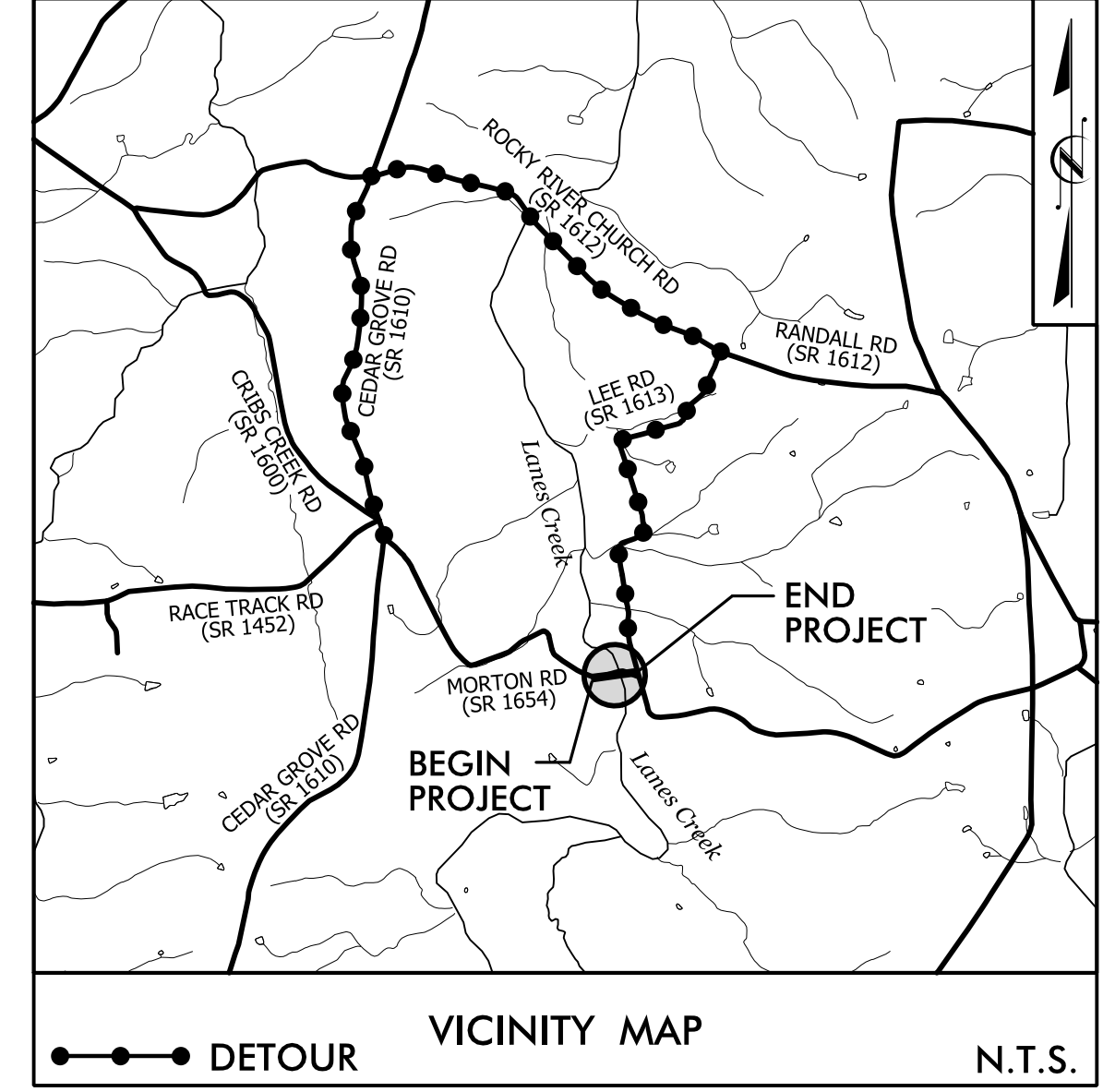


PROJECT WBS: BP10.R049.3

CONTRACT: DJ00310

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet

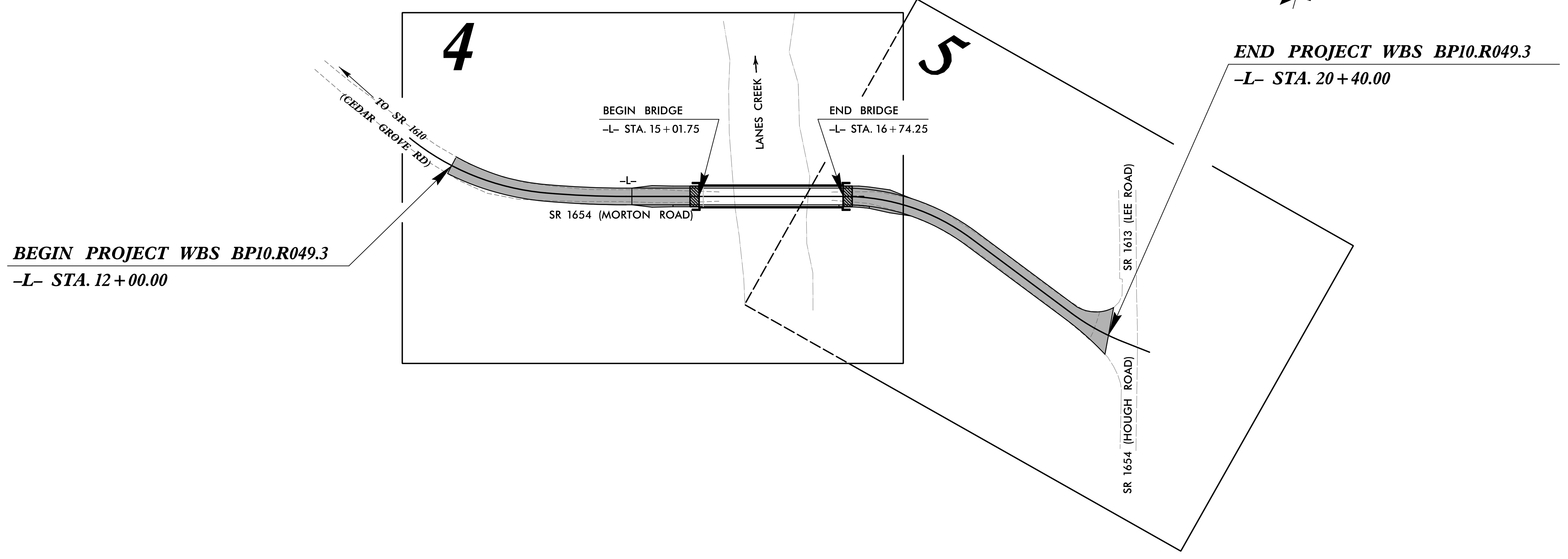
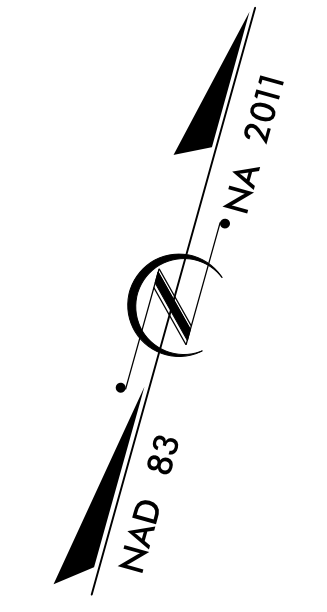
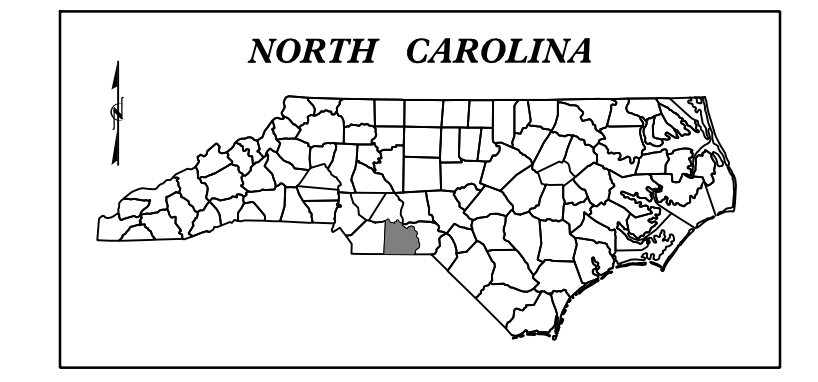


FINAL PLANS

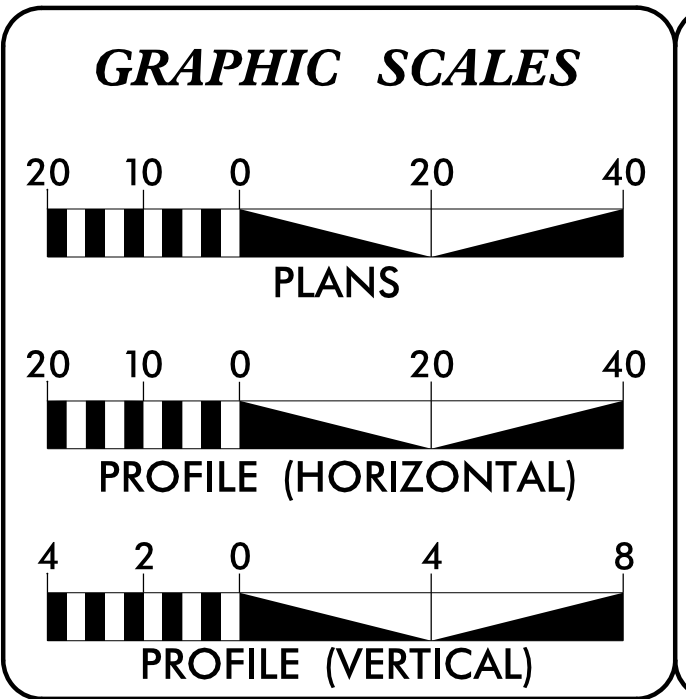
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ANSON COUNTY

LOCATION: BRIDGE #217 OVER LANES CREEK ON SR 1654 (MORTON RD)
TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP10.R049.3	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
BP10.R049.1		P.E.	
BP10.R049.2		ROW & UTIL	
BP10.R049.3		CONSTRUCTION	



**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



DESIGN DATA

ADT 2015	= 80
ADT 2025	= 160
DHV	= N/A
D	= N/A
T	= 0%
V	= 35 MPH
FUNC. CLASSIFICATION:	
SUB REGIONAL TIER	

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT WBS BP10.R049.3	= .126 MILES
LENGTH OF STRUCTURE PROJECT WBS BP10.R049.3	= .033 MILES
TOTAL LENGTH OF PROJECT WBS BP10.R049.3	= .159 MILES

NCDOT CONTACT: **YANWEI MA, PE**
Division Bridge Manager

PLANS PREPARED FOR THE NCDOT BY:

stv STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

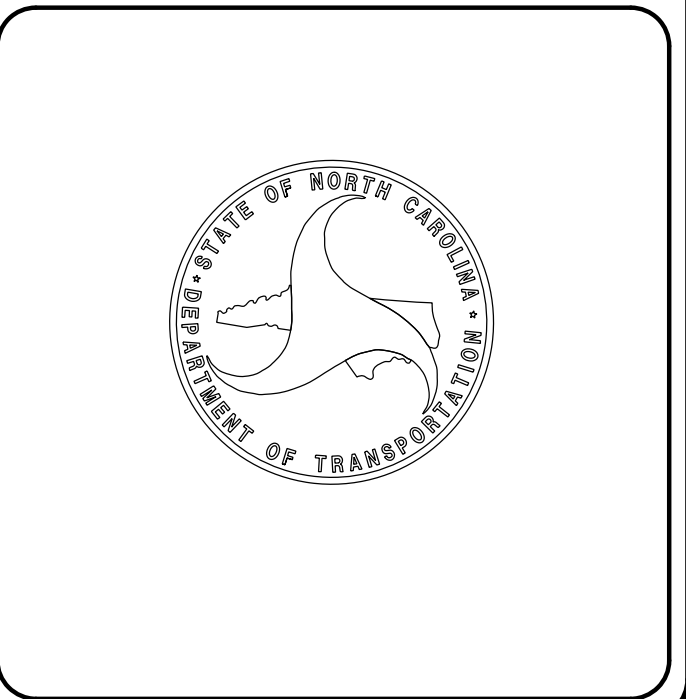
RIGHT OF WAY DATE: NOVEMBER 9, 2018	NIKKI T. HONEYCUTT, PE PROJECT ENGINEER
LETTING DATE: APRIL 17, 2024	CLARK E. GROVES PROJECT DESIGNER

HYDRAULICS ENGINEER

2/9/2024
SIGNATURE: **DAVID C. MORRISON, P.E.**

ROADWAY DESIGN ENGINEER

2/9/2024
SIGNATURE: **NIKKI T. HONEYCUTT, P.E.**





PROJECT REFERENCE NO. <i>BPI0.R049.3</i>	SHEET NO. <i>1A</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	TYPICAL SECTIONS SHEET
3B-1	SUMMARIES SHEET
3P-1	PARCEL DATA SHEET
4 THRU 6	PLAN AND PROFILE SHEET
RW01	SURVEY CONTROL TSH
RW02D-1	PROP ALIGNMENT SHEET
RW03E-1	RIGHT OF WAY CONTROL SHEET
RW04	RIGHT OF WAY, EASEMENT, AND PROPERTY TIES
TMP-1 THRU TMP-2	TRANSPORTATION MANAGEMENT PLAN
PMP-1	PAVEMENT MARKING PLAN
EC-1 THRU EC-7	EROSION CONTROL
X-1 THRU X-9	CROSS-SECTIONS
S-1 THRU S-21	STRUCTURE PLANS
SN	STRUCTURE NOTES

GENERAL NOTES

GENERAL NOTES: 2024 SPECIFICATIONS EFFECTIVE: 01-01-2024

GRADE LINE:
GRADING AND SURFACING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

GUARDRAIL:
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

END BENTS:
THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

RIGHT-OF-WAY MARKERS:
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY THE DIVISION.

STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS EFF. January, 2024

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type 1 Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.29	Frame and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet
846.01	Concrete Curb, Gutter and Curb & Gutter
848.02	Driveway Turnout
862.01	Guardrail Placement
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets
DIVISION 11 - WORK ZONE TRAFFIC CONTROL	
1101.03	Temporary Road Closures
1110.01	Stationary Work Zone Signs - Mounting Height & Lateral Clearance
1145.01	Barriades - Type III

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

State Line	_____
County Line	_____
Township Line	_____
City Line	_____
Reservation Line	_____
Property Line	_____
Existing Iron Pin (EIP)	
Computed Property Corner	
Existing Concrete Monument (ECM)	
Parcel/Sequence Number	
Existing Fence Line	—X—X—X—
Proposed Woven Wire Fence	—○—
Proposed Chain Link Fence	—□—
Proposed Barbed Wire Fence	—◇—
Existing Wetland Boundary	—WLB—
Proposed Wetland Boundary	—WLB—
Existing Endangered Animal Boundary	—EAB—
Existing Endangered Plant Boundary	—EPB—
Existing Historic Property Boundary	—HPB—
Known Contamination Area: Soil	—S—S—S—
Potential Contamination Area: Soil	—S—S—S—
Known Contamination Area: Water	—W—W—W—
Potential Contamination Area: Water	—W—W—W—
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	
Sign	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	

HYDROLOGY:

Stream or Body of Water	_____
Hydro, Pool or Reservoir	
Jurisdictional Stream	—JS—
Buffer Zone 1	—BZ 1—
Buffer Zone 2	—BZ 2—
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

RAILROADS:

Standard Gauge	_____
RR Signal Milepost	
Switch	
RR Abandoned	_____
RR Dismantled	_____

RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent Easement Monument (Rebar and Cap)	
Existing C/A Monument	
Proposed C/A Monument (Rebar and Cap)	
Proposed C/A Monument (Concrete)	
Existing Right of Way Line	_____
Proposed Right of Way Line	_____
Existing Control of Access Line	_____
Proposed Control of Access Line	_____
Proposed ROW and CA Line	_____
Existing Easement Line	_____
Proposed Temporary Construction Easement	_____
Proposed Temporary Drainage Easement	_____
Proposed Permanent Drainage Easement	_____
Proposed Permanent Drainage/Utility Easement	_____
Proposed Permanent Utility Easement	_____
Proposed Temporary Utility Easement	_____
Proposed Aerial Utility Easement	_____

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	_____
Existing Curb	_____
Proposed Slope Stakes Cut	_____
Proposed Slope Stakes Fill	_____
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	
VEGETATION:	
Single Tree	
Single Shrub	
Hedge	

Woods Line	_____
Orchard	
Vineyard	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	_____
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	_____
Storm Sewer Manhole	
Storm Sewer	_____

UTILITIES:

* SUE – Subsurface Utility Engineering
LOS – Level of Service – A,B,C or D (Accuracy)

POWER:	
Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line Test Hole (SUE – LOS A)*	
U/G Power Line (SUE – LOS B)*	_____
U/G Power Line (SUE – LOS C)*	_____
U/G Power Line (SUE – LOS D)*	_____

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Test Hole (SUE – LOS A)*	
U/G Telephone Cable (SUE – LOS B)*	_____
U/G Telephone Cable (SUE – LOS C)*	_____
U/G Telephone Cable (SUE – LOS D)*	_____
U/G Telephone Conduit (SUE – LOS B)*	_____
U/G Telephone Conduit (SUE – LOS C)*	_____
U/G Telephone Conduit (SUE – LOS D)*	_____
U/G Fiber Optics Cable (SUE – LOS B)*	_____
U/G Fiber Optics Cable (SUE – LOS C)*	_____
U/G Fiber Optics Cable (SUE – LOS D)*	_____

WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line Test Hole (SUE – LOS A)*	
U/G Water Line (SUE – LOS B)*	_____
U/G Water Line (SUE – LOS C)*	_____
U/G Water Line (SUE – LOS D)*	_____
Above Ground Water Line	_____
TV:	
TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Test Hole (SUE – LOS A)*	
U/G TV Cable (SUE – LOS B)*	_____
U/G TV Cable (SUE – LOS C)*	_____
U/G TV Cable (SUE – LOS D)*	_____
U/G Fiber Optic Cable (SUE – LOS B)*	_____
U/G Fiber Optic Cable (SUE – LOS C)*	_____
U/G Fiber Optic Cable (SUE – LOS D)*	_____

GAS:

Gas Valve	
Gas Meter	
U/G Gas Line Test Hole (SUE – LOS A)*	
U/G Gas Line (SUE – LOS B)*	_____
U/G Gas Line (SUE – LOS C)*	_____
U/G Gas Line (SUE – LOS D)*	_____
Above Ground Gas Line	_____

SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	_____
Above Ground Sanitary Sewer	_____
SS Force Main Line Test Hole (SUE – LOS A)*	
SS Force Main Line (SUE – LOS B)*	_____
SS Force Main Line (SUE – LOS C)*	_____
SS Force Main Line (SUE – LOS D)*	_____

MISCELLANEOUS:

Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line (SUE – LOS B)*	_____
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
Abandoned According to Utility Records	
End of Information	

9/10/2021
2/9/2024
R:\Roadway\Proj\SHTR\140_rdy_psh01B.dgn
SaucierSL

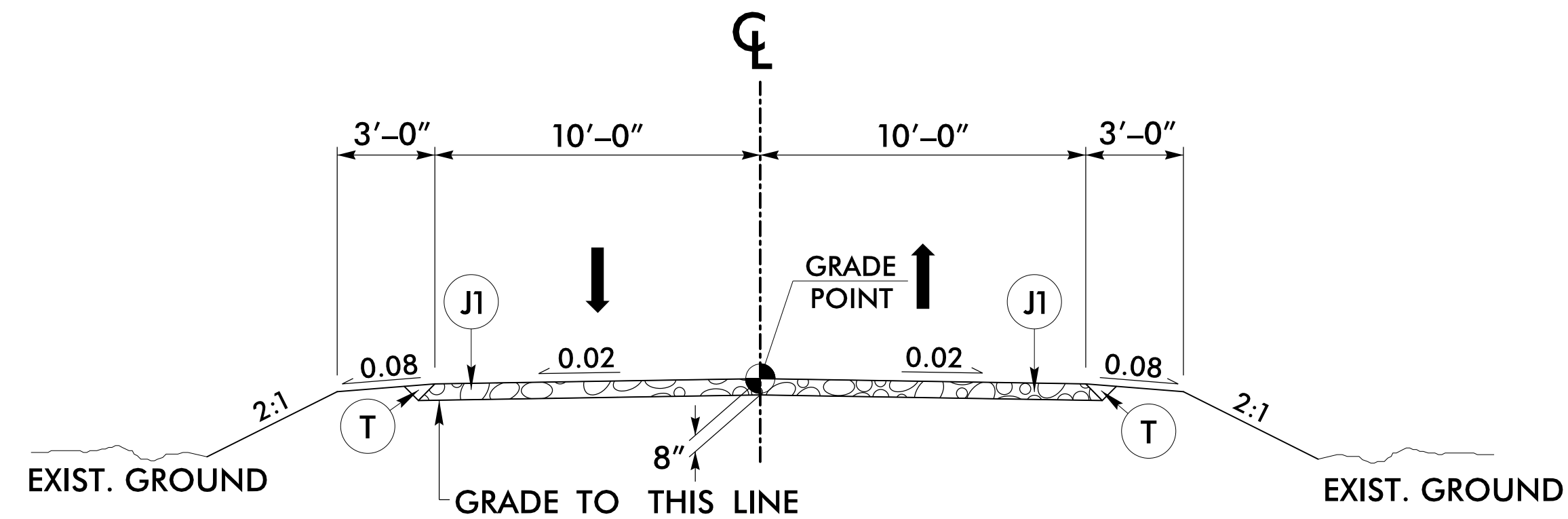
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2.0" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
J1	PROP. 8" AGGREGATE BASE COURSE
R	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL

ALL PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

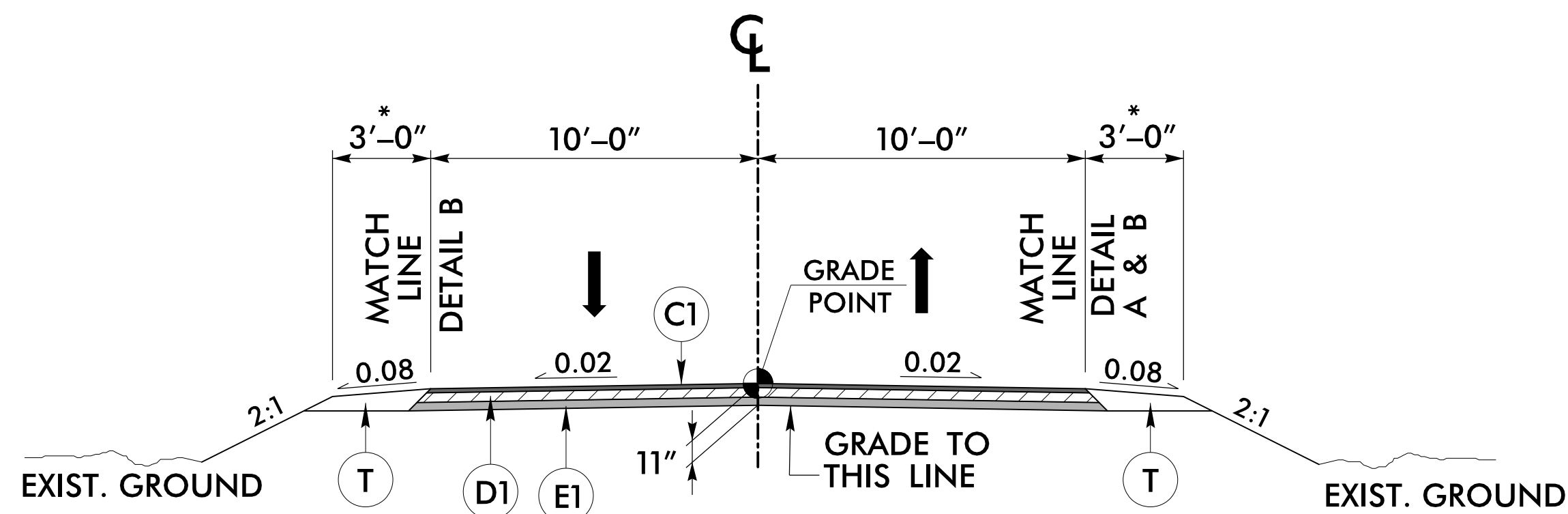
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

stv STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

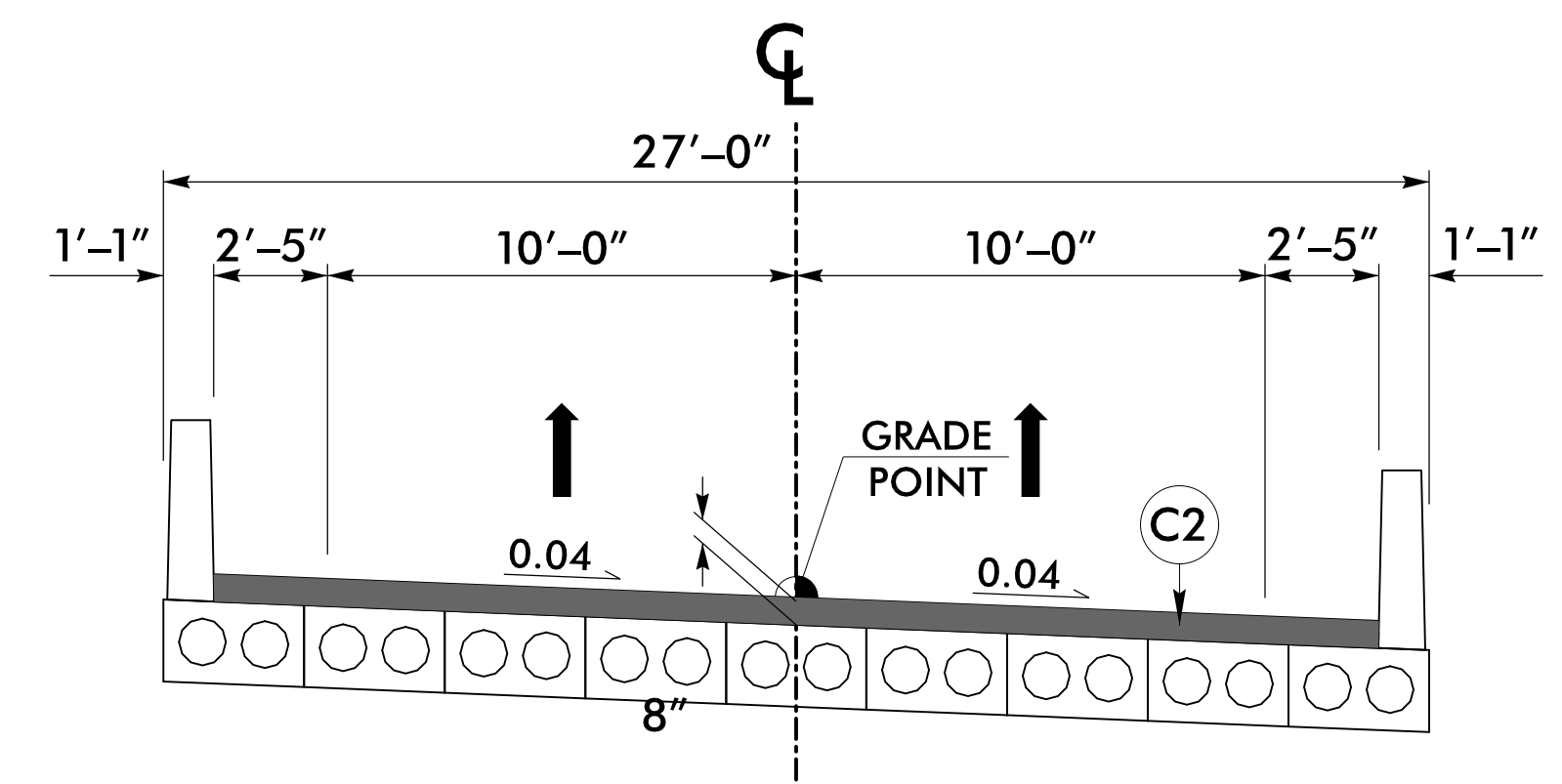
PROJECT REFERENCE NO. <i>BP10.R049.3</i>	SHEET NO. <i>2A-1</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



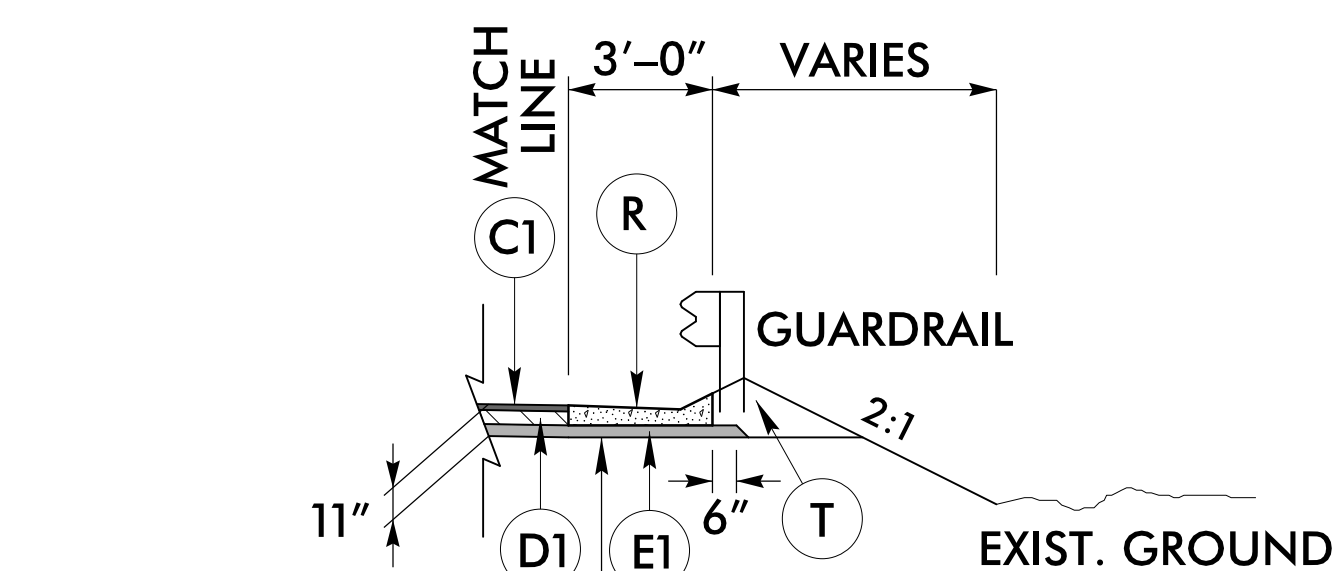
TYPICAL SECTION 1
-L- STA. 12+00.00 TO 14+21.33



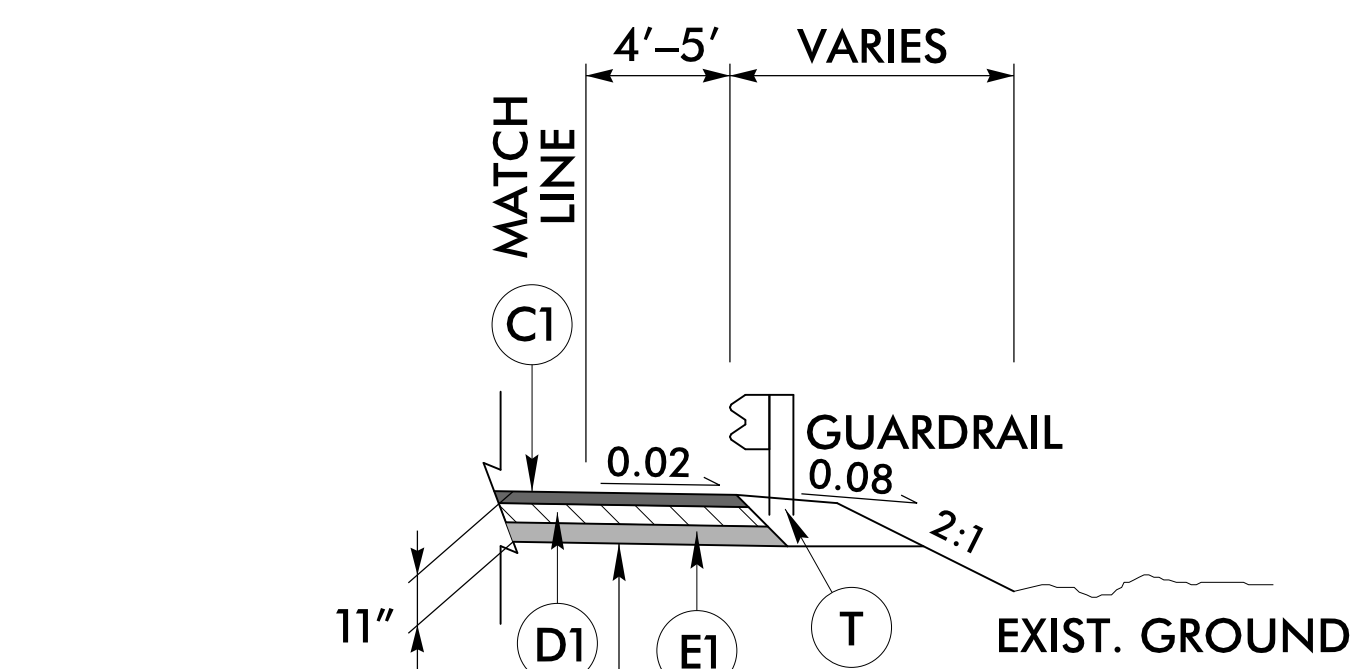
TYPICAL SECTION 2
-L- STA. 14+21.33 TO 15+01.75 (BEGIN BRIDGE)
-L- STA. 16+74.25 (END BRIDGE) TO 20+40.00 * 7'-0" MIN. WITH GUARDRAIL



TYPICAL SECTION 3
-L- STA. 15+01.75 (BEGIN BRIDGE) TO 16+74.25 (END BRIDGE)



DETAIL A
-L- STA. 14+70.50 TO 14+90.88 (RT)
-L- STA. 16+85.52 TO 17+07.04 (RT)



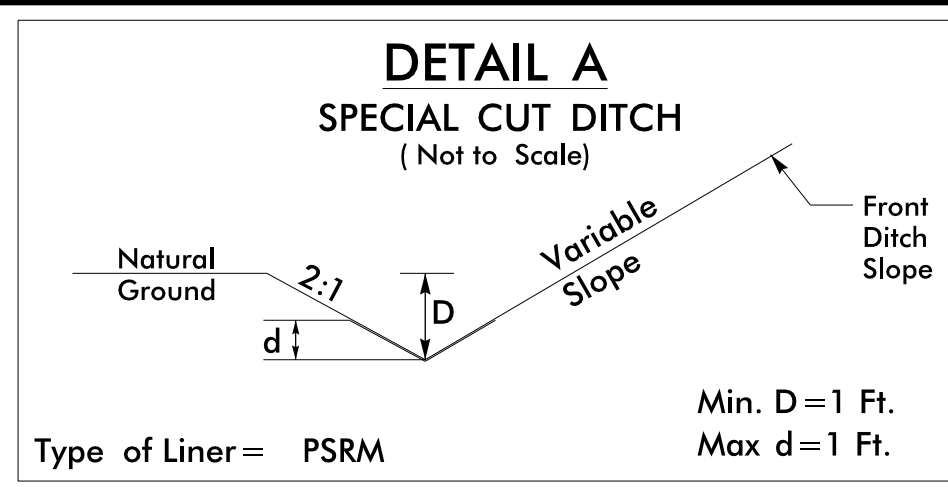
DETAIL B
-L- STA. 14+45.50 TO 14+70.50 (RT)
-L- STA. 14+45.50 TO 15+01.75 (LT)
-L- STA. 16+74.25 TO 17+27.83 (LT)
-L- STA. 17+07.04 TO 17+33.37 (RT)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

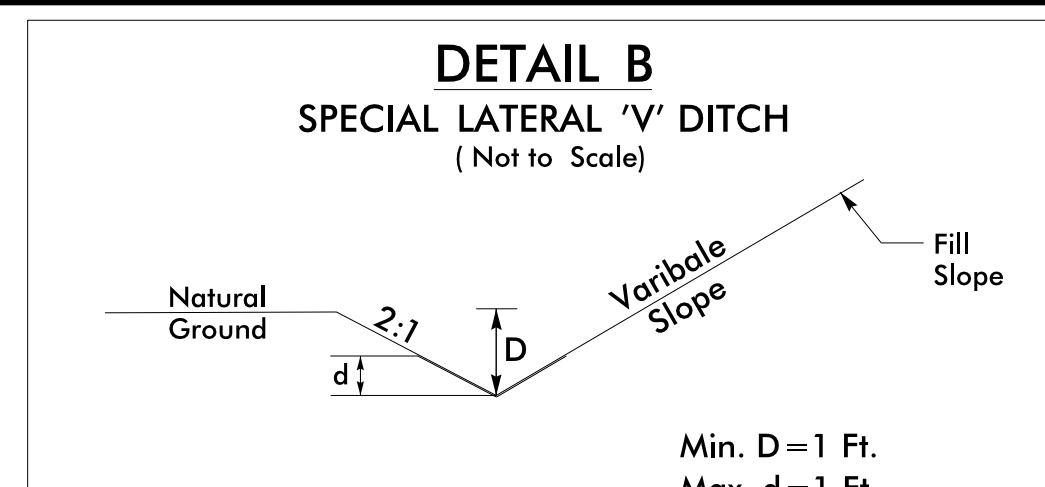
PARCEL INDEX SHEET

PARCEL NO.	SHEET NO.	PROPERTY OWNER NAME	AREA TAKEN	
			ROW (SF)	TCE (SF)
1	4	LANES CREEK FARM LLC	1111	3243
2	4 & 5	LOUISE T. HOUGH	5677	4097

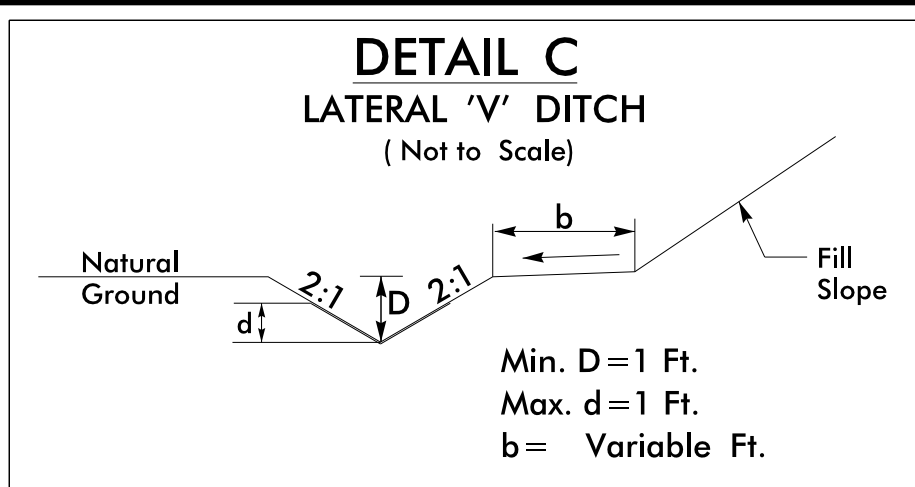
8/17/24



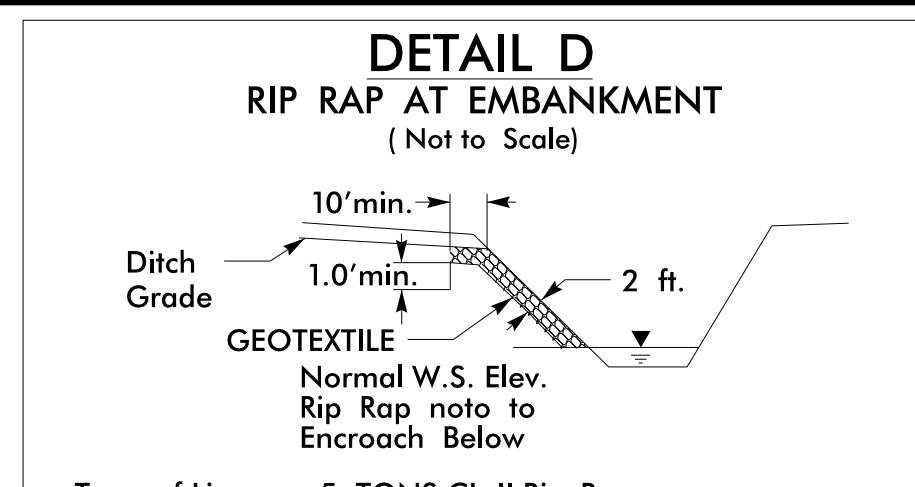
FROM STA. 12+00 LT TO STA. 13+00 LT
FROM STA. 17+50 LT TO STA. 20+00 LT
FROM STA. 17+50 RT TO STA. 20+00 RT



FROM STA. 13+00 LT TO STA. 13+50 LT



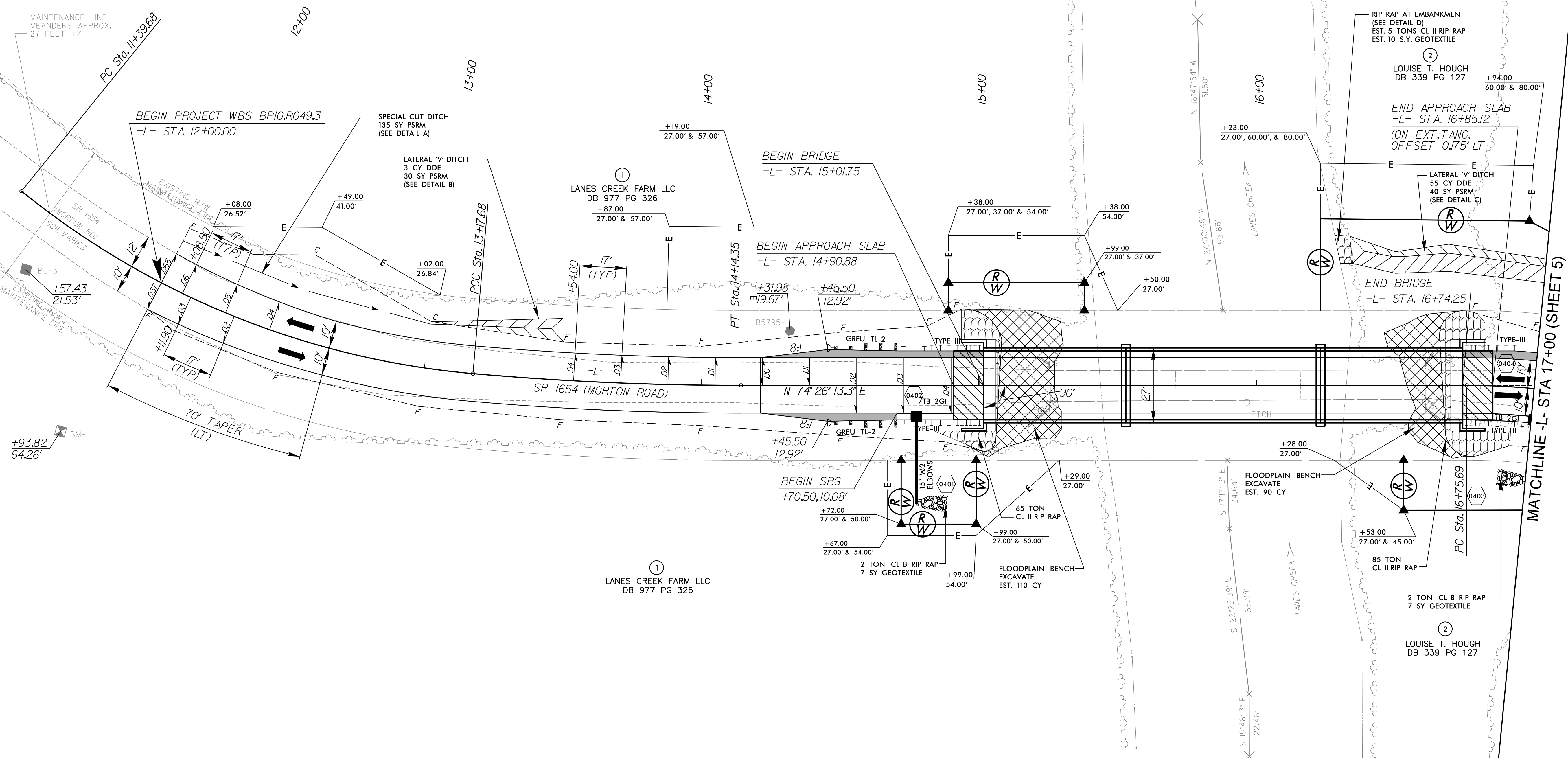
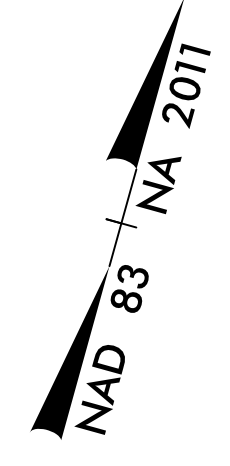
FROM STA. 16+34 LT TO STA. 17+50 LT
FROM STA. 17+00 RT TO STA. 17+50 RT



FROM STA. 16+28 LT TO STA. 16+34 LT



PROJECT REFERENCE NO. BPI0.R049.3	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
2/9/2024	2/9/2024
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCHLINE -L- STA 17+00 (SHEET 5)

* NOTE:
DESIGN SPEED SHOWN FOR HORIZONTAL CURVES IS UP
TO 10 MPH LESS THAN OVERALL DESIGN SPEED
PER SUB-REGIONAL TIER DESIGN GUIDELINES.

