

SECTION ALONG SBL WORKLINE

NOTES :

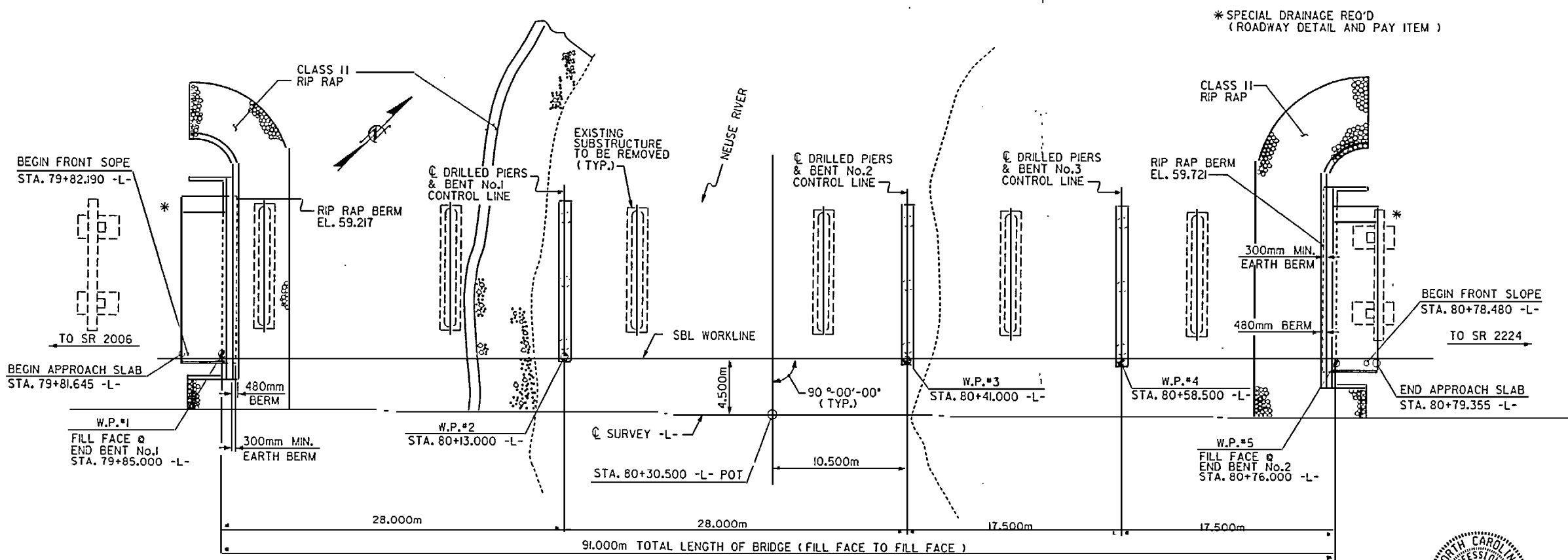
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
- ALL ELEVATIONS ARE IN METERS.
- ASSUMED LIVE LOAD = MS 18 OR ALTERNATE LOADING.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET S-NM.
- REINFORCED CONCRETE DECK SLAB SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 41.3 MPa AND SHALL CONTAIN CLASS F FLY ASH, FOR REINFORCED CONCRETE DECK SLAB @ STA. 80+30.500-L-, SEE SPECIAL PROVISIONS.
- FOR FABRICATED METAL STAY-IN-PLACE FORMS, SEE SPECIAL PROVISIONS.
- FOR HIGH STRENGTH PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.
- PRESTRESSING STRANDS FOR ALL GIRDERS SHALL BE 15.24mm Ø L.R. STRANDS.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 2.0m. LEFT OF C SURVEY - AS DIRECTED BY THE ENGINEER, THIS WORK WILL BE MEASURED AND PAID FOR AS UNCLASSIFIED STRUCTURE EXCAVATION.
- THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- FOR FALSEWORK AND FORMS OVER OR ADJACENT TO TRAFFIC, SEE SPECIAL PROVISIONS.
- FOR ADDITIONAL NOTES, SEE SHEET 3 OF 3.

HYDROGRAPHIC DATA

DESIGN DISCHARGE	= 255m ³ /s
FREQUENCY OF DESIGN FLOOD	= 50 yrs.
DESIGN HIGH WATER ELEVATION	= 58.51
DRAINAGE AREA	= 2160 sq.km.
BASIC DISCHARGE (Q100)	= 354m ³ /s
BASIC HIGH WATER ELEVATION	= 59.25

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 570± m ³ /s
FREQUENCY OF OVERTOPPING FLOOD	= 500 yrs.+
OVERTOPPING FLOOD ELEVATION	= 61.71



PLAN

NOTE: ALL BENTS & END BENTS ARE PARALLEL.

(PILES ARE NOT SHOWN IN PLAN VIEW)



PROJECT No. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-
SHEET 1 OF 3 REPLACES BRIDGE No. 131

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
(SBL)
BRIDGE OVER NEUSE RIVER
ON US-401 BETWEEN
SR 2006 AND SR 2224

REVISIONS						SHEET No.
No.	DATE	BY	DATE	BY	DATE	5-55
1						TOTAL SHEETS 142
2						

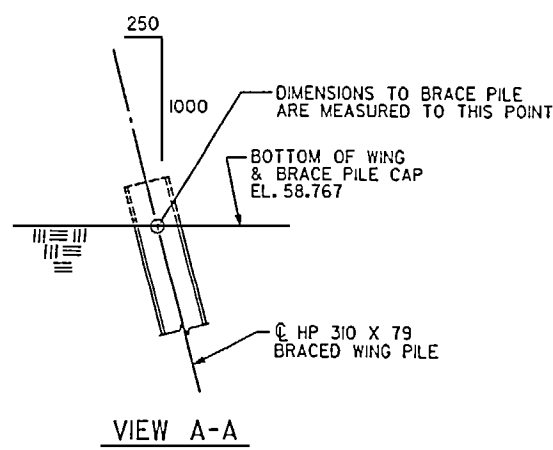
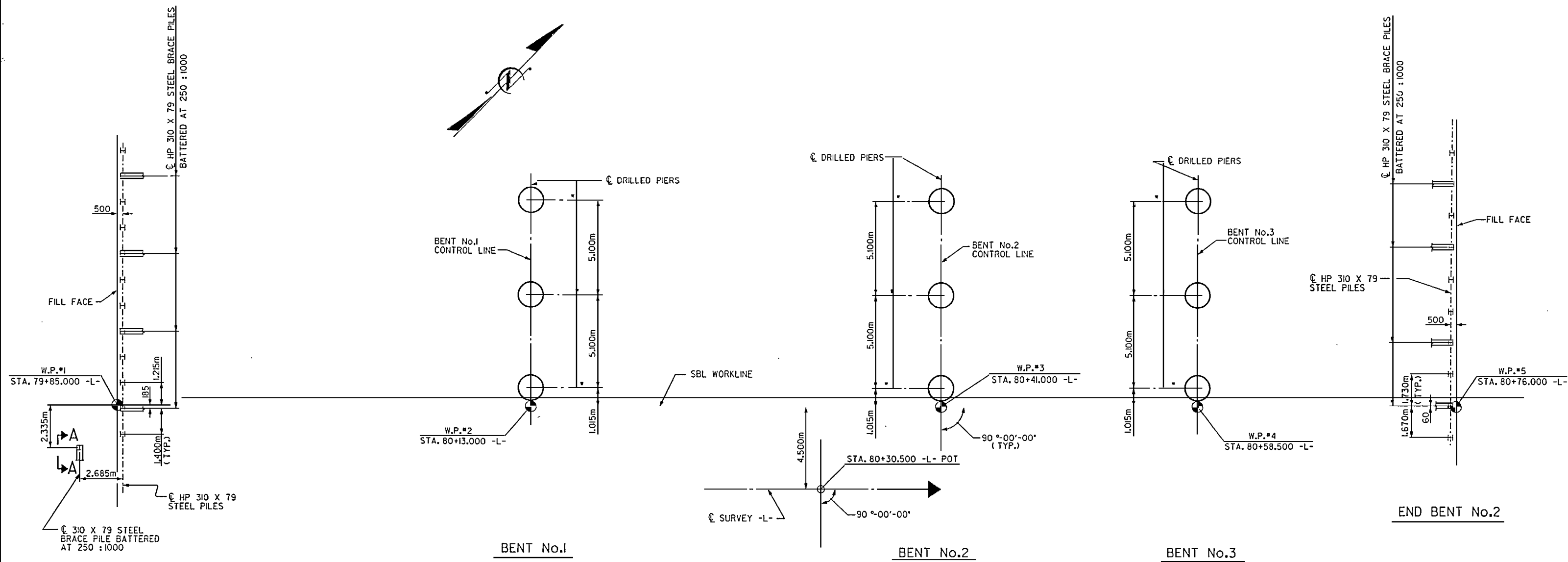
DRAWN BY: M.J. HOGAN DATE: 6/5/96
CHECKED BY: J.M. BERTH DATE: 6-17-96

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6-17-98

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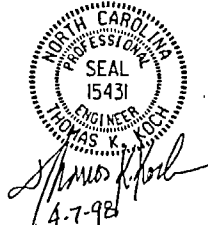


FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE)

PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-

SHEET 2 OF 3

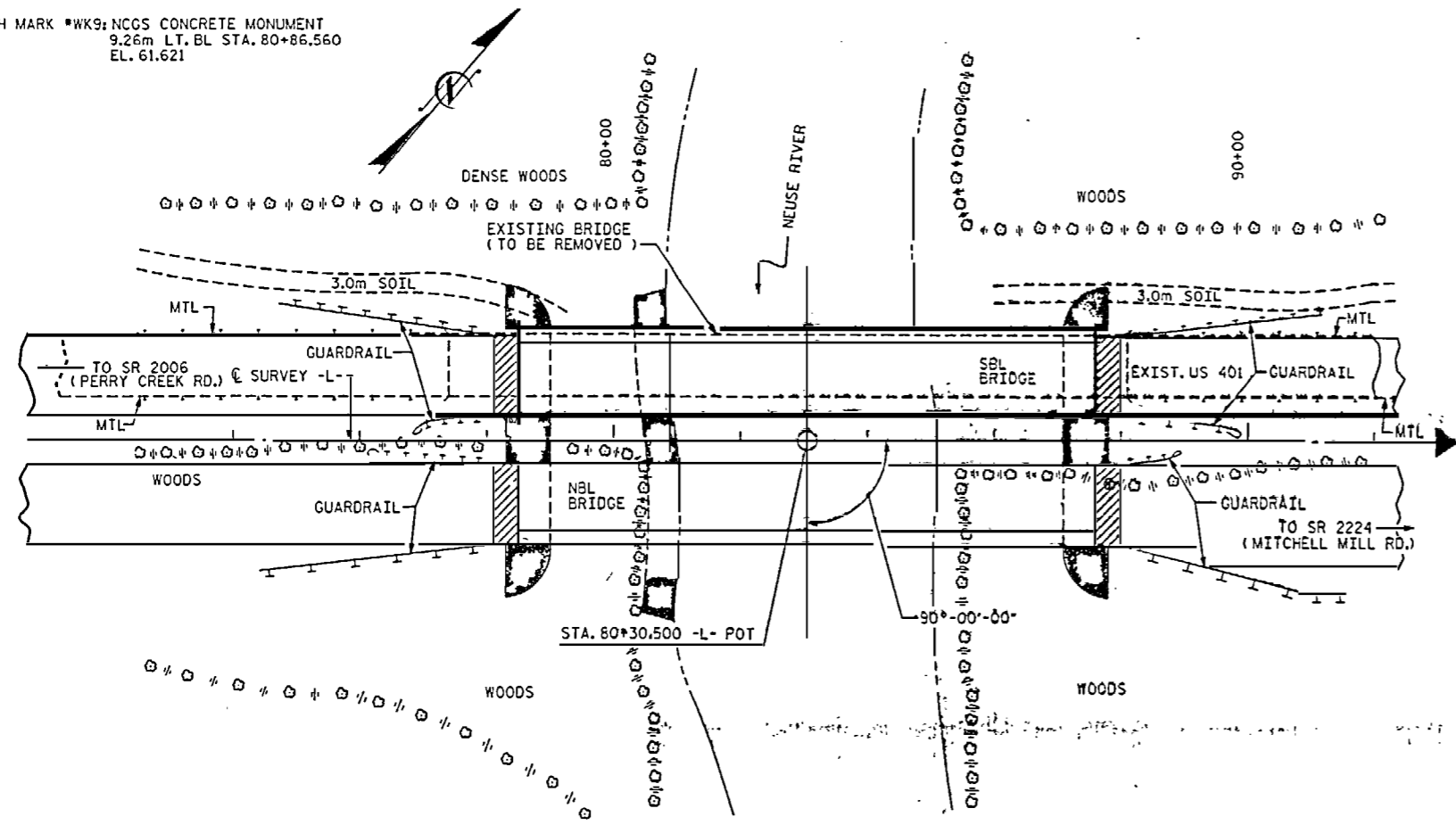


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 (SBL)
 BRIDGE OVER NEUSE RIVER
 ON US-401 BETWEEN
 SR 2006 AND SR 2224

REVISIONS						SHEET NO. 5-56
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 142
2			4			

DRAWN BY : M.J. HOGAN DATE : 5/15/97
 CHECKED BY : J.M. BRIT DATE : 10-6-97

BENCH MARK WK9: NCGS CONCRETE MONUMENT
9.26m LT. BL STA. 80+86.560
EL. 61.621



LOCATION SKETCH

NOTE:
FOR UTILITY INFORMATION, SEE
UTILITY PLANS AND SPECIAL PROVISIONS.

NOTES: (CONTINUED FROM SHEET 1 OF 3)

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.
THE REQUIRED TIP BEARING PRESSURE FOR ALL INTERIOR BENTS IS 1750 KPa.
THE MINIMUM TIP ELEVATIONS FOR THE INTERIOR BENTS ARE:
BENT No.1 - 44.500m
BENT No.2 AND No.3 - 43.000m.
THE SCOUR CRITICAL ELEVATION FOR ALL INTERIOR BENTS IS 48.500m. THIS ELEVATION IS FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
THERE SHALL BE A TWO MONTH WAITING PERIOD BEFORE CONSTRUCTION OF APPROACH SLABS AFTER COMPLETION OF APPROACH EMBANKMENTS.
1370mm Ø PERMANENT STEEL CASINGS ARE REQUIRED FOR DRILLED PIERS AT BENTS No.1 & No.2. THE 1370mm Ø PERMANENT CASINGS SHOULD NOT EXTEND BELOW ELEVATIONS 50.5m AND 50.0m RESPECTIVELY.
PERMANENT STEEL CASINGS ARE NOT REQUIRED FOR DRILLED PIERS AT BENT No.3.
FOR PERMANENT STEEL CASINGS, SEE SPECIAL PROVISION FOR "DRILLED PIERS".
FOR PILE INTEGRITY TEST (P.I.T.), SEE SPECIAL PROVISIONS.
PILES FOR END BENTS SHALL BE DRIVEN TO MINIMUM BEARING CAPACITY OF 450 KN EACH.
FOR PILE DRIVING ACCURACY, 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," APRIL, 1993.
THE EXISTING STRUCTURE LOCATED AT THE SITE OF THE PROPOSED SOUTH BOUND LANE BRIDGE SHALL BE REMOVED.
THE EXISTING STRUCTURE CONSISTS OF:
SUPERSTRUCTURE :
REINFORCED CONCRETE DECK ON 5 REINFORCED CONCRETE GIRDERS WITH A CLEAR ROADWAY WIDTH OF 7.866m AND 7 SPANS AT 15.240m EACH.
SUBSTRUCTURE :
REINFORCED CONCRETE POST AND BEAM END BENTS AND REINFORCED CONCRETE POST AND WEB PIER INTERIOR BENTS.
FOR CURING BRIDGE DECK SLABS, SEE THE SPECIAL PROVISION "REINFORCED CONCRETE DECK SLAB @ STA.80+30.500-L-".
FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.
FOR EROSION CONTROL REQUIREMENTS FOR THIS STRUCTURE, SEE EROSION CONTROL PLANS.
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 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 METRIC REINFORCING STEEL FOR STRUCTURES, SEE SPECIAL PROVISIONS.
FOR METRIC STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	1370mm Ø DRILLED PIERS NOT IN ROCK	1370mm Ø DRILLED PIERS IN ROCK	1370mm Ø PERMANENT STEEL CASING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB @ STA. 80+30.500-L-	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	1143mm PRESTRESSED CONCRETE GIRDERS (HIGH STRENGTH)	1372mm PRESTRESSED CONCRETE GIRDERS (HIGH STRENGTH)	HP 310 X 79 STEEL PILES	THREE BAR METAL RAIL	CONCRETE BARRIER RAIL	PLAIN RIP RAP CLASS II (600mm THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	ELECTRICAL CONDUIT SYSTEM	TEMPORARY ROCK CAUSEWAY
	LUMP SUM	METERS	METERS	METERS	CU. METERS	60. METERS	60. METERS	CU. METERS	LUMP SUM	KG	KG	NO. METERS	NO. METERS	NO. METERS	METERS	METERS	METRIC TONS	60. METERS	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	LUMP SUM					1298.6	998.4		LUMP SUM		10	171.750	10	276.850	88.054	90.364			LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM
END BENT No.1					360			28.1		2605				13	97.5		176	176				
BENT No.1		26.0	3.4	11.4				37.4		7587							225	225				
BENT No.2		30.8	3.3					39.8		8229												
BENT No.3		36.0	3.3					21.8		8036												
END BENT No.2								25.7		2406				10	145.0		231	231				
TOTAL	LUMP SUM	92.6	10.0	24.3	360	1298.6	998.4	161.8	LUMP SUM	28863	6378	10	171.750	23	242.5	88.054	90.364	632	632	LUMP SUM	LUMP SUM	LUMP SUM



PROJECT No. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
(SBL)
BRIDGE OVER NEUSE RIVER
ON US-401 BETWEEN
SR 2006 AND SR 2224

REVISSED TO ADAPT FOR DRILLED PIERS
MISALIGNED DURING CONSTRUCTION.
BY: MKB DATE: 3-30-01
CHK BY: TKK DATE: 3-30-01

DRAWN BY: M.J. HOGAN DATE: 6/5/96
CHECKED BY: J.M. BRITT DATE: 5/20/98

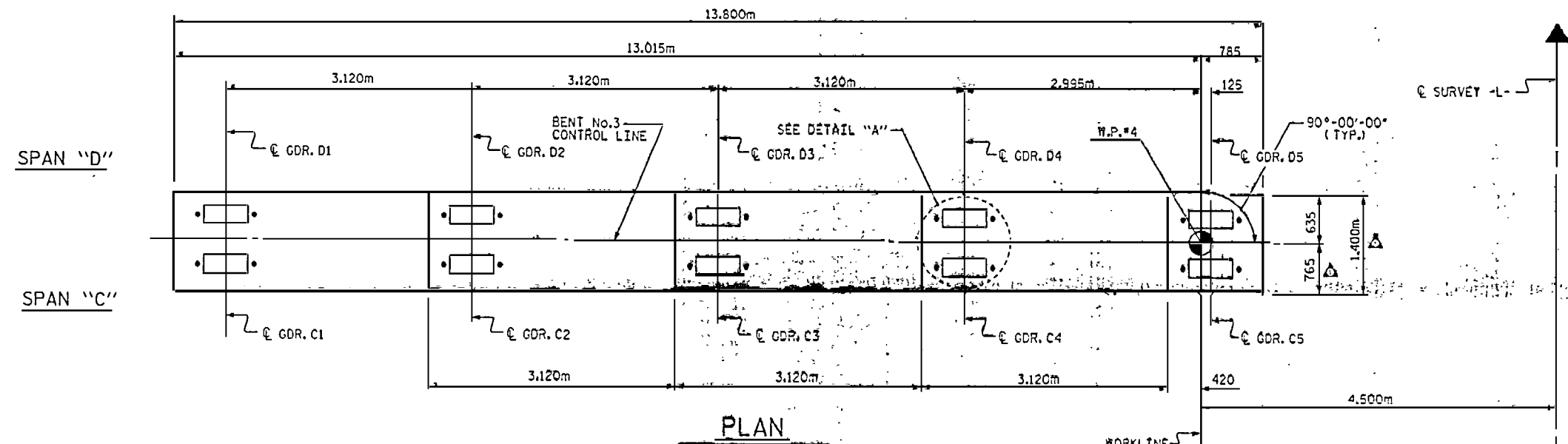
REVISIONS					SHEET No.
No.	BY	DATE	No.	BY	DATE
1	MKB	3-30-01	3		
2			4		

TOTAL SHEETS: 142

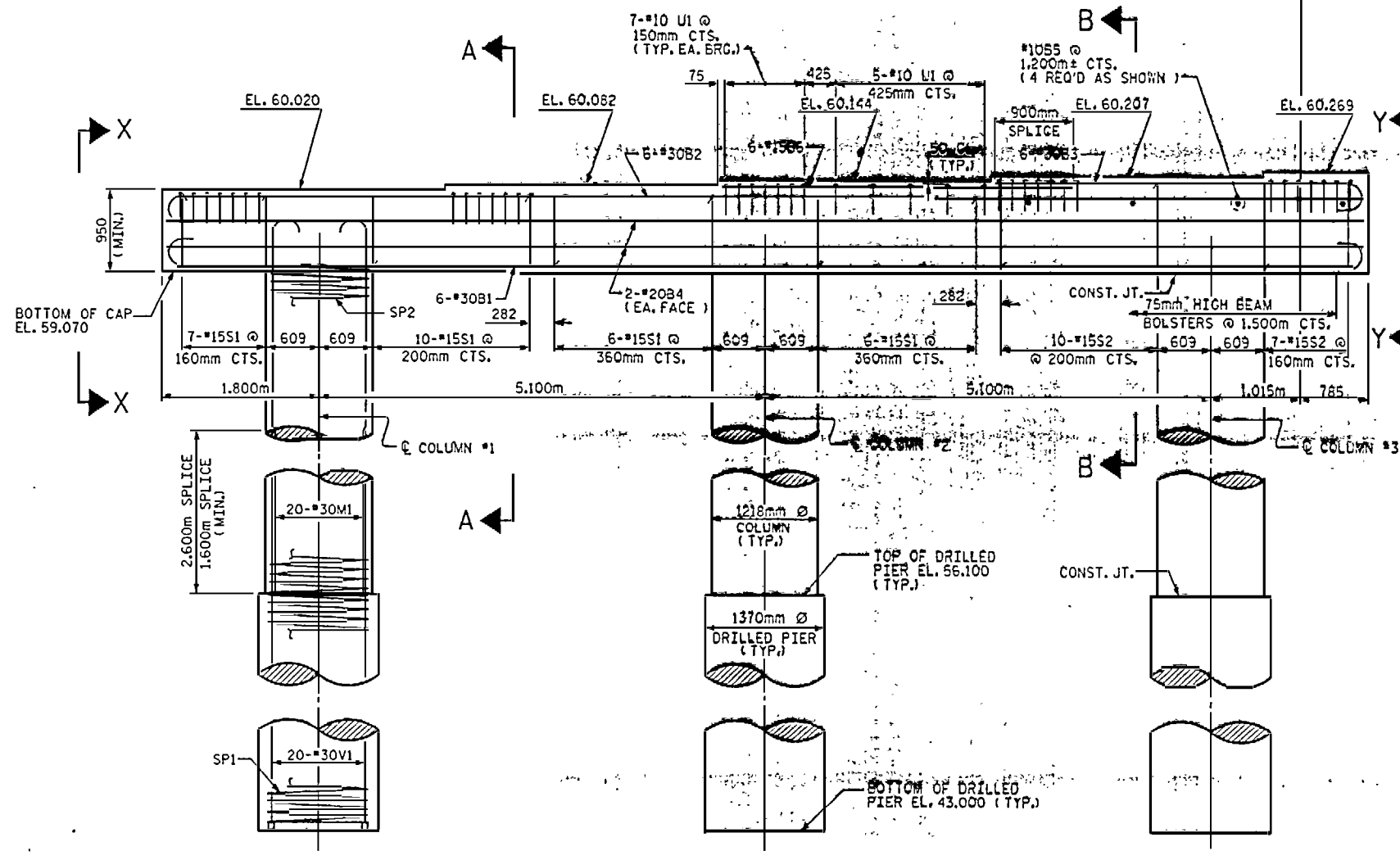
04/19/2001

NOTES

STIRRUPS AND UI BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON "M" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 FOR SPIRAL COLUMN REINFORCING STEEL, SEE SPECIAL PROVISIONS.
 FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.
 FOR PILE INTEGRITY TESTING, SEE SPECIAL PROVISIONS.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR REINFORCING STEEL AND SPIRAL COLUMN REINFORCING STEEL.
 STIRRUPS IN CAP ARE TO BE ALTERNATELY INVERTED.
 THE DRILLED PIERS SHALL BE INSTALLED TO THE MINIMUM TIP ELEVATION SHOWN ON THE PLANS AND SHALL HAVE A MINIMUM DIAMETER OF 1.322m IN THE HARD ROCK ZONE. HARD ROCK SHALL BE DEFINED AS MATERIAL THAT CAN NOT BE CUT WITH A ROCK AUGER AND MUST BE EXCAVATED BY CORING, BLASTING, AIR TOOLS, HAND REMOVAL, OR OTHER ACCEPTABLE METHODS.
 THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIER IS BASED ON ASSUMED GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT AS DETAILED IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 300mm BELOW THE ACTUAL GROUND ELEVATION.



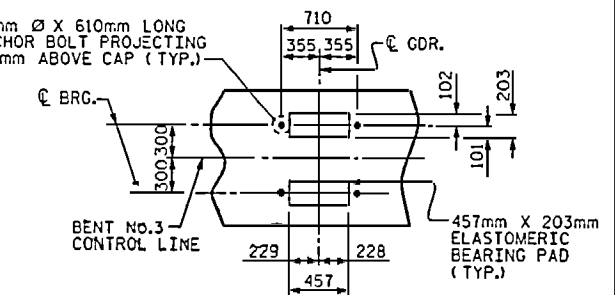
PLAN



ELEVATION

(DIMENSIONS AND REINFORCING STEEL ARE IDENTICAL FOR EACH COLUMN AND DRILLED PIER.)

NOTE:
 FOR REINFORCING STEEL IN END OF CAP SEE VIEWS X-X & Y-Y SHEET 2 OF 2.



DETAIL "A"

(TYP. EA. GDR.)



REVIS TO ADAPT FOR DRILLED PIERS MISALIGNED DURING CONSTRUCTION.
 BY: MKB DATE: 3-30-01
 CHK BY: TKK DATE: 3-30-01

PROJECT NO. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-

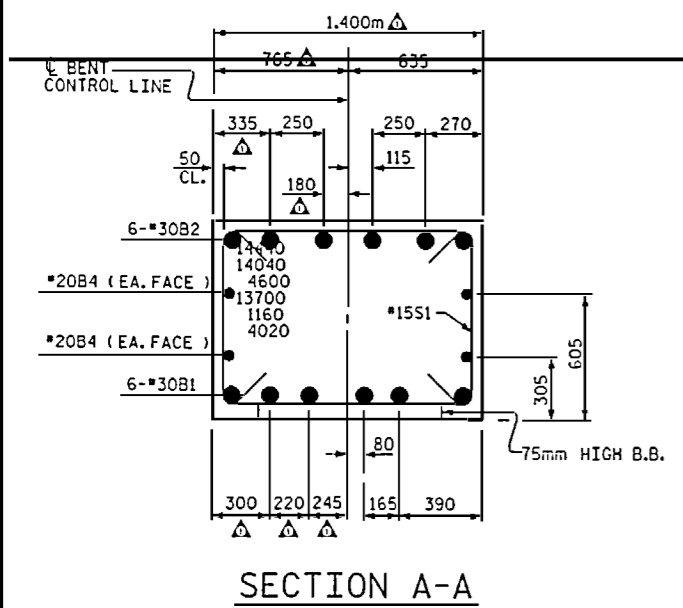
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT No.3
 (SBL)

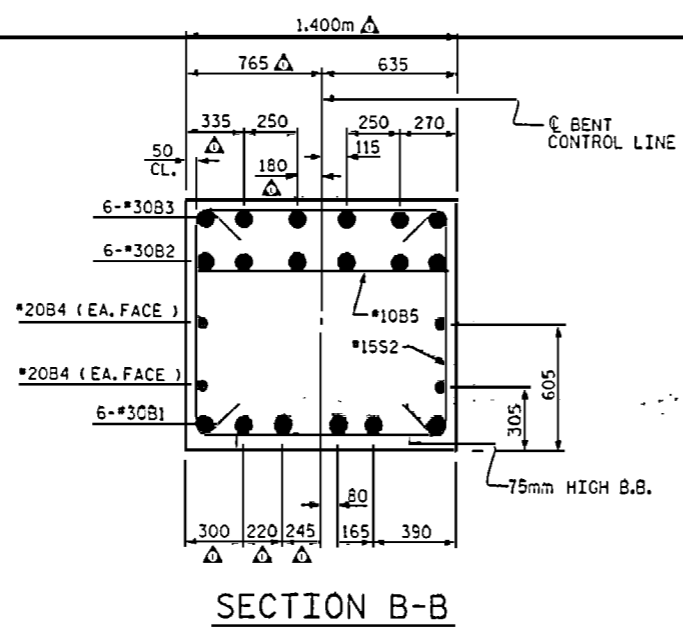
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-88
1	MKB	3-30-01	3			142
2			4			142

DRAWN BY: M.J. HOGAN DATE: 4/21/97
 CHECKED BY: DATE: 4/21/97

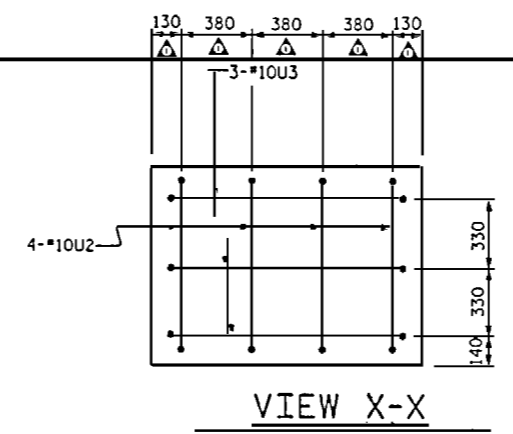
04/19/2001



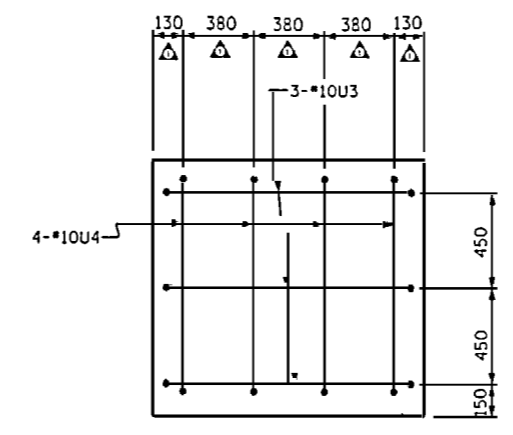
SECTION A-A



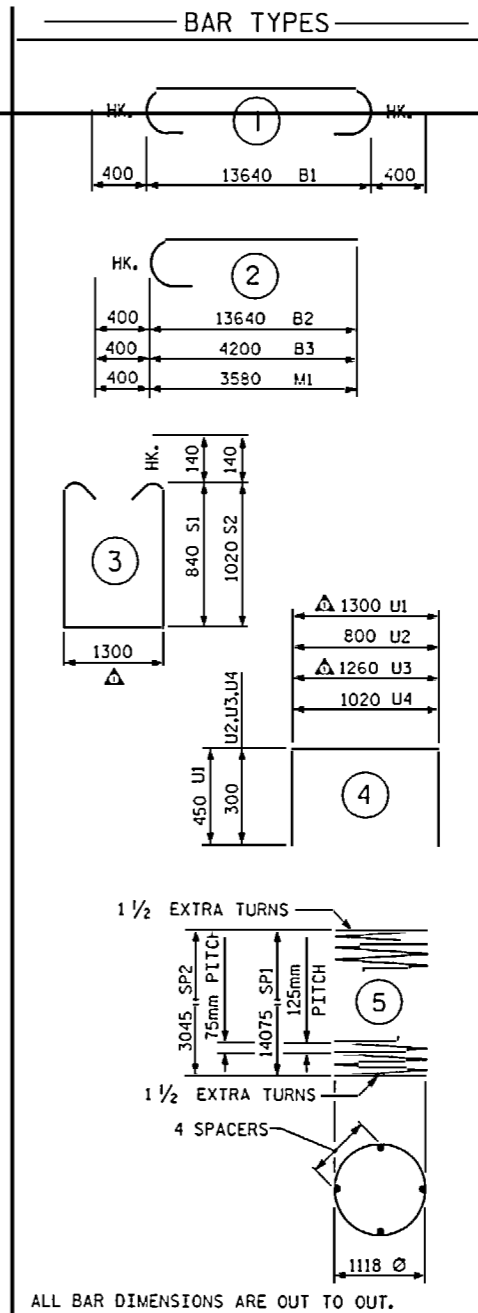
SECTION B-B



VIEW X-X

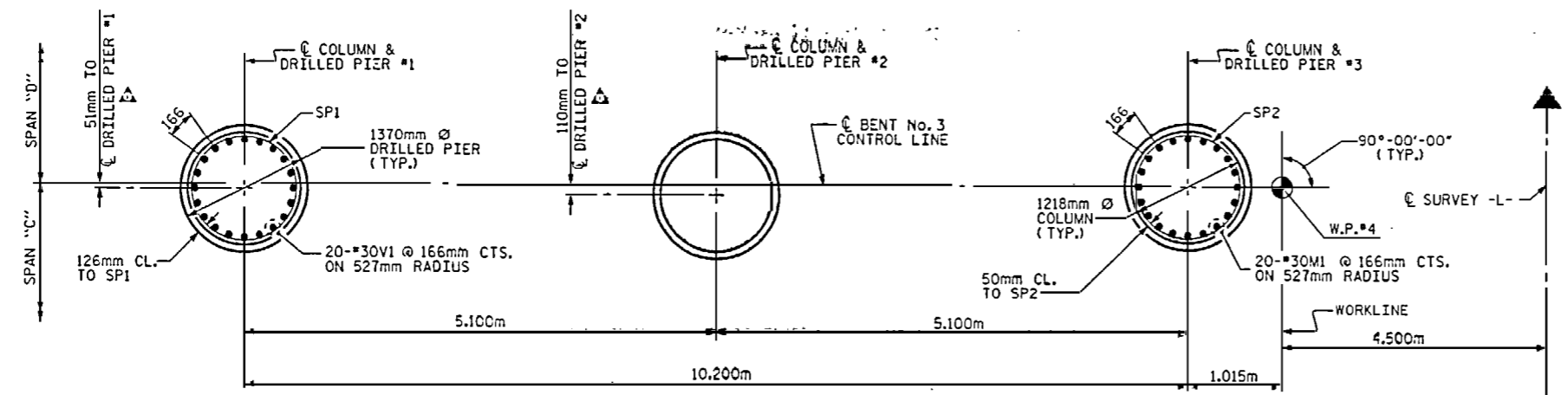
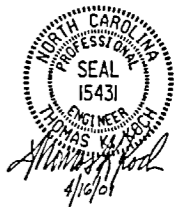


VIEW Y-Y



BILL OF MATERIAL	
BENT NO.3	
BAR	NO. SIZE TYPE LENGTH WEIGHT
B1	6 30 1 14440 476
B2	6 30 2 14040 463
B3	6 30 2 4600 152
B4	4 20 STR 13700 129
B5	4 10 STR 1160 4
B6	6 15 STR 4020 38
M1	60 30 2 3980 1312
S1	29 15 3 3260 148
S2	17 15 3 3620 97
U1	40 10 4 2200 69
U2	4 10 4 1400 4
U3	6 10 4 1860 9
U4	4 10 4 1620 5
V1	60 30 STR 15560 5130
REINFORCING STEEL kg 8,036	
SPIRAL COLUMN REINFORCING STEEL	
SP1	3 - 5 401860 1893
SP2	3 - 5 153060 360
SPIRAL COLUMN REINFORCING STEEL kg. 2,253	
DRILLED PIER CONCRETE	
POUR #1 (DRILLED PIERS)	m ³ 57.9
TOTAL DRILLED PIER CONCRETE	m ³ 57.9
CLASS A CONCRETE BREAKDOWN	
POUR #2 (COLUMNS)	m ³ 10.4
POUR #3 (CAP)	m ³ 20.4
TOTAL CLASS A CONCRETE	m ³ 30.8
1370mm Ø DRILLED PIERS IN ROCK	m 3.3
1370mm Ø DRILLED PIERS NOT IN ROCK	m 36.0

NOTE:
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH ONE METER OF EXTRA LENGTH.



PLAN OF COLUMNS & DRILLED PIERS

(REINFORCING STEEL SHOWN IS TYPICAL FOR EACH COLUMN & DRILLED PIER)

DRAWN BY: M. J. HOGAN DATE: 4/24/97
CHECKED BY: T.G. PAYNE DATE: 2/1/98

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REVISOR 1
REVISED TO ADAPT FOR DRILLED PIERS MISALIGNED DURING CONSTRUCTION.
BY: MKB DATE: 3-30-01
CHK BY: TTK DATE: 3-30-01

REVISIONS						SHEET NO. S-89
NO.	BY	DATE	NO.	BY	DATE	
1	MKB	3-30-01	3			1021 SHEETS 142
2			4			

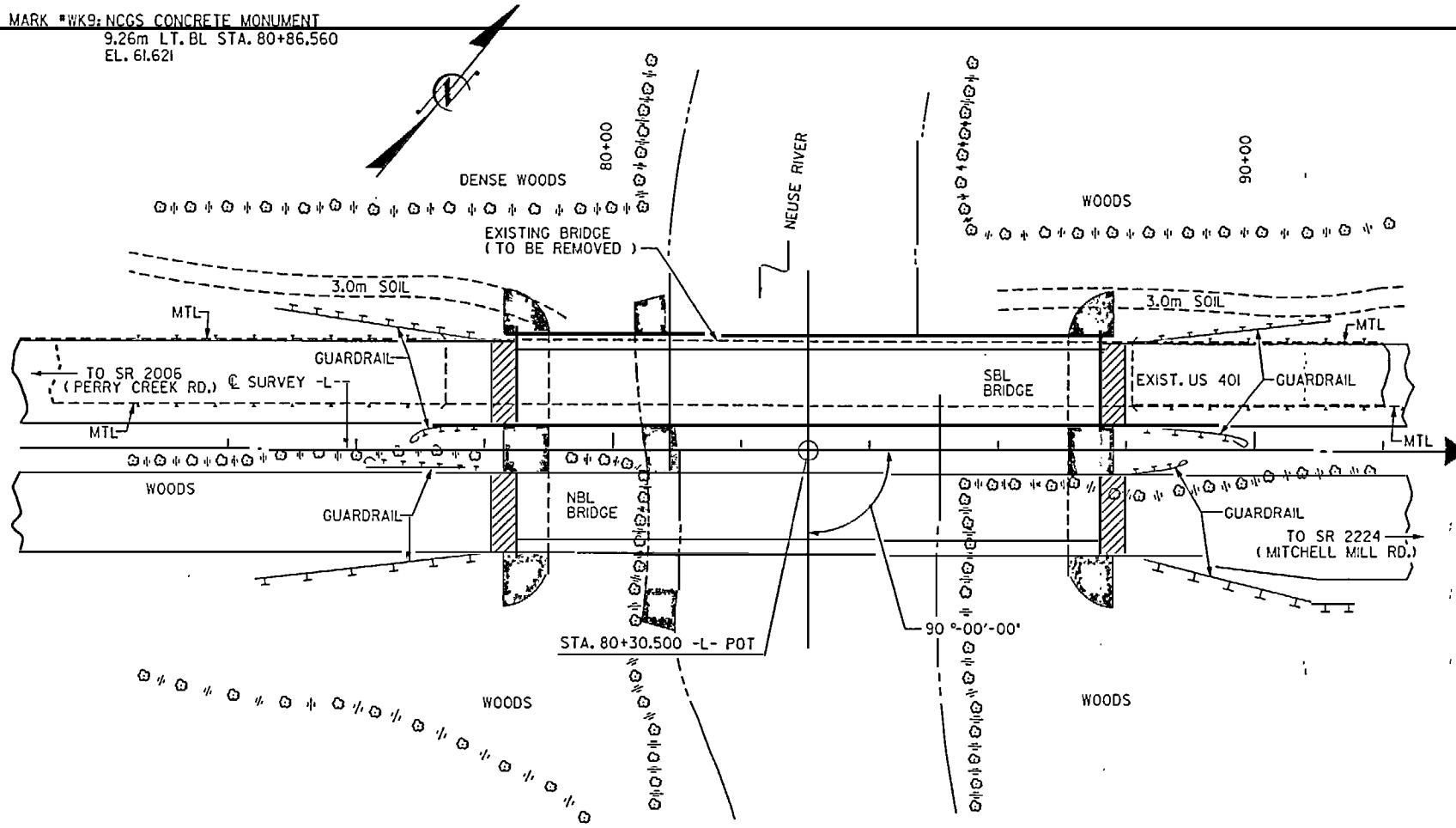
PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

SHEET 2 OF 2
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT No.3
(SBL)

STR.#1
APR 25 2001

1002/61/90

BENCH MARK *WK9: NCGS CONCRETE MONUMENT
 9.26m LT. BL. STA. 80+86.560
 EL. 61.621



LOCATION SKETCH

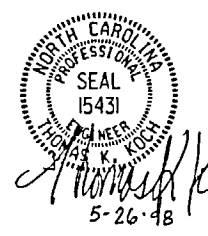
NOTE:
 FOR UTILITY INFORMATION, SEE
 UTILITY PLANS AND SPECIAL PROVISIONS.

NOTES: (CONTINUED FROM SHEET 1 OF 3)

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.
 THE REQUIRED TIP BEARING PRESSURE FOR ALL INTERIOR BENTS IS 1750 kPa.
 THE MINIMUM TIP ELEVATIONS FOR THE INTERIOR BENTS ARE:
 BENT No.1 - 44.500m
 BENT No.2 AND No.3 - 43.000m.
 THE SCOUR CRITICAL ELEVATION FOR ALL INTERIOR BENTS IS 48.500m. THIS ELEVATION IS FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
 THERE SHALL BE A TWO MONTH WAITING PERIOD BEFORE CONSTRUCTION OF APPROACH SLABS AFTER COMPLETION OF APPROACH EMBANKMENTS.
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 PERMANENT STEEL CASINGS ARE NOT REQUIRED FOR DRILLED PIERS AT BENT No.3.
 FOR PERMANENT STEEL CASINGS, SEE SPECIAL PROVISION FOR 'DRILLED PIERS'.
 FOR PILE INTEGRITY TEST (P.I.T.), SEE SPECIAL PROVISIONS.
 PILES FOR END BENTS SHALL BE DRIVEN TO MINIMUM BEARING CAPACITY OF 450 KN EACH.
 FOR PILE DRIVING ACCURACY, 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,' APRIL, 1993.
 THE EXISTING STRUCTURE LOCATED AT THE SITE OF THE PROPOSED SOUTH BOUND LANE BRIDGE SHALL BE REMOVED.
 THE EXISTING STRUCTURE CONSISTS OF:
 SUPERSTRUCTURE :
 REINFORCED CONCRETE DECK ON 5 REINFORCED CONCRETE GIRDERS WITH A CLEAR ROADWAY WIDTH OF 7.866m AND 7 SPANS AT 15.240m EACH.
 SUBSTRUCTURE :
 REINFORCED CONCRETE POST AND BEAM END BENTS AND REINFORCED CONCRETE POST AND WEB PIER INTERIOR BENTS.
 FOR CURING BRIDGE DECK SLABS, SEE THE SPECIAL PROVISION 'REINFORCED CONCRETE DECK SLAB @ STA.80+30.500-L-'.
 FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.
 FOR EROSION CONTROL REQUIREMENTS FOR THIS STRUCTURE, SEE EROSION CONTROL PLANS.
 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 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 METRIC REINFORCING STEEL FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR METRIC STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	1370mm Ø DRILLED PIERS NOT IN ROCK	1370mm Ø DRILLED PIERS IN ROCK	1370mm Ø PERMANENT STEEL CASING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB @ STA. 80+30.500-L-	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	1143mm PRESTRESSED CONCRETE GIRDERS (HIGH STRENGTH)	1372mm PRESTRESSED CONCRETE GIRDERS (HIGH STRENGTH)	HP 310 X 79 STEEL PILES	THREE BAR METAL RAIL	CONCRETE BARRIER RAIL	PLAIN R/P RAP CLASS II (600mm THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	ELECTRICAL CONDUIT SYSTEM	TEMPORARY ROCK CAUSEWAY	
	LUMP SUM	METERS	METERS	METERS	CU. METERS	SO. METERS	SO. METERS	CU. METERS	LUMP SUM	kg	kg	No.	METERS	No.	METERS	METERS	METERS	METERS	SO. METERS	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	LUMP SUM					1298.6	998.4		LUMP SUM			10	171.750	10	276.850					LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM
END BENT No.1					360			28.1		2605				13	97.5								
BENT No.1		26.0	3.4	11.4				37.4		7587	1961							225	225				
BENT No.2		30.6	3.3	12.9				33.8		8229	2164												
BENT No.3		36.0	3.3					28.9		8021	2253												
END BENT No.2								25.7		2406				10	145.0			231	231				
TOTAL	LUMP SUM	92.6	10.0	24.3	360	1298.6	998.4	159.9	LUMP SUM	28848	6378	10	171.750	10	276.850	23	242.5	88.054	90.364	632	632	LUMP SUM	LUMP SUM



PROJECT No. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 (SBL)
 BRIDGE OVER NEUSE RIVER
 ON US-401 BETWEEN
 SR 2006 AND SR 2224

DRAWN BY : M.J. HOGAN DATE : 6/5/96
 CHECKED BY : J.M. BERT DATE : 5-20-98

REVISIONS						SHEET No.
No.	By	Date	No.	By	Date	TOTAL SHEETS
1			3			142
2			4			

NOTES

PROVIDE CONTINUOUS HIGH CHAIR FOR METAL DECK (C.H.C.M.) @ 1.200m CENTERS WITH LEG SPACING TO MATCH THE PITCH OF THE FORM AND WITH A HEIGHT TO SUPPORT THE BOTTOM LAYER OF SLAB REINFORCEMENT A CLEAR DISTANCE OF 30mm ABOVE THE TOP OF THE STAY-IN-PLACE FORM.

FOR FABRICATED METAL STAY-IN-PLACE FORMS, SEE SPECIAL PROVISIONS

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY AS NECESSARY TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

FOR REMOVAL OF FALSEWORK ON BENT DIAPHRAGMS, SEE SPECIAL PROVISION FOR METAL STAY-IN-PLACE FORMS.

PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 28 MPa BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

BARRIER RAIL AND SIDEWALK IN EACH CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 28 MPa.

THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL AND SIDEWALK.

TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 32mm DIAMETER TIE RODS SHALL BE FULLY TIGHTENED BEFORE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RETIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

REINFORCED CONCRETE DECK SLAB SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 41.3 MPa AND SHALL CONTAIN CLASS F FLY ASH. FOR REINFORCED CONCRETE DECK SLAB @ STA. 80+30.500-L-, SEE SPECIAL PROVISIONS.

CONCRETE IN INTERMEDIATE DIAPHRAGMS MAY BE CLASS A. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.

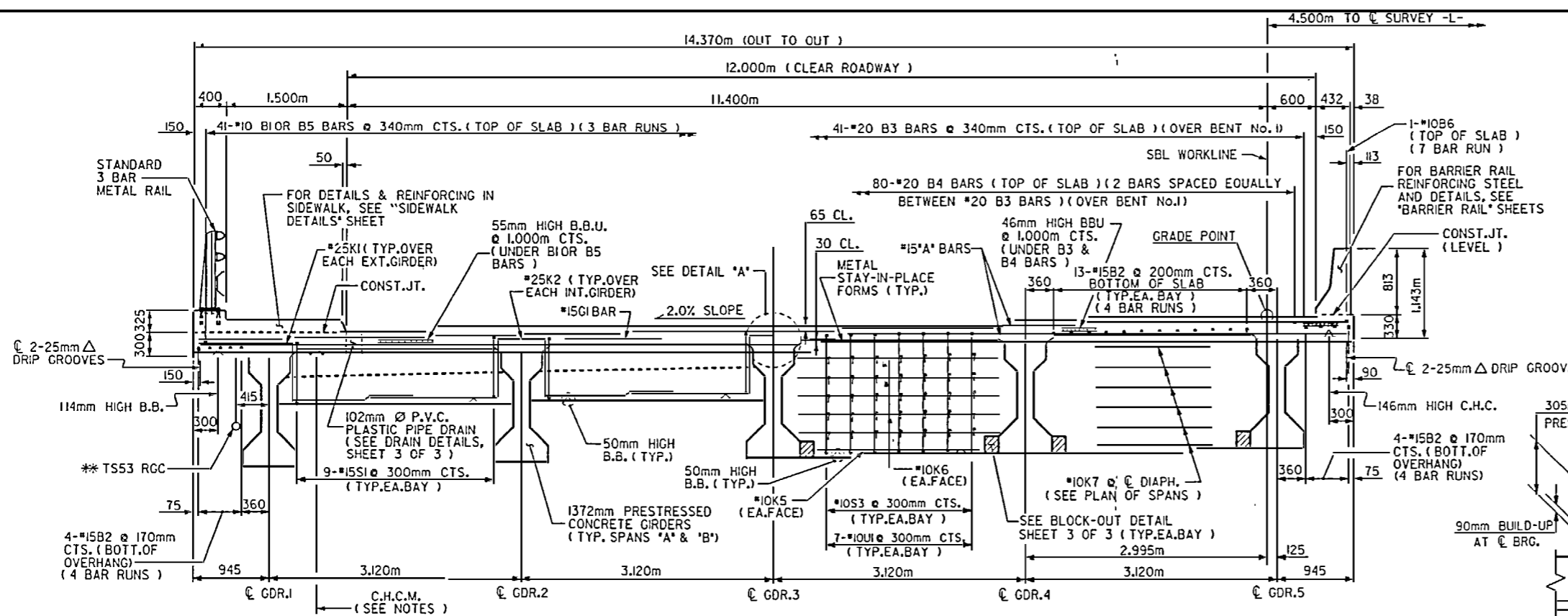
*15G1 BARS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND STIRRUPS.

ALL REINFORCING STEEL IN BARRIER RAIL AND SIDEWALK SHALL BE EPOXY COATED.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL AT BENT No.2 SHALL BE 87mm.

THE CONTRACTOR MAY, AT HIS OPTION, USE A COMPRESSION JOINT SEAL IN LIEU OF THE EVAZOTE JOINT SEAL. SEE SPECIAL PROVISION FOR OPTIONAL PREFORMED COMPRESSION JOINT SEALS.



