

CONTRACT: C200729 TIP PROJECT: B-2938
 8.2160801

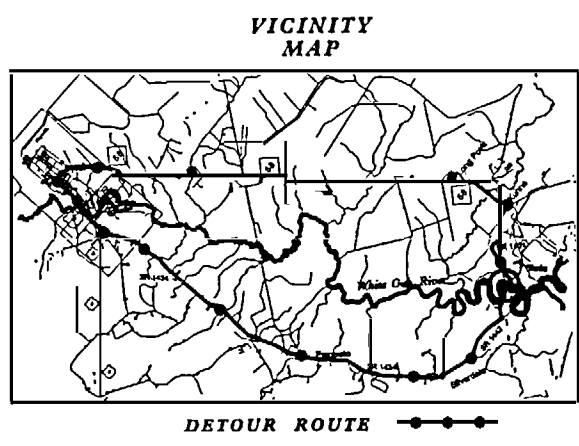
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-2938		
STATE PROJ. NO.	R.A. PROJ. NO.	DESCRIPTION	
32767.1.1	BRZ-1101(5)	P.E.	
32767.2.1	BRZ-1101(9)	RW	
32767.3.2	BRZ-1101(10)	CONST.	

CARTERET/ONslow COUNTIES

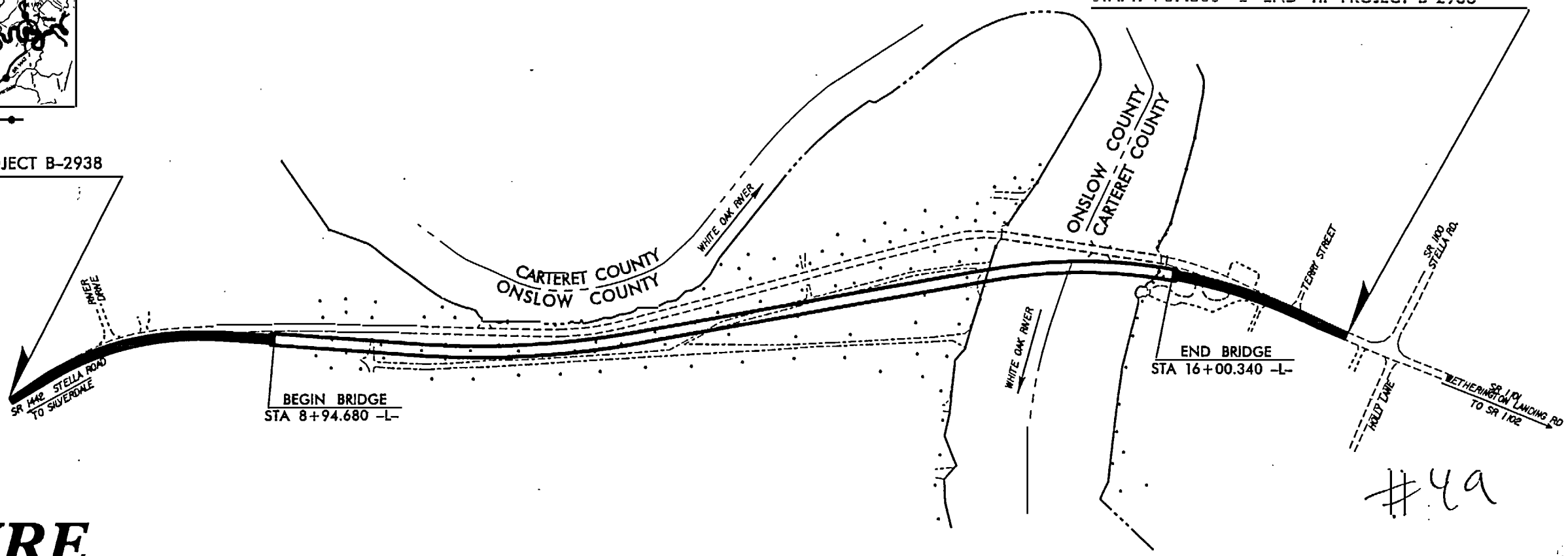
LOCATION: REPLACE BRIDGE NO. 49 OVER WHITE OAK RIVER AND APPROACHES ON SR 1101 AND SR 1442

TYPE OF WORK: GRADING, DRAINAGE, PAVING, RESURFACING AND STRUCTURE.

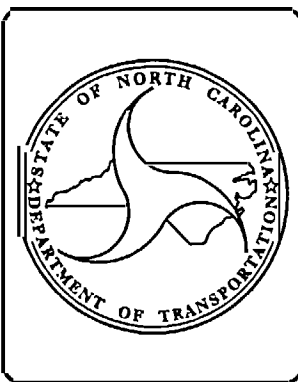


STA. 6+70.000 -L- BEGIN TIP PROJECT B-2938

STA. 17+37.500 -L- END TIP PROJECT B-2938



STRUCTURE



DESIGN DATA	
ADT 2002 =	1600
ADT 2025 =	2500
DHV =	10 %
D =	60 %
T =	3 % *
* TTST 1% DUAL 2%	
V =	70 km/h**
**DESIGN SPEED AND HORIZONTAL CLEARANCE DESIGN EXCEPTION	

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT B-2938 =	0.361 km
LENGTH STRUCTURE TIP PROJECT B-2938 =	0.706 km
TOTAL LENGTH OF TIP PROJECT B-2938 =	1.067 km

Prepared in the Office of:	
DIVISION OF HIGHWAYS	
2002 STANDARD SPECIFICATIONS	
LETTING DATE: JUNE 15, 2004	R. M. GIROLAMI, P.E. PROJECT ENGINEER L. E. SUTTON, P.E. PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
 1000 BIRCH RIDGE DR.
 RALEIGH, NC 27610

Gregory R. Peretti
 5/10/05

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA	
P.E.	DATE
STATE DESIGN ENGINEER DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED	DATE
DIVISION ADMINISTRATOR	DATE

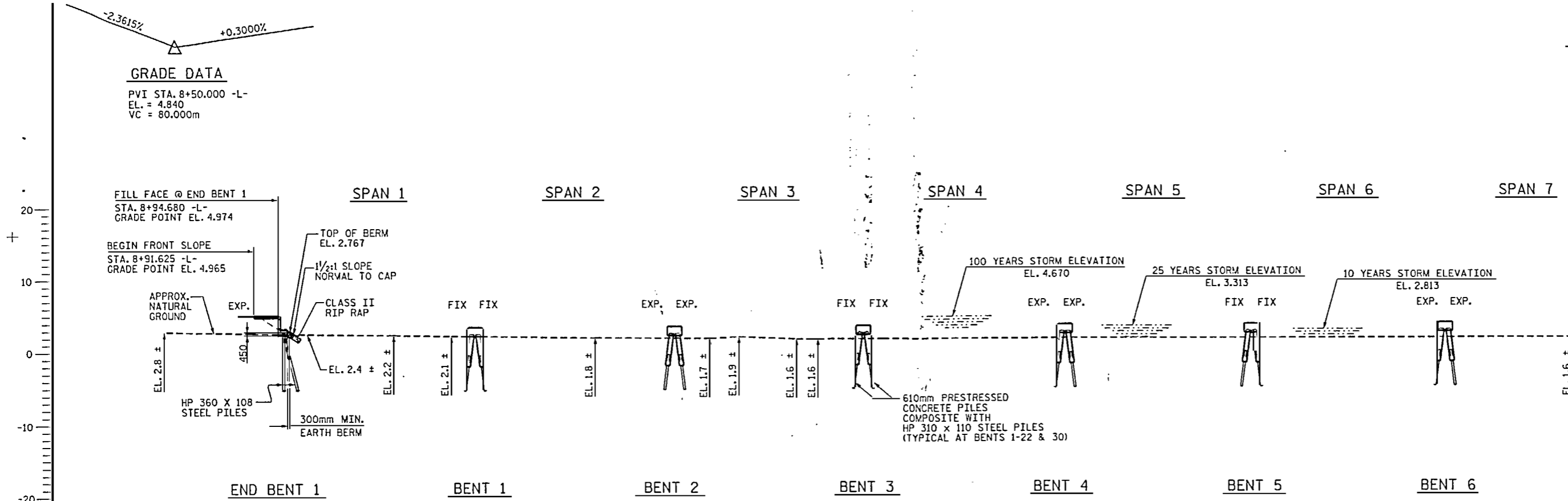
#49

HORIZONTAL CURVE DATA

PI STA. = 10+90.388 -L-
 Δ = 14°-04'-59" (L.T.)
 L = 186.805m
 T = 93.875m
 R = 760.000m

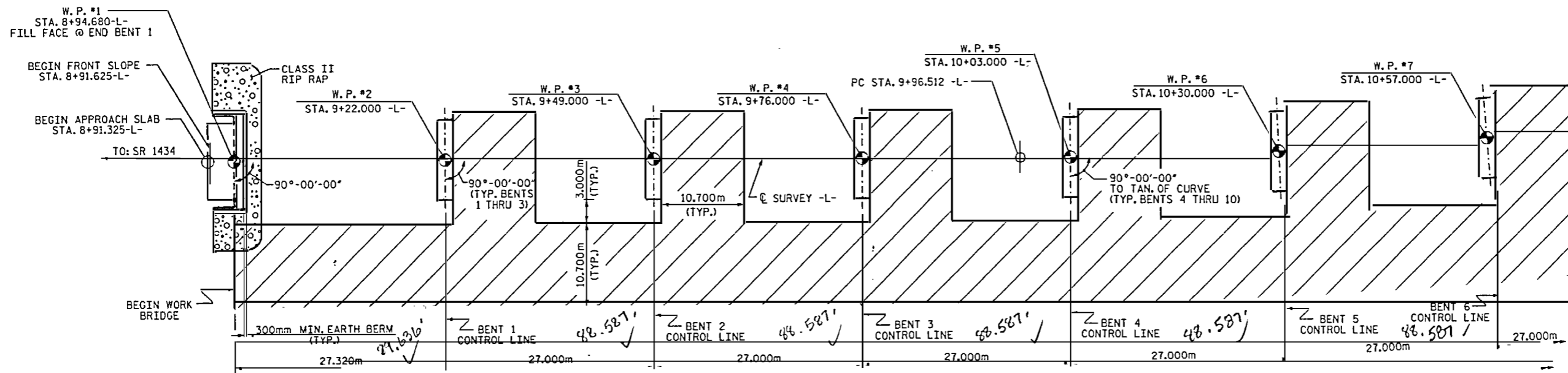
GRADE DATA

PVI STA. 8+50.000 -L-
 EL. = 4.840
 VC = 80.000m



SECTION ALONG C SURVEY -L-

(SECTIONS @ BENTS AND END BENT ARE TAKEN AT RIGHT ANGLES)



PLAN

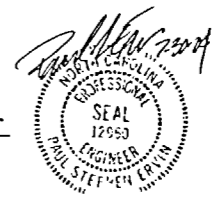
PILES NOT SHOWN FOR CLARITY



PROJECT NO. B-2938
 CARTERET-ONSLAW COUNTY
 STATION: 12+47.510 -L-

SHEET 1 OF 13 REPLACES BRIDGE NO. 49

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL DRAWING FOR
 BRIDGE OVER THE
 WHITE OAK RIVER ON
 SR 1101/1442 BETWEEN
 SR 1434 AND SR 1100**

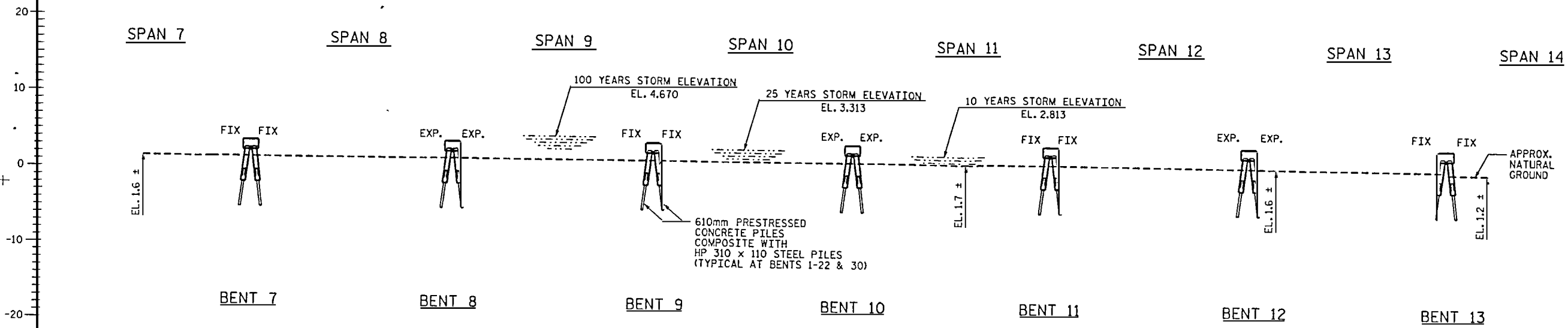


REVISION #1
 DEVIATION OF BENTS 21, 22 AND 30
 17-30-04

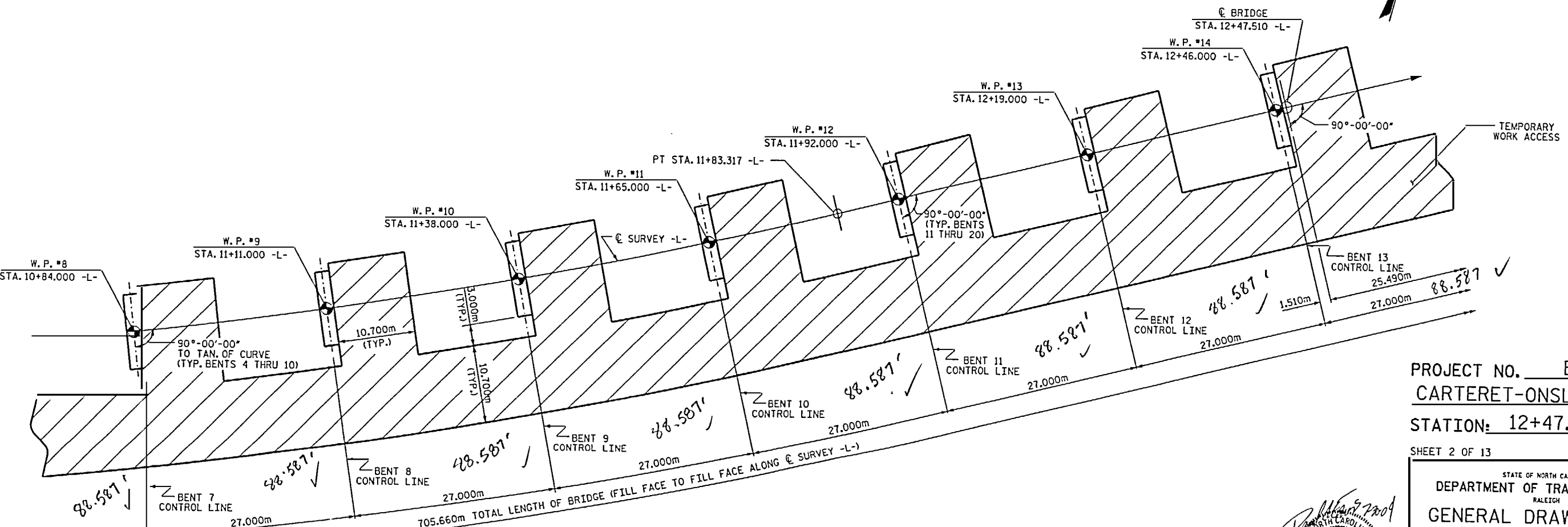
Z:\Engineering\04_06_02\2938\B2938.dwg

HORIZONTAL CURVE DATA

PI STA. = 10+90.388 -L-
 Δ = 14°-04'-59" (L.T.)
 L = 186.805m
 T = 93.875m
 R = 760.000m



SECTION ALONG C SURVEY -L-
 (SECTIONS @ BENTS ARE TAKEN AT RIGHT ANGLES)



PLAN
 PILES NOT SHOWN FOR CLARITY

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

SHEET 2 OF 13

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER THE
 WHITE OAK RIVER ON
 SR 1101/1442 BETWEEN
 SR 1434 AND SR 1100



3D-JUL-2004 09:12 3D-JUL-2004 09:12 3D-JUL-2004 09:12 3D-JUL-2004 09:12 3D-JUL-2004 09:12

DRAWN BY: K. P. SEDAI DATE: 4/30/01
 CHECKED BY: L. E. SUTTON DATE: 3/11/03

REVISION #1
 REVISION OF BENTS 21, 22 AND 30.
 (NOTE: SHEET 95A AND 95B HAVE BEEN
 ADDED FOR THE REVISION OF BENT 30.)
 BY: B.N.BARODAWALA DATE: 7-29-04
 CHK. BY: P. S. ERVIN DATE: 7-29-04

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1	BNB	7-29-04	2			S-2
2			4			TOTAL SHEETS 103

SPAN 14

SPAN 15

SPAN 16

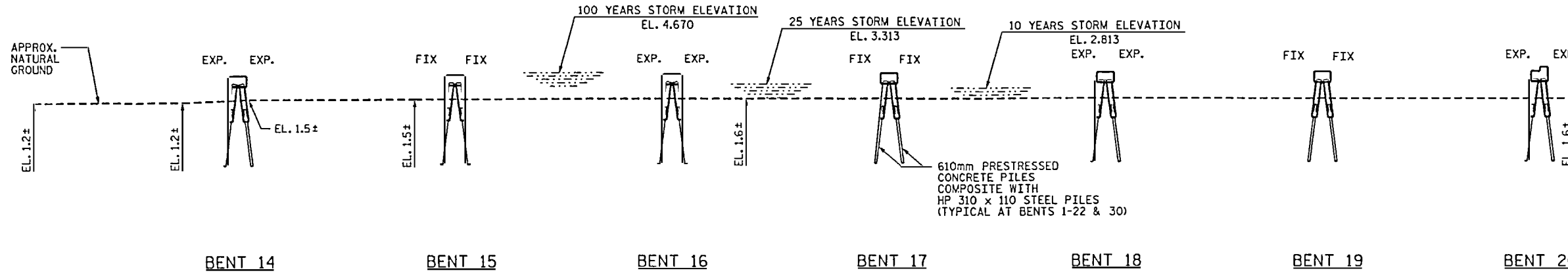
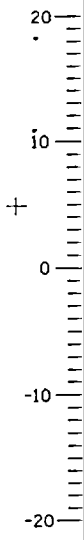
SPAN 17

SPAN 18

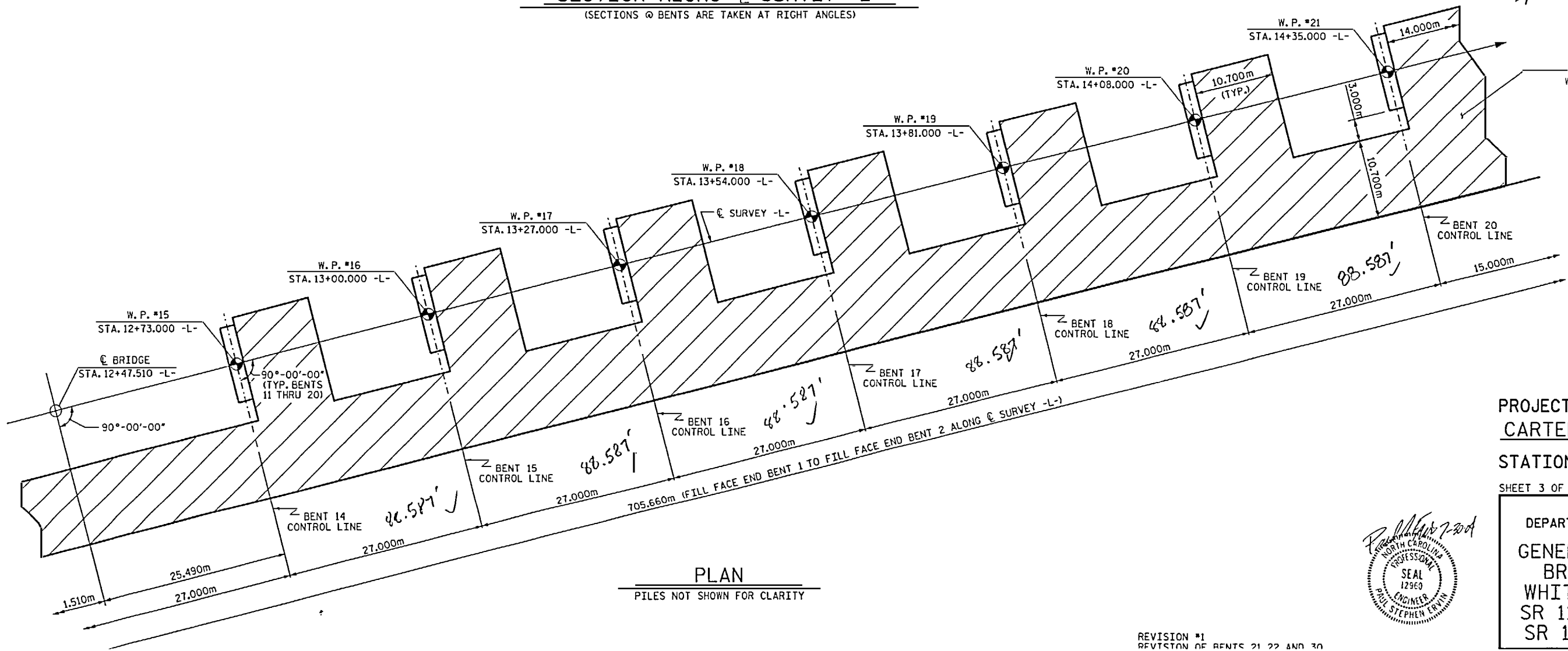
SPAN 19

SPAN 20

SPAN 21

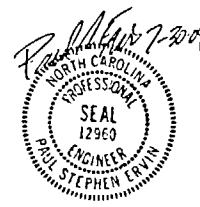


SECTION ALONG C SURVEY -L- (SECTIONS @ BENTS ARE TAKEN AT RIGHT ANGLES)



PLAN PILES NOT SHOWN FOR CLARITY

PROJECT NO. B-2938 CARTERET-ONSLAW COUNTY STATION: 12+47.510 -L- SHEET 3 OF 13



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH GENERAL DRAWING FOR BRIDGE OVER THE WHITE OAK RIVER ON SR 1101/1442 BETWEEN SR 1434 AND SR 1100

REVISION #1 REVISION OF BENTS 21 22 AND 30

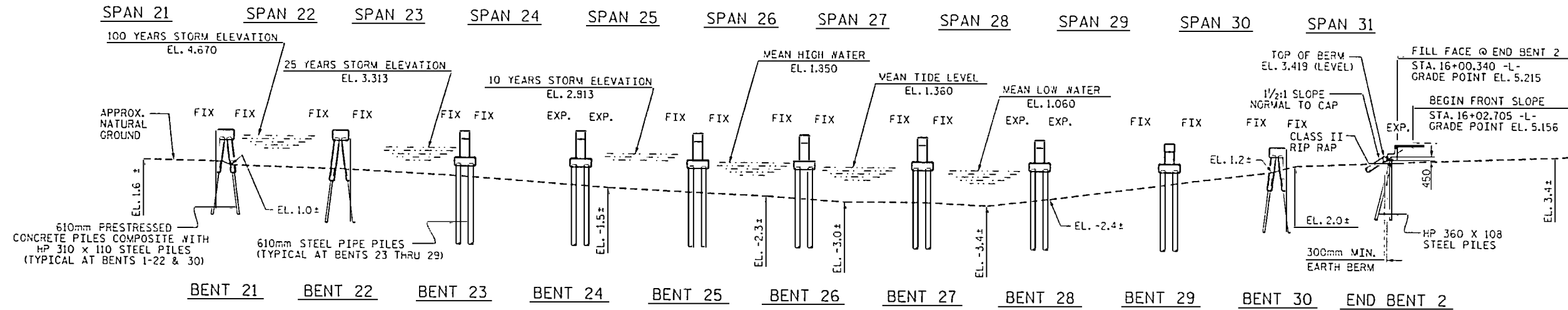
113 11mgpding\04_06\B2938\bbbar\odowa\B2938_ad_03_01.dgn

GRADE DATA

PVI STA. 15+40.000 -L-
 EL. = 6.910
 VC = 100.000m

GRADE DATA

PVI STA. 16+40.000 -L-
 EL. = 4.690
 VC = 90.000m



HORIZONTAL CURVE DATA

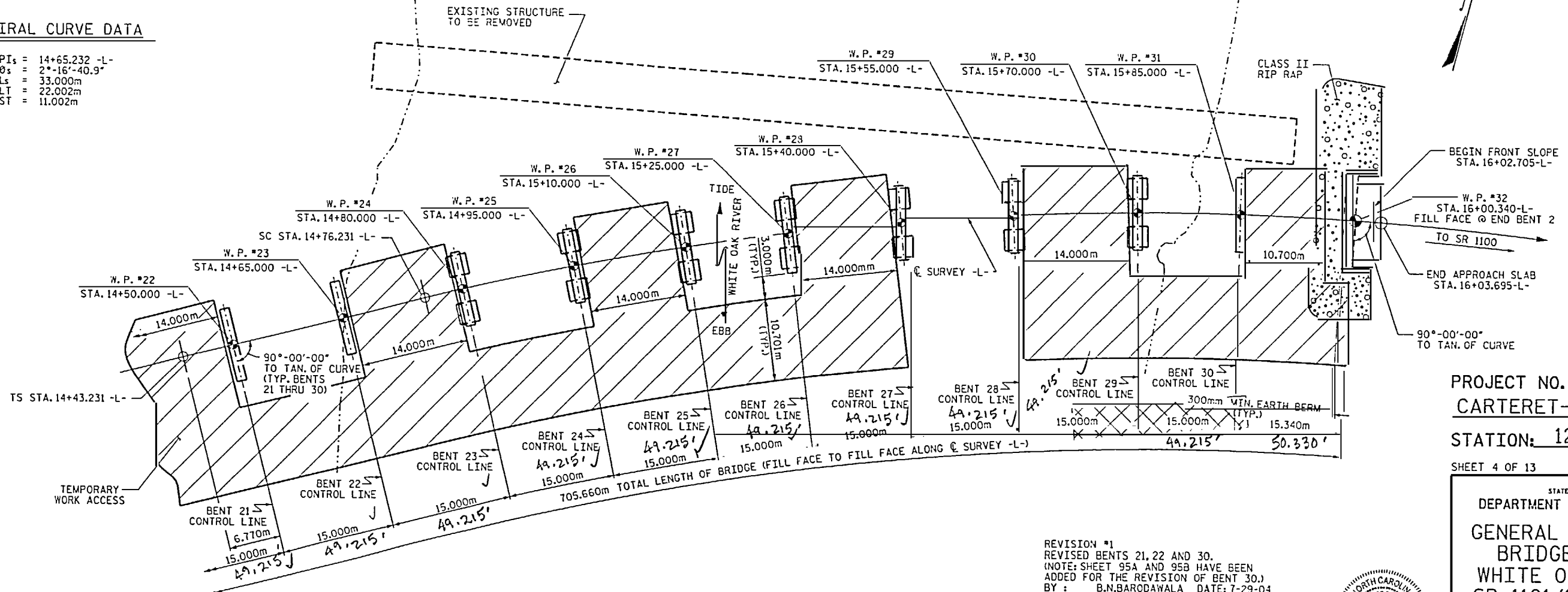
PI STA. = 15+85.924 -L-
 Δ = 29°-35'-09.2" (RT.)
 L = 214.294m
 T = 109.593m
 R = 415.000m

SPIRAL CURVE DATA

PIs = 14+65.232 -L-
 θ_s = 2°-16'-40.9"
 Ls = 33.000m
 LT = 22.002m
 ST = 11.002m

SECTION ALONG C SURVEY -L-

(SECTIONS @ BENTS AND END BENT ARE TAKEN AT RIGHT ANGLES)



PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

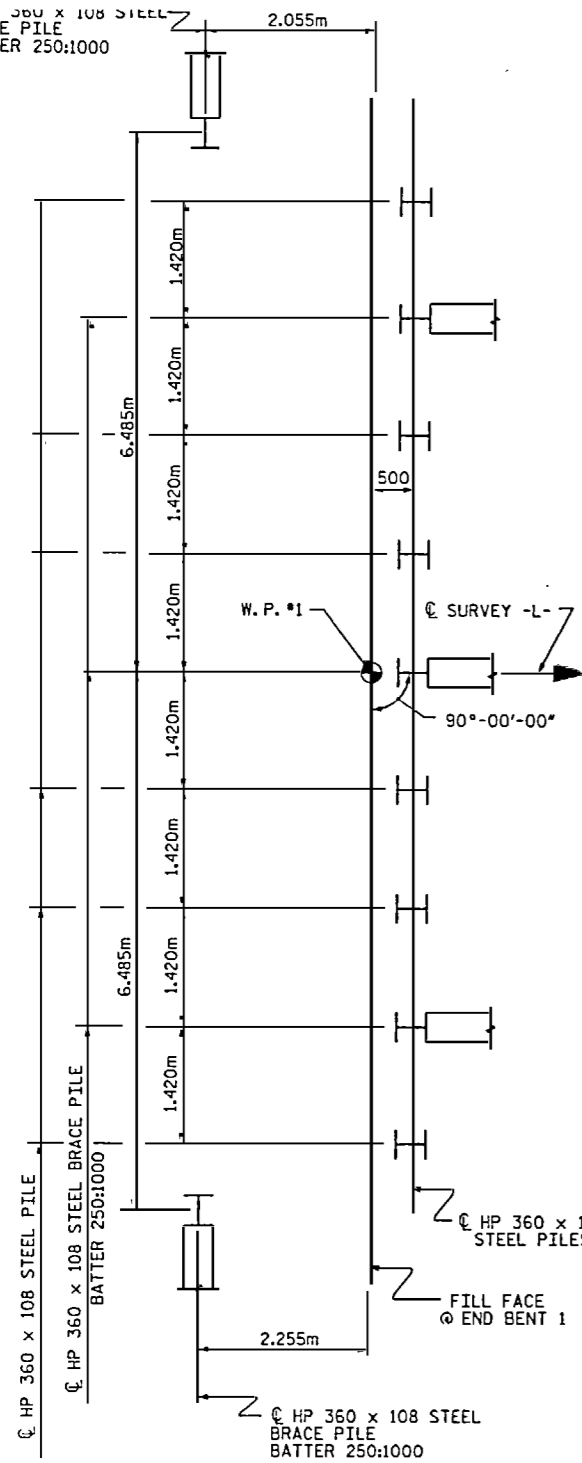
SHEET 4 OF 13

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER THE
 WHITE OAK RIVER ON
 SR 1101/1442 BETWEEN
 SR 1474 AND SR 1100

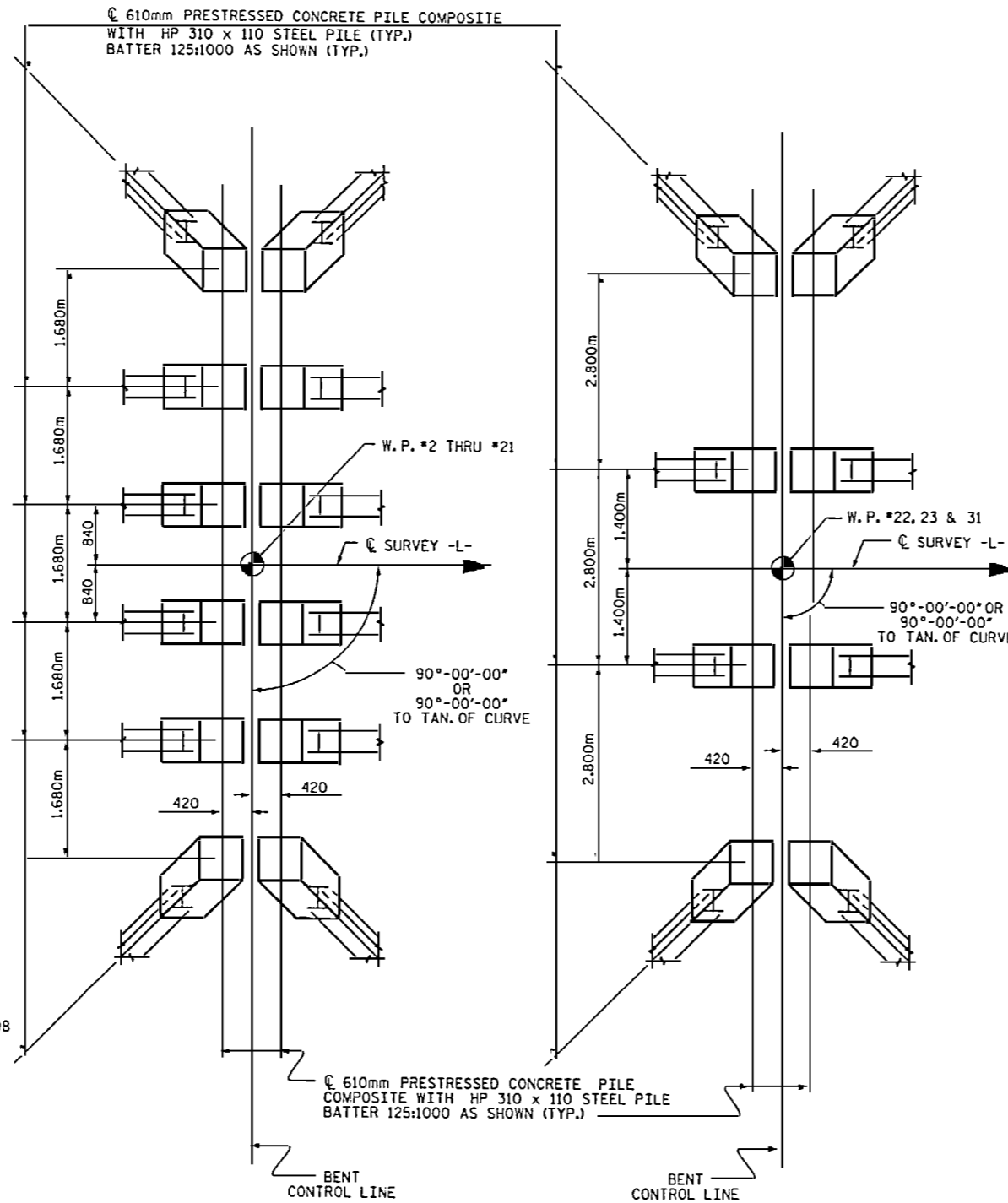
REVISION #1
 REVISED BENTS 21, 22 AND 30.
 (NOTE: SHEET 95A AND 95B HAVE BEEN
 ADDED FOR THE REVISION OF BENT 30.)
 BY : B.N.BARODAWALA DATE: 7-29-04
 CHK. BY : P. S. ERVIN DATE: 7-29-04



HP 360 x 108 STEEL
BRACE PILE
BATTER 250:1000



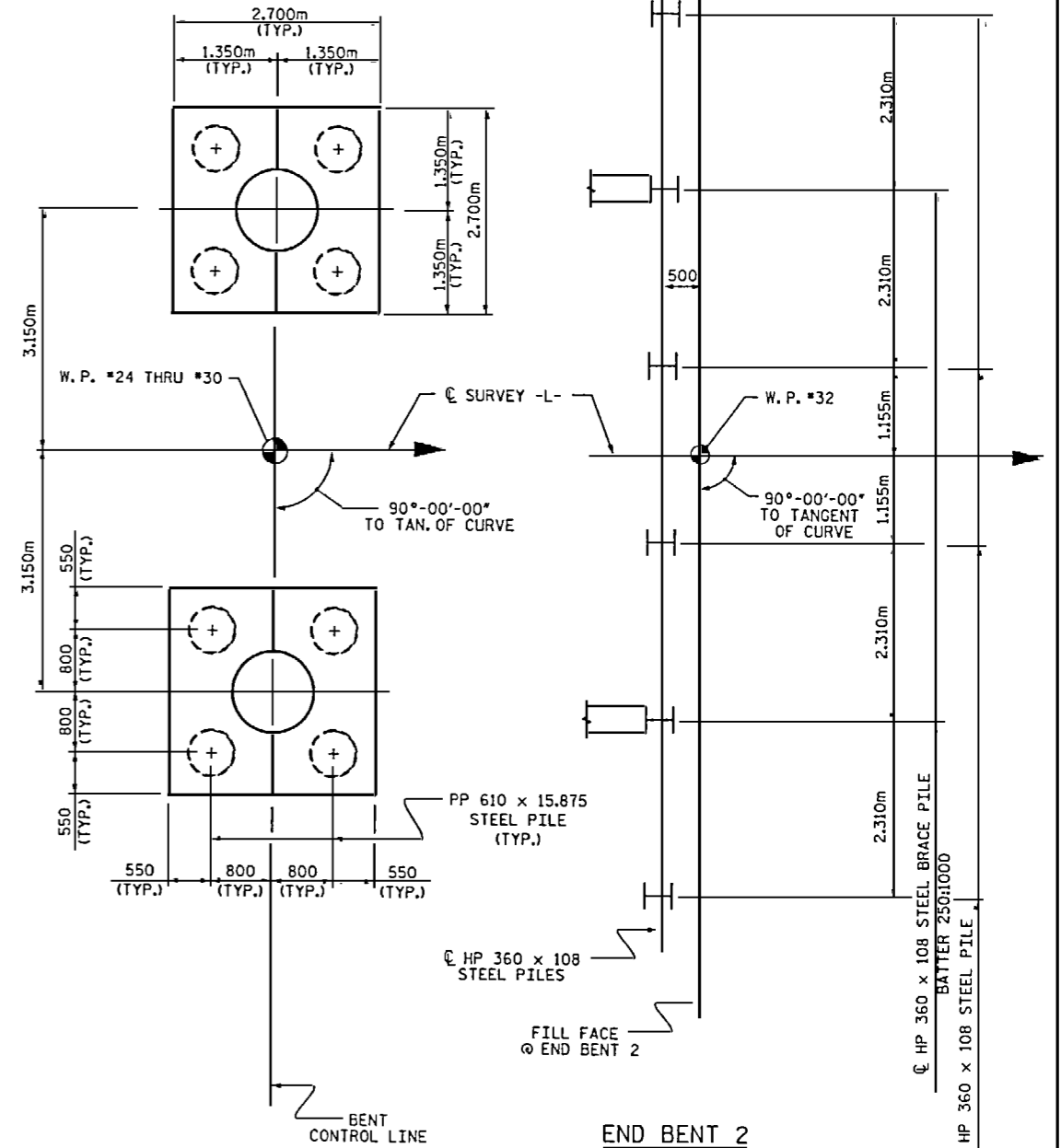
END BENT 1



BENTS 1-20

BENTS 21, 22 & 30

NOTE: THE HP 310 X 110 STEEL PILES IN BENTS NO. 1 THROUGH NO. 23 AND 30 SHALL BE INSTALLED WITH THE WEB OF THE PILE PARALLEL TO THE BENT CONTROL LINE.



BENTS 23-29

END BENT 2

FOUNDATION LAYOUT

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

NOTE: FOR LOCATION AND ORIENTATION OF END BENTS AND BENTS, SEE "PLAN" ON SHEETS 1 THRU 4 AND "LAYOUT OF CHORD BETWEEN WORK POINTS" ON SHEETS 6 THRU 10.

PROJECT NO. B-2938
CARTERET-ON SLOW COUNTY
STATION: 12+47.510 -L-

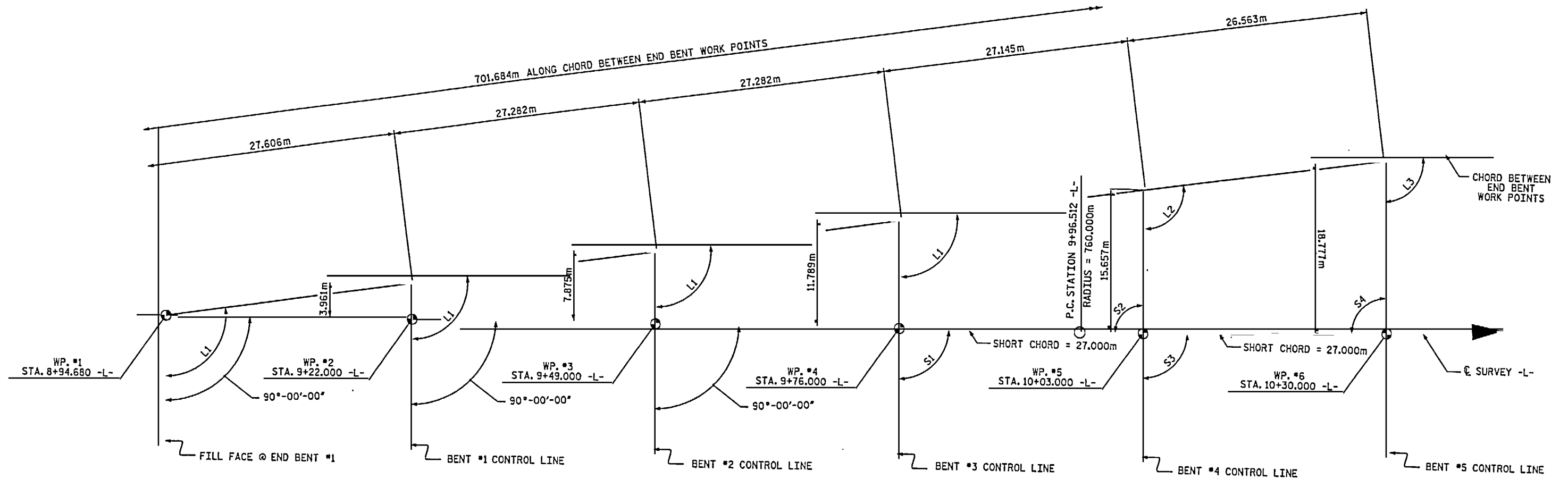
SHEET 5 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR
BRIDGE OVER THE
WHITE OAK RIVER ON
SR 1101/1442 BETWEEN
SR 1434 AND SR 1100



REVISION #1



HORIZONTAL CURVE DATA

PI STA. = 10+90.388 -L-
 DELTA = 14°-04'-59" (LT.)
 L = 186.805m
 T = 93.875m
 R = 760.000m

LAYOUT OF CHORD BETWEEN END BENT WORK POINTS

ANGLES TO CHORD BETWEEN END BENT WORK POINTS	
NO.	ANGLES
L1	98°-14'-56"
L2	97°-15'-36"
L3	95°-13'-28"

ANGLES TO SHORT CHORD	
NO.	ANGLES
S1	90°-03'-32"
S2	89°-34'-11"
S3	91°-01'-04"
S4	88°-58'-56"

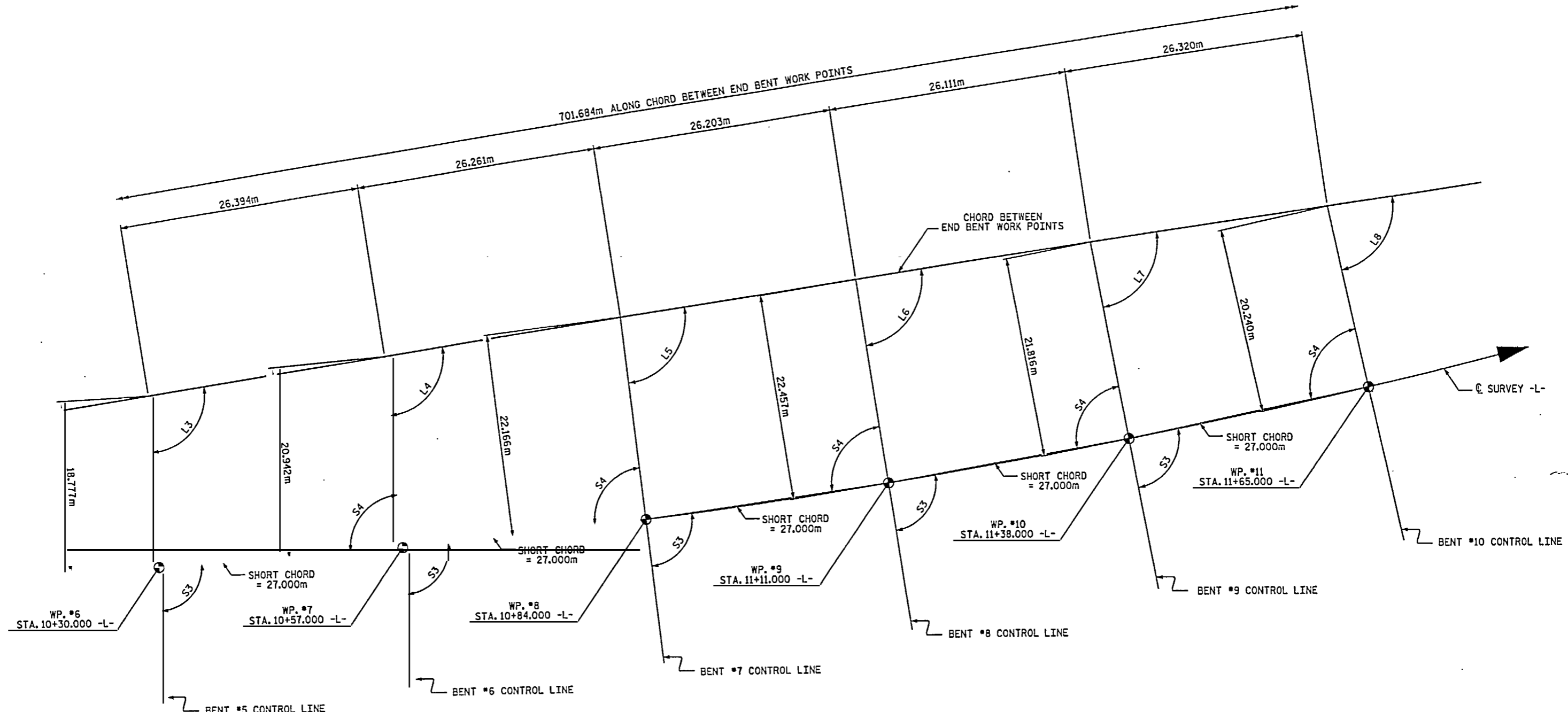
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

SHEET 6 OF 13

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER THE
 WHITE OAK RIVER ON
 SR 1101/1442 BETWEEN



13:15 2/23/18 kaseckee@B2938.ed.t.c.01.dgn



HORIZONTAL CURVE DATA

PI STA. = 10+90.388 -L-
 DELTA = 14°-04'-59" (LT.)
 L = 186.805m
 T = 93.875m
 R = 760.000m

LAYOUT OF CHORD BETWEEN END BENT WORK POINTS

ANGLES TO CHORD BETWEEN END BENT WORK POINTS	
NO.	ANGLES
L3	95°-43'-28"
L4	93°-41'-20"
L5	91°-39'-12"

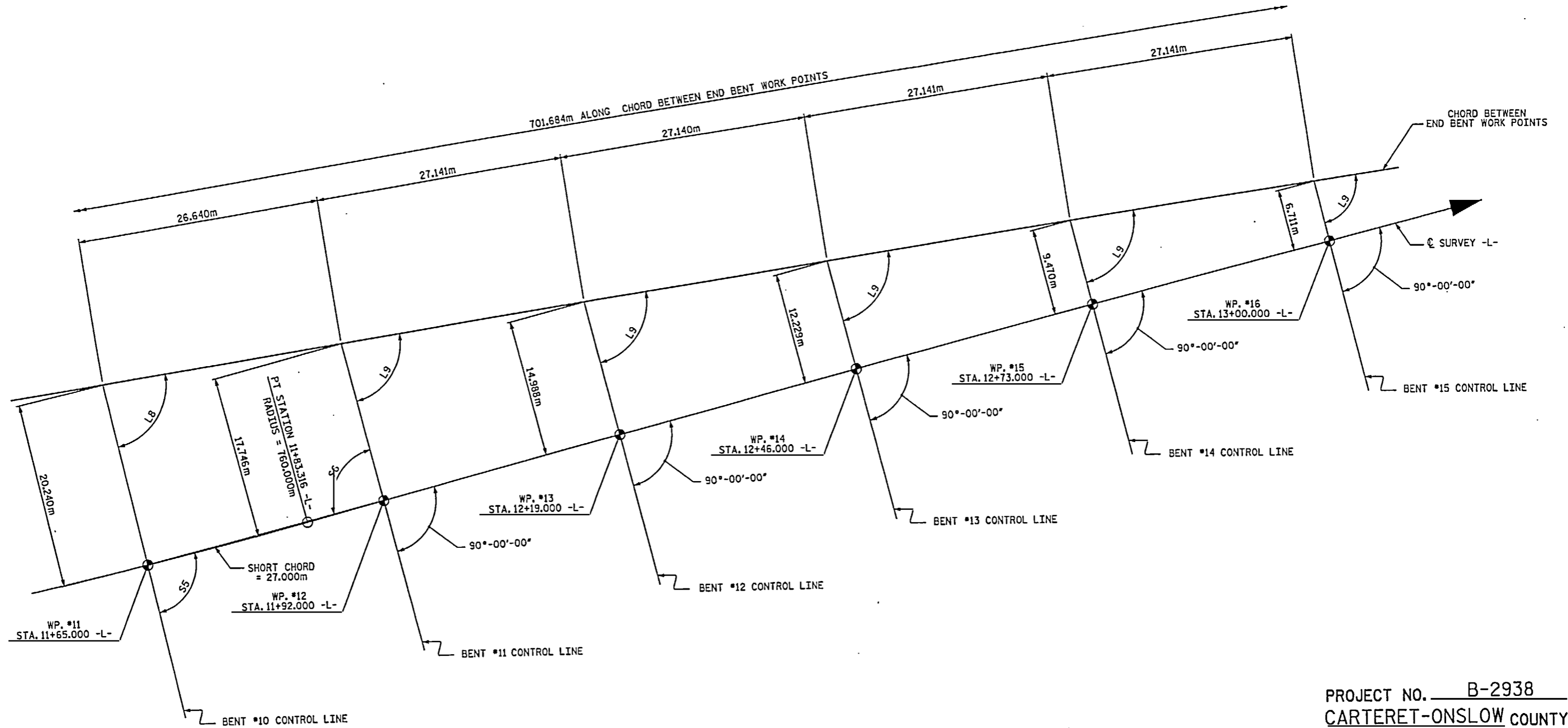
ANGLES TO SHORT CHORD	
NO.	ANGLES
S3	91°-01'-04"
S4	88°-58'-56"

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

SHEET 7 OF 13

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER THE
 WHITE OAK RIVER ON
 SR 1101/1442 BETWEEN
 SR 1434 AND SR 1100





LAYOUT OF CHORD BETWEEN END BENT WORK POINTS

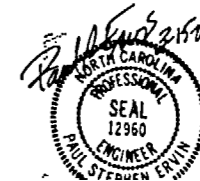
ANGLES TO CHORD BETWEEN END BENT WORK POINTS	
NO.	ANGLES
L8	85°-32'-49"
L9	84°-09'-58"

ANGLES TO SHORT CHORD	
NO.	ANGLES
L5	90°-54'-45"
L6	89°-31'-54"

PROJECT NO. B-2938
 CARTERET-ONSLAW COUNTY
 STATION: 12+47.510 -L-

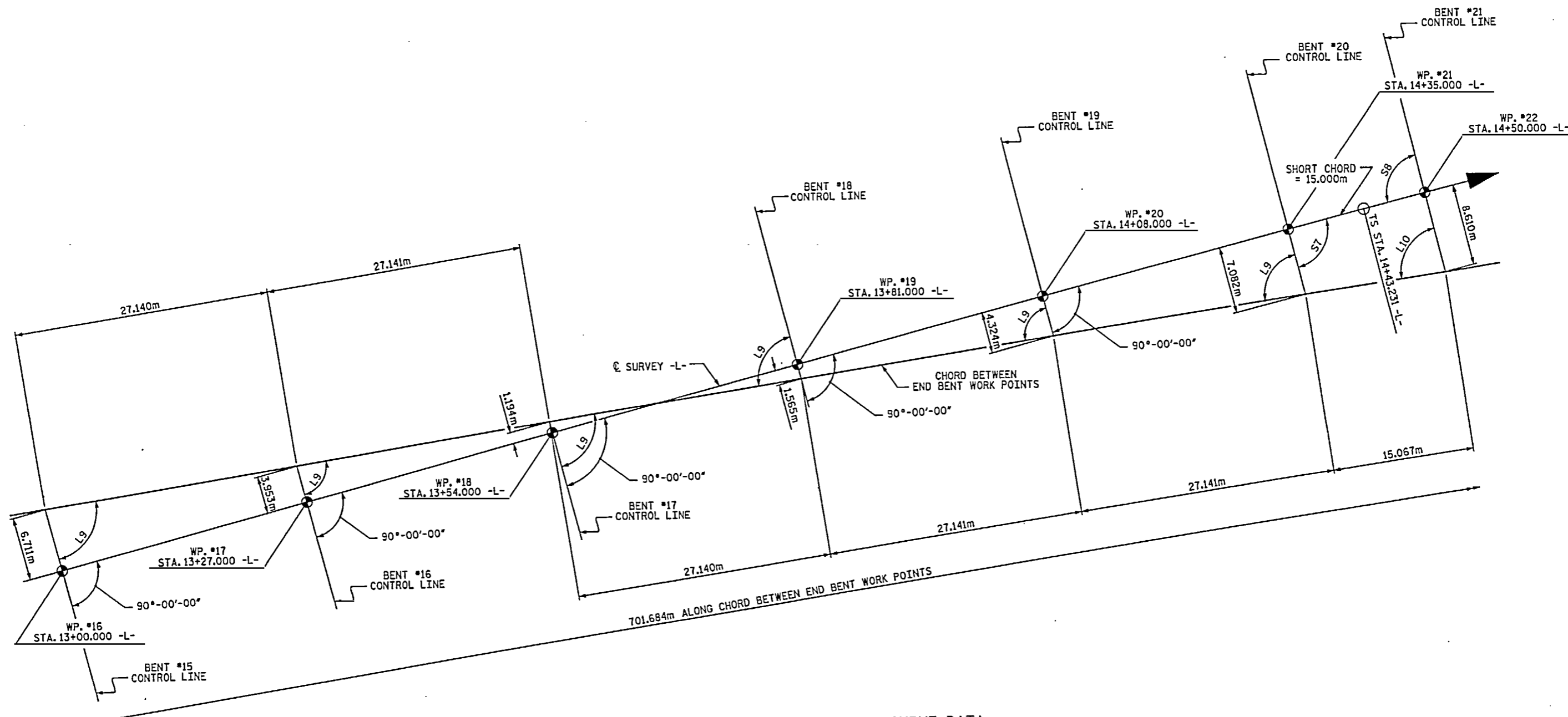
SHEET 8 OF 13

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER THE
 WHITE OAK RIVER ON
 SR 1101/1442 BETWEEN
 SR 1434 AND SR 1100



REVISIONS

SHEET NO.



HORIZONTAL CURVE DATA

PIs STA. = 15+85.824 -L-
 DELTA = 29°-35'-09.2" (RT.)
 L = 214.294m
 T = 109.593m
 R = 415.000m

SPIRAL CURVE DATA

PIs STA. = 14+65.232 -L-
 Δs = 2°-16'-40.9"
 Ls = 33.000m
 LT = 22.002m
 ST = 11.002m

LAYOUT OF CHORD BETWEEN END BENT WORK POINTS

ANGLES TO CHORD BETWEEN END BENT WORK POINTS	
NO.	ANGLES
L9	84°-09'-58"
L10	84°-15'-43"

ANGLES TO SHORT CHORD	
NO.	ANGLES
S7	89°-59'-08"
S8	90°-04'-53"

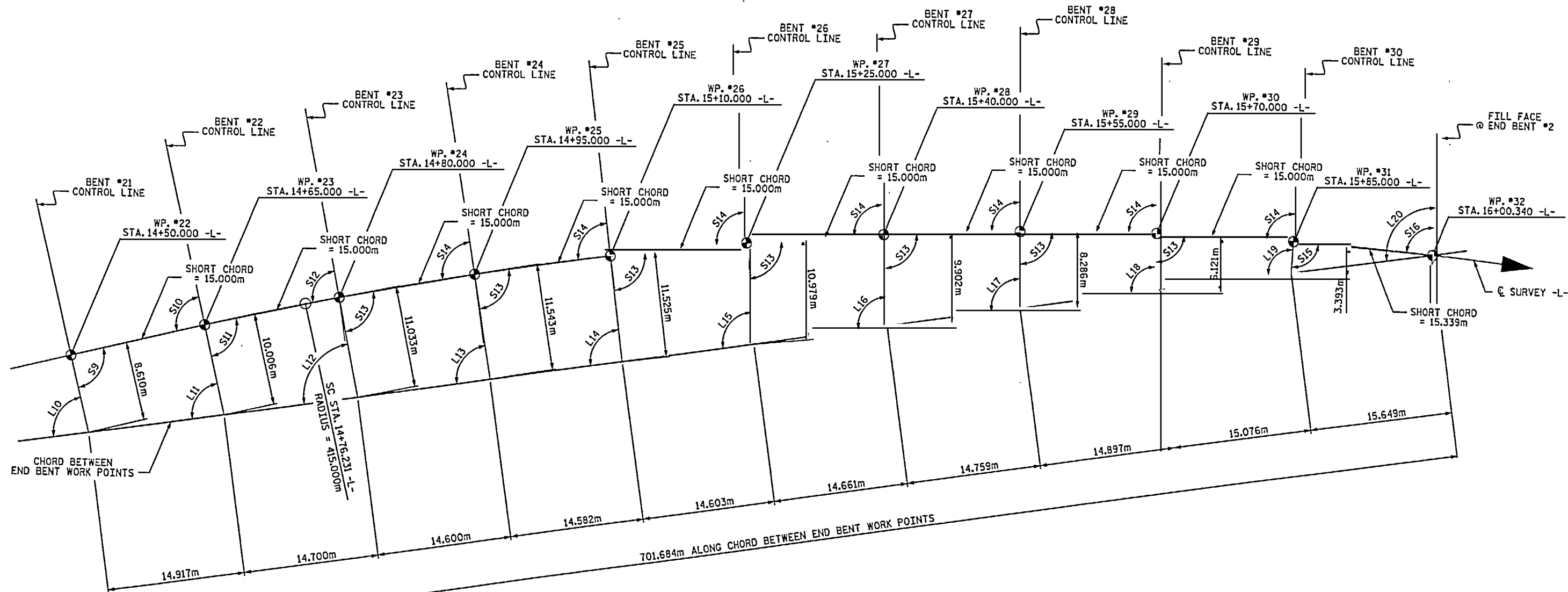
PROJECT NO. B-2938
 CARTERET-ONslow COUNTY
 STATION: 12+47.510 -L-

SHEET 9 OF 13

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER THE
 WHITE OAK RIVER ON
 SR 1101/1442 BETWEEN
 SR 1434 AND SR 1100



NO.	REVISIONS	DATE



HORIZONTAL CURVE DATA

PI STA. = 15+85.824 -L-
 DELTA = 29°-35'-09.2" (RT.)
 L = 214.294m
 T = 109.593m
 R = 415.000m

SPIRAL CURVE DATA

PIs STA. = 14+65.232 -L-
 OS = 2°-16'-40.9"
 Ls = 33.000m
 LT = 22.002m
 ST = 11.002m

LAYOUT OF CHORD BETWEEN END BENT WORK POINTS

NO.	ANGLES
L10	84°-15'-43"
L11	85°-09'-26"
L12	86°-57'-52"
L13	89°-02'-01"
L14	91°-06'-21"
L15	93°-10'-38"
L16	95°-14'-54"
L17	97°-19'-04"

NO.	ANGLES
S9	89°-37'-51"
S10	90°-31'-34"
S11	89°-03'-45"
S12	90°-58'-11"
S13	88°-57'-52"
S14	91°-02'-08"
S15	88°-56'-28"
S16	91°-03'-32"

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

SHEET 10 OF 13

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER THE
 WHITE OAK RIVER ON
 SR 1101/1442 BETWEEN

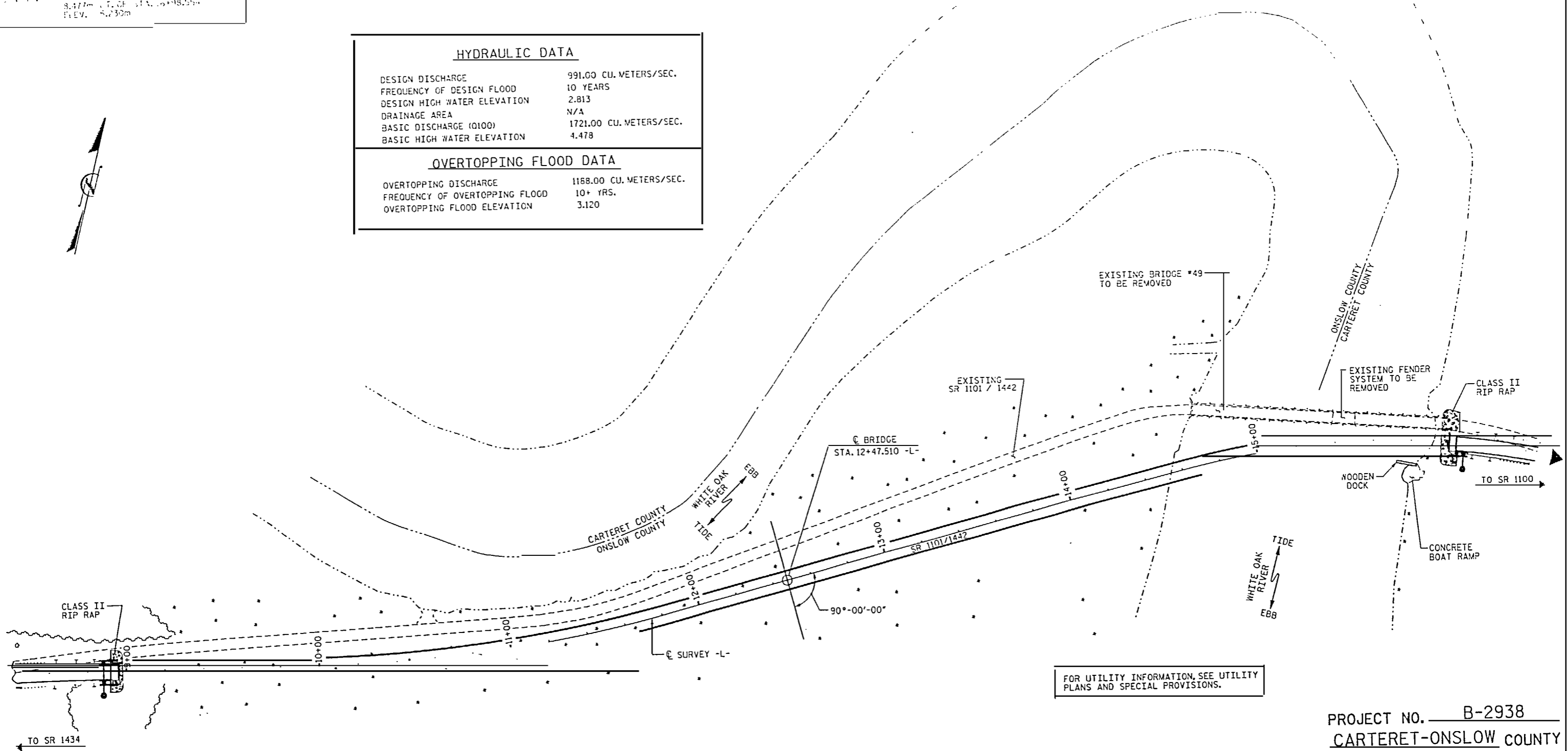


3.477m L.O.F. STA. 12+47.510
 FLEV. 5.230m



HYDRAULIC DATA	
DESIGN DISCHARGE	991.00 CU. METERS/SEC.
FREQUENCY OF DESIGN FLOOD	10 YEARS
DESIGN HIGH WATER ELEVATION	2.813
DRAINAGE AREA	N/A
BASIC DISCHARGE (Q100)	1721.00 CU. METERS/SEC.
BASIC HIGH WATER ELEVATION	4.478

OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	1188.00 CU. METERS/SEC.
FREQUENCY OF OVERTOPPING FLOOD	10+ YRS.
OVERTOPPING FLOOD ELEVATION	3.120



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

PROJECT NO. B-2938
CARTERET-ONSLAW COUNTY
 STATION: 12+47.510 -L-
 SHEET 11 OF 13

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER THE
 WHITE OAK RIVER ON
 SR 1101/1442 BETWEEN
 SR 1434 AND SR 1100



REVISION #1
 ADJUSTED BENCH MARK ELEVATION
 TO LOCALIZED DATUM.
 DATE: 10-6-04

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-11

NOTES

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

ALL ELEVATIONS ARE IN METERS.

ASSUMED LIVE LOAD = MS 18 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 360,000 kg OF REINFORCING STEEL, ONE 760mm SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 360,000 kg OF REINFORCING STEEL, TWO 760mm 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.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR METRIC STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", NOVEMBER, 1995.

FOR BRIDGE DECK RIDEABILITY AND GROOVING, SEE SPECIAL PROVISIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF PRESTRESSED CONCRETE PANELS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE SHALL BE REMOVED. THE EXISTING STRUCTURE CONSISTS OF 24 SPANS VARYING IN LENGTH UP TO 12.2 m. THE TOTAL LENGTH OF THE EXISTING STRUCTURE IS 131.7 m. THE MAIN SPAN CONSISTS OF A TIMBER FLOOR ON STEEL I-BEAMS. THE REMAINING 23 SPANS CONSIST OF TIMBER FLOORS ON TIMBER JOISTS. A CLEAR ROADWAY OF 5.7 m IS PROVIDED BY THE EXISTING STRUCTURE. THE TIMBER FLOORS ARE TOPPED WITH AN ASPHALT WEARING SURFACE. THE END BENTS AND BENTS CONSIST OF TIMBER CAPS ON TIMBER PILES. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISION FOR REMOVAL OF EXISTING STRUCTURE AT STATION 12+47.510-L-.

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

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE COLUMNS, BENT CAPS, PILE CAPS, AND PIPE PILE PLUGS. SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY ACCESS AT STATION 12+47.410 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 12+47.510 -L-.

ALL BAR SUPPORTS USED IN THE PARAPETS, DECK, BENT CAPS, COLUMNS, PILE CAPS, AND PIPE PILE PLUGS, AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CONCRTE IN THE PIPE PILE PLUGS AND THE PILE CAPS OF BENTS NO. 23 THROUGH NO. 29 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 KG OF FLY ASH PER 1.0 KG OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

ALL METALLIZED SURFACES SHALL RECEIVE A SEAL COATING AS SPECIFIED IN THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

FOR STRUCTURE DRAINAGE SYSTEM, SEE SPECIAL PROVISIONS.

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+47.510-L-."

PILES FOR END BENTS NO. 1, AND 2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 530KN EACH.

PILES AT BENTS NO. 1, 2, 3, 4 AND 5 SHALL BE DRIVEN TO AN ELEVATION NO HIGHER THAN -12.8M, -12.8M, -11.70M, -10.50M, AND -9.80M RESPECTIVELY AND SATISFY THE BEARING CAPACITY OF 667KN EACH.

PILES AT BENTS NO. 6, 7, 8, 9 AND 10 SHALL BE DRIVEN TO AN ELEVATION NO HIGHER THAN -10.30M, -11.50M, -12.30M, -12.30M, AND -12.30M, RESPECTIVELY, AND SATISFY THE BEARING CAPACITY OF 667 KN EACH.

PILES AT BENTS NO. 11, 12, 13, 14, AND 15 SHALL BE DRIVEN TO AN ELEVATION NO HIGHER THAN -12.30M, -12.00M, -11.70M, -11.30M, AND -11.50M, RESPECTIVELY, AND SATISFY THE BEARING CAPACITY OF 667 KN EACH.

PILES AT BENTS NO. 16, 17, 18, 19, AND 20 SHALL BE DRIVEN TO AN ELEVATION NO HIGHER THAN -12.0M, -11.20M, -11.60M, -11.40M, AND -11.20M, RESPECTIVELY, AND SATISFY THE BEARING CAPACITY OF 667 KN EACH.

PILES AT BENTS 21, 22 AND 30 SHALL BE DRIVEN TO AN ELEVATION NO HIGHER THAN -12.60M, -13.30M AND -14.00M RESPECTIVELY AND SATISFY THE BEARING CAPACITY OF 667 KN EACH.

PILES AT BENTS NO. 23 THROUGH 29 SHALL BE DRIVEN TO AN ELEVATION NO HIGHER THAN -13.00M AND SATISFY THE BEARING CAPACITY OF 667KN EACH.

STEEL PILE TIPS ARE REQUIRED FOR 610mm PRESTRESSED CONCRETE PILES AT BENTS NO. 1 THROUGH NO. 22 AND BENT 30. SEE SPECIAL PROVISION FOR STEEL PILE TIPS.

WHEN DRIVING PILES, THE MAXIMUM BLOW COUNT SHALL NOT BE EXCEEDED.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 THROUGH BENT NO 22 AND NO. 30 IS -7.20M. THE SCOUR CRITICAL ELEVATIONS FOR BENTS NO. 23 THROUGH NO. 29 IS -7.5M. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH A EQUIVALENT RATED ENERGY IN THE RANGE OF 80 TO 100KN-m PER BLOW WILL BE REQUIRED TO DRIVE THE 610mm PRESTRESSED CONCRETE PILES WITH THE HP 310 x 110 STEEL PILES (COMPOSITE PILES) THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM THE PROVISIONS OUTLINED IN ARTICLE 450-6 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 200 TO 260 KN-m PER BLOW WILL BE REQUIRED TO DRIVE THE 610mm STEEL PIPE PILES (CLOSED END). THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM THE PROVISIONS OUTLINED IN ARTICLE 450-6 OF THE STANDARD SPECIFICATIONS.

COMPOSITE PILES MADE OF 610mm PRESTRESSED CONCRETE PILES AND HP 310 x 110 STEEL PILES WILL BE USED FOR BENTS NO. 1 THROUGH NO. 22 AND BENT NO. 30. SEE THE PLAN DETAILS FOR COMPOSITE PILES. STEEL PILE TIPS (HP 310 x 110) ARE REQUIRED FOR THE 610mm PRESTRESSED CONCRETE PILES TO BE CONNECTED TO THE HP 310 x 110 STEEL PILES BY SPLICE AND FIELD WELDING AS SHOWN IN THE PLAN DETAILS. WELDING SHALL CONFORM TO THE REQUIREMENTS OF ARTICLE 1072-20 OF THE STANDARD SPECIFICATIONS.

DRIVE THE HP 310 x 110 STEEL PILES UNTIL THE TOP OF THE PILE IS APPROXIMATELY 1.0 M ABOVE THE GROUND. ATTACH THE STEEL PILE TIP OF THE 610mm PRESTRESSED CONCRETE PILE TO THE TOP OF THE INSTALLED HP 310 x 110 STEEL PILES WITH STEEL PILE SPLICER IN ACCORDANCE WITH THE PLANS AND SPECIAL PROVISIONS.

A MINIMUM OF THREE (3) METERS OF 610 mm PRESTRESSED CONCRETE PILE SECTION OF THE COMPOSITE PILE MUST BE EMBEDDED BELOW THE EXISTING GROUND ELEVATION FOR BENTS NO. 1 THROUGH NO. 22 AND BENT NO. 30.

THE 610mm DIAMETER STEEL PIPE PILES SHALL HAVE A 15.875mm WALL THICKNESS AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

STEEL PILE POINTS ARE REQUIRED FOR 610mm DIAMETER PIPE PILES AT BENT NO. 23 THROUGH BENT NO. 29. SEE SPECIAL PROVISION FOR STEEL PILE POINTS (PIPE PILES).

THE CONTRACTOR IS ADVISED OF THE PRESENCE OF ARTESIAN HYDRAULIC HEAD ELEVATION OF 4.00M± AT THIS BRIDGE SITE.

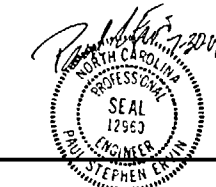
THE FIRST PRODUCTION 610mm PRESTRESSED CONCRETE PILE WITH HP 310 x 110 STEEL PILE (COMPOSITE PILE) AND UP TO FOUR MORE PRODUCTION 610 mm PRESTRESSED CONCRETE PILES WITH HP 310 x 110 STEEL PILES (COMPOSITE PILES) AT THE INTERIOR BENTS NO. 1 THROUGH NO. 22 AND BENT NO. 30 SHALL BE DRIVEN AS DYNAMIC LOAD TEST PILES AS DIRECTED BY THE ENGINEER. SEE PILE DRIVING ANALYZER (PDA) SPECIAL PROVISION. THE PILE DRIVING ANALYZER AND WAVE EQUATION SHALL BE USED DETERMINE THE BEARING CAPACITY OF THE 610 mm PRESTRESSED CONCRETE PILES WITH HP 310 x 110 STEEL PILES (COMPOSITE PILES).

THE FIRST PRODUCTION 610mm DIAMETER STEEL PIPE PILE AND UP TO TWO MORE PRODUCTION 610mm DIAMETER STEEL PIPE PILES AT THE INTERIOR BENTS NO. 23 THROUGH NO. 29 SHALL BE DRIVEN AS DYNAMIC LOAD TEST PILES AS DIRECTED BY THE ENGINEER. SEE PILE DRIVING ANALYZER (PDA) SPECIAL PROVISION. THE PILE DRIVING ANALYZER AND WAVE EQUATION SHALL BE USED TO DETERMINE THE BEARING CAPACITY OF 610mm DIAMETER STEEL PIPE PILES.

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

SHEET 12 OF 13

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER THE
 WHITE OAK RIVER ON
 SR 1101/1442 BETWEEN
 SR 1434 AND SR 1100



REVISION #1
 REVISION OF BENTS 21, 22 AND 30.
 (NOTE: SHEET 95A AND 95B HAVE BEEN
 ADDED FOR THE REVISION OF BENT 30.)
 BY : B.N.BARODAWALA DATE: 7-29-04
 CHK. BY : P. S. ERVIN DATE: 7-29-04

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-12
1	BNB	7-29-04	3			TOTAL SHEETS
2			4			103

DRAWN BY : B.N.BARODAWALA DATE : 1-29-02
 CHECKED BY : PAUL ERVIN DATE : 1-29-02

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS	REMOVAL OF EXISTING STRUCTURE	REINFORCED CONCRETE DECK SLAB	ROOVING BRIDGE FLOORS	CLASS AA CONCRETE	BRIDGE APPROACH SLABS	EPOXY COATED REINFORCING STEEL	EPOXY COATED SPIRAL COLUMN REINFORCING STEEL	914mm RESTRESSED CONCRETE GIRDERS	1372mm RESTRESSED CONCRETE GIRDERS	610mm RESTRESSED CONCRETE PILES	P 310 x 110 STEEL PILES	P 360 x 108 STEEL PILES	P 410 x 15.875 STEEL PILES	STEEL PILE POINTS (PIPE PILES)	STEEL PILE TIPS	W 40 BAR METAL RAIL	55mm x 750mm CONCRETE PARAPET	PLAIN RIP RAP CLASS II (500mm THICK)	FILTER FABRIC FOR DRAINAGE	LASTOMERIC BEARINGS	ASPHTE JOINT SEALS	STRUCTURE DRAINAGE SYSTEM	DYNAMIC LOAD TEST						
	LUMP SUM	LUMP SUM	METERS	SQ. METERS	CU. METERS	LUMP SUM	KG.	KG.	NO.	METERS	NO.	METERS	NO.	METERS	NO.	METERS	METERS	METERS	METRIC TON	50. METERS	LUMP SUM	LUMP SUM	LUMP SUM	EACH						
SUPERSTRUCTURE			7332.3	6093.3					55	813.100	100	2681.972			11	115.5		405.440	1410.050	32	33									
END BENT 1					23.0		1712																							
BENT 1					21.3		1729				12	54.0	12	120.0																
BENT 2					21.3		1729				12	54.0	12	114.0																
BENT 3					21.3		1729				12	54.0	12	102.0																
BENT 4					21.9		1915				12	54.0	12	102.0																
BENT 5					22.2		1916				12	54.0	12	102.0																
BENT 6					22.2		1916				12	54.0	12	114.0																
BENT 7					22.2		1916				12	60.0	12	114.0																
BENT 8					22.2		1916				12	60.0	12	120.0																
BENT 9					22.2		1916				12	60.0	12	120.0																
BENT 10					22.2		1916				12	60.0	12	120.0																
BENT 11					20.6		1728				12	66.0	12	108.0																
BENT 12					20.7		1728				12	66.0	12	108.0																
BENT 13					21.3		1729				12	66.0	12	108.0																
BENT 14					21.3		1729				12	66.0	12	108.0																
BENT 15					21.3		1729				12	72.0	12	108.0																
BENT 16					21.3		1729				12	72.0	12	108.0																
BENT 17					21.3		1729				12	72.0	12	108.0																
BENT 18					21.3		1729				12	72.0	12	108.0																
BENT 19					21.3		1729				12	72.0	12	108.0																
BENT 20					26.2		1913				12	72.0	12	108.0																
BENT 21					22.8		1694				3	48.0	8	84.0																
BENT 22					22.4		1886				8	48.0	8	88.0																
BENT 23					33.5		2642	183									8	120.0												
BENT 24					33.5		2648	186									8	120.0												
BENT 25					33.5		2648	185									8	120.0												
BENT 26					33.4		2632	179									8	120.0												
BENT 27					33.1		2606	167									8	120.0												
BENT 28					32.7		2571	150									8	120.0												
BENT 29					32.2		2522	128									8	120.0												
BENT 30					23.6		1887			8	28.0	8	104.0																	
END BENT 2					19.5		1674							6	72.0															
TOTAL	LUMP SUM	LUMP SUM	7332.3	6083.3	778.8	LUMP SUM	63192	1178	55	813.100	100	2681.972	264	1366.0	264	2496.0	17	187.5	56	840.0	56	264	1405.440	1410.050	84	86	LUMP SUM	LUMP SUM	LUMP SUM	8

▲ THIS ITEM CHANGED UNDER REVISION NO. 1
● THIS ITEM CHANGED UNDER REVISION NO. 2

PROJECT NO. B-2938
CARTERET-ON SLOW COUNTY
STATION: 12+47.510 -L-
SHEET 13 OF 13

REVISION #1
REVISED BENTS 21, 22 AND 30.
(NOTE: SHEET 95A AND 95B HAVE BEEN ADDED FOR THE REVISION OF BENT 30.)
REMOVED "FOUNDATION EXCAVATION" FROM TOTAL BILL OF MATERIAL.
BY: B.N. BARODAWALA DATE: 7-29-04
CHK. BY: P. S. ERVIN DATE: 7-29-04

REVISION #2
REVISED QUANTITIES FOR BENT 23-29
DUE TO LOCALIZED DATUM CHANGE.
DATE: 10-6-04

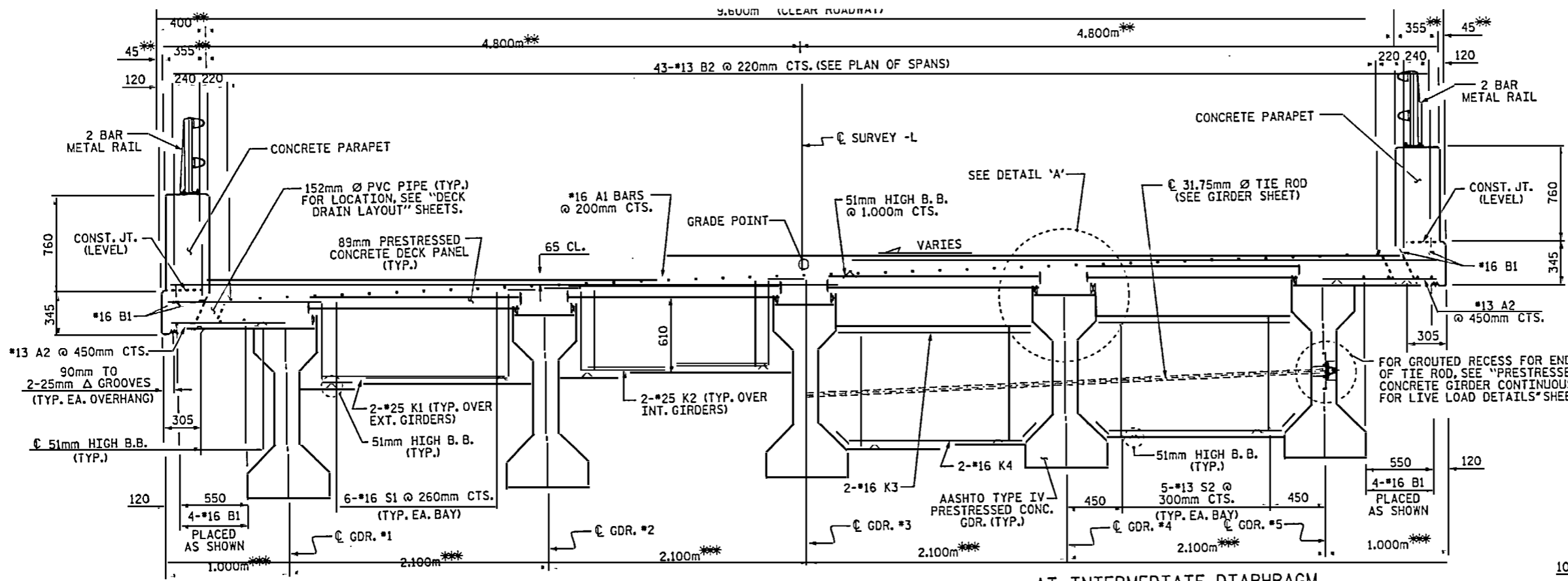


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR
BRIDGE OVER THE
WHITE OAK RIVER ON
SR 1101/1442 BETWEEN
SR 1434 AND SR 1100

REVISIONS

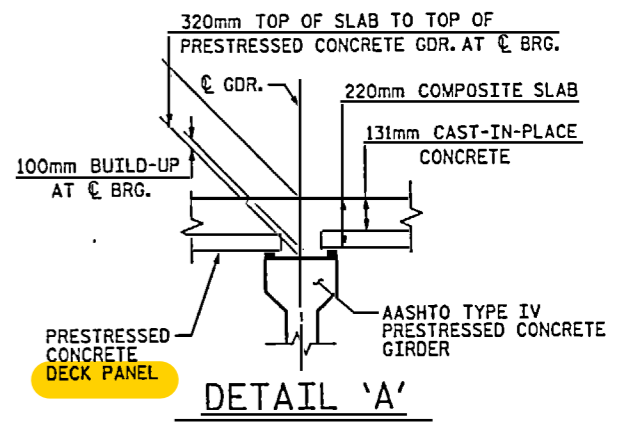
SHEET NO. 5-13



AT END BENT AND BENT DIAPHRAGM

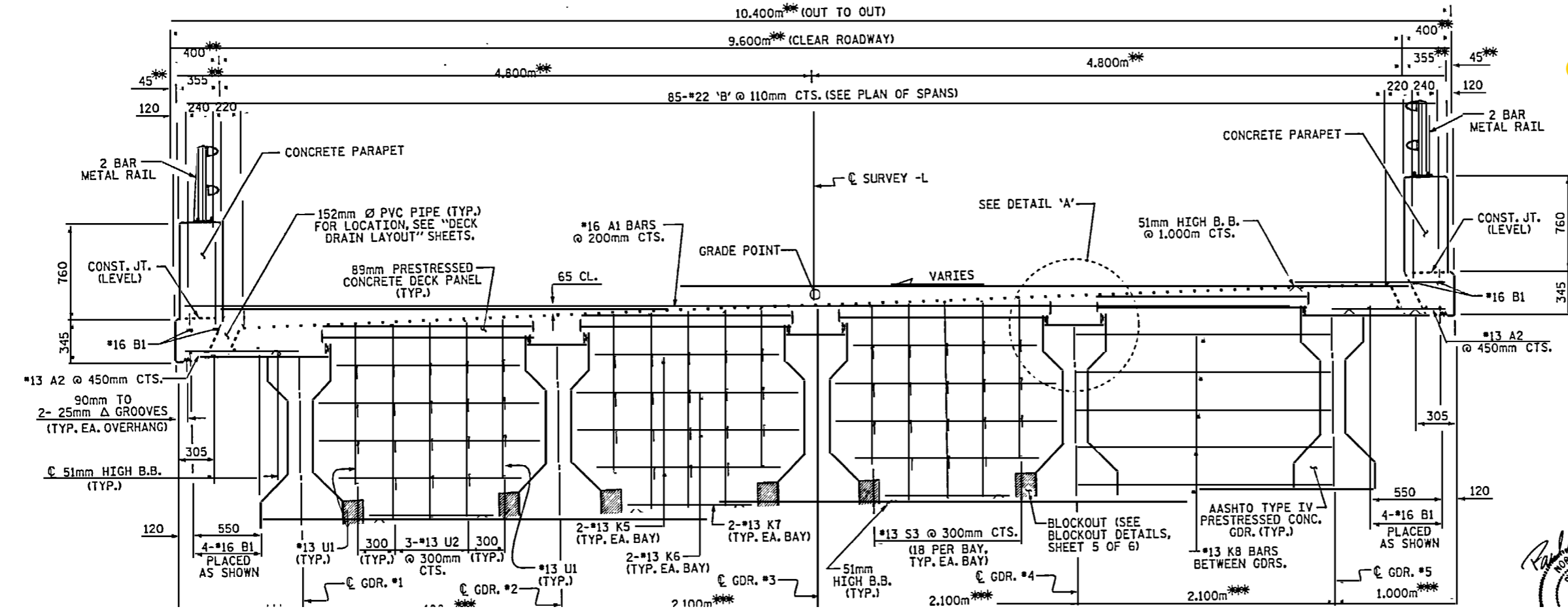
TYPICAL SECTION

AT INTERMEDIATE DIAPHRAGM



DETAIL 'A'

FOR ADDITIONAL REINFORCING STEEL IN DECK SLAB AND PARAPET, SEE "355mm x 760mm CONCRETE PARAPET" SHEETS.



PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

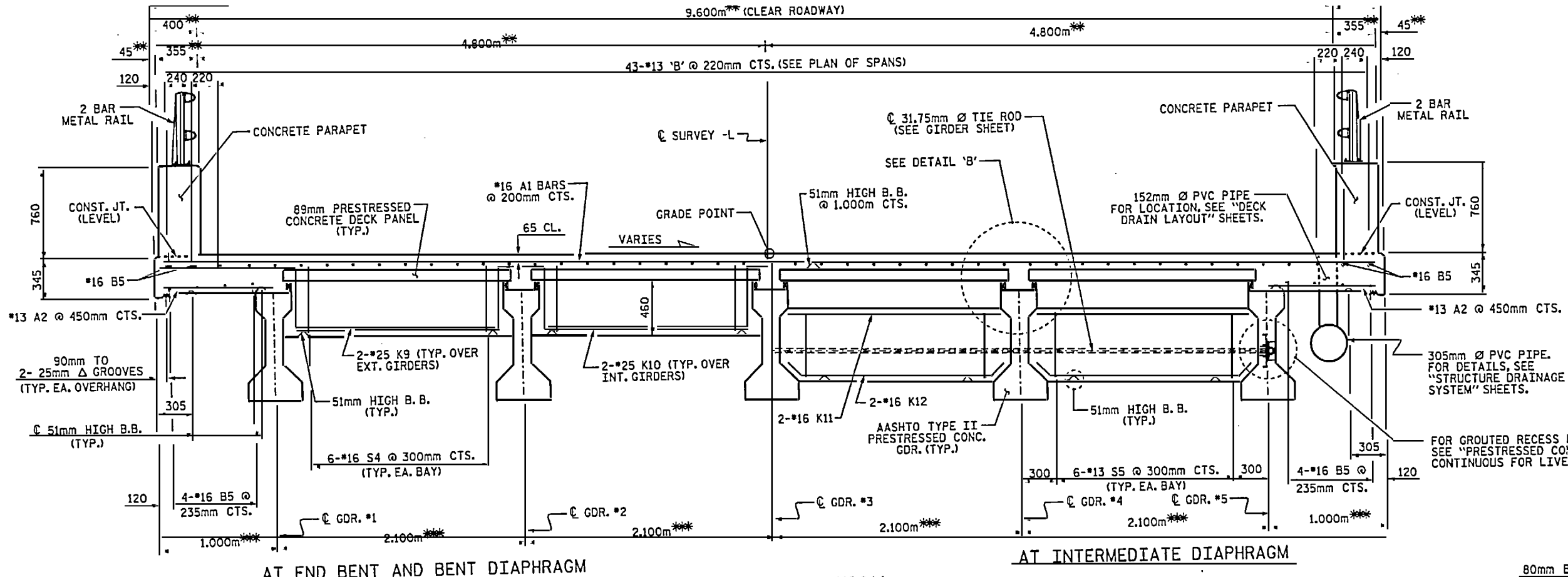
SHEET 1 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTION
 SPANS 1 THRU 20



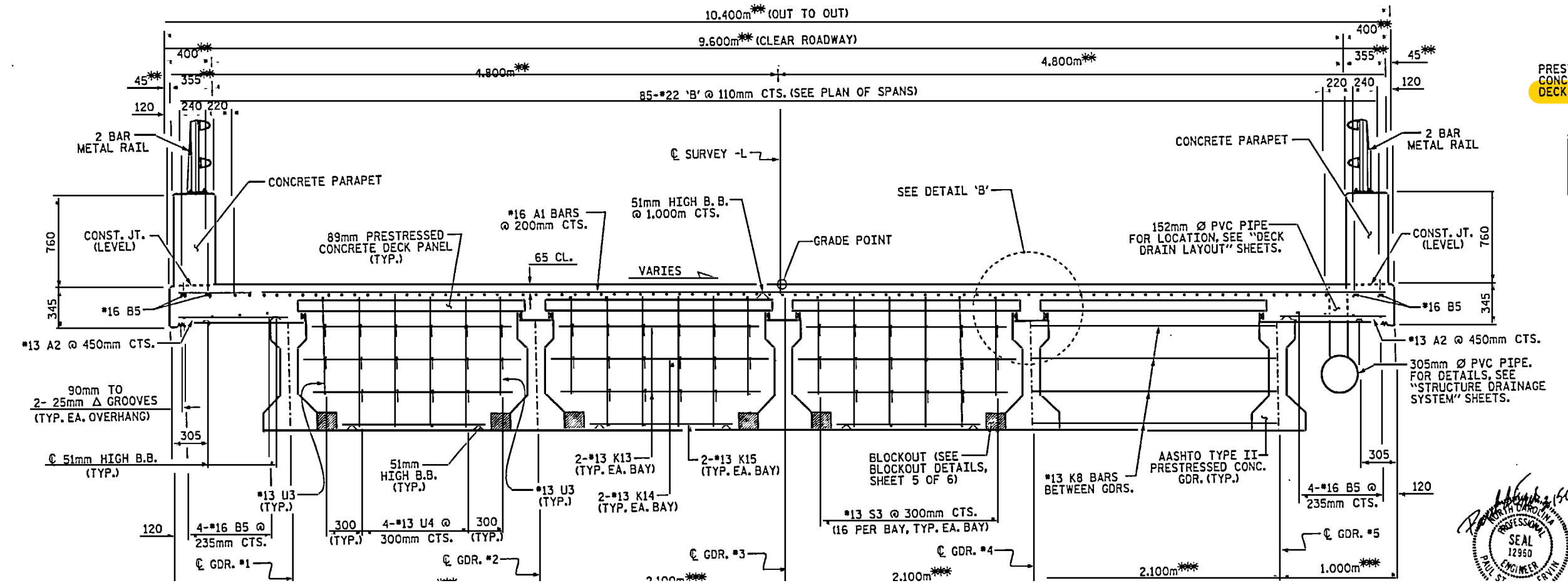
REVISIONS SHEET NO.



AT END BENT AND BENT DIAPHRAGM

AT INTERMEDIATE DIAPHRAGM

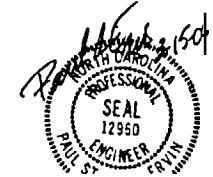
TYPICAL SECTION



AT END BENT AND BENT DIAPHRAGM

AT INTERMEDIATE DIAPHRAGM

TYPICAL SECTION



PROJECT NO. B-2938

CARTERET-ONSLow COUNTY

STATION: 12+47.510 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

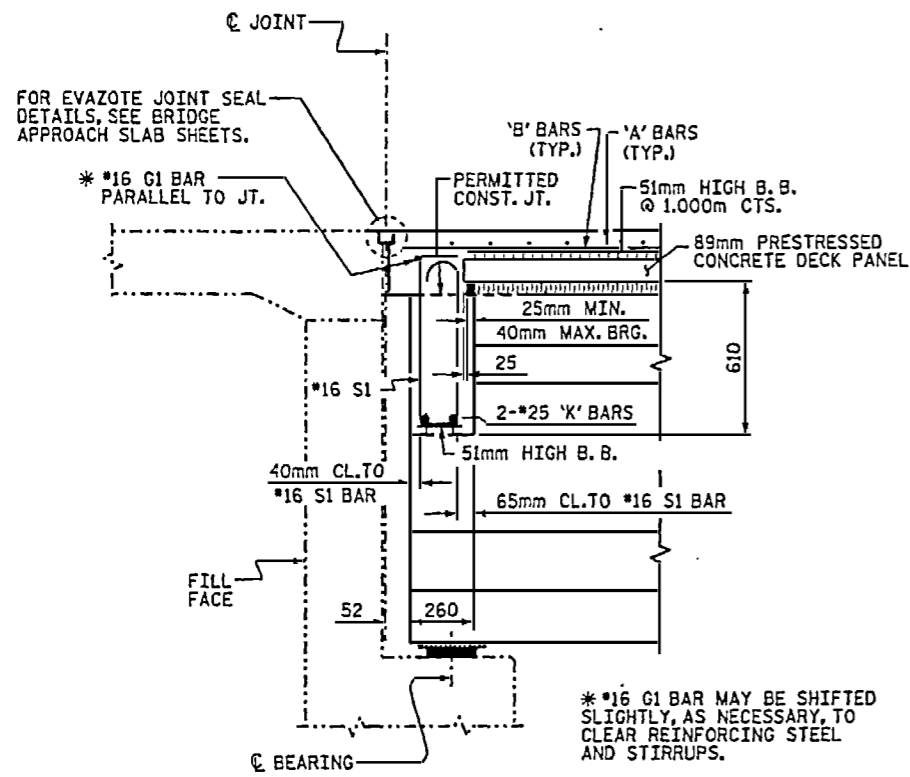
SUPERSTRUCTURE

TYPICAL SECTION

SPANS 21 THRU 31

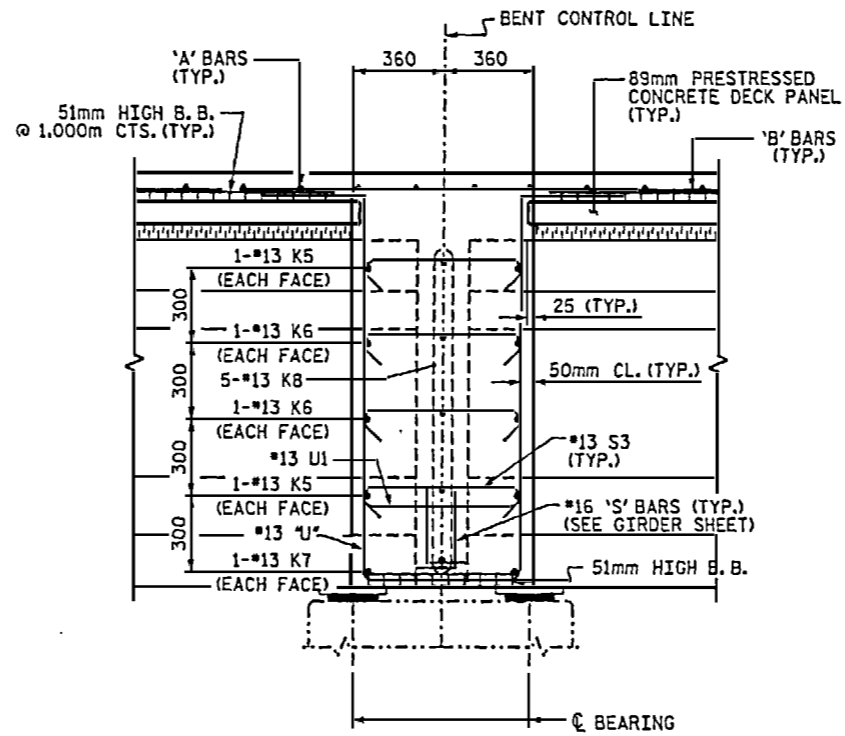
REVISIONS

SHEET NO.



