

6/9/07/09/07

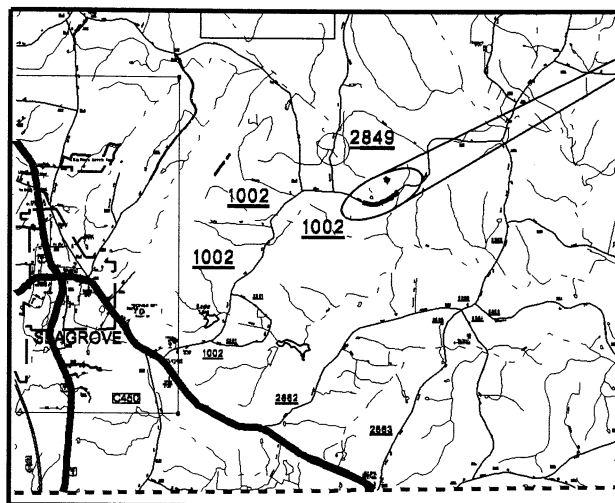
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
RANDOLPH COUNTY

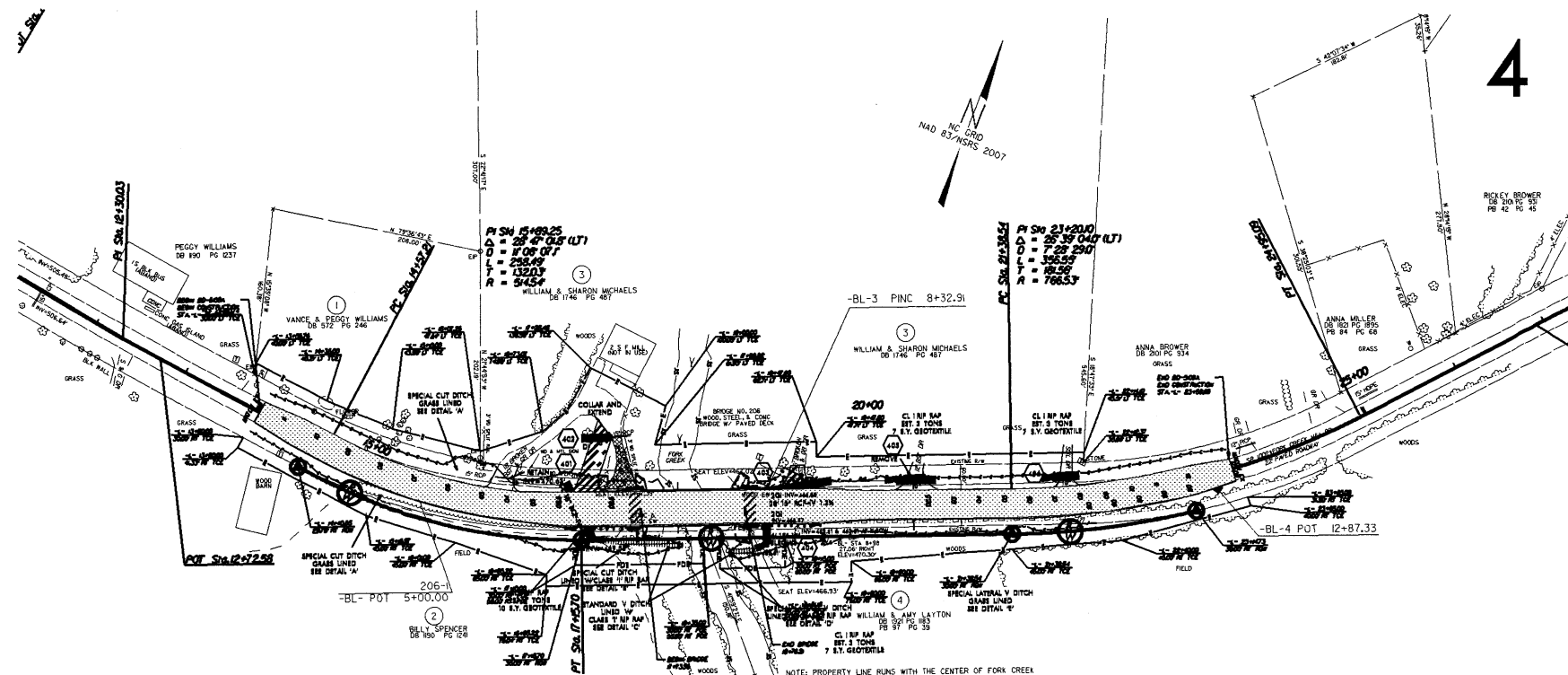
LOCATION: BRIDGE NO. 206 OVER FORK CREEK ON
SR 1002 (FORK CREEK MILL RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE, EROSION CONTROL,
AND PAVEMENT MARKINGS & MARKERS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5108A	1	
ITEM	DESCRIPTION	QUANTITY	UNIT
8B.207614.4	PE		
45354.2.2	BRZ-1002(32)		RAW
45354.3.2	BRZ-1002(32)		CONSTR.



VICINITY MAP



GRAPHIC SCALES



DESIGN DATA

ADT 2011 = 515
ADT 2031 = 839

D = 50 %
T = 6 % *
V = 50 MPH

* TTST 3% DUAL 3%

Prepared in the Office of:
DIVISION OF HIGHWAYS
DIVISION 8 DESIGN & CONSTRUCT UNIT
902 N. SANDHILLS BLVD.
ABERDEEN NC 28315

PLANS PREPARED BY: MRT

PROJECT LENGTH

ROADWAY: 0.165 MILES
STRUCTURE: 0.019 MILES

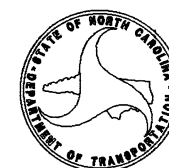
TOTAL: 0.184 MILES

DIVISION OF HIGHWAYS

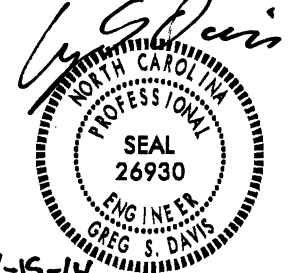
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:



DIVISION DESIGN &
CONSTRUCT ENGINEER



7-15-14

TIP NUMBER: BD-5108A PROJECT: BRIDGE #206

INDEX OF SHEETS

PROJECT REFERENCE NO.	SHEET NO.
BD-5108A	1-A



7-15-14

DIVISION DESIGN / CONSTRUCT ENGINEER

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS
1-B	CONVENTIONAL SYMBOLS
2 THRU 2-A	TYPICAL SECTIONS
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF EARTHWORK, REMOVAL OF, GUARDRAIL, ETC
3-B	LIST OF PIPES ENDWALLS, ETC. (FOR PIPES 48" & UNDER)
4	PLAN SHEET
VPF-1	PROFILE SHEET
ROW-1	RIGHT OF WAY PLAN
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS
ECP-1 THRU ECP-3	EROSION CONTROL PLANS
X-A	CROSS-SECTION SUMMARY
X-1 THRU X-26	CROSS-SECTIONS
S-1 THRU S-19	STRUCTURE PLANS

GENERAL NOTES

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE THE PROPER TIE-IN.

CLEARING

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

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.

SHOULDER CONSTRUCTION:

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

SUPERELEVATION

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04. SUPERELEVATION IS TO BE REVOLVED ABOUT THE CROWN POINTS OR GRADE POINTS AS SHOWN ON THE TYPICAL SECTIONS OR AS DIRECTED BY THE ENGINEER.

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.

SUBSURFACE PLANS

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

END BENTS:

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

UTILITIES

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS PRIOR TO THE DATE OF AVAILABILITY.

ROADWAY STANDARD DRAWINGS

The following Roadway Standards as appear in the "Roadway Standard Drawings" highway Design Branch - N.C. Department of Transportation - Raleigh, N.C., dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
100.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
422.11	Bridge Approach Fills - Sub Regional Tier
560.01	Method of Shoulder Construction - Method I
654.01	Pavement Repairs
840.16	Drop Inlet Frame and Grate
840.25	Anchorage for Frames
840.29	Frames and Narrow Slot Flat Grates
840.72	Pipe Collar
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
876.02	Guide for Rip Rap at Pipe Outlets

Note: Not to Scale***S.U.E. = Subsurface Utility Engineering**STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	⊙
Property Corner	-----
Property Monument	⊙
Parcel/Sequence Number	23
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	-o-o-o-
Proposed Chain Link Fence	-□-□-□-
Proposed Barbed Wire Fence	-◇-◇-◇-
Existing Wetland Boundary	-MLB-
Proposed Wetland Boundary	-MLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Known Soil Contamination: Area or Site	☠
Potential Soil Contamination: Area or Site	☠

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

Baseline Control Point	-----
Existing Right of Way Marker	-----
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite R/W Marker	-----
Proposed Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----
Proposed Permanent Easement with Iron Pin and Cap Marker	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	-----
Pavement Removal	-----

VEGETATION:

Single Tree	-----
Single Shrub	-----
Hedge	-----
Woods Line	-----

Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	-----
Proposed Power Pole	-----
Existing Joint Use Pole	-----
Proposed Joint Use Pole	-----
Power Manhole	-----
Power Line Tower	-----
Power Transformer	-----
U/G Power Cable Hand Hole	-----
H-Frame Pole	-----
Recorded U/G Power Line	-----
Designated U/G Power Line (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	-----
Proposed Telephone Pole	-----
Telephone Manhole	-----
Telephone Booth	-----
Telephone Pedestal	-----
Telephone Cell Tower	-----
U/G Telephone Cable Hand Hole	-----
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

WATER:

Water Manhole	-----
Water Meter	-----
Water Valve	-----
Water Hydrant	-----
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	-----

TV:

TV Satellite Dish	-----
TV Pedestal	-----
TV Tower	-----
U/G TV Cable Hand Hole	-----
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

GAS:

Gas Valve	-----
Gas Meter	-----
Recorded U/G Gas Line	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----

SANITARY SEWER:

Sanitary Sewer Manhole	-----
Sanitary Sewer Cleanout	-----
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
Recorded SS Forced Main Line	-----
Designated SS Forced Main Line (S.U.E.*)	-----

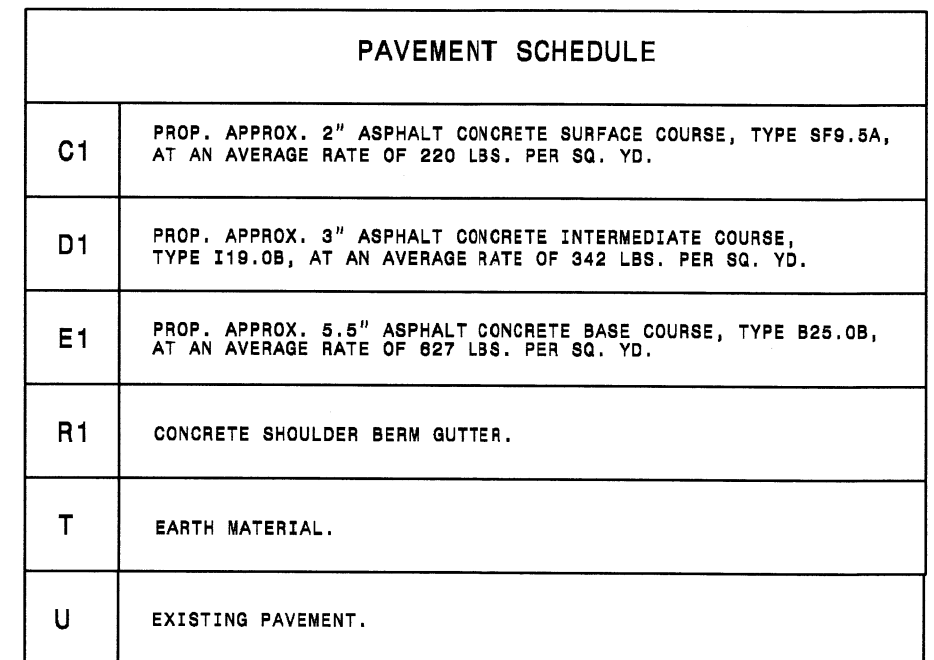
MISCELLANEOUS:

Utility Pole	-----
Utility Pole with Base	-----
Utility Located Object	-----
Utility Traffic Signal Box	-----
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	-----
A/G Tank; Water, Gas, Oil	-----
Geoenvironmental Boring	-----
U/G Test Hole (S.U.E.*)	-----
Abandoned According to Utility Records	-----
End of Information	-----

USE TYPICAL SECTION NO. 1 FROM
 -L- STA. 13+82.88 TO -L- STA. 17+73.96 (BEGIN BRIDGE)
 -L- STA. 19+01.01 TO -L- STA. 23+58.69



USE TYPICAL SECTION NO. 2 FROM
-L- STA. 18+76.21 (END BRIDGE) TO -L- STA. 19+01.00

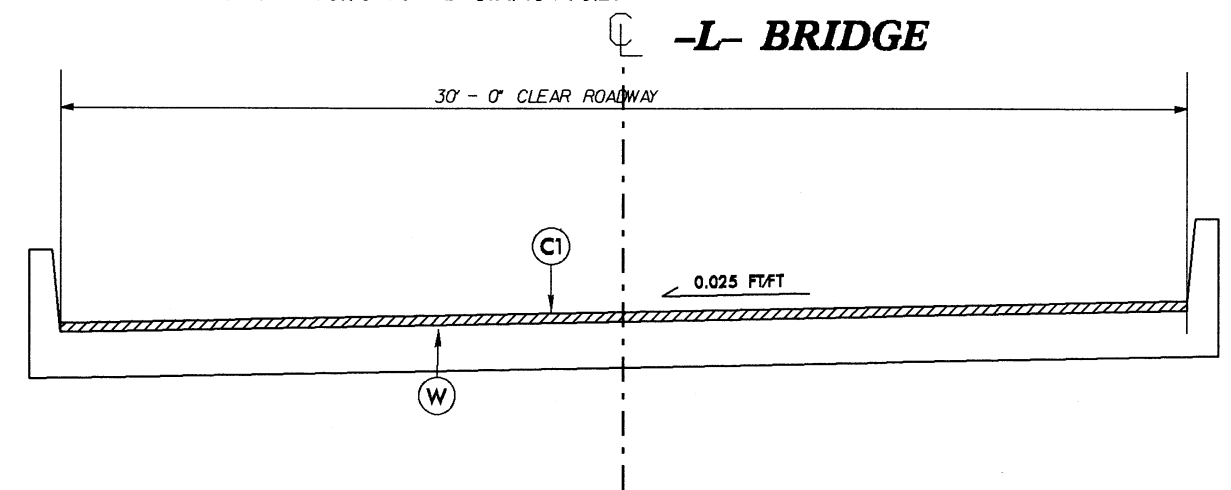


NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

8/17/99
07-JUL-2014 14:00
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resdavis

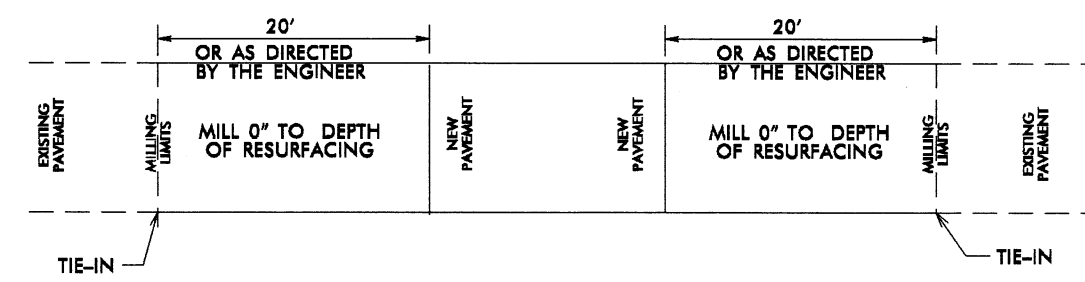
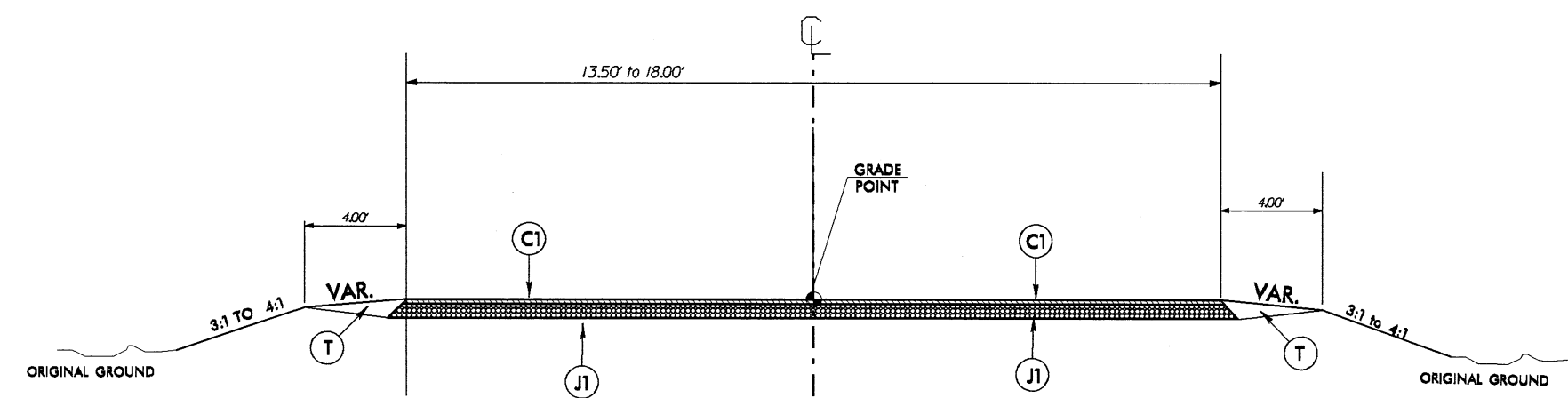
REVISIONS

TYPICAL SECTION NO. 3
USE TYPICAL SECTION NO. 3 FROM
-L- STA. 17+73.96 TO -L- STA. 18+76.21



-L- BRIDGE

DRIVEWAY DETAIL



** MILLING TO BE PAID FOR AS INCIDENTAL MILLING

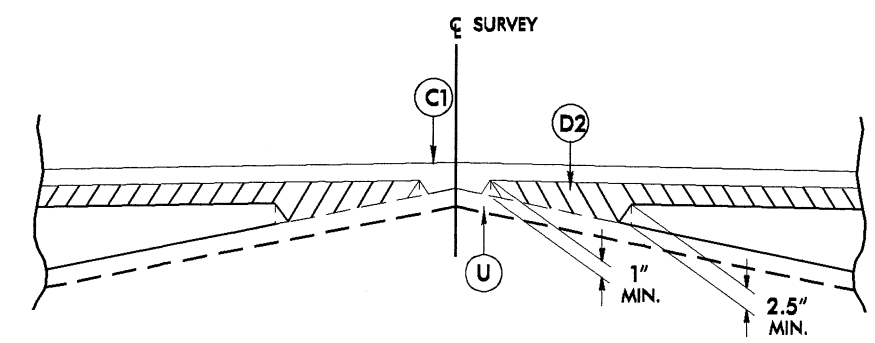
PAVEMENT TIE-IN DETAIL

PROJECT REFERENCE NO. BD-5108A	SHEET NO. 2-A
RW SHEET NO.	

7-15-14

PROFESSIONAL SEAL
26930
ENGINEER
REG. 5 DAYS

DIVISION DESIGN / CONSTRUCT ENGINEER



Detail Showing Method of Wedging

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 220 LBS. PER SQ. YD.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.
J1	6" PROPOSED AGGREGATE BASE COURSE
R1	CONCRETE SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT
U	WEDGING (SEE DETAIL)

SUMMARY OF EARTHWORK

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- STA. 13+82.88	-L- STA. 18+15	516	254		262
-L- STA. 18+60	-L- STA. 23+58	418	665	247	
SUBTOTALS:		934	919	247	262
Waste to Replace Borrow				-247	-247
GRAND TOTALS:		934	901	0	15
SAY:		935			20

LINE	Station	Station	LOC LT/RT/CL	SF
-L-	13+82	17+73	CL	9103.78
-L-	18+73	23+58	CL	10491.55
-L-	17+32	17+78	LT	798.16
-L-	19+10	19+41	LT	379.17
			TOTAL:	20772.66
			SAY:	20775

Approximate quantities only. Unclassified excavation, borrow excavation, shoulder borrow, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".

GUARDRAIL SUMMARY

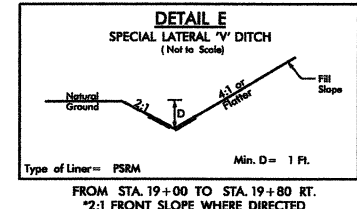
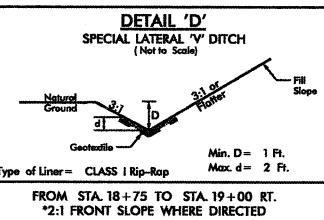
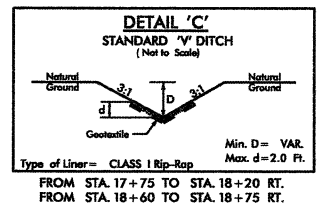
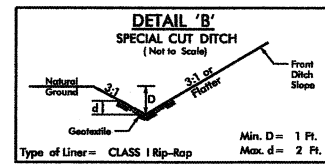
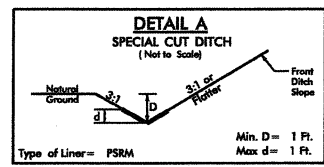
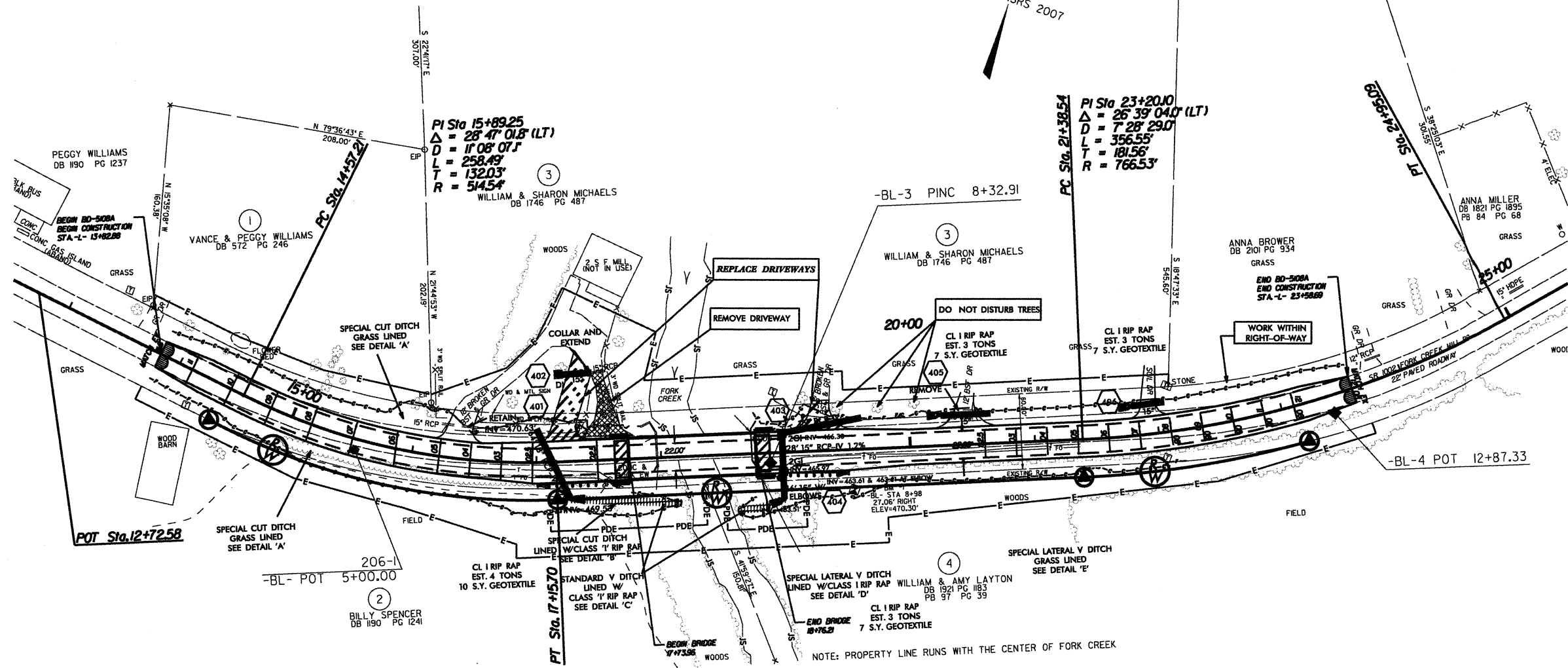
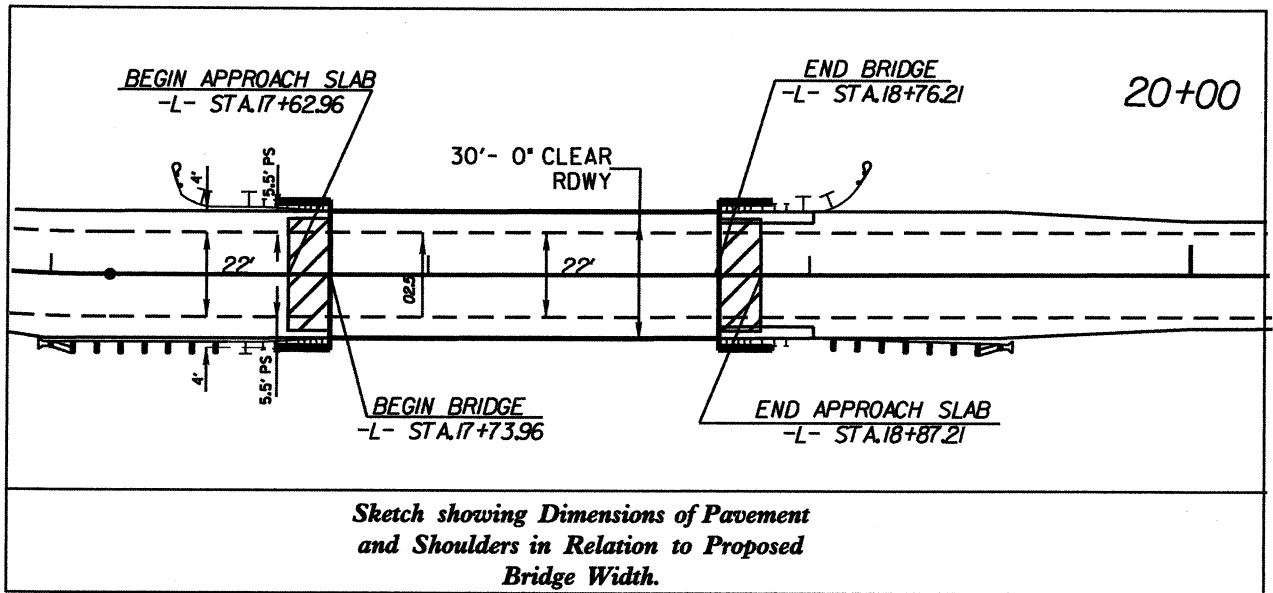
LINE	BEG. STA.	END STA.	LOC.	LENGTH			WARRANT POINT		"N" DIST FROM E.O.L.	TOTAL SHLDR WIDTH	FLAIR LENGTH		W		ANCHORS							IMP. ATTEN. TYPE 350			REMOVE EXISTING GRDRAIL		REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END	XI MOD	XI	GRAU 350	M-350	XIII	AT-1	VI MOD	EA	G	NG			
-L-	17+00	17+74	RT	75					4	7								1		1							
-L-	17+32	17+74	LT	31.5	17.5				4	7									1	1							
-L-	18+75	19+50	RT	75					4	7								1		1							
-L-	18+75	19+16	LT	28	17.5				4	7									1	1							
		SUBTOTAL		209.5	35																						
DEDUCTIONS		Type III @ 18.75' x 4		75																							
		GRAU 350 @ 50' x 3		50																							
		AT-1 @ 6.25' x 1		12.5																							
		DEDUCTIONS SUBTOTAL		137.5																							
		TOTAL		72																							
		SAY		75	35													2		4	2						

COMPUTED BY: DDC	DATE: 6/23/2014
CHECKED BY: GSD	DATE: 6/25/2014

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

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

[illegible]

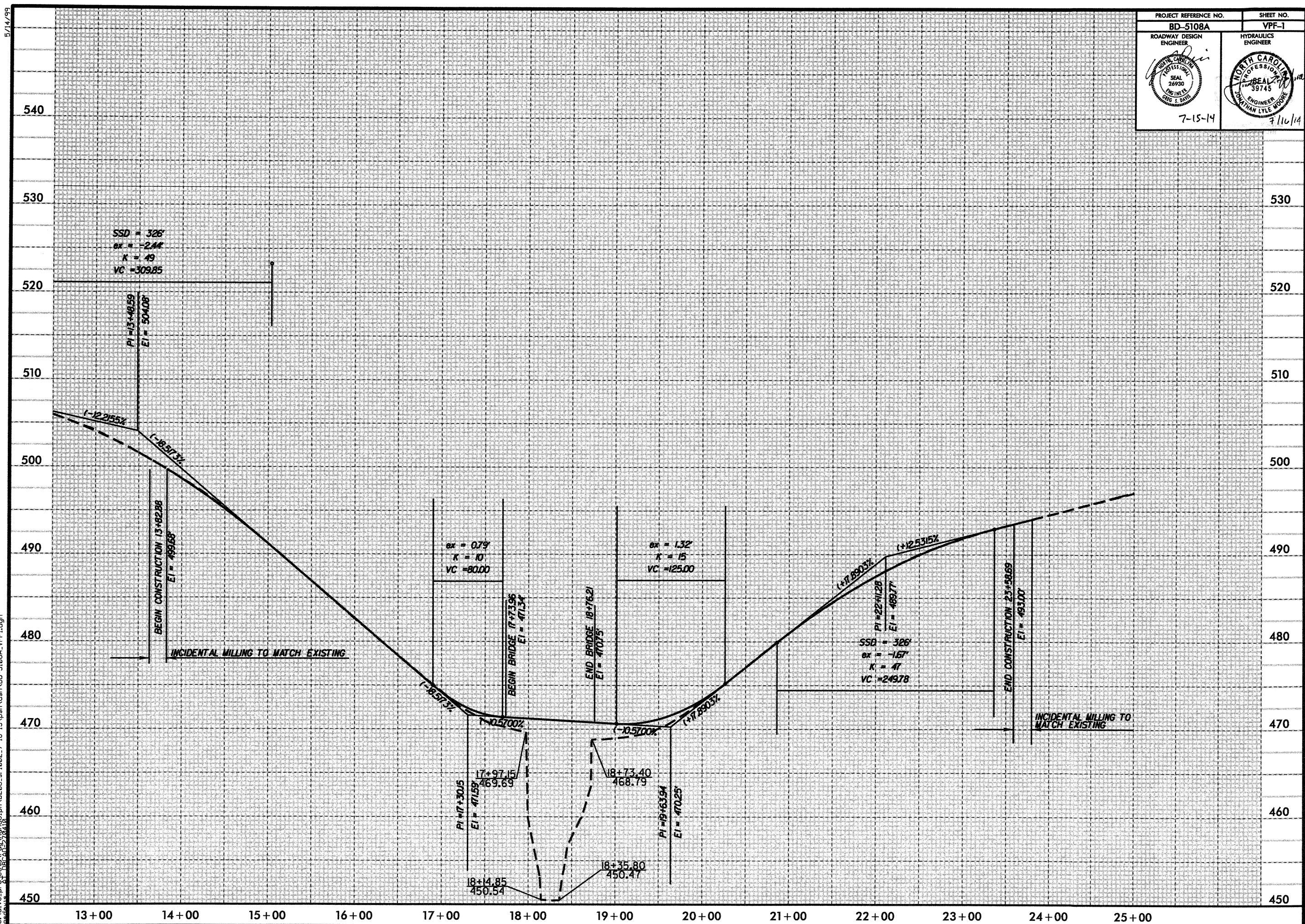


8/17/99

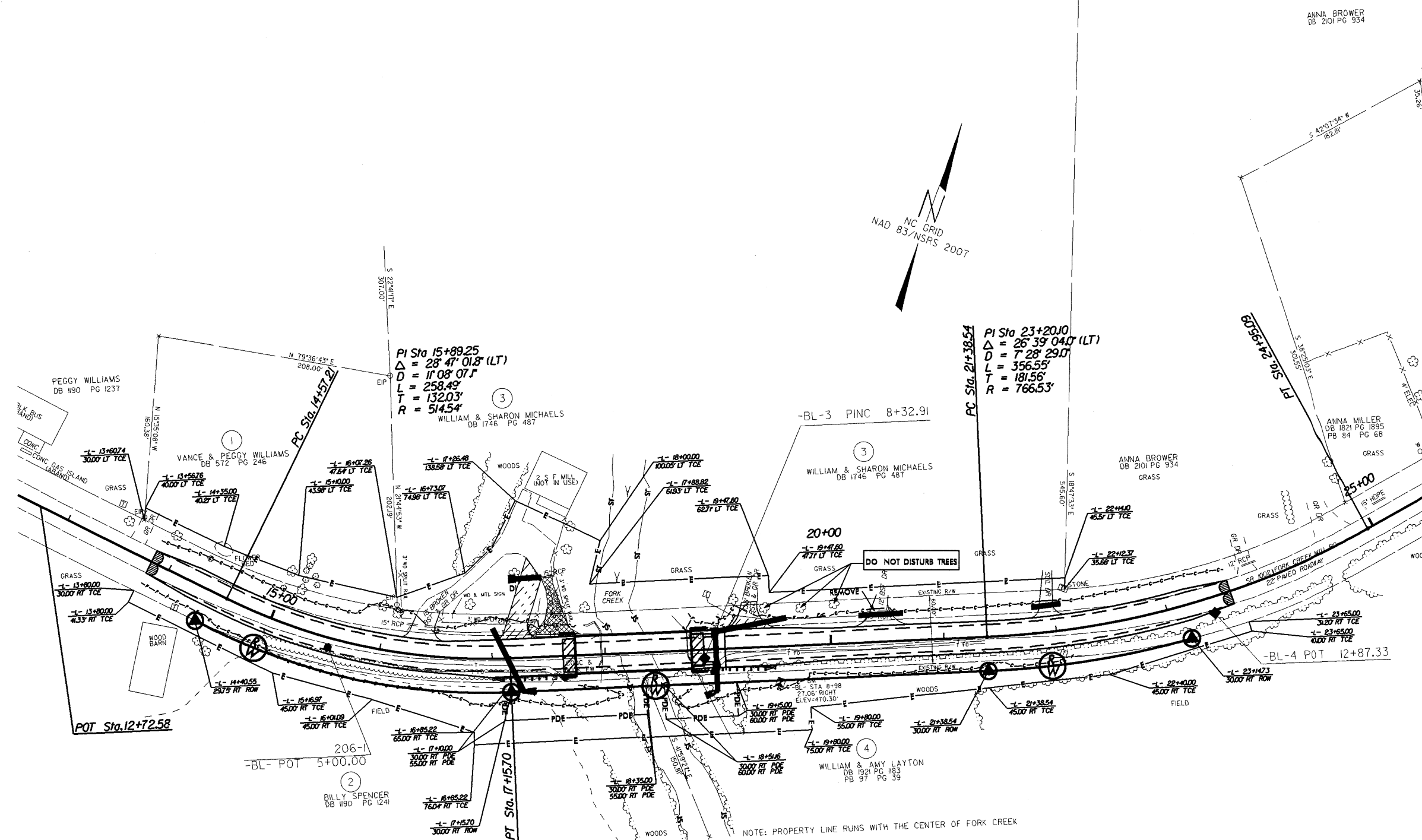
REVISIONS

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PROJECT REFERENCE NO. BD-5108A		SHEET NO. VPF-1	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
7-15-14		7/16/14	

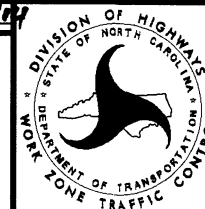
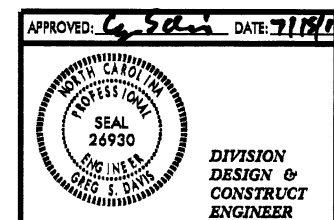


REVISIONS

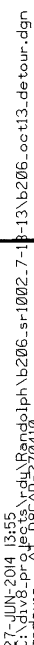
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PHASING

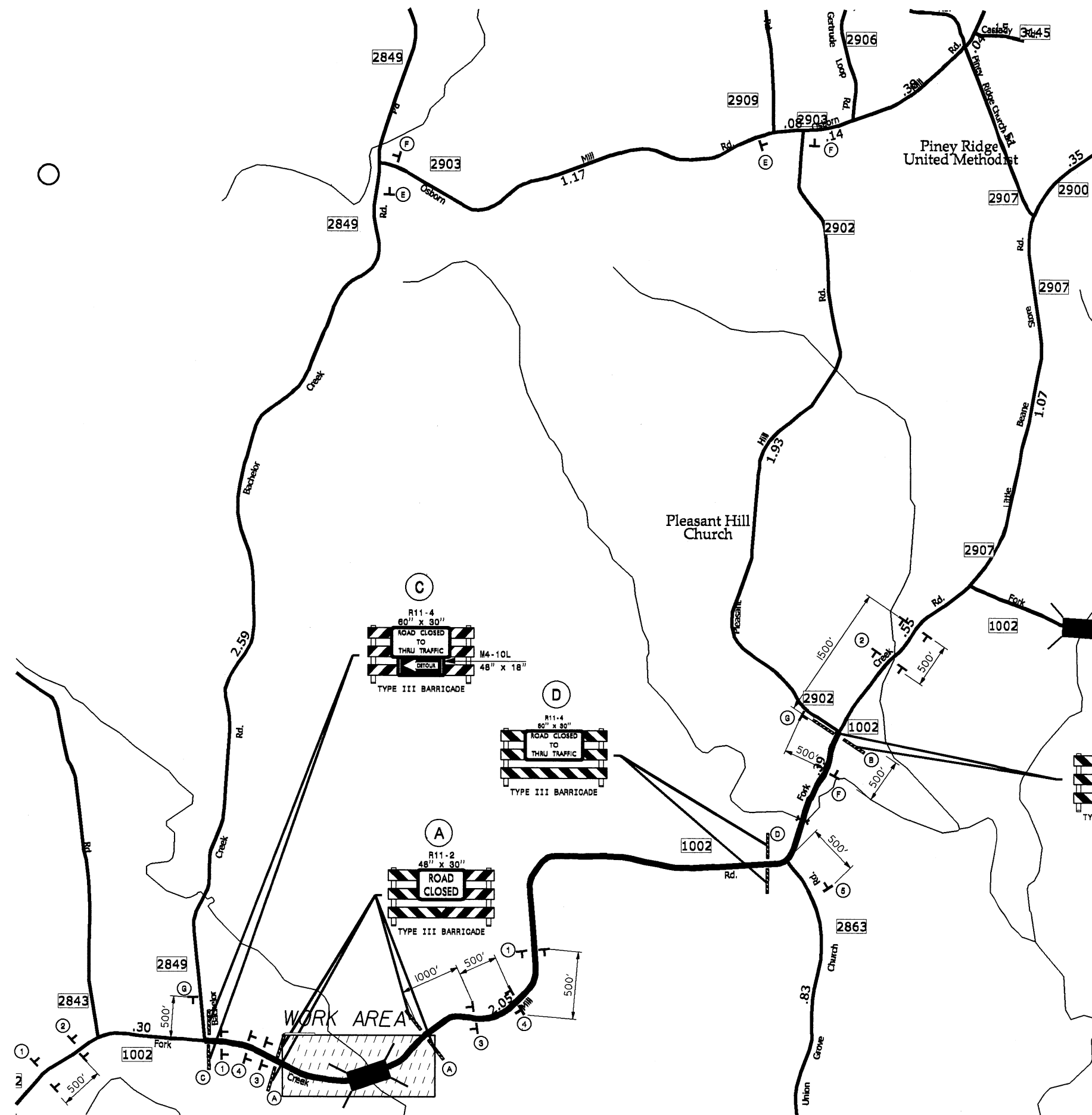
- STEP 1: - CONTRACTOR SHALL INSTALL OFF-SITE DETOUR ROUTE SIGN ASSEMBLIES FOR THE CLOSING OF SR 1002 (-L-) SEE TMP-2 & TMP-3.
- USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEETS 1 OF 9 AND 2 OF 9, CLOSE SR 1002 (-L-) TO THRU TRAFFIC AND SHIFT SR 1002 (-L-) TRAFFIC ONTO OFFSITE DETOUR.
- STEP 2: - CONTRACTOR SHALL CONSTRUCTED BRIDGE REPLACEMENT OF BRIDGE #206 ON SR 1002, UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE, AND PLACE FINAL PAVEMENT MARKINGS ON SR 1002 FROM STATION 13+50 +/- -L- TO STATION 23+80 +/- -L-.
- NOTE: MAINTAIN ACCESS TO ALL DRIVEWAYS DURING CONSTRUCTION.
- STEP 3: - CONTRACTOR SHALL REMOVE ALL TRAFFIC CONTROL DEVICES, SIGNING AND DETOUR ROUTE SIGNING.
- OPEN SR 1002 TO FINAL TRAFFIC PATTERN.



TRAFFIC
MANAGEMENT
PLAN



— **PROPOSED DETOUR ROUTE**



PROJECT NO.:



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
=====

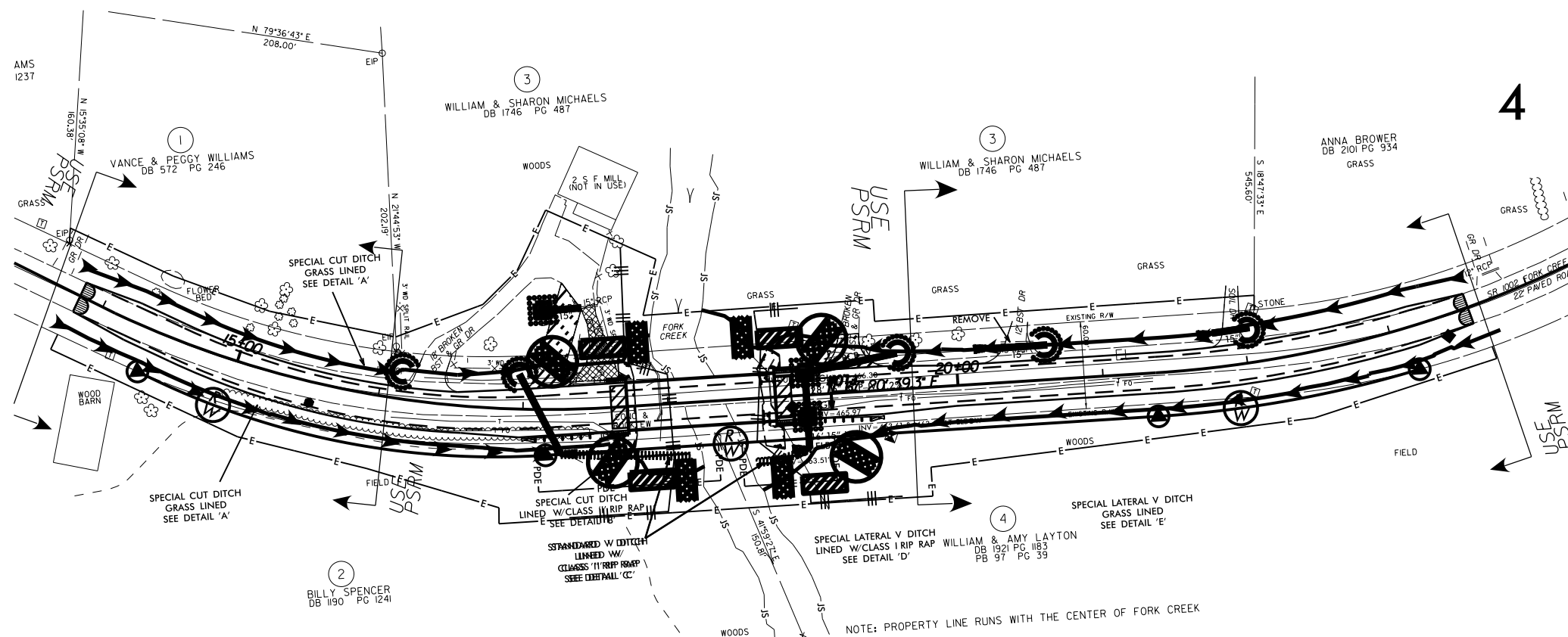
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
=====

RANDOLPH COUNTY

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, STRUCTURE, PAVEMENT MARKINGS,
AND EROSION CONTROL*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5108A	ECP-1	
WBS ELEMENT	F.A. PROJ. NO.	DESCRIPTION	
45354.3.2		CONSTR.	

EROSION AND SEDIMENT CONTROL MEASURES



- | <u>Sid.</u> [#] | <u>Description</u> | <u>Symbol</u> |
|--------------------------|---|---------------|
| | Streambank Reforestation..... | |
| 1630.03 | Temporary Silt Ditch..... | |
| 1630.05 | Temporary Diversion..... | |
| 1605.01 | Temporary Silt Fence..... | |
| 1606.01 | Special Sediment Control Fence..... | |
| 1622.01 | Temporary Berms and Slope Drains..... | |
| 1630.01 | Riser Basin..... | |
| 1630.02 | Silt Basin Type B..... | |
| 1633.01 | Temporary Rock Silt Check Type-A..... | |
| 1633.02 | Temporary Rock Silt Check Type-B..... | |
| 1634.01 | Temporary Rock Sediment Dam Type-A..... | |
| 1634.02 | Temporary Rock Sediment Dam Type-B..... | |
| 1635.01 | Rock Pipe Inlet Sediment Trap Type-A..... | |
| 1635.02 | Rock Pipe Inlet Sediment Trap Type-B..... | |
| 1636.01 | Rock Silt Screen..... | |
| 1630.04 | Stilling Basin..... | |
| | Rock Inlet Sediment Trap: | |
| 1632.01 | Type A..... | OR |
| 1632.02 | Type B..... | OR |
| 1632.03 | Type C..... | OR |
| | Wattle..... | |

PROJECT LENGTH
0.184 mi.

Prepared By:
Greg S. Davis, PE
Level III A #: 3088
December 31, 2014

PROJECT CONTACTS:
District Engineer Jeff B. Loflin, PE
Design & Construct Engineer Greg S. Davis, PE
Resident Engineer Reuben E. Blakley, PE

NOTE:
The erosion control measures have been designed to provide storage calculated using the 60 day option analysis. The devices designed using these calculations have been noted.

