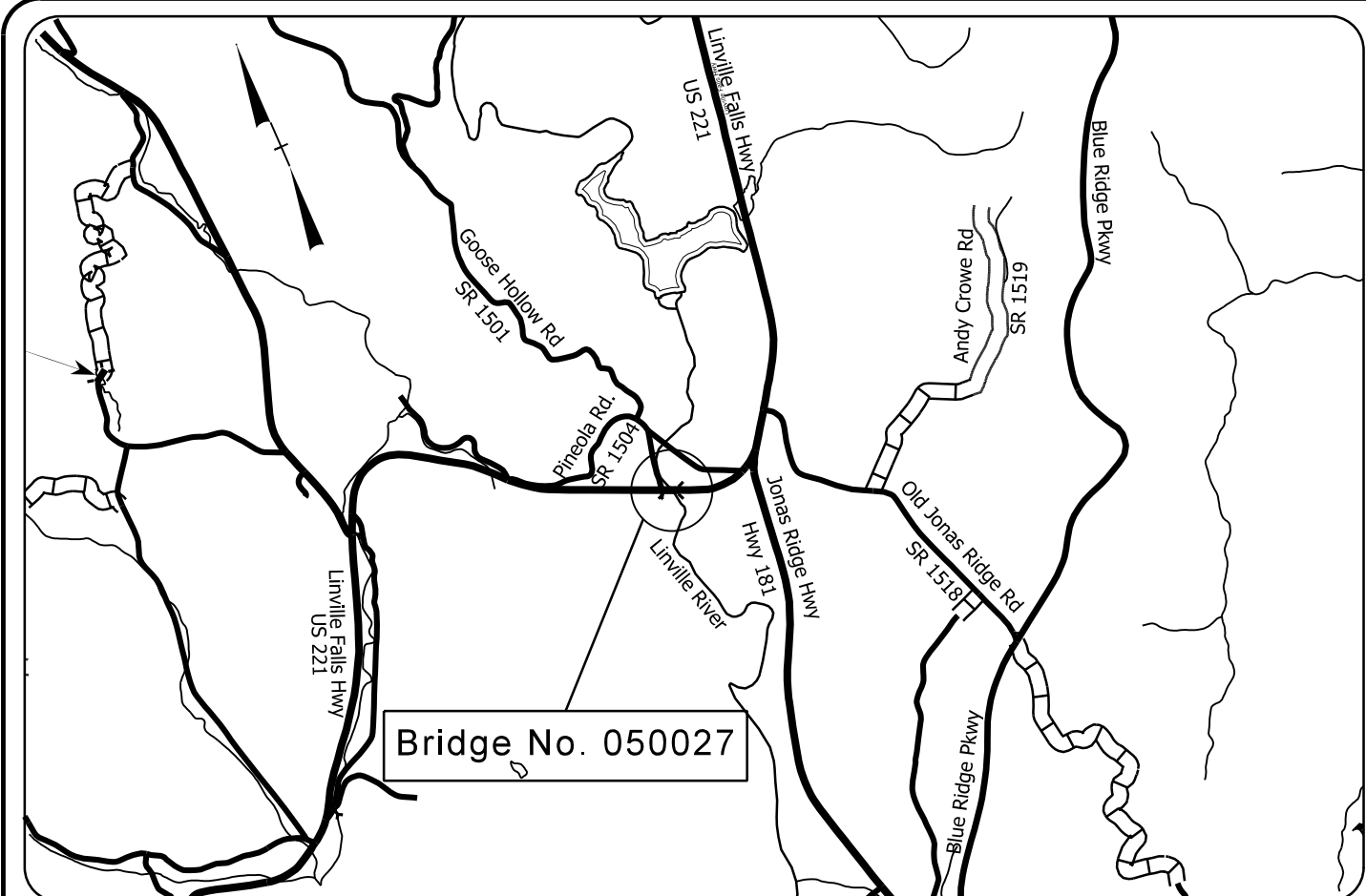


09_08/24

PROJECT: 17BP.11.R.122

CONTRACT: DK00394



VICINITY MAP

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

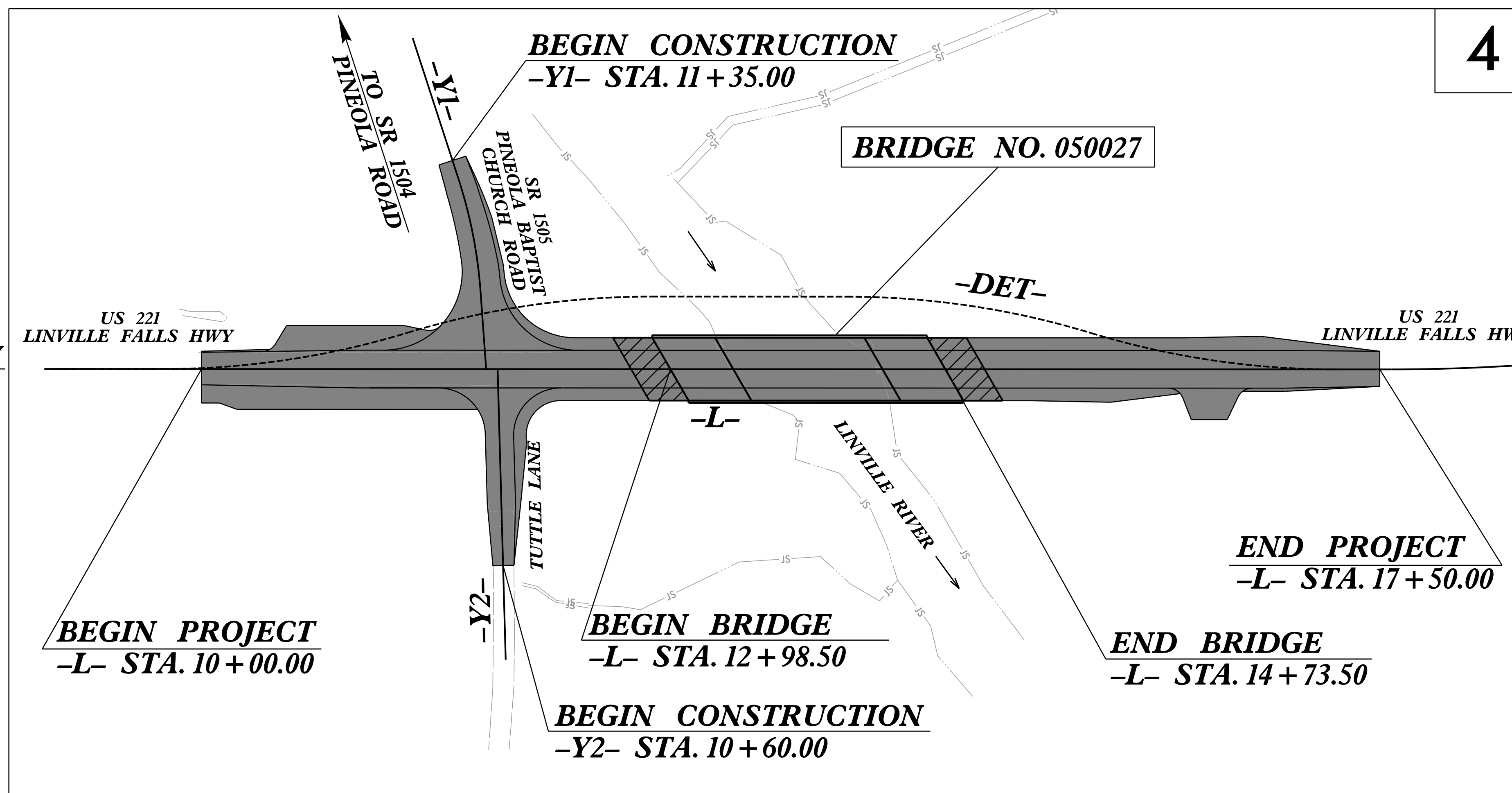
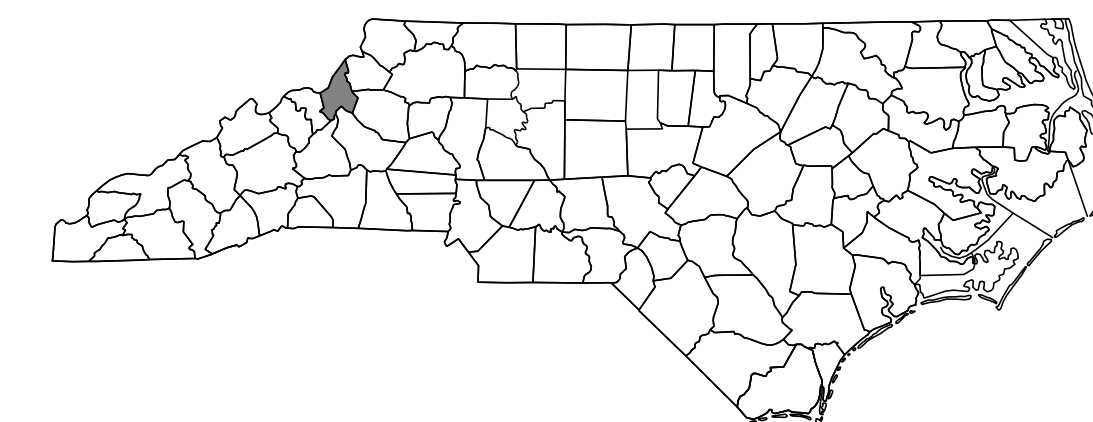
AVERY COUNTY

LOCATION: BRIDGE NO. 050027 OVER LINVILLE RIVER
ON US 221 (LINVILLE FALLS HWY)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

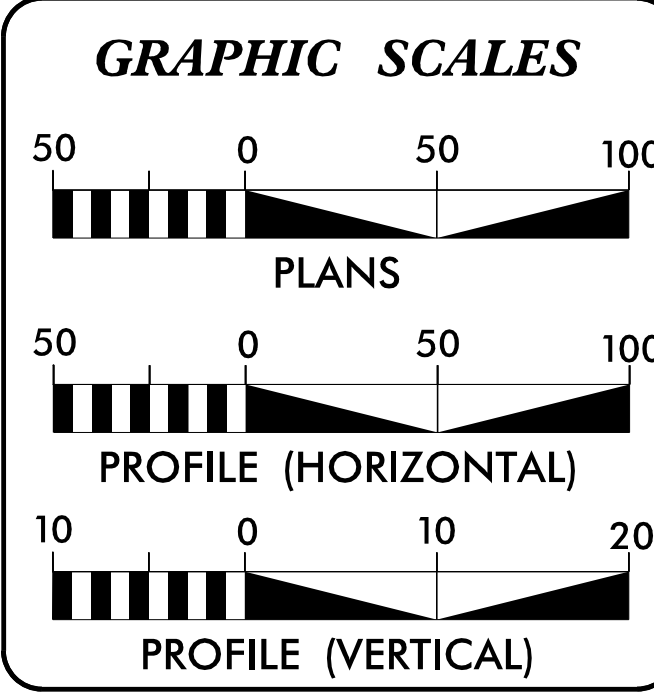
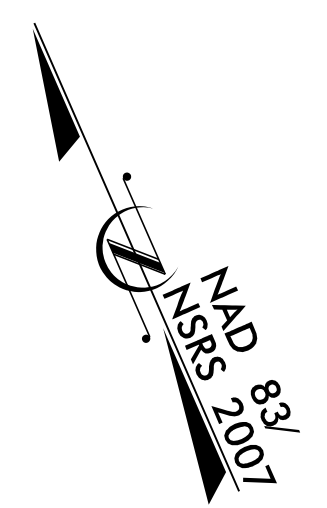
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.11.R.122	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.11.PE.122		PE	
17BP.11.ROW.122		ROW / UTIL	
17BP.11.R.122		CONST.	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



TO MILLERS GAP HWY
NC 194

TO JONAS RIDGE HWY
NC 181 S.



DESIGN DATA

ADT = 5930 (2024)
ADT = 8810 (2044)
DHV = N/A
D = N/A
T = 14%
V = 50 MPH
FUNC CLASS = ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.11.R.122.....	0.109 mi
LENGTH STRUCTURE PROJECT 17BP.11.R.122.....	0.033 mi
TOTAL LENGTH PROJECT 17BP.11.R.122.....	0.142 mi

RK&K
RUMMEL, KLEPPER & KAHL, LLP
8601 SIX FORKS ROAD, FORUM 1, SUITE 700
RALEIGH, NORTH CAROLINA 27615-3960
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560

DIVISION OF HIGHWAYS

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 4, 2022

LETTING DATE: SEPTEMBER 19, 2024

Brandon McInnis, P.E.
PROJECT ENGINEER

Mary Mays Yahl, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

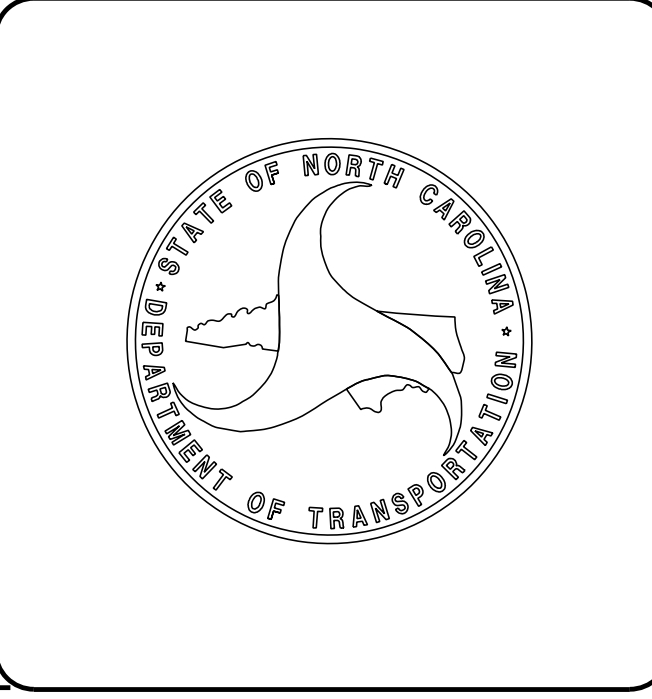
8/21/2024

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

8/21/2024

SIGNATURE: _____ P.E.



8/20/2024
R:\Roadway\Proj\050027_Rdy_tsh.dgn
mydm

PROJECT REFERENCE NO. 17BPJLRJ22	SHEET NO. 1-A
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	ROADWAY DETAILS
2C-1	TYPE III SC STRUCTURE ANCHOR UNIT
2D-1	DRAINAGE DETAILS
3B-1 THRU 3B-3	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARY TABLE
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN SHEET
5	PROFILE SHEET
RW01 - RW04	SURVEY CONTROL / RIGHT OF WAY SHEETS
TMP-1 THRU TMP-6	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UD-1 THRU UD-2	UTILITIES BY OTHERS PLANS
X-1 THRU X-22	CROSS-SECTIONS
S-1 THRU S-37	STRUCTURE PLANS

2024 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type 1 Approach Fill for Bridge Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets

EFF. 01-16-2024
REV.

GENERAL NOTES:

2024 SPECIFICATIONS
EFFECTIVE: 01-16-2024
REVISED:

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 MODIFIED METHOD III.

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

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

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.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE MOUNTAIN ELECTRIC COOP, AT&T TELECOMMUNICATIONS, SPECTRUM
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	-----x
Property Monument	□ ECM
Parcel/Sequence Number	⑩②③
Existing Fence Line	-x-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-☠
Potential Contamination Area: Soil	☠-S-☠
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	☠-W-☠
Contaminated Site: Known or Potential	☠?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
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	← FLOW
False Sump	▽

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Exist Permanent Easment Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	○ R/W
New Right of Way Line with Pin and Cap	○ R/W ◆
New Right of Way Line with Concrete or Granite R/W Marker	○ R/W ◆
New Control of Access Line with Concrete CA Marker	○ CA
Existing Control of Access	○ CA
New Control of Access	○ CA
Existing Easement Line	---E---
New Temporary Construction Easement	---E---
New Temporary Drainage Easement	---TDE---
New Permanent Drainage Easement	---PDE---
New Permanent Drainage / Utility Easement	---DUE---
New Permanent Utility Easement	---PUE---
New Temporary Utility Easement	---TUE---
New Aerial Utility Easement	---AUE---

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	---C---
Proposed Slope Stakes Fill	---F---
Proposed Curb Ramp	○ CR
Existing Metal Guardrail	---T---
Proposed Guardrail	---T---
Existing Cable Guiderail	---T---
Proposed Cable Guiderail	---T---
Equality Symbol	⊕
Pavement Removal	▨

VEGETATION:

Single Tree	☼
Single Shrub	☼

Note: Not to Scale *S.U.E. = *Subsurface Utility Engineering*

Hedge	-----
Woods Line	-----
Orchard	☼ ☼ ☼ ☼
Vineyard	□ Vineyard

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ S
Storm Sewer	---S---

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○ P
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	○
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	---P---
U/G Power Line LOS C (S.U.E.*)	---P---
U/G Power Line LOS D (S.U.E.*)	---P---

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○ T
Telephone Pedestal	□ T
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	○ TH
U/G Telephone Cable LOS B (S.U.E.*)	---T---
U/G Telephone Cable LOS C (S.U.E.*)	---T---
U/G Telephone Cable LOS D (S.U.E.*)	---T---
U/G Telephone Conduit LOS B (S.U.E.*)	---TC---
U/G Telephone Conduit LOS C (S.U.E.*)	---TC---
U/G Telephone Conduit LOS D (S.U.E.*)	---TC---
U/G Fiber Optics Cable LOS B (S.U.E.*)	---TFO---
U/G Fiber Optics Cable LOS C (S.U.E.*)	---TFO---
U/G Fiber Optics Cable LOS D (S.U.E.*)	---TFO---

WATER:

Water Manhole	○ W
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	---W---
U/G Water Line LOS C (S.U.E.*)	---W---
U/G Water Line LOS D (S.U.E.*)	---W---
Above Ground Water Line	---A/G Water---

TV:

TV Pedestal	□ T
TV Tower	⊗
U/G TV Cable Hand Hole	○ TH
U/G TV Cable LOS B (S.U.E.*)	---TV---
U/G TV Cable LOS C (S.U.E.*)	---TV---
U/G TV Cable LOS D (S.U.E.*)	---TV---
U/G Fiber Optic Cable LOS B (S.U.E.*)	---TV FO---
U/G Fiber Optic Cable LOS C (S.U.E.*)	---TV FO---
U/G Fiber Optic Cable LOS D (S.U.E.*)	---TV FO---

GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	---G---
U/G Gas Line LOS C (S.U.E.*)	---G---
U/G Gas Line LOS D (S.U.E.*)	---G---
Above Ground Gas Line	---A/G Gas---

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	---SS---
Above Ground Sanitary Sewer	---A/G Sanitary Sewer---
SS Forced Main Line LOS B (S.U.E.*)	---FSS---
SS Forced Main Line LOS C (S.U.E.*)	---FSS---
SS Forced Main Line LOS D (S.U.E.*)	---FSS---

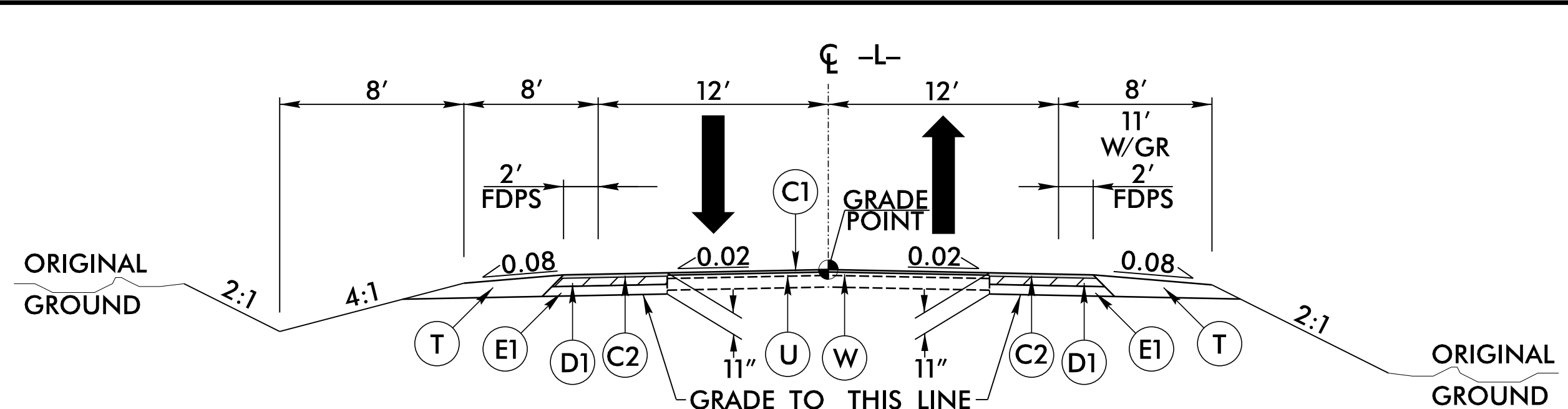
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□ S
Utility Unknown U/G Line LOS B (S.U.E.*)	---UTL---
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	□ UST
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

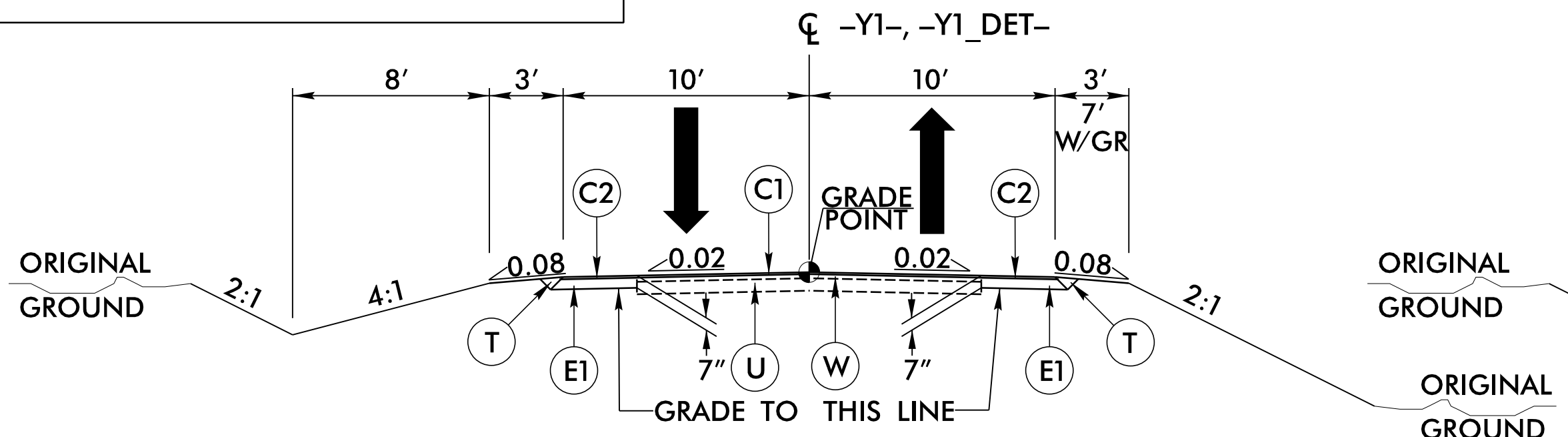
8/17/24

FINAL PAVEMENT SCHEDULE		
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	J1 PROP. 8" AGGREGATE BASE COURSE W/PRIME COAT
C2	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	R1 SHOULDER BERM GUTTER
C3	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 TO EXCEED 1.5" IN DEPTH.	T EARTH MATERIAL
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U EXISTING PAVEMENT
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.	V MILLING EXISTING PAVEMENT. SEE THIS SHEET FOR DETAIL
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	W WEDGING
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.	

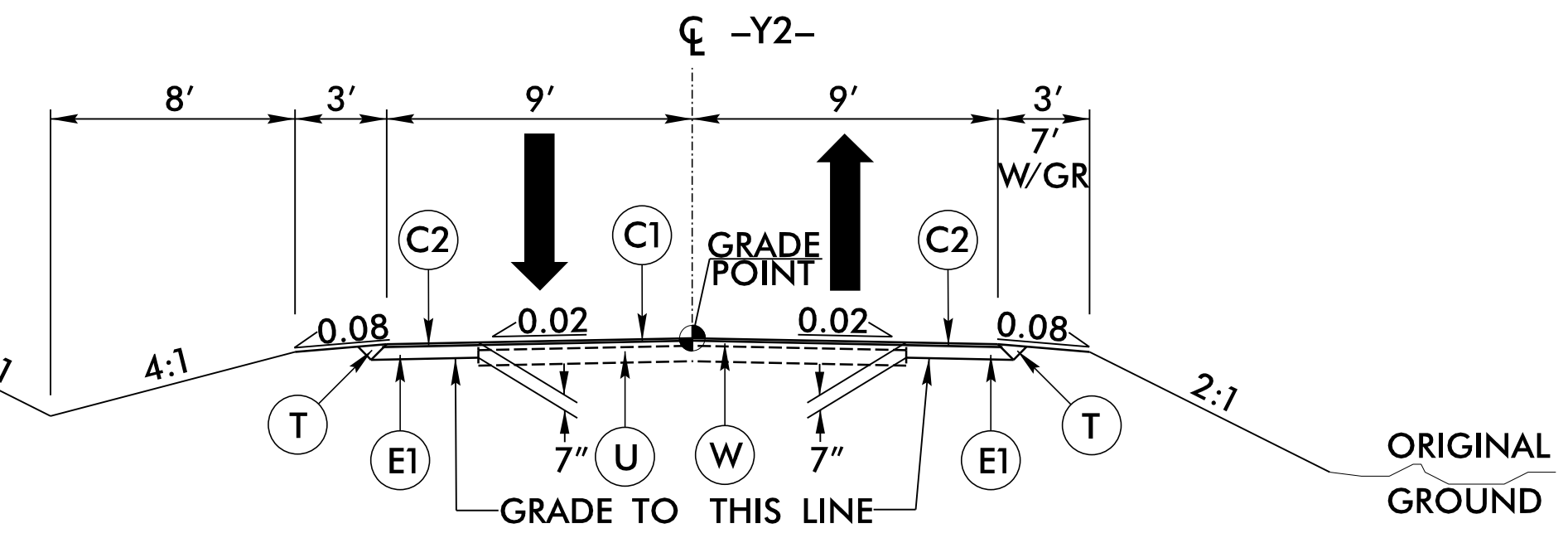
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SHOWN.



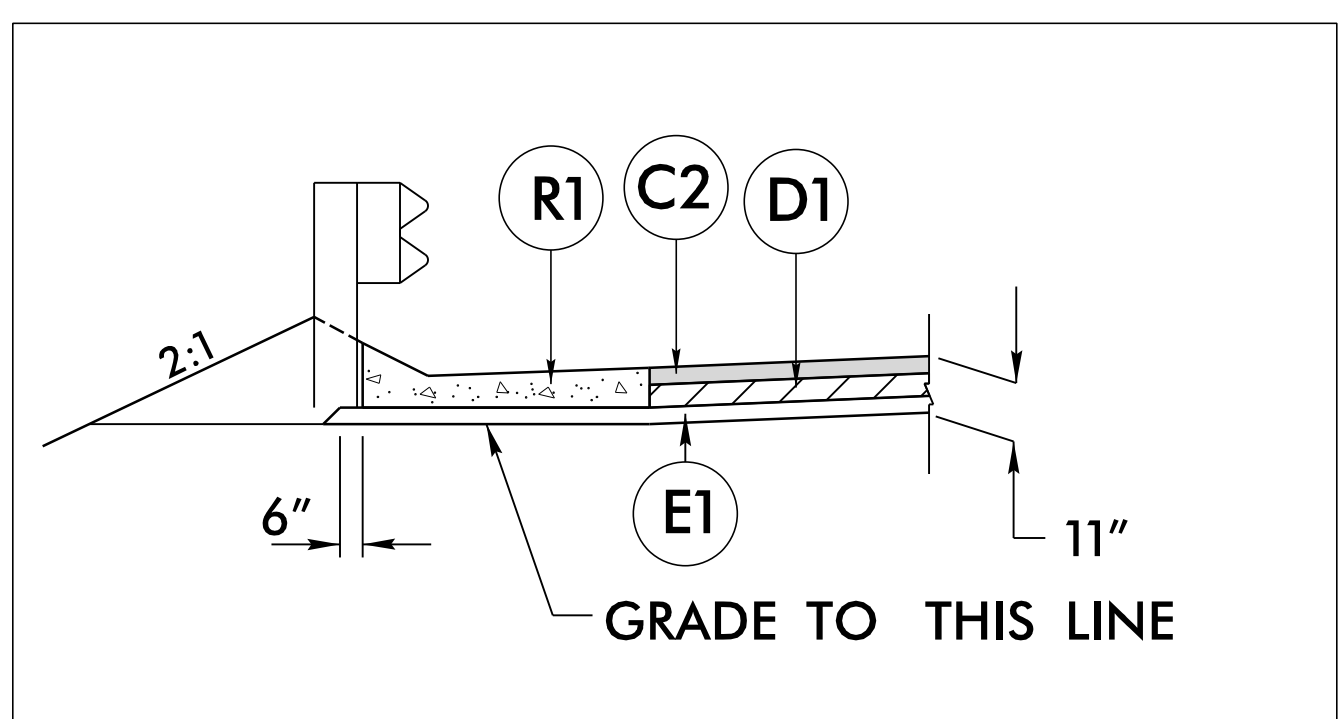
TYPICAL SECTION NO. 1
 -L- STA. 10+00.00 TO 12+74.65 (BEGIN BRIDGE APPROACH SLAB)
 -L- STA. 14+97.35 (END BRIDGE APPROACH SLAB) TO 17+50.00



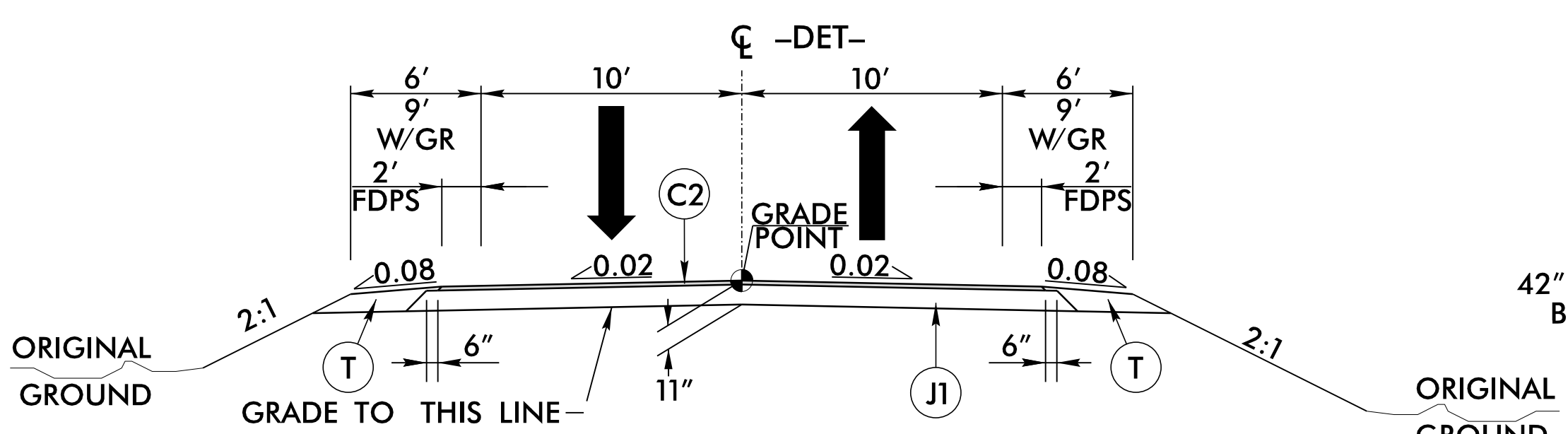
TYPICAL SECTION NO. 2
 -Y1- STA. 10+12.03 TO 11+35.00
 -Y1_DET- STA. 10+45.38 TO 10+85.00



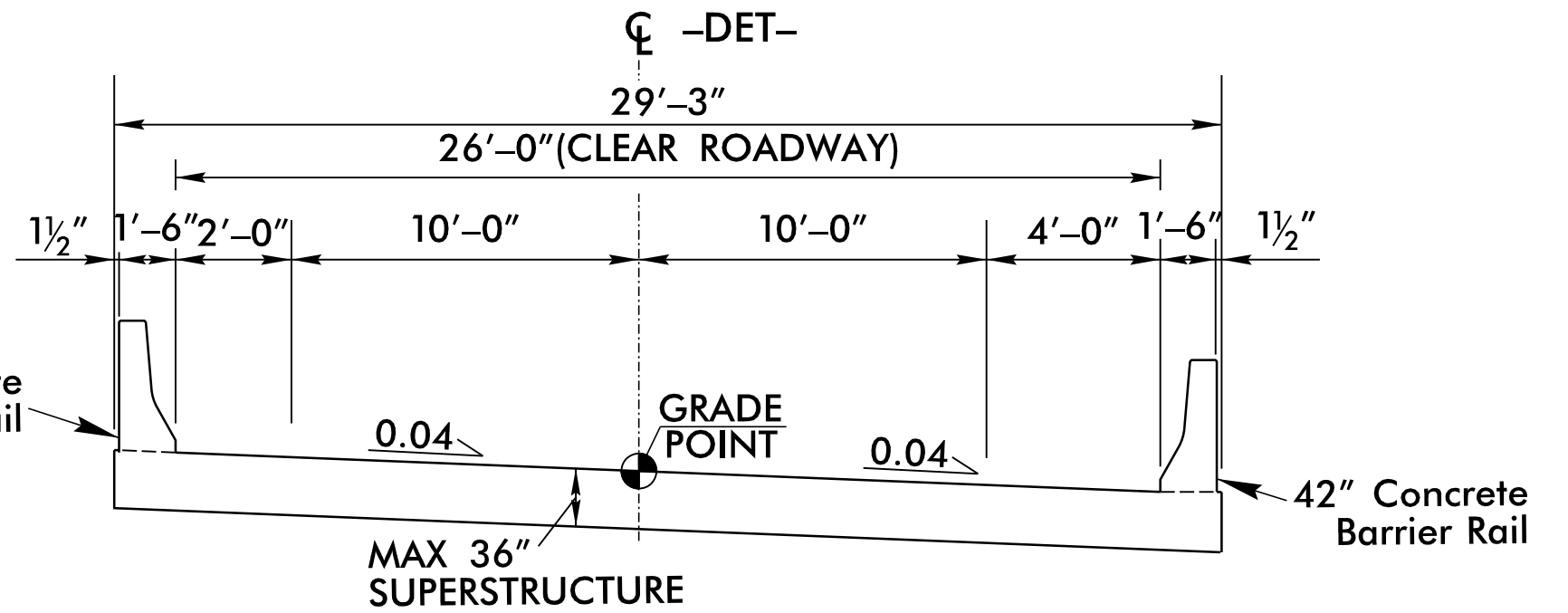
TYPICAL SECTION NO. 3
 -Y2- STA. 10+60.00 TO 11+73.00



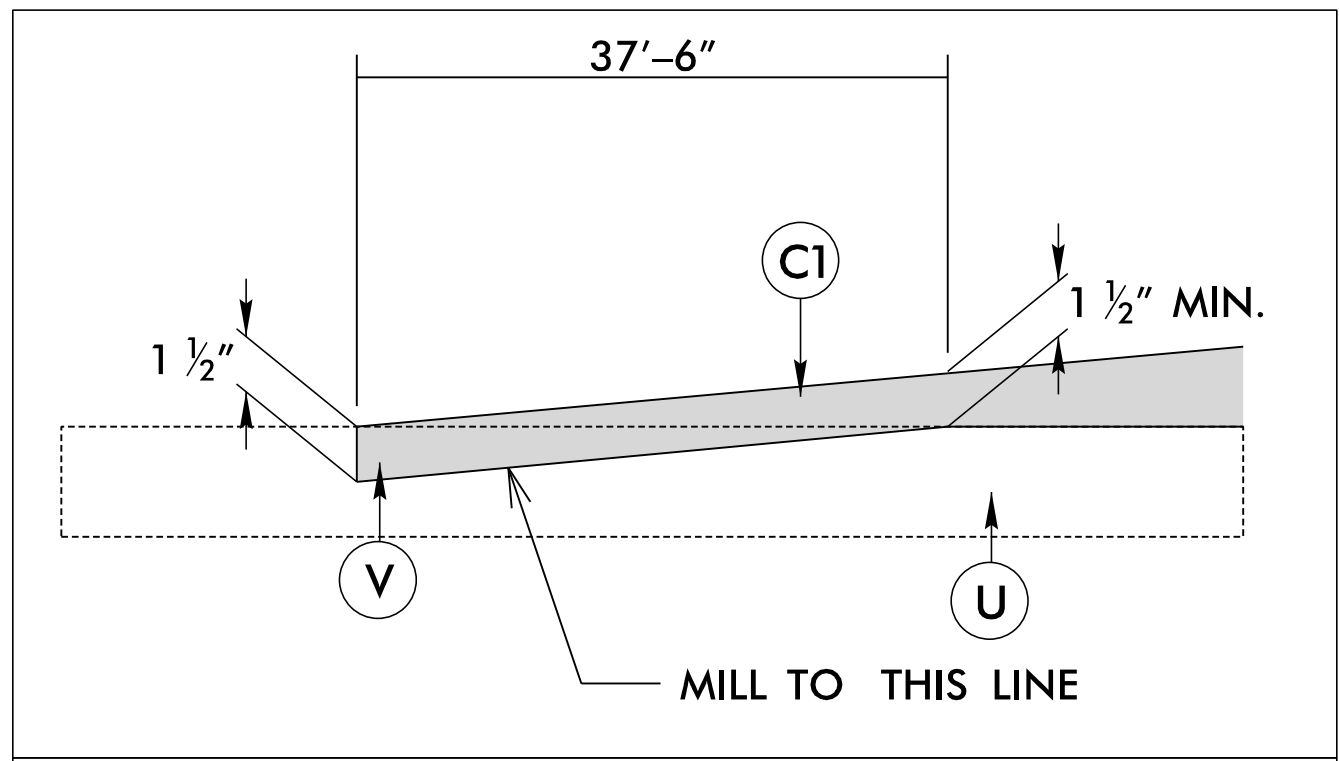
DETAIL SHOWING SHOULDER BERM GUTTER (SBG) ON TOP OF SUBGRADE
 -L- STA. 14+87.07 TO -L- STA. 15+05.00 LT
 -L- STA. 15+10.05 TO -L- STA. 15+28.80 RT



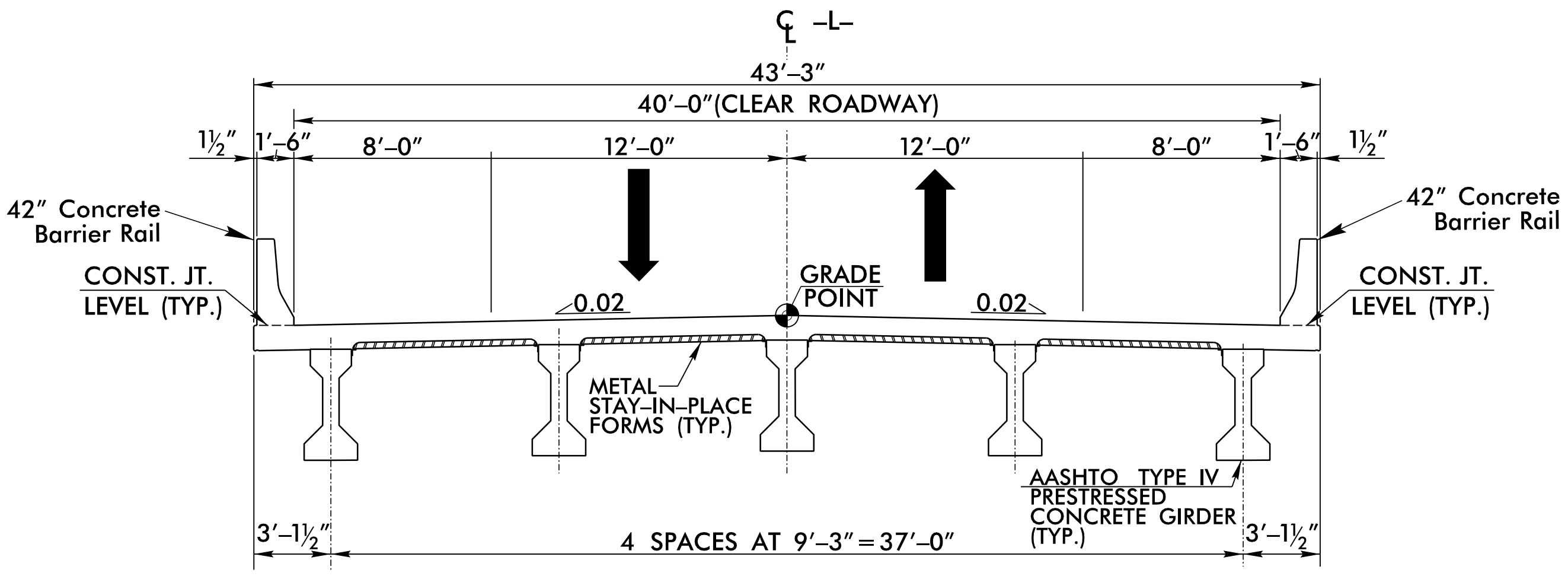
TYPICAL SECTION NO. 4
 -DET- STA. 10+94.45 TO 13+84.90 (BEGIN BRIDGE)
 -DET- STA. 15+04.92 (END BRIDGE) TO 17+88.78
 NOTE: WEDGING FROM -DET- STA. 10+94.45 TO 12+98.67



