systems shall be analyzed by the use of a ten-year storm to verify that stormwater will be contained within the pipe or system. c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall: <ul style="list-style-type: none"> 1) Improve the channels to a condition where a ten-year storm will not overtop the banks and a two-year storm will not cause erosion to channel the bed or banks; or 2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances; 3) Develop a site design that will not cause the pre-development peak runoff rate from a twoyear storm to increase when runoff outfalls into a natural channel or will not cause the predevelopment peak runoff rate from a ten-year storm to increase when runoff outfalls into a manmade channel; or 4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion. d. The applicant shall provide evidence of permission to make the improvements. e. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the subject project. f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance. g. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel. h. All on-site channels must be verified to be adequate. i. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility. j. In applying these stormwater management criteria, individual lots or parcels in a residential, commercial or industrial development shall not be considered to be separate development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations. k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state. l. Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to <ul style="list-style-type: none"> i. detain the water quality volume and to release it over 48 hours; ii. detain and release over a 24-hour period the expected rainfall resulting from the one year, 24- hour storm; and iii. reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to § 10.1-562 or 10.1-570 of the Act. m. For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of § 10.1-561 A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (§ 10.1-603.2 et seq. of the Code of Virginia) and attendant regulations, unless such land- disturbing activities are in accordance with 4VAC50-60-48 of the Virginia Stormwater Management Program (VSMPP) Permit Regulations. n. Compliance with the water quantity minimum standards set out in 4VAC50-60-66 of the Virginia Stormwater Management Program (VSMPP) Permit Regulations shall be deemed to satisfy the requirements of Minimum Standard 19. 	SEE BASIS OF DESIGN REPORT FOR STREAM CALCULATIONS

7. ALL MULCHES AND SOIL COVERINGS SHALL BE INSPECTED PERIODICALLY (PARTICULARLY AFTER RAINSTORMS) TO CHECK FOR EROSION. WHERE EROSION IS OBSERVED IN MULCHED AREAS, ADDITIONAL MULCH SHOULD BE APPLIED. INSPECTIONS SHALL TAKE PLACE UP UNTIL GRASSES ARE FIRMLY ESTABLISHED.

COMMONWEALTH OF VIRGINIA
BRYAN M. DICK
Lic. No. 0402053855
5.15.2018



Suite 200
Greensboro, North Carolina 27408
Phone - (336) 790-6744
Web - www.freese.com

RESTORATION OF CLADE CREEK AT VINNARD DADIK

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EROSION CONTROL NOTES AND LEGEND

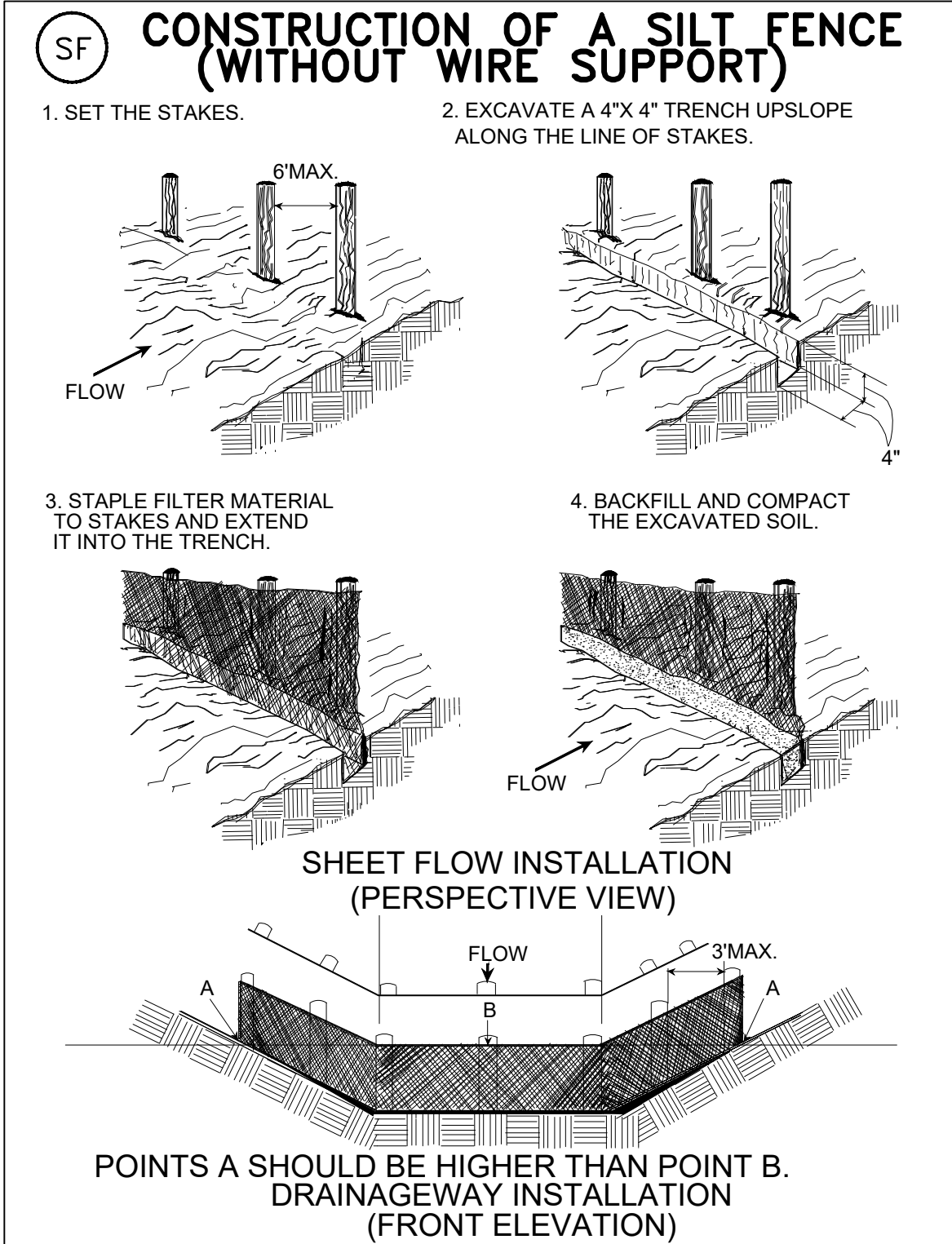
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				CHECKED	BMD
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ISSUED FOR
CONSTRUCTION

