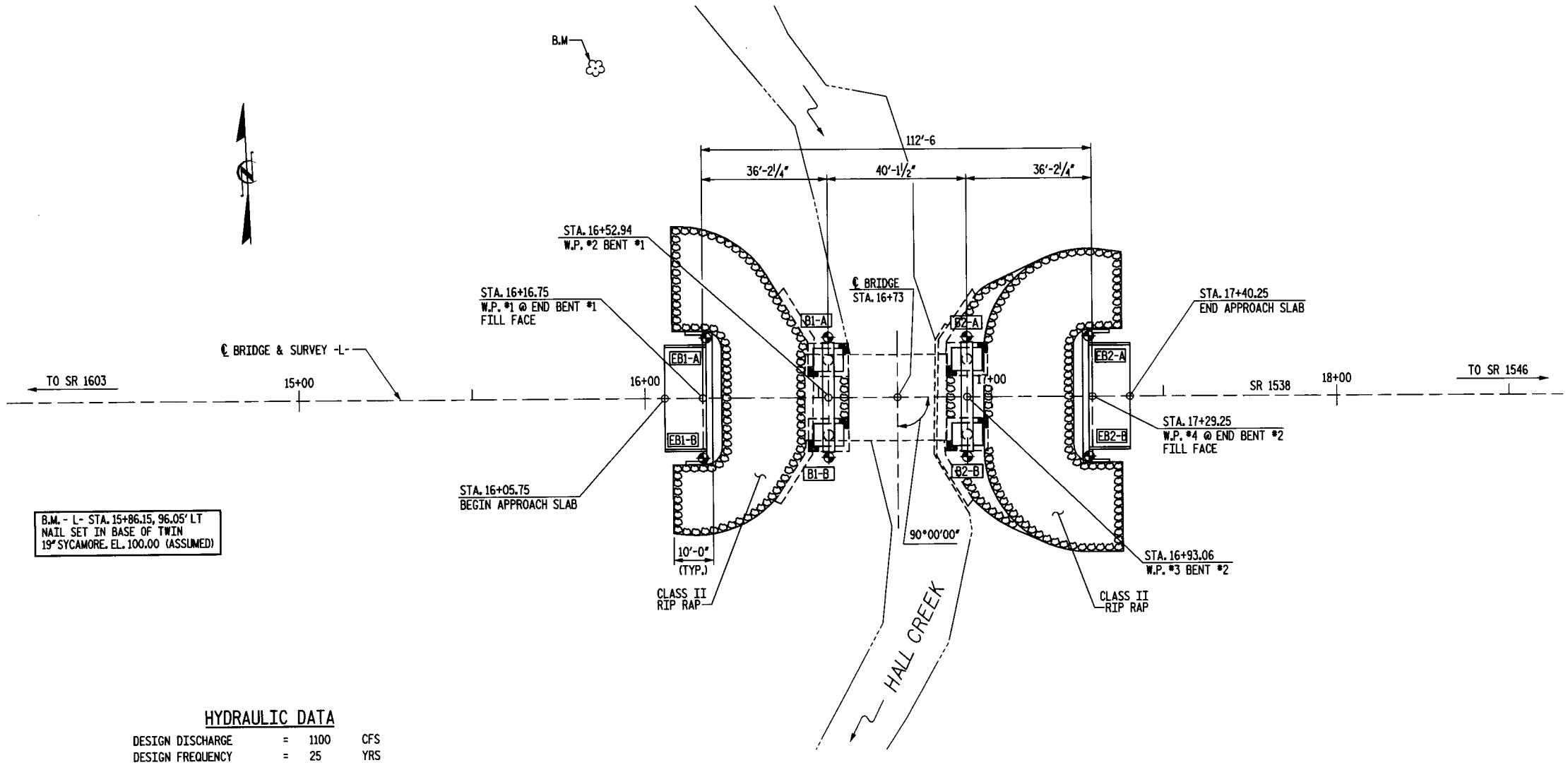
TIP PROJ. NO. B-5228

99 YADKIN COUNTY



B.M. - L- STA. 15+86.15, 96.05' LT
NAIL SET IN BASE OF TWIN
19" SYCAMORE. EL. 100.00 (ASSUMED)

HYDRAULIC DATA

DESIGN DISCHARGE	=	1100	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	97.00	FT
DRAINAGE AREA	=	3.55	SQ MI
BASE DISCHARGE (Q_{100})	=	1600	CFS
BASE HW ELEVATION	=	98.20	FT

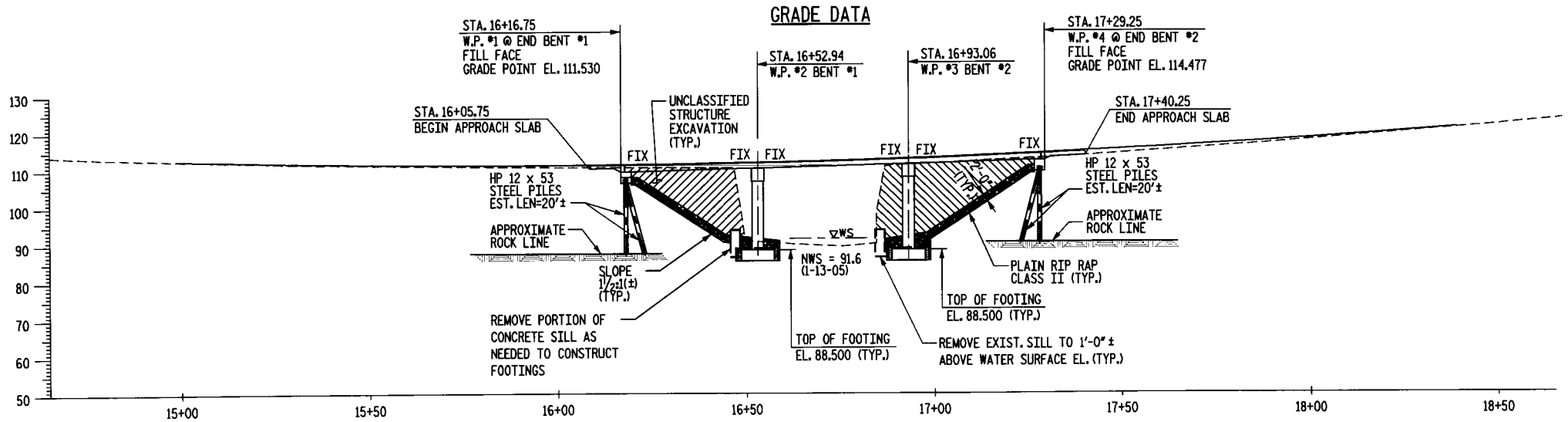
PLAN

SCALE: 1" = 20'-0"

-2.8263% +7.8765%

P.I. 16+70.00
EL. 107.880
L = 340'

GRADE DATA



PROFILE ALONG ℄ SURVEY

SCALE: 1" = 20'

NOTES

1. ALL PILES SHALL BE DRIVEN TO MINIMUM BEARING CAPACITY OF 50 TONS EACH.
2. THE QUANTITY OF RIP RAP TO BE PAID FOR WILL BE THE ACTUAL NUMBER OF TONS OF EACH CLASS OF RIP RAP WHICH HAS BEEN INCORPORATED INTO THE COMPLETED AND ACCEPTED WORK. THE RIP RAP WILL BE MEASURED BY BEING WEIGHED IN TRUCKS ON CERTIFIED PLATFORM SCALES OR OTHER CERTIFIED WEIGHING DEVICES. THE QUANTITY OF RIP RAP WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON.

PLAIN RIP RAP CLASS II (2'-0" THICK)		FILTER FABRIC
END BENT NO. 1	310 TONS	280 SQUARE YARDS
BENT NO. 1	80 TONS	70 SQUARE YARDS
BENT NO. 2	120 TONS	110 SQUARE YARDS
END BENT NO. 2	210 TONS	190 SQUARE YARDS
TOTAL	720 TONS	650 SQUARE YARDS

3. THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH FHWA'S TECHNICAL ADVISORY T5140.20 (SCOUR AT BRIDGES).
4. THE SCOUR CRITICAL ELEVATION FOR INTERIOR BENT NO. 1 AND INTERIOR BENT NO. 2 IS BOTTOM OF FOOTING ELEVATION 86.000 FT. THE SCOUR CRITICAL ELEVATION IS FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
5. PIER SCOUR PROTECTION SHALL BE REQUIRED AT INTERIOR BENT NO. 1 AND INTERIOR BENT NO. 2. RIP RAP NOT TO BE PLACED ABOVE THE STREAM BANK.
6. PILES AT END BENT NO. 1 SHALL BE DRIVEN TO AN ELEVATION NO HIGHER THAN 88.000 FT. AND SATISFY THE BEARING CAPACITY OF 50 TONS EACH.
7. PILES AT END BENT NO. 2 SHALL BE DRIVEN TO AN ELEVATION NO HIGHER THAN 89.900 AND SATISFY THE BEARING CAPACITY OF 50 TONS EACH.
8. STEEL PILE POINTS ARE REQUIRED FOR PILES AT END BENT NO. 1, AND END BENT NO. 2.
9. THE STEEL PILES SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.
10. WHEN DRIVING PILES, THE MAXIMUM BLOW COUNT SHALL NOT BE EXCEEDED.
11. THE REQUIRED BEARING CAPACITY AT INTERIOR BENTS 1 AND 2 IS 8 K/SF. THE REQUIRED BEARING CAPACITY SHALL BE VERIFIED.
12. THE MATERIAL IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 50 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR EXCAVATION AND EMBANKMENT.
13. CURRENT ADT = 340 VPD.
14. DELINEATORS ON BARRIER RAIL AND ON STEEL BEAM GUARDRAIL SHALL BE INCLUDED IN THE PRICE BID FOR STEEL BEAM GUARDRAIL.
15. FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
16. FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
17. FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

◈ GEOTECH BORE HOLES LOCATION

DESCRIPTION OF EXISTING BRIDGE

1 SPAN @ 41'-3½ 4"x8" TIMBER DECK WITH 2" ASPHALT WEARING SURFACE ON STEEL I-BEAMS ON TIMBER CAPS AND COLUMNS ON CONCRETE SILLS; 25'-4" CLEAR ROADWAY WIDTH SHALL BE REMOVED EXCEPT AS NOTED.

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

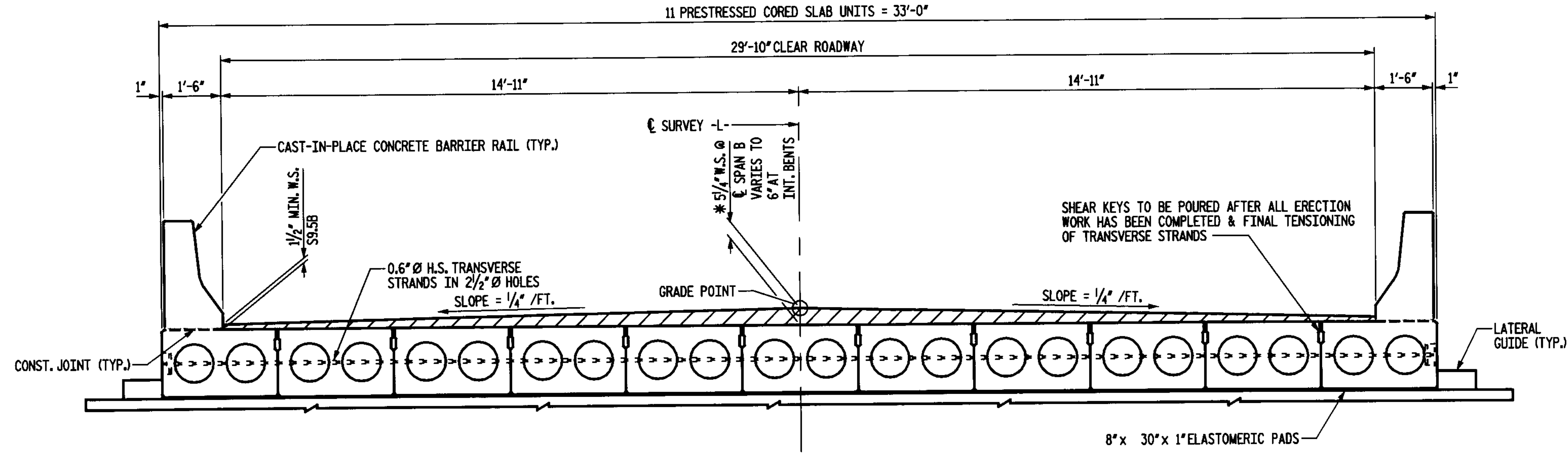
BRIDGE NO. 99 ON SR 1538 OVER HALL CREEK

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0256

NORTH CAROLINA PROFESSIONAL SEAL 20531 ENGINEER JAMES E. MONDOLFI
3-17-10

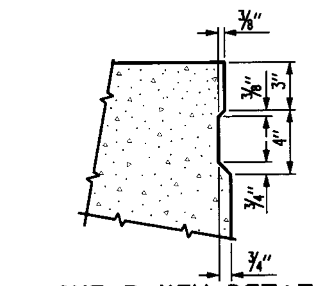
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	1
1			3			TOTAL SHEET
2			4			22

DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010



TYPICAL SECTION

* 5^{13}/$_{16}$" W.S. @ ℄ SPANS A & C VARIES TO 6" AT END BENTS AND INTERIOR BENTS



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

GENERAL NOTES

ASSUMED LIVE LOAD = HS25 OR ALTERNATE LOADING.

CONCRETE: f'c = 5000 psi,
* CONCRETE: f'ci = 4000 psi,
* (COMPRESSIVE STRENGTH @ TRANSFER OF STRESSING FORCE.)

ALL PRESTRESS STRANDS SHALL BE 7 WIRE, LOW RELAXATION, HIGH STRENGTH CABLES IN ACCORDANCE WITH THE SPECIFICATIONS.

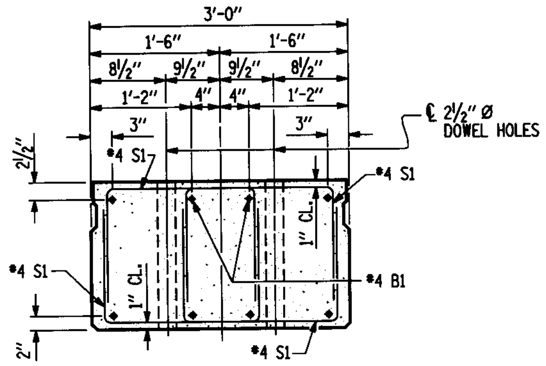
SIZE TYPE	AREA	ULTIMATE STR.
0.6" Ø HIGH STR.	0.217 □" PER CABLE	58,600#

APPLIED FORCE
43,950# PER CABLE

ALL MATERIAL AND WORKMANSHIP SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OF THE NC DEPARTMENT OF TRANSPORTATION DATED JULY 2006 AND WITH THE SPECIAL PROVISIONS.

THE ULTIMATE STRENGTH OF THE CORED SLAB UNIT MUST MEET THE REQUIREMENTS OF THE APPLICABLE AASHTO SPECIFICATIONS.

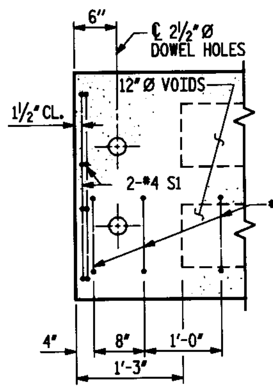
UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾".



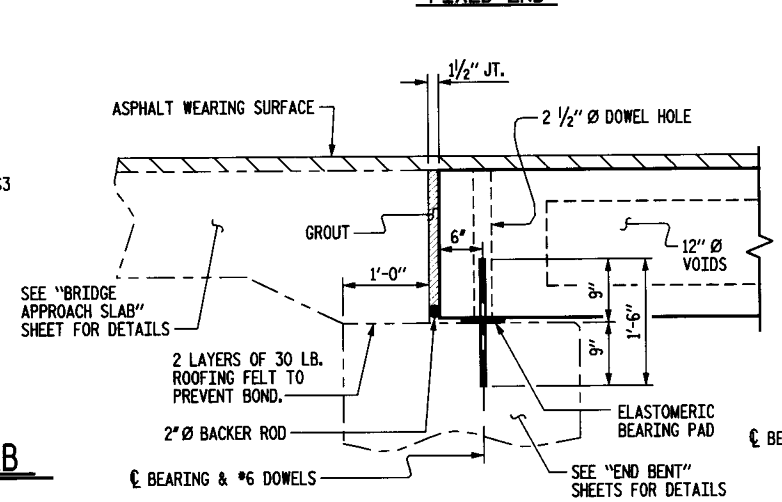
END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES.
(STRAND LAYOUT NOT SHOWN.)
INTERIOR SLAB SECTION SHOWN, EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.

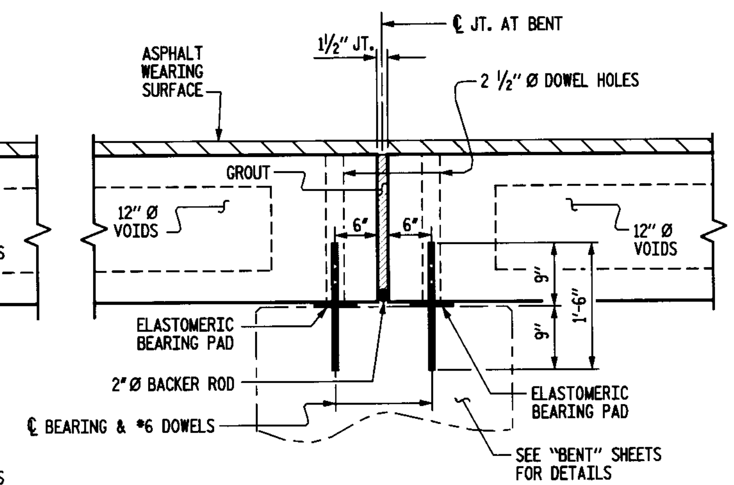
THE 2½" DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT.



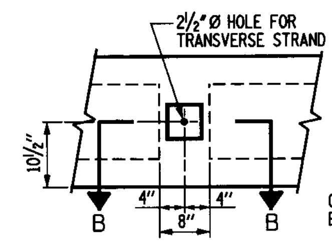
PART PLAN
EXTERIOR CORED SLAB



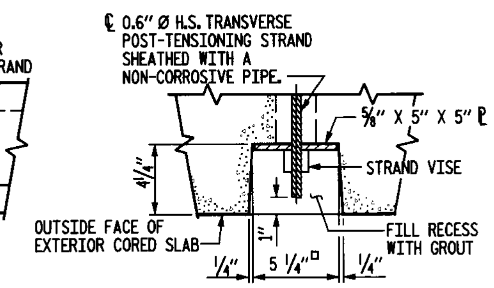
SECTION AT END BENT



SECTION AT BENT

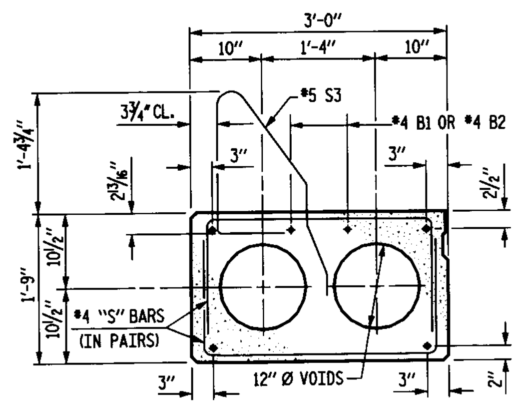


ELEVATION VIEW



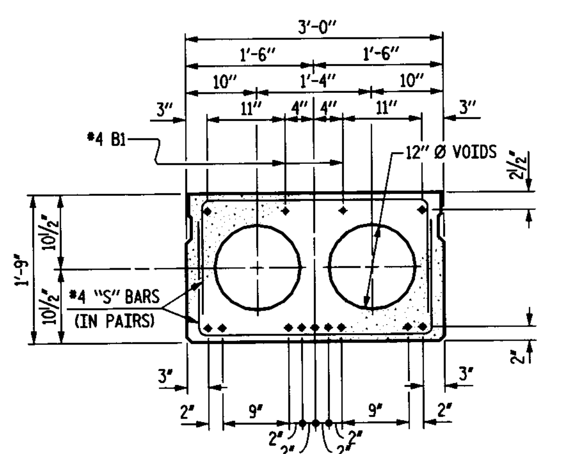
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND - CORED SLABS



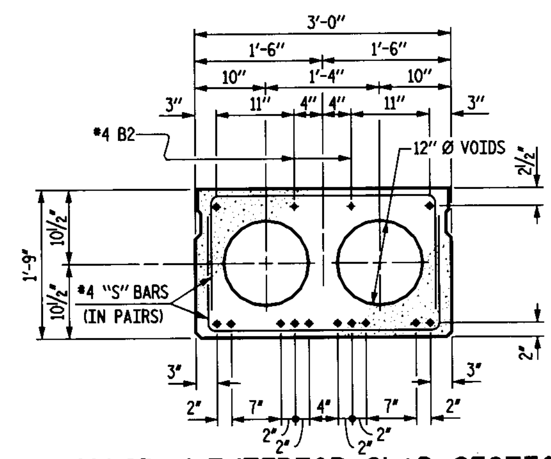
EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTIONS)