Prepared In the Office of:
DIVISION EIGHT
DESIGN & CONSTRUCT UNIT
 902 N Sandhills Blvd.
 PO Box 1067
 Aberdeen, 28315

2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated July 18, 2006 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

- | | | | |
|---------|----------------------------------|---------|--------------------------------------|
| 1605.01 | Temporary Silt Fence | 1632.01 | Rock Inlet Sediment Trap Type A |
| 1606.01 | Special Sediment Control Fence | 1632.03 | Rock Inlet Sediment Trap Type C |
| 1622.01 | Temporary Berms and Slope Drains | 1633.01 | Temporary Rock Silt Check Type A |
| 1630.01 | Riser Basin | 1633.02 | Temporary Rock Silt Check Type B |
| 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 | 1636.01 | Rock Silt Screen |

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Known Soil Contamination: Area or Site	
Potential Soil Contamination: Area or Site	

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY:

Baseline Control Point	
Existing Right of Way Marker	
Existing Right of Way Line	
Proposed Right of Way Line	
Proposed Right of Way Line with Iron Pin and Cap Marker	
Proposed Right of Way Line with Concrete or Granite R/W Marker	
Proposed Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
Proposed Control of Access	
Existing Easement Line	
Proposed Temporary Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage / Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	
Proposed Permanent Easement with Iron Pin and Cap Marker	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	
<i>VEGETATION:</i>	
Single Tree	
Single Shrub	
Hedge	
Woods Line	

Orchard	
Vineyard	

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
Recorded U/G Power Line	
Designated U/G Power Line (S.U.E.*)	

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Booth	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
Recorded U/G Telephone Cable	
Designated U/G Telephone Cable (S.U.E.*)	
Recorded U/G Telephone Conduit	
Designated U/G Telephone Conduit (S.U.E.*)	
Recorded U/G Fiber Optics Cable	
Designated U/G Fiber Optics Cable (S.U.E.*)	

WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
Recorded U/G Water Line	
Designated U/G Water Line (S.U.E.*)	
Above Ground Water Line	

TV:

TV Satellite Dish	
TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
Recorded U/G TV Cable	
Designated U/G TV Cable (S.U.E.*)	
Recorded U/G Fiber Optic Cable	
Designated U/G Fiber Optic Cable (S.U.E.*)	

GAS:

Gas Valve	
Gas Meter	
Recorded U/G Gas Line	
Designated U/G Gas Line (S.U.E.*)	
Above Ground Gas Line	

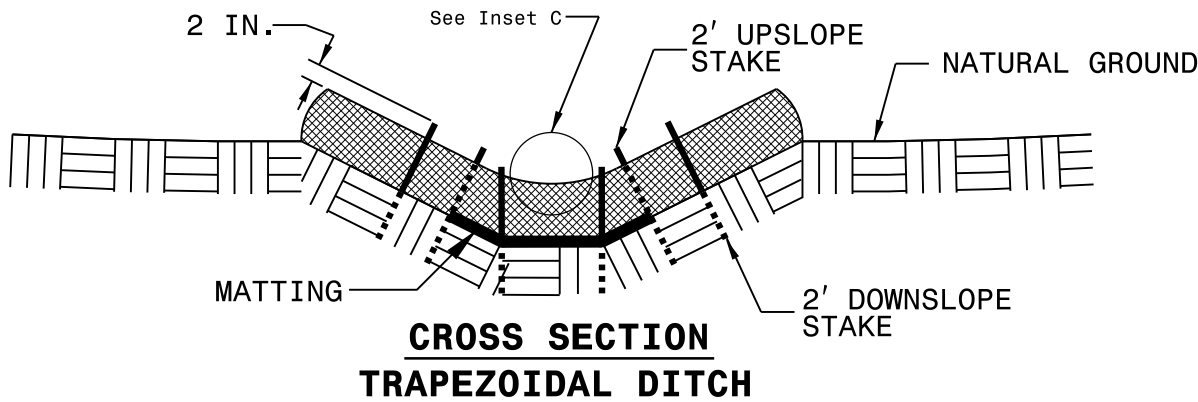
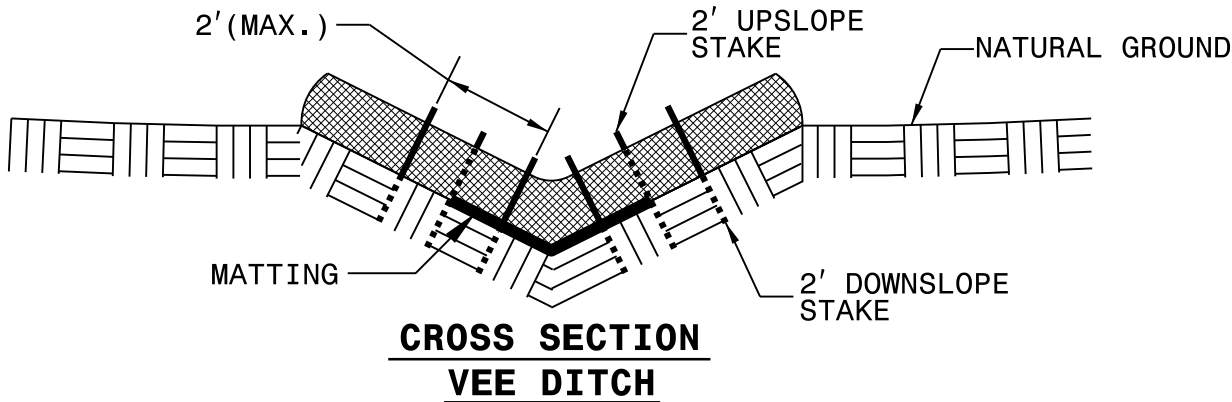
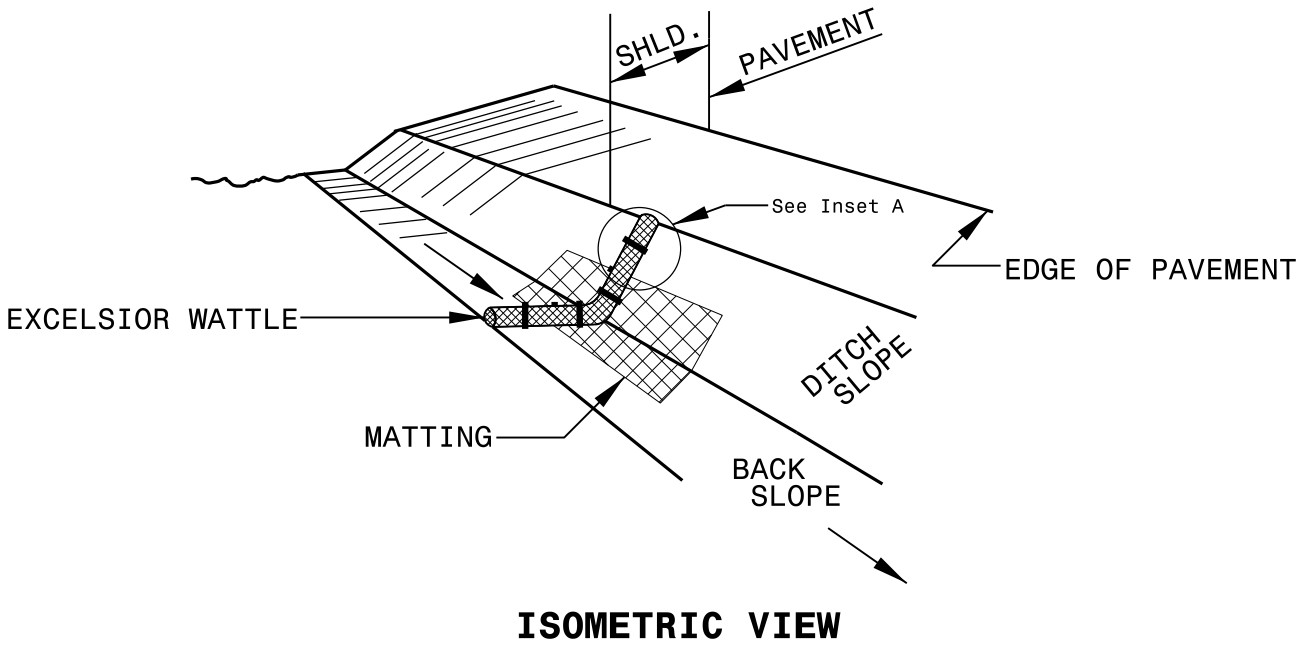
SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
Recorded SS Forced Main Line	
Designated SS Forced Main Line (S.U.E.*)	

MISCELLANEOUS:

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

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

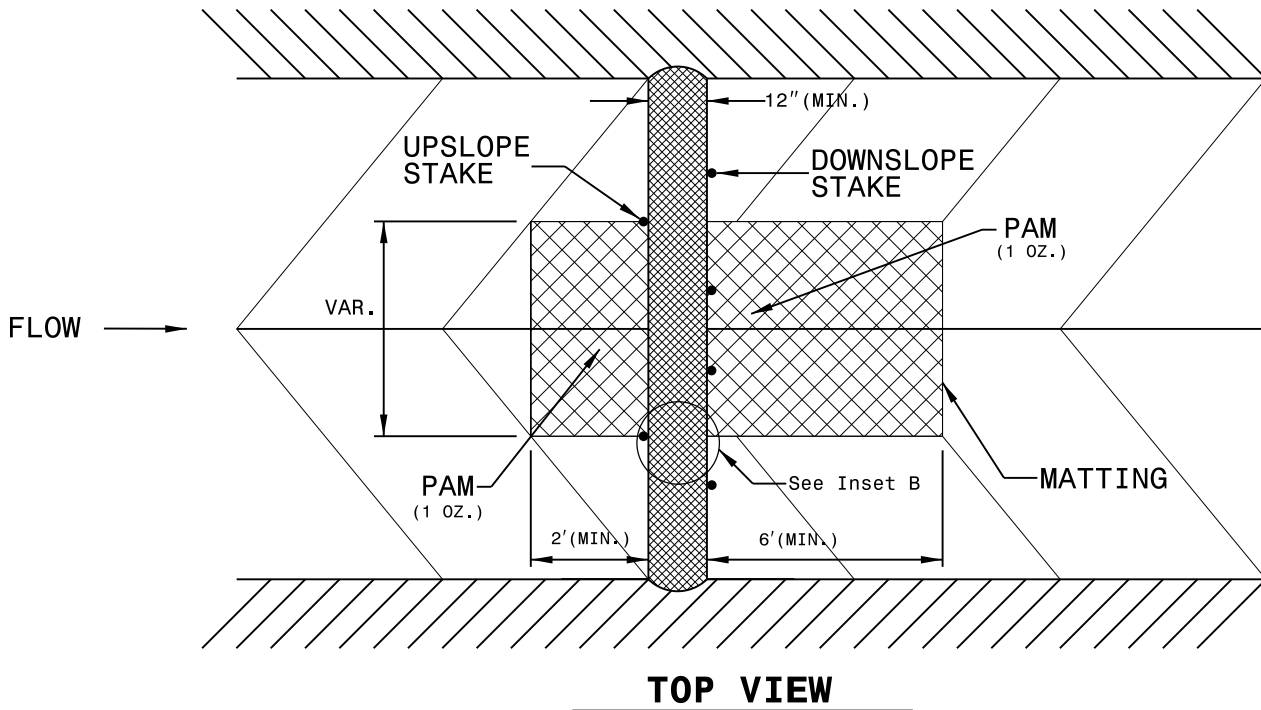
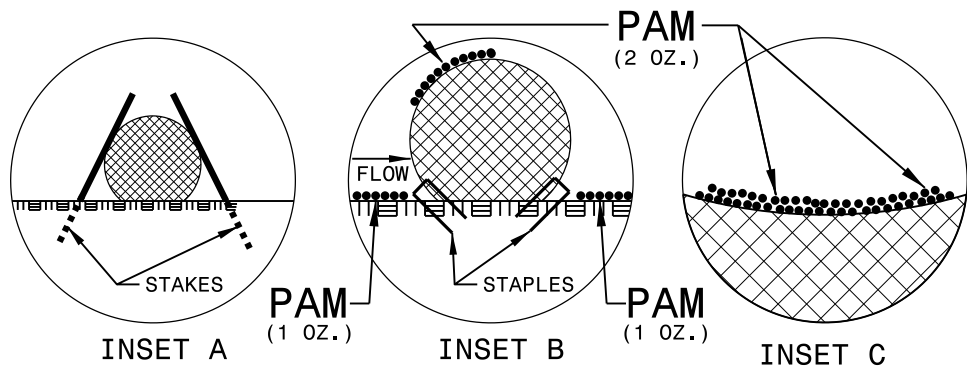
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

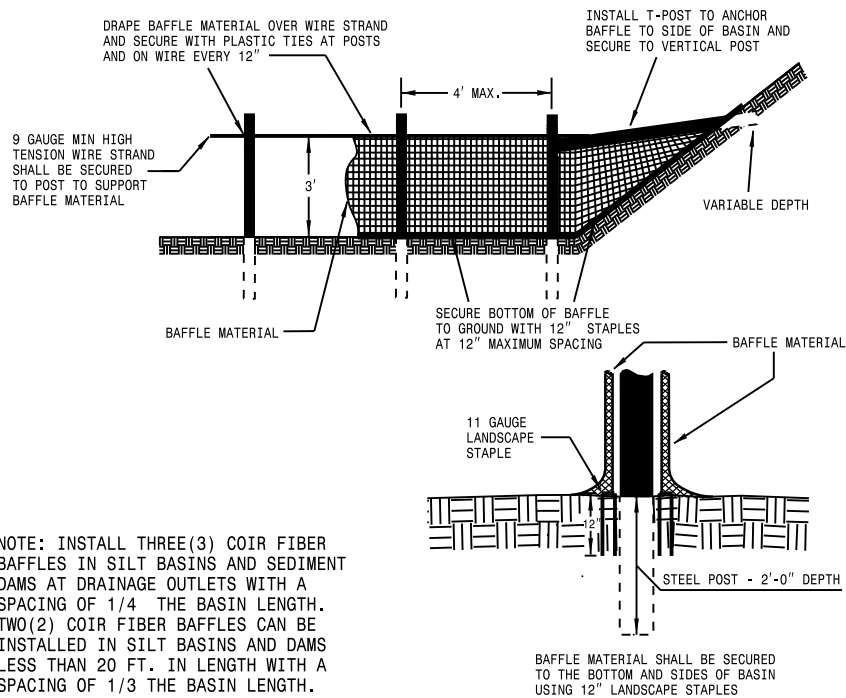
INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



EROSION CONTROL DETAILS
AND SPECIFICATIONS

STD. #	DESCRIPTION	SYMBOL
1630.03	TEMPORARY SILT DITCH -----	
1630.05	TEMPORARY DIVERSION -----	
1605.01	TEMPORARY SILT FENCE -----	
1622.01	GUIDE FOR TEMPORARY BERMS & SLOPE DRAINS -----	
1630.01	Riser Basin -----	
1630.02	SILT BASIN TYPE-B -----	
1633.01	TEMPORARY ROCK SILT CHECK TYPE-A -----	
	Wattle	
1633.02	TEMPORARY ROCK SILT CHECK TYPE-B -----	
1634.01	TEMPORARY ROCK SEDIMENT DAM TYPE-A -----	
1634.02	TEMPORARY ROCK SEDIMENT DAM TYPE-B -----	
1635.01	ROCK PIPE INLET SEDIMENT TRAP TYPE A -----	
1636.01	ROCK SILT SCREEN -----	
1630.04	STILLING BASIN FOR PUMPED EFFLUENT -----	
	ROCK INLET SEDIMENT PROTECTION	
1632.01	TRAP TYPE-A -----	 OR 
1632.02	TRAP TYPE-B -----	 OR 
1632.03	TRAP TYPE-C -----	 OR 

COIR FIBER BAFFLE DETAIL



NARRATIVE

- 1.SOIL TYPE: X CLAY SAND
2. IS THE PROJECT LOCATED IN A HIGH QUALITY WATER ZONE?
 YES X NO
3. ARE THERE ANY WETLANDS ADJOINING THIS PROJECT?
 YES X NO

SITE DESCRIPTION

This project is located at Bridge #206 on SR 1002 (ForK Creek Mill Rd) approximately 3.08 miles East of NC 705 at Whynot. The area surrounding this project primarily consists of wooded and grassy areas and single family dwellings. The drainage consists of roadway ditches that lead to existing ditches and drainage structures.

PROJECT DESCRIPTION

The project will consist of clearing, grubbing, draining, structure construction, setting up the base and paving. The major land disturbing activities will consist of clearing and grading within the right of way. Temporary and permanent erosion control measures will be installed.

MAINTENANCE SCHEDULE

1. INSPECT WEEKLY AND AFTER EACH RAINFALL, USE THE DEPARTMENT OF TRANSPORTATION'S EROSION CONTROL INSPECTION REPORT.

2. MAINTAIN EROSION CONTROL DEVICES AS FOLLOWS:

A. SILT DITCH - REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE - CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED.

B. SILT FENCE - REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE - AVOID UNDERMINING THE FENCE.

C. SLOPE DRAINS - INSPECT THE SLOPE DRAINS AND SUPPORTING DIVERSIONS.

D. SEDIMENT BASIN - REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH - CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT - REMOVE ALL TRASH AND OTHER DEBRIS FROM THE RISER AND POOL AREA.

E. CHECK DAM - REMOVE SETTLEMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION - ADD STONE TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

F. ROCK DAM - REMOVE SEDIMENT AND RESTORE ORIGINAL VOLUME WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE DESIGN VOLUME - CHECK THE STRUCTURE FOR EROSION, PIPING, AND ROCK DISPLACEMENT AFTER EACH SIGNIFICANT RAINSTORM AND REPAIR IMMEDIATELY.

G. DROP INLET PROTECTION (TYPE C) - REMOVE SEDIMENT FROM THE POOL AREAS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN.

H. SEDIMENT TRAP - REMOVE SEDIMENT AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS WHEN SETTLEMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP - CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING TO ENSURE IT IS A MINIMUM OF 1.5 FT. BELOW THE LOW POINT OF THE EMBANKMENT.

NOTE: SEDIMENT SHOULD BE PLACED IN DESIGNATED DISPOSAL AREAS AND NOT ALLOWED TO FLOW INTO STREAMS OR DRAINAGE WAYS DURING STRUCTURE REMOVAL.

NOTE: ALL SEDIMENT TRAPS/BASINS SHALL HAVE COIR FIBER BAFFLES. BASINS/TRAPS OVER 10 FT IN LENGTH SHALL HAVE TWO ROWS.

NOTE: NO PAM TO USED WITH THE LAST BMT (WATTLE) AT OUTLET OF THE PROJECT

NOTE: The erosion control measures have been designed to provide a minimum of 43% of the storage calculated using the RUSLE2 analysis. These sections of disturbed area must then be permanently stabilized within 60 days from the time grading begins.

GENERAL CONSIDERATIONS

1. THE LAW REQUIRES INSTALLATION AND MAINTENANCE OF SUFFICIENT EROSION CONTROL PRACTICES TO RETAIN SEDIMENT WITHIN THE BOUNDARIES OF THE SITE. IT ALSO REQUIRES THAT SURFACES BE NON EROSION AND STABLE WITHIN 21 DAYS CALENDAR DAYS AFTER THE COMPLETION OF ANY PHASE OF GRADING.

2. FIT THE DEVELOPMENT TO THE SITE - FOLLOW THE NATURAL CONTOURS AS MUCH AS POSSIBLE. PRESERVE AND USE NATURAL DRAINAGE SYSTEMS.

3. LIMIT CLEARING AND GRUBBING - CLEARLY DEFINE WORK LIMIT LINES. GRADE TO MINIMIZE CUT- AND-FILL SLOPES. PRESERVE NATURAL BUFFER AREAS, AND LIMIT THE TIME THAT BARE SOIL IS EXPOSED.

4. PROTECT THE SOIL SURFACE - LIMIT THE EXTENT OF DISTURBANCE AND STABILIZE THE SOIL SURFACE IMMEDIATELY. ONCE THE SURFACE HAS BEEN DISTURBED, IT IS SUBJECT TO ACCELERATED EROSION AND SHOULD BE PROTECTED WITH APPROPRIATE COVER, SUCH AS MULCH OR VEGETATION IN AN EXPEDIENT MANNER.

5. SEDIMENT BASINS AND TRAPS - SELECT SITES AND INSTALL SEDIMENT BASINS AND TRAPS BEFORE OTHER CONSTRUCTION ACTIVITIES ARE STARTED. ALSO CONSIDER LOCATIONS FOR DIVERSIONS, OPEN CHANNELS, AND STORM DRAINS AT THIS TIME SO THAT ALL SEDIMENT-LADEN TO RUN OFF CAN BE DIRECTED TO AN IMPOUNDMENT STRUCTURE BEFORE LEAVING THE CONSTRUCTION SITE. INSTALL ALL MEASURES AND RELEASE POINTS PRIOR TO CLEARING AND GRUBBING.

6. ONCE AN AREA IS DISTURBED, IT IS SUBJECT TO ACCELERATED EROSION. EROSION CONTROL CAN BE ACHIEVED BY:

- * LIMITING THE SIZE OF THE CLEARING AND TIME OF EXPOSURE BY PROPER SCHEDULING.
- * REDUCING THE AMOUNT OF RUNOFF OVER THE DISTURBED SURFACE.
- * LIMITING GRADES AND LENGTHS OF SLOPES, AND
- * RE-ESTABLISHING PROTECTIVE COVER IMMEDIATELY AFTER LAND DISTURBING ACTIVITIES ARE COMPLETED OR WHEN CONSTRUCTION ACTIVITIES ARE DELAYED FOR THIRTY (30) OR MORE WORKING DAYS

7. STABILIZE CONSTRUCTION ACCESS AREAS, CONSTRUCTION ROADS, AND PARKING AREA DURING INITIAL ACTIVITIES. TRY TO KEEP ROAD GRADES TO A MINIMUM GENERALLY NEVER EXCEEDING 12%.

8. CLEAR BORROW AND WASTE DISPOSAL AREAS AS NEEDED AND PROTECT THEM FROM SURFACE RUNOFF. SLOPE ALL AREAS TO PROVIDE POSITIVE DRAINAGE, AND STABILIZE BARE SOIL SURFACES WITH PERMANENT VEGETATION OR MULCH AS SOON AS FINAL GRADES ARE PREPARED. DIRECT ALL RUNOFF THAT CONTAINS SEDIMENT TO A SEDIMENT-TRAPPING DEVICE. IN LARGE BORROW AND DISPOSAL SITES, SHAPE AND DEEPEN THE LOWER END TO FORM AN IN-PLACE SEDIMENT TRAP.

9. ONLY SEDIMENT-FREE RUNOFF MAY BE DISCHARGED FROM CONSTRUCTION SITES DIRECTLY INTO STREAMS. ENSURE THAT ALL OTHER FLOWS ENTER FROM DESILTING POOLS FORMED BY SEDIMENT TRAPS OR BARRIERS.

10. AREAS ADJOINING STREAMS SHOULD BE LEFT UNDISTURBED AS BUFFERS. WHERE NATURAL BUFFERS ARE NOT AVAILABLE, PROVIDE ARTIFICIAL BUFFERS. WHERE WORK IS REQUIRED ALONG A STREAM, PROVIDE MECHANICAL OR ARTIFICIAL BUFFER (25 FEET MINIMUM REQUIRED).

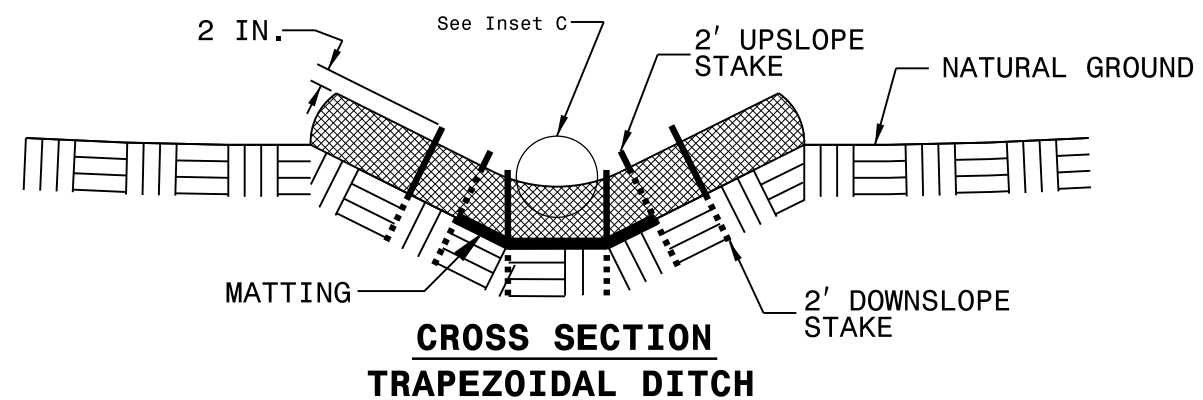
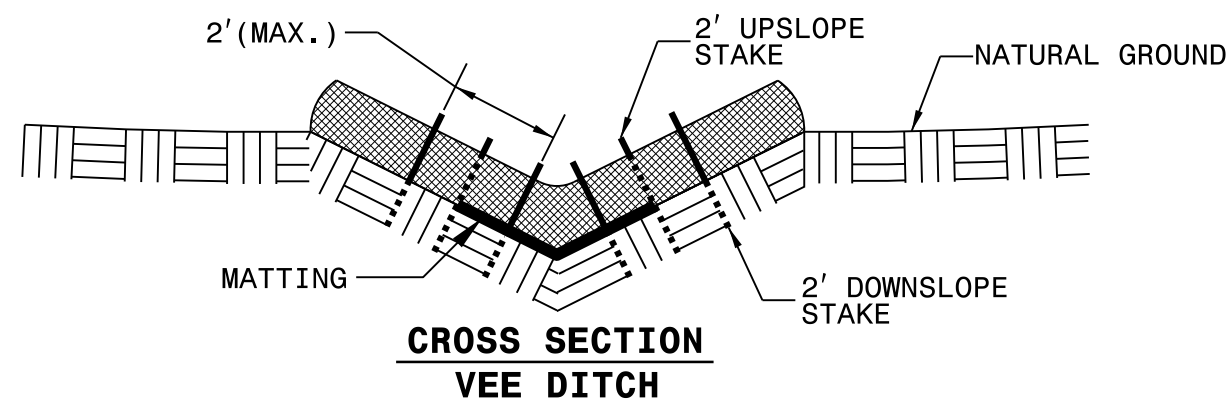
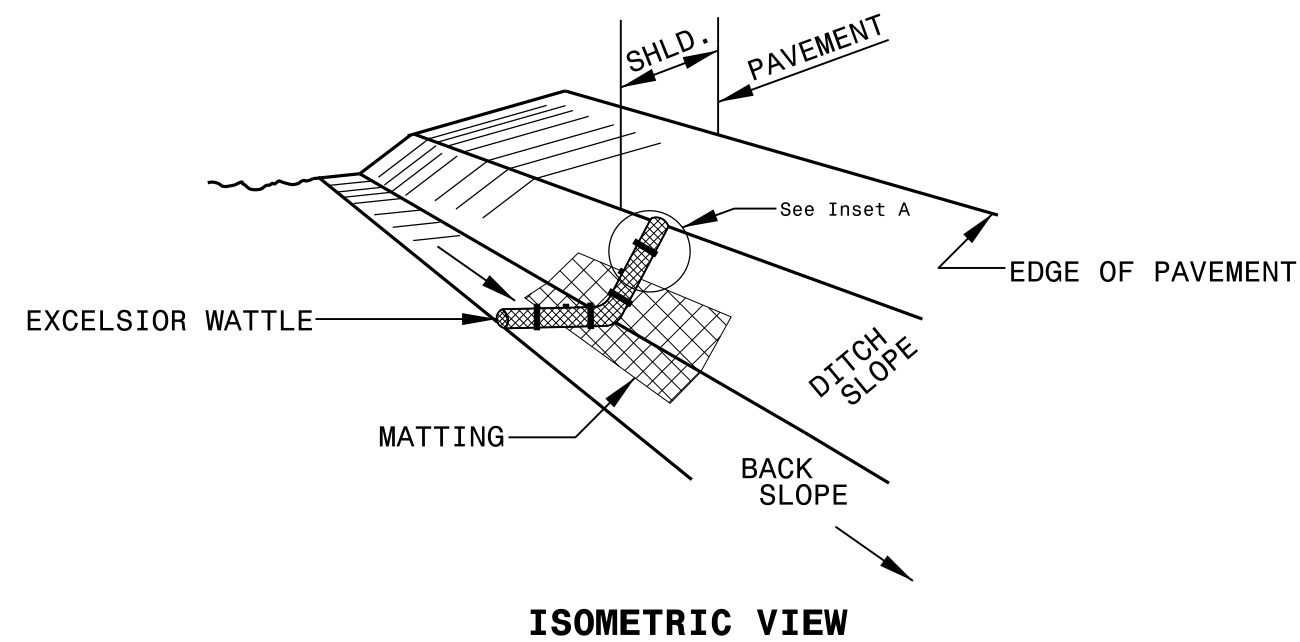
11. BEFORE MOVING TO NEXT JOB SITE, REVIEW ALL MEASURES FOR EFFECTIVENESS; MAKE ANY ADJUSTMENTS, CLEAR-OUTS, OR REPAIR; CALL ROADSIDE ENVIRONMENTAL DEPARTMENT FOR INSTALLATION OF A DITCH LINER AND SEEDING AND MULCHING OF ALL DISTURBED AREAS.

12. CONTINUE TO CHECK AND MAINTAIN ALL MEASURES AFTER EACH SIGNIFICANT RAINFALL UNTIL ALL DISTURBED AREAS BECOME STABILIZED.

13. FILL IN ALL SILT BASINS AND SILT DITCHES, REMOVE ALL SILT FENCES AND SLOPE DRAINS, REDISTRIBUTE ALL STONE FROM SILT CHECKS, SEDIMENT DAMS, AND SILT SCREENS. SEED AND MULCH DISTURBED AREAS.

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

PROJECT REFERENCE NO.	SHEET NO.
BD-5108A	ECP-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

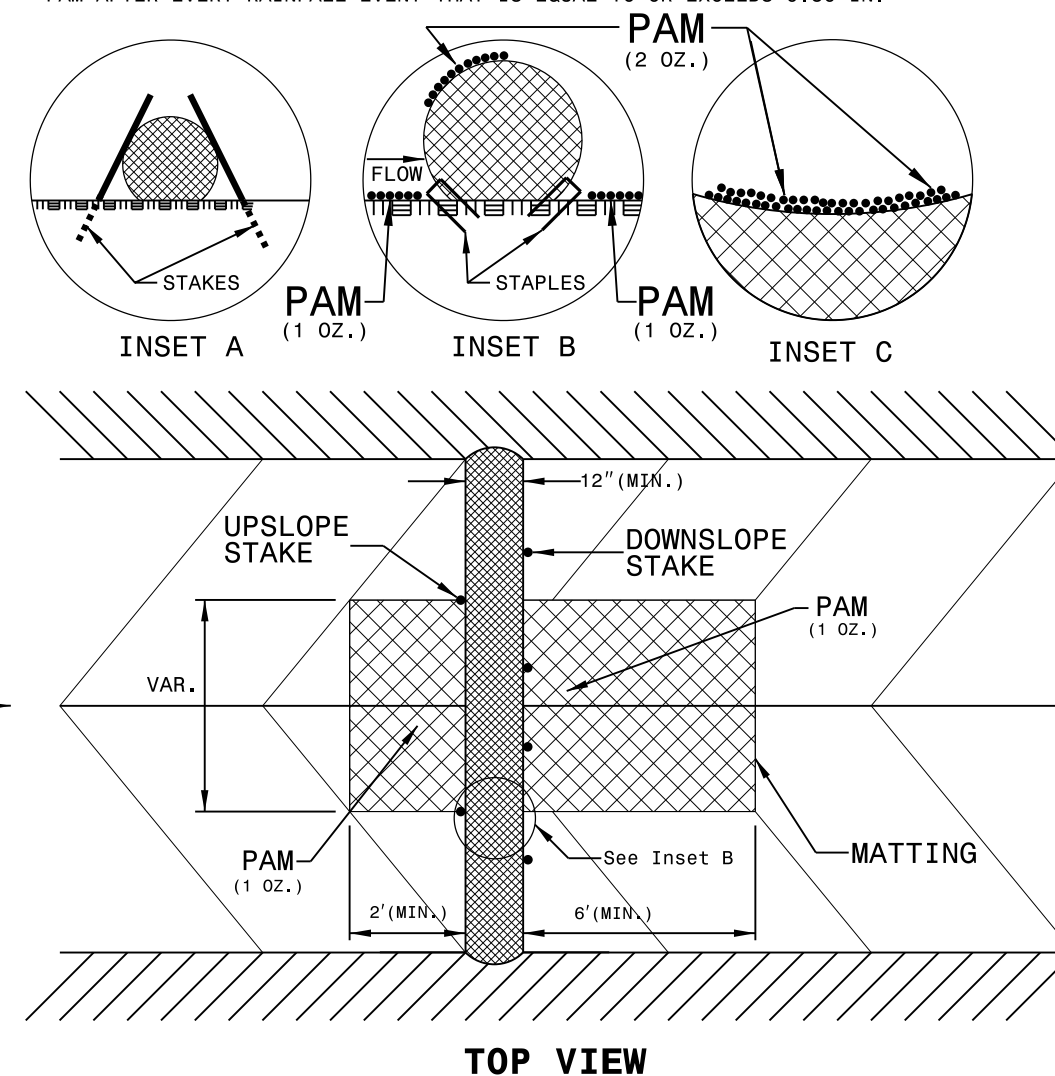
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

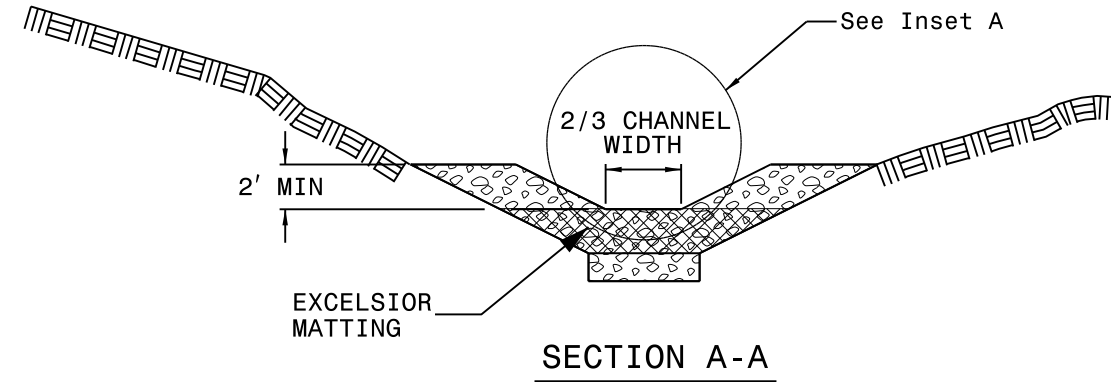
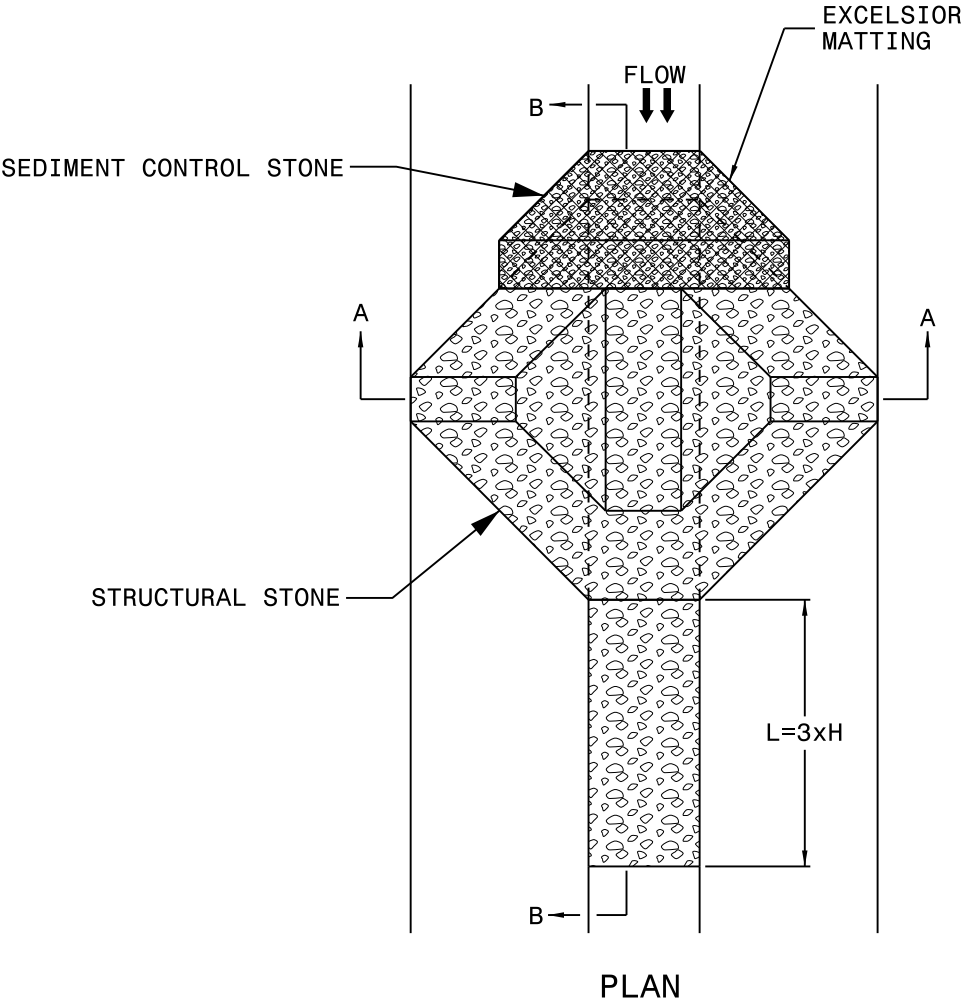
PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



PROJECT REFERENCE NO.	SHEET NO.
BD-5108A	ECP-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)

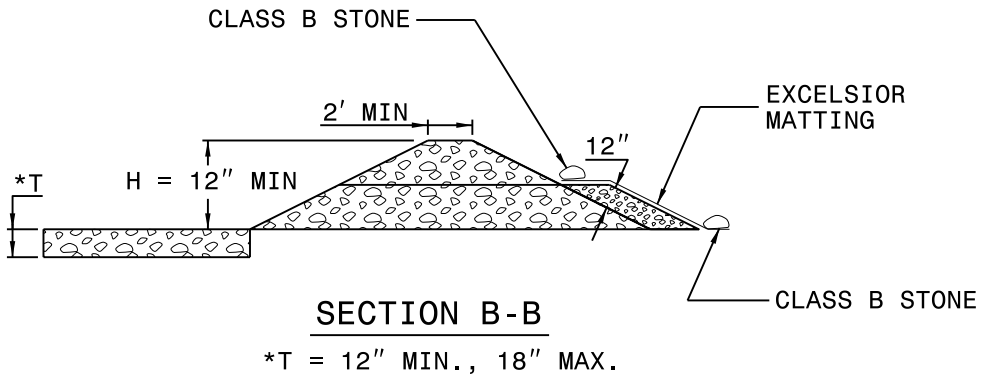
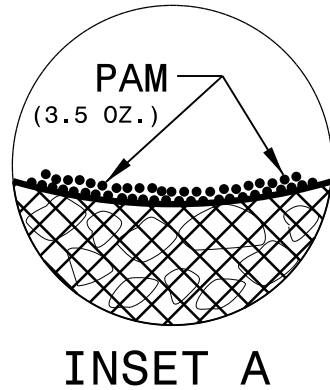


NOTES

USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.

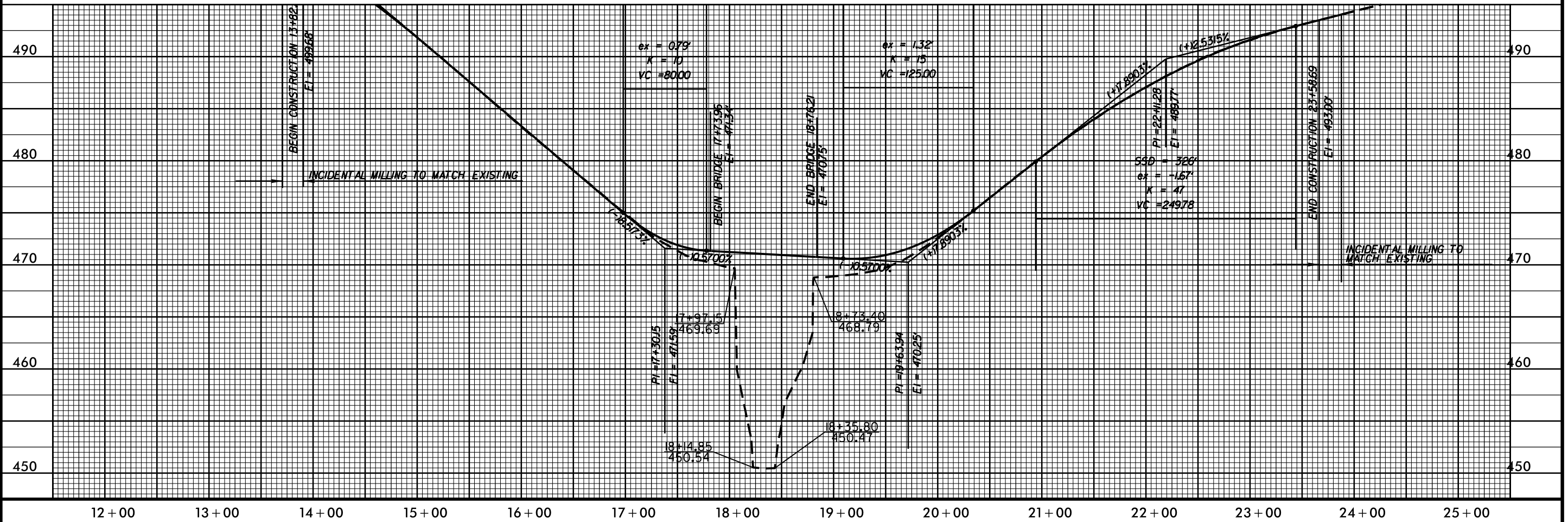
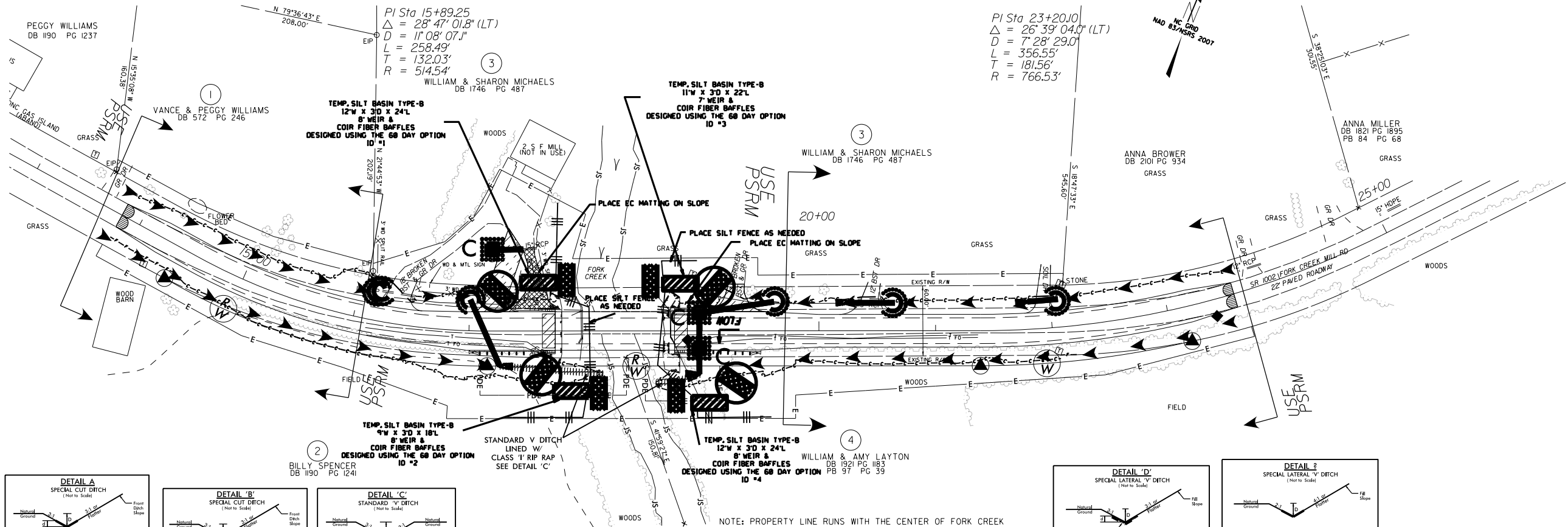


NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
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 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

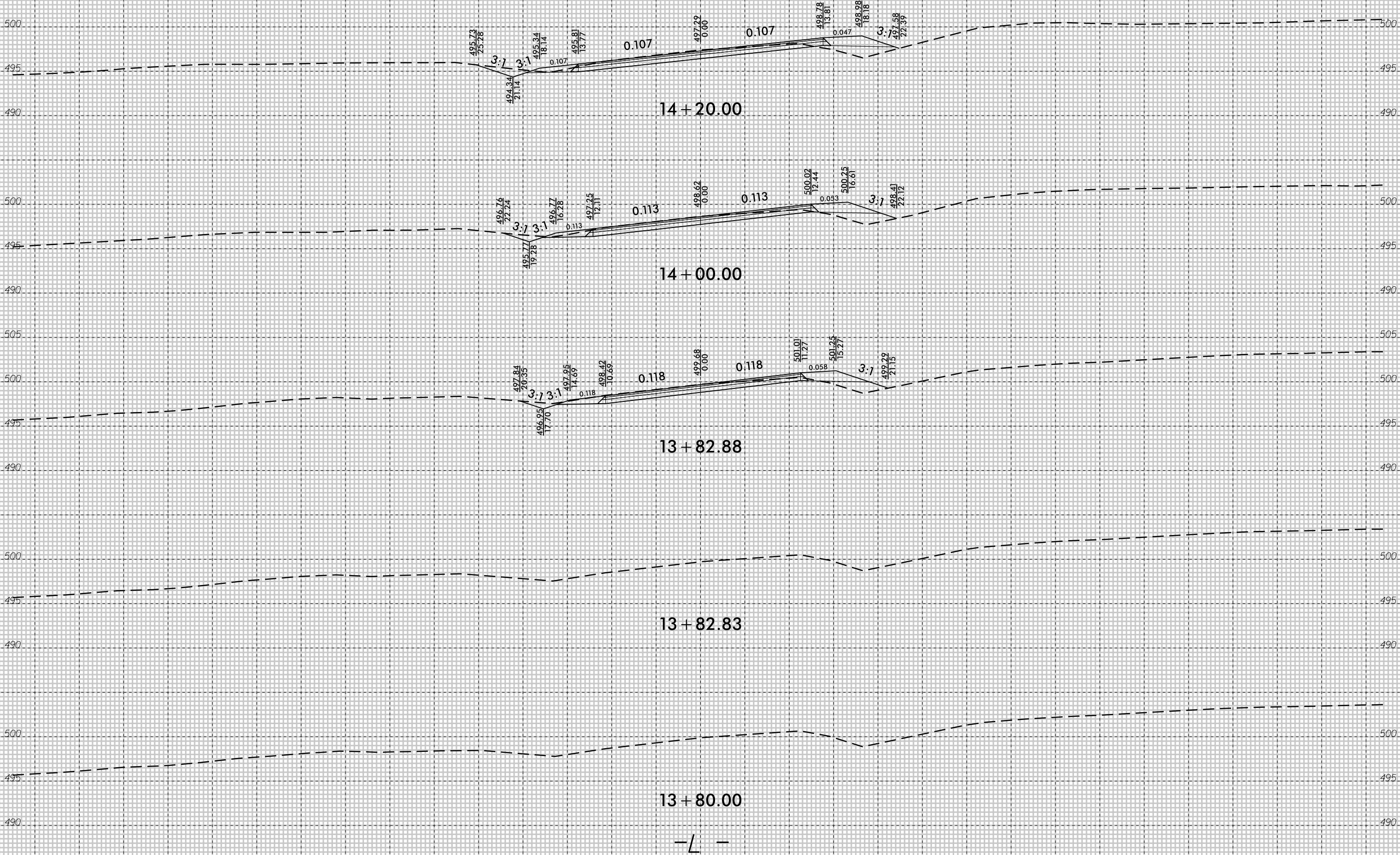


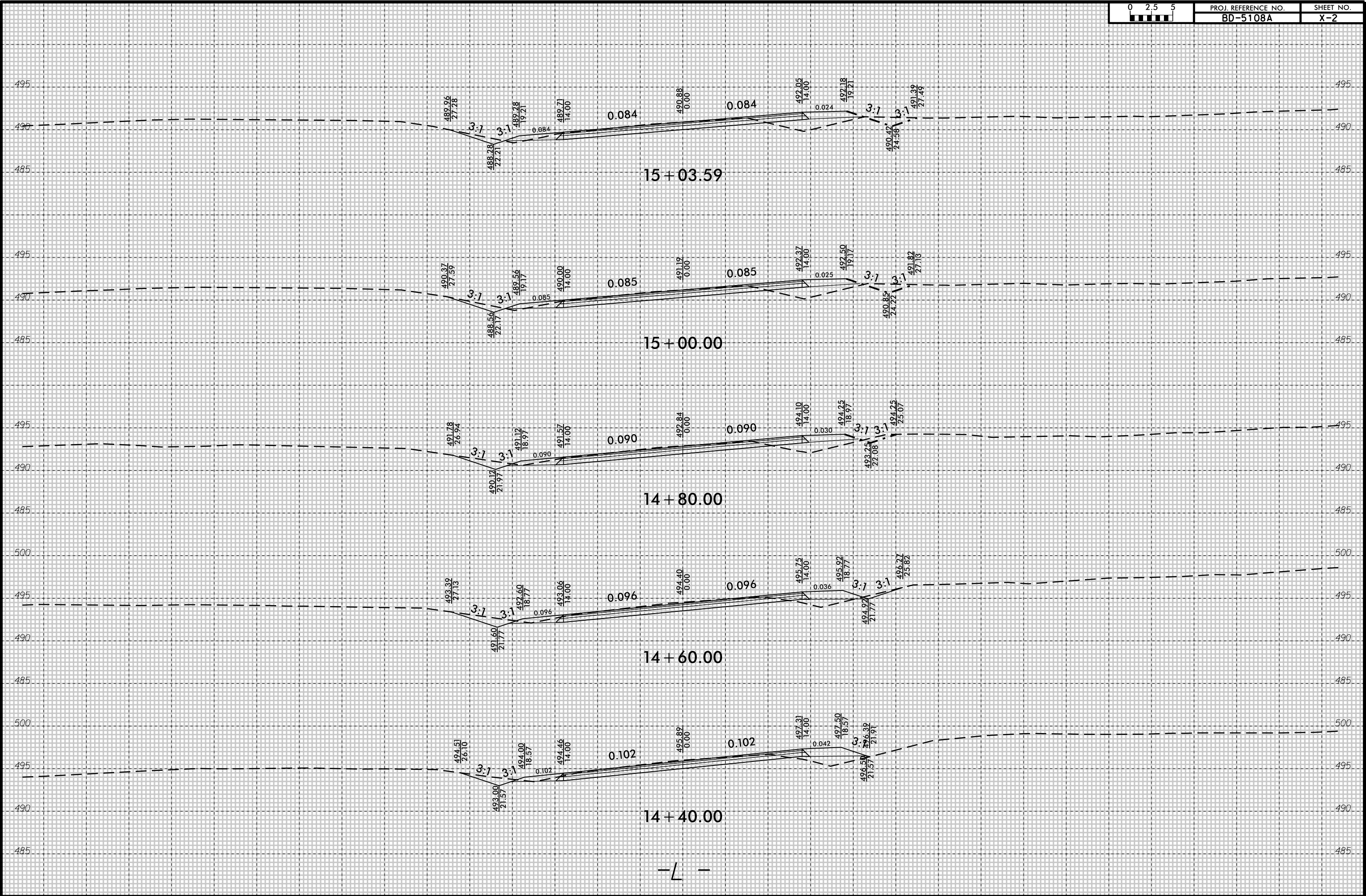
REVISIONS

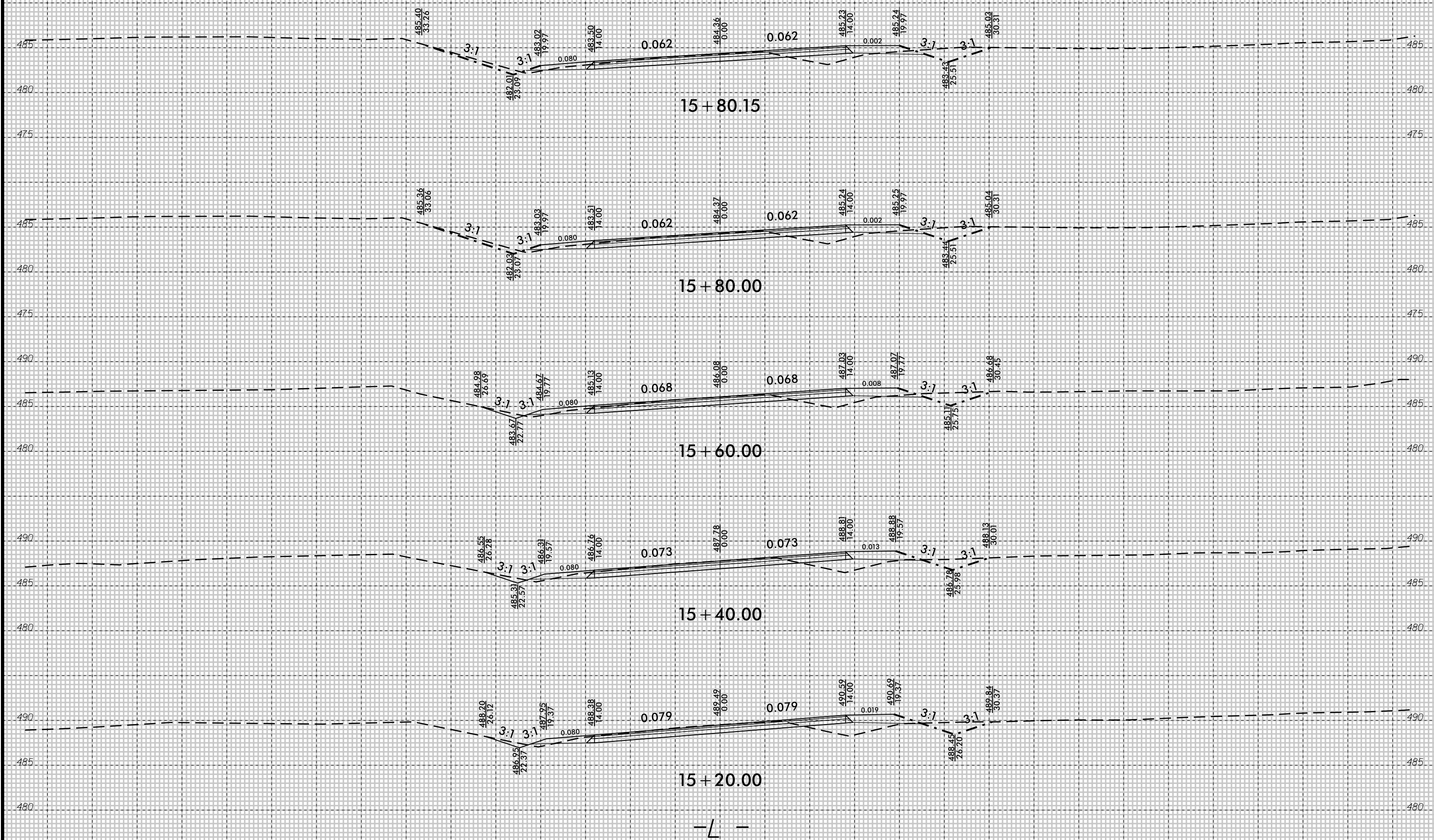
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STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS												PROJ. REFERENCE NO.	SHEET NO.
												BD-5108A	X-A
NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT												CROSS-SECTION SUMMARY	
Station	Uncl. Exc.	Embt	Station	Uncl. Exc.	Embt	Station	Uncl. Exc.	Embt					
-L-	(cu. yd.)	(cu. yd.)	-L-	(cu. yd.)	(cu. yd.)	-L-	(cu. yd.)	(cu. yd.)					
13+82.88	0	0	18+76.08	3	18	23+00.00	14	12					
14+00.00	14	7	18+80.00	2	21	23+10.00	9	8					
14+20.00	17	10	18+86.94	4	31	23+20.00	10	7					
14+40.00	18	10	18+91.38	2	17	23+36.28	15	9					
14+60.00	19	9	18+95.45	2	14	23+40.00	3	2					
14+80.00	19	9	18+97.51	1	7	23+58.64	16	6					
15+00.00	19	10	19+01.57	2	13								
15+03.59	3	2	19+03.22	1	6								
15+20.00	15	10	19+03.69	0	2								
15+40.00	19	13	19+12.90	2	33								
15+60.00	18	12	19+20.00	1	27								
15+80.00	19	11	19+32.11	2	41								
15+80.15	0	0	19+40.00	3	20								
15+82.00	2	1	19+48.26	3	16								
15+90.00	10	4	19+52.12	2	6								
16+00.00	14	5	19+53.09	0	2								
16+10.00	14	6	19+60.00	3	11								
16+17.90	11	5	19+65.09	2	7								
16+20.05	3	1	19+79.09	6	16								
16+22.01	3	1	19+79.90	0	1								
16+40.00	20	8	19+82.01	1	2								
16+46.94	6	2	19+84.01	1	2								
16+49.58	2	1	20+00.00	10	11								
16+51.90	2	1	20+10.01	10	5								
16+60.00	8	2	20+20.00	11	5								
16+71.85	18	2	20+40.00	21	8								
16+80.00	16	1	20+48.31	9	3								
16+82.00	4	0	20+54.14	7	2								
16+92.00	26	1	20+60.00	8	2								
16+96.75	14	1	20+80.00	24	9								
16+98.29	5	0	20+83.94	4	2								
17+00.00	5	0	20+85.00	1	1								
17+04.01	11	1	20+86.28	1	1								
17+20.00	37	7	21+00.00	15	8								
17+28.01	15	5	21+10.00	11	6								
17+30.01	4	1	21+20.00	11	6								
17+32.01	4	1	21+35.00	16	10								
17+39.00	12	5	21+40.00	5	4								
17+40.00	2	1	21+50.01	9	9								
17+60.00	32	20	21+60.00	10	9								
17+72.65	15	23	21+80.00	21	19								
17+75.08	2	3	21+85.00	5	5								
17+80.00	5	0	21+95.56	10	9								
17+89.08	7	0	22+00.00	4	4								
18+00.00	5	0	22+03.93	4	3								
18+10.28	2	0	22+06.13	2	2								
18+15.00	0	0	22+10.00	4	3								
			22+20.00	10	8								
Station	Uncl. Exc.	Embt	22+35.00	14	11								
			22+40.00	5	4								
L Aln	(cu. yd.)	(cu. yd.)	22+60.00	19	15								
18+60.00	0	0	22+80.00	19	15								
18+70.00	3	0	22+85.00	5	4								