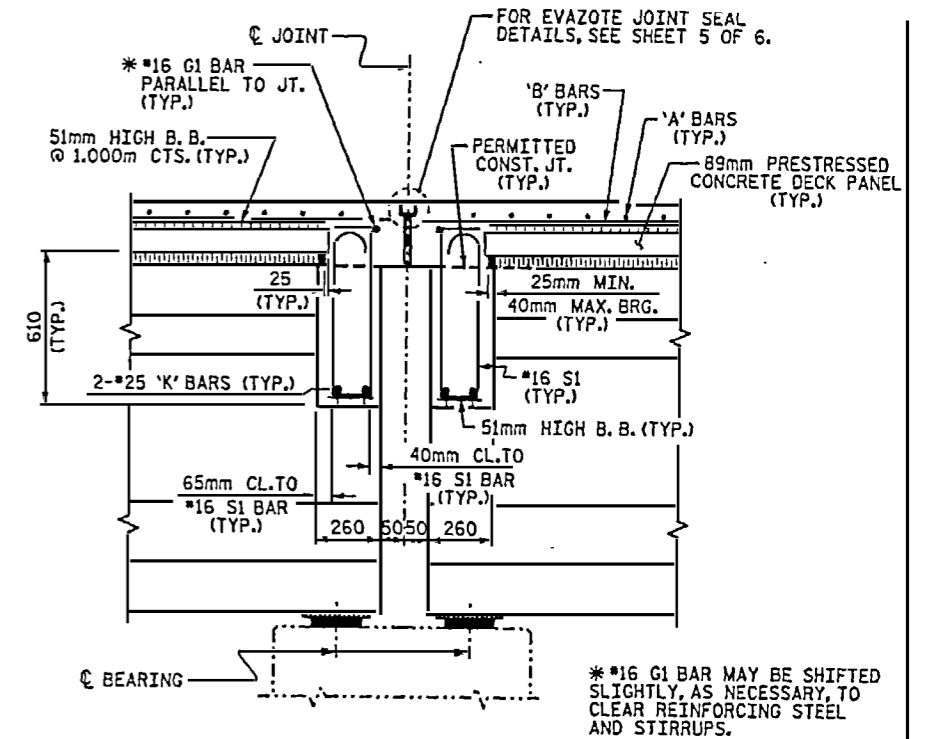
SECTION THRU END BENT DIAPHRAGM

END BENT NO. 1



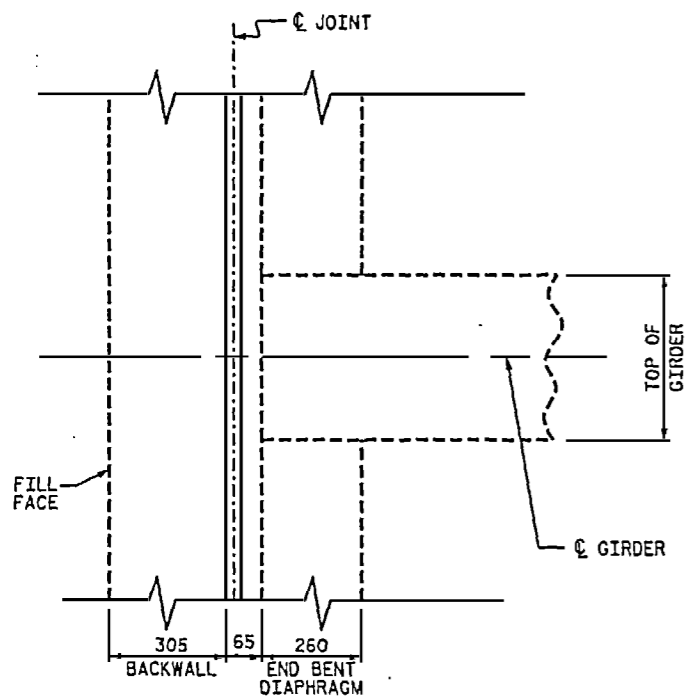
SECTION THRU CONTINUOUS BENT DIAPHRAGM

TYPICAL BENTS *1, *3, *5, *7, *9, *11, *13, *15, *17, *19



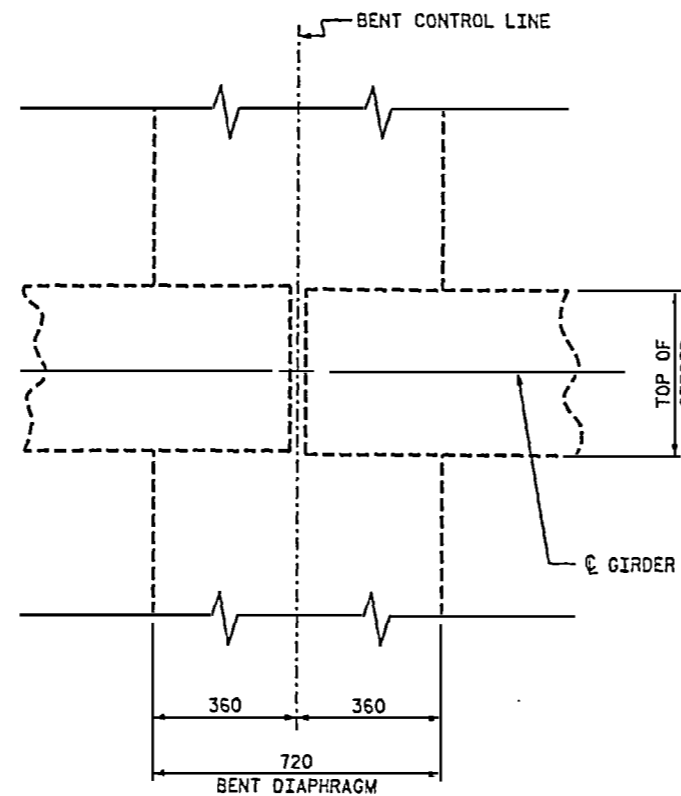
SECTION THRU BENT DIAPHRAGM

TYPICAL BENTS *2, *4, *6, *8, *10, *12, *14, *16, *18



END BENT DIAPHRAGM

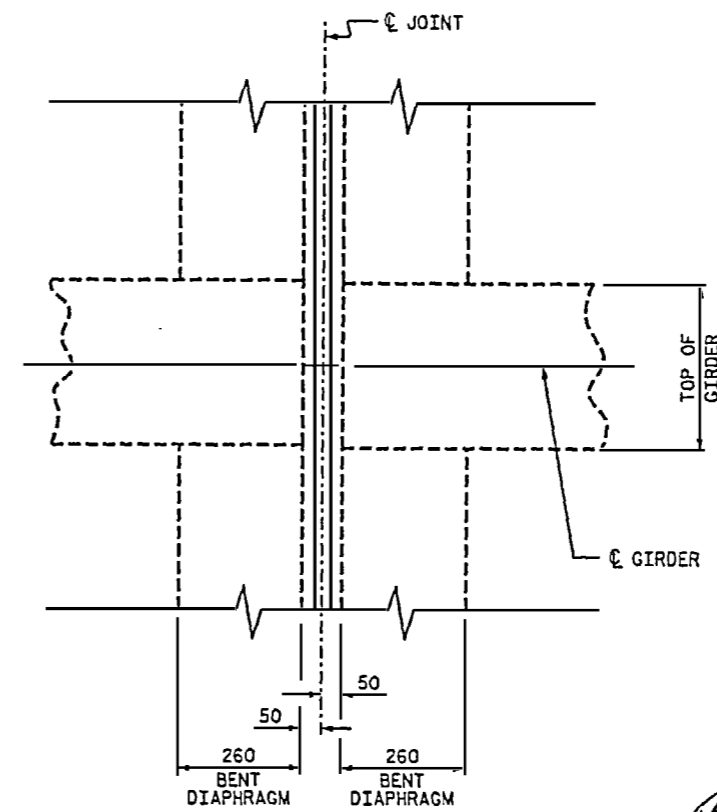
END BENT NO. 1



BENT DIAPHRAGM

TYPICAL BENTS *1, *3, *5, *7, *9, *11, *13, *15, *17, *19, *21, *22, *23, *25, *26, *27, *29 & 30

DI AN



BENT DIAPHRAGM

TYPICAL BENTS *2, *4, *6, *8, *10, *12, *14, *16, *18, *20, *24 & *28

PROJECT NO. B-2938
 CARTERET-ONSLOW COUNTY
 STATION: 12+47.510 -L-

SHEET 3 OF 6

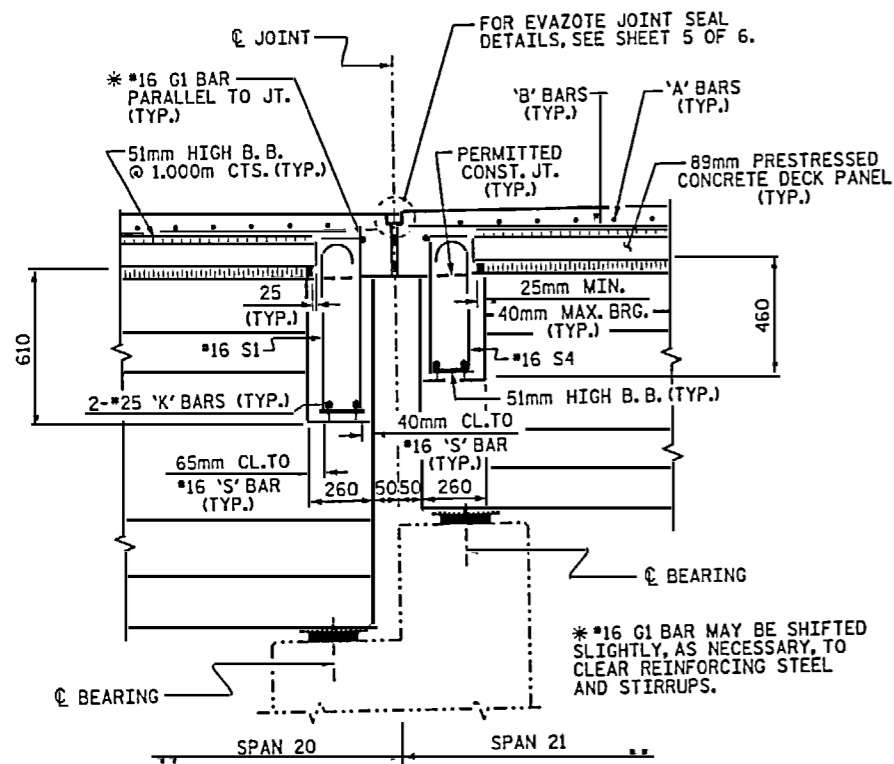
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTION
 DETAILS

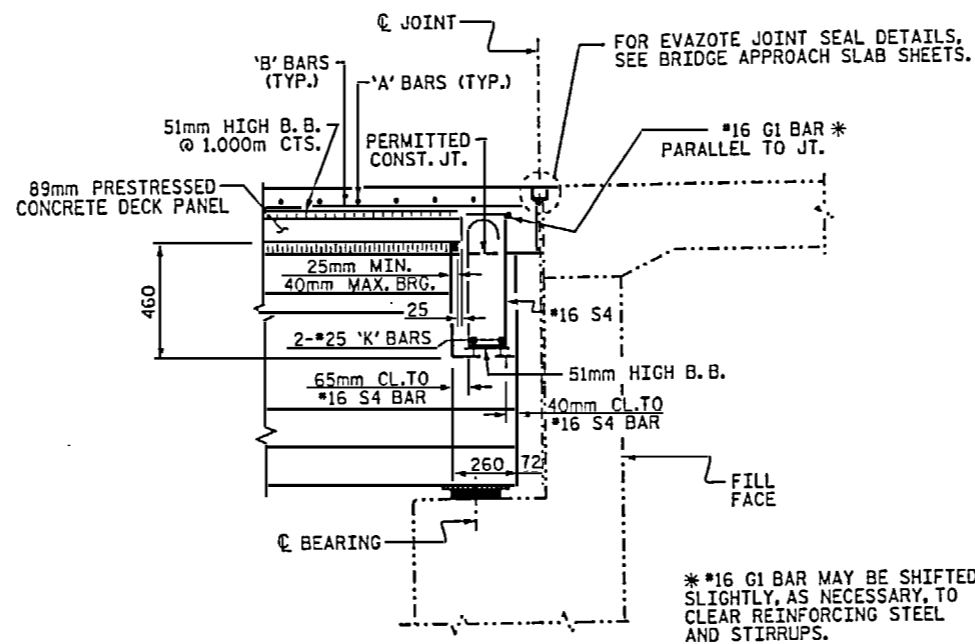


REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-16
1			3			TOTAL SHEETS 103

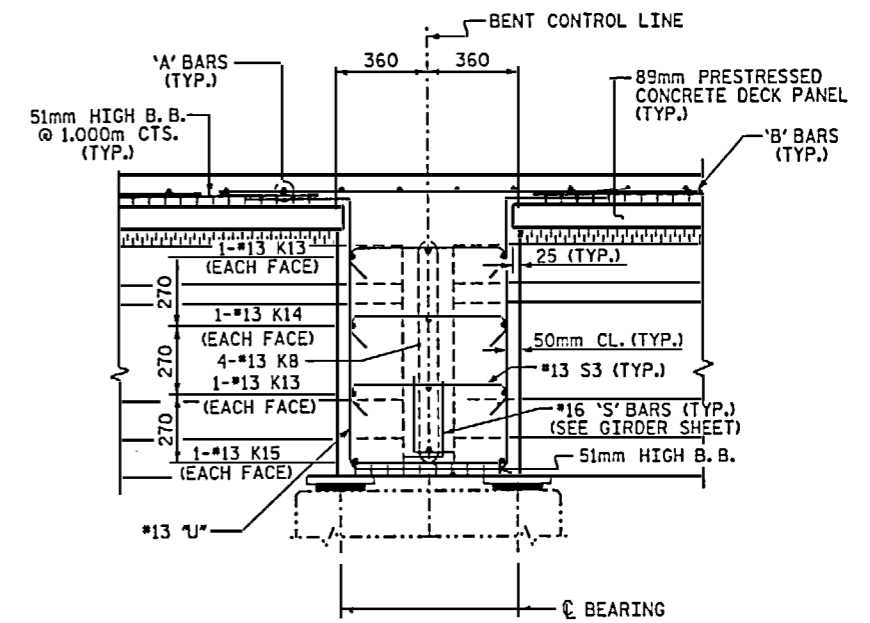
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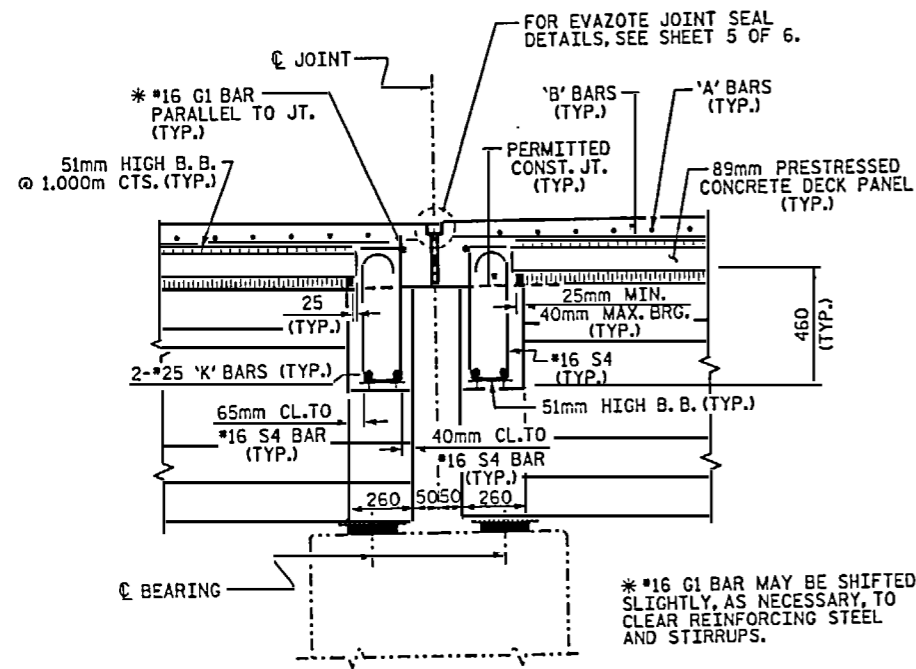
SECTION THRU BENT DIAPHRAGM
BENT #20



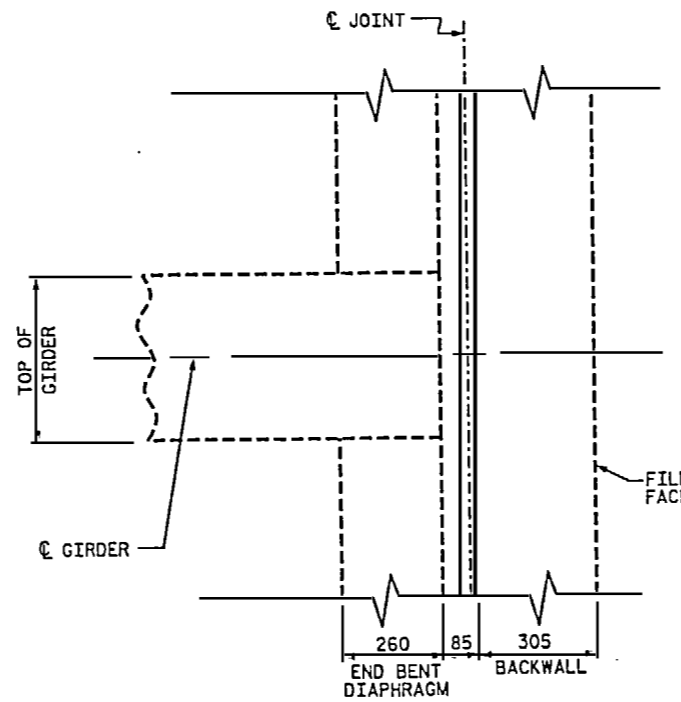
SECTION THRU END BENT DIAPHRAGM
END BENT #2



SECTION THRU CONTINUOUS BENT DIAPHRAGM
TYPICAL BENTS #21, #22, #23, #25, #26, #27, #29 & #30

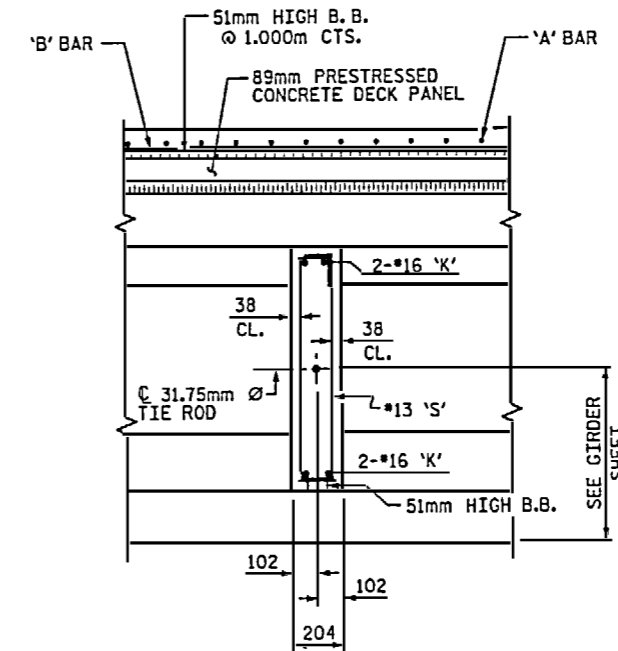


SECTION THRU BENT DIAPHRAGM
TYPICAL BENTS #24 & #28



END BENT DIAPHRAGM
END BENT NO. 2

PLAN



SECTION THRU INTERMEDIATE DIAPHRAGM
TYPICAL ALL SPANS

PROJECT NO. B-2938
CARTERET-ON SLOW COUNTY
STATION: 12+47.510 -L-

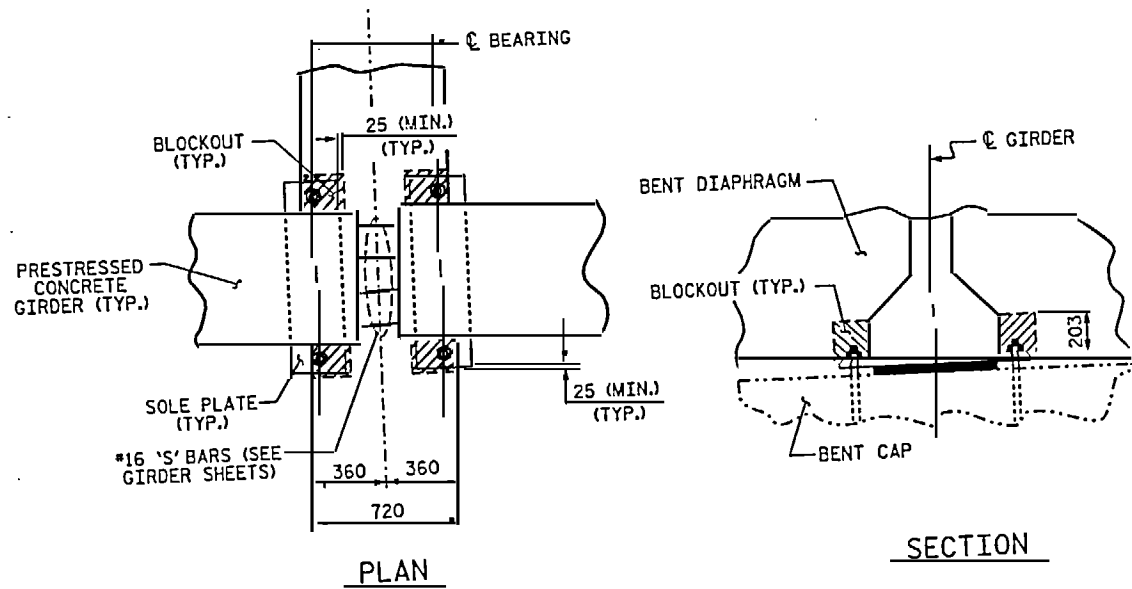
SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

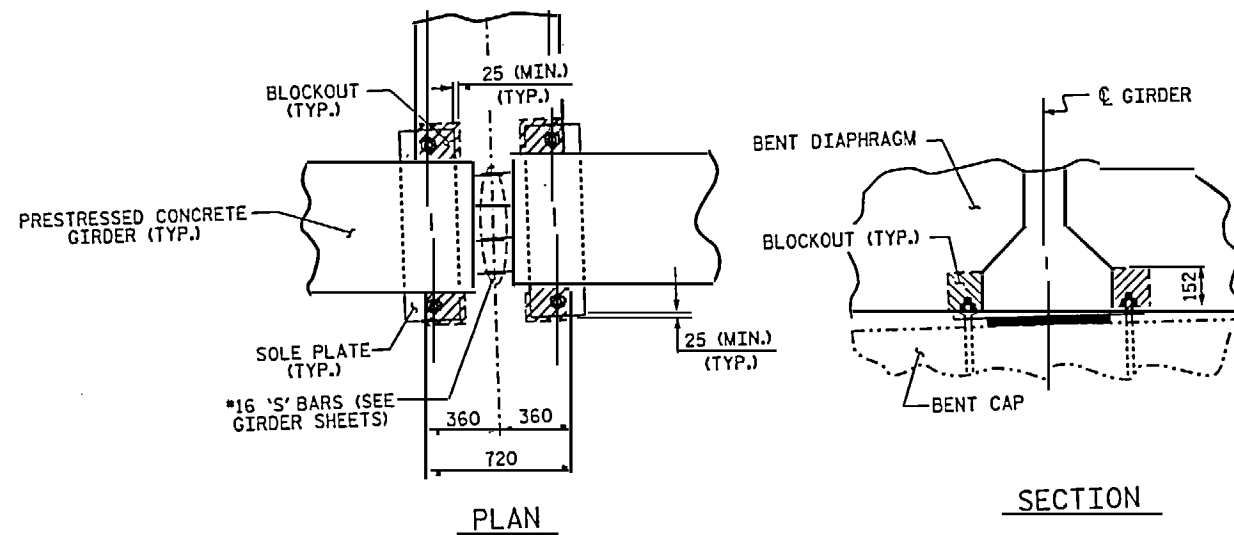
SUPERSTRUCTURE
TYPICAL SECTION
DETAILS



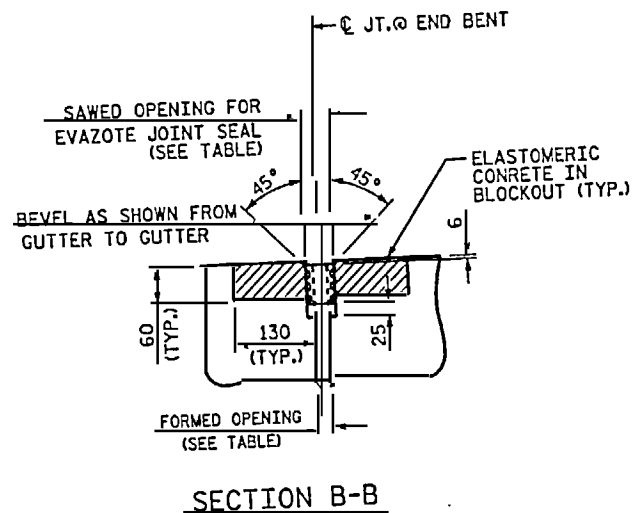
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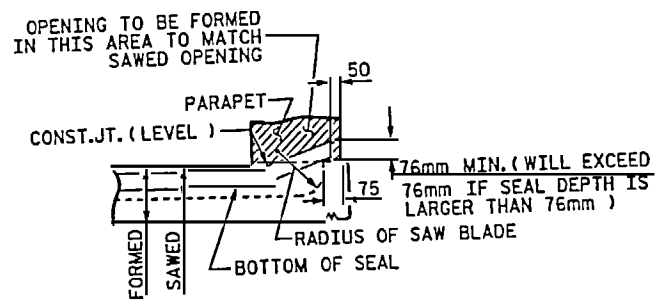
BENT DIAPHRAGM BLOCKOUT DETAIL
TYPICAL BENTS #1, #3, #5, #7, #9, #11, #13, #15, #17 & #19



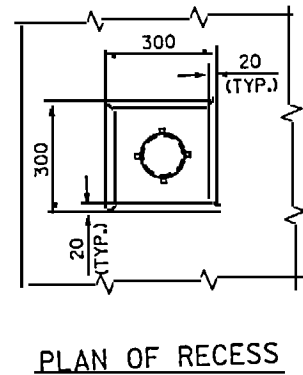
BENT DIAPHRAGM BLOCKOUT DETAIL
TYPICAL BENTS #21, #22, #23, #25, #26, #27, #29 & #30



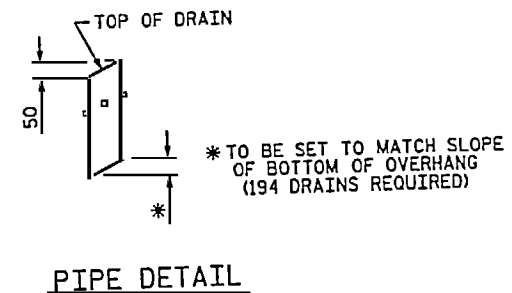
SECTION B-B



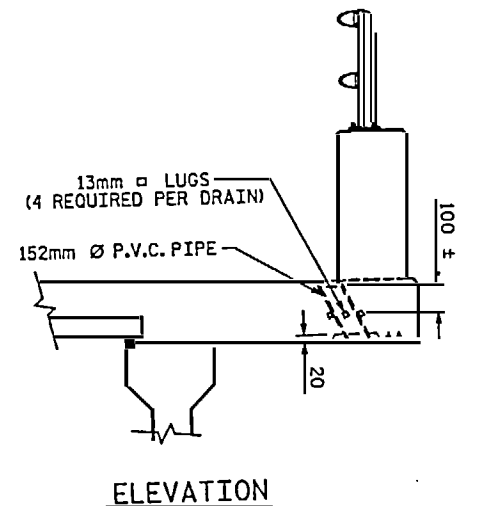
SECTION A-A



PLAN OF RECESS



PIPE DETAIL



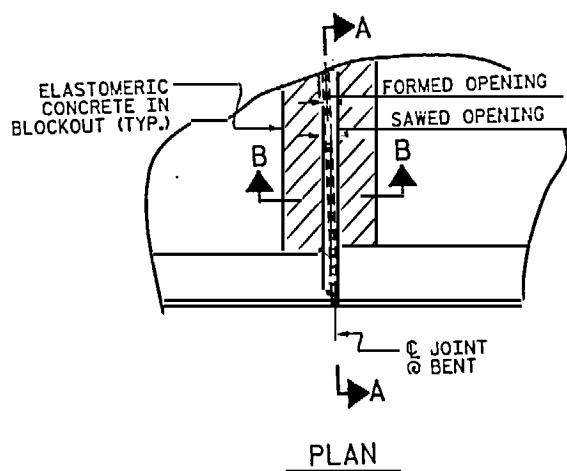
ELEVATION

DRAIN DETAILS - SPANS 1 THRU 20

SEE "STRUCTURE DRAINAGE SYSTEM" SHEETS FOR DETAILS OF DRAINAGE REQUIREMENTS IN SPANS 21, 22, & 23 AND SPANS 30 & 31.
TOP OF FLOOR DRAINS TO SET 10mm BELOW SURFACE OF SLAB.
4 - 13mm □ LUGS TO BE GLUED TO THE PVC PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN.
THE 152mm Ø PVC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.

NOTES

THE COST OF THE ELASTOMERIC CONCRETE IN THE BLOCKOUTS, COMPLETE IN PLACE, SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR EVAZOTE JOINT SEALS.
THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEALS SHALL BE 87mm.
FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.



PLAN

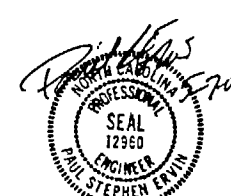
MOVEMENT AND SETTING AT EVAZOTE JOINT				
BENT NO.	FORMED OPENING	PERPENDICULAR JOINT OPENING AT 7° C	PERPENDICULAR JOINT OPENING AT 16° C	PERPENDICULAR JOINT OPENING AT 32° C
2, 4, 6, 8, 10, 12, 14, 16, 18, 20	38mm	77mm	70mm	57mm
20	40mm	75mm	68mm	55mm
24	43mm	75mm	67mm	53mm

THE ESTIMATED AMOUNT OF ELASTOMERIC CONCRETE REQUIRED, BASED ON THE MINIMUM BLOCKOUT SHOWN, IS 0.15m³ PER JOINT.

JOINT SEAL DETAILS @ BENTS

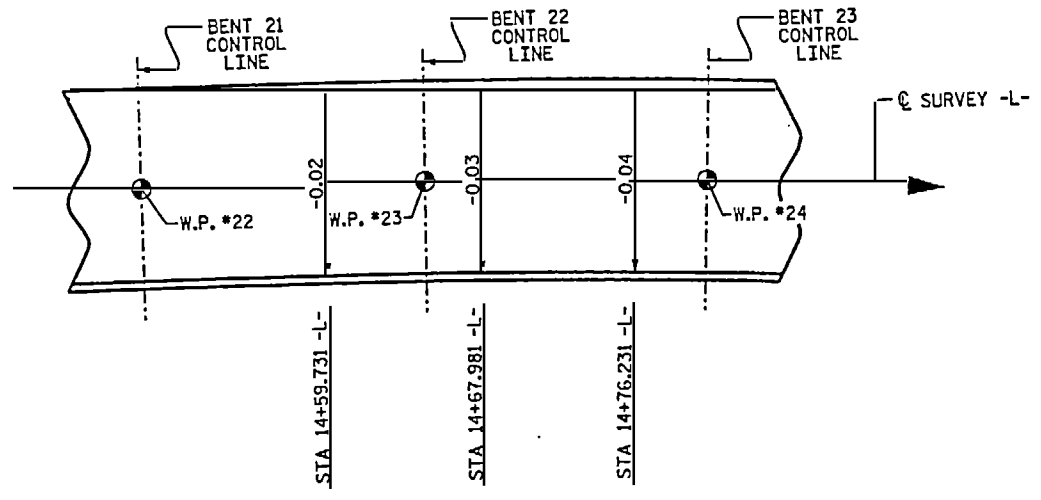
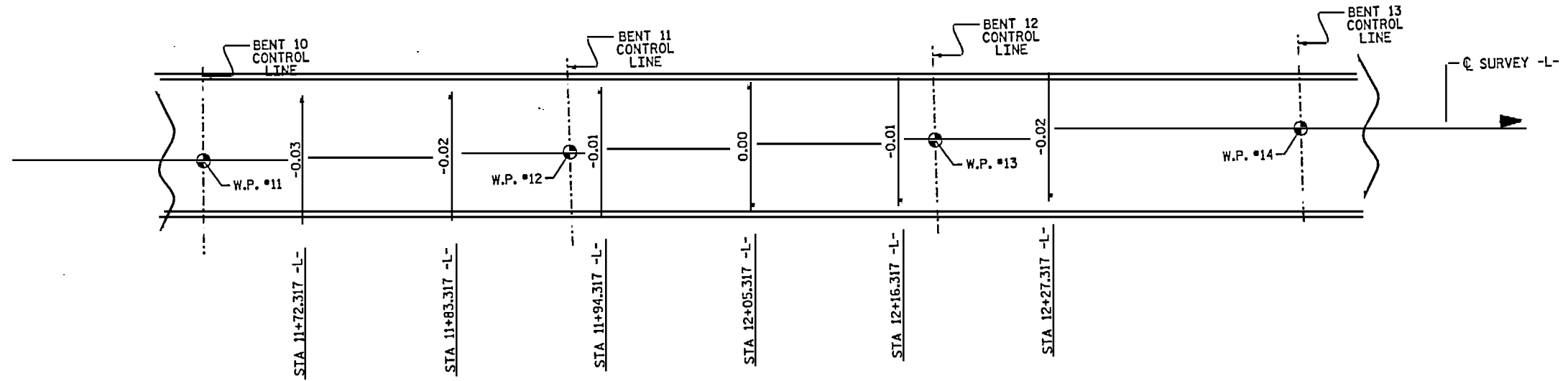
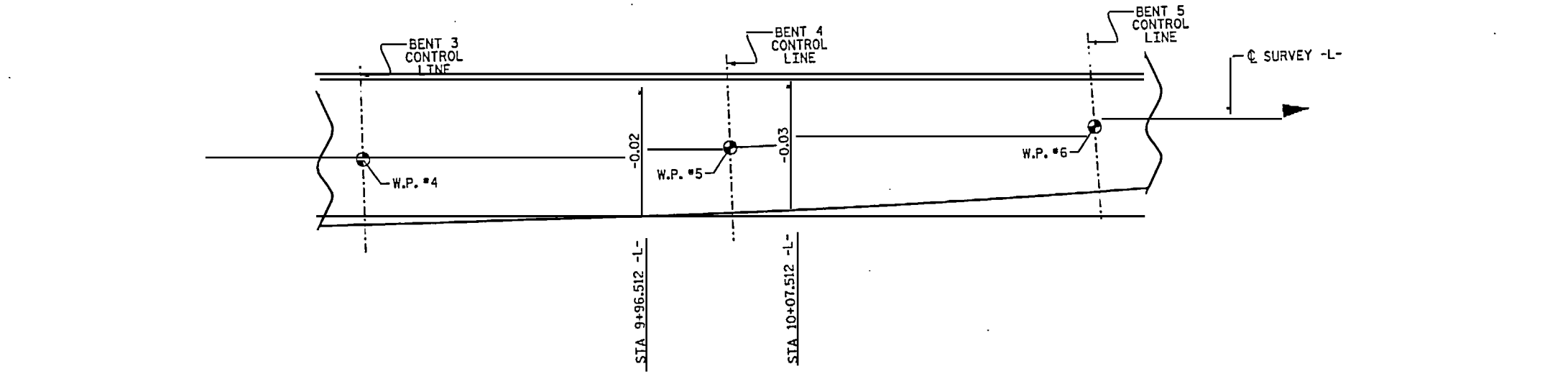
PROJECT NO. B-2938
CARTERET-ONSLOW COUNTY
STATION: 12+47.510 -L-

SHEET 5 OF 6

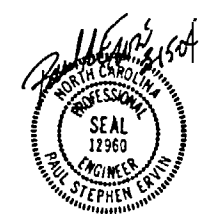


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		

SHEET NO. S-18
TOTAL SHEETS 1031



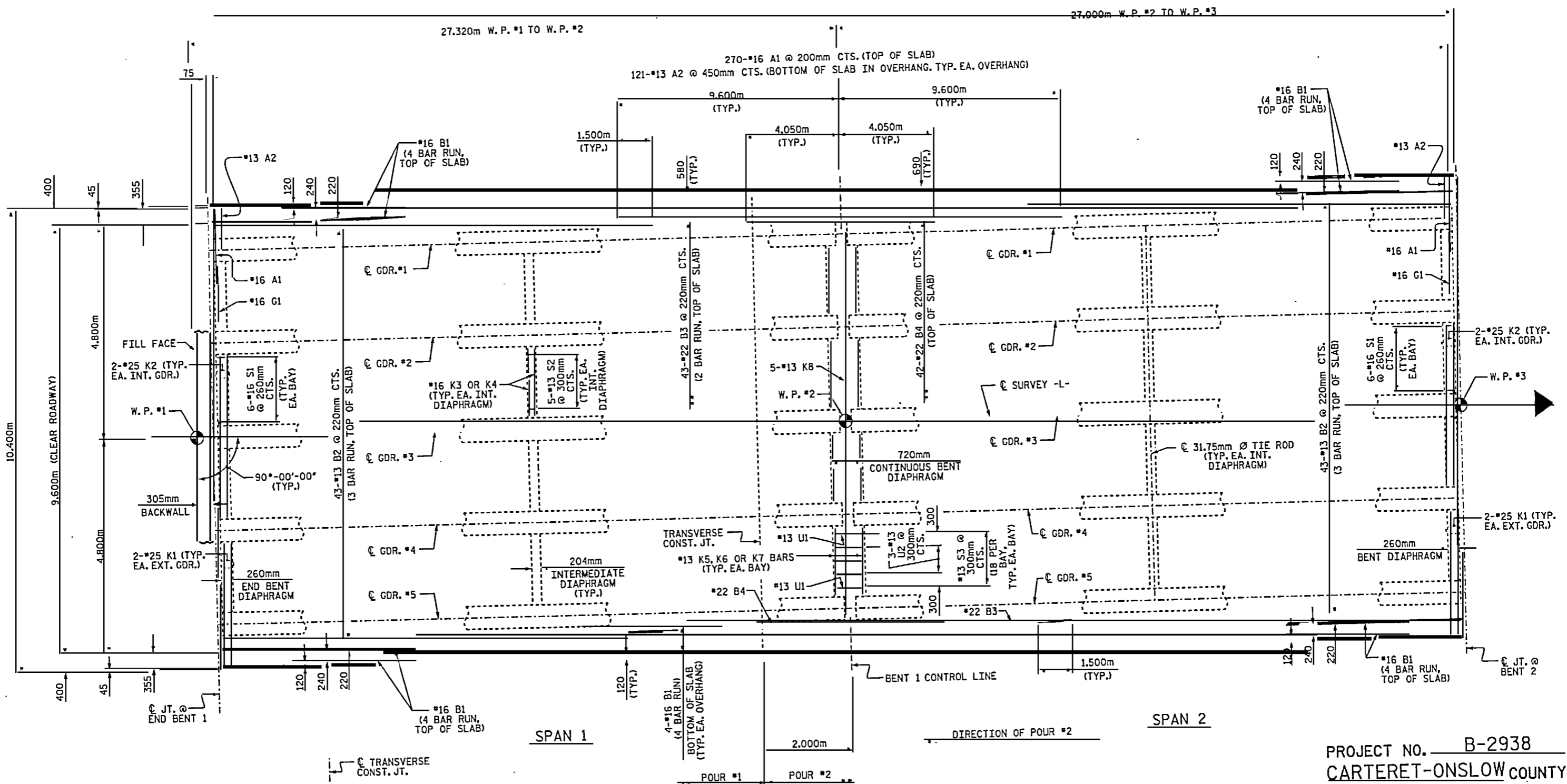
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-
 SHEET 6 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

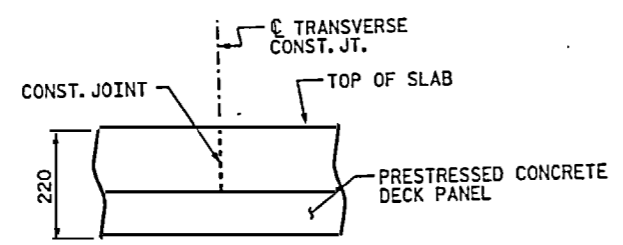
SUPERSTRUCTURE
 TYPICAL SECTION
 DETAILS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-19



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.



PLAN OF SPANS 1 & 2

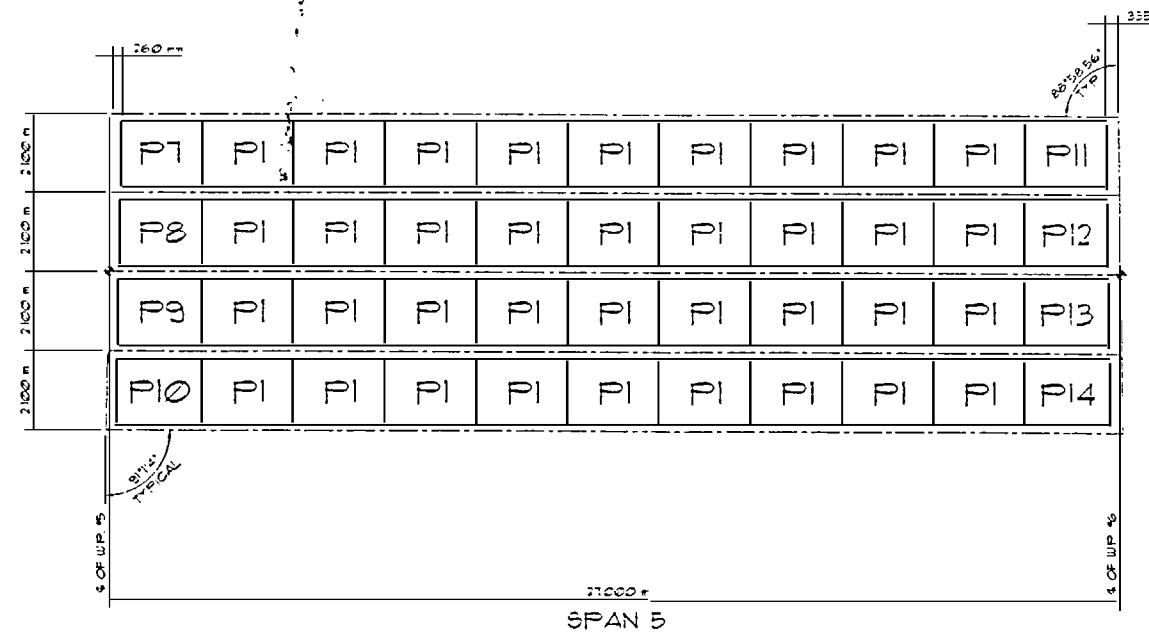
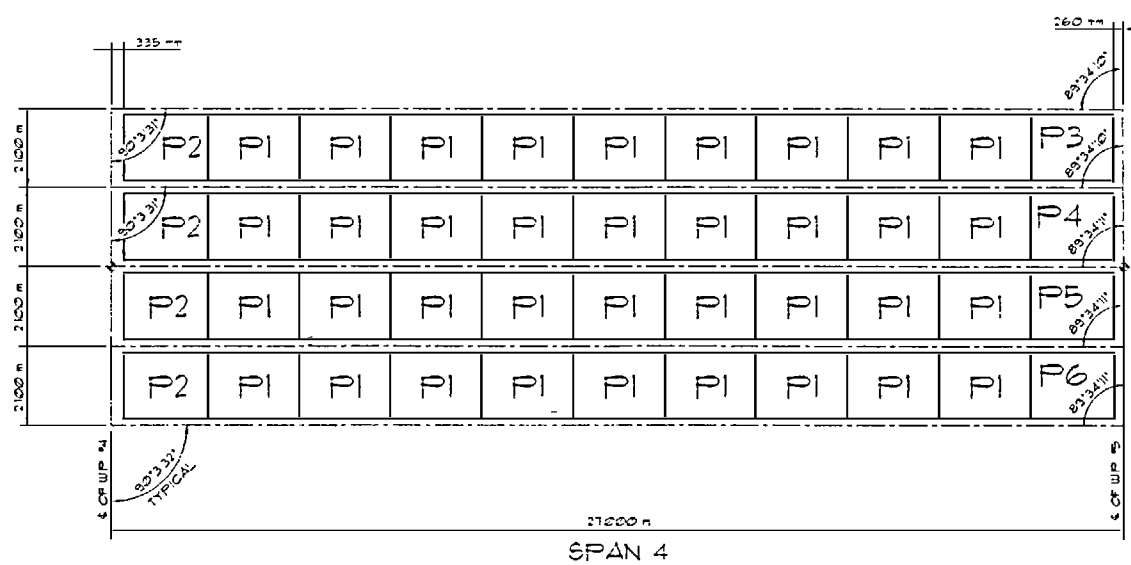
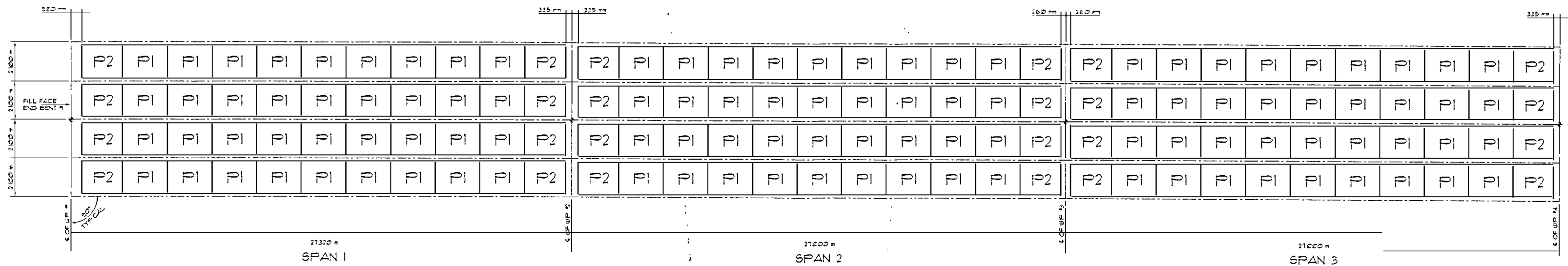
FOR LOCATION OF DECK DRAINS, SEE "DECK DRAIN LAYOUT" SHEETS.
 FOR DRAIN DETAILS, SEE "TYPICAL SECTION DETAILS", SHEET 5 OF 6.
 FOR ADDITIONAL REINFORCING STEEL IN DECK SLAB AND PARAPET, SEE



PROJECT NO. B-2938
 CARTERET-ONSLAW COUNTY
 STATION: 12+47.510 -L-

SHEET 1 OF 8

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH	
SUPERSTRUCTURE PLAN OF SPANS 1 AND 2	
REVISIONS	SHEET NO. S-20



PROPERTY OF
UTILITY PRECAST, INC.
939 W. CRAIGHEAD RD.
CHARLOTTE, NC 28206



PANEL SCHEDULE														
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14
SPAN 1	36	8												
SPAN 2	36	8												
SPAN 3	36	8												
SPAN 4	36	4	1	1	1	1								
SPAN 5	36						1	1	1	1	1	1	1	1
TOTALS	180	28	1	1	1	1	1	1	1	1	1	1	1	1

NOTES

- THE DESIGN AND CONSTRUCTION SHALL BE PER NCDOT SPECIFICATIONS AND SPECIAL PROVISIONS.
- REINFORCING STEEL SHALL BE GRADE 420.
- ALL PRESTRESSING STRANDS SHALL BE 953 mm (3/8 INCH) ROUND, 17 WIRE STRANDS RELIEVED GRADE 210.
APPLIED FORCE PER CABLE SHALL BE 6100 POUNDS * FINAL PRESTRESS FORCE *
- PANEL DESIGN IS BASED UPON THE FOLLOWING CONCRETE STRENGTHS:
f_{ci} = 4200 PSI (28 MPa)
f_c = 5000 PSI (34 MPa)
- SHEAR TRUSS REINFORCING IS MANUFACTURED BY TREADS STEEL PRODUCTS, INC. WITH 8 GAGE BOTTOM CHORDS AND DIAGONALS, AND 3 GAGE TOP CHORD. TRUSS DIAGONALS SHALL NOT INTERFERE WITH THE PROPER PLACEMENT OF THE TOP MAT OF REINFORCING STEEL. TRUSS DIAGONALS MAY BE BENT SLIGHTLY BUT NOT CUT. TOP CHORD MAY BE CUT BUT NOT REMOVED, TO ACHIEVE PROPER CLEARANCE.
- DIMENSIONAL OVERSEEN MAY BE FIELD CUT BY SAWING PARALLEL TO THE P/T STRANDS.
- FOR REMOVAL OF FALSEWORK ON BENT DIAGRAMS, SEE SPECIAL PROVISIONS FOR 'PRESTRESSED CONCRETE PANELS'.
- THE TOP SURFACE OF PANELS SHALL BE GIVEN A RAKED FINISH.
- WHEN CASTING THE DECK, PLACE CONCRETE FIRST OVER THE GIRDERS IN CONTINUOUS STRIPS. A MINIMUM OF THREE PANEL LENGTHS AHEAD OF THE REST OF THE CONCRETE. CAREFULLY VIBRATE THE CONCRETE OVER THE GIRDERS SO THAT CONCRETE COMPLETELY FILLS THE AREA UNDER THE DECK PANEL OVERHANGS. THEN PLACE AND VIBRATE THE REMAINING DECK CONCRETE.
- PRECAST PANELS SHALL BE DESIGNED FOR AN ALLOWABLE TENSILE STRESS OF 0 MPa IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.
- PRESTRESSED CONCRETE PANELS SHALL CONTAIN CALCIUM NITRATE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS.

UTILITY PRECAST, INC.
939 W. CRAIGHEAD ROAD
CHARLOTTE, NC. 28206

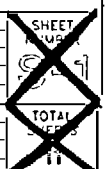
PROJECT NO.: C200729
COUNTY: CARTERET/ONSLAW
STATION: 12+47.510 -L-

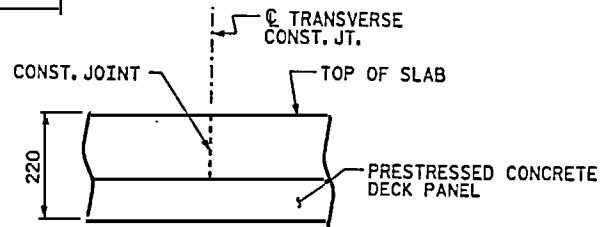
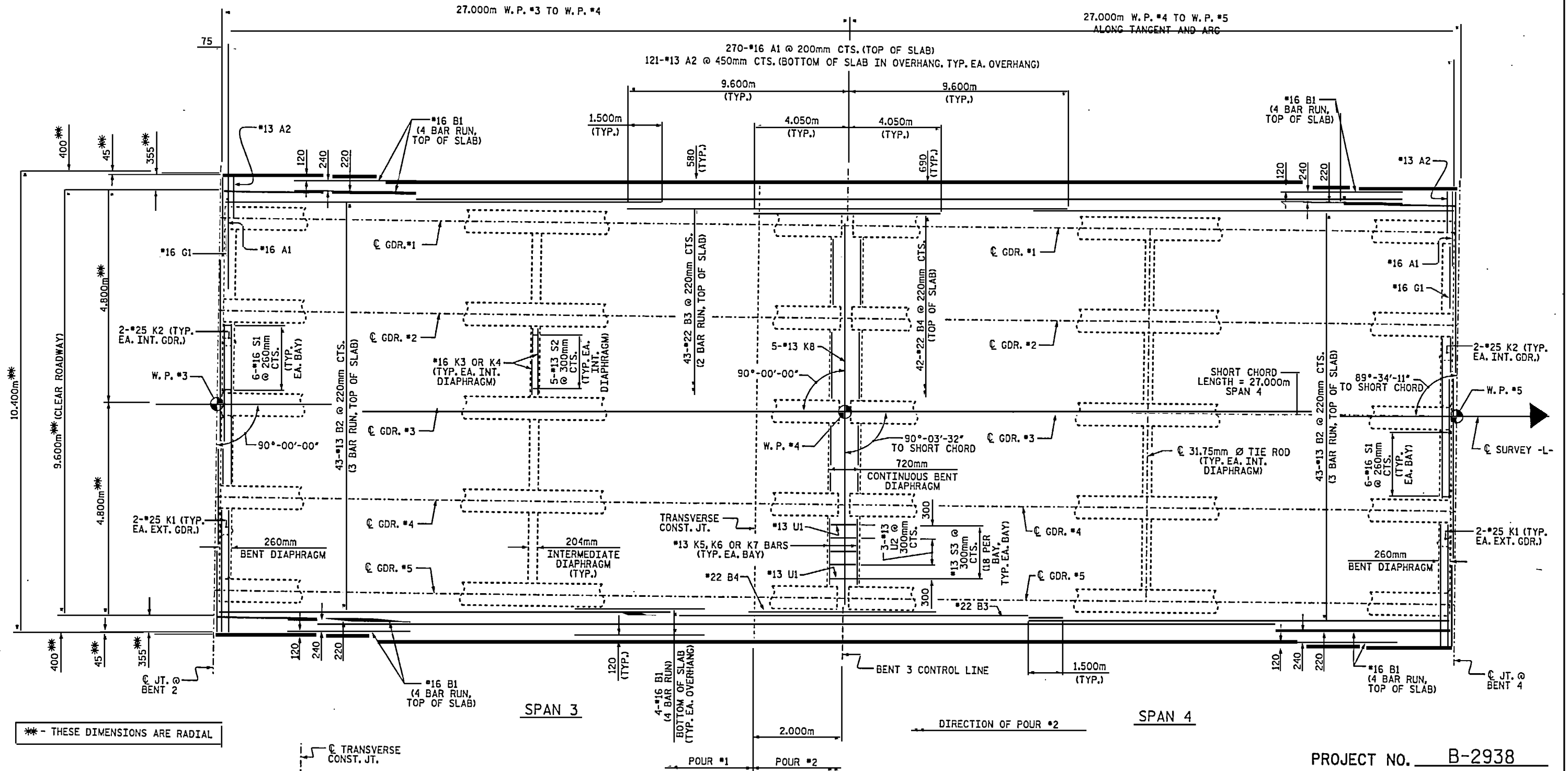
SUPERSTRUCTURE
PRECAST PRESTRESSED
CONCRETE DECK PANELS

DATE: OCTOBER 13, 2004
SCALE: 1=100

REVISIONS:		
NO.	BY	DATE

SHEET 20A
OF
103





TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

PLAN OF SPANS 3 & 4

FOR LOCATION OF DECK DRAINS, SEE "DECK DRAIN LAYOUT" SHEETS.

FOR DRAIN DETAILS, SEE "TYPICAL SECTION DETAILS", SHEET 5 OF 6.

FOR ADDITIONAL REINFORCING STEEL IN DECK SLAB AND PARAPET, SEE "355mm x 760mm CONCRETE PARAPET"

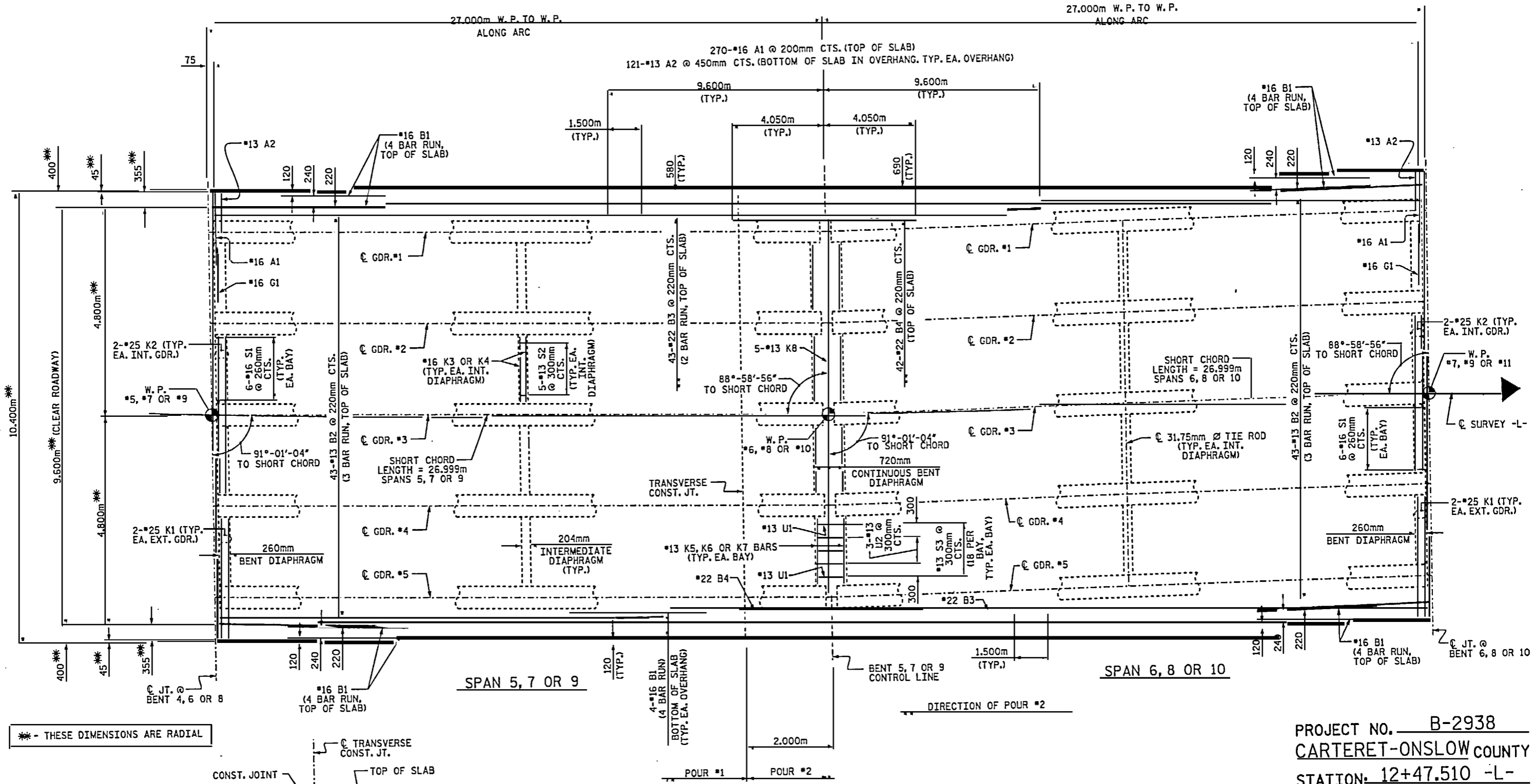
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

SHEET 2 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPANS
 3 AND 4

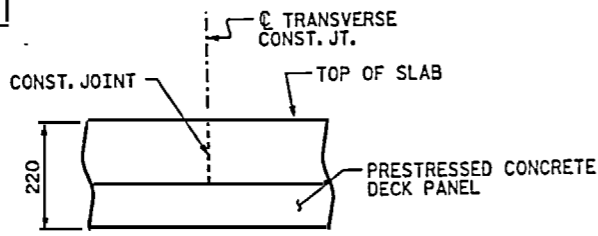




* - THESE DIMENSIONS ARE RADIAL

TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.



PLAN OF SPANS 5 THRU 10

FOR LOCATION OF DECK DRAINS, SEE "DECK DRAIN LAYOUT" SHEETS.
 FOR DRAIN DETAILS, SEE "TYPICAL SECTION DETAILS", SHEET 5 OF 6.
 FOR ADDITIONAL REINFORCING STEEL IN DECK SLAB AND PARAPET, SEE "355mm x 760mm CONCRETE PARAPET" SHEETS.

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

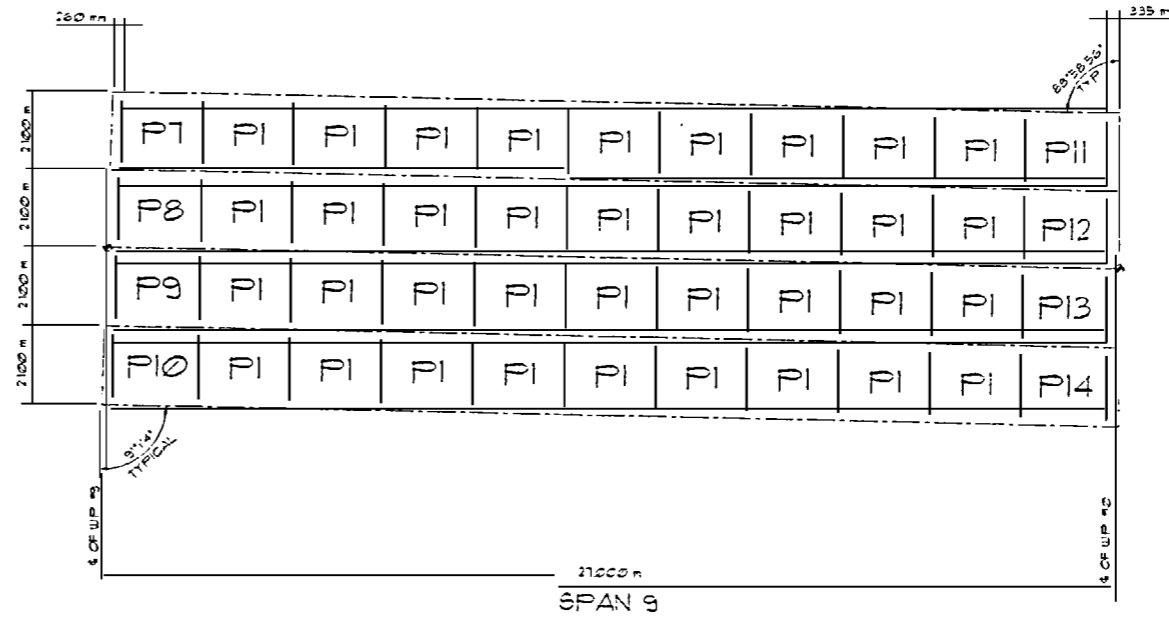
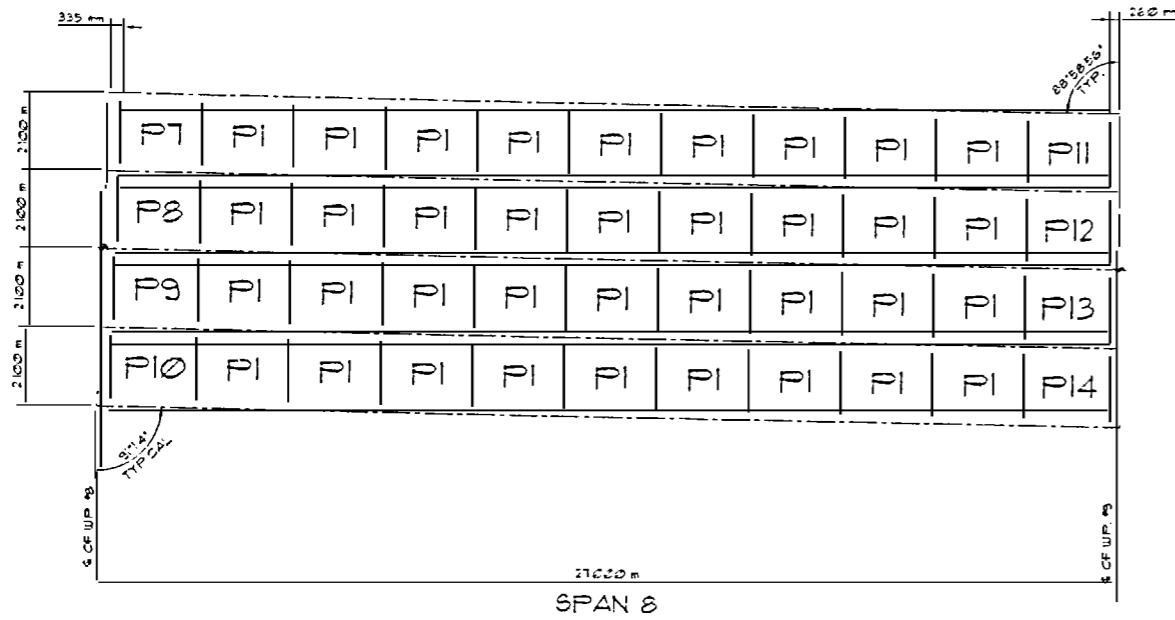
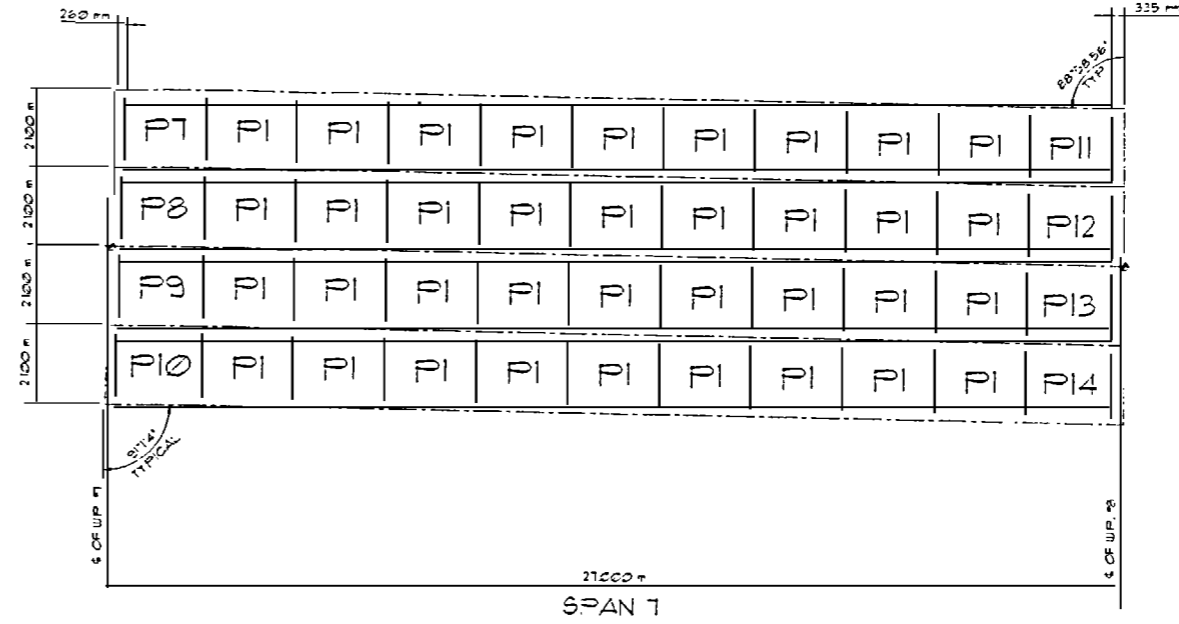
SHEET 3 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPANS
 5 THRU 10



REVISIONS | SHEET NO.



PANEL SCHEDULE									
	P1	P7	P8	P9	P10	P11	P12	P13	P14
SPAN 6	36	1	1	1	1	1	1	1	1
SPAN 7	36	1	1	1	1	1	1	1	1
SPAN 8	36	1	1	1	1	1	1	1	1
SPAN 9	36	1	1	1	1	1	1	1	1
TOTALS	144	4	4	4	4	4	4	4	4

PROPERTY OF
UTILITY PRECAST, INC.
939 W. CRAIGHEAD RD.
CHARLOTTE, NC 28206



UTILITY PRECAST, INC.
939 W. CRAIGHEAD ROAD
CHARLOTTE, NC. 28206

PROJECT NO.: C200729
COUNTY: CARTERET/ONSLOW
STATION: 12+47.510 -L-

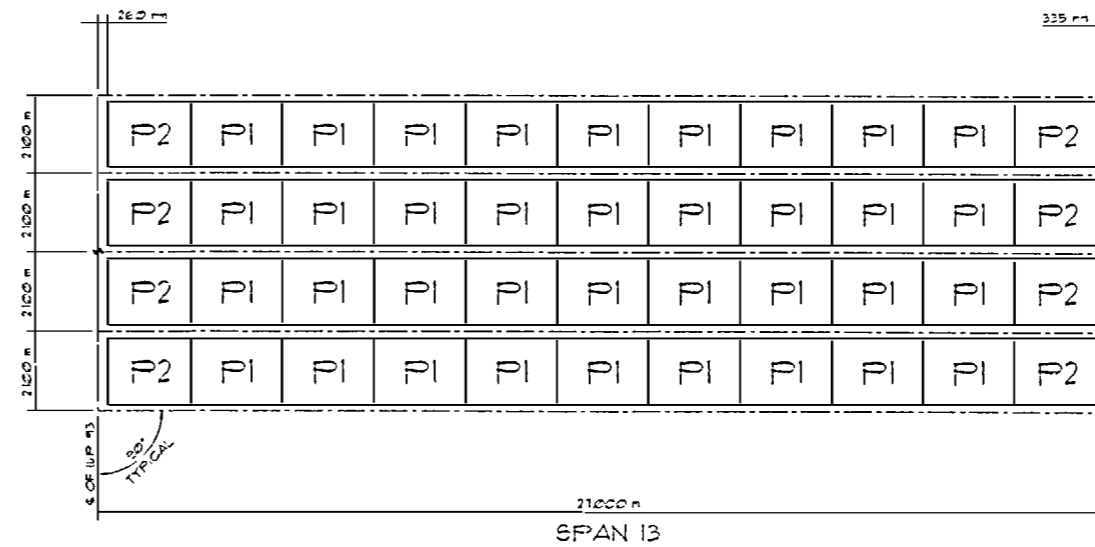
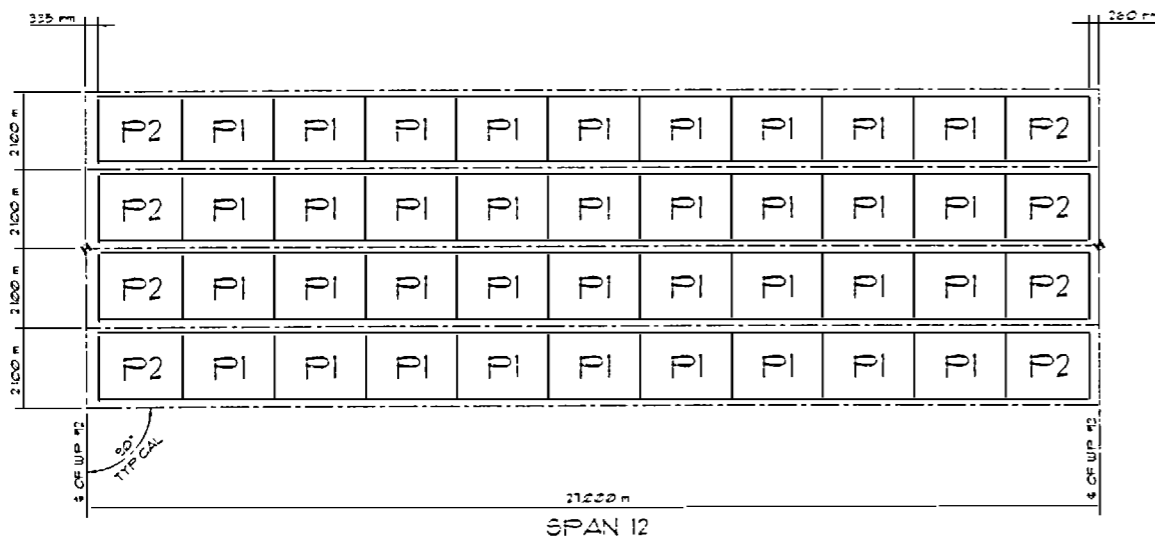
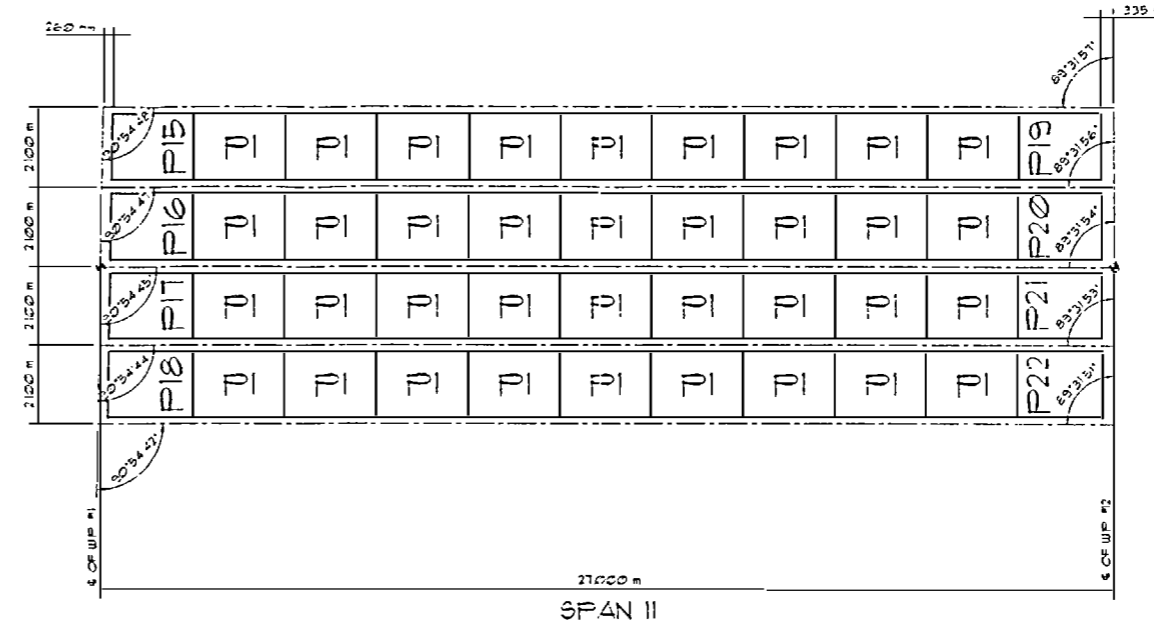
**SUPERSTRUCTURE
PRECAST PRESTRESSED
CONCRETE DECK PANELS**

DATE: OCTOBER 13, 2004
SCALE: 1=100
REVISIONS:

NO.	BY	DATE

SHEET 22A
OF
103





PANEL SCHEDULE																		
	P1	P2	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22
SPAN 10	36		1	1	1	1	1	1	1	1								
SPAN 11	36										1	1	1	1	1	1	1	1
SPAN 12	36	8																
SPAN 13	36	8																
TOTALS	144	16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

PROPERTY OF
UTILITY PRECAST, INC.
939 W. CRAIGHEAD RD.
CHARLOTTE, NC 28206



UTILITY PRECAST, INC.
939 W. CRAIGHEAD ROAD
CHARLOTTE, NC 28206

PROJECT NO.: C200729
COUNTY: CARTERET/ONSLAW
STATION: 12+47.510 -L-

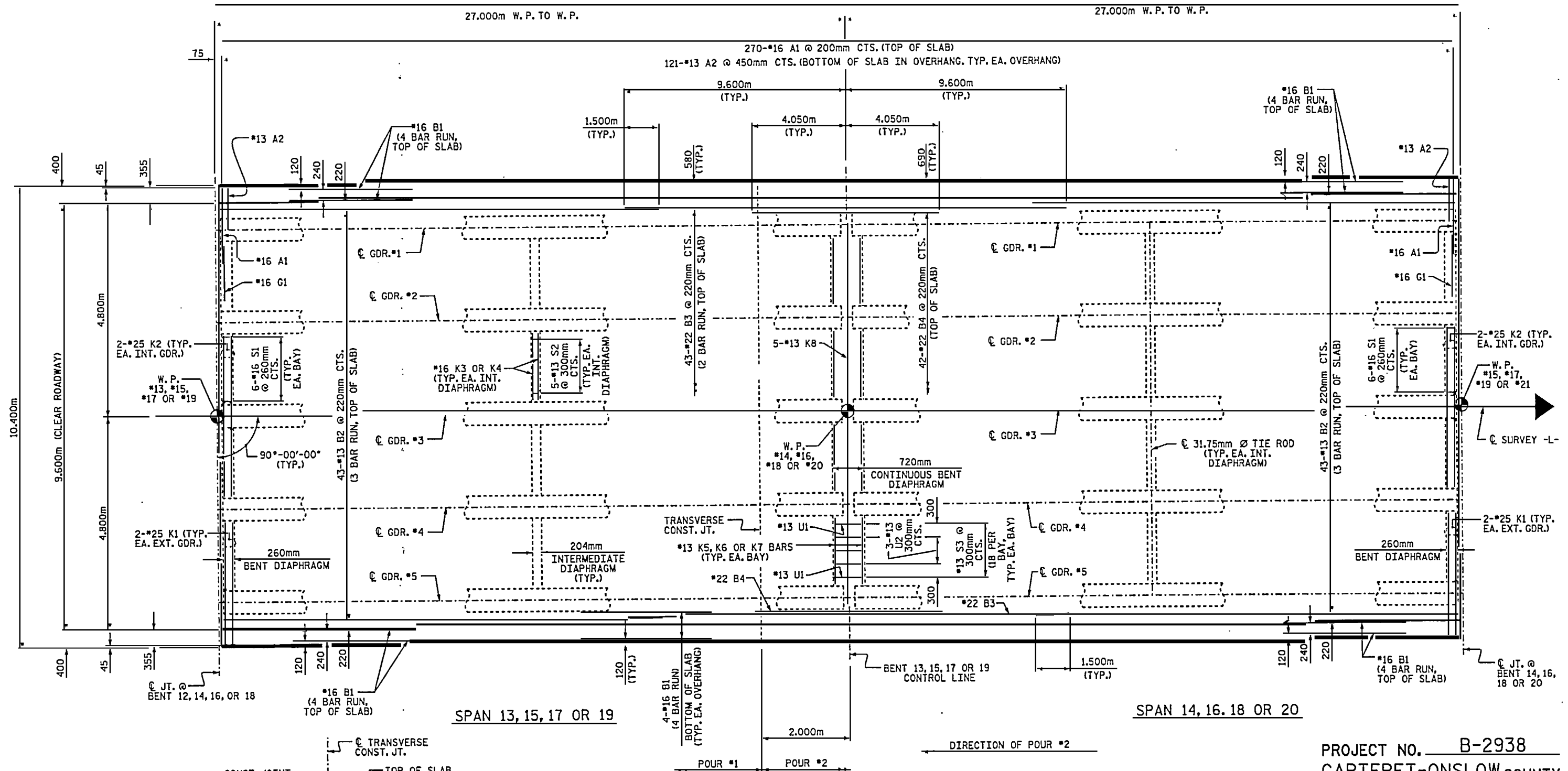
**SUPERSTRUCTURE
PRECAST PRESTRESSED
CONCRETE DECK PANELS**

DATE: OCTOBER 13, 2004
SCALE: 1=100
REVISIONS:

NO.	BY	DATE

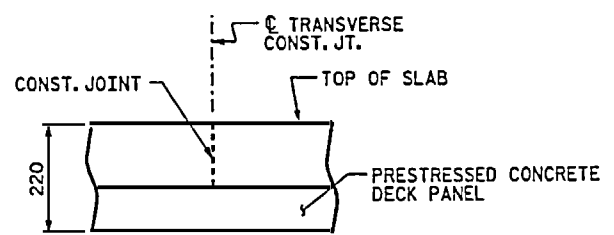
SHEET 22B
OF
103

SHEET
NUMBER
11



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.



PLAN OF SPANS 13 THRU 20

FOR LOCATION OF DECK DRAINS, SEE "DECK DRAIN LAYOUT" SHEETS.
 FOR DRAIN DETAILS, SEE "TYPICAL SECTION DETAILS" SHEET 5 OF 6.
 FOR ADDITIONAL REINFORCING STEEL

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

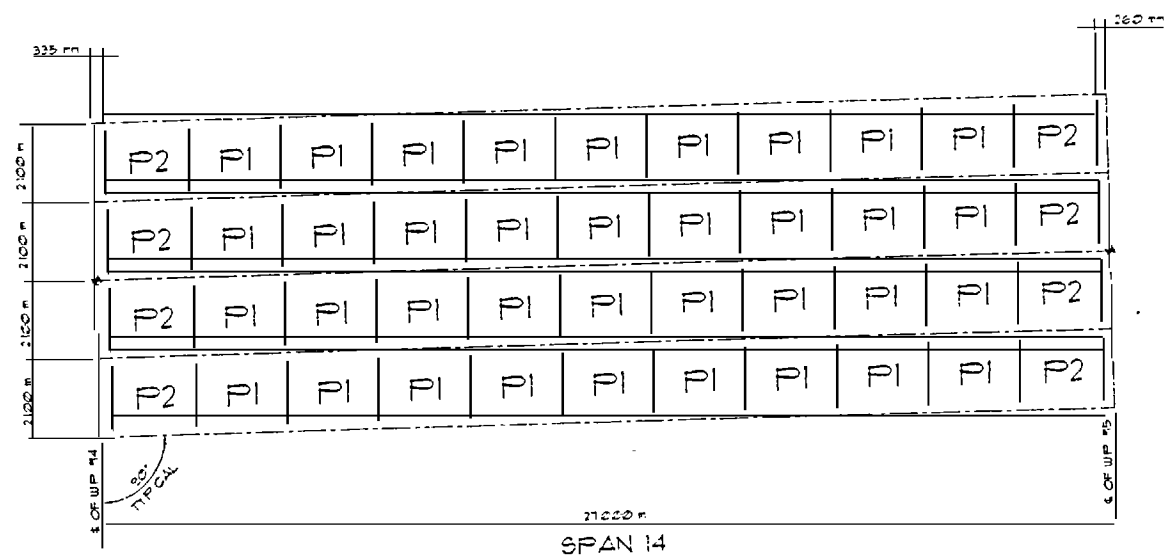
SHEET 5 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

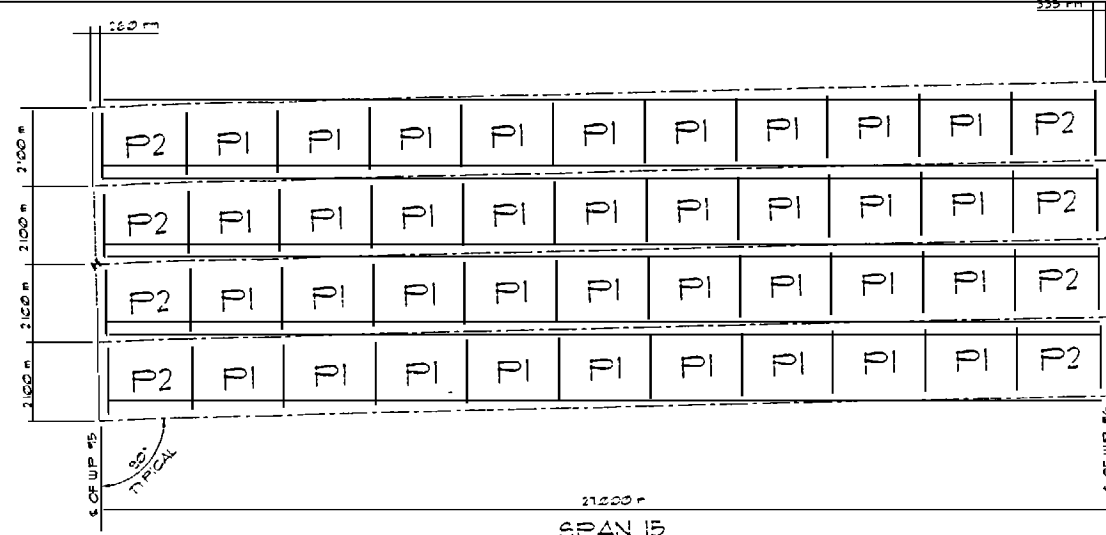
SUPERSTRUCTURE
 PLAN OF SPANS
 13 THRU 20



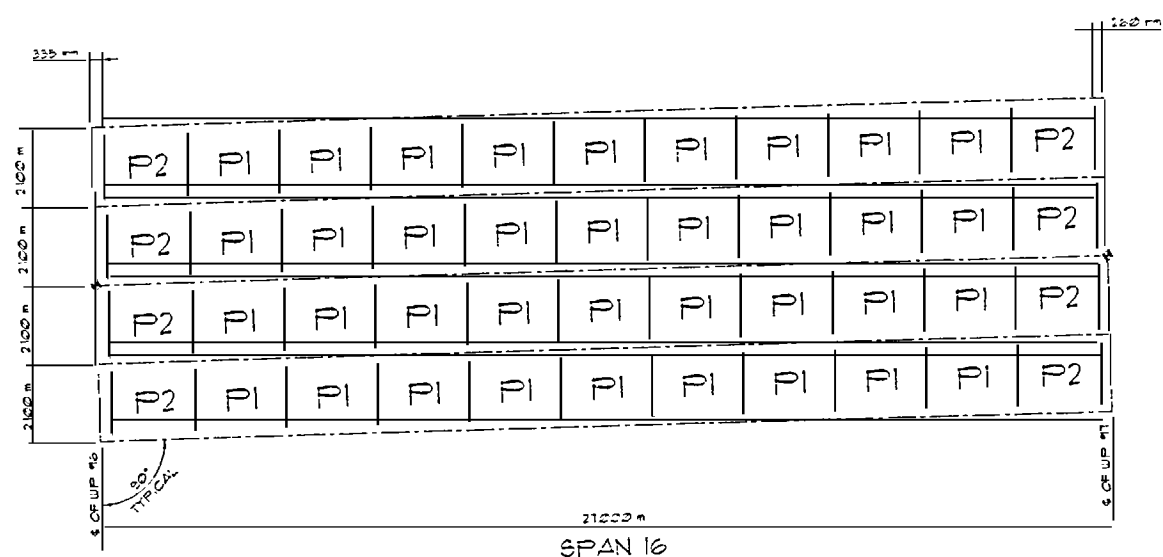
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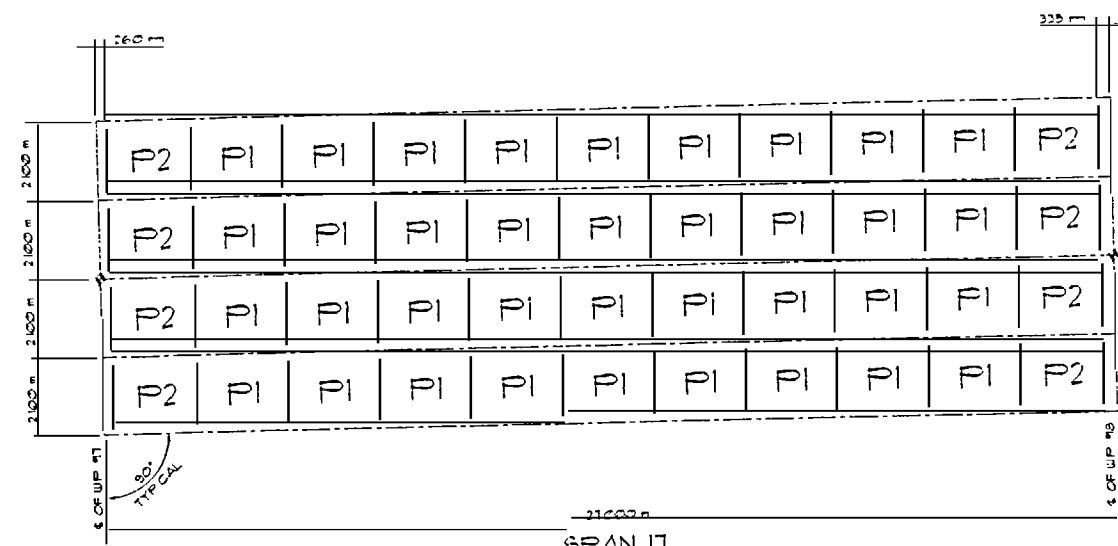
SPAN 14



SPAN 15



SPAN 16



SPAN 17

PANEL SCHEDULE		
	P1	P2
SPAN 14	36	8
SPAN 15	36	8
SPAN 16	36	8
SPAN 17	36	8
TOTALS	144	32

PROPERTY OF
UTILITY PRECAST,
939 W. CRAIGHEAD ROAD
CHARLOTTE, NC 28206



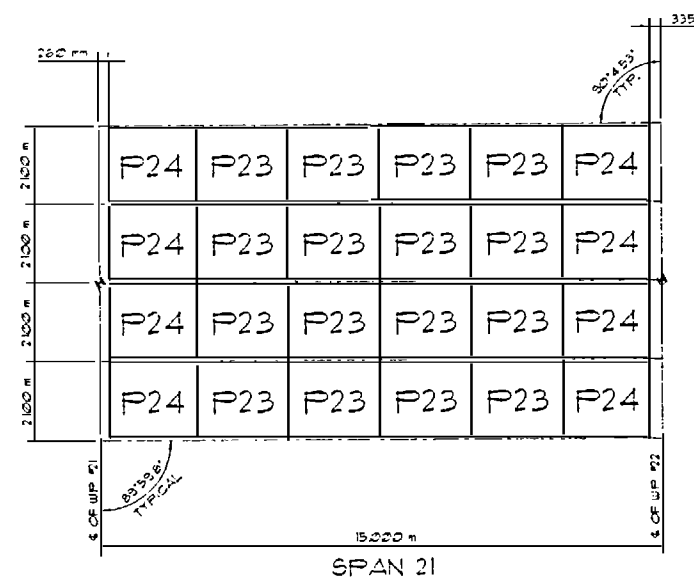
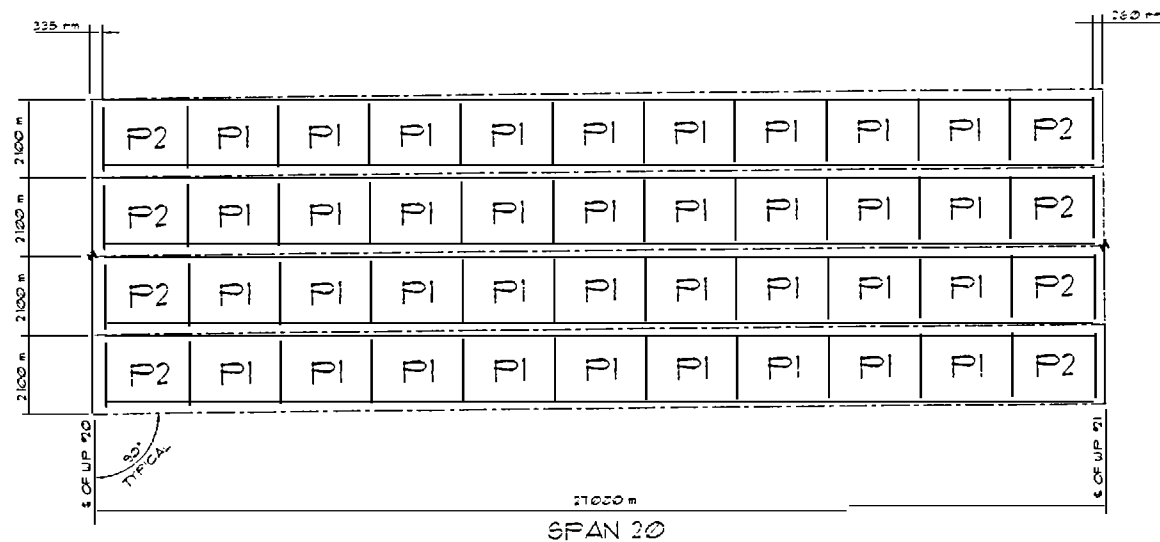
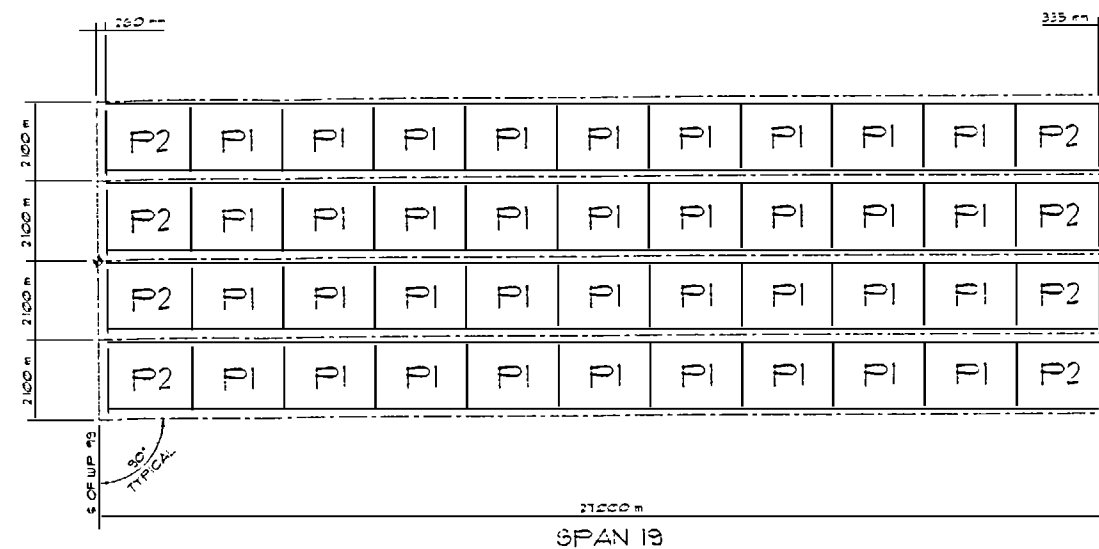
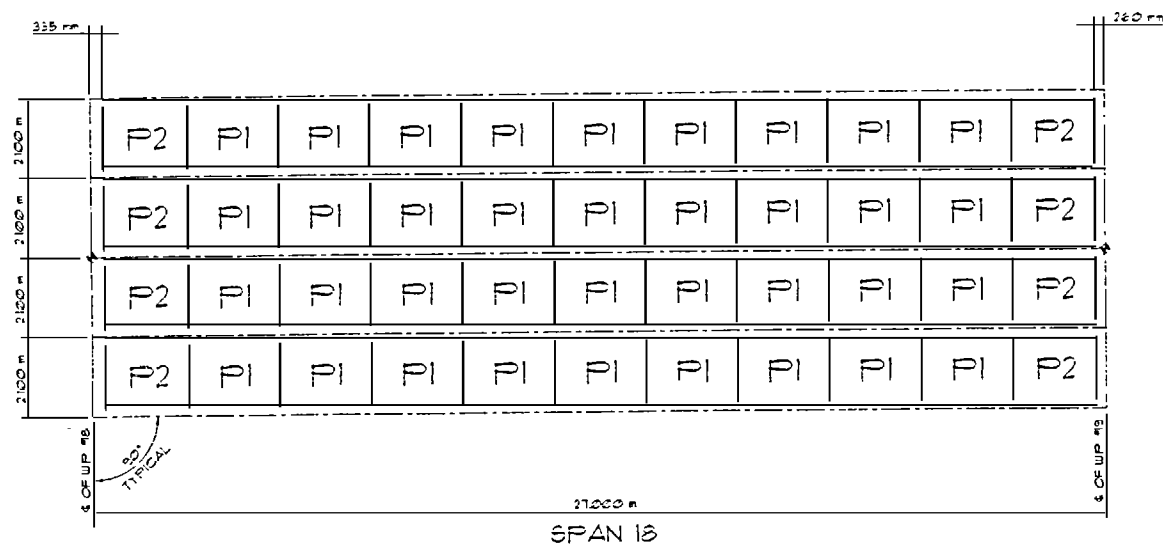
UTILITY PRECAST, INC.
939 W. CRAIGHEAD ROAD
CHARLOTTE, NC 28206