35' SPAN-INTERIOR SLAB SECTION

11 - 0.6" Ø H.S. STRANDS
INTERIOR SLAB SECTIONS



40' SPAN-INTERIOR SLAB SECTION

12 - 0.6" Ø H.S. STRANDS
INTERIOR SLAB SECTIONS

DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0268

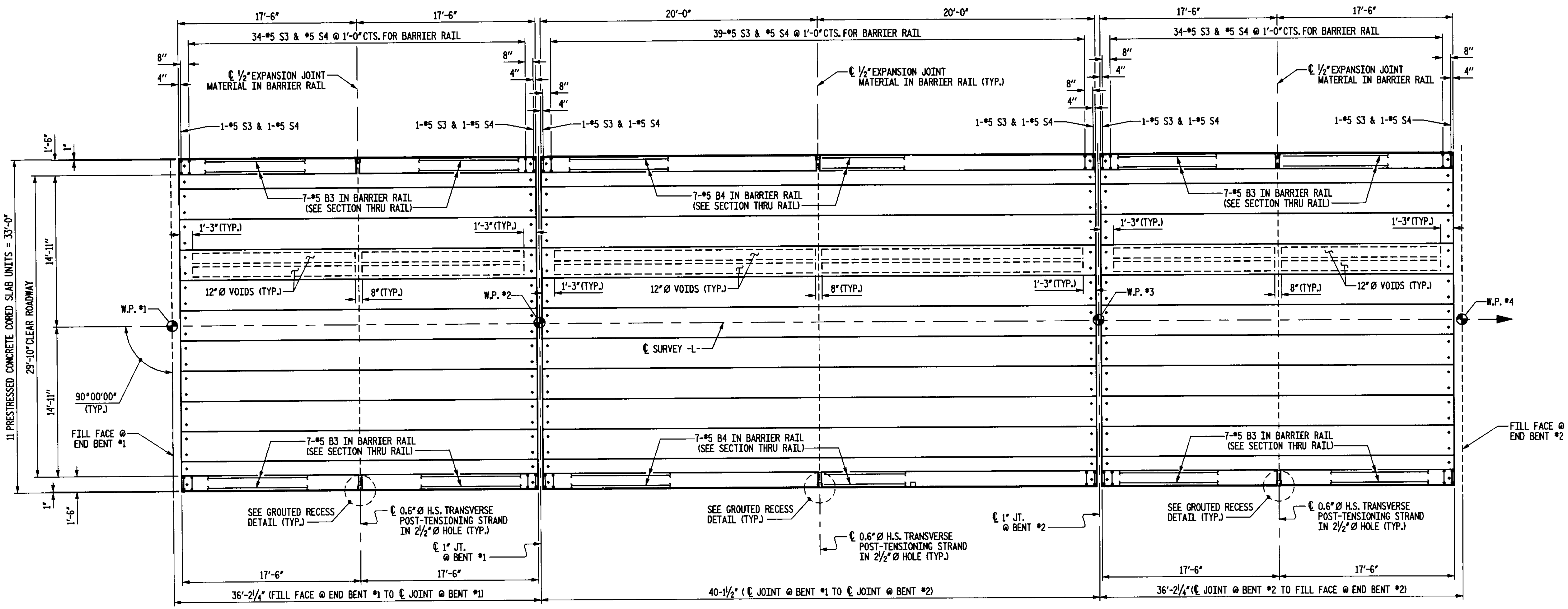
SEAL 20928 NORTH CAROLINA PROFESSIONAL ENGINEER JAMES E. MONDOLFI
3-17-10

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-9"
PRESTRESSED CORED SLAB UNIT
29'-10" CLEAR ROADWAY - 90° SKEW

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	2
1			3			TOTAL SHEETS
2			4			22



SPAN "A"

SPAN "B"

SPAN "C"

PLAN OF SPANS

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

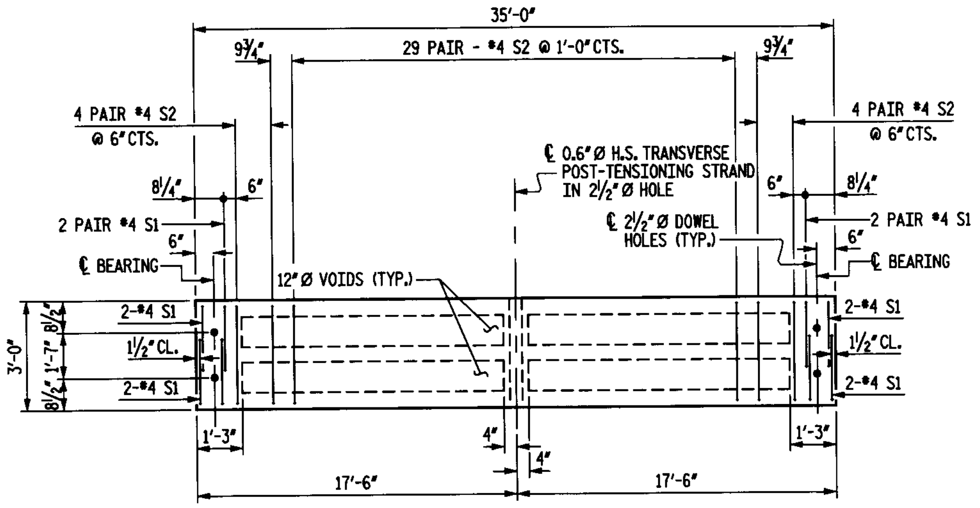
PLAN OF SPANS
CORED SLAB DETAILS
SPANS "A", "B" & "C"

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	3
1			3			TOTAL SHEETS
2			4			22

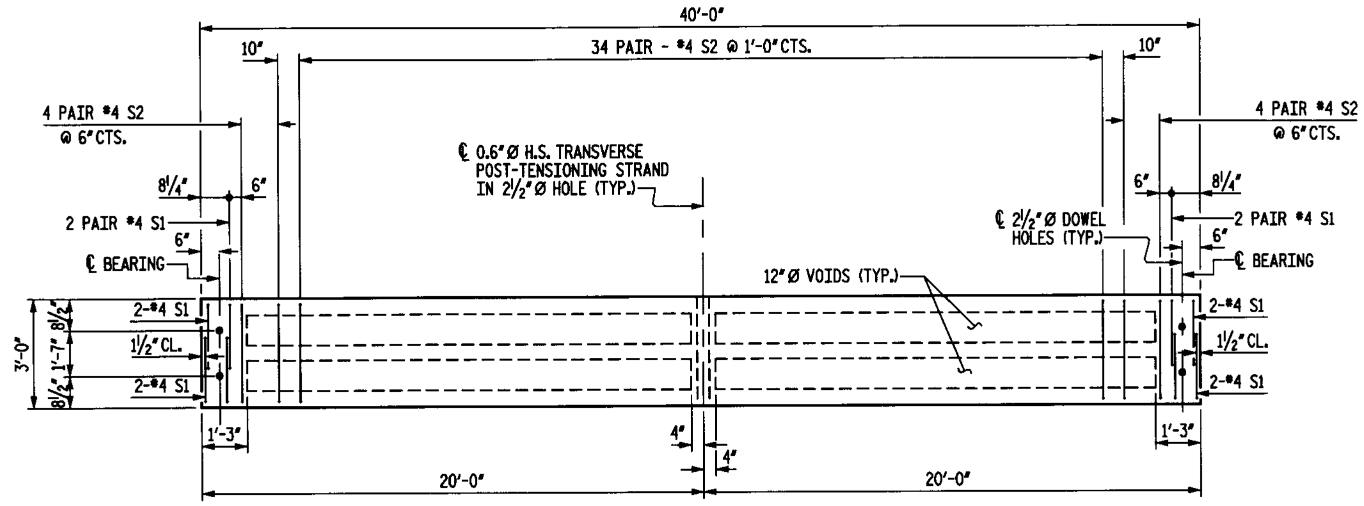
Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

NORTH CAROLINA PROFESSIONAL SEAL 20532 JAMES E. MONDOLFI
3-17-10

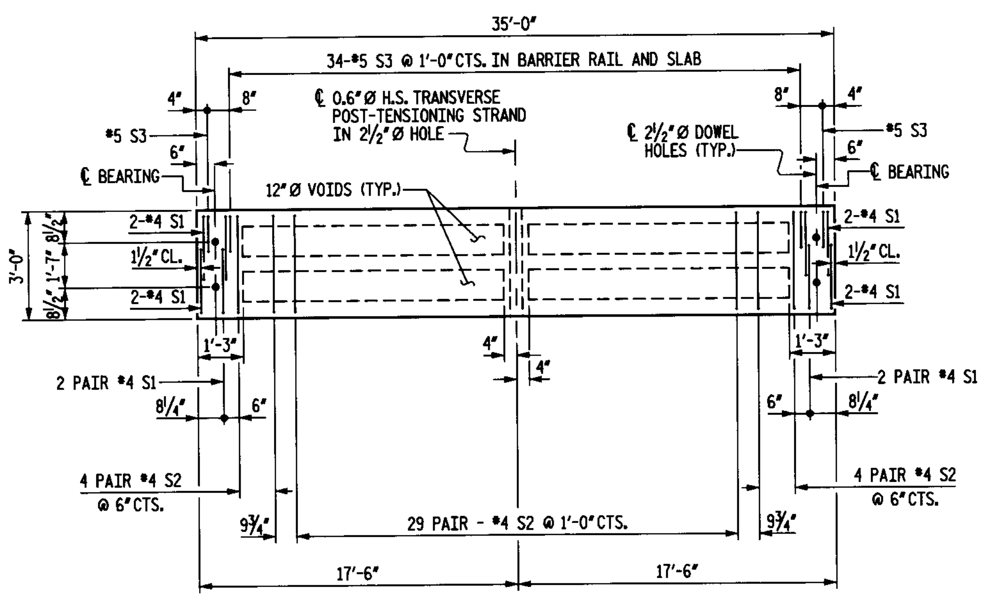
DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010



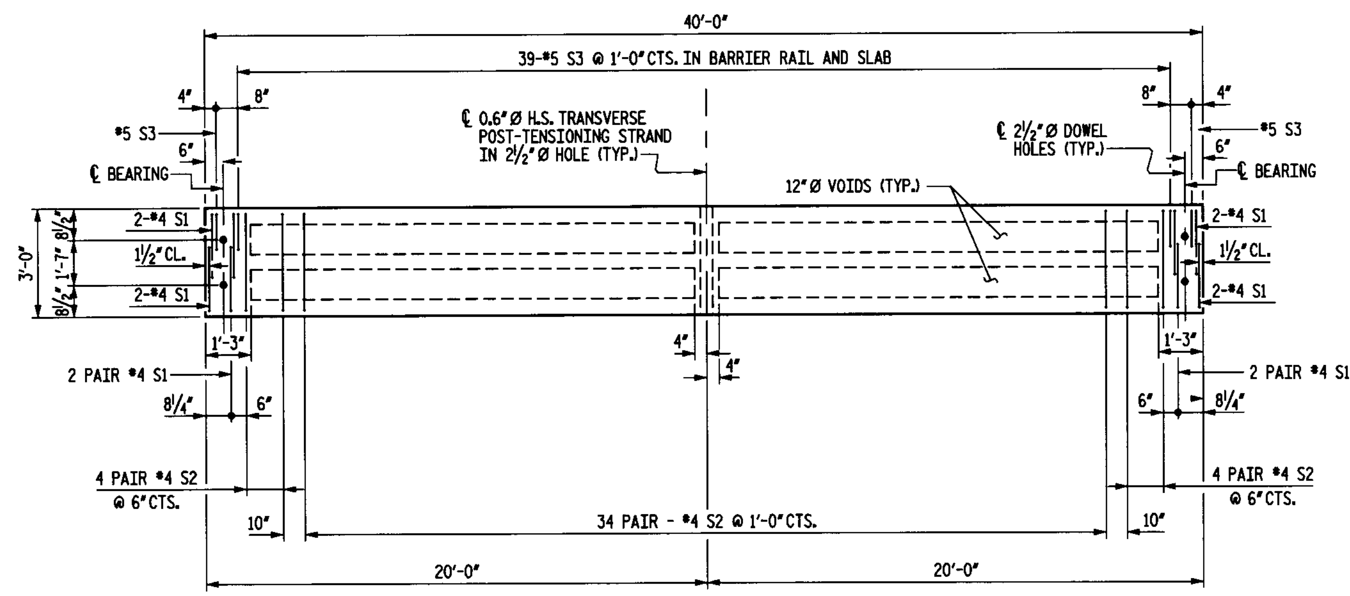
35' SPAN - PLAN OF INTERIOR CORED SLAB UNIT



40' SPAN - PLAN OF INTERIOR CORED SLAB UNIT



35' SPAN - PLAN OF EXTERIOR CORED SLAB UNIT



40' SPAN - PLAN OF EXTERIOR CORED SLAB UNIT

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-9"
PRESTRESSED CORED SLAB UNIT
SPANS "A", "B" AND "C"

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

SHEET NO. 4
TOTAL SHEETS 22

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

NORTH CAROLINA PROFESSIONAL SEAL 20097 ENGINEER JAMES E. MONDOLFI
3-17-10

DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010

PLOT: 3/16/2010 4:18:53 PM Ko & Associates, P.C.
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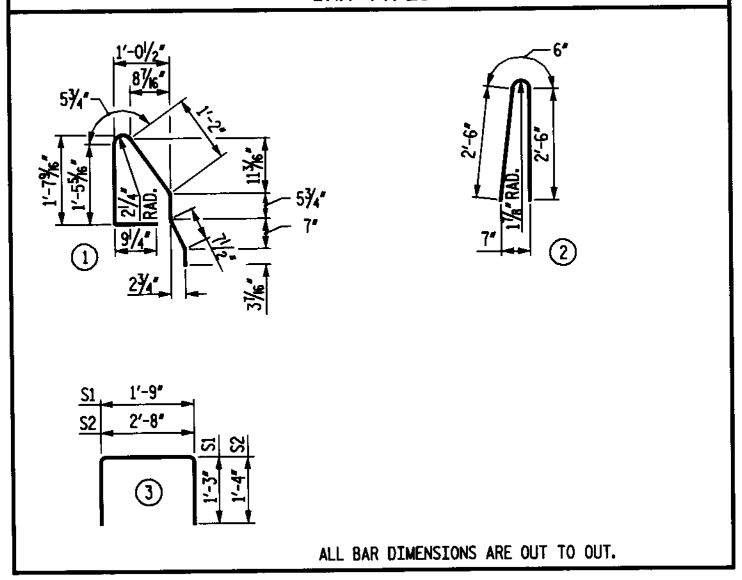
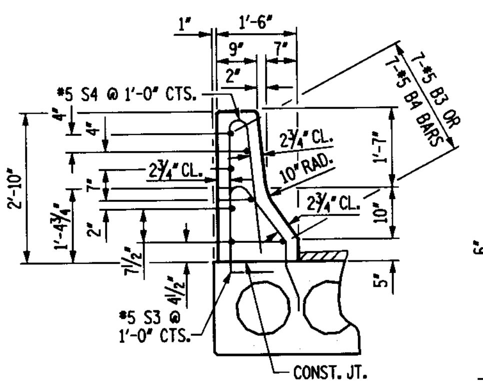
BAR TYPES



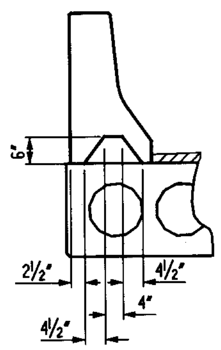
DEAD LOAD DEFLECTION AND CAMBER

	SPANS "A" & "C" 3'-0" x 1'-9" 0.6" Ø L.R. STRAND	SPAN "B" 3'-0" x 1'-9" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	0.666" ↑	0.913" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	0.076" ↓	0.126" ↓
FINAL CAMBER	0.590" ↑	0.787" ↑

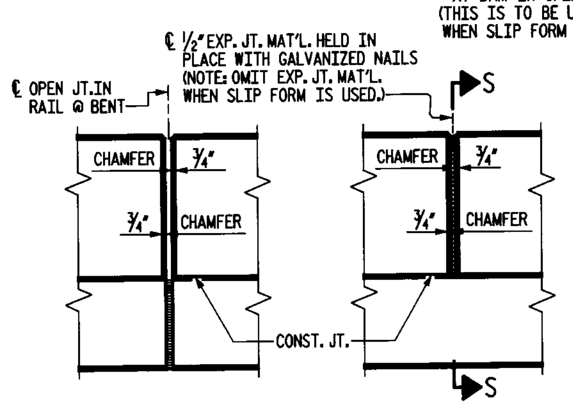
** INCLUDES FUTURE WEARING SURFACE



SECTION THRU RAIL



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



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

BILL OF MATERIAL FOR ONE 35'-0" INTERIOR CORED SLAB SECTION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#4	STR	18'-4"	49
S1	16	#4	3	4'-3"	45
S2	74	#4	3	5'-4"	264
REINFORCING STEEL				LBS.	358
5000 P.S.I. CONCRETE				C.Y.	4.7
0.6" Ø L.R. STRANDS				NO.	11

BILL OF MATERIAL FOR ONE 35'-0" EXTERIOR CORED SLAB SECTION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#4	STR	18'-4"	49
S1	16	#4	3	4'-3"	45
S2	74	#4	3	5'-4"	264
* S3	36	#5	1	5'-3"	197
REINFORCING STEEL				LBS.	358
*EPOXY COATED REINFORCING STEEL				LBS.	197
5000 P.S.I. CONCRETE				C.Y.	4.7
0.6" Ø L.R. STRANDS				NO.	11

BILL OF MATERIAL FOR ONE 40'-0" INTERIOR CORED SLAB SECTION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B2	4	#4	STR	20'-9"	55
S1	16	#4	3	4'-3"	45
S2	84	#4	3	5'-4"	299
REINFORCING STEEL				LBS.	399
5000 P.S.I. CONCRETE				C.Y.	5.4
0.6" Ø L.R. STRANDS				NO.	12

BILL OF MATERIAL FOR ONE 40'-0" EXTERIOR CORED SLAB SECTION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B2	4	#4	STR	20'-9"	55
S1	16	#4	3	4'-3"	45
S2	84	#4	3	5'-4"	299
* S3	41	#5	1	5'-3"	225
REINFORCING STEEL				LBS.	399
*EPOXY COATED REINFORCING STEEL				LBS.	225
5000 P.S.I. CONCRETE				C.Y.	5.4
0.6" Ø L.R. STRANDS				NO.	12

CORED SLABS REQUIRED

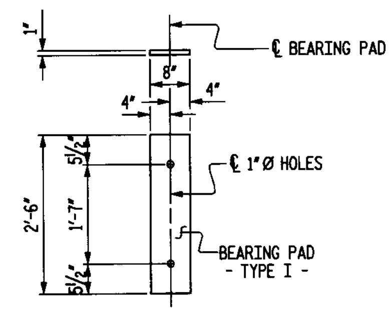
	NUMBER			LENGTH			TOTAL LENGTH
	SPAN A	SPAN B	SPAN C	SPAN A	SPAN B	SPAN C	
EXTERIOR C.S.	2	2	2	35'-0"	40'-0"	35'-0"	220'-0"
INTERIOR C.S.	9	9	9	35'-0"	40'-0"	35'-0"	990'-0"

SUMMARY FOR EXTERIOR CORED SLAB SECTIONS

		SPAN "A"	SPAN "B"	SPAN "C"	TOTAL
REINFORCING STEEL	LBS.	716	798	716	2230
*EPOXY COATED REINFORCING STEEL	LBS.	394	450	394	1238
5000 P.S.I. CONCRETE	C.Y.	9.4	10.8	9.4	29.6
0.6" Ø L.R. STRANDS	NO.	22	24	22	68

SUMMARY FOR INTERIOR CORED SLAB SECTIONS

		SPAN "A"	SPAN "B"	SPAN "C"	TOTAL
REINFORCING STEEL	LBS.	3222	3591	3222	10,035
5000 P.S.I. CONCRETE	C.Y.	42.3	48.6	42.3	133.2
0.6" Ø L.R. STRANDS	NO.	99	108	99	306



FIXED END
(TYPE I - 66 REQ'D.)

ELASTOMERIC BEARING DETAILS

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B3	56	#5	STR	17'-2"	1002
* B4	28	#5	STR	19'-7"	572
* S4	226	#5	2	5'-6"	1296
*EPOXY COATED REINFORCING STEEL				LBS.	2870
CLASS AA CONCRETE				C.Y.	24.0
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL					220.0

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

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 CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

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

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, ½" 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.

THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BILL OF MATERIALS

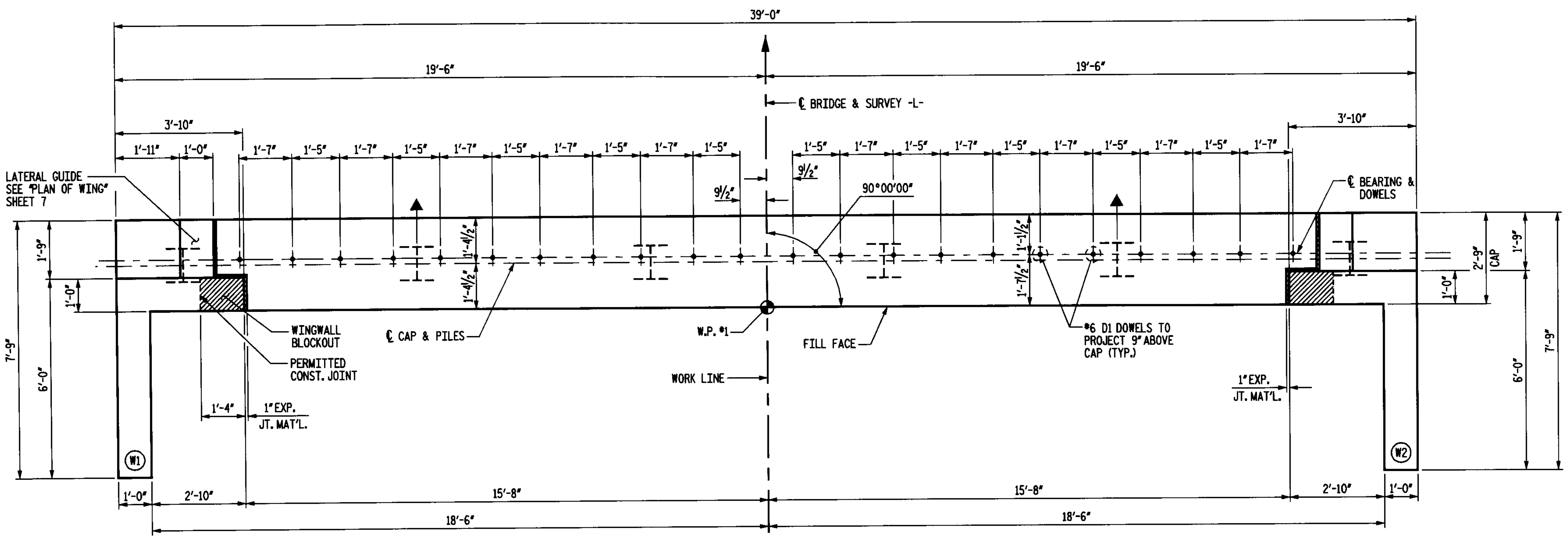
Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20532 JAMES E. MONDOLFI
3-17-10

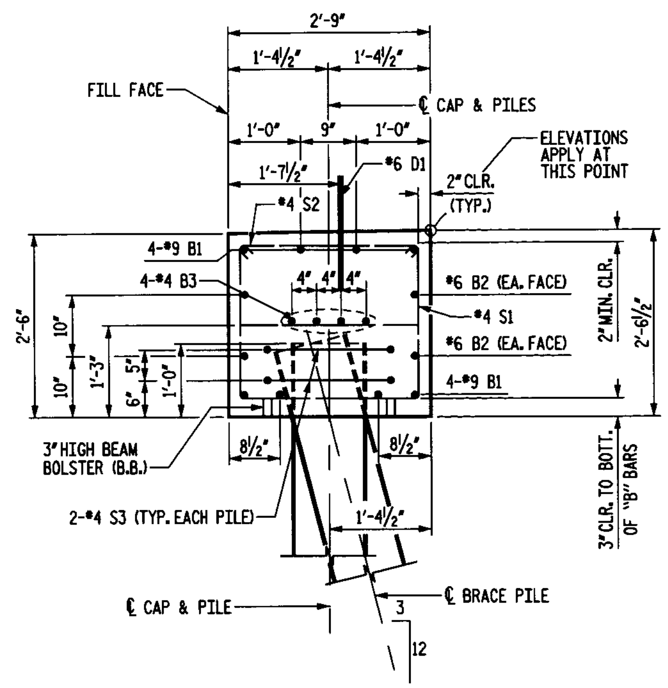
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. 5
TOTAL SHEETS 22

