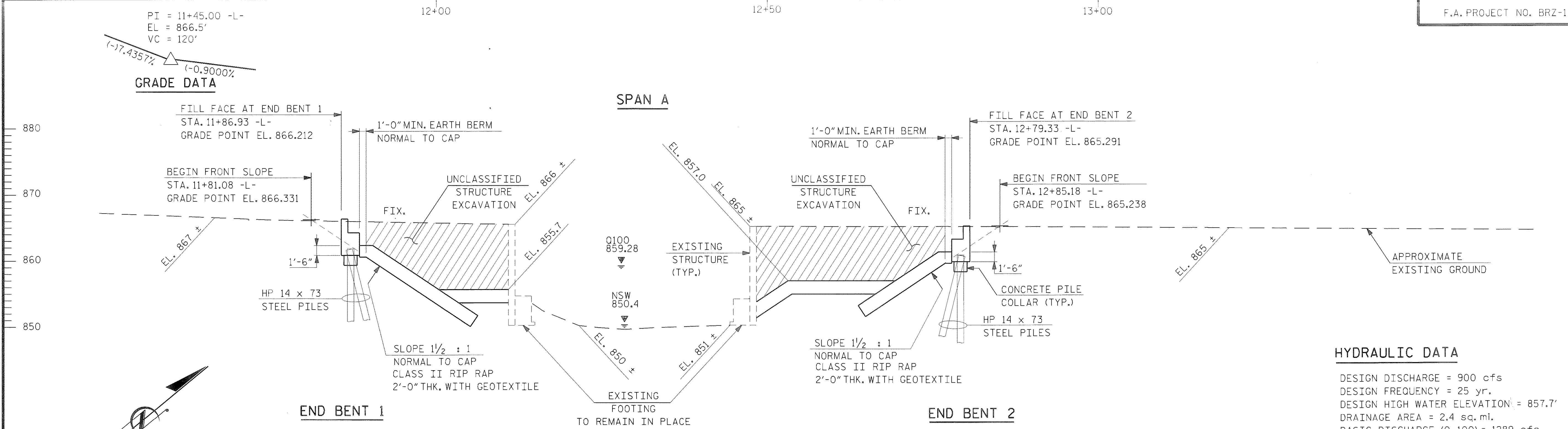


BD-5111S

BRIDGE NO. 79 YADKIN COUNTY

PI = 11+45.00 -L-
EL = 866.5'
VC = 120'

(-7.4357%
(-0.9000%
GRADE DATA



HYDRAULIC DATA

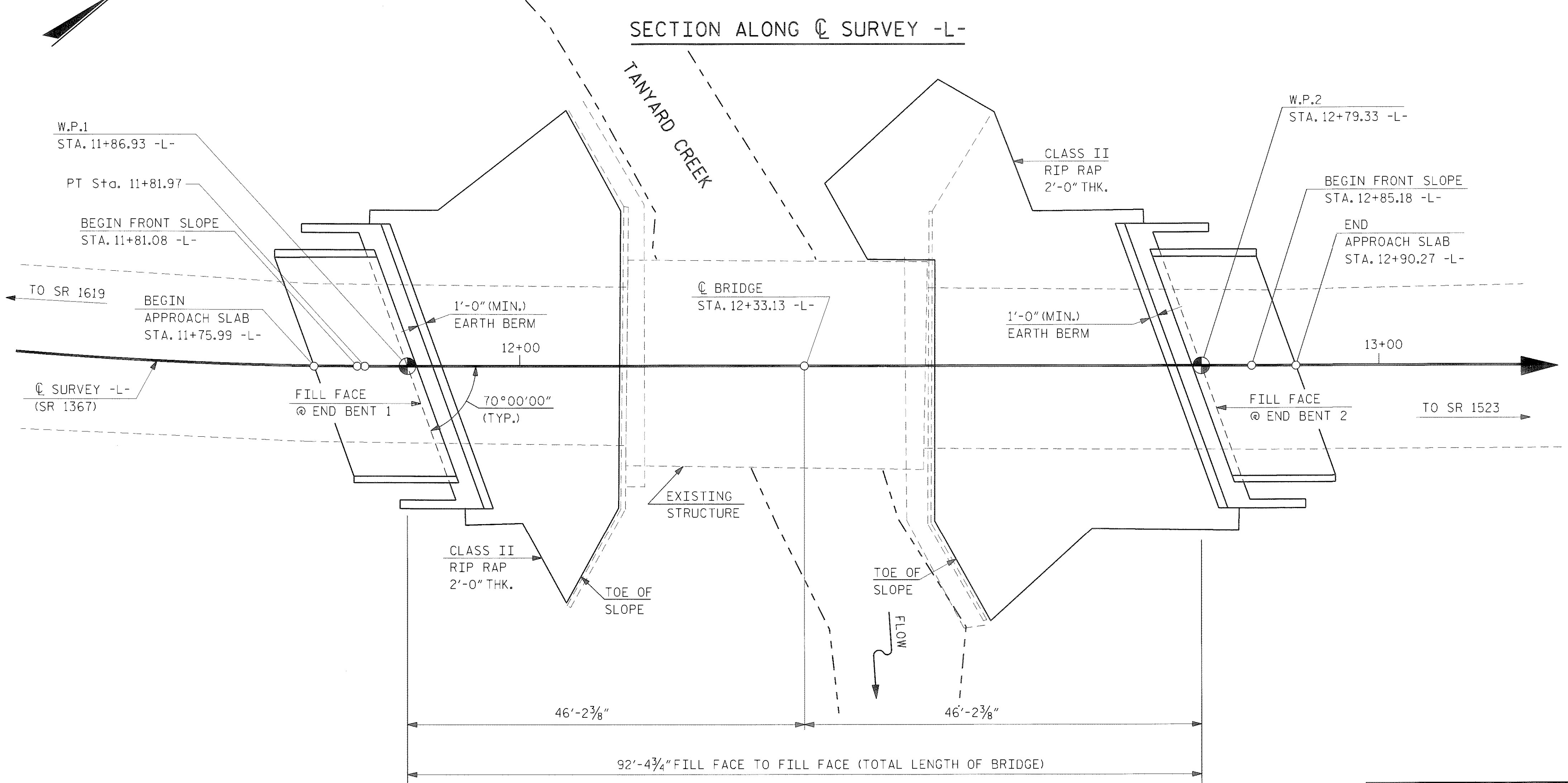
DESIGN DISCHARGE = 900 cfs
 DESIGN FREQUENCY = 25 yr.
 DESIGN HIGH WATER ELEVATION = 857.7'
 DRAINAGE AREA = 2.4 sq. mi.
 BASIC DISCHARGE (Q 100) = 1289 cfs
 BASIC HIGH WATER ELEVATION = 859.3'

OVERTOPPING FLOOD DATA

EL = 863.7
 FREQUENCY = > 500 yr.
 DISCHARGE = > 1800 cfs

HORIZONTAL CURVE DATA

PI Sta 10+72.68	PI Sta 11+51.48
Δ = 29° 46' 15.6" (LT)	Δ = 7° 12' 53.9" (LT)
D = 30° 09' 20.4"	D = 11° 48' 48.8"
L = 98.72'	L = 61.07'
T = 50.50'	T = 30.58'
R = 190.00'	R = 485.00'

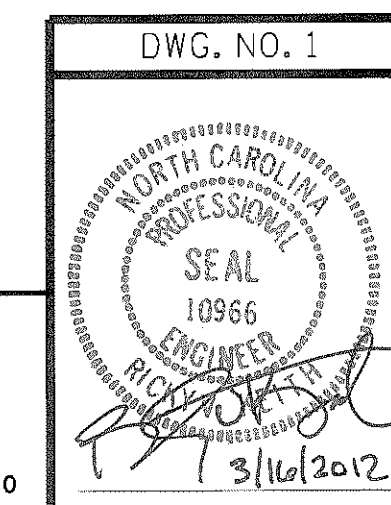


PLAN

PILES NOT SHOWN IN PLAN VIEW

DRAWN BY : F.D. WEEDEN DATE : MAR. 2012
 CHECKED BY : R.V. KEITH DATE : MAR. 2012

RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEFIELD DRIVE SUITE 350
 RALEIGH, NORTH CAROLINA 27609-3960
 NC LICENSE NUMBER: F-0112



PROJECT NO. BD-5111S
 YADKIN COUNTY
 STATION: STA. 12+33.13 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 79

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 TANYARD CREEK
 ON SR 1367 RIVER ROAD
 BETWEEN SR 1619 AND SR 1523

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

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 35'-6" WITH AN ASPHALT WEARING SURFACE OVER A PRESTRESSED CONCRETE CORED SLAB SUPERSTRUCTURE AND A CLEAR ROADWAY WIDTH OF 23.7' ON A SUBSTRUCTURE CONSISTING OF PPC CAPS ON STEEL H-PILES AND LOCATED AT THE PROPOSED STRUCTURE LOCATION SHALL BE REMOVED.

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 THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FEET EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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.

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

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.

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 SHALL 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 12+33.13 -L-".

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

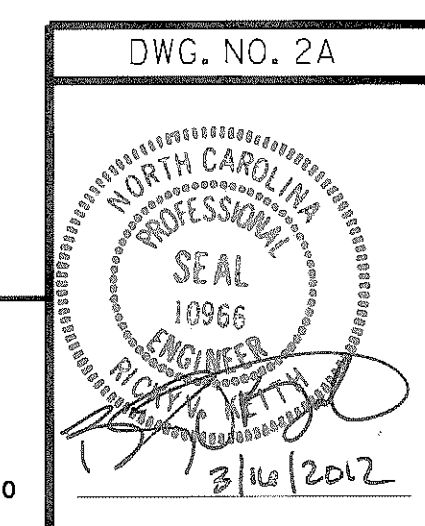
FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 120 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 AND END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 200 TONS PER PILE.

PROJECT NO. BD-5111S
YADKIN COUNTY
 STATION: STA. 12+33.13 -L-

SHEET 3 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER
 TANYARD CREEK
 ON SR 1367 RIVER ROAD
 BETWEEN SR 1619 AND SR 1523



RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEFIELD DRIVE SUITE 350
 RALEIGH, NORTH CAROLINA 27609-3960
 NC LICENSE NUMBER: F-0112

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

DRAWN BY : F.D. WEEDEN DATE : MAR. 2012
 CHECKED BY : R.V. KEITH DATE : MAR. 2012

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

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	1.126	--	1.75	0.267	1.49	A	EL	44.224	0.584	1.15	A	EL	8.845	0.80	0.267	1.13	A	EL	44.224		
	HL-93(0pr)	N/A	--	1.488	--	1.35	0.267	1.94	A	EL	44.224	0.584	1.49	A	EL	8.845	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.491	53.666	1.75	0.267	2.03	A	EL	44.224	0.584	1.49	A	EL	8.845	0.80	0.267	1.53	A	EL	44.224		
	HS-20(0pr)	36.000	--	1.932	69.567	1.35	0.267	2.63	A	EL	44.224	0.584	1.93	A	EL	8.845	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.573	48.237	1.4	0.267	5.92	A	EL	44.224	0.584	4.53	A	EL	8.845	0.80	0.267	3.57	A	EL	44.224	
		SNGARBS2	20.000	--	2.611	52.229	1.4	0.267	4.33	A	EL	44.224	0.584	3.19	A	EL	8.845	0.80	0.267	2.61	A	EL	44.224	
		SNAGRIS2	22.000	--	2.452	53.948	1.4	0.267	4.07	A	EL	44.224	0.584	2.95	A	EL	8.845	0.80	0.267	2.45	A	EL	44.224	
		SNCOTTS3	27.250	--	1.777	48.412	1.4	0.267	2.95	A	EL	44.224	0.584	2.26	A	EL	8.845	0.80	0.267	1.78	A	EL	44.224	
		SNAGRS4	34.925	--	1.465	51.163	1.4	0.267	2.43	A	EL	44.224	0.584	1.85	A	EL	8.845	0.80	0.267	1.46	A	EL	44.224	
		SNS5A	35.550	--	1.434	50.974	1.4	0.267	2.38	A	EL	44.224	0.584	1.87	A	EL	8.845	0.80	0.267	1.43	A	EL	44.224	
		SNS6A	39.950	--	1.307	52.234	1.4	0.267	2.17	A	EL	44.224	0.584	1.69	A	EL	8.845	0.80	0.267	1.31	A	EL	44.224	
	SNS7B	42.000	--	1.245	52.283	1.4	0.267	2.06	A	EL	44.224	0.584	1.65	A	EL	8.845	0.80	0.267	1.24	A	EL	44.224		
	TTST	TNAGRIT3	33.000	--	1.592	52.537	1.4	0.267	2.64	A	EL	44.224	0.584	2.02	A	EL	8.845	0.80	0.267	1.59	A	EL	44.224	
		TNT4A	33.075	--	1.597	52.815	1.4	0.267	2.65	A	EL	44.224	0.584	1.98	A	EL	8.845	0.80	0.267	1.60	A	EL	44.224	
		TNT6A	41.600	--	1.298	53.997	1.4	0.267	2.15	A	EL	44.224	0.584	1.74	A	EL	8.845	0.80	0.267	1.30	A	EL	44.224	
		TNT7A	42.000	--	1.3	54.619	1.4	0.267	2.16	A	EL	44.224	0.584	1.71	A	EL	8.845	0.80	0.267	1.30	A	EL	44.224	
		TNT7B	42.000	--	1.335	56.09	1.4	0.267	2.21	A	EL	44.224	0.584	1.62	A	EL	8.845	0.80	0.267	1.34	A	EL	44.224	
		TNAGRIT4	43.000	--	1.278	54.943	1.4	0.267	2.12	A	EL	44.224	0.584	1.57	A	EL	8.845	0.80	0.267	1.28	A	EL	44.224	
TNAGT5A		45.000	--	1.208	54.37	1.4	0.267	2	A	EL	44.224	0.584	1.55	A	EL	8.845	0.80	0.267	1.21	A	EL	44.224		
TNAGT5B	45.000	3	1.197	53.852	1.4	0.267	1.98	A	EL	44.224	0.584	1.5	A	EL	8.845	0.80	0.267	1.20	A	EL	44.224			

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.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

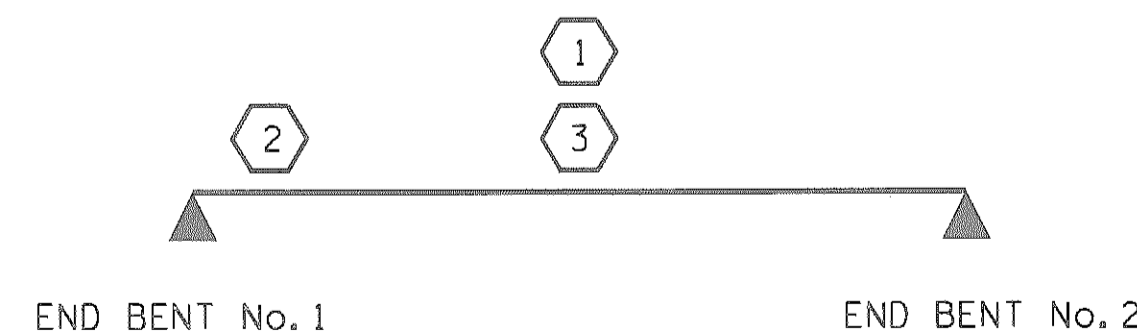
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



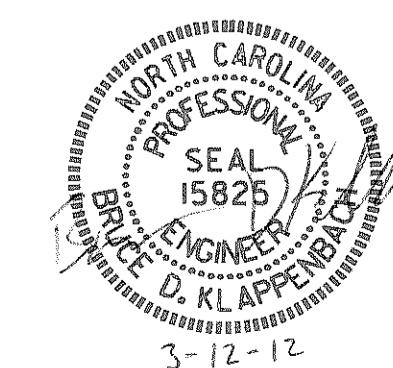
LRFR SUMMARY

PROJECT NO. BD-5111S
YADKIN COUNTY
 STATION: 12+33.13 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 LRFR SUMMARY FOR
 90' BOX BEAM UNIT
 70° SKEW
 (NON-INTERSTATE TRAFFIC)

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



ASSEMBLED BY : T.L.CLELLAND DATE : 1/2012
 CHECKED BY : S.T.CHAMPION DATE : 2/2012
 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 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE 2" Ø BACKER 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 6000 PSI.

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

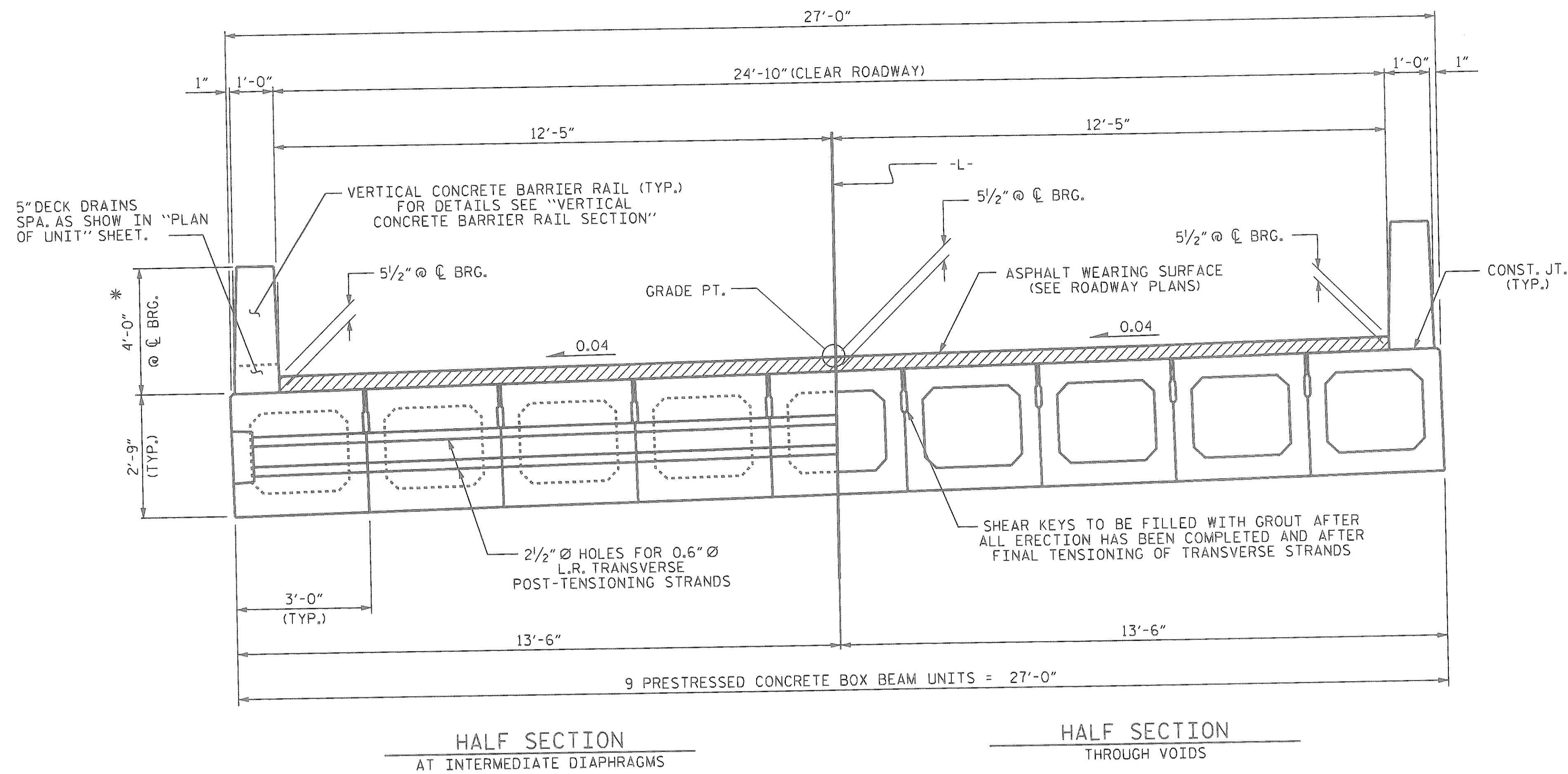
PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL 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.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

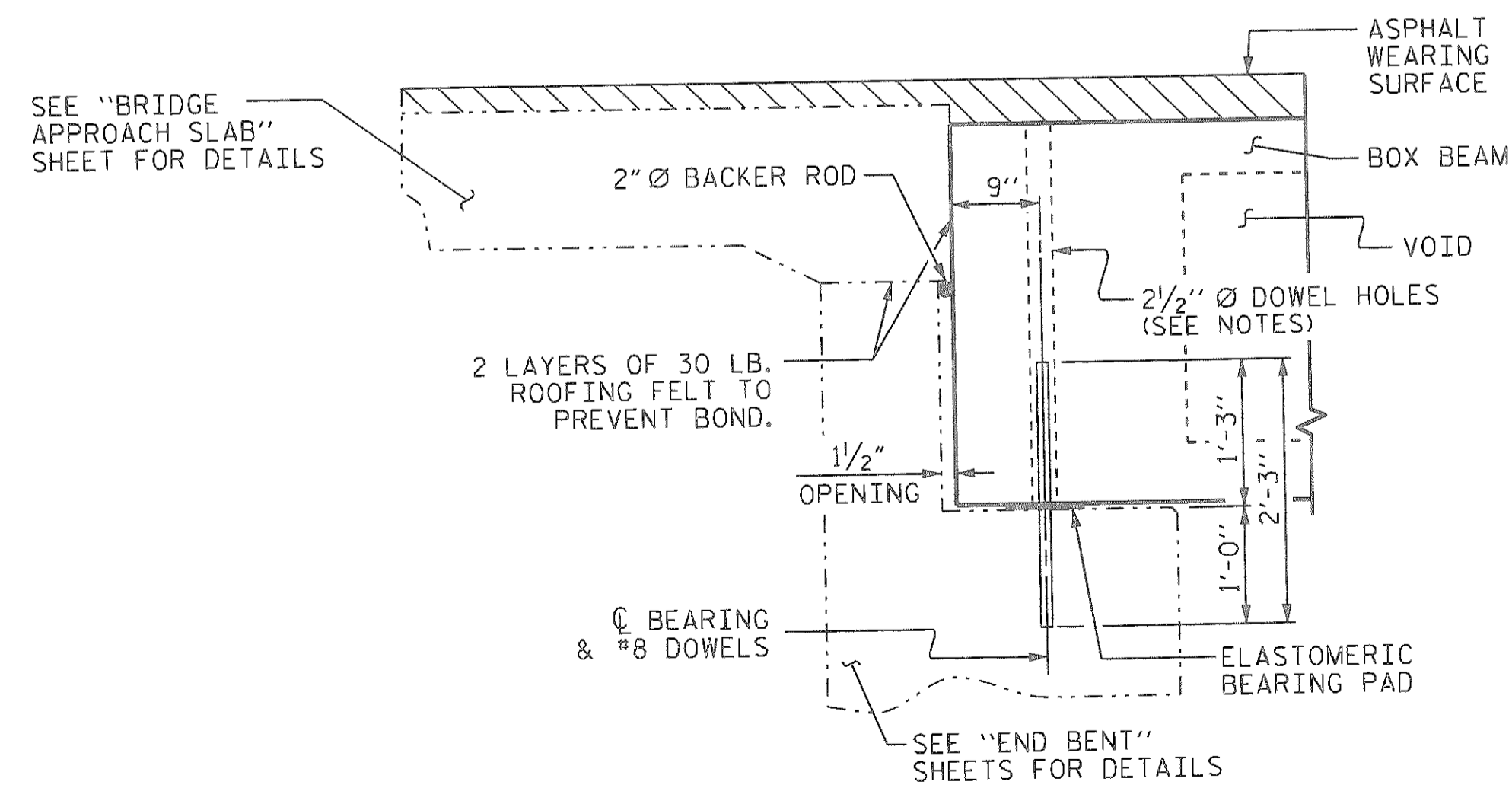


HALF SECTION AT INTERMEDIATE DIAPHRAGMS HALF SECTION THROUGH VOIDS

TYPICAL SECTION

* THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

FIXED END

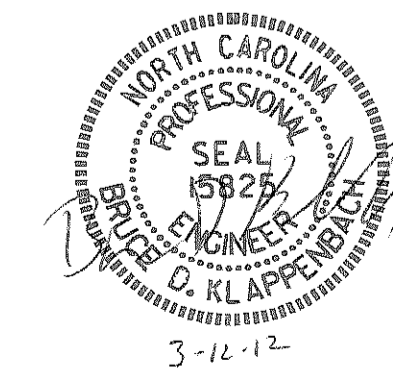


SECTION AT END BENT

PROJECT NO. BD-5111S
YADKIN COUNTY
 STATION: 12+33.13 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

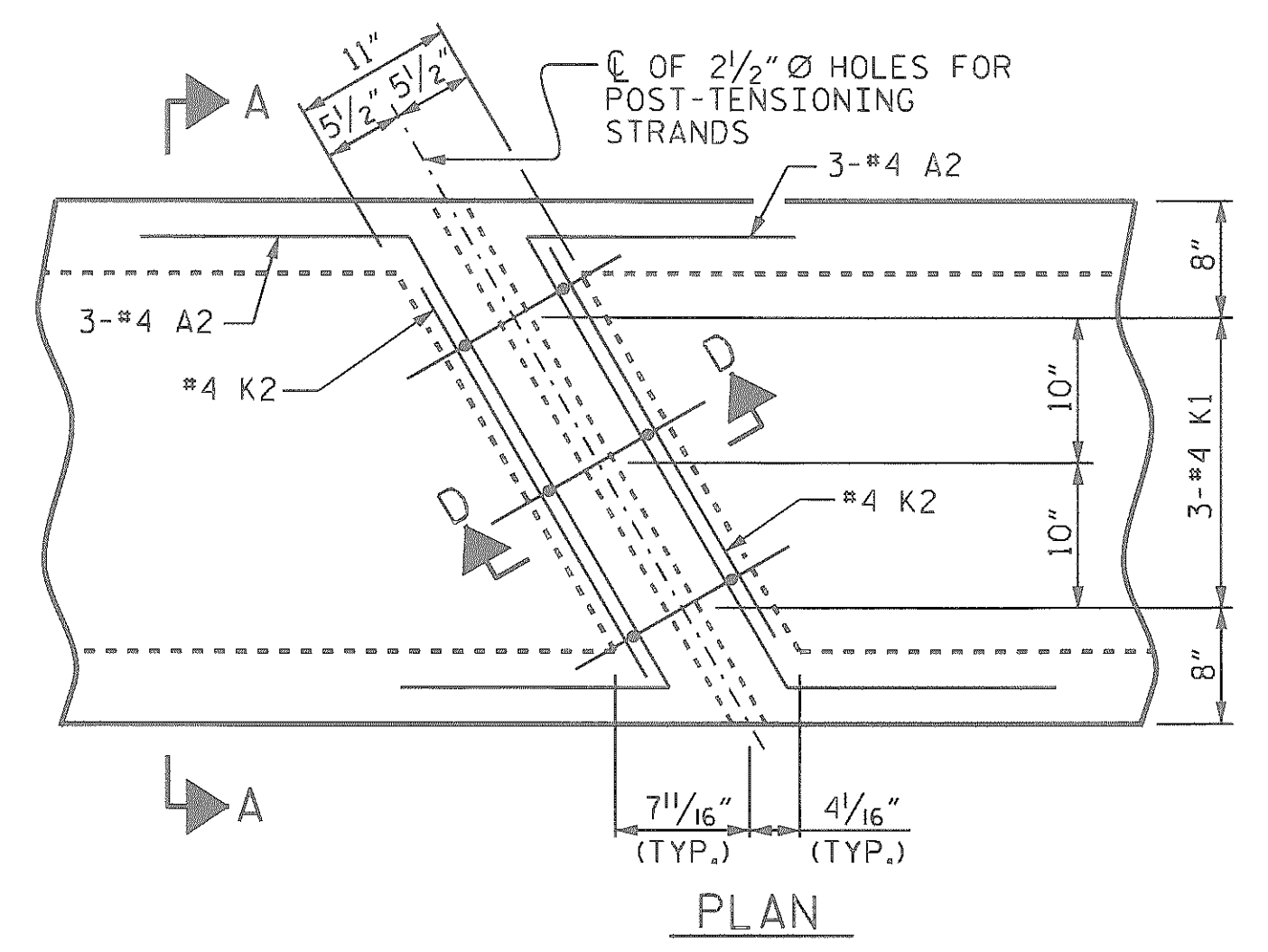


ASSEMBLED BY : T.L.CLELLAND DATE : 1/2012
 CHECKED BY : S.T.CHAMPION DATE : 2/2012
 DRAWN BY : DCE 8/11
 CHECKED BY : TMG 11/11

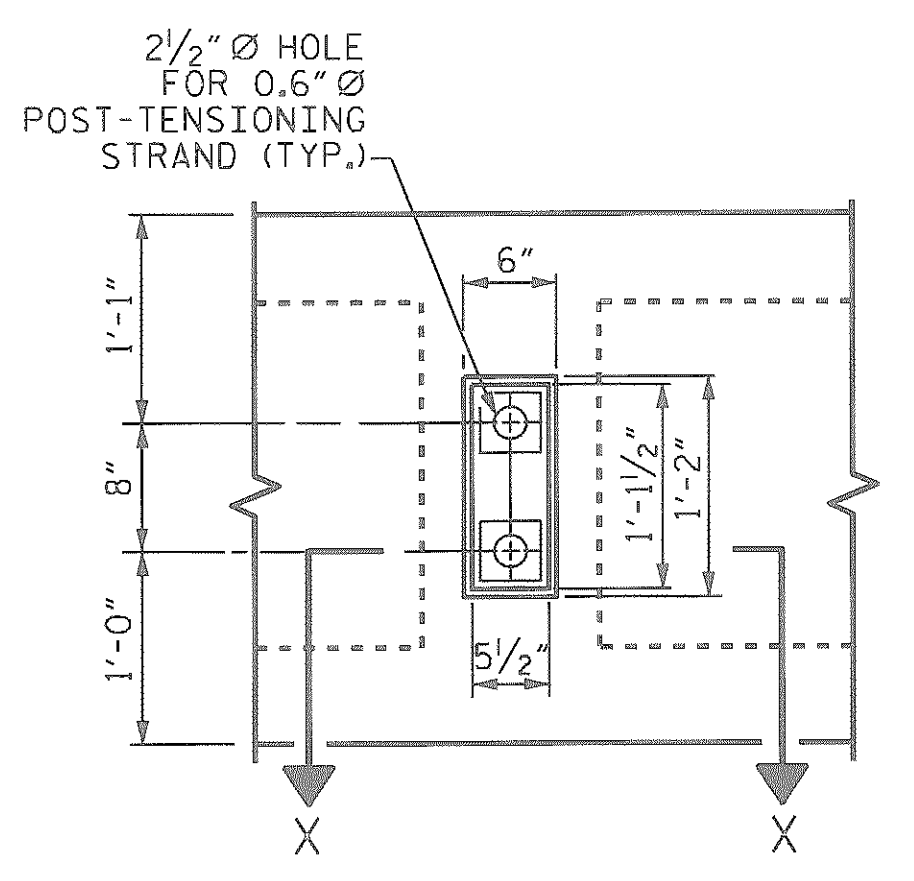
12-MAR-2012 15:11
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			15