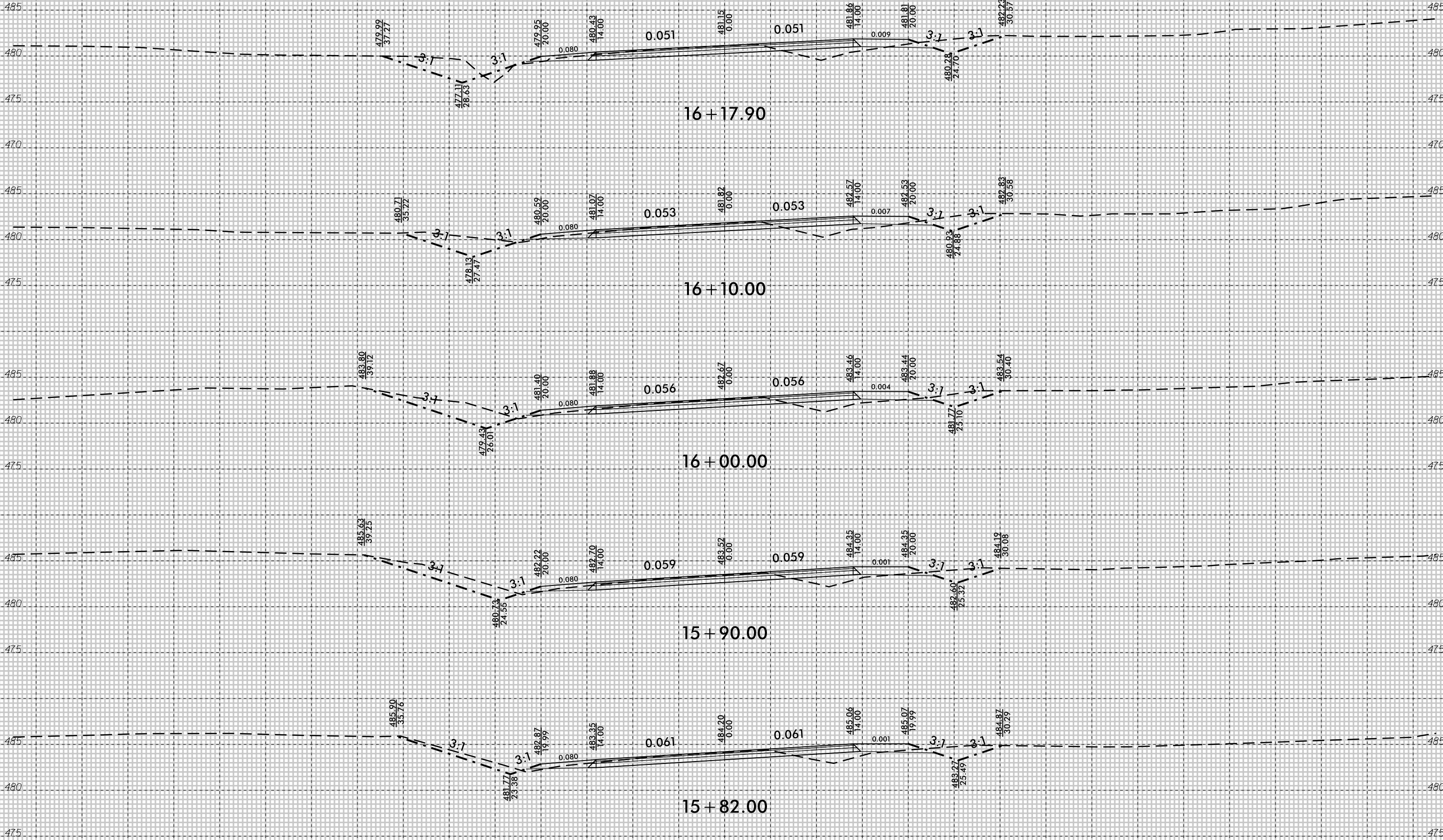
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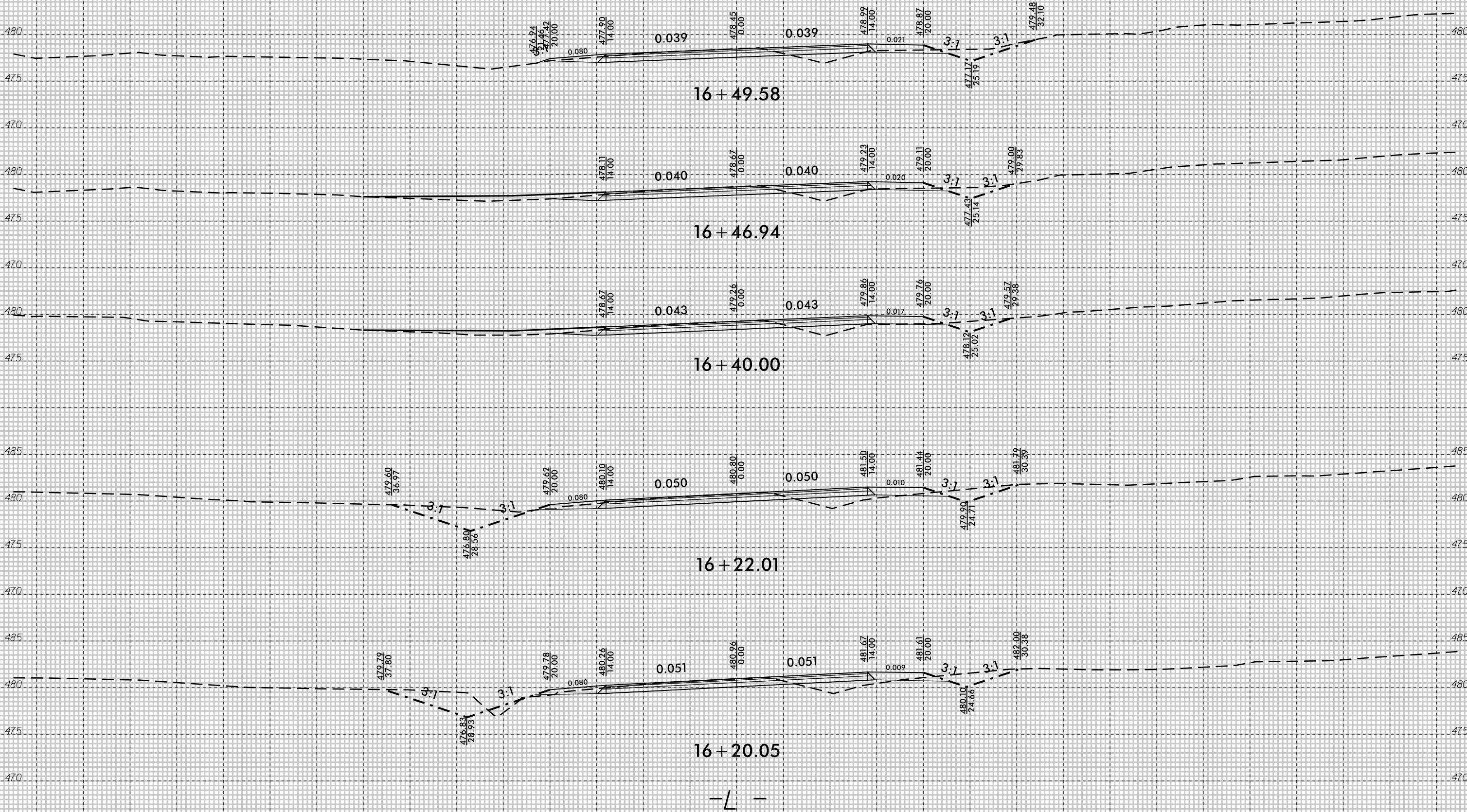




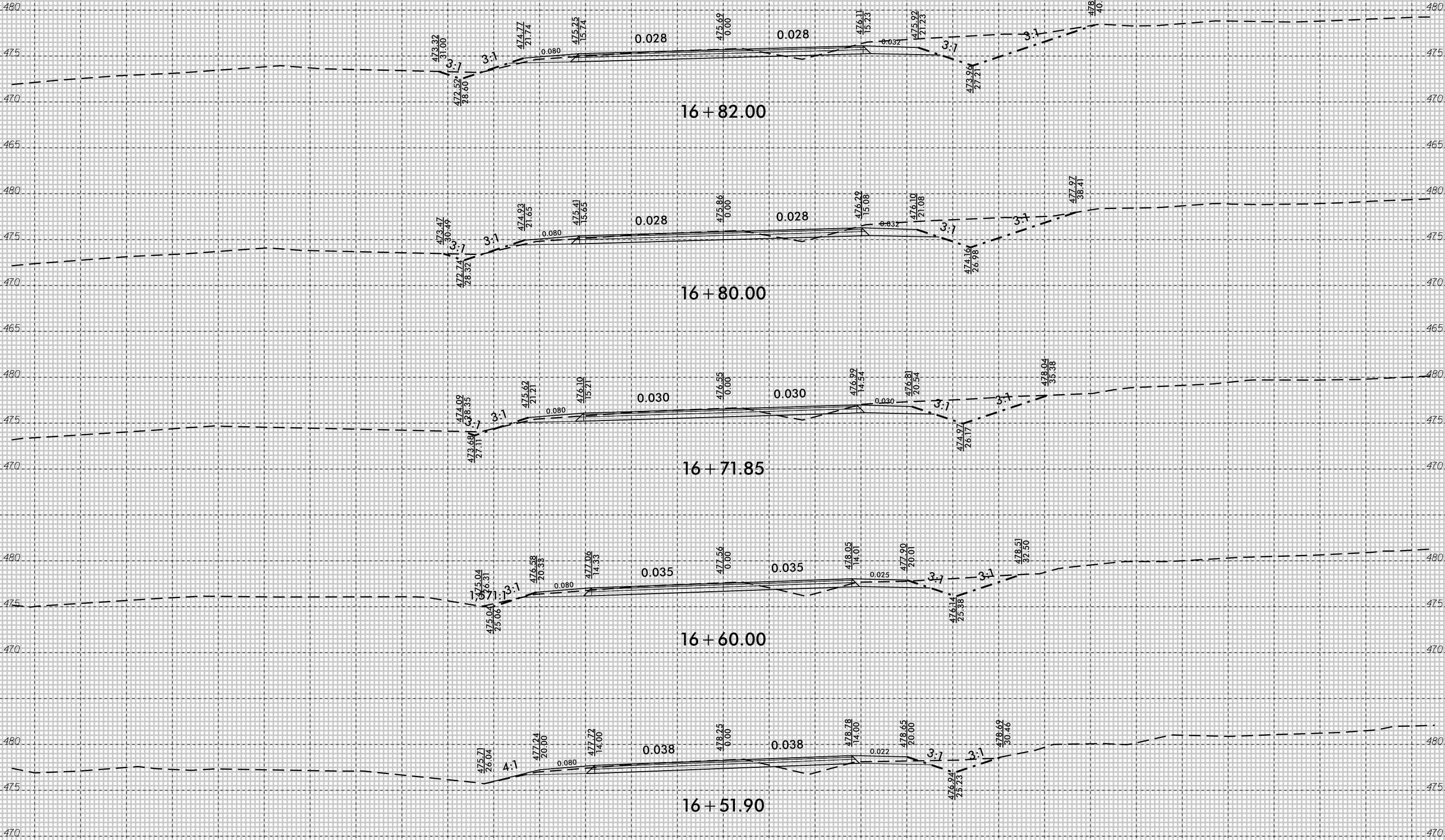


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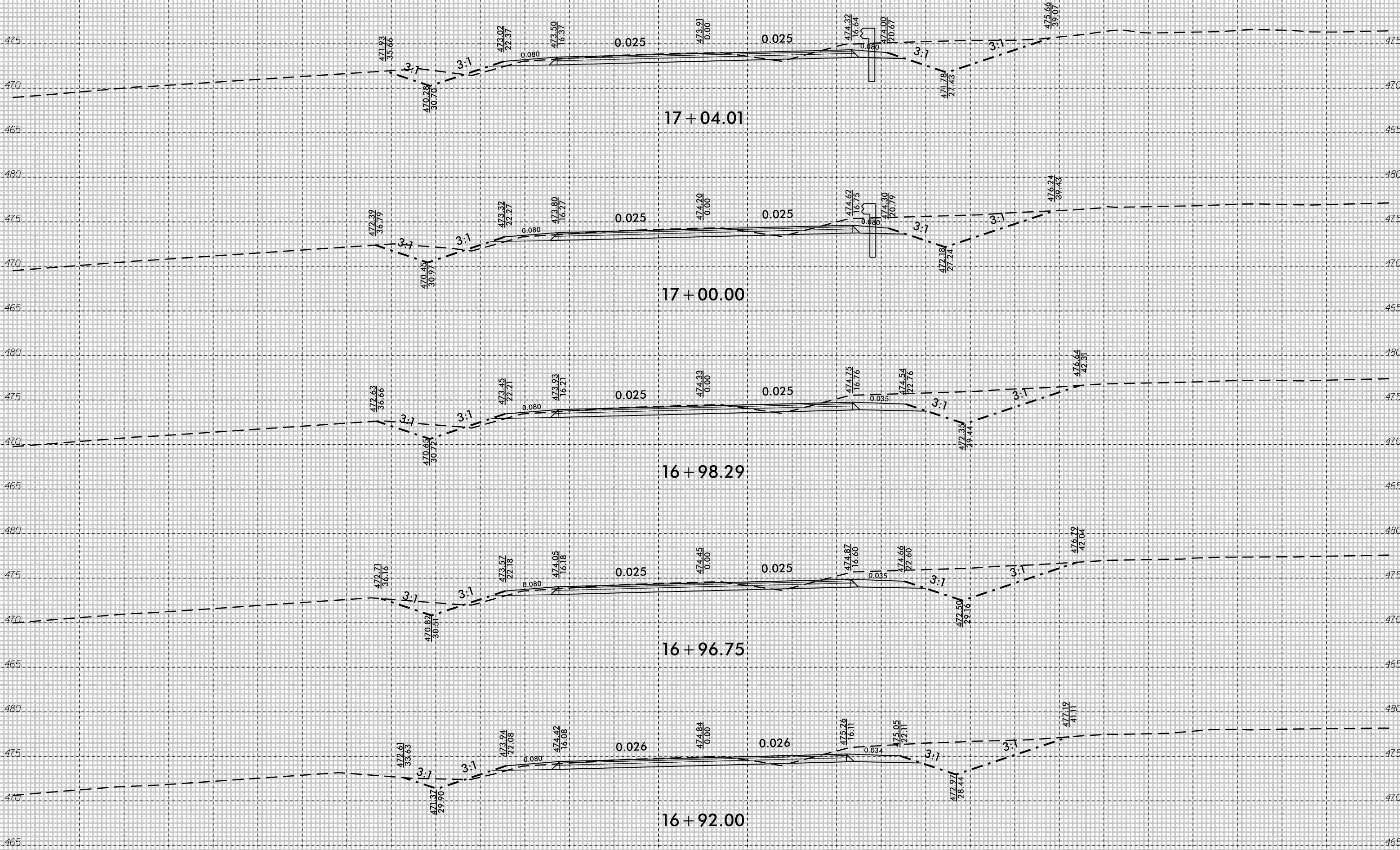


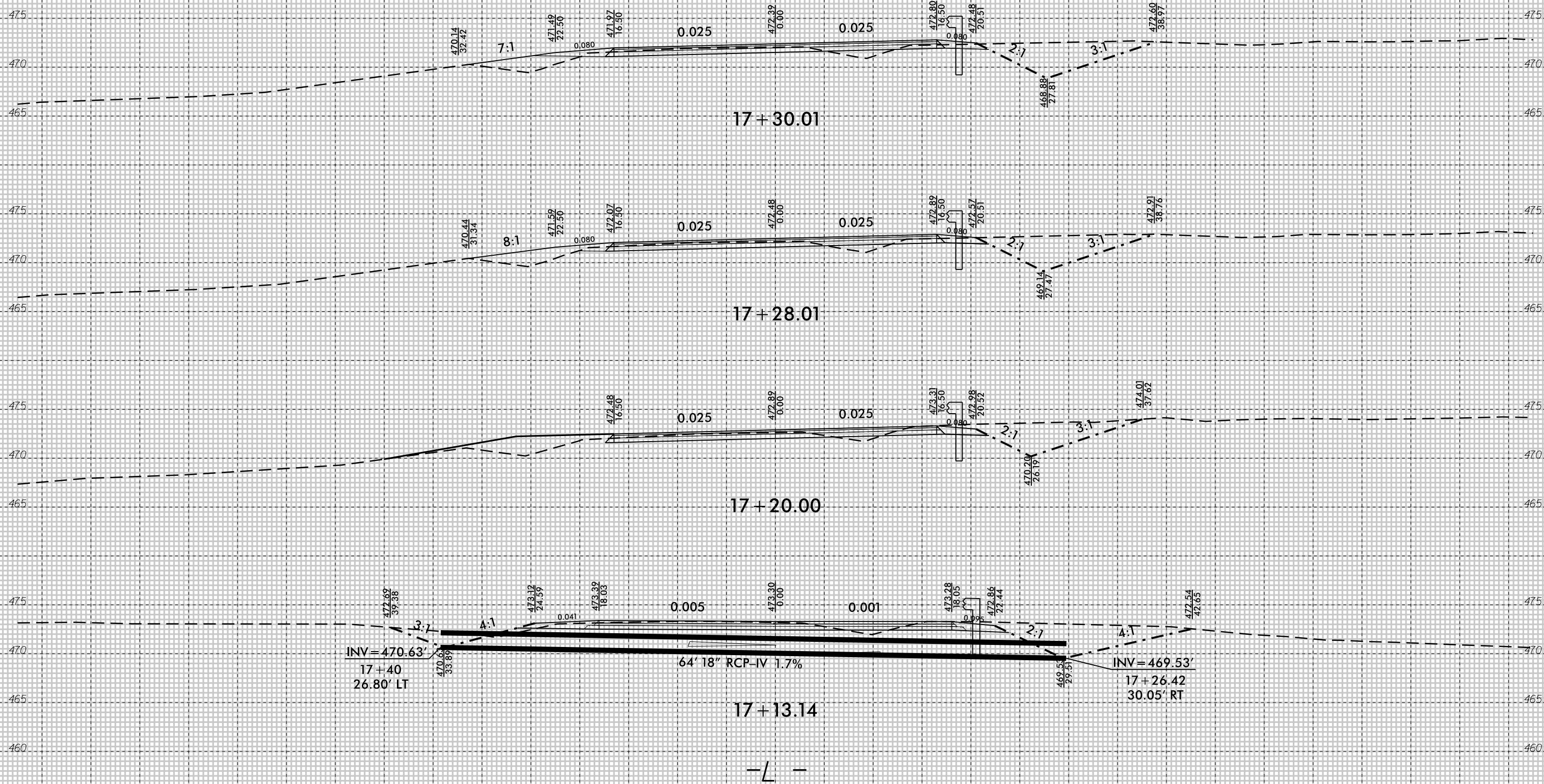


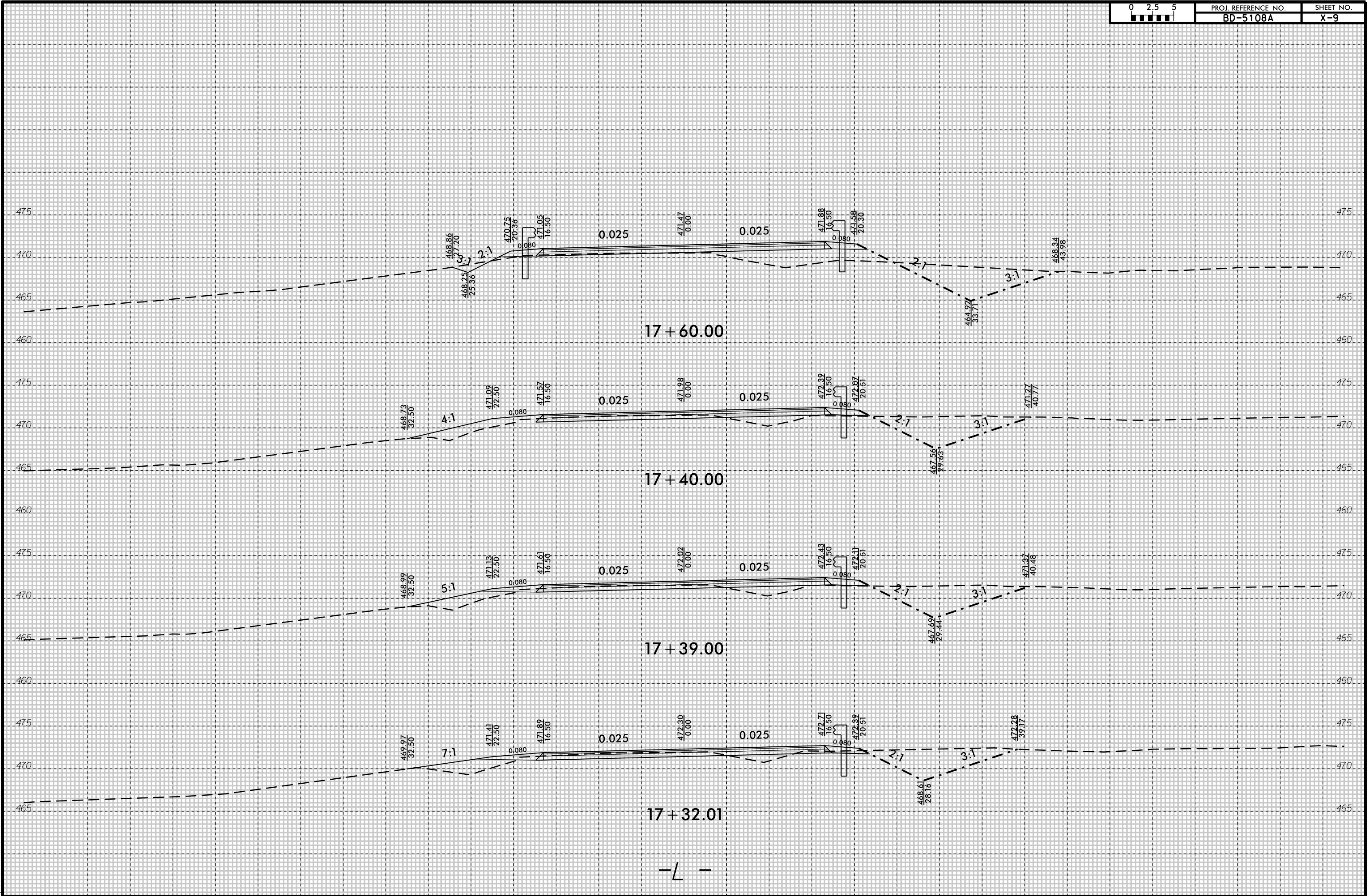
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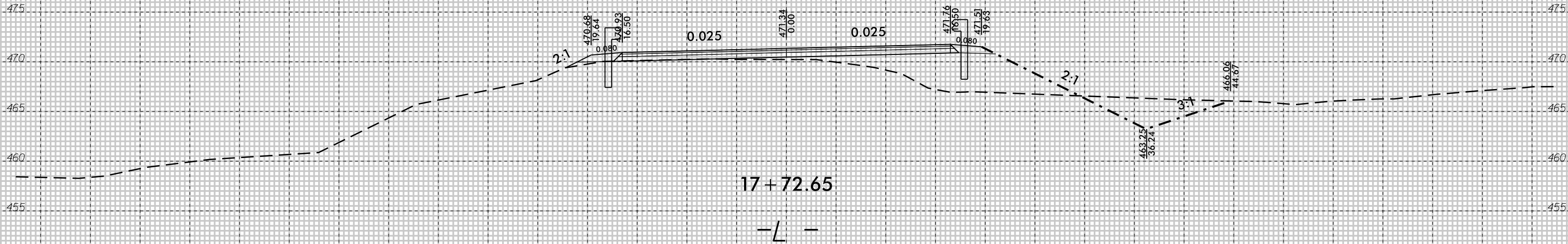
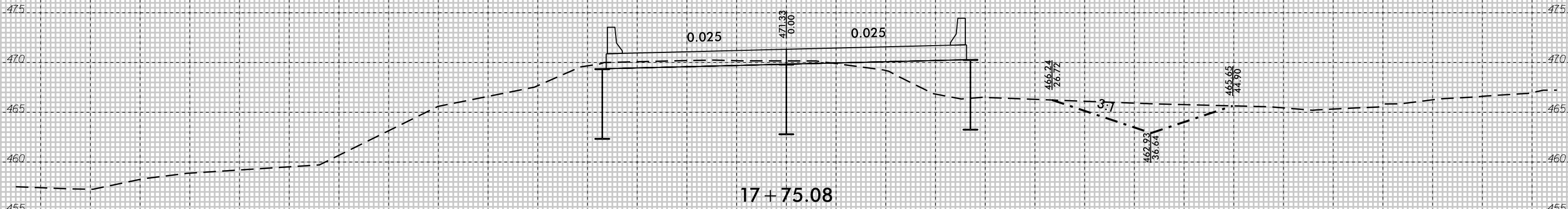
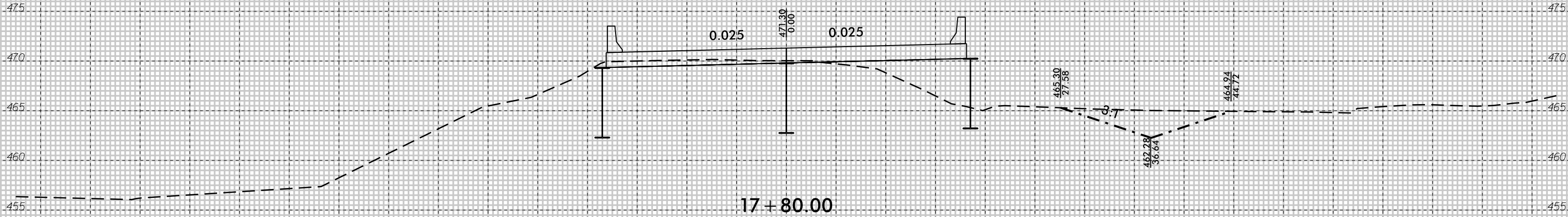
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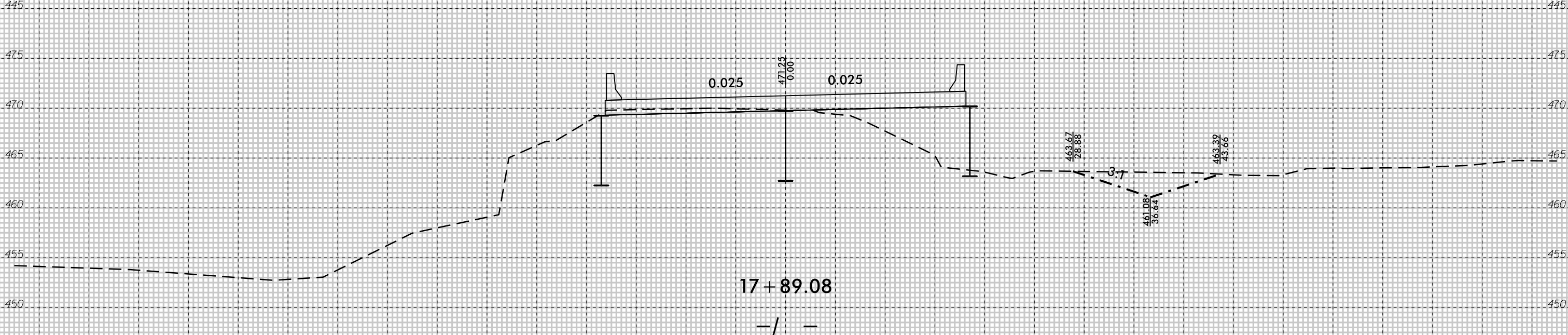
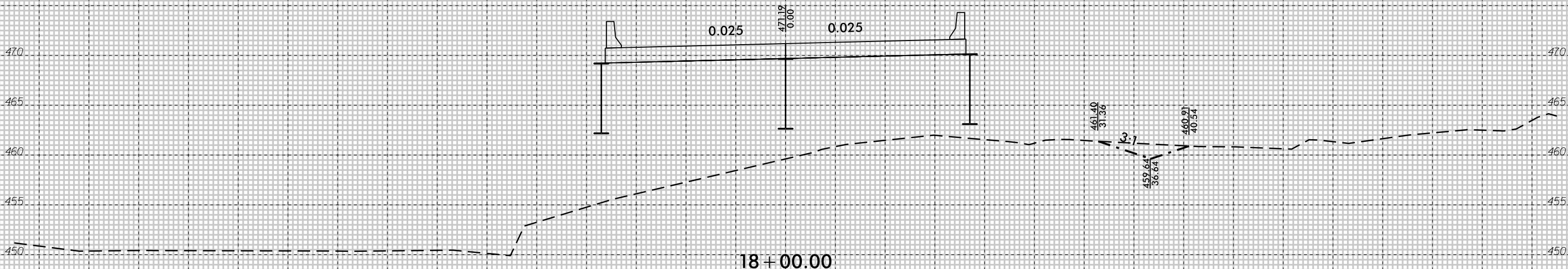
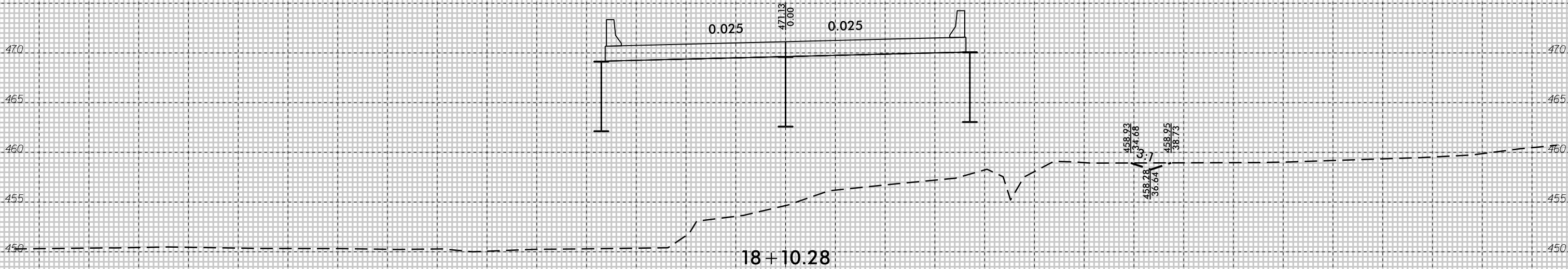




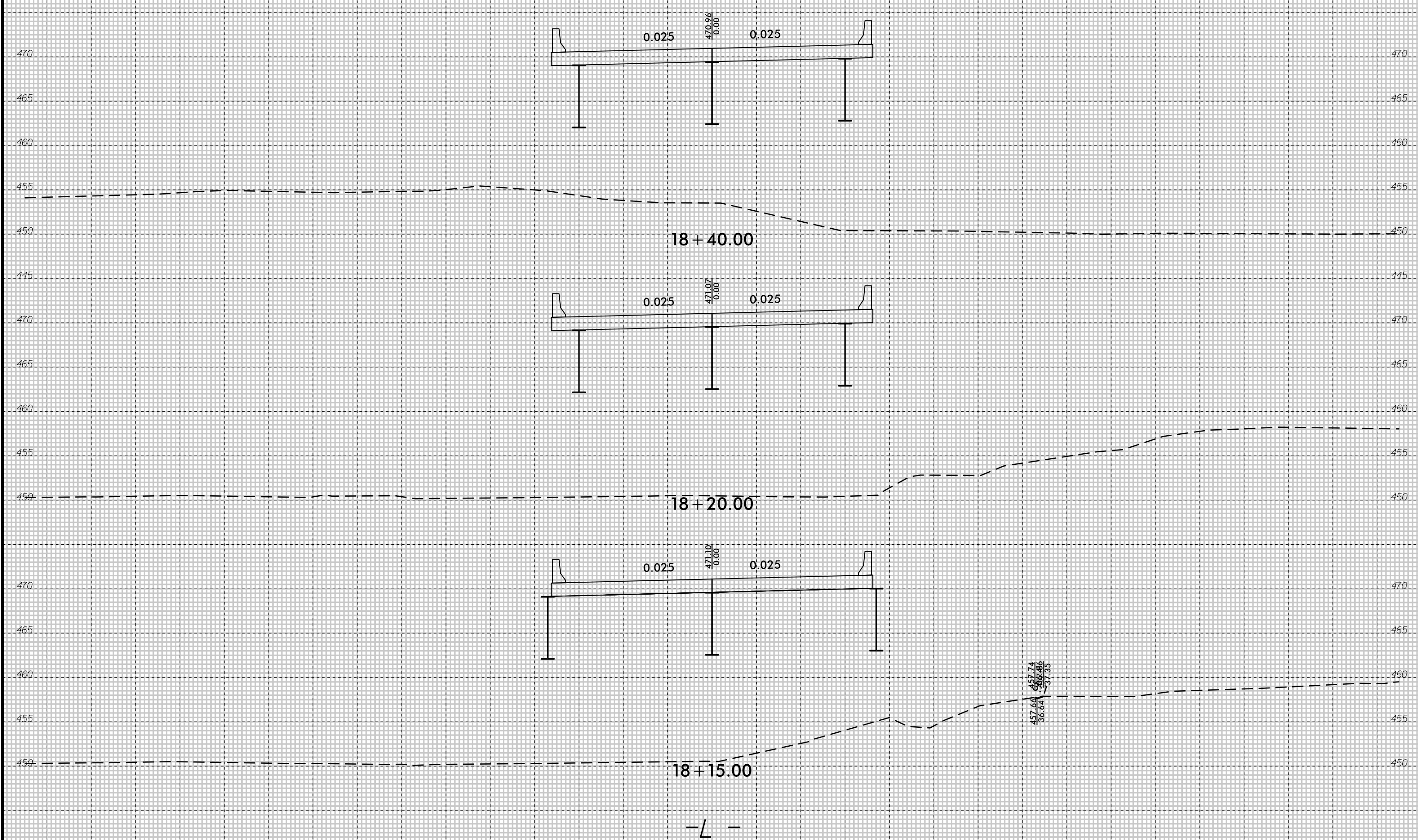
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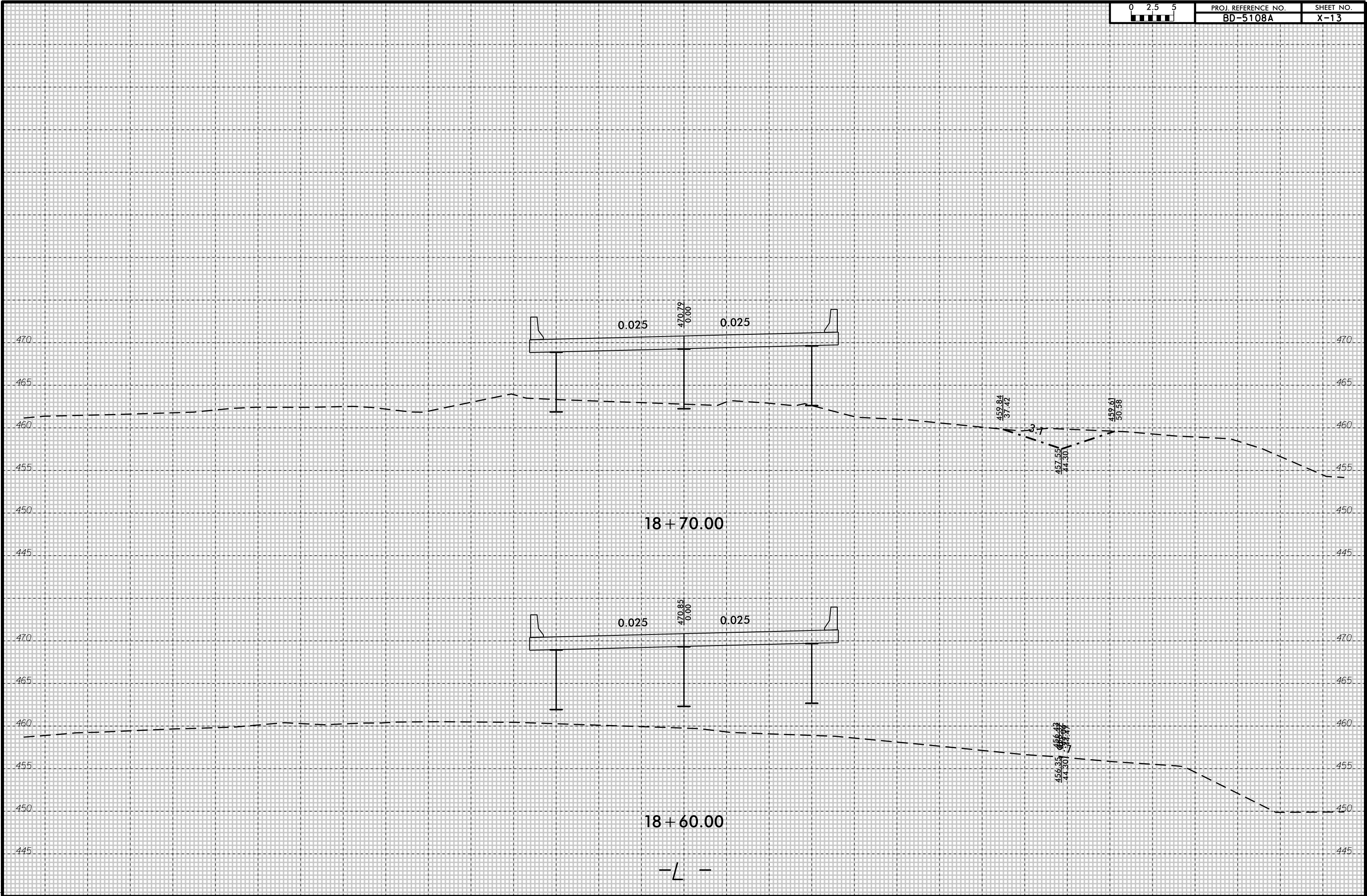


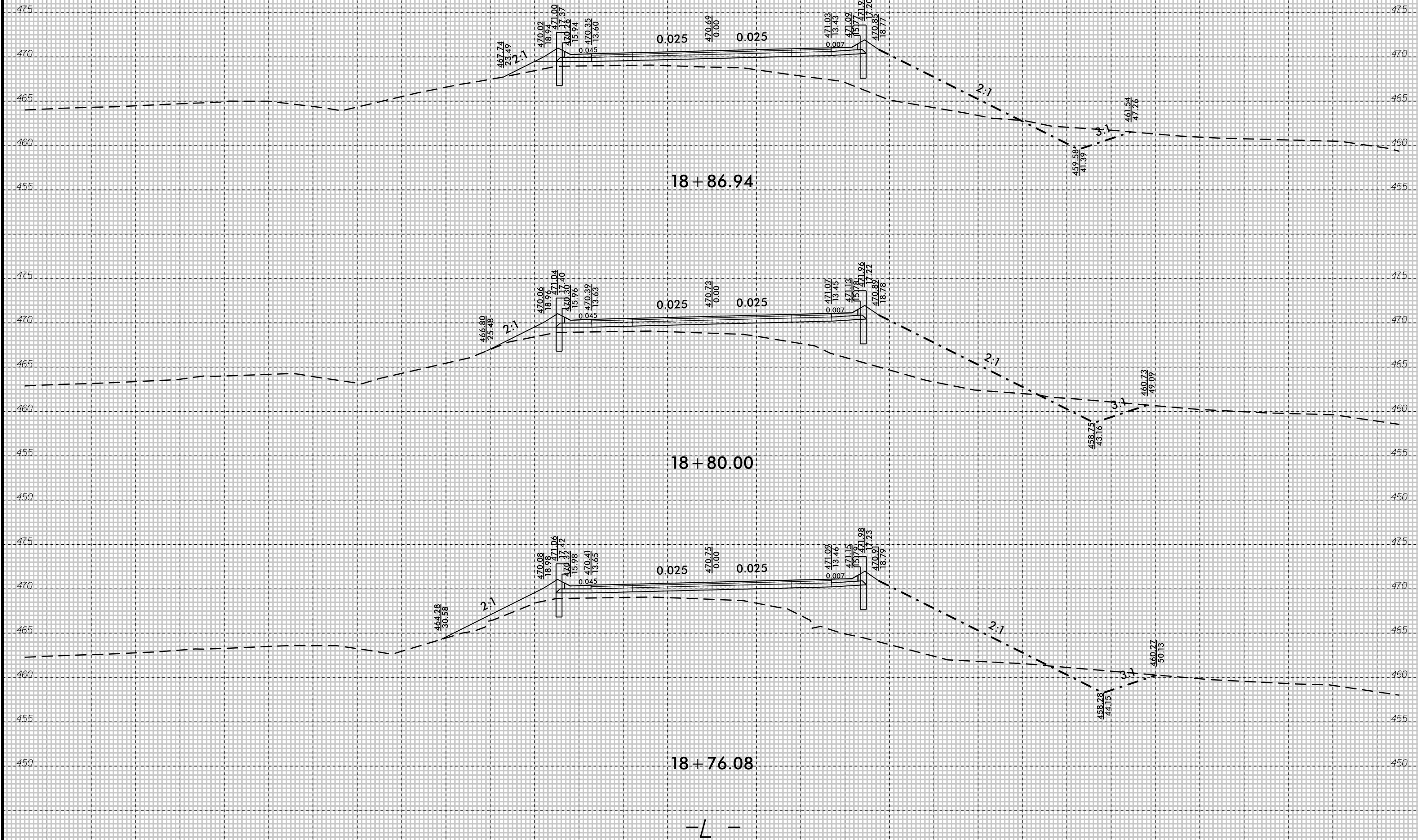
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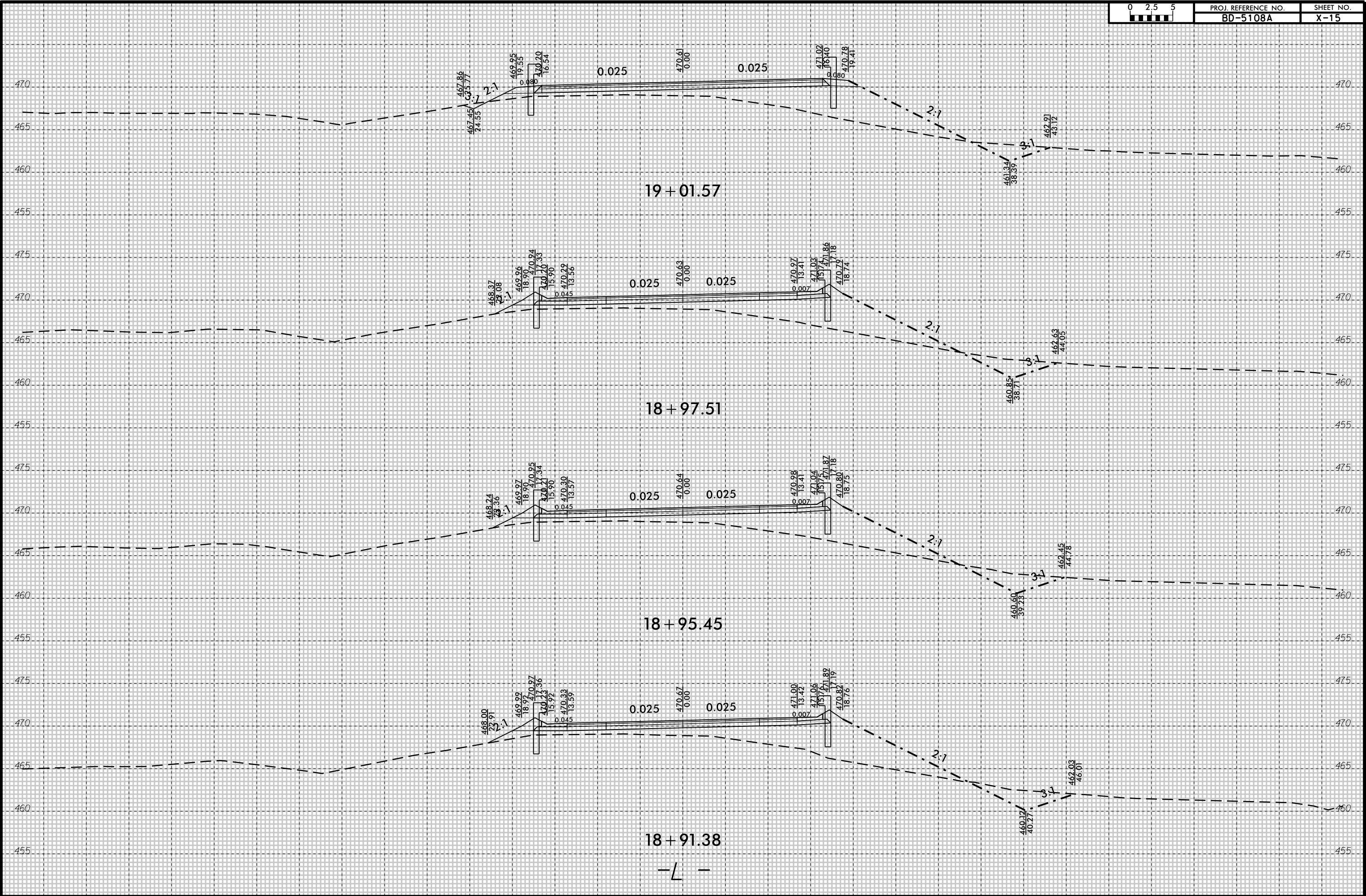


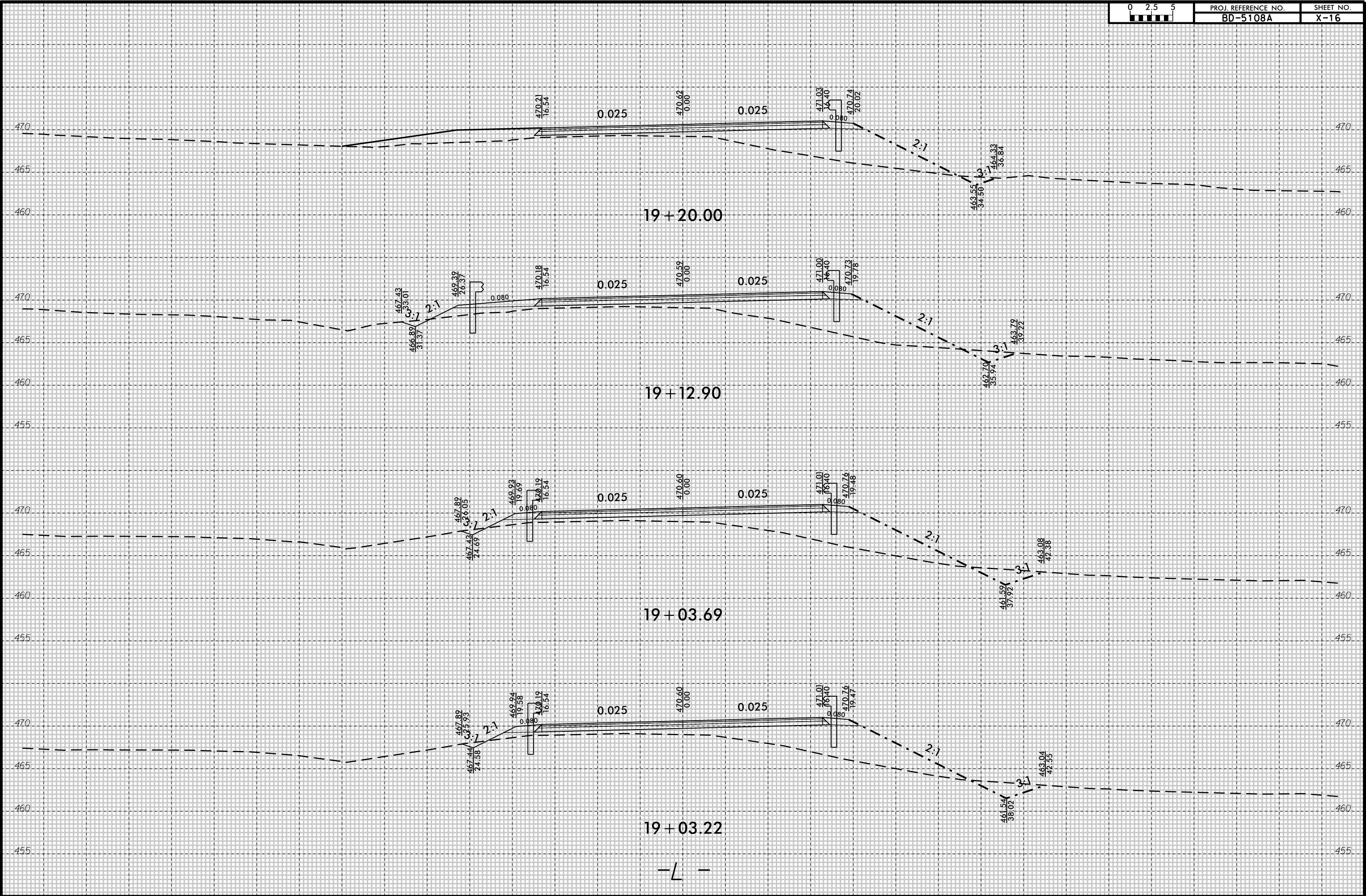
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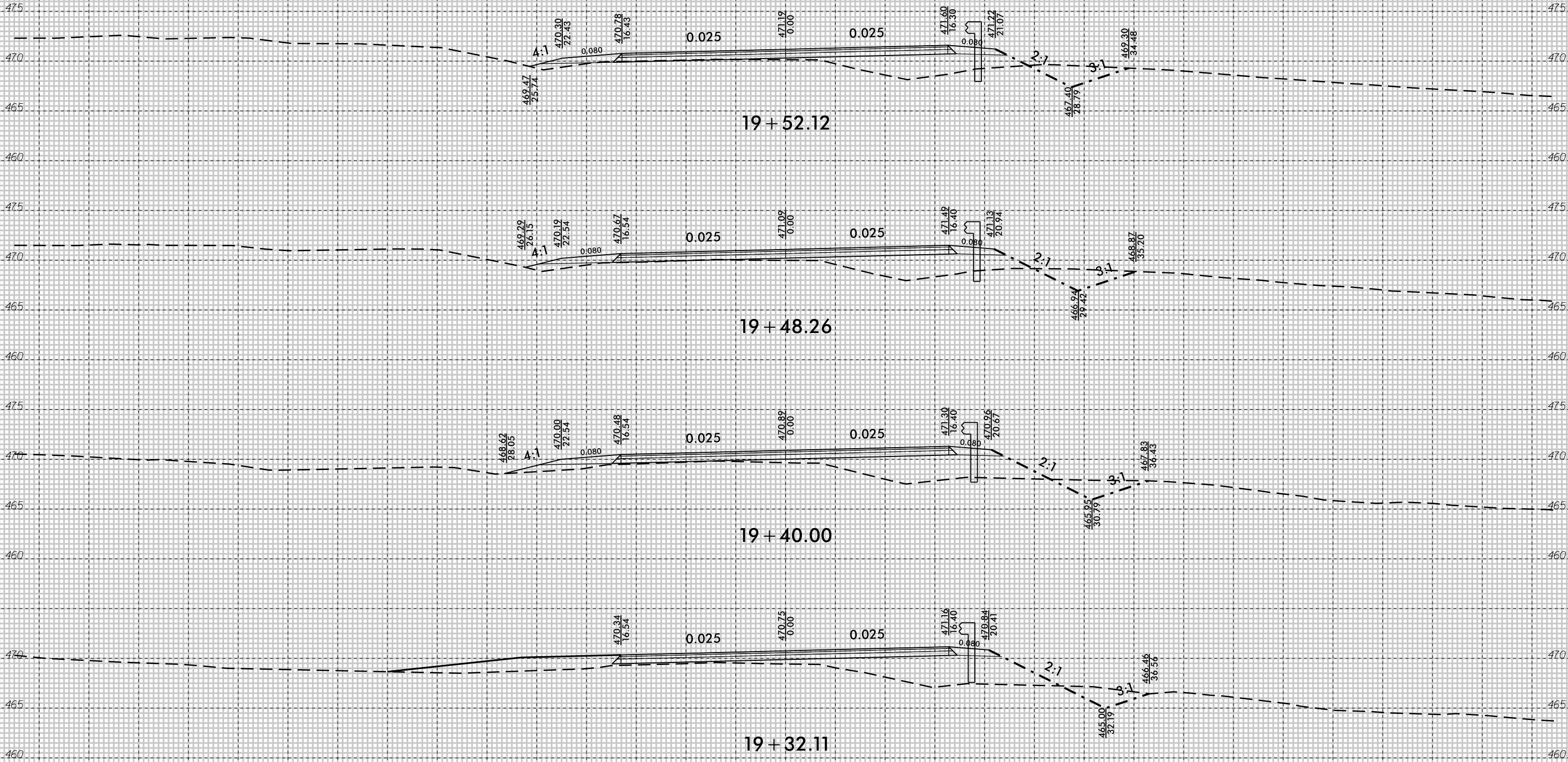