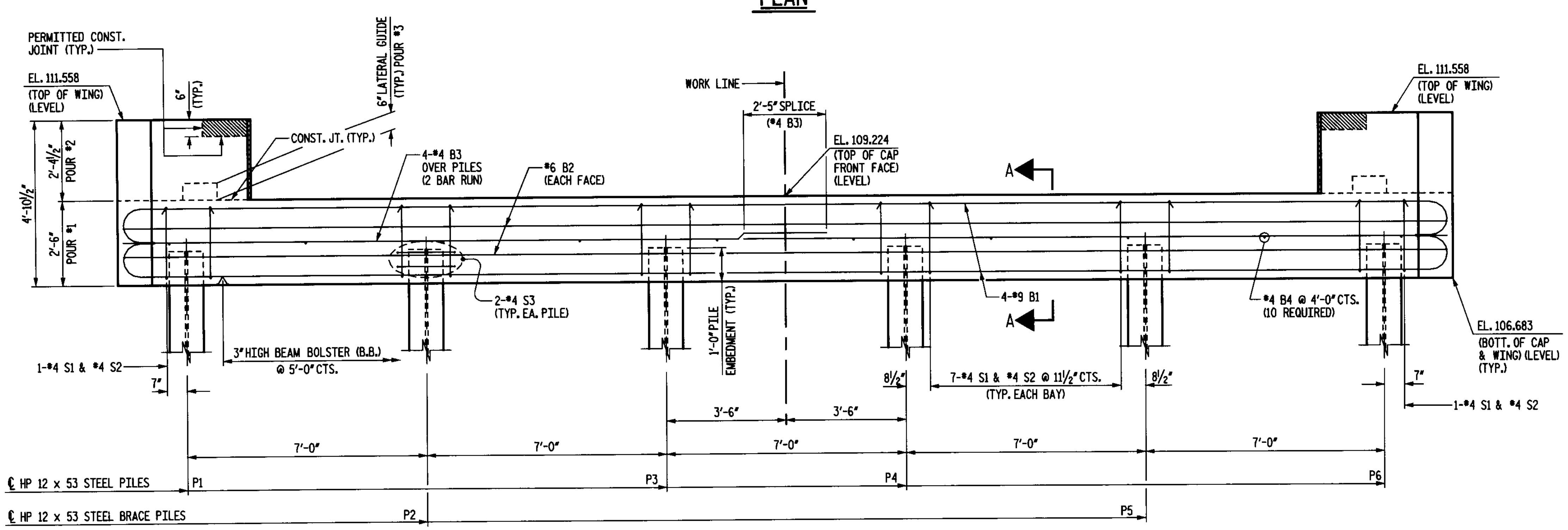
DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010



PLAN



SECTION A-A



ELEVATION

NOTES:

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

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

INDICATES BRACE PILE (BATTER: 3:12)

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0288

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL
JAMES E. MONDOLFI
3-17-10

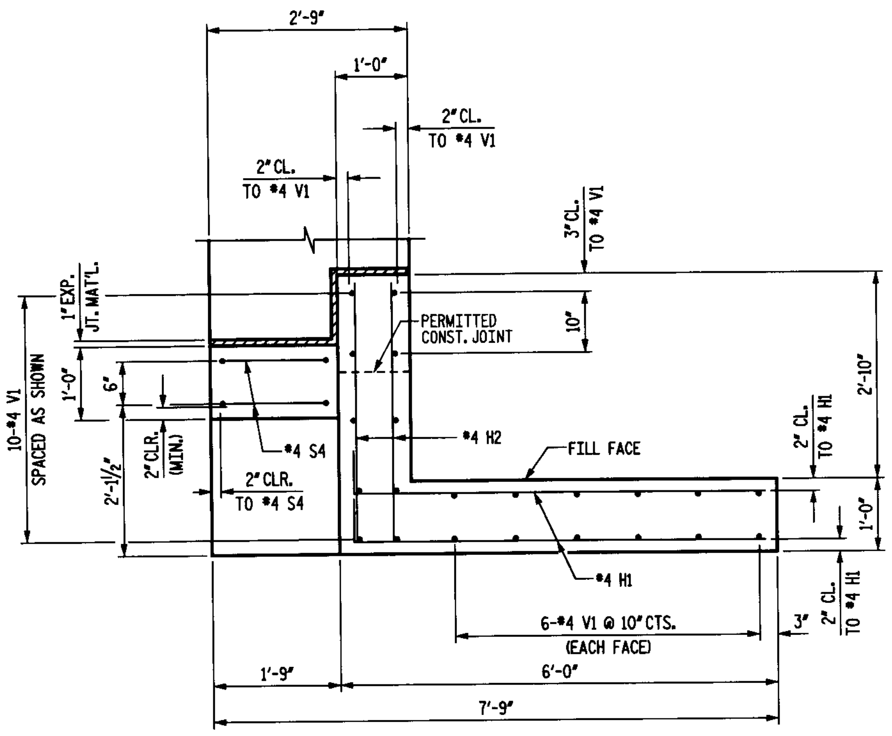
PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

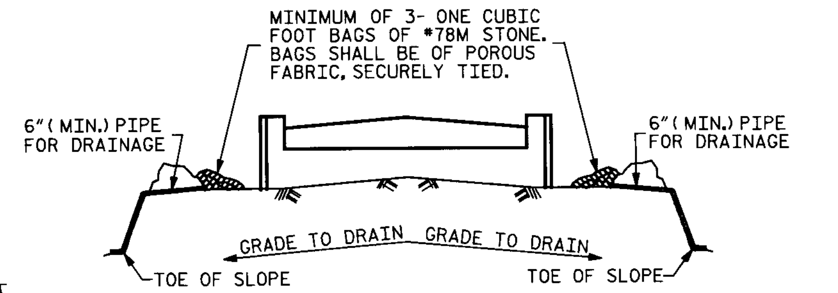
SUBSTRUCTURE
END BENT 1

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	6
1			3			TOTAL SHEETS
2			4			22

DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010



PLAN OF WING



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.

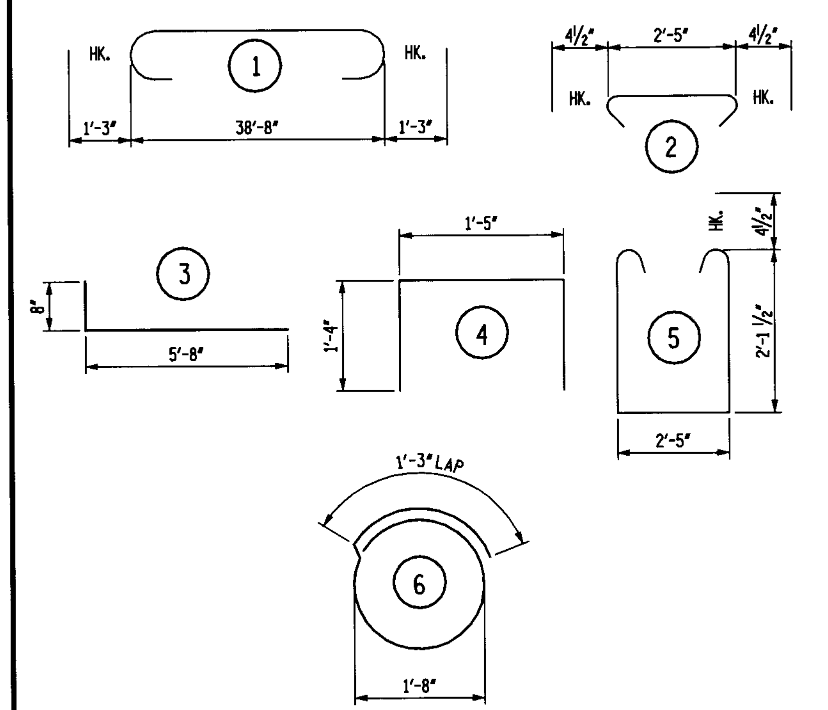
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

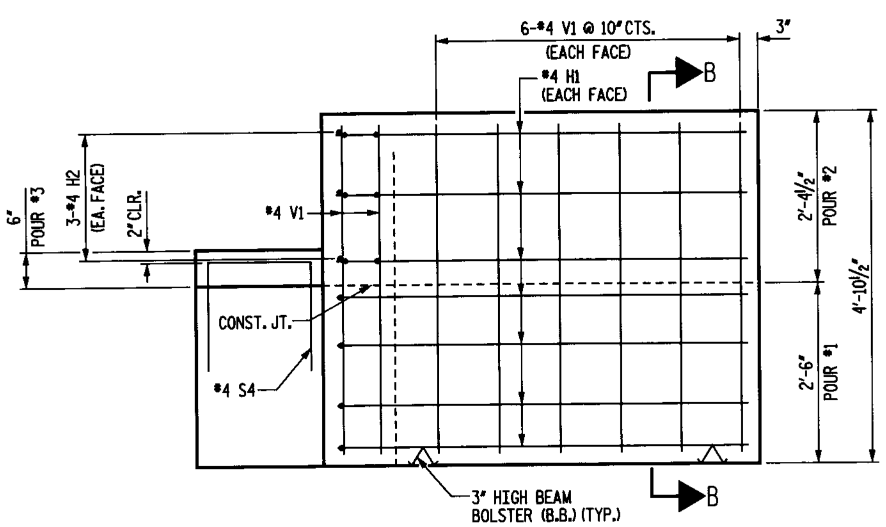


BILL OF MATERIAL

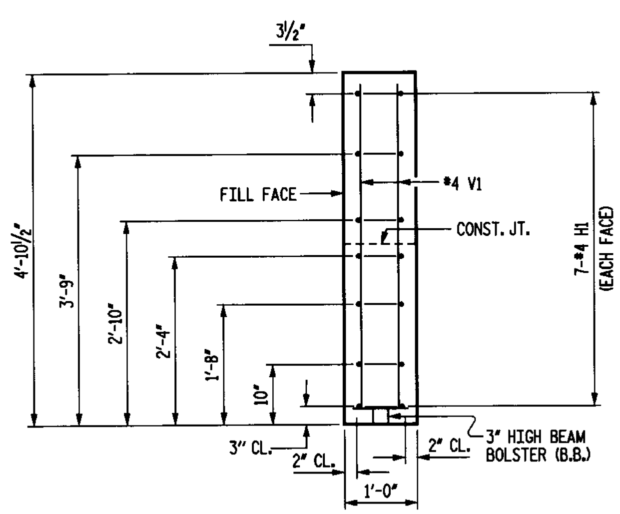
END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-2"	1120
B2	4	#6	STR	38'-8"	232
B3	8	#4	STR	20'-7"	110
B4	14	#4	STR	2'- 5"	16
D1	22	#6	STR	1'- 6"	50
H1	28	#4	3	6'- 4"	118
H2	12	#4	STR	3'-6"	28
S1	37	#4	5	7'- 5"	183
S2	37	#4	2	3'- 2"	78
S3	12	#4	6	6'- 6"	52
S4	4	#4	4	4'- 1"	11
V1	44	#4	STR	4'-6"	132

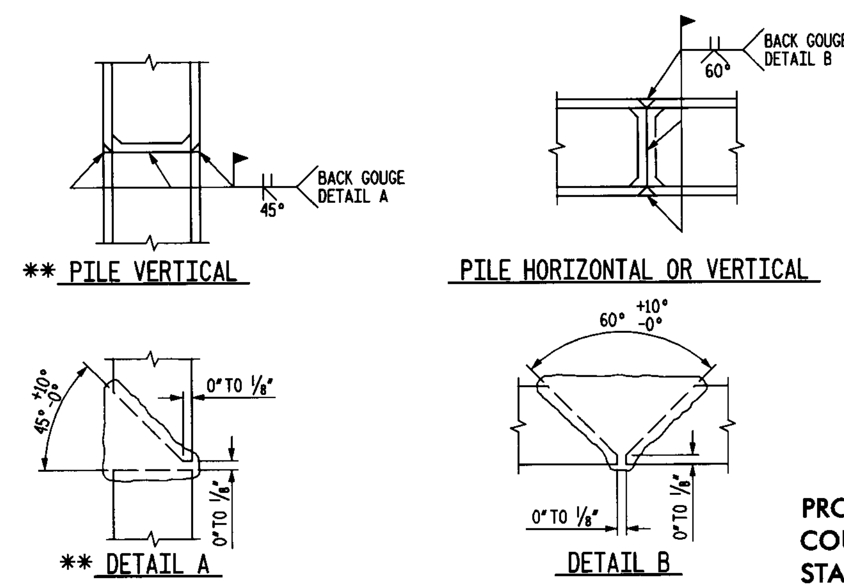
REINFORCING STEEL TOTAL	LBS.	2130
POUR #1 CAP & BOTTOM OF WINGS	10.9	CY
POUR #2 TOP OF WINGS	1.6	CY
POUR #3 LATERAL GUIDES	0.1	CY
TOTAL	12.6	CY



ELEVATION OF WING



SECTION B-B



** POSITION OF PILE DURING WELDING

PILE SPLICE DETAILS

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1 DETAILS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0288

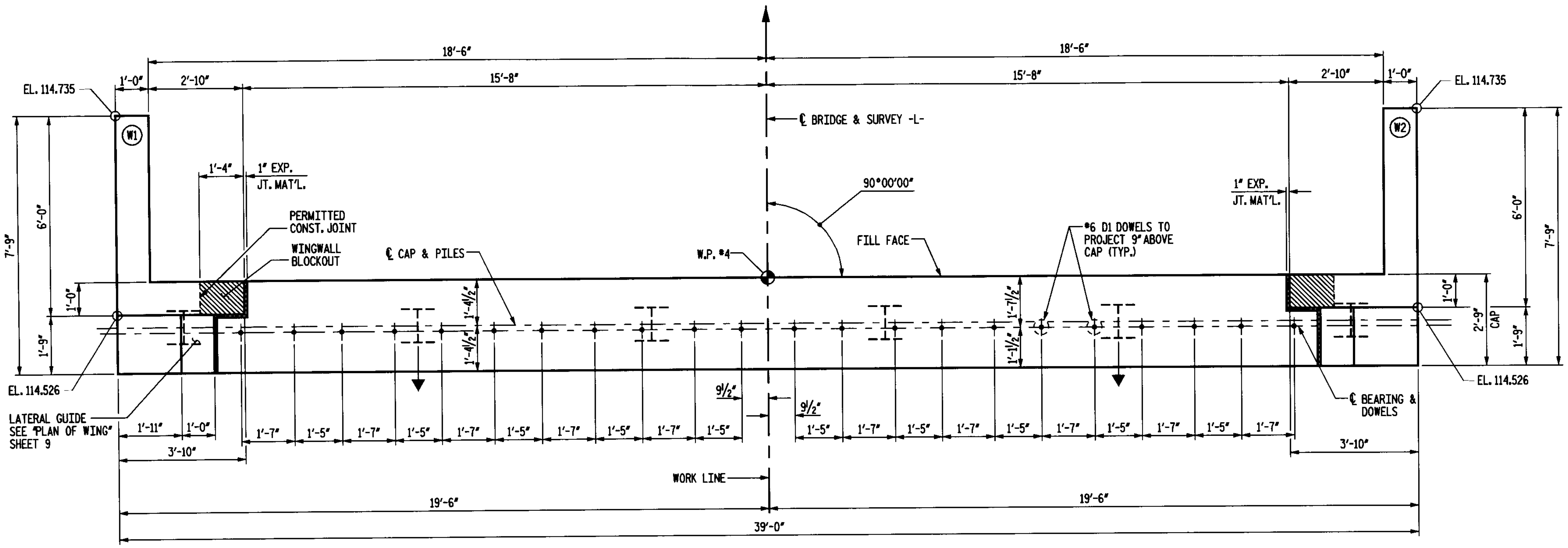
NORTH CAROLINA PROFESSIONAL SEAL 20592 ENGINEER JAMES E. MONDOLFI
3-17-10

REVISIONS							SHEET NO.
NO.	BY	DATE	NO.	BY	DATE		7
1			3				TOTAL SHEETS
2			4				22

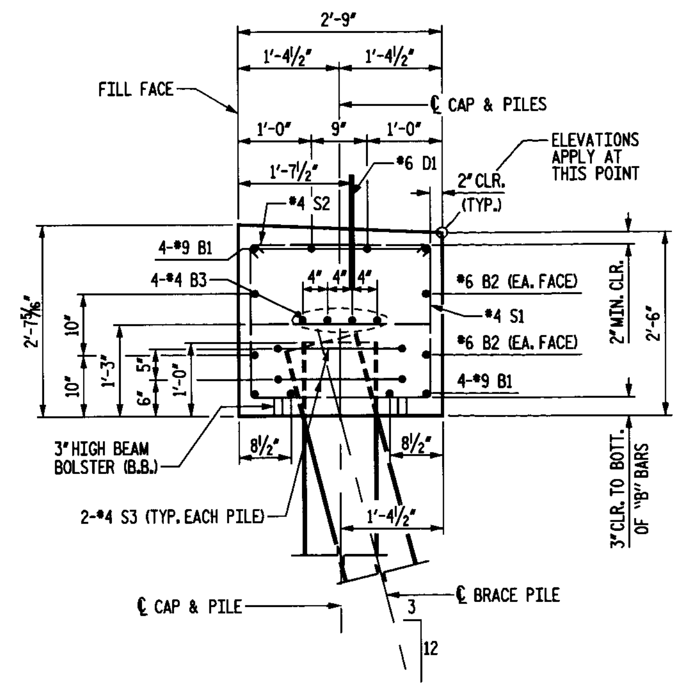
DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010

PLOT: 3/16/2010 4:11:02 PM Ko & Associates, P.C.
FILE NAME: p:\home\civil\yadkin_99\wall813b\structures\99_sht7_V8.dgn

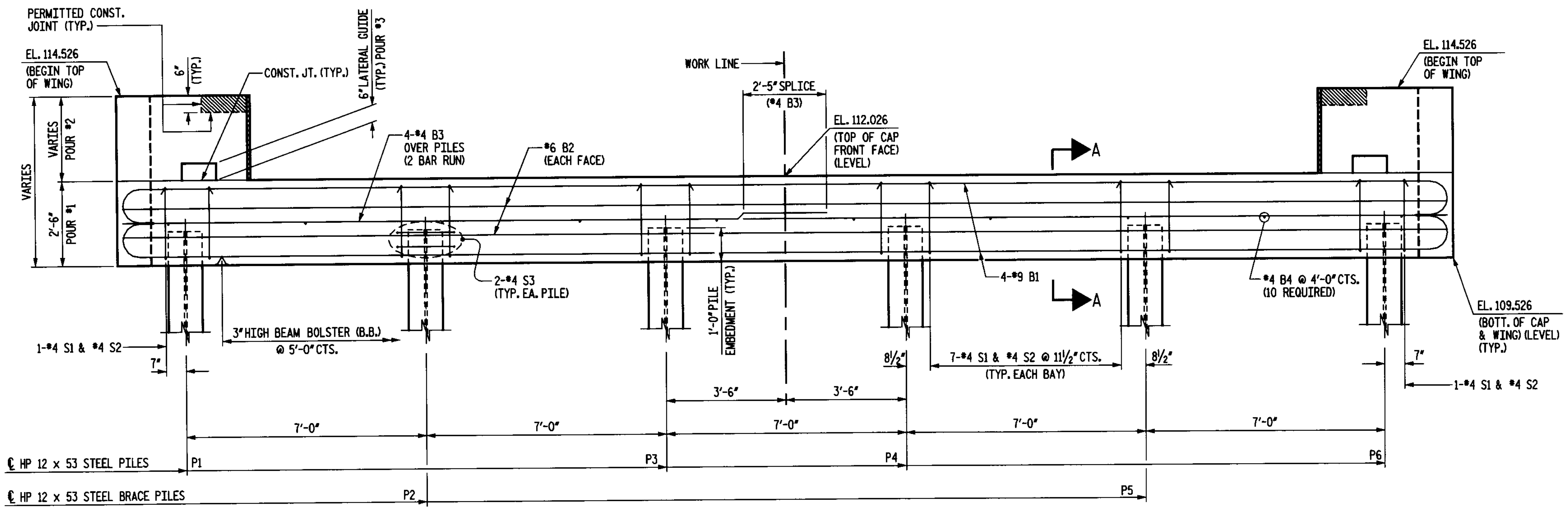
PLOT: 3/16/2010 4:11:04 PM Ko & Associates, P.C.
FILE NAME: p:\nome\civil\yadkin_99\wall13b\structures\99_sht8_V8.dgn



PLAN



SECTION A-A



ELEVATION

NOTES:

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

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

INDICATES BRACE PILE (BATTER: 3:12)

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0268

NORTH CAROLINA PROFESSIONAL SEAL 20522 ENGINEER JAMES E. MONDOLFI
3-17-10

DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

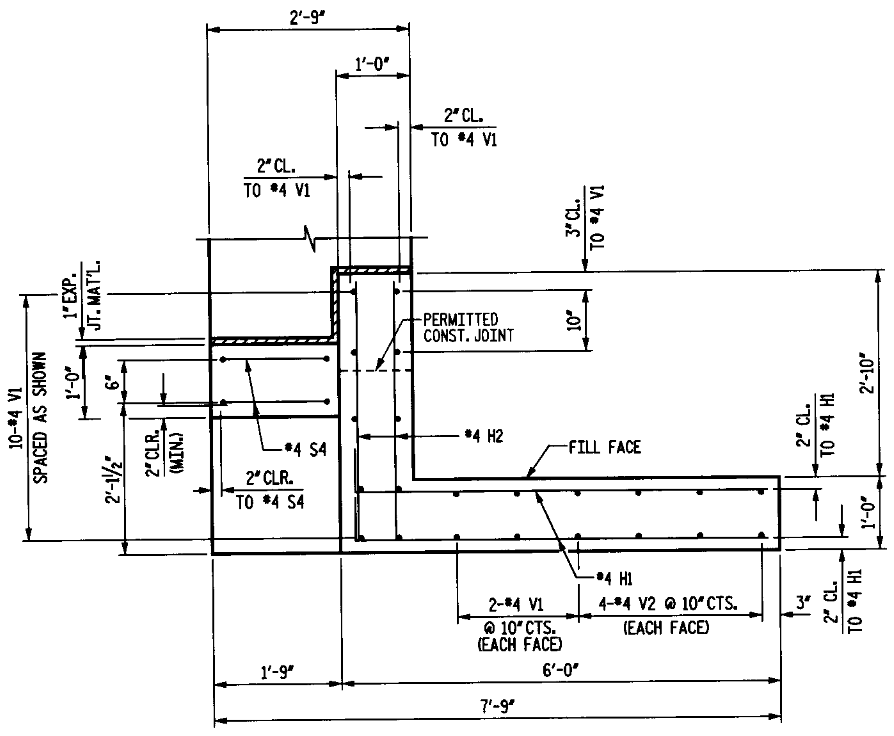
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2

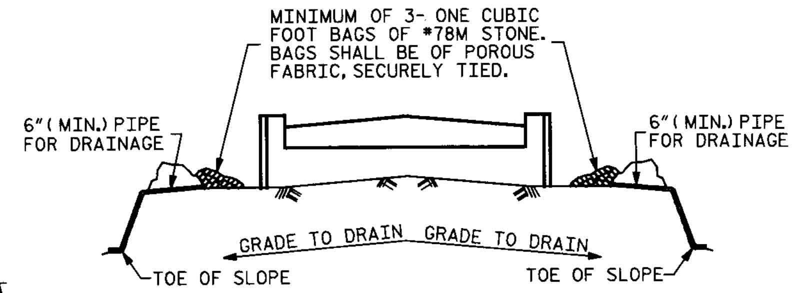
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. 8
TOTAL SHEETS 22

PLOT: 3/16/2010 4:11:08 PM Ko & Associates, P.C.