PROJECT NO.: C200729
COUNTY: CARTERET/ONSLAW
STATION: 12+47.510 -L-

**SUPERSTRUCTURE
PRECAST PRESTRESSED
CONCRETE DECK PANELS**

DATE: OCTOBER 13, 2004	SHEET NO.
SCALE: 1=100	
REVISIONS:	DATE
NO.	
BY	TOTAL
	11

SHEET 24A
OF
103



PANEL SCHEDULE				
	F1	F2	F23	F24
SPAN 18	24	8		
SPAN 19	36	8		
SPAN 20	36	8		
SPAN 21			16	8
TOTALS	108	24	16	8

PROPERTY OF
UTILITY PRECAST
331 W. CRAIGHEAD
CHARLOTTE, NC 28206



UTILITY PRECAST, INC.
939 W. CRAIGHEAD ROAD
CHARLOTTE, NC. 28206

PROJECT NO.: C200729
COUNTY: CARTERET/ONSLow
STATION: 12+47.510 -L-

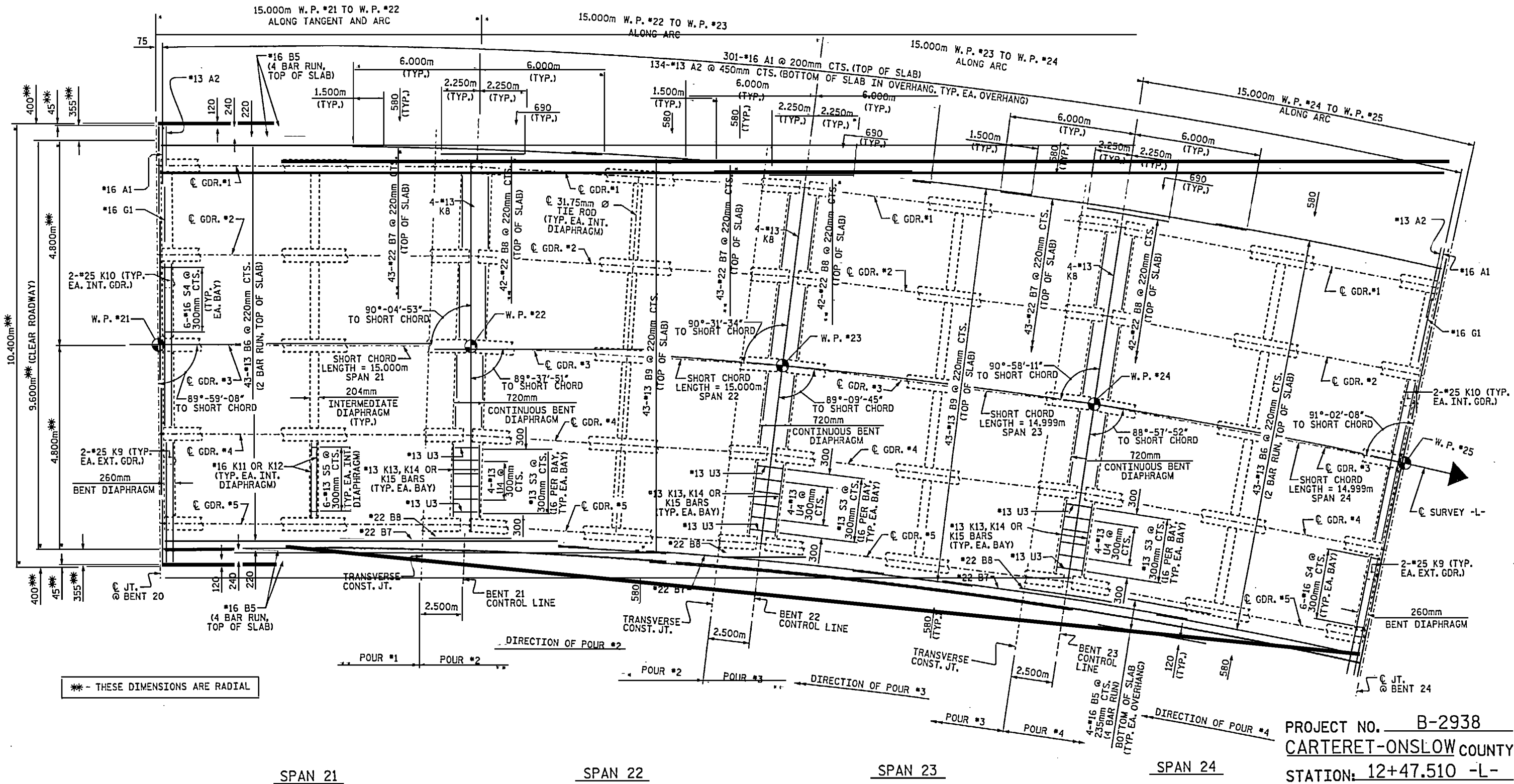
**SUPERSTRUCTURE
PRECAST PRESTRESSED
CONCRETE DECK PANELS**

DATE: OCTOBER 13, 2004
SCALE: 1=100
REVISIONS:

NO.	BY	DATE

SHEET 24B
OF
103





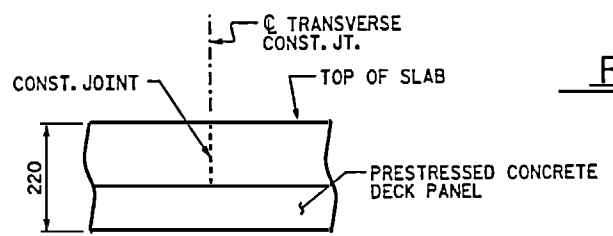
* - THESE DIMENSIONS ARE RADIAL

SPAN 21

SPAN 22

SPAN 23

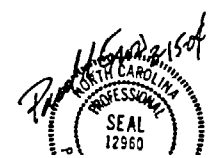
SPAN 24



TRANSVERSE CONSTRUCTION JOINT DETAIL

PLAN OF SPANS 21 THRU 24

FOR LOCATION OF DECK DRAINS, SEE "DECK DRAIN LAYOUT" SHEETS.
 FOR DRAIN DETAILS, SEE "TYPICAL SECTION DETAILS", SHEET 5 OF 6.
 FOR ADDITIONAL REINFORCING STEEL IN DECK SLAB AND PARAPET, SEE "355mm x 760mm CONCRETE PARAPET"



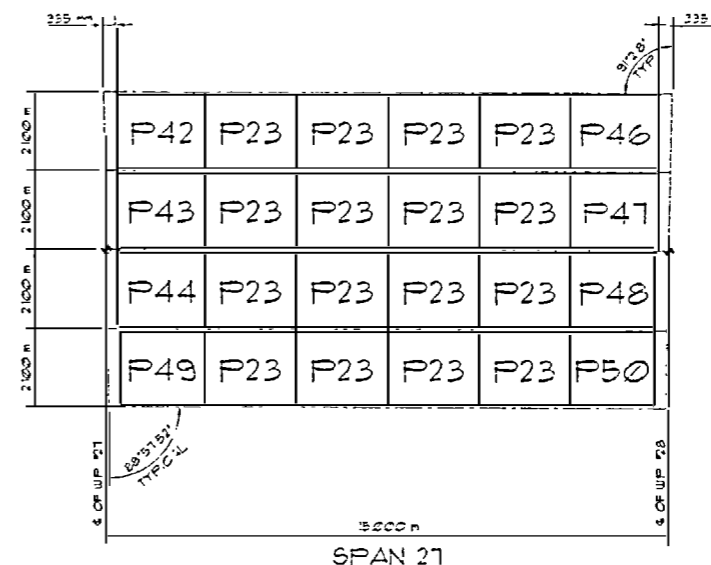
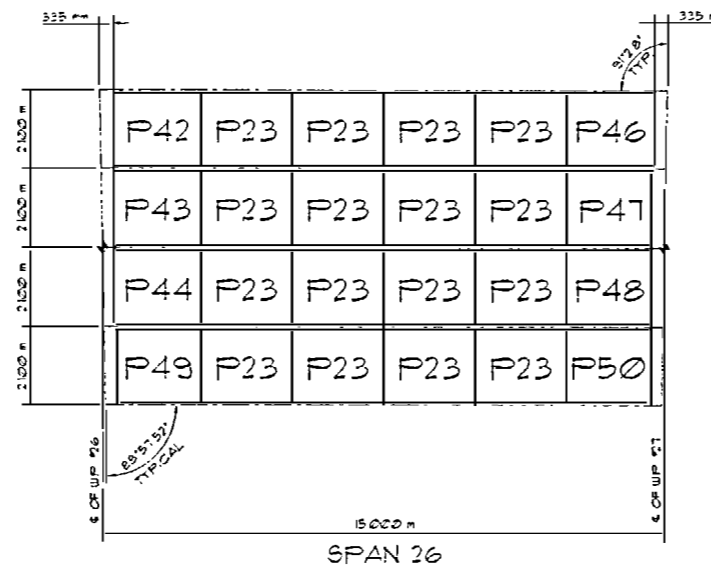
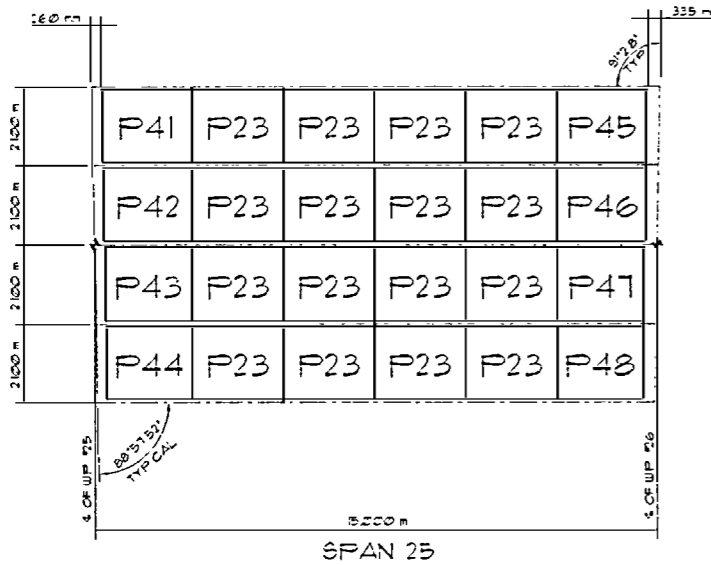
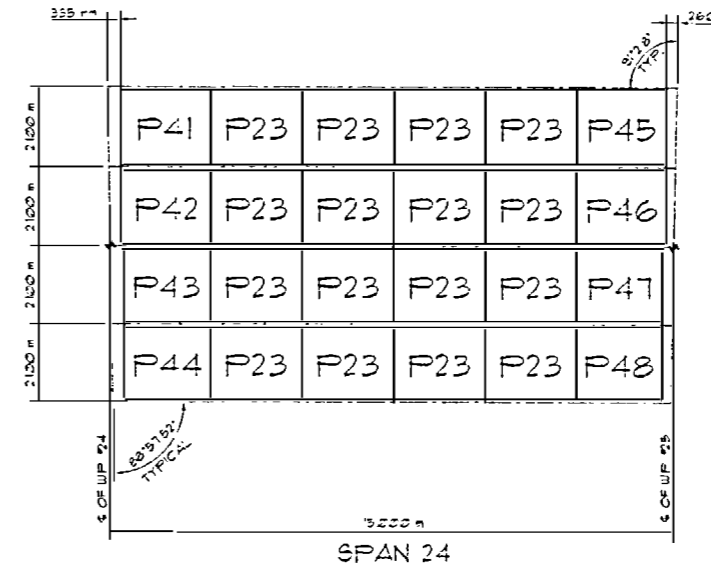
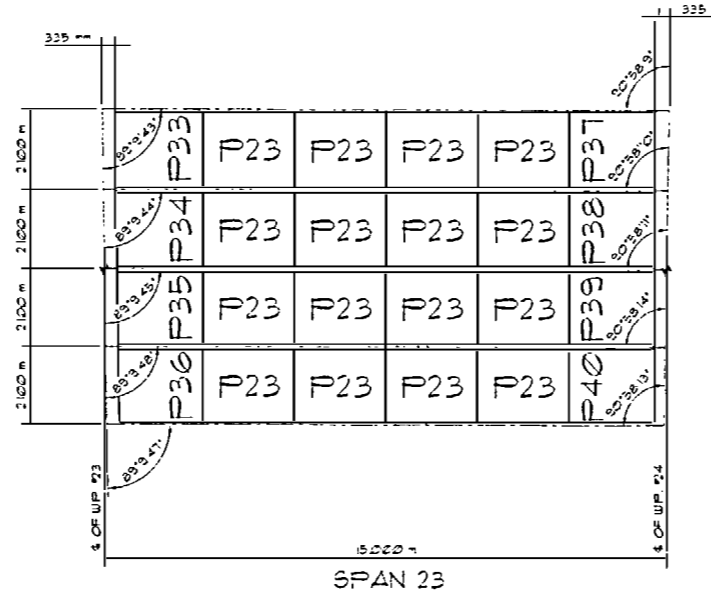
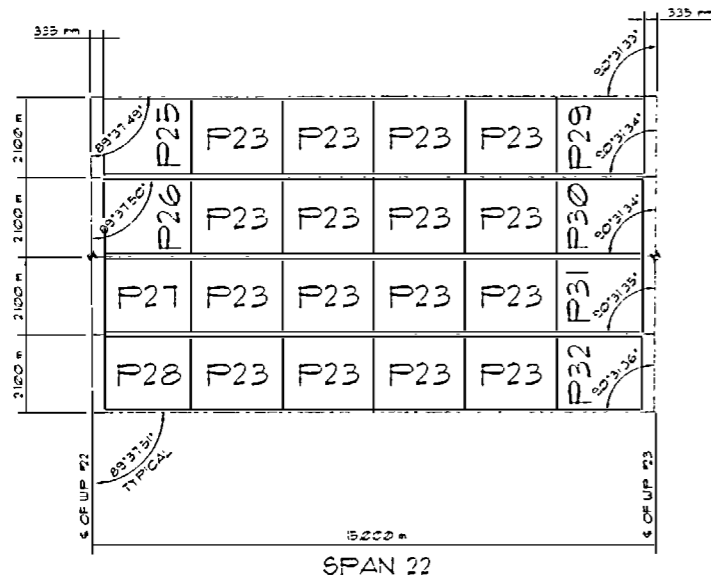
PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

SHEET 6 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPANS
 21 THRU 24

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PROPERTY OF
UTILITY PRECAST
939 W. CRAIGHEAD
CHARLOTTE, NC 28226



PANEL SCHEDULE																											
	P23	P25	P26	P27	P28	P29	P30	P31	P32	P33	P34	P35	P36	P37	P38	P39	P40	P41	P42	P43	P44	P45	P46	P47	P48	P49	P50
SPAN 22	16	1	1	1	1	1	1	1	1																		
SPAN 23	16									1	1	1	1	1	1	1	1										
SPAN 24	16																	1	1	1	1	1	1	1			
SPAN 25	16																	1	1	1	1	1	1	1			
SPAN 26	16																		1	1	1		1	1	1	1	1
SPAN 27	16																		1	1	1		1	1	1	1	1
TOTALS	96	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	4	4	4	2	4	4	4	2	2

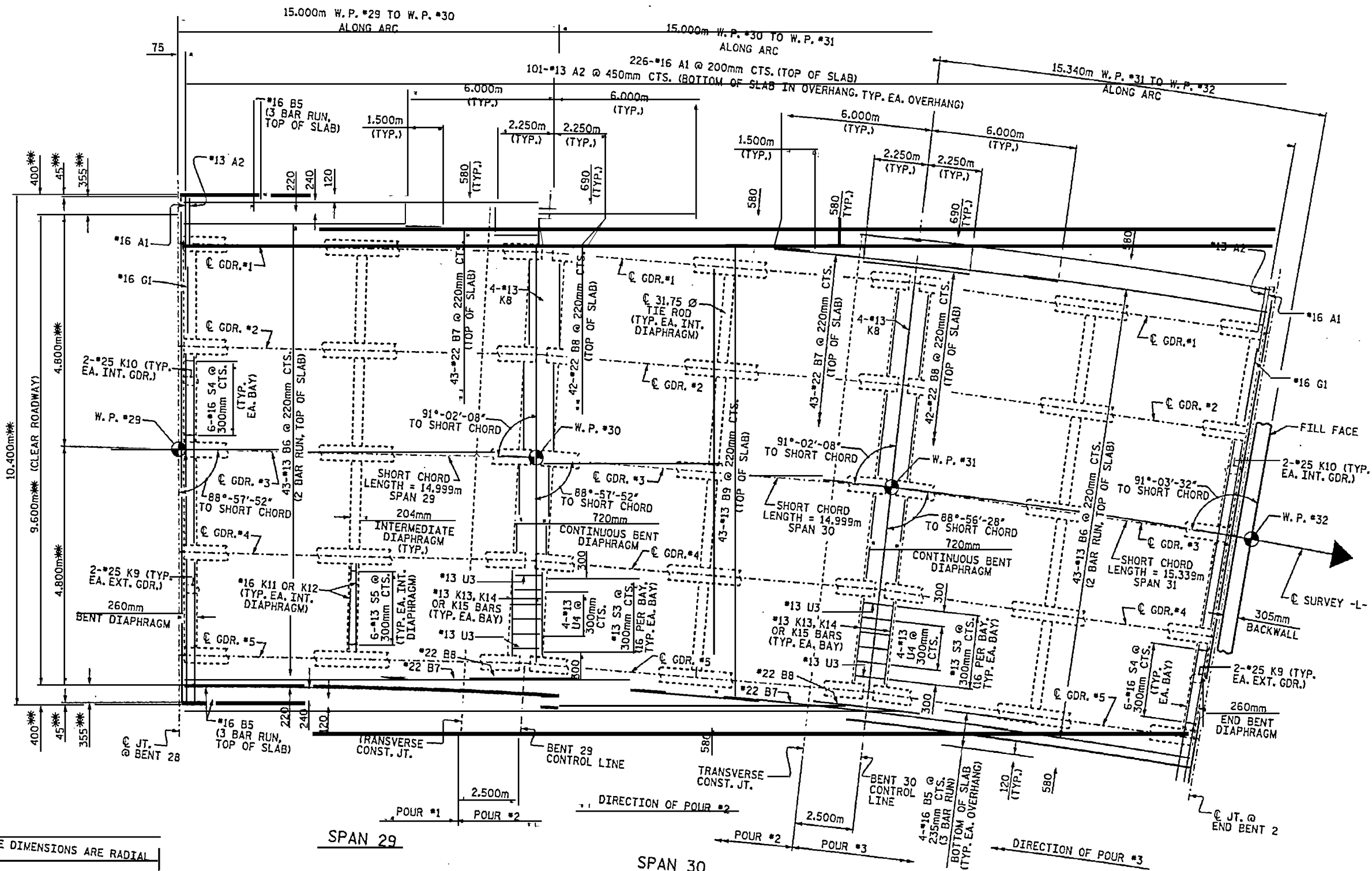
UTILITY PRECAST, INC.
939 W. CRAIGHEAD ROAD
CHARLOTTE, NC. 28206

PROJECT NO.: C200729
COUNTY: CARTERET/ONSLOW
STATION: 12+47.510 -L-

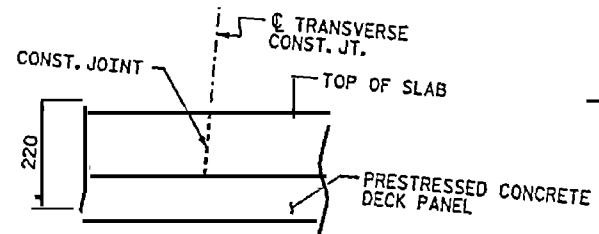
SUPERSTRUCTURE
PRECAST PRESTRESSED
CONCRETE DECK PANELS

DATE: OCTOBER 13, 2004	SHEET NO.	BY	DATE	TOTAL SHEETS
SCALE: 1=100				
REVISIONS:				

SHEET 25A
OF
103



** - THESE DIMENSIONS ARE RADIAL



TRANSVERSE CONSTRUCTION JOINT DETAIL

PLAN OF SPANS 29 THRU 31

FOR LOCATION OF DECK DRAINS, SEE "DECK DRAIN LAYOUT" SHEETS.
 FOR DRAIN DETAILS, SEE "TYPICAL SECTION DETAILS", SHEET 5 OF 6.
 FOR ADDITIONAL REINFORCING STEEL IN DECK SLAB AND PARAPET, SEE 355mm x 760mm CONCRETE PARAPET

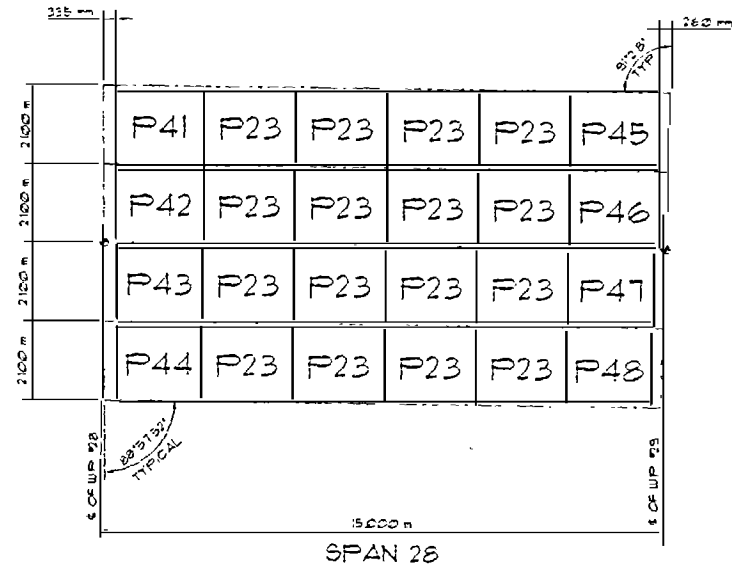


PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

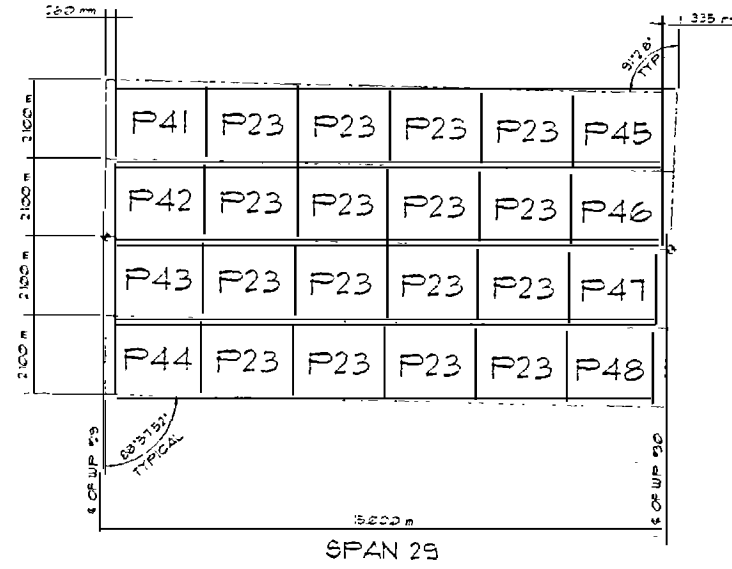
SHEET 8 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

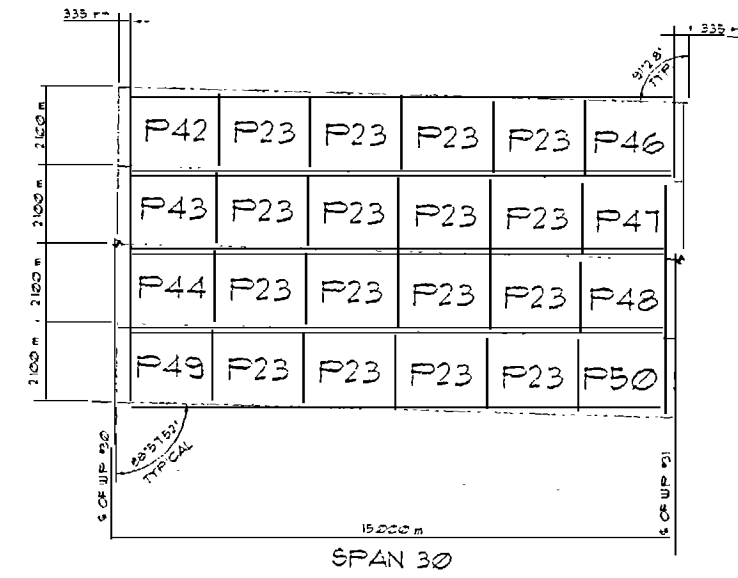
SUPERSTRUCTURE
 PLAN OF SPANS
 29 THRU 31



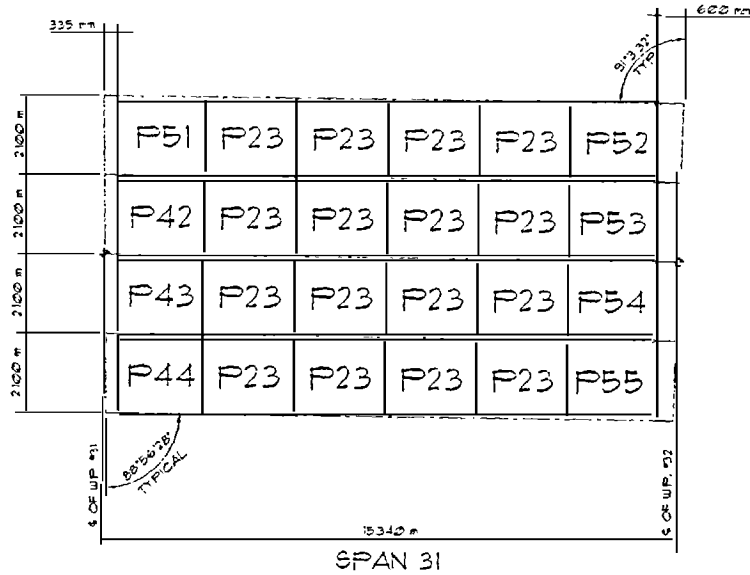
SPAN 28



SPAN 29

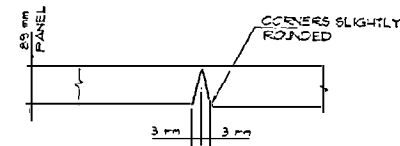


SPAN 30

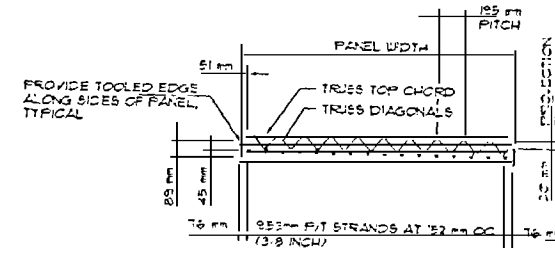


SPAN 31

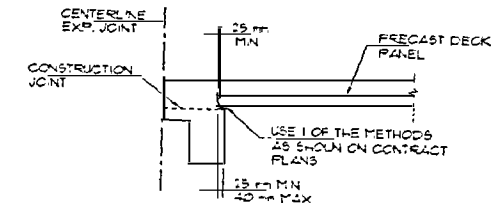
PANEL SCHEDULE																
	F23	P41	P42	P43	P44	P45	P46	P47	P48	P49	P50	P51	P52	P53	P54	P55
SPAN 28	16	1	1	1	1	1	1	1	1							
SPAN 29	16	1	1	1	1	1	1	1	1							
SPAN 30	16		1	1	1		1	1	1	1						
SPAN 31	16		1	1	1						1	1	1	1	1	1
TOTALS	64	2	4	4	4	2	3	3	3	1	1	1	1	1	1	1



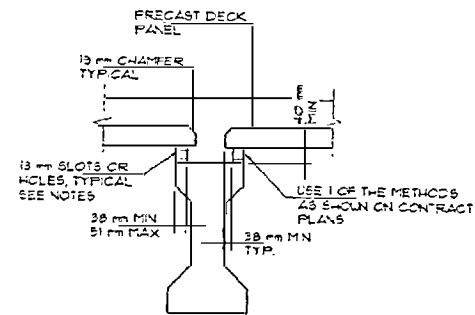
TYPICAL PANEL SIDE JOINTS



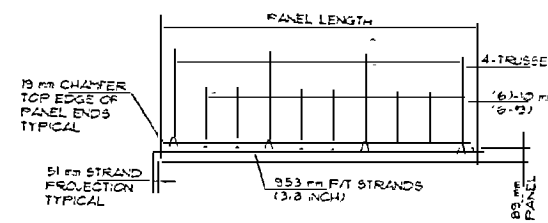
SECTION A-A



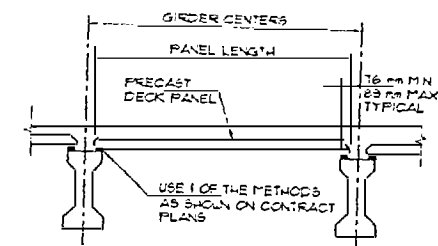
PARTIAL SECTION AT DIAPHRAM



GIRDER SUPPORT



SECTION B-B



PARTIAL SECTION AT GIRDERS

PROPERTY OF
UTILITY PRECAST, INC.
939 W. CRAIGHEAD RD
CHARLOTTE, NC 28206



UTILITY PRECAST, INC.
939 W. CRAIGHEAD ROAD
CHARLOTTE, NC. 28206

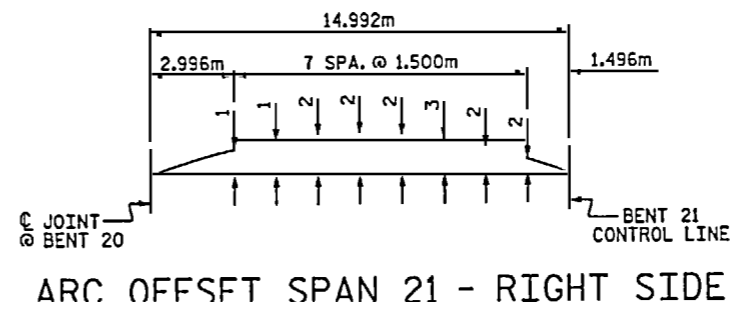
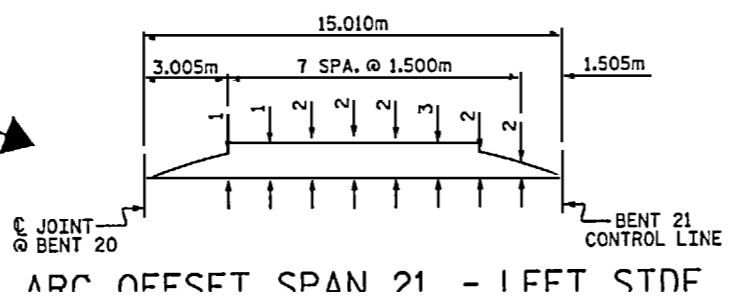
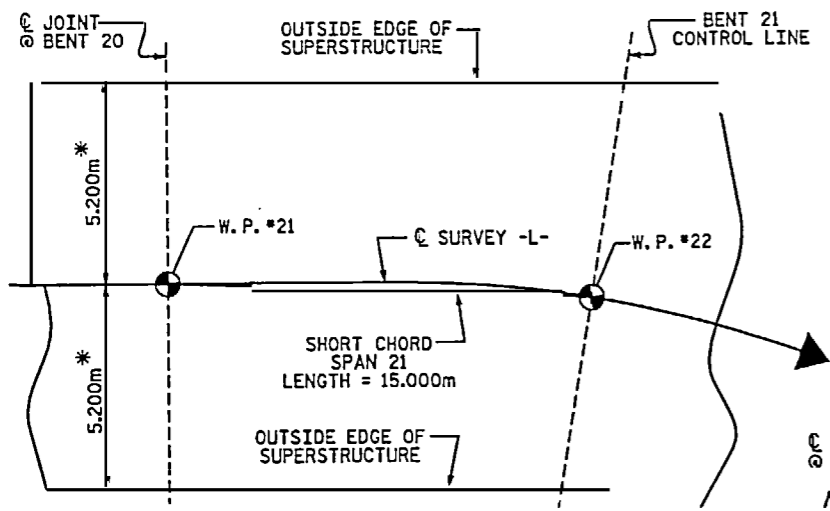
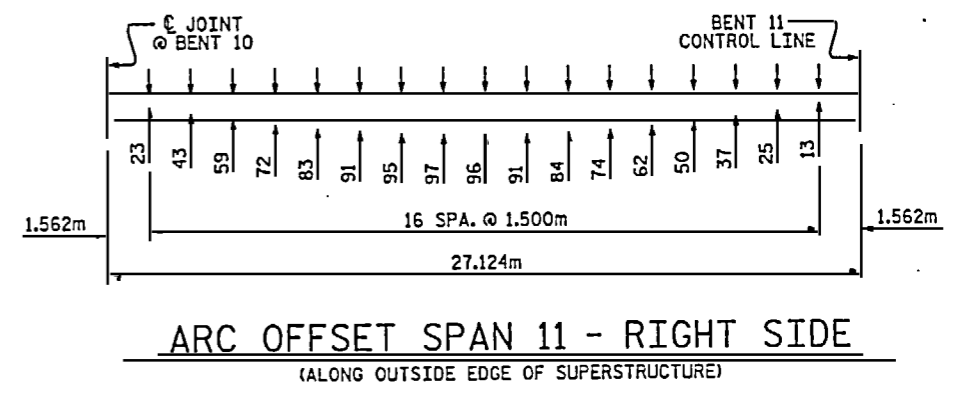
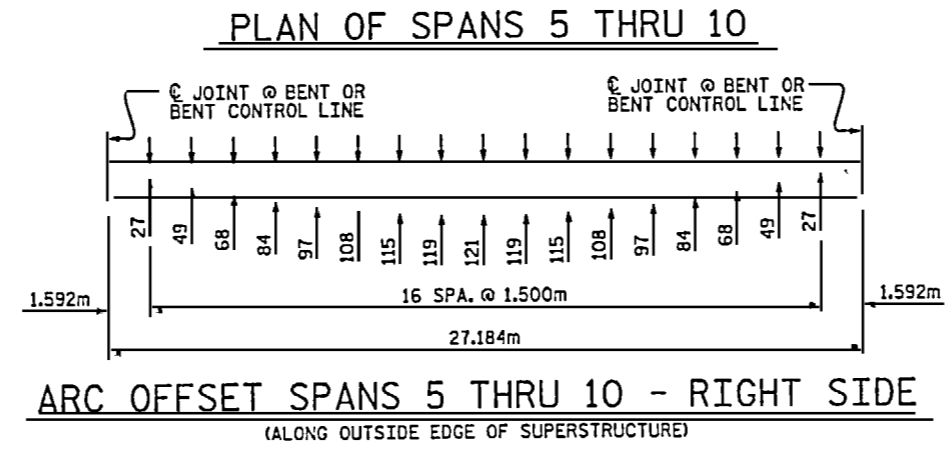
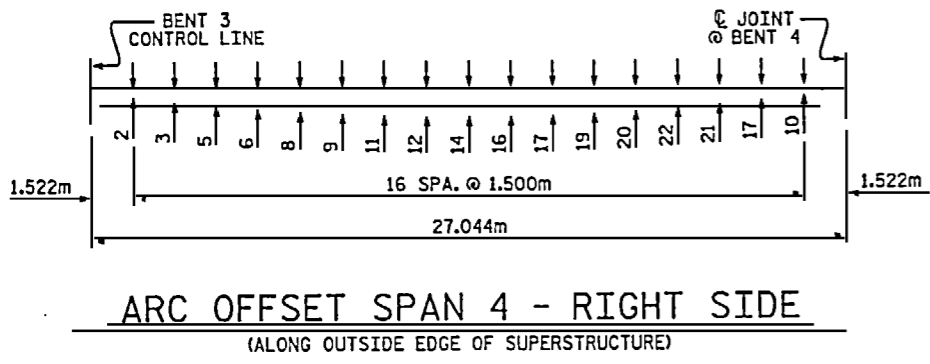
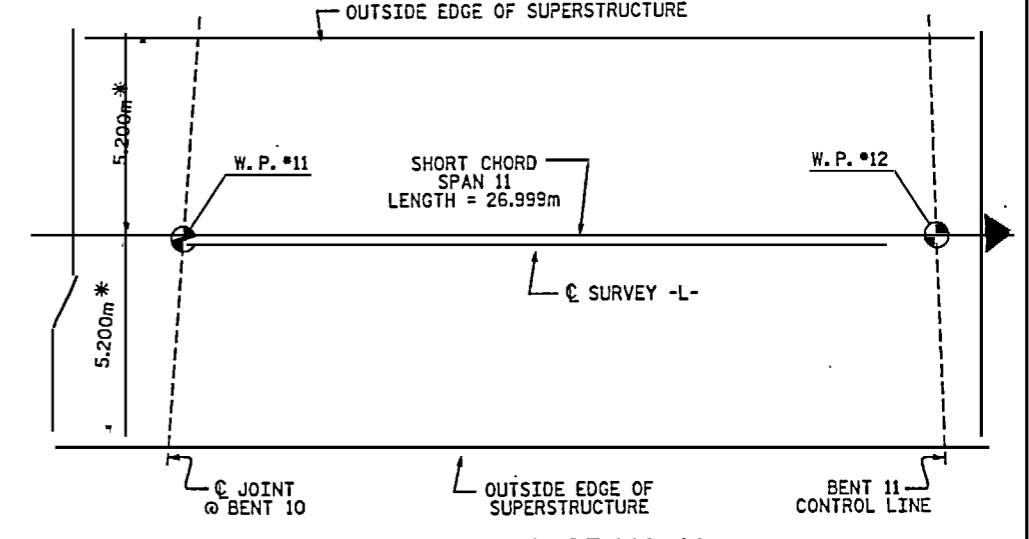
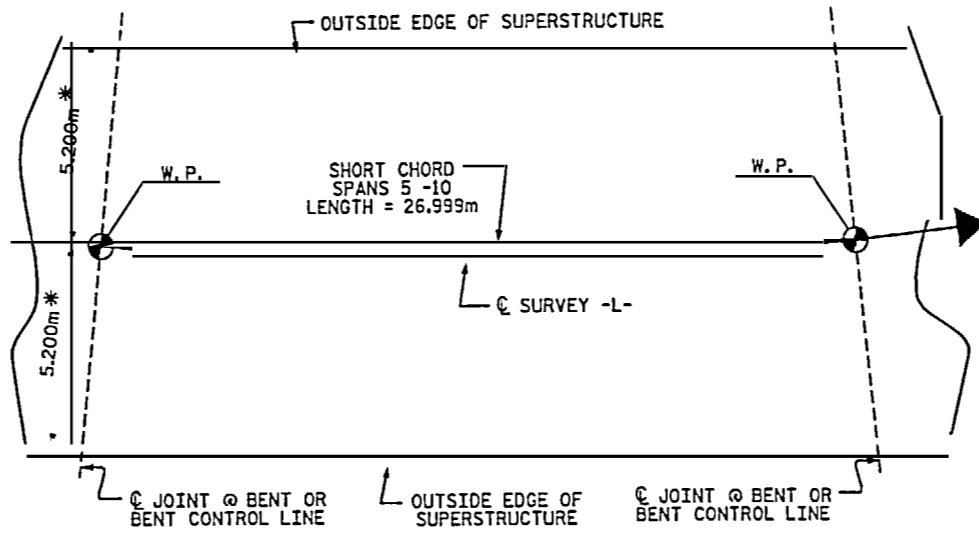
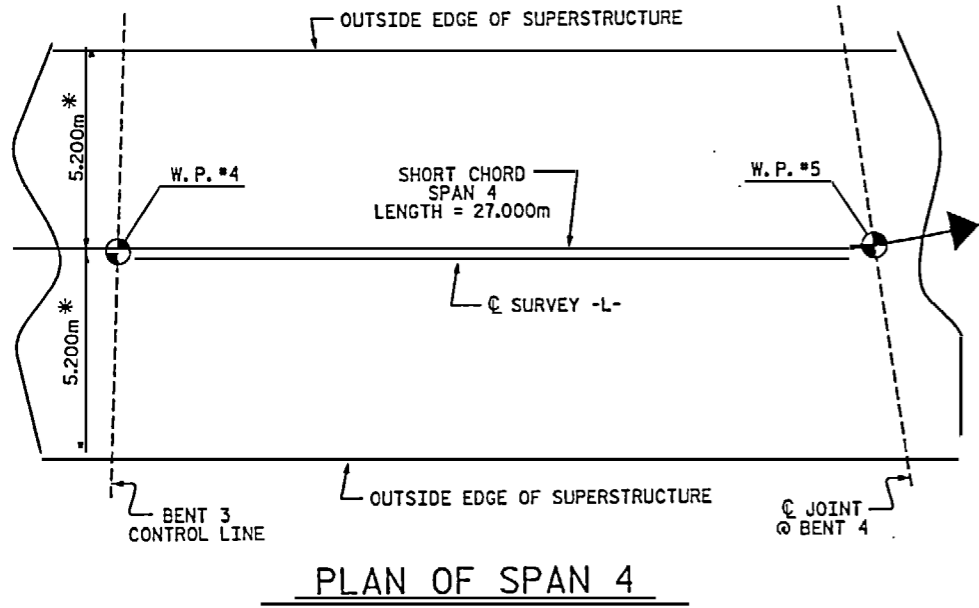
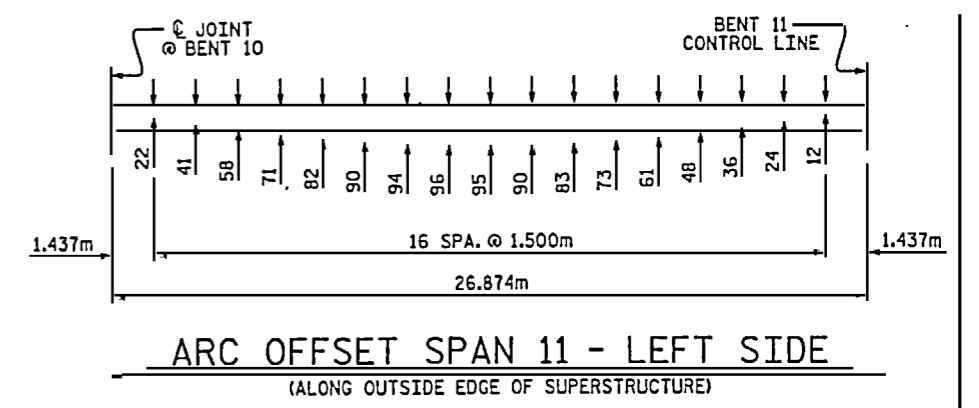
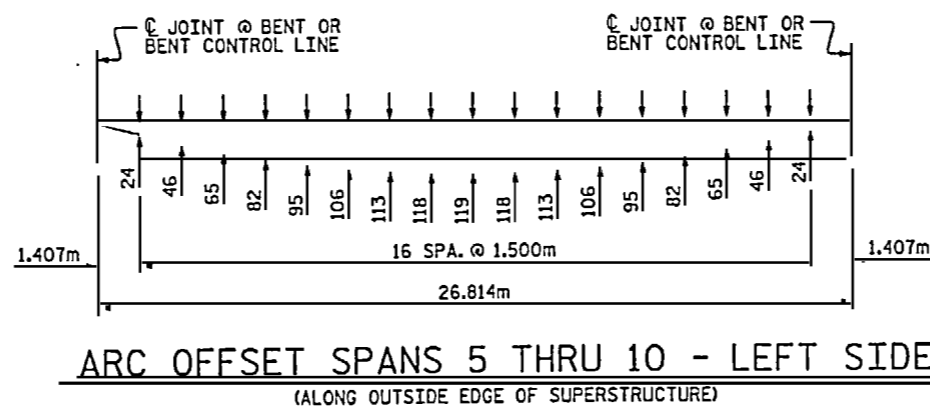
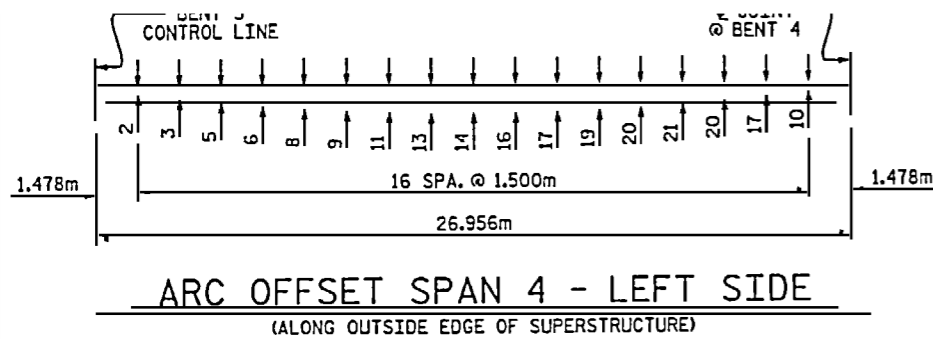
PROJECT NO.: C200729
COUNTY: CARTERET/ONSLAW
STATION: 12+47.510 -L-

SUPERSTRUCTURE
PRECAST PRESTRESSED
CONCRETE DECK PANELS

DATE: OCTOBER 13, 2004			
SCALE: 1:100			
REVISIONS:			
NO.	BY	DATE	

SHEET
27A
OF 103

SHEET
27A
OF 103



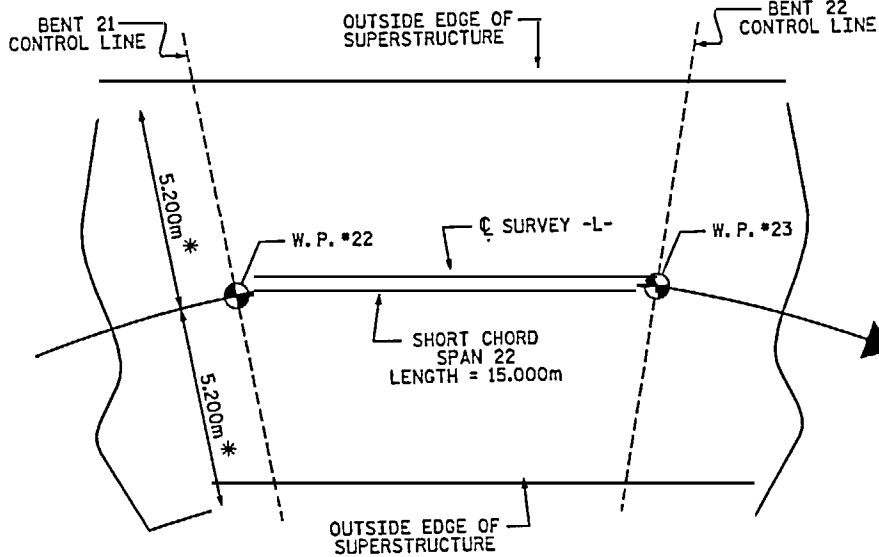
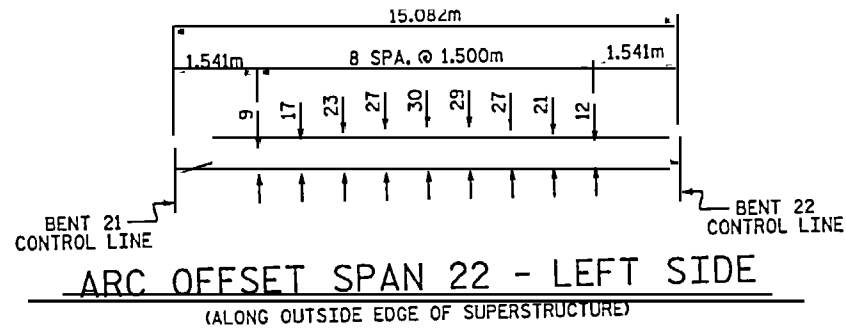
* RADIAL DIMENSION

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-
 SHEET 1 OF 2

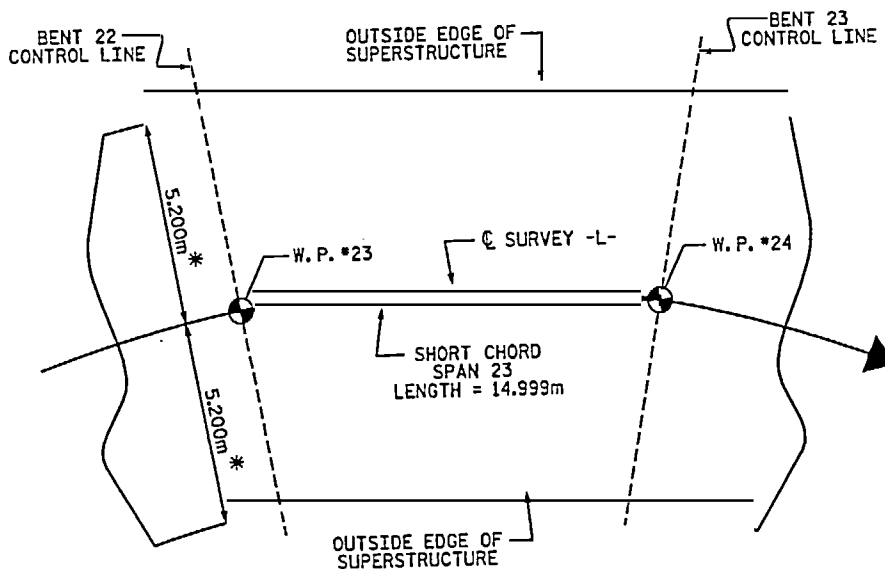
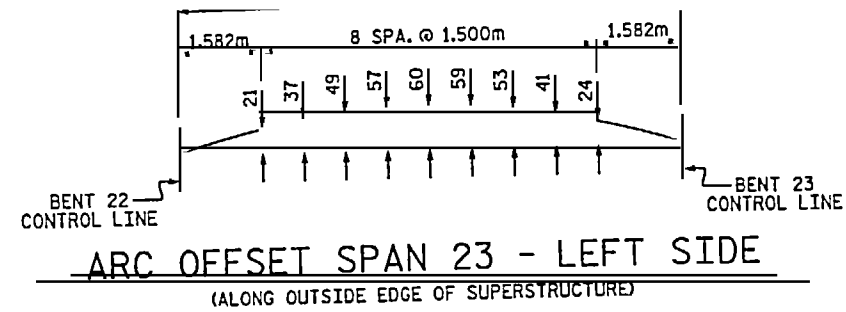
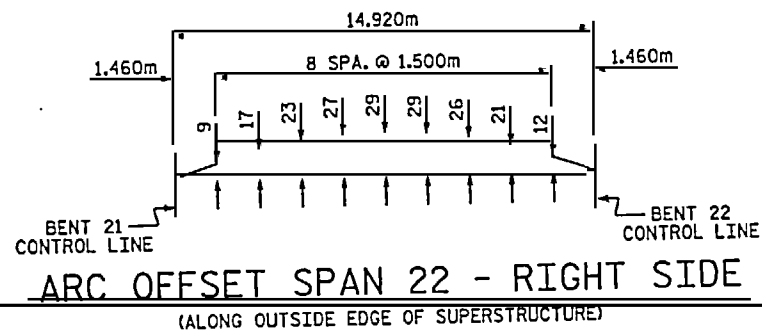
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 ARC OFFSETS

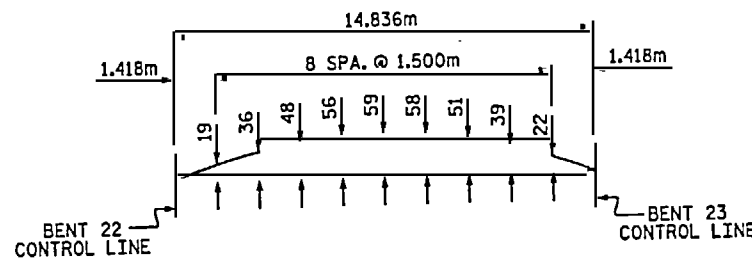




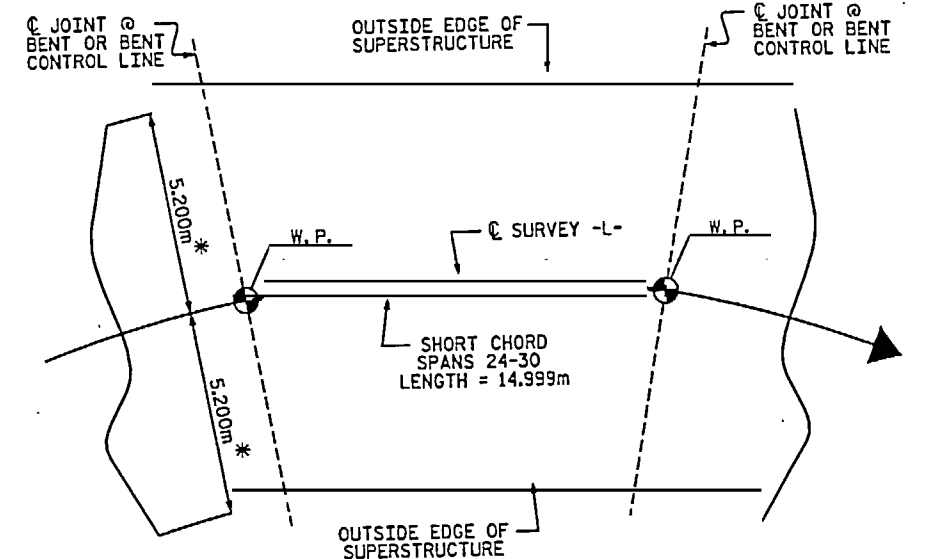
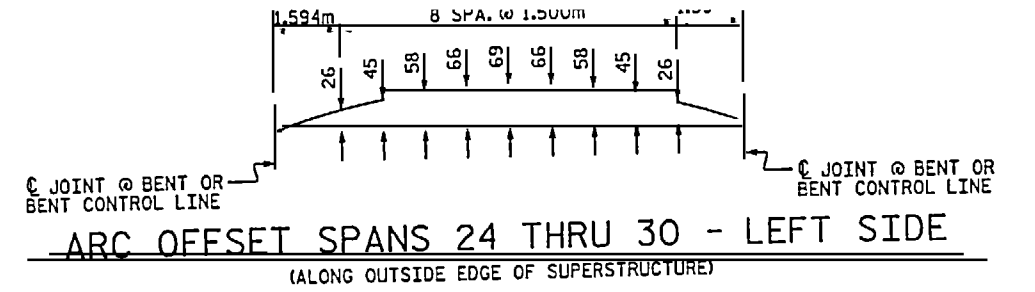
PLAN OF SPAN 22



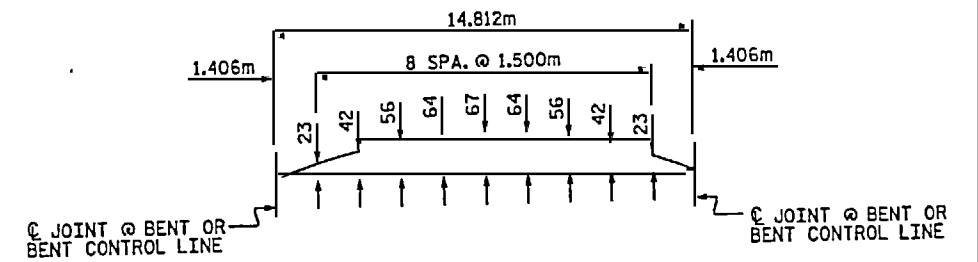
PLAN OF SPAN 23



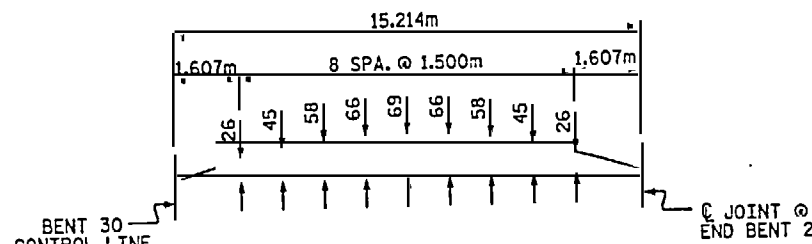
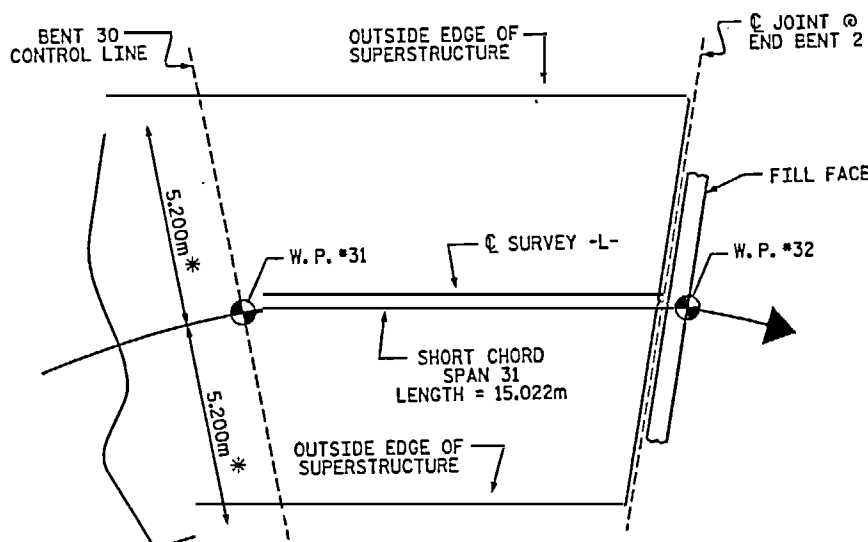
ARC OFFSET SPAN 23 - RIGHT SIDE
(ALONG OUTSIDE EDGE OF SUPERSTRUCTURE)



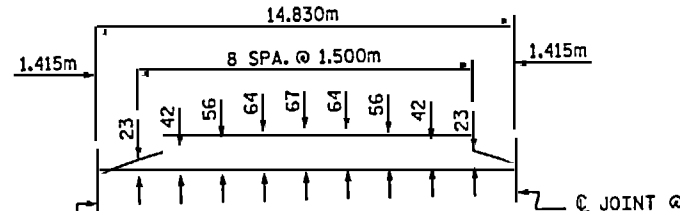
PLAN OF SPANS 24 THRU 30



ARC OFFSET SPANS 24 THRU 30 - RIGHT SIDE
(ALONG OUTSIDE EDGE OF SUPERSTRUCTURE)

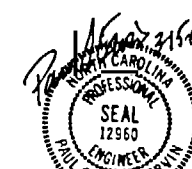


ARC OFFSET SPAN 31 - LEFT SIDE
(ALONG OUTSIDE EDGE OF SUPERSTRUCTURE)



* RADIAL DIMENSION

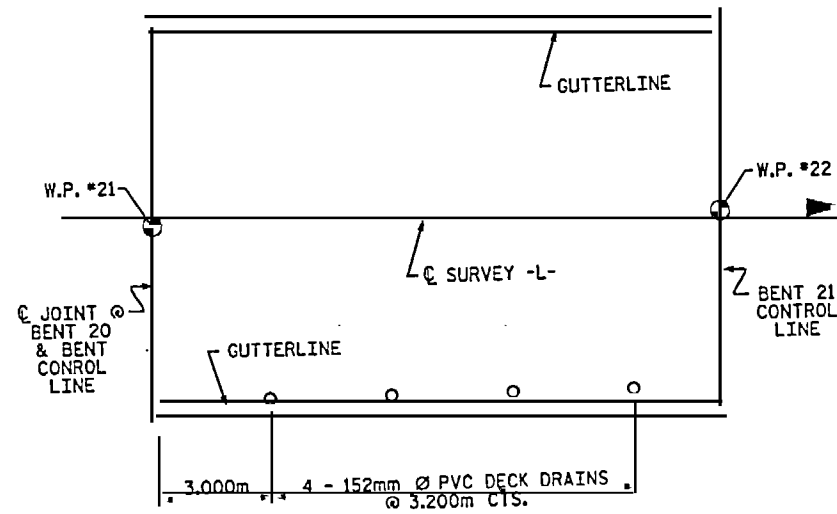
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-
 SHEET 2 OF 2



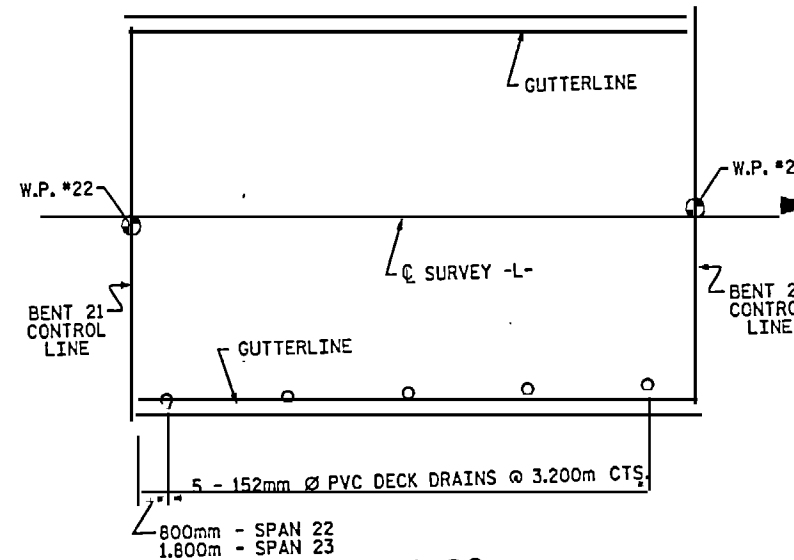
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 ARC OFFSETS

REVISIONS SHEET NO. C-29



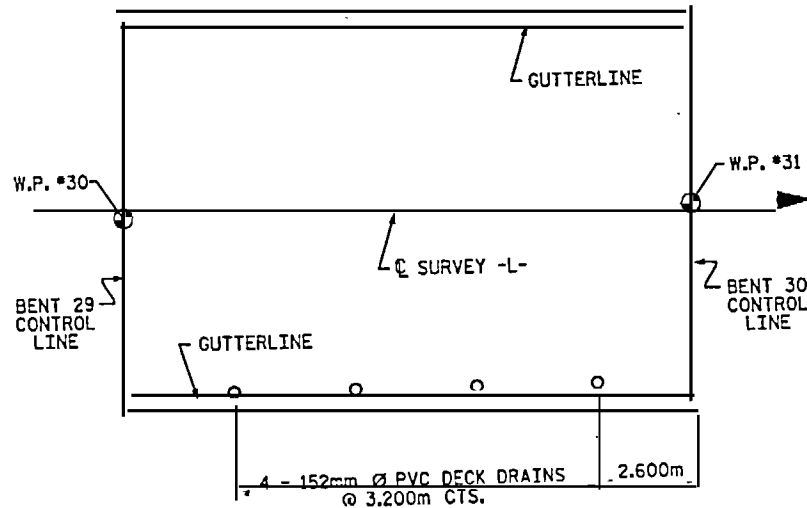
SPAN 21



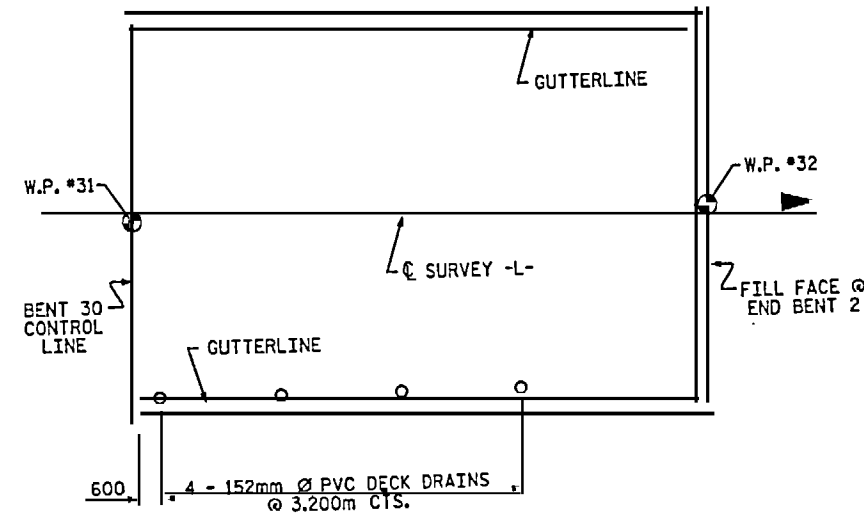
SPAN 22

SPAN 23 SIMILAR, EXCEPT AS NOTED

THE 152mm Ø PVC DECK DRAINS FOR SPANS 21-23 & 30-31 DRAIN INTO 305mm Ø PVC PIPE STRUCTURE DRAINAGE SYSTEMS. FOR STRUCTURE DRAINAGE SYSTEM DETAILS, SEE SHEETS ENTITLED "STRUCTURE DRAINAGE SYSTEMS".



SPAN 30

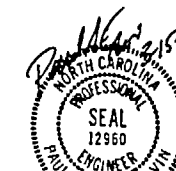


SPAN 31

PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

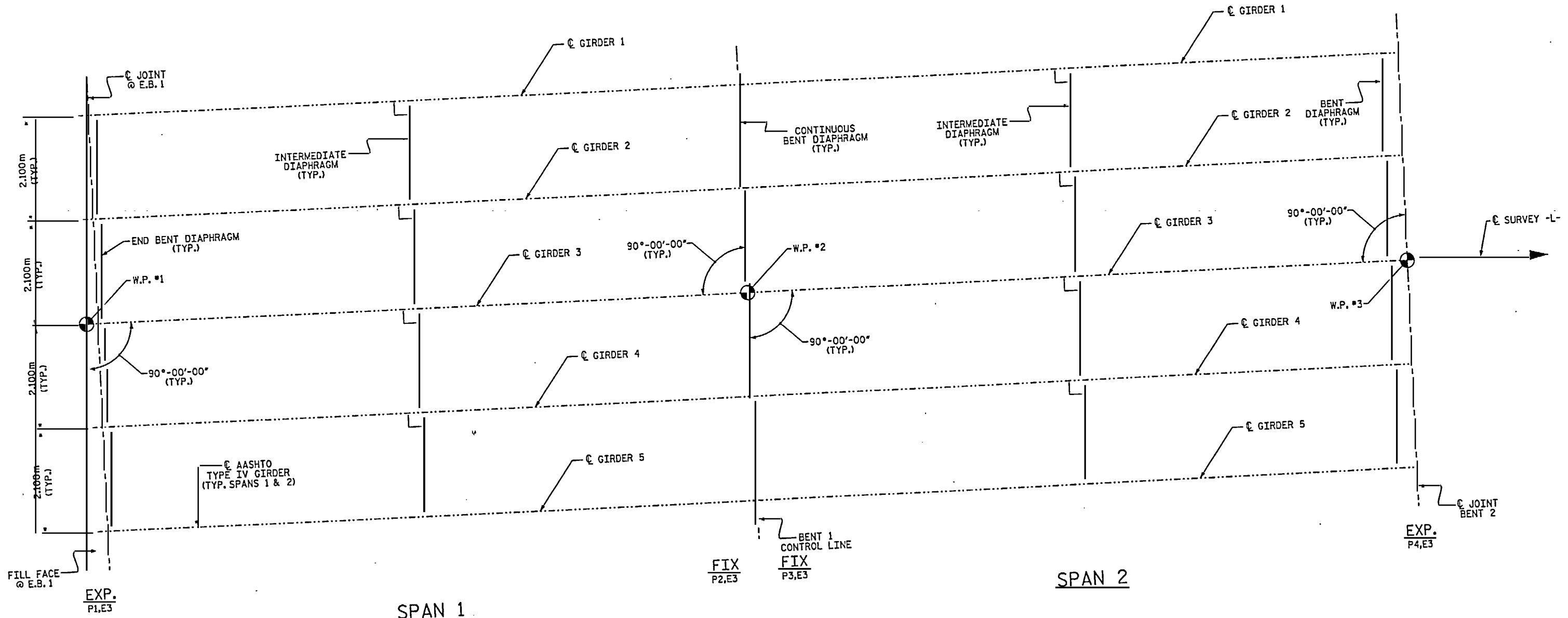
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 BALEIGH
 SUPERSTRUCTURE
 DECK DRAIN LAYOUT



REVISIONS

SHEET NO. S-31



SPAN 1

SPAN 2

GIRDER LAYOUT SPANS 1 & 2

PROJECT NO. B-2938
 CARTERET-ONSLOW COUNTY
 STATION: 12+47.510 -L-
 SHEET 1 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

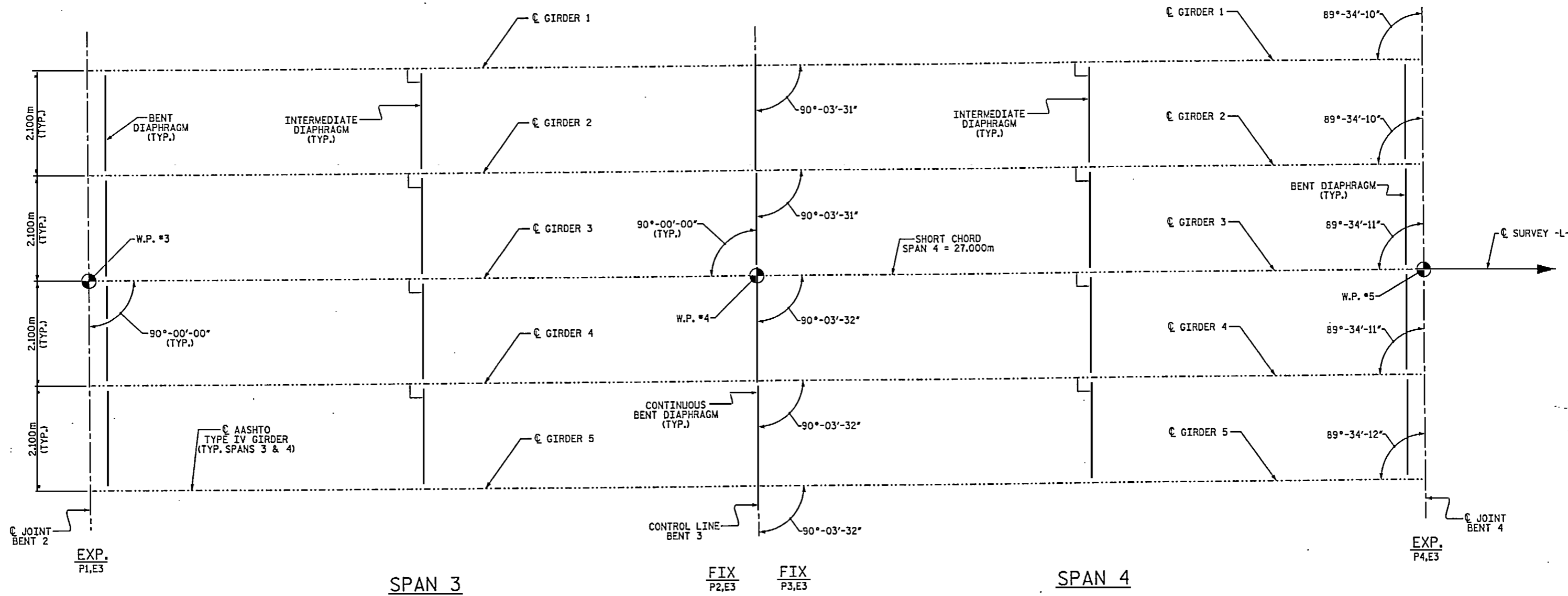
SUPERSTRUCTURE
 GIRDER LAYOUT
 SPANS 1 & 2

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

SEAL
 12960
 ENGINEER
 PAUL STEPHEN ERVIN

SHEET NO. S-32
 TOTAL SHEETS 103

AUTON\B2938.dwg



GIRDER LAYOUT SPANS 3 & 4

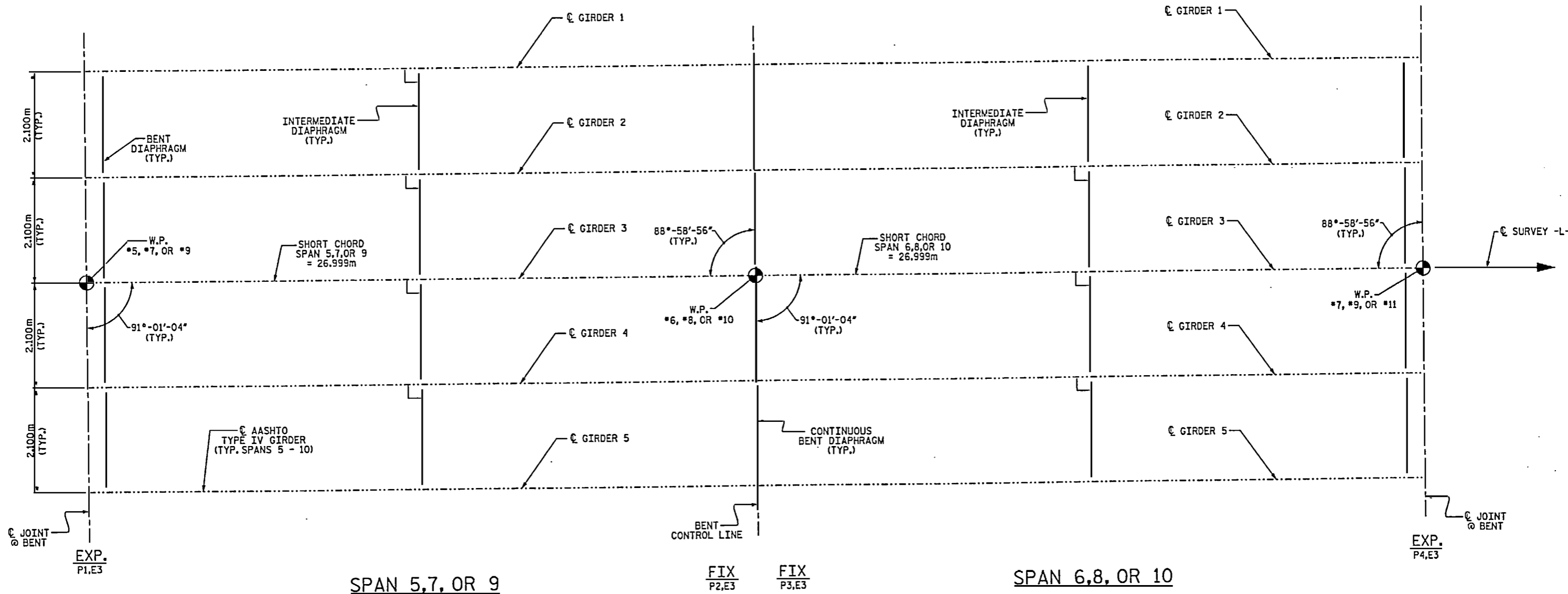
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

SHEET 2 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 GIRDER LAYOUT
 SPANS 3 & 4



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GIRDER LAYOUT SPANS 5 THRU 10

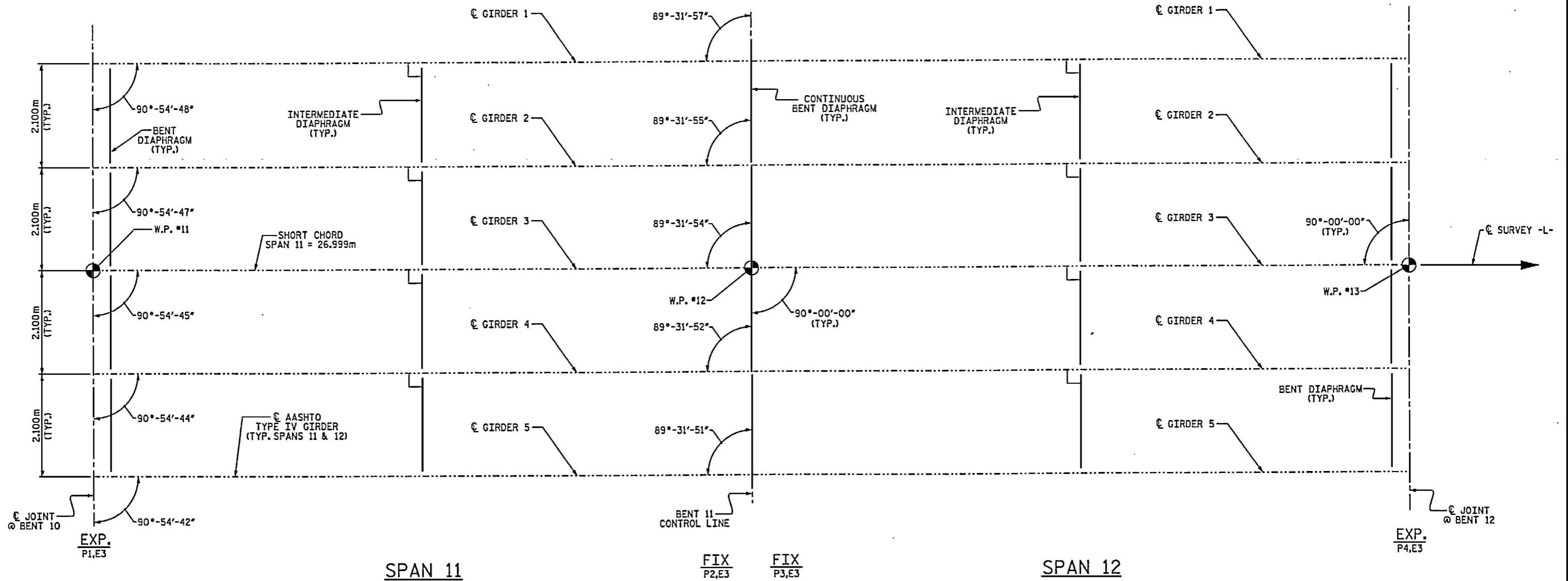
PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

SHEET 3 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 GIRDER LAYOUT
 SPANS 5 - 10





GIRDER LAYOUT SPANS 11 & 12

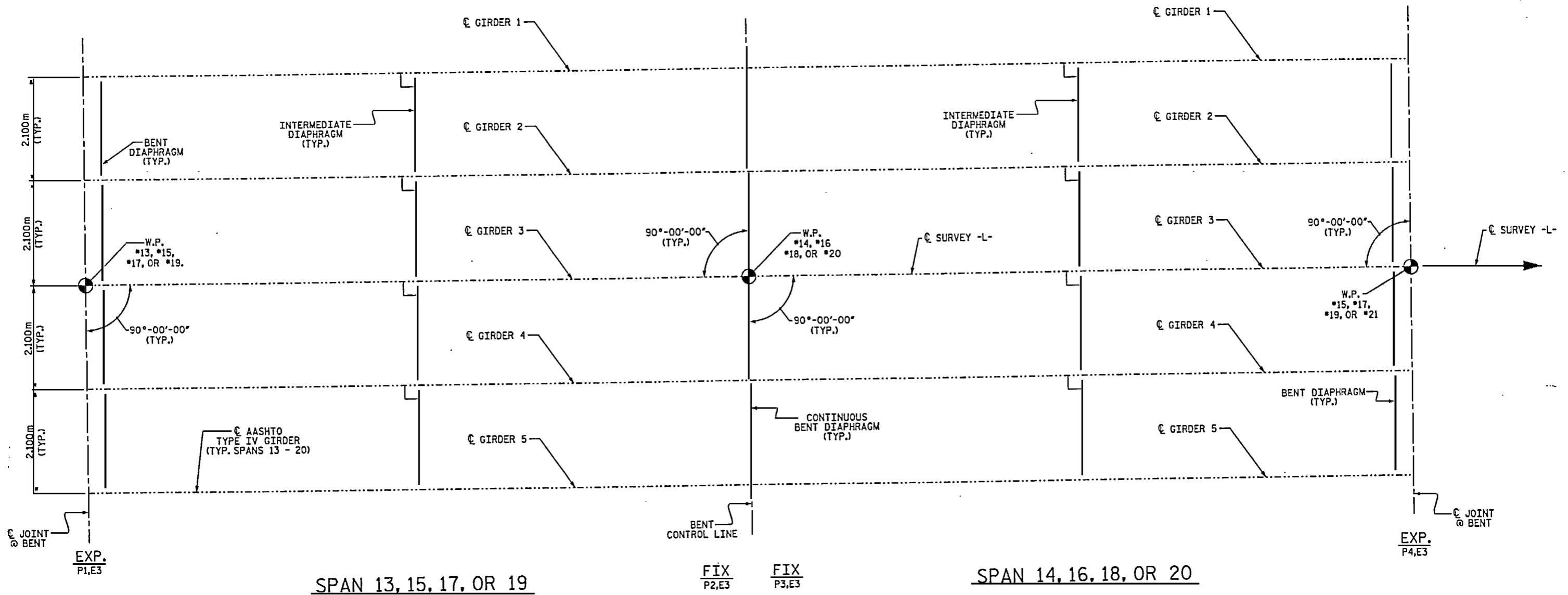
PROJECT NO. B-2938
CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

SHEET 4 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 GIRDER LAYOUT
 SPANS 11 & 12



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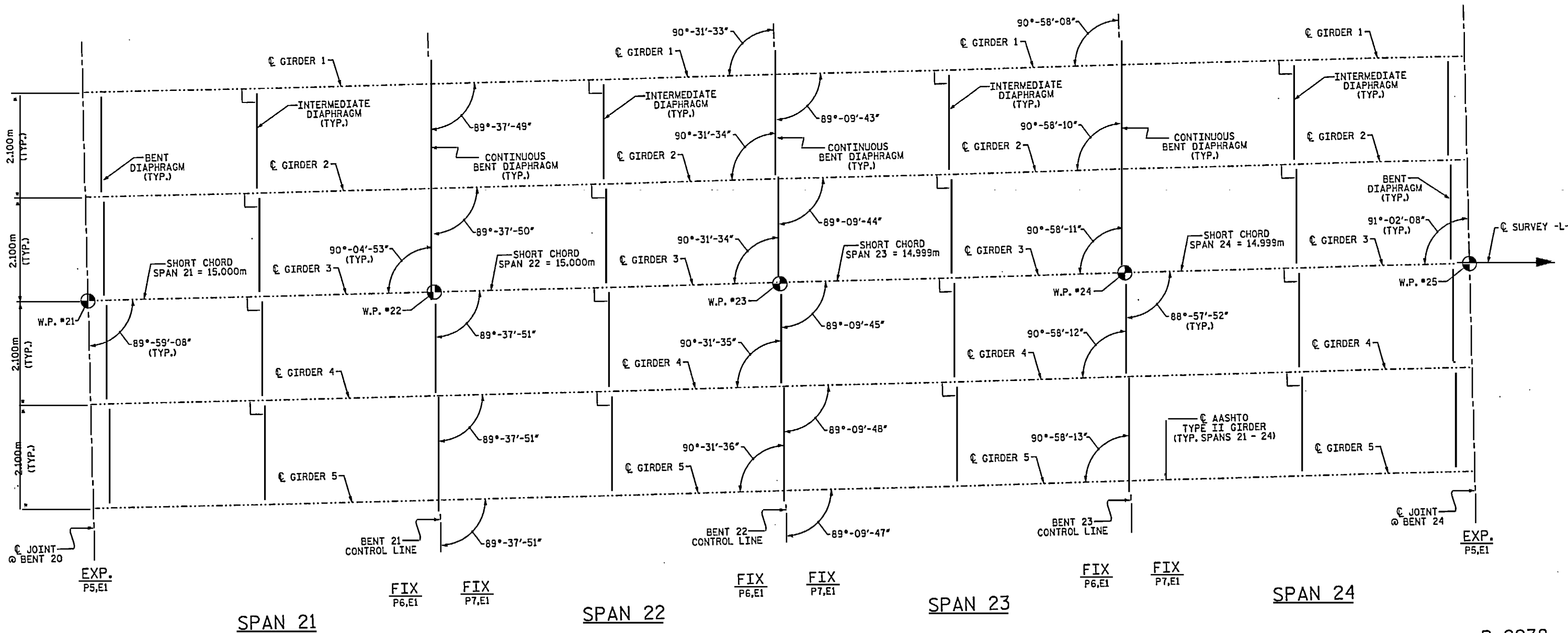
GIRDER LAYOUT SPANS 13 THRU 20

PROJECT NO. B-2938
 CARTERET-ONslow COUNTY
 STATION: 12+47.510 -L-
 SHEET 5 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 GIRDER LAYOUT
 SPANS 13 - 20





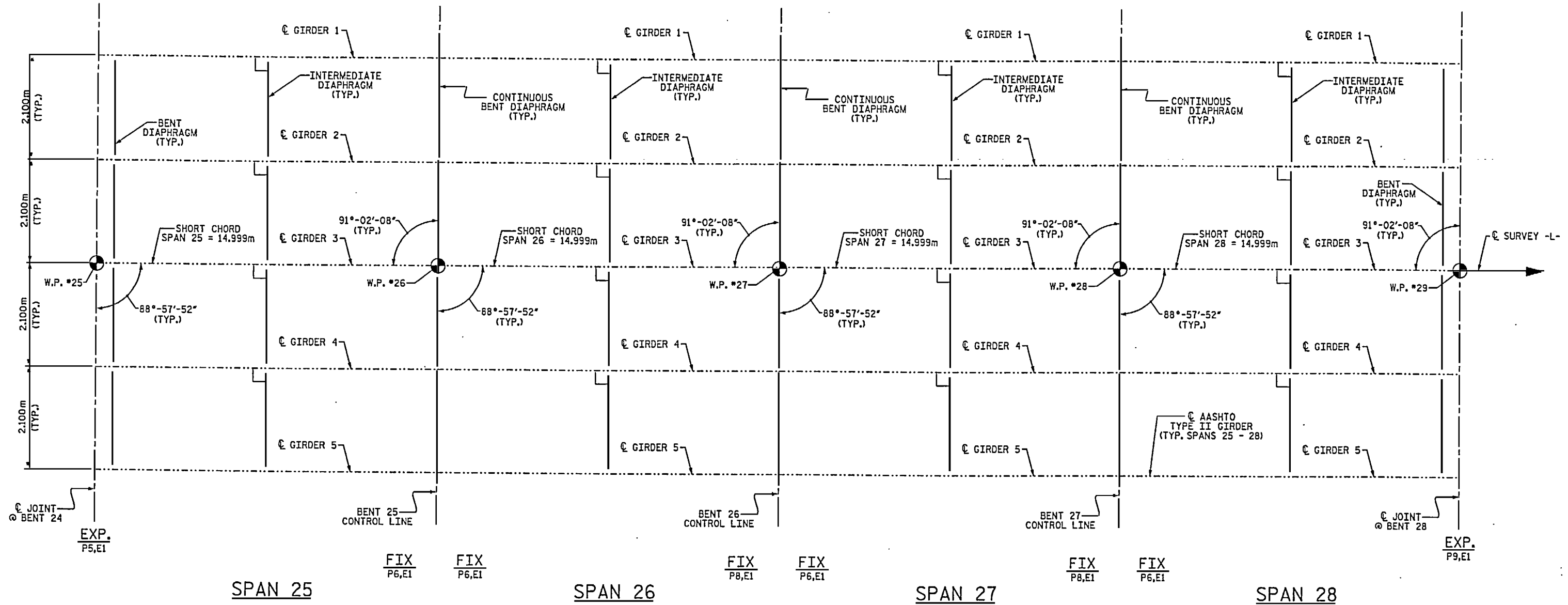
GIRDER LAYOUT SPANS 21 THRU 24

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-
 SHEET 6 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 GIRDER LAYOUT
 SPANS 21 - 24



REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-37



GIRDER LAYOUT SPANS 25 THRU 28

PROJECT NO. B-2938
 CARTERET-ONslow COUNTY
 STATION: 12+47.510 -L-

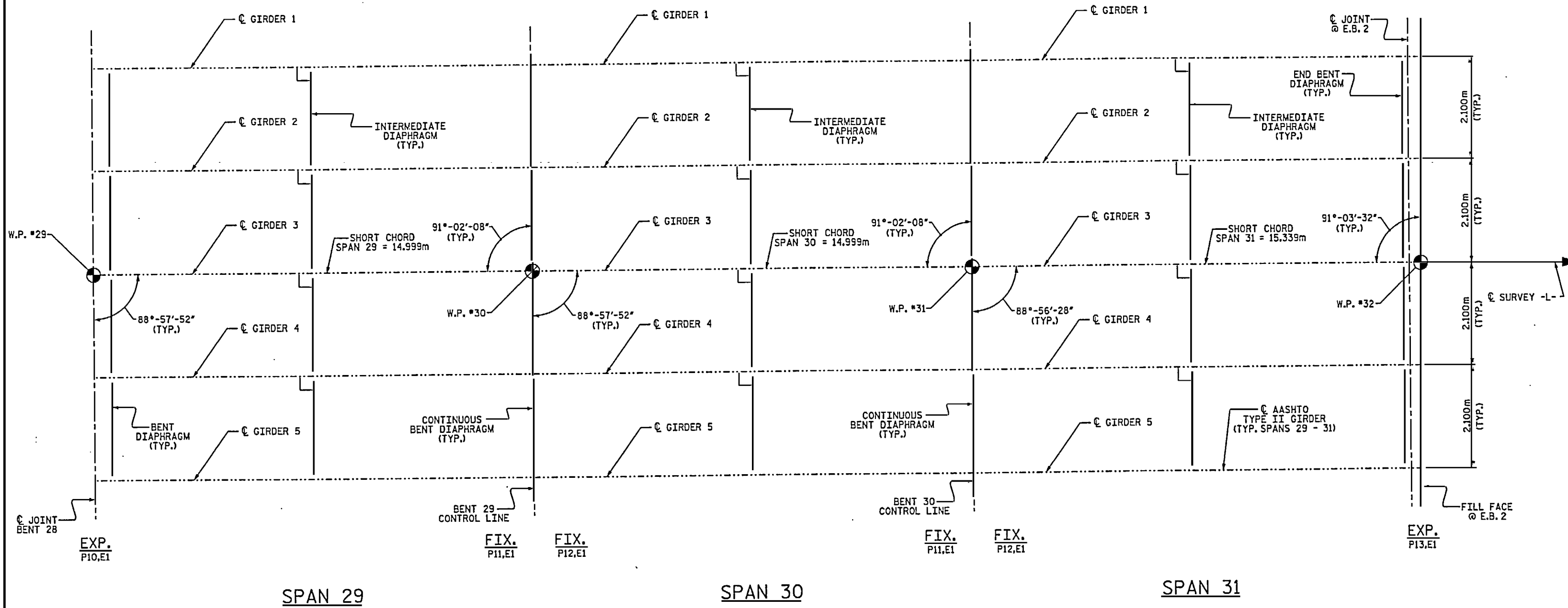
SHEET 7 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 GIRDER LAYOUT
 SPANS 25 - 28



106
 36 Neutron\B2318.dwg
 11/11/04



GIRDER LAYOUT SPANS 29 THRU 31

PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

SHEET 8 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 GIRDER LAYOUT
 SPANS 29 - 31



Neutron/2023/10/24/01.dgn

DECK PANEL SUPPORTS

PRESTRESSED CONCRETE DECK PANELS SHALL BE SUPPORTED ON THE END BENT DIAPHRAGM BY LAYERS OF 13mm THICK BITUMINOUS TYPE MATERIAL. THE BITUMINOUS TYPE MATERIAL SHALL HAVE A MINIMUM WIDTH OF 25mm AND A MAXIMUM WIDTH OF 38mm. THE DECK PANEL SHALL OVERHANG THE BITUMINOUS TYPE MATERIAL BY 25mm.

BITUMINOUS TYPE MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M213.

THE CONTRACTOR MAY SELECT ONE OF THE TWO DECK PANEL SUPPORT SYSTEMS SHOWN, UNLESS OTHERWISE INDICATED, OR HE MAY SUBMIT A DECK PANEL SUPPORT SYSTEM OF HIS OWN DESIGN TO THE ENGINEER FOR APPROVAL.

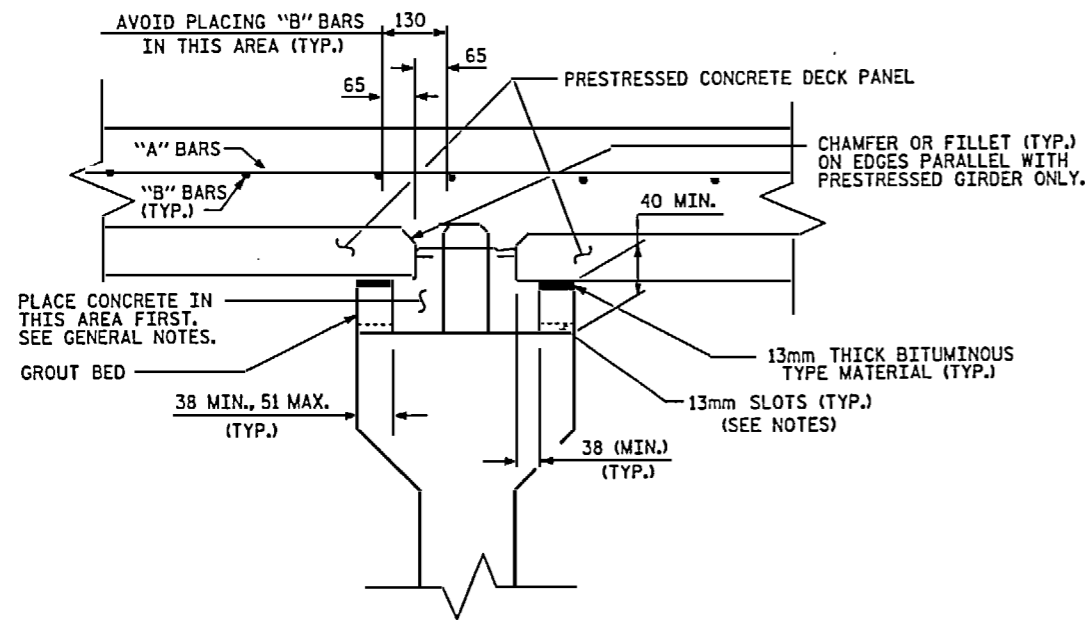
A. GROUT BED SUPPORT SYSTEM

1. THE GROUT BED SHALL HAVE A MINIMUM WIDTH OF 38mm AND A MAXIMUM WIDTH OF 51mm. THE VERTICAL FACES OF THE GROUT BED SHALL BE FORMED. ONE LAYER OF 13mm THICK BITUMINOUS TYPE MATERIAL OF THE SAME WIDTH AS THE GROUT BED SHALL BE GLUED TO THE TOP OF THE GROUT BED; MORE THAN ONE LAYER IS NOT ALLOWED. THE ADHESIVE SHALL BE APPROVED BY THE ENGINEER. THE BITUMINOUS TYPE MATERIAL SHALL HAVE 13mm SLOTS LOCATED AT 1.2m CENTERS. THE GROUT BED SHALL HAVE 13mm X 13mm WIDE SLOTS OR OTHER EQUIVALENT SIZE OPENINGS AT 1.2m CENTERS ALONG THE BOTTOM STAGGERED WITH THE SLOTS IN THE TOP.
2. THE GROUT SHALL BE NON-SHRINK, NON-METALLIC GROUT HAVING A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 17.2 MPa. THE GROUT SHALL BE APPROVED BY THE ENGINEER.

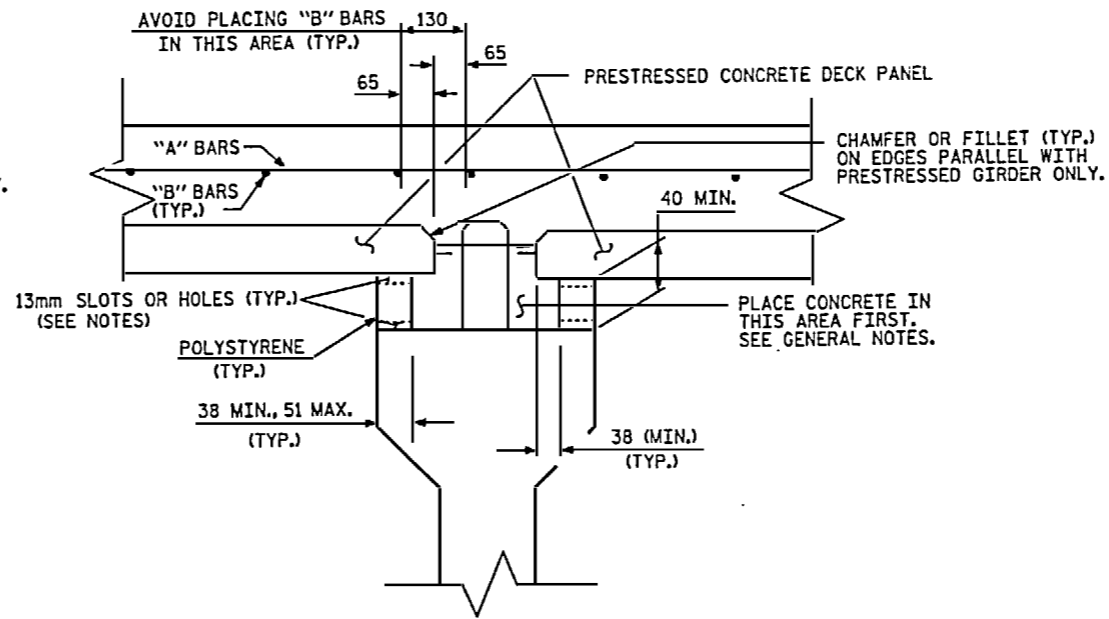
B. POLYSTYRENE SUPPORT SYSTEM

1. ALL POLYSTYRENE SHALL BE DOW STYROFOAM 60 HIGH-LOAD, UC INDUSTRIES FOAMULAR 600 OR APPROVED EQUAL.
2. THE POLYSTYRENE SUPPORT SYSTEM SHALL CONSIST OF ONE LAYER WITH A MINIMUM WIDTH OF 38mm AND A MAXIMUM WIDTH OF 51mm. THE POLYSTYRENE SHALL HAVE 13mm X 13mm WIDE SLOTS OR 13mm DIAMETER HOLES AT 1.2m CENTERS STAGGERED ALONG THE TOP AND BOTTOM.
3. THE POLYSTYRENE MAY BE CUT AND PLACED ON EDGE AS NECESSARY TO MATCH THE REQUIRED BUILDUP PROFILE ALONG THE GIRDER.
4. ADHESIVE, AS APPROVED BY THE ENGINEER, SHALL BE APPLIED TO THE TOP OF THE GIRDER IN A CONTINUOUS BEAD AND IN SUFFICIENT AMOUNT TO PREVENT THE POLYSTYRENE FROM BLOWING OUT AND TO PREVENT GAPS FROM FORMING BETWEEN THE POLYSTYRENE AND THE GIRDER. PRIOR TO PLACEMENT OF THE DECK PANELS, THE ADHESIVE SHALL ALSO BE APPLIED TO THE TOP OF THE POLYSTYRENE.
5. CONCRETE-FILLED BUCKETS, STACKS OF DECK PANELS, BUNDLED REINFORCING BARS OR OTHER HEAVY CONCENTRATED LOADS WILL NOT BE PERMITTED ON THE DECK PANEL ONCE THE PANEL HAS BEEN PLACED ON THE POLYSTYRENE SUPPORT SYSTEM.