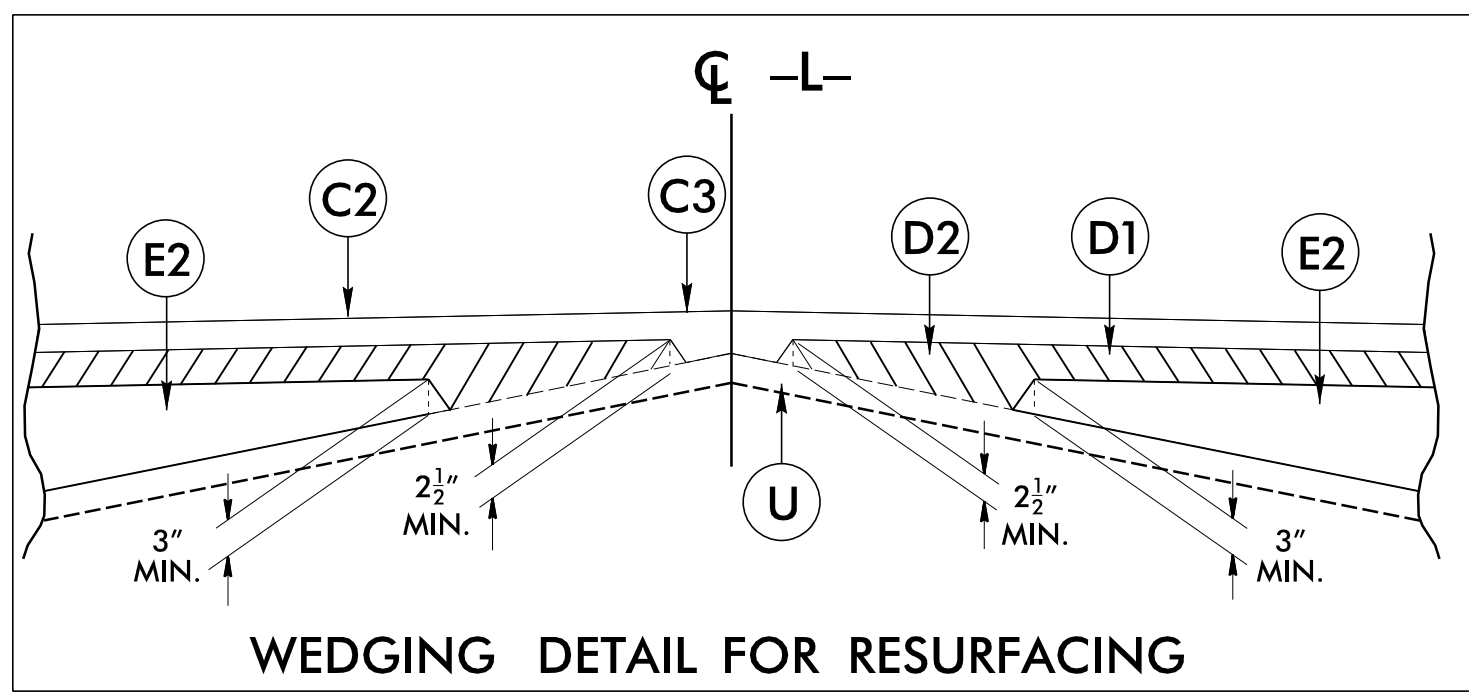
TYPICAL SECTION NO. 5
 -DET- STA. 13+84.90 TO 15+04.92
 NOTE: DETAILS TO BE DETERMINED BY CONTRACTOR



DETAIL SHOWING MILLED PAVEMENT TIE-IN



TYPICAL SECTION NO. 6
 -L- STA. 12+98.50 (BEGIN BRIDGE) TO 14+73.50 (END BRIDGE)

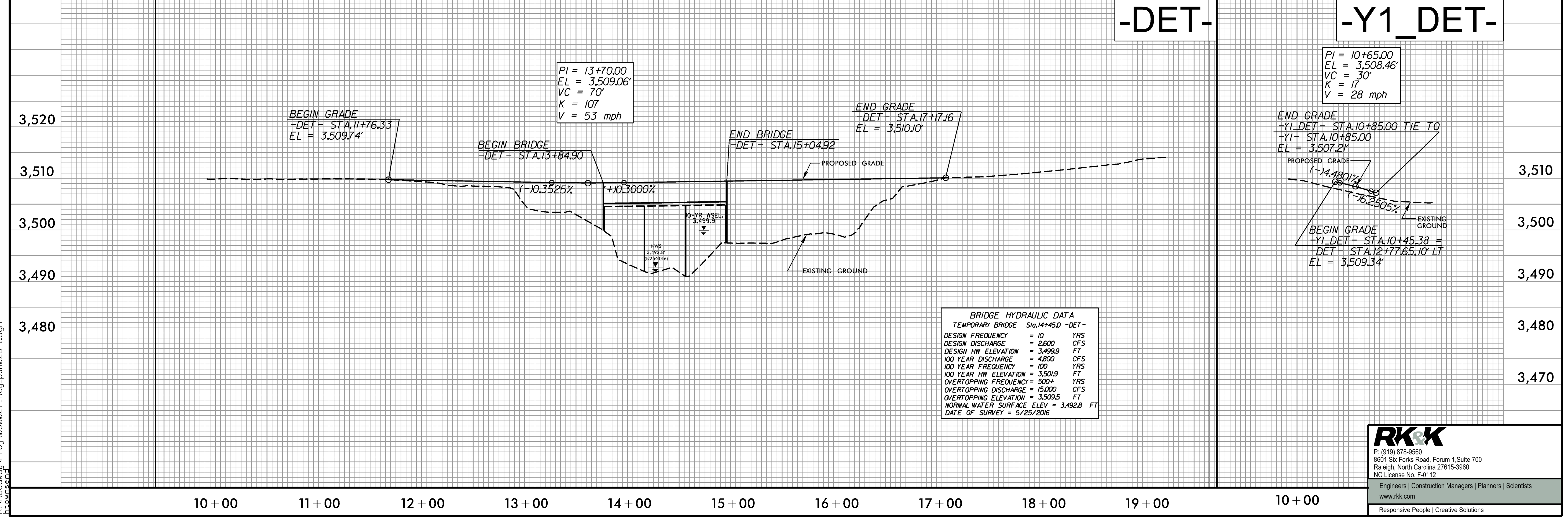
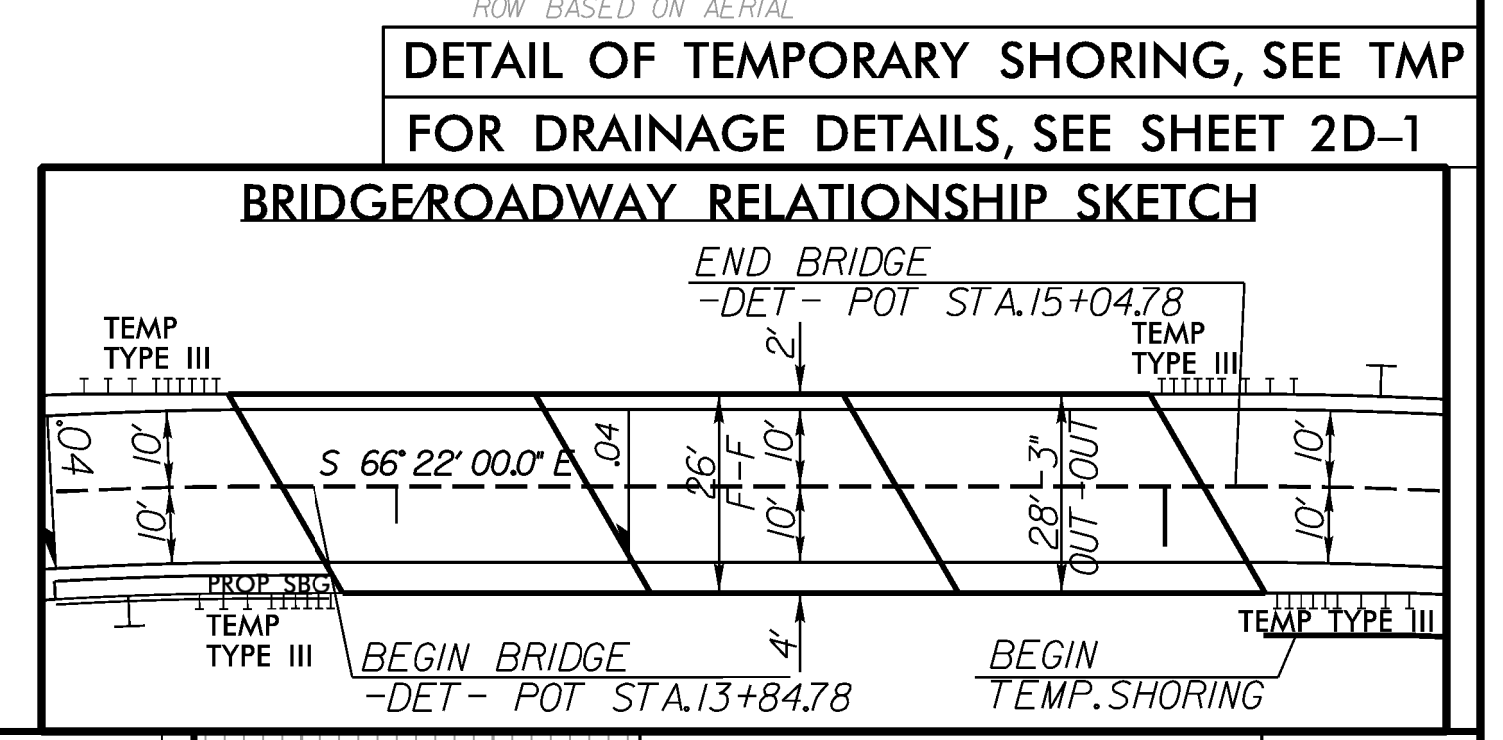
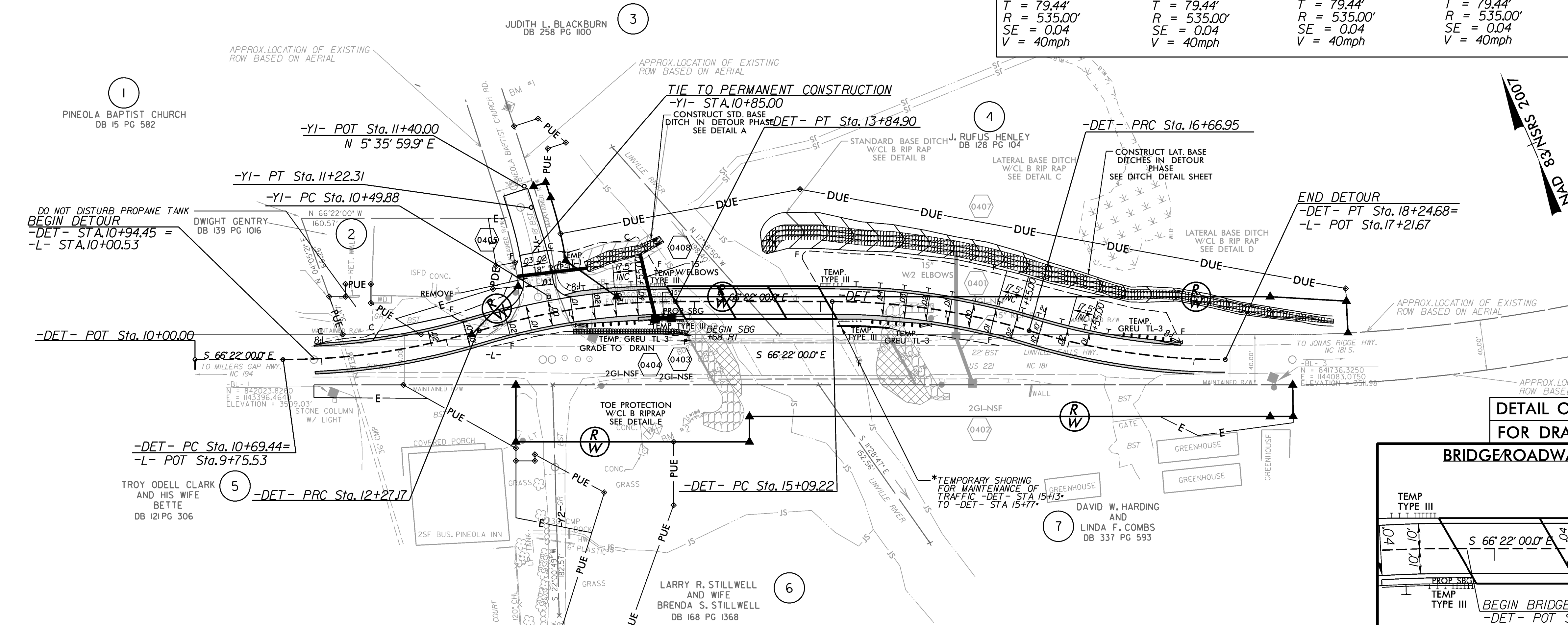


WEDGING DETAIL FOR RESURFACING

8/16/2024 2:16:24 PM \\P-co\N050027_Rdy_tjpb.dgn

-DET-			
PI Sta 11+48.88	PI Sta 13+06.61	PI Sta 15+88.66	PI Sta 17+46.39
$\Delta = 16' 53' 31.8"$ (LT)	$\Delta = 16' 53' 31.8"$ (RT)	$\Delta = 16' 53' 31.8"$ (RT)	$\Delta = 16' 53' 31.8"$ (LT)
D = 10' 42' 34.2"	D = 10' 42' 34.2"	D = 10' 42' 34.2"	D = 10' 42' 34.2"
L = 157.73'	L = 157.73'	L = 157.73'	L = 157.73'
T = 79.44'	T = 79.44'	T = 79.44'	T = 79.44'
R = 535.00'	R = 535.00'	R = 535.00'	R = 535.00'
SE = 0.04	SE = 0.04	SE = 0.04	SE = 0.04
V = 40mph	V = 40mph	V = 40mph	V = 40mph

PROJECT REFERENCE NO. 17BPJ1R22	SHEET NO. 2B-1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



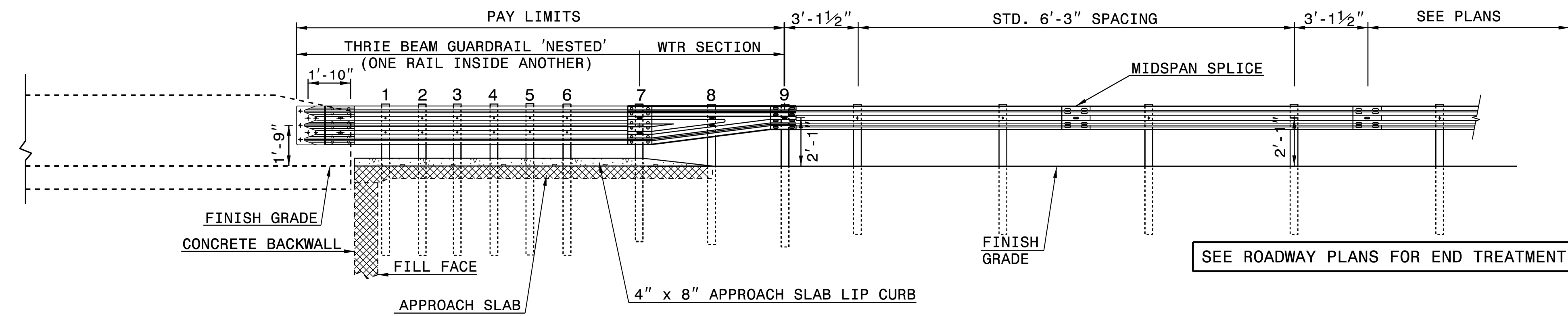
4/29/2024 R:\Roadway\Proj\1050027_Raj_psh\2B-1.dgn

P: (919) 878-9560
 8601 Six Forks Road, Forum 1, Suite 700
 Raleigh, North Carolina 27615-3960
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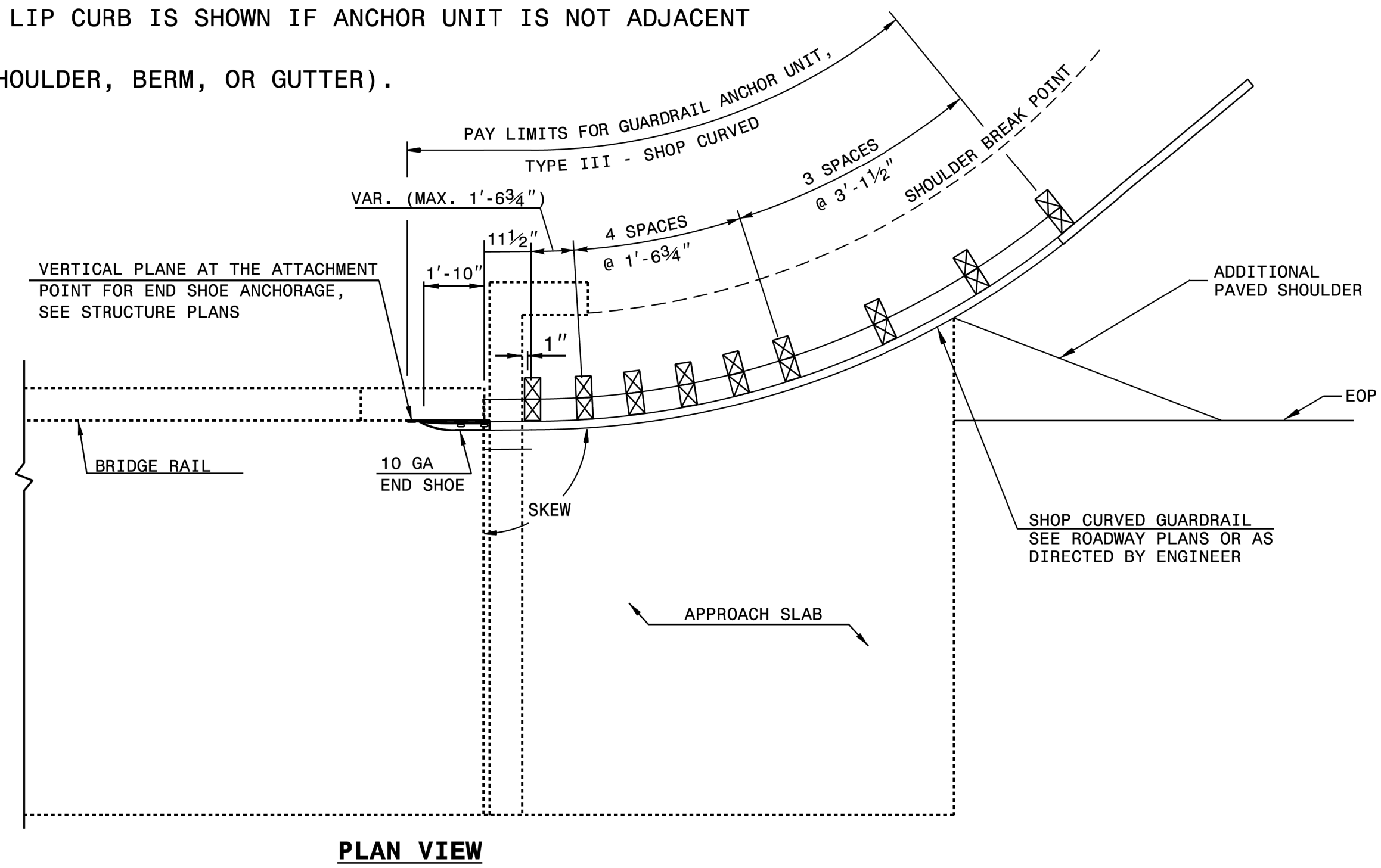
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT**

SHEET 1 OF 1
TYPE III SC



- NOTE:
- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 - *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11 1/2" IF CONCRETE BACKWALL IS NOT PRESENT.
 - SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
 - MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
 - USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
 - LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 - SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



**GUARDRAIL ANCHOR UNIT, TYPE III - SHOP CURVED
FOR ATTACHMENT TO RAIL ON BRIDGE**

SHEET 1 OF 1
TYPE III SC

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT**

Q:\FEB-2018 0949
 S:\Contracts\2017\17BP.11.R.122\General Details\howerton\Guardrail\31.inch Guardrail\type.iii.sc.dgn
 howerton - AI - 050-272935
 5/14/18



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

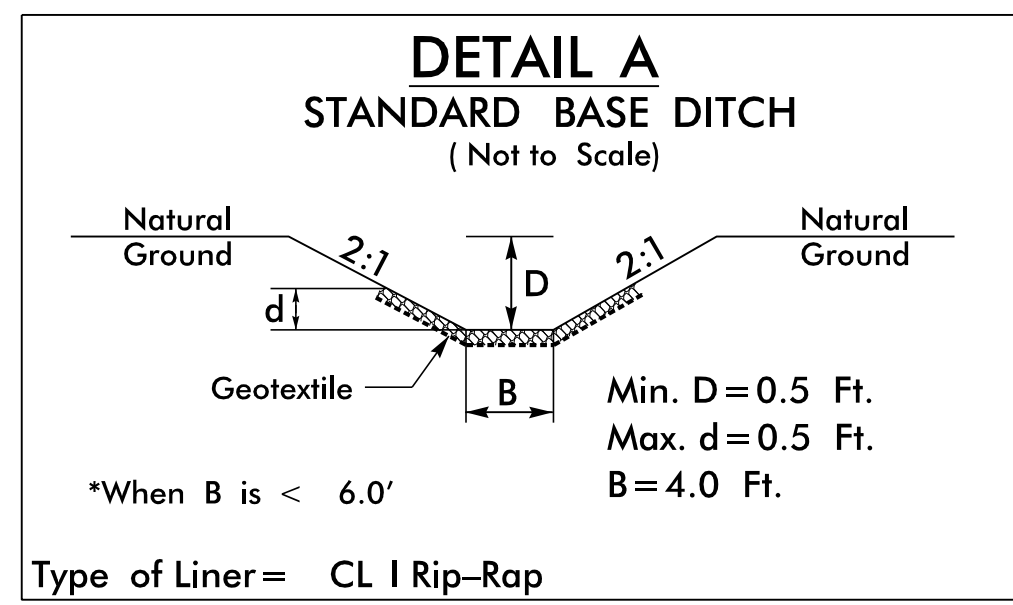
SEE PLATE FOR TITLE

ORIGINAL BY: E.E.Ward	DATE: 4-4-02
MODIFIED BY: I.S.Spell	DATE: 2-01-18
CHECKED BY:	DATE:
FILE SPEC.: \\howerton\guardrail\31inguardrail\typeiiisc.dgn	

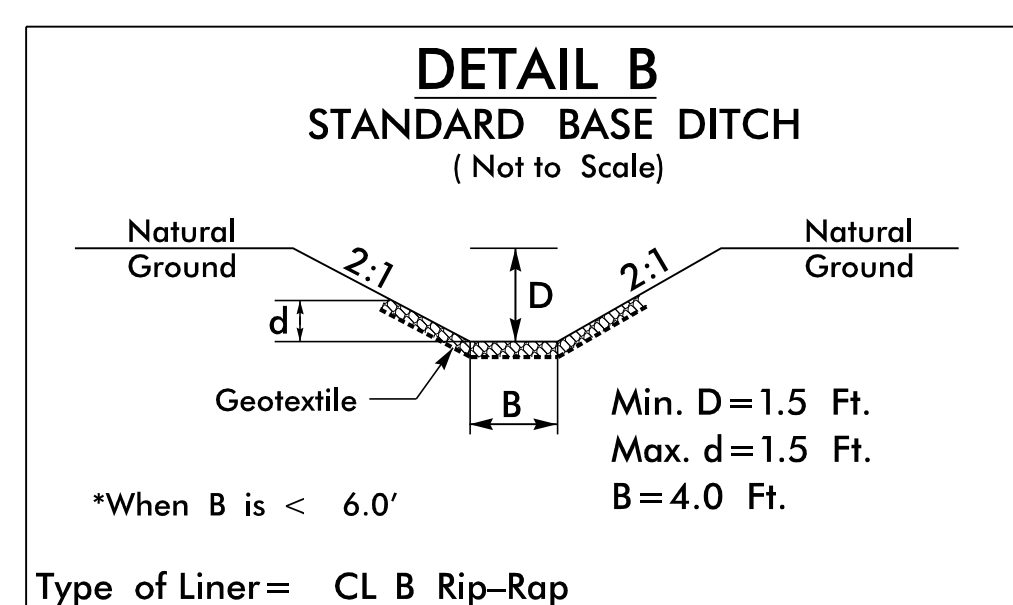


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

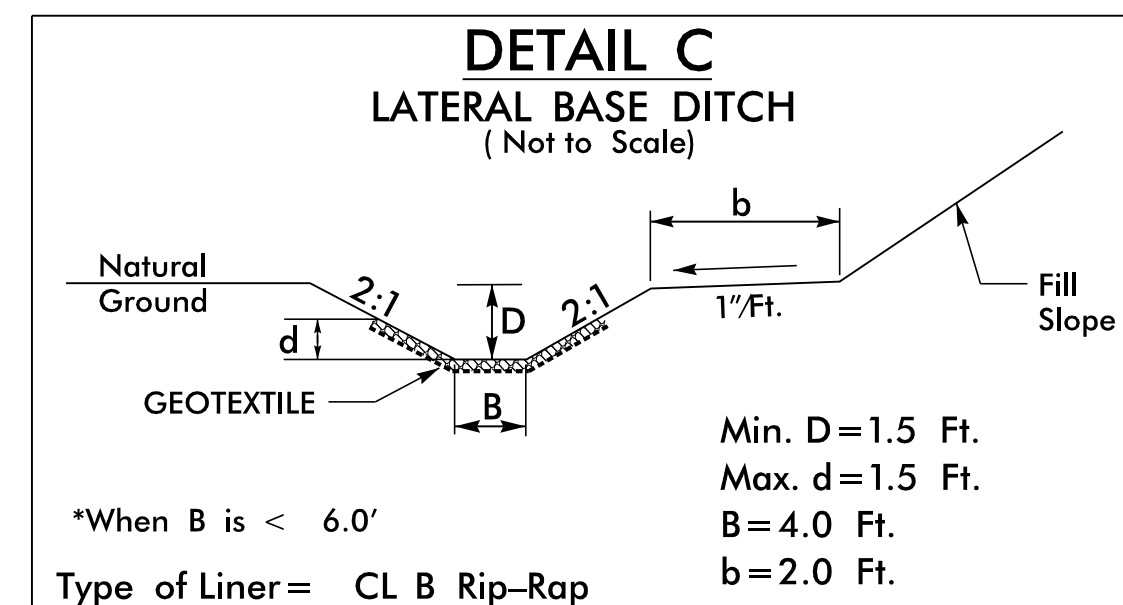
DRAINAGE DETAILS



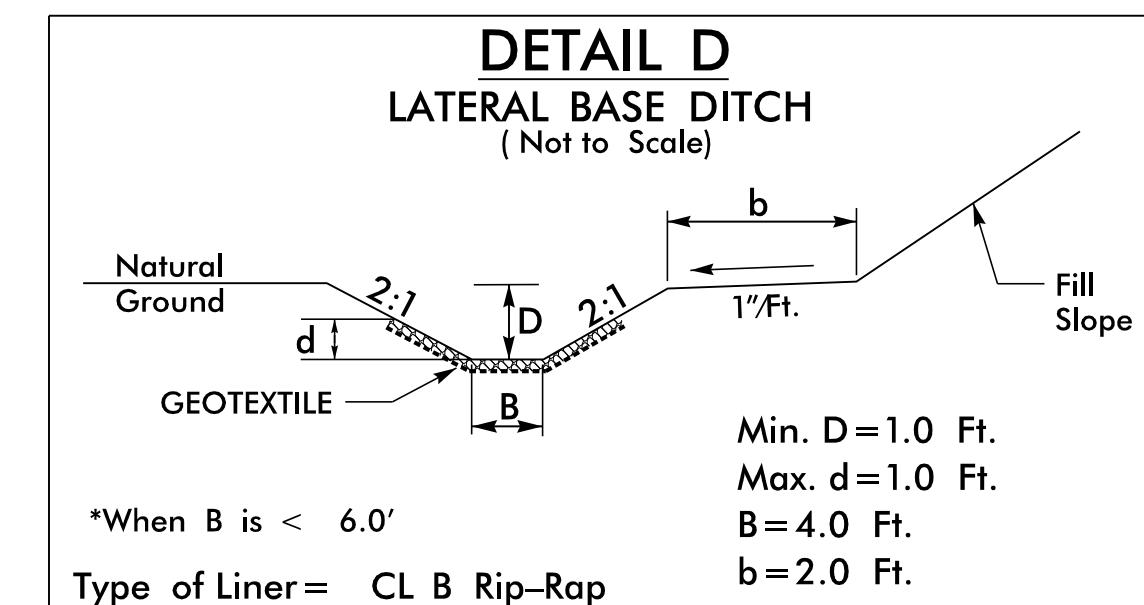
-L- STA. 12+00 TO STA. 12+50
BEG. ELEV=3499.0' END ELEV=3498.0'
S=2.0%, L=50'
DDE=98 CY, 17 TONS, 35 SY GEOFAB
-L- STA. 12+50 TO STA. 12+70
BEG. ELEV=3498.0' END ELEV=3495.0'
S=12.0%, L=25'
DDE=24 CY, 9 TONS, 17 SY GEOFAB



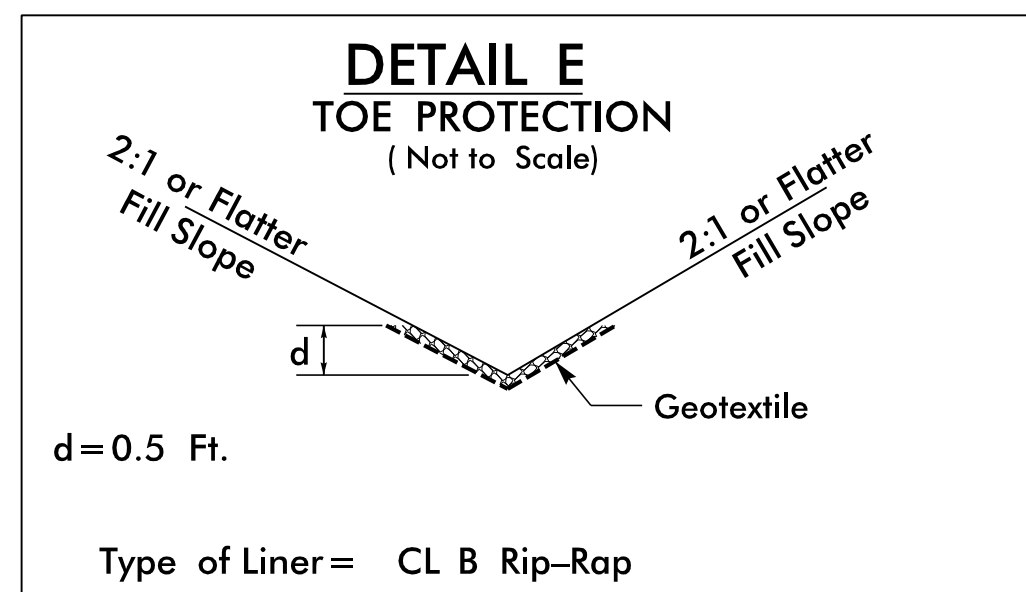
-L- STA. 13+35 TO STA. 13+92 LT
BEG. ELEV=3492.80', END ELEV=3494.0'
S=2.3%, L=52'
DDE=233 CY, 31 TONS, 68 SY GEOFAB



-L- STA. 13+92 TO STA. 17+00 LT,
DDE=439 CY, 165 TONS, 366 SY GEOFAB



-L- STA. 17+00 TO STA. 18+00 LT,
DDE=49 CY, 85 TONS, 94 SY GEOFAB



-DET- 12+92 TO STA. 13+86 RT
(ON TEMPORARY BRIDGE SLOPE)
11 TONS, 23 SY GEOFAB

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

SUMMARY OF EARTHWORK

IN CUBIC YARDS

CHAIN	BEGINNING STATION	ENDING STATION	UNCL. EXCA. C.Y.	UNDERCUT C.Y.	EMBANK. +% C.Y.	BORROW C.Y.	WASTE C.Y.
SUMMARY 1							
-DET-	10+93.89	13+84.92	18		957	939	
-DET-	15+04.92	17+89.53	3		3,525	3,522	
-Y1_DET-	10+45.38	10+85.00			58	58	
SUBTOTAL			21		4,540	4,519	
SUMMARY 2							
-L-	10+00.00	12+98.50			260	260	
-L-	14+73.50	17+50.00	29		527	498	
-Y1-	10+12.03	11+35.00	7		105	98	
-Y2-	10+60.00	11+73.00	11		107	96	
SUBTOTAL			47		999	952	
SUMMARY 3							
-DET_Removal-	12+91.26	13+84.92	659				659
-DET_Removal-	15+24.79	17+29.04	1,980				1,980
-Y1_DET_Removal-	10+45.38	10+85.00	24				24
SUBTOTAL			2,663				2,663
SHEET TOTALS			2,731		5,539	5,471	2,663
EARTH WASTE IN LIEU OF BORROW							
PROJECT TOTAL			2,731		5,539	5,471	2,663
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT						274	
DRAINAGE DITCH EXCAVATION			850				
GRAND TOTAL			3,581			5,745	
SAY			3,581			5,750	2,663
EST. SHALLOW UNDERCUT = EST. 100 CY							
EST. UNDERCUT EXCAVATION = EST. 100 CY							
<p>Note: Earthwork quantities are calculated by RK&K. These earthwork quantities are based in part on contingencies for subsurface data.</p>							
<p>Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."</p>							

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUARDRAIL SUMMARY

IN LINEAR FEET

ALN.	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS					IMPACT ATTENUATOR TYPE 350		REMOVE EXISTING GR	REMARKS		
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	TYPE-III	TYPE B-77	TL-3	TL-2	AT-1	G	NG						
-Y1-	10+15.83	11+12.83	RT	62.50	66.04																				
-Y2-	11+35.63	11+63.87	RT	6.25	35.18																				
-L-	12+28.72	13+10.05	RT	93.75																			100.00	8	
-L-	12+37.48	12+86.95	LT	56.25																			87.50		
-L-	14+61.95	16+74.25	LT	218.75																			112.50		
-L-	14+85.05	15+78.79	RT	70.75																			112.50		
SUBTOTAL:				508.25	101.22																			412.50	
ANCHOR UNIT DEDUCTIONS:																									
TL-3 @ 50' Each				-150.00																					
Type-III @ 18.75' Each				-75.00																					
AT-1 @ 6.25' Each				-6.25																					
LESS GUARDRAIL DEDUCTIONS:				277.00	101.22																				
ADDITIONAL GUARDRAIL POSTS = 5 EA																									
TOTAL:				277.00	101.22																				
SAY:				287.5	112.5																			412.5	

TEMPORARY GUARDRAIL SUMMARY

IN LINEAR FEET

ALN.	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS					IMPACT ATTENUATOR TYPE 350		REMOVE EXISTING GR	REMARKS			
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	TYPE-III	TYPE B-77	TL-3	TL-2	AT-1	G	NG							
-Y1--/DET-	10+51.91	13+78.15	RT/LT	87.50	28.25																			115.75		
-DET-	13+03.59	13+93.01	RT	93.75																				93.75		
-DET-	14+97.99	17+90.12	LT	293.75																				293.75		
-DET-	15+13.11	15+89.90	RT	81.25																				81.25		
SUBTOTAL:				556.25	28.25																				584.50	
ANCHOR UNIT DEDUCTIONS:																										
TL-3 @ 50' Each				-150.00																						
Type-III @ 18.75' Each				-75.00																						
AT-1 @ 6.25' Each				-6.25																						
LESS GUARDRAIL DEDUCTIONS:				325.00	28.25																					
TOTAL:				325.00	28.25																					
SAY:				337.5	37.5																				587.5	



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Note: Approximate quantities only. Unclassified
Excavation, Borrow Excavation, Fine Grading,
Breaking of Existing Pavement, and Removal of
Existing Pavement will be paid for at the contract
lump sum price for "Grading."

**REMOVAL OF EXISTING
ASPHALT PAVEMENT SUMMARY**
IN SQUARE YARDS

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-Y1-	10+72.96	11+00.27	LT	5.29		0.59
-Y2-	11+21.83	11+59.32	LT	81.15		9.02
-L-	12+44.63	13+06.75	CL	1458.89		162.10
-L-	14+66.59	15+27.37	CL	1392.59		154.73
-L-	16+58.31	16+67.47	RT	17.89		1.99
-DET-	10+94.45	13+84.92	CL	3155.53		350.61
-DET-	15+04.92	17+30.32	CL	4289.71		476.63
				TOTAL		1,155.67
				SAY		1,160

**SUMMARY OF SHOULDER
BERM GUTTER**
IN LINEAR FEET

LOCATION	SIDE	BEG. STA.	END STA.	LENGTH
-L-	LT	14+87.07	15+05.00	17.9
-L-	RT	15+10.05	15+28.80	18.8
-DET-	RT	13+54.72	13+91.66	36.9
			TOTAL	73.6
			SAY	74

5/28/99

3/1/2024
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6/2/2024

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

COMPUTED BY: CJP DATE: 3/3/2023
CHECKED BY: ASB DATE: 2/13/2024

PROJECT REFERENCE NO. 17BP11.R122 SHEET NO. 3D-1

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

Table with columns: LINE & STATION, SIZE, THICKNESS OR GAUGE, OFFSET, STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC), R.C. PIPE CLASS III, R.C. PIPE CLASS IV, ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD STANDARD 840.03, CONCRETE TRANSITIONAL SECTION, TYPE OF GRATE, DRAINAGE PIPE ELBOWS NO. & SIZE, CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71, CONC. COLLARS CL. "B" C.Y. STD. 840.72, PIPE REMOVAL LIN. FT., ABBREVIATIONS, REMARKS.