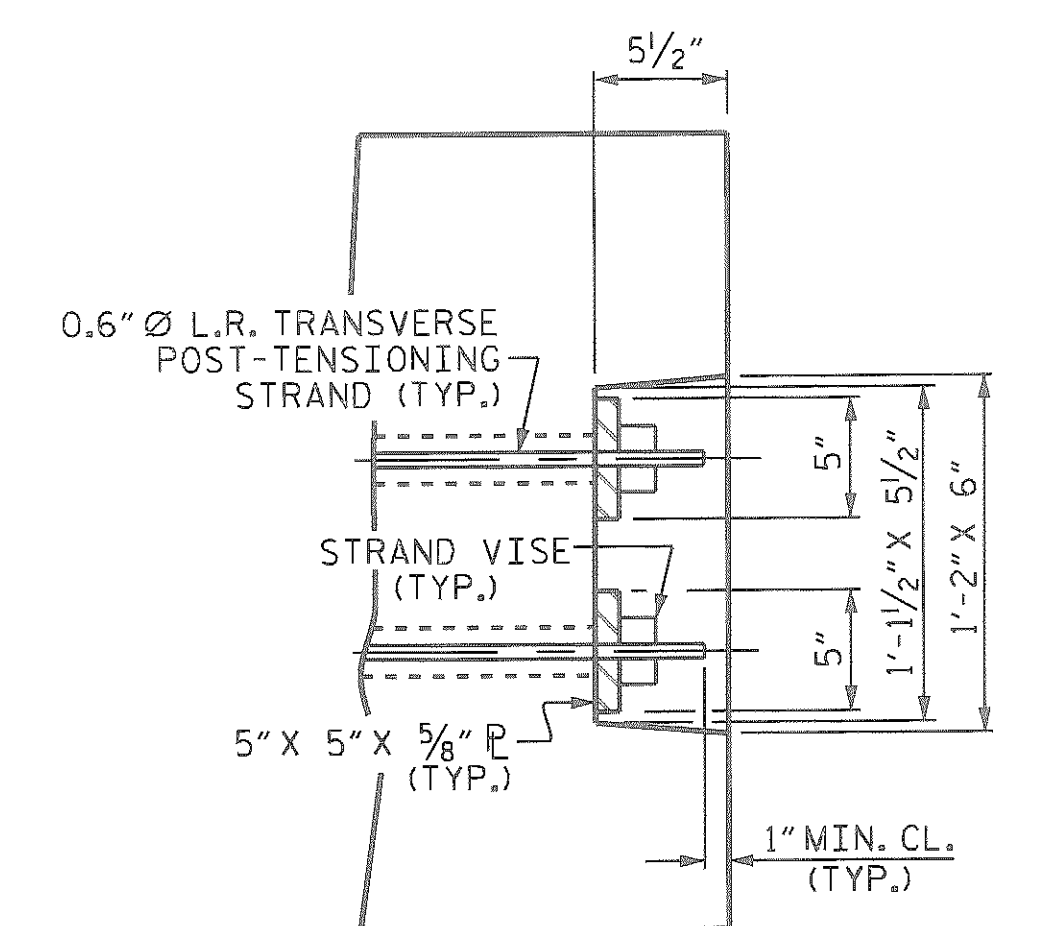
STD. NO. STD.33PCBB1.27



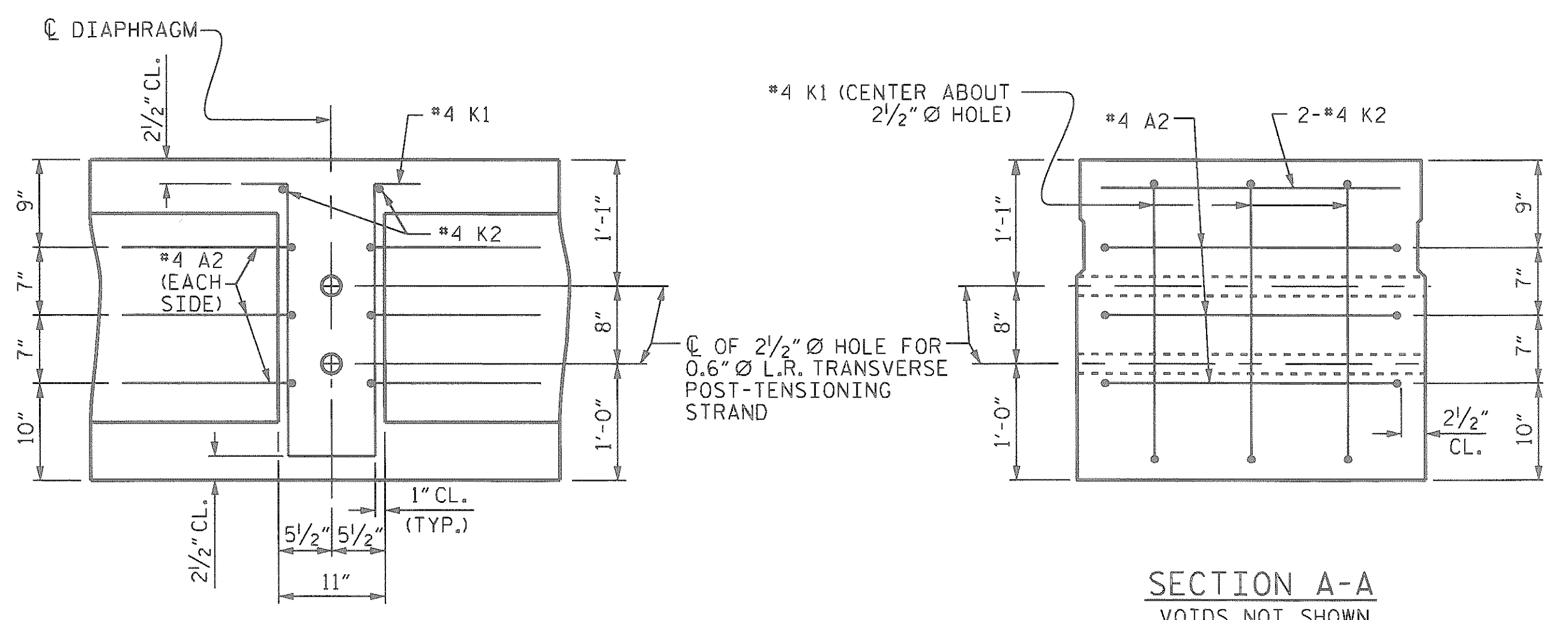
PLAN



VIEW Y-Y
SHOWING ELEVATION VIEW OF GROUDED RECESS



DETAIL "C"

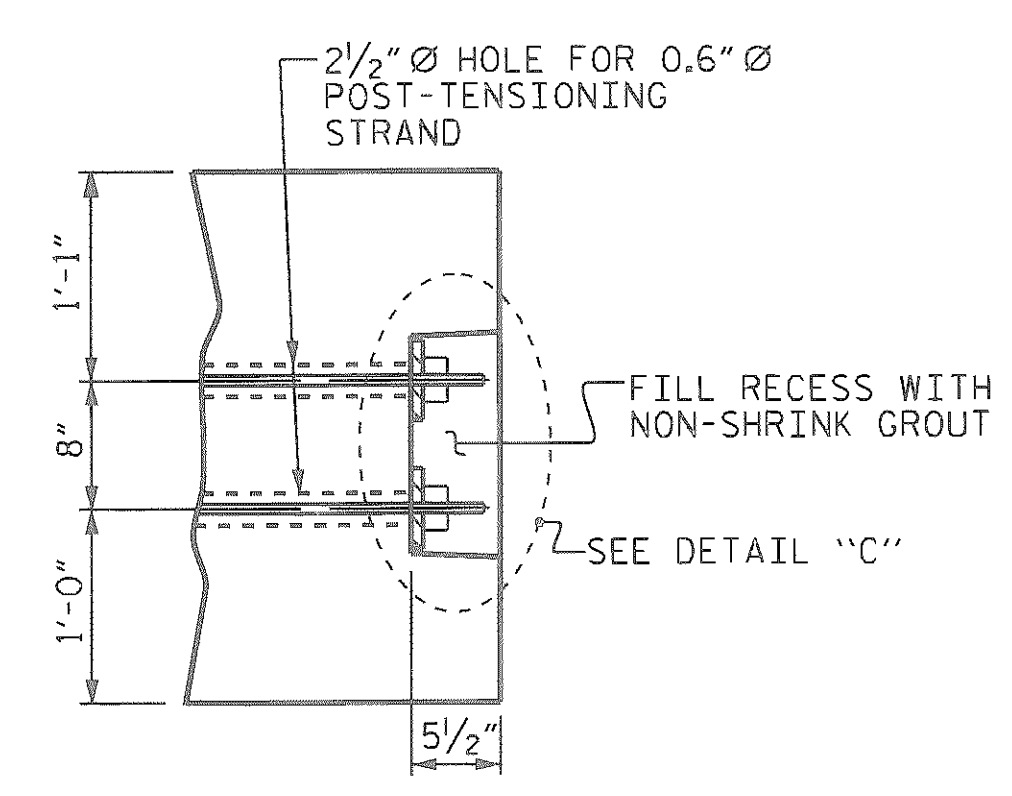


SECTION A-A
VOIDS NOT SHOWN

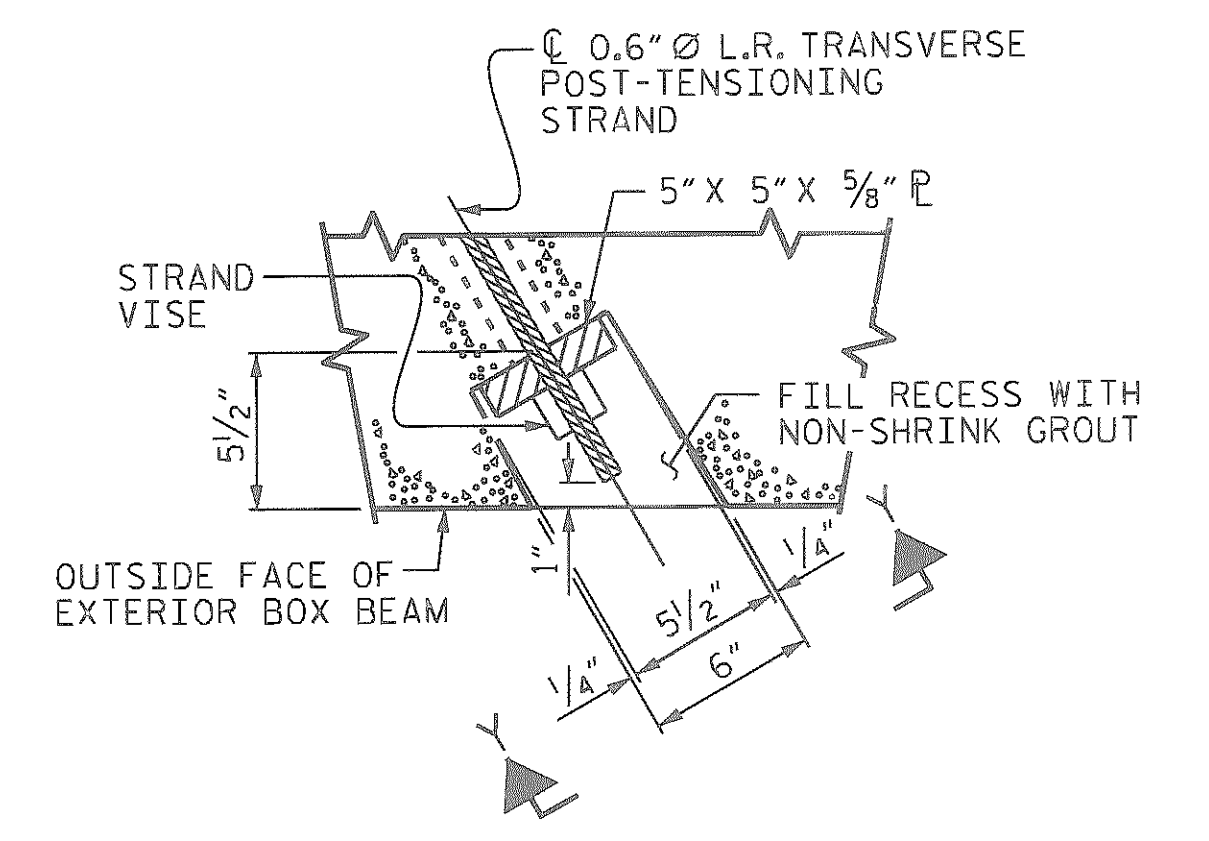
SECTION D-D

DOUBLE DIAPHRAGM DETAILS

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

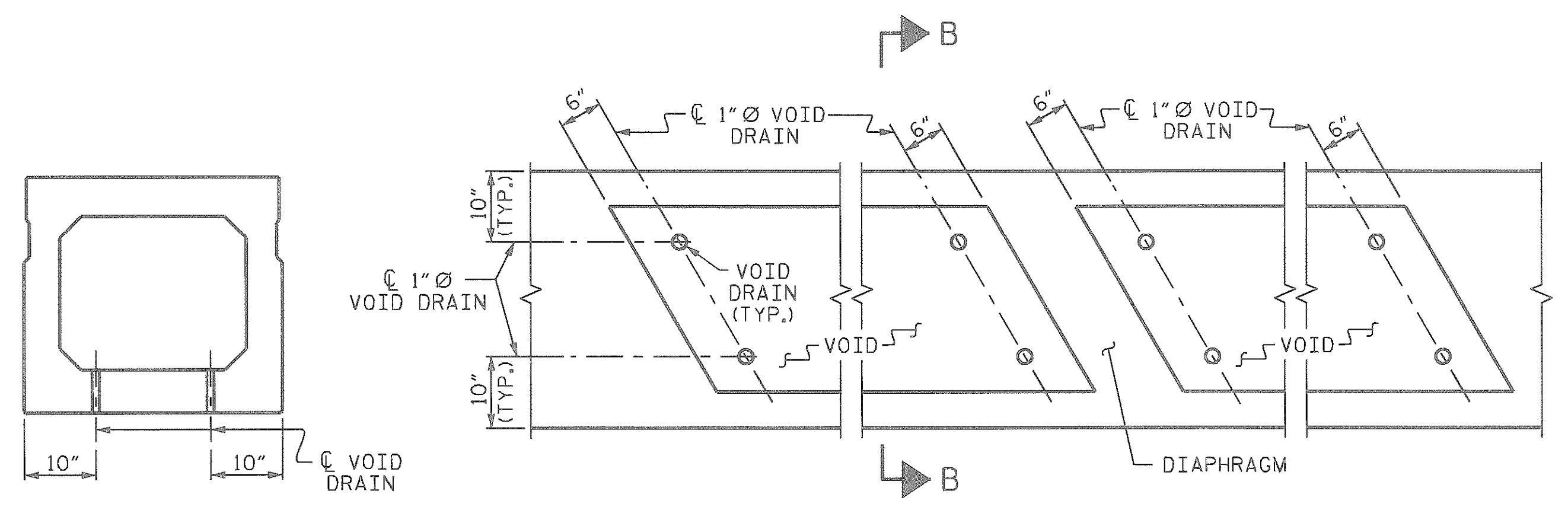


PART SECTION AT RECESS



SECTION X-X
SHOWING PLAN VIEW OF GROUDED RECESS

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



VOID DRAIN DETAILS
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

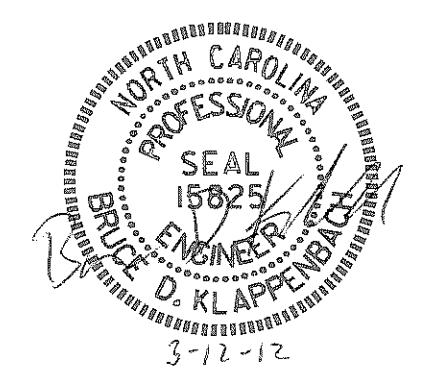
DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 2'-9"
90' BOX BEAM UNIT (NC & SE)	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3 3/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	** 3/4" ↓
FINAL CAMBER	3" ↑

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. BD-51115
YADKIN COUNTY
STATION: 12+33.13 -L-

SHEET 4 OF 5

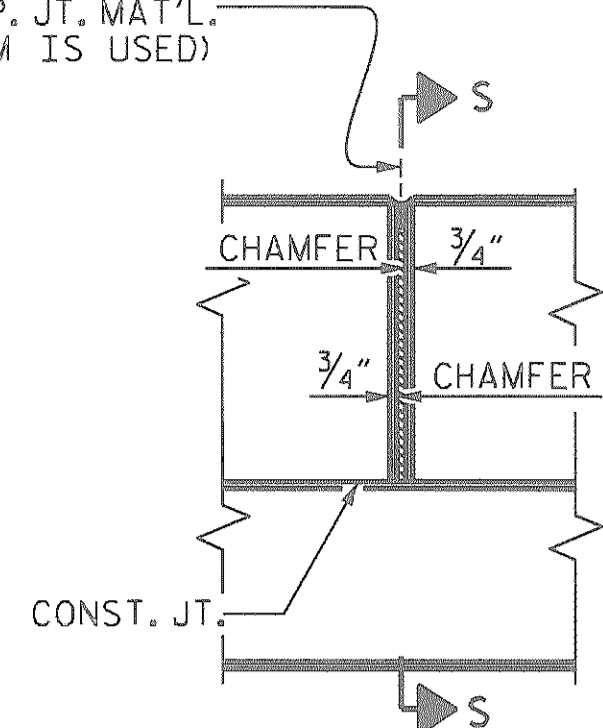
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT



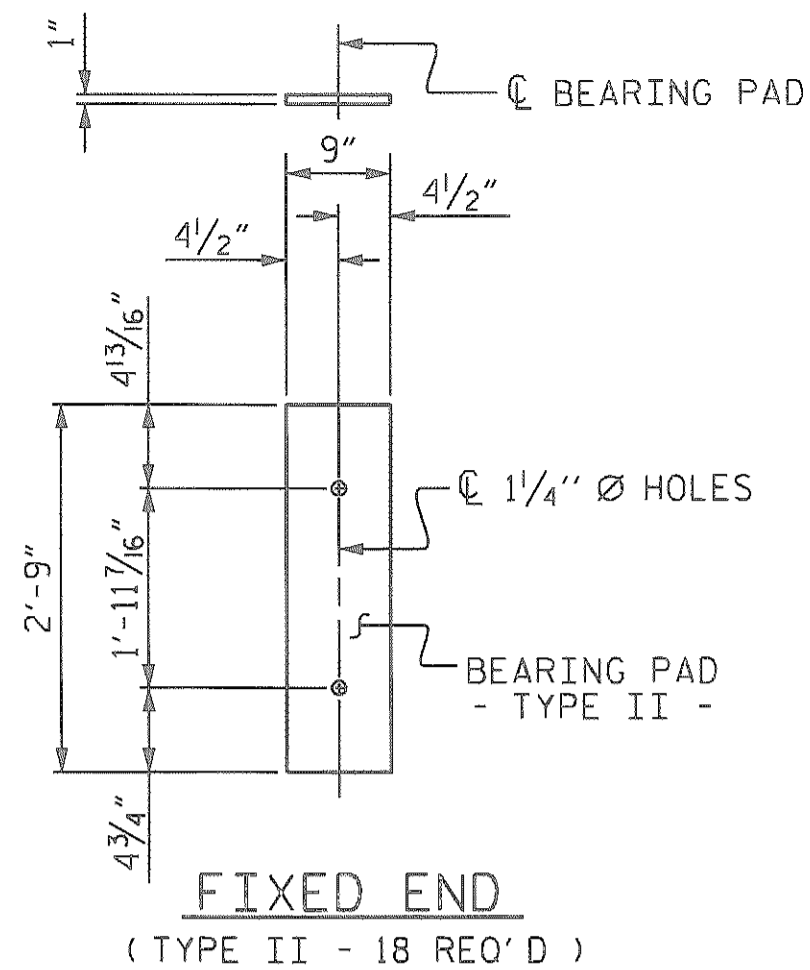
REVISIONS						SHEET NO. S-7
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 15
2			4			

ASSEMBLED BY : T.L.CLELLAND DATE : 1/2012
CHECKED BY : S.T.CHAMPION DATE : 2/2012
DRAWN BY : DGE II/II
CHECKED BY : TMG II/II

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED)

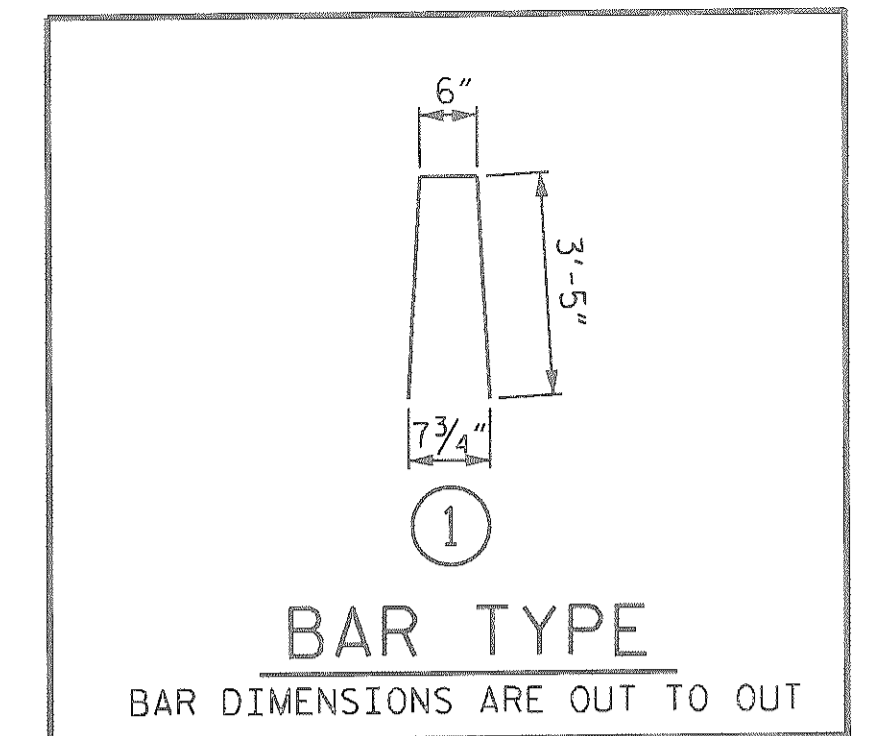


ELEVATION AT EXPANSION JOINTS

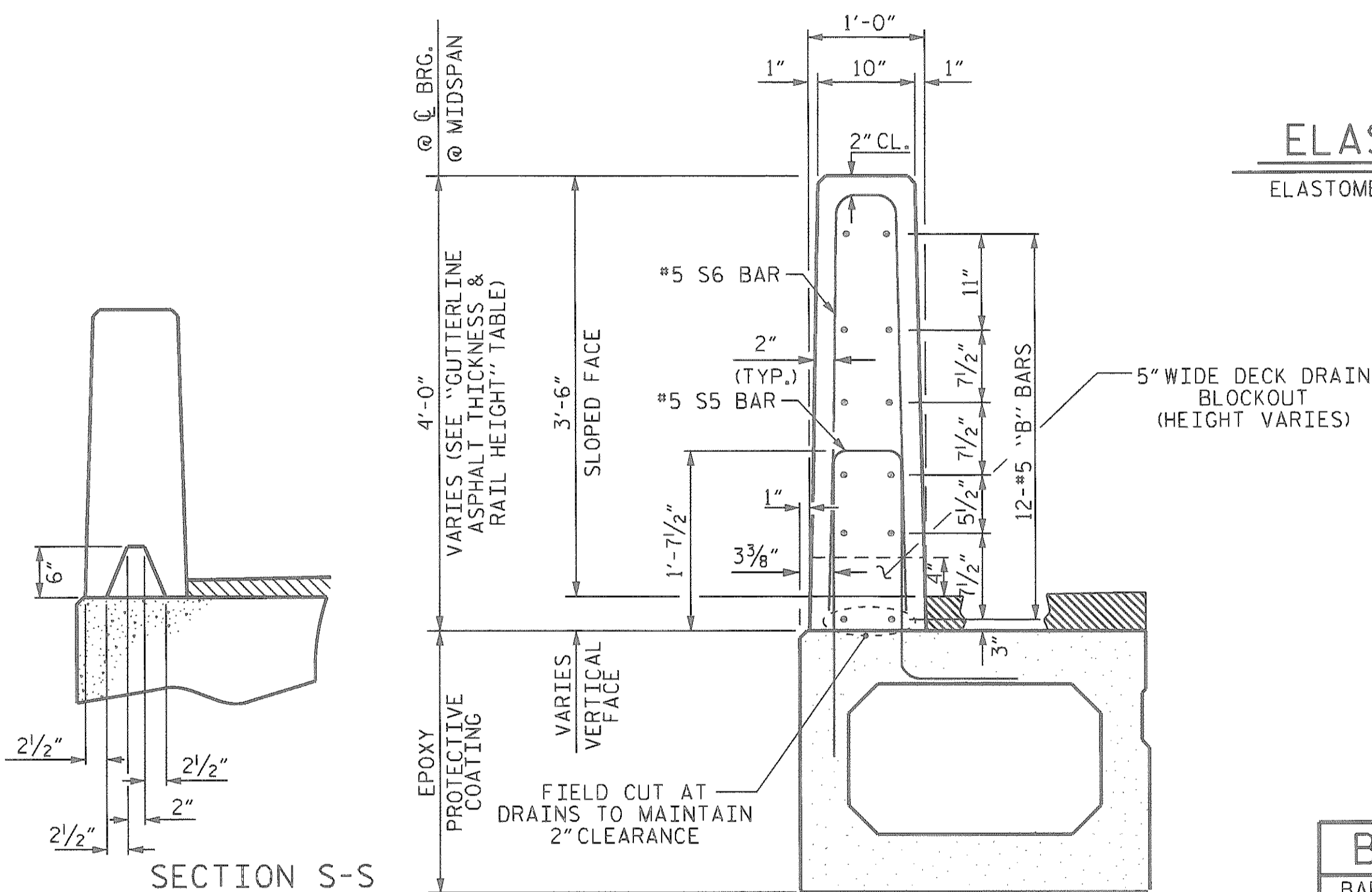


ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



BAR TYPE
BAR DIMENSIONS ARE OUT TO OUT



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

SECTION THRU RAIL

VERTICAL CONCRETE BARRIER RAIL DETAILS

BOX BEAM UNITS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	90'-0"	180'-0"
INTERIOR B.B.	7	90'-0"	630'-0"
TOTAL	9		810'-0"

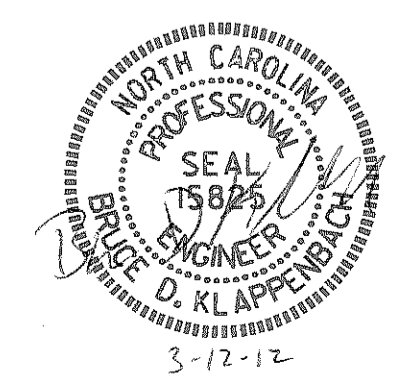
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL					
BAR	BARS PER PAIR OF EXTERIOR UNITS	SIZE	TYPE	LENGTH	WEIGHT
	90' UNIT				
* B10	192	#5	STR	12'-10"	2570
* S6	242	#5	1	7'-4"	1851
* EPOXY COATED REINFORCING STEEL				LBS.	4421
CLASS AA CONCRETE				CU. YDS.	24.5
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.	180.0

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
90' UNITS	1 1/2" *	3'-8"

* THICKNESS AT MIDSPAN REFLECTS THE EFFECTS OF THE VERTICAL CURVE. VERTICAL CURVE ORDINATE = 1'.

PROJECT NO. BD-5111S
YADKIN COUNTY
STATION: 12+33.13 -L-

SHEET 5 OF 5
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT



ASSEMBLED BY : T.L.CLELLAND DATE : 1/2012
CHECKED BY : S.T.CHAMPION DATE : 2/2012
DRAWN BY : DGE 10/11
CHECKED BY : TMG 11/11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS 15
2			4			

STD. NO. 33PCBB8.75&105S

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.)

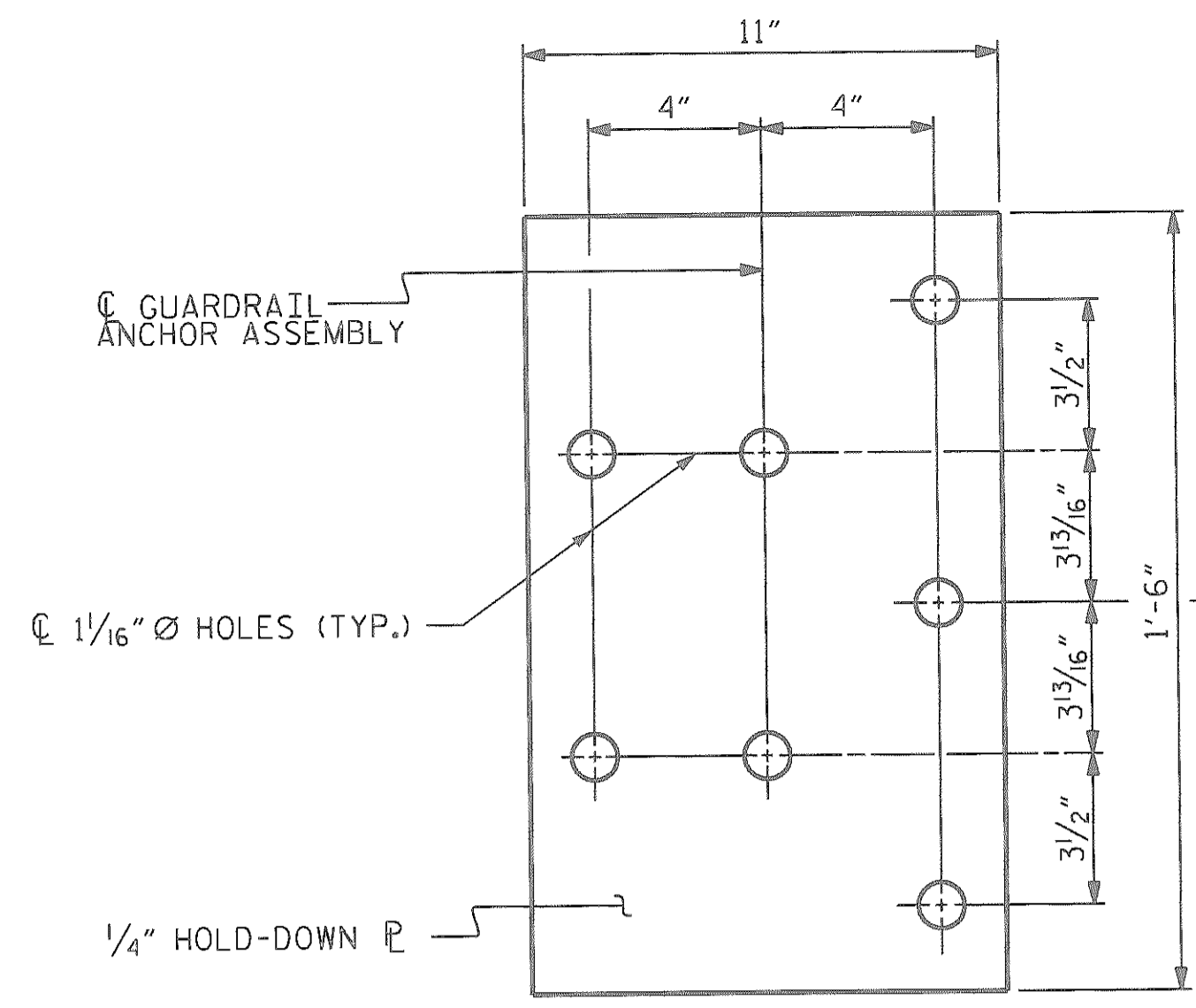
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

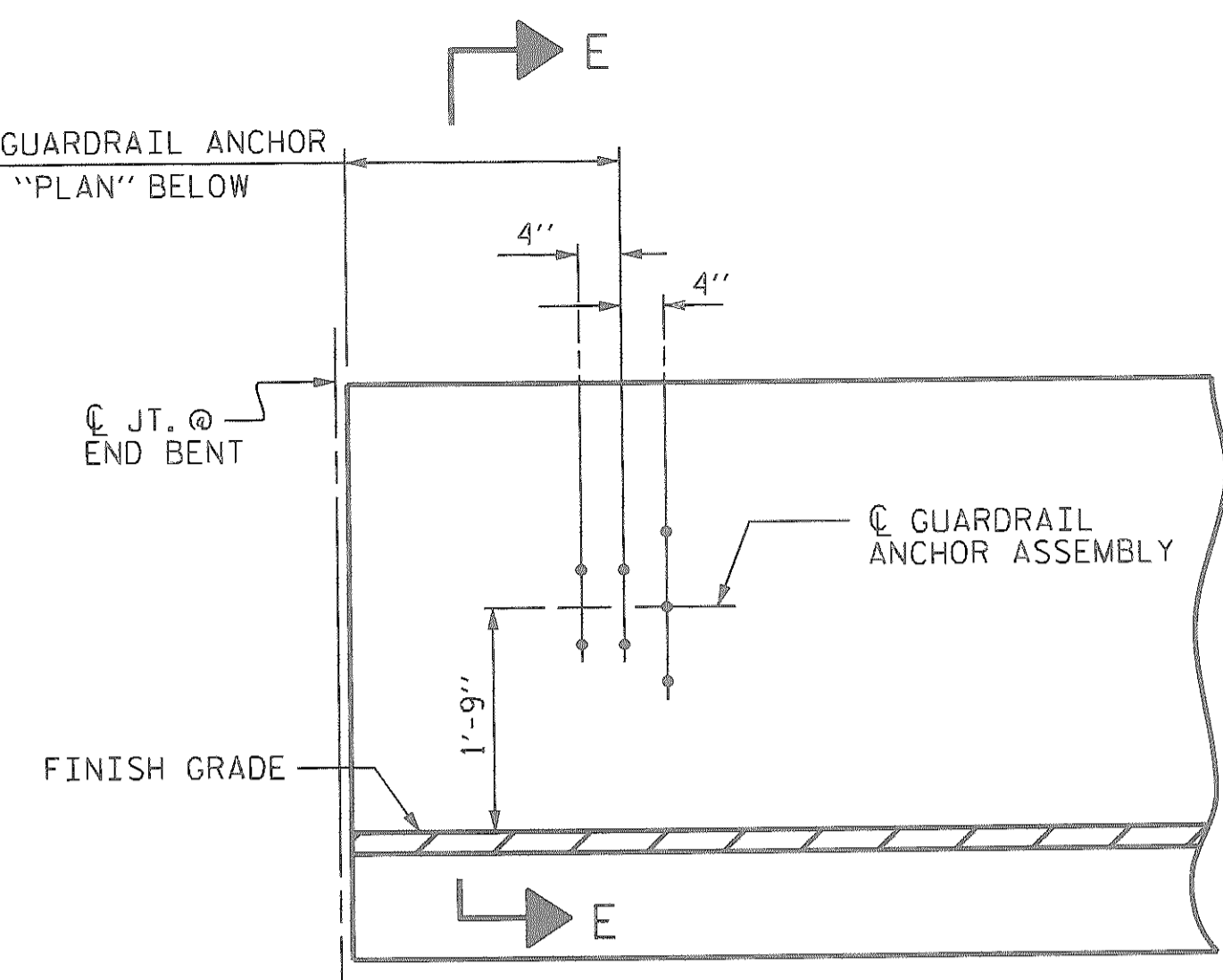
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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.

