COUNTY OF ROANOKE, VA

GENERAL NOTES

PRE-CONSTRUCTION MEETING AND CONSTRUCTION COMMENCEMENT:

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. An approved set of plans, Storm Water Pollution Prevention Plan (SWPPP), VSMP coverage letter, and all permits must be available at the construction site at all times.
8. 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.
9. 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.
10. The Erosion Control Permit or Combined Erosion Control & VSMP Permit is given to the developer at this pre-construction meeting.
11. 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.
12. County inspectors must inspect storm drain / stormwater management / BMP installations during the process of installation. Please contact the site inspector 24 hours in advance.
13. All work shall be subject to inspection by Roanoke County, the Western Virginia Water Authority and the Virginia Department of Transportation Inspectors.
14. 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.
15. The 100 year Floodway shall be staked prior to any construction.
16. Grade stakes shall be set for all curb and gutter, culvert, sanitary sewer and storm sewer at all times of construction.
17. The Department of Community Development shall be notified when a spring is encountered during construction.
18. Construction debris shall be containerized in accordance with the Virginia Litter Control Act. No less than one litter receptacle shall be provided on site.
19. 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.
20. Plan approval in no way relieves the developer or contractors of the responsibilities contained within the erosion and sediment control or stormwater management policies.
21. Field construction shall honor proposed drainage divides as shown on plans.
22. 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.
23. 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:

24. Plan approval by Roanoke County does not guarantee issuance of any permits by the Virginia Department of Transportation.
25. A permit must be obtained from the Virginia Department of Transportation, Salem Residency Office prior to construction in the highway right-of-way.
26. 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.
27. 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 2016 VDOT Road and Bridge Standards as part of this development.
28. Standard street and traffic control signs shall be erected at each intersection by the developer prior to final street acceptance.
29. All traffic devices shall be in accordance with current edition of the "Manual on Uniform Traffic Control Devices" (MUTCD).
30. All unsuitable material shall be removed from the construction limits of the roadway before placing embankment.

See Sheet C9.1 for Stormwater Site Statistics Table.
See Sheet C9.1 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.

NAME OF DEVELOPMENT	**EAST ROANOKE RIVER GREENWAY EXTENSION**
MAGISTERIAL DISTRICT(S)	VINTON
OWNER (name, address, telephone)	VIRGINIA RECREATIONAL FACILITIES AUTHORITY P.O. BOX 29800 ROANOKE, VIRGINIA 24018 ROANOKE VALLEY RESOURCE AUTHORITY 1020 HOLLINS ROAD, N.E. ROANOKE, VIRGINIA 24012
DEVELOPER (name, address, telephone)	COUNTY OF ROANOKE ATTN: DAVID HENDERSON, P.E. 5204 BERNARD DRIVE ROANOKE, VIRGINIA 24018 540-772-2083
ENGINEER, ARCHITECT OR SURVEYOR (name, address, telephone)	BALZER AND ASSOCIATES, INC. ATTN: CHRIS BURNS, P.E. 1208 CORPORATE CIRCLE ROANOKE, VA 24018 540-772-9580 FAX 540-772-8050
TAX MAP NO(S)	080.00-05-02.01-0000, 080.00-05-03.00-0000, 080.00-05-04.00-0000, 080.00-05-24.00-0000

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.

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.

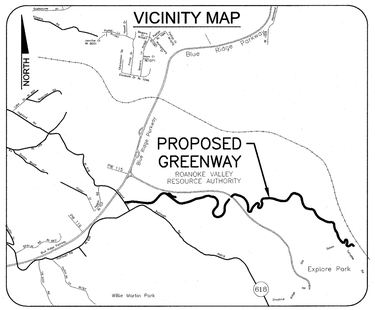
Water main shall be minimum Class 350 Ductile Iron in accordance to AWWA C151 or DR-14 PVC in accordance with AWWA C-900.

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

NOT APPLICABLE

VICINITY MAP



LEGEND

Property Line	
Right-of-way	
Centerline	
Minimum Building Line	MBL
Existing Storm Sewer	48"RCP 48"RCP
Existing Sanitary Sewer	8" SAN
Existing Water Main	8" WL
Existing Contour	1155
Proposed Contour	1155
Proposed Drainage Divide	
Proposed Limits of Clearing	
Proposed Storm Sewer	
Proposed Sanitary Sewer	8" SS
Proposed Water Main	8" W
To Be Removed	T.B.R.
Not in Contract	N.I.C.

Sheet Index

SURVEY INFORMATION

Horizontal and vertical control surveys were performed in year: 2018
By: BALZER AND ASSOCIATES, INC.

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

Horizontal Datum: NAD83 Vertical Datum: NGVD88

Source of topographic mapping is dated 2018

Boundary was performed by BALZER & ASSOCIATES, INC. dated: 2018

Benchmark Information: 2018

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

NOTE: THIS COST ESTIMATE TABLE IS PROVIDED FOR BONDING PURPOSES ONLY. VERIFICATION OF ALL QUANTITIES AND PRICES FOR BIDDING PURPOSES SHALL BE THE RESPONSIBILITY OF THE BIDDER.

QUANTITY & COST ESTIMATE

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
CLEARING AND GRUBBING		ACRES			
S.W.M. EXCAVATION		C.Y.			
S.W.M. EMBANKMENT		C.Y.			
NYLOPLAST DROP INLET		EACH			
8" TYPE S HDPE PIPE		LIN. FT.			
10" TYPE S HDPE PIPE		LIN. FT.			
12" TYPE S HDPE PIPE		LIN. FT.			
15" TYPE S HDPE PIPE		LIN. FT.			
BOX CULVERT		LUMP SUM			
PAVED DITCH		LIN. FT.			
RIPRAP - CLASS		S.F.			
SODDED SWALE		S.Y.			
-IN. CONCRETE ENDWALL EW-		EACH			
PAVEMENT (INCLUDING SUB-BASE)					
CURB & GUTTER CG-6		LIN. FT.			
GRAVEL SHOULDER		S.Y.			
SURFACE TREATMENT		S.Y.			
-IN. BIT. CONC.: TYPE B-		S.Y.			
-IN. BIT. CONC.: TYPE S-		S.Y.			
-IN. BASE MATERIAL		C.Y.			
-IN. SUBBASE MATERIAL		C.Y.			
COMMERCIAL WATER METER (1") & Lateral		EACH			
		EACH			
FIRE HYDRANT ASSEMBLIES		EACH			
BLOW OFFS W/VAULT, FRAME & COVER		EACH			
8 -IN. GATE VALVE, W/VAULT, FRAME & COVER		EACH			
-IN. GATE VALVE, W/VAULT, FRAME & COVER		EACH			
SANITARY SEWER MANHOLE		EACH			
8" PVC SANITARY SEWER MAIN		LIN. FT.			
6" SANITARY SEWER LATERAL & SAMPLING MANHOLE		EACH			
LANDSCAPING (SEE SHEET C-08)		LUMP SUM			
AS-BUILT PLANS - STORM SEWER		LUMP SUM			
SUB-TOTAL					
10% CONTINGENCY					
ESTIMATED TOTAL					

NOT APPLICABLE

BY SEALING THE PLANS, THE DESIGN PROFESSIONAL HEREBY CERTIFIES THAT THE FOREGOING ESTIMATE REFLECTS THE CURRENT IMPROVEMENT COSTS OF THIS PROJECT.

BALZER AND ASSOCIATES, INC.
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PLANNERS • ARCHITECTS
ENGINEERS • SURVEYORS

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Phone: 540/772-9580
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Suite 200
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Phone: 804/794-0571
FAX: 804/794-2635

448 Peppers Ferry Road
Christiansburg, Virginia 24073
Phone: 540/381-4290
FAX: 540/381-4291

1561 Commerce Road
Suite 401
Verona, Virginia 24482
Phone: 540/248-3220
FAX: 540/248-3221

128 W. Market Street
Suite 301
Harrisonburg, Virginia 22801
Phone: 540/433-1908

901 Jefferson Street
Suite 208
Lynchburg, Virginia 24504
Phone: 434/528-5184

COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

DRAWN BY:	CPB
DESIGNED BY:	CPB
CHECKED BY:	BTC
DATE:	9/4/2019
REVISIONS:	
	12/20/2019
	1/29/2020
	8/07/2020
	7/27/2021
	12/21/2022
	4/4/2023

TIER 1 PROJECT

LOCALLY ADMINISTERED PROJECTS

COUNTY OF ROANOKE
NAME OF LOCALITY

(SIGNATURE)

DAVID HENDERSON
NAME OF RESPONSIBLE LOCAL GOVERNMENT OFFICIAL (TYPED)

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION

4/4/23 DATE — COUNTY ENGINEER TITLE OF POSITION

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION

DATE — DISTRICT PLANNING AND INVESTMENT MANAGER

DATE — DISTRICT PROJECT DEVELOPMENT ENGINEER

APPROVED FOR CONSTRUCTION

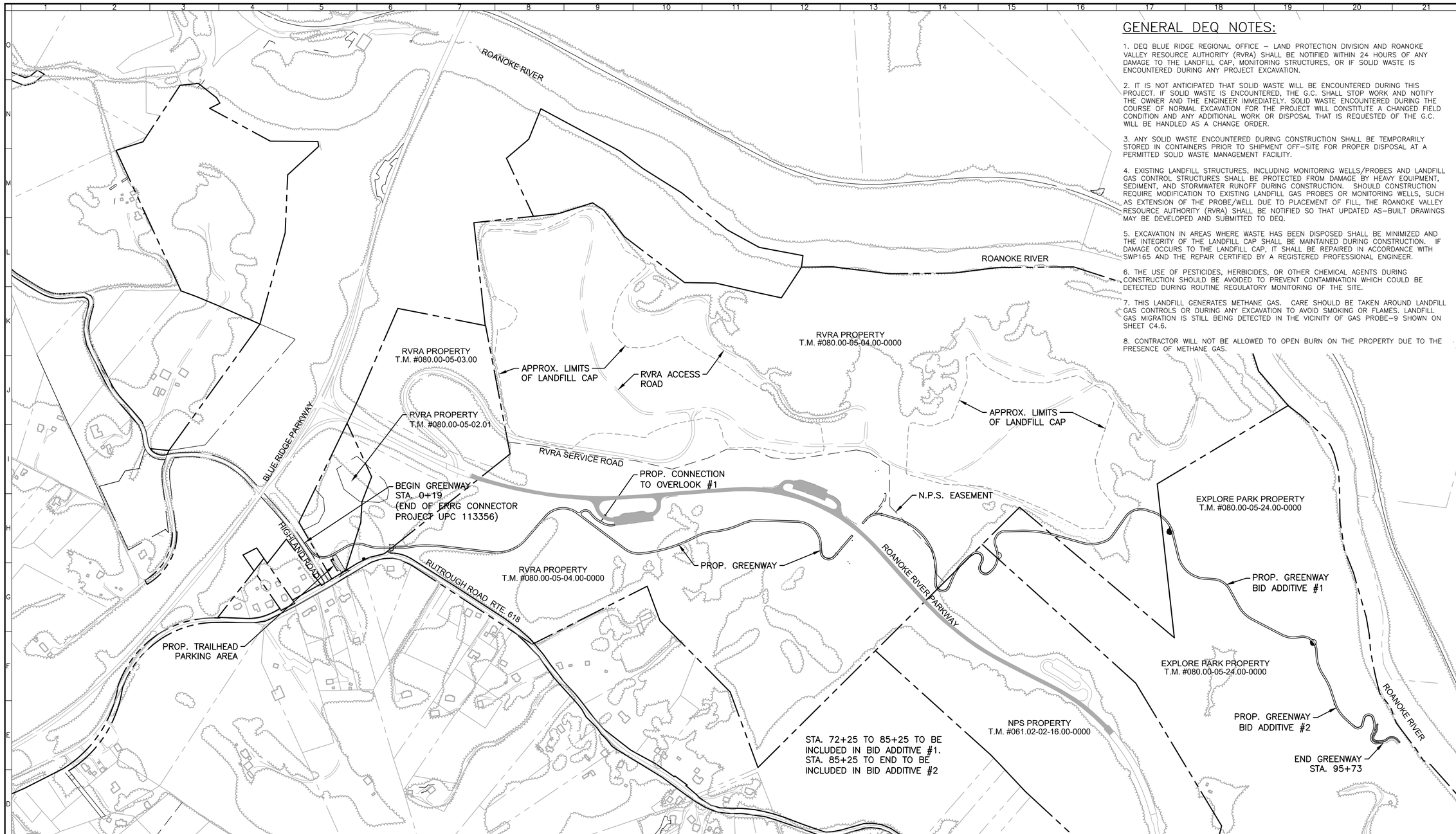
DATE — DISTRICT ADMINISTRATOR

EAST ROANOKE RIVER GREENWAY EXTENSION

VDOT PROJECT #: FL16-080-000
UPC #: 110155
FEDERAL #: FLAP-5128(490)
County of Roanoke, Virginia

SHEET No.: C1

JOB No.: 04160062.00



GENERAL DEQ NOTES:

1. DEQ BLUE RIDGE REGIONAL OFFICE – LAND PROTECTION DIVISION AND ROANOKE VALLEY RESOURCE AUTHORITY (RVRA) SHALL BE NOTIFIED WITHIN 24 HOURS OF ANY DAMAGE TO THE LANDFILL CAP, MONITORING STRUCTURES, OR IF SOLID WASTE IS ENCOUNTERED DURING ANY PROJECT EXCAVATION.

2. IT IS NOT ANTICIPATED THAT SOLID WASTE WILL BE ENCOUNTERED DURING THIS PROJECT. IF SOLID WASTE IS ENCOUNTERED, THE G.C. SHALL STOP WORK AND NOTIFY THE OWNER AND THE ENGINEER IMMEDIATELY. SOLID WASTE ENCOUNTERED DURING THE COURSE OF NORMAL EXCAVATION FOR THE PROJECT WILL CONSTITUTE A CHANGED FIELD CONDITION AND ANY ADDITIONAL WORK OR DISPOSAL THAT IS REQUESTED OF THE G.C. WILL BE HANDLED AS A CHANGE ORDER.

3. ANY SOLID WASTE ENCOUNTERED DURING CONSTRUCTION SHALL BE TEMPORARILY STORED IN CONTAINERS PRIOR TO SHIPMENT OFF–SITE FOR PROPER DISPOSAL AT A PERMITTED SOLID WASTE MANAGEMENT FACILITY.

4. EXISTING LANDFILL STRUCTURES, INCLUDING MONITORING WELLS/PROBES AND LANDFILL GAS CONTROL STRUCTURES SHALL BE PROTECTED FROM DAMAGE BY HEAVY EQUIPMENT, SEDIMENT, AND STORMWATER RUNOFF DURING CONSTRUCTION. SHOULD CONSTRUCTION REQUIRE MODIFICATION TO EXISTING LANDFILL GAS PROBES OR MONITORING WELLS, SUCH AS EXTENSION OF THE PROBE/WELL DUE TO PLACEMENT OF FILL, THE ROANOKE VALLEY RESOURCE AUTHORITY (RVRA) SHALL BE NOTIFIED SO THAT UPDATED AS–BUILT DRAWINGS MAY BE DEVELOPED AND SUBMITTED TO DEQ.

5. EXCAVATION IN AREAS WHERE WASTE HAS BEEN DISPOSED SHALL BE MINIMIZED AND THE INTEGRITY OF THE LANDFILL CAP SHALL BE MAINTAINED DURING CONSTRUCTION. IF DAMAGE OCCURS TO THE LANDFILL CAP, IT SHALL BE REPAIRED IN ACCORDANCE WITH SWP165 AND THE REPAIR CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.

6. THE USE OF PESTICIDES, HERBICIDES, OR OTHER CHEMICAL AGENTS DURING CONSTRUCTION SHOULD BE AVOIDED TO PREVENT CONTAMINATION WHICH COULD BE DETECTED DURING ROUTINE REGULATORY MONITORING OF THE SITE.

7. THIS LANDFILL GENERATES METHANE GAS. CARE SHOULD BE TAKEN AROUND LANDFILL GAS CONTROLS OR DURING ANY EXCAVATION TO AVOID SMOKING OR FLAMES. LANDFILL GAS MIGRATION IS STILL BEING DETECTED IN THE VICINITY OF GAS PROBE–9 SHOWN ON SHEET C4.6.

8. CONTRACTOR WILL NOT BE ALLOWED TO OPEN BURN ON THE PROPERTY DUE TO THE PRESENCE OF METHANE GAS.

IN THE EVENT SOLID WASTE IS ENCOUNTERED DURING CONSTRUCTION, THE G.C. SHALL IMMEDIATELY NOTIFY THE ENGINEER, ROANOKE COUNTY, AND THE ROANOKE VALLEY RESOURCE AUTHORITY (RVRA). SEE ADDITIONAL NOTES ON THIS SHEET.

NORTH

300 0 300 600 900

SCALE: 1" = 300'

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CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

OVERALL MAP

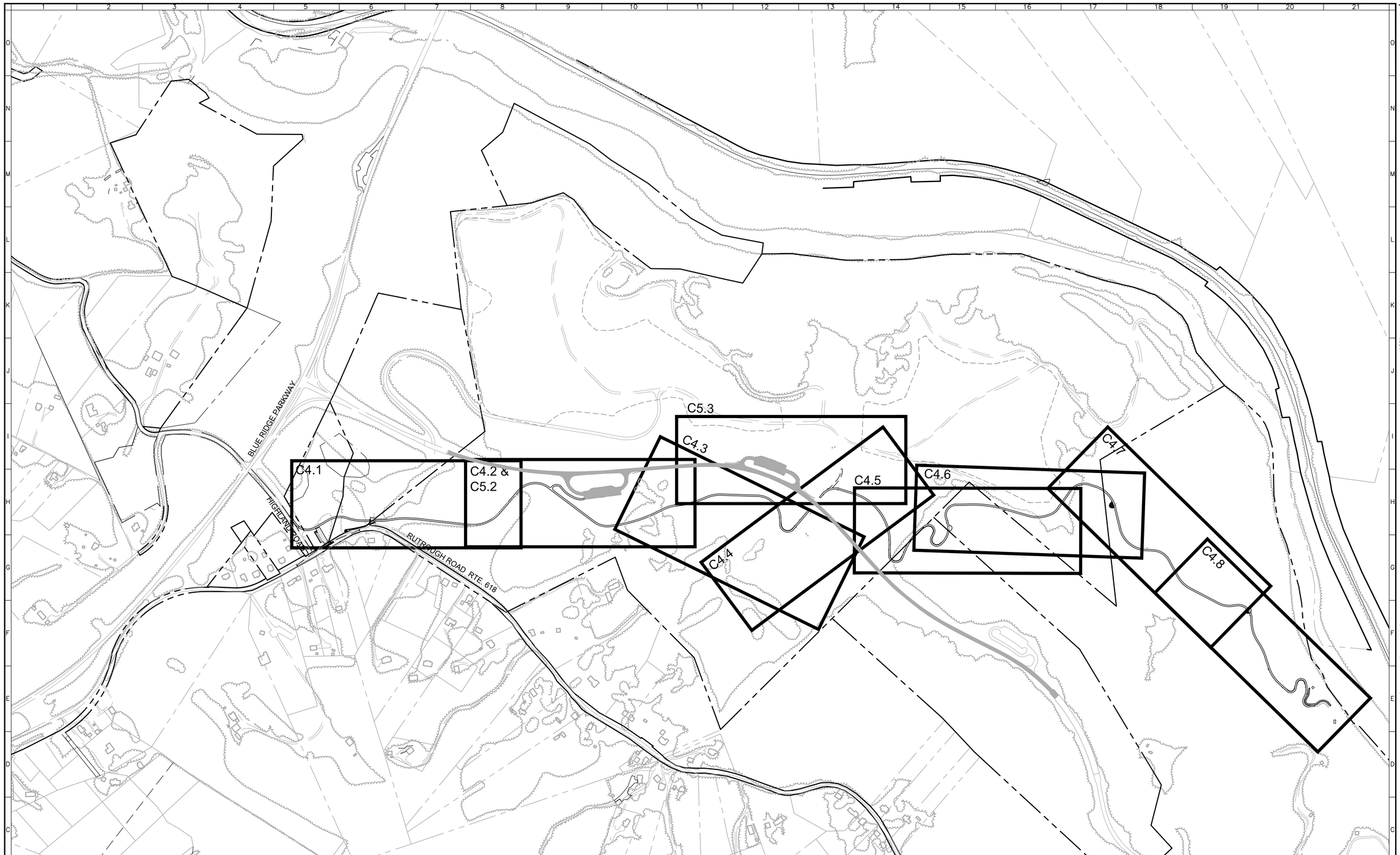
VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE 1"=300'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C2.1

JOB NO. 04160062.00



NORTH

300 0 300 600 900

SCALE: 1" = 300'

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COMMONWEALTH OF VIRGINIA
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4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

KEY PLAN

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	1"=300'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

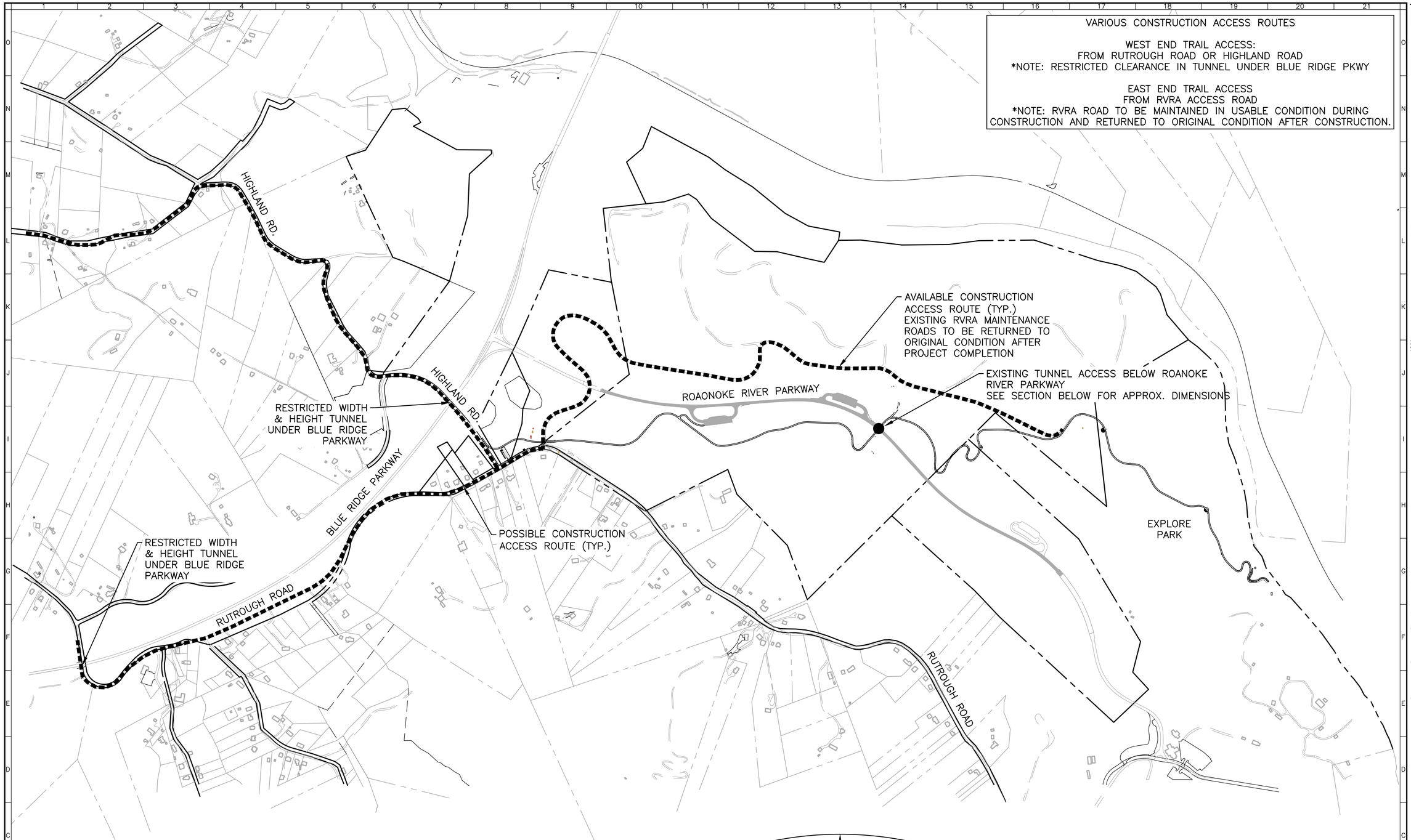
SHEET NO.
C2.2

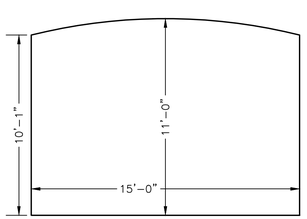
JOB NO. 04160062.00

VARIOUS CONSTRUCTION ACCESS ROUTES

WEST END TRAIL ACCESS:
FROM RUTROUGH ROAD OR HIGHLAND ROAD
*NOTE: RESTRICTED CLEARANCE IN TUNNEL UNDER BLUE RIDGE PKWY

EAST END TRAIL ACCESS
FROM RVRA ACCESS ROAD
*NOTE: RVRA ROAD TO BE MAINTAINED IN USABLE CONDITION DURING CONSTRUCTION AND RETURNED TO ORIGINAL CONDITION AFTER CONSTRUCTION.





EXISTING RVRA TUNNEL SECTION

NORTH

400 0 400 800 1200

SCALE: 1" = 400'

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CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

CONSTRUCTION ACCESS ROUTE PLAN

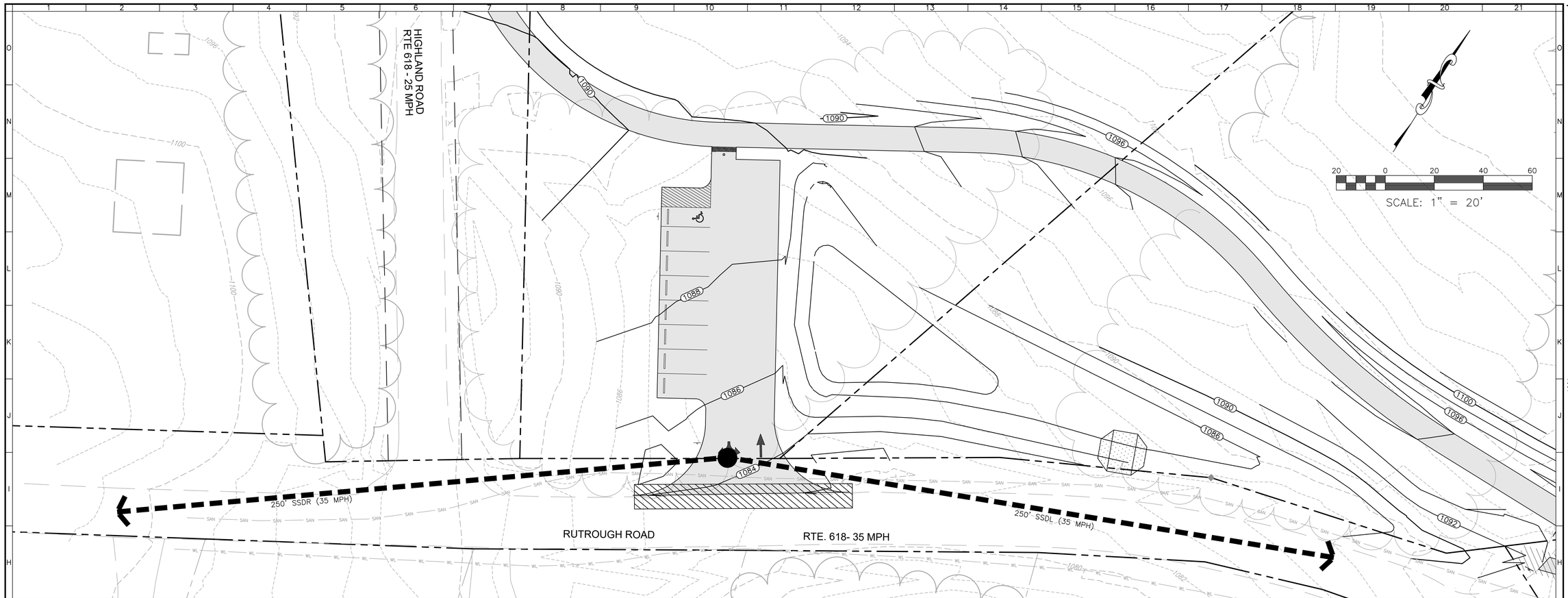
VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE 1"=400'

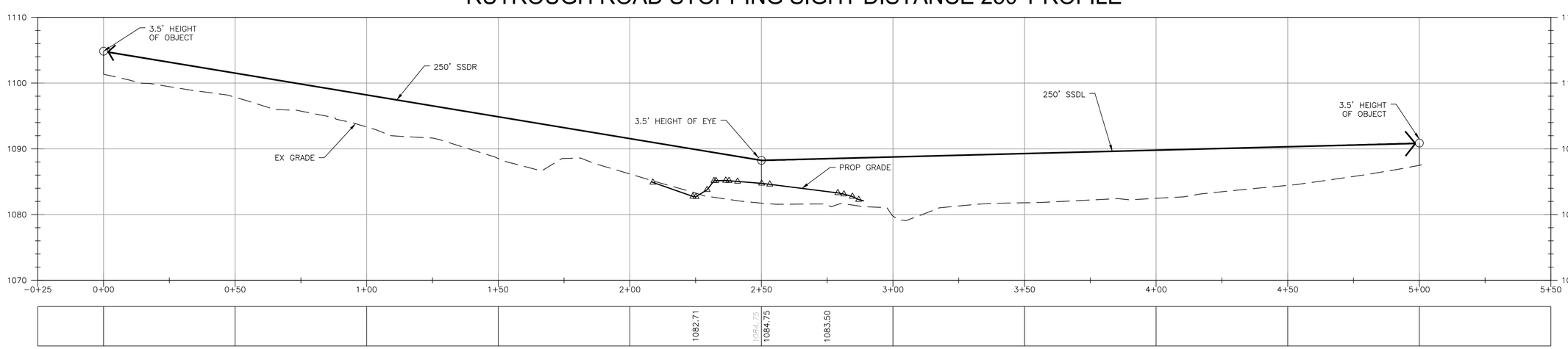
REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C2.3

JOB NO. 04160062.00



RUTROUGH ROAD STOPPING SIGHT DISTANCE 250' PROFILE



VERTICAL SCALE

SCALE: 1" = 8'

HORIZONTAL SCALE

SCALE: 1" = 20'

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
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4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

SIGHT DISTANCE PLAN & PROFILE

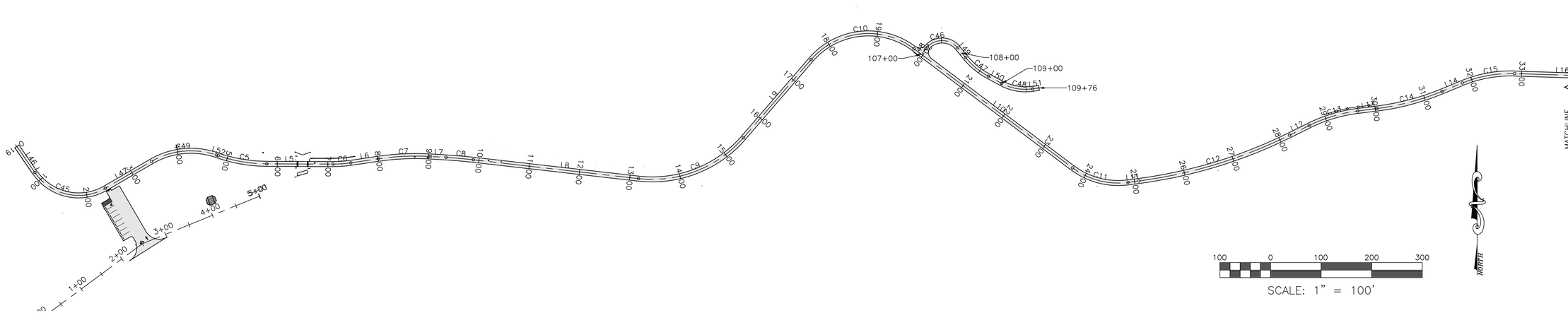
VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C2.4

JOB NO. 04160062.00



ERRG EXTENSION STA:0+00 - 33+00

LINE TABLE

LINE #	LENGTH	BEARING	START STATION	START POINT	END STATION	END POINT
L5	130.76	S89°45'41"E	5+79.27	(11083597.2796, 3615954.7303)	7+10.03	(11083728.0420, 3615954.7303)
L6	55.08	N81°34'46"E	7+45.54	(11083763.4331, 3615956.7170)	8+00.62	(11083817.9194, 3615956.7170)
L7	30.63	S86°36'24"E	9+03.72	(11083920.7311, 3615969.2960)	9+34.35	(11083951.3105, 3615969.2960)
L8	328.49	S83°29'02"E	9+88.86	(11084005.6062, 3615962.7760)	13+17.35	(11084331.9760, 3615962.7760)
L9	203.85	N40°51'40"E	15+49.36	(11084539.7248, 3616006.5430)	17+53.21	(11084673.0905, 3616006.5430)
L10	392.02	S53°03'32"E	19+78.57	(11084876.6844, 3616182.4703)	23+70.59	(11085190.0078, 3616182.4703)
L11	21.79	N82°31'30"E	24+86.87	(11085299.6712, 3615918.0312)	25+08.66	(11085321.2719, 3615918.0312)
L12	43.24	N63°40'08"E	28+21.30	(11085619.0634, 3616011.3594)	28+64.54	(11085657.8169, 3616011.3594)
L13	38.03	N82°54'06"E	29+65.25	(11085753.8125, 3616059.3660)	30+03.28	(11085791.5534, 3616059.3660)
L14	43.56	N67°35'35"E	31+36.87	(11085920.3572, 3616097.9835)	31+80.44	(11085960.6324, 3616097.9835)

LINE TABLE

LINE #	LENGTH	BEARING	START STATION	START POINT	END STATION	END POINT
L46	62.68	S34°30'58"E	0+19.48	(11083103.2980, 3615989.3735)	0+82.16	(11083138.8154, 3615989.3735)
L47	105.67	N59°49'43"E	2+39.13	(11083278.1036, 3615906.4485)	3+44.80	(11083369.4622, 3615906.4485)
L52	3.57	S71°02'46"E	4+77.70	(11083497.7082, 3615972.1539)	4+81.27	(11083501.0872, 3615972.1539)

OVERLOOK CONN. #1 STA:107+00-109+62

LINE TABLE

LINE #	LENGTH	BEARING	START STATION	START POINT	END STATION	END POINT
L48	14.29	N36°56'28"E	107+00.00	(11084891.6653, 3616171.2055)	107+14.29	(11084900.2539, 3616171.2055)
L49	24.35	S39°20'06"E	107+86.70	(11084963.1621, 3616183.9417)	108+11.05	(11084978.5950, 3616183.9417)
L50	29.69	S61°50'32"E	108+69.98	(11085023.8280, 3616127.9401)	108+99.66	(11085050.0009, 3616127.9401)
L51	13.06	N82°03'24"E	109+62.67	(11085111.0102, 3616103.0559)	109+75.73	(11085123.9412, 3616103.0559)

ERRG EXTENSION STA:0+00 - 33+00

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH	START STATION	START POINT	END STATION	END POINT
C5	97.99'	300.00'	18°42'55"	S80° 24' 13.65"E	97.56'	4+81.27	(11083501.0872, 3615970.9935)	5+79.27	(11083597.2796, 3615954.7303)
C6	35.52'	235.00'	8°39'33"	N85° 54' 32.68"E	35.48'	7+10.03	(11083728.0420, 3615954.1857)	7+45.54	(11083763.4331, 3615956.7170)
C7	103.09'	500.00'	11°48'49"	N87° 29' 10.89"E	102.91'	8+00.62	(11083817.9194, 3615964.7827)	9+03.72	(11083920.7311, 3615969.2960)
C8	54.51'	1,000.00'	3°07'23"	S85° 02' 43.14"E	54.50'	9+34.35	(11083951.3105, 3615967.4829)	9+88.86	(11084005.6062, 3615962.7760)
C9	232.01'	238.85'	55°39'19"	N68° 41' 18.95"E	223.00'	13+17.35	(11084331.9760, 3615925.4975)	15+49.36	(11084539.7248, 3616006.5430)
C10	225.36'	150.00'	86°04'48"	N83° 54' 03.91"E	204.75'	17+53.21	(11084673.0905, 3616160.7163)	19+78.57	(11084876.6844, 3616182.4703)
C11	116.28'	150.00'	44°24'58"	S75° 16' 01.10"E	113.39'	23+70.59	(11085190.0078, 3615946.8684)	24+86.87	(11085299.6712, 3615918.0312)
C12	312.65'	950.00'	18°51'22"	N73° 05' 48.60"E	311.24'	25+08.66	(11085321.2719, 3615920.8654)	28+21.30	(11085619.0634, 3616011.3594)
C13	100.70'	300.00'	19°13'58"	N73° 17' 06.56"E	100.23'	28+64.54	(11085657.8169, 3616030.5388)	29+65.25	(11085753.8125, 3616059.3660)
C14	133.59'	500.00'	15°18'31"	N75° 14' 50.33"E	133.19'	30+03.28	(11085791.5534, 3616064.0659)	31+36.87	(11085920.3572, 3616097.9835)
C15	105.96'	250.00'	24°17'03"	N79° 44' 06.42"E	105.17'	31+80.44	(11085960.6324, 3616114.5895)	32+86.40	(11086064.1172, 3616133.3303)

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH	START STATION	START POINT	END STATION	END POINT
C45	156.97'	105.00'	85°39'19"	S77° 20' 37.61"E	142.76'	0+82.16	(11083138.8154, 3615937.7267)	2+39.13	(11083278.1036, 3615906.4485)
C49	132.90'	155.00'	49°07'31"	N84° 23' 28.47"E	128.86'	3+44.80	(11083369.4622, 3615959.5595)	4+77.70	(11083497.7082, 3615972.1539)

OVERLOOK CONN. #1 STA:107+00-109+62

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH	START STATION	START POINT	END STATION	END POINT
C46	72.41'	40.00'	103°43'26"	N88° 48' 11.07"E	62.92'	107+14.29	(11084900.2539, 3616182.6273)	107+86.70	(11084963.1621, 3616183.9417)
C47	58.92'	150.00'	22°30'26"	S50° 35' 19.13"E	58.55'	108+11.05	(11084978.5950, 3616165.1099)	108+69.98	(11085023.8280, 3616127.9401)
C48	63.01'	100.00'	36°06'04"	S79° 53' 34.16"E	61.97'	108+99.66	(11085050.0009, 3616113.9312)	109+62.67	(11085111.0102, 3616103.0559)

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

ALIGNMENT DATA SHEET #1

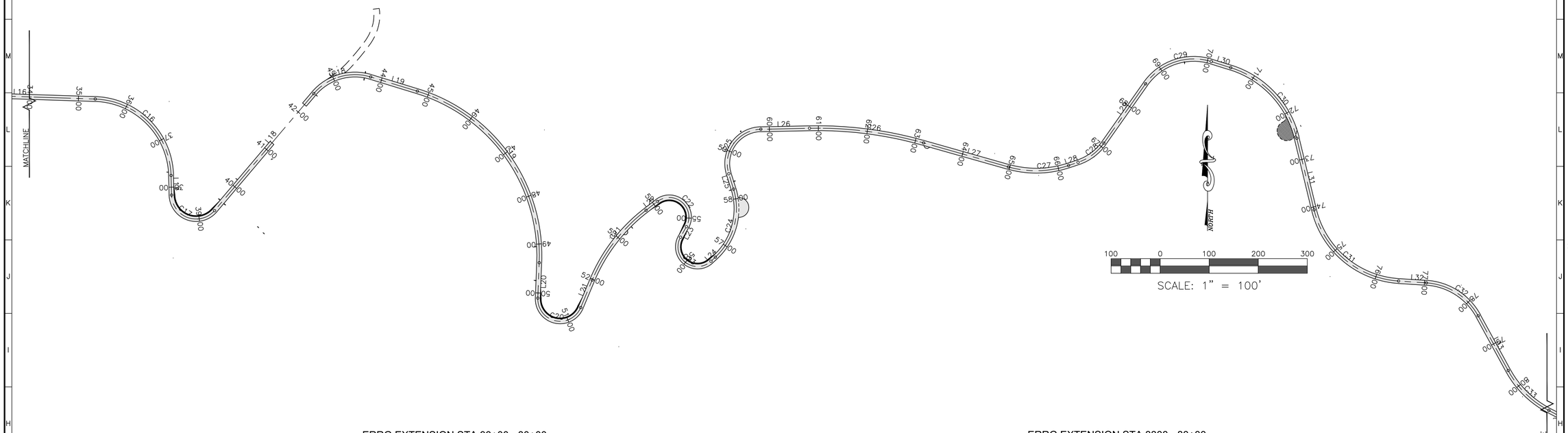
VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE 1"=100'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C3.1

JOB NO. 04160062.00



ERRG EXTENSION STA:33+00 - 80+00

LINE TABLE

LINE #	LENGTH	BEARING	START STATION	START POINT	END STATION	END POINT
L18	312.88	N40°17'22"E	39+36.20	(11086555.0455, 3615897.5756)	42+49.08	(11086757.3685, 3615897.5756)
L19	99.43	S73°01'36"E	43+77.10	(11086873.3873, 3616170.3130)	44+76.53	(11086968.4866, 3616170.3130)
L20	72.26	S2°14'44"W	49+38.28	(11087217.0834, 3615791.3532)	50+10.54	(11087214.2517, 3615791.3532)
L21	60.88	N22°43'34"E	51+37.22	(11087301.6843, 3615699.7832)	51+98.10	(11087325.2040, 3615699.7832)
L22	29.28	N52°27'52"E	53+79.76	(11087434.7922, 3615898.2652)	54+09.04	(11087458.0091, 3615898.2652)
L23	24.68	S29°23'13"W	55+18.59	(11087517.2322, 3615864.7558)	55+43.27	(11087505.1212, 3615864.7558)
L24	12.31	N47°08'22"E	56+56.54	(11087567.1828, 3615794.3021)	56+68.85	(11087576.2027, 3615794.3021)
L25	32.78	N17°11'34"W	58+20.43	(11087613.3412, 3615941.5335)	58+53.21	(11087603.6518, 3615941.5335)
L26	99.15	N88°47'24"E	59+82.69	(11087669.0455, 3616063.5245)	60+81.84	(11087768.1718, 3616063.5245)
L27	179.71	S74°10'53"E	63+17.35	(11088000.9071, 3616035.7870)	64+97.06	(11088173.8128, 3616035.7870)
L28	20.41	N71°30'47"E	66+21.65	(11088296.5216, 3615989.6572)	66+42.06	(11088315.8805, 3615989.6572)
L29	147.83	N35°07'40"E	67+08.74	(11088368.4627, 3616035.2943)	68+56.57	(11088453.5216, 3616035.2943)
L30	41.48	S72°38'28"E	70+07.85	(11088587.4692, 3616201.6832)	70+49.33	(11088627.0590, 3616201.6832)
L31	150.36	S13°32'52"E	72+55.60	(11088761.8224, 3616045.2678)	74+05.97	(11088797.0455, 3616045.2678)
L32	56.75	S86°17'39"E	76+47.20	(11088969.4786, 3615753.9953)	77+03.95	(11089026.1117, 3615753.9953)
L33	127.40	S28°41'47"E	78+34.64	(11089131.7426, 3615683.0207)	79+62.04	(11089192.9157, 3615683.0207)