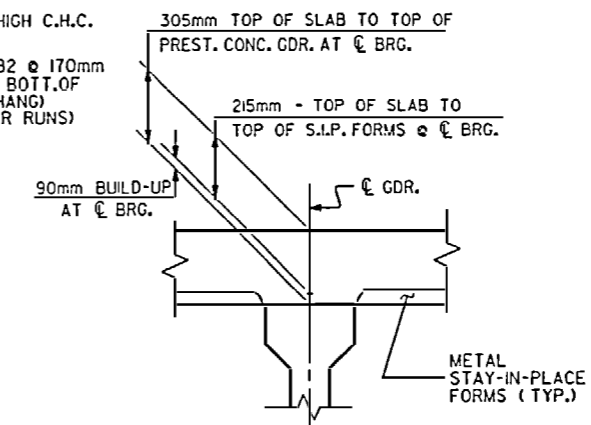
HALF TYPICAL SECTION

SHOWING END BENT DIAPHRAGM @ END BENT No.1 AND BENT DIAPHRAGM @ BENT No.2 (SPAN 'B' SIDE)

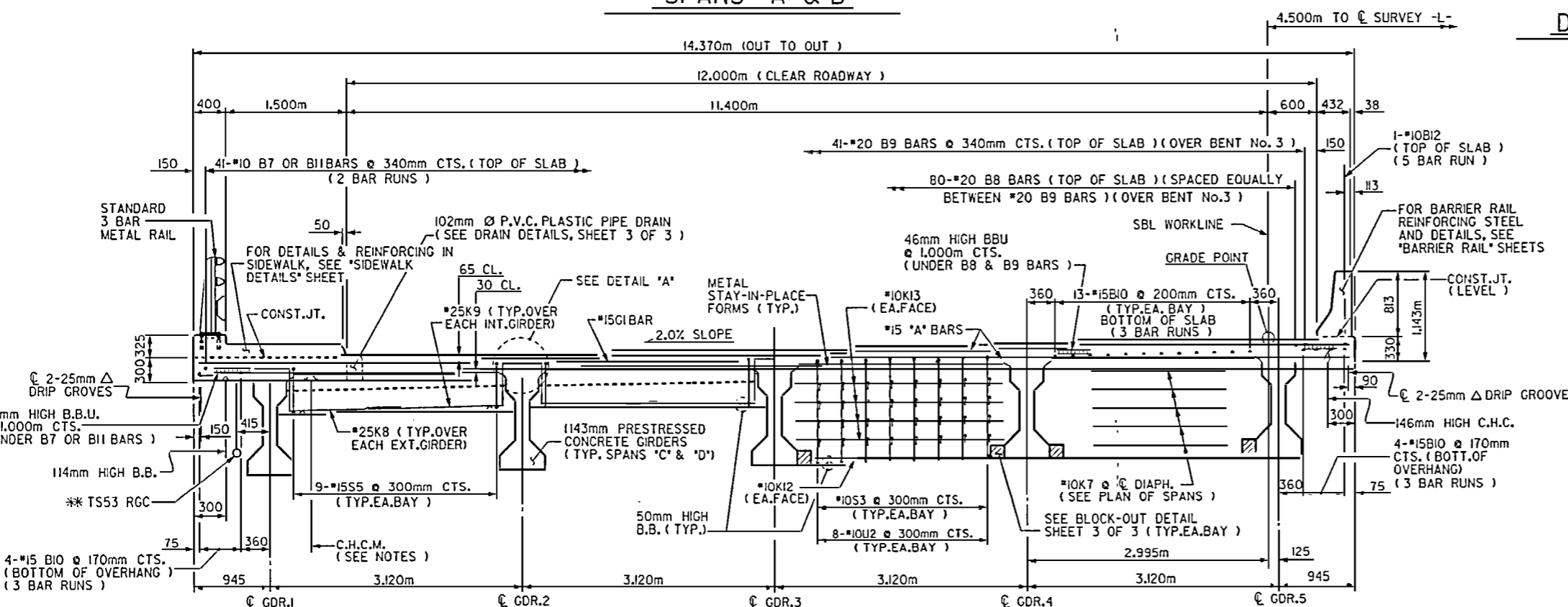
HALF TYPICAL SECTION

SHOWING BENT DIAPHRAGM @ BENT No.1

SPANS 'A' & 'B'



DETAIL 'A'



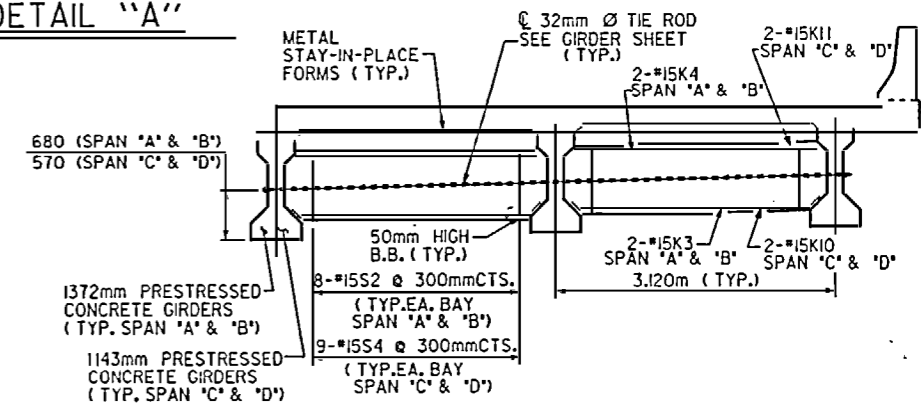
HALF TYPICAL SECTION

SHOWING END BENT DIAPHRAGM @ END BENT No.2 AND BENT DIAPHRAGM @ BENT No.2 (SPAN 'C' SIDE)

HALF TYPICAL SECTION

SHOWING BENT DIAPHRAGM @ BENT No.3

SPANS 'C' & 'D'



TYPICAL SECTION

SHOWING INTERMEDIATE DIAPHRAGMS

PROJECT NO. R-2425 C

WAKE COUNTY

STATION: 80+30.500 -L-

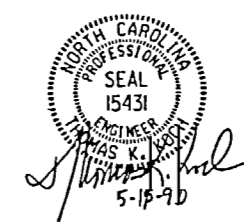
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTION
(SBL)

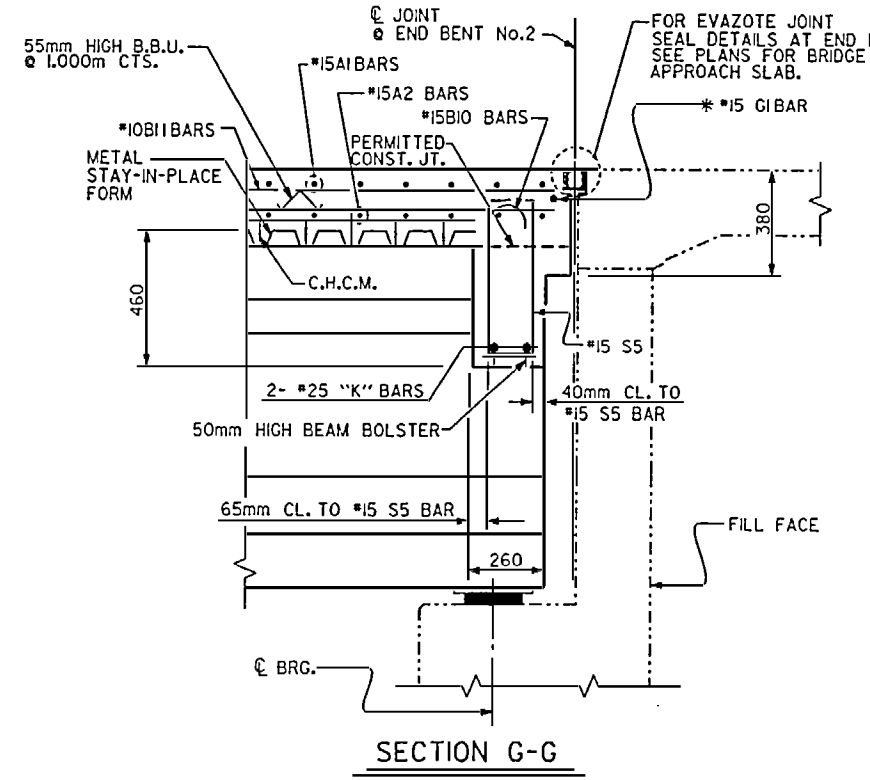
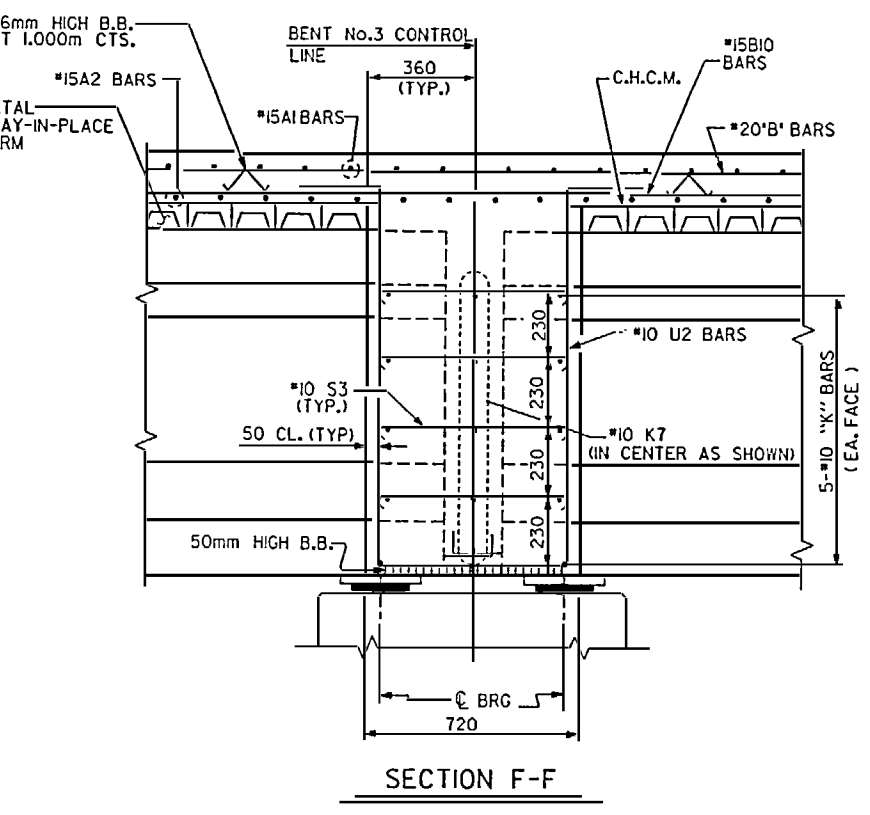
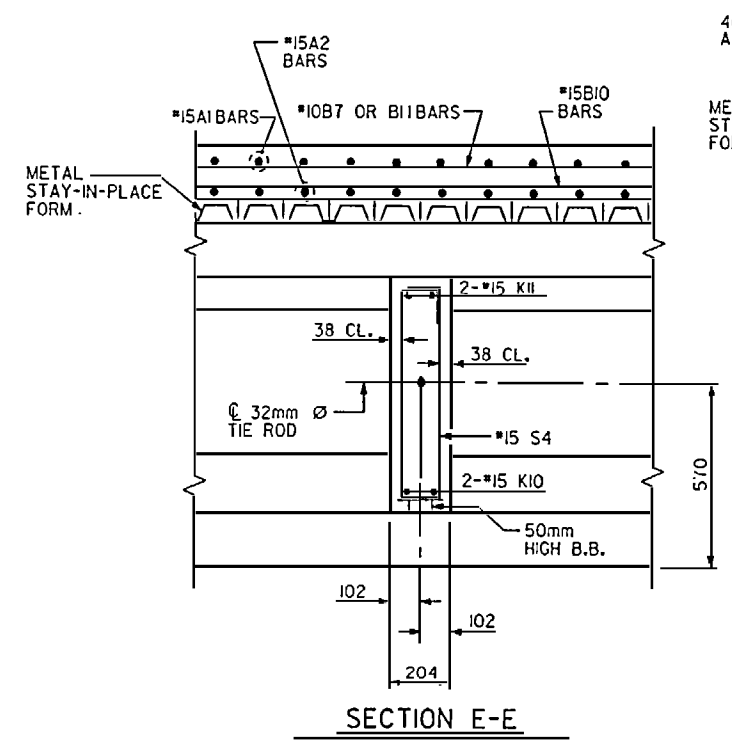
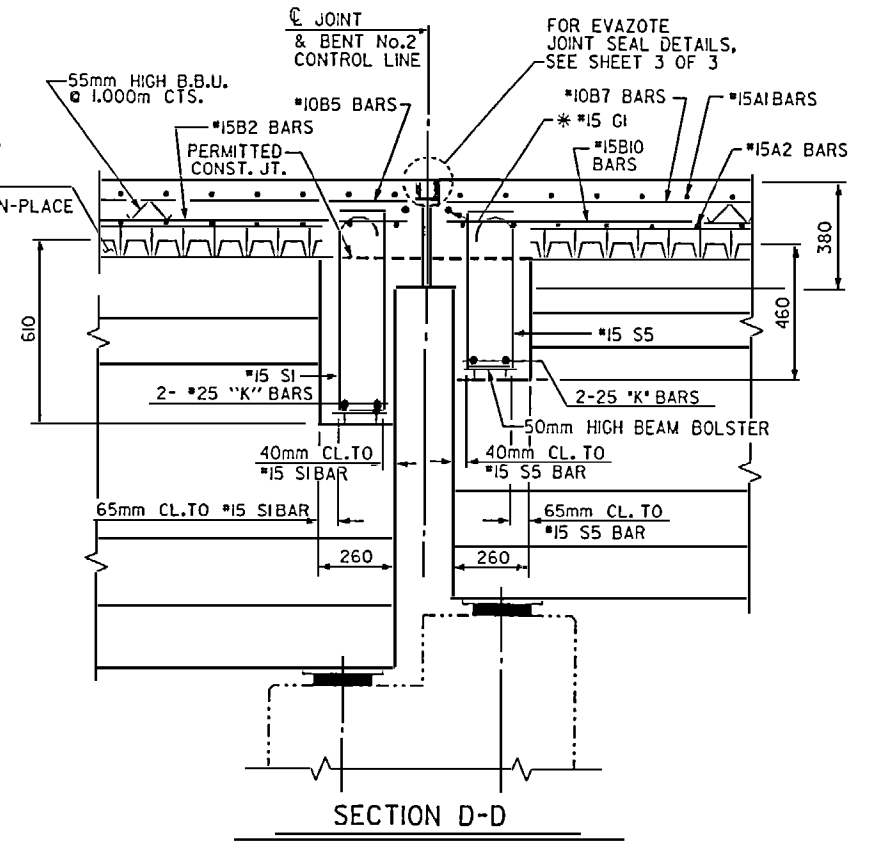
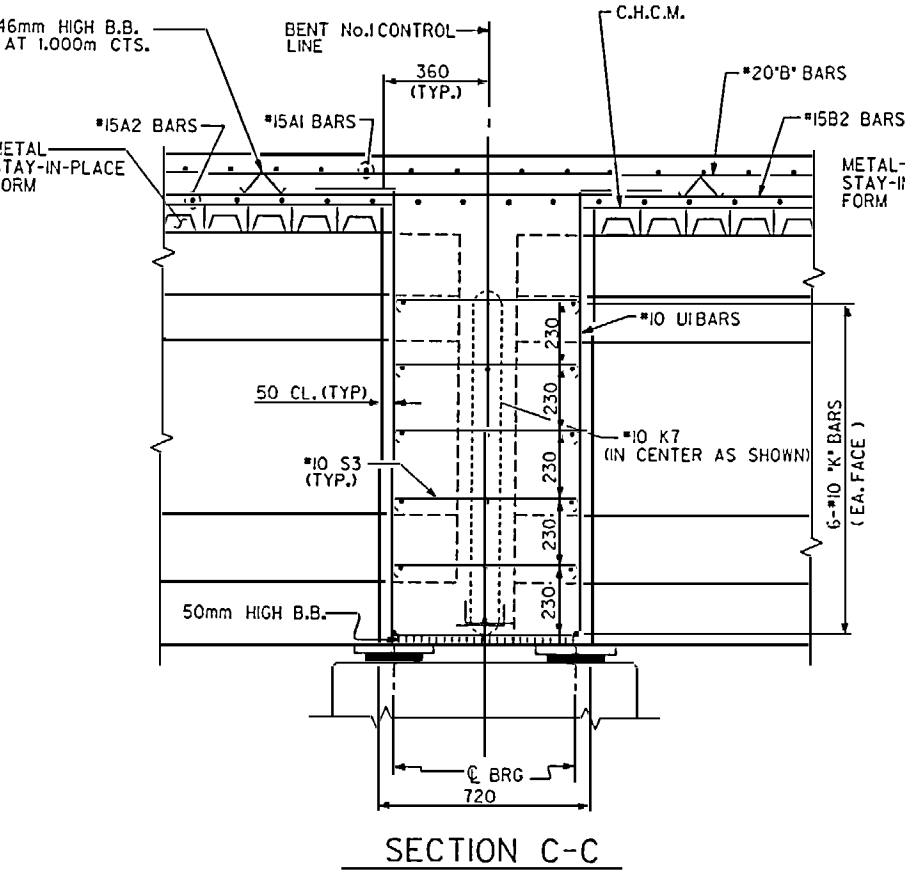
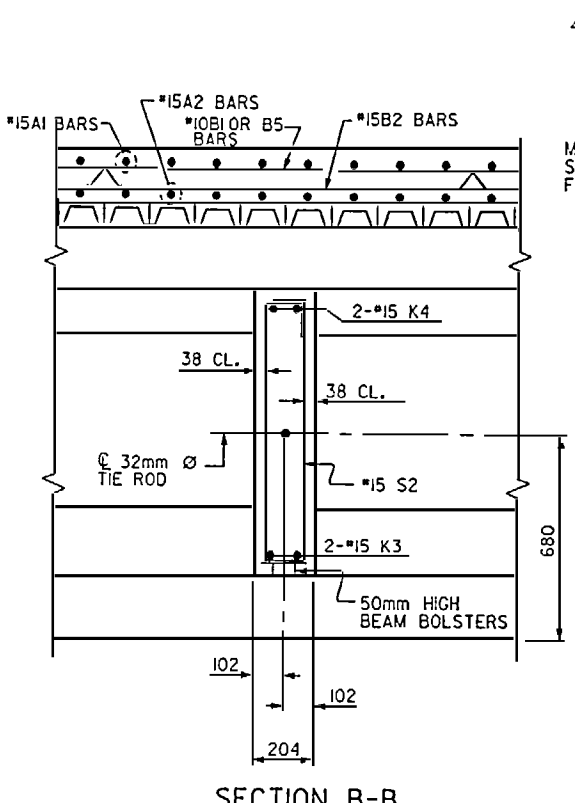
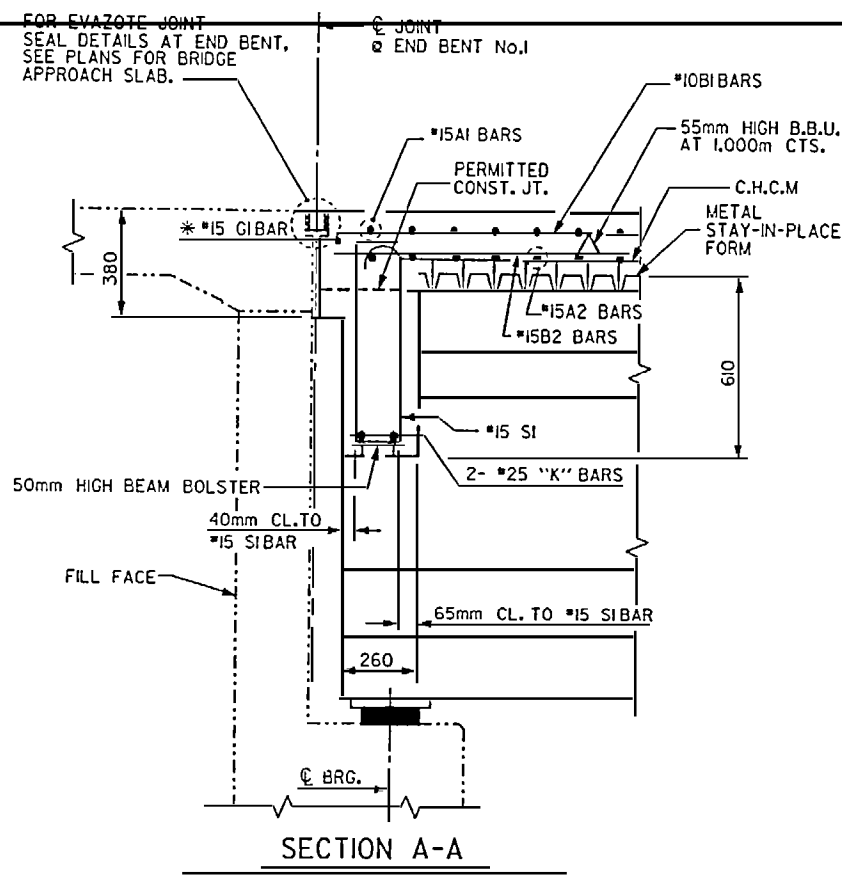
REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS
					142

** NOTE :
FOR ELECTRICAL CONDUIT SYSTEM,
SEE SPECIAL PROVISIONS AND
'ELECTRICAL CONDUIT SYSTEM' SHEETS.



DRAWN BY: M.J. HOGAN DATE: 5/24/96
CHECKED BY: J.M. BERT DATE: 5-13-98

13-MAY-1998 12:40
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NOTES:
 FOR LOCATION OF SECTIONS, SEE 'PLAN OF SPAN' SHEETS.
 * #15G1 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY TO CLEAR REINFORCING STEEL AND STIRRUPS.

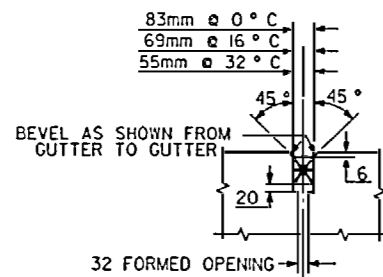


PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-
 SHEET 2 OF 3

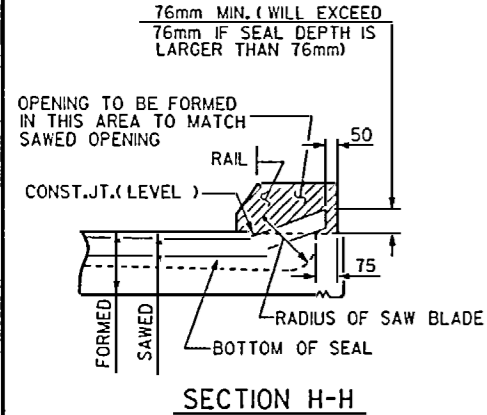
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION (SBL)					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
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					TOTAL SHEETS 142

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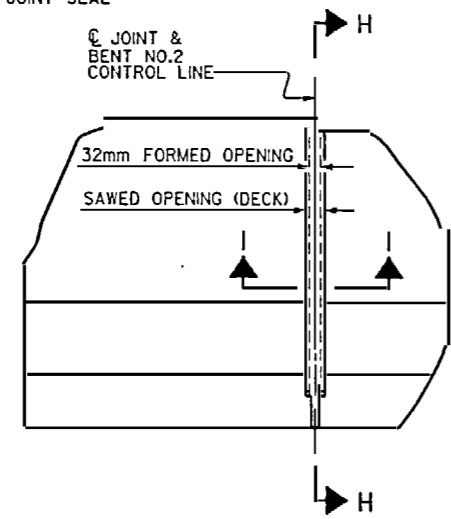
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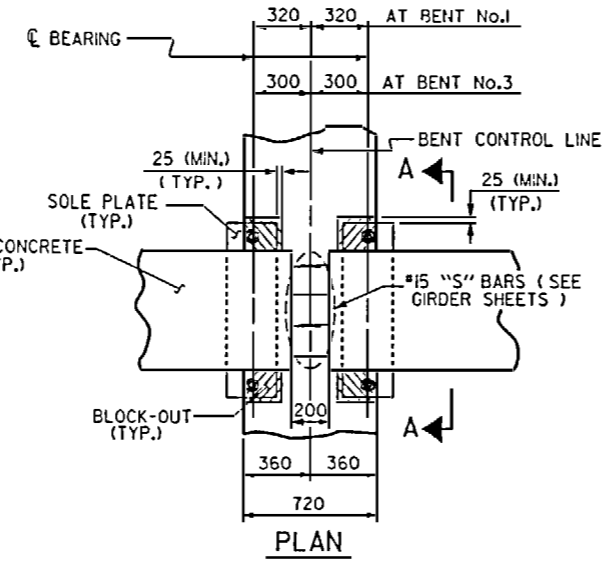
SECTION I-I
OPTIONAL PREFORMED COMPRESSION JOINT SEAL



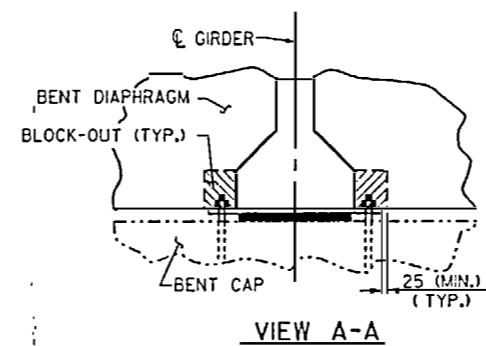
SECTION H-H



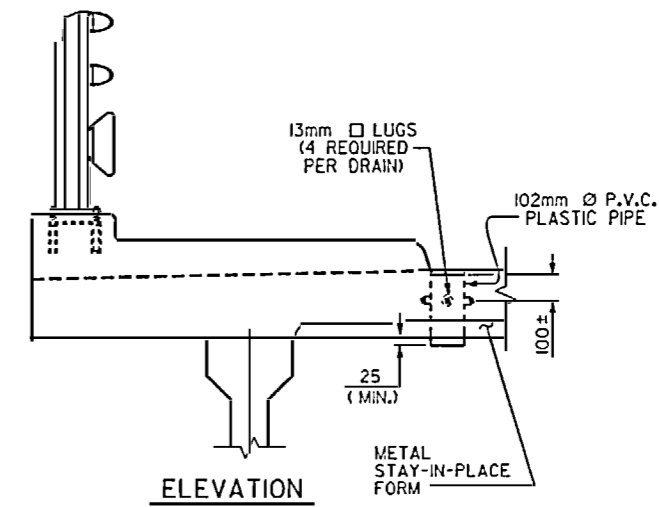
SECTION I-I
EVAZOTE JOINT SEAL



BENT DIAPHRAGM BLOCK-OUT DETAIL
(AT BENT No.1 & No.3)



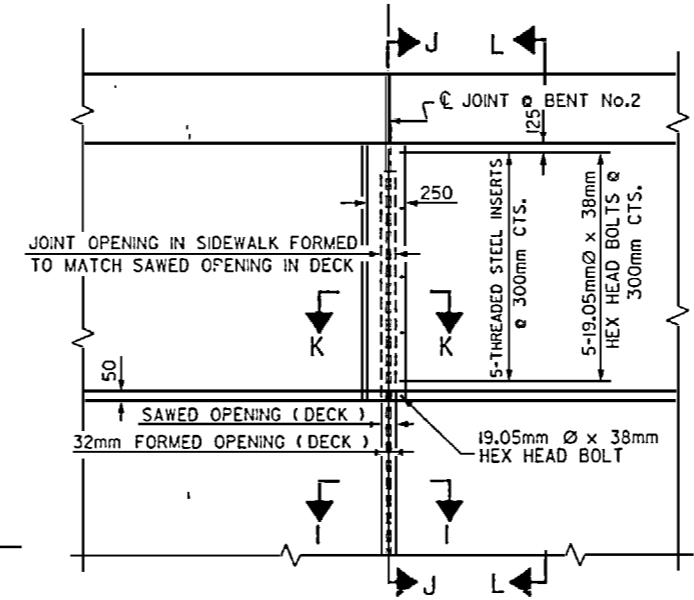
VIEW A-A



ELEVATION

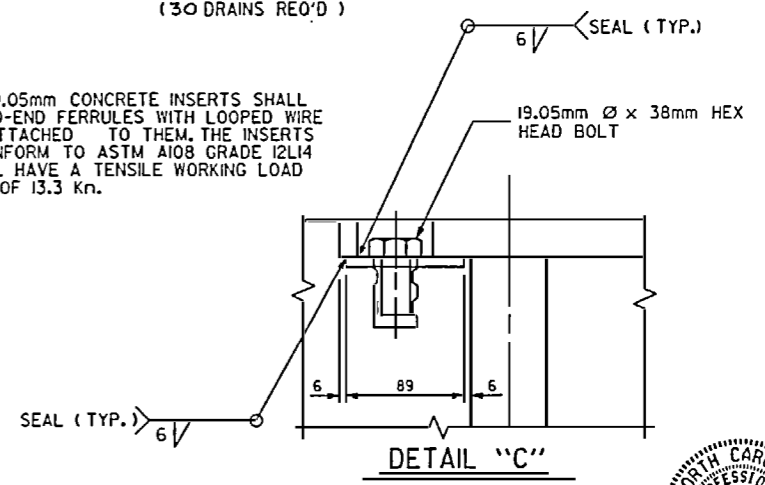
TOP OF FLOOR DRAINS TO SET 10mm BELOW SURFACE OF SLAB.
4 - 13mm □ LUGS TO BE GLUED TO THE P.V.C. PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN.

DRAIN DETAIL

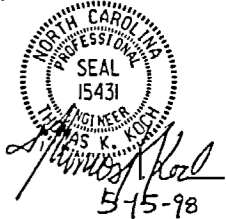


PLAN OF EVAZOTE JOINT SEAL WITH COVER PLATE

*** THE 19.05mm CONCRETE INSERTS SHALL BE CLOSED-END FERRULES WITH LOOPED WIRE STRUTS ATTACHED TO THEM. THE INSERTS SHALL CONFORM TO ASTM A108 GRADE 12L14 AND SHALL HAVE A TENSILE WORKING LOAD CAPACITY OF 13.3 kn.

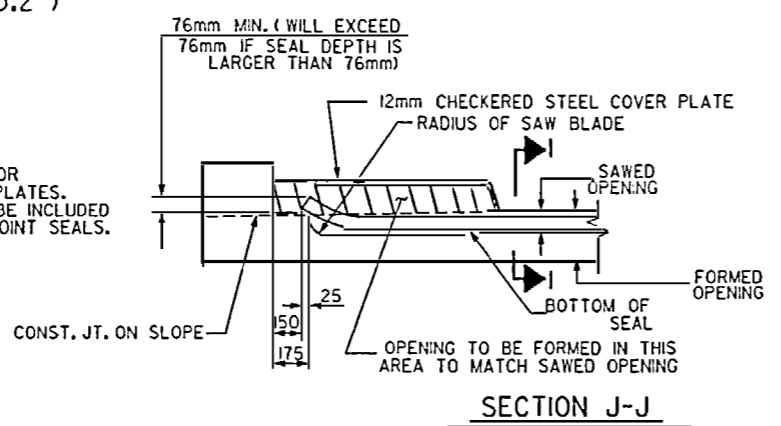


DETAIL "C"

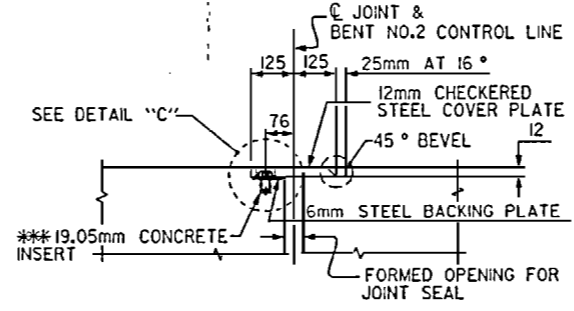


EVAZOTE JOINT SEAL DETAILS FOR BARRIER RAIL
(AT BENT No.2)

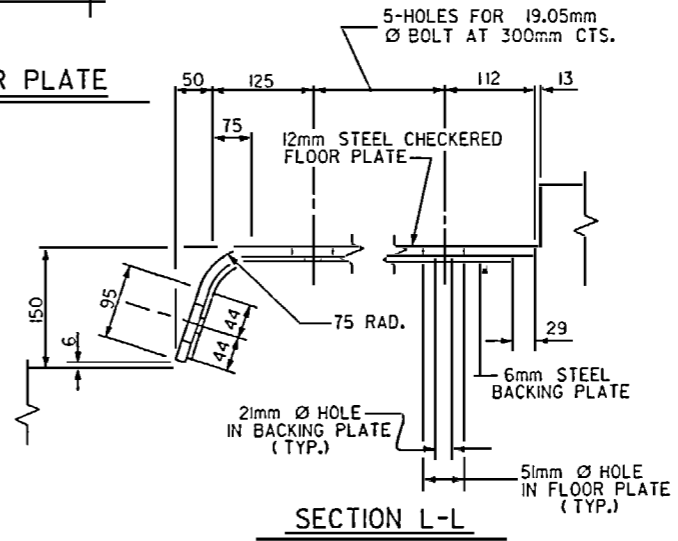
NOTE : NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE COVER PLATES. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR EVAZOTE JOINT SEALS.



SECTION J-J



SECTION K-K



SECTION L-L

EVAZOTE JOINT SEAL DETAILS FOR SIDEWALK
(AT BENT No.2)

PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION
(SBL)

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
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2			4			

DRAWN BY : M.J. HOGAN DATE : 5-15-96
CHECKED BY : J.V. [Signature] DATE : 5-13-98

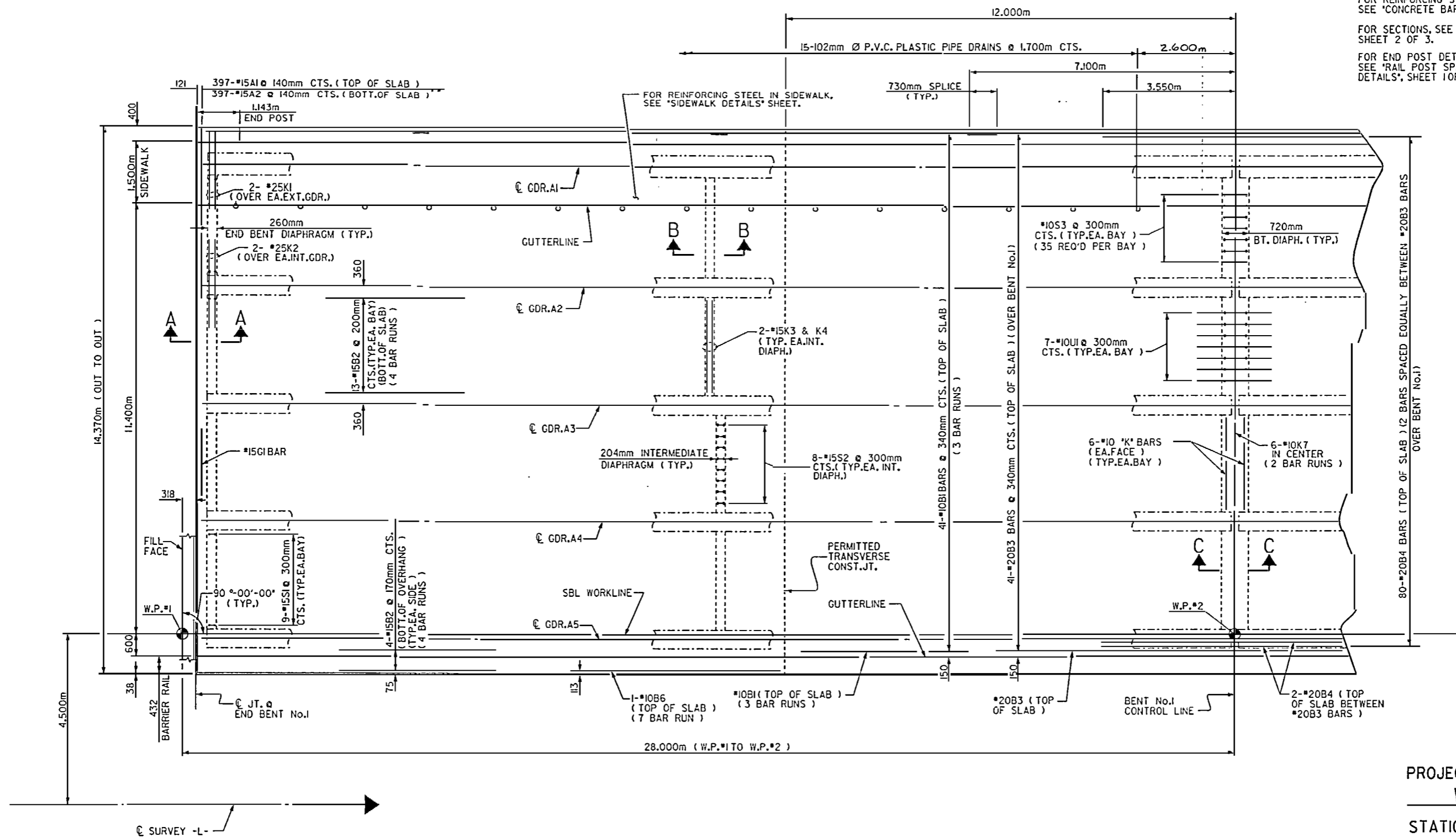
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NOTES

FOR REINFORCING STEEL IN BARRIER RAIL, SEE 'CONCRETE BARRIER RAIL' SHEET.

FOR SECTIONS, SEE 'TYPICAL SECTIONS', SHEET 2 OF 3.

FOR END POST DETAILS AND REINFORCING STEEL, SEE 'RAIL POST SPACINGS AND END OF RAIL DETAILS', SHEET 10F 2.



PLAN OF SPAN "A"

PROJECT NO. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN "A"
 (SBL)



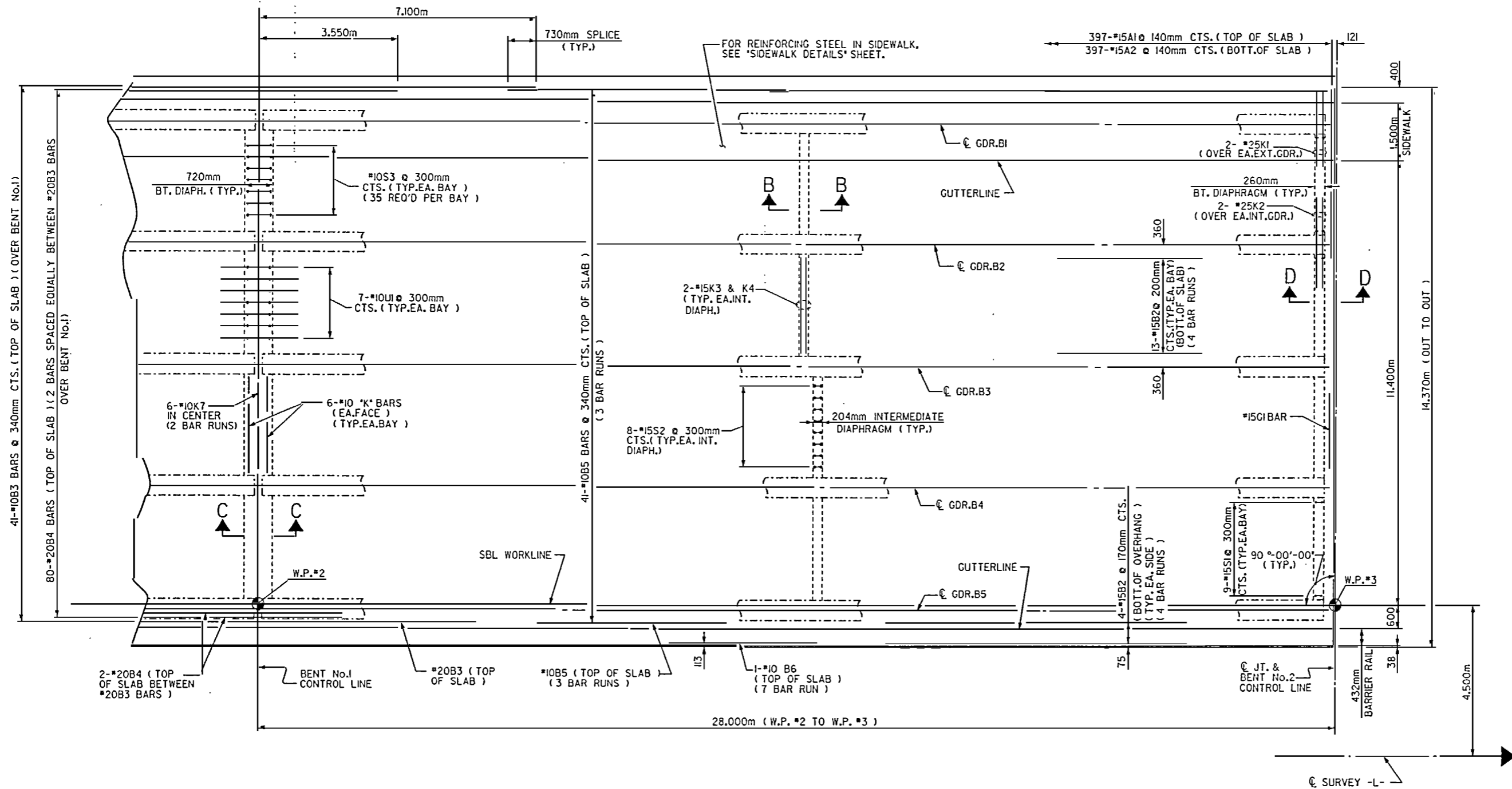
REVISIONS						SHEET NO	
NO.	BY	DATE	NO.	BY	DATE	5-61	
1			3			TOTAL SHEETS	
2			4			142	

DRAWN BY: M.J. HOGAN DATE: 9/17/96
 CHECKED BY: J.M. BEIT DATE: 10-7-97

07-OCT-1997 09:50
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NOTES

FOR REINFORCING STEEL IN BARRIER RAIL, SEE 'CONCRETE BARRIER RAIL' SHEET.
FOR SECTIONS, SEE 'TYPICAL SECTIONS', SHEET 2 OF 3.



PLAN OF SPAN "B"

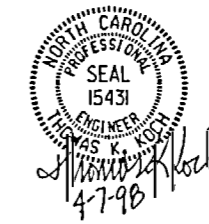
PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF SPAN "B"
(SBL)

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
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2			4			142

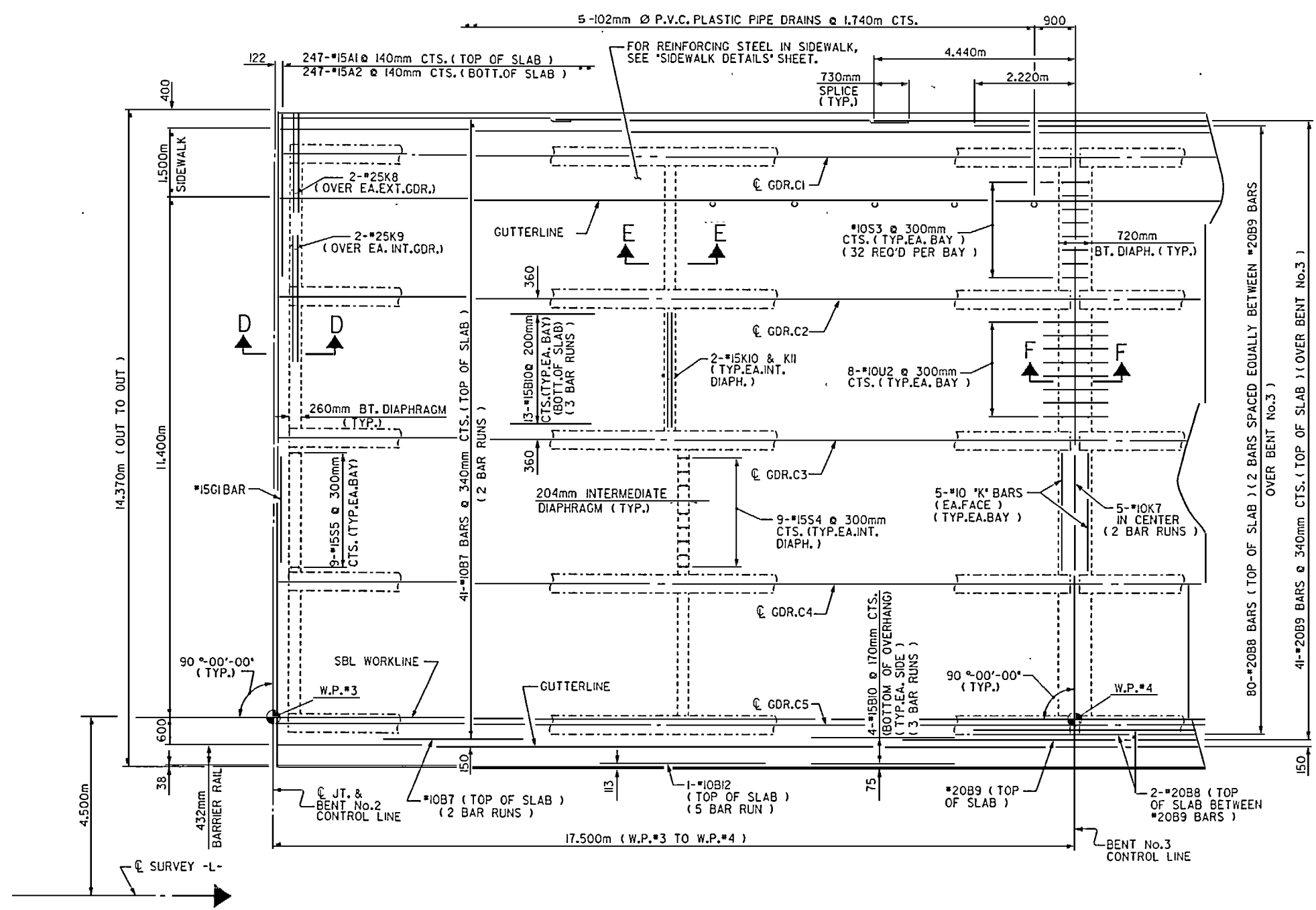


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NOTES

FOR REINFORCING STEEL IN BARRIER RAIL, SEE 'CONCRETE BARRIER RAIL' SHEET.
FOR SECTIONS, SEE 'TYPICAL SECTIONS', SHEET 2 OF 3.

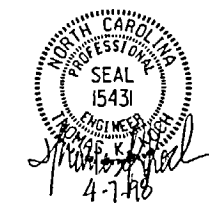


PLAN OF SPAN "C"

PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-
SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF SPAN "C"
(SBL)



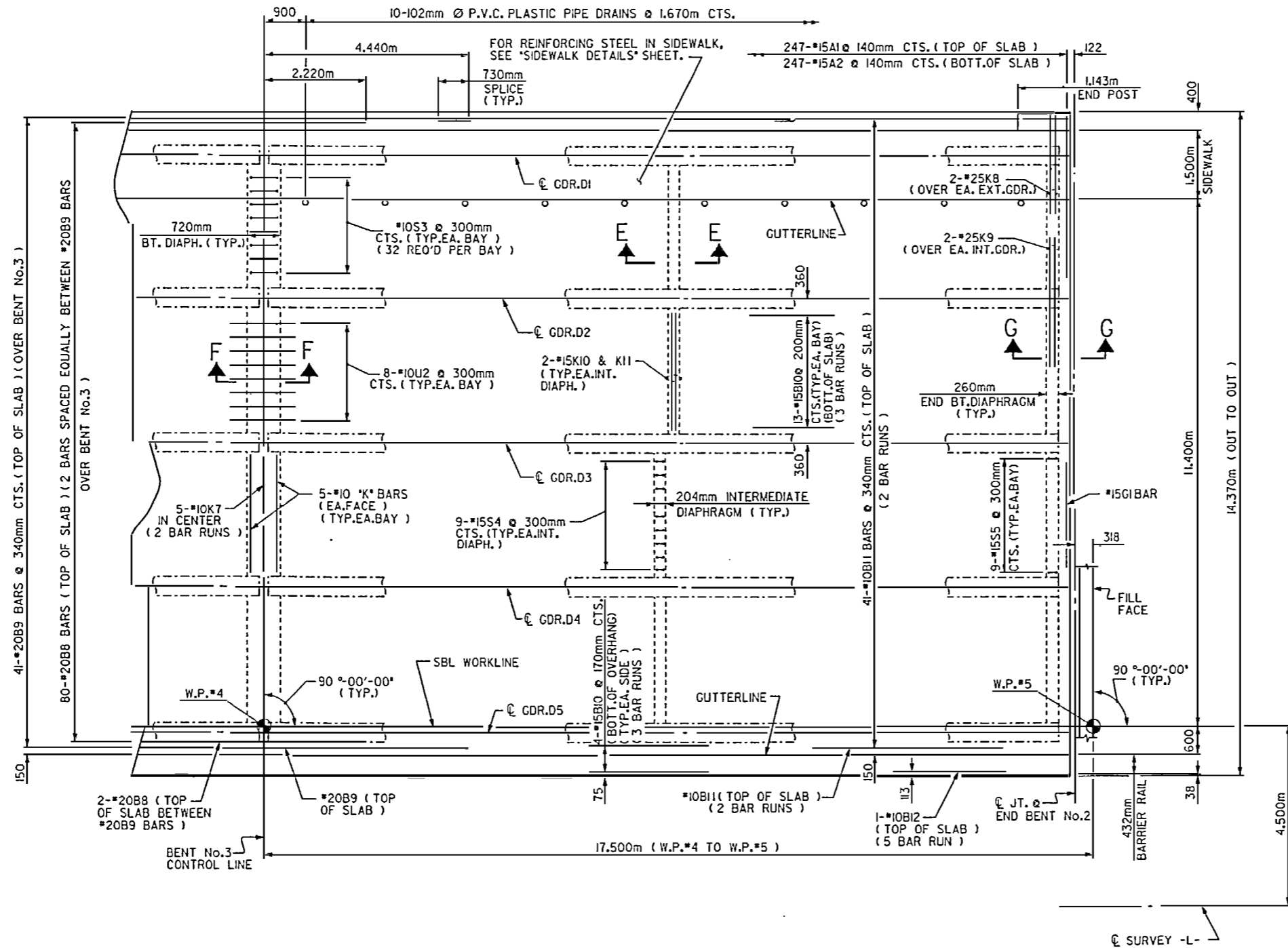
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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			S-03 TOTAL SHEETS 142
2			4			

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mbr111

NOTES

FOR REINFORCING STEEL IN BARRIER RAIL, SEE 'CONCRETE BARRIER RAIL' SHEET.
 FOR SECTIONS, SEE 'TYPICAL SECTIONS', SHEET 2 OF 3.
 FOR END POST DETAILS AND REINFORCING STEEL, SEE 'RAIL POST SPACINGS AND END OF RAIL DETAILS', SHEET 10F 2.



PLAN OF SPAN "D"

PROJECT NO. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-
 SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

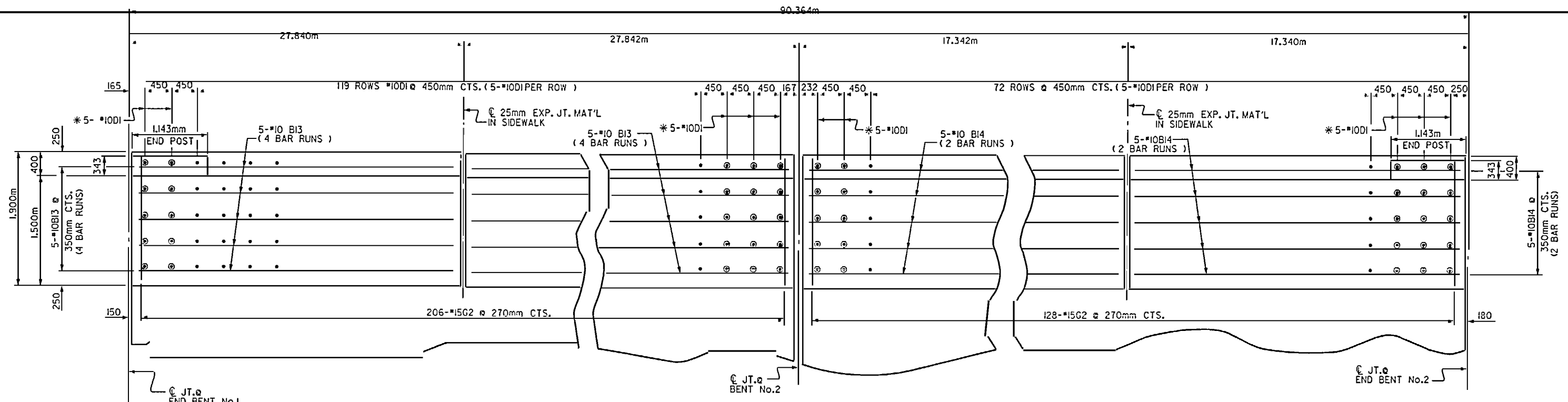
SUPERSTRUCTURE
 PLAN OF SPAN "D"
 (SBL)



REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	TOTAL	NO.
1			3			3	3-64
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DRAWN BY: M.J. HOGAN DATE: 3/17/98
 CHECKED BY: J.M. B. LIT DATE: 10-7-97

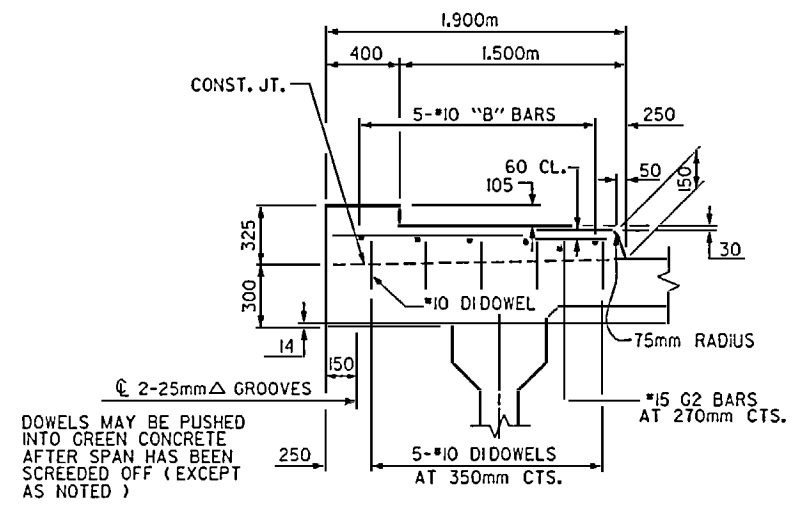
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PLAN OF SIDEWALK

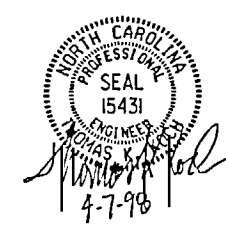
NOTES

- * THESE DOWELS ARE TO BE PLACED AFTER SAWING OF THE JOINT. THE HOLES SHALL BE DRILLED AND THE DOWELS GROUTED IN PLACE.
- THE #10 DI & #15 G2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 50mm CLEARANCE TO THE 25mm EXPANSION JOINT MATERIAL IN SIDEWALK.
- FOR COVER PLATE DETAILS AT BENT No.2, SEE 'TYPICAL SECTIONS', SHEET 3 OF 3.
- FOR END POST DETAILS AND REINFORCING STEEL SEE 'RAIL POST SPACINGS AND END OF RAIL DETAILS', SHEET 1 OF 2.
- THE SIDEWALK IN EACH CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 28 MPa.
- WHEN EVAZOTE JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF THE SIDEWALK.
- ALL REINFORCING STEEL IN SIDEWALK SHALL BE EPOXY COATED.