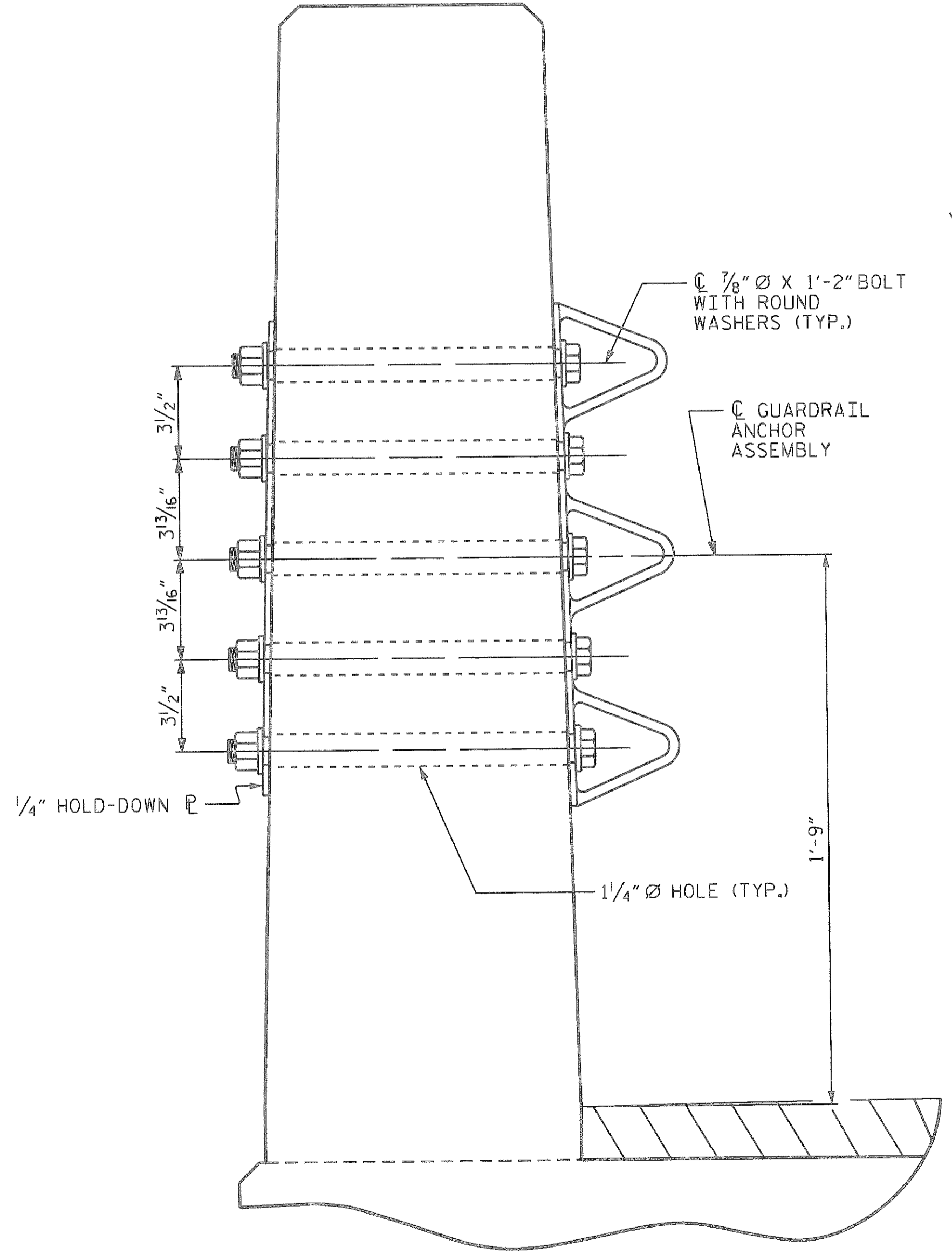


PLAN

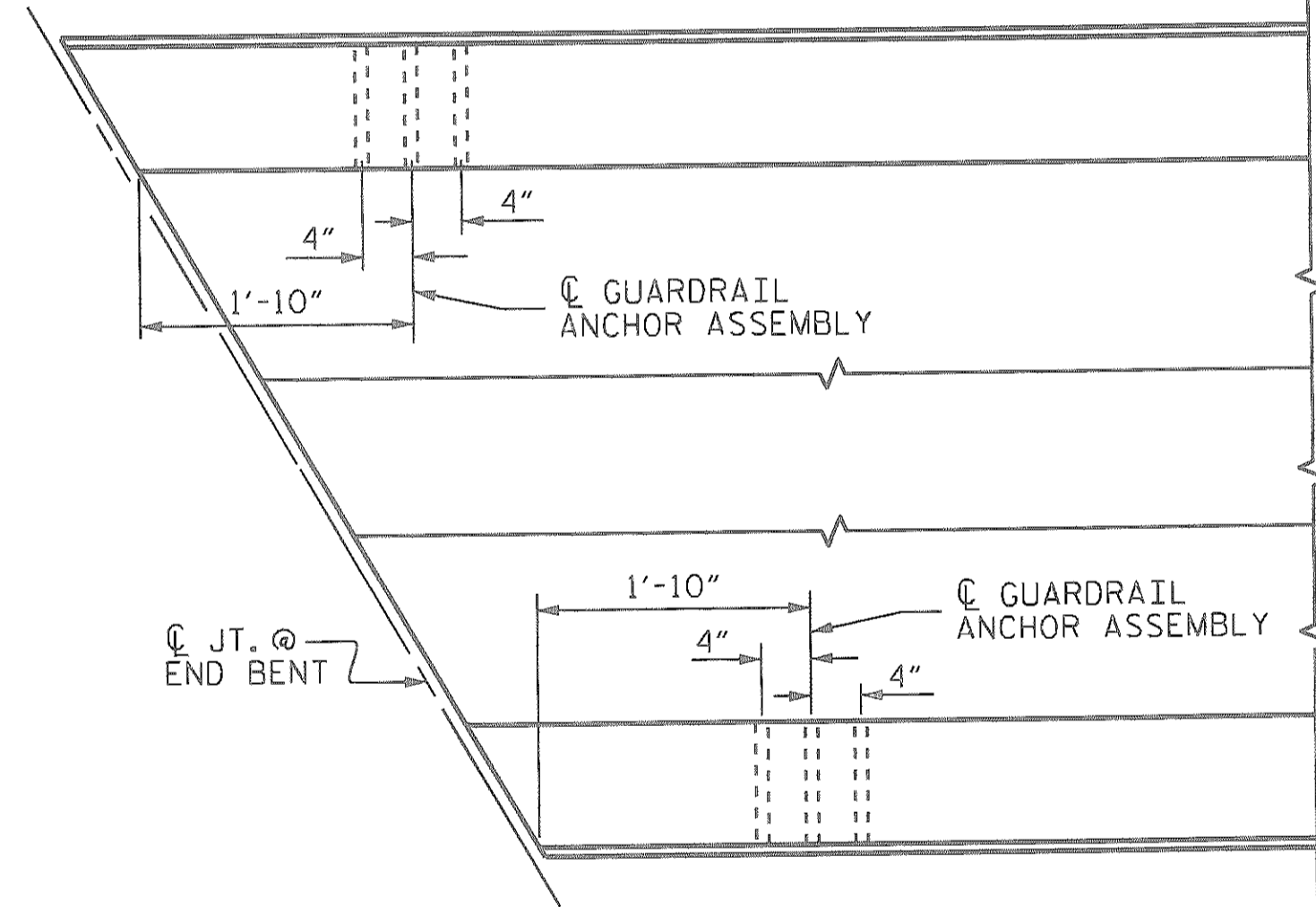
FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



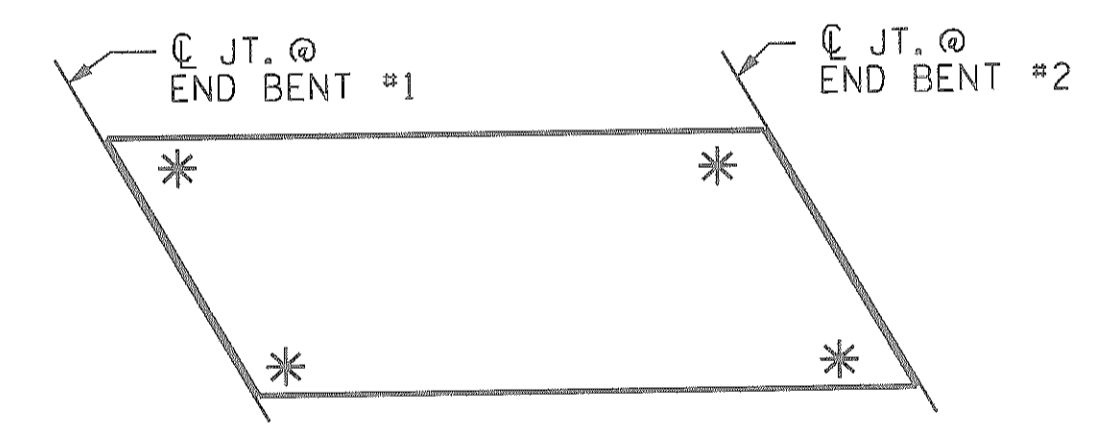
ELEVATION



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



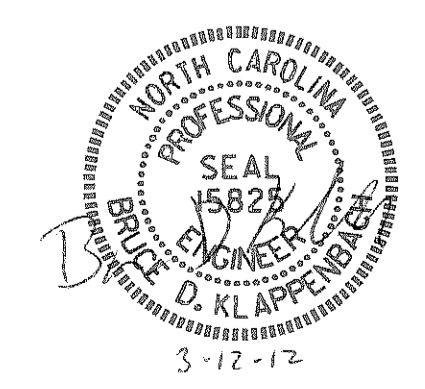
PLAN
LOCATION OF ANCHORS FOR GUARDRAIL
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT
* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BD-5111S
YADKIN COUNTY
STATION: 12+33.13 -L

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
GUARDRAIL ANCHORAGE
FOR VERTICAL CONCRETE
BARRIER RAIL



ASSEMBLED BY : T.L.CLELLAND	DATE : 2/2012
CHECKED BY : S.T.CHAMPION	DATE : 2/2012
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11
	REV. 12/5/11
	MAA/GM
	MAA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			15

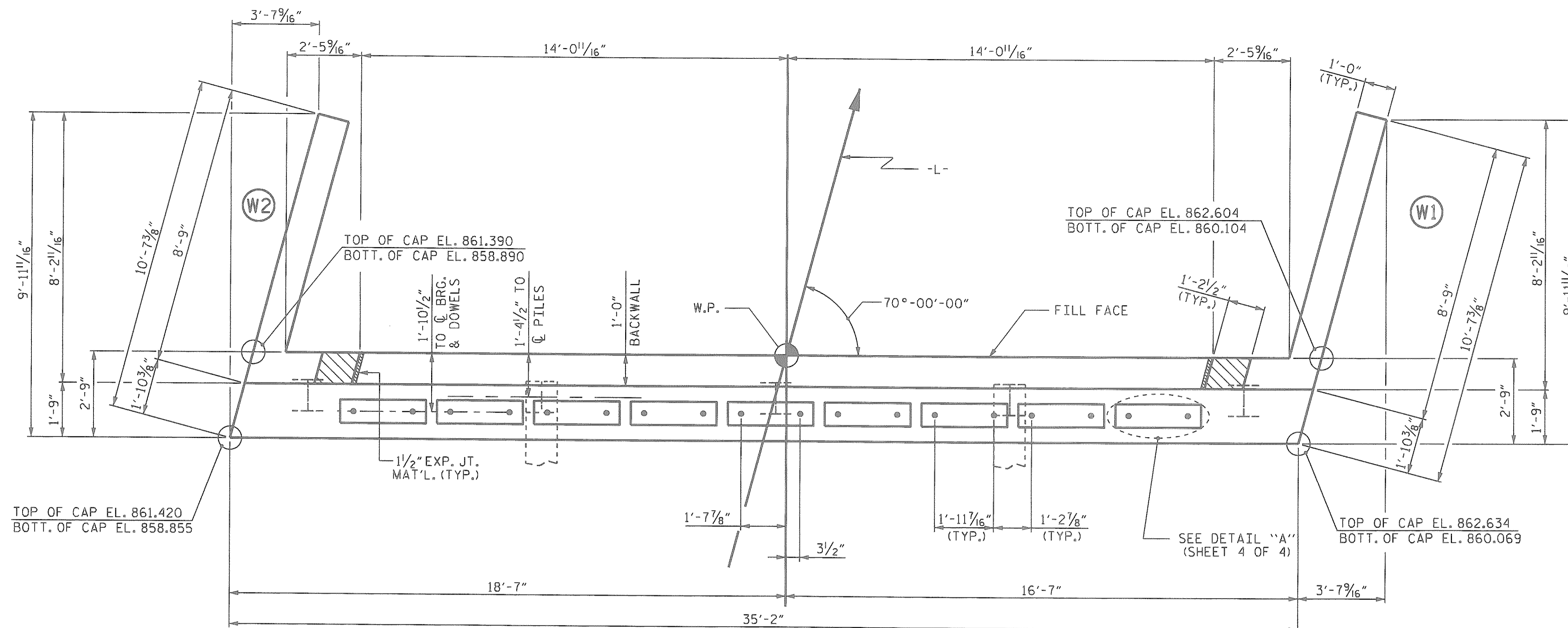
12-MAR-2012 15:15
R:\Structures\schampion\Microstation\Microstation_TLC\BD5111S_SD.BX.dgn
bklappenbach

NOTES

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

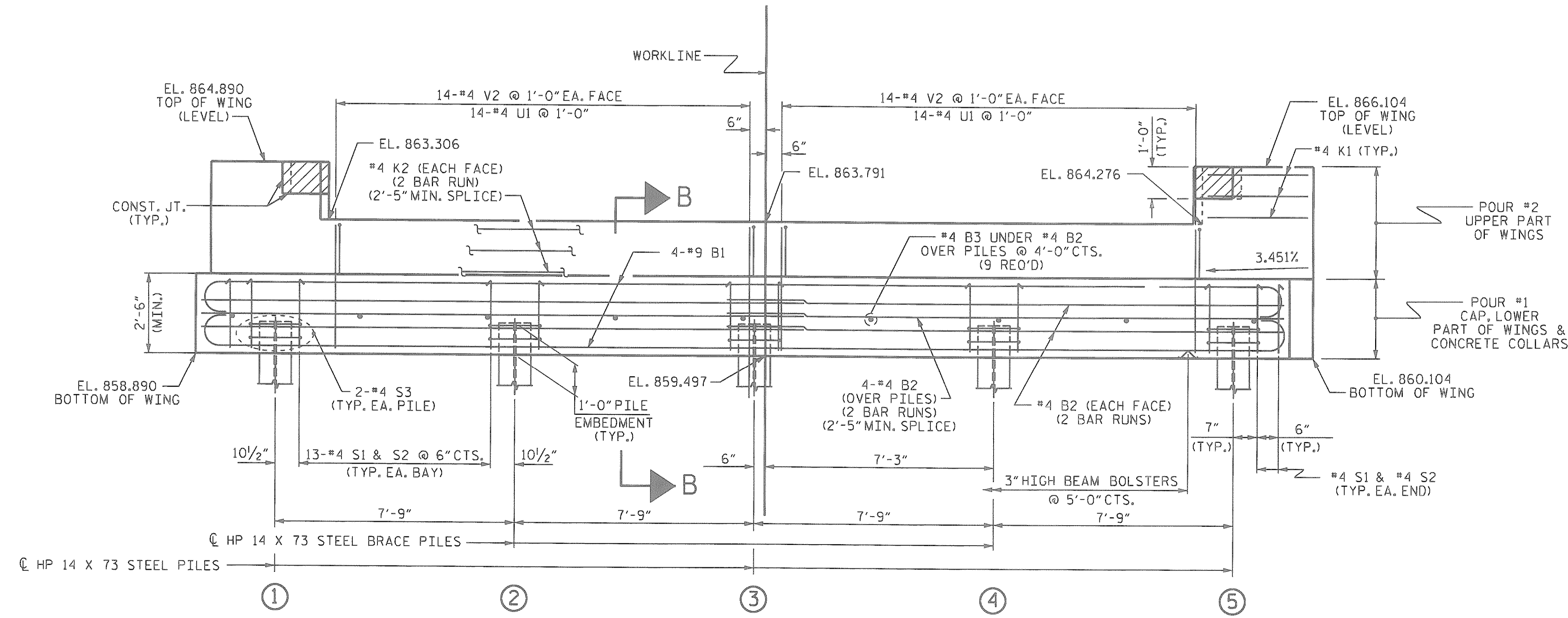
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.
FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

TOP OF PILE ELEVATIONS	
①	859.945
②	860.212
③	860.480
④	860.747
⑤	861.014



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
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.

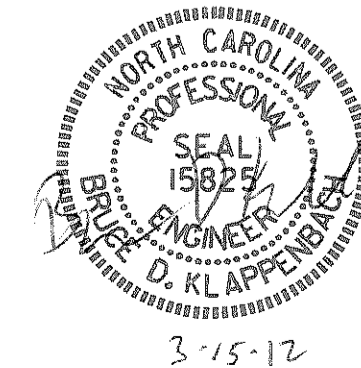
PROJECT NO. BD-5111S
YADKIN COUNTY
STATION: 12+33.13 -L-

SHEET 2 OF 4

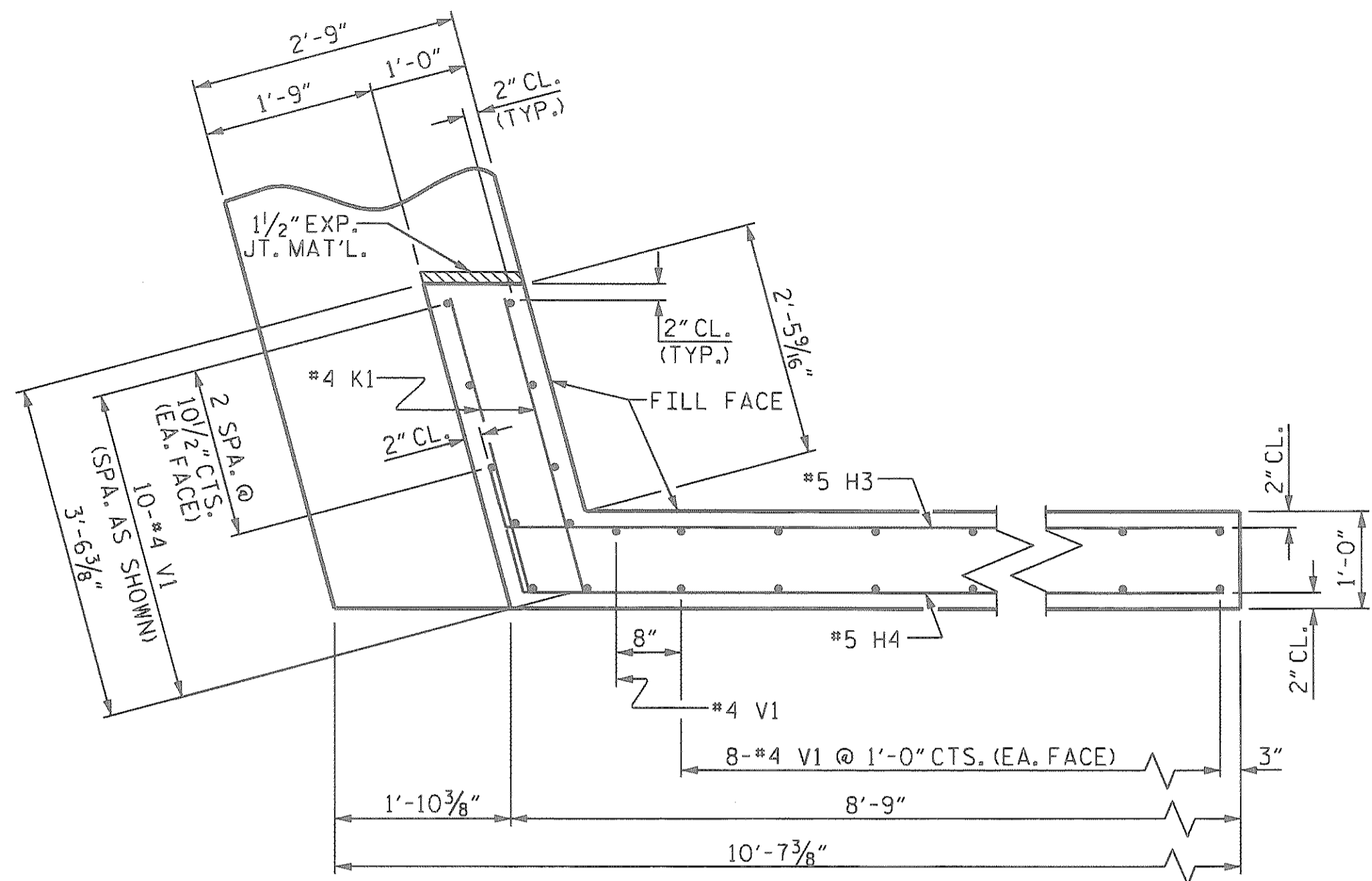
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2

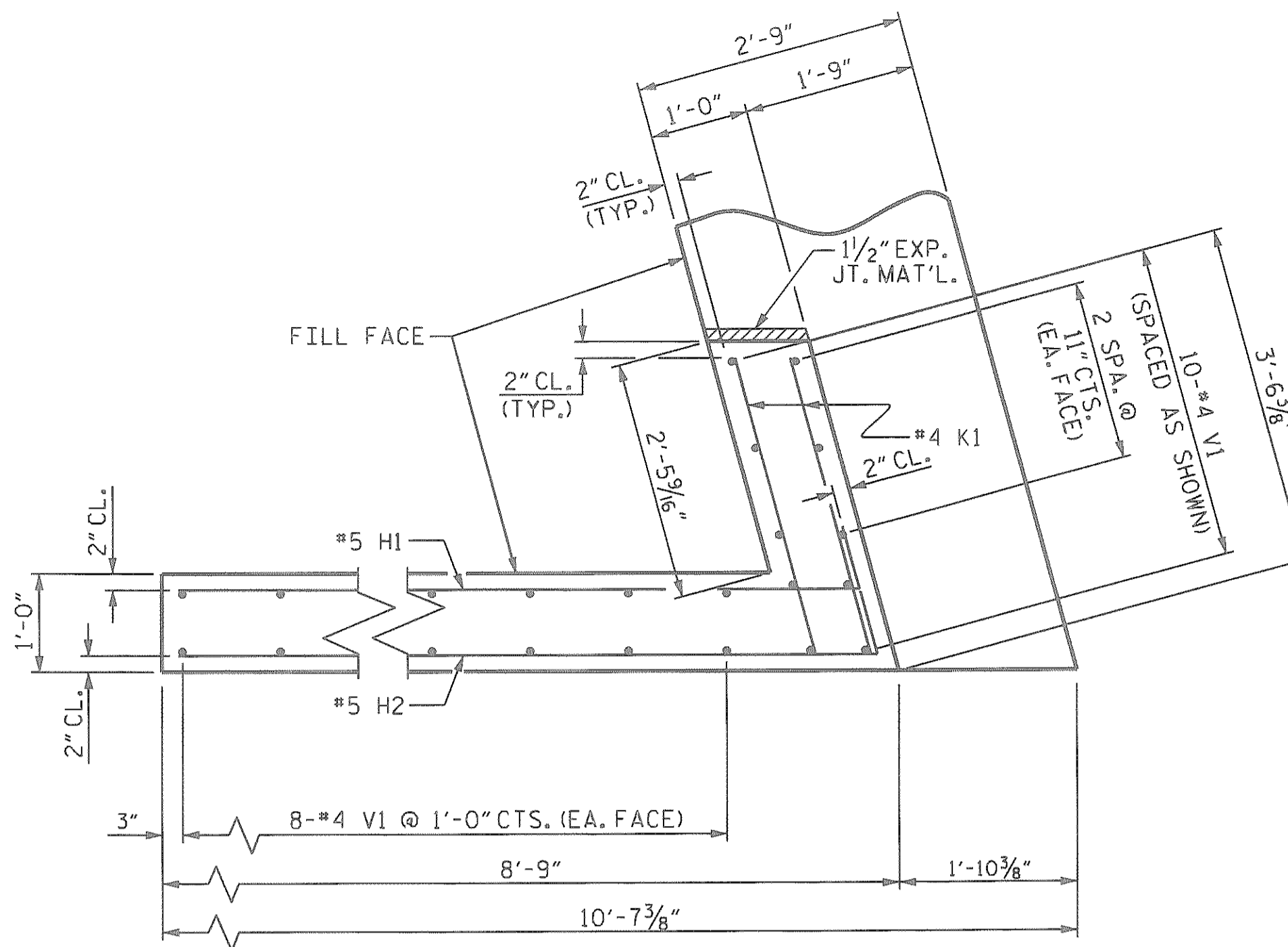
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			15



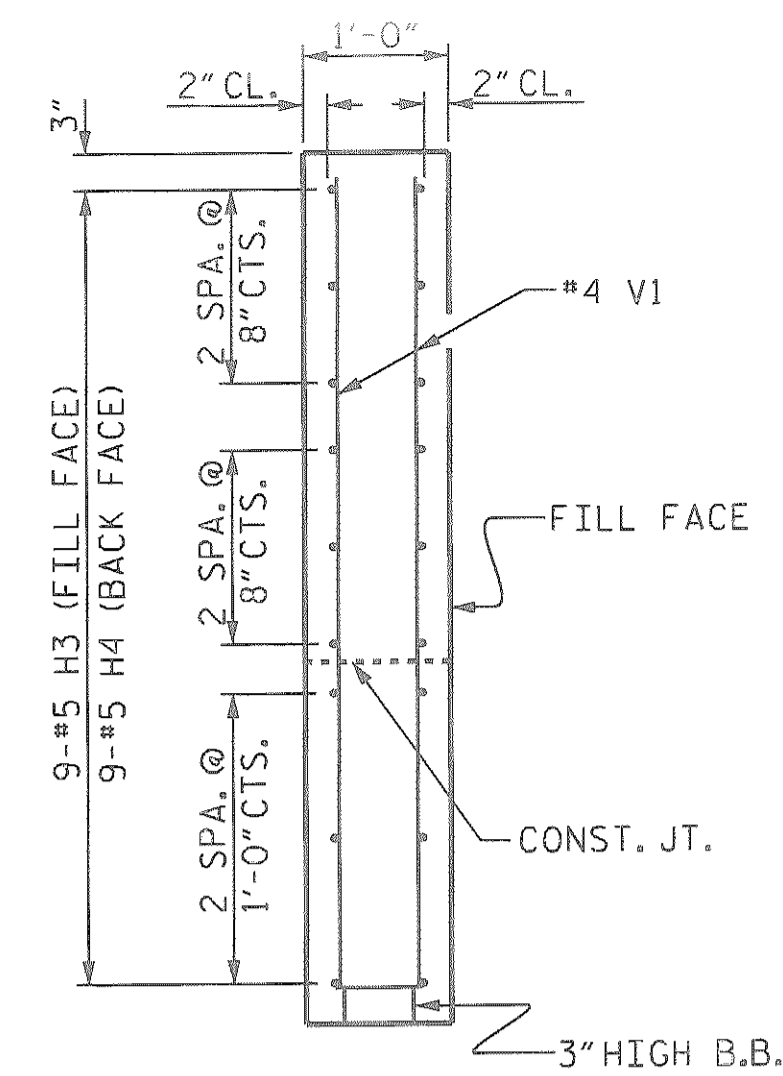
ASSEMBLED BY : T.L.CLELLAND DATE : 1/2012
CHECKED BY : S.T.CHAMPION DATE : 2/2012
DRAWN BY : DGE 03/10
CHECKED BY : MKT 03/10