PLAN OF WING



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.

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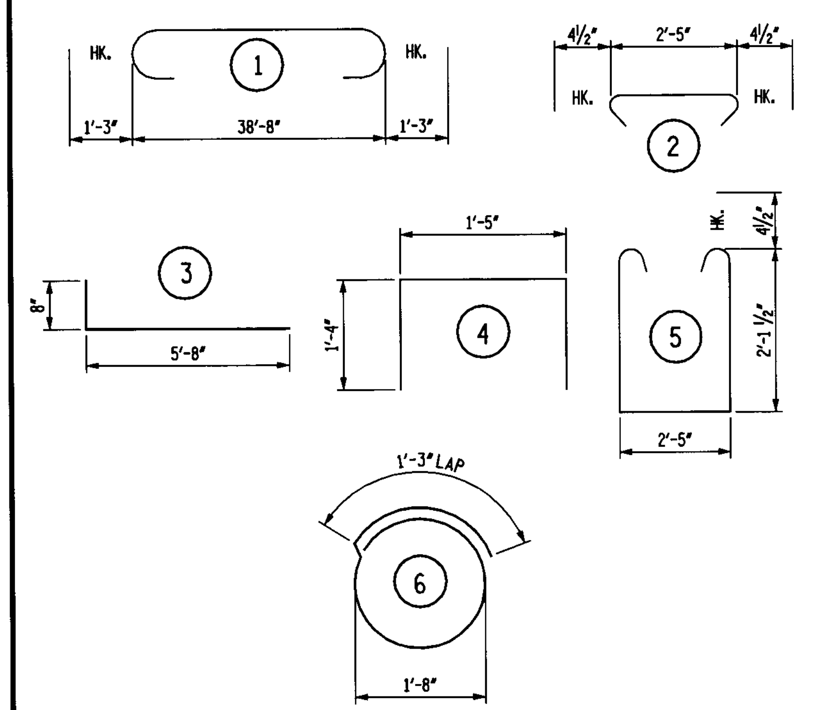
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-2"	1120
B2	4	#6	STR	38'-8"	232
B3	8	#4	STR	20'-7"	110
B4	14	#4	STR	2'- 5"	16
D1	22	#6	STR	1'- 6"	50
H1	28	#4	3	6'- 4"	118
H2	12	#4	STR	3'-6"	28
S1	37	#4	5	7'- 5"	183
S2	37	#4	2	3'- 2"	78
S3	12	#4	6	6'- 6"	52
S4	4	#4	4	4'- 1"	11
V1	28	#4	STR	4'-8"	87
V2	16	#4	STR	4'-10"	52

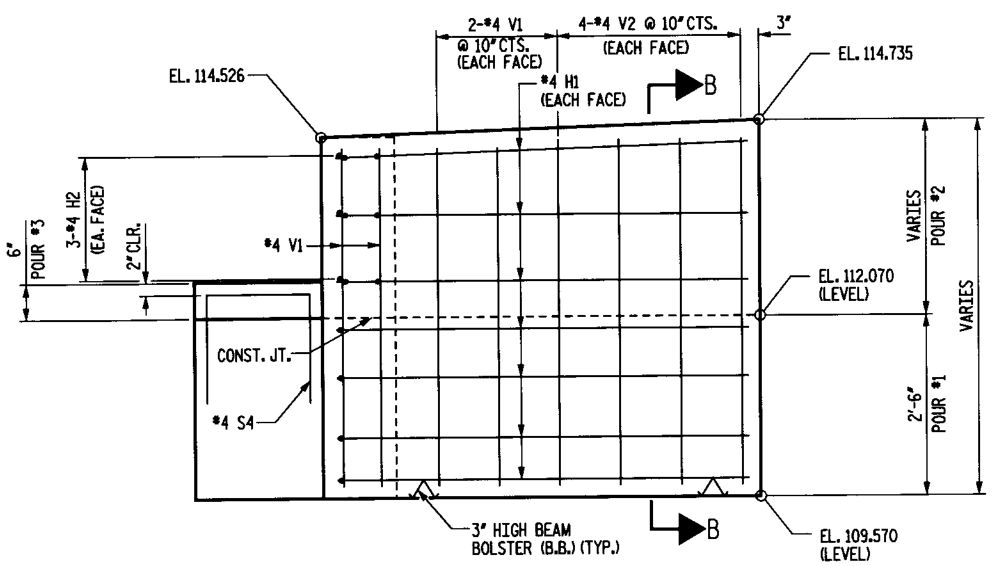
REINFORCING STEEL TOTAL LBS. 2137

POUR #1 CAP & BOTTOM OF WINGS 11.1 CY

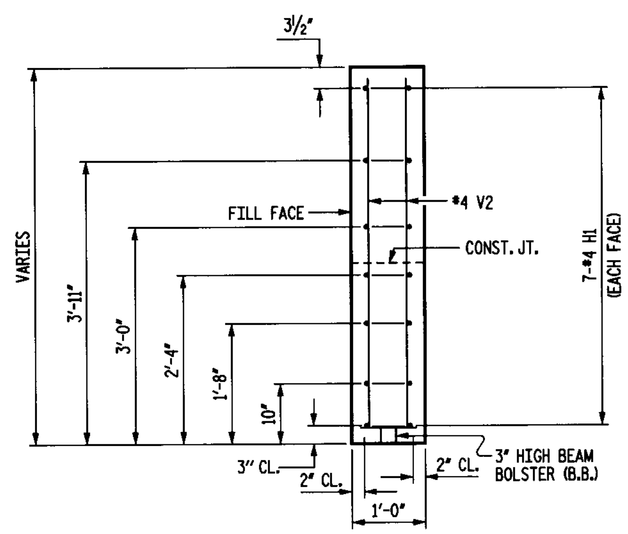
POUR #2 TOP OF WINGS 1.6 CY

POUR #3 LATERAL GUIDES 0.1 CY

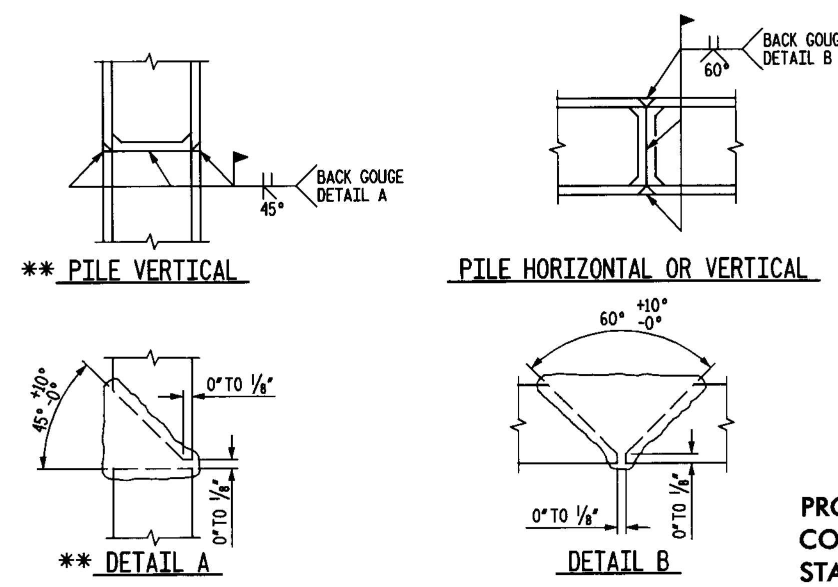
TOTAL 12.8 CY



ELEVATION OF WING



SECTION B-B



** POSITION OF PILE DURING WELDING

PILE SPLICE DETAILS

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2 DETAILS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL JAMES E. MONDOLFI
3-12-10

REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	SHEET NO. 9
1			3			TOTAL SHEETS 22
2			4			

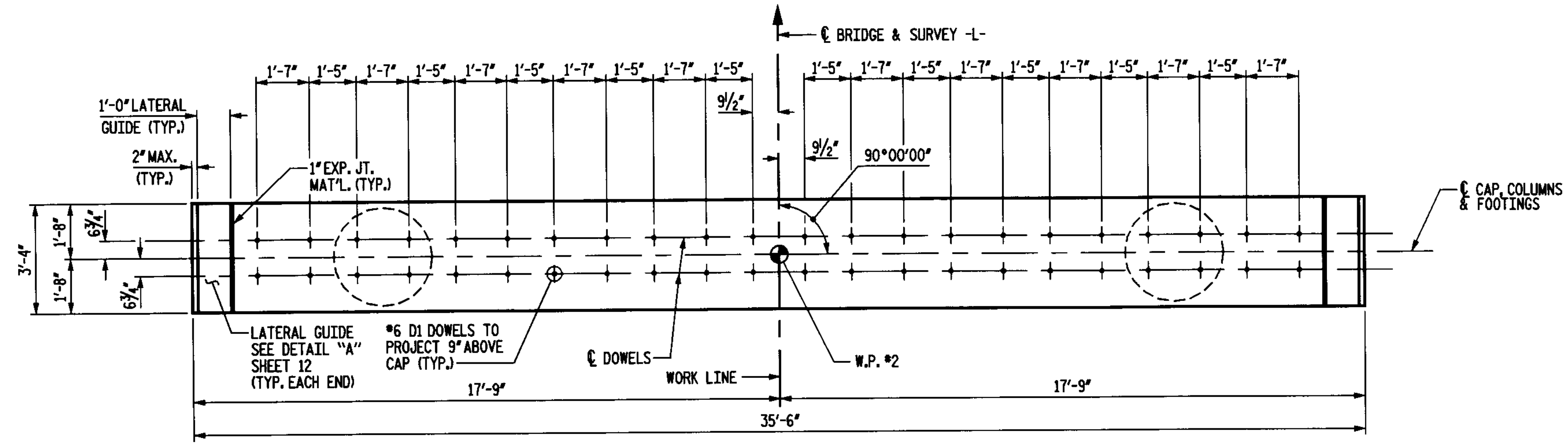
DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010

NOTES:

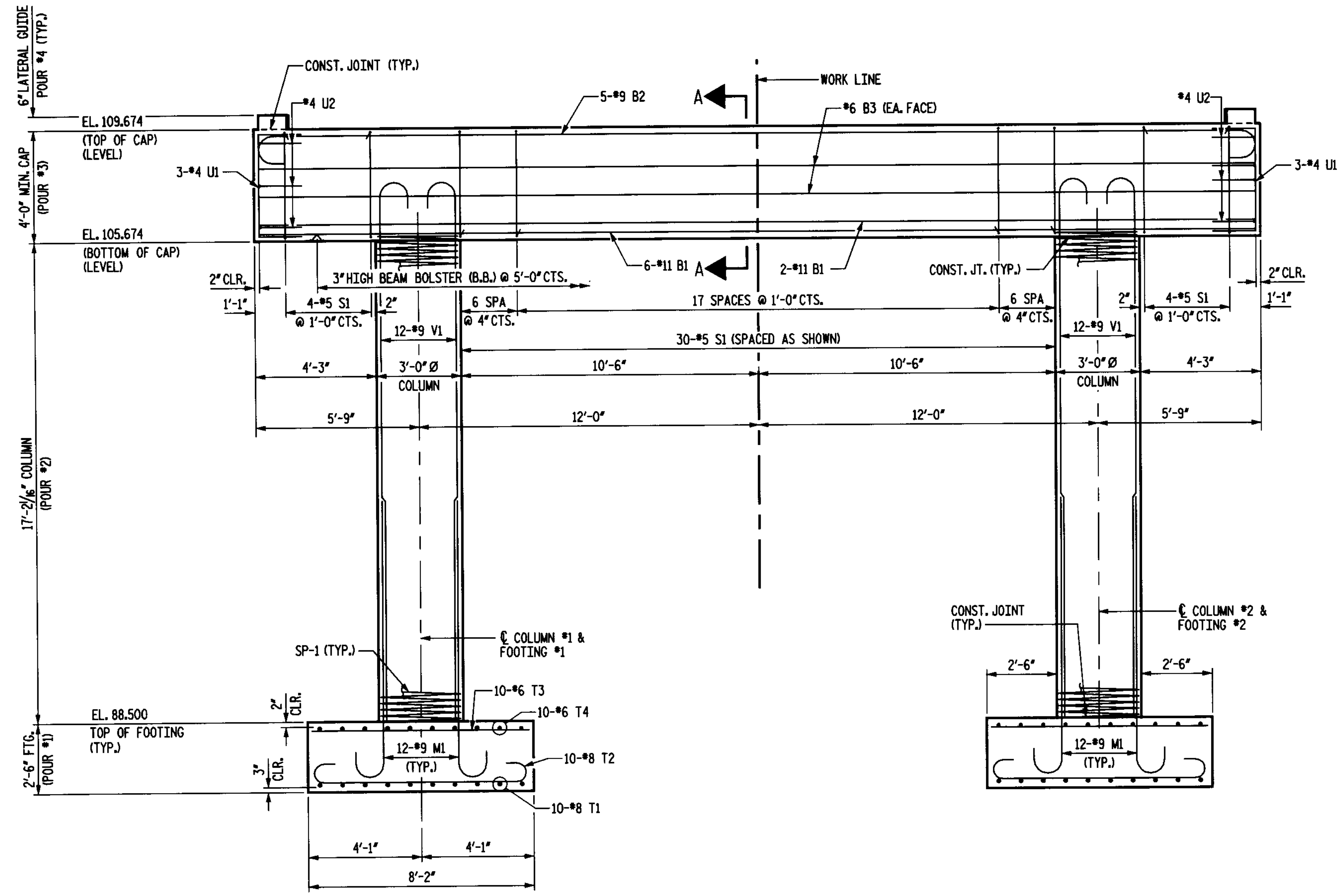
STIRRUPS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR DOWELS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

FOR SECTION A-A, SEE SHEET 12.

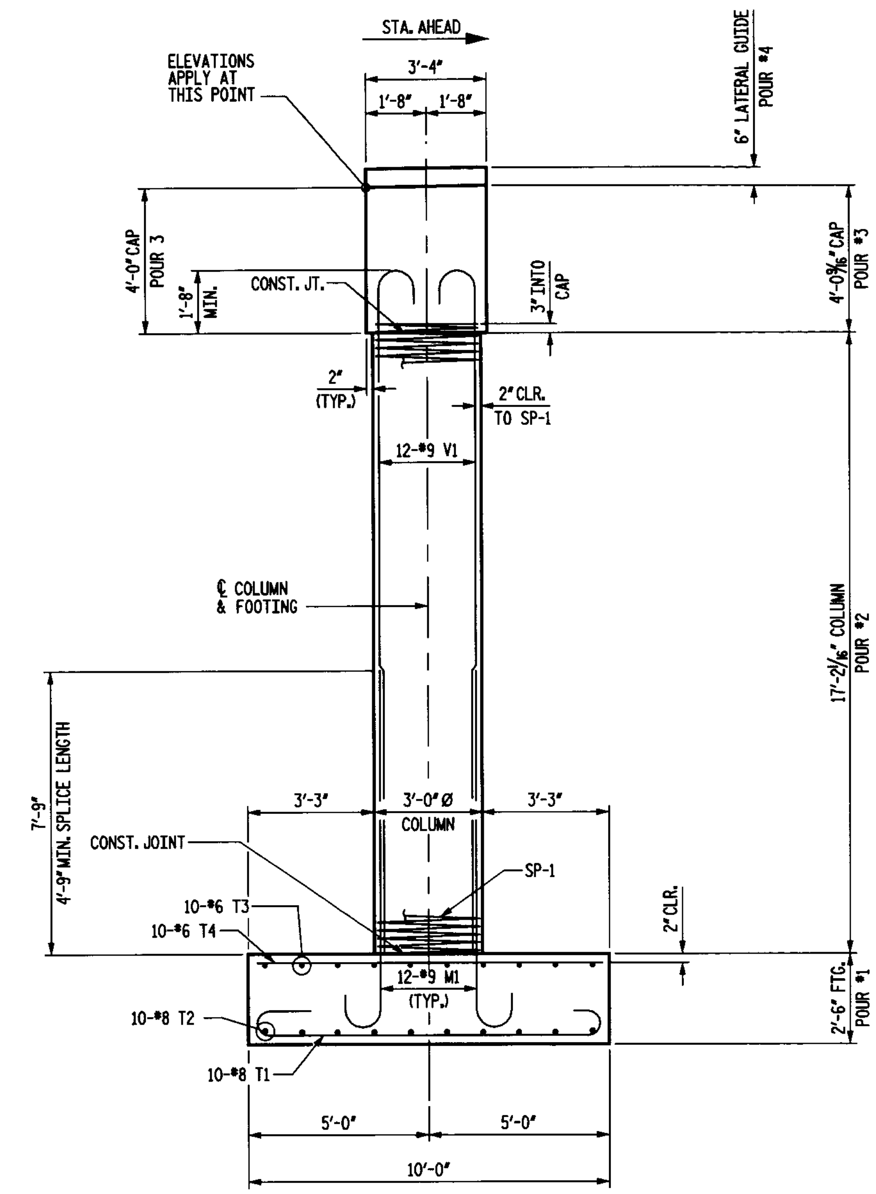


PLAN



ELEVATION

NOTE: INVERT ALTERNATE STIRRUPS IN CAP



END ELEVATION

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT #1

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

SEAL 20537 NORTH CAROLINA PROFESSIONAL ENGINEER JAMES E. MONDOLFI
3-17-10

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

SHEET NO. 10
TOTAL SHEETS 22

DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010

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PLOT: 3/16/2010 4:11:15 PM Ko & Associates, P.C.

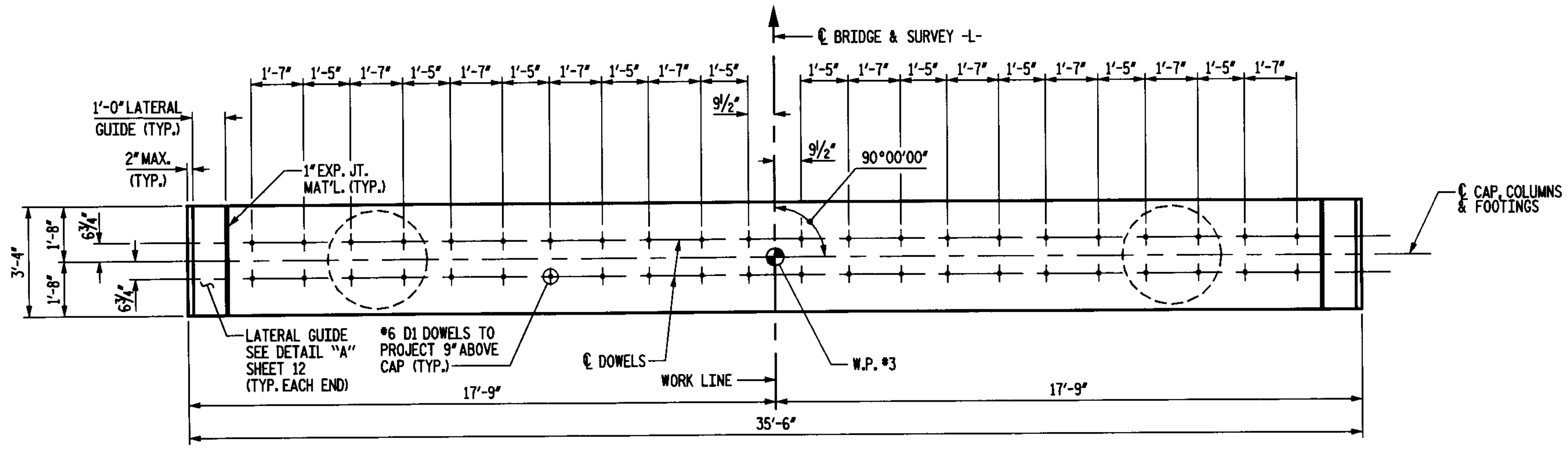
FILE NAME: p:\home\civil\yadkin_99\...\structures\99_sht11_V8.dgn

NOTES:

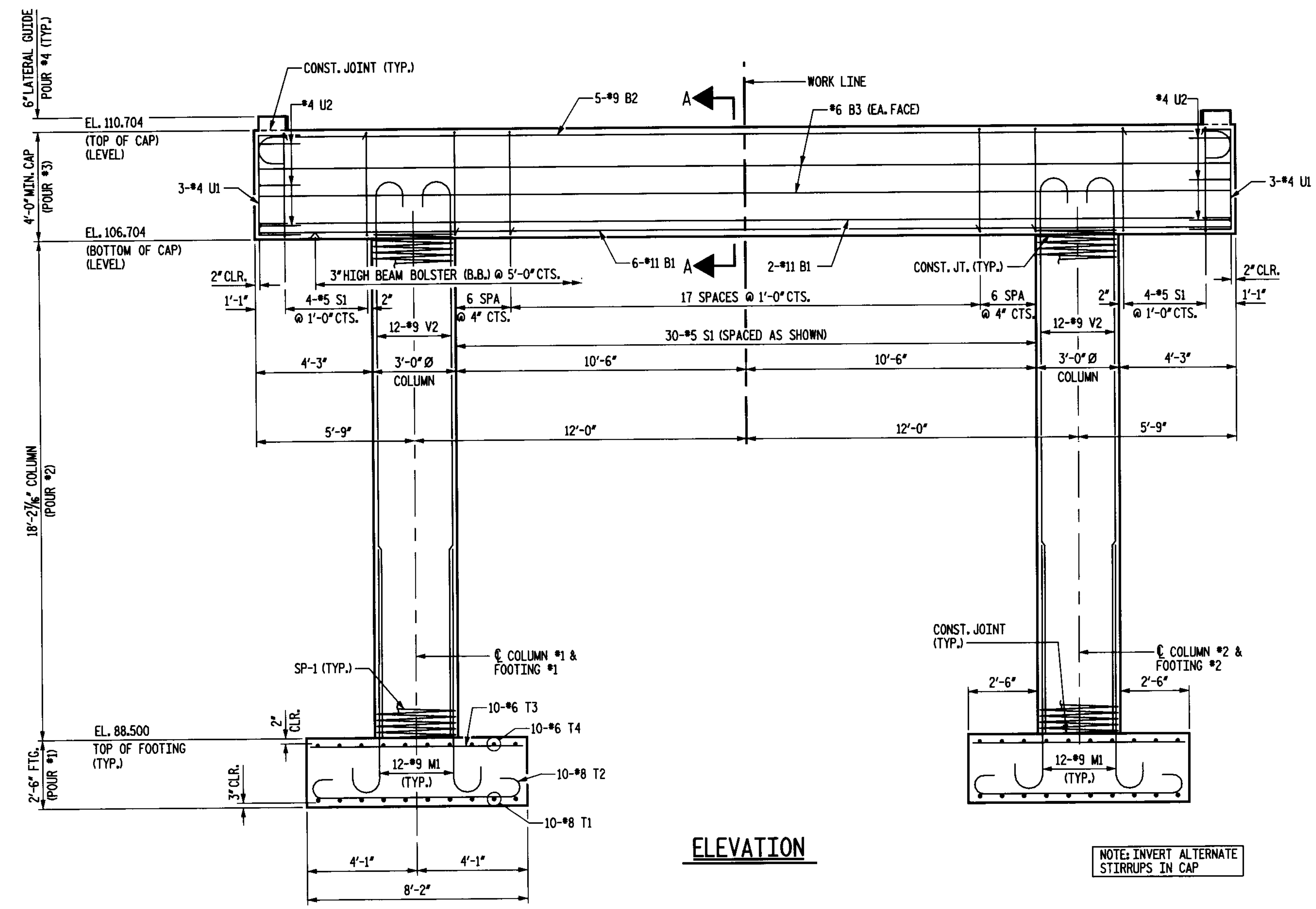
STIRRUPS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR DOWELS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

FOR SECTION A-A, SEE SHEET 12.