SECTION THRU SIDEWALK

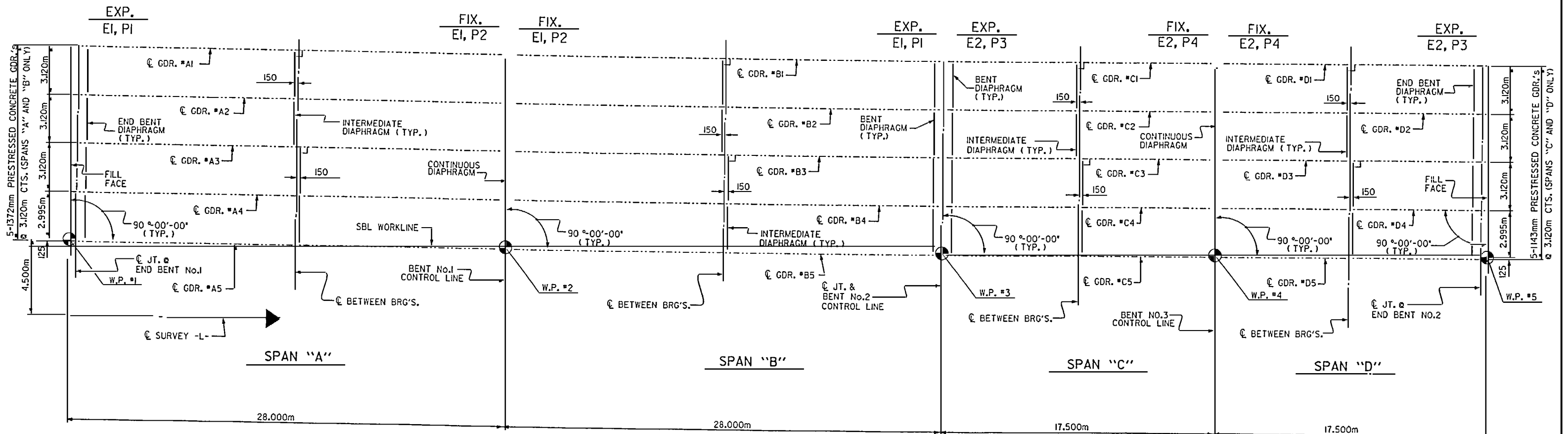
PROJECT NO. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 SIDEWALK DETAILS
 (SBL)

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS	
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2			4				

DRAWN BY: M.J. HOGAN DATE: 5/28/96
 CHECKED BY: J.M. BERT DATE: 10-7-97

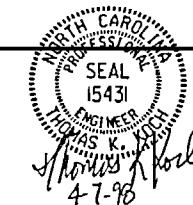


GIRDER LAYOUT

PROJECT NO. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

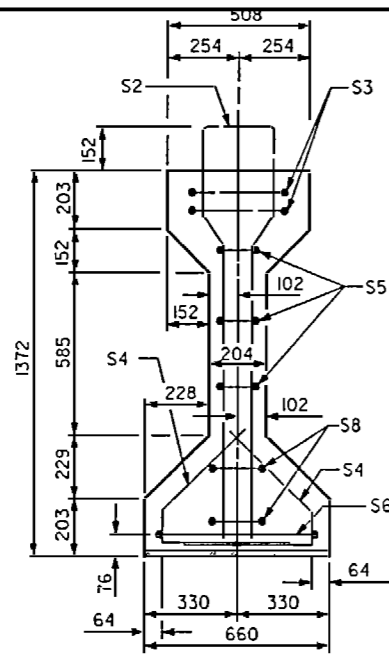
SUPERSTRUCTURE
 GIRDER LAYOUT
 (SBL)



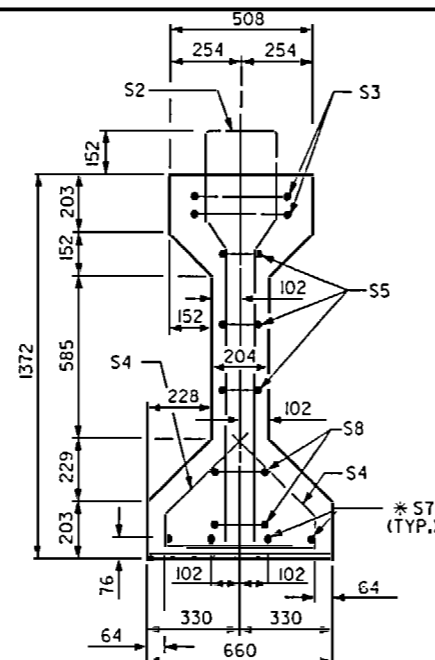
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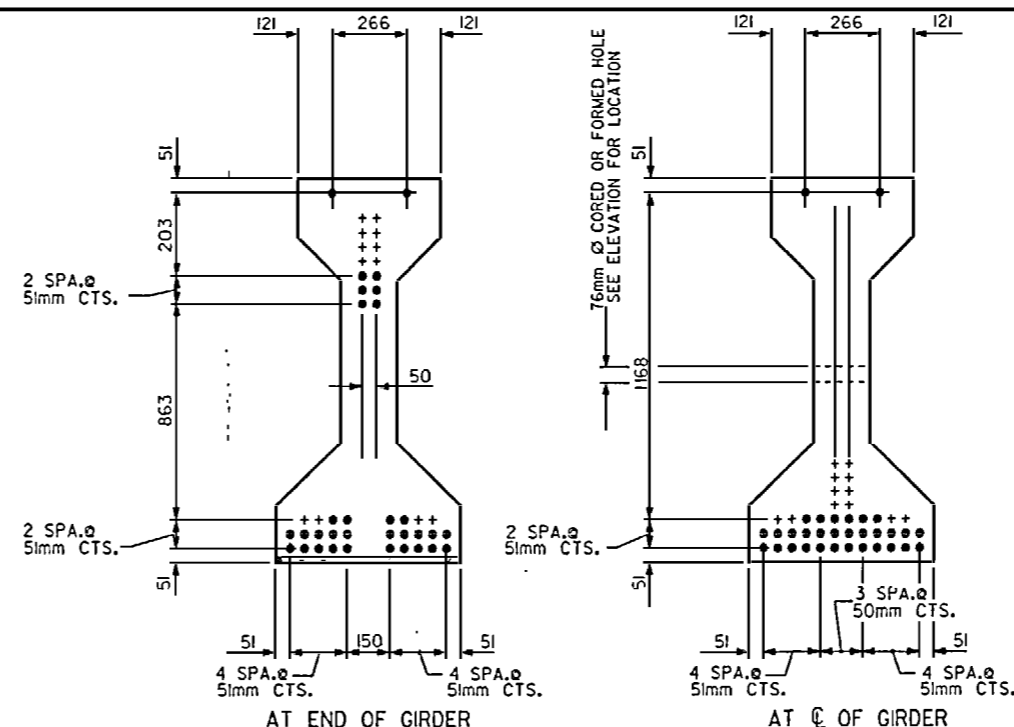
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2			4			



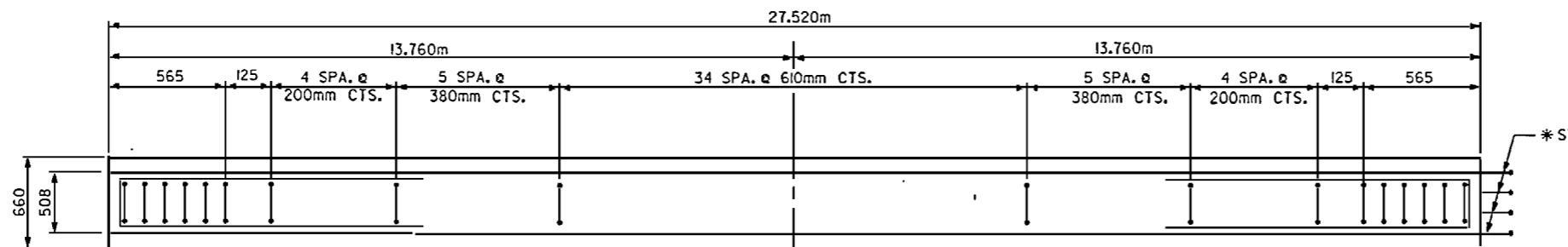
SECTION A-A



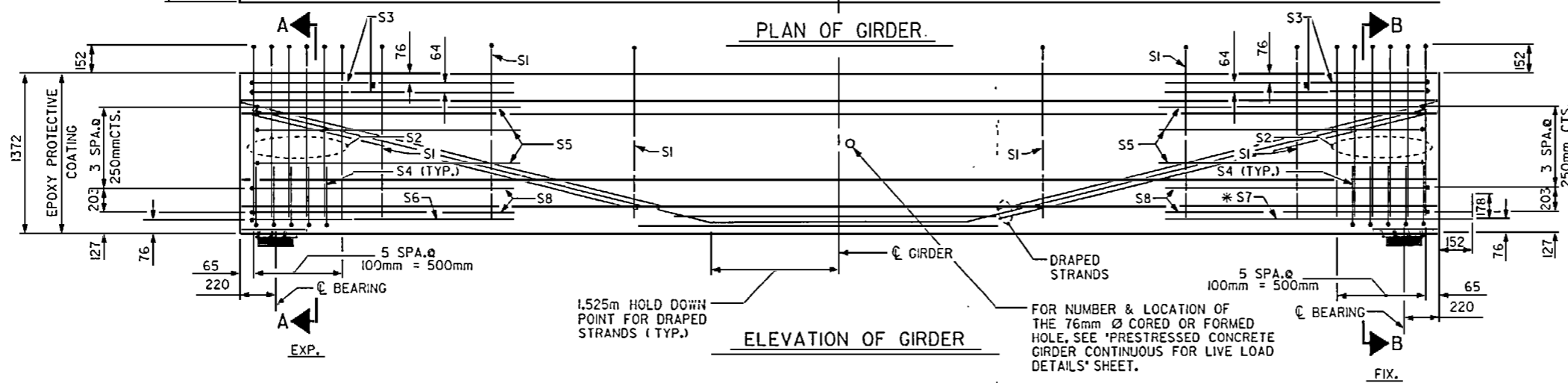
SECTION B-B



15.24mm Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



ELEVATION OF GIRDER

15.24mm Ø L.R. GRADE 270 STRANDS

AREA (mm ²)	ULTIMATE STRENGTH (kN PER STRAND)	APPLIED PRESTRESS (kN PER STRAND)
140.00	260.7	195.5

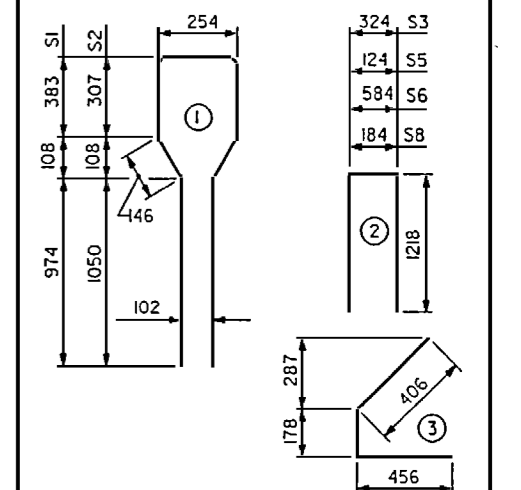
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	53	#15	1	3260	271
S2	12	#20	1	3260	92
S3	4	#15	2	2760	17
S4	20	#15	3	1040	33
S5	6	#15	2	2560	24
S6	1	#15	2	3020	5
*S7	4	#15	STR	1600	10
S8	4	#15	2	2620	16

* NOTE: S7 BARS SHALL BE BENT AFTER GIRDER FABRICATION AND BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



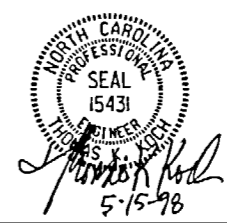
QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	69 MPa CONCRETE	15.24mm Ø L.R. STRANDS
	kg	m ³	No.
FOR ONE GDR.	468	14.0	32

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
5	27.520m	137.600m

PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-



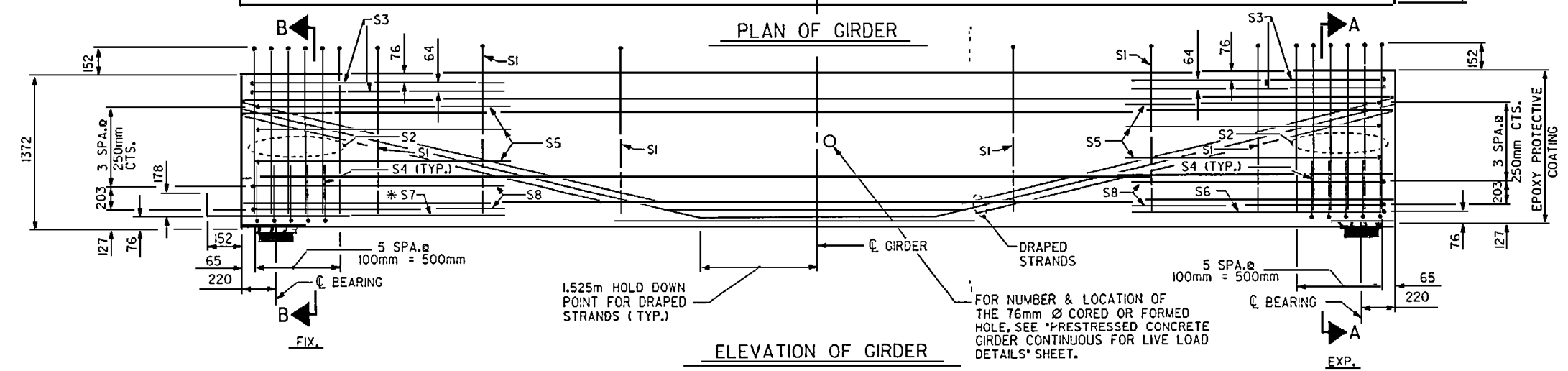
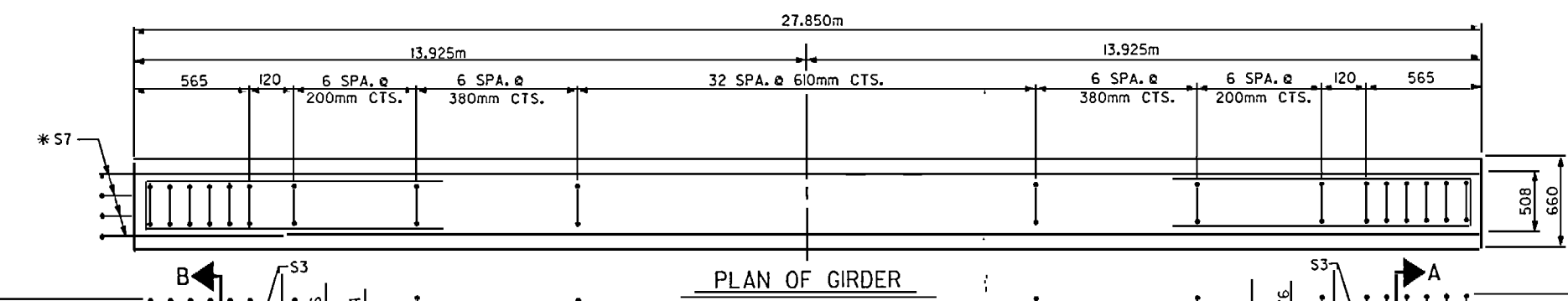
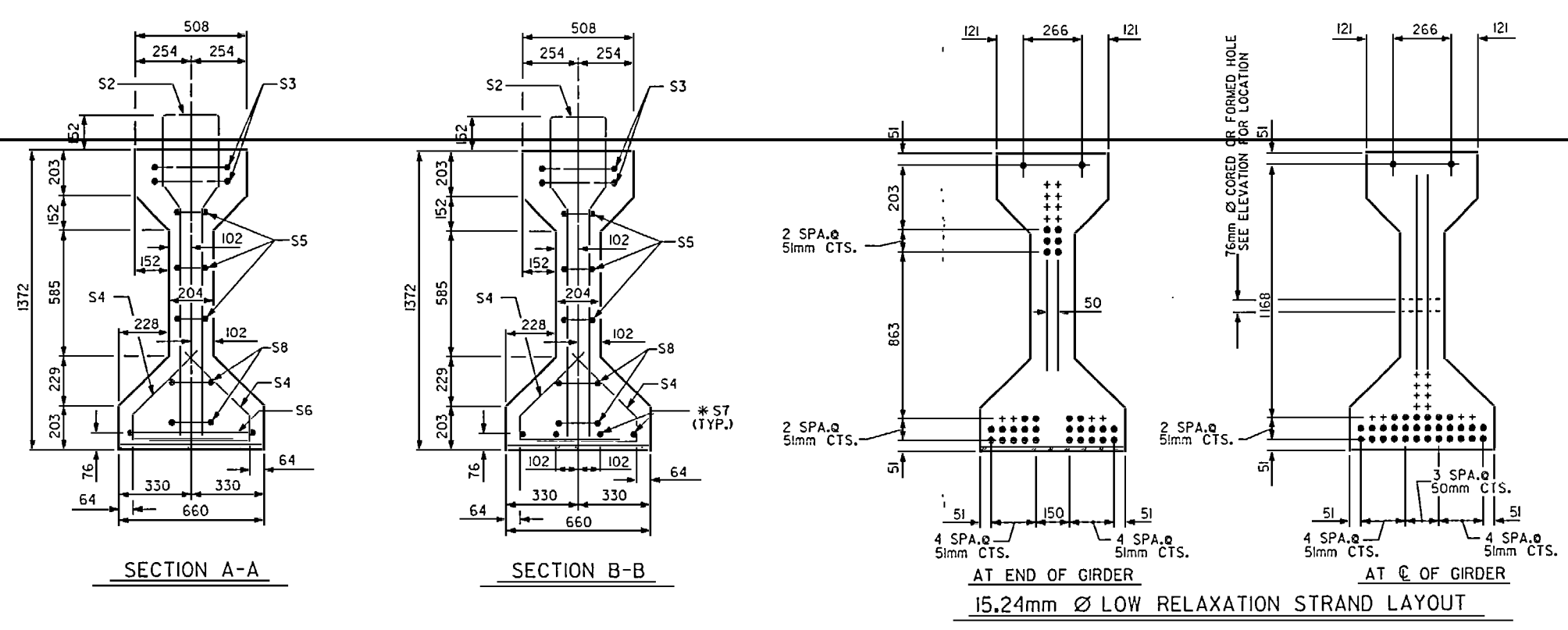
ASSEMBLED BY: M.J. HOGAN	DATE: 9/20/96	SPECIAL
CHECKED BY: J.M. BRIT	DATE: 5-13-98	
DRAWN BY: ED ROSE	DATE: AUG. 1991	STANDARD
CHECKED BY: GREG PERFETTI	DATE: AUG. 1991	

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL
1			3			5-67
2			4			142

REV. 10/1/93 ARB (A) CRP
REV. 6/1/94 EEM (A) CRP

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STD.No.PCG6M STR.#1

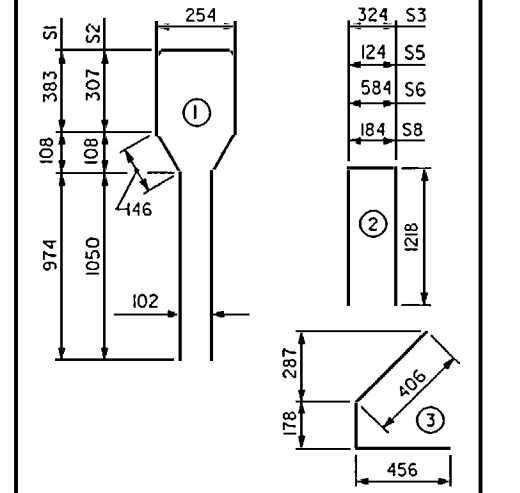


15.24mm Ø L. R. GRADE 270 STRANDS		
AREA (mm ²)	ULTIMATE STRENGTH (kN PER STRAND)	APPLIED PRESTRESS (kN PER STRAND)
140.00	260.7	195.5

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	57	#15	1	3260	292
S2	12	#20	1	3260	92
S3	4	#15	2	2760	17
S4	20	#15	3	1040	33
S5	6	#15	2	2560	24
S6	1	#15	2	3020	5
*S7	4	#15	STR	1600	10
S8	4	#15	2	2620	16

* NOTE: S7 BARS SHALL BE BENT AFTER GIRDER FABRICATION AND BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	69 MPa CONCRETE	15.24mm Ø L.R. STRANDS
	kg	m ³	No.
FOR ONE GIRDER	489	14.2	32

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
5	27.850m	139.250m

PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

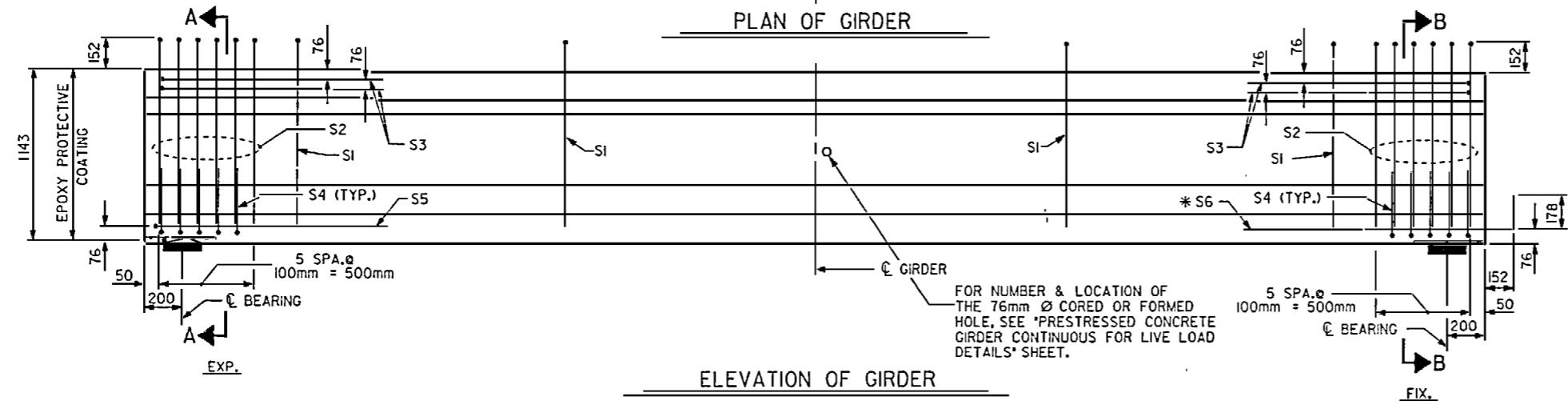
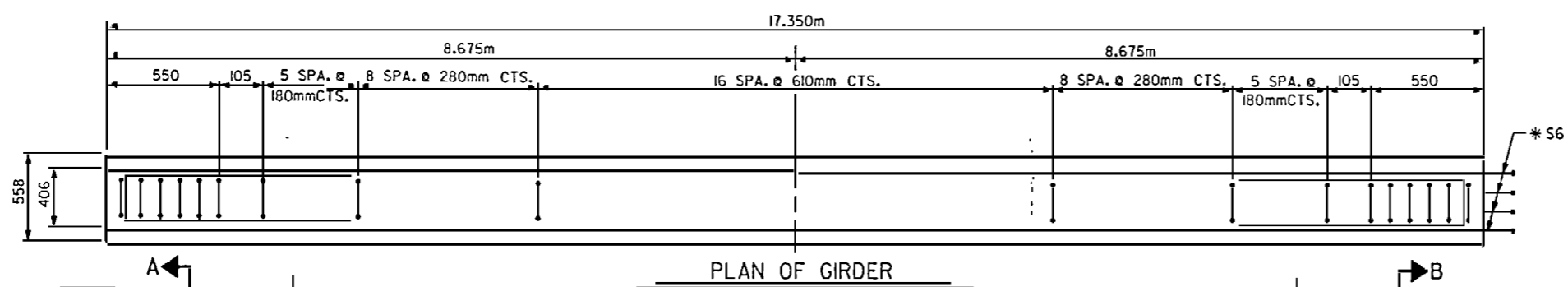
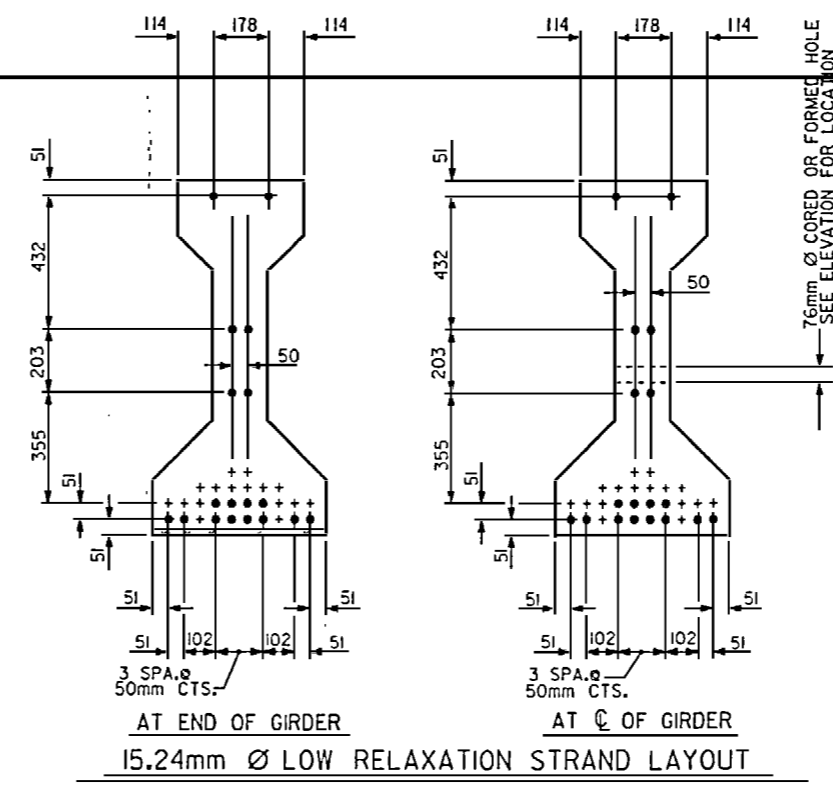
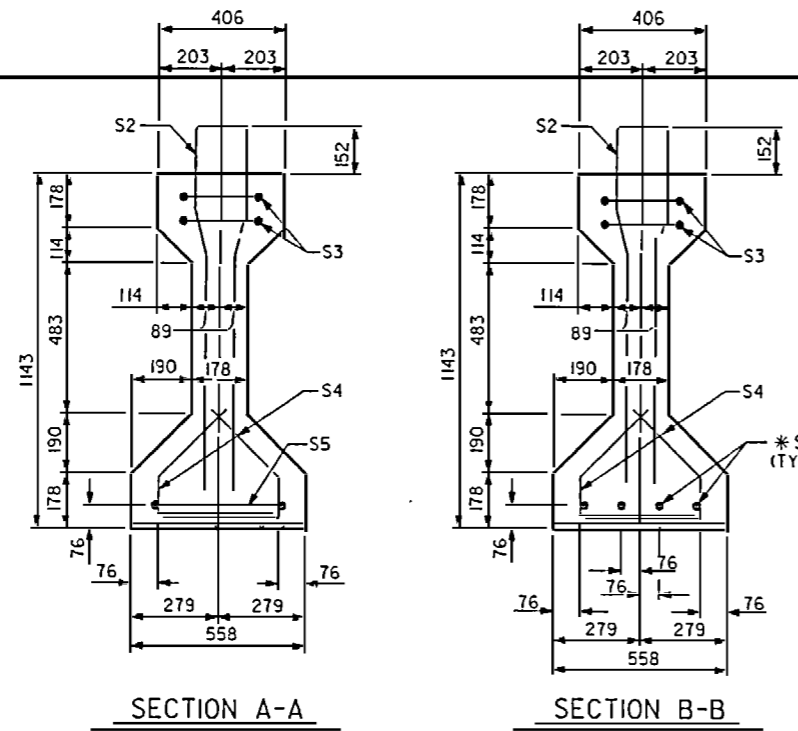
STANDARD
AASHTO TYPE IV
CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
(SPAN 'B') (SBL)

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

SHEET NO. 5-68
TOTAL SHEETS 142



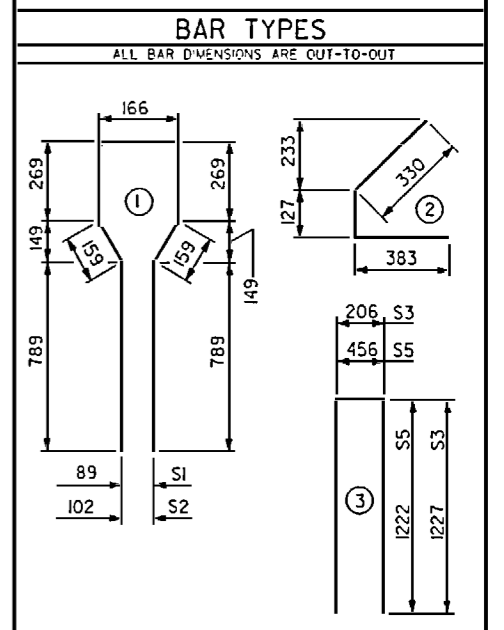
ASSEMBLED BY: M.J. HOGAN	DATE: 9/20/96	SPECIAL
CHECKED BY: J.M. BRITT	DATE: 5-13-98	
DRAWN BY: ED ROSE	DATE: AUG. 1991	STANDARD
CHECKED BY: GREG PERFETTI	DATE: AUG. 1991	



15.24mm Ø L. R. GRADE 270 STRANDS		
AREA (mm ²)	ULTIMATE STRENGTH (KN PER STRAND)	APPLIED PRESTRESS (KN PER STRAND)
140.00	260.7	195.5

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	43	#15	1	2600	176
S2	12	#20	1	2600	73
S3	4	#15	3	2660	17
S4	20	#15	2	840	26
S5	1	#15	3	2900	5
*S6	4	#15	STR	1600	10

* NOTE: S6 BARS SHALL BE BENT AFTER GIRDER FABRICATION AND BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	69 MPa CONCRETE	15.24mm Ø L.R. STRANDS
	Kg	m ³	No.
FOR ONE GDR.	307	6.3	18

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
5	17.350m	86.750m

PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

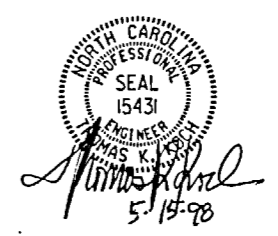
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALPH

STANDARD
AASHTO TYPE III
CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
(SPAN 'C') (SBL)

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

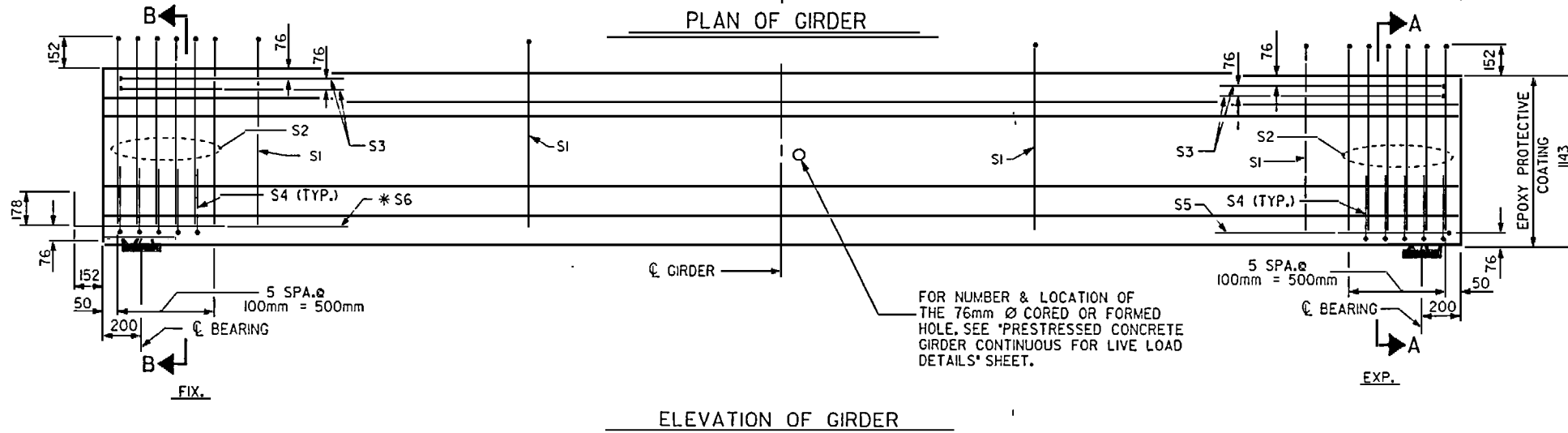
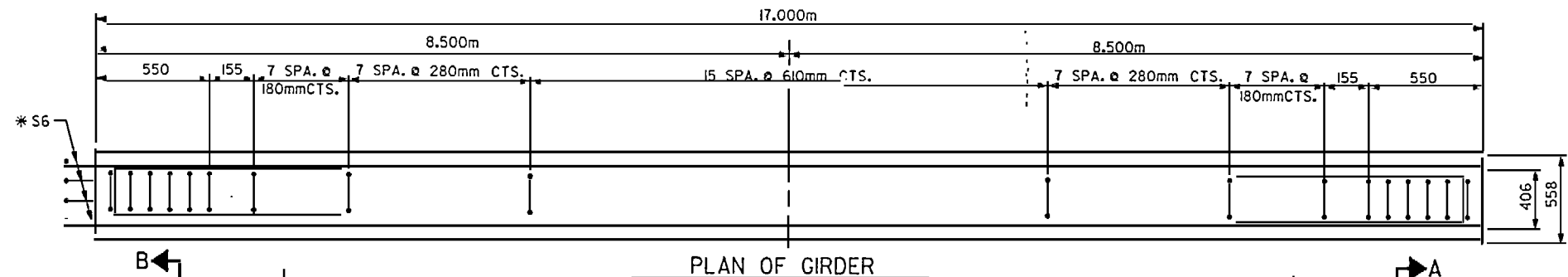
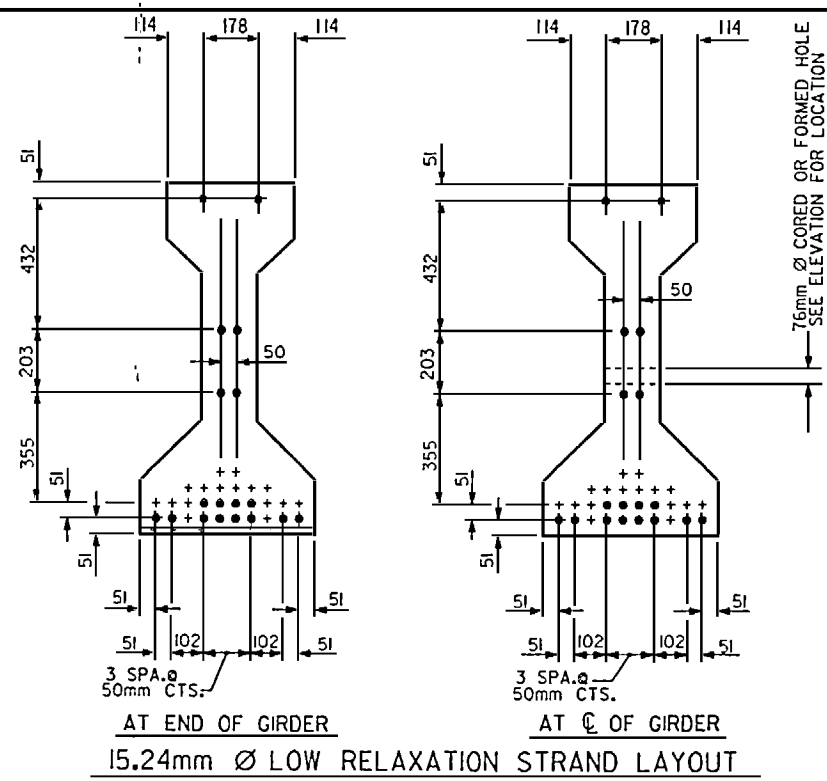
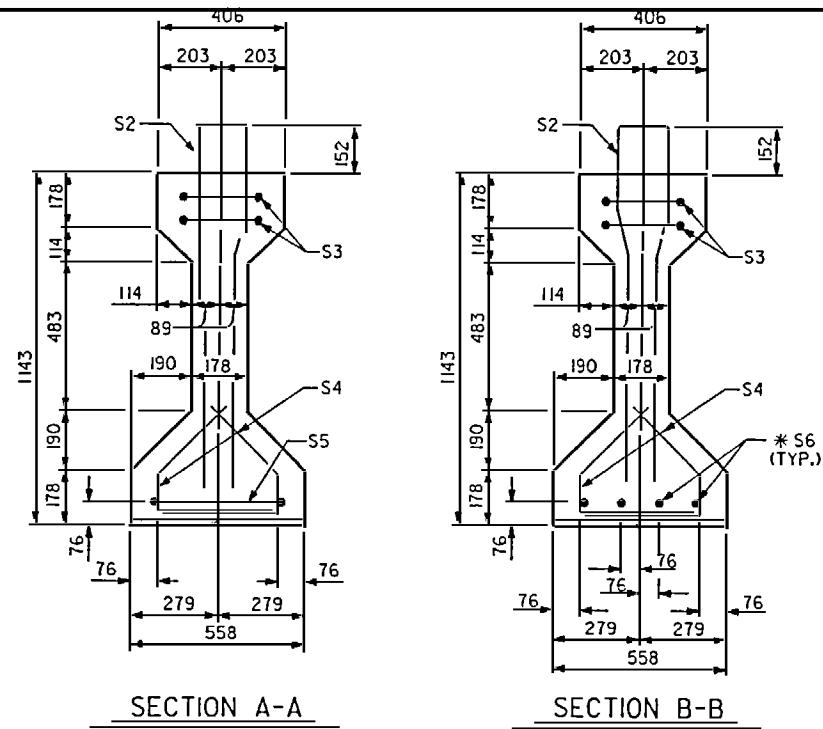
TOTAL SHEETS: 142

ASSEMBLED BY: M.J. HOGAN	DATE: 9/20/96	SPECIAL
CHECKED BY: J.M. PERETTI	DATE: 5-13-98	
DRAWN BY: ED ROSE	DATE: AUG. 1991	STANDARD
CHECKED BY: GREG PERFETTI	DATE: AUG. 1991	



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STD.No.PCG5M STR.#1



FOR NUMBER & LOCATION OF THE 76mm Ø CORED OR FORMED HOLE, SEE 'PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS' SHEET.

15.24mm Ø L. R. GRADE 270 STRANDS

AREA (mm ²)	ULTIMATE STRENGTH (KN PER STRAND)	APPLIED PRESTRESS (KN PER STRAND)
140.00	260.7	195.5

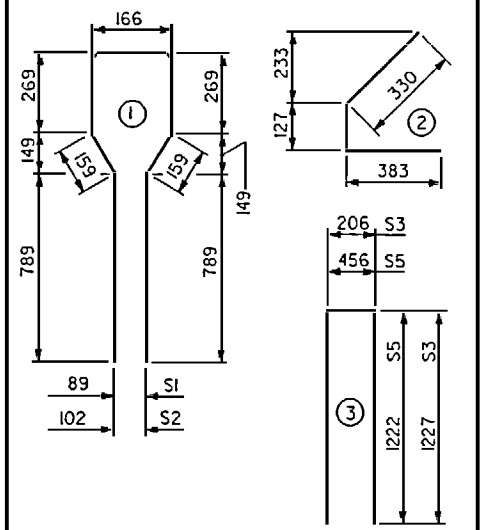
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	44	#15	1	2600	180
S2	12	#20	1	2600	73
S3	4	#15	3	2660	17
S4	20	#15	2	840	26
S5	1	#15	3	2900	5
* S6	4	#15	STR	1600	10

* NOTE: S6 BARS SHALL BE BENT AFTER GIRDER FABRICATION AND BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	69 MPa CONCRETE	15.24mm Ø L.R. STRANDS
	kg	m ³	No.
FOR ONE GIRDER	311	6.1	18

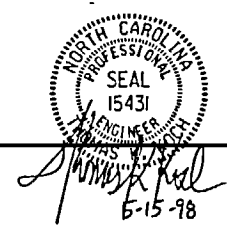
GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
5	17.000m	85.000m

PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
AASHTO TYPE III
CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
(SPAN 'D') (SBL)



ASSEMBLED BY: M.J. HOGAN DATE: 9/20/96
CHECKED BY: J.M. BRIT DATE: 5-13-98
DRAWN BY: ED ROSE DATE: AUG. 1991
CHECKED BY: GREG PERFETTI DATE: AUG. 1991

SPECIAL
STANDARD

REV. 10/1/93 ARB (A) CRP
REV. 6/1/94 EEM (A) CRP
REV. 6/16/95 EEM (A) RCW

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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			5-70
2			4			142

STD.No.PCG5M STR.#1

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO ASTM A-416 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 400.

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.

DEFORMED ANCHOR STUDS SHALL CONFORM TO ASTM A-496. WELDING PROCEDURE QUALIFICATION TEST FOR DEFORMED ANCHOR STUDS MAY BE REQUIRED.

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 48 MPa.

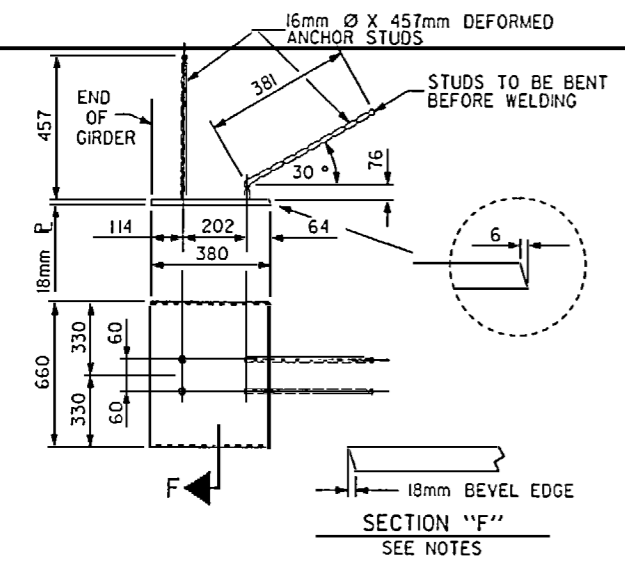
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER SHALL BE RAKED TO A DEPTH OF 6mm EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.

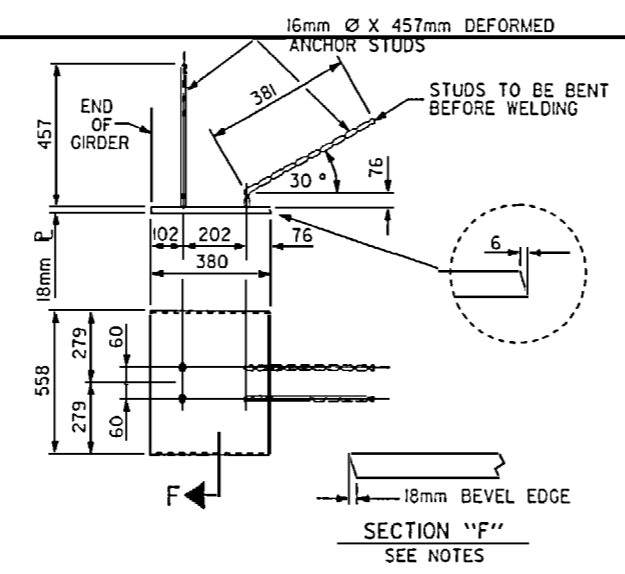
WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 150mm OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 13mm OF THE THEORETICAL LOCATION SHOWN.

69 MPa CONCRETE IS REQUIRED FOR ALL GIRDERS. FOR HIGH STRENGTH PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

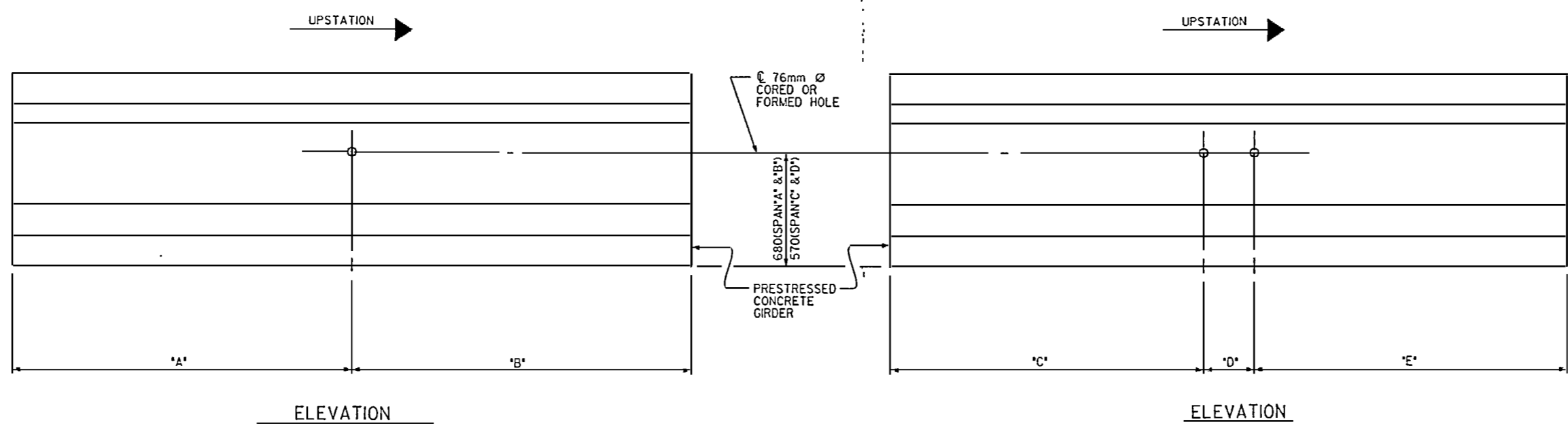
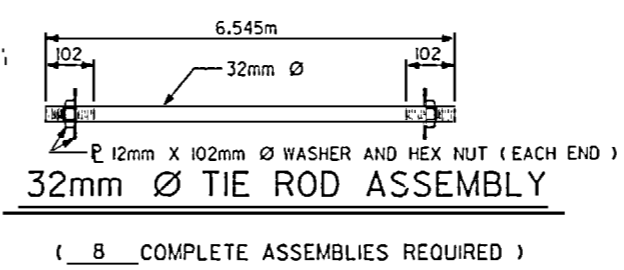
THE INITIAL UPWARD FORCE IN THE STRANDS FOR SPAN 'A' AND SPAN 'B' GIRDERS EXCEEDS 89KN.



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

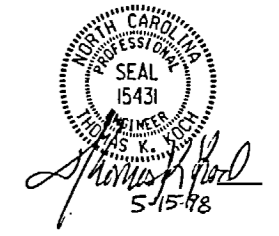


EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE III GIRDER
(2 REQ'D PER GIRDER)



TIE ROD PLACEMENT DETAILS

TIE ROD PLACEMENT TABLE																							
SPAN 'A'					SPAN 'B'					SPAN 'C'					SPAN 'D'								
GIRDER	'A'	'B'	'C'	'D'	'E'	GIRDER	'A'	'B'	'C'	'D'	'E'	GIRDER	'A'	'B'	'C'	'D'	'E'	GIRDER	'A'	'B'	'C'	'D'	'E'
GDR.A1	13.610m	13.910m	-	-	-	GDR.B1	13.775m	14.075m	-	-	-	GDR.C1	8.525m	8.825m	-	-	-	GDR.D1	8.350m	8.650m	-	-	-
GDR.A2	13.610m	13.910m	-	-	-	GDR.B2	13.775m	14.075m	-	-	-	GDR.C2	8.525m	8.825m	-	-	-	GDR.D2	8.350m	8.650m	-	-	-
GDR.A3	-	-	13.610m	300mm	13.610m	GDR.B3	-	-	13.775m	300mm	13.775m	GDR.C3	-	-	8.525m	300mm	8.525m	GDR.D3	-	-	8.350m	300mm	8.350m
GDR.A4	13.910m	13.610m	-	-	-	GDR.B4	14.075m	13.775m	-	-	-	GDR.C4	8.825m	8.525m	-	-	-	GDR.D4	8.650m	8.350m	-	-	-
GDR.A5	13.910m	13.610m	-	-	-	GDR.B5	14.075m	13.775m	-	-	-	GDR.C5	8.825m	8.525m	-	-	-	GDR.D5	8.650m	8.350m	-	-	-



PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
DETAILS
(SBL)

DRAWN BY : M.J. HOGAN DATE : 9/20/96
CHECKED BY : J.M. P. DATE : 5-15-98

REVISIONS						SHEET NO. 5-71
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 142
2			4			

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

TENTH POINTS	SPAN 'A' & 'B'											SPAN 'A' & 'B'											SPAN 'A' & 'B'										
	GIRDER #1											GIRDERS #2, #3 & #4											GIRDER #5										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	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	0.027	0.051	0.070	0.082	0.086	0.082	0.070	0.051	0.027	0	0	0.027	0.051	0.070	0.082	0.086	0.082	0.070	0.051	0.027	0	0	0.027	0.051	0.070	0.082	0.086	0.082	0.070	0.051	0.027	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.011	0.020	0.027	0.032	0.034	0.032	0.027	0.020	0.011	0	0	0.012	0.023	0.032	0.037	0.039	0.037	0.032	0.023	0.012	0	0	0.010	0.019	0.027	0.031	0.033	0.031	0.027	0.019	0.010	0
FINAL CAMBER ↓	0	16	31	43	50	52	50	43	31	16	0	0	15	28	38	45	47	45	38	28	15	0	0	17	32	43	51	53	51	43	32	17	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

TENTH POINTS	SPAN 'C' & 'D'											SPAN 'C' & 'D'											SPAN 'C' & 'D'										
	GIRDER #1											GIRDERS #2, #3 & #4											GIRDER #5										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	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	0.007	0.014	0.019	0.022	0.024	0.022	0.019	0.014	0.007	0	0	0.007	0.014	0.019	0.022	0.024	0.022	0.019	0.014	0.007	0	0	0.007	0.014	0.019	0.022	0.024	0.022	0.019	0.014	0.007	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.003	0.006	0.008	0.010	0.010	0.010	0.008	0.006	0.003	0	0	0.004	0.007	0.010	0.011	0.012	0.011	0.010	0.007	0.004	0	0	0.003	0.006	0.008	0.009	0.010	0.009	0.008	0.006	0.003	0
FINAL CAMBER ↓	0	4	8	11	12	14	12	11	8	4	0	0	3	7	9	11	12	11	9	7	3	0	0	4	8	11	13	14	13	11	8	4	0

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

PROJECT NO. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE

DEAD LOAD DEFLECTIONS
 (SBL)

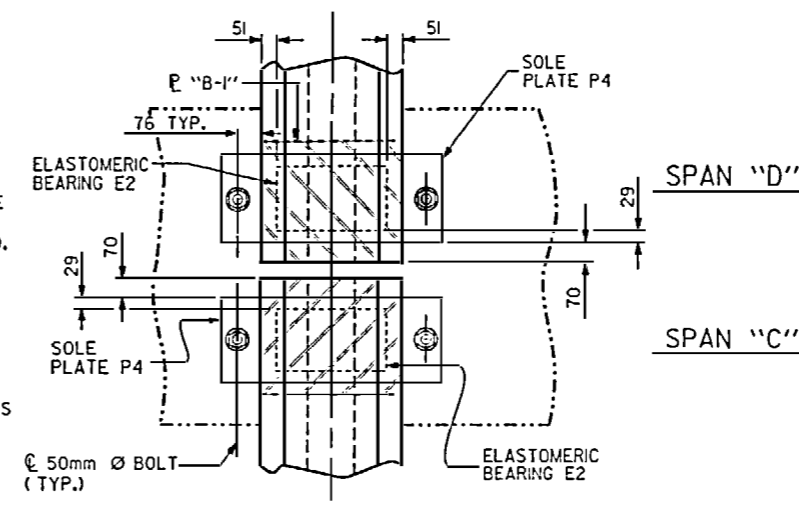
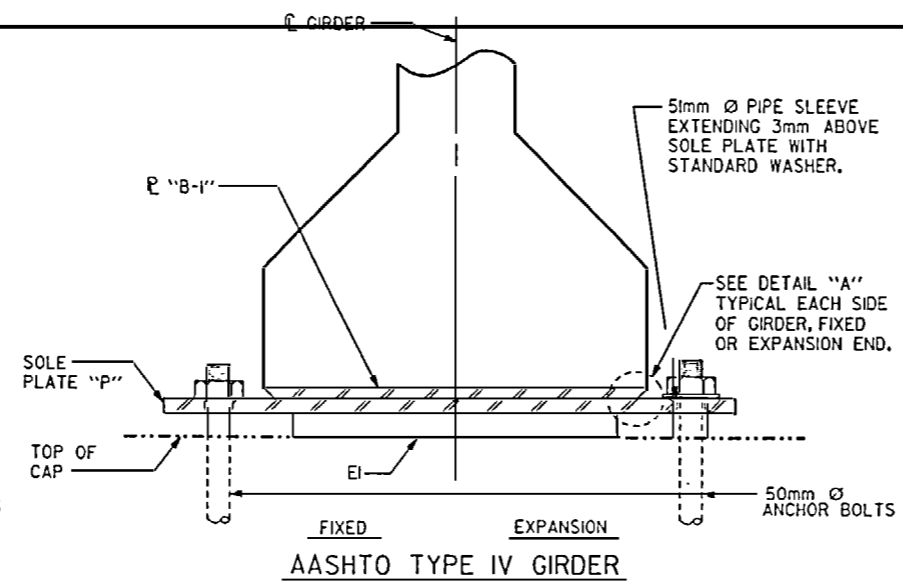
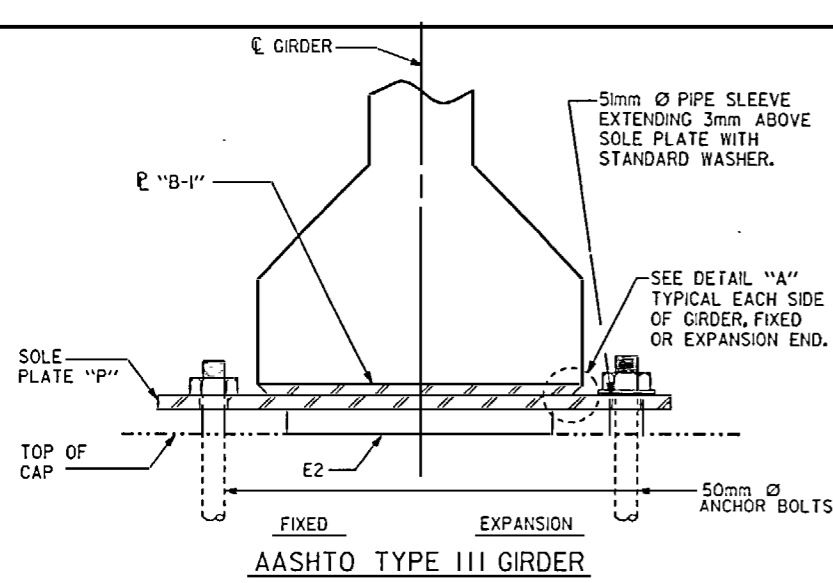
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-72
1			3			TOTAL SHEETS 142
2			4			

DRAWN BY: M.J. HOGAN DATE: 5/17/96
 CHECKED BY: J.M. BRITT DATE: 10-7-97

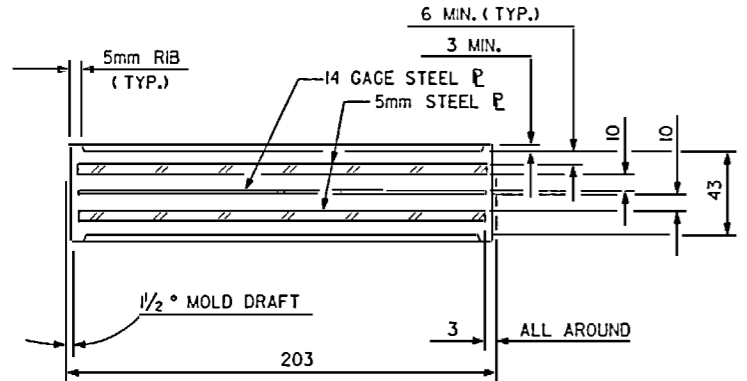
NOTES

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 DIA. PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 P.V.C. PLASTIC PIPE. THE P.V.C. PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF A.S.T.M. D1785.
 STEEL SOLE PLATES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE 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 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.
 ALL ELASTOMERIC BEARINGS SHALL BE 60 DUROMETER HARDNESS.