1. THE DESIGN COMPRESSIVE STRENGTH ($f'c$) FOR THE CONCRETE IN PRESTRESSED PANELS SHALL BE 34.5 MPa MINIMUM AT 28 DAYS. COMPRESSIVE STRENGTH OF CONCRETE AT TIME OF RELEASE OF STRANDS SHALL BE 27.6 MPa MINIMUM.
2. THE PRECAST PRESTRESSED PANEL SHALL HAVE A THICKNESS OF 89mm WITH THE PRESTRESSED STRANDS LOCATED AT HALF THE DEPTH OF THE PANEL.
3. FOR SKEWED SPANS, TRAPEZOIDAL CLOSURE PANELS SHALL HAVE A MINIMUM WIDTH OF 610mm ON THE SHORT SIDE.
4. ALL PRESTRESSING STRANDS SHALL EXTEND 50mm BEYOND THE PANEL EDGES.
5. SHEAR REINFORCING OF 420 SQ. mm OF REINFORCING STEEL PER SQ. METER OF PANEL SURFACE SHALL BE PROVIDED IN THE PANEL TO ENSURE COMPOSITE ACTION BETWEEN PANEL AND THE CAST-IN-PLACE CONCRETE. SHEAR REINFORCEMENT SHALL BE MADE OF WELDED WIRE HAVING A MINIMUM YIELD STRENGTH OF 400 MPa.
6. SHEAR REINFORCEMENT AND LIFTING DEVICES SHALL BE CONSTRUCTED AND PLACED SO AS TO AVOID ANY INTERFERENCE WITH REINFORCING STEEL IN THE CAST-IN-PLACE DECK SLAB AND TO ALLOW FOR PROPER CONCRETE CONSOLIDATION IN THE DECK PANEL.
7. SHIFT LONGITUDINAL "B" BARS AS NECESSARY TO OBTAIN A MINIMUM CLEAR DISTANCE OF 65mm TO THE RIGHT OR LEFT OF THE EDGE OF THE DECK PANEL. IF, IN SHIFTING TO OBTAIN THIS CLEARANCE, THE "B" BAR INTERFERES WITH THE STIRRUP IN THE TOP OF THE GIRDER THE "B" BAR MAY BE ELIMINATED.
8. WHEN CASTING THE DECK, PLACE CONCRETE FIRST OVER THE GIRDERS IN CONTINUOUS STRIPS A MINIMUM OF THREE PANEL LENGTHS AHEAD OF THE REST OF THE CONCRETE. CAREFULLY VIBRATE THE CONCRETE OVER THE GIRDERS SO THAT CONCRETE COMPLETELY FILLS THE AREA UNDER THE DECK PANEL OVERHANGS. THEN PLACE AND VIBRATE THE REMAINING DECK CONCRETE.
9. PRECAST DECK PANELS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS FOR CALCIUM NITRITE CORROSION INHIBITOR.
10. PRECAST PANELS SHALL BE DESIGNED FOR AN ALLOWABLE STRESS OF 0 MPa IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.



GROUT BED SUPPORT

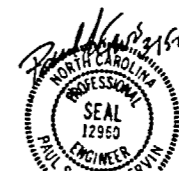


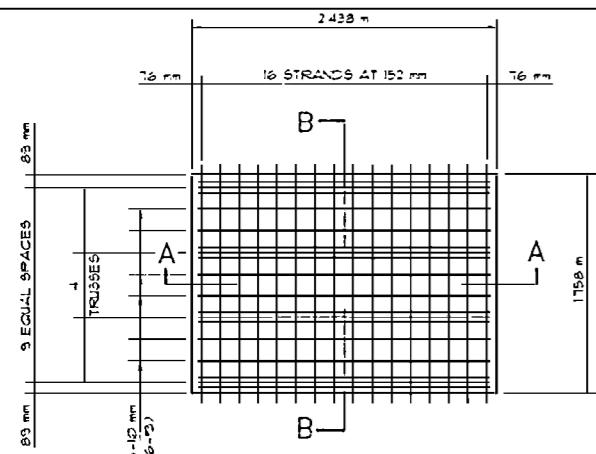
POLYSTYRENE SUPPORT

PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

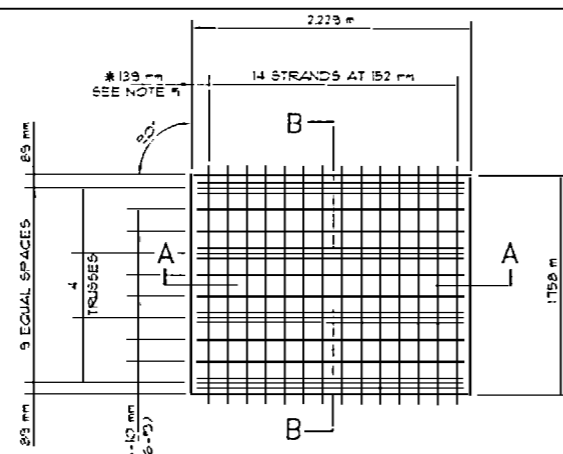
STANDARD
 PRECAST PRESTRESSED
 CONCRETE DECK PANELS





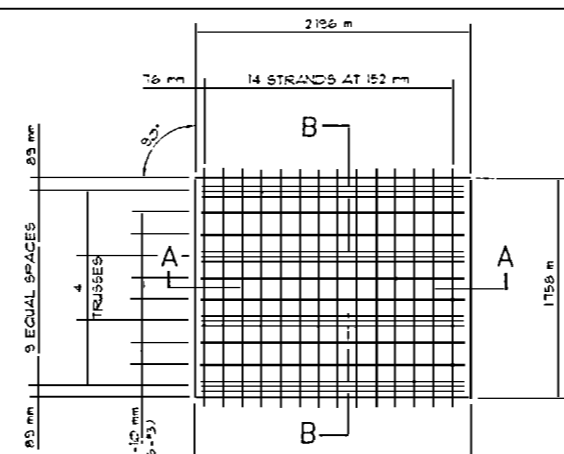
PANEL - P1

AREA = 4286 SQ. m



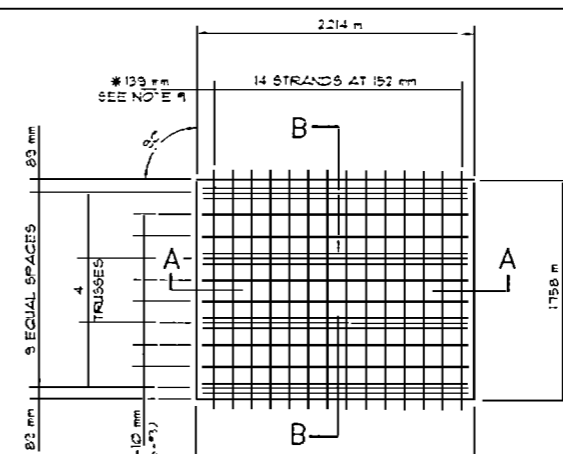
PANEL - P2

AREA = 3993 SQ. m



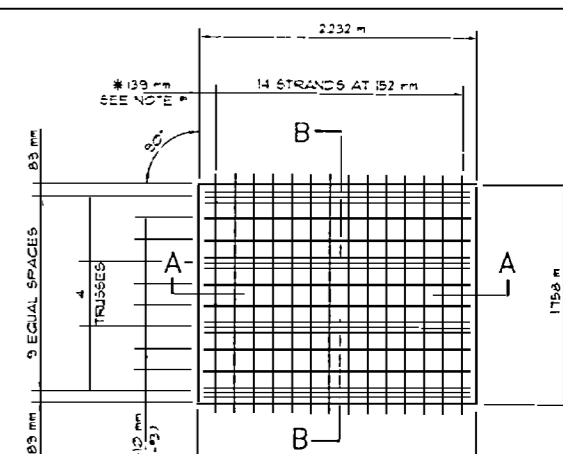
PANEL - P3

AREA = 3872 SQ. m



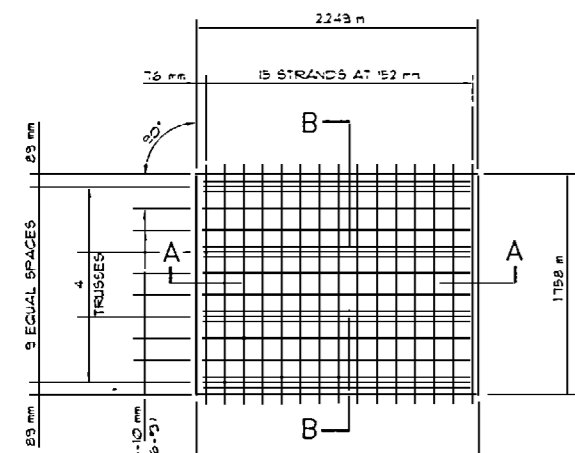
PANEL - P4

AREA = 3923 SQ. m



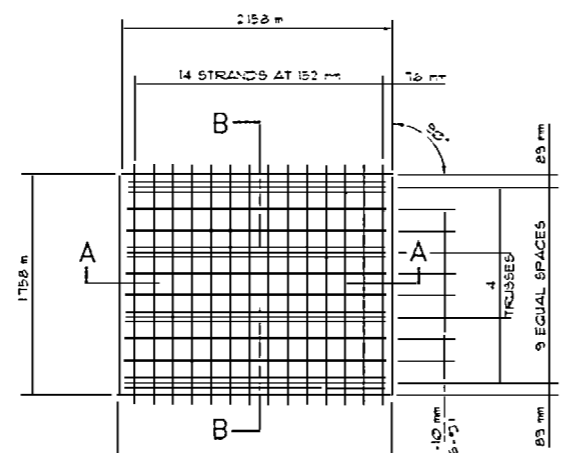
PANEL - P5

AREA = 3925 SQ. m



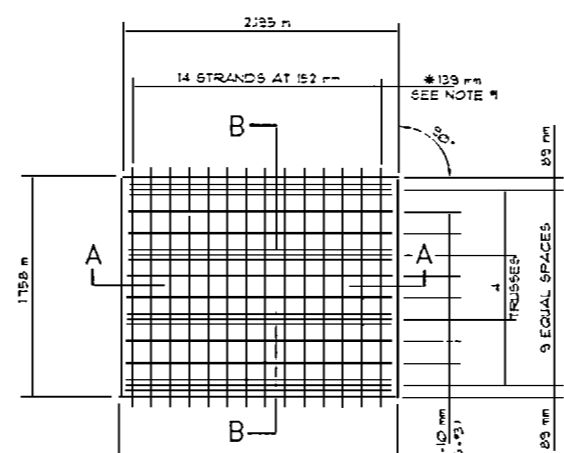
PANEL - P6

AREA = 3967 SQ. m



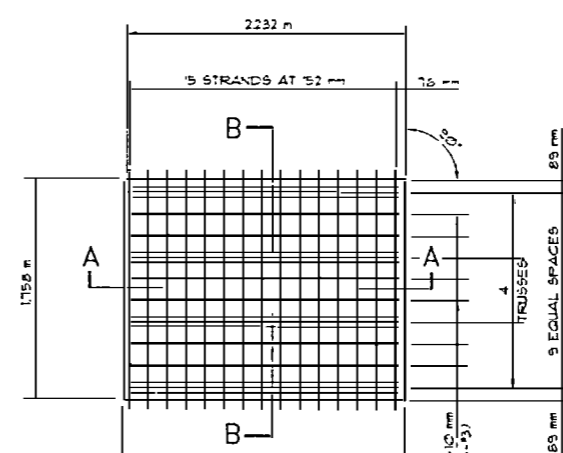
PANEL - P7

AREA = 3810 SQ. m



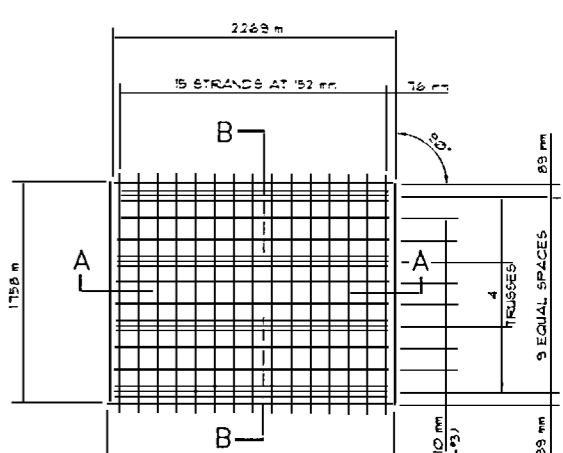
PANEL - P8

AREA = 3886 SQ. m



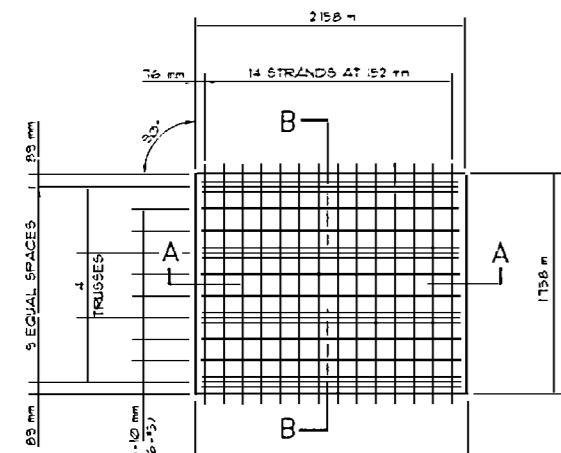
PANEL - P9

AREA = 3951 SQ. m



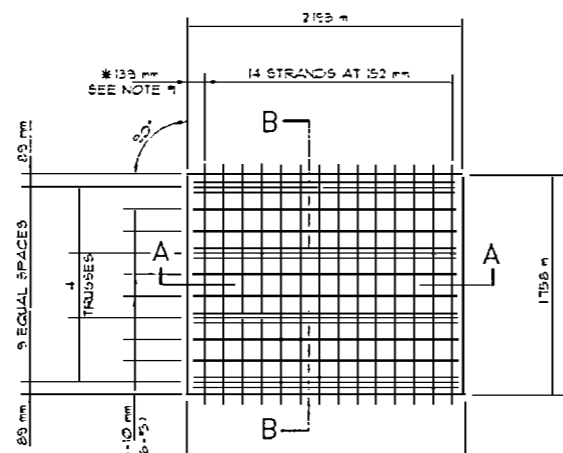
PANEL - P10

AREA = 4011 SQ. m



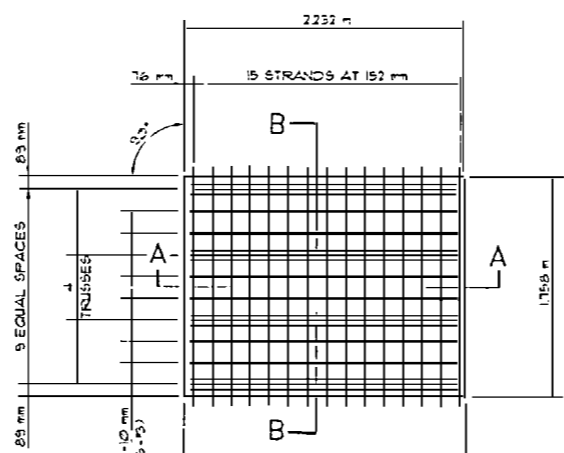
PANEL - P11

AREA = 3820 SQ. m



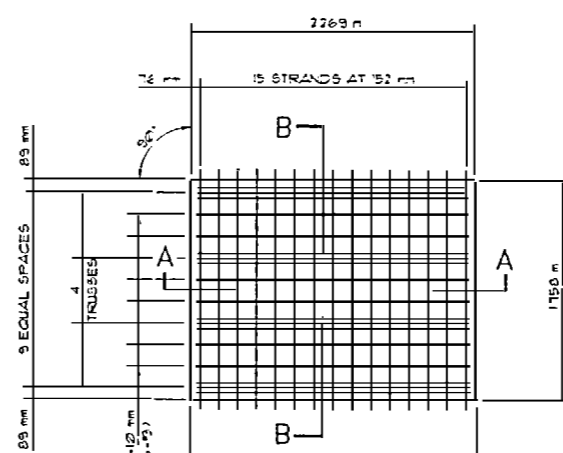
PANEL - P12

AREA = 3886 SQ. m



PANEL - P13

AREA = 3951 SQ. m



PANEL - P14

AREA = 4011 SQ. m

PROJECT OF
UTILITY 1A, 1B, 1C, 1D
CONTRACT HEAD NO.
12+47.510 -L- 2006



UTILITY PRECAST, INC.
939 W. CRAIGHEAD ROAD
CHARLOTTE, NC. 28206

PROJECT NO.: C200729
COUNTY: CARTERET/ONSLow
STATION: 12+47.510 -L-

SUPERSTRUCTURE
PRECAST PRESTRESSED
CONCRETE DECK PANELS

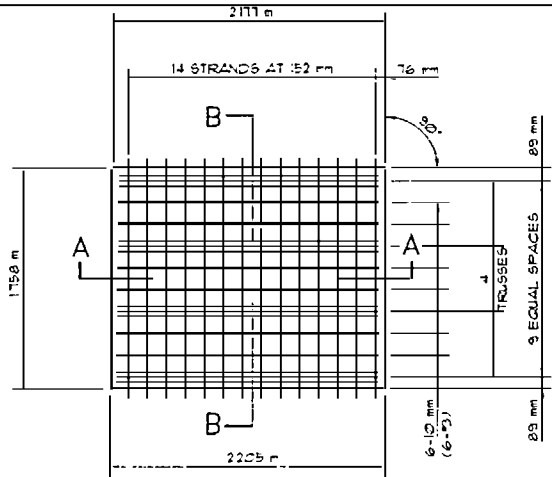
DATE: OCTOBER 13, 2004
SCALE: 1=30

NO.	BY	DATE

NOTE #1:
* DENOTES 2 X 4 BLOCKING REQUIRED
AT FORM SIDE OF PANEL

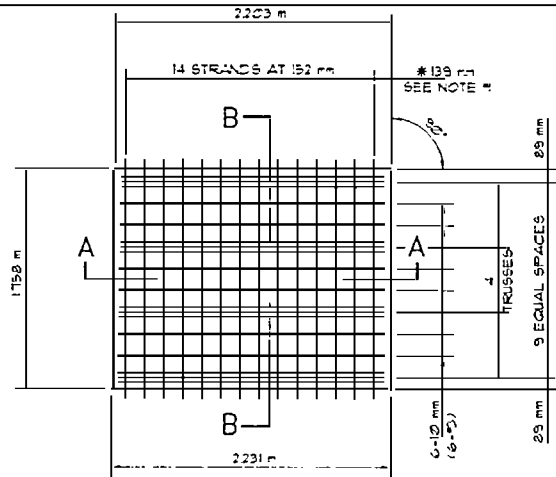
SHEET 40A
OF
103

TOTAL SHEETS
103



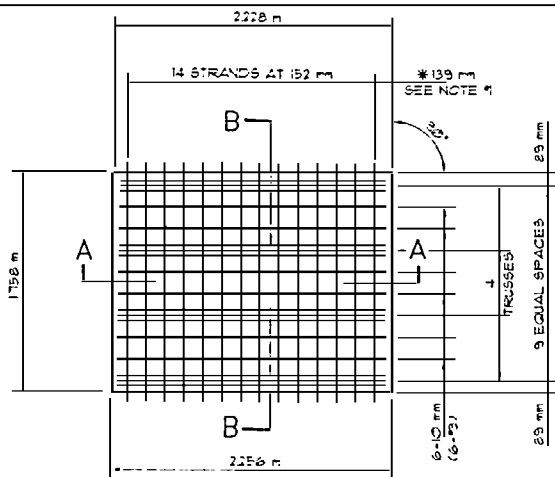
PANEL - P15

AREA = 3657 SQ. m



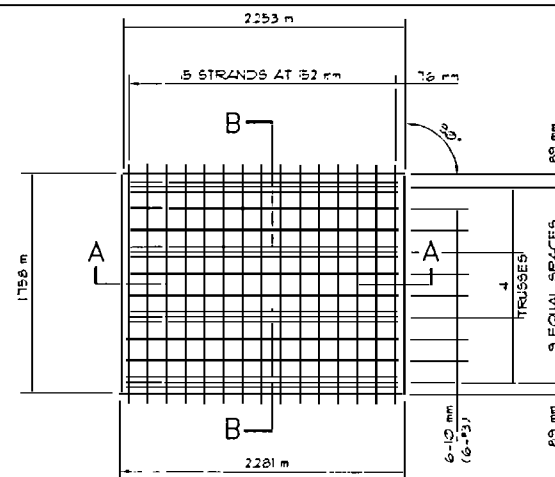
PANEL - P16

AREA = 3838 SQ. m



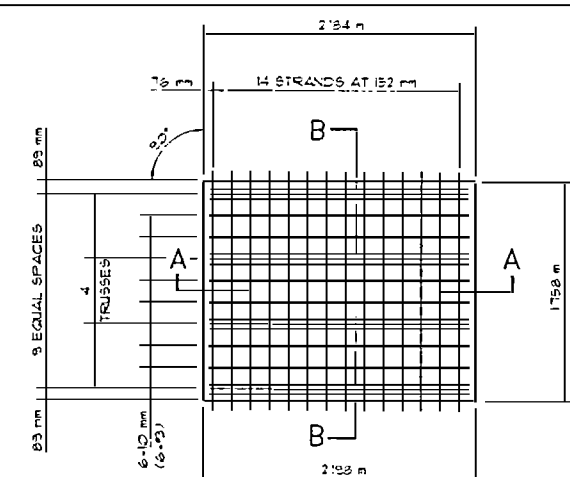
PANEL - P17

AREA = 3941 SQ. m



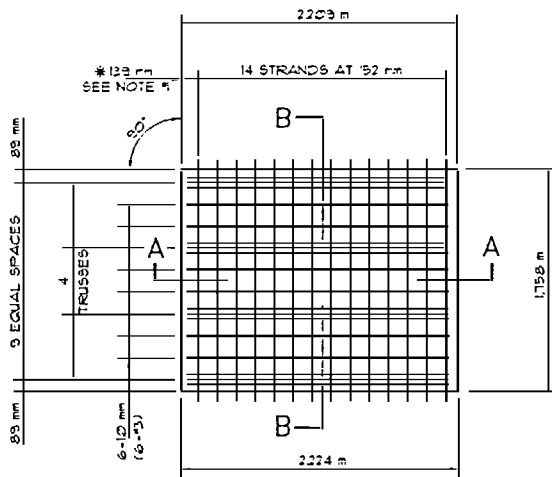
PANEL - P18

AREA = 3988 SQ. m



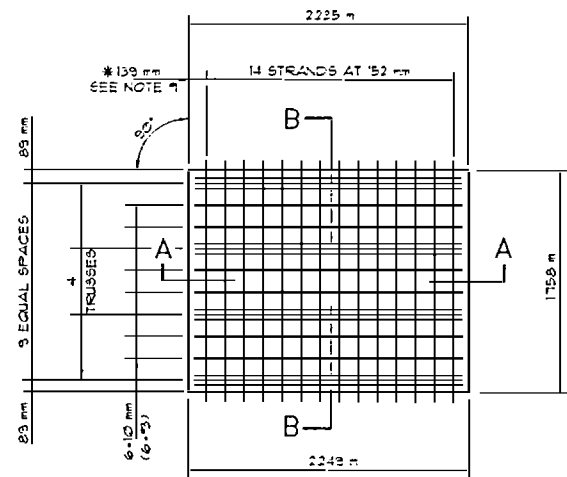
PANEL - P19

AREA = 3812 SQ. m



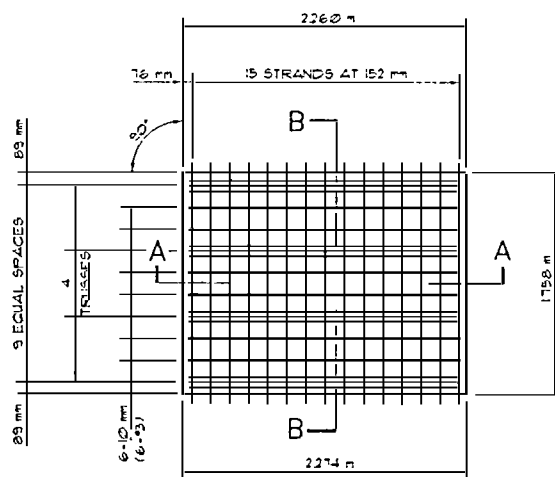
PANEL - P20

AREA = 3831 SQ. m



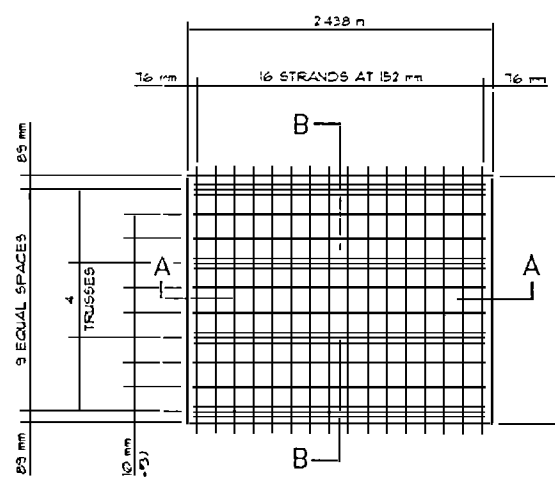
PANEL - P21

AREA = 3941 SQ. m



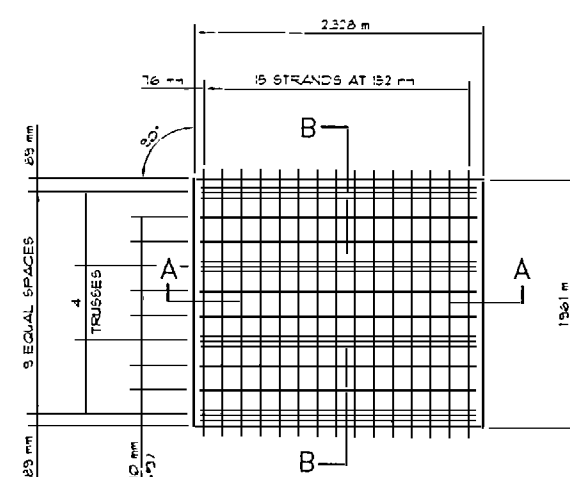
PANEL - P22

AREA = 3988 SQ. m



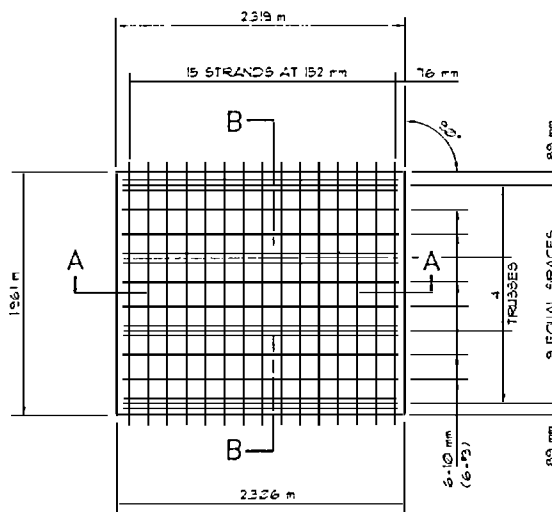
PANEL - P23

AREA = 4784 SQ. m



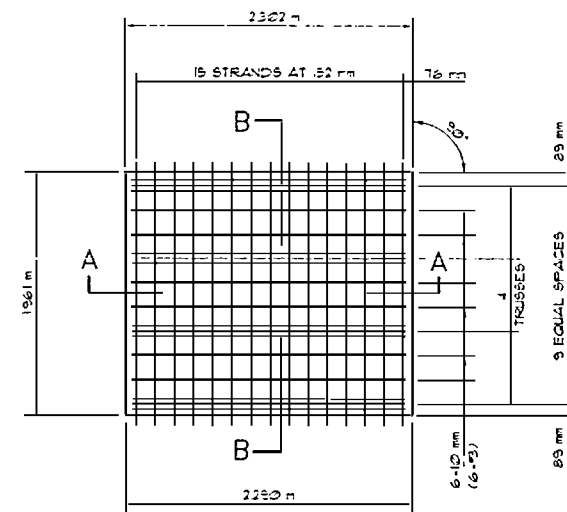
PANEL - P24

AREA = 4368 SQ. m



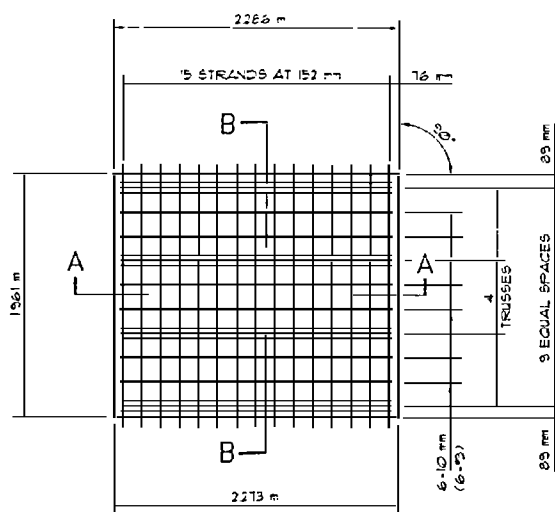
PANEL - P25

AREA = 4531 SQ. m



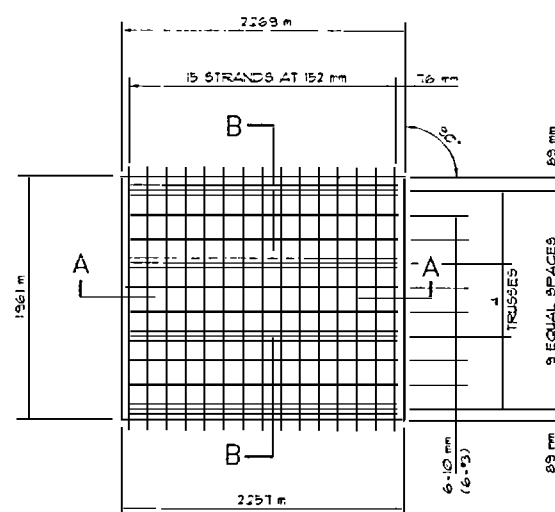
PANEL - P26

AREA = 4505 SQ. m



PANEL - P27

AREA = 4473 SQ. m



PANEL - P28

AREA = 4441 SQ. m

NOTE:
* DENOTES 2 X 4 BLOCKING REQUIRED
AT FOUR CORNERS OF PANEL

UTILITY PRECAST, INC.

939 W. CRAIGHEAD ROAD
CHARLOTTE, NC. 28206

PROJECT NO.: C200729
COUNTY: CARTERET/ONslow
STATION: 12+47.510 -L-

SUPERSTRUCTURE
PRECAST PRESTRESSED
CONCRETE DECK PANELS

DATE: OCTOBER 13, 2004
SCALE: 1=30
REVISIONS:

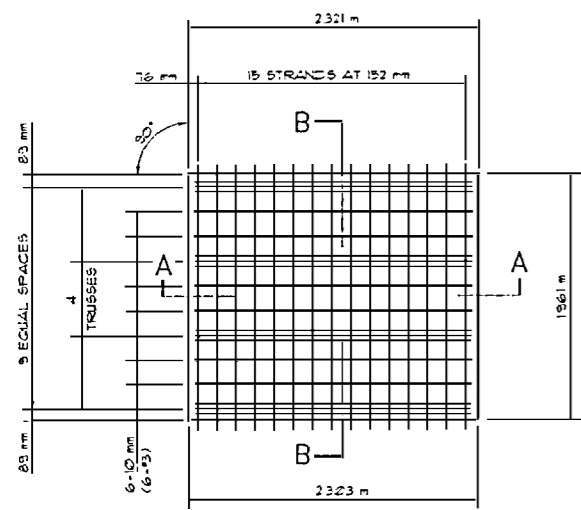
NO.	BY	DATE

SHEET NUMBER
TOTAL SHEETS
11

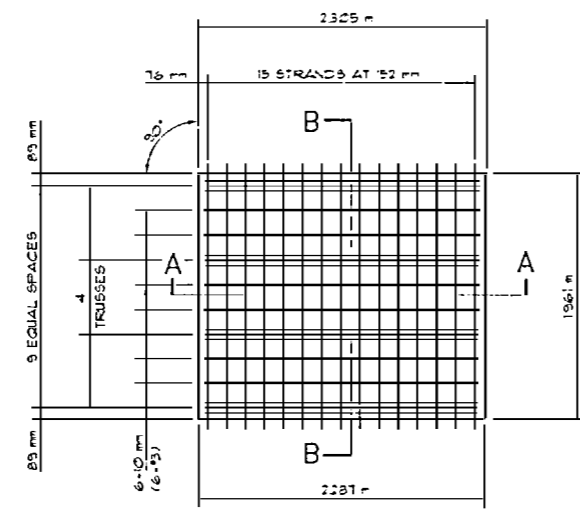
PROPERTY OF
UTILITY PRECAST, INC.
939 W. CRAIGHEAD RD.
CHARLOTTE, NC 28206



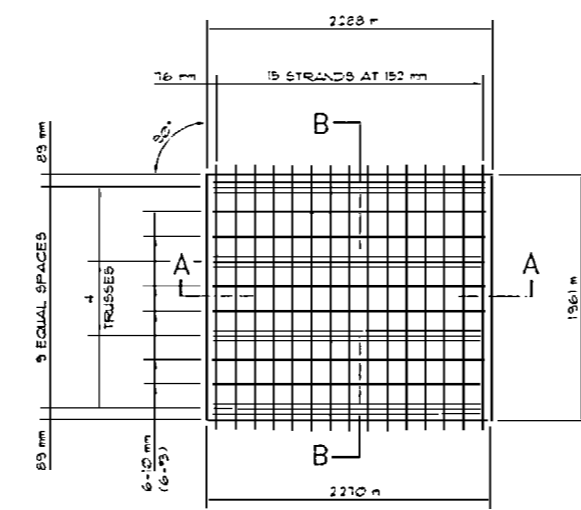
SHEET 40B
OF
11



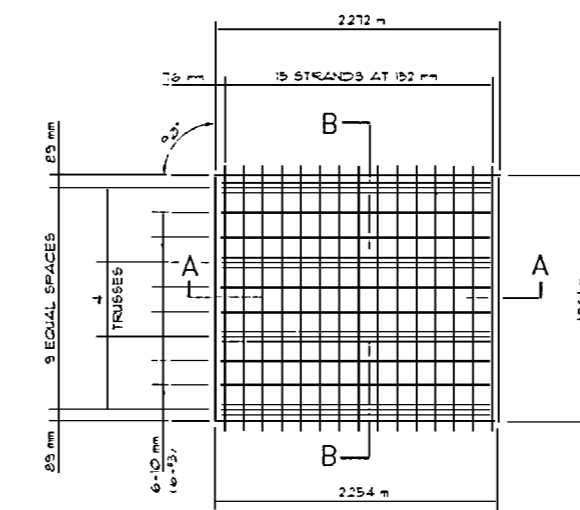
PANEL - P29
AREA = 4531 SQ. m



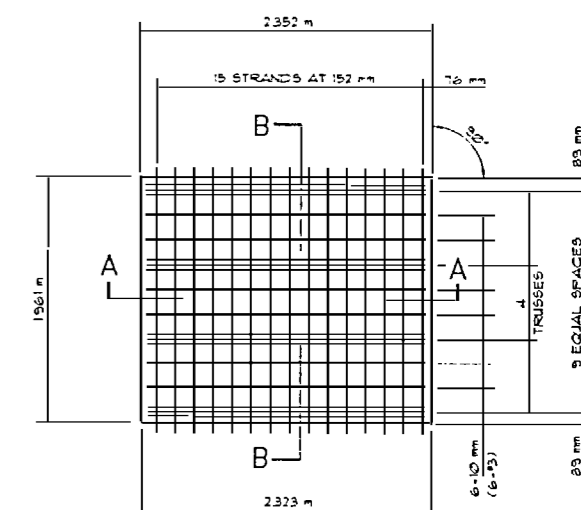
PANEL - P30
AREA = 4525 SQ. m



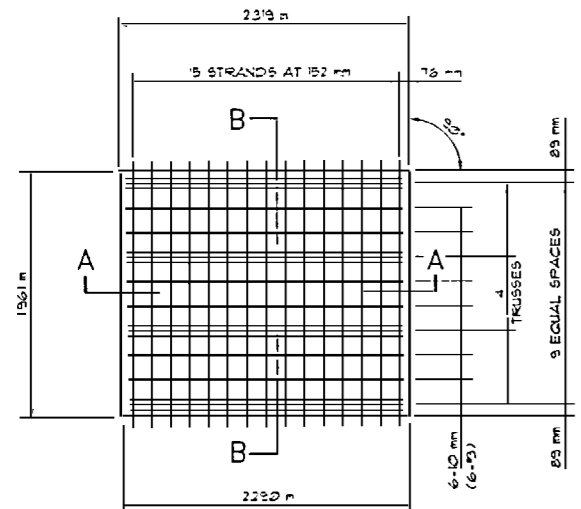
PANEL - P31
AREA = 4473 SQ. m



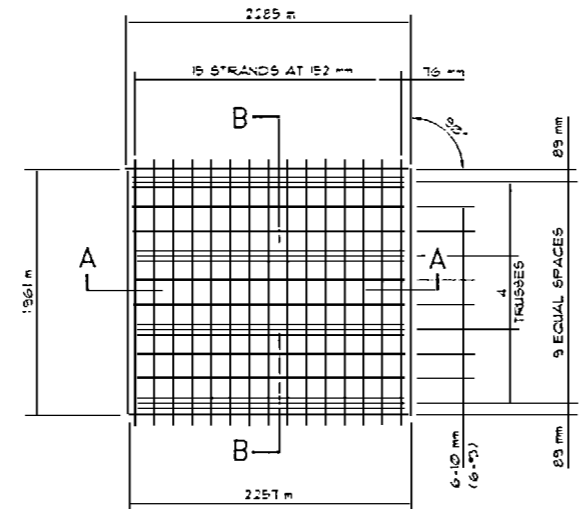
PANEL - P32
AREA = 4441 SQ. m



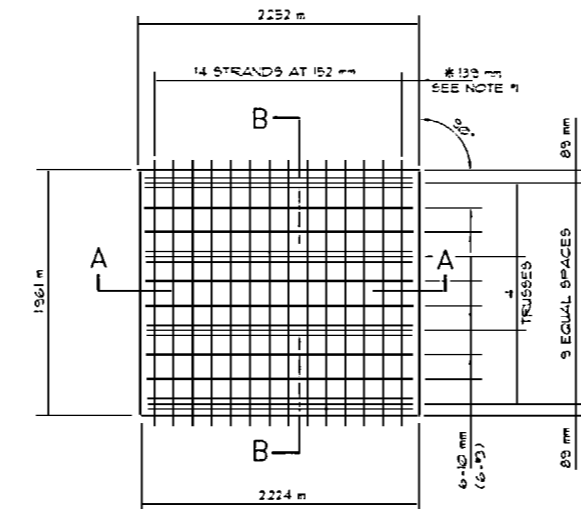
PANEL - P33
AREA = 4586 SQ. m



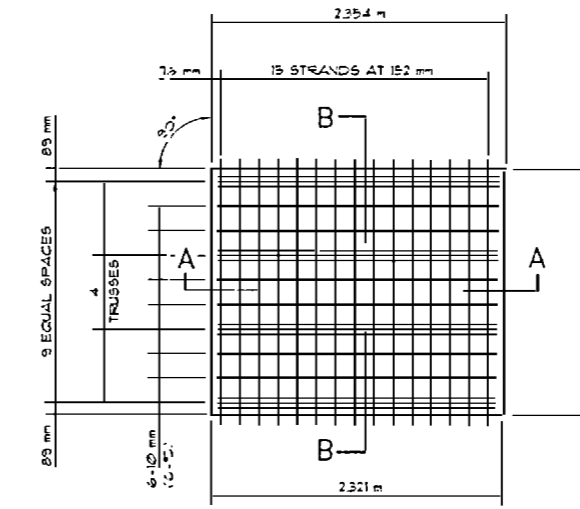
PANEL - P34
AREA = 4521 SQ. m



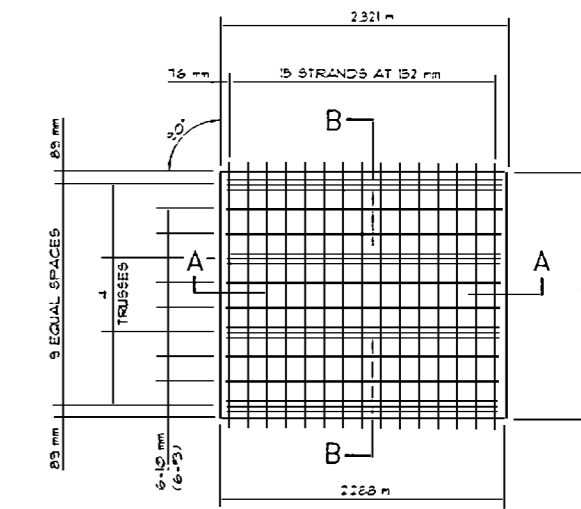
PANEL - P35
AREA = 4456 SQ. m



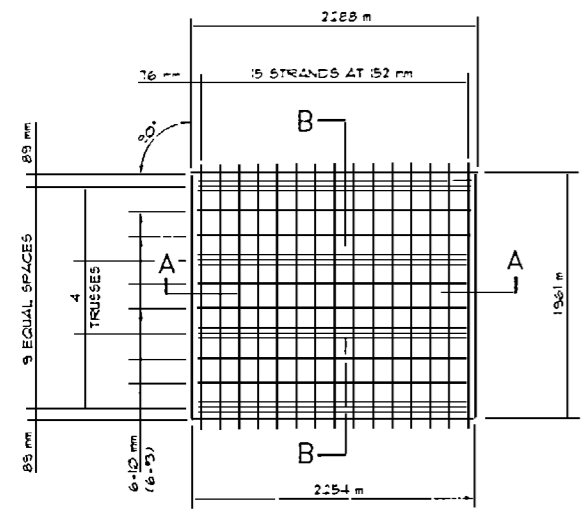
PANEL - P36
AREA = 4391 SQ. m



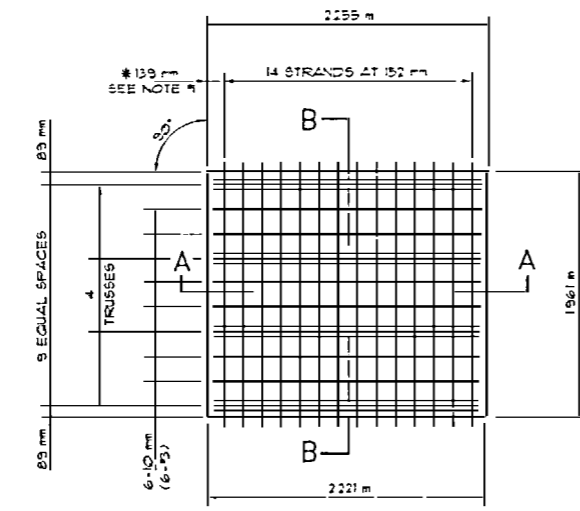
PANEL - P37
AREA = 4586 SQ. m



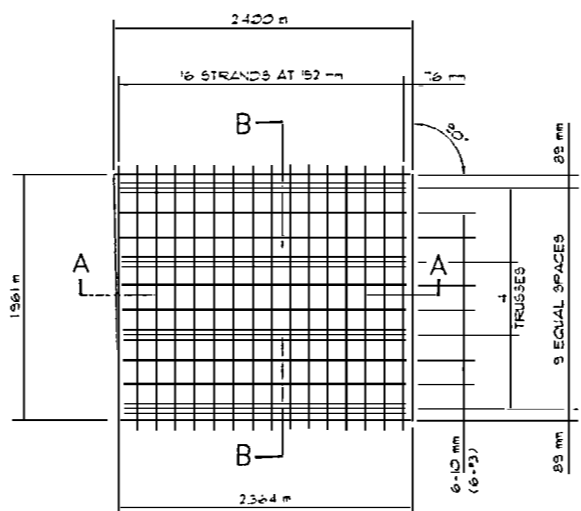
PANEL - P38
AREA = 4521 SQ. m



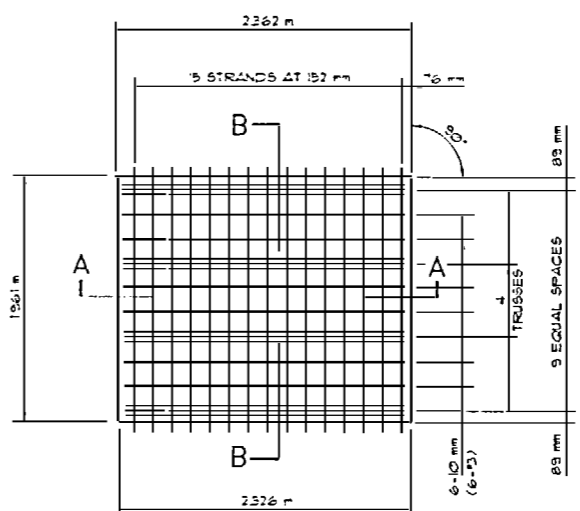
PANEL - P39
AREA = 4456 SQ. m



PANEL - P40
AREA = 4391 SQ. m



PANEL - P41
AREA = 4673 SQ. m



PANEL - P42
AREA = 4593 SQ. m

NOTE #1
* DENOTES 2 X 4 BLOCKING REQUIRED AT FORM SIDE OF PANEL

UTILITY PRECAST, INC.
939 W. CRAIGHEAD ROAD
CHARLOTTE, NC. 28206

PROJECT NO.: C200729
COUNTY: CARTERET/ONSLow
STATION: 12+47.510 -L-

SUPERSTRUCTURE
PRECAST PRESTRESSED
CONCRETE DECK PANELS

DATE: OCTOBER 13, 2004
SCALE: 1=30

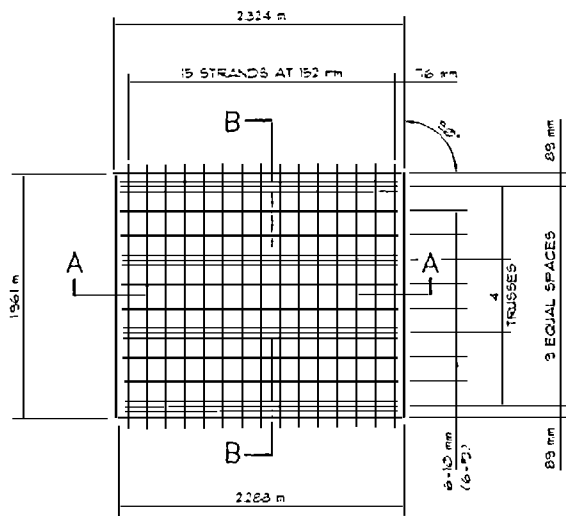
REVISIONS:
NO. BY DATE

UTILITY PRECAST, INC.
939 W. CRAIGHEAD ROAD
CHARLOTTE, NC. 28206



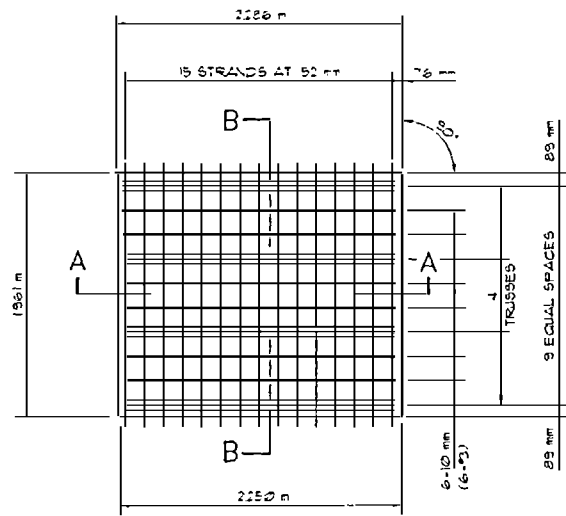
SHEET 400
OF 103

SHEET NUMBER	400
TOTAL SHEETS	103



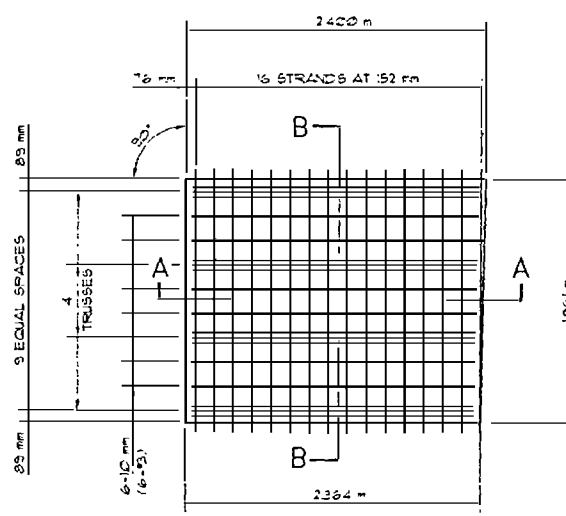
PANEL - P43

AREA = 4524 SQ. m



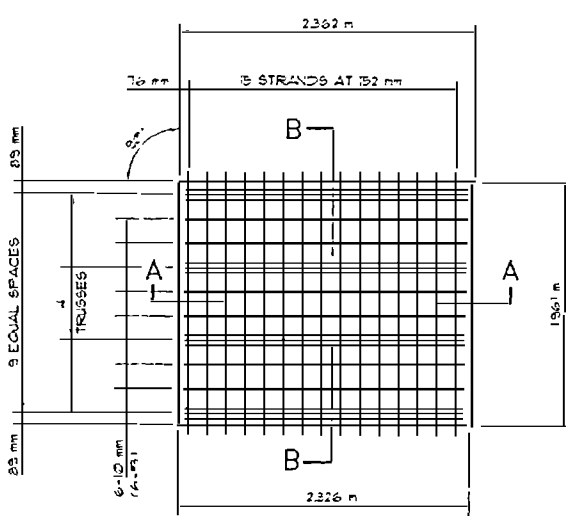
PANEL - P44

AREA = 4451 SQ. m



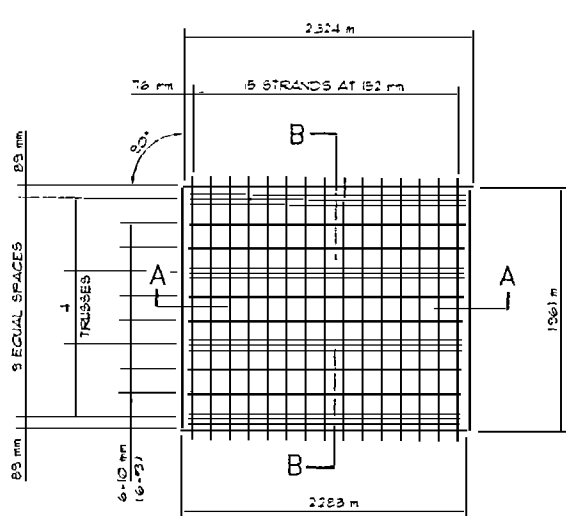
PANEL - P45

AREA = 4673 SQ. m



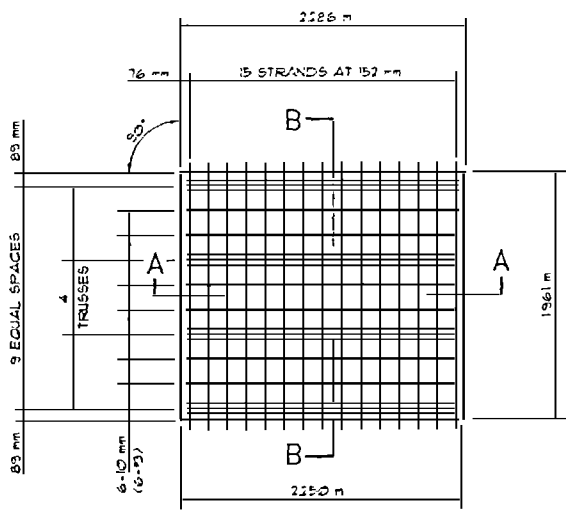
PANEL - P46

AREA = 4593 SQ. m



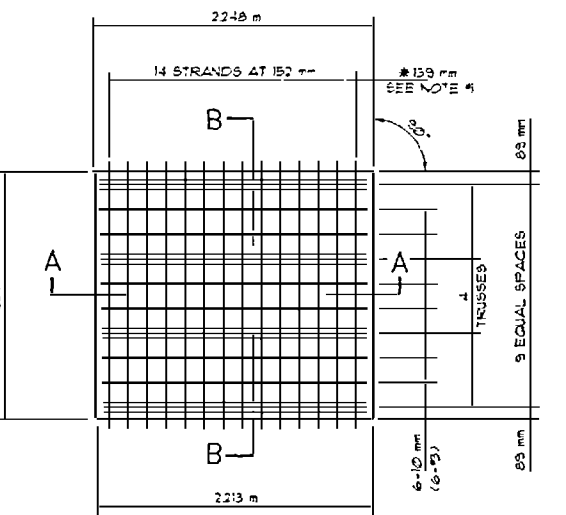
PANEL - P47

AREA = 4524 SQ. m



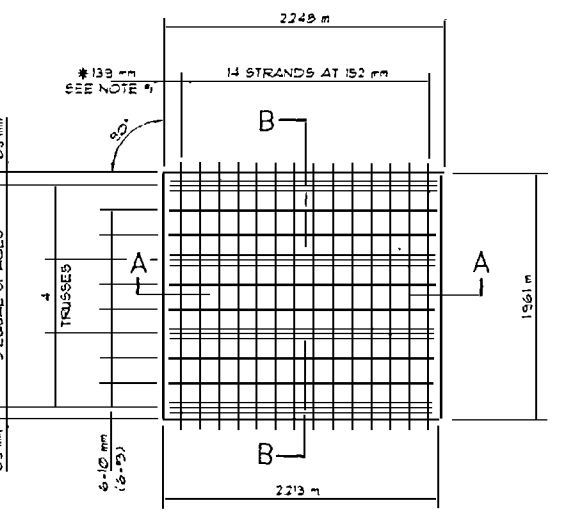
PANEL - P48

AREA = 4451 SQ. m



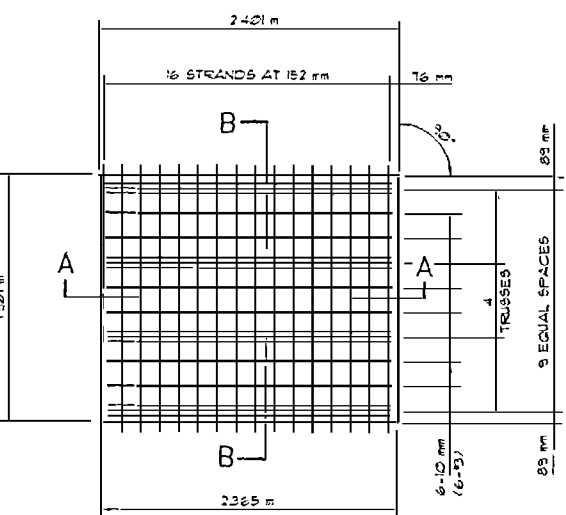
PANEL - P49

AREA = 4377 SQ. m



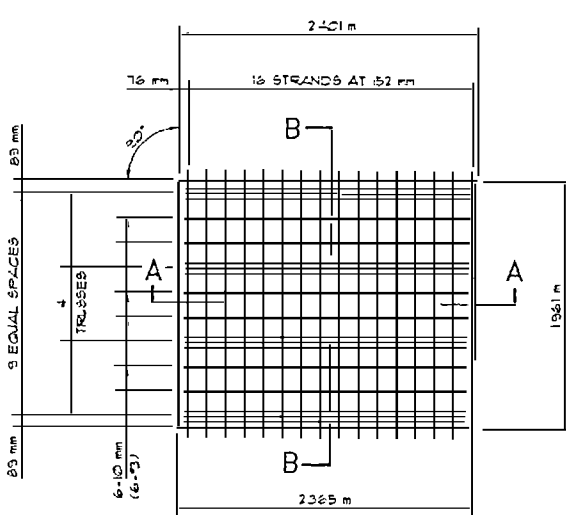
PANEL - P50

AREA = 4377 SQ. m



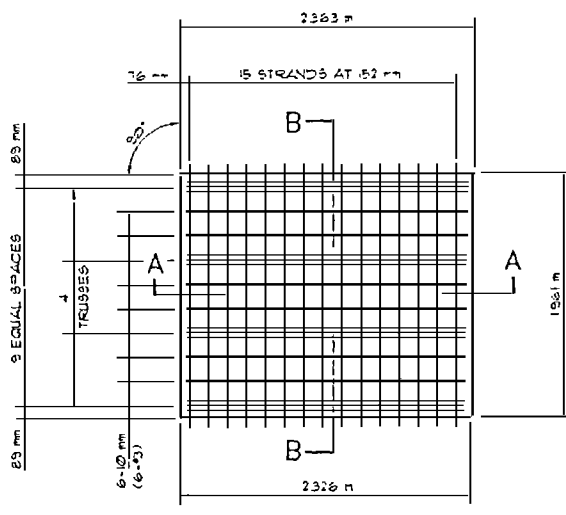
PANEL - P51

AREA = 4676 SQ. m



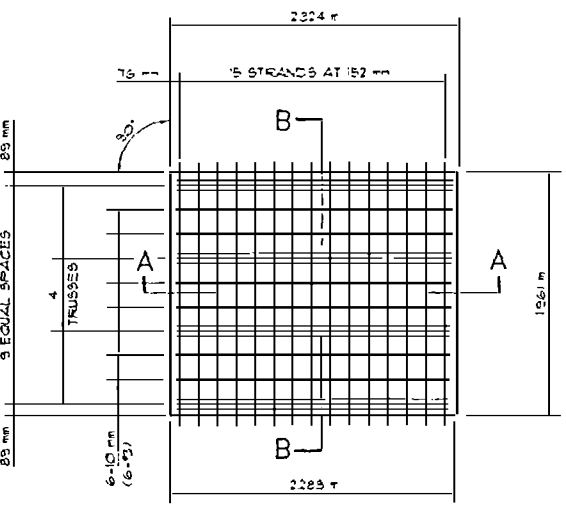
PANEL - P52

AREA = 4676 SQ. m



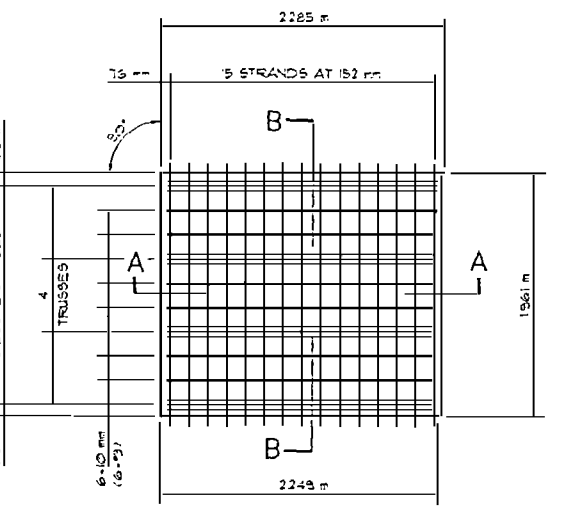
PANEL - P53

AREA = 4600 SQ. m



PANEL - P54

AREA = 4573 SQ. m



PANEL - P55

AREA = 4445 SQ. m

NOTE #1
* DENOTES 2 X 4 BLOCKING REQUIRED AT FORM SIDE OF PANEL

UTILITY PRECAST, INC.

939 W. CRAIGHEAD ROAD
CHARLOTTE, NC. 28206

PROJECT NO.: C200729
COUNTY: CARTERET/ONSLow
STATION: 12+47.510 -L-

SUPERSTRUCTURE
PRECAST PRESTRESSED
CONCRETE DECK PANELS

PROPERTY OF
UTILITY PRECAST, INC.
939 W. CRAIGHEAD RD.
CHARLOTTE, NC 28205



DATE: OCTOBER 13, 2004

SCALE: 1"=30'

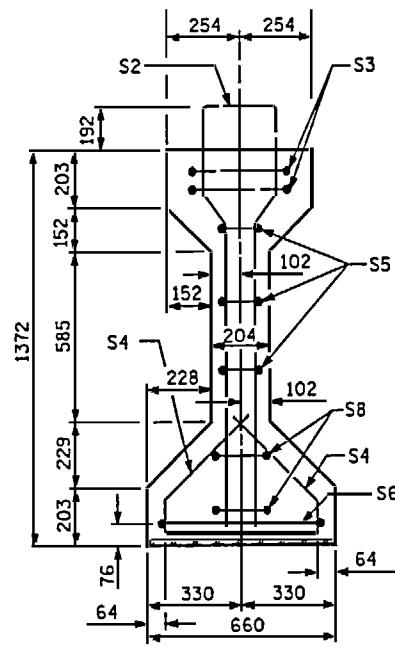
REVISIONS:

NO.	BY	DATE

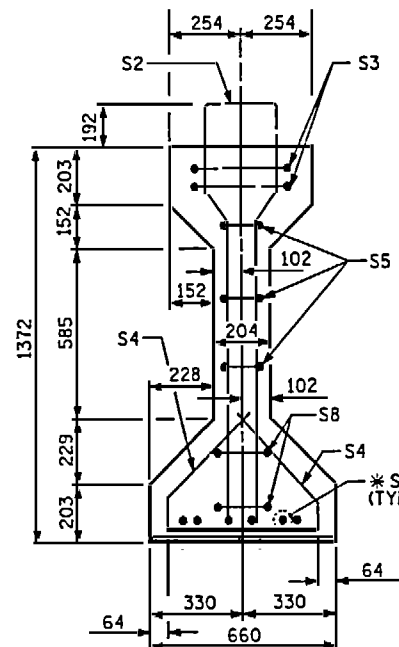
TOTAL SHEETS: 11

SHEET NUMBER
41
TOTAL SHEETS
11

SHEET 41 OF 11

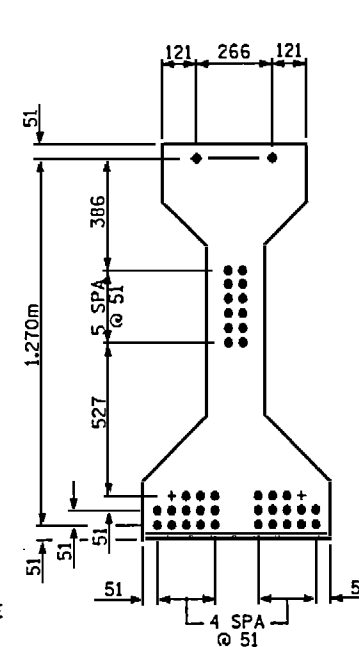


SECTION A-A

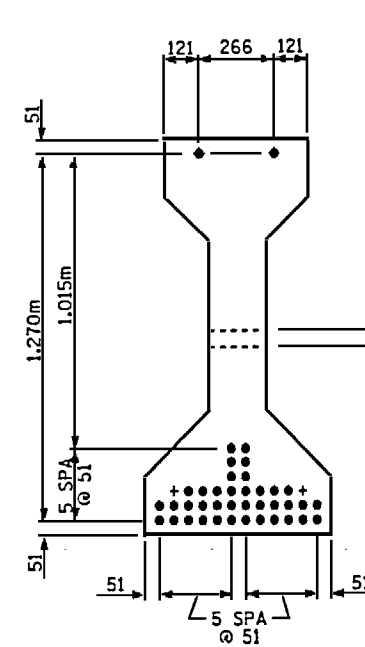


SECTION B-B

* FOR S7 BARS, SEE
DETAIL 'A' OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET



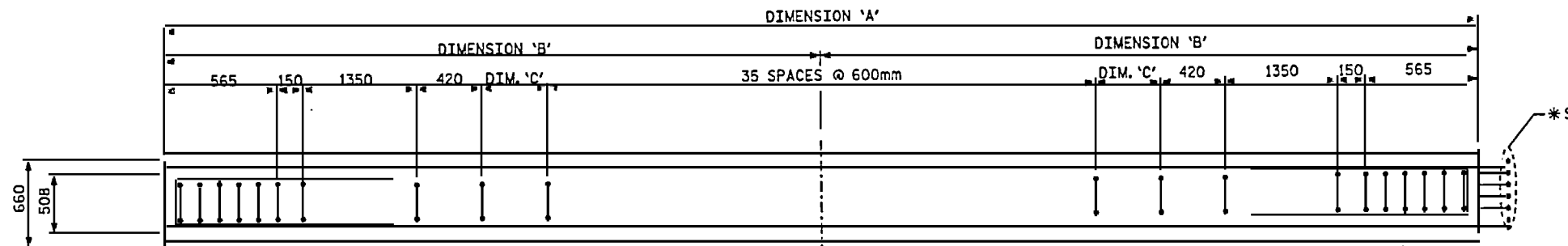
AT END OF GIRDER



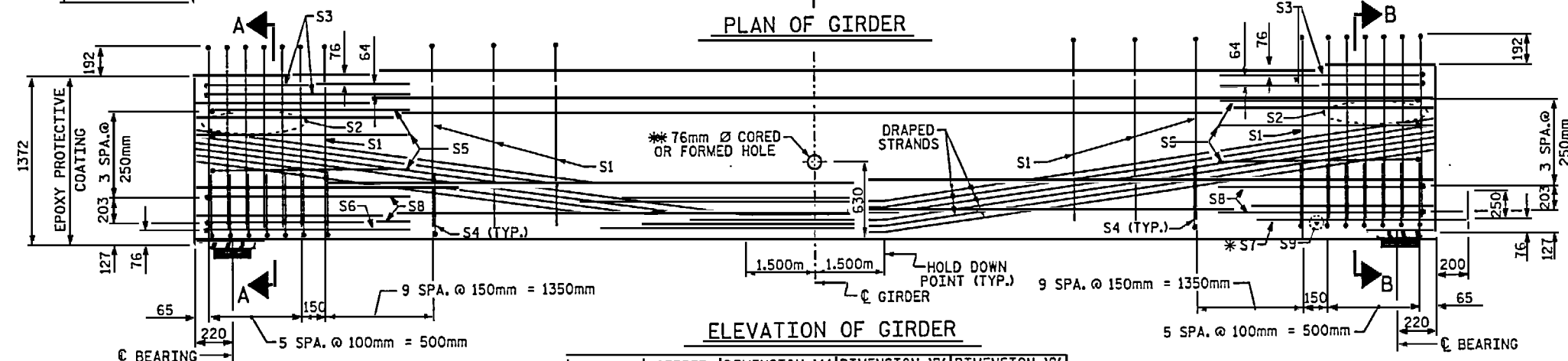
AT C OF GIRDER

12.70mm Ø LOW RELAXATION STRAND LAYOUT

76mm Ø CORED OR FORMED HOLE
SEE ELEVATION FOR LOCATION



PLAN OF GIRDER



ELEVATION OF GIRDER

SPANS	GIRDER	DIMENSION 'A'	DIMENSION 'B'	DIMENSION 'C'
1 - 3 & 12 - 20	1	26.820m	13.410m	425
	2			
	3			
	4			
	5			
4	1	26.784m	13.392m	407
	2	26.802m	13.401m	416
	3	26.820m	13.410m	425
	4	26.838m	13.419m	434
	5	26.856m	13.428m	443
5 - 10	1	26.670m	13.335m	350
	2	26.744m	13.372m	387
	3	26.820m	13.410m	425
	4	26.894m	13.447m	462
	5	26.968m	13.484m	499

* 76mm Ø CORED OR FORMED HOLE IS TO BE
PLACED AT MIDSPAN, GROUDED RECESS IS
REQUIRED ON EXTERIOR GIRDERS. SEE
"PRESTRESSED CONCRETE GIRDER CONTINUOUS
FOR LIVE LOAD DETAILS" SHEET.



AREA (mm ²)	ULTIMATE STRENGTH (KN PER STRAND)	APPLIED PRESTRESS (KN PER STRAND)
98.71	183.7	137.8

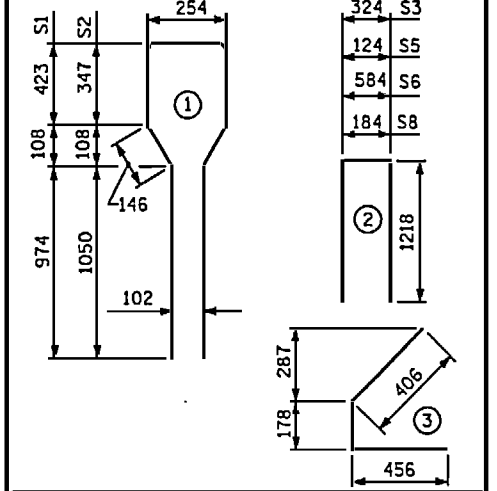
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	58	*13	1	3340	193
S2	12	*19	1	3340	90
S3	4	*13	2	2760	11
S4	64	*13	3	1040	66
S5	6	*13	2	2560	15
S6	1	*13	2	3020	3
*S7	6	*16	STR	1120	10
S8	4	*13	2	2620	10
S9	1	*10	STR	560	1

* NOTE: S7 BARS SHALL BE BENT BEFORE
SHIPMENT. HEAT BENDING SHALL
NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

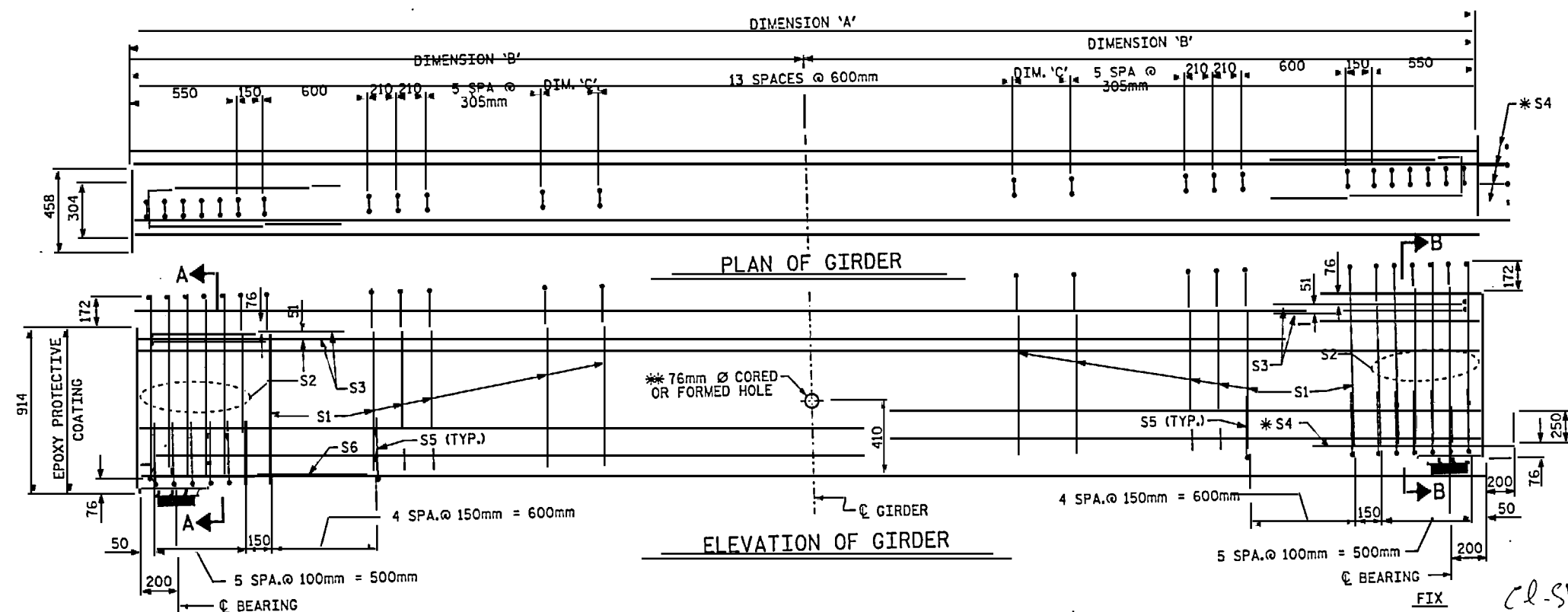
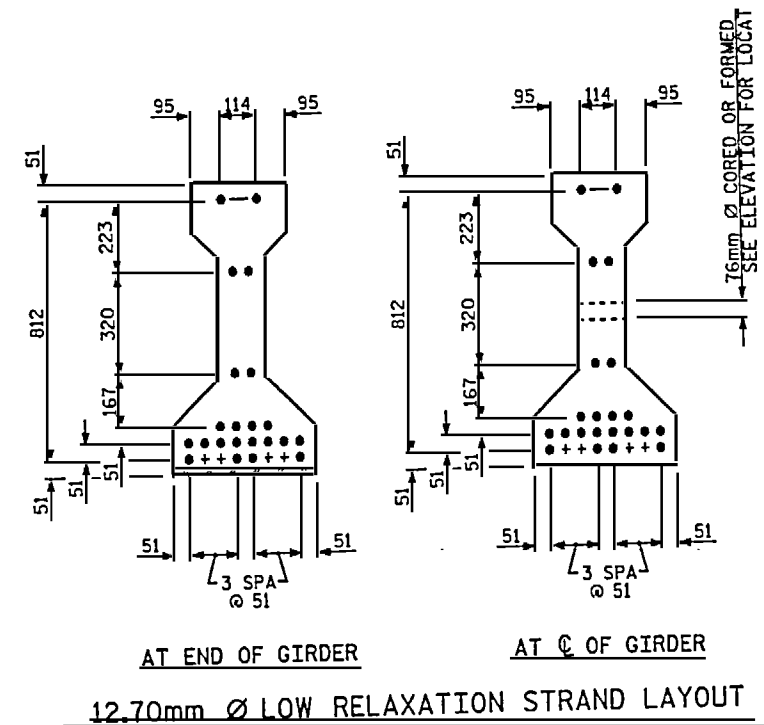
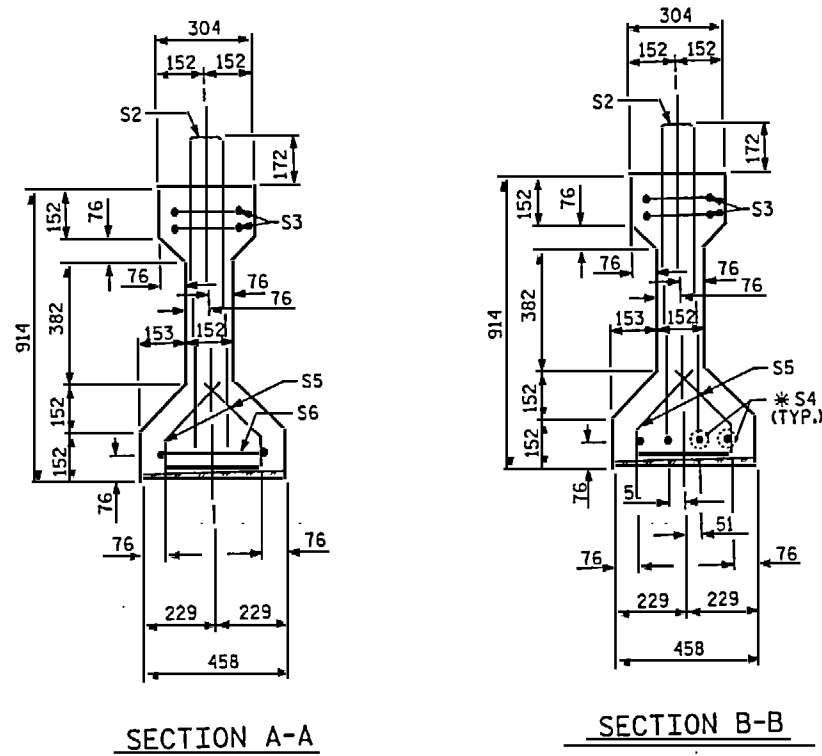
	REINFORCING STEEL	37.9 MPa CONCRETE	12.70mm Ø L.R. STRANDS
	kg	m ³	No.
SPANS 1-20 GDRS. 1-5	399	13.7	40

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
100	VARIES	2681.972m

PROJECT NO. B-2938
CARTERET-ONSLow COUNTY
STATION: 12+47.510 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
AASHTO TYPE IV
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPANS 1 THRU 20



SPANS	GIRDER	DIMENSION 'A'	DIMENSION 'B'	DIMENSION 'C'
21	1	14.828m	7.414m	269
	2	14.824m	7.412m	267
	3	14.820m	7.410m	265
	4	14.816m	7.408m	263
	5	14.812m	7.406m	261
24, 25, 28, 29, & 31	1	14.972m	7.486m	341
	2	14.896m	7.448m	303
	3	14.820m	7.410m	265
	4	14.744m	7.372m	227
	5	14.668m	7.334m	189

* 76mm Ø CORED OR FORMED HOLE IS TO BE PLACED AT MIDSPAN. GROUTED RECESS IS REQUIRED ON EXTERIOR GIRDERS. SEE "PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET.

CL-Span = 14.896m
= 14.496m

[Signature]

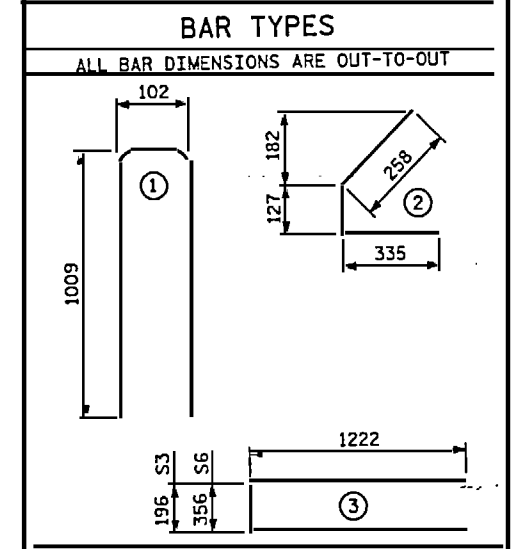
PROFESSIONAL SEAL
 12960

(mm ²)	(kN PER STRAND)	(kN PER STRAND)
98.71	183.7	137.8

REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	38	*13	1	2120	80
S2	12	*16	1	2120	39
S3	4	*13	3	2640	10
*S4	4	*16	STR	1120	7
S5	44	*13	2	720	31
S6	1	*13	3	2800	3

* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	37.9 MPa CONCRETE	12.70mm Ø L.R. STRANDS
	kg	m ³	No.
SPANS 21, 24, 25, 28, 29, & 31 GIRS. 1-5	170	3.5	22

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
30	VARIES	444.600m

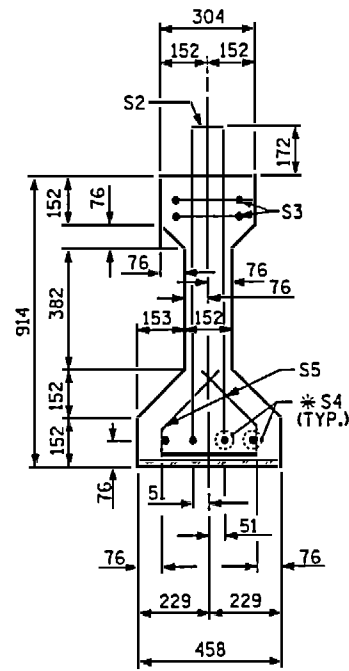
PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

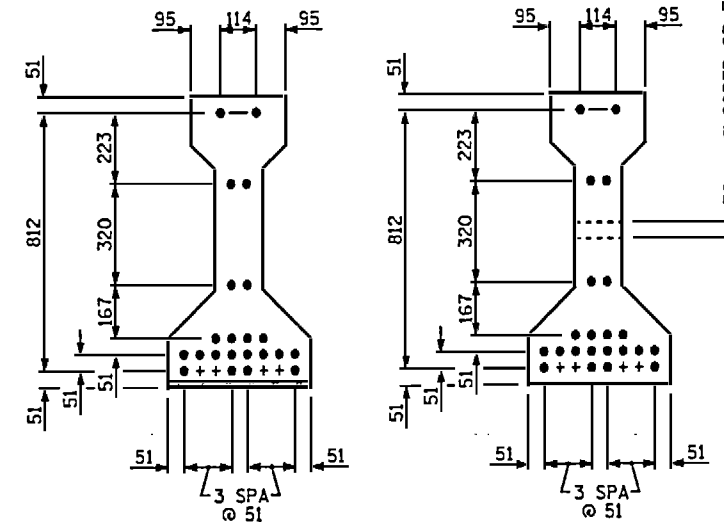
STANDARD
 AASHTO TYPE II
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 SPANS 21, 24, 25, 28, 29, 31

REVISIONS

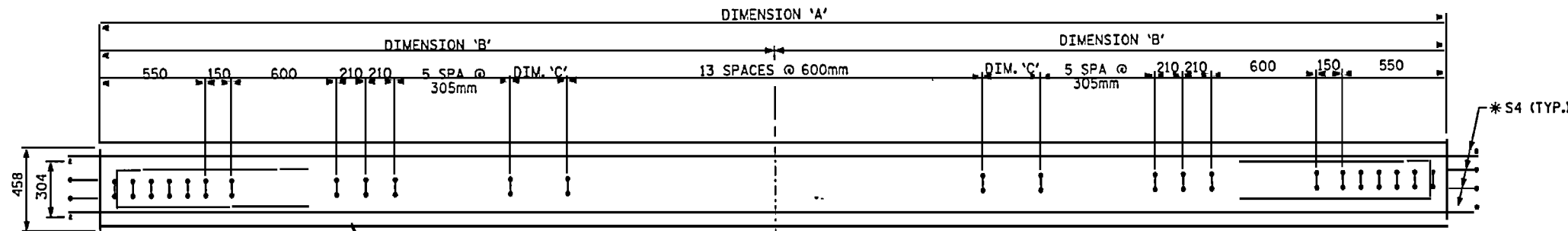
SHEET NO. S-42



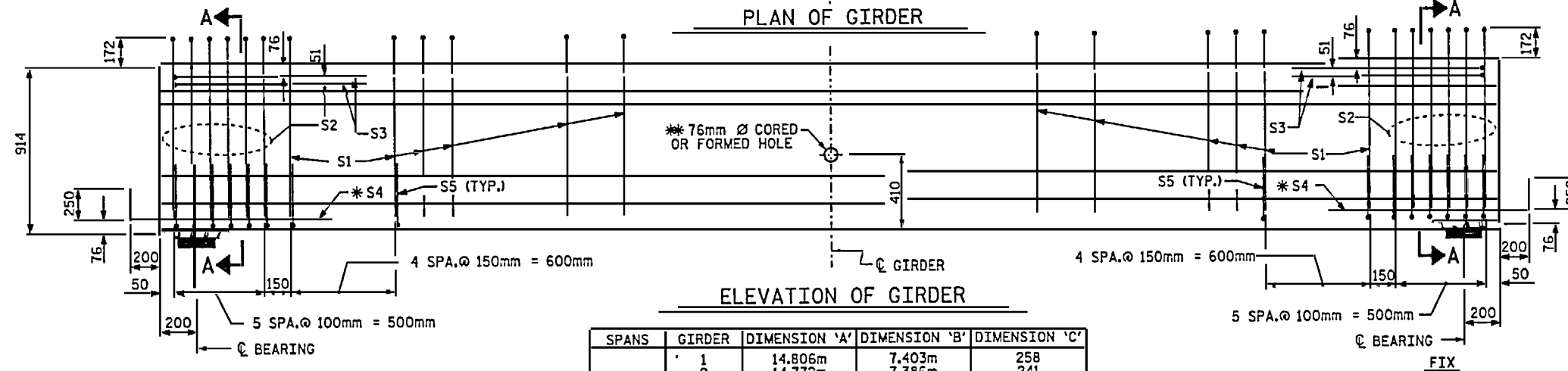
SECTION A-A



AT END OF GIRDER AT C OF GIRDER
12.70mm Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



ELEVATION OF GIRDER

SPANS	GIRDER	DIMENSION 'A'	DIMENSION 'B'	DIMENSION 'C'
22	1	14.806m	7.403m	258
	2	14.772m	7.386m	241
	3	14.740m	7.370m	225
	4	14.708m	7.354m	209
	5	14.674m	7.337m	192
23	1	14.872m	7.436m	291
	2	14.806m	7.403m	258
	3	14.740m	7.370m	225
	4	14.674m	7.337m	192
	5	14.608m	7.304m	159
	1	14.892m	7.446m	301

*76mm Ø CORED OR FORMED HOLE IS TO BE PLACED AT MIDSPAN. GROUTED RECESS IS REQUIRED ON EXTERIOR GIRDERS. SEE "PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS" SHEET.

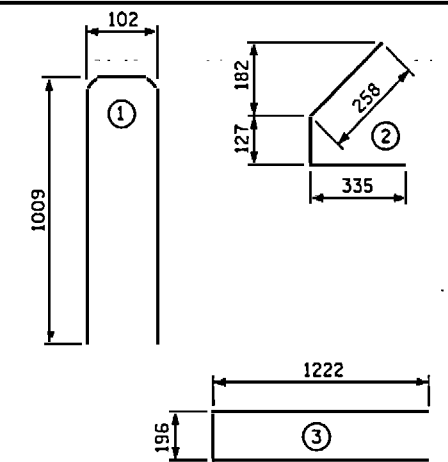
AREA (mm ²)	ULTIMATE STRENGTH (KN PER STRAND)	APPLIED PRESTRESS (KN PER STRAND)
98.71	183.7	137.8

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	38	#13	1	2120	80
S2	12	#16	1	2120	39
S3	4	#13	3	2640	10
*S4	8	#16	STR	1120	14
S5	44	#13	2	720	31

* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	37.9 MPa CONCRETE	12.70mm Ø L.R. STRANDS
	kg	m ³	No.
SPANS 22, 23, 26, 27, & 30 GDRS. 1-5	174	3.5	22

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
25	VARIES	368.500m

PROJECT NO. B-2938
CARTERET-ONSLow COUNTY
STATION: 12+47.510 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
AASHTO TYPE II
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPANS 22, 23, 26, 27, 30



NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203M EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TIE ROD ASSEMBLY SHALL BE AASHTO M270 GRADE 250 STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 420.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW. FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 50mm BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 30.3 MPa.

DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 100mm, SHALL BE RAKED TO A DEPTH OF 6mm.

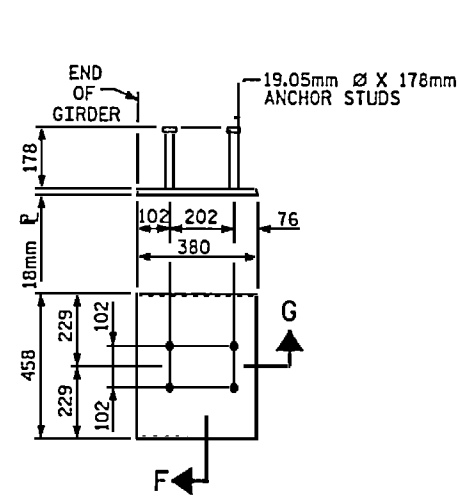
WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 150mm OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 13mm OF THE THEORETICAL LOCATION SHOWN.

FOR VERTICAL CRACKS IN PRESTRESSED CONCRETE GIRDERS PRIOR TO DETENSIONING, SEE SPECIAL PROVISIONS.

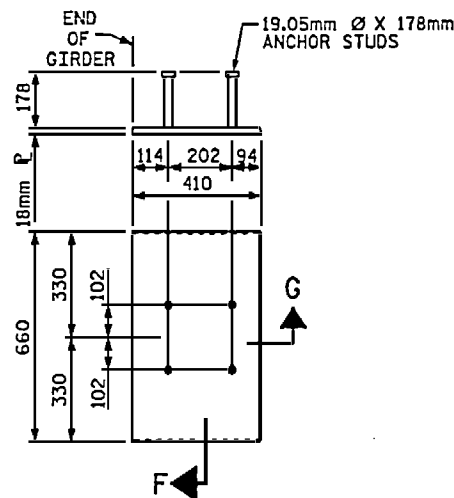
PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 MPa TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PRESTRESSED CONCRETE GIRDERS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS FOR CALCIUM NITRITE CORROSION INHIBITOR.

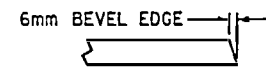
FOR METRIC STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.



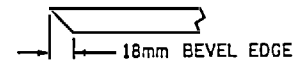
EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE II GIRDER
(2 REQ'D PER GIRDER)



EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE IV GIRDER
(2 REQ'D PER GIRDER)

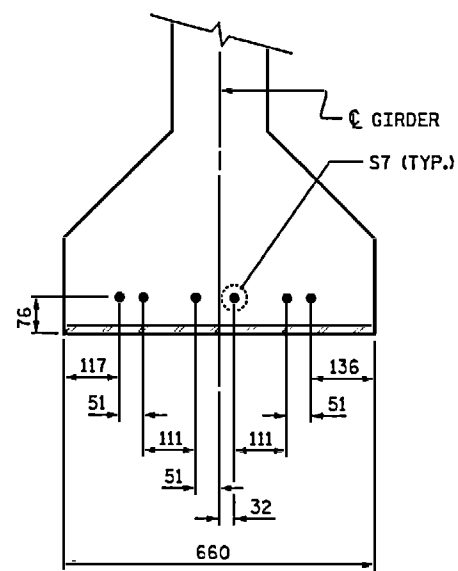


SECTION "G"

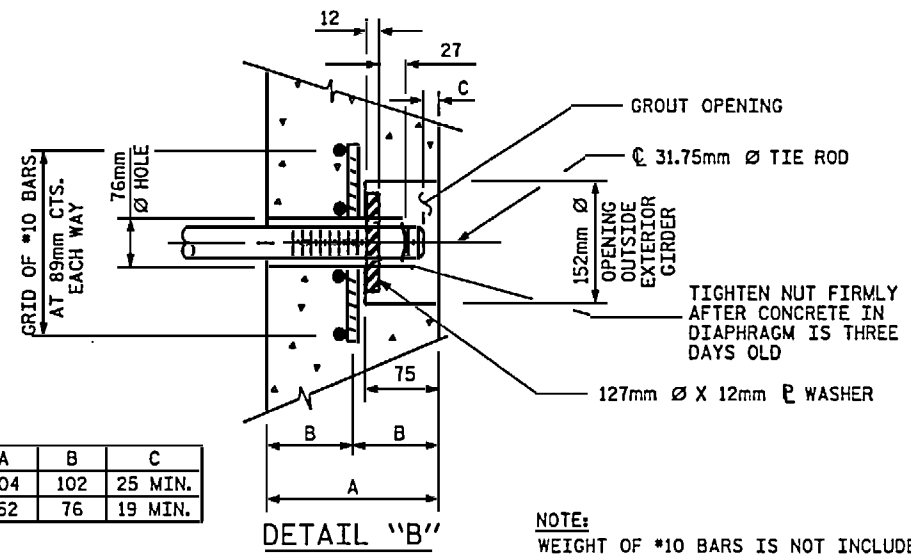


SECTION "F"

(SEE NOTES)

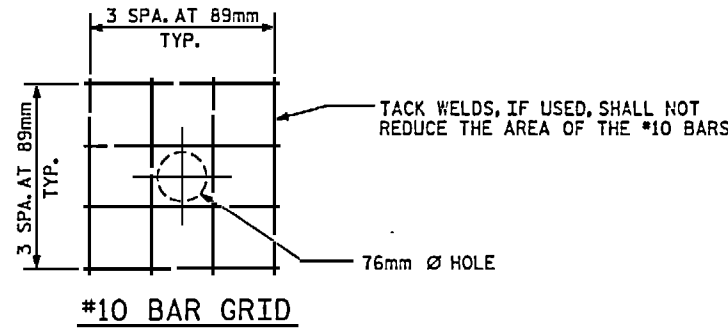


DETAIL "A"
(FOR AASHTO TYPE IV GIRDERS)



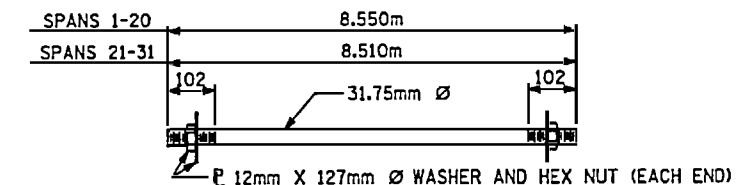
	A	B	C
SPANS 1-20	204	102	25 MIN.
SPANS 21-31	152	76	19 MIN.

NOTE:
WEIGHT OF #10 BARS IS NOT INCLUDED IN THE BILL OF MATERIAL.