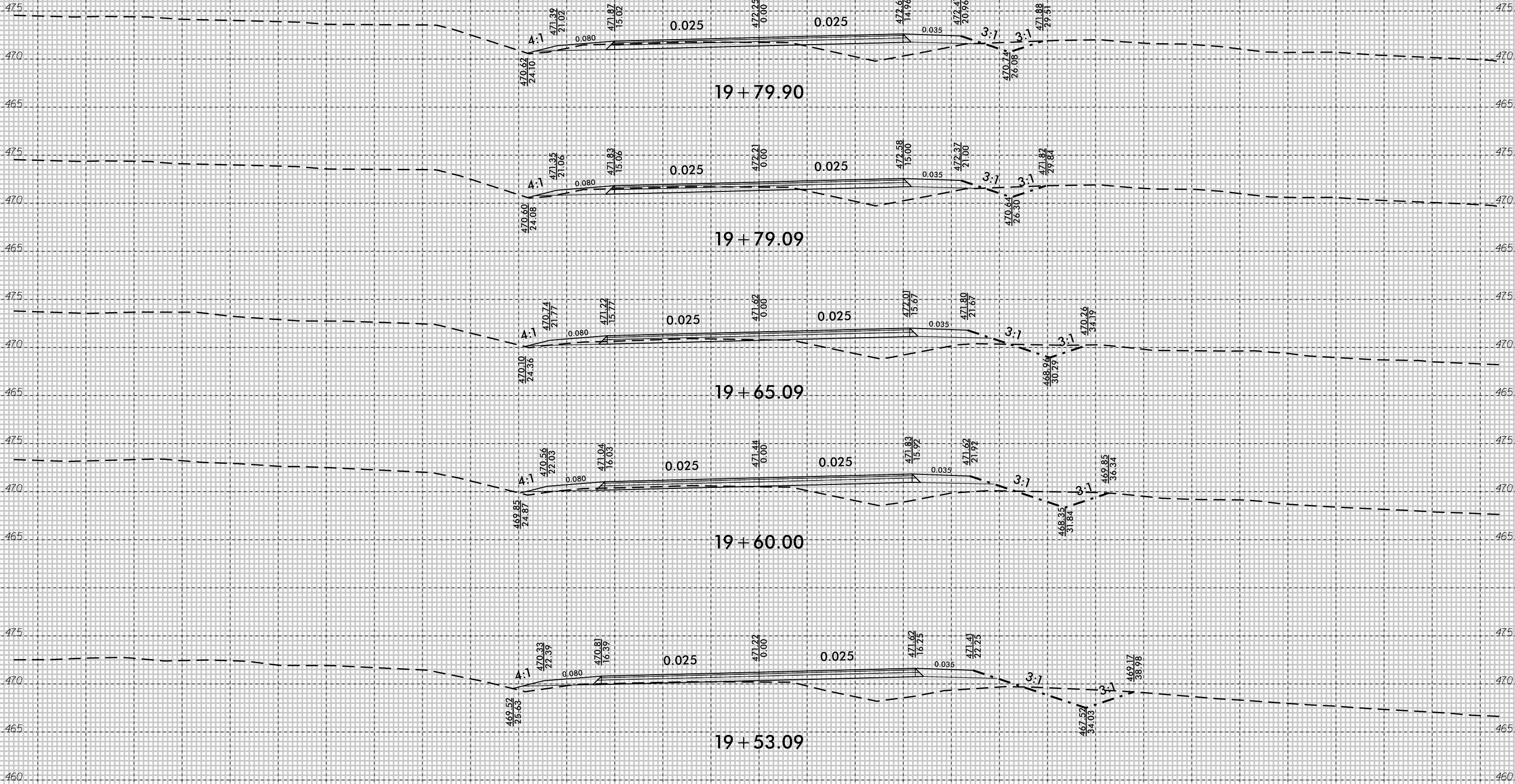


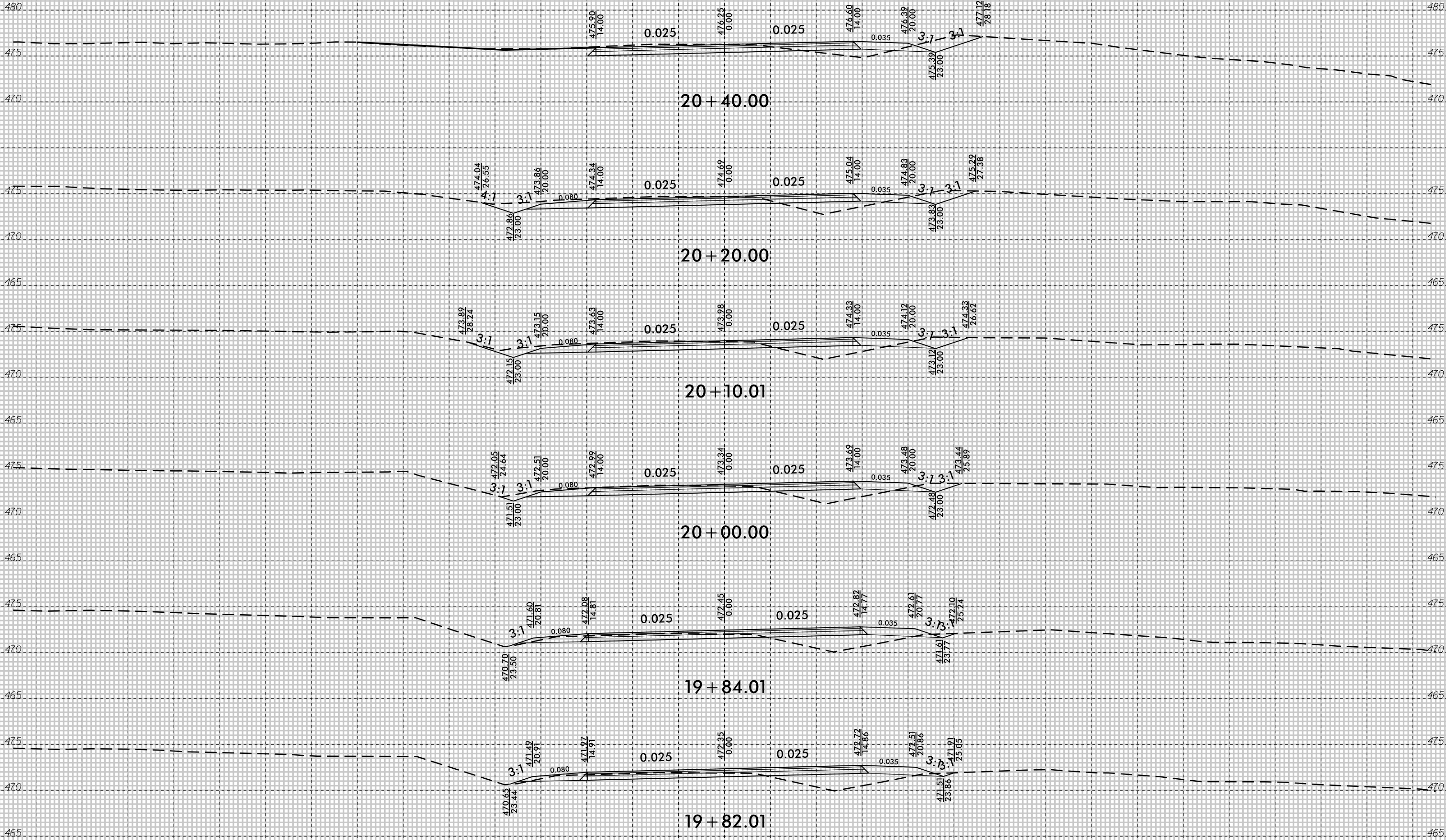


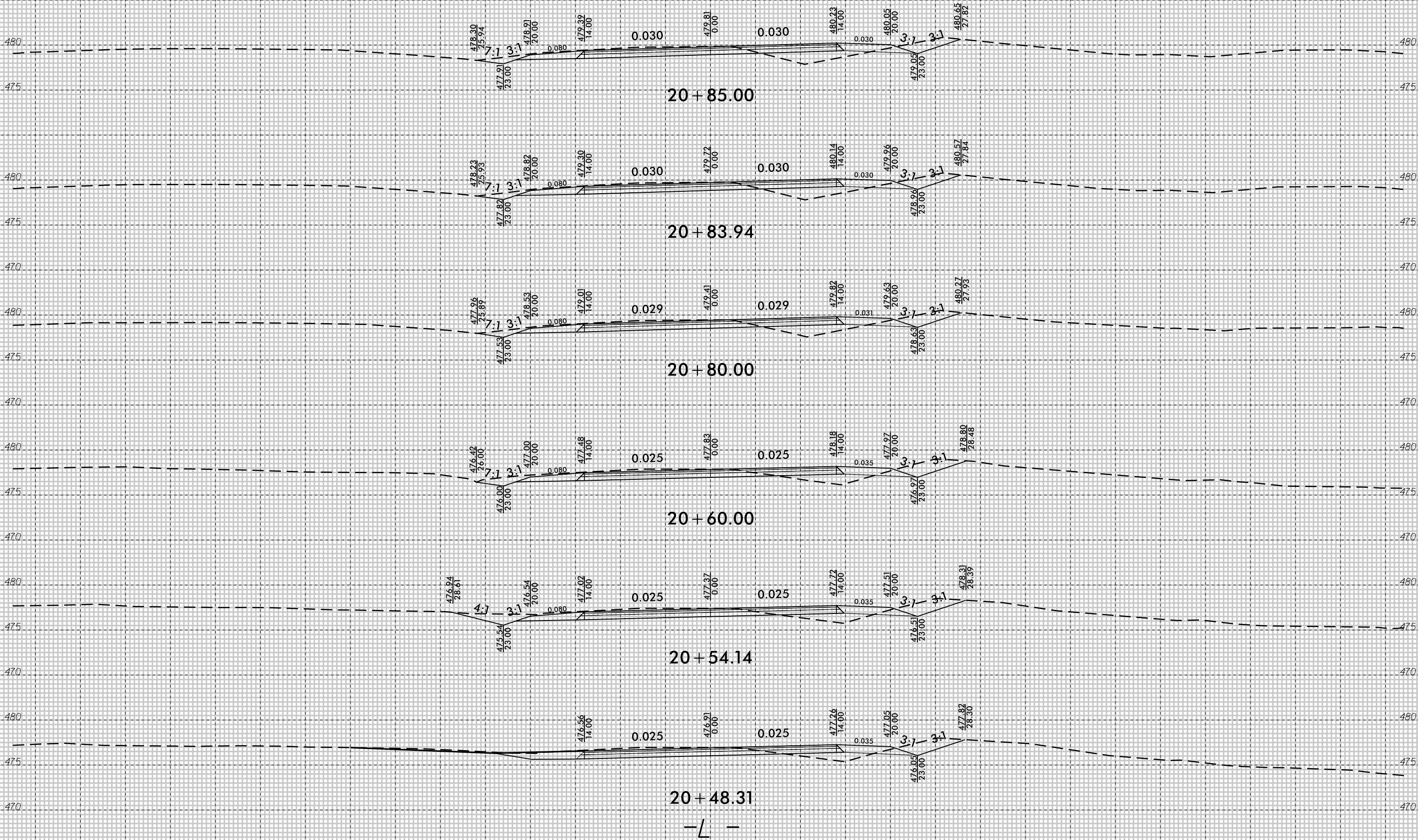
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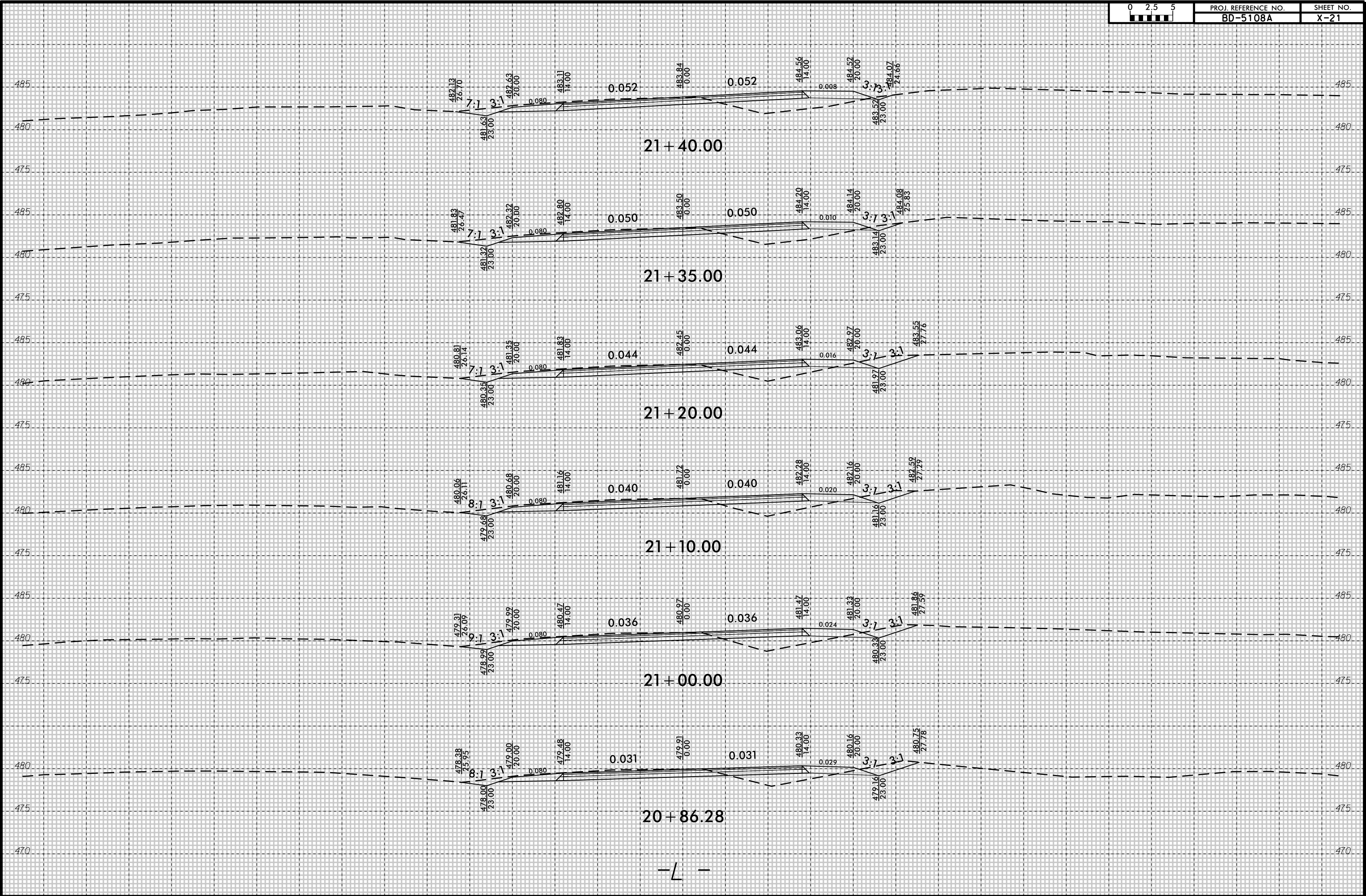


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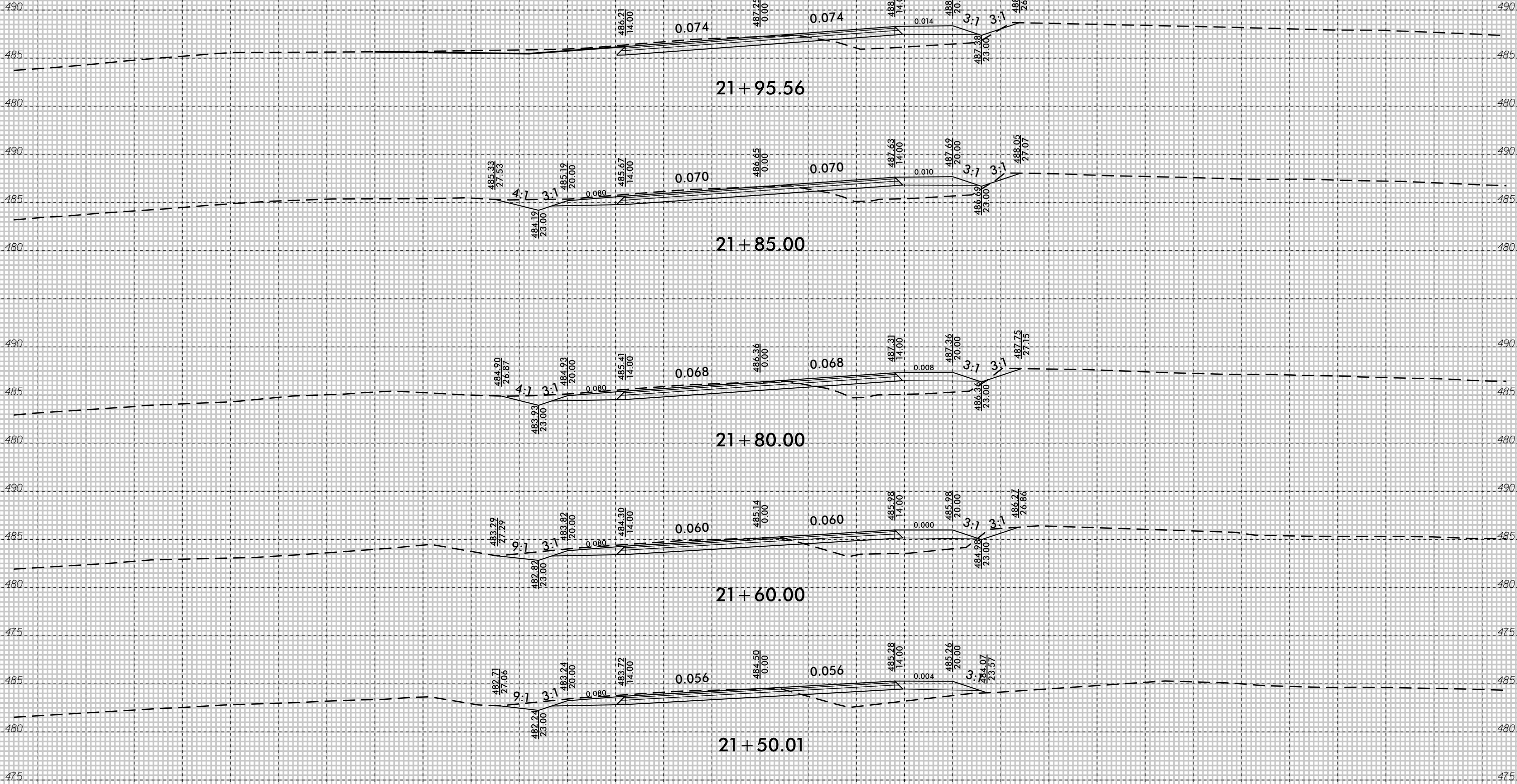


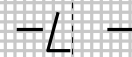


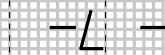




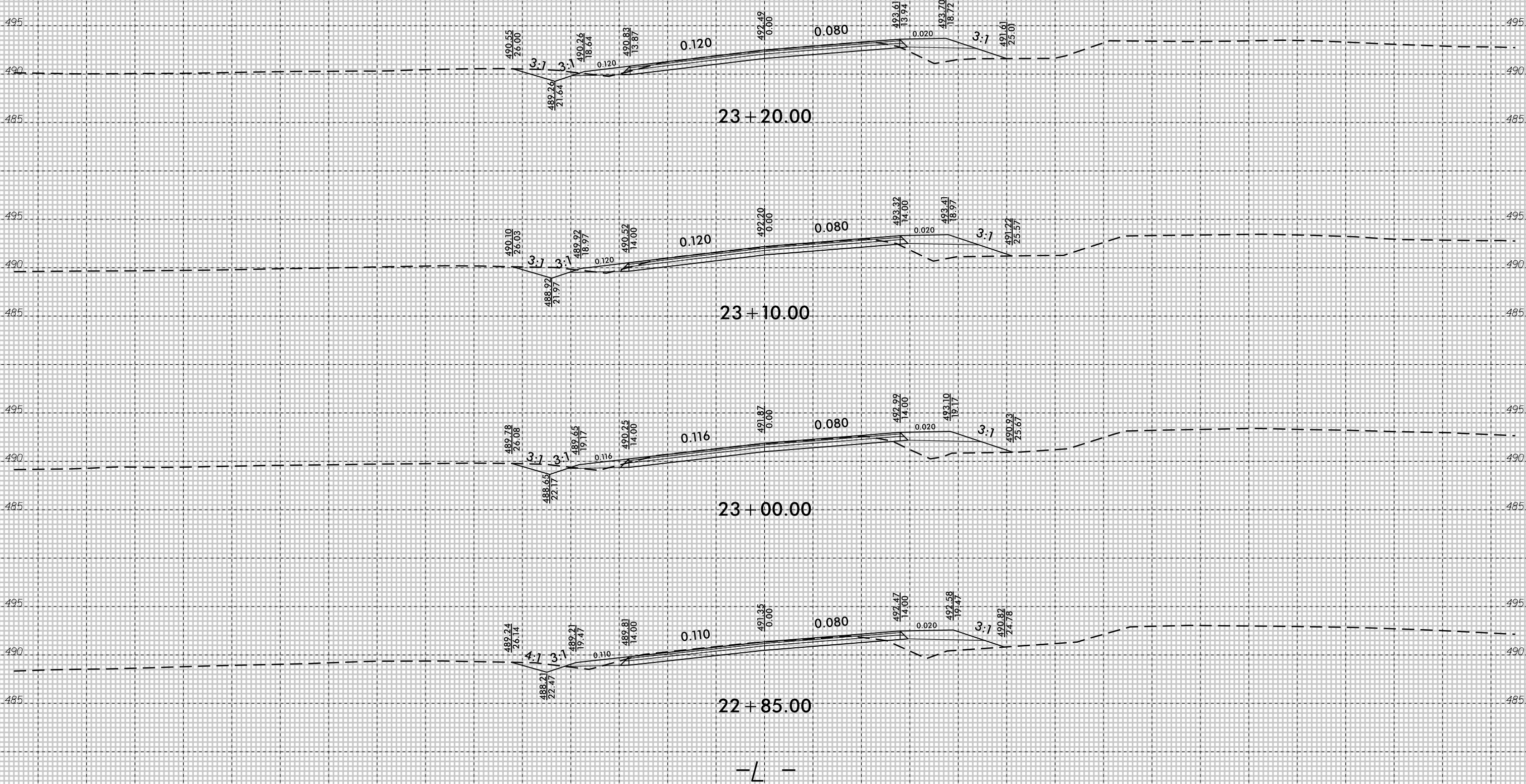
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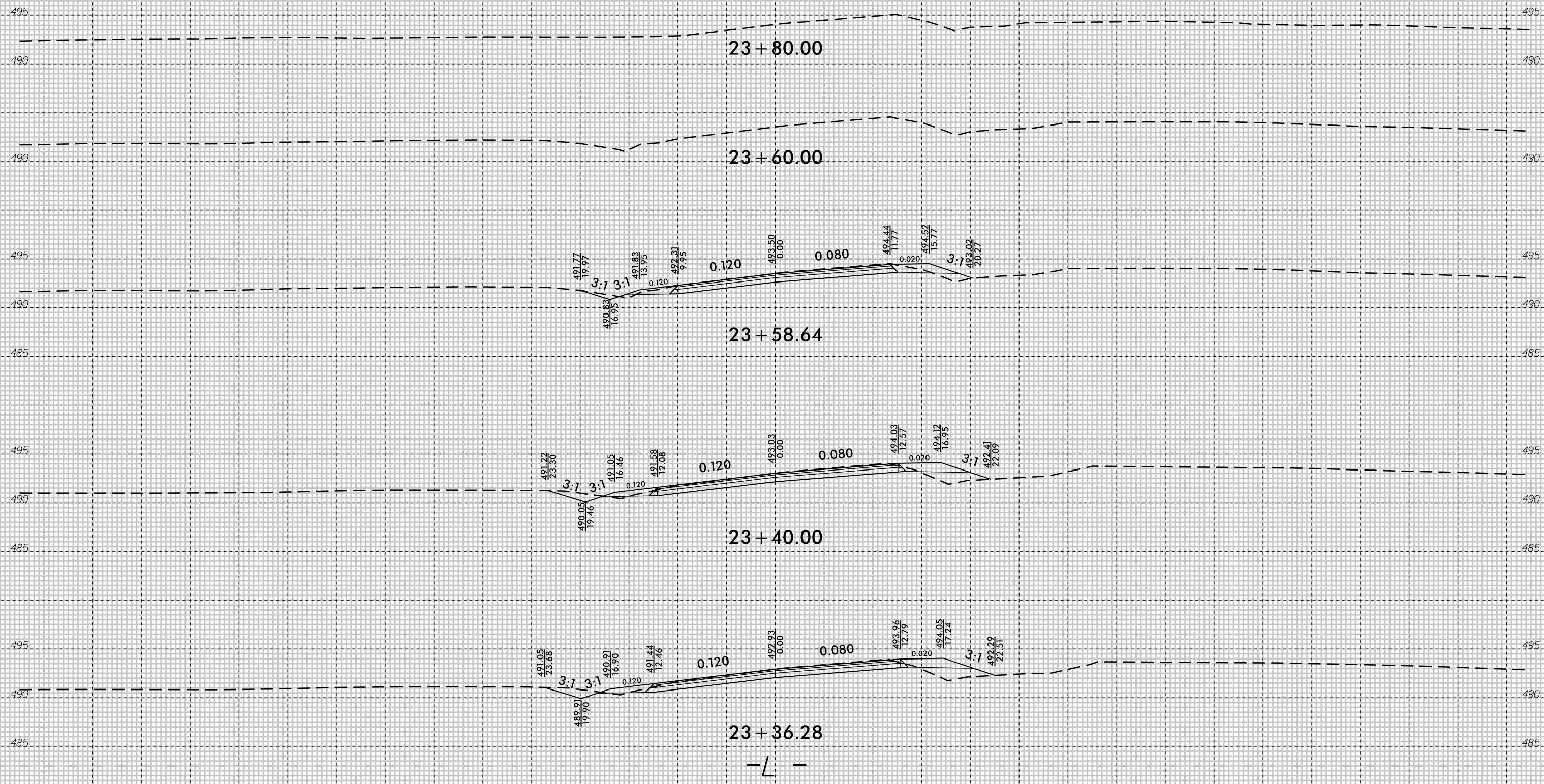






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GRADE DATA

(-18.5173%) (-10.5700%)
 PI = 17+30.15
 EL = 471.59
 VC = 80'

FILL FACE @ END BENT 1
 STA. 17+73.96 -L-
 GRADE POINT EL. 471.33

BEGIN FRONT SLOPE
 STA. 17+64.55 -L-
 GRADE POINT EL. 471.39

APPROXIMATE EXISTING GROUND LINE

LOW CHORD
EL. 467.29

BOT. OF CAP
EL. 463.61

RIP RAP
 CLASS II
 2'-0" THICK
 (TYP.)

END BENT 1

1'-7" BERM
(TYP.)

FIX

EL. 470±

EL. 464±

EL. 460±

CUT EXISTING
 ABUTMENT AND
 EXCAVATE TO
 EL. 464.0 (GRADE
 TO DRAIN)

Q25
WSEL. 465.8

Q100
WSEL. 466.93

EXISTING
STRUCTURE
(TYP.)

EL. 453±

NWS EL. 452.0±

EL. 450±

EL. 450±

REMOVE EXIST. PIER
 TO TOP OF BANK OR
 NATURAL GROUND

EL. 457±

EXCAVATE TO
EL. 464.0 (GRADE
TO DRAIN)

1'-0" MIN
EARTH BERM
(TYP.)

FIX

EL. 463±

1 1/2:1 SLOPE
NORMAL TO
CAP (TYP.)

FILL FACE @ END BENT 2
 STA. 18+76.21 -L-
 GRADE POINT EL. 470.75

BEGIN FRONT SLOPE
 STA. 18+85.42 -L-
 GRADE POINT EL. 470.70

LOW CHORD
EL. 466.73

BOT. OF CAP
EL. 463.05

HP 12 X 53
 STEEL PILES
 (TYP.)

UNCLASSIFIED
 STRUCTURE
 EXCAVATION

END BENT 2

GRADE DATA

(-10.5700%) $(+17.8903\%)$
 PI = 19+63.94
 EL = 470.25
 VC = 125'

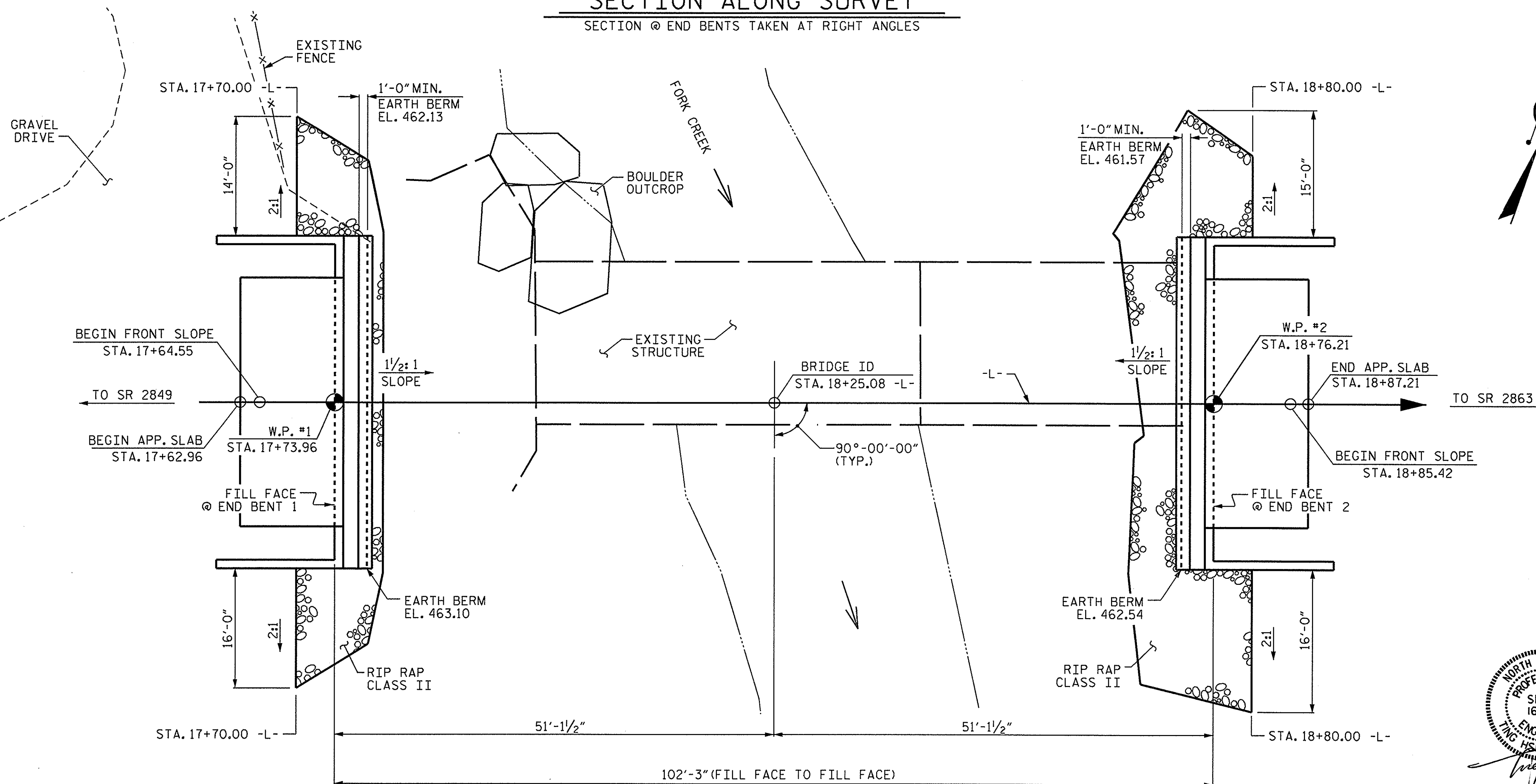
RIP RAP ESTIMATED QUANTITIES

	RIP RAP CLASS II (TONS)	GEOTEXTILE FOR DRAINAGE (SQ. YARDS)
END BENT 1	55	60
END BENT 2	85	95
TOTAL	140	155

I HEREBY CERTIFY THESE PLANS
 ARE THE AS-BUILT PLANS

SECTION ALONG SURVEY

SECTION @ END BENTS TAKEN AT RIGHT ANGLES



PLAN

PILES NOT SHOWN FOR CLARITY

DRAWN BY : S. WANCE DATE : 4/11/14
 CHECKED BY : T. H. FANG DATE : 6/11/14

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 clyokeley

PROJECT NO. BD-5108A
 RANDOLPH COUNTY
 STATION: 18+25.08 -L-

SHEET 1 OF 3 REPLACES BRIDGE #206

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER FORK
 CREEK ON SR 1002
 BETWEEN SR 2849 AND SR 2863

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-1
2			4			
TOTAL SHEETS 18						

NC005

NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENTS 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 115 TONS PER PILE.

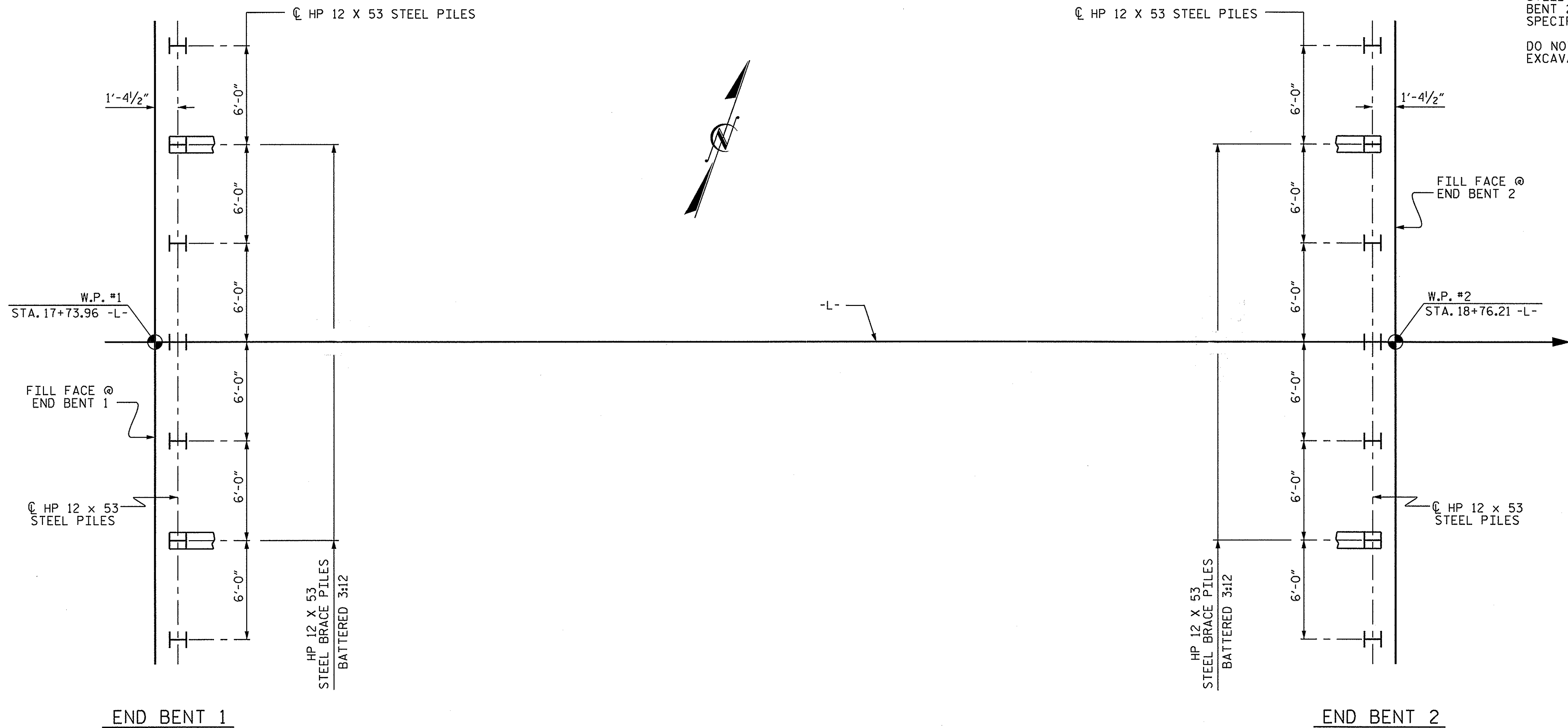
PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT 1. EXCAVATION HOLES AT PILE LOCATIONS TO ELEVATION 453.6 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

CONCRETE IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION AT END BENT 1.

DRIVE PILES AT END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 195 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

DO NOT DRIVE PILES AT END BENT 1 AFTER PLACING PILES IN EXCAVATED HOLES.



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO CENTERLINE OF PILES AT BOTTOM OF CAP

PROJECT NO. BD-5108A
RANDOLPH COUNTY
STATION: 18+25.08 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER FORK
CREEK ON SR 1002
(FORK CREEK MILL RD) BETWEEN
SR 2849 AND SR 2863

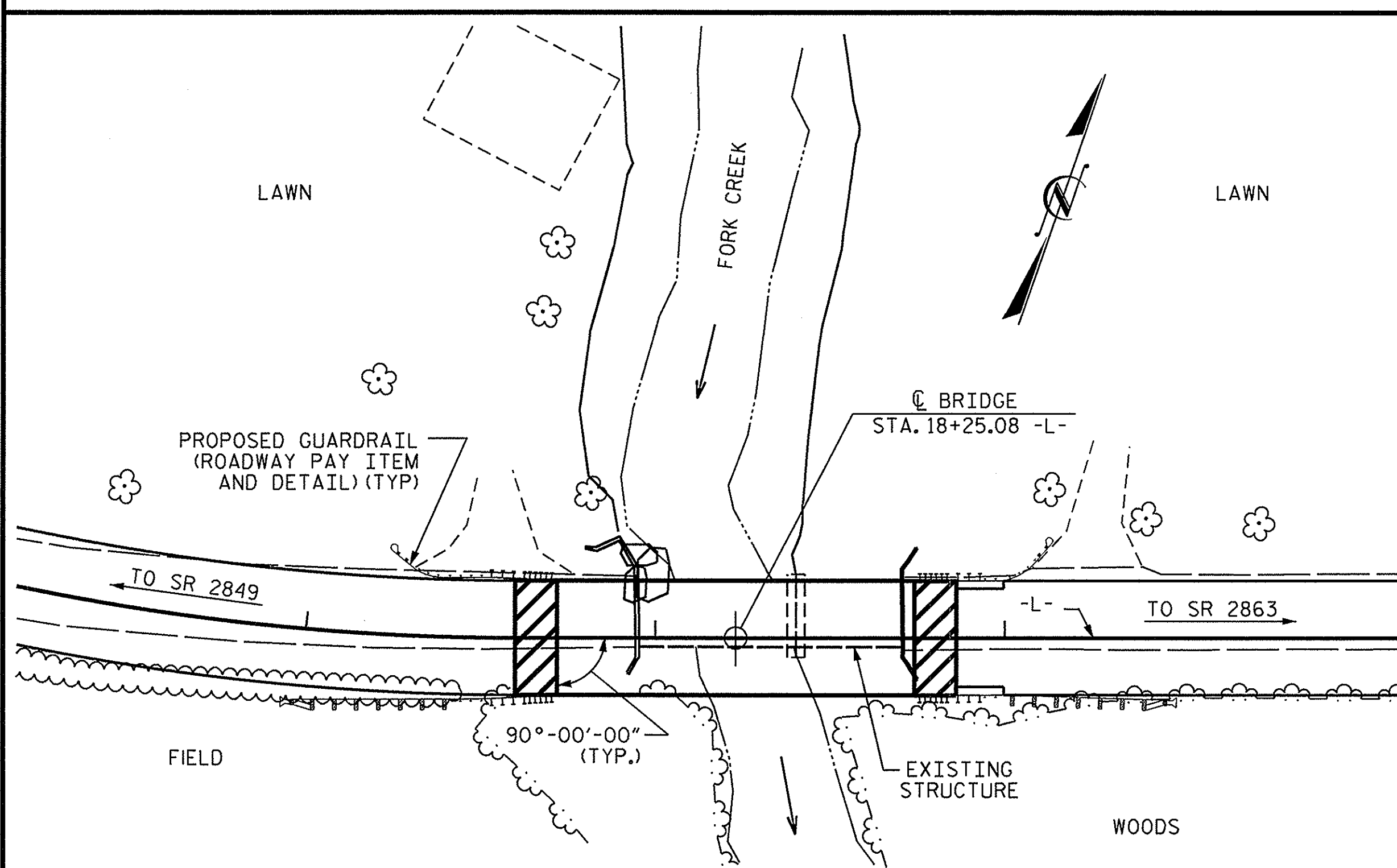
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CHECKED BY : T. H. FANG DATE : 6/20/14

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-2
2			4			TOTAL SHEETS 18

TOTAL BILL OF MATERIAL																			
	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	TWO BAR METAL RAIL	1'-6" X 2'-10½" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 3'-3" PRESTRESSED CONCRETE BOX BEAMS		ARCHITECTURAL CONCRETE SURFACE TREATMENT	APPLICATION OF BRIDGE COATING
	LUMP SUM	LIN. FT.	LIN. FT.	LUMP SUM	CU.YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	EA.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	LUMP SUM					LUMP SUM					185.0	200.0			LUMP SUM	11	1100.0	LUMP SUM	LUMP SUM
END BENT 1		34	36	LUMP SUM	29.4		4606	7	70				55	60					
END BENT 2				LUMP SUM	29.4		4606	7	140	7			85	95					
TOTAL	LUMP SUM	34	36	LUMP SUM	58.8	LUMP SUM	9212	14	210	7	185.0	200.0	140	155	LUMP SUM	11	1100.0	LUMP SUM	LUMP SUM

BENCH MARK #1: -L- STA 19+52, 32' RIGHT, ELEV. 470.30'



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18, EVALUATING SCOUR AT BRIDGES".

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHOULD BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 18+25.08 -L-".

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS, 1 @ 45'-4" & 1 @ 30'-6", WITH A CLEAR ROADWAY WIDTH OF 19.2' AND A TIMBER DECK COVERED WITH 5" AWS SUPPORTED BY STEEL I-BEAMS AND SUBSTRUCTURE CONSISTING OF RM & MASS CONCRETE AT ABUTMENT 1 & BENT 1, AND TIMBER CAP & PILES AT ABUTMENT 2, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF STANDARD SPECIFICATIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 43 FT. LEFT AND 45 FT. RIGHT OF CENTERLINE ROADWAY AT END BENT 1 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

FOR ARCHITECTURAL CONCRETE SURFACE TREATMENT, SEE SPECIAL PROVISIONS.

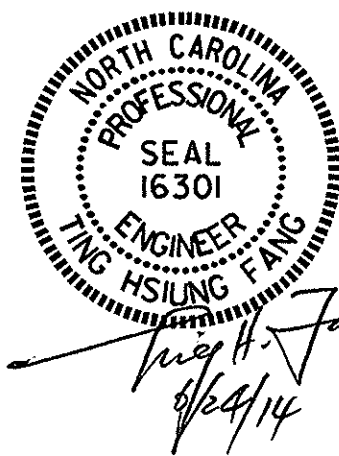
FOR APPLICATION OF BRIDGE COATING, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 1900 c.f.s.
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 465.8
DRAINAGE AREA	= 8.0 SQ. MI.
BASIC DISCHARGE (Q100)	= 2700 c.f.s.
BASIC HIGH WATER ELEVATION	= 466.93

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= N/A
FREQUENCY OF OVERTOPPING FLOOD	= 500 YR+
OVERTOPPING FLOOD ELEVATION	= 471.0



PROJECT NO. BD-5108A
RANDOLPH COUNTY
STATION: 18+25.08 -L-

SHEET 3 OF 3 REPLACES BRIDGE #206

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE OVER FORK CREEK ON SR 1002 (FORK CREEK MILL RD) BETWEEN SR 2849 AND SR 2863					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-3					TOTAL SHEETS 18

DRAWN BY : S. WANCE DATE : 4/11/14
CHECKED BY : T. H. FANG DATE : 6/11/14

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE BOX BEAMS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER	
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		
DESIGN LOAD RATING	HL-93(Inv)	N/A	①	1.035	--	1.75	0.272	1.26	A	EL	49.25	0.489	1.34	A	EL	4.925	0.80	0.272	1.04	A	EL	49.25		
	HL-93(OPr)	N/A	--	1.633	--	1.35	0.272	1.63	A	EL	49.25	0.489	1.73	A	EL	4.925	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	②	1.440	51.840	1.75	0.272	1.75	A	EL	49.25	0.489	1.81	A	EL	4.925	0.80	0.272	1.44	A	EL	49.25		
	HS-20(OPr)	36.000	--	2.271	81.756	1.35	0.272	2.27	A	EL	49.25	0.489	2.35	A	EL	4.925	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.413	46.079	1.40	0.272	5.19	A	EL	49.25	0.489	5.59	A	EL	4.925	0.80	0.272	3.41	A	EL	49.25	
		SNGARBS2	20.000	--	2.473	49.452	1.40	0.272	3.76	A	EL	49.25	0.489	3.91	A	EL	4.925	0.80	0.272	2.47	A	EL	49.25	
		SNAGRIS2	22.000	--	2.313	50.885	1.40	0.272	3.52	A	EL	49.25	0.489	3.60	A	EL	4.925	0.80	0.272	2.31	A	EL	49.25	
		SNCOTTS3	27.250	--	1.696	46.228	1.40	0.272	2.58	A	EL	49.25	0.489	2.78	A	EL	4.925	0.80	0.272	1.70	A	EL	49.25	
		SNAGGRS4	34.925	--	1.390	48.556	1.40	0.272	2.11	A	EL	49.25	0.489	2.26	A	EL	4.925	0.80	0.272	1.39	A	EL	49.25	
		SNS5A	35.550	--	1.361	48.398	1.40	0.272	2.07	A	EL	49.25	0.489	2.27	A	EL	4.925	0.80	0.272	1.36	A	EL	49.25	
		SNS6A	39.950	--	1.238	49.456	1.40	0.272	1.88	A	EL	49.25	0.489	2.05	A	EL	4.925	0.80	0.272	1.24	A	EL	49.25	
		SNS7B	42.000	--	1.178	49.496	1.40	0.272	1.79	A	EL	49.25	0.489	2.00	A	EL	4.925	0.80	0.272	1.18	A	EL	49.25	
	TTST	TNAGRIT3	33.000	--	1.506	49.709	1.40	0.272	2.29	A	EL	49.25	0.489	2.46	A	EL	4.925	0.80	0.272	1.51	A	EL	49.25	
		TNT4A	33.075	--	1.510	49.942	1.40	0.272	2.30	A	EL	49.25	0.489	2.41	A	EL	4.925	0.80	0.272	1.51	A	EL	49.25	
		TNT6A	41.600	--	1.224	50.926	1.40	0.272	1.86	A	EL	49.25	0.489	2.09	A	EL	4.925	0.80	0.272	1.22	A	EL	49.25	
		TNT7A	42.000	--	1.225	51.442	1.40	0.272	1.86	A	EL	49.25	0.489	2.05	A	EL	4.925	0.80	0.272	1.22	A	EL	49.25	
		TNT7B	42.000	--	1.254	52.657	1.40	0.272	1.91	A	EL	49.25	0.489	1.96	A	EL	4.925	0.80	0.272	1.25	A	EL	49.25	
		TNAGRIT4	43.000	--	1.203	51.711	1.40	0.272	1.83	A	EL	49.25	0.489	1.91	A	EL	4.925	0.80	0.272	1.20	A	EL	49.25	
TNAGT5A	45.000	--	1.139	51.236	1.40	0.272	1.73	A	EL	49.25	0.489	1.87	A	EL	4.925	0.80	0.272	1.14	A	EL	49.25			
TNAGT5B	45.000	③	1.129	50.805	1.40	0.272	1.72	A	EL	49.25	0.489	1.82	A	EL	4.925	0.80	0.272	1.13	A	EL	49.25			

LOAD FACTORS:

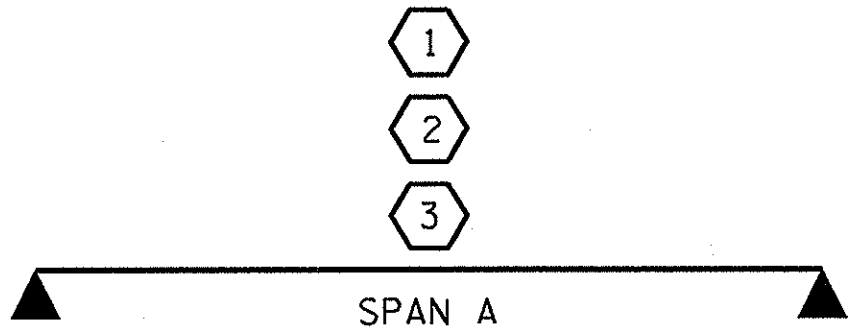
DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

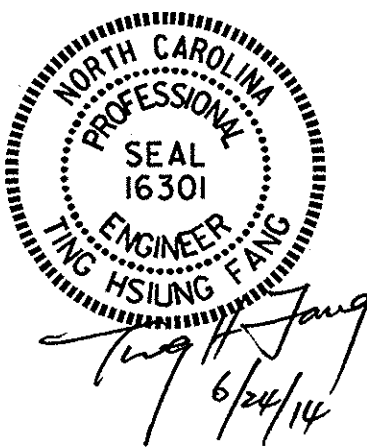
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

#	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



LRFR SUMMARY

PROJECT NO. BD-5108A
RANDOLPH COUNTY
STATION: 18+25.08 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-4
STANDARD LRFR SUMMARY FOR 100' BOX BEAM UNIT 90° SKEW (NON-INTERSTATE TRAFFIC)						
REVISIONS						TOTAL SHEETS 18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY :	S. WANCE	DATE :	4/11/14
CHECKED BY :	T. H. FANG	DATE :	6/20/14
DRAWN BY :	TMG	II/II	
CHECKED BY :	AAC	II/II	

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE $2\frac{1}{2}$ " Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKERS ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5500 PSI.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, $\frac{1}{2}$ " IN DEPTH, SHALL BE TOoled IN ALL EXPOSED FACES OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

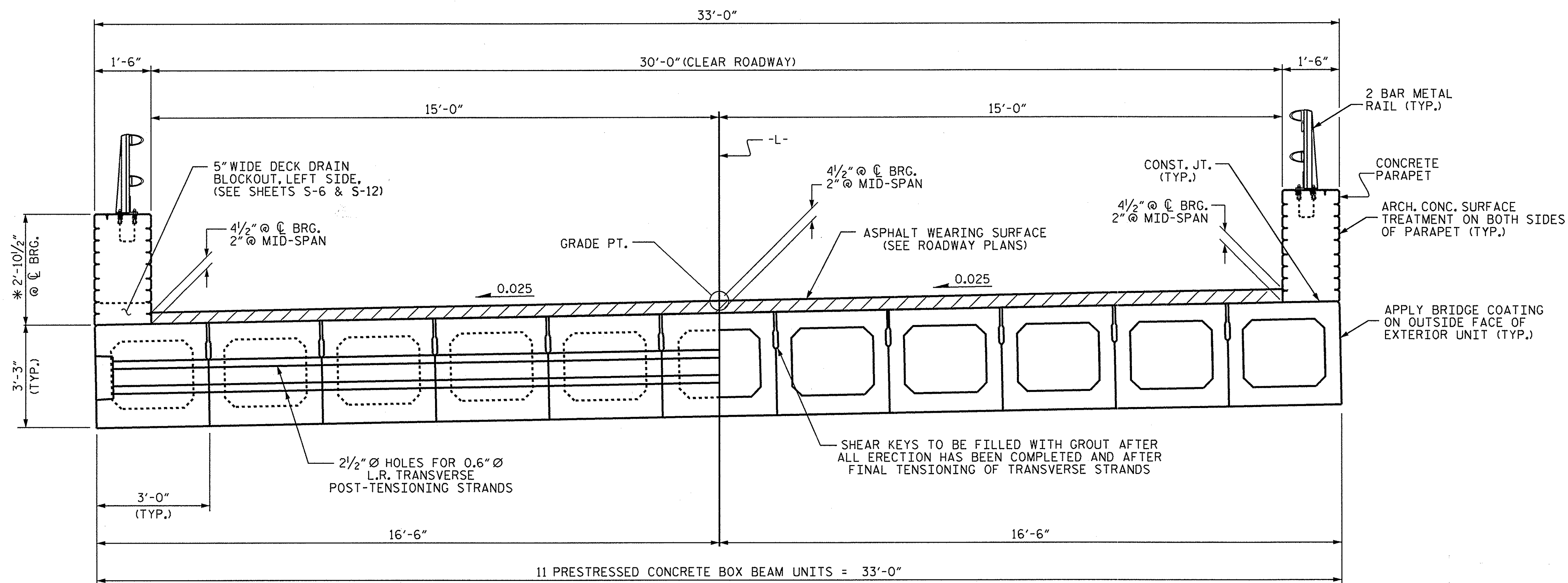
THE DRAIN OPENING AT THE GUTTERLINE SHALL BE 4" X 5". THE HEIGHT OF THE BLOCKOUT IN THE PARAPET SHALL EXTEND FROM THE TOP OF THE BOX BEAM UNIT TO THE TOP OF THE DRAIN OPENING.

APPLY EPOXY PROTECTIVE COATING TO EXTERIOR FACE OF THE EXTERIOR BOX BEAM UNITS THAT REQUIRE DRAINS IN THE BARRIER RAIL.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ARCHITECTURAL CONCRETE SURFACE TREATMENT, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL SUBMIT THE DETAILS OF THE PARAPET FORMLINER AND FORMWORK SUPPORT FOR APPROVAL PRIOR TO THE CASTING OF BOX BEAMS. NO DRILLING OF THE BOX BEAMS WILL BE ALLOWED.

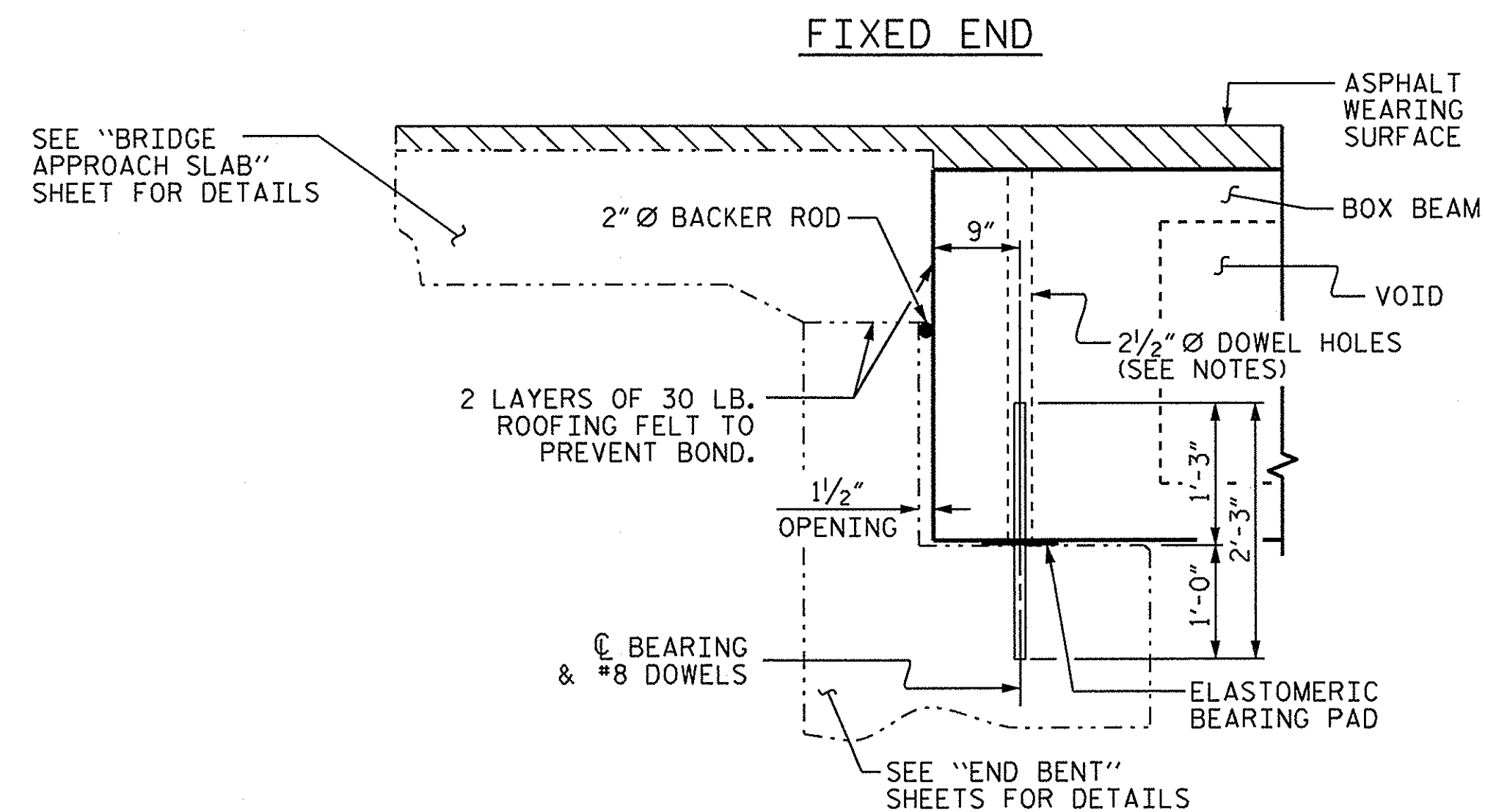


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

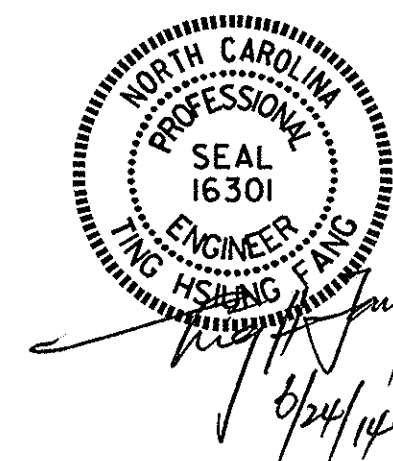
TYPICAL SECTION

* THE MAXIMUM PARAPET HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE PARAPET AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR PARAPET HEIGHT DETAILS AND ASPHALT THICKNESS, SEE "SECTION THRU PARAPET" ON SHEET S-12.