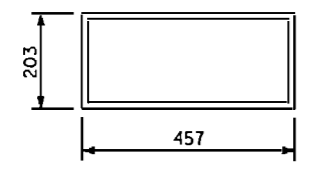
LOAD RATINGS	
	MAX.D.L.+L.L.
1143mm PCG -TYPE III	640 kN
1372mm PCG -TYPE IV	862 kN



PLAN VIEW @ BENT No. 3 (FIXED)



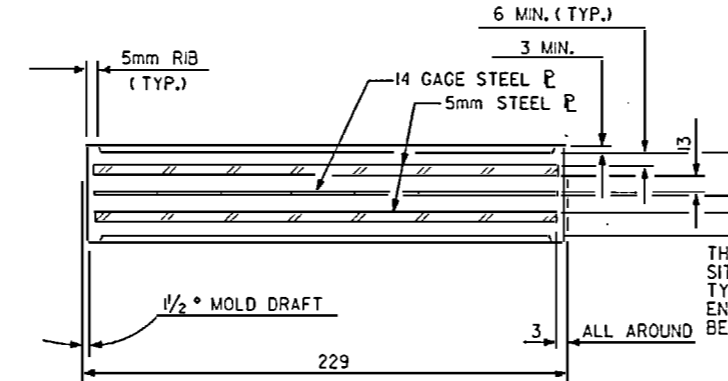
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E2 (20 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE III (1143mm PCG)



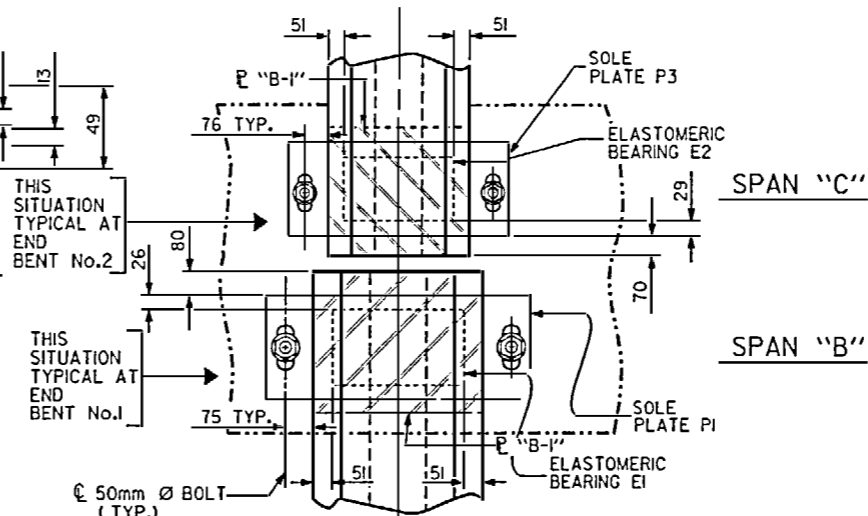
TYPICAL SECTION OF ELASTOMERIC BEARINGS



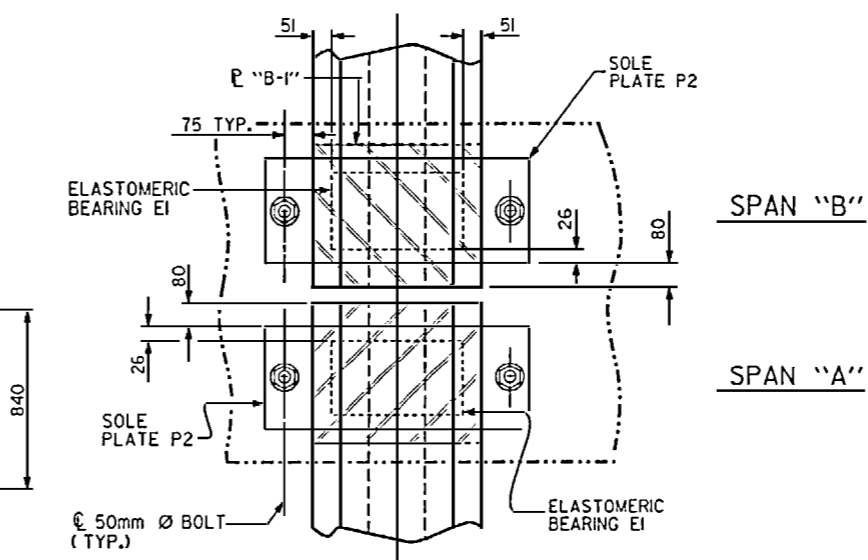
E1 (20 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

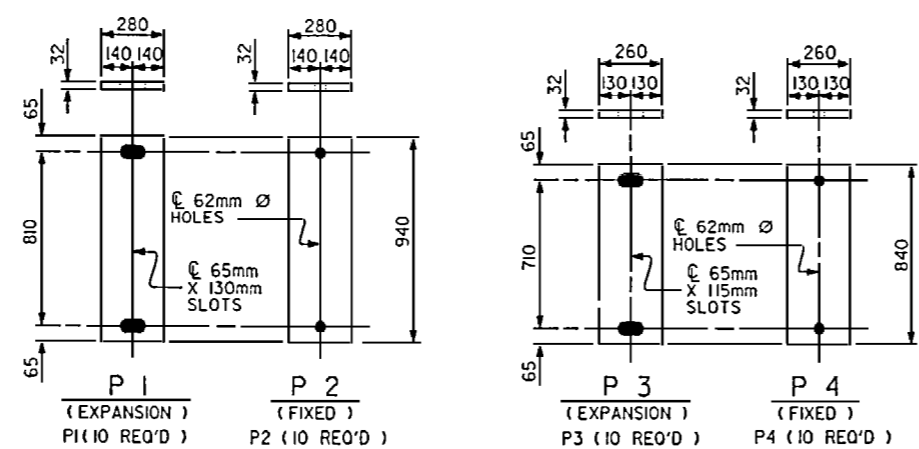
TYPE IV (1372mm PCG)



PLAN VIEW @ BENT No. 2 (EXPANSION)



PLAN VIEW @ BENT No. 1 (FIXED)



SOLE PLATE DETAILS ("P")

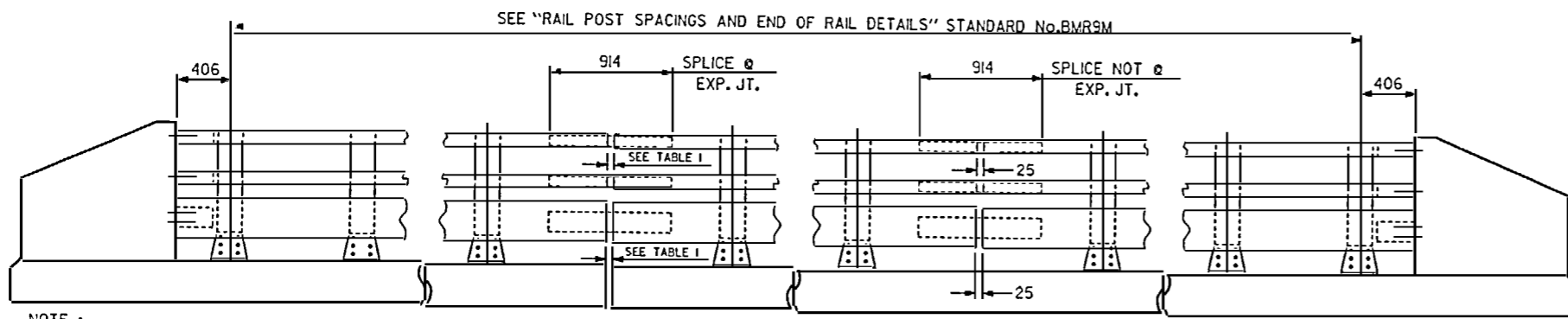


PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
STANDARD ELASTOMERIC BEARING DETAILS (SBL)

ASSEMBLED BY: M.J. HOGAN	DATE: 6-10-96	SPECIAL
CHECKED BY: J.M. ELLIOTT	DATE: 10-7-97	
DRAWN BY: M.C. HARRIS	DATE: 8-22-89	STANDARD
CHECKED BY: C.R. KING	DATE: 8-22-89	

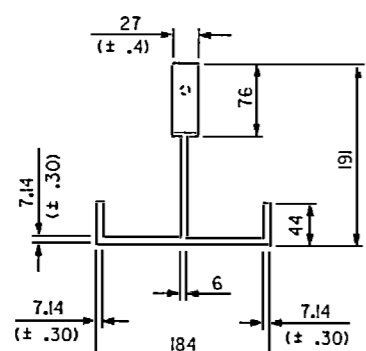
REVISIONS						SHEET NO. 6-73
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL 142
2			4			



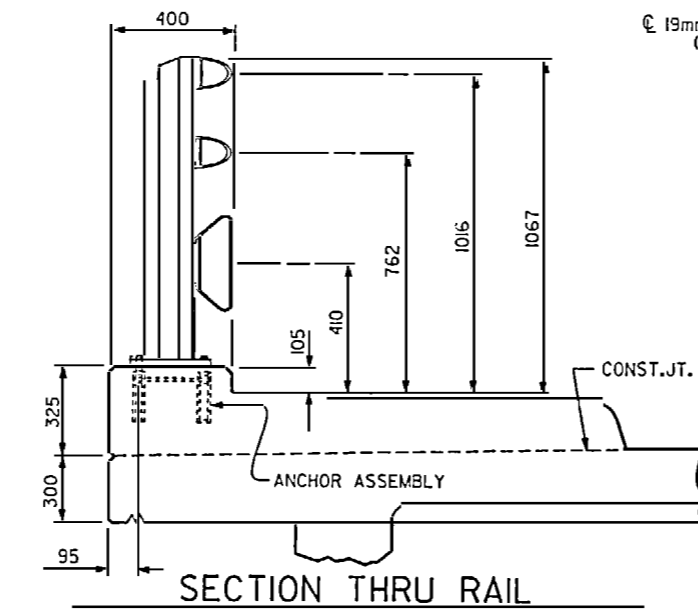
ELEVATION

NOTE :
FOR ATTACHMENT OF METAL RAIL TO END POST, SEE
"RAIL POST SPACINGS AND END OF RAIL DETAILS"
STD.No.BMR8M

EXP. JT. BENT	RAIL OPENING
BENT No. 2	52mm @ 16° C

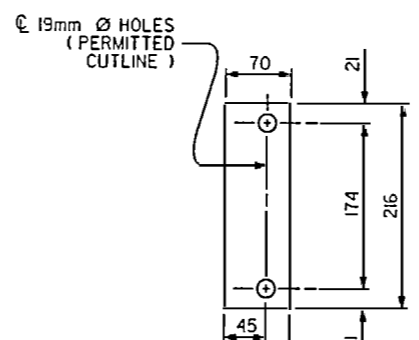


PLAN

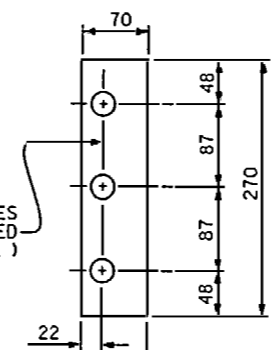


SECTION THRU RAIL

FOR ANCHOR ASSEMBLY, SEE "3 BAR METAL RAIL"
STD.No.BMR7M

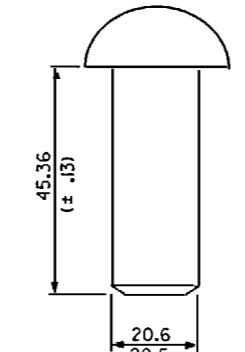


REAR PLATE

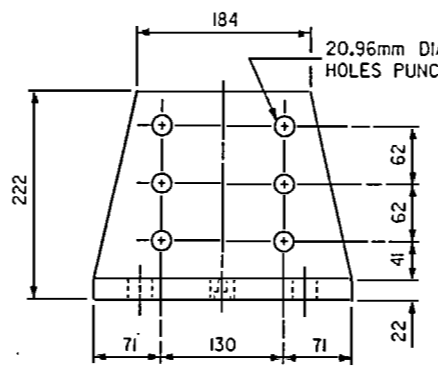


FRONT PLATE
SHIM DETAILS

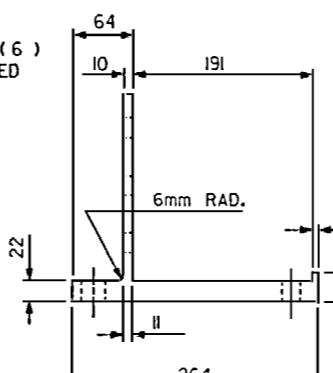
NOTE :
SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR
SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.



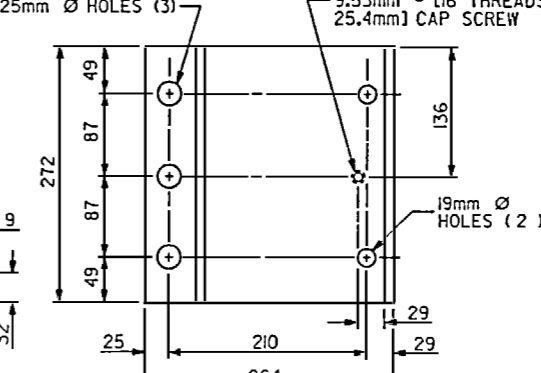
RIVET DETAIL



FRONT ELEVATION



SIDE ELEVATION



PLAN

POST BASE DETAILS

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE 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 B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B-316 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 B-209 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 GRADE STRUCTURAL STEEL - GALVANIZED TO ASTM A-123.

RIVETS : RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A-502 FOR GRADE I 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 I, OR OF FEDERAL SPECIFICATIONS TT-P-641.

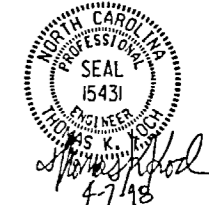
SHIMS : SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A-570M FOR GRADE 230 OR A-611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A-123.

RAIL CAPS : RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A-245 GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A-123.

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. PLACE ONE JOINT SPLICE JUST BEYOND THE 3RD RAIL POST FROM EACH END, GENERALLY APPROXIMATELY 4267mm FROM THE END. PLACE OTHER JOINTS AS NEEDED.
- FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD No.BMR8M.
- CAP SCREWS SHALL BE ASTM F593 TYPE 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 REMAIN 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.

PAY LENGTH = 88.054 METERS



PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3 BAR METAL RAIL
(SBL)

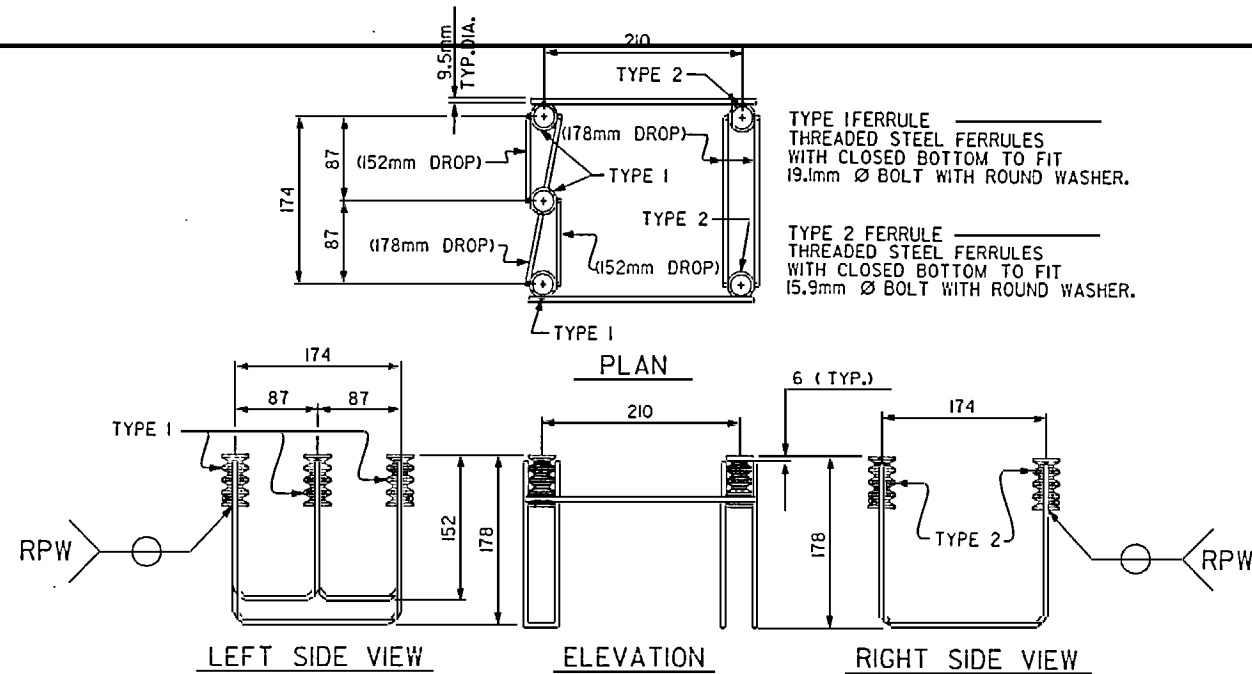
REVISIONS						SHEET NO. 5-74
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 142
2			4			

STD.No.BMR6M

STR.#1

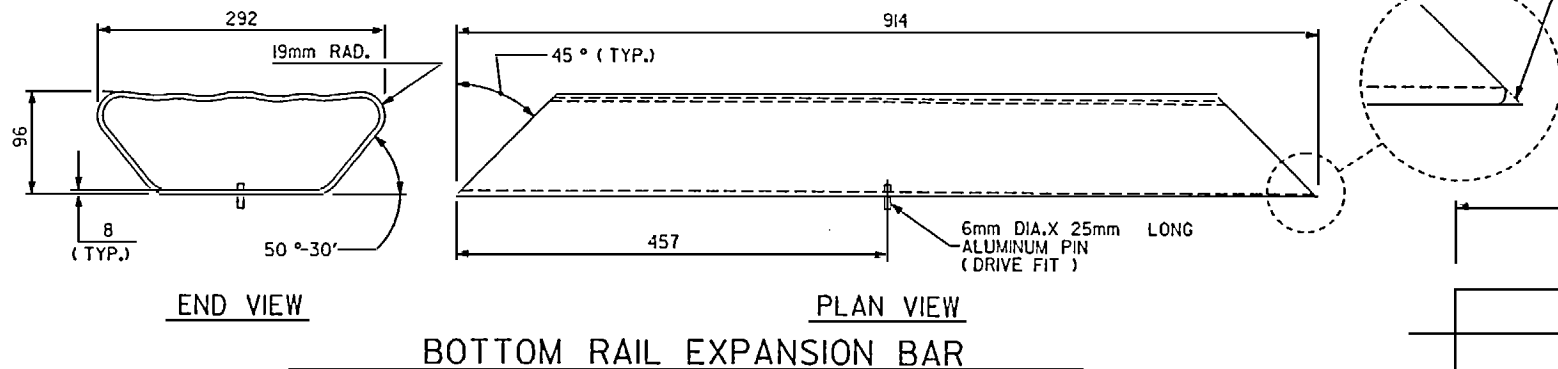
ASSEMBLED BY : M.J. HOGAN	DATE : 9/20/96	SPECIAL
CHECKED BY : F.M. BRITT	DATE : 10-8-97	
DRAWN BY : MIKE BRITT	DATE : JAN 1988	STANDARD
CHECKED BY : G.G. HARPER	DATE : JAN 1988	

REV. 10/1/93 ELR U CRP
REV. 6/1/94 EEM U CRP
REV. 6/16/95 EEM U CRP
08-OCT-1997 08:5
d:\user\mbritt\tr2425\strv2425c\mtr.dgn
mbritt

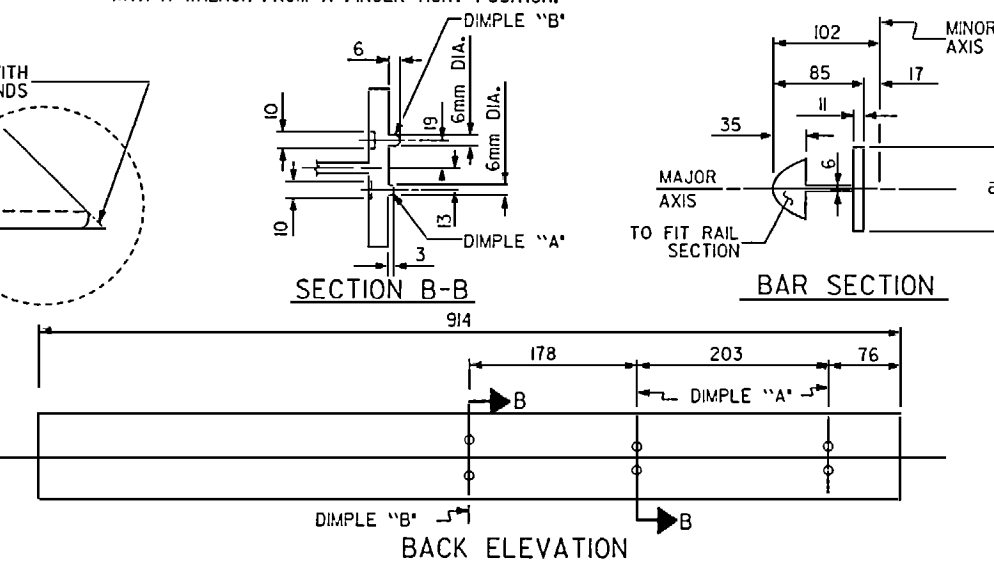


5-BOLT METAL RAIL ANCHOR ASSEMBLY

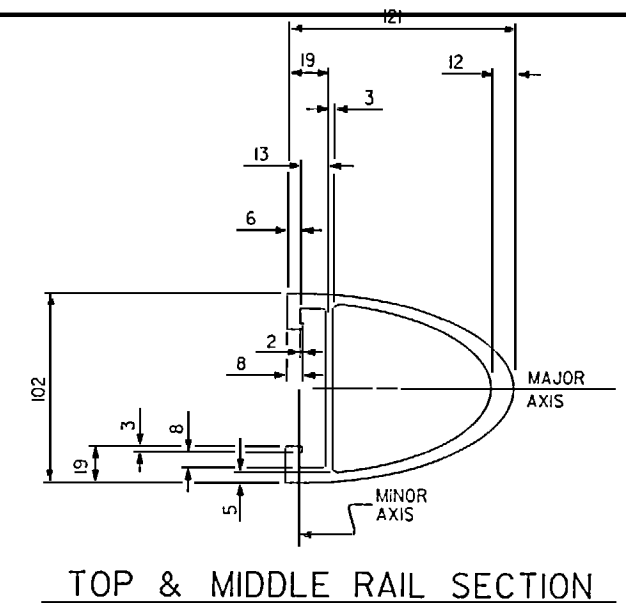
(48 ASSEMBLIES REQUIRED)



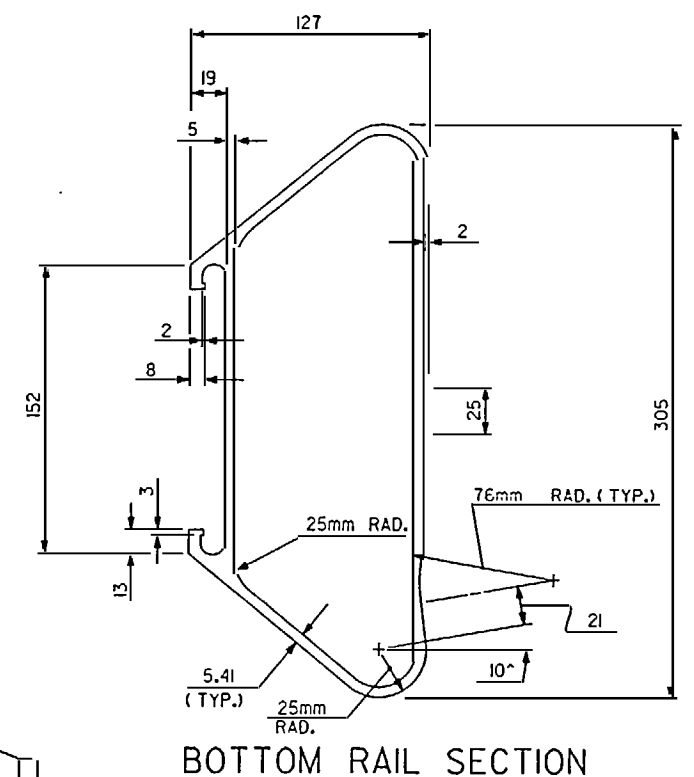
BOTTOM RAIL EXPANSION BAR



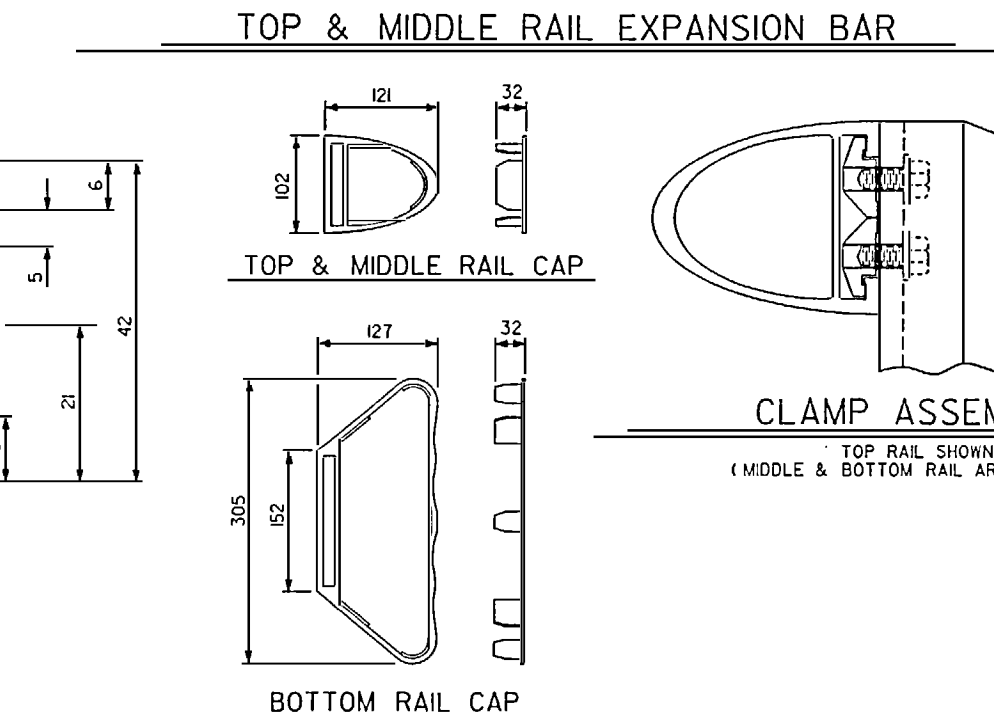
TOP & MIDDLE RAIL EXPANSION BAR



TOP & MIDDLE RAIL SECTION



BOTTOM RAIL SECTION

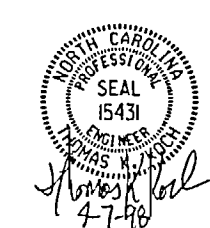


TOP & MIDDLE RAIL CAP

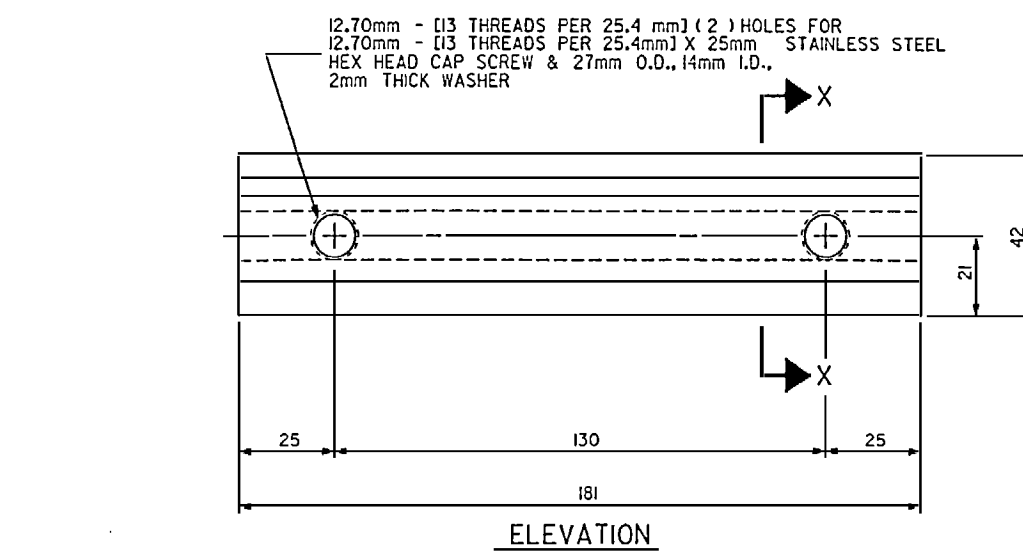
BOTTOM RAIL CAP

CLAMP ASSEMBLY

TOP RAIL SHOWN
(MIDDLE & BOTTOM RAIL ARE SIMILAR)



- NOTES**
- STRUCTURAL CONCRETE ANCHOR ASSEMBLY
- THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 51mm FOR 19mm FERRULES AND 45mm FOR 16mm FERRULES.
 - 3 -19.1mm DIA. X 64mm BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 19.1mm DIA. 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.)
 - 2 -15.9mm DIA. X 57mm BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 15.9mm DIA. X 57mm GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 689 MPa.
 - THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF ASTM A-123.
 - THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR METER OF METAL RAIL.
 - BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.



CLAMP BAR DETAIL
(6 REQUIRED PER POST)

ASSEMBLED BY : M.J. HOGAN	DATE : 9/20/96	SPECIAL
CHECKED BY : J.M. BRITT	DATE : 10-8-97	
DRAWN BY : MIKE BRITT	DATE : JAN. 1988	STANDARD
CHECKED BY : G.C. HARPER	DATE : JAN. 1988	

PROJECT NO. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3 BAR METAL RAIL
 (SBL)

NO.	BY	DATE	NO.	BY	DATE	SHEET NO.
1			3			9-75
2			4			142

STD.No.BMR7M

STR.#1

NOTES

METAL RAIL TO END POST CONNECTION

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

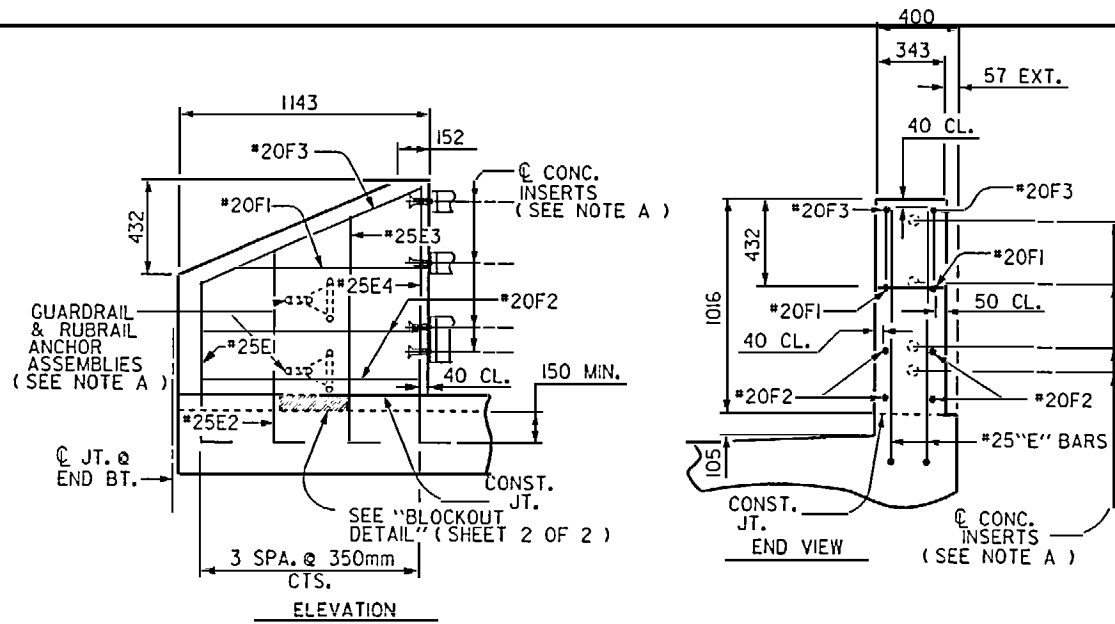
- A. 12mm PLATES SHALL CONFORM TO AASHTO M270 GRADE 250 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 19.1mm STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 21.4 KN THE FERRULES SHALL ENGAGE A 19.1mm DIA. X 4mm BOLT WITH 5mm O.D. WASHER IN PLACE. THE 19.1mm DIA. X 4mm BOLT SHALL HAVE N.C. THREADS.
- C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 TYPE 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 16° C. WASHERS FOR RAIL ATTACHMENT SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.
- D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).

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 3 BAR METAL RAIL.

THE 19.1mm STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

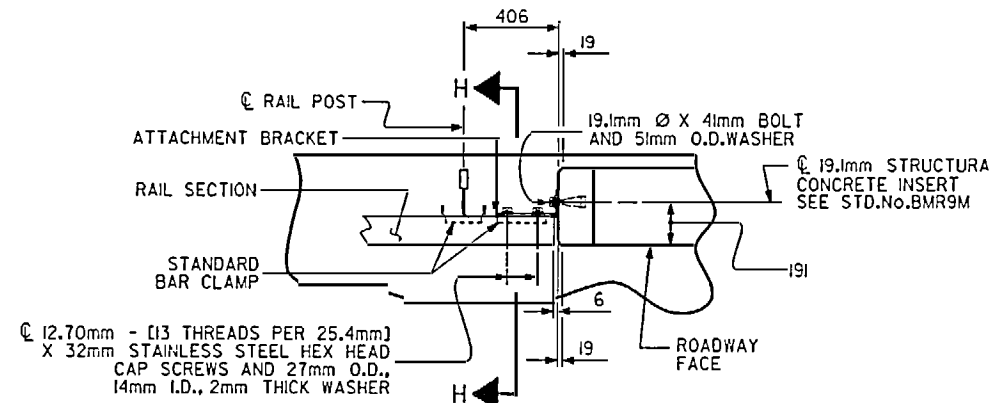
THE COST OF THE 19.1mm STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 12mm PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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 19.1mm DIA. X 4mm BOLT WITH WASHER SHALL BE REPLACED WITH A 19.1mm DIA. X 165mm BOLT AND 5mm O.D. WASHER. ALL SPECIFICATIONS WHICH APPLY TO THE 19.1mm DIA. X 4mm BOLT SHALL APPLY TO THE 19.1mm DIA. X 165mm BOLT SEE SPECIAL PROVISIONS FOR "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS". THE YIELD LOAD OF THE 19.1mm DIA. BOLT IS 53.4 KN. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



END POST DETAILS

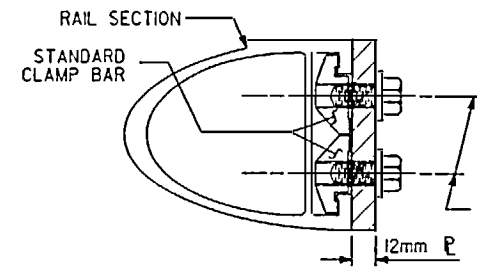
(FOR REINFORCING STEEL, SEE "SUPERSTRUCTURE-BILL OF MATERIAL" SHEET)



PLAN OF RAIL AND END POST

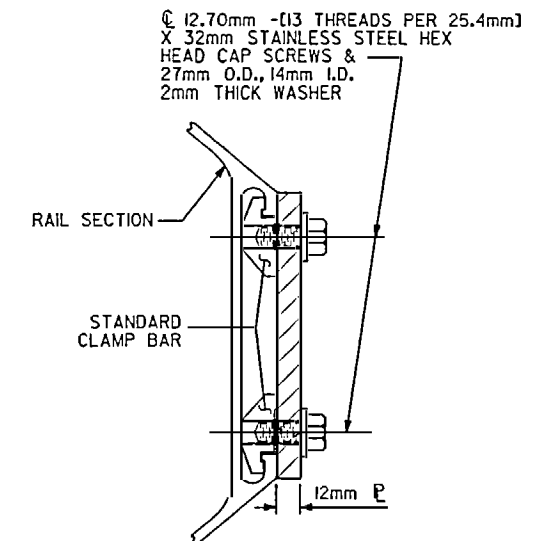
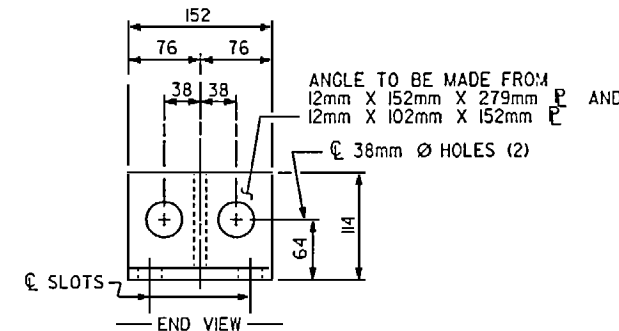
(STIFFENER ON 12mm P NOT SHOWN FOR CLARITY)

NOTE A :
FOR DETAILS OF CONCRETE INSERTS,
GUARDRAIL & RUBRAIL ANCHOR ASSEMBLIES,
SEE SHEET 2 OF 2.



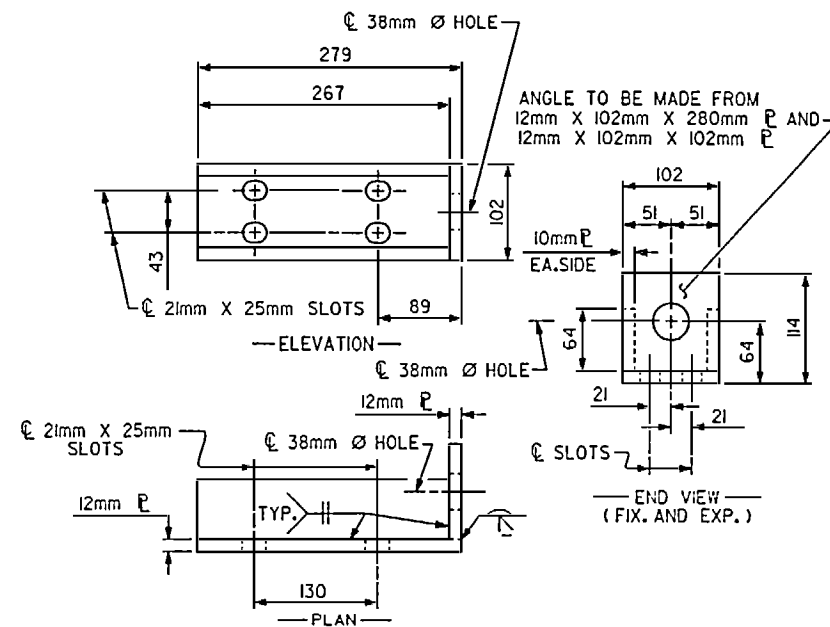
SECTION H-H

(FOR TOP & MIDDLE RAIL)



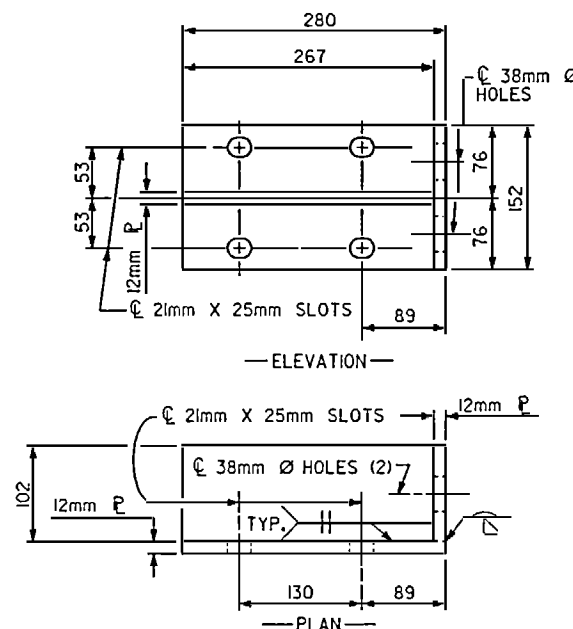
SECTION H-H

(FOR BOTTOM RAIL)



DETAILS FOR ATTACHMENT BRACKET

(TOP & MIDDLE RAIL ONLY)



DETAILS FOR ATTACHMENT BRACKET

(BOTTOM RAIL ONLY)

PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-
SHEET 1 OF 2

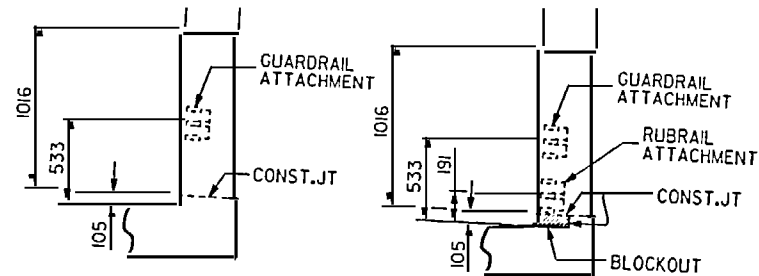


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO 5-76
STANDARD RAIL POST SPACINGS AND END OF RAIL DETAILS (SBL)						
REVISIONS						TOTAL SHEETS 142
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

ASSEMBLED BY : <u>M.J. HOGAN</u>	DATE : <u>9/20/96</u>	SPECIAL
CHECKED BY : <u>J.M. PELTY</u>	DATE : <u>10-9-97</u>	
DRAWN BY : <u>MIKE BRITT</u>	DATE : <u>JAN. 1988</u>	STANDARD
CHECKED BY : <u>G.G. HARPER</u>	DATE : <u>JAN. 1988</u>	

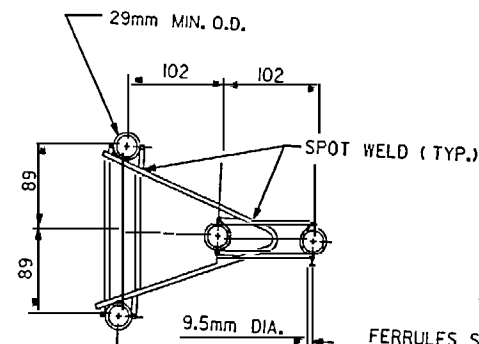
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PRT11

STD.No.BMR8M

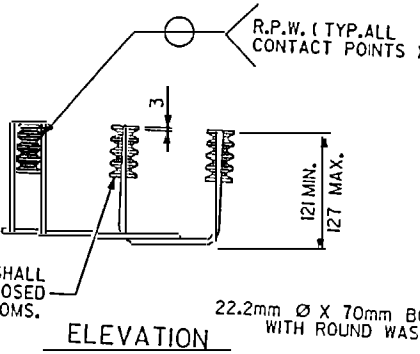


END VIEW WITH GUARDRAIL ATTACHMENT
 END VIEW WITH GUARDRAIL AND RUBRAIL ATTACHMENT

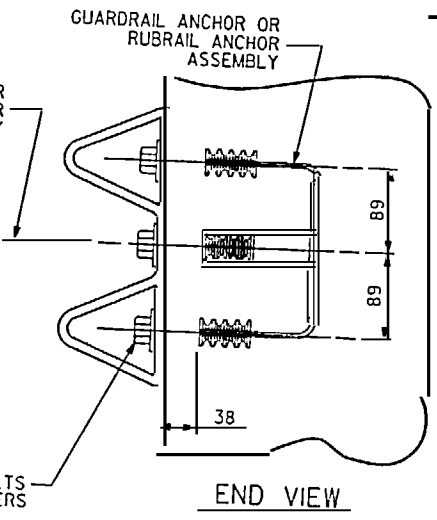
LOCATION OF GUARDRAIL AND RUBRAIL ANCHOR AT END POST



PLAN



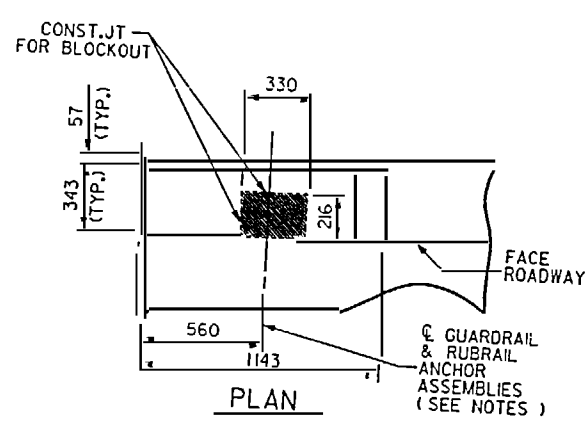
ELEVATION



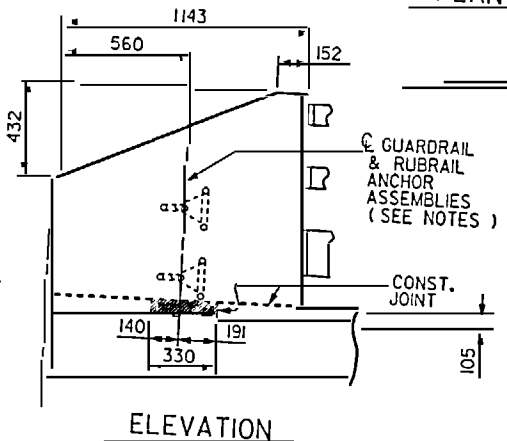
END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS AND RUBRAIL ANCHOR ASSEMBLY DETAILS

NOTE: THE CONCRETE IN THE SHADED AREA OF THE SIDEWALK PARAPET SHALL BE POURED WITH THE END POST.

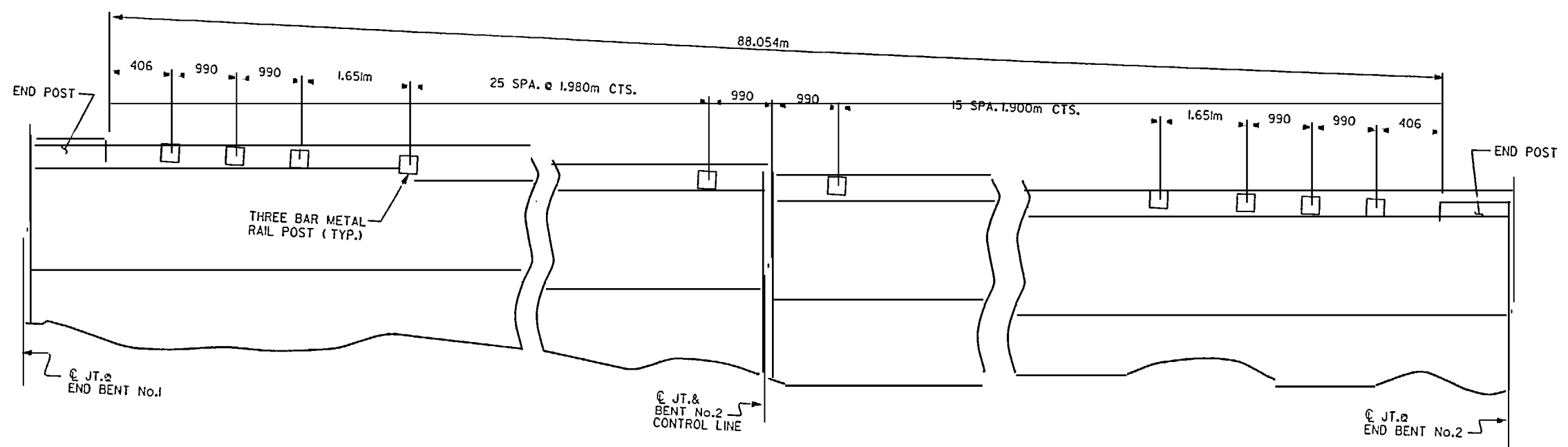


PLAN

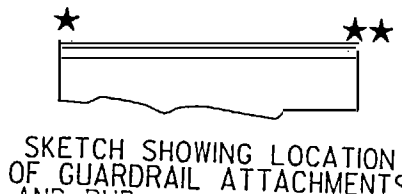


ELEVATION

BLOCKOUT DETAIL



PLAN OF RAIL POST SPACING



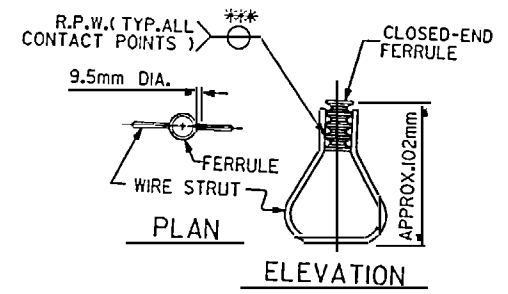
SKETCH SHOWING LOCATION OF GUARDRAIL ATTACHMENTS

NOTES

- GUARDRAIL ANCHOR ASSEMBLY AND RUBRAIL ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 38mm.
 - 4 - 22.2mm DIA. X 70mm 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 22.2mm DIA. X 70mm GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - WIRE STRUTS SHOWN IN THE ANCHOR ASSEMBLY DETAIL ARE THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 689 MPa. THE GUARDRAIL ANCHOR ASSEMBLY AND RUBRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT. THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY AND RUBRAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS. THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE GUARDRAIL IS TO BE ATTACHED TO THE END POST, AND THE RUBRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE RUBRAIL IS TO BE ATTACHED TO THE END POST. FOR POINTS OF ATTACHMENT, SEE SKETCH.

NOTES

- STRUCTURAL CONCRETE INSERT
- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 38mm.
 - 1 - 19.1mm DIA 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 19.1mm DIA. 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.)
 - WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 689 MPa.