#10 BAR GRID

GRouted RECESS FOR END OF TIE ROD



31.75mm Ø TIE ROD ASSEMBLY

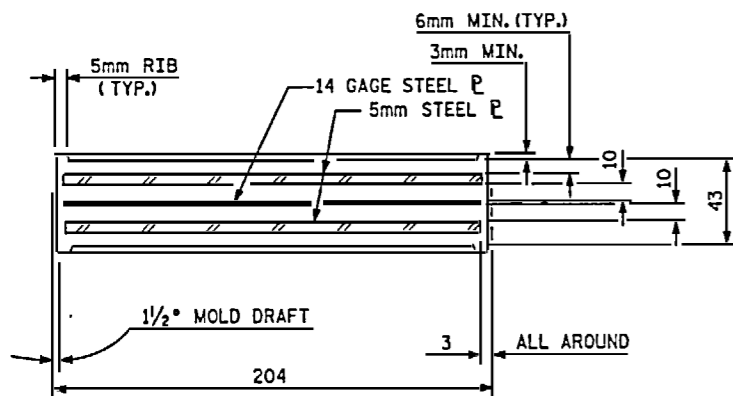
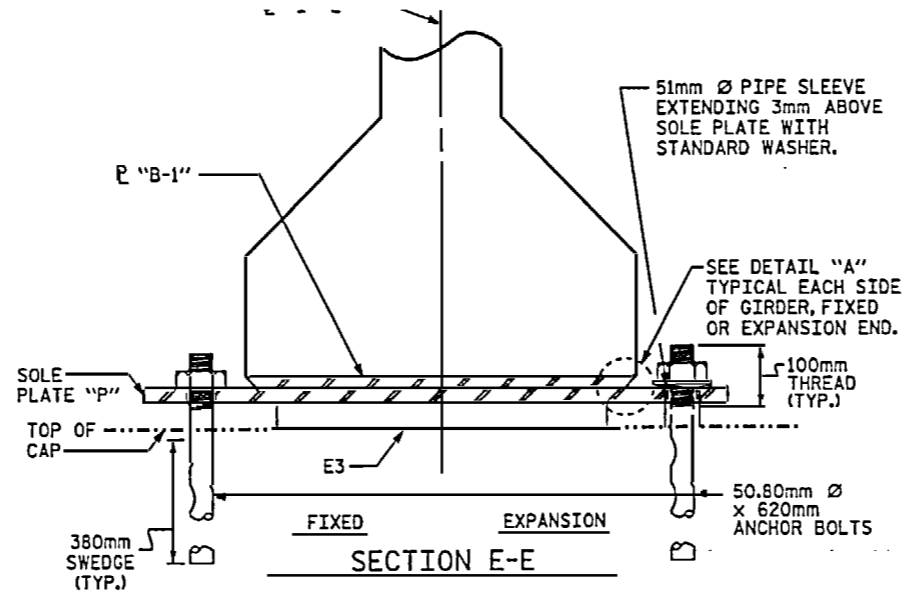
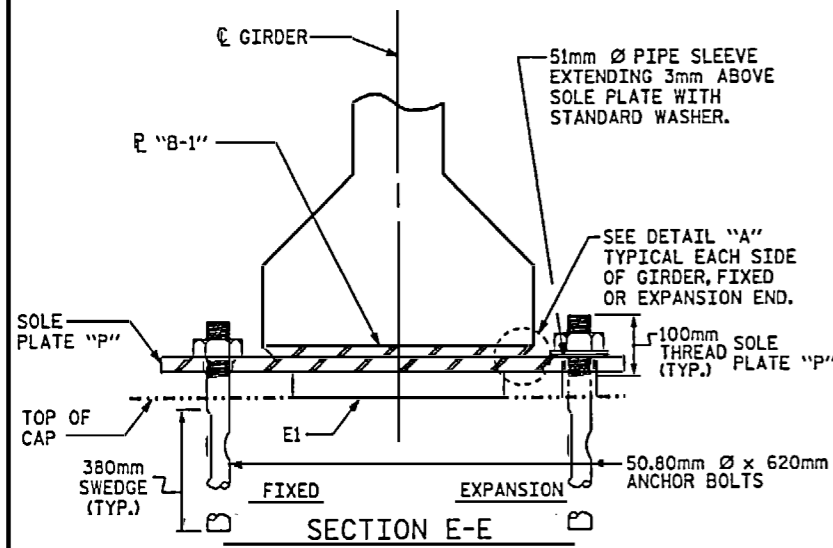
20 COMPLETE ASSEMBLIES REQUIRED - SPANS 1-20
11 COMPLETE ASSEMBLIES REQUIRED - SPANS 21-31

PROJECT NO. B-2938
CARTERET-ONSLow COUNTY
STATION: 12+47.510 -L-

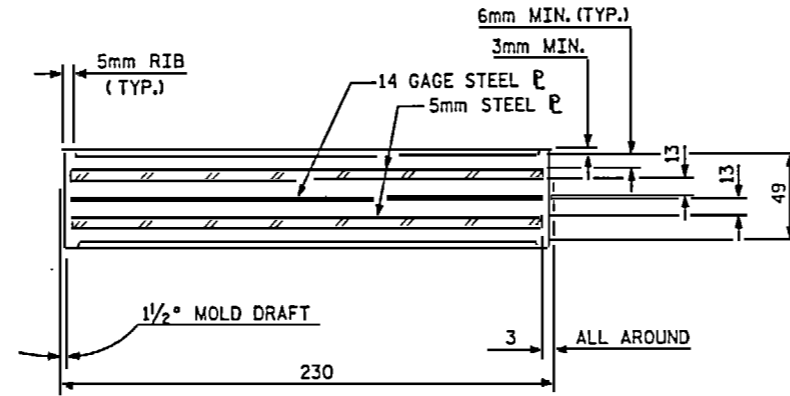
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
DETAILS

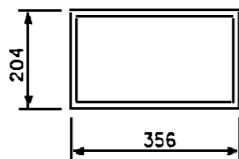




TYPICAL SECTION OF ELASTOMERIC BEARINGS



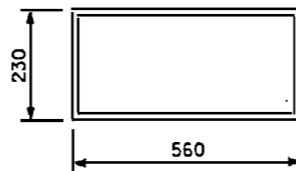
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E1 (110 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

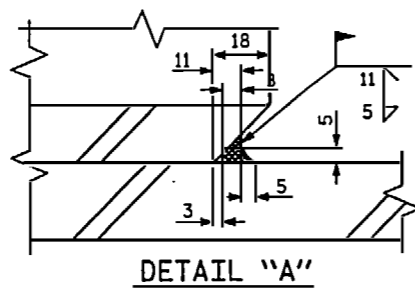
TYPE II



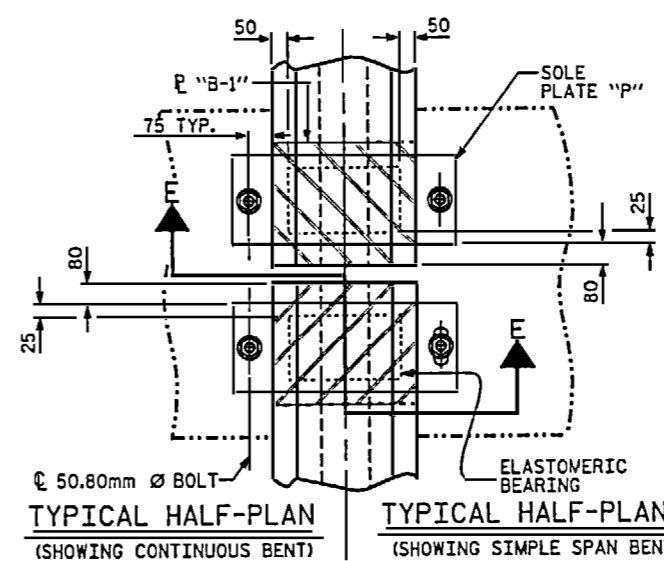
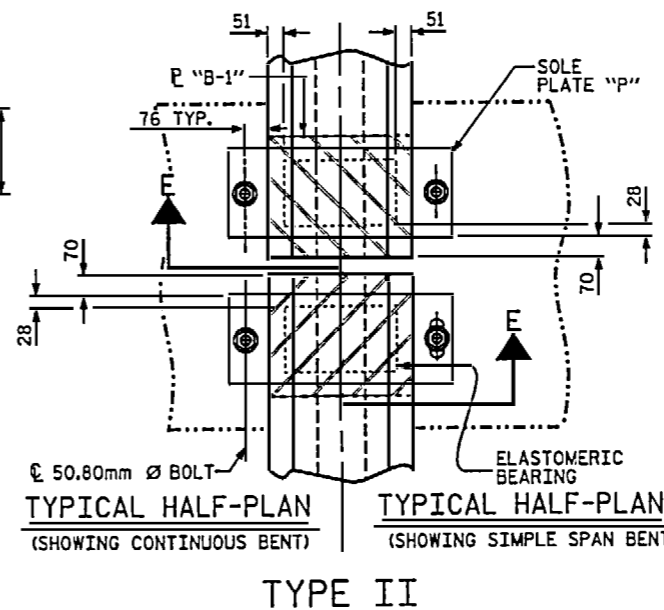
E3 (200 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE IV



DETAIL "A"



FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 51mm Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 149°C. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291M-12 OR AASHTO M292M-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293M. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

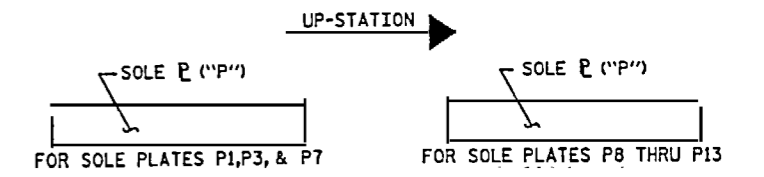
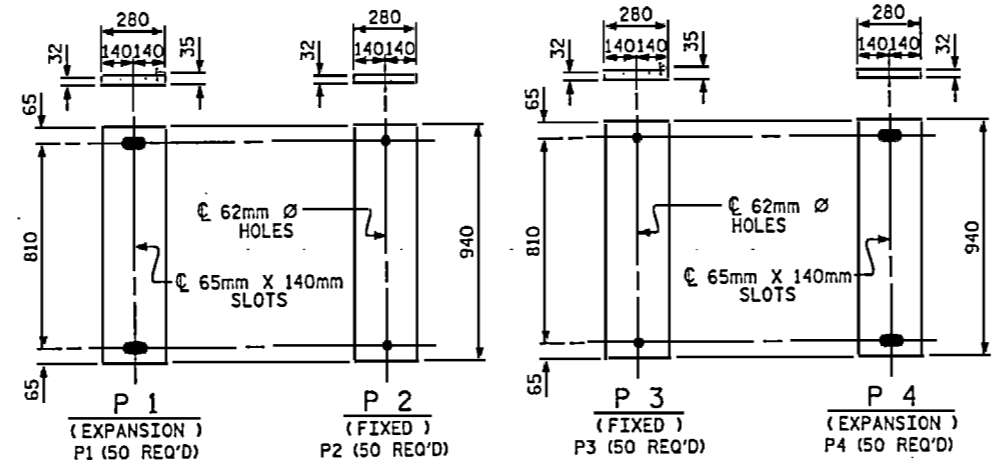
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

- LOAD RATINGS -	
	MAX.D.L.+L.L.
914mm PCG -TYPE II	366 kN
1372mm PCG -TYPE IV	611 kN

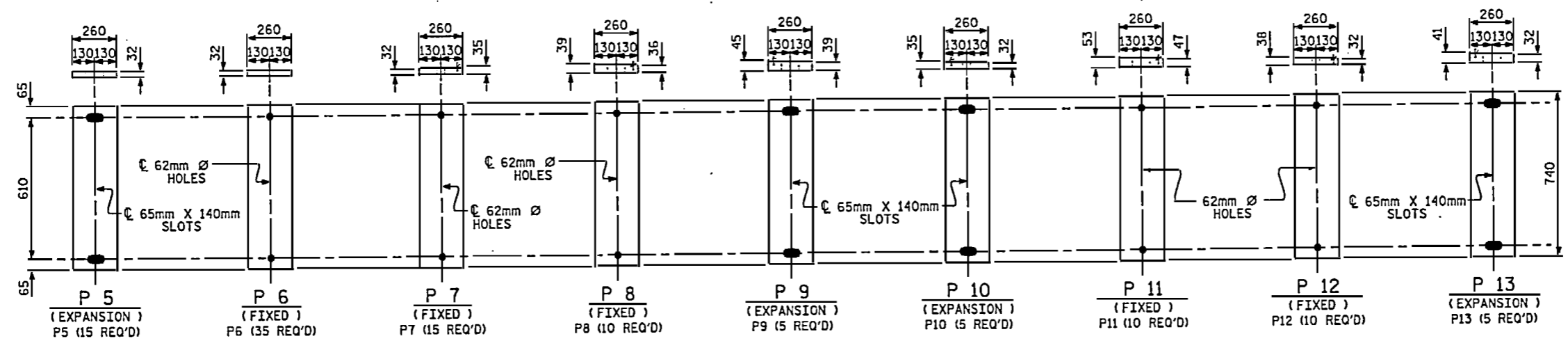
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 ELASTOMERIC BEARING
 DETAILS
 PRESTRESSED CONCRETE GIRDER
 SUPERSTRUCTURE



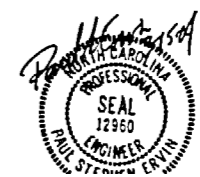


SOLE P PLACEMENT DETAIL



SOLE PLATE DETAILS ("P")

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SOLE PLATE
 DETAILS**
 REVISIONS _____ SHEET NO. _____

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																								
$\frac{1}{2}'' \phi$ LOW RELAXATION		SPANS 1 THRU 20																						
		GIRDERS 1 & 5										GIRDERS 2, 3 & 4												
TENTH POINTS		0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	
CAMBER (GIRDER ALONE IN PLACE)		↑	0.000	0.025	0.047	0.065	0.076	0.080	0.076	0.065	0.047	0.025	0.000	0.000	0.025	0.047	0.065	0.076	0.080	0.076	0.065	0.047	0.025	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.		↓	0.000	0.010	0.019	0.026	0.031	0.033	0.031	0.026	0.019	0.010	0.000	0.000	0.009	0.017	0.024	0.028	0.030	0.028	0.024	0.017	0.009	0.000
FINAL CAMBER		↑	0	15	28	39	45	47	45	39	28	15	0	0	16	30	41	48	50	48	41	30	16	0

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN METERS, EXCEPT " FINAL CAMBER " WHICH IS SHOWN IN MILLIMETERS.

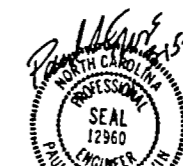
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																								
$\frac{1}{2}'' \phi$ LOW RELAXATION		SPANS 21 THRU 31																						
		GIRDERS 1 & 5										GIRDERS 2, 3 & 4												
TENTH POINTS		0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	
CAMBER (GIRDER ALONE IN PLACE)		↑	0.000	0.011	0.021	0.029	0.034	0.036	0.034	0.029	0.021	0.011	0.000	0.000	0.011	0.021	0.029	0.034	0.036	0.034	0.029	0.021	0.011	0.000
* DEFLECTION DUE TO SUPERIMPOSED D.L.		↓	0.000	0.004	0.008	0.012	0.014	0.015	0.014	0.012	0.008	0.004	0.000	0.000	0.003	0.007	0.010	0.012	0.013	0.012	0.010	0.007	0.003	0.000
FINAL CAMBER		↑	0	7	13	17	20	21	20	17	13	7	0	0	8	14	19	22	23	22	19	14	8	0

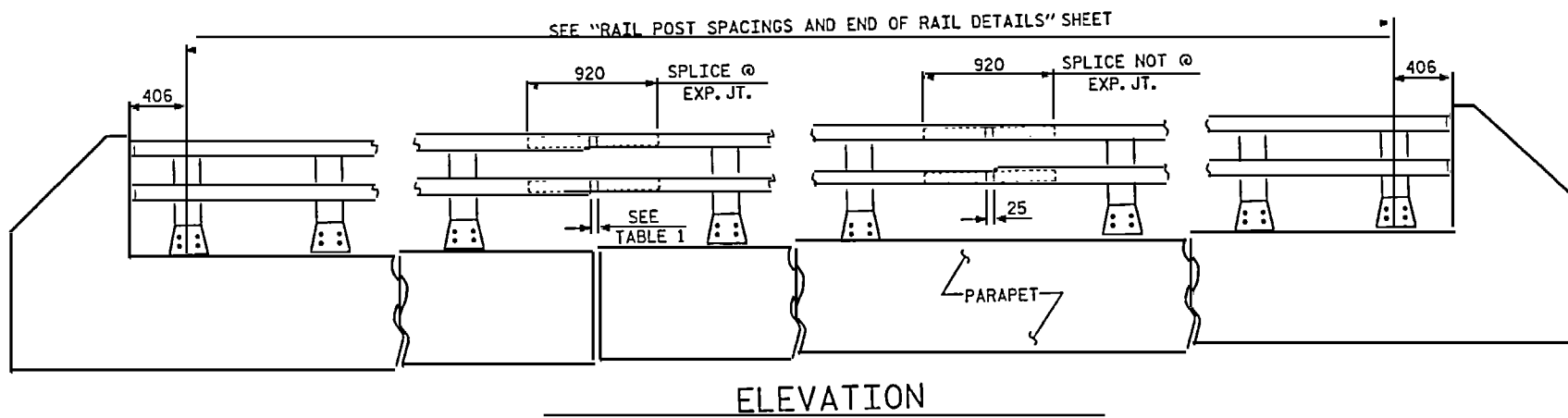
* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN METERS, EXCEPT " FINAL CAMBER " WHICH IS SHOWN IN MILLIMETERS.

PROJECT NO. B-2938
CARTERET-ONSLow COUNTY
STATION: 12+47.510-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
DEAD LOAD DEFLECTION
TABLES





ELEVATION

NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD No. BMR2SM

AT THE CONTRACTOR'S OPTION, THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE RAIL MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

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

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 250 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570M FOR GRADE 230 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570M FOR GRADE 230 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2SM.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

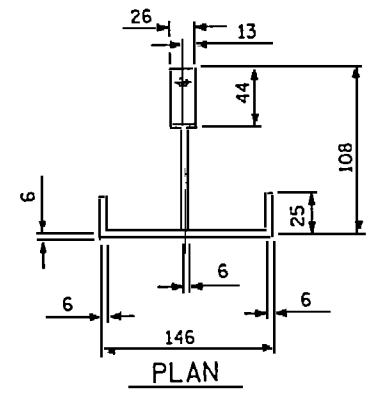
SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

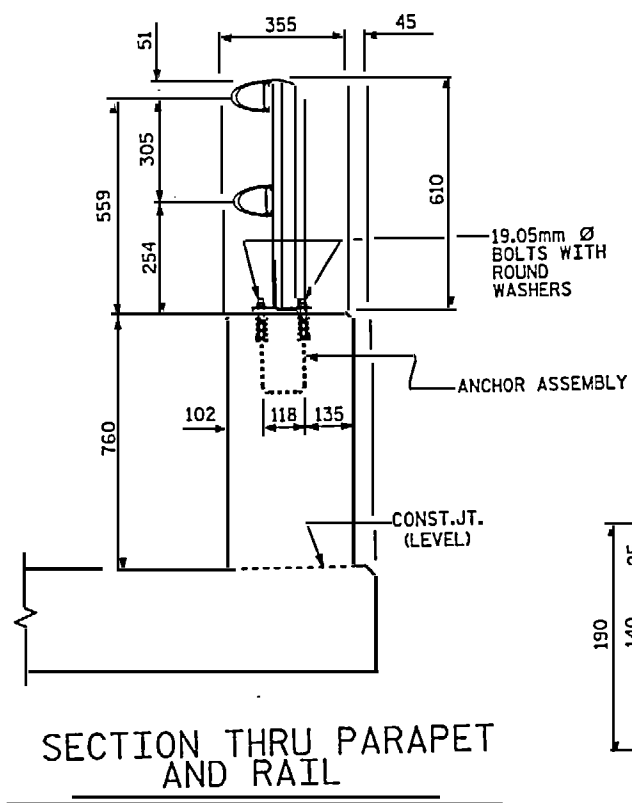
MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

TABLE 1

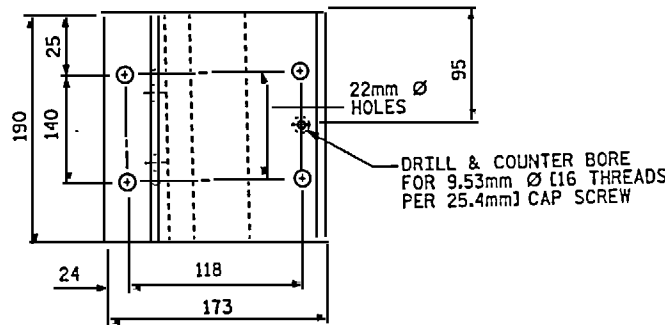
EXP. JT. @	RAIL OPENING
BENT No. 2	38mm
BENT No. 4	38mm
BENT No. 6	38mm
BENT No. 8	38mm
BENT No. 10	38mm
BENT No. 12	38mm
BENT No. 14	38mm
BENT No. 16	38mm
BENT No. 18	38mm
BENT No. 20	40mm
BENT No. 24	43mm
BENT No. 28	38mm



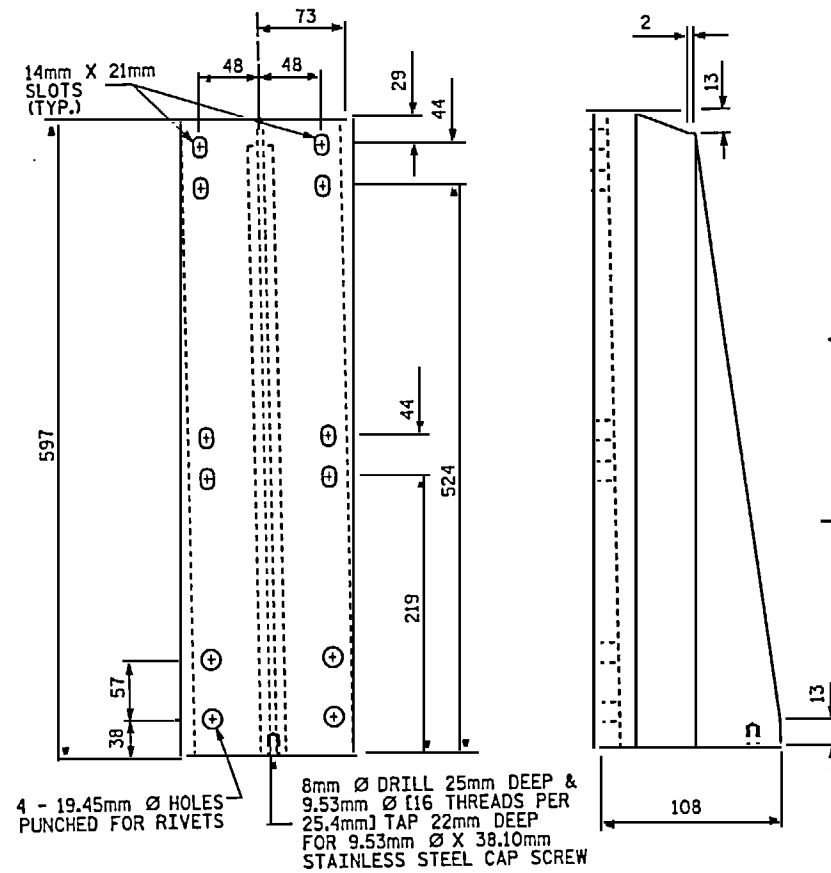
PLAN



SECTION THRU PARAPET AND RAIL



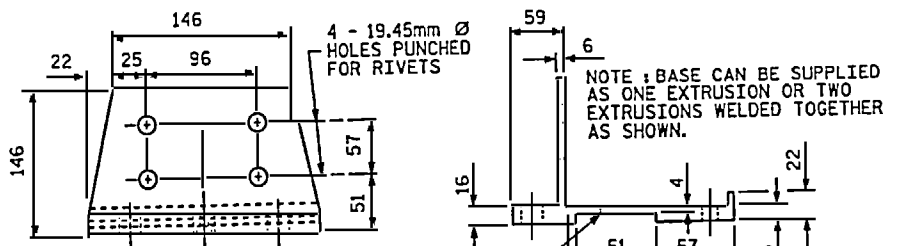
PLAN



FRONT ELEVATION

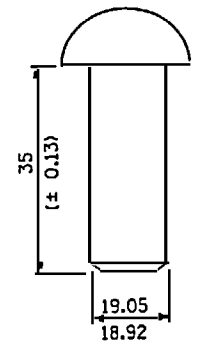
SIDE ELEVATION

DETAILS OF POST



FRONT ELEVATION

SIDE ELEVATION



RIGHT VIEW DETAIL

PAY LENGTH = 1405.440 METERS

PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-
 SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 STANDARD
 2 BAR METAL RAIL

REVISIONS: _____
 SHEET NO. 5-48

NOTES

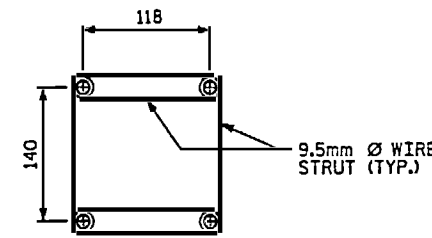
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

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

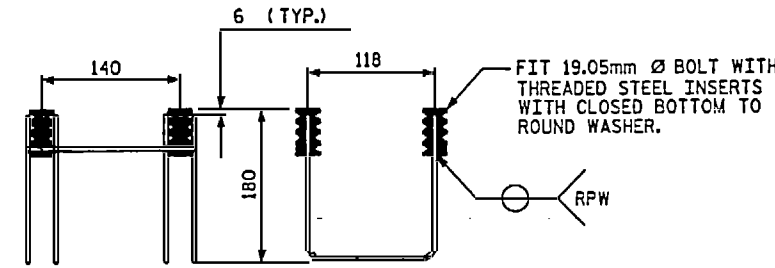
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 51mm FOR 19mm FERRULES.
- B. 4 - 19.05mm Ø X 64mm BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 19.05mm Ø X 64mm GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 689 MPa. AS AN OPTION, A 11mm Ø WIRE STRUT WITH A TENSILE STRENGTH OF 620 MPa IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR METERS OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR, AT HIS OPTION, MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL ANCHOR ASSEMBLY. THE YIELD LOAD OF THE 19.05mm Ø BOLT IS 44.5 kN. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS REQUIRED. SEE SPECIAL PROVISIONS FOR "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS".

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 517 MPa ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



PLAN

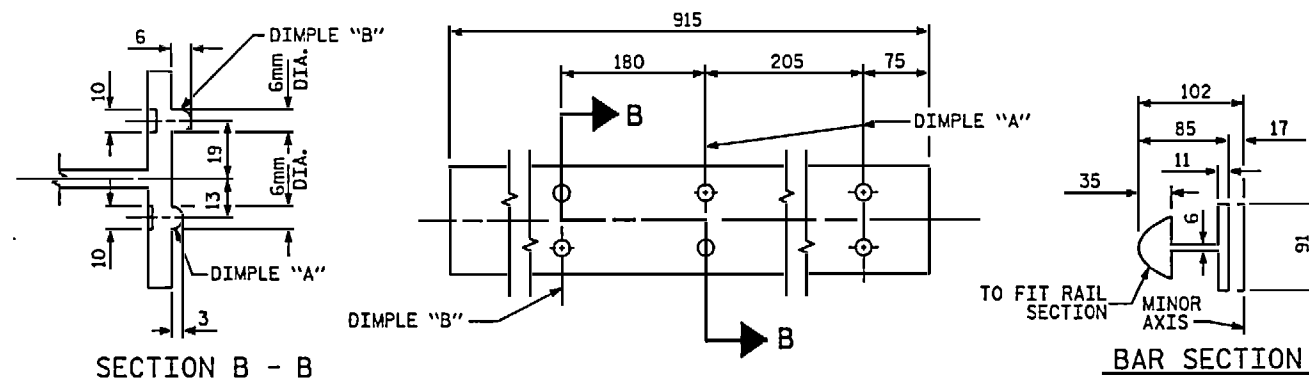


SIDE VIEW ELEVATION

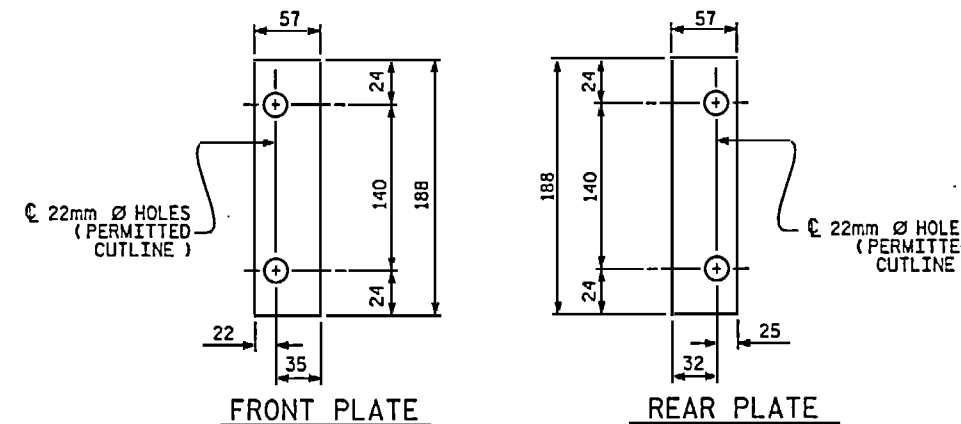
MINIMUM LENGTH OF THREADS IN INSERT (FERRULE) : 44mm

4-BOLT METAL RAIL ANCHOR ASSEMBLY

(736 ASSEMBLIES REQUIRED)

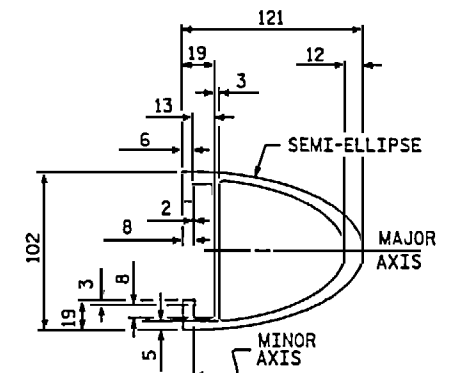


EXPANSION BAR DETAILS

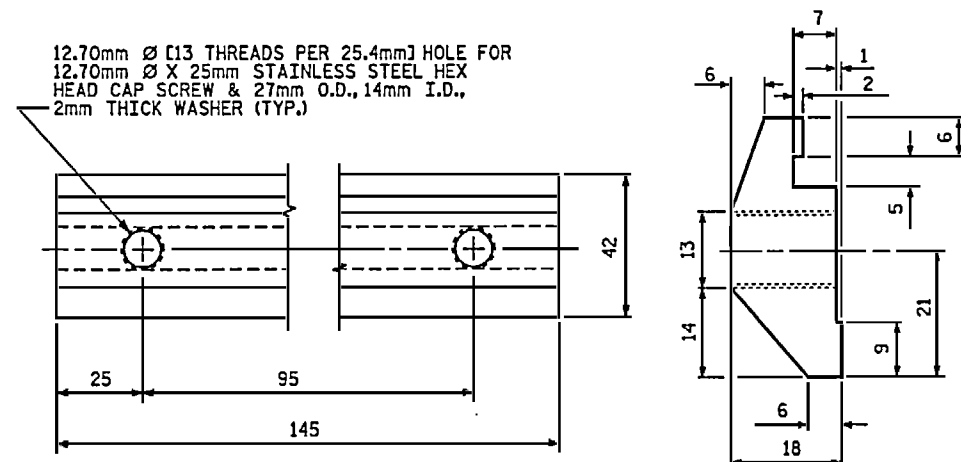


FRONT PLATE REAR PLATE SHIM DETAILS

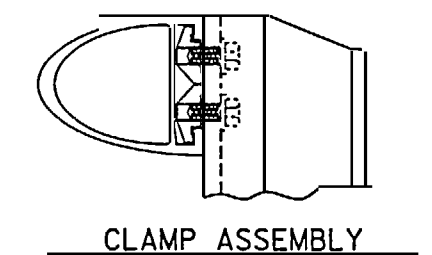
NOTE : SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.



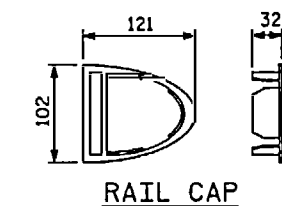
RAIL SECTION



CLAMP BAR DETAIL



CLAMP ASSEMBLY



RAIL CAP

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 2 BAR METAL RAIL



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

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 38mm.
- B. 1 - 19.05mm Ø X 41mm BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 19.05mm Ø X 41mm GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 689 MPa. AS AN OPTION, A 11mm Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 620 MPa. IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

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

- A. 12mm PLATES SHALL CONFORM TO AASHTO M270 GRADE 250 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 19.05mm STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 21.4 KN. THE FERRULES SHALL ENGAGE A 19.05mm Ø X 41mm BOLT WITH 51mm O.D. WASHER IN PLACE. THE 19.05mm Ø X 41mm BOLT SHALL HAVE N. C. THREADS.
- C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 16°C.
- D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- E. 13mm Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

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

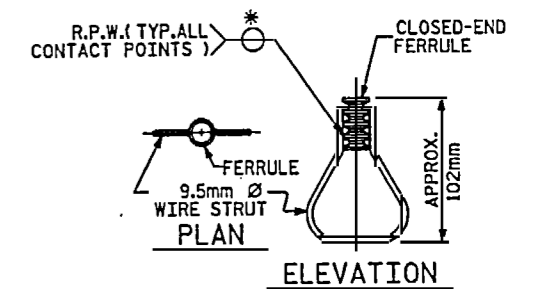
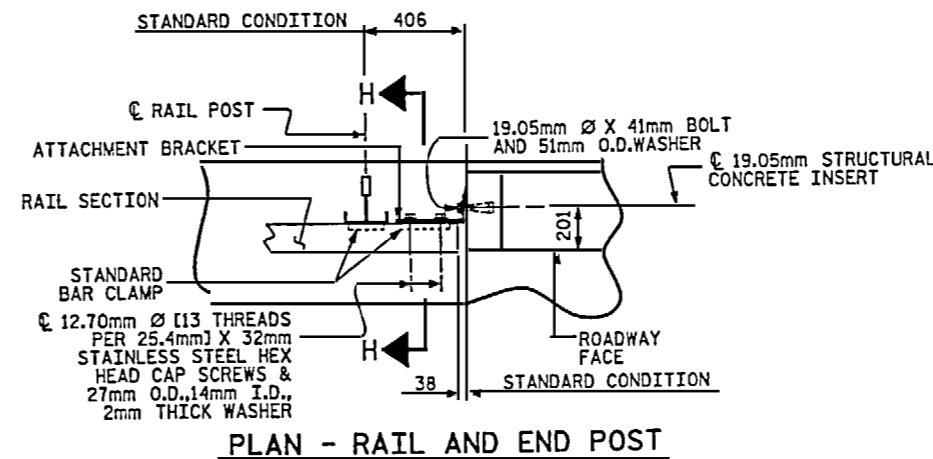
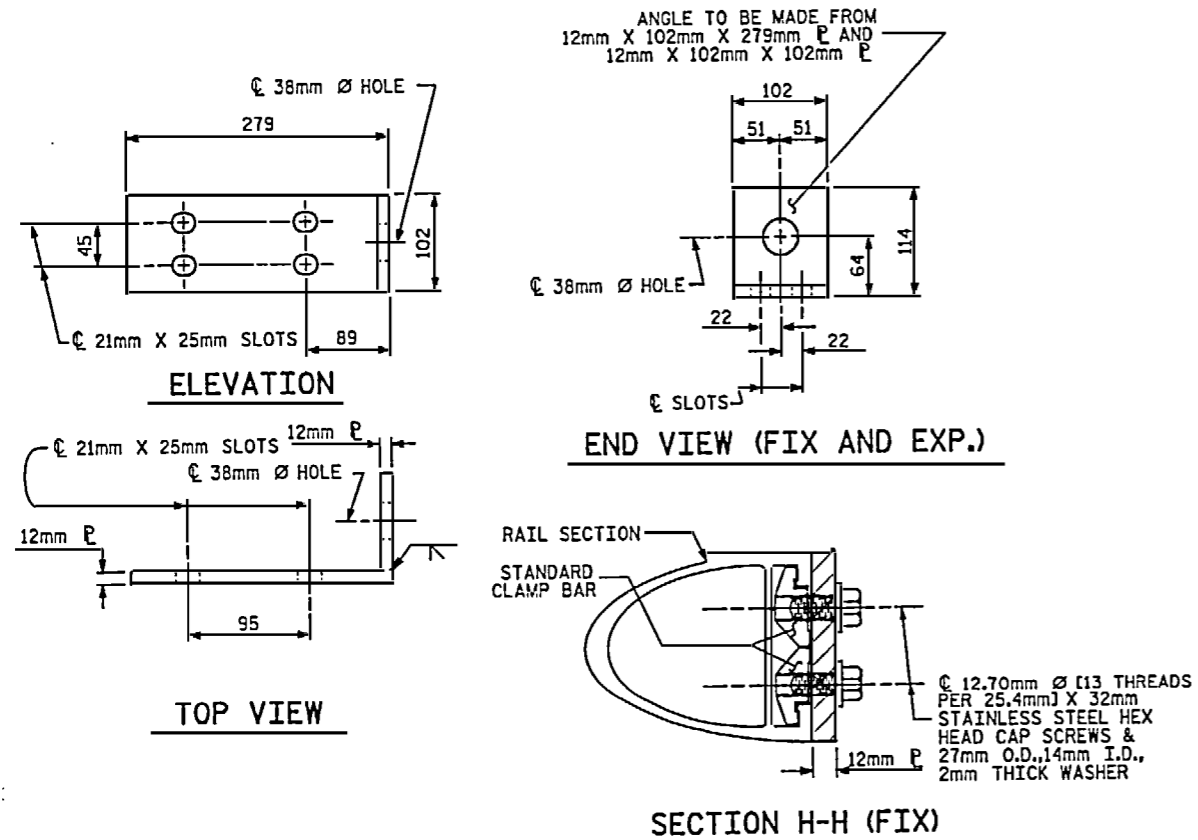
THE 19.05mm STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 19.05mm STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 12mm PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 19.05mm Ø X 41mm BOLT WITH WASHER SHALL BE REPLACED WITH A 19.05mm Ø X 165mm BOLT AND 51mm O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 19.05mm Ø X 41mm BOLT SHALL APPLY TO THE 19.05mm Ø X 165mm BOLT. SEE SPECIAL PROVISIONS FOR "ADHESIVELY ANCHORED ANCHOR BOLTS AND DOWELS". FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

FOR RAIL POST SPACING, SEE "2 BAR METAL RAIL POST SPACING" SHEETS.

PLAN OF RAIL POST SPACINGS



STRUCTURAL CONCRETE INSERT

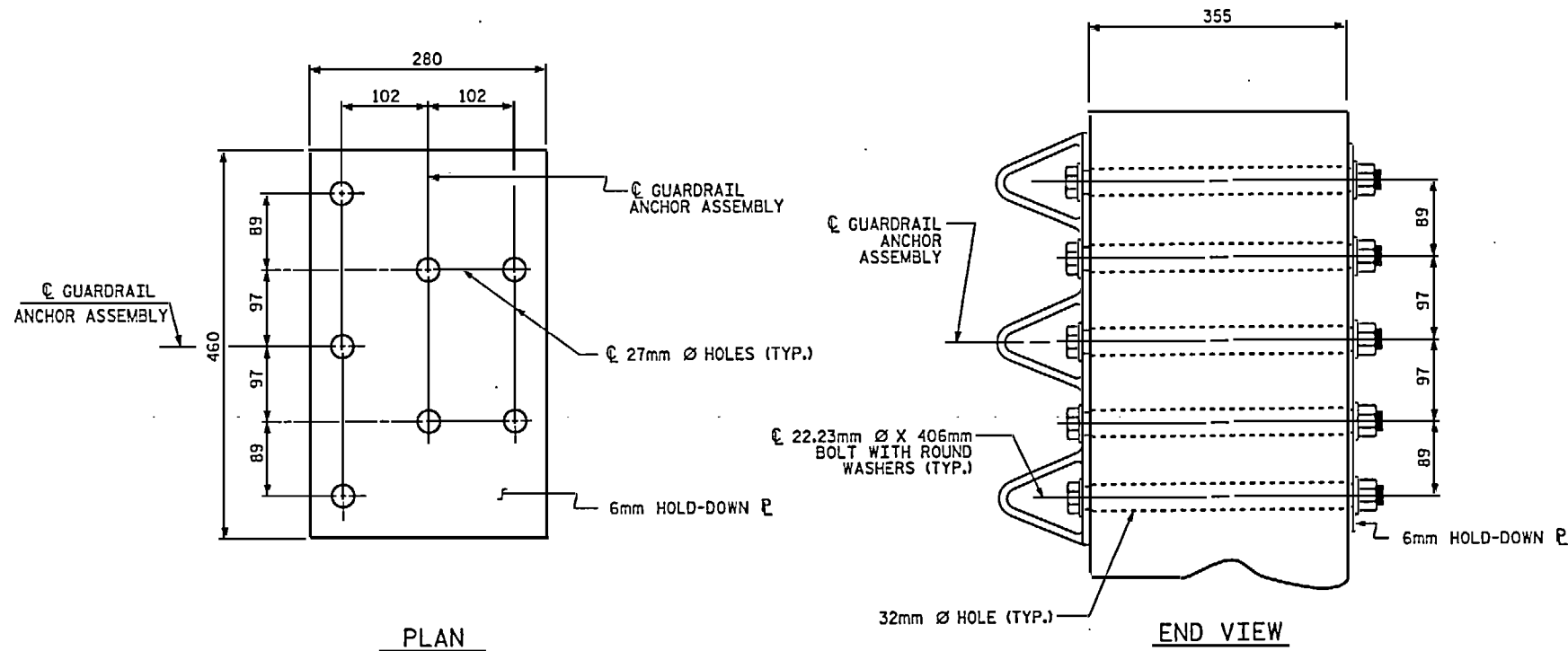
* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS
 FOR ONE OR TWO BAR METAL RAILS

FIXED



GUARDRAIL ANCHOR ASSEMBLY DETAILS

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 6mm HOLD DOWN PLATE AND 7 - 22.23mm Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 250. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

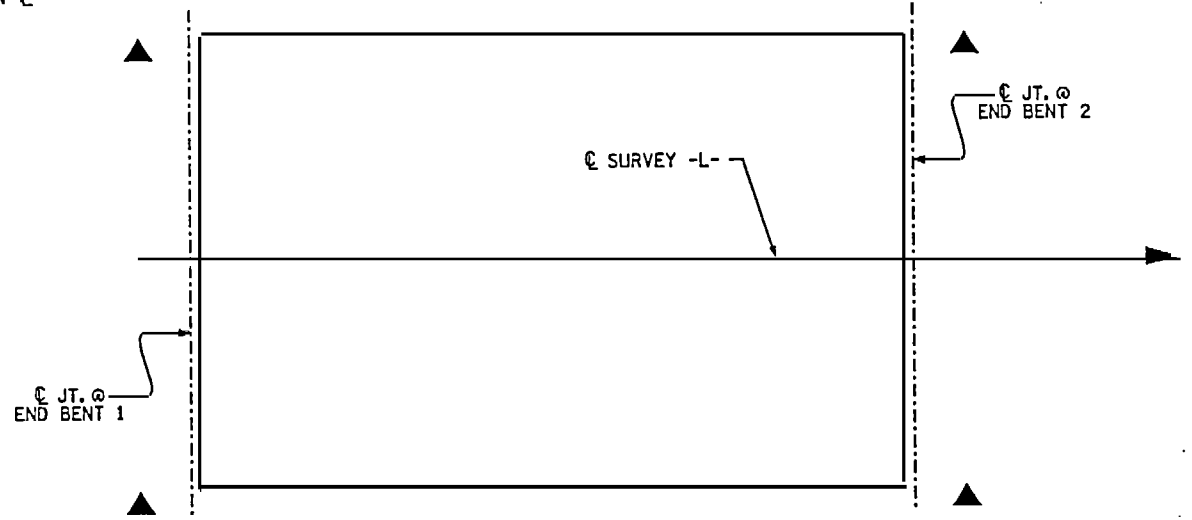
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291M. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 22.23mm Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

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

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

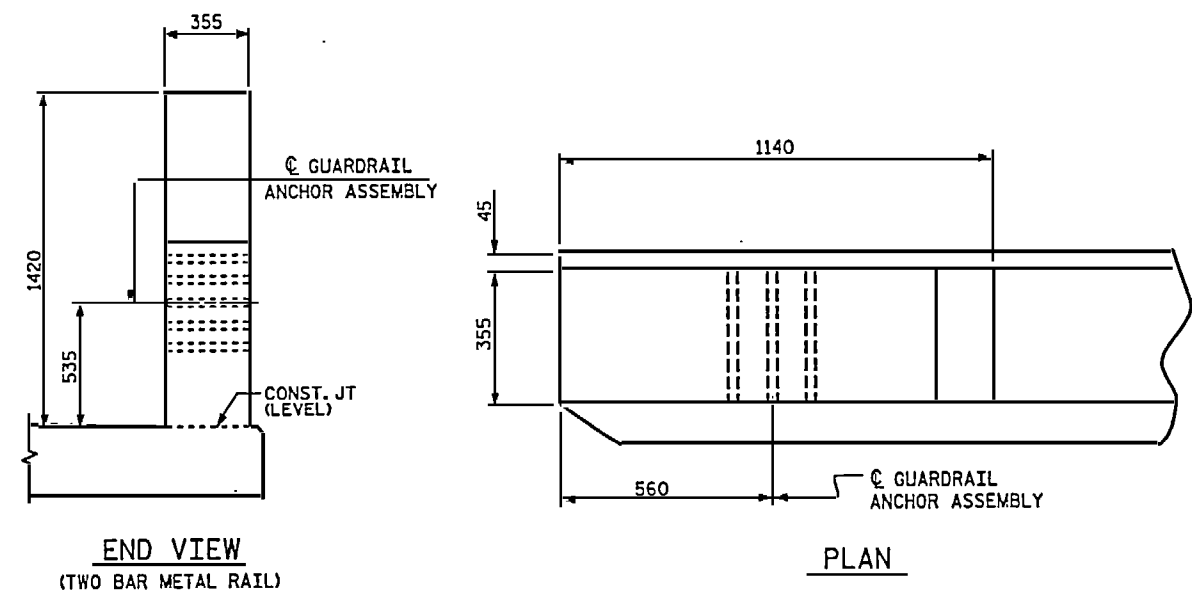
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 32mm 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.



SKETCH SHOWING POINTS OF ATTACHMENT

▲ - LOCATION OF GUARDRAIL ATTACHMENT

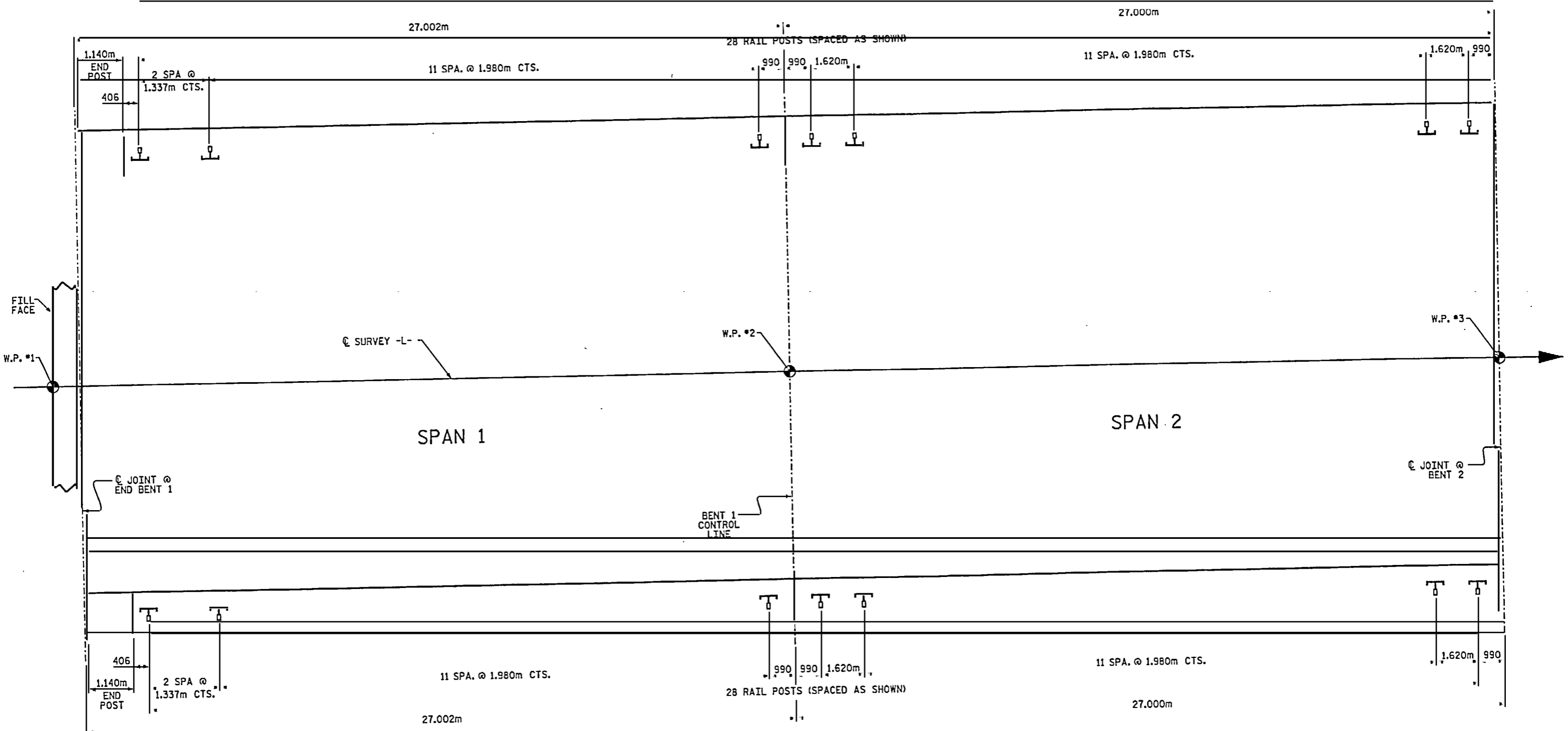


PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 BALDWIN
 STANDARD
**GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS**



2: \\uuff00\B2938_s.d.248.dwg



PLAN OF RAIL POST SPACING SPANS 1 & 2

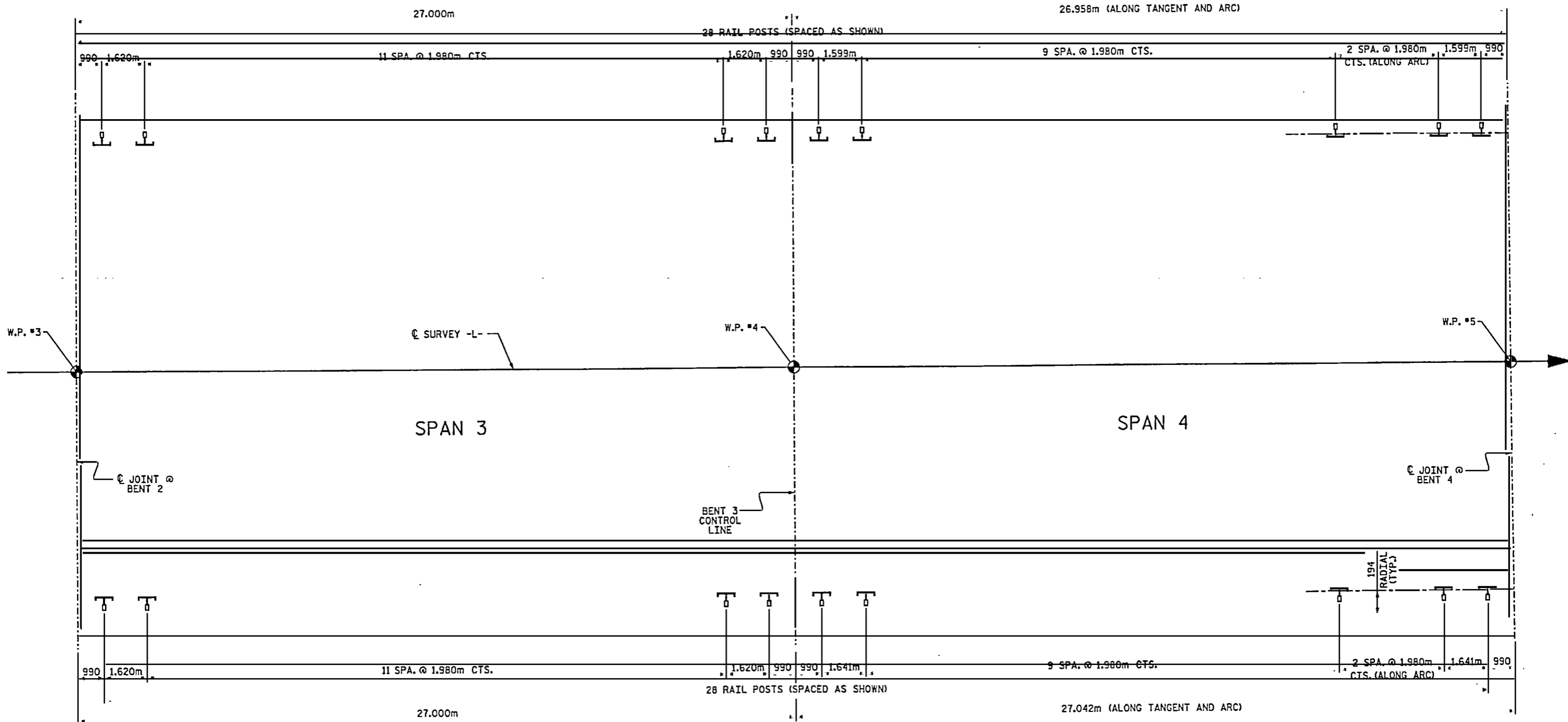
PROJECT NO. B-2938
 CARTERET-ONslow COUNTY
 STATION: 12+47.510 -L-
 SHEET 1 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 2 BAR METAL RAIL
 POST SPACING



REVISIONS SHEET NO. 1 OF 8

12/11/08 12:23:38 ed. 2/08 01.407



PLAN OF RAIL POST SPACING SPANS 3 & 4

NOTE: ARC DIMENSIONS ARE MEASURED TO THE CENTER OF THE BOLT GROUP ALONG AN ARC 194mm FROM THE BACKFACE OF THE PARAPET.

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

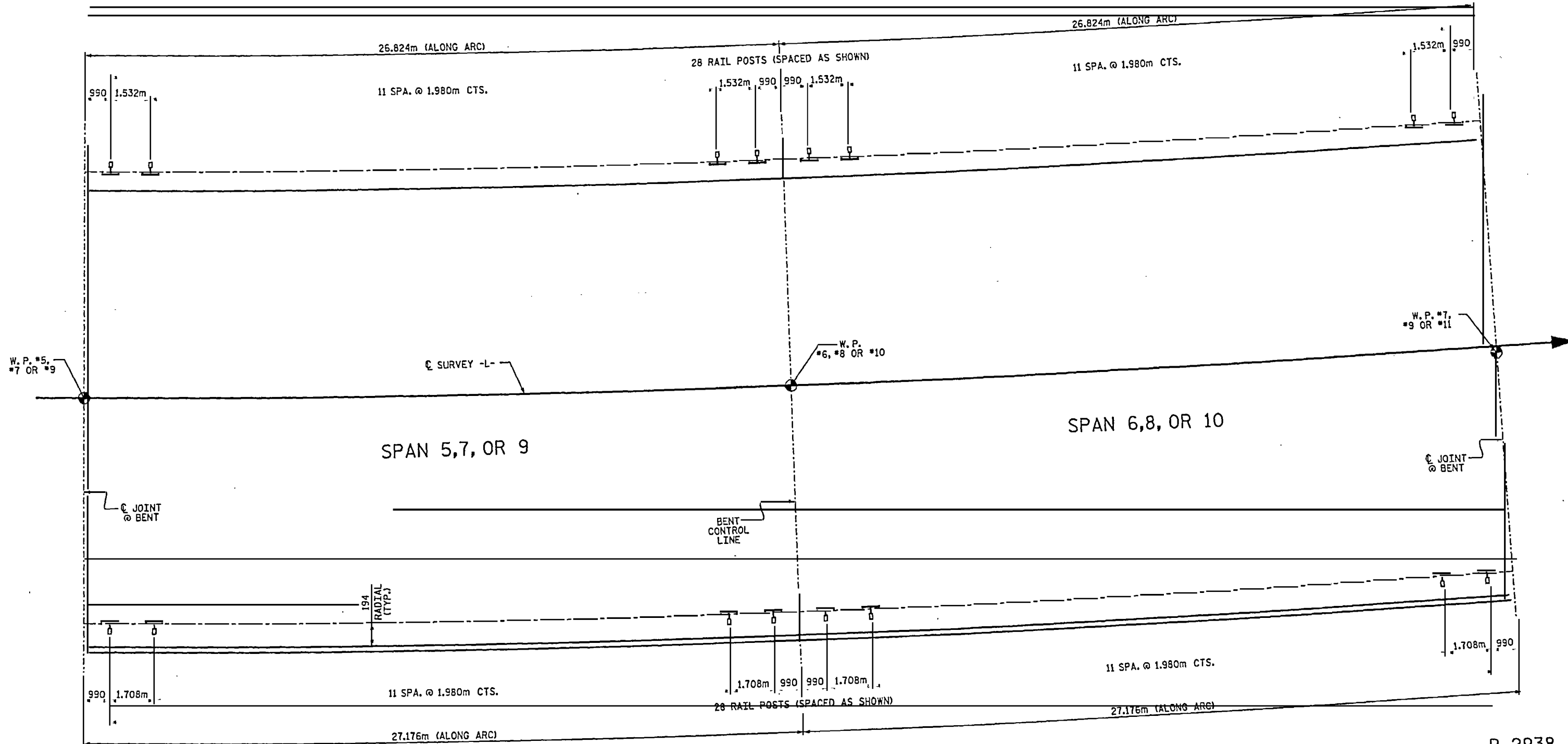
SHEET 2 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 2 BAR METAL RAIL
 POST SPACING



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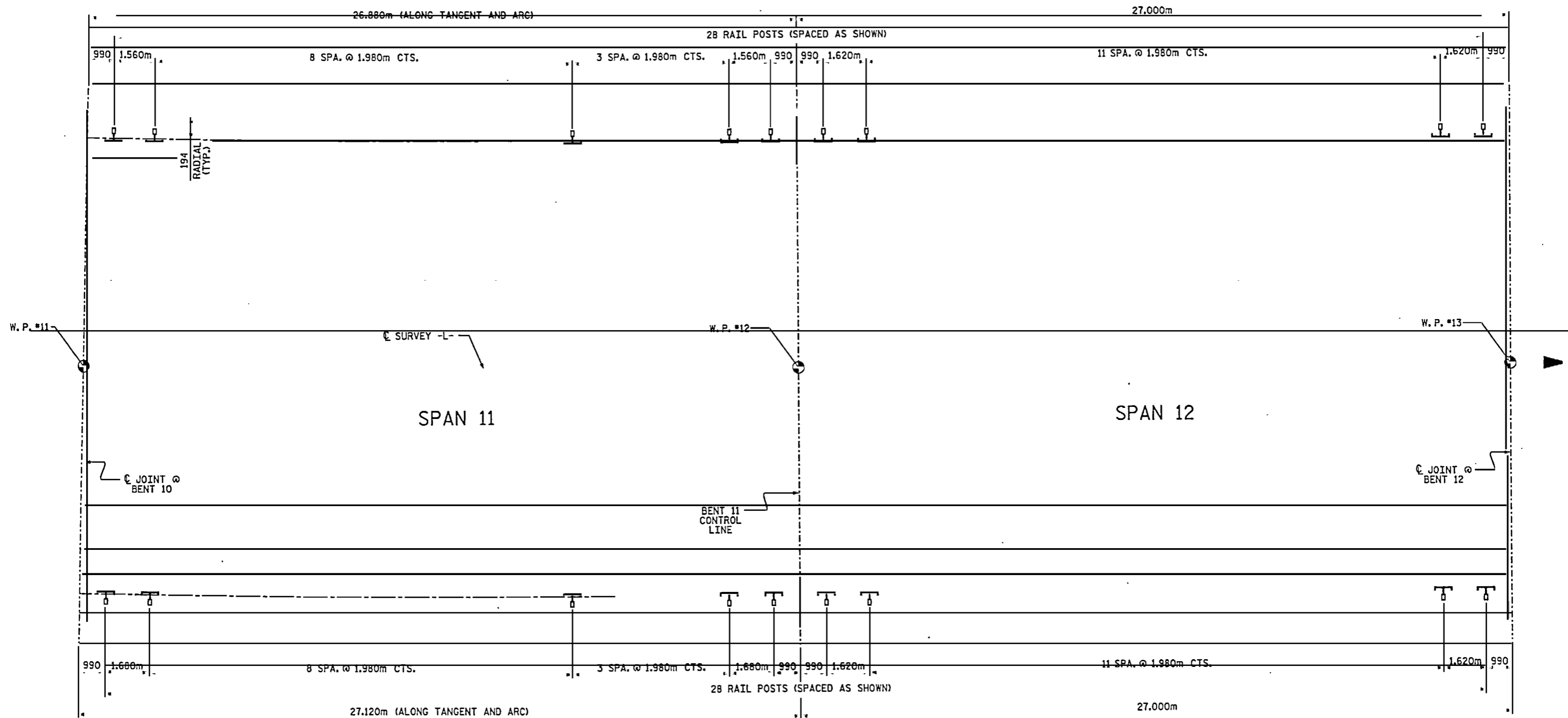


PLAN OF RAIL POST SPACING SPANS 5 THRU 10
 NOTE: ARC DIMENSIONS ARE MEASURED TO THE CENTER OF THE BOLT GROUP
 ALONG AN ARC 194mm FROM THE BACKFACE OF THE PARAPET.

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-
 SHEET 3 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
RALEIGH
 SUPERSTRUCTURE
 2 BAR METAL RAIL
 POST SPACING





PLAN OF RAIL POST SPACING SPANS 11 & 12

NOTE: ARC DIMENSIONS ARE MEASURED TO THE CENTER OF THE BOLT GROUP ALONG AN ARC 194mm FROM THE BACKFACE OF THE PARAPET.

PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

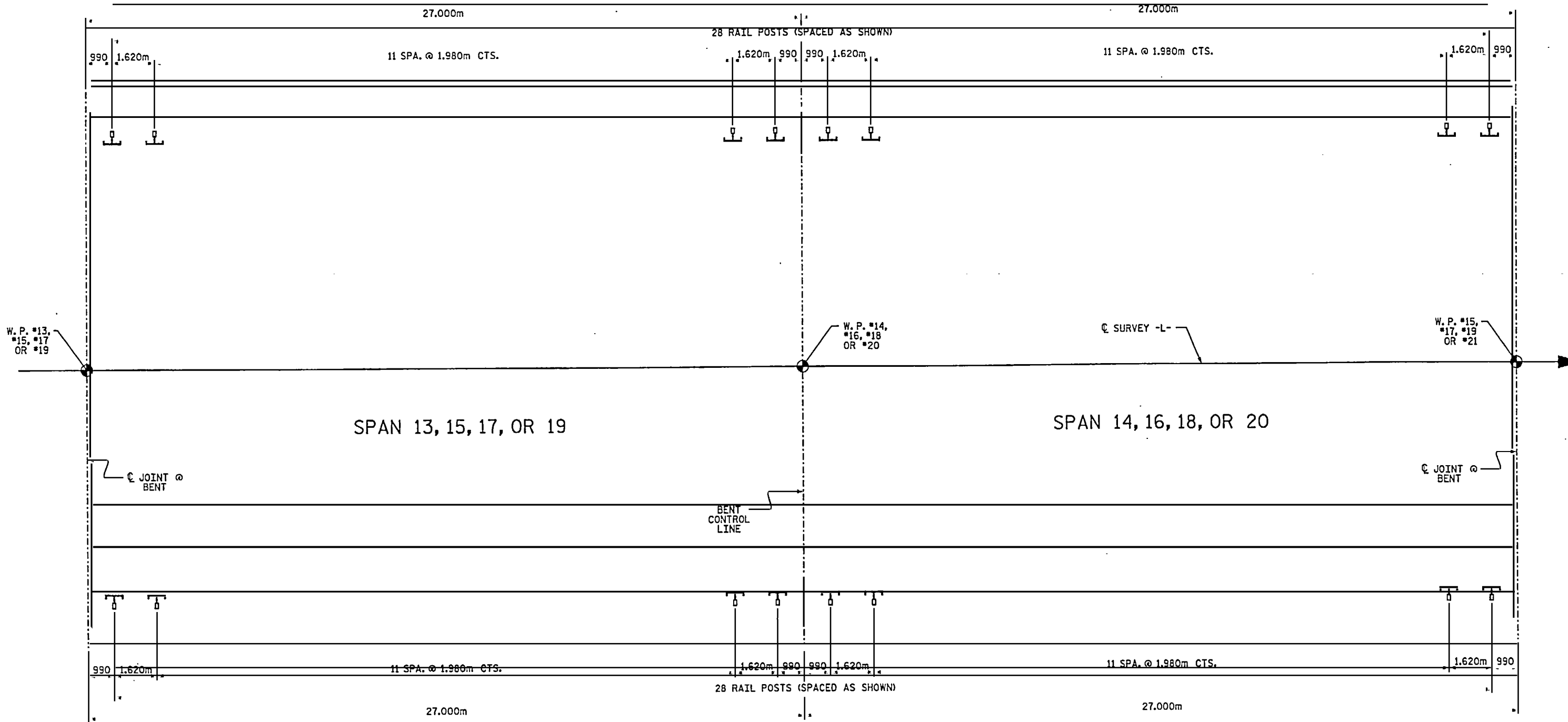
SHEET 4 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 2 BAR METAL RAIL
 POST SPACING



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PLAN OF RAIL POST SPACING SPANS 13 THRU 20

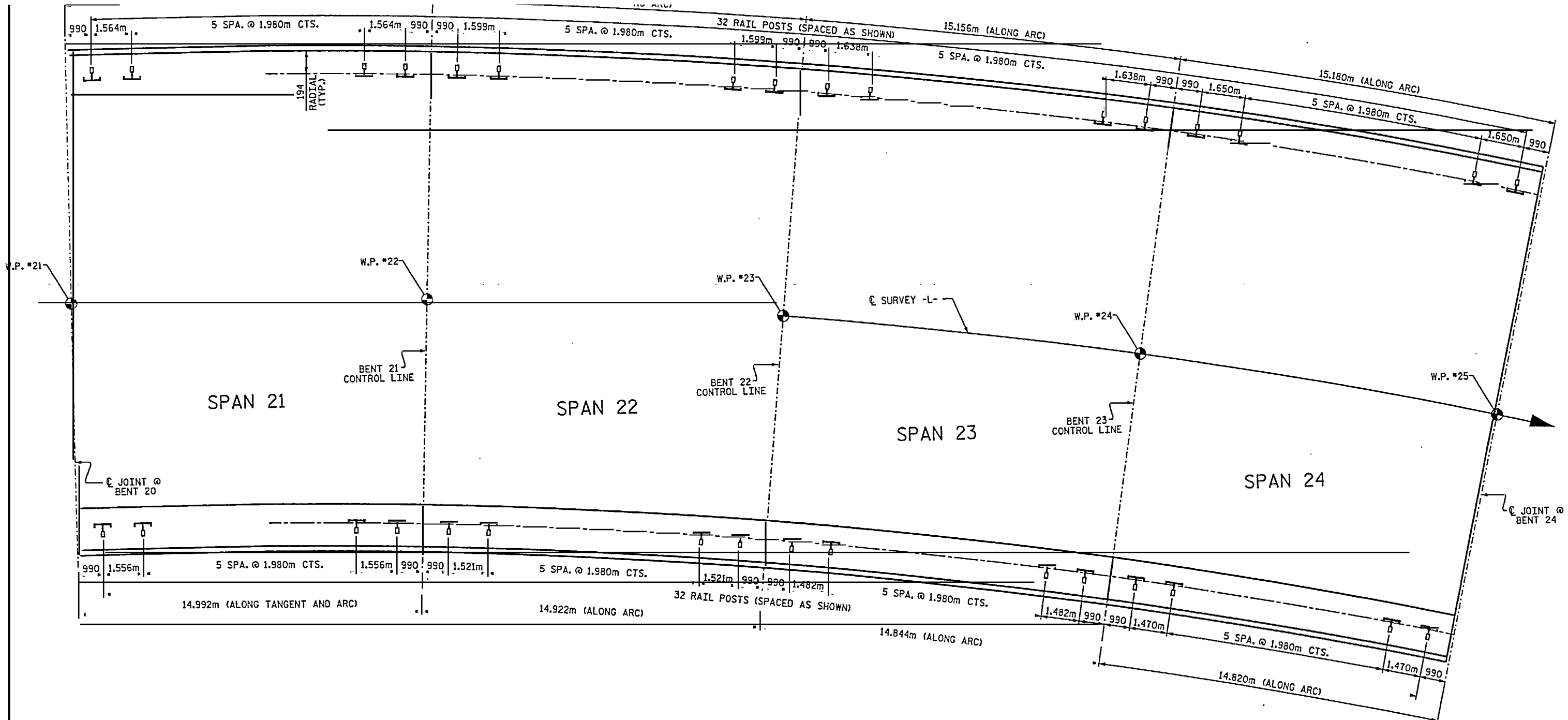
PROJECT NO. B-2938
CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

SHEET 5 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 2 BAR METAL RAIL
 POST SPACING



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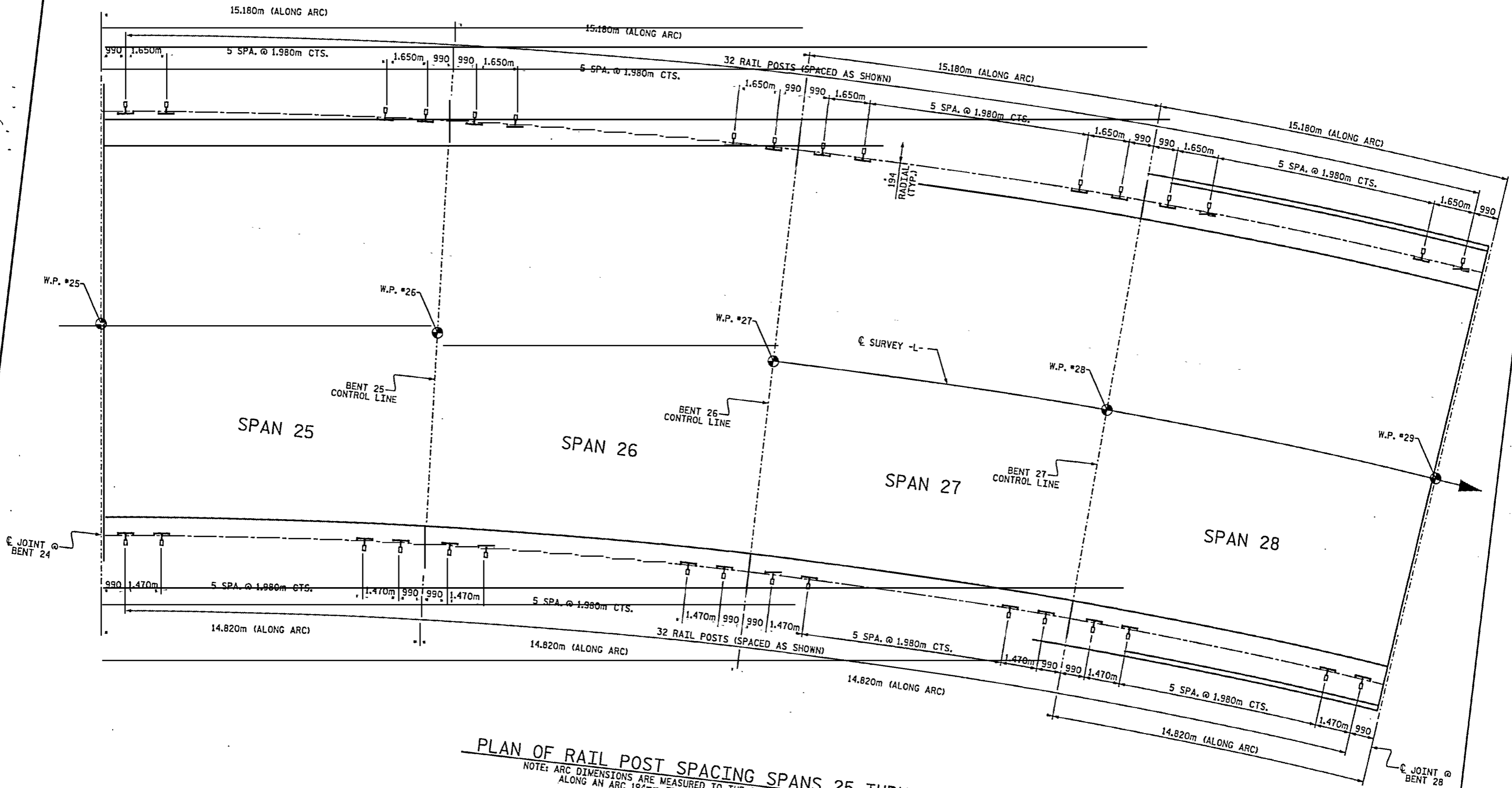


PLAN OF RAIL POST SPACING SPANS 21 THRU 24
 NOTE: ARC DIMENSIONS ARE MEASURED TO THE CENTER OF THE BOLT GROUP
 ALONG AN ARC 194mm FROM THE BACKFACE OF THE PARAPET.

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-
 SHEET 6 OF 8



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE 2 BAR METAL RAIL POST SPACING					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
SHEET NO. S-57					TOTAL



PLAN OF RAIL POST SPACING SPANS 25 THRU 28
 NOTE: ARC DIMENSIONS ARE MEASURED TO THE CENTER OF THE BOLT GROUP
 ALONG AN ARC 194mm FROM THE BACKFACE OF THE PARAPET.

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-
 SHEET 7 OF 8

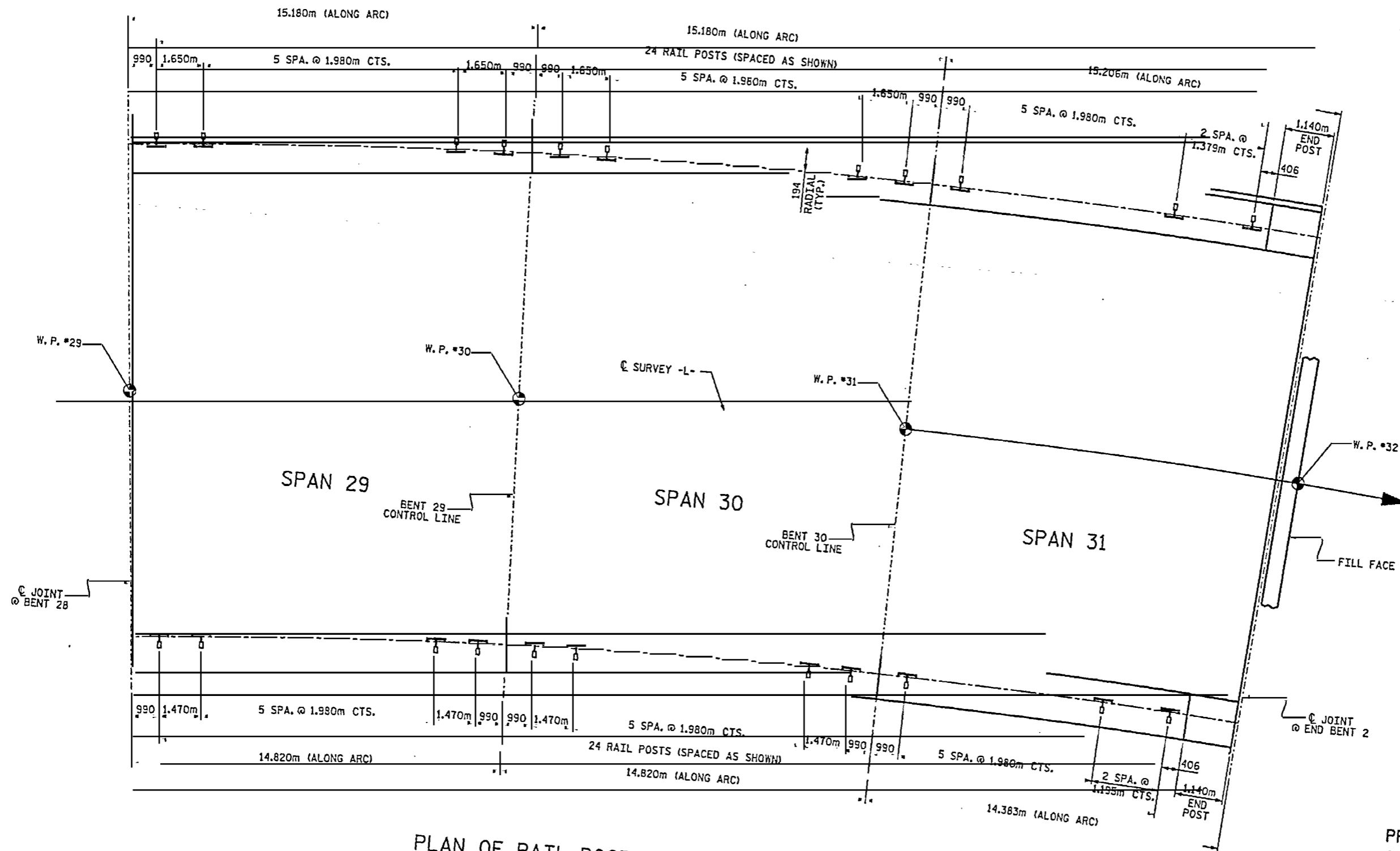


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
2 BAR METAL RAIL
POST SPACING

REVISIONS		SHEET NO.	
NO.	DATE	NO.	DATE

SHEET NO. S-58



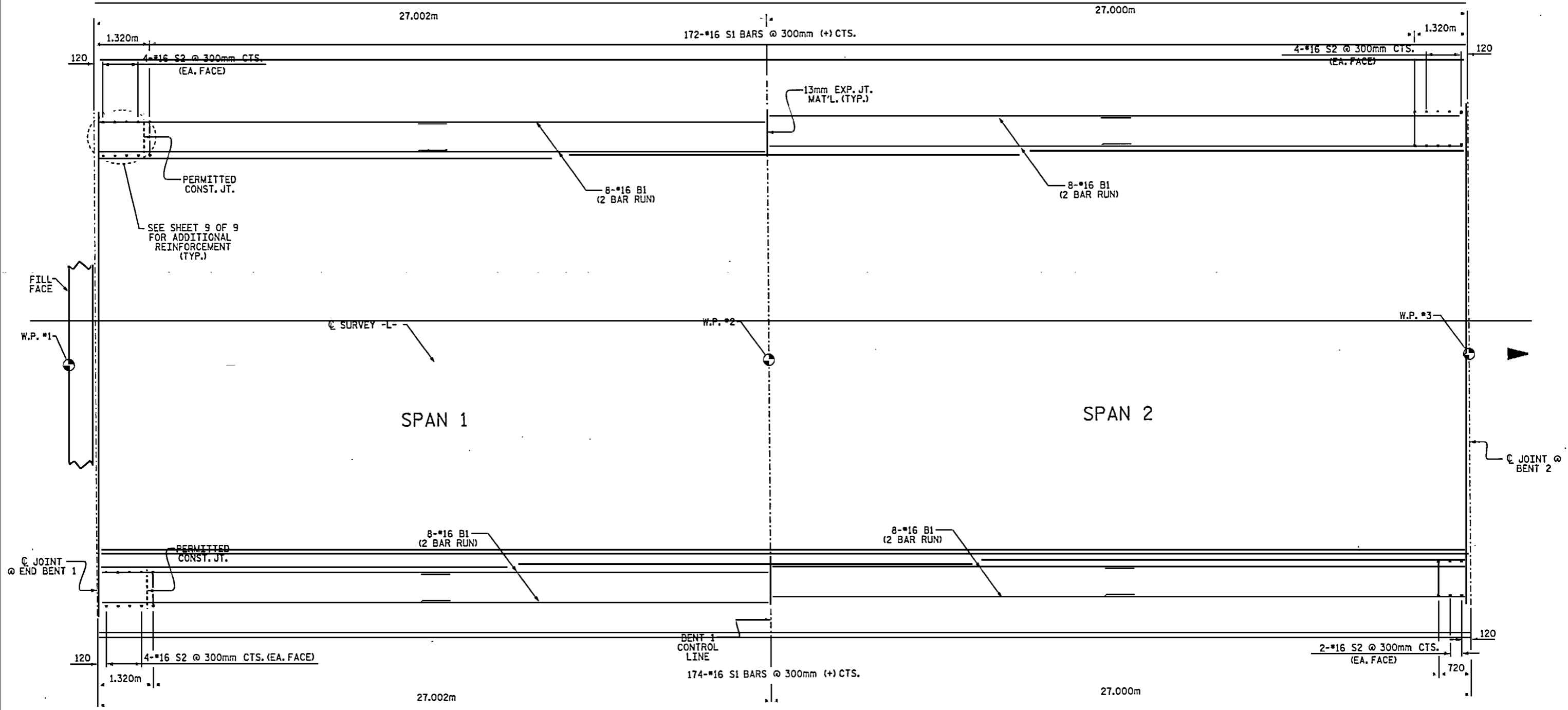
PLAN OF RAIL POST SPACING SPANS 29 THRU 31
 NOTE: ARC DIMENSIONS ARE MEASURED TO THE CENTER OF THE BOLT GROUP
 ALONG AN ARC 194mm FROM THE BACKFACE OF THE PARAPET.

PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -1-
 SHEET 8 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 2 BAR METAL RAIL
 POST SPACING



53
 8/14/10/10/2938/12/1/01.dgn



PLAN OF PARAPET SPANS 1 & 2

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

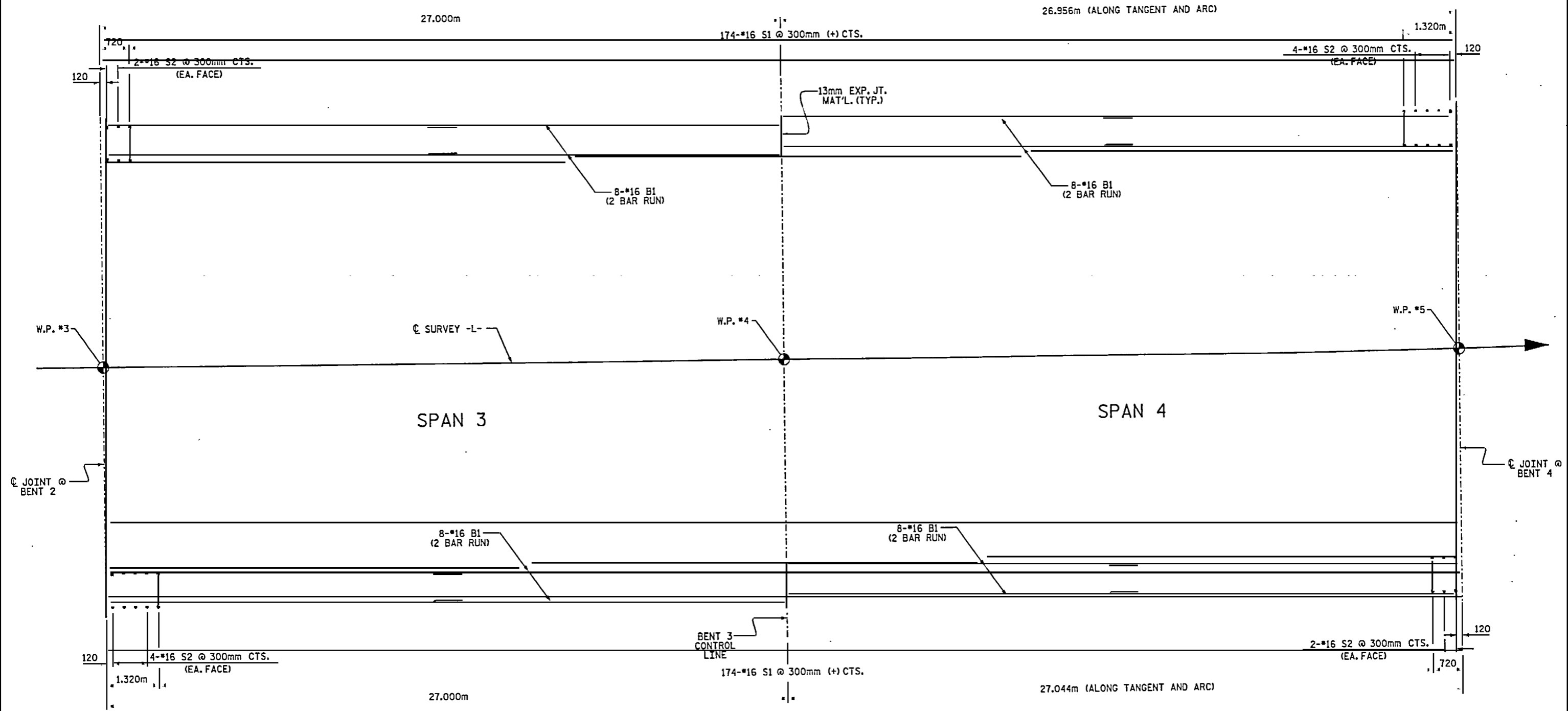
SHEET 1 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 355mm X 760mm
 CONCRETE PARAPET



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PLAN OF PARAPET SPANS 3 & 4

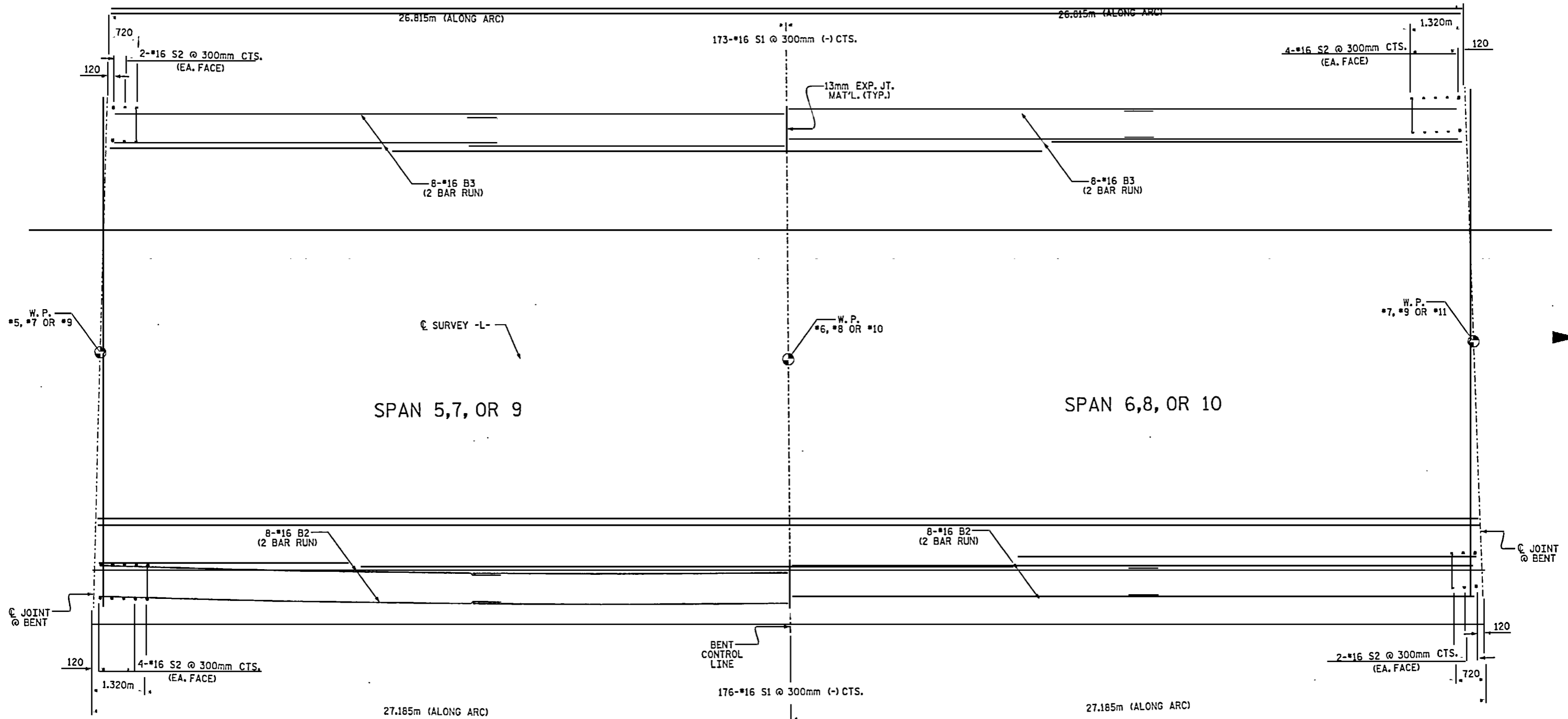
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-
 SHEET 2 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 355mm X 760mm
 CONCRETE PARAPET



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PLAN OF PARAPET SPANS 5 THRU 10

PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

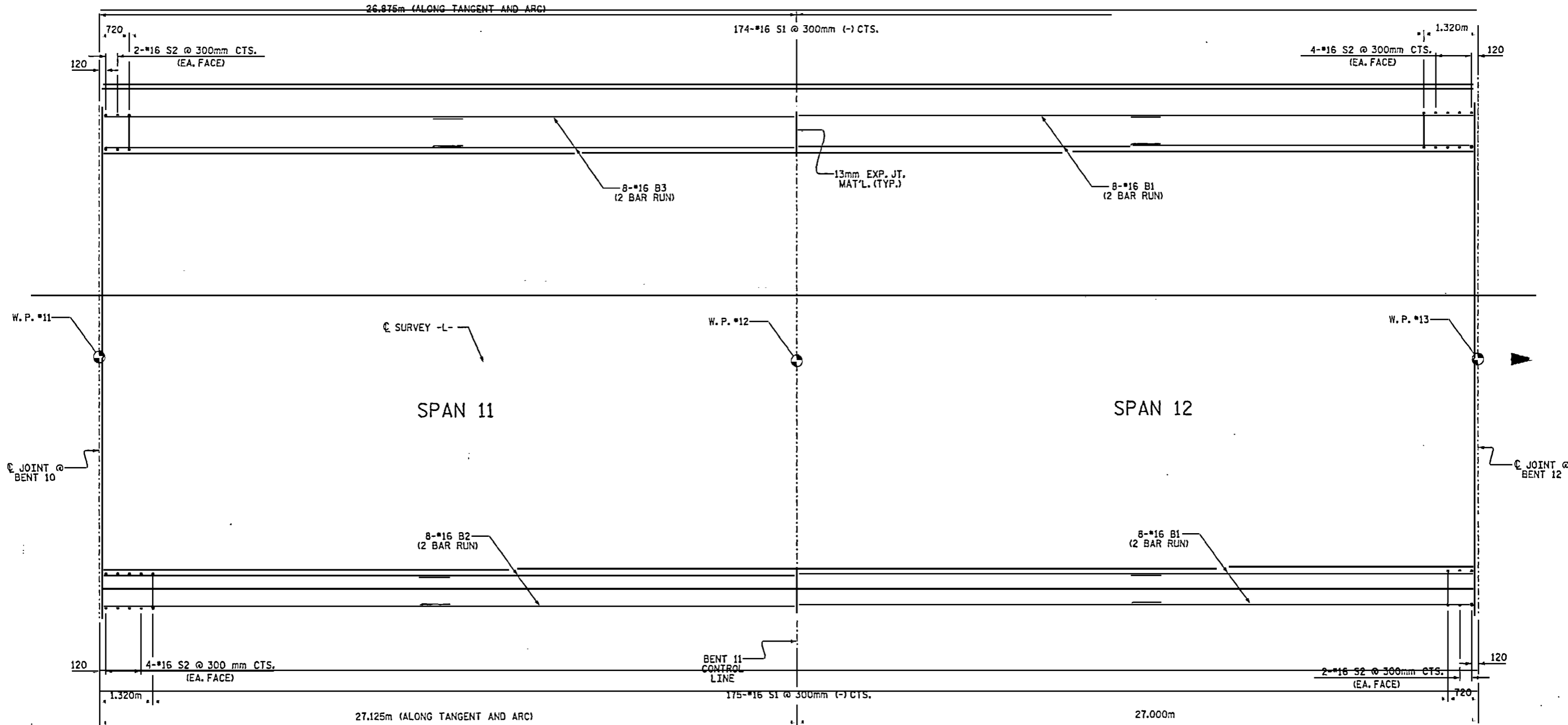
SHEET 3 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 355mm X 760mm
 CONCRETE PARAPET



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PLAN OF PARAPET SPANS 11 & 12

PROJECT NO. B-2938
CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

SHEET 4 OF 9

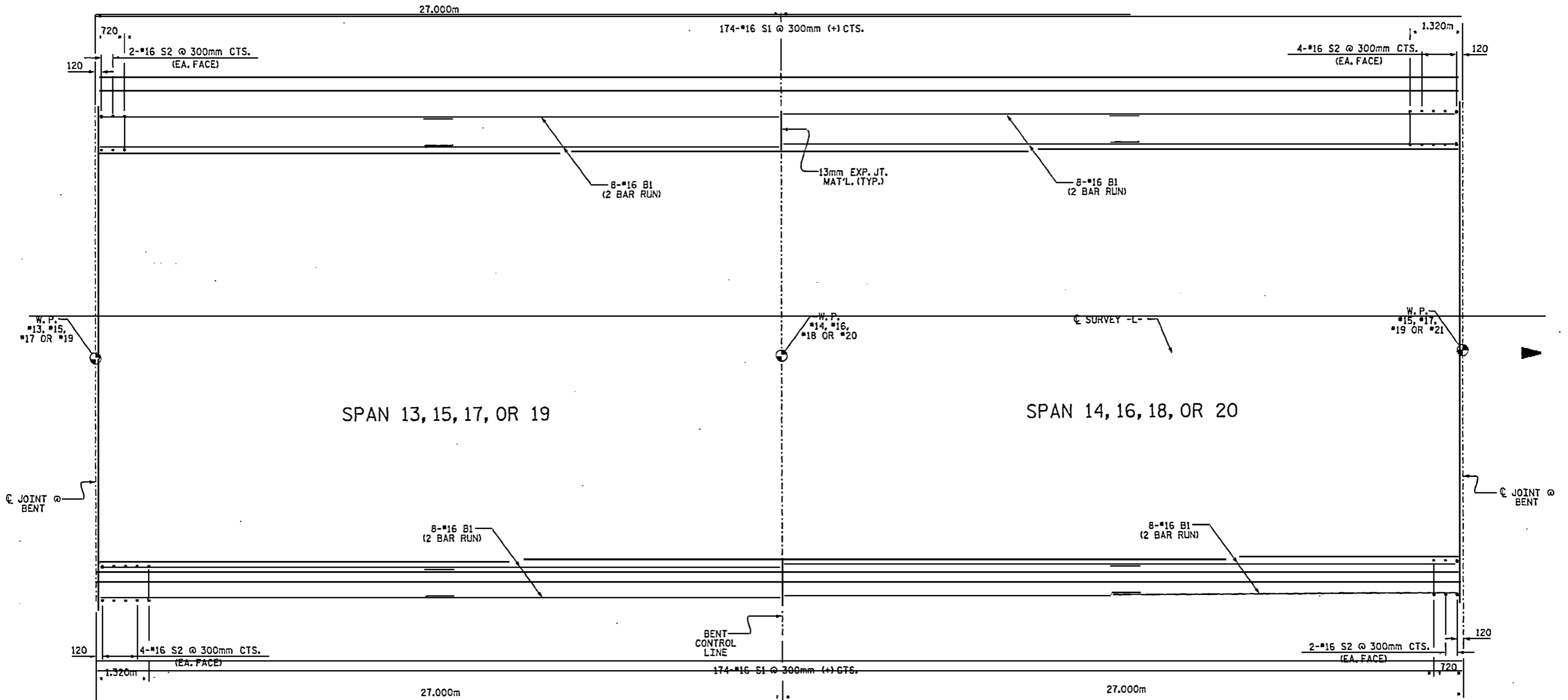
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 355mm X 760mm
 CONCRETE PARAPET



REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S-63	
						TOTAL	

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PLAN OF PARAPET SPANS 13 THRU 20

PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

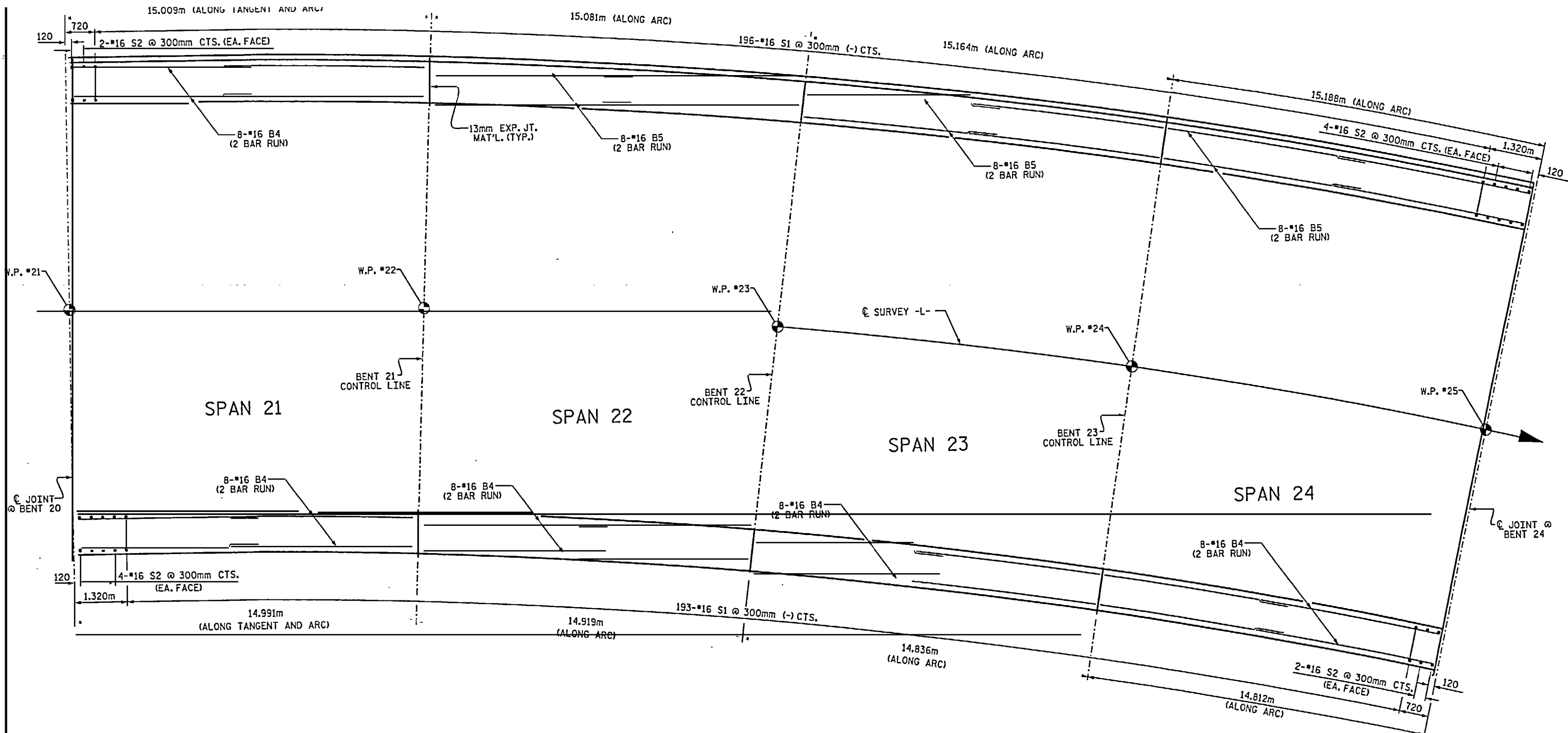
SHEET 5 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 355mm X 760mm
 CONCRETE PARAPET



REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S-64	
						12/14	

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PLAN OF PARAPET SPANS 21 THRU 24

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

SHEET 6 OF 9

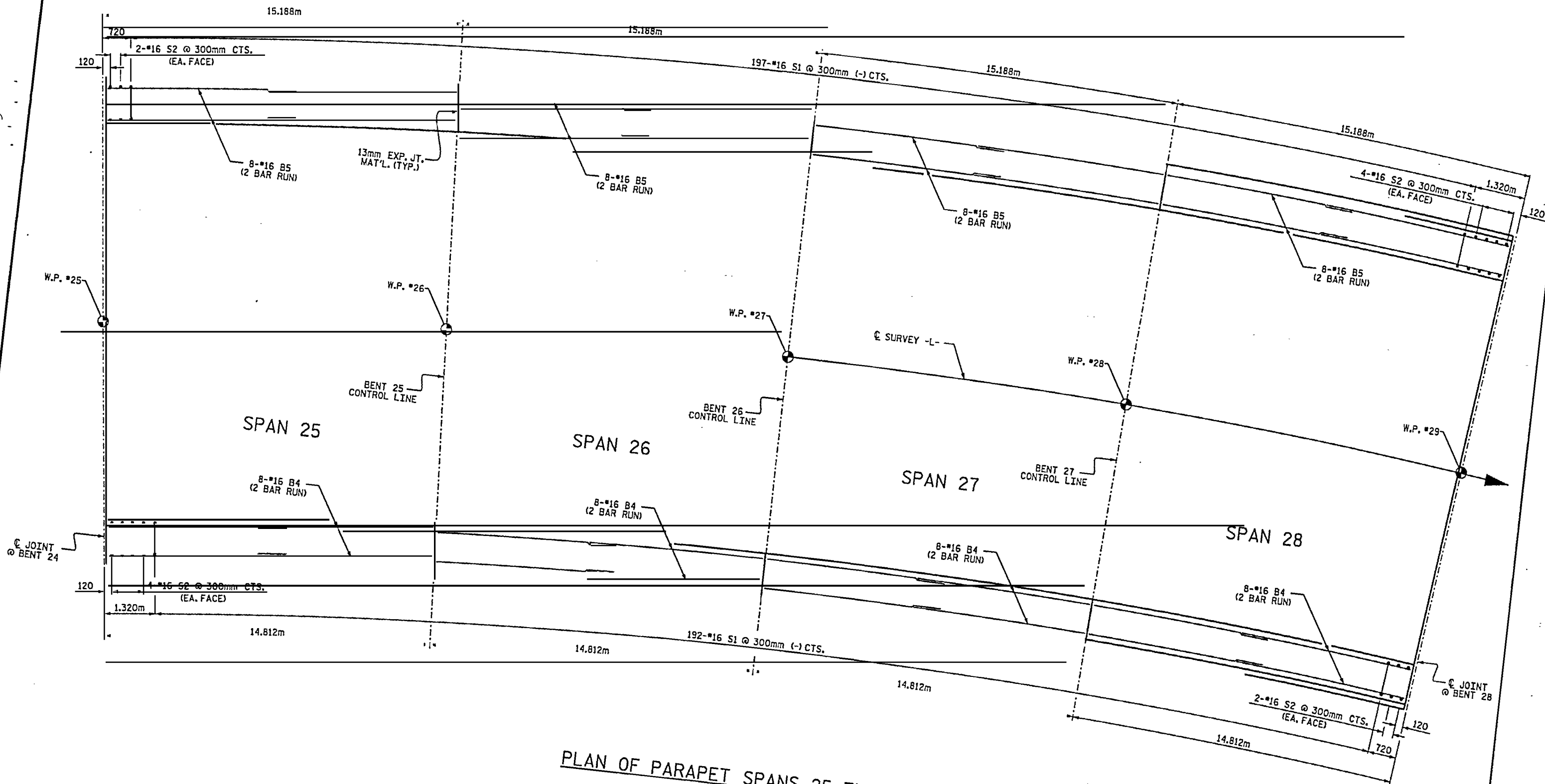
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 BALETON

SUPERSTRUCTURE
 355mm X 760mm
 CONCRETE PARAPET



REVISIONS

SHEET NO.