SECTION AT END BENT

THE CONTRACTOR SHALL SUBMIT THE DETAILS OF THE PARAPET FORMLINER AND FORMWORK SUPPORT FOR APPROVAL PRIOR TO THE CASTING OF BOX BEAMS. NO DRILLING OF THE BOX BEAMS WILL BE ALLOWED.



PROJECT NO. BD-5108A
RANDOLPH COUNTY
 STATION: 18+25.08 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD

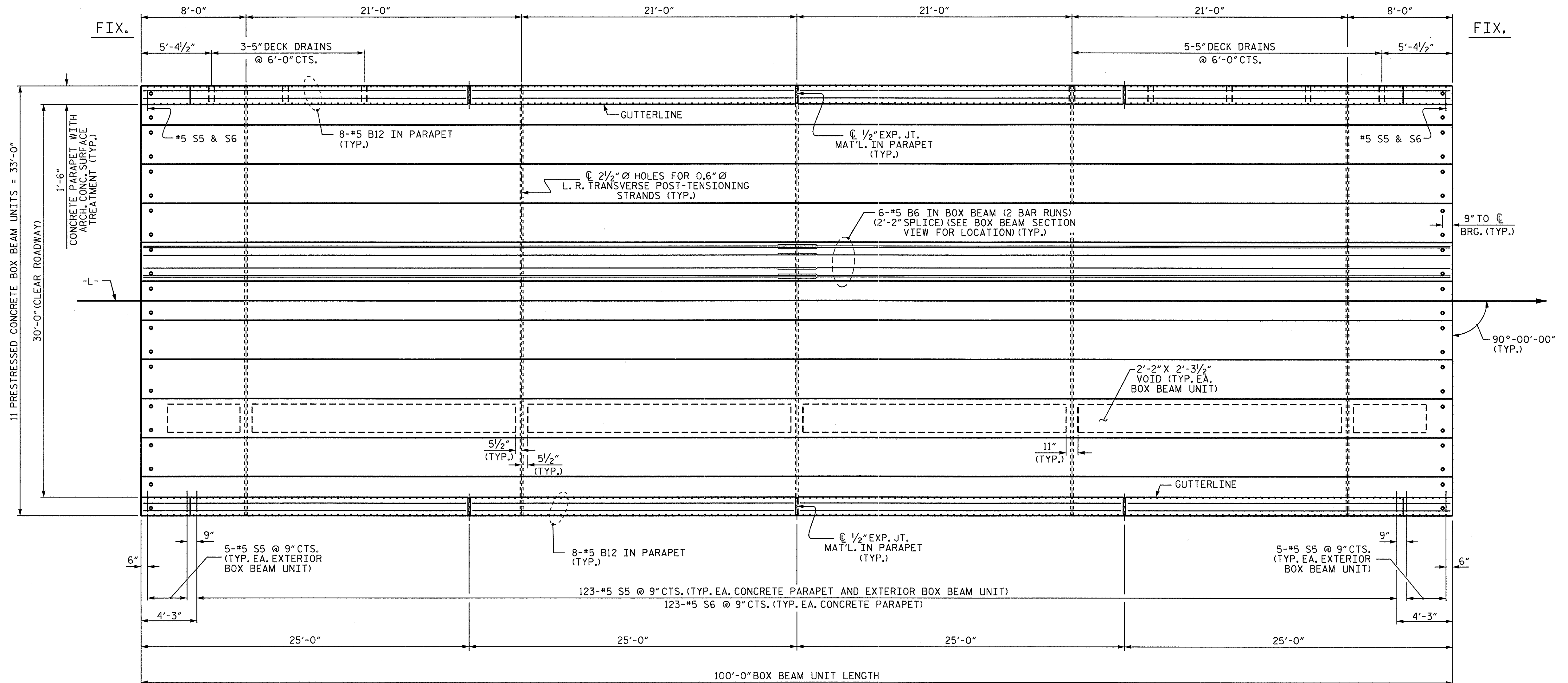
3'-0" X 3'-3"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-5
2			4			
TOTAL SHEETS						18

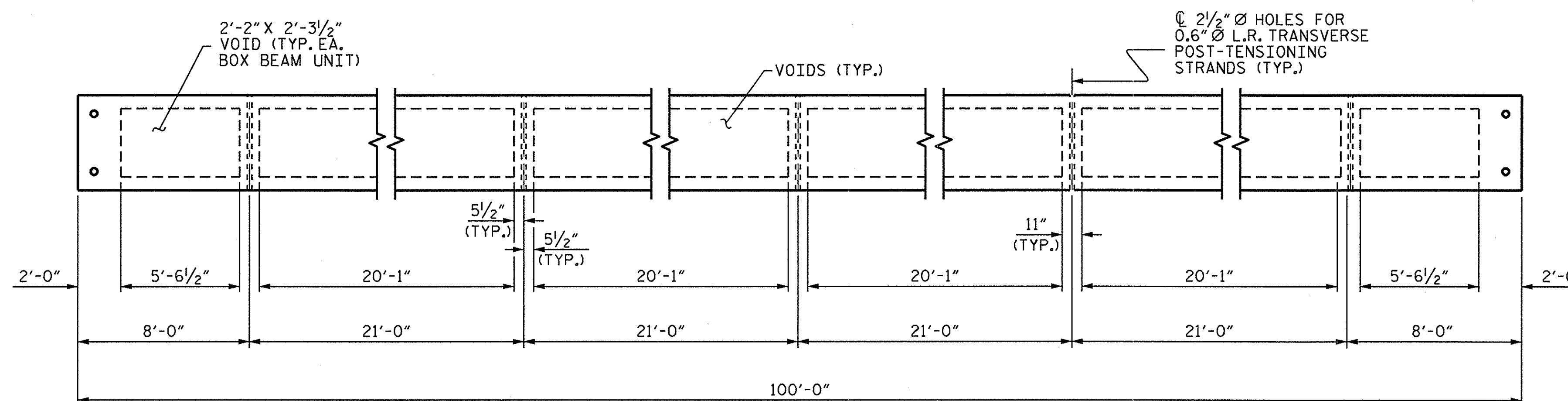
STD. NO. 39PCBB1.33

ASSEMBLED BY :	S. WANCE	DATE :	4/11/14
CHECKED BY :	T. H. FANG	DATE :	6/20/14
DRAWN BY :	DGE 8/II		
CHECKED BY :	TMG II/II		

24-JUN-2014 15:42
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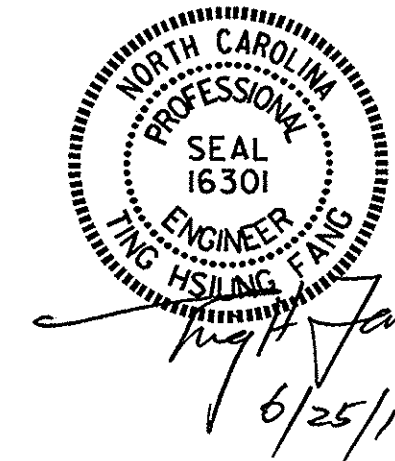
PLAN OF SPAN A



DIAPHRAGM AND VOID LAYOUT

PROJECT NO. BD-5108A
RANDOLPH COUNTY
 STATION: 18+25.08 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

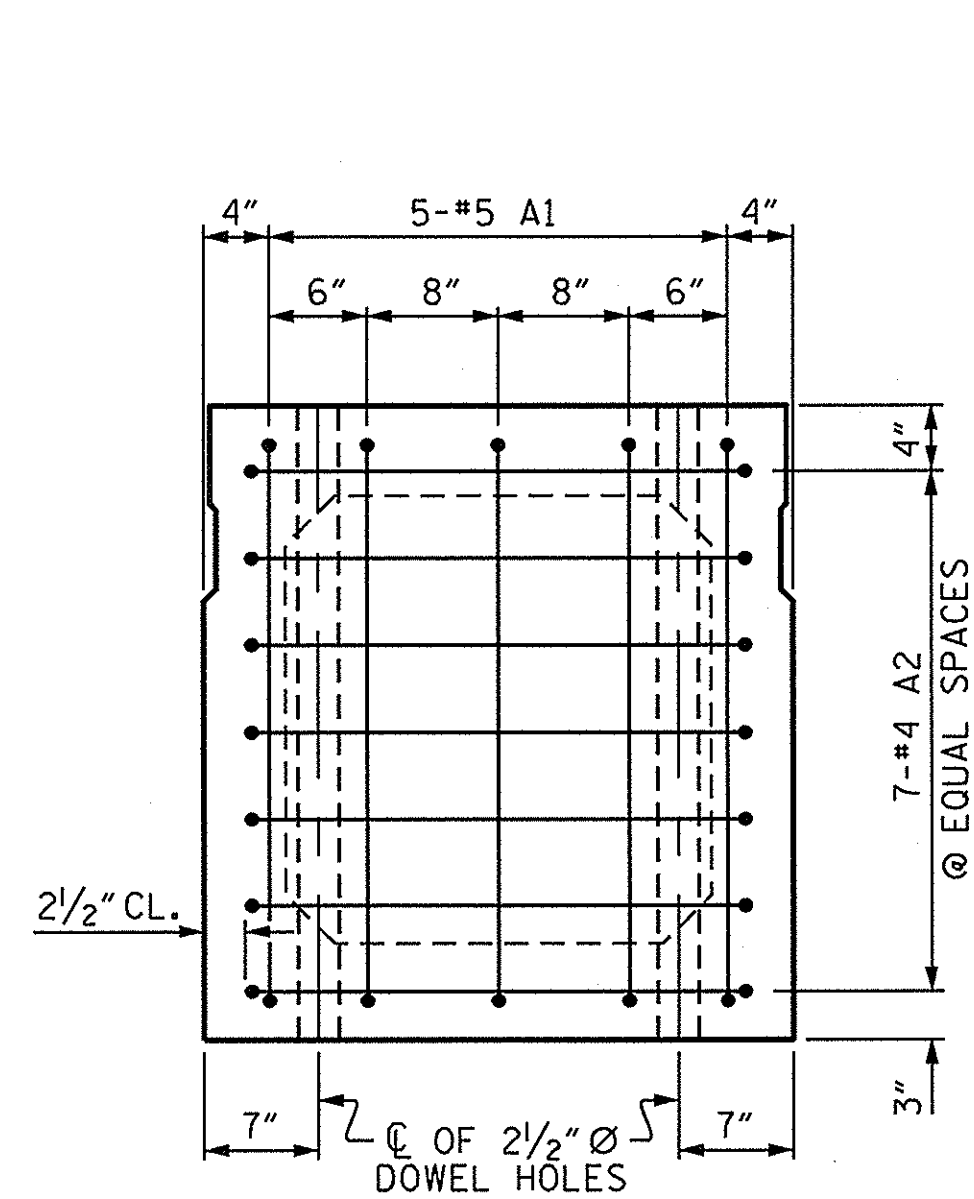
PLAN OF 100' UNIT
 30'-0" CLEAR ROADWAY
 90° SKEW
 SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-6
2			4			TOTAL SHEETS 18

ASSEMBLED BY :	S. WANCE	DATE :	4/11/14
CHECKED BY :	T. H. FANG	DATE :	6/20/14
DRAWN BY :	DGE	8/10	
CHECKED BY :	TMC	11/11	

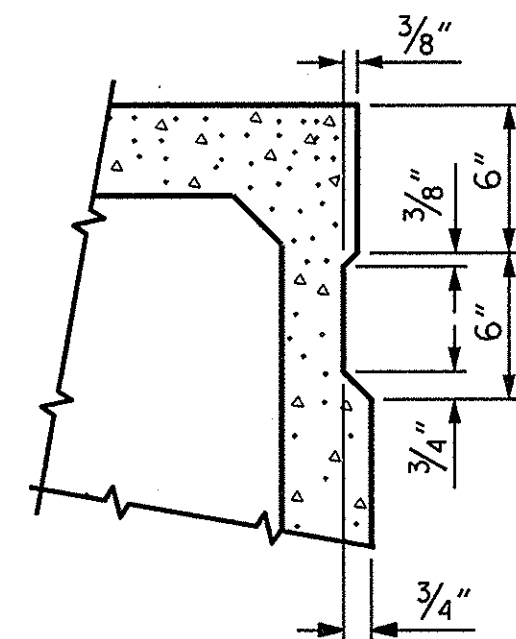
25-JUN-2014 09:07
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 clyokeley

STD.NO.39PCBB_33_90S_100L



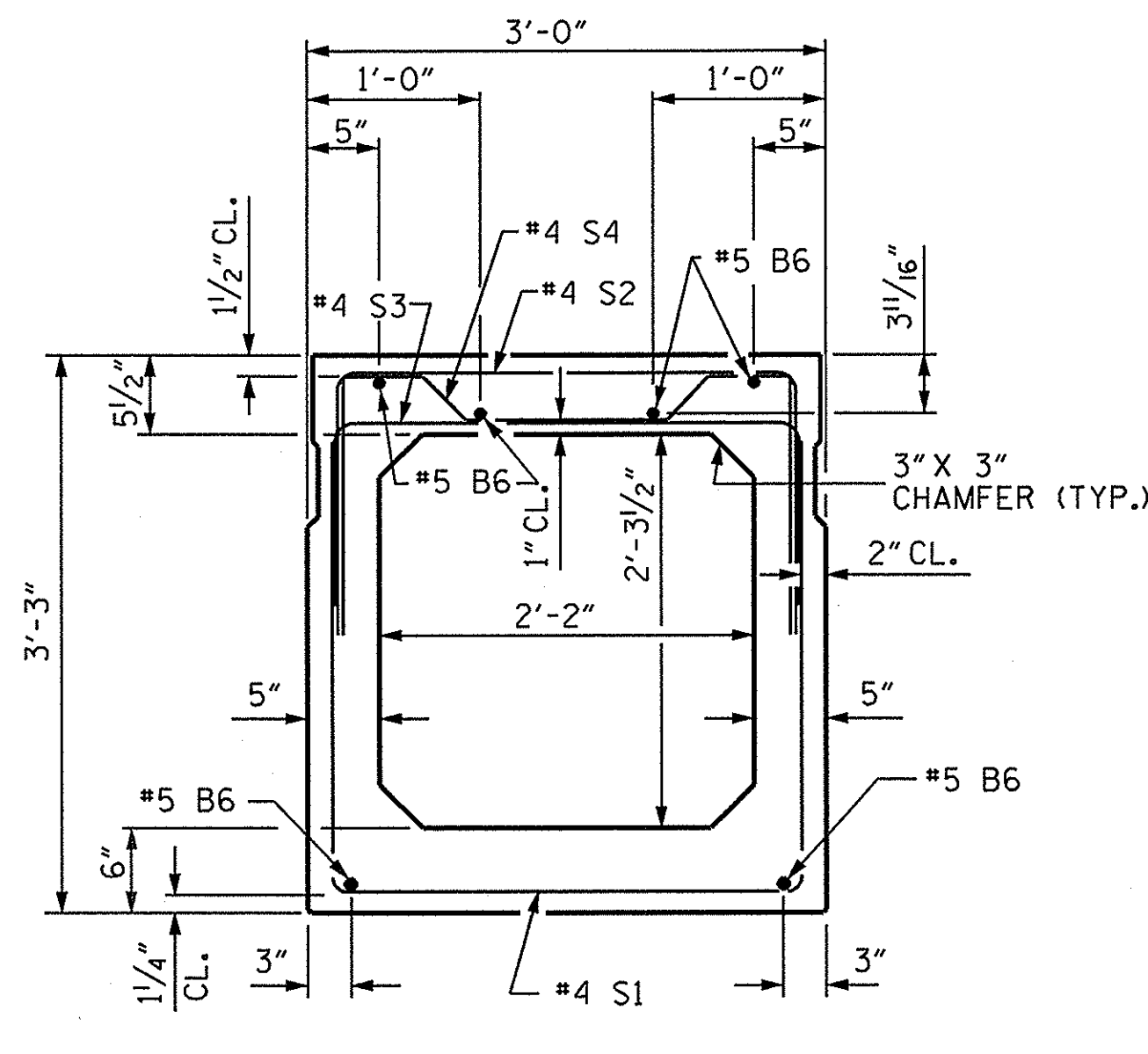
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



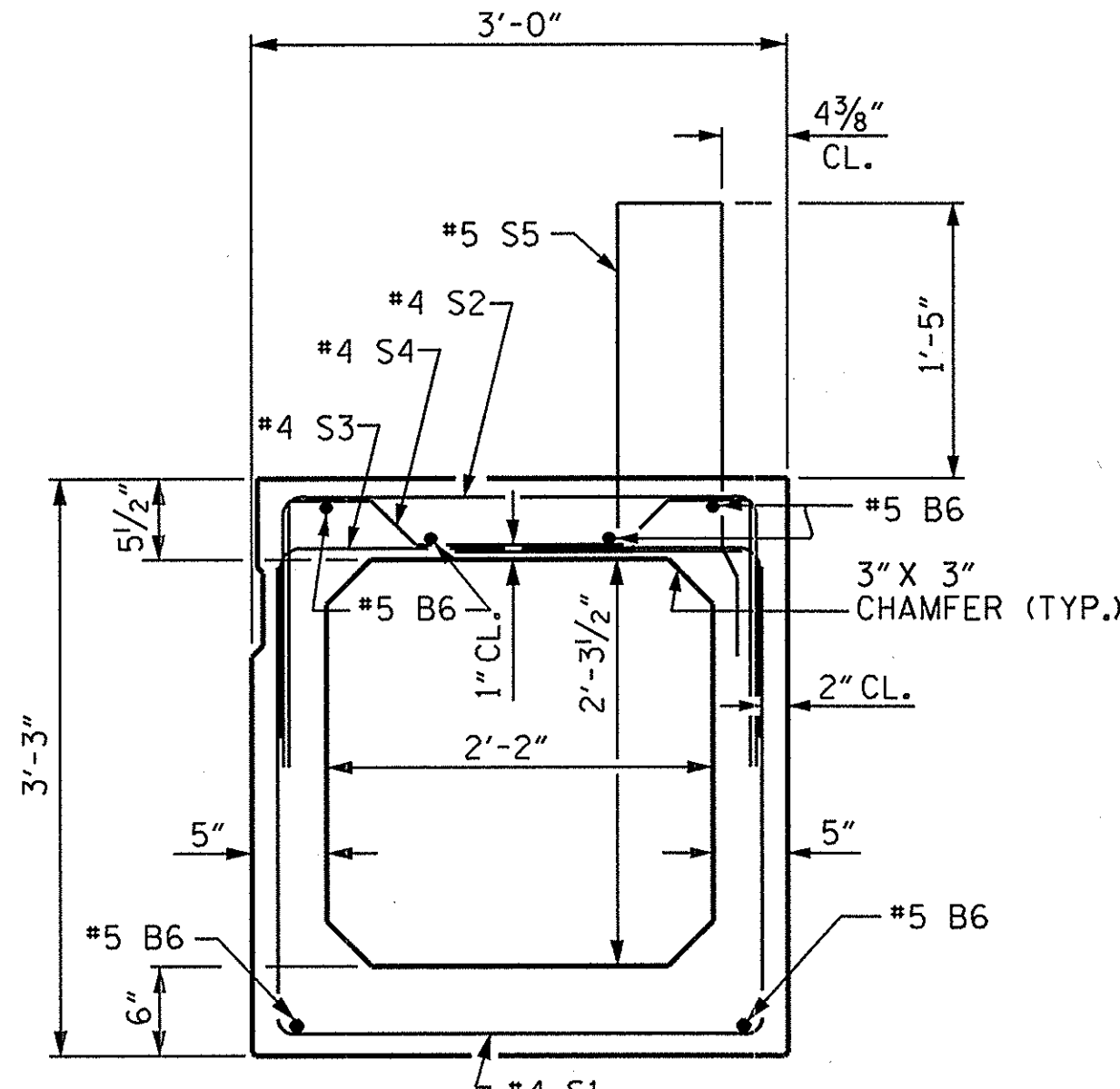
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.



INTERIOR BOX BEAM SECTION

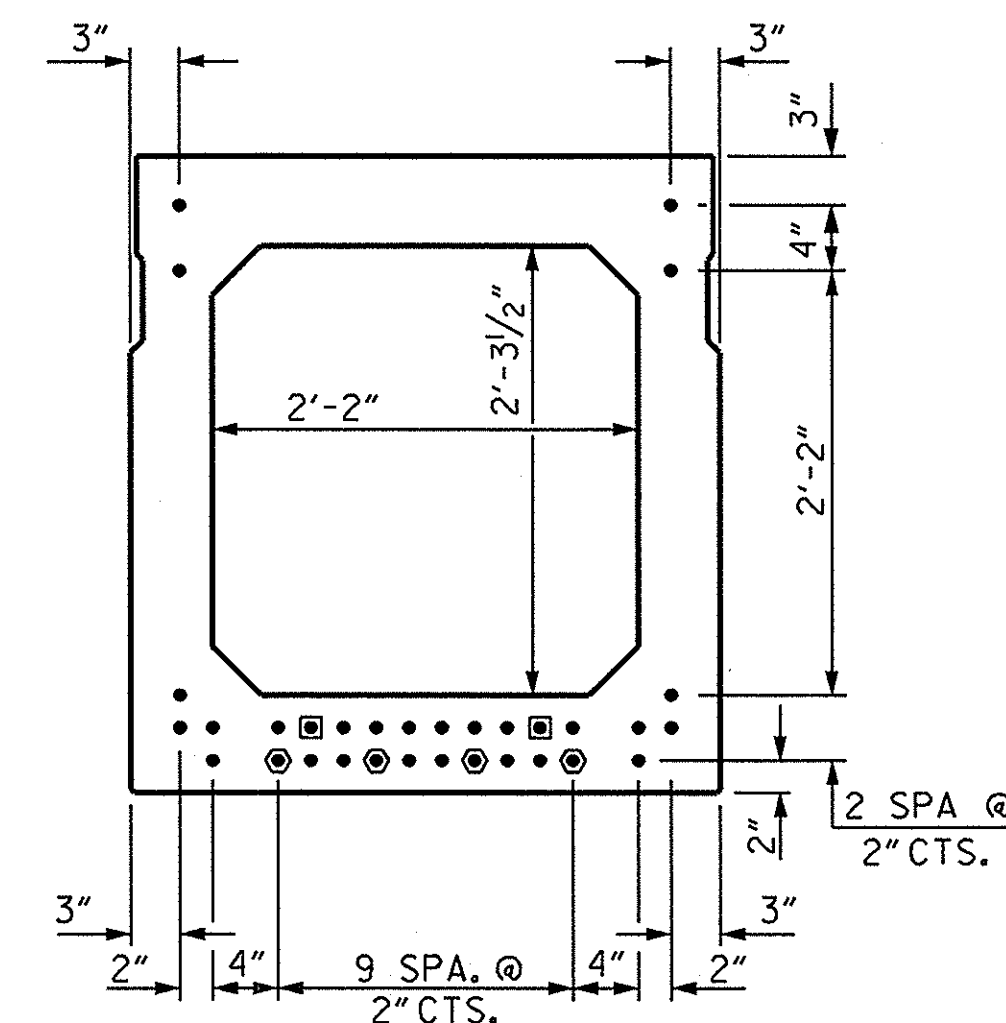
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)
(CONCRETE INSERT NOT SHOWN FOR CLARITY)

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

(32 STRANDS REQUIRED)

DEBONDING LEGEND

- FULLY BONDED STRANDS
- ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- ◻ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	100'-0"	200'-0"
INTERIOR B.B.	9	100'-0"	900'-0"
TOTAL	11		1100'-0"

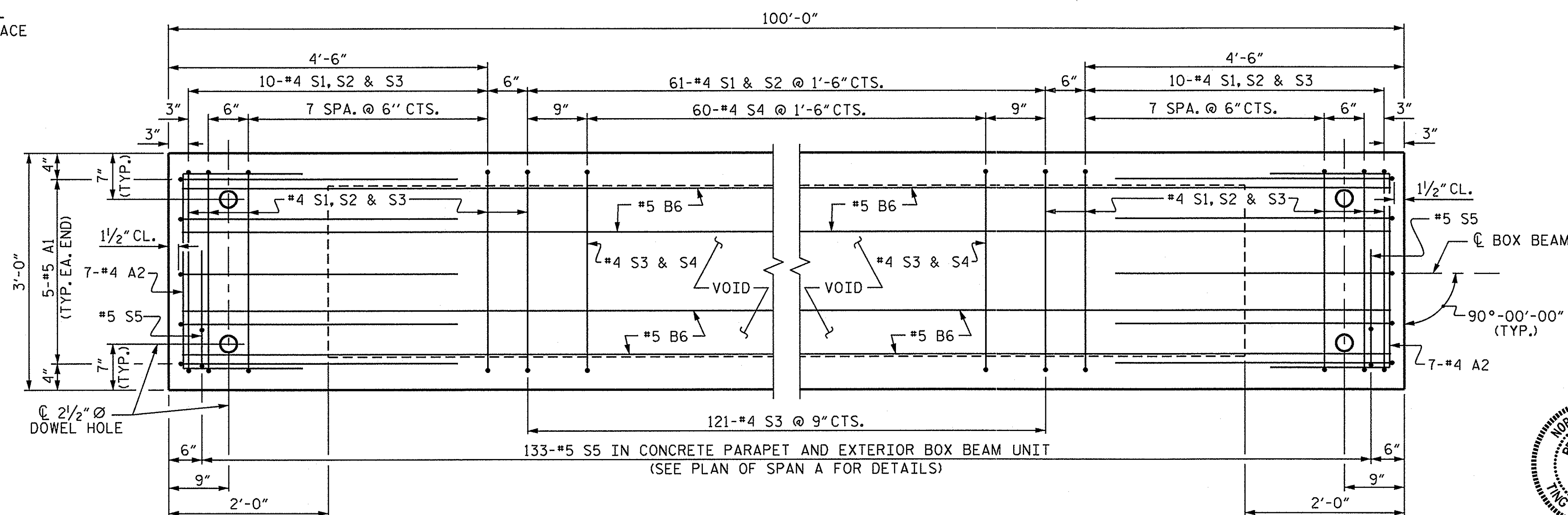
GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT

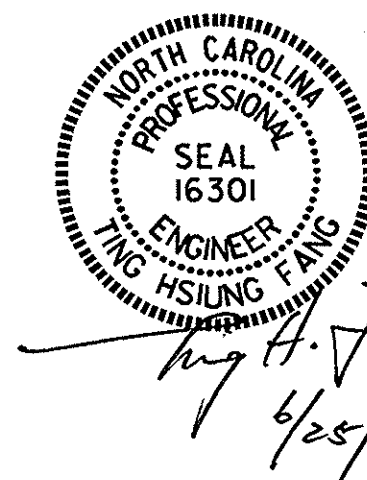
BILL OF MATERIAL FOR ONE BOX BEAM SECTION

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	7'-2"	75	7'-2"	75
A2	44	#4	2	5'-7"	164	5'-7"	164
B6	12	#5	STR	50'-11"	637	50'-11"	637
K1	15	#4	6	7'-2"	72	7'-2"	72
K2	10	#4	STR	2'-7"	17	2'-7"	17
S1	81	#4	3	8'-6"	460	8'-6"	460
S2	81	#4	3	5'-8"	307	5'-8"	307
S3	141	#4	3	4'-10"	455	4'-10"	455
S4	60	#4	4	5'-10"	234	5'-10"	234
* S5	133	#5	5	6'-1"	844	--	--
REINFORCING STEEL				2421	LBS.	2421	LBS.
* EPOXY COATED REINF. STEEL				844	LBS.		
7500 P.S.I. CONCRETE				19.6	CU. YDS.	19.4	CU. YDS.
0.6" Ø L.R. STRANDS				No. 32		No. 32	



PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE PLAN OF UNIT. FOR REINFORCING STEEL IN DIAPHRAGMS, SEE DIAPHRAGM DETAILS.



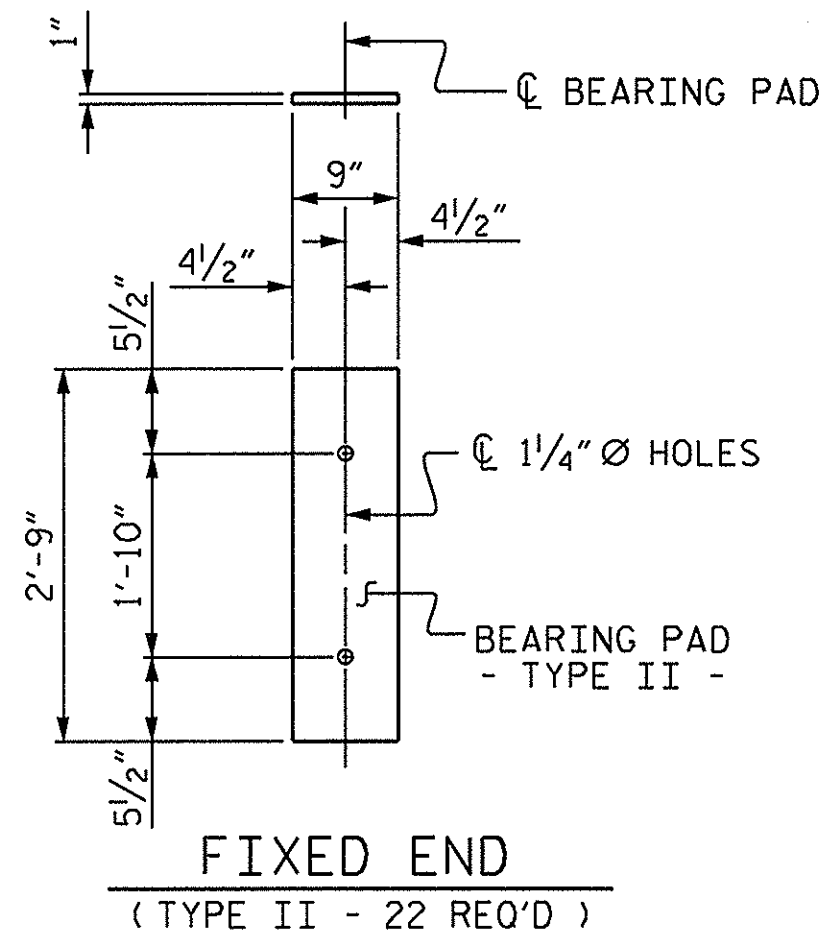
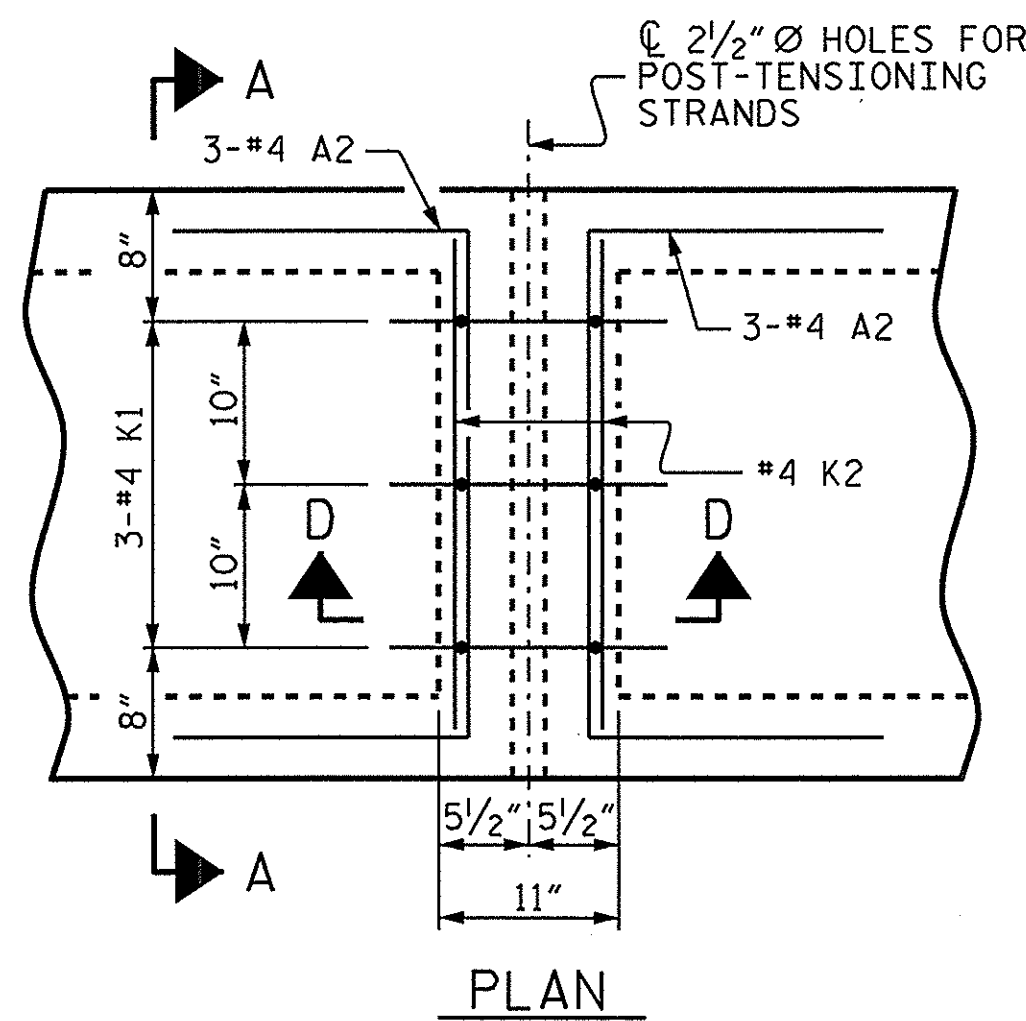
PROJECT NO. BD-5108A
RANDOLPH COUNTY
 STATION: 18+25.08 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD					
3'-0" X 3'-3" PRESTRESSED CONCRETE BOX BEAM UNIT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-7					TOTAL SHEETS 18

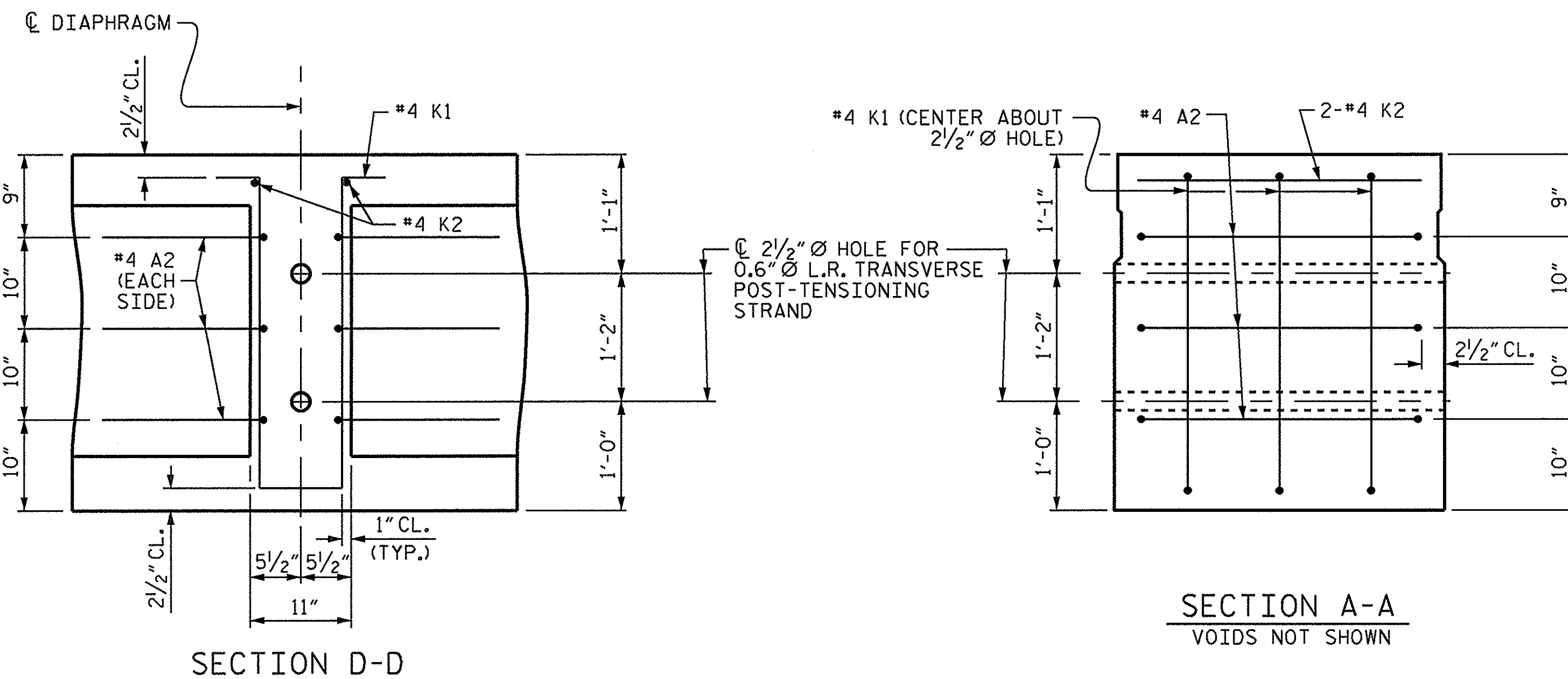
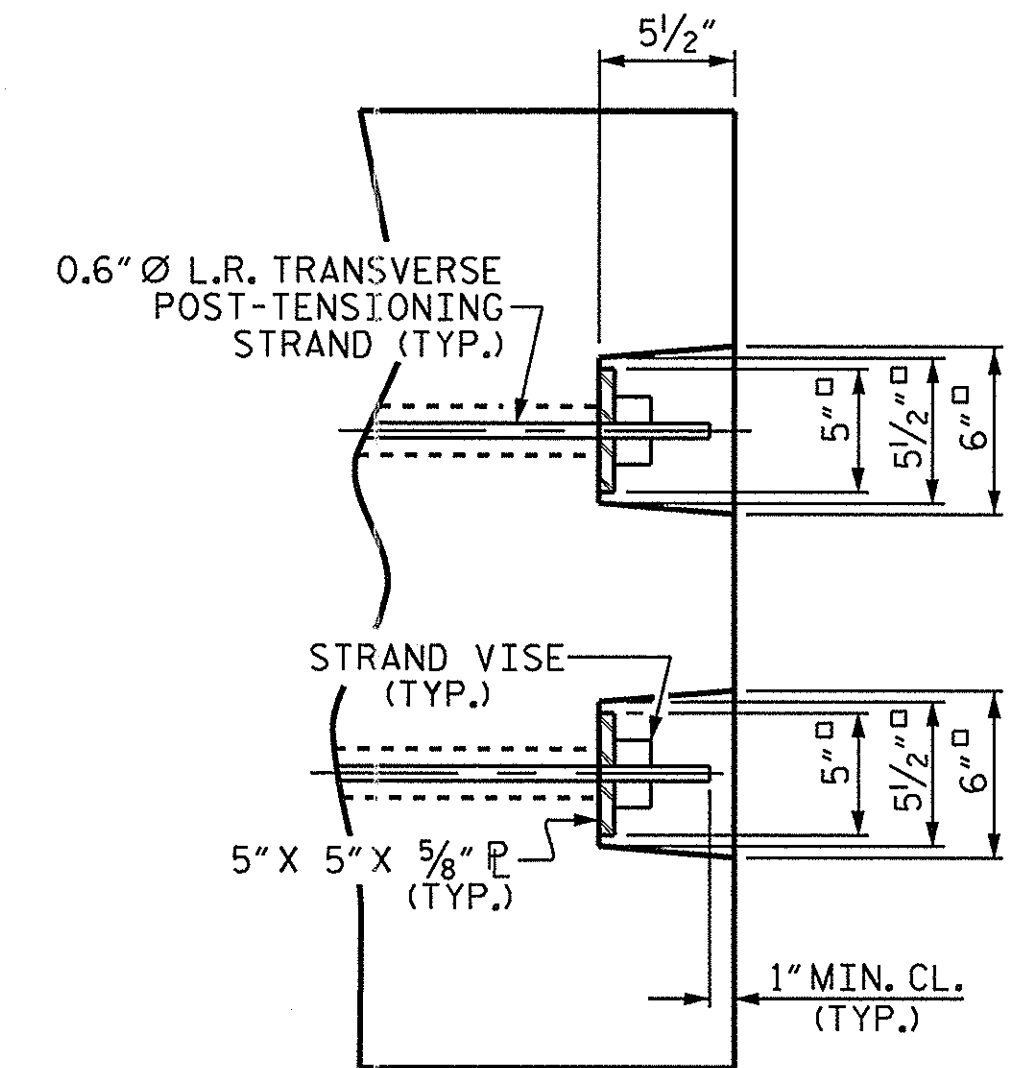
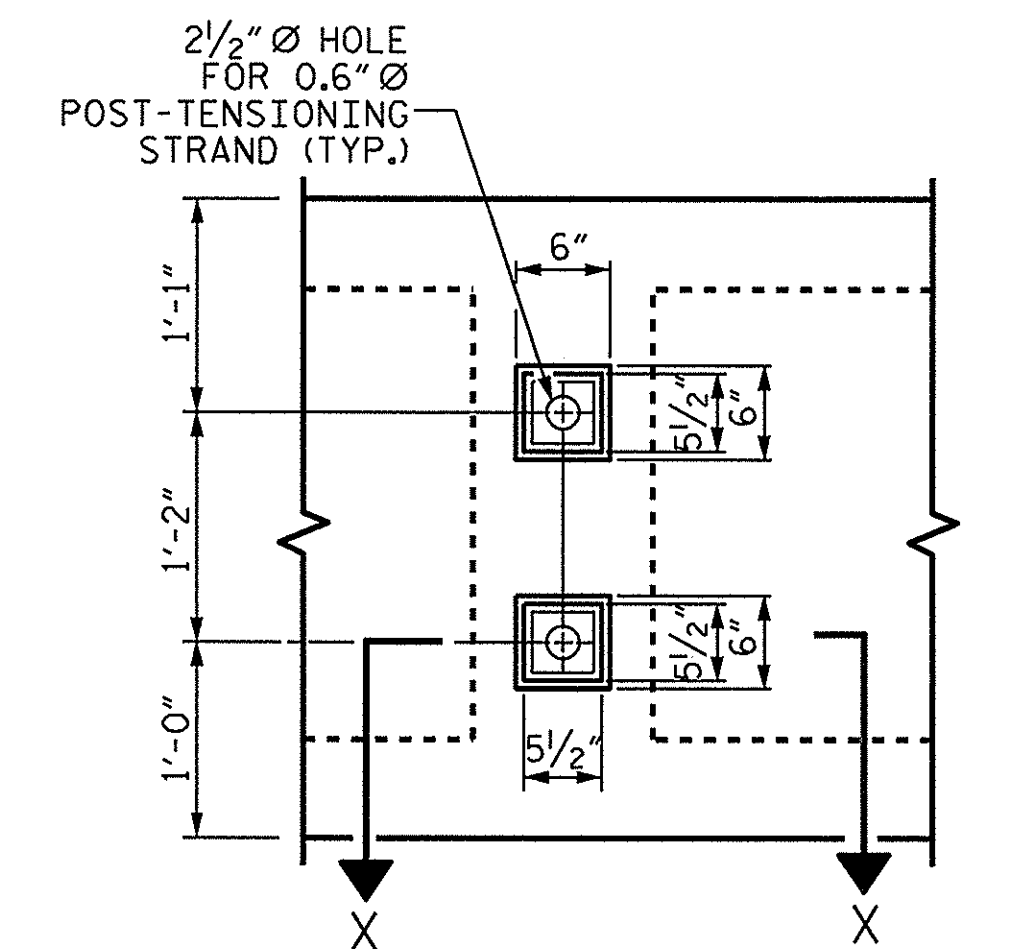
STD. NO. 39PCBB6_90S_100L

ASSEMBLED BY : S. WANCE	DATE : 4/11/14
CHECKED BY : T. H. FANG	DATE : 6/20/14
DRAWN BY : DGE II/II	
CHECKED BY : TMG II/II	



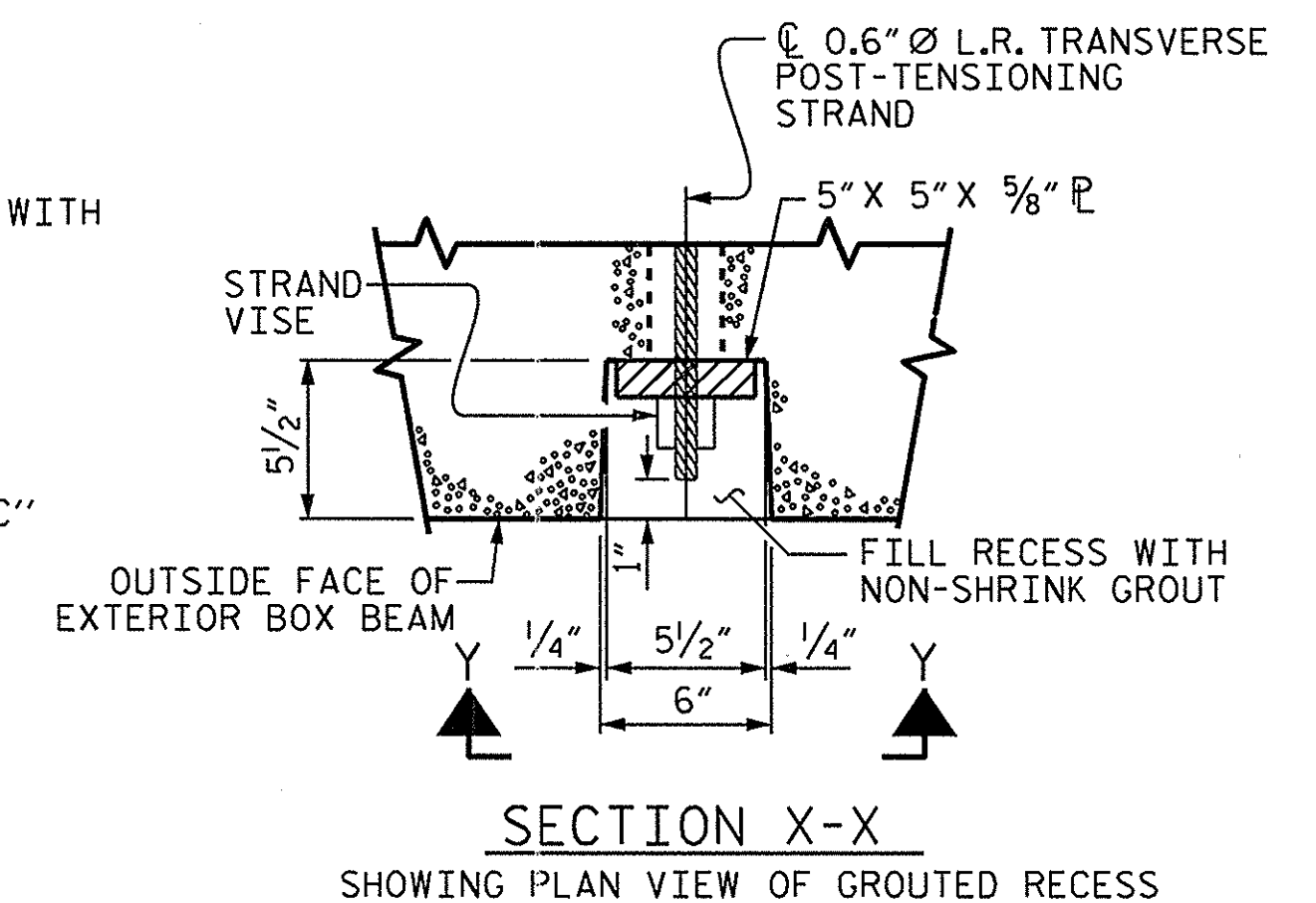
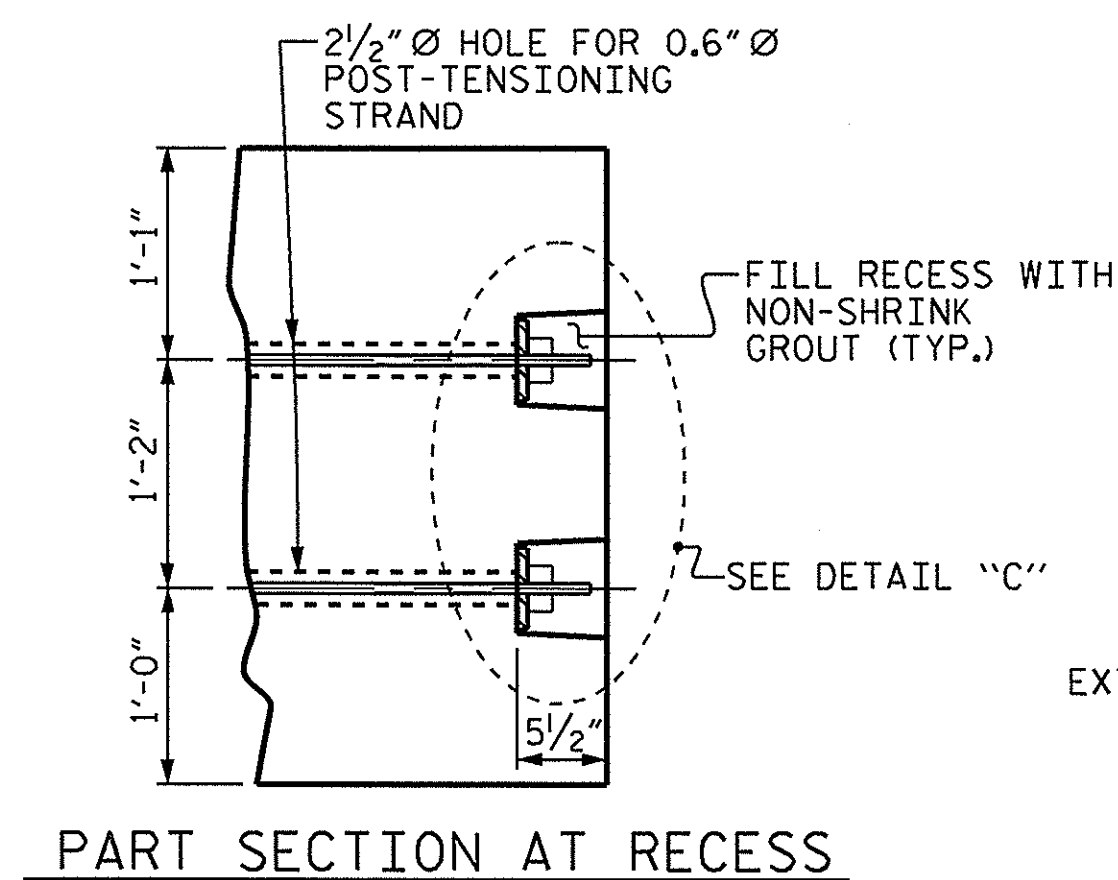
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.