STRUCTURAL CONCRETE INSERT

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

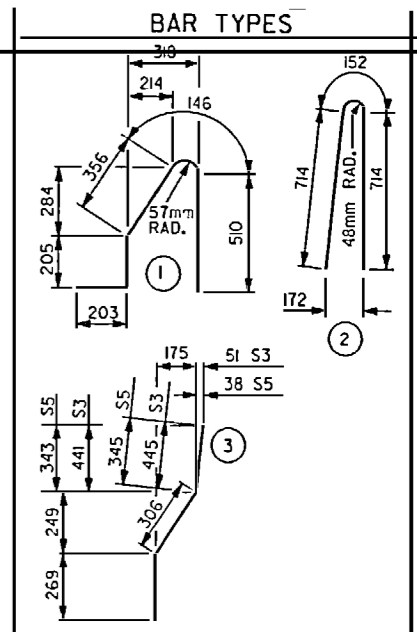
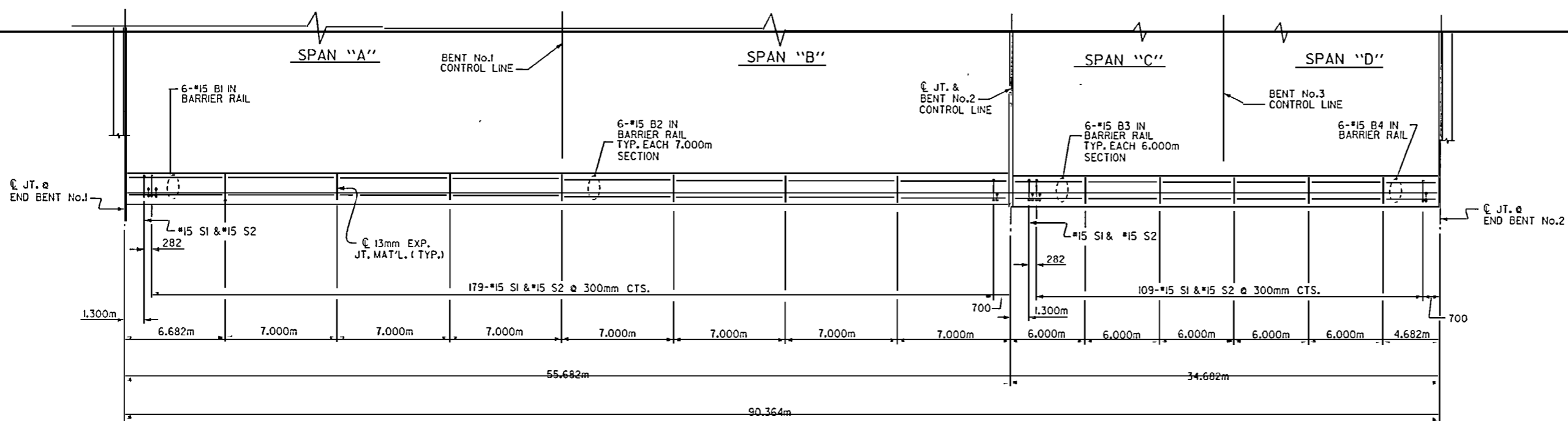


PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-

SHEET 2 OF 2

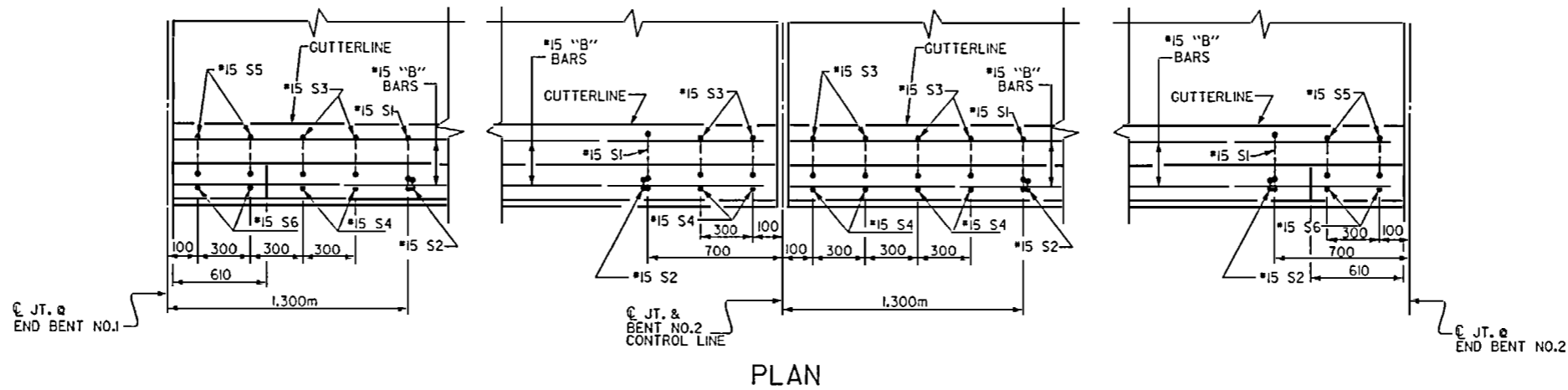
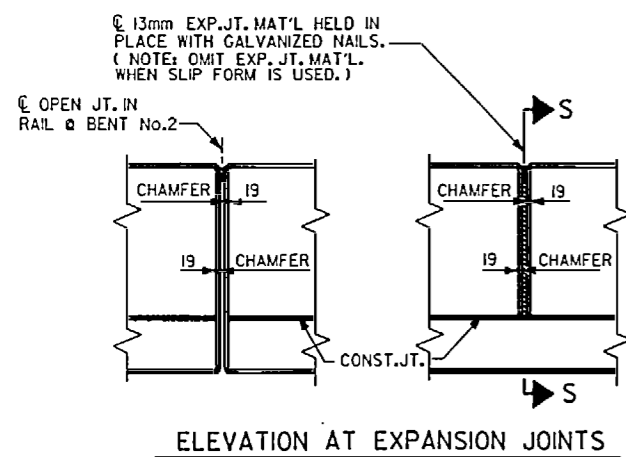
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS

ASSEMBLED BY: M.J. HOGAN DATE: 9/20/96
 CHECKED BY: J.M. BRITT DATE: 10-8-97
 DRAWN BY: MIKE BRITT DATE: 12N 1998



BILL OF MATERIAL FOR CONCRETE BARRIER RAIL ONLY

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
*S1	290	#15	1420	647
*S2	290	#15	1580	719
*S3	8	#15	1020	13
*S4	8	#15	960	12
*S5	4	#15	920	6
*S6	4	#15	840	5
*B1	6	#15	6560	62
*B2	42	#15	6880	454
*B3	30	#15	5880	277
*B4	6	#15	4560	43
*EPOXY COATED REINFORCING STEEL				2,238 kg
CLASS AA CONCRETE				20.9 CU. METERS
CONCRETE BARRIER RAIL				90.364 METERS



NOTES

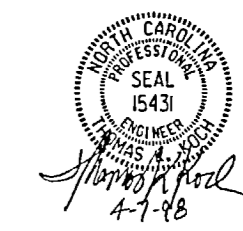
THE BARRIER RAIL IN EACH CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 28 MPa.

WHEN EVAZOTE JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWSAWED PRIOR TO THE CASTING OF BARRIER RAIL.

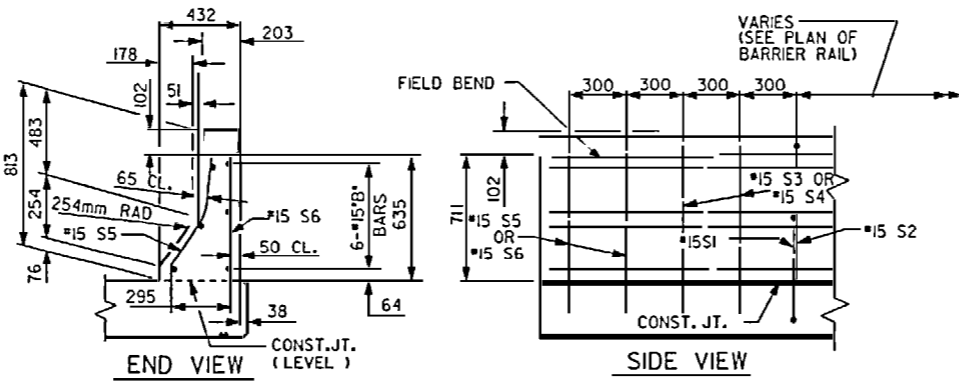
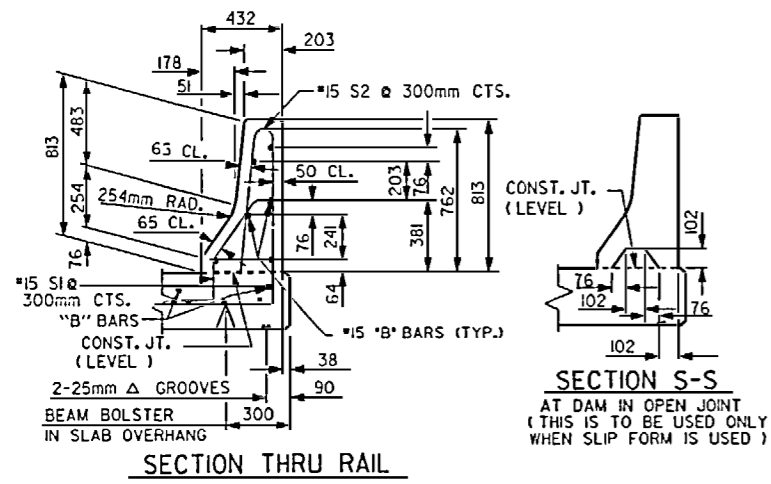
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #15 S3 THRU #15 S6 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR THE #15 S3 THRU #15 S6 BARS IS 82.7 KN. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

THE #15 S1 & #15 S2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 50mm CLEARANCE TO THE 13mm EXPANSION JOINT MATERIAL IN RAIL.



PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-



ASSEMBLED BY: M.J. HOGAN	DATE: 6-13-96	SPECIAL
CHECKED BY: J.M. BRITTT	DATE: 10-28-97	
DRAWN BY: R. BISSETTE	DATE: 5/28/87	STANDARD
CHECKED BY: S.J. DAVIS	DATE: 9/3/87	

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEGH

STANDARD CONCRETE BARRIER RAIL (SBL)

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	9-78
1			3			142
2			4			142

CBRIM STR.#1

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

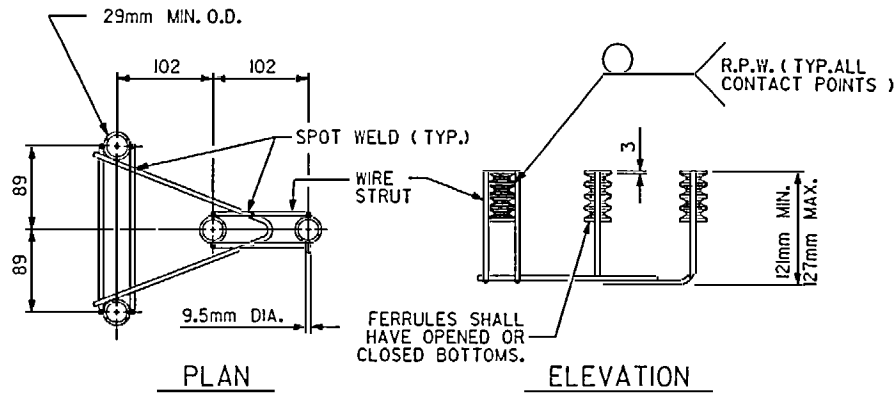
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM A108, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 38mm.
- B. 4 - 22.2mm DIA. X 70mm BOLTS WITH WASHERS FOR GUARDRAIL ANCHOR ASSEMBLY SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLTS WITH WASHERS MAY BE USED AS AN ALTERNATE FOR THE 22.2mm DIA. X 70mm 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 STRUTS SHOWN IN THE ANCHOR ASSEMBLY ARE THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 689 MPa.

THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

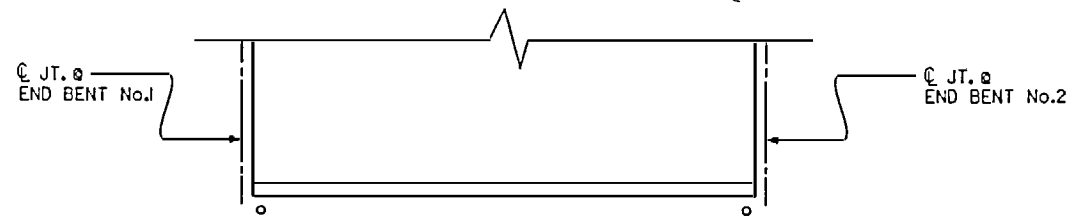
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. SEE SPECIAL PROVISIONS FOR "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS". THE YIELD LOAD OF THE 22.2mm DIA. BOLT IS 73.8 KN. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



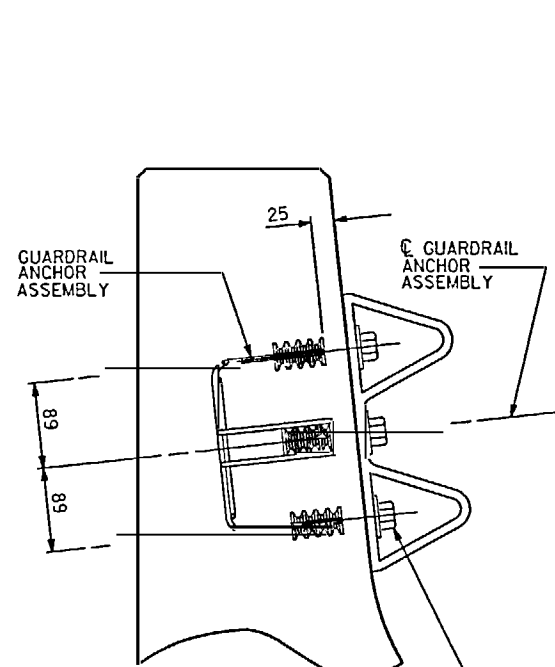
PLAN
ELEVATION

GUARDRAIL ANCHOR ASSEMBLY



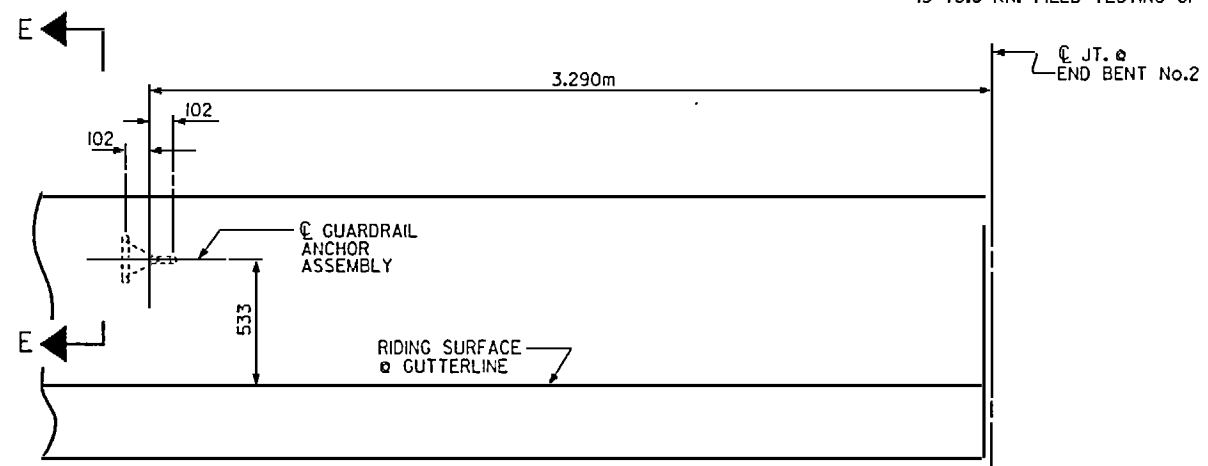
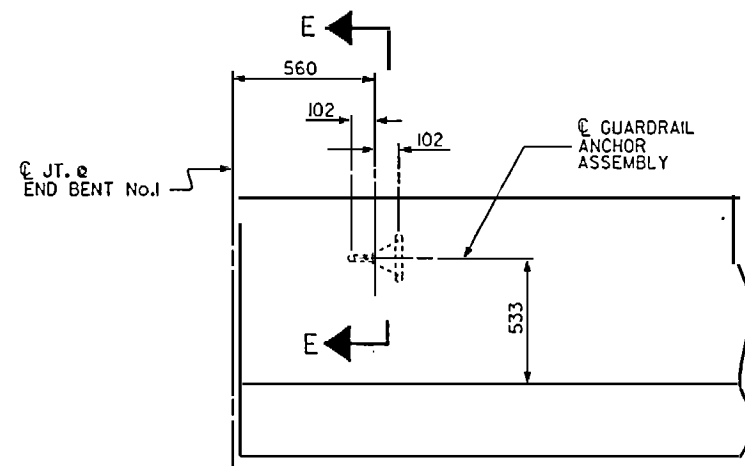
o = DENOTES GUARDRAIL ANCHOR ASSEMBLY REQUIRED

SKETCH SHOWING POINTS OF ATTACHMENTS

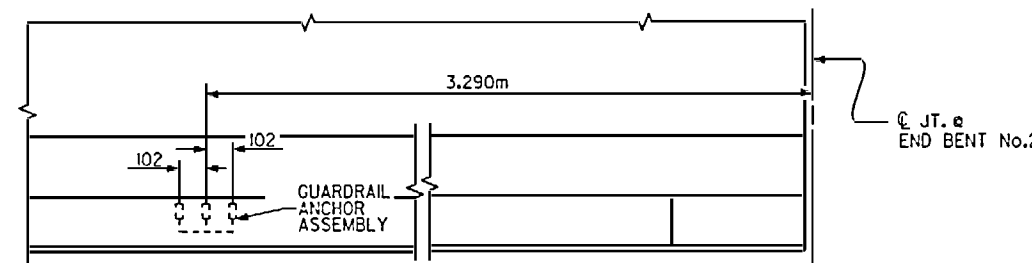
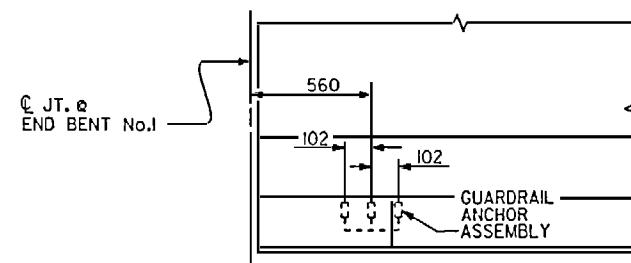


22.2mm Ø X 70mm BOLTS WITH ROUND WASHERS

SECTION E-E

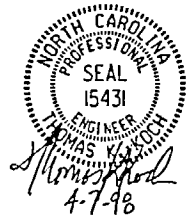


ELEVATION



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL



PROJECT NO. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL
 (SBL)

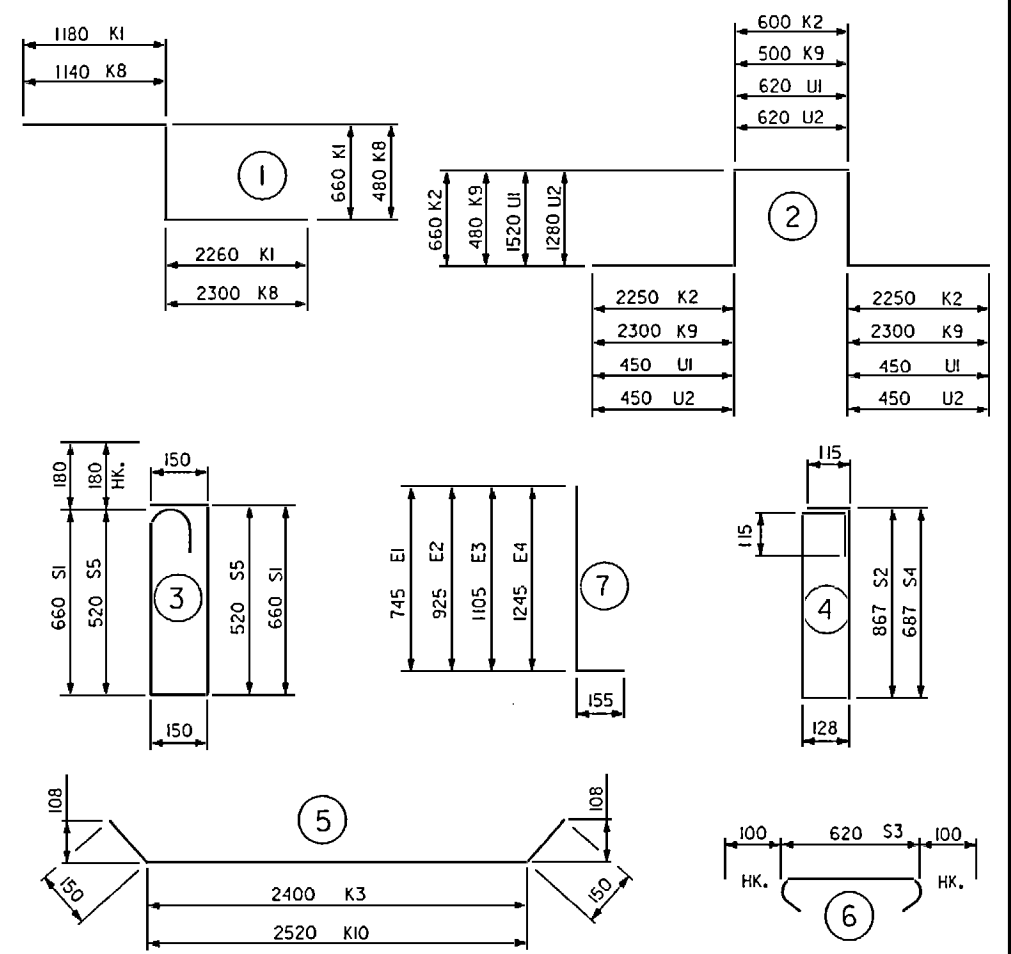
ASSEMBLED BY : M.J. HOGAN	DATE : 5/14/95	SPECIAL
CHECKED BY : J.M. BRITT	DATE : 10-8-97	
DRAWN BY : MIKE BRITT	DATE : DEC 1987	STANDARD
CHECKED BY : RANDY BISSETTE	DATE : DEC 1987	

REVISIONS						SHEET NO. 5-79
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 142
2			4			

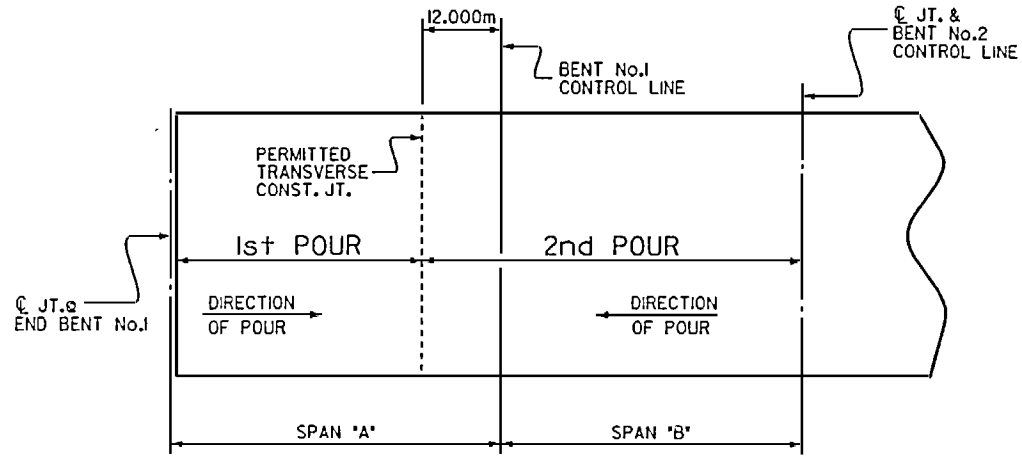
REINFORCING BAR SCHEDULE

SPAN 'A' & 'B'					SPAN 'C' & 'D'						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	397	15	STR	14260	8888	*A1	247	15	STR	14260	5530
A2	397	15	STR	14260	8888	A2	247	15	STR	14260	5530
*B1	123	10	STR	7440	718	*B7	82	10	STR	7120	458
B2	240	15	STR	14380	5418	*B8	80	20	STR	4440	836
*B3	41	20	STR	14200	1371	*B9	41	20	STR	8880	857
*B4	80	20	STR	7100	1338	B10	180	15	STR	11940	3374
*B5	123	10	STR	7540	728	*B11	82	10	STR	6960	448
*B6	7	10	STR	8380	46	*B12	5	10	STR	7320	29
*B13	40	10	STR	7320	230	*B14	20	10	STR	8860	139
*D1	620	10	STR	300	146	*D1	385	10	STR	300	91
*E1	2	25	7	900	7	*E1	2	25	7	900	7
*E2	2	25	7	1080	8	*E2	2	25	7	1080	8
*E3	2	25	7	1260	10	*E3	2	25	7	1260	10
*E4	2	25	7	1400	11	*E4	2	25	7	1400	11
*F1	2	20	STR	700	3	*F1	2	20	STR	700	3
*F2	4	20	STR	1060	10	*F2	4	20	STR	1060	10
*F3	2	20	STR	1160	5	*F3	2	20	STR	1160	5
*G1	2	15	STR	14260	45	*G1	2	15	STR	14260	45
*G2	206	15	STR	1740	563	*G2	128	15	STR	1740	350
*K1	8	25	1	4100	128	*K7	10	10	STR	6500	51
*K2	12	25	2	6420	302	*K8	8	25	1	3920	123
K3	16	15	5	2700	68	*K9	12	25	2	6020	285
K4	16	15	STR	2600	65	K10	16	15	5	2820	71
K5	8	10	STR	2020	13	K11	16	15	STR	2660	67
K6	40	10	STR	2460	77	K12	8	10	STR	2140	13
K7	12	10	STR	6500	61	K13	32	10	STR	2560	64
*S1	72	15	3	1800	203	S3	128	10	6	820	82
S2	64	15	4	2220	223	S4	72	15	4	1860	210
S3	140	10	6	820	90	*S5	72	15	3	1520	172
*U1	28	10	2	4560	100	*U2	32	10	2	4080	102
REINFORCING STEEL					kg. 14,903	REINFORCING STEEL					kg. 9,462
EPOXY COATED REINFORCING STEEL					kg. 14,860	EPOXY COATED REINFORCING STEEL					kg. 9,417
* THESE BARS ARE EPOXY COATED.						* THESE BARS ARE EPOXY COATED.					

BAR TYPES

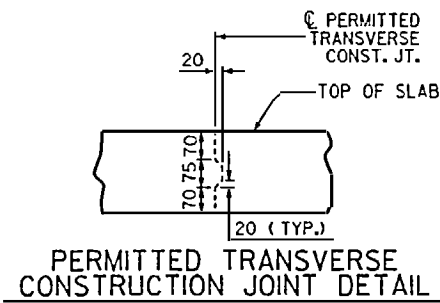


ALL BAR DIMENSIONS ARE OUT TO OUT



SPAN "A" & "B" POURING SEQUENCE

(TO BE USED WITH PERMITTED CONST. JT. OPTION)



PERMITTED TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: SLAB REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE	41 MPa CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. METER)	(CU. METER)	(kg)	(kg)
SPAN 'A' & 'B'	-	226.4	14,903	14,860
SIDEWALK	21.8	-	***	***
END POST	0.3	-	***	***
SPAN 'C' & 'D'	-	144.3	9,462	9,417
SIDEWALK	13.6	-	***	***
END POST	0.3	-	***	***
TOTALS * *	36.0	370.7	24,365	24,277

* * QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

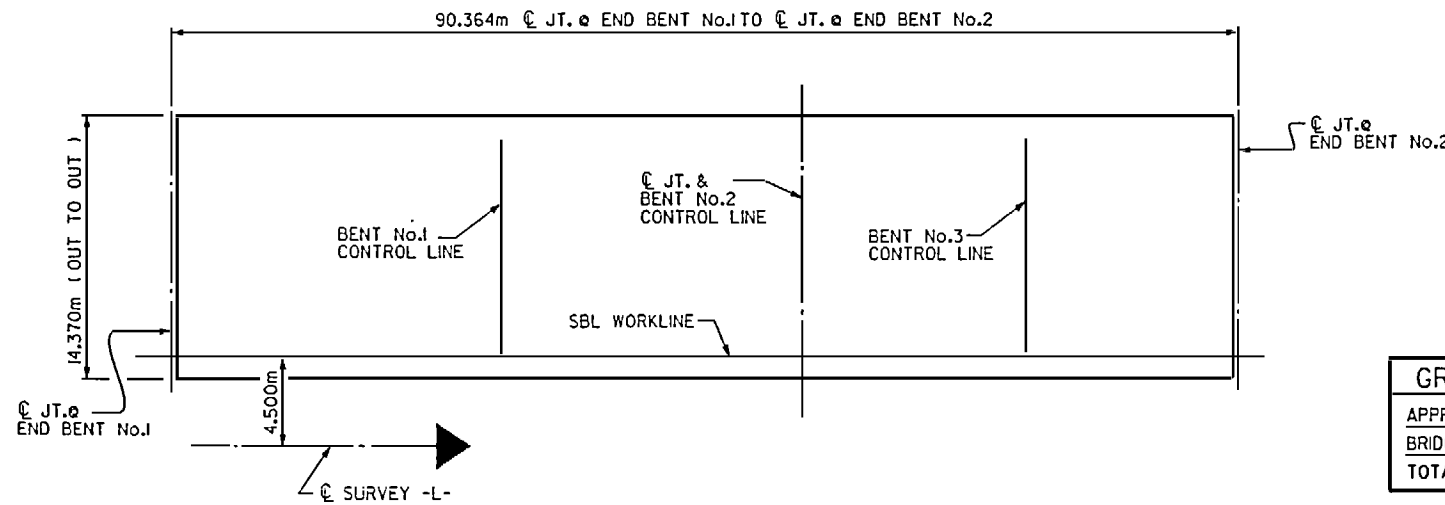
*** SIDEWALK & END POST REINFORCING STEEL IS INCLUDED IN SPAN TOTALS.

GROOVING BRIDGE FLOORS

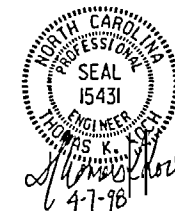
APPROACH SLABS (NOT REQ'D)	SO.METER
BRIDGE DECK	998.4 SO.METER
TOTAL	998.4 SO.METER

PROJECT NO. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#10	520	450	520	450	720
#15	730	640	730	640	1020
#20	910	790	1190	790	1350
#25	1980	1320	1980	1320	2240



LAYOUT FOR COMPUTING AREA
 OF REINFORCED CONCRETE DECK SLAB
 (SO.METER = 1298.6)



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SUPERSTRUCTURE
 BILL OF MATERIAL
 (SBL)

REVISIONS						SHEET NO. 5-80
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 142
2			4			

STD. NO. BOM2M STR.#1

ASSEMBLED BY: M.J. HOGAN DATE: 6/3/96
 CHECKED BY: J.M. BRITT DATE: 10-9-97

DRAWN BY: M. BRITT DATE: 5/28/87
 CHECKED BY: S.J. DAVIS DATE: 9/3/87

NOTES

STIRRUPS & U2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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

THE CONCRETE IN THE SHADED AREA OF WING W2 SHALL BE POURED AFTER THE JOINT IN THE DECK AND THE APPROACH SLAB HAS BEEN SAWS AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

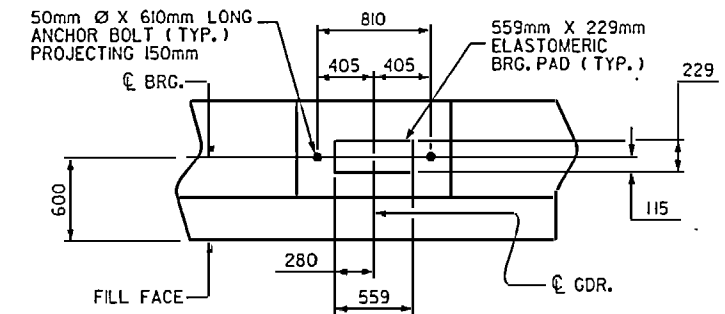
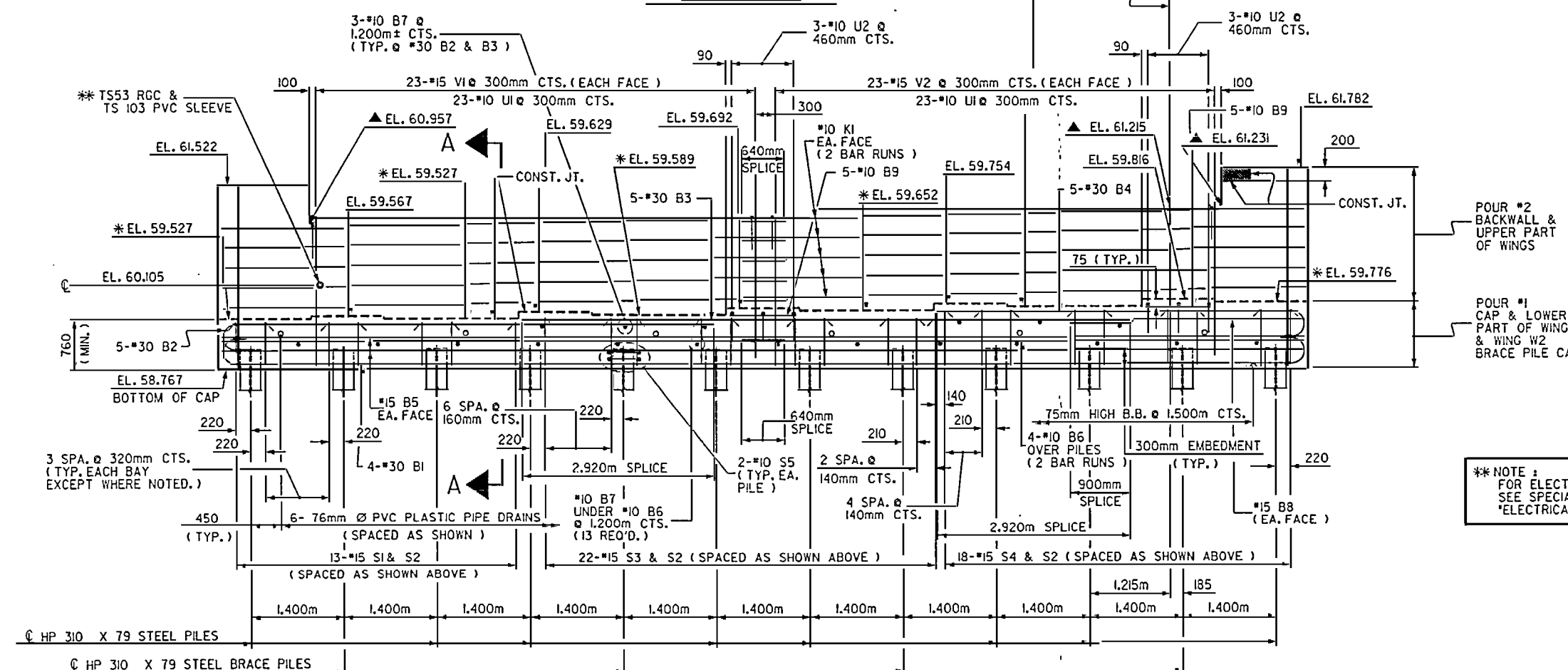
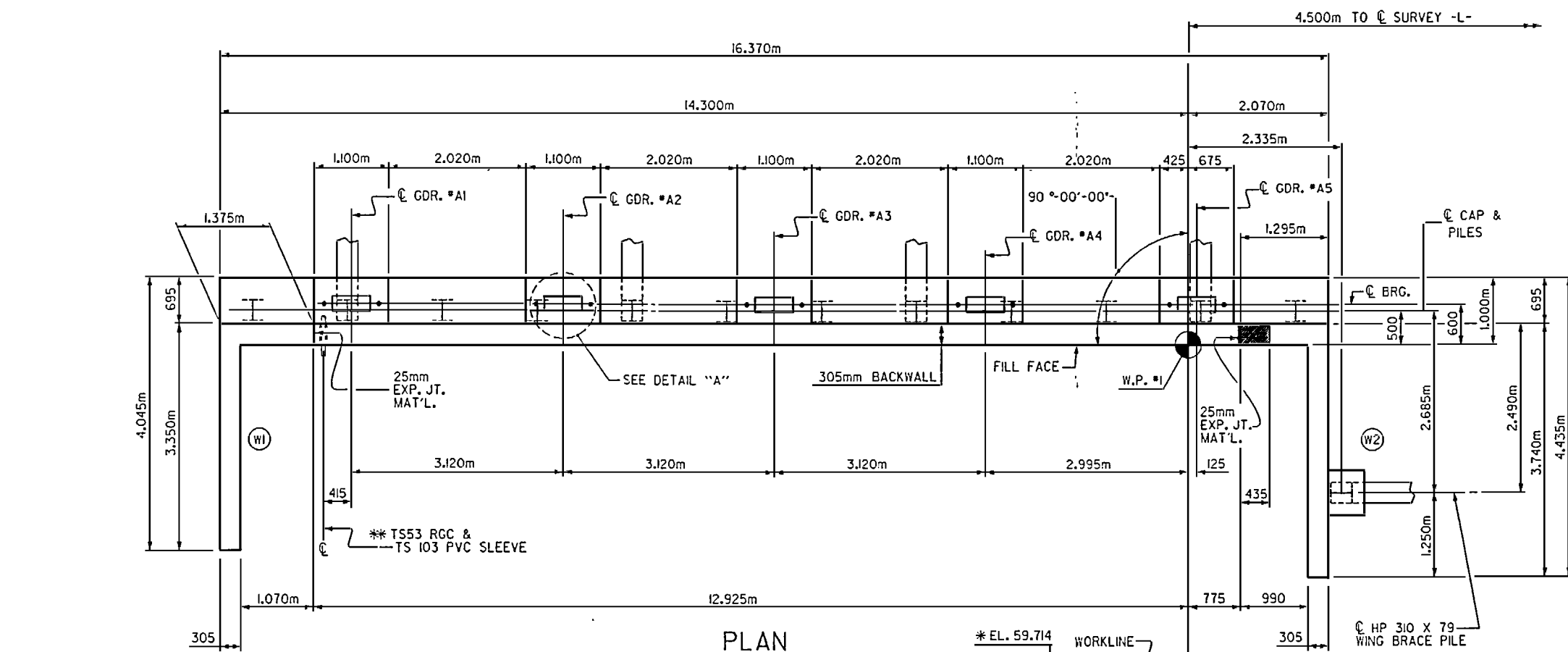
▲ THIS ELEVATION TAKEN ON FILL FACE OF BACKWALL.

* FOR LOCATION OF ELEVATIONS BETWEEN BUILD-UPS, SEE SECTION A-A, SHEET 3 OF 3.

#15 "V" BARS IN BACKWALL SHALL BE PLACED 50mm CLEAR FROM TOP OF BACKWALL.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 100mm DRAIN PIPE THROUGH THE WINGWALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN WINGWALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

REINFORCING STEEL IN BACKWALL MAY BE SHIFTED SLIGHTLY AS REQUIRED TO CLEAR THE TS 103 PVC SLEEVE.



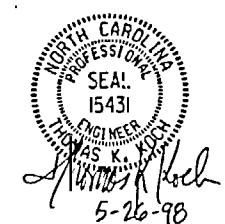
** NOTE :
 FOR ELECTRICAL CONDUIT SYSTEM,
 SEE SPECIAL PROVISIONS AND
 "ELECTRICAL CONDUIT SYSTEM" SHEETS.

PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-

SHEET 1 OF 3

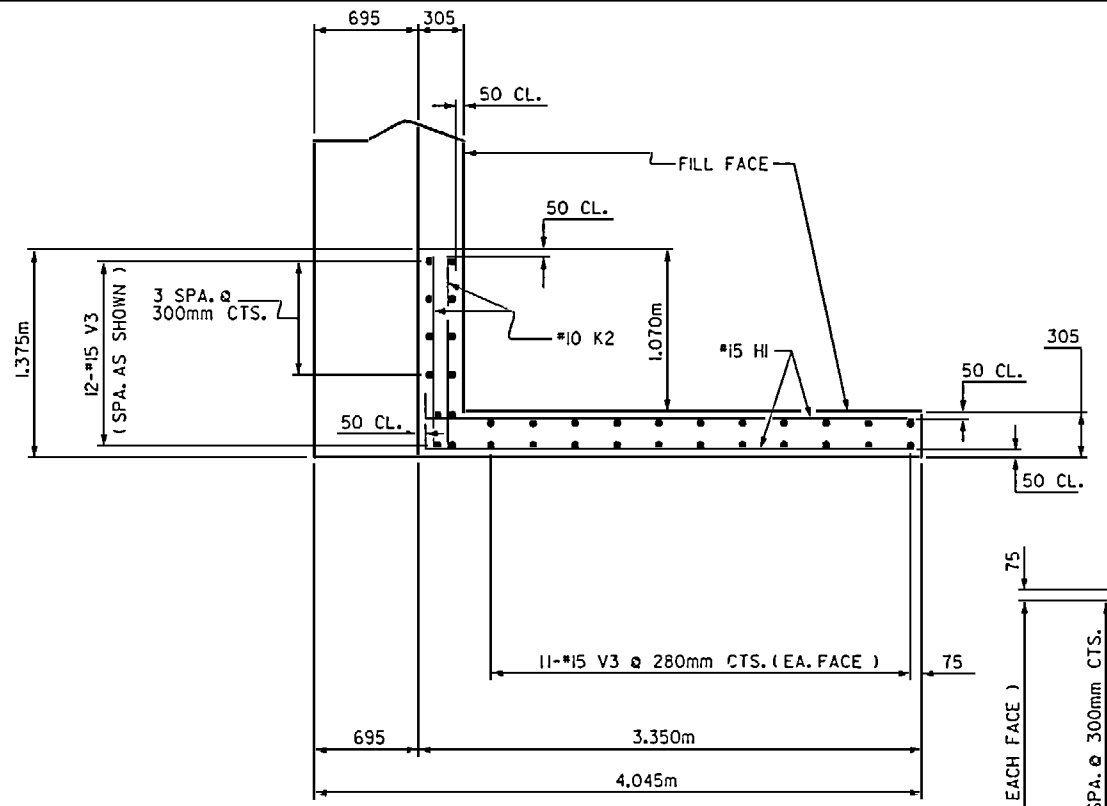
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT NO.1 (SBL)					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. 3-81
 TOTAL SHEETS 142

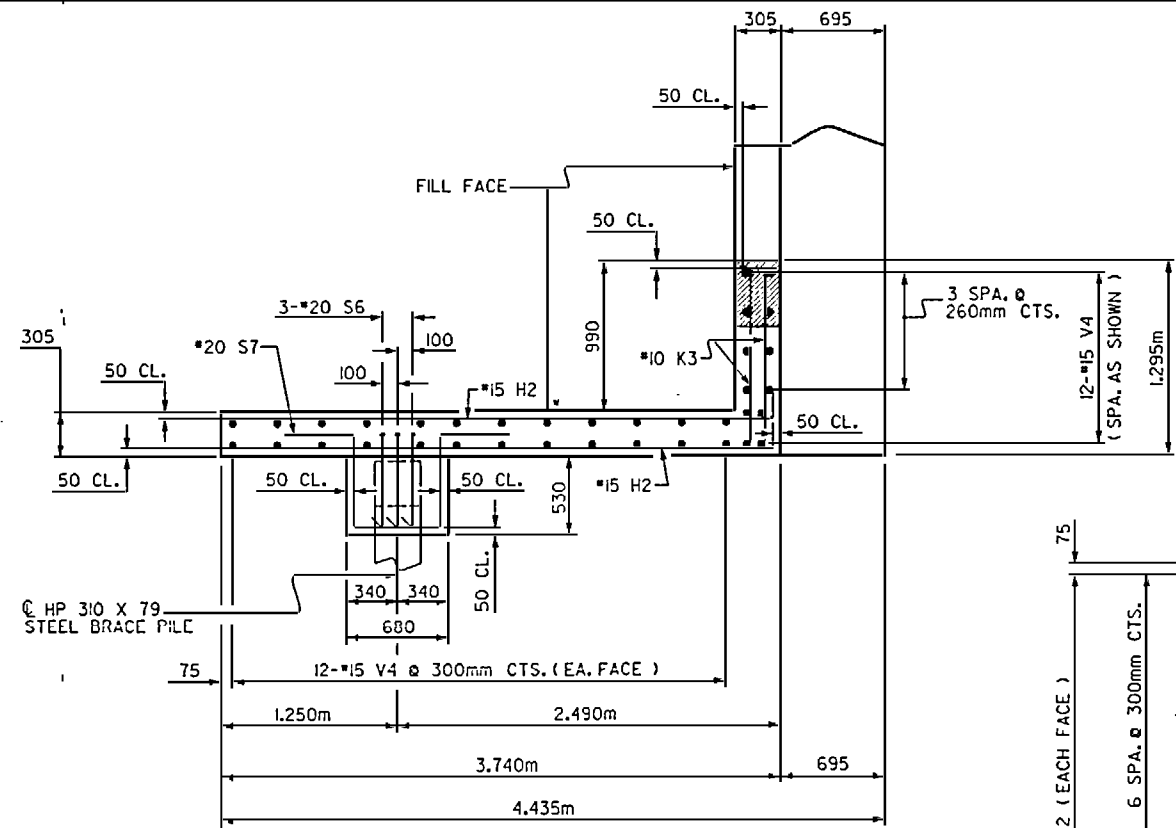


DRAWN BY : L.A. HUSSEY DATE : 10-8-96
 CHECKED BY : J.M. KELT DATE : 2-20-98

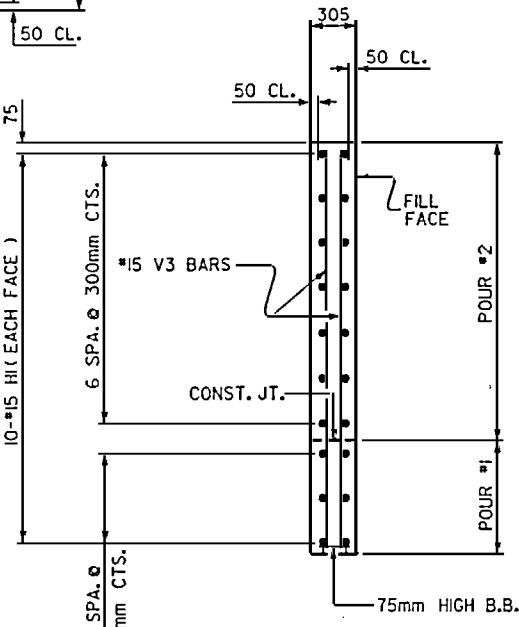
(BRACE PILE IN WING NOT SHOWN FOR CLARITY)



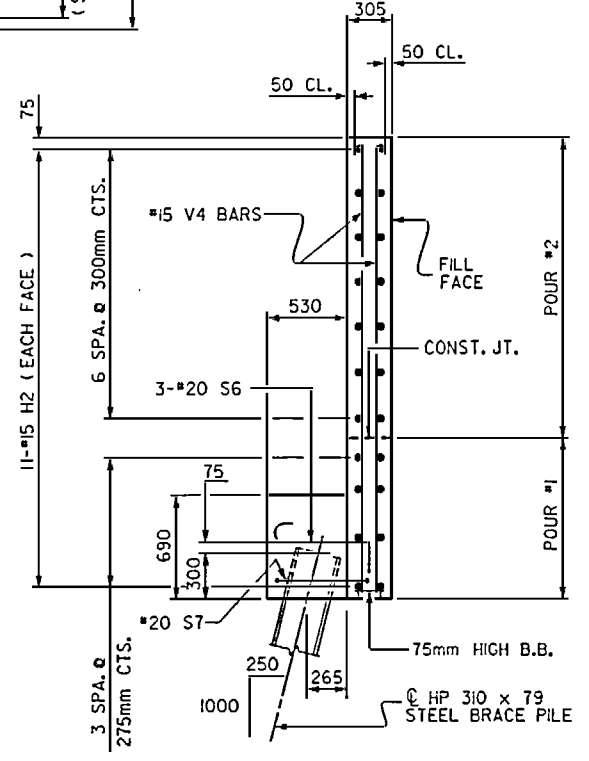
(W1) PLAN OF WING



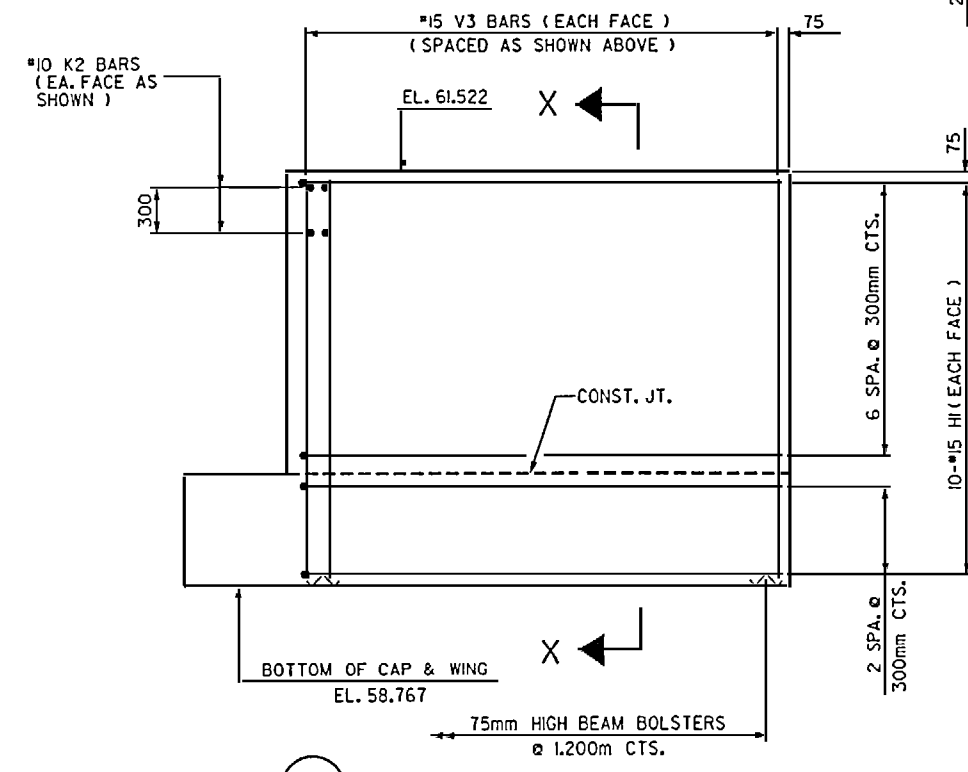
(W2) PLAN OF WING



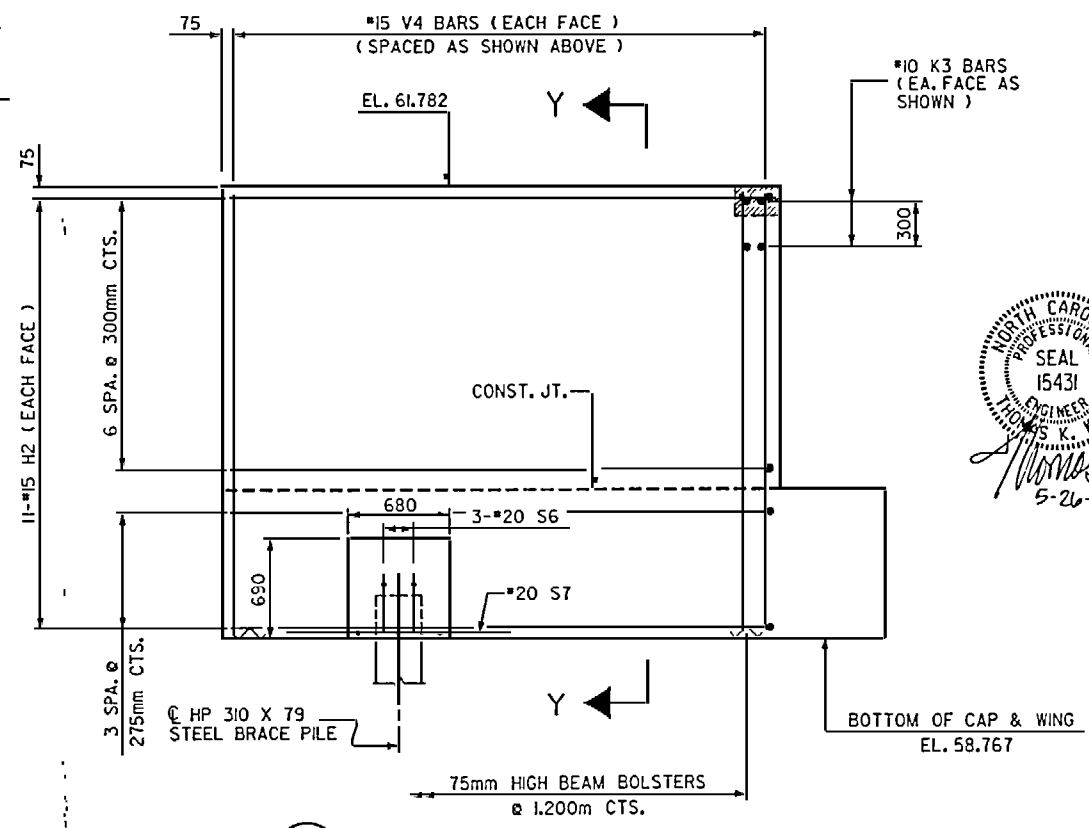
SECTION X-X



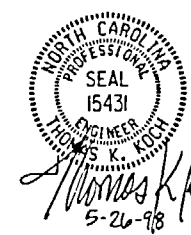
SECTION Y-Y



(W1) ELEVATION OF WING



(W2) ELEVATION OF WING



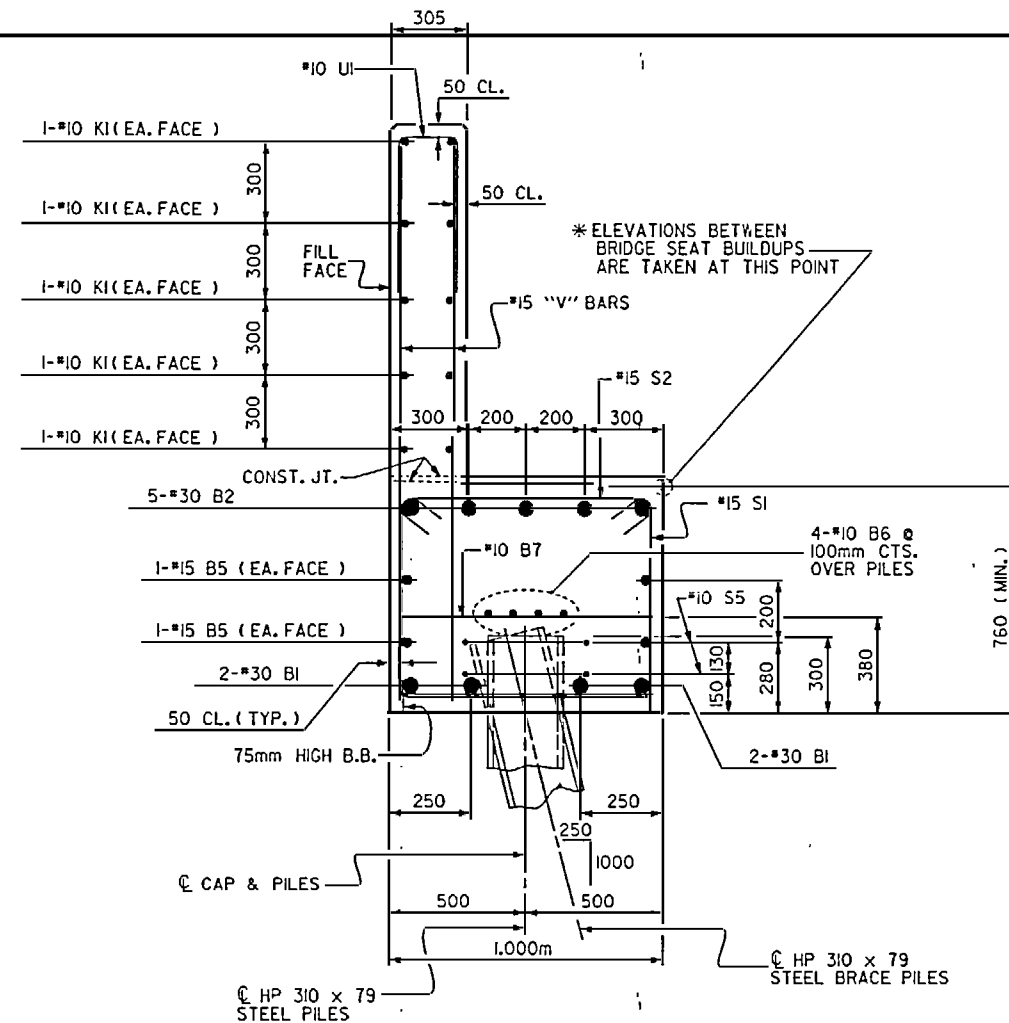
PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-