PLAN OF PARAPET SPANS 25 THRU 28

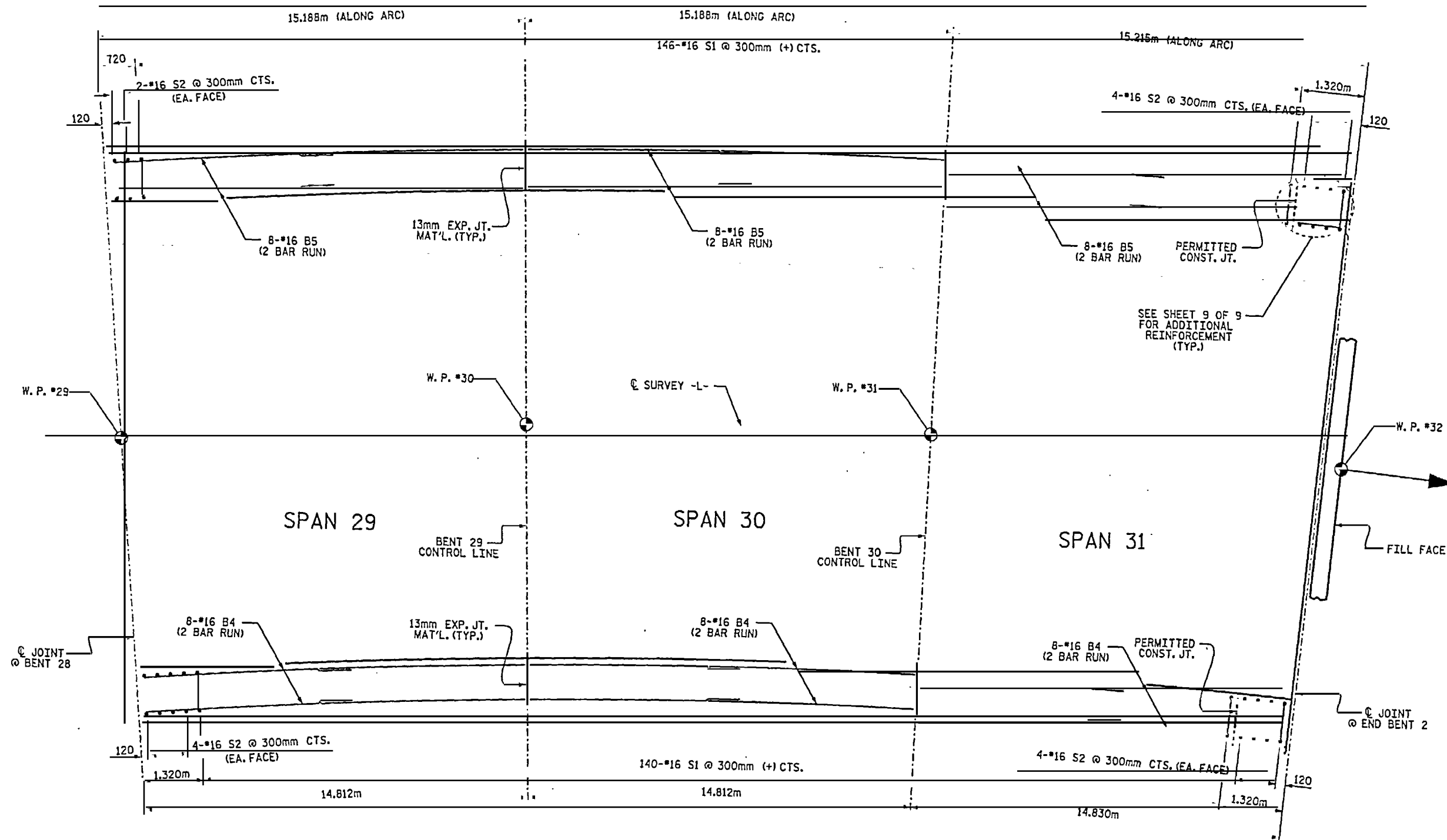
PROJECT NO. B-2938
 CARTERET-ONSLOW COUNTY
 STATION: 12+47.510 -L-

SHEET 7 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 355mm X 760mm
 CONCRETE PARAPET



11/11/2010 10:53:38 AM d:\2938.dwg



PLAN OF PARAPET SPANS 29 THRU 31

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

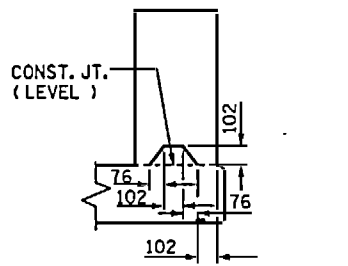
SHEET 8 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 355mm X 760mm
 CONCRETE PARAPET

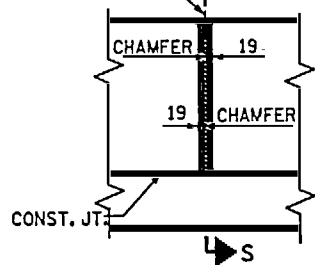


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SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)

13mm 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
PARAPET DETAILS

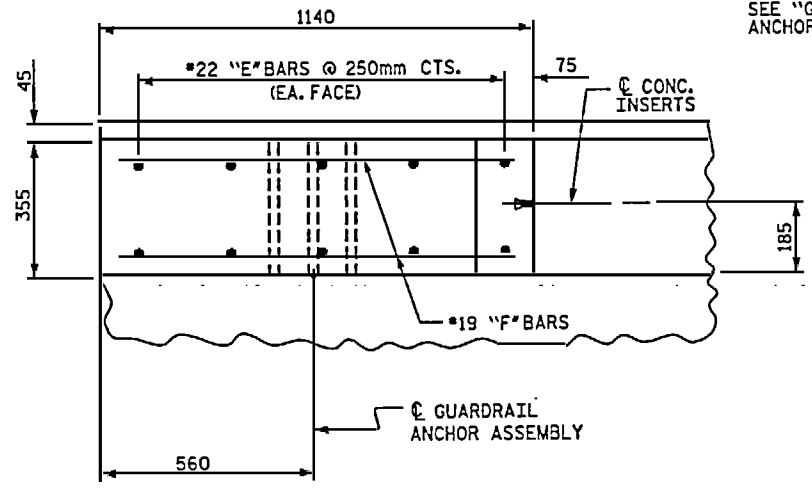
THE CONCRETE PARAPET IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.

ALL REINFORCING STEEL IN CONCRETE PARAPETS SHALL BE EPOXY COATED.

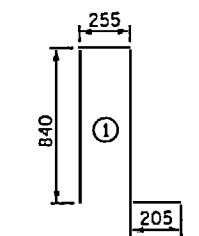
THE #16 S2 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM. FOR ADHESIVELY ANCHORED BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR THE #16 S2 BARS IS 82.7 KN. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

SEE "RAIL POST SPACINGS AND END OF RAIL DETAIL" SHEETS FOR CONCRETE INSERT DETAILS.

SEE "GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS" SHEET FOR GUARDRAIL ANCHOR ASSEMBLY.

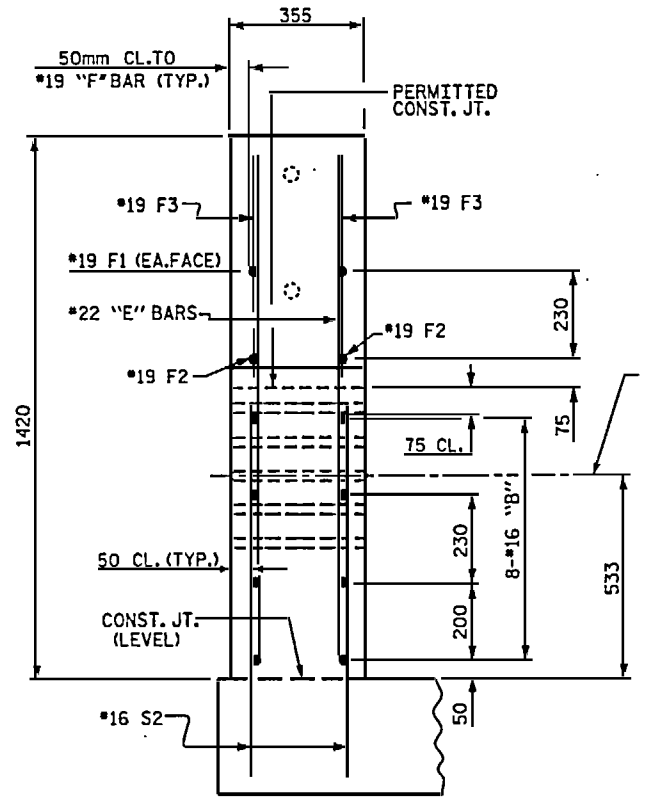


PLAN OF END POST

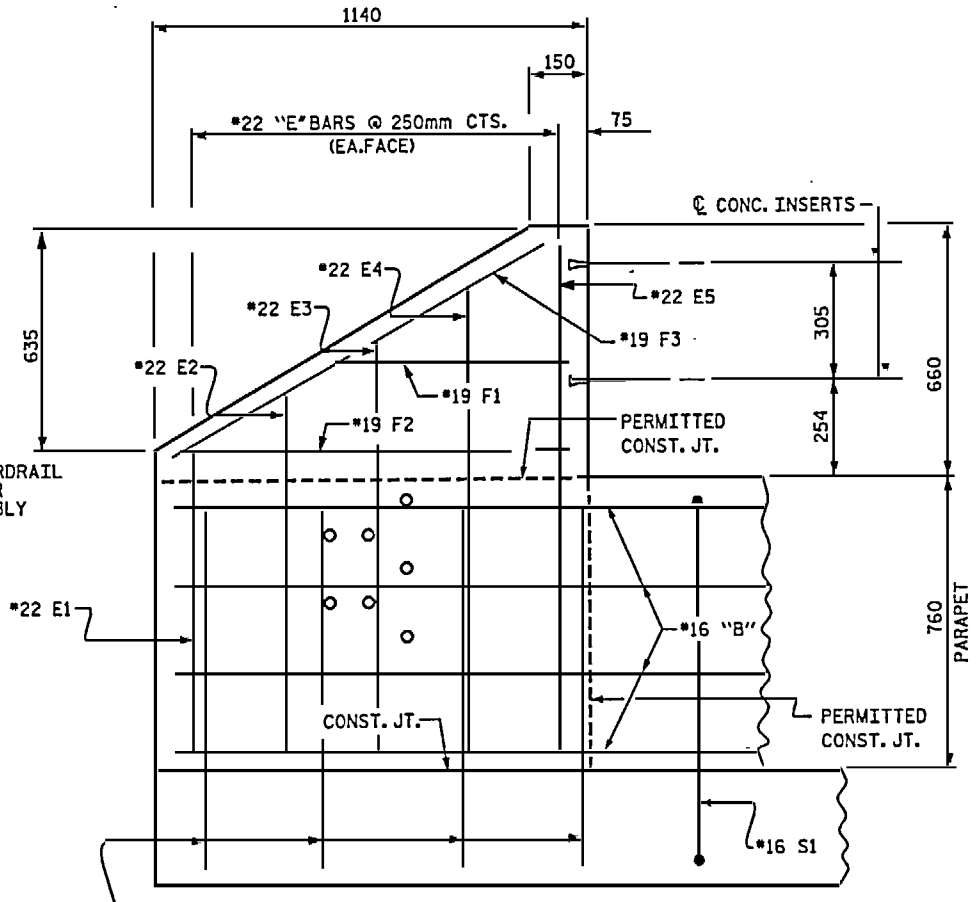


ALL BAR DIMENSIONS ARE OUT TO OUT.

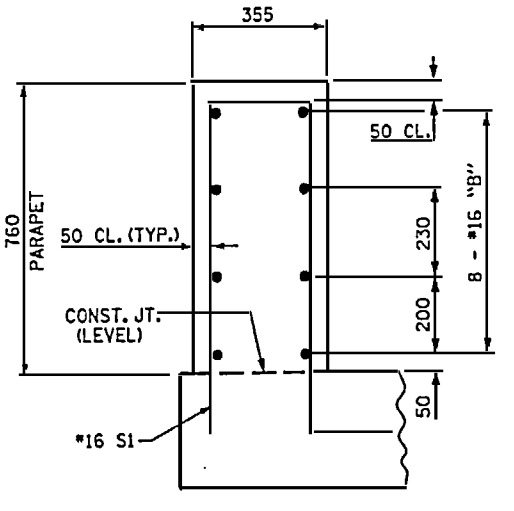
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	416	#16	STR	13980	9026
*B2	112	#16	STR	14060	2444
*B3	112	#16	STR	13880	2413
*B4	192	#16	STR	7980	2378
*B5	160	#16	STR	8080	2006
*E1	8	#22	STR	780	19
*E2	8	#22	STR	920	22
*E3	8	#22	STR	1060	26
*E4	8	#22	STR	1220	30
*E5	8	#22	STR	1320	32
*F1	8	#19	STR	560	10
*F2	8	#19	STR	900	16
*F3	8	#19	STR	1060	19
*S1	4546	#16	1	2140	15099
*S2	320	#16	STR	920	457
* EPOXY COATED REINFORCING STEEL					kg 33997
355mm X 760mm CONCRETE PARAPET					METERS 1410.050
CLASS AA CONCRETE					C.M. 381.0



END VIEW



ELEVATION



SECTION THRU PARAPET

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PROJECT NO. B-2938
CARTERET-ONSLow COUNTY
STATION: 12+47.510 -L-

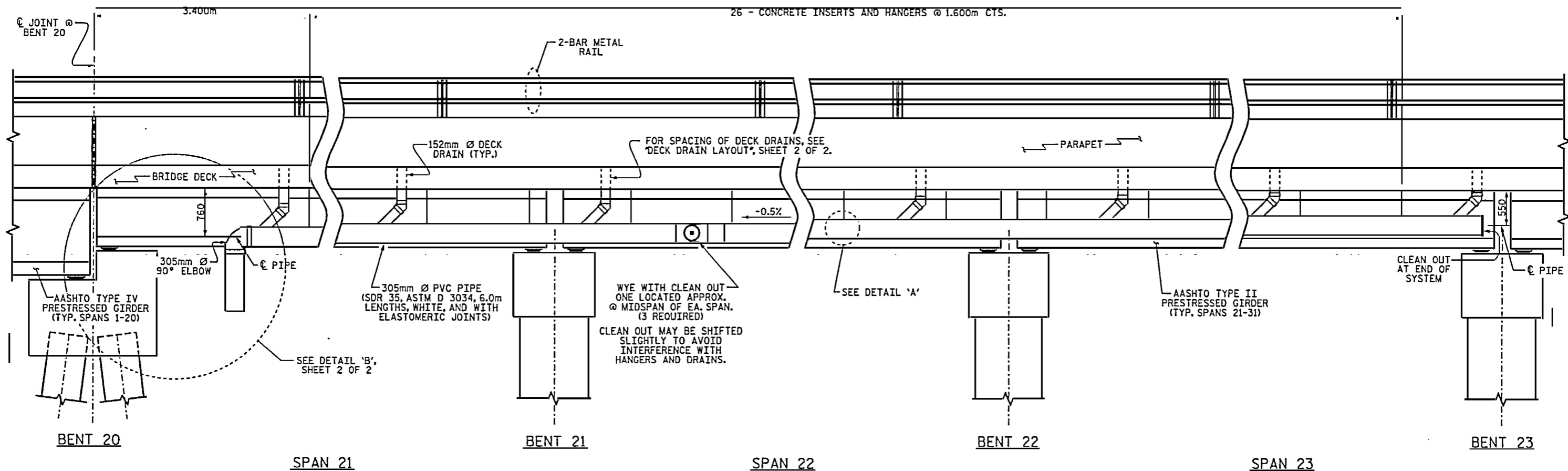
SHEET 9 OF 9



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
355mm X 760mm
CONCRETE PARAPET

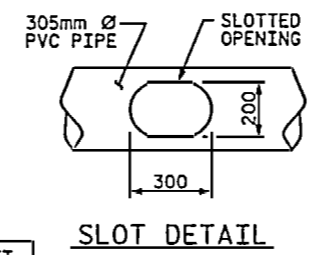
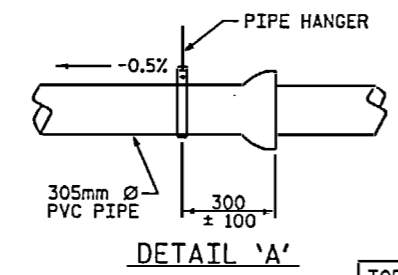
REVISIONS SHEET NO.



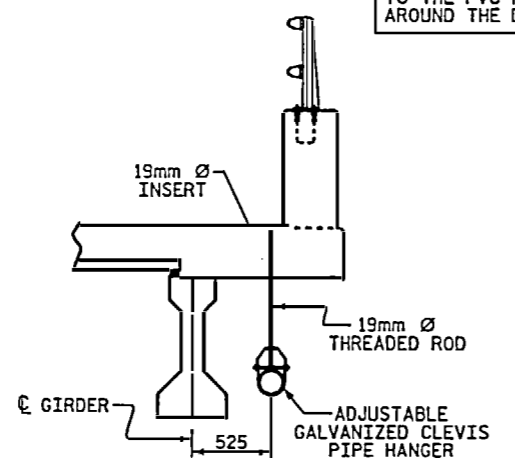
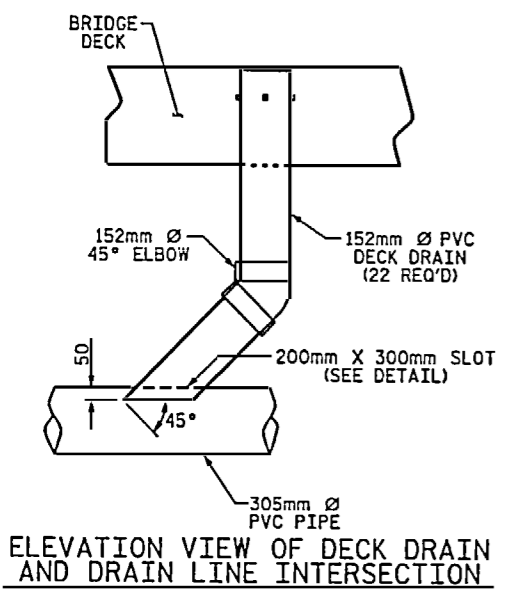
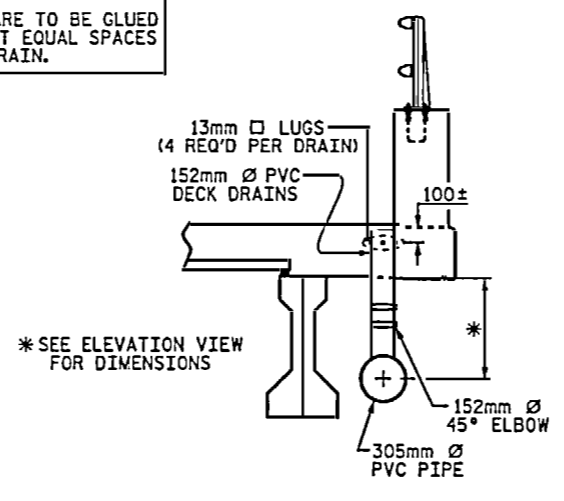
ELEVATION
SPANS 21 - 23

NOTES

- FOR "STRUCTURE DRAINAGE SYSTEM", SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL SUBMIT A PLAN FOR THE DRAINAGE SYSTEM, INCLUDING, BUT NOT LIMITED TO, ATTACHMENTS TO BRIDGE, PIPE ALIGNMENT AND PIPE LENGTHS, AND ALL NECESSARY FITTINGS, ELBOWS, WYES, ADAPTERS, GUIDES AND JOINTS.
- SEE "DECK DRAIN LAYOUT", SHEET 2 OF 2, FOR LOCATION OF 152mm Ø DECK DRAINS.
- THE DRAINAGE SYSTEM DETAILS ARE SCHEMATIC DRAWINGS ONLY.
- BOLTS, NUTS, AND WASHERS SHALL BE HIGH STRENGTH AND GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- CONCRETE INSERTS SHALL BE OF AN APPROVED GALVANIZED TYPE HAVING A MINIMUM WORKING LOAD TENSION CAPACITY OF 11.1 KN.
- IN LIEU OF CASTING INSERTS INTO THE DECK, RODS MAY BE ADHESIVELY ANCHORED TO THE DECK. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.
- PIPE AND FITTINGS SHALL BE PVC, SDR 35, ASTM D 3034.
- PIPE JOINTS SHALL BE ELASTOMERIC TYPE.
- FITTING JOINTS SHALL BE SOLVENT CEMENT TYPE.
- DRAIN SYSTEM WILL BE PAID FOR UNDER THE PAY ITEM "STRUCTURE DRAINAGE SYSTEM - LUMP SUM".



TOP OF DECK DRAIN IS TO BE SET 10mm BELOW SURFACE OF SLAB.
4 - 13mm LUGS ARE TO BE GLUED TO THE PVC PIPE AT EQUAL SPACES AROUND THE DECK DRAIN.



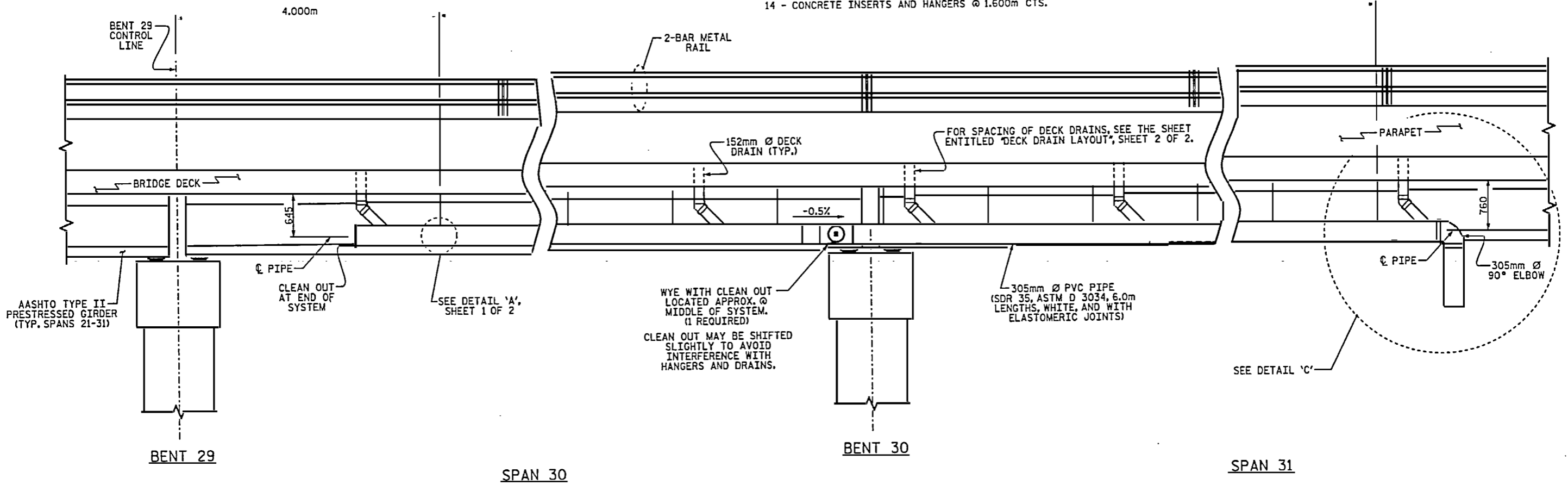
PROJECT NO. B-2938
CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURE
 DRAINAGE SYSTEM

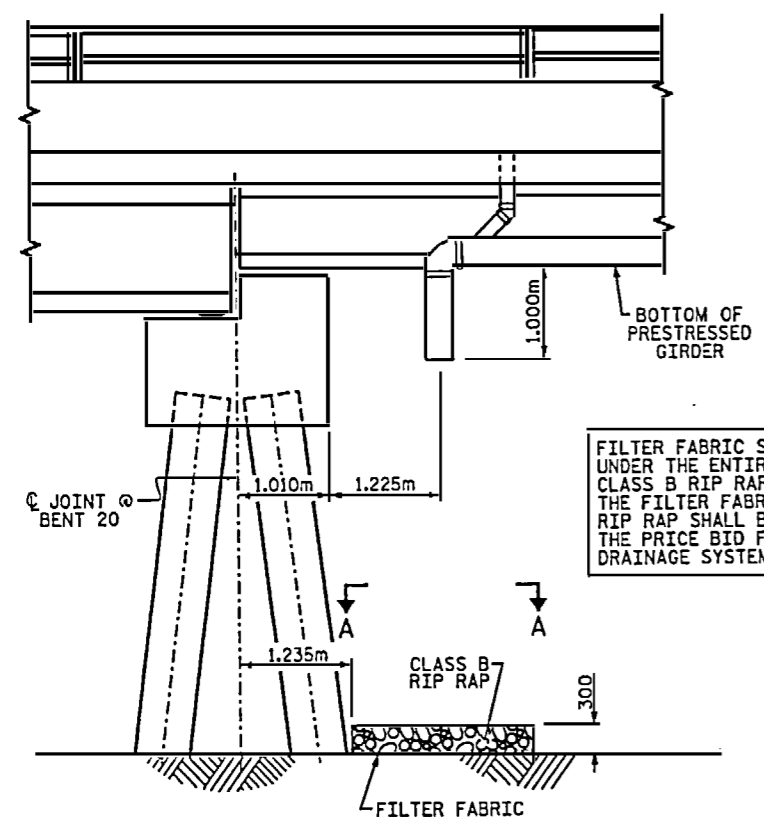


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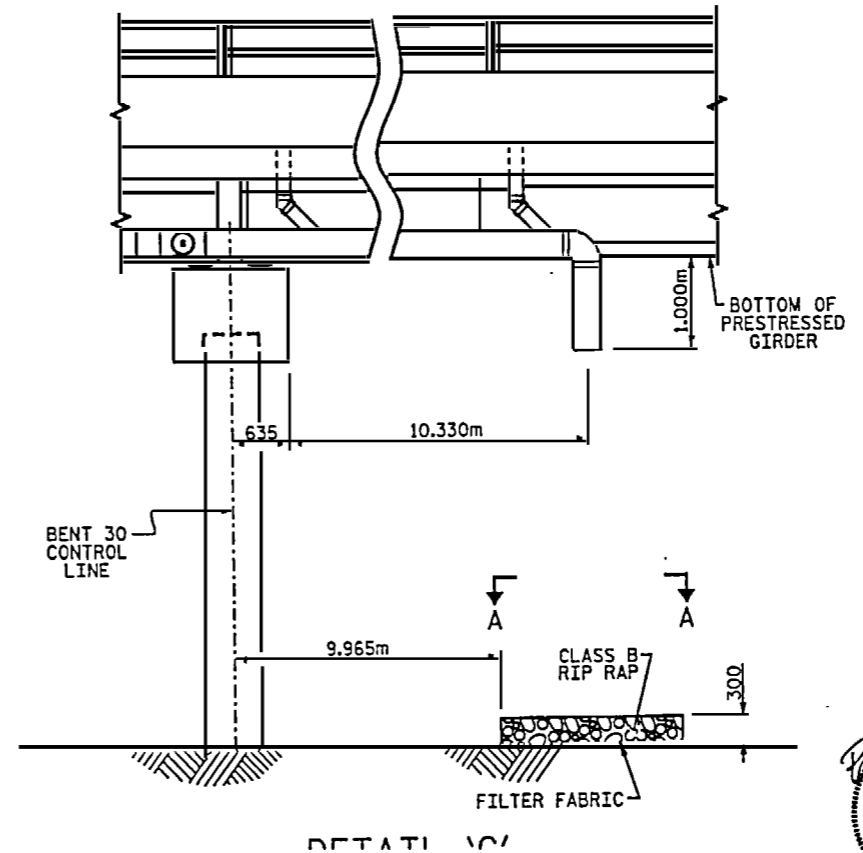
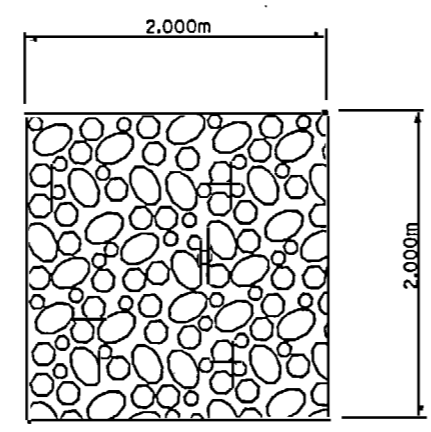
14 - CONCRETE INSERTS AND HANGERS @ 1.600m CTS.



ELEVATION
SPANS 30 - 31



FILTER FABRIC SHALL BE PLACED UNDER THE ENTIRE AREA OF THE CLASS B RIP RAP. THE COST OF THE FILTER FABRIC AND CLASS B RIP RAP SHALL BE INCLUDED IN THE PRICE BID FOR "STRUCTURE DRAINAGE SYSTEM - LUMP SUM".



PROJECT NO. B-2938
CARTERET-ON SLOW COUNTY
STATION: 12+47.510 -L-
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
STRUCTURE
DRAINAGE SYSTEM



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BAR SCHEDULE					BAR SCHEDULE					BAR SCHEDULE							
SPANS 1 & 2					SPANS 21 THRU 24					SPANS 29 THRU 31							
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT			
*A1	270	*16	STR	10300	4316	*A1	301	*16	STR	10300	4812	*A1	226	*16	STR	10300	3613
*A2	242	*13	STR	1000	241	*A2	268	*13	STR	1000	266	*A2	202	*13	STR	1000	201
*B1	48	*16	STR	14140	1053	*B5	48	*16	STR	15700	1170	*B5	36	*16	STR	15700	877
*B2	258	*13	STR	6740	1728	*B6	172	*13	STR	5640	964	*B6	172	*13	STR	5640	964
*B3	86	*22	STR	10400	2721	*B7	129	*22	STR	12000	4709	*B7	86	*22	STR	12000	3139
*B4	42	*22	STR	8100	1035	*B8	126	*22	STR	4500	1725	*B8	84	*22	STR	4500	1150
*G1	2	*16	STR	10300	32	*G1	2	*16	STR	10300	32	*G1	2	*16	STR	10300	32
*K1	8	*25	1	3500	111	*K8	12	*13	STR	8400	100	*K8	8	*13	STR	8400	67
*K2	12	*25	2	5080	242	*K9	8	*25	1	3440	109	*K9	8	*25	1	3440	109
*K3	16	*16	STR	1540	38	*K10	12	*25	2	4980	237	*K10	12	*25	2	4980	237
*K4	16	*16	5	1700	42	*K11	32	*16	STR	1740	86	*K11	24	*16	STR	1740	65
*K5	16	*13	STR	1480	24	*K12	32	*16	5	1900	94	*K12	24	*16	5	1900	71
*K6	16	*13	STR	1780	28	*K13	48	*13	STR	1680	80	*K13	32	*13	STR	1680	53
*K7	8	*13	STR	1000	8	*K14	24	*13	STR	1840	44	*K14	16	*13	STR	1840	29
*K8	5	*13	STR	8400	42	*K15	24	*13	STR	1200	29	*K15	16	*13	STR	1200	19
*S1	48	*16	3	1880	140	*S3	192	*13	6	860	164	*S3	128	*13	6	860	109
*S2	40	*13	4	2220	88	*S4	48	*16	3	1580	118	*S4	48	*16	3	1580	118
*S3	72	*13	6	860	62	*S5	96	*13	4	1500	143	*S5	72	*13	4	1500	107
*U1	8	*13	2	4300	34	*U3	24	*13	2	3400	81	*U3	16	*13	2	3400	54
*U2	12	*13	2	4900	58	*U4	48	*13	2	3940	188	*U4	32	*13	2	3940	125

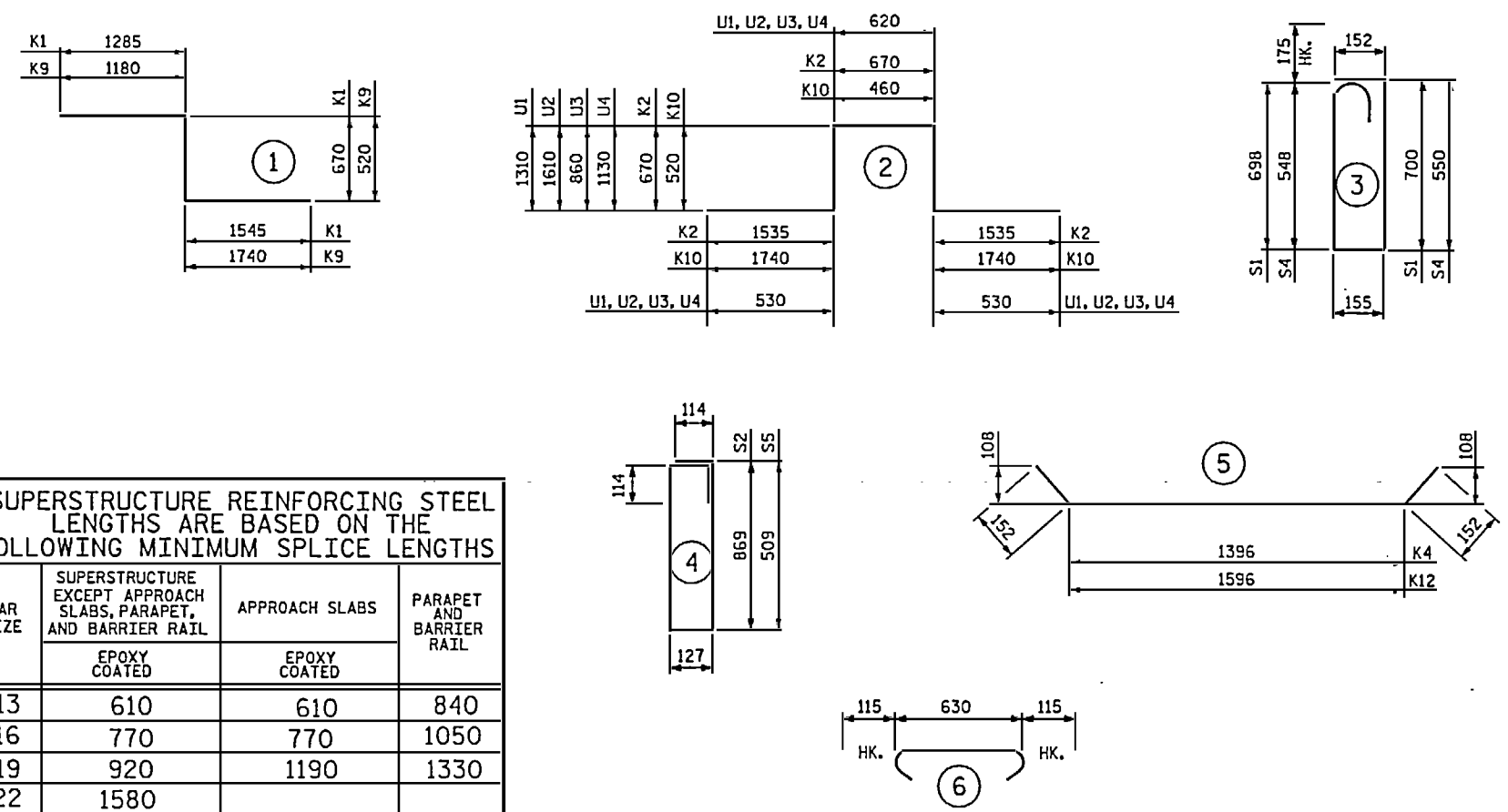
*EPOXY COATED REINFORCING STEEL	kg	12043	*EPOXY COATED REINFORCING STEEL	kg	15681	*EPOXY COATED REINFORCING STEEL	kg	11404
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NOTE
REINFORCING BAR SCHEDULE FOR SPANS 3 & 4, 5 & 6, 7 & 8, 9 & 10, 11 & 12, 13 & 14, 15 & 16, 17 & 18 AND 19 & 20 ARE THE SAME AS SPANS 1 & 2.

NOTE
REINFORCING BAR SCHEDULE FOR SPANS 25 THRU 28 IS THE SAME AS SPANS 21 THRU 24.

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		PARAPET AND BARRIER RAIL
	EPOXY COATED	EPOXY COATED	
#13	610	610	840
#16	770	770	1050
#19	920	1190	1330
#22	1580		
#25	2080		

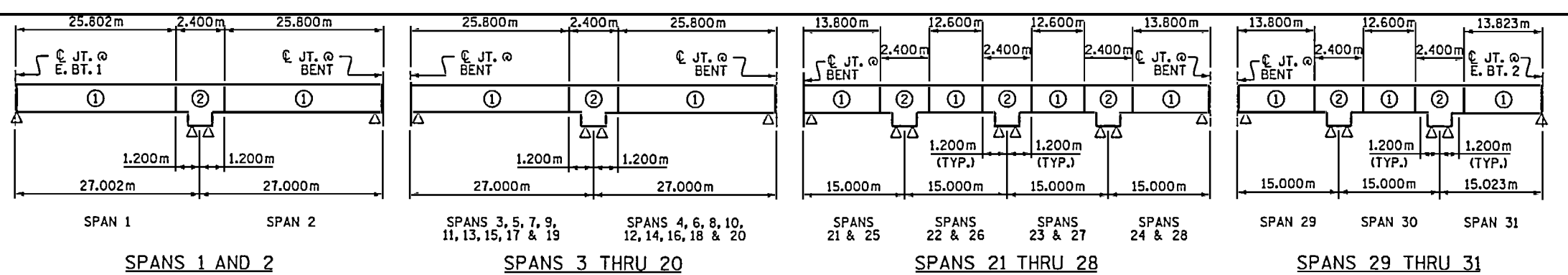


ALL BAR DIMENSIONS ARE OUT TO OUT.

SUPERSTRUCTURE BILL OF MATERIAL

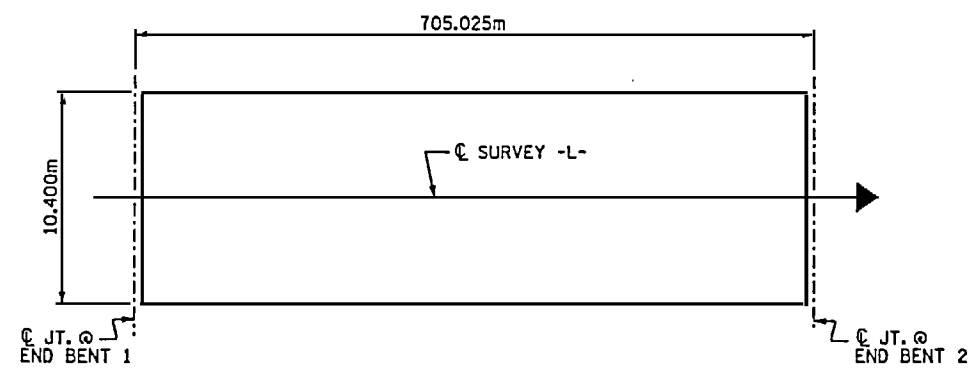
SPANS	CLASS AA CONCRETE (CU. METER)				TOTAL (CU. METER)	EPOXY COATED REINFORCING STEEL (kg)
	POUR #1	POUR #2	POUR #3	POUR #4		
1 & 2	56.4	73.5	0	0	129.9	12043
3 & 4	56.4	73.5	0	0	129.9	12043
5 & 6	56.4	73.5	0	0	129.9	12043
7 & 8	56.4	73.5	0	0	129.9	12043
9 & 10	56.4	73.5	0	0	129.9	12043
11 & 12	56.4	73.5	0	0	129.9	12043
13 & 14	56.4	73.5	0	0	129.9	12043
15 & 16	56.4	73.5	0	0	129.9	12043
17 & 18	56.4	73.5	0	0	129.9	12043
19 & 20	56.4	73.5	0	0	129.9	12043
21, 22, 23 & 24	26.4	36.3	36.3	42.3	141.3	15681
25, 26, 27 & 28	26.4	36.3	36.3	42.3	141.3	15681
29, 30 & 31	26.4	36.3	36.3	0	99.0	11404
TOTAL **	1680.6					163196

**QUANTITIES FOR CONCRETE PARAPET ARE NOT INCLUDED.



OPTIONAL POURING SEQUENCE

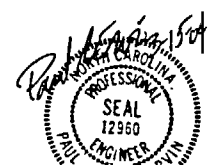
NOTE: POUR 2 CAN NOT BE STARTED UNTIL BOTH ADJACENT POUR 1'S REACH A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.



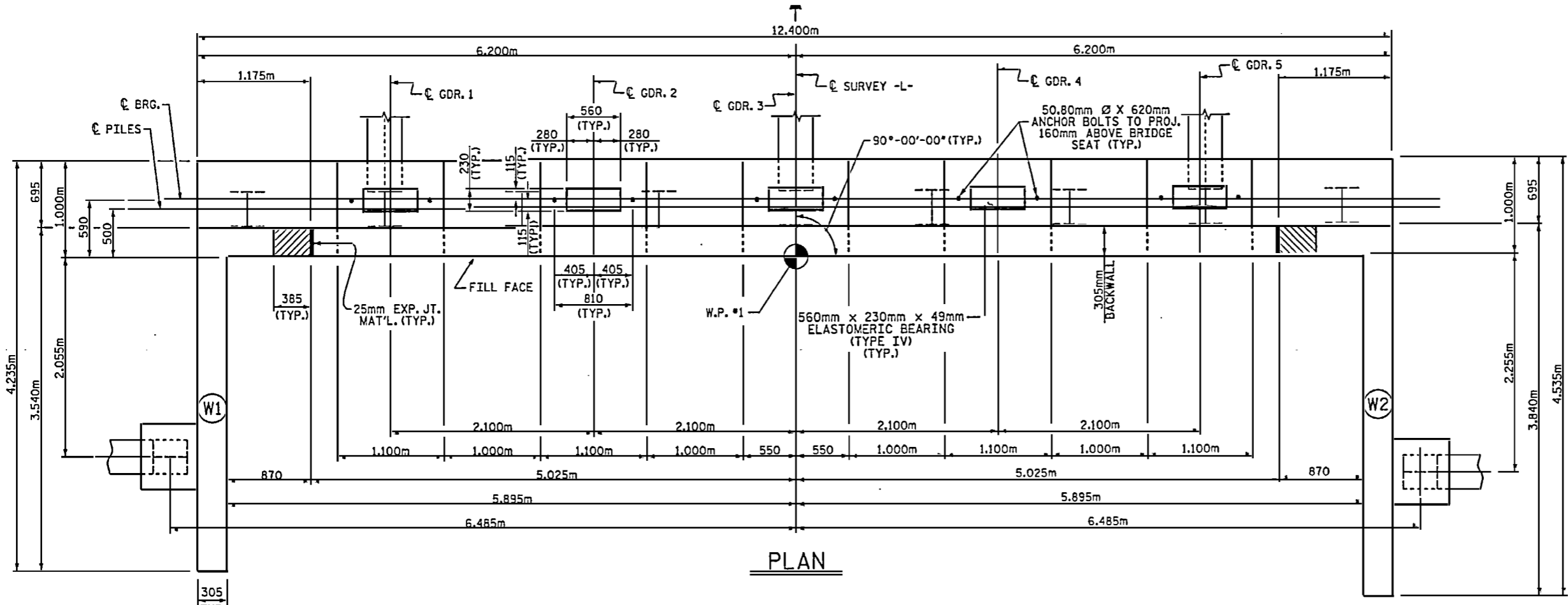
PROJECT NO. B-2938
CARTERET-ONSLow COUNTY
STATION: 12+47.510 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
SUPERSTRUCTURE
BILL OF MATERIAL



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STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

THE TOP SURFACE AREA OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

PIPE DRAINS MAY BE SHIFTED AS NECESSARY TO CLEAR REINFORCING STEEL AND ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

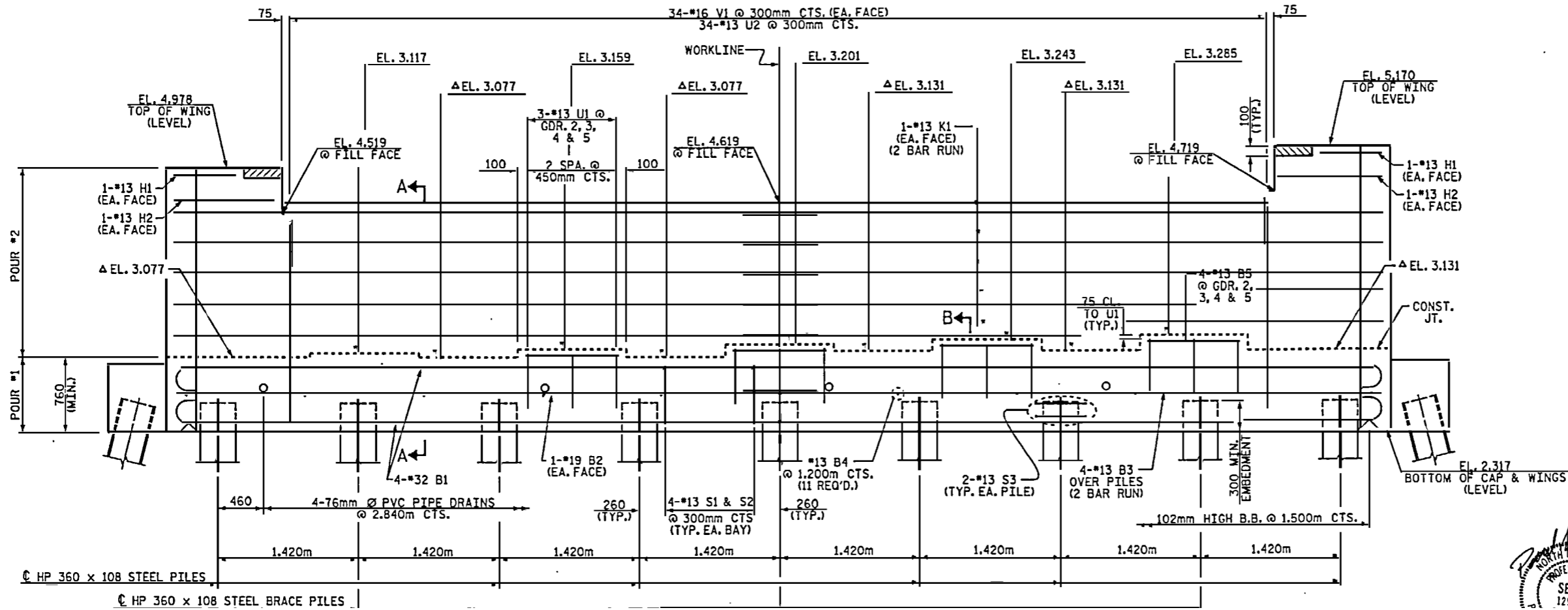
THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

△ FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEATS, SEE SHEET 3 OF 3.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 102mm DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

THE CONCRETE IN THE SHADED PORTION OF THE WING SHALL BE POURED AFTER THE PARAPET IS CAST IF SLIP FORMING IS USED.

BAR	SIZE	SPLICE LENGTH
B3	*13	870mm
K1	*13	870mm



PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

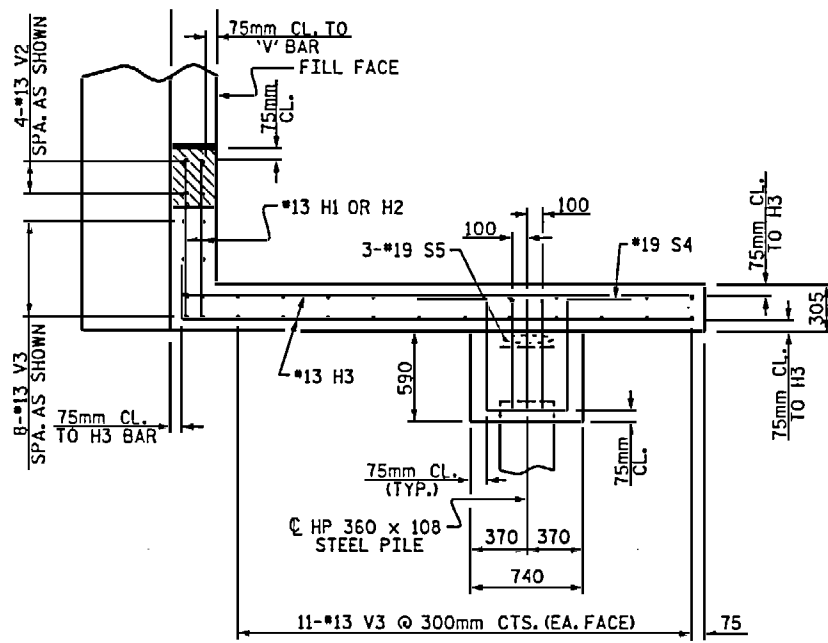
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

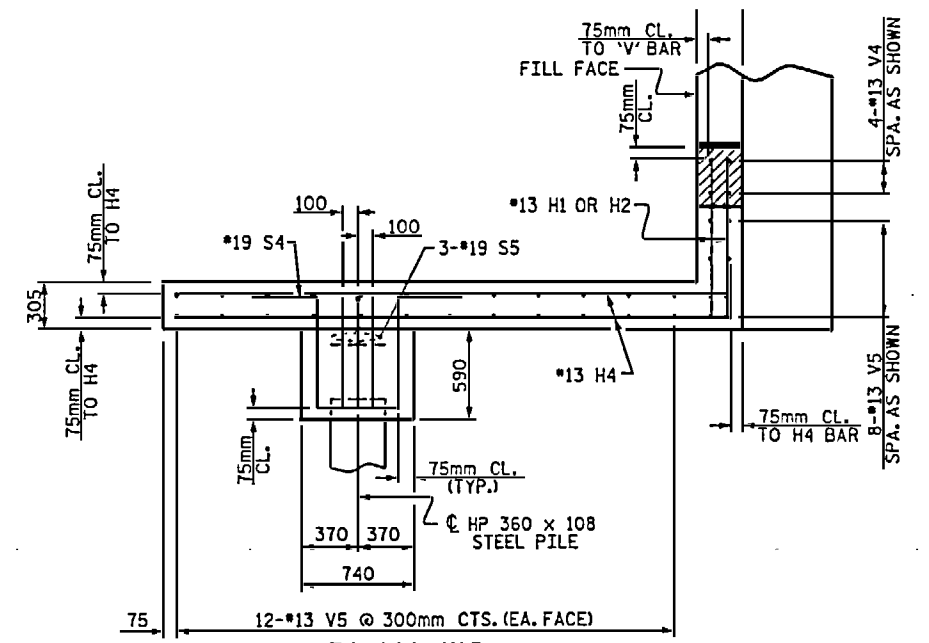
**SUBSTRUCTURE
 END BENT 1**

[Professional Engineer Seal]
 NORTH CAROLINA
 PROFESSIONAL
 SEAL
 12960

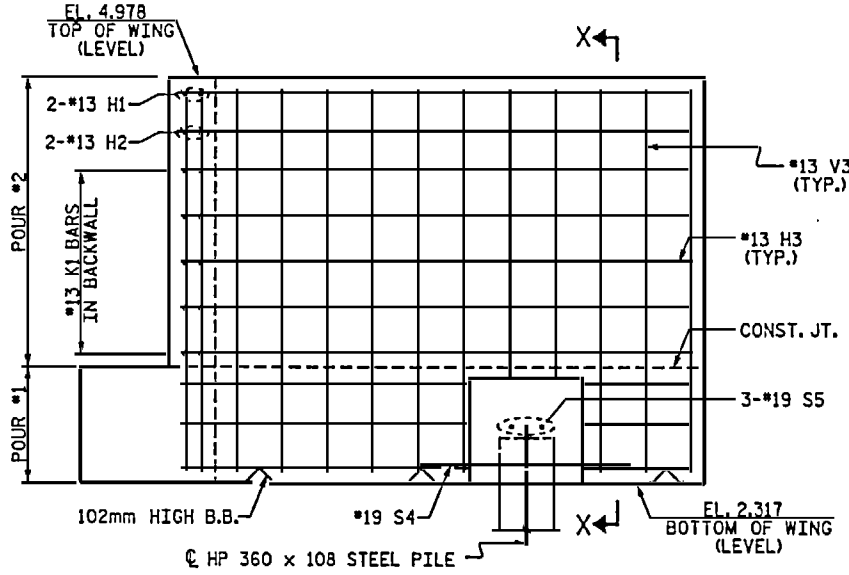
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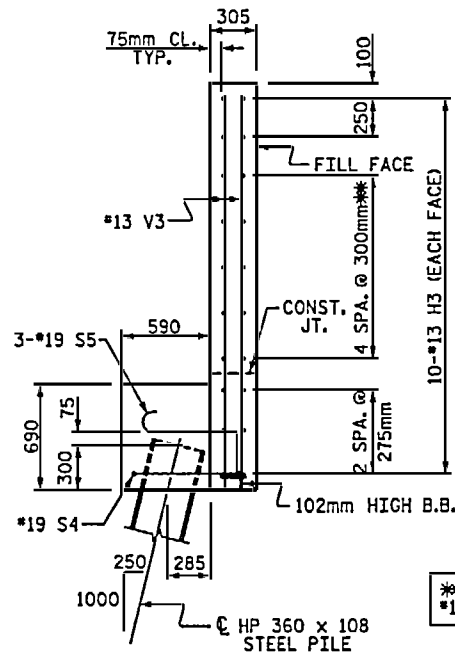
PLAN W1



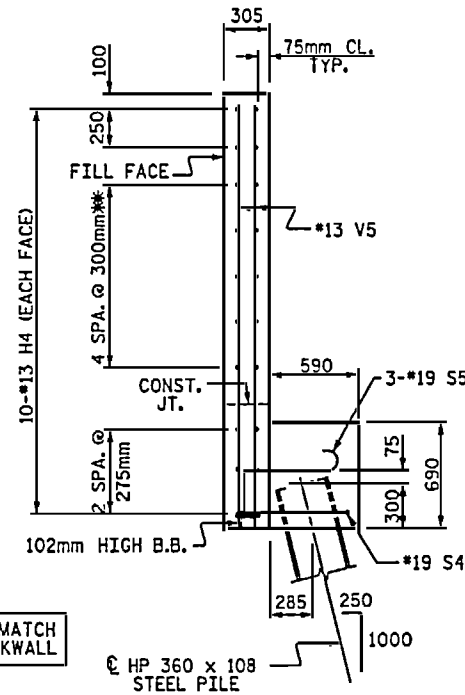
PLAN W2



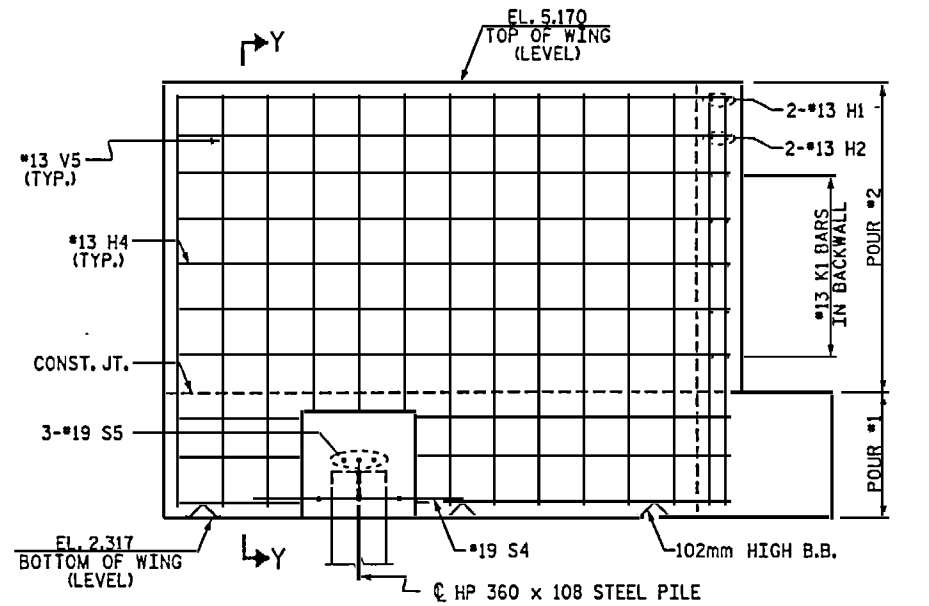
ELEVATION W1



SECTION X-X



SECTION Y-Y



ELEVATION W2

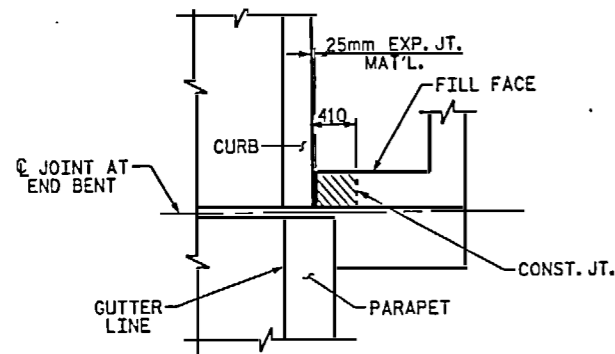
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-

SHEET 2 OF 3

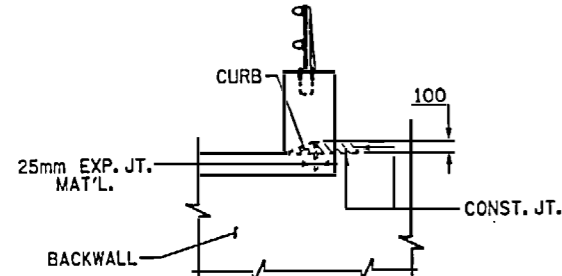
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1



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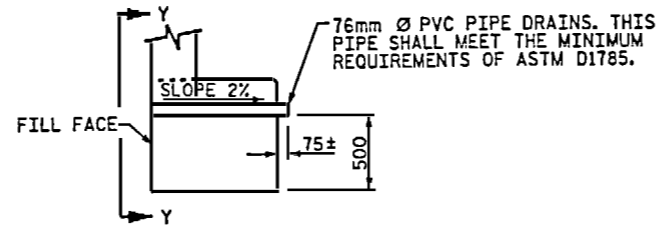
PLAN



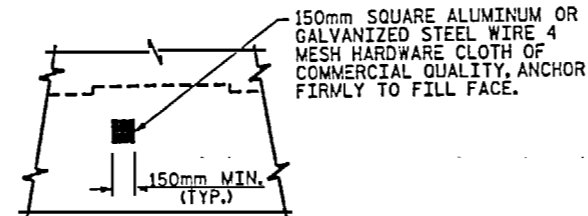
ELEVATION

BLOCKOUT IN WING WALL FOR FITTING EVAZOTE JOINT SEAL

NOTE: THE CONCRETE IN THE CROSS-HATCHED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET IS CAST IF SLIP FORMING IS USED.



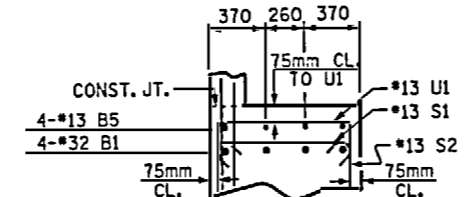
SECTION THRU CAP



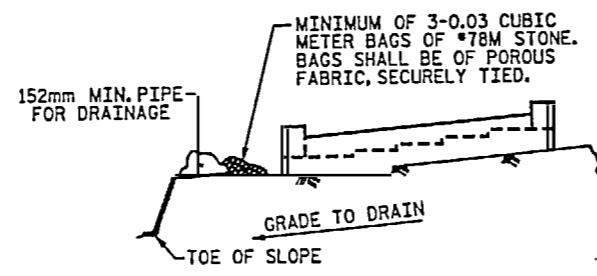
VIEW Y-Y

NOTE: NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE PVC PIPE DRAINS, HARDWARE CLOTH, AND FASTENERS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

PIPE DRAIN DETAILS



PARTIAL SECTION B

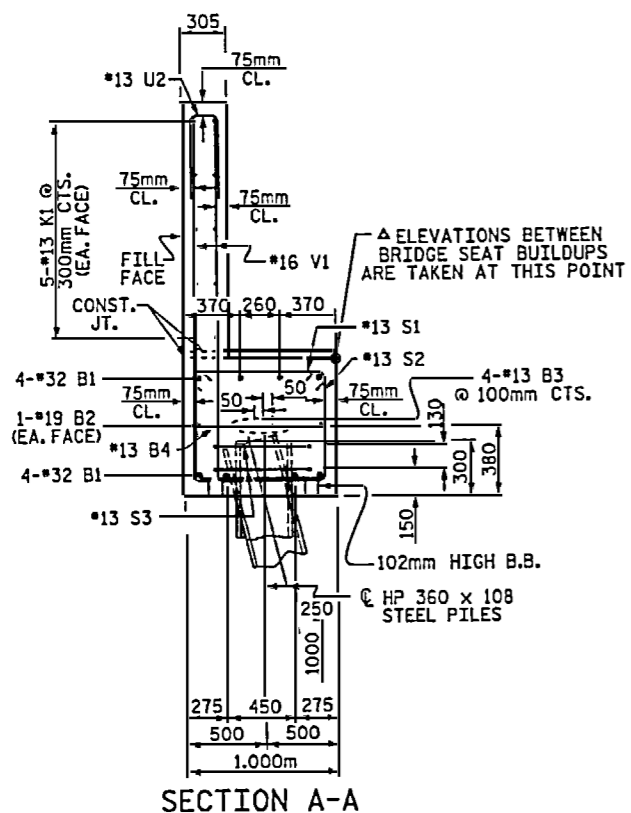


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

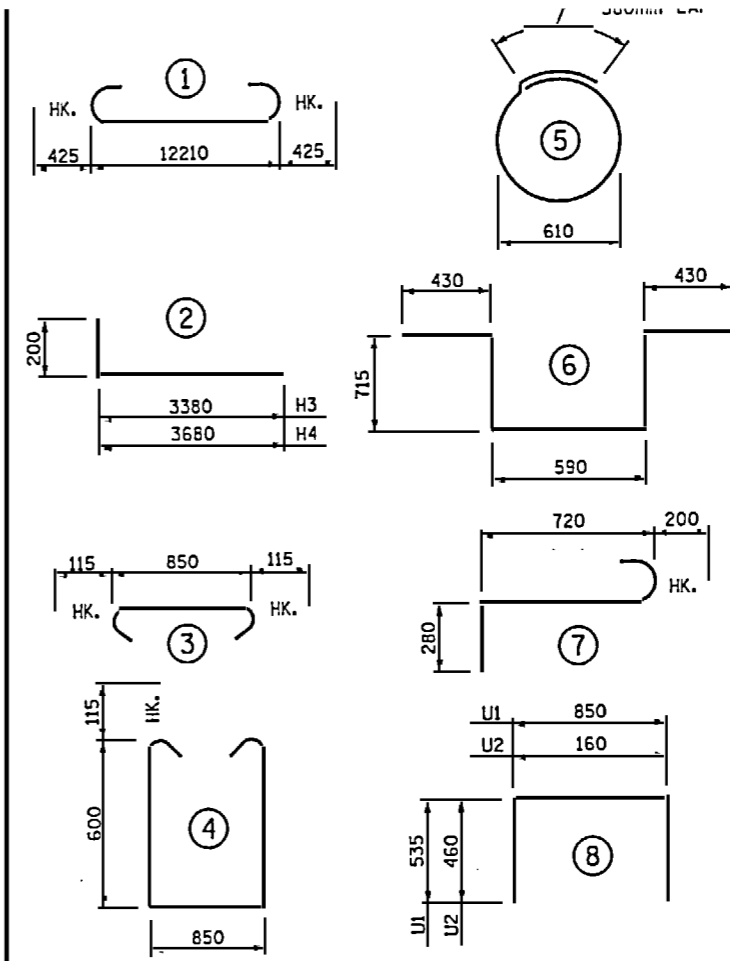
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

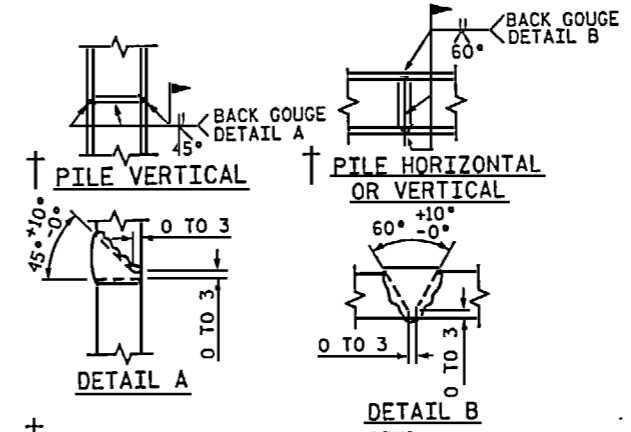
TEMPORARY DRAINAGE AT END BENT



SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT



PILE SPLICE DETAILS

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	8	*32	1	13060	669
*B2	2	*19	STR	12240	55
*B3	8	*13	STR	6560	52
*B4	11	*13	STR	840	9
*B5	16	*13	STR	940	15
*H1	4	*13	STR	640	3
*H2	4	*13	STR	1020	4
*H3	20	*13	2	3580	71
*H4	20	*13	2	3880	77
*K1	20	*13	STR	6560	130
*S1	32	*13	3	1080	34
*S2	32	*13	4	2280	73
*S3	18	*13	5	2300	41
*S4	2	*19	6	2880	13
*S5	6	*19	7	1200	16
*U1	12	*13	8	1920	23
*U2	34	*13	8	1080	36
*V1	68	*16	STR	2020	213
*V2	4	*13	STR	2380	9
*V3	30	*13	STR	2480	74
*V4	4	*13	STR	2580	10
*V5	32	*13	STR	2680	85

* EPOXY COATED REINFORCING STEEL kg 1712

CLASS 'AA' CONCRETE
 POUR #1 (CAP & WINGS) m³ 12.7
 POUR #2 (BACKWALL & WINGS) m³ 10.3
 TOTAL m³ 23.0

HP 360 x 108 STEEL PILES NO. 11 METERS 115.5

PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

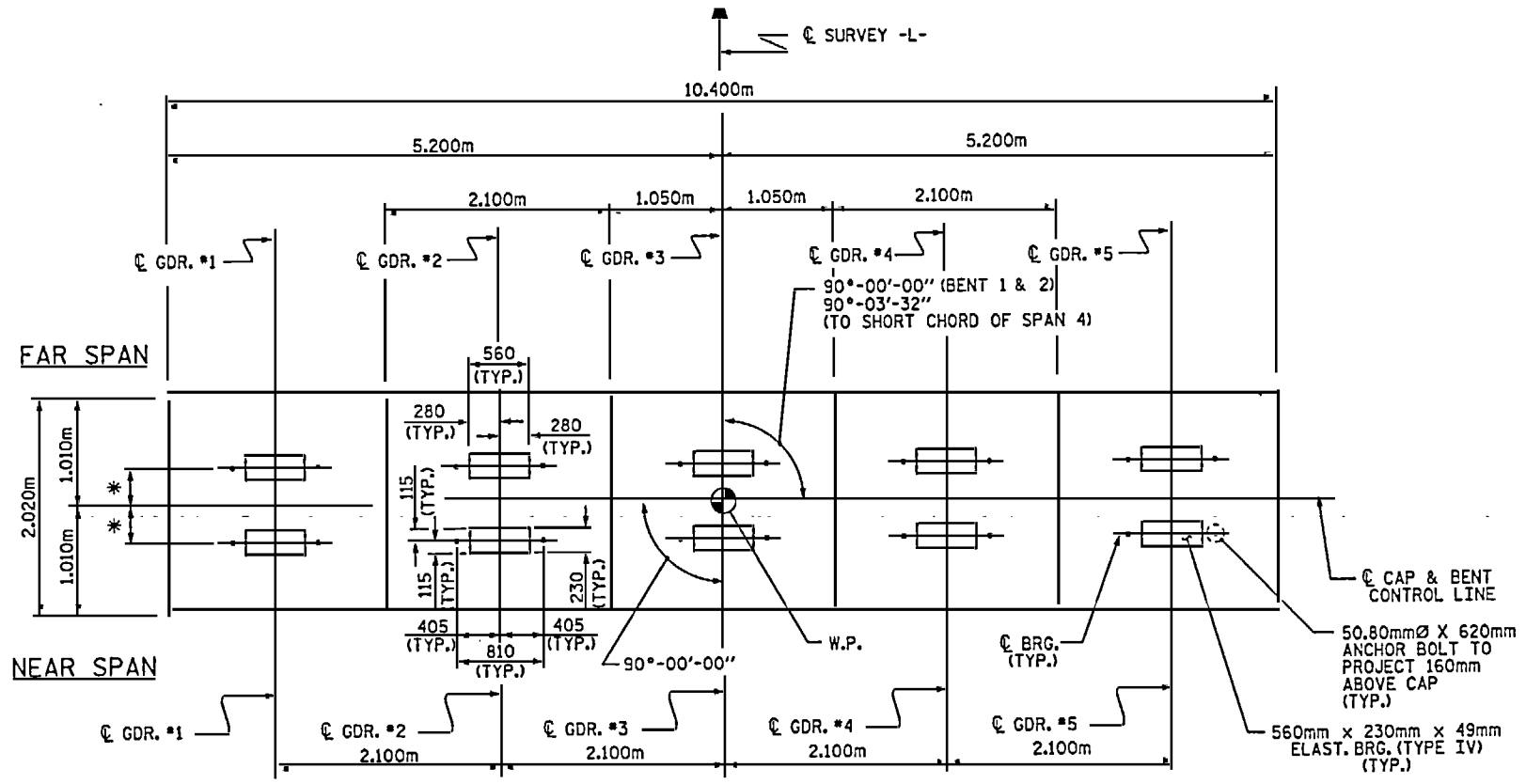
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1



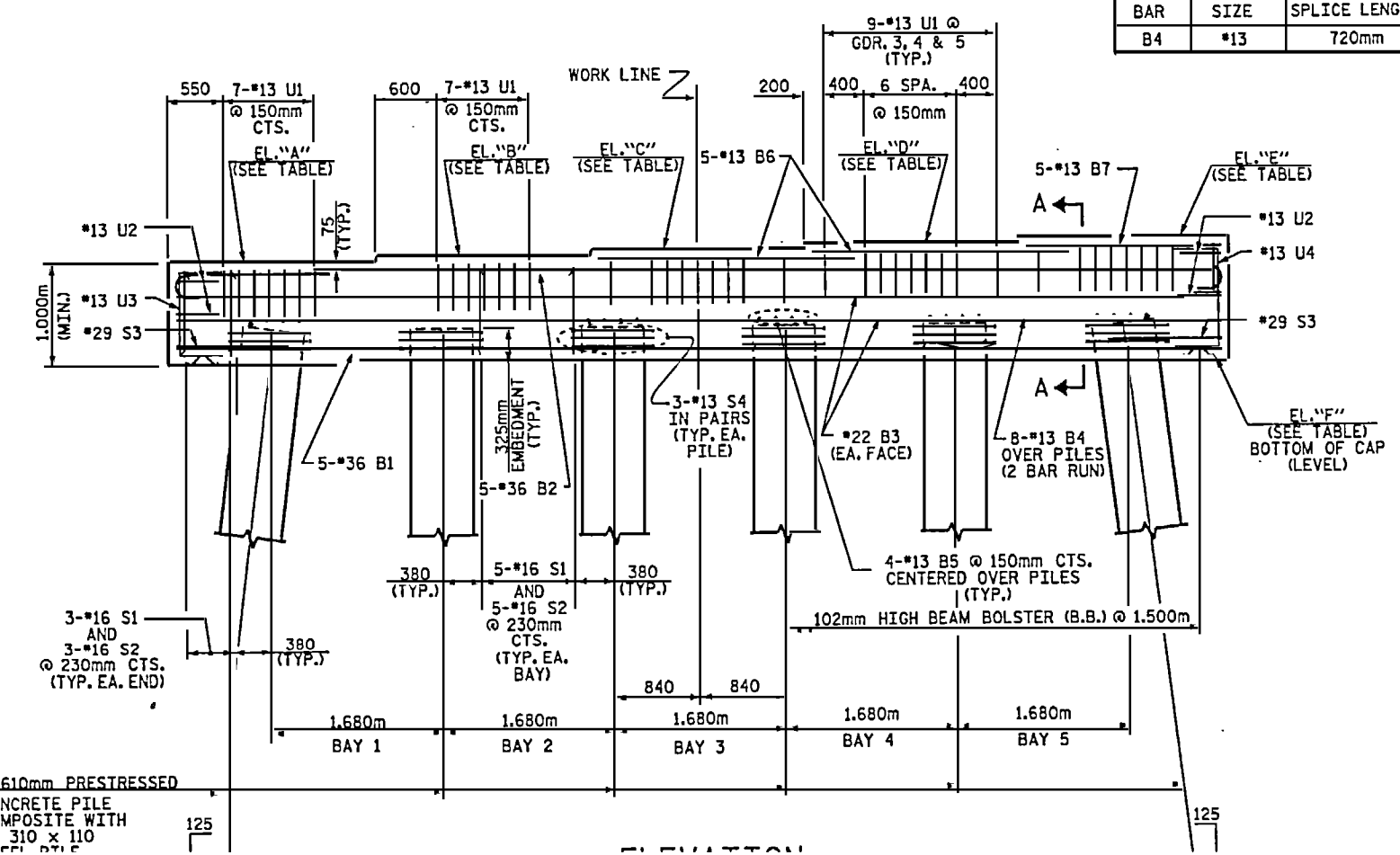
REVISIONS SHEET NO. S-74



* SEE TABLE (DISTANCE TO C BRG.)

PLAN

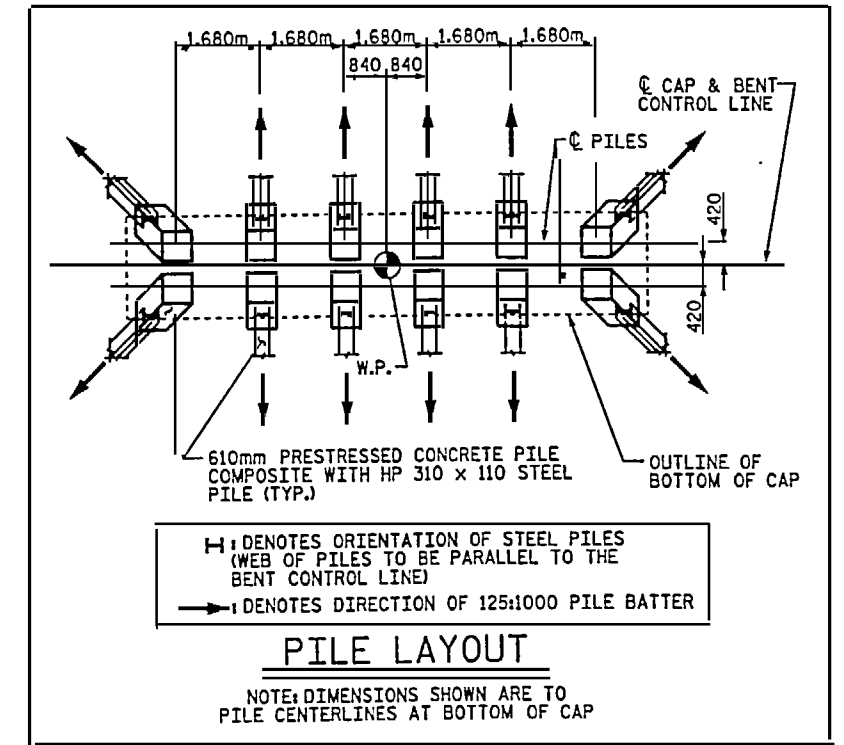
SPLICE LENGTH CHART		
BAR	SIZE	SPLICE LENGTH
B4	#13	720mm



© 610mm PRESTRESSED CONCRETE PILE COMPOSITE WITH HP 310 X 110 STEEL PILE

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 CONCRETE DISPLACED BY 610mm SQUARE PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.
 ALL REINFORCING STEEL SHALL BE EPOXY COATED.
 THE TOP SURFACE AREAS OF THE CAP FOR BENT 2 SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
 HP 310 X 110 STEEL PILES SHALL BE AASHTO M270 GRADE 345.
 FOR STEEL PILE TIPS, SEE SPECIAL PROVISIONS.
 FOR STEEL PILE SPLICER, SEE SPECIAL PROVISIONS.

	ELEVATION TABLE						DISTANCE TO C BRG. (MEASURED ALONG C GDR.)
	EL. "A"	EL. "B"	EL. "C"	EL. "D"	EL. "E"	EL. "F"	
BENT #1	3.198	3.240	3.282	3.324	3.366	2.198	350mm
BENT #2	3.279	3.321	3.363	3.405	3.447	2.279	270mm
BENT #3	3.360	3.402	3.444	3.486	3.528	2.360	350mm



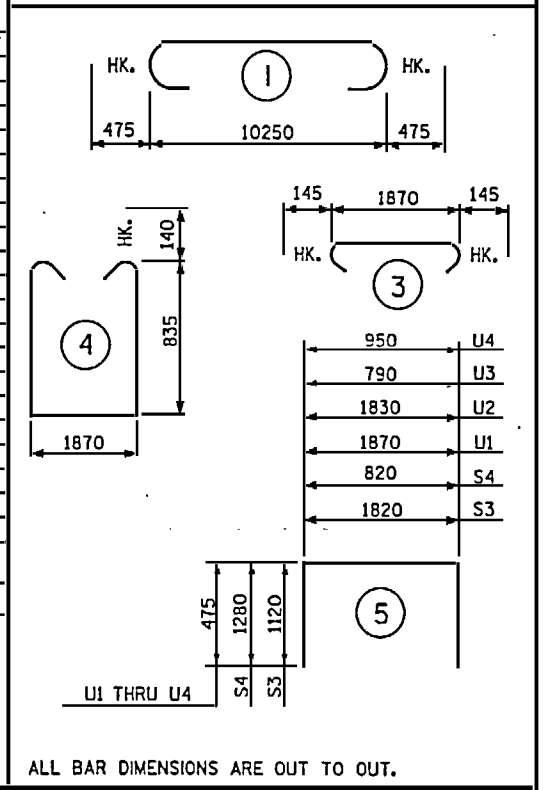
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

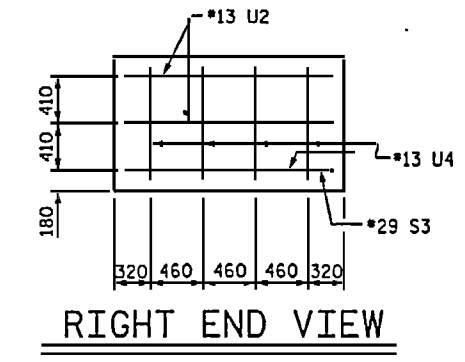
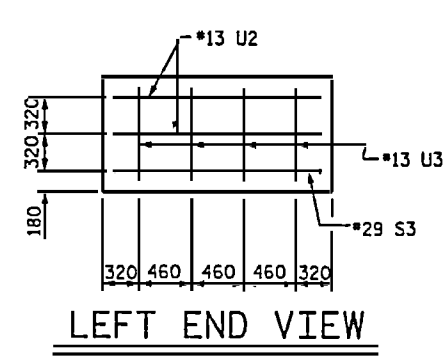
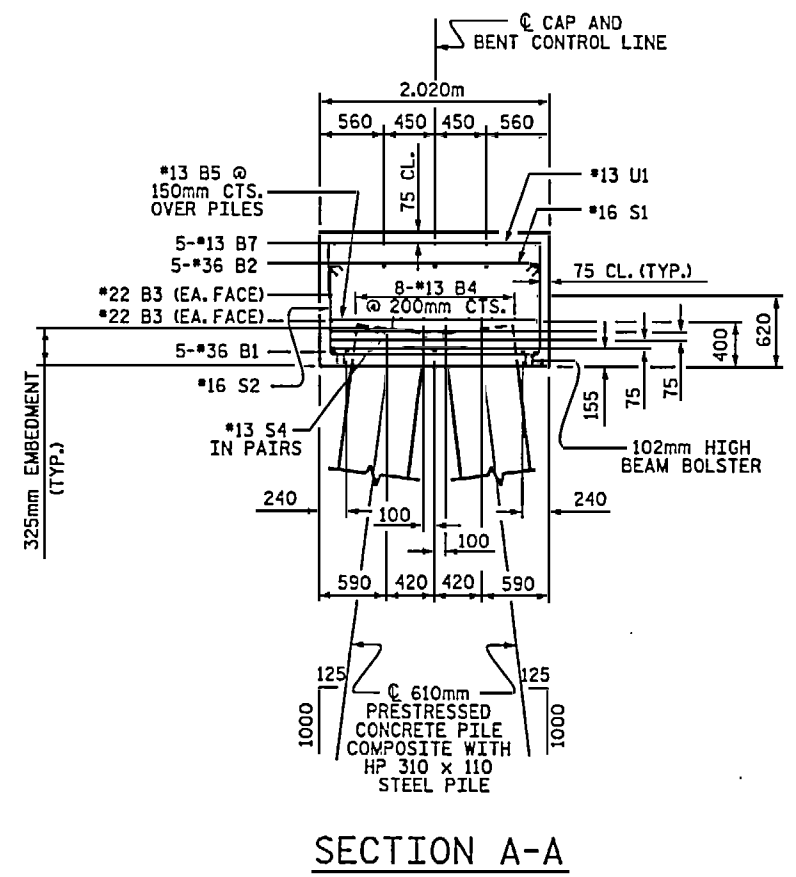
SUBSTRUCTURE
 BENT 1 THRU BENT 3



BENT 1						BENT 2						BENT 3					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405
*B2	5	*36	1	11200	443	*B2	5	*36	1	11200	443	*B2	5	*36	1	11200	443
*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125
*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87
*B5	24	*13	STR	1860	44	*B5	24	*13	STR	1860	44	*B5	24	*13	STR	1860	44
*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25
*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9
*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104
*S2	31	*16	4	3820	184	*S2	31	*16	4	3820	184	*S2	31	*16	4	3820	184
*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41
*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121
*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115
*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11
*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7
*U4	4	*13	5	1900	8	*U4	4	*13	5	1900	8	*U4	4	*13	5	1900	8
* EPOXY COATED REINF. STEEL = kg 1729						* EPOXY COATED REINF. STEEL = kg 1729						* EPOXY COATED REINF. STEEL = kg 1729					
CLASS AA CONCRETE CU. METERS 21.3						CLASS AA CONCRETE CU. METERS 21.3						CLASS AA CONCRETE CU. METERS 21.3					
610mm PRESTRESSED CONCRETE PILES NO. 12 METERS 54.0						610mm PRESTRESSED CONCRETE PILES NO. 12 METERS 54.0						610mm PRESTRESSED CONCRETE PILES NO. 12 METERS 54.0					
STEEL PILE TIPS NO. 12 EACH						STEEL PILE TIPS NO. 12 EACH						STEEL PILE TIPS NO. 12 EACH					
HP 310 x 110 STEEL PILES NO. 12 METERS 120.0						HP 310 x 110 STEEL PILES NO. 12 METERS 120.0						HP 310 x 110 STEEL PILES NO. 12 METERS 114.0					



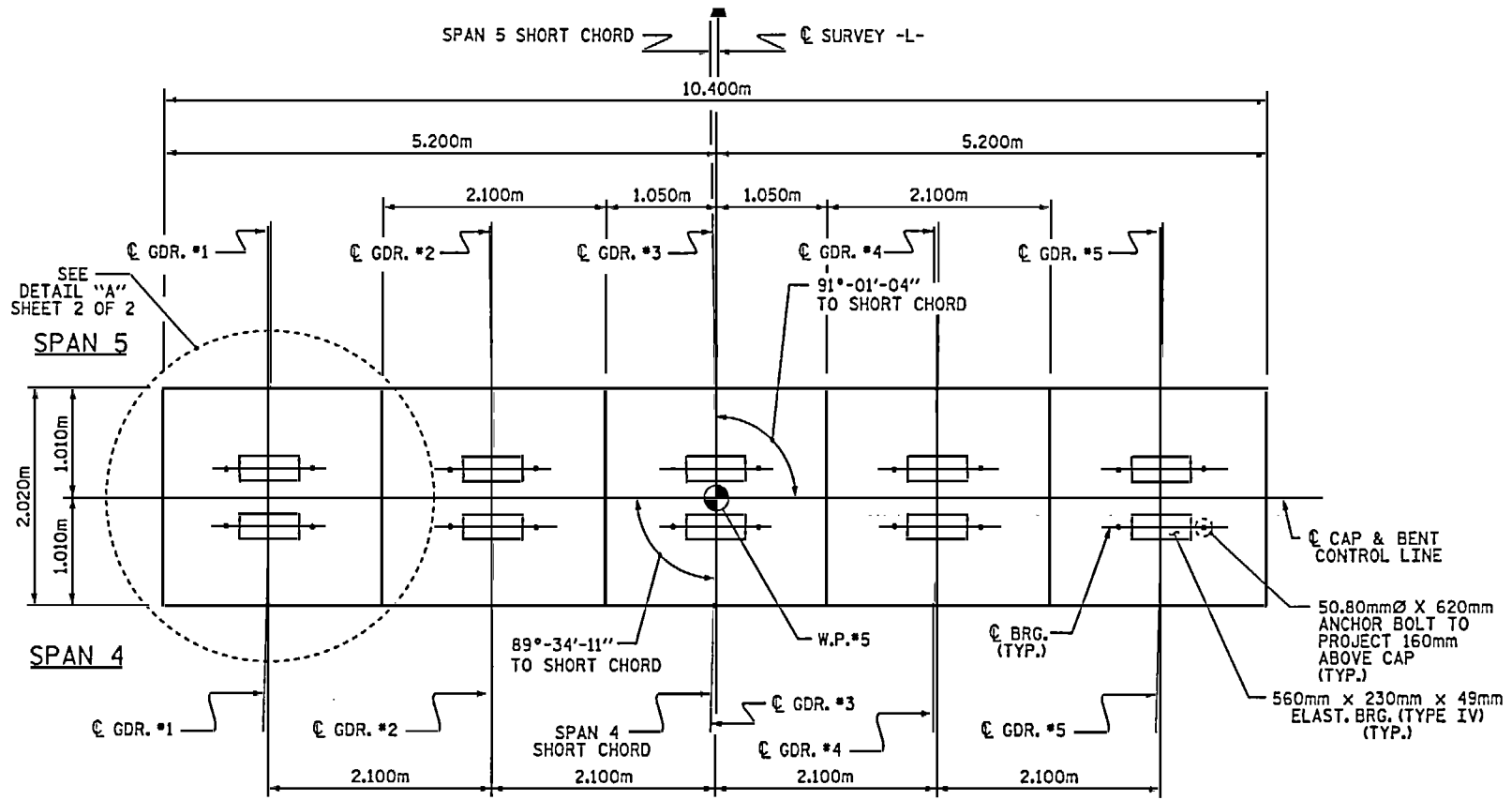
ALL BAR DIMENSIONS ARE OUT TO OUT.



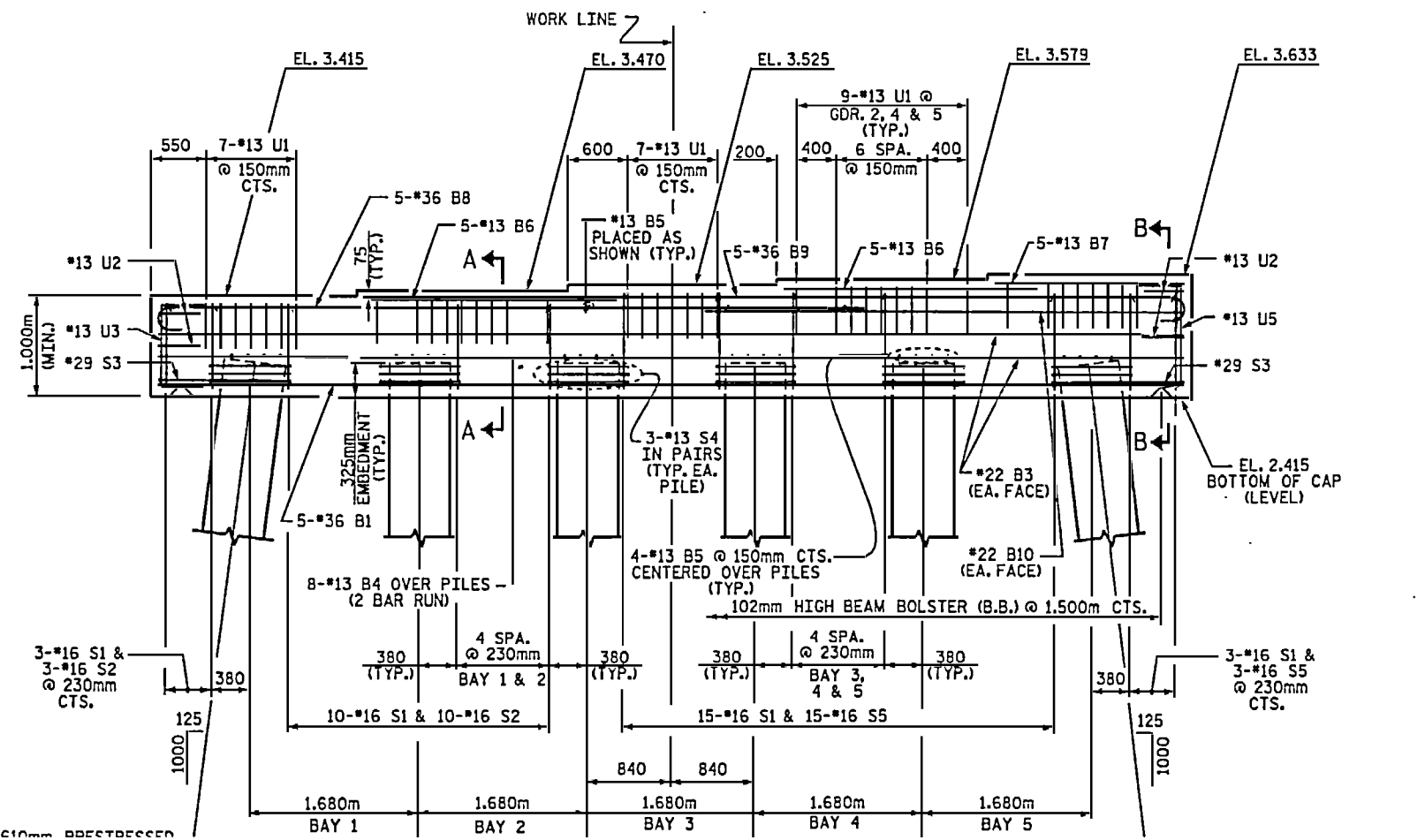
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 1 THRU BENT 3

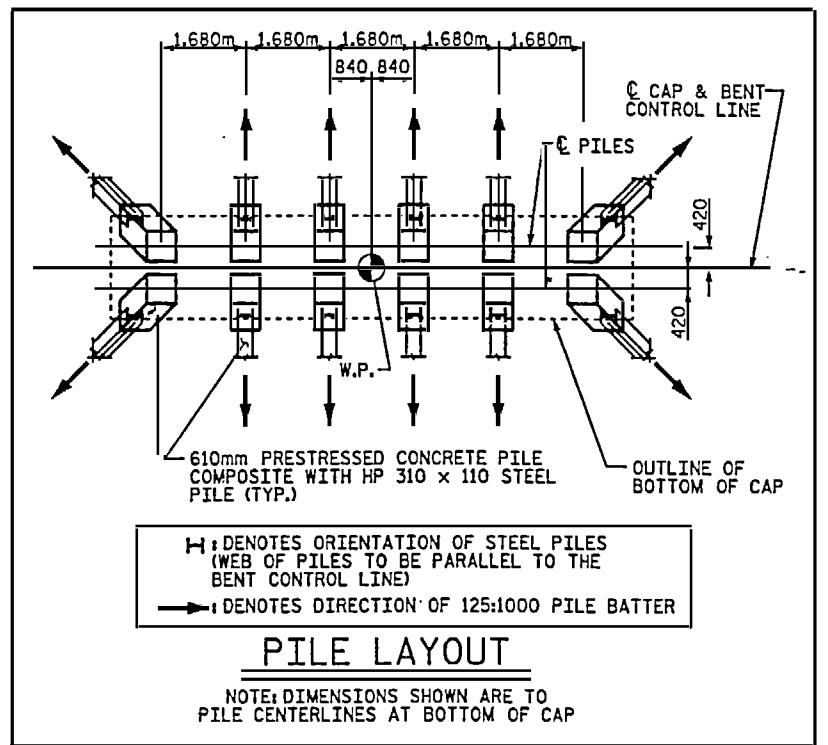




PLAN



SPlice LENGTH CHART		
BAR	SIZE	SPLICE LENGTH
B4	#13	720mm



STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

CONCRETE DISPLACED BY 610mm SQUARE PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

THE TOP SURFACE AREAS OF THE CAP FOR BENT 4 SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

HP 310 X 110 STEEL PILES SHALL BE AASHTO M270 GRADE 345.

FOR STEEL PILE TIPS, SEE SPECIAL PROVISIONS.

FOR STEEL PILE SPLICER, SEE SPECIAL PROVISIONS.