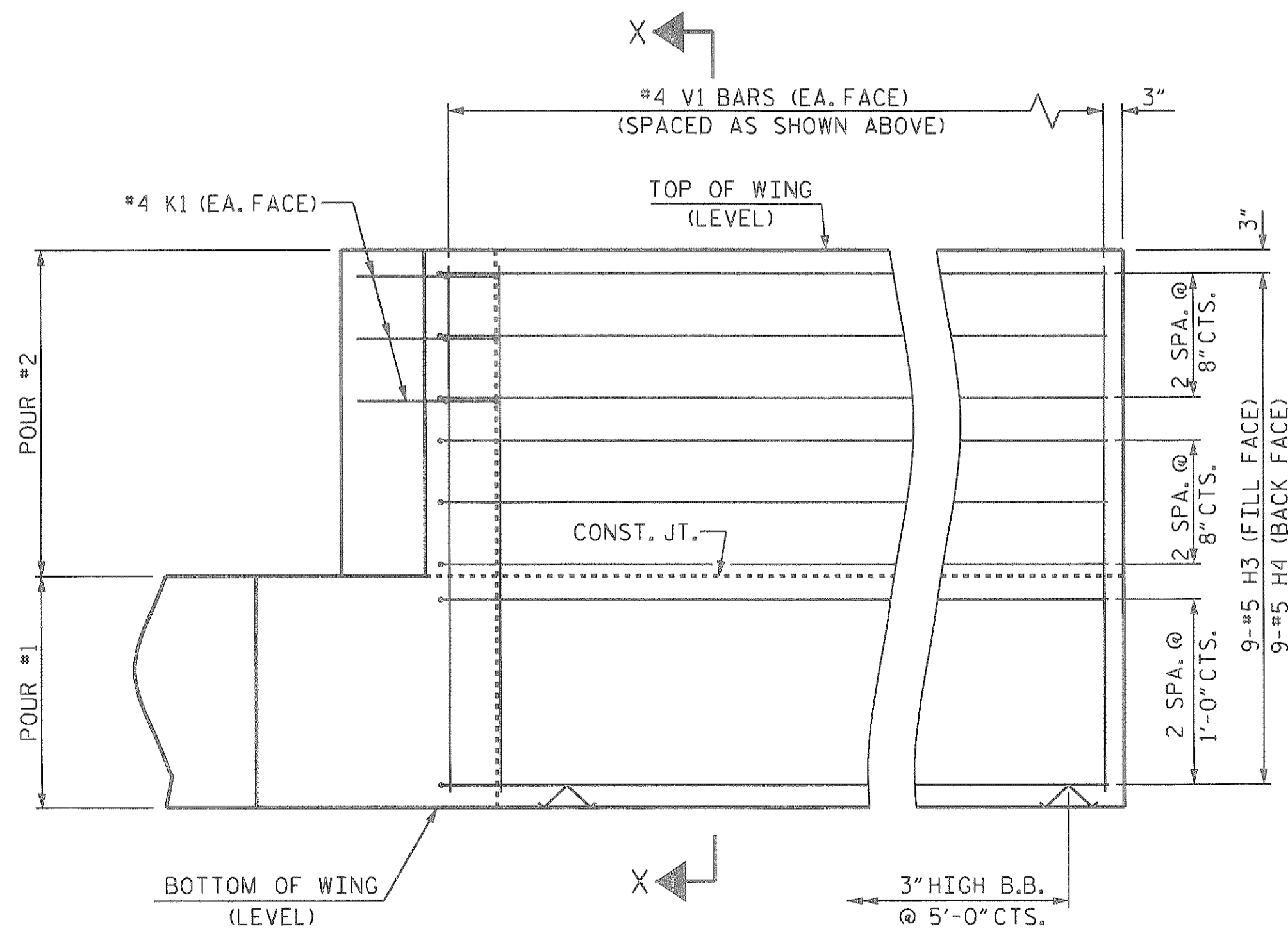
PLAN OF WING (W1)



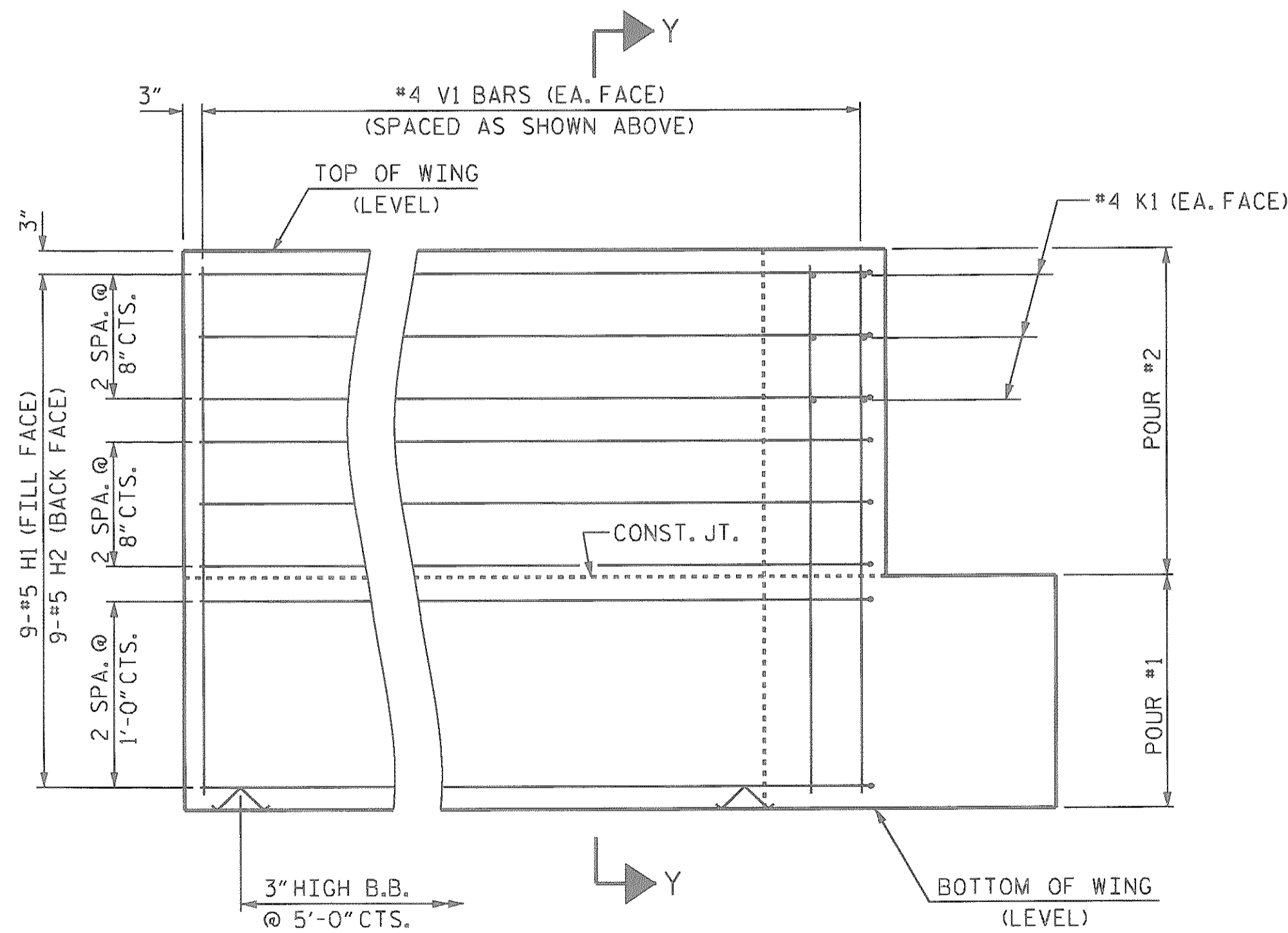
PLAN OF WING (W2)



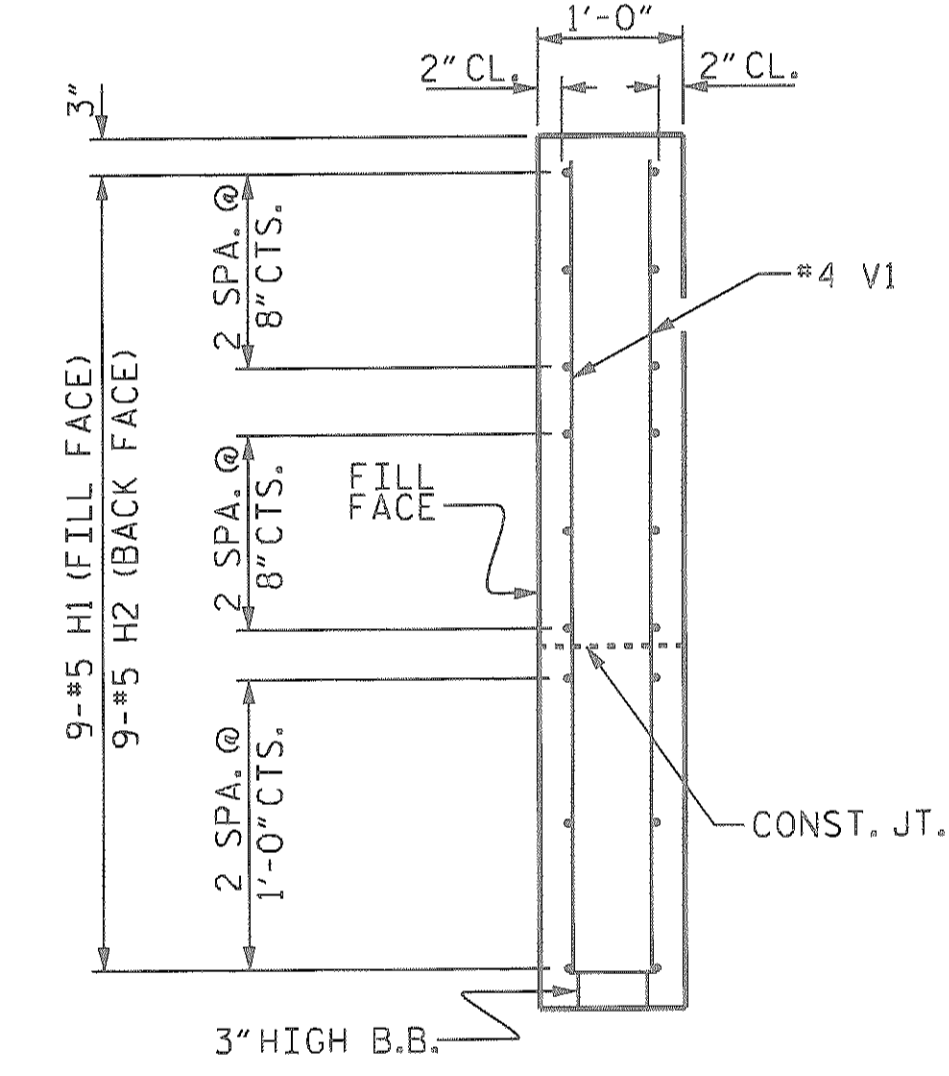
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

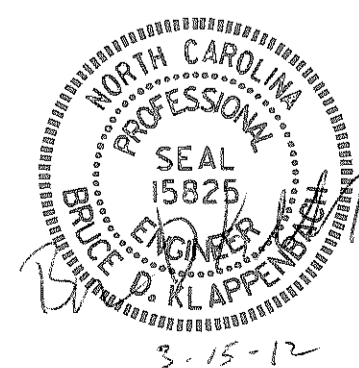
WING DETAILS

PROJECT NO. BD-5111S
YADKIN COUNTY
 STATION: 12+33.13 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

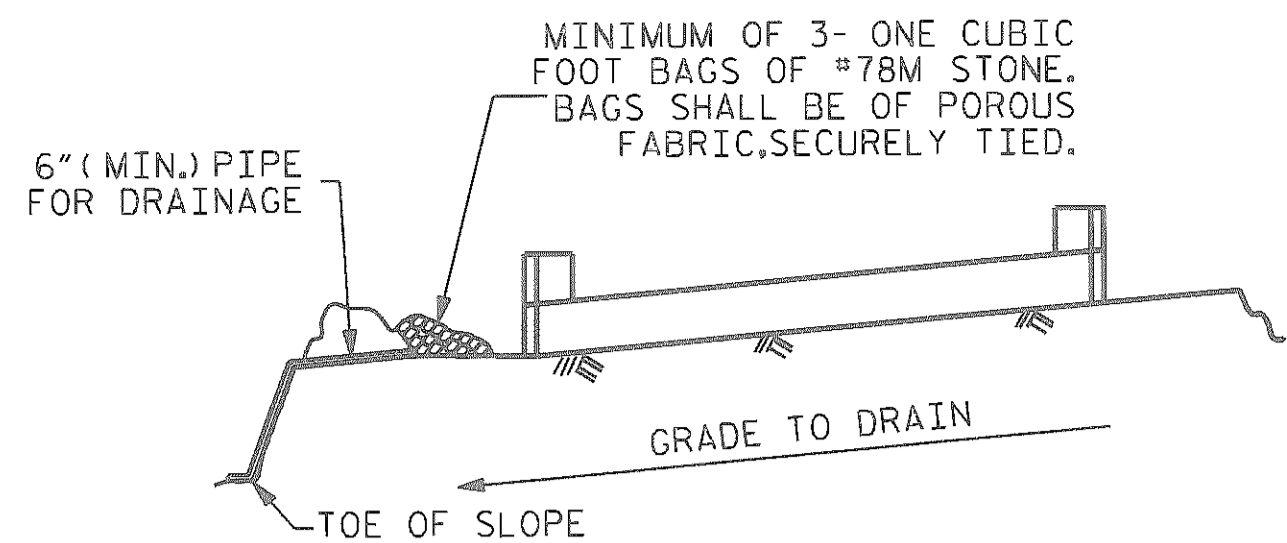
SUBSTRUCTURE
 END BENT
 WING DETAILS



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12	
1			3			TOTAL SHEETS	15
2			4				

ASSEMBLED BY : T.L.CLELLAND DATE : 1/2012
 CHECKED BY : S.T.CHAMPION DATE : 2/2012
 DRAWN BY : WJH 12/11
 CHECKED BY : AAC 12/11

15-MAR-2012 11:22
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 bkloppenbach

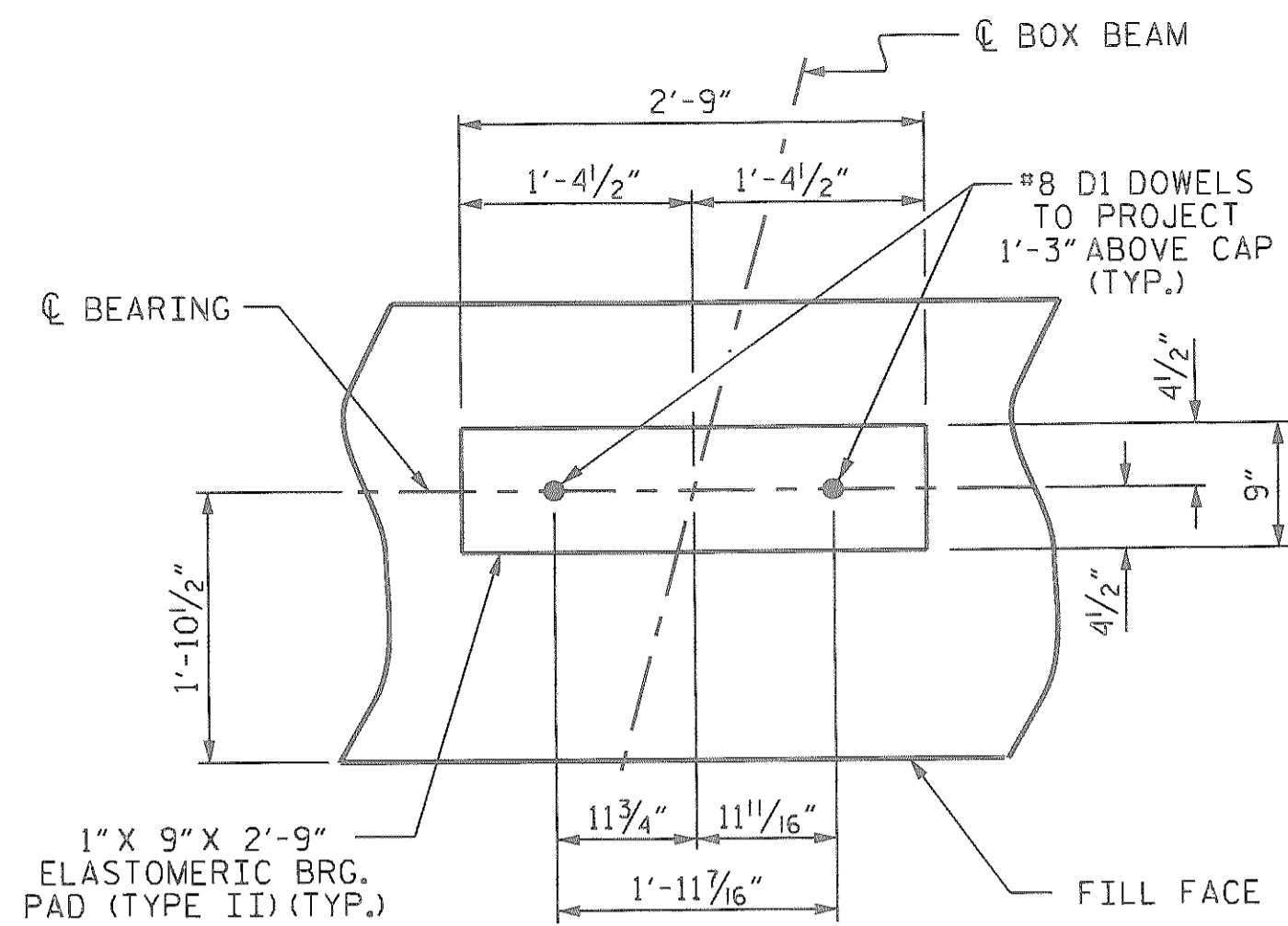


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

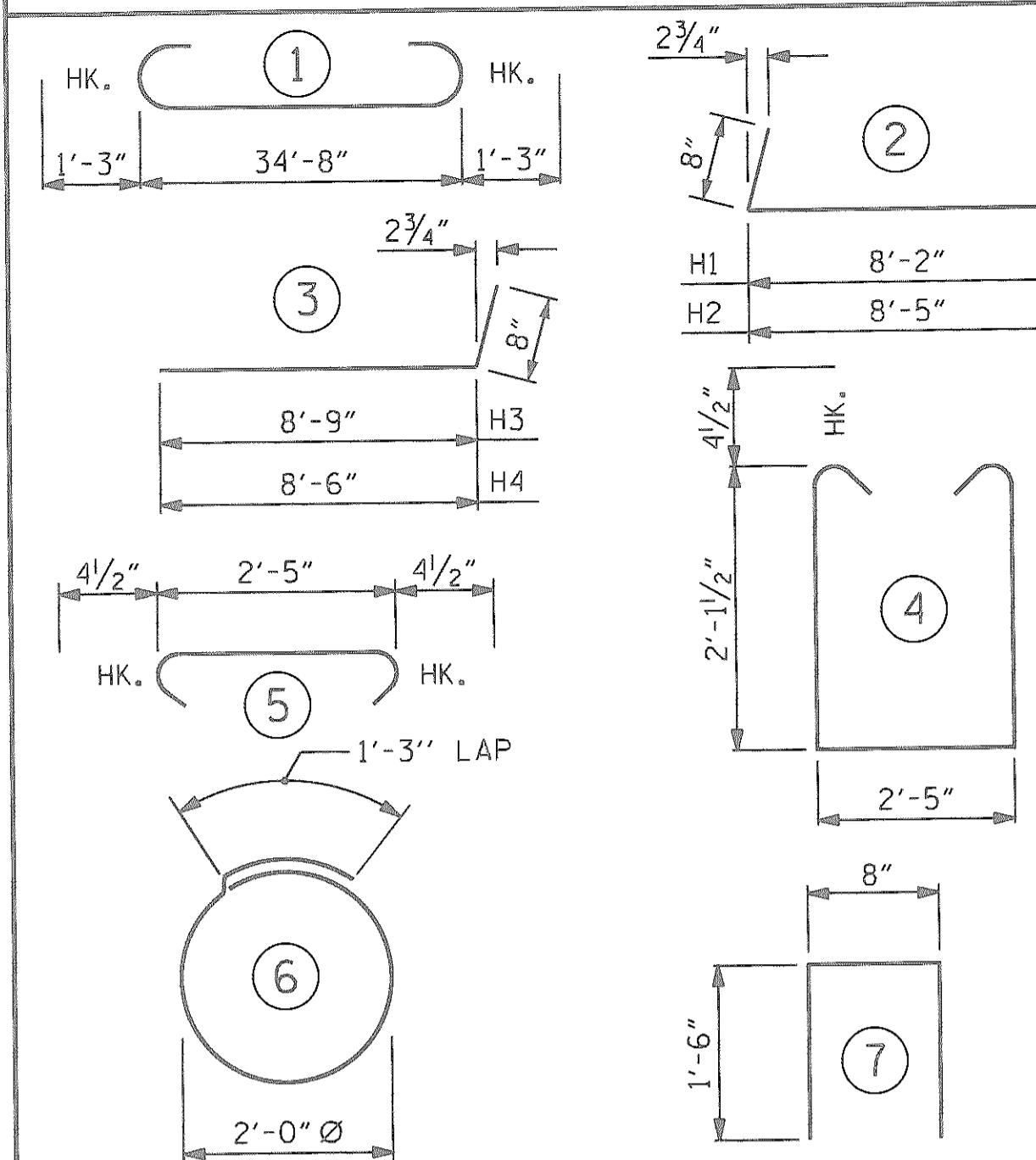
TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)

BAR TYPES



BILL OF MATERIAL

FOR ONE END BENT

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	#8		37'-2"	1011
B2	#4	STR	18'-8"	200
B3	#4	STR	2'-5"	15
D1	#8	STR	2'-3"	108
H1	#5	2	8'-10"	83
H2	#5	2	9'-1"	85
H3	#5	3	9'-5"	88
H4	#5	3	9'-2"	86
K1	#4	STR	3'-1"	25
K2	#4	STR	18'-8"	150
S1	#4	4	7'-5"	277
S2	#4	5	3'-2"	118
S3	#4	6	7'-7"	51
U1	#4	7	3'-8"	69
V1	#4	STR	5'-8"	201
V2	#4	STR	3'-10"	144

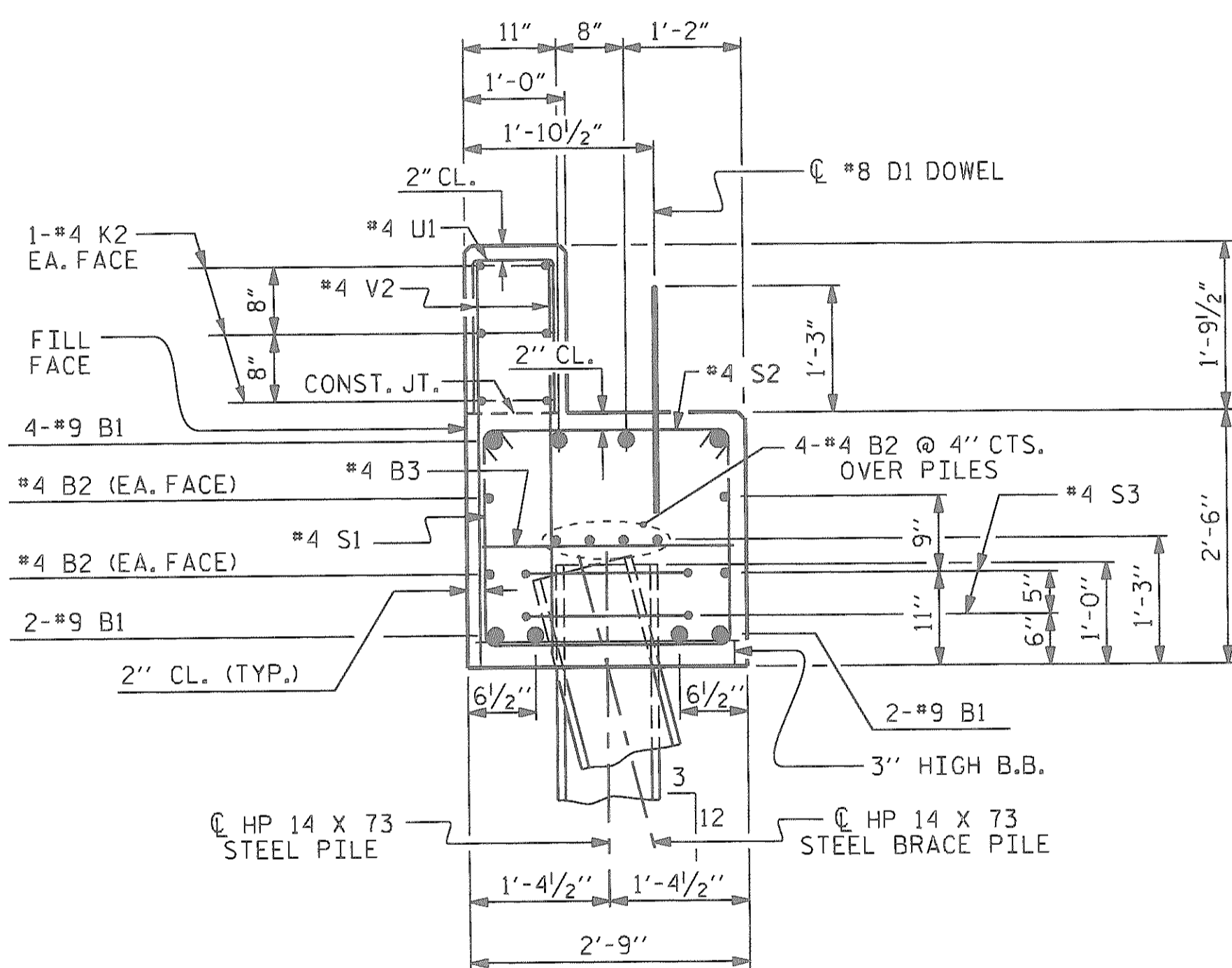
REINFORCING STEEL (FOR ONE END BENT) 2711 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS	11.5 C.Y.
POUR #2 BACKWALL & UPPER PART OF WINGS	4.7 C.Y.
TOTAL CLASS A CONCRETE	16.2 C.Y.

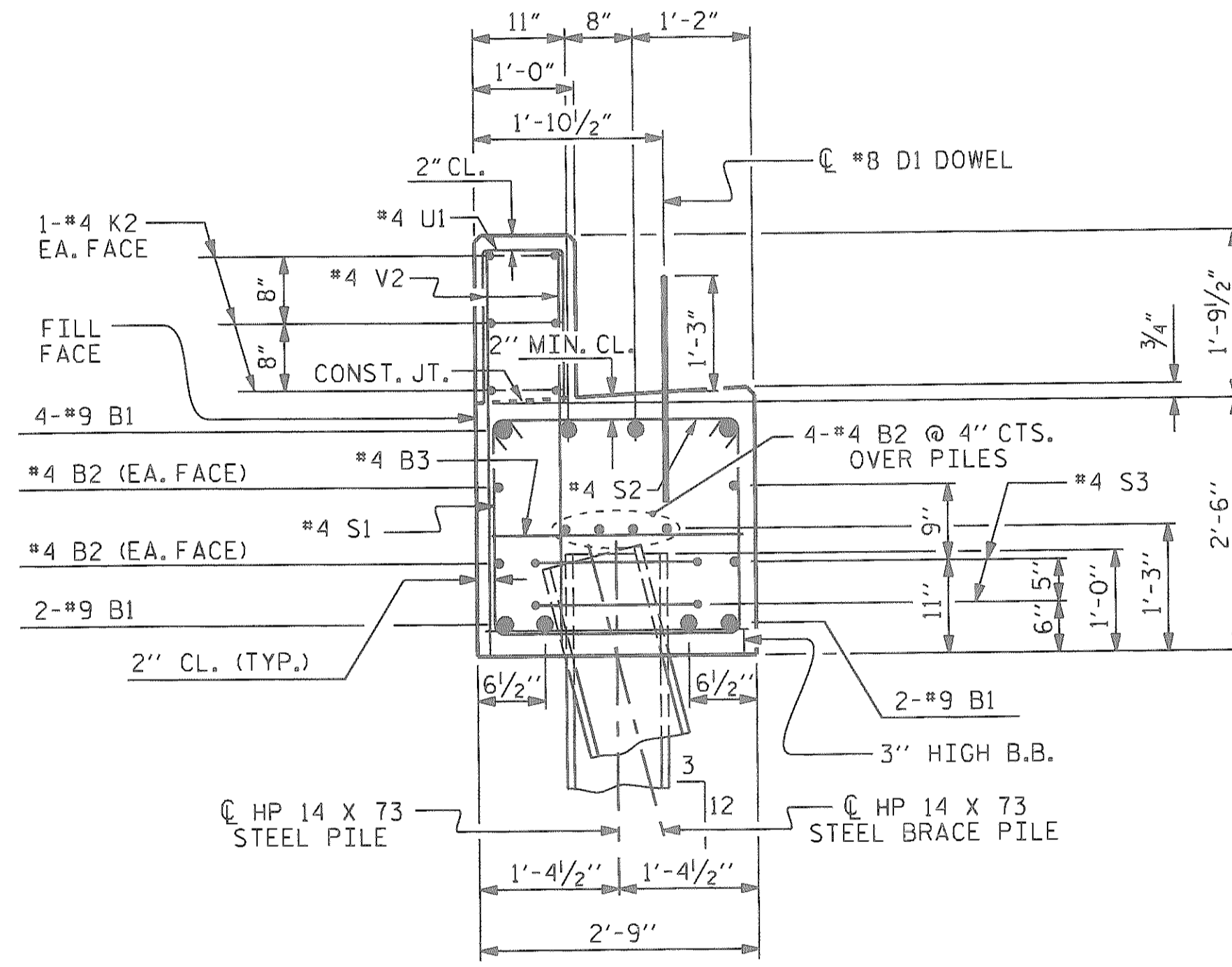
END BENT No. 1	END BENT No. 2
HP 14 X 73 STEEL PILES	HP 14 X 73 STEEL PILES
NO: 5	NO: 5
LIN. FT. = 90	LIN. FT. = 180

ALL BAR DIMENSIONS ARE OUT TO OUT.