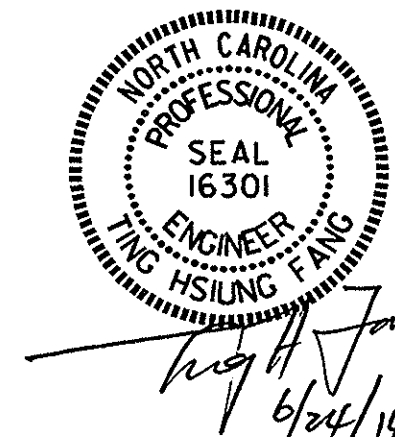


GROUTED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM

DEAD LOAD DEFLECTION AND CAMBER	
100' BOX BEAM UNIT (NC)	3'-0" X 3'-3"
CAMBER (SLAB ALONE IN PLACE)	3/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1" ↓
FINAL CAMBER	2 1/2" ↑

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. BD-5108A
RANDOLPH COUNTY
 STATION: 18+25.08 -L-

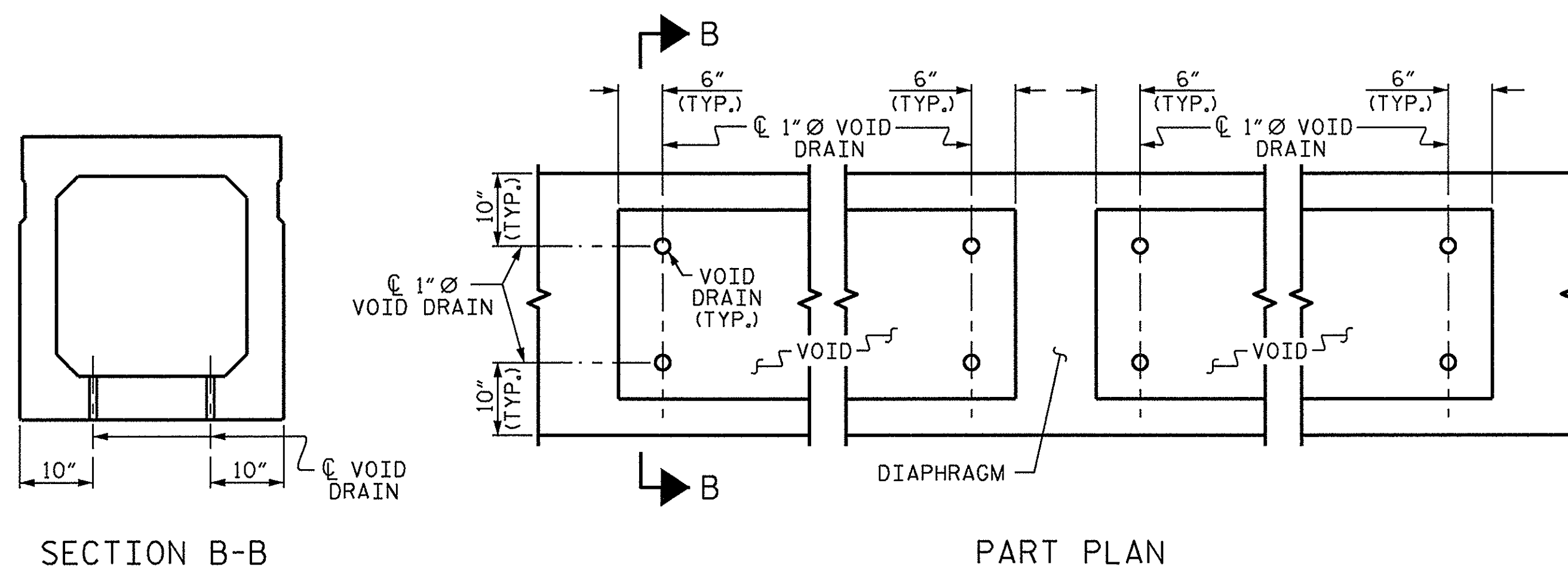


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 STANDARD
 3'-0" X 3'-3"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-8
2			4			

VOID DRAIN DETAILS

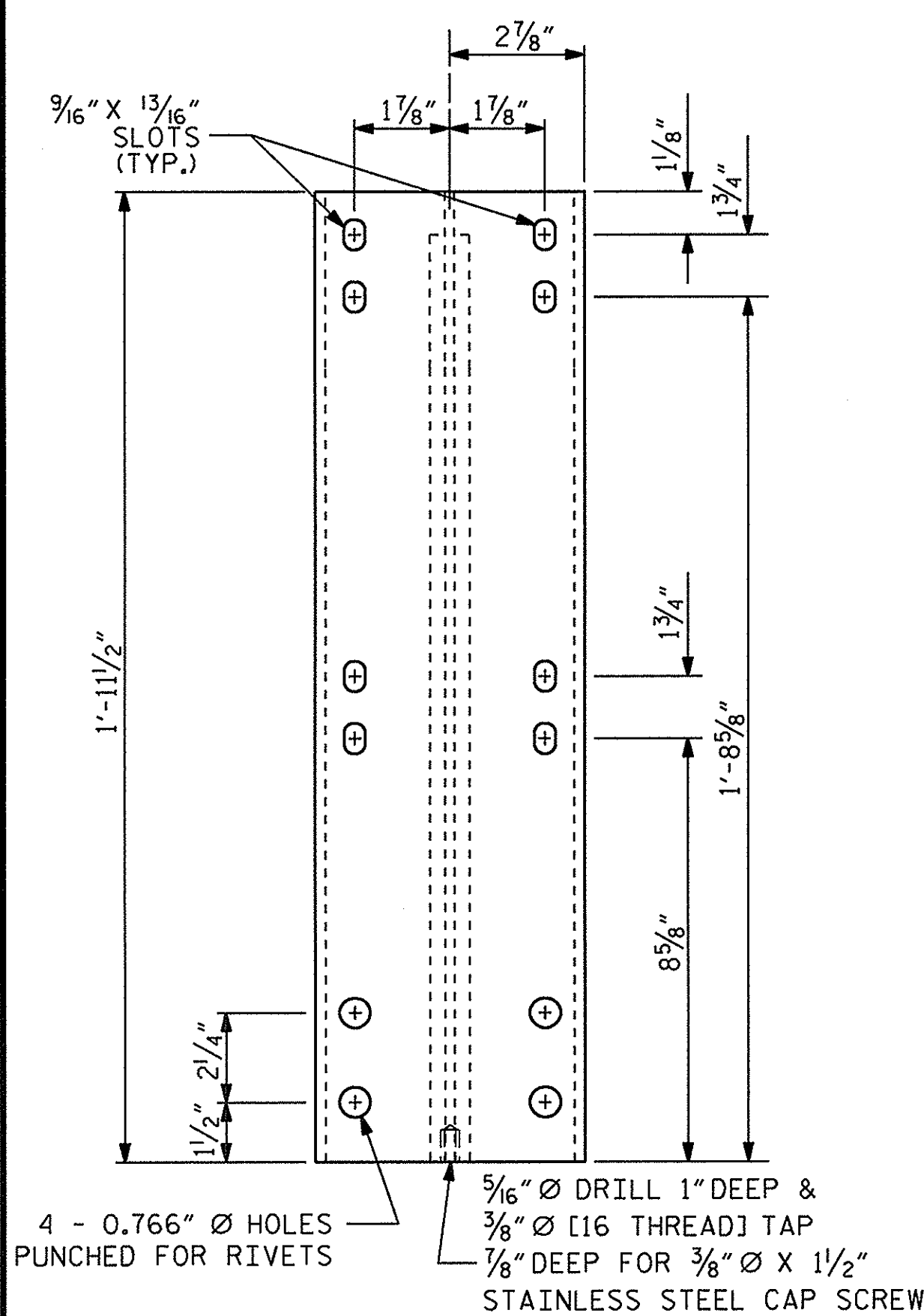
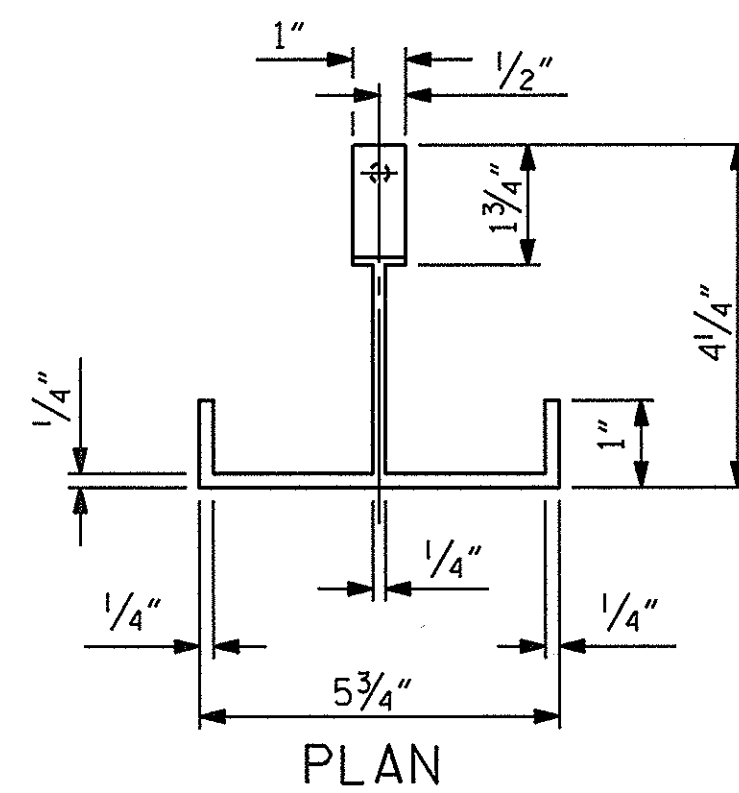
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)



ASSEMBLED BY : S. WANCE	DATE : 4/11/14
CHECKED BY : T. H. FANG	DATE : 6/20/14
DRAWN BY : DGE II/II	ADDED 7/11/05
CHECKED BY : TMG II/II	REV. 5/1/06
	REV. 10/1/11
	TLA/GM
	MAA/GM

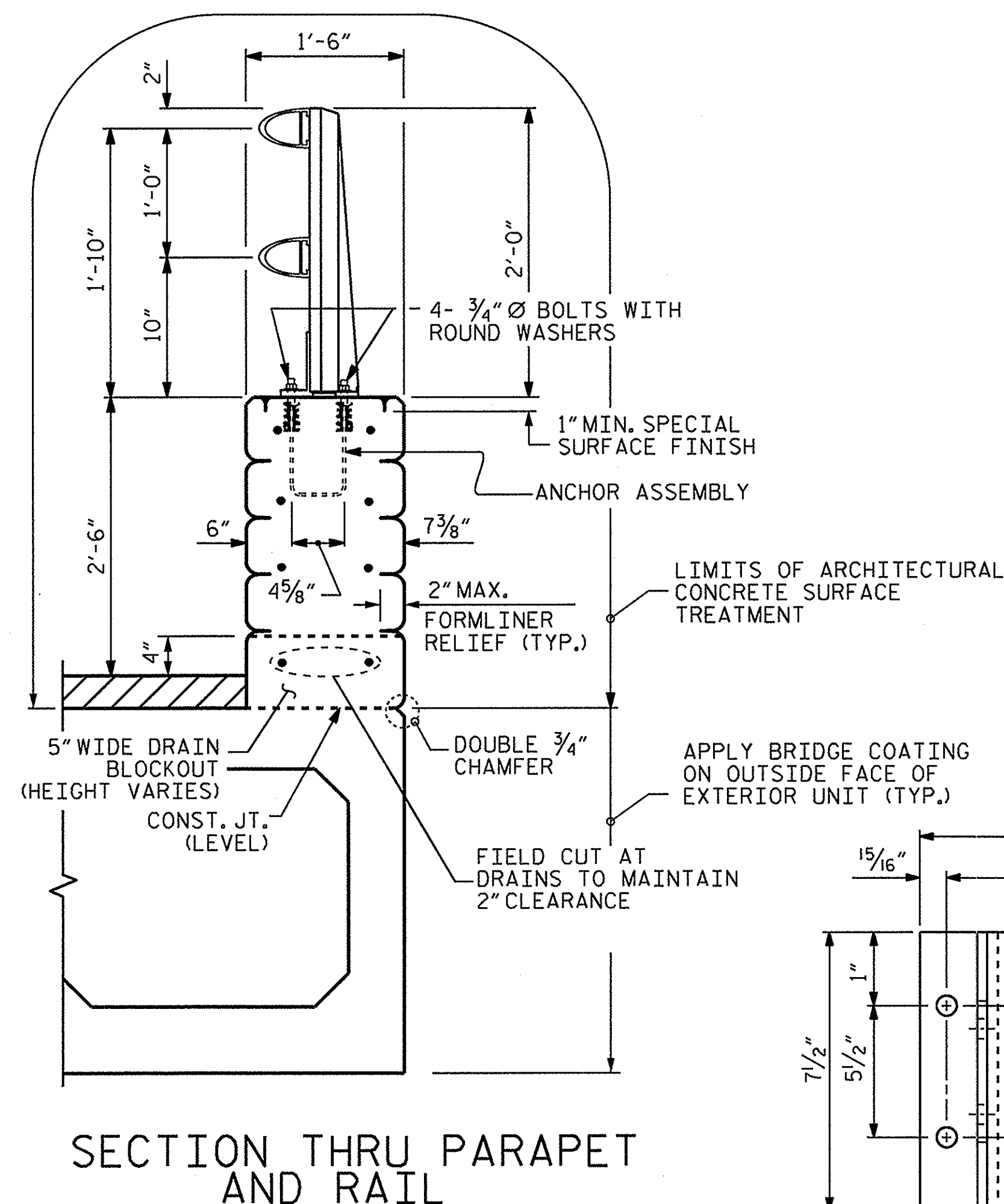


FOR ATTACHMENT OF METAL RAIL TO END POST, SEE SHEET S-11.

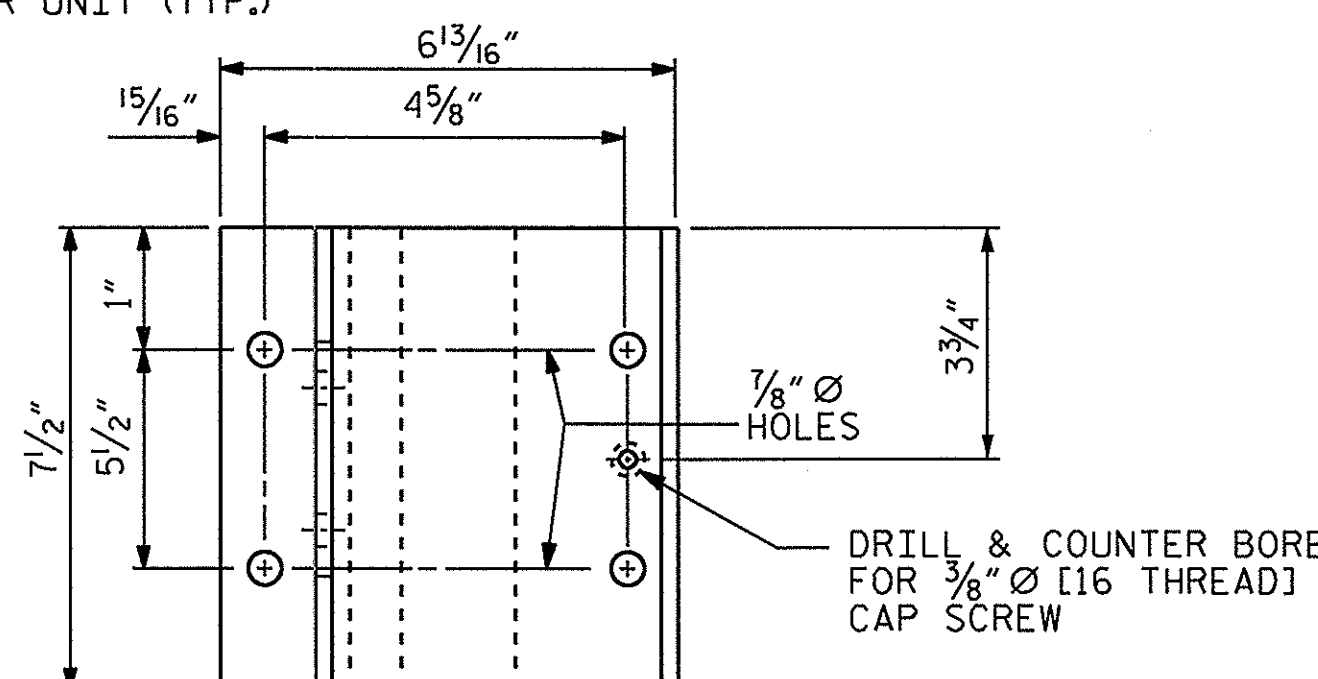


SIDE ELEVATION

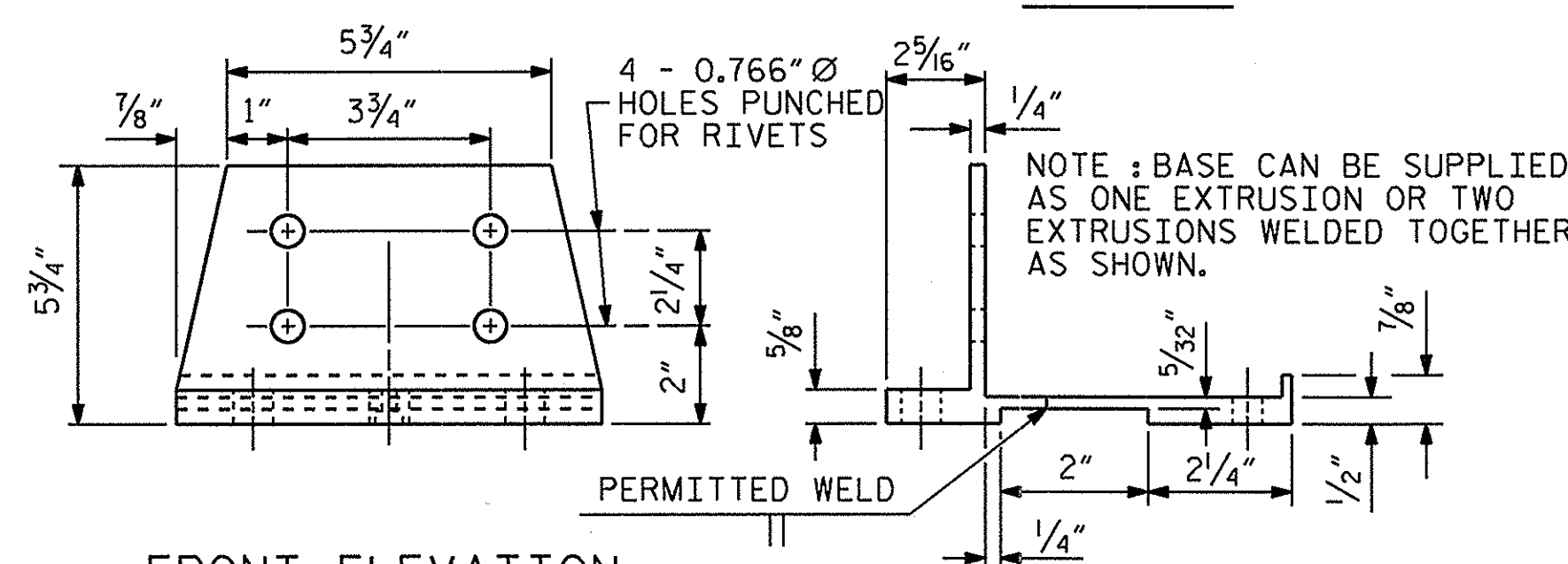
DETAILS OF POST



SECTION THRU PARAPET
AND RAIL

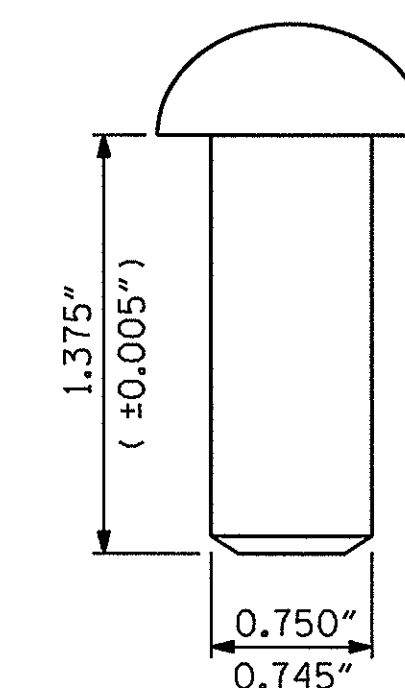


PLAN



SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL

ALUMINUM RAILS

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

ANODIZING

AFTER A SHADE OF BRONZE HAS BEEN SELECTED FOR THE RAILING, SUBMIT A SAMPLE OF COMPATIBLE COLOR ACRYLIC HOUSE PAINT TO THE ENGINEER FOR APPROVAL. MATCH THE PAINT WITH THE ANODIZED RAIL COLOR AS CLOSELY AS POSSIBLE. AFTER ERECTION OF THE ANODIZED RAIL, PAINT WITH A MINIMUM OF TWO COATS ALL EXPOSED ANCHOR BOLTS, NUTS, WASHERS, MACHINE SCREWS, CAP SCREWS, BOLTS, BUILT UP ANGLES AND ANY OTHER NON-BRONZE METAL IN THE RAIL ASSEMBLIES. SUPPLYING PAINT AND PAINTING MISCELLANEOUS ELEMENTS OF METAL RAIL IS CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE METAL RAIL.

GENERAL NOTES

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

PAY LENGTH = 185.0 LIN. FT.

PROJECT NO. BD-5108A
RANDOLPH COUNTY
 STATION: 18+25.08 -L-

SHEET 1 OF 3

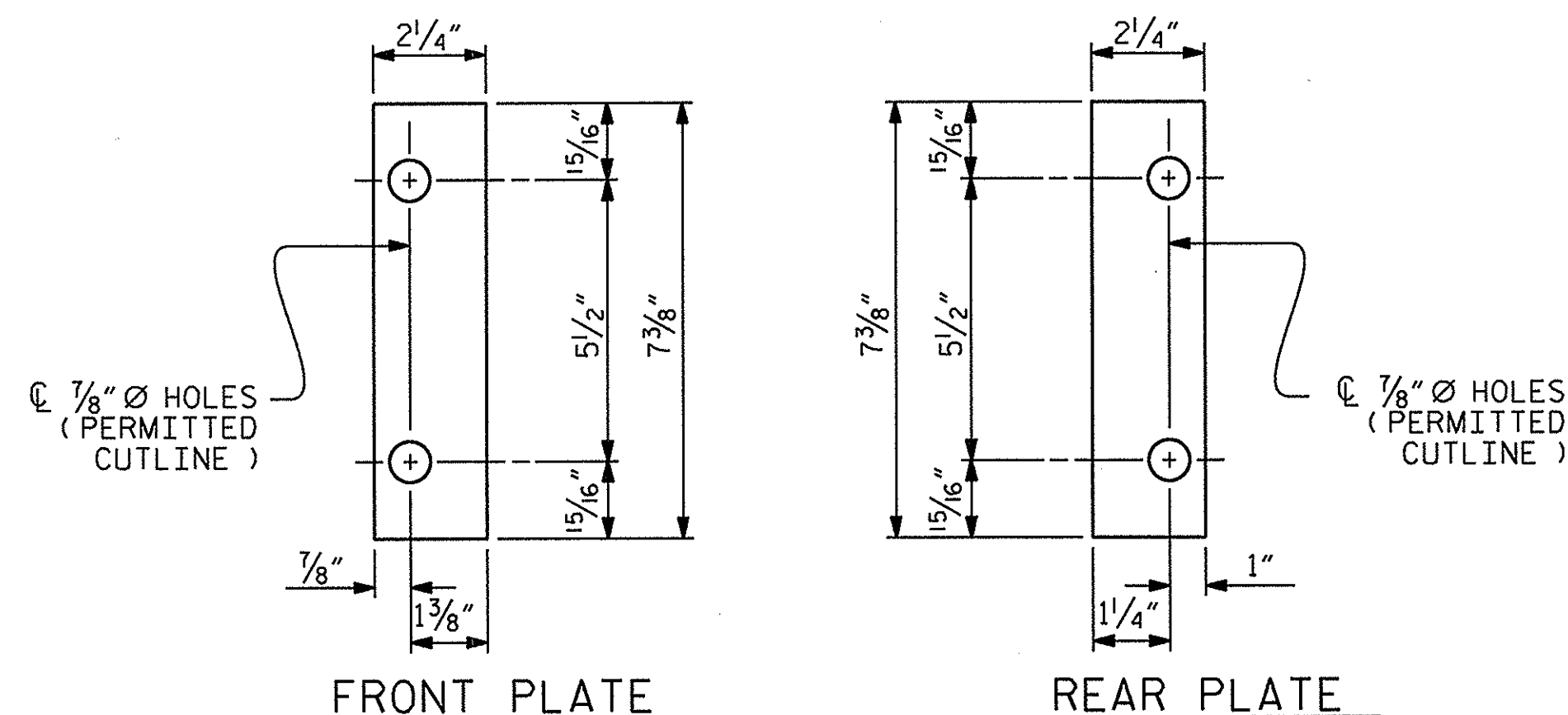
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

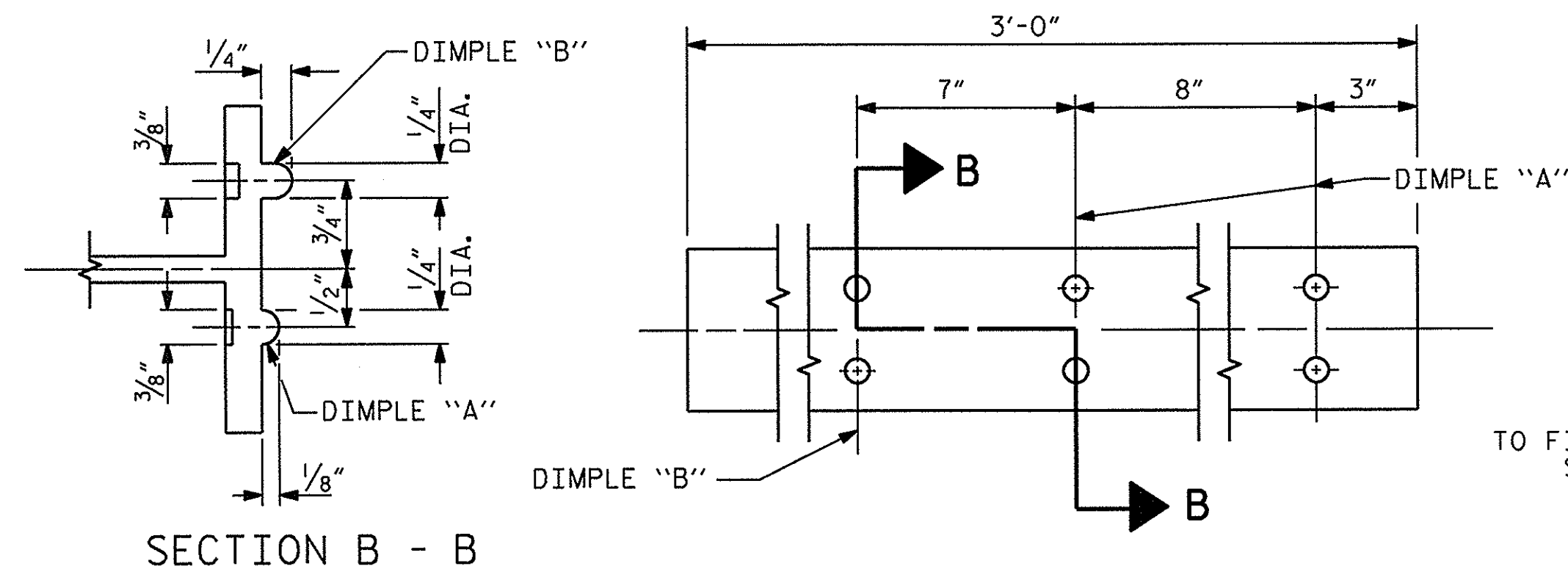
2 BAR METAL RAIL

REVISIONS						SHEET NO. S-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			

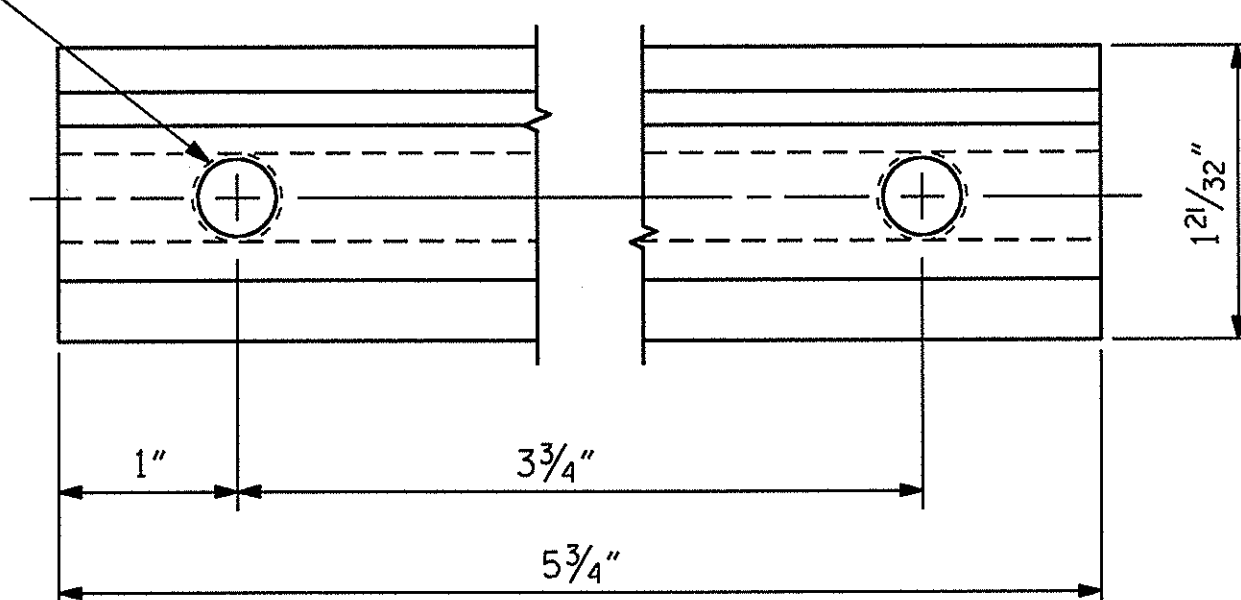
STD. NO. BMR3



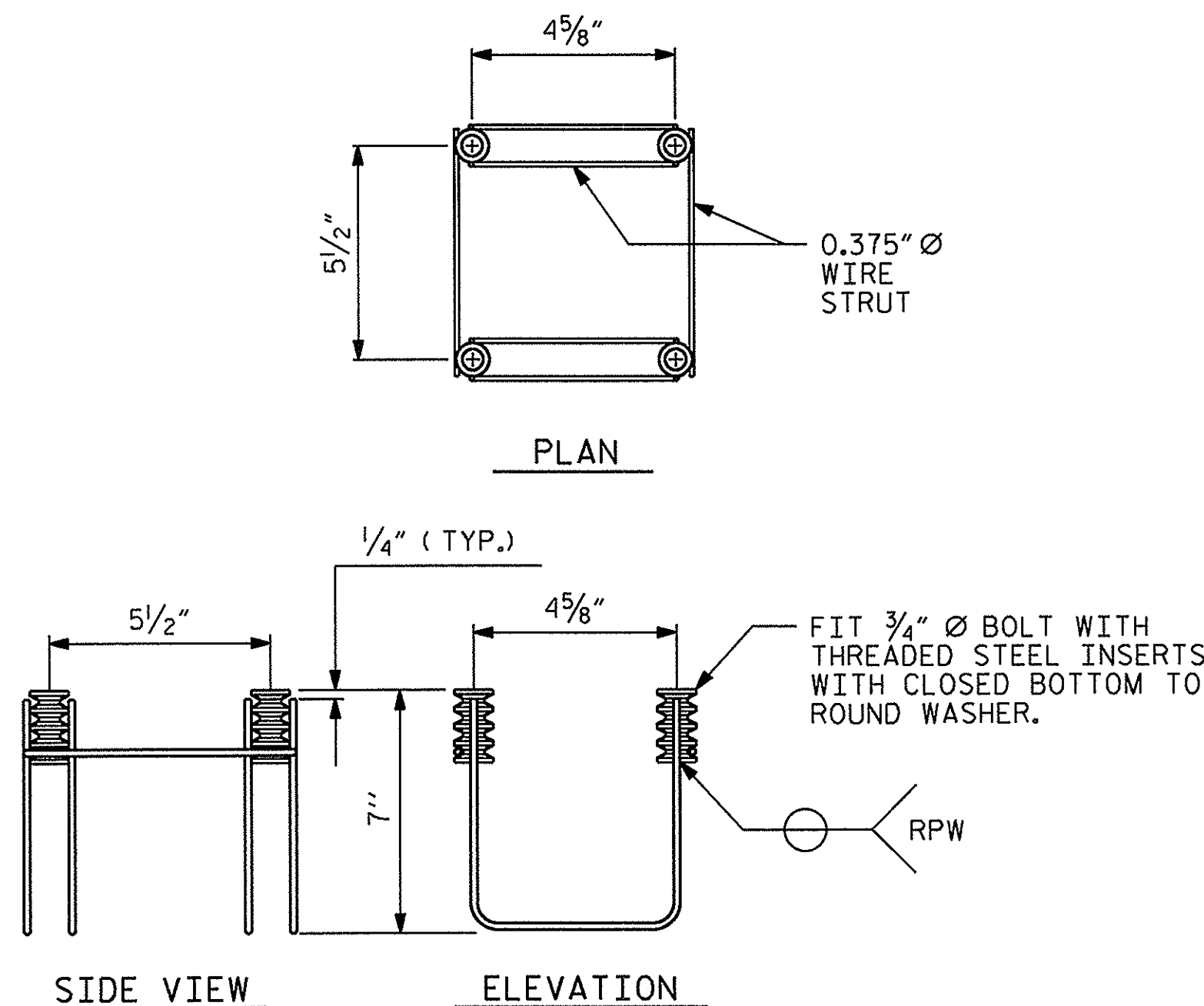
SHIM DETAILS



1/2" Ø [13 THREAD] HOLE FOR 1/2" Ø X 1" STAINLESS STEEL HEX HEAD CAP SCREW & 1/16" O.D., 17/32" I.D., 1/16" THICK WASHER (TYP.)



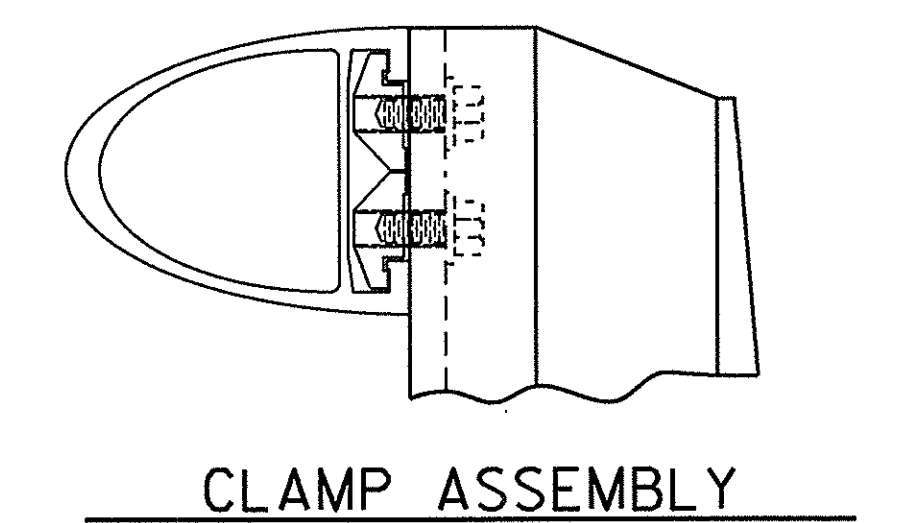
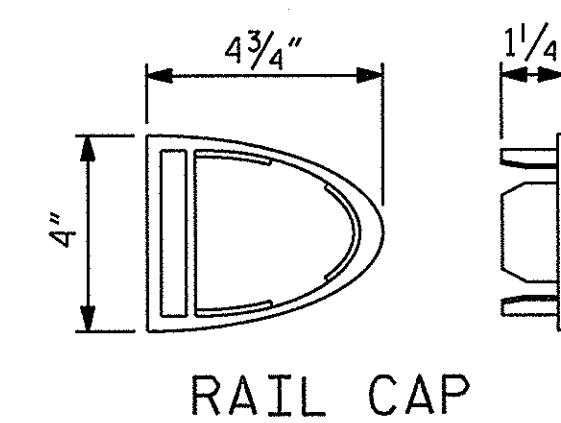
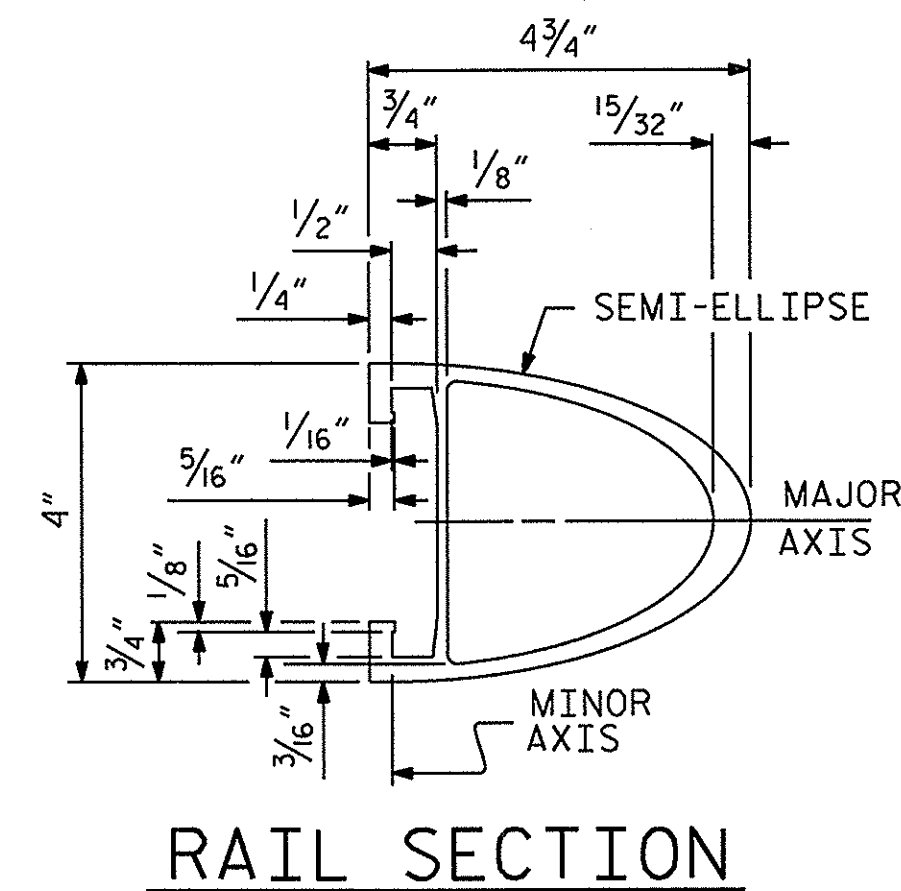
CLAMP BAR DETAIL (4 REQUIRED PER POST)



MINIMUM LENGTH OF THREADS IN INSERT (FERRULE): 1 3/4"

4-BOLT METAL RAIL ANCHOR ASSEMBLY

(36 ASSEMBLIES REQUIRED)



NOTES

STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

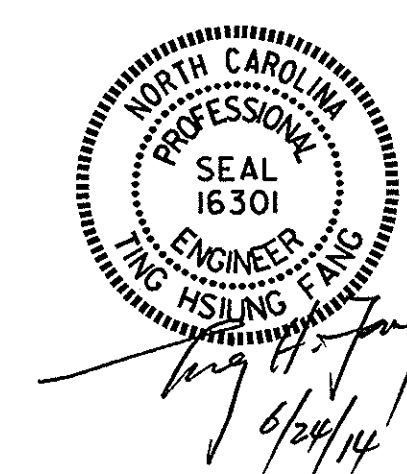
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

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SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

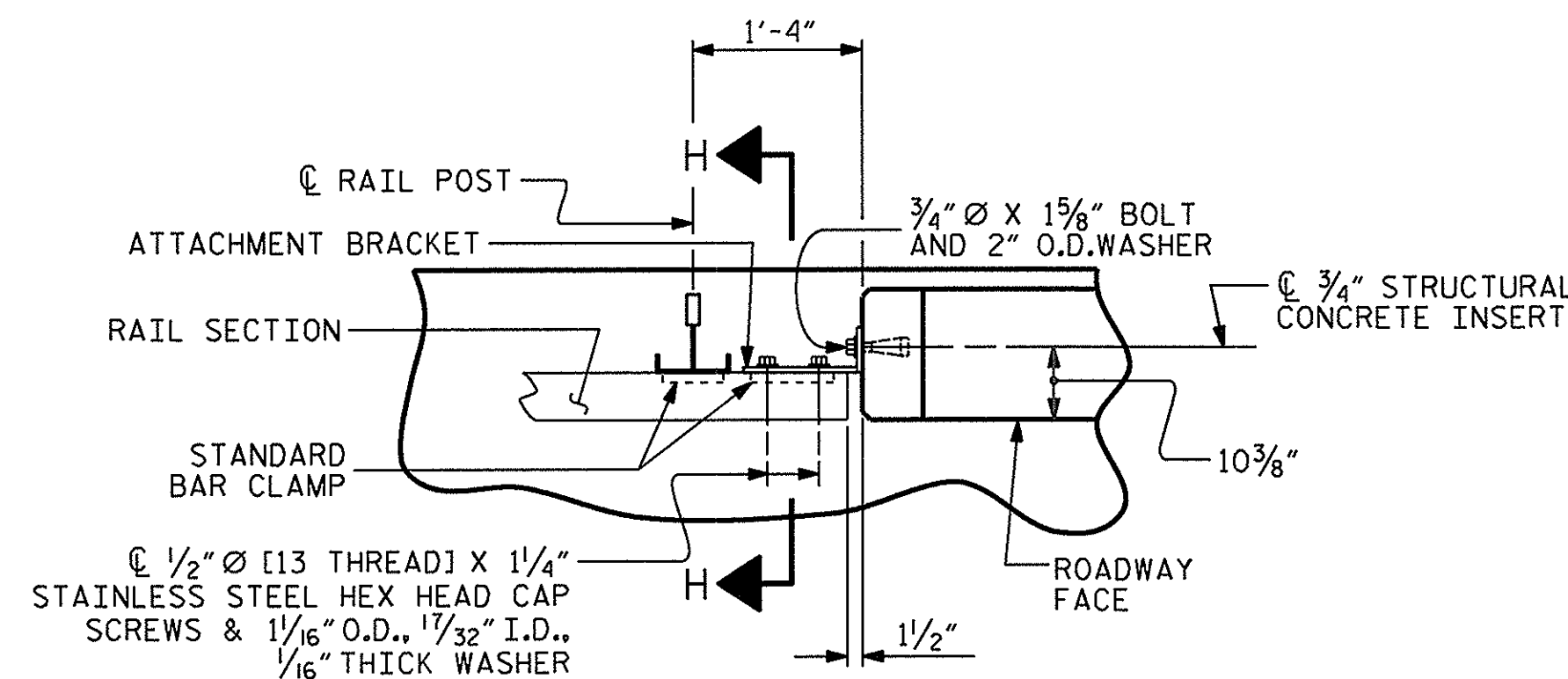
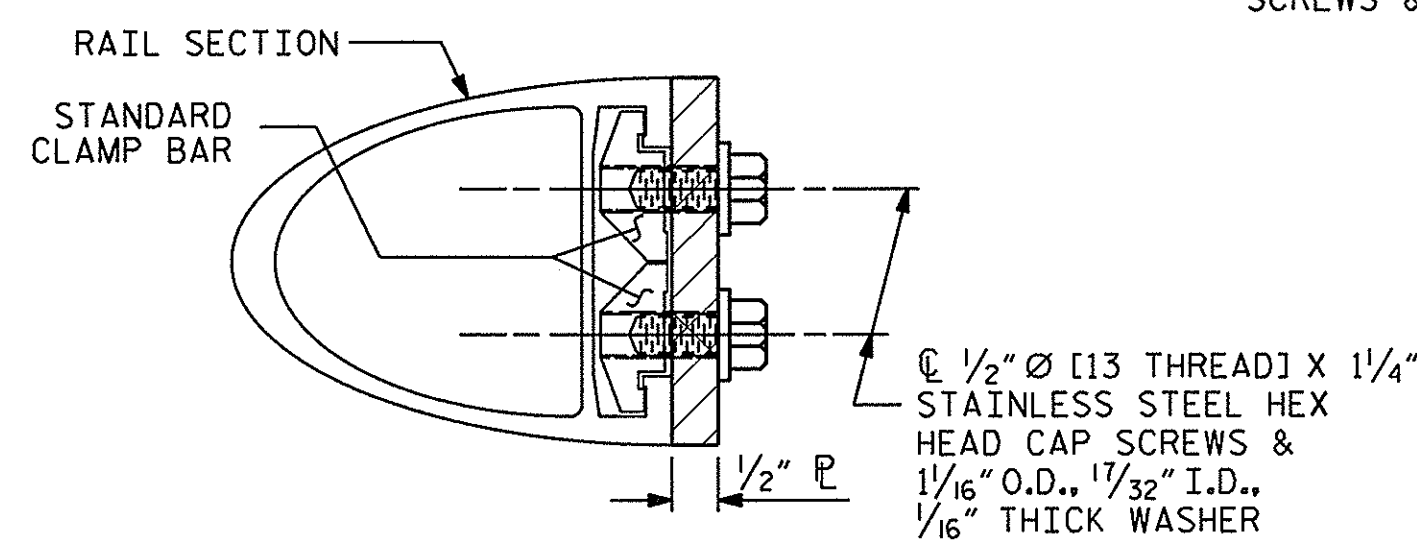
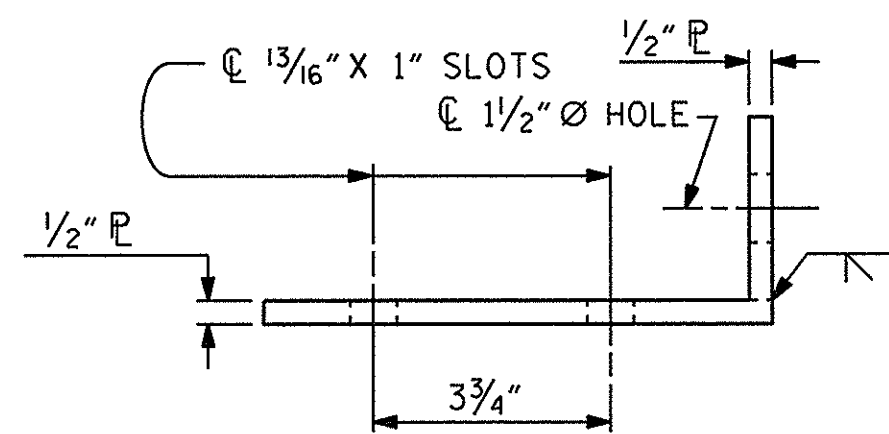
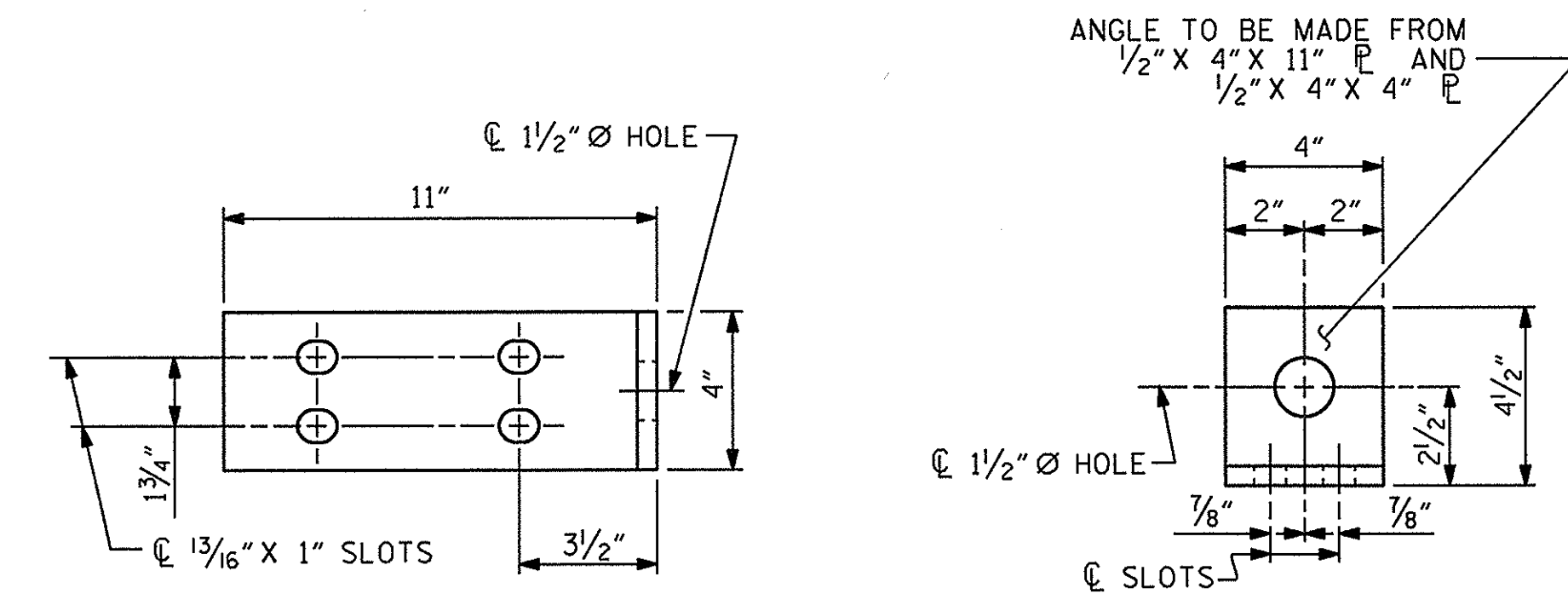
STANDARD

2 BAR METAL RAIL

REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL 18
2			4			18

STD. NO. BMR4

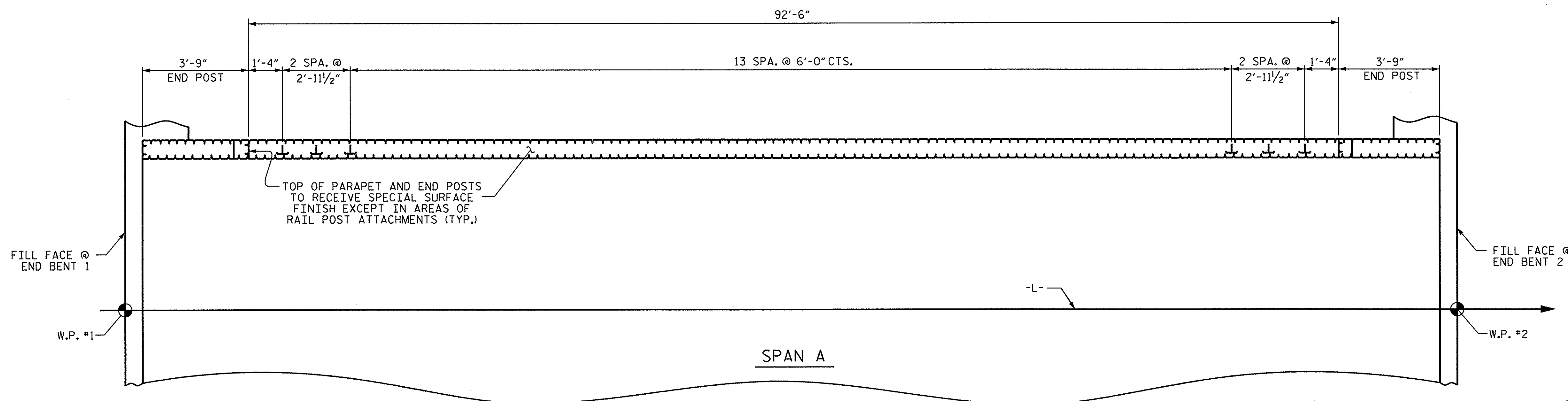
ASSEMBLED BY:	S. WANCE	DATE:	04/14/14
CHECKED BY:	T. H. FANG	DATE:	6/20/14
DRAWN BY:	EEM 6/94	REV.	2/6/97 EEM/RGW
CHECKED BY:	RCW 6/94	REV.	8/16/99 MAB/LES
		REV.	5/1/06R KMM/GM



PLAN - RAIL AND END POST

FIXED

DETAILS FOR ATTACHING METAL RAIL TO END POST



PLAN OF RAIL POST SPACINGS

LEFT SIDE SHOWN, RIGHT SIDE SIMILAR.