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-

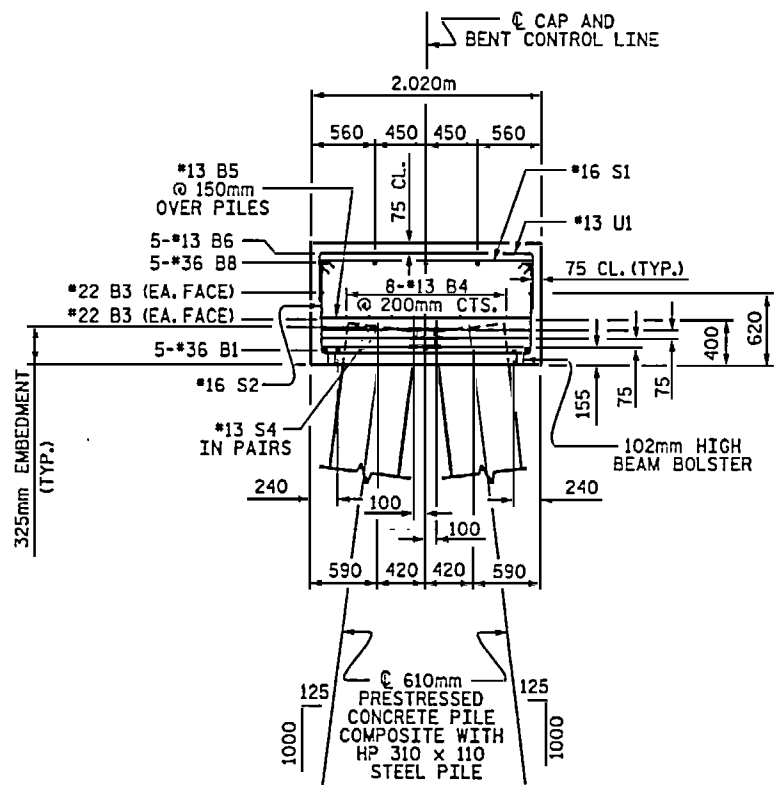
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

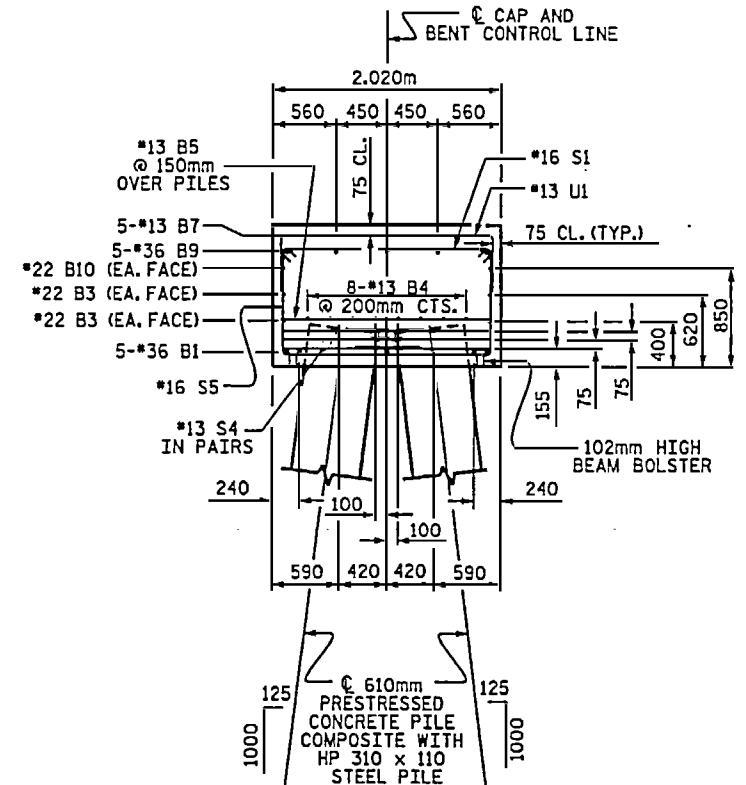
SUBSTRUCTURE
 BENT 4



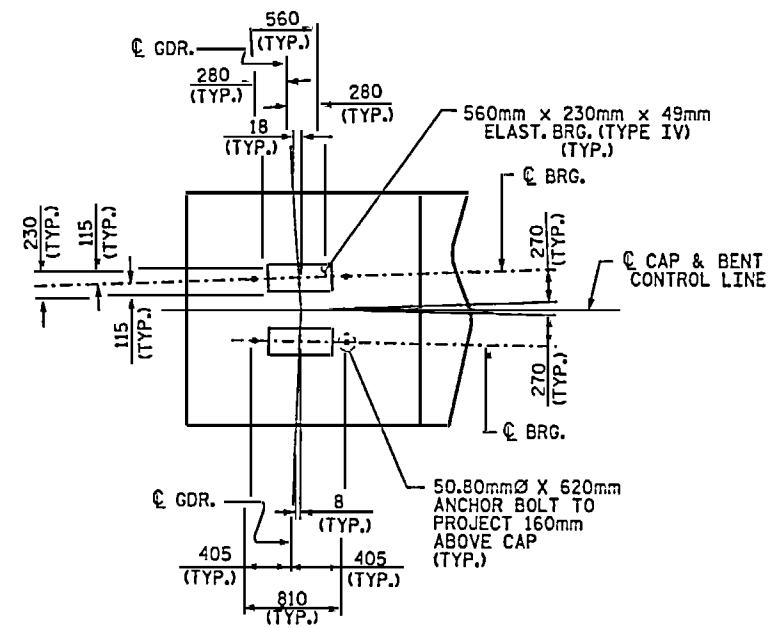
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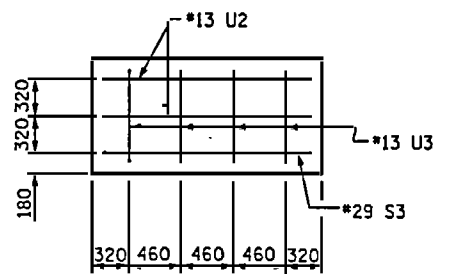
SECTION A-A



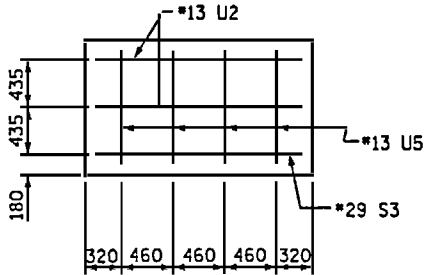
SECTION B-B



DETAIL "A"

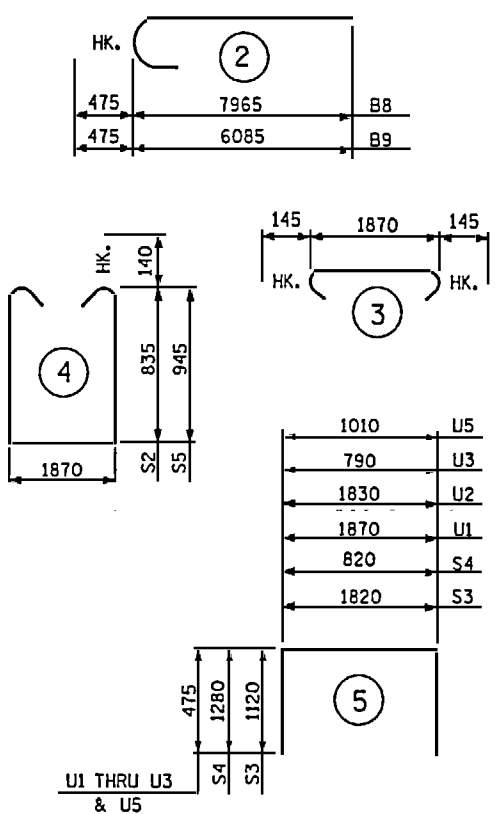


LEFT END VIEW



RIGHT END VIEW

BENT 4					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	5	*36	STR	10240	405
*B3	4	*22	STR	10240	125
*B4	16	*13	STR	5480	87
*B5	27	*13	STR	1860	50
*B6	10	*13	STR	2520	25
*B7	5	*13	STR	1900	9
*B8	5	*36	2	8440	334
*B9	5	*36	2	6560	259
*B10	2	*22	STR	3980	24
*S1	31	*16	3	2160	104
*S2	13	*16	4	3820	77
*S3	2	*29	5	4060	41
*S4	36	*13	5	3380	121
*S5	18	*16	4	4040	113
*U1	41	*13	5	2820	115
*U2	4	*13	5	2780	11
*U3	4	*13	5	1740	7
*U5	4	*13	5	1960	8
*EPOXY COATED REINF. STEEL = kg					1915
CLASS AA CONCRETE CU. METERS					21.9
610mm PRESTRESSED CONCRETE PILES NO. 12 METERS					54.0
STEEL PILE TIPS NO. 12 EACH					
HP 310 x 110 STEEL PILES NO. 12 METERS					102.0



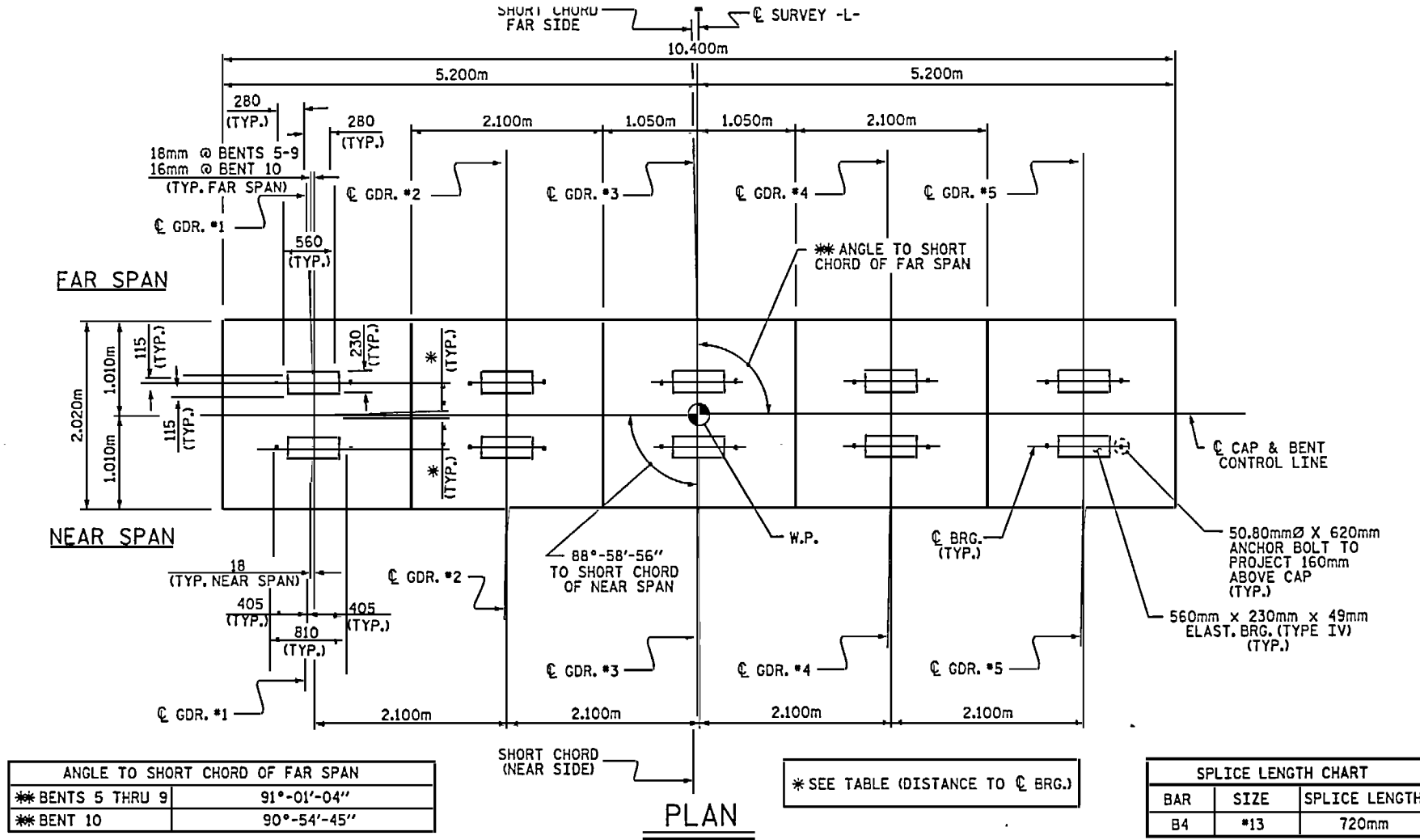
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 4

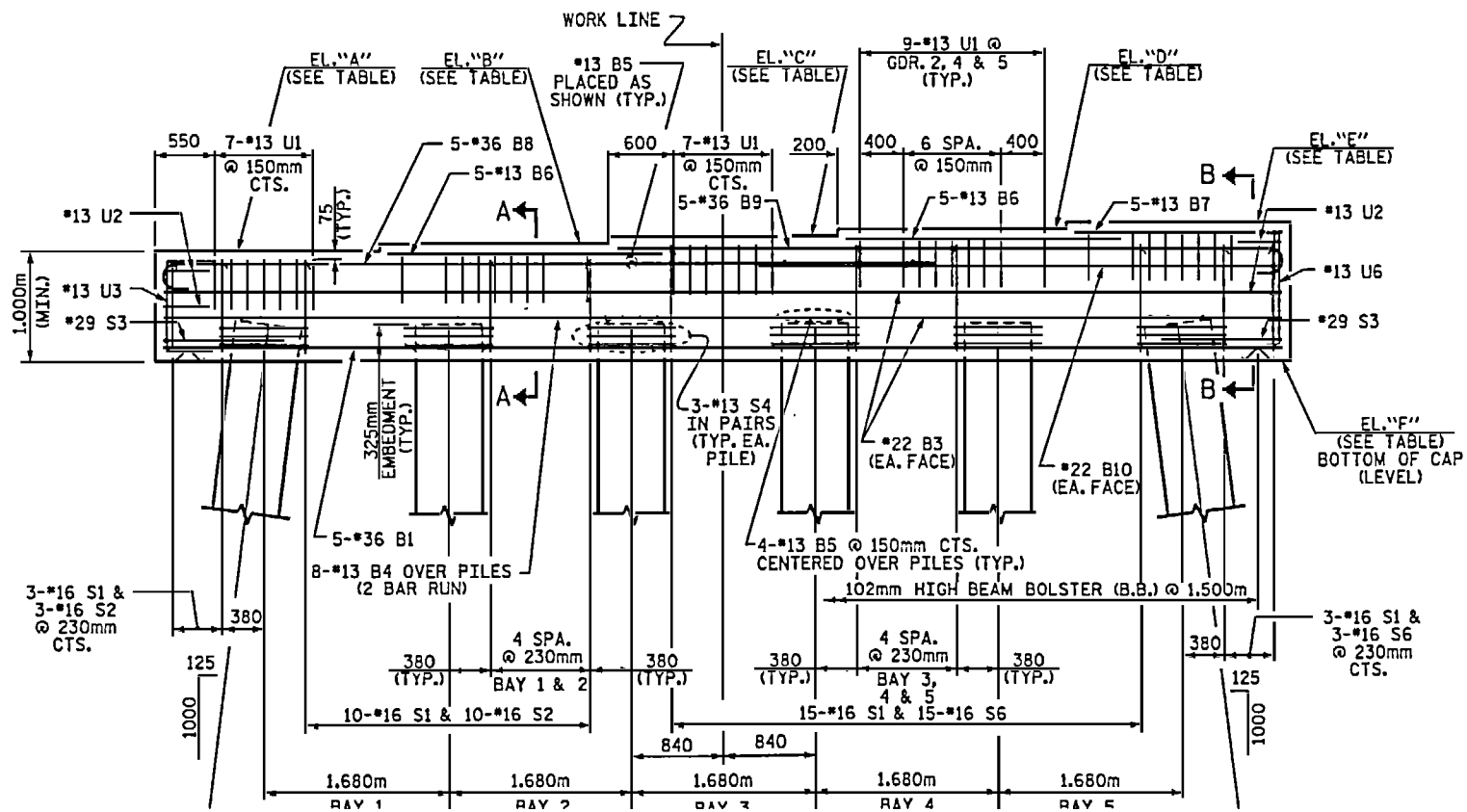
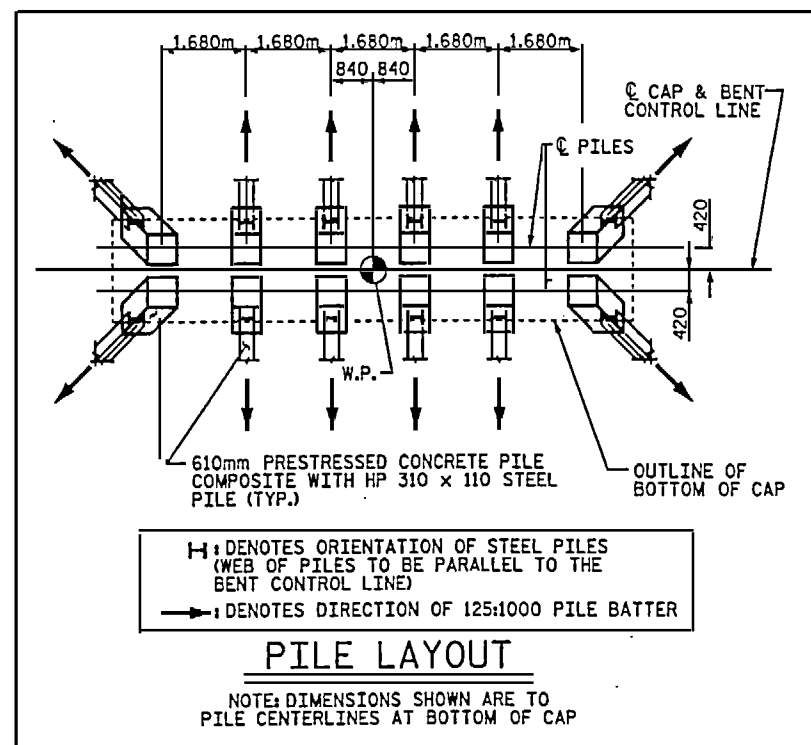




ANGLE TO SHORT CHORD OF FAR SPAN	
** BENTS 5 THRU 9	91°-01'-04"
** BENT 10	90°-54'-45"

SPlice LENGTH CHART		
BAR	SIZE	SPlice LENGTH
B4	#13	720mm

	ELEVATION TABLE						DISTANCE TO C. BRG. (MEASURED ALONG C. GDR.)
	EL. "A"	EL. "B"	EL. "C"	EL. "D"	EL. "E"	EL. "F"	
BENT #5	3.480	3.543	3.606	3.669	3.732	2.480	350mm
BENT #6	3.561	3.624	3.687	3.750	3.813	2.561	270mm
BENT #7	3.642	3.705	3.768	3.831	3.894	2.642	350mm
BENT #8	3.723	3.786	3.849	3.912	3.975	2.723	270mm
BENT #9	3.804	3.867	3.930	3.993	4.056	2.804	350mm
BENT #10	3.885	3.948	4.011	4.074	4.137	2.885	270mm



STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

CONCRETE DISPLACED BY 610mm SQUARE PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

THE TOP SURFACE AREAS OF THE CAP FOR BENTS 6, 8 AND 10 SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

HP 310 x 110 STEEL PILES SHALL BE AASHTO M270 GRADE 345.

FOR STEEL PILE TIPS, SEE SPECIAL PROVISIONS.

FOR STEEL PILE SPLICER, SEE SPECIAL PROVISIONS.

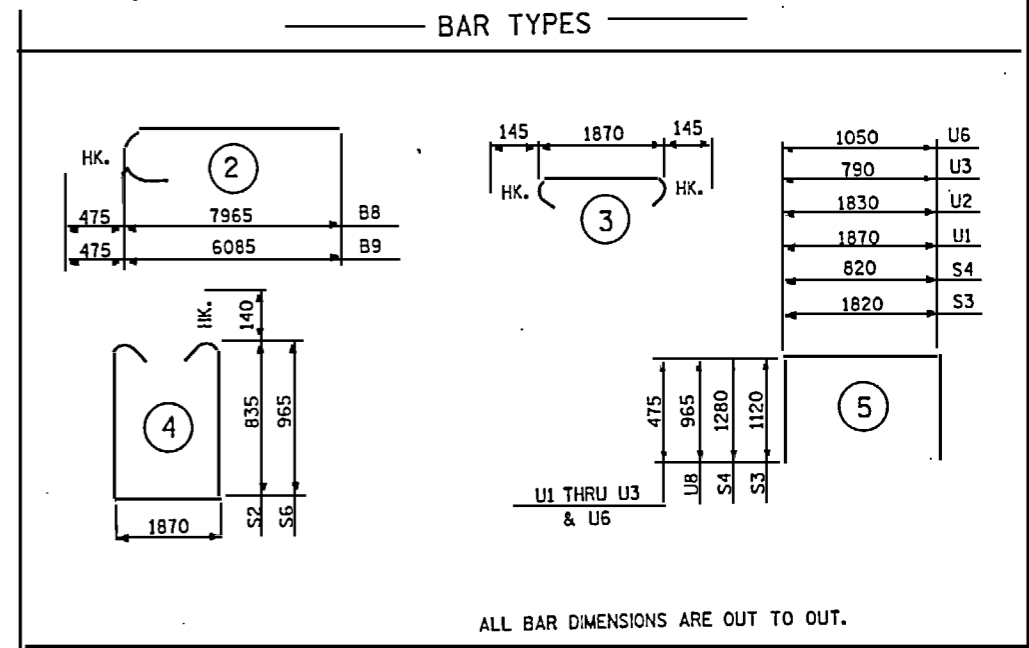
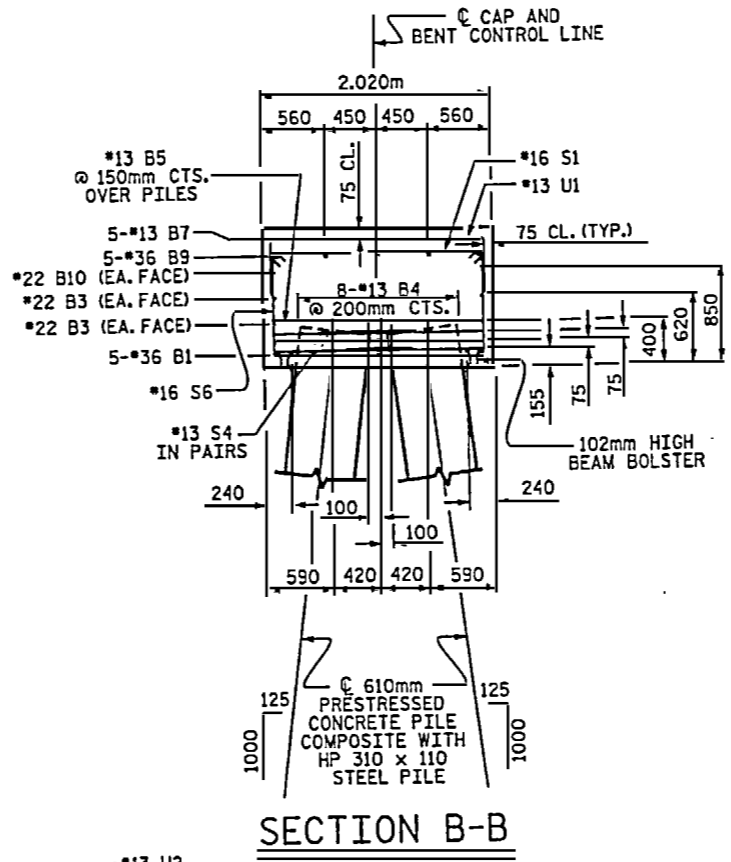
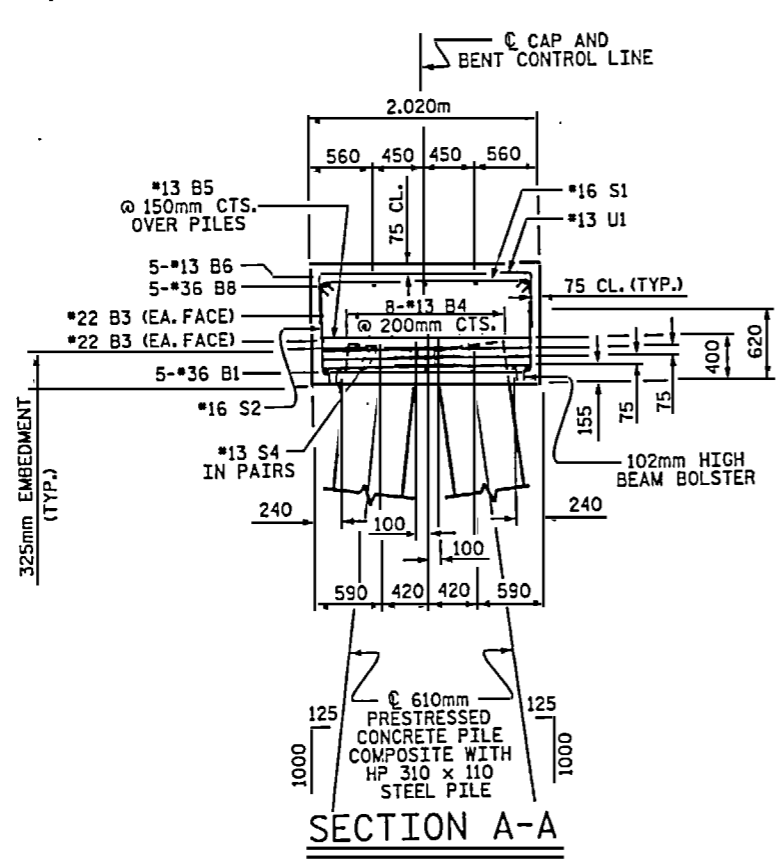
PROJECT NO. B-2938
CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 BALLETCH
 SUBSTRUCTURE
 BENT 5 THRU BENT 10



BENT 5					BENT 6					BENT 7					BENT 8					BENT 9					BENT 10																						
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT													
*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405						
*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125
*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87
*B5	27	*13	STR	1860	50	*B5	27	*13	STR	1860	50	*B5	27	*13	STR	1860	50	*B5	27	*13	STR	1860	50	*B5	27	*13	STR	1860	50	*B5	27	*13	STR	1860	50	*B5	27	*13	STR	1860	50	*B5	27	*13	STR	1860	50
*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25
*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9
*B8	5	*36	2	8440	334	*B8	5	*36	2	8440	334	*B8	5	*36	2	8440	334	*B8	5	*36	2	8440	334	*B8	5	*36	2	8440	334	*B8	5	*36	2	8440	334	*B8	5	*36	2	8440	334	*B8	5	*36	2	8440	334
*B9	5	*36	2	6560	259	*B9	5	*36	2	6560	259	*B9	5	*36	2	6560	259	*B9	5	*36	2	6560	259	*B9	5	*36	2	6560	259	*B9	5	*36	2	6560	259	*B9	5	*36	2	6560	259	*B9	5	*36	2	6560	259
*B10	2	*22	STR	3980	24	*B10	2	*22	STR	3980	24	*B10	2	*22	STR	3980	24	*B10	2	*22	STR	3980	24	*B10	2	*22	STR	3980	24	*B10	2	*22	STR	3980	24	*B10	2	*22	STR	3980	24	*B10	2	*22	STR	3980	24
*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104						
*S2	13	*16	4	3820	77	*S2	13	*16	4	3820	77	*S2	13	*16	4	3820	77	*S2	13	*16	4	3820	77	*S2	13	*16	4	3820	77	*S2	13	*16	4	3820	77	*S2	13	*16	4	3820	77						
*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41						
*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121						
*S6	18	*16	4	4080	114	*S6	18	*16	4	4080	114	*S6	18	*16	4	4080	114	*S6	18	*16	4	4080	114	*S6	18	*16	4	4080	114	*S6	18	*16	4	4080	114	*S6	18	*16	4	4080	114						
*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115						
*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11						
*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7						
*U6	4	*13	5	2000	8	*U6	4	*13	5	2000	8	*U6	4	*13	5	2000	8	*U6	4	*13	5	2000	8	*U6	4	*13	5	2000	8	*U6	4	*13	5	2000	8	*U6	4	*13	5	2000	8						
*EPOXY COATED REINF. STEEL = kg 1916					*EPOXY COATED REINF. STEEL = kg 1916					*EPOXY COATED REINF. STEEL = kg 1916					*EPOXY COATED REINF. STEEL = kg 1916					*EPOXY COATED REINF. STEEL = kg 1916																											
CLASS AA CONCRETE CU. METERS 22.2					CLASS AA CONCRETE CU. METERS 22.2					CLASS AA CONCRETE CU. METERS 22.2					CLASS AA CONCRETE CU. METERS 22.2					CLASS AA CONCRETE CU. METERS 22.2																											
610mm PRESTRESSED CONCRETE PILES NO.12 METERS 54.0					610mm PRESTRESSED CONCRETE PILES NO.12 METERS 54.0					610mm PRESTRESSED CONCRETE PILES NO.12 METERS 54.0					610mm PRESTRESSED CONCRETE PILES NO.12 METERS 54.0					610mm PRESTRESSED CONCRETE PILES NO.12 METERS 54.0																											
STEEL PILE TIPS NO.12 EACH					STEEL PILE TIPS NO.12 EACH					STEEL PILE TIPS NO.12 EACH					STEEL PILE TIPS NO.12 EACH					STEEL PILE TIPS NO.12 EACH																											
HP 310 x 110 STEEL PILES NO.12 METERS 102.0					HP 310 x 110 STEEL PILES NO.12 METERS 102.0					HP 310 x 110 STEEL PILES NO.12 METERS 114.0					HP 310 x 110 STEEL PILES NO.12 METERS 114.0					HP 310 x 110 STEEL PILES NO.12 METERS 120.0																											



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-

SHEET 2 OF 2

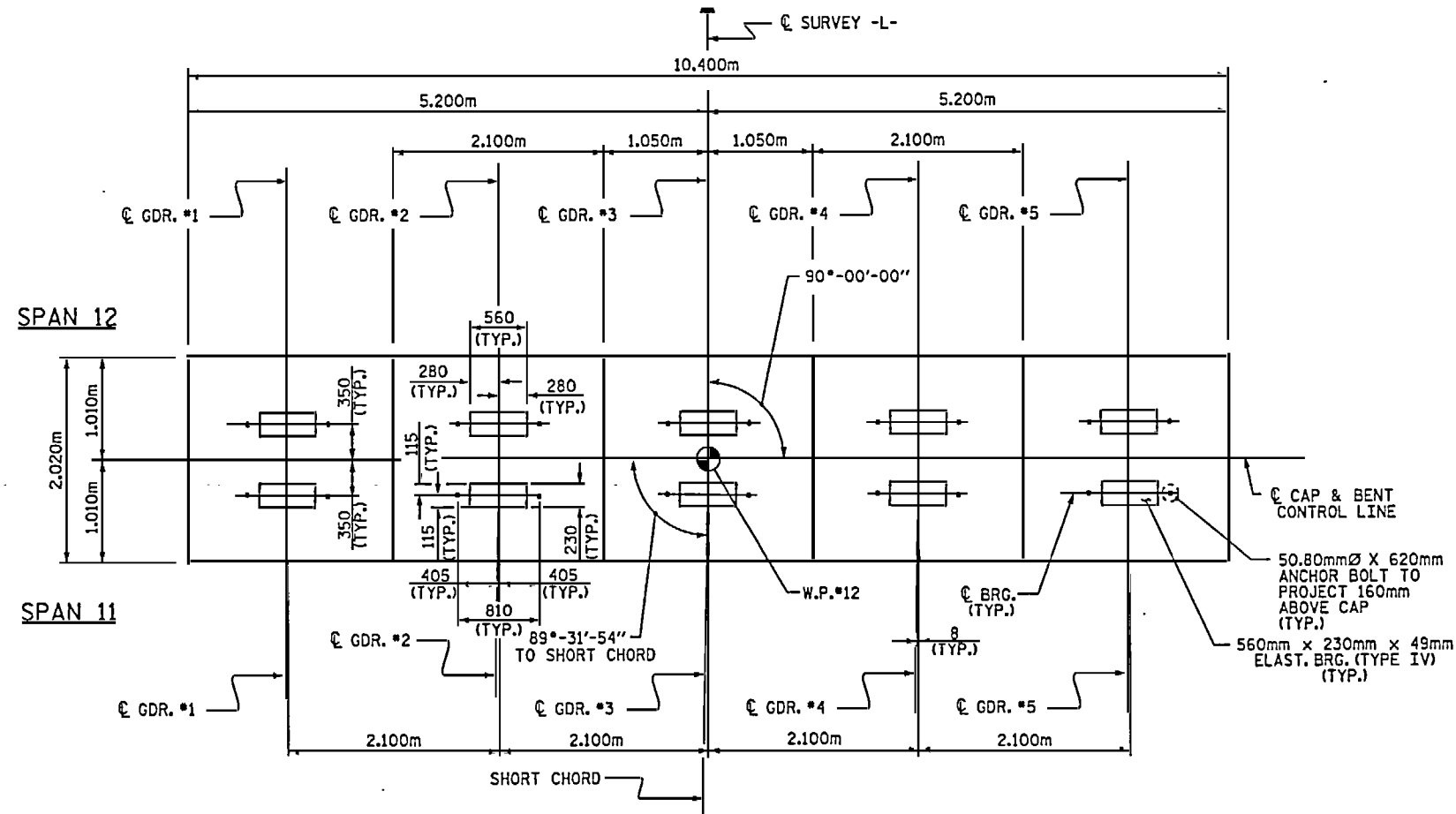


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

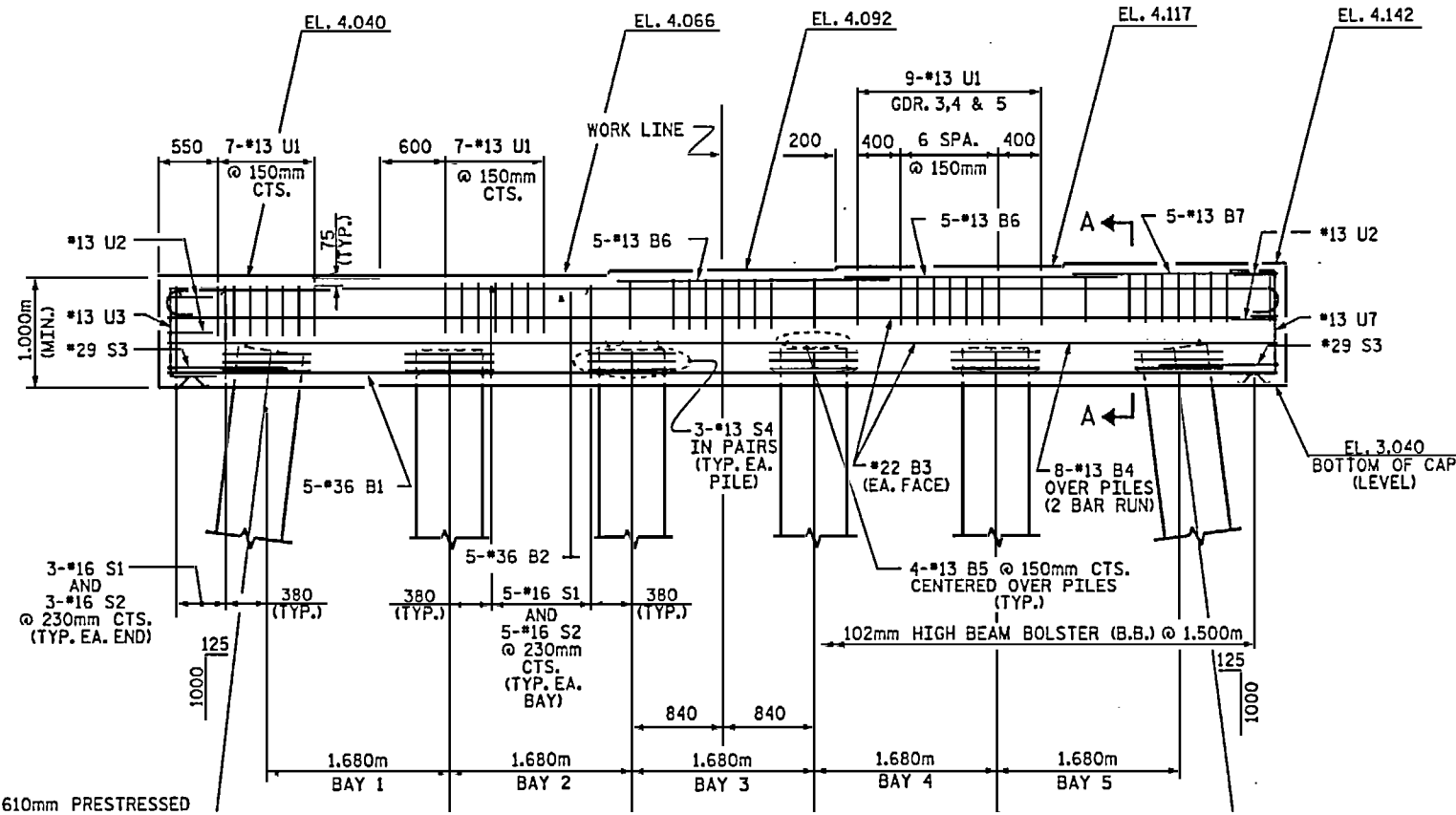
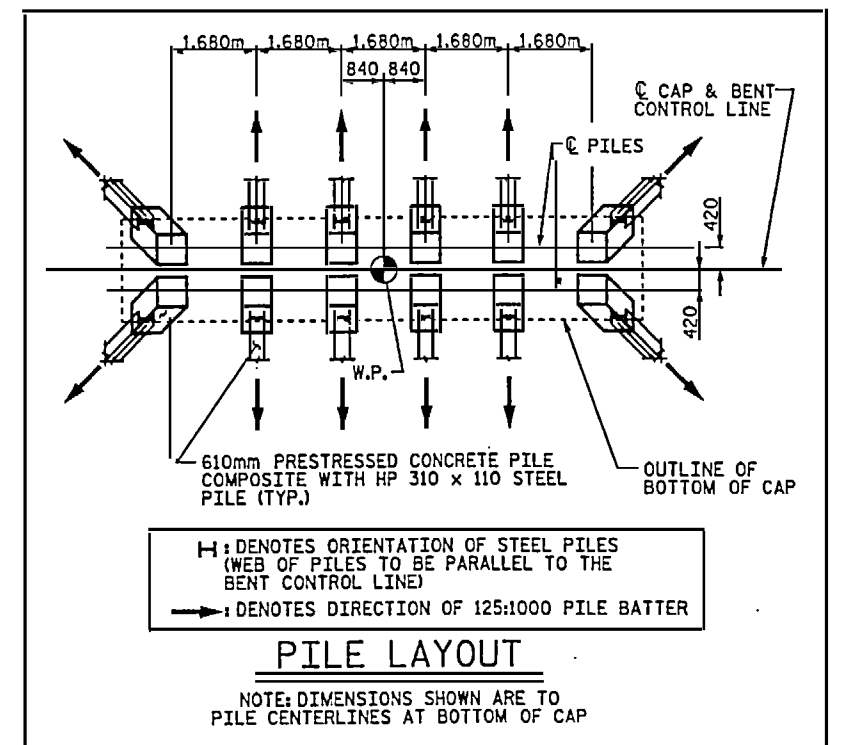
SUBSTRUCTURE
 BENT 5 THRU BENT 10

REVISIONS

b:\work\msh\B2938.dwg, R1, 10/20/01, Lds



SPLICE LENGTH CHART		
BAR	SIZE	SPLICE LENGTH
B4	#13	720mm



STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

CONCRETE DISPLACED BY 610mm SQUARE PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

HP 310 x 110 STEEL PILES SHALL BE AASHTO M270 GRADE 345.

FOR STEEL PILE TIPS, SEE SPECIAL PROVISIONS.

FOR STEEL PILE SPLICER, SEE SPECIAL PROVISIONS.

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-

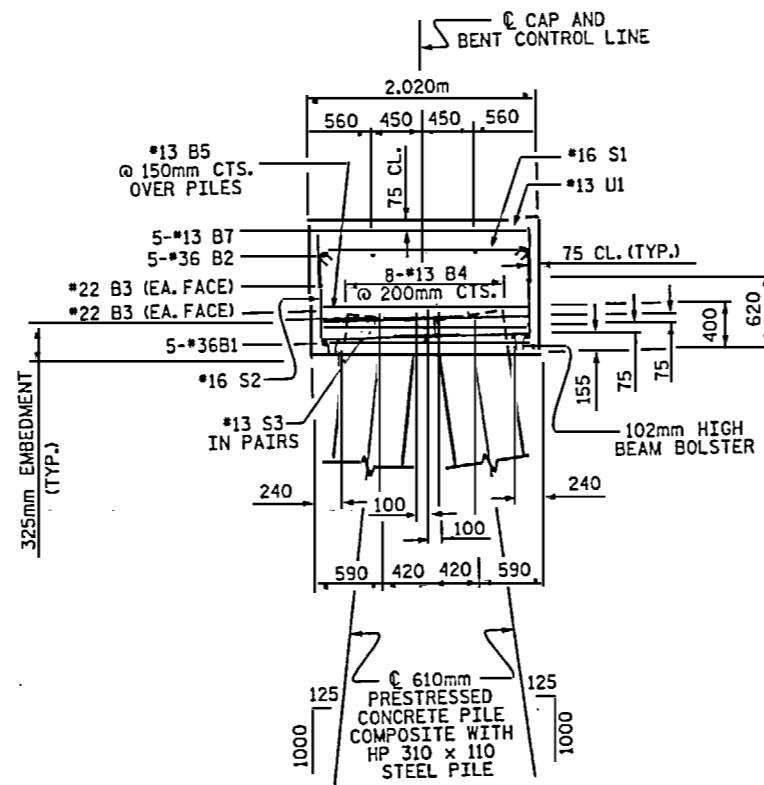
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

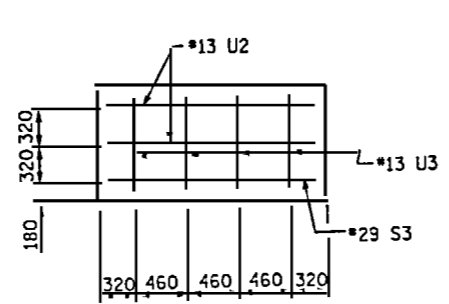
SUBSTRUCTURE
 BENT 11



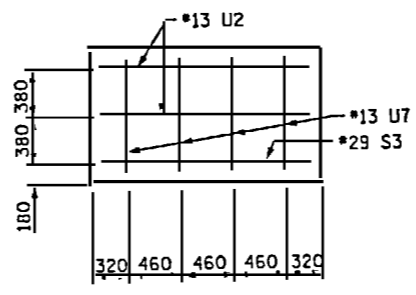
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SECTION A-A



LEFT END VIEW

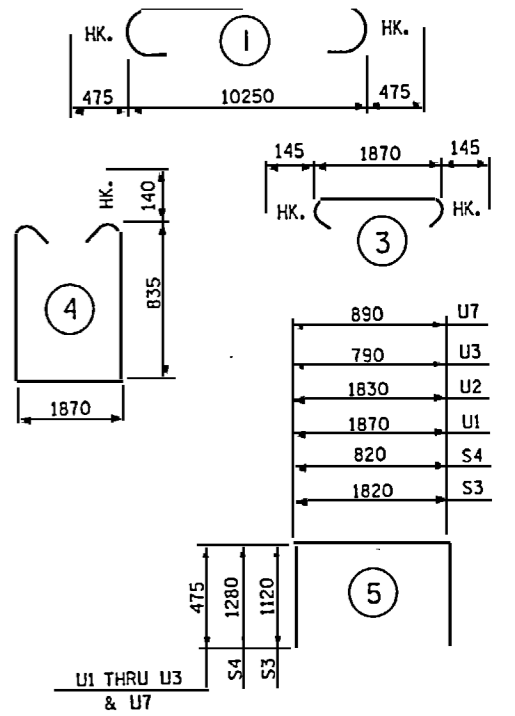


RIGHT END VIEW

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	5	#36	STR	10240	405
*B2	5	#36	1	11200	445
*B3	4	#22	STR	10240	125
*B4	16	#13	STR	5480	87
*B5	24	#13	STR	1860	44
*B6	10	#13	STR	2520	25
*B7	5	#13	STR	1900	9
*S1	31	#16	3	2160	104
*S2	31	#16	4	3820	184
*S3	2	#29	5	4060	41
*S4	36	#13	5	3380	121
*U1	41	#13	5	2820	115
*U2	4	#13	5	2780	11
*U3	4	#13	5	1740	7
*U7	4	#13	5	1840	7

*EPOXY COATED REINF. STEEL = kg 1728

CLASS AA CONCRETE	CU. METERS	20.6
610mm PRESTRESSED CONCRETE PILES	NO. 12 METERS	60.0
STEEL PILE TIPS	NO. 12 EACH	
HP 310 x 110 STEEL PILES	NO. 12 METERS	120.0



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-2938
 CARTERET-ONslow COUNTY
 STATION: 12+47.510-L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 BUREAU
 SUBSTRUCTURE
 BENT 11



NO.	REVISIONS	DATE

SHEET NO. S-B2

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

CONCRETE DISPLACED BY 610mm SQUARE PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

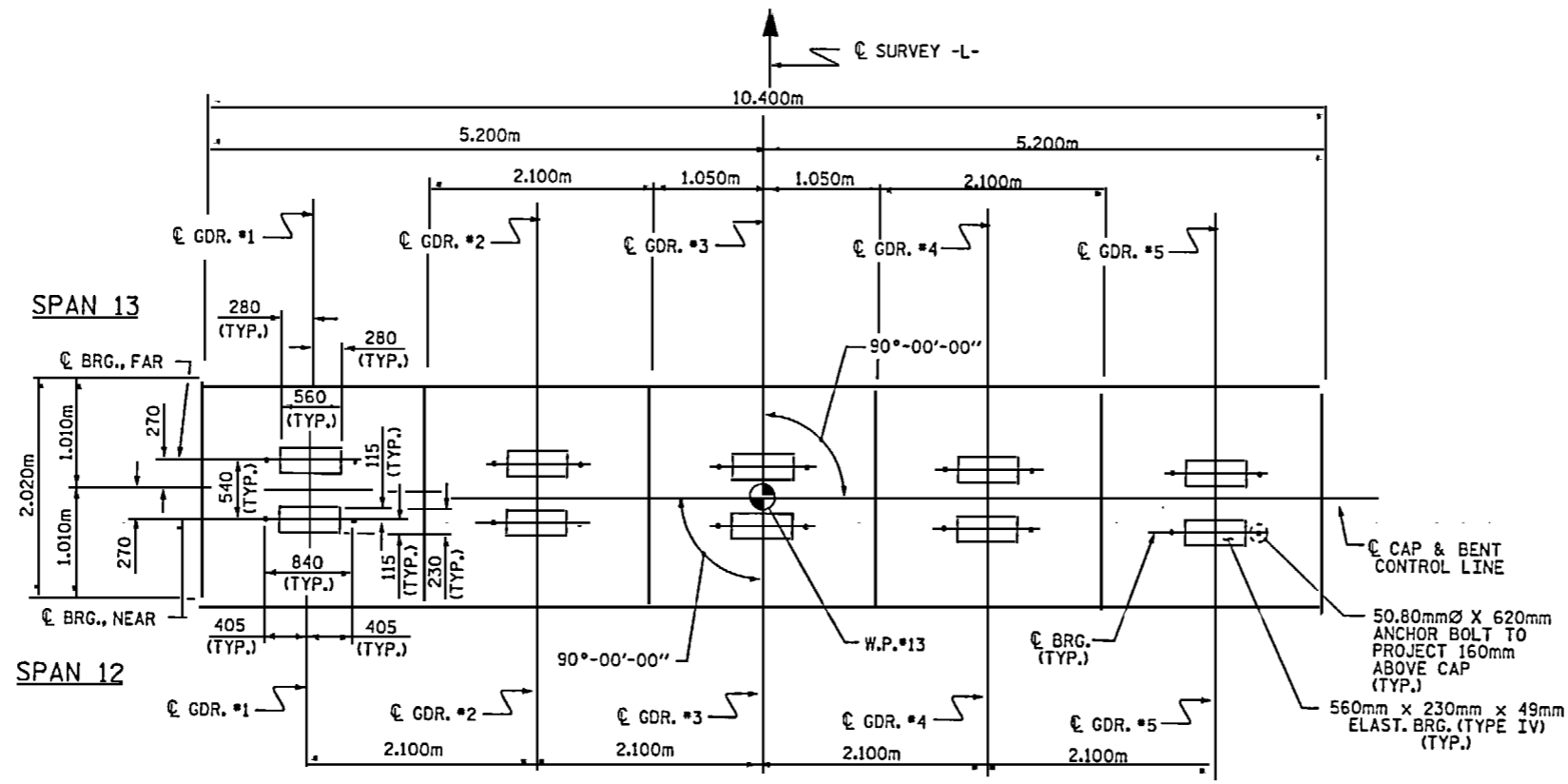
THE TOP SURFACE AREAS OF THE CAP FOR BENT 12 SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

HP 310 x 110 STEEL PILES SHALL BE AASHTO M270 GRADE 345.

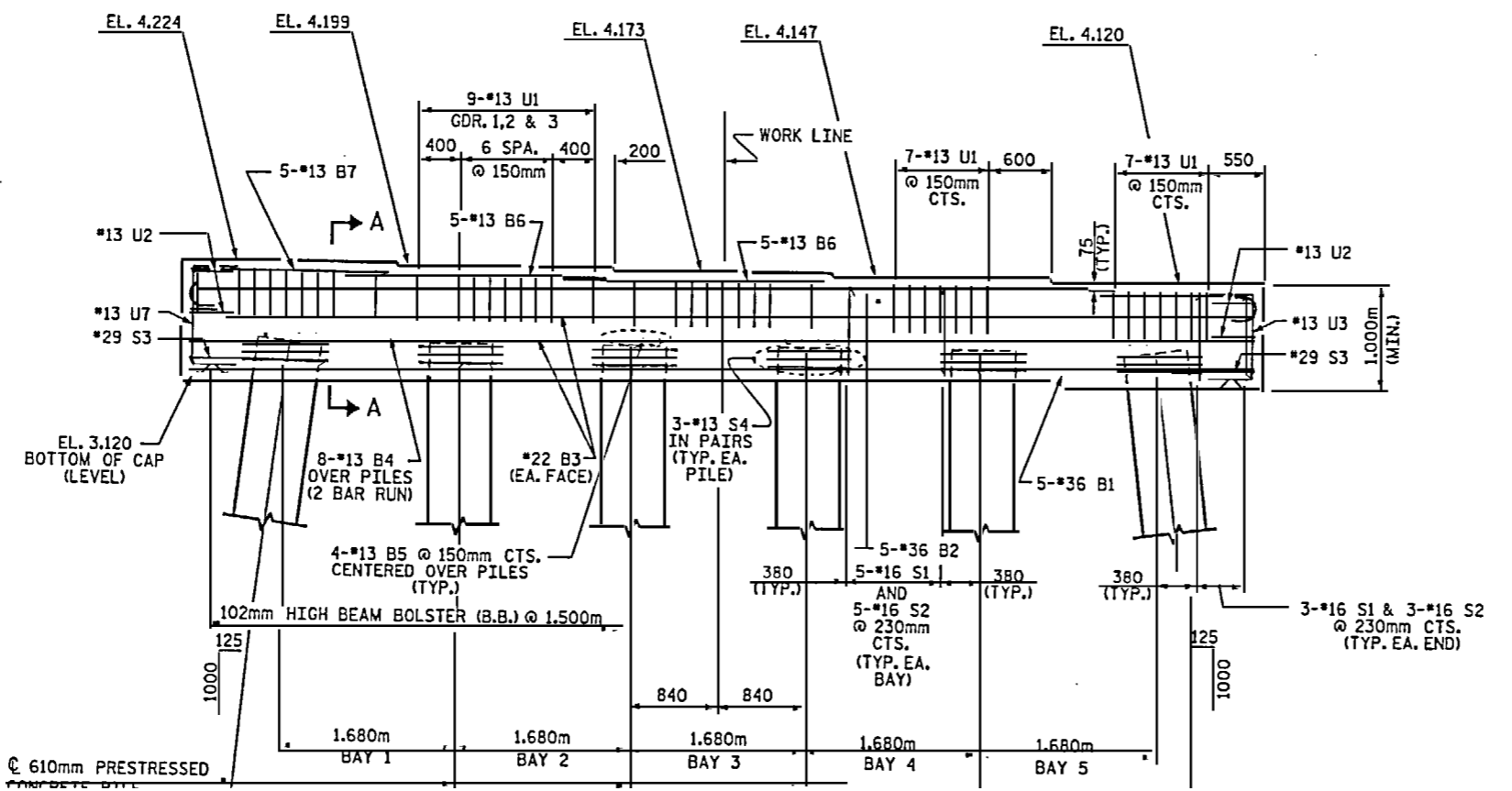
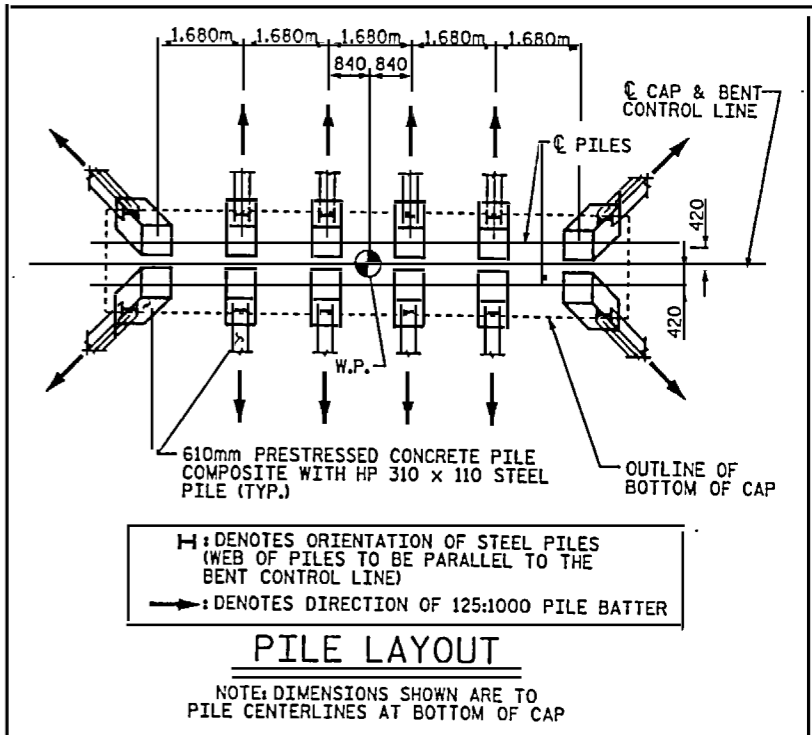
FOR STEEL PILE TIPS, SEE SPECIAL PROVISIONS.

FOR STEEL PILE SPLICER, SEE SPECIAL PROVISIONS.



SPLICE LENGTH CHART

BAR	SIZE	SPLICE LENGTH
B4	#13	720mm



PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-

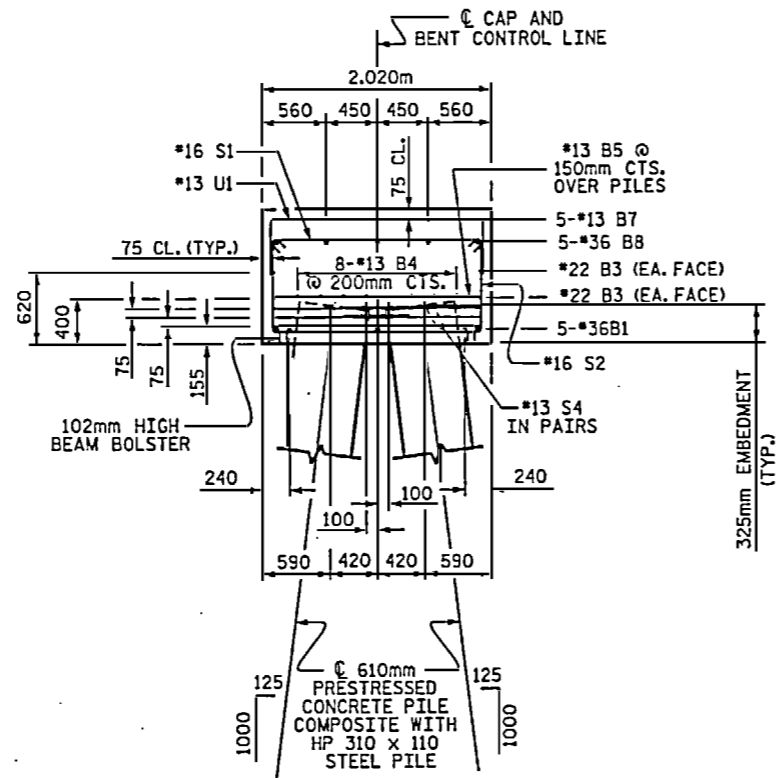
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

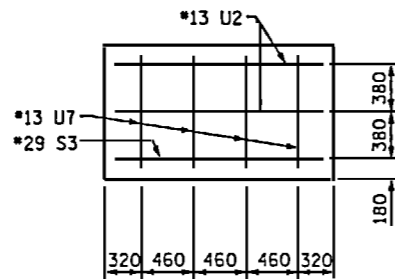
SUBSTRUCTURE
 BENT 12



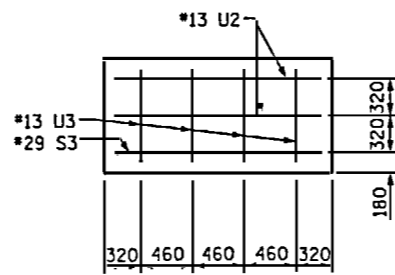
13/03 938\bborodavola\B2938_ed.B*1-20.dgn



SECTION A-A

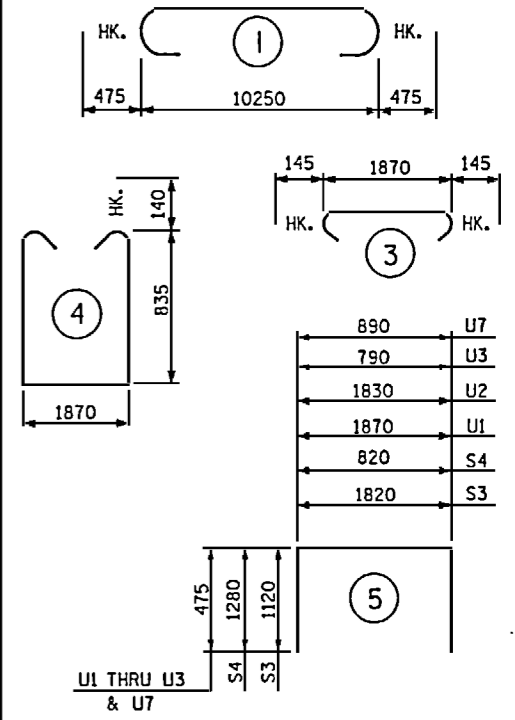


LEFT END VIEW



RIGHT END VIEW

BENT 12					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	5	*36	STR	10240	405
*B2	5	*36	1	11200	443
*B3	4	*22	STR	10240	125
*B4	16	*13	STR	5480	87
*B5	24	*13	STR	1860	44
*B6	10	*13	STR	2520	25
*B7	5	*13	STR	1900	9
*S1	31	*16	3	2160	104
*S2	31	*16	4	3820	184
*S3	2	*29	5	4060	41
*S4	36	*13	5	3380	121
*U1	41	*13	5	2820	115
*U2	4	*13	5	2780	11
*U3	4	*13	5	1740	7
*U7	4	*13	5	1840	7
* EPOXY COATED REINF. STEEL = kg				1728	
CLASS AA CONCRETE				CU. METERS	20.7
610mm PRESTRESSED CONCRETE PILES				NO. 12 METERS	66.0
STEEL PILE TIPS				NO. 12 EACH	
HP 310 x 110 STEEL PILES				NO. 12 METERS	108.0



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510-L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 SUBSTRUCTURE
 BENT 12



BENT 13					BENT 14					BENT 15					BENT 16					BENT 17					BENT 18										
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405	*B1	5	*36	STR	10240	405
*B2	5	*36	1	11200	443	*B2	5	*36	1	11200	443	*B2	5	*36	1	11200	443	*B2	5	*36	1	11200	443	*B2	5	*36	1	11200	443	*B2	5	*36	1	11200	443
*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125	*B3	4	*22	STR	10240	125
*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87	*B4	16	*13	STR	5480	87
*B5	24	*13	STR	1860	44	*B5	24	*13	STR	1860	44	*B5	24	*13	STR	1860	44	*B5	24	*13	STR	1860	44	*B5	24	*13	STR	1860	44	*B5	24	*13	STR	1860	44
*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25	*B6	10	*13	STR	2520	25
*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9	*B7	5	*13	STR	1900	9
*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104	*S1	31	*16	3	2160	104
*S2	31	*16	4	3820	184	*S2	31	*16	4	3820	184	*S2	31	*16	4	3820	184	*S2	31	*16	4	3820	184	*S2	31	*16	4	3820	184	*S2	31	*16	4	3820	184
*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41	*S3	2	*29	5	4060	41
*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121	*S4	36	*13	5	3380	121
*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115	*U1	41	*13	5	2820	115
*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11	*U2	4	*13	5	2780	11
*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7	*U3	4	*13	5	1740	7
*U4	4	*13	5	1900	8	*U4	4	*13	5	1900	8	*U4	4	*13	5	1900	8	*U4	4	*13	5	1900	8	*U4	4	*13	5	1900	8	*U4	4	*13	5	1900	8
*EPOXY COATED REINF. STEEL = kg 1729					*EPOXY COATED REINF. STEEL = kg 1729					*EPOXY COATED REINF. STEEL = kg 1729					*EPOXY COATED REINF. STEEL = kg 1729					*EPOXY COATED REINF. STEEL = kg 1729					*EPOXY COATED REINF. STEEL = kg 1729										
CLASS AA CONCRETE CU. METERS 21.3					CLASS AA CONCRETE CU. METERS 21.3					CLASS AA CONCRETE CU. METERS 21.3					CLASS AA CONCRETE CU. METERS 21.3					CLASS AA CONCRETE CU. METERS 21.3					CLASS AA CONCRETE CU. METERS 21.3										
610mm PRESTRESSED CONCRETE PILES NO.12 METERS 66.0					610mm PRESTRESSED CONCRETE PILES NO.12 METERS 66.0					610mm PRESTRESSED CONCRETE PILES NO.12 METERS 66.0					610mm PRESTRESSED CONCRETE PILES NO.12 METERS 72.0					610mm PRESTRESSED CONCRETE PILES NO.12 METERS 72.0					610mm PRESTRESSED CONCRETE PILES NO.12 METERS 72.0										
STEEL PILE TIPS NO.12 EACH					STEEL PILE TIPS NO.12 EACH					STEEL PILE TIPS NO.12 EACH					STEEL PILE TIPS NO.12 EACH					STEEL PILE TIPS NO.12 EACH					STEEL PILE TIPS NO.12 EACH										
HP 310 x 110 NO.12 METERS 108.0					HP 310 x 110 NO.12 METERS 108.0					HP 310 x 110 NO.12 METERS 108.0					HP 310 x 110 NO.12 METERS 108.0					HP 310 x 110 NO.12 METERS 108.0					HP 310 x 110 NO.12 METERS 108.0										

BILL OF MATERIAL

BENT 19

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	5	*36	STR	10240	405
*B2	5	*36	1	11200	443
*B3	4	*22	STR	10240	125
*B4	16	*13	STR	5480	87
*B5	24	*13	STR	1860	44
*B6	10	*13	STR	2520	25
*B7	5	*13	STR	1900	9
*S1	31	*16	3	2160	104
*S2	31	*16	4	3820	184
*S3	2	*29	5	4060	41
*S4	36	*13	5	3380	121
*U1	41	*13	5	2820	115
*U2	4	*13	5	2780	11
*U3	4	*13	5	1740	7
*U4	4	*13	5	1900	8

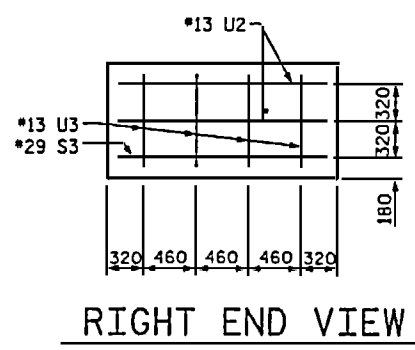
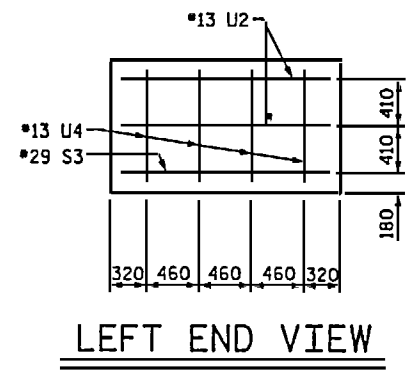
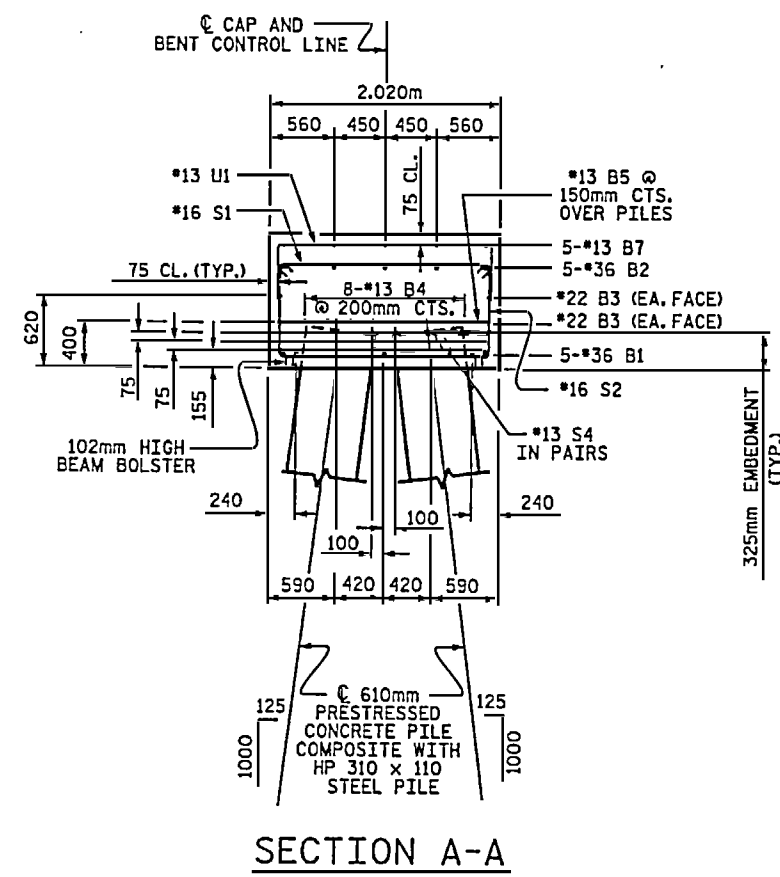
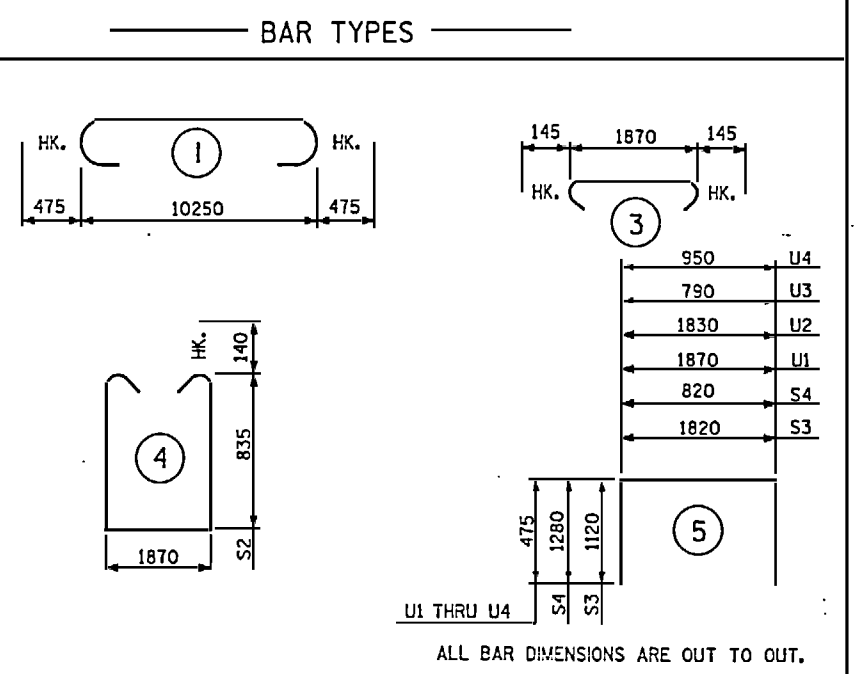
*EPOXY COATED REINF. STEEL = kg 1729

CLASS AA CONCRETE CU. METERS 21.3

610mm PRESTRESSED CONCRETE PILES NO.12 METERS 72.0

STEEL PILE TIPS NO.12 EACH

HP 310 x 110 NO.12 METERS 108.0

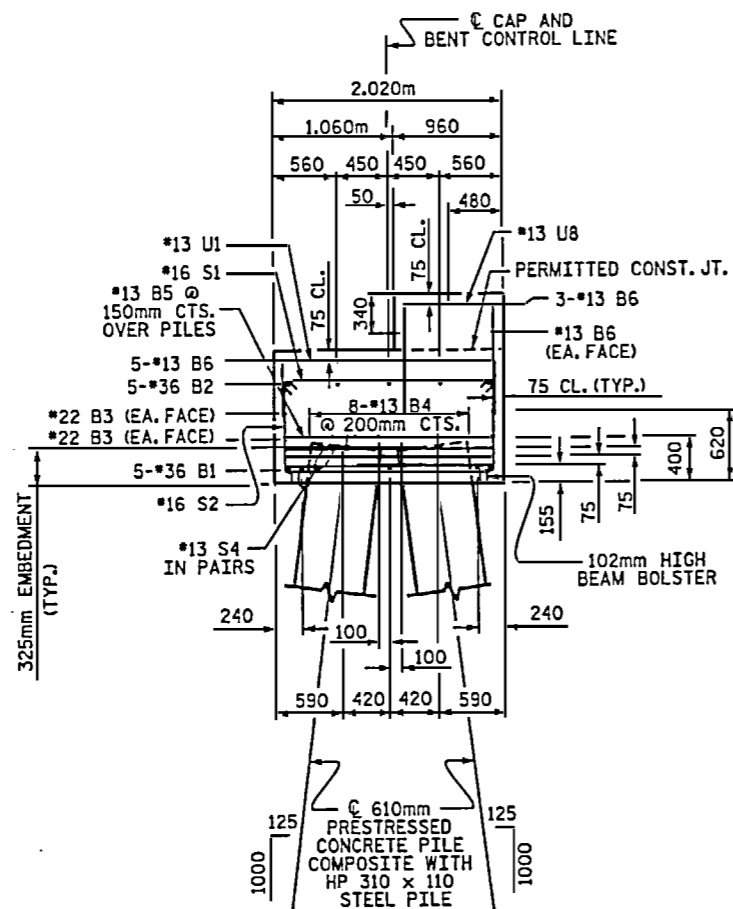


PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-
 SHEET 2 OF 2

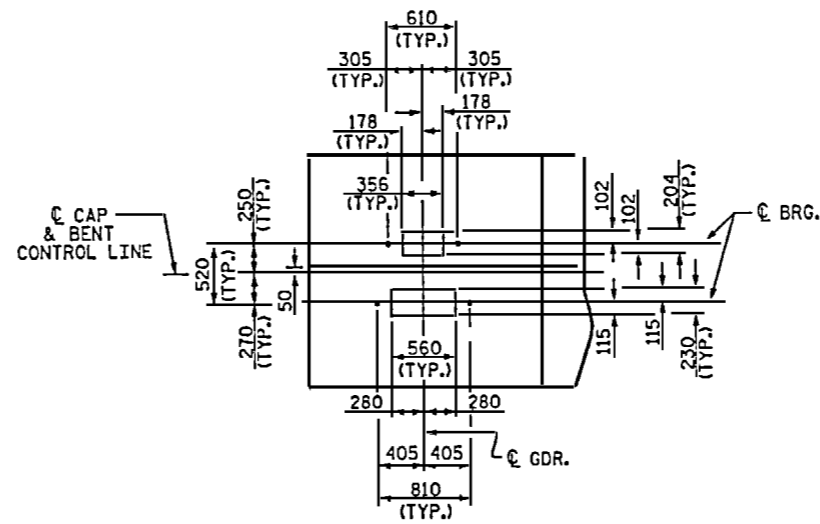
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 13 THRU BENT 19

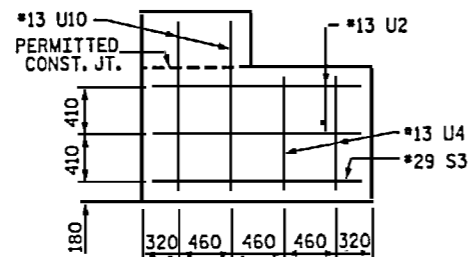




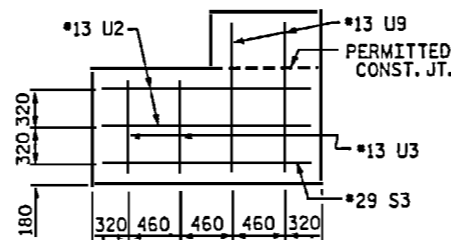
SECTION A-A



DETAIL "A"



LEFT END VIEW



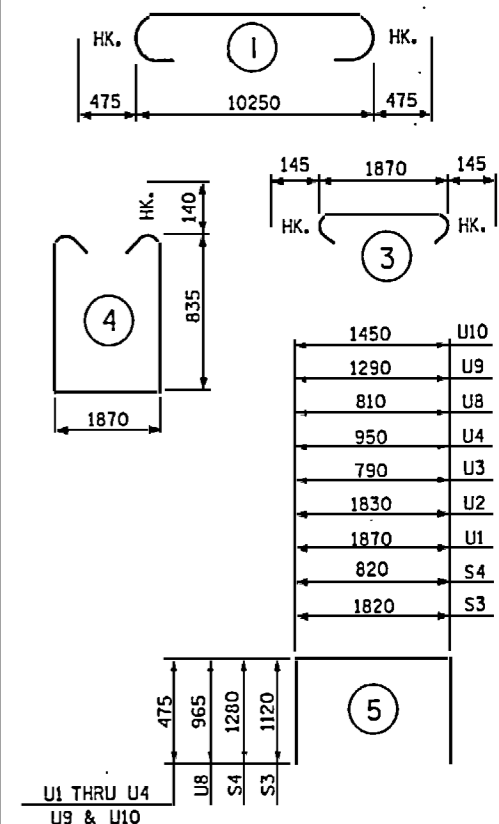
RIGHT END VIEW

BENT 20

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	5	*36	STR	10240	405
*B2	5	*36	1	11200	443
*B3	4	*22	STR	10240	125
*B4	16	*13	STR	5480	87
*B5	24	*13	STR	1860	44
*B6	30	*13	STR	2520	75
*B7	10	*13	STR	1900	19
*S1	31	*16	3	2160	104
*S2	31	*16	4	3820	184
*S3	2	*29	5	4060	41
*S4	36	*13	5	3380	121
*U1	41	*13	5	2820	115
*U2	4	*13	5	2780	11
*U3	2	*13	5	1740	3
*U4	2	*13	5	1900	4
*U8	45	*13	5	2740	123
*U9	2	*13	5	2240	4
*U10	2	*13	5	2400	5

* EPOXY COATED REINF. STEEL = kg 1913

CLASS AA CONCRETE	CU. METERS	26.2
610mm PRESTRESSED CONCRETE PILES	NO. 12 METERS	72.0
STEEL PILE TIPS	NO. 12 EACH	
HP 310 x 110 STEEL PILES	NO. 12 METERS	108.0



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-

SHEET 2 OF 2

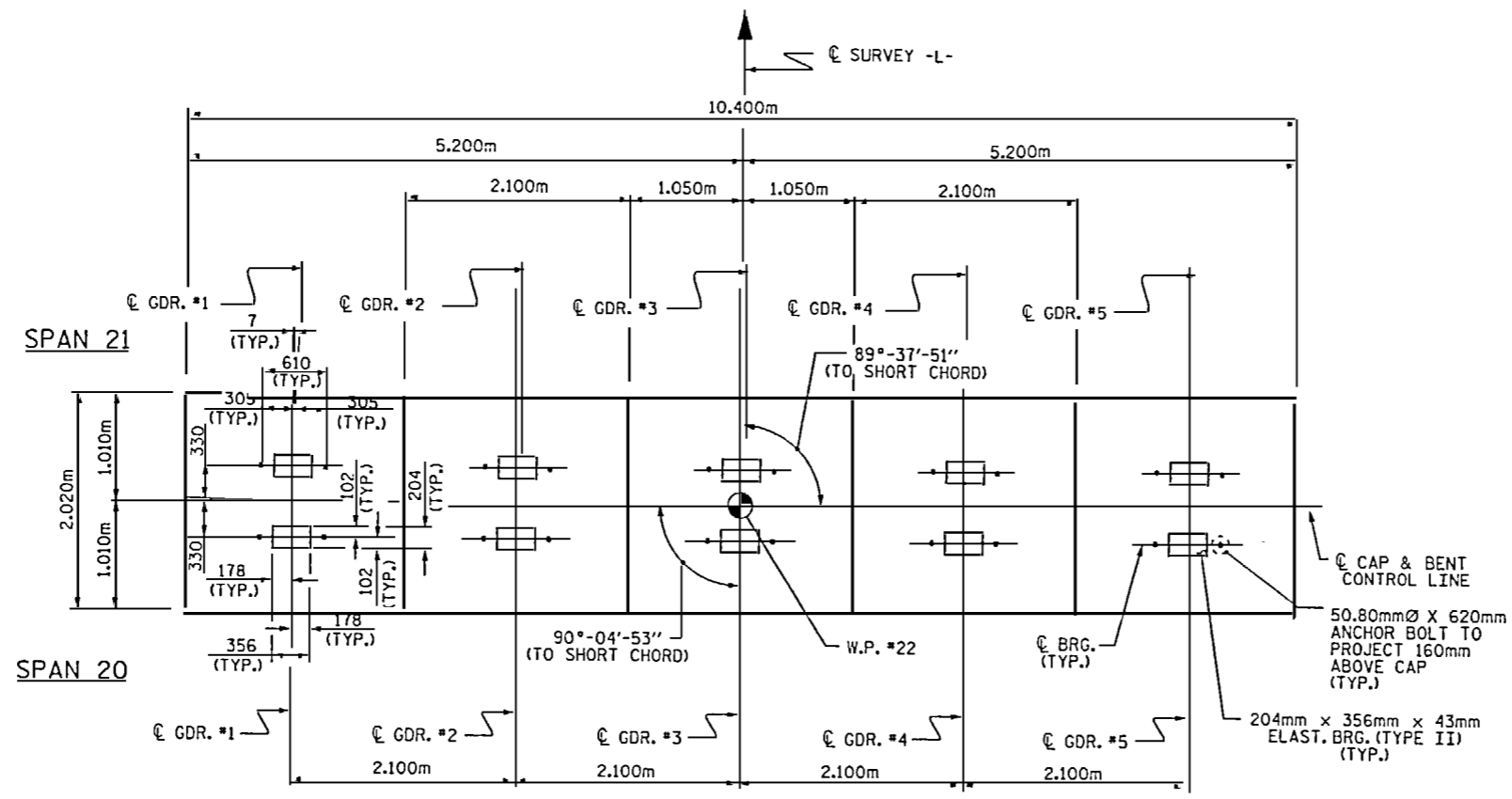
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 20



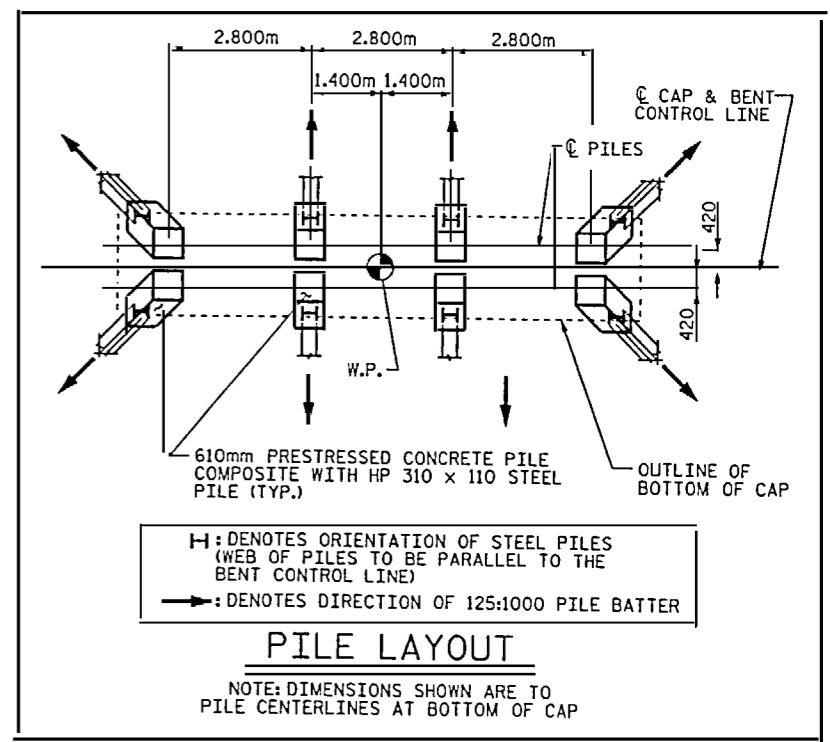
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 CONCRETE DISPLACED BY 610mm SQUARE PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.
 ALL REINFORCING STEEL SHALL BE EPOXY COATED.
 HP 310 x 110 STEEL PILES SHALL BE AASHTO M270 GRADE 345.
 FOR STEEL PILE TIPS, SEE SPECIAL PROVISIONS.
 FOR STEEL PILE SPLICER, SEE SPECIAL PROVISIONS.

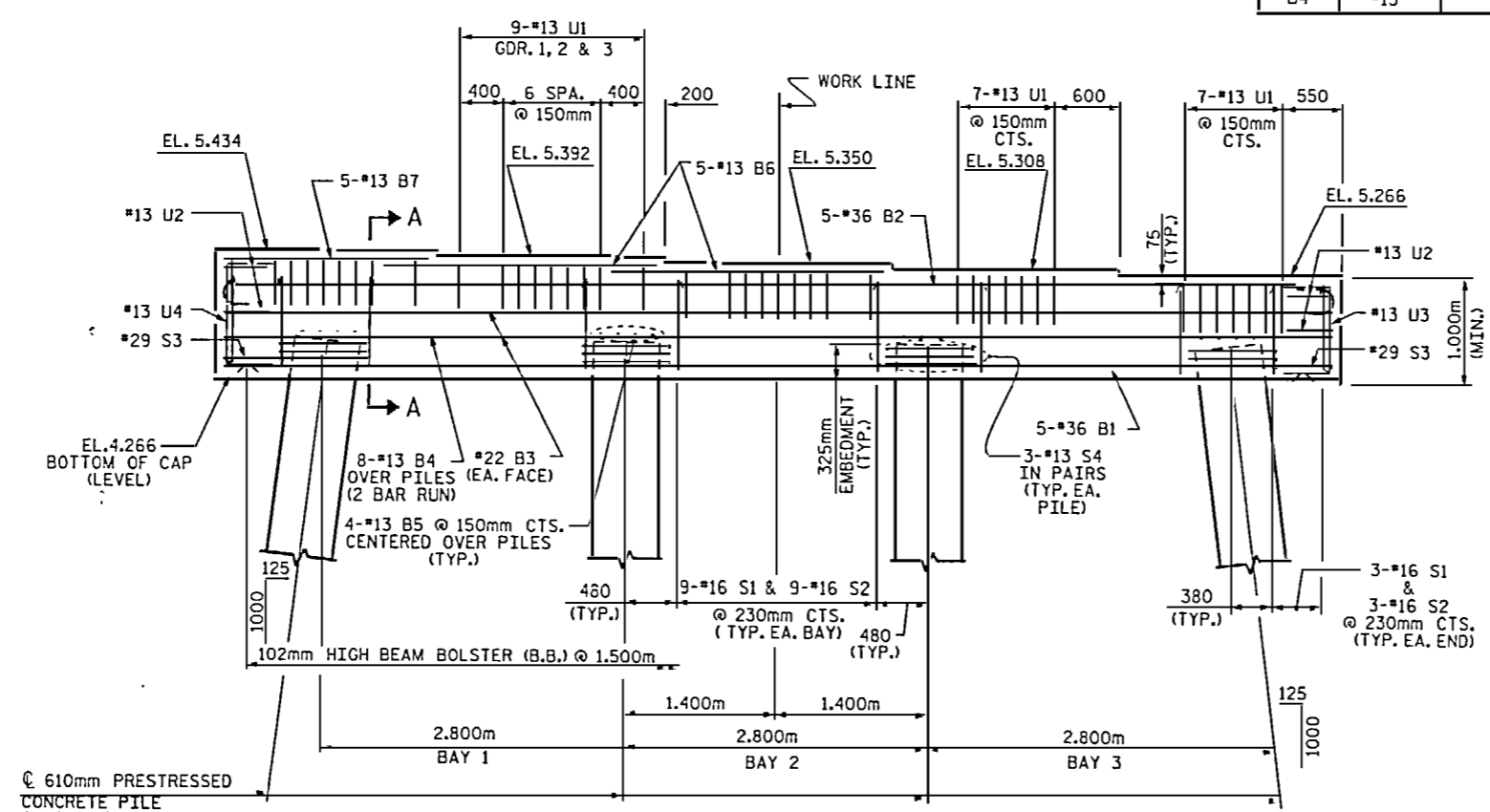


PLAN

SPLICE LENGTH CHART		
BAR	SIZE	SPLICE LENGTH
B4	#13	720mm



PILE LAYOUT



ELEVATION

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 21

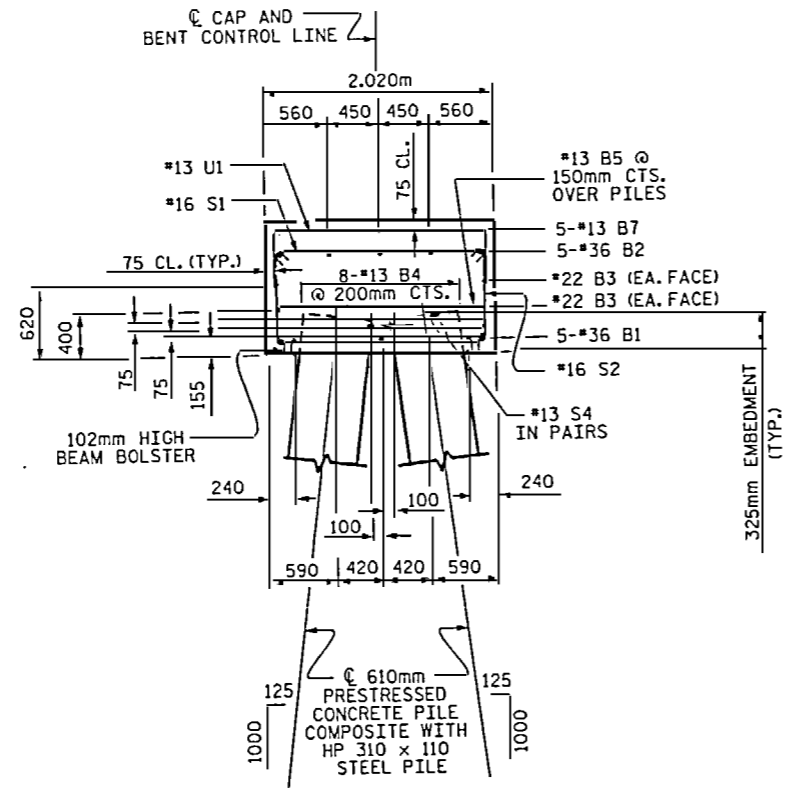


REVISION #1: BENT 21 COMPLETELY REVISED.
 BY: B. N. BARODAWALA DT. 7-29-04
 CHK.: P. S. ERVIN DT. 7-29-04

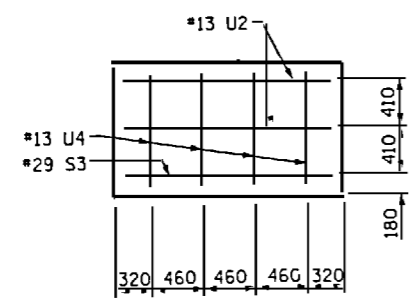
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
1	BNB	7-29-04	3			5-89	103
2			4				

30-Jul-2004 09:09 30-Jul-2004 09:09 30-Jul-2004 09:09 30-Jul-2004 09:09 30-Jul-2004 09:09 30-Jul-2004 09:09 30-Jul-2004 09:09 30-Jul-2004 09:09 30-Jul-2004 09:09 30-Jul-2004 09:09

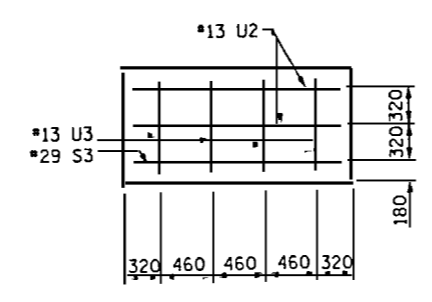
DRAWN BY: B.N.BARODAWALA DATE: 11-13-02
 CHECKED BY: S.H.SOCKWELL DATE: 11-13-02



SECTION A-A

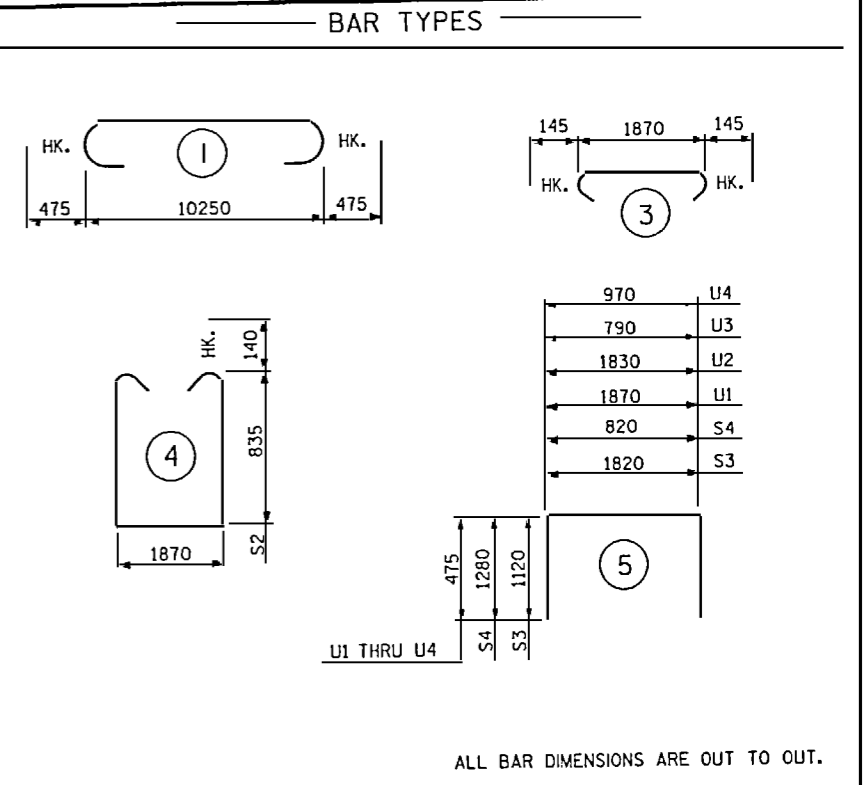


LEFT END VIEW



RIGHT END VIEW

BILL OF MATERIAL					
BENT 21					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	5	#36	STR	10240	405
* B2	5	#36	1	11200	443
* B3	4	#22	STR	10240	125
* B4	16	#13	STR	5480	87
* B5	16	#13	STR	1860	30
* B6	10	#13	STR	2520	25
* B7	5	#13	STR	1900	9
* S1	33	#16	3	2160	111
* S2	33	#16	4	3820	196
* S3	2	#29	5	4060	41
* S4	24	#13	5	3380	81
* U1	41	#13	5	2820	115
* U2	4	#13	5	2780	11
* U3	4	#13	5	1740	7
* U4	4	#13	5	1920	8
* EPOXY COATED REINF. STEEL = kg				1694	
CLASS AA CONCRETE CU. METERS				21.8	
610mm PRESTRESSED CONCRETE PILES NO. 8 METERS				48.0	
STEEL PILE TIPS NO. 8 EACH					
HP 310 x 110 STEEL PILES NO. 8 METERS				84.0	



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 21

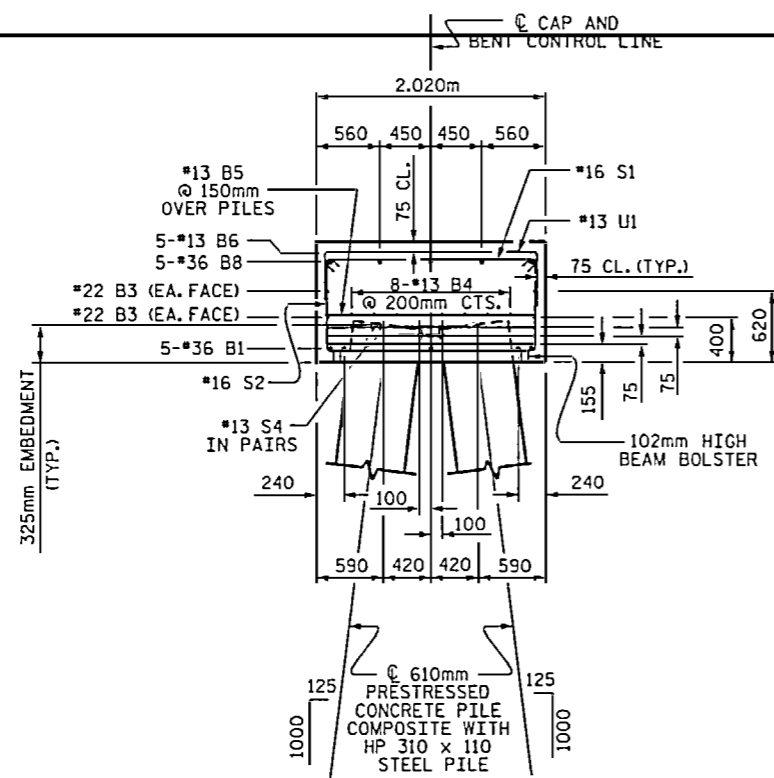
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-90
1	BNB	7-29-04	3			TOTAL SHEETS 103
2			4			



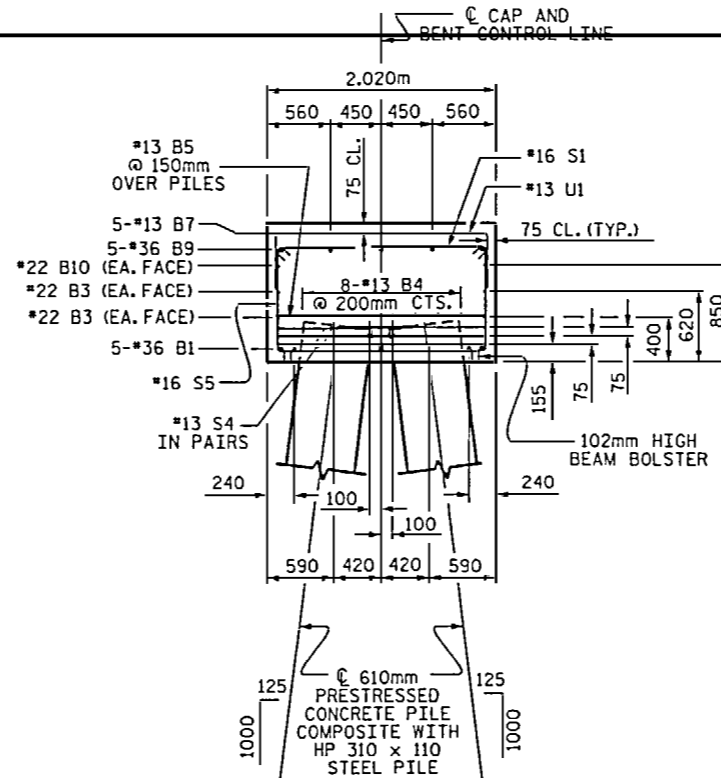
REVISION #1: BENT 21 COMPLETELY REVISED.
 BY: B. N. BARODAWALA DT. 7-29-04
 CHK.: P. S. ERVIN DT. 7-29-04

30-JUL-2004 11:41 AM S:\p04\al\engineering\04_06\2938\libarod\c\102938.dwg, P21-30, 01.dgn

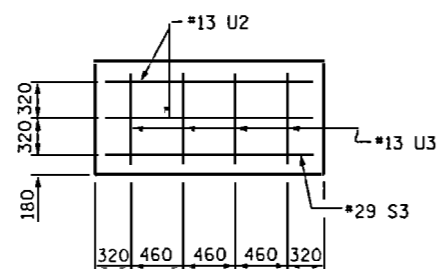
DRAWN BY: B.N. BARODAWALA DATE: 11-13-02
 CHECKED BY: S.H. SOCKWELL DATE: 11-13-02



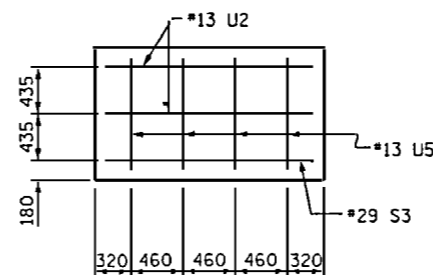
SECTION A-A



SECTION B-B

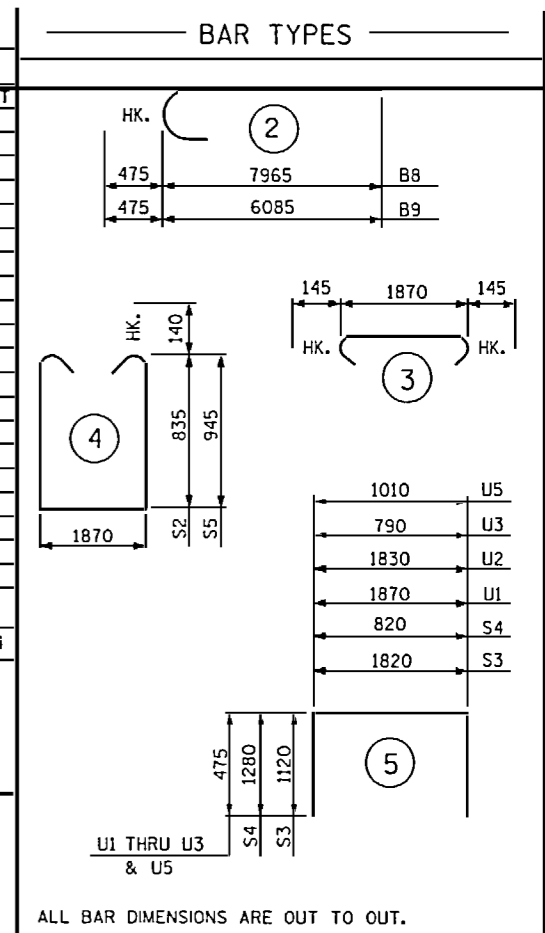


LEFT END VIEW



RIGHT END VIEW

BILL OF MATERIAL					
BENT 22					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	5	*36	STR	10240	405
*B3	4	*22	STR	10240	125
*B4	16	*13	STR	5480	87
*B5	19	*13	STR	1860	35
*B6	10	*13	STR	2520	25
*B7	5	*13	STR	1900	9
*B8	5	*36	2	8440	334
*B9	5	*36	2	6560	259
*B10	2	*22	STR	3980	24
*S1	33	*16	3	2160	111
*S2	12	*16	4	3820	77
*S3	2	*29	5	4060	41
*S4	24	*13	5	3380	81
*S5	21	*16	4	4040	132
*U1	41	*13	5	2820	115
*U2	4	*13	5	2780	11
*U3	4	*13	5	1740	7
*U5	4	*13	5	1960	8
*EPOXY COATED REINF. STEEL =				Kg	1886
CLASS AA CONCRETE				CU. METERS	22.4
610mm PRESTRESSED CONCRETE PILES				NO. 8 METERS	48.0
STEEL PILE TIPS				NO. 8 EACH	
HP 310 x 110 STEEL PILES				NO. 8 METERS	88.0



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510-L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 22



REVISION #1: BENT 22 COMPLETELY REVISED.
 BY: B. N. BARODAWALA DT. 7-29-04
 CHK.: P. S. ERVIN DT. 7-29-04

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	5-92	TOTAL
1	BNB	7-29-04	3				103
2			4				

30-Jul-2004 11:41
 W:\Squads\N. et Hing\Pending\04_06_b2938\borodawala\B2938.ed_B*21-30_01.dgn
 DRAWN BY: B.N.BARODAWALA DATE: 11-13-02
 CHECKED BY: S.H.SOCKWELL DATE: 11-13-02

STIRRUPS IN CAP MAY BE OMITTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON REBARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

FOR STEEL PILE POINTS (PIPE PILES), SEE SPECIAL PROVISIONS.

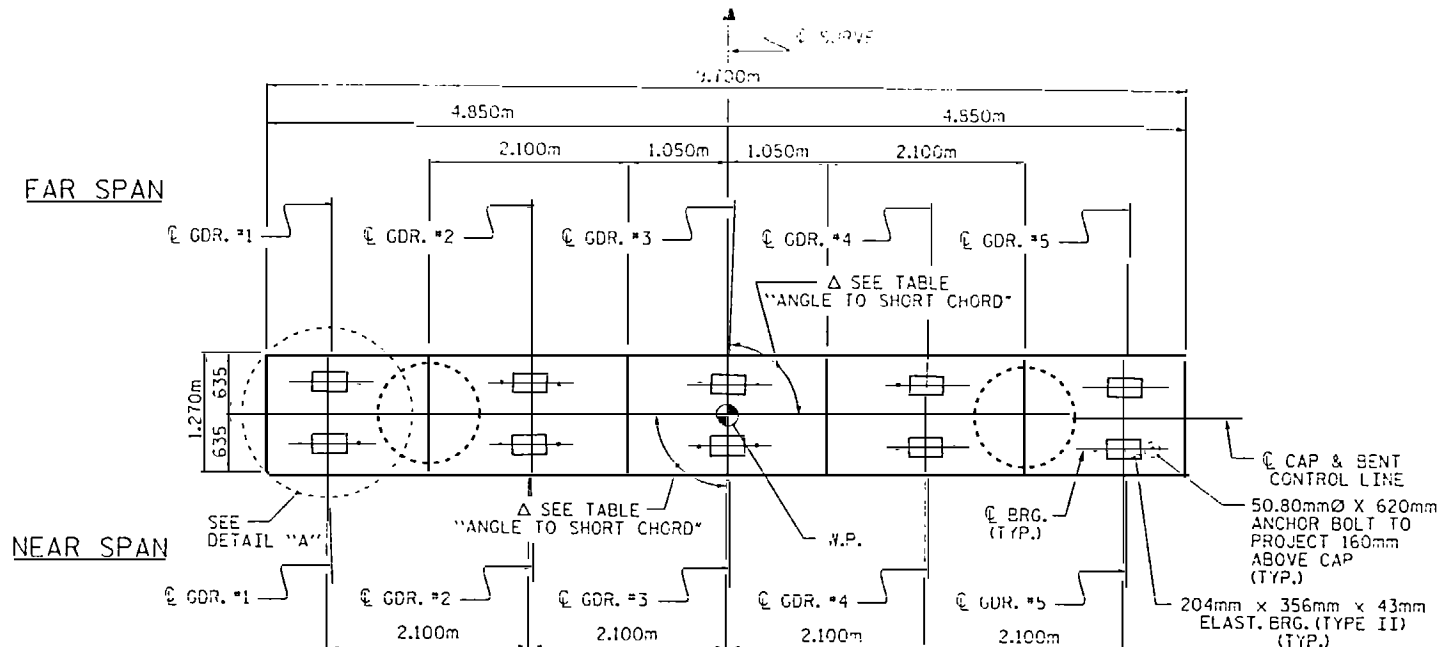
THE TOP SURFACE AREAS OF THE CAP FOR BENTS 24 AND 28 SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

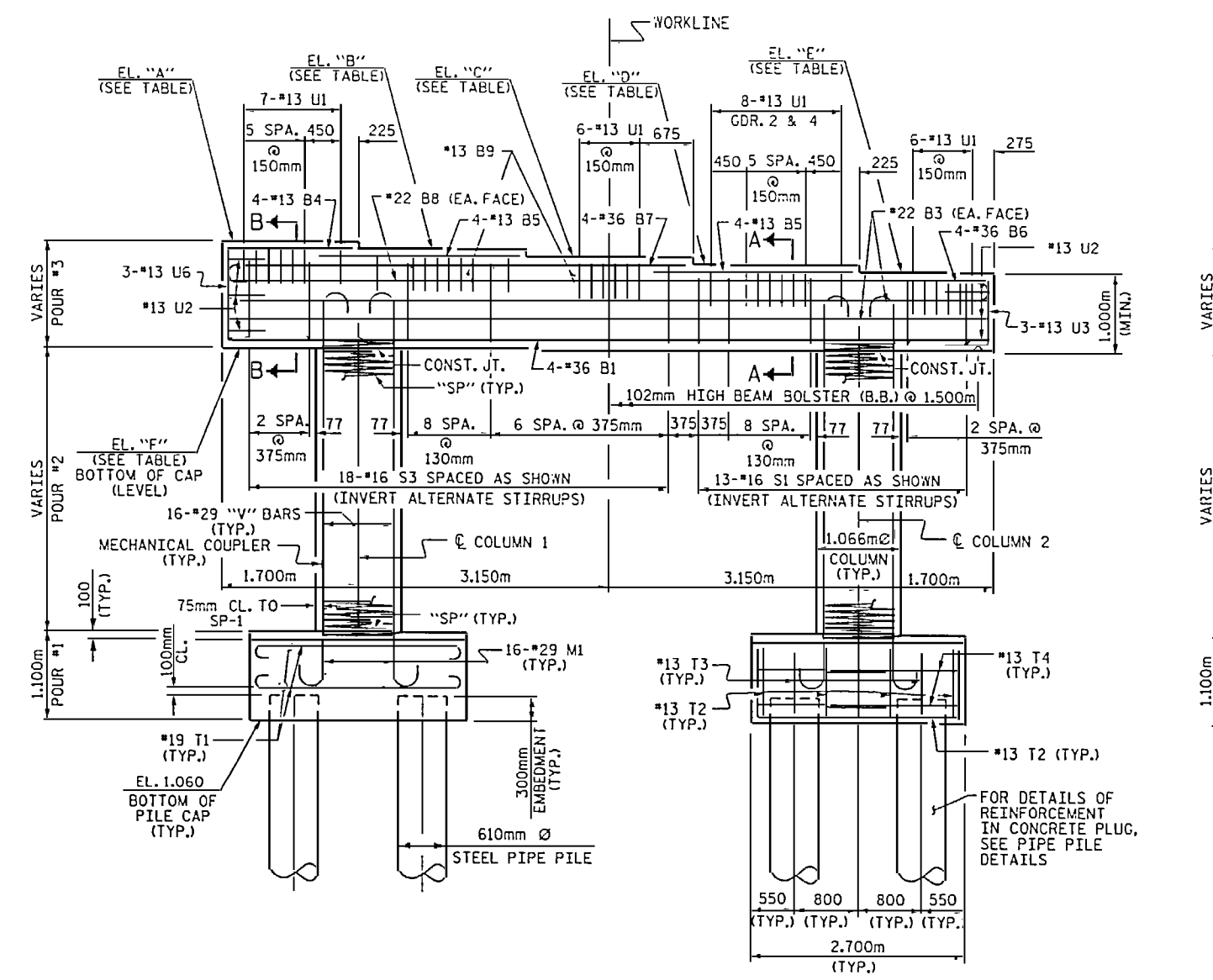
SEE SPECIAL PROVISIONS FOR MECHANICAL BUTT SPlicing FOR REINFORCING STEEL.

	ELEVATION TABLE						DISTANCE TO C. BRG. (MEASURED ALONG C. GDR.)
	EL. "A"	EL. "B"	EL. "C"	EL. "D"	EL. "E"	EL. "F"	
BENT 23	5.608	5.524	5.440	5.356	5.272	4.272	330mm
BENT 24	5.650	5.566	5.482	5.398	5.314	4.314	250mm
BENT 25	5.635	5.551	5.467	5.383	5.299	4.299	330mm
BENT 26	5.550	5.466	5.382	5.298	5.214	4.214	330mm
BENT 27	5.395	5.311	5.227	5.143	5.059	4.059	330mm
BENT 28	5.169	5.085	5.001	4.917	4.833	3.833	250mm
BENT 29	4.870	4.786	4.702	4.618	4.534	3.534	330mm

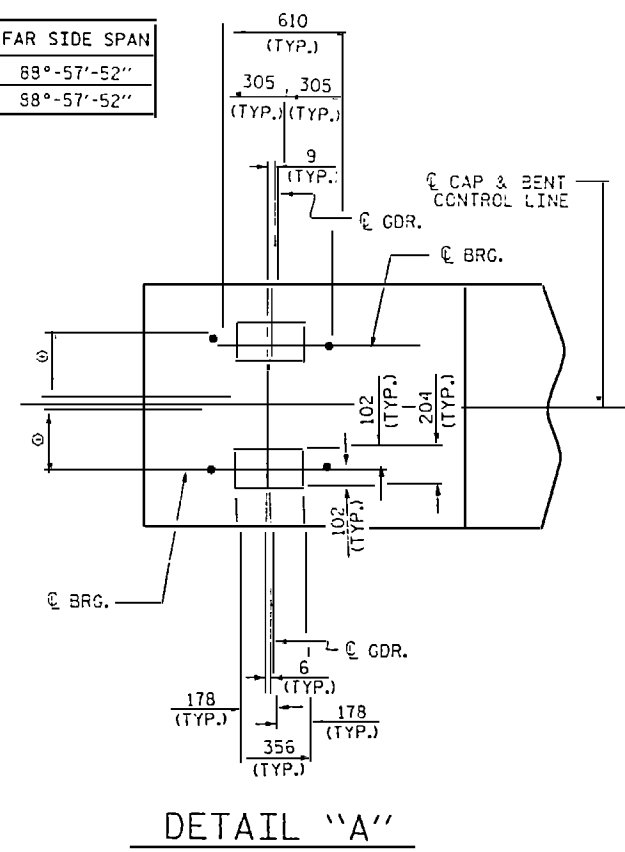
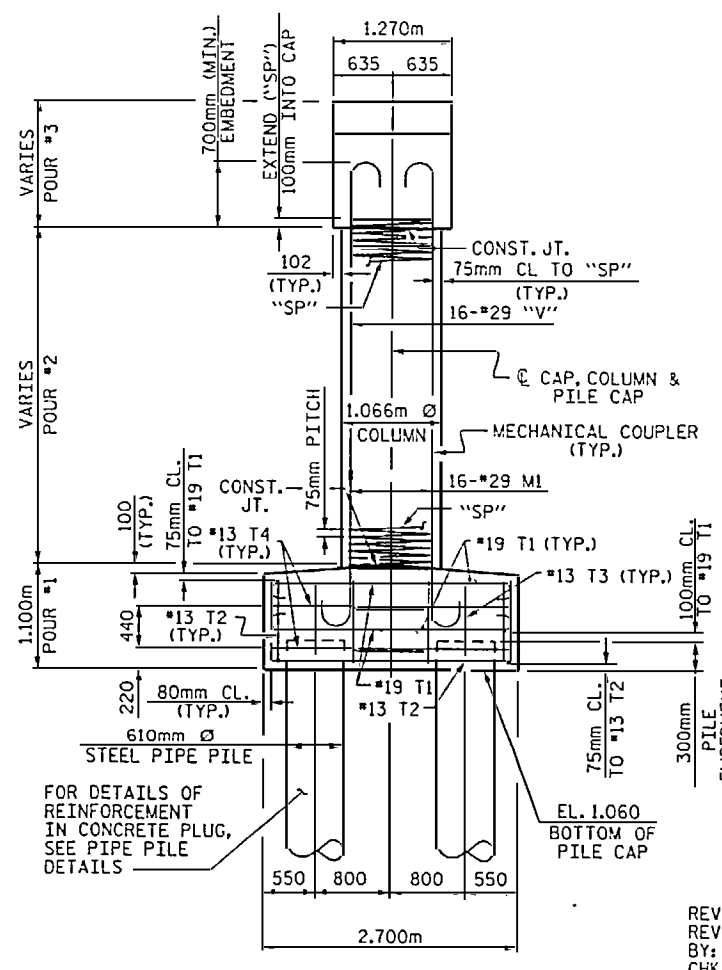
ANGLE TO SHORT CHORD	NEAR SIDE SPAN	FAR SIDE SPAN
Δ BENT 23	90°-58'-11"	89°-57'-52"
Δ BENTS 24 THRU 29	91°-02'-08"	88°-57'-52"



PLAN



SEE TABLE (DISTANCE TO C. BRG.)



DETAIL "A"

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-
 SHEET 1 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

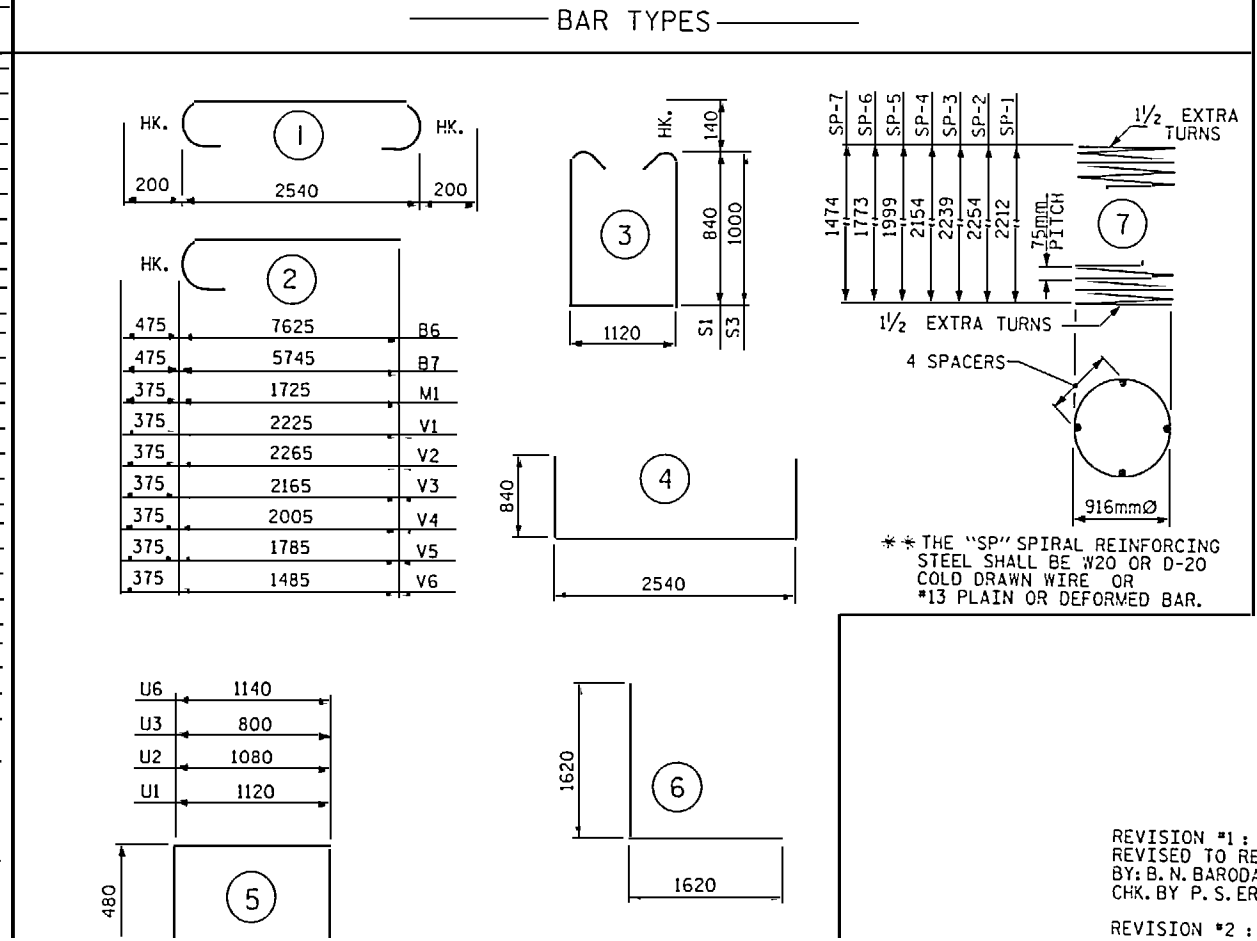
SUBSTRUCTURE
 BENT 23 THRU 29

REVISION #1:
 REVISED TO REMOVE BENT 30 FROM THIS SHEET.
 BY: B. N. BARODAWALA DATE 7-29-04
 CHK. BY P. S. ERVIN DATE 7-29-04

BENT 24						BENT 25						BENT 26						BENT 27						BENT 28																	
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT						
*B1	4	*36	STR	9540	302	*B1	4	*36	STR	9540	302	*B1	4	*36	STR	9540	302	*B1	4	*36	STR	9540	302	*B1	4	*36	STR	9540	302	*B1	4	*36	STR	9540	302	*B1	4	*36	STR	9540	302
*B3	4	*22	STR	9540	116	*B3	4	*22	STR	9540	116	*B3	4	*22	STR	9540	116	*B3	4	*22	STR	9540	116	*B3	4	*22	STR	9540	116	*B3	4	*22	STR	9540	116	*B3	4	*22	STR	9540	116
*B4	4	*13	STR	1540	6	*B4	4	*13	STR	1540	6	*B4	4	*13	STR	1540	6	*B4	4	*13	STR	1540	6	*B4	4	*13	STR	1540	6	*B4	4	*13	STR	1540	6	*B4	4	*13	STR	1540	6
*B5	8	*13	STR	2520	20	*B5	8	*13	STR	2520	20	*B5	8	*13	STR	2520	20	*B5	8	*13	STR	2520	20	*B5	8	*13	STR	2520	20	*B5	8	*13	STR	2520	20	*B5	8	*13	STR	2520	20
*B6	4	*36	2	8100	256	*B6	4	*36	2	8100	256	*B6	4	*36	2	8100	256	*B6	4	*36	2	8100	256	*B6	4	*36	2	8100	256	*B6	4	*36	2	8100	256	*B6	4	*36	2	8100	256
*B7	4	*36	2	6220	197	*B7	4	*36	2	6220	197	*B7	4	*36	2	6220	197	*B7	4	*36	2	6220	197	*B7	4	*36	2	6220	197	*B7	4	*36	2	6220	197	*B7	4	*36	2	6220	197
*B8	2	*22	STR	3560	22	*B8	2	*22	STR	3560	22	*B8	2	*22	STR	3560	22	*B8	2	*22	STR	3560	22	*B8	2	*22	STR	3560	22	*B8	2	*22	STR	3560	22	*B8	2	*22	STR	3560	22
*B9	2	*13	STR	1120	2	*B9	2	*13	STR	1120	2	*B9	2	*13	STR	1120	2	*B9	2	*13	STR	1120	2	*B9	2	*13	STR	1120	2	*B9	2	*13	STR	1120	2	*B9	2	*13	STR	1120	2
*M1	32	*29	2	2100	340	*M1	32	*29	2	2100	340	*M1	32	*29	2	2100	340	*M1	32	*29	2	2100	340	*M1	32	*29	2	2100	340	*M1	32	*29	2	2100	340	*M1	32	*29	2	2100	340
*S1	13	*16	3	3080	62	*S1	13	*16	3	3080	62	*S1	13	*16	3	3080	62	*S1	13	*16	3	3080	62	*S1	13	*16	3	3080	62	*S1	13	*16	3	3080	62	*S1	13	*16	3	3080	62
*S3	18	*16	3	3400	95	*S3	18	*16	3	3400	95	*S3	18	*16	3	3400	95	*S3	18	*16	3	3400	95	*S3	18	*16	3	3400	95	*S3	18	*16	3	3400	95	*S3	18	*16	3	3400	95
*T1	84	*19	1	2940	552	*T1	84	*19	1	2940	552	*T1	84	*19	1	2940	552	*T1	84	*19	1	2940	552	*T1	84	*19	1	2940	552	*T1	84	*19	1	2940	552	*T1	84	*19	1	2940	552
*T2	20	*13	4	4220	84	*T2	20	*13	4	4220	84	*T2	20	*13	4	4220	84	*T2	20	*13	4	4220	84	*T2	20	*13	4	4220	84	*T2	20	*13	4	4220	84	*T2	20	*13	4	4220	84
*T3	24	*13	STR	820	20	*T3	24	*13	STR	820	20	*T3	24	*13	STR	820	20	*T3	24	*13	STR	820	20	*T3	24	*13	STR	820	20	*T3	24	*13	STR	820	20	*T3	24	*13	STR	820	20
*T4	16	*13	6	3240	52	*T4	16	*13	6	3240	52	*T4	16	*13	6	3240	52	*T4	16	*13	6	3240	52	*T4	16	*13	6	3240	52	*T4	16	*13	6	3240	52	*T4	16	*13	6	3240	52
*U1	35	*13	5	2080	72	*U1	35	*13	5	2080	72	*U1	35	*13	5	2080	72	*U1	35	*13	5	2080	72	*U1	35	*13	5	2080	72	*U1	35	*13	5	2080	72	*U1	35	*13	5	2080	72
*U2	6	*13	5	2040	12	*U2	6	*13	5	2040	12	*U2	6	*13	5	2040	12	*U2	6	*13	5	2040	12	*U2	6	*13	5	2040	12	*U2	6	*13	5	2040	12	*U2	6	*13	5	2040	12
*U3	3	*13	5	1760	5	*U3	3	*13	5	1760	5	*U3	3	*13	5	1760	5	*U3	3	*13	5	1760	5	*U3	3	*13	5	1760	5	*U3	3	*13	5	1760	5	*U3	3	*13	5	1760	5
*U6	3	*13	5	2100	6	*U6	3	*13	5	2100	6	*U6	3	*13	5	2100	6	*U6	3	*13	5	2100	6	*U6	3	*13	5	2100	6	*U6	3	*13	5	2100	6	*U6	3	*13	5	2100	6
*V1	32	*29	2	2600	421	*V2	32	*29	2	2640	427	*V2	32	*29	2	2640	427	*V3	32	*29	2	2540	411	*V4	32	*29	2	2380	385	*V5	32	*29	2	2160	350						
*EPOXY COATED REINF. STEEL	kg	2642	*EPOXY COATED REINF. STEEL	kg	2648	*EPOXY COATED REINF. STEEL	kg	2648	*EPOXY COATED REINF. STEEL	kg	2632	*EPOXY COATED REINF. STEEL	kg	2606	*EPOXY COATED REINF. STEEL	kg	2571																								
*SP-1	2	**	7	92,220	183	*SP-2	2	**	7	93,800	186	*SP-3	2	**	7	93,240	185	*SP-4	2	**	7	90,020	179	*SP-5	2	**	7	84,160	167	*SP-6	2	**	7	75,600	150						
*EPOXY COATED SPIRAL COLUMN REINFORCING STEEL	kg	183	*EPOXY COATED SPIRAL COLUMN REINFORCING STEEL	kg	186	*EPOXY COATED SPIRAL COLUMN REINFORCING STEEL	kg	185	*EPOXY COATED SPIRAL COLUMN REINFORCING STEEL	kg	179	*EPOXY COATED SPIRAL COLUMN REINFORCING STEEL	kg	167	*EPOXY COATED SPIRAL COLUMN REINFORCING STEEL	kg	150																								
CLASS AA CONCRETE BREAKDOWN			CLASS AA CONCRETE BREAKDOWN			CLASS AA CONCRETE BREAKDOWN			CLASS AA CONCRETE BREAKDOWN			CLASS AA CONCRETE BREAKDOWN			CLASS AA CONCRETE BREAKDOWN																										
POUR #1 (PILE CAPS)	m ³	15.3	POUR #1 (PILE CAPS)	m ³	15.3	POUR #1 (PILE CAPS)	m ³	15.3	POUR #1 (PILE CAPS)	m ³	15.3	POUR #1 (PILE CAPS)	m ³	15.3	POUR #1 (PILE CAPS)	m ³	15.3																								
POUR #2 (COLUMNS)	m ³	3.8	POUR #2 (COLUMNS)	m ³	3.8	POUR #2 (COLUMNS)	m ³	3.8	POUR #2 (COLUMNS)	m ³	3.7	POUR #2 (COLUMNS)	m ³	3.4	POUR #2 (COLUMNS)	m ³	3.0																								
POUR #3 (CAP)	m ³	14.4	POUR #3 (CAP)	m ³	14.4	POUR #3 (CAP)	m ³	14.4	POUR #3 (CAP)	m ³	14.4	POUR #3 (CAP)	m ³	14.4	POUR #3 (CAP)	m ³	14.4																								
TOTAL	m ³	33.5	TOTAL	m ³	33.5	TOTAL	m ³	33.5	TOTAL	m ³	33.4	TOTAL	m ³	33.1	TOTAL	m ³	32.7																								
PP 610 X 15.875 STEEL PIPE PILES NO. 8 METERS		120.0	PP 610 X 15.875 STEEL PIPE PILES NO. 8 METERS		120.0	PP 610 X 15.875 STEEL PIPE PILES NO. 8 METERS		120.0	PP 610 X 15.875 STEEL PIPE PILES NO. 8 METERS		120.0	PP 610 X 15.875 STEEL PIPE PILES NO. 8 METERS		120.0	PP 610 X 15.875 STEEL PIPE PILES NO. 8 METERS		120.0																								
STEEL PILE POINTS (PIPE PILES) NO. 8 EACH			STEEL PILE POINTS (PIPE PILES) NO. 8 EACH			STEEL PILE POINTS (PIPE PILES) NO. 8 EACH			STEEL PILE POINTS (PIPE PILES) NO. 8 EACH			STEEL PILE POINTS (PIPE PILES) NO. 8 EACH			STEEL PILE POINTS (PIPE PILES) NO. 8 EACH																										

BENT 29

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	4	*36	STR	9540	302
*B3	4	*22	STR	9540	116
*B4	4	*13	STR	1540	6
*B5	8	*13	STR	2520	20
*B6	4	*36	2	8100	256
*B7	4	*36	2	6220	197
*B8	2	*22	STR	3560	22
*B9	2	*13	STR	1120	2
*M1	32	*29	2	2100	340
*S1	13	*16	3	3080	62
*S3	18	*16	3	3400	95
*T1	84	*19	1	2940	552
*T2	20	*13	4	4220	84
*T3	24	*13	STR	820	20
*T4	16	*13	6	3240	52
*U1	35	*13	5	2080	72
*U2	6	*13	5	2040	12
*U3	3	*13	5	1760	5
*U6	3	*13	5	2100	6
*V6	32	*29	2	1860	301
*EPOXY COATED REINF. STEEL	kg	2522			
*SP-7	2	**	7	64,300	128
*EPOXY COATED SPIRAL COLUMN REINFORCING STEEL	kg	128			
CLASS AA CONCRETE BREAKDOWN					
POUR #1 (PILE CAPS)	m ³	15.3			
POUR #2 (COLUMNS)	m ³	2.5			
POUR #3 (CAP)	m ³	14.4			
TOTAL	m ³	32.2			
PP 610 X 15.875 STEEL PIPE PILES NO. 8 METERS		120.0			
STEEL PILE POINTS					



1/2 EXTRA TURNS

1474
1773
1999
2154
2239
2254
2212
75mm PITCH

1/2 EXTRA TURNS

4 SPACERS

916mm Ø

** THE "SP" SPIRAL REINFORCING STEEL SHALL BE #20 OR D-20 COLD DRAWN WIRE OR #13 PLAIN OR DEFORMED BAR.

REVISION #1:
REVISED TO REMOVE BENT 30 FROM THIS SHEET.
BY: B. N. BARODAWALA DATE 7-29-04
CHK. BY P. S. ERVIN DATE 7-29-04

REVISION #2:

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-

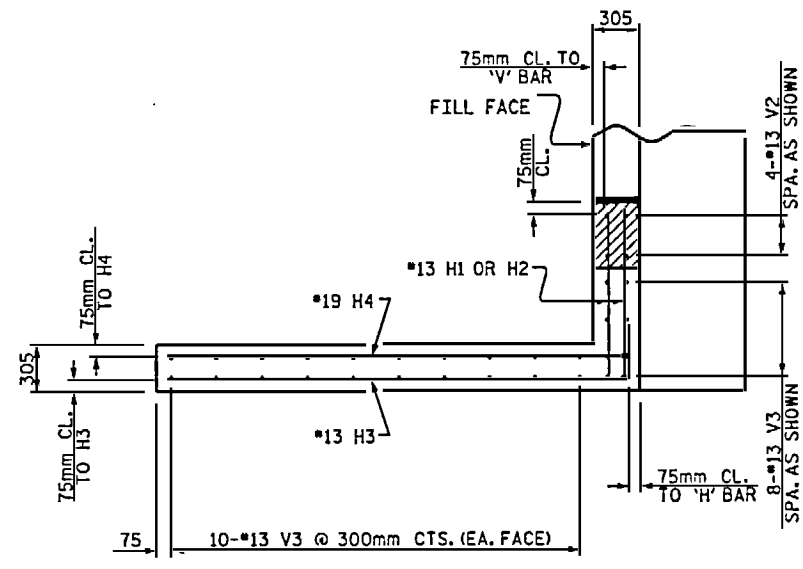
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

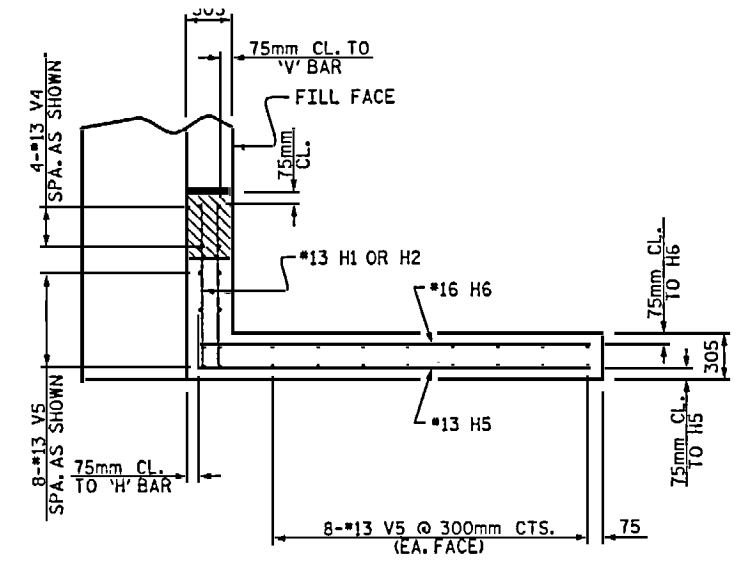
SUBSTRUCTURE
 BENT 23 THRU 29

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 21533

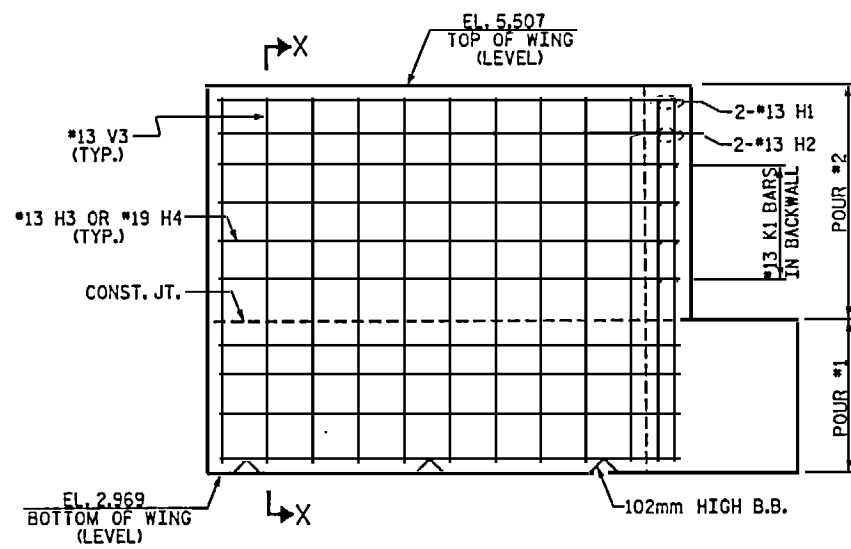
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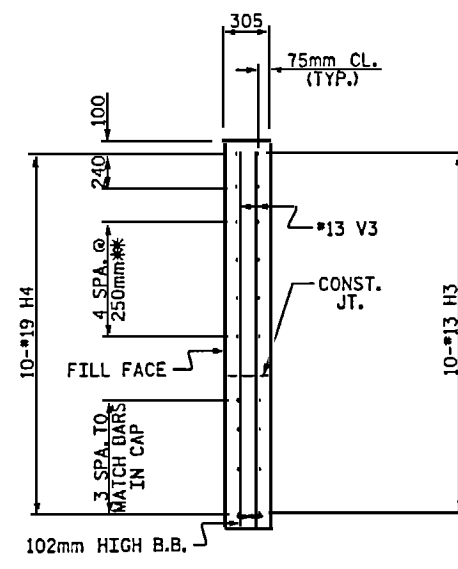
PLAN W1



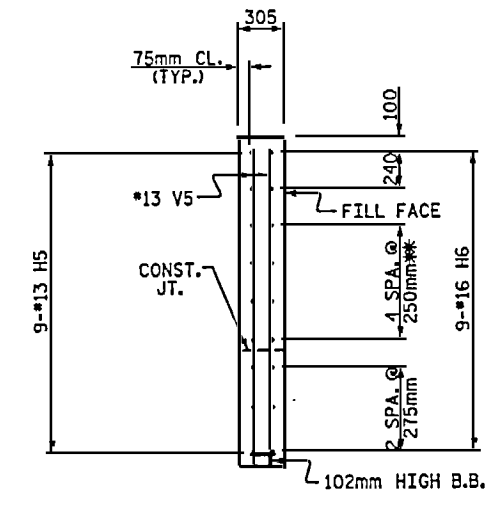
PLAN W2



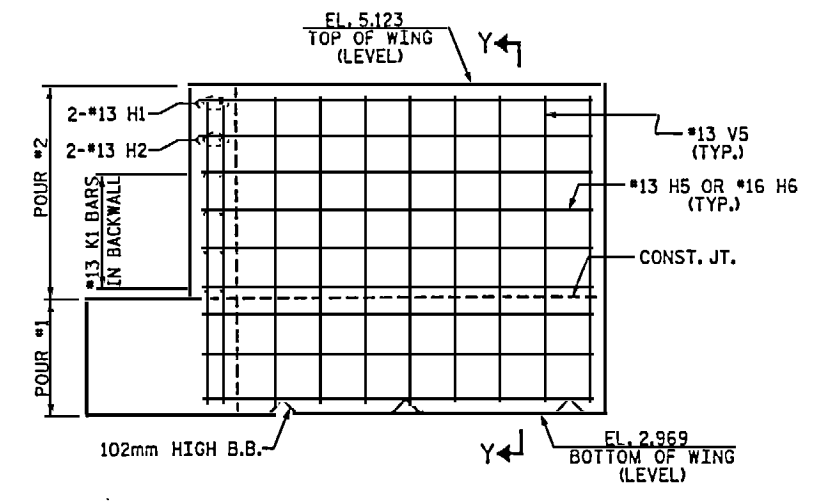
ELEVATION W1



SECTION X-X



SECTION Y-Y



ELEVATION W2

** THESE BARS TO MATCH #13 K1 BARS IN BACKWALL

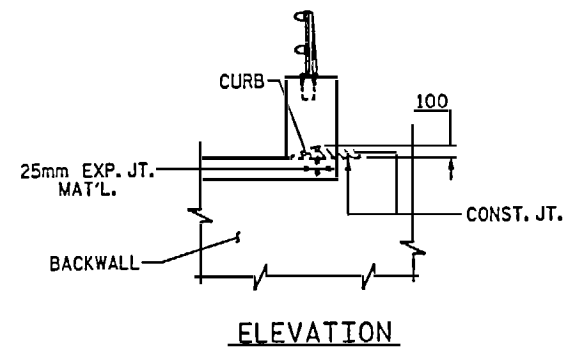
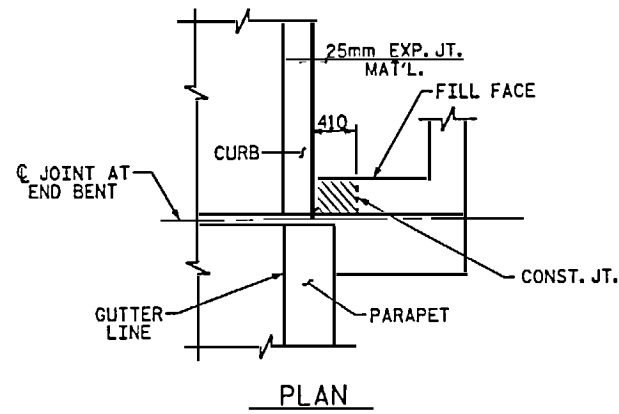
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

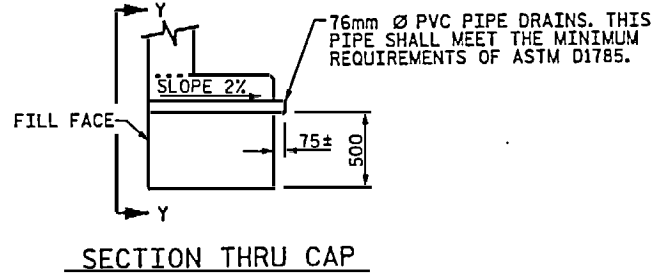


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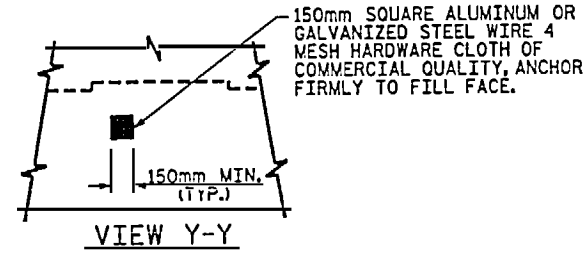


BLOCKOUT IN WING WALL FOR FITTING EVAZOTE JOINT SEAL

NOTE: THE CONCRETE IN THE CROSS-HATCHED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET IS CAST IF SLIP FORMING IS USED.



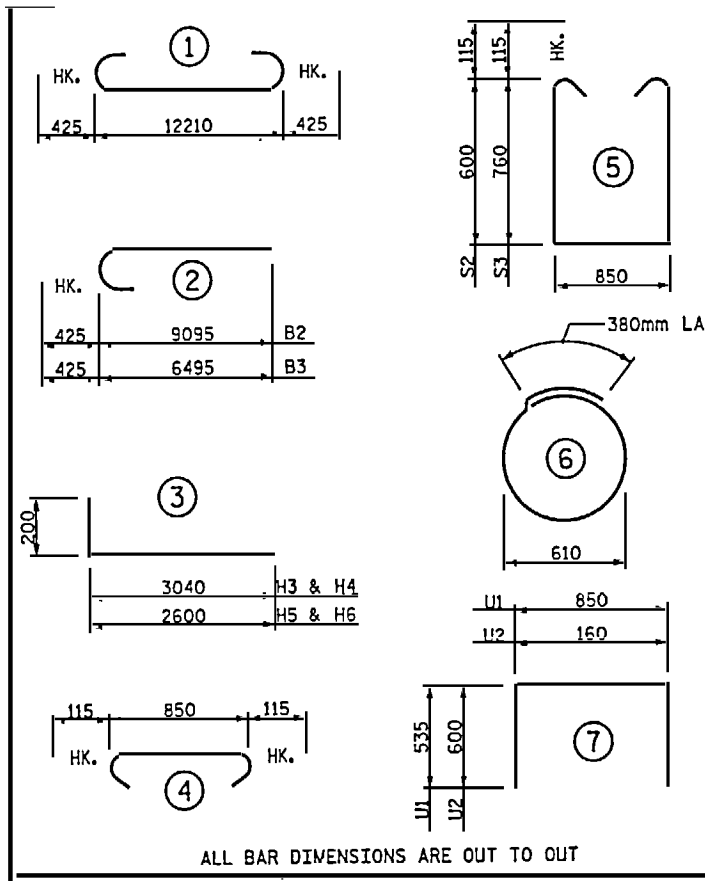
SECTION THRU CAP



VIEW Y-Y

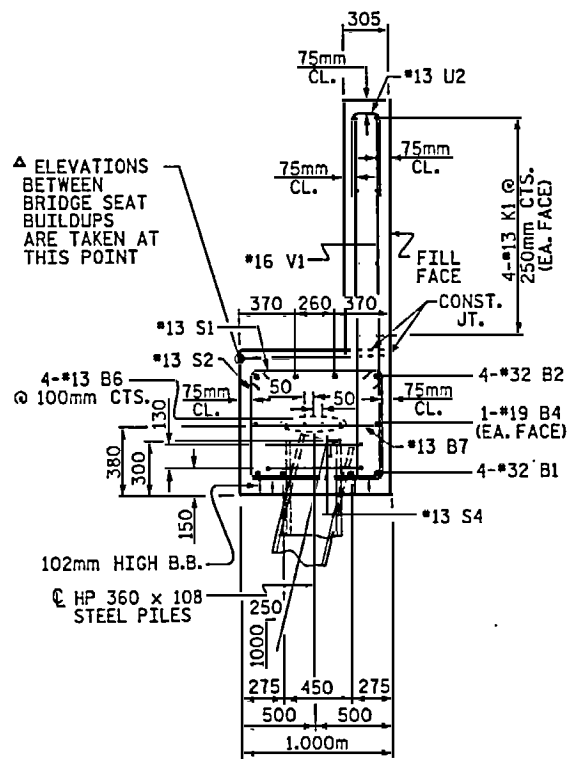
NOTE: NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE PVC PIPE DRAINS, HARDWARE CLOTH, AND FASTENERS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

PIPE DRAIN DETAILS

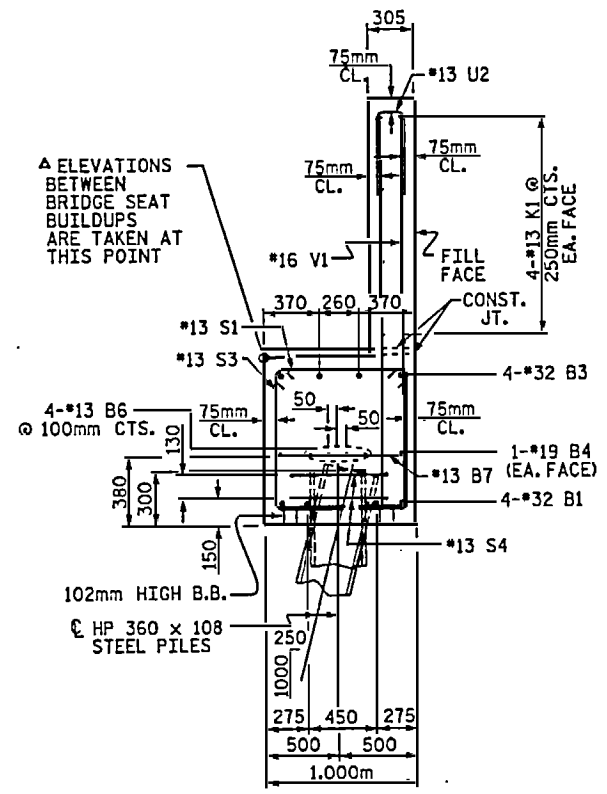


END BENT 2

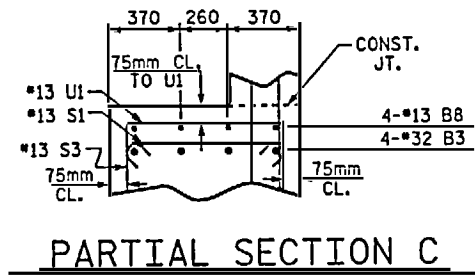
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	4	*32	1	13060	335
*B2	4	*32	2	9520	244
*B3	4	*32	2	6920	177
*B4	2	*19	STR	12240	55
*B5	2	*13	STR	4040	8
*B6	8	*13	STR	6560	52
*B7	14	*13	STR	840	12
*B8	12	*13	STR	740	9
*H1	4	*13	STR	640	3
*H2	4	*13	STR	1020	4
*H3	10	*13	3	3240	32
*H4	10	*19	3	3240	72
*H5	9	*13	3	2800	25
*H6	9	*16	3	2800	39
*K1	16	*13	STR	6560	104
*S1	35	*13	4	1080	38
*S2	17	*13	5	2280	39
*S3	18	*13	5	2600	47
*S4	12	*13	6	2300	27
*U1	9	*13	7	1920	17
*U2	34	*13	7	1360	46
*V1	68	*16	STR	1520	160
*V2	4	*13	STR	2260	9
*V3	28	*13	STR	2360	66
*V4	4	*13	STR	1860	7
*V5	24	*13	STR	1960	47
* EPOXY COATED REINFORCING STEEL					kg 1674
CLASS 'AA' CONCRETE					
POUR #1 (CAP & WINGS)				m ³	12.8
POUR #2 (BACKWALL & WINGS)				m ³	6.7
TOTAL				m ³	19.5
HP 360 x 108 STEEL PILES					METERS 72.0
NO. 6					



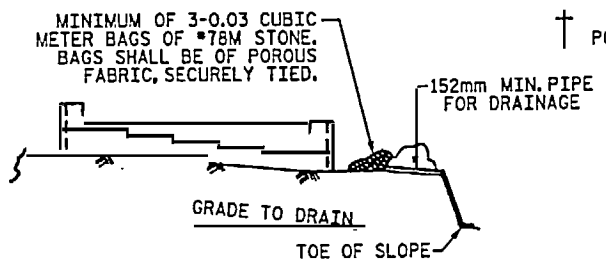
SECTION A-A



SECTION B-B



PARTIAL SECTION C



PILE SPLICE DETAILS

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.

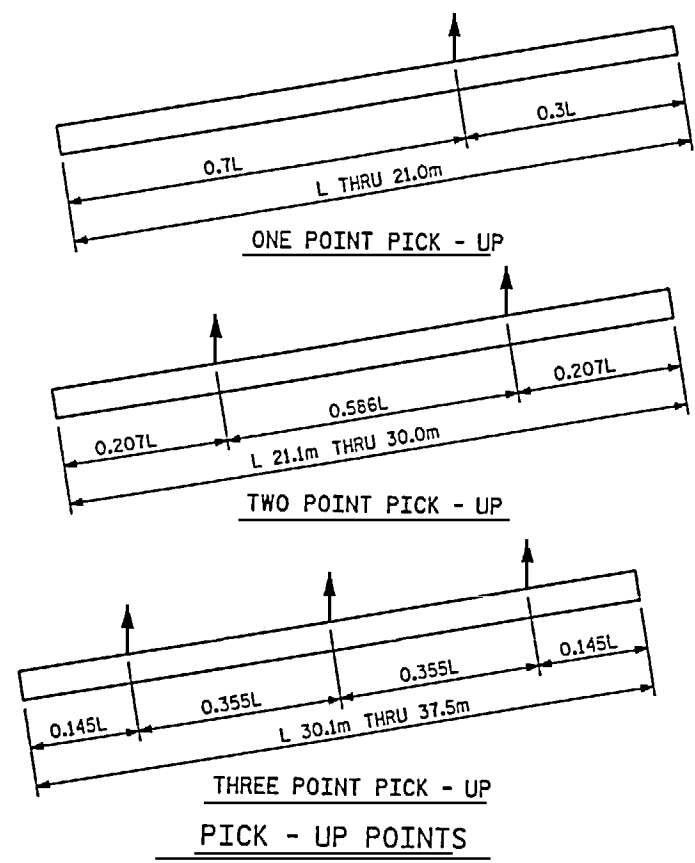
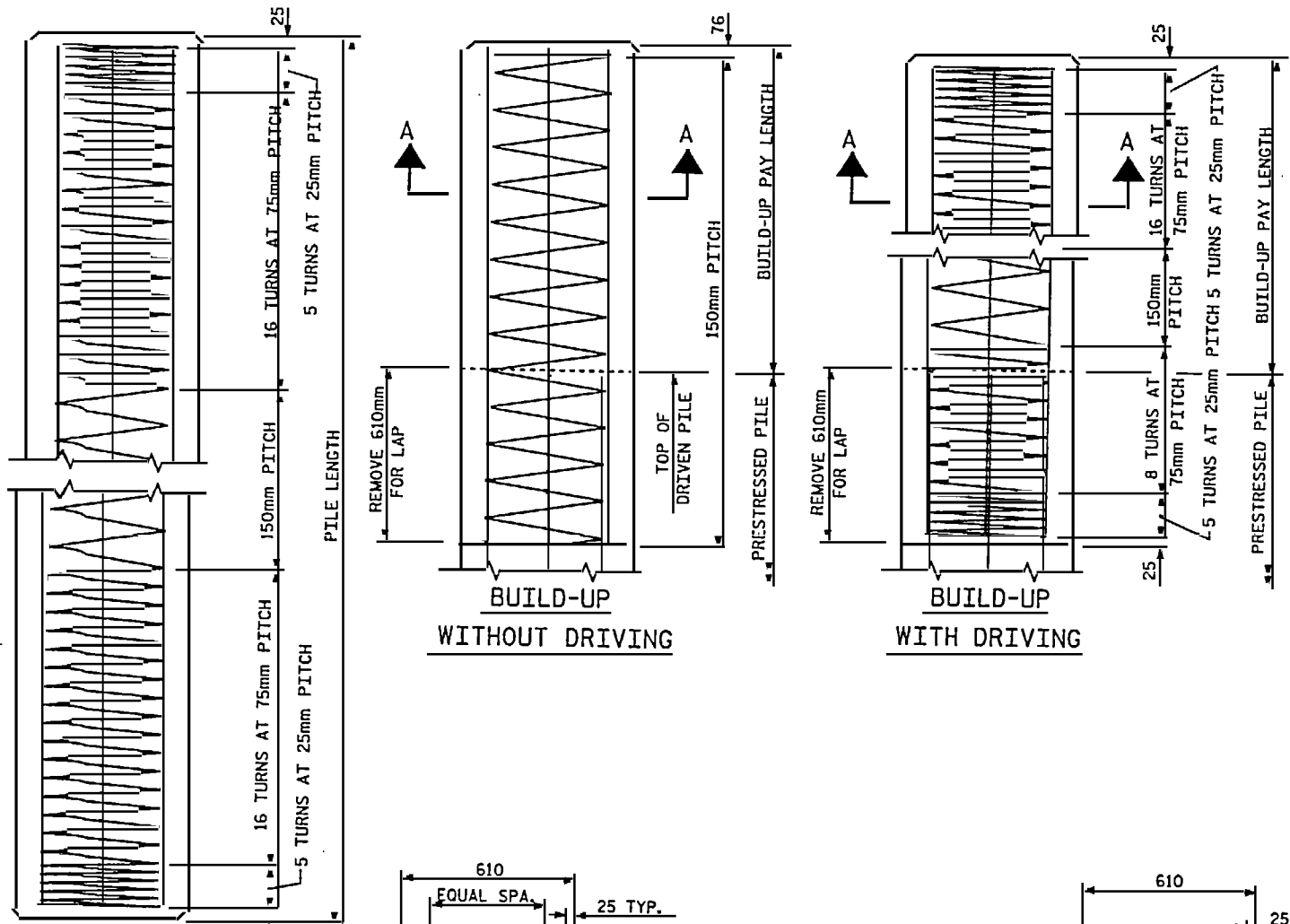
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510 -L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT 2**

REVISIONS _____ || SHEET NO. _____



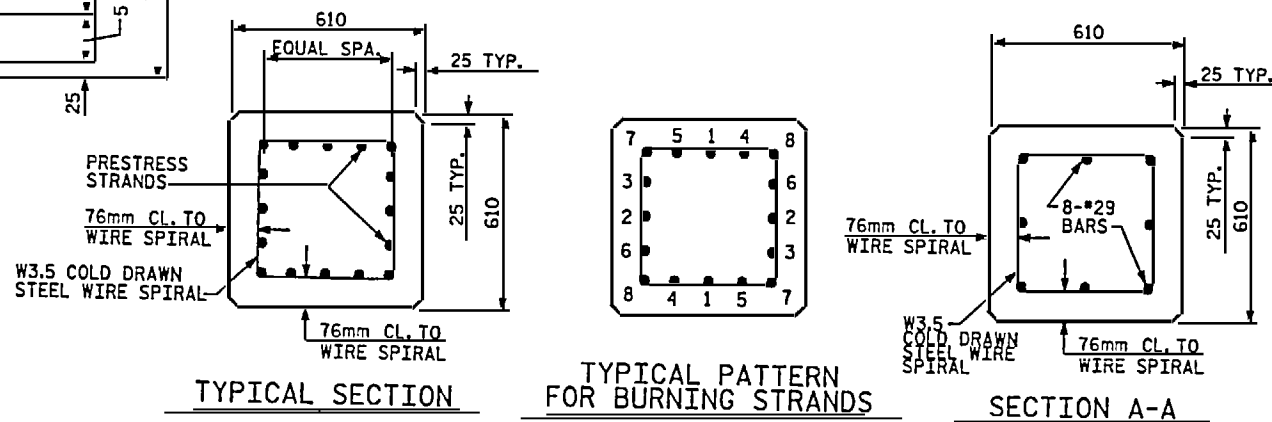


NOTES
 CONCRETE DESIGN DATA : $f'c = 34.5 \text{ MPa}$; $fc = 13.8 \text{ MPa}$
 IMPACT IN HANDLING = 50%
 IN DRIVING PILES, A METHOD APPROVED BY THE ENGINEER SHALL BE USED, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.
 PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.
 THE CONTRACTOR SHALL USE THE FOLLOWING STRAND TYPE:

SIZE mm	GRADE	NUMBER OF STRANDS	AREA mm ²	ULTIMATE STRENGTH kN	APPLIED PRESTRESS FORCE kN
12.70	270	16	98.71	183.7 PER STRAND	137.8 PER STRAND

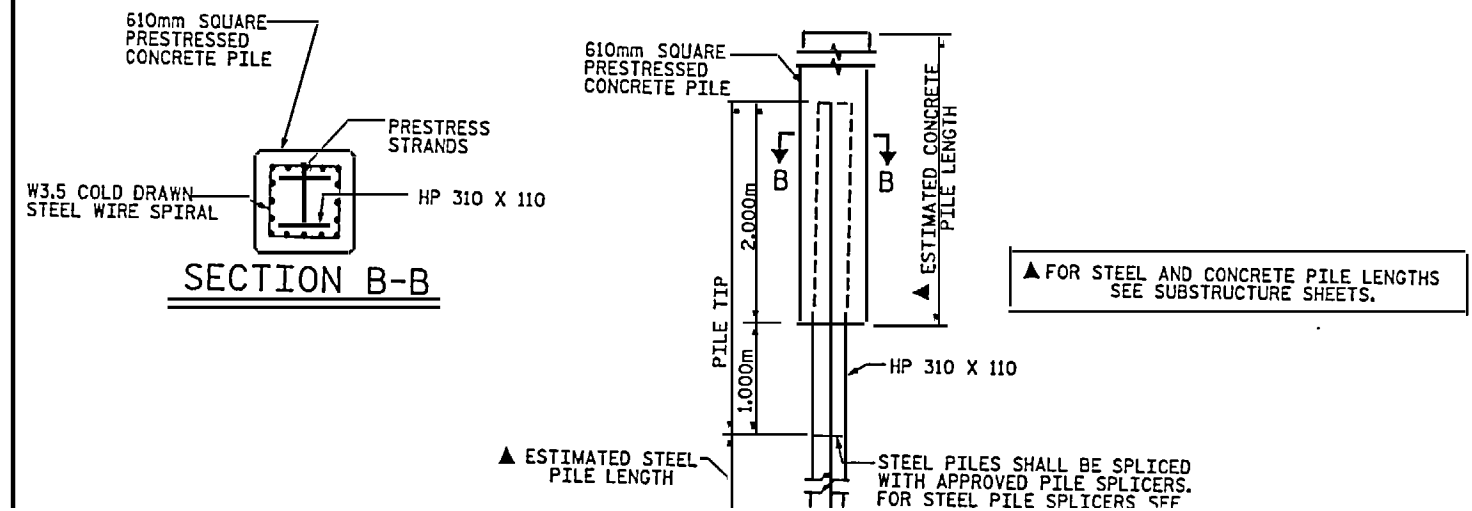
STRANDS SHALL BE EQUALLY SPACED AS SHOWN IN THE "TYPICAL SECTION".
 A CIRCULAR STRAND PATTERN SHALL NOT BE PERMITTED.
 THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.
 IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF STRANDS BURN IN OPPOSITE PAIRS AND SYMMETRICAL ABOUT BOTH VERTICAL AND HORIZONTAL AXES, STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS, SAY 5-5 AND 6-6, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.
 BUILD-UPS SHALL BE OF 'CLASS AA' CONCRETE WITH 20% ADDITIONAL CEMENT. NO DRIVING OF THE BUILT-UP PILE WILL BE PERMITTED UNTIL CEMENT. NO DRIVING OF THE BUILT-UP PILE WILL BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 20.7 MPa, AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.
 ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203M EXCEPT GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203M EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE PILE SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 24.1 MPa.
 THE WATER CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.
 PRESTRESSED CONCRETE PILES SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS.
 FOR STEEL PILE TIPS, SEE SPECIAL PROVISIONS.



QUANTITIES FOR ONE 610 SQUARE PILE

LENGTH m	CONCRETE m ³	PILE WT. kg	ONE PICK-UP POINT		TWO PICK-UP POINTS		THREE PICK-UP POINTS	
			0.3L m	0.7L m	0.207L m	0.586L m	0.145L m	0.355L m
7.5	2.79	6,700	2.25	5.25				
9.0	3.35	8,050	2.70	6.30				
10.5	3.91	9,390	3.15	7.35				
12.0	4.47	10,740	3.60	8.40				
13.5	5.02	12,060	4.05	9.45				
15.0	5.58	13,410	4.50	10.50				
16.5	6.14	14,750	4.95	11.55				
18.0	6.70	16,100	5.40	12.60				
19.5	7.26	17,440	5.85	13.65				
21.0	7.81	18,770	6.30	14.70				
22.5	8.37	20,110			4.66	13.19		
24.0	8.93	21,460			4.97	14.06		
25.5	9.49	22,800			5.28	14.94		
27.0	10.05	24,150			5.59	15.82		
28.5	10.60	25,470			5.90	16.70		
30.0	11.16	26,820			6.21	17.58		
31.5	11.72	28,160					4.57	11.18
33.0	12.28	29,510					4.79	11.72
34.5	12.84	30,850					5.00	12.25
36.0	13.40	32,200					5.22	12.78
37.5	13.95	33,520					5.44	13.31



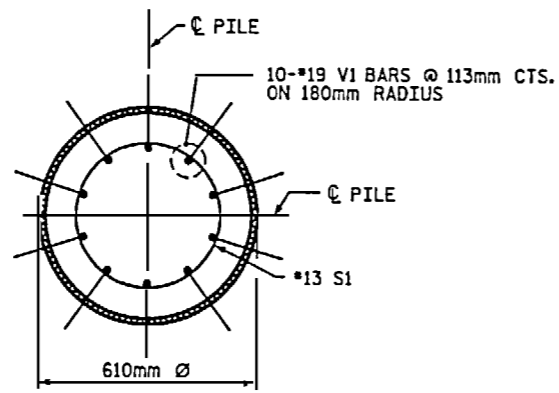
PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

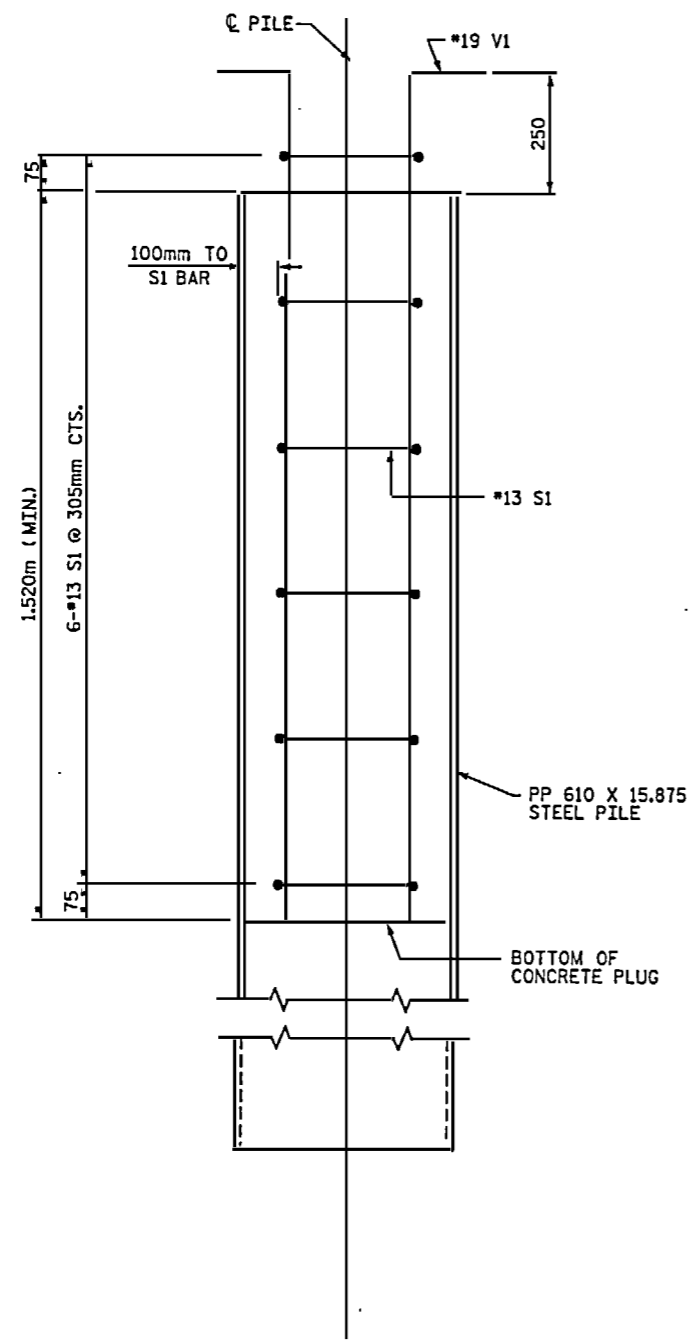
**STANDARD
 610mm PRESTRESSED
 CONCRETE PILE**



58
 36 Abbarodorova V. 0318 and R# 20,04202



PLAN



ELEVATION

NOTES

STEEL PILES SHALL MEET THE REQUIREMENTS OF ASTM A252 GRADE 3 AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CONCRETE IN THE PLUG SHALL BE CLASS AA CONCRETE.

STEEL PILES SHALL BE EXAMINED FOR DAMAGE OR COLLAPSE AFTER BEING DRIVEN AND PRIOR TO PLACING REINFORCING STEEL AND CONCRETE IN THE TOP OF THE PILE. REJECTED PILES SHALL BE REMOVED OR THE CONTRACTOR SHALL SUBMIT A PROPOSAL TO REPAIR THE PILE.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1. A MAXIMUM OF 2 PILE SPLICES PER PILE IS ALLOWED.

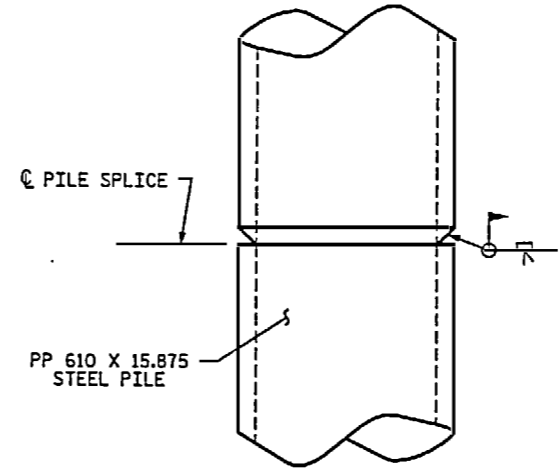
THE PILES SHALL BE DEWATERED TO THE SATISFACTION OF THE ENGINEER TO THE EXTENT NECESSARY TO OBTAIN THE MINIMUM CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

THE CONCRETE PLUG WITHIN THE PILES SHALL BE FORMED SUCH THAT NO MOVEMENT OF THE REINFORCING STEEL OR CONCRETE OCCURS EITHER DURING OR AFTER THE CONCRETE PLACEMENT. THE CONCRETE PLUG SHALL BE CAST AND SHALL OBTAIN A MINIMUM COMPRESSIVE STRENGTH OF 10.3 MPa PRIOR TO PLACING THE CONCRETE IN THE PILE CAP.

THE EPOXY COATED REINFORCING STEEL AND CLASS AA CONCRETE ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER METER FOR PP 610 X 15.875 STEEL PILES.

FOR STEEL PILE POINTS (PIPE PILES), SEE SPECIAL PROVISIONS.

FOR PILE DRIVING ANALYZER (PDA), SEE SPECIAL PROVISIONS.



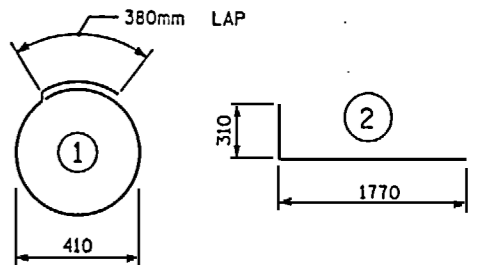
PILE SPLICE DETAILS

PILE MATERIAL FOR ONE PP 610 X 15.875 STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*S1	6	*13	1	1680	10
*V1	10	*19	2	2080	46

* EPOXY COATED REINFORCING STEEL	kg	56
CLASS AA CONCRETE		
1.520m MINIMUM PLUG	C.M.	0.4

BAR TYPES



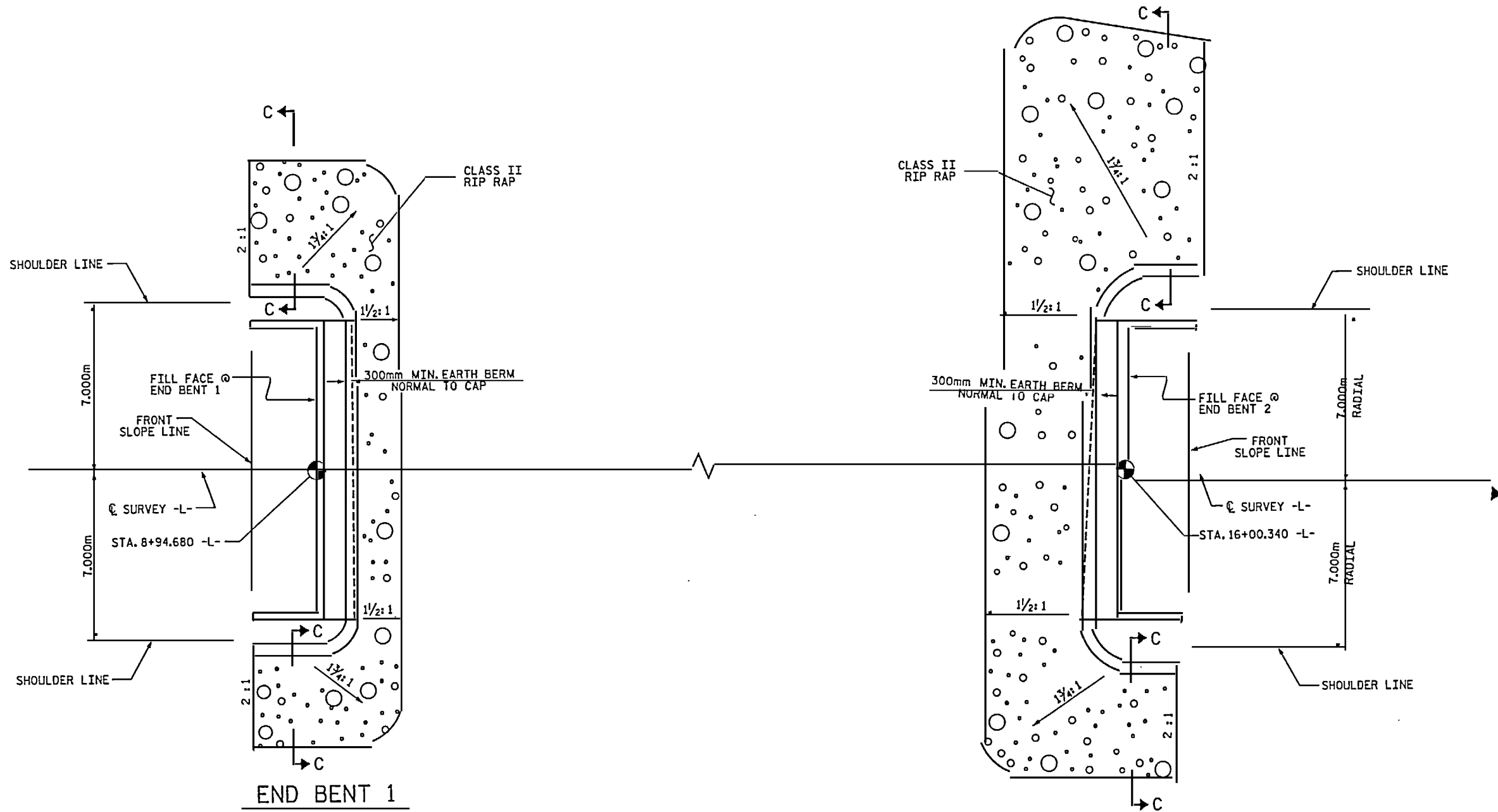
ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-2938
 CARTERET-ONSLow COUNTY
 STATION: 12+47.510-L-

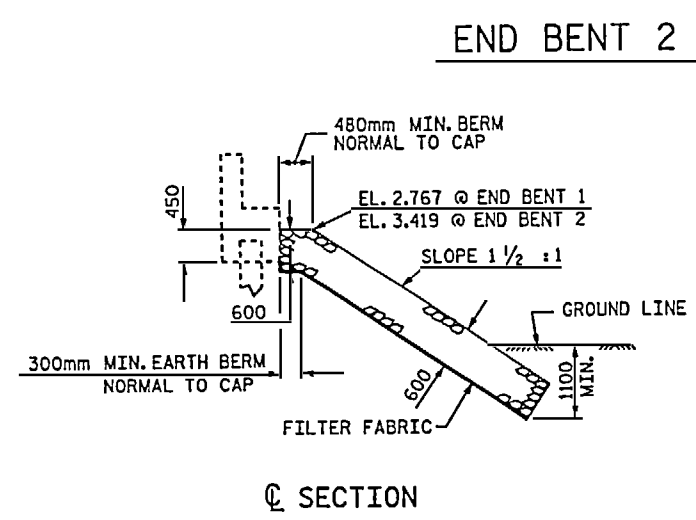
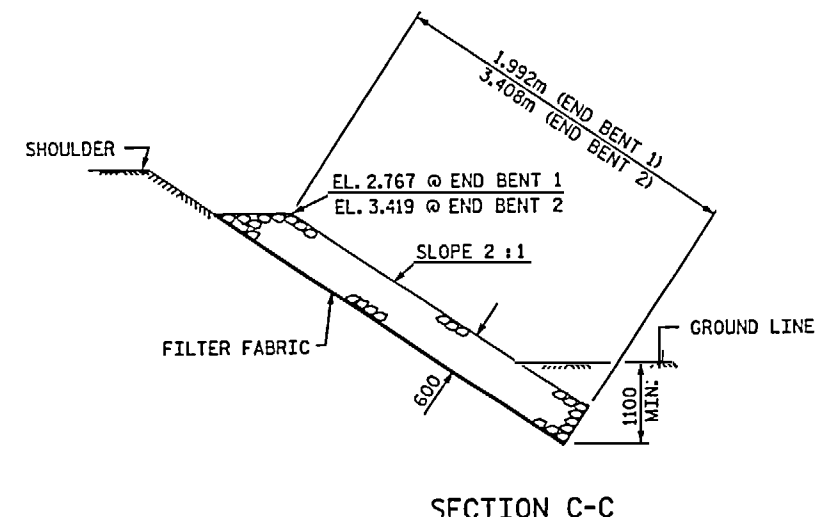
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

610mm STEEL
 PIPE PILE





ESTIMATED QUANTITIES		
BRIDGE AT STA. 12+47.510 -L-	PLAIN RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	METRIC TON	SQUARE METERS
END BENT 1	32	33
END BENT 2	52	53

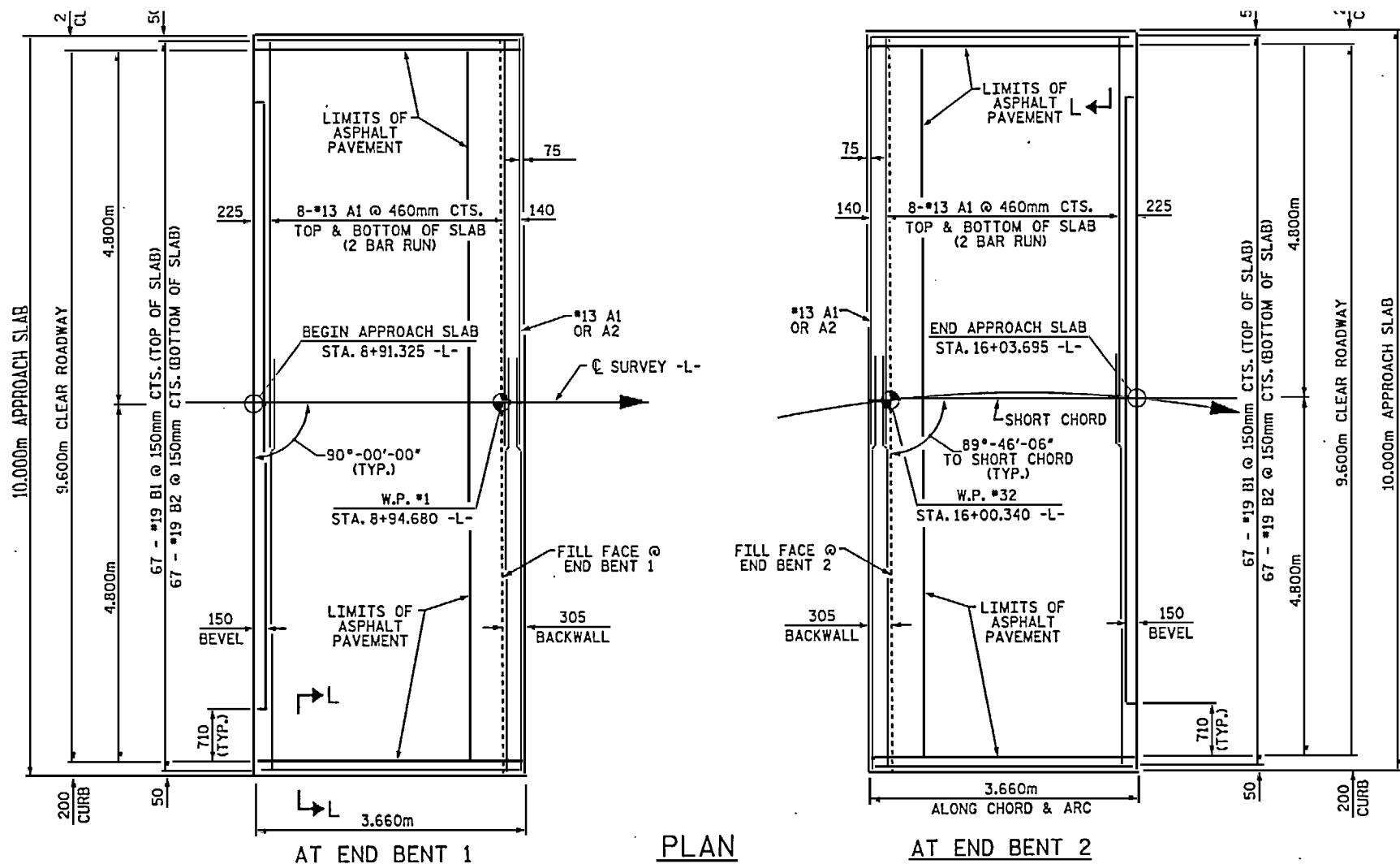


PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 RIP RAP DETAILS





PLAN

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 102mm Ø DRAINAGE PIPE, #76M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR BRIDGE APPROACH SLAB.

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.

THE 150mm COMP. A.B.C. SHALL EXTEND 3m BEYOND THE END OF THE APPROACH SLAB AND 300mm OUTSIDE OF EACH EDGE OF THE SLAB.

THE CONTRACTOR MAY USE 100mm TYPE B-25.0B ASPHALT CONCRETE COURSE IN LIEU OF 150mm COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL EXTEND 300mm BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 125mm CLASS "A" CONCRETE BASE IN LIEU OF 150mm COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL EXTEND 300mm BEYOND THE 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 13.6 kg 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.

APPROACH SLAB GROOVING IS NOT REQUIRED. TINE CONCRETE ONLY WITHIN THE LIMITS OF THE ASPHALT PAVEMENT AND IN ACCORDANCE WITH ARTICLE 422-3 OF THE STANDARD SPECIFICATIONS.

WITH EVAZOTE JOINT SEAL

THE COST OF THE ELASTOMERIC CONCRETE IN THE BLOCKOUTS, COMPLETE IN PLACE, SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR EVAZOTE JOINT SEALS.

THE ESTIMATED AMOUNT OF ELASTOMERIC CONCRETE REQUIRED, BASED ON THE MINIMUM BLOCKOUT SHOWN, IS 0.15m³ PER JOINT.

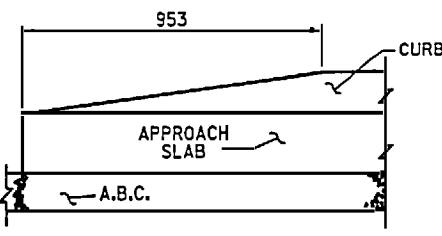
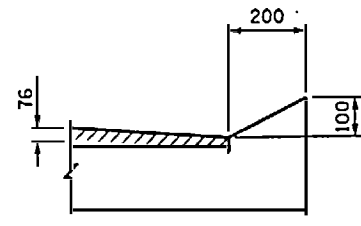
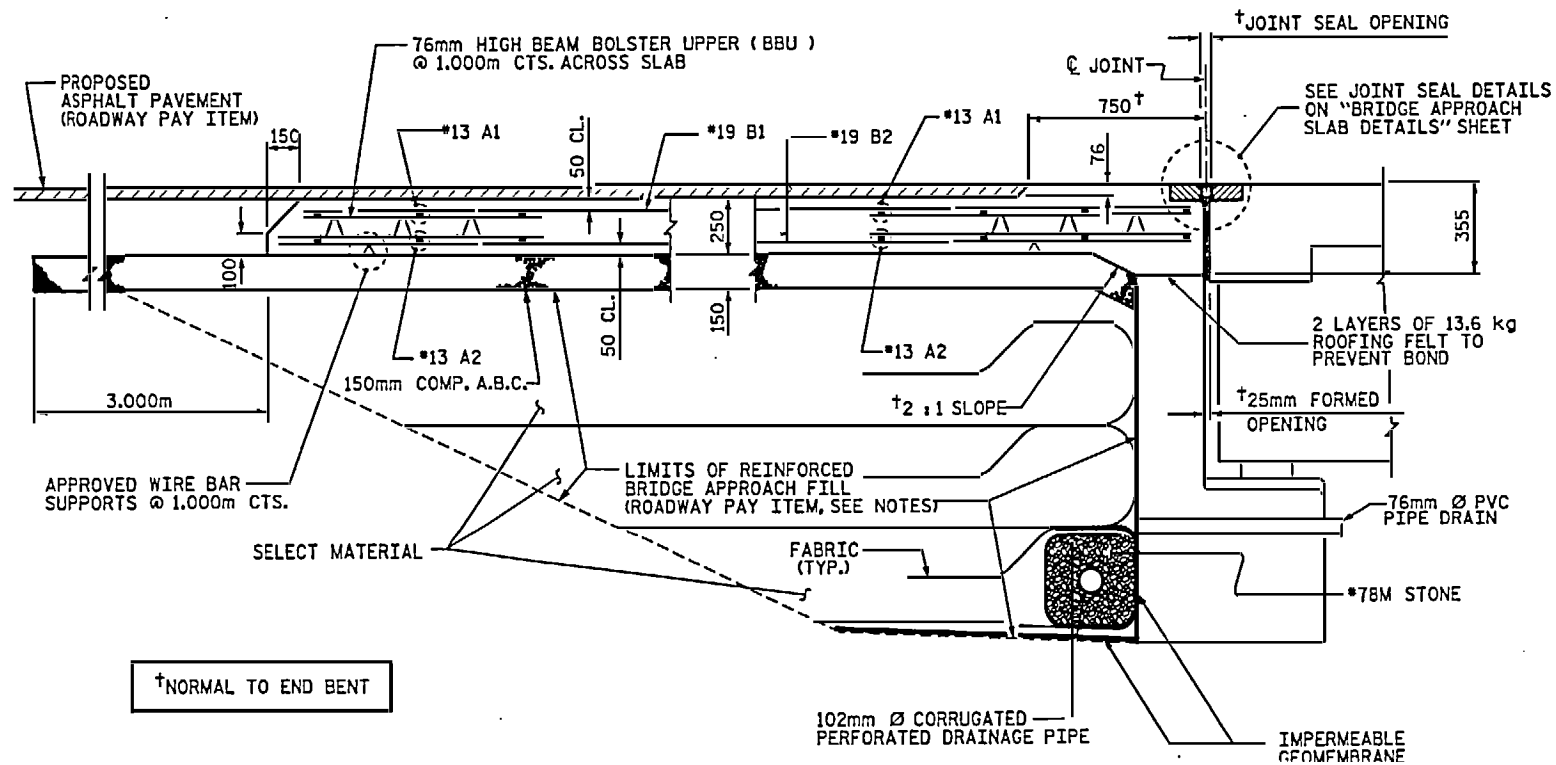
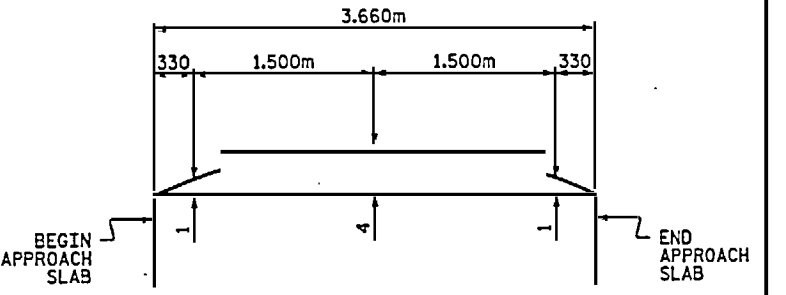
THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 64mm.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	36	#13	STR	5260	188
A2		#13	STR		
* B1	67	#19	STR	3400	509
B2	67	#19	STR	3560	533
* EPOXY COATED REINFORCING STEEL					kg. 1230
CLASS AA CONCRETE					C.M. 9.7

APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	36	#13	STR	5260	188
* B1	67	#19	STR	3400	509
B2	67	#19	STR	3560	533
* EPOXY COATED REINFORCING STEEL					kg. 1230
CLASS AA CONCRETE					C.M. 9.7

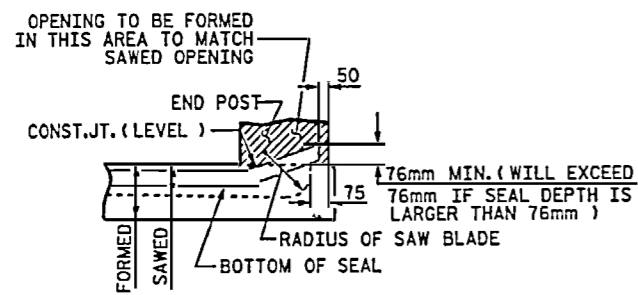
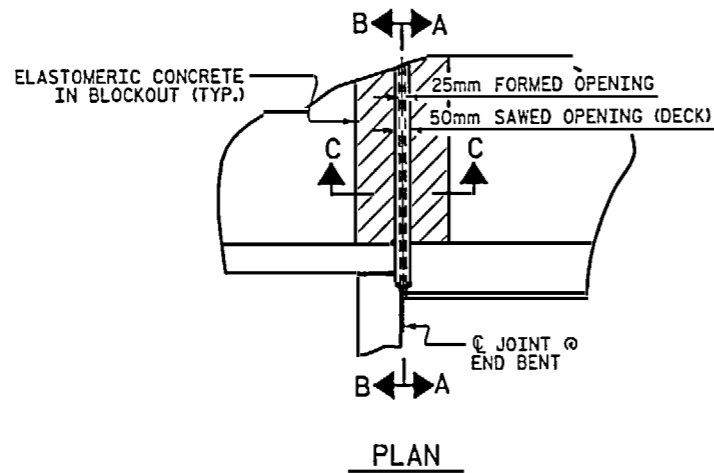


PROJECT NO. B-2938
 CARTERET-ON SLOW COUNTY
 STATION: 12+47.510 -L-
 SHEET 1 OF 2

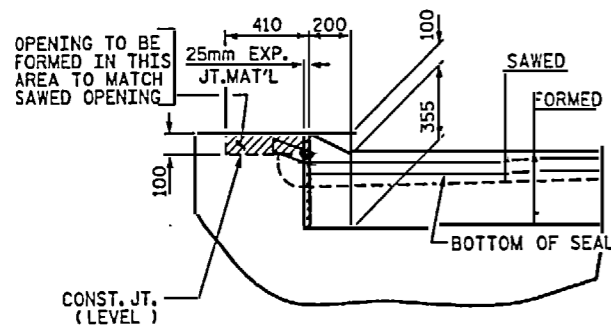
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT



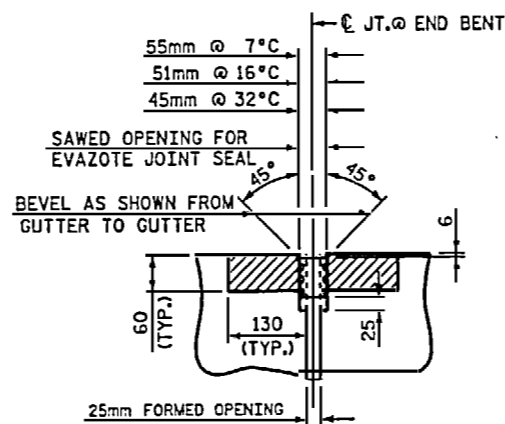
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SECTION A-A

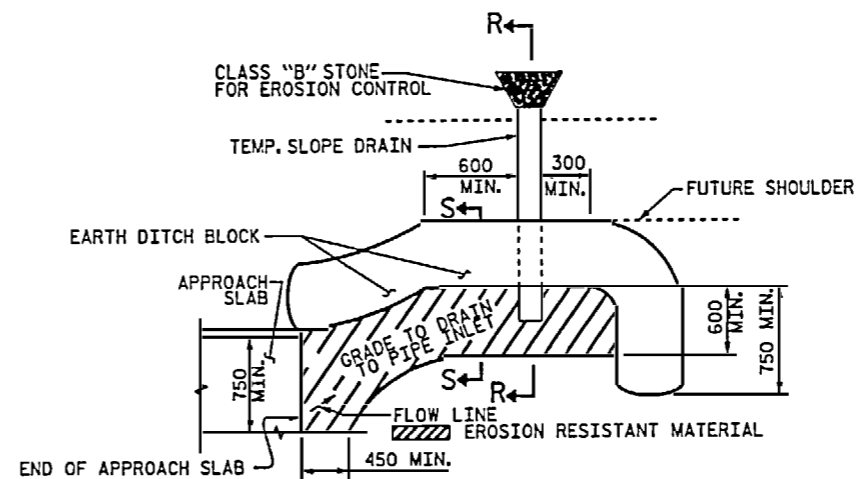


SECTION B-B



SECTION C-C

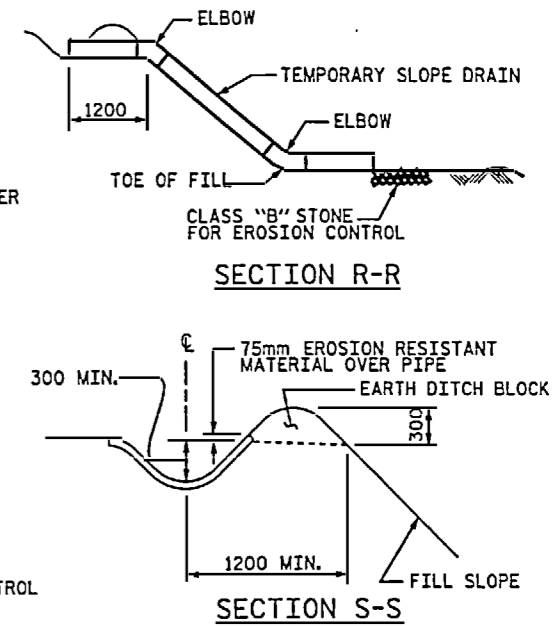
JOINT SEAL DETAILS @ END BENT
(FOR METAL RAILS WITH CURB)



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. 50mm 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, 305mm IN DIAMETER.

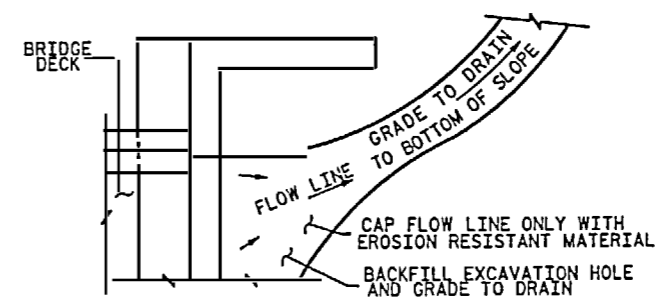
PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS



SECTION R-R

SECTION S-S



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 PROVING 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. B-2938
CARTERET-ONSLow COUNTY
STATION: 12+47.510 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH
SLAB DETAILS

MECHANICAL BUTT SPLICING FOR REINFORCING STEEL

(10-12-01)

1.0 GENERAL

When mechanically butt splicing reinforcing steel, use a standard metal filled sleeve, cement mortar filled sleeve, threaded steel couplings, forged steel sleeve, cold-forged sleeve or an exothermic process whereby molten filler metal, contained by a high strength steel sleeve of larger inside diameter than the bars, is introduced into the annular space between the bars and the sleeve and also between the ends of the bars. Provide a splice that is capable of transferring at least 125% of the yield strength of the bars from one bar to the other by the mechanical strengths of the splice components.

The following is a list of approved connectors:

Brand Name	Approved Size
Bar-Lock Couplers	#4 - #11 (#13 - #36)
Barsplice Products	
Bar-Grip System	#4 - #18 (#13 - #57)
Grip-Twist System	#4 - #18 (#13 - #57)
Threaded Dowel Bar Coupler	#4 - #8 (#13 - #25)
Erico	
Lenton Interlok Grout-Filled Coupler	#6 - #11 (#19 - #36)
Lenton Position Coupler	#4 - #18 (#13 - #57)
Lenton Standard Coupler	#4 - #18 (#13 - #57)
Quick-Wedge Coupler	#4 - #6 (#13 - #19)
Richmond DB-SAE Dowel Bar Splicer	#4 - #11 (#13 - #36)
Williams Form Engineering Flange Coupler	#4 - #14 (#13 - #43)
Zap Screwlok	#4 - #11 (#13 - #36)

For splices not on the approved list, as a condition of approval, assemble three test splices in the presence of the Engineer for each of the bar materials identical to that which is proposed for use in the structure and forward the test splices to N. C. Department of Transportation Materials and Tests Unit in Raleigh, N.C.

When an exothermic connector is used, do not let the splice depend upon fusion of the filler metal with the bars. Select a temperature for heating the bars that is below the melting point of the bars and is sufficiently low so as not to significantly affect the original hardness nor decrease the structural properties of the bars. Visual inspection of the finished splices is sufficient; the splice is acceptable if sound filler metal is present at both ends of the splice sleeve and at the sleeve entry port.

Splice the bars in accordance with the manufacturer's recommendations using the manufacturer's required accessories as approved by the Engineer. Use mechanical butt splices only where specified on the plans. Any additional splices require approval.

If bars are epoxy coated, strip the epoxy coating within the limits of the sleeve prior to splicing. After making the splice, paint any unprotected areas of the reinforcing bar and the coupling sleeve with epoxy paint as described in the Standard Specifications.

2.0 BASIS OF PAYMENT

No separate measurement or payment will be made for this work. The following pay items will be full compensation for the above work as follows:

- The unit contract price bid for "Reinforced Concrete Deck Slab" will be full compensation for mechanical butt splices in concrete decks.
- The unit contract price bid for "Reinforcing Steel" or "Epoxy Coated Reinforcing Steel" will be full compensation for mechanical butt splices in bridge substructures and cast-in-place culverts.

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 250	--	140 MPa
- AASHTO M270 GRADE 345W	--	190 MPa
- AASHTO M270 GRADE 345	--	190 MPa
REINFORCING STEEL IN TENSION		
GRADE 420	--	165 MPa
CONCRETE IN COMPRESSION	-----	8.3 MPa
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	12 MPa
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	2.6 MPa
EQUIVALENT FLUID PRESSURE OF EARTH	-----	480 kg/m ³
		(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 2002 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; CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP; AND CLASS S SHALL BE USED FOR UNDERWATER FOOTING SEALS.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 19mm WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 38mm RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 6mm 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 6mm 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 300mm 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 22.23mm Ø SHEAR STUDS FOR THE 19.05mm Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 22.23mm Ø STUDS FOR 4 - 19.05mm Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 22.23mm Ø STUDS ALONG THE BEAM AS SHOWN FOR 19.05mm Ø STUDS BASED ON THE RATIO OF 3 - 22.23mm Ø STUDS FOR 4 - 19.05mm Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 610mm.

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 8mm IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 50mm 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.

PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-1.1.

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 2mm 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.