FINAL PLAN SET

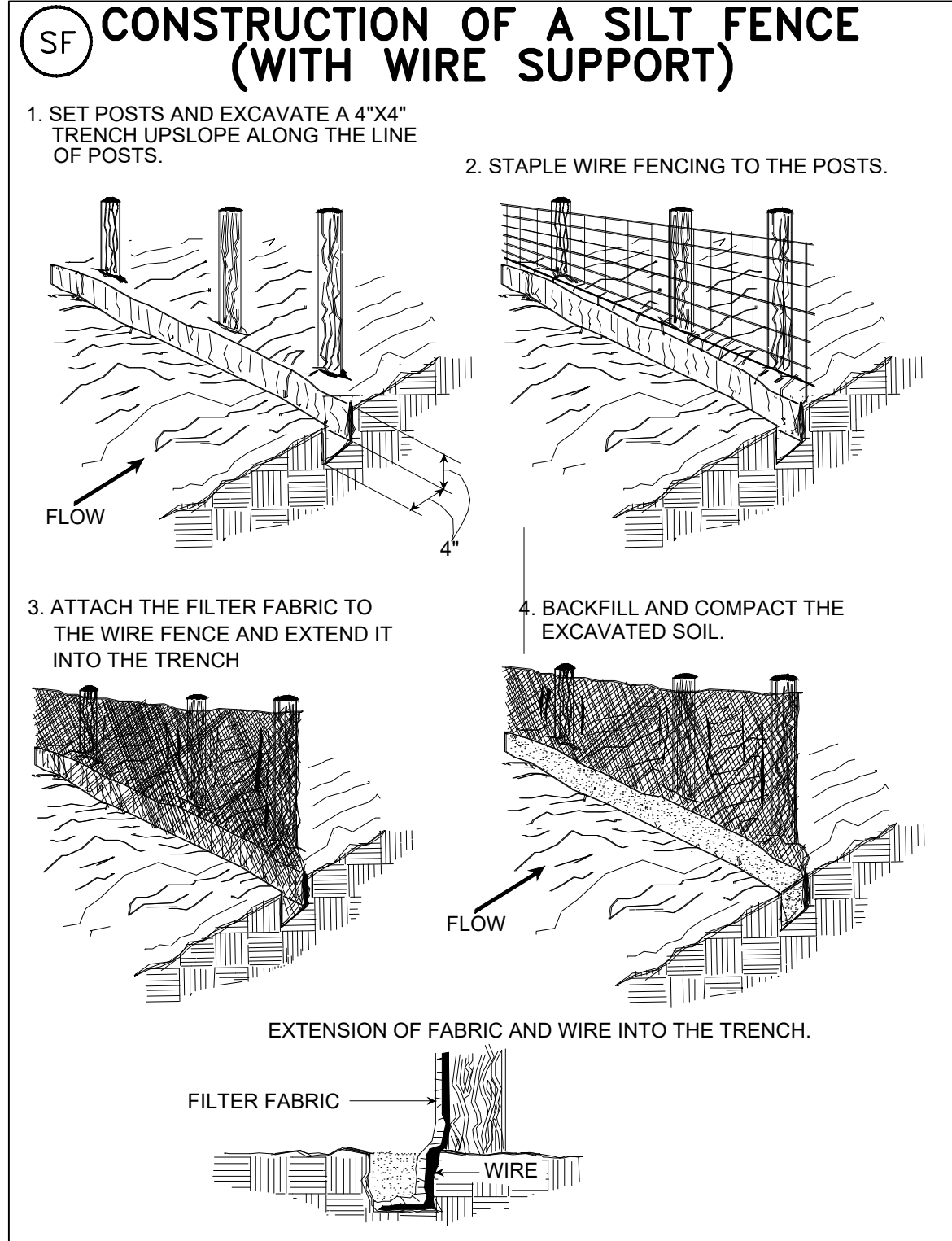
EC-7

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SOURCE: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, VA. DSWC. Sherwood and Wyant

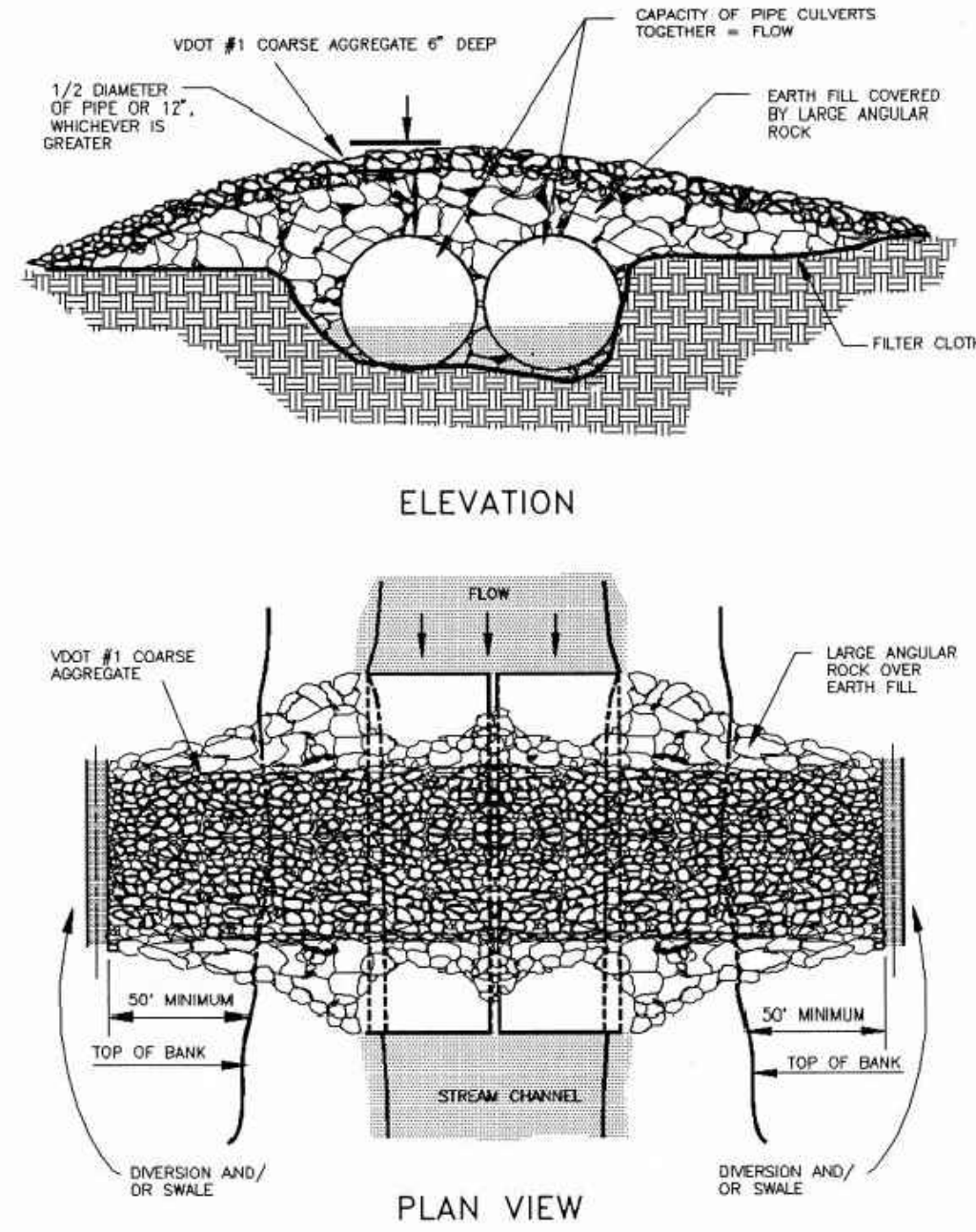
PLATE. 3.05-2



SOURCE: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood & Wyant

PLATE. 3.05-1

TEMPORARY CULVERT CROSSING



GENERAL EROSION AND SEDIMENT CONTROL NOTES

- ALL SOIL EROSION & SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
- THE APPROVING AUTHORITY MAY ADD TO, DELETE, RELOCATE, CHANGE, OR OTHERWISE MODIFY CERTAIN EROSION AND SEDIMENT CONTROL MEASURES WHERE FIELD CONDITIONS ARE ENCOUNTERED THAT WARRANT SUCH MODIFICATIONS.
- ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLAN SHALL BE PLACED IN ADVANCE OF THE WORK BEING PERFORMED, AS FAR AS PRACTICAL.
- IN NO CASE DURING CONSTRUCTION SHALL WATER RUNOFF BE DIVERTED OR ALLOWED TO FLOW TO LOCATIONS WHERE ADEQUATE PROTECTION HAS NOT BEEN PROVIDED.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LEAVE THE SITE ADEQUATELY PROTECTED AGAINST EROSION, SEDIMENTATION, OR ANY DAMAGE TO ANY ADJACENT PROPERTY AT THE END OF EACH DAY'S WORK.
- FOR THE EROSION CONTROL KEY SYMBOLS SHOWN ON THE PLANS, REFER TO THE VIRGINIA UNIFORM CODING SYSTEM FOR EROSION AND SEDIMENT CONTROL PRACTICES CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. THESE SYMBOLS AND KEYS ARE TO BE UTILIZED ON ALL EROSION CONTROL PLANS SUBMITTED TO ROANOKE COUNTY.