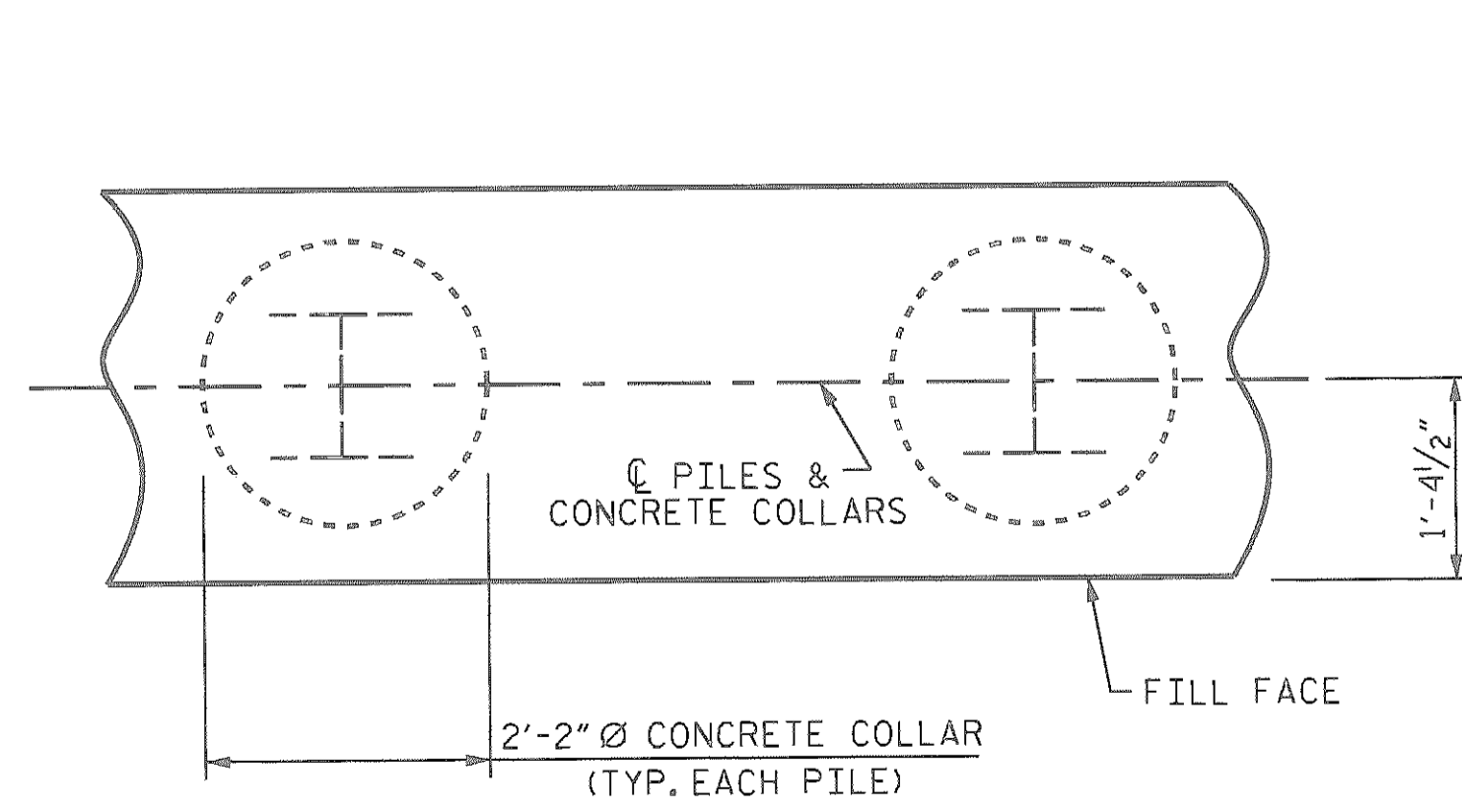
SECTION A-A

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

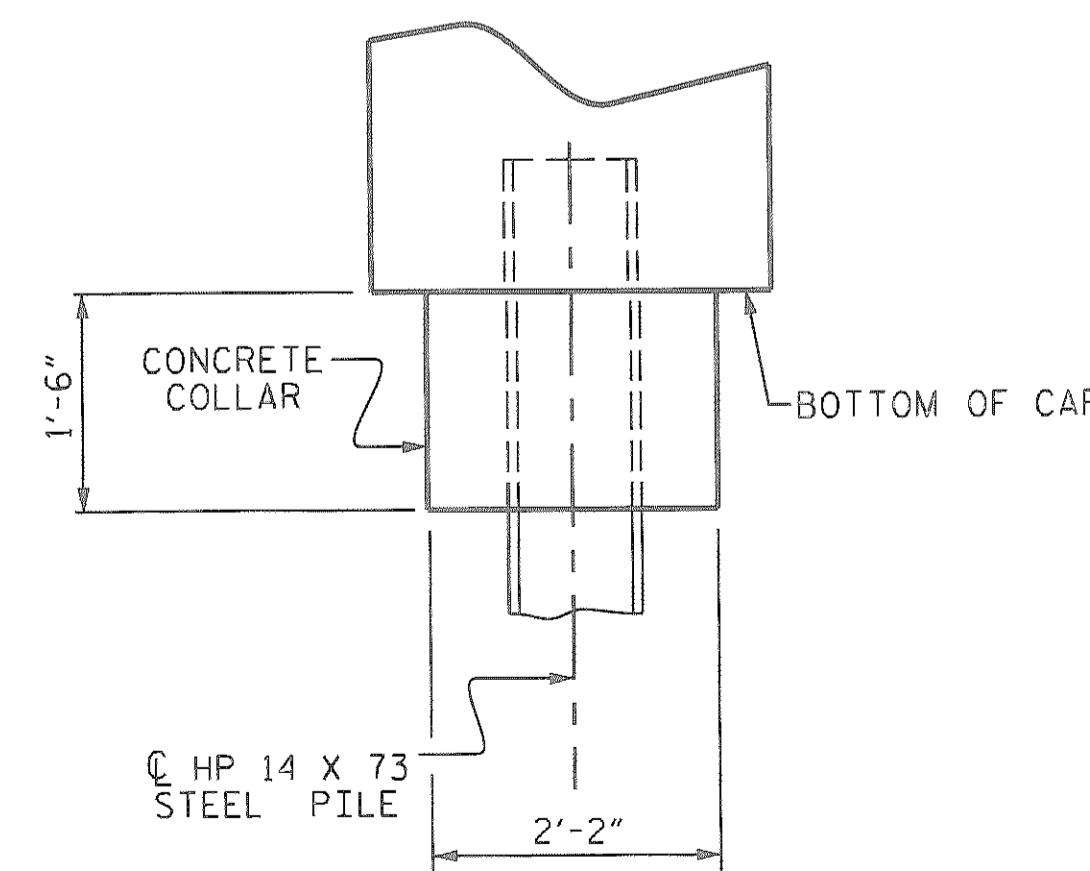


SECTION B-B

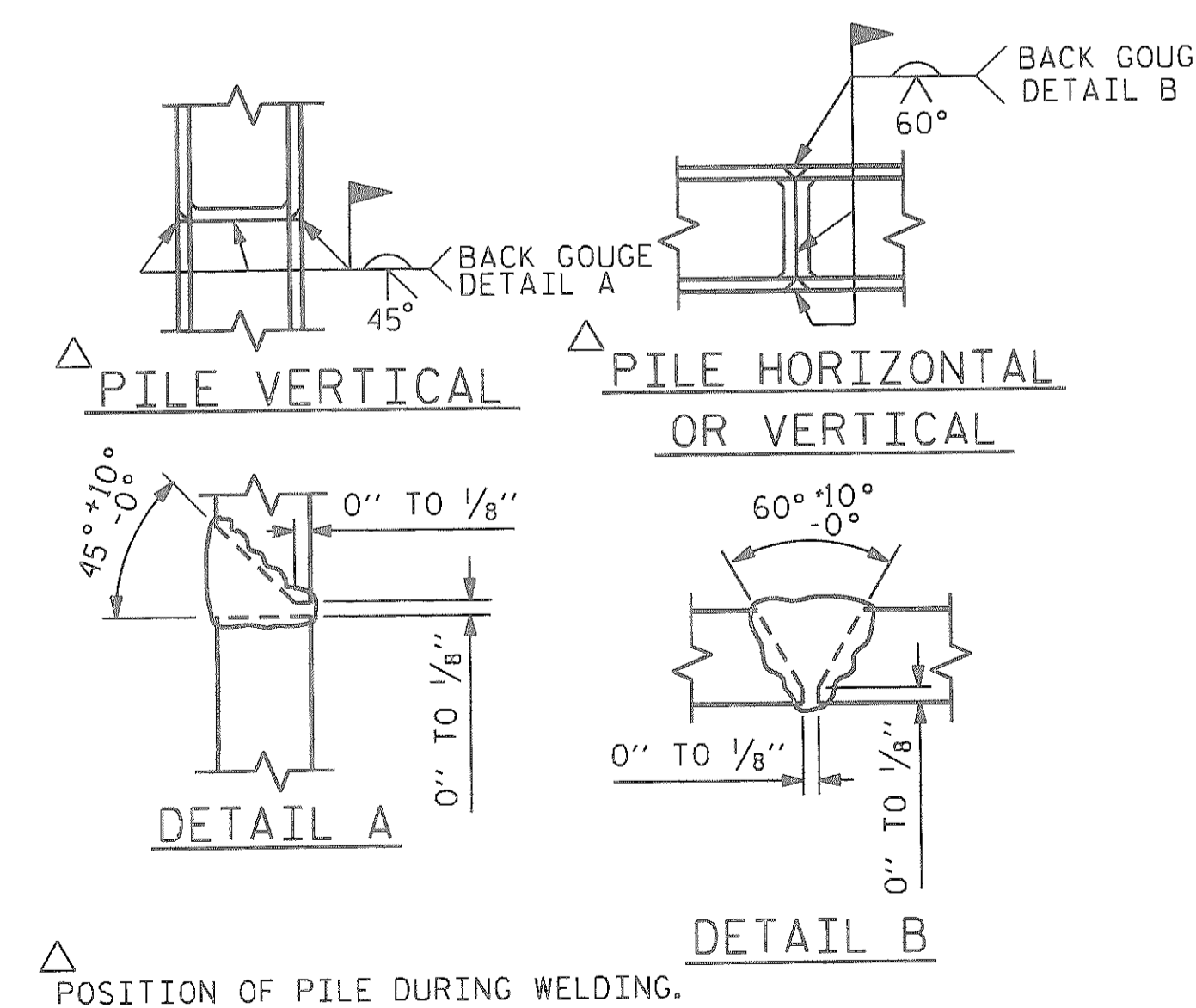
(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



PLAN



ELEVATION



PILE SPLICE DETAILS

POSITION OF PILE DURING WELDING.

PROJECT NO. BD-5111S
YADKIN COUNTY
 STATION: 12+33.13 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1 & 2
 DETAILS

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

S-13
 TOTAL SHEETS
 15

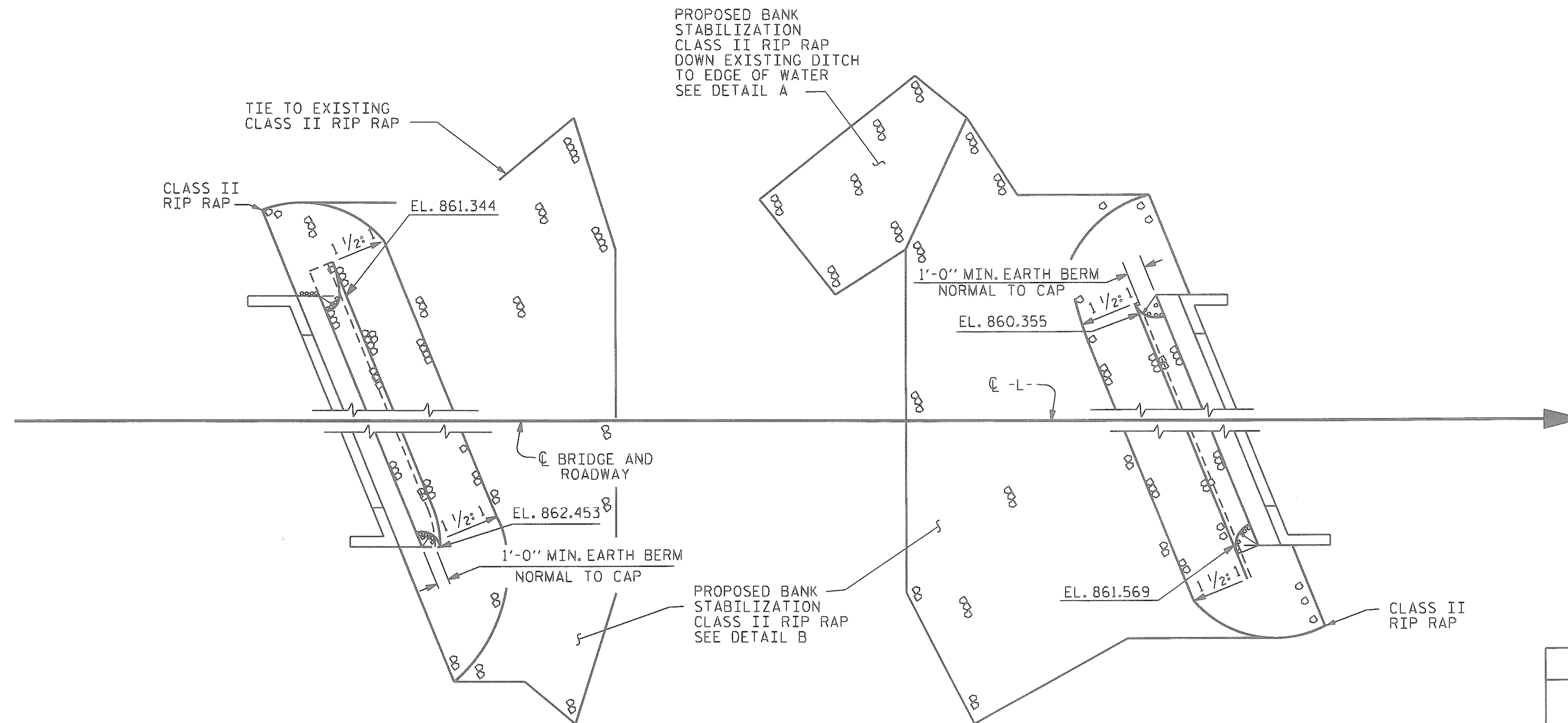
ASSEMBLED BY: T.L.CLELLAND DATE: 1/2012
 CHECKED BY: S.T.CHAMPION DATE: 2/2012
 DRAWN BY: WJH 12/11
 CHECKED BY: AAC 12/11

CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)

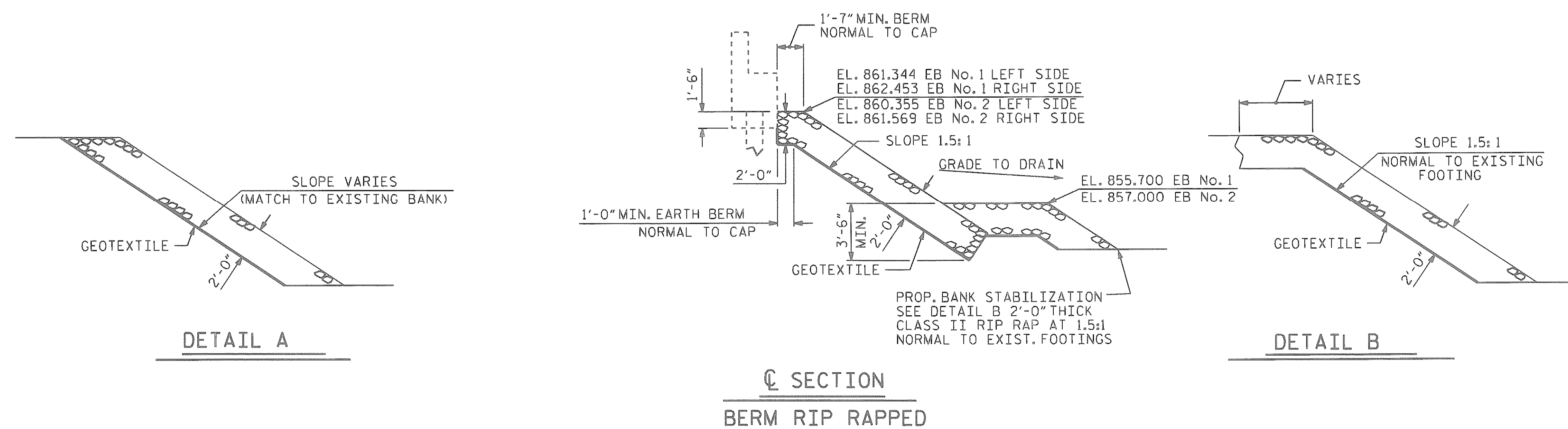


NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



ESTIMATED QUANTITIES		
BRIDGE @ STA. 12+33.13 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1 (INCL. BANK STAB.)	172	183
END BENT 2 (INCL. BANK STAB.)	173	180
TOTAL (INCLUDES BANK STAB)	345	363

PLAN



DETAIL A

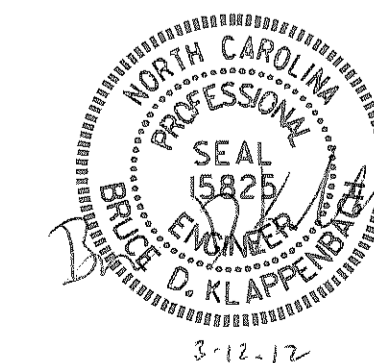
SECTION

BERM RIP RAPPED

DETAIL B

PROJECT NO. BD-5111S
YADKIN COUNTY
STATION: 12+33.13 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
= RIP RAP DETAILS =



REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 15
2			4			

ASSEMBLED BY : T.L.CLELLAND DATE : 1/2012
CHECKED BY : S.T.CHAMPION DATE : 2/2012
DRAWN BY : REK 1/84 REV. 5/1/06R TLA/GM
CHECKED BY : RDU 1/84 REV. 10/1/11 MAA/GM
REV. 12/21/11 MAA/GM

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

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

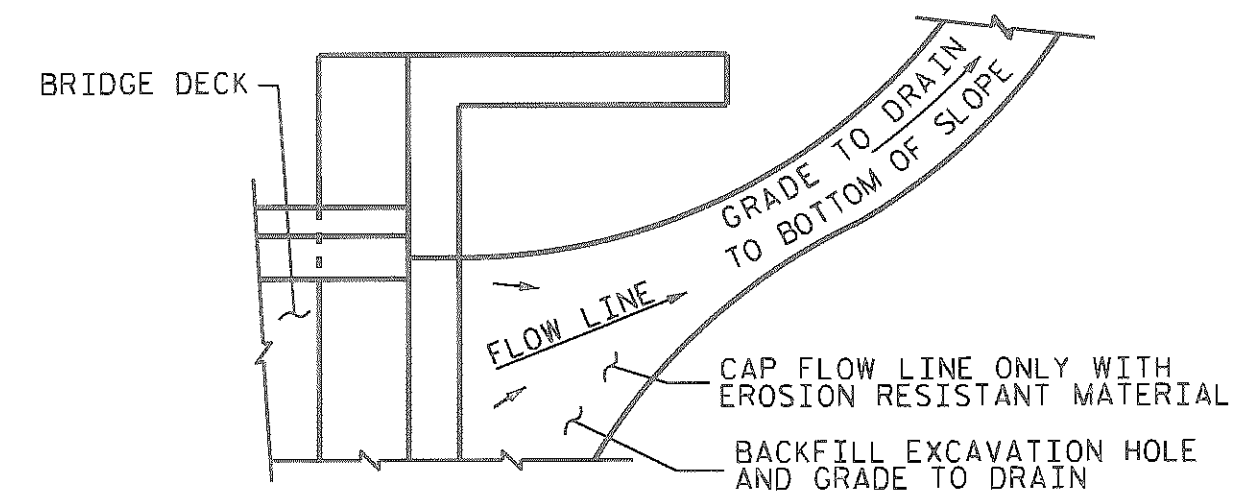
*78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

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

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

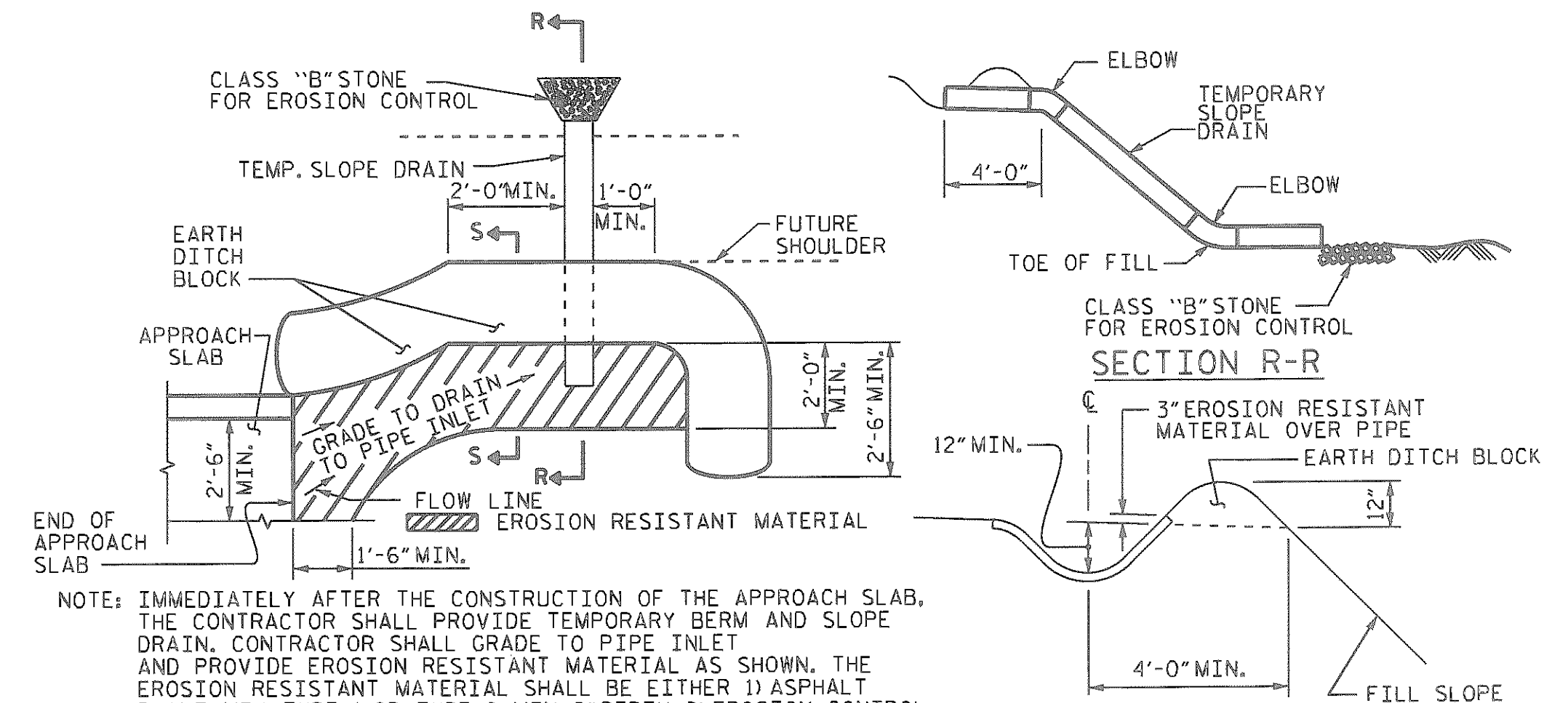
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED, SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



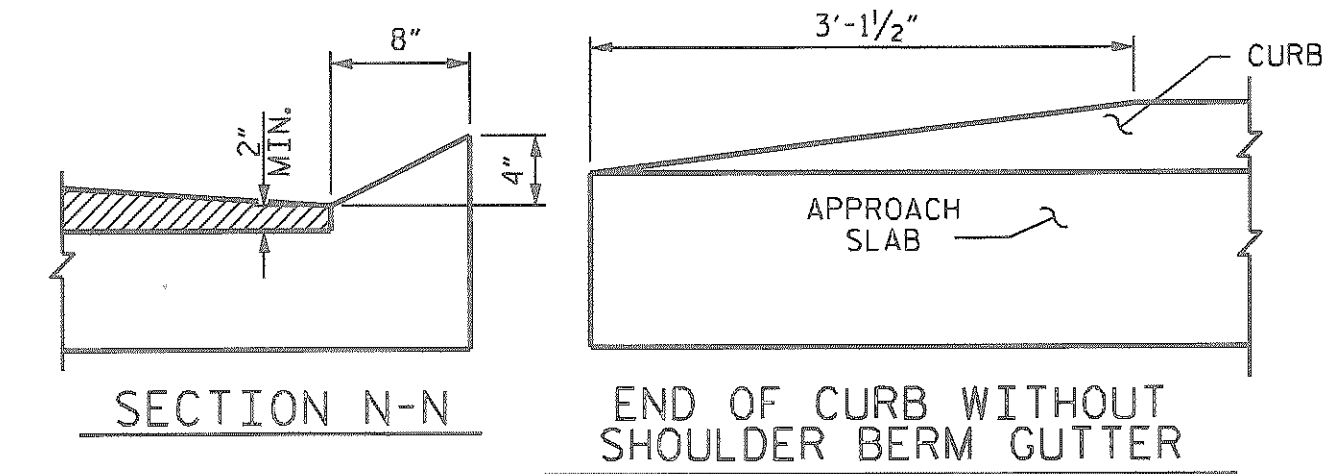
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT 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" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

TEMPORARY BERM AND SLOPE DRAIN DETAILS
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



CURB DETAILS

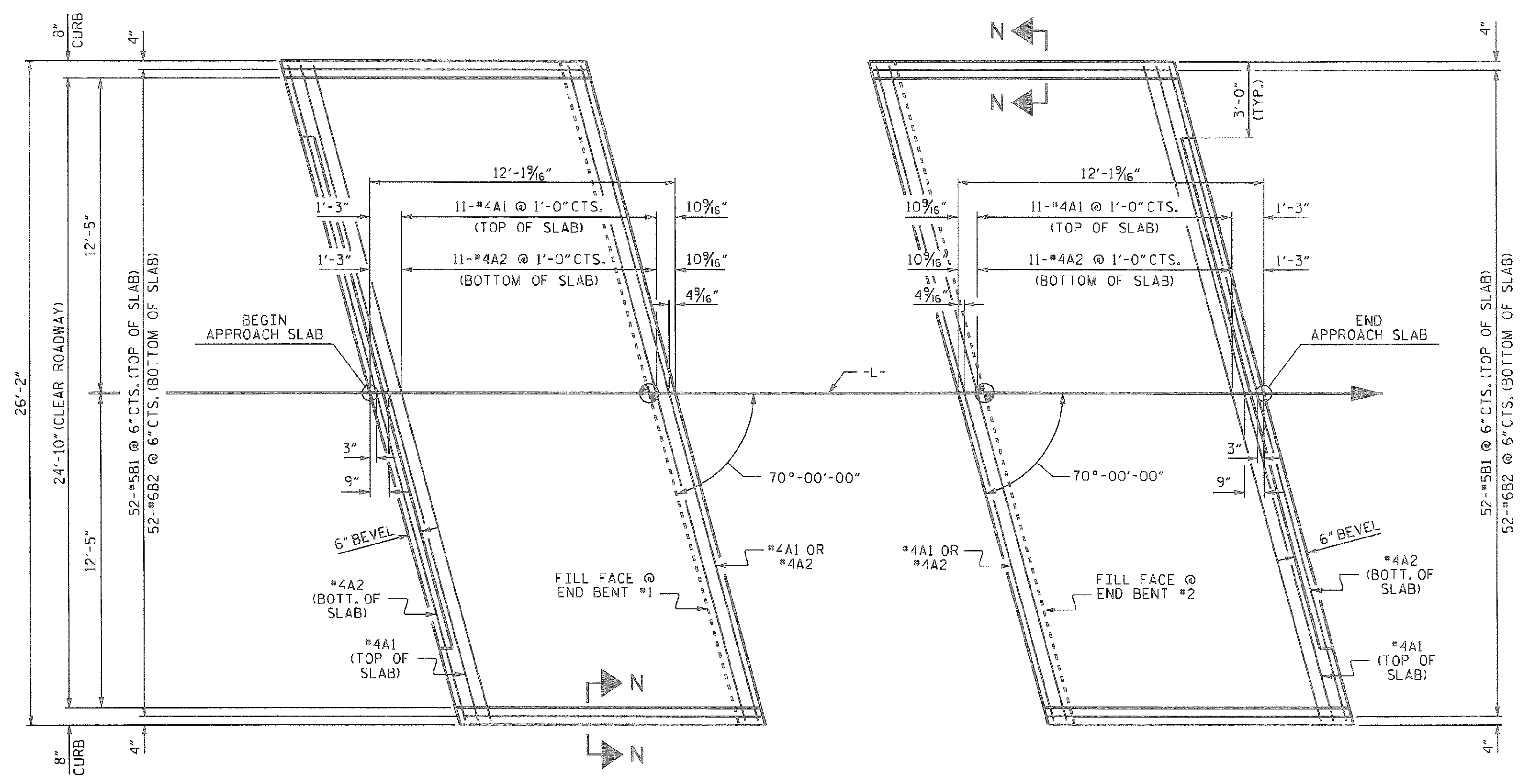
SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



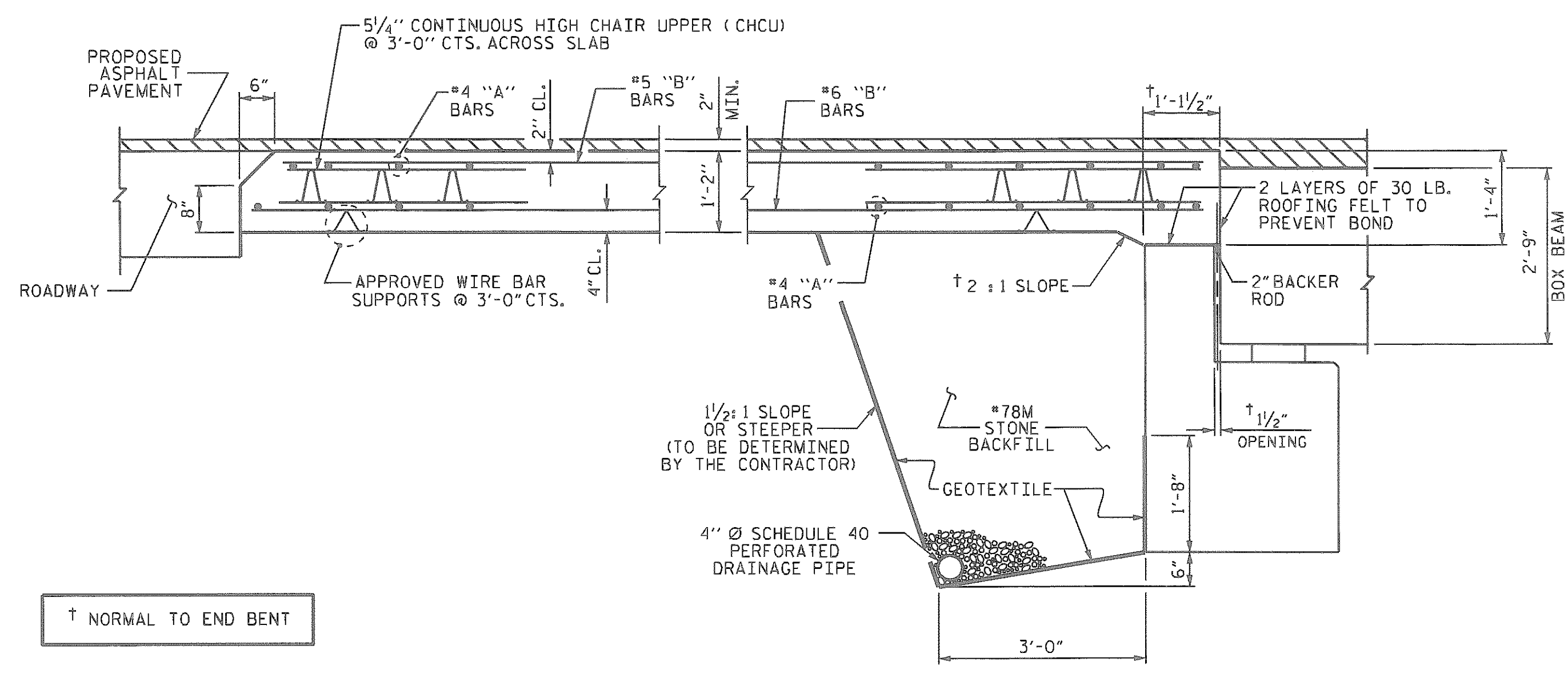
BILL OF MATERIAL

APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	13	#4	STR	27'-6"	239
A2	13	#4	STR	27'-6"	239
*B1	52	#5	STR	11'-1"	601
B2	52	#6	STR	11'-7"	905
REINFORCING STEEL					LBS. 1144
* EPOXY COATED REINFORCING STEEL					LBS. 840
CLASS AA CONCRETE					C. Y. 14.0

APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	13	#4	STR	27'-6"	239
A2	13	#4	STR	27'-6"	239
*B1	52	#5	STR	11'-1"	601
B2	52	#6	STR	11'-7"	905
REINFORCING STEEL					LBS. 1144
* EPOXY COATED REINFORCING STEEL					LBS. 840
CLASS AA CONCRETE					C. Y. 14.0



PLAN @ END BENT #1 PLAN @ END BENT #2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

PROJECT NO. BD-5111S
YADKIN COUNTY
 STATION: 12+33.13 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 BOX BEAM UNIT
 (SUB-REGIONAL TIER)
 70° SKEW

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

ASSEMBLED BY: T.L.CLELLAND DATE: 1/2012
 CHECKED BY: S.T.CHAMPION DATE: 2/2012
 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 1:2 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 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" 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 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" 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.