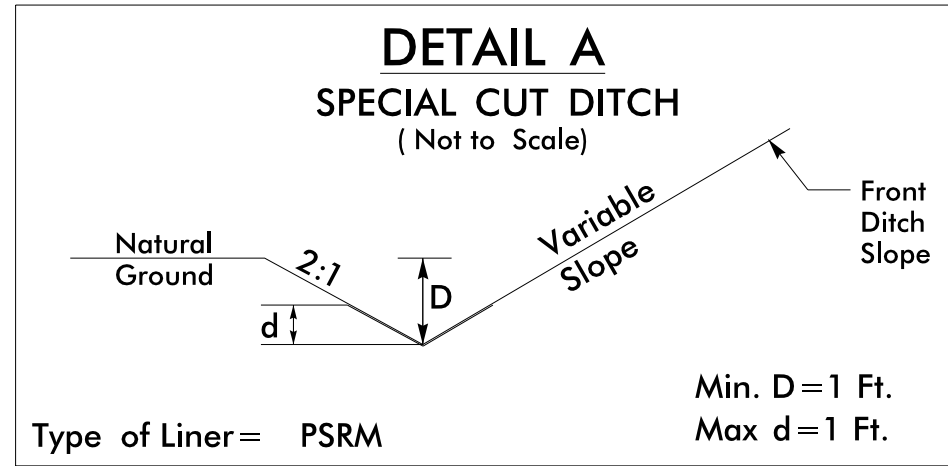
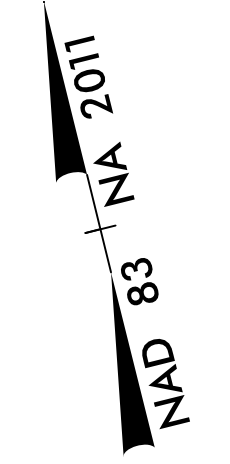
PI Sta. 12+31.38
Δ = 33° 59' 40.7" (LT)
D = 19' 05" 54.9"
L = 178.00'
T = 91.70'
R = 300.00'
DS = 30 MPH

PI Sta. 13+66.04
Δ = 5° 00' 45.0" (LT)
D = 5' 11" 06.5"
L = 96.67'
T = 48.37'
R = 1,005.00'

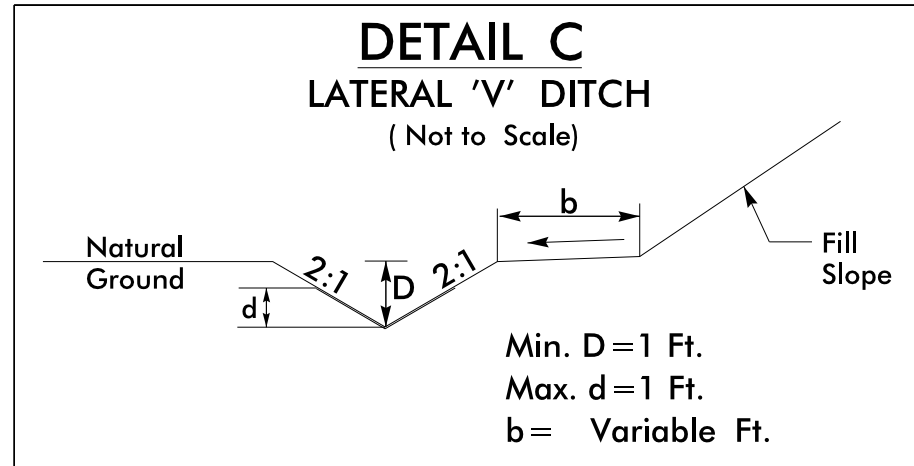
PI Sta. 17+59.82
Δ = 36° 38' 56.7" (RT)
D = 22' 33" 26.6"
L = 162.47'
T = 84.12'
R = 254.00'
DS = 25 MPH

2/9/2024 2:15:00 PM C:\projects\sh\140_rdy_psh\04.dgn

PROJECT REFERENCE NO. BPI0.R049.3		SHEET NO. 5	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

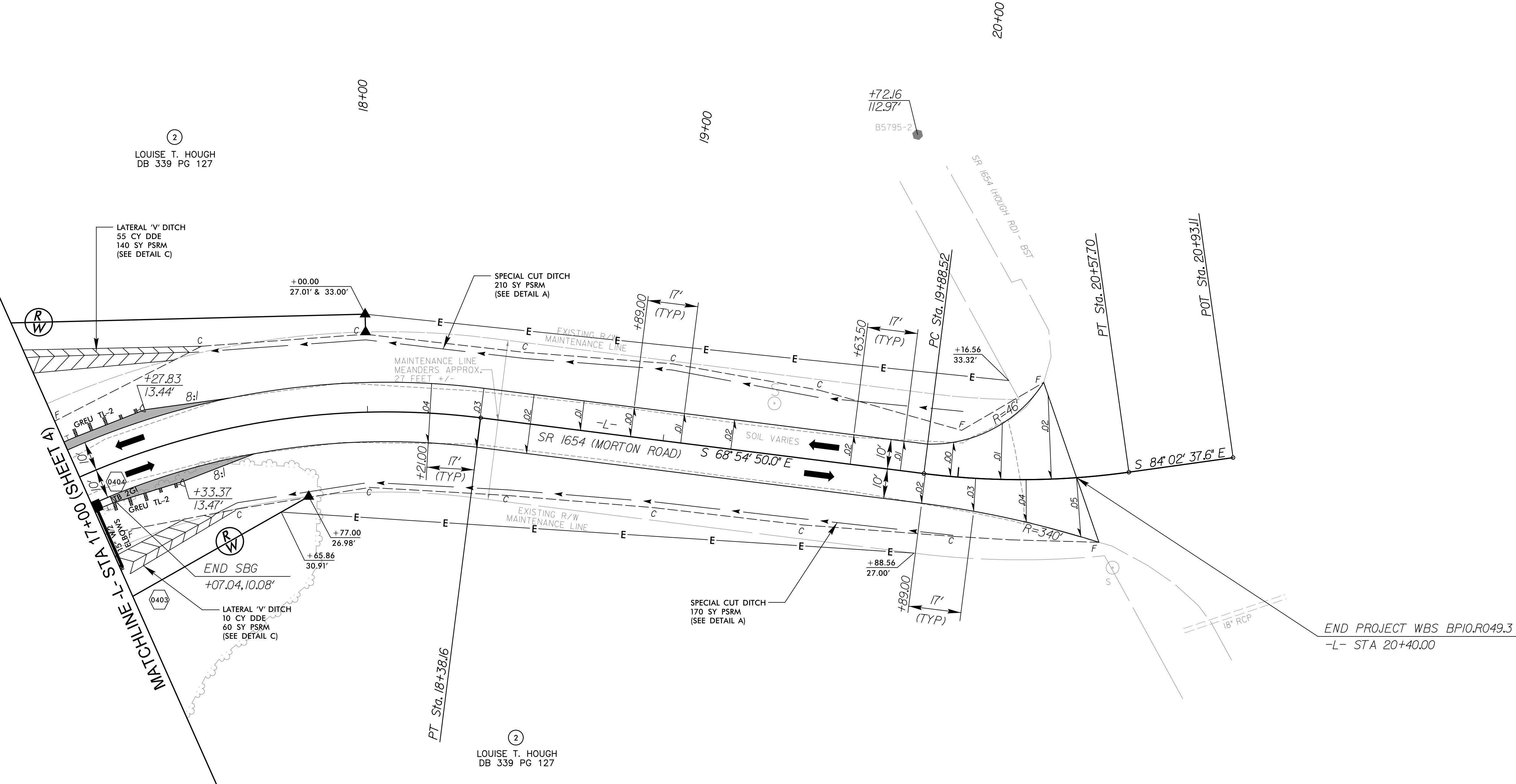


FROM STA. 12+00 LT TO STA. 13+00 LT
 FROM STA. 17+50 LT TO STA. 20+00 LT
 FROM STA. 17+50 RT TO STA. 20+00 RT



Type of Liner = PSRM

FROM STA. 16+34 LT TO STA. 17+50 LT
 FROM STA. 17+00 RT TO STA. 17+50 RT



PI Sta 17+59.82
 $\Delta = 36^\circ 38' 56.7''$ (RT)
 $D = 22^\circ 33' 26.6''$
 $L = 162.47'$
 $T = 84.12'$
 $R = 254.00'$
 $*DS = 25$ MPH

PI Sta 20+23.31
 $\Delta = 15^\circ 07' 47.6''$ (LT)
 $D = 2^\circ 52' 07.0''$
 $L = 69.19'$
 $T = 34.80'$
 $R = 262.00'$

* NOTE:
 INCIDENTAL MILL APPROXIMATELY 20' AT
 END PROJECT TO PROVIDE A SMOOTH
 TRANSITION TO THE EXISTING PAVEMENT

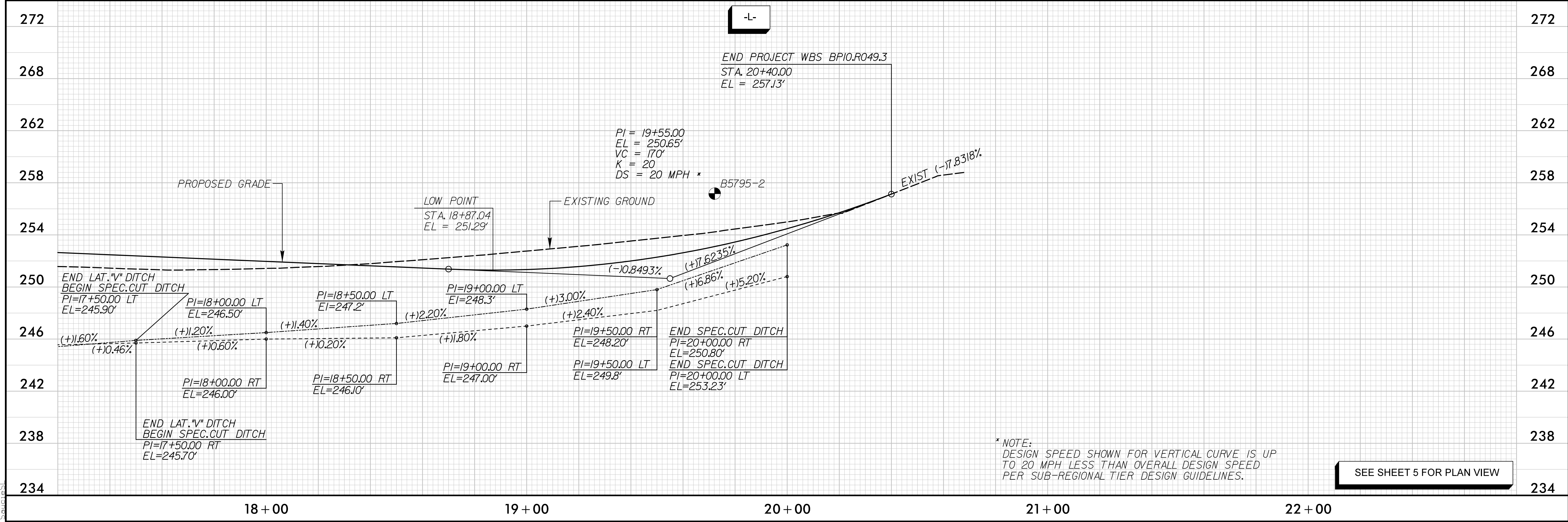
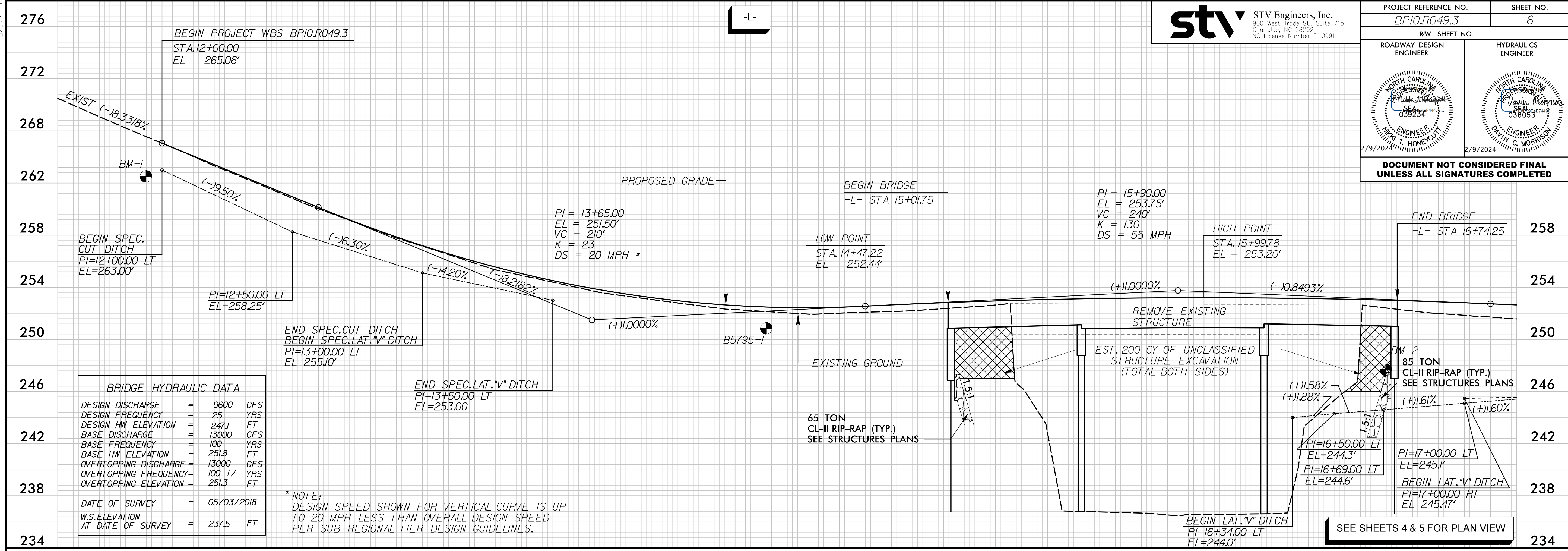
* DESIGN SPEED SHOWN FOR HORIZONTAL CURVES IS UP
 TO 10 MPH LESS THAN OVERALL DESIGN SPEED
 PER SUB-REGIONAL TIER DESIGN GUIDELINES.

SEE SHEET 6 FOR -L- PROFILE

8/17/99



PROJECT REFERENCE NO. BPI0.R049.3		SHEET NO. 6
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
2/9/2024	2/9/2024	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



2/9/2024 \\proj\sh\140_rdy_psh06.dgn

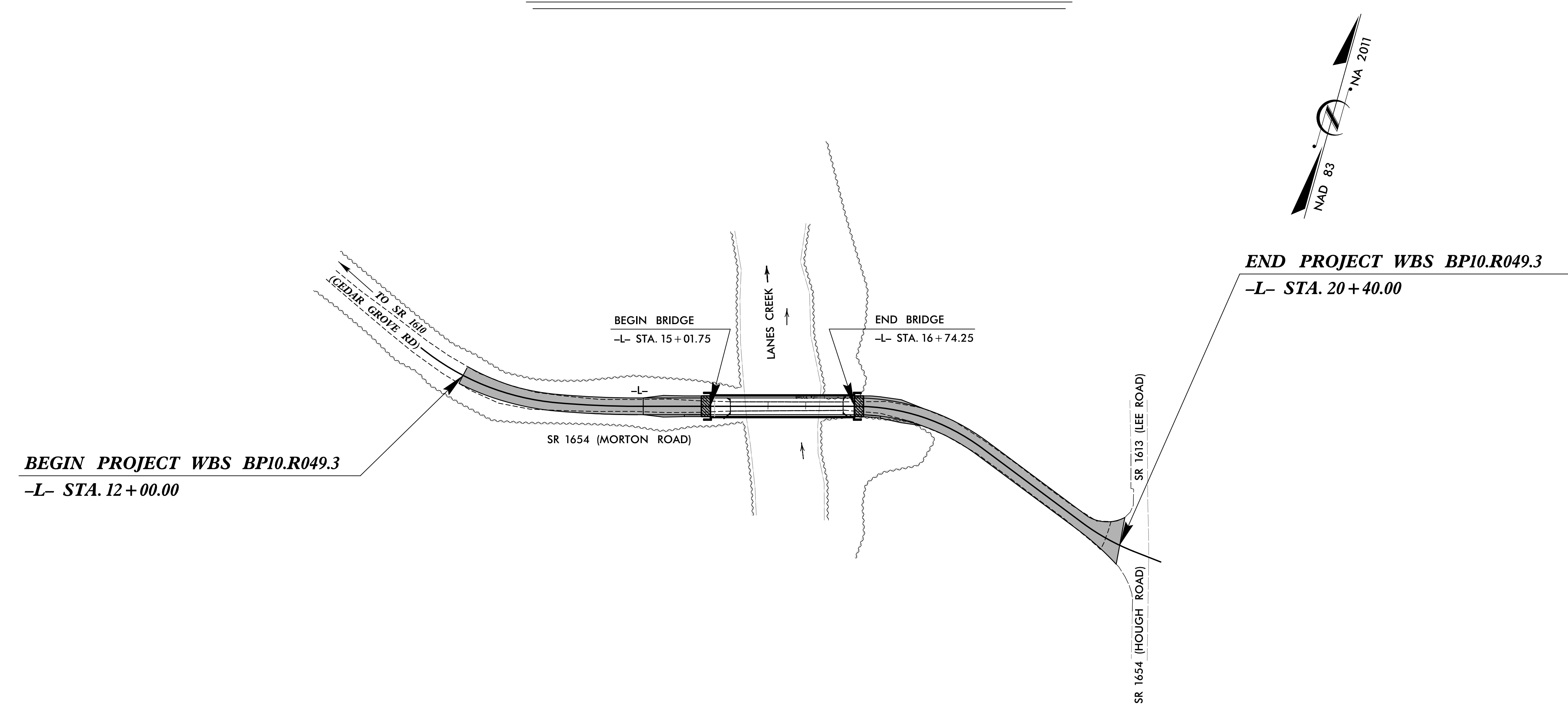
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP10.R049.3	RW01	

WBS PROJECT: BP10.R049.3

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

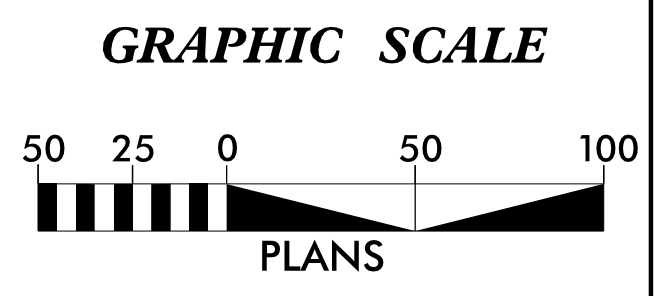
SURVEY CONTROL, EXISTING CENTERLINES,
 RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

ANSON COUNTY



BEGIN PROJECT WBS BP10.R049.3
-L- STA. 12 + 00.00

END PROJECT WBS BP10.R049.3
-L- STA. 20 + 40.00



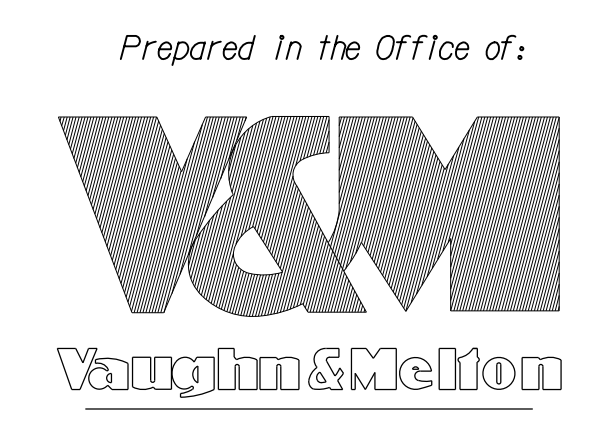
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B5795-1" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
 NORTHING: 496,225.044(ft) EASTING: 1,646,167.485(ft)
 ELEVATION: 250.849(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99986853

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5795-1" TO -L- STATION 12+00.00 IS
 S 84-44°01.7' W 281.33(ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88



2024 STANDARD SPECIFICATIONS

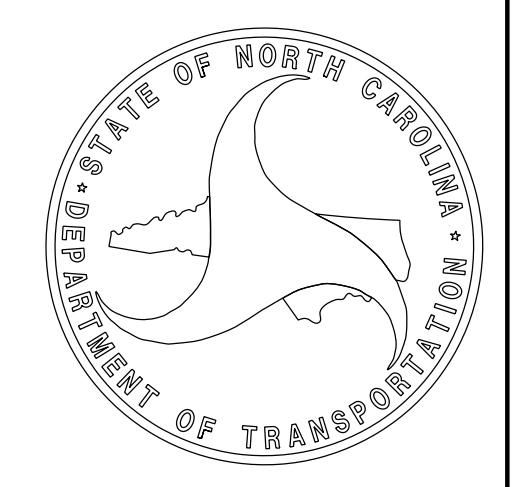
RIGHT OF WAY DATE:
NOVEMBER 9, 2018

LETTING DATE:
APRIL 17, 2024

PROFESSIONAL LAND SURVEYOR

DocuSigned by:
 Mark A. Parris
 SIGNATURE

Date: 2/9/2024







PROPOSED ALIGNMENT CONTROL SHEET

L			
TYPE	STATION	NORTH	EAST
POT	10+00.00	496254.7953	1645759.1957
PC	11+39.68	496199.2229	1645887.3449
PCC	13+17.68	496179.5292	1646061.6319
PT	14+14.35	496201.3616	1646155.7732
PC	16+75.69	496271.4801	1646407.5374
PT	18+38.16	496263.7850	1646567.0667
PC	19+88.52	496209.6922	1646707.3528
PT	20+57.70	496193.5633	1646774.4254
POT	20+93.11	496189.8893	1646809.6391

NOTES:

6/2/19

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO. BP10.R049.3	SHEET NO. RW03E-1
Location and Surveys	
	
PROJECT SURVEYOR 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+72.00	27.00	496190.8199	1646218.5574
L	14+72.00	50.00	496168.6632	1646224.7282
L	14+89.00	-37.00	496257.0345	1646217.7630
L	14+89.00	-27.00	496247.4011	1646220.4460
L	14+99.00	27.00	496198.0639	1646244.5674
L	14+99.00	50.00	496175.9072	1646250.7383
L	15+38.00	-37.00	496270.1811	1646264.9665
L	15+38.00	-27.00	496260.5477	1646267.6495
L	16+23.00	-60.00	496315.1431	1646340.6793
L	16+23.00	-27.00	496283.3530	1646349.5331
L	16+53.00	45.00	496222.0413	1646397.7507
L	16+53.00	27.00	496239.3817	1646392.9212
L	16+94.00	-60.00	496334.5618	1646413.4421
L	17+77.00	26.98	496251.9751	1646504.4892
L	18+00.00	-27.01	496301.1684	1646536.4001
L	18+00.00	-33.00	496307.0139	1646537.6937

I, MARK A. PARRIS, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 16th day of April, 2019.

Professional Land Surveyor

L-4529
PLS #

Seal

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

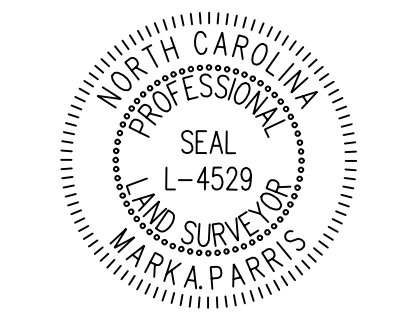
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

I:\3\2019\10\FW\17BP10.R.140.1s.RW03E-1.dgn

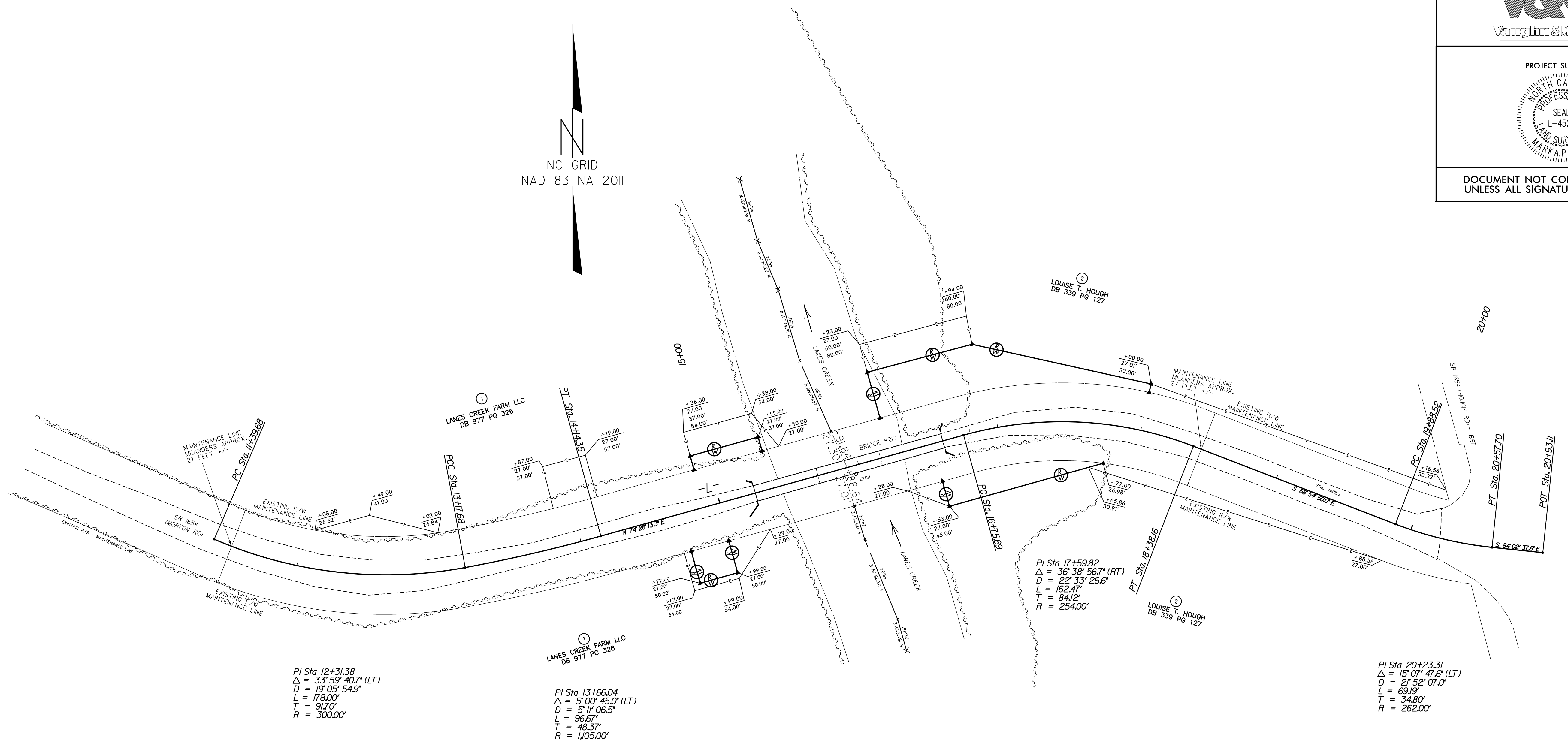
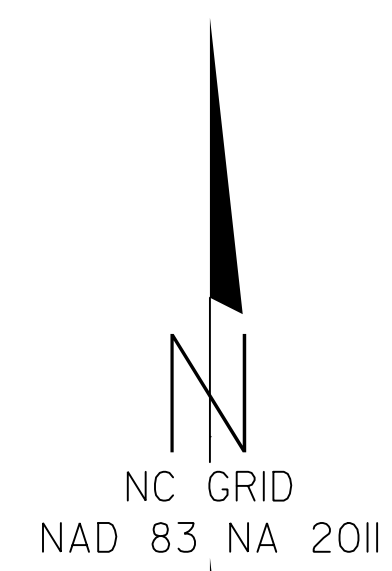
Location and Surveys



PROJECT SURVEYOR



DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



I, MARK A. PARRIS, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 12th day of April, 2019.

Professional Land Surveyor L-4529 PLS # Seal


NOTES:

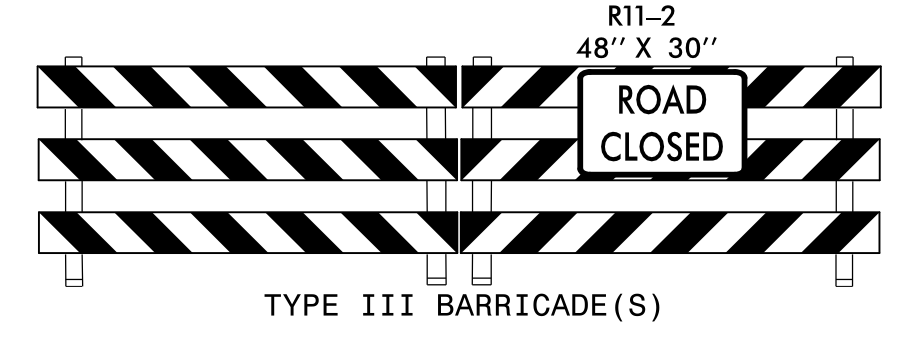
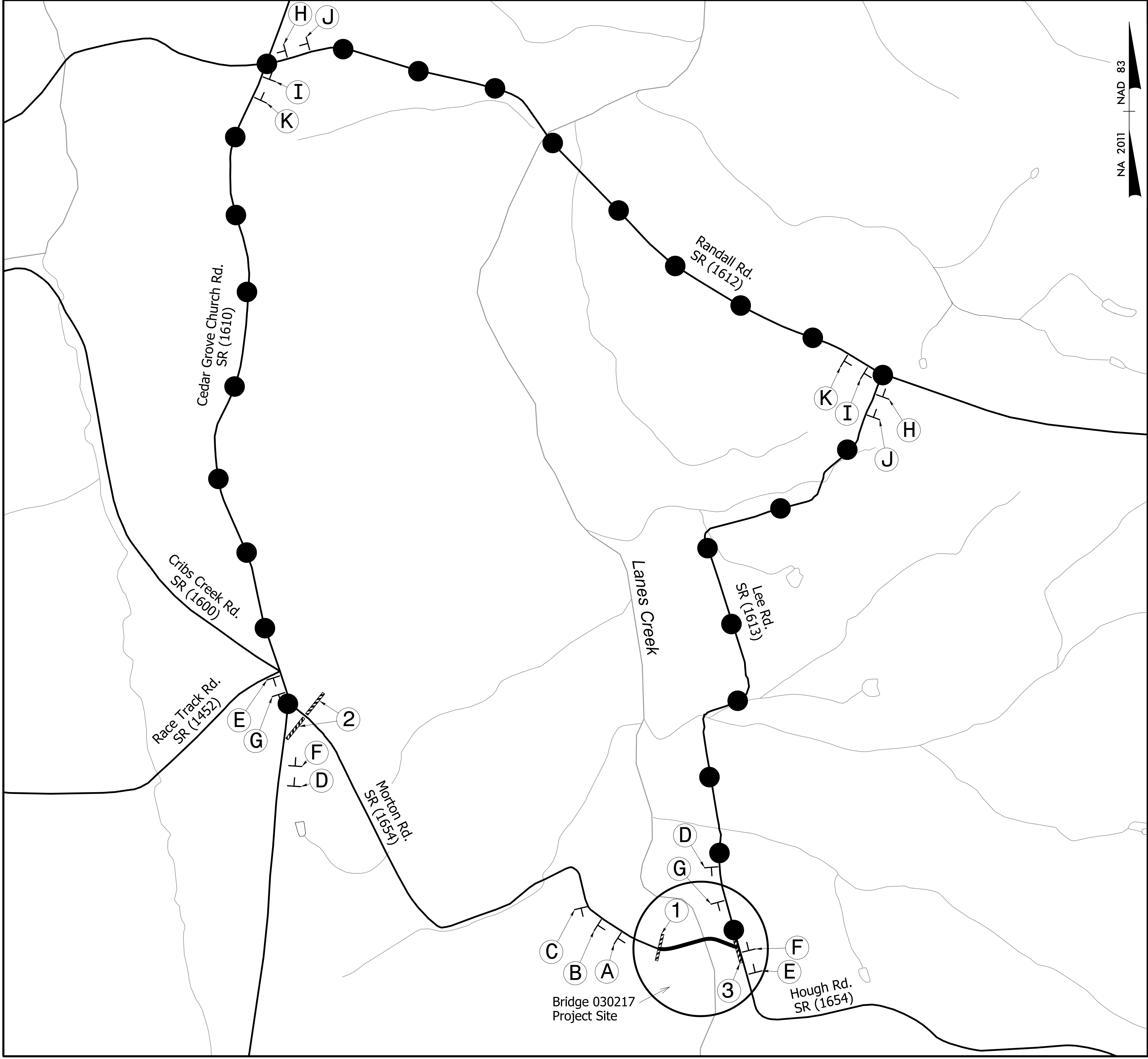
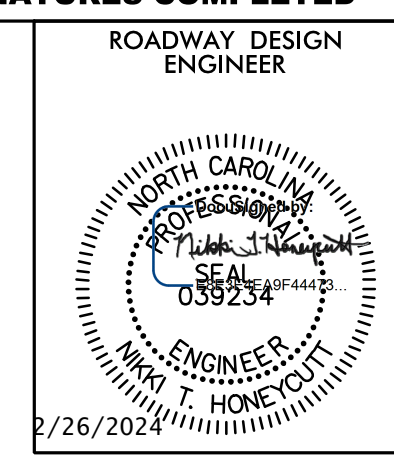
- IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

6/2/19

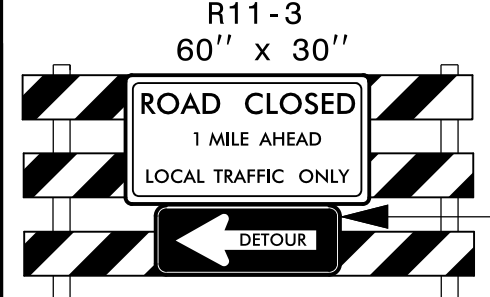
I:\3\F024\04\FW04\17BP10.R.1.140.1.s. RW04.dgn

OFF-SITE DETOUR SIGNING AND ROAD CLOSURE SIGNING

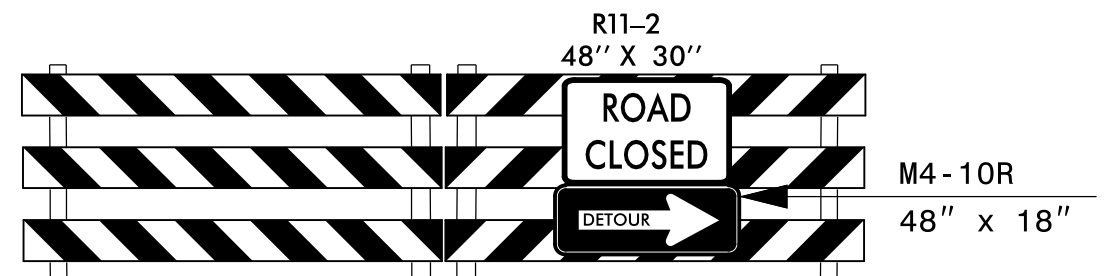
PROJECT REFERENCE NO. BPI0.R049.3	SHEET NO. TMP-1
RW SHEET NO.	
 STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



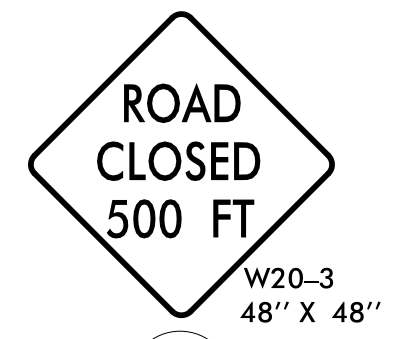
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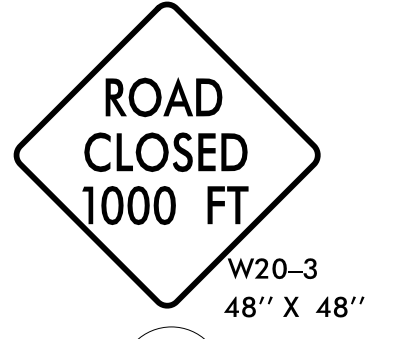
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3



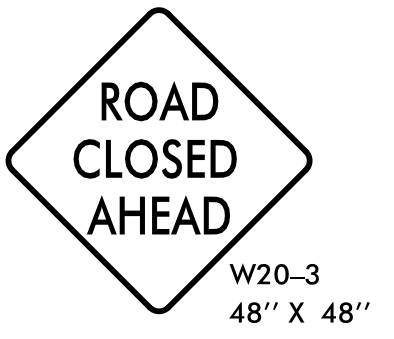
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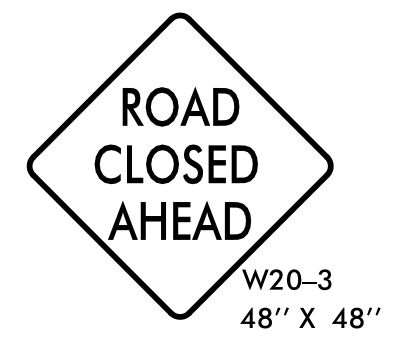
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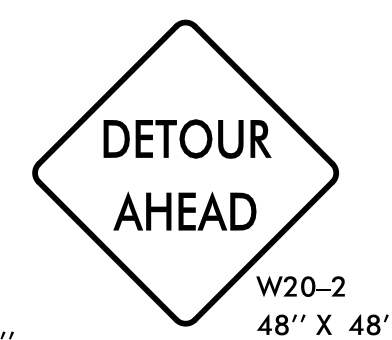
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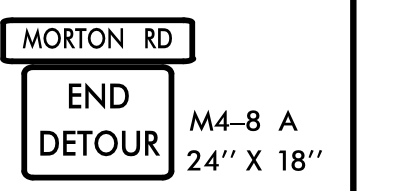
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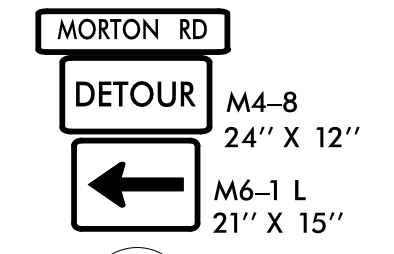
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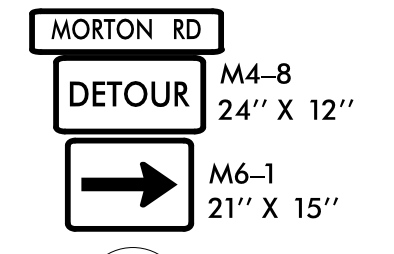
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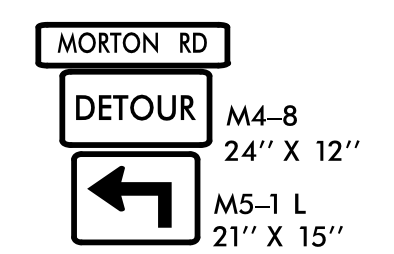
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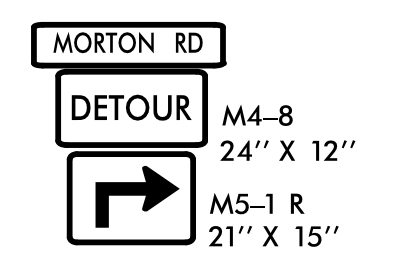
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I



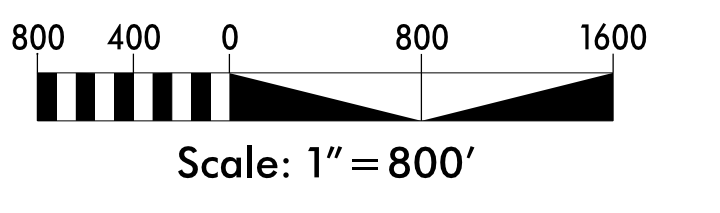
J



K


IF NECESSARY TO TO INTO SR 1613/1654, FLAGGERS MAY BE USED TO TEMPORARILY MAINTAIN ONE LANE TRAFFIC.

SEE ROADWAY STD DWG 1101.03, SHEET 1 & 2 OF 9 FOR ADVANCE WARNING AND BARRICADE PLACEMENT.



2/23/2024
F:\Traffic\TrafficControl\TCP\NR\140_rdy_tmp01.dgn
SaulieSL

PAVEMENT MARKING PLAN

PROJECT REFERENCE NO. BPI0.R049.3	SHEET NO. PMP-1
RW SHEET NO.	
 STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

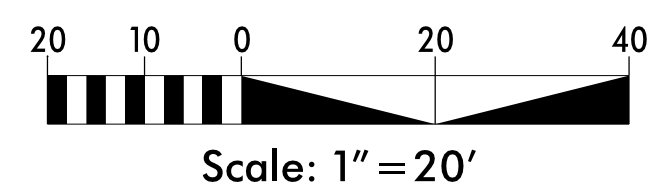
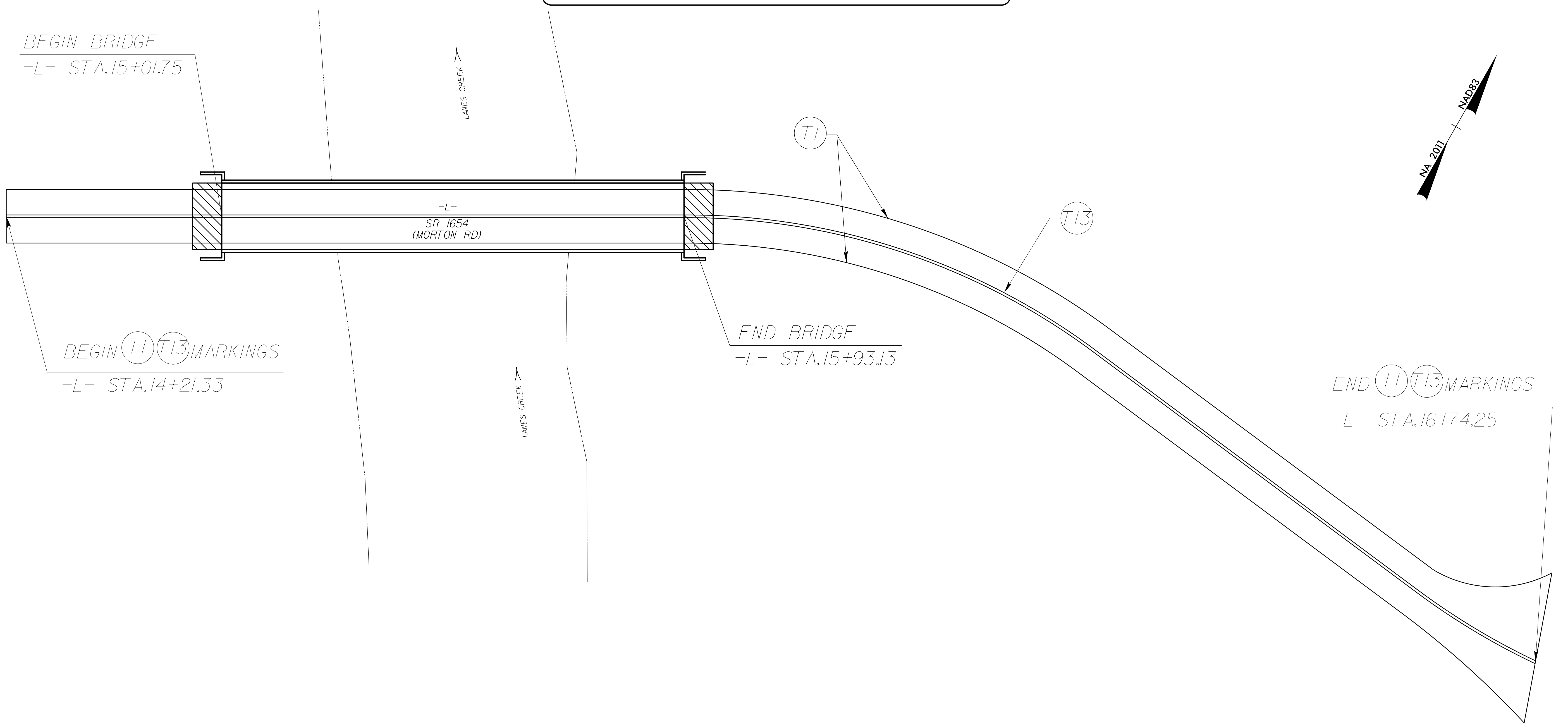
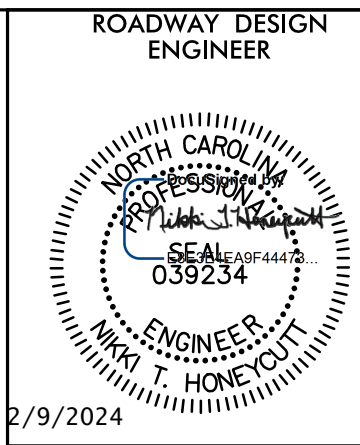
A) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE.

ROAD NAME	MARKING
SR 1654 (MORTON RD)	THERMO

- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.
- E) REPLACE ANY PAVEMENT MARKINGS BEYOND THE PROJECT LIMITS DAMAGED BY THE CONTRACTORS' OPERATIONS DURING CONSTRUCTION.

PAVEMENT MARKING SCHEDULE

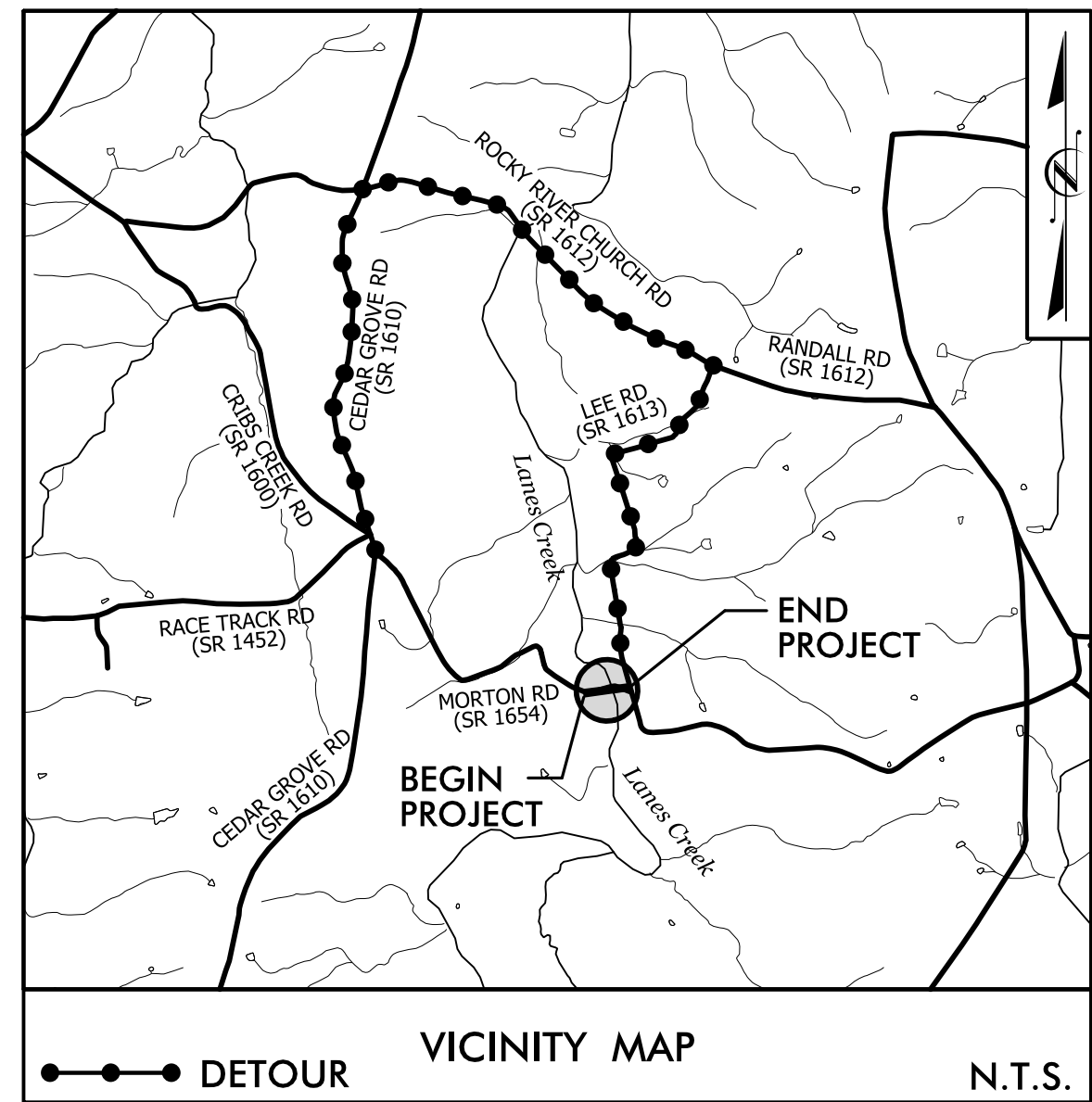
T1 - THERMO	WHITE EDGELINE (4", 90MIL)
T13 - THERMO	YELLOW DOUBLE CENTER LINE (4", 90MIL)



2/9/2024
 R:\Projects\1654 Morton Rd\Drawings\1654 Morton Rd\1654 Morton Rd.dwg
 S:\Subarea\1654

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP10.R049.3	EC-1	10
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
BP10.R049.1		P.E.	
BP10.R049.2		ROW & UTIL	
BP10.R049.3		CONSTRUCTION	

PROJECT WBS: BP10.R049.3

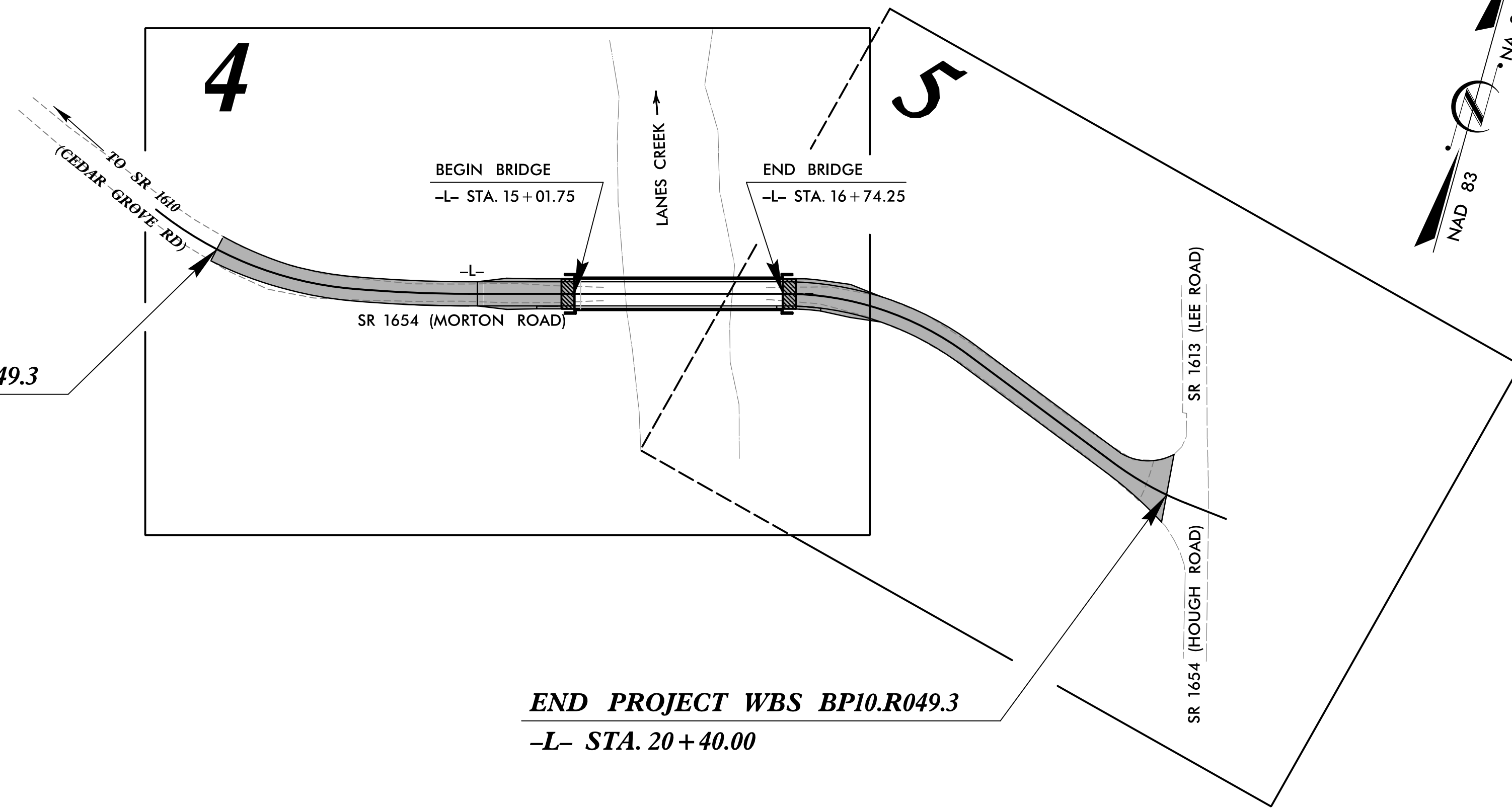


FINAL PLANS

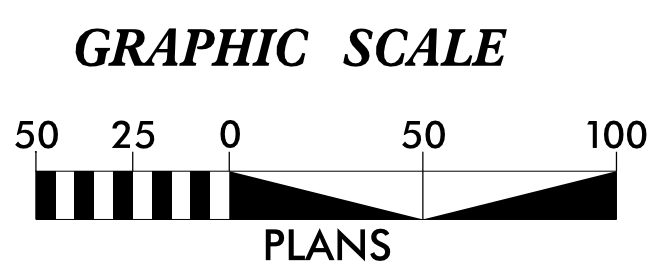
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
**PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL**
ANSON COUNTY

LOCATION: BRIDGE #217 LANES CREEK ON SR 1654 (MORTON RD)
TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

BEGIN PROJECT WBS BP10.R049.3
-L- STA. 12 + 00.00



END PROJECT WBS BP10.R049.3
-L- STA. 20 + 40.00



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.



STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

Prepared in the Office of:

STV ENGINEERS, INC.
900 WEST TRADE STREET, SUITE 715
CHARLOTTE, NC 28202

Designed by:

HALEY SMITH, EIT
NAME

4688
LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

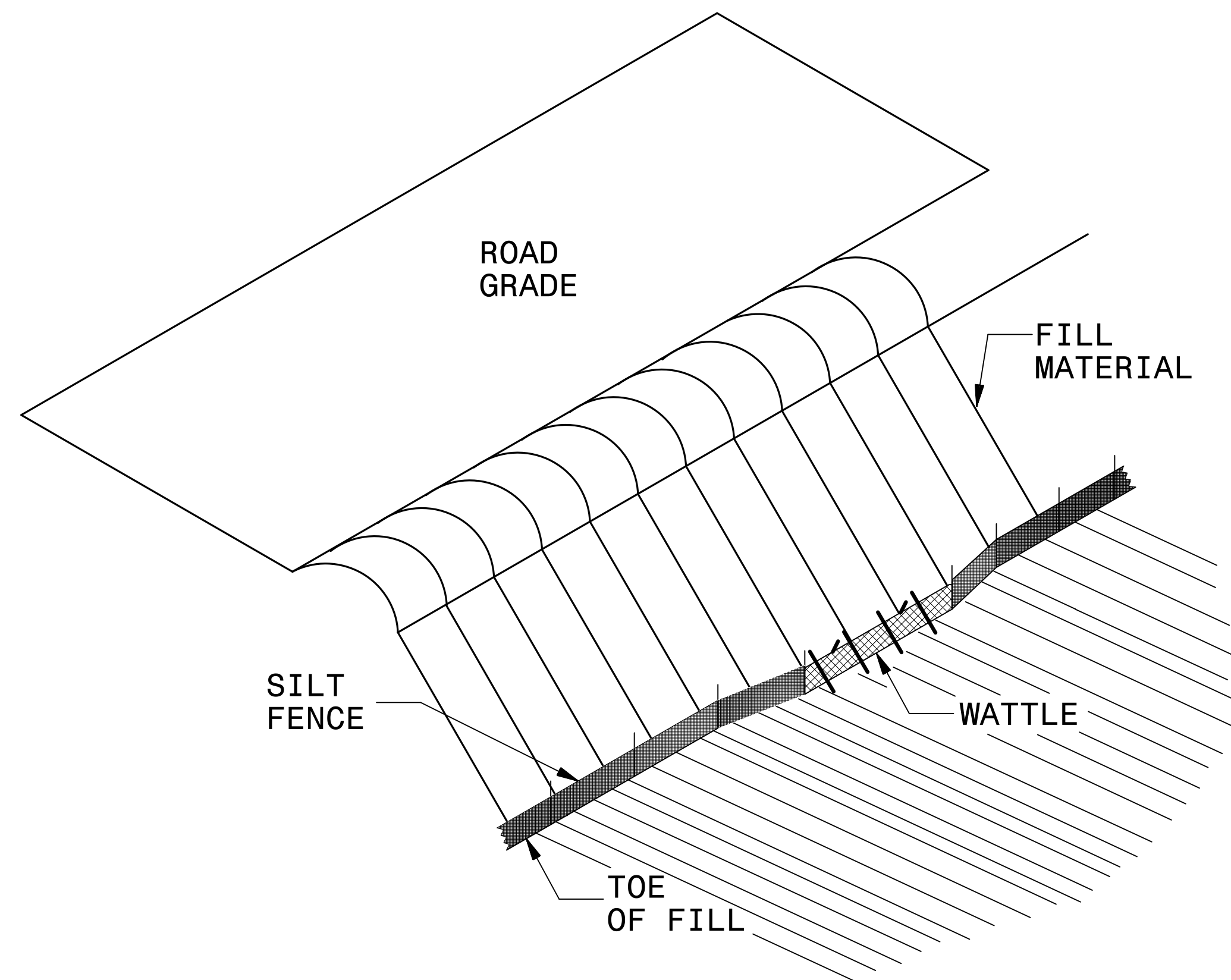
The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

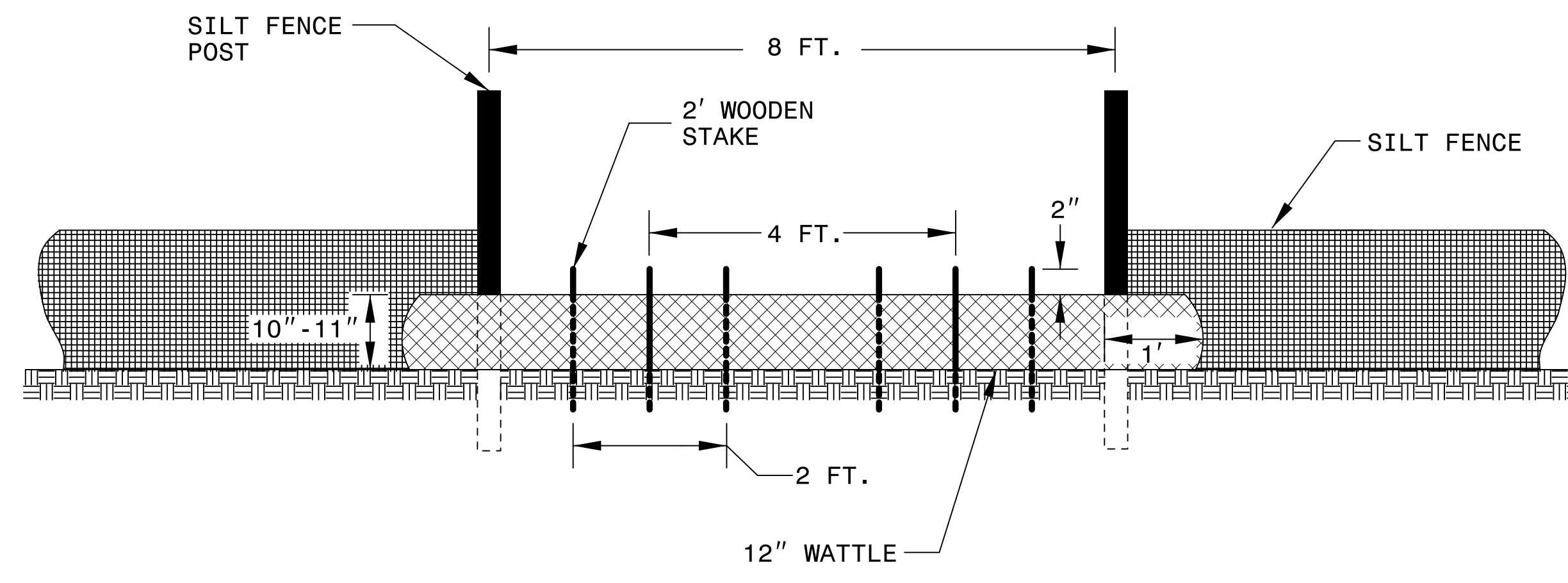
EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol	Std. #	Description	Symbol
1605.01	Temporary Silt Fence		1633.01	Temporary Rock Silt Check Type A	
1606.01	Special Sediment Control Fence		1633.02	Temporary Rock Silt Check Type B	
1622.01	Temporary Berms and Slope Drains		1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1630.02	Silt Basin Type B		1634.01	Temporary Rock Sediment Dam Type A	
1630.03	Temporary Silt Ditch		1634.02	Temporary Rock Sediment Dam Type B	
1630.04	Stilling Basin		1635.01	Rock Pipe Inlet Sediment Trap Type A	
1630.05	Temporary Diversion		1635.02	Rock Pipe Inlet Sediment Trap Type B	
1630.06	Special Stilling Basin		1636.01	Excelsior Wattle Check	
1630.07	Skimmer Basin		1636.01	Excelsior Wattle Check with Flocculant	
1630.08	Tiered Skimmer Basin		1636.01	Coir Fiber Wattle Check	
1630.09	Earthen Dam with Skimmer		1636.01	Coir Fiber Wattle Check with Flocculant	
	Infiltration Basin		1636.02	Silt Fence Excelsior Wattle Break	
	Rock Inlet Sediment Trap:			Silt Fence Coir Fiber Wattle Break	
1632.01	Type A		1636.02	Excelsior Wattle Barrier	
1632.02	Type B		1636.03	Coir Fiber Wattle Barrier	
1632.03	Type C				

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW

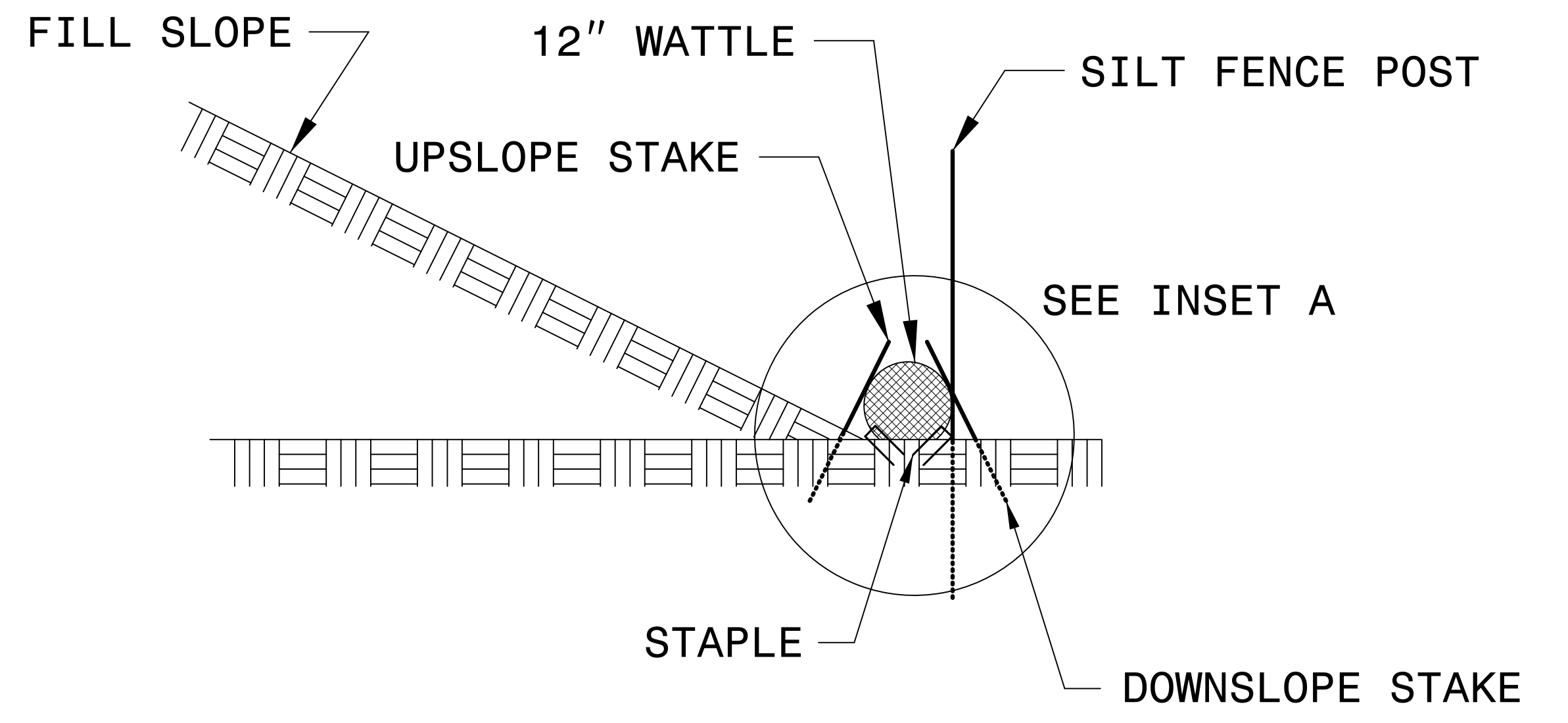
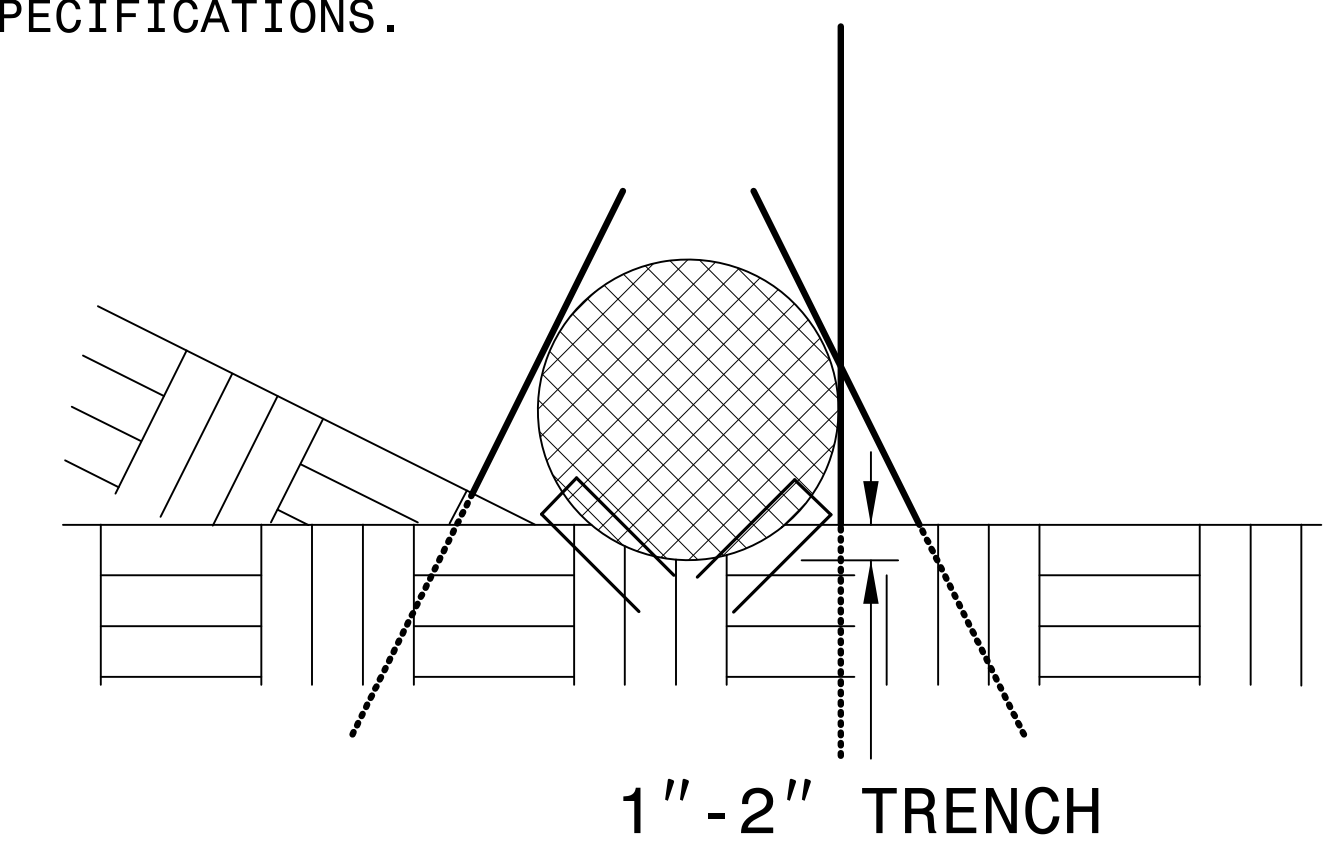


VIEW FROM SLOPE

NOTES:

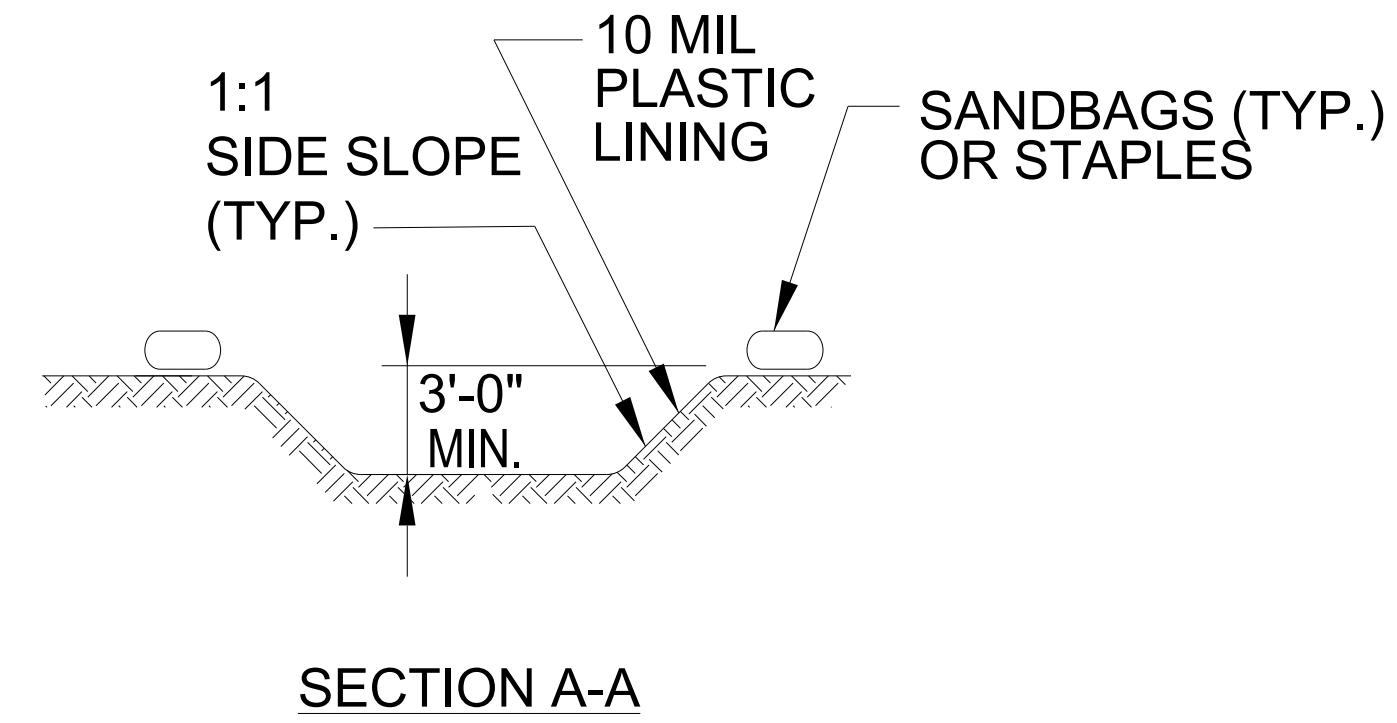
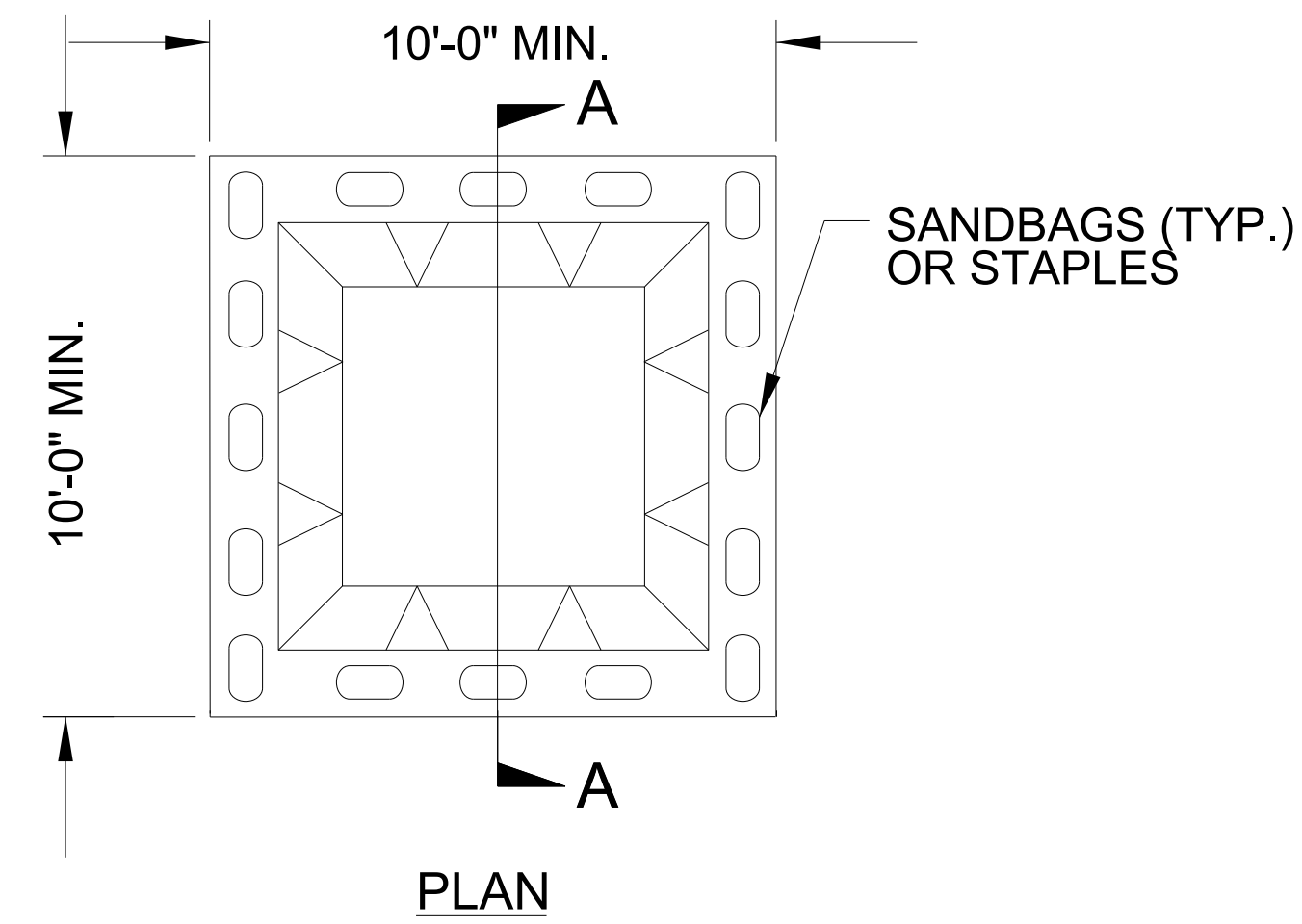
- USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLE ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- PROVIDE STAPLES MADE OF 11 GAUGE STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 6" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
- INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A



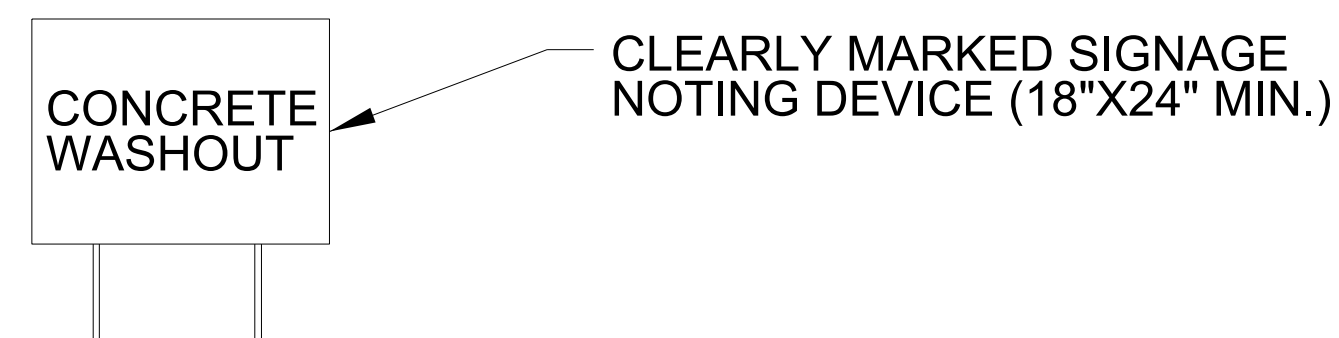
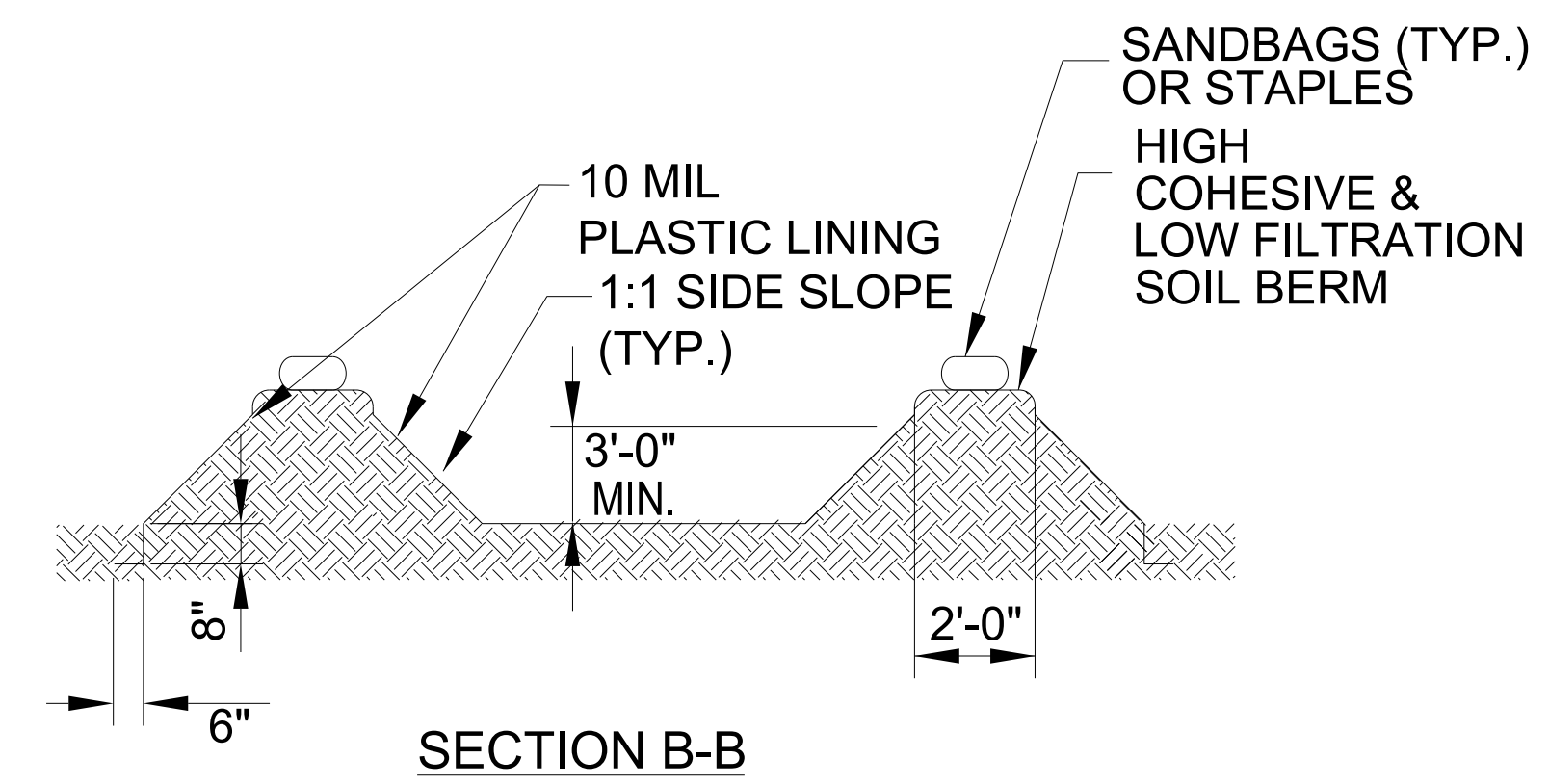
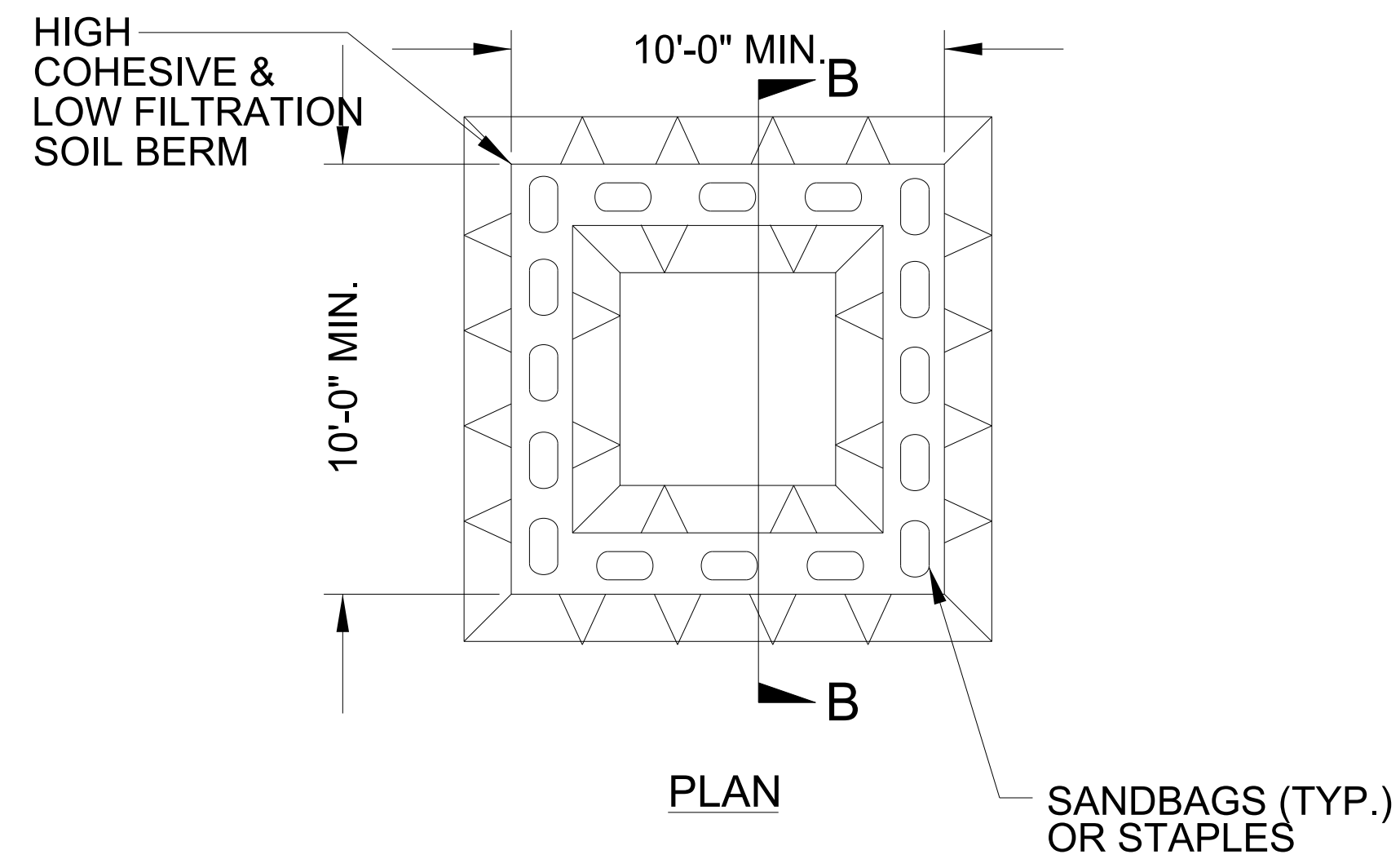
SIDE VIEW

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.



ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

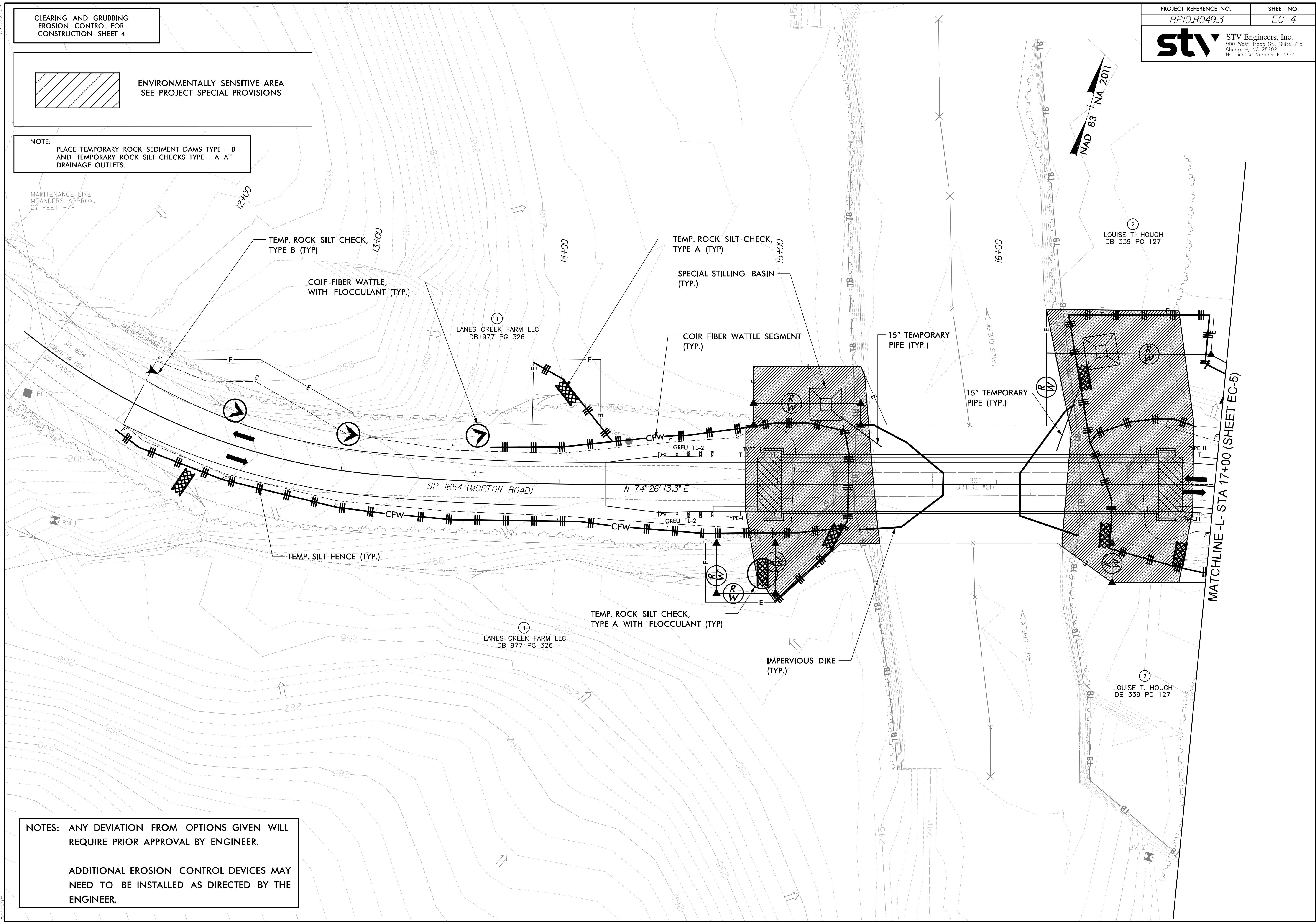
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

MAINTENANCE LINE
MEANDERS APPROX.
27 FEET +/-



NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL
REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY
NEED TO BE INSTALLED AS DIRECTED BY THE
ENGINEER.

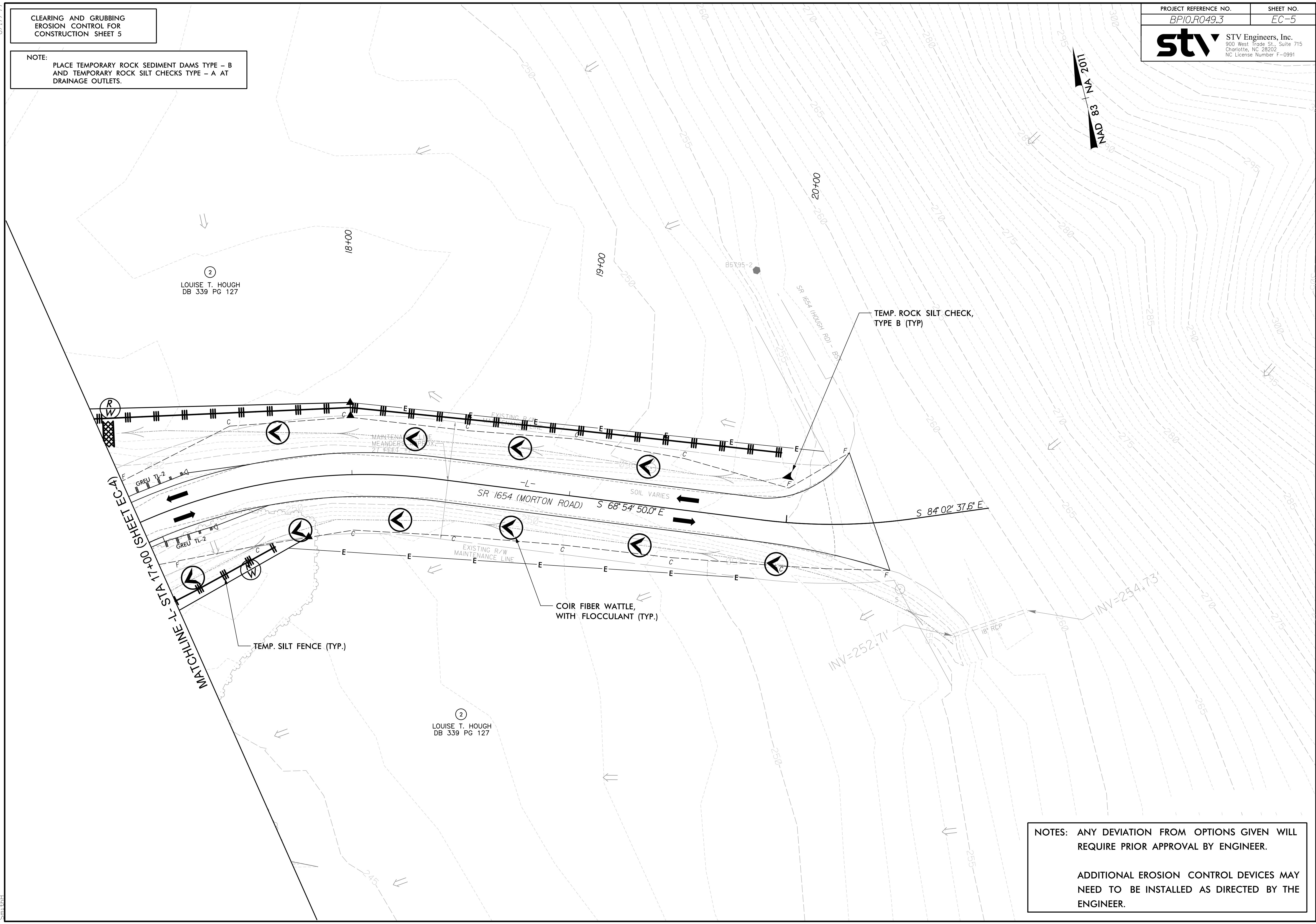
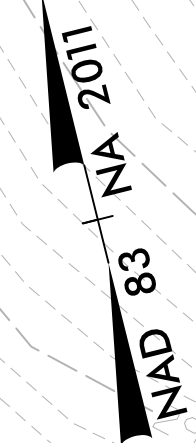
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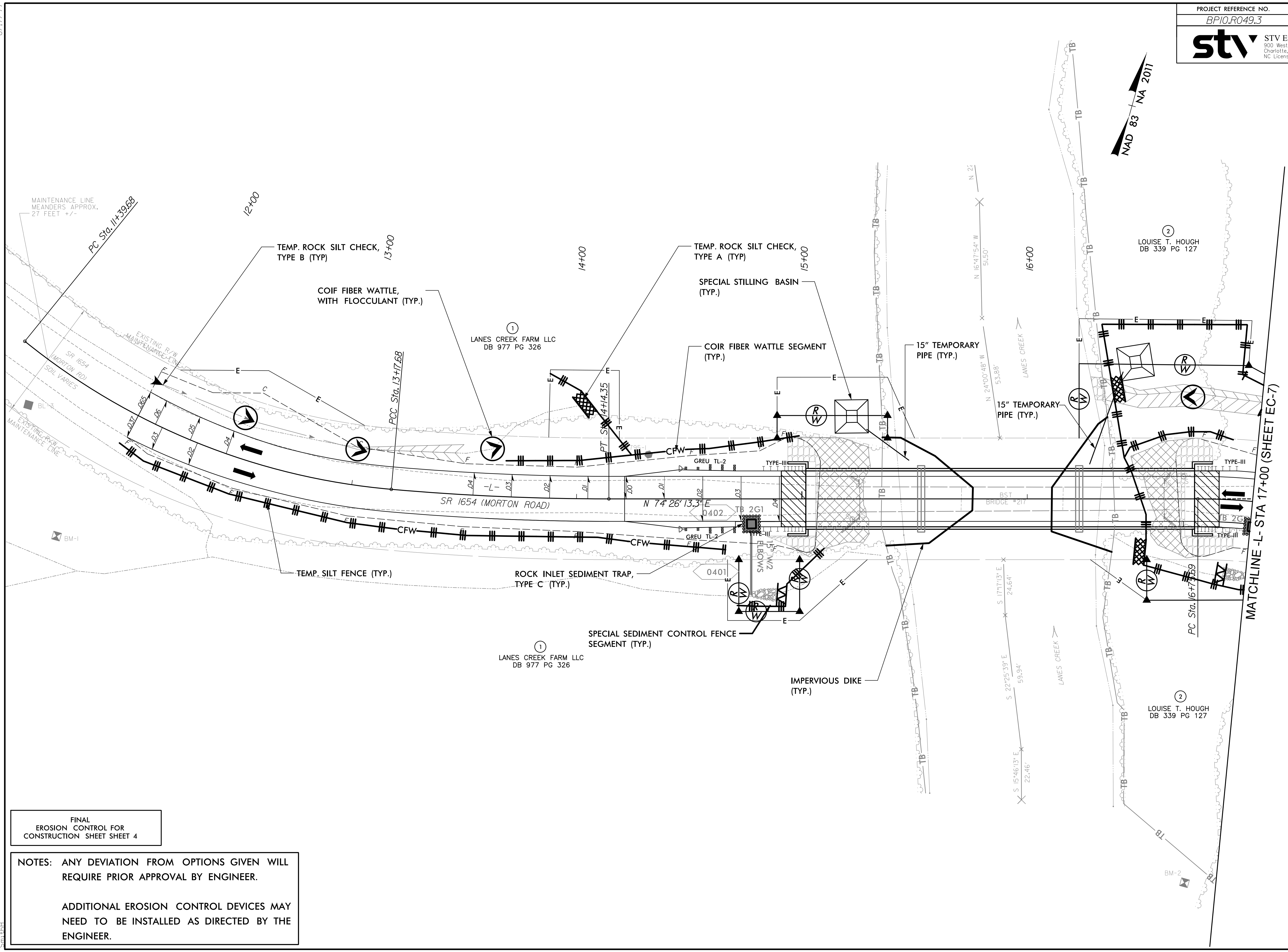
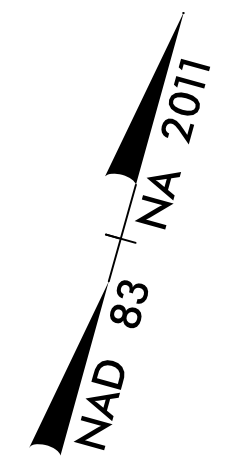
MATCHLINE - L- STA 17+00 (SHEET EC-5)

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.



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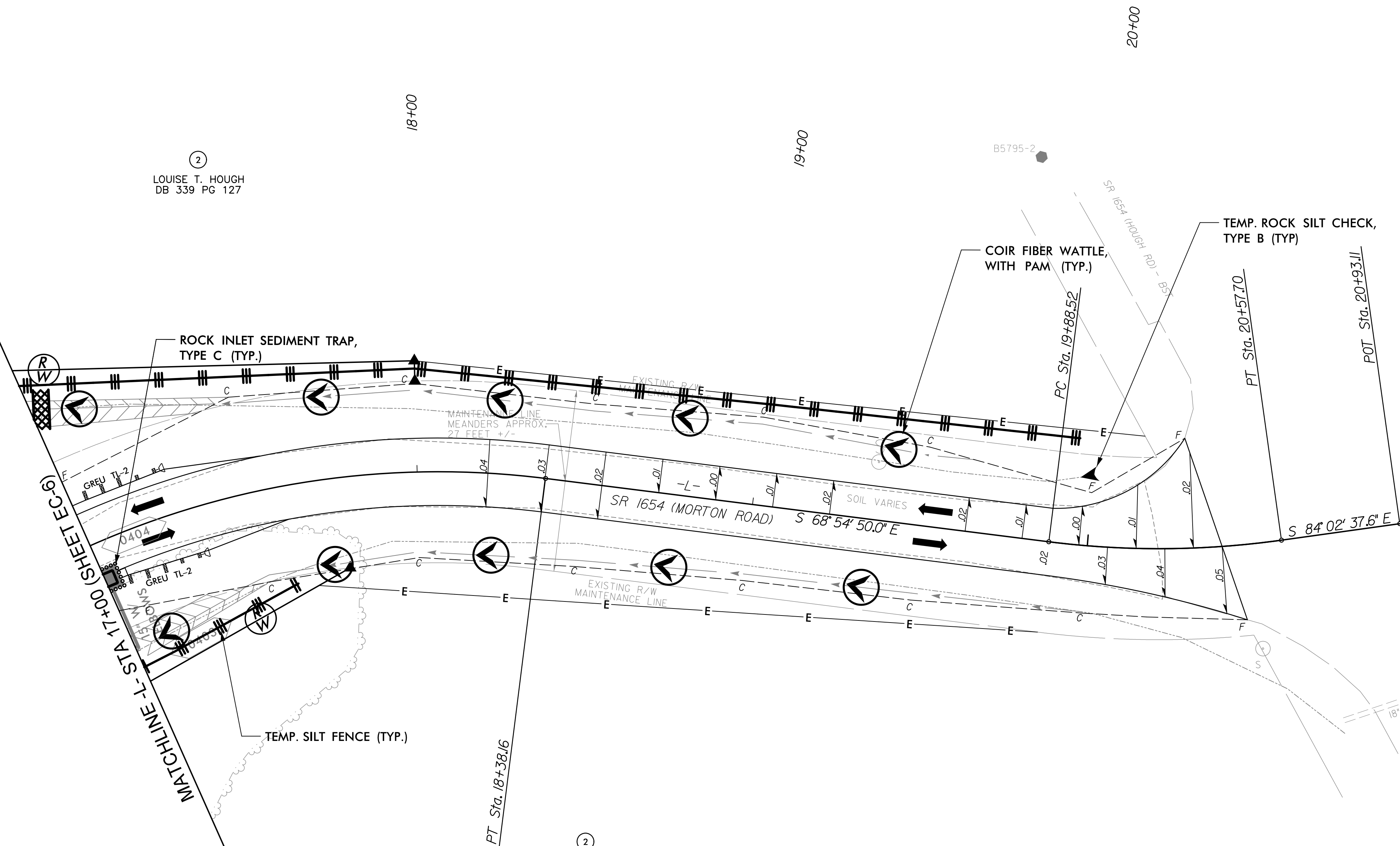
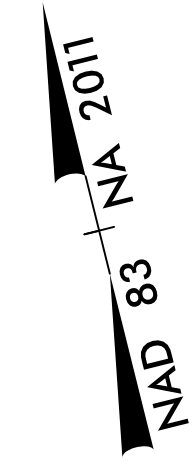
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CONSTRUCTION SHEET SHEET 4

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

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LOUISE T. HOUGH
DB 339 PG 127

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LOUISE T. HOUGH
DB 339 PG 127

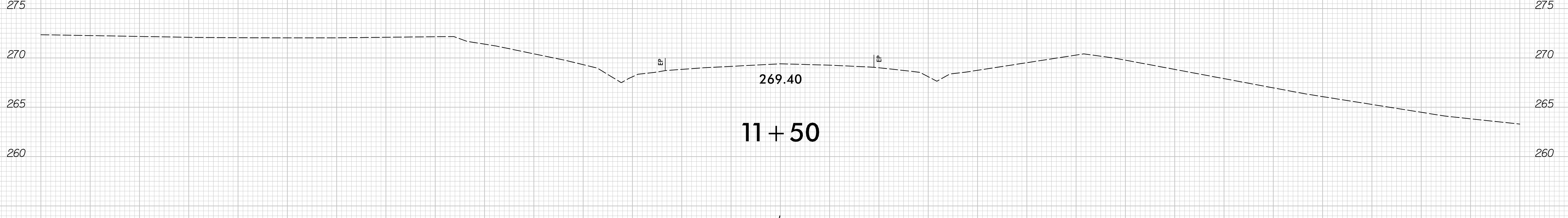
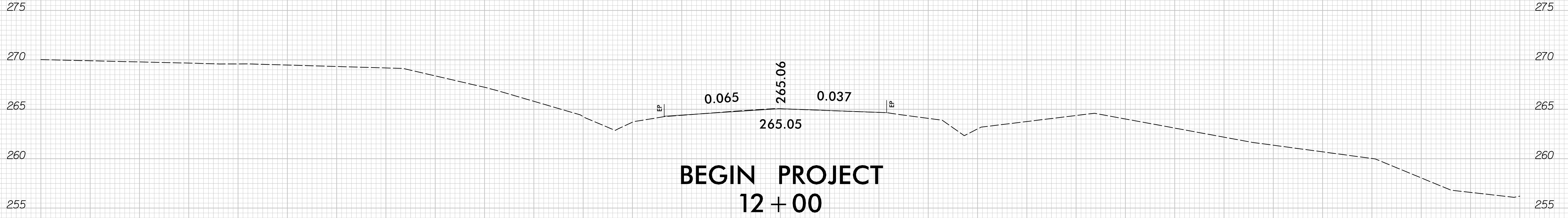
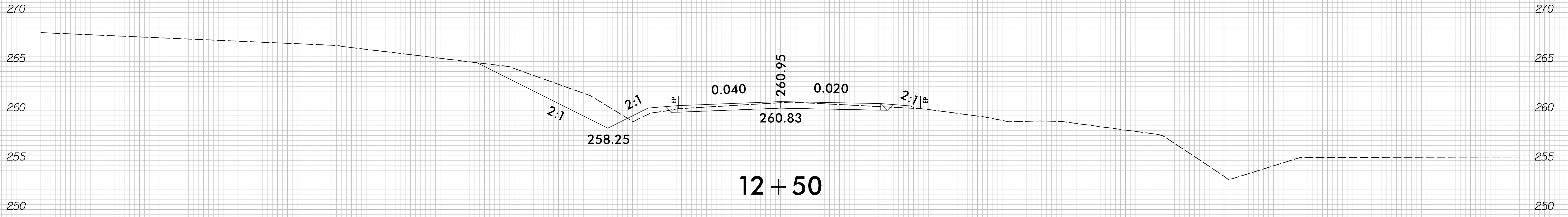
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NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL
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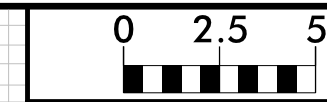
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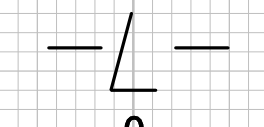
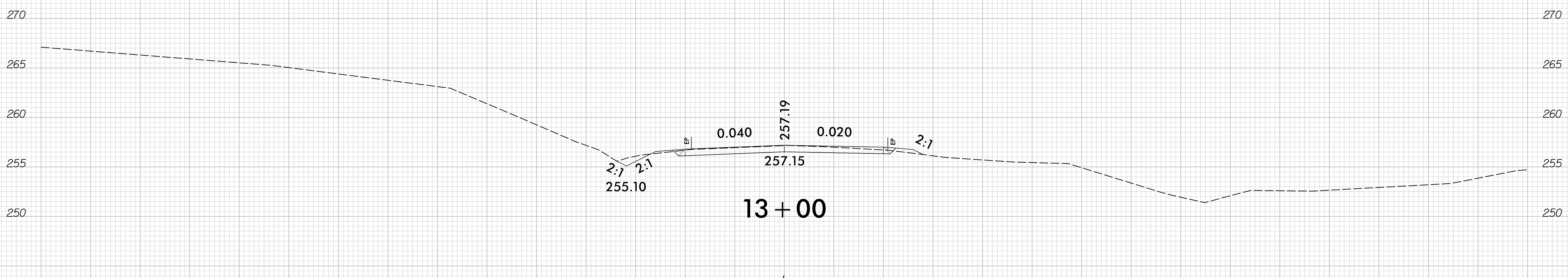
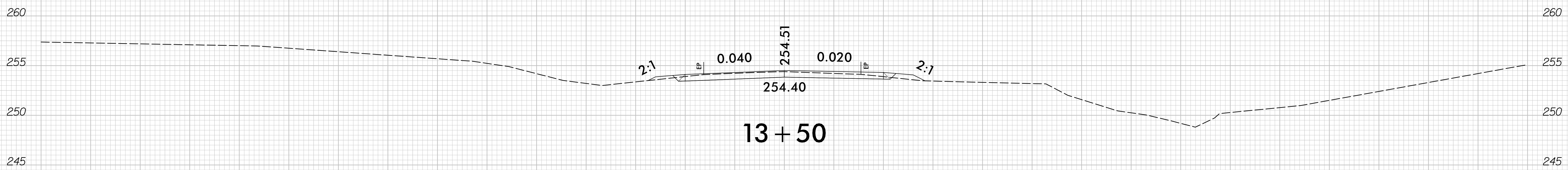
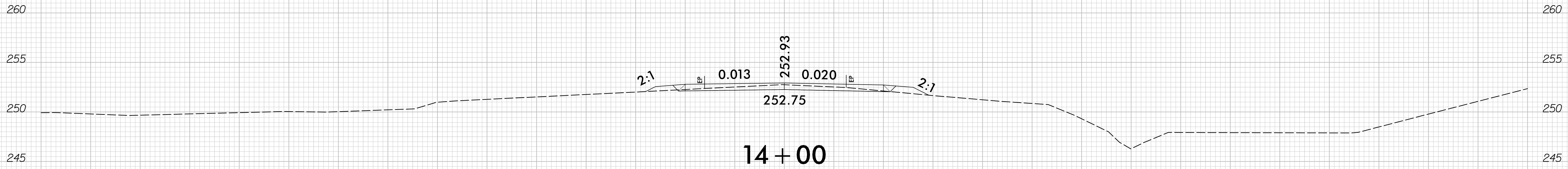
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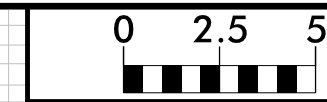


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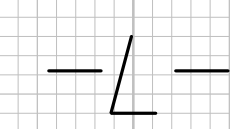
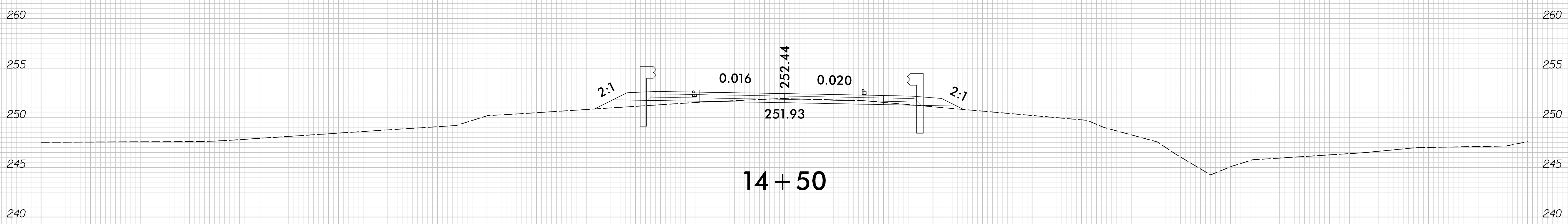
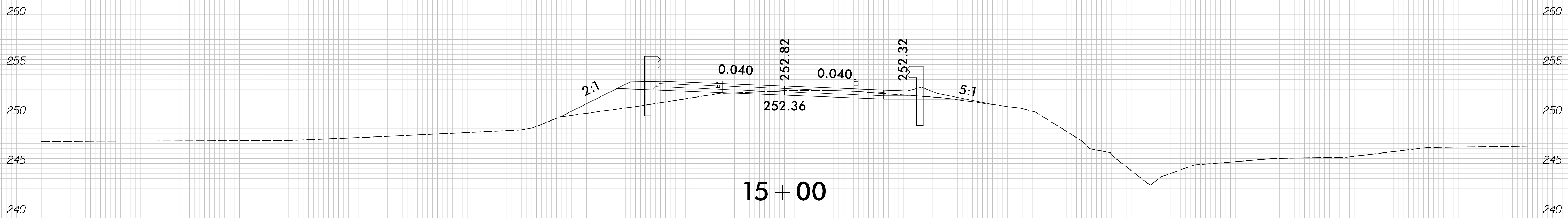


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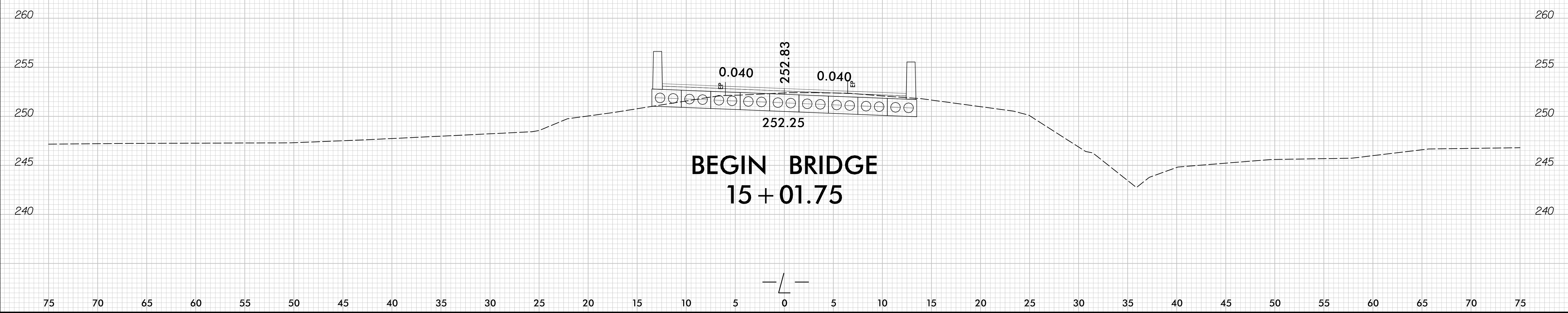
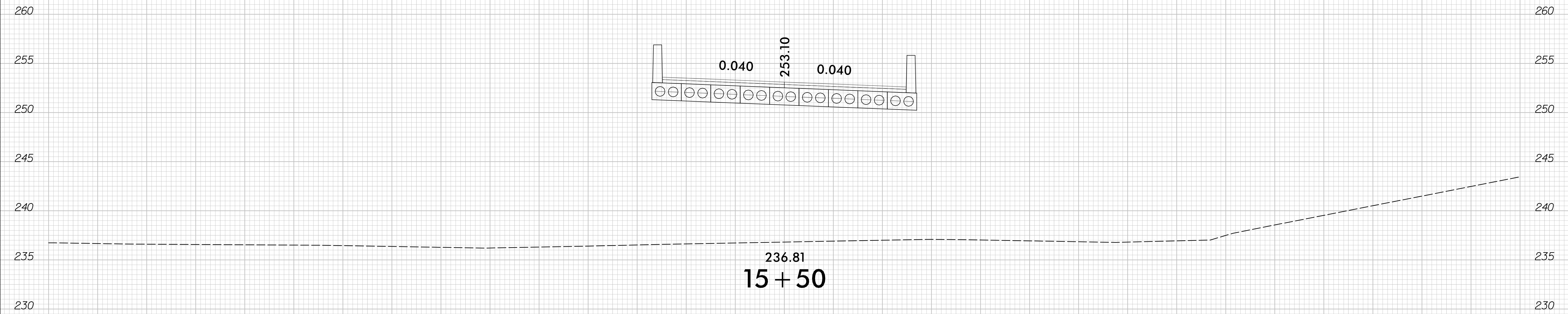


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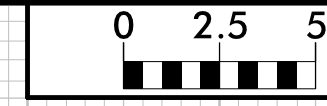


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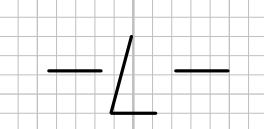
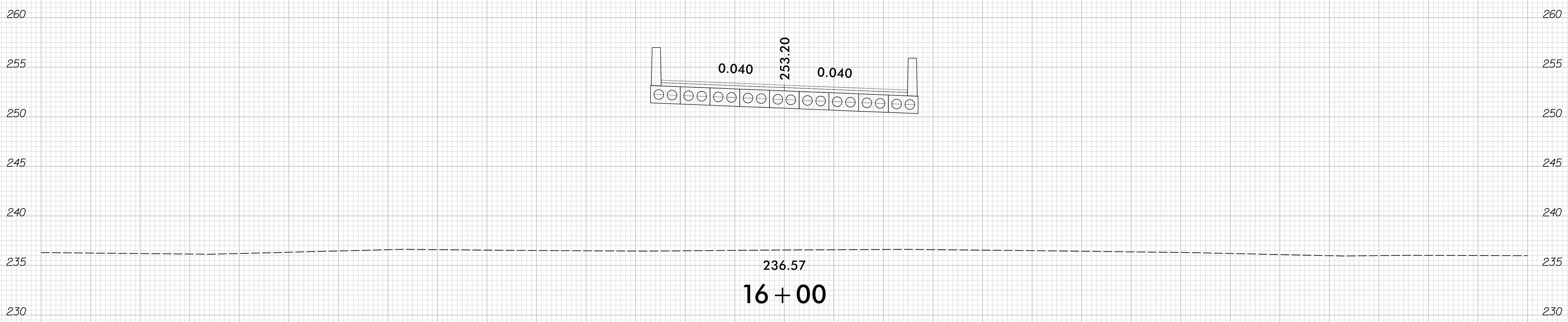
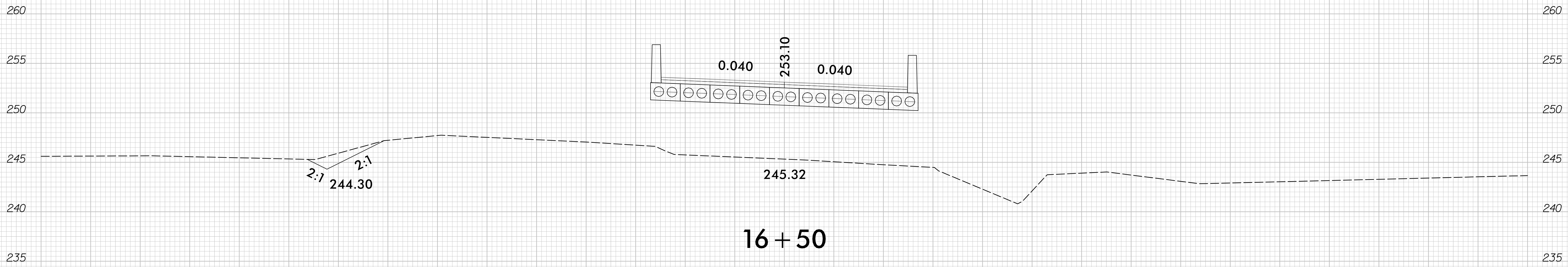
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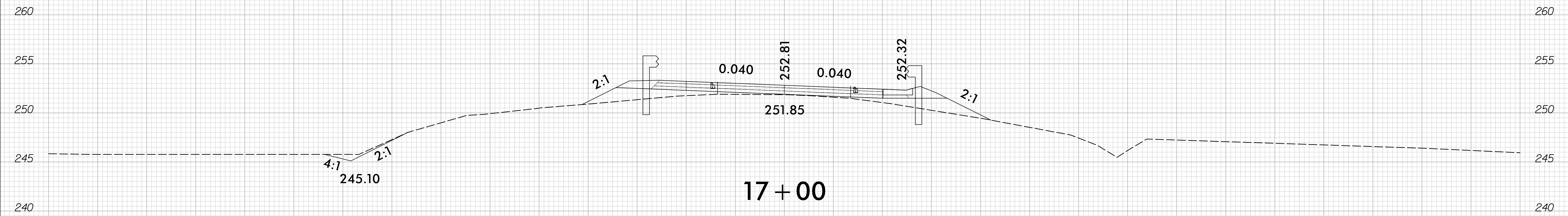


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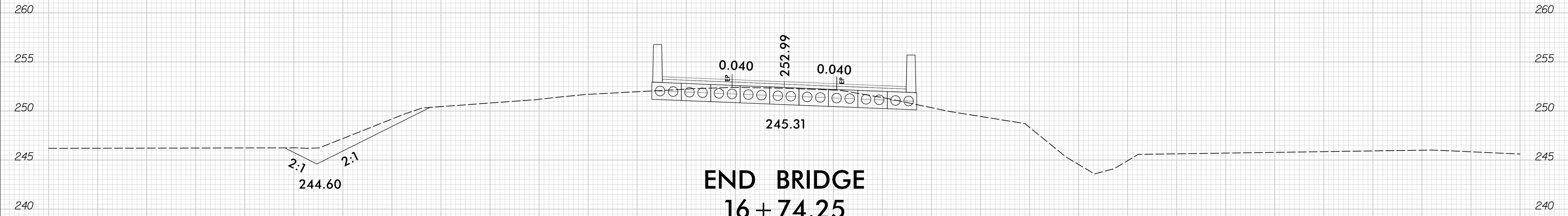
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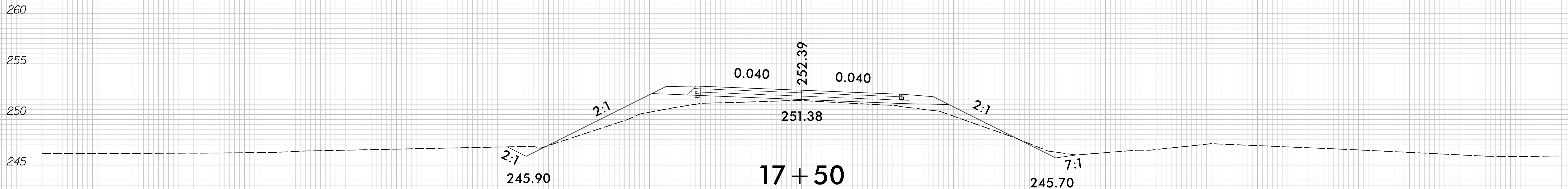
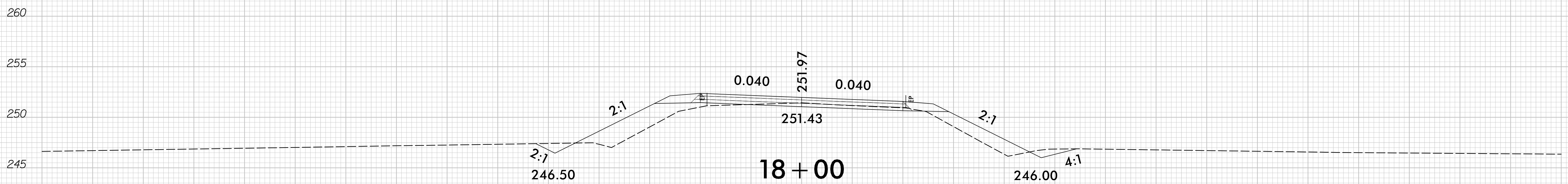
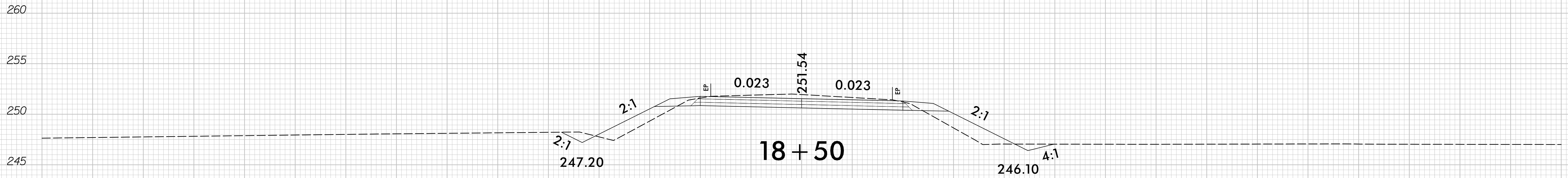