(PS) PERMANENT SEEDING MIXTURE

EXCLUDES STREAMBANK STABILIZATION WITHIN DISTURBED AREAS (SEE SHEET C-10)

TYPE A	TYPE B (SLOPES 3:1 OR STEEPER)
15 OCTOBER TO 1 FEBRUARY K-31 FESCUE @ 5 LB / 1000 SF BORZY WINTER RYE @ 1/2 LB / 1000 SF	15 MARCH TO 1 MAY CROWN VETCH @ 1/2 LB / 1000 SF PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF RED TOP @ 1/8 LB / 1000 SF
1 FEBRUARY TO 1 JUNE K-31 FESCUE @ 5 LB / 1000 SF ANNUAL RYE @ 1/2 LB / 1000 SF	15 AUGUST TO 1 OCTOBER CROWN VETCH @ 1/2 LB / 1000 SF PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF RED TOP @ 1/8 LB / 1000 SF
1 JUNE TO 1 SEPTEMBER K-31 FESCUE @ 5 LB / 1000 SF GERMAN MILLET @ 1/2 LB / 1000 SF	
1 SEPTEMBER TO 15 OCTOBER K-31 FESCUE @ 5 LB / 1000 SF ANNUAL RYE @ 1/2 LB / 1000 SF	
LIME: 140 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE	
FERTILIZER: 5-20-10 @ 25 LB / 1000 SF 38-0-0 @ 7 LB / 1000 SF	
MULCH: IF REQUIRED, SHALL BE USED OVER ALL SEEDED AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.	
SOIL CONDITIONING: ADD INCORPORATION OF LIME AND FERTILIZER SELECTION OF CERTIFIED SEED, MULCHING, MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY THE INSPECTOR.	
SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.	

DISTURBED AREA TO BE PLANTED = 7.12 AC. = 310,259 SQ. FT.

ISSUED FOR CONSTRUCTION

FINAL PLAN SET



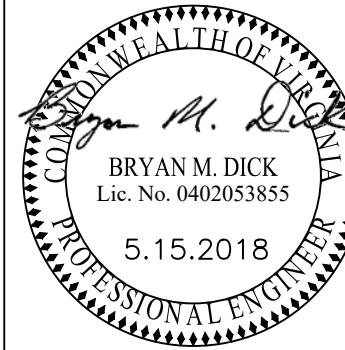
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ROANOKE COUNTY, VIRGINIA
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II

CIVIL
EROSION CONTROL
DETAILS

DATE	BY	FILE NAME	NO.	ISSUE
RNC16684				
DATE 05.15.2018				
DESIGNED BMD				
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FILE NAME				
VERIFY SCALE				
Bar is one inch on original drawing if not one inch on this sheet, adjust scale.				
SHEET				
EC-8				
SEQ.				



RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II

ROANOKE COUNTY, VIRGINIA

CIVIL
EROSION CONTROL
DETAILS

NO.	ISSUE	BY	DATE	FILE NAME	NO.	ISSUE	BY	DATE	FILE NAME
1	ISSUE				1	ISSUE			
2	ISSUE				2	ISSUE			
3	ISSUE				3	ISSUE			
4	ISSUE				4	ISSUE			
5	ISSUE				5	ISSUE			
6	ISSUE				6	ISSUE			
7	ISSUE				7	ISSUE			
8	ISSUE				8	ISSUE			
9	ISSUE				9	ISSUE			
10	ISSUE				10	ISSUE			

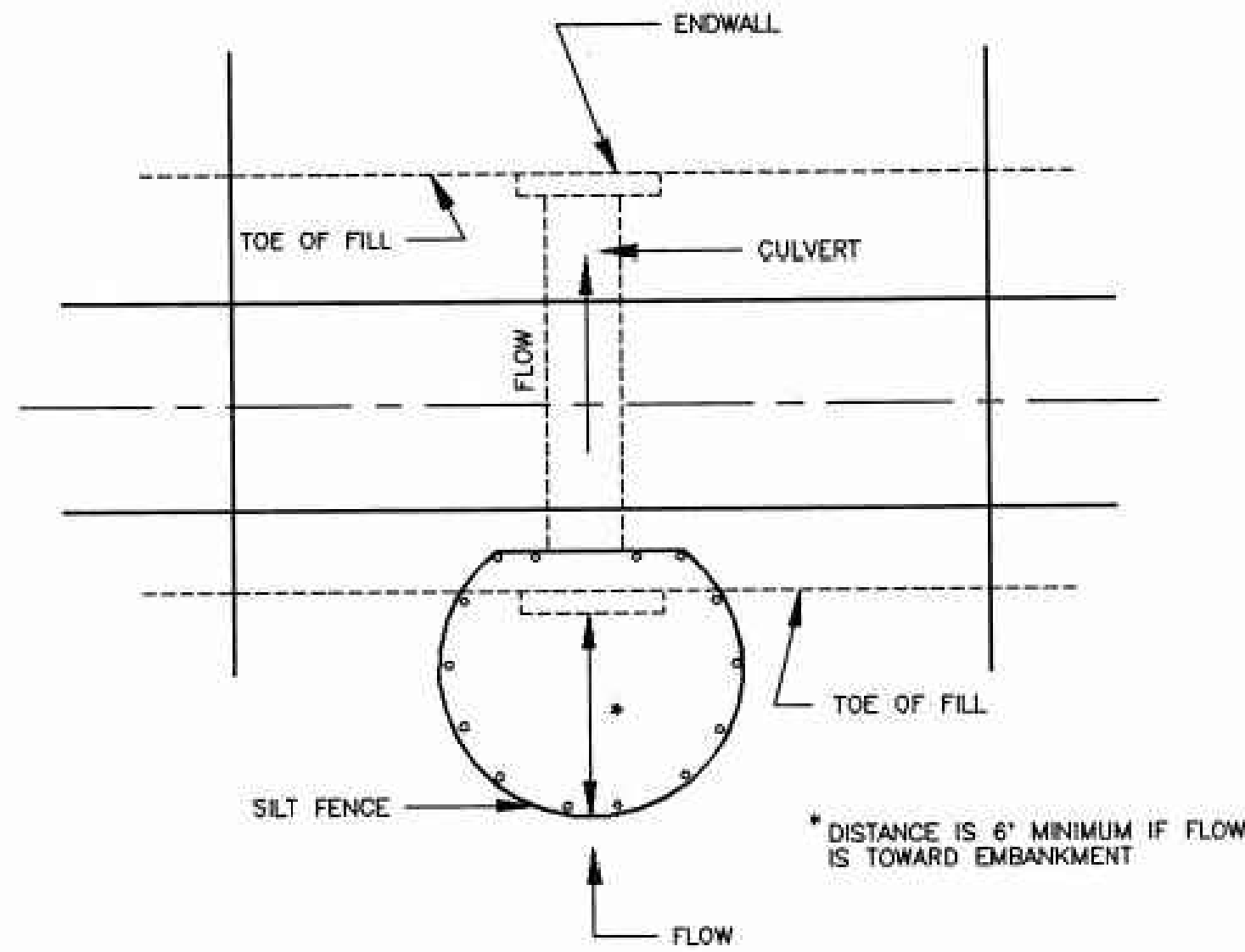
EC-10

SEQ.