3/14/2024
R:\R\2024\17BP11.R122\17BP11.R122_3D-1.dgn

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COMPUTED BY: BVE DATE: 11/2023
 CHECKED BY: _____ DATE: _____

PROJECT REFERENCE NO.	SHEET NO.
17BP.JI.R.J22	36-1

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

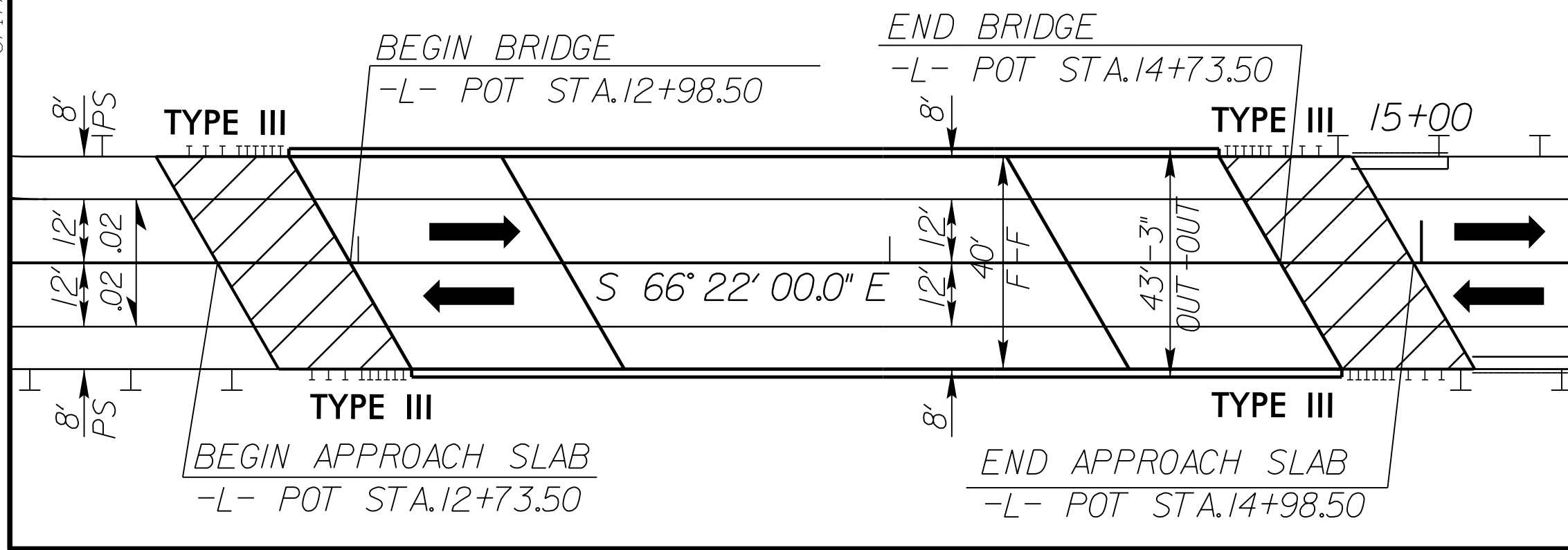
LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS	Undercut Excavation	Select Granular Material Class III
			CONTINGENCY		100	190	600			100	100
			TOTAL CY/TONS/SY:		100	190**	600**	0	0	100	100

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
 *AST = Aggregate Stabilization
 **Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

8/17/19 2/16/2024 P:\050027_Rdy_psh030-1.dgn

8/17/99

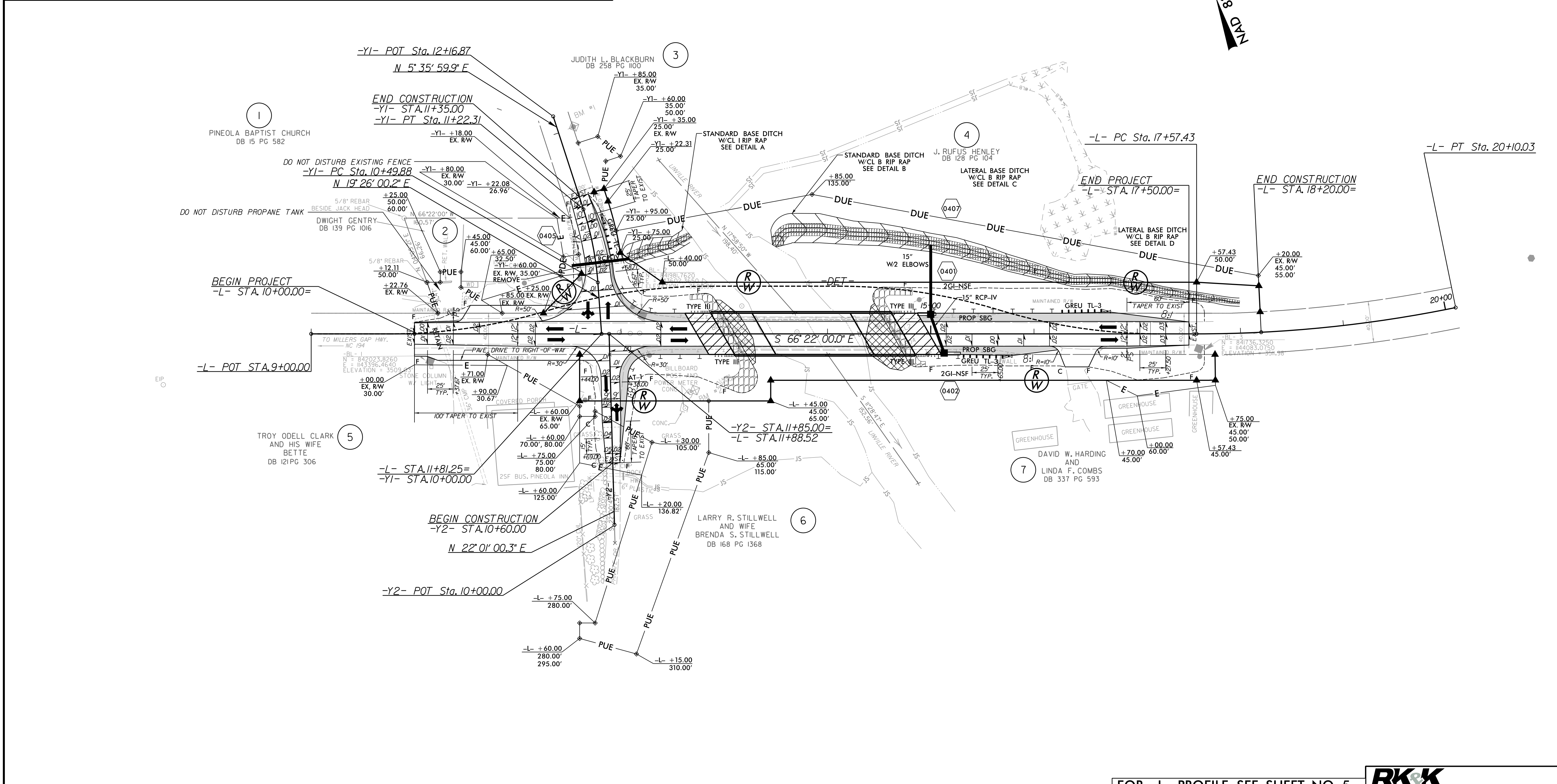
BRIDGE/ROADWAY RELATIONSHIP SKETCH



-L-	-Y1-
PI Sta 18+84.16	PI Sta 10+86.27
$\Delta = 11' 34' 42.7\"$ (LT)	$\Delta = 13' 50' 00.3\"$ (LT)
D = 4' 35' 01.2"	D = 19' 05' 54.9"
L = 252.60'	L = 72.43'
T = 126.73'	T = 36.39'
R = 1,250.00'	R = 300.00'
	V = 30mph @ Stop.Cond.

PROJECT REFERENCE NO. 17BP.J1.R.J22	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

NAD 83/NSR 2007



SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	14+87.07	15+05.00	LT
SBG	-L-	15+10.05	15+28.80	RT

FOR -L- PROFILE, SEE SHEET NO. 5
 FOR -Y1- PROFILE, SEE SHEET NO. 5
 FOR -Y2- PROFILE, SEE SHEET NO. 5

FOR DETOUR, SEE SHEET 2B-1
 FOR DRAINAGE DETAILS, SEE SHEET 2D-1

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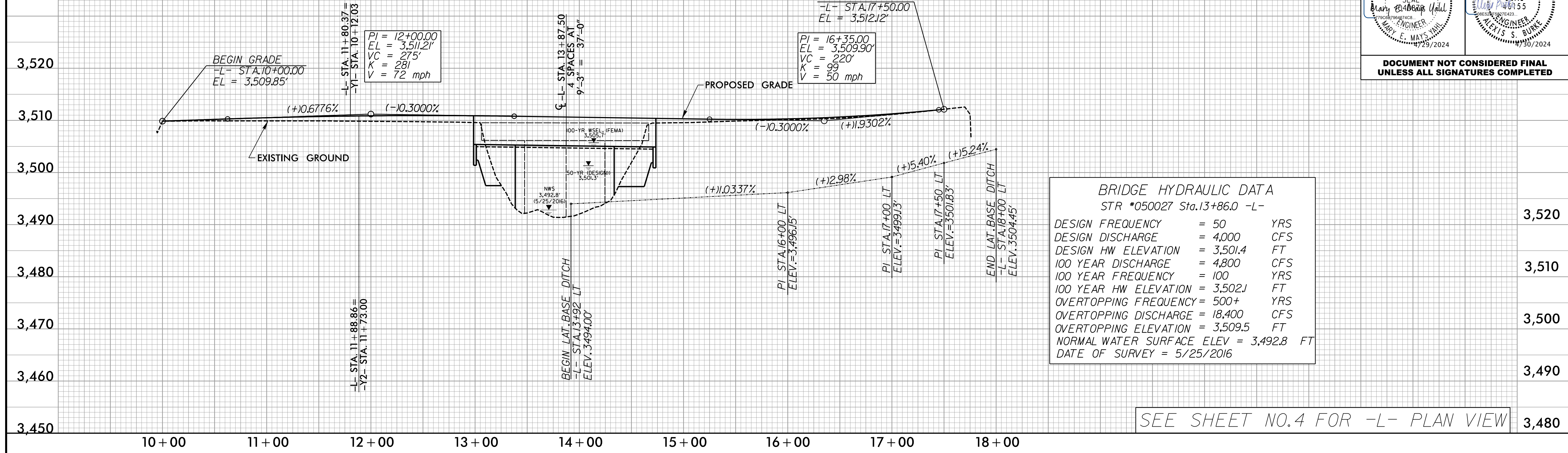
2/16/2024 P:\Roadway\Proj\050027_Rdy_psh04.dgn

5/28/24

BM #1 ELEVATION = 3505.25'
N 842176. E 1143615.
-EL- STATION 11+55 20' LEFT
NAIL IN POLE

BM #2 ELEVATION = 3503.85'
N 841895. E 1143620.
-EL- STATION 12+72 54' RIGHT
RAILROAD SPIKE IN CUT-OFF POLE

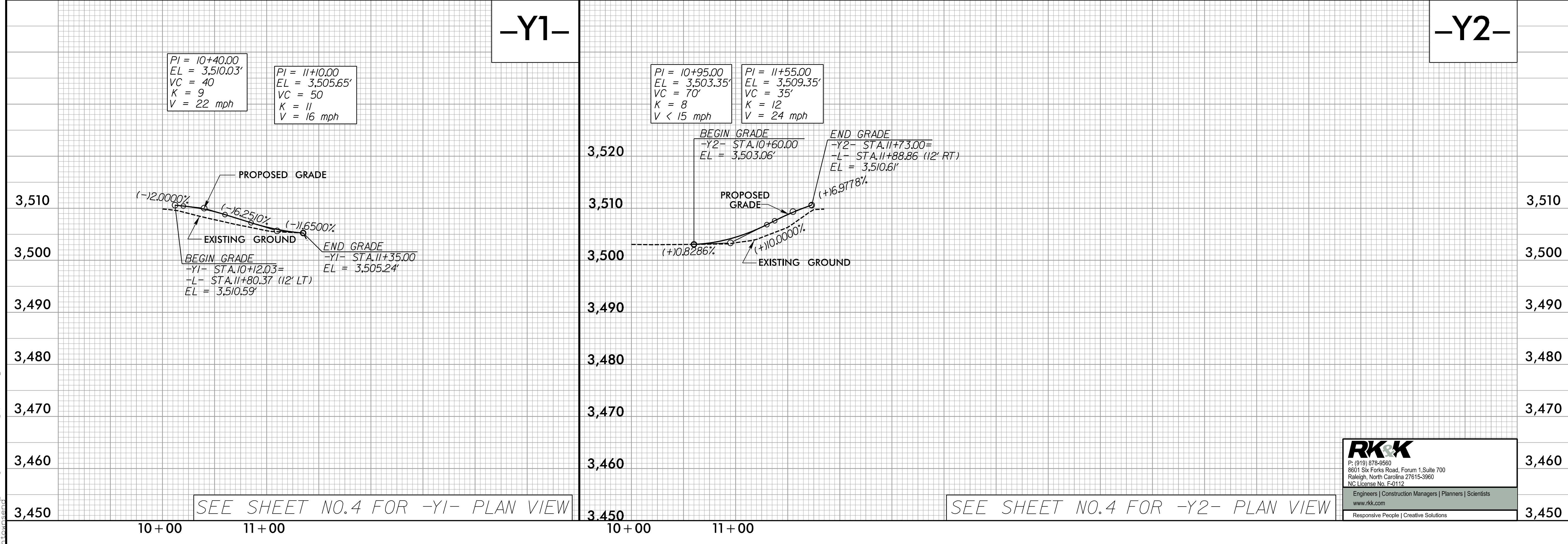
PROJECT REFERENCE NO. 17BP.J1.RJ22	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



BRIDGE HYDRAULIC DATA
STR *050027 Sta.13+86.0 -L-

DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 4,000	CFS
DESIGN HW ELEVATION	= 3,501.4	FT
100 YEAR DISCHARGE	= 4,800	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 3,502.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 18,400	CFS
OVERTOPPING ELEVATION	= 3,509.5	FT
NORMAL WATER SURFACE ELEV	= 3,492.8	FT
DATE OF SURVEY	= 5/25/2016	

SEE SHEET NO.4 FOR -L- PLAN VIEW



SEE SHEET NO.4 FOR -Y1- PLAN VIEW

SEE SHEET NO.4 FOR -Y2- PLAN VIEW

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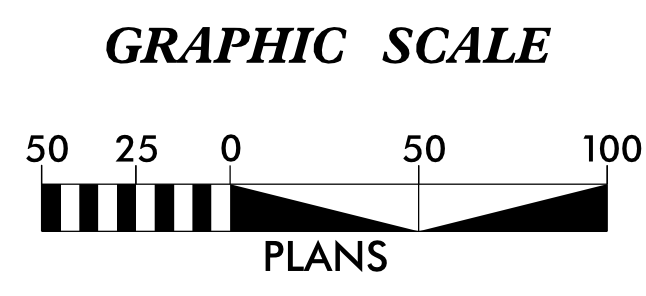
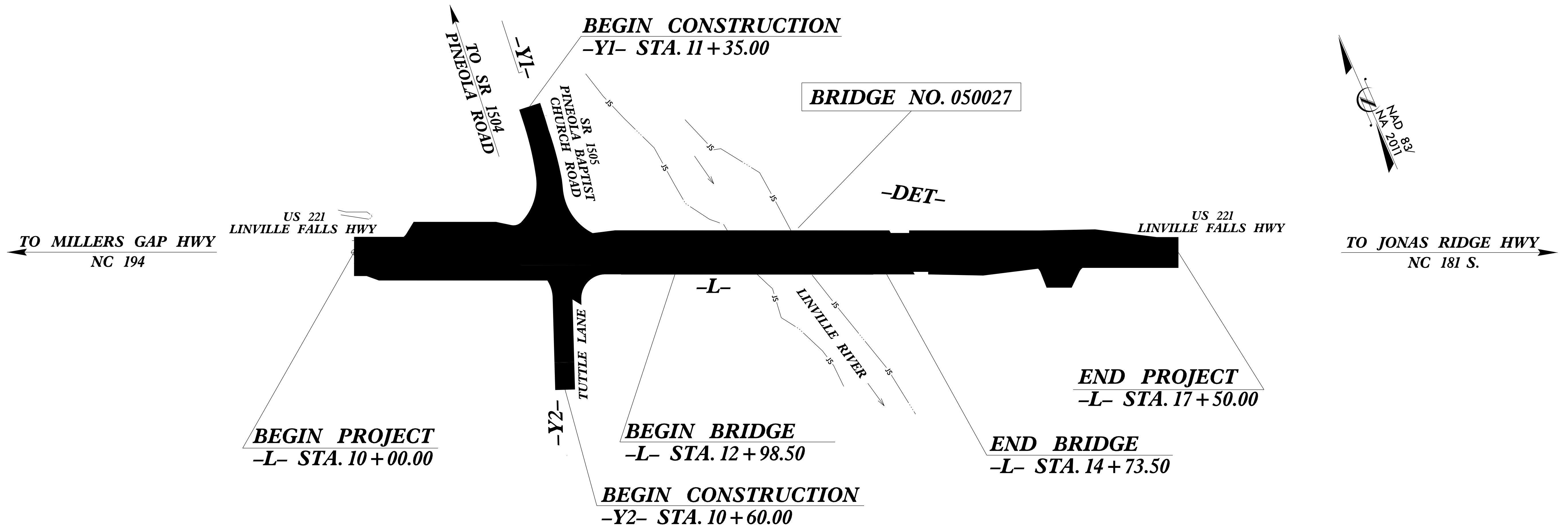
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.11.R.122	RW01	04

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

AVERY COUNTY

TIP PROJECT: 050027



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "050027 GPS-101" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 841687.590(ft) EASTING: 1144413.156(ft) ELEVATION: 3522.045(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99986044

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "050027 GPS-101" TO -L- STATION 10+00.00 IS N 70°14'27" W 1084.017(ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 1988

Prepared in the Office of:

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
09/21/2022

LETTING DATE:
XXXX/XXXX

PROFESSIONAL LAND SURVEYOR

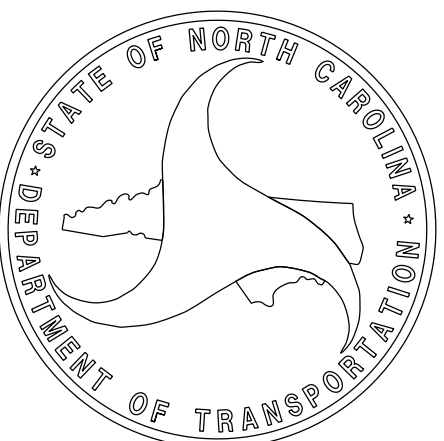


DocuSigned by:
R. Landon Wagner
94065137030425

10/04/2022

SIGNATURE:


Date:



6/2/19

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
050027	RW02C-1
Location and Surveys	
LOCATION & SURVEYS UNIT NORTH WILKESBORO DIVISION 11	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

NC DOT GPS STATION GPS 102
LOCALIZED PROJECT COORDINATES
N = 841876.1766
E = 1144628.9849
ELEVATION = 3533.95'



BM #1 ELEVATION = 3505.25'
N 842176. E 1143615.
-EL- STATION 11+55 20' LEFT
NAIL IN POLE

BRIDGE NO. 050027

NC DOT GPS STATION GPS 101
LOCALIZED PROJECT COORDINATES
N = 841687.5900
E = 1144413.1560
ELEVATION = 3522.05'

Class of survey: **AA**
Type of GPS field procedure: RTN
Dates of survey: FEBRUARY, 2016
Datum/Epoch: NAD83/NA 2011
Published/Fixed-control use: N/A
Localized around: 050027 GPS-101
Northing: 841687.5900
Easting: 1144413.1560
Combined grid factor: 0.99986044
Geoid model: G12NC
Units: US SURVEY FEET

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from January, 2016 to February, 2016, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 9th day of May, 2024.

DocuSigned by:
R. Landon Wagoner
8406131F03342D
Professional Land Surveyor L-4301

JONAS RIDGE HWY
NC 181 S.

MILLERS GAP HWY
NC 194

-BL- 1
N = 842023.8260
E = 1143396.4640
ELEVATION = 3509.03'

-BL- 2
N = 841981.7620
E = 1143602.3650
ELEVATION = 3508.86'

BM #2 ELEVATION = 3503.85'
N 841895. E 1143620.
-EL- STATION 12+72 54' RIGHT
RAILROAD SPIKE IN CUT-OFF POLE

-BL- 3
N = 841736.3250
E = 1144083.0750
ELEVATION = 3511.98'

REVISIONS


09-MAY-2024 10:13
L:\DL\05\WILKES\Low_Impact_2016\050027\CONTROL SHEET\050027_1s_RW02C-1.dgn
cmastin AT LS-329547L

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. 050027	SHEET NO. RW02C-2
Location and Surveys	
LOCATION & SURVEYS UNIT NORTH WILKESBORO DIVISION 11	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

BL	POINT	DESC.	NORTH	EAST	ELEVATION
3		BL1	842023.8260	1143396.4640	3509.03
2		BL2	841981.7620	1143602.3650	3508.86
1		BL3	841736.3250	1144083.0750	3511.98
101		GPS101	841687.5900	1144413.1560	3522.05

EL				
POINT	N	E	BEARING	DIST
POT	842054.058	1143392.963		
LINE			S 66°22'00.0" E	775.00
POT	841743.375	1144102.964		

EY									
POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	841981.399	1143559.011							
LINE			N 19°26'00.2" E	49.88					
PC	842028.435	1143575.606							
CURVE			N 12°31'00.0" E	72.26	13°50'00.3"(LT)	19°05'54.9"	72.43	36.39	300.00
PT	842098.974	1143591.265							
LINE			N 05°35'59.9" E	17.69					
POT	842116.583	1143592.992							

EY1				
POINT	N	E	BEARING	DIST
POT	841899.684	1143533.804		
LINE			N 22°01'00.3" E	85.00
POT	841978.485	1143565.669		

```

*****
BM#1      ELEVATION = 3505.25
N 842176      E 1143615
BM1 BENCH TIE WITH YELLOW PLASTIC
CAP SET IN EAST SIDE OF POLE APPROX.
1' ABOVE GROUND
*****

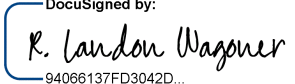
*****
BM#2      ELEVATION = 3503.85
N 841895      E 1143620
BM2 RAILROAD SPIKE IN CUT OFF POLE NEARBILLBOARD
*****
    
```

I, R. LANDON WAGONER, PLS, certify that the Project Control was [performed/verified] under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**
 Type of GPS field procedure: **RTN**
 Dates of survey: **FEBRUARY, 2016**
 Datum/Epoch: **NAD83/NA 2011**
 Published/Fixed-control use: **N/A**
 Localized around: **050027 GPS-101**
 Northing: **841687.5900**
 Easting: **1144413.1560**
 Combined grid factor: **0.99986044**
 Geoid model: **G12NC**
 Units: **US SURVEY FEET**

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from January, 2016 to February, 2016, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 9th day of May, 2024.

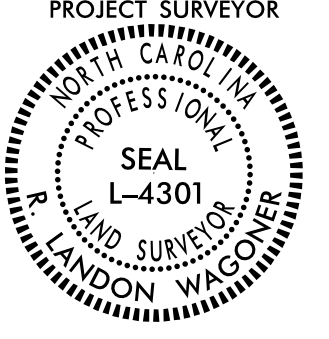
DocuSigned by:

 Professional Land Surveyor L-4301

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

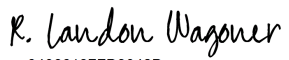
REVISIONS

PROPOSED ALIGNMENT CONTROL SHEET

<small>PROJECT REFERENCE NO.</small> 17BP.11.R.122	<small>SHEET NO.</small> RW02D-1
Location and Surveys	
ENTER CONSULTANT'S NAME IN THIS BOX	
	
<small>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</small>	

I, R. Landon Wagener, PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

This 04th day of October, 2022.

DocuSigned by:

R. Landon Wagener
Professional Land Surveyor L-4301

REVISIONS

L

TYPE	STATION	NORTH	EAST
POT	9+00.00	842094.1465	1143301.3502
PC	17+57.43	841750.4178	1144086.8677
PT	20+10.03	841673.1445	1144326.9113

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	841981.3987	1143559.0109
PC	10+49.88	842028.4353	1143575.6059
PT	11+22.31	842098.9738	1143591.2655
POT	12+16.87	842193.0808	1143600.4927

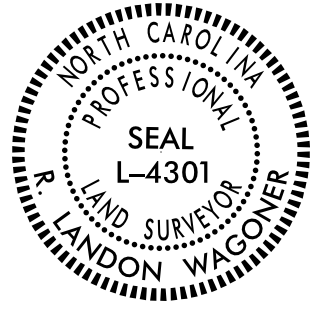
Y2

TYPE	STATION	NORTH	EAST
POT	10+00.00	841806.9766	1143496.3164
POT	11+85.00	841978.4853	1143565.6688

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

RIGHT OF WAY & PERMANENT EASEMENT CONTROL SHEET

PROJECT REFERENCE NO. 17BP.11.R.122	SHEET NO. RW03E-1
Location and Surveys	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, R. Landon Wagoner, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed February 22nd 2024, and all coordinates are based on NAD83/NA2011. That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 27th day of February, 2024.

R. Landon Wagoner
Professional Land Surveyor L-4301

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	10+60.00	-15.00	842042.5461	1143564.5062
Y1	10+75.00	25.00	842046.1312	1143607.1519
Y1	11+22.31	25.00	842096.5343	1143616.1462
Y1	11+35.00	25.00	842109.1638	1143617.3845
Y1	11+35.00	15.00	842110.1397	1143607.4322

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+12.11	-50.00	842095.0081	1143424.1059
L	10+22.76	-20.00	842063.2550	1143421.8359
L	10+25.00	-50.00	842089.8427	1143435.9105
L	10+25.00	-60.00	842099.0040	1143439.9193
L	10+45.00	-45.00	842077.2444	1143452.2287
L	10+45.00	-60.00	842090.9863	1143458.2419
L	10+71.00	20.00	842007.2730	1143449.9907
L	10+85.00	-20.00	842038.3059	1143478.8518
L	11+60.00	280.00	841733.4008	1143427.2969
L	11+60.00	295.00	841719.6589	1143421.2836
L	11+60.00	80.00	841916.6267	1143507.4733
L	11+60.00	70.00	841925.7880	1143511.4821
L	11+75.00	280.00	841727.3876	1143441.0388
L	11+75.00	75.00	841915.1941	1143523.2196
L	11+75.00	80.00	841910.6135	1143521.2152
L	12+15.00	310.00	841683.8684	1143465.6575
L	12+30.00	105.00	841865.6617	1143561.5803
L	12+85.00	115.00	841834.4519	1143607.9586
L	12+85.00	65.00	841880.2584	1143628.0027
L	13+85.00	-135.00	842023.3961	1143799.7921
L	18+20.00	-55.00	841778.2069	1144164.2929

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+25.00	-20.00	842022.2706	1143515.4970
L	11+60.00	20.00	841971.5945	1143531.5262
L	11+60.00	65.00	841930.3687	1143513.4865
L	12+40.00	-50.00	842003.6530	1143632.8783
L	13+45.00	65.00	841856.2055	1143682.9705
L	13+45.00	45.00	841874.5281	1143690.9882
L	17+57.43	-50.00	841796.2245	1144106.9113
L	17+57.43	45.00	841709.1920	1144068.8280
L	17+75.00	45.00	841702.0126	1144085.5541
L	17+75.00	20.13	841724.9388	1144095.2046
L	18+20.00	-45.00	841768.8565	1144160.7475
L	18+20.00	-19.75	841745.2436	1144151.7942
L	18+20.00	-45.00	841768.8565	1144160.7475
L	18+20.00	-19.75	841745.2436	1144151.7942

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	10+60.00	-35.00	842048.5603	1143545.4319
Y1	10+80.00	-15.00	842060.8436	1143569.6116
Y1	10+80.00	-30.00	842064.3912	1143555.0372
Y1	10+95.00	25.00	842067.2617	1143611.9238
Y1	11+60.00	50.00	842131.6050	1143644.7048
Y1	11+60.00	35.00	842133.0687	1143629.7763
Y1	11+85.00	35.00	842157.9494	1143632.2159
Y1	11+85.00	15.00	842159.9010	1143612.3113

MARKER EXCEPTIONS:
* NOT SET

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.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED FEBRUARY 22ND, 2024.

REVISIONS

Location and Surveys

LOCATION & SURVEYS
NORTH WILKESBORO
DIVISION 11

PROJECT SURVEYOR



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

-L-	-Y1-
PI Sta 18+84.16	PI Sta 10+86.27
$\Delta = 1^\circ 34' 42.7''$ (LT)	$\Delta = 1^\circ 50' 00.3''$ (LT)
D = 4' 35' 01.2"	D = 19' 05' 54.9"
L = 252.60'	L = 72.43'
T = 126.73'	T = 36.39'
R = 1,250.00'	R = 300.00'
	SE = 0.02
	V = 30mph @ Stop.Cond.

I. R. Landon Wagoner, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed February 22nd 2024, and all coordinates are based on NAD83/NA2011; That this survey was performed to meet the requirements of 21NCAC 58.1600 as applicable.

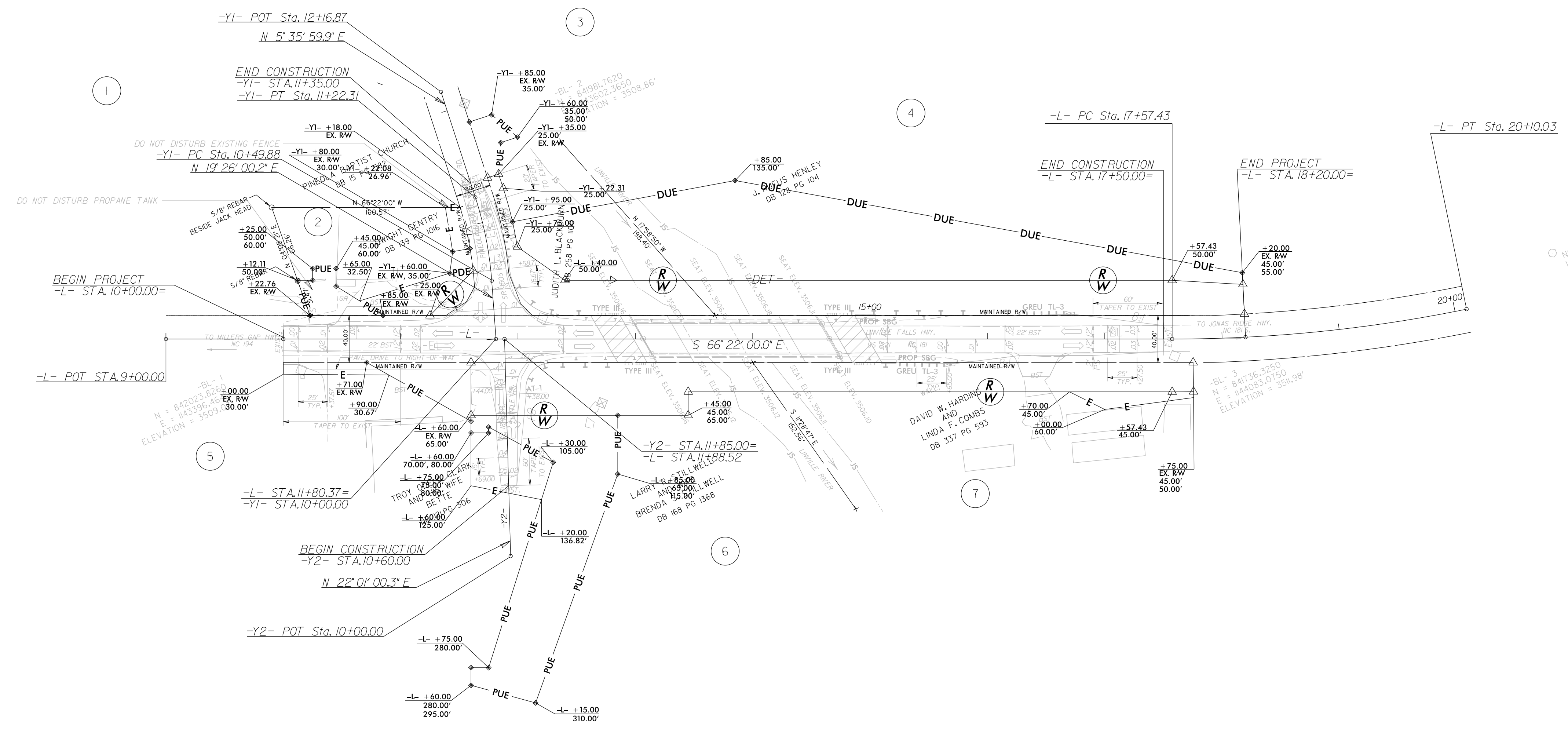
This 27th day of February, 2024.

I. R. Landon Wagoner
Professional Land Surveyor L-4301

○ NC DOT GPS STATION GPS 102
LOCALIZED PROJECT COORDINATES
N = 84826.6166
E = 844628.9849
ELEVATION = 3533.95'

○ NC DOT GPS STATION GPS 101
LOCALIZED PROJECT COORDINATES
N = 844681.5900
E = 844402.5560
ELEVATION = 3522.05'

REVISIONS



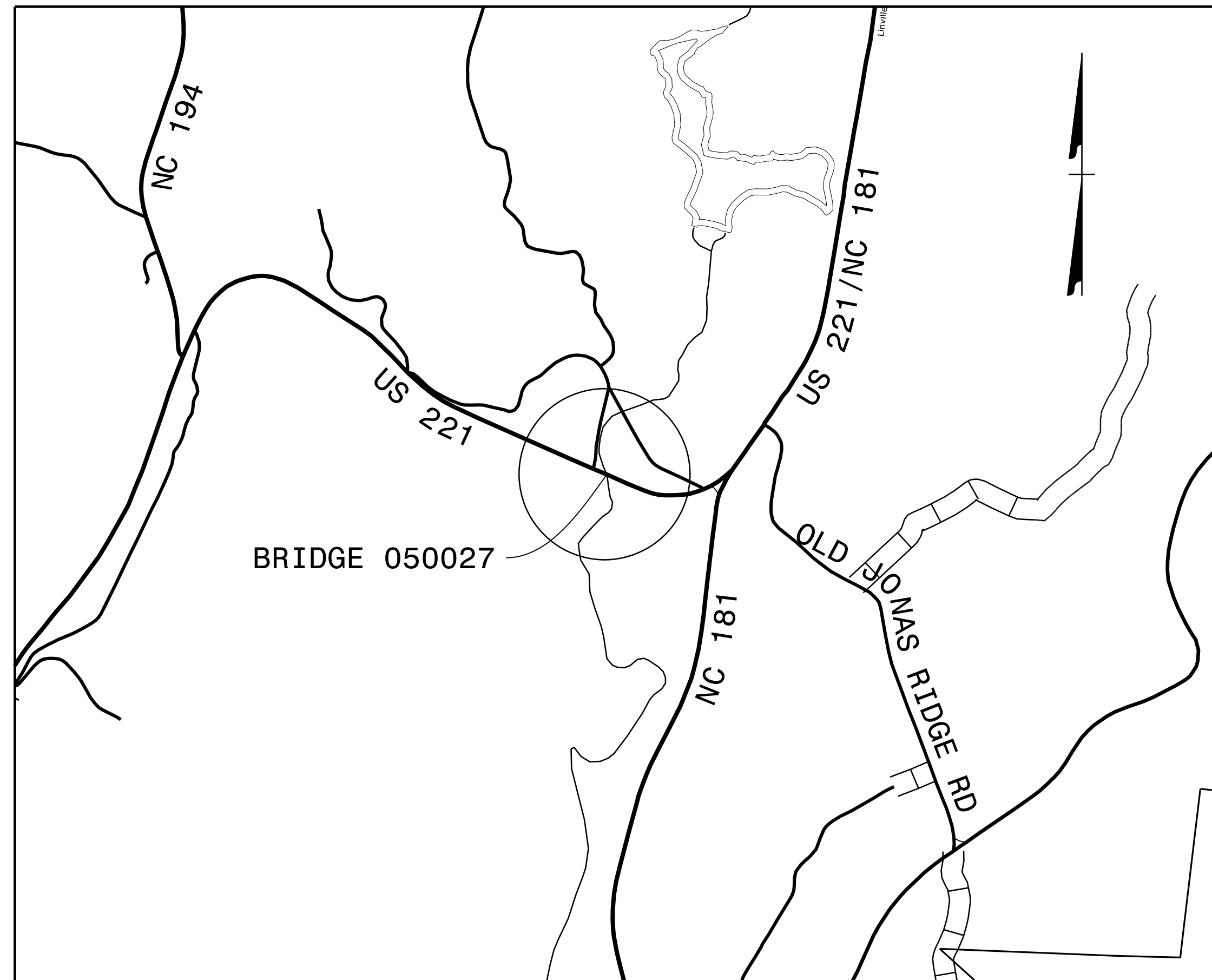
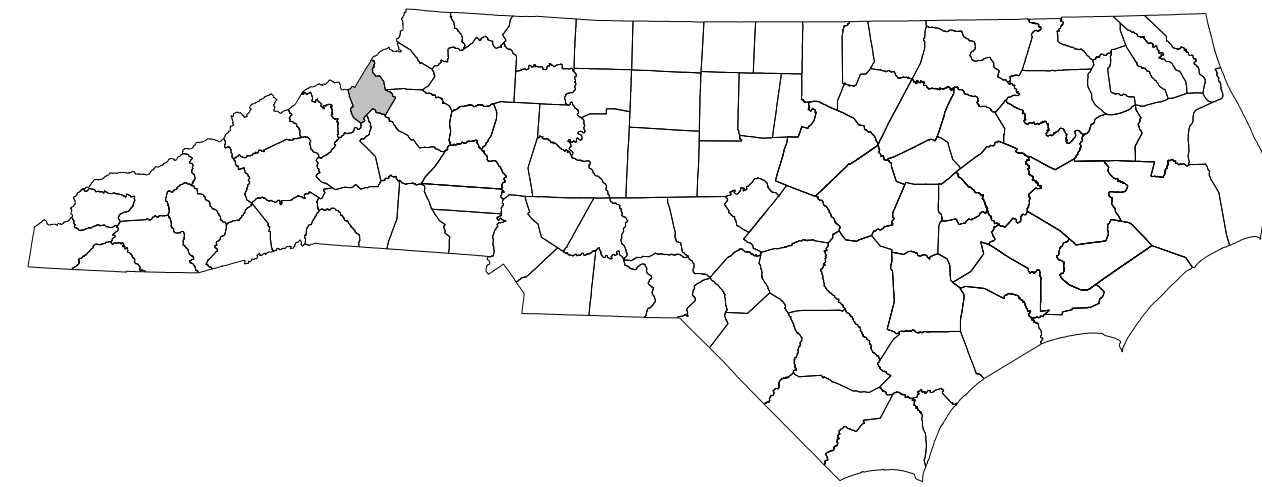
NOTES:

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2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED FEBRUARY 22ND 2024 .

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

AVERY COUNTY



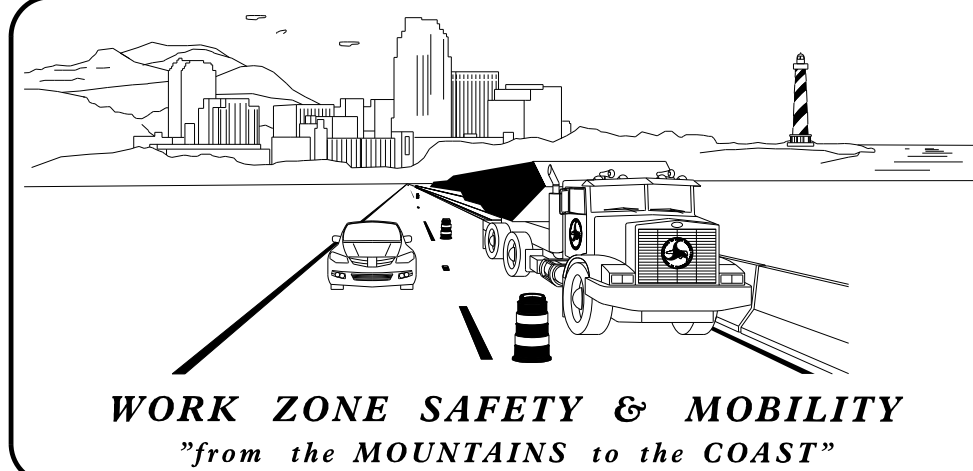
INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES)
TMP-2	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-2A	TEMPORARY SHORING DATA
TMP-3	TEMPORARY TRAFFIC CONTROL PHASING
TMP-4 AND 4A	TEMPORARY TRAFFIC CONTROL PHASE I DETAIL
TMP-5	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL
TMP-6	TEMPORARY TRAFFIC CONTROL PHASE III DETAIL

SHEET NO.