SHEET 2 OF 3

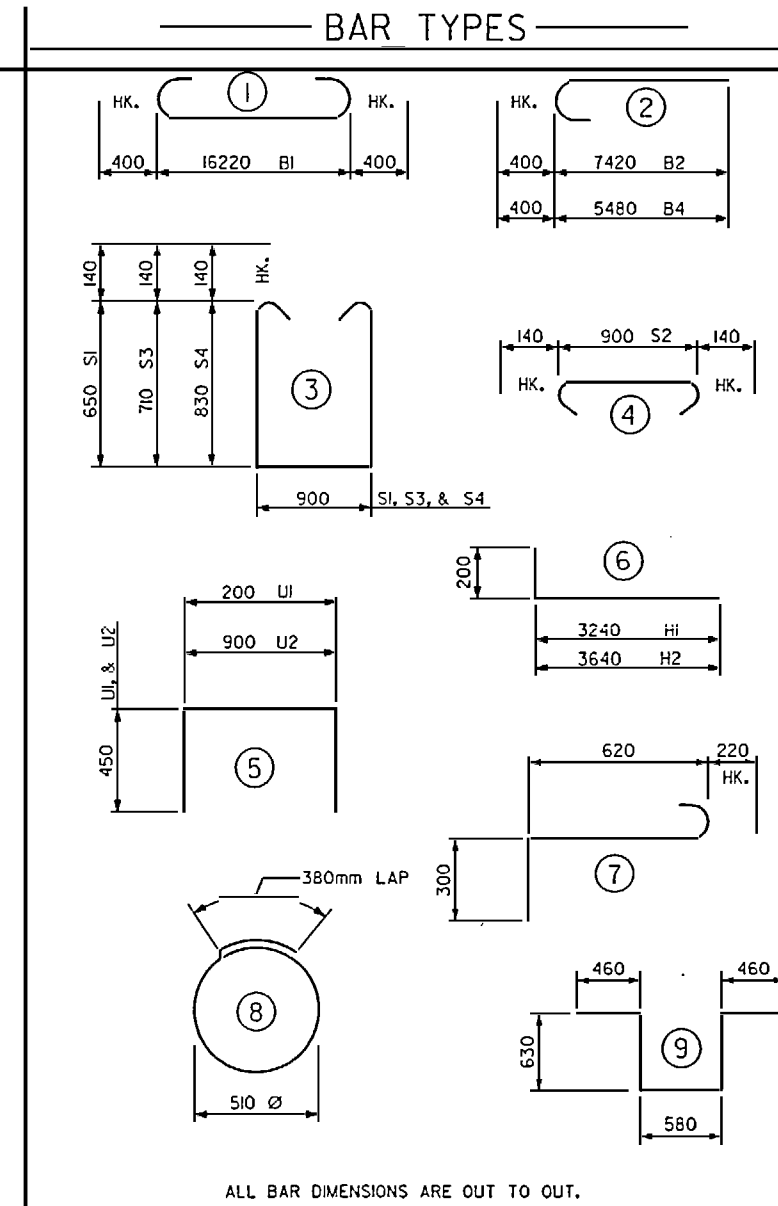
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT NO.1
 (SBL)

DRAWN BY: L.A. HUSSEY DATE: 10-8-96
 CHECKED BY: T.M. BRITT DATE: 5-20-98

REVISIONS						SHEET NO. S-82
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 142
2			4			



SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT No. 1

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4 30	1	17020	37
B2	5 30	2	7820	21
B3	5 30	STR	9160	25
B4	5 30	2	5880	16
B5	4 15	STR	16260	17
B6	8 10	STR	8460	11
B7	19 10	STR	900	1
B8	2 15	STR	3460	11
B9	10 10	STR	1000	8
H1	20 15	6	3440	10
H2	22 15	6	3840	13
K1	20 10	STR	8460	13
K2	4 10	STR	1260	4
K3	4 0	STR	1180	4
S1	13 15	3	2460	5
S2	53 15	4	1180	9
S3	22 15	3	2400	9
S4	18 15	3	2340	8
S5	24 10	8	980	3
S6	3 20	7	1140	8
S7	1 20	9	2760	6
U1	46 10	5	1100	4
U2	6 10	5	1800	8
V1	46 15	STR	2080	15
V2	46 15	STR	2220	16
V3	34 15	STR	2640	14
V4	36 15	STR	2900	16

REINFORCING STEEL kg. 2605

CLASS A CONCRETE BREAKDOWN

POUR #1 16.5 m³
 CAP, LOWER PART OF WINGS, AND WING W2 BRACE PILE CAP

POUR #2 11.6 m³
 BACKWALL & UPPER PART OF WINGS

CLASS A CONC. TOTAL 28.1 m³

HP 310 X 79 STEEL PILES
 METERS 97.5 NO. 13

Lc#279 310x79 STEEL PILES AS-BUILT

Pile No.	Pay Length
1	9.90
2	6.47
3	8.17
4	0.00
5	8.91
6	4.95
7	8.69
8	10.31
9	4.91
10	4.91
11	8.47
12	8.05
13	4.28

PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-
 SHEET 3 OF 3

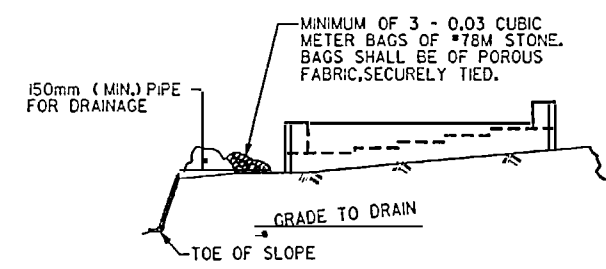
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT NO. 1
 (SBL)

REVISIONS

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

SHEET NO. S-83
 TOTAL SHEETS 142

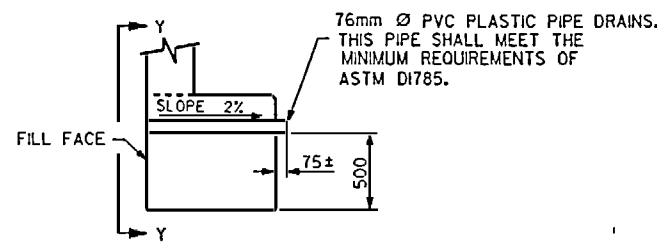


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

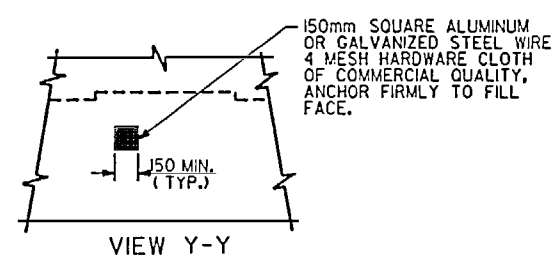
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

TEMPORARY DRAINAGE AT END BENT



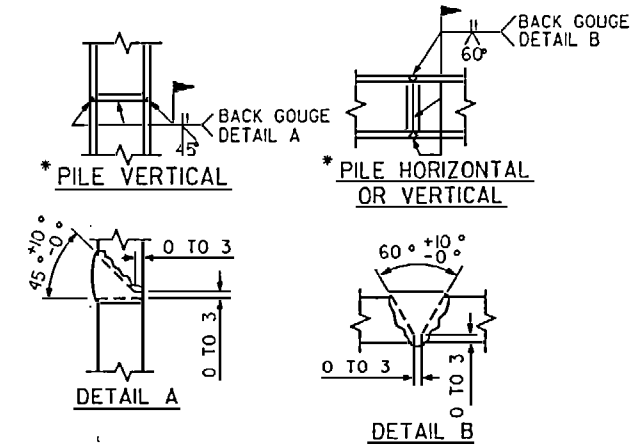
SECTION THRU CAP



VIEW Y-Y

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

PIPE DRAIN DETAILS



* POSITION OF PILE DURING WELDING.

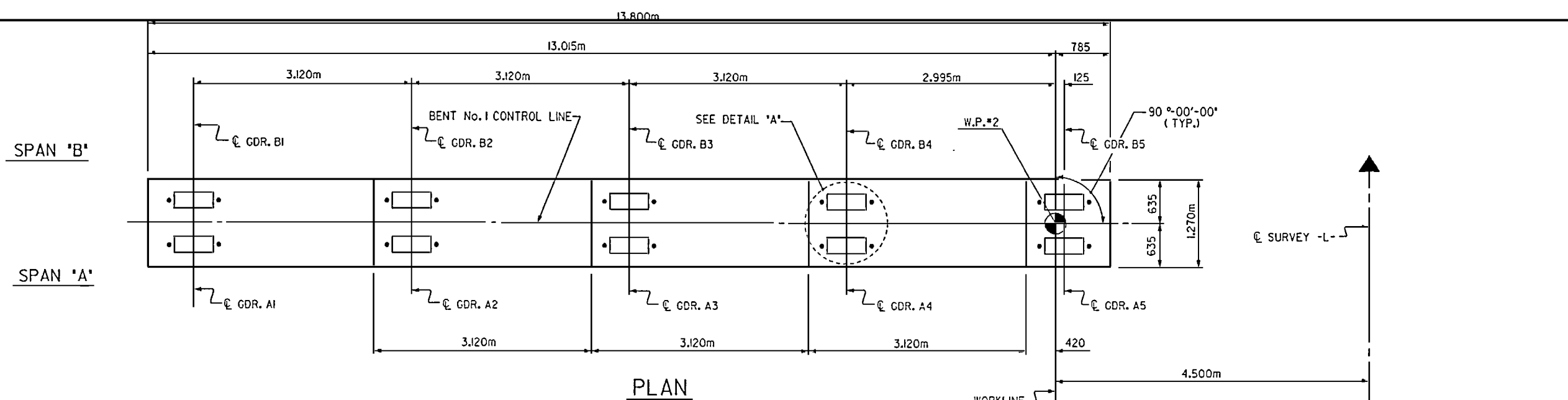
PILE SPLICE DETAILS

DRAWN BY: L.A. HUSSEY DATE: 10-8-96
 CHECKED BY: J.M. PRUITT DATE: 5-26-98

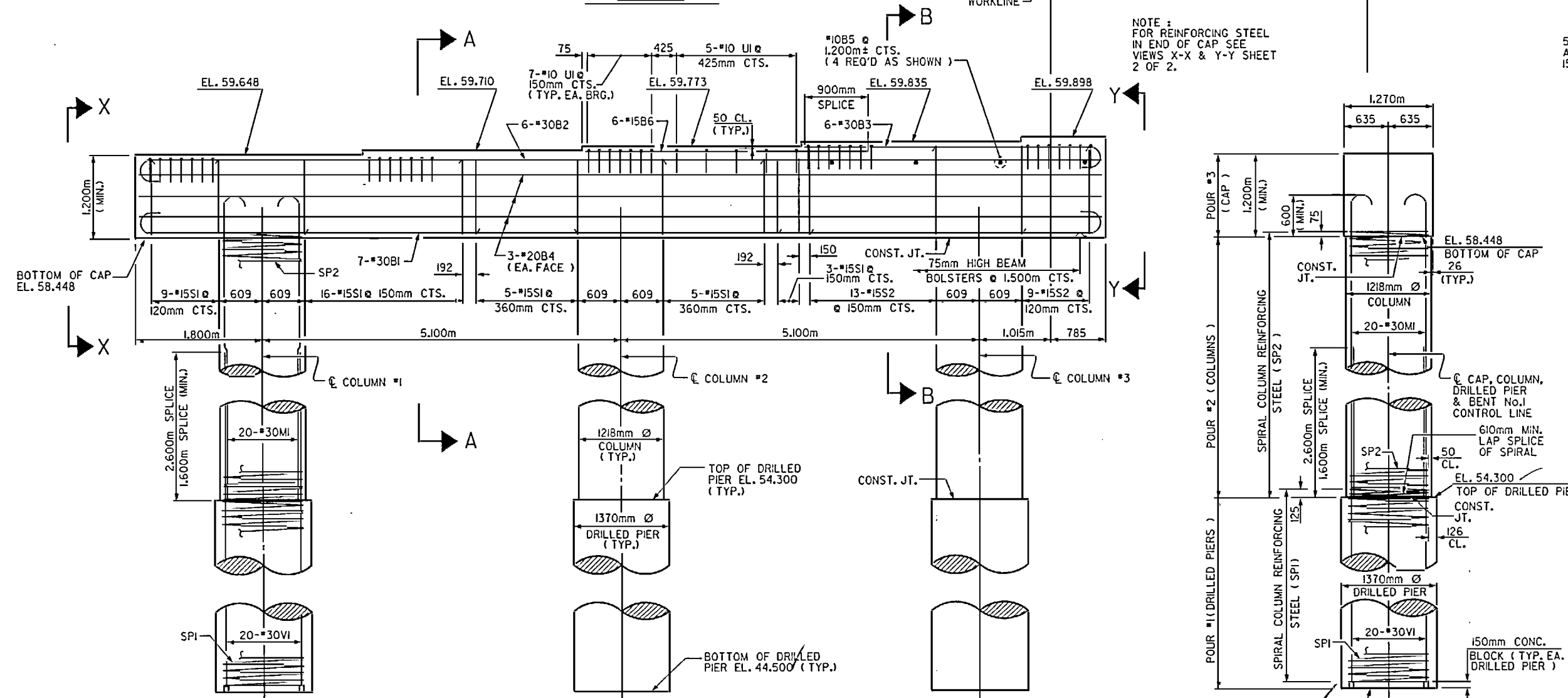
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NOTES

STIRRUPS AND U-BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON 'M' BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 FOR SPIRAL COLUMN REINFORCING STEEL, SEE SPECIAL PROVISIONS.
 FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.
 FOR PILE INTEGRITY TESTING, SEE SPECIAL PROVISIONS.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR REINFORCING STEEL AND SPIRAL COLUMN REINFORCING STEEL.
 STIRRUPS IN CAP ARE TO BE ALTERNATELY INVERTED.
 THE DRILLED PIERS SHALL BE INSTALLED TO THE MINIMUM TIP ELEVATION SHOWN ON THE PLANS AND SHALL HAVE A MINIMUM DIAMETER OF 1.322m IN THE HARD ROCK ZONE. HARD ROCK SHALL BE DEFINED AS MATERIAL THAT CAN NOT BE CUT WITH A ROCK AUGER AND MUST BE EXCAVATED BY CORING, BLASTING, AIR TOOLS, HAND REMOVAL, OR OTHER ACCEPTABLE METHODS.

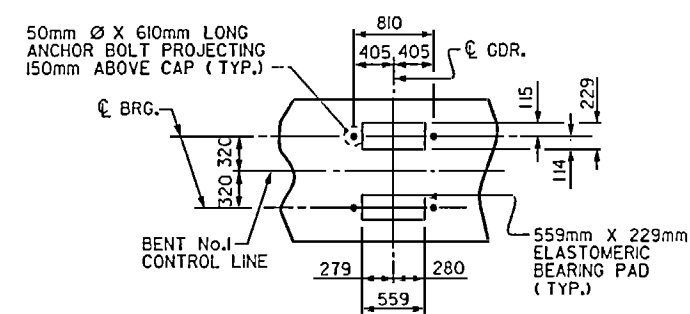


PLAN



ELEVATION

END ELEVATION



DETAIL "A"
(TYP. EA. GDR.)



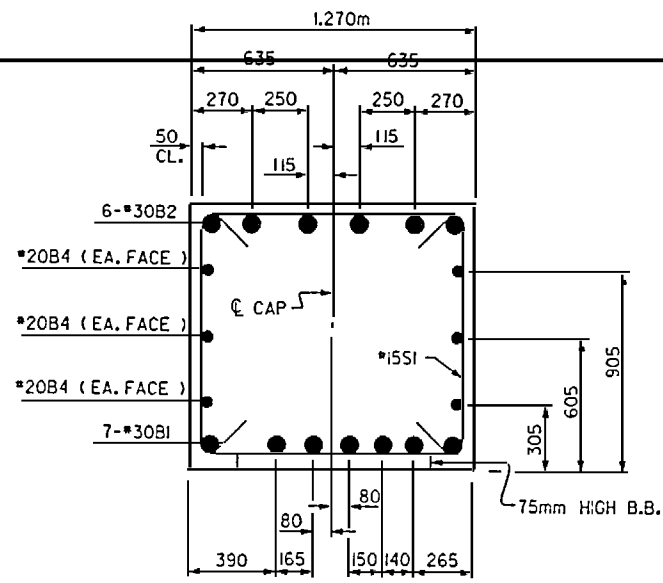
PROJECT NO. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT No. 1
 (SBL)

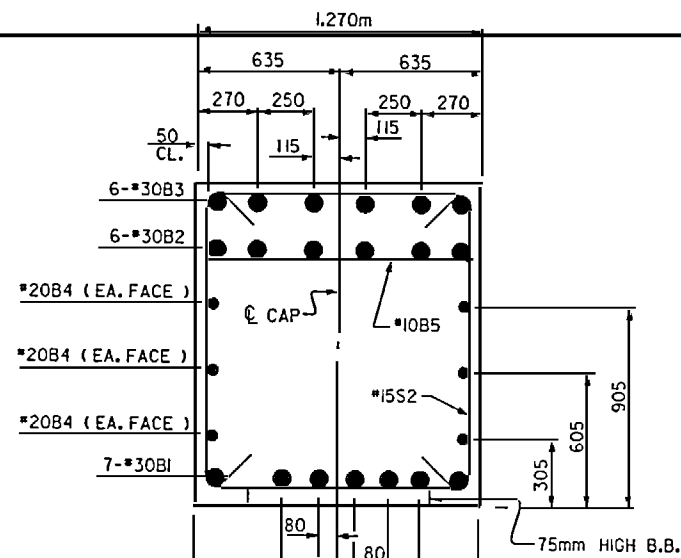
REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	5-84	
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2			4				

(DIMENSIONS AND REINFORCING STEEL ARE IDENTICAL FOR EACH COLUMN AND DRILLED PIER.)

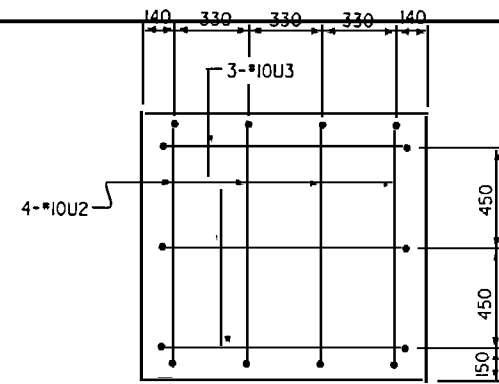
DRAWN BY: M.J. HOGAN DATE: 4/21/97
 CHECKED BY: T.G. PAYNE DATE: 2/11/98



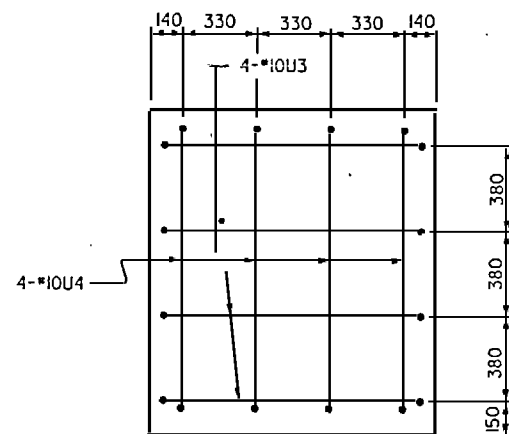
SECTION A-A



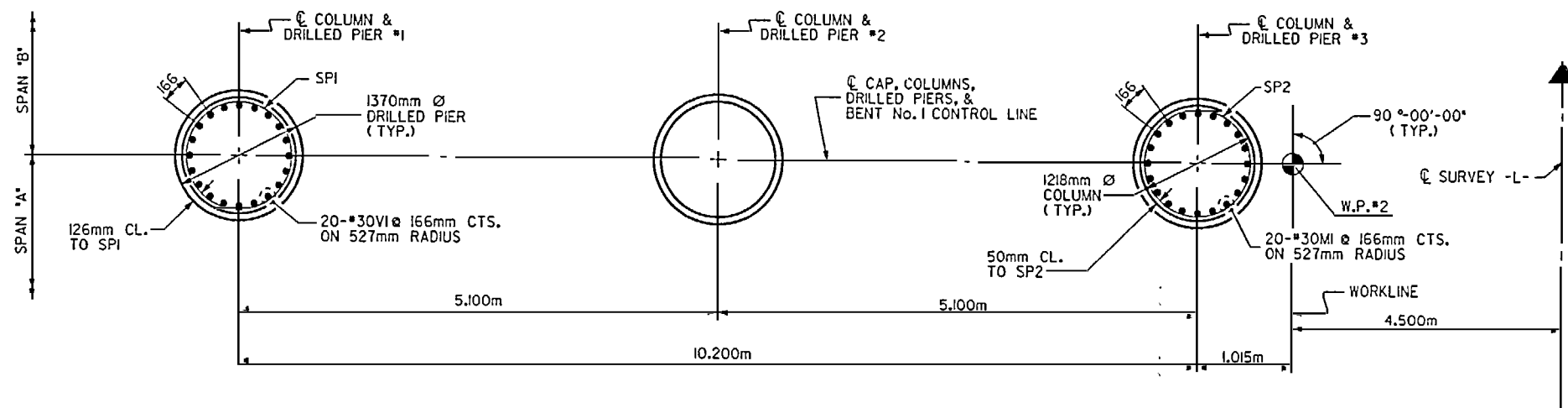
SECTION B-B



VIEW X-X



VIEW Y-Y



PLAN OF COLUMNS & DRILLED PIERS

(REINFORCING STEEL SHOWN IS TYPICAL FOR EACH COLUMN & DRILLED PIER)

BAR TYPES		BILL OF MATERIAL	
		BENT NO.1	
BAR NO.	SIZE TYPE LENGTH WEIGHT	BAR NO.	SIZE TYPE LENGTH WEIGHT
B1	7 30 1 14440 555	B1	7 30 1 14440 555
B2	6 30 2 14040 63	B2	6 30 2 14040 63
B3	6 30 2 4600 52	B3	6 30 2 4600 52
B4	6 20 STR 13700 194	B4	6 20 STR 13700 194
B5	4 10 STR 1160 4	B5	4 10 STR 1160 4
B6	6 15 STR 4020 38	B6	6 15 STR 4020 38
M1	60 30 2 5160 1701	M1	60 30 2 5160 1701
S1	30 15 3 3620 216	S1	30 15 3 3620 216
S2	22 15 3 3980 137	S2	22 15 3 3980 137
U1	40 10 4 2060 65	U1	40 10 4 2060 65
U2	4 10 4 1640 5	U2	4 10 4 1640 5
U3	7 10 4 1720 9	U3	7 10 4 1720 9
U4	4 10 4 1880 6	U4	4 10 4 1880 6
V1	60 30 STR 12200 4042	V1	60 30 STR 12200 4042
REINFORCING STEEL		kg. 7,587	
SPIRAL COLUMN REINFORCING STEEL			
SP1	3 - 5 31800 1469	SP1	3 - 5 31800 1469
SP2	3 - 5 308720 492	SP2	3 - 5 308720 492
SPIRAL COLUMN REINFORCING STEEL			
		kg. 1,961	
DRILLED PIER CONCRETE			
POUR #1 (DRILLED PIERS)		m³ 43.3	
TOTAL DRILLED PIER CONCRETE		m³ 43.3	
CLASS A CONCRETE BREAKDOWN			
POUR #2 (COLUMNS)		m³ 14.5	
POUR #3 (CAP)		m³ 22.9	
TOTAL CLASS A CONCRETE		m³ 37.4	
1370mm Ø DRILLED PIERS IN ROCK		m 3.4	
1370mm Ø DRILLED PIERS NOT IN ROCK		m 26.0	
1370mm Ø PERMANENT STEEL CASING		m 1.4	

NOTE: THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH ONE METER OF EXTRA LENGTH.



PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

SHEET 2 OF 2
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT No.1
(SBL)

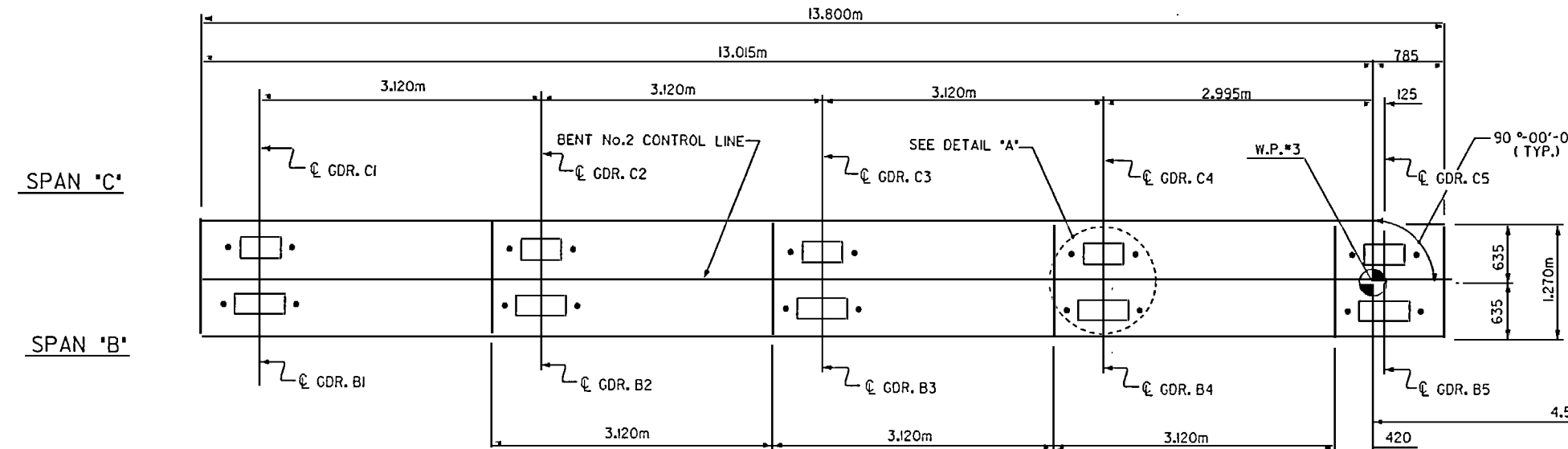
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-85
1			3			TOTAL SHEETS 142
2			4			STR #1

DRAWN BY: M. J. HOGAN DATE: 4/24/97
CHECKED BY: T. G. PAYNE DATE: 4/30/98

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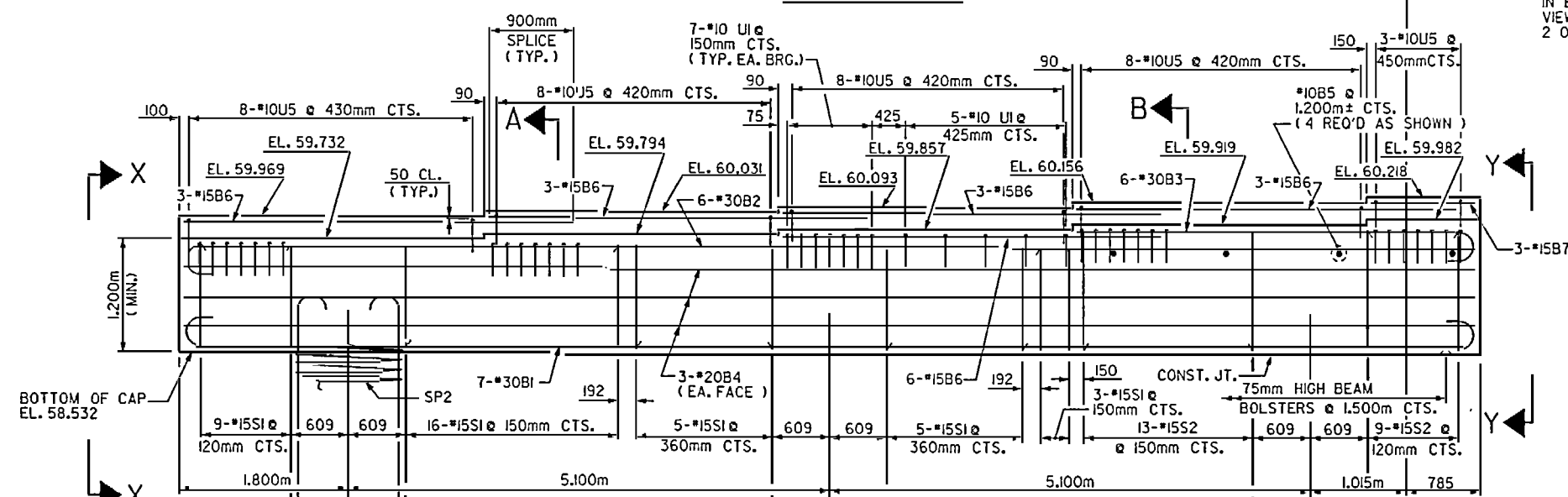
NOTES

STIRRUPS AND U-BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON 'M' BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 FOR SPIRAL COLUMN REINFORCING STEEL, SEE SPECIAL PROVISIONS.
 FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.
 FOR PILE INTEGRITY TESTING, SEE SPECIAL PROVISIONS.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR REINFORCING STEEL AND SPIRAL COLUMN REINFORCING STEEL.
 STIRRUPS IN CAP ARE TO BE ALTERNATELY INVERTED.
 THE DRILLED PIERS SHALL BE INSTALLED TO THE MINIMUM TIP ELEVATION SHOWN ON THE PLANS AND SHALL HAVE A MINIMUM DIAMETER OF 1,322mm IN THE HARD ROCK ZONE. HARD ROCK SHALL BE DEFINED AS MATERIAL THAT CAN NOT BE CUT WITH A ROCK AUGER AND MUST BE EXCAVATED BY CORING, BLASTING, AIR TOOLS, HAND REMOVAL, OR OTHER ACCEPTABLE METHODS.
 THE TOP SURFACE AREAS OF THE BENT CAP 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.



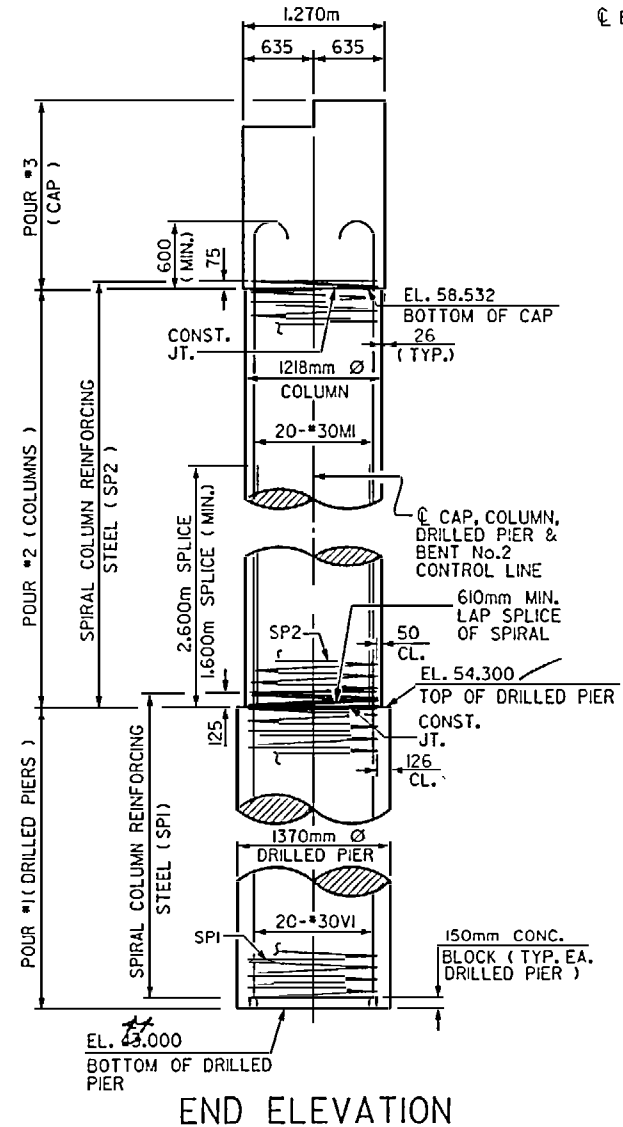
PLAN

NOTE:
 FOR REINFORCING STEEL IN END OF CAP SEE VIEWS X-X & Y-Y SHEET 2 OF 2.

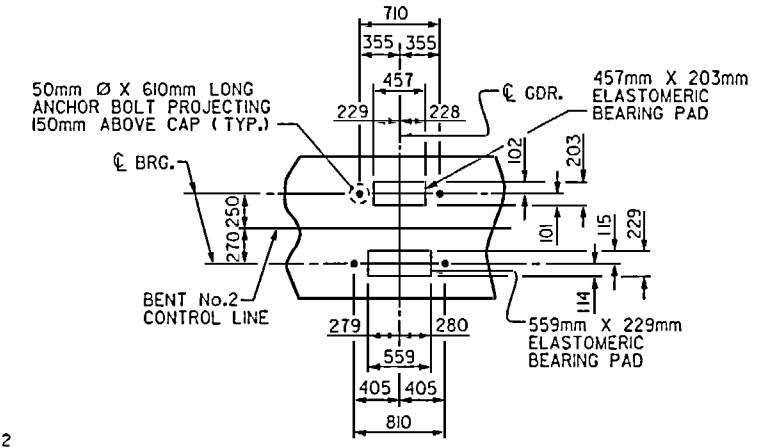


ELEVATION

(DIMENSIONS AND REINFORCING STEEL ARE IDENTICAL FOR EACH COLUMN AND DRILLED PIER.)



END ELEVATION



DETAIL "A"

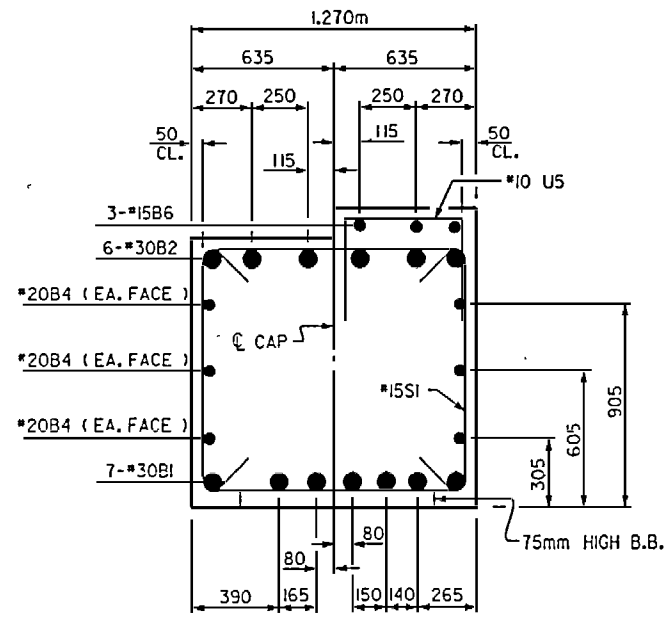


PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-

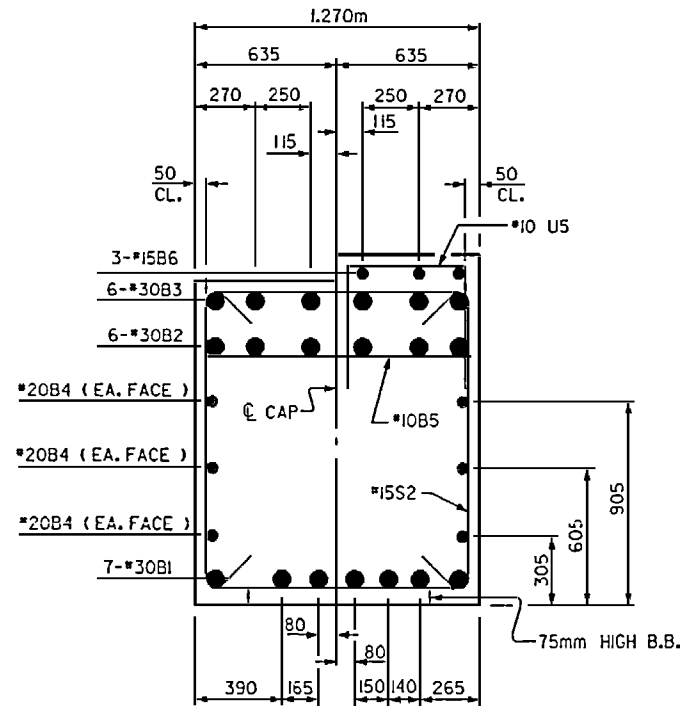
SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. 5-86
SUBSTRUCTURE BENT No.2 (SBL)						TOTAL SHEETS 142
REVISIONS						SHEET NO. 5-86
NO.	BY	DATE	NO.	BY	DATE	
1			2			
2			3			

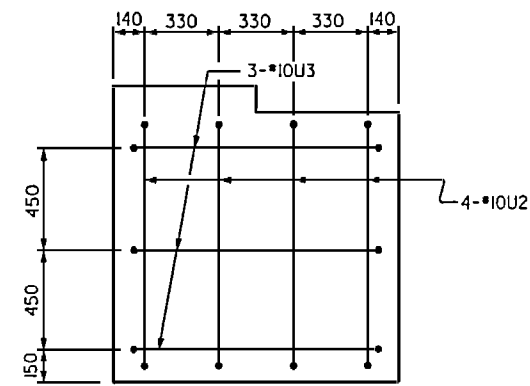
DRAWN BY: M.J. HOGAN DATE: 4/21/97
 CHECKED BY: T.G. PAYNE DATE: 2/11/18



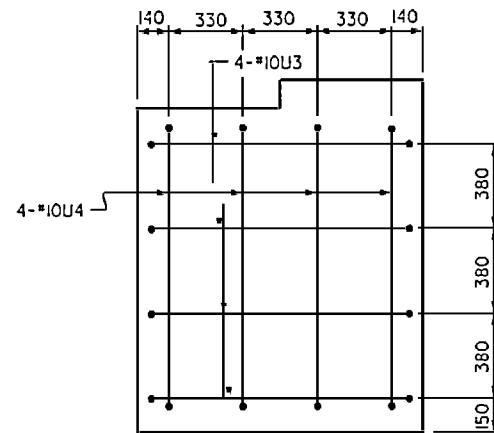
SECTION A-A



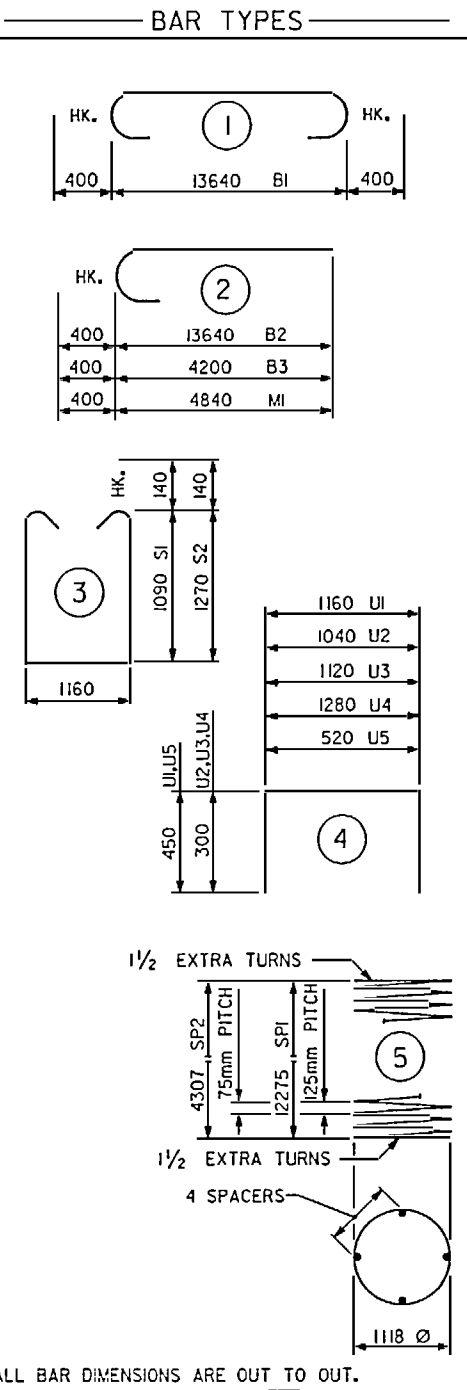
SECTION B-B



VIEW X-X



VIEW Y-Y



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL BENT NO.2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	7	30	1	14440	555
B2	6	30	2	14040	533
B3	6	30	2	4600	162
B4	6	20	STR	13700	94
B5	4	10	STR	1160	4
B6	15	15	STR	4020	114
B7	3	15	STR	1060	5
M1	60	30	2	5240	1728
S1	38	5	3	3620	216
S2	22	15	3	3980	137
U1	40	10	4	2060	65
U2	4	10	4	1640	5
U3	7	10	4	1720	9
U4	4	10	4	1880	6
U5	35	10	4	1420	39
V1	60	30	STR	13760	4537

REINFORCING STEEL Kg. 8,229

SPIRAL COLUMN REINFORCING STEEL

SP1	3	-	5	353360	1664
SP2	3	-	5	212200	500

SPIRAL COLUMN REINFORCING STEEL Kg. 2,164

DRILLED PIER CONCRETE

POUR #1 (DRILLED PIERS)	m ³	50.0
TOTAL DRILLED PIER CONCRETE	m ³	50.0

CLASS A CONCRETE BREAKDOWN

POUR #2 (COLUMNS)	m ³	14.8
POUR #3 (CAP)	m ³	25.0
TOTAL CLASS A CONCRETE	m ³	39.8

1370mm Ø DRILLED PIERS IN ROCK

	m	3.3
--	---	-----

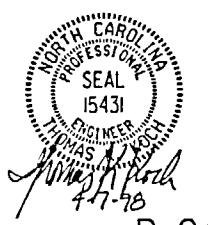
1370mm Ø DRILLED PIERS NOT IN ROCK

	m	30.5
--	---	------

1370mm Ø PERMANENT STEEL CASING

	m	12.9
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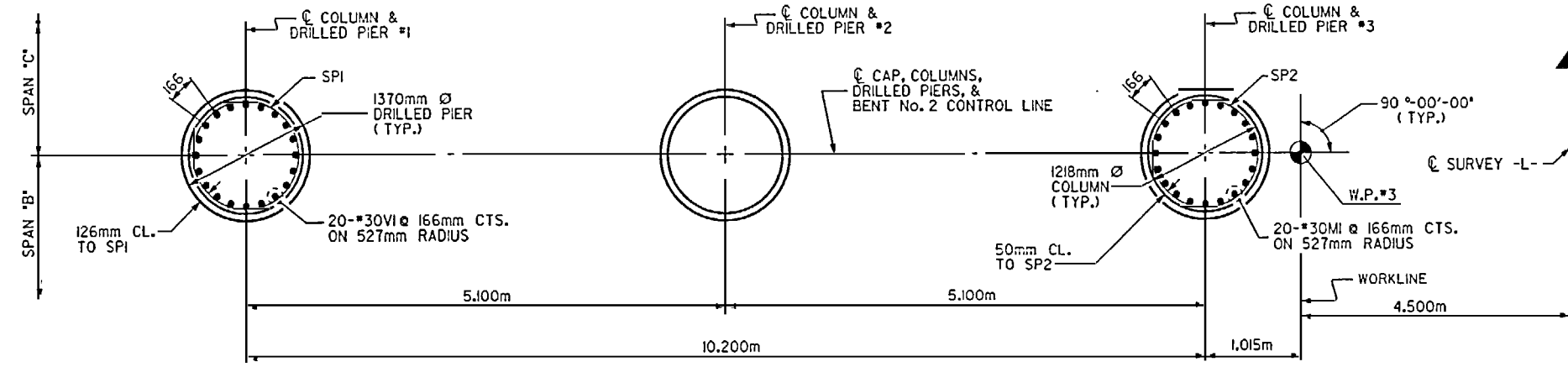
NOTE: THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH ONE METER OF EXTRA LENGTH.



PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT No.2
 (SBL)

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	DATE	
1			3		5-87
2			4		142



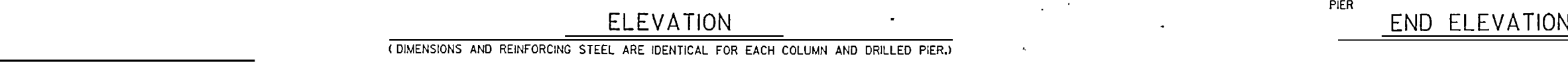
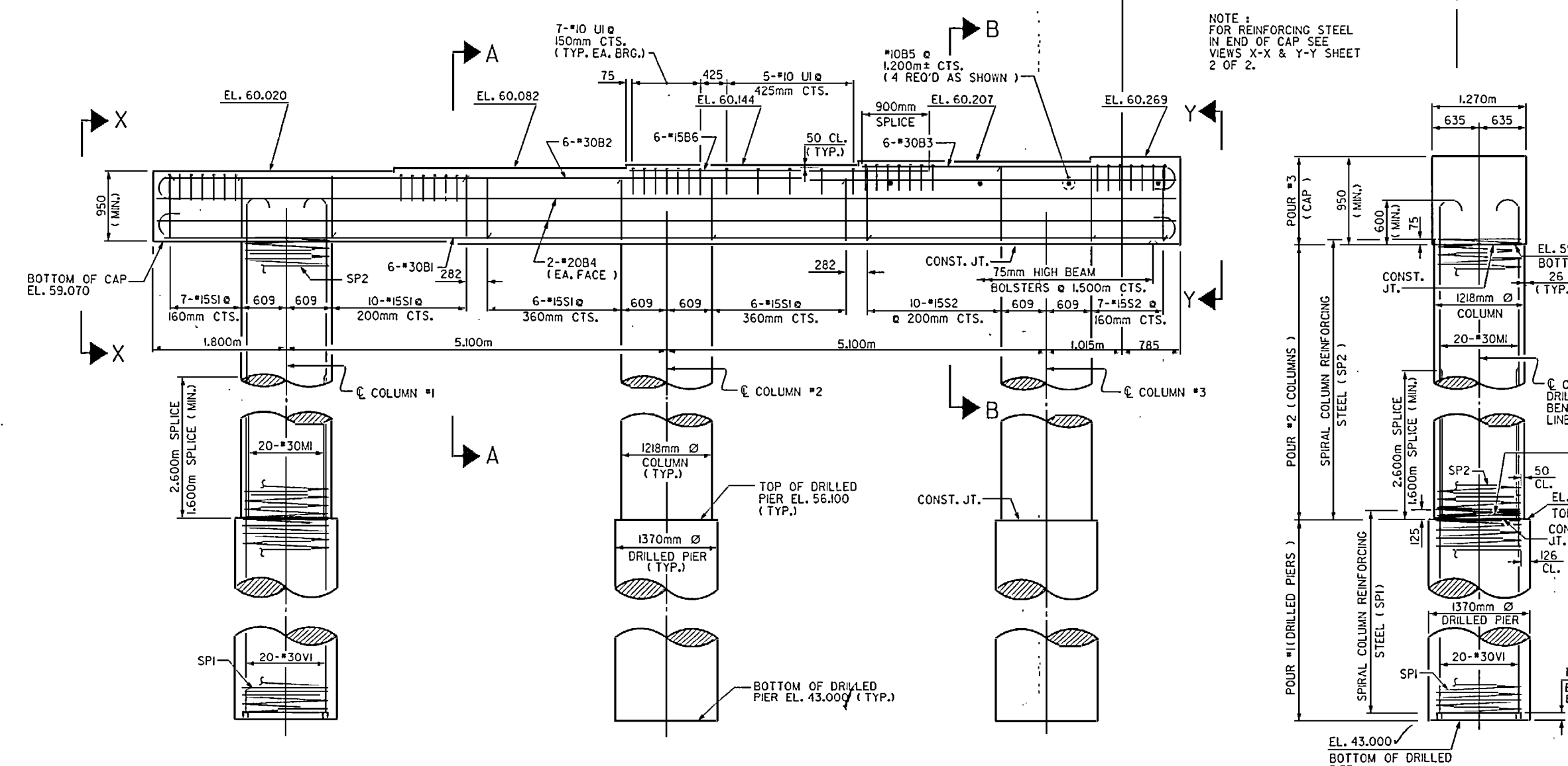
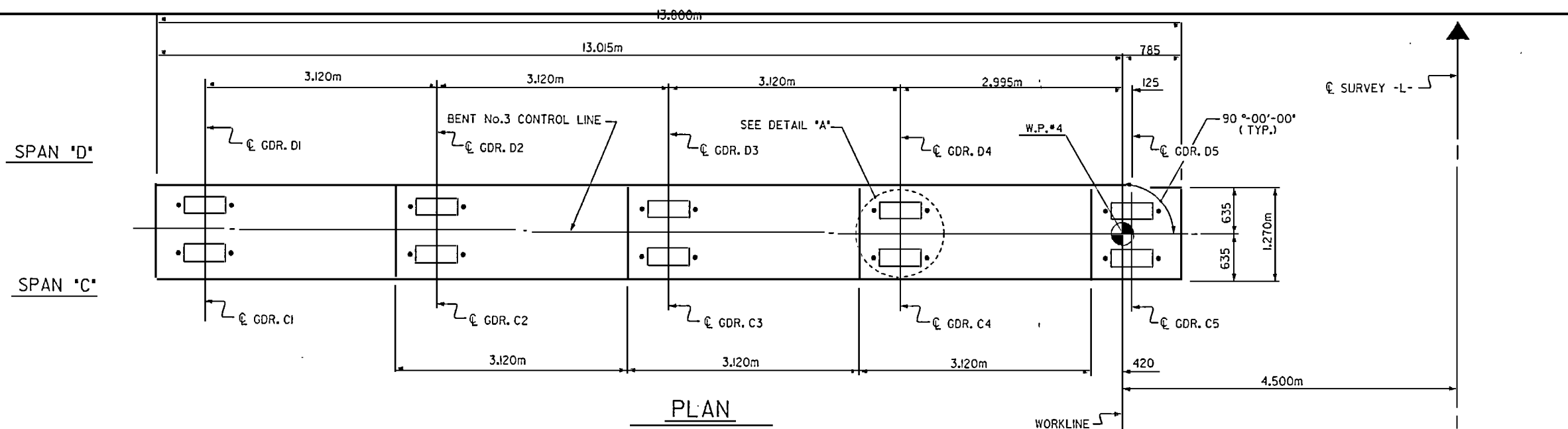
PLAN OF COLUMNS & DRILLED PIERS

(REINFORCING STEEL SHOWN IS TYPICAL FOR EACH COLUMN & DRILLED PIER)

DRAWN BY: M. J. HOGAN DATE: 4/24/97
 CHECKED BY: T. G. PAYNE DATE: 4/1/98

NOTES

STIRRUPS AND U-BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON "M" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 FOR SPIRAL COLUMN REINFORCING STEEL, SEE SPECIAL PROVISIONS.
 FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.
 FOR PILE INTEGRITY TESTING, SEE SPECIAL PROVISIONS.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR REINFORCING STEEL AND SPIRAL COLUMN REINFORCING STEEL.
 STIRRUPS IN CAP ARE TO BE ALTERNATELY INVERTED.
 THE DRILLED PIERS SHALL BE INSTALLED TO THE MINIMUM TIP ELEVATION SHOWN ON THE PLANS AND SHALL HAVE A MINIMUM DIAMETER OF 1.32m IN THE HARD ROCK ZONE. HARD ROCK SHALL BE DEFINED AS MATERIAL THAT CAN NOT BE CUT WITH A ROCK AUGER AND MUST BE EXCAVATED BY CORING, BLASTING, AIR TOOLS, HAND REMOVAL, OR OTHER ACCEPTABLE METHODS.
 THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIER IS BASED ON ASSUMED GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT AS DETAILED IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 300mm BELOW THE ACTUAL GROUND ELEVATION.