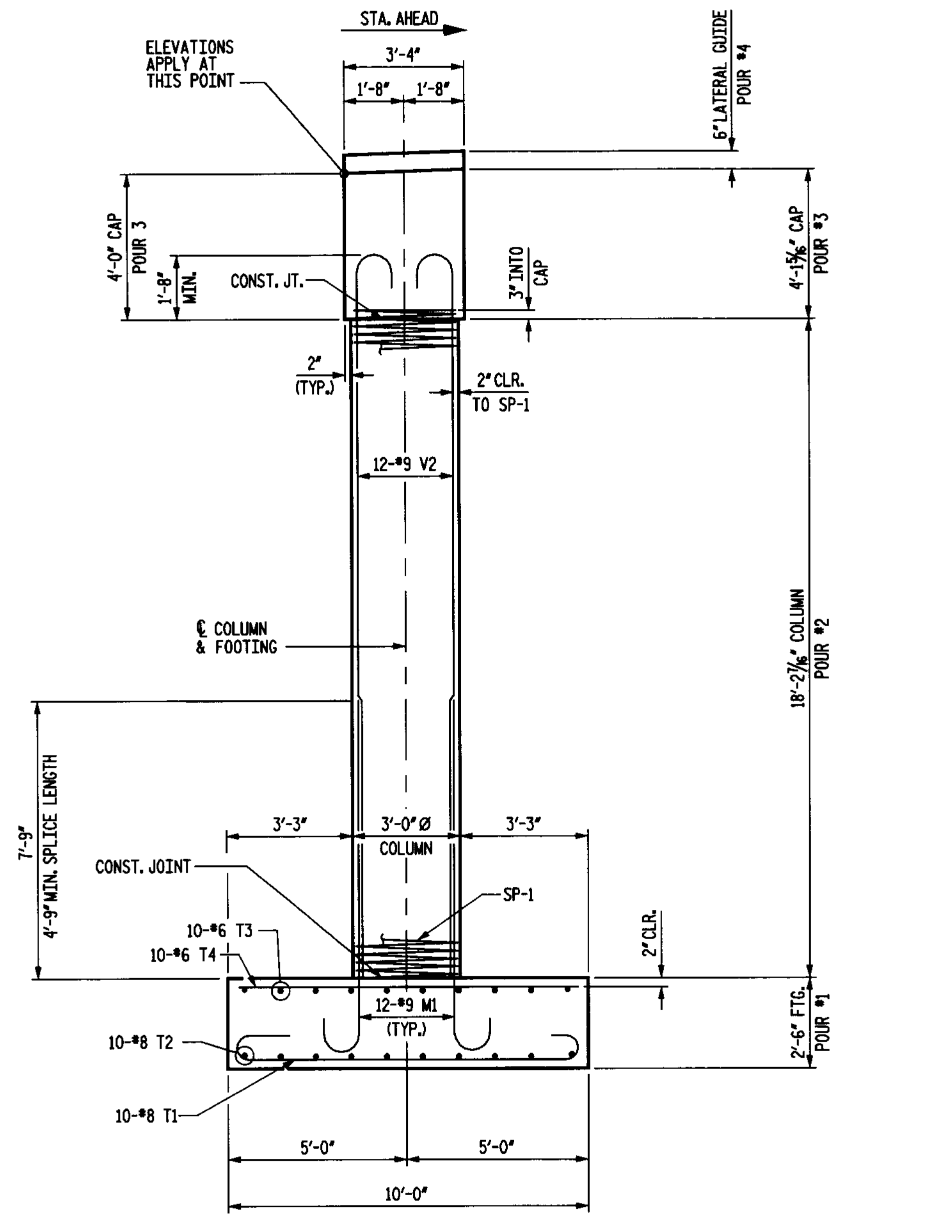


PLAN



ELEVATION

NOTE: INVERT ALTERNATE STIRRUPS IN CAP



END ELEVATION

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT #2

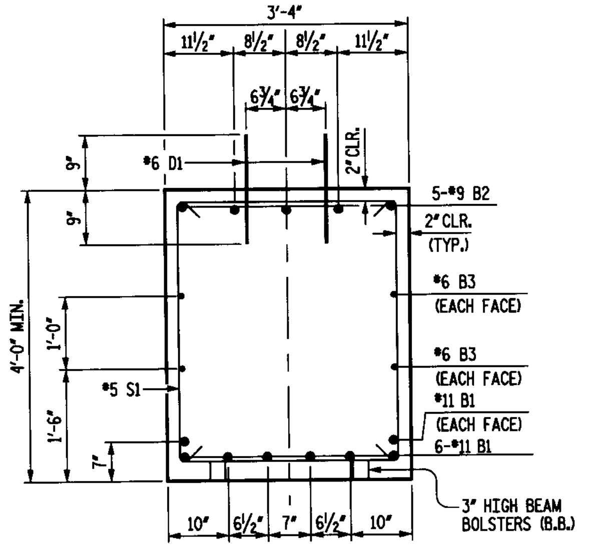
Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20580 JAMES E. MONDOLFI
3-17-10

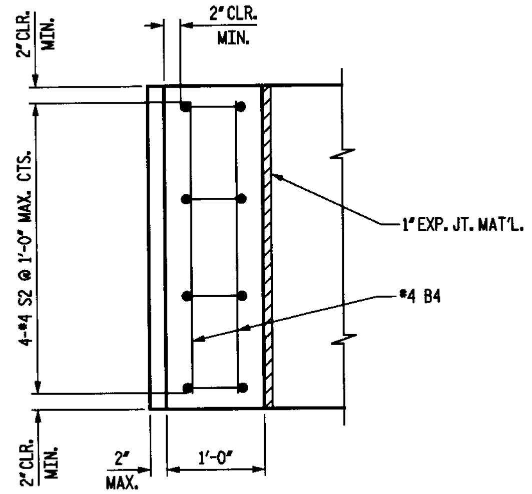
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. 11
TOTAL SHEETS 22

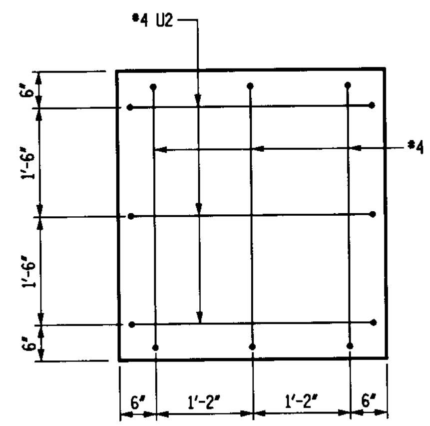
DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010



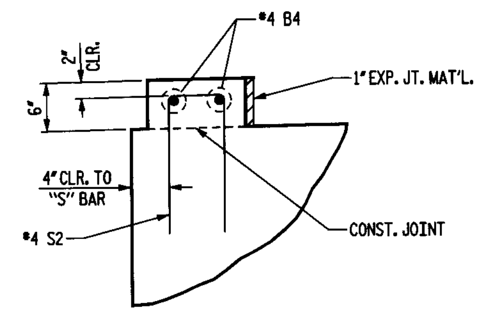
SECTION A-A



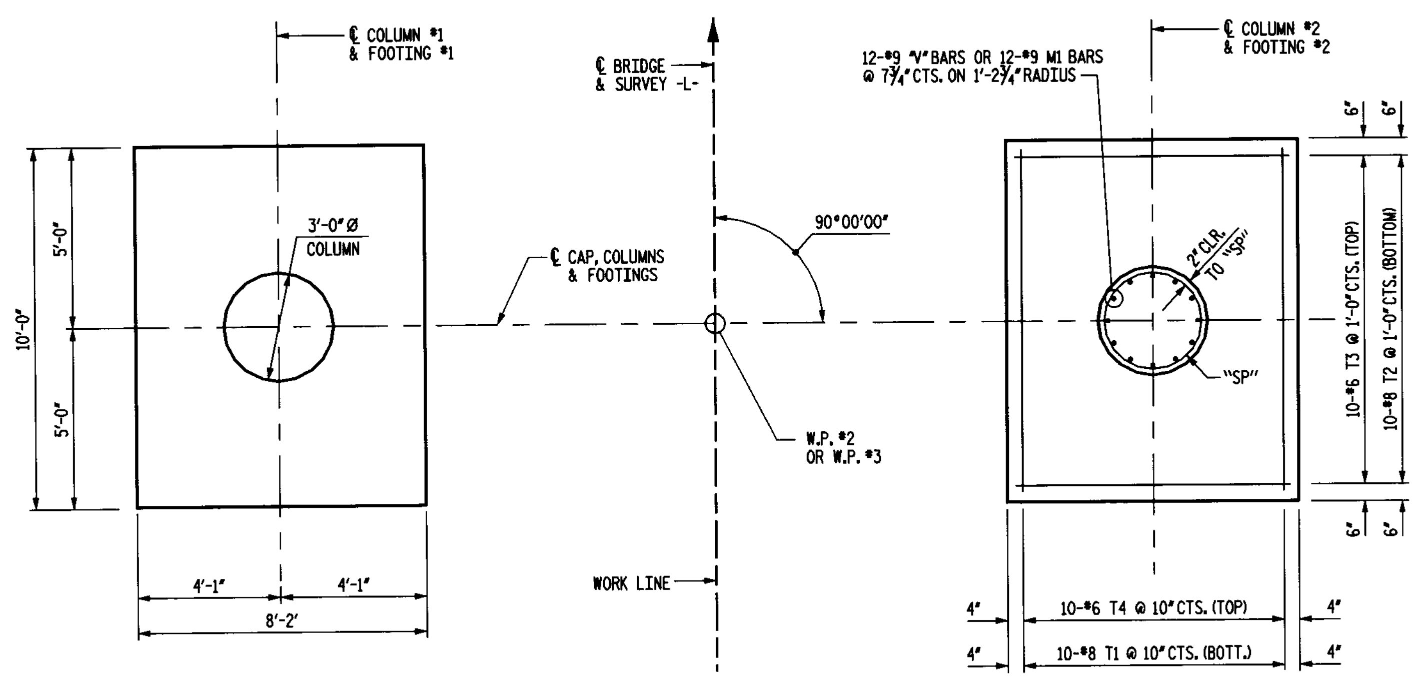
PLAN



CAP END VIEW



ELEVATION
DETAIL "A"

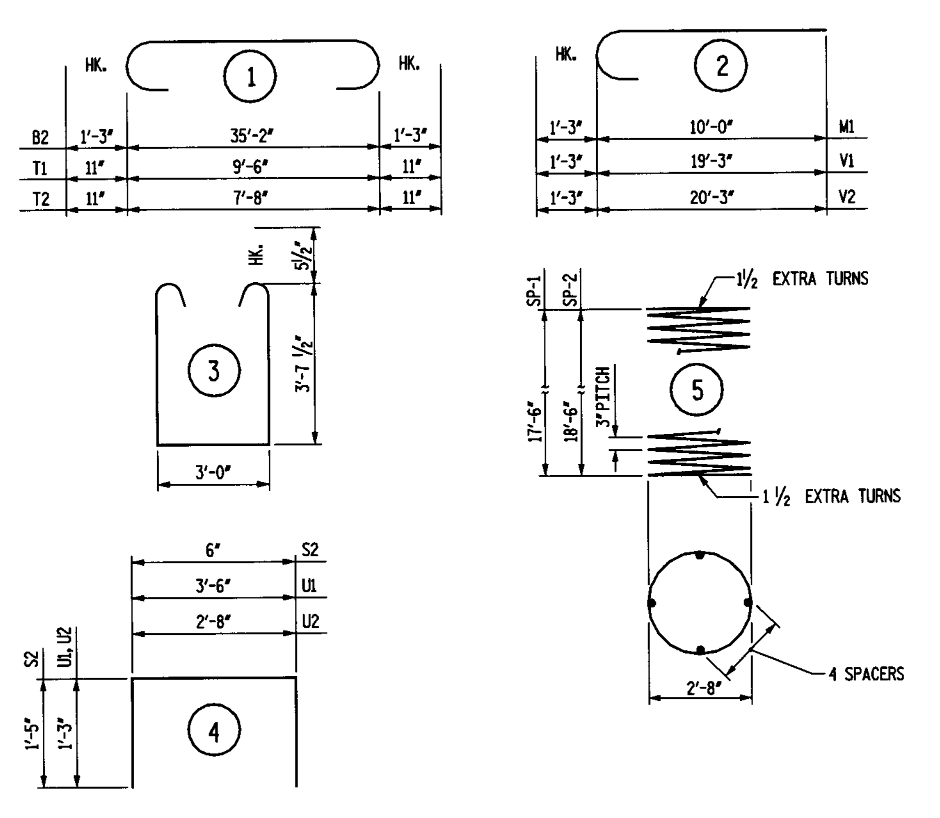


PLAN OF FOOTINGS

DETAILS SHOWN FOR FOOTINGS AND COLUMNS ARE TYPICAL.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	11	STR	35'-2"	1495
B2	5	9	1	37'-8"	640
B3	4	6	STR	35'-2"	211
B4	4	4	STR	3'-0"	8
D1	44	6	STR	1'-6"	99
M1	24	9	2	11'-3"	918
S1	38	5	3	11'-2"	443
S2	8	4	4	3'-4"	18
T1	20	8	1	11'-4"	605
T2	20	8	1	9'-6"	507
T3	20	6	STR	7'-8"	230
T4	20	6	STR	9'-6"	285
U1	6	4	4	6'-0"	24
U2	6	4	4	5'-2"	21
V1	24	9	2	20'-6"	1,673

REINFORCING STEEL TOTAL 7,177 LB

SPIRAL COLUMN REINFORCING STEEL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
SP-1	2	**	5	610'-6"	816

SPIRAL COLUMN REINF. STEEL TOTAL 816 LB

POUR #1 FOOTING 15.1 CY
POUR #2 COLUMN 9.0 CY
POUR #3 CAP 17.5 CY
POUR #4 LATERAL GUIDE 0.1 CY
TOTAL CY 41.7

BILL OF MATERIAL

BENT #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	11	STR	35'-2"	1495
B2	5	9	1	37'-8"	640
B3	4	6	STR	35'-2"	211
B4	4	4	STR	3'-0"	8
D1	44	6	STR	1'-6"	99
M1	24	9	2	11'-3"	918
S1	38	5	3	11'-2"	443
S2	8	4	4	3'-4"	18
T1	20	8	1	11'-4"	605
T2	20	8	1	9'-6"	507
T3	20	6	STR	7'-8"	230
T4	20	6	STR	9'-6"	285
U1	6	4	4	6'-0"	24
U2	6	4	4	5'-2"	21
V2	24	9	2	21'-6"	1,754

REINFORCING STEEL TOTAL 7,258 LB

SPIRAL COLUMN REINFORCING STEEL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
SP-1	2	**	5	635'-4"	849

SPIRAL COLUMN REINF. STEEL TOTAL 849 LB

POUR #1 FOOTING 15.1 CY
POUR #2 COLUMN 9.6 CY
POUR #3 CAP 17.5 CY
POUR #4 LATERAL GUIDE 0.1 CY
TOTAL CY 42.3

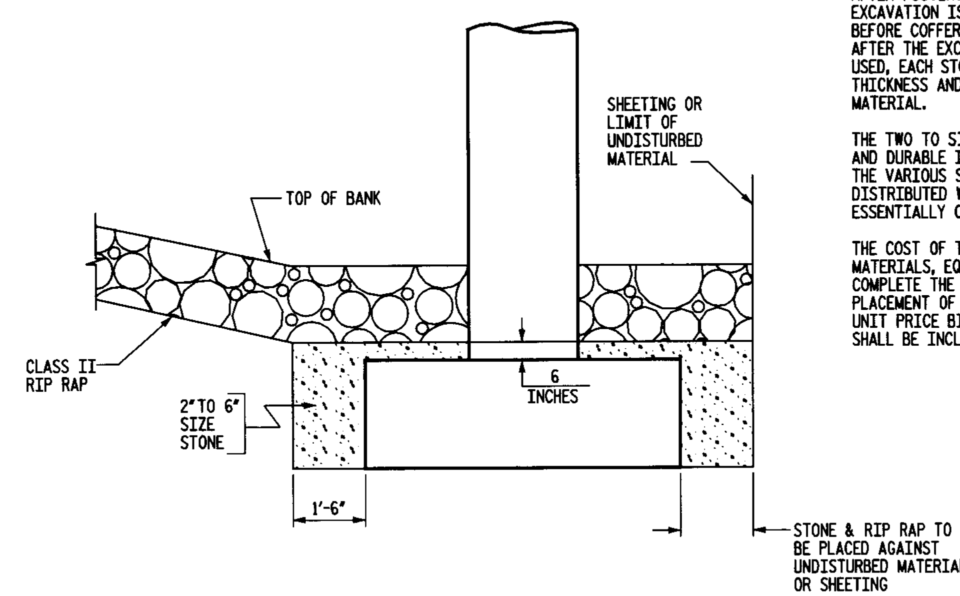
** NOTE: THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

NOTES FOR SUBSTRUCTURE SCOUR PROTECTION

SUBSTRUCTURE SCOUR PROTECTION SHALL BE PROVIDED AS INDICATED IN THE PLANS. THE TWO TO SIX INCH SIZE STONE SHALL BE PLACED AFTER FOOTING FORMWORK HAS BEEN REMOVED AND WHILE THE EXCAVATION IS DEWATERED. THE RIP RAP STONE SHALL BE PLACED BEFORE COFFERDAM SHEETING IS REMOVED. EITHER BEFORE OR AFTER THE EXCAVATION IS ALLOWED TO FLOOD. WHEN NO SHEETING IS USED, EACH STONE TYPE SHALL BE PLACED TO THE REQUIRED THICKNESS AND SHALL EXTEND HORIZONTALLY TO THE UNDISTURBED MATERIAL.

THE TWO TO SIX INCH SIZE SCOUR PROTECTION STONE SHALL BE HARD AND DURABLE IN NATURE. WHILE NO SPECIFIC GRADATION IS REQUIRED THE VARIOUS SIZES OF STONE SHALL BE REASONABLY EQUALLY DISTRIBUTED WITHIN THE REQUIRED SIZE RANGE. THE STONE SHALL BE ESSENTIALLY CUBICAL IN SHAPE.

THE COST OF THE ABOVE WORK INCLUDING THE TWO TO SIX INCH SIZE STONE, MATERIALS, EQUIPMENT, TOOLS, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR PLACEMENT OF SUBSTRUCTURE. CLASS II RIP RAP SHALL BE PAID FOR AT THE UNIT PRICE BID FOR CLASS II RIP RAP PER TON. FOUNDATION EXCAVATION COST SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR EXCAVATION AND EMBANKMENT.