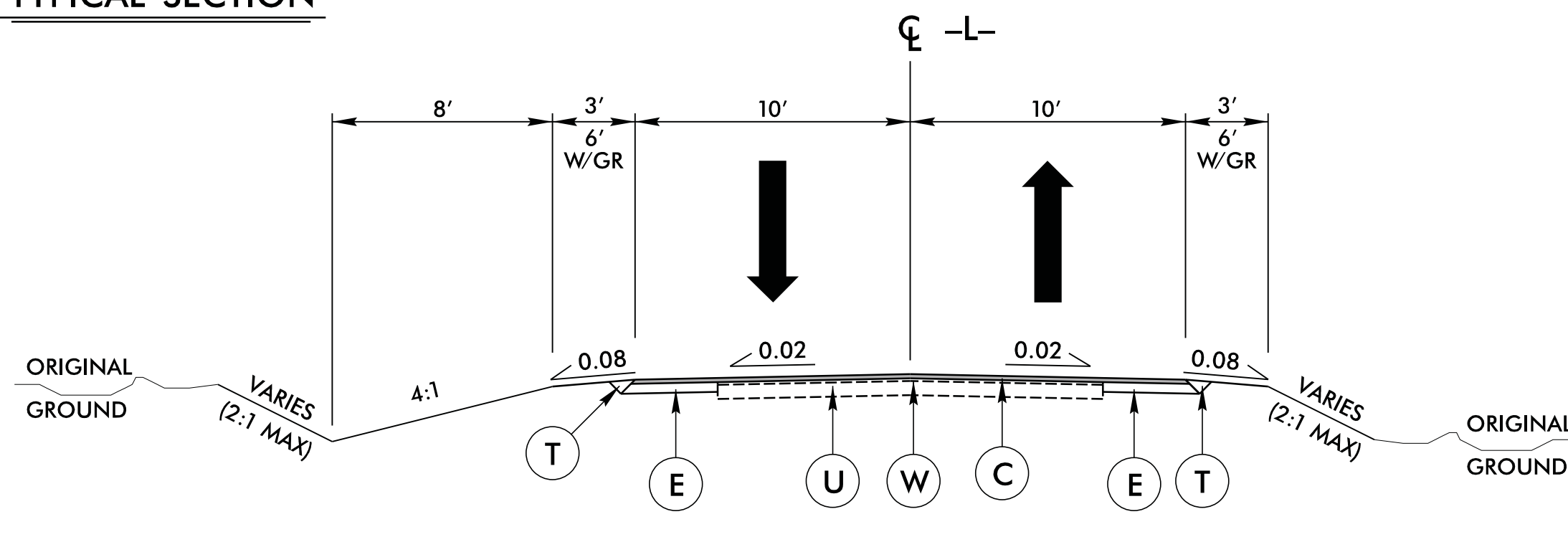
ENGLISH

JANUARY, 1990

STD. NO. SN

8/17/99

TYPICAL SECTION

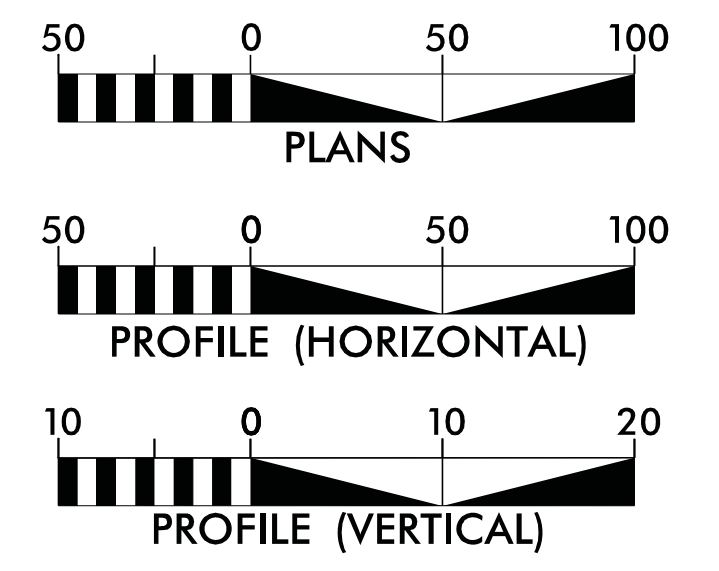


PAVEMENT SCHEDULE	
C	1½" SURFACE COURSE, TYPE SF9.5A
E	5½" BASE COURSE, TYPE B25.0B
T	EARTH MATERIAL
U	EXISTING PAVEMENT.
W	WEDGING

NAD 83/NSRS 2007

PROJECT REFERENCE NO. BD-5115	SHEET NO. RDY-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Step E Plan 8-16-12 Eleni M. Riggs	3/16/12

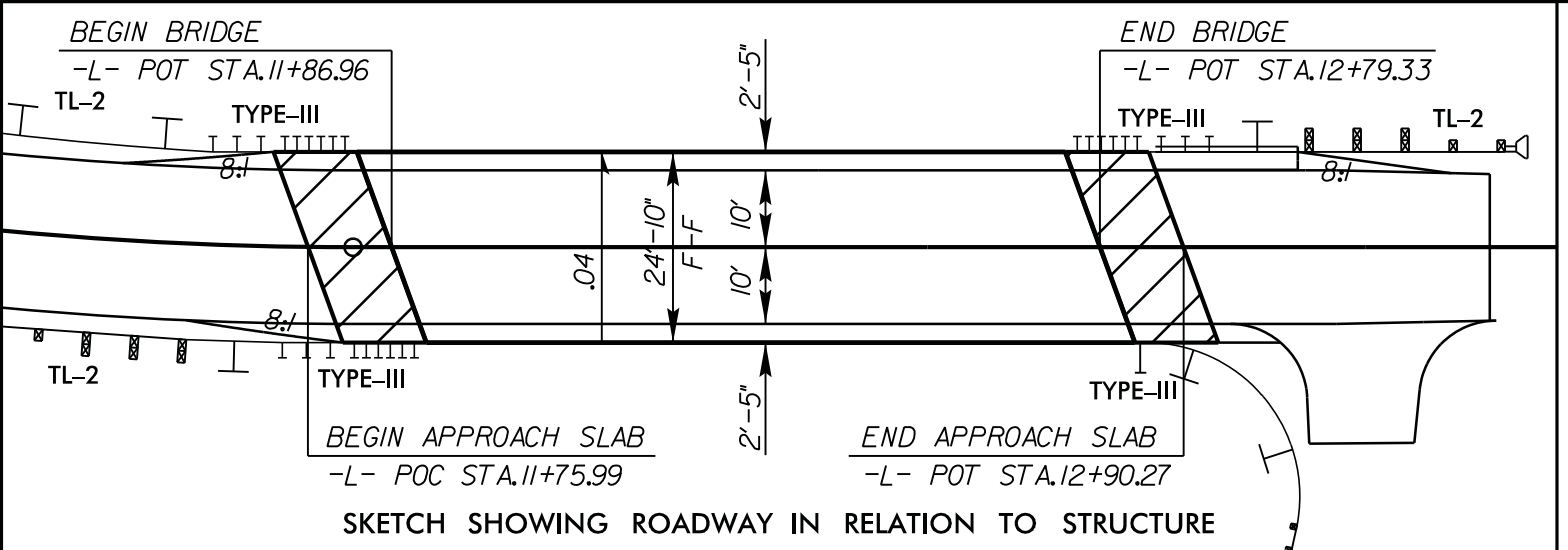
GRAPHIC SCALES



DESIGN SPEED = 20 mph *
ADT = 280 (2007)

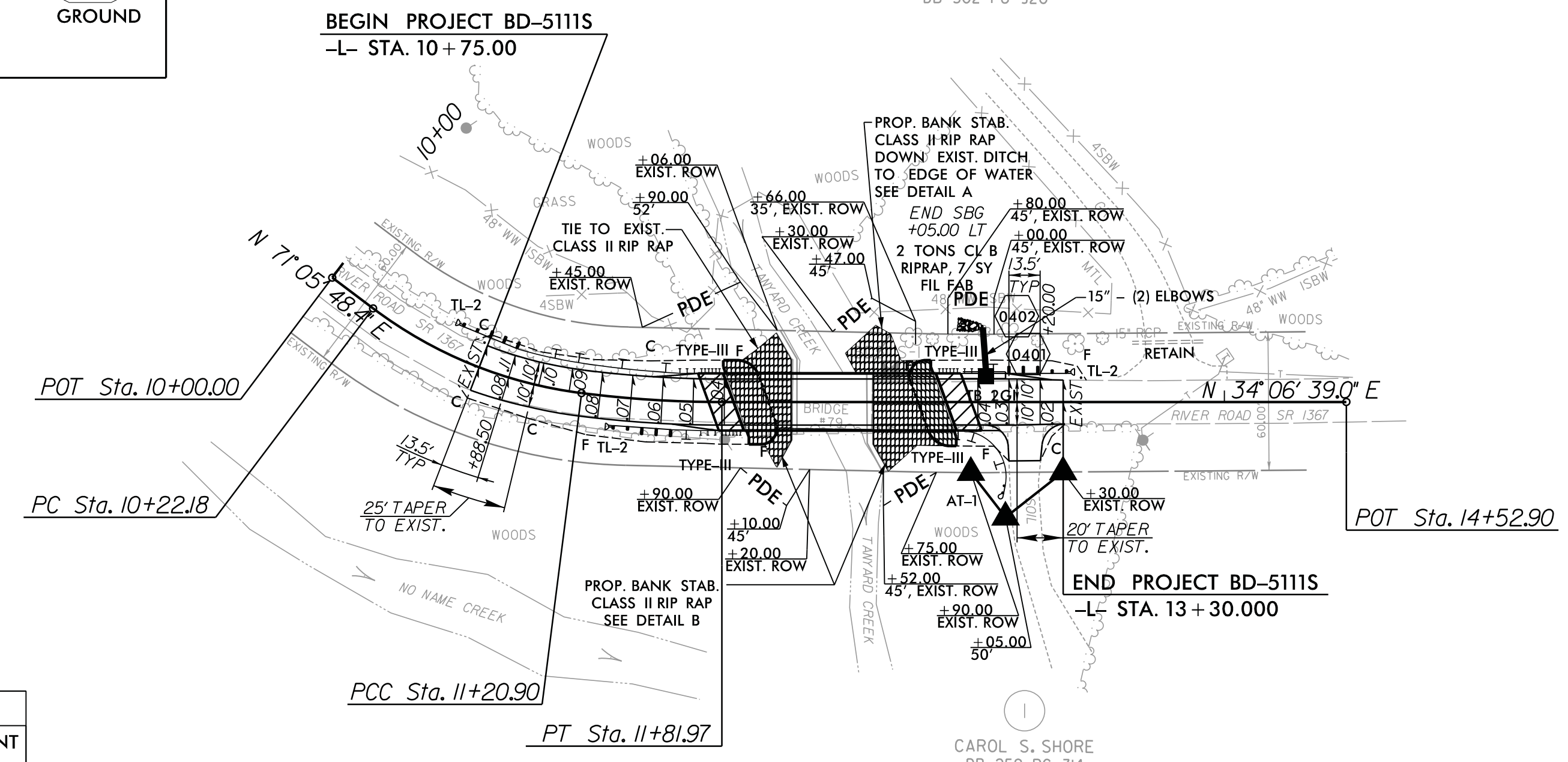
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BD5115-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 915,420.4542(ft) EASTING: 1,501,860.6962(ft) ELEVATION: 864.4771(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999893785 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BD5115-1" TO -L- STATION 10+00.00 IS N 43°26'00.00" E 245.03 (ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERT. DATUM USED IS BASED ON MONUMENT BD5115-1 (NAVD 88).



-L-	
PI Sta 10+72.68 Δ = 29° 46' 15.6" (LT) D = 30' 09" 20.4" L = 98.72' T = 50.50' R = 190.00' SE = VAR. SEE PLANS V = 20 mph	PI Sta 11+51.48 Δ = 7° 12' 53.9" (LT) D = 1° 48' 48.8" L = 61.07' T = 30.58' R = 485.00' SE = VAR. SEE PLANS V = 20 mph

RIGHT-OF-WAY AREAS									
PARCEL #	PROPERTY OWNER'S NAME	TOTAL AREA	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTRUCTION EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
1	CAROL S. SHORE	N/A	388 SF	N/A	N/A	0 SF	411 SF	0 Ac.	0 Ac.
2	JAMES R. COLLINS	N/A	0 Ac.	N/A	N/A	0 SF	1234 SF	0 Ac.	0 Ac.



* DESIGN EXCEPTION REQUIRED

DETAIL A
RIP RAP BANK STABILIZATION
(Not to Scale)

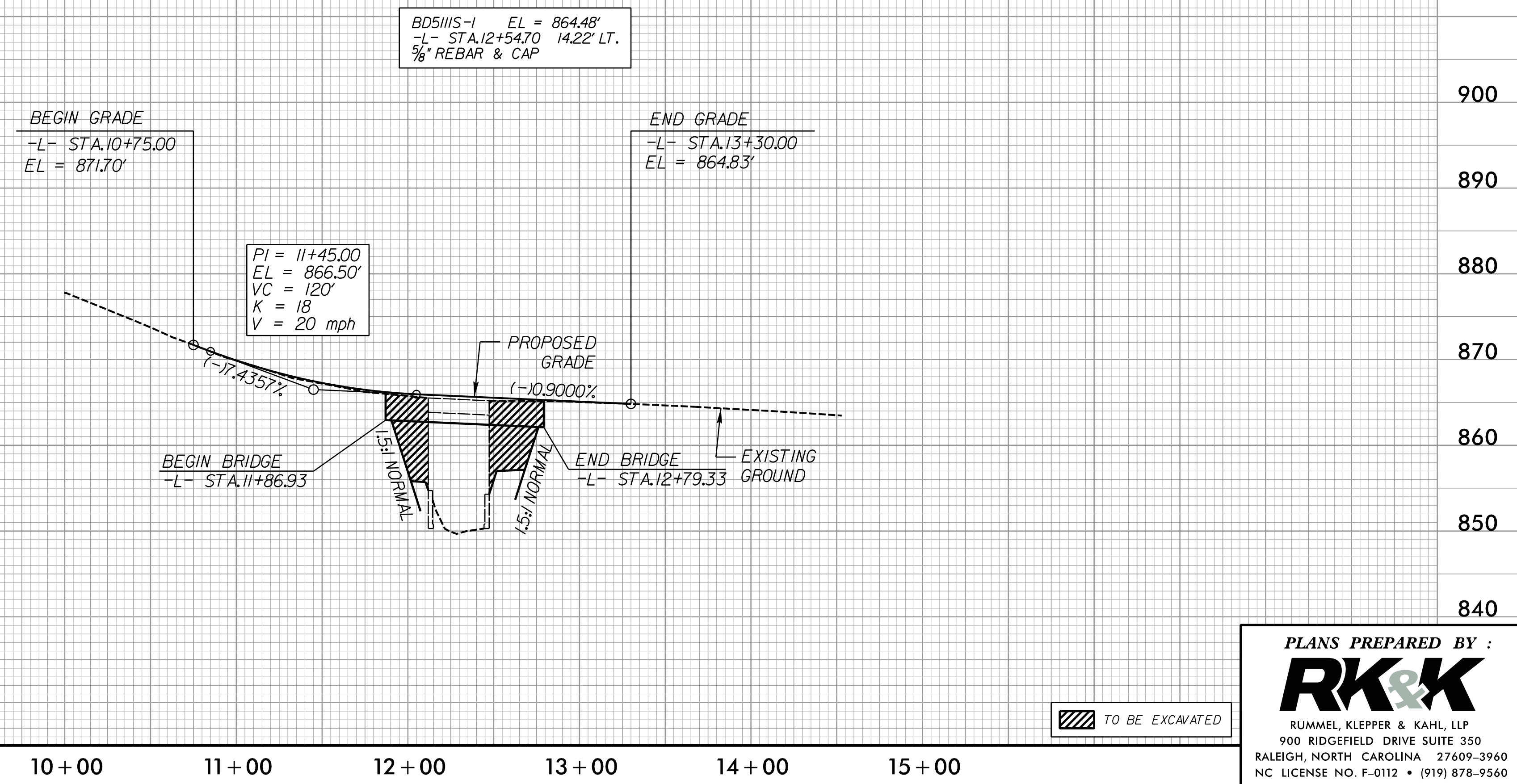
Type of Liner = 31 TONS, CL II Rip-Rap
Filter Fabric = 32 sy

FROM STA. 11+91 TO STA. 12+12 LT.
FROM STA. 12+00 TO STA. 12+12 RT.
FROM STA. 12+47 TO STA. 12+70 LT.
FROM STA. 12+47 TO STA. 12+80 RT.

DETAIL B
RIP RAP BANK STABILIZATION
(Not to Scale)

Type of Liner = 153 TONS, CL II Rip-Rap
Filter Fabric = 155 SY

FROM STA. 12+35 TO STA. 12+60 LT.



TO BE EXCAVATED

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

3/16/2012
E:\Roadway\Proje\BD5115\RDY-1\psh04.dgn

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5111S	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

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

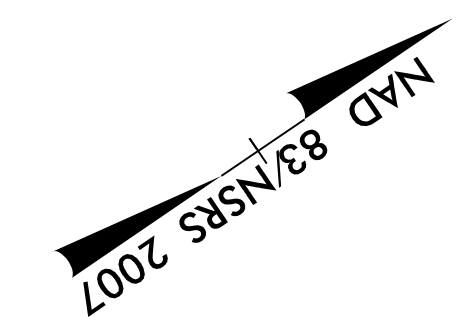
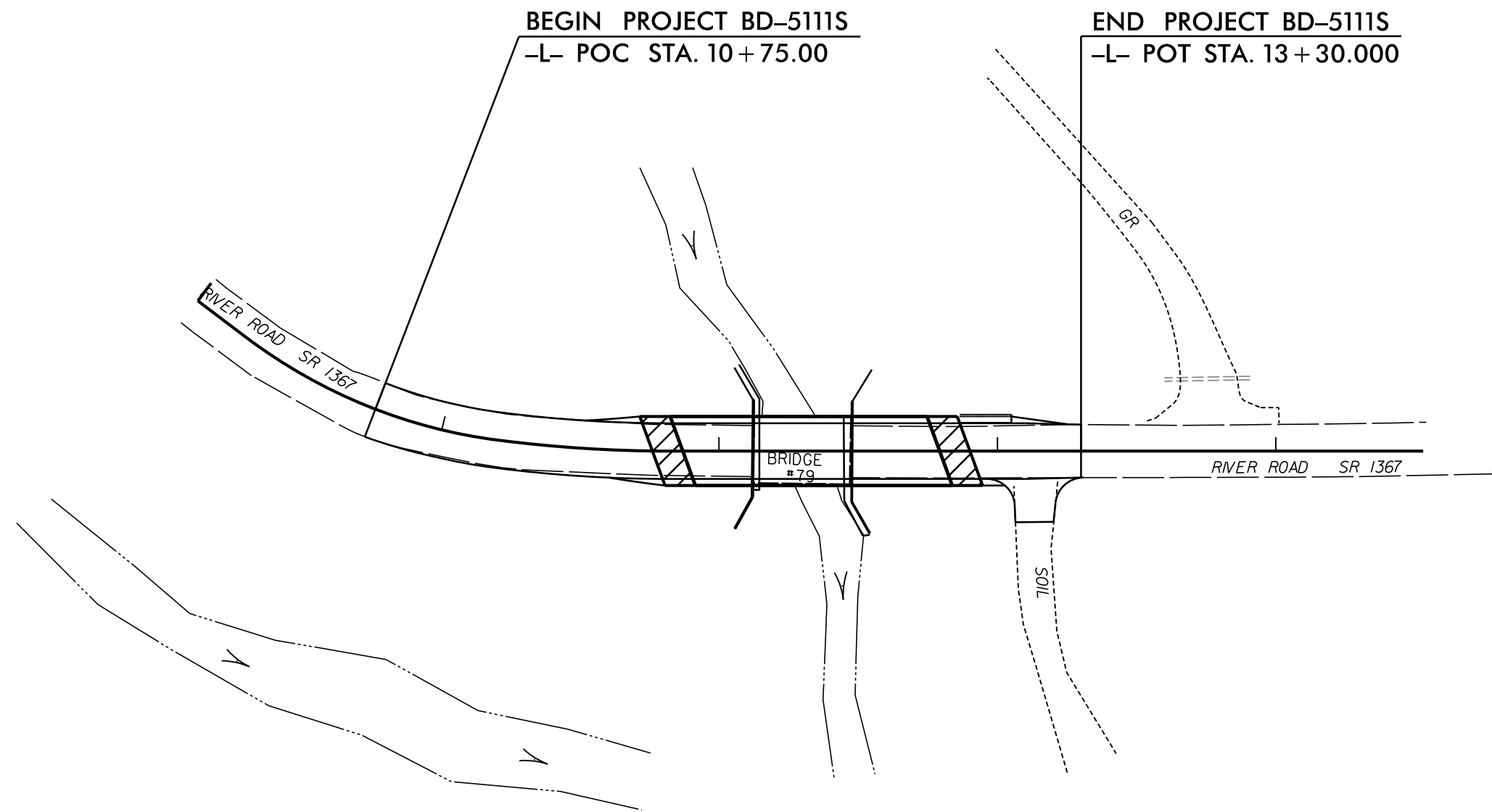
YADKIN COUNTY

BRIDGE NO.79 ON SR 1367 OVER TANYARD CREEK

TIP PROJECT: BD-5111S

EROSION AND SEDIMENT CONTROL MEASURES

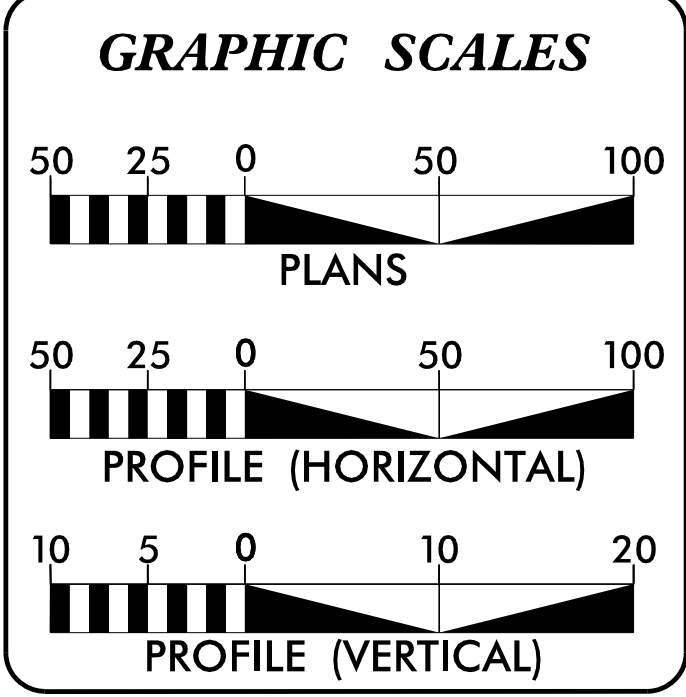
Std. #	Description	Symbol
1630.05	Temporary Silt Ditch	
1630.05	Temporary Diversion	
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1633.01	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
1633.01	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.01	Temporary Rock Silt Check Type-B	
1633.01	Wattle / Coir Fiber Wattle	
1633.01	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
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	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
1632.01	Rock Inlet Sediment Trap Type A	
1632.02	Type B	
1632.03	Type C	
1633.01	Skimmer Basin	
1633.01	Tiered Skimmer Basin	
1633.01	Infiltration Basin	



- Clearing and Grubbing Phase
- Final Phase
- Both Phases

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

THESE EROSION AND SEDIMENT CONTROL PLANS
 COMPLY WITH THE REGULATIONS SET FORTH BY
 THE NCG-010000 GENERAL CONSTRUCTION
 PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED
 BY THE NORTH CAROLINA DEPARTMENT OF
 ENVIRONMENT AND NATURAL RESOURCES
 DIVISION OF WATER QUALITY.



*ROADSIDE ENVIRONMENTAL
 PROJECT ENGINEER*

*Stephen E. Roberts, P.E.
 ROADWAY DESIGN ENGINEER*

*Audrey B. Burnette, P.E.
 HYDRAULICS ENGINEER*

*Audrey B. Burnette, P.E.
 EROSION CONTROL DESIGN ENGINEER*

431
 LEVEL IIIA CERTIFICATION NUMBER

RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEFIELD DRIVE, SUITE 350
 RALEIGH, NORTH CAROLINA 27609
 NC LICENSE NO. F-0112
 1-888-521-4455 OR 919-878-9560

FOR
DIVISION OF HIGHWAYS

2012 STANDARD SPECIFICATIONS

LETTING DATE: _____

*B. Keith Skinner, P.E.
 PROJECT ENGINEER*

*Stephen E. Roberts, P.E.
 PROJECT DESIGN ENGINEER*

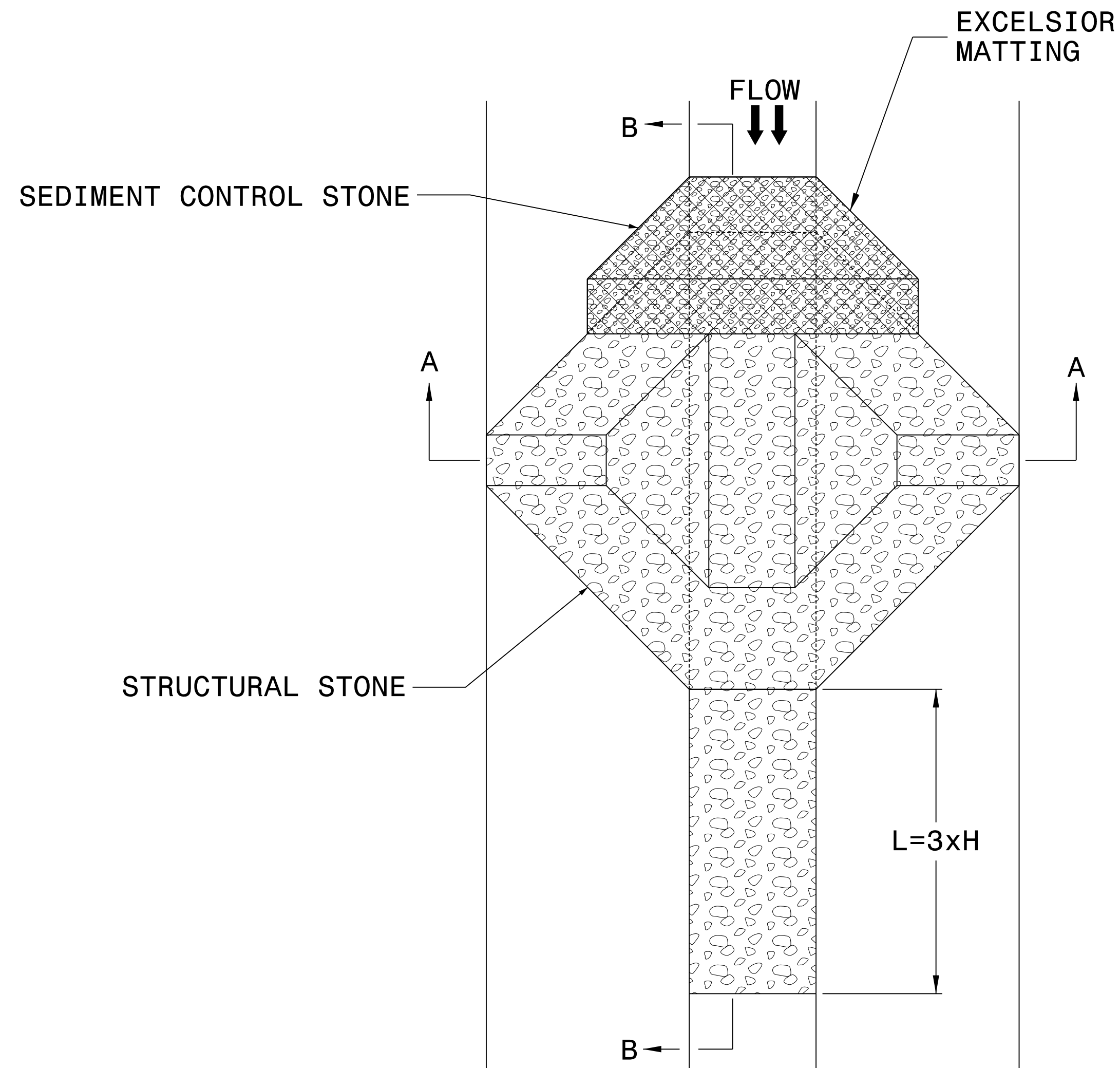
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 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
 1606.01 Special Sediment Control Fence
 1632.03 Rock Inlet Sediment Trap Type C
 1633.01 Temporary Rock Silt Check Type A

PROJECT REFERENCE NO.	SHEET NO.
BD-5111S	EC-2
RW SHEET NO.	

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



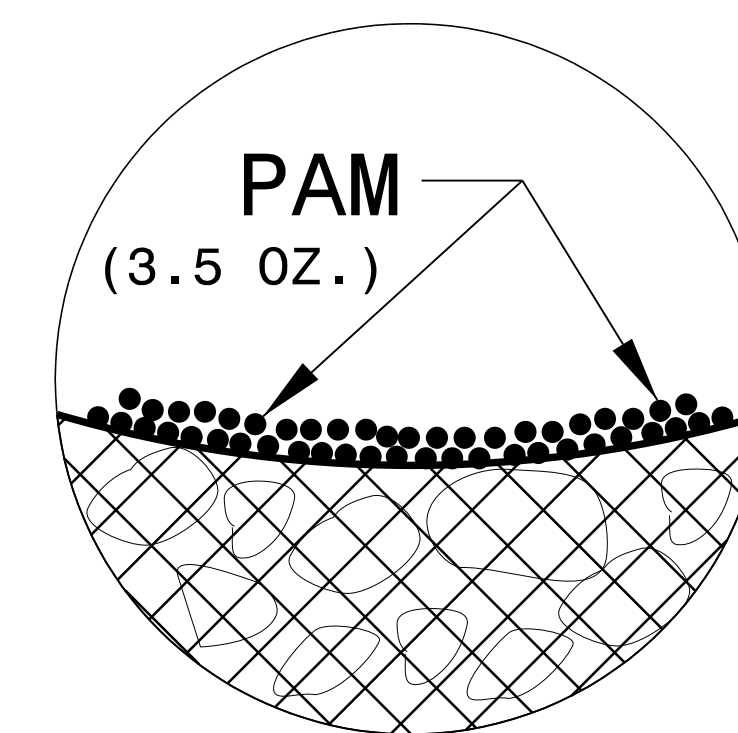
PLAN

NOTES

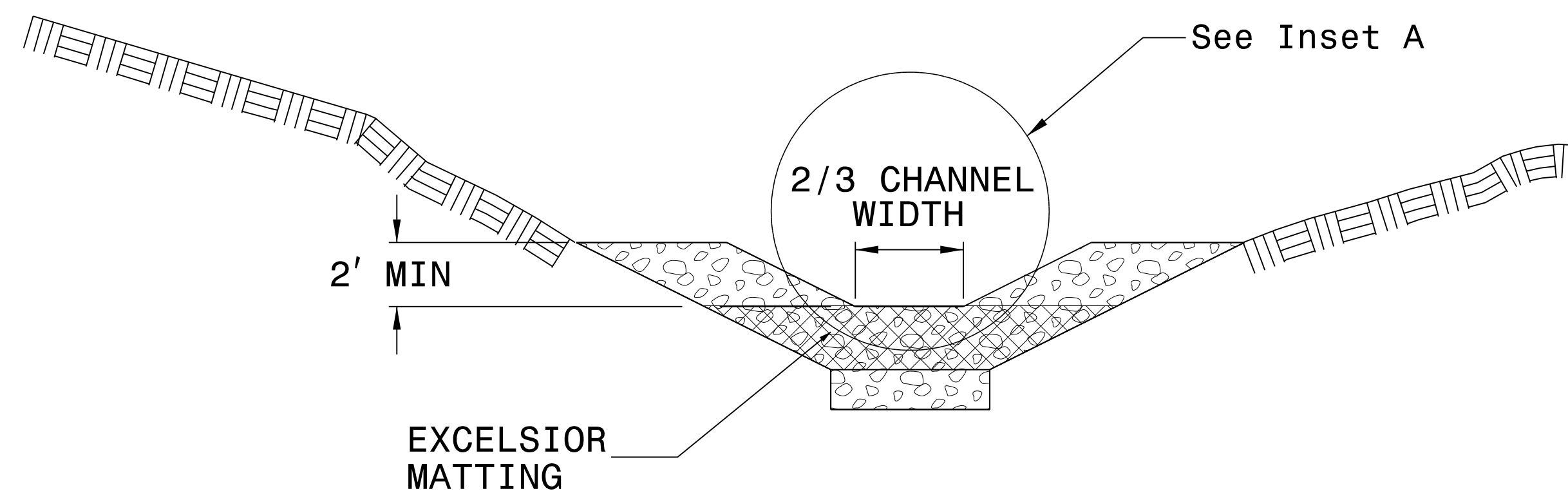
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