TMP-1

2/15/2024
050027_TMP_PSH01.dgn
KBISBY



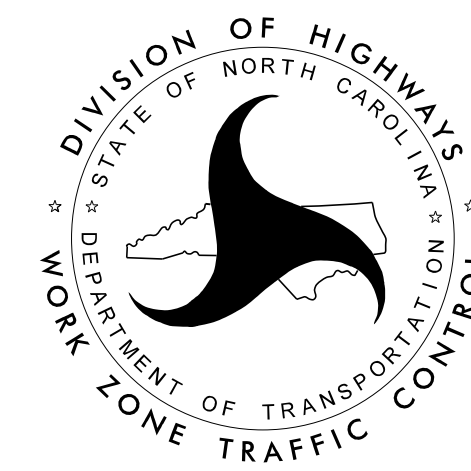
PLANS PREPARED BY:

B. HOLDEN, PE
PROJECT MANAGER

K. BISBY, PE
SENIOR PROJECT ENGINEER

NCDOT CONTACTS:

ROB N. WEISZ, PE
DIVISION BRIDGE PROGRAM MANAGER



APPROVED: 

DATE: 2/15/2024

SEAL



PROJECT: 17BP.11.R.122

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - 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
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.R.122	TMP-1A

RK&K
 P: (919) 878-8560
 8601 Six Forks Road, Forum 1, Suite 700
 Raleigh, North Carolina 27615-3960
 NC License No. F-0112
 Engineers | Construction Managers | Planners | Scientists
 www.rkk.com
 Responsive People | Creative Solutions

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN
- PORTABLE CONCRETE BARRIER
- PORTABLE CONCRETE BARRIER (EXISTING)
- SHORING
- PORTABLE CONCRETE BARRIER (SECTION VIEW)
- DRUM (SECTION VIEW)

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING SCHEDULE

PAINT	
Symbol	Description
P1	WHITE EDGELINE (4")
P5	2 FT. - 6 FT./SP WHITE MINISKIP (4")
P13	YELLOW DOUBLE CENTER (4")
P61	WHITE STOP BAR (24")
PAVEMENT MARKERS	
Symbol	Description
MH	TEMPORARY RAISED MARKER (Yellow/Yellow)

2/15/2024
050027-TMP_PSH01A.dgn
R015BY

APPROVED: DATE: 2/15/2024 SEAL			ROADWAY STANDARD DRAWINGS & LEGEND
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

GENERAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.R.122	TMP-1B

P: (919) 878-8560
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 Raleigh, North Carolina 27615-3960
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CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

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.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- D) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- E) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

 BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

 BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

 BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- F) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

- G) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- H) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- I) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC BARRIER

- J) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS

MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

- K) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT (mph)	MINIMUM OFFSET (ft.)
< 40	15
45 - 50	20
55	25
> 60	30

TRAFFIC CONTROL DEVICES

- L) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- M) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

- N) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
US 221	PAINT	TEMPORARY RAISED
-DET-	PAINT	TEMPORARY RAISED
SR 1505 PINEOLA BAPTIST CHURCH RD	PAINT	NONE

- O) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- P) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- Q) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

2/15/2024
050021-TMP_PSH01B.dgn
R01Bdy

APPROVED: DATE: 2/15/2024 SEAL			TRANSPORTATION OPERATIONS PLAN GENERAL NOTES
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

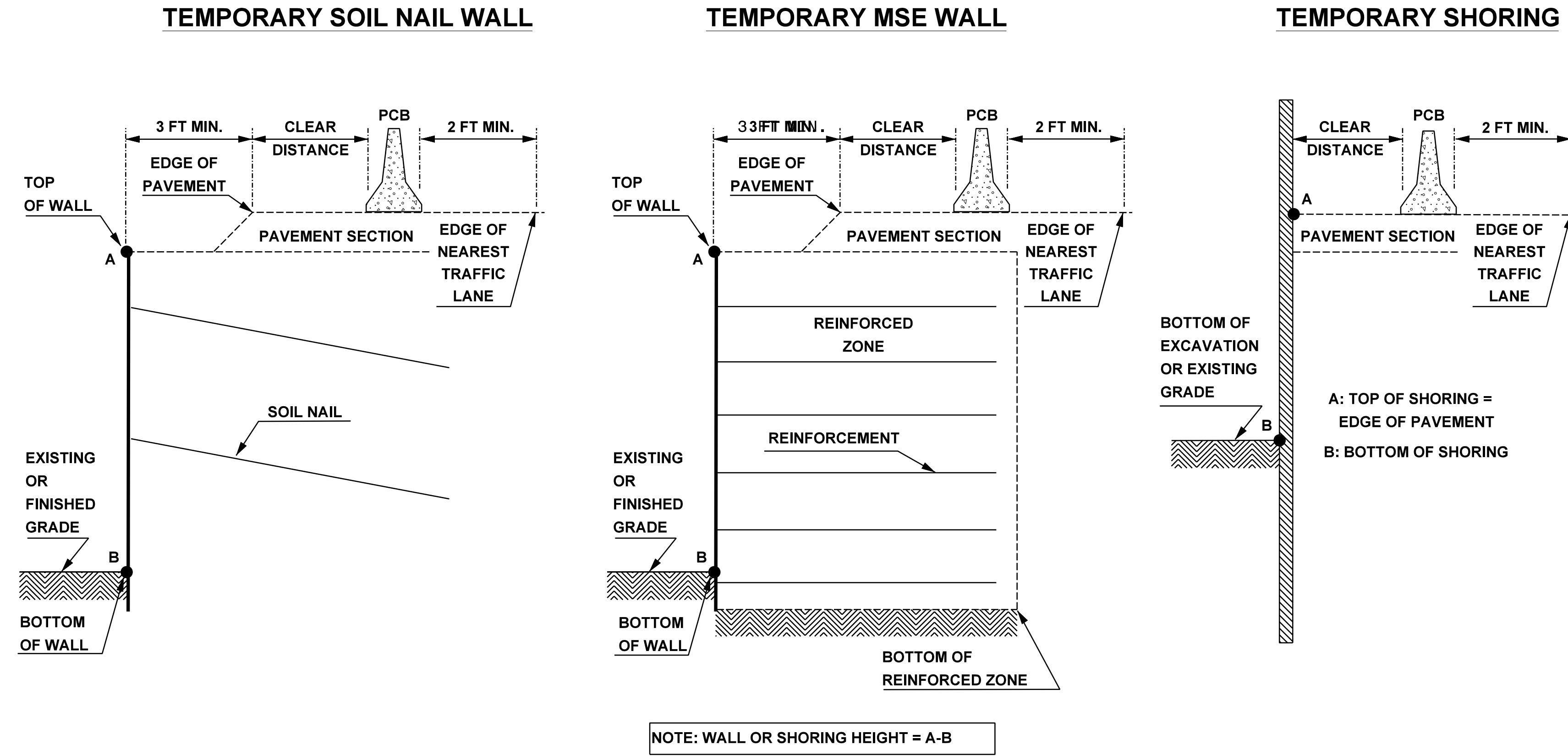


FIGURE A

NOTES

- 1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- 2- REFER TO THE "TEMPORARY SHORING" STANDARD PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- 3- PCB IS REQUIRED IF TEMPORARY SHORING/WALL IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT FOR APPLICABLE PAVEMENT DESIGN).
- 4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.
- 5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING/WALLS EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.
- 6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- 7- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS OR APPROVED BY THE ENGINEER.
- 8- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THIS MINIMUM REQUIRED DISTANCE IS NOT AVAILABLE, CONTACT THE ENGINEER.
- 9- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS.

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
	Concrete	44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
		>56	32	36	42	45	47	51
		<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
Anchored PCB	Asphalt	26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
		All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

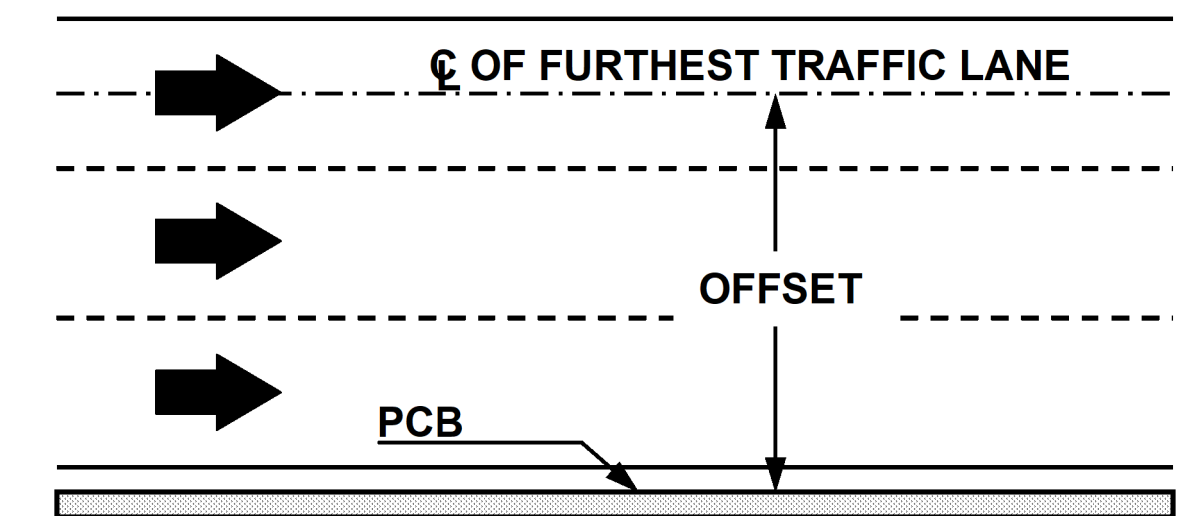


FIGURE B

APPROVED: DATE: 2/15/2024 SEAL		
PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

Shoring Location No.	Begin Station & Offset	End Station & Offset	Estimated Average Height (ft)	Estimated Maximum Height (ft)	Shoring Location, Type, Traffic Control Plan
1	-DET - STA 15+13± 20.0 ft RT	-DET- STA 15+77± 18.8 ft RT	8.5	12.0	Roadway Embankment Construction (Fill, TC Phase I, TMP-4)

THE FOLLOWING NOTES ON PLANS ARE RECOMMENDED FOR THE PROPOSED SHORING LOCATIONS:

SHORING LOCATION NO. 1:

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION -DET- STA 15+13±, 20.0 FT RT TO STATION -DET- STA 15+77±, 18.8 FT RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

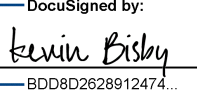
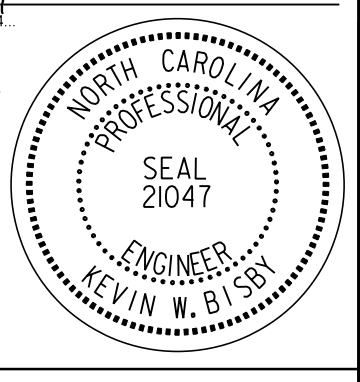
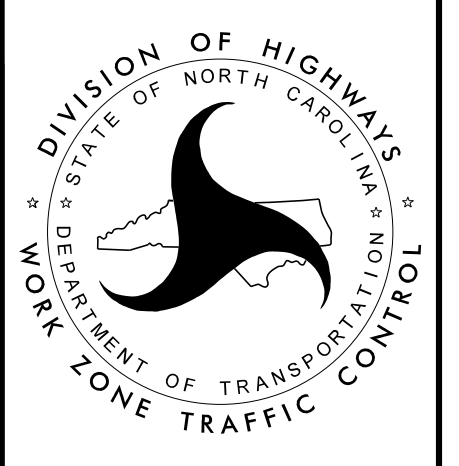
- UNIT WEIGHT (γ): 120 PCF
- FRICTION ANGLE (ϕ): 28 DEGREES
- COHESION (c): 0 PSF
- GROUNDWATER ELEVATION: VARIES, ASSUMED ELEVATION \pm 3495.0 FT

AT THE CONTRACTOR'S OPTION, USE A STANDARD TEMPORARY WALL FOR THE TEMPORARY SHORING FROM STATION -DET- STA 15+13±, 20.0 FT RT TO STATION -DET- STA 15+77±, 18.8 FT RT. SEE STANDARD DRAWING NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -DET- STA 15+13±, 20.0 FT RT TO STATION -DET- STA 15+77±, 18.8 FT RT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION. THE SUBSURFACE INFORMATION THAT IS AVAILABLE CAN BE FOUND IN THE ROADWAY SUBSURFACE INVENTORY REPORT.

DO NOT USE CANTILEVER, BRACED OR ANCHORED SHORING FOR TEMPORARY SHORING FROM STATION -DET- STA 15+13±, 20.0 FT RT TO STATION -DET- STA 15+77±, 18.8 FT RT.

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APPROVED:  <small>BD0802028912474</small> DATE: 2/15/2024 SEAL			TEMPORARY SHORING DATA
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TRAFFIC CONTROL PHASING

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.R.122	TMP-3

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PHASE I

STEP 1:

ERECT ADVANCED WORK ZONE SIGNS ON -L- US 221, -Y1- SR 1505, (PINEOLA BAPTIST CHURCH RD) AND -Y2- (TUTTLE LANE) IN ACCORDANCE WITH RDWY STD 1101.01 SHEET 3.

STEP 2:

USING RDWY STD 1101.02 SHEET 1 MAINTAIN EXISTING TRAFFIC ON -L- US 221 AND CONSTRUCT THE TEMPORARY ON-SITE DETOUR ROADWAY APPROACHES AND STRUCTURE FROM-DET- STA. 10+95± TO -DET- STA. 17+89±, (SEE TMP-4).

USING RDWY STD 1101.02 SHEET 1 MAINTAIN EXISTING TRAFFIC ON -Y1- SR 1505 (PINEOLA BAPTIST CHURCH RD) AND CONSTRUCT PROPOSED ROADWAY WIDENING FROM -Y1- STA 10+10± TO -Y1- STA. 11+35± INCLUDING TEMPORARY ACCESS TO -Y2- (TUTTLE LANE), UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE, (SEE TMP-4).

PHASE II

STEP 1:

USING RDWY STD 1101.02 SHEET 1 AND 1101.03 SHEET 3 IN A CONTINUOUS OPERATION PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS, AND DIRECT TRAFFIC ONTO THE ON-SITE DETOUR IN A TWO-LANE TWO-WAY TRAFFIC PATTERN, (SEE TMP-5).

STEP 2:

USING RDWY STD 1101.02 SHEET 1 REMOVE EXISTING BRIDGE 27 AND CONSTRUCT PROPOSED ROADWAY APPROACHES AND BRIDGE 050027 FROM -L- STA. 12+37± TO -L- STA. 15+22±, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. (SEE TMP-5).

USING RDWY STD 1101.02 SHEET 1 MAINTAIN EXISTING TRAFFIC AND CONSTRUCT THE PROPOSED ROADWAY WIDENING TO THE EDGE AND ELEVATION OF THE EXISTING PAVEMENT AT THE FOLLOWING LOCATIONS:

-Y2- (TUTTLE LANE) FROM -Y2- STA. 10+20± TO -Y2- STA. 11+74±, -L- US 221 RT SIDE WIDENING FROM -L- STA. 10+00± TO -L- STA. 12+37± AND FROM -L- STA. 15+22± TO -L- STA. 17+50±, (SEE TMP-5).

PHASE III

STEP 1:

USING RDWY STD 1101.02 SHEET 1 IN A CONTINUOUS OPERATION (ALTERNATING LANE CLOSURES), PAVE US 221 FROM -L- STA 10+00± TO STA 12+37±, -L- STA 15+22± TO STA 17+50±, AND PINEOLA BAPTIST CHURCH RD FROM US 221 TO -Y1- STA 11+35± UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE; APPLY PAVEMENT MARKINGS AND MARKERS; AND DIRECT TRAFFIC ONTO THE PROPOSED ALIGNMENT (SEE TMP-6).

STEP 2:

USING RDWY STD 1101.02 SHEET 1, REMOVE THE ON-SITE DETOUR AND CONSTRUCT LEFT SIDE WIDENING FROM -L- STA 10+00± TO STA 12+37± AND -L- STA 15+22± TO STA 17+50± (SEE TMP-6).



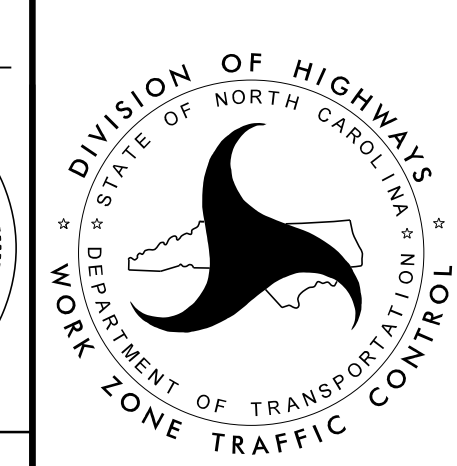
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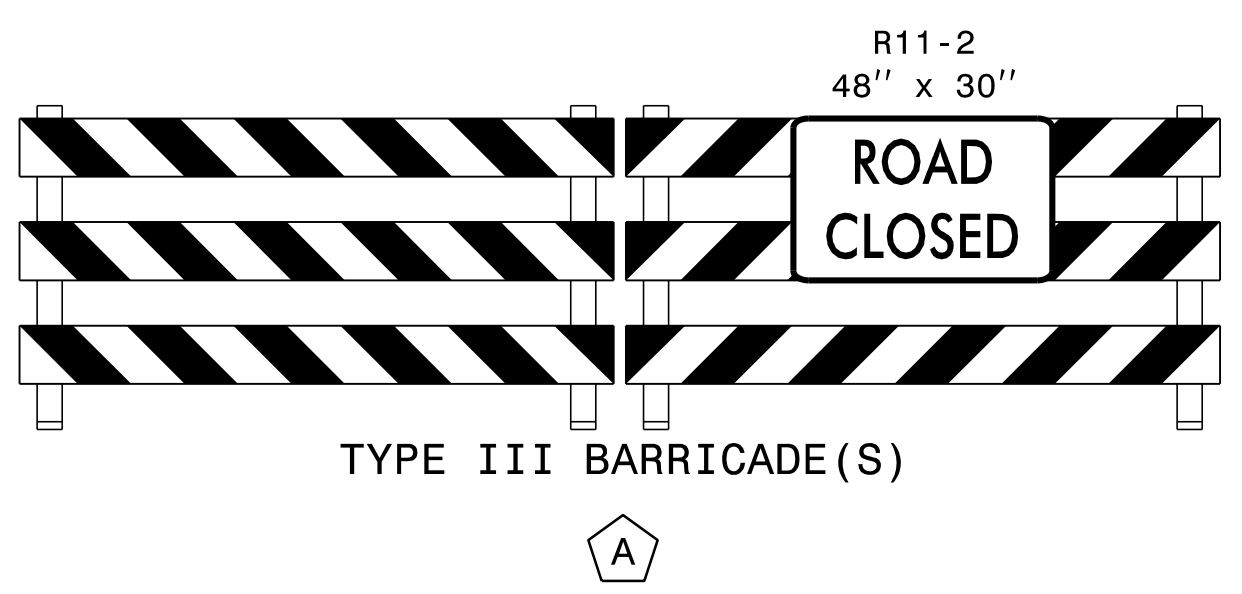
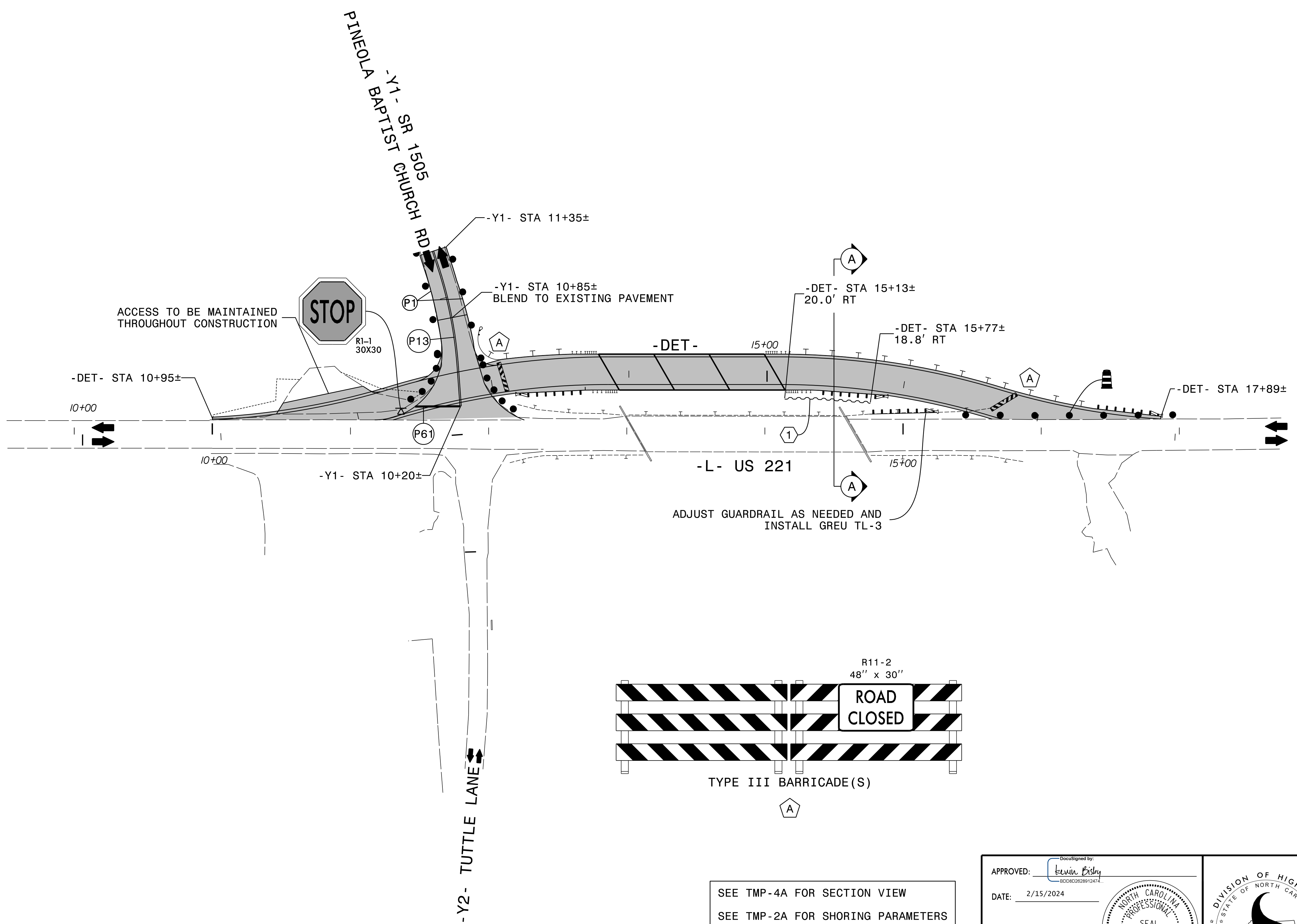
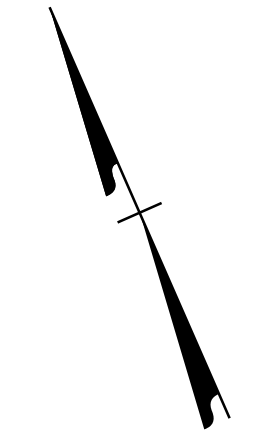
USING RDWY STD 1101.02 SHEET 1, PLACE THE FINAL LAYER OF SURFACE COURSE, FINAL PAVEMENT MARKINGS AND MARKERS (SEE FINAL PAVEMENT MARKING PLANS).

STEP 4:

REMOVE ANY REMAINING TRAFFIC CONTROL DEVICES FROM THE PROJECT LIMITS AND OPEN -L- US 221, -Y1- SR 1505 (PINEOLA BAPTIST CHURCH RD), AND -Y2- (TUTTLE LANE) TO THEIR PROPOSED TRAFFIC PATTERNS.

2/15/2024
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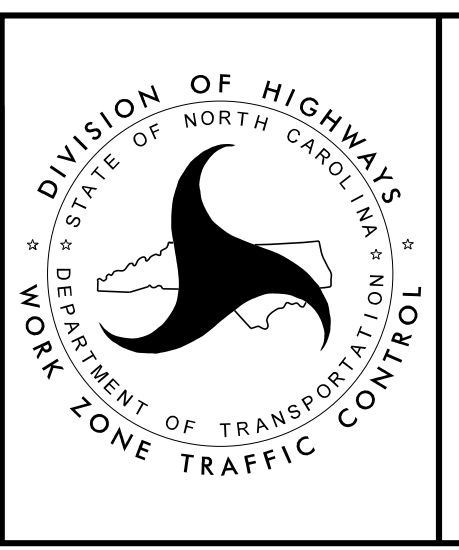
SEE TMP-4A FOR SECTION VIEW
 SEE TMP-2A FOR SHORING PARAMETERS

TEMPORARY SHORING TABLE						
FROM	OFFSET	TO	OFFSET	AVG HEIGHT (ft)	MAX HEIGHT (ft)	AREA (sq ft)
-DET- STA 15+13±	20.0' RT	-DET- STA 15+77±	18.8' RT	8.5	12.0	547

APPROVED: *Kevin B. Bly*
DocuSigned by: Kevin Bly
 BDD902028912474

DATE: 2/15/2024

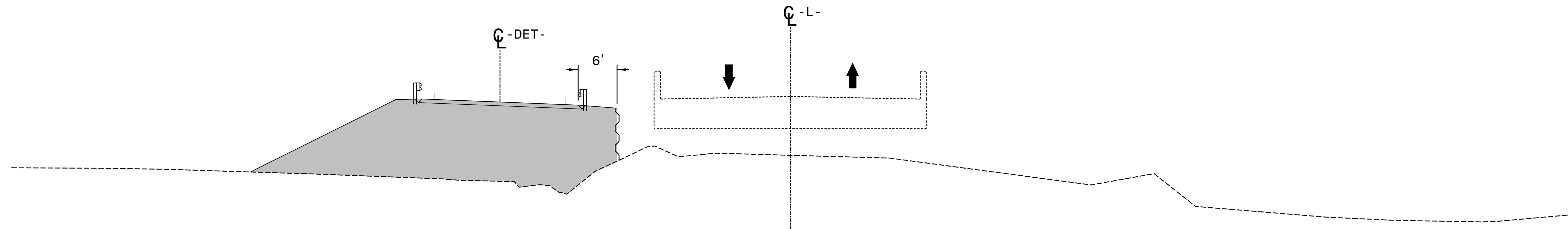
SEAL



PHASE I DETAIL


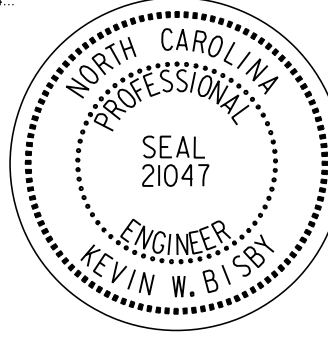

PROJ. REFERENCE NO.	SHEET NO.
17BP.11.R.122	TMP-4A

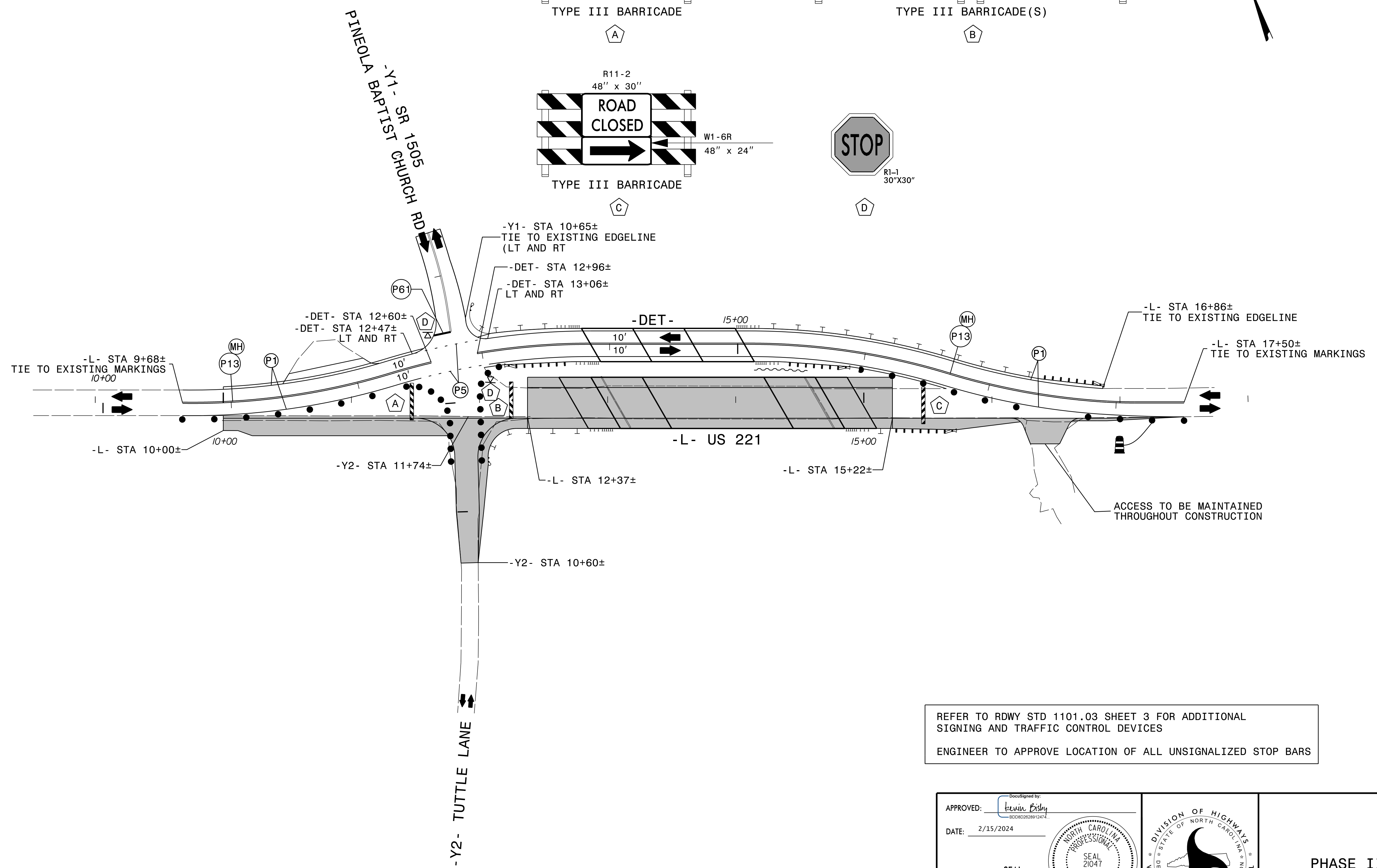
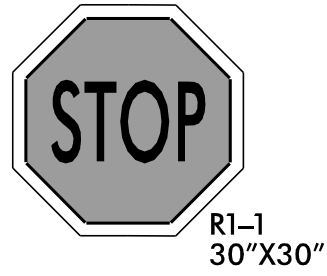
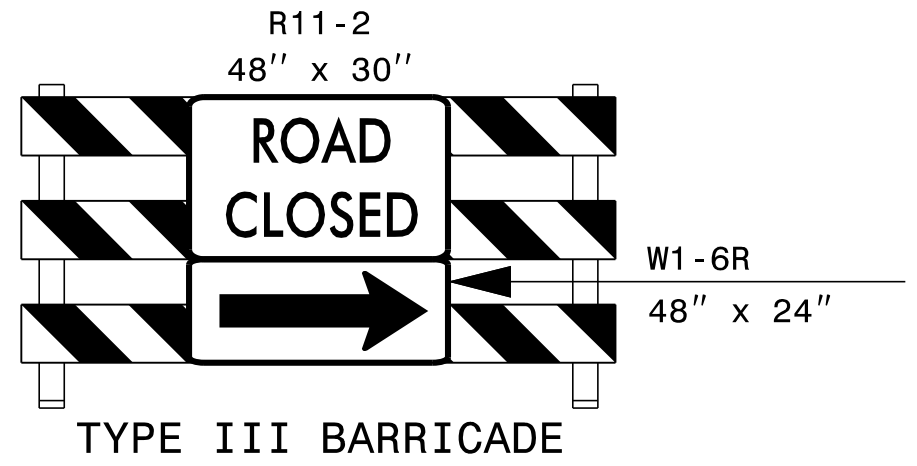
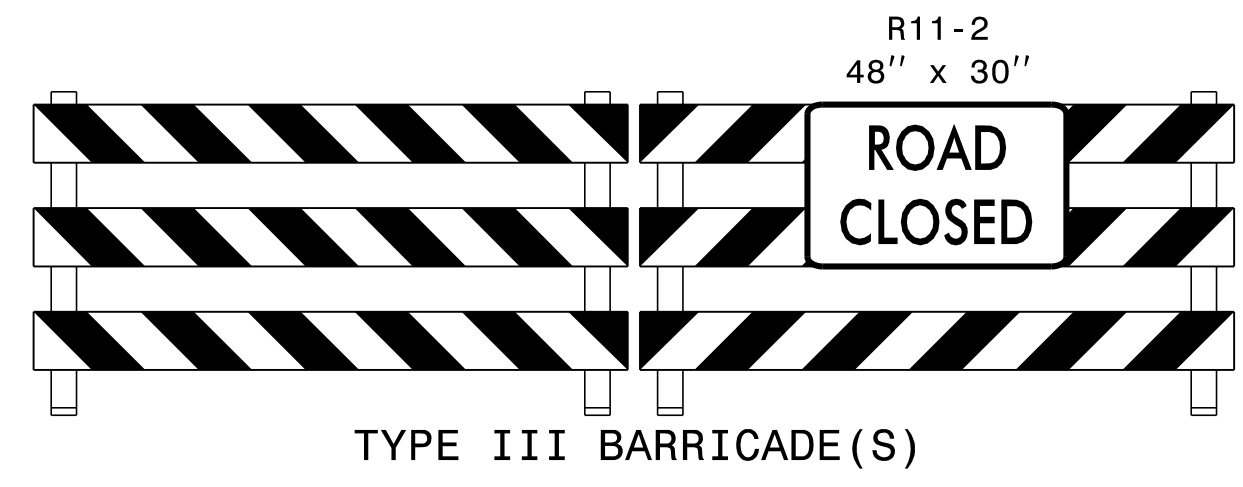
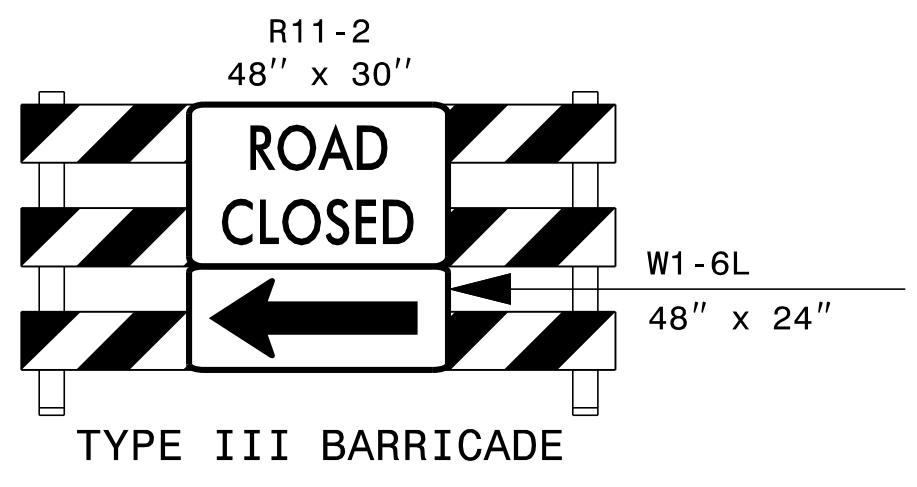
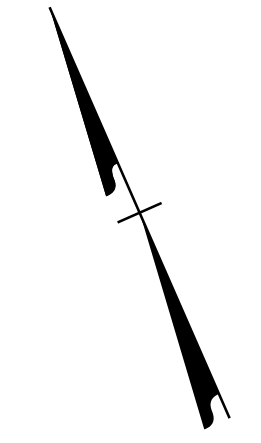
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SECTION A-A

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<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>			



REFER TO RDWY STD 1101.03 SHEET 3 FOR ADDITIONAL SIGNING AND TRAFFIC CONTROL DEVICES

ENGINEER TO APPROVE LOCATION OF ALL UNSIGNALIZED STOP BARS

APPROVED: *Kevin B. Bishby*

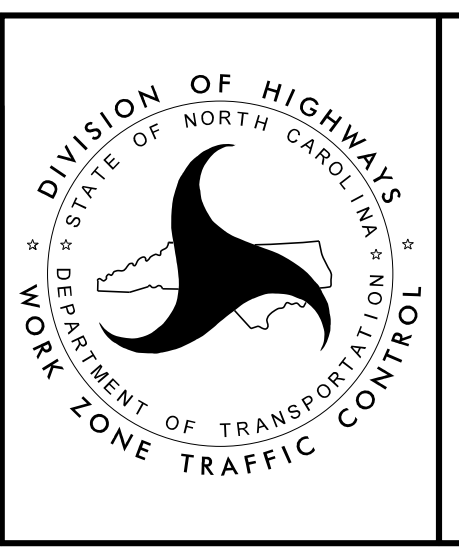
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SEAL

SEAL 21047

ENGINEER KEVIN W. BISHBY

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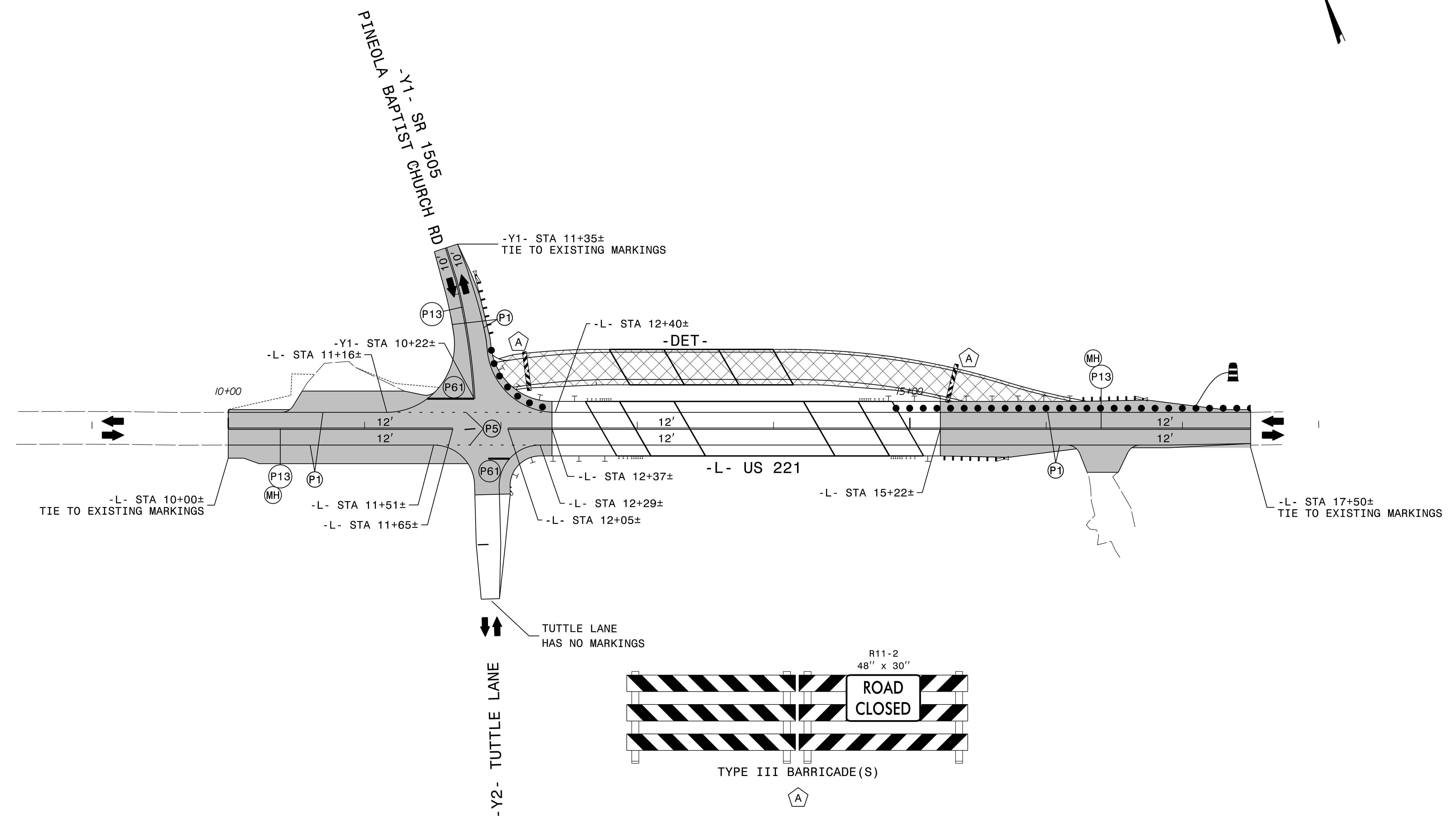
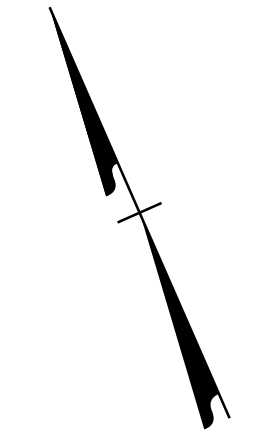


DIVISION OF HIGHWAYS

DEPARTMENT OF TRANSPORTATION

WORK ZONE TRAFFIC CONTROL

PHASE II DETAIL

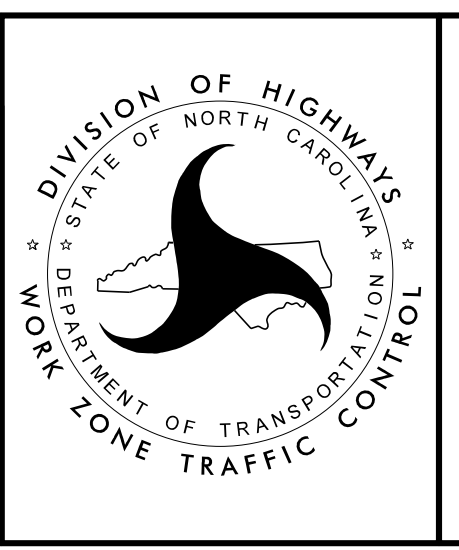


ERECT PROPOSED SIGNS
 ENGINEER TO APPROVE LOCATION OF ALL UNSIGNALIZED STOP BARS

APPROVED: *Kevin Bishy*
BD0902028912474

DATE: 2/15/2024

SEAL



PHASE III DETAIL

2/15/2024
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 R015BY

17BP.11.R.122

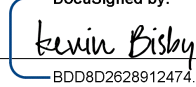

AVERY COUNTY

BRIDGE: 050027

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
AVERY COUNTY

LOCATION: BRIDGE NO. 050027 OVER LINVILLE RIVER ON US 221 (LINVILLE FALLS HIGHWAY)

TIP NO.	SHEET NO.
17BP.11.R.122	PMP-1
APPROVED:  B009028912474	
DATE: 8/21/2024	
SEAL 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR 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 MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPES
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 AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L- US 221/NC 181	PAINT	SNOWPLOWABLE (RAISED)
-Y1- PINEOLA BAP. CH. RD(SR 1505)	PAINT	NONE
-Y2- TUTTLE LN	NONE	NONE
CONCRETE SURFACES(BRIDGE)	PAINT	PERMANENT (RAISED)

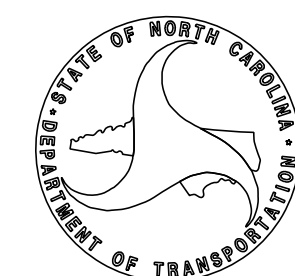
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- D) STOP BAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
- E) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING POLYUREA PAVEMENT MARKING MATERIAL.