DRAWN BY: M.J. HOGAN DATE: 4/21/97
 CHECKED BY: T.G. PAYNE DATE: 2/11/98

(DIMENSIONS AND REINFORCING STEEL ARE IDENTICAL FOR EACH COLUMN AND DRILLED PIER.)

PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-
 SHEET 10F 2

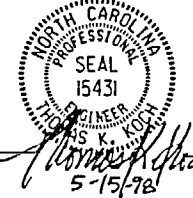
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

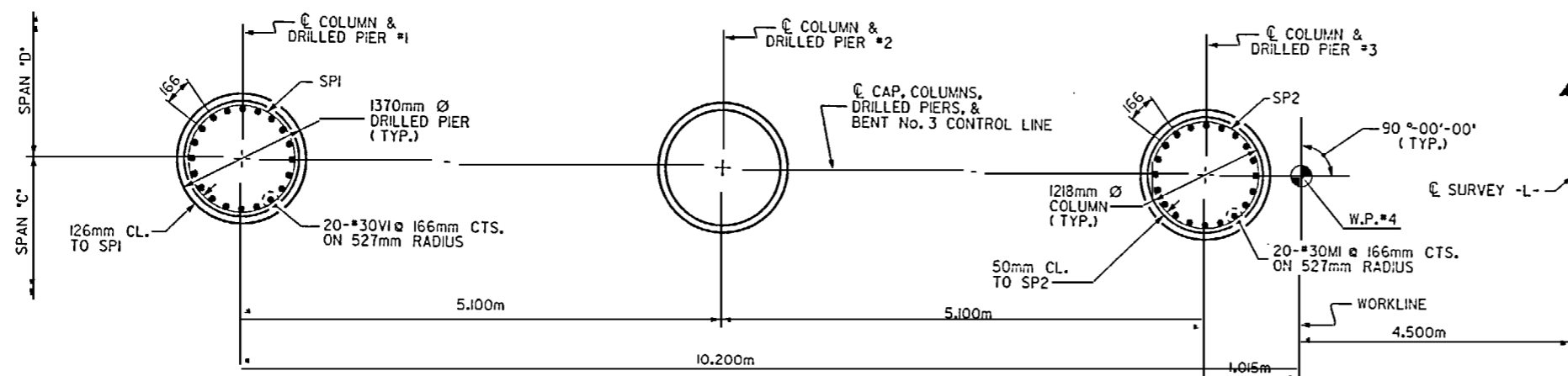
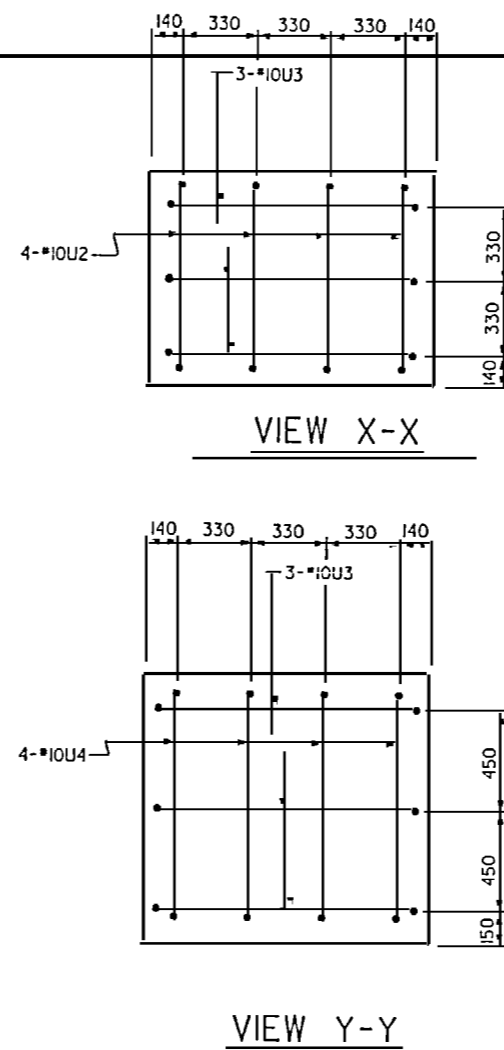
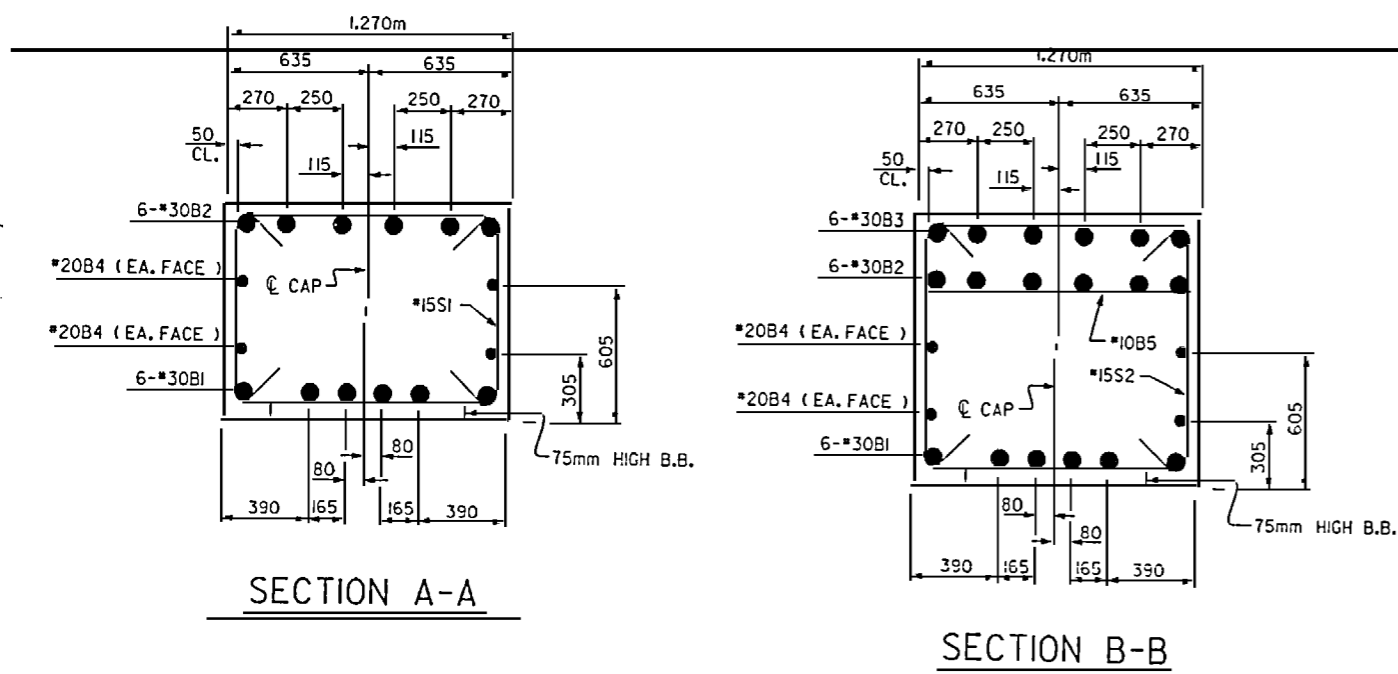
**SUBSTRUCTURE
 BENT No.3
 (SBL)**

REVISIONS

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

SHEET NO. 5-88
 TOTAL SHEETS 142





PLAN OF COLUMNS & DRILLED PIERS
(REINFORCING STEEL SHOWN IS TYPICAL FOR EACH COLUMN & DRILLED PIER)

BAR TYPES		BILL OF MATERIAL	
		BENT NO.3	
HK. (1)	400 x 13640 BI	BAR NO.	SIZE TYPE LENGTH WEIGHT
HK. (2)	400 x 4200 B2	B1	6 30 1 14440 47.5
HK. (3)	400 x 3580 MI	B2	6 30 2 14840 49.3
		B3	6 30 2 14840 49.3
		B4	4 4 20 STR 13700 12.2
		B5	4 10 STR 1160 4
		B6	3 15 STR 4020 38
		M1	60 30 2 3980 131.2
		S1	29 15 3 3120 142
		S2	17 15 3 3480 93
		U1	40 10 4 2060 65
		U2	4 4 0 4 1400 4
		U3	6 10 4 1700 8
		U4	4 10 4 1920 5
		V1	60 30 STR 15560 5130
		REINFORCING STEEL kg 8,021	
		SPIRAL COLUMN REINFORCING STEEL	
		SP1	3 - 5 401860 1893
		SP2	3 - 5 153060 360
		SPIRAL COLUMN REINFORCING STEEL kg. 2,253	
		DRILLED PIER CONCRETE	
		POUR #1 (DRILLED PIERS)	m³ 57.9
		TOTAL DRILLED PIER CONCRETE m³ 57.9	
		CLASS A CONCRETE BREAKDOWN	
		POUR #2 (COLUMNS)	m³ 10.4
		POUR #3 (CAP)	m³ 18.5
		TOTAL CLASS A CONCRETE m³ 28.9	
		1370mm Ø DRILLED PIERS IN ROCK	m 3.3
		1370mm Ø DRILLED PIERS NOT IN ROCK	m 16.0
		NOTE: THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH ONE METER OF EXTRA LENGTH.	



PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT No.3
(SBL)

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

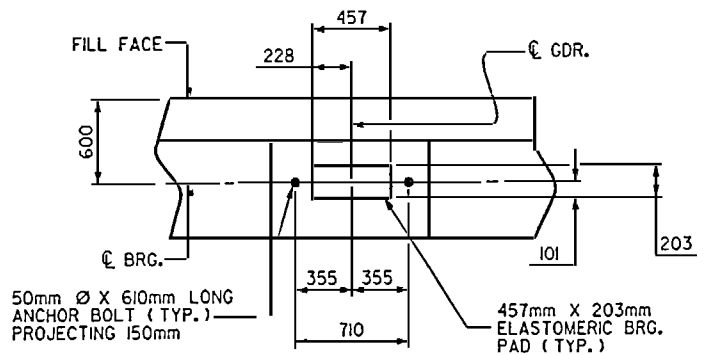
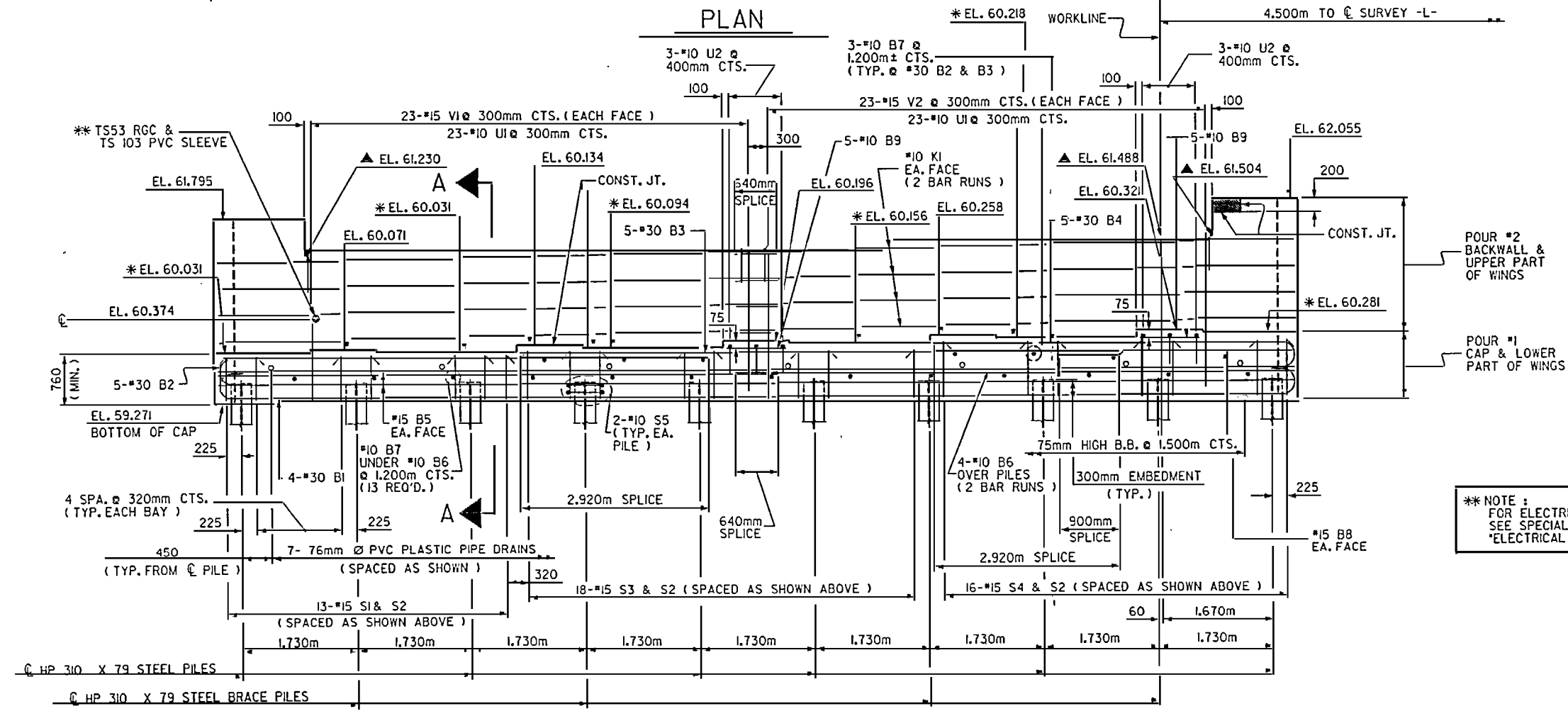
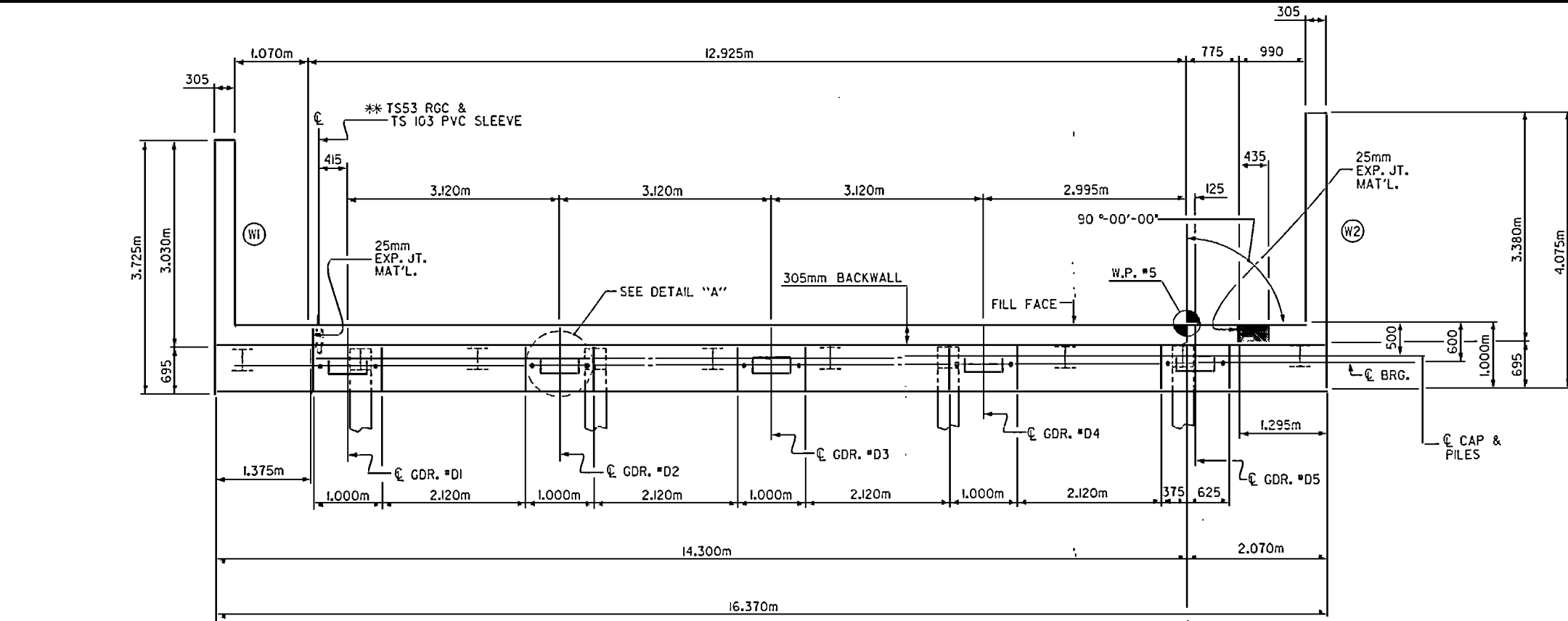
DRAWN BY: M. J. HOGAN DATE: 4/24/97
CHECKED BY: T. G. PAYNE DATE: 2/11/98

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STR.#1

NOTES

- STIRRUPS & U2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
- PIPE DRAINS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE END BENT CAP EXCEPT BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.
- THE CONCRETE IN THE SHADED AREA OF WING W2 SHALL BE POURED AFTER THE JOINT IN THE DECK AND THE APPROACH SLAB HAS BEEN SAWS AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
- ▲ THIS ELEVATION TAKEN ON FILL FACE OF BACKWALL.
- * FOR LOCATION OF ELEVATIONS BETWEEN BUILD-UPS, SEE SECTION A-A, SHEET 3 OF 3.
- * #15 "V" BARS IN BACKWALL SHALL BE PLACED 50mm CLEAR FROM TOP OF BACKWALL.
- THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 100mm DRAIN PIPE THROUGH THE WINGWALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN WINGWALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.
- REINFORCING STEEL IN BACKWALL MAY BE SHIFTED SLIGHTLY AS REQUIRED TO CLEAR THE TS 103 PVC SLEEVE.



* NOTE :
 FOR ELECTRICAL CONDUIT SYSTEM,
 SEE SPECIAL PROVISIONS AND
 "ELECTRICAL CONDUIT SYSTEM" SHEETS.

PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-
 SHEET 1 OF 3

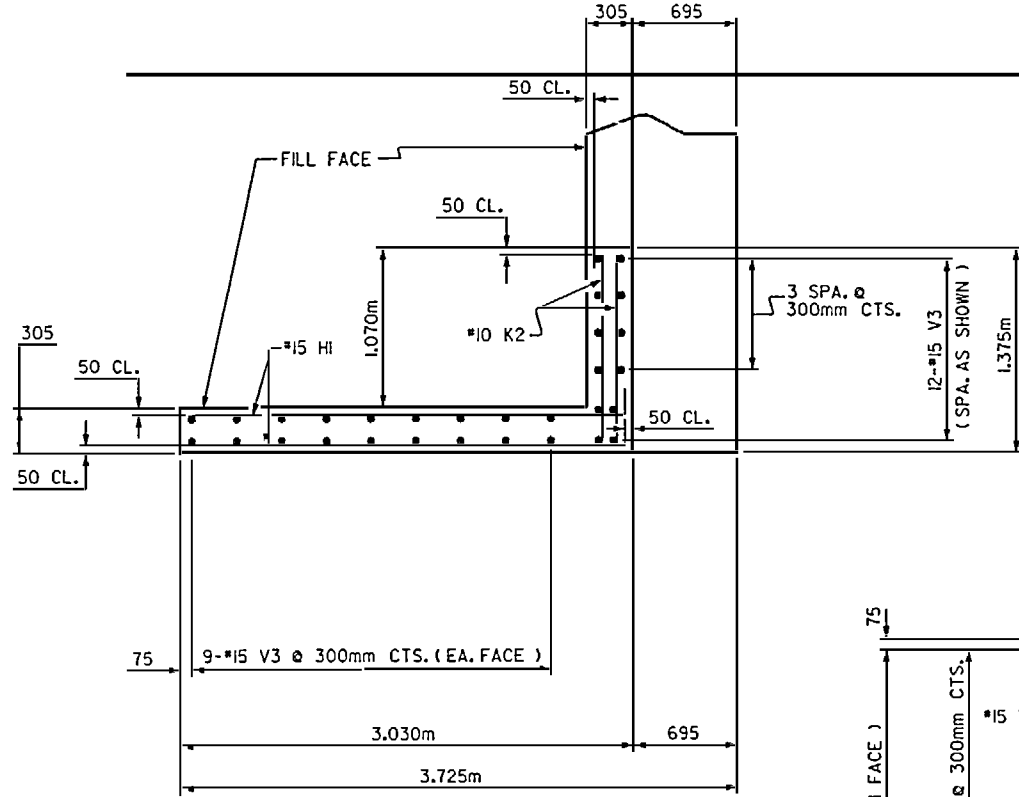
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 2
 (SBL)

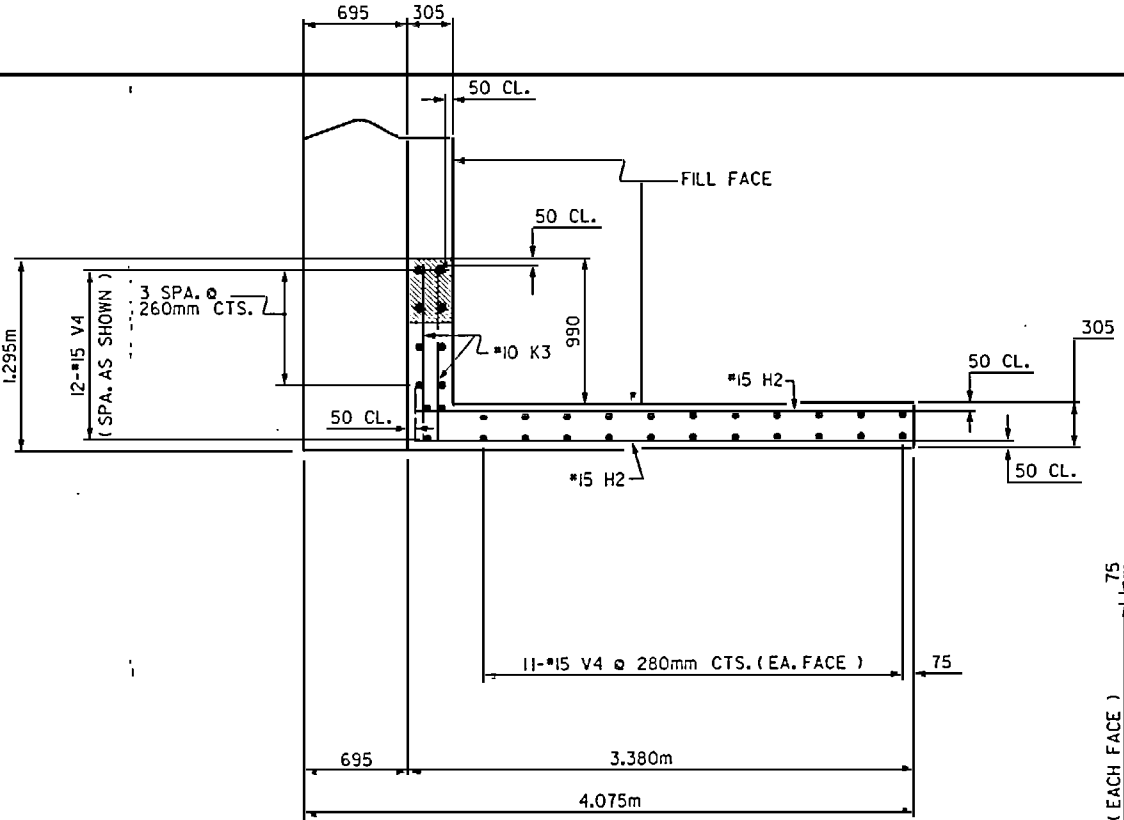


REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			S-90
2			4			142

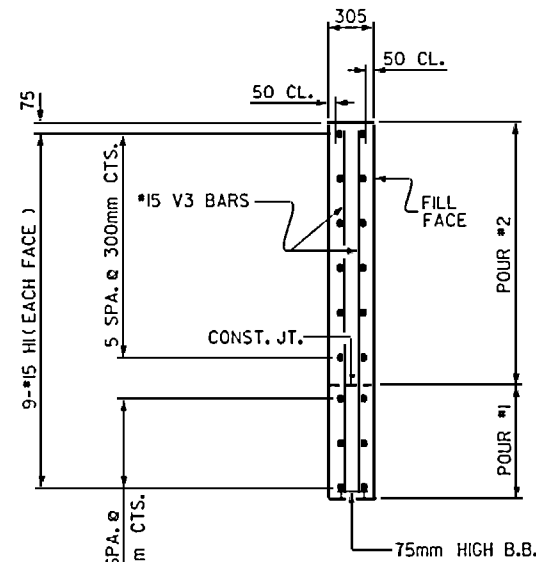
DRAWN BY : L.A. HUSSEY DATE : 10-8-96
 CHECKED BY : J.M. [Signature] DATE : 5-20-98



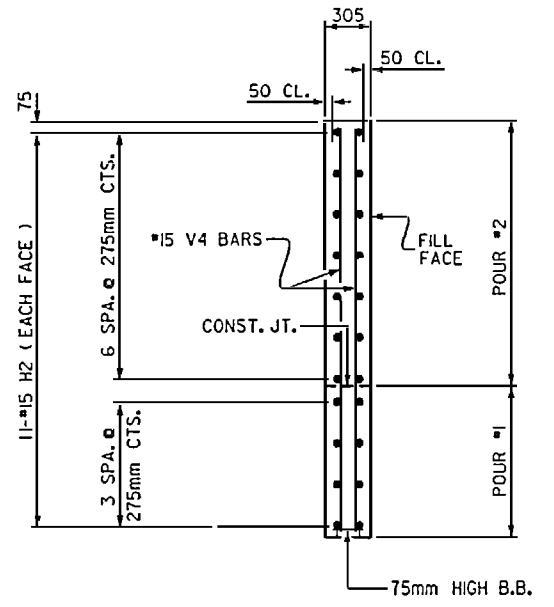
PLAN OF WING (W1)



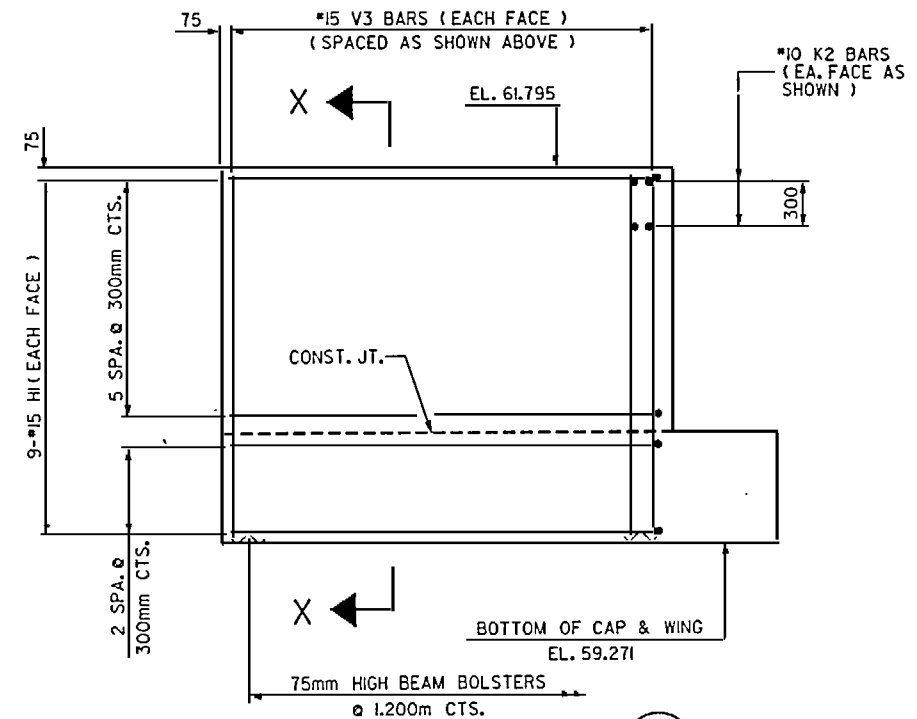
PLAN OF WING (W2)



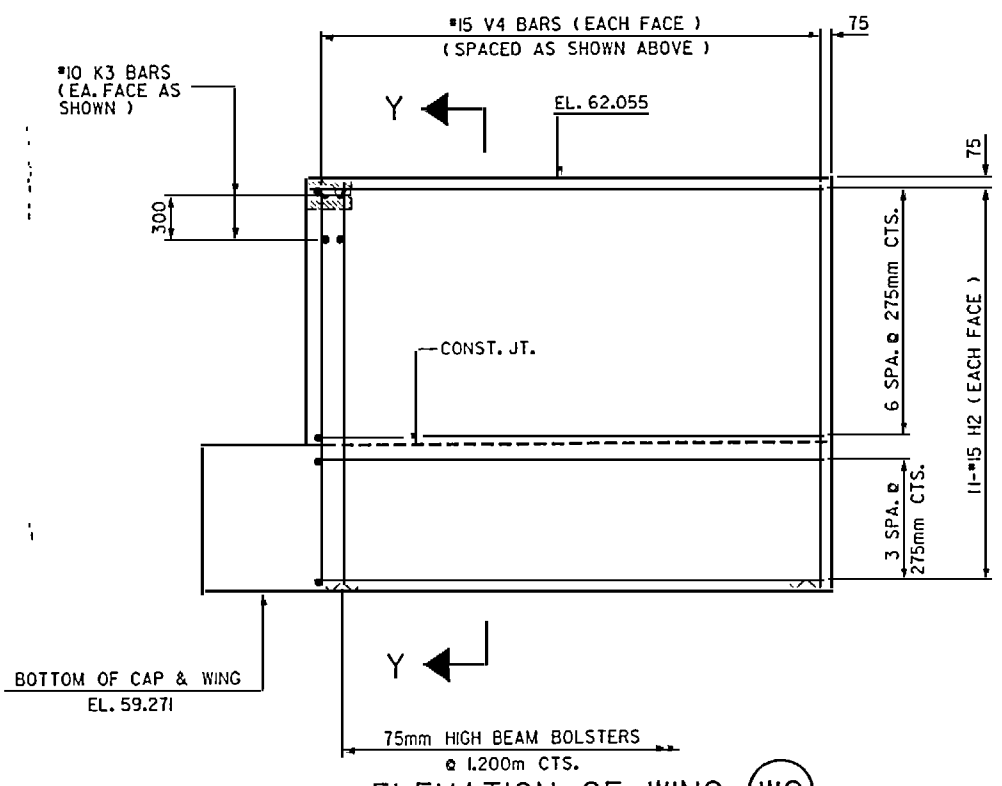
SECTION X-X



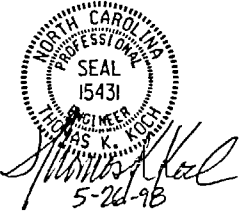
SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

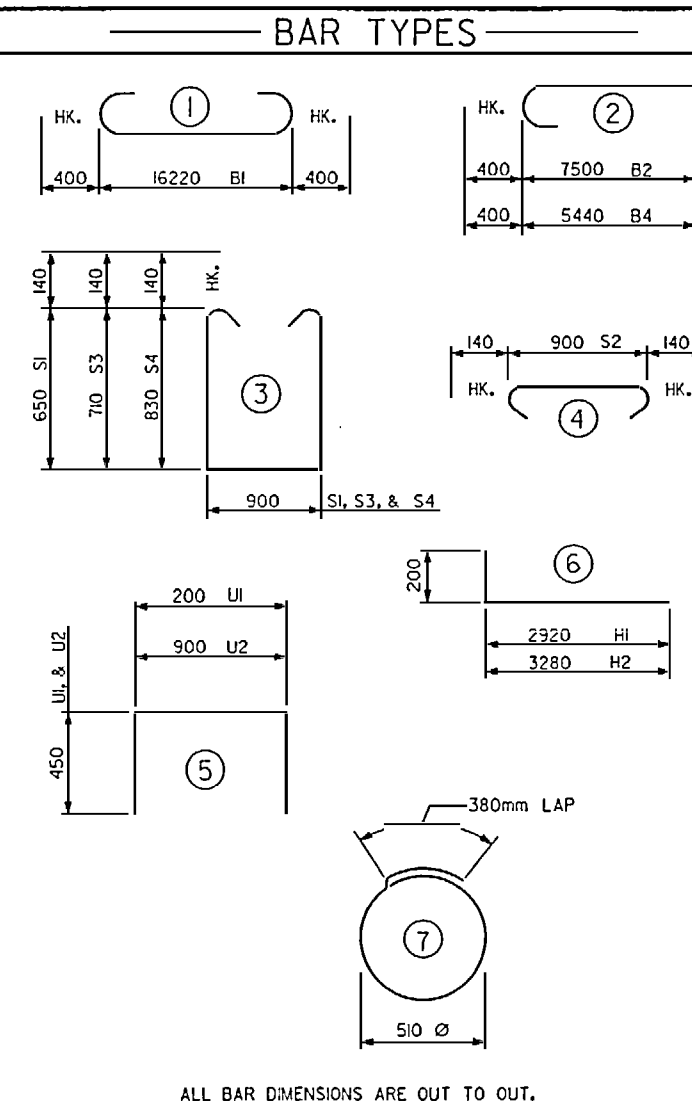
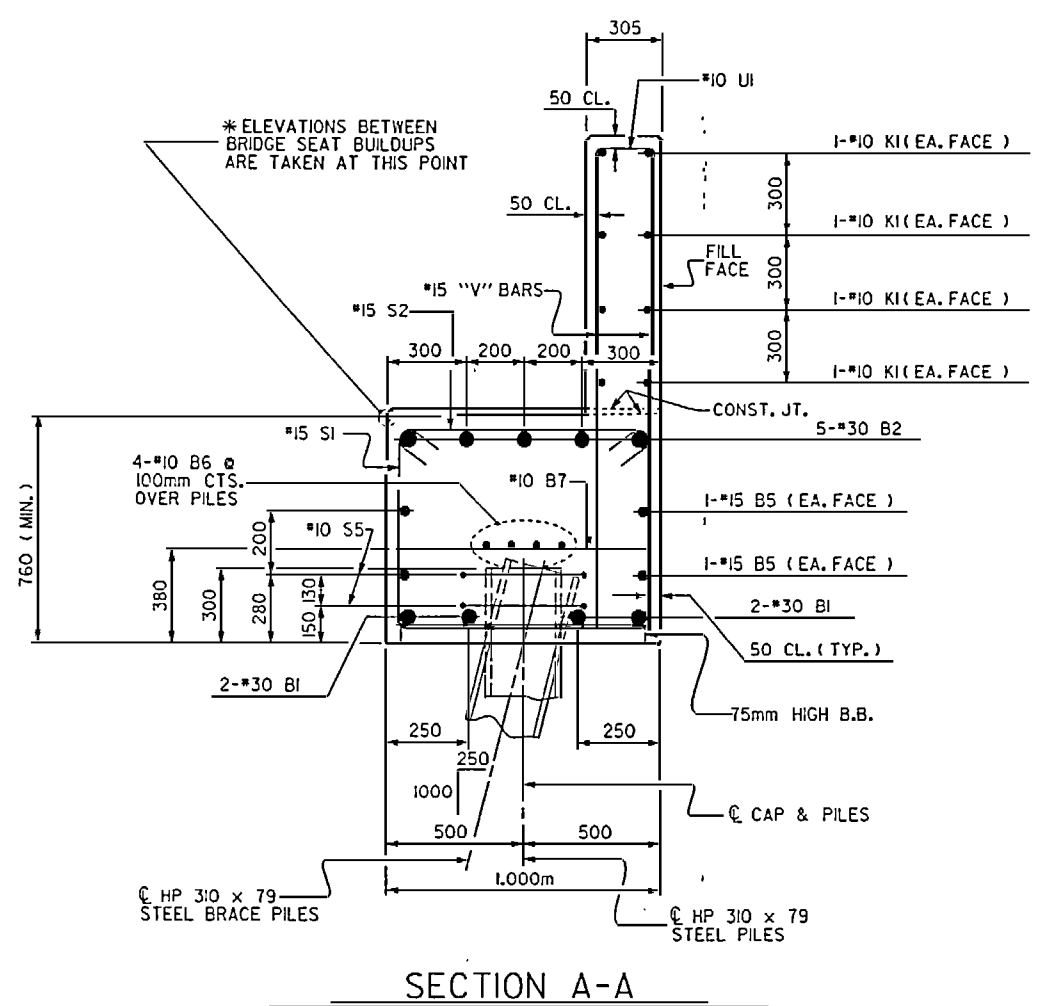


PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-

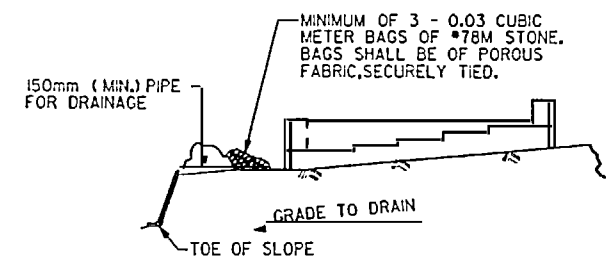
SHEET 2 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 FALCON
 SUBSTRUCTURE
 END BENT No. 2
 (SBL)

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	5-91	
1			3			TOTAL SHEETS	
2			4			142	

DRAWN BY: L.A. HUSSEY DATE: 10-15-96
 CHECKED BY: J.M. BRIT DATE: 5-20-98



BILL OF MATERIAL	
END BENT No. 2	
BAR	NO. SIZE TYPE LENGTH WEIGHT
B1	4 30 1 17020 774
B2	5 30 2 7900 217
B3	5 30 STR 9160 252
B4	5 30 2 5840 160
B5	4 15 STR 16260 102
B6	8 10 STR 8460 53
B7	19 10 STR 920 13
B8	2 15 STR 3440 11
B9	10 0 STR 900 7
H1	18 15 6 3120 88
H2	22 15 6 3480 120
K1	16 10 STR 8460 106
K2	4 10 STR 1260 4
K3	4 10 STR 180 4
S1	13 15 3 2480 51
S2	47 15 4 1180 87
S3	18 15 3 2500 73
S4	16 15 3 2840 71
S5	20 10 7 1980 31
U1	46 10 8 1100 40
U2	6 10 5 1800 8
V1	46 15 STR 1360 134
V2	46 15 STR 1480 143
V3	30 15 STR 2430 114
V4	34 15 STR 2600 143
REINFORCING STEEL kg. 2,406	
CLASS A CONCRETE BREAKDOWN	
POUR #1 16.0 m ³	
CAP, LOWER PART OF WINGS	
POUR #2 9.7 m ³	
BACKWALL & UPPER PART OF WINGS	
CLASS A CONC. TOTAL 25.7 m ³	
HP 310 X 79 STEEL PILES	
METERS 145 NO. 10	
LCP 279 310x79 STEEL PILES AS SHOWN	
SEE SHEET S-56 FOR LAYOUT	

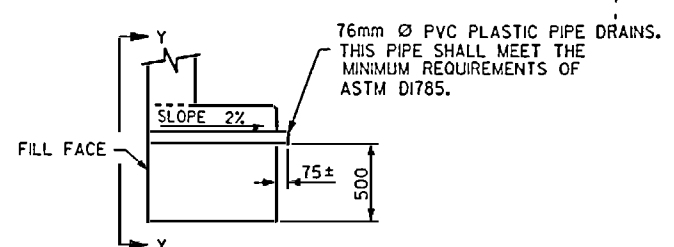


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

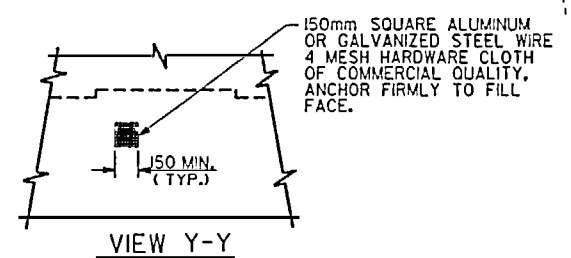
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

TEMPORARY DRAINAGE AT END BENT



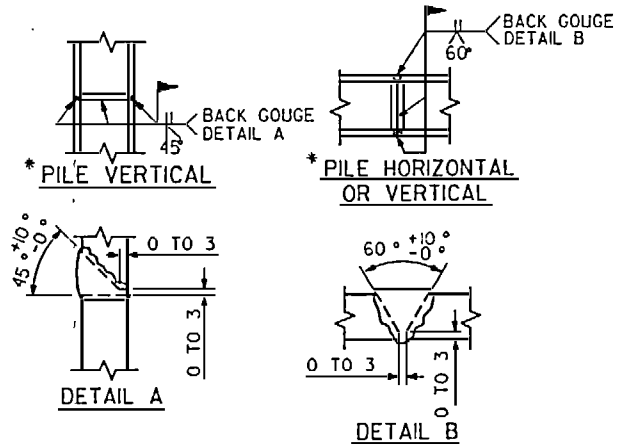
SECTION THRU CAP



VIEW Y-Y

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

PIPE DRAIN DETAILS



PILE SPLICE DETAILS

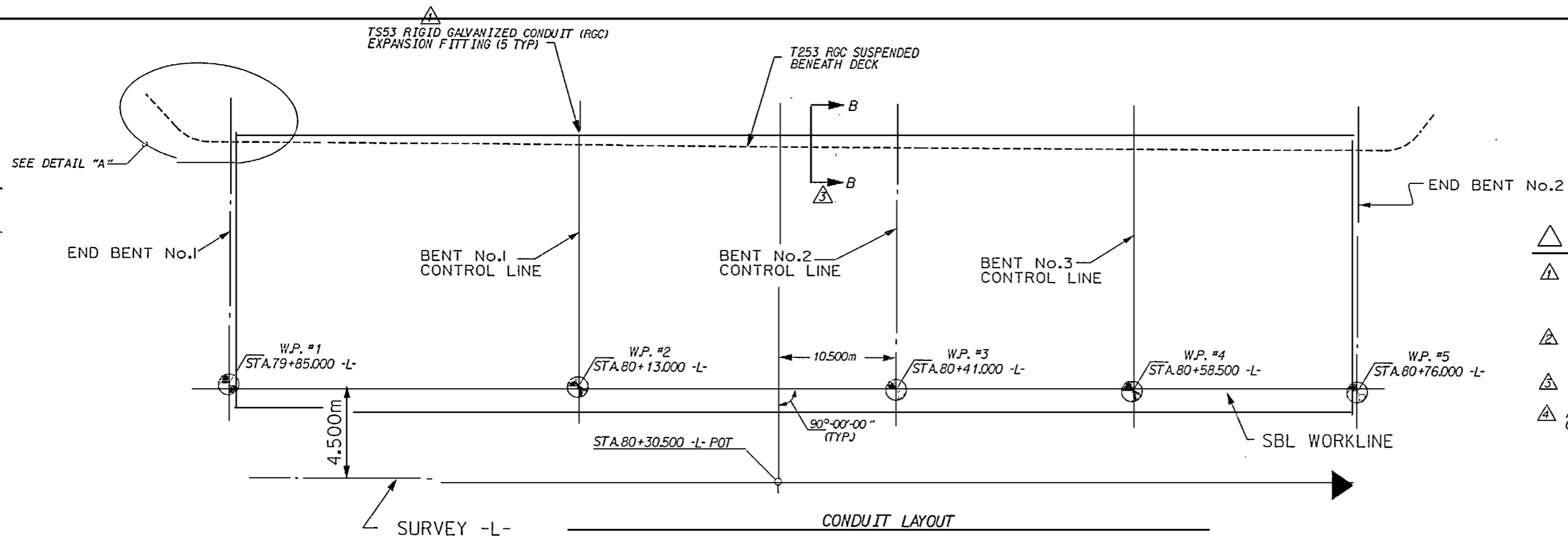


PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

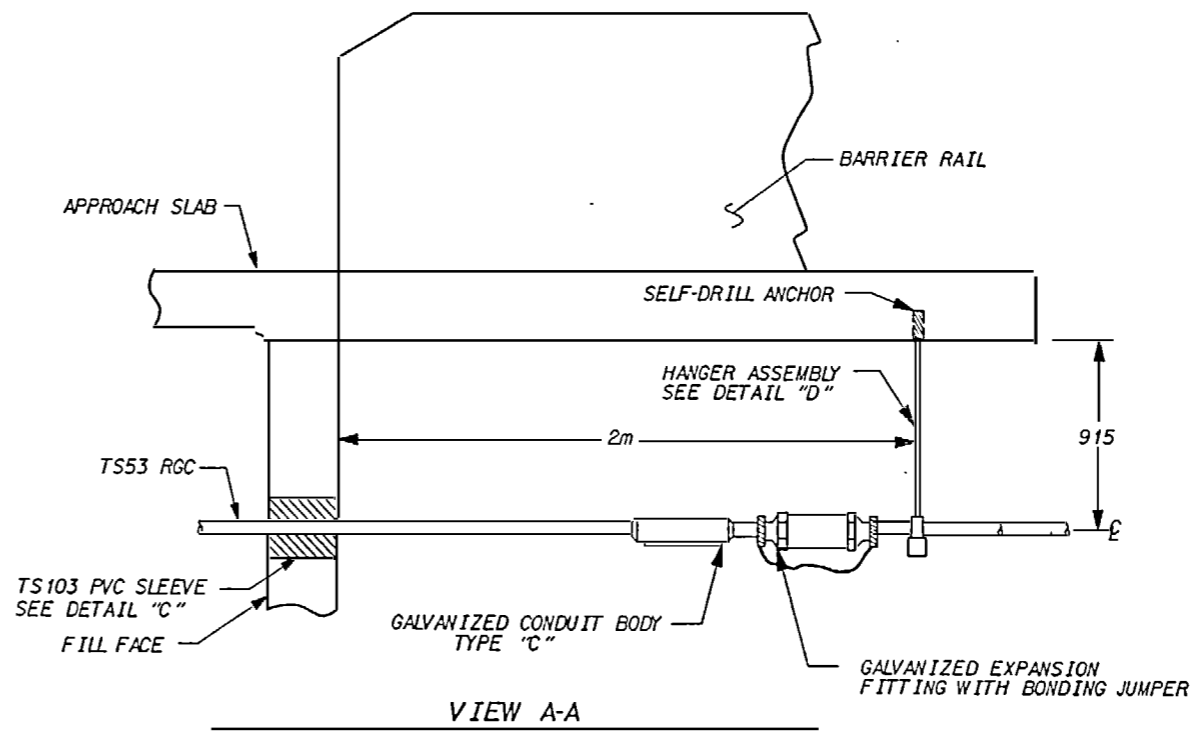
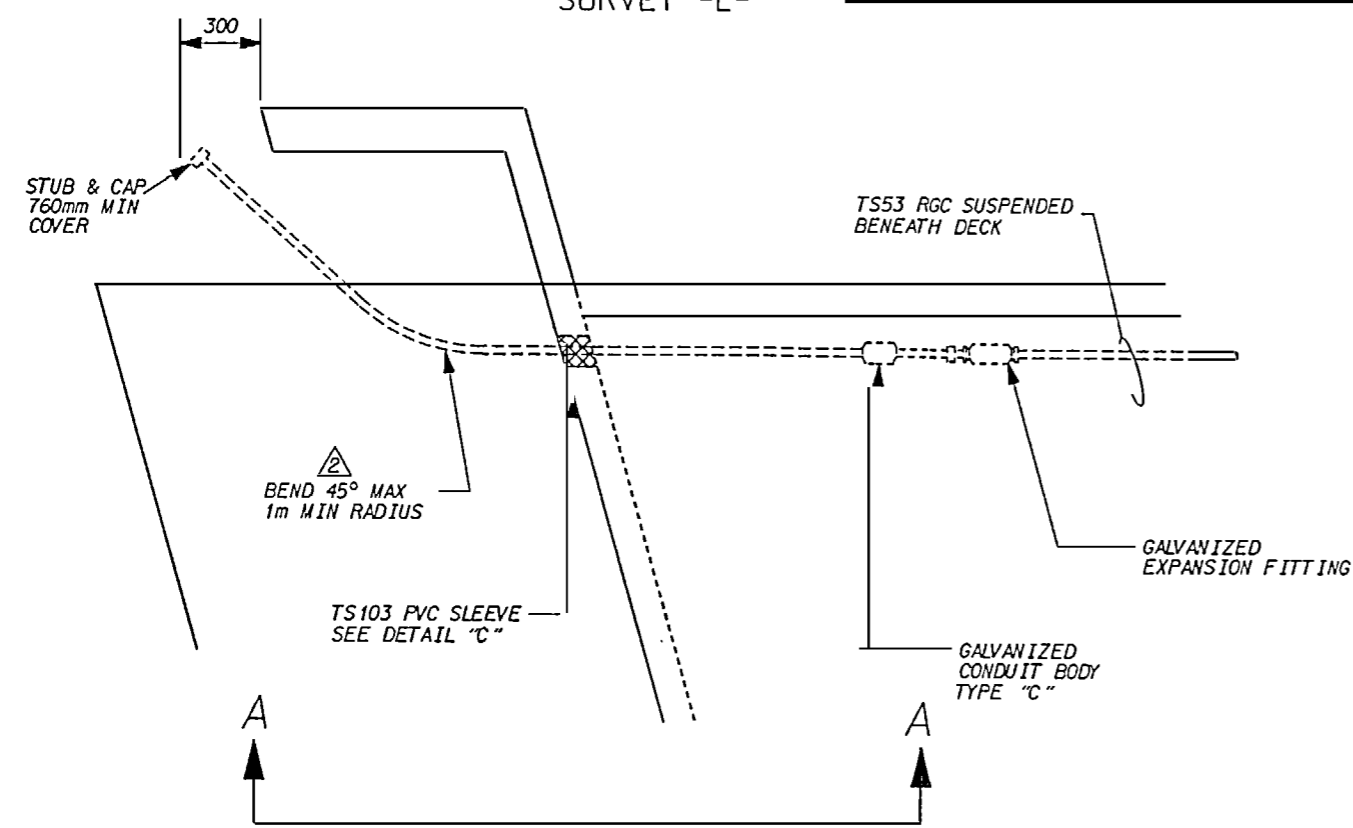
SHEET 3 OF 3

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUBSTRUCTURE					
END BENT No. 2					
(SBL)					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
SHEET NO. 5-92					
TOTAL SHEETS 142					

DRAWN BY: L.A. HUSSEY DATE: 10-8-96
CHECKED BY: J.M. BLITT DATE: 5-20-98



- NOTES**
- △ PROVIDE EXPANSION FITTING FOR EACH CONDUIT AT ALL LOCATIONS WHERE CONDUIT CROSSES AN EXPANSION, COMPRESSION OR CONSTRUCTION JOINT. SEE SHEET 2, DETAIL "B".
 - △ ROUTE CONDUIT TO AVOID DAMAGE DURING GUARDRAIL INSTALLATION.
 - △ SEE SHEET 2, SECTION B-B.
 - △ ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.



DETAIL "A"
INSTALLATION SIMILAR AT EACH END OF BRIDGE (RIP RAP AND BERM NOT SHOWN)

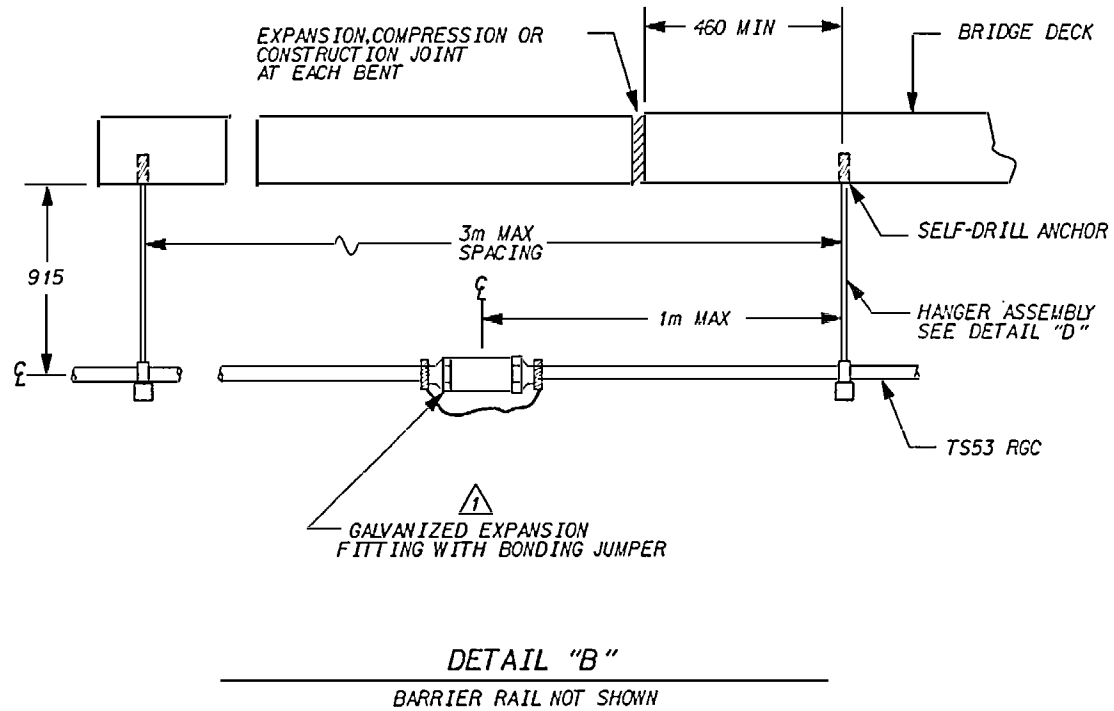
SEE PROJECT SPECIAL PROVISIONS TITLED "ELECTRICAL CONDUIT SYSTEM" FOR MATERIALS CONSTRUCTION METHODS AND PAYMENT.

PROJECT NO. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-
 SHEET 1 OF 2

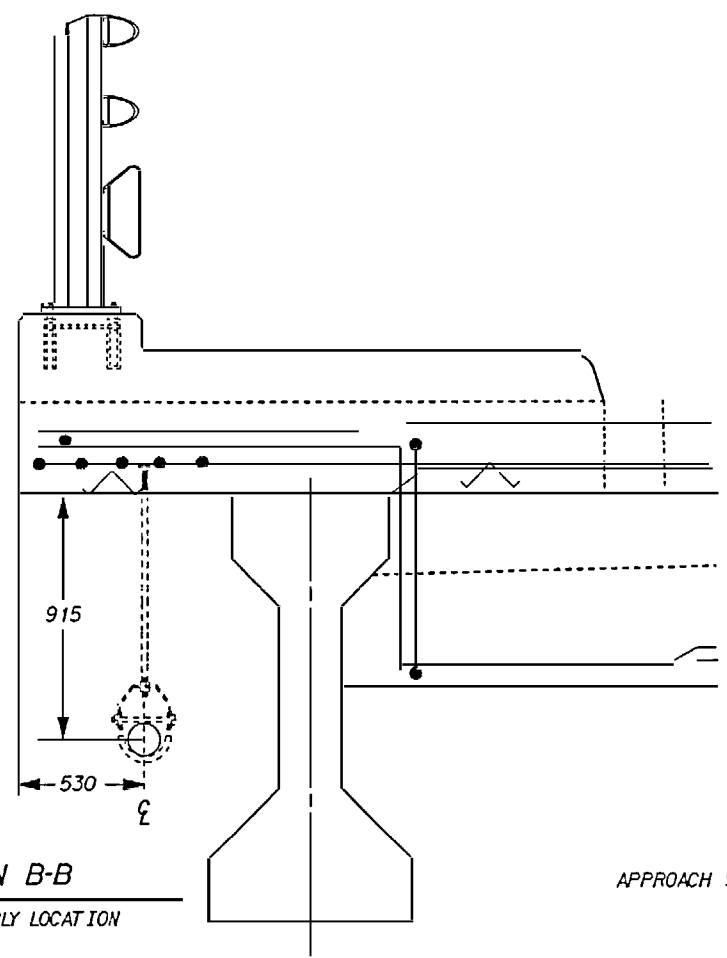
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. 5-93
ELECTRICAL CONDUIT SYSTEM (SBL)						
REVISIONS						TOTAL SHEETS 142
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY: C.O. WILDRON DATE: 03-11-92
 CHECKED BY: [Signature] DATE: 3-21-92

26-MAR-1998 16:20
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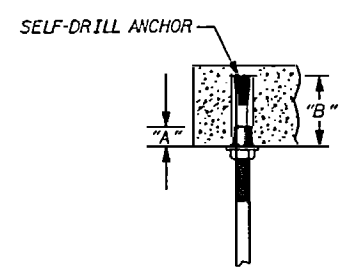


DETAIL "B"
BARRIER RAIL NOT SHOWN



SECTION B-B
HANGER ASSEMBLY LOCATION

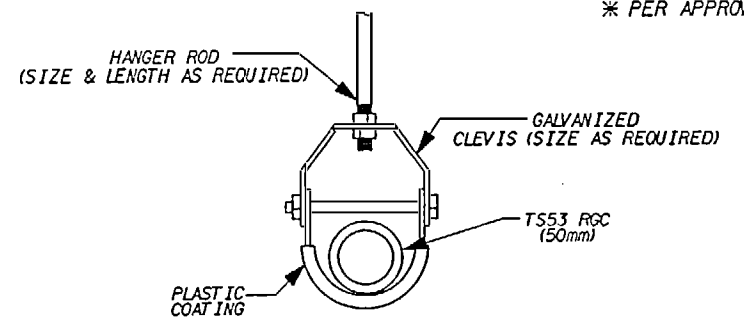
ESTIMATED BILL OF MATERIALS		
QTY	UNIT	DESCRIPTION
100	m	TS53 RIGID GALVANIZED CONDUIT (RGC)
5	EA	GALVANIZED EXPANSION FITTING W/ BONDING JUMPER
2	EA	RGC END CAPS
2	EA	TYPE "C" GALVANIZED CONDUIT BODIES
30	EA	GALV. HANGER ASSEMBLIES W/ GALV. STL RODS
105	m	POLYETHYLENE PULL LINE
30	EA	SELF DRILL ANCHORS
2	EA	TS103 PVC SLEEVE
1	LOT	JUTE
1	LOT	MASTIC



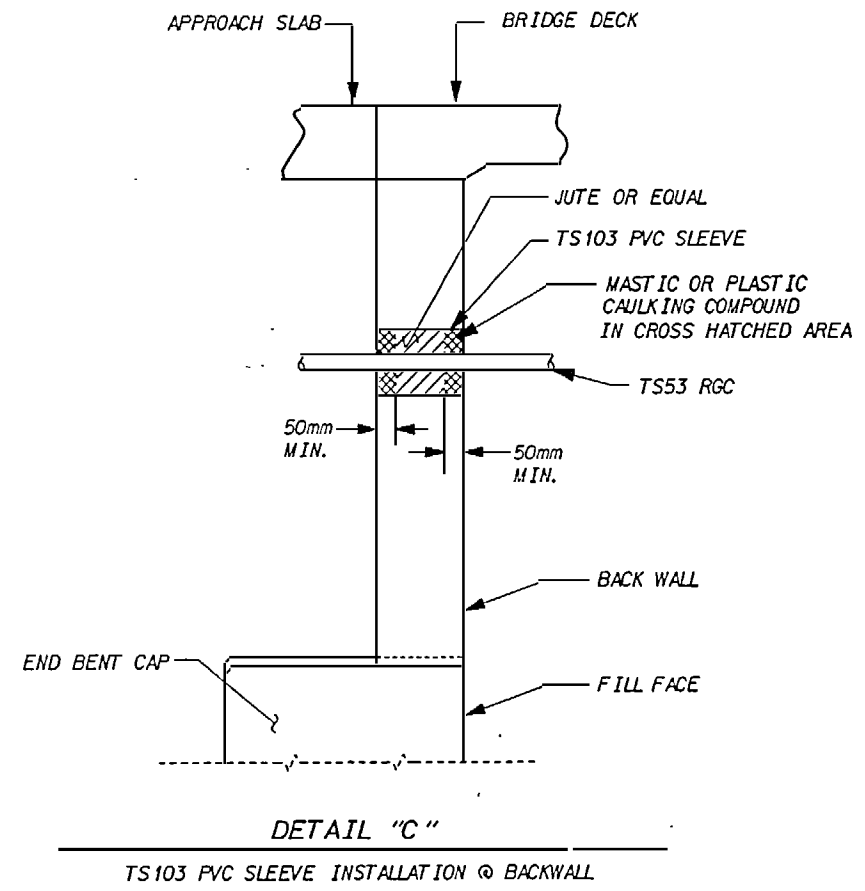
SELF - DRILL ANCHORS			
SIZE mm (Inches)	"A" MIN. mm (Inches)	* "B" TYP. mm (Inches)	PULLOUT FORCE Kg (lbs)
6.350 (1/4)	9.525 (3/8)	27.781 (1 3/32)	1233 (2713)
9.525 (3/8)	14.288 (9/16)	38.894 (1 17/32)	1909 (4200)
12.700 (1/2)	20.638 (13/16)	51.594 (2 1/32)	3341 (7350)
15.875 (5/8)	23.813 (15/16)	62.706 (2 15/32)	4659 (10250)

* PER APPROVED MANUFACTURER'S SPECIFICATIONS

TS53 RGC
HANGER ASSEMBLY



DETAIL "D"
HANGER ASSEMBLY AND SELF DRILL ANCHOR



DETAIL "C"
TS103 PVC SLEEVE INSTALLATION @ BACKWALL

SEE PROJECT SPECIAL PROVISIONS TITLED "ELECTRICAL CONDUIT SYSTEM" FOR MATERIALS CONSTRUCTION METHODS AND PAYMENT.

PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-
SHEET 2 OF 2

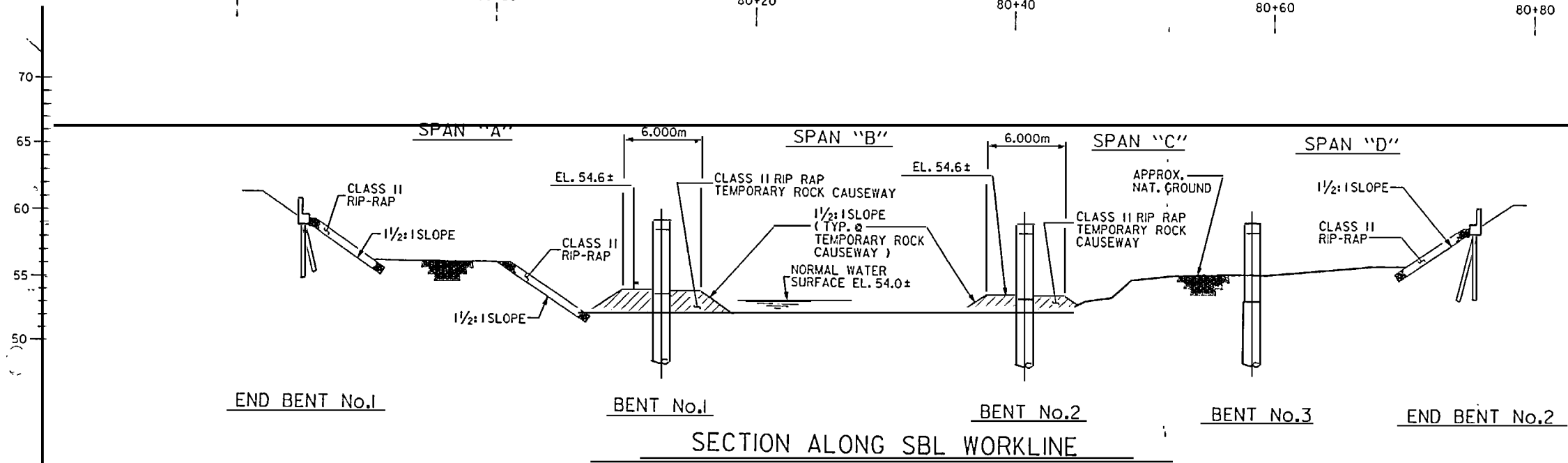
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				
ELECTRICAL CONDUIT SYSTEM (SBL)				
REVISIONS				
NO.	BY	DATE	NO.	DATE
1			3	
2			4	

SHEET NO. S-94
TOTAL SHEETS 142

DRAWN BY: C.D. MULDROV DATE: 03-11-93
CHECKED BY: [Signature] DATE: 3/17/93

26-MAR-1998 16:22
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79+80 80+00 80+20 80+40 80+60 80+80



NOTES

THE TEMPORARY ROCK CAUSEWAYS AT BENT No.1 AND BENT No.2 SHALL NOT BE IN PLACE AT THE SAME TIME. THE FIRST TEMPORARY ROCK CAUSEWAY INSTALLED MUST BE COMPLETELY REMOVED PRIOR TO INSTALLING THE SECOND TEMPORARY ROCK CAUSEWAY.

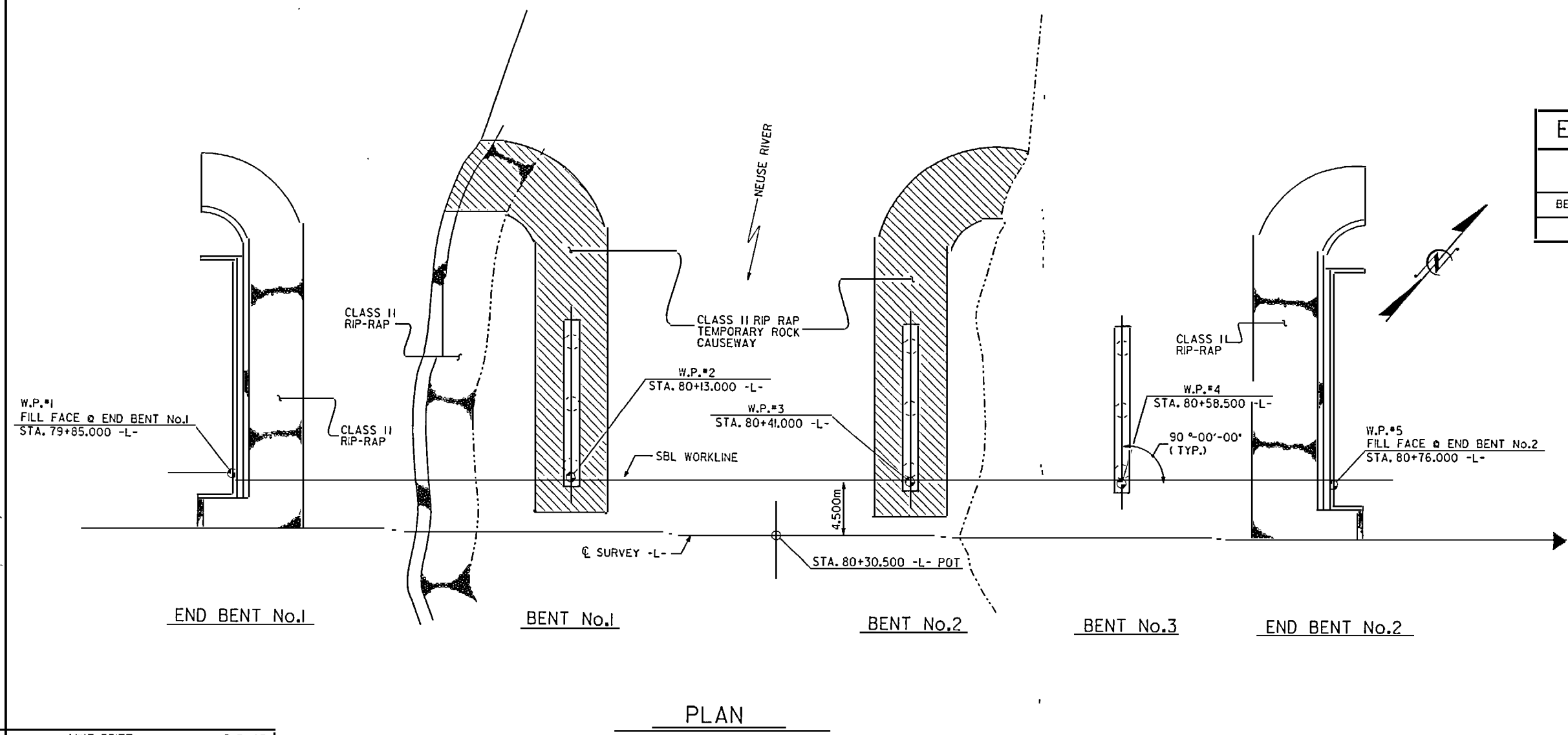
THE COST OF INSTALLING AND REMOVING TEMPORARY ROCK CAUSEWAY IS INCLUDED IN THE LUMP SUM BID PRICE FOR "TEMPORARY ROCK CAUSEWAY".

FOR TEMPORARY ROCK CAUSEWAY, SEE SPECIAL PROVISIONS.

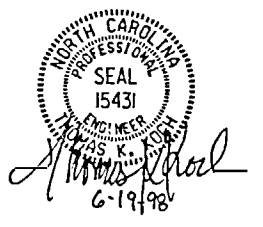
END BENT No.1 BENT No.1 BENT No.2 BENT No.3 END BENT No.2

SECTION ALONG SBL WORKLINE

ESTIMATED QUANTITIES		
CLASS II RIP-RAP FOR TEMPORARY ROCK CAUSEWAY (SBL) (METRIC TONS)		
BENT No.1	BENT No.2	TOTAL
605	360	965



PLAN



PROJECT No. R-2425 C
WAKE COUNTY
 STATION: 80+30.500 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

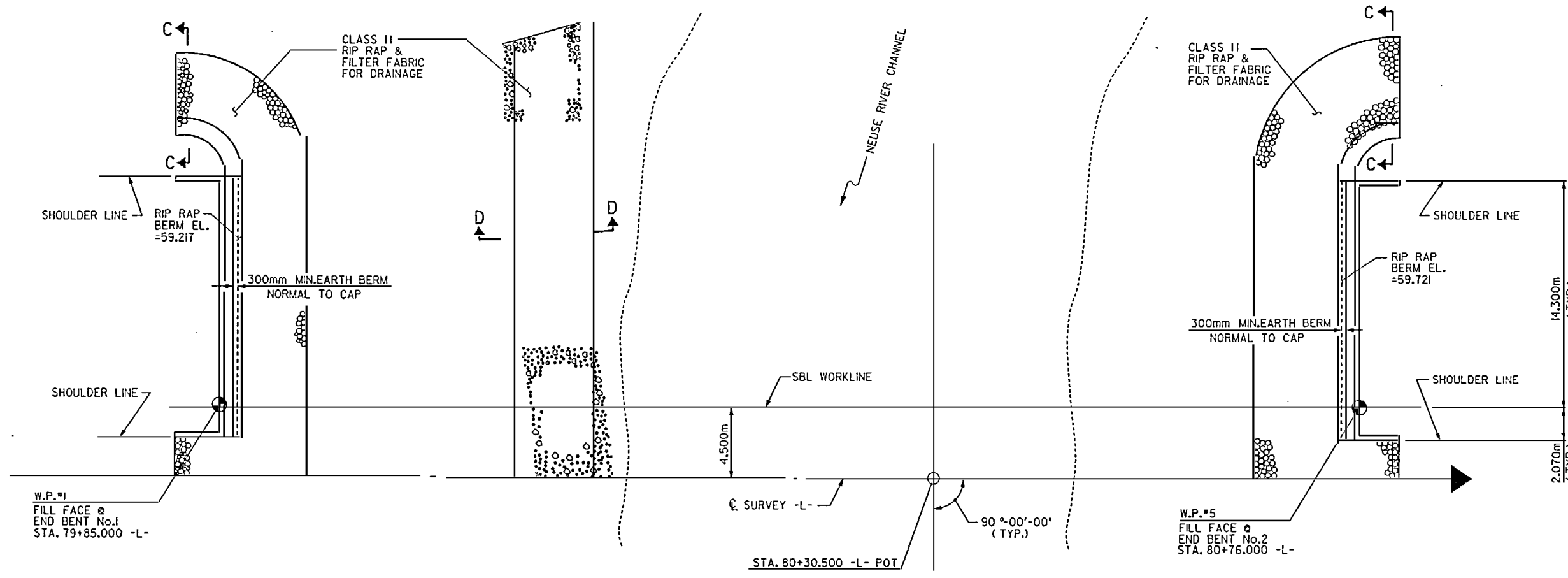
TEMPORARY ROCK CAUSEWAY PLANS (SBL)

DRAWN BY: MIKE BRITT DATE: 3-31-97
 CHECKED BY: TRK DATE: 6-19-98

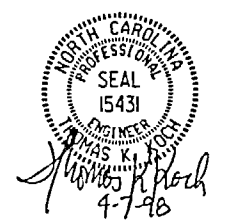
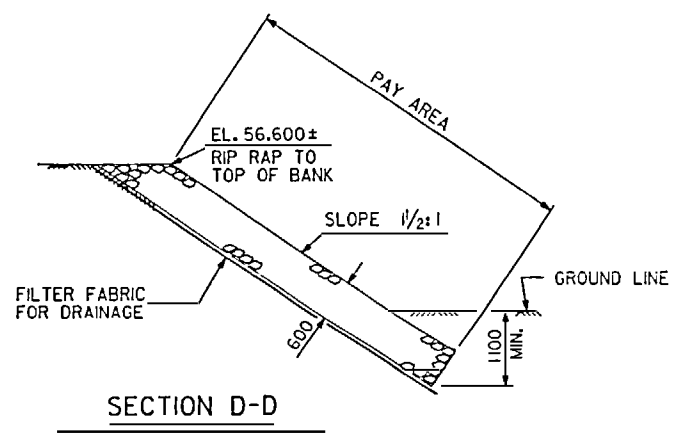
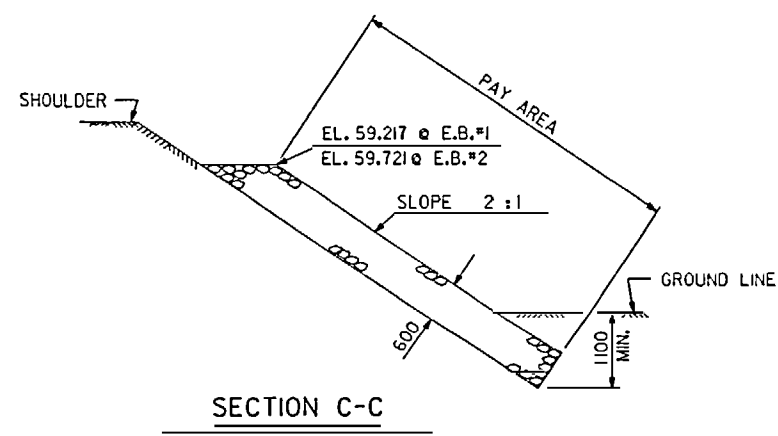
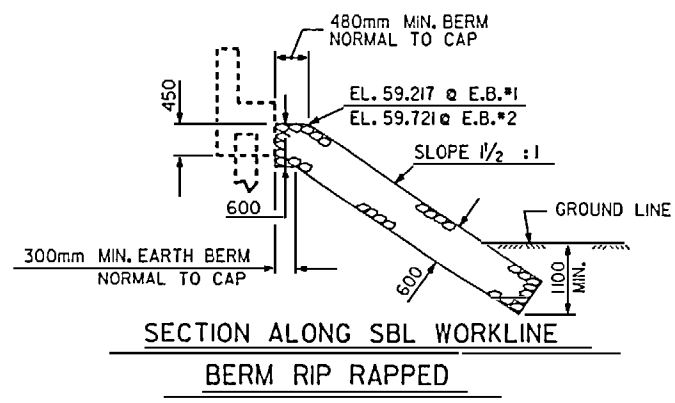
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 mbritt

REVISIONS						SHEET No.
No.	By	DATE	No.	By	DATE	S-95
1			3			TOTAL SHEETS
2			4			142

STR.#1



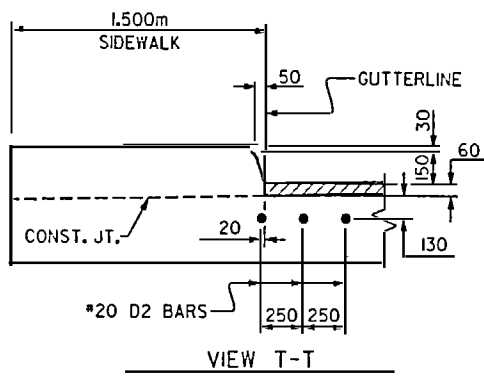
ESTIMATED QUANTITIES			
STA. 80+30.500-L-	PLAIN RIP RAP CLASS 2 METRIC TON		
BRIDGE AT	E. BT. NO. 1	BT. #1	E. BT. NO. 2
SBL WORKLINE	176	225	231
STA. 80+30.500-L-	FILTER FABRIC FOR DRAINAGE SQ. METERS		
BRIDGE AT	E. BT. NO. 1	BT. #1	E. BT. NO. 2
SBL WORKLINE	176	225	231



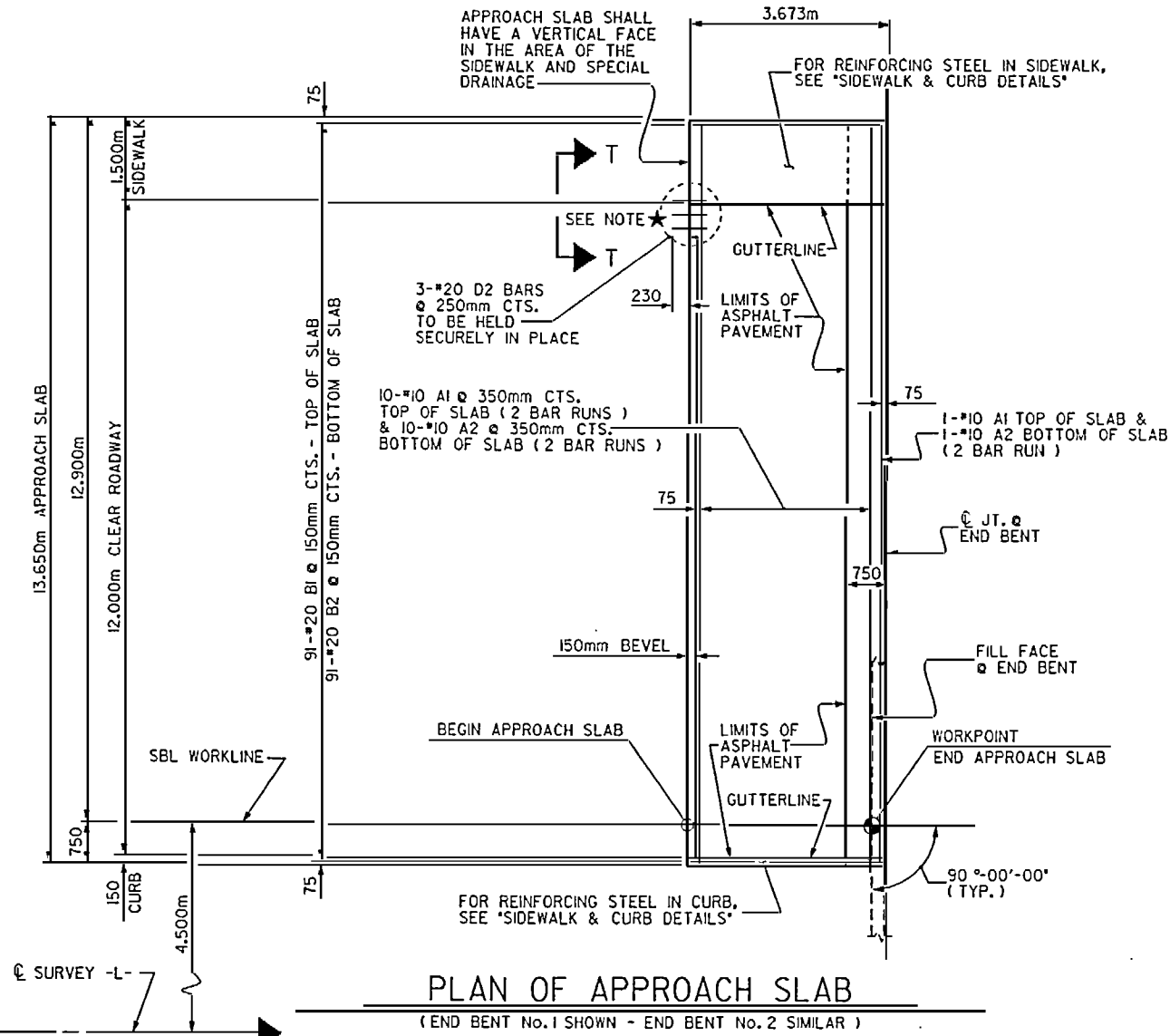
PROJECT NO. R-2425 C
 WAKE COUNTY
 STATION: 80+30.500 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
RIP RAP DETAILS SBL					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET NO. 5-96
					TOTAL SHEETS 142

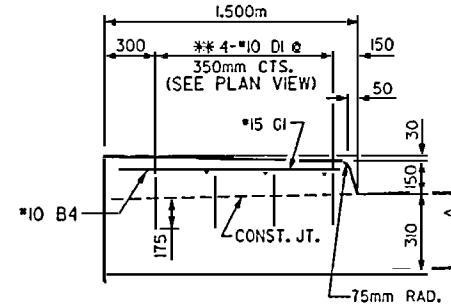
DRAWN BY: M.J. HOGAN DATE: 6/17/96
 CHECKED BY: R. WRIGHT DATE: 10/27/97



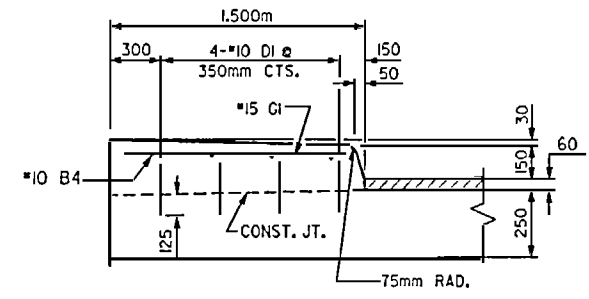
★ TEMPORARY BERM AND SLOPE DRAIN REQUIRED AT THIS LOCATION. FOR DETAILS, SEE SHEET 2 OF 2.



PLAN OF APPROACH SLAB
(END BENT No. 1 SHOWN - END BENT No. 2 SIMILAR)

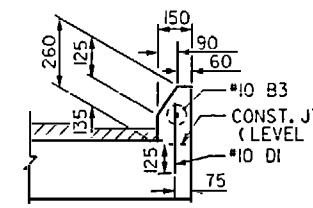


SECTION K-K

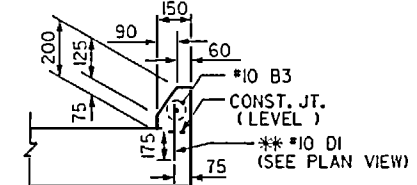


SECTION J-J

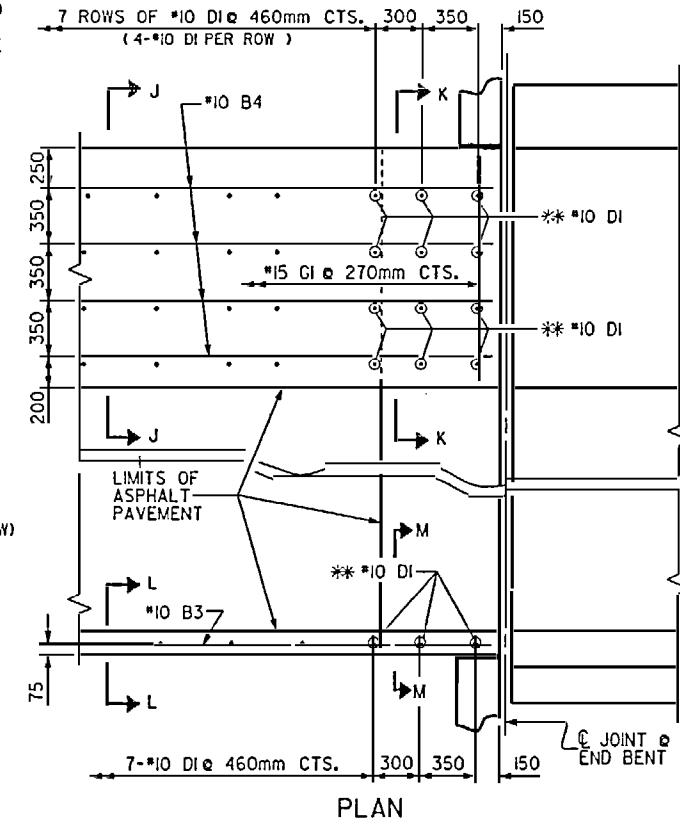
** THESE DOWELS ARE TO BE PLACED AFTER SAWING OF THE JOINT. THE HOLES SHALL BE DRILLED AND THE DOWELS GROUTED IN PLACE.



SECTION L-L



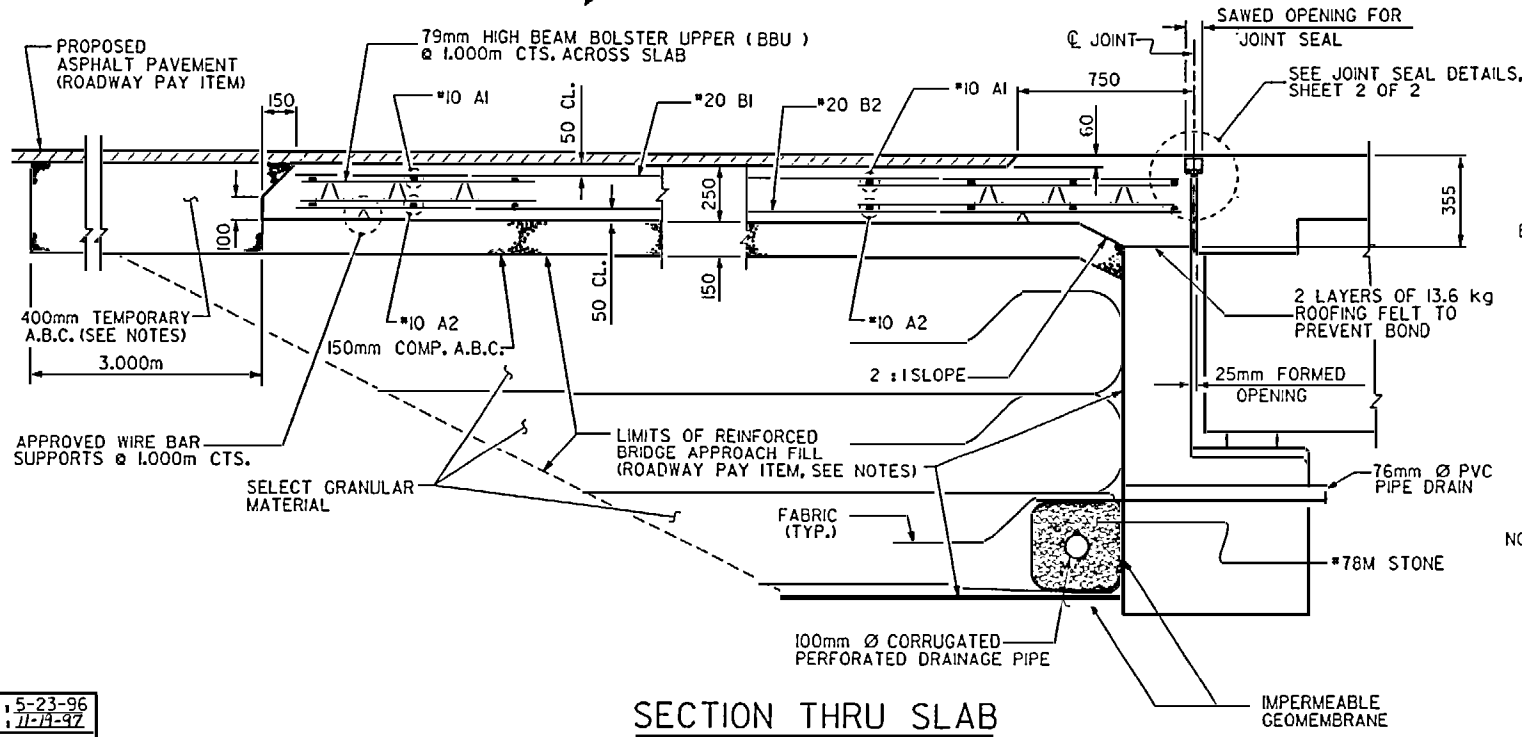
SECTION M-M



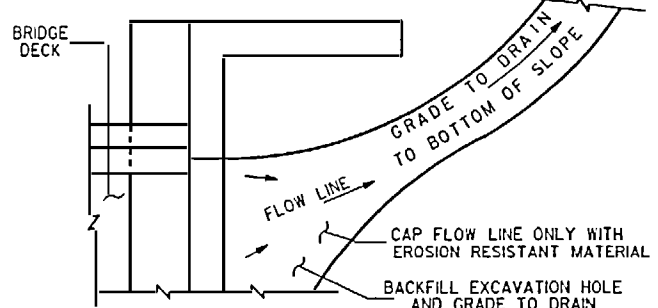
PLAN

DETAIL AT END OF CURB

SIDEWALK & CURB DETAILS



SECTION THRU SLAB



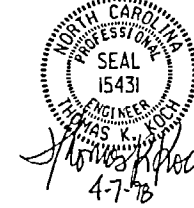
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

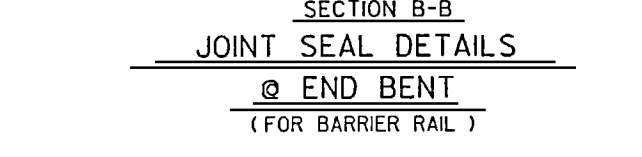
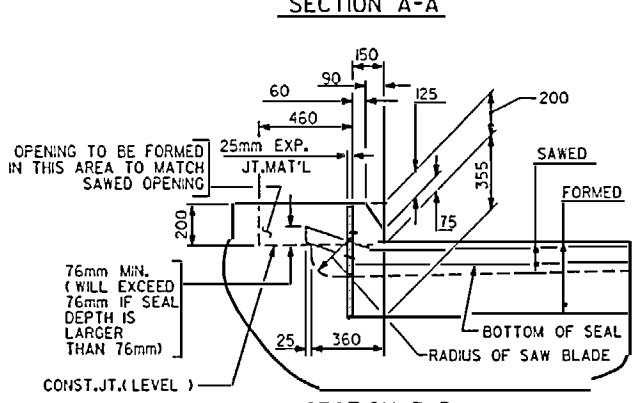
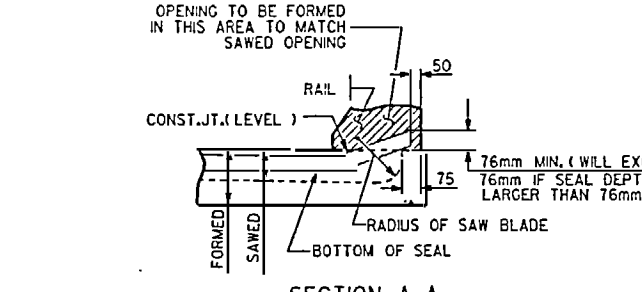
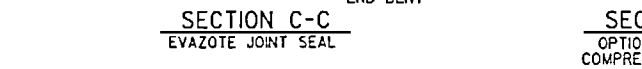
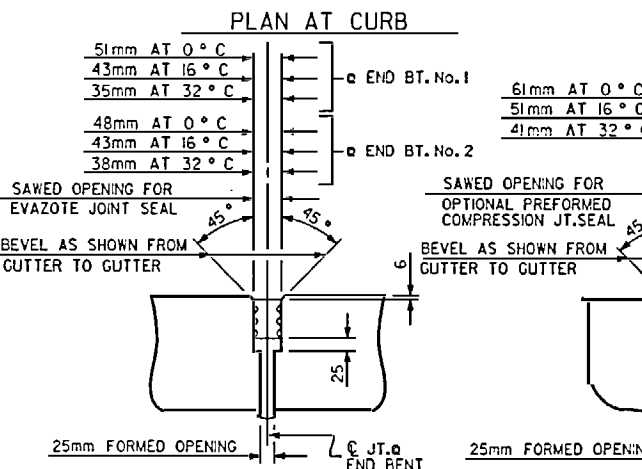
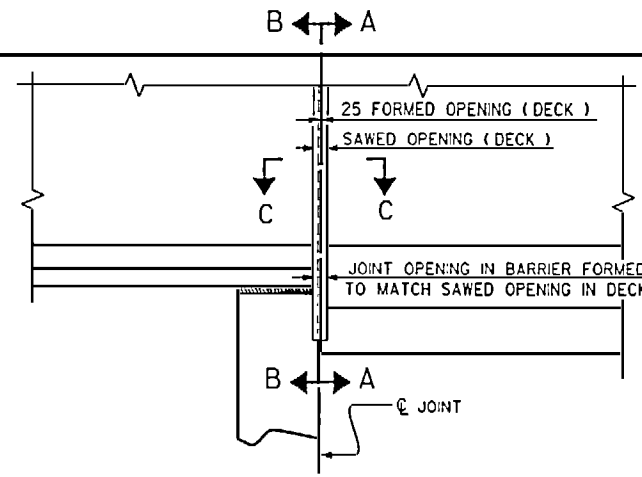
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR FLEXIBLE PAVEMENT
WITH REINFORCED BRIDGE
APPROACH FILL
(SBL)



ASSEMBLED BY: MIKE BRITT	DATE: 5-23-96
CHECKED BY: M. J. H. B. W. W.	DATE: 11-19-97
STD. DRAWN BY: F. C. JONES	DATE: 6/10/87
STD. CHECKED BY: E. G. ALLEN	DATE: 6/25/87

REVISIONS				SHEET NO.
NO.	DATE	NO.	DATE	9-97
1		3		TOTAL SHEETS
2		4		142



PAYMENT FOR OPTIONAL COMPRESSION JOINT SEALS SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR EVAZOTE JOINT SEALS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE COMPRESSION JOINT SEAL SHALL BE 76mm.

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE CONCRETE CURB, SIDEWALK AND BARRIER RAIL.

APPROACH SLAB GROOVING IS NOT REQUIRED.

DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER THE SLAB HAS BEEN SCREEDED AND FLOAT FINISHED EXCEPT AS NOTED ON THE PLANS.

THE 400mm TEMPORARY A.B.C. SHALL EXTEND FROM THE END OF THE APPROACH SLAB TO 3m BEYOND THE SLAB AS SHOWN AND SHALL EXTEND TO EACH EDGE OF THE APPROACH SLAB. THE TEMPORARY A.B.C. MAY BE PLACED IN TWO LIFTS. EACH LIFT SHALL BE COMPACTED BY A MINIMUM OF TWO PASSES OF A VIBRATORY ROLLER.

THE CONTRACTOR MAY, AT HIS OPTION, USE A COMPRESSION JOINT SEAL IN LIEU OF THE EVAZOTE JOINT SEAL. SEE SPECIAL PROVISION FOR OPTIONAL PREFORMED COMPRESSION JOINT SEALS.

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

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

THE AREAS BETWEEN THE WINGWALLS AND THE APPROACH SLABS SHALL BE PAVED, SEE ROADWAY PLANS.

THE 150mm COMP. A.B.C. SHALL EXTEND 300mm OUTSIDE OF EACH EDGE OF THE SLAB.

THE CONTRACTOR MAY, AT HIS OPTION, USE EITHER 100mm TYPE HB ASPHALT CONCRETE BASE COURSE OR 125mm CLASS 'A' CONCRETE IN LIEU OF 150mm A.B.C. IF 125mm CLASS 'A' CONCRETE IS USED, 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 WIDTH OF THE CONCRETE BASE SHALL BE THE SAME WIDTH AS THE APPROACH SLAB. THE APPROACH SLABS SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

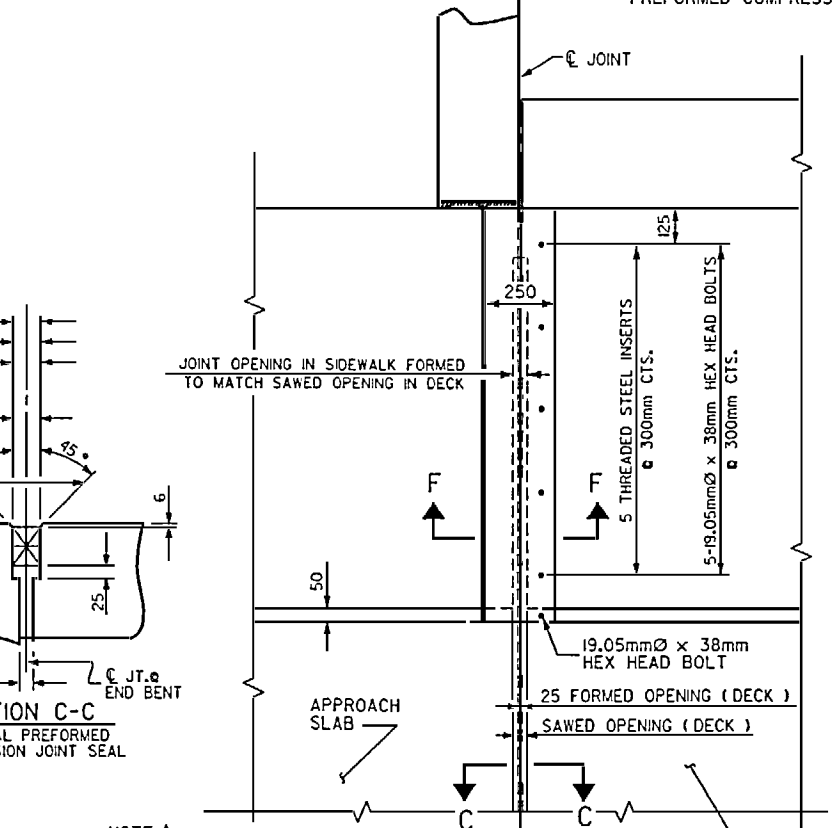
FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

PAYMENT FOR EVAZOTE JOINT SEALS SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR EVAZOTE JOINT SEALS.

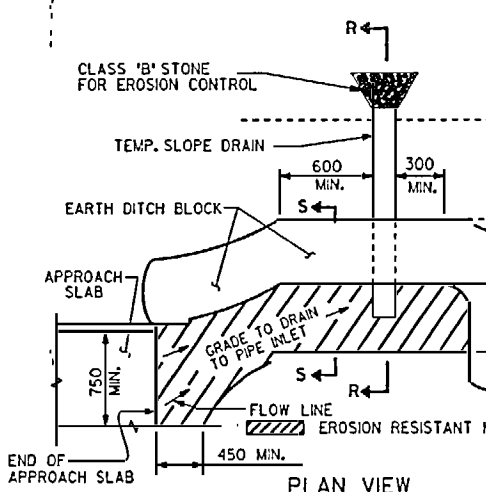
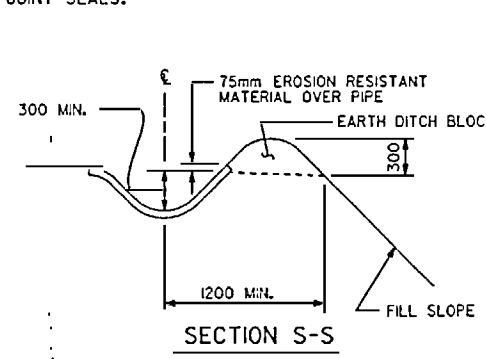
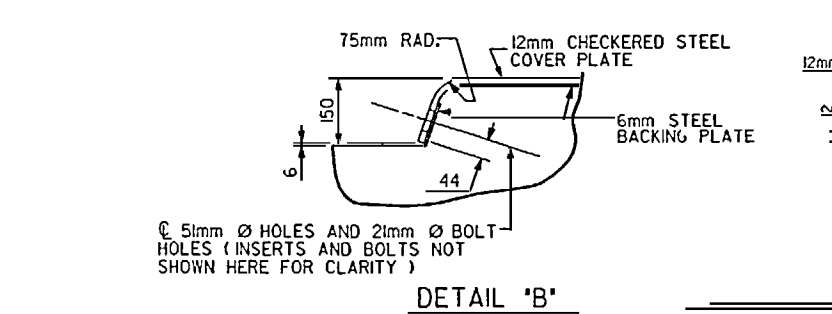
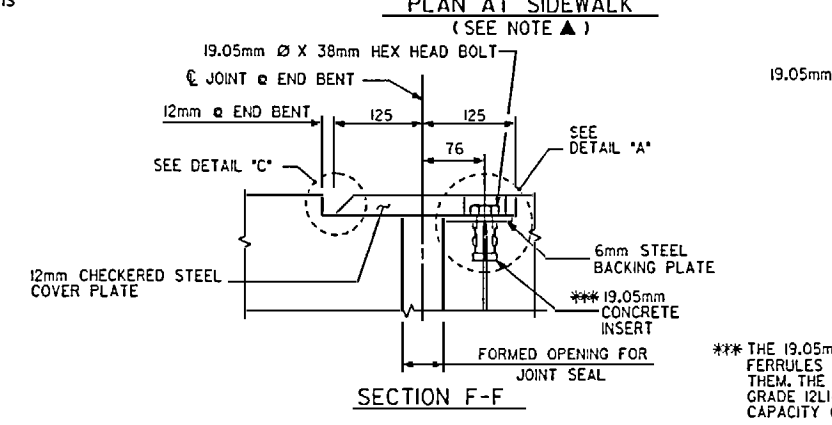
THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 71mm.

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 100mm Ø DRAINAGE PIPE, #78M STONE, AND SELECT GRANULAR FILL, SEE ROADWAY PLANS.

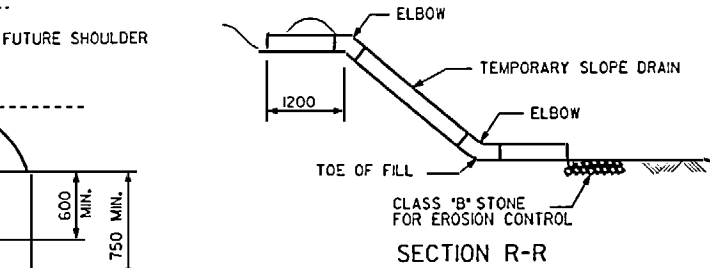
NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE COVER PLATES. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR EVAZOTE JOINT SEALS.



NOTE: PLAN SHOWN IS AT END BENT NO. 1. PLAN AT END BENT NO. 2 IS SIMILAR EXCEPT THE HEX HEAD BOLTS SHALL BE PLACED ON THE APPROACH SLAB SIDE.



TEMPORARY BERM AND SLOPE DRAIN DETAILS



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.

BILL OF MATERIAL FOR ONE APPROACH SLAB (2 REQUIRED)

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	22	10	STR.	7040	122
B1	22	10	STR.	7000	121
*B2	91	20	STR.	3400	729
*B3	91	20	STR.	3560	763
*B4	1	10	STR.	3420	3
*B4	4	10	STR.	3560	11
*D1	45	10	STR.	300	11
*D2	3	20	STR.	460	3
*G1	14	15	STR.	1340	29
REINFORCING STEEL				884	kg
*EPOXY COATED REINFORCING STEEL				908	kg
CLASS AA CONCRETE				14.6	m ³

* THESE BARS ARE EPOXY COATED

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

BAR SIZE	EPOXY COATED	UNCOATED
#10	520	450
#15	730	640
#20	1190	790
#25	1980	1320



PROJECT NO. R-2425 C
WAKE COUNTY
STATION: 80+30.500 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
STANDARD
BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT WITH REINFORCED BRIDGE APPROACH FILL
(SBL)

REVISIONS		SHEET NO.
NO.	DATE	5-98
1	3	TOTAL SHEETS 142
2	4	

ASSEMBLED BY: MIKE BRITT DATE: 5-23-96 SPECIAL
CHECKED BY: ALLI WRIGHT DATE: 5-13-98
DRAWN BY: F. C. JONES DATE: 11/28/88 STANDARD
CHECKED BY: A. R. BISSETTE DATE: 11/28/88

REV. 10/93 E.R. 44 CRP
REV. 6/79 E.W. 44 CRP
REV. 6/68 E.W. 44 CRP

13-MAY-1998 12:44
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