PIER SCOUR PROTECTION

(BENT #1 SHOWN, BENT #2 SIMILAR)

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0268

SEAL 3-17-10

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

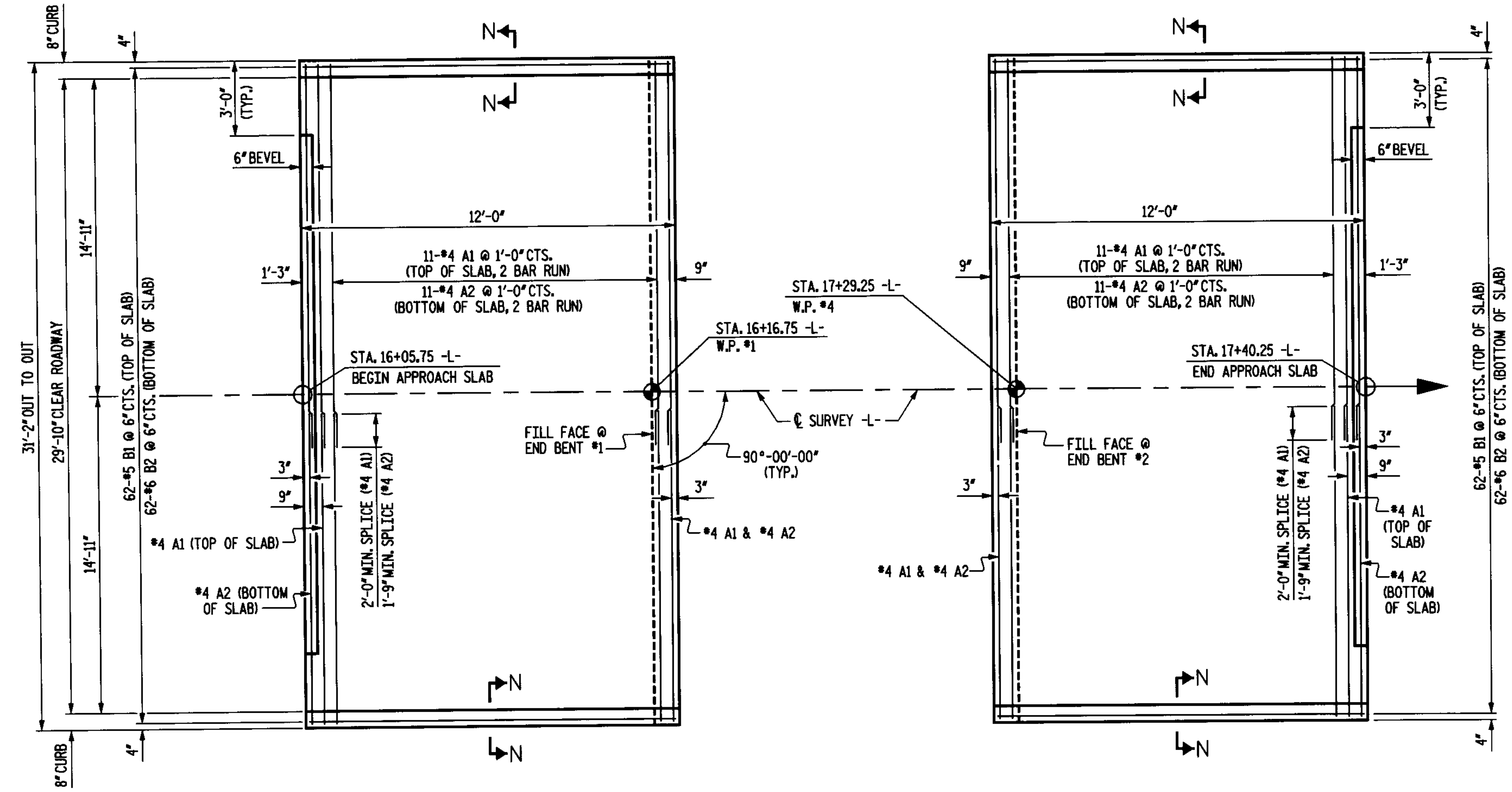
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT DETAILS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	12
1			3			TOTAL SHEETS
2			4			22

DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010

PLOT: 3/16/2010 4:11:18 PM Ko & Associates, P.C.
FILE NAME: p:\nome\civil\yadkin_99\...\structures\99_sht12_V8.dgn

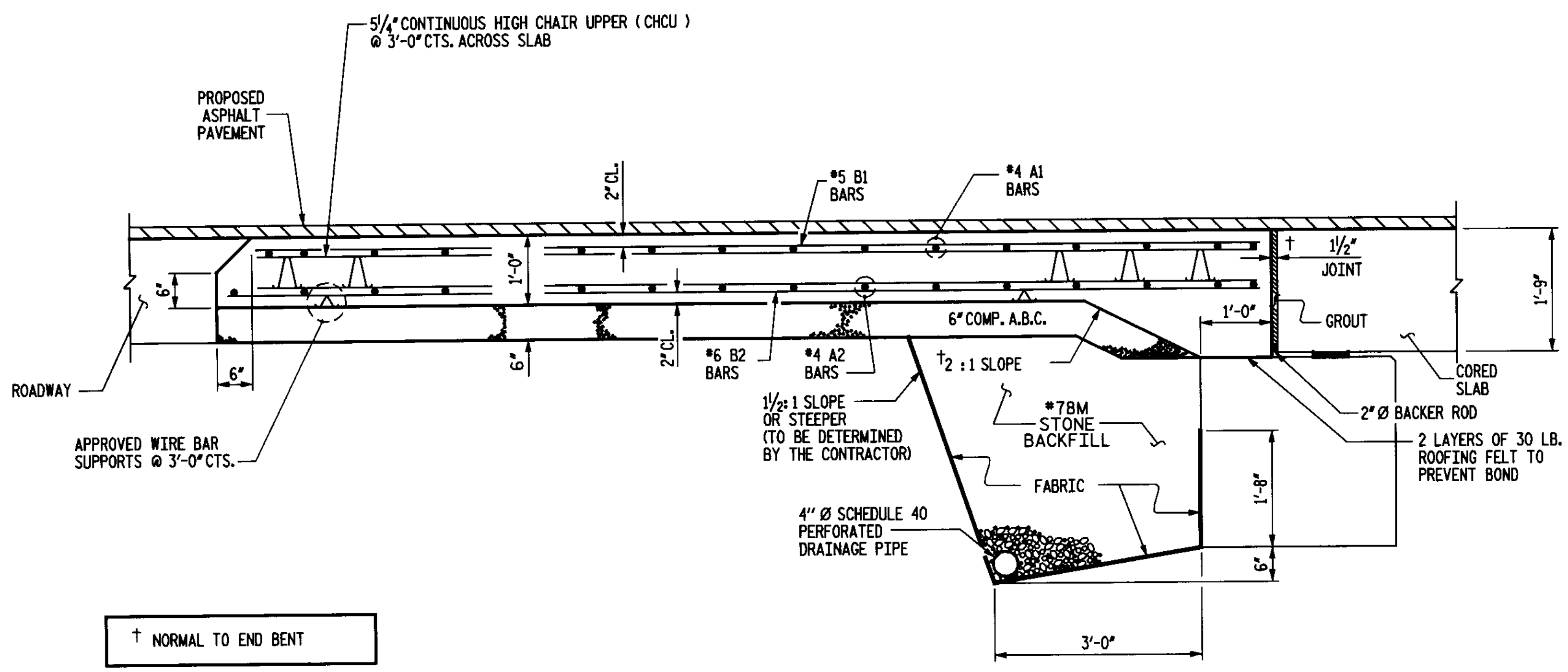


AT END BENT #1

AT END BENT #2

PLAN OF APPROACH SLABS

DIMENSIONS ARE TYPICAL FOR BOTH APPROACH SLABS



† NORMAL TO END BENT

SECTION THRU SLAB

NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4"Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE SHEET 13A.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO INSTALLATION OF CORED SLAB.

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC 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 END BENT CAP FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4"Ø DRAINAGE PIPE OUTLET(S), SEE SHEET 13A.

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.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

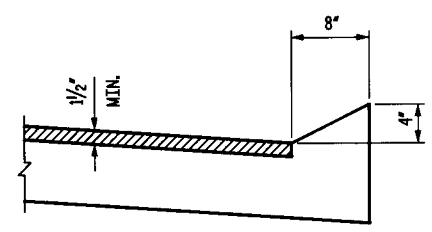
BILL OF MATERIAL

APPROACH SLAB AT END BENT #1

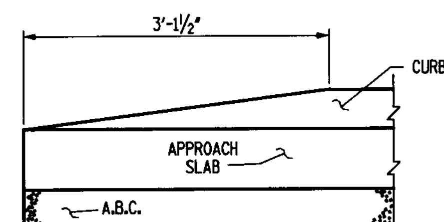
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	16'-5"	285
A2	26	#4	STR	16'- 4"	284
*B1	62	#5	STR	11'- 3"	727
B2	62	#6	STR	11'- 8"	1086
REINFORCING STEEL				LBS.	1370
* EPOXY COATED REINFORCING STEEL				LBS.	1012
CLASS AA CONCRETE					
AT END BENT #1				C.Y.	15.7

APPROACH SLAB AT END BENT #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	16'-5"	285
A2	26	#4	STR	16'- 4"	284
*B1	62	#5	STR	11'- 3"	727
B2	62	#6	STR	11'- 8"	1086
REINFORCING STEEL				LBS.	1370
* EPOXY COATED REINFORCING STEEL				LBS.	1012
CLASS AA CONCRETE					
AT END BENT #2				C.Y.	15.7



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH SLAB
29'-10" CLEAR ROADWAY
90° SKEW

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL JAMES E. MONDOLFI
3-17-10

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	13
1			3			TOTAL SHEETS
2			4			22

DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010

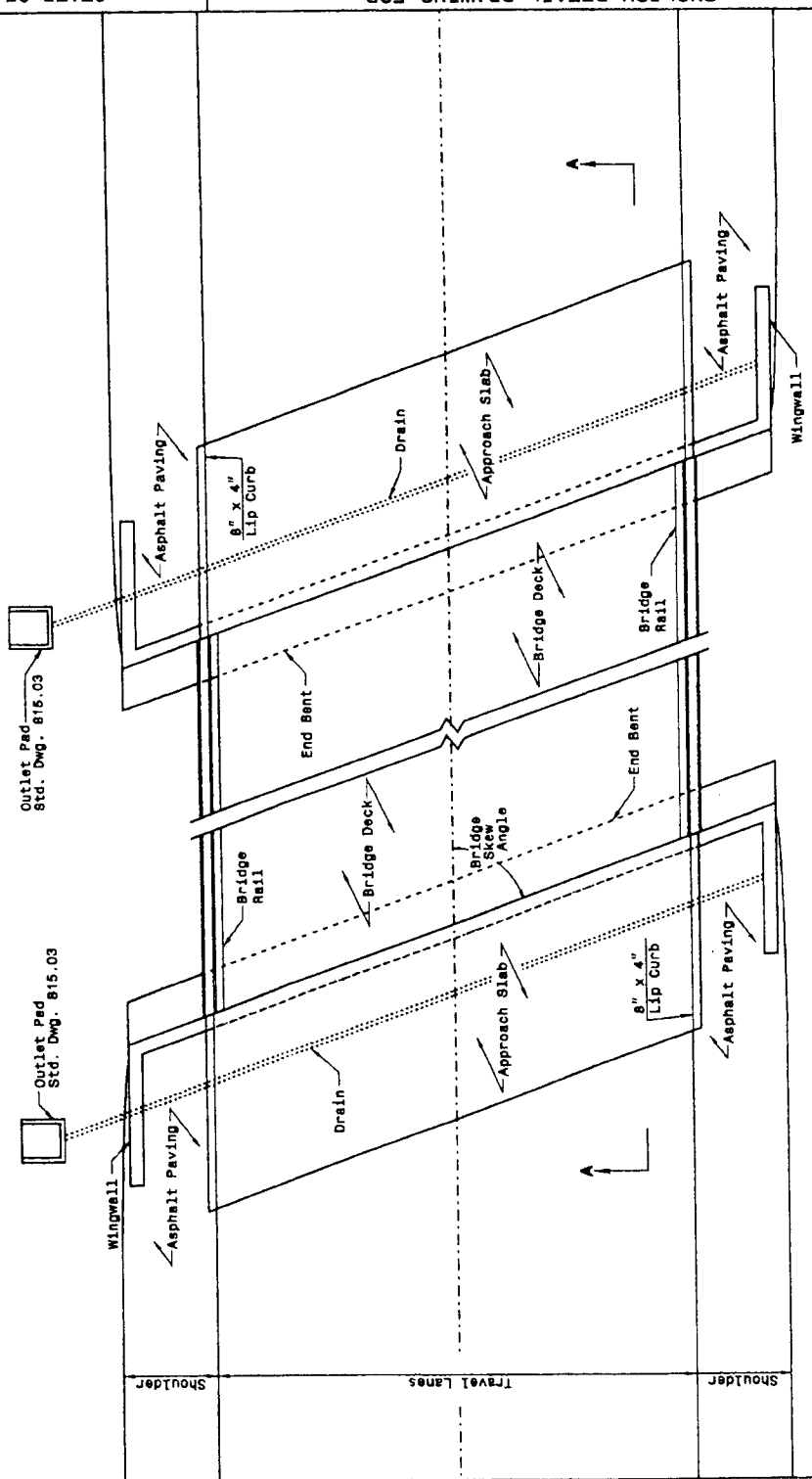
PLOT: 3/16/2010 4:11:22 PM Ko & Associates, P.C.
FILE NAME: p:\nome\dvll\yadkin_99\sal1813b\structures\99_sht13_V8.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5228	13A

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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 1 OF 2
422D11

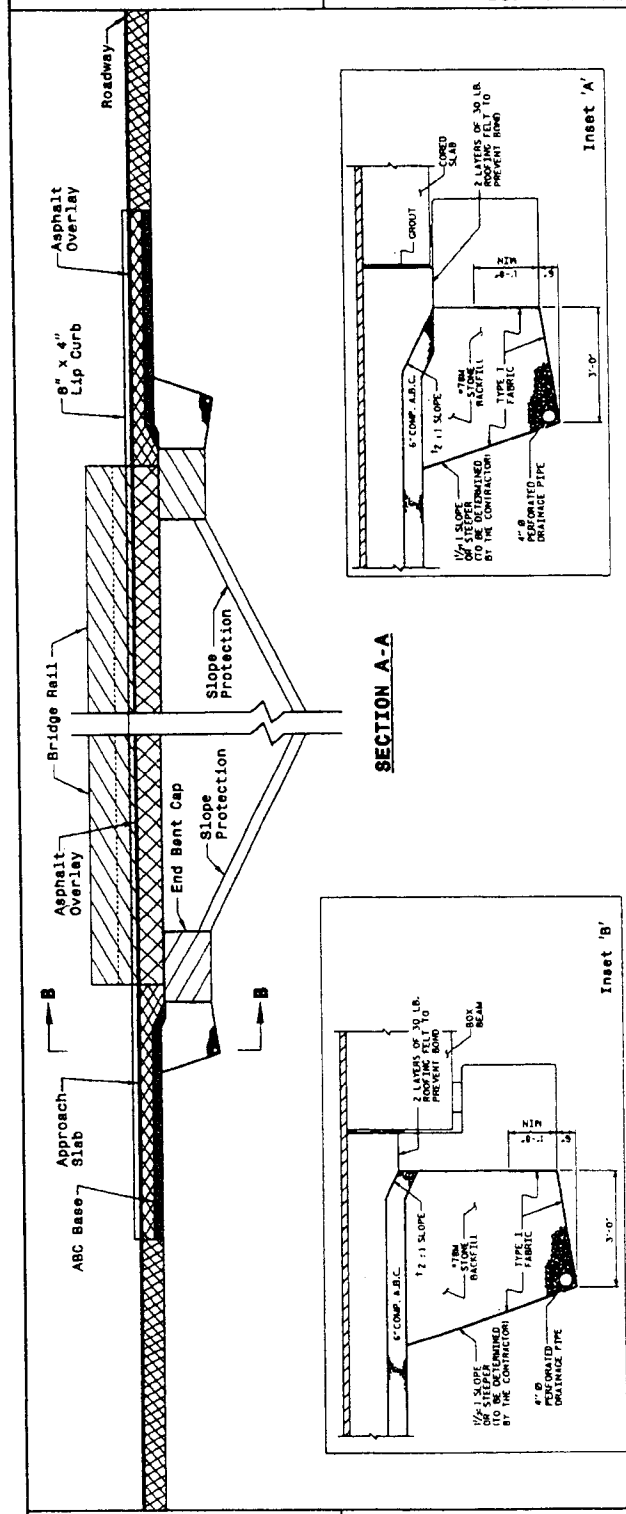


PLAN VIEW
12' APPROACH SLAB

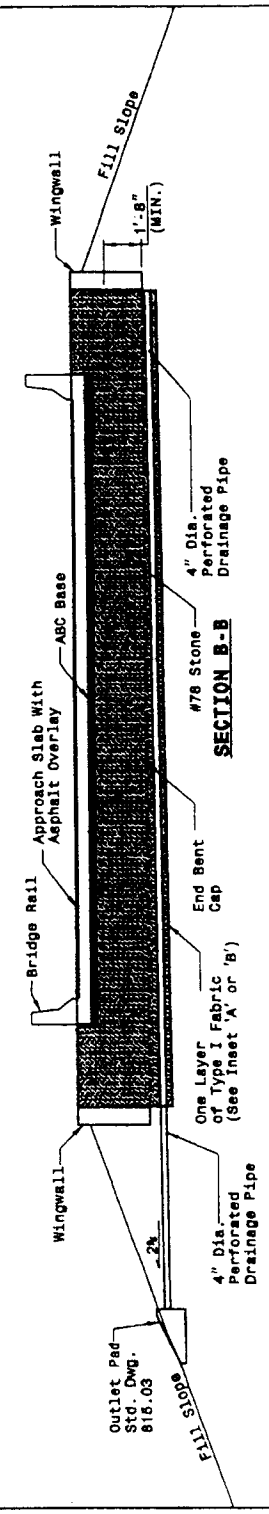
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 2 OF 2
422D11



SECTION A-A



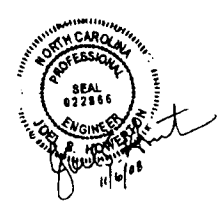
SECTION B-B

12' APPROACH SLAB

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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 2 OF 2
422D11



PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

ORIGINAL BY: K. A. Kempf DATE: 6-10-08
MODIFIED BY: DATE:
CHECKED BY: DATE: 4/27/09
FILE SPEC.: kkempf\english\bridge approach fills.dgn

26-JUN-2008 15:32
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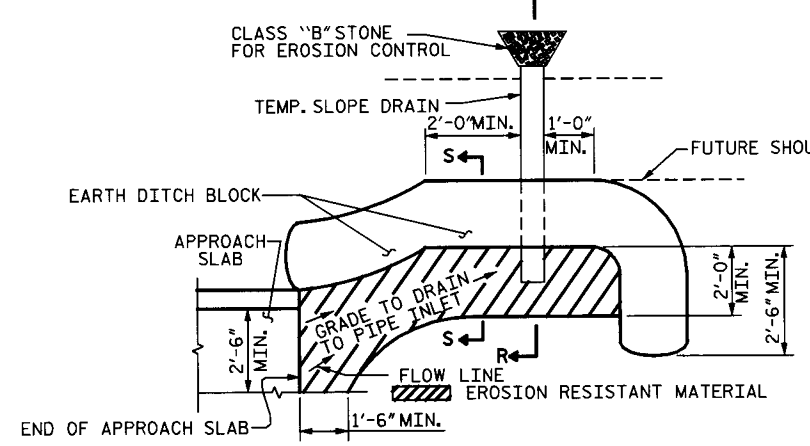
kkempf ps237484

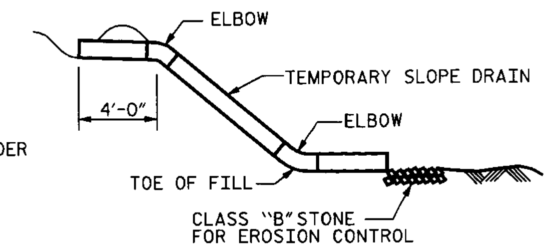
PLOT: 3/16/2010 4:11:24 PM Ko & Associates, P.C.

FILE NAME: p:\ncdot\civil\yadkin_99\structures\99_sht14_VB.dgn

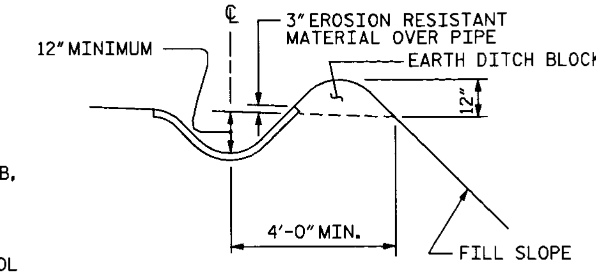


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW



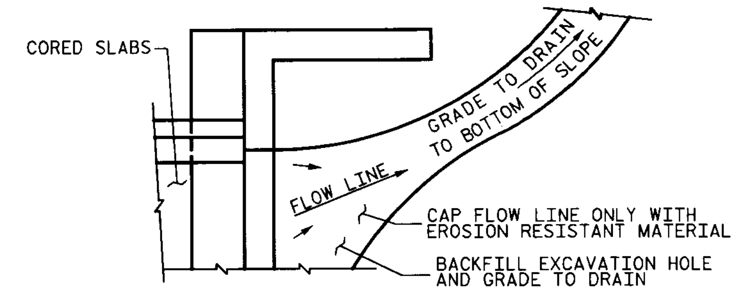
SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS 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

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

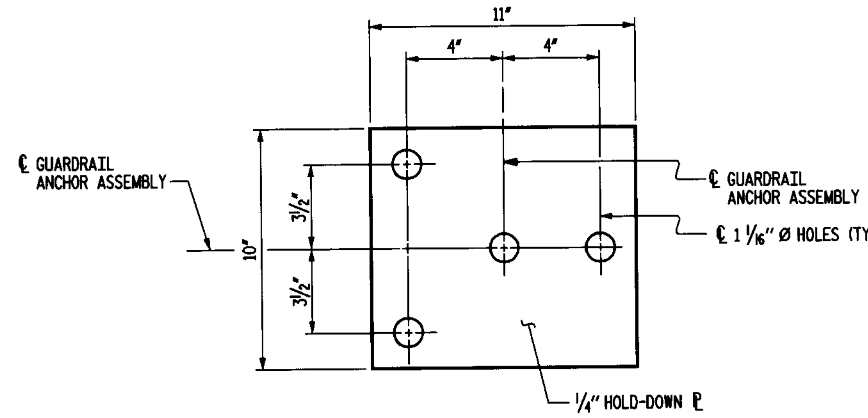
BRIDGE APPROACH SLAB DETAILS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	14
1			3			TOTAL SHEETS
2			4			22

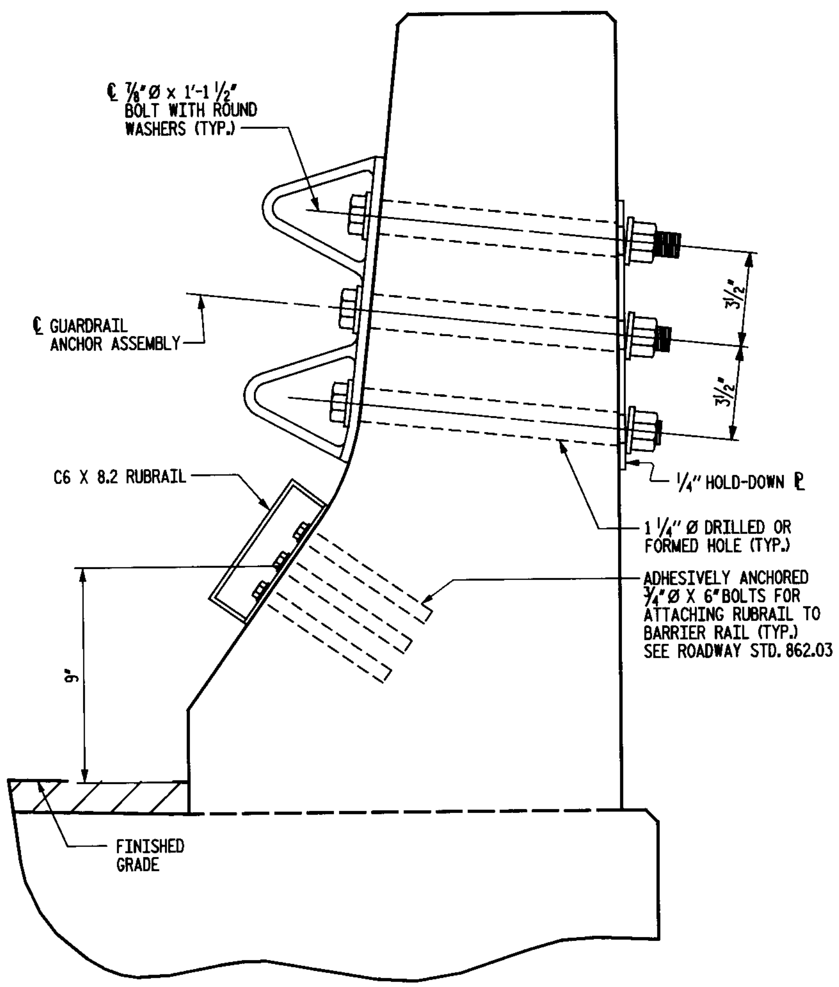
Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0268

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 25584 JAMES E. MONDOLFI
3-17-10

DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010



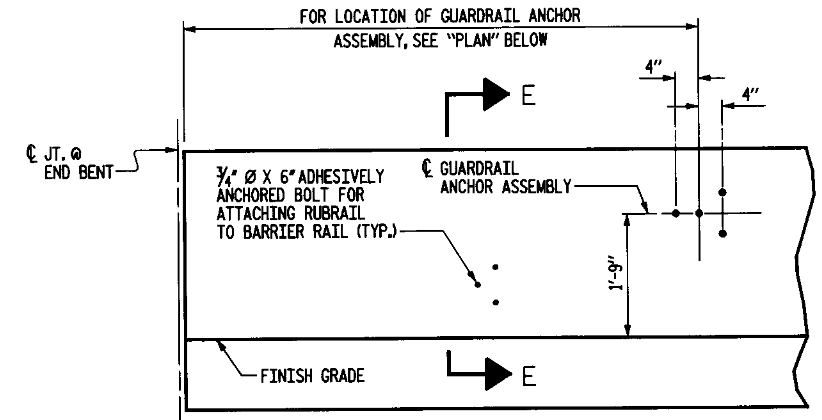
PLAN



SECTION E-E

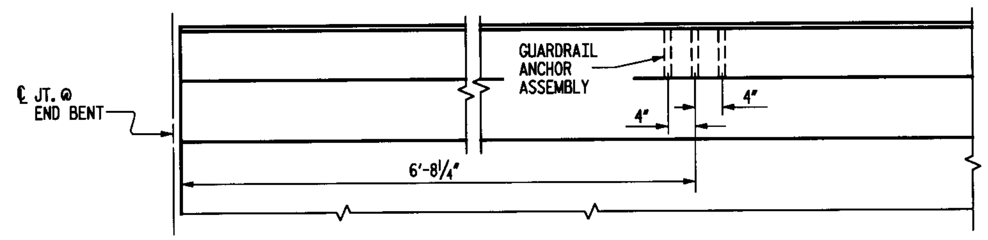
GUARDRAIL ANCHOR ASSEMBLY DETAILS

FOR CONCRETE BARRIER RAIL ONLY
(FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE THIS SHEET)



ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

FOR CONCRETE BARRIER RAIL ONLY
END BENT #1 SHOWN, END BENT #2 SIMILAR

NOTES

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

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.)