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- 1 - 3/4" x 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" x 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/8" x 1 5/8" BOLT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

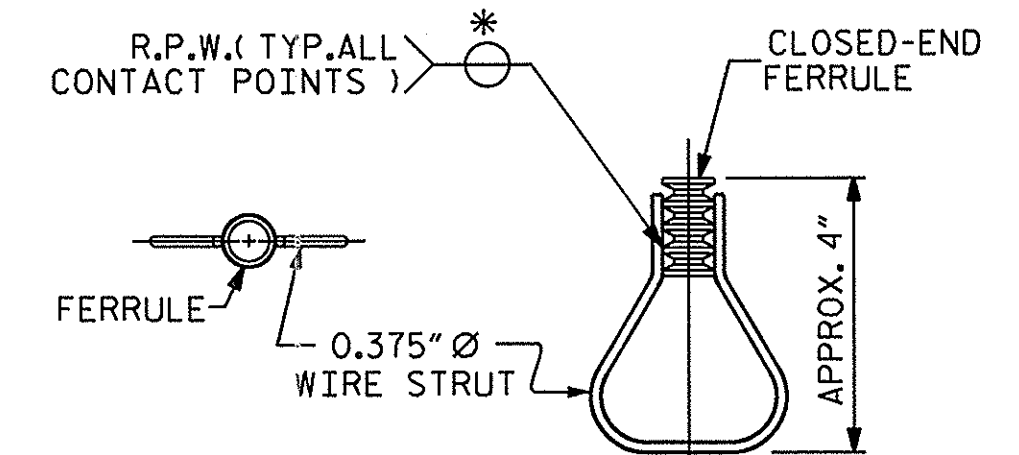
- 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" x 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" x 1 5/8" BOLT SHALL HAVE N. C. THREADS.
- CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
- STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- 1/2" PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" x 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" x 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" x 1 5/8" BOLT SHALL APPLY TO THE 3/4" x 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

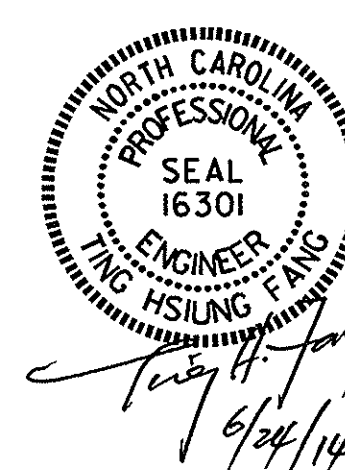


STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

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RANDOLPH COUNTY
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SHEET 3 OF 3

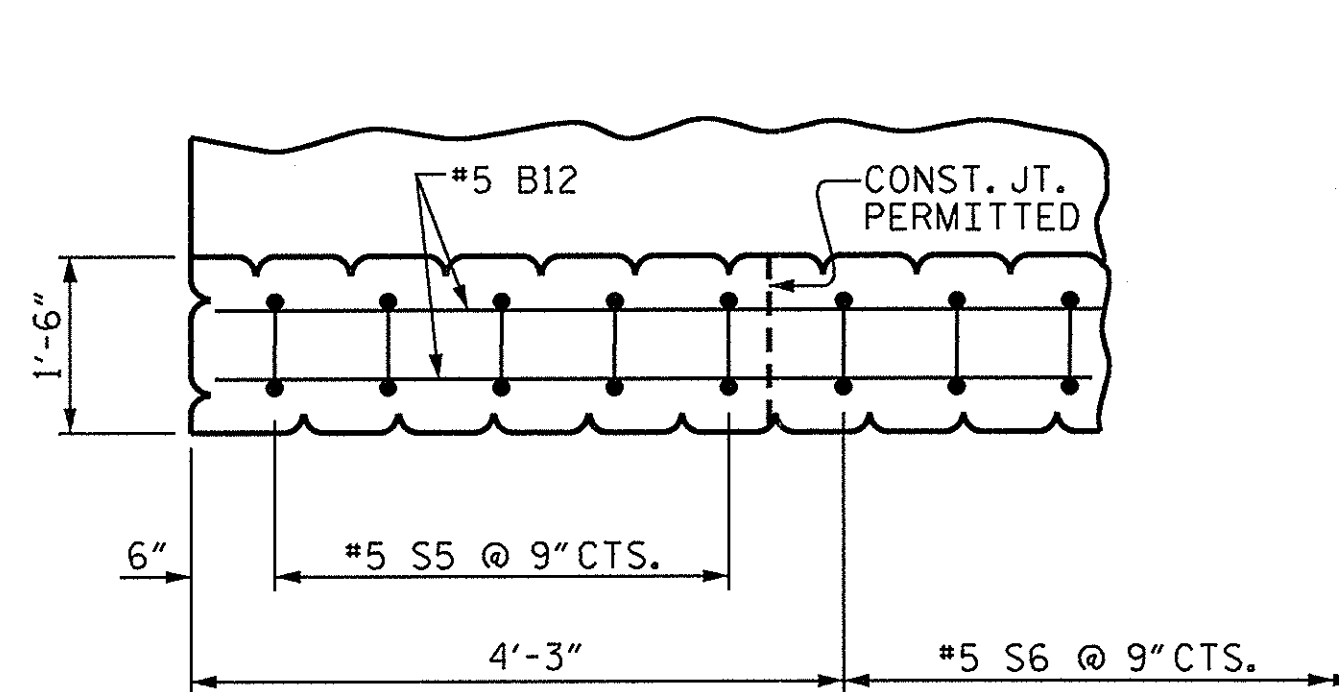


ASSEMBLED BY :	S. WANCE	DATE :	04/14/14
CHECKED BY :	T. H. FANG	DATE :	6/20/14
DRAWN BY :	FCJ 1/88	REV. 10/17/00	LES/RDR
CHECKED BY :	CRK 3/89	REV. 5/7/03	RWW/JTE
		REV. 5/1/06	TLA/GM

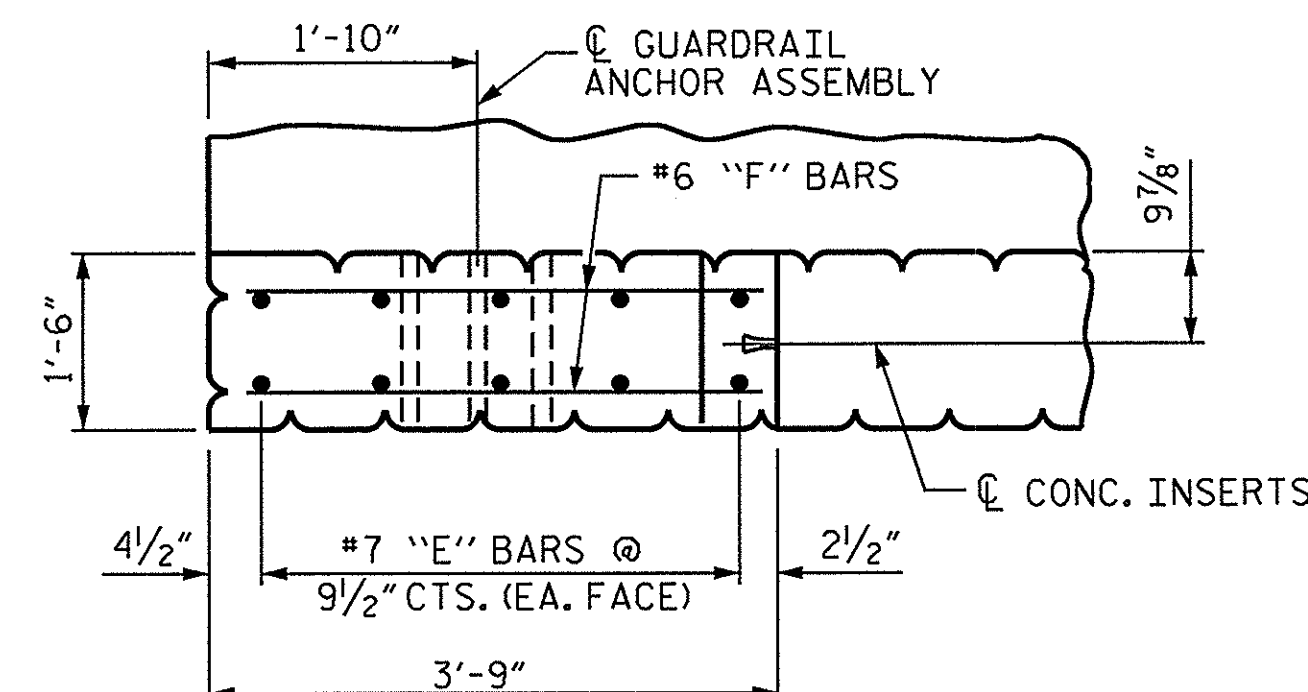
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 clyokeley

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-11
2			4			TOTAL SHEETS 18

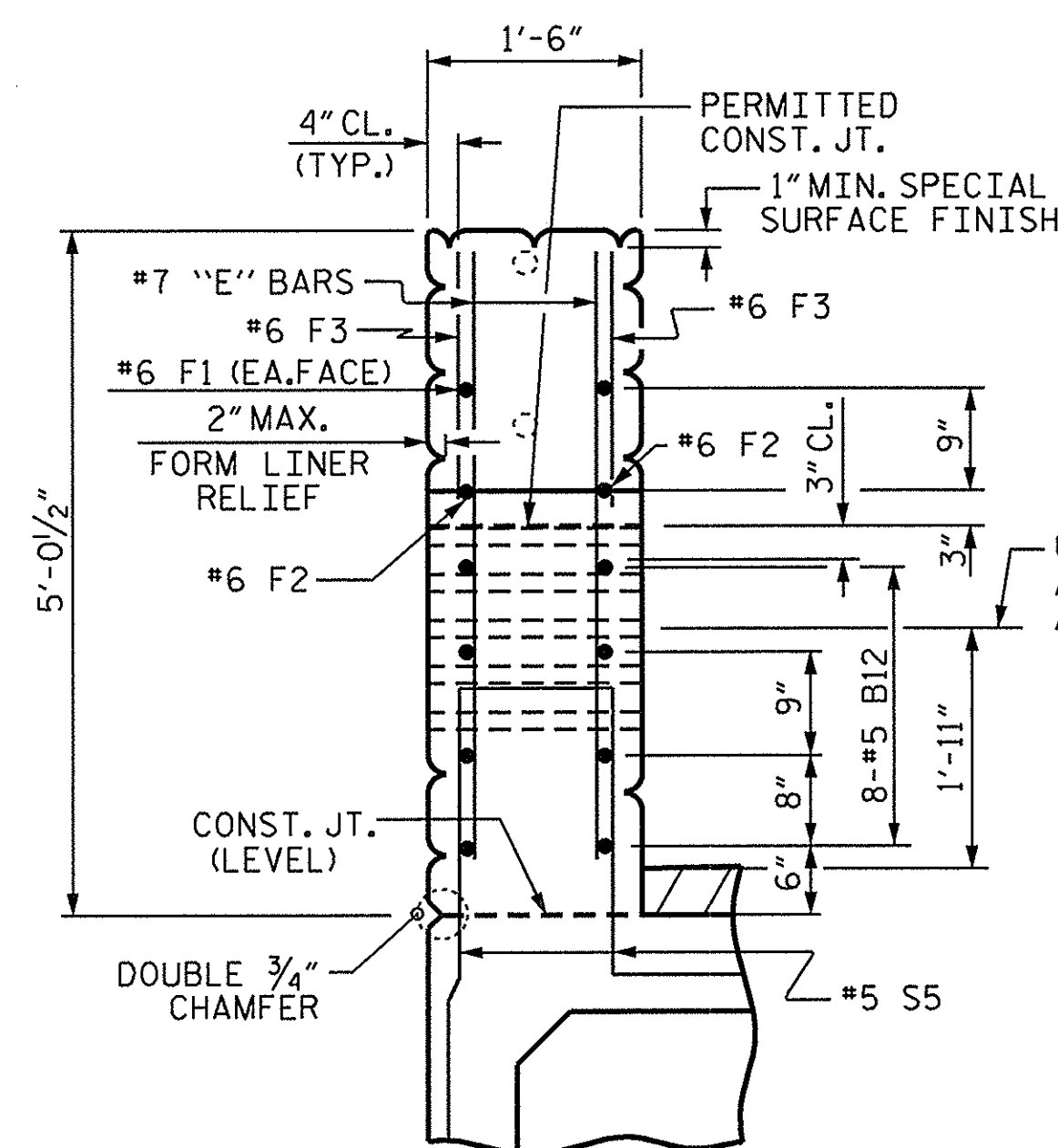
STD. NO. BMR2



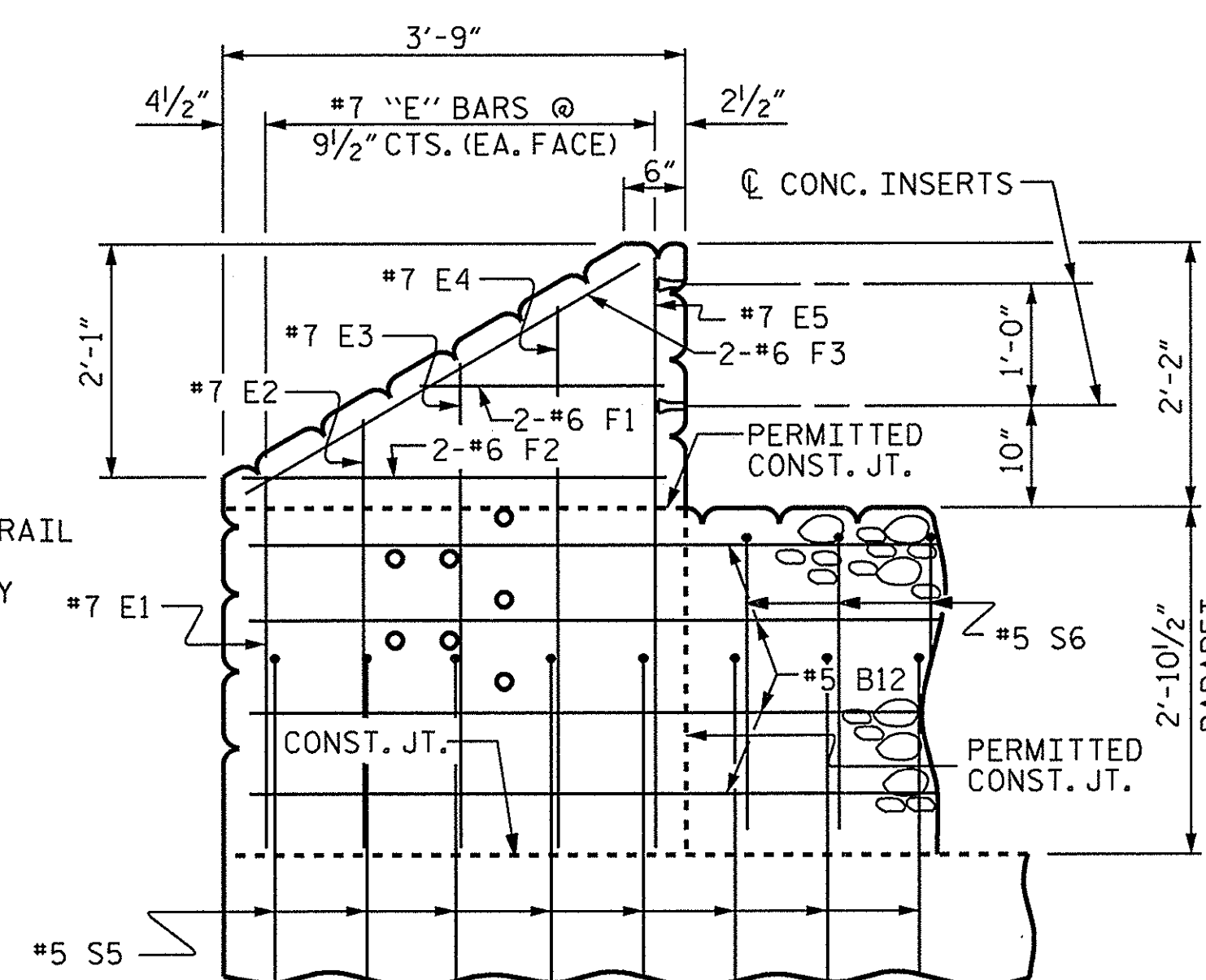
PLAN OF PARAPET
END BENT 1 RIGHT SIDE SHOWN,
OTHER LOCATIONS SIMILAR.



PLAN OF END POST

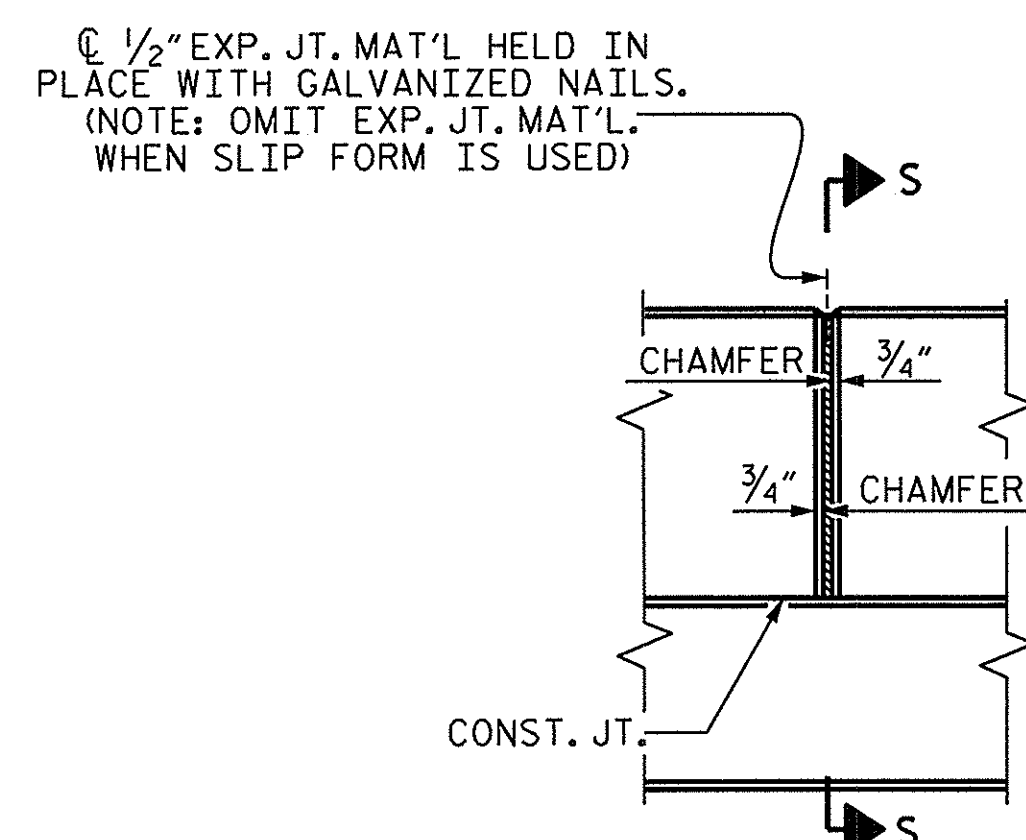


END VIEW

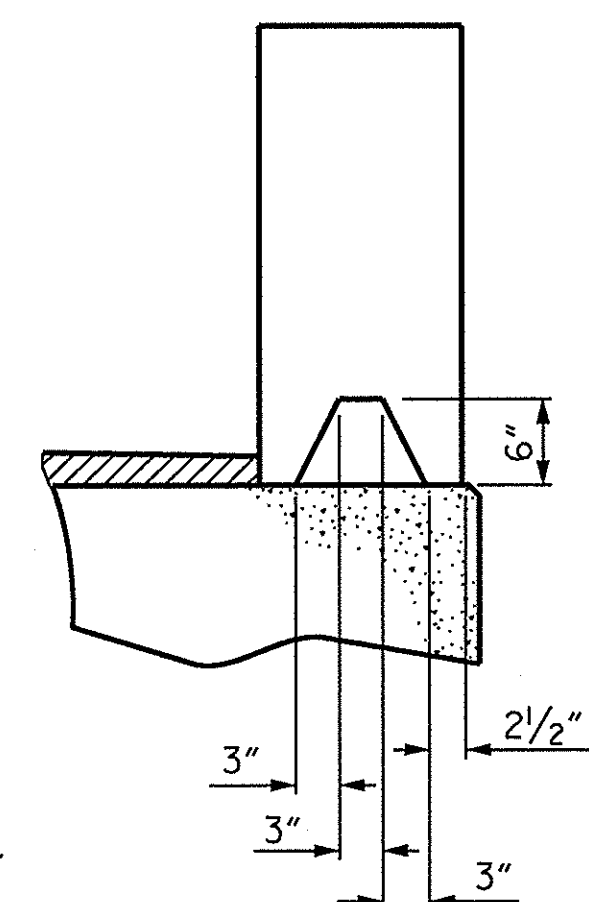


ELEVATION

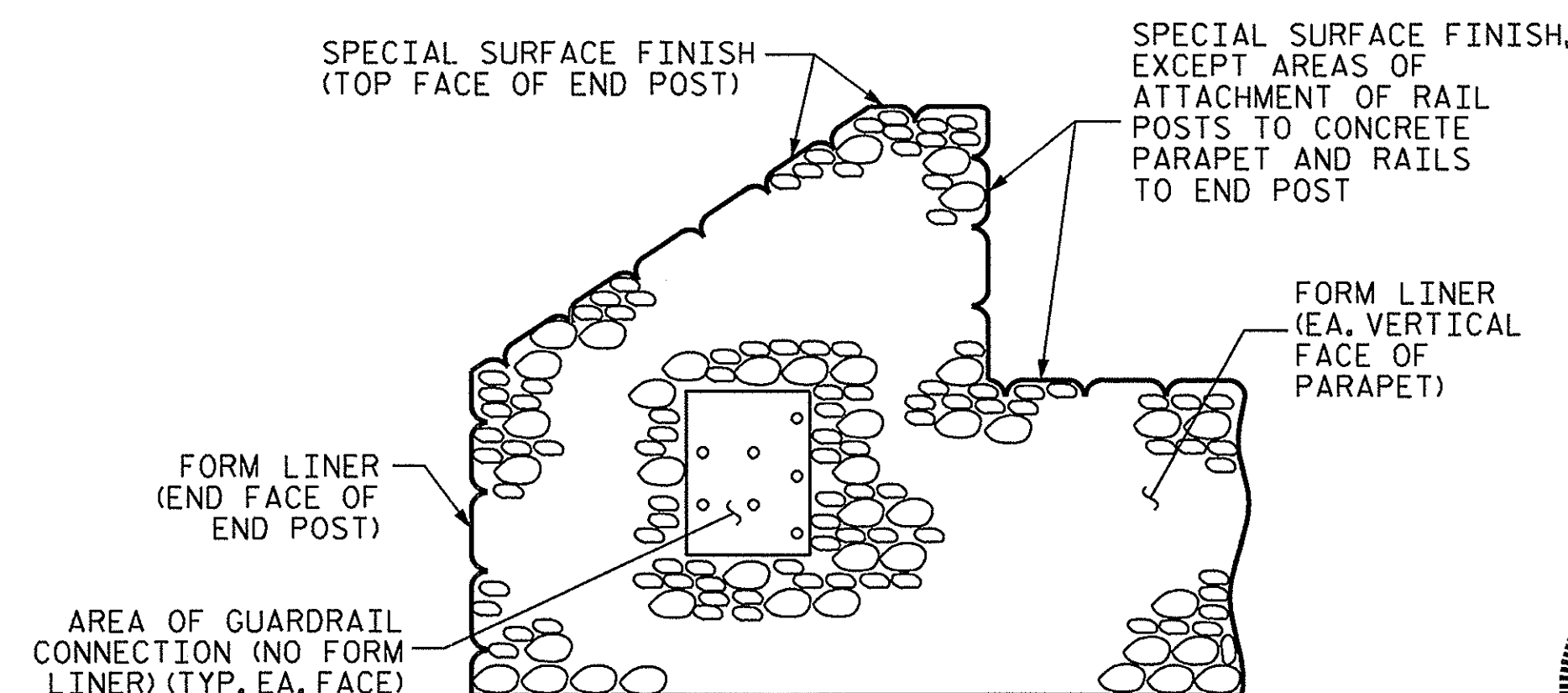
PARAPET AND END POST FOR TWO BAR RAIL



ELEVATION AT EXPANSION JOINTS



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)



FORM LINER DETAIL

FOR LOCATION OF GUARDRAIL CONNECTION AND AREA WITH
NO FORM LINER SEE "GUARDRAIL ANCHORAGE DETAILS" SHEET

NOTES

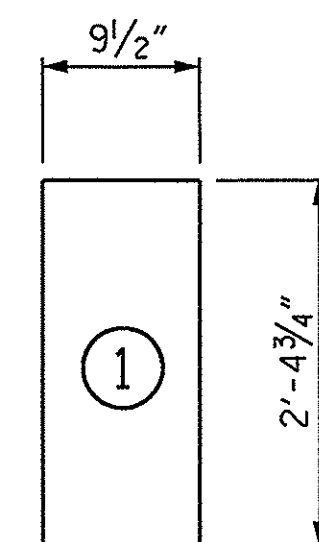
ALL REINFORCING STEEL IN PARAPETS AND END POSTS SHALL BE EXPOXY COATED.

FOR DETAIL OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAIL" SHEET.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

THE COST OF THE FORMLINERS AND SPECIAL SURFACE FINISH ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ARCHITECTURAL CONCRETE SURFACE TREATMENT.

BAR TYPE

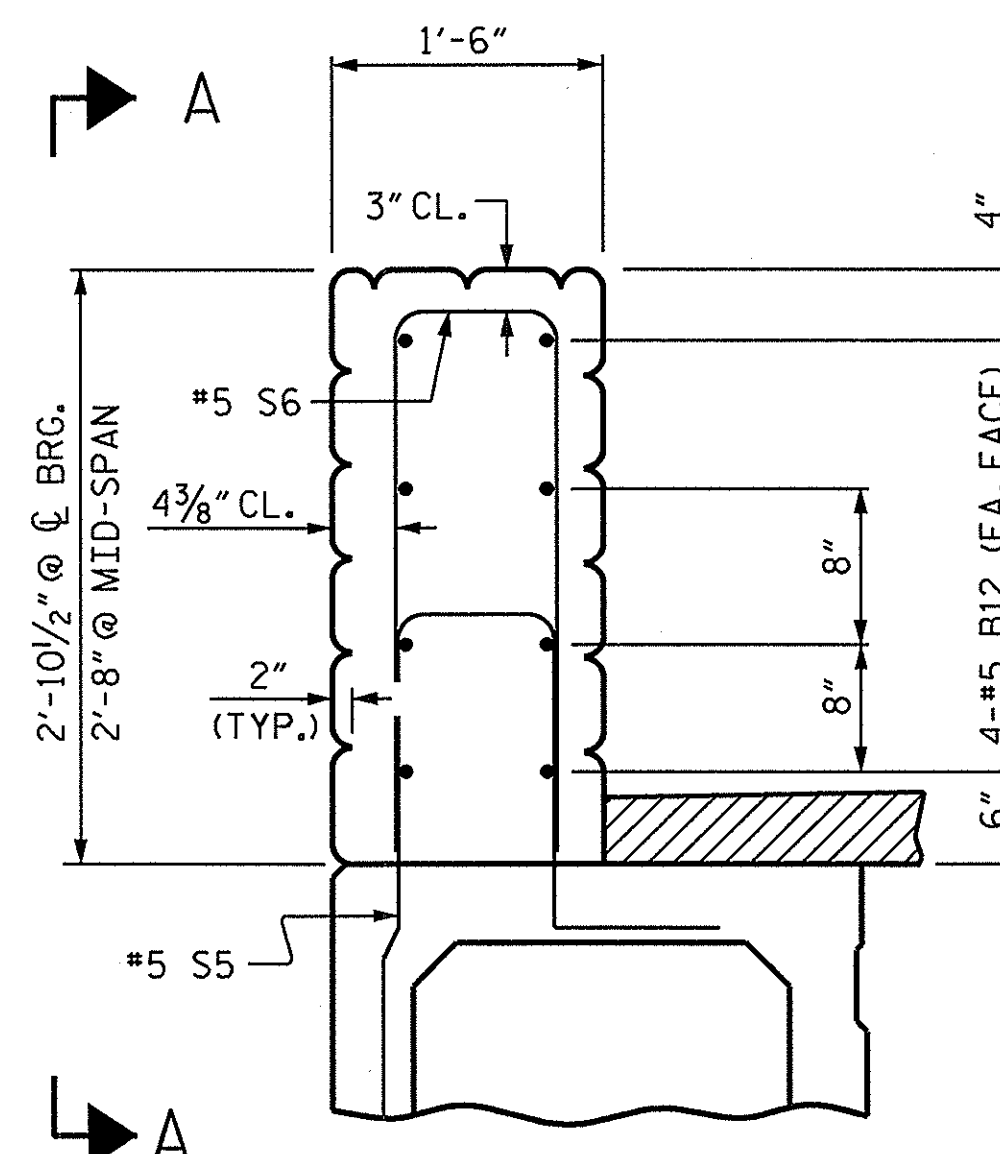


BAR DIMENSIONS ARE OUT TO OUT

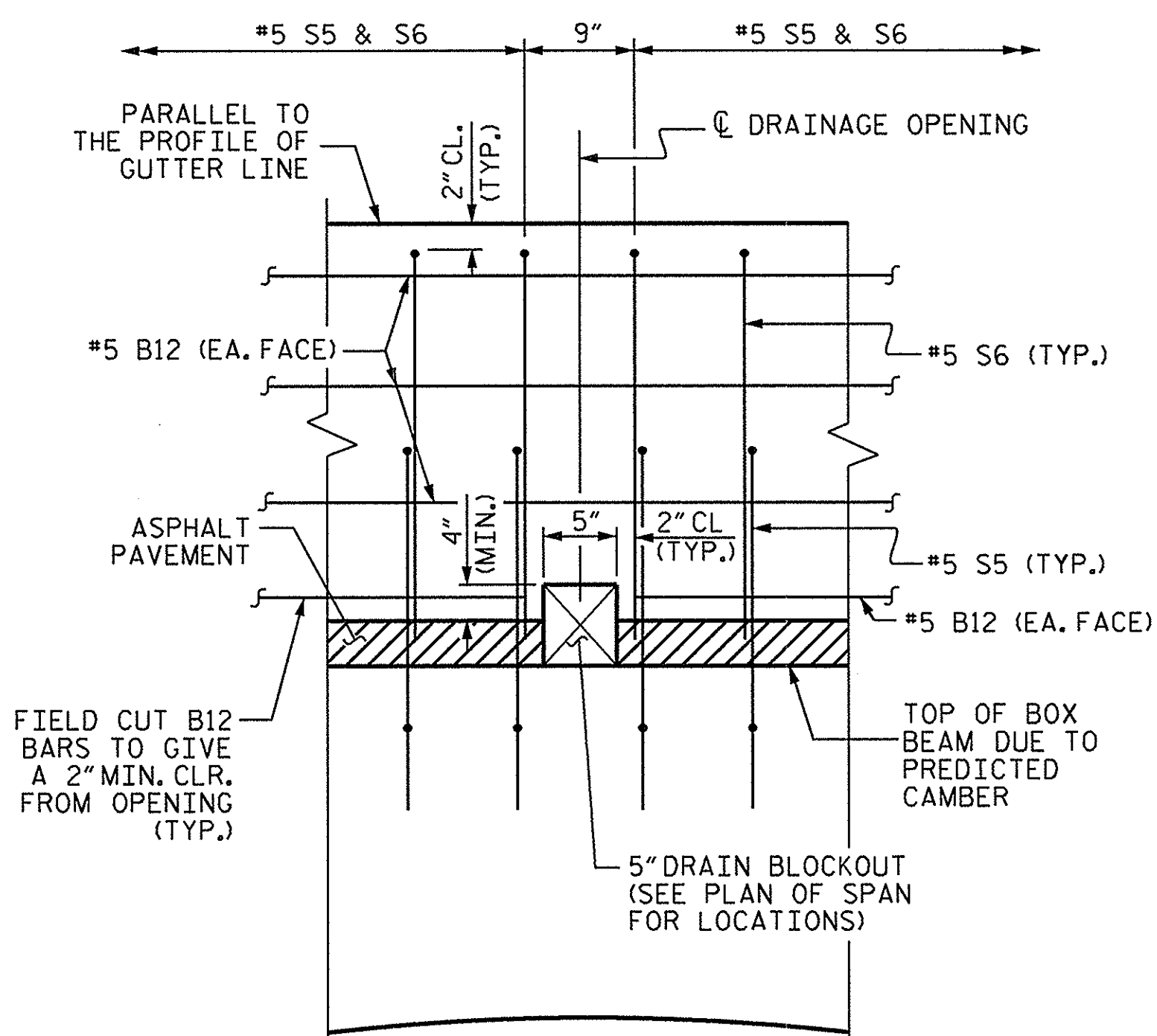
THE REINFORCING STEEL & CONCRETE IN THE END POSTS IS INCLUDED IN THE UNIT PRICE BID FOR THE CONCRETE PARAPET.

BILL OF MATERIAL

FOR 2 PARAPETS AND 4 END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B12	64	#5	STR	24'-7"	1641
*E1	8	#7	STR	2'-10"	46
*E2	8	#7	STR	3'-4"	55
*E3	8	#7	STR	3'-10"	63
*E4	8	#7	STR	4'-4"	71
*E5	8	#7	STR	4'-8"	76
*F1	8	#6	STR	2'-0"	24
*F2	8	#6	STR	3'-3"	39
*F3	8	#6	STR	3'-8"	44
*S6	246	#5	1	5'-7"	1433
* EPOXY COATED REINFORCING STEEL				3493	LBS.
CLASS AA CONCRETE				31.6	CU. YDS.
CONCRETE PARAPET				200.0	LIN. FT.



SECTION THRU PARAPET
SHOWN AT CL BEARING



VIEW A-A

PROJECT NO. BD-5108A
RANDOLPH COUNTY
STATION: 18+25.08 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
CONCRETE PARAPET
AND END POST
DETAILS

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
S-12
TOTAL
SHEETS
18

DRAWN BY: T. H. FANG DATE: 6/20/14
CHECKED BY: C. L. YOKELEY DATE: 6/21/14

25-JUN-2014 09:07
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clyokeley

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

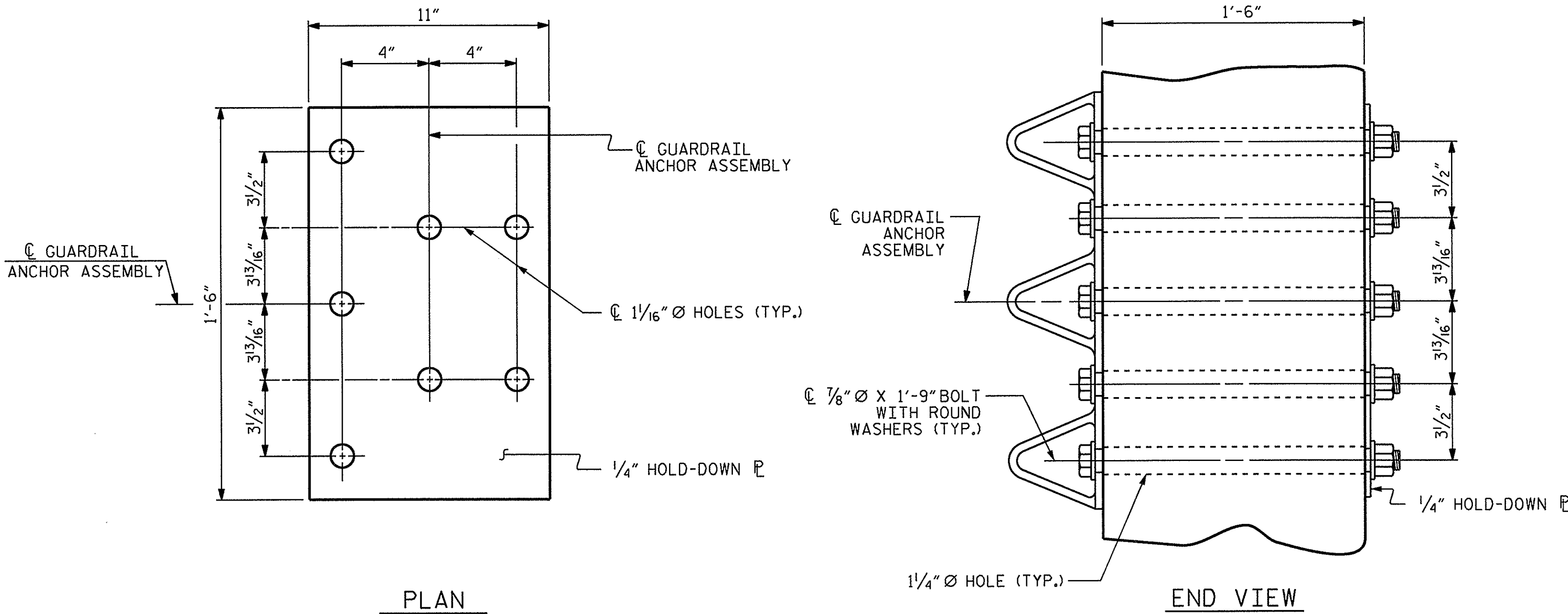
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

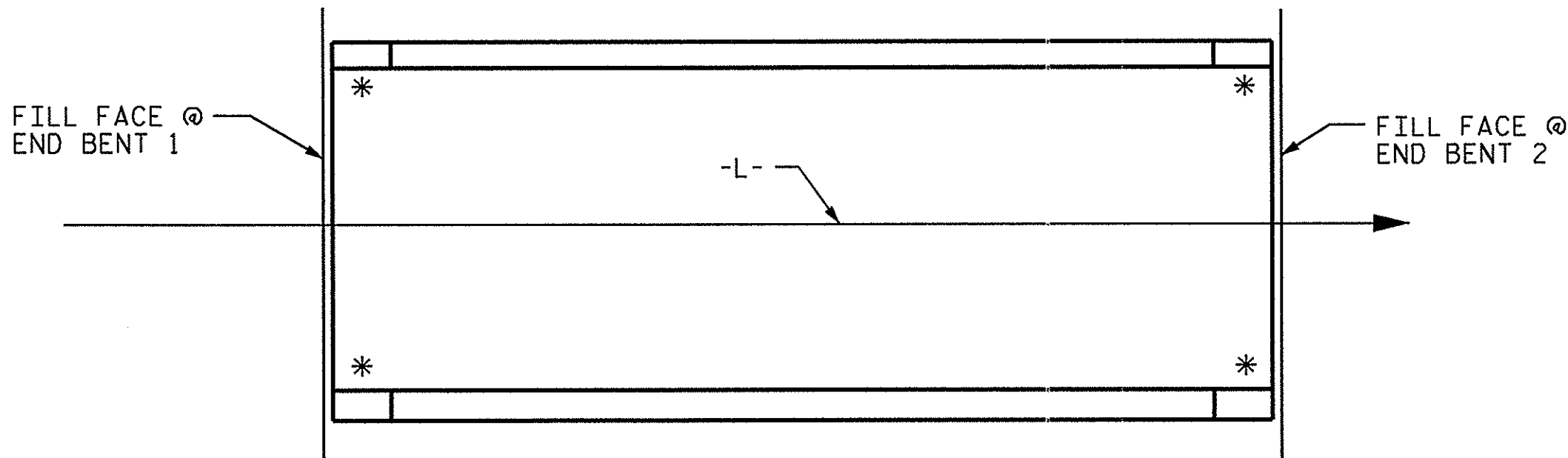
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



PLAN

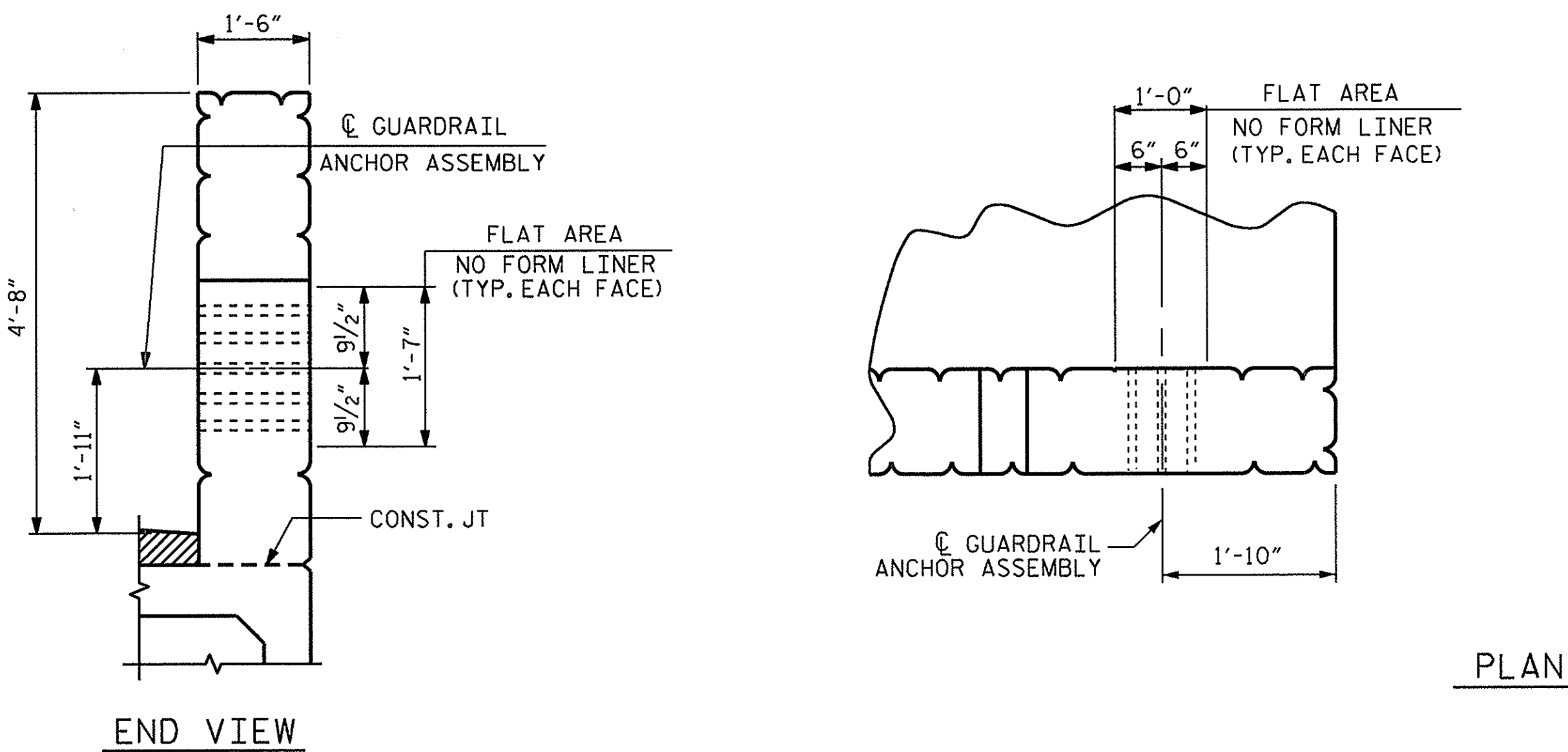
END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

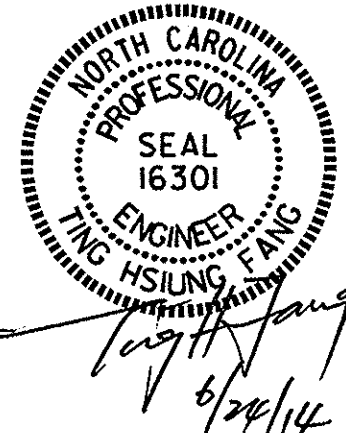
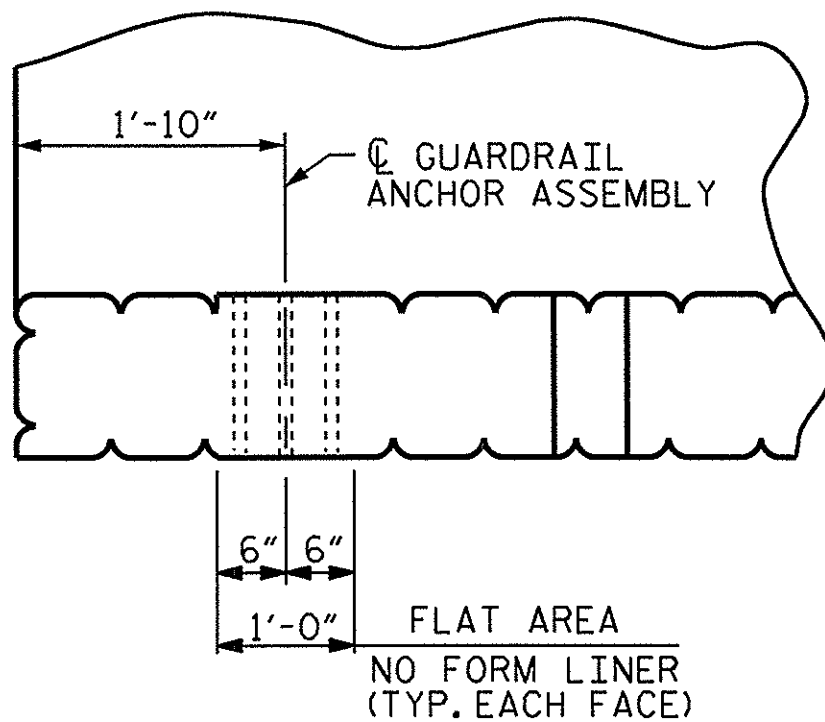
* LOCATION OF GUARDRAIL ATTACHMENT



END VIEW

PLAN

LOCATION OF GUARDRAIL ANCHOR AT END POST



PROJECT NO. BD-5108A
RANDOLPH COUNTY
STATION: 18+25.08 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE
DETAILS
FOR METAL RAILS

REVISIONS						SHEET NO. S-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			

ASSEMBLED BY :	S. WANCE	DATE :	04/14/14
CHECKED BY :	T. H. FANG	DATE :	6/20/14
DRAWN BY :	EEM 6/94	REV. 10/17/00	RWW/LES
CHECKED BY :	RCW 6/94	REV. 5/7/03	RWW/JTE
		REV. 5/1/06	TLA/GM

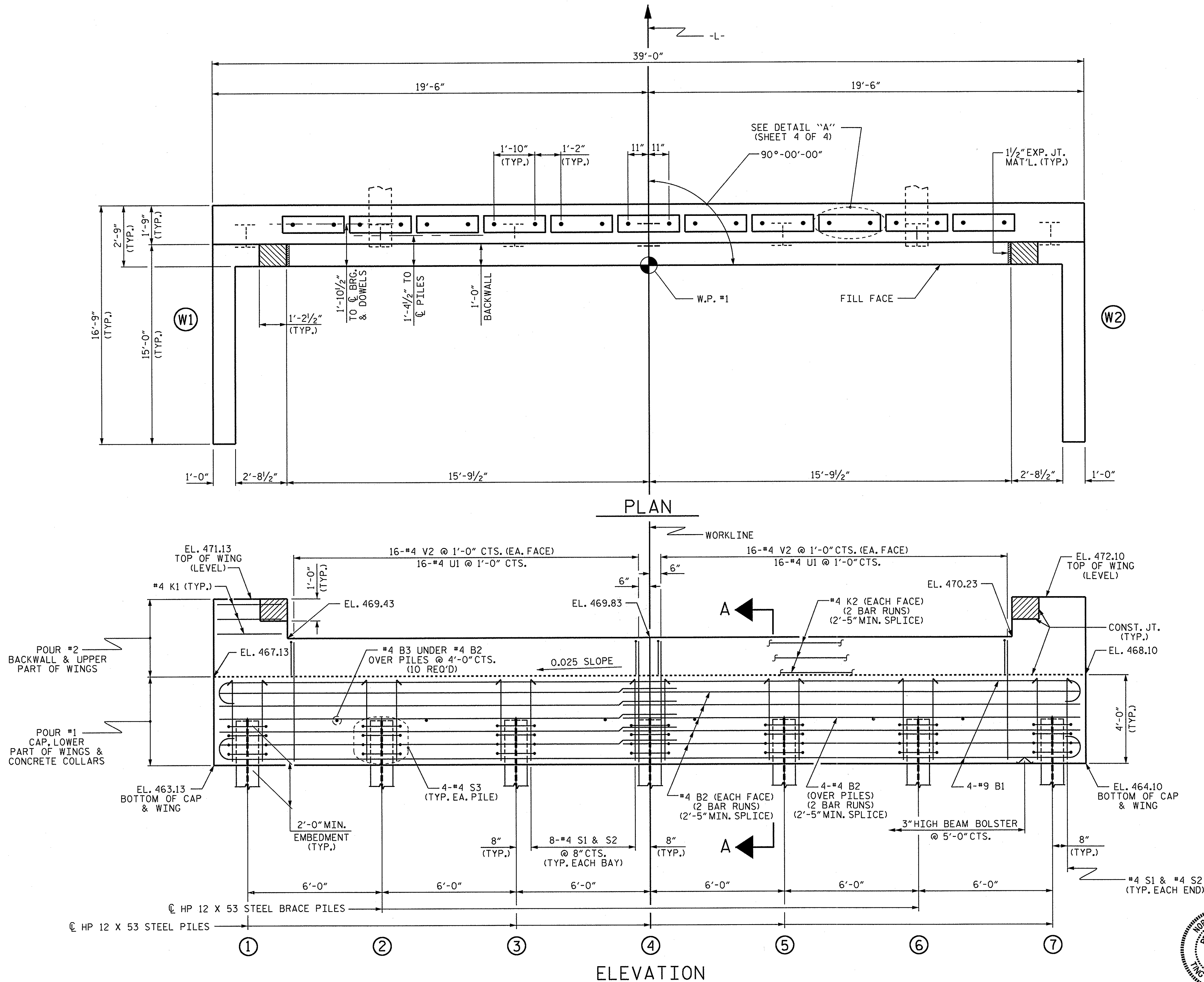
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



TOP OF PILE ELEVATIONS	
①	465.18
②	465.33
③	465.48
④	465.63
⑤	465.78
⑥	465.93
⑦	466.08

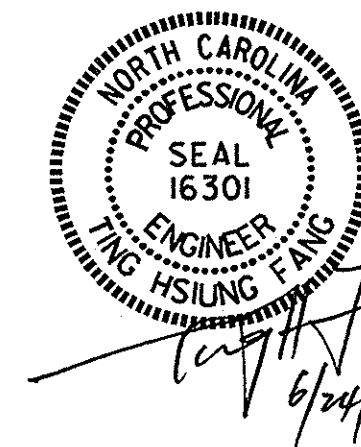
PROJECT NO. BD-5108A
RANDOLPH COUNTY
 STATION: 18+25.08 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-14
2			4			
TOTAL SHEETS 18						



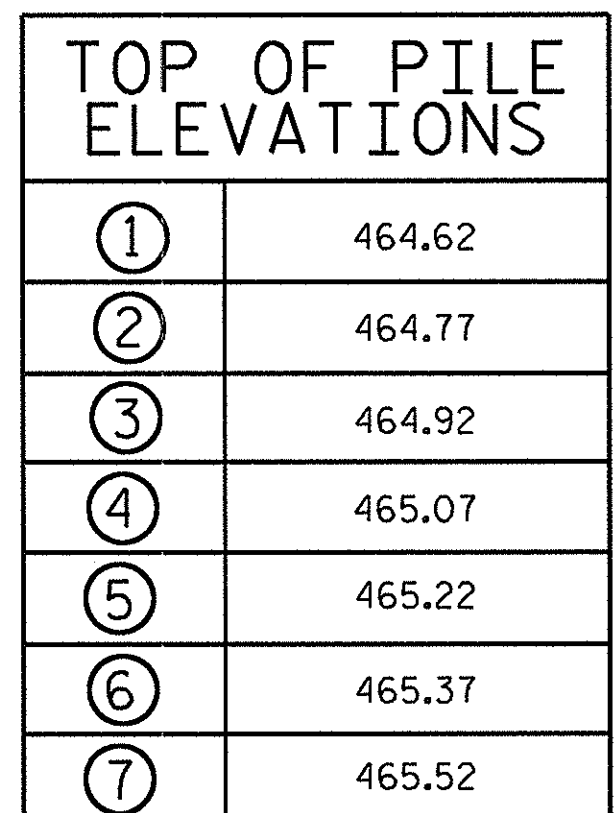
ASSEMBLED BY: S. WANCE DATE: 04/04/14
 CHECKED BY: T. H. FANG DATE: 6/20/14
 DRAWN BY: WJH 12/11
 CHECKED BY: AAC 12/11

CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.
 WINGS NOT SHOWN FOR CLARITY. FOR SECTION A-A, SEE SHEET 4 OF 4.

STIRRUPS IN CAP MAY BE SHIFTED AS
NECESSARY TO CLEAR DOWELS.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



SHEET 2 OF 4

SUBSTRUCTURE
END BENT 2

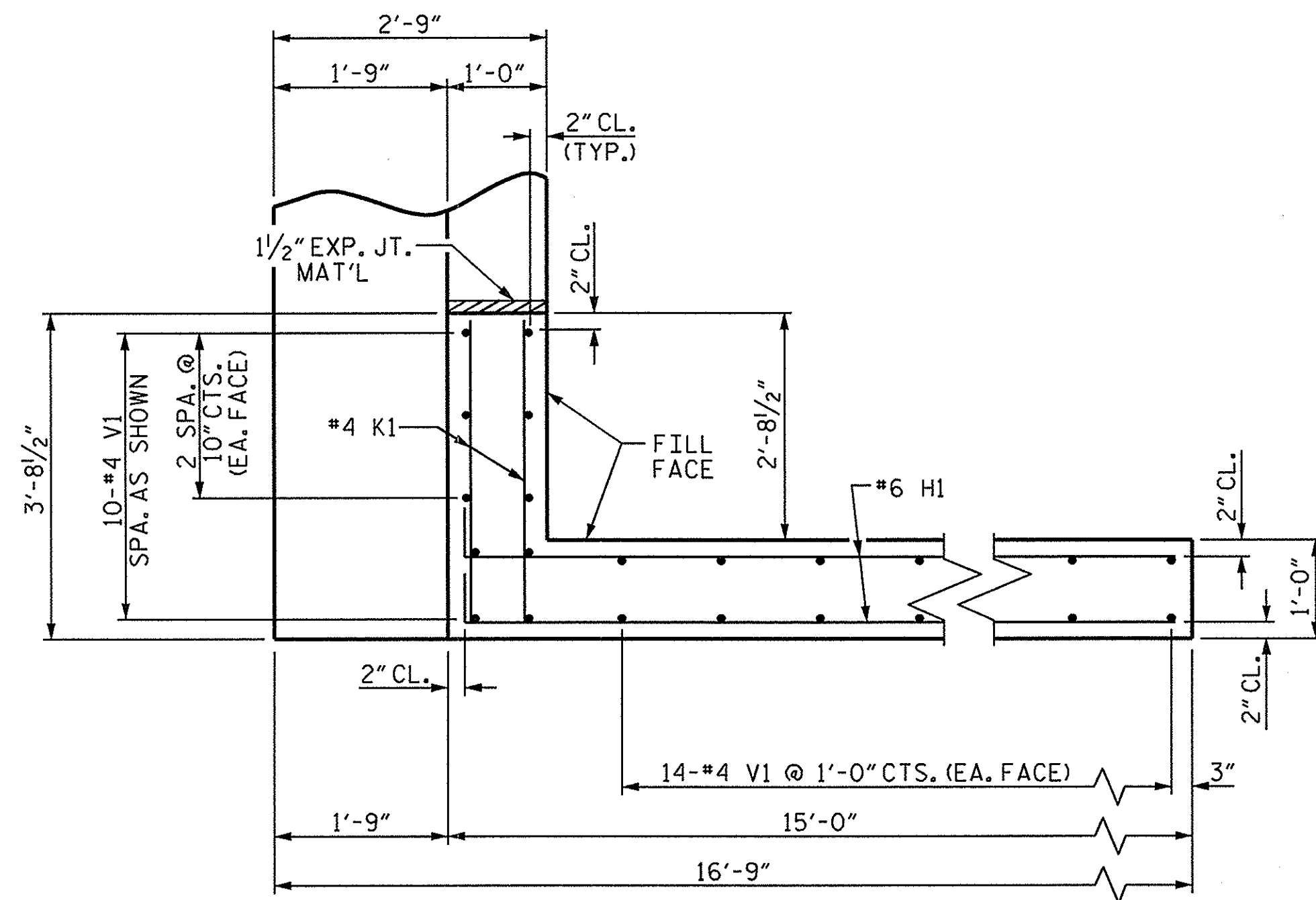
REVISIONS						SHEET NO. S-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			

STD. NO. EB_33_90S4_39BB

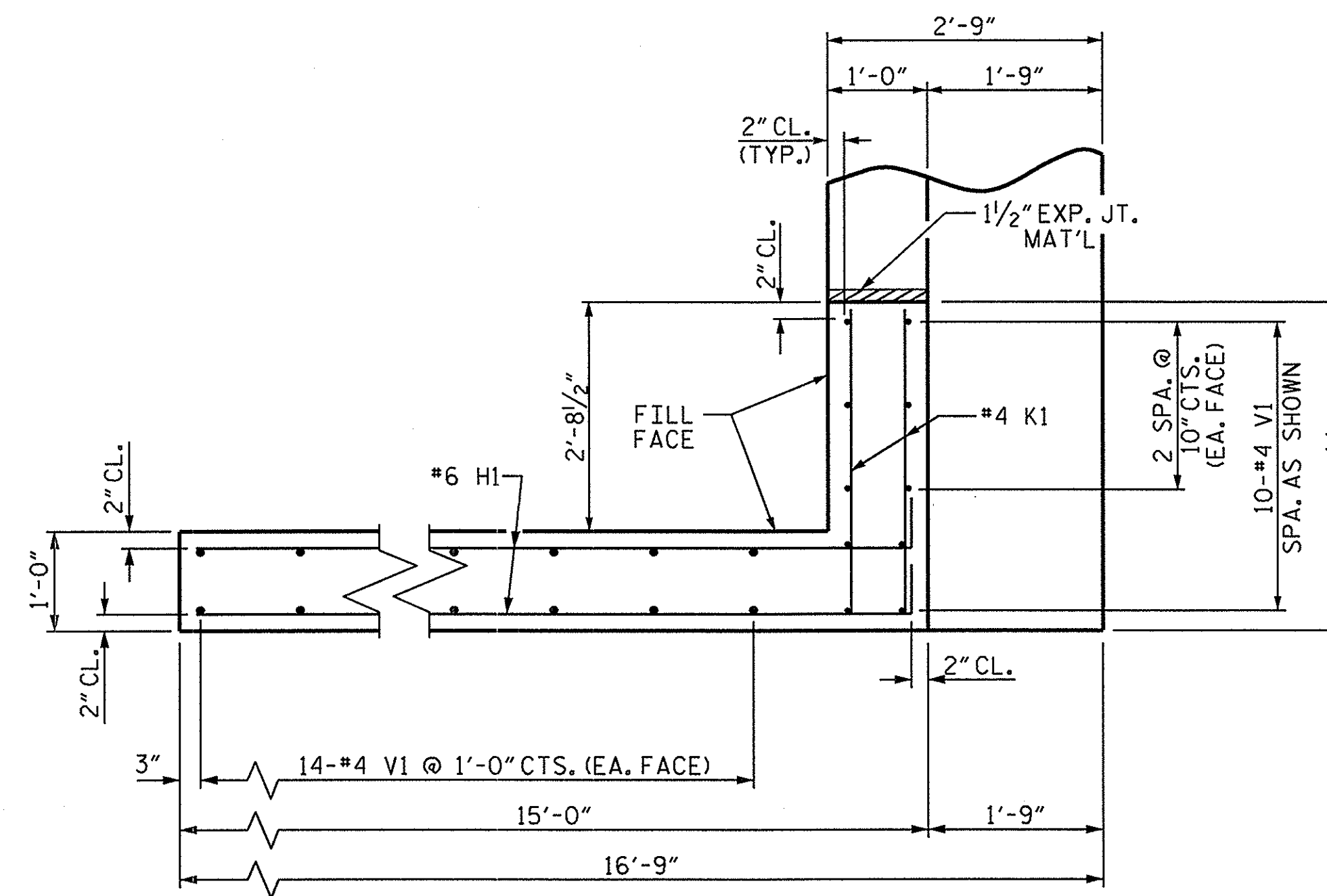
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CHECKED BY : T. H. FANG	DATE : 6/20/14
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.
WINGS NOT SHOWN FOR CLARITY. FOR SECTION A-A, SEE SHEET 4 OF 4.