PAVEMENT MARKING SCHEDULE

PAINT	
P1	WHITE EDGELINE
P5	2 FT.-6 FT./SP WHITE MINISKIP
P13	YELLOW DOUBLE CENTER
P61	WHITE STOPBAR
PAVEMENT MARKERS	
MA	PERMANENT RAISED (YELLOW & YELLOW)
ME	NON-CAST IRON SNOWPLOWABLE (YELLOW & YELLOW)

INDEX

SHEET NO.	DESCRIPTION
PM-1	PAVEMENT MARKING PLAN TITLE SHEET
PM-2	PAVEMENT MARKING DETAIL

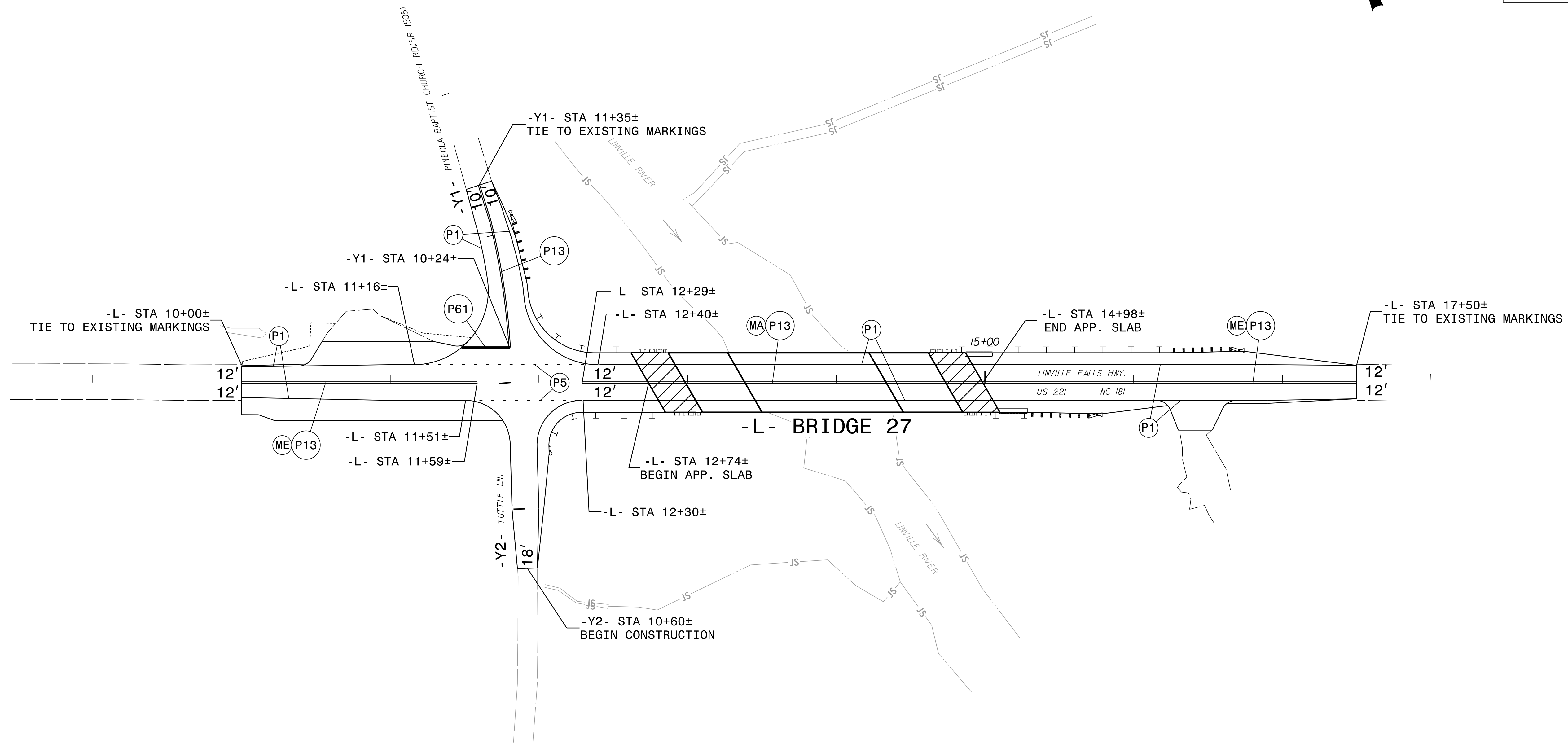
PLAN PREPARED FOR: N.C.D.O.T. DIVISION 11	
Rob N. Weisz, PE DIVISION BRIDGE PROGRAM MANAGER	

PLAN PREPARED BY: RK&K ENGINEERS

Kevin Bisby, PE Project Engineer
Allen Tutt Designer

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NAD 83 N/SRS 2007



PAVEMENT MARKING SCHEDULE

- PAINT**
- P1 WHITE EDGELINE
 - P5 2 FT. - 6 FT. / SP WHITE MINISKIP
 - P13 YELLOW DOUBLE CENTER
 - P61 WHITE STOPBAR
- PAVEMENT MARKERS**
- MA PERMANENT RAISED (YELLOW & YELLOW)
 - ME NON-CAST IRON SNOWPLOWABLE (YELLOW & YELLOW)

PAVEMENT MARKING DETAIL

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Raleigh, North Carolina 27615-3960
NC License No. F-0112

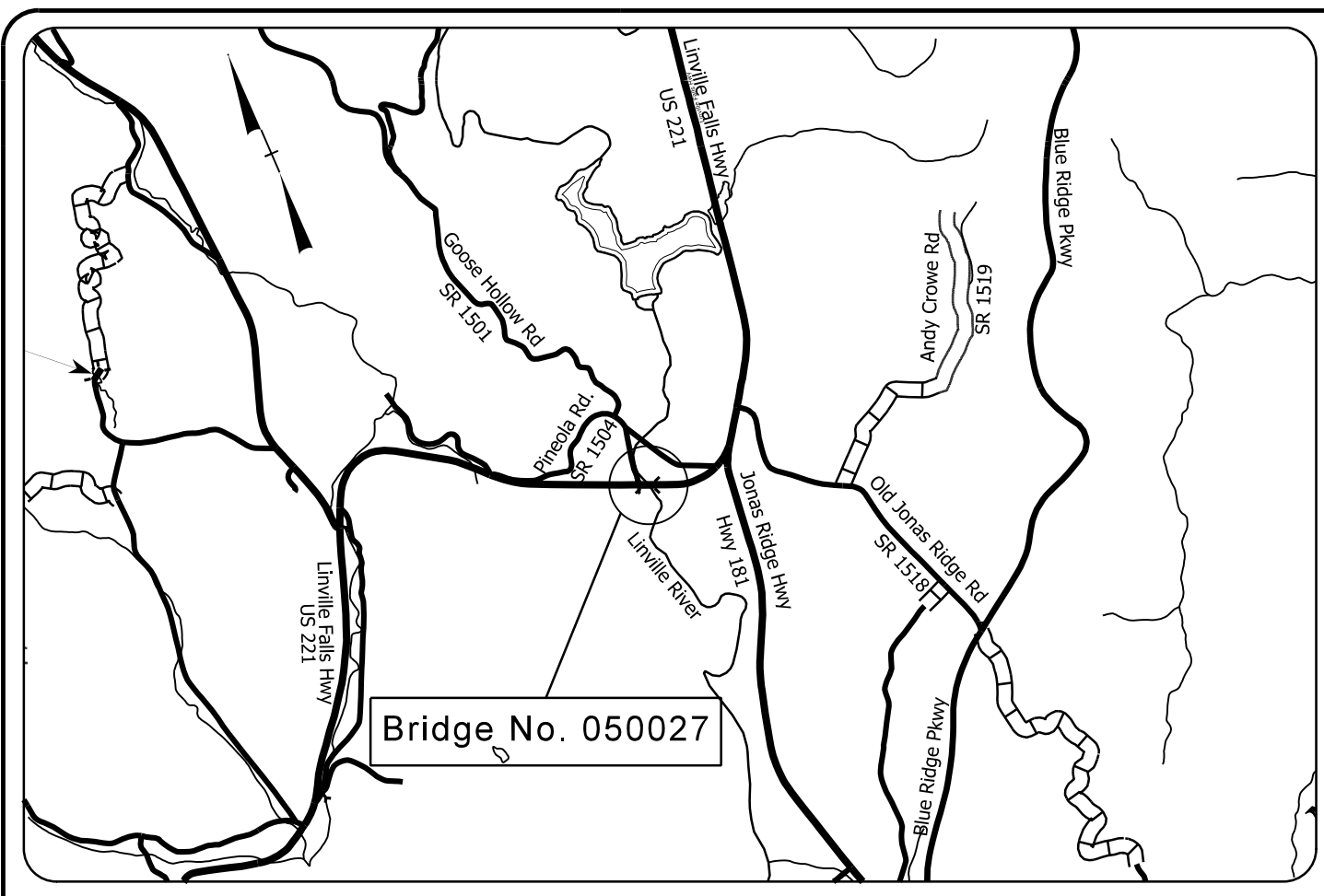
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PROJECT: 17BP.11.R.122

CONTRACT: DK00394



VICINITY MAP

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

- Clearing and Grubbing Phase
- Final Phase
- Both Phases

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

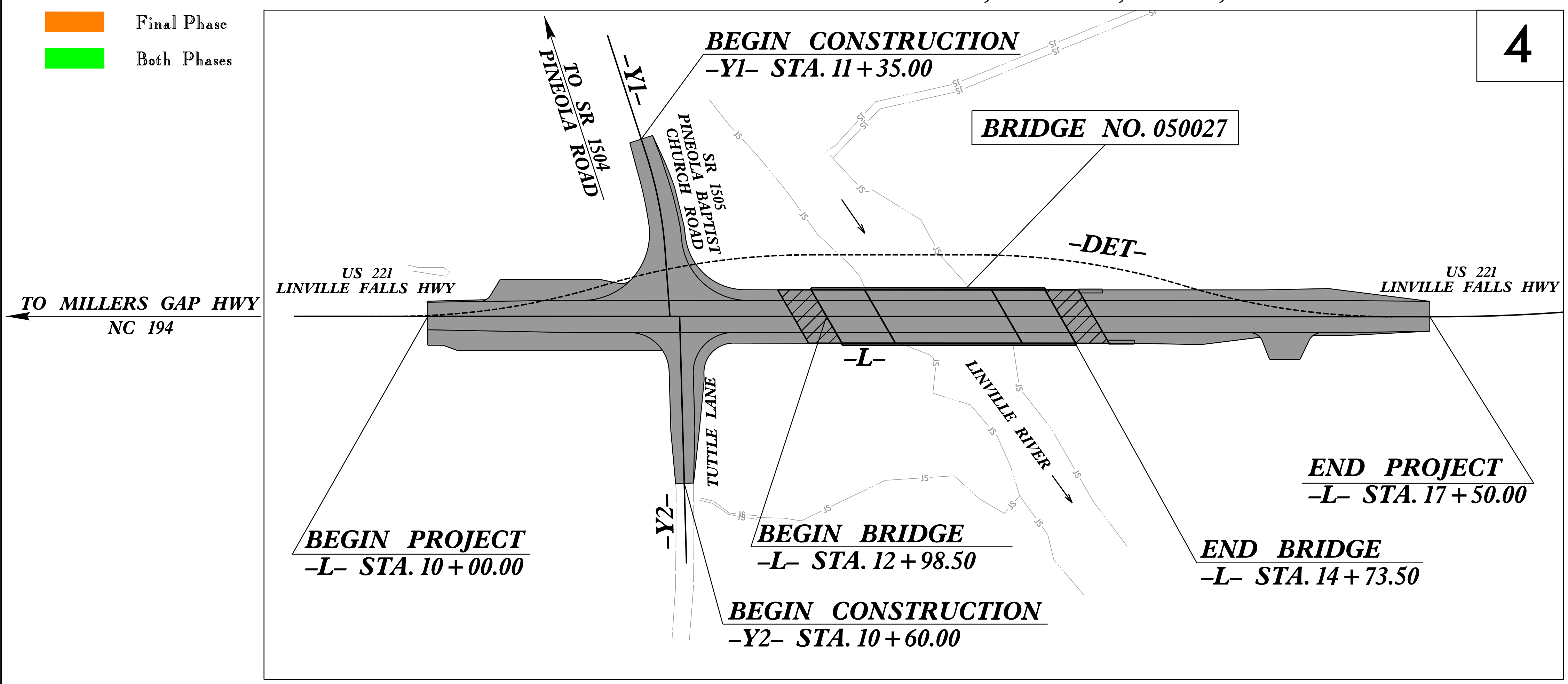
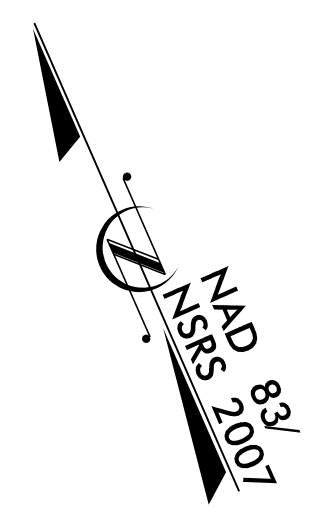
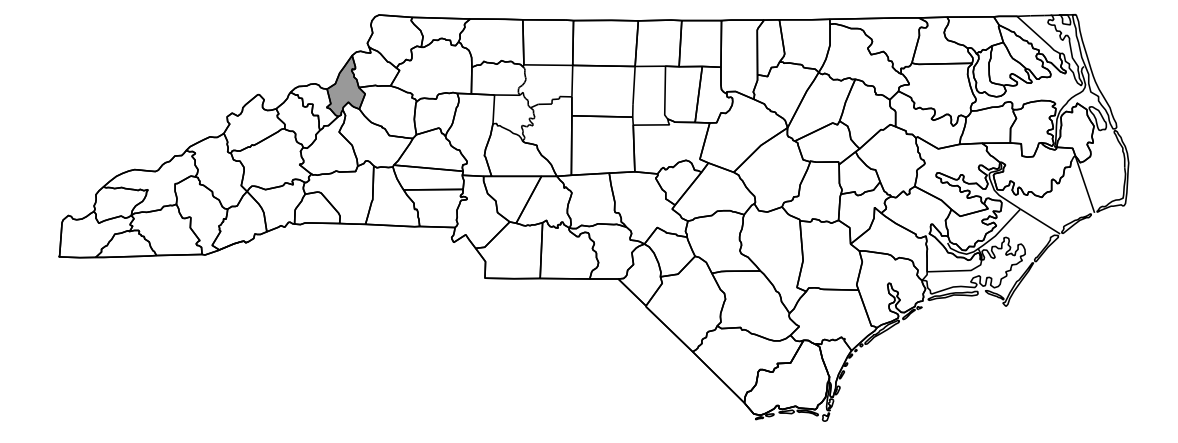
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

AVERY COUNTY

**LOCATION: BRIDGE NO. 050027 OVER LINVILLE RIVER
ON US 221 (LINVILLE FALLS HWY)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

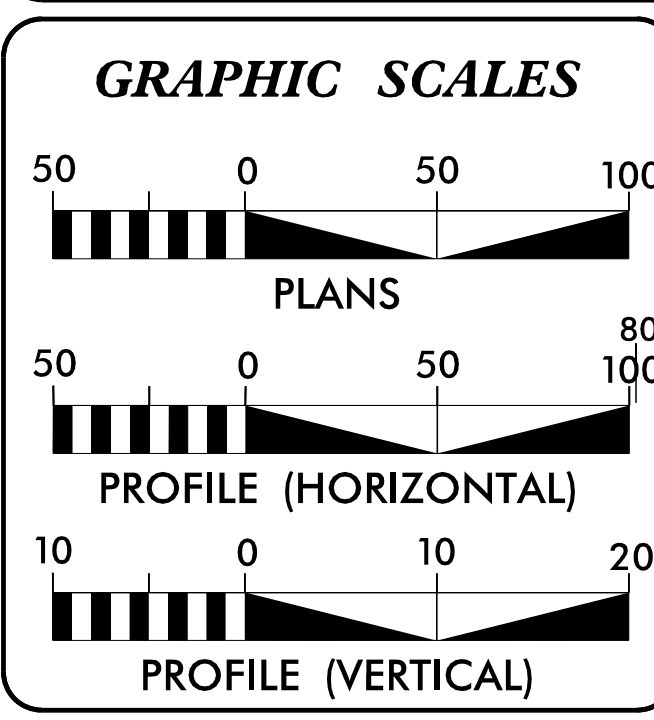
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.11.R.122	EC-1	
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17BP.11.PE.122		PE	
17BP.11.ROW.122		ROW / UTIL	
17BP.11.R.122		CONST.	



THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT
Refer To E. C. Special Provisions for Special Considerations.

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.



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

Prepared in the Office of:

RK&K
RUMMEL, KLEPPER & KAHL, LLP
8401 SIX FORKS ROAD, FORUM 1, SUITE 700
RALEIGH, NORTH CAROLINA 27615-3960
NC LICENSE NO. F-0112
919-878-9560

Designed by:

Alexis Burke, PE 3413
NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2024 STANDARD SPECIFICATIONS

Reviewed by:

Wyatt D. Yelverton, PE

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.

6/7/2024 R:\Hydraulics\CADD\EC_Plans\050027_Hyd_EC_TSH.dgn mydgn

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

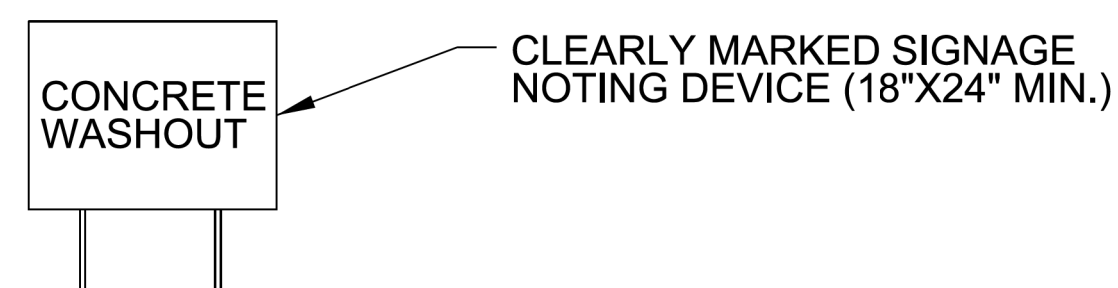
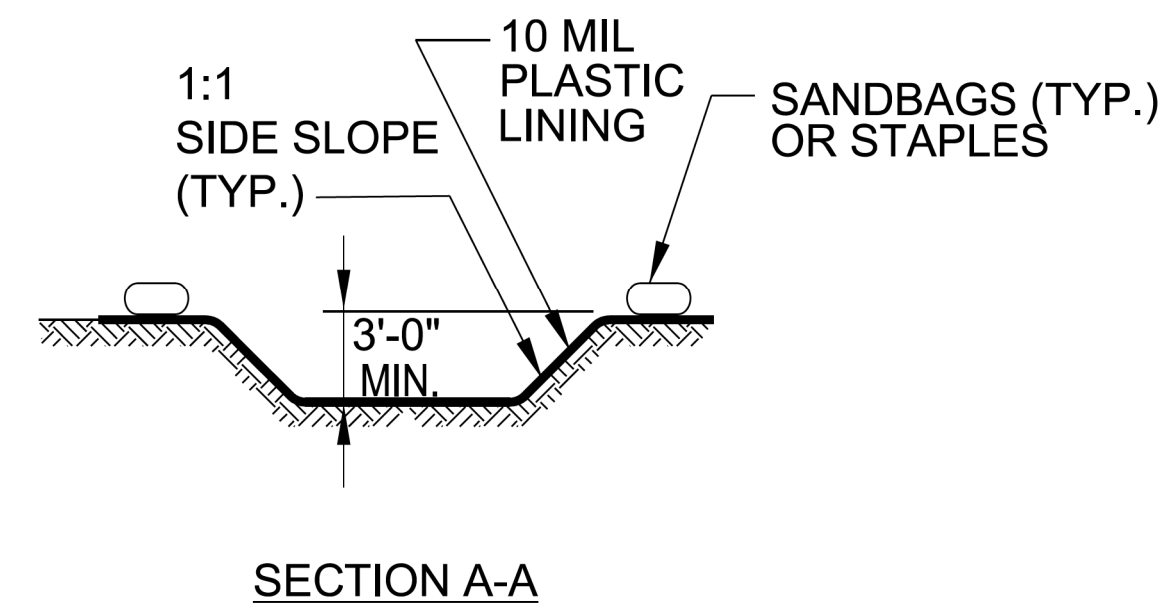
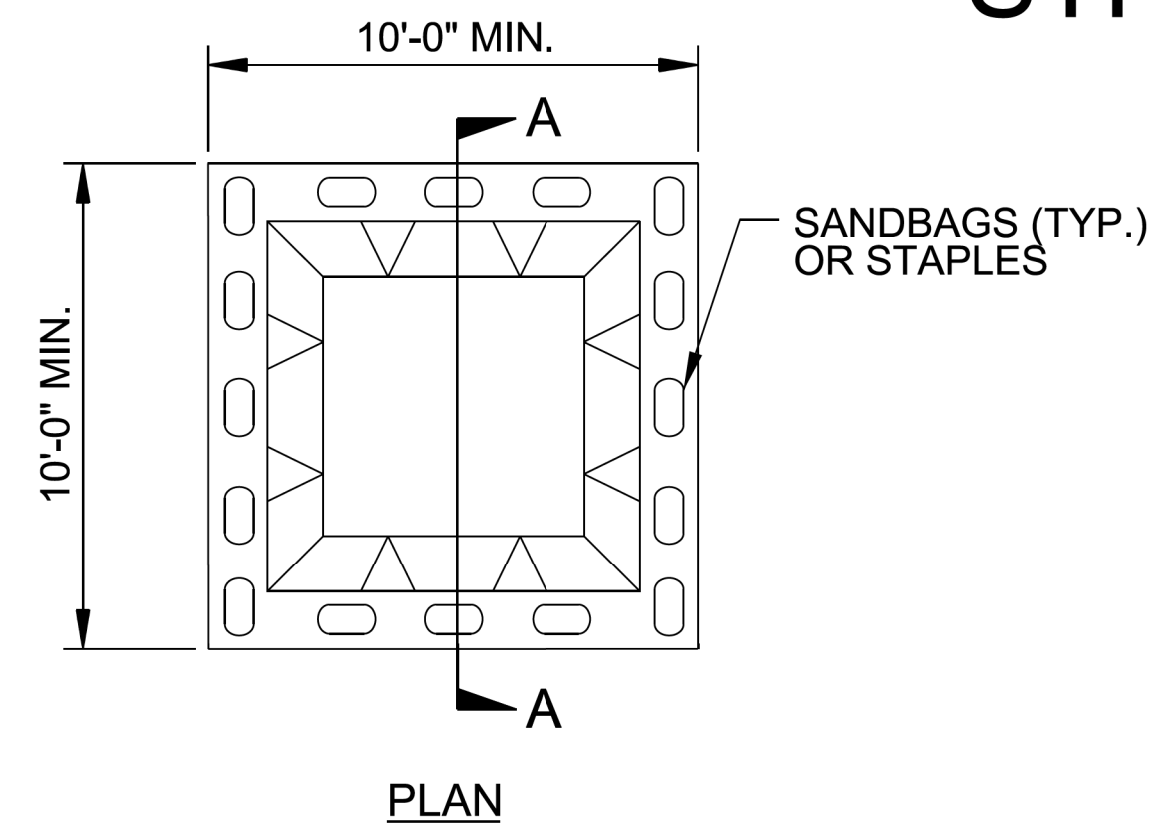
PROJECT REFERENCE NO. 17BP.11.R.122	SHEET NO. EC-01A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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		1636.03	Excelsior Wattle Barrier	
1632.02	Type B		1636.03	Coir Fiber Wattle Barrier	
1632.03	Type C				

PROJECT REFERENCE NO. 17BPJLRJ22	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

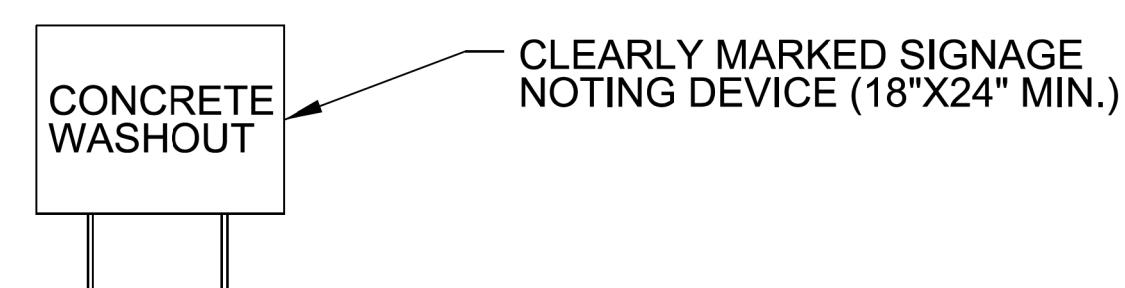
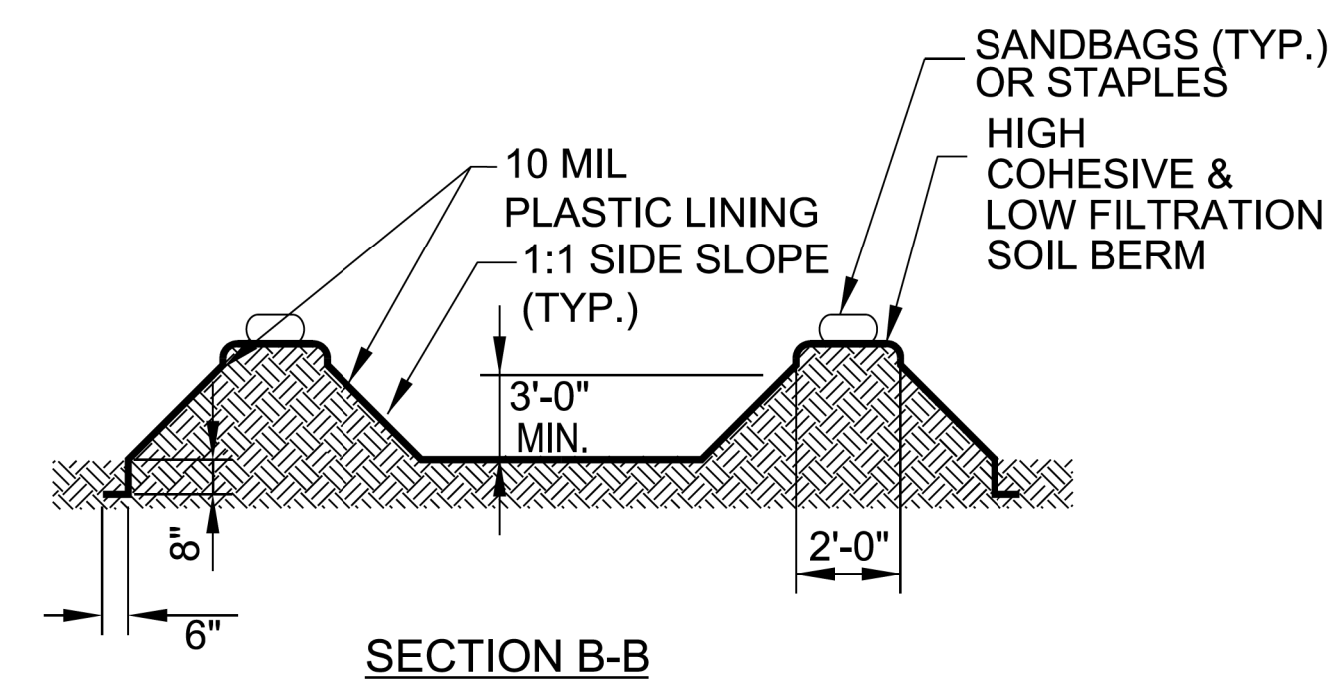
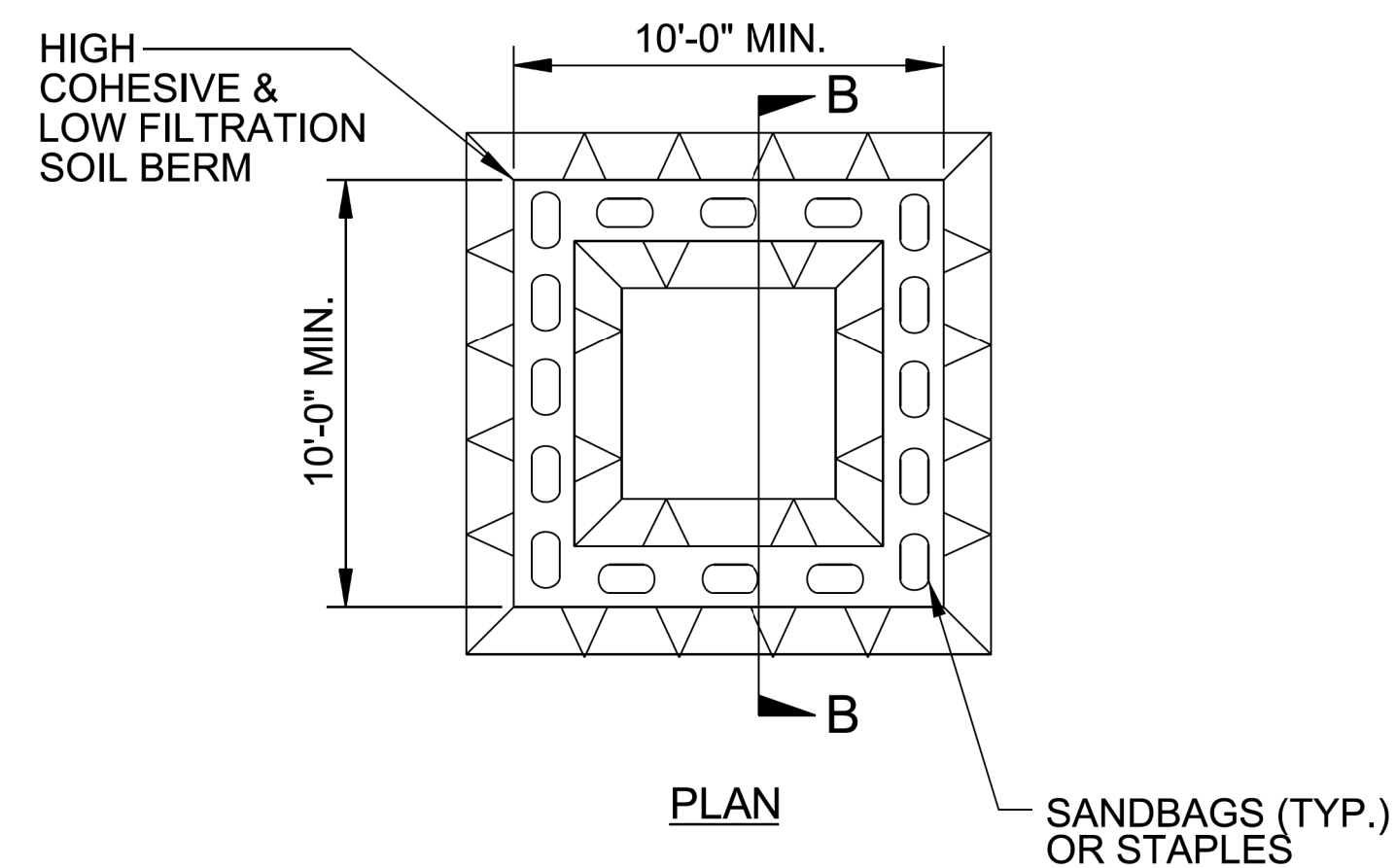
ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



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

PROJECT REFERENCE NO. <i>17BPJ1R122</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION SUMMARY SHEET

EC MATTING FOR FILL SLOPES

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	12+50	13+12	RT	165
4	-L-	12+50	12+87	LT	58
4	-L-	14+56	16+00	LT	373
4	-L-	12+00	12+50	LT	55
4	-DET-	14+84	17+89	LT	825
			SUBTOTAL		1476
	MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER				7665
				TOTAL	9141
				SAY	9150

COIR FIBER MATTING (BENEATH BRIDGE)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	12+91	13+30	LT/RT	81
4	-L-	14+37	14+82	LT/RT	154
				TOTAL	235
				SAY	240

NOTE: PROPOSED DITCHES ARE TO BE STABILIZED WITH RIPRAP AND DO NOT REQUIRE ADDITIONAL TEMPORARY EC MATTING

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>17BP11.R122</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

EROSION CONTROL PLAN **DETOUR**

PROJECT REFERENCE NO. 17BP.J1.R.J22	SHEET NO. EC-4/CONST-28-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

JUDITH L. BLACKBURN
DB 258 PG 100

FLOATING
TURBIDITY CURTAIN
AROUND TEMP.
WORK PADS

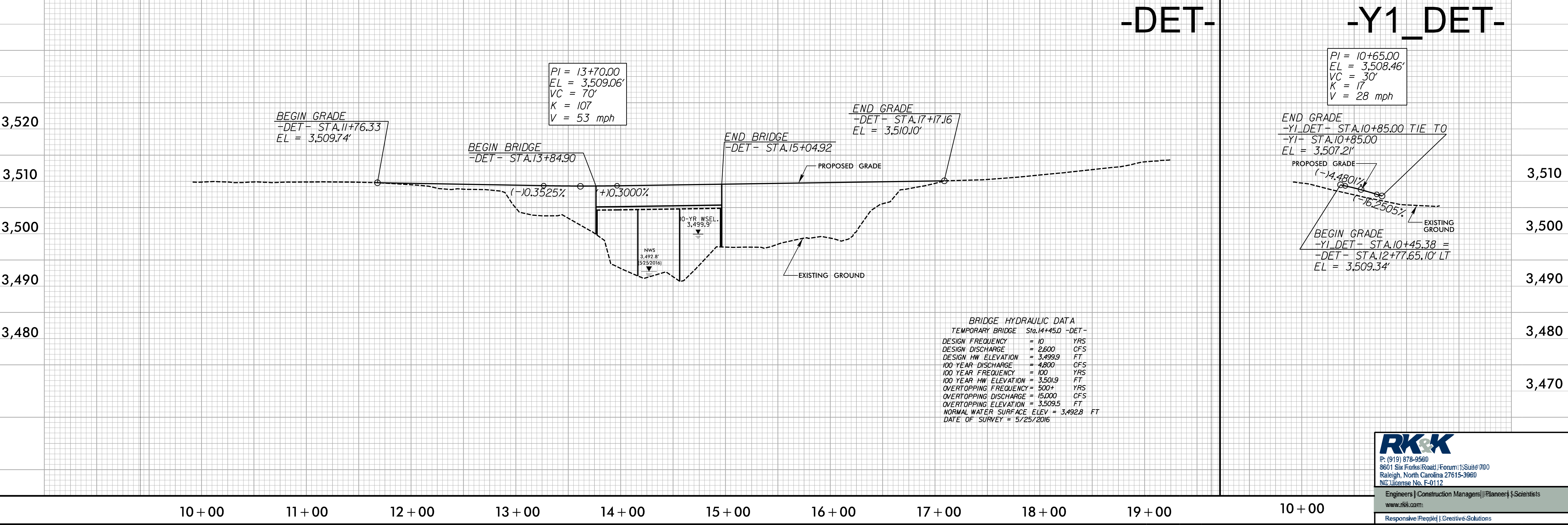
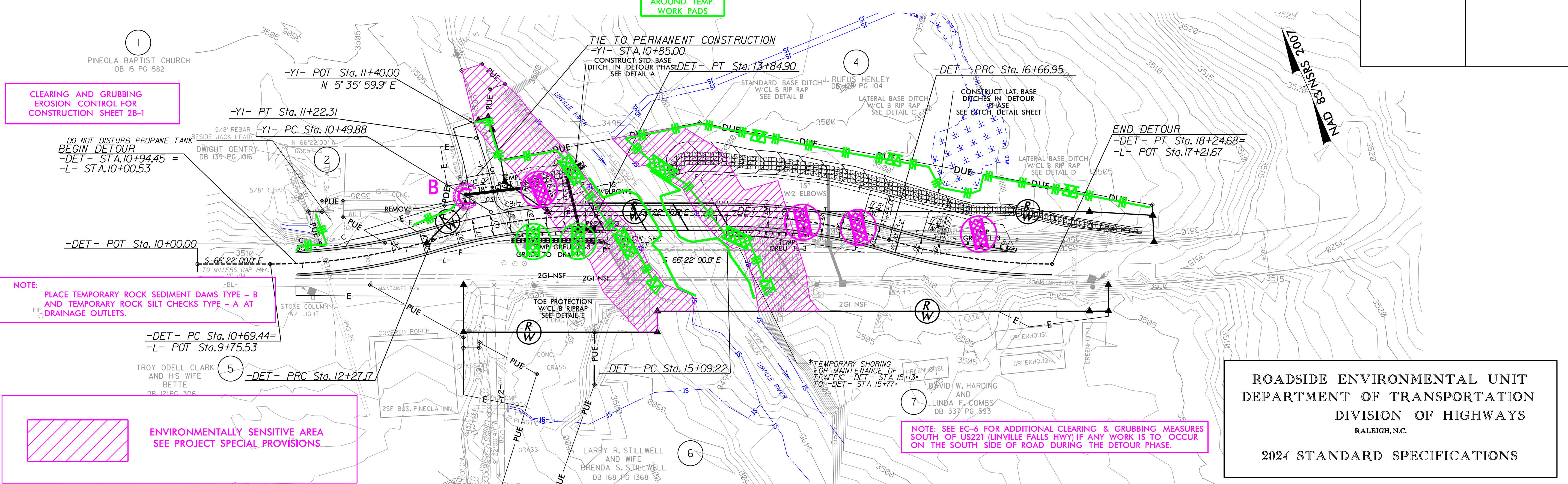
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 28-1

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

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

NOTE: SEE EC-6 FOR ADDITIONAL CLEARING & GRUBBING MEASURES
SOUTH OF US221 (LINVILLE FALLS HWY) IF ANY WORK IS TO OCCUR
ON THE SOUTH SIDE OF ROAD DURING THE DETOUR PHASE.