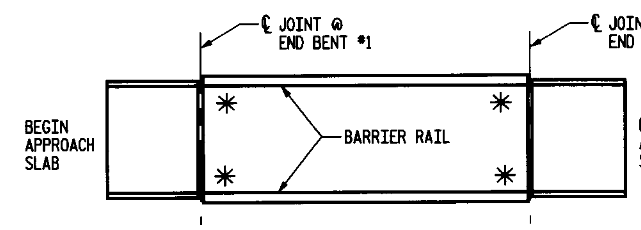
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF CONCRETE BARRIER RAIL OR COCNCRETE END POSTS. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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 CONCRETE BARRIER RAIL.

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.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



SKETCH SHOWING POINTS OF ATTACHMENTS

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
GUARDRAIL ANCHORAGE DETAILS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	15
1			3			TOTAL SHEETS
2			4			22

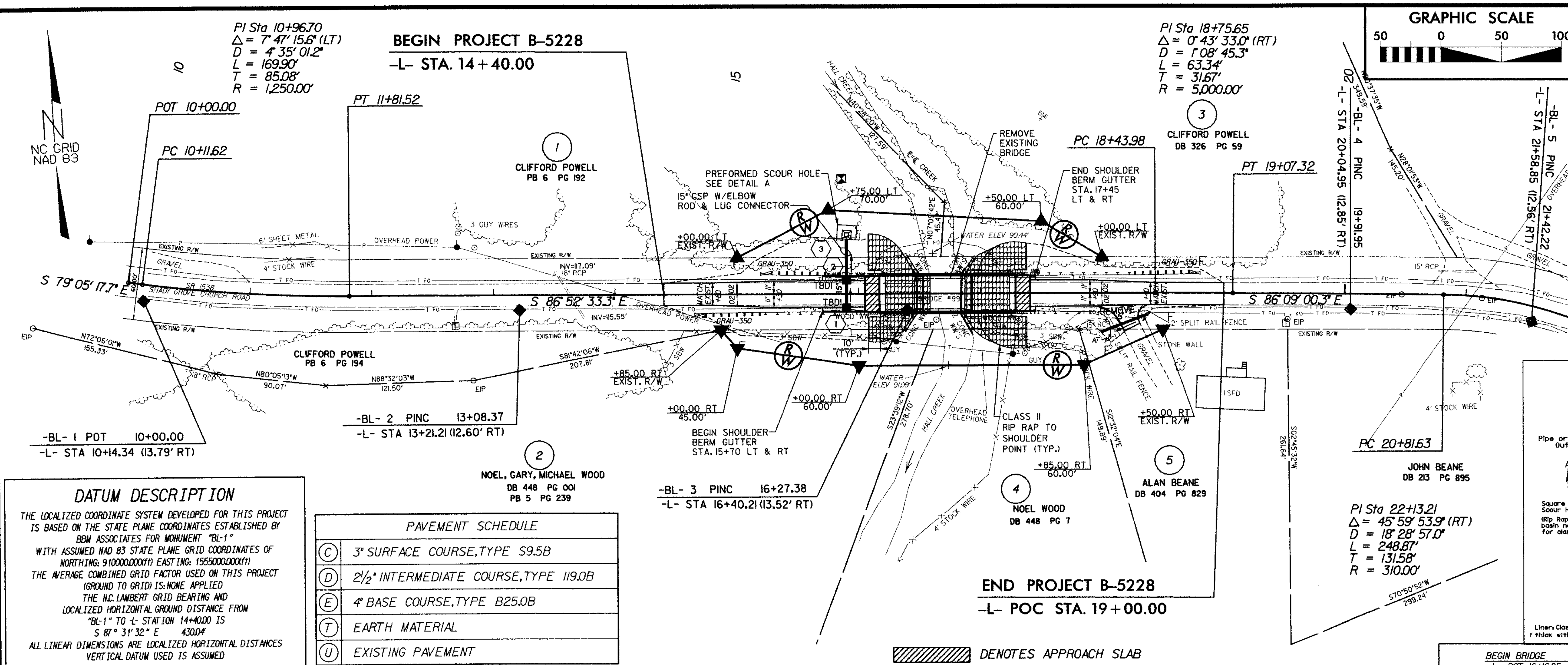
Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0268

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20591 JAMES E. MONDOLFI
3-17-10

DRAWN BY: M.L. MARLEY DATE: FEB 2010
CHECKED BY: J.E. MONDOLFI DATE: FEB 2010

PLOT: 3/16/2010 4:11:28 PM Ko & Associates, P.C.
FILE NAME: p:\nome\civil\yadkin_99\wall813b\structures\99_sht15_V8.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5228	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



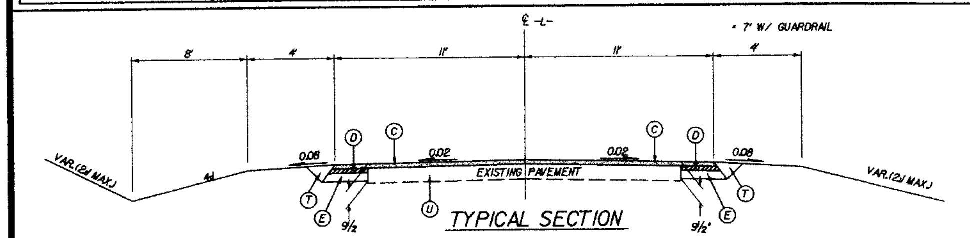
DATUM DESCRIPTION

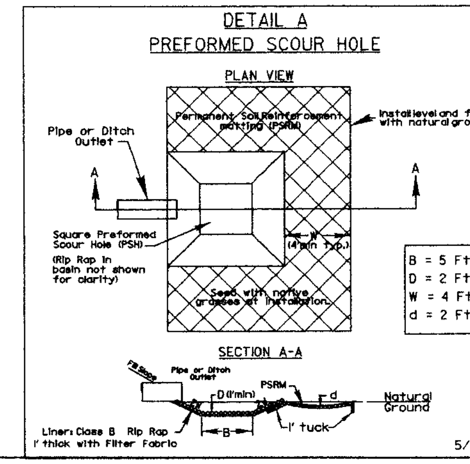
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY BBM ASSOCIATES FOR MONUMENT "BL-1" WITH ASSUMED NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 910000.000(ft) EASTING: 1555000.000(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: NONE APPLIED
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-1" TO -L- STATION 14+40.00 IS
S 87° 31' 32" E 430.04'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS ASSUMED

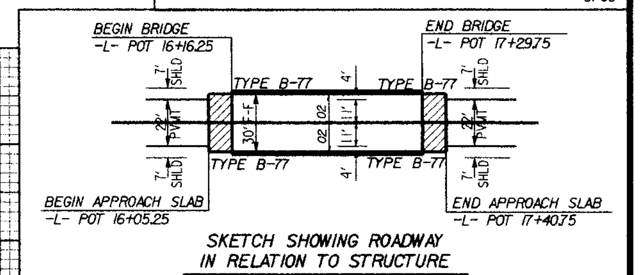
PAVEMENT SCHEDULE	
(C)	3" SURFACE COURSE, TYPE S9.5B
(D)	2½" INTERMEDIATE COURSE, TYPE I19.0B
(E)	4" BASE COURSE, TYPE B25.0B
(T)	EARTH MATERIAL
(U)	EXISTING PAVEMENT

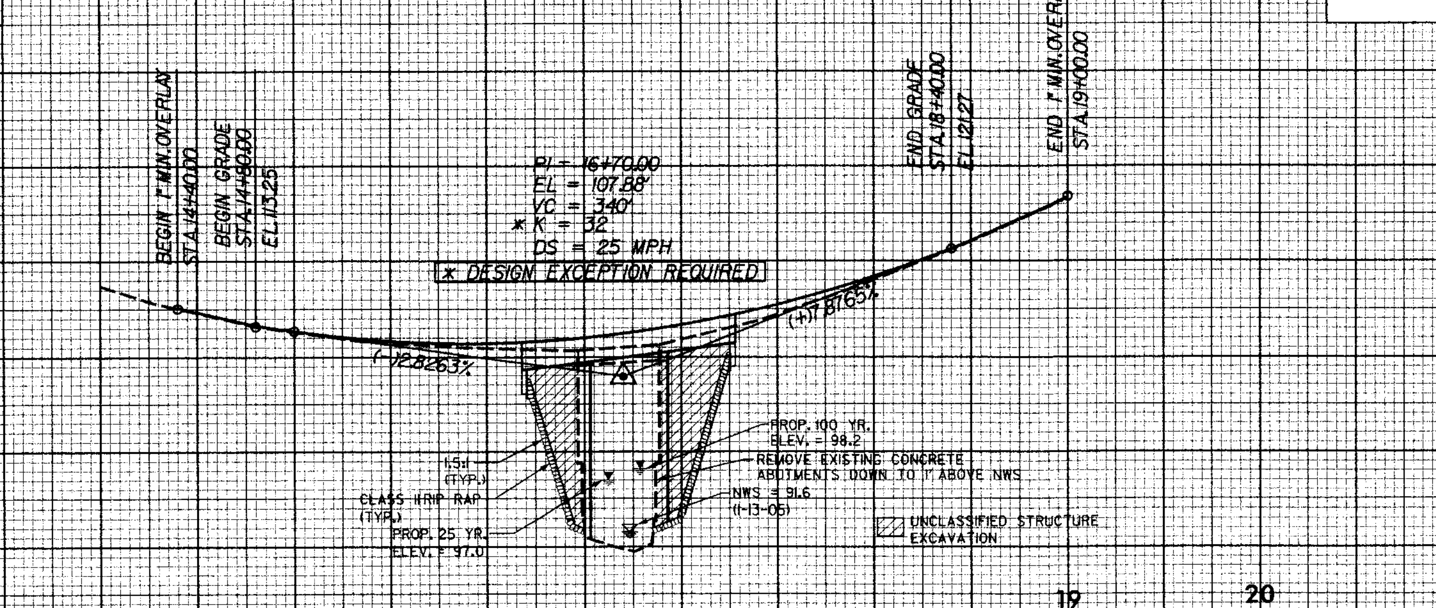
DENOTES APPROACH SLAB

BM
-L- STA. 15+86.15, 96.05' LT
NAIL SET IN BASE OF TWIN 19" SYCAMORE
EL.100.00 (ASSUMED)









RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT
1	CLIFFORD POWELL		0.11 AC		
2	NOEL, GARY, MICHAEL WOOD		4080 sf		
3	CLIFFORD POWELL		3339 sf		
4	NOEL WOOD		3930 sf		
5	ALAN BEANE		965 sf		

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0268

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE NO. 99 ON SR 1538 OVER HALL CREEK

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	16
1			3			TOTAL SHEETS
2			4			22

PROJECT REFERENCE NO.	SHEET NO.
B-5228	
R/W SHEET NO.	

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"-ROADWAY DESIGN UNIT-N.C. DEPARTMENT OF TRANSPORTATION-RALEIGH, N.C., DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

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

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

B) PROVIDE PERMANENT SIGNING.

C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS, UNLESS OTHERWISE NOTED.

D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

G) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING
1. SR 1538 (SHADY GROVE CHURCH RD.)	PAINT

H) PLACE AT LEAST TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE ON NEW ASPHALT PAVEMENT. PLACE ADDITIONAL APPLICATIONS OF PAINT UPON SUFFICIENT DRYING TIME, AS DETERMINED BY THE ENGINEER.

LOCAL NOTES

1) CONTRACTOR TO MAINTAIN ACCESS TO ALL DRIVEWAYS, WITHIN THE PROJECT LIMITS, AT ALL TIMES.

NORTH CAROLINA PROFESSIONAL SEAL 038878 ENGINEER MICHAEL T. IZZEKA

3-17-10

PHASE I

STEP 1: - USING ROADWAY STANDARD DRAWING NUMBER 1101.04, SHEET 1 OF 1, INSTALL ALL TEMPORARY ROAD CLOSURE SIGNS KEEPING SIGNS COVERED (SEE ROADWAY STANDARD DRAWING NUMBER 1101.03, SHEET 1 OF 9).

WORKING IN A CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK IN PHASE I, STEP 2.

STEP 2: - CLOSE SR 1538 (SHADY GROVE CHURCH RD.)TO TRAFFIC, UNCOVER ALL TEMPORARY ROAD CLOSURE SIGNS AND SHIFT TRAFFIC TO DETOUR (SEE SHEET 18).

STEP 3: - DISMANTLE AND REMOVE EXISTING BRIDGE NUMBER 201.

STEP 4: - COMPLETE CONSTRUCTION OF PROPOSED STRUCTURE, APPROACH ROADWAY TIE-INS, AND ASSOCIATED ITEMS.

STEP 5: - PLACE FINAL PAVEMENT MARKINGS (PAINT) ON SR 1538 (SHADY GROVE CHURCH RD.).

WORKING IN A CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK IN PHASE I, STEP 6.

STEP 6: - USING ROADWAY STANDARD DRAWING NUMBER 1101.04, SHEET 1 OF 1, REMOVE ALL TEMPORARY ROAD CLOSURE SIGNS, ALL TRAFFIC CONTROL DEVICES AND OPEN SR 1538 (SHADY GROVE CHURCH RD.) TO TRAFFIC.

FINAL PAV'T MARKING SCHEDULE

SYMBOL	DESCRIPTION	QUANTITY BREAKDOWN	PAY ITEM	TOTAL QUANTITY
		PAVEMENT MARKING LINES		
			PAINT (4")	
PA	WHITE EDGELINE 2X	1840 LF		
PI	YELLOW DOUBLE CENTER LINE 2X	1840 LF		
			TOTAL	3680 LF

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE NO. 99 ON SR 1538
OVER HALL CREEK

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	17
1			3			TOTAL SHEETS
2			4			22

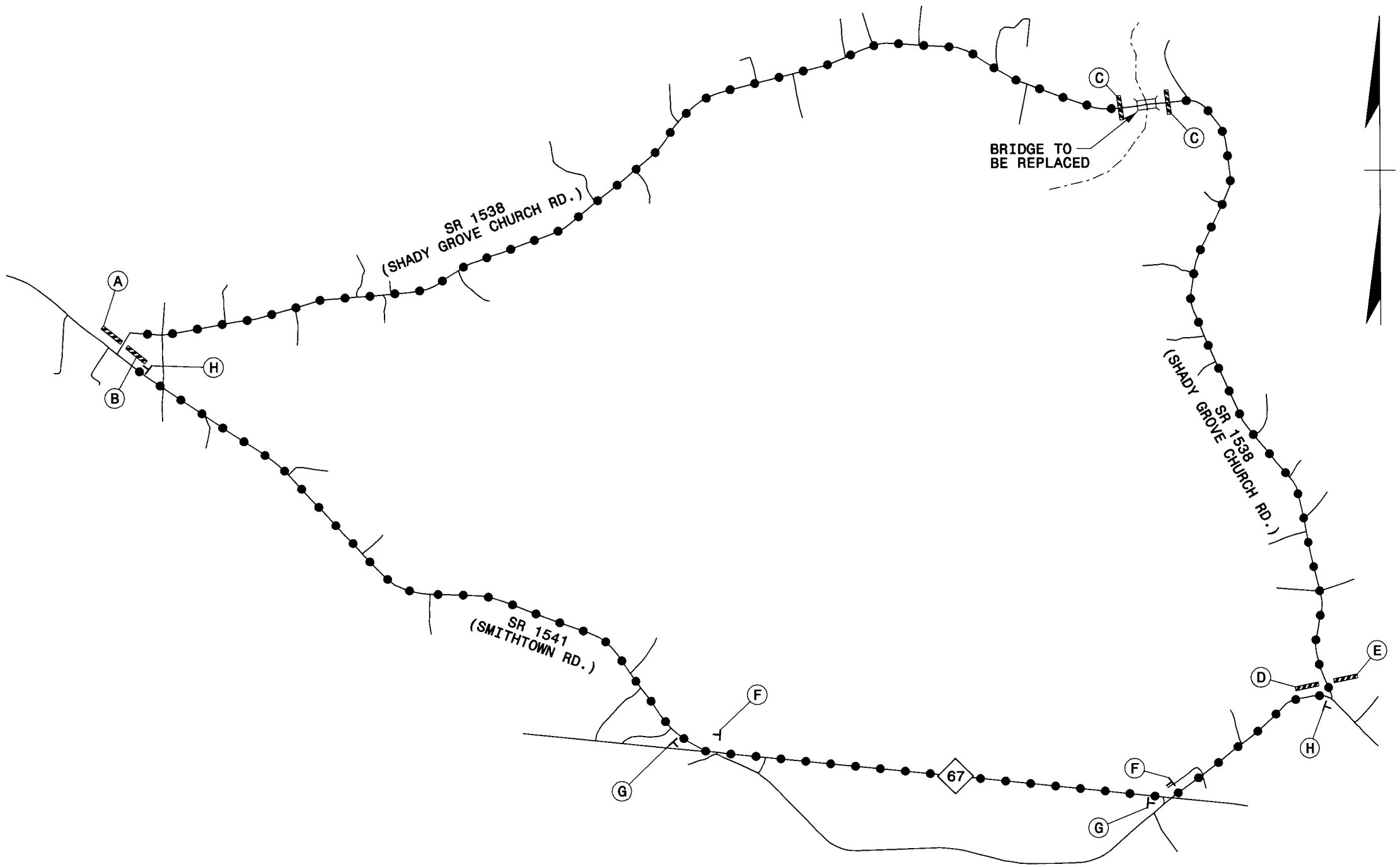
7/2/99

3/16/2010
I:\NCDOT\Dayll\Yadkin 99\MAIN\13B\TrafficControl\TCP\TCP1.dgn
Florence & Hutcheson, Inc.

PROJECT REFERENCE NO.	SHEET NO.
B-5228	
R/W SHEET NO.	

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15876 ENGINEER MICHAEL T. RZEPKA

3-17-10



DETOUR — M4-8, 24" X 12"

F — M6-1, 21" X 15"

DETOUR — M4-8, 24" X 12"

G — M6-1, 21" X 15"

END DETOUR — M4-8 A, 24" X 18"

H

R11-3, 60"X30"
ROAD CLOSED
3 MILES AHEAD
LOCAL TRAFFIC ONLY
DETOUR
M4-10R, 48"X18"
TYPE III BARRICADE
A

R11-3, 60"X30"
ROAD CLOSED
3 MILES AHEAD
LOCAL TRAFFIC ONLY
DETOUR
M4-10R, 48"X18"
TYPE III BARRICADE
B

R11-2, 48"X30"
ROAD CLOSED
TYPE III BARRICADE
C

R11-4, 60"X30"
ROAD CLOSED
2 MILES AHEAD
LOCAL TRAFFIC ONLY
DETOUR
M4-10L, 48"X18"
TYPE III BARRICADE
D

60"X30"
ROAD CLOSED
2 MILES AHEAD
LOCAL TRAFFIC ONLY
DETOUR
M4-10L, 48"X18"
TYPE III BARRICADE
E

LEGEND

DETOUR ROUTE

PROJECT NO. 42826
COUNTY: YADKIN
STATION: 16+73.00
REPLACES BRIDGE NO. 99

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE NO. 99 ON SR 1538
OVER HALL CREEK

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0288

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	18
1			3			TOTAL SHEETS
2			4			22