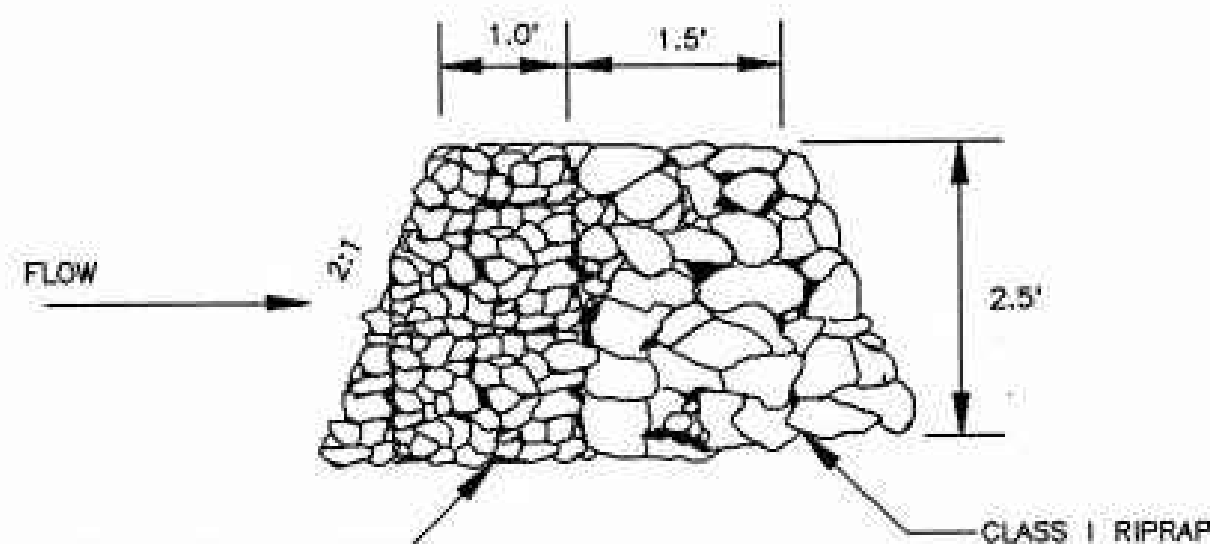
ISSUED FOR
CONSTRUCTION

FINAL PLAN SET

SILT FENCE CULVERT INLET PROTECTION



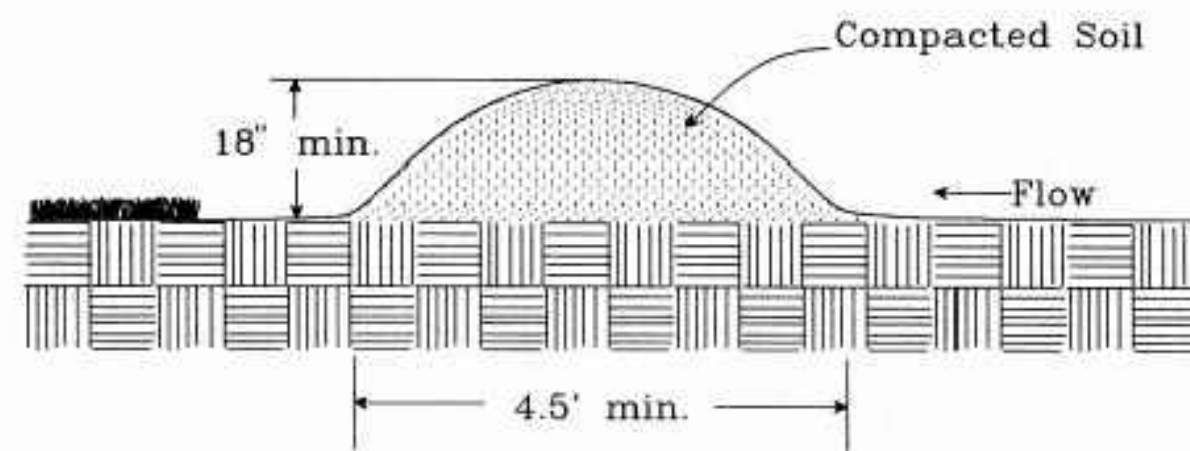
OPTIONAL STONE COMBINATION **



** VDOT #3, #357 OR #5 COARSE AGGREGATE TO REPLACE SILT FENCE IN "HORSESHOE" WHEN HIGH VELOCITY OF FLOW IS EXPECTED

1 SILT FENCE CULVERT INLET PROTECTION
NOT TO SCALE

TEMPORARY DIVERSION DIKE

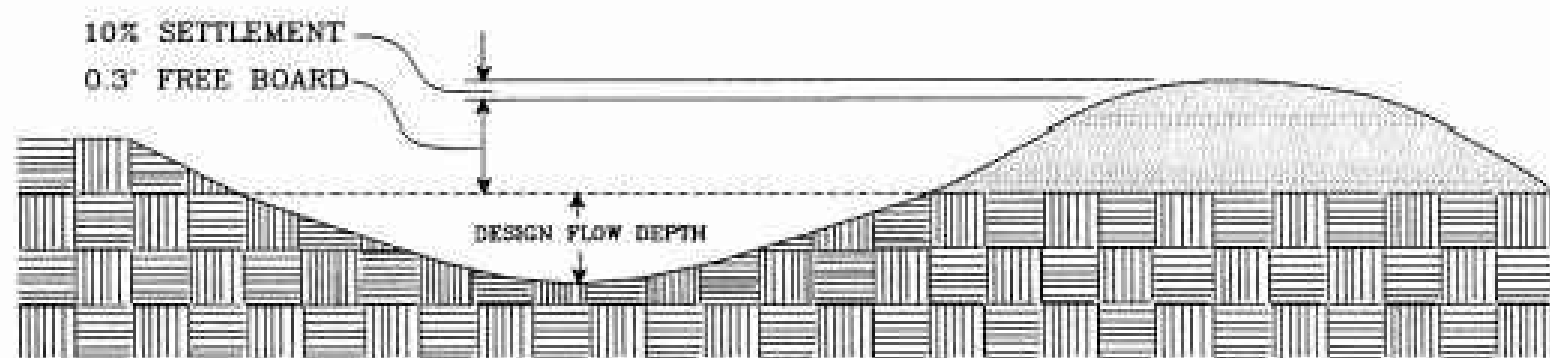


3 TEMPORARY DIVERSION DIKE
NOT TO SCALE

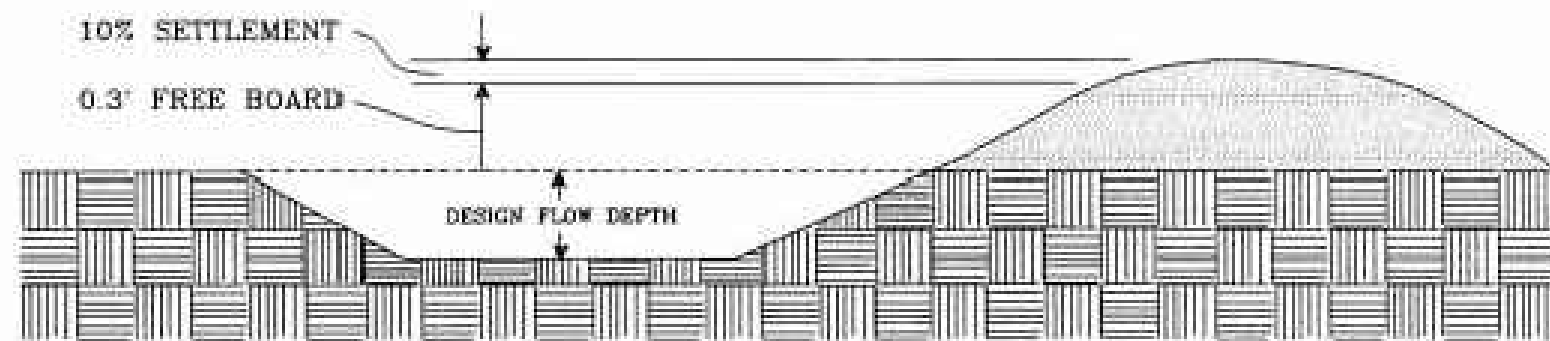
NOTE:

1. IMMEDIATELY STABILIZE TEMPORARY DIVERSION DIKE IN ACCORDANCE WITH MINIMUM STANDARD 5.

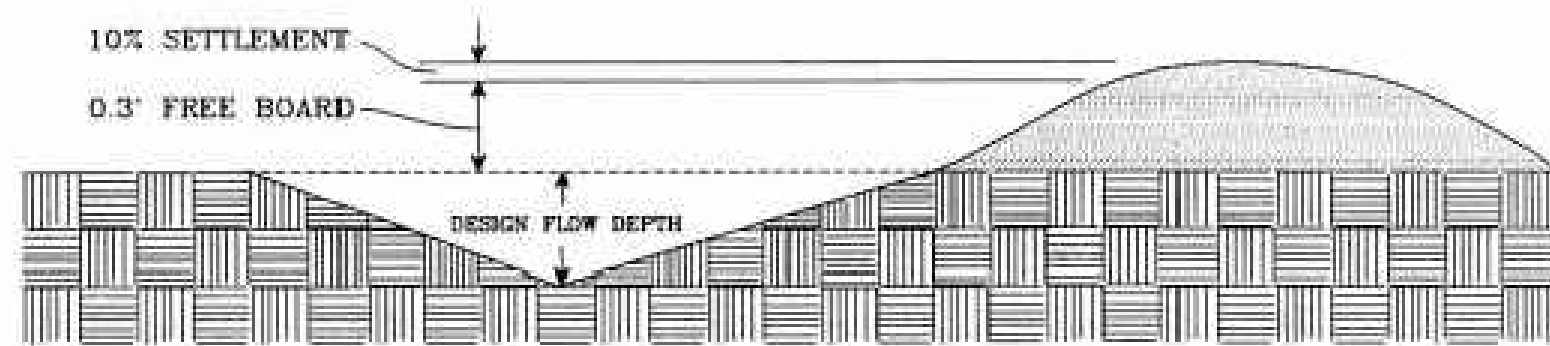
DIVERSIONS



TYPICAL PARABOLIC DIVERSION

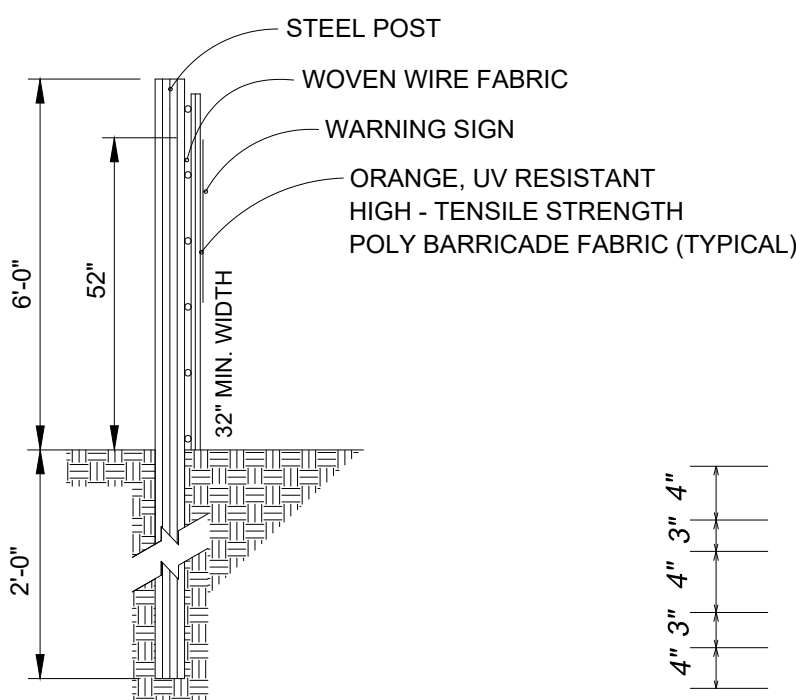


TYPICAL TRAPEZOIDAL DIVERSION

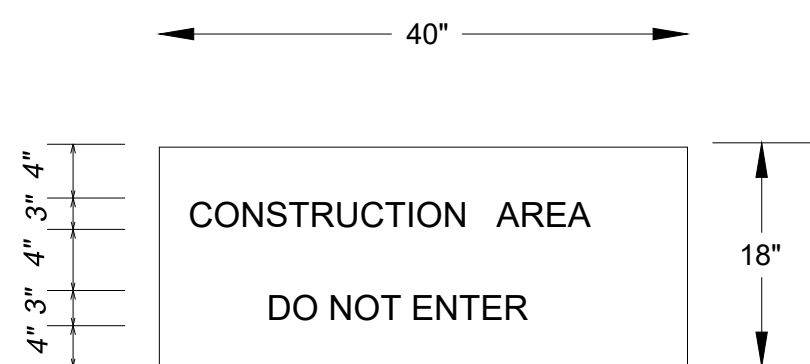