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
2024 STANDARD SPECIFICATIONS

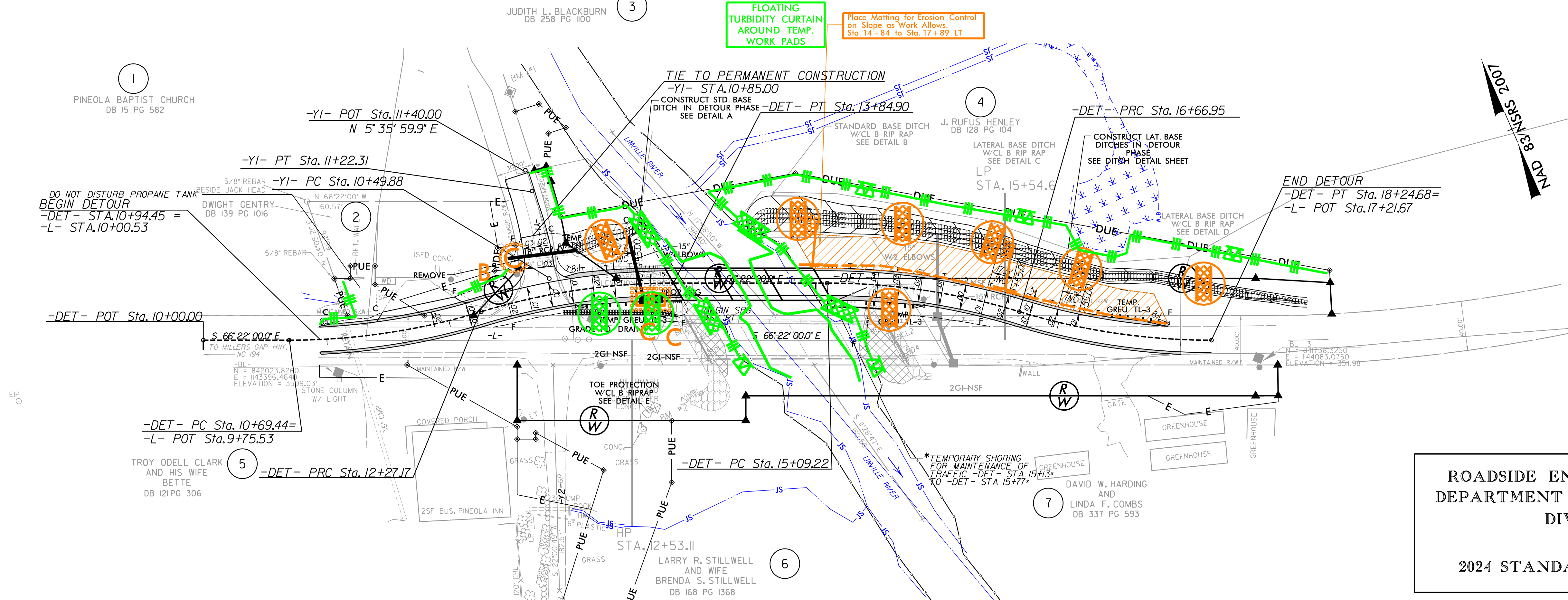


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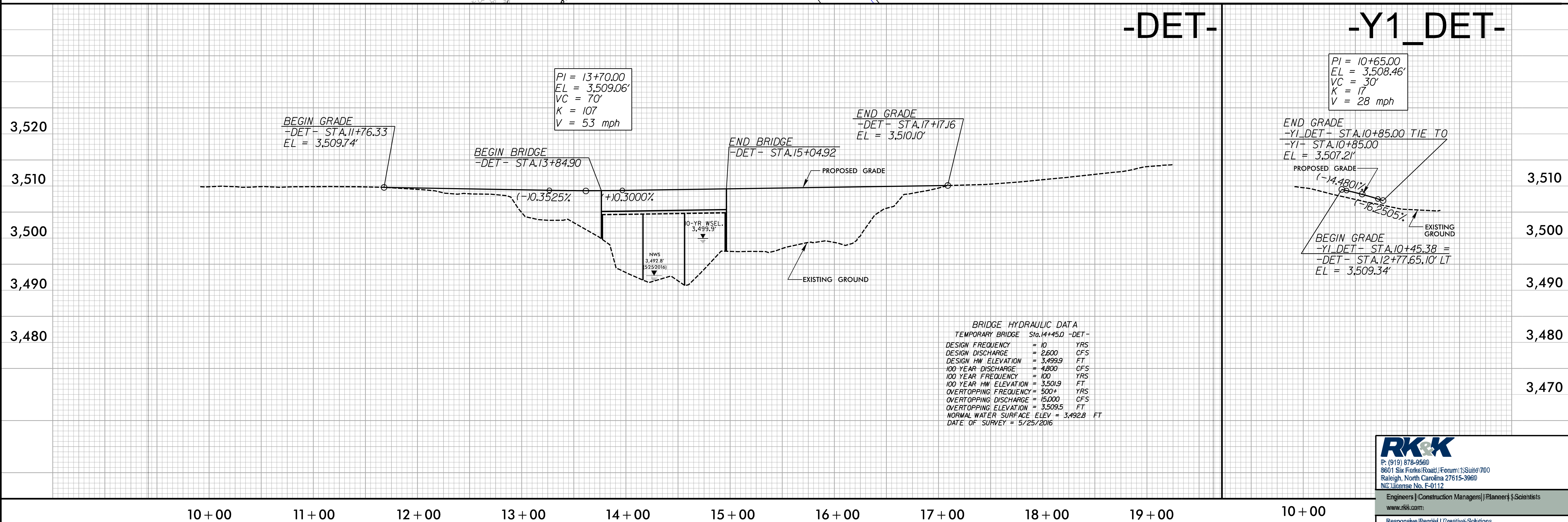
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EROSION CONTROL PLAN DETOUR

PROJECT REFERENCE NO. 17BPJ1R122	SHEET NO. EC-5/CONST-28-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
2024 STANDARD SPECIFICATIONS

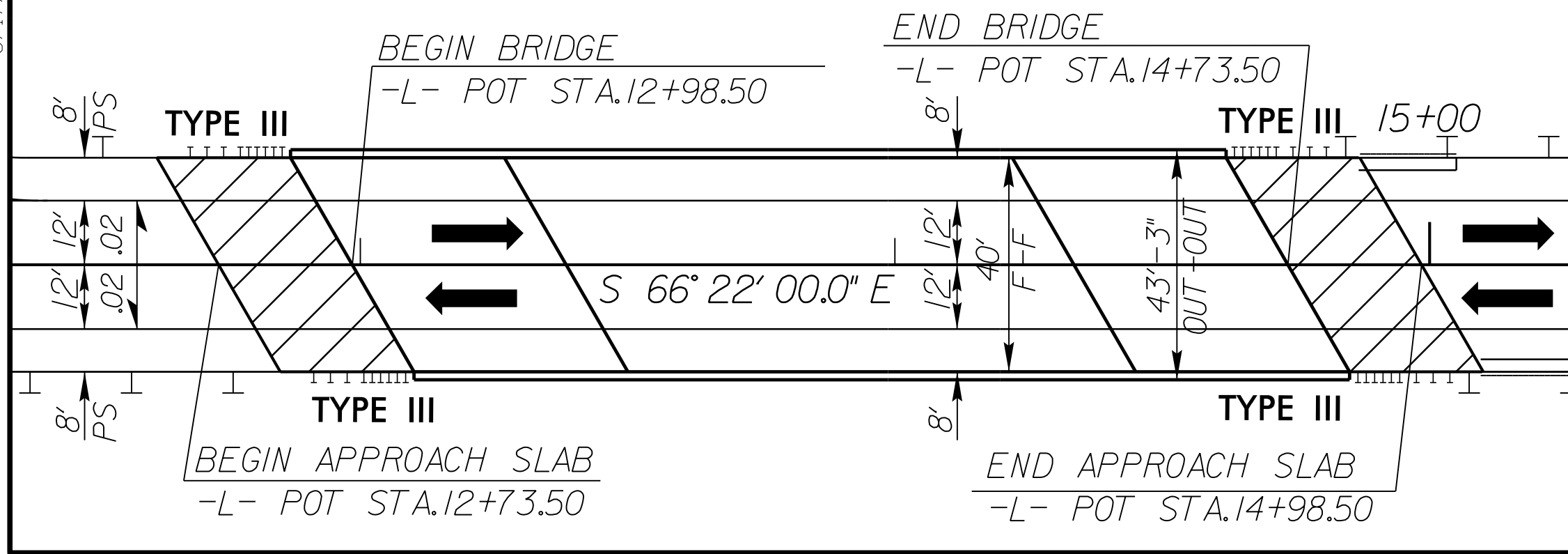


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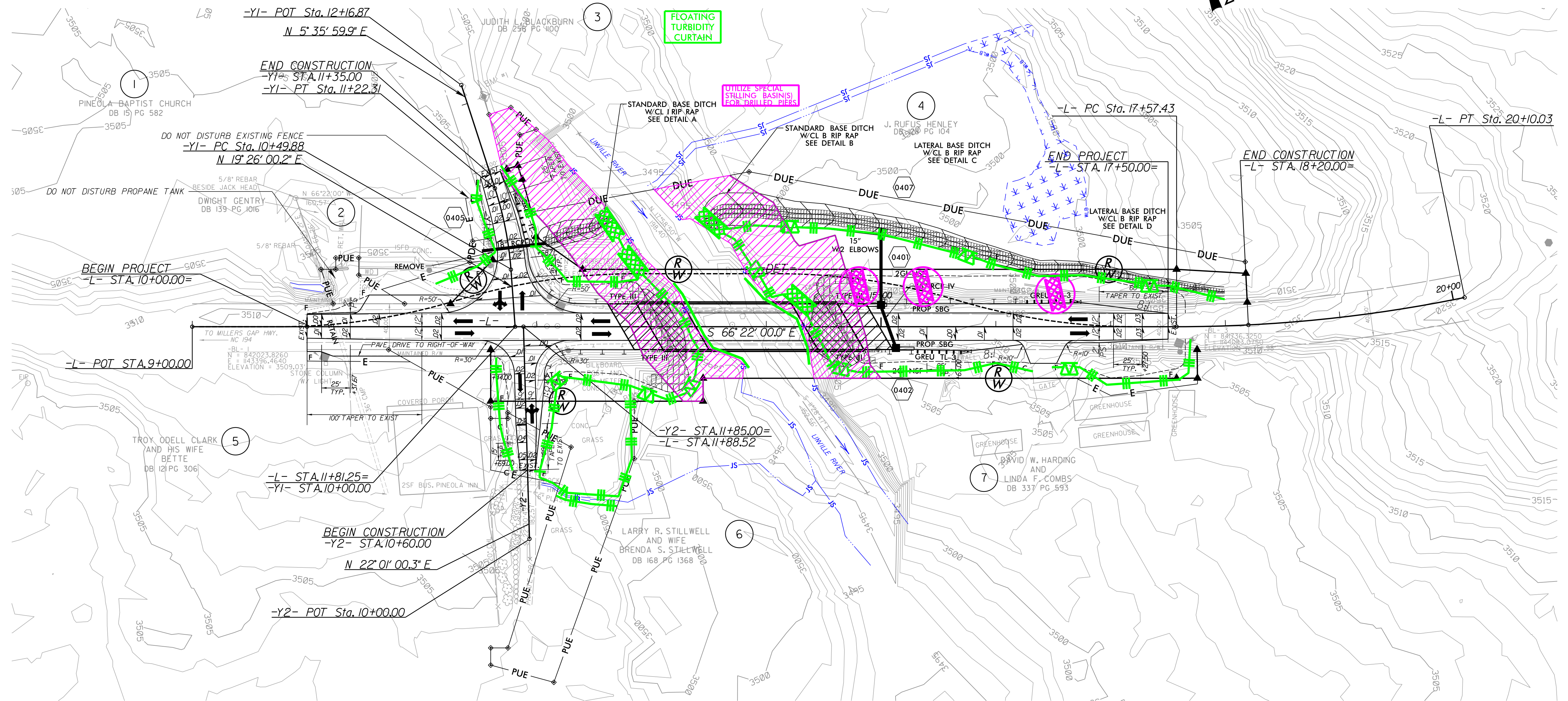
BRIDGE/ROADWAY RELATIONSHIP SKETCH



EROSION CONTROL PLAN

-L-	-Y1-
PI Sta 18+84.16	PI Sta 10+86.27
$\Delta = 11^{\circ} 34' 42.7''$ (LT)	$\Delta = 13^{\circ} 50' 00.3''$ (LT)
D = 4' 35' 01.2"	D = 19' 05' 54.9"
L = 252.60'	L = 72.43'
T = 126.73'	T = 36.39'
R = 1,250.00'	R = 300.00'
	SE = 0.02
	V = 30mph @ Stop.Cond.

PROJECT REFERENCE NO. 17BP.JI.R.J22	SHEET NO. EC-06/CONST.04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

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

 ENVIRONMENTALLY SENSITIVE AREA SEE PROJECT SPECIAL PROVISIONS

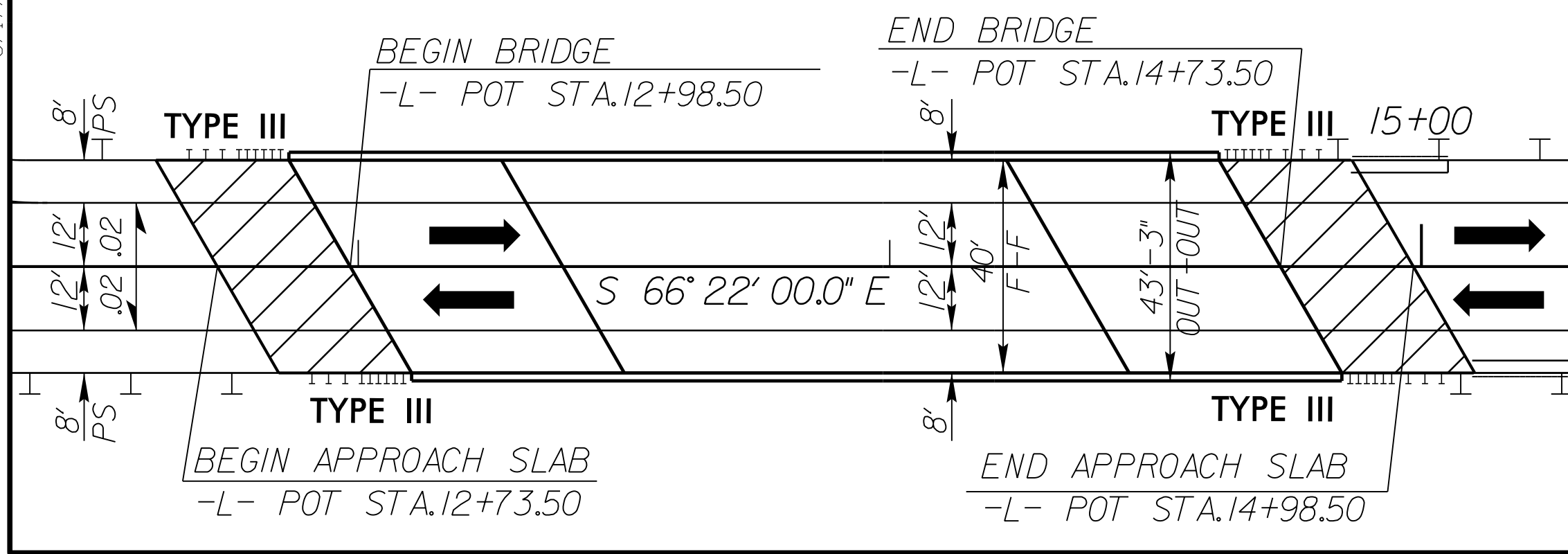
ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
2024 STANDARD SPECIFICATIONS

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BRIDGE/ROADWAY RELATIONSHIP SKETCH

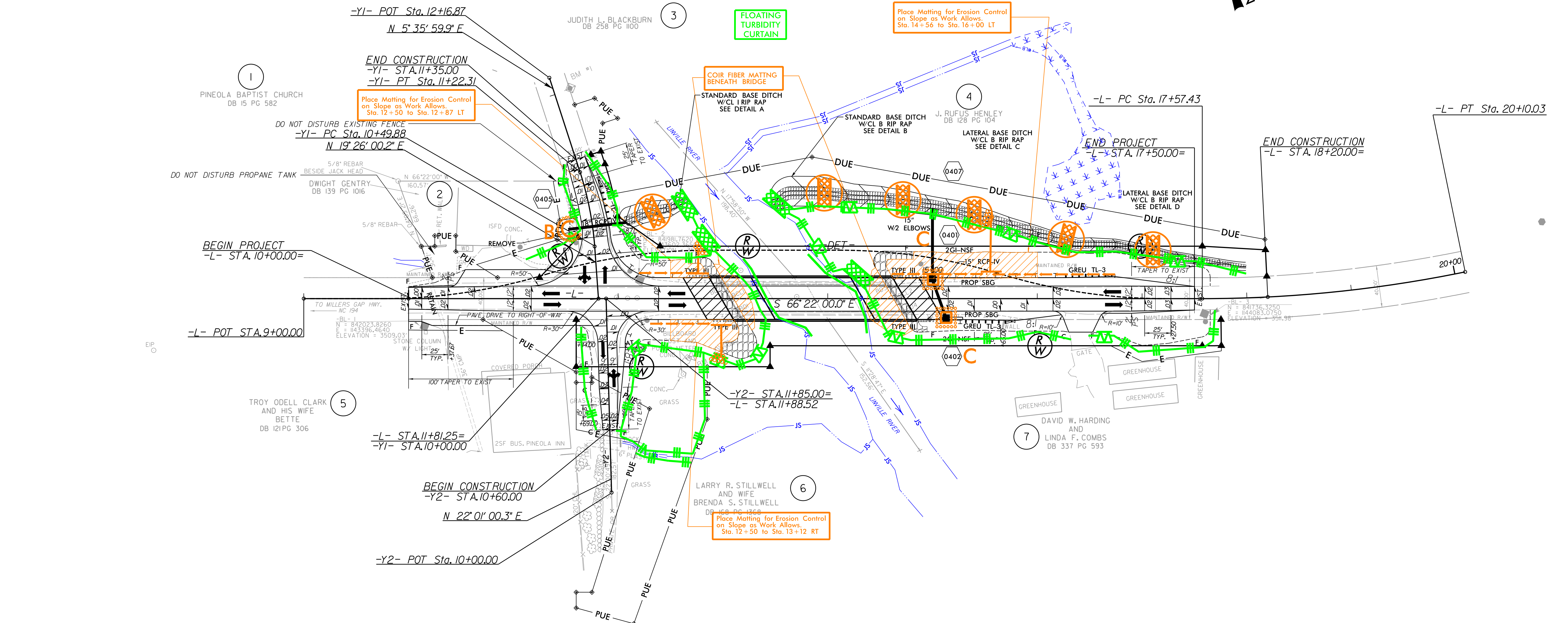


EROSION CONTROL PLAN

-L-	-Y1-
PI Sta 18+84.16	PI Sta 10+86.27
$\Delta = 11^{\circ} 34' 42.7''$ (LT)	$\Delta = 13^{\circ} 50' 00.3''$ (LT)
D = 4' 35' 01.2"	D = 19' 05' 54.9"
L = 252.60'	L = 72.43'
T = 126.73'	T = 36.39'
R = 1,250.00'	R = 300.00'
	SE = 0.02
	V = 30mph @ Stop.Cond.

PROJECT REFERENCE NO. 17BP.JI.R.J22	SHEET NO. EC-7/CONST-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83 N/S 2007



ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
2024 STANDARD SPECIFICATIONS

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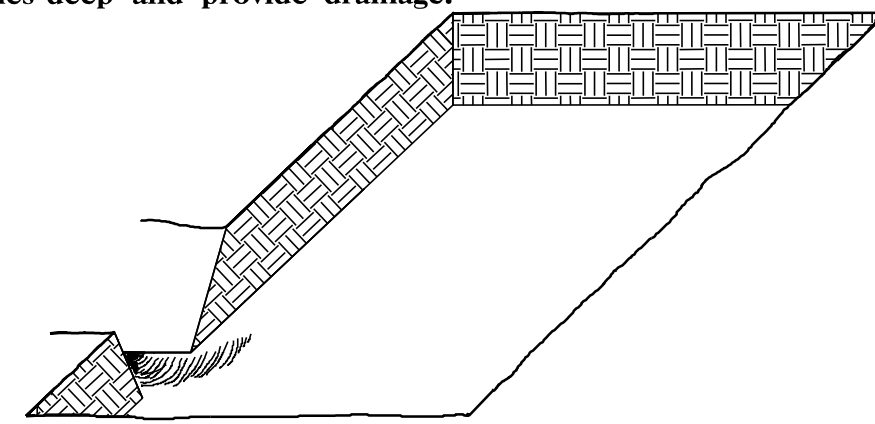
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17.3P.11.R.122	RF-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

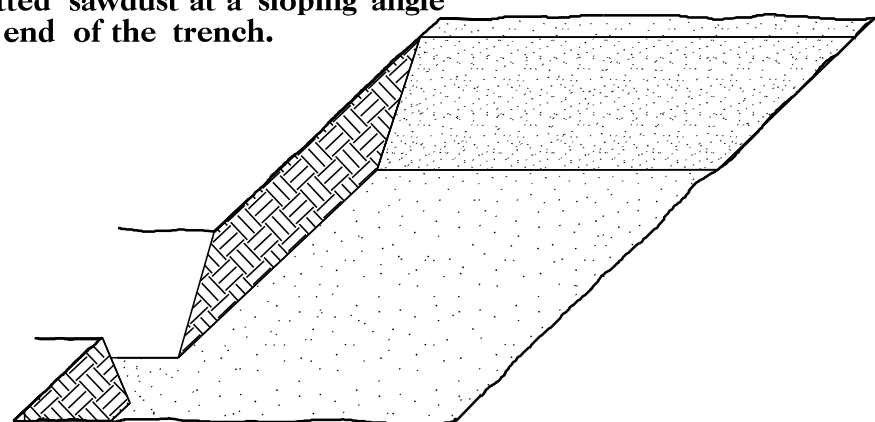
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

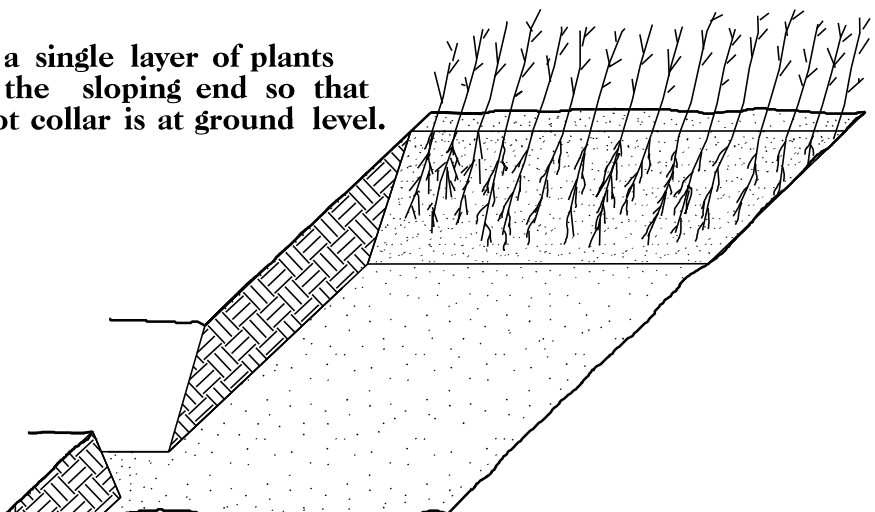
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



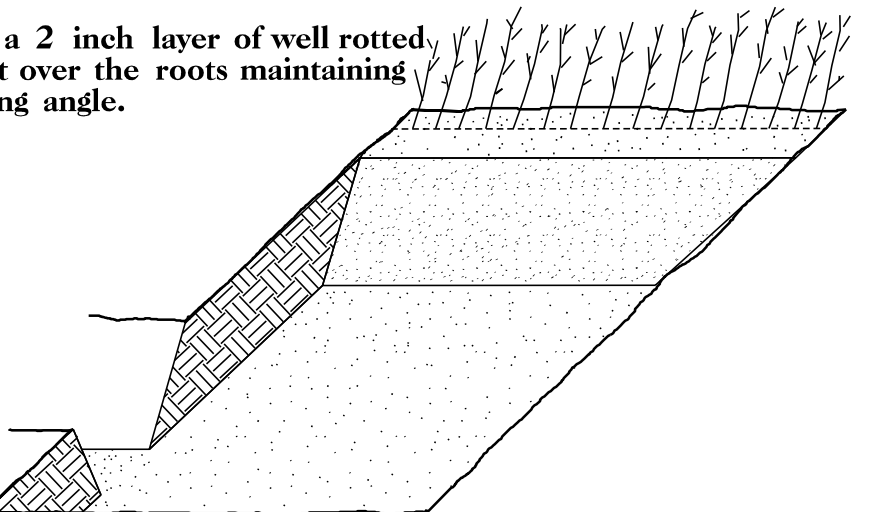
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

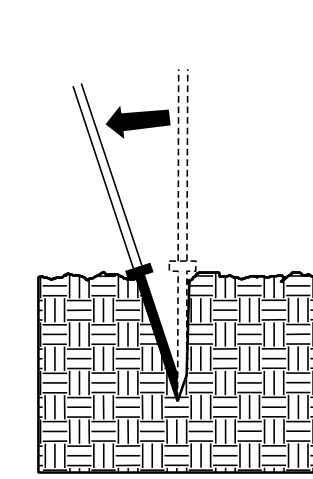


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

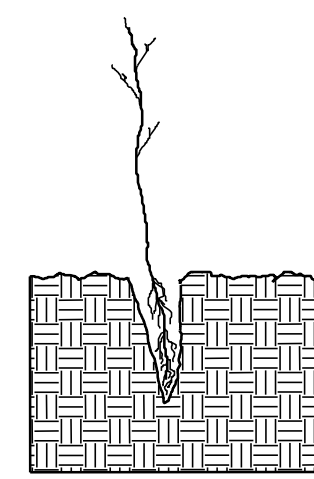


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

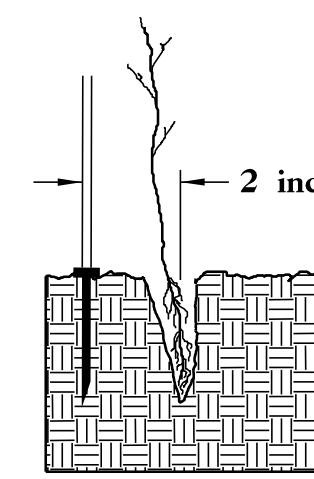
DOUBLE PLANTING METHOD USING THE KJC PLANTING BAR



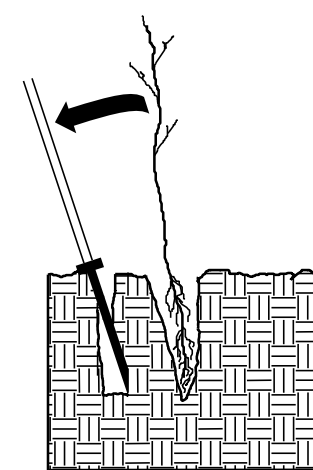
1. Insert planting bar as shown and pull handle toward planter.



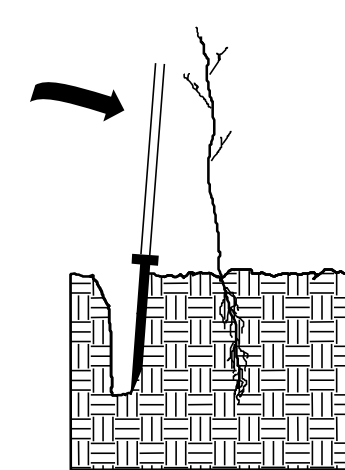
2. Remove planting bar and place seedling at correct depth.



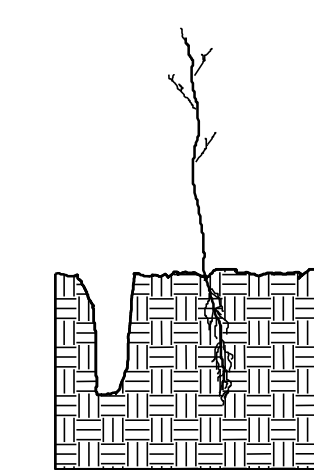
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



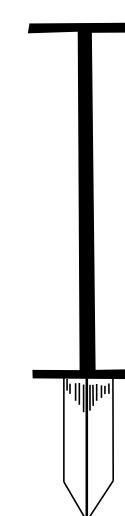
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KJC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

- TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in 3R
25%	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in 3R
25%	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in 3R
25%	BETULA NIGRA	RIVER BIRCH	12 in - 18 in 3R

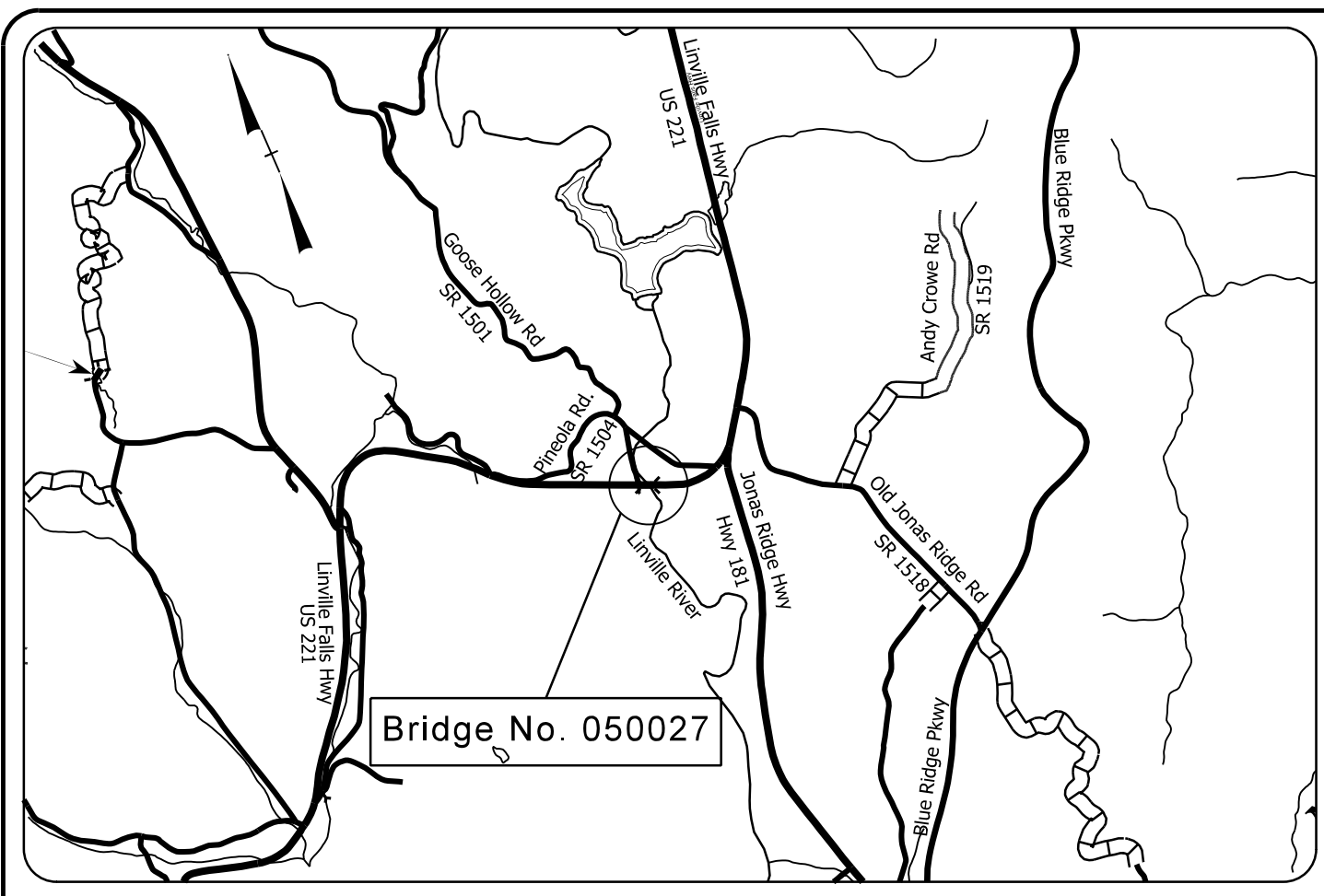
REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

09_08/24

PROJECT: 17BP.11.R.122

CONTRACT: DK00394



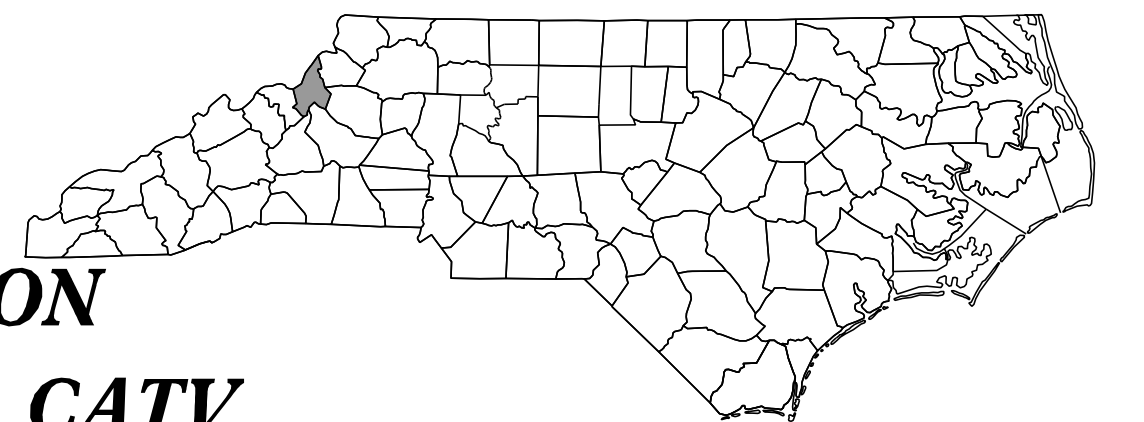
VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS
AVERY COUNTY**

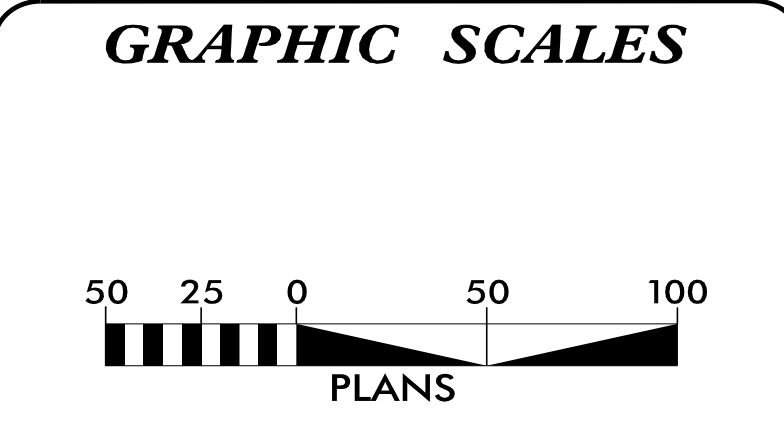
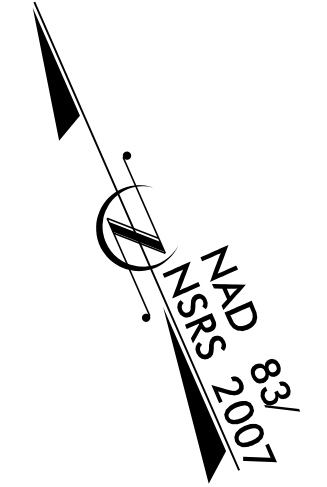
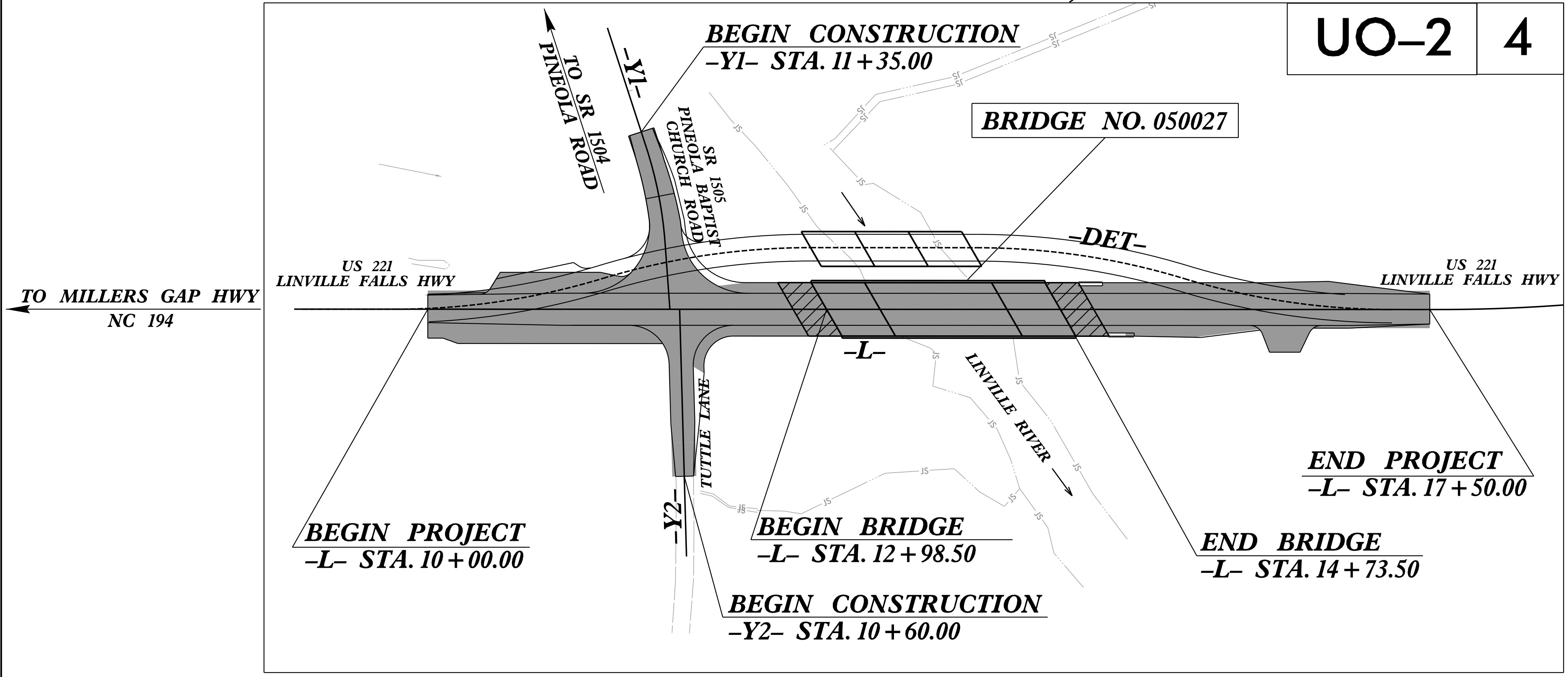
T.I.P. NO.	SHEET NO.
17BP.11.R.122	UO-1

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.



LOCATION: BRIDGE NO. 050027 OVER LINVILLE RIVER
ON US 221 (LINVILLE FALLS HWY)

TYPE OF WORK: AERIAL AND UNDERGROUND UTILITY RELOCATION
WORK FOR POWER, TELECOMMUNICATIONS AND CATV



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO-1	TITLE SHEET
UO-02 THRU UO-2	UBO PLAN SHEETS

UTILITY OWNERS WITH CONFLICTS

(A) MOUNTAIN ELECTRIC COOP - POWER (DIST)
(B) AT&T COMMUNICATIONS - TELEPHONE/FIBER OPTIC
(C) SPECTRUM - CATV

PREPARED IN THE OFFICE OF:

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NC License No. F-0112

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DIVISION OF HIGHWAYS
DIVISION II

801 Statesville Road
North Wilkesboro, NC 28659

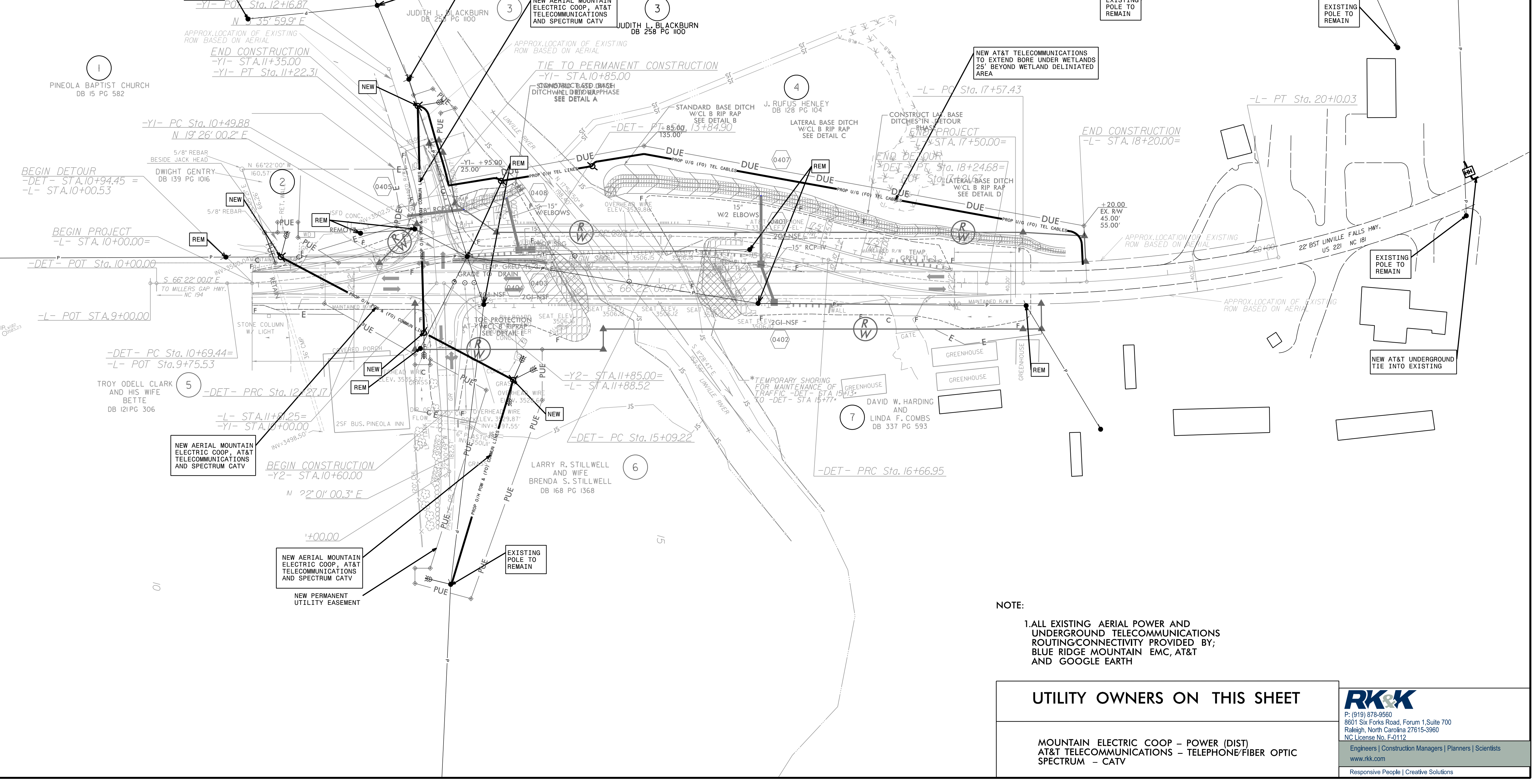
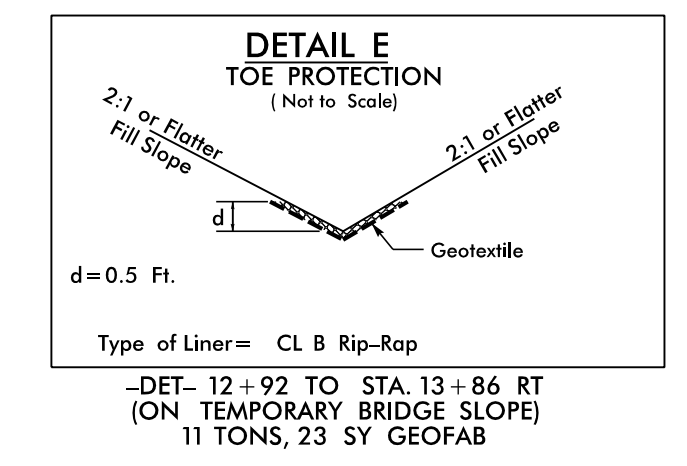
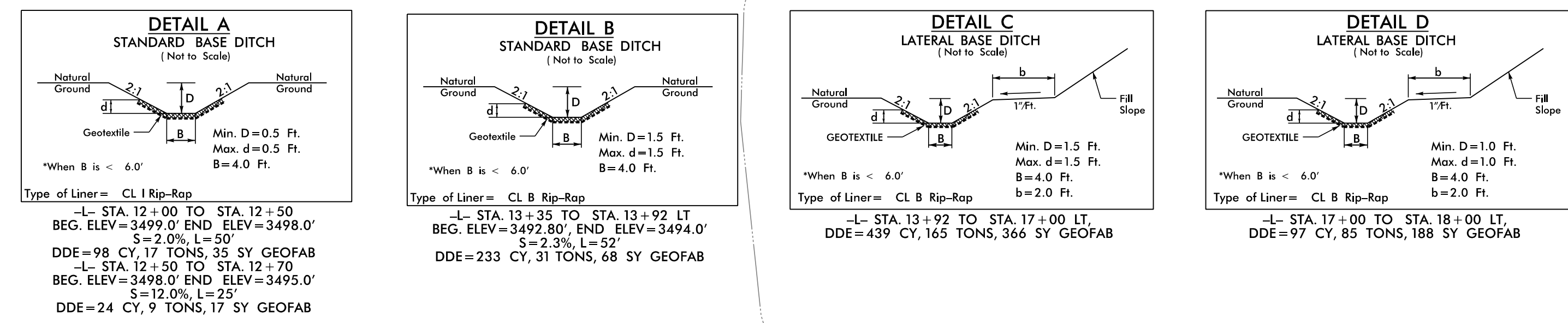
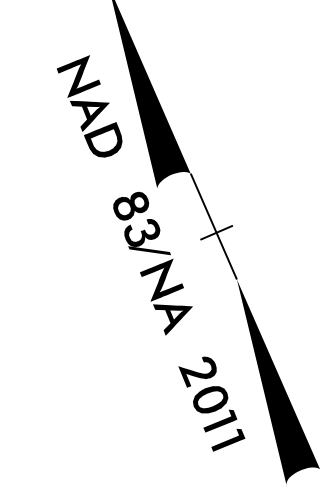
Richy Narron UTILITY PROJECT MANAGER
Mark Lawson PROJECT UTILITY COORDINATOR
Mark Lawson PROJECT UTILITY CADD

Brandon Greer DIVISION CONTACT #1
Rob Weisz, PE DIVISION CONTACT #2
Mark Johnson DIVISION CONTACT #3
Ivan Dishman, PE DIVISION CONTACT #4

6/7/2024
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mydm

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

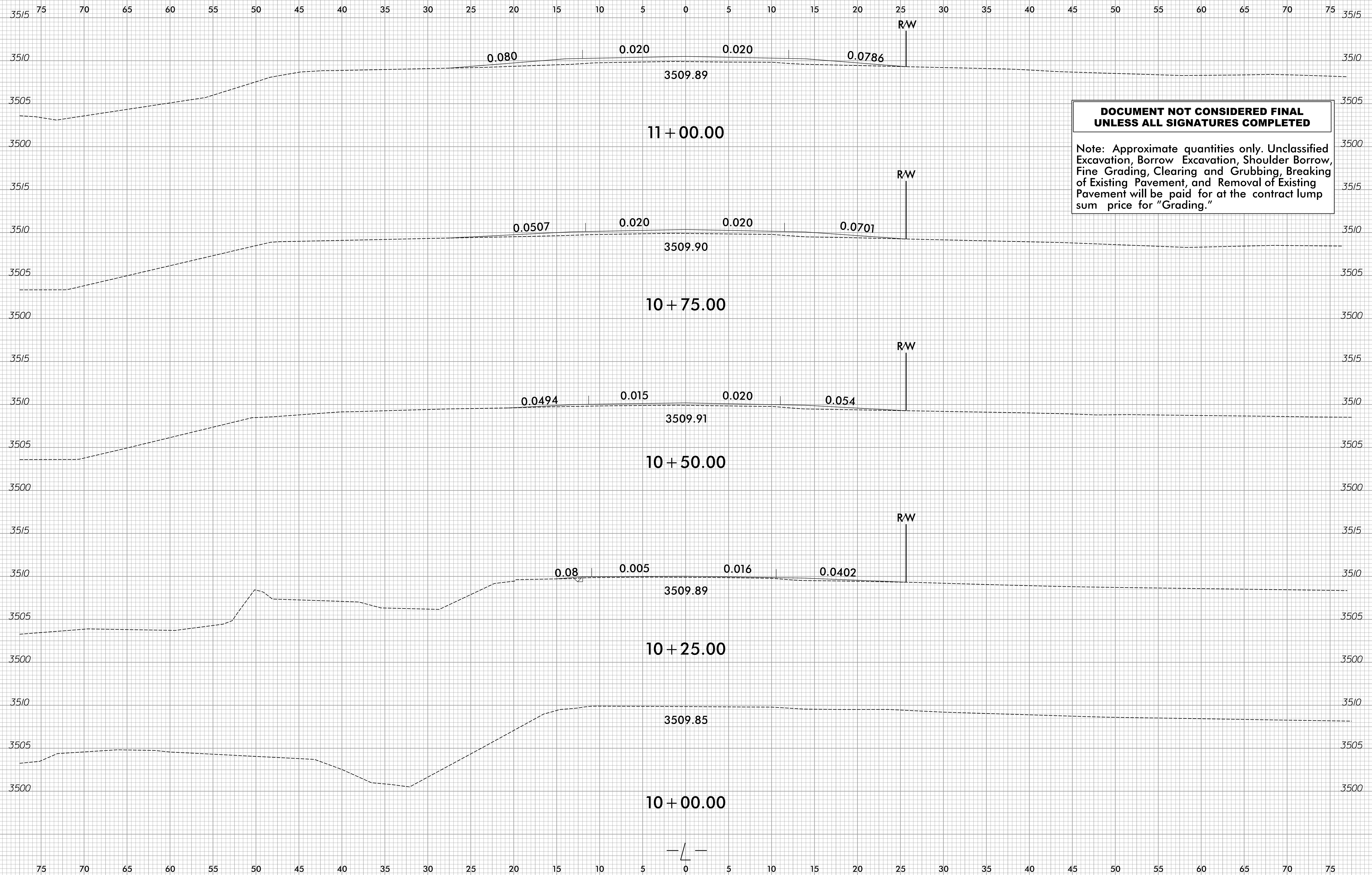


NOTE:
 1. ALL EXISTING AERIAL POWER AND UNDERGROUND TELECOMMUNICATIONS ROUTING/CONNECTIVITY PROVIDED BY; BLUE RIDGE MOUNTAIN EMC, AT&T AND GOOGLE EARTH

<p>UTILITY OWNERS ON THIS SHEET</p> <p>MOUNTAIN ELECTRIC COOP - POWER (DIST) AT&T TELECOMMUNICATIONS - TELEPHONE/FIBER OPTIC SPECTRUM - CATV</p>	<p>P: (919) 878-9560 8601 Six Forks Road, Forum 1, Suite 700 Raleigh, North Carolina 27615-3960 NC License No. E-0112</p> <p>Engineers Construction Managers Planners Scientists www.rkk.com</p> <p>Responsive People Creative Solutions</p>
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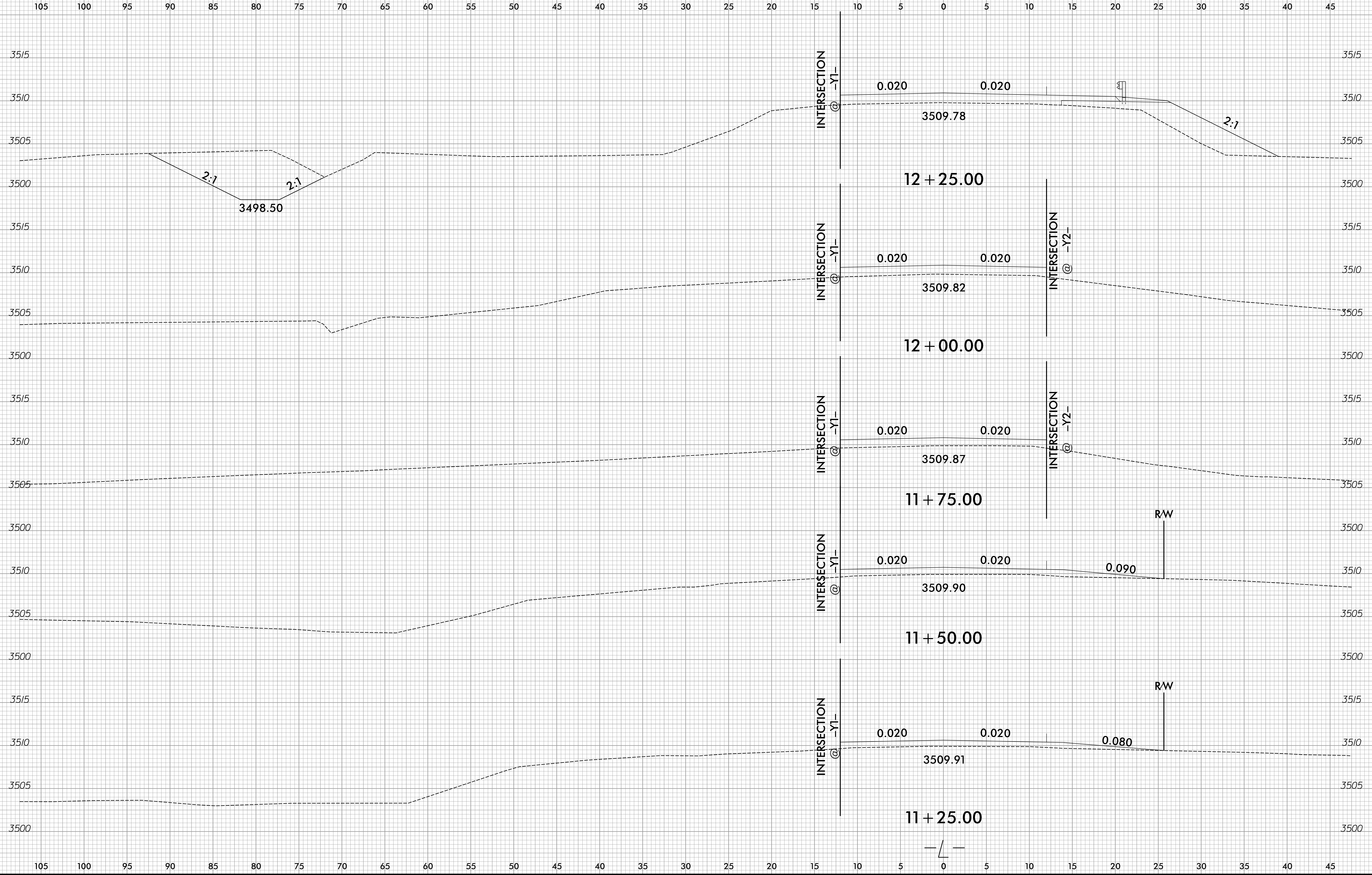
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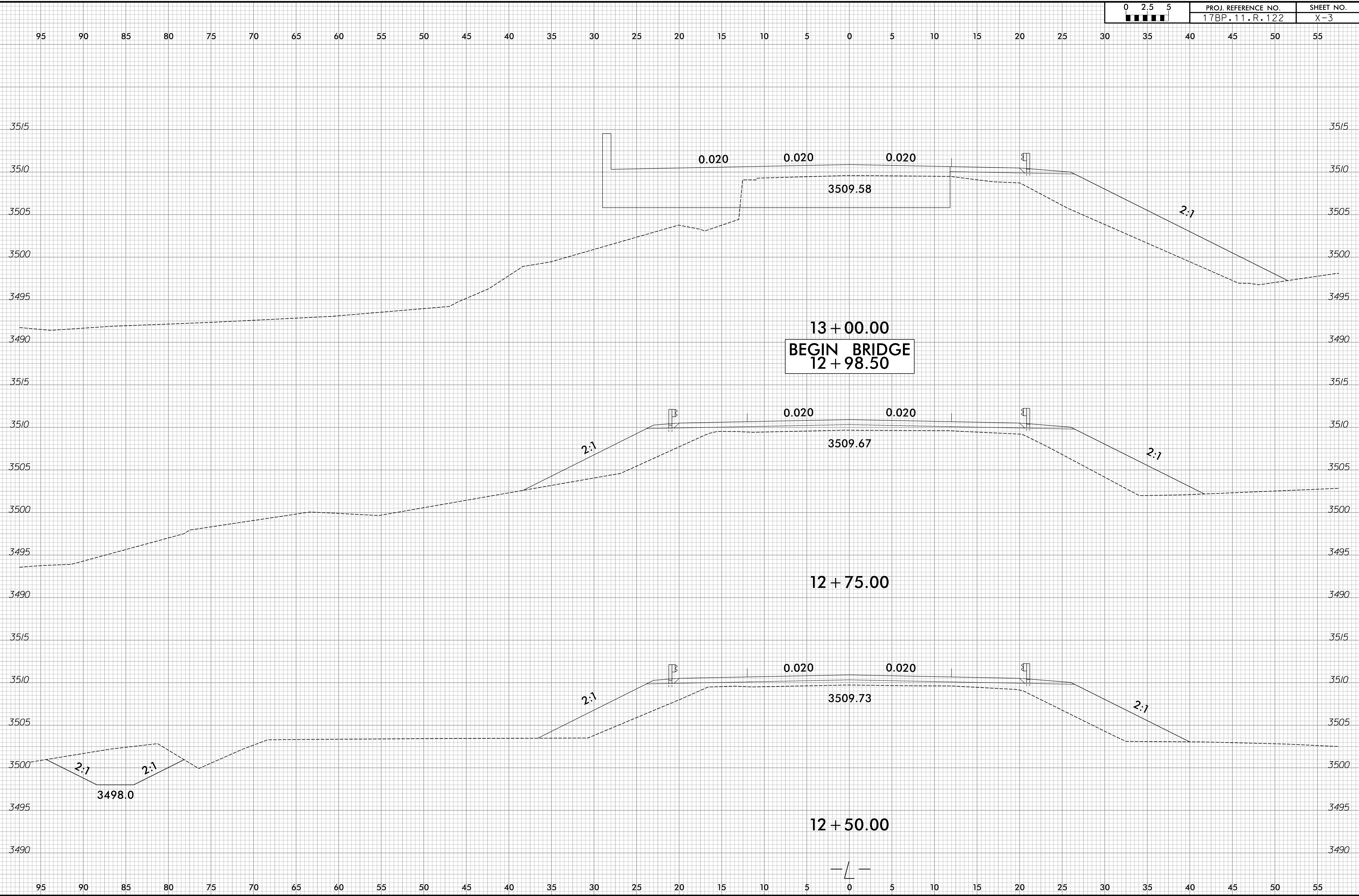
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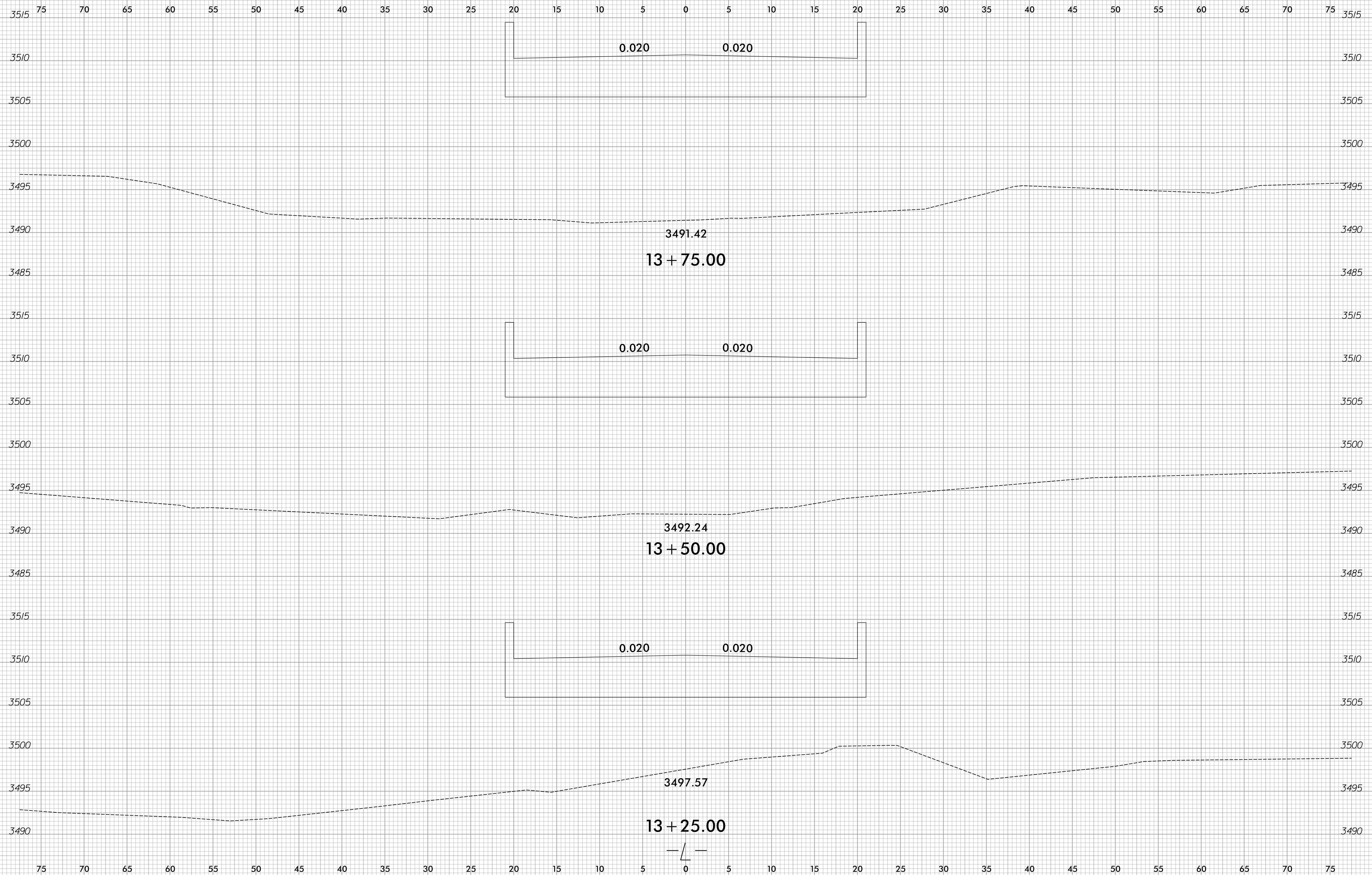
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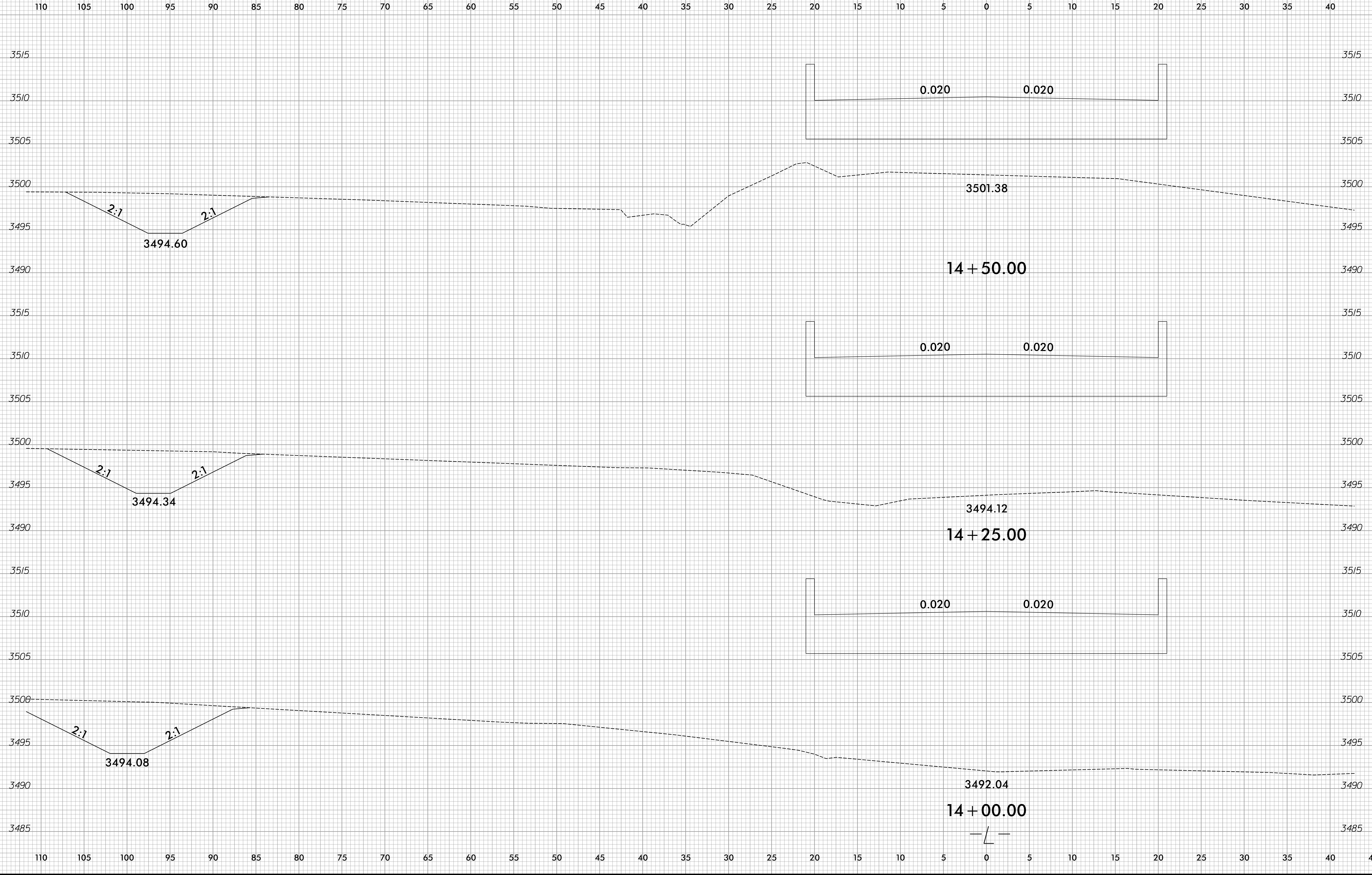
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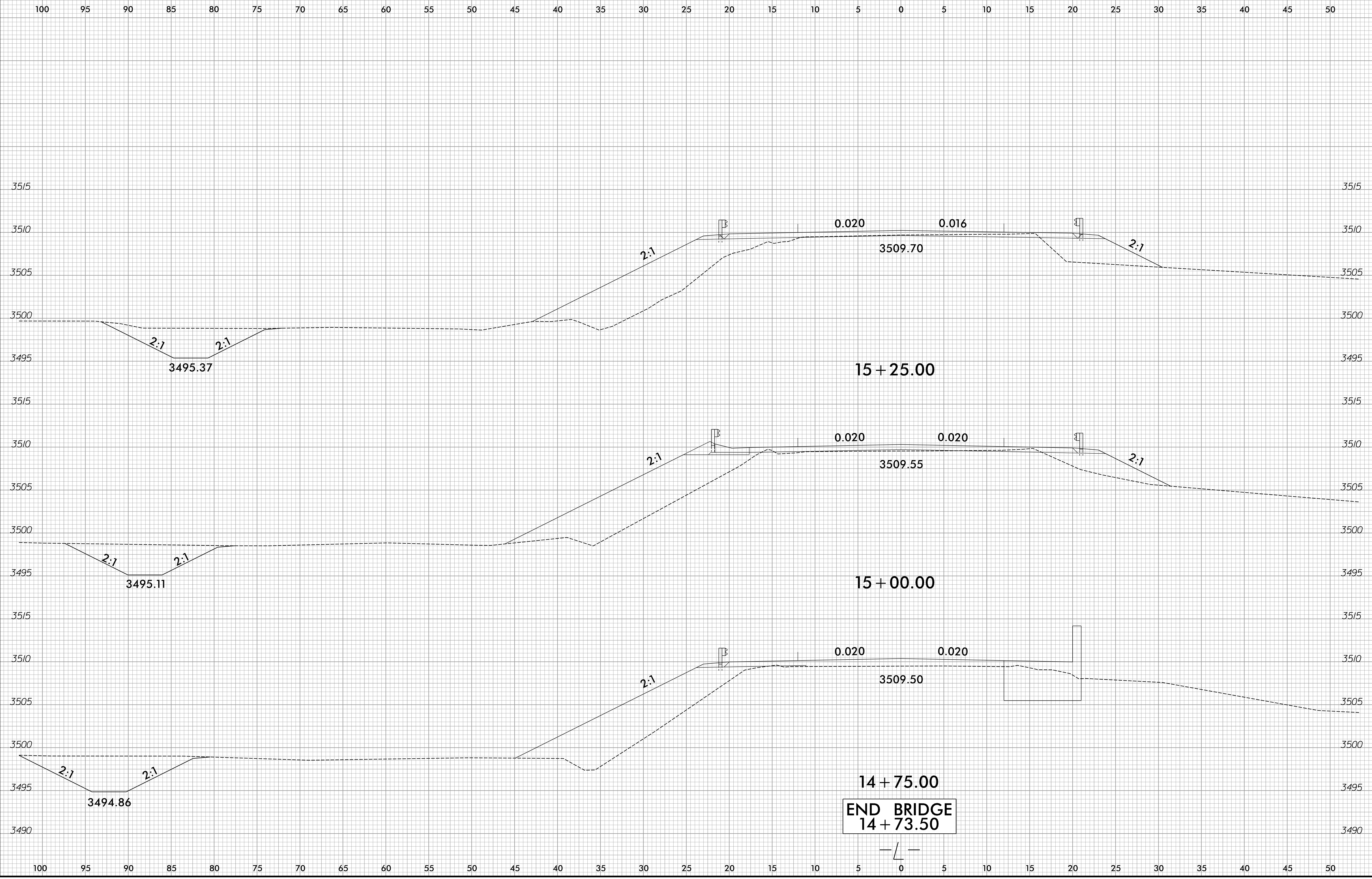
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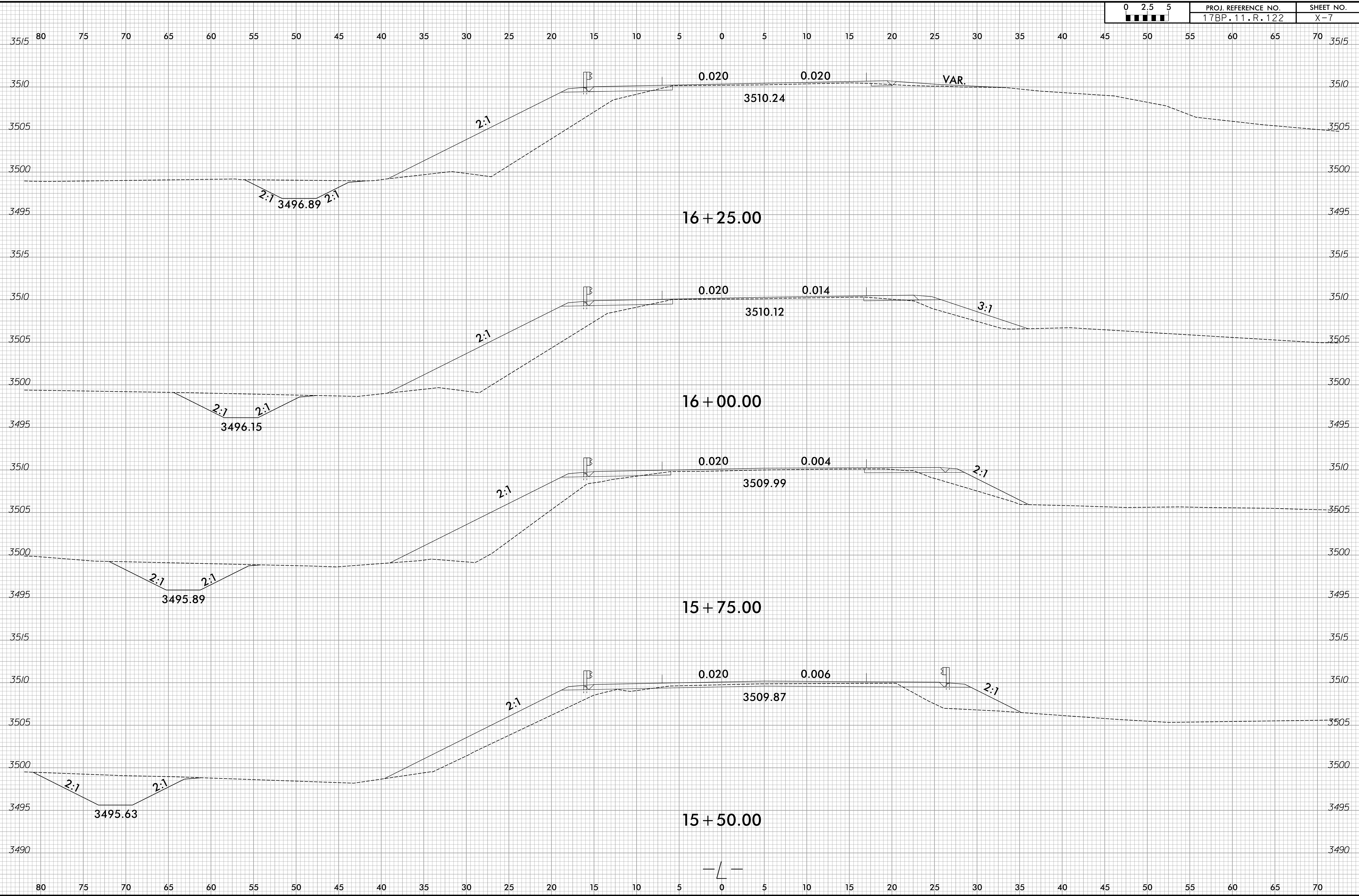
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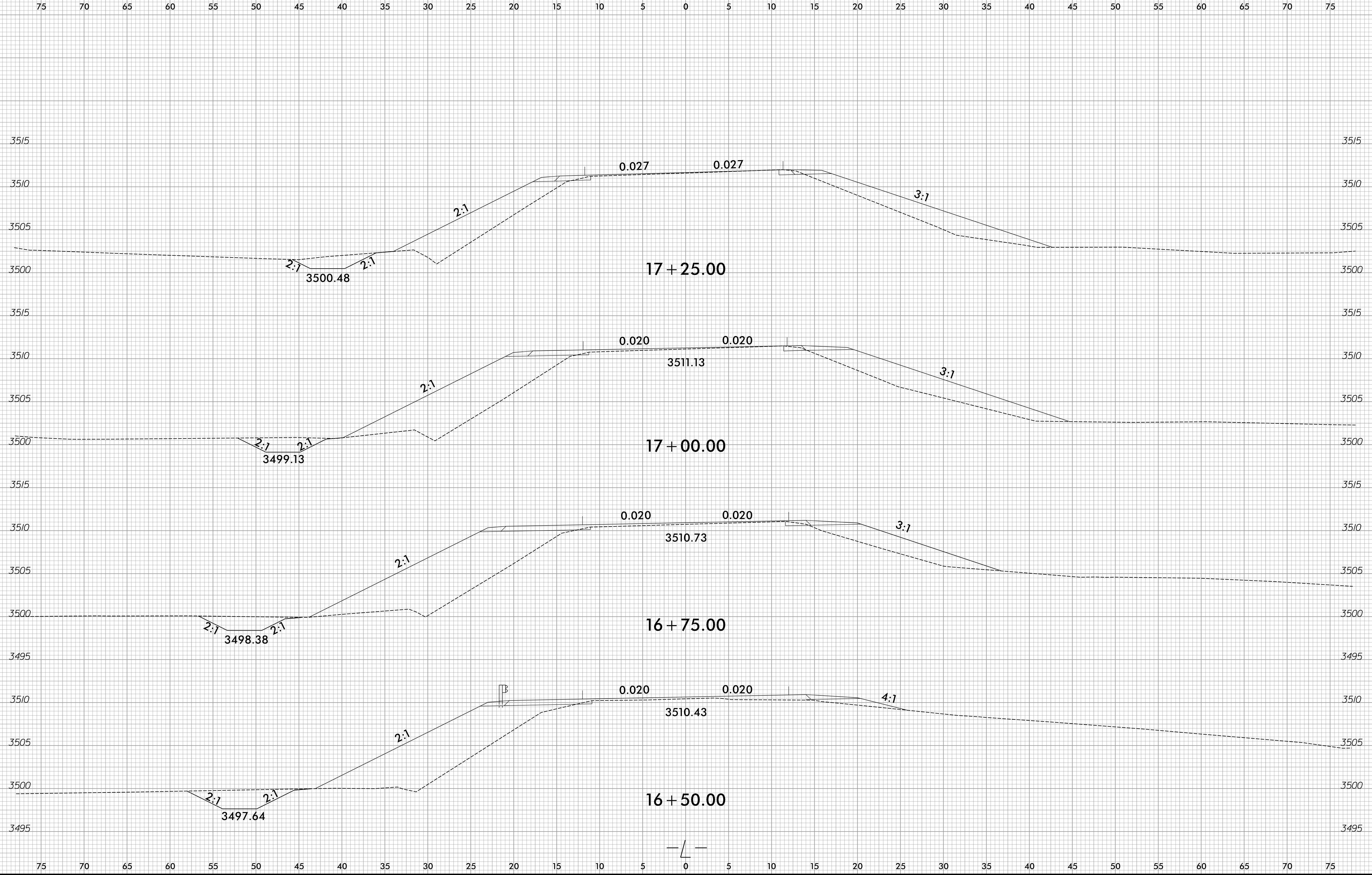
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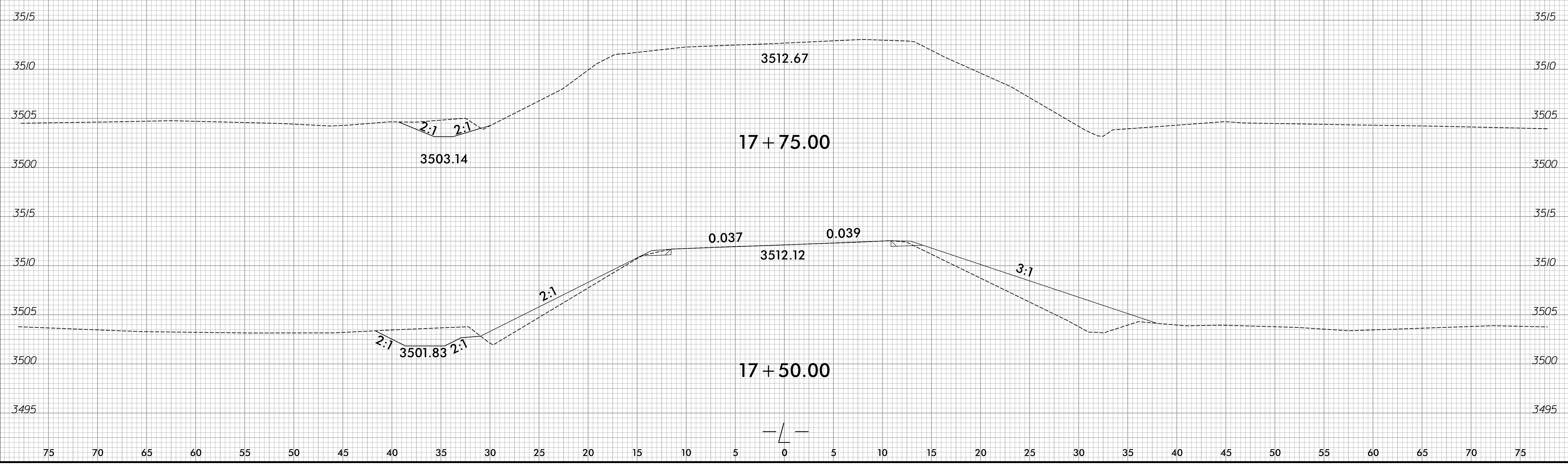


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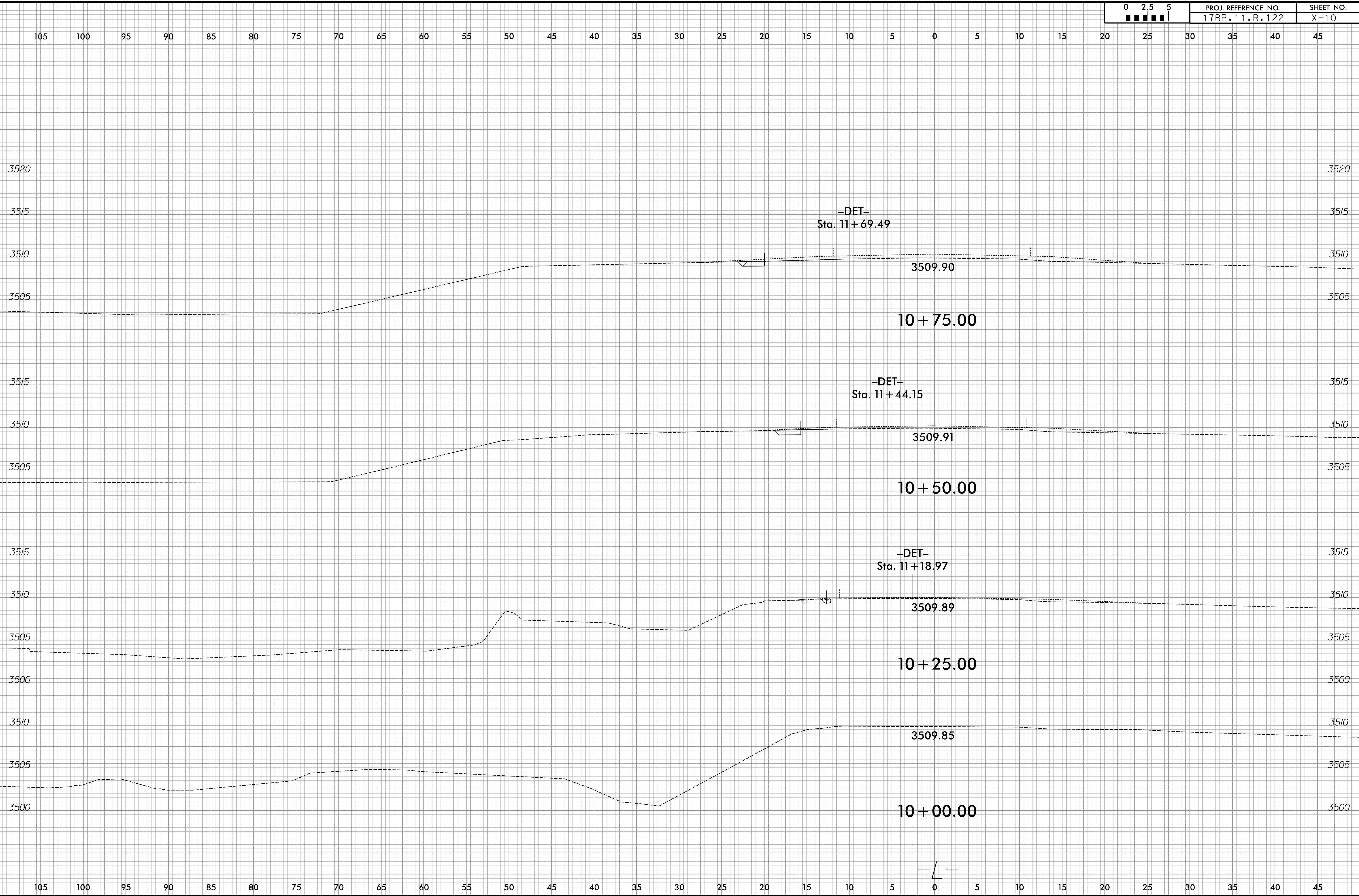
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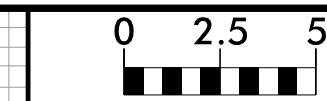
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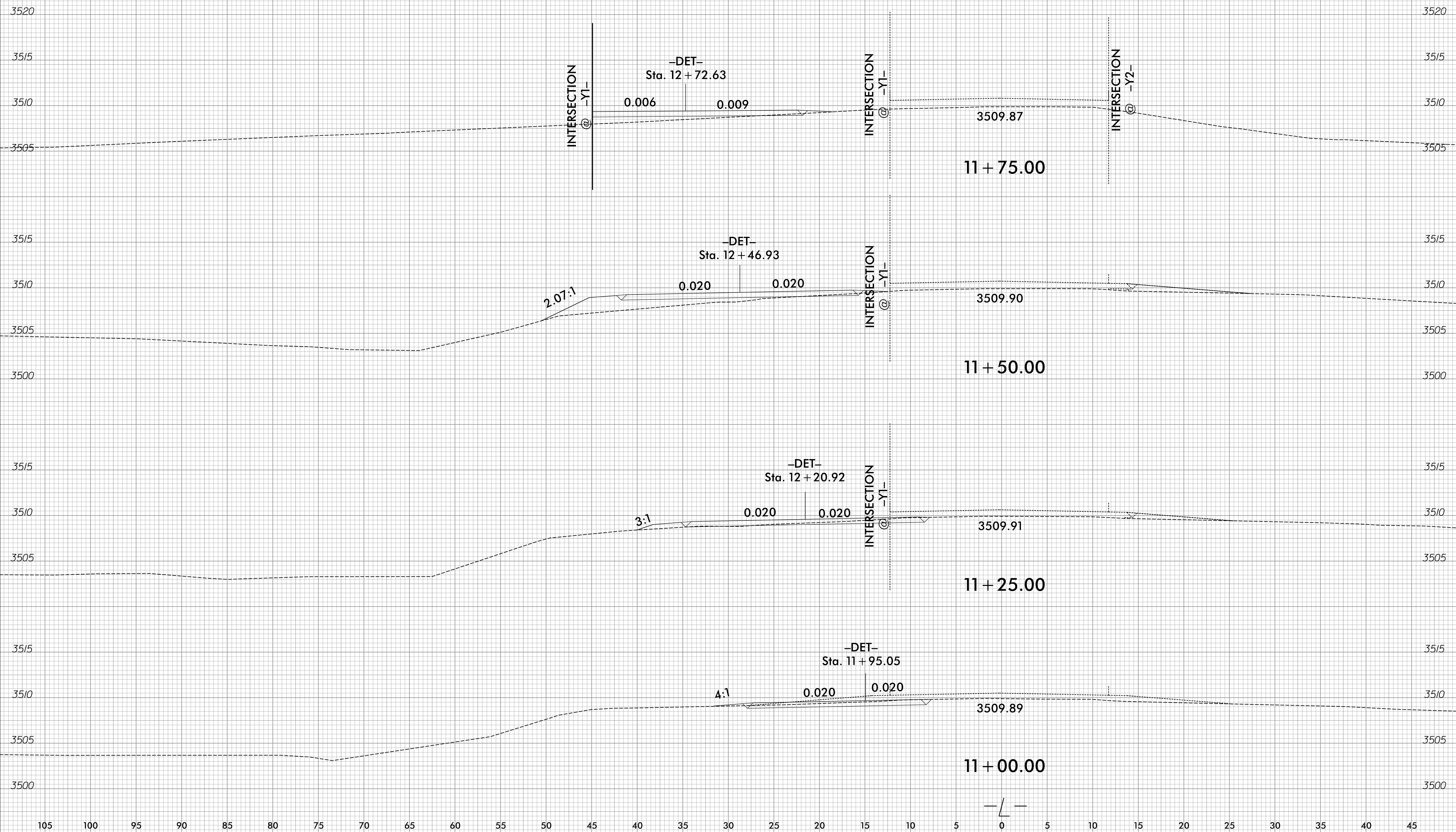
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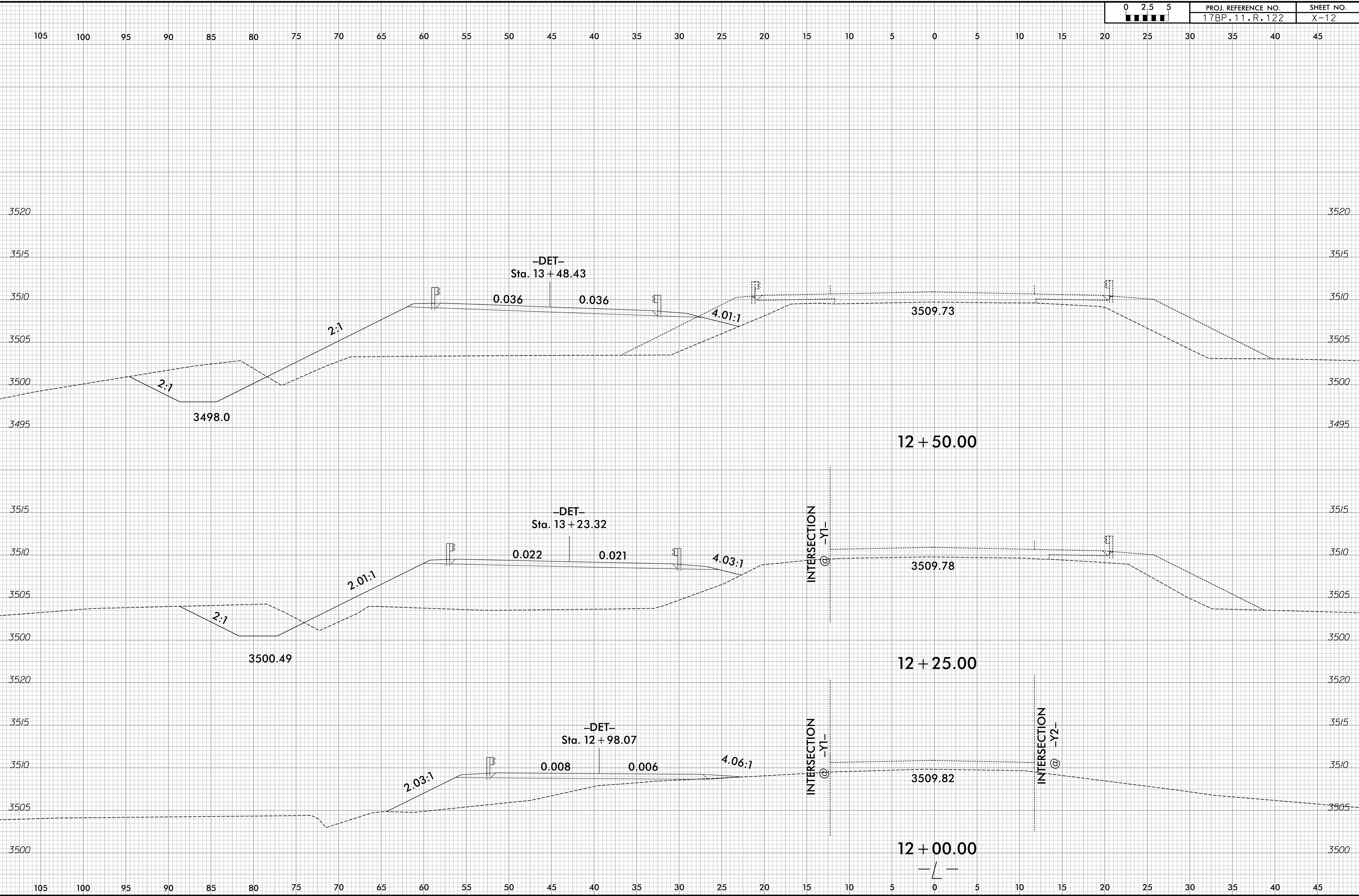


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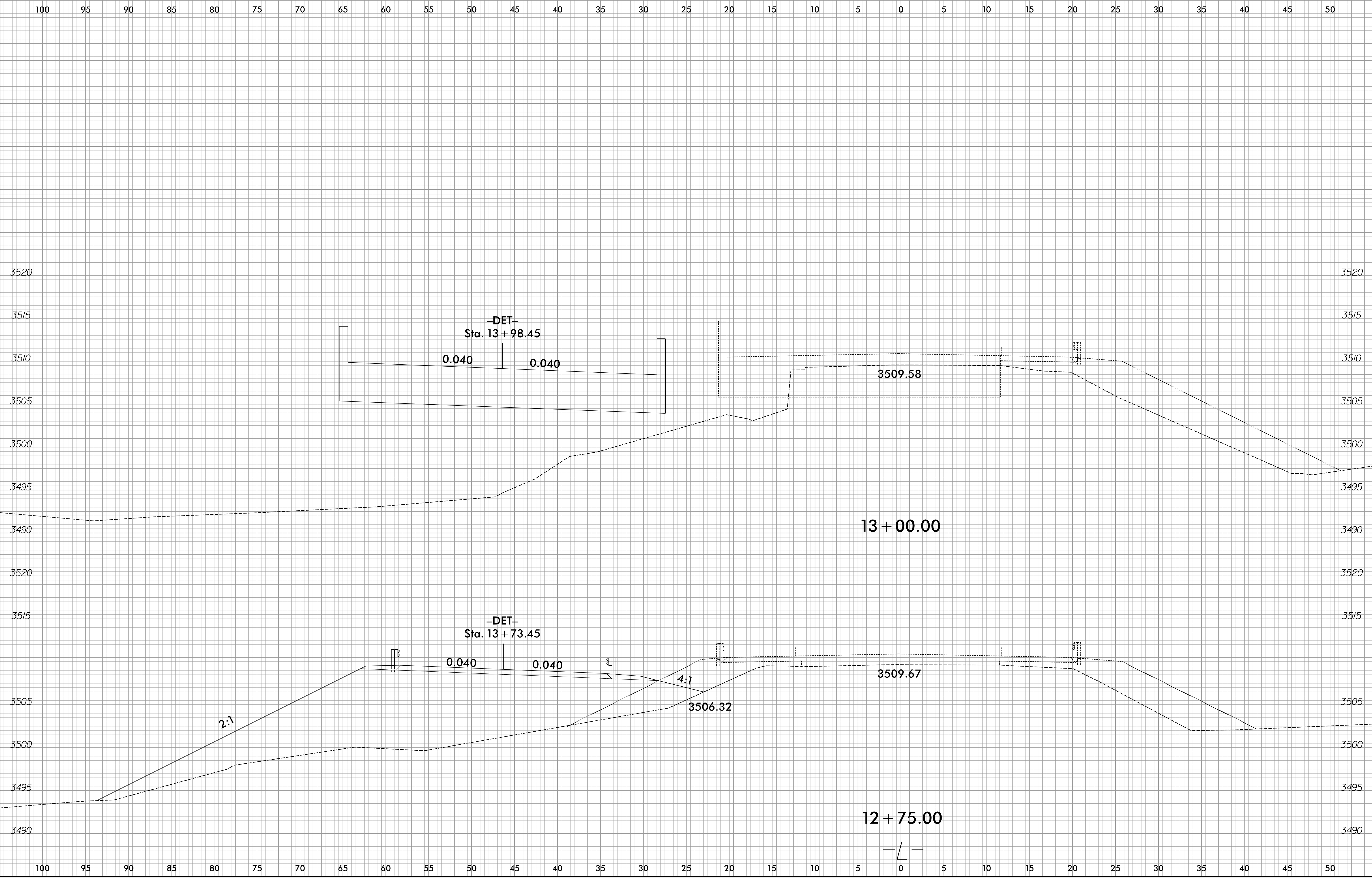
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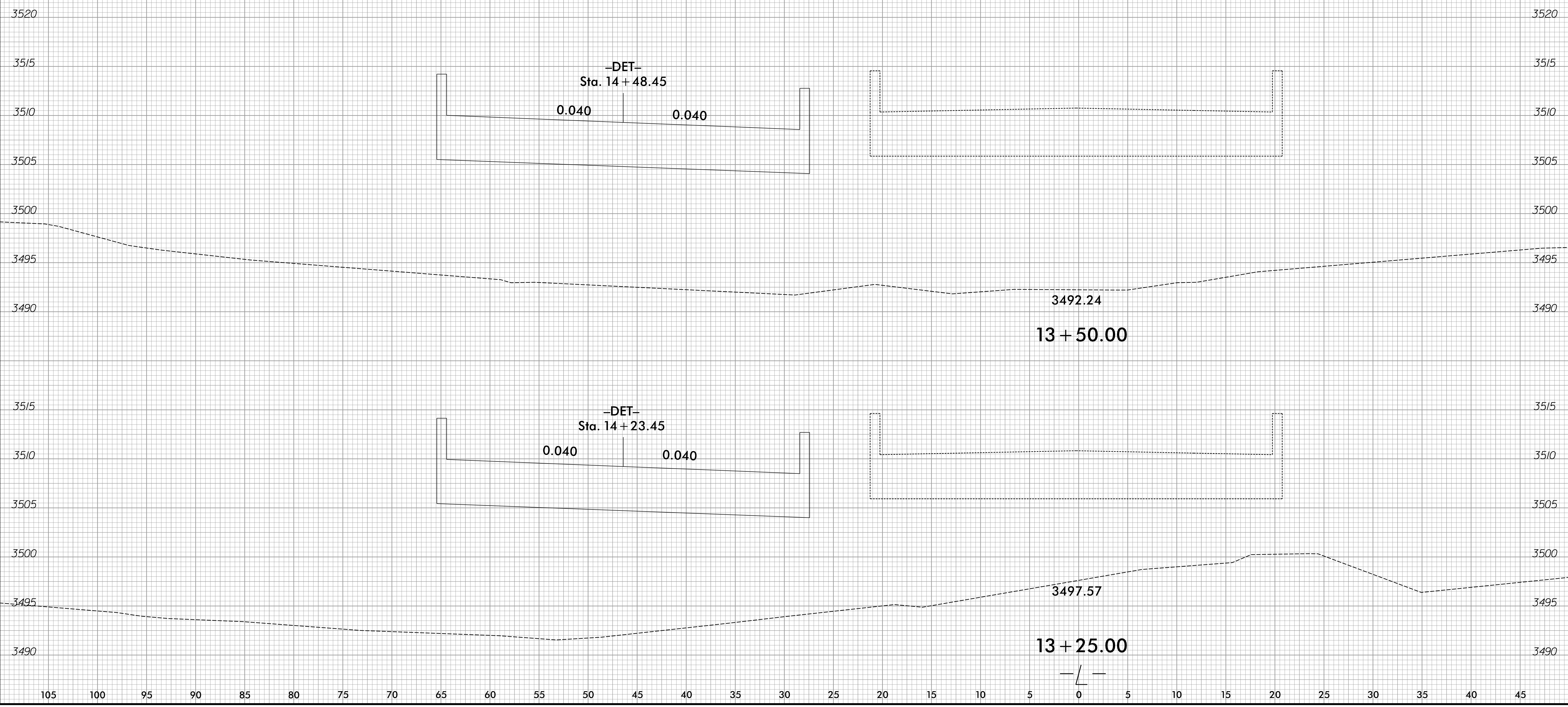
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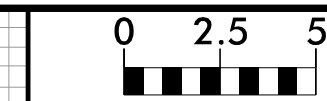
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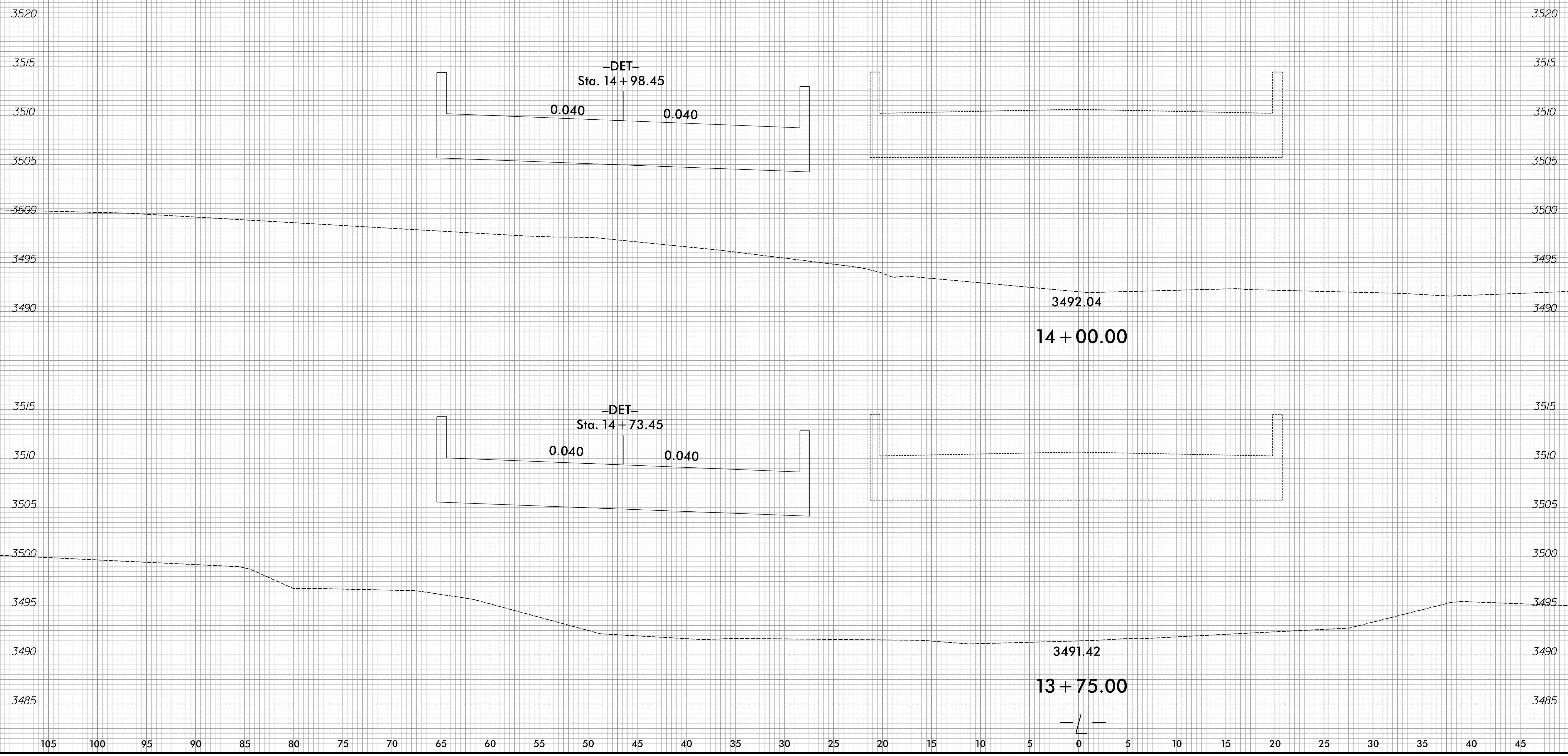
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X-15

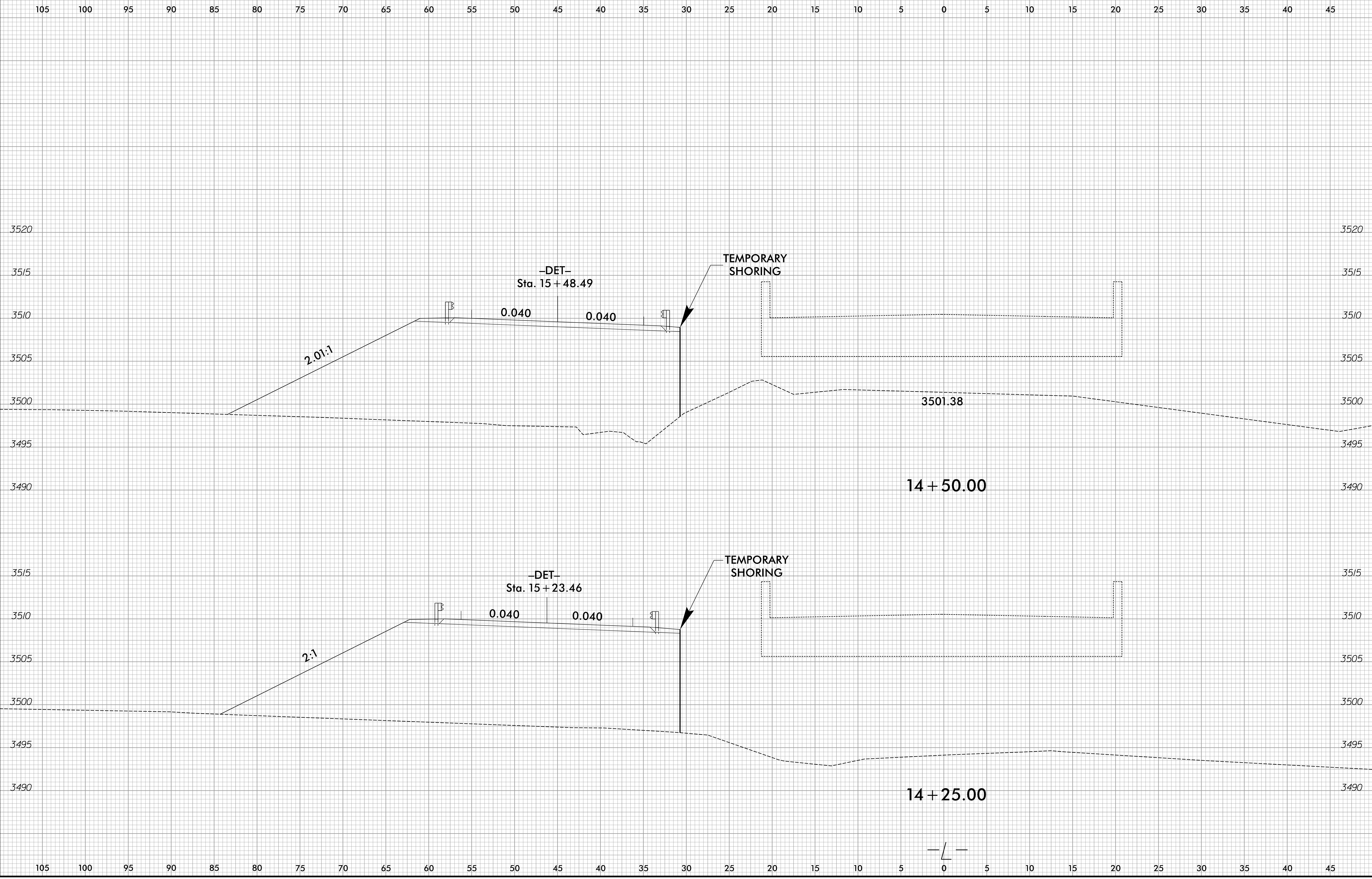
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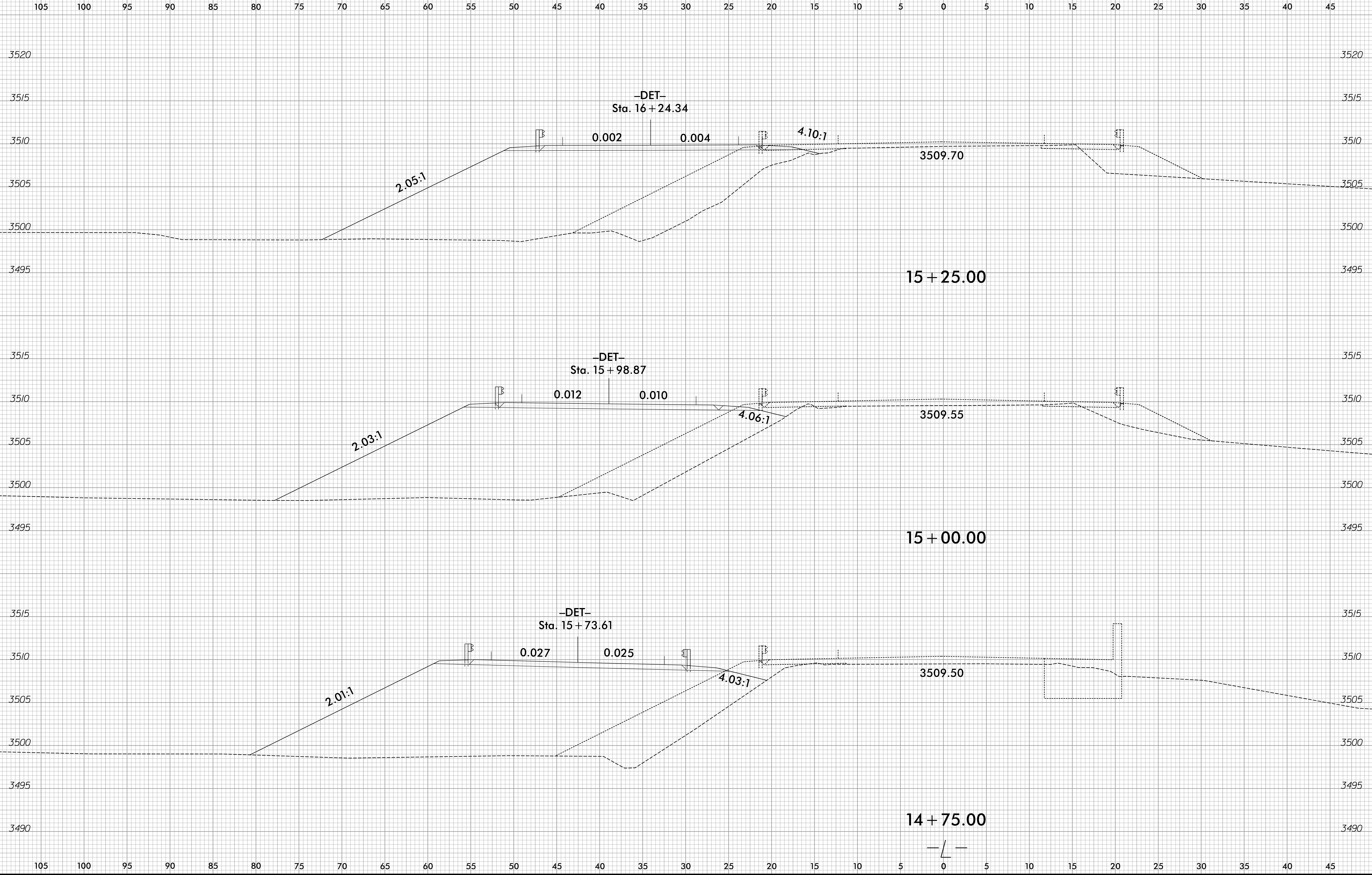
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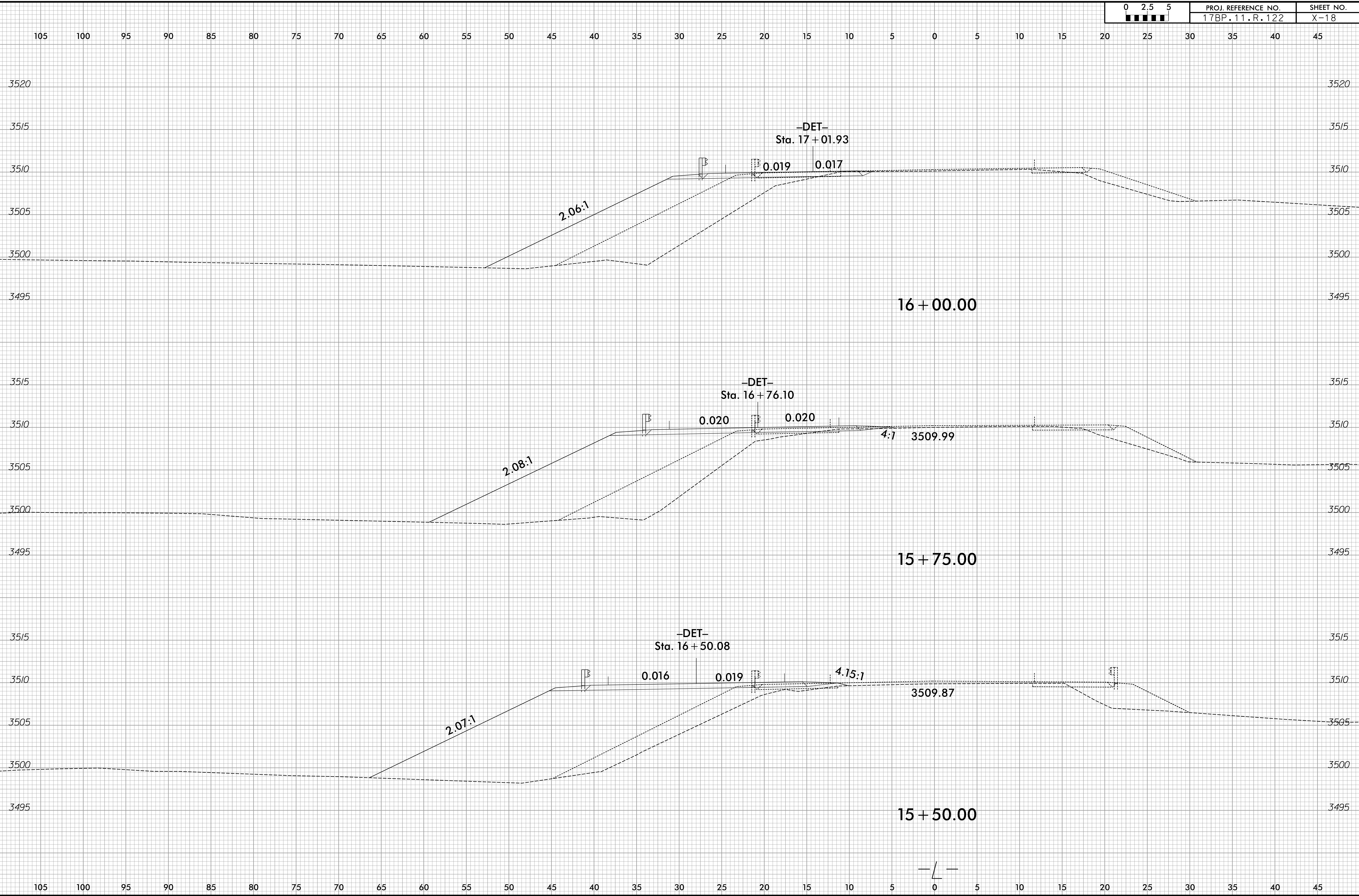
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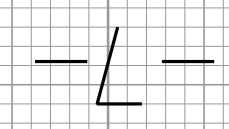
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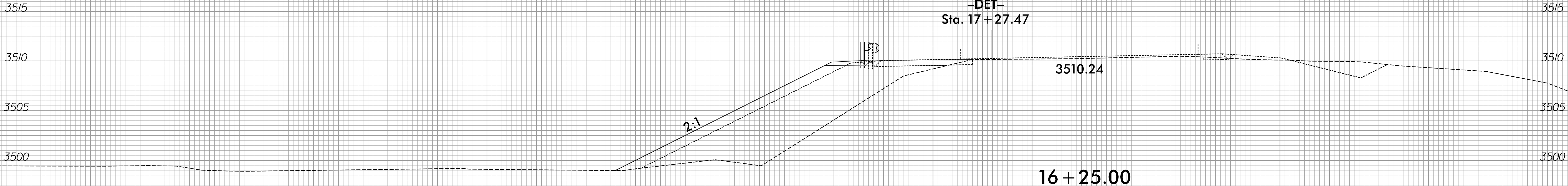
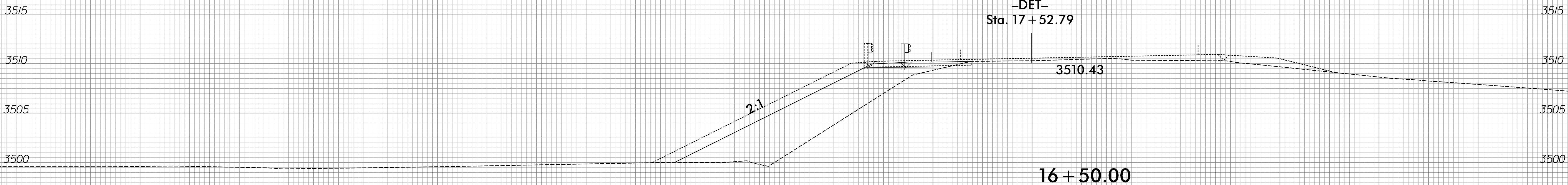
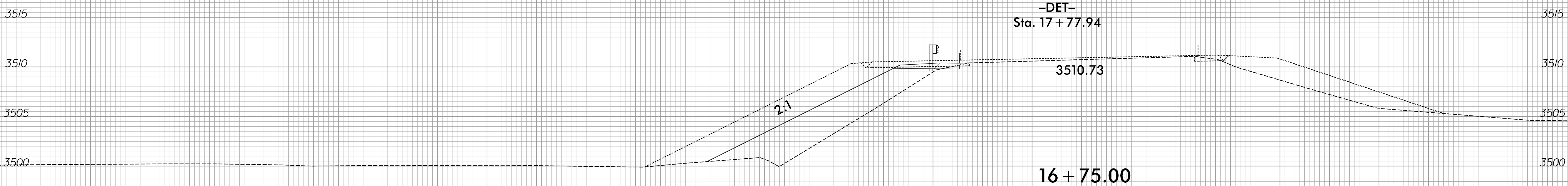
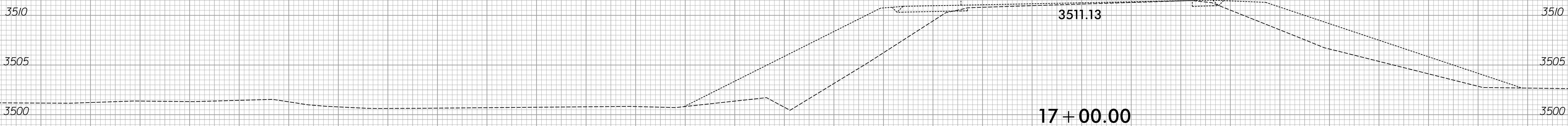
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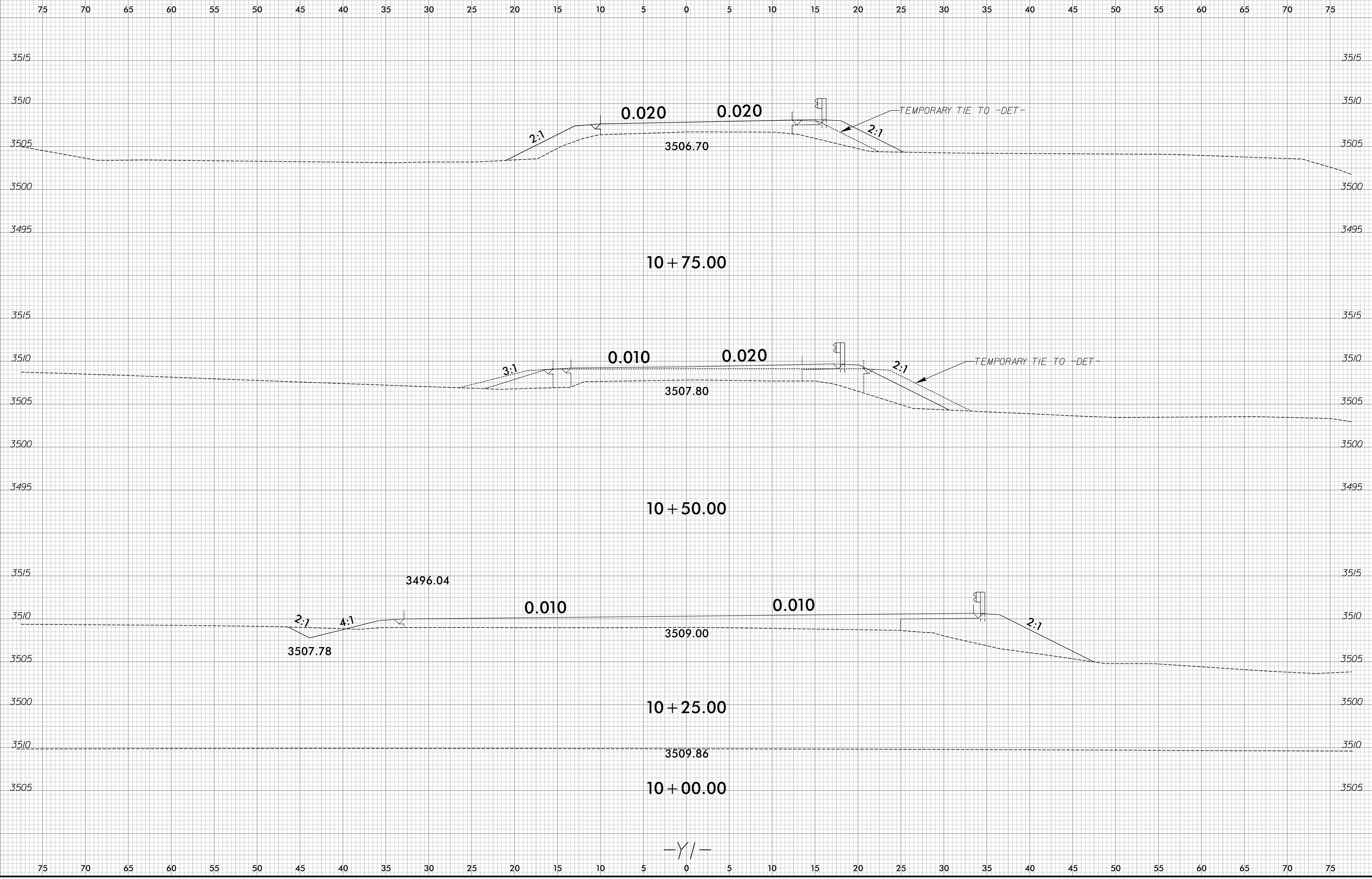


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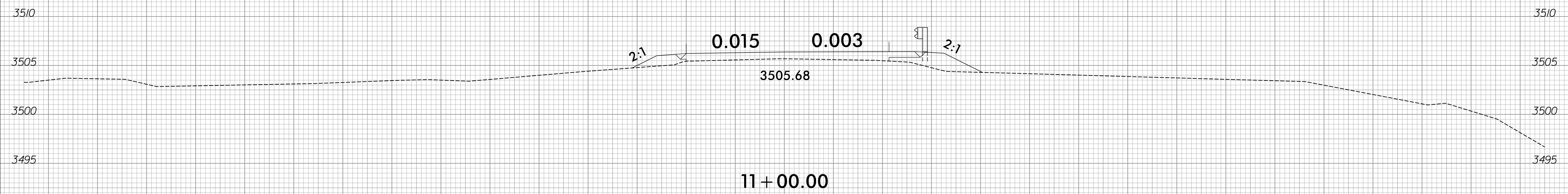
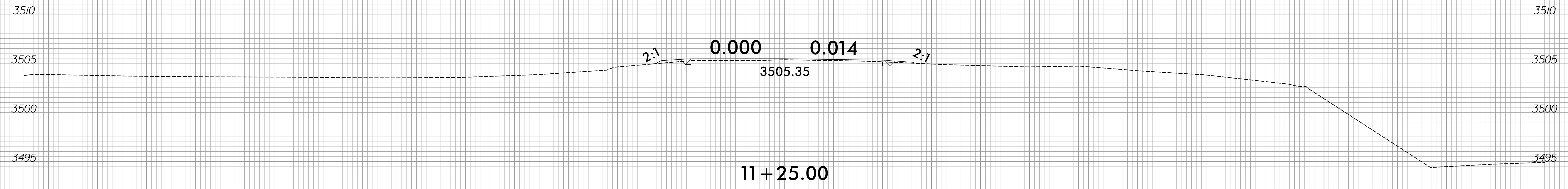


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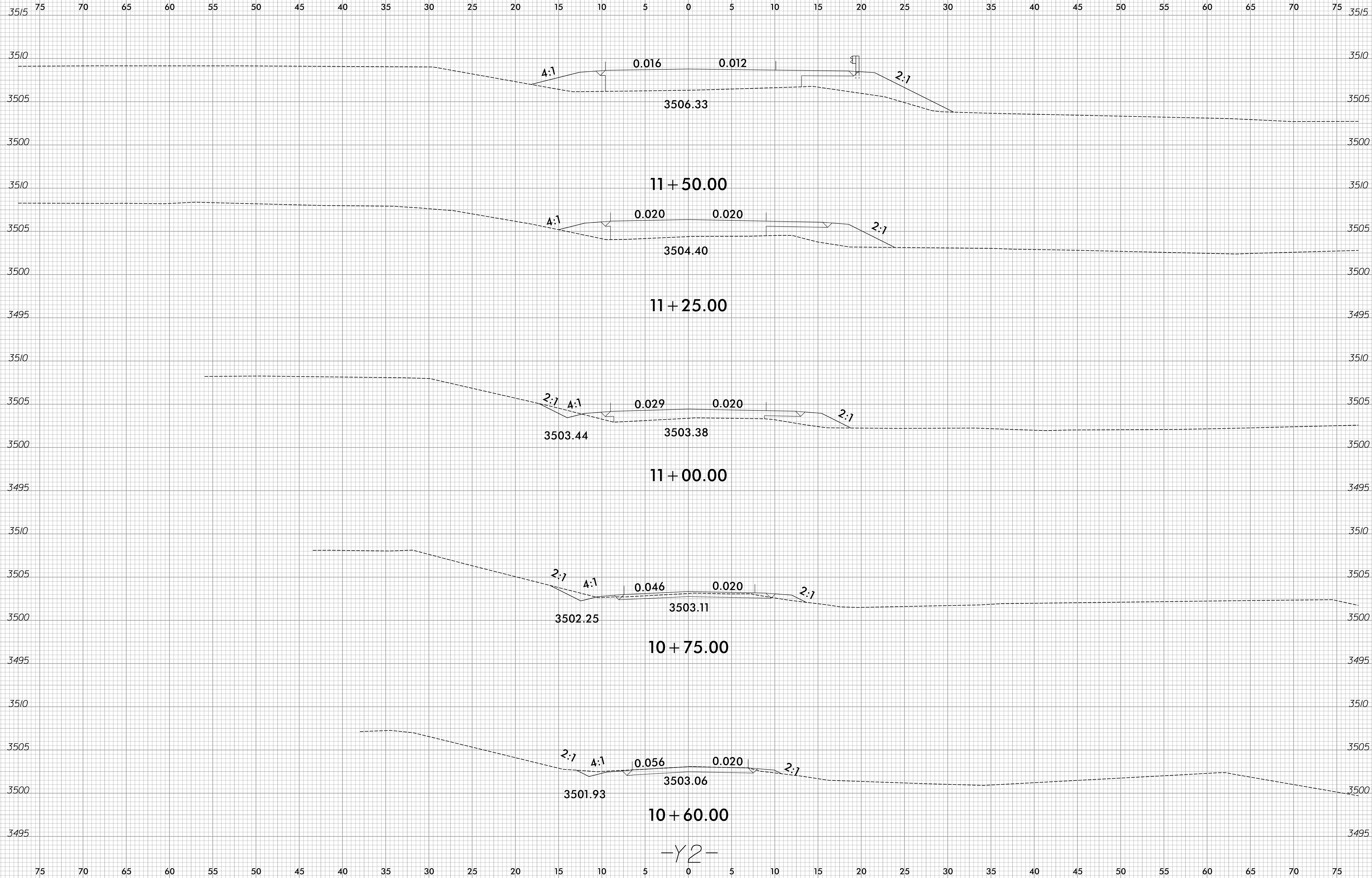


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