3/16/2010
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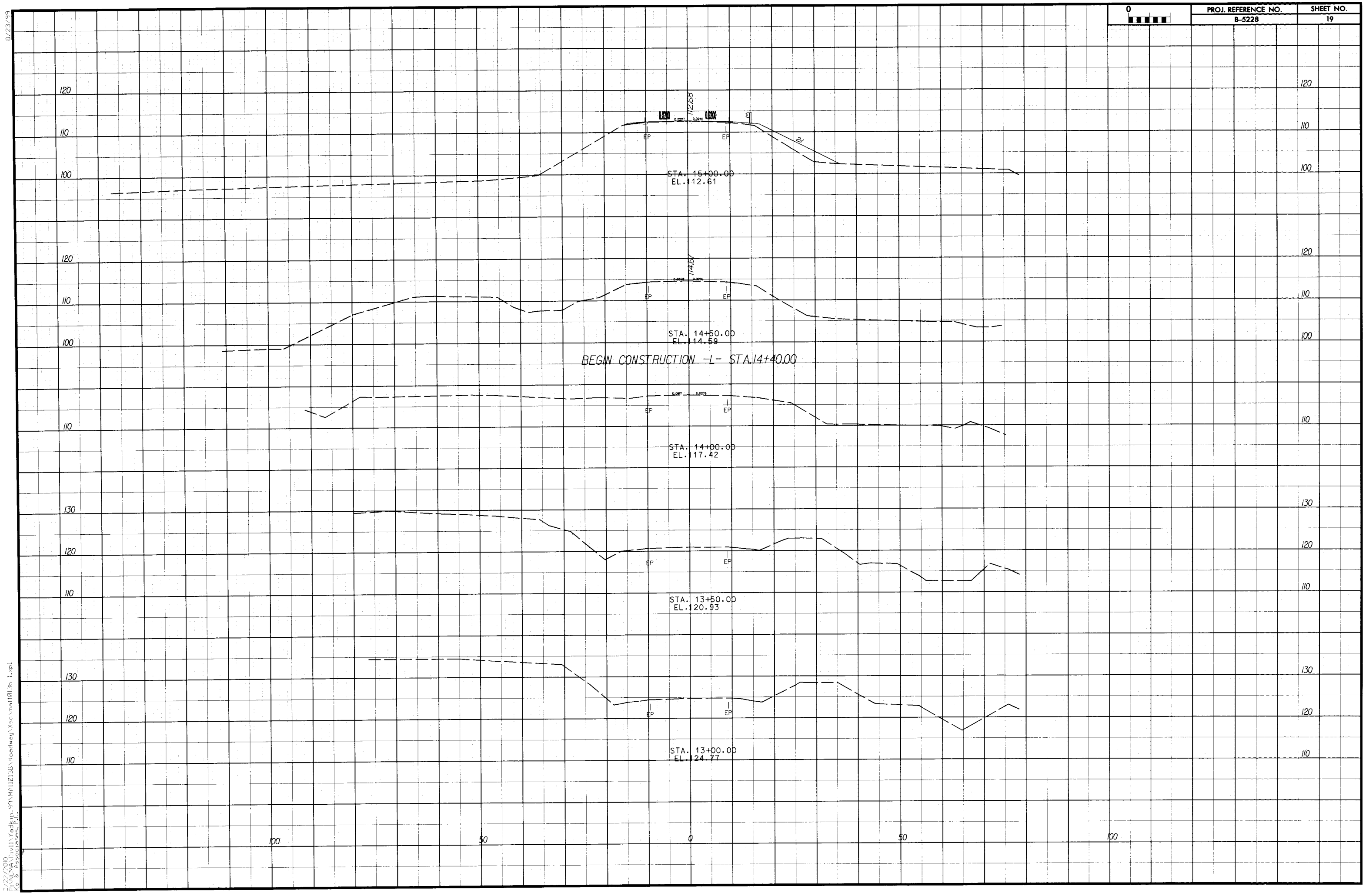
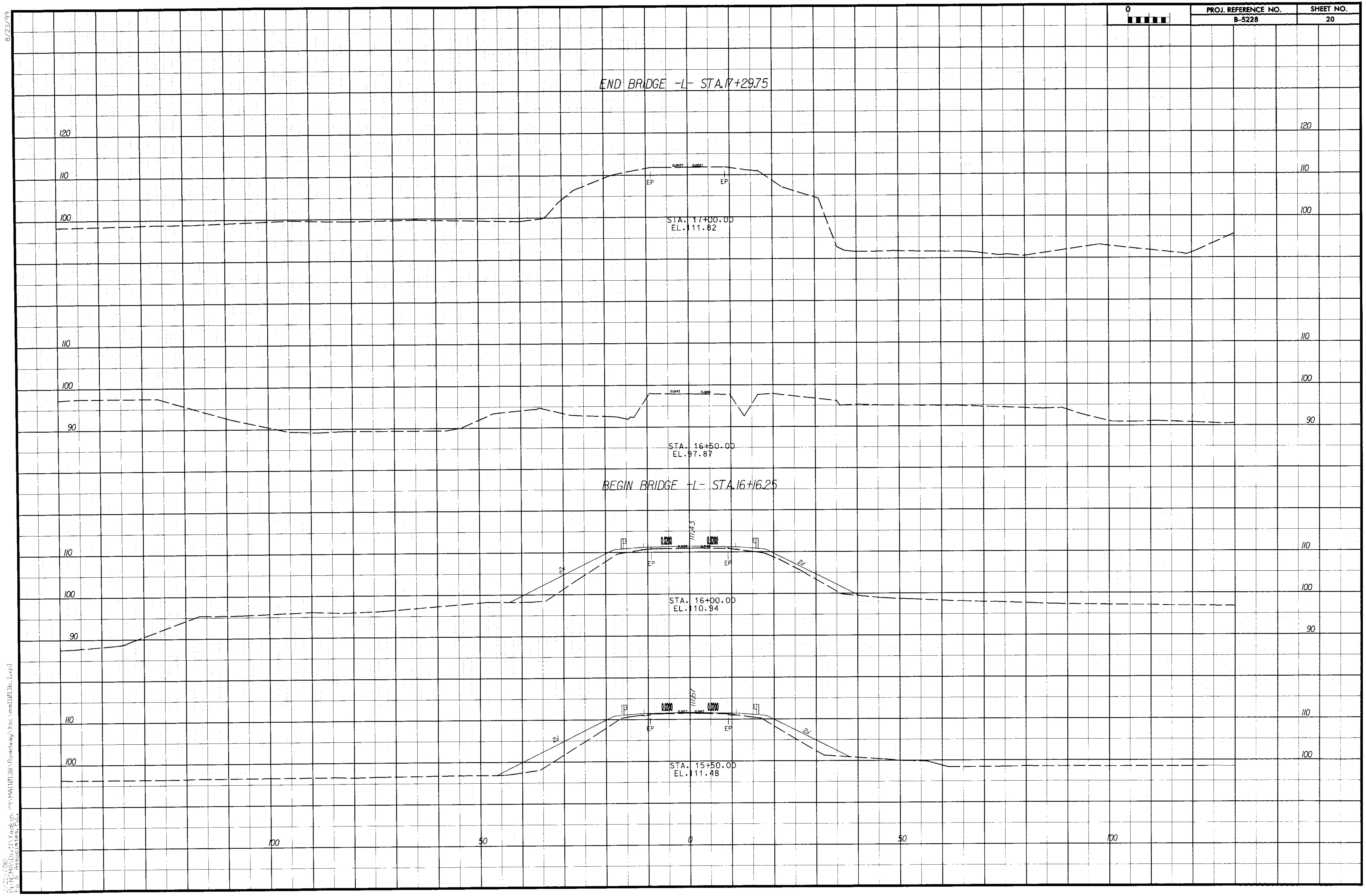
Florence & Hutcheson, Inc.

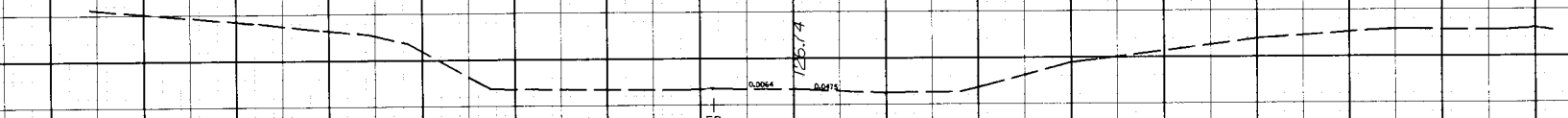
8/23/99



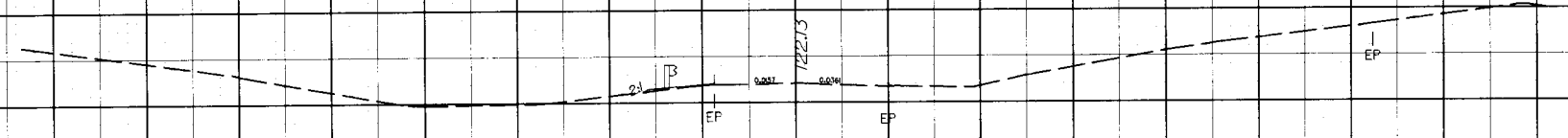
PROJ. REFERENCE NO.	SHEET NO.
B-5228	20



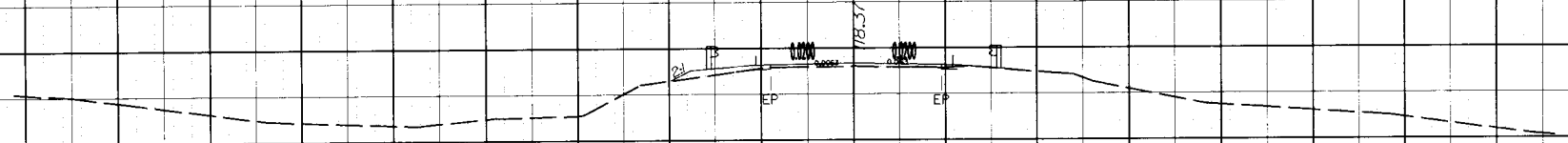
END CONSTRUCTION -L- STA.19+00.00



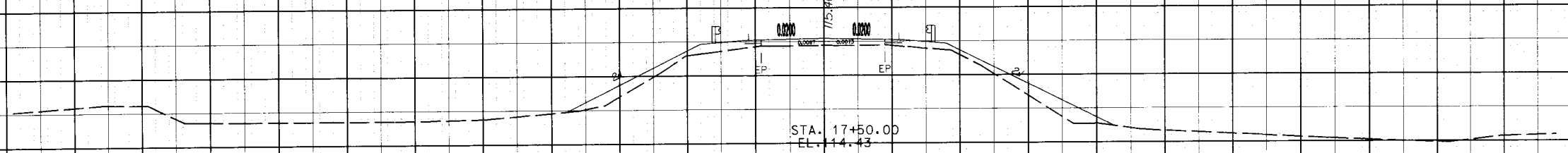
STA. 19+00.00
EL.126.66



STA. 18+50.00
EL.122.05



STA. 18+00.00
EL.117.99



STA. 17+50.00
EL.114.43

130
120
130
120
110
120
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120
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100
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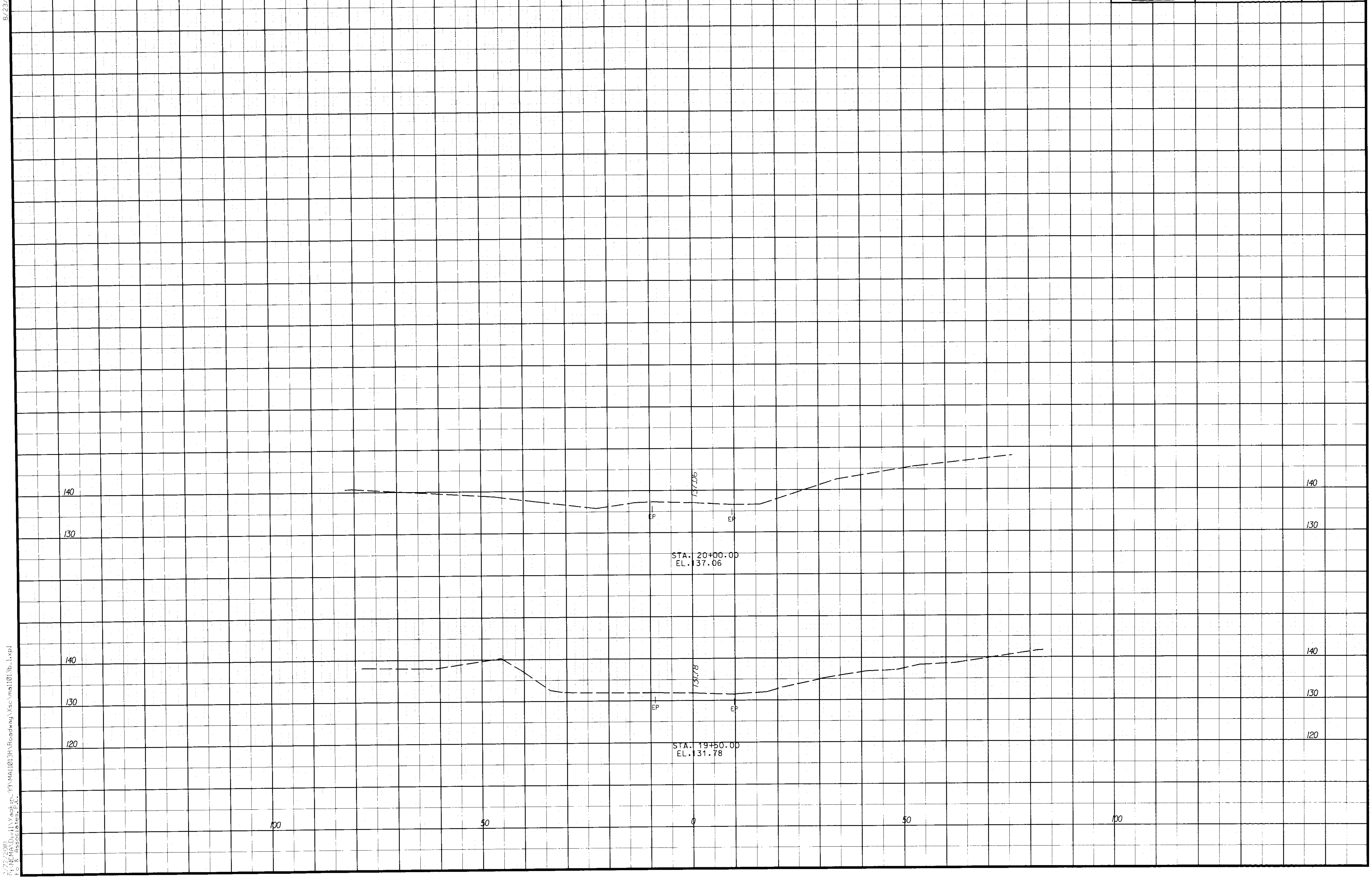
50
100

PROJ. REFERENCE NO.	SHEET NO.
B-5228	22



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2/22/2010
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Po & Associates,P.C.

TIP PROJECT: B-5228

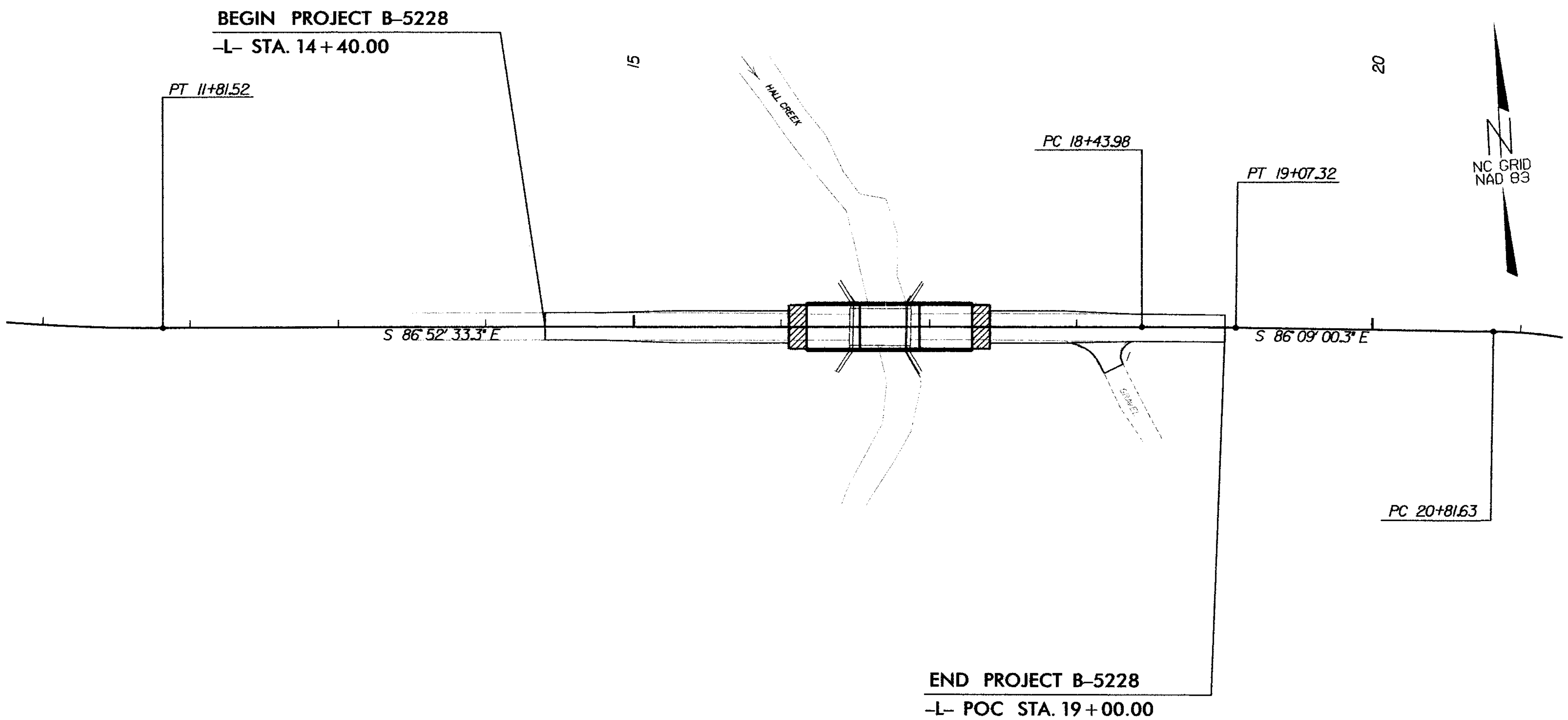
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5228	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

YADKIN COUNTY

BRIDGE NO. 99 ON SR 1538 OVER HALL CREEK



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
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	
	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
	Temporary Rock Silt Check Type-B	
	Wattle	
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	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

Florence & Hutcheson
CONSULTING ENGINEERS
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NC License No: F-0258

GRAPHIC SCALE

25 0 50
PLANS

25 0 50
PROFILE (HORIZONTAL)

5 0 10
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY

3/19/10

W. HERBERT TURNER, JR, P.E.
ROADSIDE ENVIRONMENTAL ENGINEER
134
LEVEL IIIA CERTIFICATION NUMBER

STACEY H. BAILEY, P.E.
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER
462
LEVEL IIIA CERTIFICATION NUMBER

Prepared In the Office of:

KO / FLORENCE & HUTCHESON
5121 KINGDOM WAY, SUITE 100
RALEIGH NC 27607
NC License No: F-0258

2006 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 revison 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
1607.01	Gravel Construction Entrance
1622.01	Temporary Berms and Slope Drains
1630.06	Special Stilling Basin
1632.03	Rock Inlet Sediment Trap Type C
1633.01	Temporary Rock Silt Check Type A

3/19/2010
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KO & Associates, P.C.

8/17/99

REVISIONS

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

NOTE:
UTILIZE IMPERVIOUS DIKE AND SPECIAL STILLING BASIN FOR DEWATERING DURING CONSTRUCTION OF BENT #1.

GRAPHIC SCALE
50 0 50 100

PROJECT REFERENCE NO.	SHEET NO.
B-5228	EC-4/CONST.4

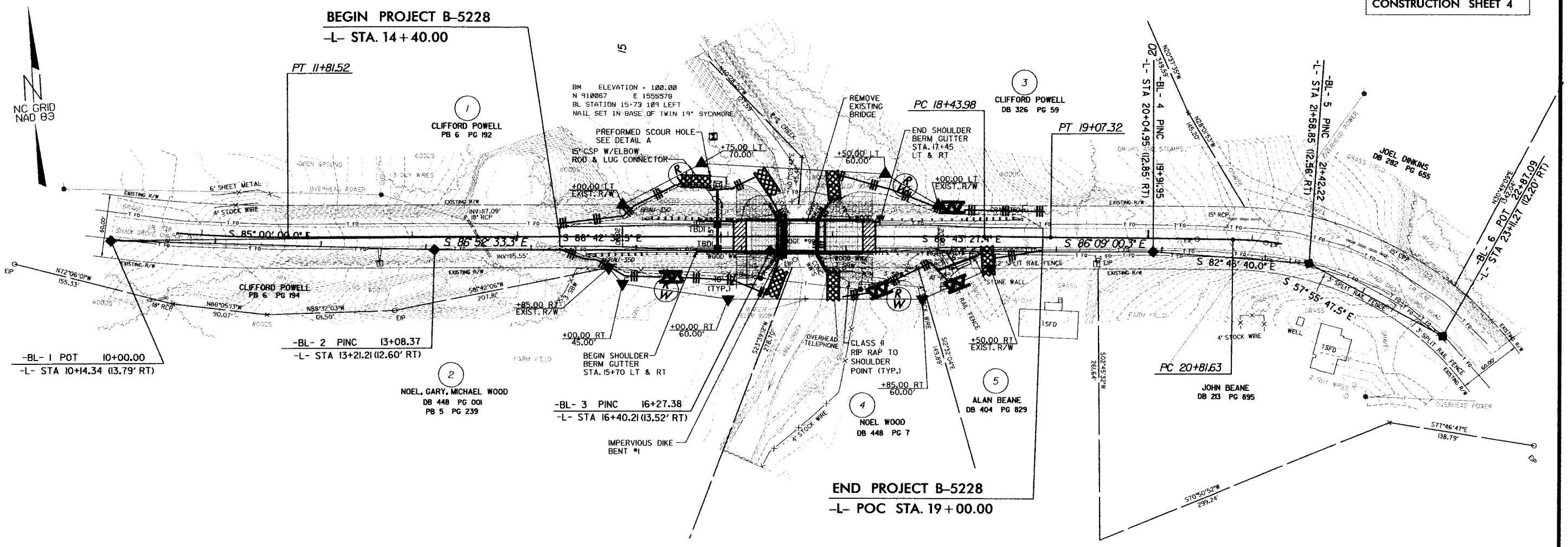
R/W SHEET NO.

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER STACEY H. BAILEY

3/19/10

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4



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Bob Associates, P.C.

8/17/99

REVISIONS

GRAPHIC SCALE
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PROJECT REFERENCE NO.	SHEET NO.
B-5228	EC-5/CONST.4
R/W SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

NORTH CAROLINA PROFESSIONAL SEAL 24451 ENGINEER TRACEY H. BAILEY
3/19/10

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 4

BEGIN PROJECT B-5228
-L- STA. 14+40.00

PT 11+81.52

NC GRID NAD 83

BM ELEVATION - 100.00
N 910867 E 1555578
BL STATION 15+73 109 LEFT
NAIL SET IN BASE OF TWIN 19" SYCAMORE

PREFORMED SCOUR HOLE SEE DETAIL A
15"CSP W/ELBOW ROD & LUG CONNECTOR

REMOVE EXISTING BRIDGE

PC 18+43.98

END SHOULDER BERM GUTTER STA. 17+45 LT & RT

PT 19+07.32

1 CLIFFORD POWELL PB 6 PG 192

2 NOEL, GARY, MICHAEL WOOD DB 448 PG 001 PB 5 PG 239

3 CLIFFORD POWELL DB 326 PG 59

4 NOEL WOOD DB 448 PG 7

5 ALAN BEANE DB 404 PG 829

CLIFFORD POWELL PB 6 PG 194

JOEL DIMKINS DB 282 PG 655

JOHN BEANE DB 213 PG 895

-BL- 1 POT 10+00.00
-L- STA 10+14.34 (13.79' RT)

-BL- 2 PINC 13+08.37
-L- STA 13+21.21 (12.60' RT)

-BL- 3 PINC 16+27.38
-L- STA 16+40.21 (13.52' RT)

-BL- 4 PINC 19+91.95
-L- STA 20+04.95 (12.85' RT)

-BL- 5 PINC 21+42.22
-L- STA 21+58.85 (12.56' RT)

-BL- 6 POT 22+87.09
-L- STA 23+11.21 (12.20' RT)

PC 20+81.63

BEGIN SHOULDER BERM GUTTER STA. 15+70 LT & RT

IMPERVIOUS DIKE BENT #1

END PROJECT B-5228
-L- POC STA. 19+00.00

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3/19/2010
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