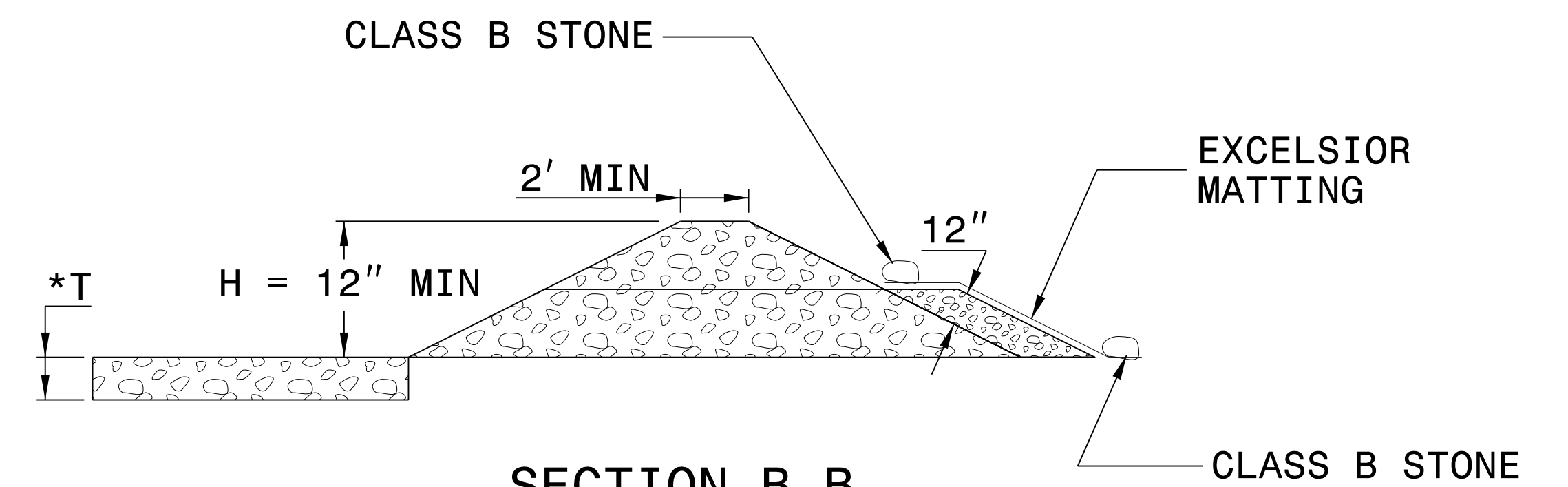
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



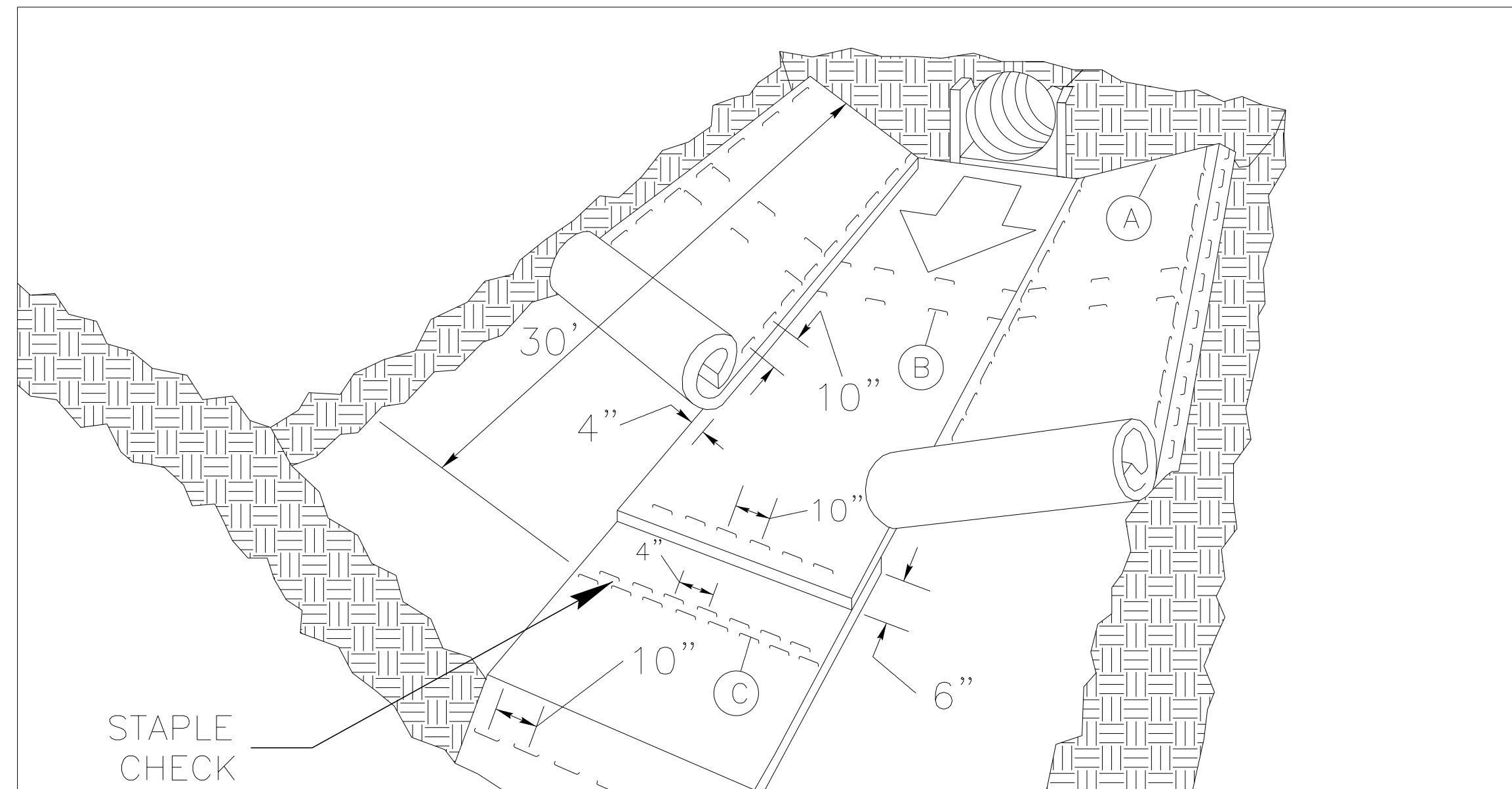
SECTION B-B

*T = 12" MIN., 18" MAX.

NOT TO SCALE

PROJECT REFERENCE NO. BD-5111S	SHEET NO. EC-2A
RW SHEET NO.	

MATTING INSTALLATION DETAIL



MATTING IN DITCHES

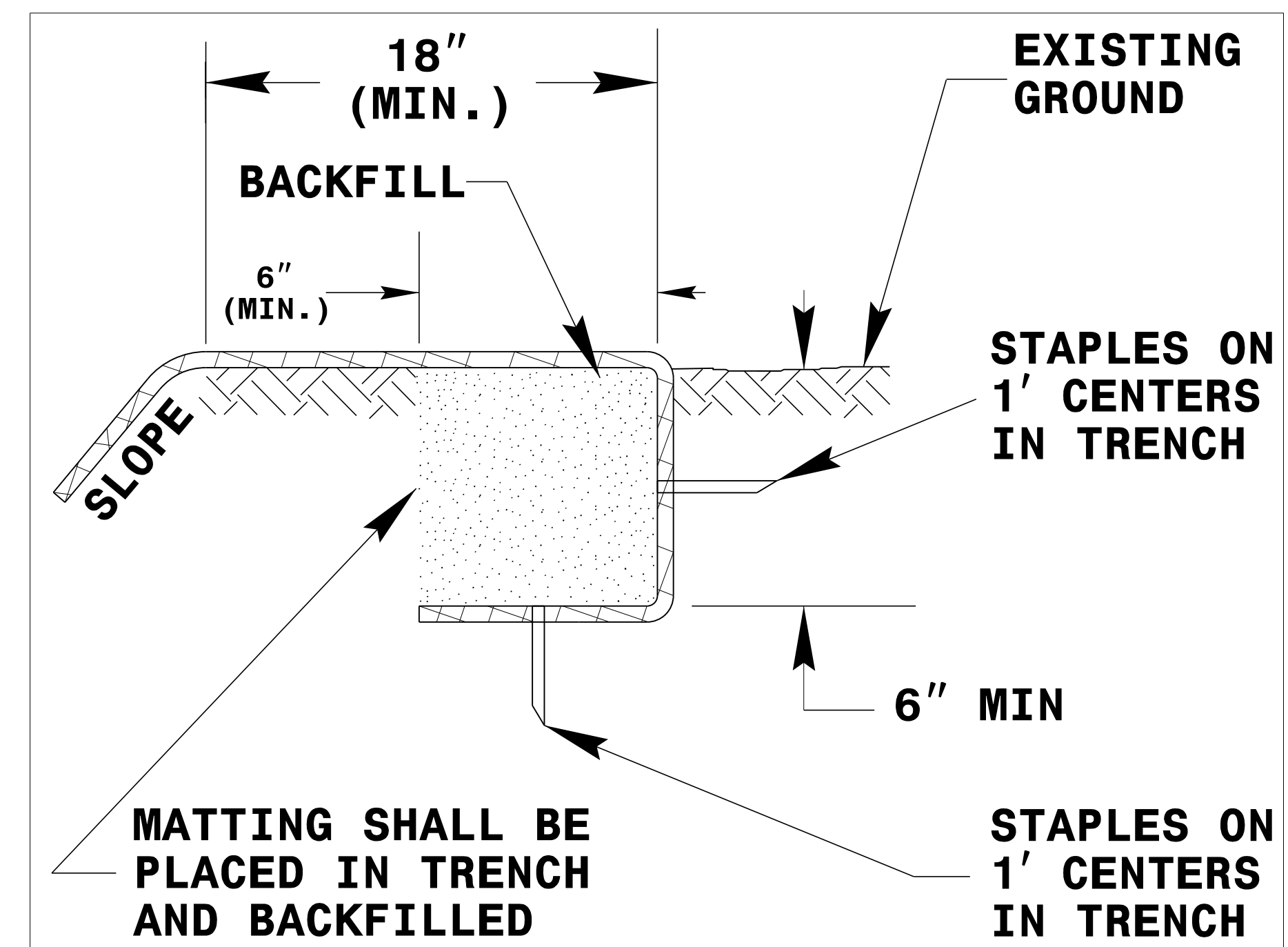
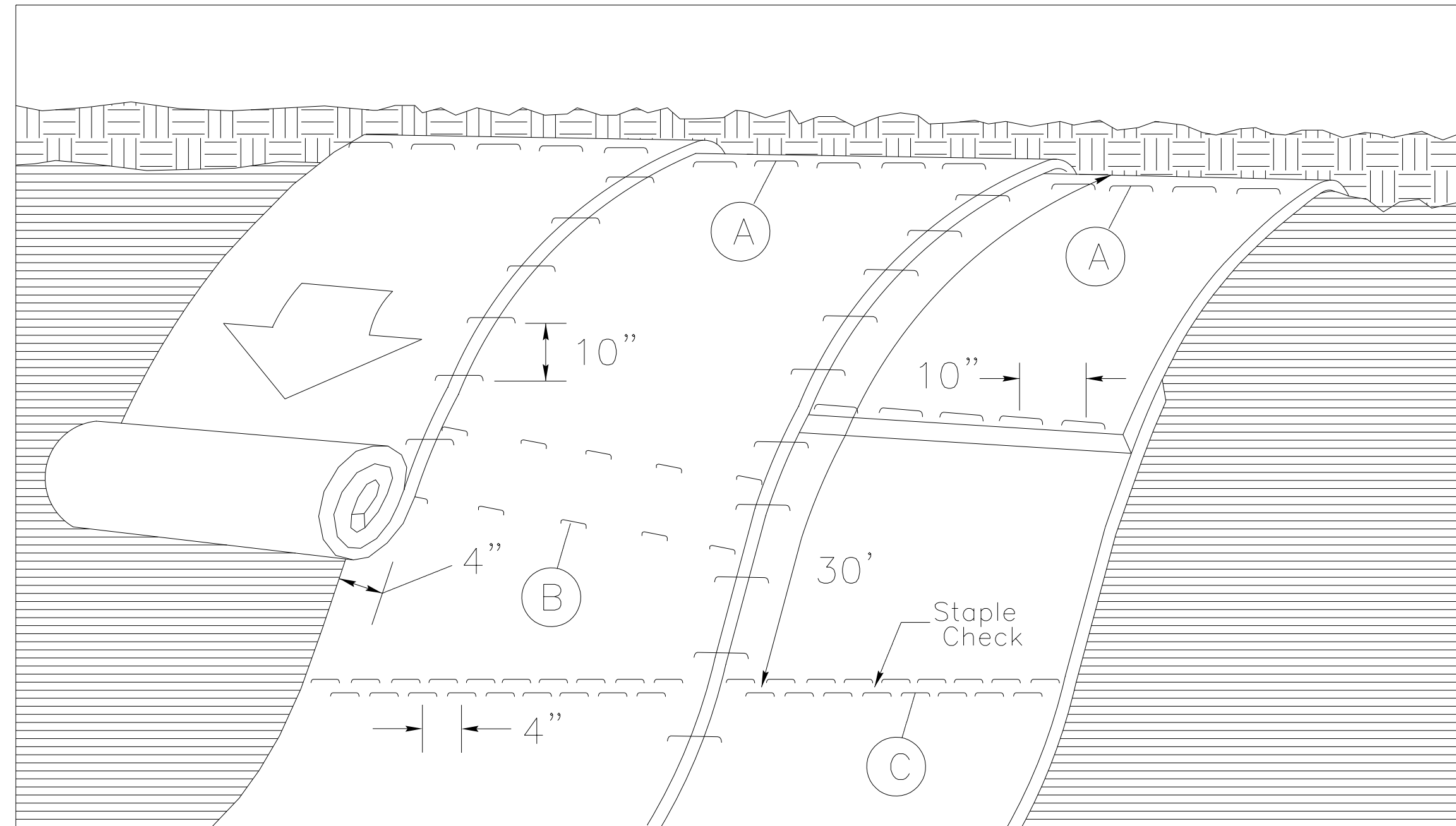


DIAGRAM (A)



MATTING ON SLOPES

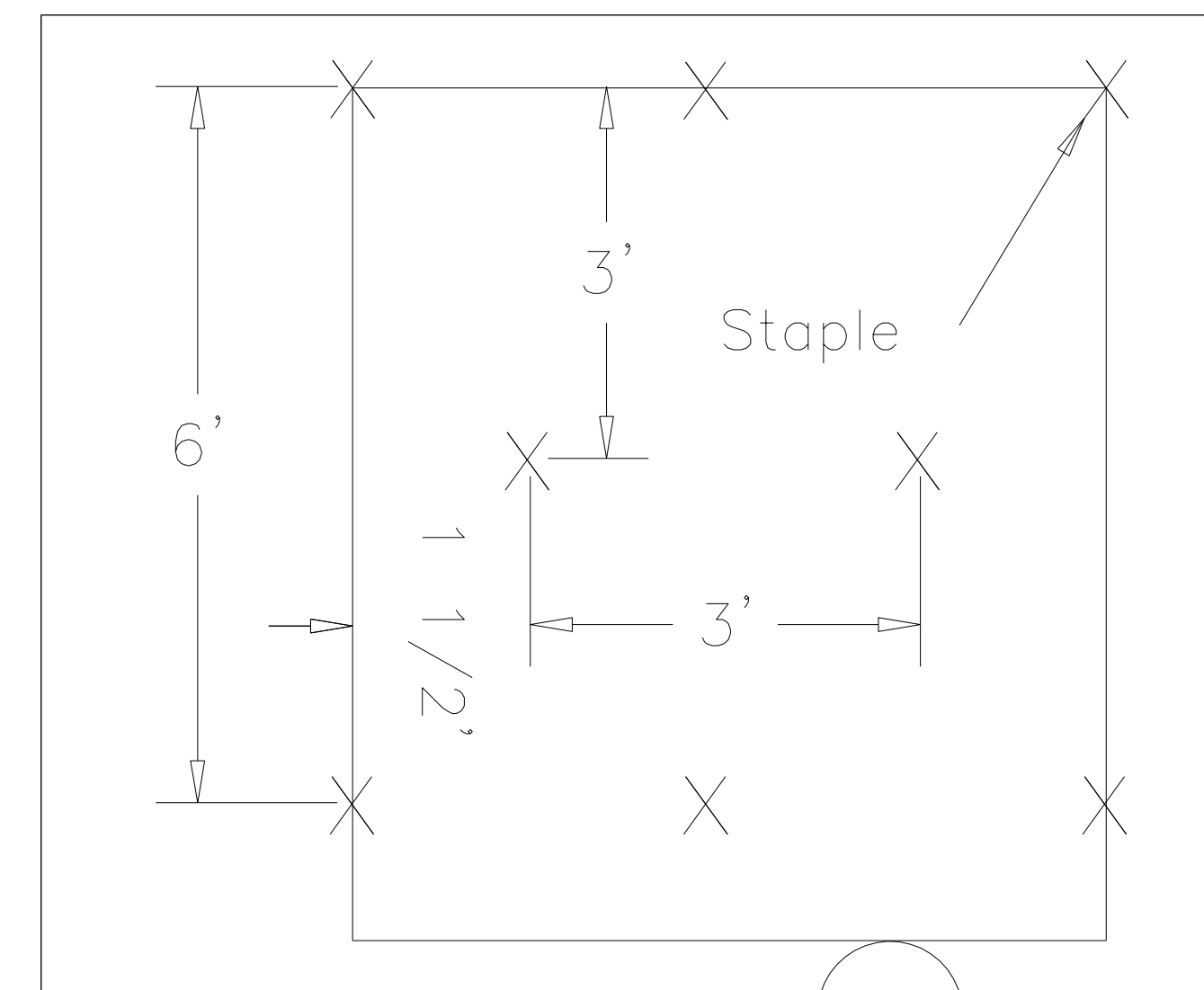


DIAGRAM (B)

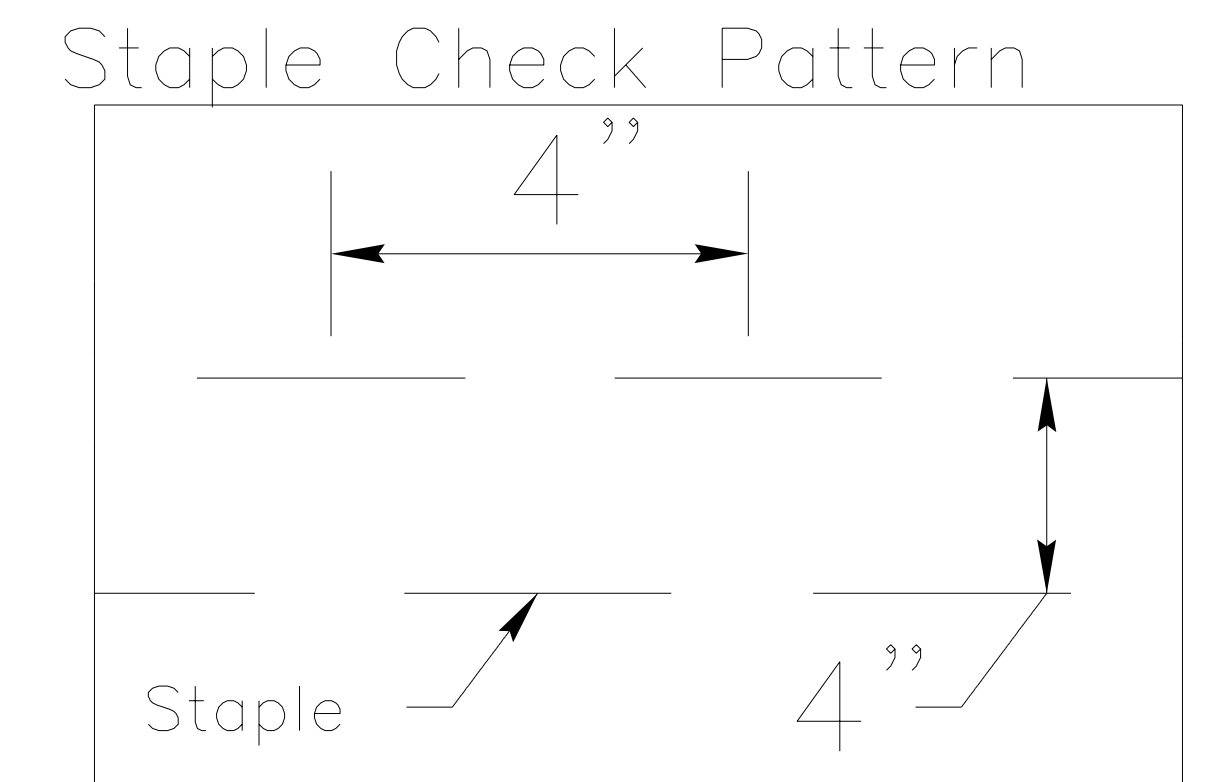


DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.

STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

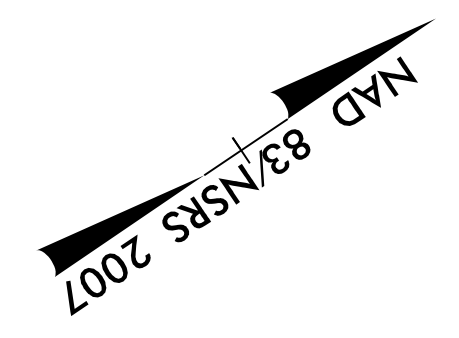
NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

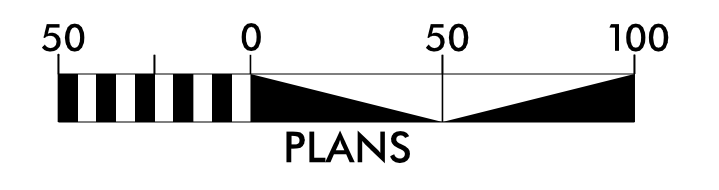
PROJECT REFERENCE NO.	SHEET NO.
<i>BD-5111S</i>	<i>EC-3A</i>

SOIL STABILIZATION TIMEFRAMES

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



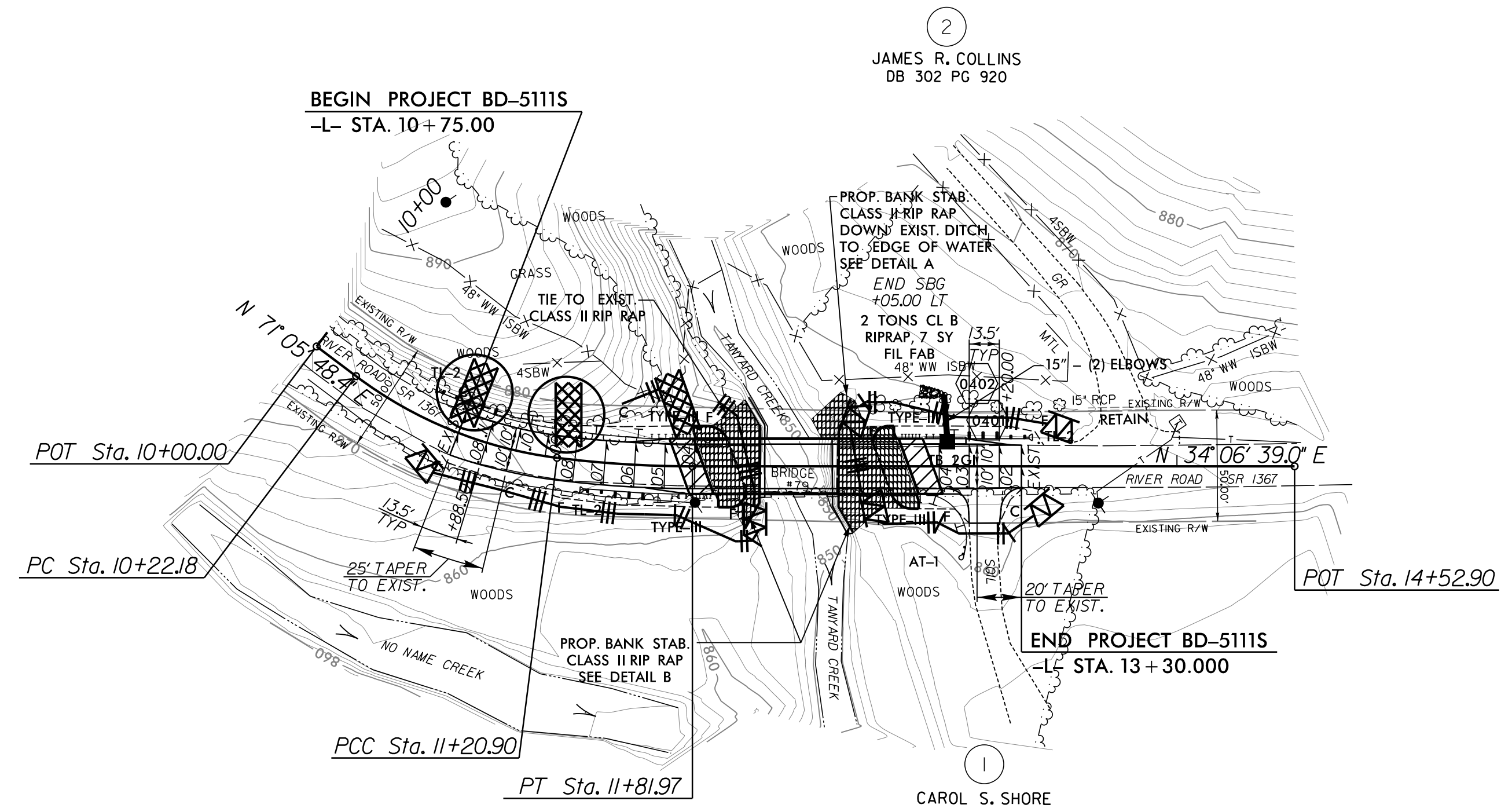
GRAPHIC SCALES



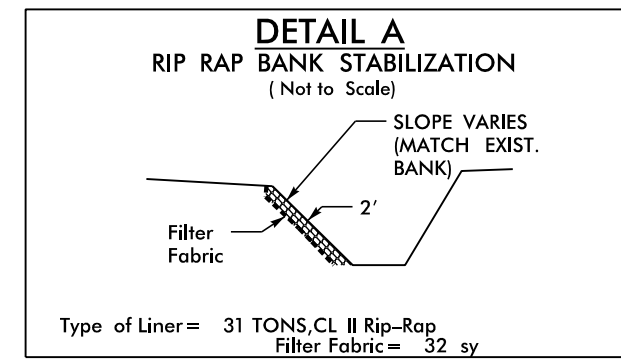
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - A
AT DRAINAGE OUTLETS.

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

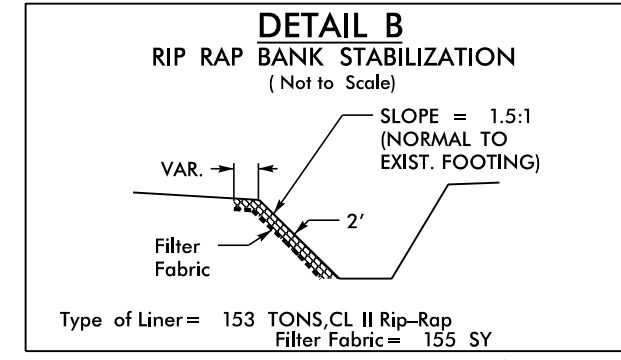
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4



PROP. SBG END BRIDGE TO 13+05.00 LT



FROM STA. 11+91 TO STA. 12+12 LT.
FROM STA. 12+00 TO STA. 12+12 RT.
FROM STA. 12+47 TO STA. 12+70 LT.
FROM STA. 12+47 TO STA. 12+80 RT.



FROM STA. 12+35 TO STA. 12+60 LT.

NOTES:
ANY DEVIATION FROM OPTIONS WILL REQUIRE PRIOR APPROVAL BY ENGINEER.
ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

PLANS PREPARED BY :

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

3/16/2012
E:\Hydro\Auto\Drawings\CADD\PSH\bd5111s_ec_psh04_C&G.dgn

09_08/09

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

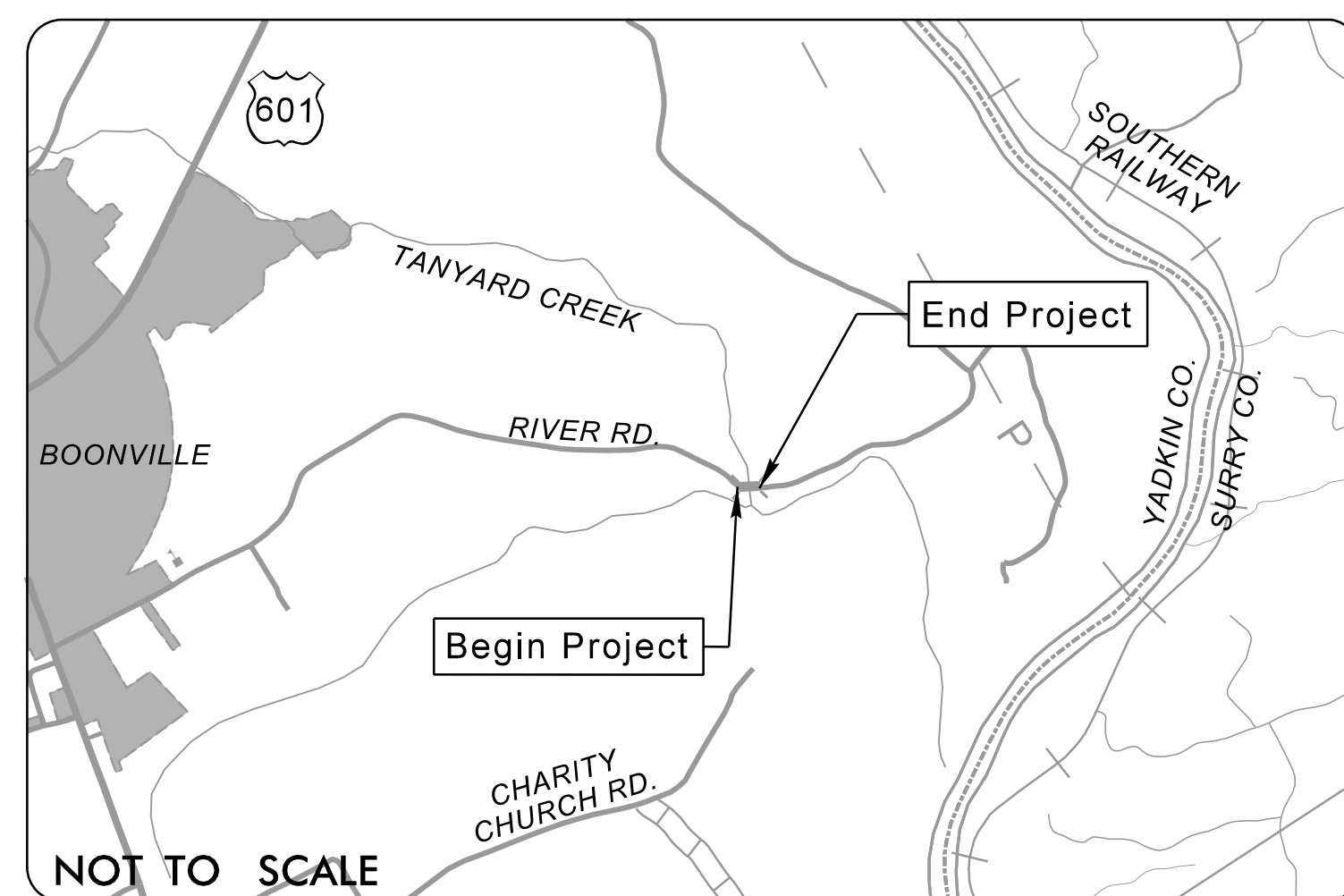
YADKIN COUNTY

LOCATION: SR 1367 (RIVER RD.) OVER TANYARD CREEK

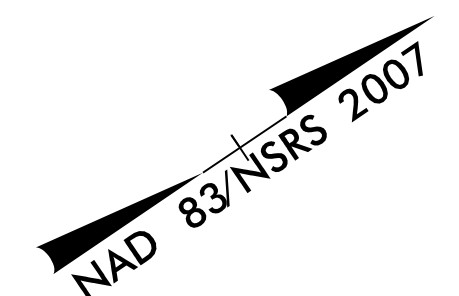
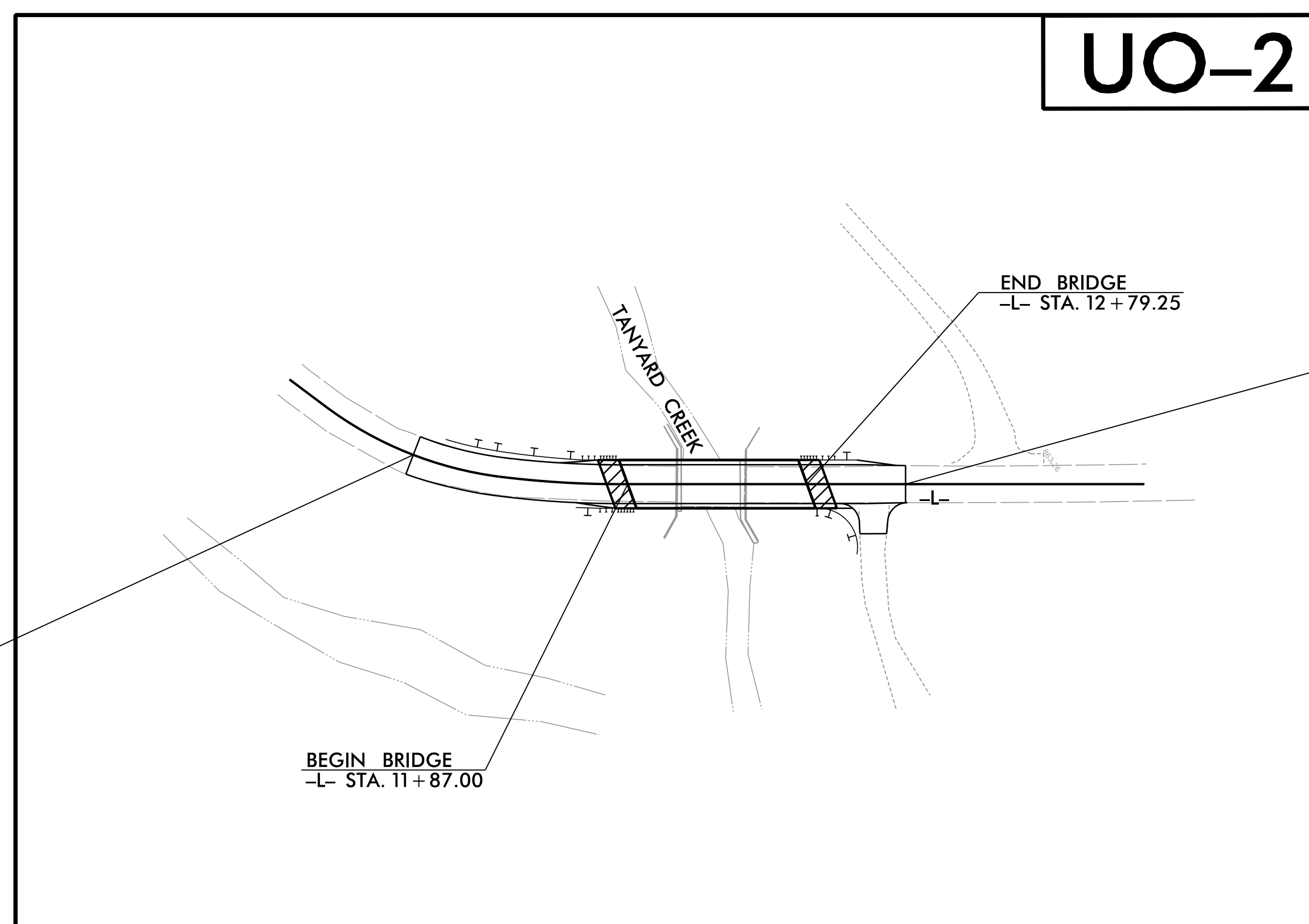
TYPE OF WORK: UTILITIES BY OTHERS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-511S	UO-1	2
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