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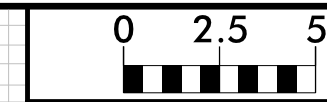
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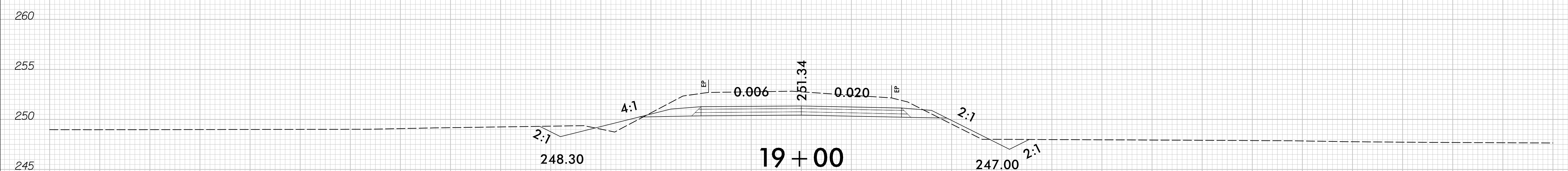
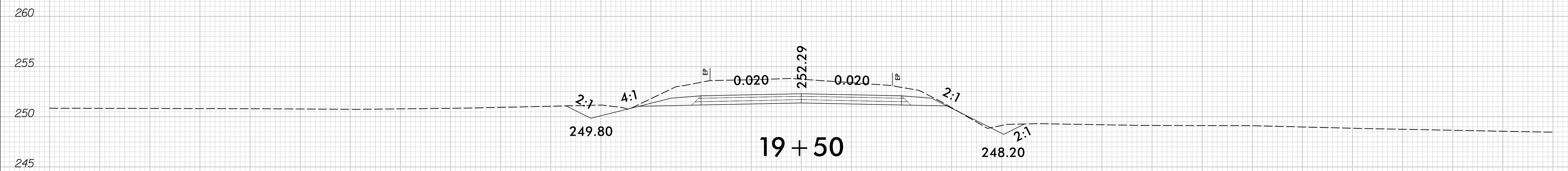
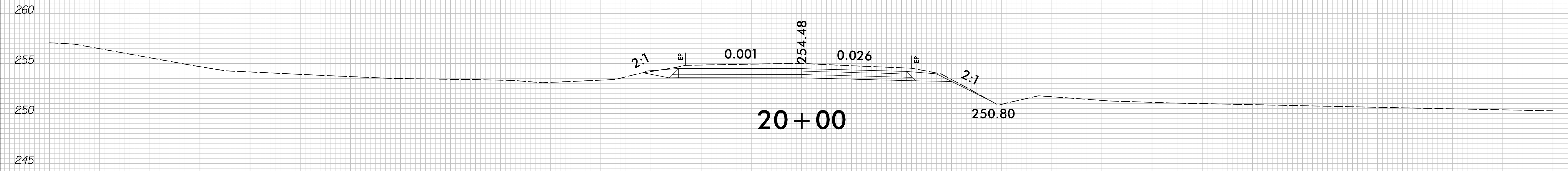
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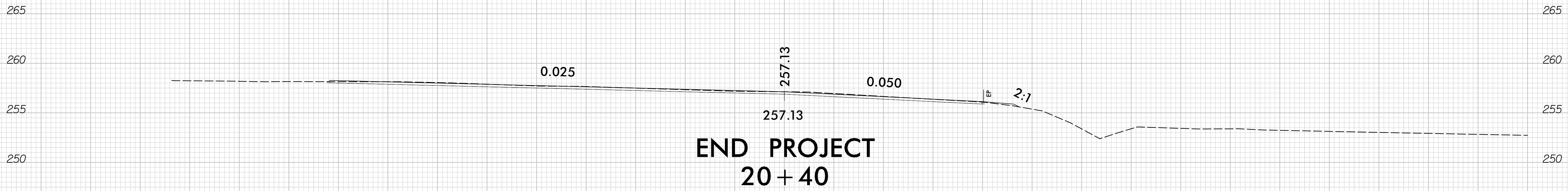
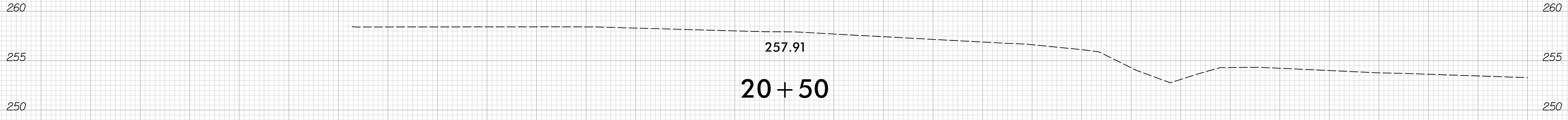


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REFERENCE: SF-030217

PROJECT: 17BP.10.R.140

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SF-030217	1	10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY ANSON
PROJECT DESCRIPTION BRIDGE NO. 217 ON SR 1654
(MORTON ROAD) OVER LANES CREEK

SITE DESCRIPTION _____

CONTENTS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2, 2A	LEGEND (SOIL & ROCK)
3	SITE PLAN
4-9	BORELOGS
10	SITE PHOTO

PERSONNEL
J. K. STICKNEY
C. L. SMITH
G. F. THILL, G.I.T.

INVESTIGATED BY K. B. MILLER, P.G.
DRAWN BY G. F. THILL, G.I.T.
CHECKED BY K. B. MILLER, P.G.
SUBMITTED BY K. B. MILLER, P.G.
DATE NOVEMBER 2018


CAUTION NOTICE

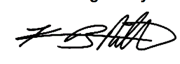
THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:
- THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 - BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.



Doc. Signed by:

957A789AED704CB

12/4/2018

SIGNATURE _____ DATE _____

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS
(PAGE 1 OF 2)

SOIL DESCRIPTION										GRADATION									
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6										WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.									
SOIL LEGEND AND AASHTO CLASSIFICATION										ANGULARITY OF GRAINS									
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS										MINERALOGICAL COMPOSITION									
GROUP CLASS. A-1, A-3, A-2, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5, A-6, A-7										MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.									
SYMBOL										COMPRESSIBILITY									
% PASSING #10, #40, #200										SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50									
MATERIAL PASSING #40 LL, PI										PERCENTAGE OF MATERIAL									
GROUP INDEX										ORGANIC MATERIAL GRANULAR SOILS SILT - CLAY SOILS OTHER MATERIAL									
USUAL TYPES OF MAJOR MATERIALS										GROUND WATER									
GEN. RATING AS SUBGRADE										WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP									
CONSISTENCY OR DENSENESS										MISCELLANEOUS SYMBOLS									
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)										ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY									
TEXTURE OR GRAIN SIZE										RECOMMENDATION SYMBOLS									
U.S. STD. SIEVE SIZE OPENING (MM)										UNDECUT UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL SHALLOW UNDECUT UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK									
GRAIN SIZE										ABBREVIATIONS									
SOIL MOISTURE - CORRELATION OF TERMS										EQUIPMENT USED ON SUBJECT PROJECT									
PLASTICITY										HAMMER TYPE: [X] AUTOMATIC [] MANUAL									
COLOR										CORE SIZE: [] -B [] -H [] -N									
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.										HAND TOOLS: [] POST HOLE DIGGER [] HAND AUGER [] SOUNDING ROD [] VANE SHEAR TEST									

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT**

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS (PAGE 2 OF 2)

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)		NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
CRYSTALLINE ROCK (CR)		FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)		FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)		COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SL.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SL.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <u>IF TESTED, WOULD YIELD SPT REFUSAL</u>
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF</u>
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</u>
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.

FRACTURE SPACING

TERM	SPACING	TERM	THICKNESS
VERY WIDE	MORE THAN 10 FEET	VERY THICKLY BEDDED	4 FEET
WIDE	3 TO 10 FEET	THICKLY BEDDED	1.5 - 4 FEET
MODERATELY CLOSE	1 TO 3 FEET	THINLY BEDDED	0.16 - 1.5 FEET
CLOSE	0.16 TO 1 FOOT	VERY THINLY BEDDED	0.03 - 0.16 FEET
VERY CLOSE	LESS THAN 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET
		THINLY LAMINATED	< 0.008 FEET

BEDDING

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.	AQUIFER - A WATER BEARING FORMATION OR STRATA.
ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.
FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: BM-1, STA. II+93.82, 64.26' RT

ELEVATION: 262.51 FEET

NOTES:

F.I.A.D. = FILLED IMMEDIATELY AFTER DRILLING

INDURATION

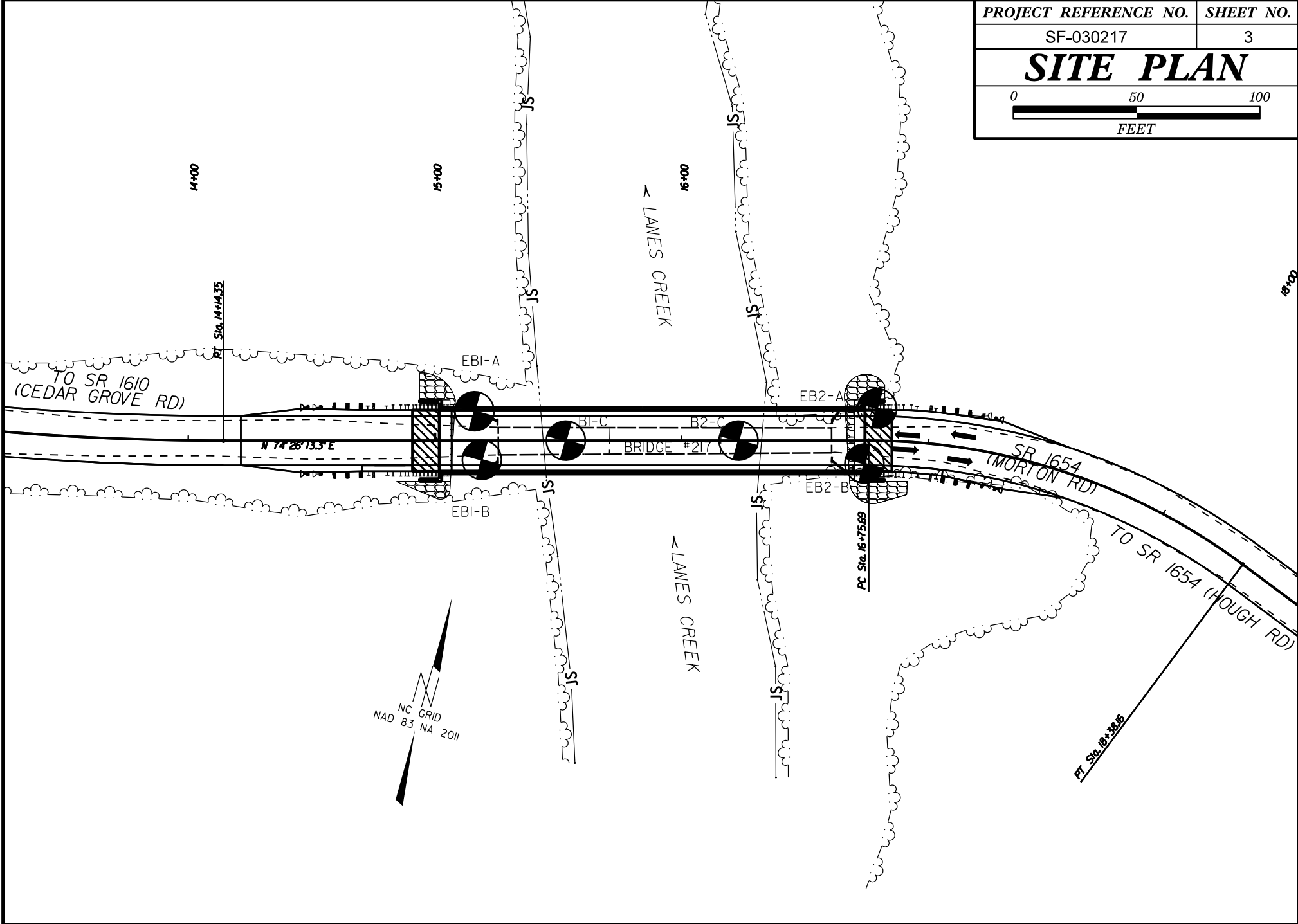
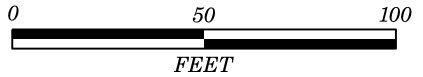
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

PROJECT REFERENCE NO. SHEET NO.

SF-030217

3

SITE PLAN



GEOTECHNICAL BORING REPORT BORE LOG

WBS 17BP.10.R.140		TIP SF-030217		COUNTY ANSON		GEOLOGIST Stickney, J. K.											
SITE DESCRIPTION BRIDGE NO. 217 ON SR 1654 (MORTON RD.) OVER LANES CREEK							GROUND WTR (ft)										
BORING NO. EB1-A		STATION 15+16		OFFSET 12 ft LT		ALIGNMENT -L-											
COLLAR ELEV. 251.2 ft		TOTAL DEPTH 23.7 ft		NORTHING 496,240		EASTING 1,646,250											
DRILL RIG/HAMMER EFF./DATE HFO0072 CME-550 88% 03/19/2014				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Smith, C. L.		START DATE 01/06/16		COMP. DATE 01/06/16		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						ELEV. (ft)	
255																	
250															251.2	GROUND SURFACE	0.0
	247.2	4.0	1	2	3											ROADWAY EMBANKMENT Red, Brown, and Tan, Silty CLAY (A-7)	
245																	
	242.2	9.0	2	2	2										242.2		9.0
240																ALLUVIAL Brown, Silty CLAY (A-7)	
	239.0														239.0		12.2
235																RESIDUAL Tan, Brown, and Gray, Silty CLAY (A-7) with Rock Fragments	
	237.2	14.0	4	7	14												
	232.2	19.0	37	63/0.1											232.2		19.0
230																WEATHERED ROCK (Meta-Argillite)	
															227.5		23.7
																Boring Terminated by Auger Refusal at Elevation 227.5 ft on Non-Crystalline Rock (Meta-Argillite)	

NCDOT BORE SINGLE 03_GEO_BRDG0217_ANSON_GINT.GPJ NC_DOT.GDT 11/29/18

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 17BP.10.R.140		TIP SF-030217		COUNTY ANSON		GEOLOGIST Stickney, J. K.											
SITE DESCRIPTION BRIDGE NO. 217 ON SR 1654 (MORTON RD.) OVER LANES CREEK							GROUND WTR (ft)										
BORING NO. EB1-B		STATION 15+19		OFFSET 8 ft RT		ALIGNMENT -L-											
COLLAR ELEV. 252.6 ft		TOTAL DEPTH 26.3 ft		NORTHING 496,222		EASTING 1,646,259											
DRILL RIG/HAMMER EFF./DATE HFO0072 CME-550 88% 03/19/2014				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Smith, C. L.		START DATE 01/06/16		COMP. DATE 01/06/16		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
255																	
															252.6	GROUND SURFACE	0.0
																ROADWAY EMBANKMENT Red, Brown, and Tan, Sandy Silty CLAY (A-7)	
250	248.9	3.7	2	2	2	4							M				
245	243.9	8.7	2	1	2	3							M		242.9	ALLUVIAL Brown, Silty CLAY (A-7)	9.7
240															240.7	RESIDUAL Tan, Brown, and Gray, Silty CLAY (A-7) with Rock Fragments	11.9
235	238.9	13.7	12	39	33												
	233.9	18.7	30	70/0.3							72				233.9	WEATHERED ROCK (Meta-Argillite)	18.7
230	228.9	23.7	100/0.2														
															226.3	Boring Terminated by Auger Refusal at Elevation 226.3 ft on Non-Crystalline Rock (Meta-Argillite)	26.3

NCDOT BORE SINGLE 03_GEO_BRDG0217_ANSON_GINT.GPJ NC_DOT.GDT 11/29/18

GEOTECHNICAL BORING REPORT BORE LOG

WBS 17BP.10.R.140	TIP SF-030217	COUNTY ANSON	GEOLOGIST Stickney, J. K.
SITE DESCRIPTION BRIDGE NO. 217 ON SR 1654 (MORTON RD.) OVER LANES CREEK			GROUND WTR (ft)
BORING NO. B1-C	STATION 15+53	OFFSET CL	ALIGNMENT -L-
COLLAR ELEV. 237.0 ft	TOTAL DEPTH 23.6 ft	NORTHING 496,239	EASTING 1,646,289
DRILL RIG/HAMMER EFF./DATE HFO0072 CME-550X 92% 08/15/2018		DRILL METHOD NW Casing w/ Advancer	HAMMER TYPE Automatic
DRILLER Smith, C. L.	START DATE 11/19/18	COMP. DATE 11/19/18	SURFACE WATER DEPTH 2.1ft

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
240																
														237.0	GROUND SURFACE	0.0
														235.7	ALLUVIAL SAND, COBBLES, BOULDERS	1.3
235	233.3	3.7													WEATHERED ROCK (META-ARGILLITE)	
			100/0.2							100/0.2					SWITCH TO TRICONE AT 6.1'	
230	228.5	8.5														
			100/0.2							100/0.2						
225	223.5	13.5														
			60/0.1							60/0.1				223.5	NON-CRYSTALLINE ROCK (META-ARGILLITE)	13.5
220	218.5	18.5														
			60/0.1							60/0.1						
215	213.5	23.5														
			60/0.1							60/0.1				213.4	Boring Terminated with Standard Penetration Test Refusal at Elevation 213.4 ft in Non-Crystalline Rock (Meta-Argillite)	23.6

NCDOT BORE SINGLE 03_GEO_BRDG0217_ANSON_GINT.GPJ NC_DOT.GDT 11/29/18

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 17BP.10.R.140			TIP SF-030217			COUNTY ANSON			GEOLOGIST Stickney, J. K.							
SITE DESCRIPTION BRIDGE NO. 217 ON SR 1654 (MORTON RD.) OVER LANES CREEK									GROUND WTR (ft)							
BORING NO. B2-C			STATION 16+23			OFFSET CL			ALIGNMENT -L-							
COLLAR ELEV. 236.8 ft			TOTAL DEPTH 21.7 ft			NORTHING 496,257			EASTING 1,646,357							
DRILL RIG/HAMMER EFF./DATE HFO0072 CME-550X 92% 08/15/2018						DRILL METHOD NW Casing w/ Advancer			HAMMER TYPE Automatic							
DRILLER Smith, C. L.			START DATE 11/19/18			COMP. DATE 11/19/18			SURFACE WATER DEPTH 2.0ft							
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						ELEV. (ft)
240																
235	233.4	3.4	39	61/0.4						100/0.9				GROUND SURFACE	0.0	
230	228.6	8.2	90	10/0.0						100/0.5				ALLUVIAL SAND, COBBLES, BOULDERS	1.0	
225	223.6	13.2	100/0.4							100/0.4				WEATHERED ROCK (META-ARGILLITE)		
220	218.6	18.2	60/0.1							60/0.1				SWITCH TO TRICONE AT 5.9'		
														NON-CRYSTALLINE ROCK (META-ARGILLITE)	18.2	
														Boring Terminated by Tricone Refusal at Elevation 215.1 ft in Non-Crystalline Rock (Meta-Argillite)	21.7	

NCDOT BORE SINGLE 03_GEO_BRDG0217_ANSON_GINT.GPJ NC_DOT.GDT 11/29/18

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 17BP.10.R.140	TIP SF-030217	COUNTY ANSON	GEOLOGIST Stickney, J. K.
SITE DESCRIPTION BRIDGE NO. 217 ON SR 1654 (MORTON RD.) OVER LANES CREEK			GROUND WTR (ft)
BORING NO. EB2-A	STATION 16+79	OFFSET 13 ft LT	ALIGNMENT -L-
COLLAR ELEV. 252.4 ft	TOTAL DEPTH 19.6 ft	NORTHING 496,285	EASTING 1,646,407
DRILL RIG/HAMMER EFF./DATE HFO0072 CME-550 88% 03/19/2014		DRILL METHOD H.S. Augers	HAMMER TYPE Automatic
DRILLER Smith, C. L.	START DATE 01/06/16	COMP. DATE 01/06/16	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
255																
250	248.3	4.1	6	4	4									252.4	GROUND SURFACE	0.0
245	243.3	9.1	3	2	3									246.4	ROADWAY EMBANKMENT Tan, Brown, Purple, and Red, Sandy Silty Clay (A-7)	6.0
240	238.3	14.1	7	22	23									237.8	ALLUVIAL Tan and Brown, Sandy Silty Clay (A-7)	14.6
235	233.3	19.1												233.3	RESIDUAL Tan, Brown, and Gray, Silty Clay (A-7) with Rock Fragments	19.1
														232.6	WEATHERED ROCK (Meta-Argillite) Boring Terminated by Auger Refusal at Elevation 232.6 ft on Non-Crystalline Rock (Meta-Argillite)	19.6

NCDOT BORE SINGLE 03_GEO_BRDG0217_ANSON_GINT.GPJ NC_DOT.GDT 11/29/18

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 17BP.10.R.140		TIP SF-030217		COUNTY ANSON		GEOLOGIST Stickney, J. K.										
SITE DESCRIPTION BRIDGE NO. 217 ON SR 1654 (MORTON RD.) OVER LANES CREEK							GROUND WTR (ft)									
BORING NO. EB2-B		STATION 16+74		OFFSET 9 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 251.7 ft		TOTAL DEPTH 19.6 ft		NORTHING 496,262		EASTING 1,646,408										
DRILL RIG/HAMMER EFF./DATE HFO0072 CME-550 88% 03/19/2014				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Smith, C. L.		START DATE 01/06/16		COMP. DATE 01/06/16		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
255																
250	248.1	3.6	2	3	3									251.7	GROUND SURFACE	0.0
245	243.1	8.6	1	2	2									245.7	ROADWAY EMBANKMENT Tan, Brown, Purple, and Red, Sandy Silty CLAY (A-7)	6.0
240	238.1	13.6	6	12	15									237.6	ALLUVIAL Tan and Brown, Sandy Silty CLAY (A-7)	14.1
235	233.1	18.6	100/0.2											233.1	RESIDUAL Tan, Brown, and Gray, Silty CLAY (A-7) with Rock Fragments	18.6
														232.1	WEATHERED ROCK (Meta-Argillite) Boring Terminated by Auger Refusal at Elevation 232.1 ft on Non-Crystalline Rock (Meta-Argillite)	19.6

NCDOT BORE SINGLE 03_GEO_BRDG0217_ANSON_GINT.GPJ NC_DOT.GDT 11/29/18

SITE PHOTOGRAPH

Bridge No. 217 on -L- (SR 1654) over Lanes Creek



Looking West Towards End Bent 1