TYPICAL VEE-SHAPED DIVERSION

2 DIVERSIONS
NOT TO SCALE



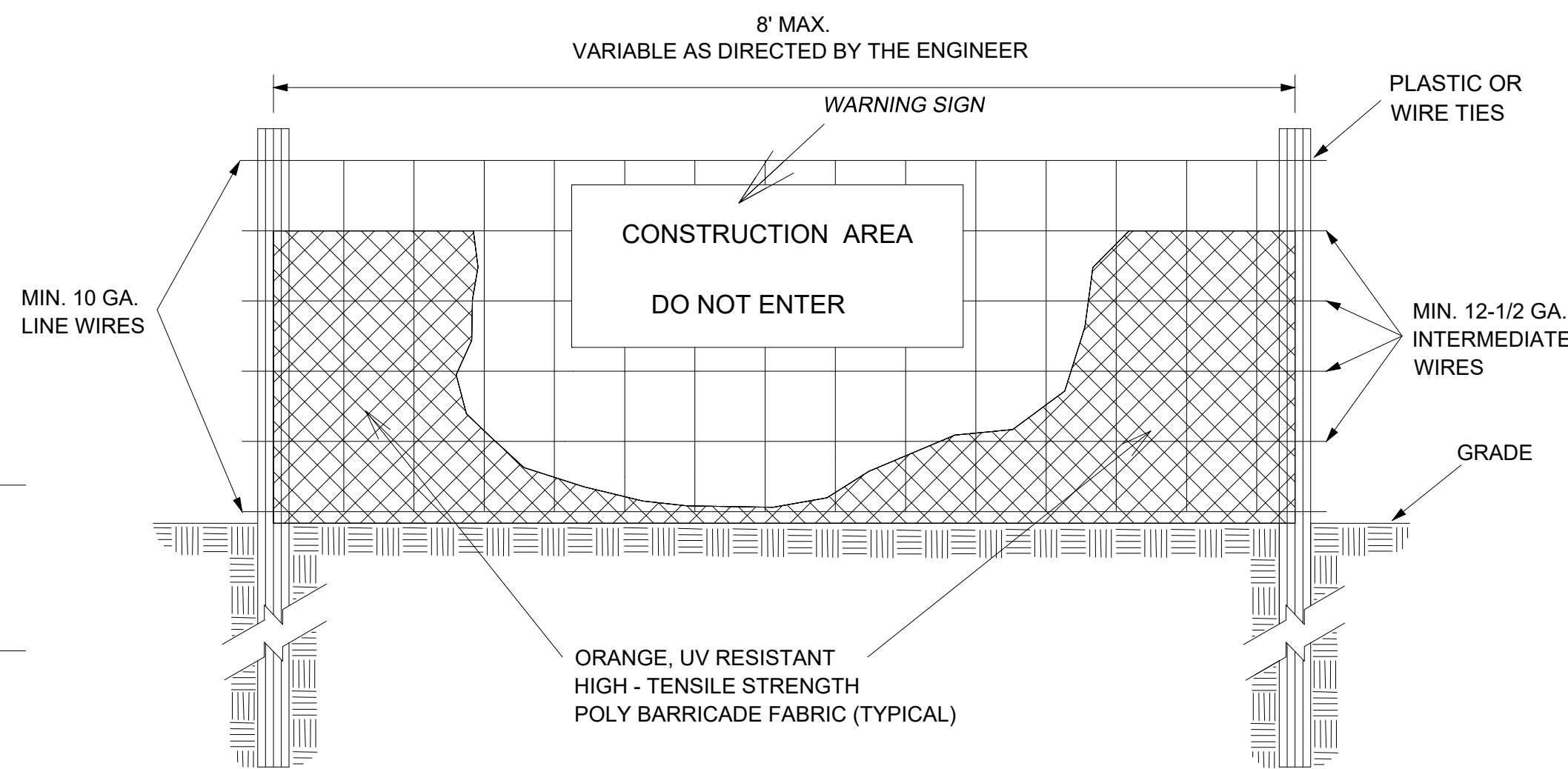
SIDE VIEW



WARNING SIGN DETAIL

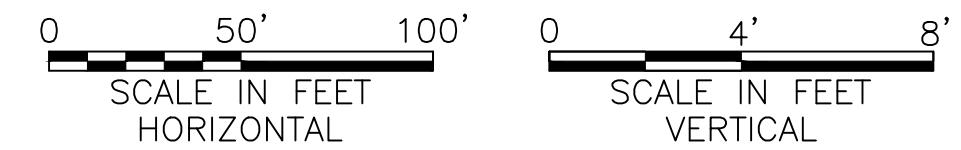
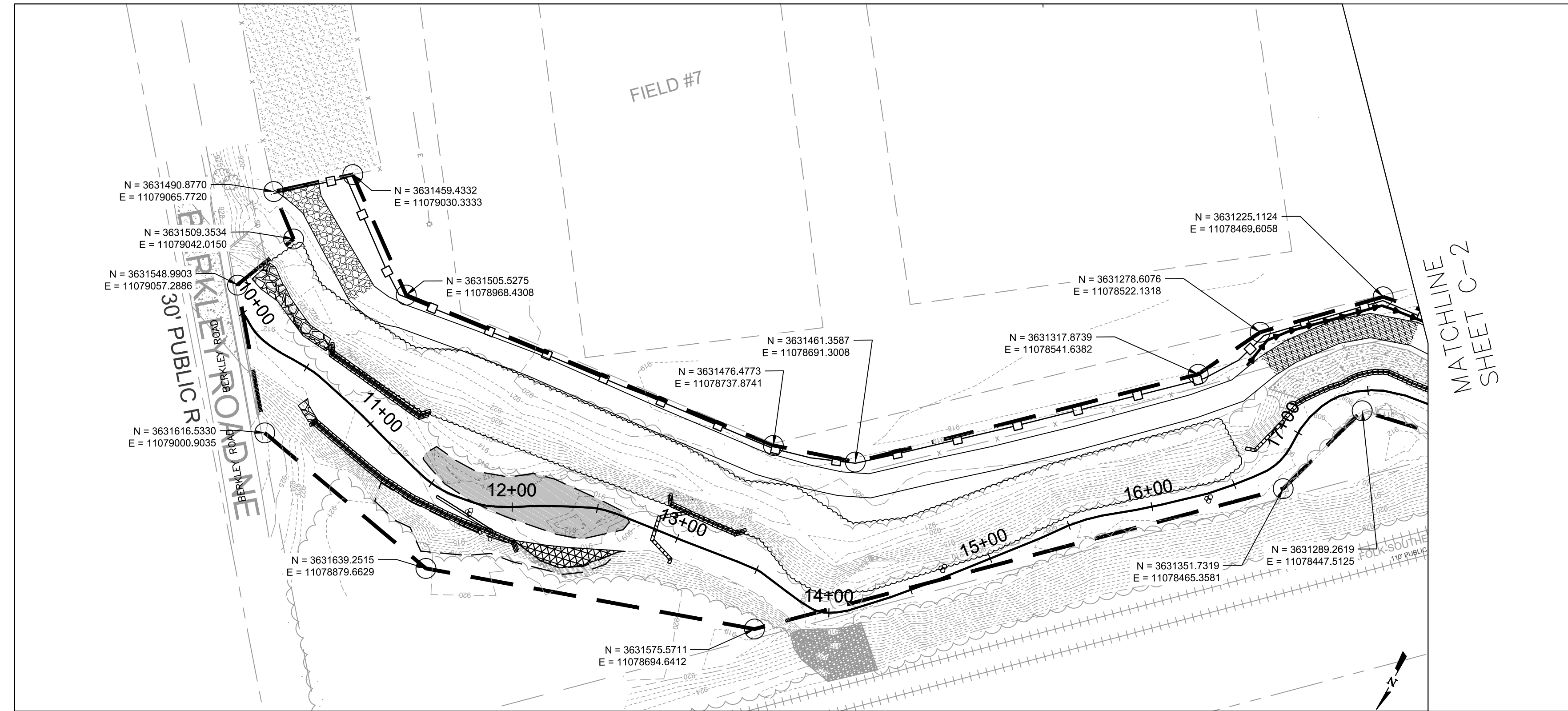
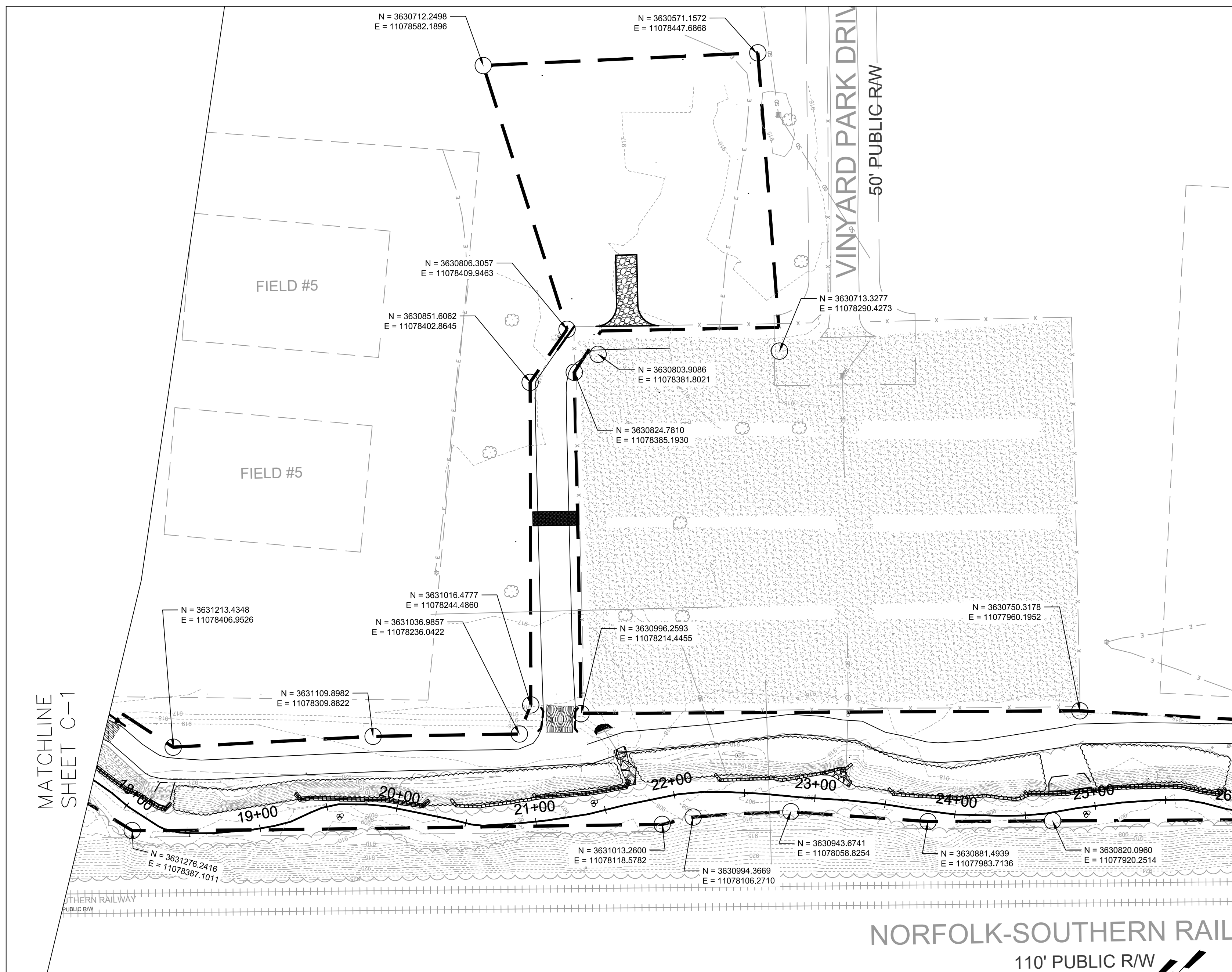
NOTES:

1. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
2. LETTERS TO BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
3. PLACE A SIGN AT EACH END OF LINEAR CONSTRUCTION AREA AND 50' ON CENTER THEREAFTER.
4. FOR CONSTRUCTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER CONSTRUCTION AREA.
5. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
6. MAINTAIN TCONSTRUCTION FENCE THROUGHOUT DURATION OF PROJECT.
7. ALL SAFETY FENCE TO BE A MIN. OF 6' TALL TO SEPERATE PARK ACTIVITIES FROM WORK AREA.



FRONT VIEW

4 CONSTRUCTION SAFETY FENCE
NOT TO SCALE



LEGEND

— — LIMITS OF DISTURBANCE

ISSUED FOR
CONSTRUCTION

FINAL PLAN SET

SEQ.	SHEET									
	NO.	ISSUE		BY	DATE	FAN JOB NO.				
						RNC16684				
						DATE 05.15.2018				
						DESIGNED BMD				
						DRAWN BMD				
						REUSED				
	VERIFY SCALE <input type="text"/>				FILE NAME		CHECKED BMD			
	Bar is one inch on original drawing, if not one inch on this sheet, adjust scale.									

ROANOKE COUNTY, VIRGINIA

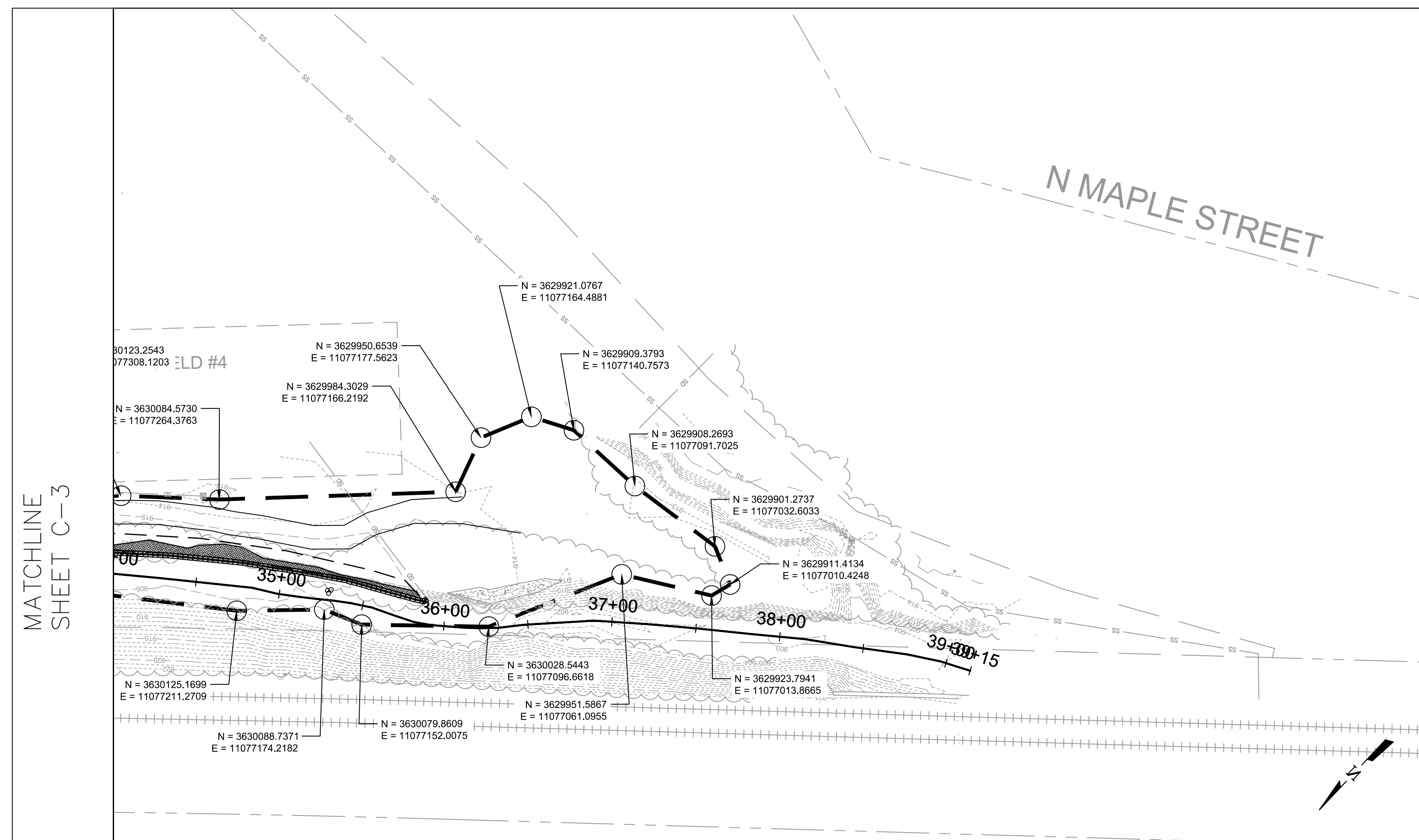
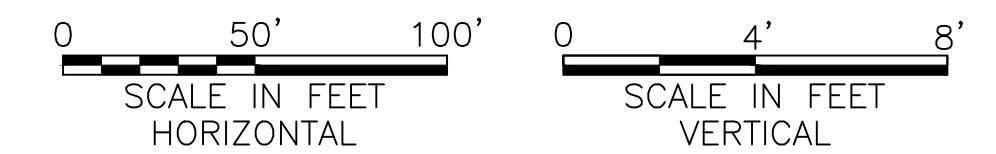
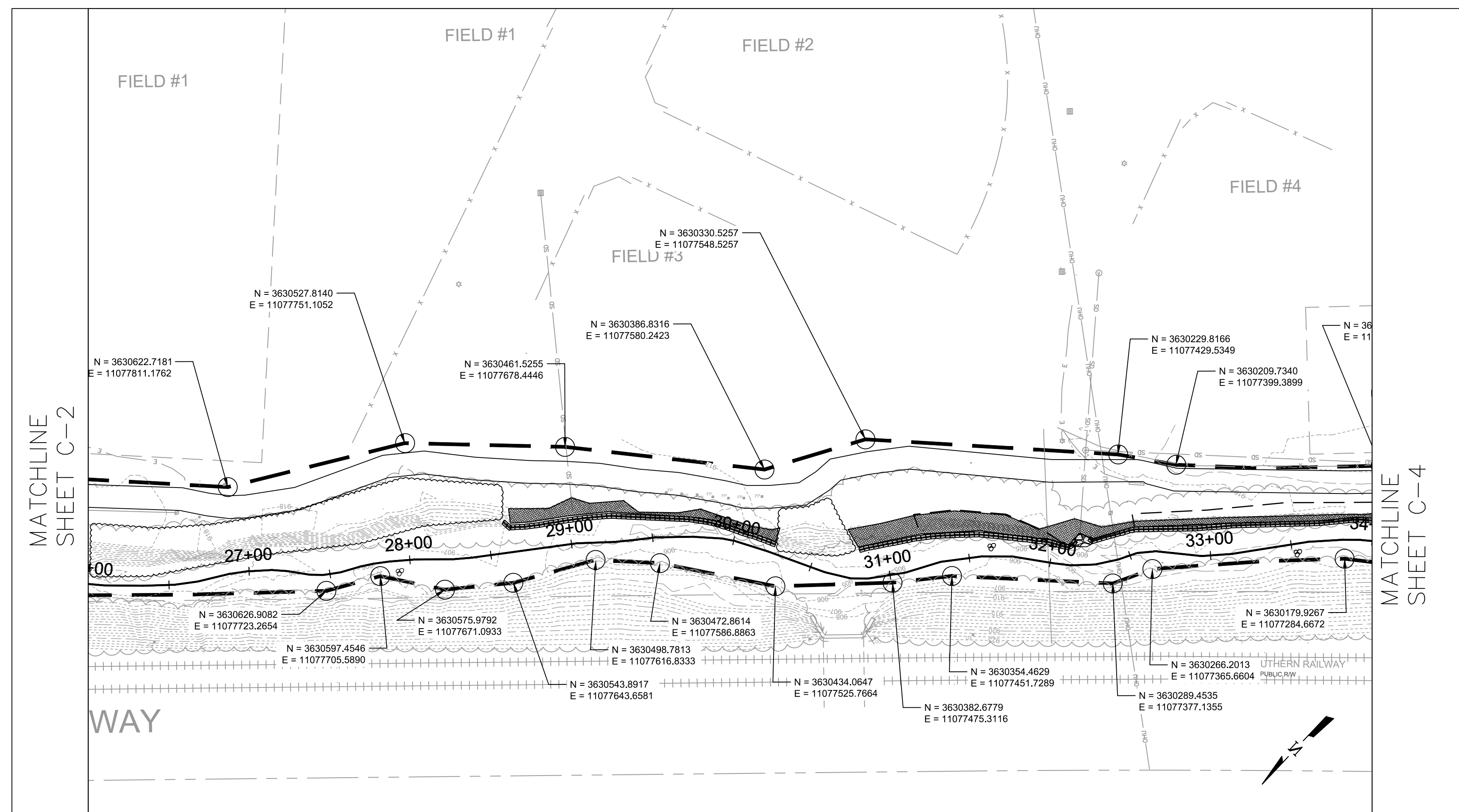
RESTORATION OF GLADE CREEK AT VINYARD PARK

PHASE II

CIVIL

LIMITS OF DISTURBANCE






LEGEND

— — LIMITS OF DISTURBANCE

ISSUED FOR
CONSTRUCTION

FINAL PLAN SET



**FREESE
& NICHOLS**

717 Green Valley Road
Suite 200
Greensboro, North Carolina 27408
Phone — (336) 790-6744
Web — www.freese.com

RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL

LIMITS OF DISTURBANCE

NCE.dwg

	RNC1668A	
	DATE 05.15.2018	
	DESIGNED BMD	
	DRAWN	
	EMD	
	REVISED	
	CHECKED	BMD
VERIFY SCALE	Bar is one inch on original drawing, if not one inch on this sheet, adjust scale.	FILE NAME
0		LD--1 LIMITS OF DISTURBANCE
1		

D-2

ACAD Rel: 21.0s (LMS Tech)
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Plot Date: 5/14/2018 11:08 AM Plot By: 02298 Filename: N:\SW\Drawings\LD-1 LIMITS OF DISTURBANCE.dwg



0 4' 8'

SCALE IN FEET
VERTICAL

ISSUED FOR
CONSTRUCTION

FINAL PLAN SET



ROANOKE COUNTY, VIRGINIA
RESTORATION OF GLADE CREEK AT VINYARD PARK
PHASE II
CIVIL

LIMITS OF DISTURBANCE - SPOIL AREA

NO.	ISSUE	BY	DATE	FAN JOB NO.	RNC 16684
				DATE	05.15.2018
				DESIGNED	BWD
				DRAWN	EMD
				REUSED	
VERIFY SCALE			Bar is one inch on original drawing. If not one inch on		
0	1	1		CHECKED	BWD

LD-3

SEQ