TIP PROJECT: BD-511S



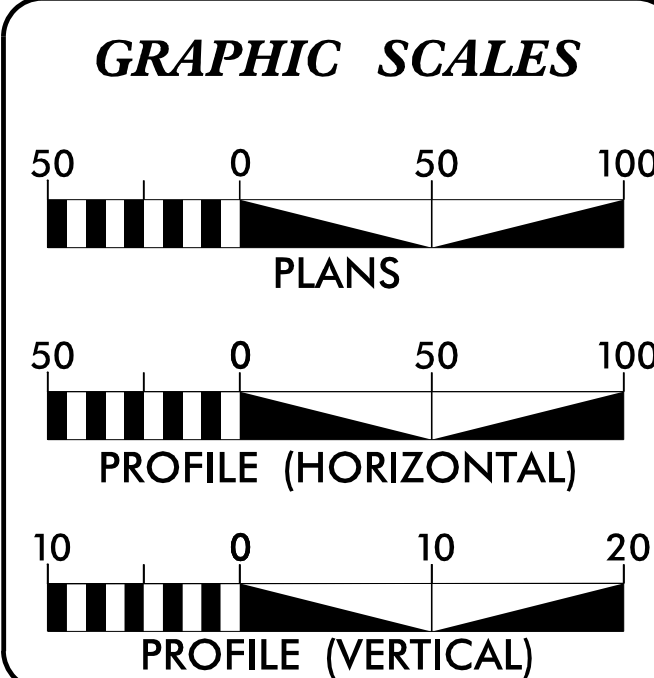
VICINITY MAP



BEGIN PROJECT BD-511S
-L- STA. 10 + 75.00

END PROJECT BD-511S
-L- STA. 13 + 30.00

CONTRACT:



DESIGN DATA

DESIGN SPEED = 20 mph *
ADT = 280 (2007)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITIES BY OTHERS PLAN SHEETS

UTILITY OWERS ON PROJECT

Surry Yadkin Electric Membership Corporation

CenturyLink

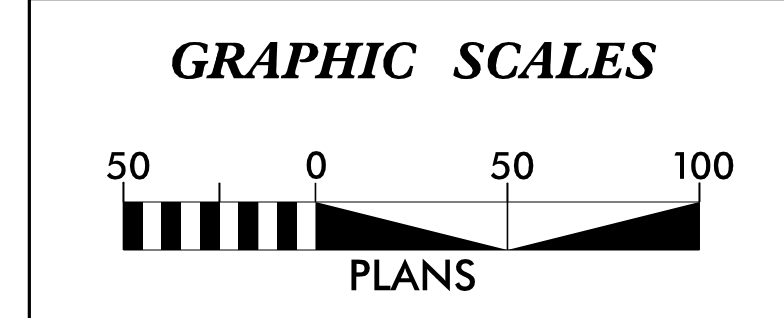
(1) SURRY-YADKIN EMC - POWER
(2) CENTURYLINK - TELEPHONE

PLANS PREPARED BY:

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560

2/17/2012 R:\ECON\B511S\Design\Utilities\RDy...Ut\Proj\BD-511S_Rdy...Tsh_UB0.dgn deFault

PROJECT REFERENCE NO. <i>BD-5111S</i>	SHEET NO. <i>U0-2</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



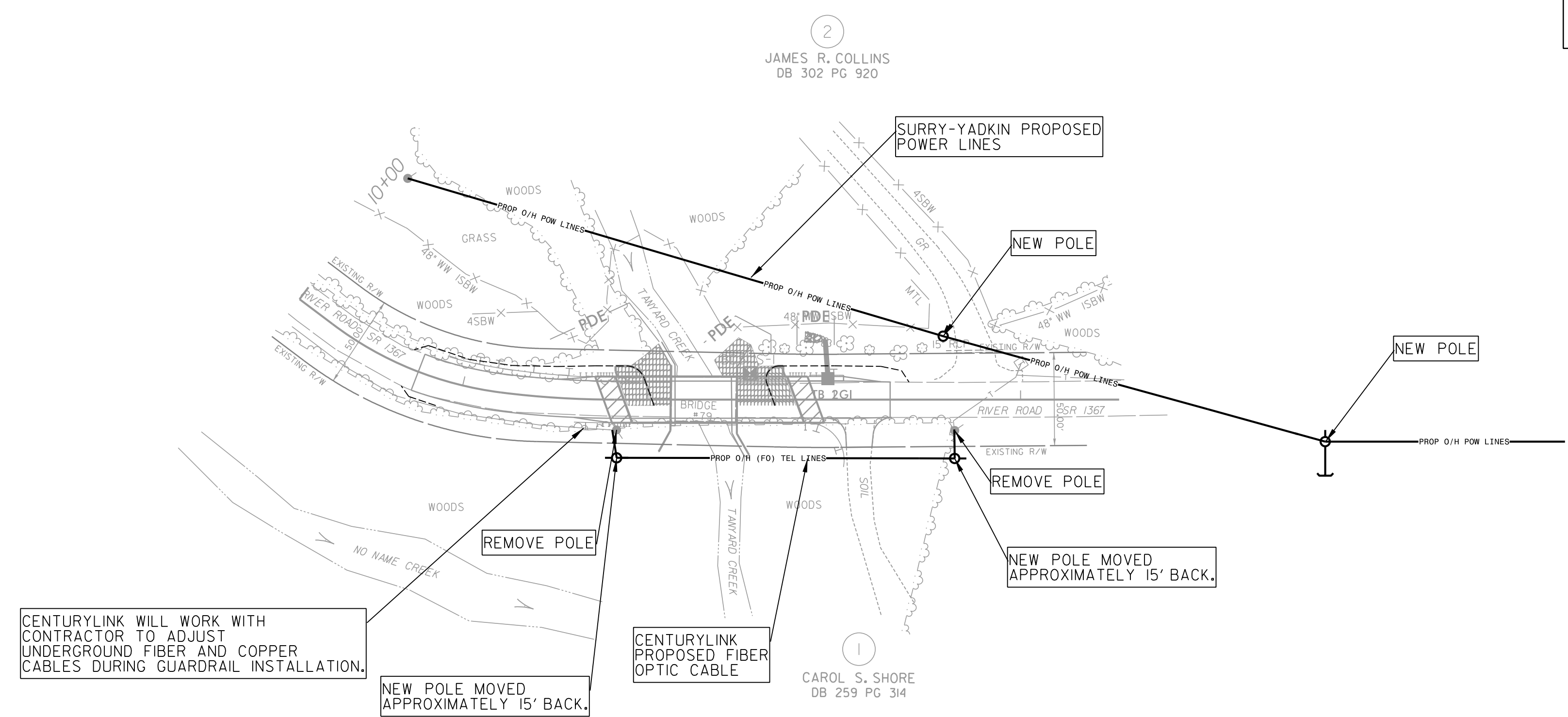
DESIGN SPEED = 20 mph *
ADT = 280 (2007)

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS.

-L-

PI Sta 10+72.68	PI Sta 11+51.48
$\Delta = 29^{\circ} 46' 15.6" (LT)$	$\Delta = 7^{\circ} 12' 53.9" (LT)$
$D = 30^{\circ} 09' 20.4"$	$D = 11^{\circ} 48' 48.8"$
$L = 98.72'$	$L = 61.07'$
$T = 50.50'$	$T = 30.58'$
$R = 190.00'$	$R = 485.00'$
$SE = VAR, SEE PLANS$	$SE = VAR, SEE PLANS$
$V = 20 \text{ mph}$	$V = 20 \text{ mph}$



CENTURYLINK WILL WORK WITH CONTRACTOR TO ADJUST UNDERGROUND FIBER AND COPPER CABLES DURING GUARDRAIL INSTALLATION.

NEW POLE MOVED APPROXIMATELY 15' BACK.

CENTURYLINK PROPOSED FIBER OPTIC CABLE

CAROL S. SHORE DB 259 PG 314

NEW POLE MOVED APPROXIMATELY 15' BACK.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BD5111S-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 915,420.4542(ft) EASTING: 1,501,860.6962(ft) ELEVATION: 864.4771(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999893785 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BD5111S-1" TO -L- STATION 10+00.00 IS N 43°26'00.00" E 245.03 (ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERT. DATUM USED IS BASED ON MONUMENT BD5111S-1 (NAVD 88).

NOTES:

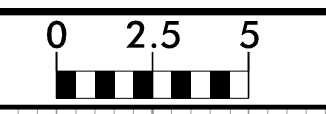
- 1.SURRY-YADKIN EMC WILL SET NEW POLES AND RELOCATE POWER LINES IN COORDINATION WITH CONTRACTOR.
- 2.CONTRACTOR TO COORDINATE WITH CENTURYLINK TO ADJUST UNDERGROUND FIBER AND COPPER CABLES DURING GUARDRAIL INSTALLATION.

UTILITY OWNERS ON PROJECT

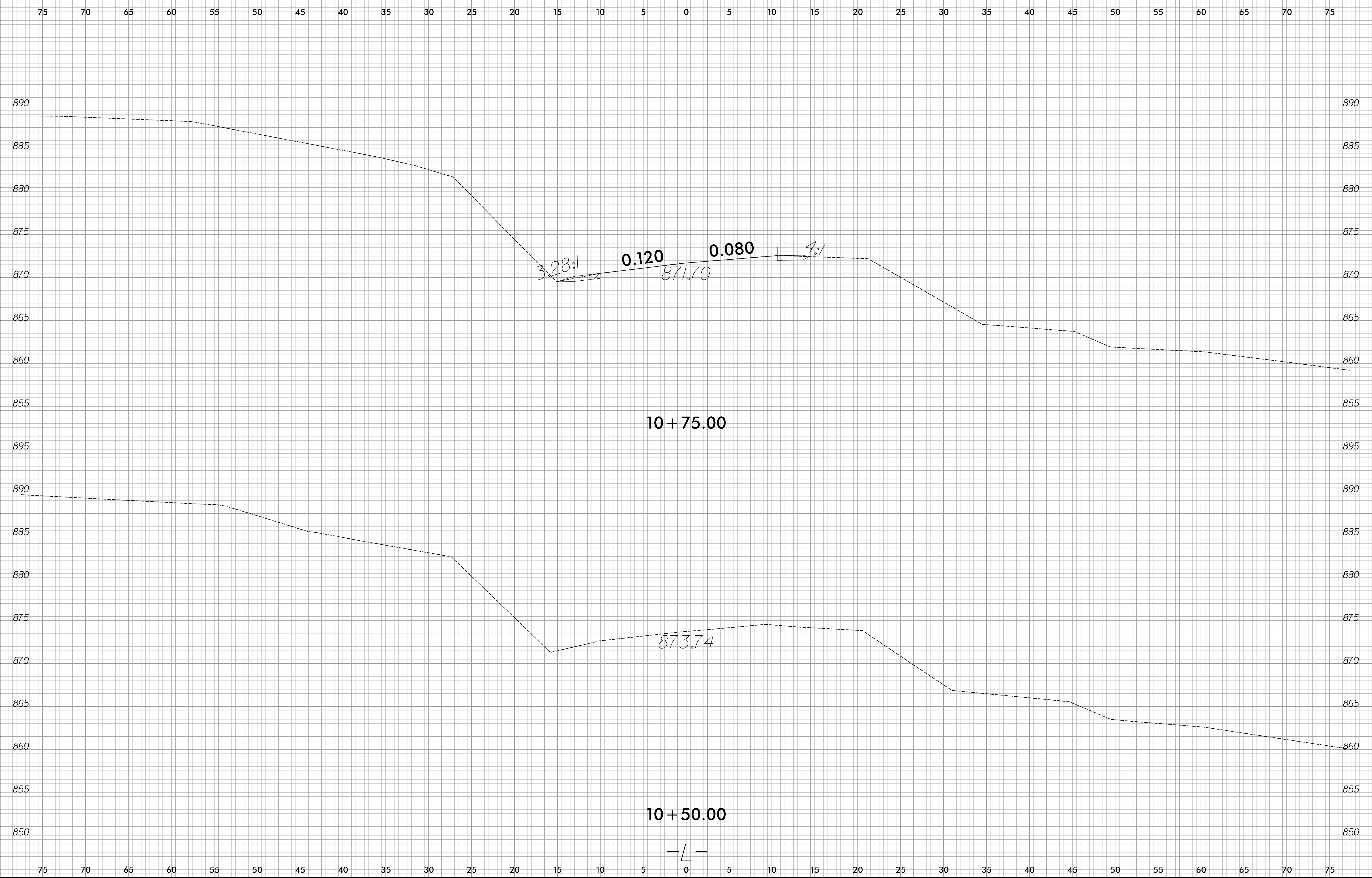
- SURRY-YADKIN EMC - POWER
- CENTURYLINK - TELEPHONE

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

8/23/99

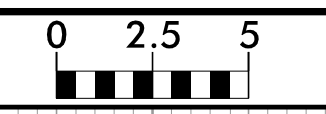


PROJ. REFERENCE NO.	SHEET NO.
BD-5111S	X-1



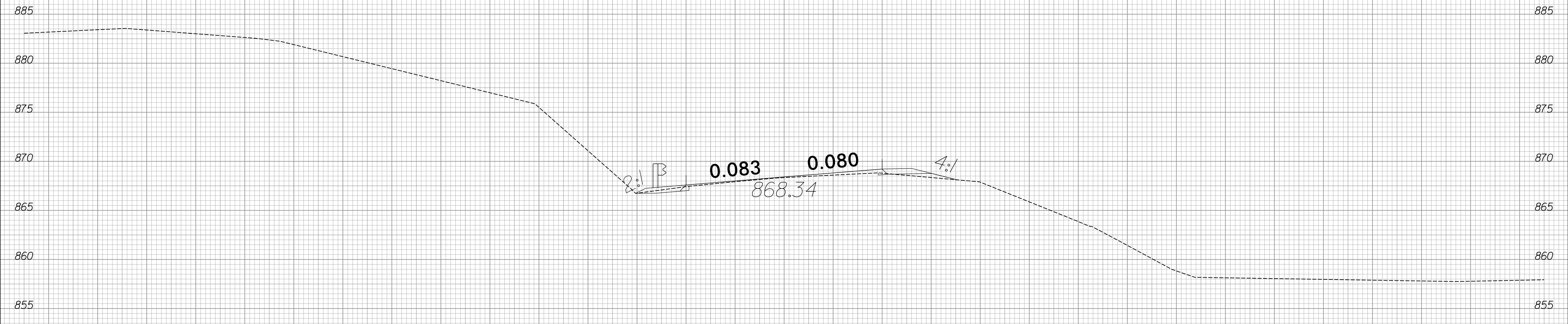
3/16/2012
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8/23/99

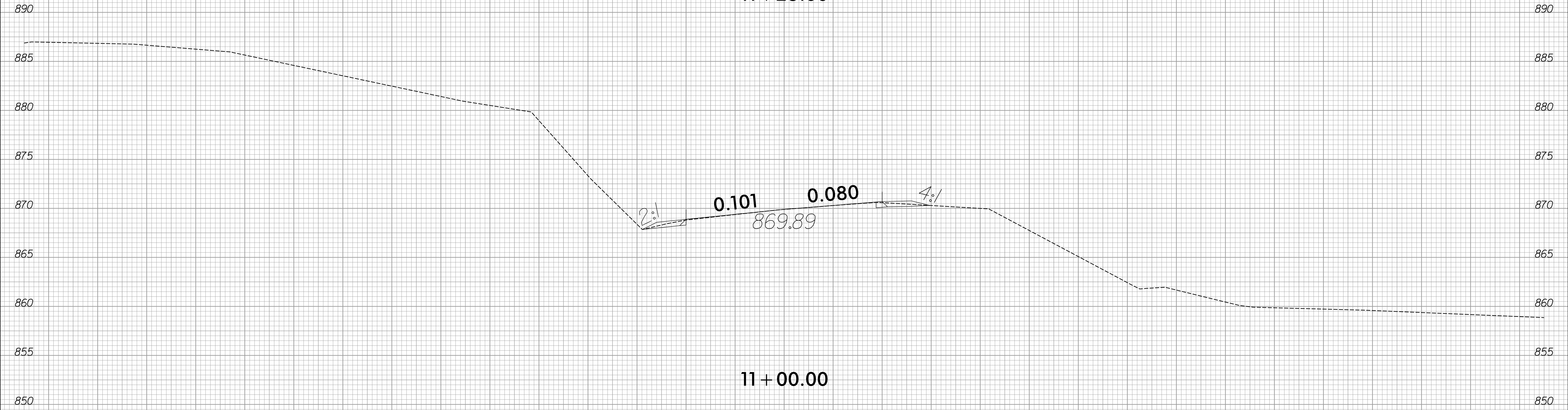


PROJ. REFERENCE NO.	SHEET NO.
BD-5111S	X-2

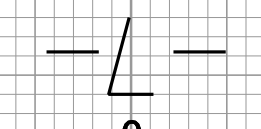
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11+25.00



11+00.00



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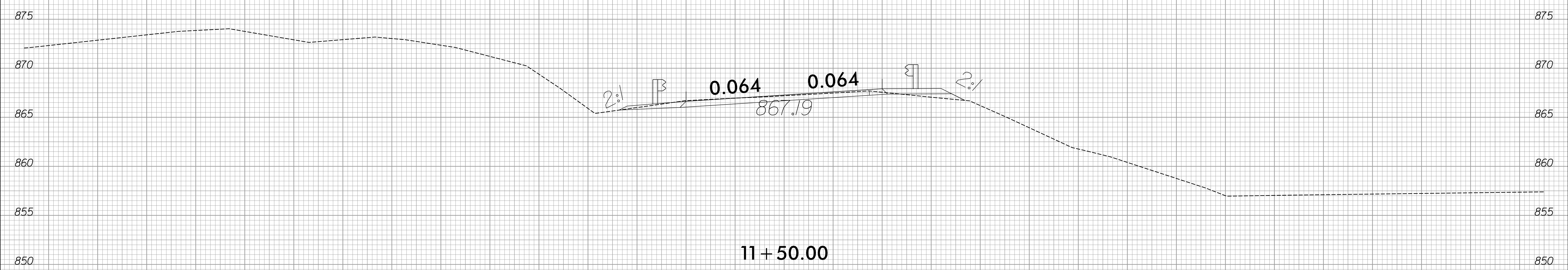
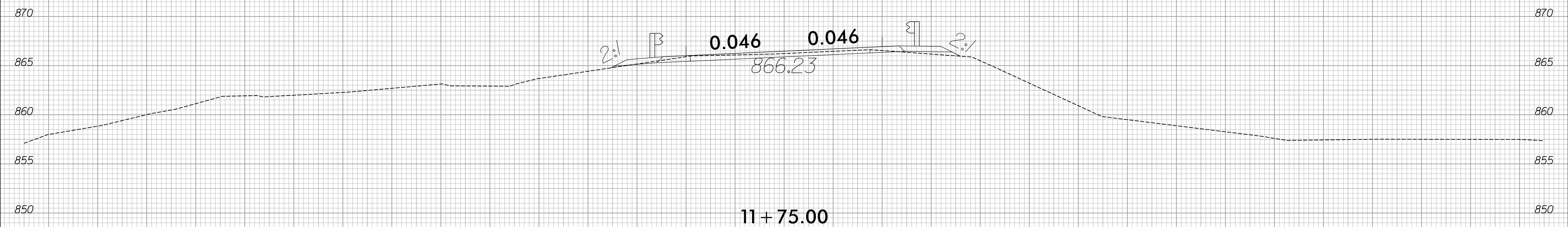
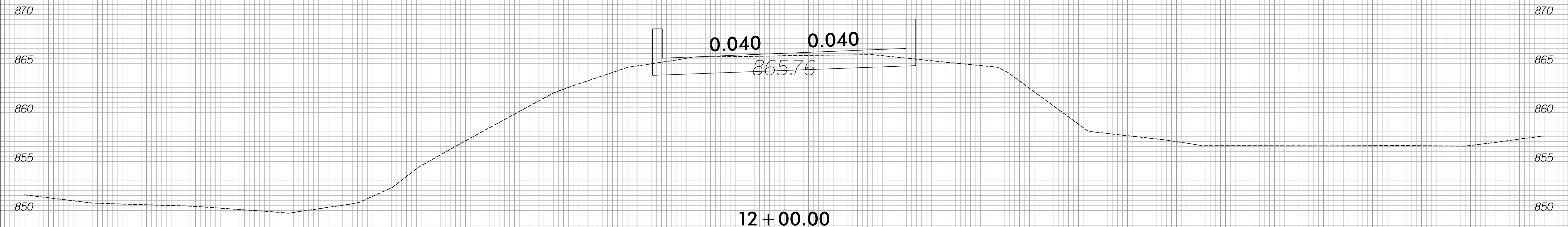
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8/23/99



PROJ. REFERENCE NO.	SHEET NO.
BD-5111S	X-3

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3/16/2012
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 cels

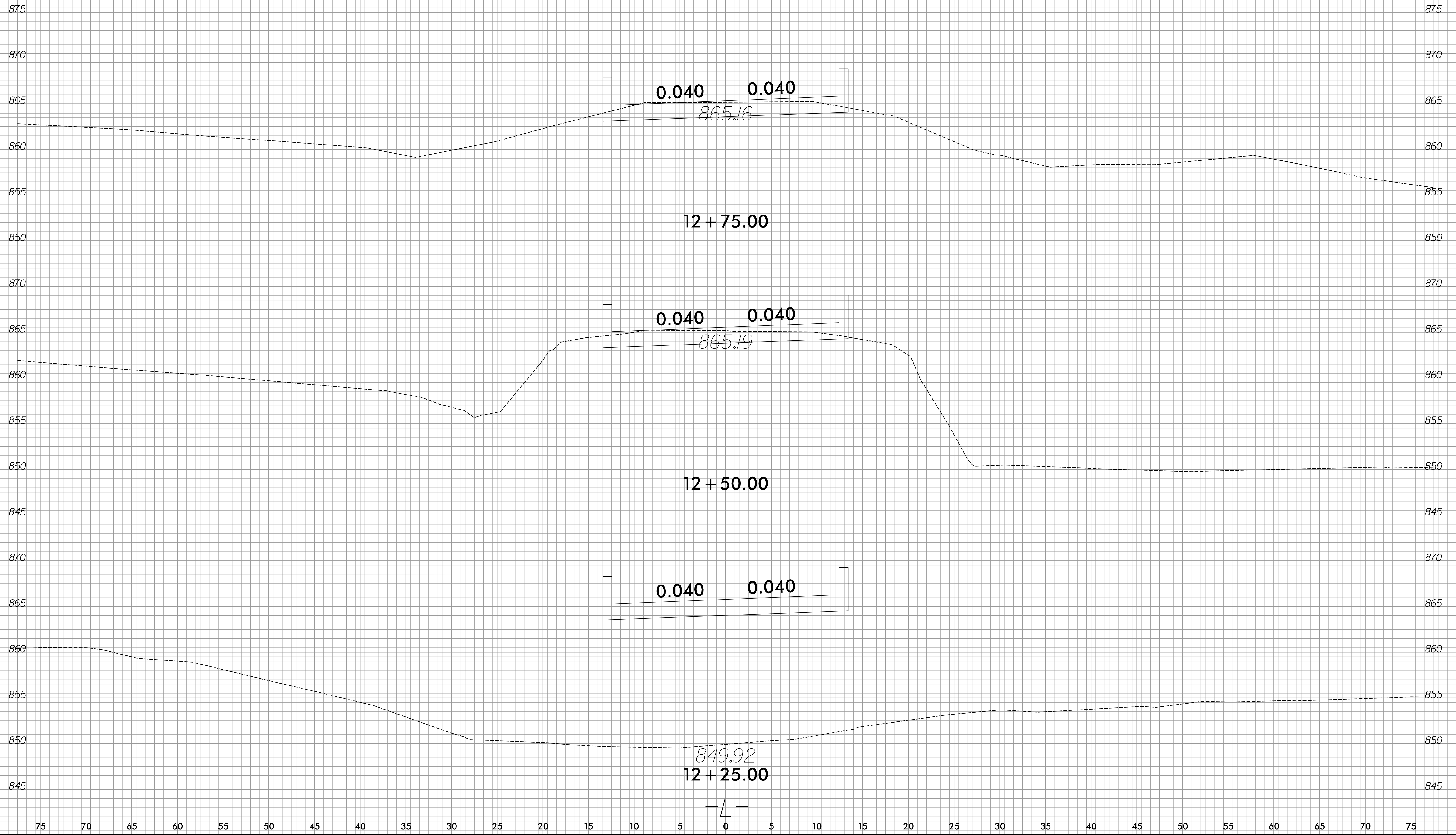
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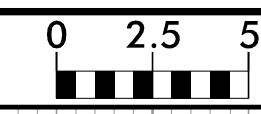
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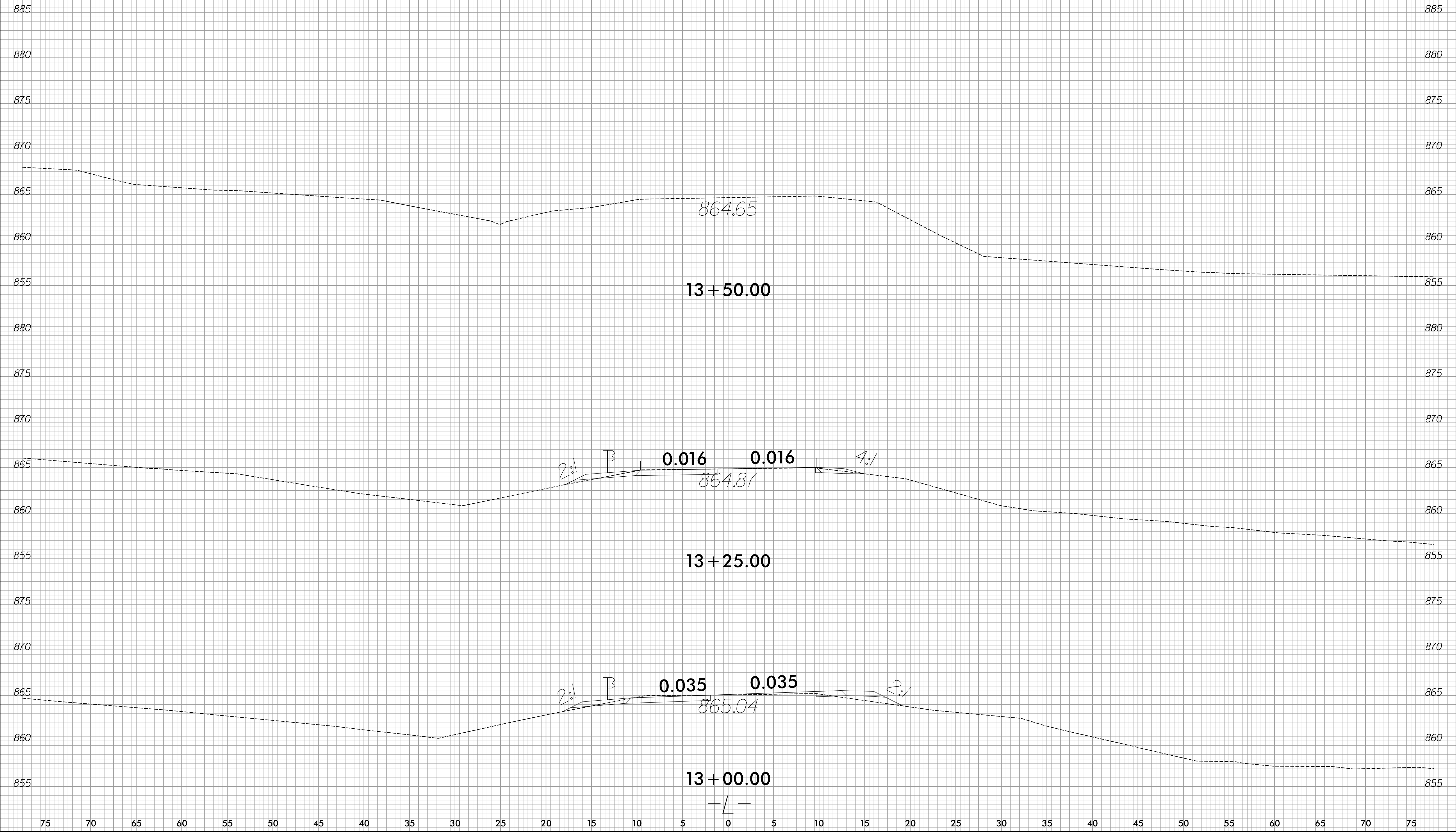
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8/23/99



PROJ. REFERENCE NO.	SHEET NO.
BD-5111S	X-5

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3/16/2012
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