ERRG EXTENSION STA:3300 - 80+00

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH	START STATION	START POINT	END STATION	END POINT
C18	128.02'	110.00'	66°41'02"	N73° 37' 53.13"E	120.92'	42+49.08	(11086757.3685, 3616136.2360)	43+77.10	(11086873.3873, 3616170.3130)
C19	461.74'	351.47'	75°16'20"	S35° 23' 25.60"E	429.25'	44+76.53	(11086968.4866, 3616141.2864)	49+38.28	(11087217.0834, 3615791.3532)
C20	126.68'	45.50'	159°31'11"	S77° 30' 50.99"E	89.55'	50+10.54	(11087214.2517, 3615719.1439)	51+37.22	(11087301.6843, 3615699.7832)
C21	181.66'	350.00'	29°44'18"	N37° 35' 42.73"E	179.63'	51+98.10	(11087325.2040, 3615755.9374)	53+79.76	(11087434.7922, 3615898.2652)
C22	109.55'	40.00'	156°55'21"	S49° 04' 27.40"E	78.38'	54+09.04	(11087458.0091, 3615916.1030)	55+18.59	(11087517.2322, 3615864.7558)
C23	113.27'	40.00'	162°14'51"	S51° 44' 12.24"E	79.04'	55+43.27	(11087505.1212, 3615843.2508)	56+56.54	(11087567.1828, 3615794.3021)
C24	151.58'	135.00'	64°19'57"	N14° 58' 23.97"E	143.74'	56+68.85	(11087576.2027, 3615802.6723)	58+20.43	(11087613.3412, 3615941.5335)
C25	129.48'	70.00'	105°58'58"	N35° 47' 54.61"E	111.80'	58+53.21	(11087603.6518, 3615972.8488)	59+82.69	(11087669.0455, 3616063.5245)
C26	235.51'	792.40'	17°01'43"	S82° 41' 44.88"E	234.64'	60+81.84	(11087768.1718, 3616065.6184)	63+17.35	(11088000.9071, 3616035.7870)
C27	124.59'	208.09'	34°18'20"	N88° 39' 56.71"E	122.74'	64+97.06	(11088173.8128, 3615986.7992)	66+21.65	(11088296.5216, 3615989.6572)
C28	66.68'	105.00'	36°23'07"	N53° 19' 13.16"E	65.56'	66+42.06	(11088315.8805, 3615996.1298)	67+08.74	(11088368.4627, 3616035.2943)
C29	151.28'	120.00'	72°13'53"	N71° 14' 36.01"E	141.46'	68+56.57	(11088453.5216, 3616156.1967)	70+07.85	(11088587.4692, 3616201.6832)
C30	206.27'	200.00'	59°05'36"	S43° 05' 39.69"E	197.25'	70+49.33	(11088627.0590, 3616189.3076)	72+55.60	(11088761.8224, 3616045.2678)
C31	241.24'	190.00'	72°44'47"	S49° 55' 15.54"E	225.36'	74+05.97	(11088797.0455, 3615899.0896)	76+47.20	(11088969.4786, 3615753.9953)
C32	130.69'	130.00'	57°35'53"	S57° 29' 42.90"E	125.25'	77+03.95	(11089026.1117, 3615750.3273)	78+34.64	(11089131.7426, 3615683.0207)
C33	117.83'	200.00'	33°45'24"	S45° 34' 28.61"E	116.14'	79+62.04	(11089192.9157, 3615571.2683)	80+79.87	(11089275.8560, 3615489.9752)

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

ALIGNMENT DATA SHEET #2

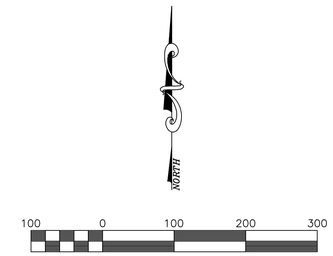
VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE 1"=100'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C3.2

JOB NO. 04160062.00



SCALE: 1" = 100'

ERRG EXTENSION STA:80+00 - END

LINE TABLE

LINE #	LENGTH	BEARING	START STATION	START POINT	END STATION	END POINT
L35	30.97	N83°06'27"E	83+97.10	(11089565.0458, 3615370.7607)	84+28.07	(11089595.7930, 3615370.7607)
L36	41.31	S3°35'10"E	85+74.64	(11089696.4174, 3615290.7572)	86+15.95	(11089699.0015, 3615290.7572)
L37	33.95	S31°41'32"E	87+38.58	(11089735.7911, 3615133.8229)	87+72.54	(11089753.6280, 3615133.8229)
L38	79.82	S18°23'04"E	88+65.44	(11089792.8595, 3615020.9476)	89+45.27	(11089818.0352, 3615020.9476)
L39	77.90	S47°56'32"E	90+74.24	(11089887.8056, 3614838.4277)	91+52.14	(11089945.6476, 3614838.4277)
L40	38.35	N11°22'47"E	92+19.54	(11089998.4547, 3614803.6857)	92+57.89	(11090006.0215, 3614803.6857)
L41	15.05	S14°02'59"E	93+44.22	(11090068.4351, 3614842.7358)	93+59.27	(11090072.0884, 3614842.7358)
L42	20.30	S24°12'56"W	94+39.41	(11090065.1194, 3614749.7853)	94+59.71	(11090056.7947, 3614749.7853)
L43	38.39	N84°17'56"E	95+35.05	(11090093.2032, 3614680.6873)	95+73.44	(11090131.4029, 3614680.6873)

ERRG EXTENSION STA:80+00 - END

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH	START STATION	START POINT	END STATION	END POINT
C35	146.57'	90.00'	93°18'23"	S50° 14' 21.48"E	130.90'	84+28.07	(11089595.7930, 3615374.4774)	85+74.64	(11089696.4174, 3615290.7572)
C36	122.64'	250.00'	28°06'21"	S17° 38' 20.86"E	121.41'	86+15.95	(11089699.0015, 3615249.5242)	87+38.58	(11089735.7911, 3615133.8229)
C37	92.91'	400.00'	13°18'28"	S25° 02' 17.58"E	92.70'	87+72.54	(11089753.6280, 3615104.9336)	88+65.44	(11089792.8595, 3615020.9476)
C38	128.97'	250.00'	29°33'28"	S33° 09' 47.66"E	127.54'	89+45.27	(11089818.0352, 3614945.1976)	90+74.24	(11089887.8056, 3614838.4277)
C39	67.40'	32.00'	120°40'41"	N71° 43' 07.75"E	55.61'	91+52.14	(11089945.6476, 3614786.2407)	92+19.54	(11089998.4547, 3614803.6857)
C40	86.33'	32.00'	154°34'13"	N88° 39' 53.90"E	62.43'	92+57.89	(11090006.0215, 3614841.2813)	93+44.22	(11090068.4351, 3614842.7358)
C41	80.14'	120.00'	38°15'55"	S5° 04' 58.04"W	78.66'	93+59.27	(11090072.0884, 3614828.1374)	94+39.41	(11090065.1194, 3614749.7853)
C42	75.35'	36.00'	119°54'59"	S35° 44' 34.12"E	62.33'	94+59.71	(11090056.7947, 3614731.2753)	95+35.05	(11090093.2032, 3614680.6873)

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

ALIGNMENT DATA SHEET #3

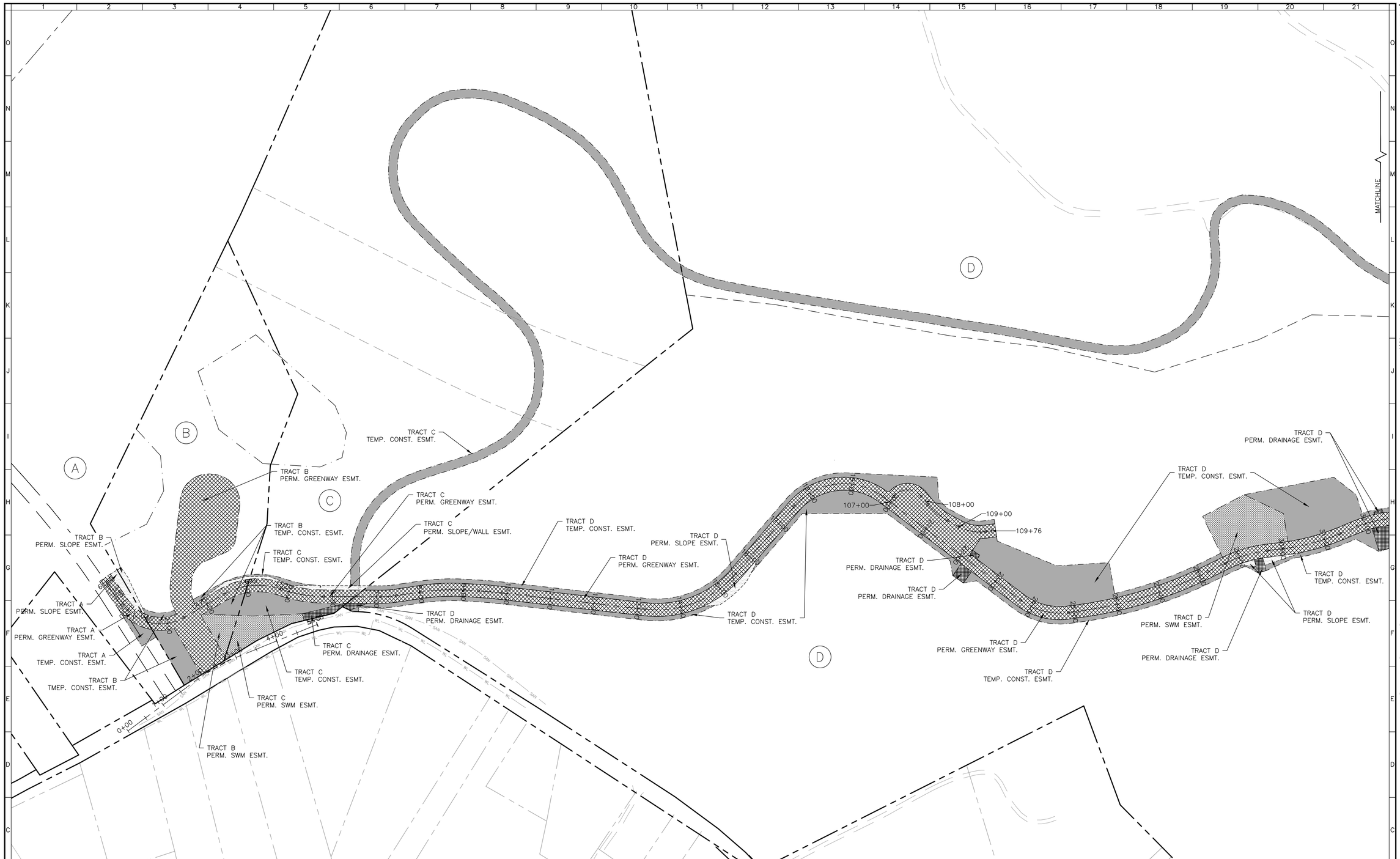
VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE 1"=100'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C3.3

JOB NO. 04160062.00



RIGHT-OF-WAY AND PROPERTY DATA

TRACT	TAX MAP NUMBER	RECORDING INFORMATION	ZONING	LANDOWNER	PERMANENT GREENWAY EASEMENT AREA (AC)	PERMANENT DRAINAGE EASEMENT AREA (AC)	PERMANENT SWM EASEMENT AREA (AC)	PERMANENT SLOPE EASEMENT AREA (AC)	TEMPORARY CONSTRUCTION EASEMENT AREA (AC)
A	061.02-02-16.00-0000	--	EP	DEPARTMENT OF THE INTERIOR	*0.10 AC.	N/A	N/A	*0.03 AC.	*0.04 AC.
B	080.00-05-02.01-0000	INST. #201611794	AG1	ROANOKE VALLEY RESOURCE AUTHORITY	1.05 AC.	N/A	0.09 AC.	0.04 AC.	0.23 AC.
C	080.00-05-03.00-0000	INST. #201611794	AG1	ROANOKE VALLEY RESOURCE AUTHORITY	0.17 AC.	0.03 AC.	0.18 AC.	0.04 AC.	1.22 AC.
D	080.00-05-04.00-0000	D.B. 1482, PG. 1743	AG1	ROANOKE VALLEY RESOURCE AUTHORITY	3.95 AC.	0.11 AC.	1.39 AC.	0.42 AC.	6.62 AC.
E	061.02-02-16.00-0000	--	EP	DEPARTMENT OF THE INTERIOR	*0.42 AC.	*0.01 AC.	N/A	*0.17 AC.	*0.22 AC.
F	080.00-05-24.00-0000	D.B. 1483, PG. 1165	EP	VIRGINIA RECREATIONAL FACILITIES AUTHORITY	2.25 AC.	0.04 AC.	N/A	0.72 AC.	1.79 AC.

*NOTE: EASEMENTS WILL NOT BE OBTAINED ACROSS PROPERTY OWNED BY THE DEPARTMENT OF THE INTERIOR. CONSTRUCTION AND IMPROVEMENTS WILL BE ALLOWED BY "GENERAL AGREEMENT BETWEEN THE NATIONAL PARK SERVICE BLUE RIDGE PARKWAY AND COUNTY OF ROANOKE, VIRGINIA CONCERNING THE ROANOKE RIVER GREENWAY."

LEGEND

- PERMANENT GREENWAY EASEMENT
- PERMANENT DRAINAGE EASEMENT
- PERMANENT SWM EASEMENT
- PERMANENT SLOPE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT

NORTH

100 0 100 200 300

SCALE: 1" = 100'

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CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

RIGHT-OF-WAY DATA SHEET #1

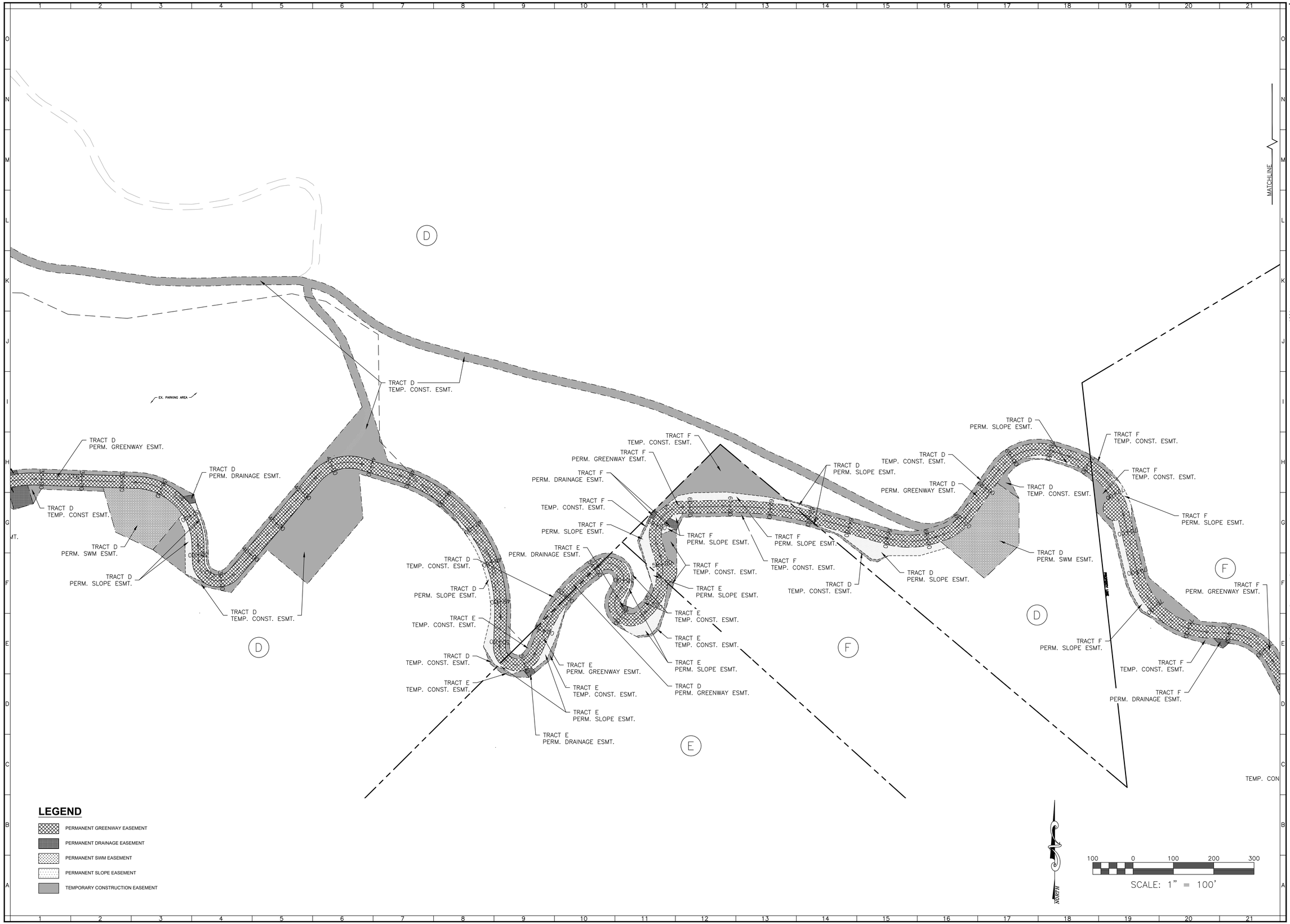
VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE 1"=100'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C3.4

JOB NO. 04160062.00



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4/4/23
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EAST ROANOKE RIVER GREENWAY EXTENSION

RIGHT-OF-WAY DATA SHEET #2

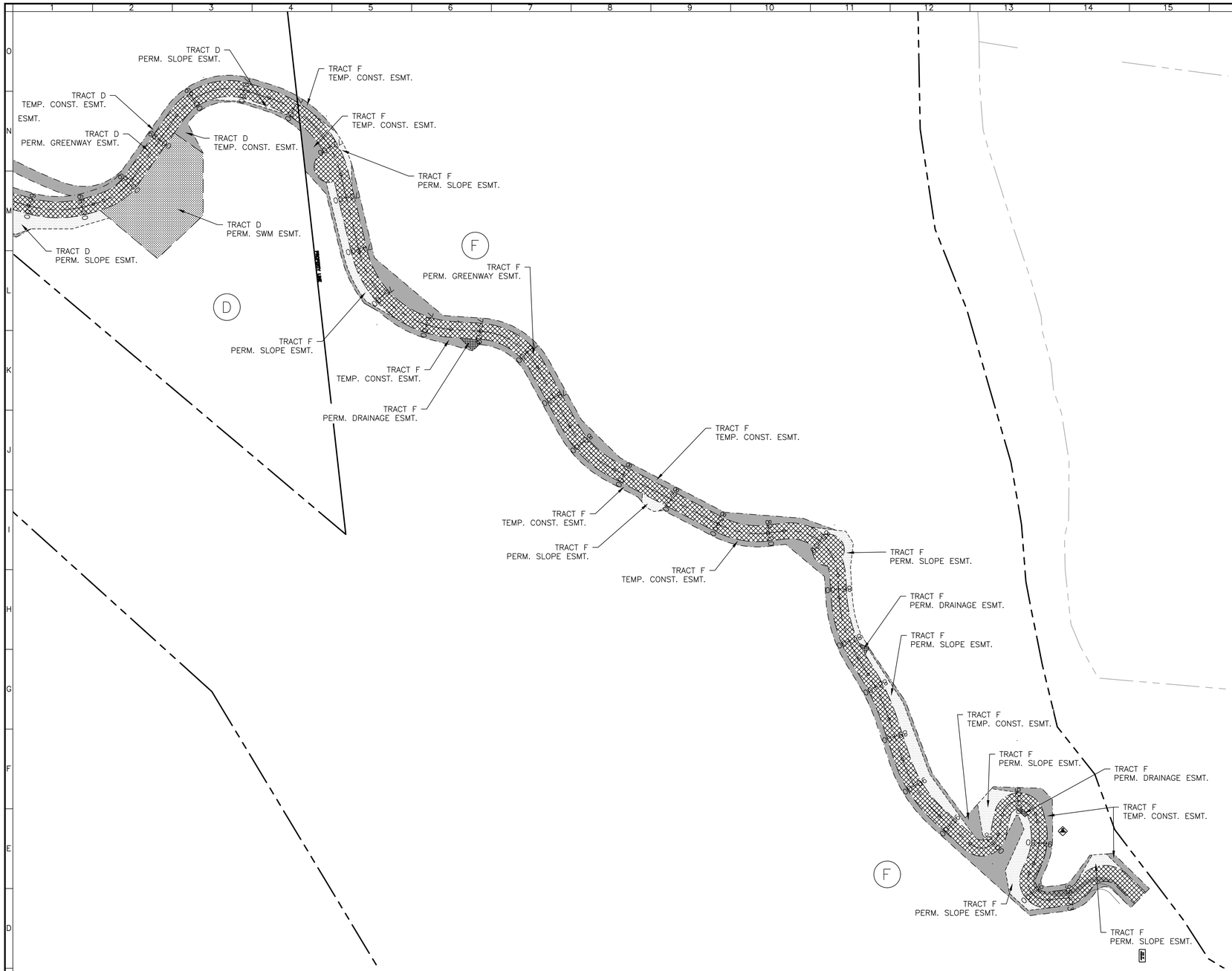
VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE 1"=100'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C3.5

JOB NO. 04160062.00



LEGEND

- PERMANENT GREENWAY EASEMENT
- PERMANENT DRAINAGE EASEMENT
- PERMANENT SWM EASEMENT
- PERMANENT SLOPE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT

NORTH

100 0 100 200 300

SCALE: 1" = 100'

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EAST ROANOKE RIVER GREENWAY EXTENSION

RIGHT-OF-WAY DATA SHEET #3

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

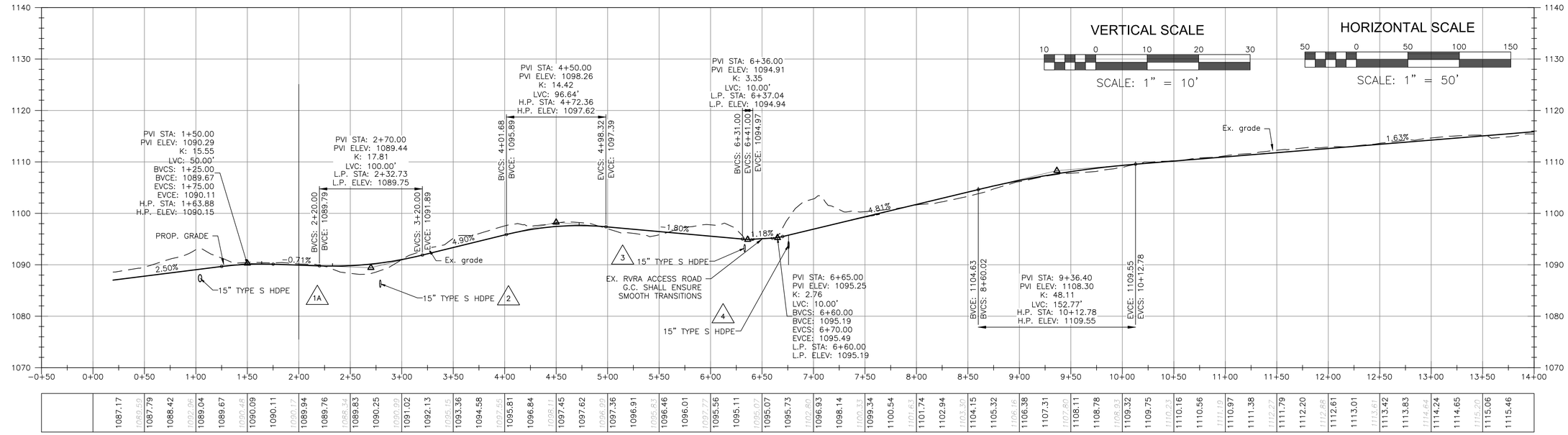
DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE 1"=100'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C3.6

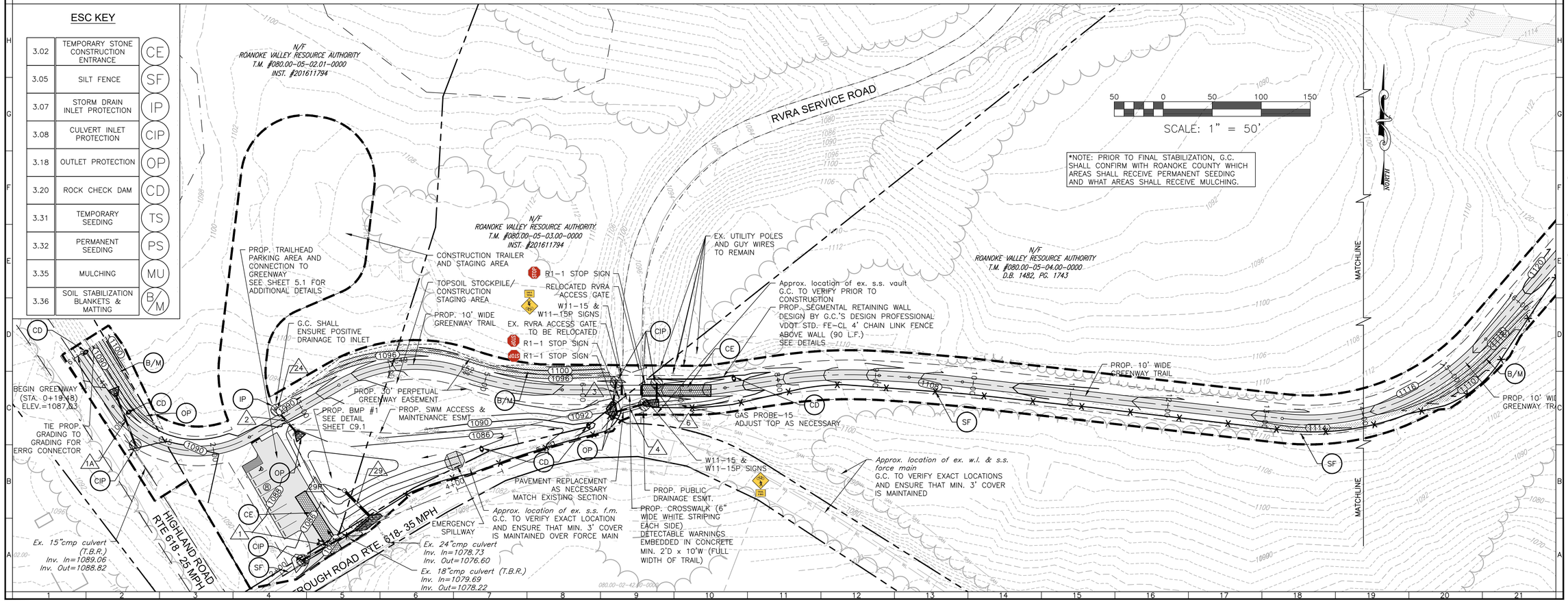
JOB NO. 04160062.00

ERRG EXTENSION (STA: 0+00 - 14+00) PROFILE



ESC KEY

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
3.05	SILT FENCE	SF
3.07	STORM DRAIN INLET PROTECTION	IP
3.08	CULVERT INLET PROTECTION	CIP
3.18	OUTLET PROTECTION	OP
3.20	ROCK CHECK DAM	CD
3.31	TEMPORARY SEEDING	TS
3.32	PERMANENT SEEDING	PS
3.35	MULCHING	MU
3.36	SOIL STABILIZATION BLANKETS & MATTING	B/M



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EAST ROANOKE RIVER GREENWAY EXTENSION

PLAN & PROFILE (STA. 0+00 TO 14+00)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

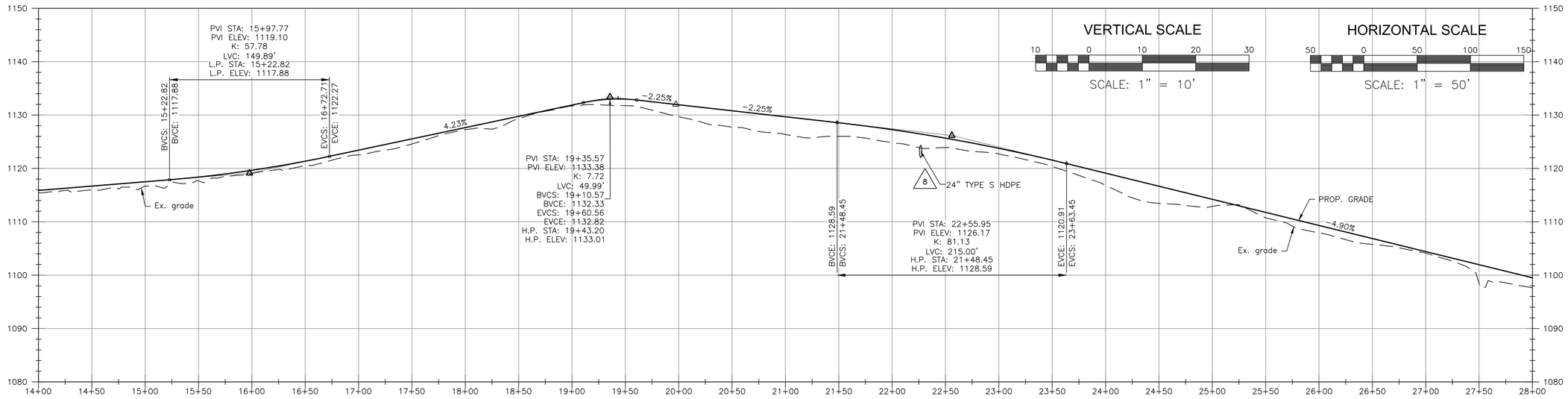
DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	1"=50'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023
8/4/2023

SHEET NO.
C4.1

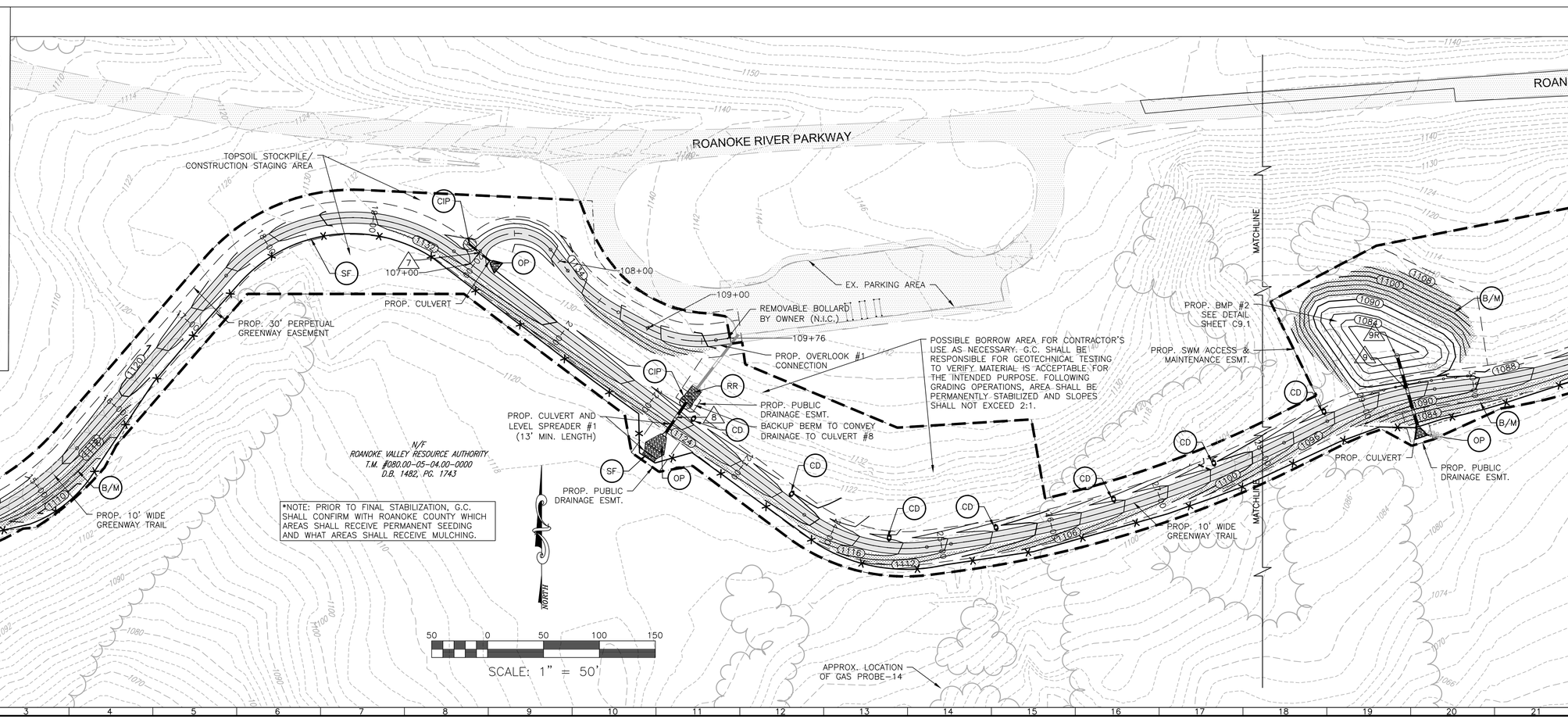
JOB NO. 04160062.00

ERRG EXTENSION (STA: 14+00 - 28+00) PROFILE



ESC KEY

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
3.05	SILT FENCE	SF
3.07	STORM DRAIN INLET PROTECTION	IP
3.08	CULVERT INLET PROTECTION	CIP
3.18	OUTLET PROTECTION	OP
3.20	ROCK CHECK DAM	CD
3.31	TEMPORARY SEEDING	TS
3.32	PERMANENT SEEDING	PS
3.35	MULCHING	MU
3.36	SOIL STABILIZATION BLANKETS & MATTING	B/M



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EAST ROANOKE RIVER GREENWAY EXTENSION

PLAN & PROFILE (STA. 14+00 TO 28+00)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

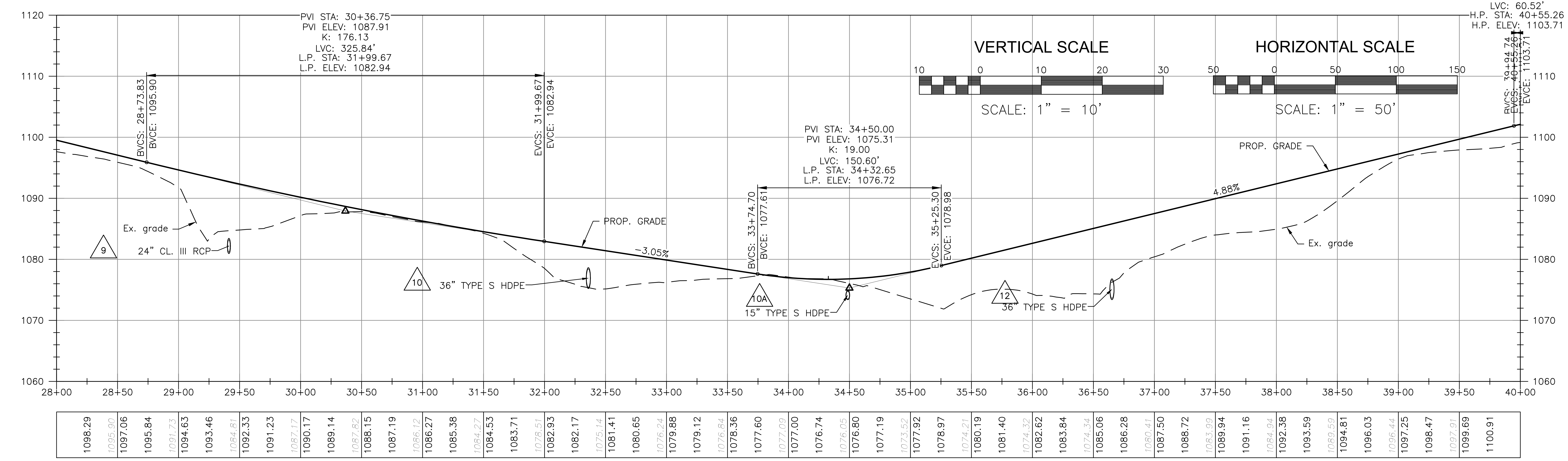
DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	1"=50'

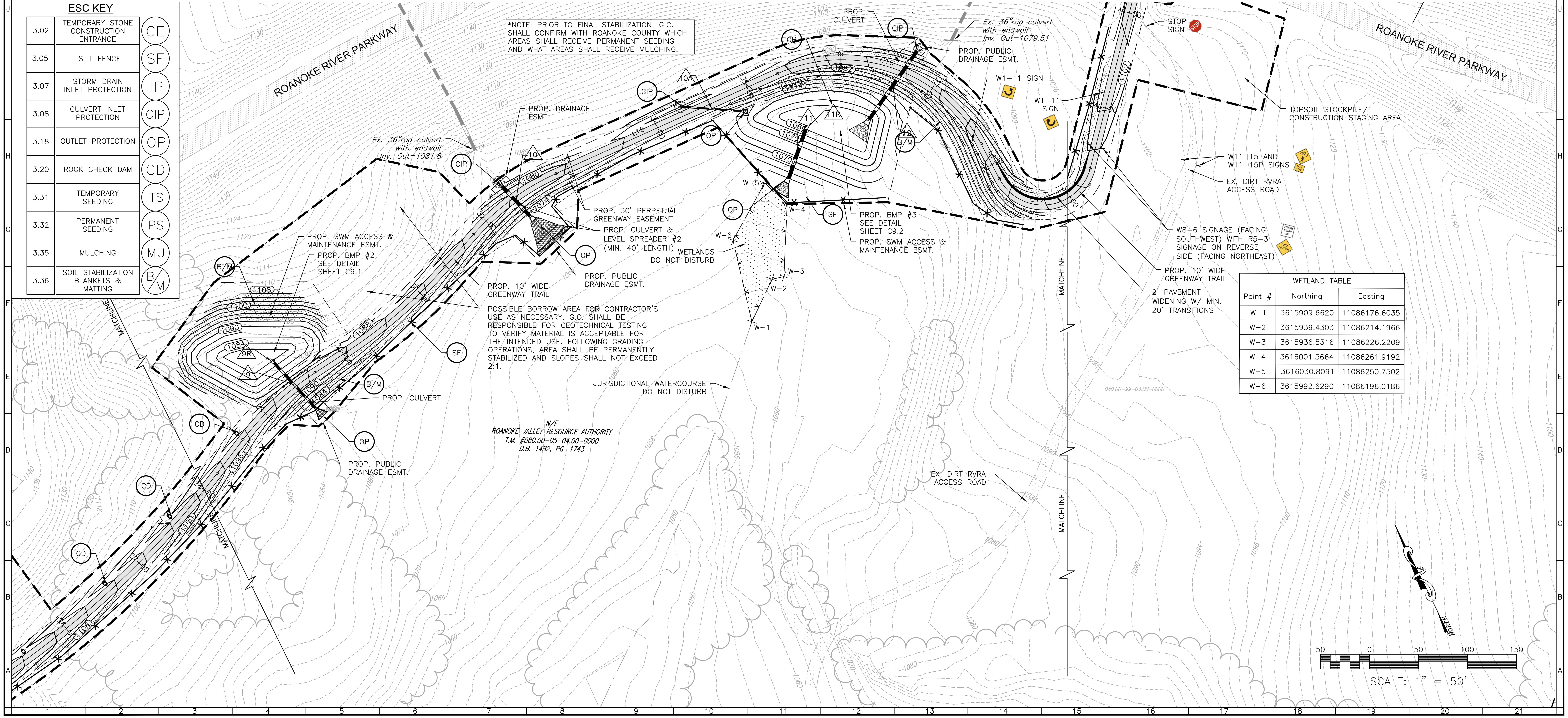
REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023
8/4/2023

SHEET NO.
C4.2

JOB NO. 04160062.00

ERRG EXTENSION (STA:28+00 - 40+00) PROFILE





*NOTE: PRIOR TO FINAL STABILIZATION, G.C. SHALL CONFIRM WITH ROANOKE COUNTY WHICH AREAS SHALL RECEIVE PERMANENT SEEDING AND WHAT AREAS SHALL RECEIVE MULCHING.

ESC KEY

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
3.05	SILT FENCE	SF
3.07	STORM DRAIN INLET PROTECTION	IP
3.08	CULVERT INLET PROTECTION	CIP
3.18	OUTLET PROTECTION	OP
3.20	ROCK CHECK DAM	CD
3.31	TEMPORARY SEEDING	TS
3.32	PERMANENT SEEDING	PS
3.35	MULCHING	MU
3.36	SOIL STABILIZATION BLANKETS & MATTING	B/M

WETLAND TABLE

Point #	Northing	Easting
W-1	3615909.6620	11086176.6035
W-2	3615939.4303	11086214.1966
W-3	3615936.5316	11086226.2209
W-4	3616001.5664	11086261.9192
W-5	3616030.8091	11086250.7502
W-6	3615992.6290	11086196.0186

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8/4/23

EAST ROANOKE RIVER GREENWAY EXTENSION

PLAN & PROFILE (STA. 28+00 TO 40+00)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

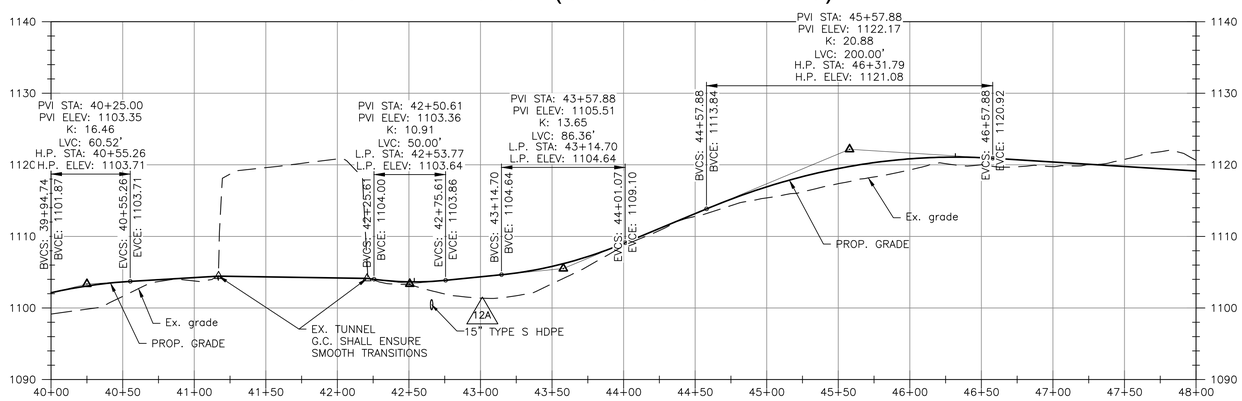
DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE 1"=50'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023
8/4/2023

SHEET NO.
C4.3

JOB NO. 04160062.00

ERRG EXTENSION (STA:40+00 - 48+00) PROFILE



VERTICAL SCALE

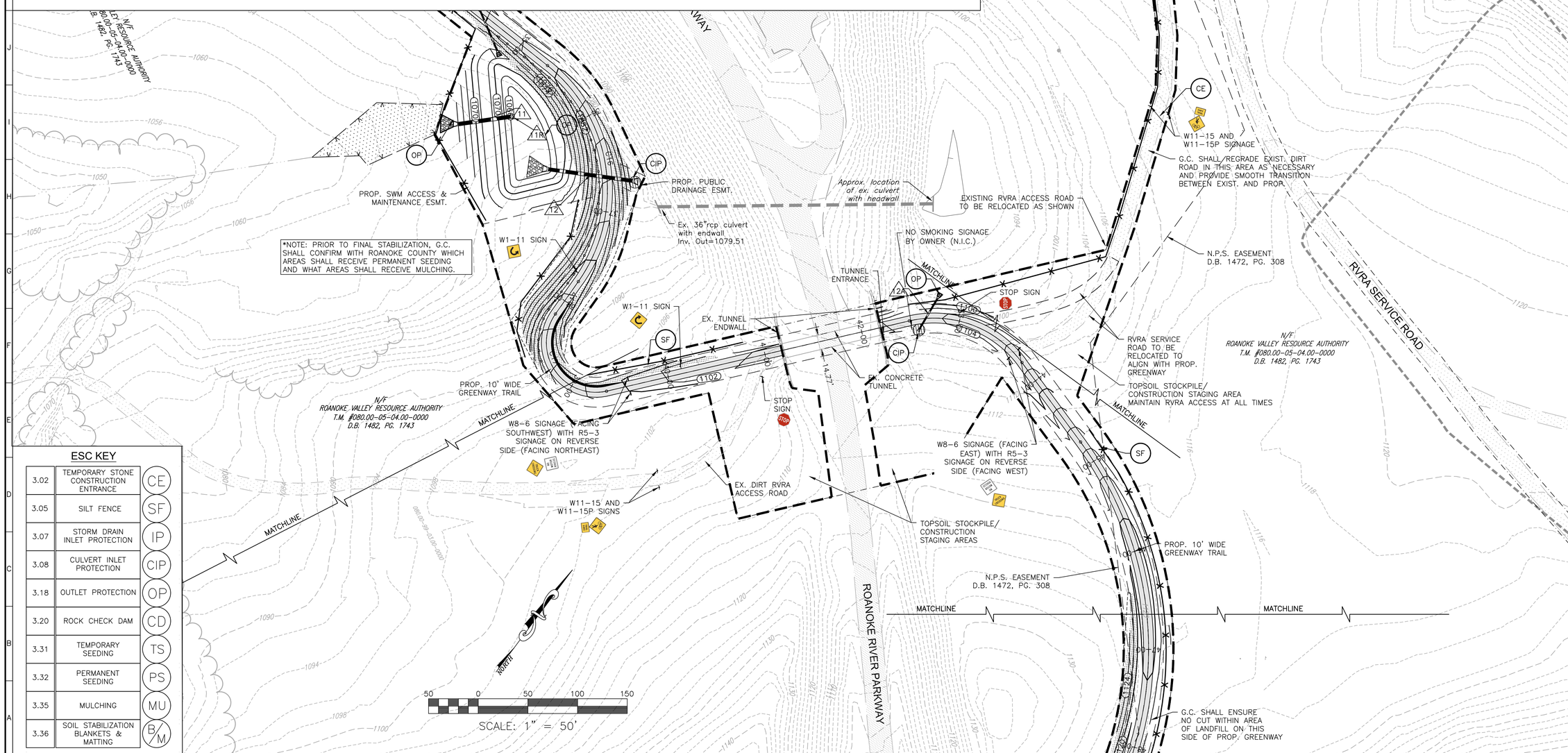
10 0 10 20 30

SCALE: 1" = 10'

HORIZONTAL SCALE

50 0 50 100 150

SCALE: 1" = 50'



ESC KEY

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
3.05	SILT FENCE	SF
3.07	STORM DRAIN INLET PROTECTION	IP
3.08	CULVERT INLET PROTECTION	CIP
3.18	OUTLET PROTECTION	OP
3.20	ROCK CHECK DAM	CD
3.31	TEMPORARY SEEDING	TS
3.32	PERMANENT SEEDING	PS
3.35	MULCHING	MU
3.36	SOIL STABILIZATION BLANKETS & MATTING	B/M

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Lic. No.047338
8/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

PLAN & PROFILE (STA. 40+00 TO 48+00)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

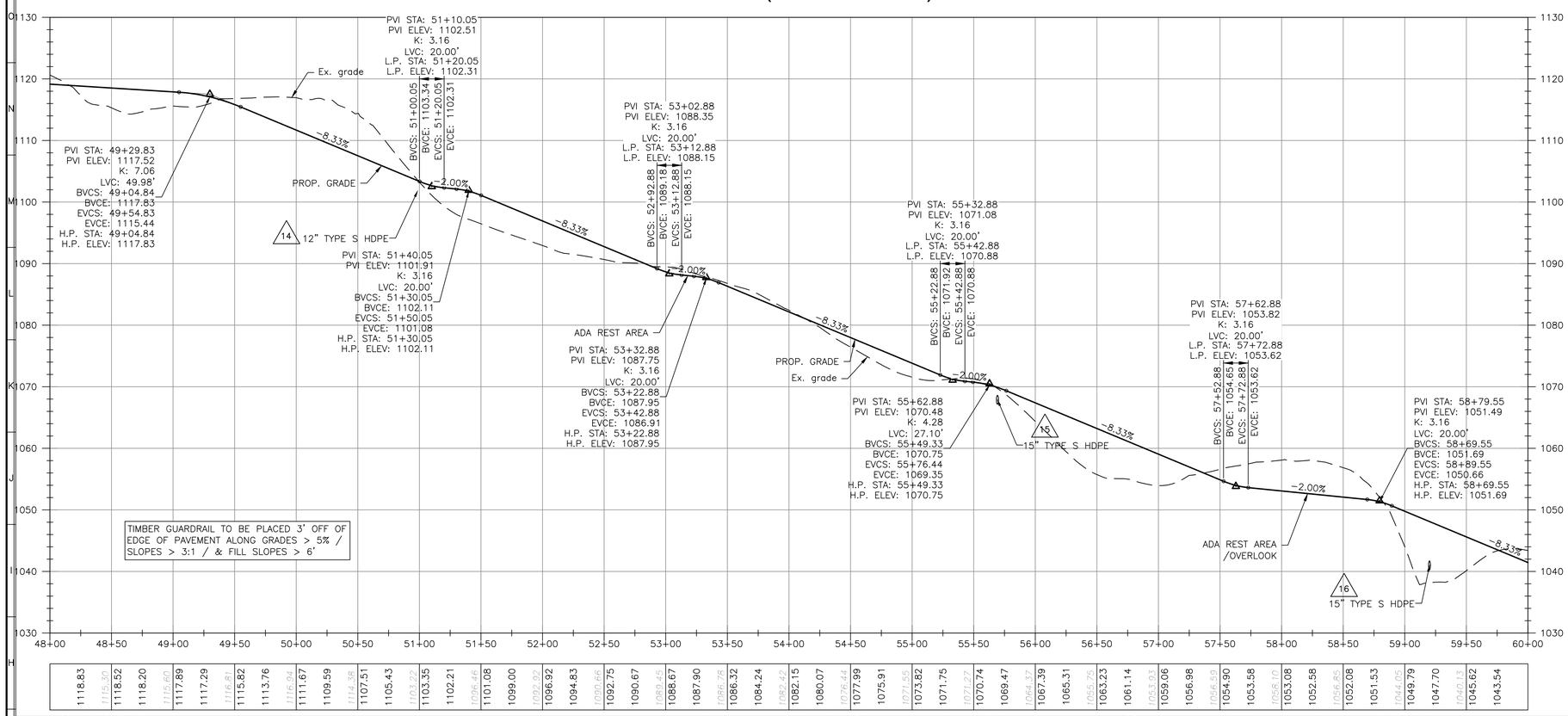
DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE 1"=50'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023
8/4/2023

SHEET NO.
C4.4

JOB NO. 04160062.00

ERRG EXTENSION (48+00-60+00) PROFILE



VERTICAL SCALE

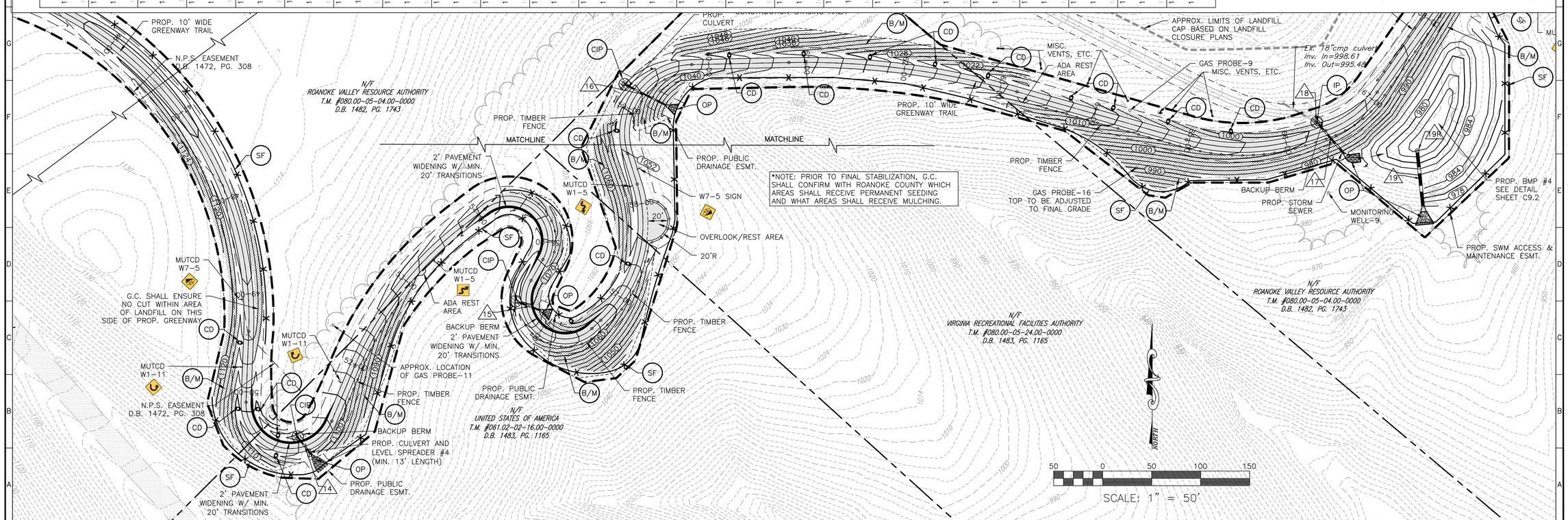
SCALE: 1" = 10'

HORIZONTAL SCALE

SCALE: 1" = 50'

ESC KEY

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
3.05	SILT FENCE	SF
3.07	STORM DRAIN INLET PROTECTION	IP
3.08	CULVERT INLET PROTECTION	CIP
3.18	OUTLET PROTECTION	OP
3.20	ROCK CHECK DAM	CD
3.31	TEMPORARY SEEDING	TS
3.32	PERMANENT SEEDING	PS
3.35	MULCHING	MU
3.36	SOIL STABILIZATION BLANKETS & MATTING	B/M



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EAST ROANOKE RIVER GREENWAY EXTENSION

PLAN & PROFILE (STA. 48+00 TO 60+00)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

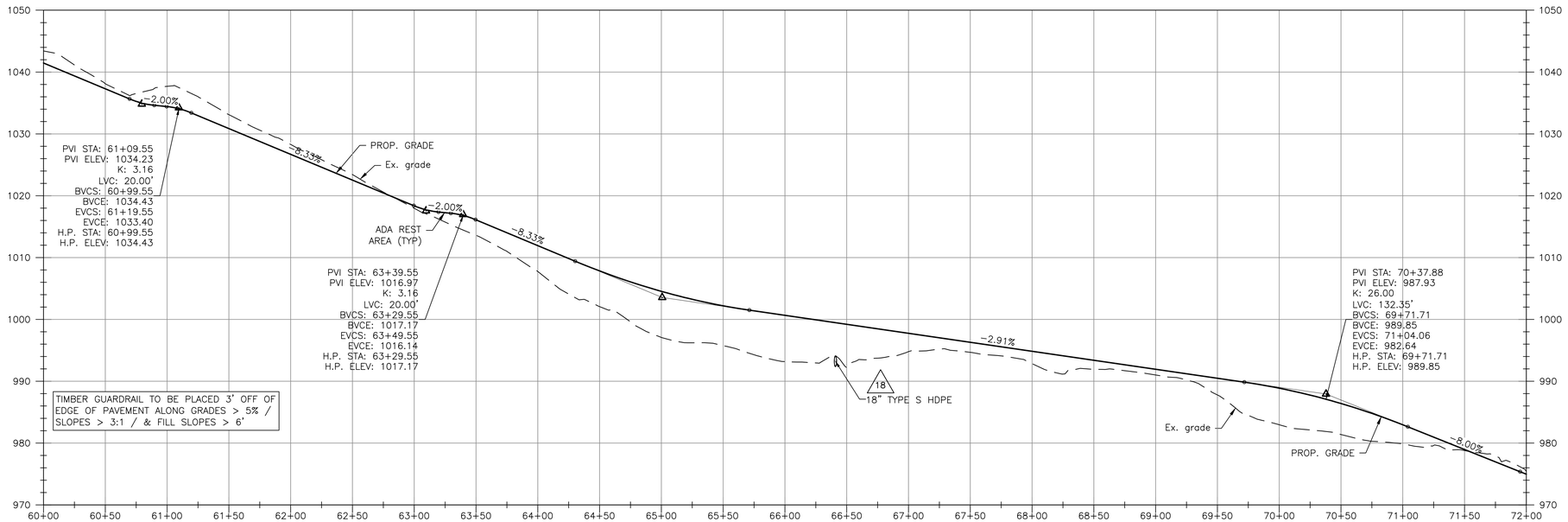
DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	1"=50'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023
8/4/2023

SHEET NO.
C4.5

JOB NO. 04160062.00

ERRG EXTENSION (STA:60+00 - 72+00) PROFILE



VERTICAL SCALE

10 0 10 20 30

SCALE: 1" = 10'

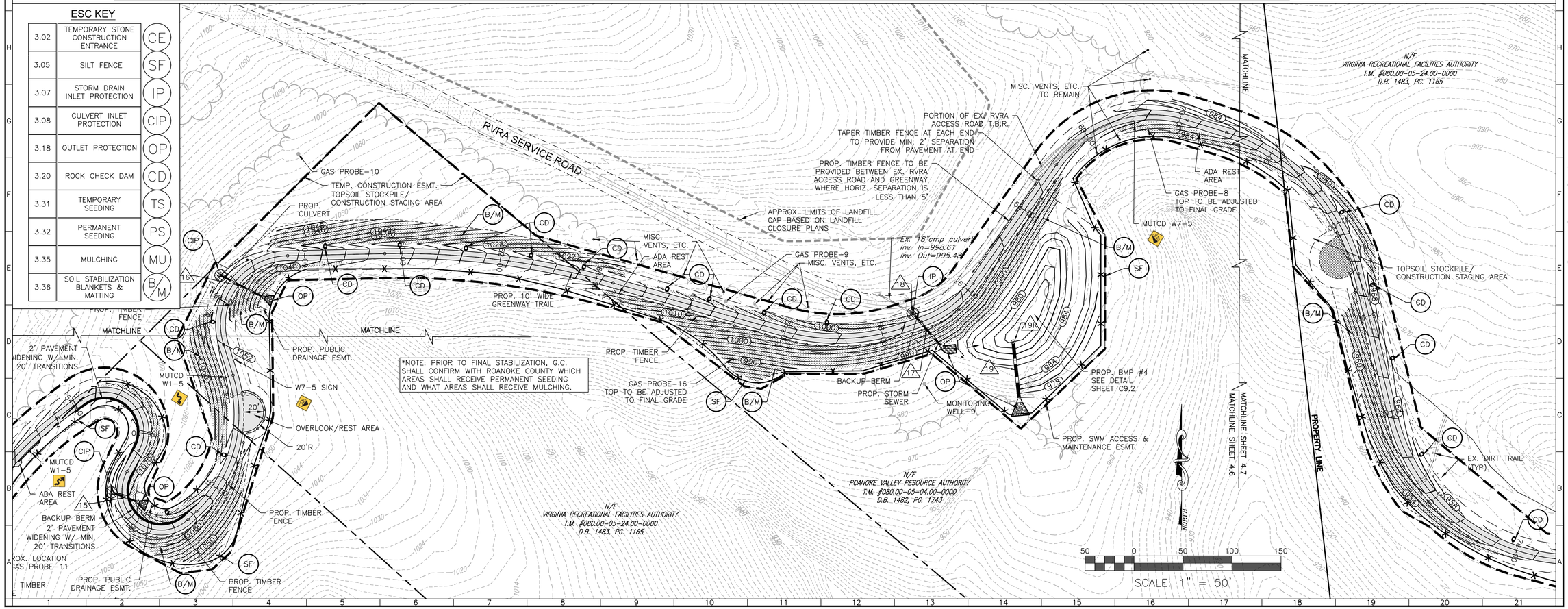
HORIZONTAL SCALE

50 0 50 100 150

SCALE: 1" = 50'

ESC KEY

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
3.05	SILT FENCE	SF
3.07	STORM DRAIN INLET PROTECTION	IP
3.08	CULVERT INLET PROTECTION	CIP
3.18	OUTLET PROTECTION	OP
3.20	ROCK CHECK DAM	CD
3.31	TEMPORARY SEEDING	TS
3.32	PERMANENT SEEDING	PS
3.35	MULCHING	MU
3.36	SOIL STABILIZATION BLANKETS & MATTING	B/M



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EAST ROANOKE RIVER GREENWAY EXTENSION

PLAN & PROFILE (STA. 60+00 TO 72+00)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

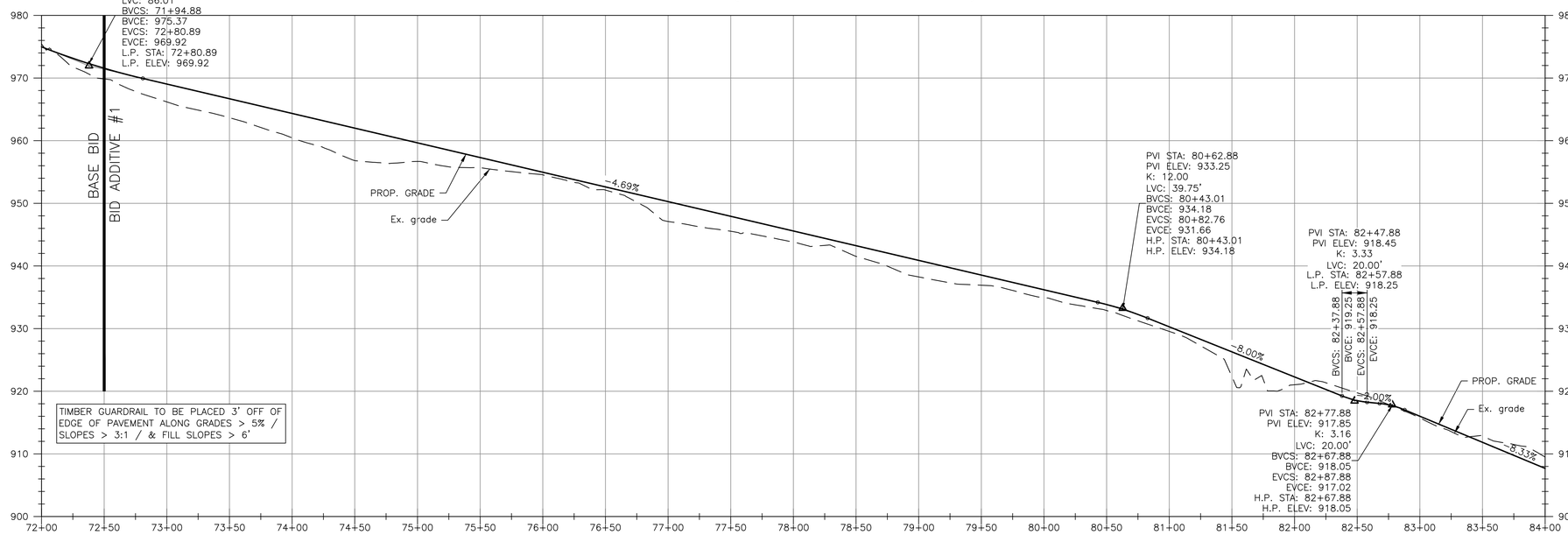
DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	1"=50'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023
8/4/2023

SHEET NO.
C4.6

JOB NO. 04160062.00

ERRG EXTENSION (STA:72+00 - 84+00) PROFILE



VERTICAL SCALE

10 0 10 20 30

SCALE: 1" = 10'

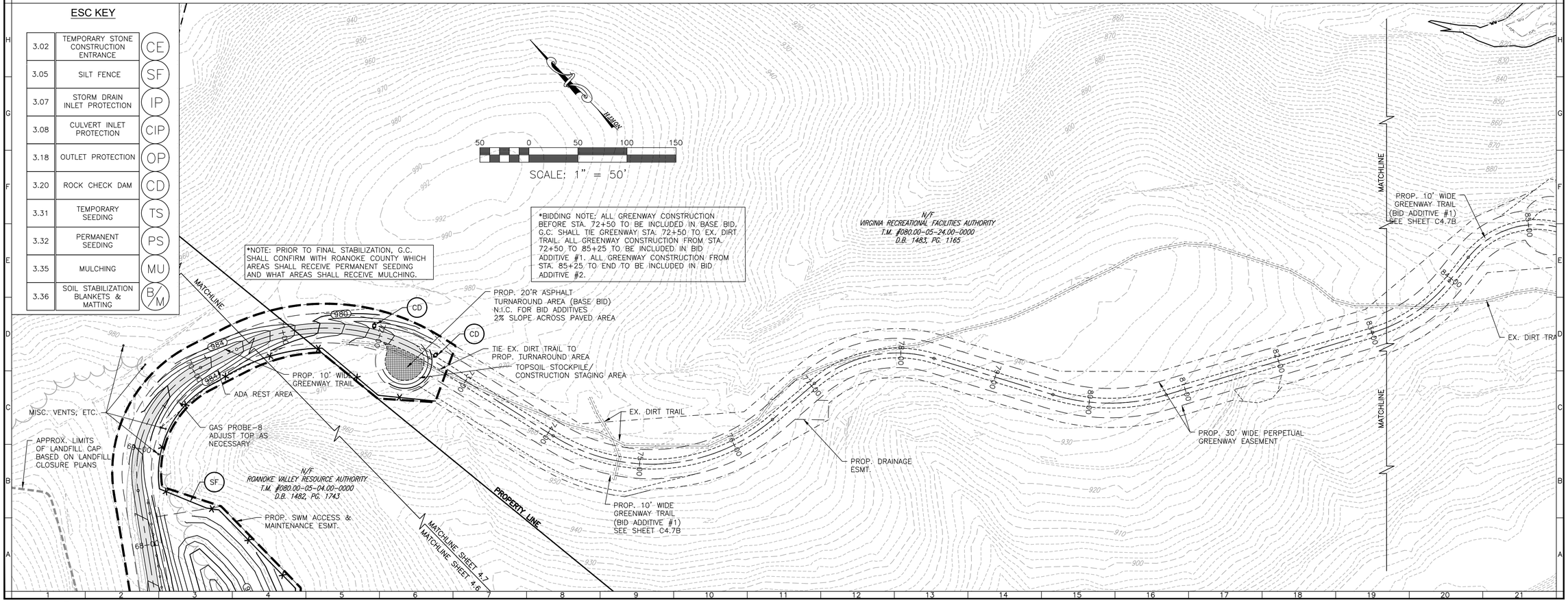
HORIZONTAL SCALE

50 0 50 100 150

SCALE: 1" = 50'

ESC KEY

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
3.05	SILT FENCE	SF
3.07	STORM DRAIN INLET PROTECTION	IP
3.08	CULVERT INLET PROTECTION	CIP
3.18	OUTLET PROTECTION	OP
3.20	ROCK CHECK DAM	CD
3.31	TEMPORARY SEEDING	TS
3.32	PERMANENT SEEDING	PS
3.35	MULCHING	MU
3.36	SOIL STABILIZATION BLANKETS & MATTING	B/M



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8/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

PLAN & PROFILE (STA. 72+00 TO 84+00) BASE BID

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

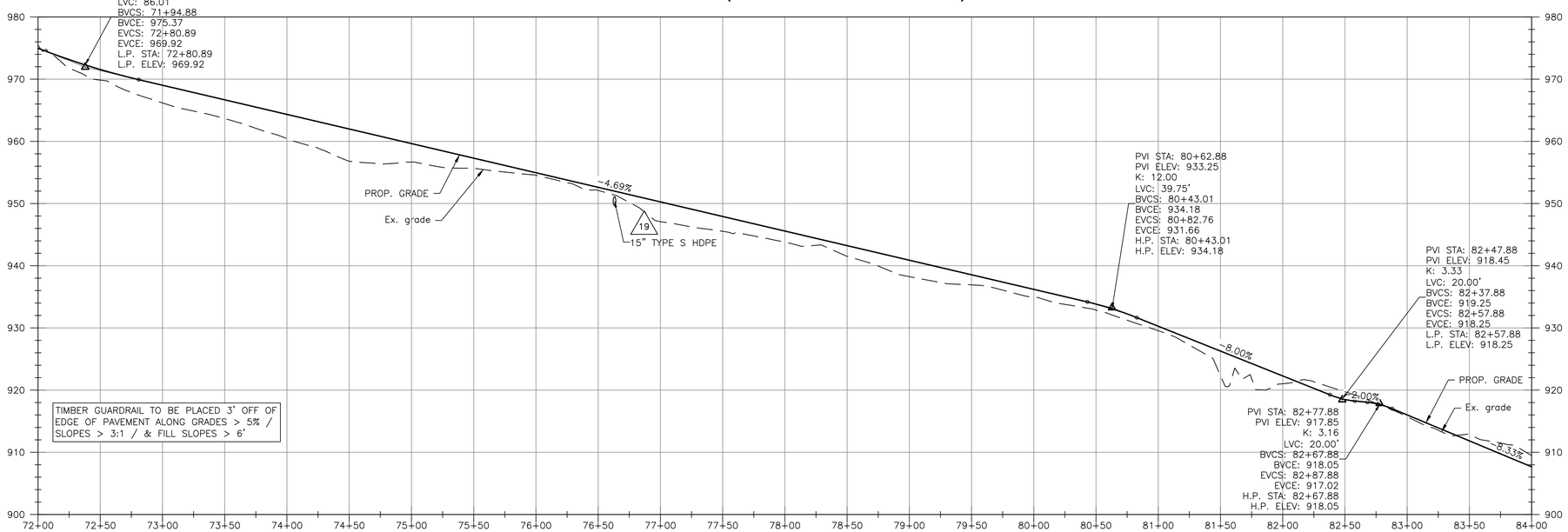
DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	1"=50'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023
8/4/2023

SHEET NO.
C4.7A

JOB NO. 04160062.00

ERRG EXTENSION (STA:72+00 - 84+00) PROFILE



VERTICAL SCALE

10 0 10 20 30

SCALE: 1" = 10'

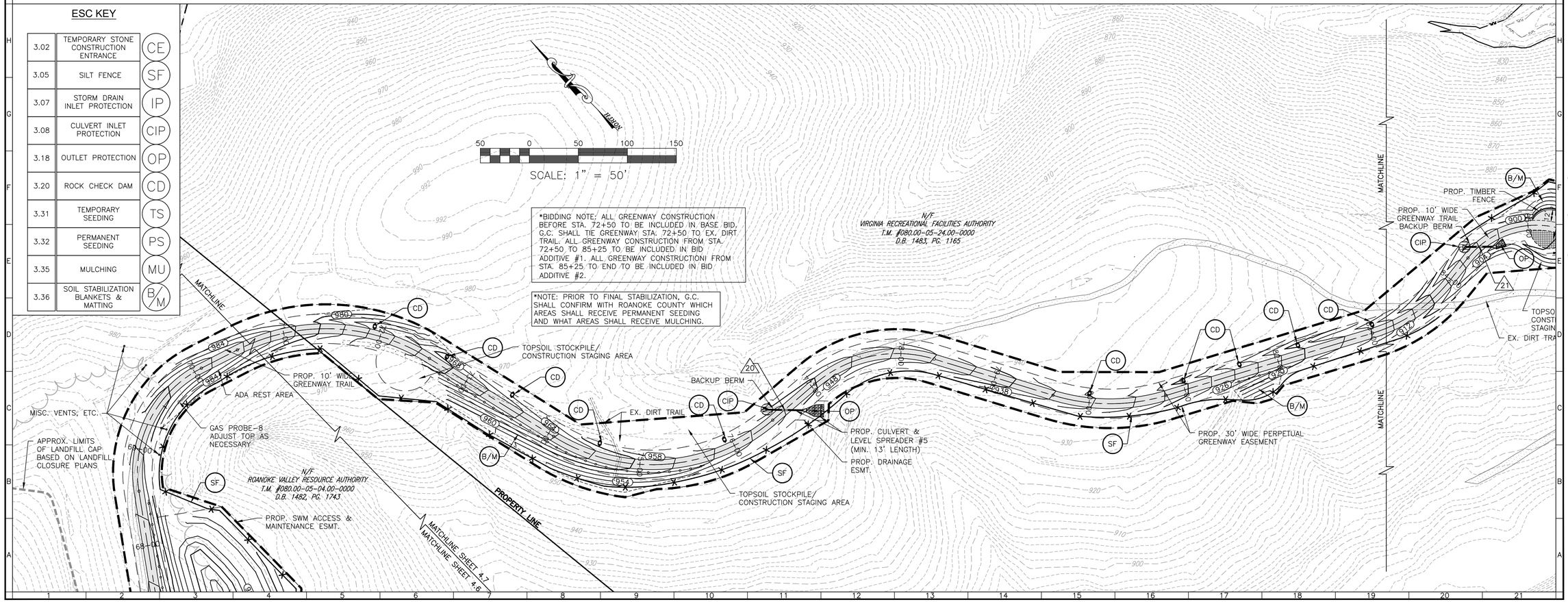
HORIZONTAL SCALE

50 0 50 100 150

SCALE: 1" = 50'

ESC KEY

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
3.05	SILT FENCE	SF
3.07	STORM DRAIN INLET PROTECTION	IP
3.08	CULVERT INLET PROTECTION	CIP
3.18	OUTLET PROTECTION	OP
3.20	ROCK CHECK DAM	CD
3.31	TEMPORARY SEEDING	TS
3.32	PERMANENT SEEDING	PS
3.35	MULCHING	MU
3.36	SOIL STABILIZATION BLANKETS & MATTING	B/M



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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
8/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

PLAN & PROFILE (STA. 72+00 TO 84+00)
BID ADDITIVE #1

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

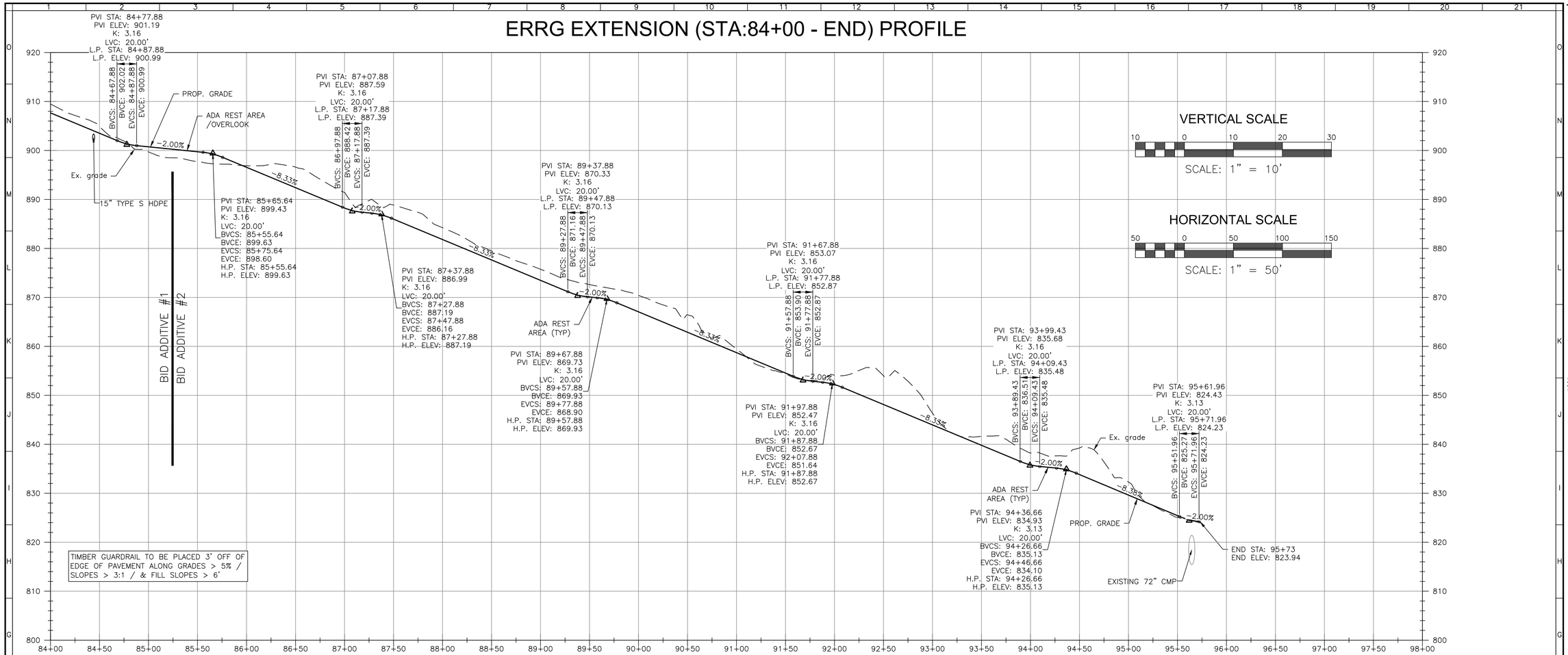
DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE 1"=50'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023
8/4/2023

SHEET NO.
C4.7B

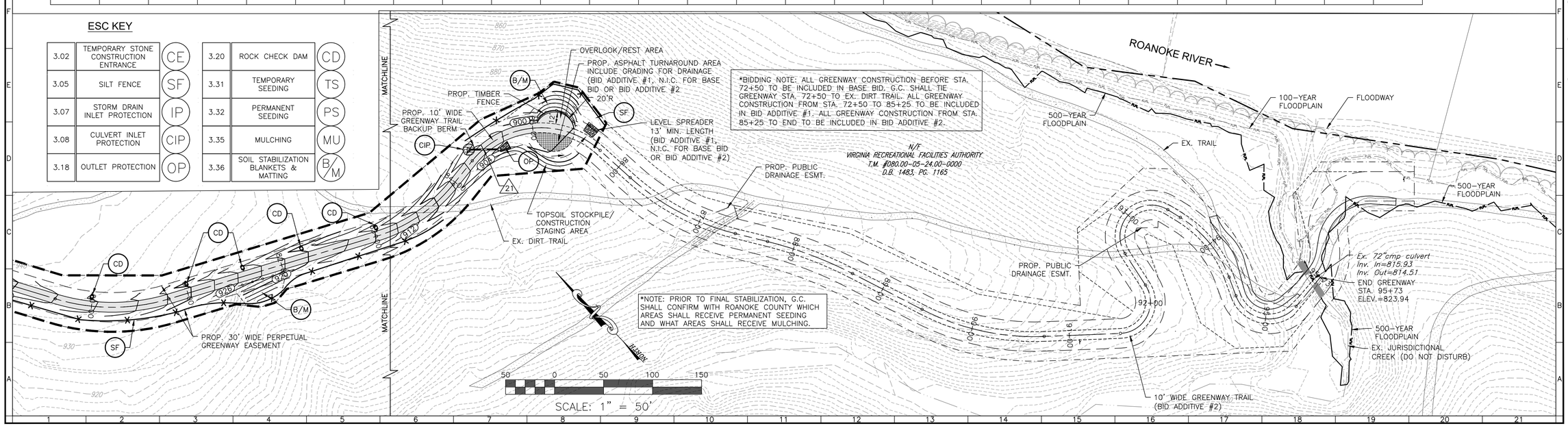
JOB NO. 04160062.00

ERRG EXTENSION (STA:84+00 - END) PROFILE



ESC KEY

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	3.20	ROCK CHECK DAM	CD
3.05	SILT FENCE	SF	3.31	TEMPORARY SEEDING	TS
3.07	STORM DRAIN INLET PROTECTION	IP	3.32	PERMANENT SEEDING	PS
3.08	CULVERT INLET PROTECTION	CIP	3.35	MULCHING	MU
3.18	OUTLET PROTECTION	OP	3.36	SOIL STABILIZATION BLANKETS & MATTING	B/M



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EAST ROANOKE RIVER GREENWAY EXTENSION

PLAN & PROFILE (STA. 84+00 TO END) BID ADDITIVE #1

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	1"=50'

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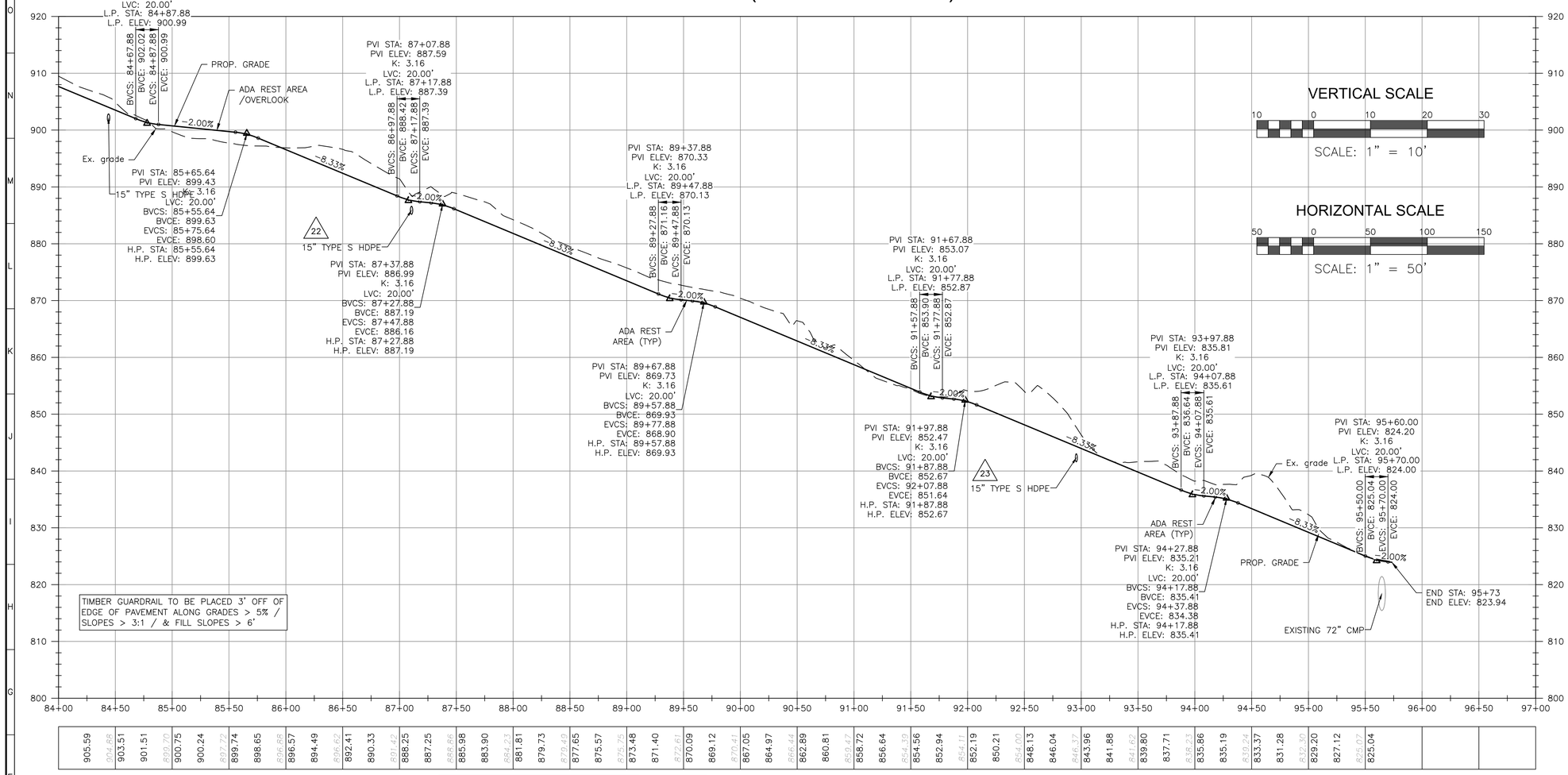
SHEET NO.
C4.8A

JOB NO. 04160062.00

ERRG EXTENSION (STA:84+00 - END) PROFILE



ESC KEY

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3.05	SILT FENCE	SF	3.31	TEMPORARY SEEDING	TS
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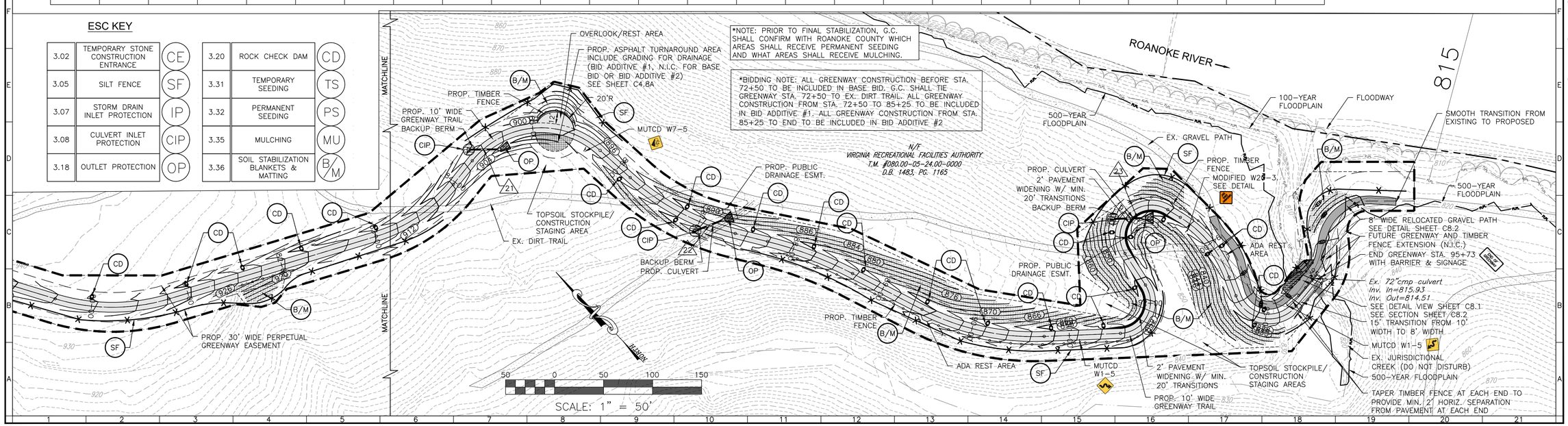

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EAST ROANOKE RIVER GREENWAY EXTENSION

PLAN & PROFILE (STA. 84+00 TO END) BID ADDITIVE #2

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	1"=50'

REVISIONS:
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8/4/2023

SHEET NO.
C4.8B

JOB NO. 04160062.00

ENVIRONMENTAL AREA 'A'
INST. #201402996
NO DISTURBANCE IN THIS AREA

SEE PLANS FOR ERRG CONNECTION FOR EXTENSION OF GREENWAY TRAIL ALONG HIGHLAND ROAD

TIE PROP. GRADING TO GRADING FOR ERRG CONNECTOR

REMOVABLE BOLLARD TYP. EACH SIDE OF ROAD TO BE INSTALLED BY OWNER (N.I.C.)

10' WIDE ASPHALT TRAIL

*NOTE: PRIOR TO FINAL STABILIZATION, G.C. SHALL CONFIRM WITH ROANOKE COUNTY WHICH AREAS SHALL RECEIVE PERMANENT SEEDING AND WHAT AREAS SHALL RECEIVE MULCHING.

REMOVABLE BOLLARD TYP. TO BE INSTALLED BY OWNER (N.I.C.)

PROP. BMP #1
SEE DETAIL
SHEET C9.1

DETECTABLE WARNING EMBEDDED IN CONCRETE MIN. 2'D x 10'W (FULL WIDTH OF TRAIL)

ACCESSIBLE PARKING & LOADING AREA MAX. 2% SLOPE

H.C. SIGNAGE

7 STD. PARKING SPACES AND 1 HDCP. SPACE

6" X 6" CONCRETE BUMPER BLOCKS

R1-1 STOP SIGN

Ex. 15"cmp culvert
Inv. In=1089.06
Inv. Out=1088.82

Ex. utility pole to remain

HIGHLAND ROAD
RTE 618 - 25 MPH

RTE. 618- 35 MPH

Approx. location of ex. s.s. f.m.
G.C. TO VERIFY EXACT LOCATION AND ENSURE THAT MIN. 3' COVER IS MAINTAINED OVER FORCE MAIN

NORTH

SCALE: 1" = 20'

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EAST ROANOKE RIVER GREENWAY EXTENSION

TRAILHEAD PLAN

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY	CPB
DESIGNED BY	CPB
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DATE	9/4/2019
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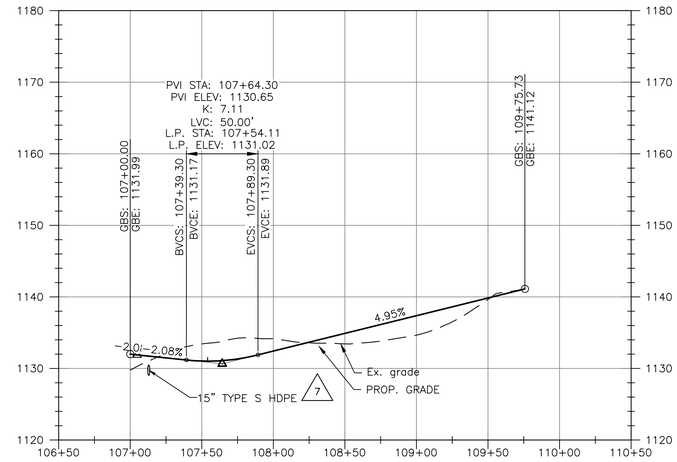
8/4/2023

SHEET NO.
C5.1

JOB NO. 04160062.00

OVERLOOK #1 CONNECTION PROFILE



VERTICAL SCALE

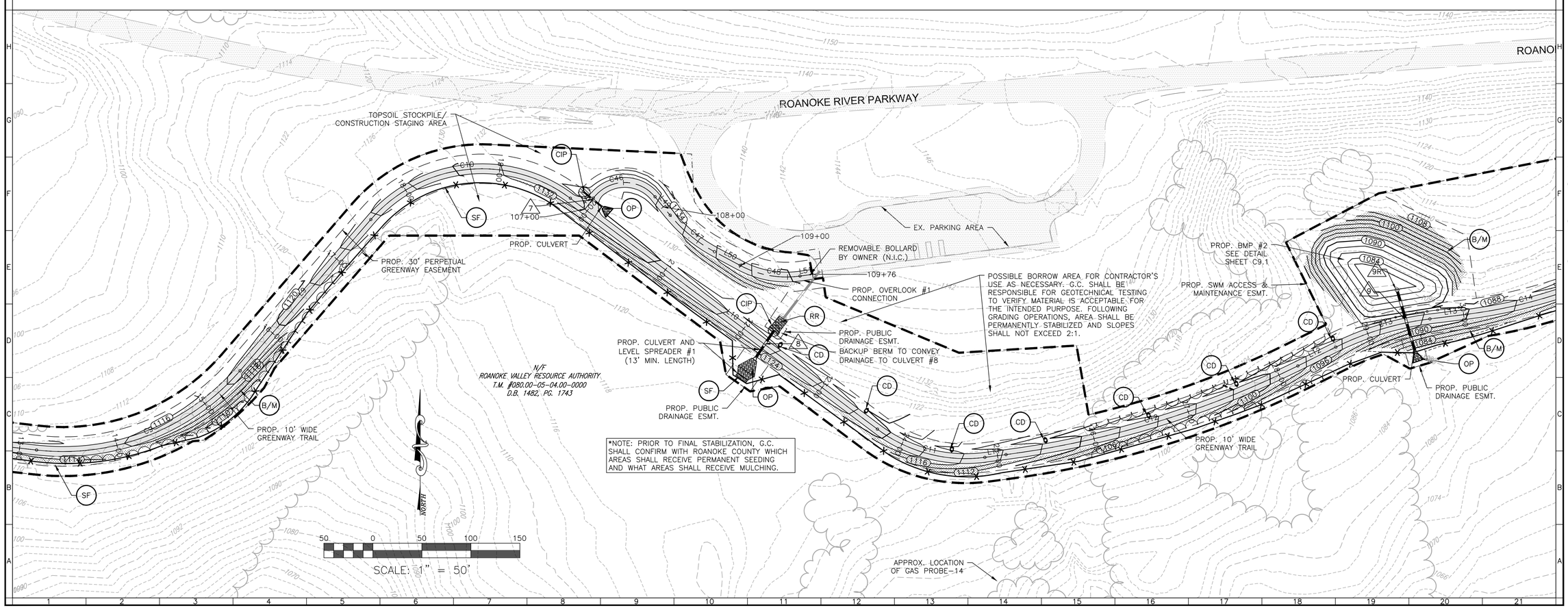
10 0 10 20 30

SCALE: 1" = 10'

HORIZONTAL SCALE

50 0 50 100 150

SCALE: 1" = 50'



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CHRISTOPHER P. BURNS
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EAST ROANOKE RIVER GREENWAY EXTENSION

CONNECTION TO OVERLOOK #1

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY	CPB
DESIGNED BY	CPB
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DATE	9/4/2019
SCALE	1"=50'

REVISIONS:
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12/21/2022
4/4/2023
8/4/2023

SHEET NO.
C5.2

JOB NO. 04160062.00

GENERAL EROSION/SEDIMENT CONTROL NOTES

1. 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.
2. 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.
3. 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.
4. IN NO CASE DURING CONSTRUCTION SHALL WATER RUNOFF BE DIVERTED OR ALLOWED TO FLOW TO LOCATIONS WHERE ADEQUATE PROTECTION HAS NOT BEEN PROVIDED.
5. 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.
6. 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.
7. THE LOCATION OF ALL OFF–SITE FILL OR BORROW AREAS ASSOCIATED WITH THE CONSTRUCTION PROJECT WILL BE PROVIDED TO ROANOKE COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT. ANY OFF–SITE AREA MUST BE A PERMITTED SITE AND AN EROSION CONTROL PLAN OR MEASURES MAY BE REQUIRED FOR THIS AREA.
8. THIS SHEET MAY NOT BE MODIFIED EXCEPT FOR TABLES

TOTAL DISTURBED AREA = 18.3 AC.= 795,000 SQ. FT.

GRADING NOTES

G.C. SHALL REFER TO "SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING REPORT, ROANOKE COUNTY GREENWAY EAST ROANOKE RIVER GREENWAY EXTENSION" FOR SITE–SPECIFIC REQUIREMENTS. ALL RECOMMENDATIONS IN THE REPORT REGARDING EARTHWORK OPERATIONS SHALL BE FOLLOWED UNLESS OTHERWISE APPROVED BY THE OWNER AND ENGINEER.

REMOVE TREES, SHRUBS, GRASS, AND OTHER VEGETATION, IMPROVEMENTS OR OBSTRUCTIONS AS REQUIRED TO PERMIT INSTALLATION OF NEW CONSTRUCTION. REMOVE TREES AND OTHER VEGETATION, INCLUDING STUMPS AND ROOTS, COMPLETELY IN AREAS REQUIRED FOR SUBSEQUENT SEEDING. CUT OFF TREES AND STUMPS IN AREAS TO RECEIVE FILL MORE THAN THREE FEET IN DEPTH TO WITHIN EIGHT INCHES OF THE ORIGINAL GROUND SURFACE.

BARRICADE OPEN EXCAVATIONS OCCURRING AS PART OF THIS WORK AND OPERATE WARNING LIGHTS AS RECOMMENDED BY AUTHORITIES HAVING JURISDICTION.

EXCAVATION FOR STRUCTURES:
a. CONFORM TO ELEVATIONS AND DIMENSIONS SHOWN WITHIN A TOLERANCE OF 0.1'
b. PROVIDE TRUE AND STRAIGHT FOOTING EXCAVATIONS WITH UNIFORM AND LEVEL BOTTOMS OF THE WIDTH INDICATED TO ENSURE PROPER PLACEMENT AND COVER OF ALL REINFORCEMENT.
c. REMOVE ALL LOOSE MATERIALS FROM THE EXCAVATION PRIOR TO PLACEMENT OF CONCRETE.
d. FOOTINGS WHICH SUPPORT CONCRETE MASONRY UNITS MAY BE STEPPED PROVIDED THE VERTICAL STEP DOES NOT EXCEED ONE HALF OF THE HORIZONTAL DISTANCE BETWEEN STEPS AND HORIZONTAL DISTANCE BETWEEN STEPS IS NOT LESS THAN TWO FEET.
e. IF ROCK IS ENCOUNTERED IN A FOOTING EXCAVATION, UNDERCUT IT A MINIMUM EXCAVATION WITH CONTROLLED FILL.

CUT SURFACE UNDER PAVEMENTS TO COMPLY WITH CROSS SECTIONS, ELEVATIONS, AND GRADES AS INDICATED.

EXCAVATE TRENCHES TO UNIFORM WIDTH CONFORMING TO VDOT STANDARD PB–1 FOR STORM DRAINAGE PIPING.

PREVENT SURFACE WATER AND SUBSURFACE OR GROUND WATER FROM FLOWING INTO EXCAVATIONS AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA. DO NOT ALLOW WATER TO ACCUMULATE IN EXCAVATIONS. REMOVE WATER TO PREVENT SOFTENING OF FOUNDATION BOTTOMS, UNDERCUTTING FOOTINGS, AND SOIL CHANGES DETRIMENTAL TO STABILITY OF SUBGRADES AND FOUNDATIONS. CONVEY WATER WHEN ATMOSPHERIC TEMPERATURE IS LESS THEN 35°F (1°C).

PROTECT EXCAVATED BOTTOMS OF ALL FOOTINGS AND TRENCHES AGAINST FREEZING WHEN ATMOSPHERIC TEMPERATURE IS LESS THEN 35°F (1°).

BACKFILLING:
a. COMPACT THE BACKFILL AROUND THE OUTSIDE OF EACH BUILDING TO A MINIMUM OF 85% OF MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D 698 STANDARD PROCTOR. DO NOT ALLOW HEAVY COMPACTION EQUIPMENT SUCH AS ROLLERS, ETC., CLOSER TO ANY FOOTING THAN THE HORIZONTAL DISTANCE SUBTENDED BY A 45° ANGLE WITH THE TOP EDGE OF THE FOOTINGS AND THE SURFACE OF THE GROUND.
b. BACKFILL BEHIND WALLS AFTER PERMANENT CONSTRUCTION WHICH BRACES THE WALL IS IN PLACE OR TEMPORARY BRACING OF THE WALL IS PROPERLY INSTALLED, AND AFTER ACCEPTANCE OF CONSTRUCTION BELOW FINISH GRADE INCLUDING DAMP–PROOFING, REMOVAL OF CONCRETE FORMWORK, AND REMOVAL OF TRASH AND DEBRIS.

FINISH LAWN AREAS TO WITHIN ONE INCH ABOVE OR BELOW REQUIRED SUBGRADE ELEVATIONS. SHAPE SURFACE UNDER WALKS AND PAVEMENTS TO LINE, GRADE, AND CROSS SECTION, WITH NOT MORE THAN 1/2" ABOVE OR BELOW REQUIRED SUBGRADE ELEVATION.

GRADE SURFACE UNDER BUILDING SLABS SMOOTH AND EVEN, FREE OF VOIDS. PROVIDE FINAL GRADES WITHIN 1/2" OF THOSE INDICATED WHEN TESTED WITH A 10' STRAIGHT EDGE.

PROTECT GRADED AREAS FROM TRAFFIC AND EROSION. REPAIR AREAS WHICH HAVE SETTLED, ERODED, OR BECOME DAMAGED DUE TO CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST TO OWNER.

PLACE ALL FILL AND BACKFILL AS CONTROLLED FILL AS FOLLOWS:
a. ESTABLISH SUITABLE SUBGRADE CONDITIONS PRIOR TO PLACING FILL BY PROOFROLLING, UNDERCUTTING AND COMPACTING AS NECESSARY.
b. PLACE FILL MATERIALS IN LAYERS NOT MORE THAN 8" IN LOOSE DEPTH FOR HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4" FOR HAND TAMPERS.
c. PRIOR TO COMPACTION, PROVIDE MOISTURE CONTENT TO WITHIN 3% OF OPTIMUM BY MOISTENING OR AERATING EACH LAYER. DO NOT PLACE FILL MATERIAL ON SURFACES WHICH ARE MUDDY, FROZEN OR CONTAIN FROST OR ICE.
d. COMPACT SOIL TO NOT LESS THAN 95% OF MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D 698 (STANDARD PROCTOR).

SPREAD TOPSOIL TO A DEPTH OF 4" OVER ALL DISTURBED AREAS NOT RECEIVING WALKS, PAVEMENT, WALLS OR BUILDING, INCLUDING TRENCHES. IMMEDIATELY FOLLOWING PLACEMENT OF TOPSOIL, DISK THE ENTIRE TOPSOILED AREA AND RAKE FREE OF STONES AND DEBRIS OVER 1/2" IN ANY DIMENSION. PROVIDE A FINISHED SURFACE FREE OF DEPRESSIONS OR HIGH SPOTS. SEED IMMEDIATELY.

CONTRACTOR IS RESPONSIBLE FOR ALL QUALITY CONTROL TESTING AND SHALL RETAIN A LICENSED INDEPENDENT GEOTECHNICAL ENGINEER AND SOILS TESTING LABORATORY AND SHALL PROVIDE PERIODIC REPORTS TO THE OWNER IN ACCORDANCE WITH VDOT REQUIREMENTS. OWNER IS RESPONSIBLE FOR ALL QUALITY ASSURANCE TESTING IN ACCORDANCE WITH VDOT REQUIREMENTS.

EROSION AND SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION: THE PROJECT CONSISTS OF THE CONSTRUCTION OF A SECTION OF TRAIL APPROXIMATELY 2.3 MILES IN CUMULATIVE LENGTH INCLUDING ASSOCIATED SPUR TRAILS AND TRAILHEADS. THE TRAIL WILL TIE INTO PREVIOUS DESIGNED SECTIONS TO THE EAST AND WEST. THE PROJECT IS A PROPOSED ADDITION TO THE ROANOKE RIVER GREENWAY SYSTEM. CONSTRUCTION ACTIVITIES WILL CONSIST OF GRADING, STORMWATER MANAGEMENT, PAVING, AND OTHER ASSOCIATED IMPROVEMENTS.

EXISTING SITE CONDITIONS: THE PROJECT IS LOCATED ON 6 DIFFERENT TRACTS OF LAND, OWNED BY RVRA, NPS, & EXPLORE PARK (SEE SHEET C2.1). THE SITE IS CHARACTERIZED BY MODERATE TO STEEP SLOPES.

ADJACENT PROPERTY: THE DEVELOPMENT AREA IS BOUNDED BY AG–1 ZONED PARCELS AND PUBLIC ROW TO THE SOUTH, RIGHT OF WAY OF BLUE RIDGE PARKWAY TO THE WEST, AG–1 ZONED LAND AND WATERWAY TO THE SOUTH & EAST.

OFF–SITE AREAS: G.C. SHALL NOTIFY ROANOKE COUNTY OF THE LOCATION OF ANY OFF–SITE FILL OR BORROW AREAS PRIOR TO ANY MATERIAL BEING TRANSPORTED TO OR FROM THE SITE. ANY OFF–SITE MATERIAL SHALL COME FROM A PERMITTED SITE.

SOILS: THE "SOIL SURVEY OF ROANOKE COUNTY AND THE CITIES OF ROANOKE AND SALEM, VIRGINIA" AS PREPARED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE IDENTIFIES THE SITE AS 35/ PITS & QUARRIES, HSG:D, 26C/ HAYESVILLE FINE SANDY LOAM, 7 TO 15 PERCENT SLOPES, HSG:B, 26D/ HAYESVILLE FINE SANDY LOAM, 15 TO 25 PERCENT SLOPES, HSG:B, 27C/ HAYESVILLE GRAVELLY FINE SANDY LOAM, 7 TO 15 PERCENT SLOPES, HSG:B, 27D/ HAYESVILLE GRAVELLY FINE SANDY LOAM, 15 TO 25 PERCENT SLOPES, HSG:B AND 28E/ HAYESVILLE CHANNERY FINE SANDY LOAM, 25 TO 50 PERCENT SLOPES, VERY STEEP, HSG:B.

CRITICAL EROSION AREAS: THE G.C. SHALL ALSO ENSURE THAT NO MUD TRACKING IS TRANSPORTED ONTO THE ADJACENT PUBLIC ROADS. SLOPES LOCATED TO THE NORTH AND SOUTH OF THE PROPOSED TRAIL SHALL BE PROPERTY STABILIZED AND VEGETATED.

EROSION AND SEDIMENT CONTROL MEASURES:
UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO 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.

STRUCTURAL –

CONSTRUCTION ENTRANCE–STD. 3.02.....A STONE PAD, LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS TO THE CONSTRUCTION SITE, TO REDUCE THE SOIL TRANSPORTED ONTO PUBLIC ROADS AND OTHER PAVED AREAS.

SILT FENCE–STD. 3.05.....A TEMPORARY BARRIER CONSTRUCTED ALONG THE PERIMETER OF THE DISTURBED AREA AS REQUIRED TO INTERCEPT AND DETAIN SEDIMENT.

INLET PROTECTION–STD. 3.07.....A SEDIMENT FILTER TO PREVENT SEDIMENT FROM ENTERING, ACCUMULATING IN AND BEING TRANSFERRED INTO AN INLET AND ASSOCIATED DRAINAGE SYSTEM PRIOR TO PERMANENT STABILIZATION OF A DISTURBED PROJECT AREA.

CULVERT INLET PROTECTION–STD. 3.08.....A SEDIMENT FILTER LOCATED AT THE INLET TO STORM SEWER CULVERTS TO PREVENT SEDIMENT FROM ENTERING, ACCUMULATING IN, AND BEING TRANSFERRED BY A CULVERT AND ASSOCIATED DRAINAGE SYSTEM.

OUTLET PROTECTION–STD. 3.18.....THE INSTALLATION OF A RIPRAP CHANNEL SECTIONS AND/OR STILLING BASINS BELOW STORM DRAIN OUTLETS TO REDUCE EROSION AND UNDER–CUTTING FROM SCOURING AT OUTLETS AND TO REDUCE FLOW VELOCITIES BEFORE STORMWATER ENTERS RECEIVING CHANNELS BELOW THESE OUTLETS.

RIP–RAP–STD 3.19....PERMANENT EROSION RESISTANT GROUND COVER OF LARGE, LOOSE, ANGULAR STONE INSTALLED WHERE SOIL CONDITIONS, WATER TURBULENCE/VELOCITY, ETC, MAY ERODE UNDER DESIGN FLOW CONDITIONS.

ROCK CHECK DAMS–STD 3.20....TO REDUCE THE VELOCITY OF THE CONCENTRATED STORMWATER FLOWS, THEREBY REDUCING EROSION OF THE SWALE OR DITCH. THIS PRACTICE ALSO TRAPS SEDIMENT GENERATED FROM ADJACENT AREAS OR THE DITCH ITSELF, MAINLY BY PONDING OF THE STORMWATER RUNOFF. FIELD EXPERIENCE HAS SHOWN IT TO PERFORM MORE EFFECTIVELY THAN SILT FENCE OR STRAW BALES IN THE EFFORT TO STABILIZE "WET–WEATHER" DITCHES.

LEVEL SPREADER–STD 3.21....AN OUTLET FOR DIKES OR DIVERSIONS CONSISTING OF AN EXCAVATED DEPRESSION AT ZERO SLOPE ACROSS A SLOPE TO CONVERT CONCENTRATED, SEDIMENT–FREE RUN–OFF TO SHEET FLOW AND RELEASE IT ONTO AREAS OF UNDISTURBED SOIL STABILIZED BY VEGETATION.

VEGETATIVE –

TEMPORARY SEEDING–STD. 3.31.....ESTABLISHMENT OF A TEMPORARY VEGETATIVE COVER ON DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR PERIODS OF 14 DAYS TO 1–YEAR BY SEEDING WITH AN APPROPRIATE RAPIDLY GROWING SEED MIXTURE.

PERMANENT SEEDING–STD. 3.32.....ESTABLISHMENT OF A VEGETATIVE COVER BY PLANTING SEED ON ALL FINAL GRADED AREAS THAT WILL NOT RECEIVE AN IMPERVIOUS COVER OR RECEIVE TOPSOIL MATERIAL TO PROVIDE A STABILIZED SITE AFTER THE PROJECT IS COMPLETE.

MULCHING–3.35.....MULCH SHALL BE APPLIED TO ALL TEMPORARY AND PERMANENT SEEDING OPERATIONS TO PROMOTE THE GROWTH OF VEGETATION AND TO PROTECT THE SOIL SURFACE FROM RAINDROP IMPACTS.

SOIL STABILIZATION BLANKETS & MATTING–STD 3.36....INSTALLATION OF A PROTECTIVE BLANKET OR SOIL STABILIZATION MAT ON A PREPARED STEEP SLOPE OR CHANNEL.

MANAGEMENT STRATEGIES:
A) CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
B) SEDIMENT TRAPPING MEASURES WILL BE INSTALLED AS A FIRST STEP IN GRADING.
C) THE LOCAL PROGRAM ADMINISTRATOR RESERVES THE RIGHT TO ADD TO, DELETE OR OTHERWISE CHANGE THE EROSION CONTROL MEASURES AS DEEMED NECESSARY DUE TO ACTUAL FIELD CONDITIONS BY WRITTEN NOTIFICATION TO THE CONTRACTOR.
D) ALL FILL AND CUT SLOPES SHALL BE SEEDED WITHIN SEVEN (7) DAYS OF ACHIEVING FINAL GRADE.
E) ONLY AFTER INSPECTION AND APPROVAL FROM THE LOCAL PROGRAM ADMINISTRATOR MAY ITEMS BE REMOVED FOLLOWING THE STABILIZATION OF THE CONTRIBUTING AREAS.

INSPECTIONS:
THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETION OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND MAINTENANCE OF THE DOCUMENT AND ALL REQUIREMENTS OF THE SWPPP AND VSMP PERMIT THROUGHOUT THE PROJECT. THE GENERAL CONTRACTOR SHALL PERFORM ALL SITE INSPECTIONS REQUIRED BY THE SWPPP AND VSMP PERMIT. THE GENERAL CONTRACTOR SHALL INSPECT DISTURBED AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED, AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND THE AREA OF CONSTRUCTION VEHICLE ACCESS AT THE FREQUENCY INDICATED IN THE SWPPP AND THE VSMP GENERAL PERMIT.
A) INSPECT DISTURBED AREAS AND AREAS OF MATERIALS STORAGE THAT ARE EXPOSED TO PRECIPITATION FOR EVIDENCE OF, OR THE POTENTIAL FOR SEDIMENT ENTERING THE STORM DRAIN SYSTEM OR SURFACE WATERS,. INSPECT E&S CONTROLS IN ACCORDANCE WITH REQUIREMENTS STATED HEREIN, AND INSPECT POINTS OF STORM DRAIN DISCHARGE FOR EXCESSIVE SEDIMENTATION. CORRECT SITE CONTROLS AS REQUIRED TO REDUCE SEDIMENTATION OF STORM DRAINS, CULVERTS, AND RECEIVING CHANNELS.
B) IF CONTROLS OR SEDIMENT PREVENTION AREAS ARE FOUND TO BE IN NEED OF REPAIR OR MODIFICATION, THE GENERAL CONTRACTOR SHALL PROVIDE ADDITIONAL MEASURES OR MODIFICATIONS TO EXISTING MEASURES AS REQUIRED. ANY ADDITIONAL MEASURES OR MODIFICATIONS TO EXISTING MEASURES SHALL BE DOCUMENTED IN THE SWPPP. IN THE EVENT THAT ADDITIONAL CONTROLS ARE FOUND TO BE REQUIRED, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING THESE CONTROLS BEFORE THE NEXT ANTICIPATED STORM EVENT. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICAL, THEY SHALL BE IMPLEMENTED AS SOON AS PRACTICAL.
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 A 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 FAILED OR INADEQUATE CONTROLS; AND LOCATIONS WHERE ADDITIONAL CONTROLS ARE NEEDED.

STORMWATER MANAGEMENT:

THE ENERGY BALANCE EQUATION IS BEING UTILIZED FOR THIS DEVELOPMENT TO PROVIDE CONFORMANCE WITH STATE REGULATIONS RELATED TO CHANNEL PROTECTION REQUIREMENTS. THE 1–YEAR AND 10–YEAR STORMS HAVE BEEN ANALYZED AND DETAINED UTILIZING THE STORMWATER MANAGEMENT FACILITY TO ENSURE THE DEVELOPMENT CONFORMS TO CURRENT STANDARDS.

FLOOD PROTECTION REQUIREMENTS ARE MET BY PROVIDING A REDUCTION IN THE POST DEVELOPMENT 10–YEAR PEAK FLOW RATE WHEN COMPARED TO THE EXISTING 10–YEAR PEAK FLOW RATE AND CURRENT DISCHARGE FROM THE SITE.

15.0 ACRES OF OPEN SPACE WILL BE CONSERVED IN HAPPY HOLLOW GARDENS BETWEEN THE THREE TAX PARCELS 075.00–02–26.00–0000, 075.00–02–27.02–0000, AND 075.00–02–36.00–0000 TO ADDRESS STORMWATER QUALITY FOR THE SITE. THE SITE IS LOCATED ON 6697 MT. CHESTNUT ROAD AND 0 MT. CHESTNUT ROAD AND HAS 37.88 ACRES TO BE DEDICATED BETWEEN THE THREE PARCELS.

MINIMUM STANDARDS

THE FOLLOWING STANDARDS ARE TO BE PROVIDED OR ADDRESSED ON EVERY DEVELOPMENT PROJECT EXCEEDING 5000 S.F. IN AREA OF DISTURBANCE THESE STANDARDS ARE CONSIDERED A MINIMUM AND MAY REQUIRE ADDITIONAL MEASURES AS DEEMED NECESSARY BY THE LOCAL APPROVING AUTHORITY OR THE CONSULTING ENGINEER.

No.	CRITERIA, TECHNIQUE OR METHOD	PRACTICES PROVIDED
1	PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE HAS BEEN REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN FOURTEEN (14) DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE (1) YEAR.	(TS) (PS) (MU) (B/M)
2	DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.	(SF) (TS) (PS) (MU) (B/M)
3	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, IN THE OPINION OF THE LOCAL PROGRAM ADMINISTRATOR OR DESIGNATED AGENT, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.	(TS) (PS) (MU) (B/M)
4	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.	(SF)
5	STABILIZATION METHODS SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.	(TS) (PS) (MU) (B/M)
6	SEDIMENT TRAPS AND BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.	NOT APPLICABLE
7	CUT AND FILL SLOPES SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE (1) YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZATION MEASURES UNTIL THE PROBLEM IS CORRECTED.	(TS) (PS) (MU) (B/M)
8	CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.	NOT APPLICABLE
9	WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.	SHOULD SEEPS OCCUR IN ANY EXISTING OR NEW CUT OR FILL SLOPE, THE CONTRACTOR SHALL FIRST ENSURE THAT THERE ARE NOT AREAS OF PONDED WATER AT THE TOPS OF THE SLOPES, AND THEN SHALL CONTACT BOTH THE DESIGN ENGINEER AND THE PROJECT GEOTECHNICAL ENGINEER FOR ON–SITE EVALUATION OF THE AREAS OF SEEPAGE.
10	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.	(CIP) (IP)
11	BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS 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.	(RR) (OP) (LS)
12	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.	NO DISTURBANCE OF SURFACE WATERS IS PROPOSED WITH THIS PROJECT.
13	WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX (6) MONTH PERIOD, A TEMPORARY STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL.	
14	ALL APPLICABLE FEDERAL, STATE AND LOCAL CHAPTERS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET. THE BEDS AND BANKS OF ANY WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.	
15	THE BEDS AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.	
16	UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA: 1)NO MORE THAN 500 LINEAR FEET OF ANY TRENCH MAY BE OPENED AT ONE TIME. 2)EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES. 3)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. 4)MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION. 5)RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE CHAPTERS. 6)APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.	(SF)
17	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.	(CE)
18	ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN THIRTY (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.	(TS) (PS) (MU) (B/M)
19	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. a. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE 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: (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 THE TWO–YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS; AND (b) ALL PREVIOUSLY CONSTRUCTED MAN–MADE CHANNELS SHALL BE ANALYZED BY THE USE OF THE 10–YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A 2–YEAR STORM TO DEMONSTRATE THAT STORWMATER 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 SYSTEM c. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN–MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL: (1) IMPROVE THE CHANNEL TO A CONDITION WHERE A 10–YEAR STORM WILL NOT OVERTOP THE BANKS AND A 2–YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL BED OR BANKS; OR (2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE 10–YEAR STORM IS CONTAINED WITHIN THE APPURTANCES; OR (3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE–DEVELOPMENT PEAK RUNOFF RATE FROM A TWO–YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE–DEVELOPMENT PEAK RUNOFF RATE FROM A 10–YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN–MADE CHANNEL; OR (4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMATER 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 CONDTION 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 (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 SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK 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 (VSMP) PERMIT REGULATIONS. n. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 4VAC50–60–66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF MINIMUM STANDARD 19.	SEE SUPPLEMENTAL CALCULATIONS FOR FLOOD AND CHANNEL PROTECTION REQUIREMENTS FOR THE PROPOSED DEVELOPMENT.

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CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23

EAST ROANOKE RIVER
GREENWAY EXTENSION

ESC NOTES

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

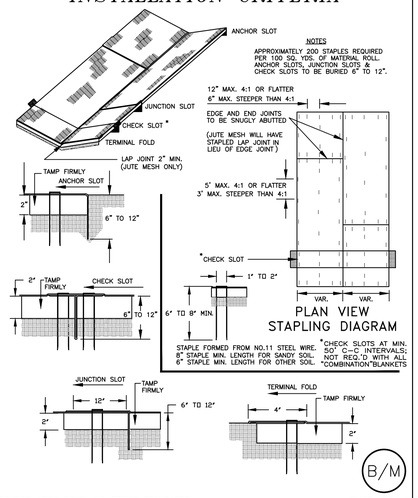
DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE N/A

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C6

JOB NO. 04160062.00

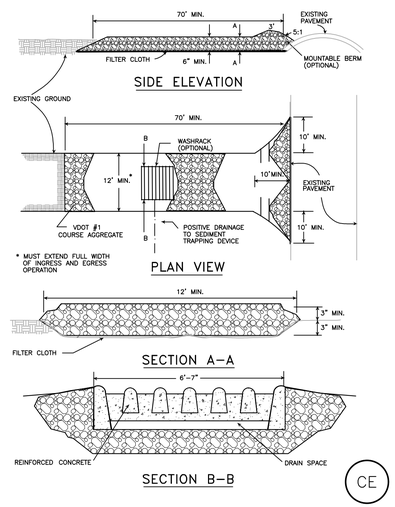
TYPICAL TREATMENT – 1 (SOIL STABILIZATION BLANKET) INSTALLATION CRITERIA



B/M

SOURCE: VDOT ROAD AND BRIDGE STANDARDS PLATE: 3.36–2

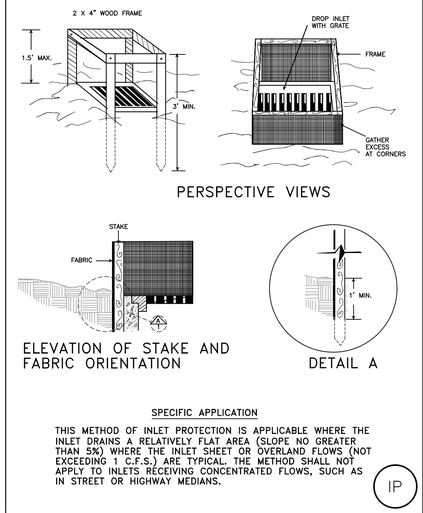
STONE CONSTRUCTION ENTRANCE



CE

SOURCE: ADAPTED from 1983 Maryland Standards for Soil erosion and Sediment Control, and Va. DSWC Plate 3.02–1

SILT FENCE DROP INLET PROTECTION



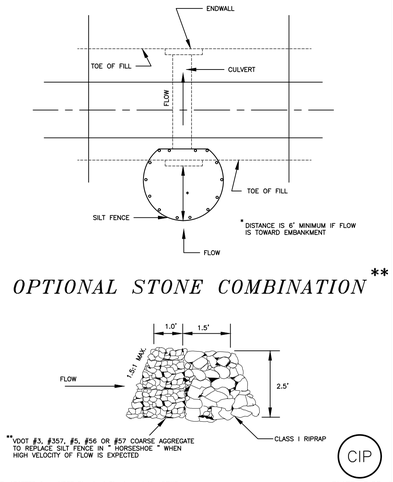
SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

IP

SOURCE: N.C. Erosion and Sediment Control Planning and Design Manual, 1988 PLATE 3.07–1

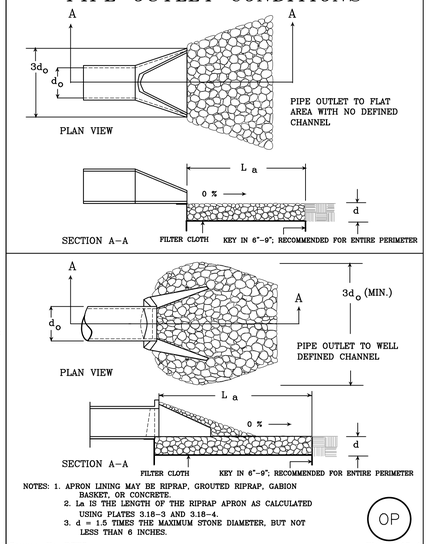
SILT FENCE CULVERT INLET PROTECTION



CIP

SOURCE: ADAPTED from VDOT Standard Sheets and Va. DSWC PLATE. 3.08–1

PIPE OUTLET CONDITIONS



NOTES: 1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GABION BASKET, OR CONCRETE.
2. La IS THE LENGTH OF THE RIPRAP APRON AS CALCULATED USING PLATES 3.18–3 AND 3.18–4.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6 INCHES.

OP

Source: Va. DSWC Plate 3.18–1

TABLE 3.35-A
ORGANIC MULCH MATERIALS AND APPLICATION RATES

MULCHES:	RATES: Per Acre	RATES: Per 1000 sq. ft.	NOTES:
Straw or Hay	- 2 tons (Minimum 2 tons for winter cover)	70 - 90 lbs.	Free from weeds and coarse matter. Must be anchored. Spread with mulch blower or by hand.
Fiber Mulch	Minimum 1500 lbs.	35 lbs.	Do not use as mulch for winter cover or during hot, dry periods. * Apply as slurry.
Corn Stalks	4 - 6 tons	185 - 275 lbs.	Cut or shredded in 4-6" lengths. Air-dried. Do not use in fine turf areas. Apply with mulch blower or by hand.
Wood Chips	4 - 6 tons	185 - 275 lbs.	Free of coarse matter. Airdried. Treat with 12 lbs nitrogen per ton. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.
Bark Chips or Shredded Bark	50 - 70 cu. yds.	1-2 cu. Yds.	Free of coarse matter. Airdried. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.

* When fiber mulch is the only available mulch during periods when straw should be used, apply at a minimum rate of 2000 lbs./ac. or 45 lbs./ 1000 sq. ft.

MU

*NOTE: MULCHING SHALL BE APPLIED IN ACCORDANCE WITH THE REQUIREMENTS IN TABLE 3.35–A. MULCH SHALL BE APPLIED IN 2"–3" THICK LAYER. WHERE APPROPRIATE, THE G.C. IS ENCOURAGED TO CHIP AND UTILIZE EXISTING TREES THAT ARE BEING CLEARED FOR THE PROJECT.

Source: Va. DSCW Table 3.35–A

TABLE 3.32-C
(Revised June 2003)
PERMANENT SEEDING SPECIFICATIONS FOR APPALACHIAN/MOUNTAIN AREA

LAND USE	SPECIES	APPLICATION RATES
	SEED[1]	
~~Minimum Care Lawn (Commercial or Residential)~~	~~Tall Fescue[1] (40%)~~ ~~Perennial Ryegrass[2] 0-10%~~ ~~Kentucky Bluegrass[1] 0-10%~~ ~~TOTAL: 200-250 lbs.~~	
~~High-Maintenance Lawn~~	~~Mixture of three (3) up to five (5) varieties of Kentucky Bluegrass from approved list for use in Virginia[1]~~	~~TOTAL: 125 lbs.~~
ALL AREAS WITH SLOPES LESS THAN 3:1	Tall Fescue[1] Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop[3]	128 lbs. 2 lbs. 20 lbs. TOTAL: 150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	~~TALL~~ HARD FESCUE Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop[3] ~~Crownvetch[4]~~	108 lbs. 2 lbs. 20 lbs. ~~20 lbs.~~ TOTAL: 130 LBS. ~~TOTAL: 150 lbs.~~

1 - When selecting varieties of turfgrass, use the Virginia Crop Improvement Association (VCIA) recommended turfgrass variety list. Quality seed will bear a label indicating that they are approved by VCIA. A current turfgrass variety list is available at the local County Extension office or through VCIA at 804-746-4884 or at http://audan.cses.vt.edu/hhmt/Turf/turf/publications/publications2.html

2 - Perennial Ryegrass will germinate faster and at lower soil temperatures than Tall Fescues, thereby providing cover and erosion resistance for seedbed.

3 - Use seasonal nurse crop in accordance with seeding dates as stated below:

March, April - May 15th	Annual Rye
May 16th - August 15th	Foxtail Millet
August 16th - September, October	Annual Rye
November - February	Winter Rye

4 - All legume seed must be properly inoculated. If Flatpea is used, increase to 30 lbs/acre. If Weeping Lovegrass is used, include in any slope or low maintenance mixture during warmer seeding periods, increase to 30 -40 lbs/acre.

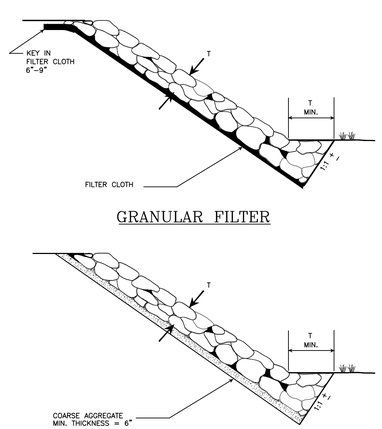
FERTILIZER & LIME

- Apply 10-20-10 **fertilizer** at a rate of **500** lbs. / acre (or 12 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:
- A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
- Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
- When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin, # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/es&s.htm#pubs

PS

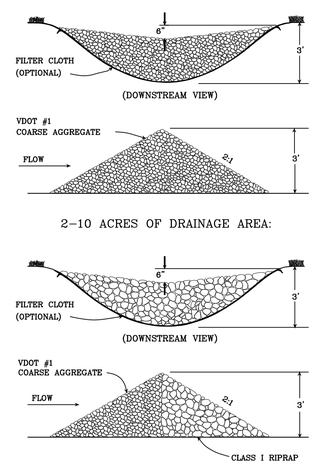
TOE REQUIREMENTS FOR BANK STABILIZATION



SEE OUTLET PROTECTION SCHEDULE ON SHEET C8.4 FOR SPECIFICS

SOURCE: Adapted from VDOT Drainage Manual PLATE. 3.19–1

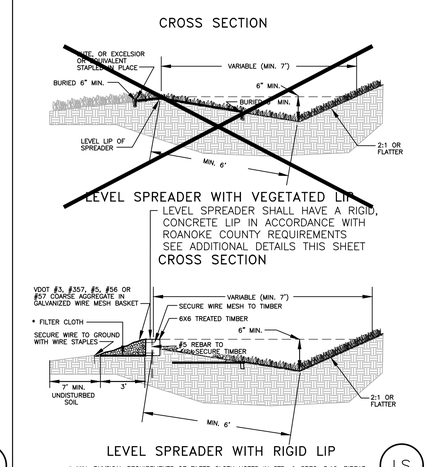
ROCK CHECK DAM



CD

SOURCE: VA. DSWC PLATE. 3.20–1

LEVEL SPREADER

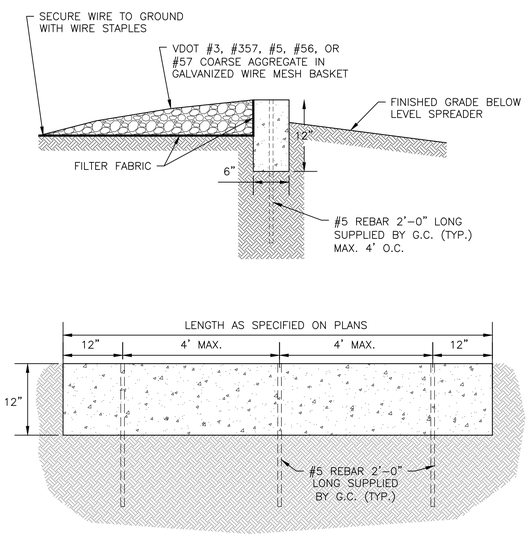


*NOTE: G.C. SHALL ENSURE THAT CONCRETE LIP IS SET FLAT UTILIZING A LASER. AS–BUILT ELEVATIONS TO BE PROVIDED IN RECORD DRAWINGS WITH ELEVATIONS PROVIDED TO THE NEAREST 0.01 FOOT AND AT MAXIMUM 10 FOOT INCREMENTS ALONG THE LENGTH OF THE LEVEL SPREADER (MINIMUM THREE SPOT ELEVATIONS TO BE PROVIDED).

LS

SOURCE: VA. DSWC AND N.C. Erosion and Sediment Control Planning and Design Manual PLATE: 3.21–2

NOTES:
1. CONCRETE IS TO BE CLASS A3 CAST IN PLACE.



CONCRETE LEVEL SPREADER
RIDID LIP DETAIL
N.T.S.

Erosion & Sediment Control Technical Bulletin No. 4
Nutrient Management for Development Sites

C. When applying maintenance fertilizer on established sod,

Pounds of nitrogen per 1,000 sq. ft. if the fertilizer is less than 50 percent WIN

Month	Type of Grass: Tall Fescue Perennial Rye	Kentucky Bluegrass	Bermudagrass	Zoysiagrass
September	1	1	0	0
October	1	1	0	0
Early November	0	0	0	0
April	0	0	0	0
May	0-0.5	0-0.05	1	1
June	0	0	1	0
July/August	0	0	0	1
Yearly Lbs. N/1000 sf	2.5	2.5	2	2

Pounds of nitrogen per 1,000 sq. ft. if the fertilizer is more than 50 percent WIN

Month	Type of Grass: Tall Fescue Perennial Rye	Kentucky Bluegrass	Bermudagrass	Zoysiagrass
August 15	1.5	1.5	0	0
October 1	1.5	1.5	0	0
April	0	0	1.5	1.5
May 15	0	0	0	0
June	0	0	1.5	1.5
Yearly Lbs. N/1000 sf	3	3	3	3

*NOTE: G.C. SHALL UTILIZE A SHADE MIX FOR PERMANENT SEEDING BLEND UTILIZED ON ALL NORTH–FACING SLOPES AND ANY OTHER APPLICABLE AREAS AS NECESSARY TO ACHIEVE PERMANENT STABILIZATION OF THESE AREAS. G.C. SHALL BE RESPONSIBLE FOR ENSURING PERMANENT STABILIZATION IS ACHIEVED FOR ALL DISTURBED AREAS.

TABLE 3.31-B
(Revised June 2003)
TEMPORARY SEEDING SPECIFICATIONS
QUICK REFERENCE FOR ALL REGIONS

APPLICATION DATES	SPECIES	APPLICATION RATES
	SEED	
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Iolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 -100 (lbs/acre)
Feb. 16 - Apr. 30	Annual Ryegrass (Iolium multi-florum)	60 - 100 (lbs/acre)
May 1 - Aug. 31	German Millet	50 (lbs/acre)

FERTILIZER & LIME

- Apply 10-10-10 **fertilizer** at a rate of 450 lbs. / acre (or 10 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:
1 - A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
2 - Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
3 - When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/es&s.htm#pubs

TS

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Balzer and Associates, Inc.
1208 Corporate Circle
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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
8/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

ESC DETAILS

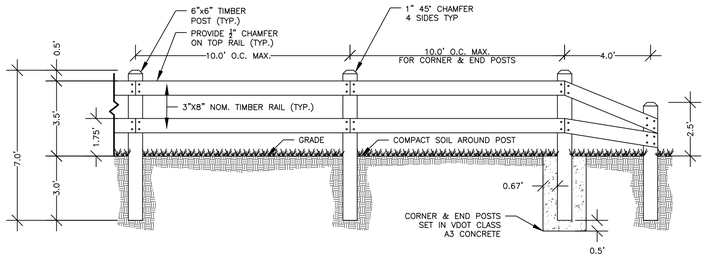
VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023
8/4/2023

SHEET NO.
C7

JOB NO. 04160062.00

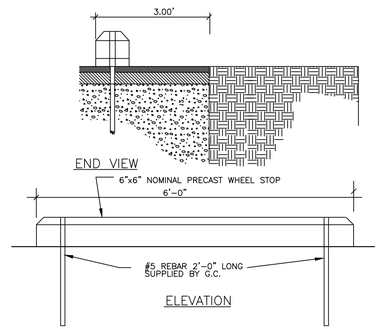


NOTES:

1. TIMBER POSTS SHALL BE 6"X6"X7' #1 SYP (SOUTHERN YELLOW PINE), S4S (SURFACE FOUR SIDES), GM (GRADE MARKED), ACQ PRESERVATIVE TO 0.40 LB./CU. FT., PET (PRECISION END TRIM), 2" CH4TE (2" CHAMFER AROUND TOP FOUR EDGES).
2. TIMBER RAILS SHALL BE #1 SYP (SOUTHERN YELLOW PINE) S4S (SURFACE FOUR SIDES), GM (GRADE MARKED), ACQ PRESERVATIVE TO 0.40 LB./CU. FT., DET (DOUBLE END TRIM), ¼" CHAMFER ON BOTH EDGES OF TOP RAIL, DOH (DEPARTMENT OF HIGHWAYS). RAILS SHALL BE ATTACHED TO POST WITH TYPE 316 STAINLESS STEEL (18 GAUGE) CONCEALED FLANGE JOIST HANGERS WITH STAINLESS STEEL SCREWS.
3. ALL CUT ENDS SHALL BE FIELD TREATED IN ACCORDANCE WITH AWPA STANDARDS.

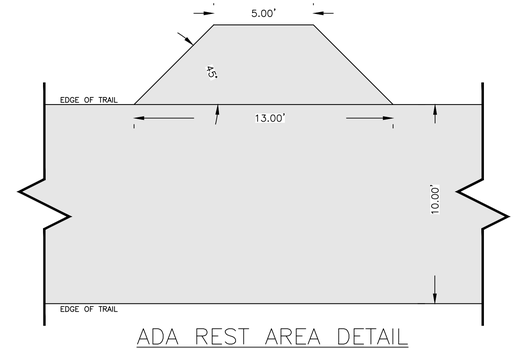
TYPICAL TIMBER GUARDRAIL

N.T.S.



CONCRETE BUMPER BLOCK DETAIL

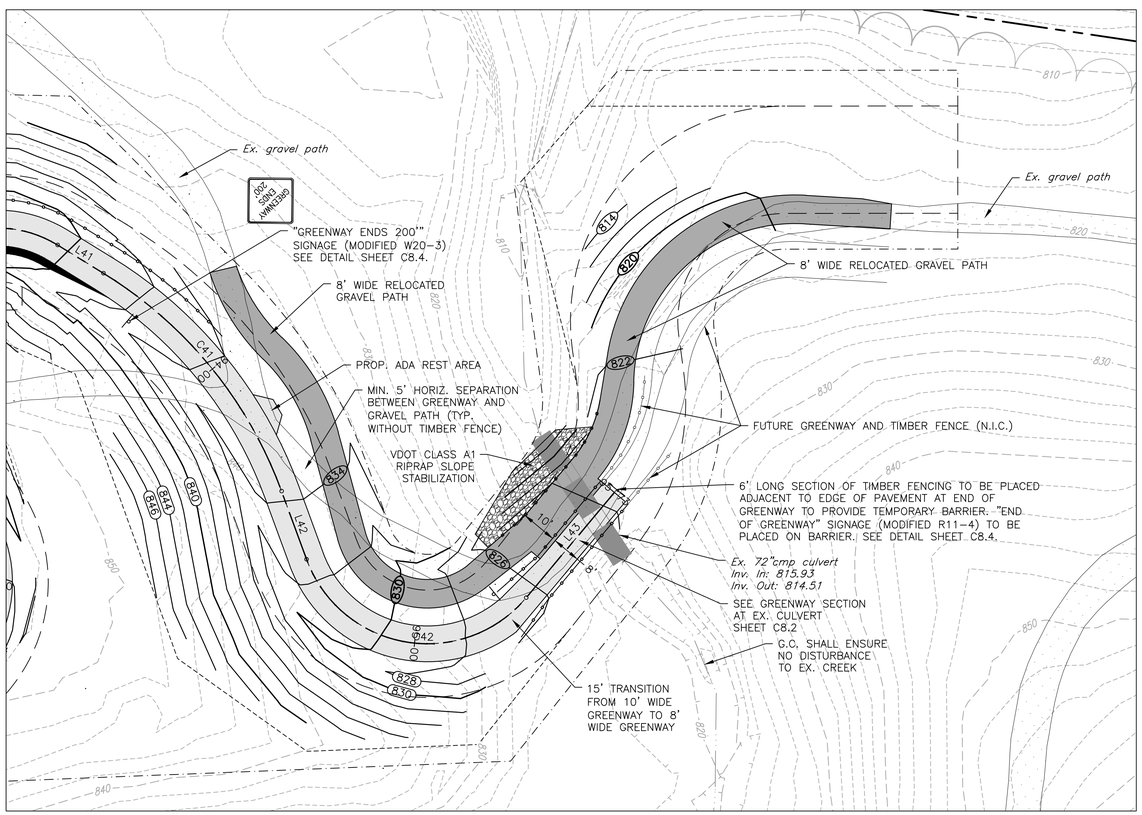
NTS



ADA REST AREA DETAIL

N.T.S.

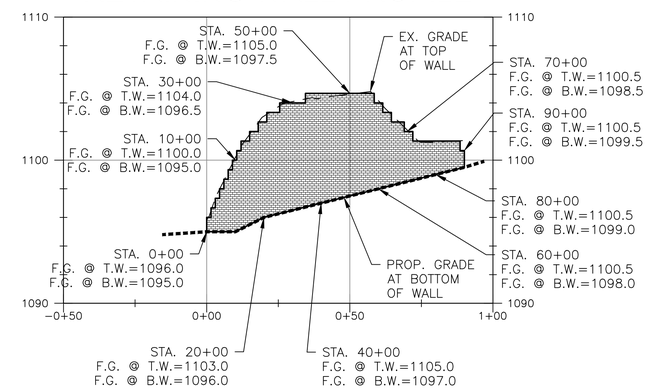
INSTALL REST AREAS SAME TYPICAL SECTION AS TRAIL (SLOPE SHALL NOT EXCEED 2% IN ANY DIRECTION) NO MORE THAN 200' IN ANY DIRECTION BETWEEN REST AREAS.



DETAIL AT END OF PROPOSED GREENWAY

SCALE: 1"=20'

RETAINING WALL PROFILE



HORIZONTAL SCALE

25 0 25

SCALE: 1" = 25'

VERTICAL SCALE

5 0 5

SCALE: 1" = 5'

NOTES:

1. PROFILE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. FINAL SEGMENTAL BLOCK RETAINING WALL TO BE DESIGNED BY OTHERS.
2. G.C. SHALL BE RESPONSIBLE FOR DESIGN (BY PROFESSIONAL ENGINEER), PERMITTING, AND ALL RETAINING WALL CONSTRUCTION.
3. ELEVATIONS PROVIDED ARE FINISHED GRADE AT TOP AND BOTTOM OF WALL. FINAL WALL ELEVATIONS, INCLUDING EMBEDMENT, TO BE DETERMINED WITH THE FINAL WALL DESIGN.
4. CHAIN LINK FENCE TO BE PROVIDED AT TOP OF WALL. SEE DETAILS.

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PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

GENERAL NOTES & DETAILS I

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

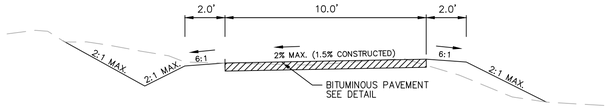
DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C8.1
JOB NO. 04160062.00

TYPICAL GREENWAY SECTION–CROSS SLOPE LEFT

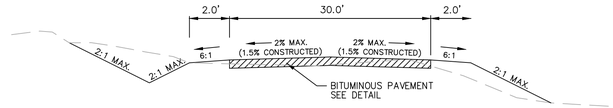
N.T.S.



TYPICAL TRAIL SECTION
DESIGN SPEED = 12 MPH

TYPICAL PAVED TRAILHEAD ACCESS ROAD/PARKING AREA

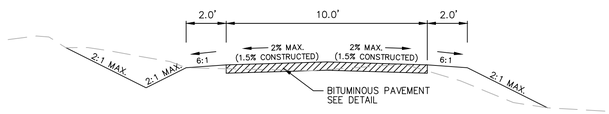
N.T.S.



TYPICAL ROAD SECTION

TYPICAL GREENWAY SECTION–CROWNED

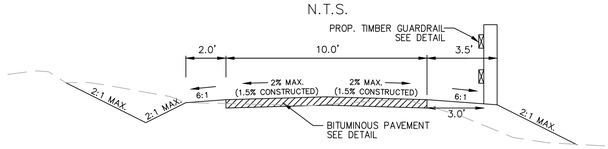
N.T.S.



TYPICAL TRAIL SECTION
DESIGN SPEED = 12 MPH

TYPICAL GREENWAY SECTION W/ GUARDRAIL

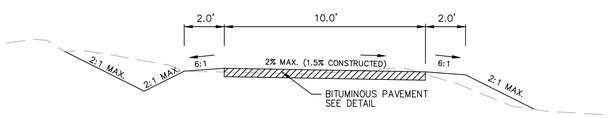
N.T.S.



TYPICAL TRAIL SECTION
DESIGN SPEED = 12 MPH

TYPICAL GREENWAY SECTION–CROSS SLOPE RIGHT

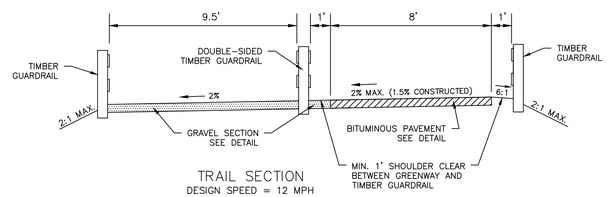
N.T.S.



TYPICAL TRAIL SECTION
DESIGN SPEED = 12 MPH

GREENWAY SECTION AT EX. CULVERT (STA. 95+70)

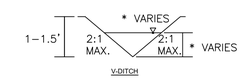
N.T.S.



TRAIL SECTION
DESIGN SPEED = 12 MPH

STORM SCHEDULE

STR #	TYPE	NOSE	TOP ELEV.	HEIGHT	LENGTH	DIAMETER	MATERIAL	SLOPE	INV. IN	INV. OUT	COMMENTS
1					60.15	15"	CL III RCP	3.16%	1082.50	1080.60	
1A					53.45	15"	TYPE S HDPE	0.94%	1087.00	1086.50	
2					30.00	15"	TYPE S HDPE	1.00%	1085.80	1085.50	
3					20.00	15"	TYPE S HDPE	1.00%	1092.70	1092.50	
4					28.00	15"	CL III RCP	2.48%	1092.30	1091.60	
5	OMITTED										
6					17.00	15"	TYPE S HDPE	1.20%	1093.30	1093.10	
7					23.00	15"	TYPE S HDPE	1.11%	1129.25	1129.00	
8					33.00	24"	TYPE S HDPE	1.23%	1122.40	1122.00	
9					64.00	24"	CL III RCP	2.33%	1082.00	1080.50	
9R	BMP RISER		1088.00		SEE DETAILS						BOTTOM OF STR.=1079.9
10					42.00	36"	TYPE S HDPE	8.18%	1076.80	1073.40	
10A					60.00	15"	TYPE S HDPE	3.67%	1074.20	1072.00	
11					54.00	36"	CL III RCP	1.84%	1065.00	1064.00	
11R	BMP RISER		1069.00		SEE DETAILS						BOTTOM OF STR.=1063.8
12					84.68	36"	TYPE S HDPE	9.45%	1076.00	1068.00	
12A					34.63	15"	TYPE S HDPE	8.08%	1100.80	1098.00	
13	OMITTED										
14					22.00	12"	TYPE S HDPE	2.74%	1101.60	1101.00	
15					23.00	15"	TYPE S HDPE	1.72%	1067.40	1067.00	
16					46.80	15"	TYPE S HDPE	20.30%	1043.50	1034.00	
17					42.00	18"	TYPE S HDPE	14.71%	994.15	988.00	
18	DI-7A TYPE III		997.62	3.47							
19					57.00	30"	CL III RCP	1.75%	975.00	974.00	
19R	BMP RISER		982.00		SEE DETAILS						BOTTOM OF STR.=972.5
20					37.00	15"	TYPE S HDPE	2.41%	949.90	949.00	
21					28.00	15"	TYPE S HDPE	7.61%	902.50	900.40	
22					27.00	15"	TYPE S HDPE	1.84%	885.50	885.00	
23					27.00	15"	TYPE S HDPE	5.93%	842.30	840.70	
24	DI-7A TYPE III		1088.88	3.08							
25	OMITTED										
26	OMITTED										
27	OMITTED										
28	OMITTED										
29					36.00	24"	CL III RCP	2.74%	1082.00	1081.00	
29R	BMP RISER		1084.50	2.50	SEE DETAILS						BOTTOM OF STR.=1081.5



TYPICAL DITCH SECTION
ALONG GREENWAY
N.T.S.

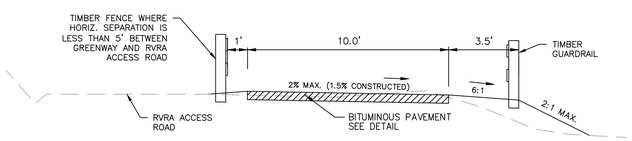
* REFER TO TABLE FOR SPECIFIC SECTIONS REGARDING DEPTHS & REQUIRED LININGS

DITCH SPECIFICATIONS

Location	Prop. Depth	Lining
STA: 0+19 - 6+35 LT	1'	Seed & Mulch
STA: 6+70 - 9+70 LT	1'	Seed & Mulch
STA: 6+70 - 8+90 RT	1'	Seed & Mulch
STA: 19+40 - 28+75 LT	1.25'	EC-2
STA: 34+80 - 36+00 LT	1'	Seed & Mulch
STA: 36+00 - 36+60 LT	1'	EC-2
STA: 36+70 - 38+50 LT	1'	EC-2
STA: 46+70 - 51+00 RT	1'	Seed & Mulch
STA: 54+25 - 59+00 LT	1'	Seed & Mulch
STA: 59+20 - 66+20 LT	1.5'	EC-3A
STA: 71+20 - 76+50 LT	1'	EC-2
STA: 78+25 - 83+50 LT	1'	EC-2
STA: 83+50 - 87+10 RT	1.25'	EC-2
STA: 86+15 - 93+00 LT	1.25'	EC-2
STA: 92+00 - 95+20 RT	1.25'	EC-2

GREENWAY SECTION AT RVRA ACCESS ROAD (STA. 68+00)

N.T.S.



TYPICAL TRAIL SECTION
DESIGN SPEED = 12 MPH

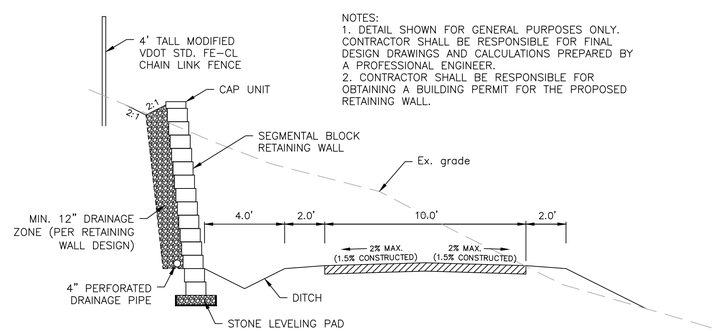
GREENWAY CROSS SLOPE TABLE

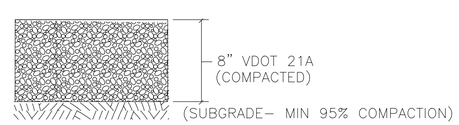
STATION RANGE	CROSS SLOPE	STATION RANGE	CROSS SLOPE
STA. 0+00 TO 1+50	CROSS SLOPE LEFT	STA. 40+00 TO 41+00	TRANSITION
STA. 1+50 TO 2+00	TRANSITION	STA. 41+00 TO 42+00	CROSS SLOPE LEFT
STA. 2+00 TO 6+00	CROSS SLOPE RIGHT	STA. 41+00 TO 42+00	CROSS SLOPE LEFT
STA. 6+00 TO 6+50	TRANSITION	STA. 42+00 TO 43+00	TRANSITION
STA. 6+50 TO 16+00	CROWNED	STA. 43+00 TO 50+00	CROWNED
STA. 16+00 TO 16+50	TRANSITION	STA. 50+00 TO 51+00	TRANSITION
STA. 16+50 TO 20+00	CROSS SLOPE RIGHT	STA. 51+00 TO 56+50	CROSS SLOPE LEFT
STA. 20+00 TO 21+00	TRANSITION	STA. 56+50 TO 57+00	TRANSITION
STA. 21+00 TO 33+50	CROSS SLOPE LEFT	STA. 57+00 TO 57+50	CROWNED
STA. 33+50 TO 35+00	TRANSITION	STA. 57+50 TO 58+00	TRANSITION
STA. 35+00 TO 40+00	CROSS SLOPE RIGHT	STA. 58+00 TO END	CROSS SLOPE LEFT

TYPICAL GREENWAY SECTION WITH CUT RETAINING WALL

N.T.S.

NOTES:
1. DETAIL SHOWN FOR GENERAL PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL DESIGN DRAWINGS AND CALCULATIONS PREPARED BY A PROFESSIONAL ENGINEER.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A BUILDING PERMIT FOR THE PROPOSED RETAINING WALL.



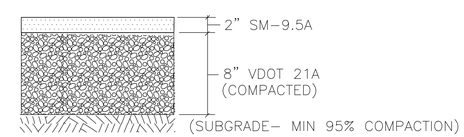


GRAVEL PATH SECTION

NO SCALE

1. STONE MUST BE PLACED IN LIFTS OF NO MORE THAN 4" EACH.
2. G.C. TO ENSURE A MINIMUM OF 95% COMPACTION OF THE SUBGRADE PRIOR TO STONE/ASPHALT PLACEMENT.

NOTE: GRAVEL PATH SECTION SHALL BE USED FOR THE PROPOSED GRAVEL PATH RELOCATION NEAR GREENWAY STATIONS 94+00 TO 95+75.

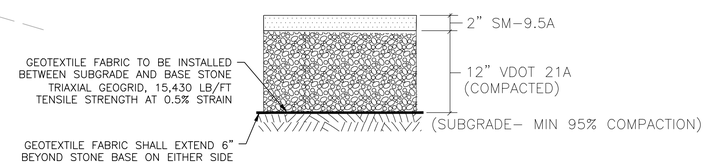


STANDARD ASPHALT PAVEMENT SECTION

NO SCALE

1. STONE BASE MUST BE PLACED IN LIFTS OF NO MORE THAN 4" EACH.
2. A TACK COAT SHALL BE APPLIED BETWEEN ASPHALT PAVEMENT LAYERS
3. G.C. TO ENSURE A MINIMUM OF 95% COMPACTION OF THE SUBGRADE PRIOR TO STONE/ASPHALT PLACEMENT.
4. SUBGRADE SHALL BE EXCAVATED AS NECESSARY SUCH THAT THE TOP OF ASPHALT AND THE TOP OF GRAVEL PAVEMENT SECTIONS ARE FLUSH

NOTE: STANDARD ASPHALT PAVEMENT SECTION SHALL BE USED FOR GREENWAY TRAIL SECTION STATION 0+00 TO 42+10 AND 50+00 TO END AS WELL AS TRAILHEAD PARKING AREA



REINFORCED ASPHALT PAVEMENT SECTION

NO SCALE

1. STONE BASE MUST BE PLACED IN LIFTS OF NO MORE THAN 4" EACH.
2. A TACK COAT SHALL BE APPLIED BETWEEN ASPHALT PAVEMENT LAYERS
3. G.C. TO ENSURE A MINIMUM OF 95% COMPACTION OF THE SUBGRADE PRIOR TO STONE/ASPHALT PLACEMENT.

NOTE: REINFORCED ASPHALT PAVEMENT SECTION SHALL BE USED FOR GREENWAY TRAIL SECTION STATION 42+10 TO 50+00

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

GENERAL NOTES & DETAILS II

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C8.2
JOB NO. 04160062.00

GENERAL UTILITY NOTES

1. SUPPLY AND INSTALL ALL MATERIALS AND METHODS FOR STORM DRAINAGE IN ACCORDANCE WITH THE SPECIFICATIONS AND REQUIREMENTS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION "ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS", LATEST EDITION.

2. ALL WORK SHALL BE SUBJECT TO INSPECTION BY ROANOKE COUNTY AND/OR WVWA. NOTIFY APPROPRIATE OFFICIALS PRIOR TO COMMENCEMENT OF WORK.

3. SITE SHALL BE TO SUB GRADE PRIOR TO INSTALLATION OF UTILITIES. ALL UTILITIES SHALL BE IN PLACE PRIOR TO PLACEMENT OF PAVEMENT BASE MATERIAL.

4. USE SELECT MATERIAL FREE FROM FROST, LARGE CLODS, STONES, AND DEBRIS FOR BACKFILL FROM THE BOTTOM OF THE TRENCH TO TWELVE (12) INCHES ABOVE THE PIPE.

5. MINIMIZE ANY DISTURBANCE TO EXISTING WATER SERVICE, SEWER LINES OR ANY OTHER UTILITY DURING CONSTRUCTION AND PROVIDE QUALITY WORKMANSHIP.

6. MAKE ALL PIPE JOINTS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE COUNTY'S SPECIFICATIONS. MAKE JOINTS BETWEEN DIFFERENT PIPE MATERIALS WITH STANDARD FITTINGS MANUFACTURED FOR THE PURPOSE.

7. LOCATE AND UNCOVER VALVE VAULTS AND MANHOLES AFTER PAVING AND ADJUST TO FINAL GRADE, IF NECESSARY.

8. PRIOR TO COMMENCING WITH ANY UNDERGROUND PIPE CONSTRUCTION OR GRADING (EXCAVATION), THE GENERAL CONTRACTOR SHALL CALL MISS UTILITY OF VIRGINIA (TOLL FREE 1–800–552–7001) AT LEAST 48 HOURS PRIOR TO COMMENCING. THE G.C. IS RESPONSIBLE FOR ANY DAMAGE CAUSED TO ANY UTILITY, PUBLIC OR PRIVATE, AS A RESULT OF NOT CONTACTING MISS UTILITY AND SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER/DEVELOPER.

9. EXISTING UTILITY LOCATIONS SHOWN ARE A RESULT OF FIELD SURVEYS, AND AVAILABLE RECORDS. LOCATIONS ARE APPROXIMATE. GENERAL CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHOWN ON THE PLANS IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT THE ENGINEER IMMEDIATELY IF: 1) ANY LOCATION OR ELEVATION IS DIFFERENT FORM THAT SHOWN ON THE PLANS. 2) IF THERE APPEARS TO BE ANY CONFLICT. UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THE PLANS. G.C. SHALL CALL "MISS UTILITY" OF VIRGINIA.

10. PROVIDE A CONTINUOUS AND UNIFORM BEDDING IN THE TRENCH FOR ALL PIPE. REMOVE STONES AND ROCKS FOUND IN THE TRENCH FOR A DEPTH OF AT LEAST SIX (6) INCHES BELOW THE BOTTOM OF THE PIPE AND TAMP SELECT FILL BEDDING PROVIDED. AFTER THE PIPE HAS BEEN PLACED IN THE TRENCH, BACKFILL THE TRENCH WITH SELECT MATERIAL, THOROUGHLY COMPACT TO 90% (95% UNDER PAVEMENT OR CONCRETE SLAB) OF THE STANDARD PROCTOR (ASTM D–698) USING CARE NOT TO DAMAGE THE PIPE. USE VDOT STANDARD PB–1 TRENCH FOR STORM SEWER AND UB–1 FOR SANITARY SEWER AND WATER.

11. PLACE BACKFILL FOR ALL UTILITIES IN ACCORDANCE WITH THE COUNTY'S SPECIFICATIONS, AND THE FOLLOWING CRITERIA: 1) BACKFILL NO TRENCH UNTIL AUTHORIZED BY THE COUNTY. MATERIALS USED FOR BACKFILL FROM THE BOTTOM OF THE TRENCH TO TOP OF THE PIPE SHALL BE CRUSHER RUN, OR APPROVED EQUAL MATERIAL. THOROUGHLY AND CAREFULLY COMPACT THE BACKFILL MATERIAL. 2) COMPACT BACKFILL BY MECHANICAL TAMPING THROUGHOUT THE DEPTH OF THE TRENCH TO INSURE A SUITABLE SUBBASE ACCEPTABLE TO THE ROAD ENGINEER. IF THE MATERIAL TAKEN FROM THE DITCH IS NOT SUITABLE FOR BACKFILLING, REMOVE IT AND USE AN ACCEPTABLE MATERIAL FOR BACKFILLING THE TRENCH.

12. CONNECT PIPE TO MANHOLES THROUGH PRE CAST OPENINGS AND JOIN WITH EITHER A FLEXIBLE BOOT ADAPTER OR A PIPE SEAL GASKET.

13. FIELD MARK FUTURE SERVICE CONNECTIONS BY A TREATED, SOLID WOODED (2"X4") 23. MARKER THREE (3) FEET LONG SET VERTICALLY PLUMB WITH THE END OF THE CAPPED EXTENSION. PAINT THE TOPS OF THE MARKERS YELLOW AND SET FLUSH WITH THE FINISHED GRADE. SHOW THE LOCATION AND INVERT DEPTH OF THE SERVICE CONNECTION ON THE AS–BUILT PLANS.

GENERAL NOTES

1. THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT STANDARDS AND SPECIFICATIONS AND THE LATEST EDITION OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD AND BRIDGE SPECIFICATIONS, VDOT ROAD AND BRIDGE STANDARDS, THE VIRGINIA WORK AREA PROTECTION MANUAL, THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (INCLUDING VIRGINIA SUPPLEMENT), THE STANDARD HIGHWAY SIGNS BOOK, AND THESE PLANS.

2. TESTING AND QUALITY CONTROL SHALL BE PROVIDED BY THE CONTRACTOR'S INDEPENDENT LABORATORY REPRESENTATIVE AND SHALL BE IN ACCORDANCE WITH VDOT SPECIFICATIONS. QUALITY ASSURANCE TESTING WILL BE PROVIDED BY THE OWNER.

3. TREES AND BRUSH SHALL BE CLEARED AND GRUBBED WITHIN THE CONSTRUCTION LIMITS OF DISTURBANCE. DEBRIS AND REFUSE WITHIN THE PROPOSED TRAIL CORRIDOR AND AREAS OF DISTURBANCE/PROPOSED IMPROVEMENTS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

4. EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND DO NOT REPRESENT ALL UTILITIES OR SERVICE LINES. PRIOR TO EXCAVATION, THE CONTRACTOR SHALL CONTACT THE PERTINENT UTILITY COMPANIES AND/OR UTILITY LOCATING SERVICES TO HAVE ALL UNDERGROUND UTILITIES LOCATED AND MARKED. THE CONTRACTOR SHALL PROTECT AND MAINTAIN EXISTING UTILITIES DURING CONSTRUCTION. WHERE PROPOSED IMPROVEMENTS, DRAINAGE CULVERTS, OR GRADING IS FOUND TO BE IN CONFLICT WITH EXISTING UTILITIES, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.

5. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING UTILITY RELOCATIONS WITH THE APPROPRIATE UTILITY OWNER(S).

6. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS OF SECTION 59.1–406 ET SEQ. OF THE CODE OF VIRGINIA (OVERHEAD HIGH VOLTAGE LINE SAFETY ACT.)

7. THE CONTRACTOR SHALL FURNISH AND INSTALL SIGNACE IN ACCORDANCE WITH THE PLANS, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (INCLUDING VIRGINIA SUPPLEMENT), THE STANDARD HIGHWAY SIGNS BOOK, AND VDOT SUPPLEMENTS LATEST EDITION.

8. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY ON THE PROJECT. EXCAVATIONS SHALL NOT BE LEFT OPEN OVERNIGHT UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE MAIN ACCESS TO THE TRAIL SHALL BE GATED OR BARRICADED AND SIGNED "CONSTRUCTION ZONE DO NOT ENTER." ALL SIGNAGE SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (INCLUDING VIRGINIA SUPPLEMENT).

9. THE CONTRACTOR IS RESPONSIBLE FOR ALL MAINTENANCE OF TRAFFIC REQUIRED FOR SUCCESSFUL COMPLETION OF THE PROJECT. ALL M.O.T. MEASURES SHALL BE SUBMITTED TO AND APPROVED BY VDOT PRIOR TO PLACEMENT IN THE FIELD.

10. PROPOSED CULVERTS SHALL BE CLASS III RCP, UNLESS OTHERWISE SPECIFIED IN THE PLANS, AND SHALL BE INSTALLED ACCORDING TO THE PLANS. MINOR FIELD ADJUSTMENTS MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.

11. THE PROPOSED TRAIL SHALL PROVIDE SMOOTH TRANSITIONS NOT EXCEEDING A 5% MAX LONGITUDINAL SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.

12. WHERE CROSS SLOPES TRANSITION FROM "CROSS SLOPE LEFT" TO "CROWNED" OR "CROSS SLOPE RIGHT", THE TRANSITION SHOULD BE APPROXIMATELY 50' IN LENGTH.

13. THE CONTRACTOR SHALL OBTAIN ALL PERMITS, INCLUDING BUT NOT LIMITED TO:

    A. LAND USE PERMIT FROM VDOT PRIOR TO BEGINNING ANY ACTIVITIES OR OPERATIONS ON STATE RIGHT–OF–WAY. THIS INCLUDES POSITIONING EQUIPMENT ON THE SHOULDER/RIGHT–OF–WAY AND USE OF CONSTRUCTION ENTRANCE.
    B. EROSION AND SEDIMENT CONTROL PERMIT FROM THE COUNTY OF ROANOKE. CONTRACTOR SHALL BE THE RESPONSIBLE LAND DISTURBER.
    C. VSMP PERMIT
    D. BUILDING PERMIT (AS NECESSARY).

14. ALL MATERIAL SHALL BE FROM VDOT PRE–APPROVED SOURCES. CONTRCTOR SHALL BE RESPONSIBLE FOR PROVIDING FULL SOURCE MATERIAL DOCUMENTATION (ON VDOT APPROVED FORMS) WITH SHOP SUBMITTAL.

15. TREE TRIMMING OR REMOVAL MAY BE REQUIRED TO OBTAIN SIGHT DISTANCE ON HIGHLAND RD,. CONTRACTOR TO COORDINATE.

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EAST ROANOKE RIVER GREENWAY EXTENSION
GENERAL NOTES & DETAILS III
VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
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CHECKED BY BTC
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4/4/2023

SHEET NO.
C8.3
JOB NO. 04160062.00

OUTLET PROTECTION STRUCTURE DATA:

OUTLET PROTECTION (PIPE 1)
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=5.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 1A)
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=5.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 2)
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=5' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 3)
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=5.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 4)
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=5.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 7)
EC-3, TYPE B RIP RAP
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=5.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 8)
LENGTH OF APRON=6.0' (La)
WIDTH OF APRON=8.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 9)
LENGTH OF APRON=6.0' (La)
WIDTH OF APRON=8.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 10)
LENGTH OF APRON=9.0' (La)
WIDTH OF APRON=12.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 10A)
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=1.25' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 11)
LENGTH OF APRON=9.0' (La)
WIDTH OF APRON=12.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 12)
LENGTH OF APRON=9.0' (La)
WIDTH OF APRON=12.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 12A)
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=5.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 14)
LENGTH OF APRON=3.0' (La)
WIDTH OF APRON=4.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 15)
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=5.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 16)
LENGTH OF APRON=8.0' (La)
WIDTH OF APRON=9.25' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 17)
LENGTH OF APRON=6' (La)
WIDTH OF APRON=7.5' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 19)
LENGTH OF APRON=7.5' (La)
WIDTH OF APRON=10.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 20)
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=5.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 21)
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=5.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 22)
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=5.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 23)
LENGTH OF APRON=3.75' (La)
WIDTH OF APRON=5.0' (Wa)
MIN. STONE SIZE=6"

OUTLET PROTECTION (PIPE 29)
LENGTH OF APRON=6.0' (La)
WIDTH OF APRON=8.0' (Wa)
MIN. STONE SIZE=6"

(OP) OUTLET PROTECTION

NOTES
1. Apron lining may be rip-rap, grouted rip-rap, or concrete.
2. La is the length of the rip-rap apron as calculated using plates 1.36d and 1.36e.
3. d = 1.5 times the maximum stone diameter, but not less than 6".

SIGN DETAILS

R1-1

30"X30" FOR VEHICULAR TRAFFIC
24"X24" FOR PEDESTRIANS

W7-5

24"X24"

R7-8
12"X18"

W8-6

24"X24"

W11-15*

W11-15P*

24"X24" (W11-15) & 24"X18" (W11-15P)

R7-8P

18"X9"

END OF
GREENWAY

MODIFIED R11-4
42" X 18"

R5-3

24"X24"

W1-11

24"X24"

W1-5

24"X24"

MODIFIED W20-3
24" X 24"

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CHRISTOPHER P. BURNS
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4/4/23
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EAST ROANOKE RIVER GREENWAY EXTENSION
GENERAL NOTES & DETAILS IV
VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
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DATE 9/4/2019
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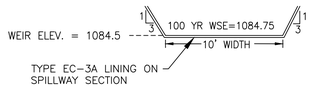
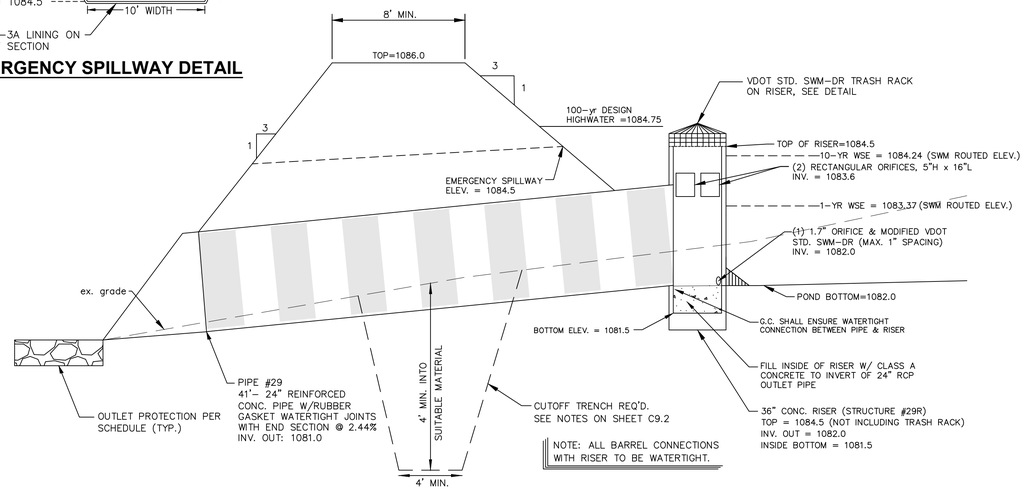
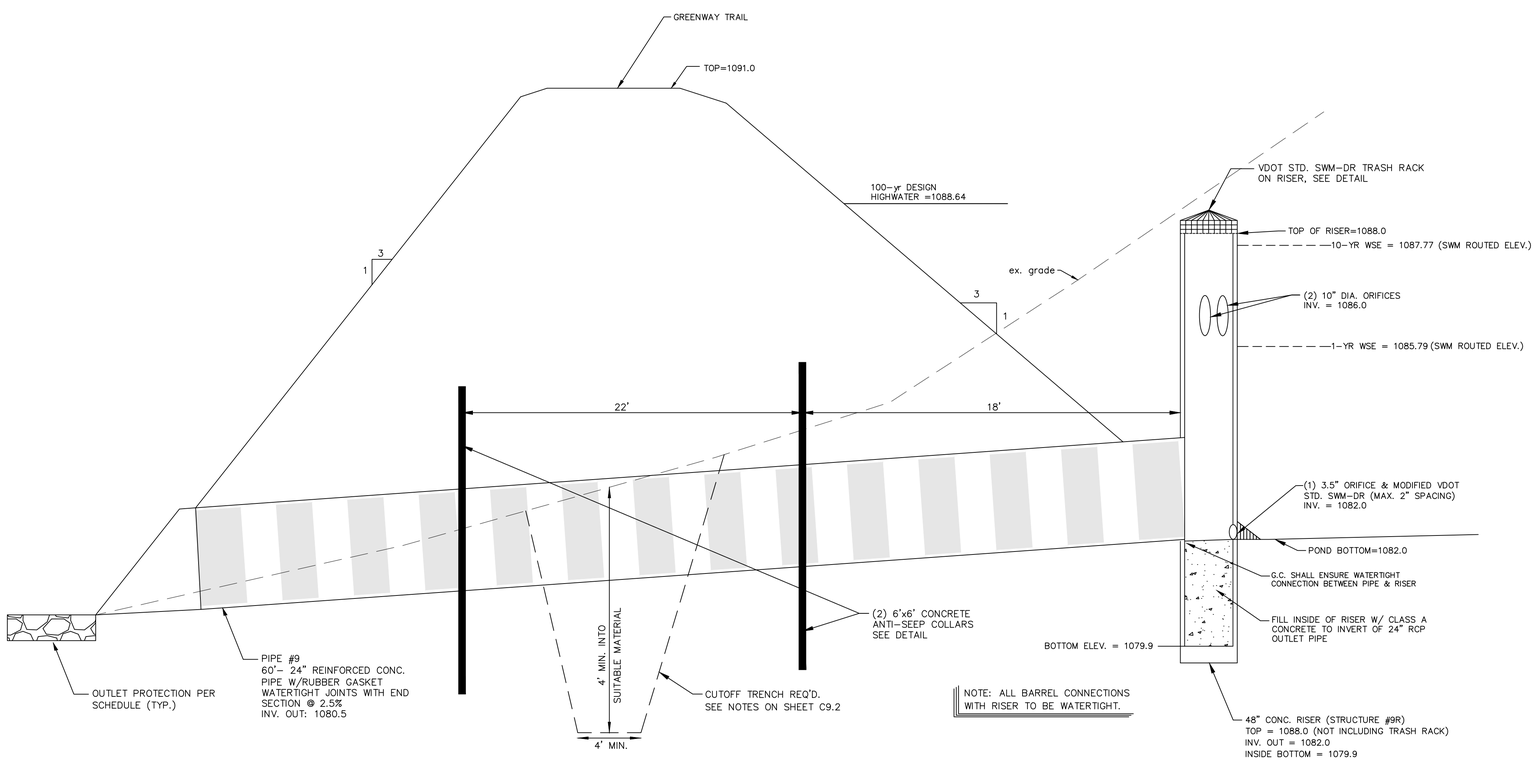


EMERGENCY SPILLWAY DETAIL



BMP #1 DETAIL

NTS



BMP #2 DETAIL

NTS

BMP INFORMATION TABLE

	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5
BMP TYPE	DETENTION POND	DETENTION POND	DETENTION POND	DETENTION POND	FORESTED AREA
LEVEL OF TREATMENT (LEVEL 1 OR LEVEL 2)	N/A	N/A	N/A	N/A	N/A
TECHNICAL REQUIREMENTS MET (PART IIB OR IIC)	PART IIB	PART IIB	PART IIB	PART IIB	PART IIB
TOTAL AREA TREATED (AC)	3.21 AC.	4.60 AC.	14.16 AC.	8.56 AC.	19.55 AC.
IMPERVIOUS AREA TREATED BY BMP (AC)	0.31 AC.	0.24 AC.	1.46 AC.	0.36 AC.	0.00 AC.
MANAGED TURF AREA TREATED BY BMP (AC)	2.38 AC.	3.66 AC.	12.70 AC.	7.25 AC.	0.00 AC.
OPEN SPACE / FOREST AREA TREATED BY BMP (AC)	0.52 AC.	0.70 AC.	0.00 AC.	0.95 AC.	19.55 AC.
SURFACE AREA OF BMP (AC)	0.16 AC.	0.16 AC.	0.19 AC.	0.22 AC.	19.55 AC.
STORAGE VOLUME OF BMP (AC-FT)	0.27 AC-FT	0.62 AC-FT	0.83 AC-FT	1.00 AC-FT	N/A
MAXIMUM AVERAGE DEPTH (FT)	4.0 FT	8.0 FT	7.5 FT	10.0 FT	N/A
QUALITY, QUANTITY, OR BOTH?	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUALITY
TMDL ADDRESSED? (PHOSOPHORUS, BACTERIA, SEDIMENT, ETC)	N/A	N/A	N/A	N/A	PHOSPORUS
NAME OF RECEIVING WATER (PROJECT SITE)	ROANOKE RIVER - PETERS CREEK	ROANOKE RIVER - PETERS CREEK	ROANOKE RIVER - PETERS CREEK	ROANOKE RIVER - PETERS CREEK	BACK CREEK
HYDROLOGIC UNIT CODE FOR PROJECT SITE (ALPHANUMERIC CODE RU14, ETC)	RU14	RU14	RU14	RU14	RU15
LATITUDE (DECIMAL DEGREES XX.XXXX)	37.2456 N	37.2462 N	37.2462 N	37.2461 N	37.2251 N
LONGITUDE (DECIMAL DEGREES XX.XXXX)	79.8728 W	79.8646 W	79.8628 W	79.8555 W	80.0681 W

*NOTE: STORMWATER QUALITY REQUIREMENTS ARE BEING MET THROUGH THE DEDICATION OF A FORESTED BMP EASEMENT AT HAPPY HOLLOWS PARK. 17.55 ACRES HAVE BEEN DEDICATED FOR THIS PROJECT TO OFFSET THE REMOVAL REQUIREMENT OF 6.00 LB/YR OF PHOSPHORUS.

STORMWATER SITE STATISTICS

	EXISTING	PROPOSED
TOTAL DISTURBED AREA (AC)	---	18.75
TOTAL SITE AREA (AC)	18.75	18.75
IMPERVIOUS AREA (AC)	0.00	3.00
MANAGED TURF AREA (AC)	18.75	15.75
OPEN SPACE/FOREST (AC)	---	---
RIGHT OF WAY DISTURBANCE (SF)	---	12,000
KARST PRESENT (Y/N)	UNDETERMINED	UNDETERMINED

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EAST ROANOKE RIVER GREENWAY EXTENSION

SWM DETAILS I

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
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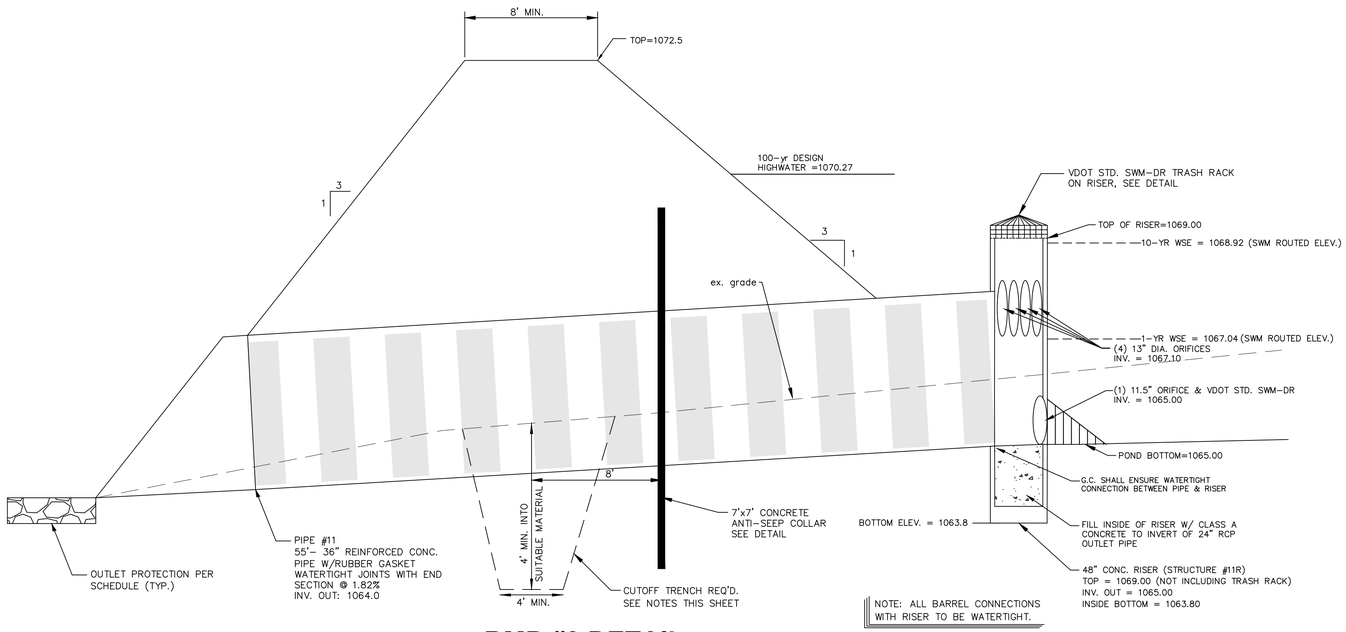
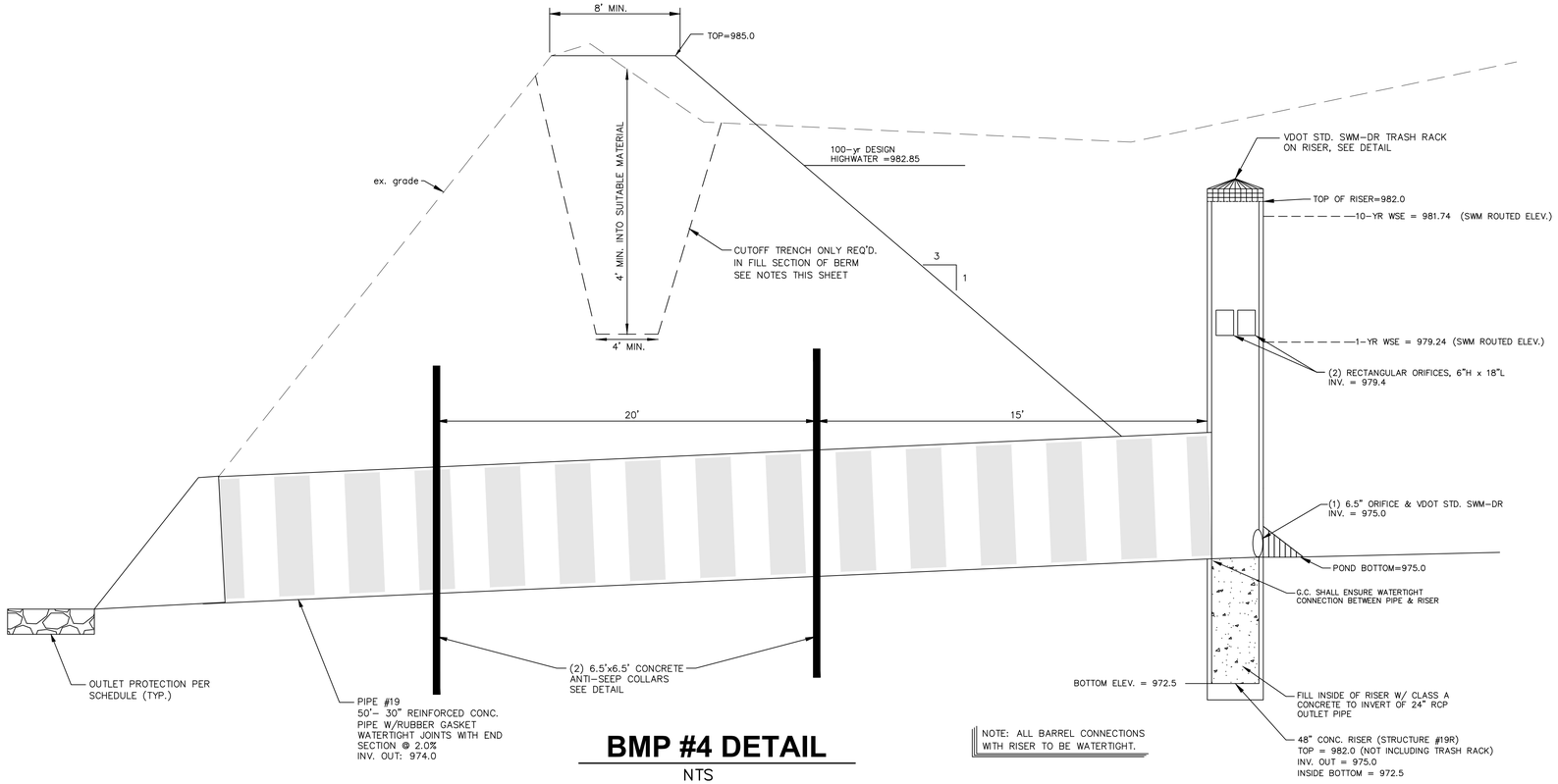


NOTE: ALL BARREL CONNECTIONS WITH RISER TO BE WATERTIGHT.

BMP #3 DETAIL

NTS



NOTE: ALL BARREL CONNECTIONS WITH RISER TO BE WATERTIGHT.

BMP #4 DETAIL

NTS

SWM CONSTRUCTION NOTES

SITE PREPARATION:
Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. A sufficient quantity of topsoil shall be stockpiled in a suitable location for use on the embankment and other designated areas.

EARTH FILL:
Material – The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if approved by the geotechnical engineer.
Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.
Placement – Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8-inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.
Compaction – Fill material shall be compacted to not be less than 95% of maximum dry density with a moisture content within 2% of the optimum.
Cut Off Trench – The cutoff trench shall be excavated into the existing ground, along the center of the embankment. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade. The side slopes of the trench shall not be steeper than 1:1. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

STRUCTURE BACKFILL:
Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

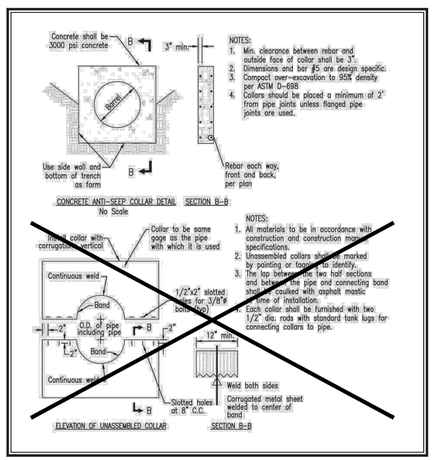
PIPE CONDUITS:
All pipes shall be circular in cross section unless otherwise specified and shall meet VDOT requirements. Watertight gasketed joints to be provided for all outfall pipes from stormwater management ponds.

CARE OF WATER DURING CONSTRUCTION:
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, drainage channels, and diversions necessary to protect the work areas. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. The removal of water from the required excavation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations.

MAINTENANCE:
A 4-inch layer of topsoil shall be placed on all disturbed areas of the dam embankment. Seeding, liming, fertilizing, mulching, etc. shall be in accordance with the standards and specifications noted on Sheet C-3 for Soil Erosion and Sediment Control. The purpose of the topsoil is to establish a good growth of grass, which is not always possible with some of the materials that may be placed for the embankment fill.

MINIMUM STANDARD 3.02 — CHAPTER 3

FIGURE 3.02 - 2
Anti-Seep Collar



***ALL ANTI-SEEP COLLARS SHALL BE CONCRETE.**

3.02 - 14

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

SWM DETAILS II

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

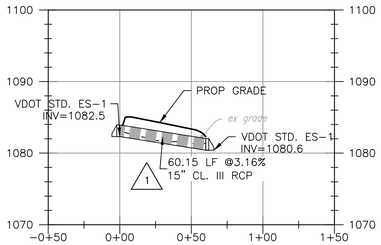
DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

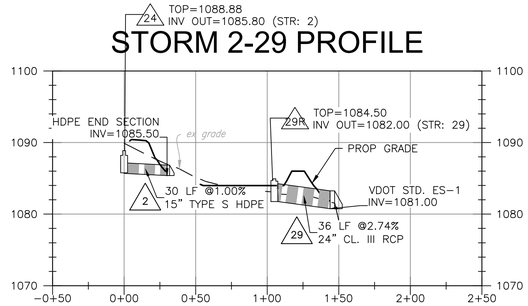
SHEET NO.
C9.2

JOB NO. 04160062.00

CULVERT 1 PROFILE



STORM 2-29 PROFILE



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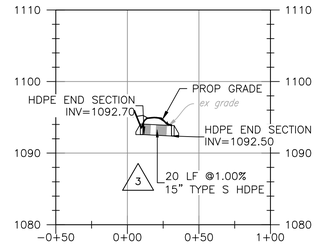
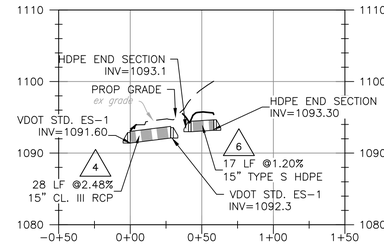


STORM 4-6 PROFILE



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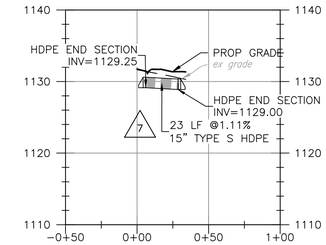

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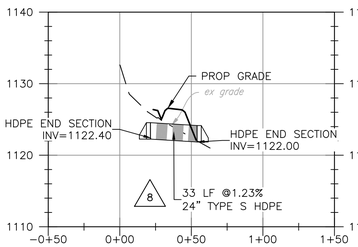

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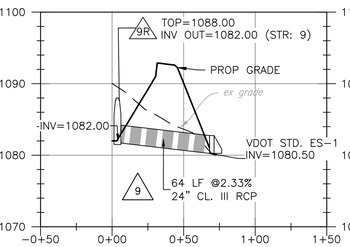

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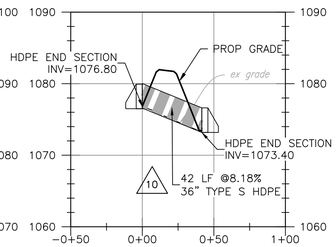

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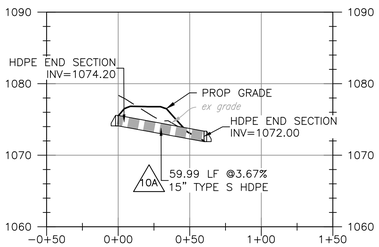

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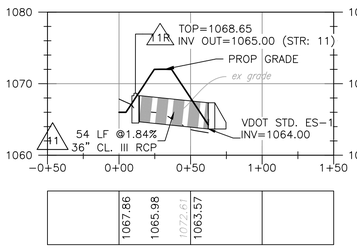

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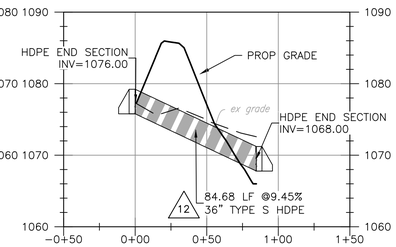
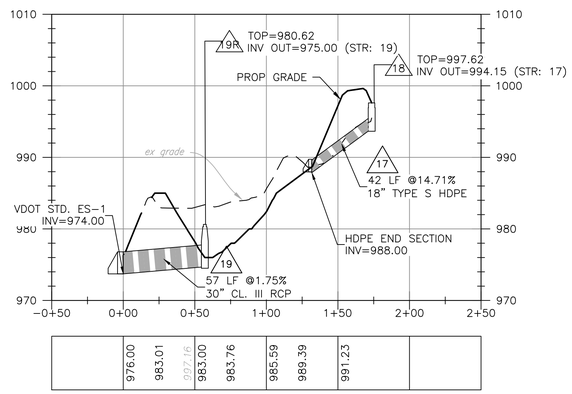


STORM 17-19 PROFILE



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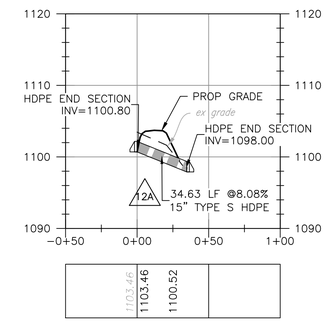

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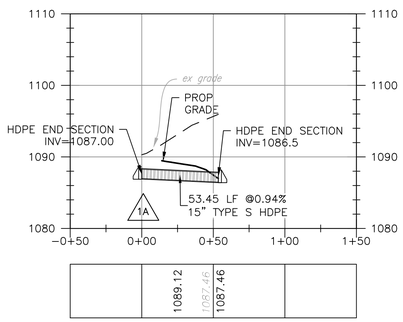

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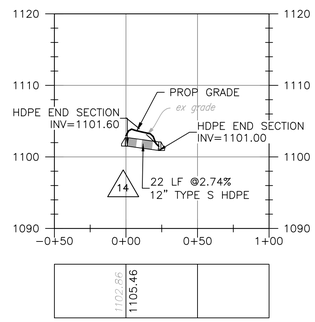

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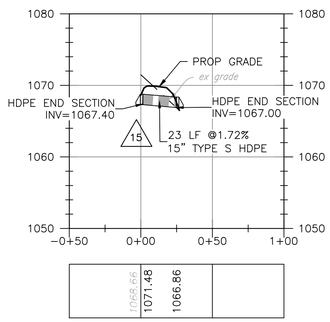

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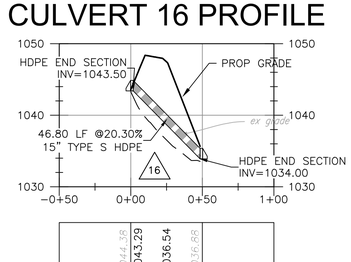

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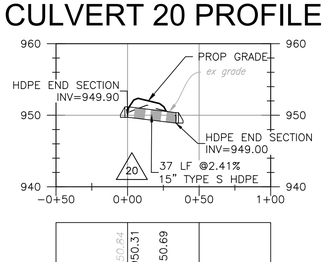

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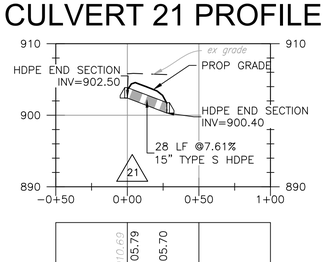

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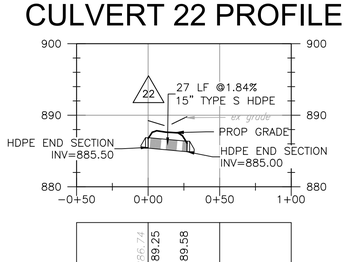

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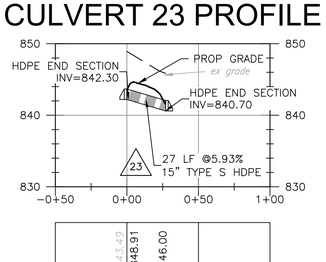


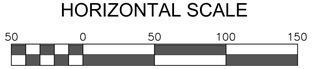
NOTES:

1. ALL PROPOSED STORM MANHOLES AND INLETS SHALL RECEIVE VDOT STD. IS-1 INLET SHAPING.
2. VDOT STD. PB-1 DETAIL SHALL BE FOLLOWED FOR ALL BEDDING AND BACKFILL OF STORM DRAIN PIPES.
3. PIPE CONNECTIONS AT STRUCTURES SHALL BE GROUTED SOIL-TIGHT CONNECTIONS IN ACCORDANCE WITH VDOT STANDARDS.

VERTICAL SCALE

SCALE: 1" = 10'

HORIZONTAL SCALE



SCALE: 1" = 50'

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

STORM PROFILES

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
C10

JOB NO. 04160062.00

TRAFFIC CONTROL NOTES:

1: TWO WORK ZONES ARE SHOWN ON THIS PLAN AND CONSIST OF LANE CLOSURES ON CLOVERLEA DRIVE AND RINER ROAD TO BE PERFORMED IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE VIRGINIA WORK AREA PROTECTION MANUAL.

2: G.C. SHALL CONTACT THE VDOT REPRESENTATIVE IN WRITING WITH A WORK SCHEDULE 2 WEEKS BEFORE STARTING WORK. THE VDOT REPRESENTATIVE WILL DETERMINE IF POLICE PATROL IS NECESSARY FOR TRAFFIC CONTROL.

3: THE CONTRACTOR SHALL COORDINATE THE SEQUENCE OF CONSTRUCTION WITH VDOT.

4: SIGN SPACING MAY BE ADJUSTED TO FIT FIELD CONDITIONS WITH VDOT APPROVAL.

5: ALL PAVEMENT MARKINGS CONFLICTING WITH TRAFFIC PATTERNS SHALL BE ERADICATED AND RE-STRIPED AS NECESSARY.

6: WHEN WORK IS NOT BEING PERFORMED, THE CLEAR ZONE OF THE ROADWAY SHALL BE FREE OF STORED MATERIALS AND PARKED EQUIPMENT.

7: ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE MUTCD (LATEST EDITION), THE VIRGINIA WORK AREA PROTECTION MANUAL (LATEST EDITION), AND AS DIRECTED BY VDOT AND SHALL COMPLY WITH ALL REGULATIONS PROVIDED IN THE ENTRANCE PERMIT.

8: THE POSTED SPEED LIMIT ON THIS SECTION OF HIGHLAND ROAD IS 25 MPH.

9: NO WORK SHALL BE DONE ON-SITE UNTIL AN ENTRANCE PERMIT HAS BEEN ISSUED FOR THE SUBJECT PROPERTY.

10: SAFE ACCESS TO ALL EXISTING PUBLIC ROADWAYS SHALL BE MAINTAINED AT ALL TIMES.

11: CONSTRUCTION WORK AFTER DARK SHALL OCCUR WITH FLOODLIGHTS BEING UTILIZED WHERE EXISTING LIGHT IS NOT ADEQUATE. THE FLOODLIGHTS SHALL NOT CREATE A DISTRACTING GLARE TO ADJACENT DRIVERS.

12: CHANNELIZING DEVICES SUCH AS CONES OR BARRELS SHALL BE UTILIZED WHERE REQUIRED AND FOLLOW THE WORK AREA PROTECTION MANUAL.

13: G.C. SHALL MAINTAIN ALL EXISTING ROADWAY SIGNAGE DURING ALL PHASES OF THIS PROJECT.

GENERAL NOTES:

1: PROJECT CATEGORY (MINIMUM TMP REQUIREMENTS):
- A: THIS WILL BE A CATEGORY 1 PROJECT (MINIMAL LEVEL OF CONSTRUCTION)
  - I. THIS WILL BE PERMITTED WORK.
  - II. THIS PROJECT WILL INVOLVE TRAFFIC CONTROL DEVICES AND A LANE CLOSURE TO ENSURE SAFE TRAVEL AROUND THE WORK ZONES.

2: SIGNS AND OTHER TRAFFIC CONTROL MEASURES ARE SHOWN GRAPHICALLY FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT SHOWN IN ACTUAL LOCATIONS. G.C. SHALL BE RESPONSIBLE FOR ENSURING THAT ALL SIGNAGE IS PLACED THE CORRECT DISTANCE BEFORE OR AFTER THE WORK ZONE AS SHOWN IN THE WORK AREA PROTECTION MANUAL (LATEST ADDITION) AND AS DICTATED BY THE SPECIFIC SITE. ALL SIGN LOCATIONS SHALL BE COORDINATED WITH VDOT.

3: THIS MAINTENANCE OF TRAFFIC PLAN IS INTENDED TO PROVIDE A BASIC OVERVIEW OF THE TYPES OF TRAFFIC CONTROL MEASURES NECESSARY FOR THE WORK ZONES ON THIS PROJECT. THIS PLAN IS NOT INTENDED TO SHOW EVERY FEATURE OF THE TRAFFIC CONTROL PLAN. THE G.C. SHALL PROVIDE VDOT WITH A COMPLETE MAINTENANCE OF TRAFFIC PLAN PRIOR TO COMMENCEMENT OF WORK WITHIN THE EXISTING RIGHT-OF-WAY AND THE G.C. SHALL ULTIMATELY BE RESPONSIBLE FOR ENSURING SAFE TRAVEL AROUND ALL WORK AREAS.

4: PUBLIC COMMUNICATION PLAN
- A. ROANOKE COUNTY
  1. SALEM TRAFFIC OPERATIONS CENTER (540) 375-0170*
     *THE TOC SHALL BE NOTIFIED OF PROPOSED LANE CLOSURES AT THE BEGINNING AND END OF EACH WORK DAY.
  2. ROANOKE COUNTY SHERIFF'S OFFICE (540) 777-8601
  3. ROANOKE COUNTY FIRE & RESCUE (540) 777-8701
  4. ROANOKE COUNTY COMMUNICATIONS CENTER (540) 562-3265
  5. ROANOKE COUNTY BOARD OF SUPERVISORS ADMINISTRATION OFFICE (540) 772-2003
  6. VA STATE POLICE (540) 375-9500

NORTH

50 0 50 100 150

SCALE: 1" = 50'

Page 6H-114 September 2019

Typical Traffic Control
Signing for Project Limits
(Figure TTC-53.0)
NOTES

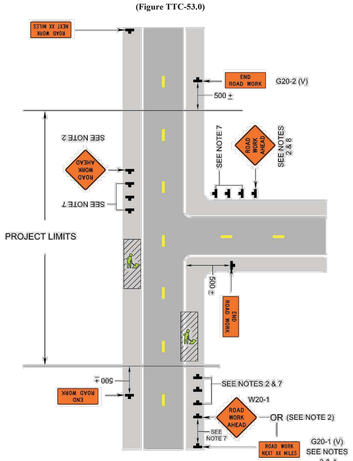
Support:
1. This layout depicts signing requirements for notifying motorist when they are entering and exiting a potential construction/maintenance area with a duration equal to or greater than 60 days.

Standard:
2. **The ROAD WORK AHEAD (W20-1) sign or the ROAD WORK NEXT XX MILES (G20-1 (V)) sign shall be placed far enough in advance of the project limits so that other warning signs in a series may be adequately placed prior to the condition they are warning about.**
3. **The ROAD WORK NEXT XX MILES sign shall be used for projects with activity areas greater than 2 miles in length, or when multiple work activities (such as pavement patching, guardrail installations, shoulder restoration, etc.) occur along a highway.**
4. **The distance displayed on the ROAD WORK NEXT XX MILES sign shall be stated to the nearest whole mile from the point of installation to the END ROAD WORK (G20-2 (V)) sign.**
5. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**

Guidance:
6. *For projects with activity areas 2 miles or less in length, the ROAD WORK AHEAD sign should be the first sign motorist encounter.*
7. *Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
8. *All connections within the project limits should be identified with signs indicating to motorist they are entering or exiting a potential construction/maintenance area.*

September 2019 Page 6H-115

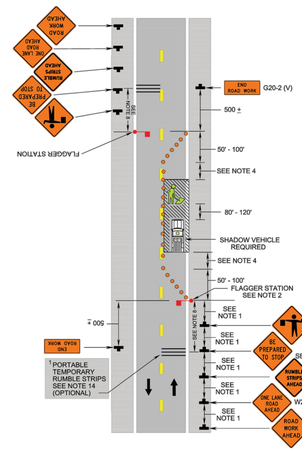
Signing for Project Limits
(Figure TTC-53.0)



1: Revision 1 – 4/1/2015

April 2015 Page 6H-53

Lane Closure on a Two-Lane Roadway Using Flaggers
(Figure TTC-23.1)



1: Revision 1 – 4/1/2015

Page 6H-52 April 2015

Typical Traffic Control
Lane Closure on a Two-Lane Roadway Using Flaggers
(Figure TTC-23.1)
NOTES

Guidance:
1. *Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, and 500'-800' where the posted speed limit is greater than 45 mph.*
2. *Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the flagger station and transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. Generally speaking, motorists should have a clear line of sight from the graphic flagger symbol sign to the flagger.*

Option:
3. Where Right-of-Way or geometric conditions prevent the use of 48" x 48" signs, 36" x 36" signs may be used.

Standard:
4. **Flagging stations shall be located far enough in advance of the work space to permit approaching traffic to reduce speed and/or stop before passing the work space and allow sufficient distance for departing traffic in the left lane to return to the right lane before reaching opposing traffic (see Table 6H-3 on Page 6H-5).**
5. **All flaggers shall be state certified and have their certification card in their possession when performing flagging duties (see Section 6E.01, Qualifications for Flaggers).**
6. **Cone spacing shall be based on the posted speed and the values in Table 6H-4 on Page 6H-6.**
7. **A shadow vehicle with at least one high intensity amber rotating, flashing, or[1] oscillating light shall be parked 80'-120' in advance of the first work crew.**

Option:
8. A supplemental flagger may be required in this area to give advance warning of the operation ahead by slowing approaching traffic prior to reaching the flagger station or queued traffic.

Guidance:
9. *If the queue of traffic reaches the BE PREPARED TO STOP (W3-4) sign then the signs, and if used the portable temporary rumble strips (PTRS), should be readjusted at greater distances.*
10. *When a highway-rail crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the highway-rail grade crossing, the temporary traffic control zone should be extended so that the transition area precedes the highway-rail crossing (see Figure TTC-56 for additional information on highway-rail crossings).*

Standard:
11. **At night, flagger stations shall be illuminated, except in emergencies (see Section 6E.08).**

Option:
12. Cones may be eliminated when using a pilot vehicle operation or when the total roadway width is 20 feet or less.
13. For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).

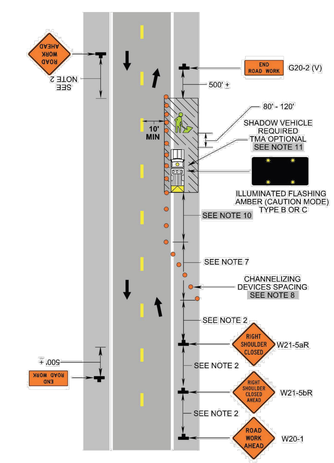
Standard:
14. **When approved for use, three portable temporary rumble (PTRS) strips shall be installed across the entire travel lane adjacent to the BE PREPARED TO STOP (W3-4) sign. The portable temporary rumble strips shall be monitored and adjusted as necessary during the work shift to ensure proper placement on the roadway. When the PTRS are installed, the RUMBLE STRIPS AHEAD (W20-V26) sign shall also be utilized.**

Posted Speed	0 – 35 mph	36 – 55 mph
PTRS Spacing (Center to Center)	5 Feet	8 Feet

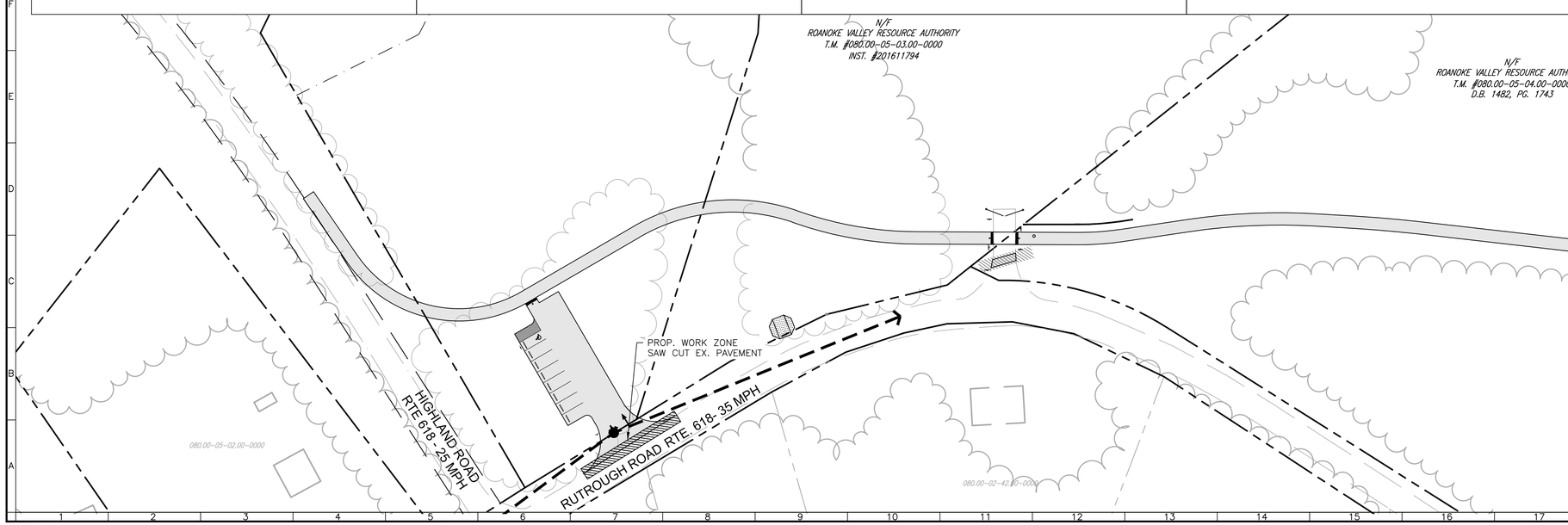
1: Revision 1 – 4/1/2015

September 2019 Page 6H-17

Shoulder Operation with Minor Encroachment
(Figure TTC-5.2)



1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019



Page 6H-16 September 2019

Typical Traffic Control
Shoulder Operation with Minor Encroachment
(Figure TTC-5.2)
NOTES

Standard
1. **For required sign assemblies for multi-lane roadways see Note 1, TTC-4.[1]**

Guidance
2. *Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
3. *When work takes up part of a lane on a high volume roadway; vehicular traffic volumes, vehicle mix, speed and capacity should be analyzed to determine whether the affected lane should be closed. Unless the lane encroachment analysis permits a remaining lane width of 10 feet, the lane should be closed. If the closure operation is on a Limited Access highway, the minimum lane width is 11 feet.*

Option:
4. The ROAD WORK AHEAD (W20-1) sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.

Standard:
5. **A shadow vehicle with either an arrow board operating in the caution mode, or at least one high-intensity amber rotating, flashing, or[1] oscillating light shall be parked 80' - 120' in advance of the first work crew.**
6. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or[1] oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or[1] oscillating lights.**
7. **Taper length (L) and channelizing device spacing shall be at the following:**

Taper Length L

Speed Limit (mph)	Lane Width (Feet) 9	10	11	12	Remarks
25	95	105	115	125	L=S·W/60
30	135	150	165	180	L=S·W/60
35	185	205	225	245	L=S·W/60
40	240	270	295	320	L=S·W/60
45	405	450	495	540	L=SW

Speed Limit (mph)	Lane Width (Feet) 9	10	11	12	Remarks
50	450	500	550	600	L=SW
55	495	550	605	660	L= SW
60	540	600	660	720	L=SW
65	585	650	715	780	L=SW
70	630	700	770	840	L=SW

Limited Access highways shall use a 1000' merging taper regardless of the posted speed, a 750' shifting taper for posted speeds < 65 mph and a 1000' shifting taper for posted speeds ≥ 65 mph.[2]
Shoulder Taper = ⅓ L Minimum

8. **Channelizing device spacing shall be at the following:**

Channelizing Device Spacing

Location Spacing	Speed Limit (mph) 0 -35	36 +	Location Spacing	Speed Limit (mph) 0 -35	36 +	Location Spacing	Speed Limit (mph) 0 -35	36 +
Transition	20'	40'	Traveltway	40'	80'	*Construction Access	80'	120'

*Construction access spacing may be increased to this distance, but shall not exceed one access per ¼ mile.

9. **On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.[2]**
10. **The buffer space length The buffer space length shall be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit.**
11. **A truck-mounted attenuator (TMA) shall be used on Limited Access highways and multi-lane roadways with posted speed limit equal to or greater than 45 mph.**
12. **When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.**

1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

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CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

MAINTENANCE OF TRAFFIC PLAN

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE 1"=50'

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
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JOB NO. 04160062.00

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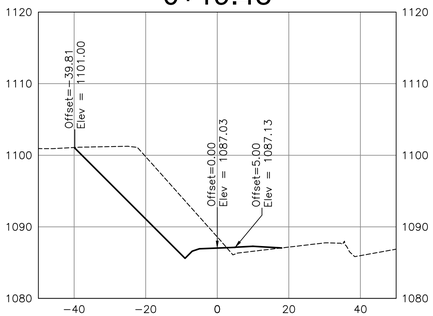

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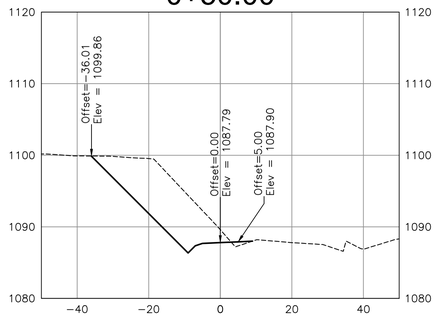

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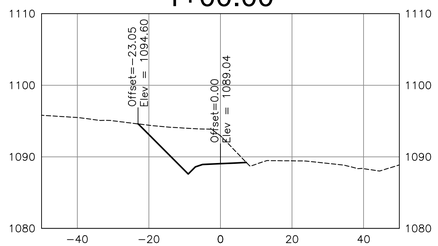

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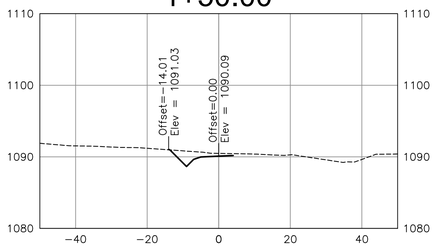

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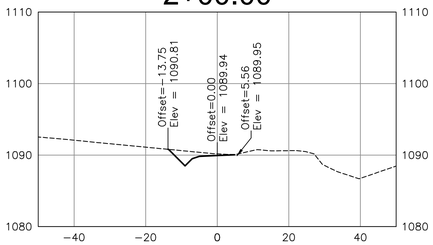

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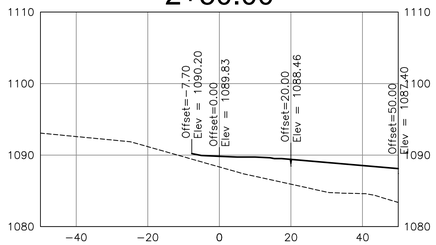

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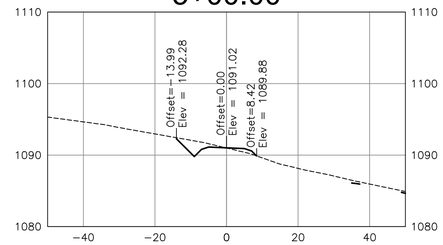

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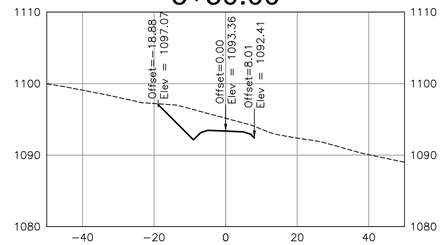

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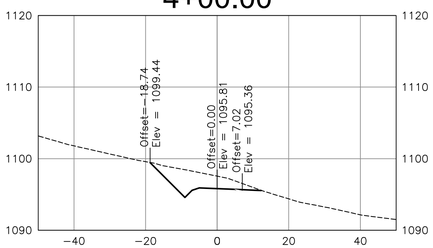

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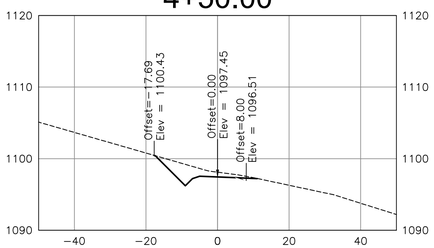

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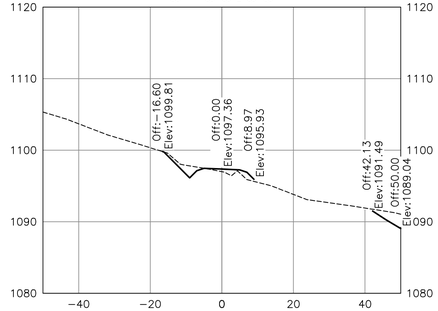

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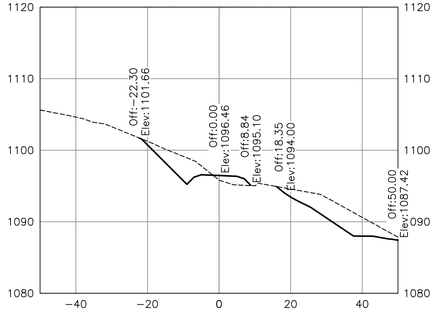

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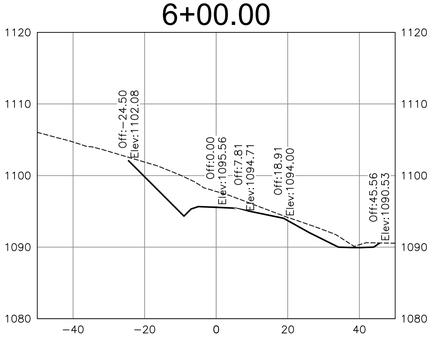

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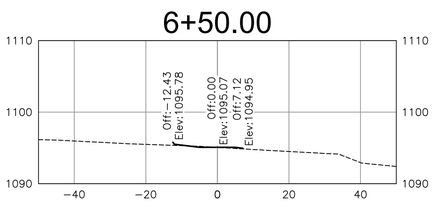

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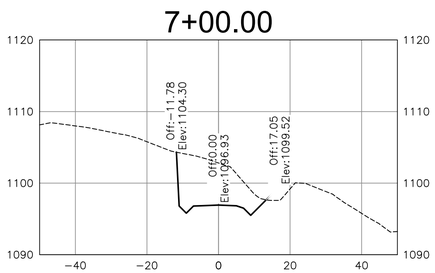

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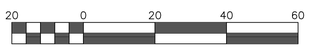

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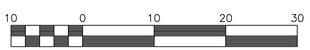

SCALE: 1" = 10'

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ROANOKE COUNTY, VIRGINIA

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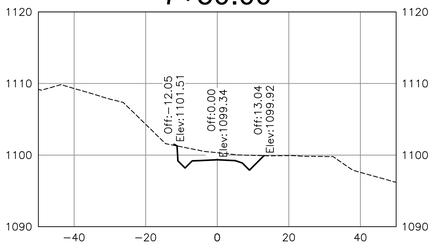

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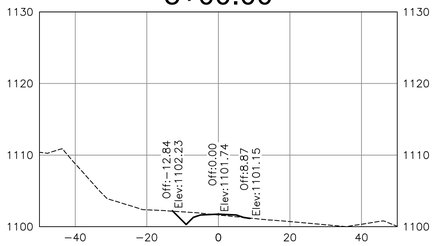

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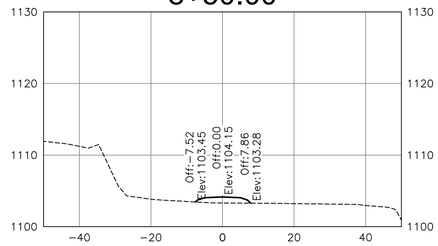

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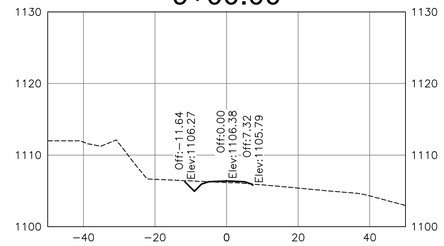

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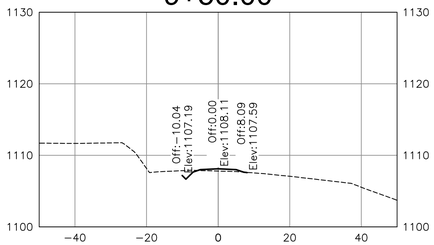

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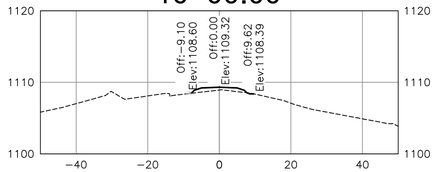

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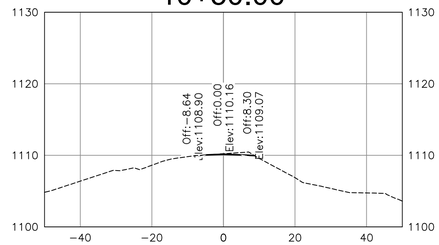

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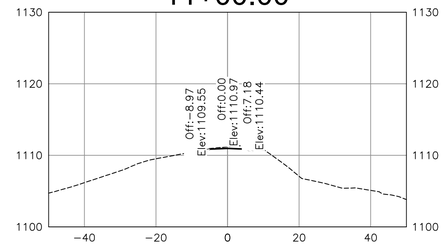

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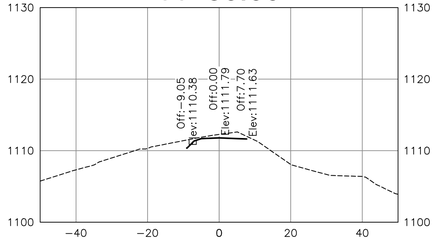

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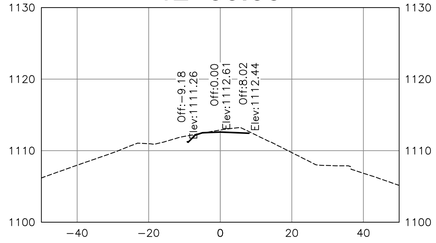

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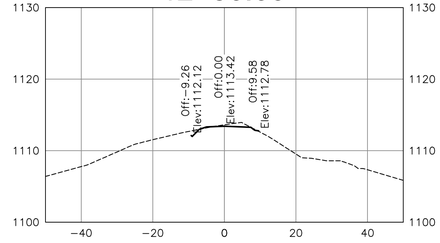

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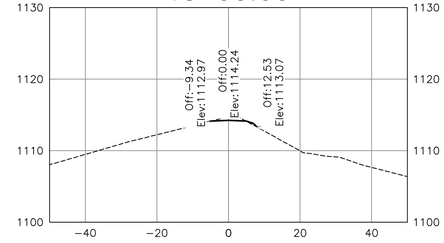

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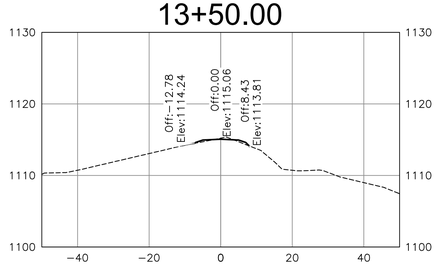

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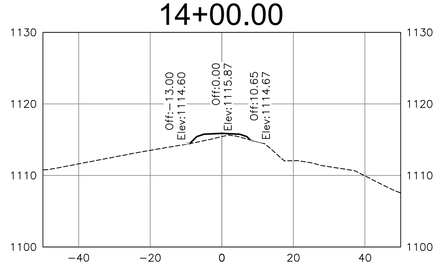

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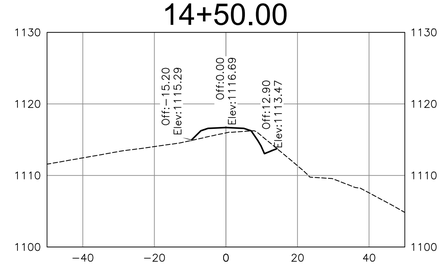

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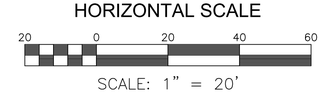

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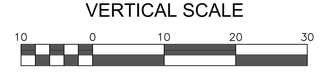

SCALE: 1" = 10'

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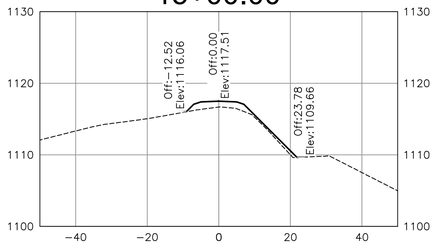

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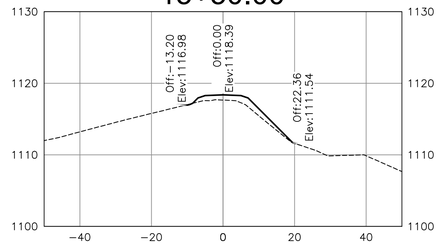

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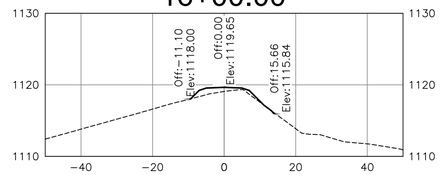

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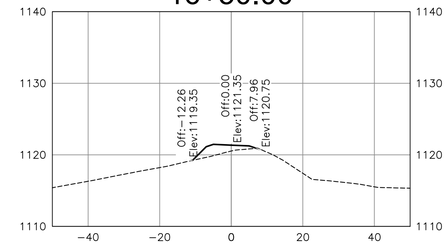

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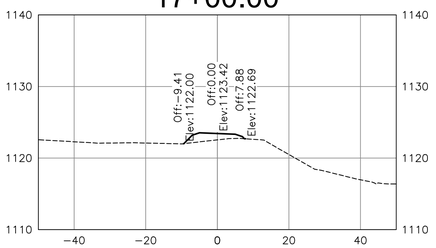

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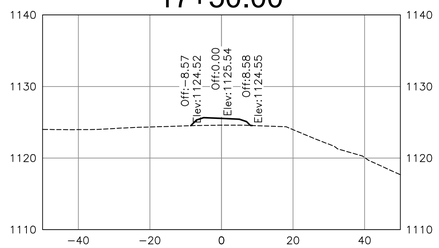

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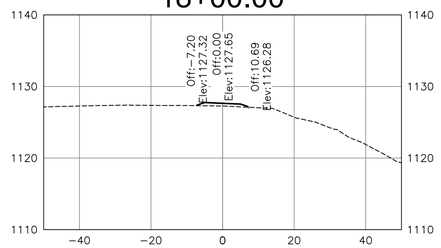

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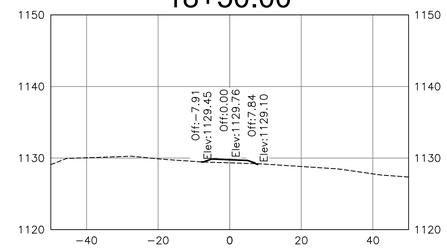

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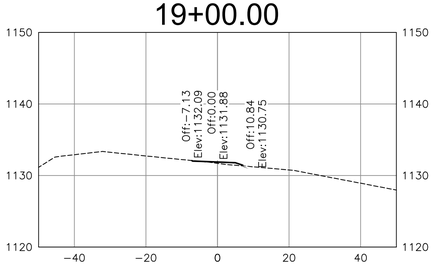

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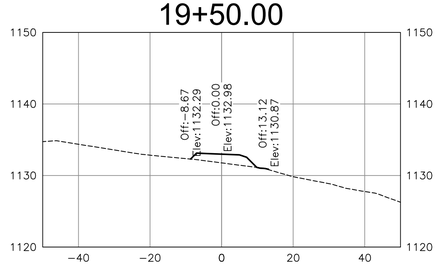

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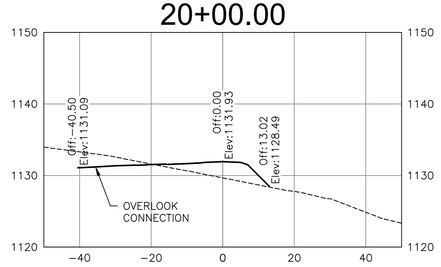

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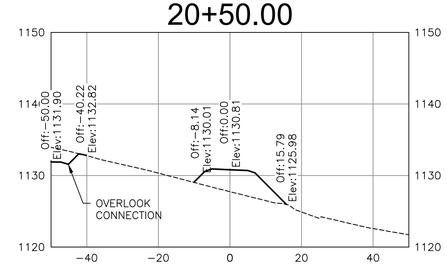
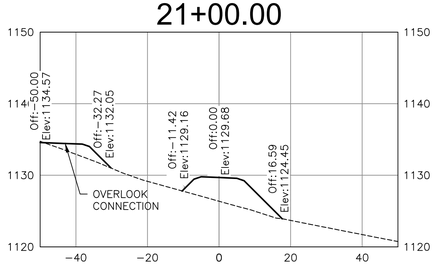
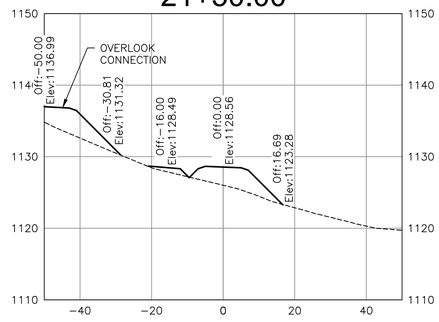


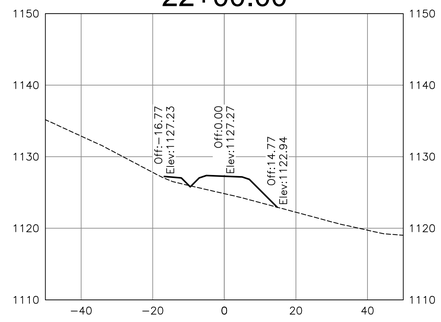
21+00.00



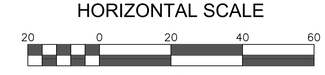
21+50.00



22+00.00

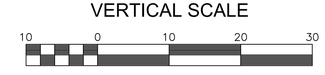


HORIZONTAL SCALE



SCALE: 1" = 20'

VERTICAL SCALE



SCALE: 1" = 10'

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

CROSS SECTIONS (STA:15+00 - 22+00)

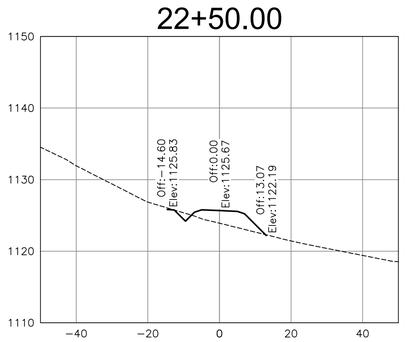
VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

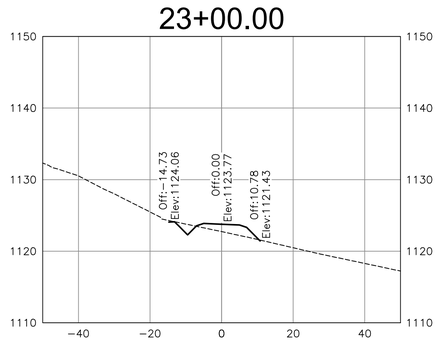
DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	AS NOTED

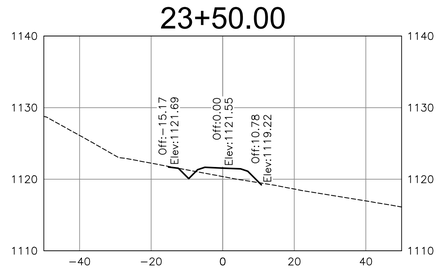
REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

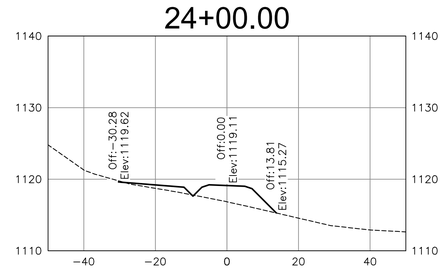
SHEET NO.
XS3

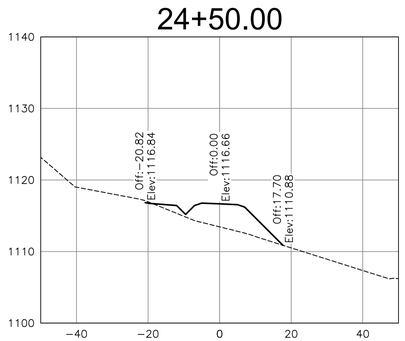
JOB NO. 04160062.00

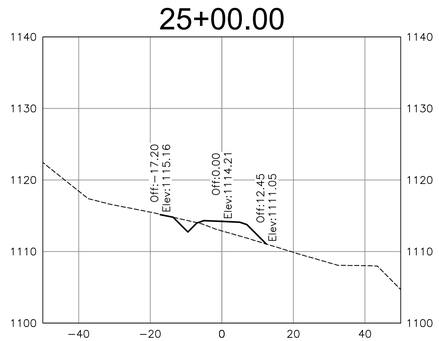


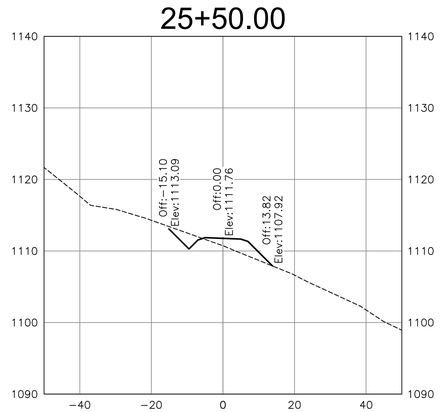


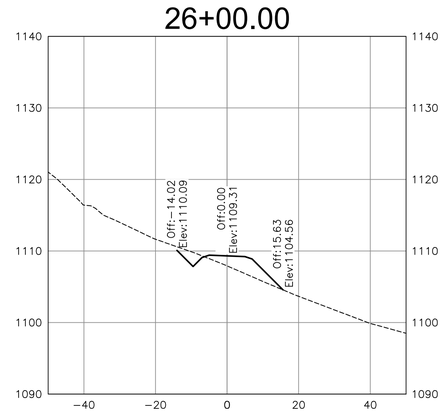


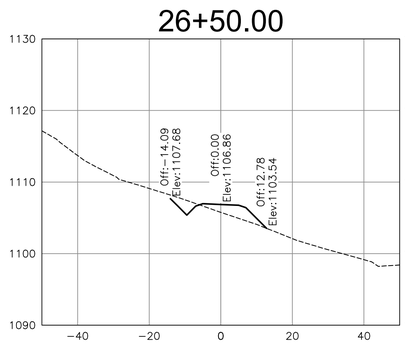


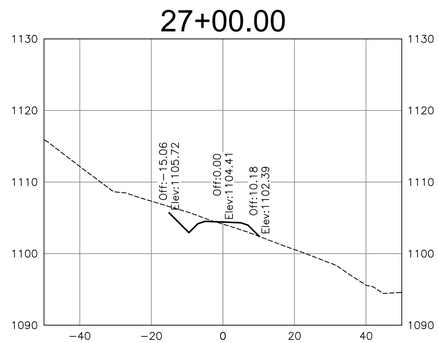


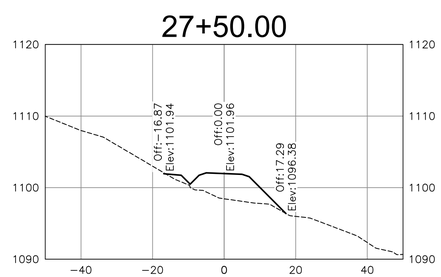


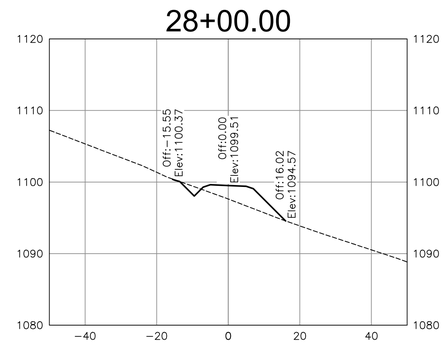


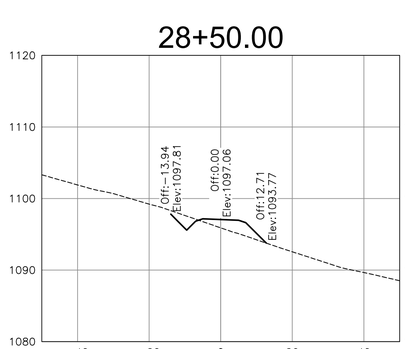


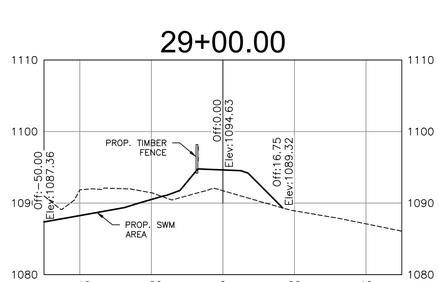


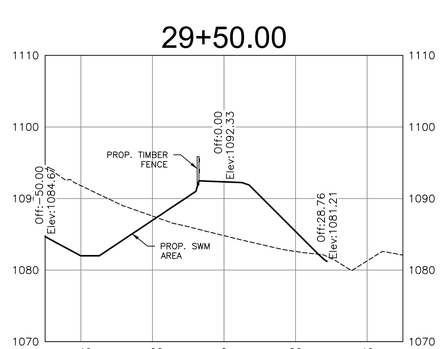












HORIZONTAL SCALE

20 0 20 40 60

SCALE: 1" = 20'

VERTICAL SCALE

10 0 10 20 30

SCALE: 1" = 10'

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

CROSS SECTIONS (STA:22+50 - 29+50)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

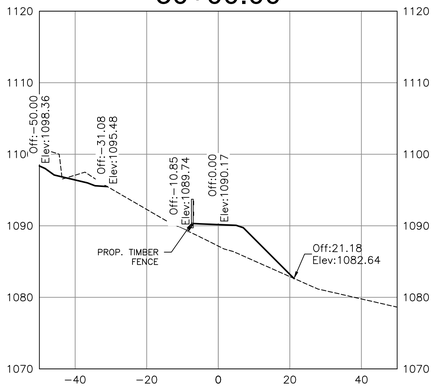
DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

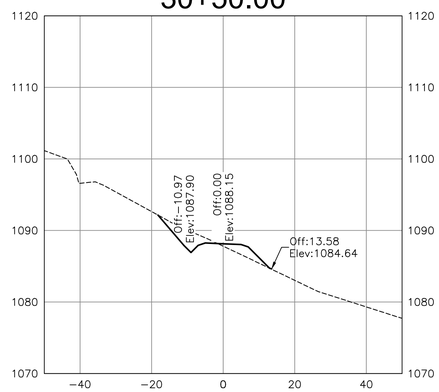
SHEET NO.
XS4

JOB NO. 04160062.00

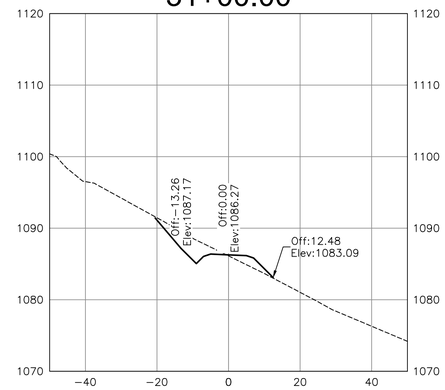
30+00.00



30+50.00



31+00.00



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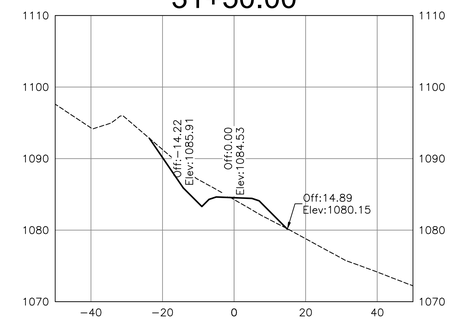
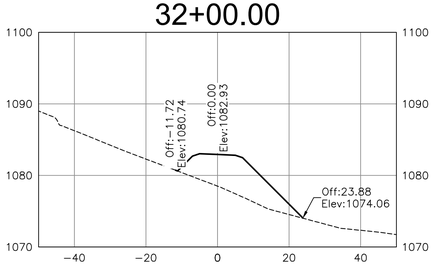
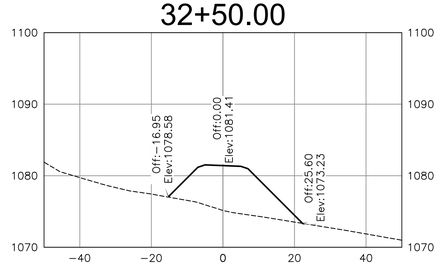


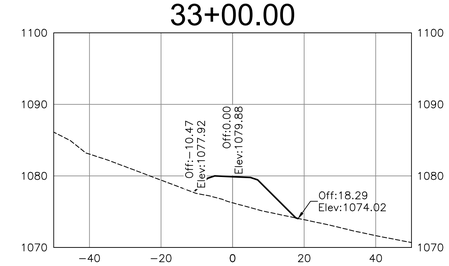
32+00.00



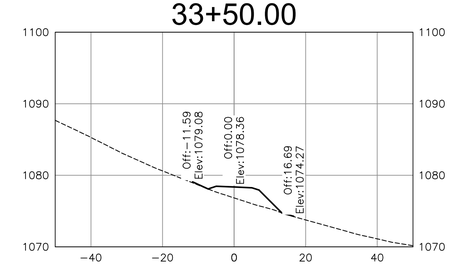
32+50.00



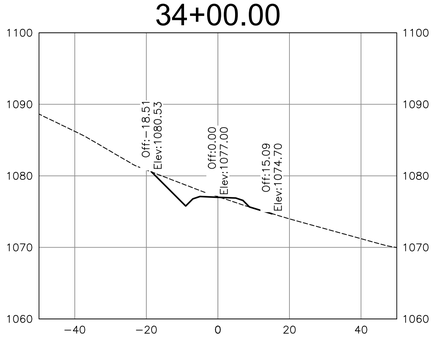
33+00.00



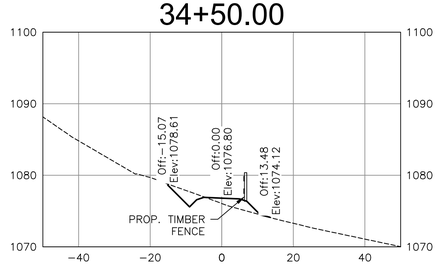
33+50.00



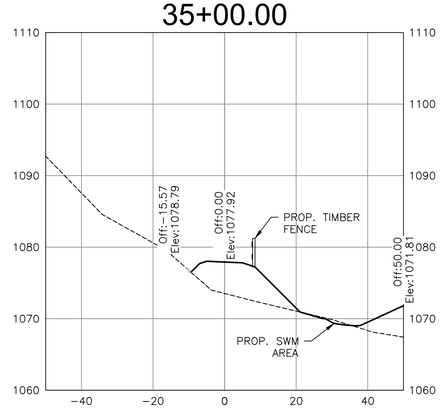
34+00.00



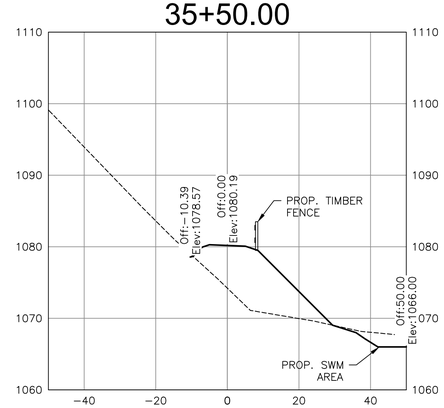
34+50.00



35+00.00



35+50.00



HORIZONTAL SCALE

SCALE: 1" = 20'

VERTICAL SCALE

SCALE: 1" = 10'

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

CROSS SECTIONS (STA:30+00 - 35+50)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

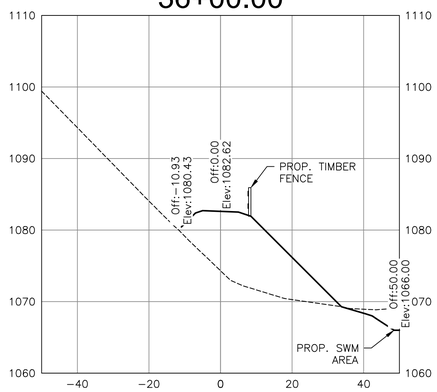
DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

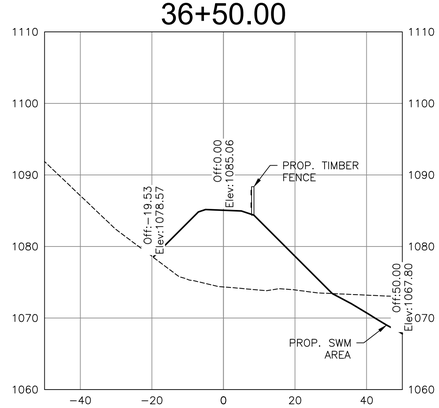
SHEET NO.
XS5

JOB NO. 04160062.00

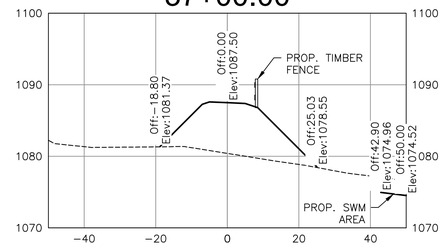
36+00.00



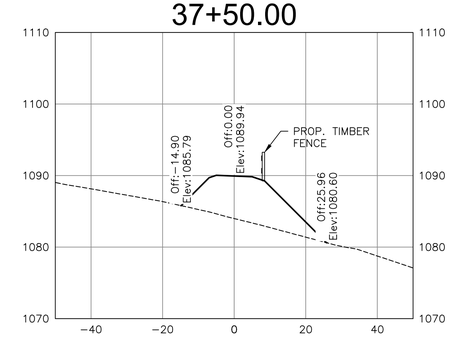
36+50.00



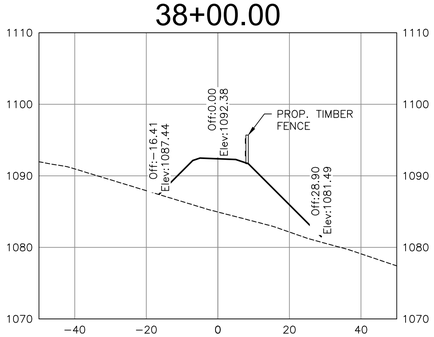
37+00.00



37+50.00



38+00.00



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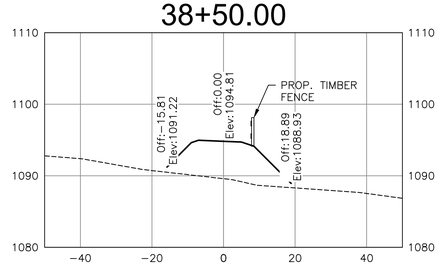
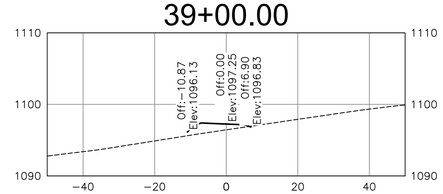
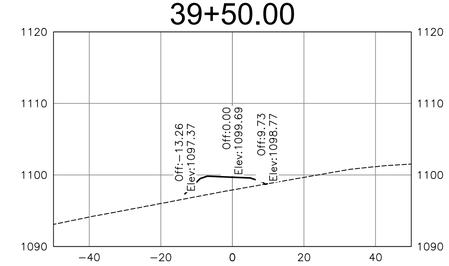


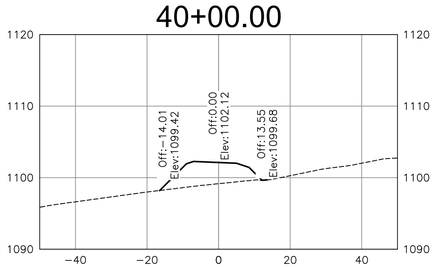
39+00.00



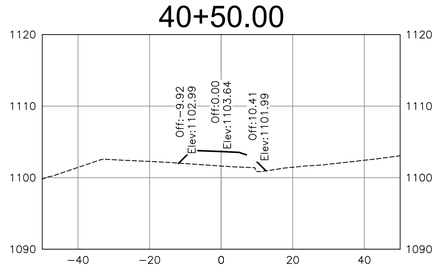
39+50.00



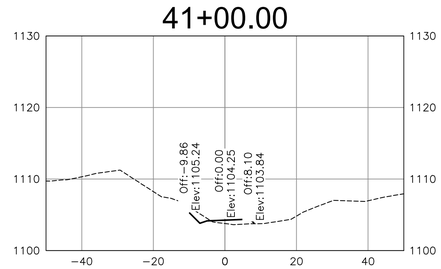
40+00.00



40+50.00



41+00.00



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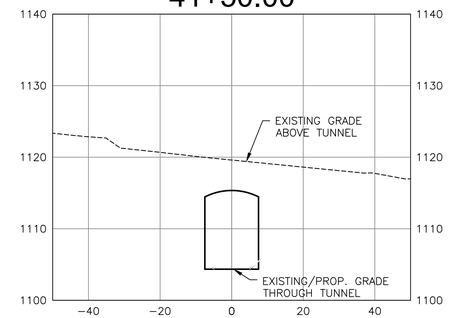
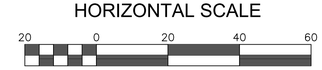
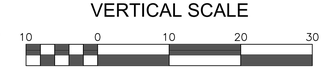


HORIZONTAL SCALE



SCALE: 1" = 20'

VERTICAL SCALE



SCALE: 1" = 10'

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WETLAND DELINEATIONS & STREAM EVALUATIONS

Balzer and Associates, Inc.
1208 Corporate Circle
Roanoke, VA 24018
540-772-9580
FAX 540-772-8050

COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

CROSS SECTIONS (STA:37+00 - 41+50)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

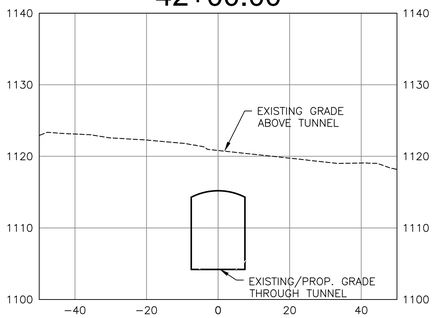
DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
XS6

JOB NO. 04160062.00

42+00.00



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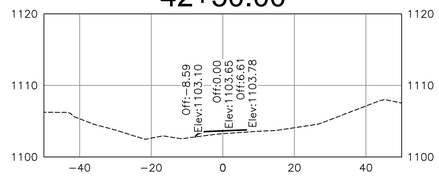

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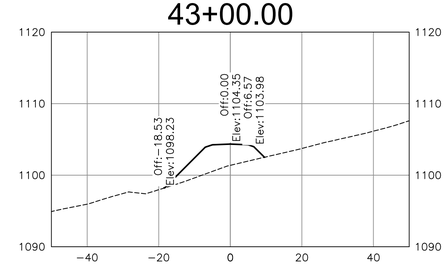

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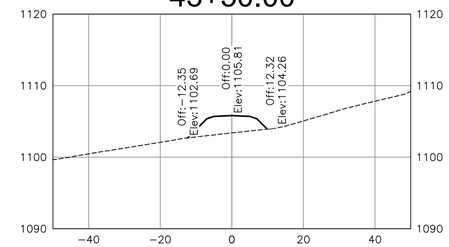
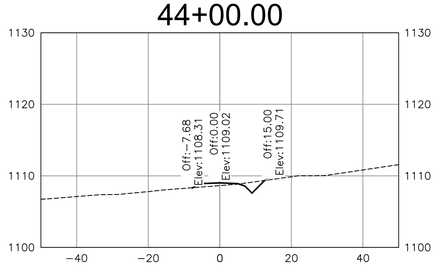


44+00.00



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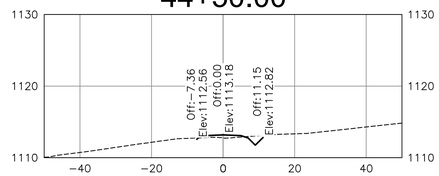

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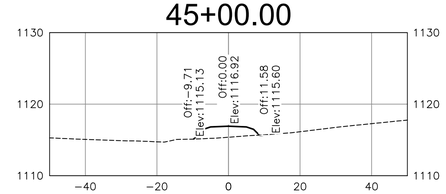

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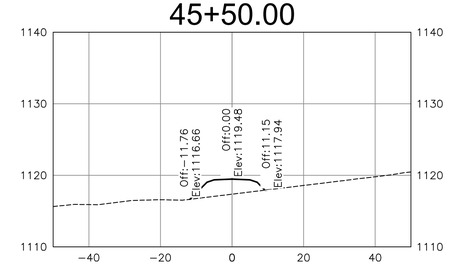
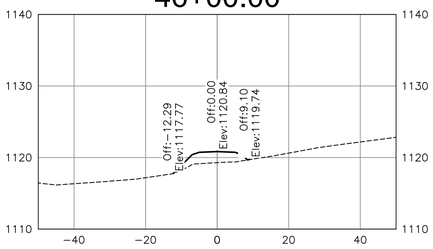


46+00.00



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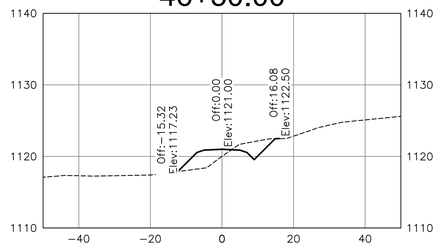

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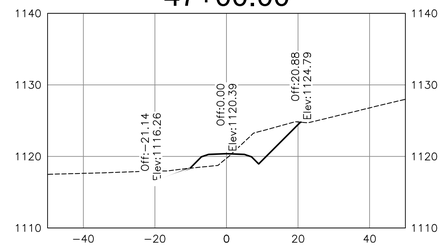

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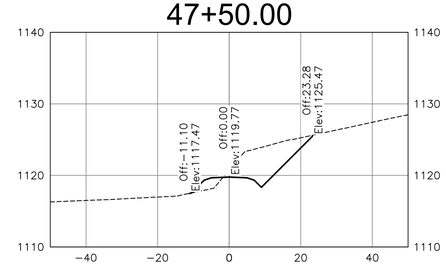

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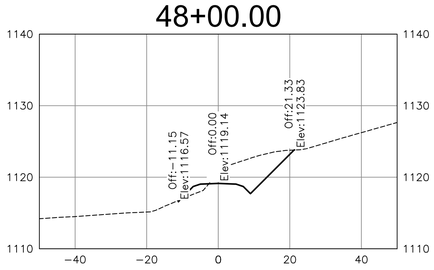

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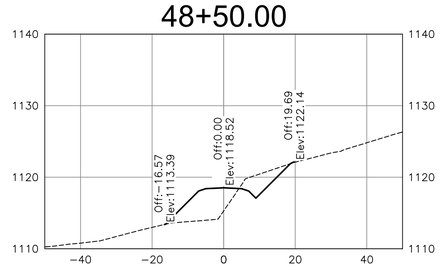

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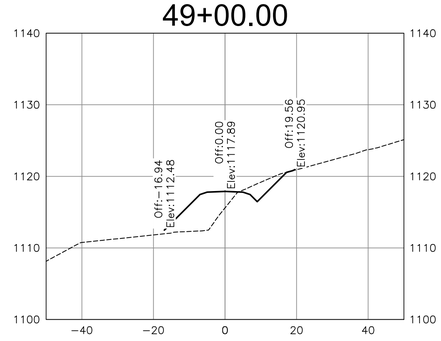
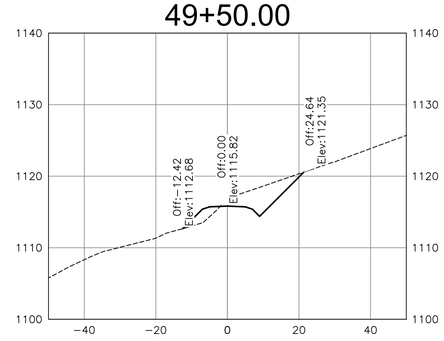
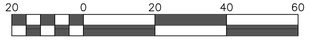


49+50.00

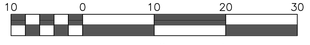


HORIZONTAL SCALE



SCALE: 1" = 20'

VERTICAL SCALE



SCALE: 1" = 10'

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VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

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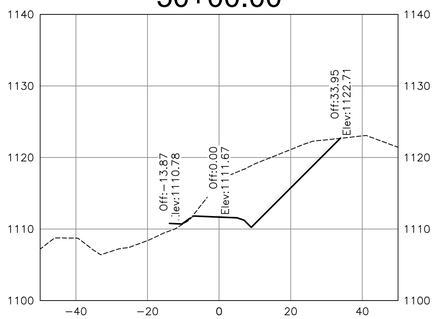
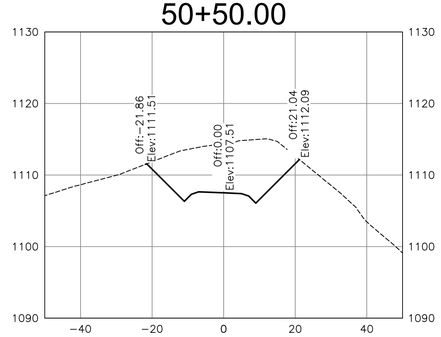
SHEET NO.
XS7

JOB NO. 04160062.00

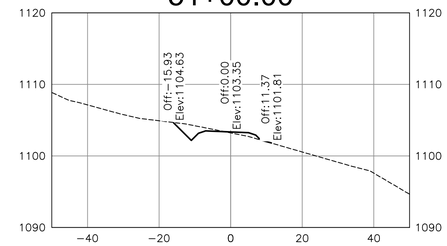
50+00.00



50+50.00



51+00.00



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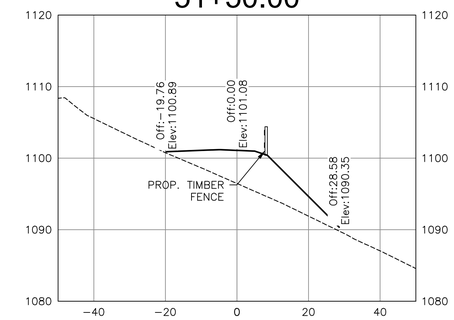

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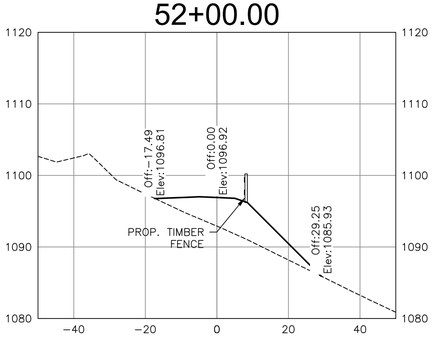

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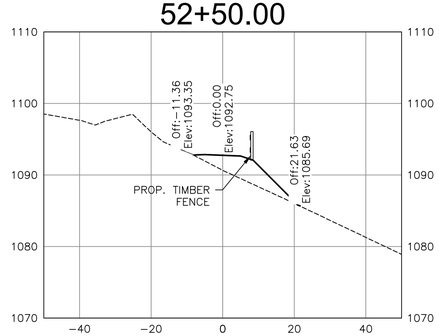

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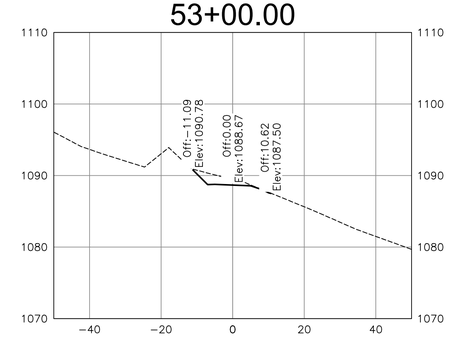

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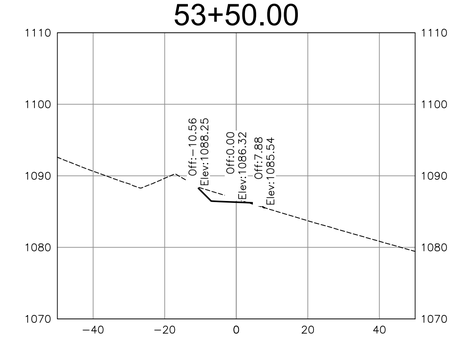
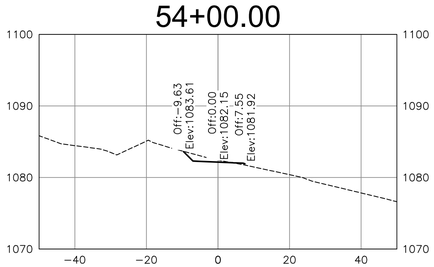
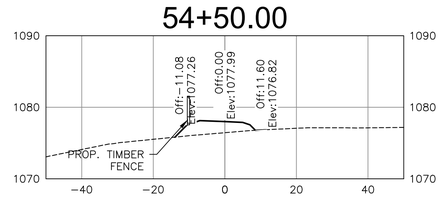


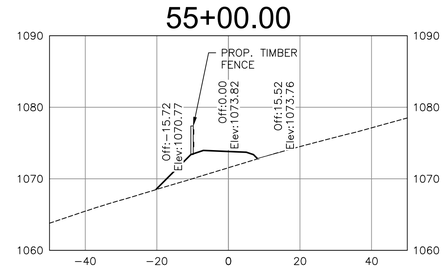
54+00.00



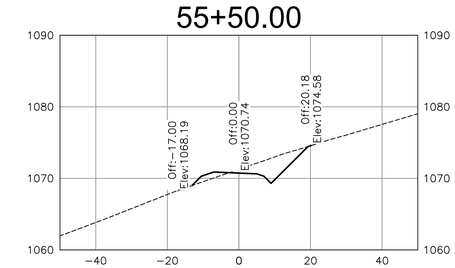
54+50.00



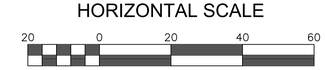
55+00.00



55+50.00

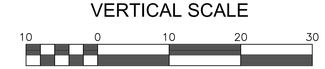


HORIZONTAL SCALE



SCALE: 1" = 20'

VERTICAL SCALE



SCALE: 1" = 10'

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EAST ROANOKE RIVER GREENWAY EXTENSION

CROSS SECTIONS (STA:50+00 - 55+50)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	AS NOTED

REVISIONS:
12/20/2019
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8/7/2020
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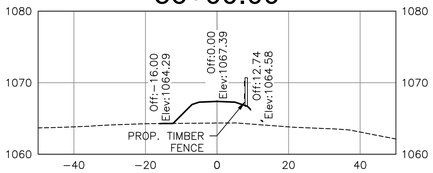
SHEET NO.
XS8

JOB NO. 04160062.00

56+00.00



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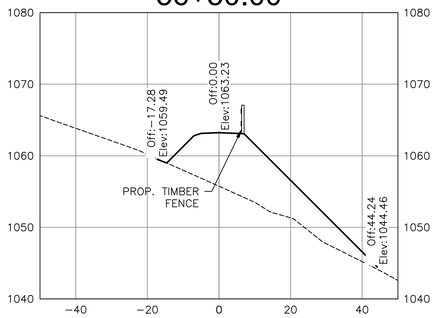

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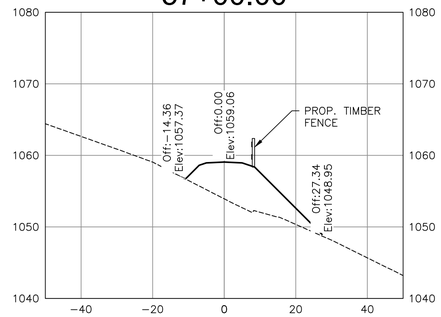

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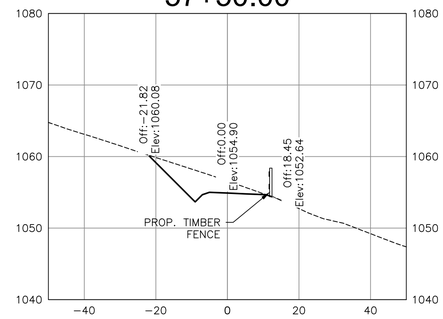

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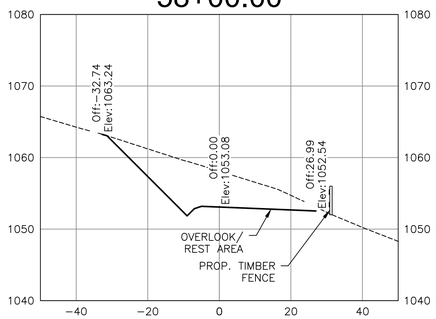

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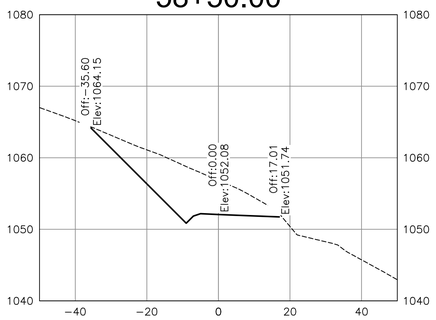

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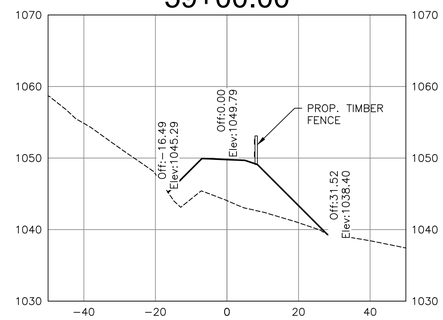
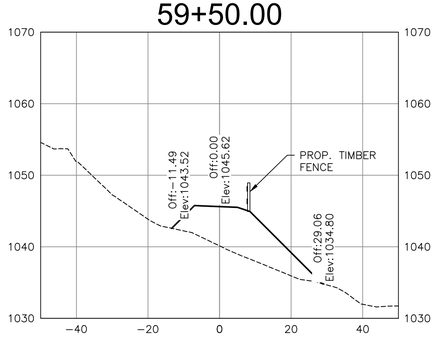


59+50.00



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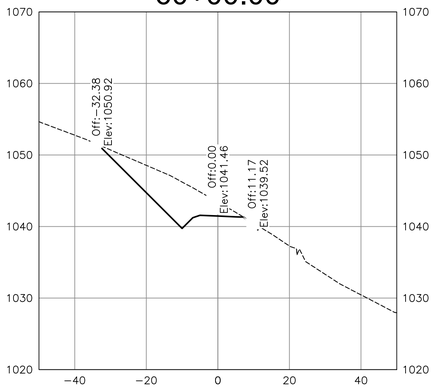
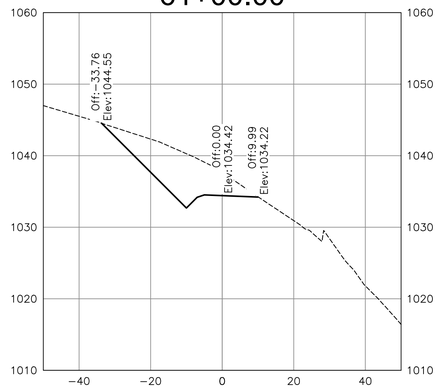
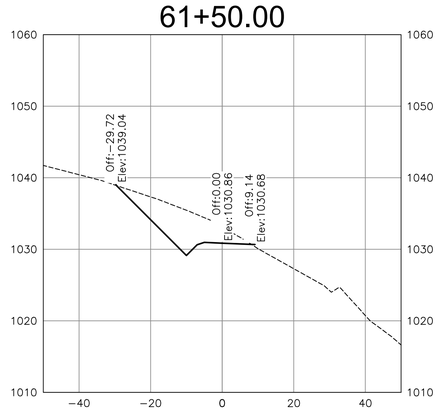


60+50.00

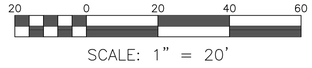
61+00.00



61+50.00

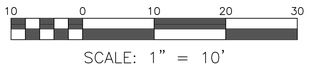


HORIZONTAL SCALE



SCALE: 1" = 20'

VERTICAL SCALE



SCALE: 1" = 10'

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CROSS SECTIONS (STA:56+00 - 61+50)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

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DATE 9/4/2019
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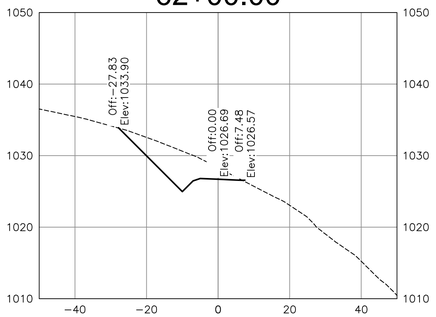
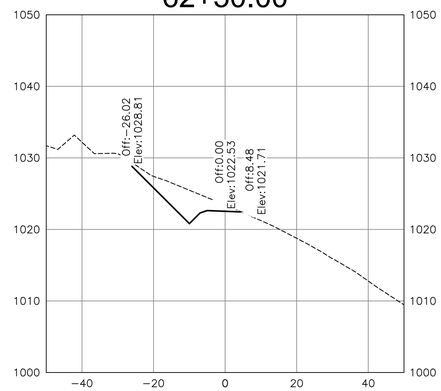
SHEET NO.
XS9

JOB NO. 04160062.00

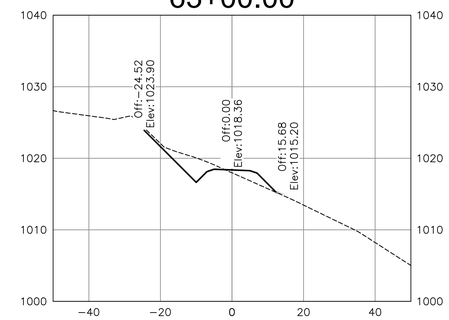
62+00.00



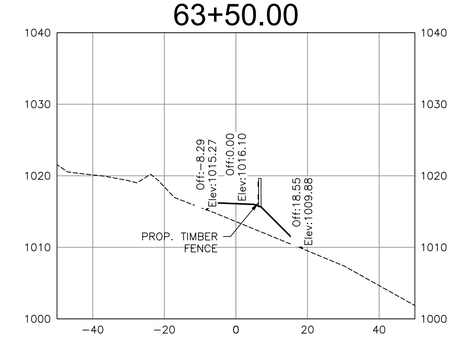
62+50.00



63+00.00



63+50.00



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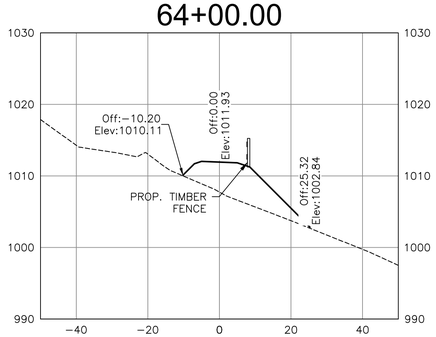

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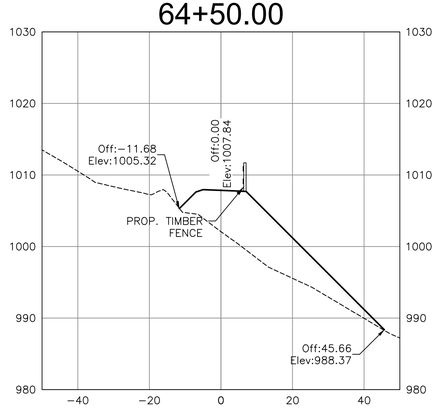

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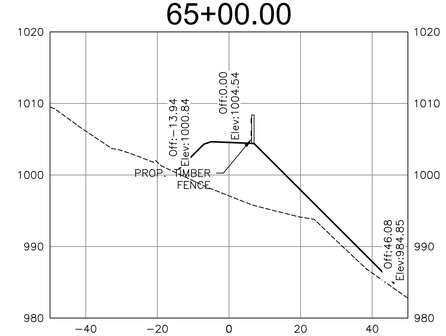

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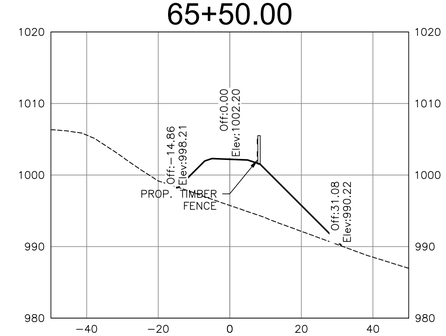
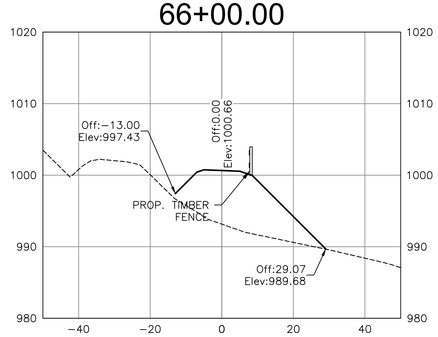
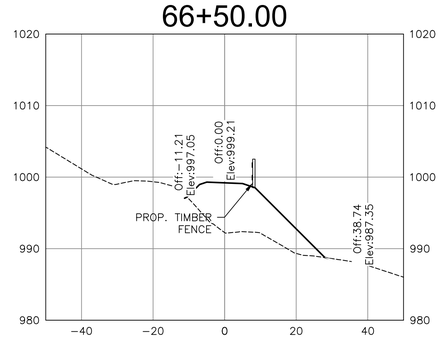


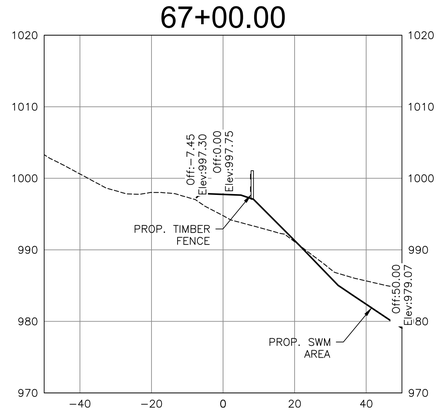
66+00.00



66+50.00



67+00.00



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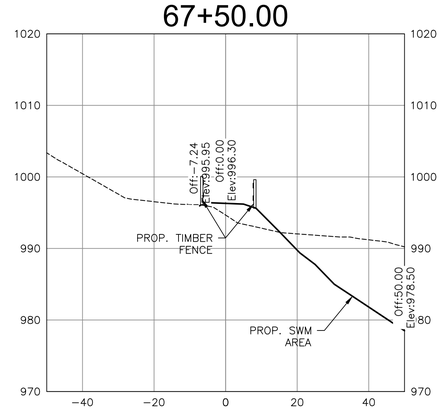
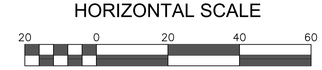


HORIZONTAL SCALE



SCALE: 1" = 20'

VERTICAL SCALE

SCALE: 1" = 10'

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4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

CROSS SECTIONS (STA:62+00 - 67+50)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

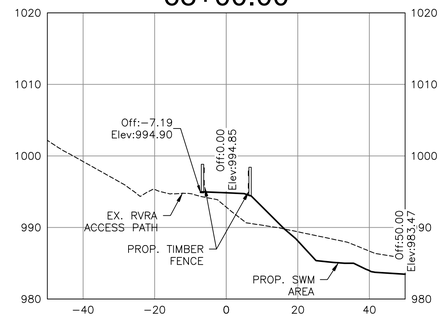
DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

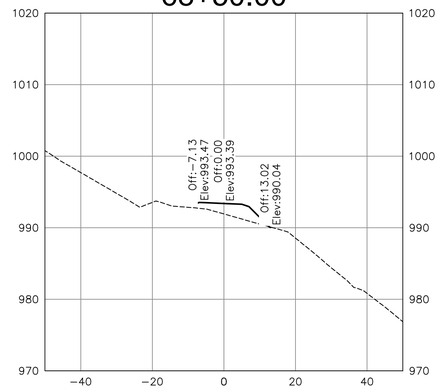
SHEET NO.
XS10

JOB NO. 04160062.00

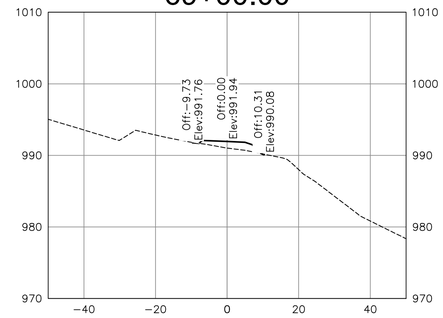
68+00.00



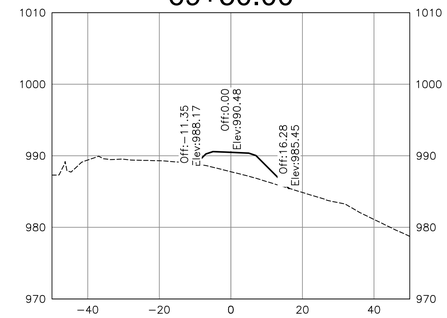
68+50.00



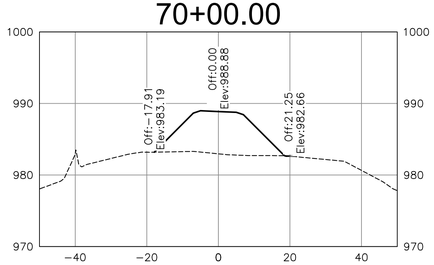
69+00.00



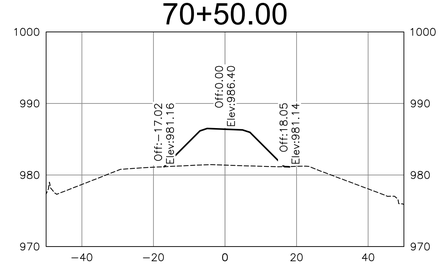
69+50.00



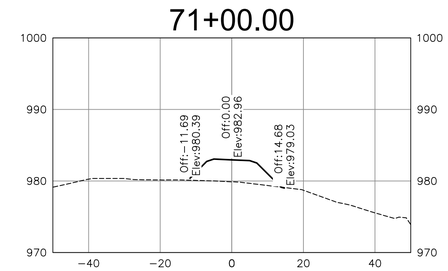
70+00.00



70+50.00



71+00.00



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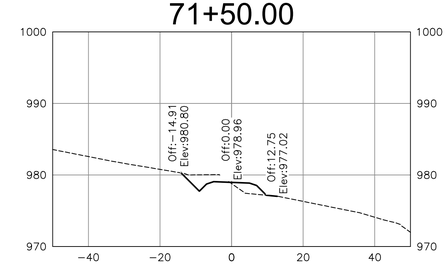
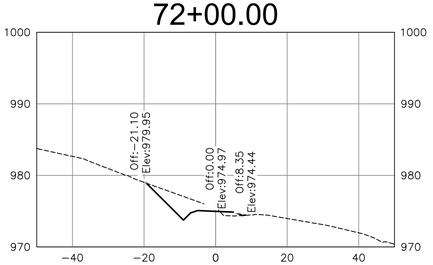


72+00.00



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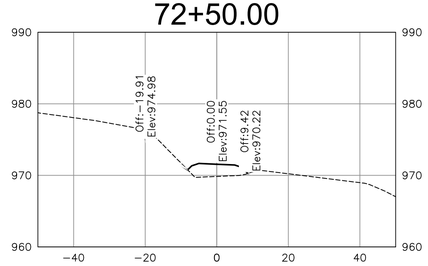
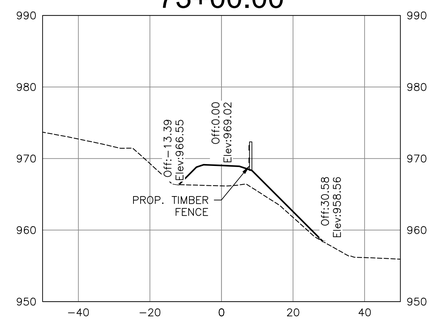
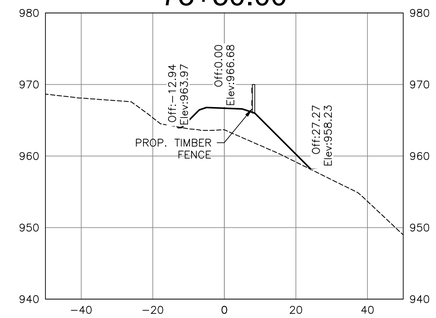


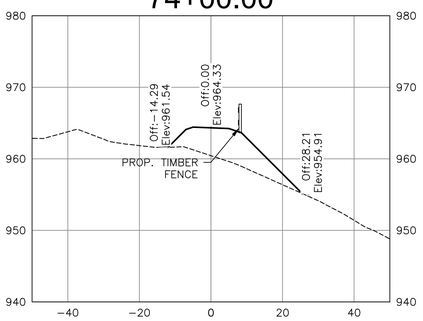
73+00.00



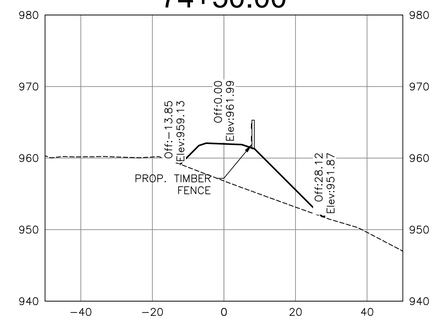
73+50.00



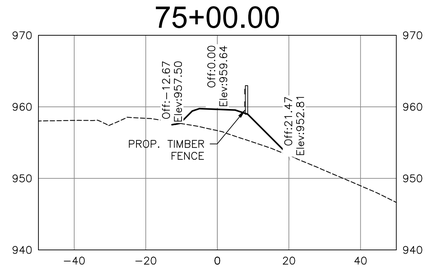
74+00.00



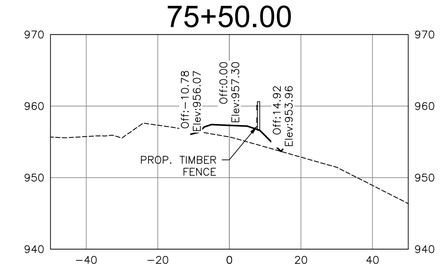
74+50.00



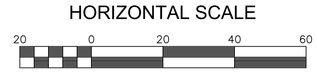
75+00.00



75+50.00

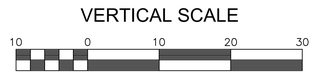


HORIZONTAL SCALE



SCALE: 1" = 20'

VERTICAL SCALE



SCALE: 1" = 10'

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4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

CROSS SECTIONS (STA:68+00 - 75+50)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

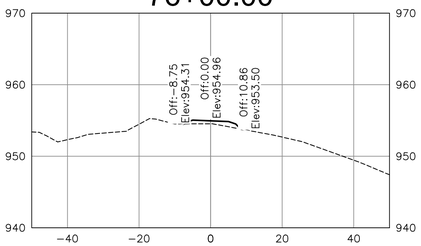
DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

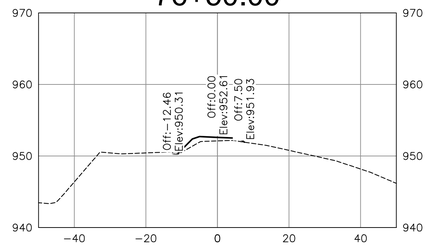
SHEET NO.
XS11

JOB NO. 04160062.00

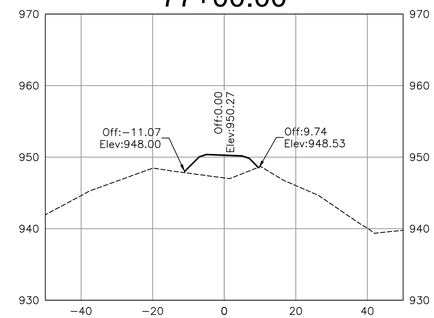
76+00.00



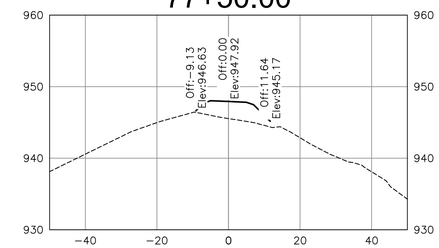
76+50.00



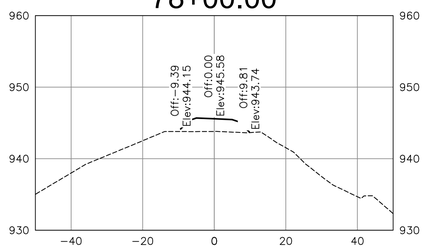
77+00.00



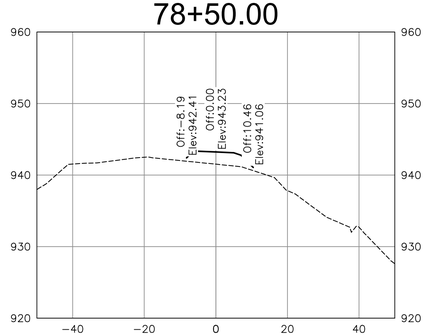
77+50.00



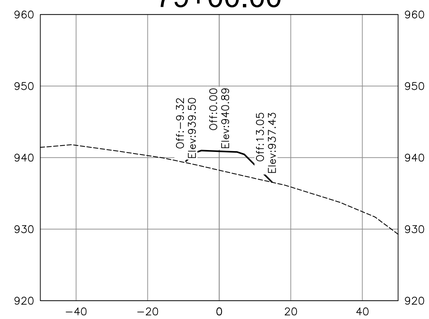
78+00.00



78+50.00



79+00.00



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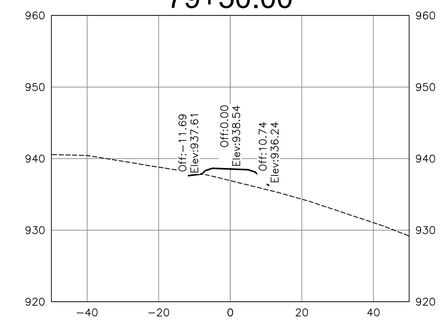
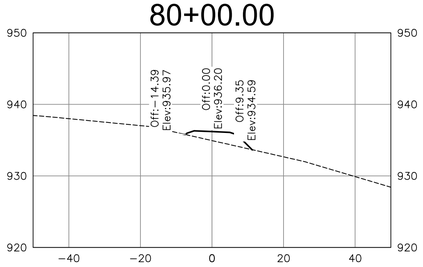
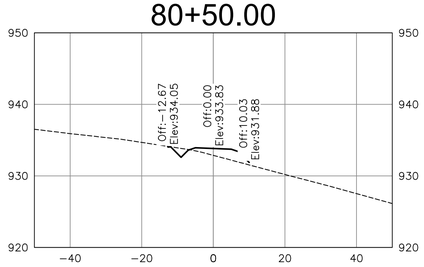


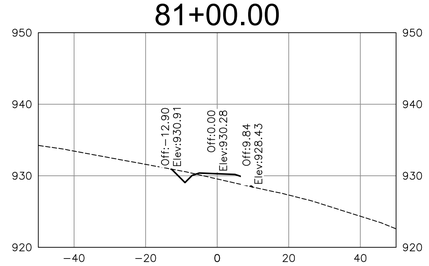
80+00.00



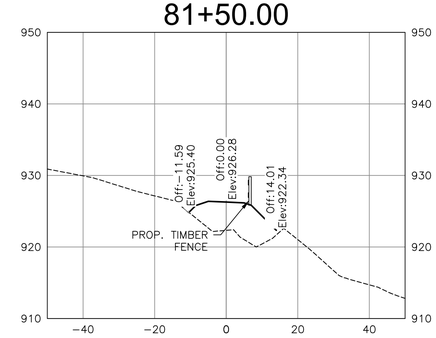
80+50.00



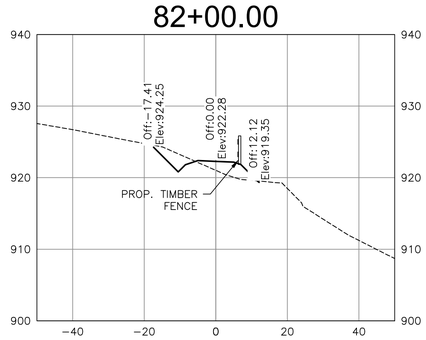
81+00.00



81+50.00



82+00.00



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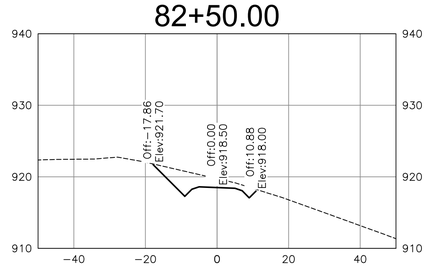
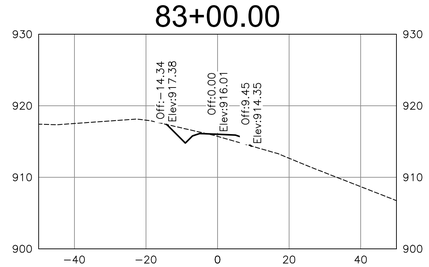
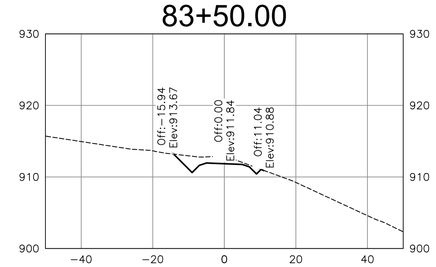


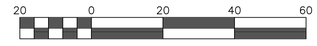
83+00.00



83+50.00

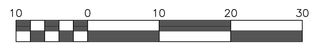


HORIZONTAL SCALE



SCALE: 1" = 20'

VERTICAL SCALE



SCALE: 1" = 10'

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EAST ROANOKE RIVER GREENWAY EXTENSION

CROSS SECTIONS (STA:76+00 - 83+50)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

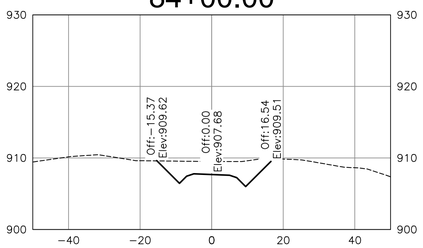
DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
XS12

JOB NO. 04160062.00

84+00.00



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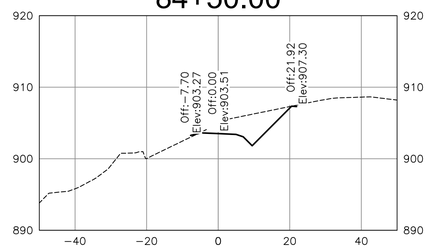
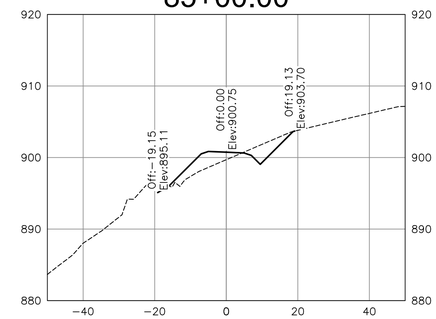
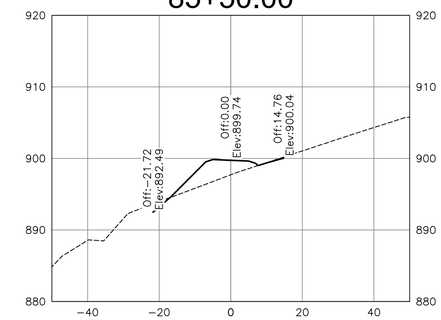


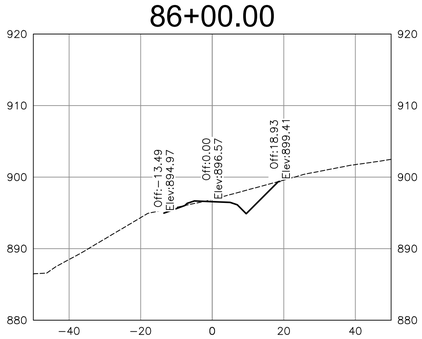
85+00.00



85+50.00



86+00.00



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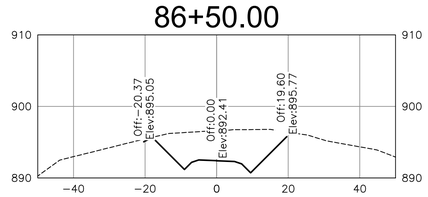

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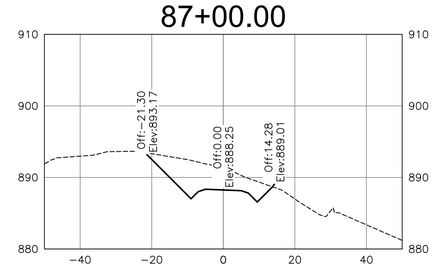

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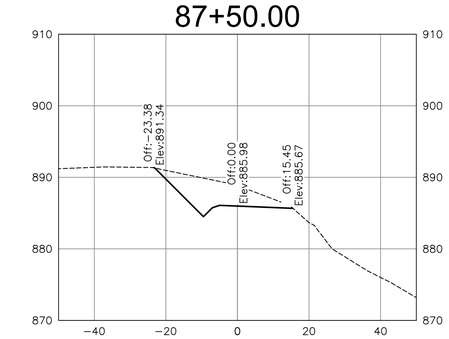

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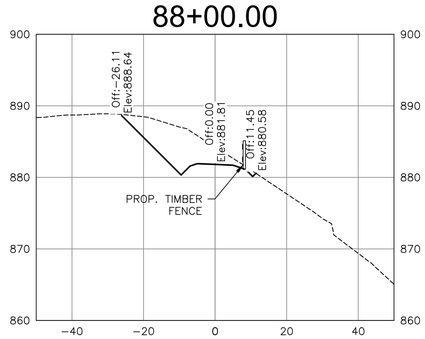

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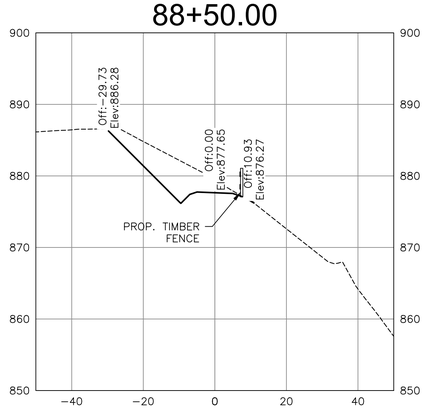

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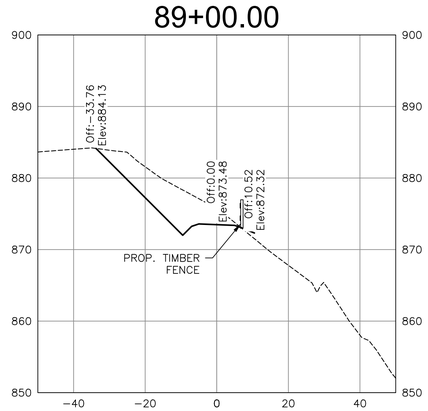

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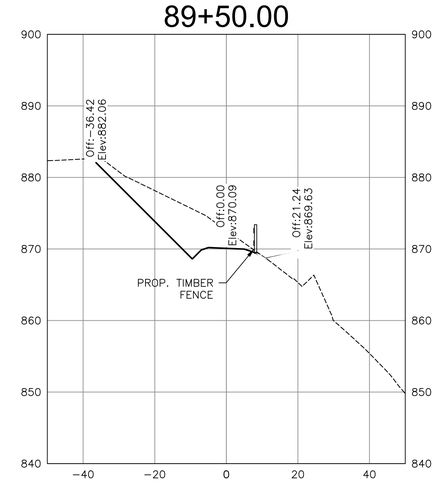
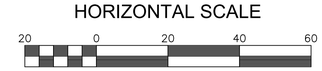
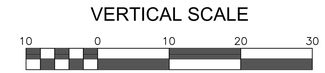


HORIZONTAL SCALE



SCALE: 1" = 20'

VERTICAL SCALE



SCALE: 1" = 10'

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
4/4/23
PROFESSIONAL ENGINEER

EAST ROANOKE RIVER GREENWAY EXTENSION

CROSS SECTIONS (STA:84+00 - 89+50)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

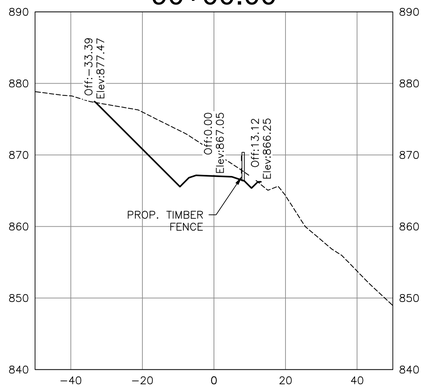
DRAWN BY	CPB
DESIGNED BY	CPB
CHECKED BY	BTC
DATE	9/4/2019
SCALE	AS NOTED

REVISIONS:
12/20/2019
3/27/2020
8/7/2020
7/27/2021
12/21/2022
4/4/2023

SHEET NO.
XS13

JOB NO. 04160062.00

90+00.00



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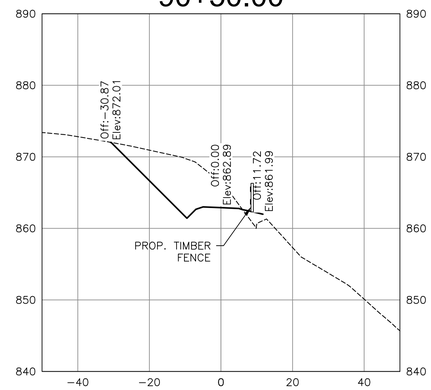

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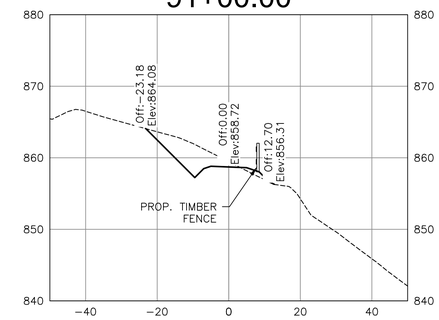

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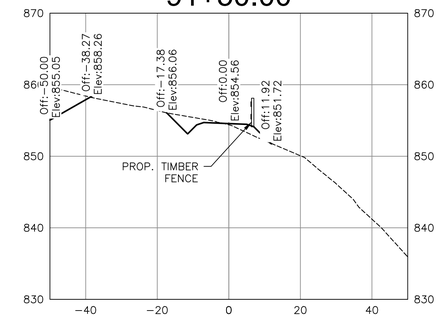

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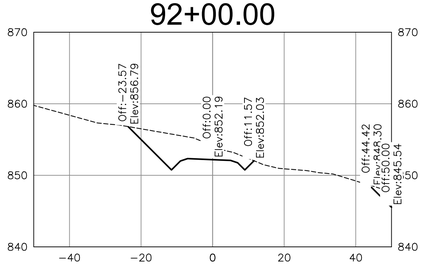

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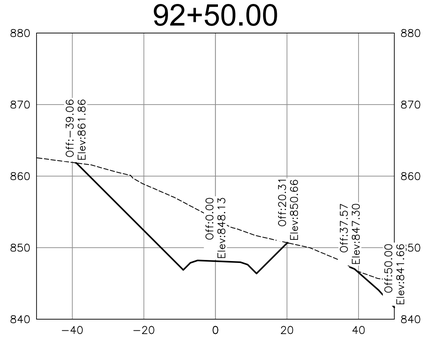

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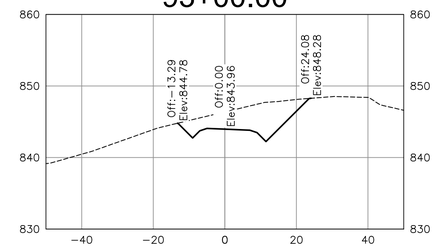

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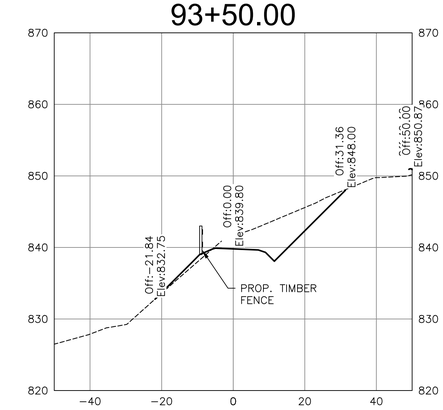

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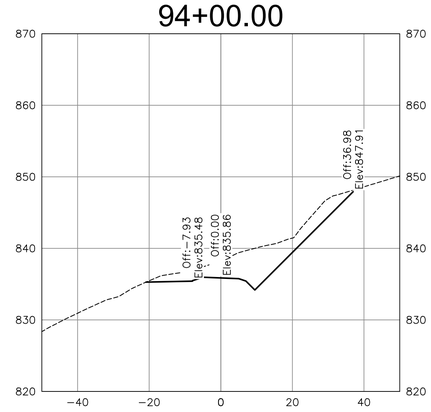

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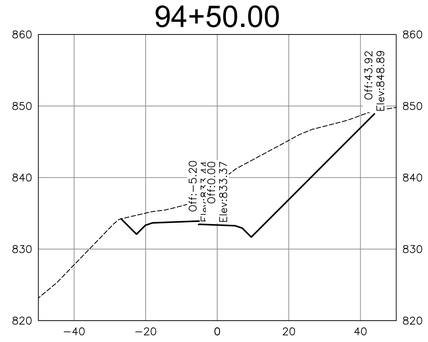

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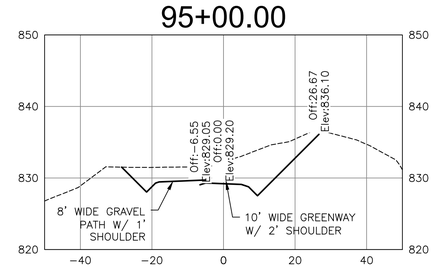

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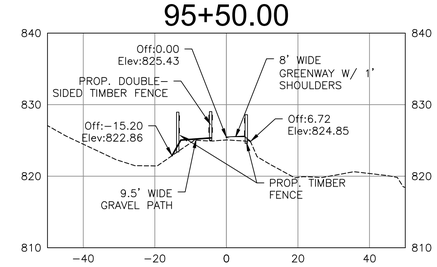
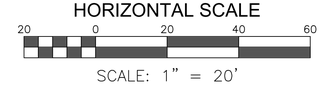


VERTICAL SCALE

SCALE: 1" = 10'

HORIZONTAL SCALE



SCALE: 1" = 20'

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CROSS SECTIONS (STA:90+00 - END)

VINTON DISTRICT
ROANOKE COUNTY, VIRGINIA

DRAWN BY CPB
DESIGNED BY CPB
CHECKED BY BTC
DATE 9/4/2019
SCALE AS NOTED

REVISIONS:
12/20/2019
3/27/2020
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7/27/2021
12/21/2022
4/4/2023

SHEET NO.
XS14
JOB NO. 04160062.00