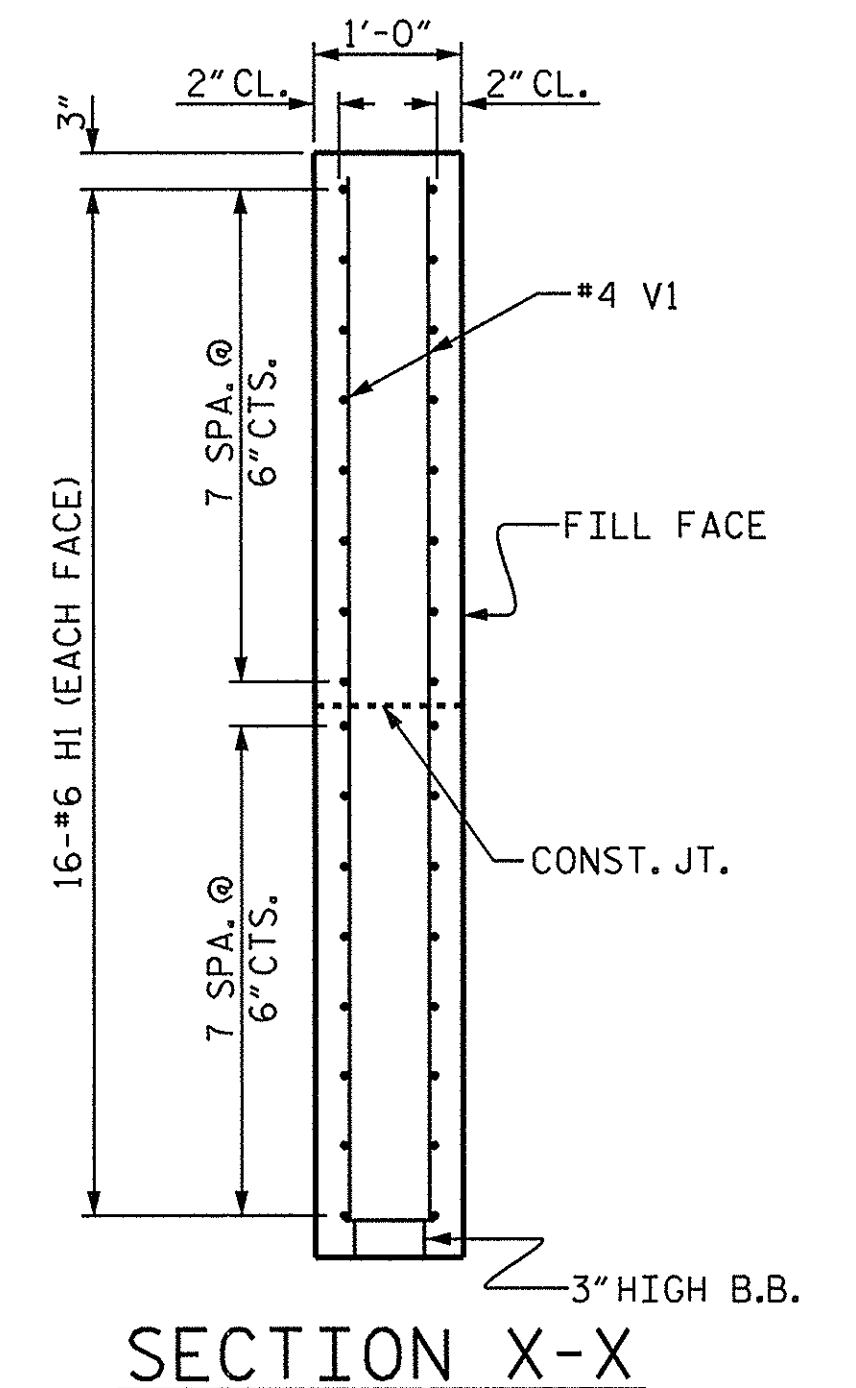
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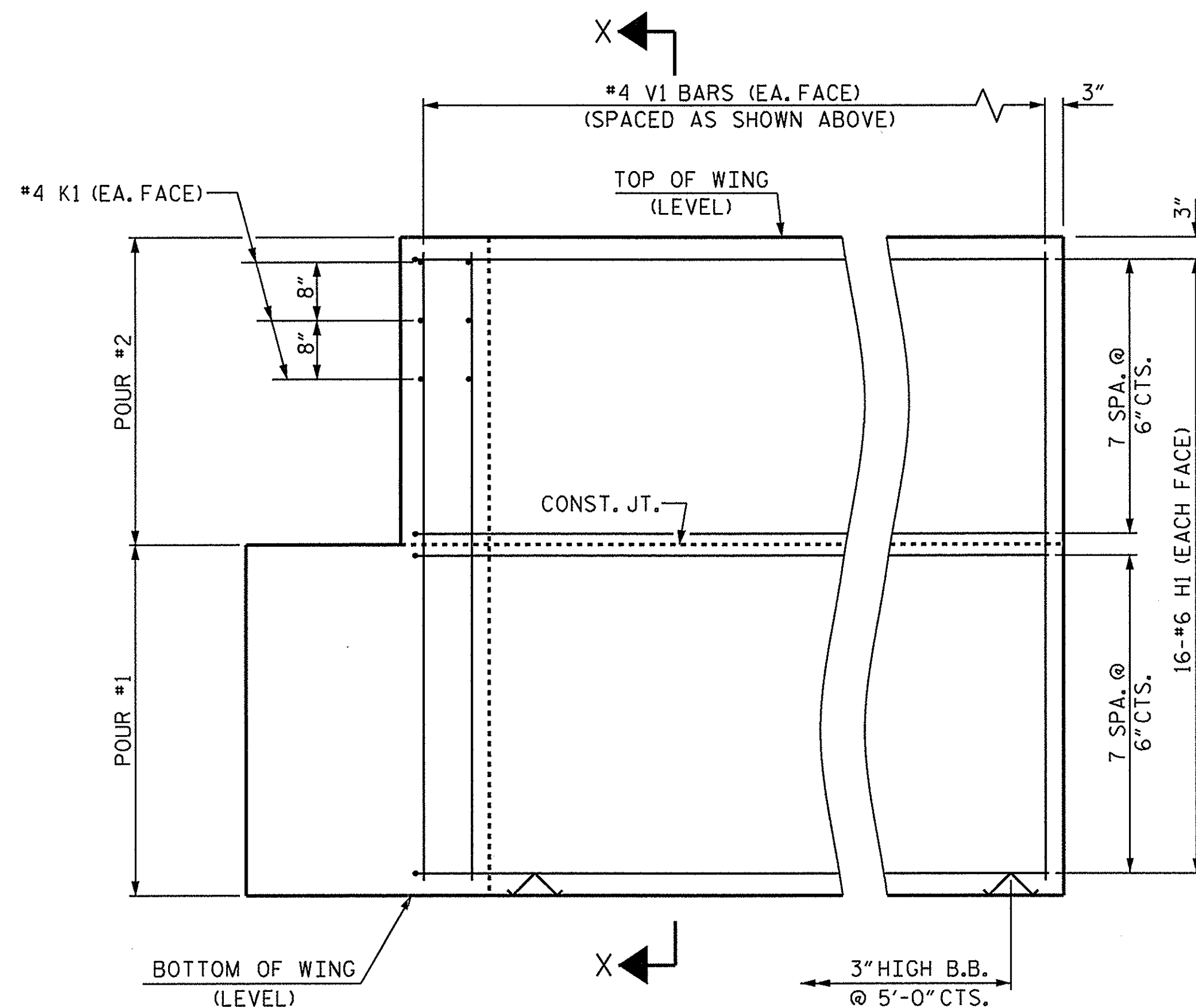
PLAN OF WING (W1)



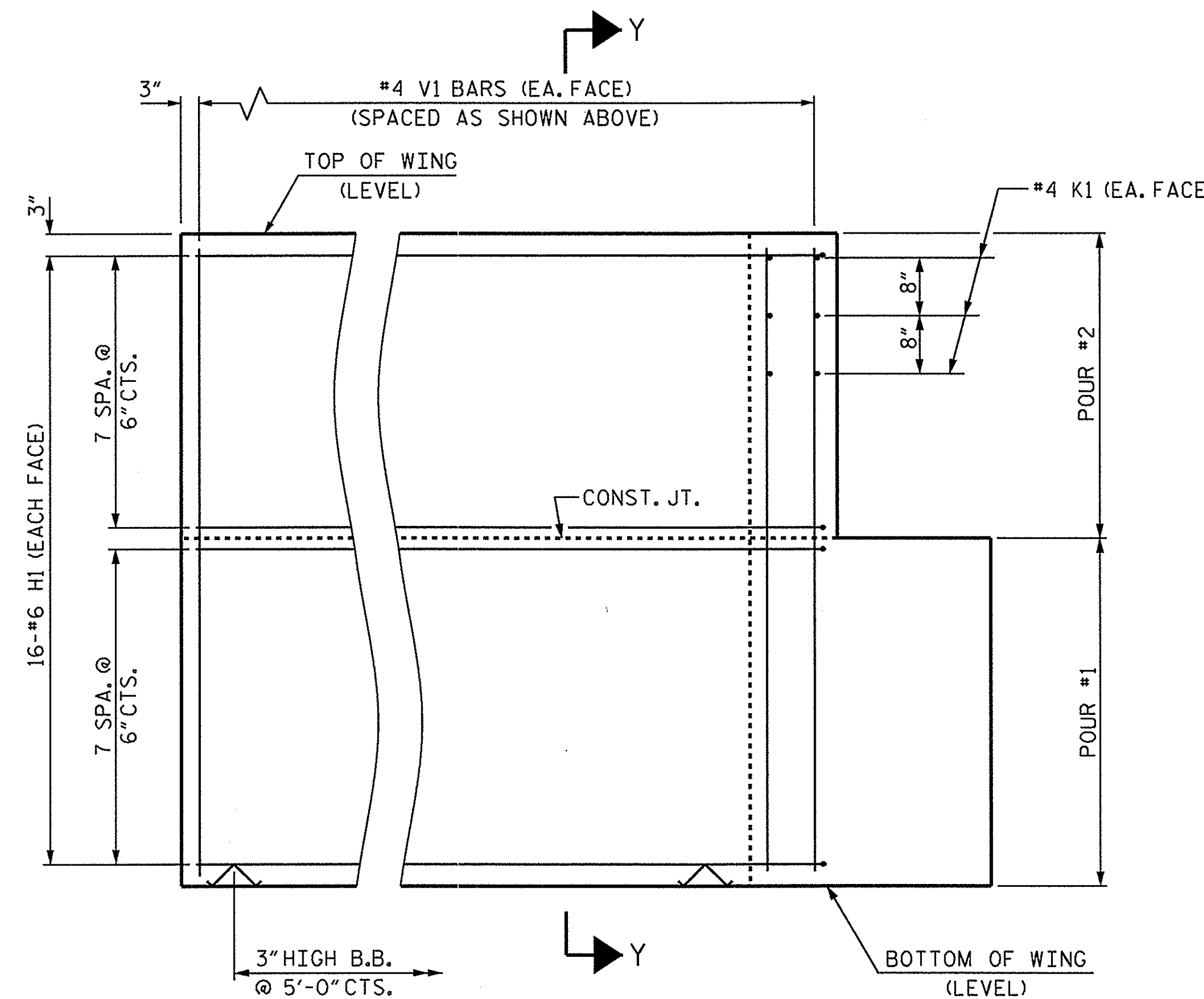
PLAN OF WING (W2)



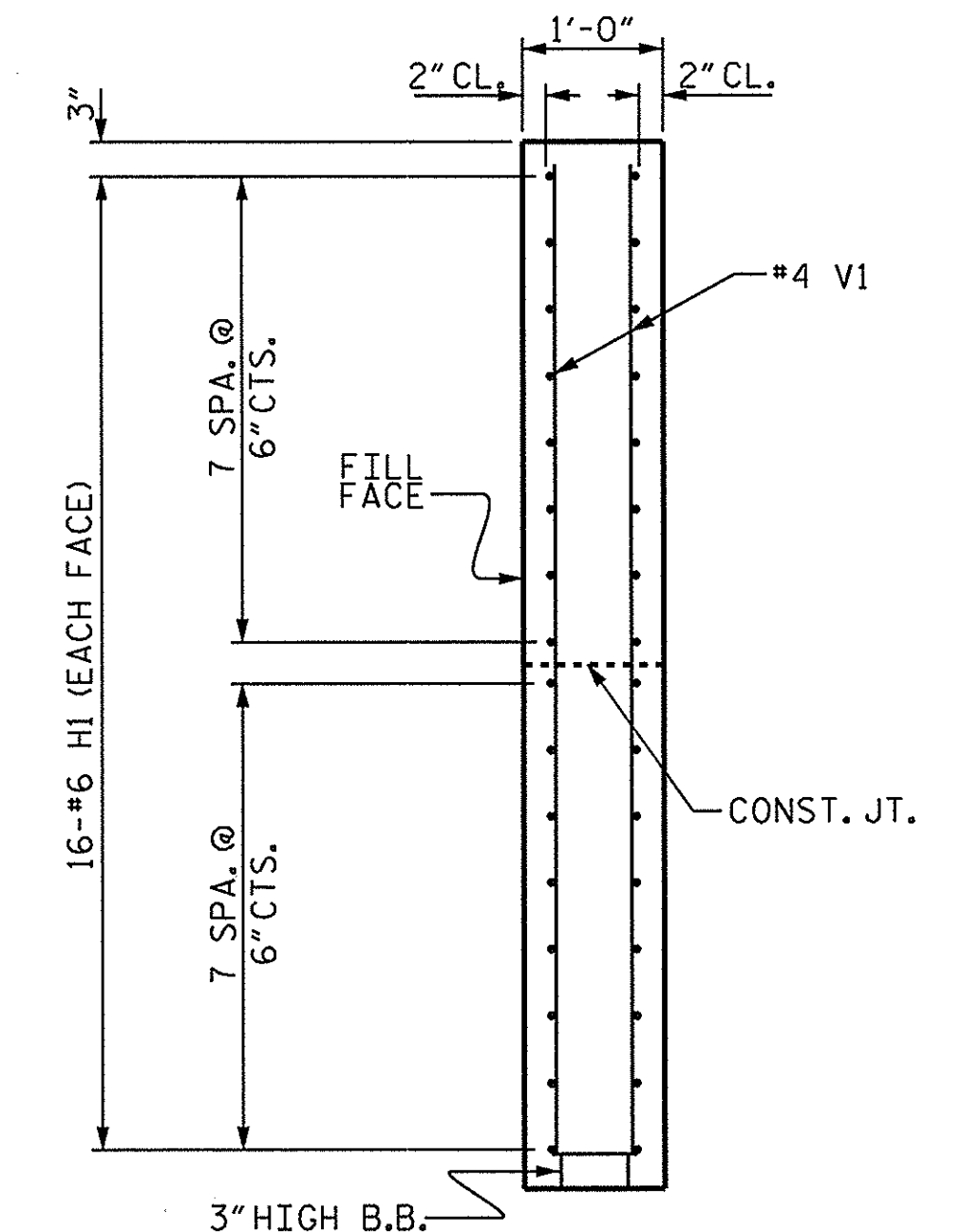
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

PROJECT NO. BD-5108A
 RANDOLPH COUNTY
 STATION: 18+25.08 -L-

SHEET 3 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

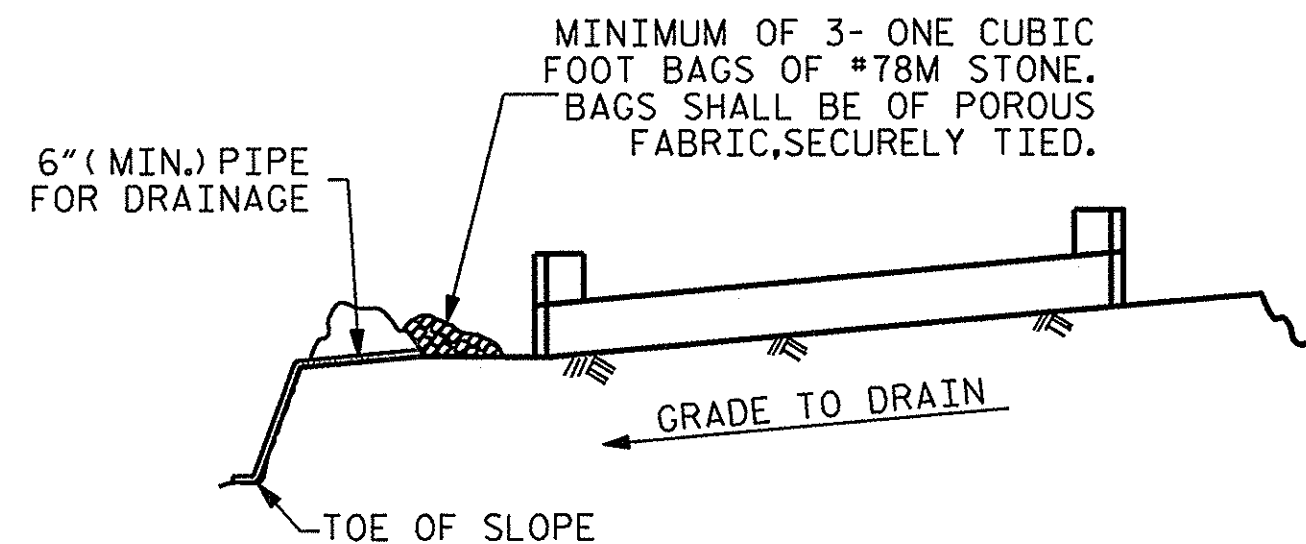
SUBSTRUCTURE
 END BENT
 WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-16
2			4			
TOTAL SHEETS 18						

ASSEMBLED BY: S. WANCE	DATE: 04/04/14
CHECKED BY: T. H. FANG	DATE: 6/20/14
DRAWN BY: WJH 12/11	
CHECKED BY: AAC 12/11	

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STD. NO. EB-33-90S4-39BB

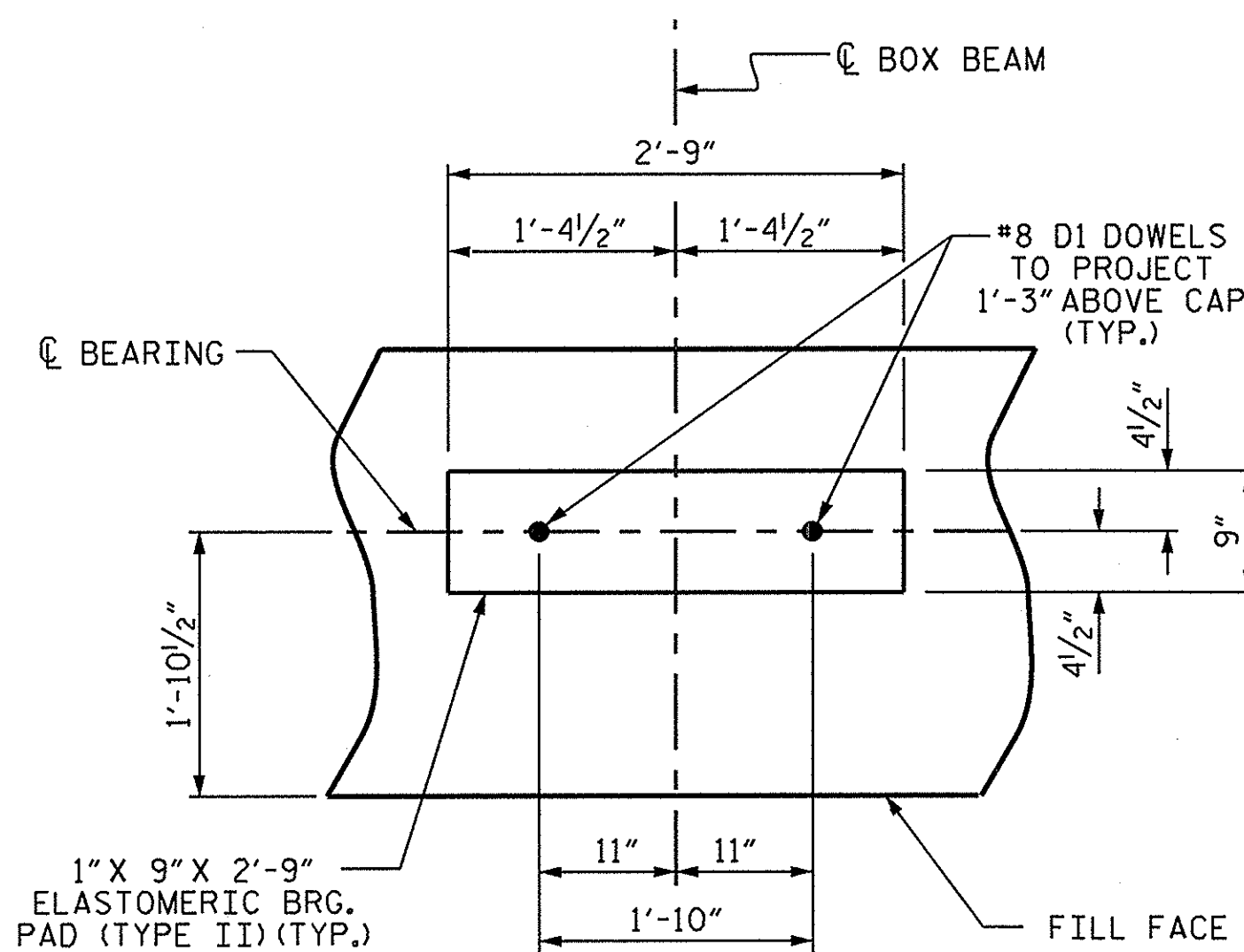


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

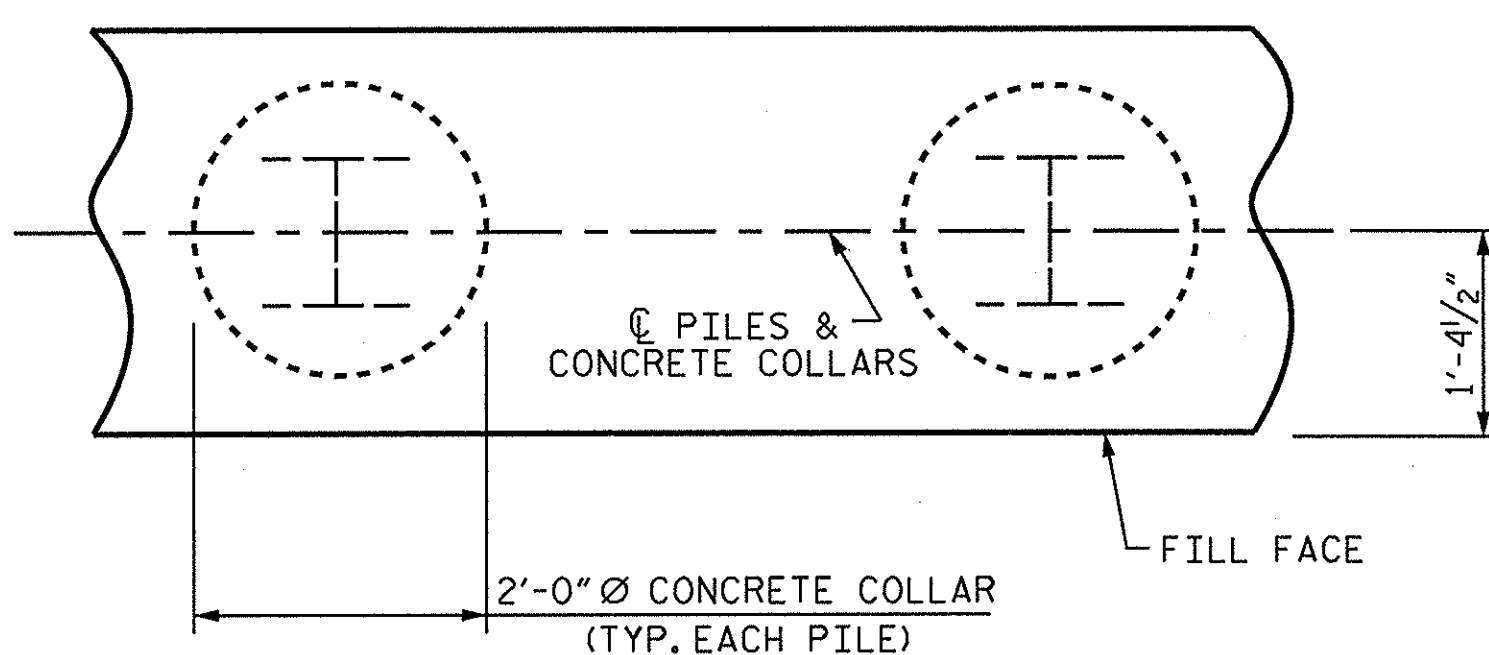
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

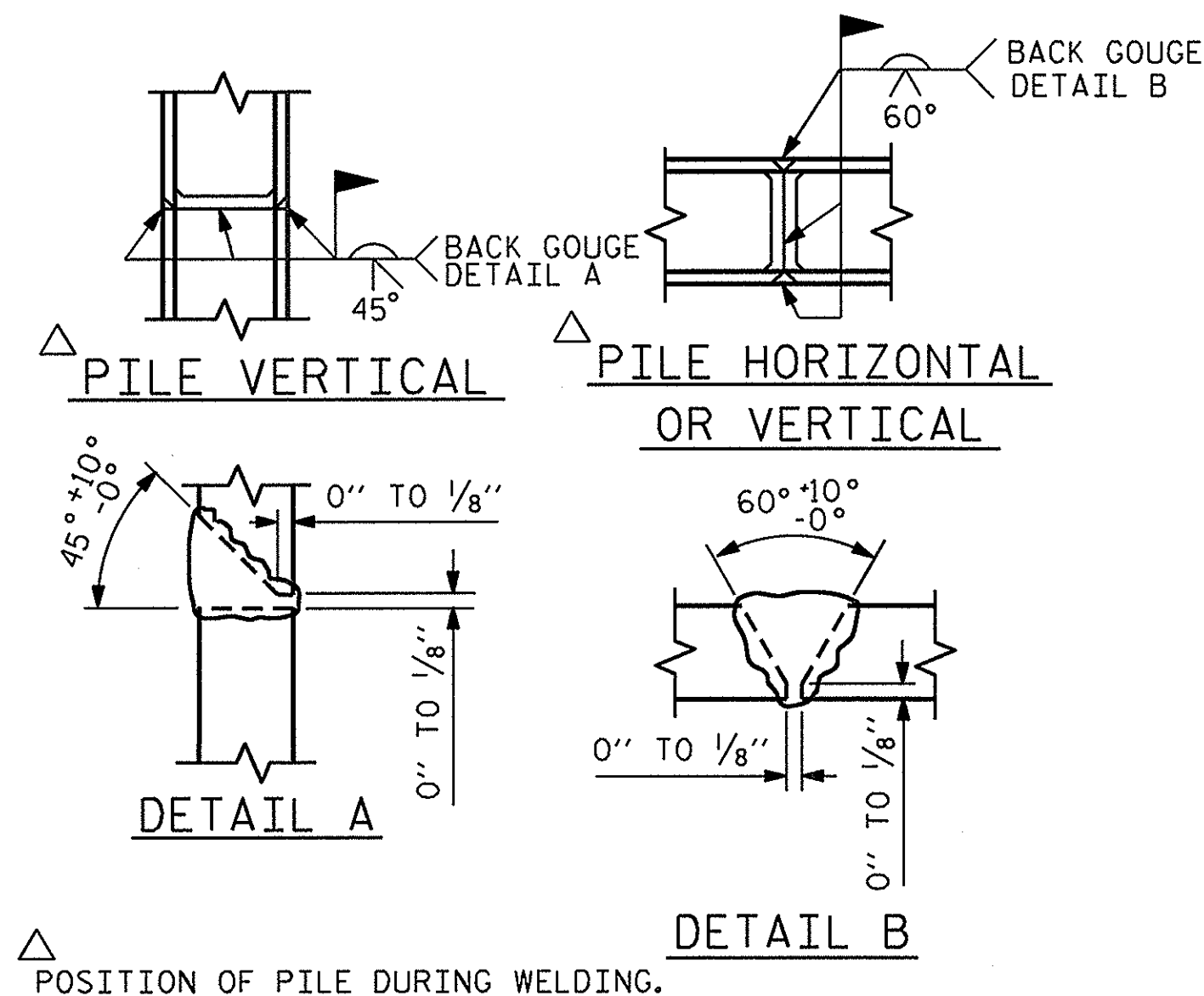
(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



PILE SPLICE DETAILS

BAR TYPES		END BENT 1		END BENT 2	
1	HK. 1'-3" 38'-6" 1'-3"	HP 12 X 53 STEEL PILES	NO: 7	HP 12 X 53 STEEL PILES	NO: 7
2	8" 14'-8"	PILE EXCAVATION	IN SOIL LIN. FT.= 34	PILE EXCAVATION	IN SOIL LIN. FT.= 36
3	4 1/2" 3'-7 1/2" 2'-5"	NOT IN SOIL LIN. FT.= 36		NOT IN SOIL LIN. FT.= 36	
4	4 1/2" 2'-5" 4 1/2"				
5	1'-3" LAP 1'-8" Ø				
6	8" 1'-6"				

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	28	#4	STR	20'-7"	385
B3	10	#4	STR	2'-5"	16
D1	22	#8	STR	2'-3"	132
H1	64	#6	2	15'-4"	1474
K1	12	#4	STR	3'-4"	27
K2	12	#4	STR	20'-7"	165
S1	50	#4	3	10'-5"	348
S2	50	#4	4	3'-2"	106
S3	28	#4	5	6'-6"	122
U1	32	#4	6	3'-8"	78
V1	76	#4	STR	7'-8"	389
V2	64	#4	STR	5'-10"	249

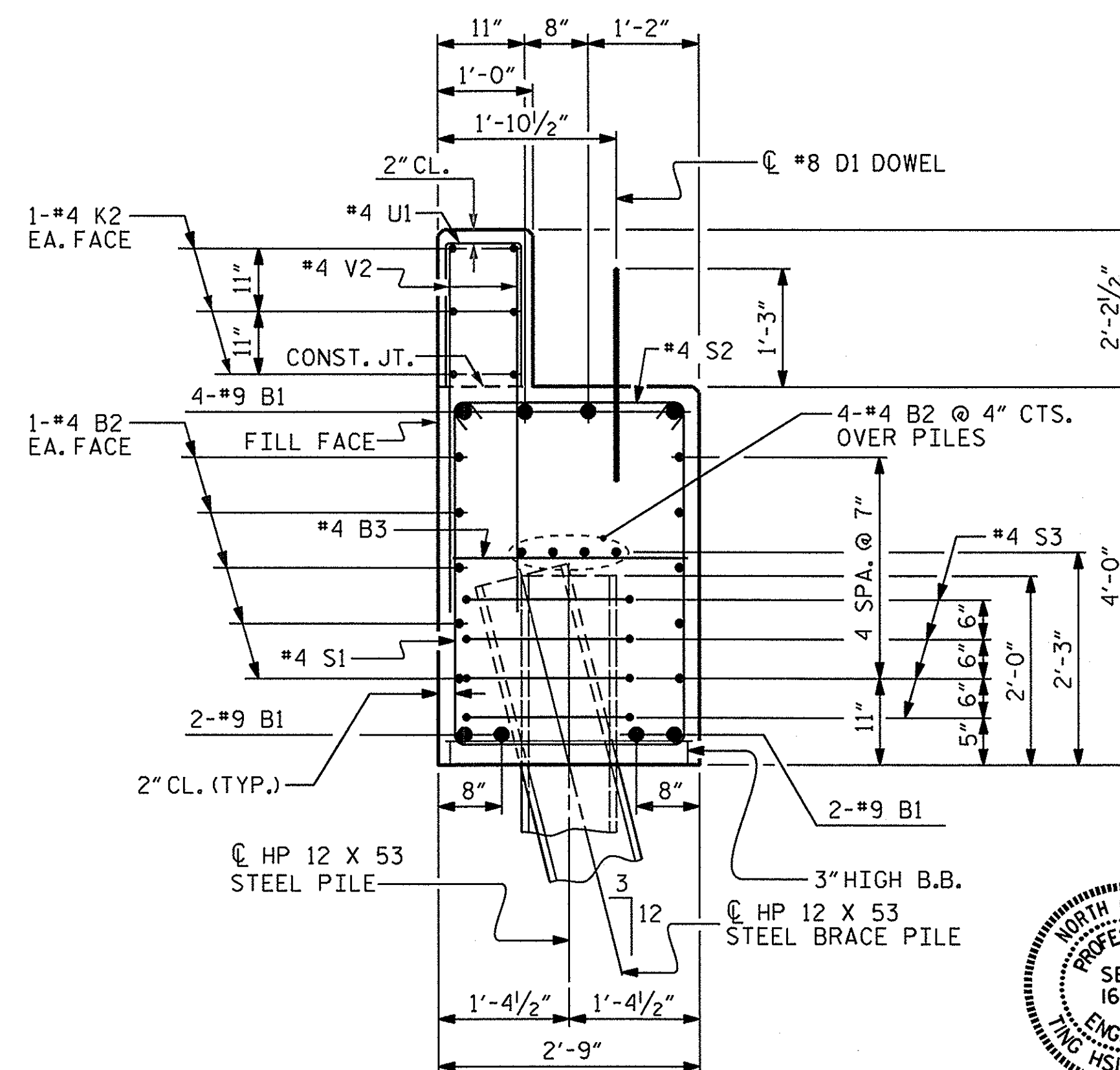
REINFORCING STEEL (FOR ONE END BENT) 4606 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 21.6 C.Y.

POUR #2 BACKWALL & UPPER PART OF WINGS 7.8 C.Y.

TOTAL CLASS A CONCRETE 29.4 C.Y.



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

PROJECT NO. BD-5108A

RANDOLPH COUNTY

STATION: 18+25.08 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

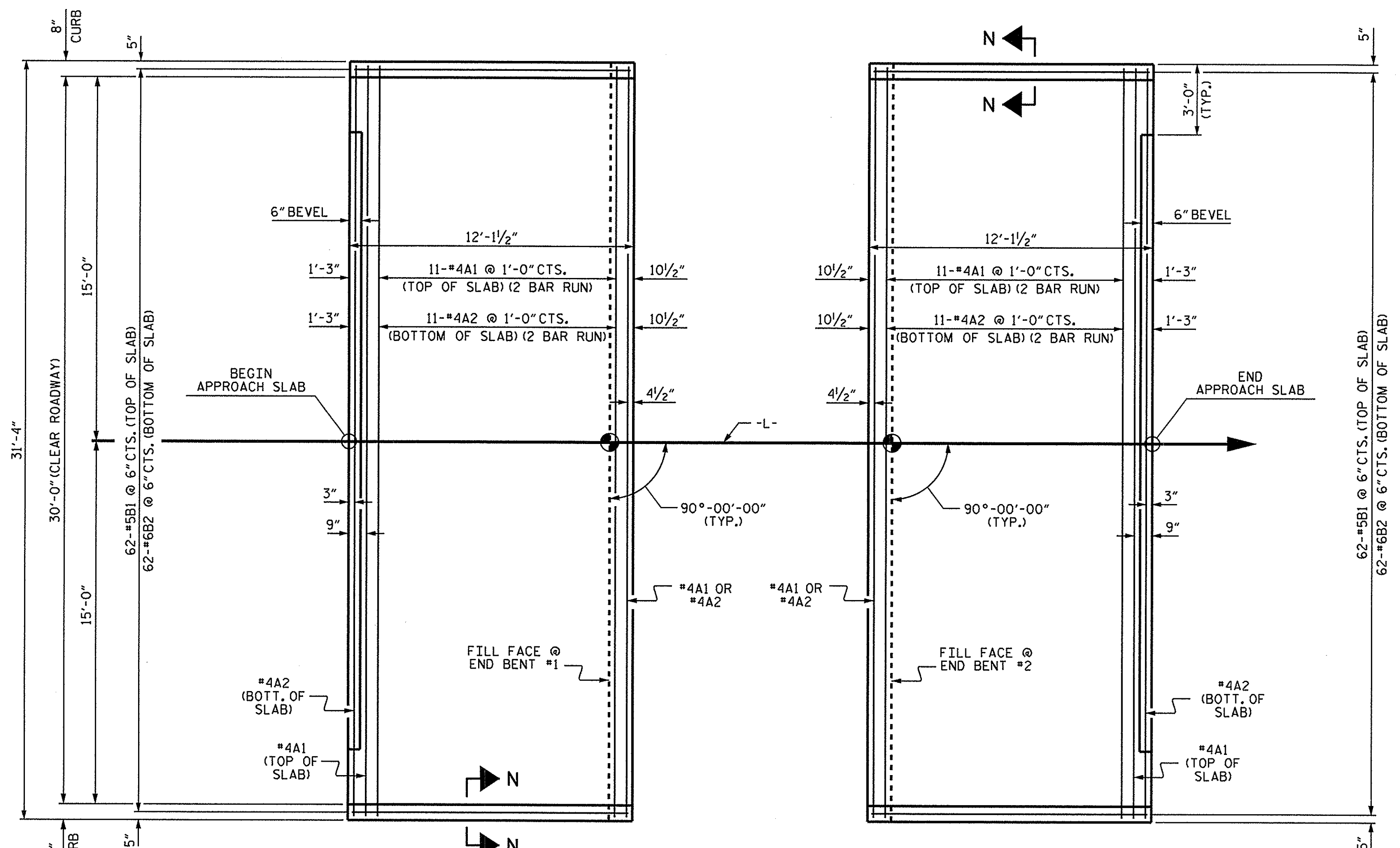
SUBSTRUCTURE

END BENTS 1 & 2
DETAILS

REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

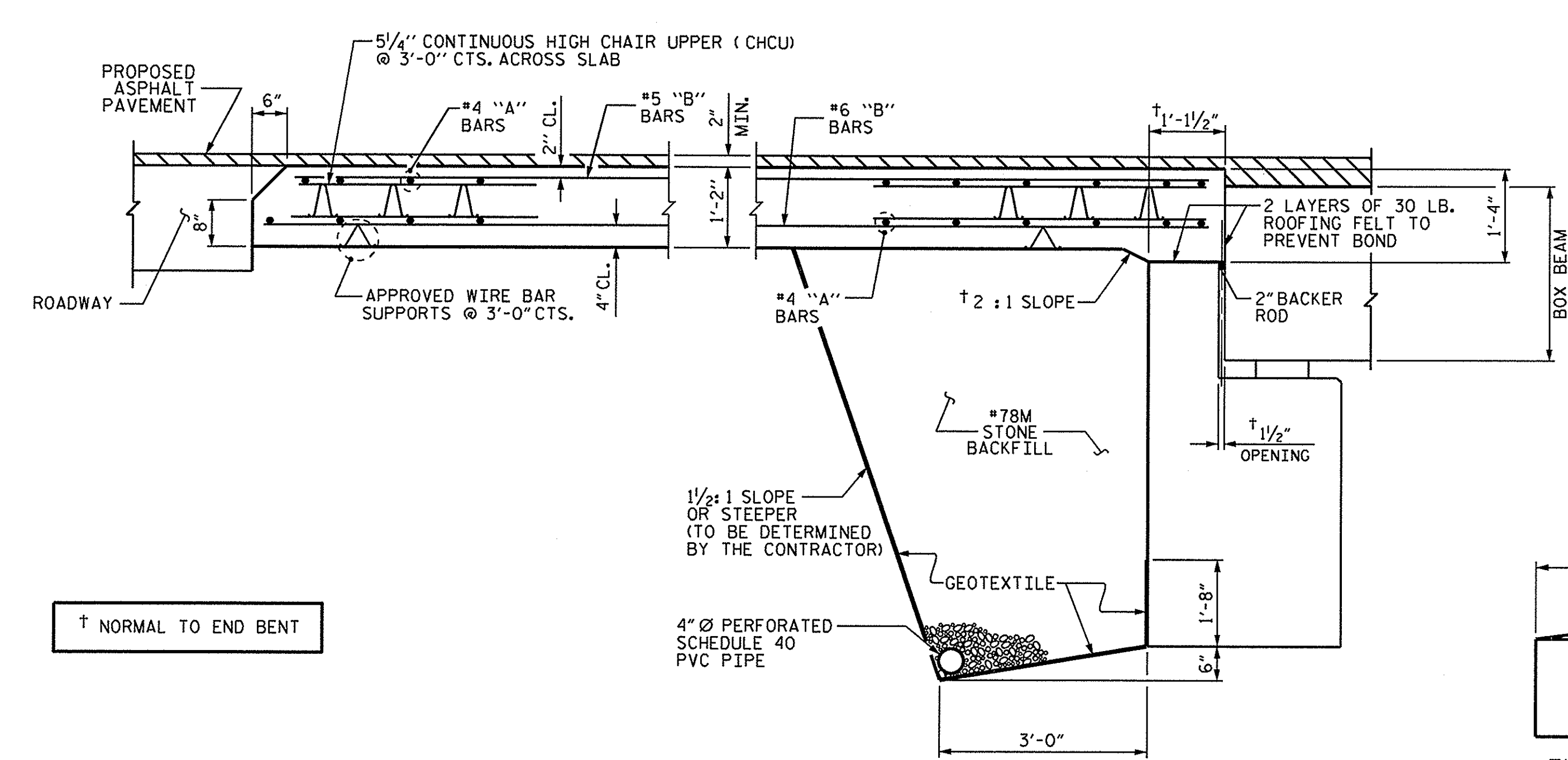
TOTAL SHEETS 18

ASSEMBLED BY : S. WANCE	DATE : 04/04/14
CHECKED BY : T. H. FANG	DATE : 6/20/14
DRAWN BY : WJH 12/II	
CHECKED BY : AAC 12/II	

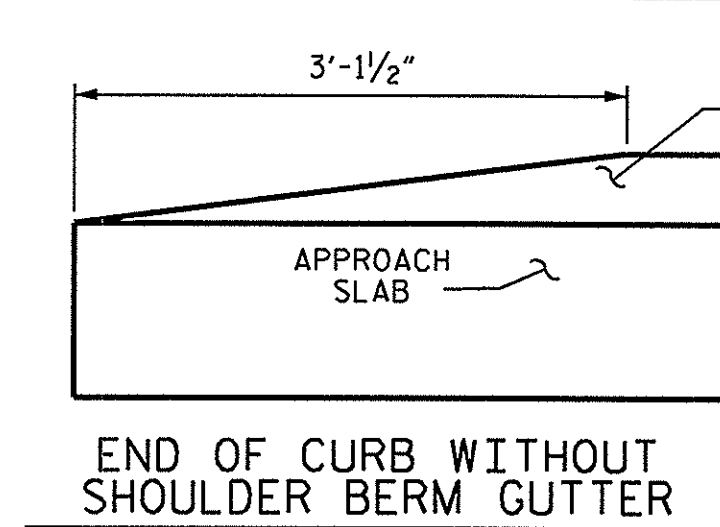
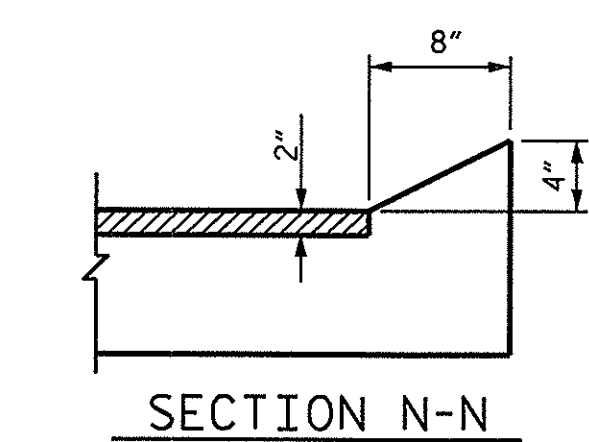


PLAN @ END BENT 1 PLAN @ END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB



CURB DETAILS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4\"/>

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

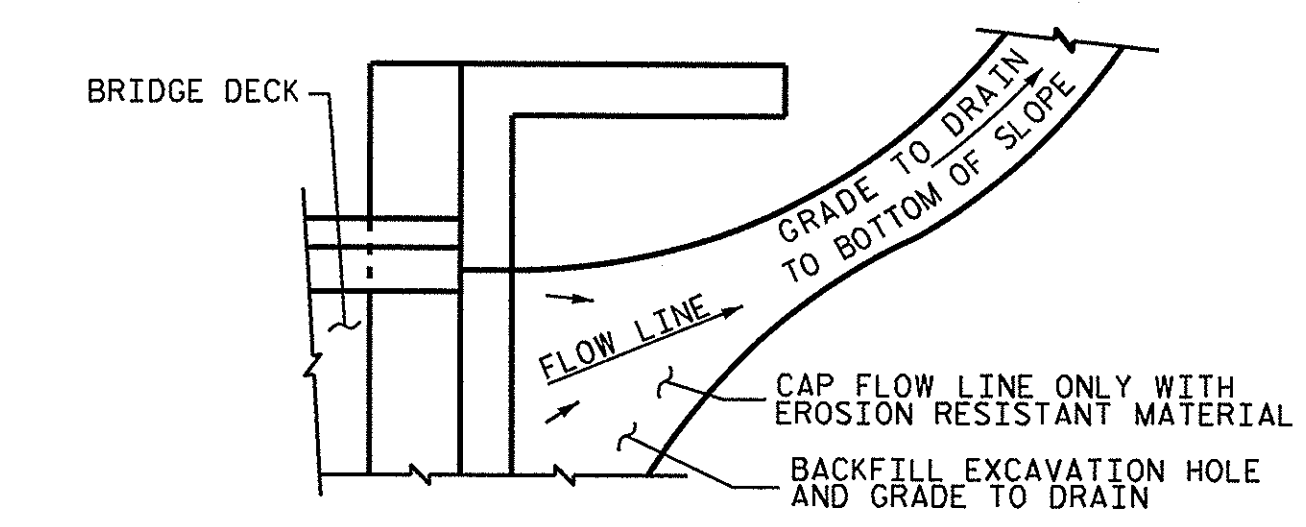
*78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

*78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4\"/>

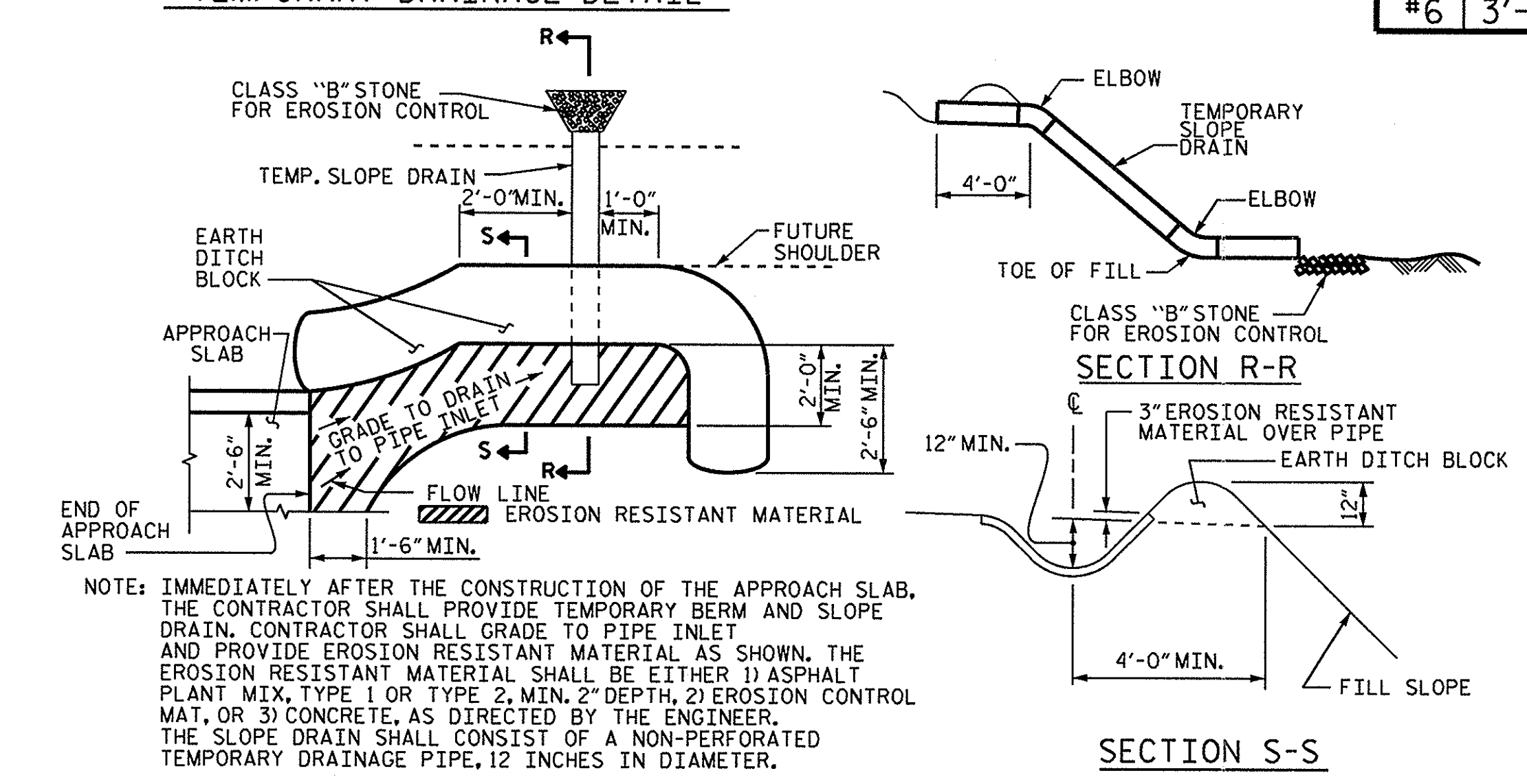
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2\"/>

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

BILL OF MATERIAL					
APPROACH SLAB AT EB 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	16'-6"	287
A2	26	#4	STR	16'-4"	284
*B1	62	#5	STR	11'-2"	722
B2	62	#6	STR	11'-8"	1086
REINFORCING STEEL				LBS.	1370
*EPOXY COATED REINFORCING STEEL				LBS.	1009
CLASS AA CONCRETE				C. Y.	16.7
APPROACH SLAB AT EB 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	16'-6"	287
A2	26	#4	STR	16'-4"	284
*B1	62	#5	STR	11'-2"	722
B2	62	#6	STR	11'-8"	1086
REINFORCING STEEL				LBS.	1370
*EPOXY COATED REINFORCING STEEL				LBS.	1009
CLASS AA CONCRETE				C. Y.	16.7

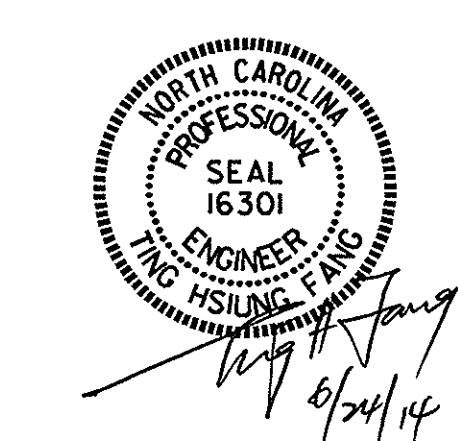
SPLICE LENGTHS

BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

PROJECT NO. BD-5108A
RANDOLPH COUNTY
 STATION: 18+25.08 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 BOX BEAM UNIT
 (SUB-REGIONAL TIER)
 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-18
2			4			
TOTAL SHEETS						18



ASSEMBLED BY : S. WANCE	DATE : 04/14/14
CHECKED BY : T. H. FANG	DATE : 6/20/14
DRAWN BY : MAA	11/11
CHECKED BY : AAC	11/11

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	SEE PLANS
IMPACT ALLOWANCE	- - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS.PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS.PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS.PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	- -	24,000 LBS.PER SQ. IN.
CONCRETE IN COMPRESSION	- - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	- - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	- - - - -	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	- - - -	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	- - - - -	30 LBS. PER CU. FT.
		(MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1½ CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS; VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER. DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS. WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8"Ø SHEAR STUDS FOR THE ¾"Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8"Ø STUDS FOR 4 - ¾"Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8"Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾"Ø STUDS BASED ON THE RATIO OF 3 - 7/8"Ø STUDS FOR 4 - ¾"Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0". EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED. WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN