

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

## STANDARD NOTES

### DESIGN DATA:

SPECIFICATIONS	A. A. S. H. T. O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A. A. S. H. T. O.
STRESS IN EXTREME FIBER OF	
STRUCTURAL STEEL - A. S. T. M. A36 GRADE	20,000 LBS. PER SQ. IN.
A. S. T. M. A588	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	20,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A. A. S. H. T. O.
STRUCTURAL TIMBER - TREATED OR	
UNTREATED - EXTREME FIBER STRESSES	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN IN TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	50 LBS. PER CU. FT. (MINIMUM)

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 1978 STANDARD SPECIFICATIONS "FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

### CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS "A" CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT CLASS "AA" CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES.

### CONCRETE CHAMFERS:

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

### DOVELS:

DOVELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

### WATERSTOPS:

WATERSTOPS SHALL BE OF AN APPROVED MATERIAL WHICH CAN BE EASILY CUT AND JOINTS EFFECTIVELY SEALED IN THE FIELD. WHEN USED IN BRIDGE DECKS WITH CURBS, THE MATERIAL SHALL FORM A CONTINUOUS WATERSTOP ACROSS THE SLAB, UP THE CURBS AND ACROSS THE TOP OF CURBS OR WALKS TO THE INSIDE FACE OF RAIL POSTS OR RAIL BASES. WHEN USED IN BRIDGE DECKS WITH NO CURBS BUT WITH PARAPET WALLS, THE MATERIAL SHALL FORM A CONTINUOUS WATERSTOP ACROSS THE SLAB TO A POINT 4" INSIDE THE WALL AND THEN VERTICALLY TO A POINT 5" ABOVE THE BRIDGE DECK. A CONTINUOUS WATERSTOP SPLICE SHALL BE PROVIDED FROM CURB TO CURB, OR FROM PARAPET TO PARAPET, FOR ALL SPANS AND FOR FULL LENGTH OF THE MATERIAL FOR SPANS WITH NO SKEN. FOR SKENED SPANS, A 6" LAPPED AND WELDED JOINT, SHOP OR FIELD FABRICATED, WILL BE PERMITTED IN THE WATERSTOP AT THE BOTTOM OF CURB OR PARAPET WALL. EXPANSION JOINT MATERIAL SHALL BE PLACED IN THE JOINT BELOW AND ABOVE THE WATERSTOP IN AN APPROVED MANNER, AND THE JOINT SHALL BE KEPT FREE OF CONCRETE. THE TOP OF THE JOINT SHALL BE SEALED WITH JOINT SEALER.

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

FIVE SETS OF DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED ON THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT A. A. S. H. T. O. "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES." ELECTROSLAG WELDING WILL NOT BE PERMITTED.

"PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED JULY 11, 1978. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORD WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 972-11."

### HANDRAILS AND POSTS:

POSTS FOR CONCRETE HANDRAILS SHALL BE BUILT NORMAL TO THE GRADE OF THE CURB, AND THE CONCRETE RAILS AND TOPS OF POSTS SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB POST BRACKETS, WHEN USED, SHALL ALSO BE BUILT NORMAL TO THE GRADE OF THE CURB WITH TOP AND BOTTOM OF BRACKETS PARALLEL TO GRADE OF CURB.

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

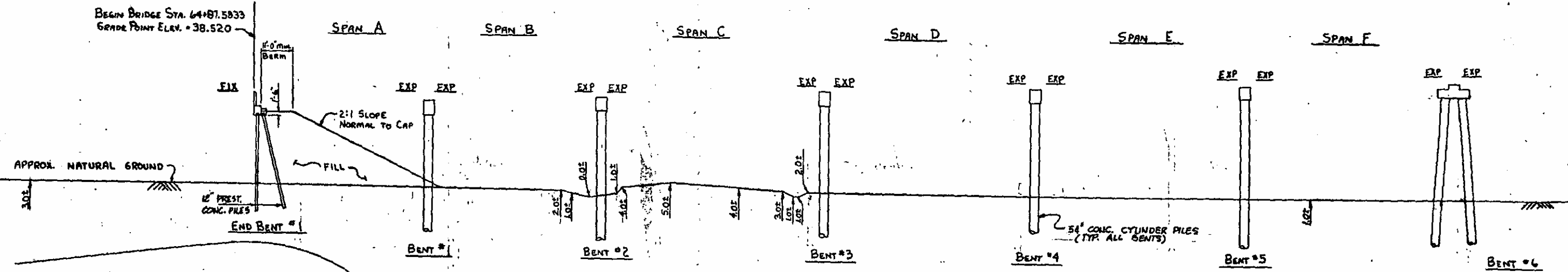
METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### EXCAVATION AND FOUNDATION DATA:

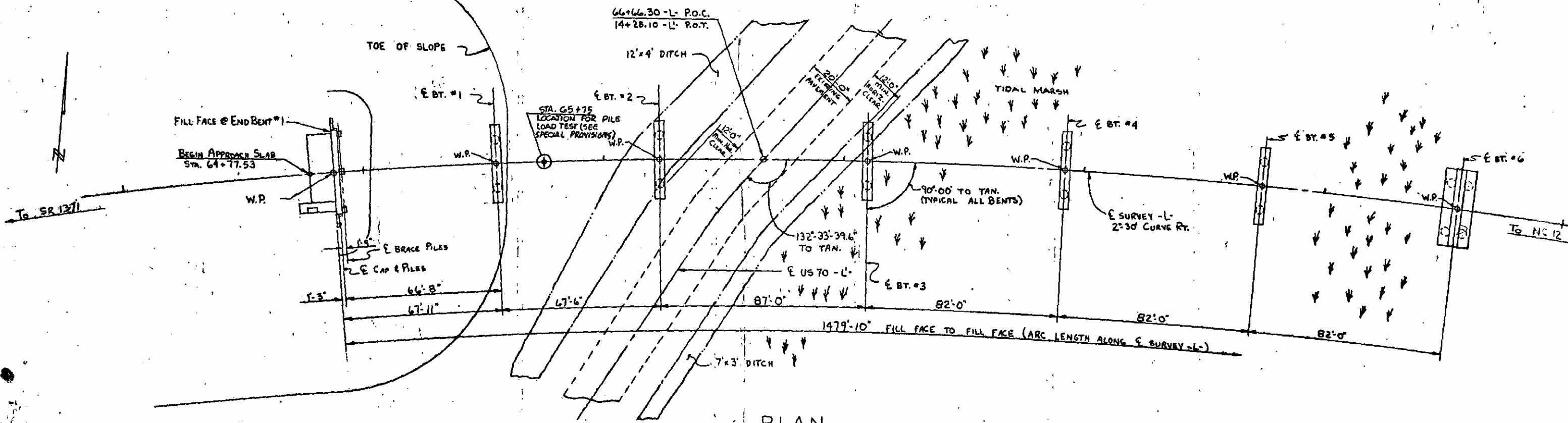
THE INFORMATION SHOWN ON PLANS PERTAINING TO EXCAVATION AND FOUNDATION DATA AND ALL ELEVATIONS OF GROUND LINE AND WATER SURFACES GIVEN ARE BELIEVED TO BE CORRECT AND ARE FURNISHED FOR THE CONVENIENCE OF BIDDERS, BUT THE DEPARTMENT ASSUMES NO RESPONSIBILITY FOR, NOR GUARANTEES AS CORRECT, ANY OF THE INFORMATION GIVEN.

### SPECIAL NOTES:

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



ELEVATION



PLAN

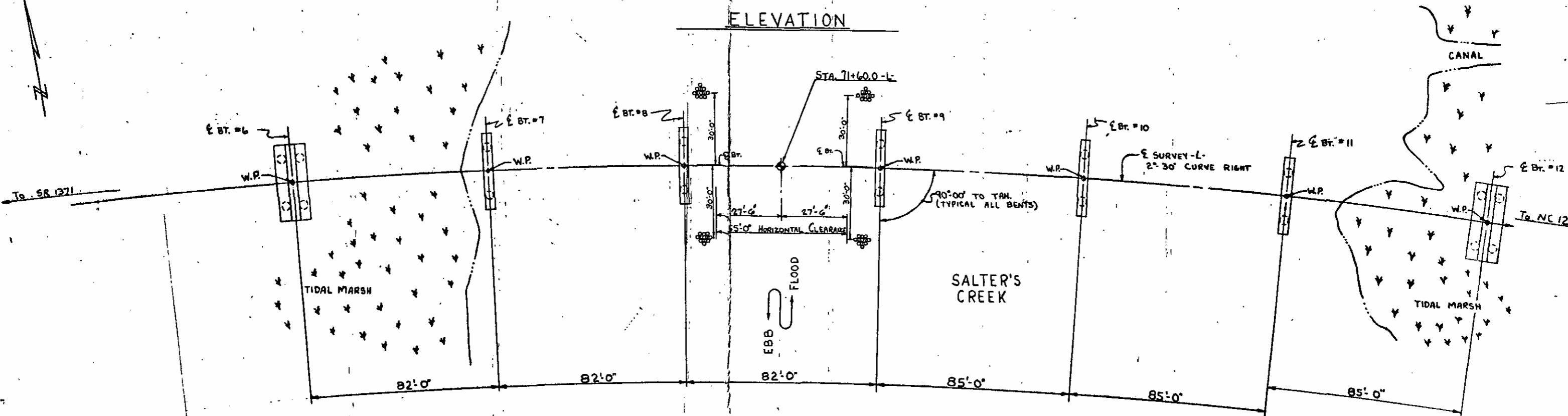
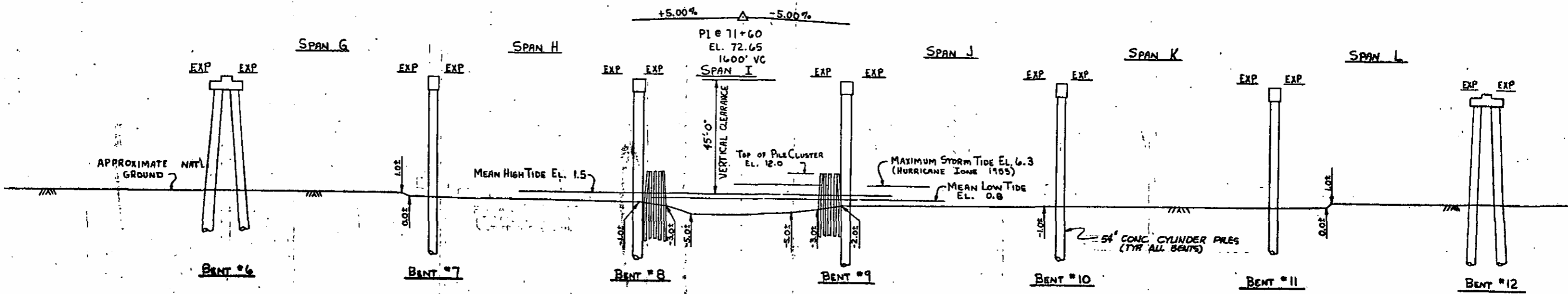
PILES NOT SHOWN IN PLAN VIEW

PROJECT No. 8.1201302  
 CARTERET COUN  
 STATION: 71+60.0-L  
 REPLACES BR. No. 70-16-110

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING FOR BRIDGE ON  
 RELOCATED US70 OVER SALTER'S  
 CREEK BETWEEN SR 1371 & NC 12

SHEET 1 OF 3

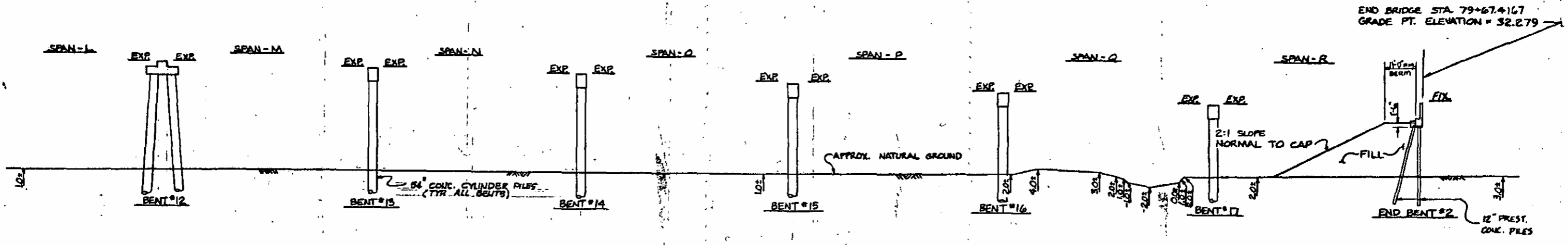
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			1		



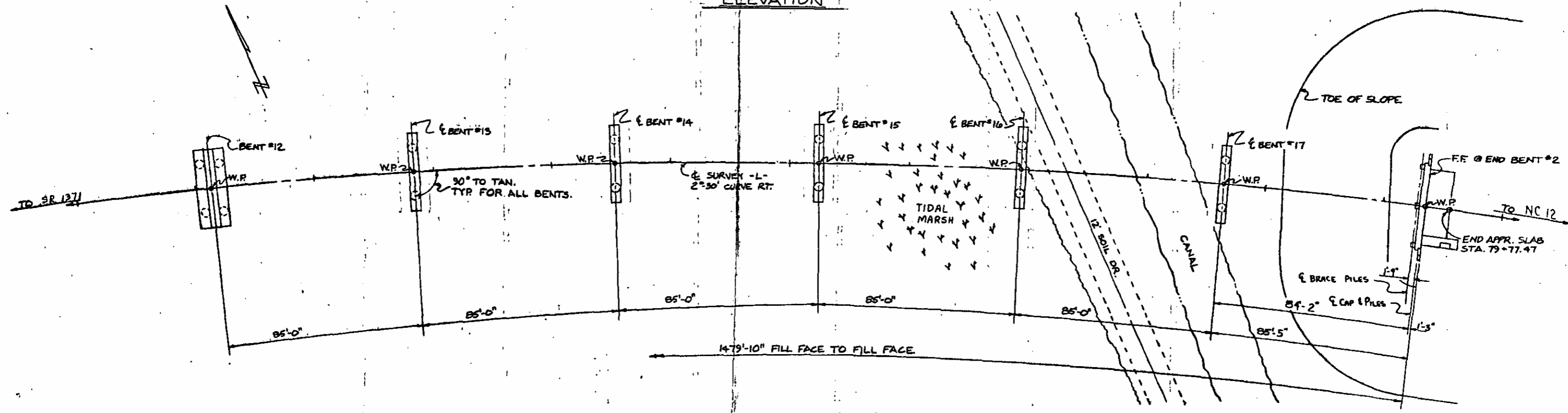
PILES NOT SHOWN IN PLAN VIEW

PROJECT No. 8.1201302  
CARTERET COUNTY  
STATION: 71+60.0 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE ON RELOCATED US 70 OVER SALTER'S CREEK BETWEEN SR 1371 & NC 12 SHEET 2 OF 3					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			2		
2			3		
SHEET NO. 5-A- TOTAL SHEETS 52					



ELEVATION



PLAN

PILES NOT SHOWN IN PLAN VIEW!!

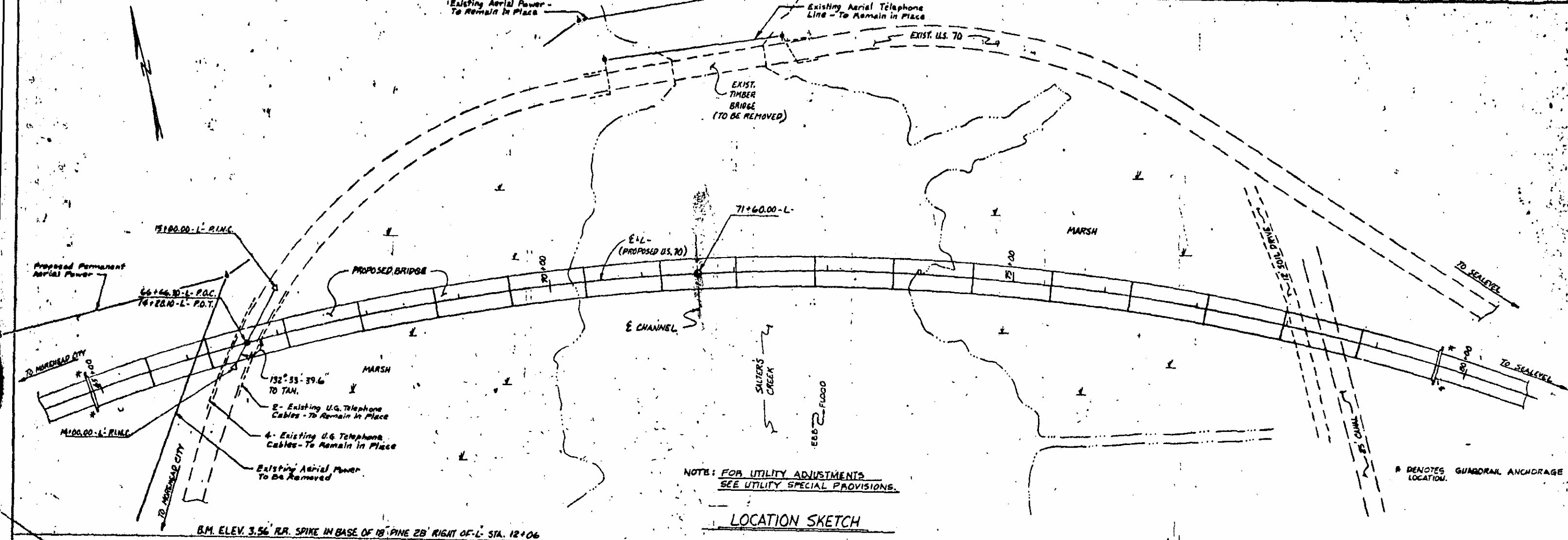
END BRIDGE STA. 79+67.4167  
GRADE FT. ELEVATION = 32.279

PROJECT No. 81201302  
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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
GENERAL DRAWING FOR BRIDGE  
ON RELOCATED US70 OVER  
SALTER'S CREEK BETWEEN SR1371 & NC 12  
SHEET 3 OF 3

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

DRAWN BY: J.R.C. DATE: 3-80  
CHECKED BY: W.S.C. DATE: 6-80



B.M. ELEV. 3.56 R.R. SPIKE IN BASE OF 19" PINE 28' RIGHT OF L. STA. 12+06

B.M. ELEV. 3.93 U.S.C. & G.S. MON. R-288 STANDARD BRASS DISC. IN CONK. 25' RT. OF L. STA. 26+00 P.L.S.L. DATUM

**NOTES**

- ASSUMED LIVE LOAD = HS 20-44 OR ALTERNATE LOADING.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET S-N.
- FOR MAINTENANCE OF TRAFFIC ON EXISTING US 70 UNDER PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.
- AFTER SERVING AS A TEMPORARY CROSSING, THE EXISTING STRUCTURE CONSISTING OF 6 SPANS @ 17'-0" WITH CREOSOTE TIMBER FLOOR AND JOISTS (20'-0" CLEAR ROADWAY WIDTH) ON CREOSOTE TIMBER PILE BENTS, LOCATED APPROXIMATELY 250 FT. UPSTREAM FROM THE PROPOSED STRUCTURE, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
- THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN WATER TRAFFIC IN A MANNER SATISFACTORY TO BOTH THE ENGINEER AND THE U.S. COAST GUARD AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- NO WORK SHALL BE STARTED ON END BENT NOS. 1 & 2 OR BENT NOS. 1 & 17 UNTIL THIRTY (30) DAYS AFTER COMPLETION OF THE FILLS UNLESS APPROVAL IS GRANTED BY THE ENGINEER.
- PILES FOR END BENT NOS. 1 & 2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 40 TONS EACH.
- FOR ALTERNATE BRIDGE DESIGNS, SEE SPECIAL PROVISIONS.
- THE 54" CONCRETE CYLINDER PILES FOR BENT NOS. 1 THRU 17 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 350 TONS EACH.
- THE 54" CONCRETE CYLINDER TEST PILE SHALL BE DRIVEN TO A PENETRATION OF EL. -26.0'. FOR PILE LOAD TEST OF 54" CONCRETE CYLINDER PILES, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT LENGTHS FOR THE 54" CONCRETE CYLINDER PILES WILL BE DETERMINED BY THE ENGINEER AFTER THE PILE LOAD TEST IS CONCLUDED.
- FOR IN PLACE INSPECTION OF 54" CONCRETE CYLINDER PILES, SEE SPECIAL PROVISIONS.
- FOR REINFORCED CONCRETE DECK SLAB, SEE SPECIAL PROVISIONS.
- FOR FABRICATED METAL STAY-IN-PLACE FORMS, SEE SPECIAL PROVISIONS.
- FOR PRESTRESSED CONCRETE PANELS, SEE SPECIAL PROVISIONS.
- FOR EPOXY RESIN COATING FOR 54" CONCRETE CYLINDER PILES IN BENT NOS. 1 THRU 17, SEE SPECIAL PROVISIONS.

PROJECT No. B.1201302  
 CARTERET COUNTY  
 STATION: 71+60.0-L

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 LOCATION SKETCH

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

DRAWN BY: G. OVERTON DATE: 1/10  
 CHECKED BY: M.S.Y. DATE: 2-20

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	REINF. CONC. DECK SLAB	CLASS "A" CONC.	REINF. STEEL	SPIRAL COLUMN REINF. STEEL	54" PREST. CONC. GIRDERS		TREATED TIMBER PILES		12" PREST. CONC. PILES		54" CONC. CYLINDER PILES		PILE LOAD TEST	HP 12x53 STEEL FILES (0.2% COPPER)	CONC. BARRIER RAIL	LINSEED OIL CONC. PROTECTION	BRIDGE APPROACH SLABS	ELASTOMERIC BEARING	PREFORMED COMP. JT. SEAL	NAVIGATIONAL LIGHTING SYSTEM	INSPECTION OF 54" CONCRETE CYLINDER PILES	
	LUMP SUM	SQ. FT.	CU YDS.	LBS.	LBS.	NO.	LN. FT.	NO.	LN. FT.	NO.	LN. FT.	NO.	LN. FT.	EACH	NO.	LN. FT.	LN. FT.	GAL.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	EACH
SUPERSTRUCTURE		51547				90	7367.38									2963.67	124		L.S.		L.S.		
END BENT # 1			16.2	3213						10	510								L.S.		L.S.		
BENT # 1			38.3	7963	324							2	112										
BENT # 2			38.3	7963	324							2	120										
BENT # 3			38.3	7963	324							2	128										
BENT # 4			38.3	7963	324							2	128										
BENT # 5			38.3	7963	324							2	136										
BENT # 6			64.0	15589	648							4	272										
BENT # 7			38.3	7963	324							2	136										
BENT # 8			38.3	7963	324							2	136										
BENT # 9			38.3	7963	324							2	136										
BENT # 10			38.3	9234	324							2	136										
BENT # 11			38.3	7963	324							2	136										
BENT # 12			64.0	15589	648							4	272										
BENT # 13			38.3	7963	324							2	128										
BENT # 14			38.3	7963	324							2	128										
BENT # 15			38.3	7963	324							2	120										
BENT # 16			38.3	7963	324							2	112										
BENT # 17			38.3	7963	324							2	104										
END BENT # 2			16.2	3223						11	561								L.S.		L.S.		
PILE CLUSTERS							36	1080					12	480									
TOTAL	LUMP SUM	51547	734.9	158330	6156	90	7367.38	36	1080	21	1071	38	2440	1	12	480	2963.67	124	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	1

PROJECT No. 8.1201302  
CARTERET COUNTY  
 STATION: 71+60-L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

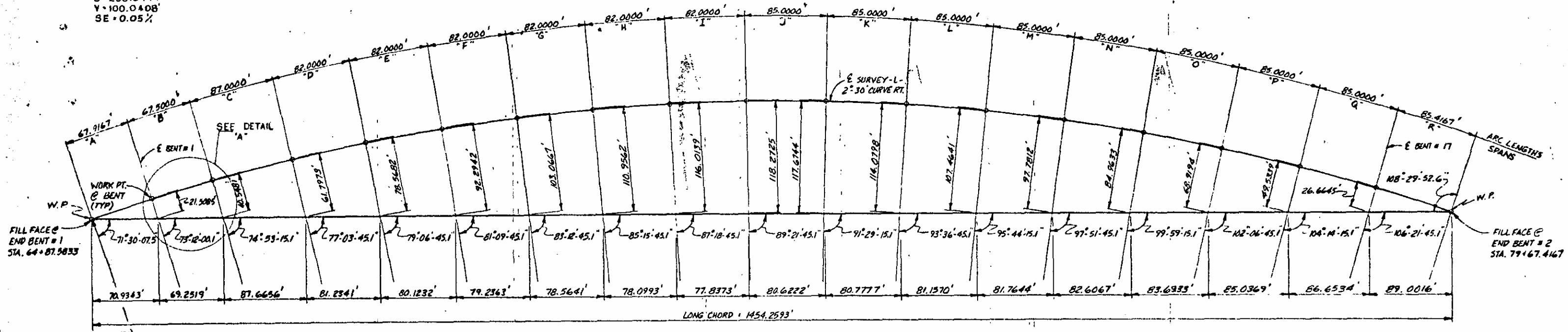
TOTAL BILL OF MATERIAL

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	5-A-3	
1	GWO	11-17-81	2			TOTAL SHEETS	
2			4			52	

REV. # 1: REVISED TOTAL REINFORCING STEEL QUANTITY DUE TO REVISION OF BENT #10. BY: GWO JBY: D.A.

DRAWN BY: G. [unclear] DATE: 8/17  
 CHECKED BY: CHARLES FOPS DATE: 8-30

PI = 72+69.44  
 $\Delta = 88^{\circ}04'43''$  RT.  
 D = 2'-30"  
 Ls = 300.00'  
 Es = 3'-45"  
 Ts = 2367.7967'  
 Lc = 3223.1444'  
 R = 2291.8312'  
 U = 200.0449'  
 V = 100.0408'  
 SE = 0.05%



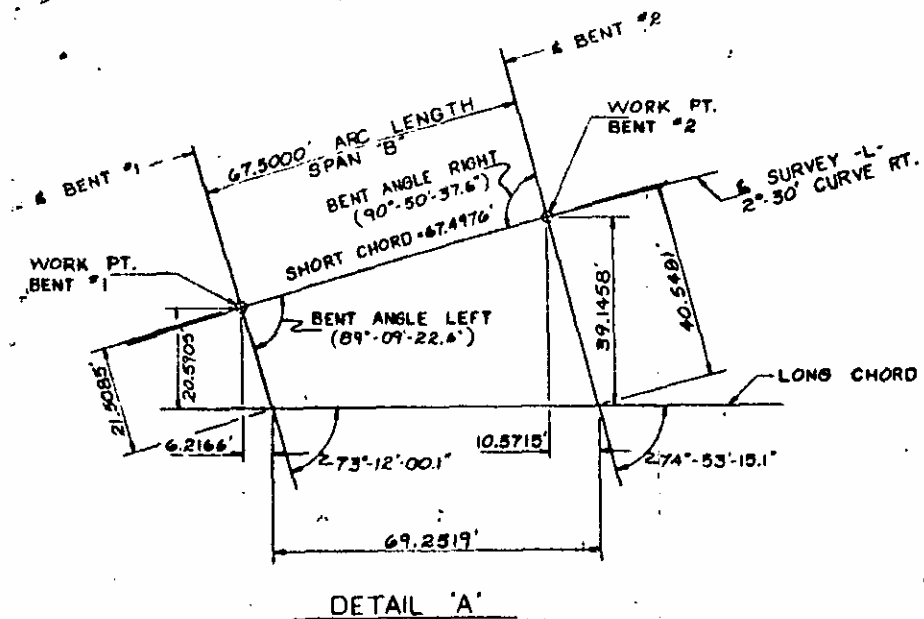
**LONG CHORD LAYOUT**

NOTE: FILL FACE @ END BENTS & E BENTS ARE ON RADIAL LINES.

LONG CHORD DATA					SHORT CHORD DATA				
BENT NO.	ANGLE LCHORD TO BENT	BENT/BENT ALONG LCHORD	BENT/PERP ALONG LCHORD	OFFSET PERP LCHORD	OFFSET ALONG BENT	SPAN	BENT ANGLE LEFT	CHORD LENGTH	BENT ANGLE RIGHT
EB 1	71-30-07.5					A	89-09-03.8	67.9142	90-50-56.3
1	73-12-00.1	70.9343	-6.2166	20.5905	21.5085	B	89-09-22.6	67.4976	90-50-37.6
2	74-53-15.1	69.2519	-10.5715	39.1458	40.5481	C	88-54-45.1	86.9948	91-05-15.1
3	77-03-45.1	87.6656	-13.8357	60.2286	61.7973	D	88-58-30.1	81.9956	91-01-30.1
4	79-06-45.1	81.2341	-14.8401	77.1539	78.5682	E	88-58-30.0	81.9956	91-01-30.0
5	81-09-45.1	80.1232	-14.1794	91.1985	92.2942	F	88-58-30.1	81.9956	91-01-30.1
6	83-12-45.1	79.2363	-12.1812	102.3443	103.0667	G	88-58-30.1	81.9956	91-01-30.1
7	85-15-45.1	78.5641	-9.1640	110.5771	110.9562	H	88-58-30.0	81.9956	91-01-30.0
8	87-18-45.1	78.0993	-5.4397	115.8863	116.0139	I	88-58-30.0	81.9956	91-01-30.0
9	89-21-45.1	77.8373	-1.3159	118.2452	118.2725	J	88-56-15.1	84.9951	91-03-45.1
10	91-29-15.1	80.6222	3.0547	117.6347	117.6744	K	88-56-15.1	84.9951	91-03-45.1
11	93-36-45.1	80.7777	7.1880	113.8532	114.0798	L	88-56-15.0	84.9951	91-03-45.1
12	95-44-15.1	81.1570	10.7433	106.9258	107.4641	M	88-56-15.1	84.9951	91-03-45.1
13	97-51-45.1	81.7644	13.3761	96.8620	97.7812	N	88-56-15.1	84.9951	91-03-45.1
14	99-59-15.1	82.6067	14.7353	83.6757	84.9633	O	88-56-15.0	84.9951	91-03-45.0
15	102-06-45.1	83.6933	14.4615	67.3851	68.9194	O	88-56-15.0	84.9951	91-03-45.1
16	104-14-15.1	85.0369	12.1825	48.0125	49.5339	R	88-55-56.3	85.4118	91-04-03.8
17	106-21-45.1	86.6534	7.5118	25.5848	26.6645				
EB 2	106-29-52.6	89.0016	0.0000	0.0000	0.0000				

TOTAL = 1454.2593

FOR EXAMPLE, SEE DETAIL "A".

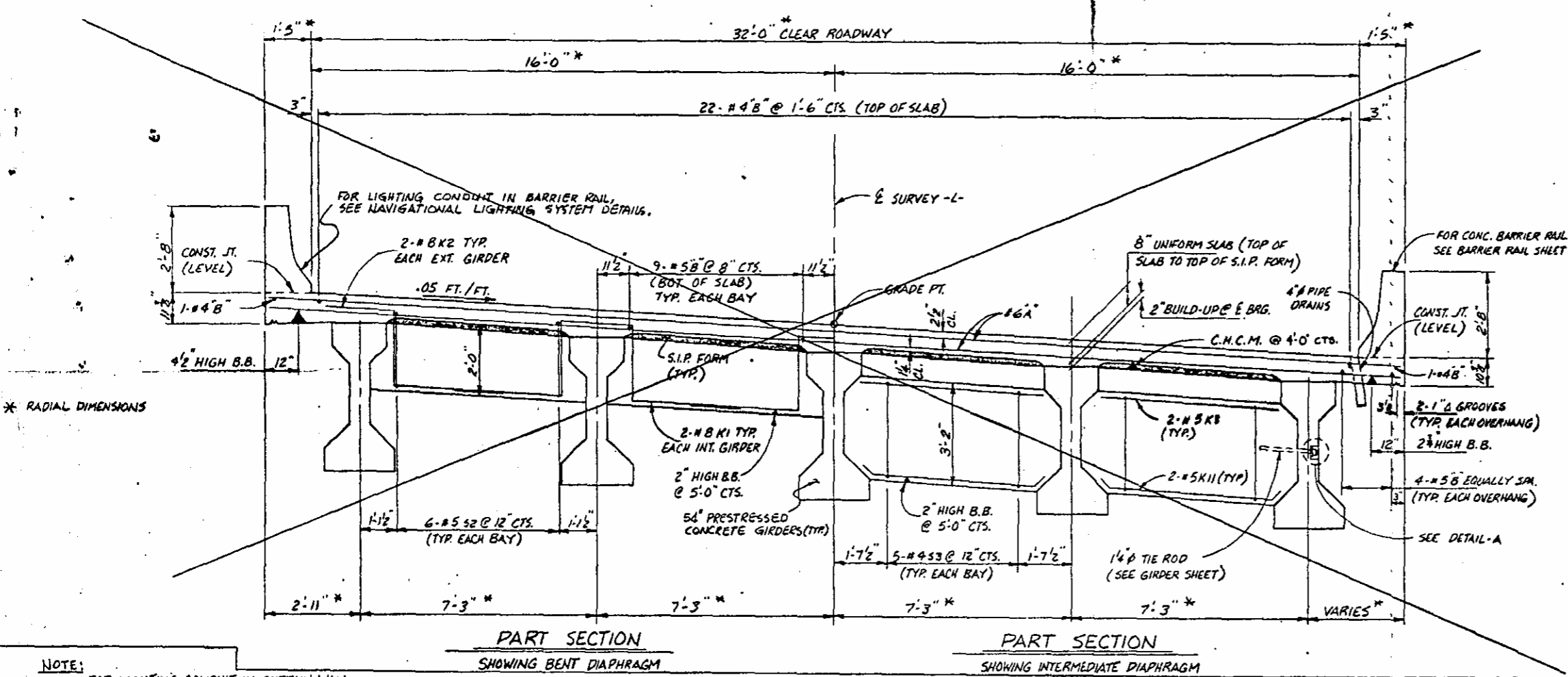


PROJECT NO. B-1201302  
CARTERET COUNTY  
 STATION: 71+60.0-L

STATE OF NORTH CAROLINA  
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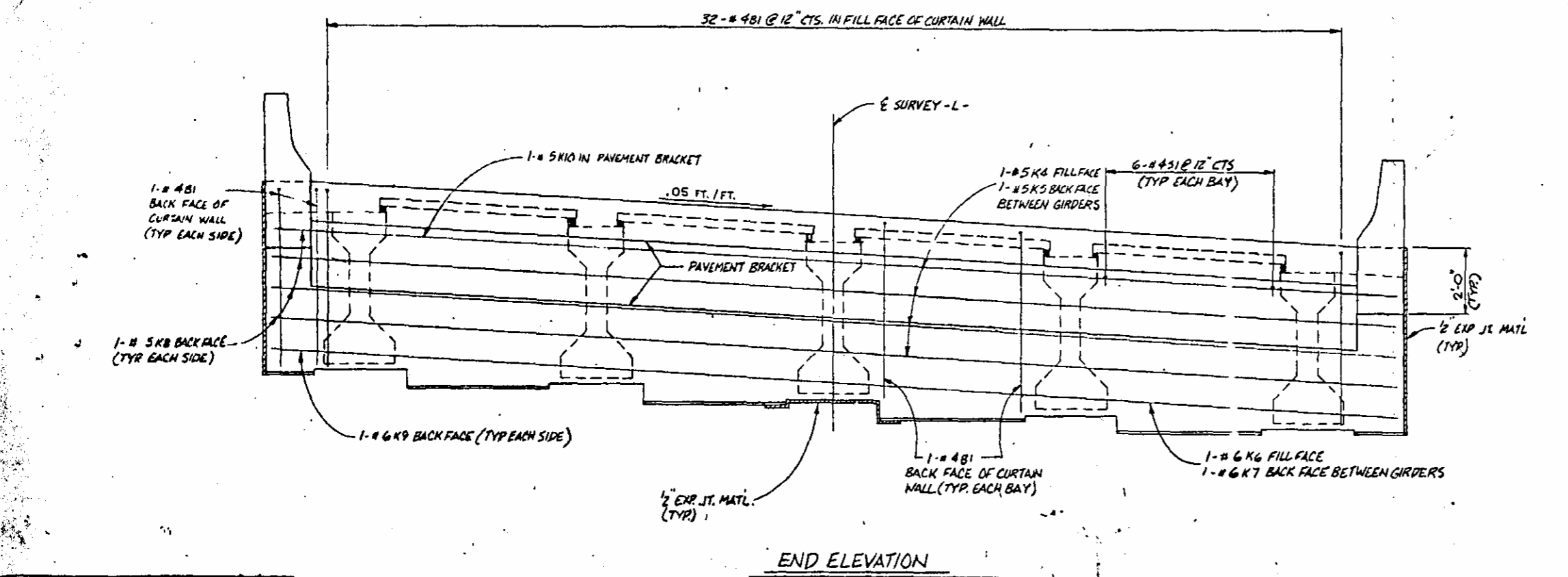
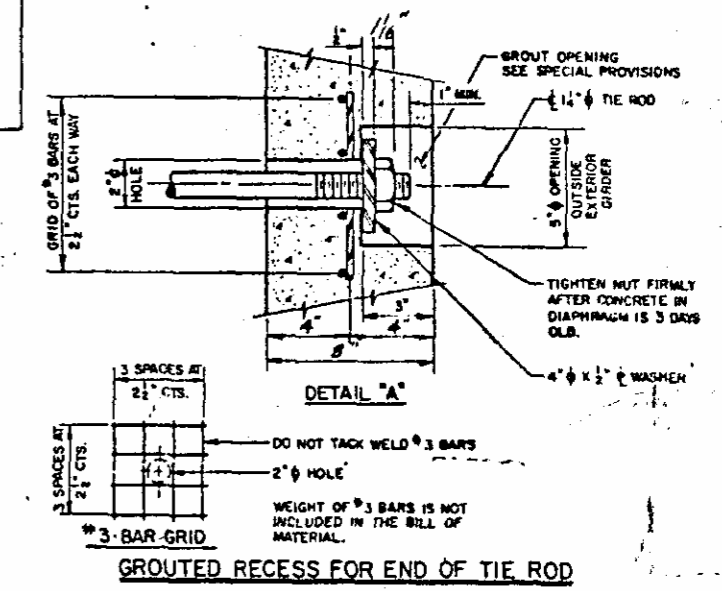
**LONG CHORD LAYOUT**

REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			8		
2			4		



NOTE:  
FOR REINFORCING STEEL BAR SUPPORTS,  
SEE SPECIAL PROVISIONS.

NOTE:  
FOR LIGHTING CONDUIT IN CURTAIN WALL  
AT END BENT # 1, SEE NAVIGATIONAL  
LIGHTING SYSTEM DETAILS.



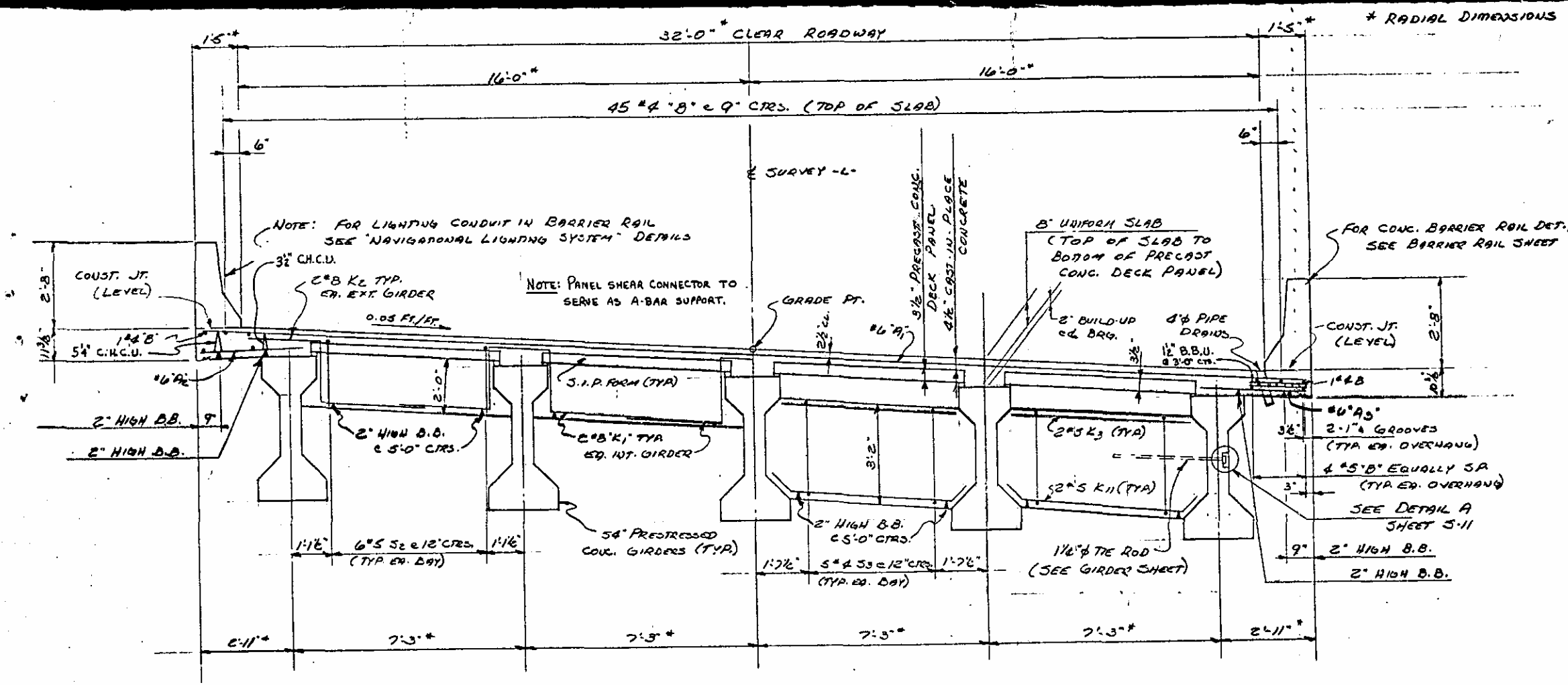
PROJECT No. 8.12.01302  
CARTERET COUNTY  
STATION: 71+60-L

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TYPICAL SECTIONS

REVISIONS						SHEET NO. 5-A-11
NO.	BY	DATE	NO.	BY	DATE	
1	RA	11-4-81	2			TOTAL SHEETS 52
2			3			

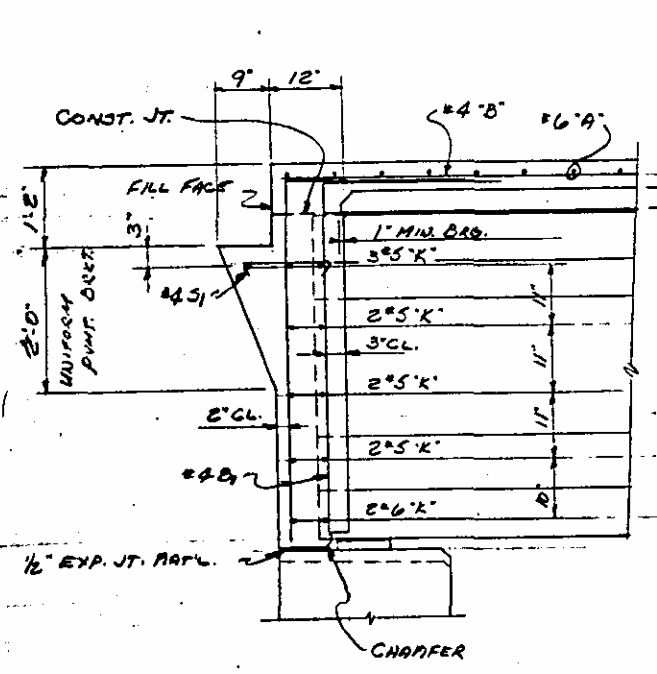
DRAWN BY: G. URRAN  
CHECKED BY: CHARLES PIER

REV. #1: REVISED SECTIONS TO ALLOW USE OF PRECAST  
PRESTRESSED CONCRETE PANELS. ✓ by CEP

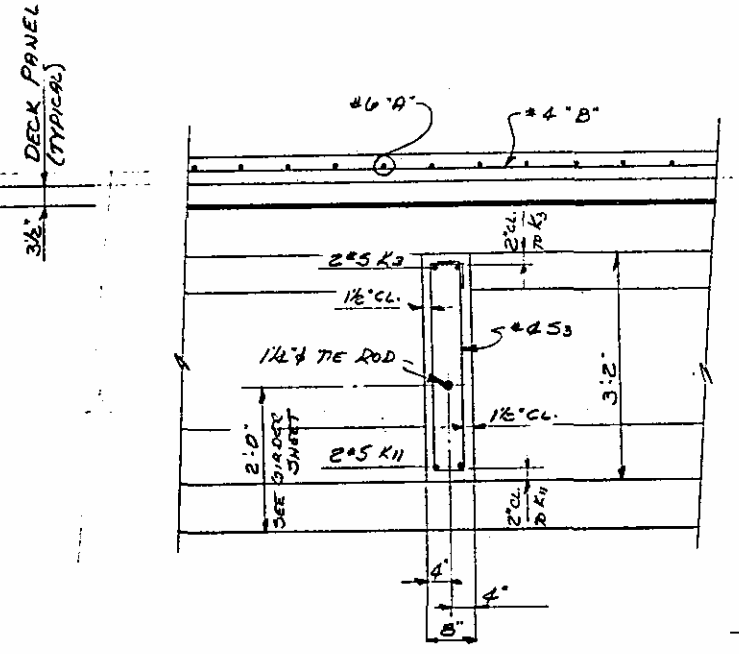


PART SECTION  
SHOWING BEST DIAPHRAGM

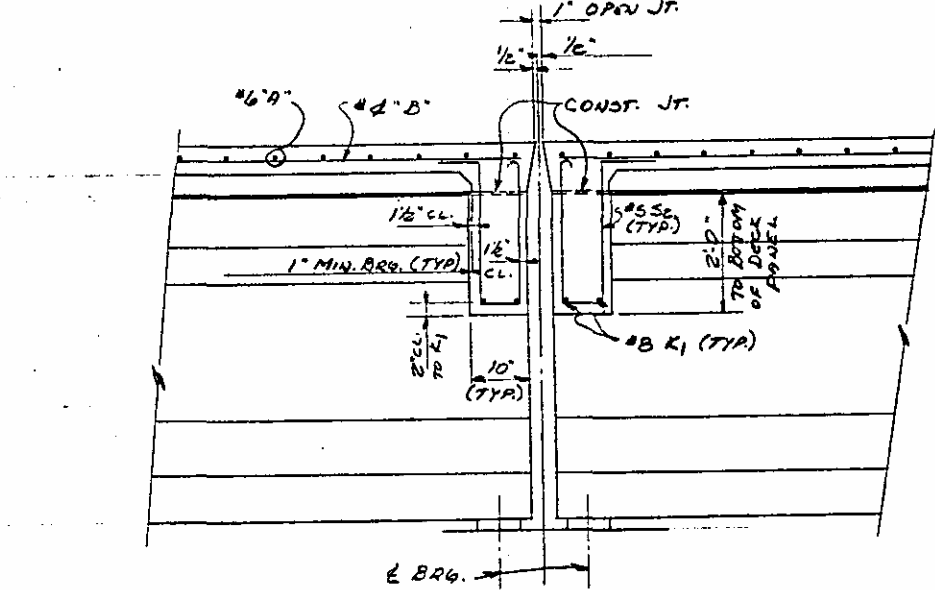
PART SECTION  
SHOWING INTERMEDIATE DIAPHRAGM



SECTION THRU CURTAIN WALL



SECTION THRU  
INTERMEDIATE DIAPHRAGM



SECTION THRU BENT DIAPHRAGM

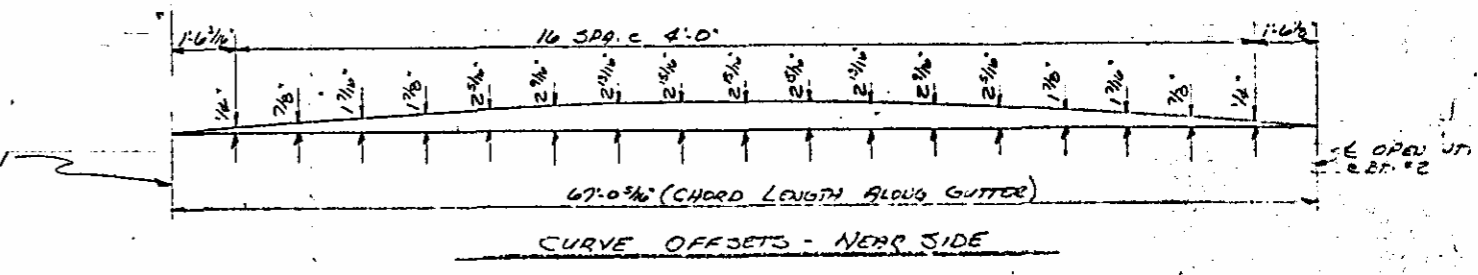
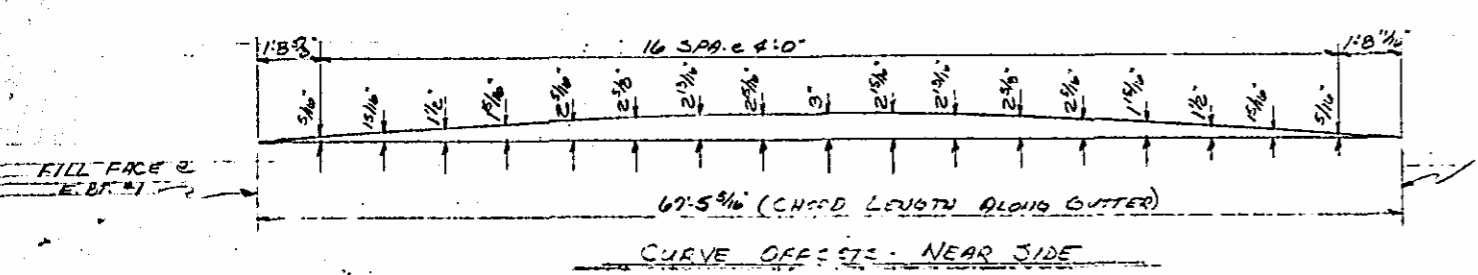
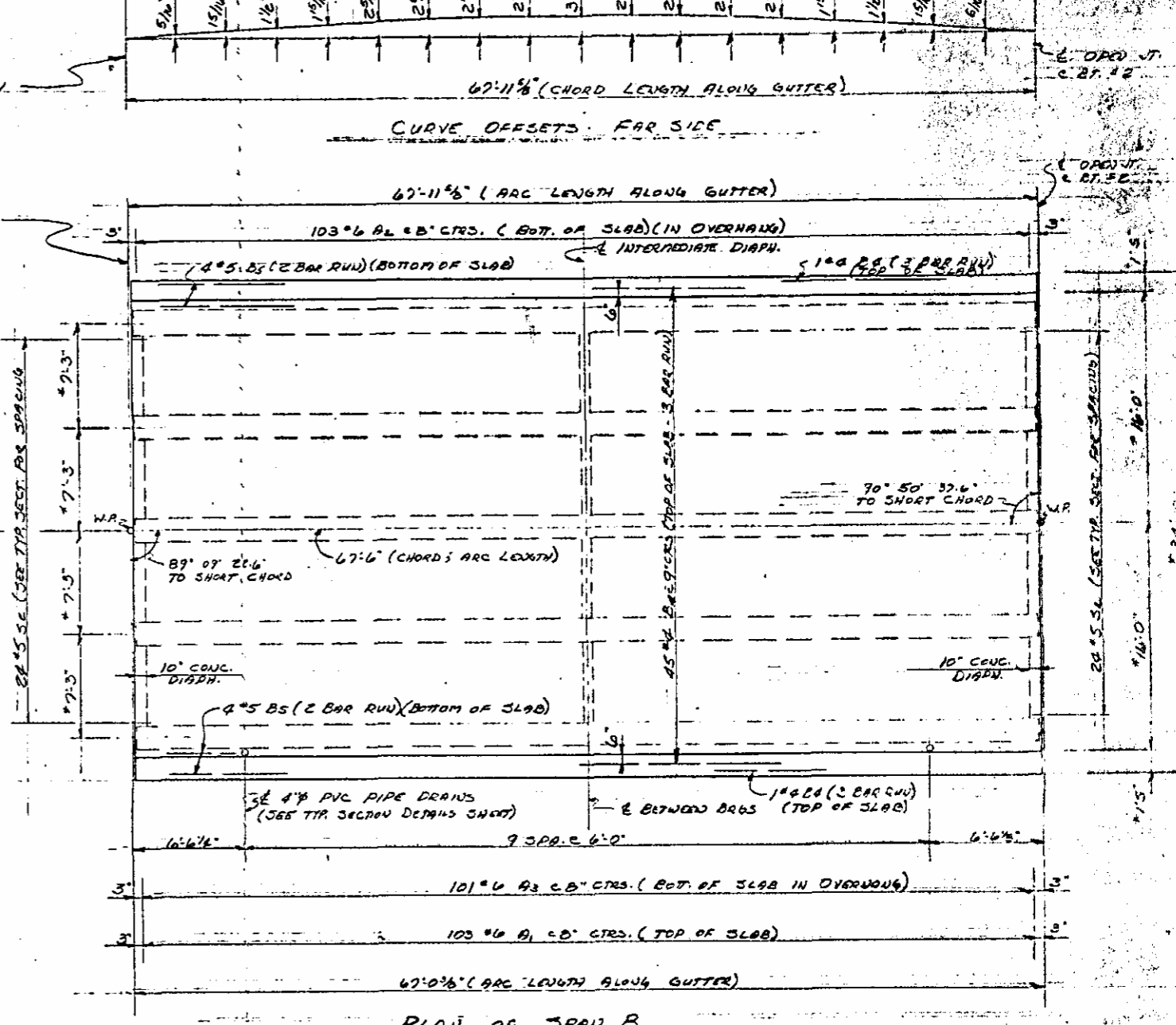
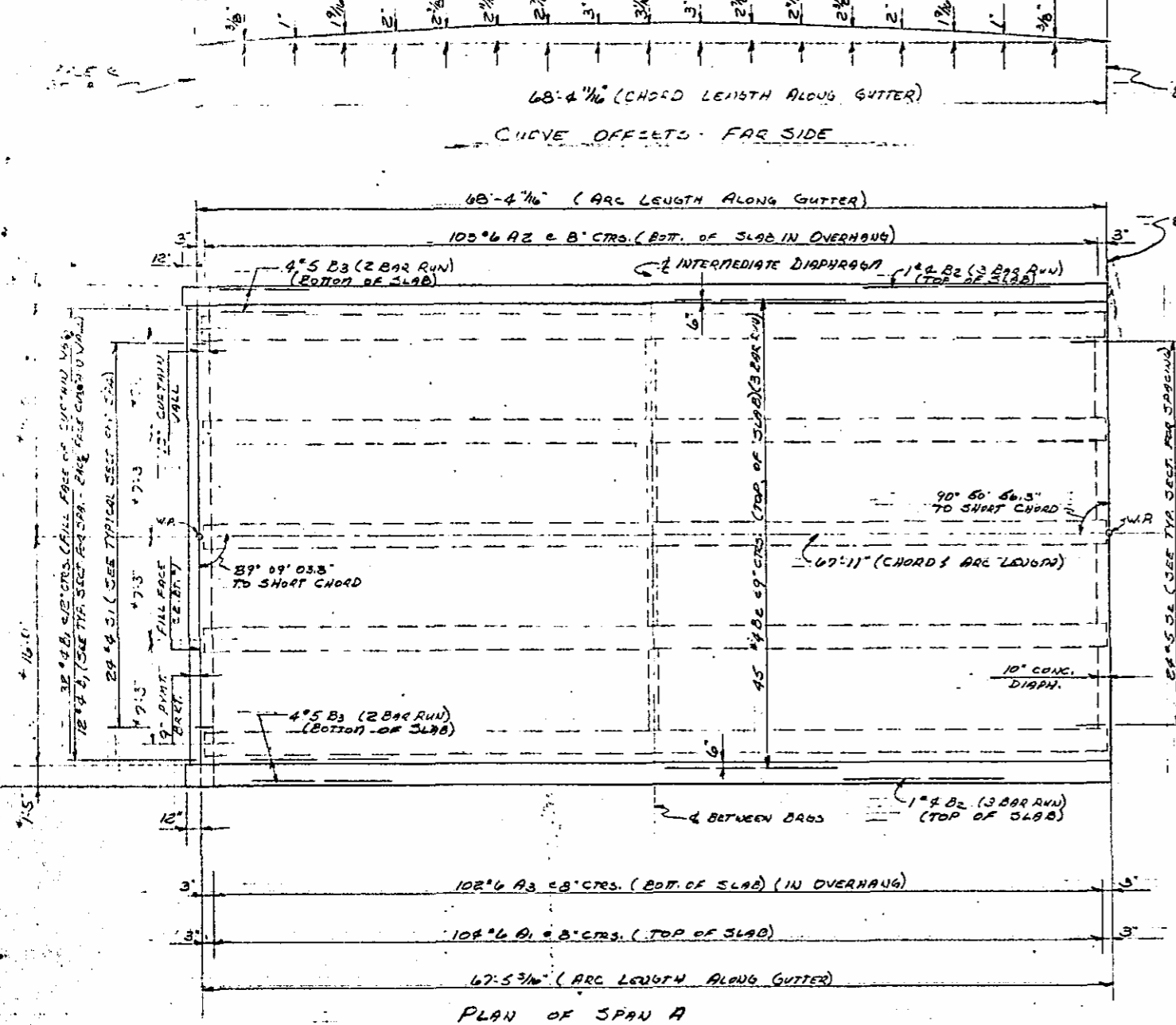
PLANT 4  
GK ENTERPRISES, INC.  
P.O. BOX 4411

DRAWN GK	N.C. DOT PROJ. NO. B-1201302 CARTERET CO. SUPERSTRUCTURE
CR'D. B	
DATE 7-6-81	
TYPICAL SECTION & DETAILS	

SHEET NO.  
5-A-11A  
TOTAL SHEETS  
52

REV 10-14-81  
REV B-11-81





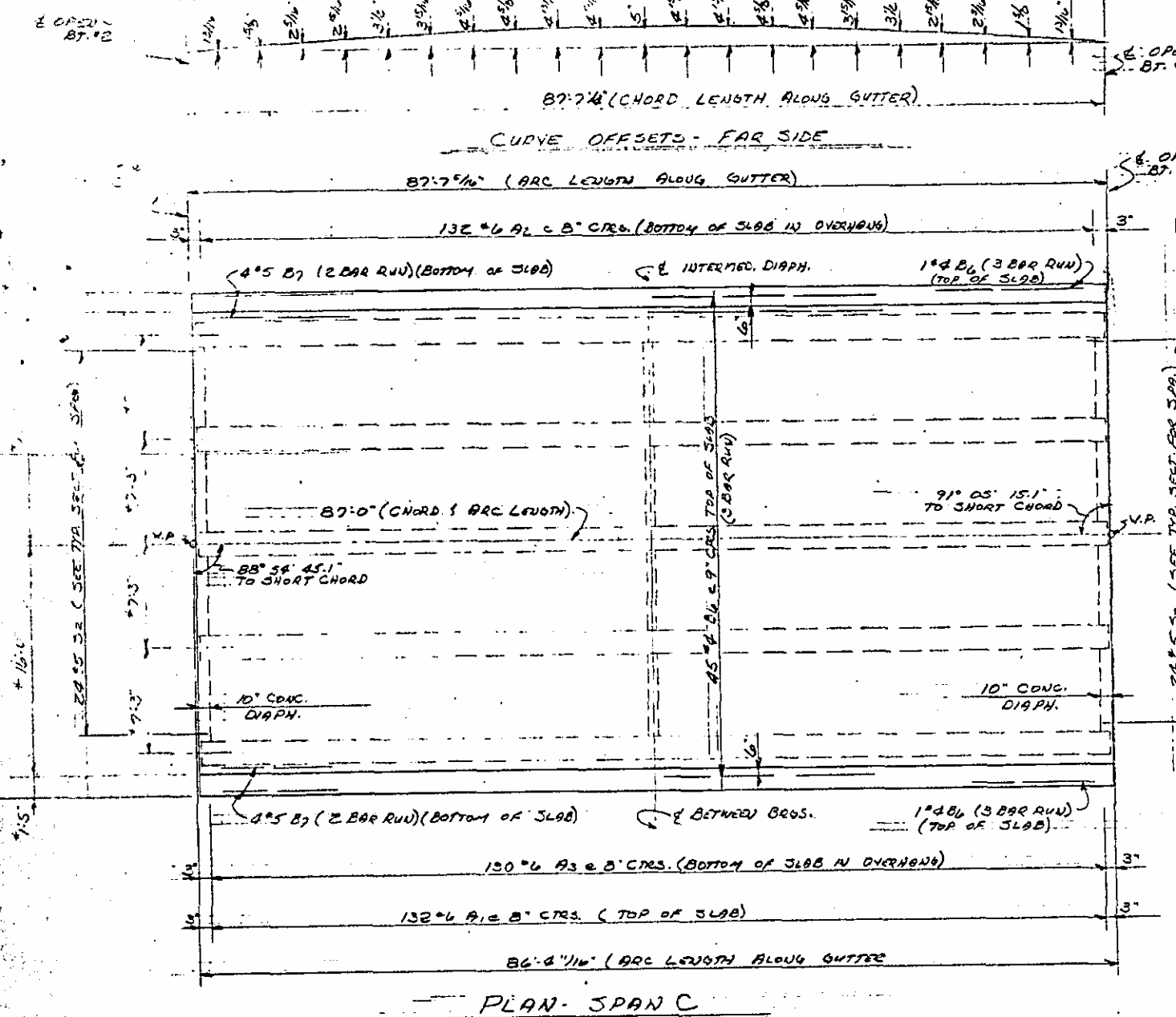
\* RADIAL DIMENSION

SHEET NO. 5A-13A  
 TOTAL SHEETS 52

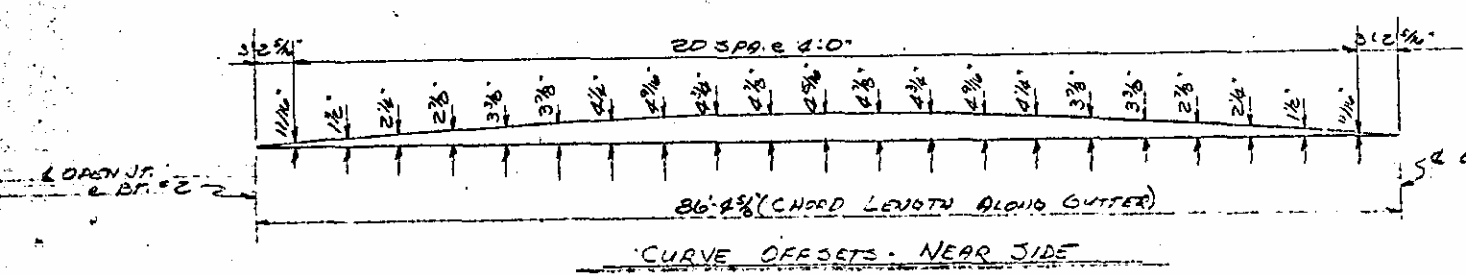
PLANT 4  
 GK ENTERPRISES, INC  
 P.O. BOX 8411  
 WILMINGTON, N.C. 28406

DESIGN NCDOT FID. NO. B-100102  
 CONTRACT CARTERET CO.  
 SUPERSTRUCTURE  
 PLAN OF SPAN A & B  
 DATE 7-6-81  
 T.A. LOYD & CO.

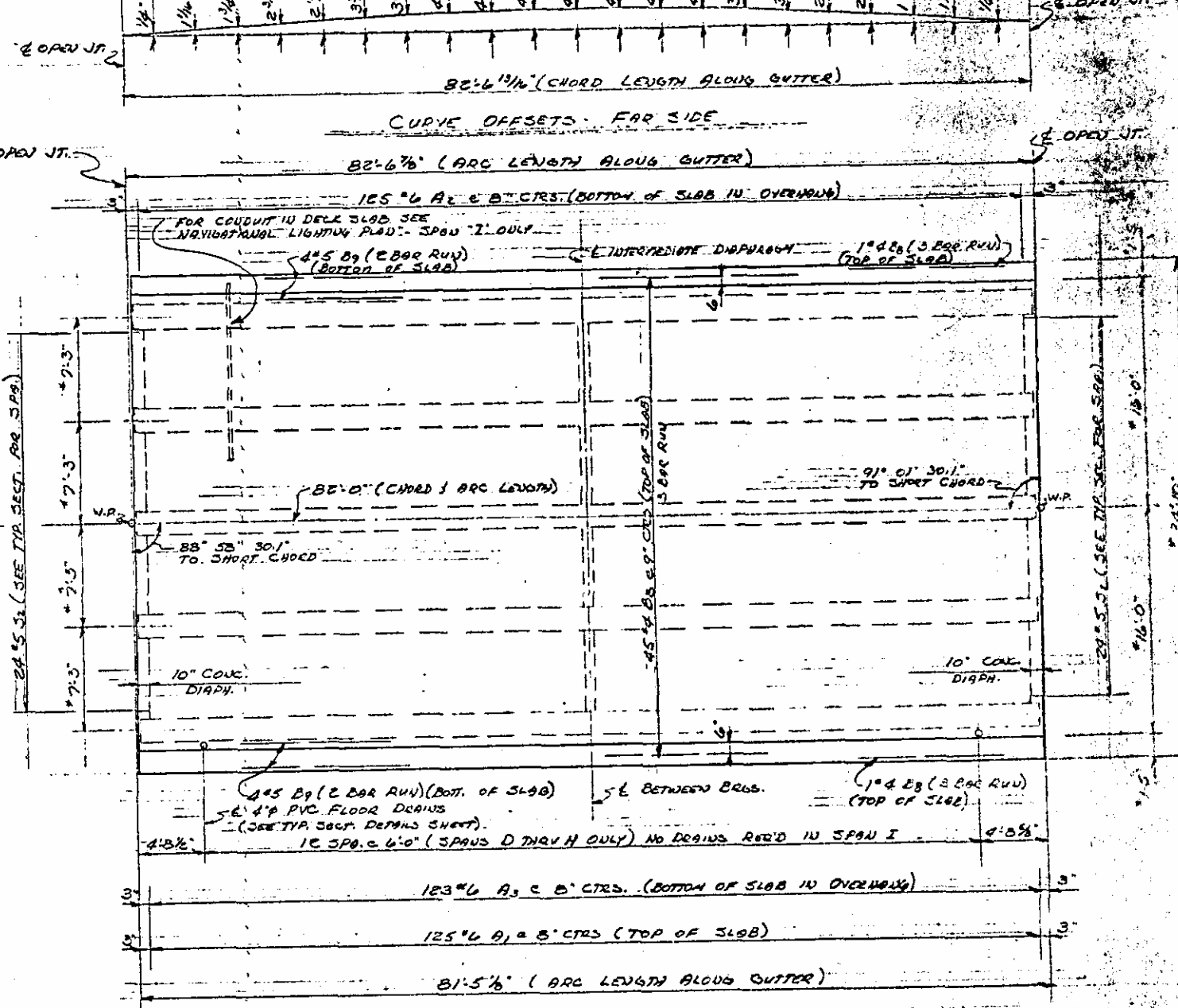
2 OPEN JTS  
BT #2



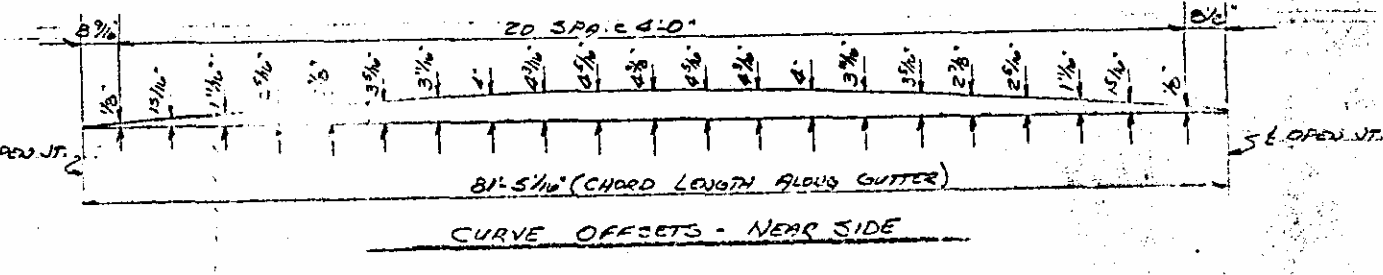
PLAN - SPAN C



CURVE OFFSETS - NEAR SIDE



PLAN OF SPANS D THRU I



CURVE OFFSETS - NEAR SIDE

\* RADIAL DISCUSSION

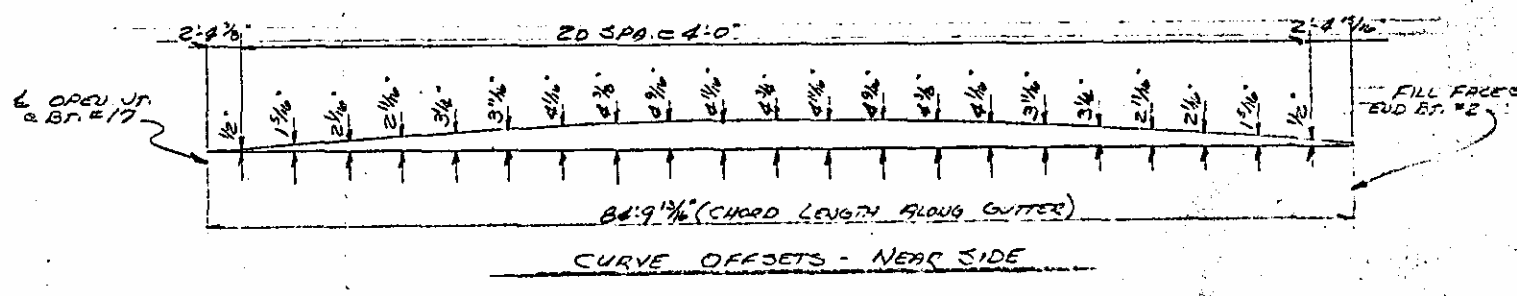
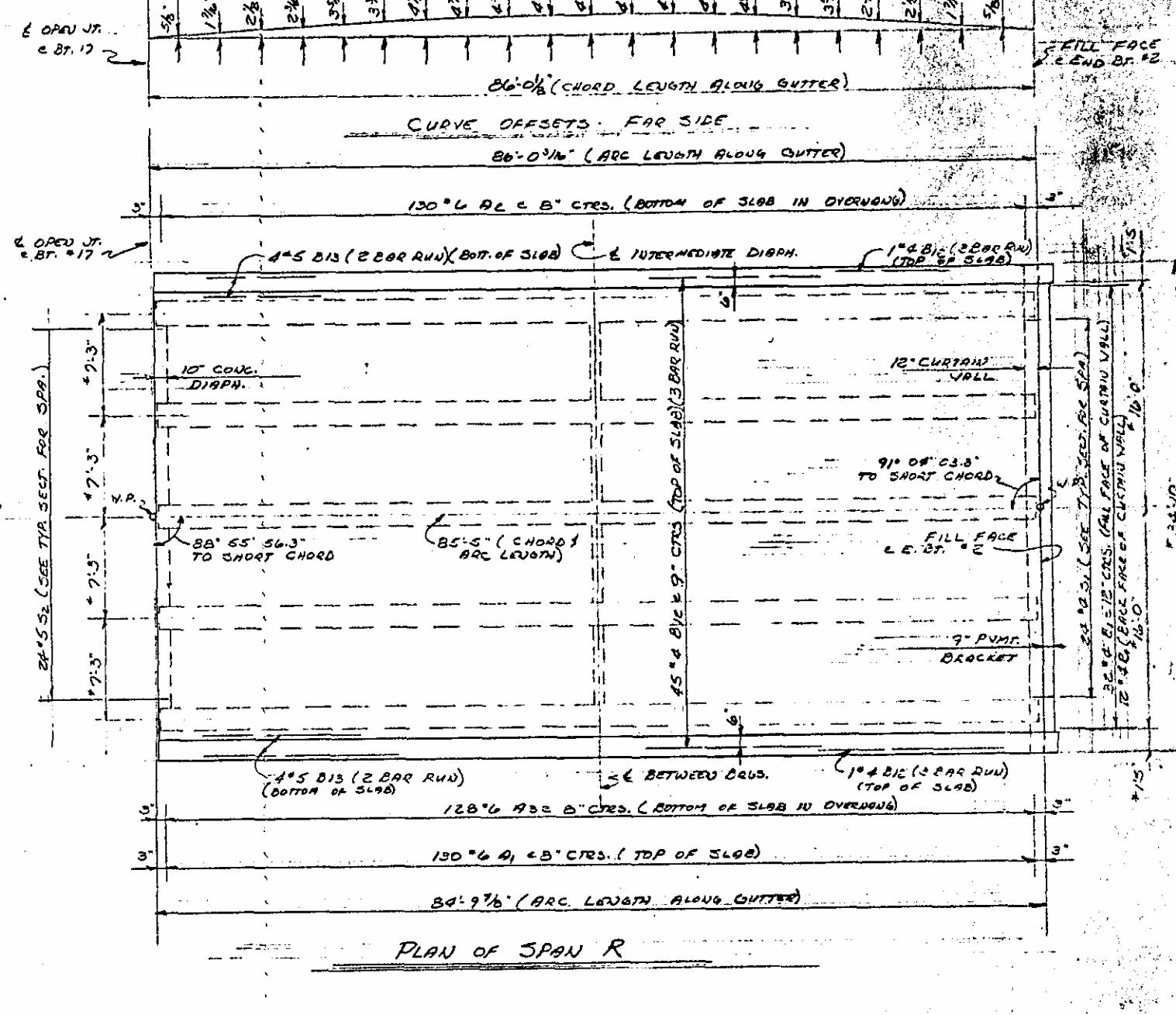
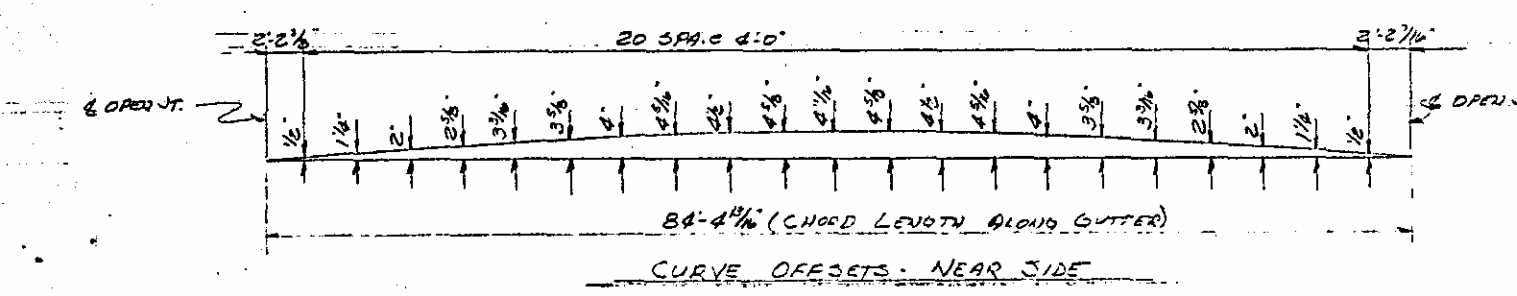
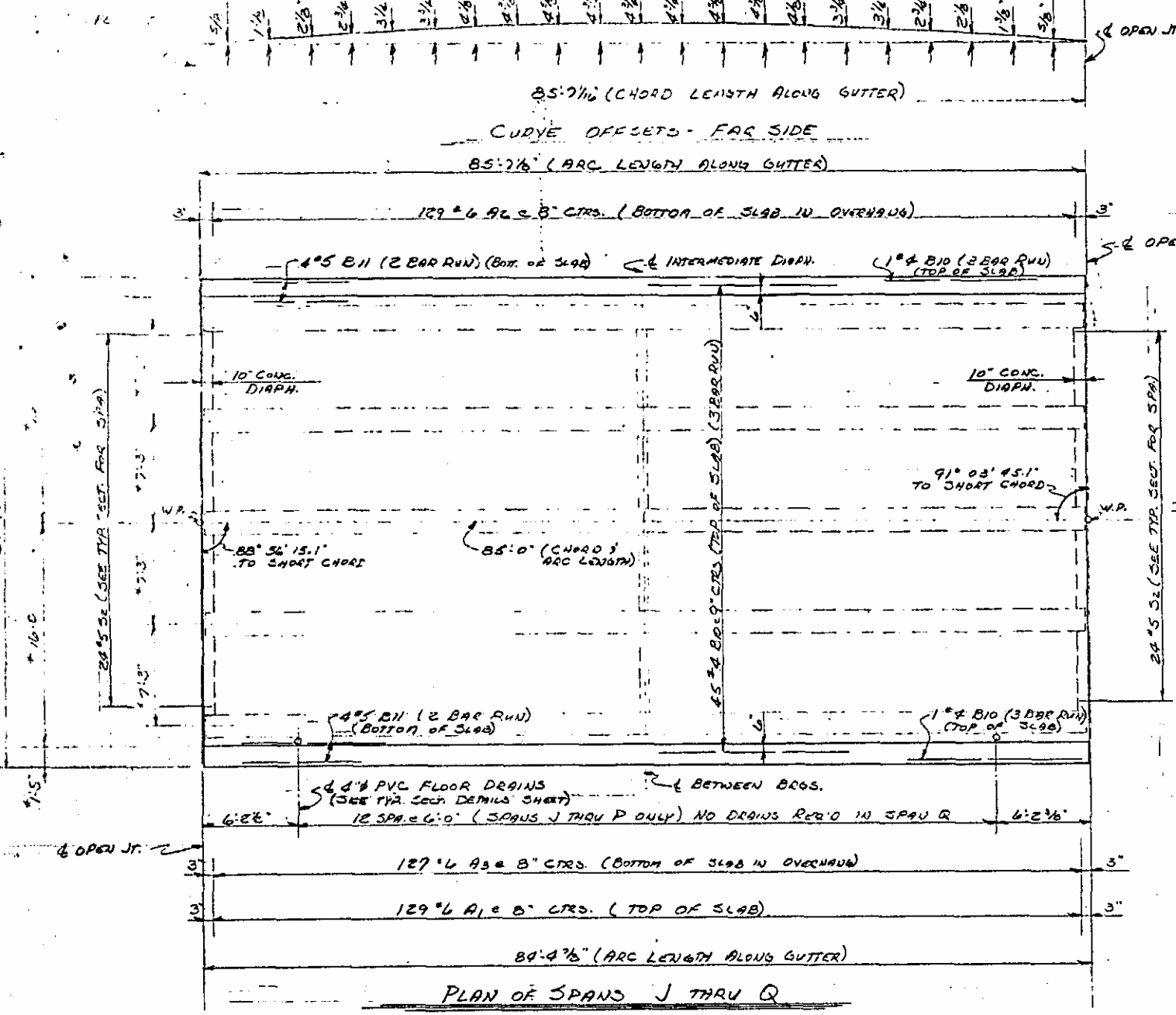
SHEET NO.  
S-A-44A  
TOTAL SHEETS  
52

REV. 8-11-81

PLANT 4

GK ENTERPRISES, INC.  
P.O. BOX 2411  
WILMINGTON, N.C. 28406

DESIGN	NCDOT Proj. No. B-1001302
CHK'D	CARTER CO.
BY	SUPERSTRUCTURE
DATE	PLAN OF SPANS C THRU I
7-6-81	
JOB NO.	T.A. LOVINS CO.



\* RADIAL DIMENSION

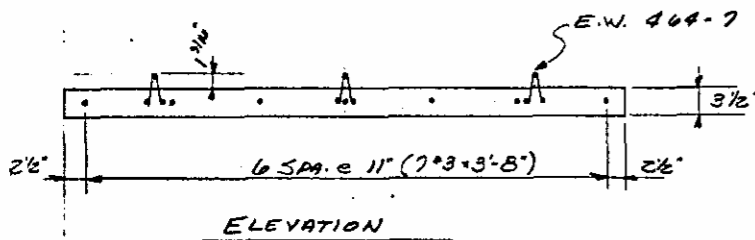
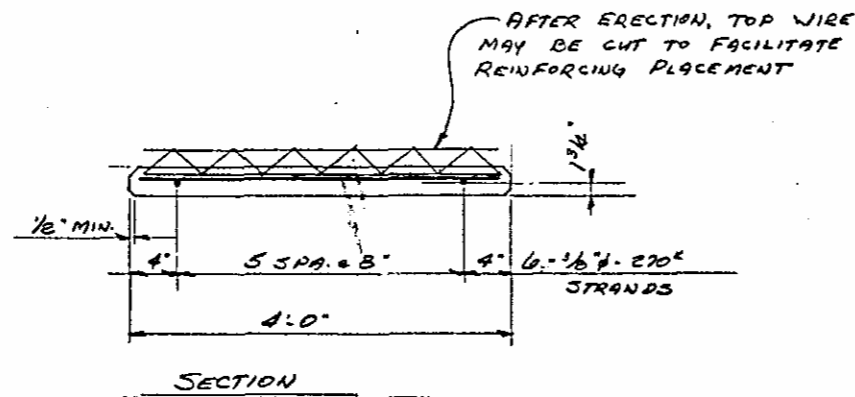
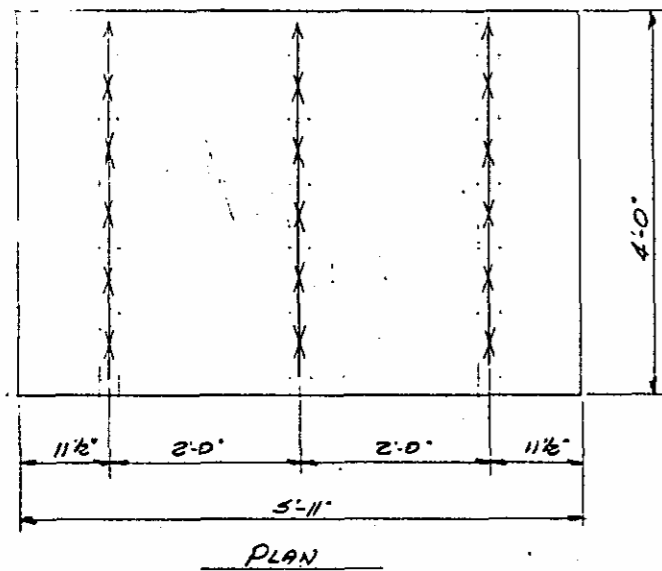
SHEET NO. 5-A-15A  
 TOTAL SHEETS 52

REV. 8-11-81

PLANT 4

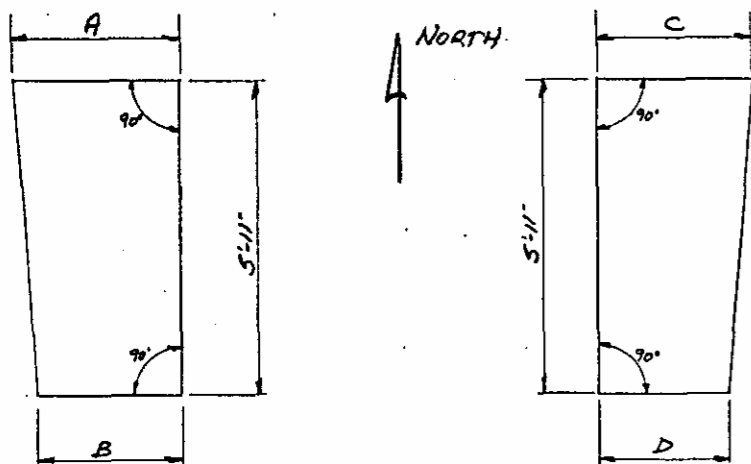
GK ENTERPRISES, INC.  
 P.O. BOX 441  
 WILMINGTON, N.C. 28406

DRAWN	NCDOT PROJ. NO. E 1801302
CHK'D	CARTER CO.
BY	SUPERSTRUCTURE
DATE	PLAN OF SPANS J THRU R
7-6-81	
SCALE	T.A. LOVING CO.



SHEAR CONNECTOR  
TOP WIRE V 4.7  
BOTTOM WIRES V 2.1  
DIAGONAL WIRES V 2.1  
SHEAR AREA =  $(.042)(2)(\frac{12}{8}) = 0.126 \text{ IN}^2/\text{FT. LGTH.}$

DETAILS P<sub>1</sub> - REINFORCING SIZES AND SPACING FOR P<sub>2</sub> THRU P<sub>49</sub> SIMILAR



CONFIGURATION OF EVEN MARK PANELS P<sub>2</sub> THRU P<sub>48</sub>

CONFIGURATION OF ODD MARK PANELS P<sub>3</sub> THRU P<sub>49</sub>

DIMENSIONS P <sub>2</sub> THRU P <sub>49</sub>				
MARK	A	B	MARK	D
P <sub>2</sub>	3'-4"	3'-3"	P <sub>3</sub>	3'-1 1/8"
P <sub>4</sub>	3'-2 1/2"	3'-1 3/8"	P <sub>5</sub>	3'-0 1/8"
P <sub>6</sub>	3'-1 1/8"	3'-0"	P <sub>7</sub>	2'-11 1/8"
P <sub>8</sub>	2'-11 3/4"	2'-10 3/4"	P <sub>9</sub>	2'-10 1/8"
P <sub>10</sub>	3'-0 1/2"	2'-11 1/2"	P <sub>11</sub>	3'-0 1/8"
P <sub>12</sub>	2'-11 1/4"	2'-10 1/4"	P <sub>13</sub>	2'-11"
P <sub>14</sub>	2'-10"	2'-9"	P <sub>15</sub>	2'-9 1/4"
P <sub>16</sub>	2'-8 5/8"	2'-7 3/8"	P <sub>17</sub>	2'-8 1/2"
P <sub>18</sub>	2'-10"	2'-8 3/4"	P <sub>19</sub>	2'-10 1/8"
P <sub>20</sub>	2'-8 1/2"	2'-7 1/4"	P <sub>21</sub>	2'-8 1/8"
P <sub>22</sub>	2'-6 1/4"	2'-5 1/2"	P <sub>23</sub>	2'-6 1/4"
P <sub>24</sub>	2'-5 1/4"	2'-3 3/8"	P <sub>25</sub>	2'-5 1/4"
P <sub>26</sub>	2'-4"	2'-2 3/4"	P <sub>27</sub>	2'-3 3/8"
P <sub>28</sub>	2'-2 1/2"	2'-1 1/4"	P <sub>29</sub>	2'-2 1/4"
P <sub>30</sub>	2'-0 1/8"	1'-11 1/8"	P <sub>31</sub>	2'-0 3/4"
P <sub>32</sub>	1'-11 1/4"	1'-10"	P <sub>33</sub>	1'-11 1/4"
P <sub>34</sub>	3'-10"	3'-8 3/4"	P <sub>35</sub>	3'-10"
P <sub>36</sub>	3'-8 1/2"	3'-7 1/4"	P <sub>37</sub>	3'-8 1/4"
P <sub>38</sub>	3'-6 3/4"	3'-5 1/2"	P <sub>39</sub>	3'-6 3/4"
P <sub>40</sub>	3'-5 1/4"	3'-4"	P <sub>41</sub>	3'-5 1/8"
P <sub>42</sub>	1'-11 3/4"	1'-10 5/8"	P <sub>43</sub>	2'-1 1/8"
P <sub>44</sub>	1'-10 1/4"	1'-9"	P <sub>45</sub>	1'-11 5/8"
P <sub>46</sub>	1'-8 5/8"	1'-7 1/4"	P <sub>47</sub>	1'-10"
P <sub>48</sub>	1'-7"	1'-5 3/4"	P <sub>49</sub>	1'-8 3/8"

NOTES:

1.  $f'_c = 5000 \text{ psi}$  c EB DAYS
2. TRANSFER STRENGTH 4000 psi.
3. STRAND ASTM A-416 3/8" - 270K
4. INITIAL TENSION 16,100 LBS. PER STRAND
5. ROUGHEN TOP OF DECK FORM BY RAKING TO A DEPRESSION OF APPROX 1/4"
6. DIMENSIONAL TOLERANCES:
  - a) FORM SECTION LENGTH  $-0; +1"$
  - b) " " WIDTH  $-1/8"; +1/4"$
  - c) " " DEPTH  $-0; +1/8"$
  - d) POSITION OF STRAND VERTICAL  $\pm 1/8"$   
HORIZONTAL  $\pm 1/2"$
7. DECK PANEL BEARING MATERIAL MINIMUM 55 LB. ROOFING FELT BUILD UP TO REQUIRED THICKNESS WITH 1/2" WIDE ASPHALT IMPREGNATED FELT EXPANSION JOINT MATERIAL
8. DECK PANELS TO CONFORM TO SECTION 97B OF THE 1978 STANDARD NCDOT SPECIFICATIONS

6 STRANDS/PANEL: P<sub>34</sub>, P<sub>36</sub>

6 STRANDS/PANEL: P<sub>35</sub>, P<sub>37</sub>

5 STRANDS/PANEL: P<sub>2</sub>, P<sub>4</sub>, P<sub>6</sub>, P<sub>8</sub>, P<sub>10</sub>, P<sub>12</sub>, P<sub>38</sub>, P<sub>40</sub>

5 STRANDS/PANEL: P<sub>3</sub>, P<sub>5</sub>, P<sub>7</sub>, P<sub>11</sub>, P<sub>13</sub>, P<sub>39</sub>, P<sub>41</sub>

4 STRANDS/PANEL: P<sub>14</sub>, P<sub>16</sub>, P<sub>18</sub>, P<sub>20</sub>, P<sub>22</sub>, P<sub>24</sub>, P<sub>26</sub>

4 STRANDS/PANEL: P<sub>9</sub>, P<sub>15</sub>, P<sub>17</sub>, P<sub>19</sub>, P<sub>21</sub>, P<sub>23</sub>, P<sub>25</sub>, P<sub>27</sub>

3 STRANDS/PANEL: P<sub>28</sub>, P<sub>30</sub>, P<sub>32</sub>, P<sub>42</sub>, P<sub>44</sub>, P<sub>46</sub>, P<sub>48</sub>

3 STRANDS/PANEL: P<sub>29</sub>, P<sub>31</sub>, P<sub>33</sub>, P<sub>43</sub>, P<sub>45</sub>, P<sub>47</sub>, P<sub>49</sub>

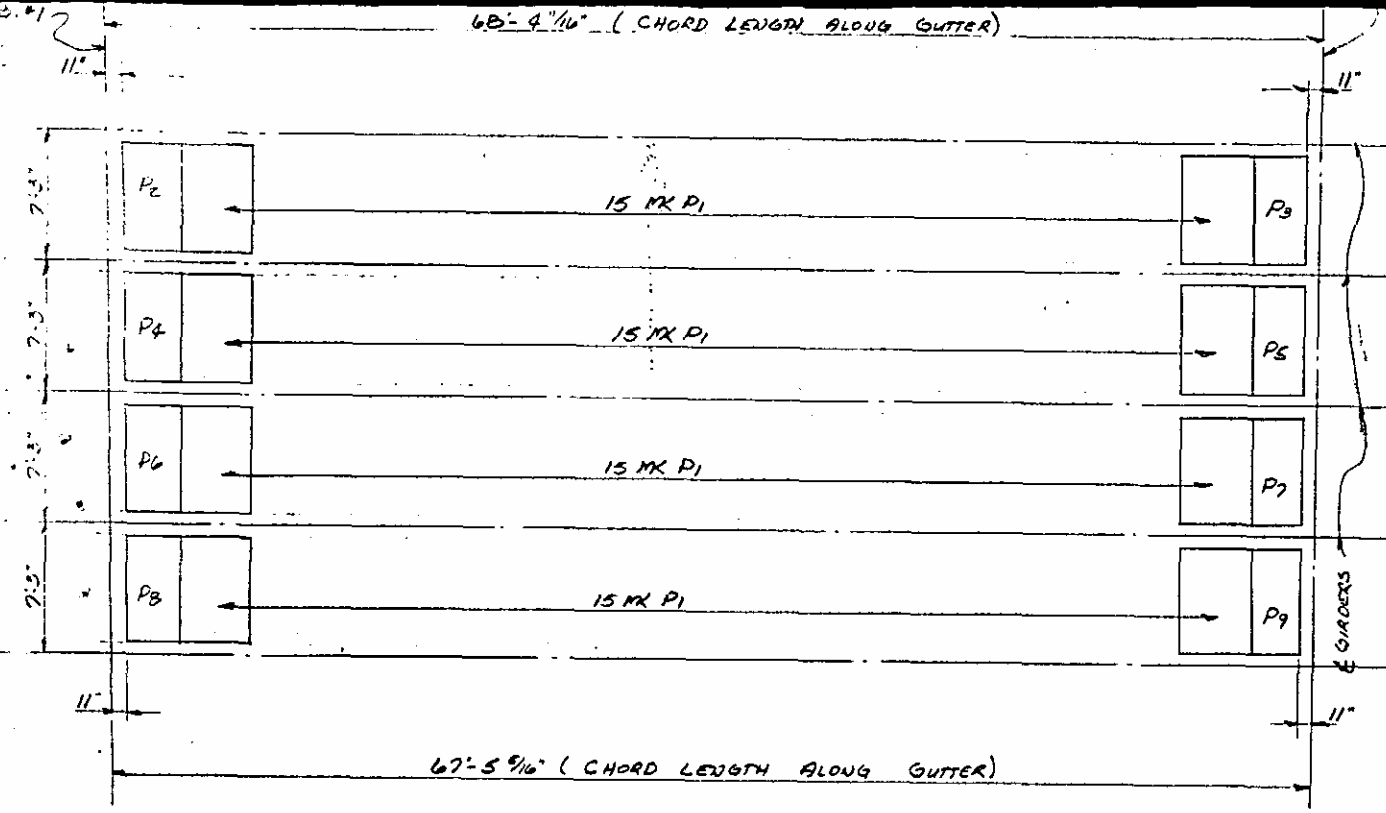
SHEET NO. S-A-15B  
TOTAL SHEETS 52

REV. 11-2-81  
REV. 10-14-81

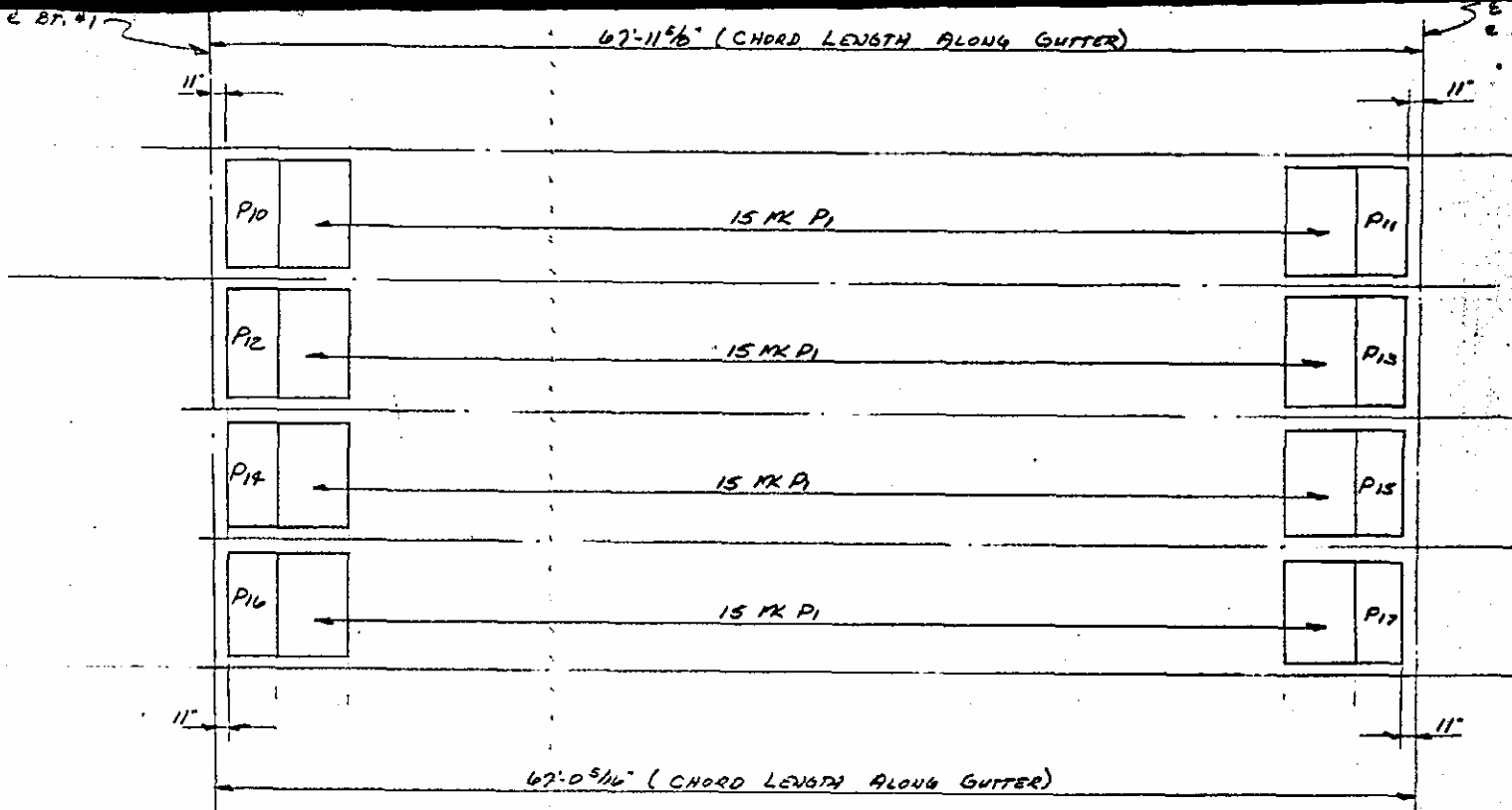
DRAWN	NCDOT PROJECT NO. B-1201302
CHKD	CARTERET CO.
DATE	DECK PANEL DETAILS
B-18-81	
JOB NO.	T.A. LOVING CO.

PLANT 4

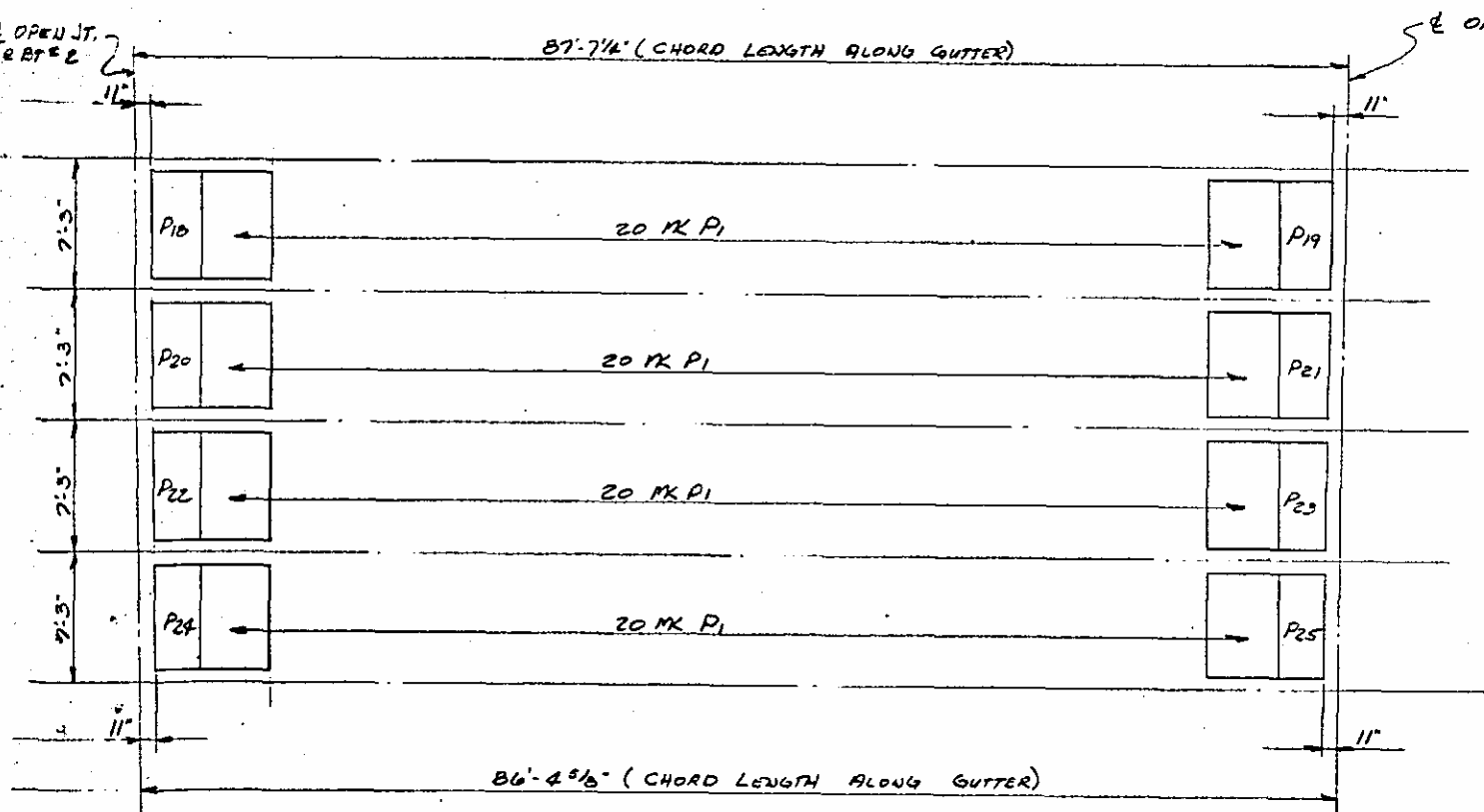
GK ENTERPRISES, INC.  
P.O. BOX 4411  
WILMINGTON, N.C. 28406



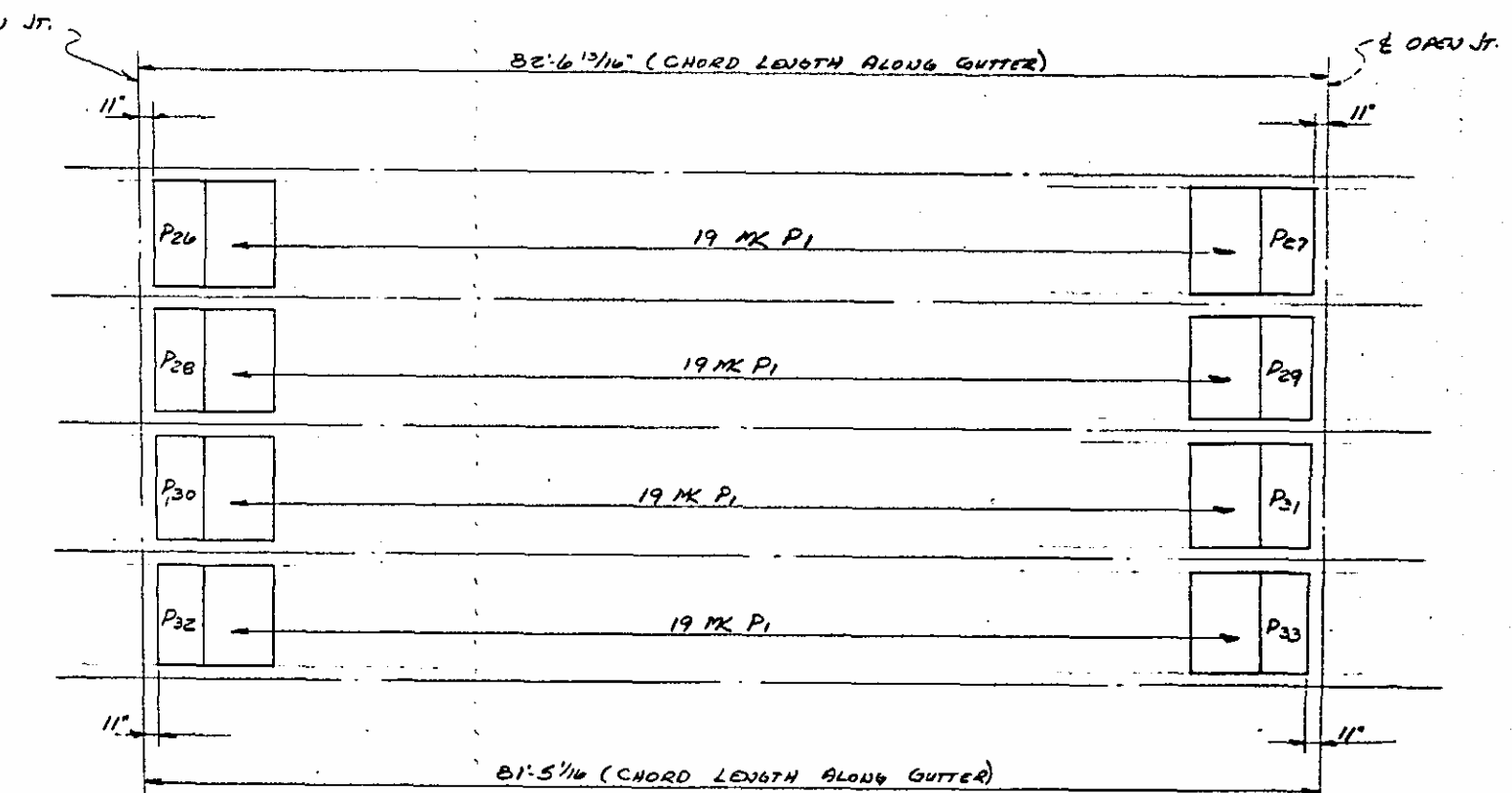
SPAN A DECK PANEL LAYOUT



SPAN B DECK PANEL LAYOUT



SPAN C DECK PANEL LAYOUT



SPAN D DECK PANEL LAYOUT  
(SPANS E THRU I SIMILAR)

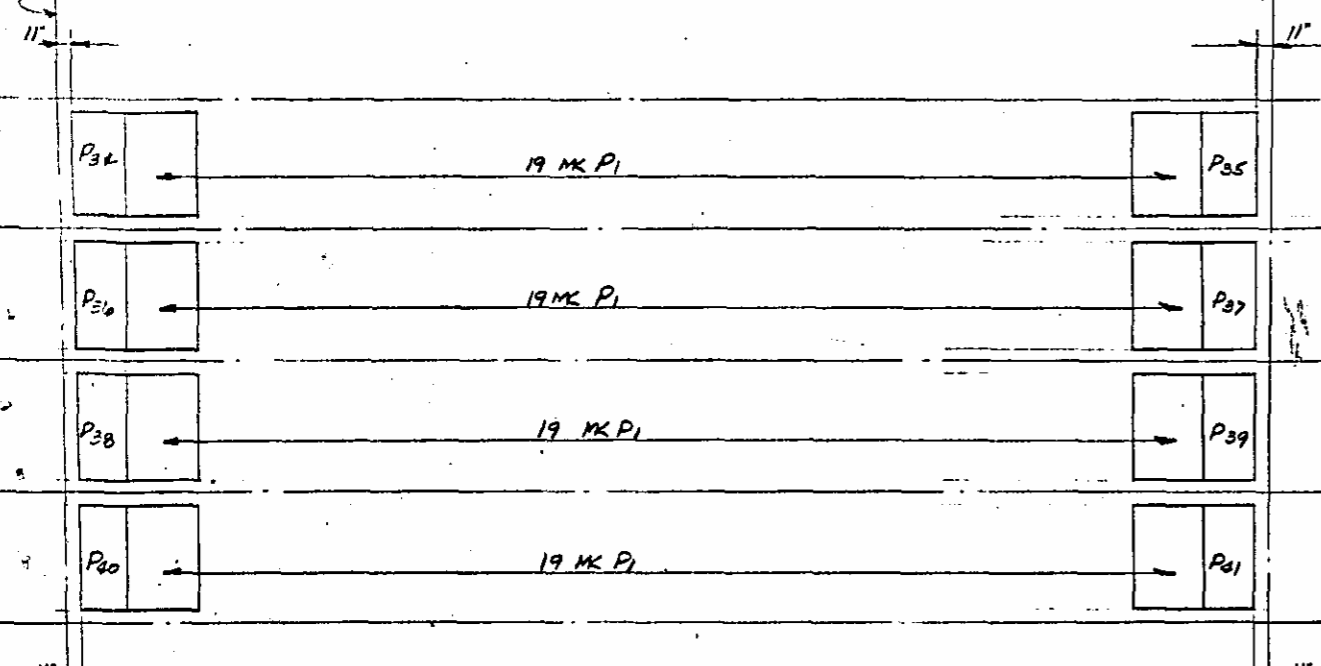
SHEET NO.  
S-A-15C  
TOTAL SHEETS  
52

REV. 10-18-01

PLANT 4  
GK ENTERPRISES, INC.  
P.O. BOX 4411  
WILMINGTON, N.C. 28401

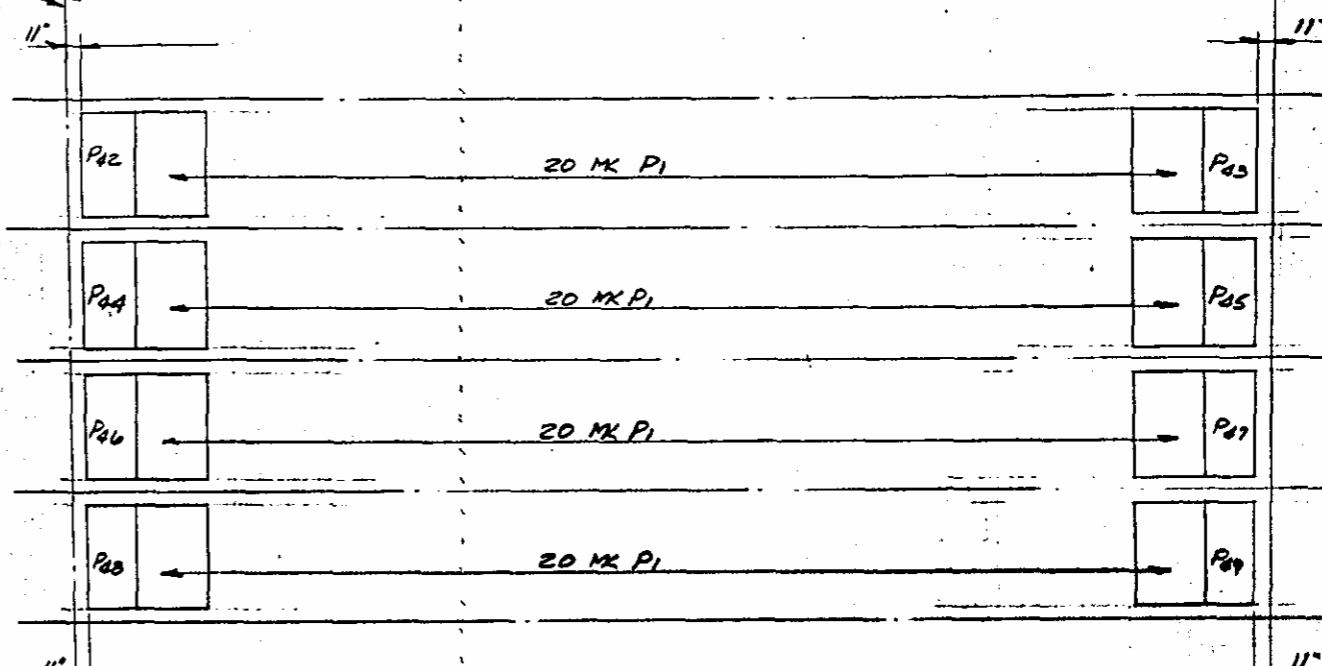
DRAWN	GR	NCDOT PROJ. NO. 8-12013DE
CK'D	B	CARTERET CO.
		SUPERSTRUCTURE
DATE	8-18-01	DECK PANEL LAYOUT SPANS A THRU I

85'-7 1/16" (CHORD LENGTH ALONG GUTTER)



SPAN J - DECK PANEL LAYOUT  
(SPANS K THRU Q SIMILAR)

86'-0 1/2" (CHORD LENGTH ALONG GUTTER)



SPAN R - DECK PANEL LAYOUT

DECK PANEL SCHEDULE

SPAN A				SPAN B				SPAN C				SPAN D (SPANS E THRU I SIMILAR)				SPAN J (SPANS K THRU Q SIMILAR)				SPAN R			
MARK	QTY.	WIDTH	LENGTH	MARK	QTY.	WIDTH	LENGTH	MARK	QTY.	WIDTH	LENGTH	MARK	QTY.	WIDTH	LENGTH	MARK	QTY.	WIDTH	LENGTH	MARK	QTY.	WIDTH	LENGTH
P1	60	4-0	5-11	P1	60	4-0	5-11	P1	80	4-0	5-11	P1	76	4-0	5-11	P1	80	4-0	5-11	P1	80	4-0	5-11
P2	1	3-4 / 3-3		P10	1	3'-0 1/2 / 2'-11 1/2		P18	1	2'-10 / 2'-8 3/4		P26	1	2'-4 / 2'-2 1/4		P34	1	3'-10 / 3'-8 3/4		P42	1	1'-11 3/4 / 1'-10 5/8	
P3	1	3'-1 7/8 / 3'-0 3/8		P11	1	3'-0 7/8 / 2'-11 1/2		P19	1	2'-10 1/8 / 2'-8 5/8		P27	1	2'-3 3/8 / 2'-2 5/8		P35	1	3'-10 / 3'-8 3/4		P43	1	2'-1 1/8 / 2-0	
P4	1	3'-2 3/8 / 3'-1 1/8		P12	1	2'-11 1/4 / 2'-10 1/4		P20	1	2'-8 1/2 / 2'-7 1/4		P28	1	2'-2 1/2 / 2'-1 1/4		P36	1	3'-8 1/2 / 3'-7 1/4		P44	1	1'-10 3/4 / 1'-9	
P5	1	3'-0 7/8 / 2'-11 7/8		P13	1	2'-11 / 2'-10		P21	1	2'-8 3/8 / 2'-7 3/8		P29	1	2'-2 1/4 / 2'-1		P37	1	3'-8 3/4 / 3'-7		P45	1	1'-11 5/8 / 1'-10 3/8	
P6	1	3'-1 3/8 / 3-0		P14	1	2'-10 / 2'-9		P22	1	2'-6 3/4 / 2'-5 1/2		P30	1	2'-0 7/8 / 1'-11 5/8		P38	1	3'-6 3/4 / 3'-5 1/2		P46	1	1'-8 5/8 / 1'-7 1/4	
P7	1	2'-11 7/8 / 2'-10 1/2		P15	1	2'-9 3/4 / 2'-8 3/4		P23	1	2'-6 3/4 / 2'-5 1/2		P31	1	2'-0 3/4 / 1'-11 1/2		P39	1	3'-6 3/4 / 3'-5 1/2		P47	1	1'-10 / 1'-8 3/8	
P8	1	2'-11 1/4 / 2'-10 1/4		P16	1	2'-8 5/8 / 2'-7 5/8		P24	1	2'-5 1/4 / 2'-3 7/8		P32	1	1'-11 1/4 / 1'-10		P40	1	3'-5 1/4 / 3'-4		P48	1	1'-7 / 1'-5 3/4	
P9	1	2'-10 3/8 / 2'-9 3/8		P17	1	2'-8 1/2 / 2'-7 1/2		P25	1	2'-5 1/4 / 2'-3 3/8		P33	1	1'-11 1/4 / 1'-10		P41	1	3'-5 1/2 / 3'-3 3/8		P49	1	1'-8 3/8 / 1'-7 3/8	

SHEET NO. 5-A-15D  
TOTAL SHEETS 52

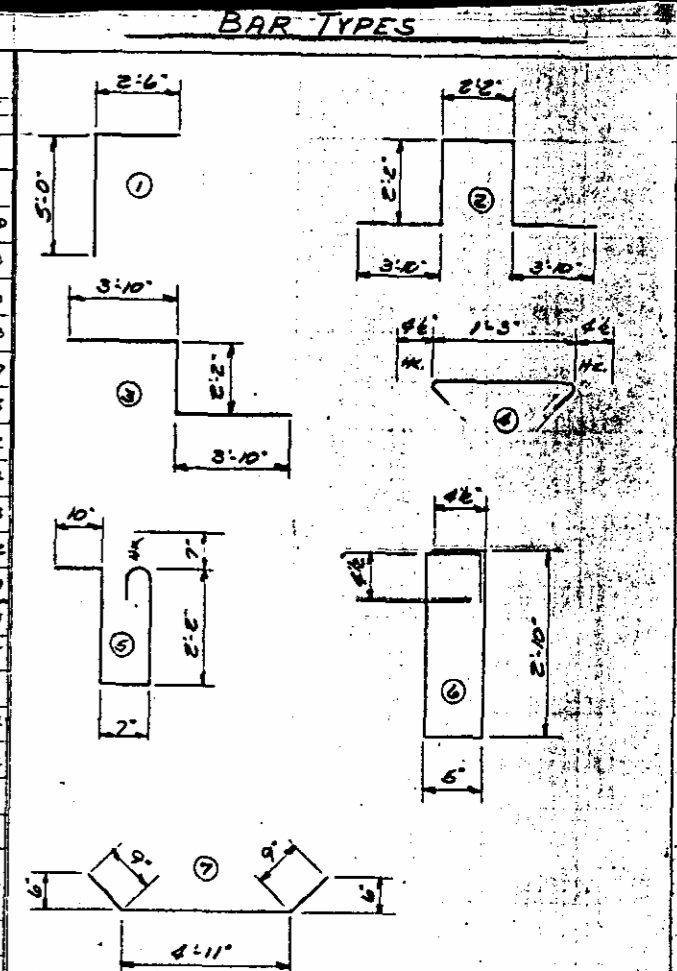
REV. 10-14-81

PLANT 4

GK ENTERPRISES, INC.  
P.O. BOX 4411  
WILMINGTON, N.C. 28406

NCDOT PROJECT NO. B-1201302  
CARTER CO.  
DECK PANEL LAYOUT SPANS J-R  
DECK PANEL SCHEDULE  
T.A. LOVING CO.

SPAN A						SPAN B						SPAN C						SPAN D (SPANS E THRU I IDENTICAL)						SPAN J (SPANS K THRU Q IDENTICAL)						SPAN R					
BAR	QTY.	SIZE	TYPE	LOTH.	WGT.	BAR	QTY.	SIZE	TYPE	LOTH.	WGT.	BAR	QTY.	SIZE	TYPE	LOTH.	WGT.	BAR	QTY.	SIZE	TYPE	LOTH.	WGT.	BAR	QTY.	SIZE	TYPE	LOTH.	WGT.	BAR	QTY.	SIZE	TYPE	LOTH.	WGT.
A1	104	6	STR.	34-6	5389	A1	103	6	STR.	34-6	5338	A1	132	6	STR.	34-6	6840	A1	125	6	STR.	34-6	6877	A1	129	6	STR.	34-6	6885	A1	130	6	STR.	34-6	6936
A2	103	6	STR.	3-4	515	A2	103	6	STR.	3-4	515	A2	132	6	STR.	3-4	660	A2	125	6	STR.	3-4	625	A2	129	6	STR.	3-4	645	A2	130	6	STR.	3-4	650
B1	44	4	1	7-6	220	B2	141	4	STR.	23-3	2190	B6	141	4	STR.	29-11	2818	B8	141	4	STR.	28-3	2661	B10	141	4	STR.	29-3	2755	B12	141	4	STR.	29-4	2763
B2	141	4	STR.	23-6	2213	B5	16	5	STR.	34-6	576	B7	16	5	STR.	44-2	740	B9	16	5	STR.	41-10	698	B11	16	5	STR.	43-4	723	B13	16	5	STR.	43-9	736
B3	16	5	STR.	34-9	880	K1	12	8	2	14-2	454	K1	12	8	2	14-2	454	K1	12	8	2	14-2	454	K1	12	8	2	14-2	454	F1	8	5	STR.	4-0	33
F1	8	5	STR.	4-0	33	K2	8	8	3	9-10	210	K2	8	8	3	9-10	210	K2	8	8	3	9-10	210	K2	8	8	3	9-10	210	K2	8	8	3	9-10	210
K1	6	8	2	14-2	227	K3	8	5	STR.	5-1	42	K3	8	5	STR.	5-1	42	K3	8	5	STR.	5-1	42	K3	8	5	STR.	5-1	42	K3	8	5	STR.	5-1	42
K2	4	8	3	9-10	105	K11	8	5	7	6-5	54	K11	8	5	7	6-5	54	K11	8	5	7	6-5	54	K11	8	5	7	6-5	54	K11	8	5	7	6-5	54
K3	8	5	STR.	5-1	42	S2	48	5	5	6-4	317	S2	48	5	5	6-4	317	S2	48	5	5	6-4	317	S2	48	5	5	6-4	317	S2	48	5	5	6-4	317
K4	4	5	STR.	34-6	144	S3	20	4	6	7-3	97	S3	20	4	6	7-3	97	S3	20	4	6	7-3	97	S3	20	4	6	7-3	97	S3	20	4	6	7-3	97
K5	16	5	STR.	5-3	88	A3	101	6	STR.	3-0	455	A3	180	6	STR.	3-0	586	A3	123	6	STR.	3-0	554	A3	127	6	STR.	3-0	572	A3	127	6	STR.	3-0	572
K6	1	6	STR.	34-6	52																														
K7	4	6	STR.	4-9	29																														
K8	8	5	STR.	1-9	15																														
K9	2	6	STR.	1-6	5																														
K10	1	5	STR.	31-8	33																														
K11	8	5	7	6-5	54																														
S1	24	4	4	2-0	32																														
S2	24	5	5	6-4	159																														
S3	20	4	6	7-3	97																														
A3	102	6	STR.	3-0	460																														
GRAND TOTAL 10,892*						GRAND TOTAL 10,898*						GRAND TOTAL 12,189*						GRAND TOTAL 12,554*						GRAND TOTAL 12,800*											
CLASS AA CONCRETE 62.4 y.						CLASS AA CONCRETE 56.2 y.						CLASS AA CONCRETE 67.3 y.						CLASS AA CONCRETE 69.5 y.						CLASS AA CONCRETE 75.6 y.											
REINF. CONG. DECK SLAB AREA 2366 SQ. FT.						REINF. CONG. DECK SLAB AREA 2351 SQ. FT.						REINF. CONG. DECK SLAB AREA 2856 SQ. FT.						REINF. CONG. DECK SLAB AREA 2961 SQ. FT.						REINF. CONG. DECK SLAB AREA 2975 SQ. FT.											



NOTE: ALL DIMENSIONS ARE OUT-TO-OUT

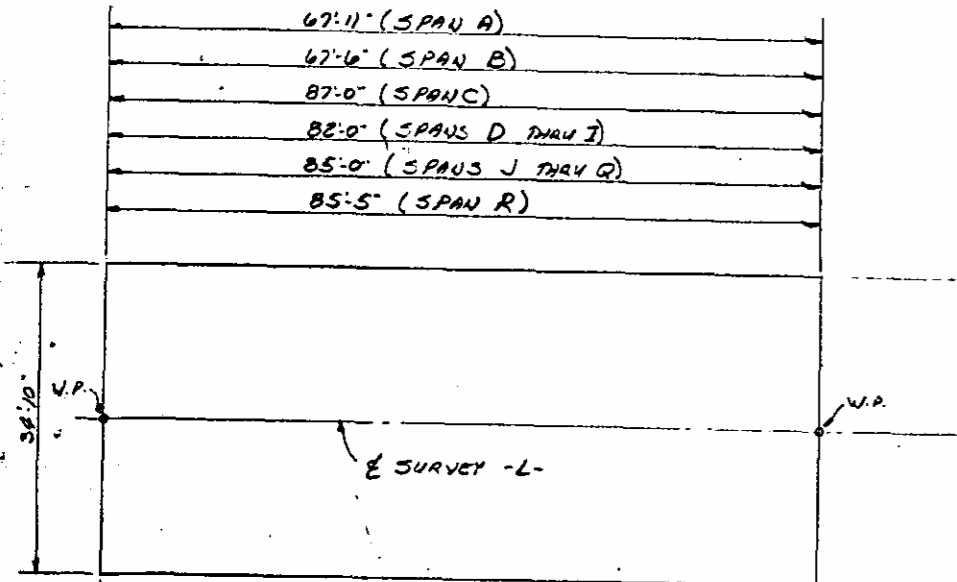
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPICE LENGTHS

BAR SIZE	SUPERSTRUCTURE AND APPROACH SLABS, EXCEPT PARAPET, CURTAIN WALL AND BARRIER RAIL	PARAPET, CURTAIN WALL AND BARRIER RAIL
#4	1'-2"	1'-7"
#5	1'-5"	2'-0"
#6	1'-10"	2'-7"

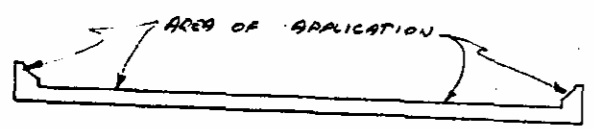
BILL OF MATERIAL FOR SUPERSTRUCTURE

REINFORCED CONCRETE DECK SLAB	51,547 SQ. FT.
CLASS "A-A" CONCRETE	1224.9 CU. YDS.
REINFORCING STEEL	219,984 LBS.
54" PRESTRESSED CONCRETE GIRDERS	7367.38 LID. FT.
CONCRETE BARRIER RAIL	2903.67 LID. FT.
LINSEED OIL CONCRETE PROTECTION	124 GALLONS
ELASTOMERIC BEARING	LUMP SUM

NOTE: REVISED CLASS "AA" CONCRETE QUANTITIES HAVE NOT BEEN CHECKED BY D.O.H.



LAYOUT FOR COMPUTING SURFACE AREA FOR REINFORCED CONCRETE DECK SLAB

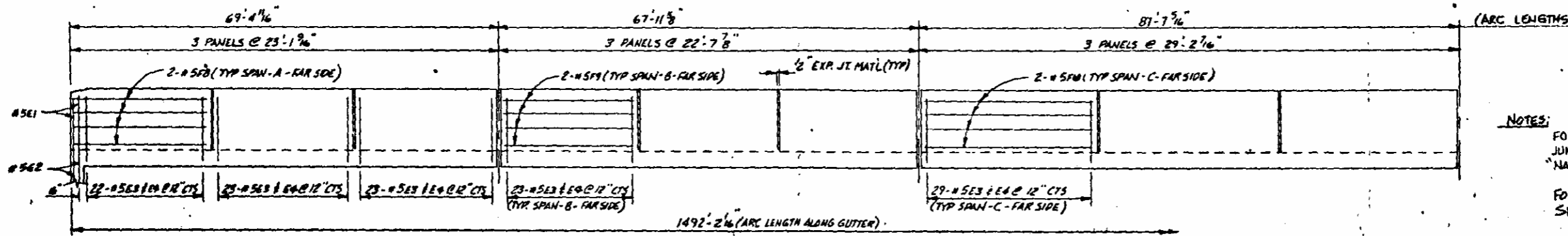


PLANT 4  
GK ENTERPRISES, INC.  
P.O. BOX 4411

REV. 11-3-81  
REV. 10-14-81  
REV. 8-11-81

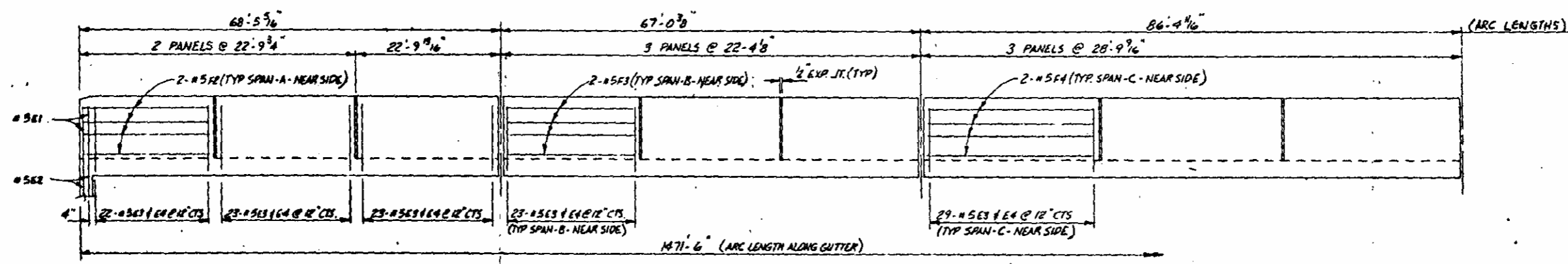
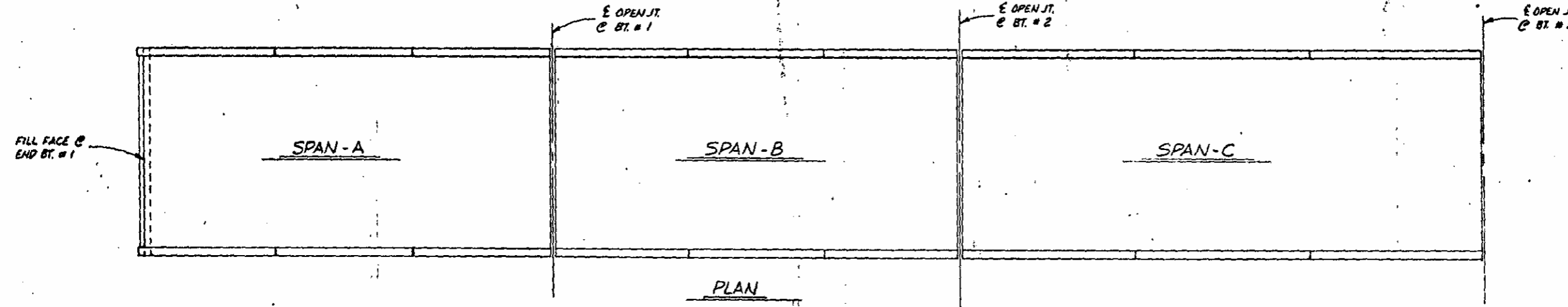
DRAWN BY NC DOT PROJECT NO. 8-1201302  
CHECKED BY CARTERET CO.  
DATE SUPERSTRUCTURE  
2/10/81 BAR SCHEDULE &  
BILL OF MATERIALS

SHEET NO. 5-A-16A  
TOTAL SHEETS 52



NOTES:  
FOR LOCATION OF LIGHTING CONDUIT AND JUNCTION BOXES IN BARRIER RAIL, SEE "NAVIGATIONAL LIGHTING SYSTEM" DETAILS.  
FOR CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

ELEVATION - FAR SIDE



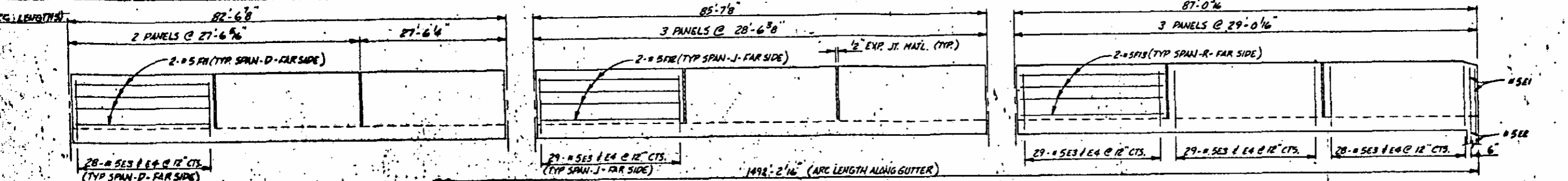
ELEVATION - NEAR SIDE

PROJECT NO. 81201302  
CARTERET COUNTY  
STATION: 71+60-L-

SHEET 1 OF 2  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
BARRIER RAIL

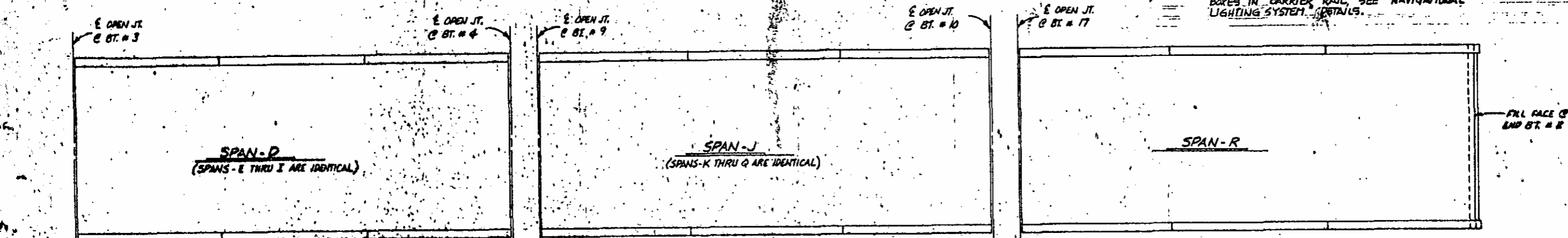
REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S-A-1	
1			1			TOTAL SHEETS	22

DRAWN BY: J. OVERTON  
CHECKED BY: CHARLES POPE  
DATE: 4-20  
DATE: 8-20



ELEVATION - FAR SIDE

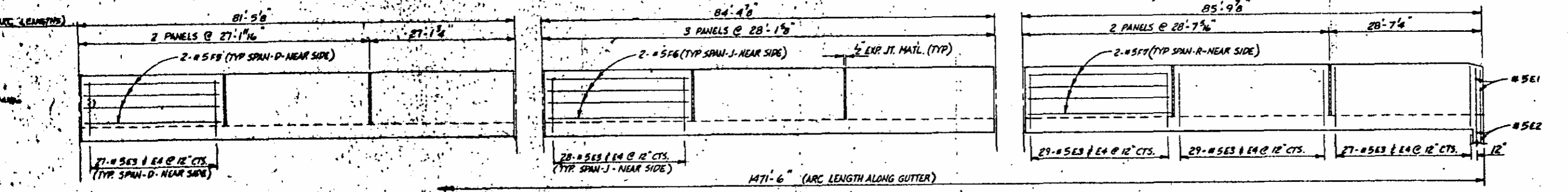
NOTE: FOR LOCATION OF LIGHTING CONDUIT AND JUNCTION BOXES IN BARRIER RAIL, SEE "NAVIGATIONAL LIGHTING SYSTEM" DETAILS.



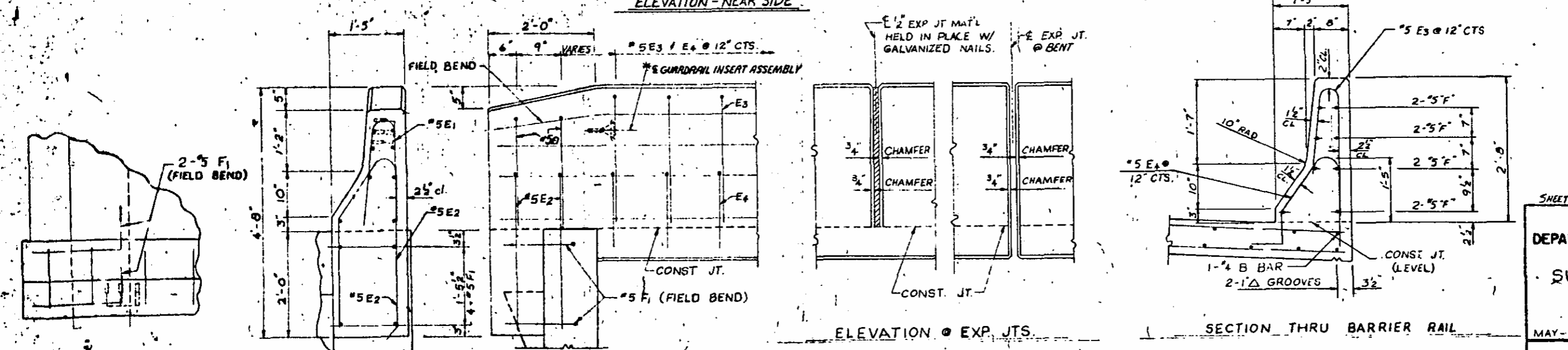
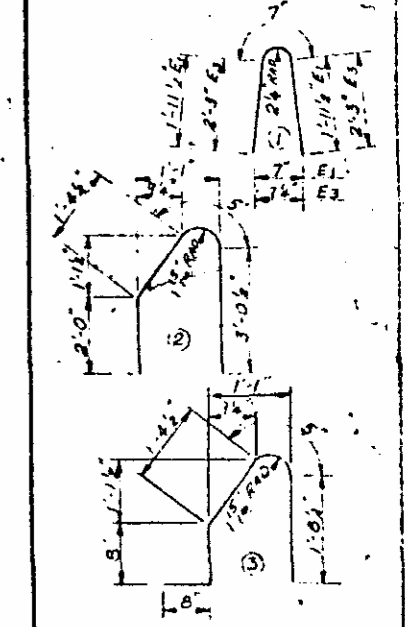
PLAN

BILL OF MATERIAL					
FOR BARRIER RAIL ONLY					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
E1	#5	1	6'-6"	38	
E2	#5	2	6'-10"	57	
E3	#5	1	5'-1"	15784	
E4	#5	3	4'-10"	15007	
F2	#5	STR	22'-5"	561	
F3	#5	STR	22'-0"	551	
F4	#5	STR	28'-5"	711	
F5	#5	STR	26'-9"	4018	
F6	#5	STR	27'-9"	5557	
F7	#5	STR	28'-3"	707	
F8	#5	STR	28'-9"	569	
F9	#5	STR	22'-3"	557	
F10	#5	STR	28'-10"	722	
F11	#5	STR	27'-2"	4080	
F12	#5	STR	28'-8"	5641	
F13	#5	STR	28'-8"	718	
REINF. STEEL - LBS =				55278	
CLASS "AA" CONC - CY =				272.4	
CONC BARRIER RAIL - L.F. =				2963.67	
BAR TYPE					

ALL DIMENSIONS ARE OUT TO OUT



ELEVATION - NEAR SIDE



ELEVATION @ EXP. JTS.

SECTION THRU BARRIER RAIL

\* NOTE: SEE STANDARD CURVED END BLOCK AND GUARDRAIL ANCHORAGE SHEET FOR LOCATION OF "C" BARS & GUARDRAIL INSERT ASSEMBLY. SEE LOCATION SKETCH IN GENERAL DRAWING FOR GUARDRAIL ANCHORAGE LOCATION.

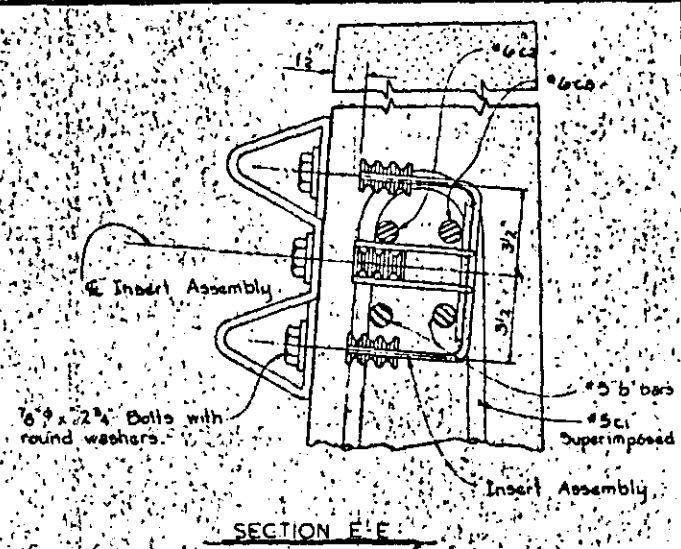
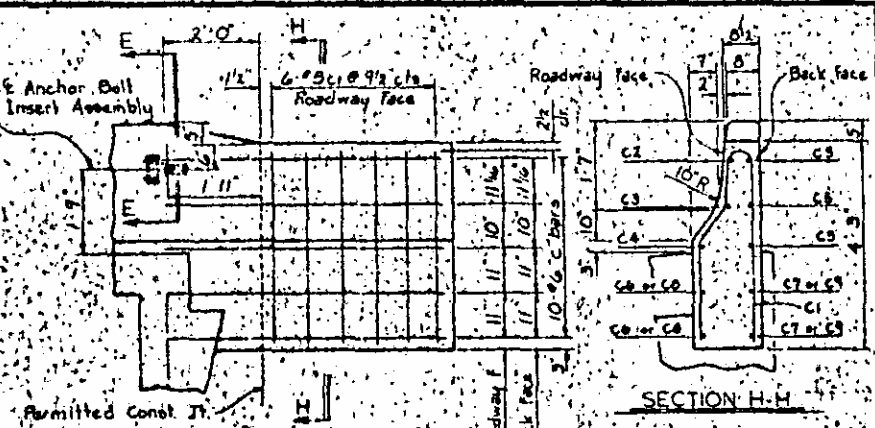
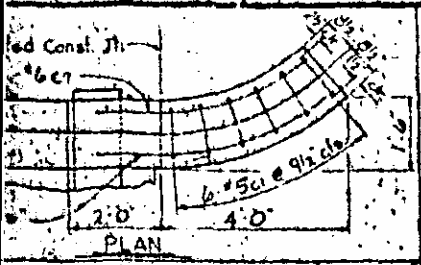
PROJECT NO. 8.120130Z  
 CARTERET COUNTY  
 STATION: 71160-L  
 SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 BARRIER RAIL

MAY - 1977

REVISIONS			
NO.	BY	DATE	DESCRIPTION

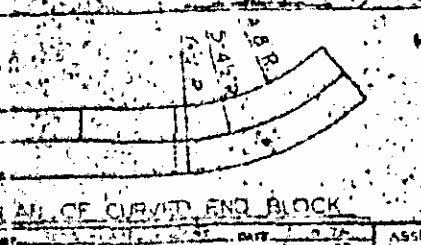
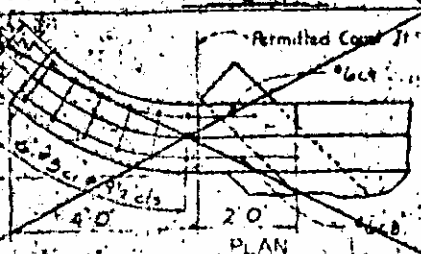
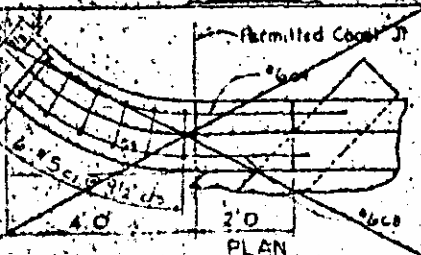
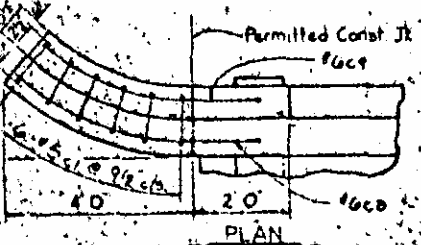
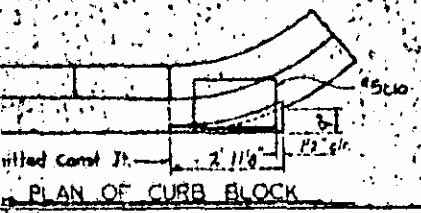
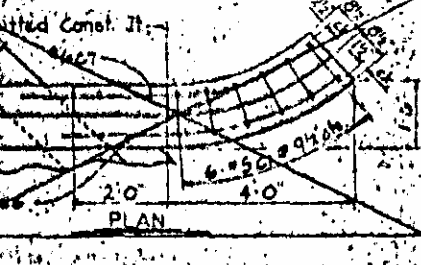
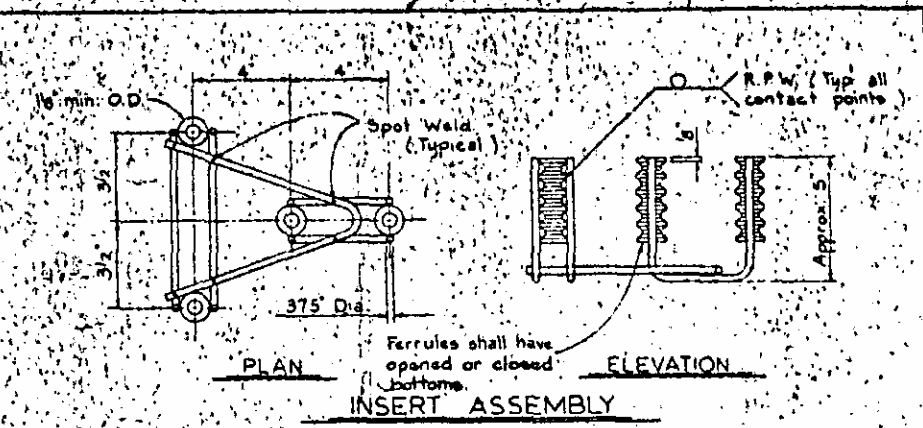
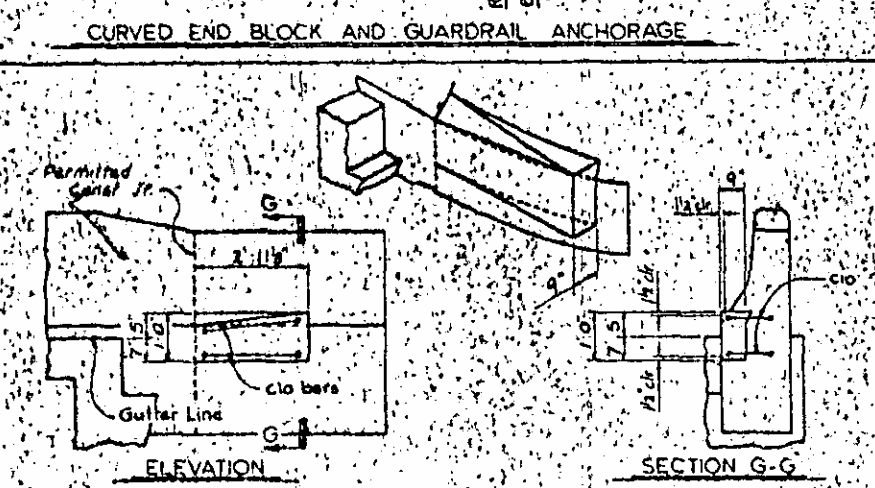
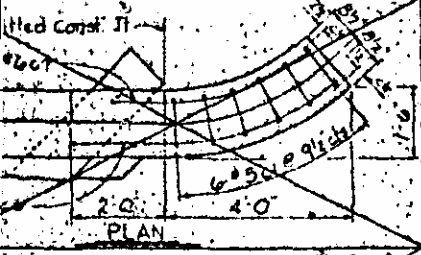
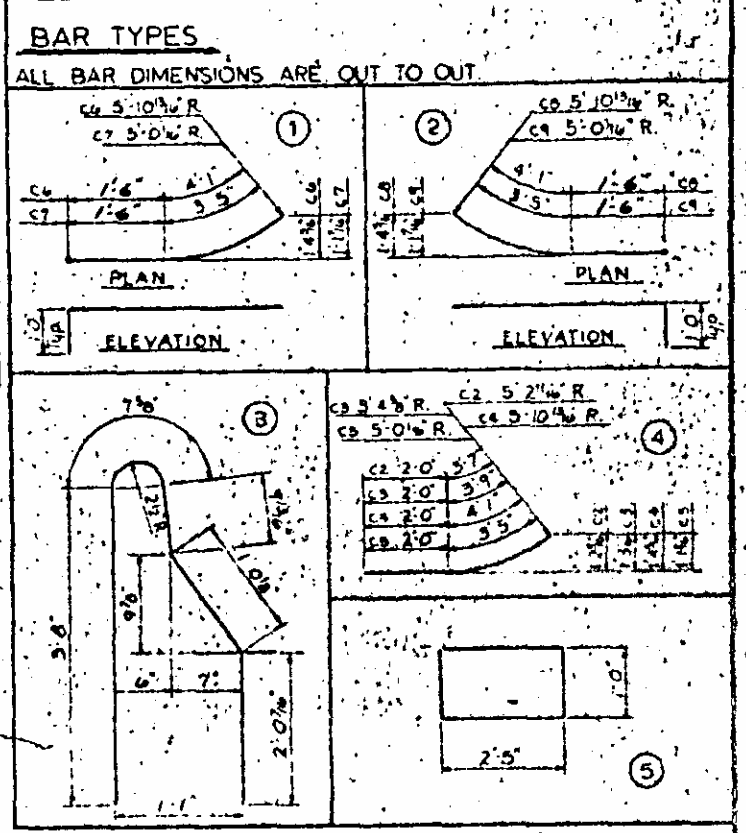
6-A-1B  
 TOTAL SHEETS  
 52



**BILL OF MATERIAL FOR FOUR CURVED END BLOCKS**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
C1	24	#3	3	8'2"	204
C2	4	#6	4	5'7"	34
C3	4	#6	4	5'9"	35
C4	4	#6	4	6'	37
C5	12	#6	4	5'5"	98
C6	4	#6	1	6'7"	40
C7	4	#6	1	5'11"	36
C8	4	#6	2	6'7"	40
C9	4	#6	2	5'11"	36

Reinforcing Steel - lbs. - 560  
Class A-A Concrete - Cu Yds. - 2.9



- NOTES**
- THE 4-BOLT INSERT ASSEMBLY UNIT SHALL CONSIST OF THE FOLLOWING COMPONENTS:
    - FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF A.S.T.M. A107, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
    - 4 - 7/8" x 2 3/4" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. 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 7/8" x 2 3/4" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF A.S.T.M. A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
    - WIRE STRUTS SHOWN IN THE INSERT ASSEMBLY DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I.
  - THE INSERT ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECURT AS NECESSARY TO INSURE FIT.
  - THE COST OF THE 4-BOLT INSERT ASSEMBLY UNIT COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.
  - THE 4-BOLT INSERT ASSEMBLY UNIT IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END POSTS. FOR POINTS OF ATTACHMENT, SEE PLANS.
  - CURVED END BLOCKS ARE REQUIRED AT ALL END POSTS.
  - THE COST OF THE FOUR CURVED END BLOCKS AND CURB BLOCK, WHEN USED, WHICH INCLUDES CLASS AA CONCRETE, REINFORCING STEEL, EXCAVATION, BACKFILL AND INCIDENTALS NECESSARY FOR THEIR CONSTRUCTION SHALL BE INCLUDED IN THE COST OF THE CONCRETE BARRIER RAIL.

**BILL OF MATERIAL FOR CURB BLOCK**

	Reinforcing Steel - lbs.				
	BAR	NO.	SIZE	TYPE	LENGTH
1 Block	#3	2	5	5	10
2 Blocks	#3	4	5	5	10
3 Blocks	#3	6	5	5	10
4 Blocks	#3	8	5	5	10

**TOTAL BILL OF MATERIAL**

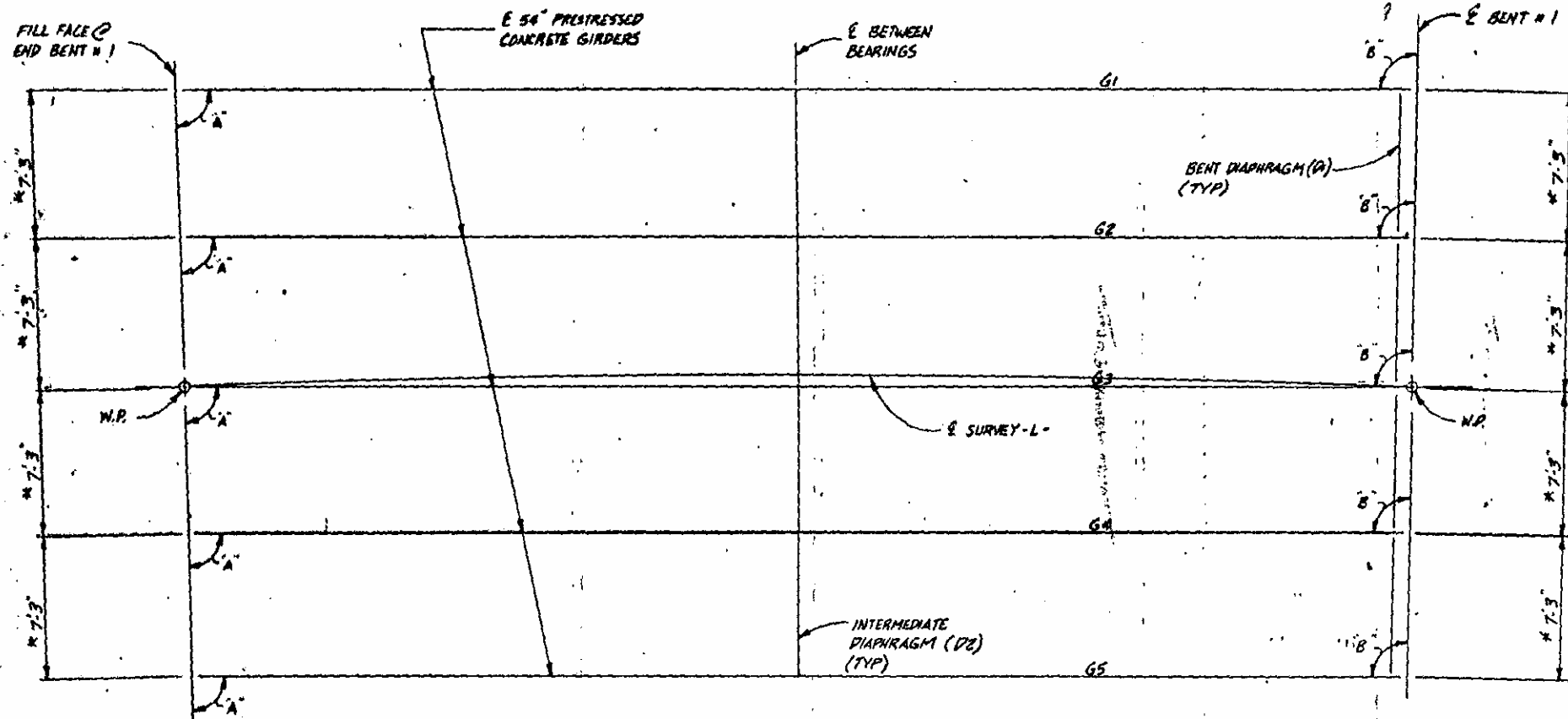
Reinforcing Steel - lbs. - 589  
Class A-A Concrete - Cu Yds. - 2.9

PROJECT No. 8-1201902  
CARTERET COUNTY  
STATION 71+60-L

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

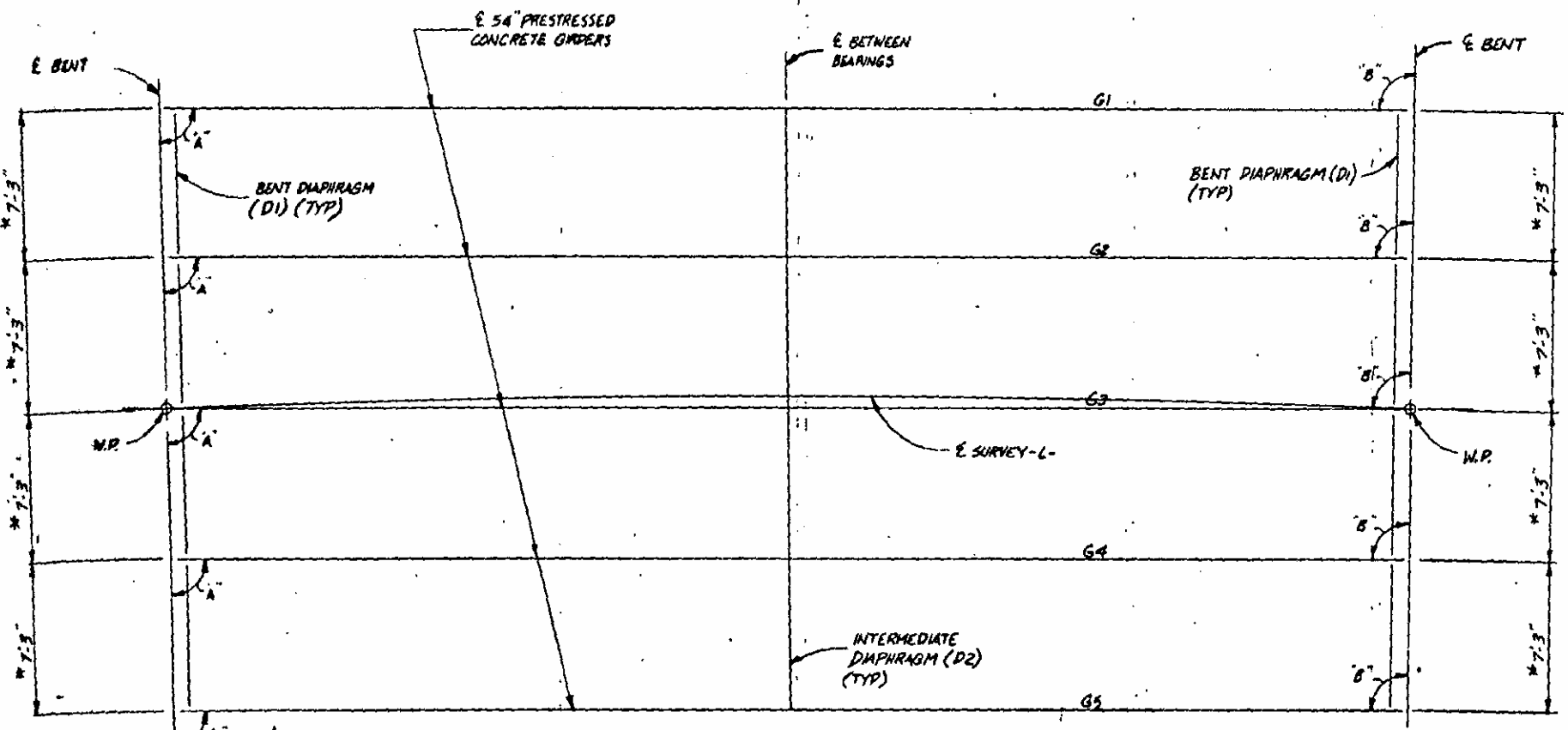
STANDARD  
CURVED END BLOCK, GUARDRAIL ANCHORAGE, AND CURB BLOCK  
JULY FOR BARRIER RAIL 1978

REVISIONS						SHEET NO. 5-A-19
NO.	BY	DATE	NO.	BY	DATE	
						TOTAL SHEETS



SPAN-A  
(SPAN-R SIMILAR)

\* RADIAL DIMENSIONS



SPAN-B  
(SPANS-C THRU Q SIMILAR)

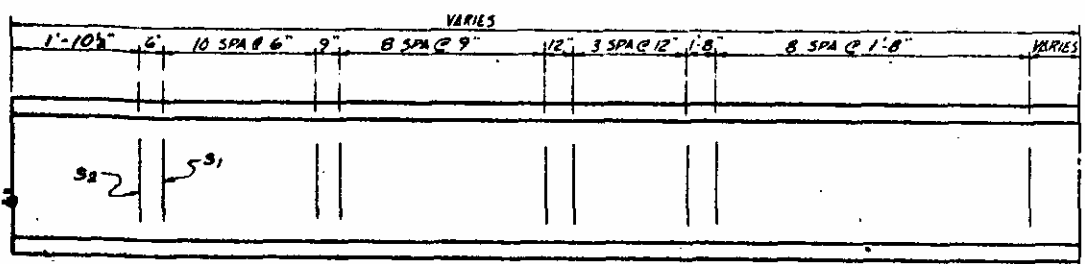
SPAN	ANGLES		SHORT CHORD LENGTHS				
	A	B	G1	G2	G3	G4	G5
A	89° 09' 03.8"	90° 50' 56.5"	68'-4 1/8"	68'-1 1/8"	67'-11"	67'-8 1/2"	67'-5 1/2"
B	89° 09' 22.6"	90° 50' 37.6"	67'-11 1/8"	67'-8 1/4"	67'-6"	67'-3 1/2"	67'-0 1/8"
C	88° 54' 45.0"	91° 05' 15.0"	87'-6 3/4"	87'-5 1/4"	86'-11 3/4"	86'-8 1/2"	86'-5 1/4"
D THRU I	88° 58' 30.0"	91° 01' 30.0"	82'-6 3/4"	82'-3 1/4"	81'-11 1/4"	81'-8 1/4"	81'-5 1/4"
J THRU Q	88° 54' 15.0"	91° 03' 45.0"	85'-6 3/8"	85'-3 3/8"	84'-11 1/4"	84'-8 1/4"	84'-5 1/4"
R	88° 53' 36.3"	91° 04' 03.8"	85'-11 1/4"	85'-8 1/4"	85'-4 1/4"	85'-1 1/4"	84'-10 1/4"

BEARING PLACEMENTS	
BEARING TYPES	LOCATION (SPANS)
P-1	H, I, J
P-2	E, F, G, K, L, M
P-3	C, D, N, O
P-4	A, B, P, Q, R

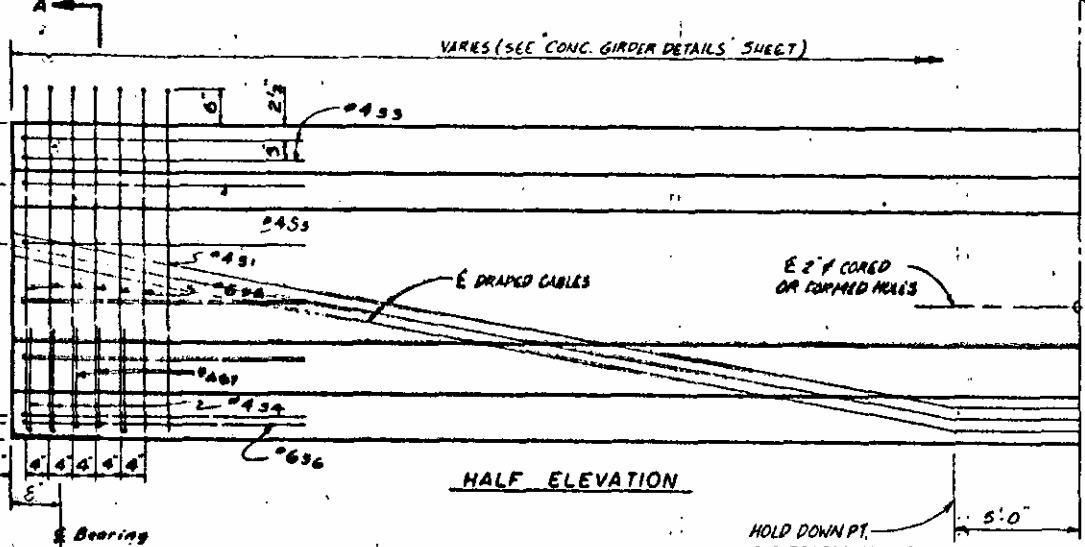
PROJECT NO. B.1201302  
 CARRIET COUNTY  
 STATION: 71+60.0-6-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 GIRDER LAYOUT

REVISIONS						SHEET NO. S-A-20
NO.	BY	DATE	NO.	BY	DATE	
1			2			TOTAL SHEETS 52
2			3			



HALF PLAN  
E BETWEEN BEARINGS

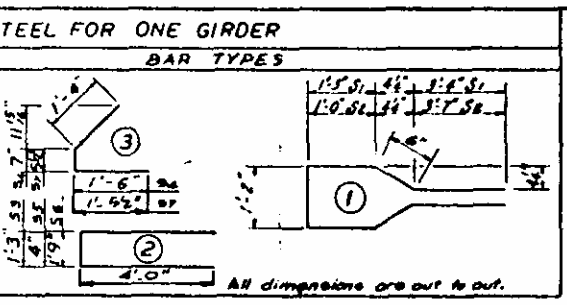


HALF ELEVATION



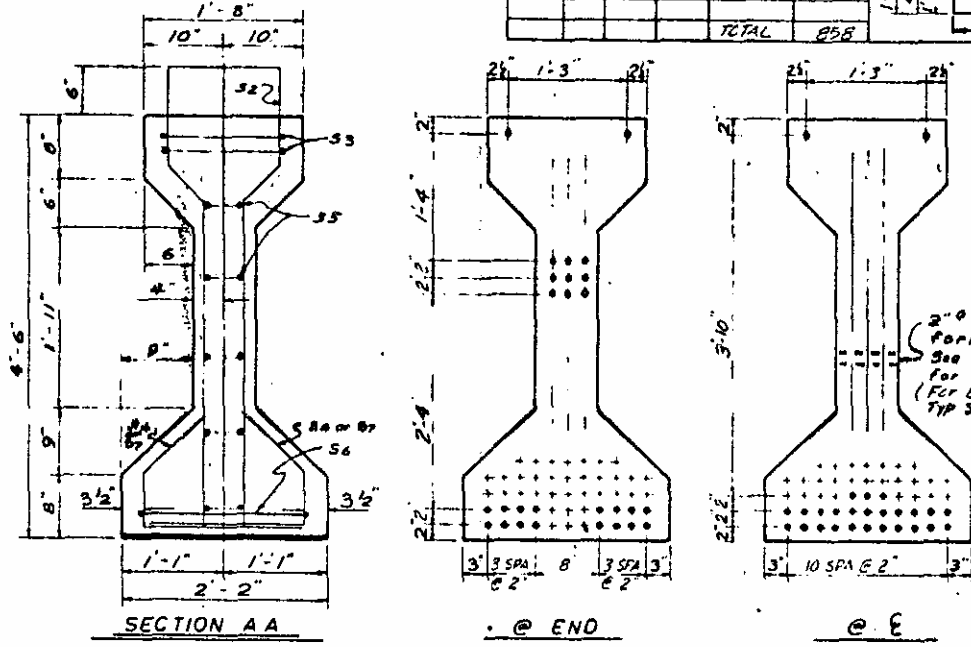
REINFORCING STEEL FOR ONE GIRDER

Bar	No	Size	Type	Length	Weight
#1	66	#4	1	17'-4"	500
#2	12	#6	1	11'-4"	204
#3	4	#4	2	9'-3"	25
#4	12	#4	3	3'-5"	27
#5	10	#4	2	8'-4"	56
#6	2	#6	2	9'-9"	29
#7	8	#4	3	5'-3"	17
TOTAL					858

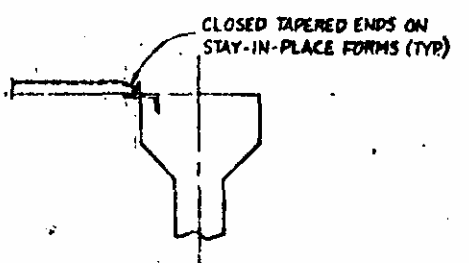
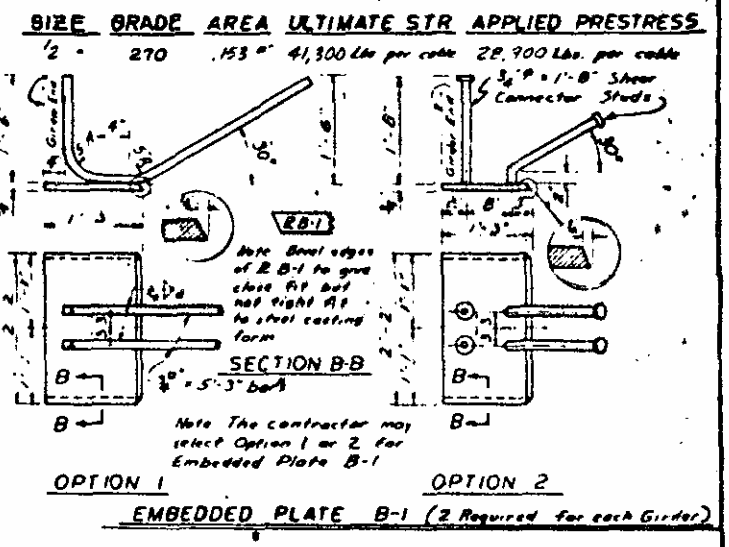


NOTES

- ELASTOMER IN ALL BEARINGS SHALL HAVE A GRADE 50 DIAPHRAGM HARDNESS. SEE SPECIAL PROVISIONS.
- STEEL PLATES IN LAMINATED BEARINGS SHALL CONFORM TO ASTM A-36.
- APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES. FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
- EMBEDDED PLATE B-1 TO BE GALVANIZED.
- ALL PRESTRESSING STRANDS SHALL BE 2" WIRE STRESS RELIEVED GRADE 270 CABLES IN ACCORDANCE WITH THE SPECIFICATIONS.



PRESTRESS CABLE LAYOUT

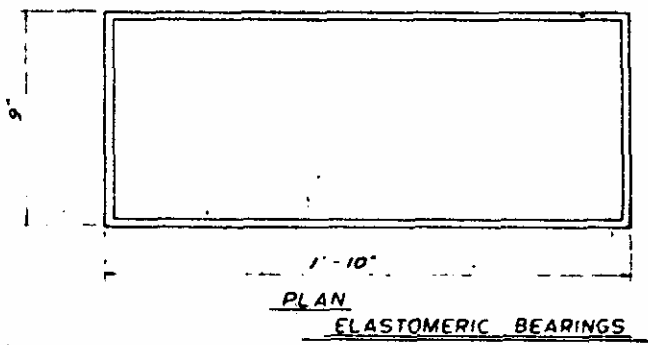
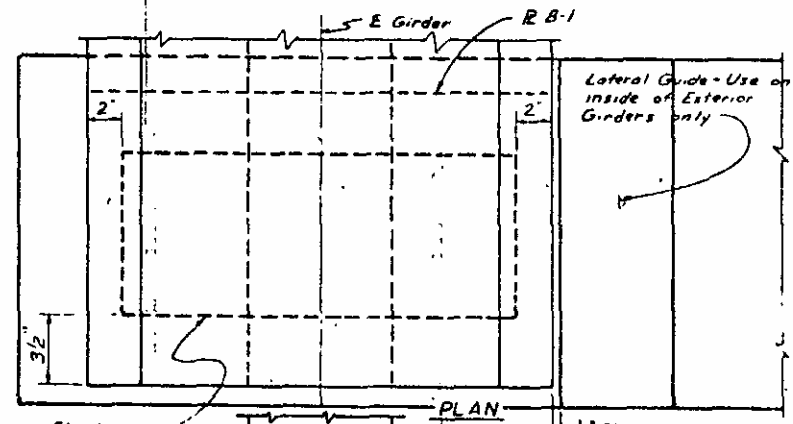


STAY-IN-PLACE METAL FORM DETAIL

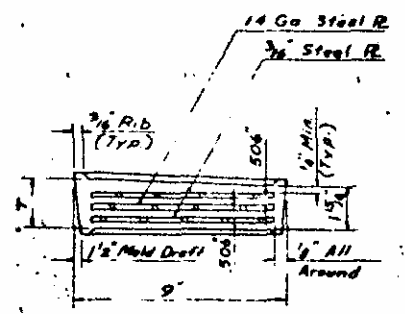
DEFLECTION TABLE

CAMBER-GIRDER ALONE IN PLACE	DEFLECTION DUE TO SUPERIMPOSED DL*	FINAL DEFLECTION
ALL GIRDERS	↑ 5/16"	↓ 3/8"

\* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

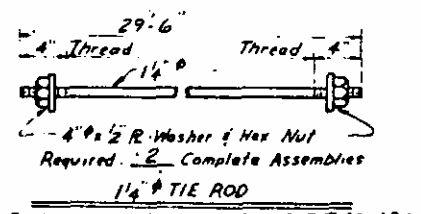


BEAM GRADE %	T (inches)	BEARING TYPES	NO. REQD
0.00 - 1.00	1 1/2"	P-1	
1.00 - 2.25	2 1/2"	P-2	
2.25 - 3.50	2 3/4"	P-3	
3.50 - 5.00	2 7/8"	P-4	20



TYPICAL SECTION

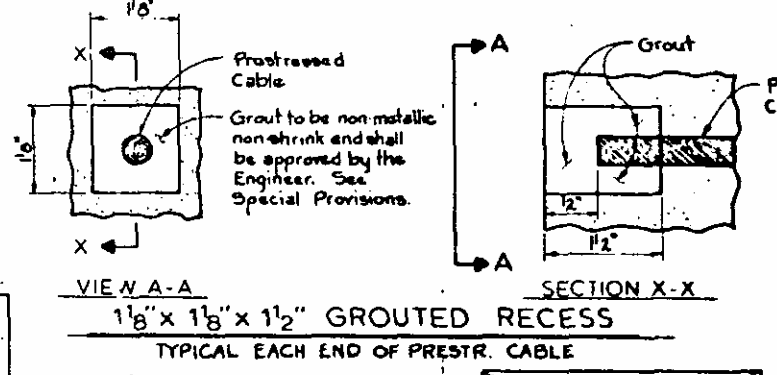
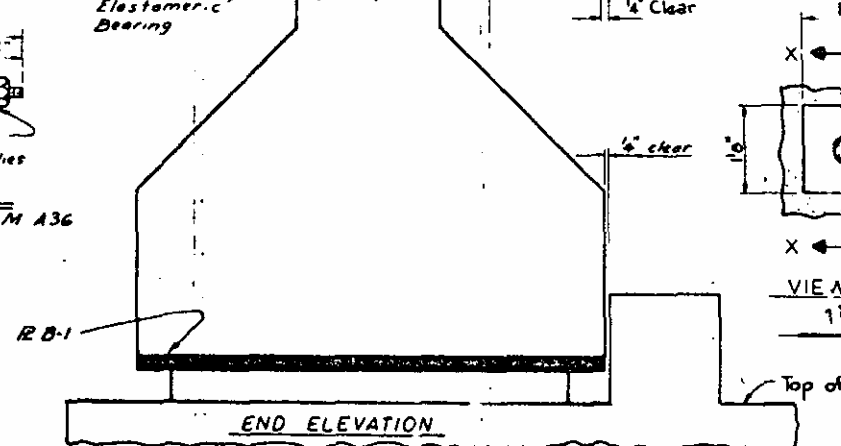
NOTE: CONTRACTOR SHALL TAKE SPECIAL CARE TO INSURE THE BEVELED ELASTOMERIC BEARINGS ARE PROPERLY ORIENTED WITH BEAM GRADE.



Tie Rod Assembly shall be A. S. T. M. A36 grade structural steel

QUANTITIES FOR ONE GIRDER

	Reinforcing Steel Lbs.	5,000 psi Concrete Cu. Yds.	Grade 270 S.R. Cables No.
Girder	858	13.6	27



GIRDERS REQUIRED

No.	Length	Total Length

PROJECT No. 81201302  
 COUNTY  
 STATION: 71+60-L

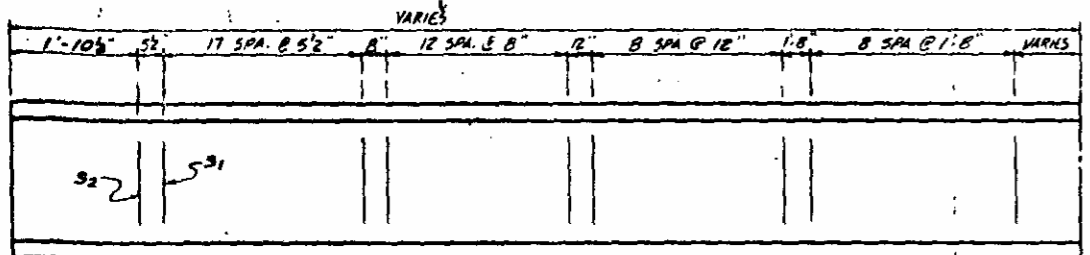
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 STANDARD  
 54" PRESTRESSED  
 CONCRETE GIRDER  
 SPANS - 4 & 8'

JULY 1978

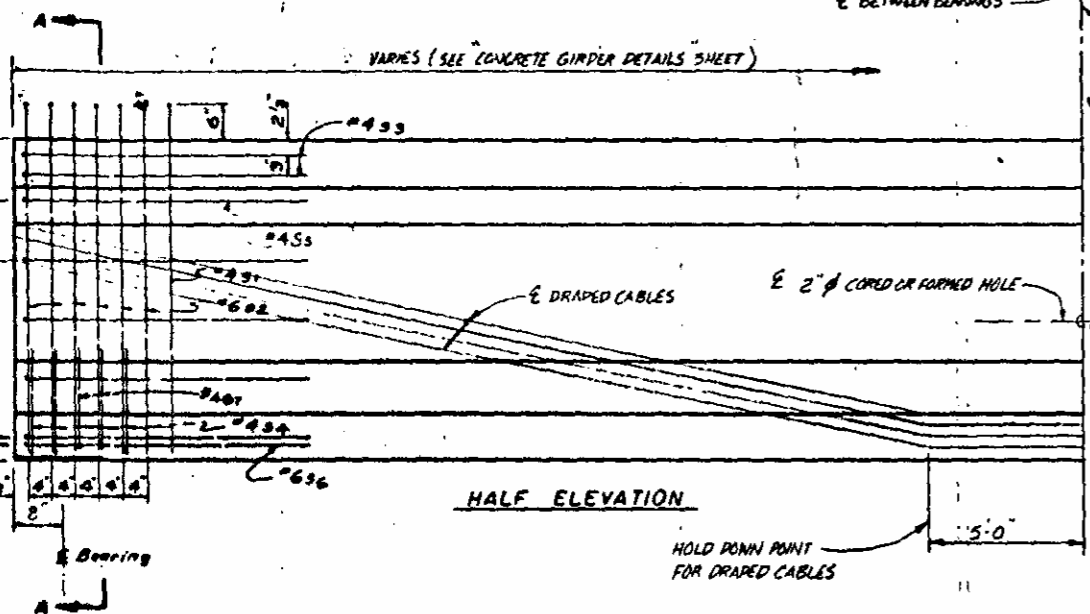
REVISIONS

NO.	BY	DATE	NO.	BY	DATE

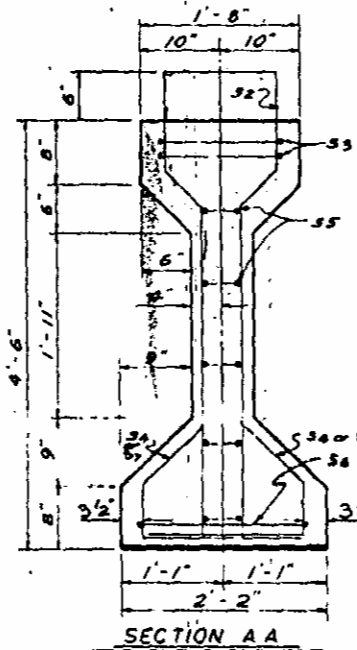
ASSEMBLED BY G. OYLERIN DATE 4-80  
 CHECKED BY CHARLES P. DATE 5-80  
 SPECIAL STANDARD



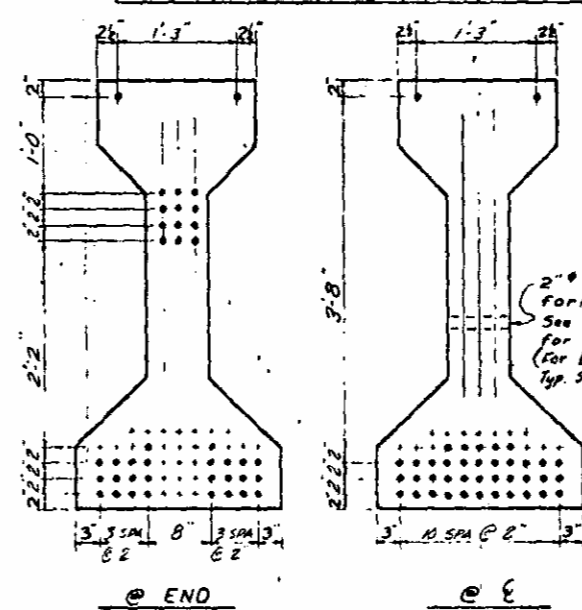
HALF PLAN



HALF ELEVATION



SECTION A-A



PRESTRESS CABLE LAYOUT

REINFORCING STEEL FOR ONE GIRDER

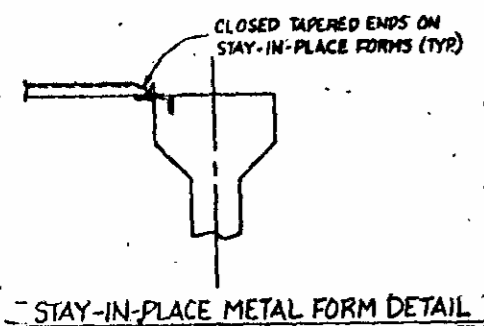
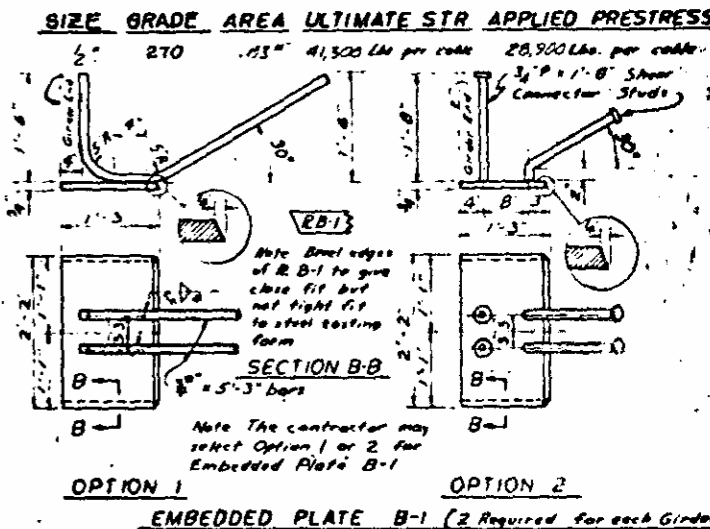
Bar	No	Size	Type	Length	Weight
S1	98	#4	1	17'-4"	742
S2	12	#6	1	11'-4"	204
S3	4	#4	2	9'-3"	25
S4	12	#4	3	3'-5"	27
S5	10	#4	2	8'-4"	56
S6	2	#6	2	9'-9"	29
S7	8	#4	3	5'-5"	17
TOTAL					1100

BAR TYPES

All dimensions are out to out.

- NOTES
- ELASTOMER IN ALL BEARINGS SHALL HAVE A GRADE 50 DIAPHRAGM HARDNESS. SEE SPECIAL PROVISIONS.
  - STEEL PLATES IN LAMINATED BEARINGS SHALL CONFORM TO ASTM A-36.
  - APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.
  - FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
  - EMBEDDED PLATE B-1 TO BE GALVANIZED.

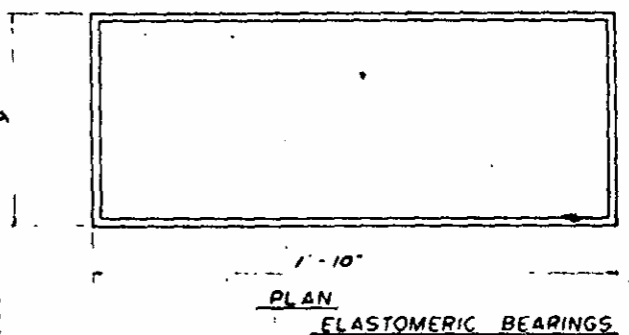
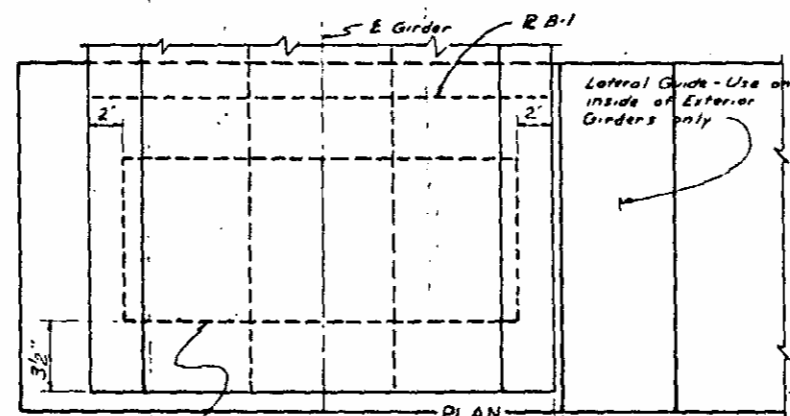
- ALL PRESTRESSING STRANDS SHALL BE 2" WIRE STRESS RELIEVED GRADE 270 CABLES IN ACCORDANCE WITH THE SPECIFICATIONS.



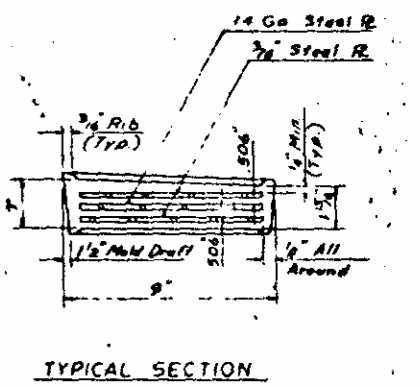
DEFLECTION TABLE

CAMBER - GIRDER ALONE IN PLACE	DEFLECTION DUE TO SUPERIMPOSED D.L. **	FINAL DEFLECTION
ALL GIRDERS	↑ 5/8"	↑ 1/8"

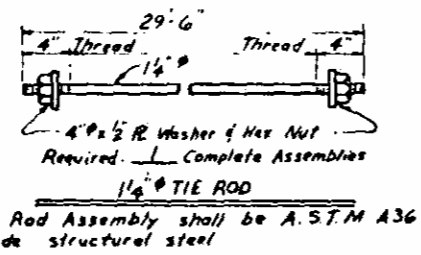
\*\* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



BEAM GRADE %	T (inches)	BEARING TYPES	NO REQD
0.00 - 1.00	1 1/2"	P-1	
1.00 - 2.25	2 1/8"	P-2	
2.25 - 3.50	2 3/8"	P-3	10
3.50 - 5.00	2 7/8"	P-4	

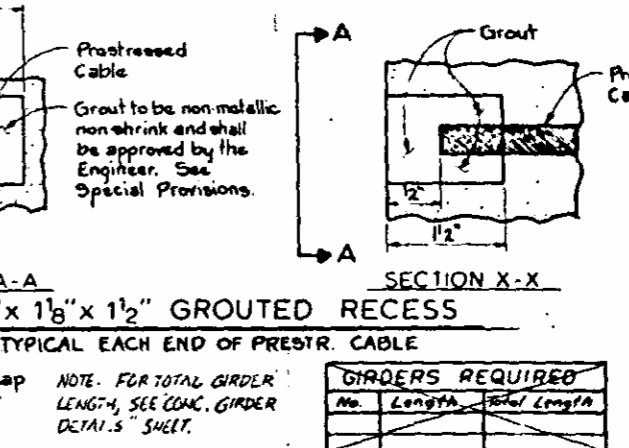
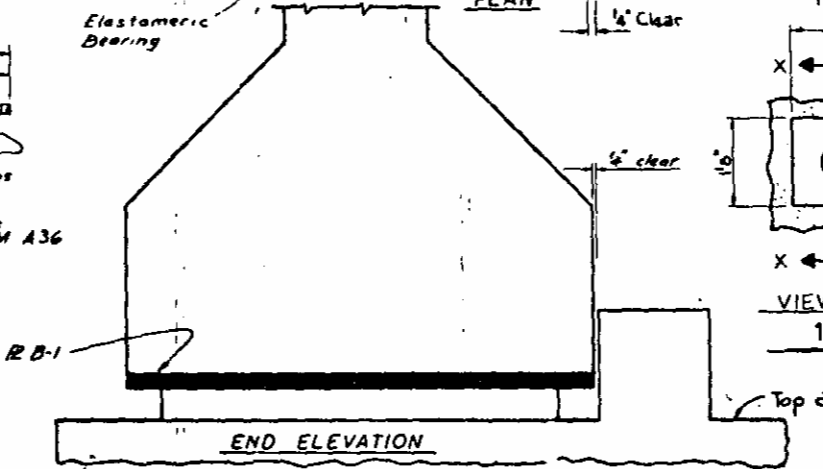


NOTE: CONTRACTOR SHALL TAKE SPECIAL CARE TO INSURE THE BEVELED ELASTOMERIC BEARINGS ARE PROPERLY ORIENTED WITH BEAM GRADE.



QUANTITIES FOR ONE GIRDER

	Reinforcing Steel Lbs.	5,000 psi Concrete Cu. Yds.	Grade 270 S.R. Cables No.
Girder	1100	17.7	40



GIRDERS REQUIRED

No.	Length	Total Length

PROJECT NO. P. 126130.2

CARLEET COUNTY

STATION: 71+60.1-

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

STANDARD

54" PRESTRESSED CONCRETE GIRDER

SPAN-C

JULY 1978

REV.	BY	DATE	REV.	BY	DATE

5-A-2

ASSEMBLED BY G. OVERON DATE 4-80

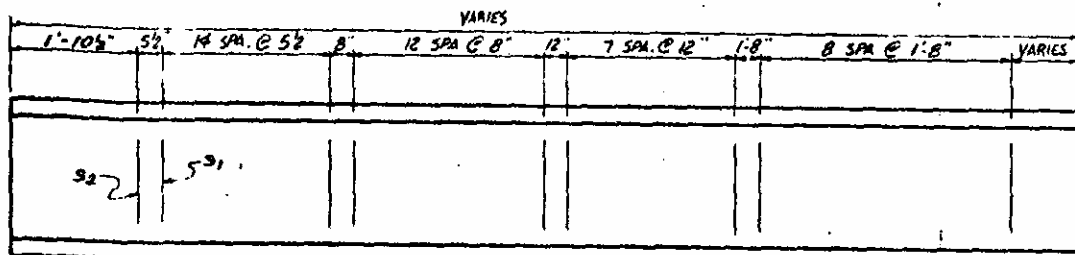
CHECKED BY CHARLES PORE DATE 5-80

DESIGNED BY STEVE A. JOHNSON DATE FEB. 1, 1978

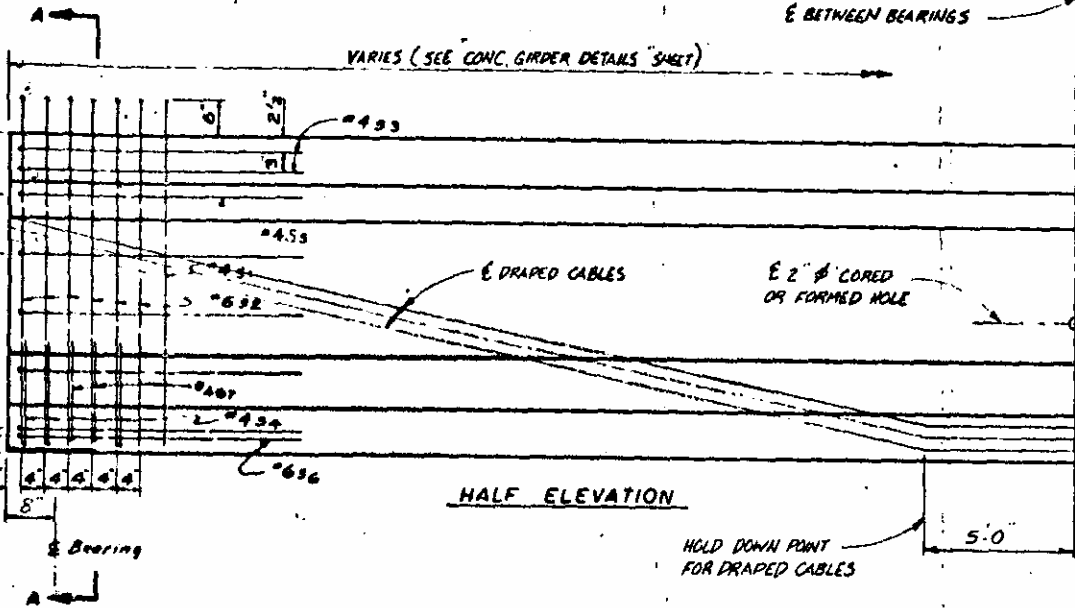
CONTRACT NO. 126130.2 DATE FEB. 1, 1978

SPECIAL

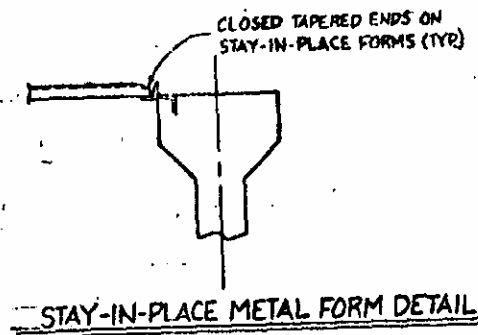
STANDARD



HALF PLAN



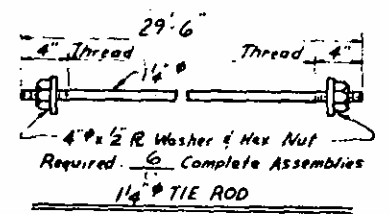
HALF ELEVATION



STAY-IN-PLACE METAL FORM DETAIL

DEFLECTION TABLE		
CAMBER-GIRDER AT ONE IN PLACE	DEFLECTION DUE TO SUPERIMPOSED DL*	FINAL DEFLECTION
ALL GIRDERS	↓ 1/2"	↓ 3/8"

\* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.

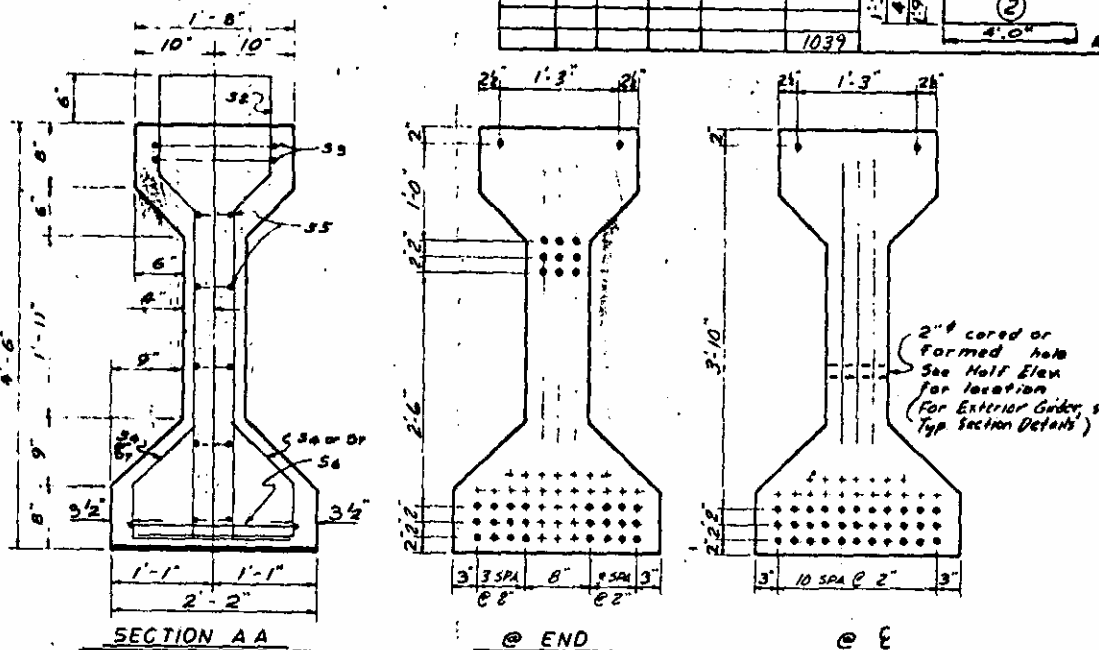


Tie Rod Assembly shall be A. S. T. M. A36 grade structural steel

QUANTITIES FOR ONE GIRDER			
	Reinforcing Steel Lbs.	5,000 psi Concrete Cu. Yds.	Grade E70 S.R. Cables No.
Girder	1039	16.7	35

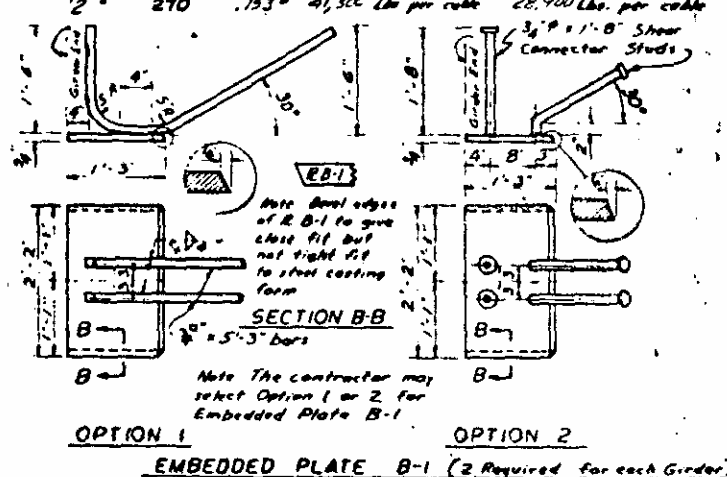
REINFORCING STEEL FOR ONE GIRDER					
Bar	No	Size	Type	Length	Weight
51	90	#4	1	11'-6"	681
52	12	#6	1	11'-4"	204
53	4	#4	2	9'-3"	25
54	12	#4	3	3'-5"	27
55	10	#4	2	8'-4"	56
56	2	#6	2	9'-9"	29
57	8	#4	3	9'-8"	17
					1039

BAR TYPES

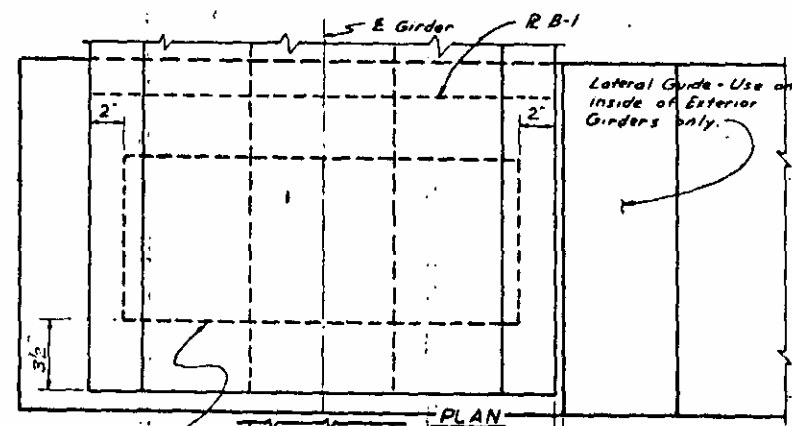


PRESTRESS CABLE LAYOUT

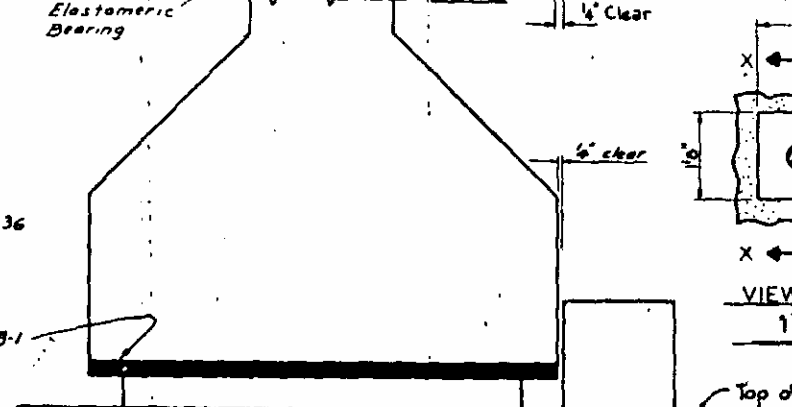
SIZE GRADE AREA ULTIMATE STR APPLIED PRESTRESS



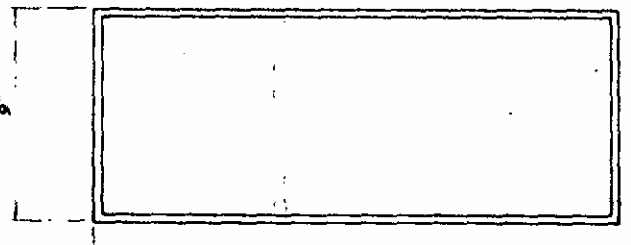
EMBEDDED PLATE B-1 (2 Required for each Girder)



PLAN

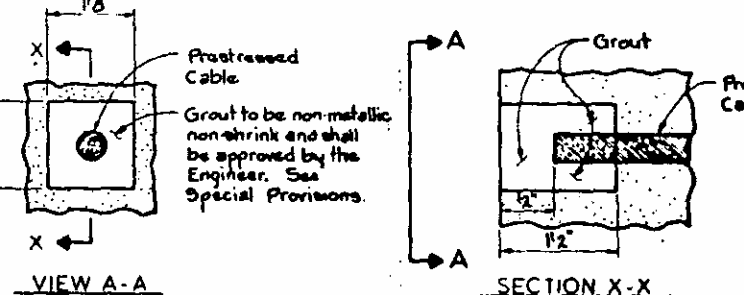


END ELEVATION



PLAN ELASTOMERIC BEARINGS

BEAM GRADE %	T (inches)	BEARING TYPES	NO. REQD
0.00 - 1.00	1 1/8"	P-1	20
1.00 - 2.25	2 1/8"	P-2	30
2.25 - 3.50	2 3/8"	P-3	10
3.50 - 5.00	2 7/8"	P-4	



VIEW A-A SECTION X-X 1 1/8" x 1 1/8" x 1 1/2" GROUTED RECESS

TYPICAL EACH END OF PRESTR. CABLE

NOTE: FOR TOT. L GIRDER LENGTH, SEE CONC. GIRDER DETAILS SHEET

GIRDERS REQUIRED		
No.	Length	Total Length

TYPICAL SECTION

NOTE: CONTRACTOR SHALL TAKE SPECIAL CARE TO INSURE THE BEVELED ELASTOMERIC BEARINGS ARE PROPERLY ORIENTED WITH BEAM GRADE.

PROJECT No. 8-1201302

CASPER COUNTY

STATION: 71+60-L

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
54" PRESTRESSED  
CONCRETE GIRDER  
SPANS - D 74R I

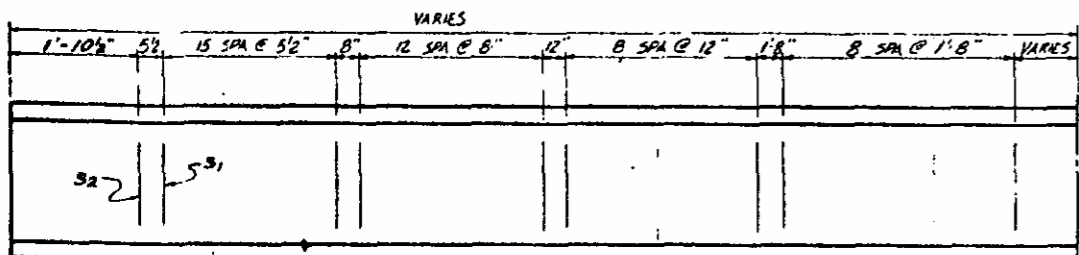
JULY 1978

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE

ASSEMBLED BY G. GERTIN DATE 4-80  
CHECKED BY CHARLES RICE DATE 5-80  
DRAWN BY JESSE A JOHNSON DATE FEB 1 1978  
DESIGNED BY RALPH D WATSON DATE FEB 1 1978

SPECIAL STANDARD

5-A-23

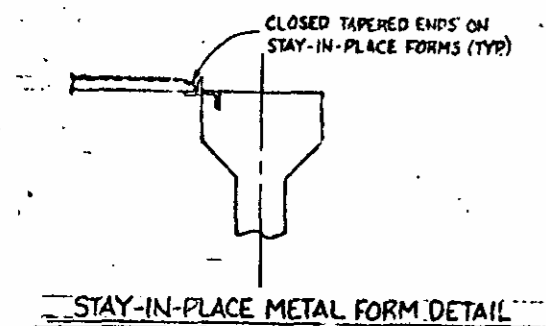
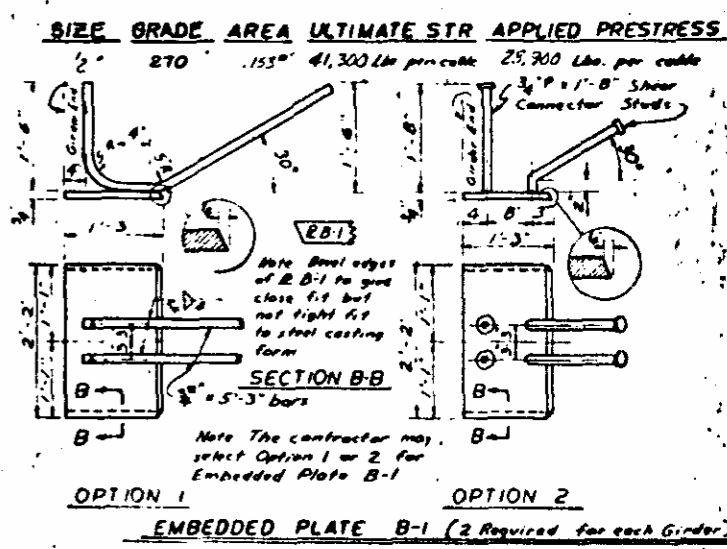
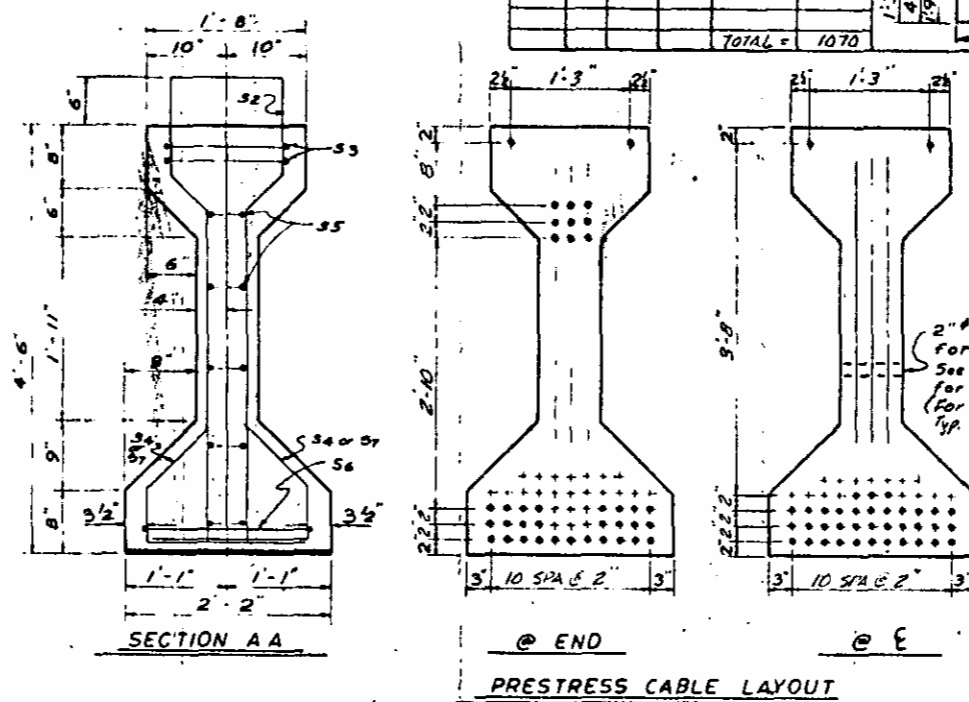
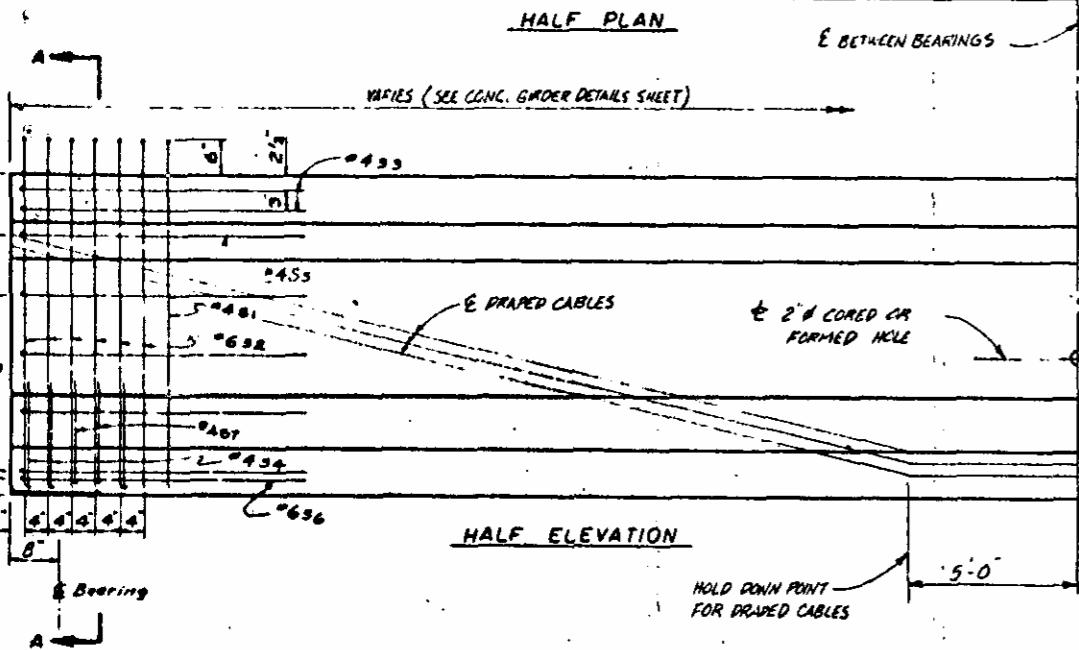


### REINFORCING STEEL FOR ONE GIRDER

Bar	No	Size	Type	Length	Weight
81	94	#4	1	11'-4"	712
82	12	#6	1	11'-4"	204
83	4	#4	2	9'-5"	25
84	12	#4	3	3'-5"	27
85	10	#4	2	8'-4"	56
86	2	#6	2	9'-9"	29
87	8	#4	3	9'-5"	17
TOTAL =					1070

BAR TYPES

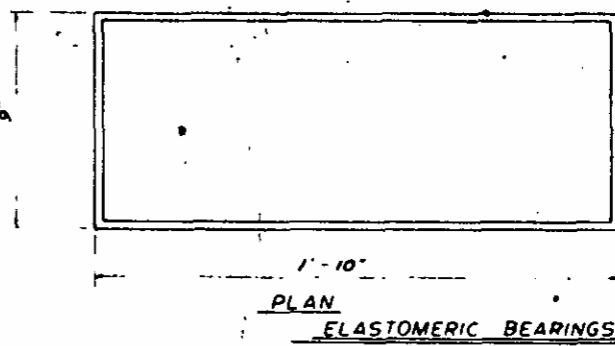
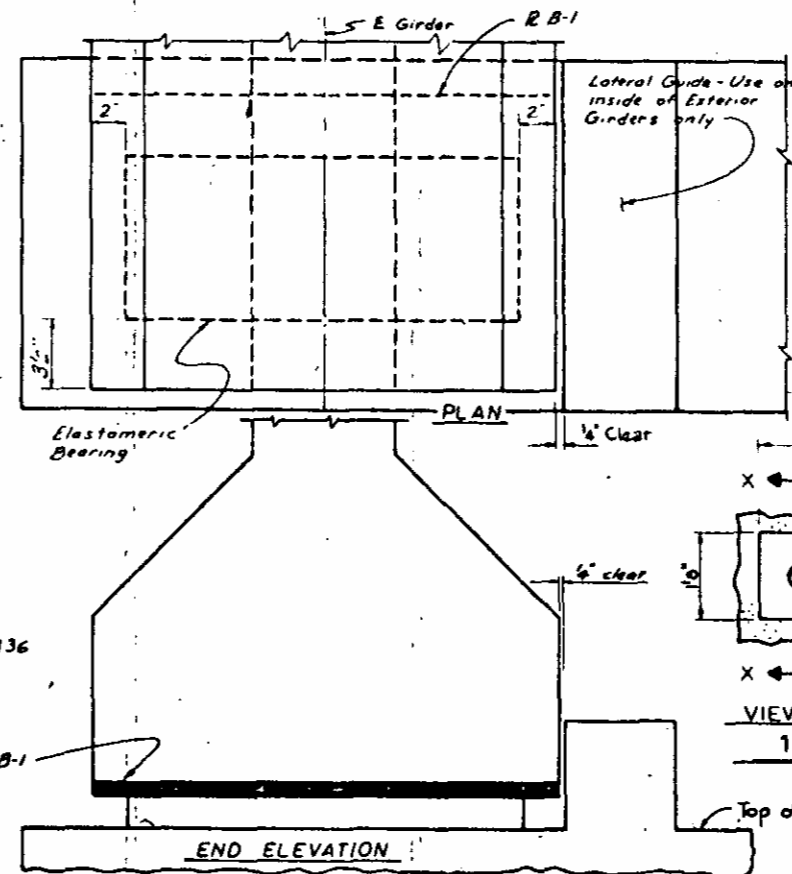
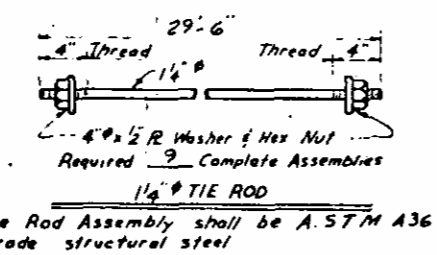
- ### NOTES
- ELASTOMER IN ALL BEARINGS SHALL HAVE A GRADE 50 DIAPHRAGM HARDNESS. SEE SPECIAL PROVISIONS.
  - STEEL PLATES IN LAMINATED BEARINGS SHALL CONFORM TO ASTM A-36.
  - APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACE.
  - FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
  - EMBEDDED PLATE B-1 TO BE GALVANIZED.
  - ALL PRESTRESSING STRANDS SHALL BE 2" WIRE STRESS RELIEVED GRADE 270 CABLES IN ACCORDANCE WITH THE SPECIFICATIONS.



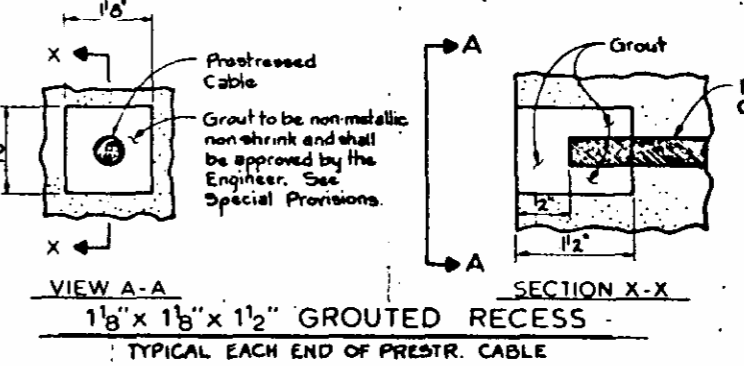
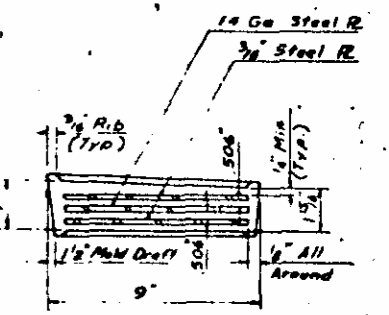
### DEFLECTION TABLE

CAMBER-GIRDER ALONE IN PLACE	DEFLECTION DUE TO SUPERIMPOSED DL*	FINAL DEFLECTION
ALL GIRDERS	↑ 9/16"	↑ 1"

\* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.



BEAM GRADE %	T (inches)	BEARING TYPES	NO. REQ'D
0.00 - 1.00	1 7/8"	P-1	10
1.00 - 2.25	2 1/8"	P-2	30
2.25 - 3.50	2 3/8"	P-3	20
3.50 - 5.00	2 7/8"	P-4	30



NOTE: CONTRACTOR SHALL TAKE SPECIAL CARE TO INSURE THE BEVELED ELASTOMERIC BEARINGS ARE PROPERLY ORIENTED WITH BEAM GRADE.

PROJECT No. E.1201302  
 COUNTY  
 STATION: 71160-L-

### QUANTITIES FOR ONE GIRDER

	Reinforcing Steel Lbs.	5,000 psi Concrete Cu. Yds.	Grade 270 S.R. Cables No.
Girder	1070	17.3	38

ASSEMBLED BY G. GARDIN DATE 4-80  
 CHECKED BY CHARLES BODE DATE 5-80  
 SPECIAL STANDARD

NOTE: FOR TOTAL GIRDER LENGTH, SEE CONC. GIRDER DETAILS SHEET.

### GIRDERS REQUIRED

No.	Length	Total Length

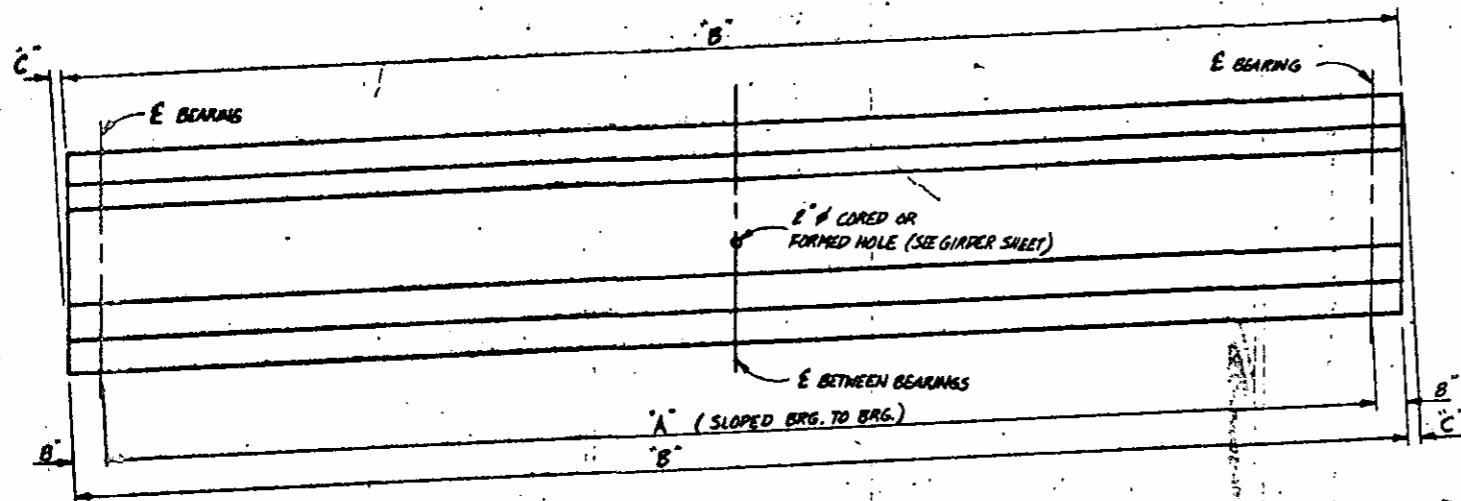
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD 54' PRESTRESSED CONCRETE GIRDER SPANS - J TIE R

JULY 1978

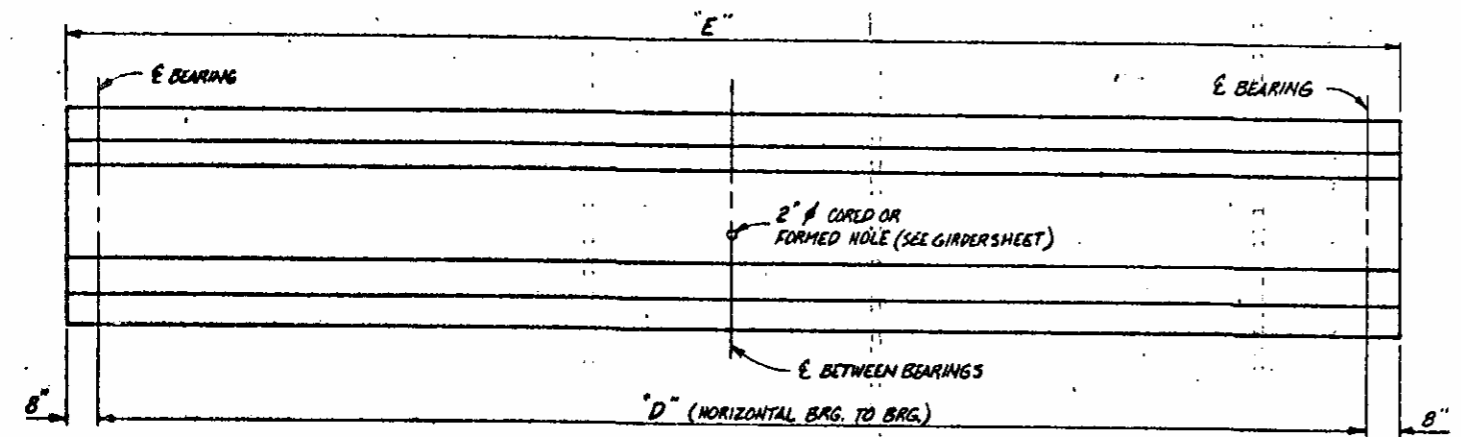
REVISIONS

NO.	BY	DATE	NO.	BY	DATE

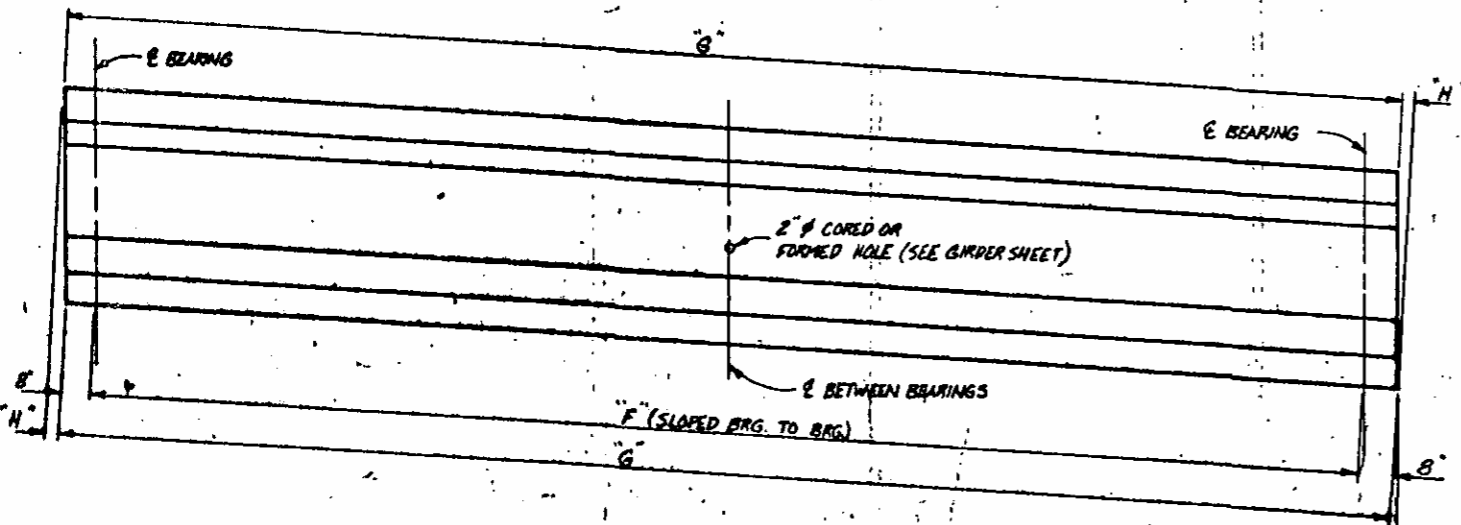
SHEET NO. S-A-20



ELEVATION  
(SEE CHART-A)



ELEVATION  
(SEE CHART-B)



ELEVATION  
(SEE CHART-C)

CHART-A

GIRDER	SPANS-A & B			SPAN-C			SPANS-D, E, & F		
	A	B	C	A	B	C	A	B	C
G1	66'-3 3/4"	67'-7 3/4"	2"	85'-11"	87'-3"	1 1/8"	80'-10 3/8"	82'-2 3/8"	1 1/8"
G2	66'-1 1/8"	67'-5 1/8"	2"	85'-7 1/4"	86'-11 1/4"	1 1/8"	80'-7 1/4"	81'-11 1/4"	1 1/8"
G3	65'-10 3/8"	67'-2 3/8"	2"	85'-4 1/2"	86'-8 1/2"	1 1/8"	80'-4 1/8"	81'-8 1/8"	1 1/8"
G4	65'-8"	67'-0"	2"	85'-1 1/8"	86'-5 1/8"	1 1/8"	80'-1"	81'-5"	1 1/8"
G5	65'-5 3/8"	66'-9 3/8"	2"	84'-9 3/8"	86'-1 3/8"	1 1/8"	79'-10"	81'-2"	1 1/8"

\* CHART-B

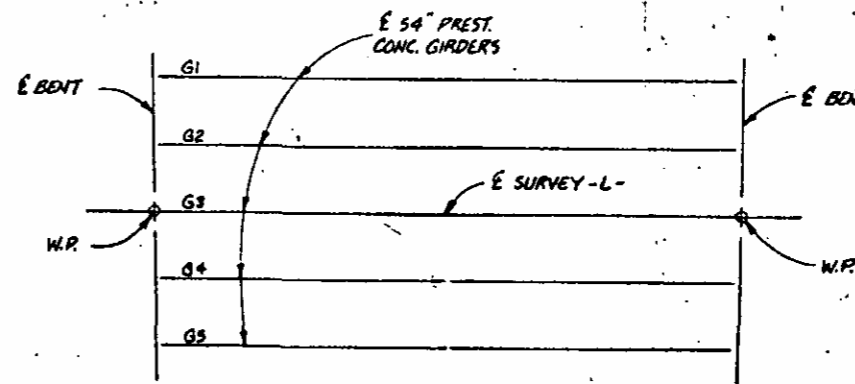
GIRDER	SPANS-G, H, & I		SPANS-J & K	
	D	E	D	E
G1	80'-10 1/4"	82'-2 1/4"	83'-10 3/8"	85'-2 3/8"
G2	80'-7 1/8"	81'-11 1/8"	83'-7 1/4"	84'-11 1/4"
G3	80'-4"	81'-8"	83'-4"	84'-8"
G4	80'-0 7/8"	81'-4 7/8"	83'-0 3/4"	84'-4 3/4"
G5	79'-9 3/4"	81'-1 3/4"	82'-9 1/2"	84'-1 1/2"

\* BEVEL NOT REQUIRED

CHART-C

GIRDER	SPANS-L, M, & N			SPANS O & P			SPANS Q & R		
	F	G	H	F	G	H	F	G	H
G1	83'-10 3/8"	85'-2 3/8"	1 1/8"	83'-11"	85'-3"	1 1/8"	83'-11 1/2"	85'-3 1/2"	2 1/2"
G2	83'-7 3/8"	84'-11 3/8"	1 1/8"	83'-7 3/4"	84'-11 3/4"	1 1/8"	83'-8 1/4"	85'-0 1/4"	2 1/2"
G3	83'-4 1/4"	84'-8 1/4"	1 1/8"	83'-4 1/2"	84'-8 1/2"	1 1/8"	83'-5"	84'-9"	2 1/2"
G4	83'-1"	84'-5"	1 1/8"	83'-1 1/8"	84'-5 1/8"	1 1/8"	83'-1 3/4"	84'-5 3/4"	2 1/2"
G5	82'-9 3/4"	84'-1 3/4"	1 1/8"	82'-10 3/8"	84'-2 3/8"	1 1/8"	82'-10 1/2"	84'-2 1/2"	2 1/2"

TOTAL LENGTH OF GIRDERS REQUIRED = 7367'-4 1/2"

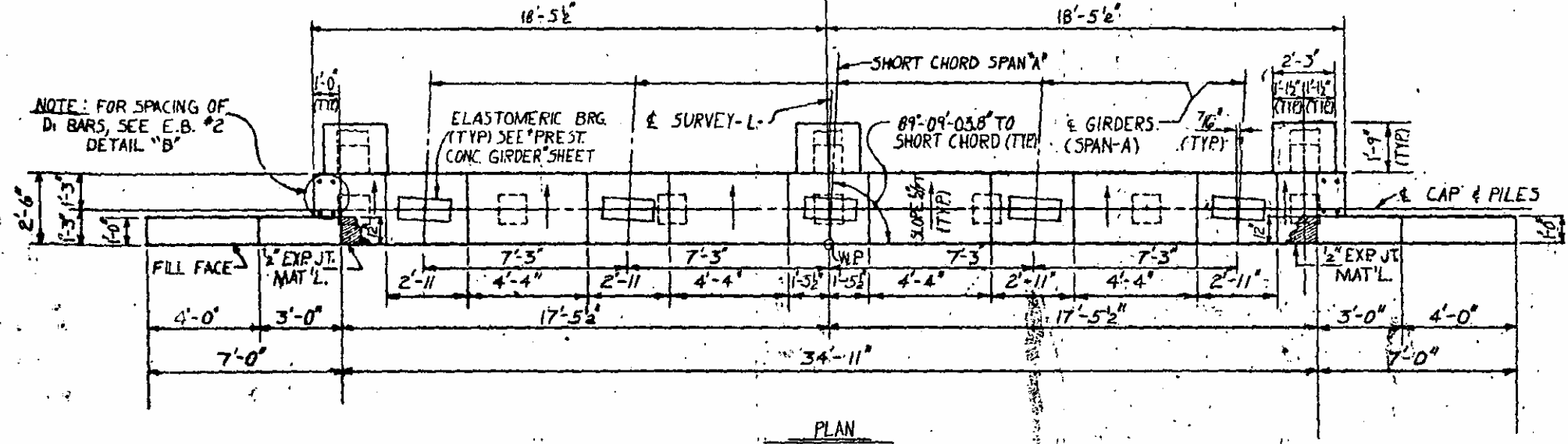


LOCATION OF GIRDERS

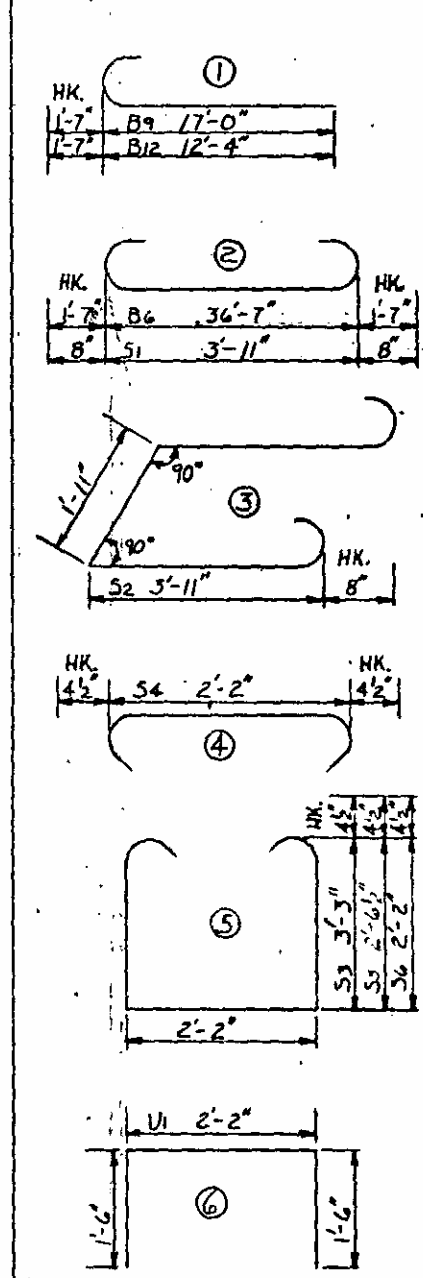
PROJECT No. 8.1201302  
CARTERET COUNTY  
STATION: 71+60.0-L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
CONCRETE GIRDER DETAILS

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	5-A-26	
1			2			TOTAL SHEETS 6.7	
2			3				



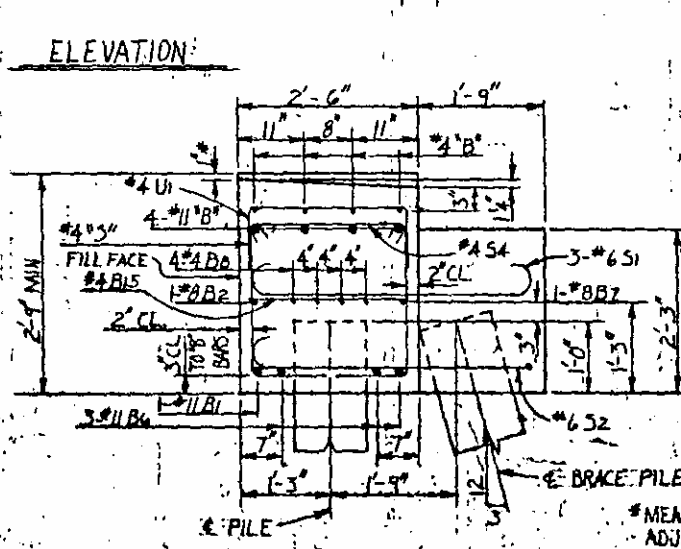
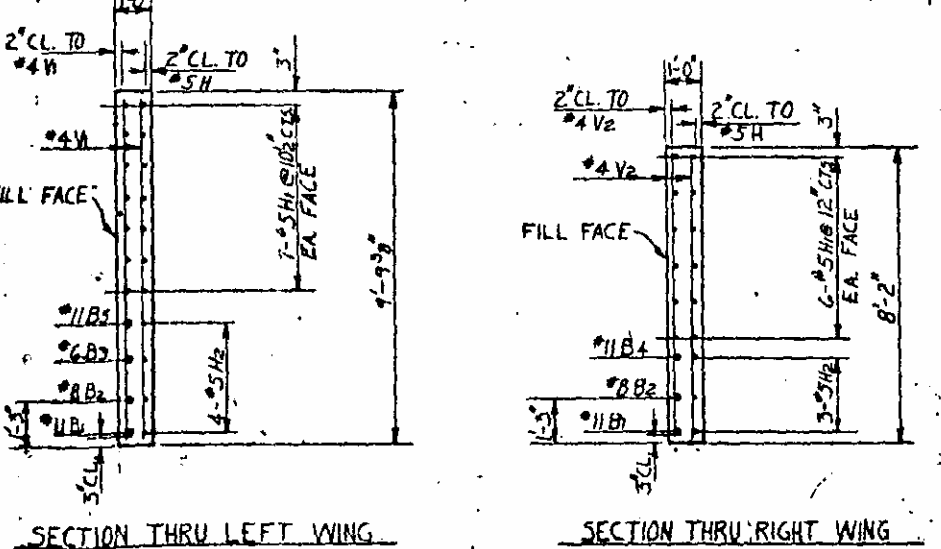
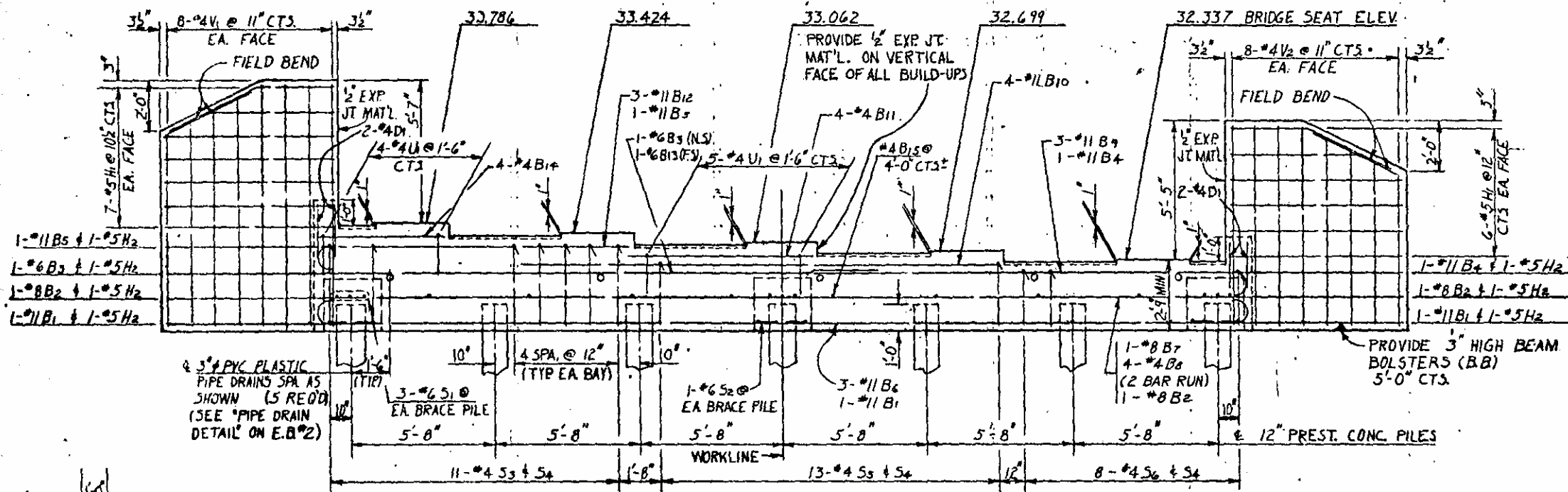
BAR TYPES  
ALL BAR DIMENSIONS ARE OUT TO OUT



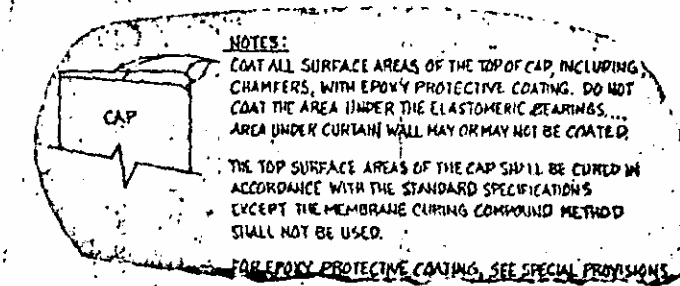
BILL OF MATERIAL					
FOR END BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B <sub>1</sub>	1	#11	STR.	48'-7"	258
B <sub>2</sub>	1	#8	STR.	48'-7"	130
B <sub>3</sub>	1	#6	STR.	27'-9"	42
B <sub>4</sub>	1	#11	STR.	23'-0"	122
B <sub>5</sub>	1	#11	STR.	18'-4"	97
B <sub>6</sub>	3	#11	2	39'-9"	634
B <sub>7</sub>	1	#8	STR.	36'-7"	98
B <sub>8</sub>	8	#4	STR.	18'-11"	101
B <sub>9</sub>	3	#11	1	18'-7"	296
B <sub>10</sub>	4	#11	STR.	18'-10"	400
B <sub>11</sub>	4	#4	STR.	7'-3"	19
B <sub>12</sub>	3	#11	1	13'-11"	222
B <sub>13</sub>	1	#6	STR.	21'-9"	33
B <sub>14</sub>	4	#4	STR.	5'-1"	14
B <sub>15</sub>	8	#4	STR.	2'-2"	12
D <sub>1</sub>	8	#4	STR.	2'-0"	11
H <sub>1</sub>	13	#5	STR.	6'-8"	90
H <sub>2</sub>	7	#5	STR.	8'-0"	58
S <sub>1</sub>	9	#6	2	5'-1"	71
S <sub>2</sub>	3	#6	3	11'-1"	50
S <sub>3</sub>	11	#4	5	9'-5"	69
S <sub>4</sub>	32	#4	4	2'-11"	62
S <sub>5</sub>	13	#4	5	8'-0"	69
S <sub>6</sub>	8	#4	5	7'-3"	39
U <sub>1</sub>	16	#4	STR.	9'-5"	131
U <sub>2</sub>	16	#4	STR.	7'-10"	84
V <sub>1</sub>	9	#4	6	5'-2"	31

REIN. STEEL - LBS - 3213  
CLASS "A" CONC. CYLDS. 16.2

12" PREST. CONC. PILES:  
NO. = 10 LIN. FT. = 510

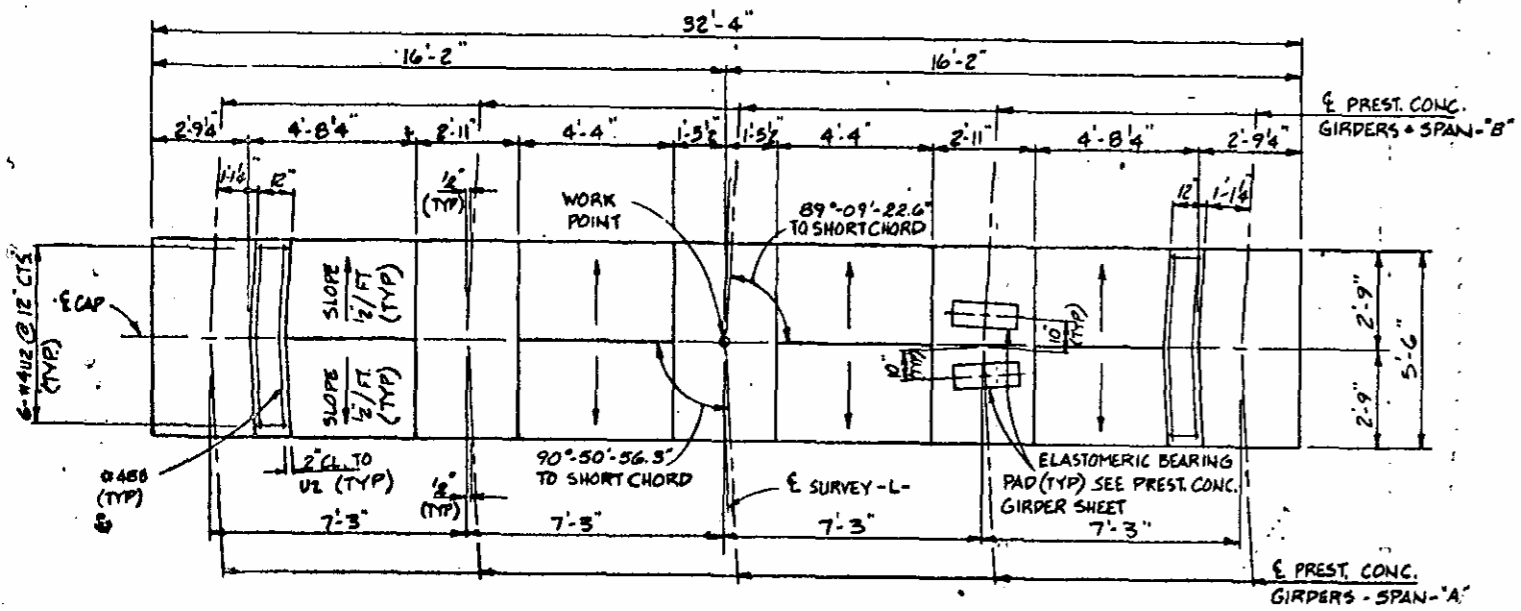


NOTE: FOR LOCATION OF LIGHTING CONDUIT AND JUNCTION BOXES, SEE "NAVIGATIONAL LIGHTING SYSTEM" DETAILS.

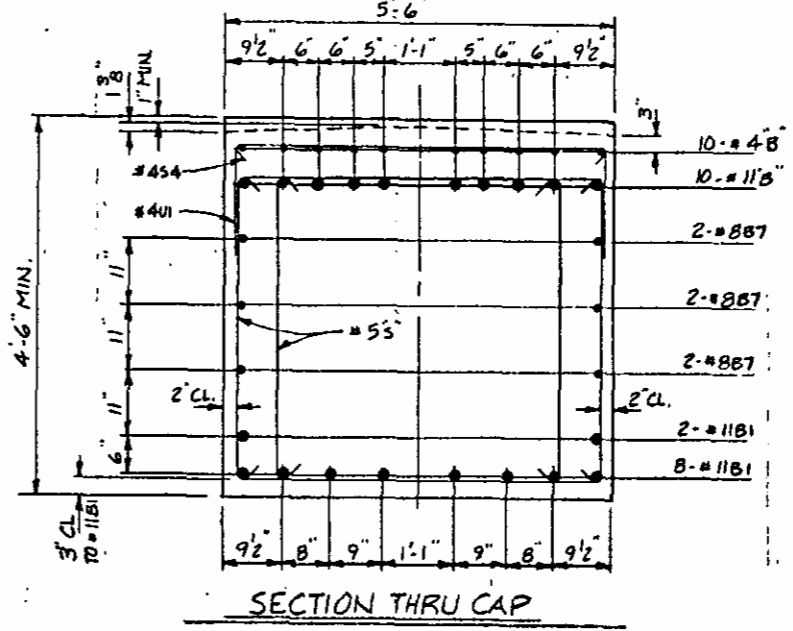


PROJECT NO. 81201302  
CARTERET COUNTY  
STATION: 71+60 -1-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT NO. 1					
REVISIONS					SHEET NO. 5-A-26
NO.	BY	DATE	NO.	BY	
1			2		TOTAL SHEETS 52
2			3		

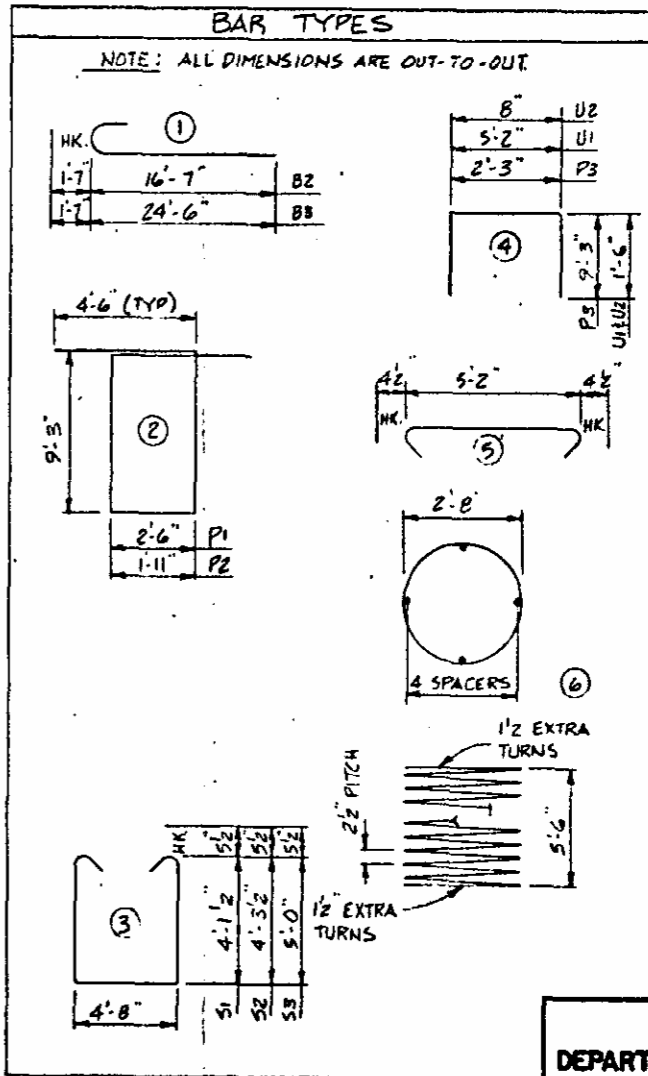
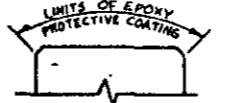


PLAN

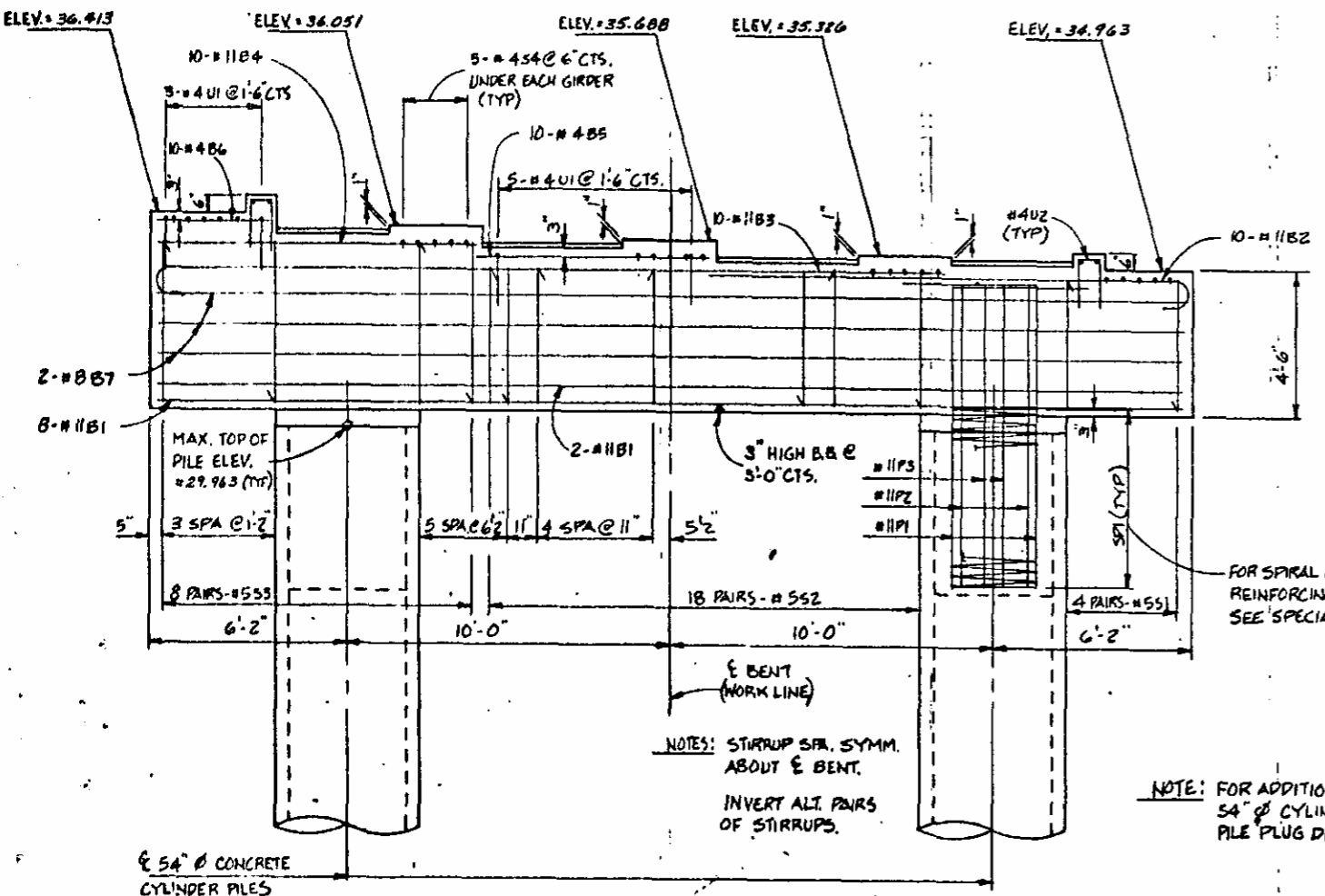


SECTION THRU CAP

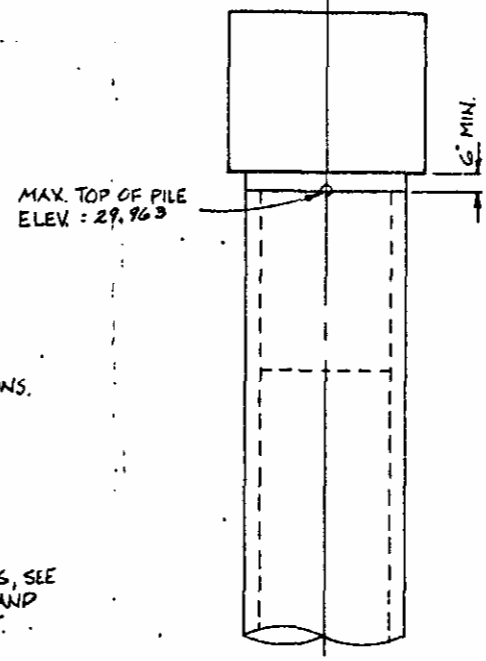
**NOTES:**  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.  
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.



BILL OF MATERIAL					
BENT # 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	STR	32'-0"	1700
B2	10	#11	1	18'-2"	965
B3	10	#11	1	26'-1"	1386
B4	10	#11	STR	10'-0"	531
B5	10	#4	STR	7'-3"	48
B6	10	#4	STR	3'-5"	23
B7	6	#8	STR	32'-0"	513
B8	4	#4	STR	5'-2"	14
P1	4	#11	2	30'-0"	638
P2	4	#11	2	29'-5"	625
P3	4	#11	4	20'-9"	441
S1	8	#5	3	15'-10"	115
S2	36	#5	3	14'-2"	532
S3	16	#5	3	15'-7"	260
S4	25	#4	5	3'-11"	99
U1	8	#4	4	8'-2"	44
U2	12	#4	4	3'-8"	29
TOTAL					7963
SPI	2	6	242'-7"	524	
SPECIAL COLLUM. REIN. STEEL = 324 LBS.					
REINFORCING STEEL = 7963 LBS.					
CLASS "A" CONCRETE = 38.3 CU. YDS.					
54 # CONCRETE CYLINDER PILES					
NO. = 2 LIN. FT. = 112					



ELEVATION



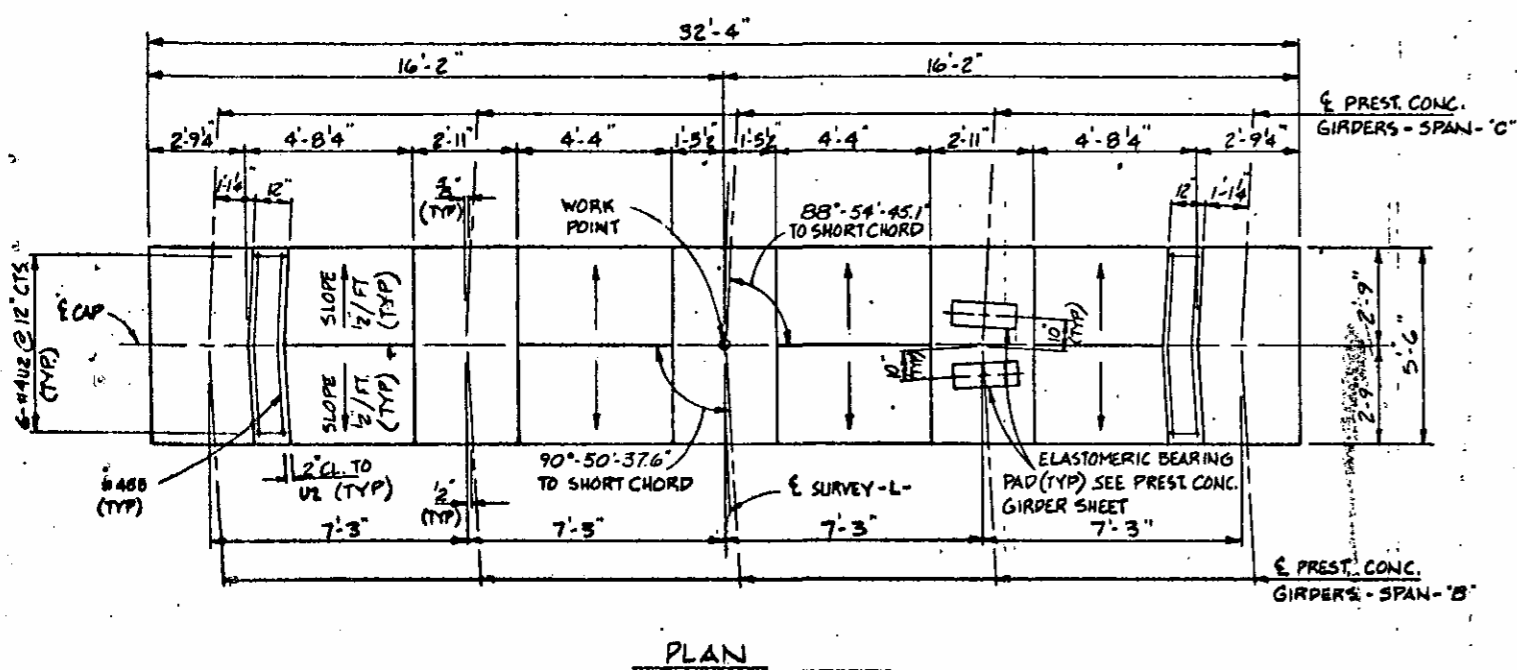
END ELEVATION

PROJECT No. B.1201302  
 CARTERET COUNTY  
 STATION: 71+60-L-

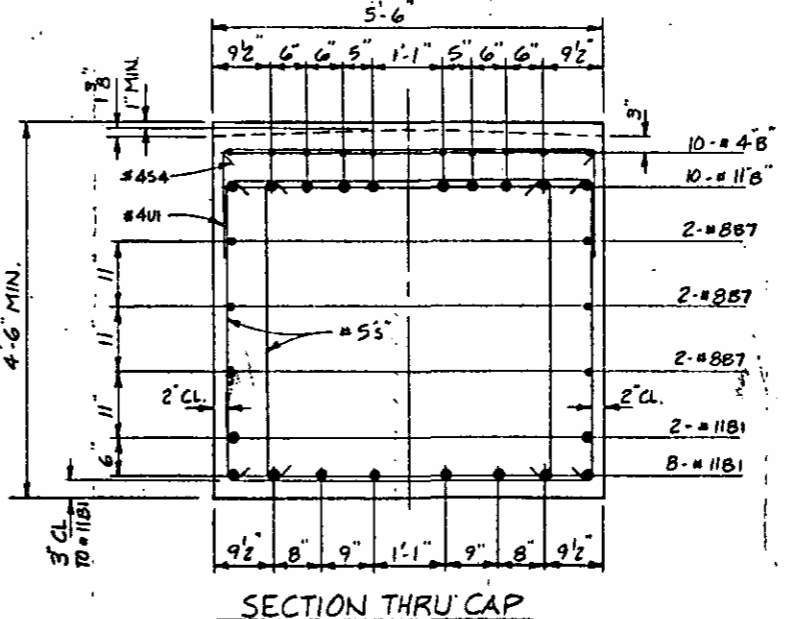
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT #1

DESIGNED BY: G. DORTCH DATE: 7/80  
 CHECKED BY: CHARLES POPE DATE: 7-80

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	5-A-27	
1			2			TOTAL SHEETS	
2			4			52	



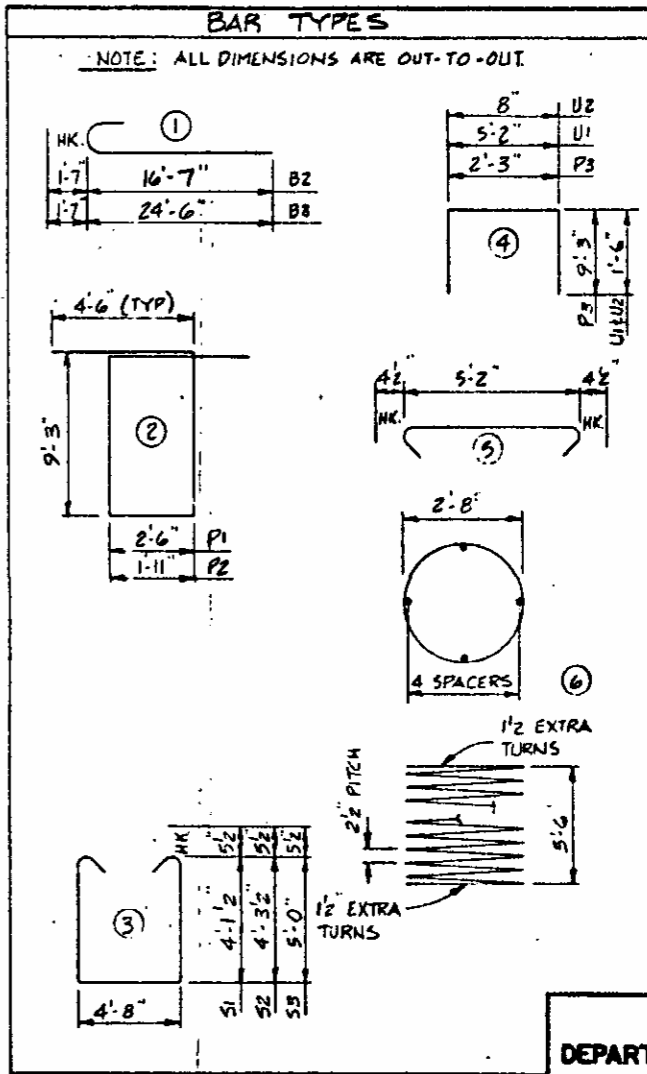
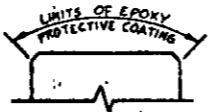
PLAN



SECTION THRU CAP

BILL OF MATERIAL					
BENT #2					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	STR	32'-0"	1700
B2	10	#11	1	18'-2"	965
B3	10	#11	1	26'-1"	1386
B4	10	#11	STR	10'-0"	531
B5	10	#4	STR	7'-3"	48
B6	10	#4	STR	3'-5"	23
B7	6	#8	STR	32'-0"	513
B8	4	#4	STR	5'-2"	14
P1	4	#11	2	30'-0"	638
P2	4	#11	2	29'-5"	625
P3	4	#11	4	20'-9"	441
S1	8	#5	3	13'-10"	115
S2	36	#5	3	14'-2"	532
S3	16	#5	3	15'-7"	260
S4	25	#2	5	5'-11"	49
U1	8	#4	4	8'-2"	44
U2	12	#4	4	3'-8"	29
TOTAL					7963
SPI	2	6	242'-7"	324	

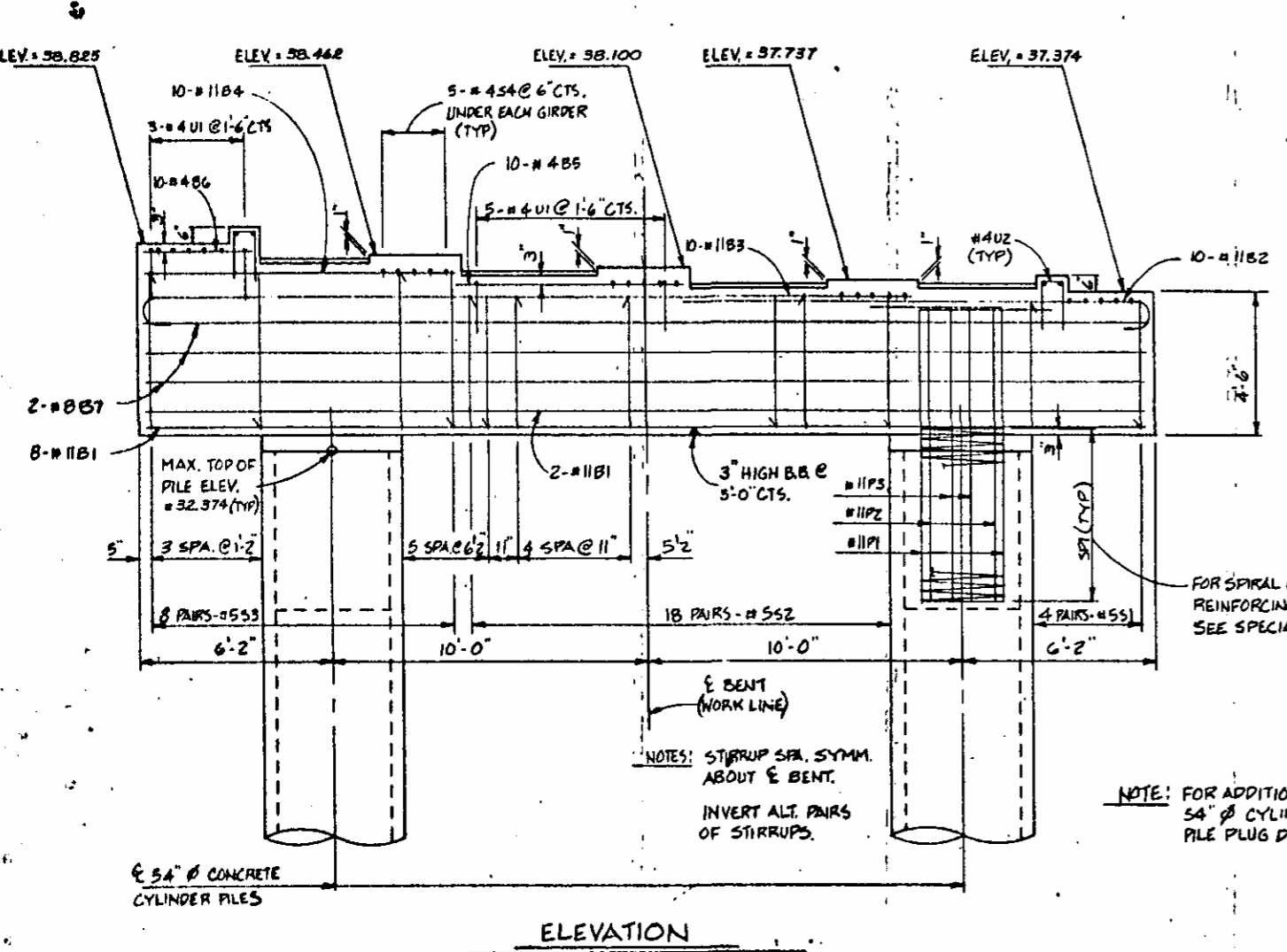
NOTES:  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.  
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.



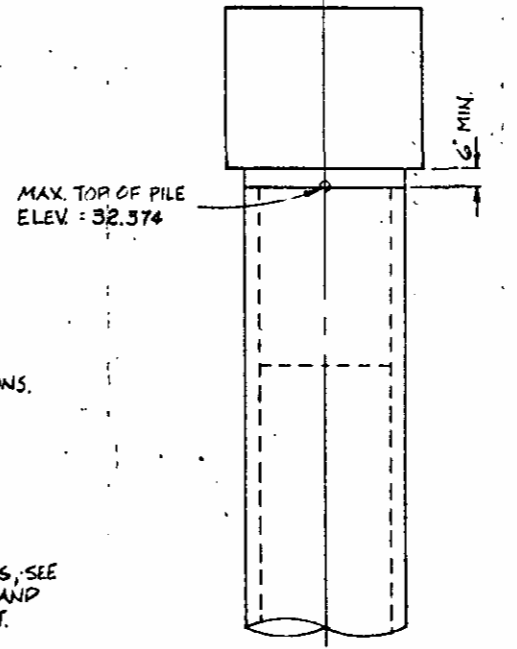
PROJECT No. S. 1201302  
 CARTERET COUNTY  
 STATION: 71+60-L

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT #2

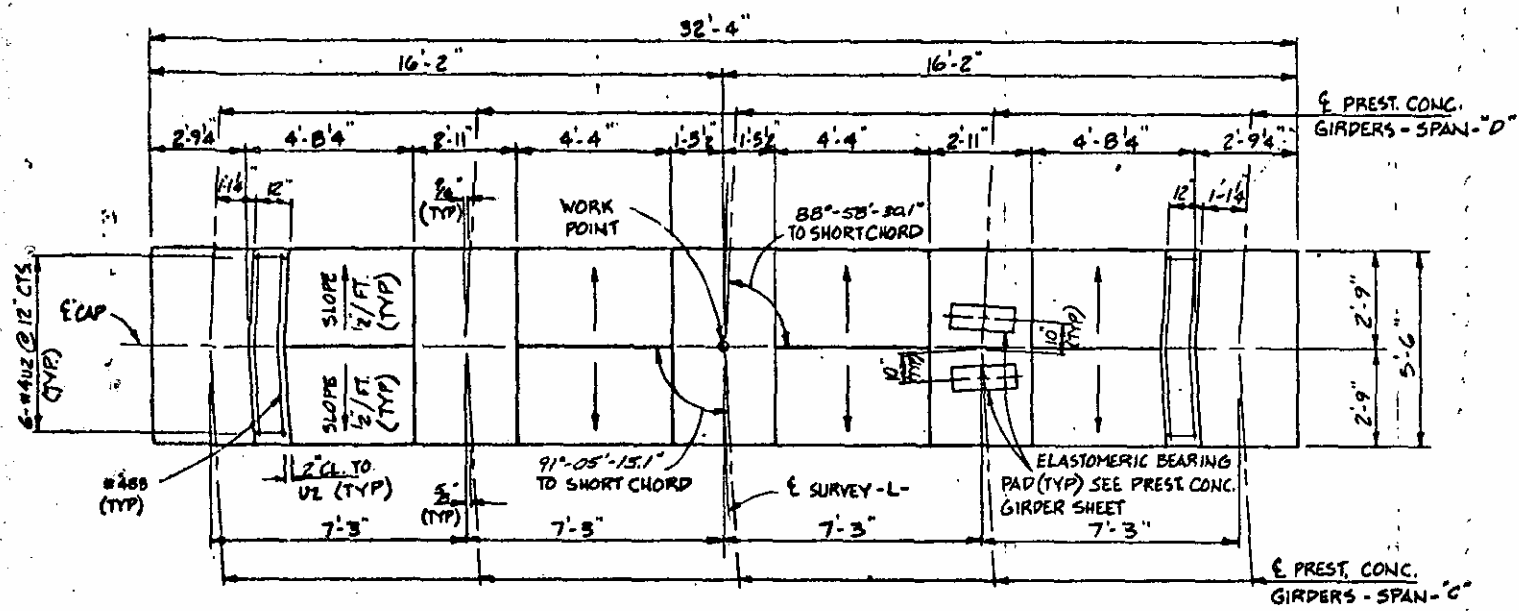
REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S-A-28	
1			2			TOTAL SHEETS	
2			4			52	



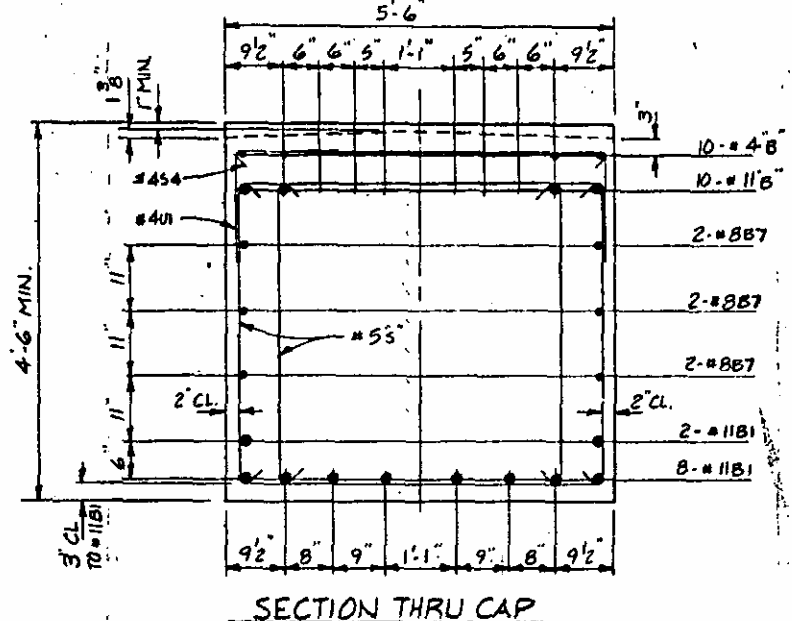
ELEVATION



END ELEVATION



PLAN



SECTION THRU CAP

BILL OF MATERIAL					
BENT #3					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	STR	32'-0"	1700
B2	10	#11	1	18'-2"	965
B3	10	#11	1	26'-1"	1386
B4	10	#11	STR	10'-0"	531
B5	10	#4	STR	7'-3"	48
B6	10	#4	STR	3'-5"	23
B7	6	#8	STR	32'-0"	513
B8	4	#4	STR	5'-2"	14
P1	4	#11	2	30'-0"	638
P2	4	#11	2	29'-5"	625
P3	4	#11	4	20'-9"	441
S1	8	#5	5	13'-10"	115
S2	36	#2	5	14'-2"	532
S3	16	#5	3	15'-7"	260
S4	25	#4	5	5'-11"	99
U1	8	#4	4	8'-2"	44
U2	12	#4	4	3'-8"	29
TOTAL					7963
SPI	2	6	242'-7"		324

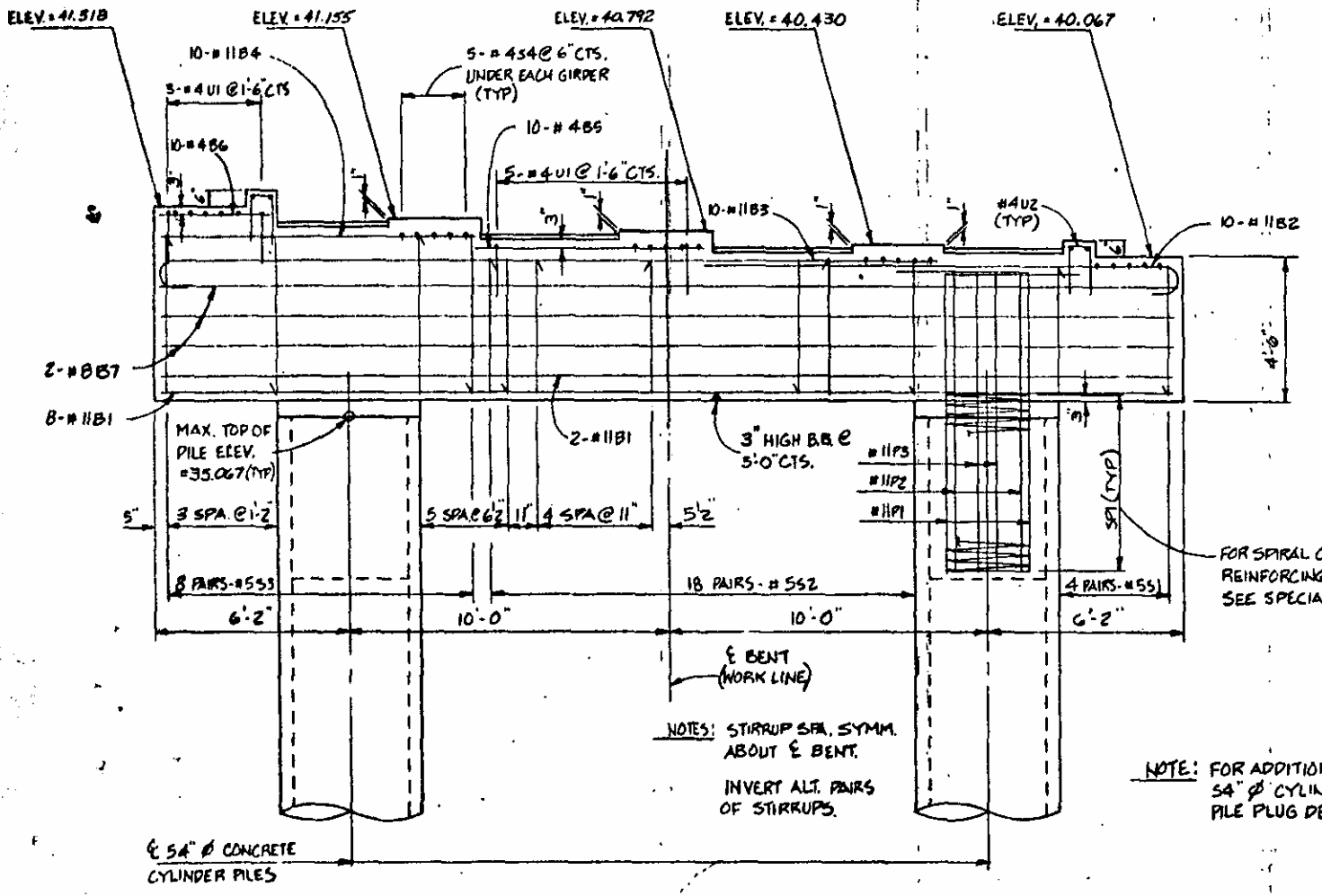
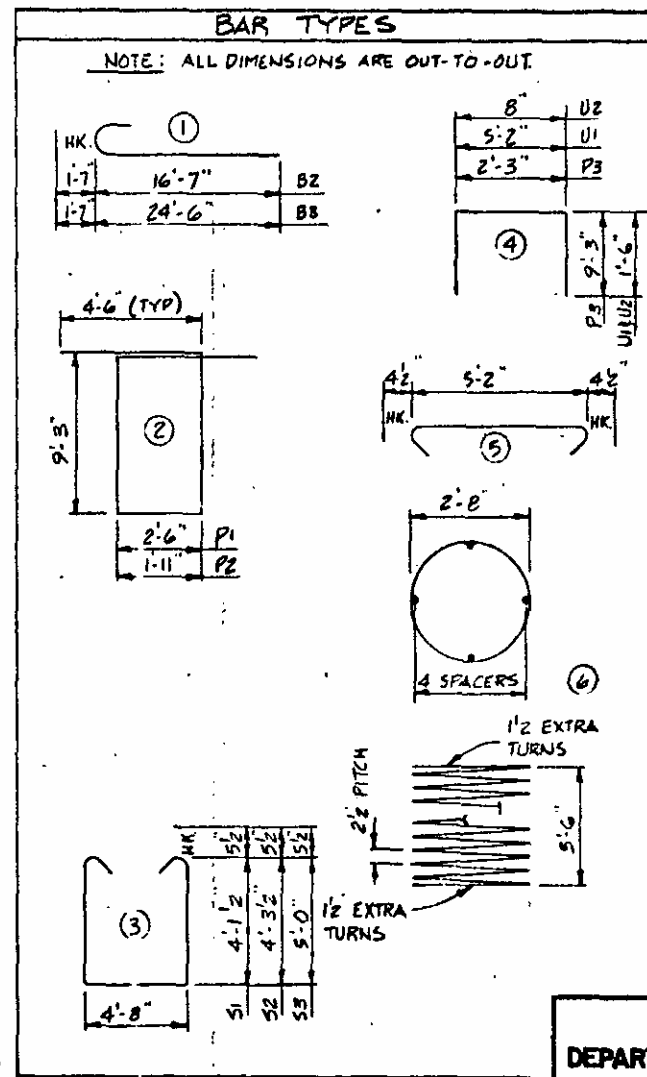
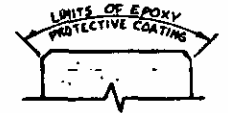
PROJECT NO. B.120130Z  
 CARTERET COUNTY  
 STATION: 71+60-L

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT #3

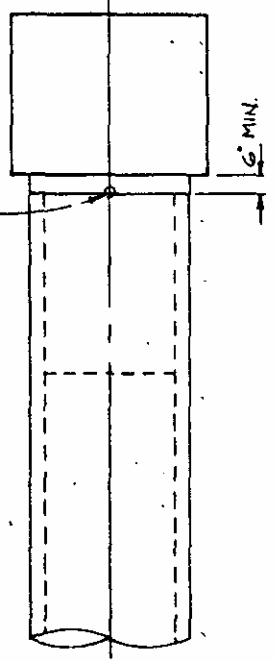
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			2		
2			3		

SHEET NO. 5-A-29  
 TOTAL SHEETS 52

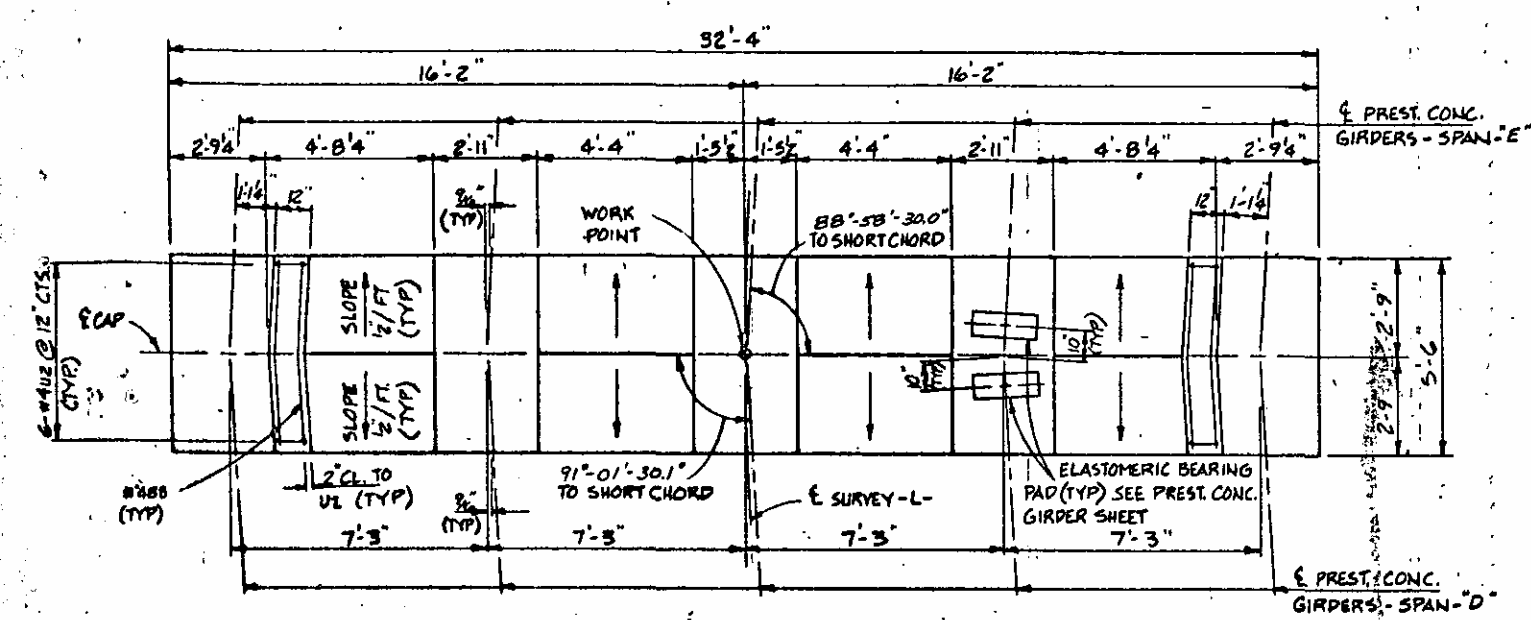
NOTES:  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.  
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.



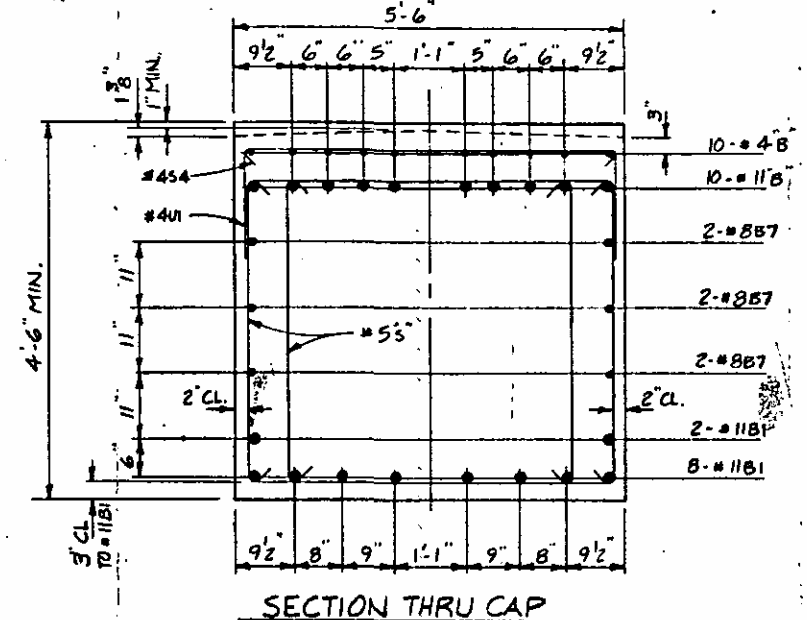
ELEVATION



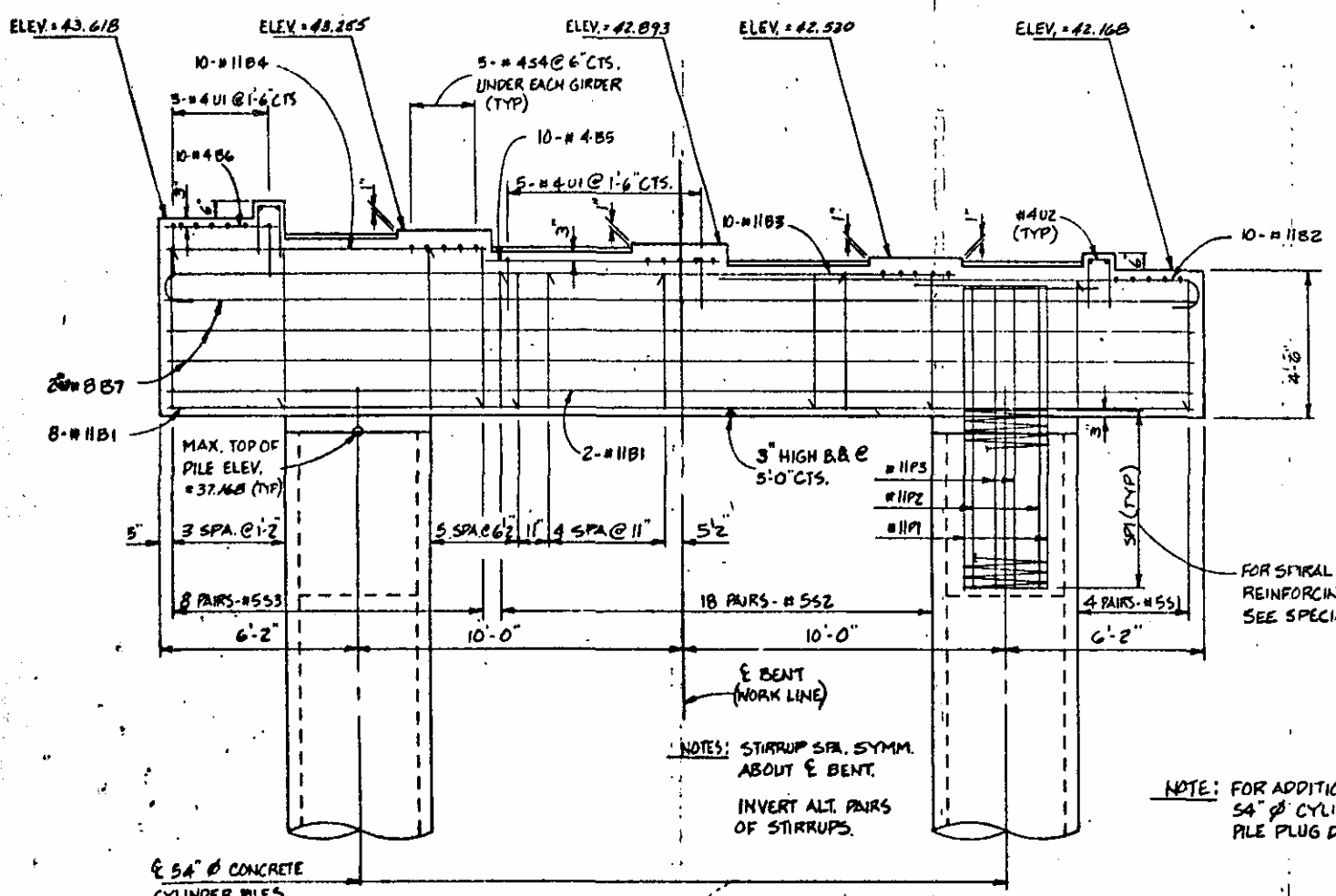
END ELEVATION



PLAN

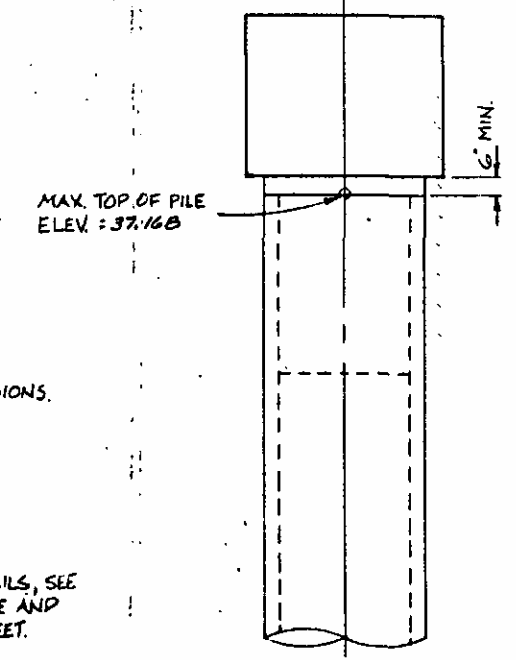
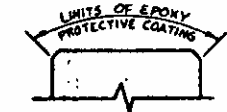


SECTION THRU CAP



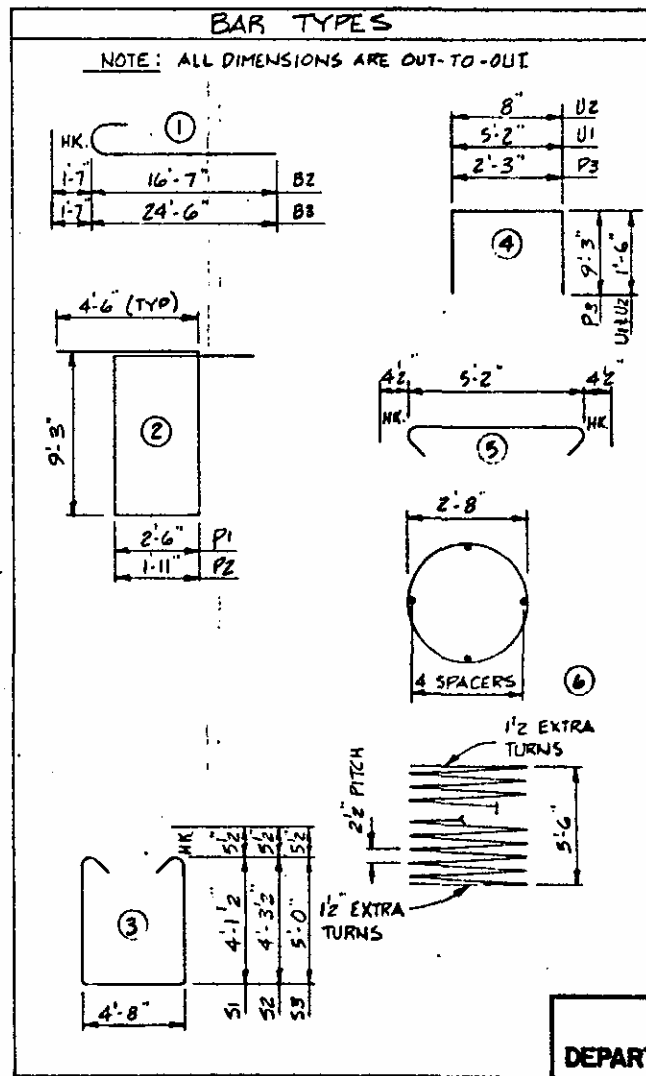
ELEVATION

NOTES:  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE 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.



END ELEVATION

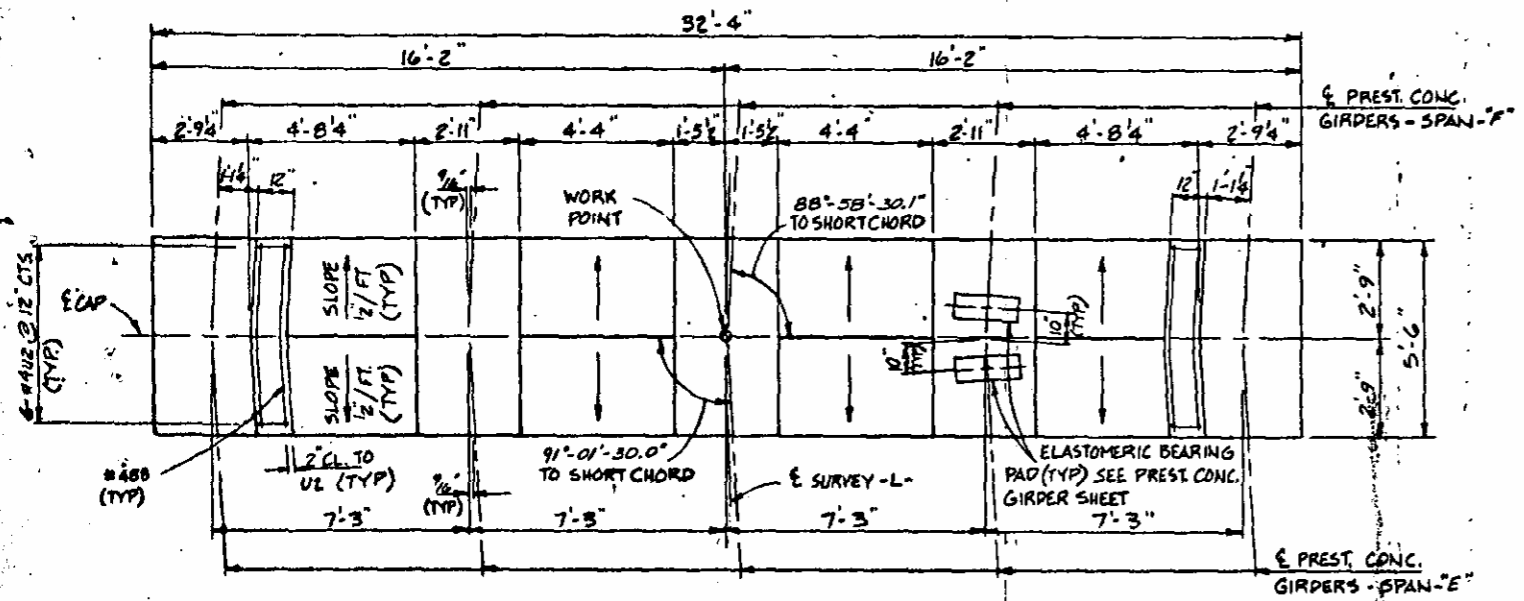
BILL OF MATERIAL						
BENT #4						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	10	#11	STR	32'-0"	1700	
B2	10	#11	1	18'-2"	965	
B3	10	#11	1	26'-1"	1386	
B4	10	#11	STR	10'-0"	531	
B5	10	#4	STR	7'-3"	48	
B6	10	#4	STR	3'-5"	23	
B7	6	#8	STR	32'-0"	513	
B8	4	#4	STR	5'-2"	14	
P1	4	#11	2	30'-0"	638	
P2	4	#11	2	29'-5"	625	
P3	4	#11	4	20'-9"	441	
S1	8	#5	3	13'-10"	115	
S2	36	#5	3	14'-2"	532	
S3	16	#5	3	15'-7"	260	
S4	25	#4	5	5'-11"	99	
U1	8	#4	4	8'-2"	44	
U2	12	#4	4	3'-8"	29	
TOTAL						7763
SP1	2	6	242'-7"	324		
SPRAL COLUMN REIN STEEL = 224 LBS						
REINFORCING STEEL = 7963 LBS						
CLASS 'A' XMASITE = 38.3 CU. YDS.						
54" Ø CONCRETE CYLINDER PILES						
NO = 2 LIN FT. = 128						



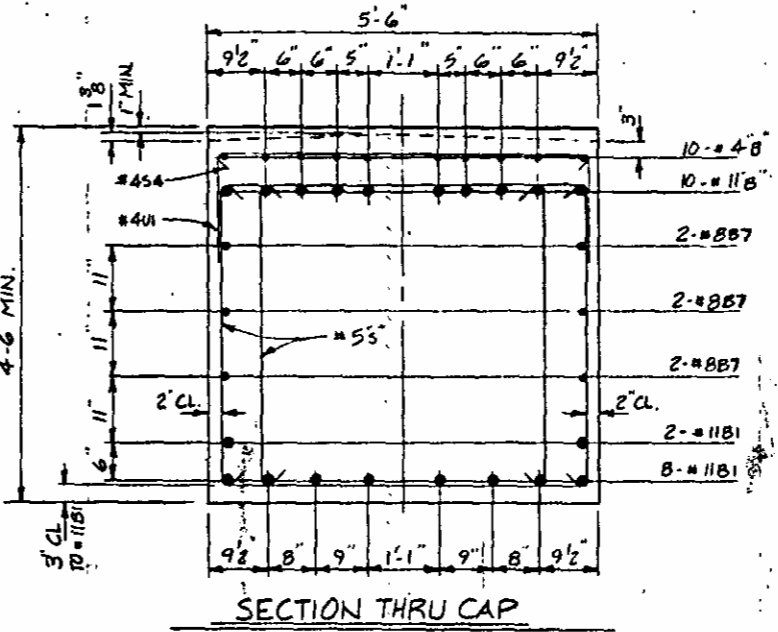
PROJECT NO. B.120130Z  
 CARTERET COUNTY  
 STATION: 71+60-L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT #4

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	5-A-30	
1			2			TOTAL SHEETS	
2			3			52	

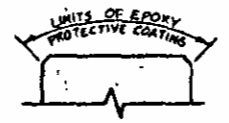


PLAN



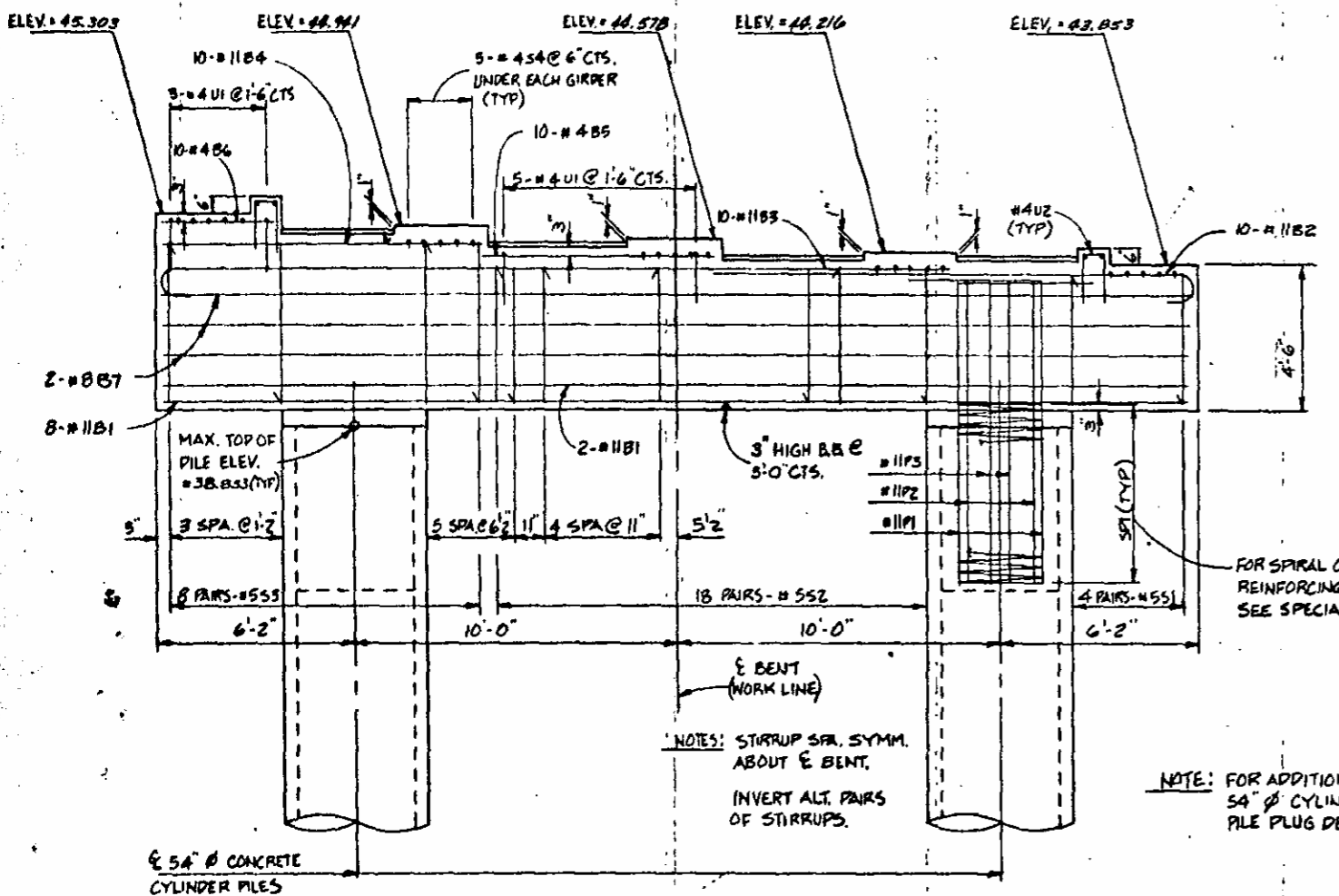
SECTION THRU CAP

**NOTES:**  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE 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.



MAX. TOP OF PILE ELEV. = 38.853

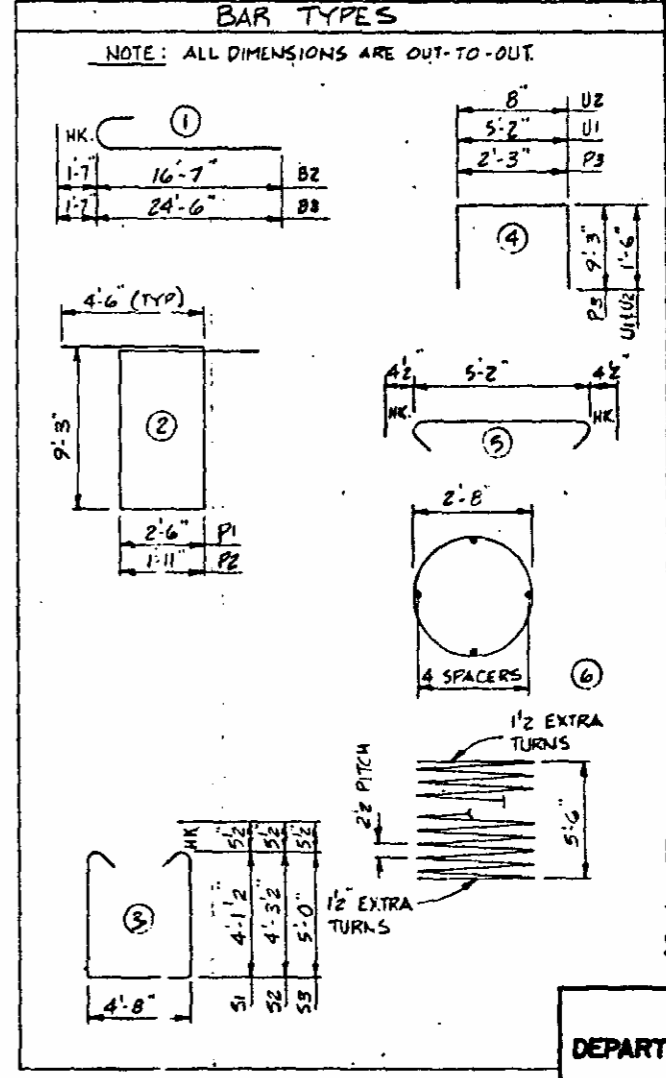
END ELEVATION



ELEVATION

**NOTES:** STIRRUP SPA. SYMM. ABOUT E BENT. INVERT ALT. PAIRS OF STIRRUPS.

**NOTE:** FOR ADDITIONAL DETAILS, SEE 54" Ø CONCRETE PILE AND PILE PLUG DETAIL SHEET.

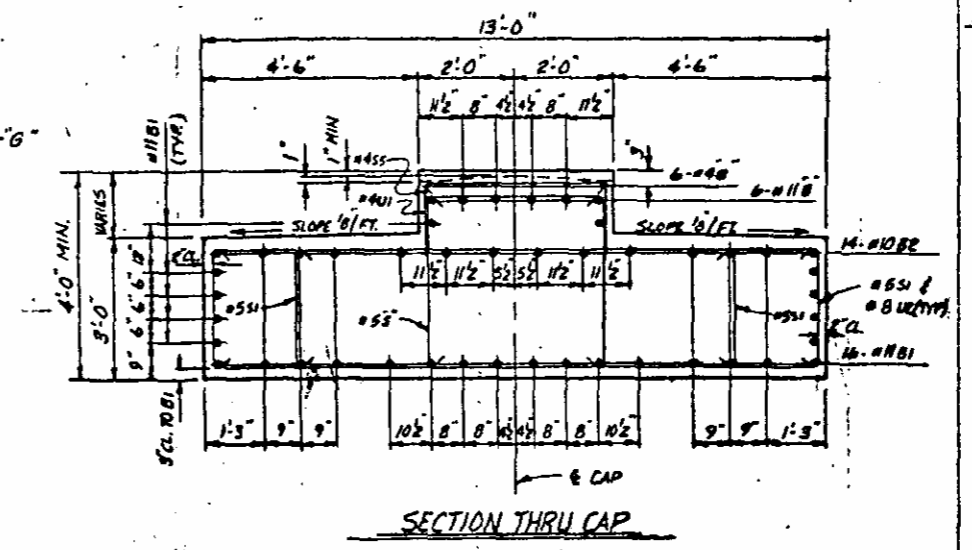
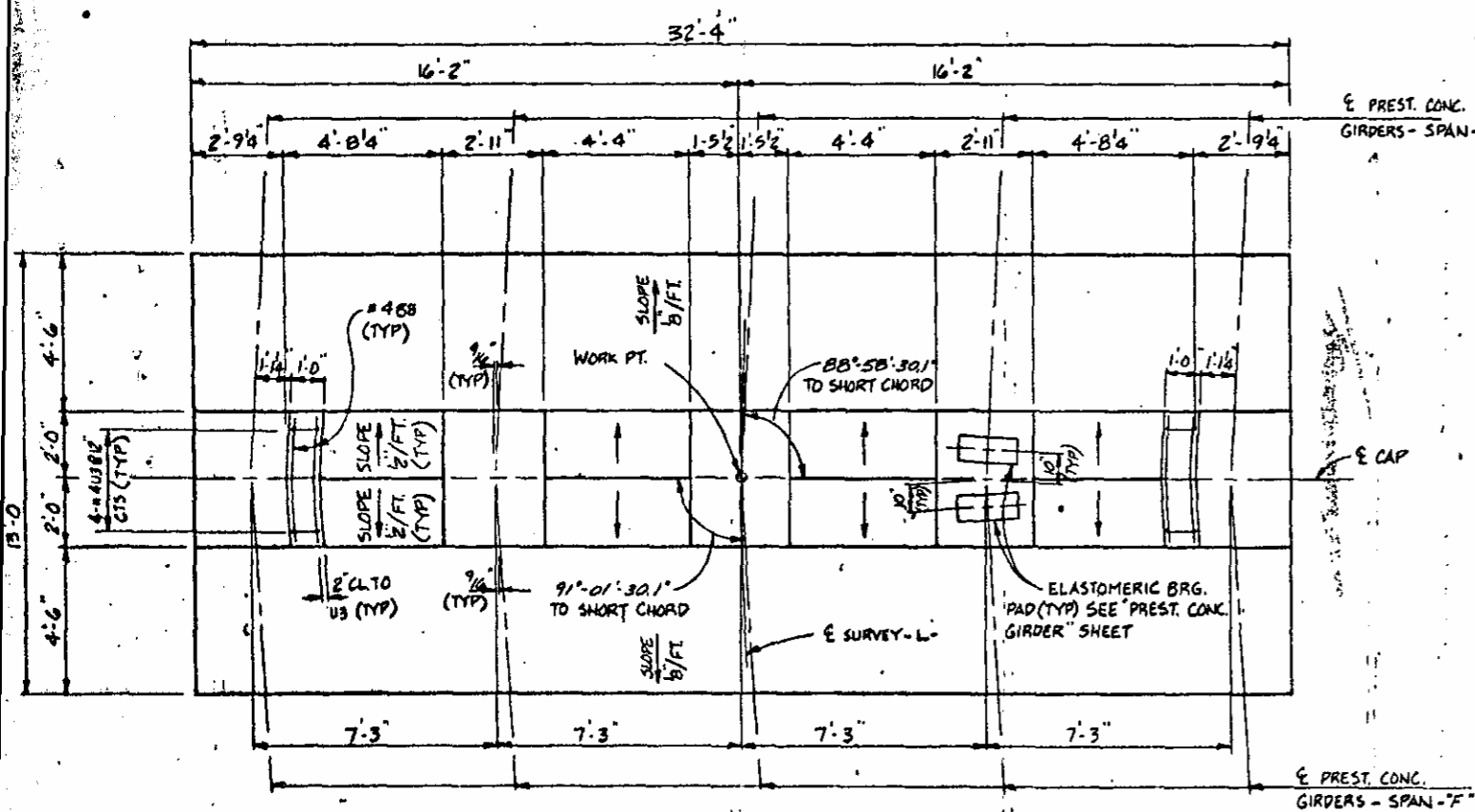


BILL OF MATERIAL					
BENT #5					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	STR	32'-0"	1700
B2	10	#11	1	18'-2"	965
B3	10	#11	1	26'-1"	1386
B4	10	#11	STR	10'-0"	531
B5	10	#4	STR	7'-3"	48
B6	10	#4	STR	3'-5"	23
B7	6	#8	STR	32'-0"	513
B8	4	#4	STR	3'-2"	14
P1	4	#11	2	30'-0"	638
P2	4	#11	2	27'-5"	625
P3	4	#11	4	20'-9"	441
S1	8	#5	5	13'-10"	115
S2	36	#5	3	14'-2"	532
S3	16	#5	3	15'-7"	260
S4	25	#4	5	6'-11"	99
U1	8	#4	4	8'-2"	44
U2	12	#4	4	3'-8"	29
TOTAL					7963
SPI	2	6	242'-7"	324	
SPIRAL COLUMN OF NO STEEL = 724 LBS. REINFORCING STEEL = 7963 LBS. CLASS "A" ANGLE = 38.3 CU YDS. 54" Ø CONCRETE CYLINDER PILES NO = 2 LIN FT = 136					

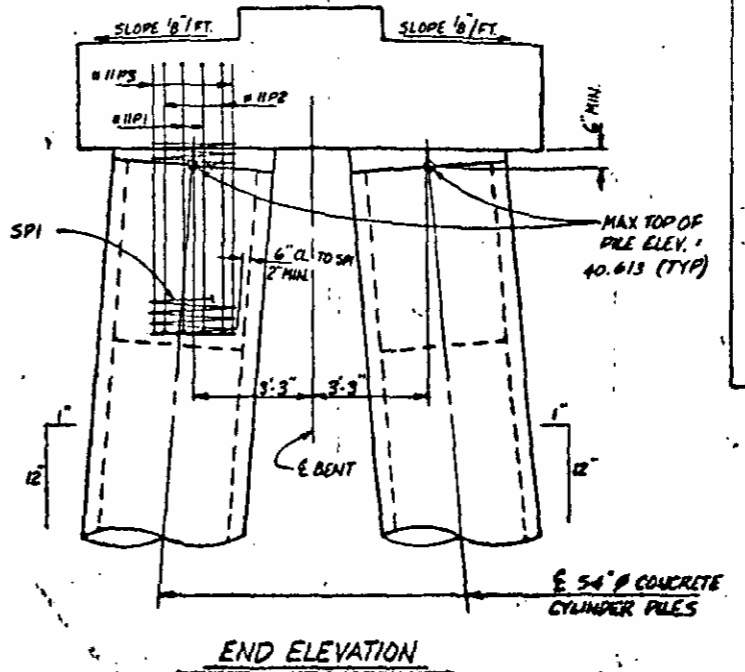
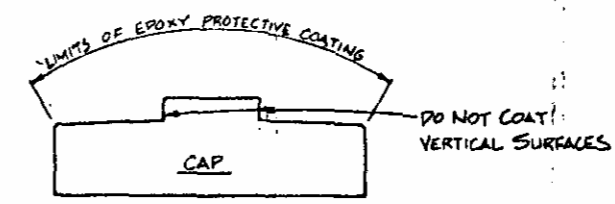
PROJECT No. 8.1201302  
 CARTERET COUNTY  
 STATION: 71+60-L

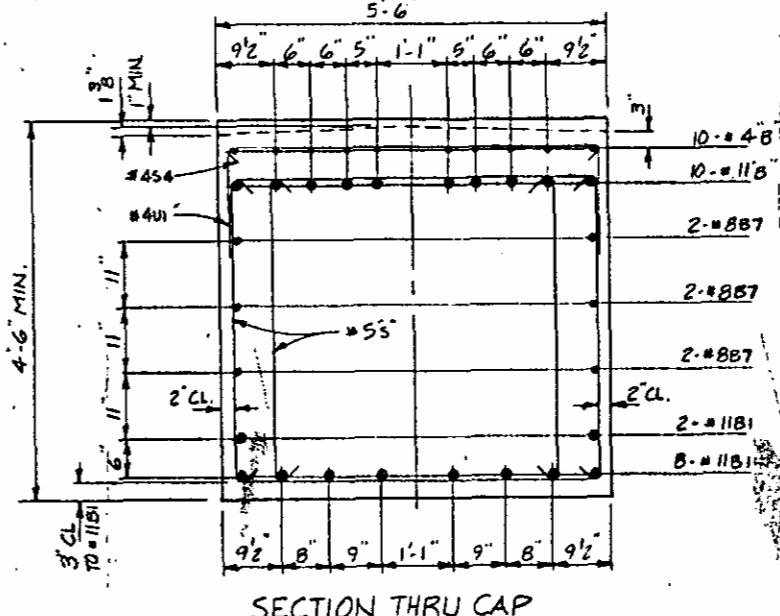
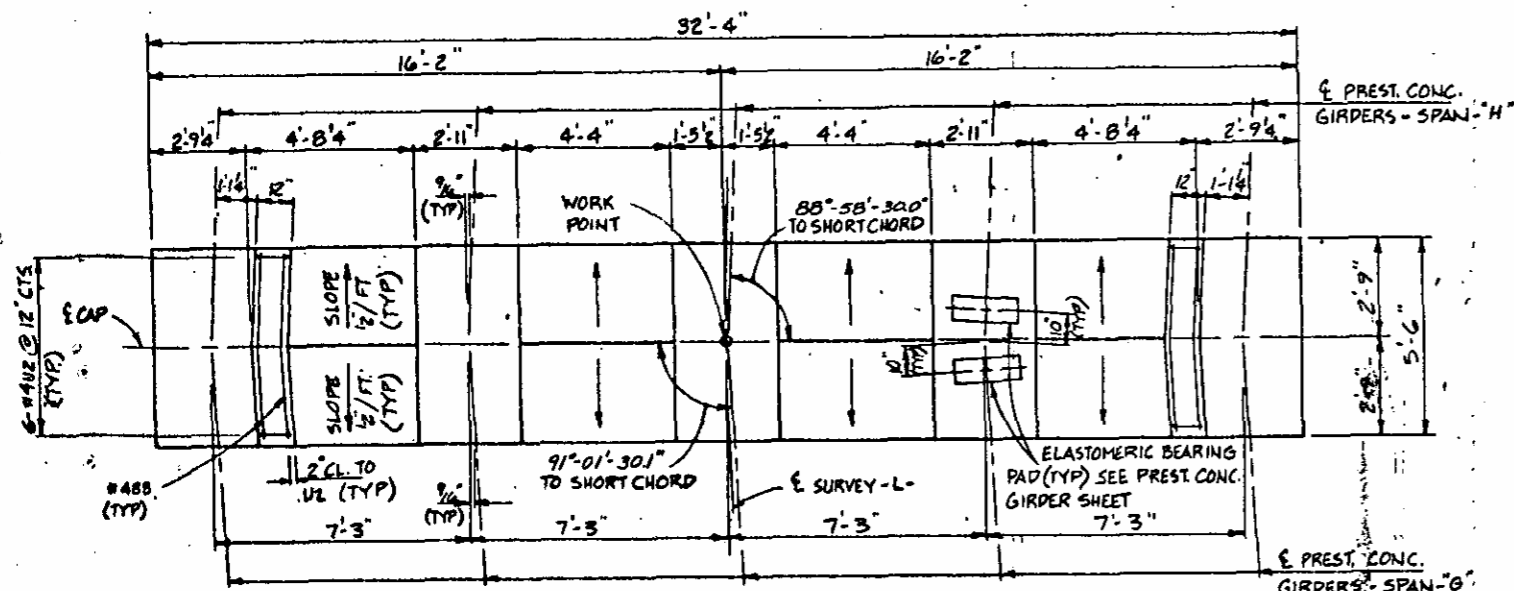
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT #5

REVISIONS						SHEET NO. 5-A-31
NO.	BY	DATE	NO.	BY	DATE	
1						TOTAL SHEETS 52
2						



NOTES:  
COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
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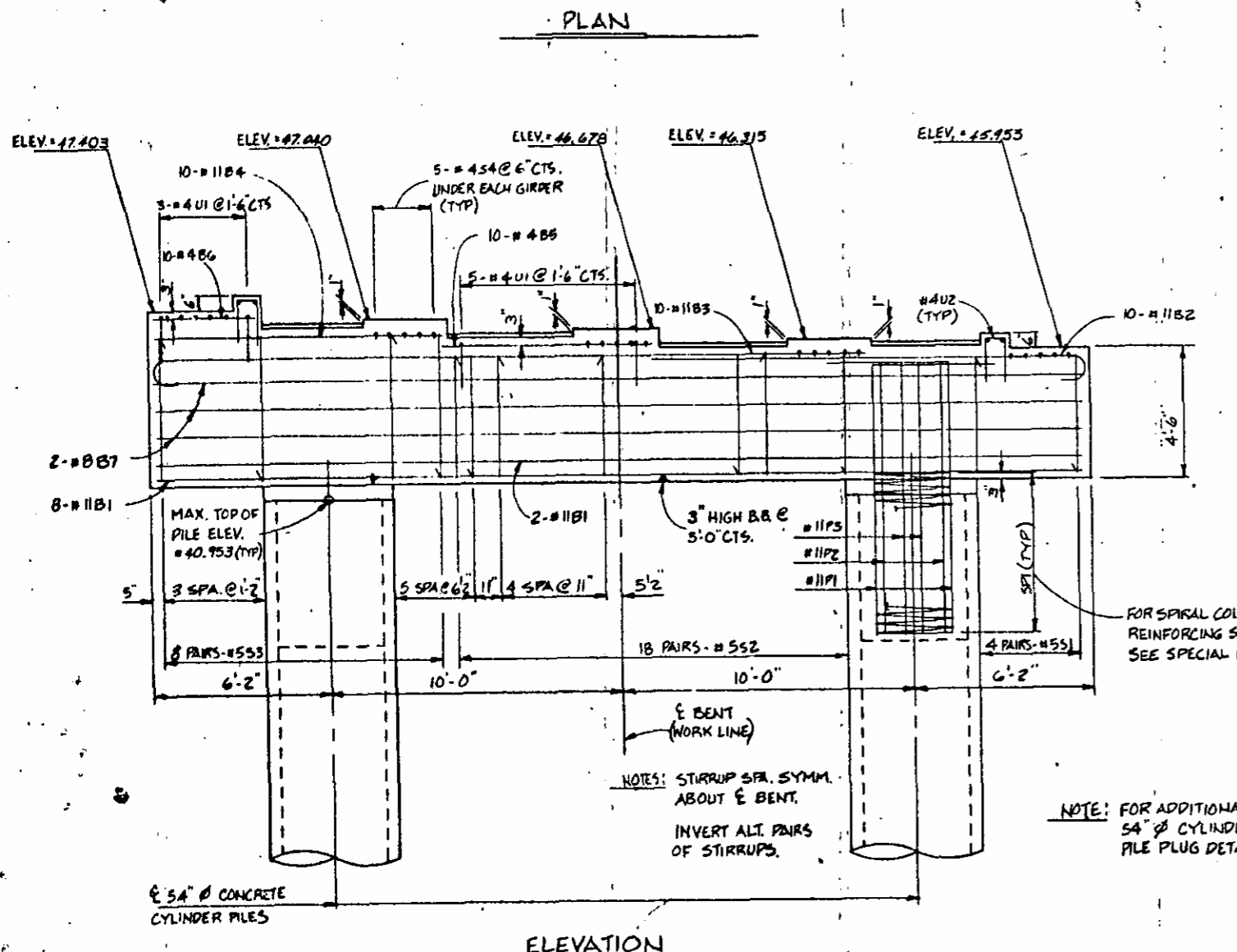




**BILL OF MATERIAL**

BENT # 7

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	STR	32'-0"	1700
B2	10	#11	1	18'-2"	965
B3	10	#11	1	26'-1"	1386
B4	10	#11	STR	10'-0"	531
B5	10	#4	STR	7'-3"	48
B6	10	#4	STR	3'-5"	29
B7	6	#8	STR	32'-0"	513
B8	4	#4	STR	5'-2"	14
P1	4	#11	2	30'-0"	638
P2	4	#11	2	29'-5"	625
P3	4	#11	4	20'-9"	441
S1	E	#5	3	13'-10"	115
S2	36	#5	3	14'-2"	532
S3	16	#5	3	15'-7"	260
S4	25	#4	5	5'-1"	99
U1	8	#4	4	8'-2"	44
U2	12	#4	4	3'-8"	29
TOTAL					7963
SPI	2	6	242'-7"	324	
SPIRAL COLUMN REIN. STEEL = 324 LBS.					
REINFORCING STEEL = 7963 LBS.					
CLASS "A" CONCRETE - 38.3 CU. YDS.					
54 7 CONCRETE CYLINDER PILES					
NO. = 2 LIN. FT. = 136					

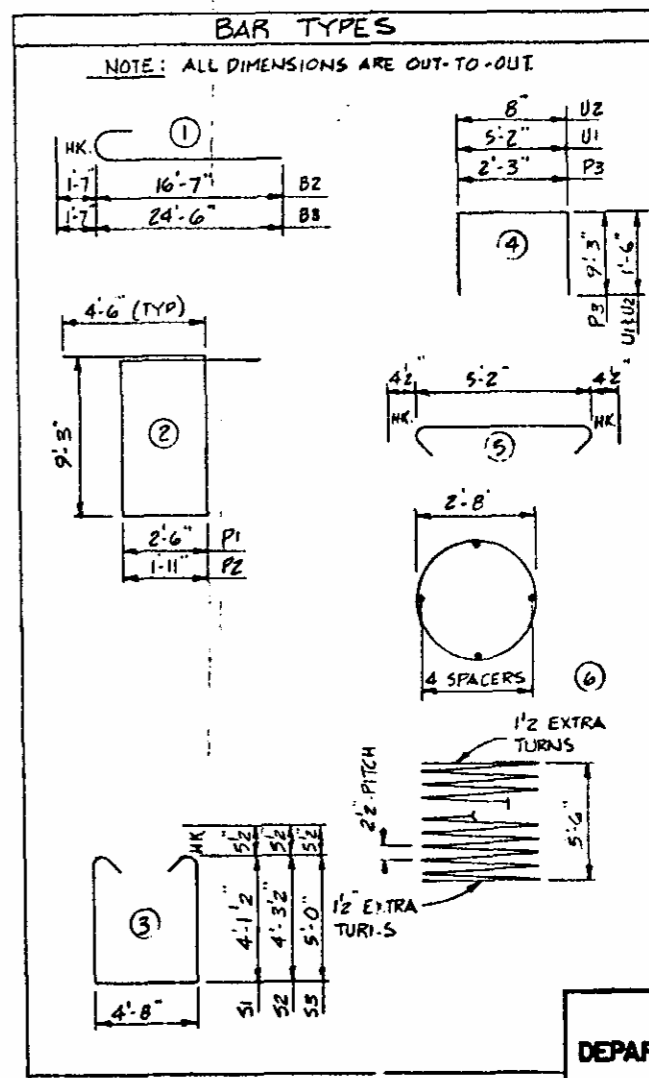
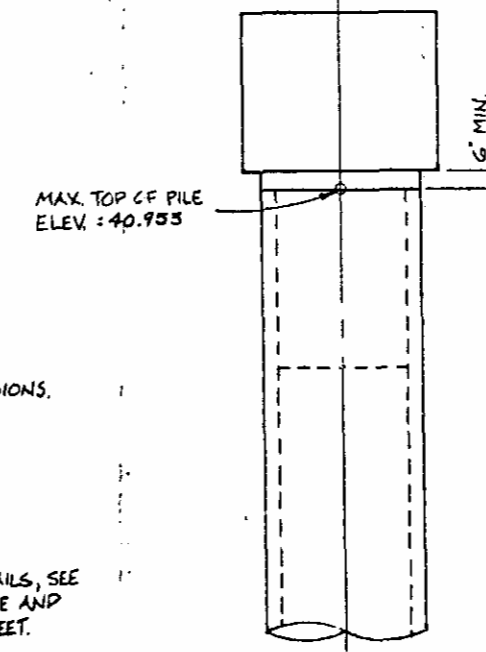


**NOTES:**

COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.

THE TOP SURFACE AREAS OF THE 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.

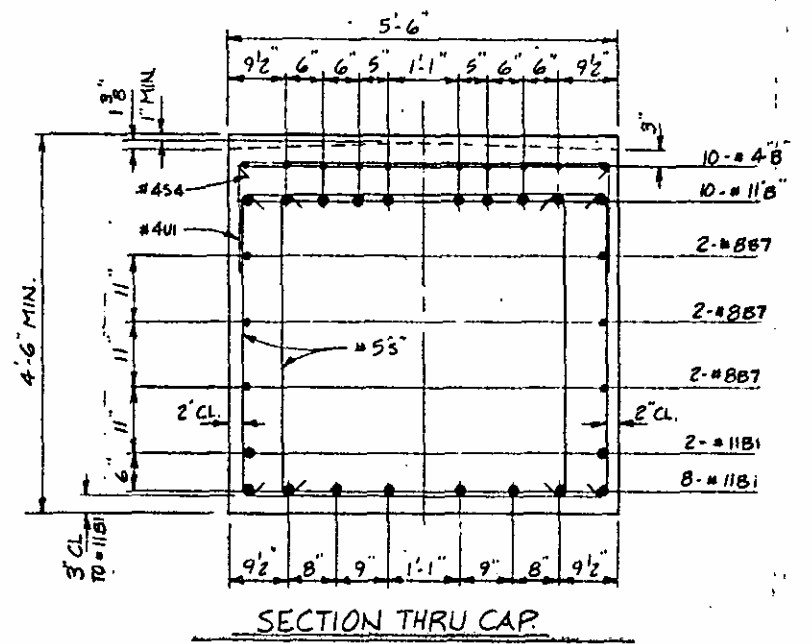
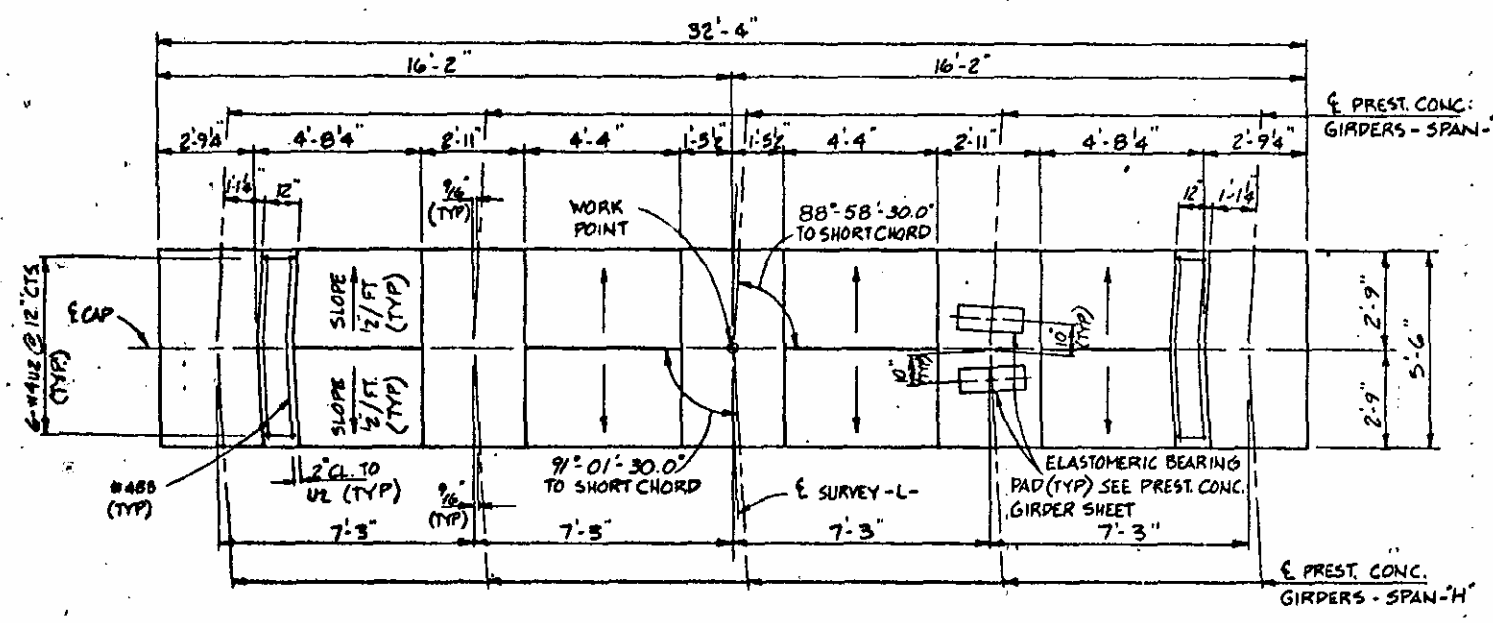


PROJECT No. B.120130Z  
 CARTERET COUNTY  
 STATION: 71+60-L

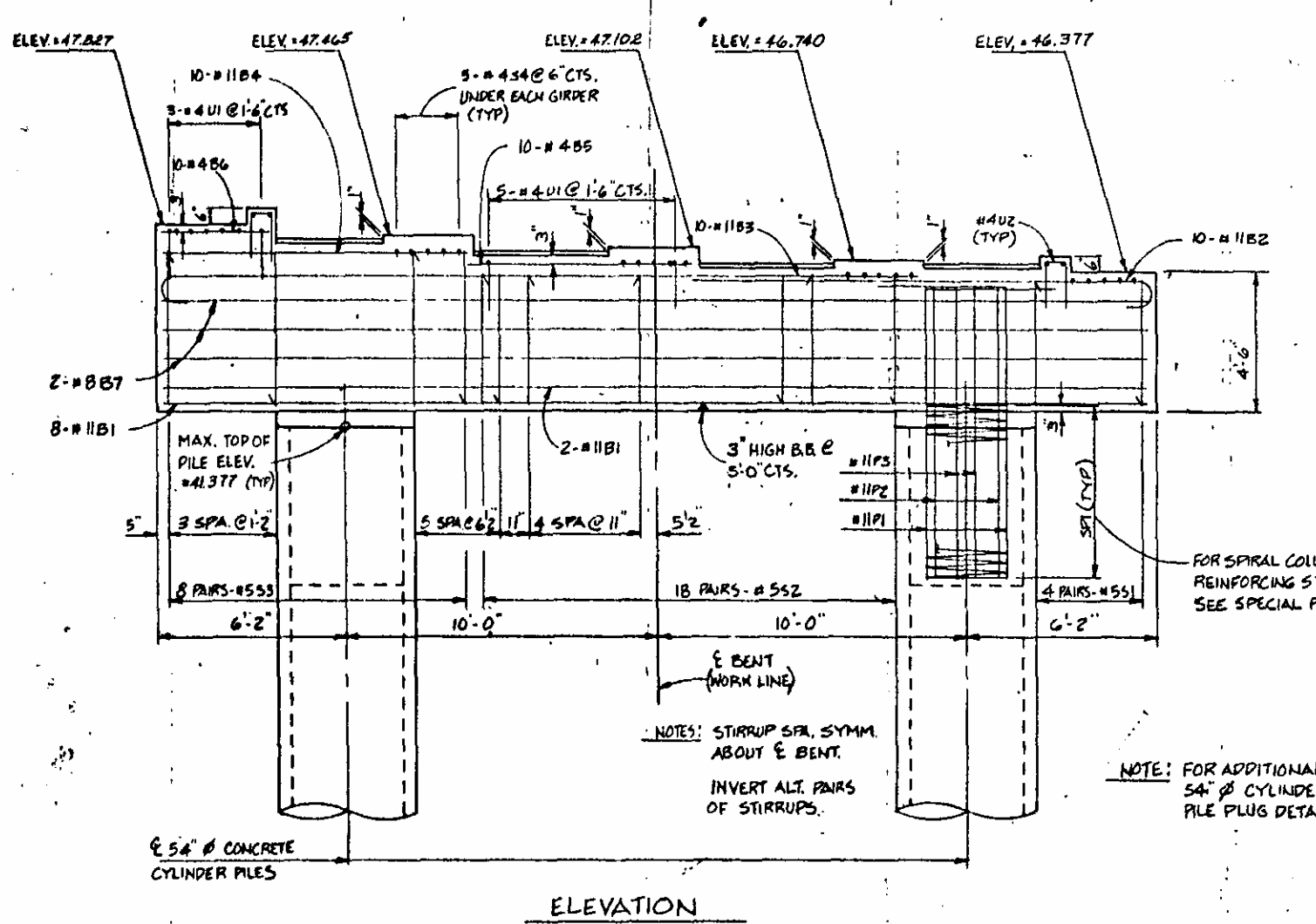
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 BENT # 7

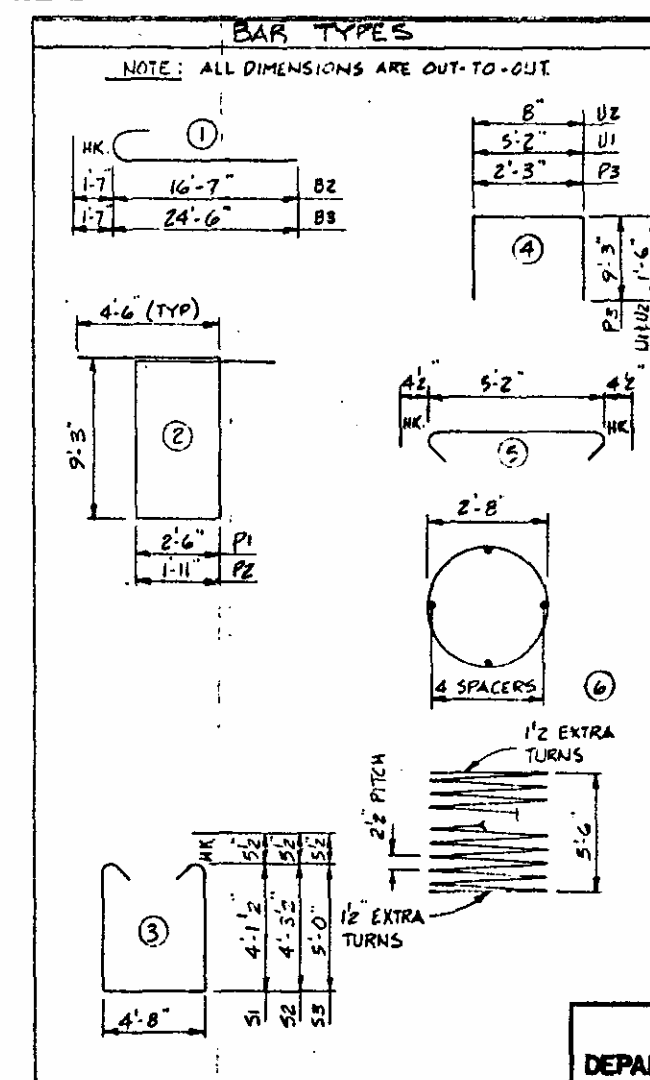
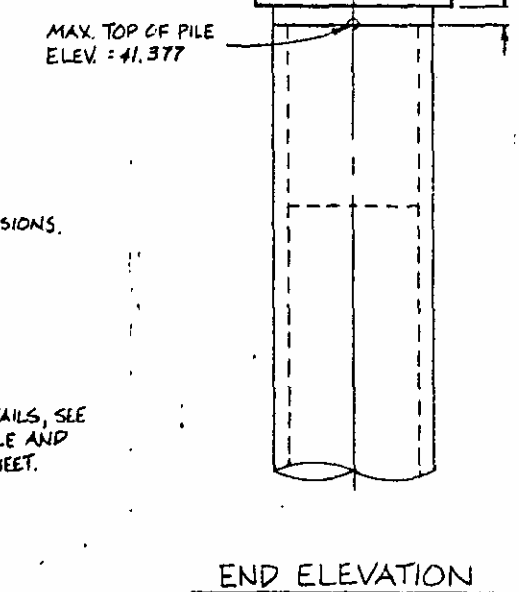
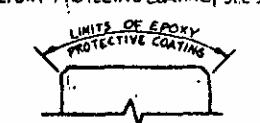
REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	5-A-3	52
1			2			TOTAL SHEETS	
2			3				



BILL OF MATERIAL					
BENT # 8					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	STR	32'-0"	1700
B2	10	#11	1	18'-2"	965
B3	10	#11	1	26'-1"	1386
B4	10	#4	STR	10'-0"	53
B5	10	#4	STR	7'-3"	48
B6	10	#4	STR	3'-5"	23
B7	6	#8	STR	32'-0"	513
B8	4	#4	STR	5'-2"	14
P1	4	#11	2	30'-0"	638
P2	4	#11	2	29'-5"	625
P3	4	#11	4	20'-9"	441
S1	8	#5	3	13'-10"	115
S2	36	#5	3	14'-2"	532
S3	16	#1	1	18'-7"	888
S4	25	#4	5	6'-11"	99
U1	8	#4	4	8'-2"	44
U2	12	#4	4	3'-6"	24
TOTAL					7963
SPI	2	6	242'-7"		324
SPIRAL COLUMN REINFORCING STEEL = 324 LBS.					
REINFORCING STEEL = 7963 LBS.					
CLASS 'A' WEIGHT = 38.3 CU. YDS.					
54" CONCRETE CYLINDER PILES					
NO. = 2 LIN. FT. = 136					



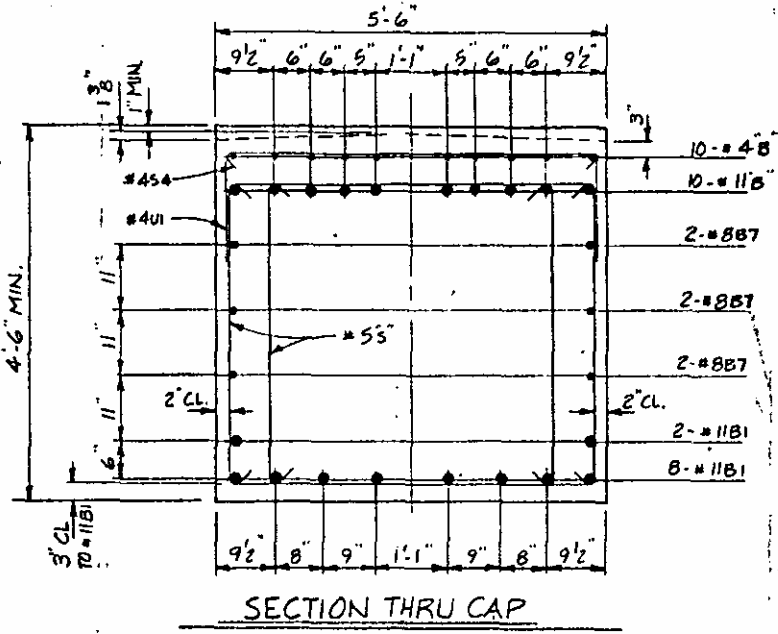
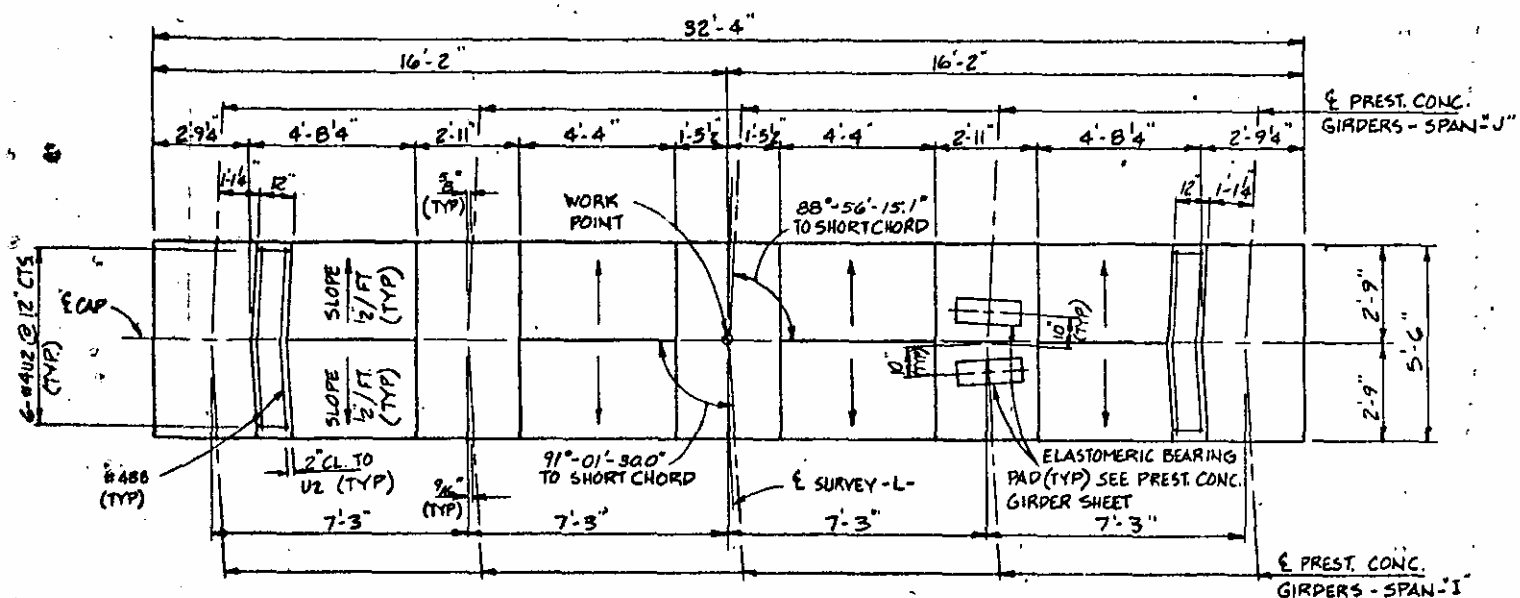
**NOTES:**  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMBERS, WITH EPOXY PROTECTIVE COATINGS. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.  
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.



PROJECT NO. B. 120130Z  
 CARTERET COUNTY  
 STATION: 71+60-L

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT # 8

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



**BILL OF MATERIAL**

BENT # 9

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	STR	32'-0"	1700
B2	10	#11	1	18'-2"	965
B3	10	#11	1	26'-1"	1386
B4	10	#11	STR	10'-0"	531
B5	10	#4	STR	7'-3"	48
B6	10	#4	STR	3'-5"	23
B7	6	#8	STR	32'-0"	513
B8	4	#4	STR	5'-2"	14
P1	4	#11	2	30'-0"	638
P2	4	#11	2	29'-5"	625
P3	4	#11	4	20'-9"	441

S1	8	#5	3	15'-10"	115
S2	36	#5	3	14'-2"	532
S3	16	#5	3	15'-7"	260
S4	25	#4	3	6'-11"	99
U1	8	#4	4	8'-2"	44
U2	12	#4	4	3'-8"	29
TOTAL					7963
SPI	2		6	242'-7"	324

SPRAL COLUMN REINF STEEL = 324 LBS.  
 REINFORCING STEEL = 7963 LBS.  
 CLASS "A" CONCRETE = 38.3 CU. YDS.  
 54" Ø CONCRETE CYLINDER PILES  
 NG = 2 LIN FT = 136

PROJECT NO. B.1201302  
 CARTERET COUNTY  
 STATION: 71+60-L

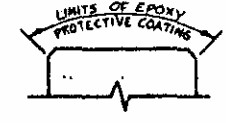
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT # 9

REVISIONS

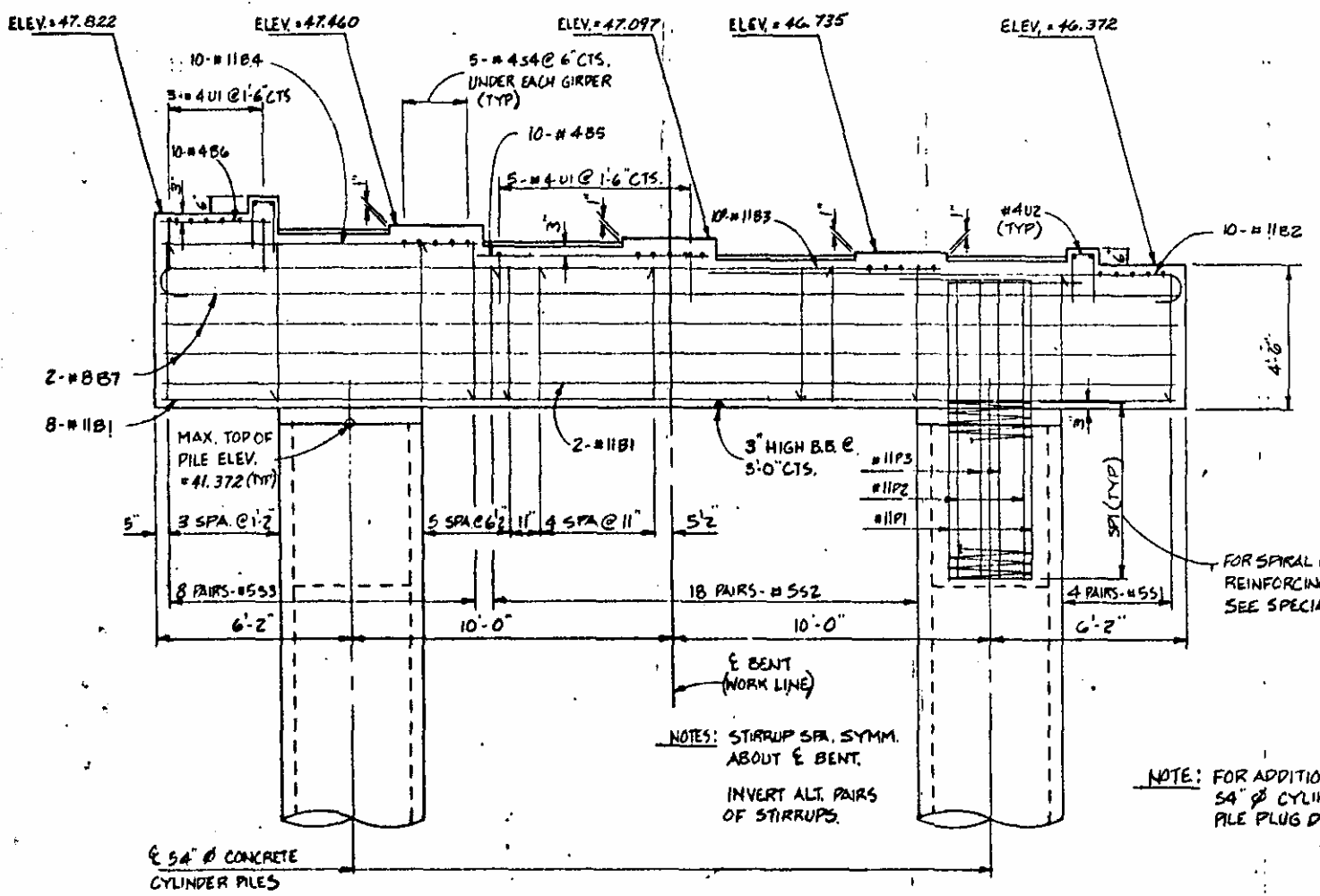
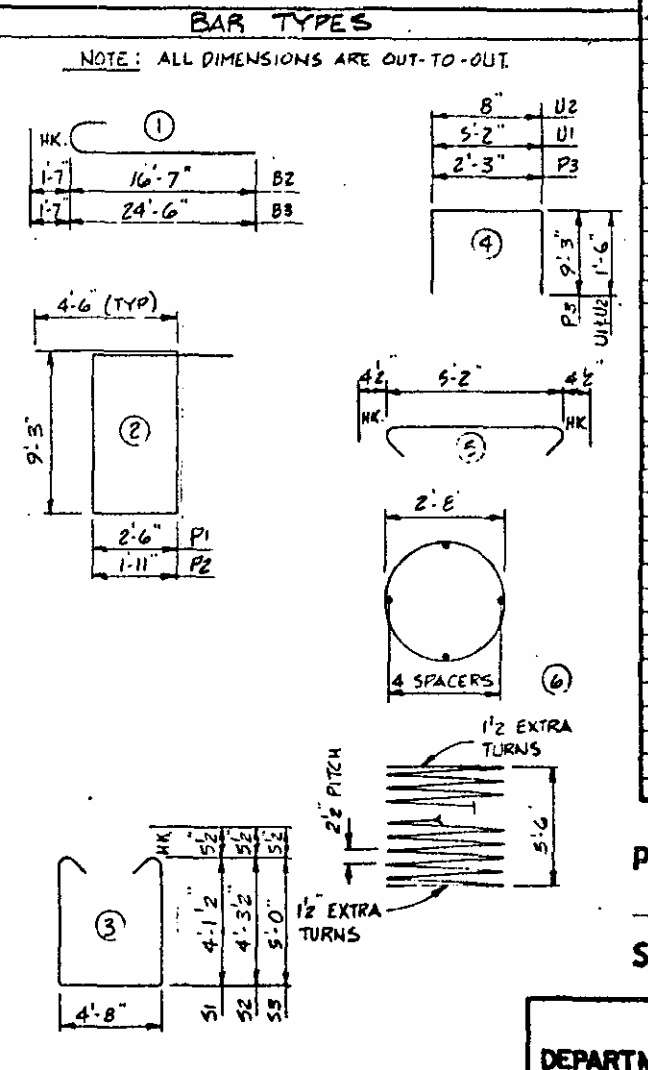
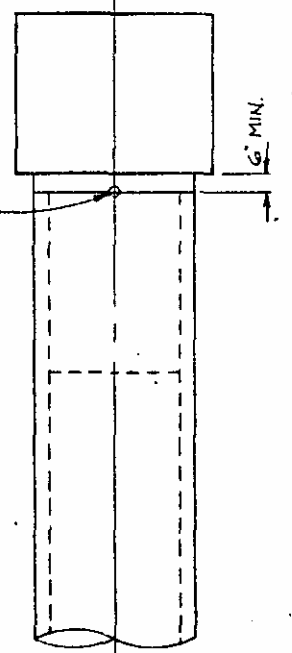
NO.	BY	DATE	NO.	BY	DATE
1					
2					

SHEET NO. 5-2-35  
 TOTAL SHEETS 52

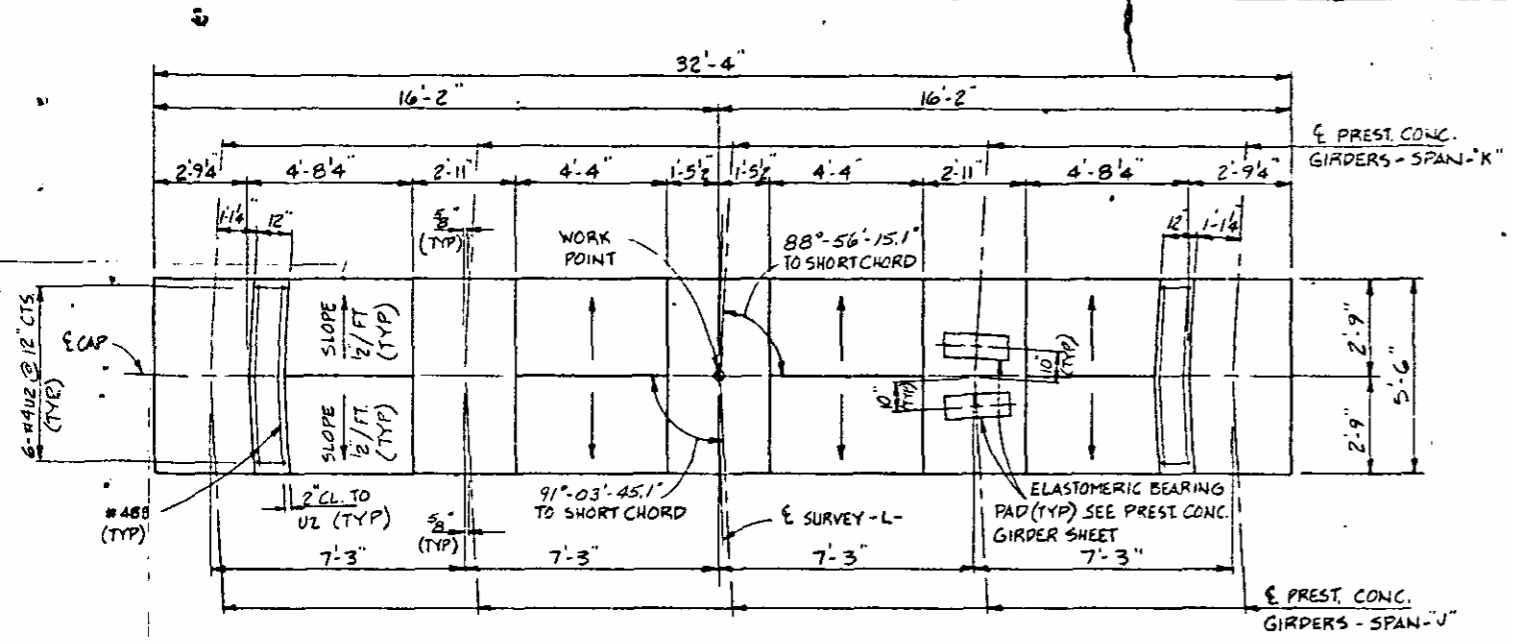
**NOTES:**  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.  
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.



MAX. TOP OF PILE ELEV. = 41.372



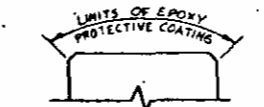
DRAWN BY: G. CHERTON DATE: 7/80  
 CHECKED BY: CHARLES POPE DATE: 7-80



PLAN

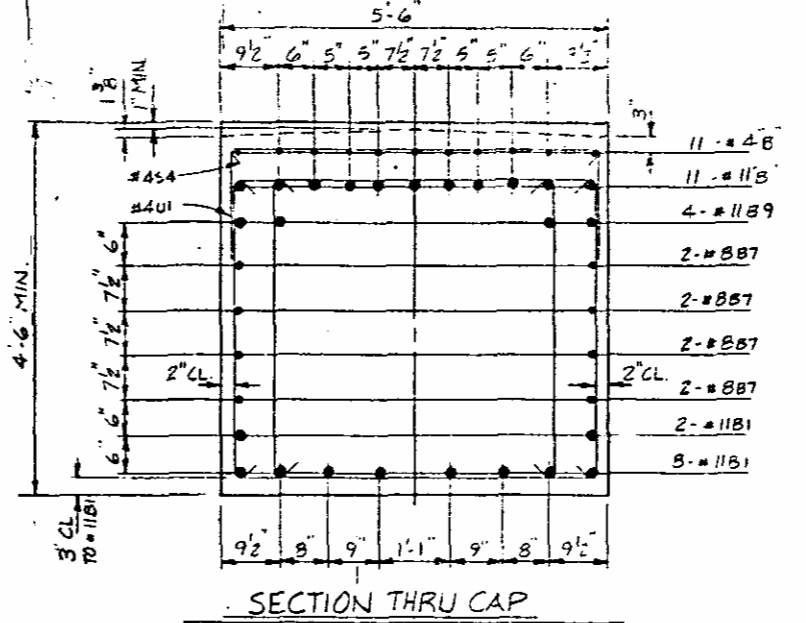
NOTE: BENT CAP IS TO BE LAID OUT FROM ORIGINAL SURVEY LINE WORK POINT.

NOTES:  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE 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.

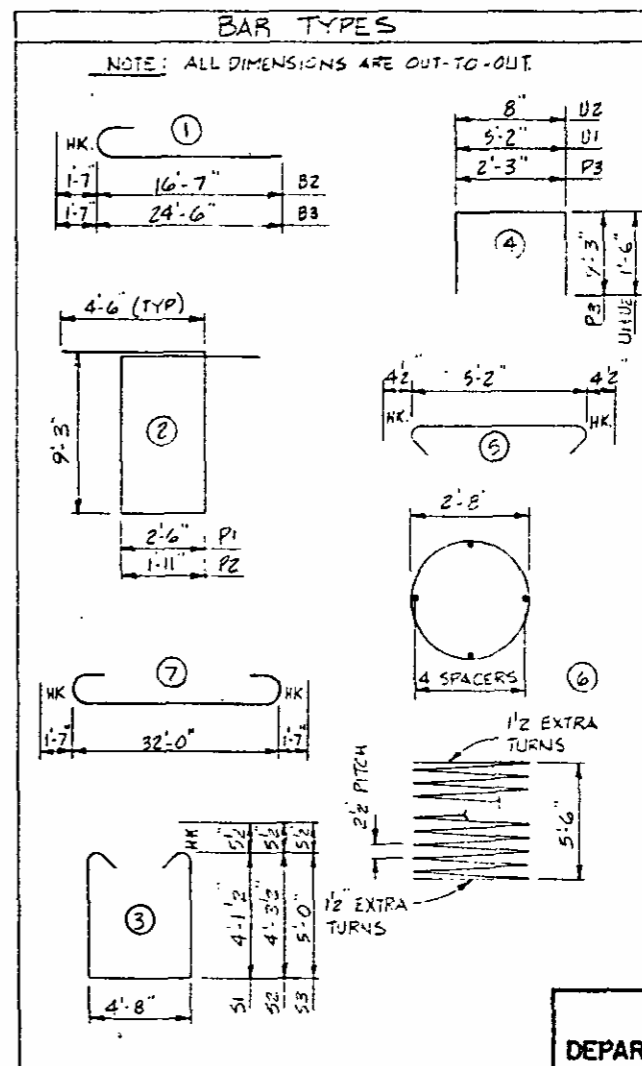


MAX. TOP OF PILE ELEV. = 40.914

NOTE: FOR ADDITIONAL DETAILS, SEE 54" Ø CYLINDER PILE AND PILE PLUG DETAIL SHEET.



SECTION THRU CAP



NOTE: ALL DIMENSIONS ARE OUT-TO-OUT.

BILL OF MATERIAL  
BENT #10

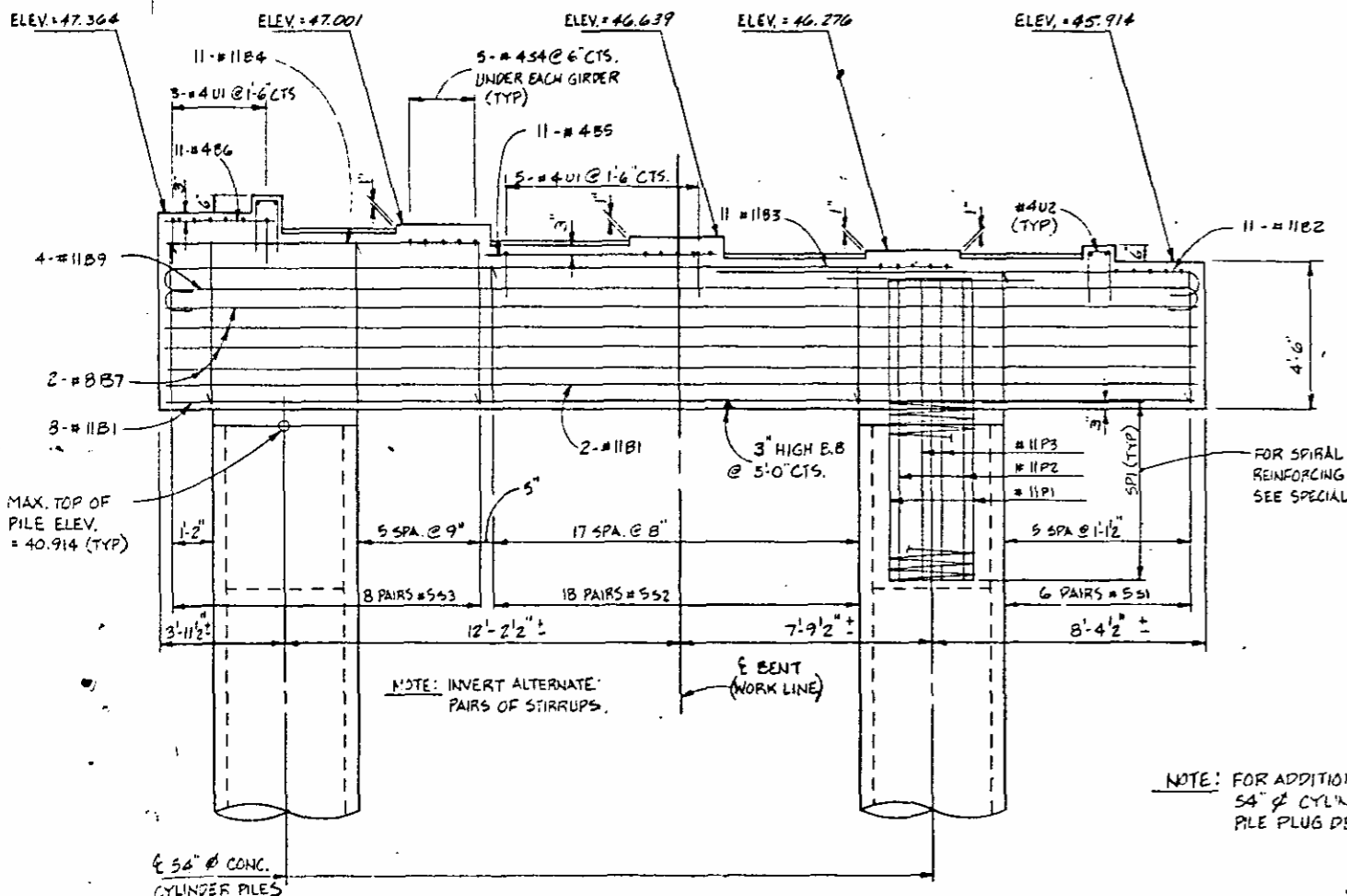
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	STR	32'-0"	1700
B2	11	#11	1	13'-2"	1062
B3	11	#11	1	26'-1"	1924
B4	11	#11	STR	10'-0"	984
B5	11	#4	STR	7'-3"	53
B6	11	#4	STR	3'-5"	25
B7	8	#8	STR	32'-2"	684
B8	4	#4	STR	5'-2"	14
B9	4	#11	7	35'-2"	747
P1	4	#11	2	30'-0"	638
P2	4	#11	2	27'-5"	625
P3	4	#11	4	20'-9"	441
S1	12	#5	3	13'-10"	173
S2	36	#5	3	14'-2"	532
S3	16	#5	3	15'-7"	260
S4	25	#4	5	5'-11"	99
U1	8	#4	4	8'-2"	44
U2	12	#4	4	3'-8"	29
TOTAL					9234
SPI	2	6		242'-7"	324

SPIRAL COLUMN REINF. STEEL = 334 LBS.  
 REINFORCING STEEL = 9234 LBS.  
 CLASS "A" CONCRETE = 38.3 CU. YDS.  
 54" Ø CONCRETE CYLINDER PILES  
 NO. = 2 LIN. FT. = 136

PROJECT No. 6.1201302  
 CASTERET COUNTY  
 STATION: 71+60-L-

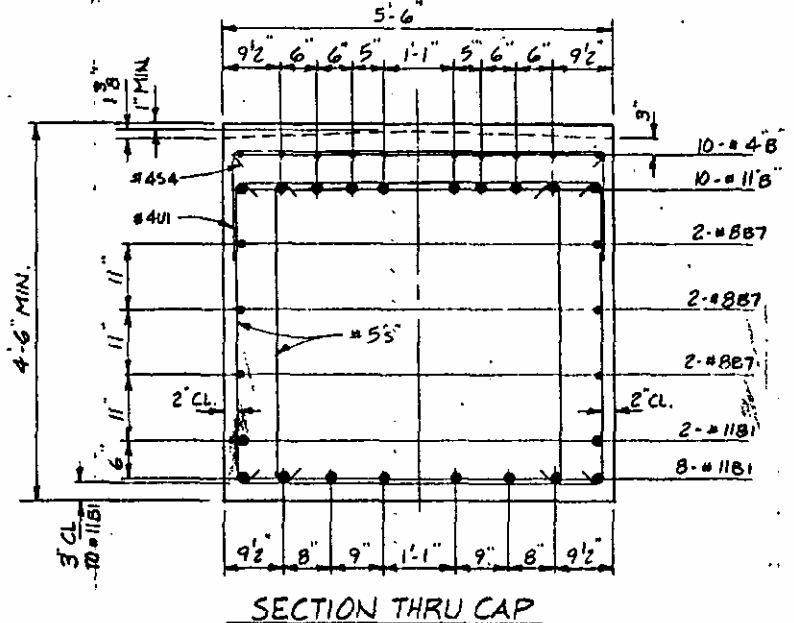
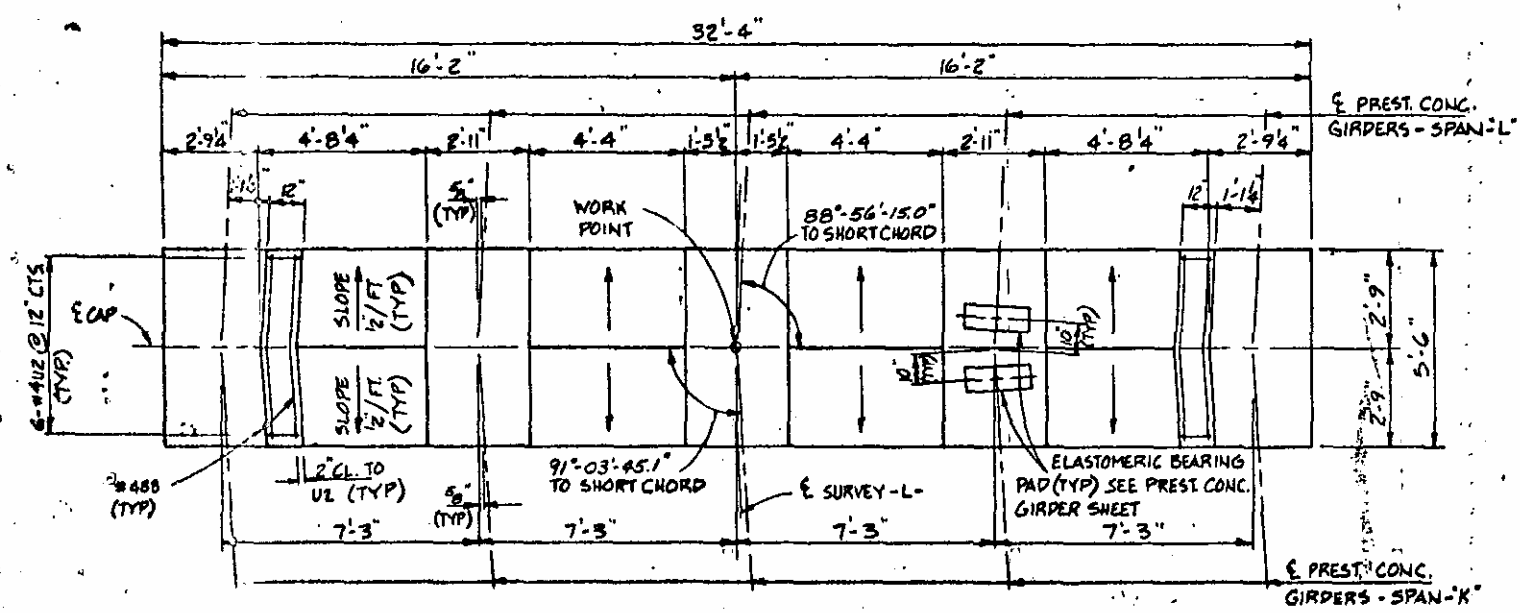
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT #10

REVISIONS						DATE	BY
NO.	BY	DATE	NO.	BY			
1	EWG	11-19-81	1			5-A-20	
2			2			TOTAL SHEETS	52



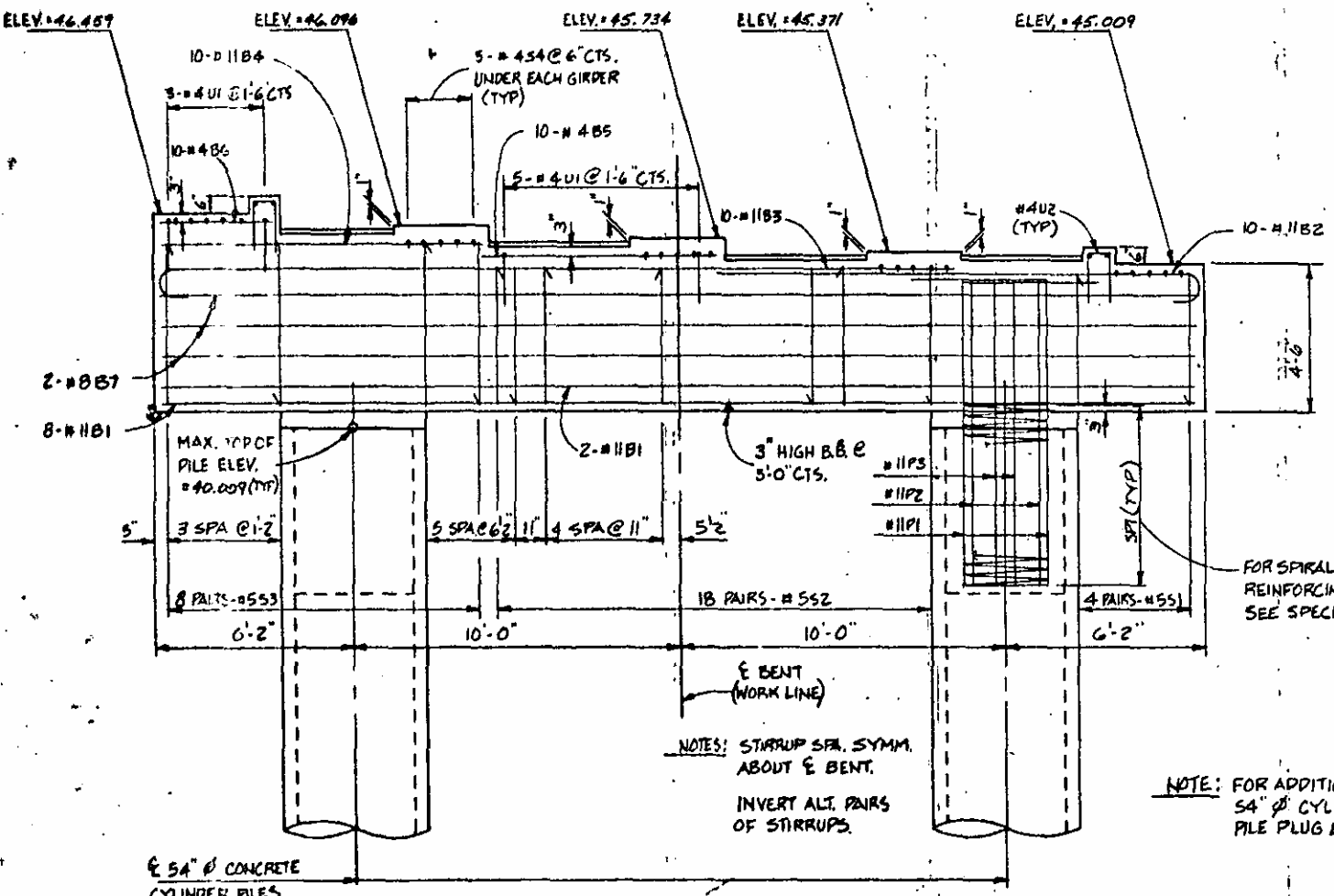
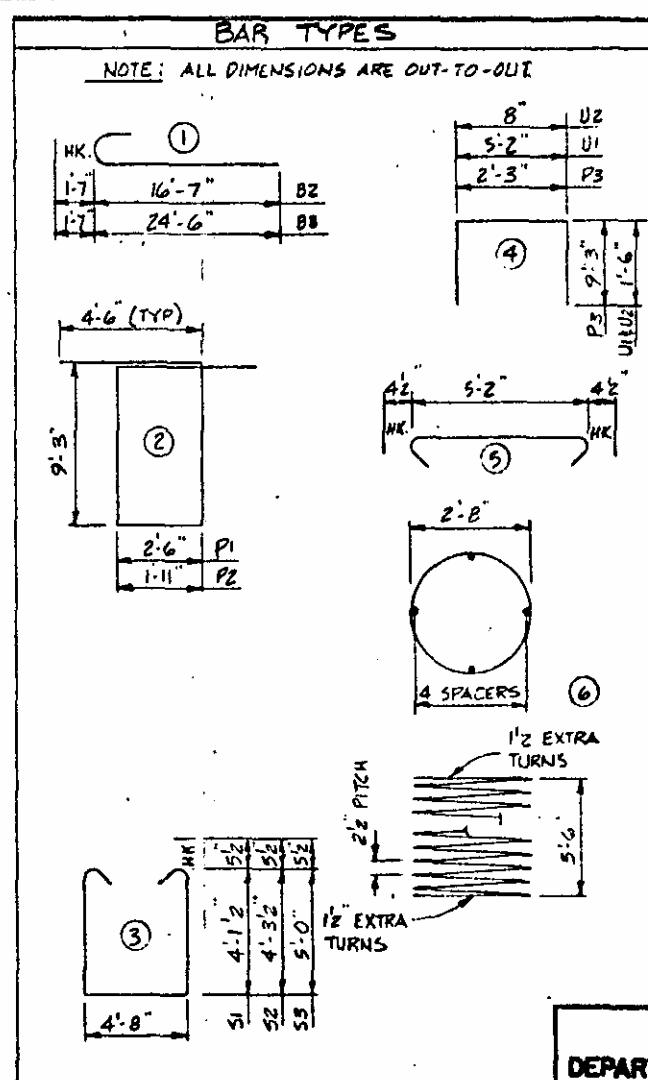
ELEVATION

END ELEVATION

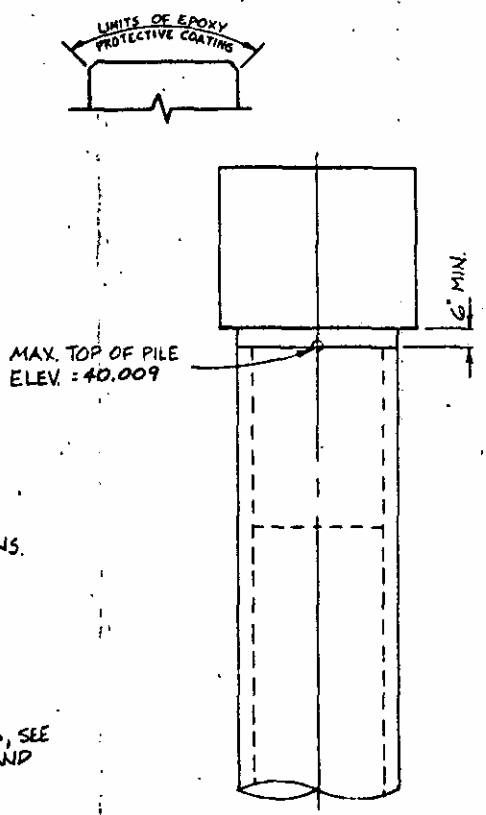


BILL OF MATERIAL						
BENT #11						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	10	#11	STR	32'-0"	1700	
E2	10	#11	1	18'-2"	965	
B3	10	#11	1	26'-1"	1386	
B4	10	#11	STR	10'-0"	531	
B5	10	#4	STR	7'-3"	48	
B6	10	#4	STR	3'-5"	23	
B7	6	#8	STR	32'-0"	513	
B8	4	#4	STR	5'-2"	14	
P1	4	#11	2	30'-0"	638	
P2	4	#11	2	29'-5"	625	
P3	4	#11	4	20'-9"	441	
S1	8	#5	5	13'-10"	115	
S2	36	#5	3	14'-2"	532	
S3	16	#6	3	18'-7"	860	
S4	23	#4	5	5'-11"	99	
U1	8	#4	4	8'-2"	44	
U2	12	#4	4	3'-8"	29	
TOTAL					7963	
SPI	2	6	242'-7"	324		

SPIRAL COLUMN REINF STEEL = 324 LBS.  
 REINFORCING STEEL = 7963 LBS.  
 CLASS "A" CONCRETE = 38.3 CU. YDS.  
 SA 9 CONCRETE CYLINDER PILES  
 NO. = 2 LIN FT. = 136



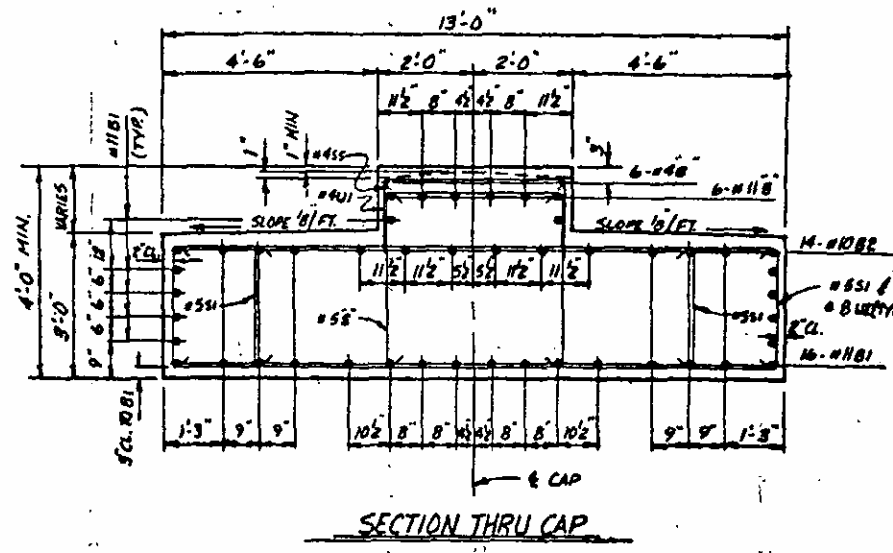
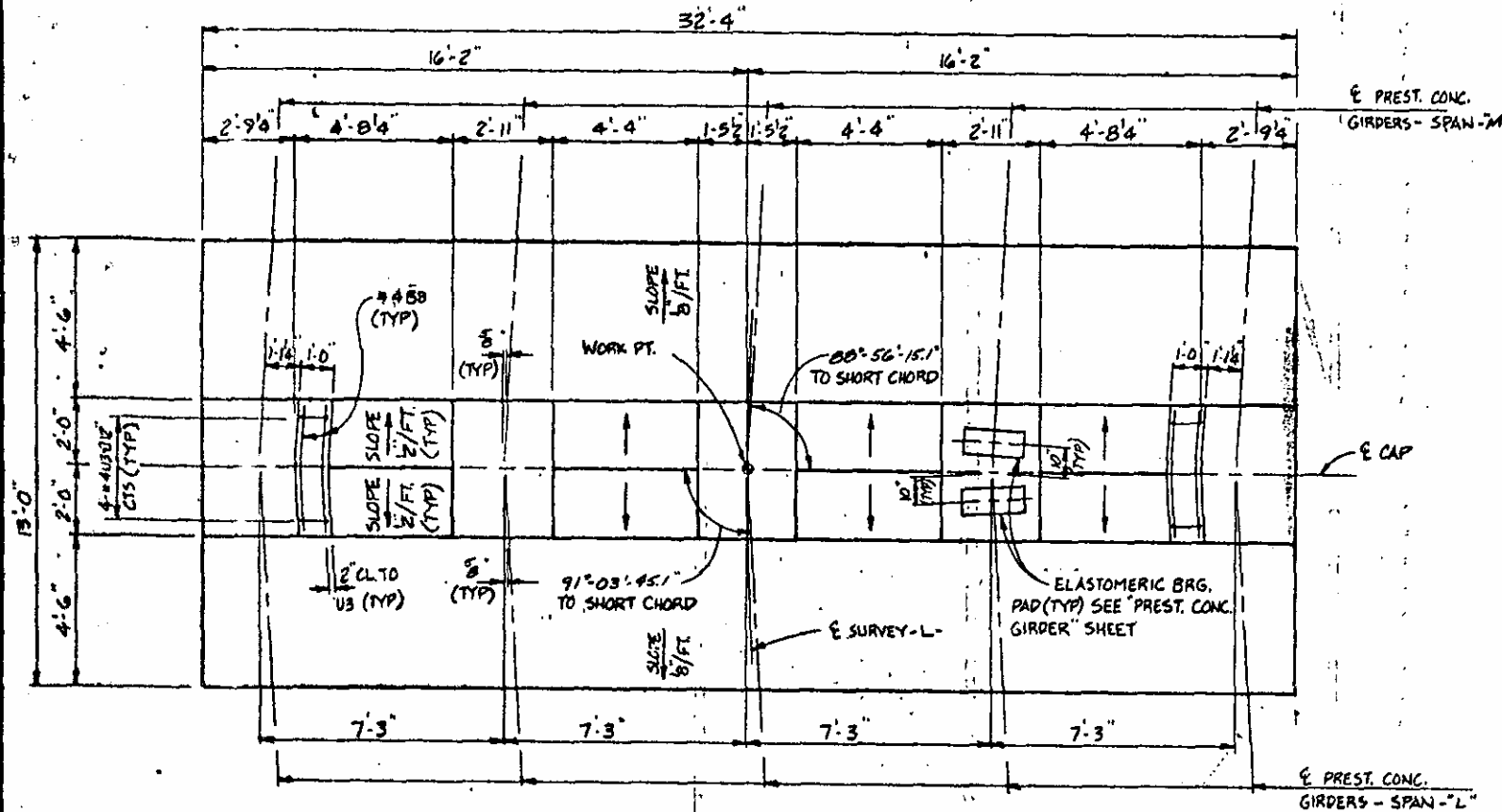
NOTES:  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.  
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.



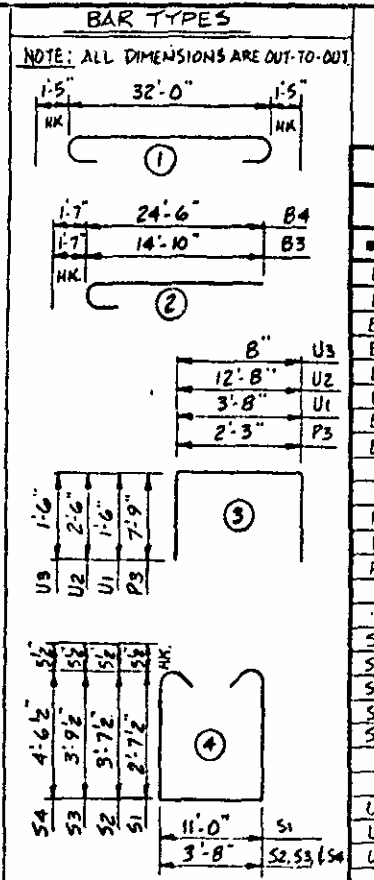
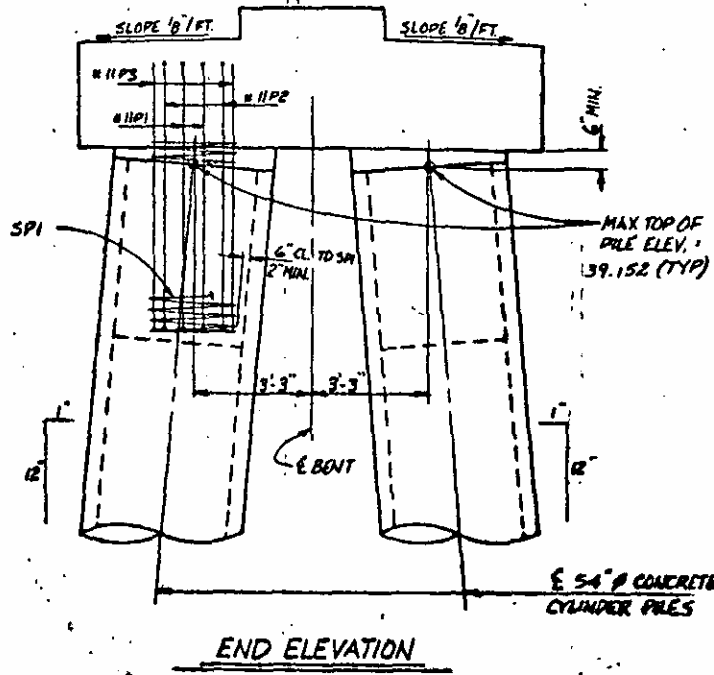
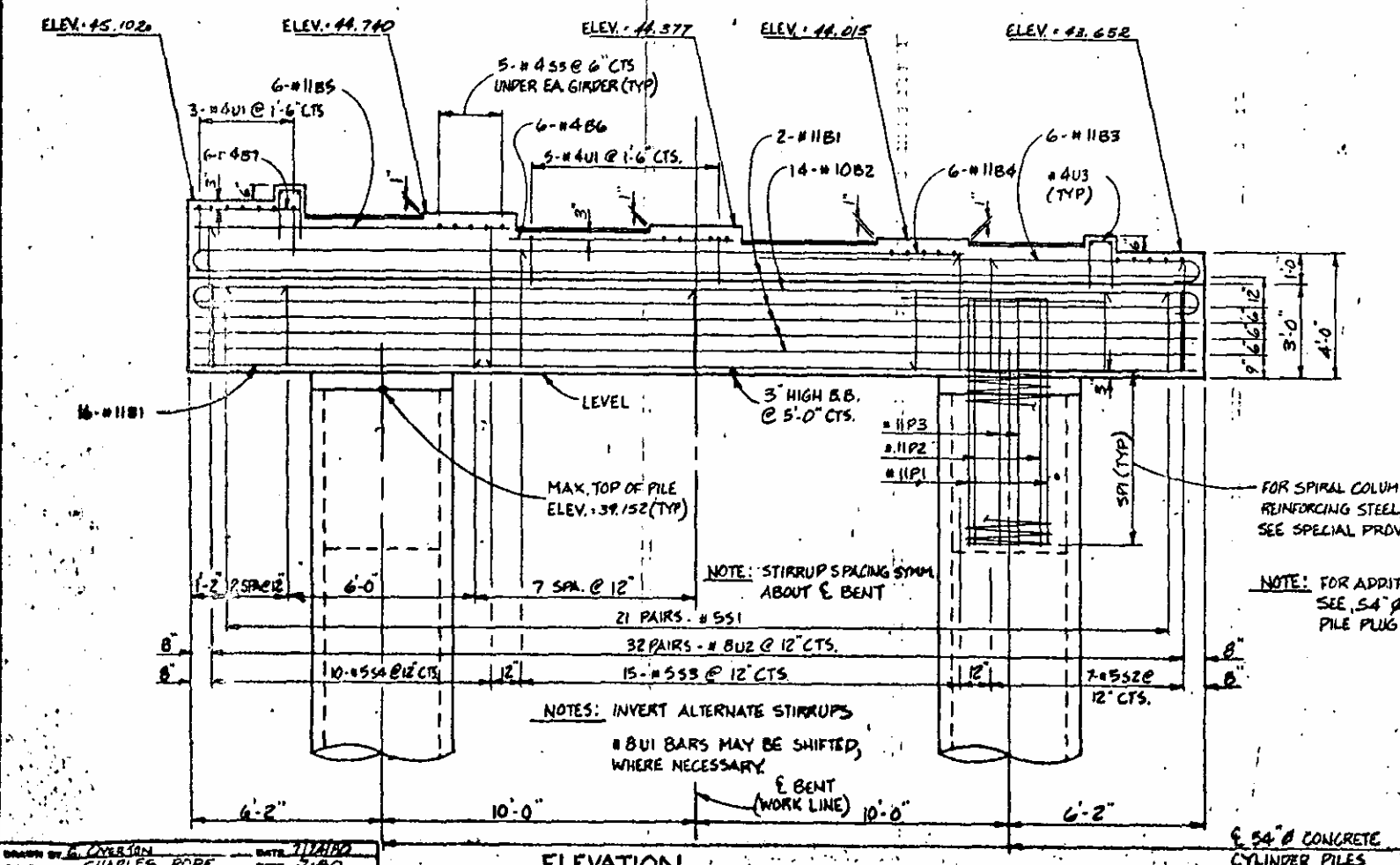
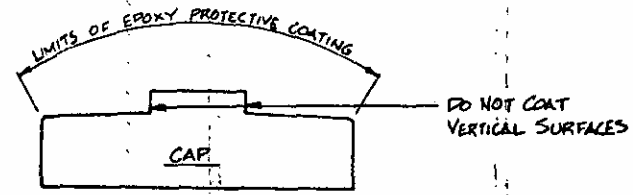
PROJECT No. B.120130Z  
 CARTERET COUNTY  
 STATION: 71+60-L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT #11

REVISIONS					SHEET NO. 5-A-37
NO.	BY	DATE	NO.	BY	
1			1		TOTAL SHEETS 52
2			2		



NOTES:  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE 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.



BILL OF MATERIAL					
BENT # 12					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	26	#11	STR	32'-0"	44.4
B2	14	#10	1	34'-10"	20.1
B3	6	#11	2	16'-5"	5.2
B4	6	#11	2	26'-1"	8.3
B5	6	#11	STR	10'-0"	3.1
B6	6	#4	STR	7'-3"	2.1
B7	6	#4	STR	3'-5"	1.1
B8	4	#4	STR	3'-8"	1.1
P1	8	#11	6	27'-0"	11.4
P2	8	#11	6	26'-5"	11.2
P3	8	#11	3	17'-9"	7.7
S1	42	#5	4	17'-2"	7.7
S2	7	#5	4	11'-10"	6.8
S3	15	#5	4	12'-2"	19.1
S4	10	#5	4	13'-8"	14.1
S5	25	#4	5	4'-5"	7.7
U1	8	#4	3	6'-8"	3.1
U2	64	#8	3	17'-8"	30.1
U3	8	#4	3	3'-8"	2.1
TOTAL					155.1
SPI	4	7		242.7	6.1

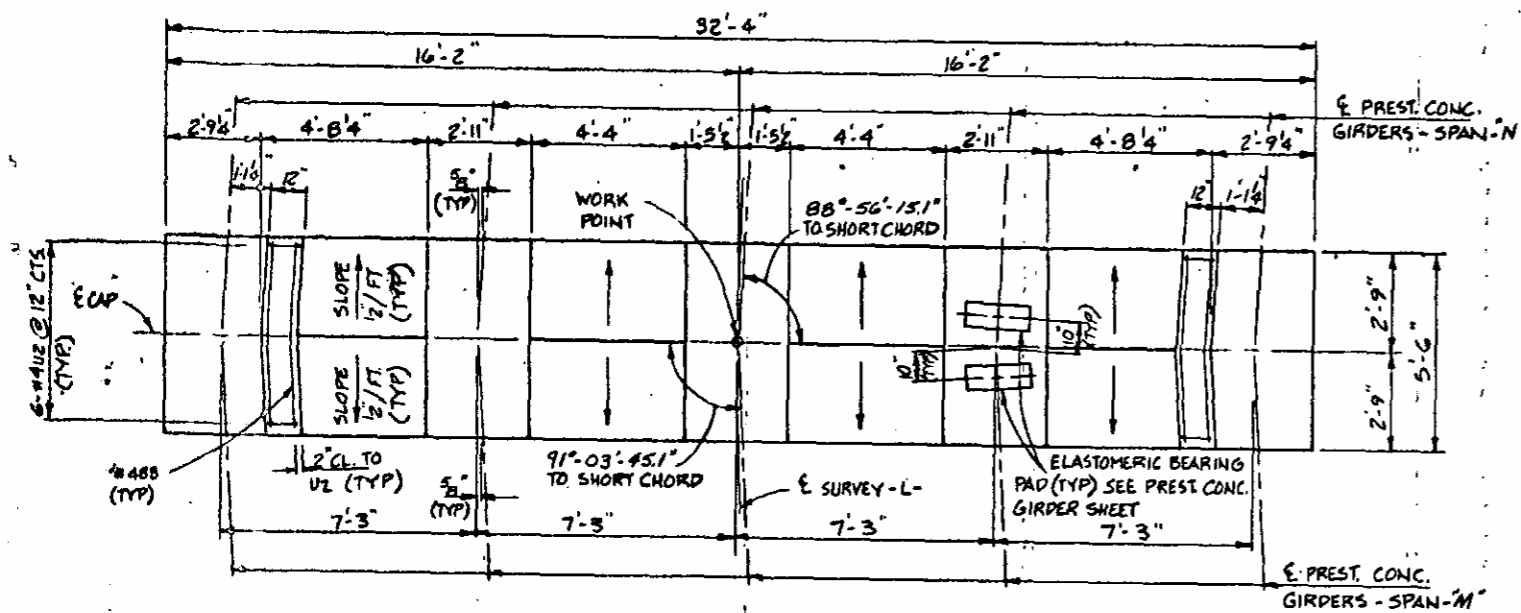
SPIRAL COLUMN REINF STEEL = 648 LBS  
 REINFORCING STEEL = 15589 LBS  
 CLASS A CONCRETE = 64.0 CU. YDS.  
 54" Ø CONCRETE CYLINDER PILES  
 NO. = 4 LIN. FT. = 27.2

PROJECT NO. B.120130Z  
 CARTERET COUNTY  
 STATION: 71+60-L

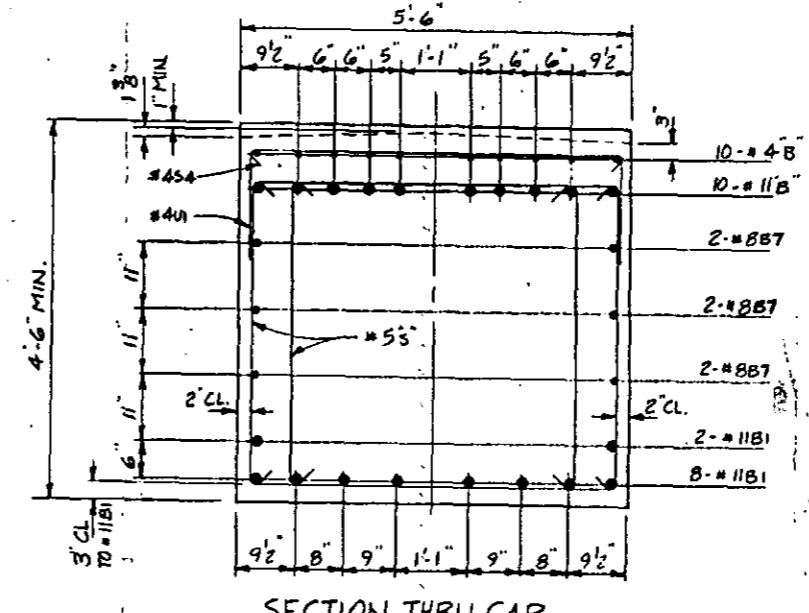
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT # 12

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

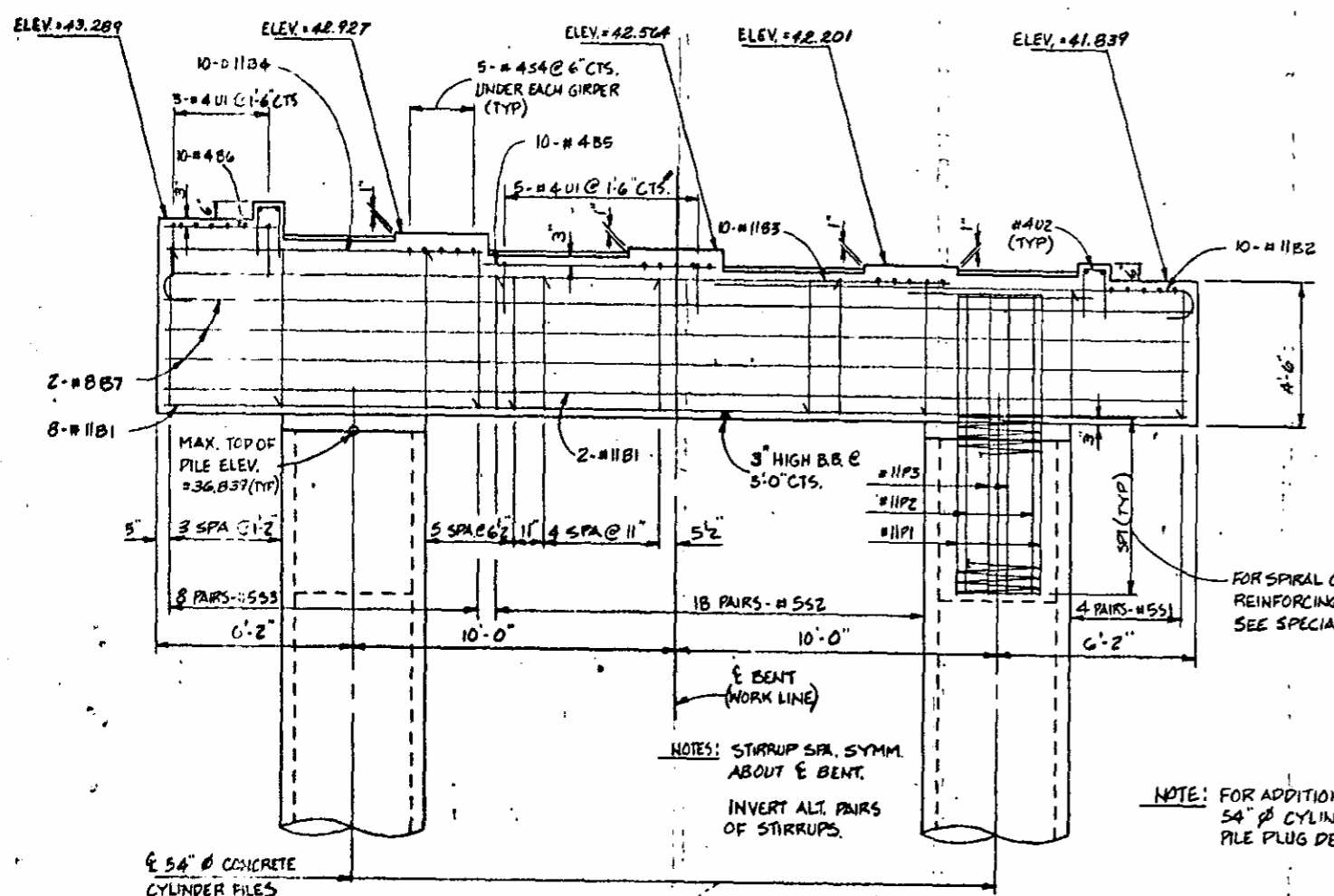
DRAWN BY: CHARLES POPE  
 CHECKED BY: CHARLES POPE  
 DATE: 7/1/80  
 DATE: 7-80



PLAN

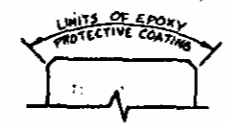


SECTION THRU CAP

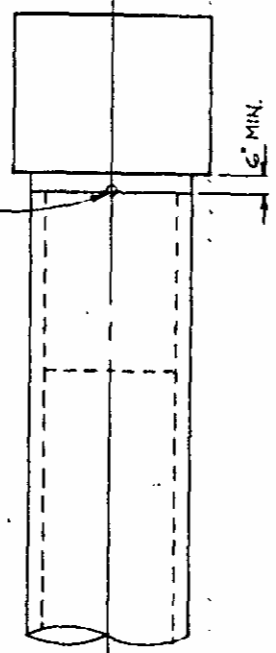


ELEVATION

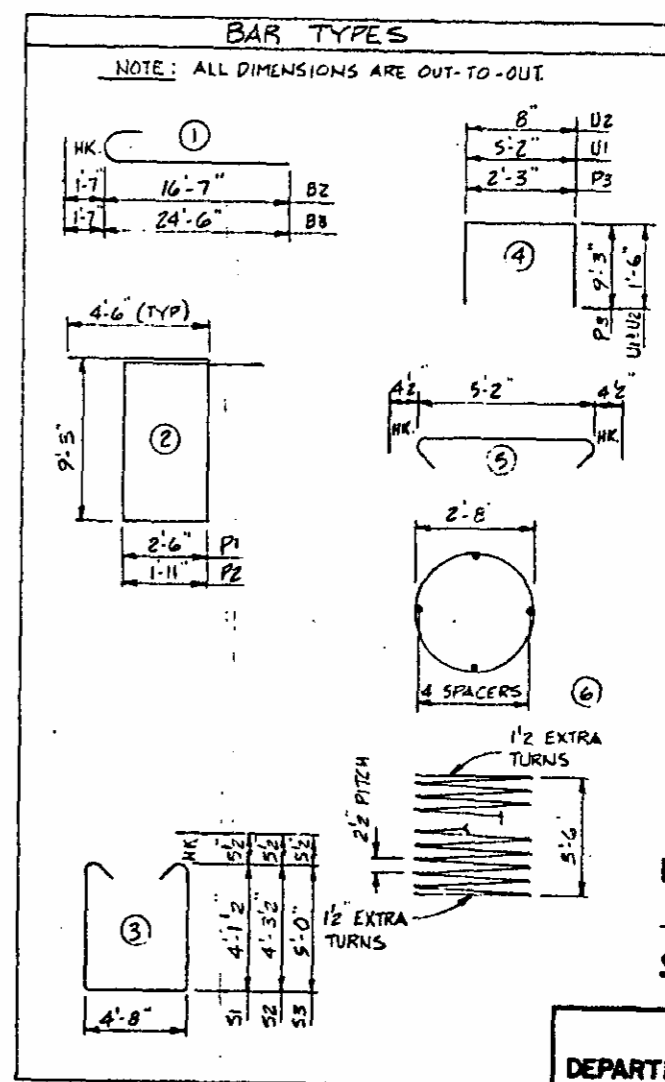
**NOTES:**  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.  
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.



MAX. TOP OF PILE ELEV. = 36.839



END ELEVATION

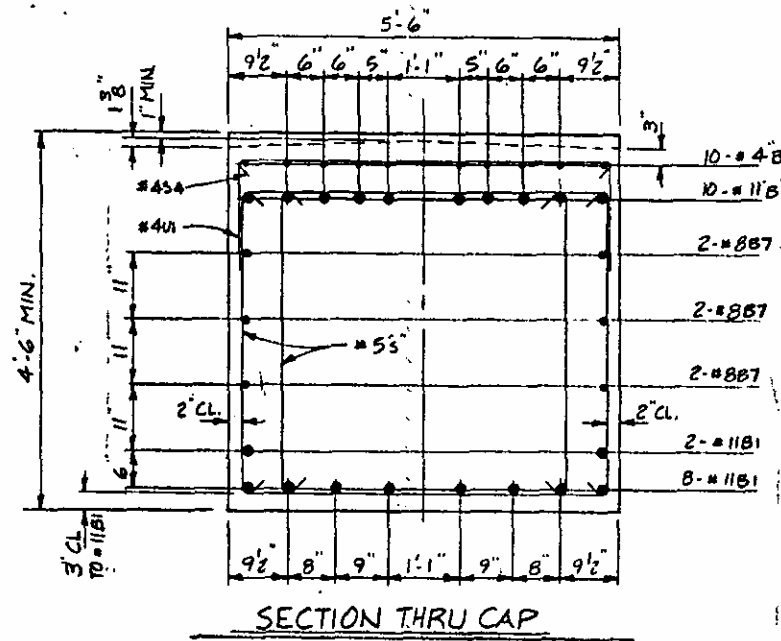
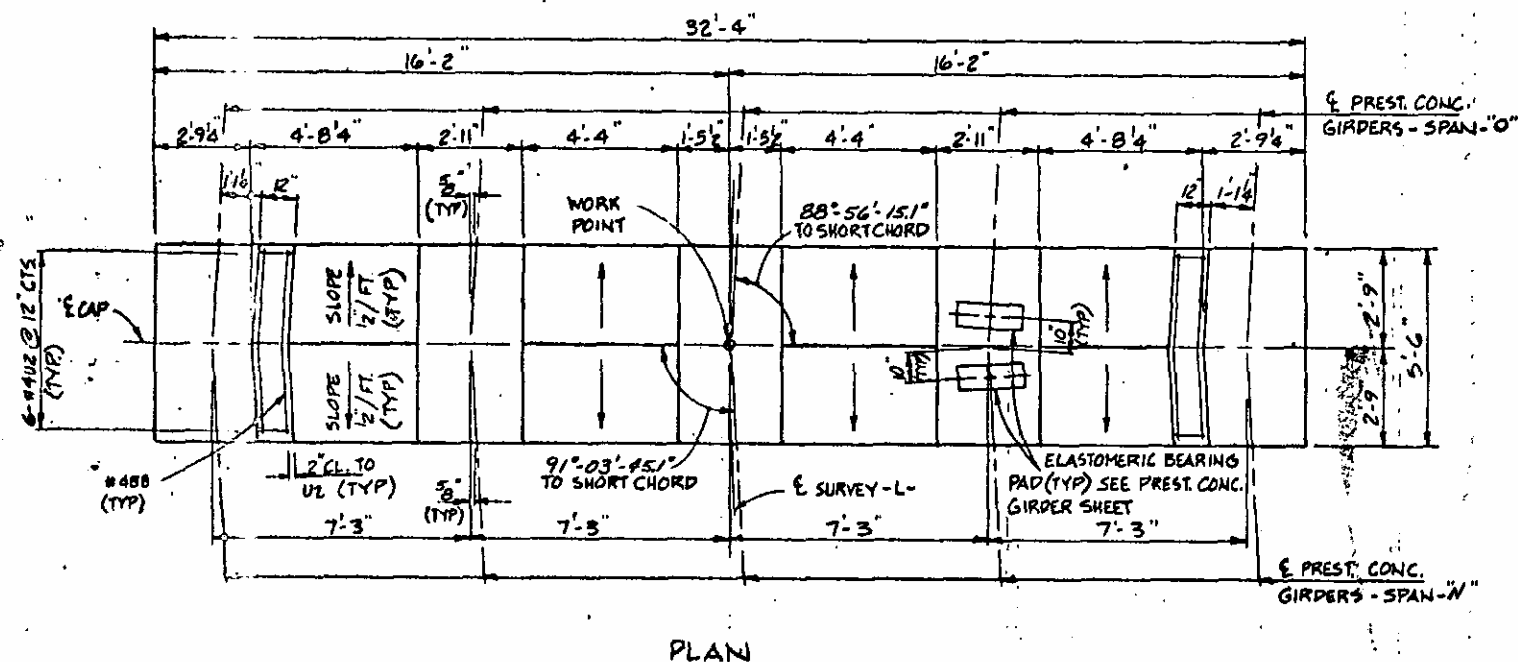


BILL OF MATERIAL					
BENT #13					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	STR	32'-0"	1700
E2	10	#11	1	18'-2"	965
B3	10	#11	1	26'-1"	1386
B4	10	#11	STR	10'-0"	531
B5	10	#4	STR	7'-3"	48
B6	10	#4	STR	5'-5"	29
B7	6	#8	STR	32'-0"	513
B8	4	#4	STR	5'-2"	14
P1	4	#11	2	30'-0"	638
P2	4	#11	2	29'-5"	625
P3	4	#11	4	20'-9"	441
S1	8	#5	3	13'-10"	115
S2	36	#5	3	14'-2"	532
S3	16	#5	3	15'-7"	260
S4	25	#4	5	5'-11"	99
U1	8	#4	4	8'-2"	44
U2	12	#4	4	3'-8"	29
TOTAL					7963
SPI	2	6	242'-7"		324
SPIRAL COLUMN REINFORCING STEEL = 324 LBS.					
REINFORCING STEEL = 7963 LBS.					
CLASS "A" CONCRETE = 38.3 CU. YDS.					
54" Ø CONCRETE CYLINDER PILES					
NO. = 2 LIN. FT. = 128					

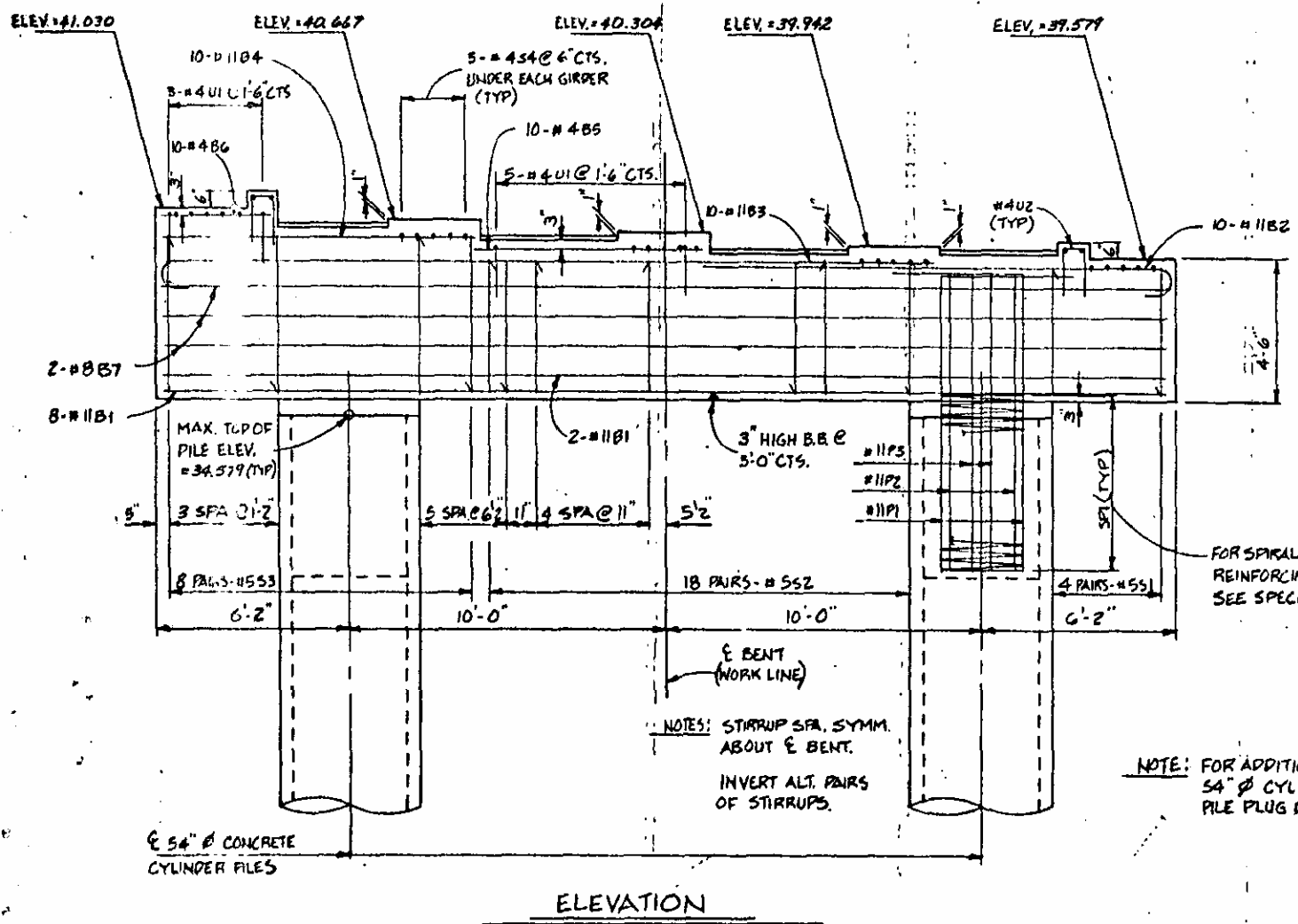
PROJECT No. 8.1201302  
 CARTERET COUNTY  
 STATION: 71+60-L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT #13

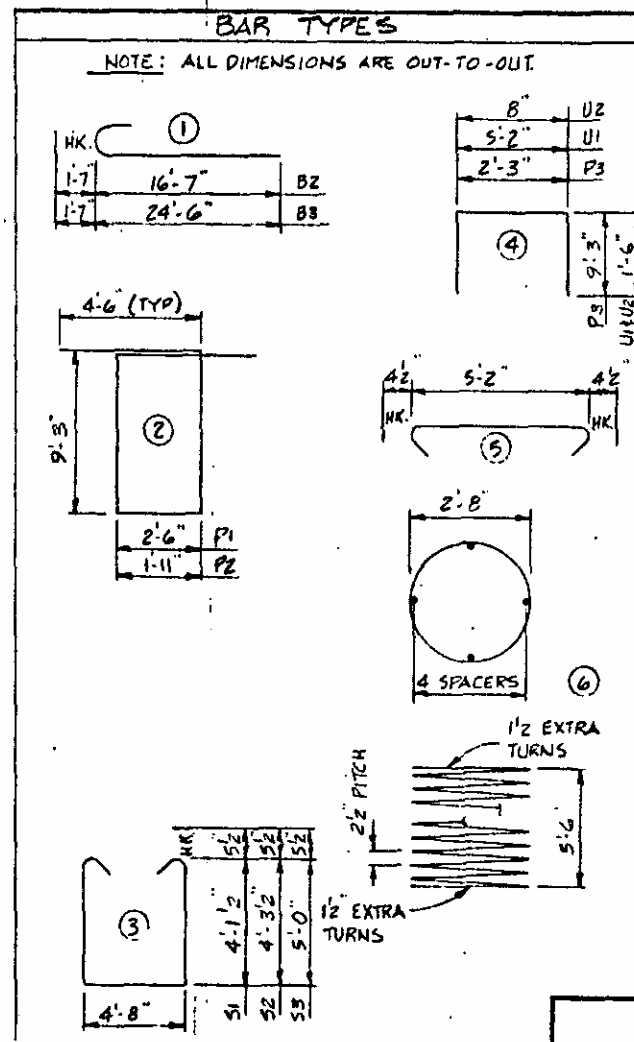
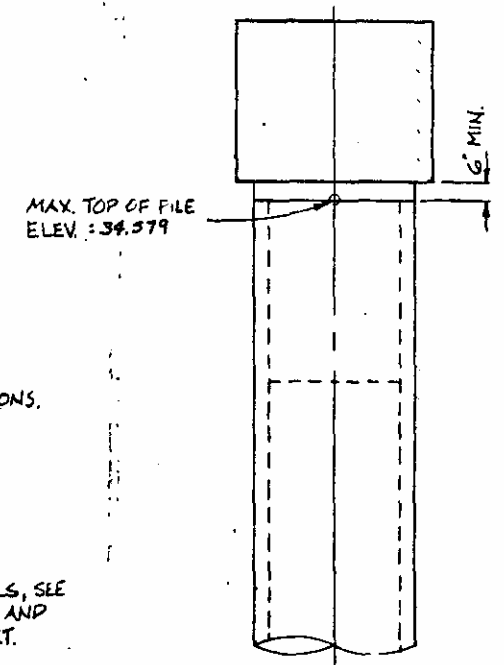
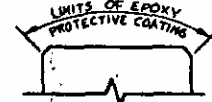
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			1		
2			2		



BILL OF MATERIAL					
BENT #14					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	STR	32'-0"	1700
B2	10	#11	1	18'-2"	965
B3	10	#11	1	26'-1"	1386
B4	10	#11	L-TR	10'-0"	531
B5	10	#4	STR	7'-3"	48
B6	10	#4	STR	5'-5"	23
B7	6	#8	STR	32'-0"	513
B8	4	#4	STR	5'-2"	14
P1	4	#11	2	30'-0"	638
P2	4	#11	2	29'-5"	625
P3	4	#11	4	20'-9"	441
S1	8	#5	3	13'-10"	115
S2	36	#5	3	14'-2"	532
S3	16	#5	3	15'-7"	260
S4	25	#4	3	5'-11"	99
U1	8	#4	4	8'-2"	44
U2	12	#4	4	3'-8"	29
TOTAL					7963
SPI	2	6	6	242'-7"	324



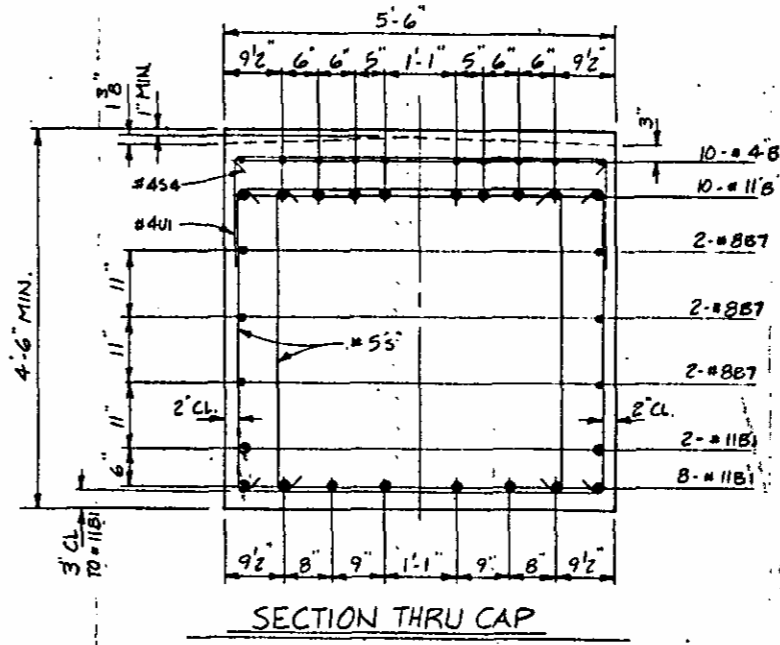
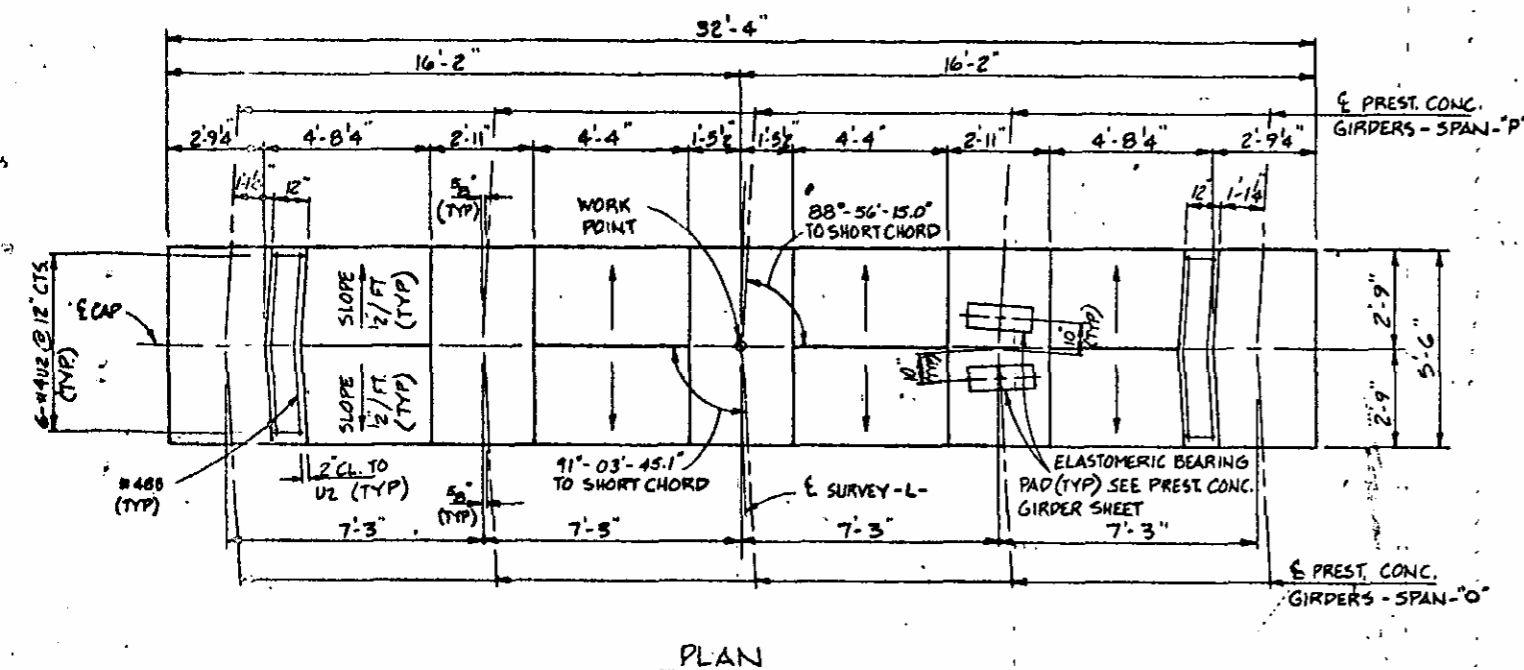
NOTES:  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.  
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.



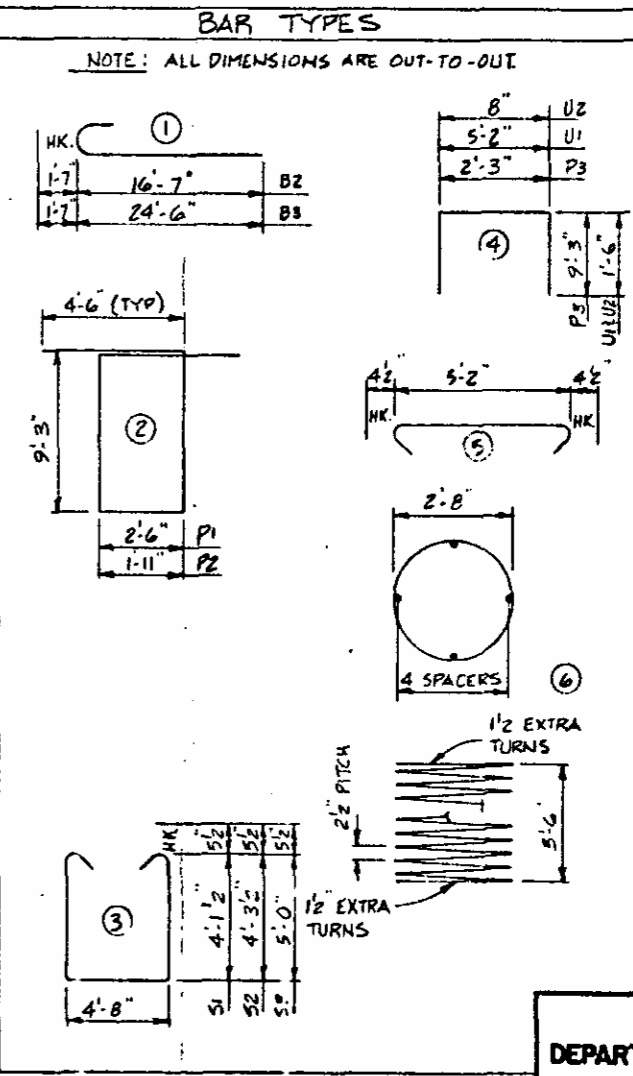
SPIRAL COLUMN REINFORCING STEEL = 324 LBS.  
 REINFORCING STEEL = 7963 LBS.  
 CLASS "A" CONCRETE = 38.3 CU. YDS.  
 54" Ø CONCRETE CYLINDER PILES  
 N6 = 2 LIN FT. = 128'

PROJECT NO. B.120130Z  
 CARTERET COUNTY  
 STATION: 71+60-L-

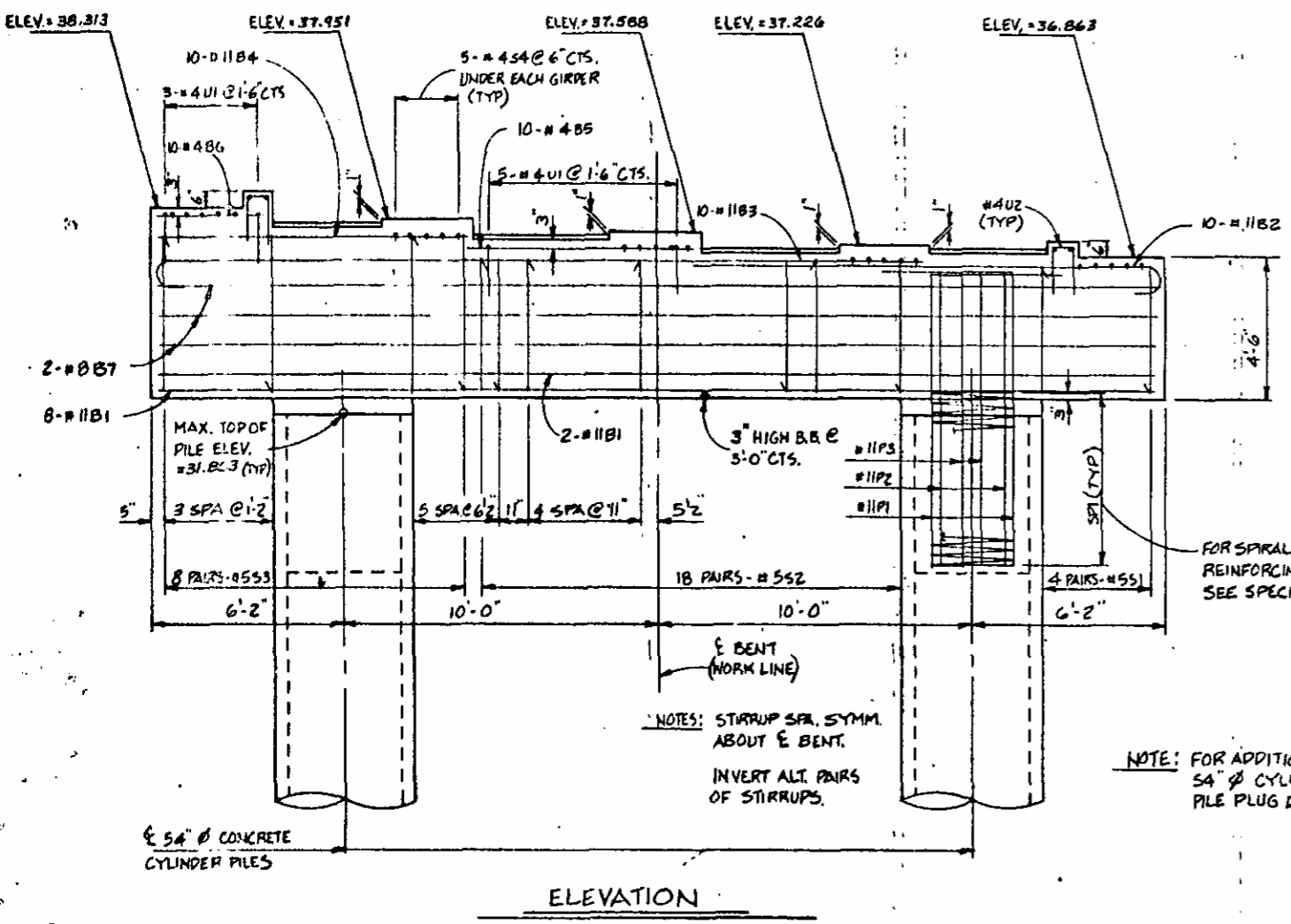
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT #14					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			2		
2			4		
SHEET NO.					5-1-42
TOTAL SHEETS					52



BILL OF MATERIAL					
BENT #15					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	STR	32'-0"	1700
B2	10	#11	1	18'-2"	965
B3	10	#11	1	26'-1"	1386
B4	10	#4	STR	10'-0"	531
B5	10	#4	STR	7'-3"	48
B6	10	#4	STR	5'-5"	23
B7	6	#8	STR	32'-0"	513
B8	4	#4	STR	5'-2"	14
P1	4	#11	2	30'-0"	638
P2	4	#11	2	29'-5"	625
P3	4	#11	4	20'-9"	441
S1	8	#5	3	13'-10"	115
S2	36	#5	3	14'-2"	532
S3	16	#5	3	15'-7"	260
S4	25	#4	5	5'-11"	99
U1	8	#4	4	8'-2"	44
U2	12	#4	4	3'-8"	29
TOTAL					7963
SPI	2	6		242'-7"	324



SPRAL COLUMN REINFORCING STEEL	REINFORCING STEEL	CLASS "A" CONCRETE	54" CONCRETE CYLINDER PILES	NO. = 2	LIN. FT. = 120
324	7963	38.3			

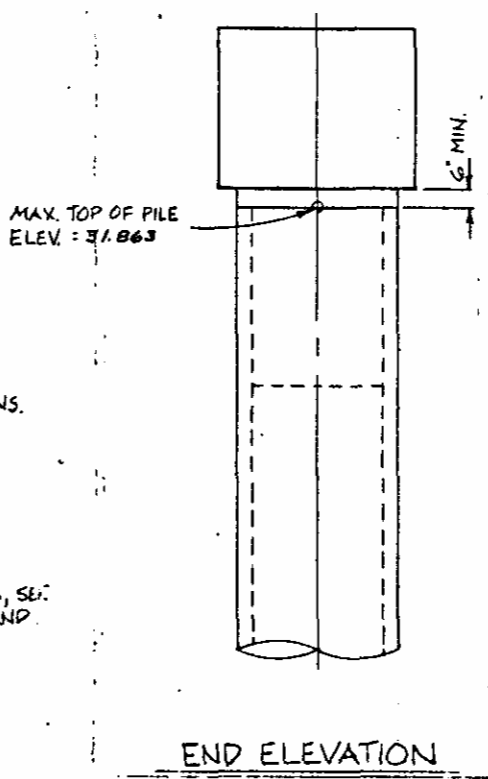


NOTES:

COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.

THE TOP SURFACE AREAS OF THE 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.

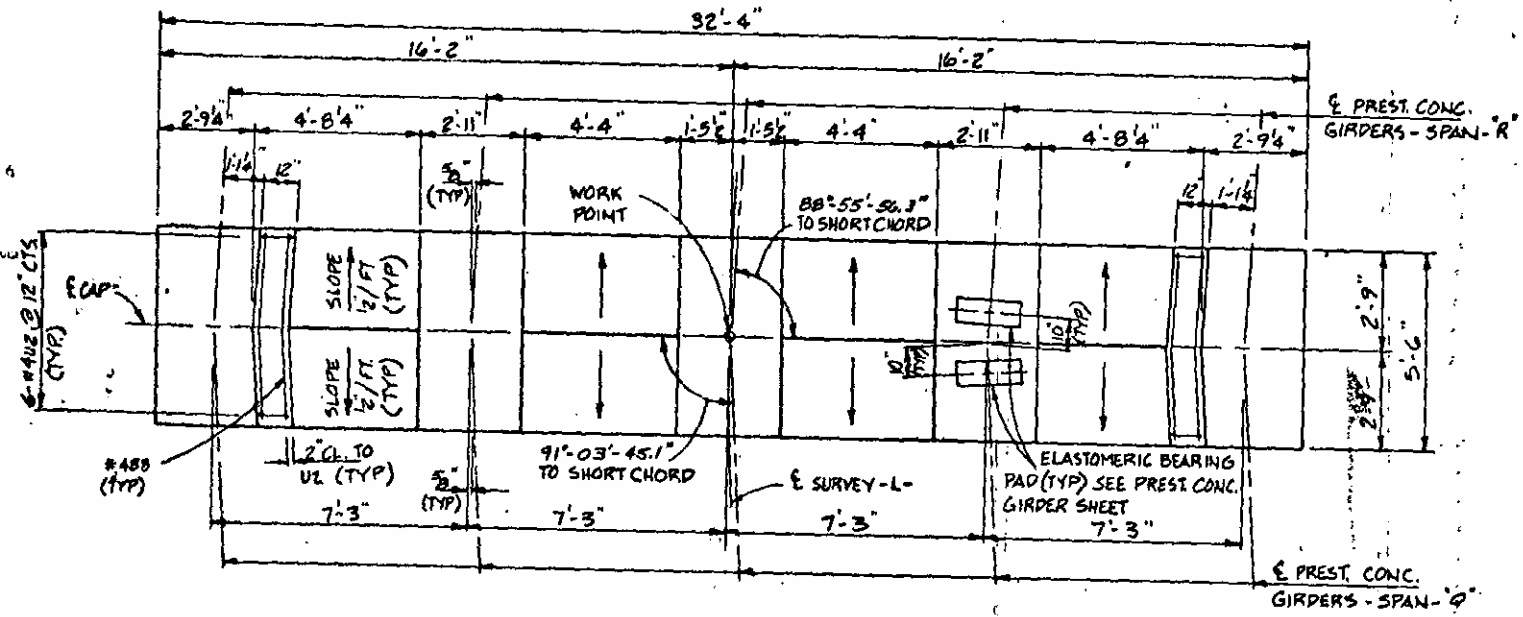


PROJECT No. B.120130Z  
CARTERET COUNTY  
STATION: 71+60-L-1

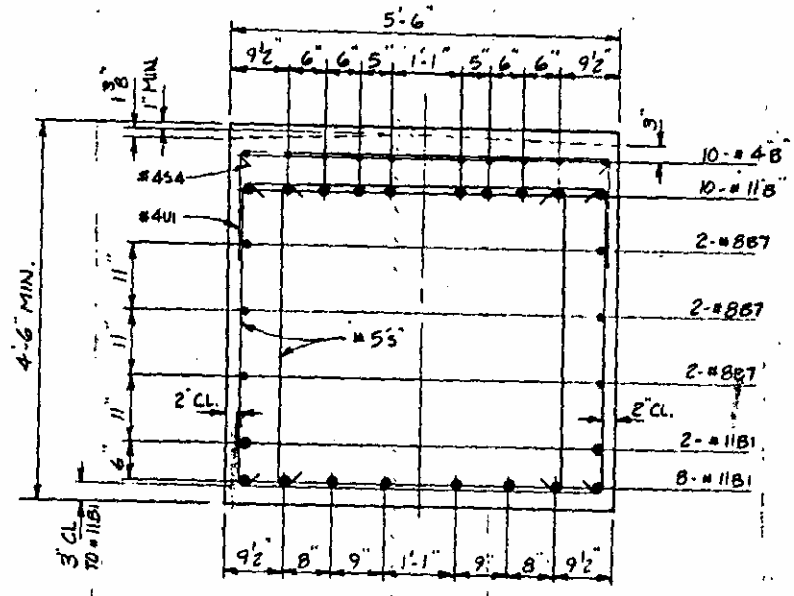
STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUBSTRUCTURE					
BENT #15					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			2		
3			4		

SHEET NO. S-A-41  
TOTAL SHEETS 52





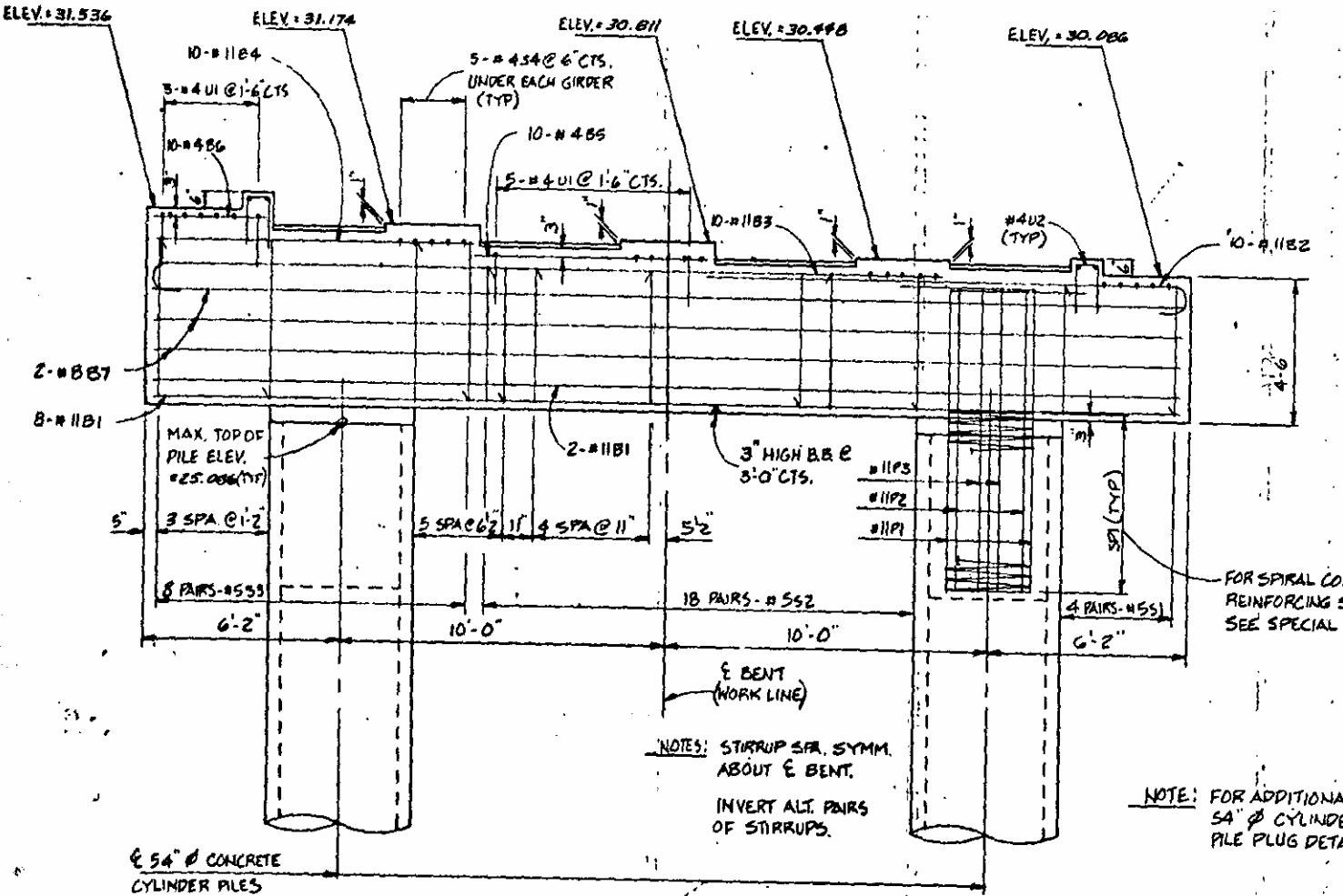
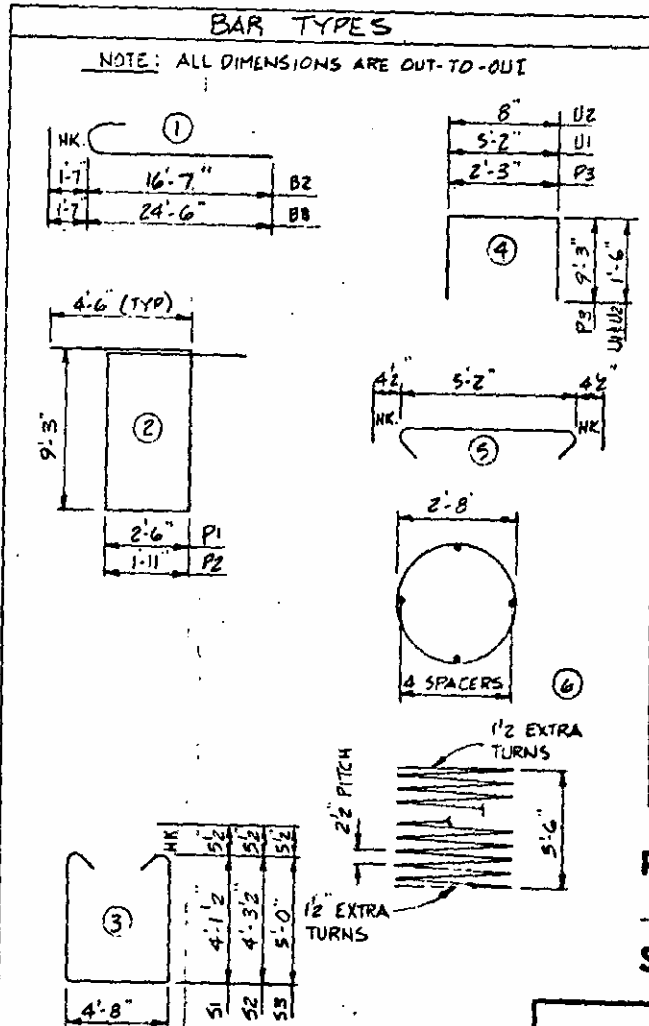
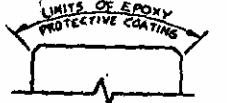
PLAN



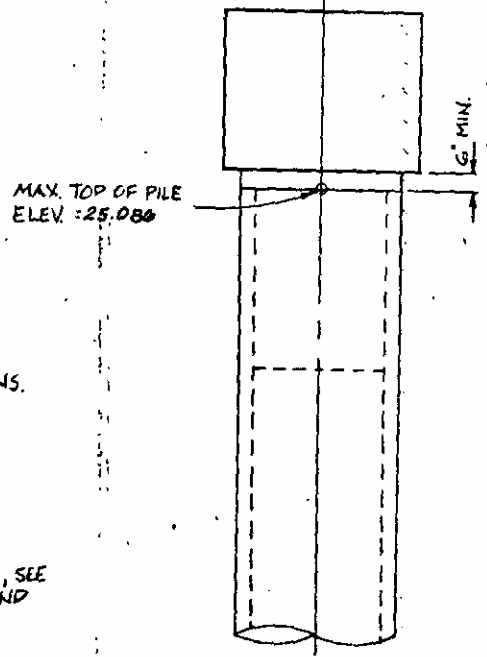
SECTION THRU CAP

BILL OF MATERIAL					
BENT #17					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	STR	32'-0"	1700
B2	10	#11	1	18'-2"	965
B3	10	#11	1	26'-1"	1386
B4	10	#11	STR	10'-0"	531
B5	10	#4	STR	7'-3"	48
B6	10	#4	STR	3'-5"	23
B7	6	#8	STR	32'-0"	513
B8	4	#4	STR	5'-2"	14
P1	4	#11	2	30'-0"	638
P2	4	#11	2	29'-5"	625
P3	4	#11	4	20'-9"	441
S1	8	#5	3	13'-10"	115
S2	36	#5	3	14'-2"	532
S3	16	#5	3	15'-7"	260
S4	25	#4	5	5'-11"	99
U1	8	#4	4	8'-2"	44
U2	12	#4	4	3'-8"	29
TOTAL					7963
SPI	2	6	242'-7"	324	
SPIRAL COLUMN REIN. STEEL = 324 LBS. REINFORCING STEEL = 7963 LBS. CLASS "A" CONCRETE = 38.3 CU. YDS. 54" Ø CONCRETE CYLINDER PILES NO. = 2      LIN. FT. = 104'					

NOTES:  
 COAT ALL SURFACE AREAS OF THE TOP OF CAP, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT THE AREA UNDER THE ELASTOMERIC BEARINGS.  
 THE TOP SURFACE AREAS OF THE 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.



ELEVATION



END ELEVATION

NOTES: STIRRUP SPA. SYMM. ABOUT E BENT.  
 INVERT ALL PAIRS OF STIRRUPS.

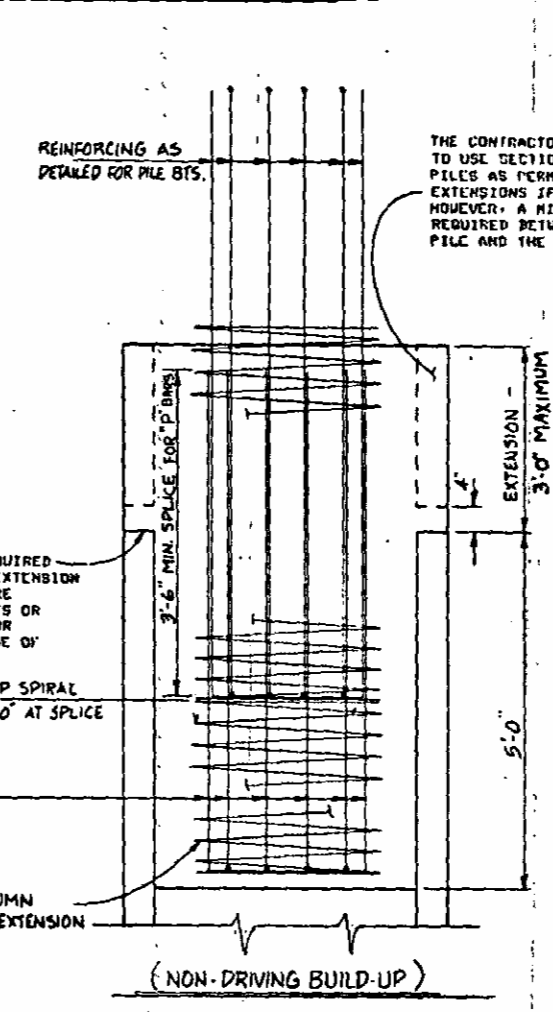
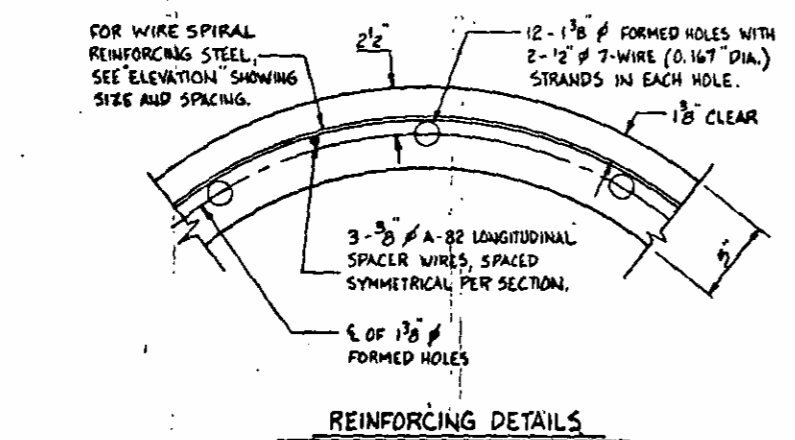
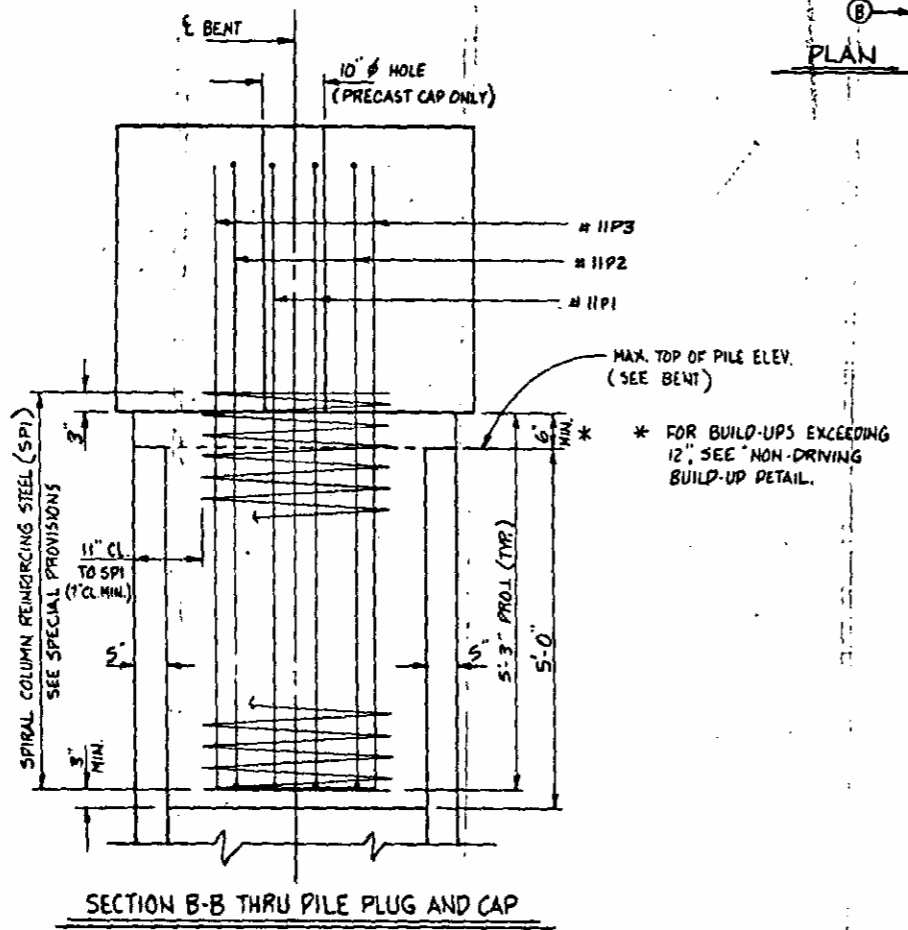
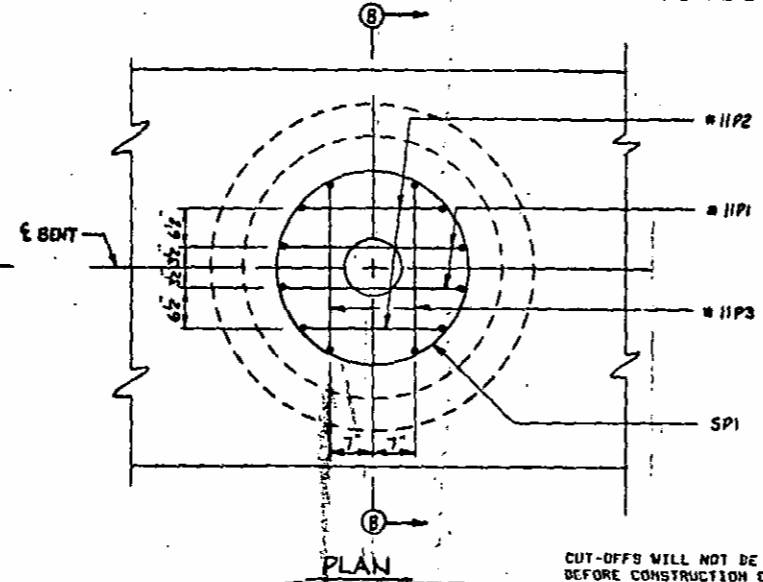
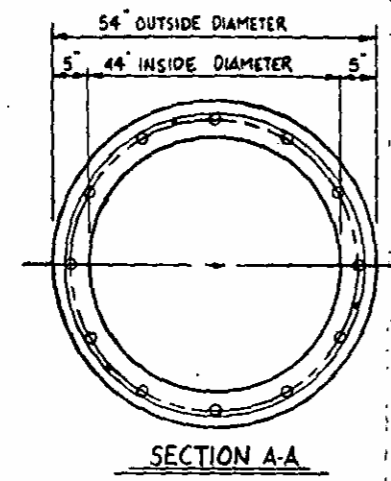
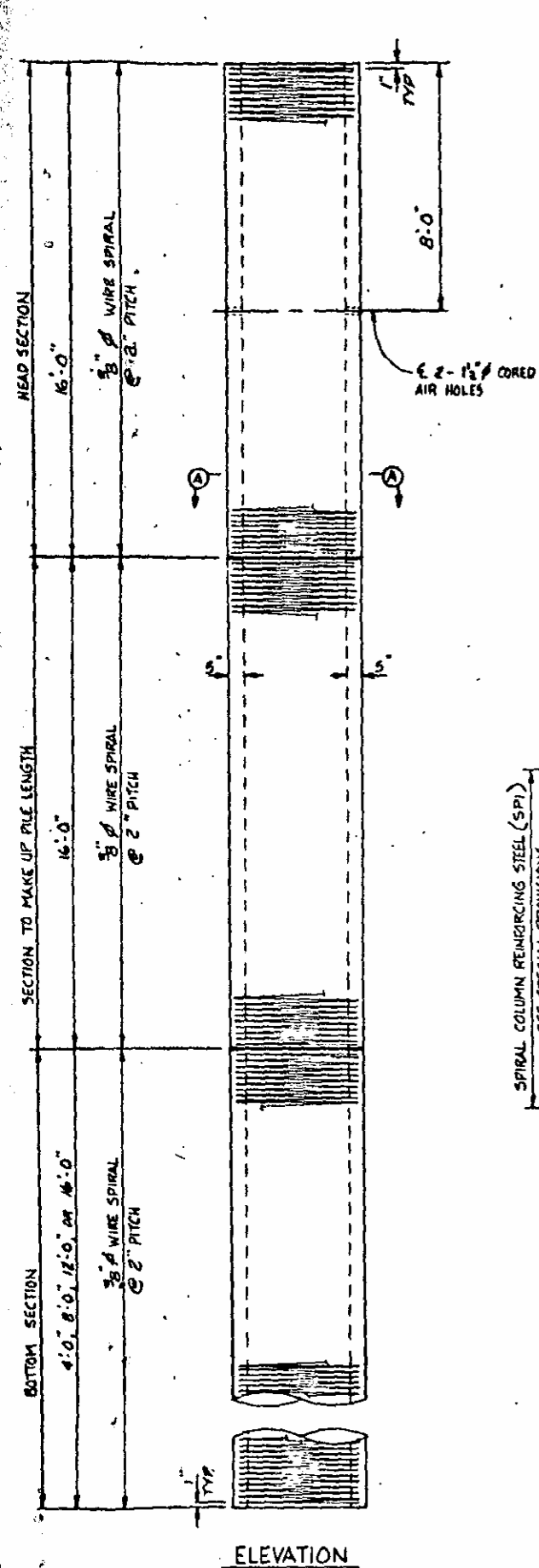
NOTE: FOR ADDITIONAL DETAILS, SEE 54" Ø CYLINDER PILE AND PILE PLUG DETAIL SHEET.

PROJECT No. 8.120130Z  
 CARTERET COUNTY  
 STATION: 71+60-L

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT #17

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE

SHEET NO. 5-A-43  
 TOTAL SHEETS 27



CUT-OFFS WILL NOT BE REQUIRED BEFORE CONSTRUCTION OF EXTENSION UNLESS HEADS OF PILES ARE DAMAGED. NO MEASUREMENTS OR PAYMENTS WILL BE MADE FOR CUT-OFFS REQUIRED BECAUSE OF DAMAGE TO PILES.

REINFORCING IN THE PILE PLUG SHALL BE EXTENDED BY SPLICING A CAGE OF ADDITIONAL P-TYPE BARS HAVING THE SAME NUMBER AND SIZE AS DETAILED IN THE PILE BENTS, WHEN THE PILE EXTENSION EXCEEDS 12".

\* FOR BUILD-UPS EXCEEDING 12" SEE "NON-DRIVING BUILD-UP DETAIL."

REINFORCING AS DETAILED FOR PILE BENTS.

THE CONTRACTOR WILL BE PERMITTED TO USE SECTIONS OF 54" CYLINDER PILES AS PERMANENT FORMS FOR EXTENSIONS IF HE SO DESIRES. HOWEVER, A MINIMUM 4" DAP IS REQUIRED BETWEEN THE EXISTING PILE AND THE NEW FORM.

**PILE NOTES**

THE 54" PILES SHALL HAVE 24 STRANDS AS NOTED ON THIS SHEET FOR EACH PILE. EACH STRAND SHALL BE COMPOSED OF 7-(0.167" DIA.) WIRES MEETING THE REQUIREMENTS OF ASTM DESIGNATION A-416. THE CONTRACTOR SHALL DESIGN AND SUBMIT FOR APPROVAL A CONCRETE MIX WITH A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 7000 PSI AT 28 DAYS. REFERENCE IS MADE TO THE SPECIAL PROVISION IN THE CONTRACT. THE INITIAL PRESTRESS FOR EACH STRAND SHALL BE 189,000 PSI. THIS IS BASED ON THE ASSUMPTION OF THE POSSIBILITY OF 15% REDUCTION OF INITIAL PRESTRESS, DUE TO LOSSES, MAKING THE RESIDUAL PRESTRESS APPROXIMATELY 160,650 PSI.

PRESTRESSING STRAND:  
SIZE GRADE AREA ULTIMATE STRENGTH APPLIED PRESTRESSING  
1/2" 270 0.153 41,300 LBS. / STRAND 20,900 LBS. / STRAND

PRESTRESSING STRAND SHALL BE EQUALLY SPACED AS SHOWN IN "SECTION A-A".

FABRICATION TOLERANCES AND DETENSIONING SEQUENCE OF THE PRESTRESSED CONCRETE PILE WILL BE AS REQUIRED BY THE SPECIAL PROVISION OF THE CONTRACT.

SPIRAL REINFORCING STEEL: 3/8" COLD-DRAWN STEEL WIRE SPIRAL REINFORCEMENT SHALL BE "AS COLD DRAWN" CONFORMING TO ASTM DESIGNATION A82.

REINFORCING STEEL MAY BE WELDED TO THE LONGITUDINAL WIRES. THE SPIRAL PROVIDED THE WELDING IS DONE BY CERTIFIED WELDERS OR APPROVED ELECTRIC RESISTANCE WELDING EQUIPMENT.

ALL CYLINDER PILE SECTIONS ARE TO BE 16'-0" IN LENGTH, EXCEPT THE BOTTOM SECTION WHICH MAY VARY TO FULFILL ORDER LENGTHS.

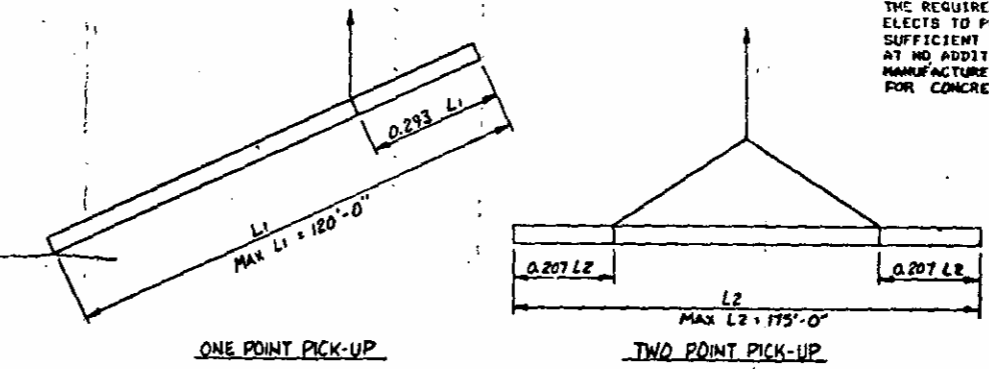
54" CYLINDER PILES SHALL BE POST-TENSIONED. PILING SHALL NOT BE POST-TENSIONED SOONER THAN SEVEN (7) DAYS AFTER CASTING. THE CONCRETE SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI BEFORE POST-TENSIONING IS BEGUN. FOR ADDITIONAL DETAILS OF MANUFACTURE, SEE SPECIAL PROVISIONS FOR POST-TENSIONED CYLINDER PILES.

IN DRIVING PILES, A METHOD APPROVED BY THE ENGINEER SHALL BE USED, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

SPLICING: SPLICING OF THE 54" CYLINDER PILES WILL NOT BE PERMITTED; HOWEVER, BUILDUPS TO A MAXIMUM OF THREE (3) FEET IN LENGTH WILL BE ALLOWED AFTER THE PILE HAS BEEN DRIVEN TO THE REQUIRED CAPACITY.

REINFORCING STEEL AND CLASS A CONCRETE USED IN THE PILE PLUG AND 6" BUILDUP ARE INCLUDED IN THE BENT QUANTITIES AND ARE TYPICAL FOR PILE PLUG AND BUILDUP ONLY. IF A PILE BUILDUP EXCEEDING 6" IS REQUIRED, ANY ADDITIONAL STEEL OR CONCRETE USED WILL BE FURNISHED BY THE CONTRACTOR AT NO ADDITIONAL PAYMENT.

REINFORCING STEEL AND CLASS A CONCRETE USED IN THE PILE PLUG IS INCLUDED IN THE "BENT QUANTITIES". THE BENT CAP REINFORCING STEEL SHOWN WILL BE USED FOR EITHER THE PRECAST OR CAST-IN-PLACE BENT CAP. THE QUANTITIES SHOWN FOR THE BENT CAP ARE BASED ON THE REQUIREMENTS FOR CAST-IN-PLACE CONSTRUCTION. IF THE CONTRACTOR ELECTS TO PRECAST THE BENT CAP, ADDITIONAL STEEL REQUIRED TO INSURE SUFFICIENT STRENGTH FOR HANDLING WILL BE FURNISHED BY THE CONTRACTOR AT NO ADDITIONAL PAYMENT. THE CONTRACTOR SHALL SUBMIT PLANS FOR MANUFACTURE AND INSTALLATION OF PRECAST BENT CAPS FOR APPROVAL. FOR CONCRETE PLUG USED WITH PRECAST CAPS, SEE SPECIAL PROVISIONS.



PICK-UP DETAILS

PICK-UP NOTES

DEVICES FOR LIFTING THE PILES SHALL BE APPROVED BY THE ENGINEER.

ROTATION OF PILE IN THE SLING IS TO BE PREVENTED UNTIL THE PILE IS IN THE VERTICAL POSITION.

PICK UP POINTS FOR ALL PILES TO BE CLEARLY MARKED ON PILE.

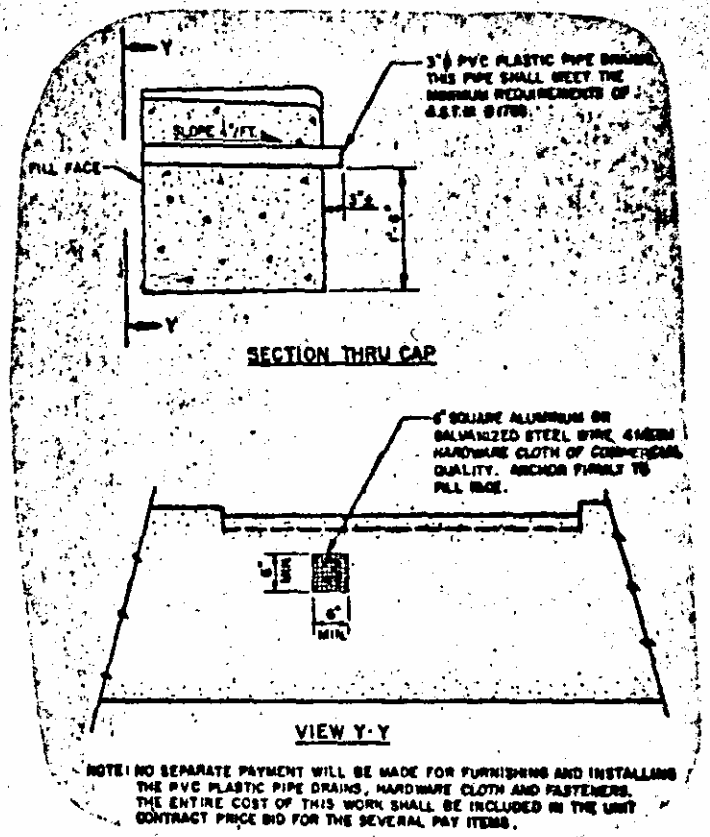
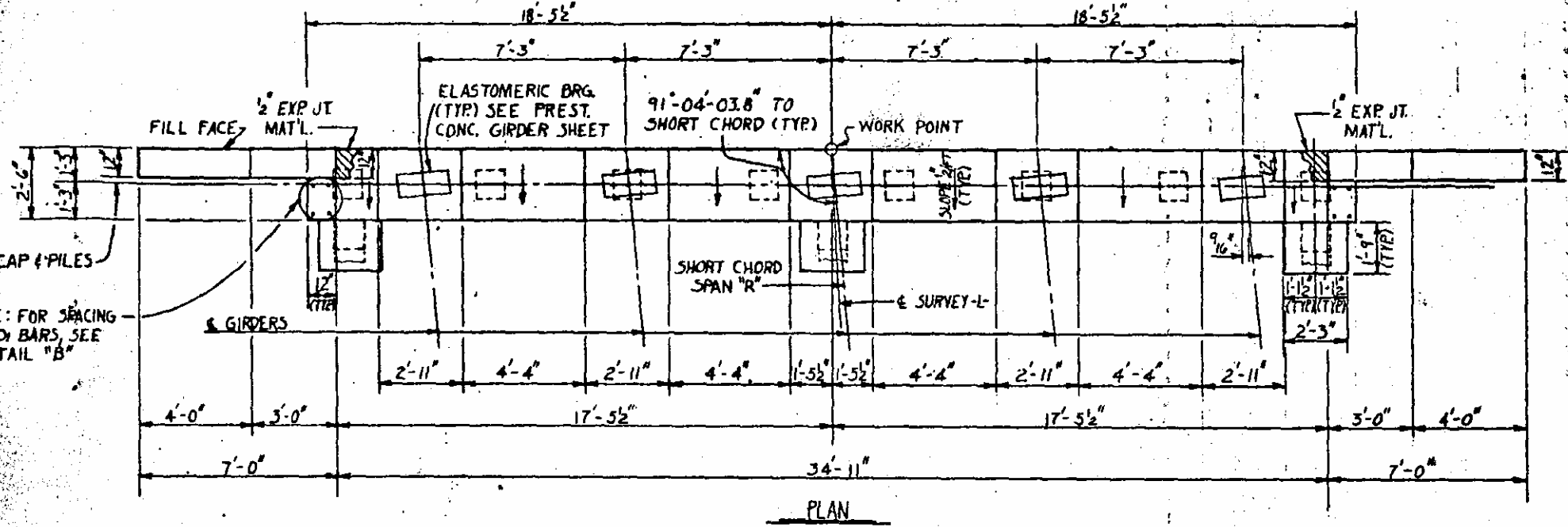
MAXIMUM LENGTHS FOR PICK UP HAVE BEEN CALCULATED FOR BENDING STRESSES DUE TO THE WEIGHT OF THE PILE PLUS 50 PERCENT ALLOWABLE FOR IMPACT, WITH CONCRETE TENSILE STRESS LIMITED TO 600 PSI.

PROJECT NO. 8.120130Z  
CARTERET COUNTY  
STATION: 71+60-L

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

54" CONCRETE CYLINDER PILE & PILE PLUG DETAILS

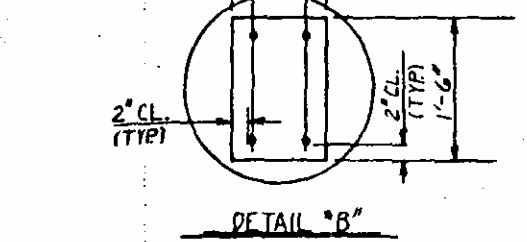
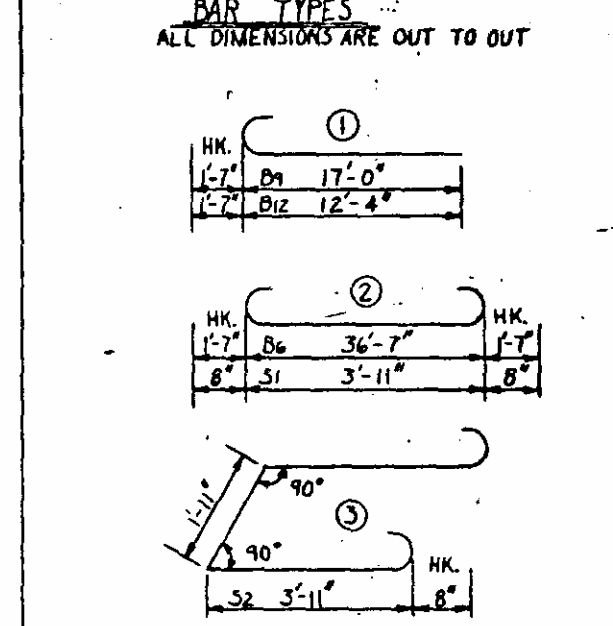
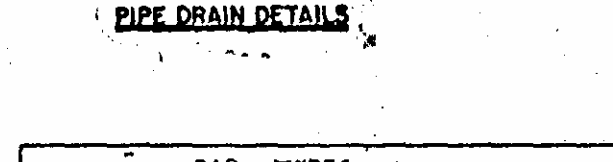
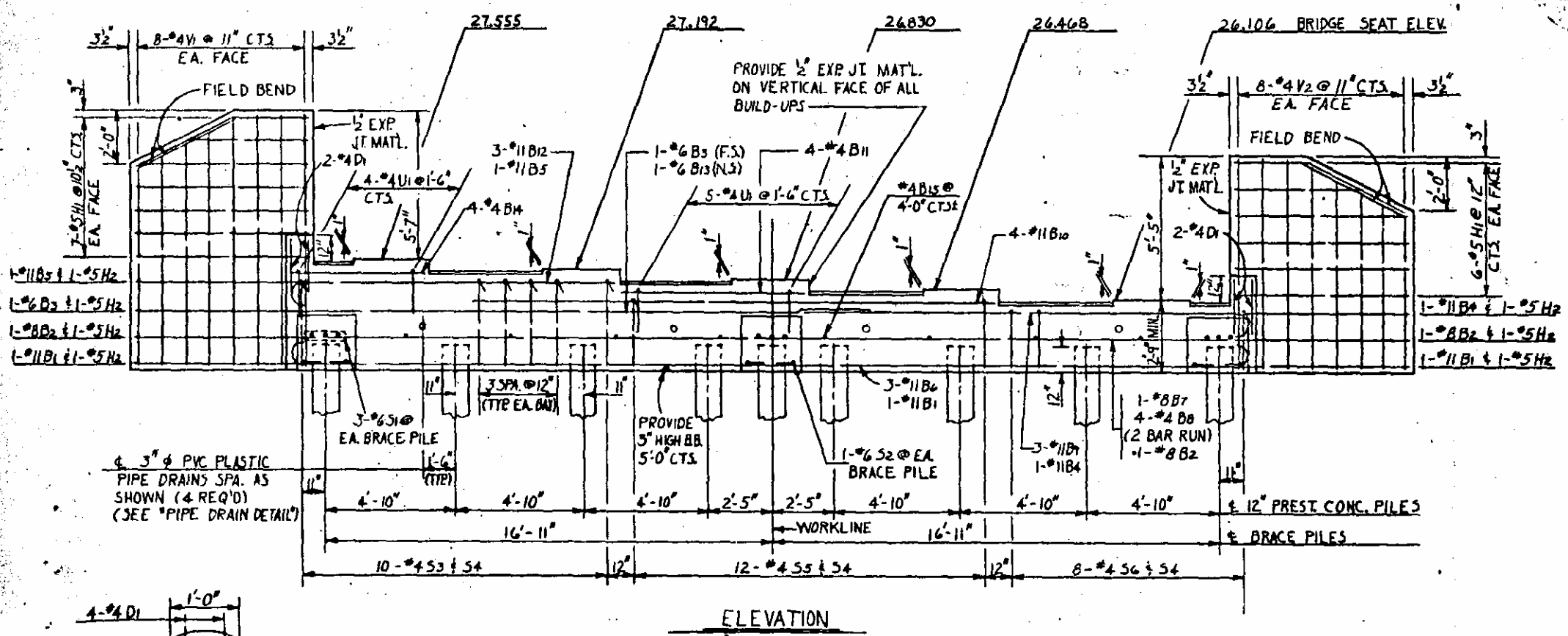
REVISIONS						SHEET NO. S-A-44
NO.	BY	DATE	NO.	BY	DATE	
1			2			TOTAL SHEETS 52
3			4			



**BILL OF MATERIAL**

FOR END BENT #2

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	1	#11	STR	48'-7"	258
B2	1	#8	STR	48'-7"	130
B3	1	#6	STR	27'-9"	42
B4	1	#11	STR	23'-0"	122
B5	1	#11	STR	18'-4"	97
B6	3	#11	2	39'-9"	634
B7	1	#8	STR	36'-7"	98
B8	8	#4	STR	18'-11"	101
B9	3	#11	1	18'-7"	296
B10	4	#11	STR	20'-0"	425
B11	4	#4	STR	7'-3"	19
B12	3	#11	1	13'-11"	222
B13	1	#6	STR	21'-9"	33
B14	4	#4	STR	5'-1"	14
B15	8	#4	STR	2'-2"	12
D1	8	#4	STR	2'-0"	11
H1	13	#5	STR	6'-8"	90
H2	7	#5	STR	8'-0"	58
S1	9	#6	2	5'-3"	71
S2	3	#6	3	11'-1"	50
S3	10	#4	5	9'-5"	63
S4	30	#4	4	2'-11"	58
S5	12	#4	5	8'-0"	64
S6	8	#4	5	7'-3"	39
V1	16	#4	STR	9'-5"	101
V2	16	#4	STR	7'-10"	84
U1	9	#4	6	5'-2"	31



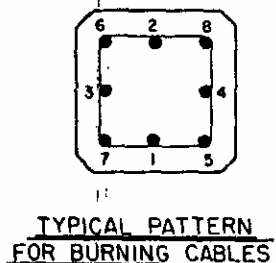
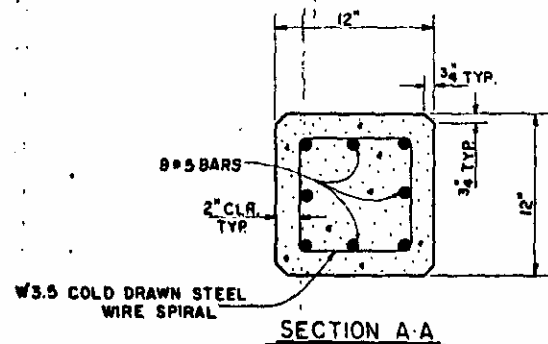
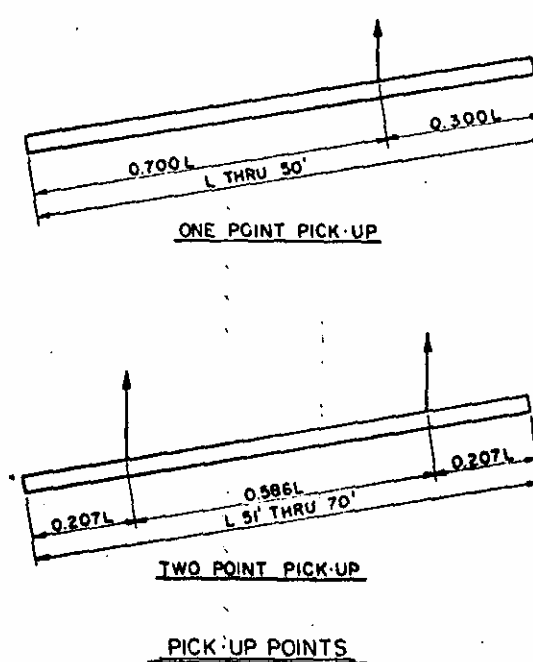
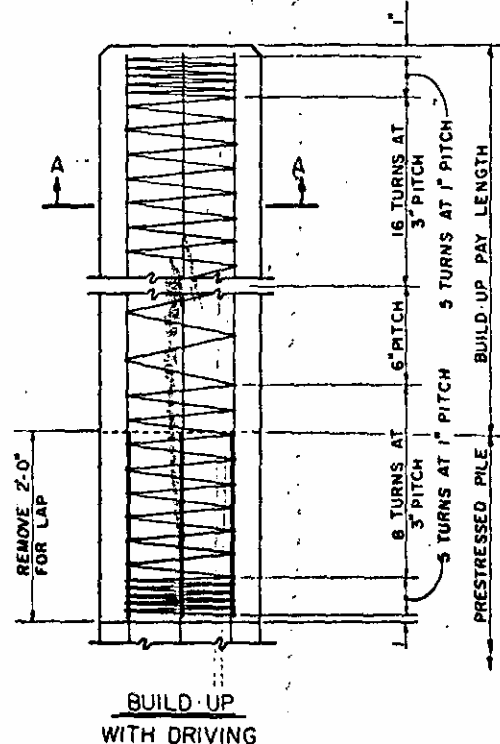
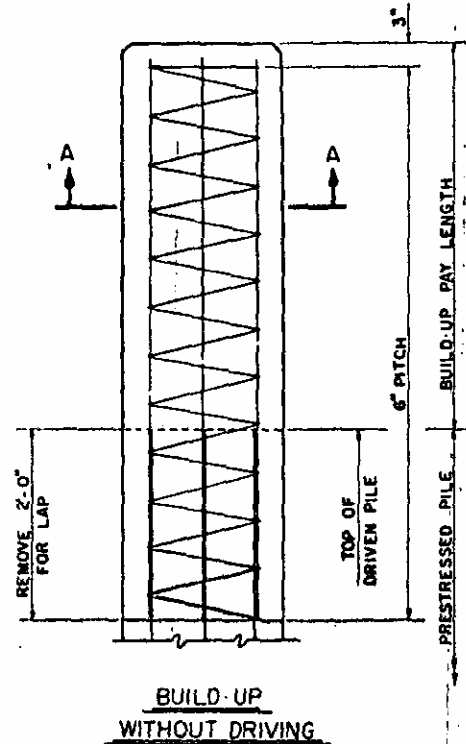
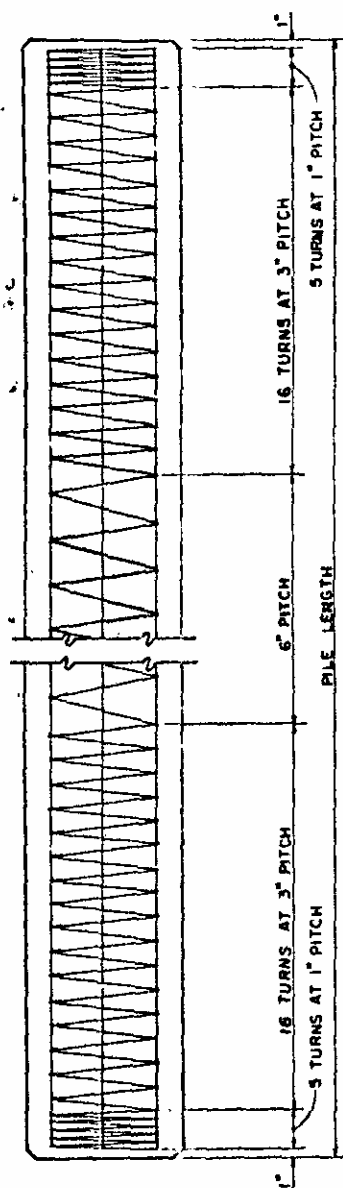
NOTE: SEE END BENT 1 FOR SECTIONS THRU WINGS, CAP, AND LIMITS OF EPOXY COATING

① REVISION TO BRIDGE SEAT ELEV.'S / BY: CEF DATE: 4/21/81

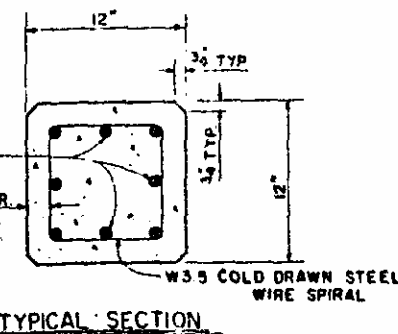
PROJECT No. 81201302  
CARTERET COUNTY  
STATION: 71+60 -L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
AND HIGHWAY SAFETY  
RALEIGH  
SUBSTRUCTURE  
END BENT NO. 2

REV.	BY	DATE	NO.	DATE	SHEET NO.
①	EGW	4/21/81			5-A-45



LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	QUANTITIES FOR ONE 12" PRESTRESSED PILE			
			ONE PICK-UP POINT		TWO PICK-UP POINT	
			0.700L	0.300L	0.207L	0.586L
25'-0"	0.91	1.85	7'-6"	17'-6"		
30'-0"	1.10	2.22	9'-0"	21'-0"		
35'-0"	1.28	2.59	10'-6"	24'-6"		
40'-0"	1.46	2.96	12'-0"	28'-0"		
45'-0"	1.64	3.33	13'-6"	31'-6"		
50'-0"	1.83	3.70	15'-0"	35'-0"		
55'-0"	2.01	4.07			11'-4 1/2"	32'-3"
60'-0"	2.19	4.44			12'-5"	35'-2"
65'-0"	2.37	4.81			13'-5 1/2"	38'-1"
70'-0"	2.56	5.18			14'-6"	41'-0"



**NOTES**  
 CONCRETE DESIGN DATA:  $f_c = 5,000 \text{ PSI}$ ;  $f_s = 2,000 \text{ PSI}$   
 IMPACT IN HANDLING = 50%  
 IN DRIVING PILES, A METHOD APPROVED BY THE ENGINEER SHALL BE USED, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.  
 DEVICES FOR LIFTING THE PILES SHALL BE APPROVED BY THE ENGINEER. LOOPS OF CABLE CAST IN THE PILES WILL NOT BE PERMITTED. INSERTS, CAST IN THE PILES TO RECEIVE THREADED EYE-BOLTS OR SIMILAR APPROVED DEVICES, MAY BE USED, OR WHERE IT IS PRACTICABLE, SATISFACTORY CLAMPS OR SLINGS MAY BE USED. WHERE PILES WILL BE EXPOSED TO VIEW IN THE STRUCTURE AND INSERTS ARE CAST IN THE PILES, THE OPENINGS SHALL BE REPAIRED AFTER THE EYE-BOLTS OR OTHER ATTACHMENTS HAVE BEEN REMOVED. THE OPENINGS SHALL BE REPAIRED IN A SATISFACTORY MANNER IN ORDER TO OBTAIN A UNIFORM APPEARANCE.

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE CABLES AS PRESCRIBED IN THE SPECIFICATIONS. THE CONTRACTOR MAY, AT HIS OPTION, USE EITHER OF THE TWO TYPES OF CABLES LISTED BELOW; HOWEVER, ALL CABLES IN A PILE SHALL BE OF THE SAME TYPE.

SIZE	GRADE	NUMBER OF CABLES	AREA	ULTIMATE STRENGTH PER CABLE	APPLIED PRESTRESS FORCE PER CABLE
3/8	270	8	0.085 <sup>sq</sup>	23,000 <sup>lb</sup>	18,100 <sup>lb</sup>
7/16	250	8	0.108 <sup>sq</sup>	27,000 <sup>lb</sup>	18,900 <sup>lb</sup>

IF CABLE STRESS IS RELIEVED BY BURNING, THE CABLES SHALL BE BURNED IN PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. NOT MORE THAN 4 CABLES MAY BE BURNED AT ANY ONE SECTION BEFORE THE SAME CABLES ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

BUILD-UPS SHALL BE OF "CLASS A" CONCRETE WITH 20% ADDITIONAL CEMENT. NO DRIVING OF THE BUILT-UP PILE WILL BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 3,000 P.S.I. AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

ALL CORNERS TO BE CHAMFERED 3/4".  
 WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS TO BE INDICATED WITH A BLACK MARK 2" WIDE.

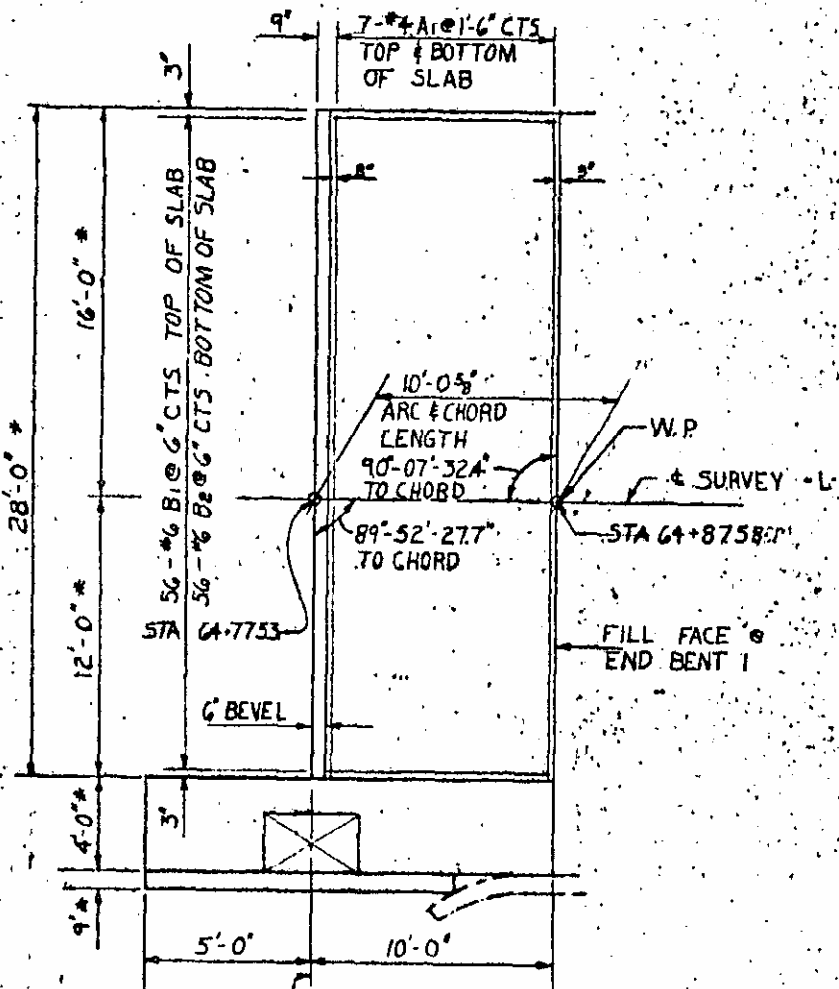
PRESTRESSED PILES PREVIOUSLY CAST FOR NORTH CAROLINA HIGHWAY PROJECTS MAY BE USED AT THE OPTION OF THE CONTRACTOR.

PROJECT No. B.120130Z  
 CARTERET COUNTY  
 STATION: 71+60-L

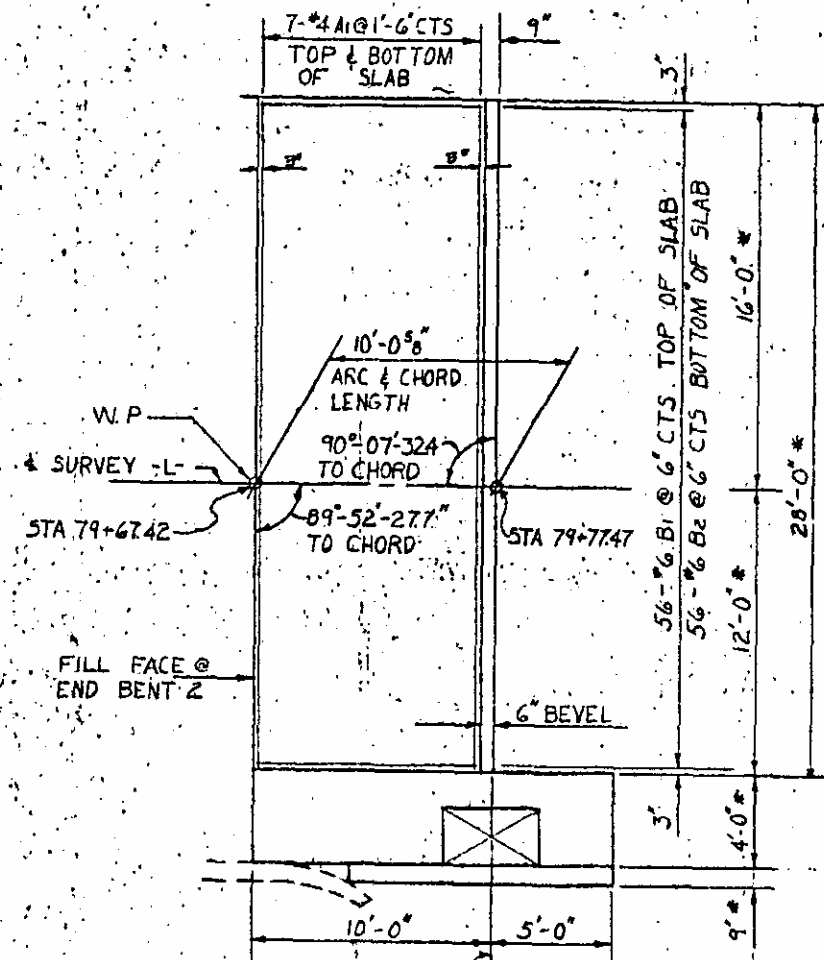
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 12" PRESTRESSED  
 CONCRETE PILE

ASSEMBLED BY G. [Signature] DATE 8-60  
 CHECKED BY C. [Signature] DATE 9-60  
 DRAWN BY R. [Signature] DATE 10-12-1977  
 CHECKED BY R. [Signature] DATE May 7 1977  
 SPECIAL  
 STANDARD

REVISIONS  
 NO. BY DATE NO. BY DATE  
 1 2  
 2 4  
 SHEET NO. 5-A-46  
 TOTAL SHEETS 52



PLAN @ END BENT #1



PLAN @ END BENT #2

\* RADIAL DIMENSIONS

**BILL OF MATERIAL**

FOR ONE APPROACH SLAB (TWO REQUIRED)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	14	#4	STR	27'-8"	259
B1	56	#6	STR	9'-0"	757
B2	56	#6	STR	9'-6"	799

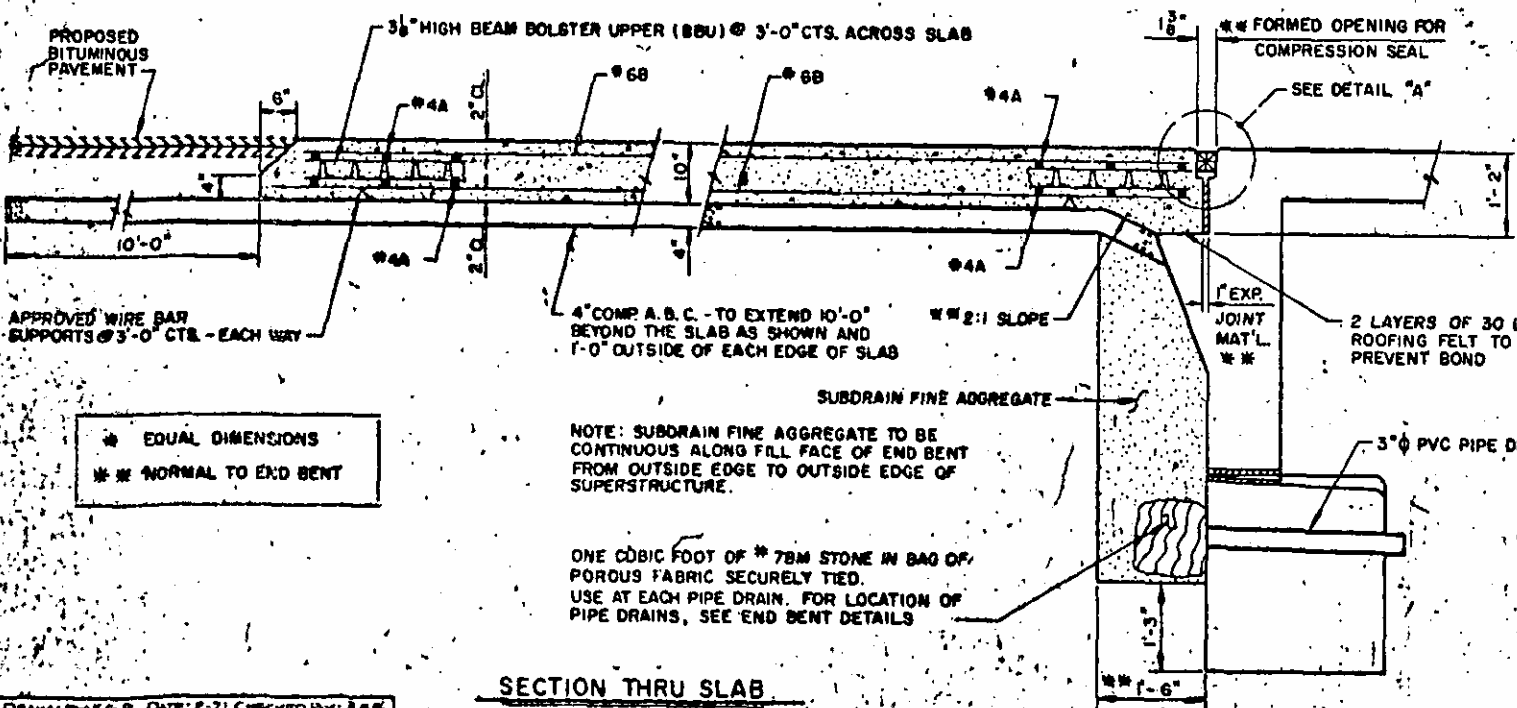
REINFORCING STEEL 1815 LBS.  
CLASS AA CONCRETE 28 C.Y.  
CLASS A ...  
APPROACH DRAINAGE SLAB 15 C.Y.

**NOTES**

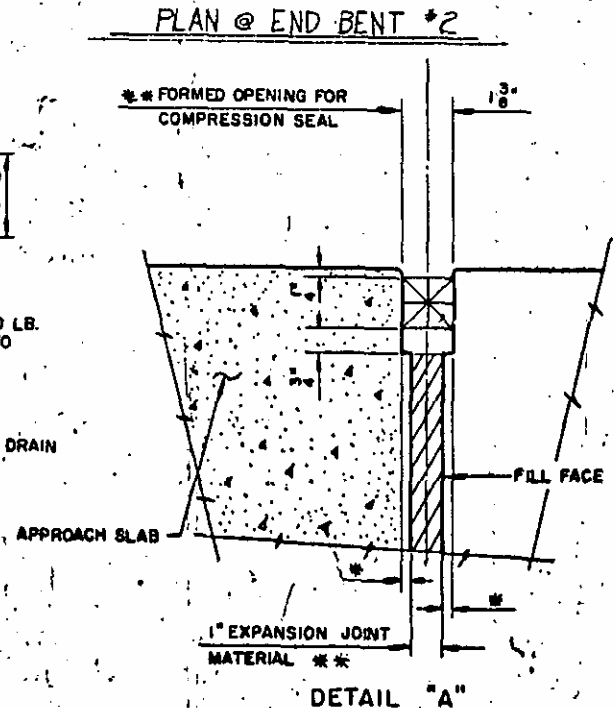
- FOR PREFORMED COMPRESSION JOINT SEAL, SEE SPECIAL PROVISIONS.
- PREFORMED COMPRESSION JOINT SEAL SHALL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID. SEE GENERAL DRAWING.
- OPENING SHOWN IS BASED ON A NOMINAL UNCOMPRESSED SEAL WIDTH OF 2".
- THE INSTALLED COMPRESSION SEAL SHALL BE WATERTIGHT.
- PROVIDE WATERTIGHT SEAL AT END OF COMPRESSION SEAL AS RECOMMENDED BY MANUFACTURER.
- COMPRESSION SEAL EXTENDS FROM GUTTER TO GUTTER ALONG BRIDGE DECK NOTCH.

\* RADIAL DIMENSIONS.  
\* GRATE & DROP INLET SEE "APP DRAINAGE SLAB" DETAIL SHEETS

\* GRATE & DROP INLET SEE "APPROACH DRAINAGE SLAB" DETAIL SHEETS



SECTION THRU SLAB



DETAIL "A"

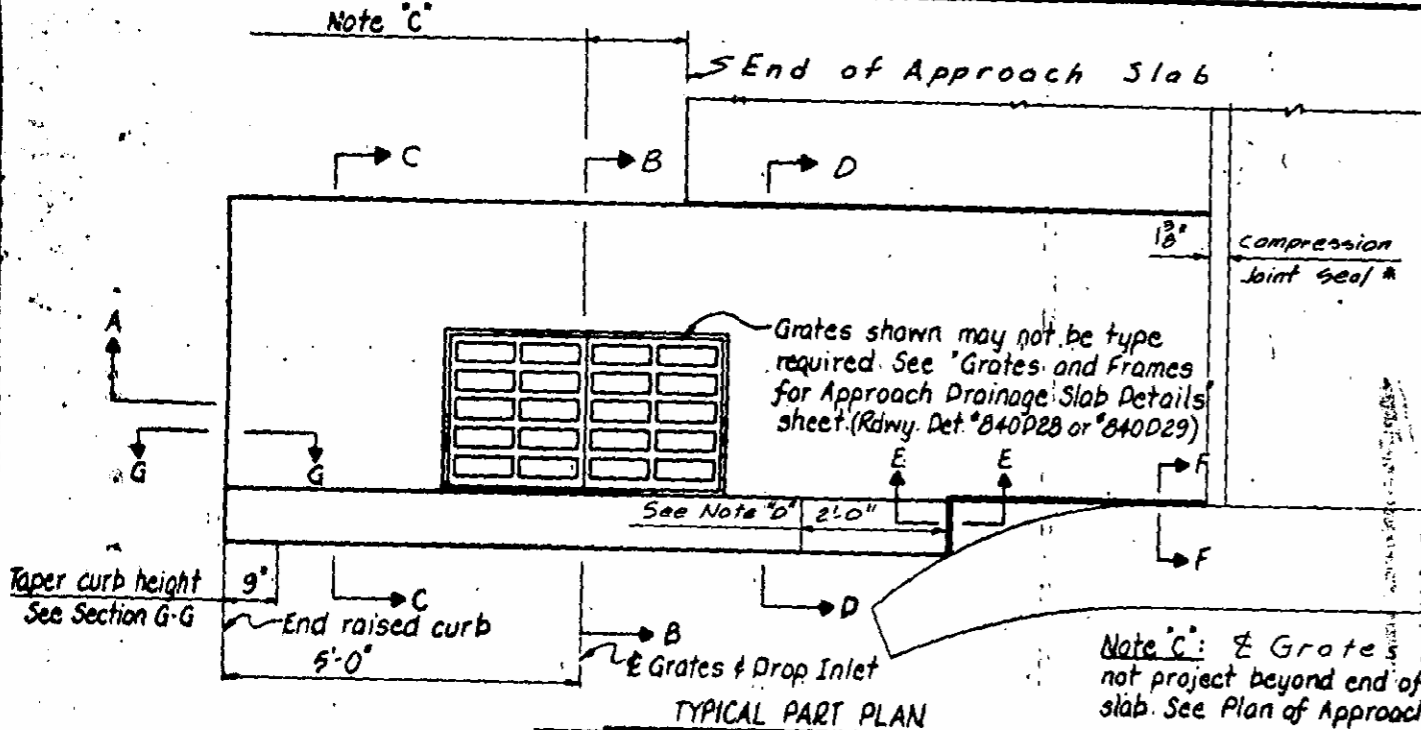
PROJECT No. 81201302  
CARPET COUNTY  
STATION: 71+60 -L-  
SHEET 1 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

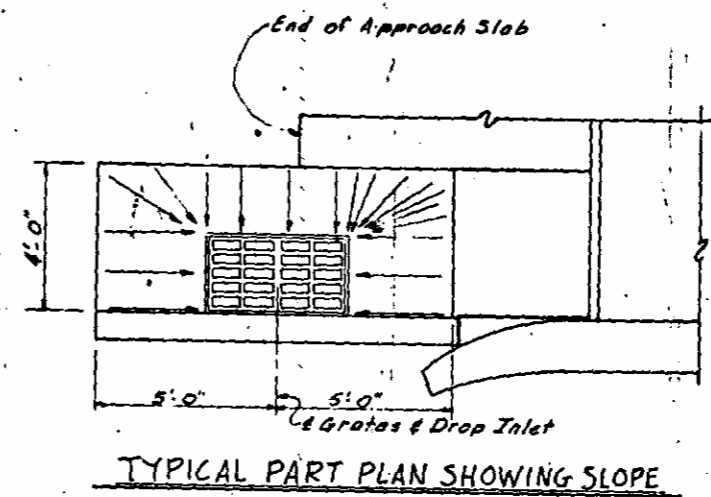
BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE

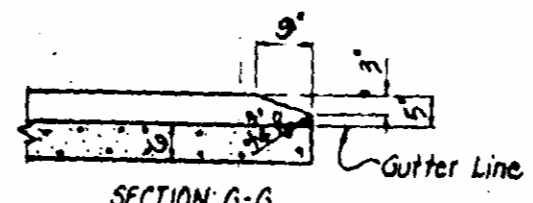
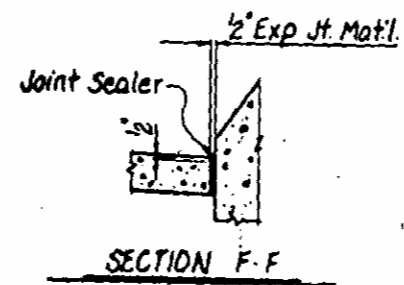
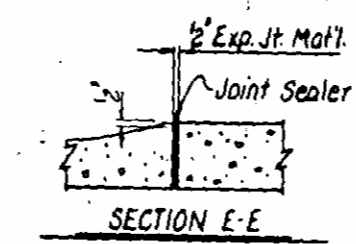
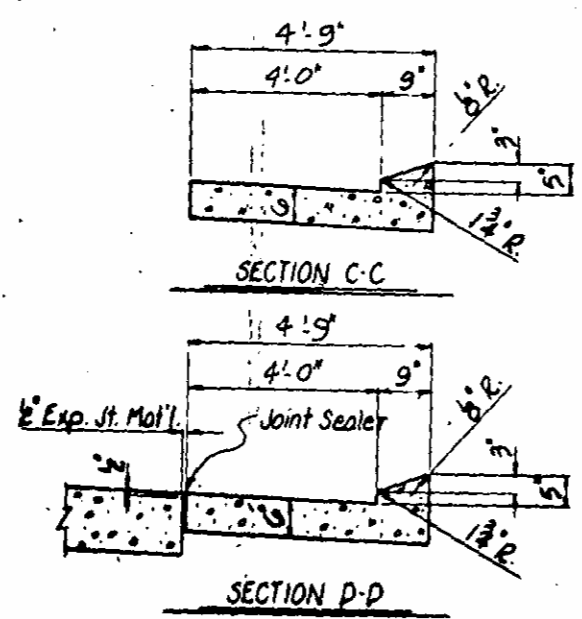
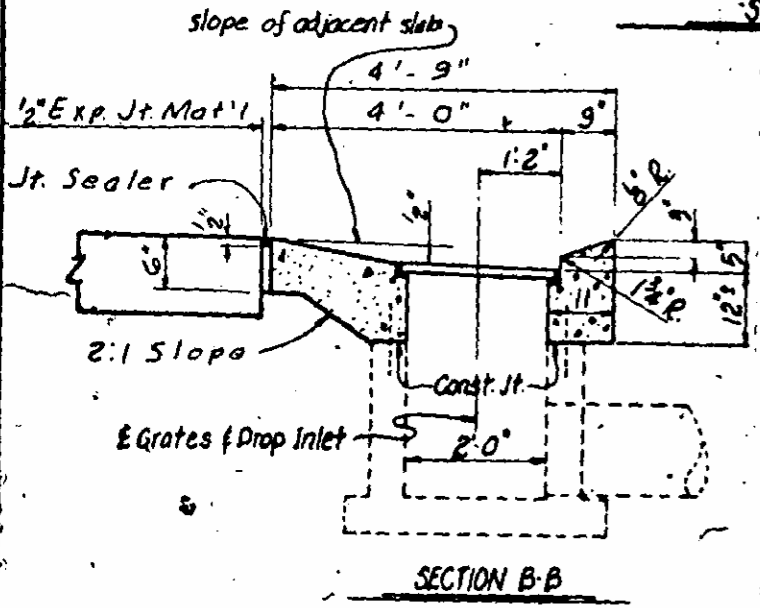
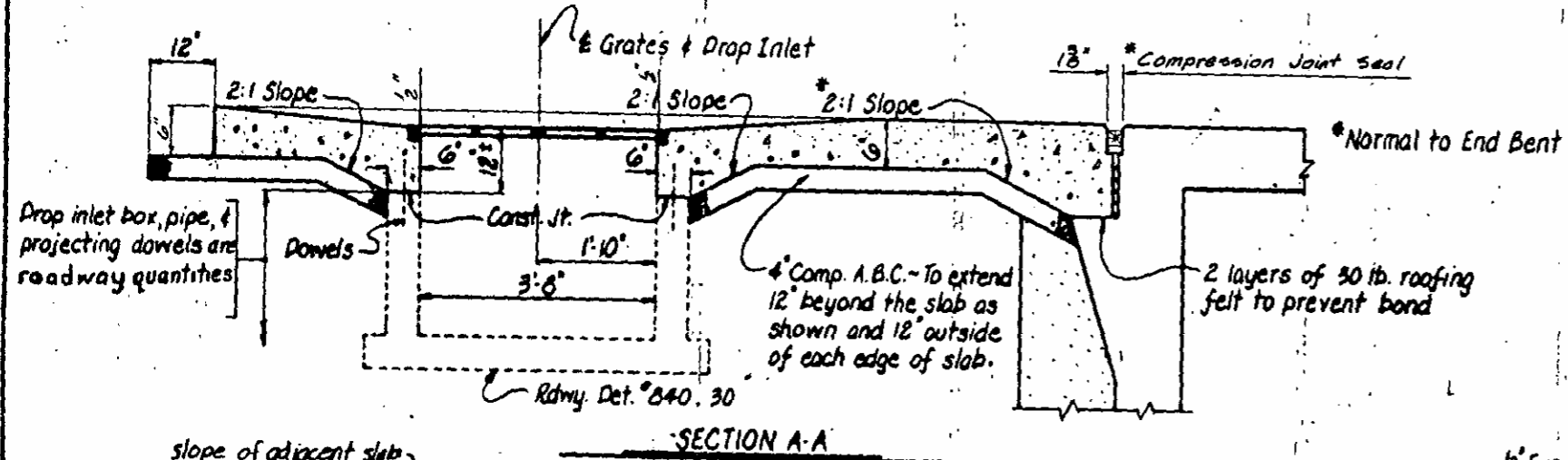
DATE: 8-71 CHECKED BY: ...  
DATE: 8/18/83  
DATE: 8-80



Note "D": Curb to be transitioned within this length from typical curb section shown to curb that coincides with the curb block on the curved end block.



Note "C": Grates may or may not project beyond end of approach slab. See Plan of Approach Slab.



NOTES

For requirements and payment for Approach Drainage Slab Details, see The Standard Specifications for Bridge Approach Slabs.

1/2" Expansion joint material shall be used in Approach Drainage Slab to limit the length of pours to a maximum of 35 feet. The location joints, where required, shall be approved by the Engineer. The expansion joint shall be sealed with joint sealer as shown in Section E.

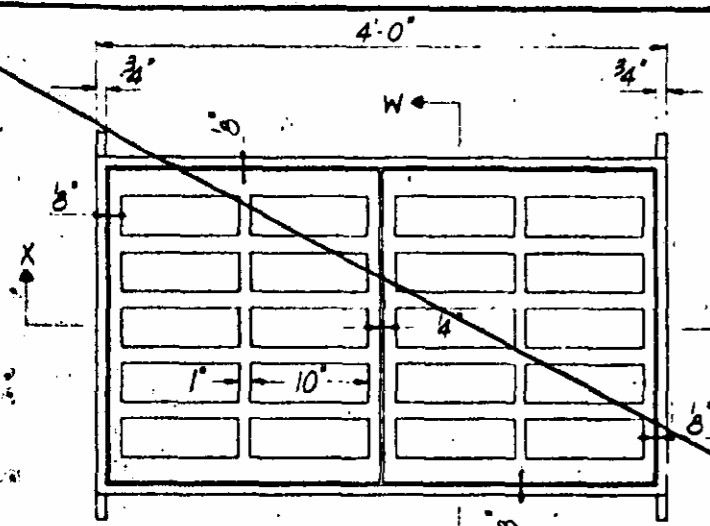
The Engineer will be responsible for establishing the elevations for the Approach Drainage Slab.

PROJECT No. B1201302  
 CARTERET COUNTY  
 STATION 71+60 -1-  
 SHEET 2 OF 3

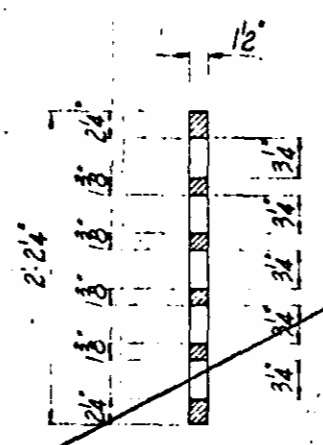
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION  
 APPROACH DRAINAGE SLAB DETAILS

NO.	BY	DATE	NO.	BY	DATE

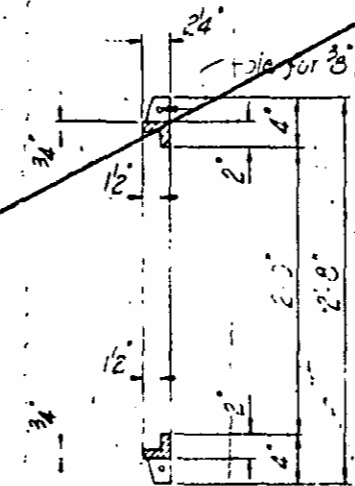
STANDARD DRAWN BY R. P. ... DATE Feb 2, 74  
 STANDARD CHECKED BY ... DATE Feb 2, 74



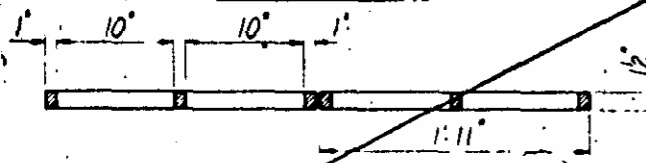
PLAN



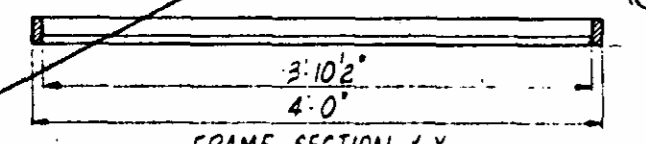
GRATE SECTION W-W



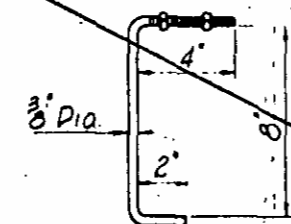
FRAME SECTION W-W



GRATE SECTION X-X

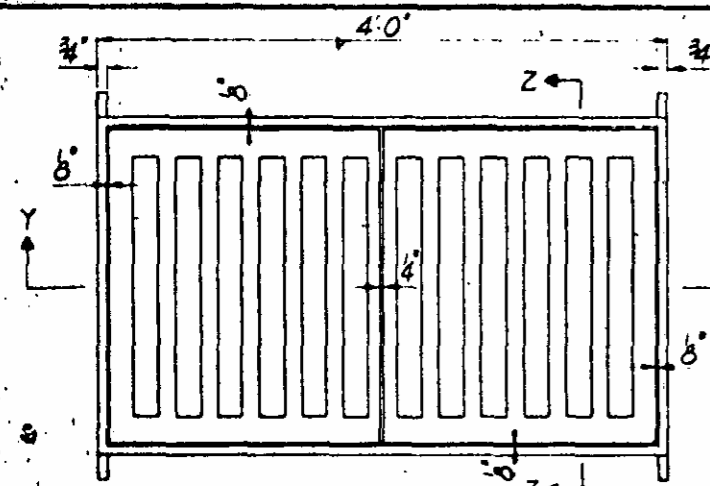


FRAME SECTION X-X

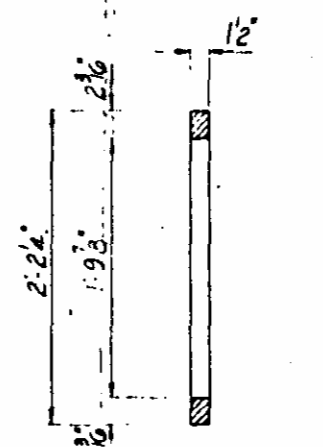


CONCRETE ANCHOR  
3/8" Bent Bar

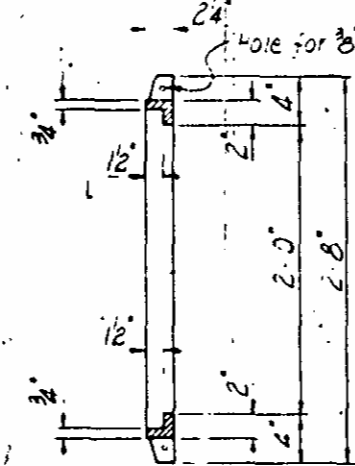
STANDARD FLAT GRATES AND FRAME (RDWY DET 940D20)



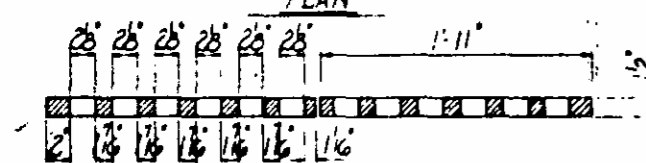
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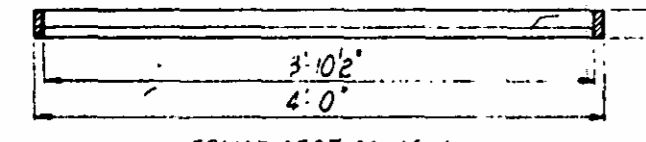
GRATE SECTION Z-Z



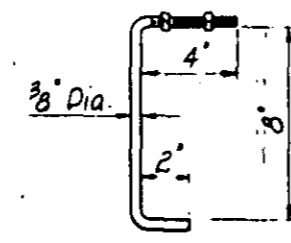
FRAME SECTION Z-Z



GRATE SECTION Y-Y



FRAME SECTION Y-Y



CONCRETE ANCHOR  
3/8" Bent Bar

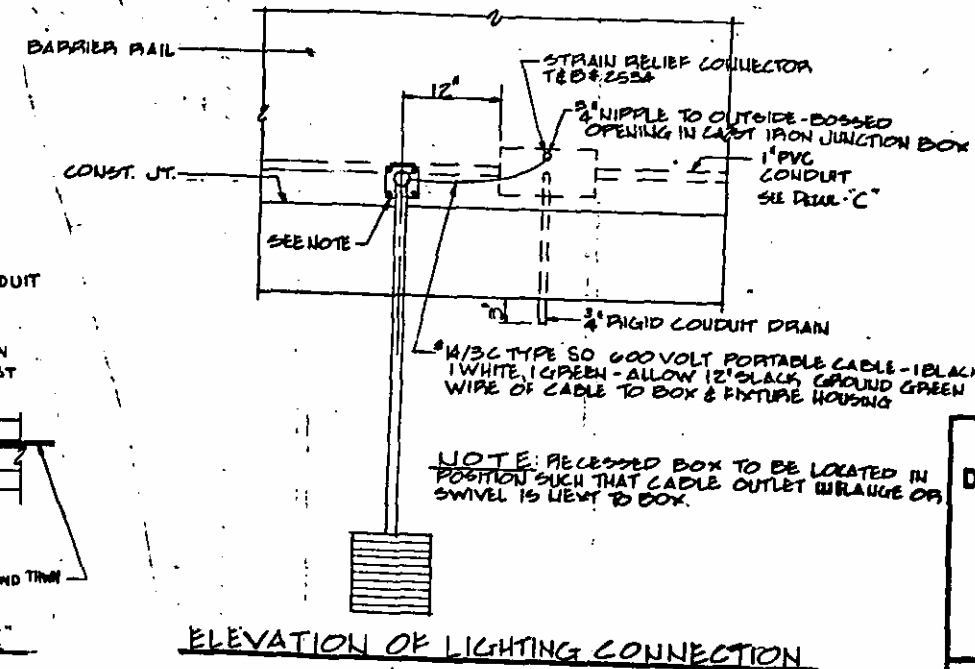
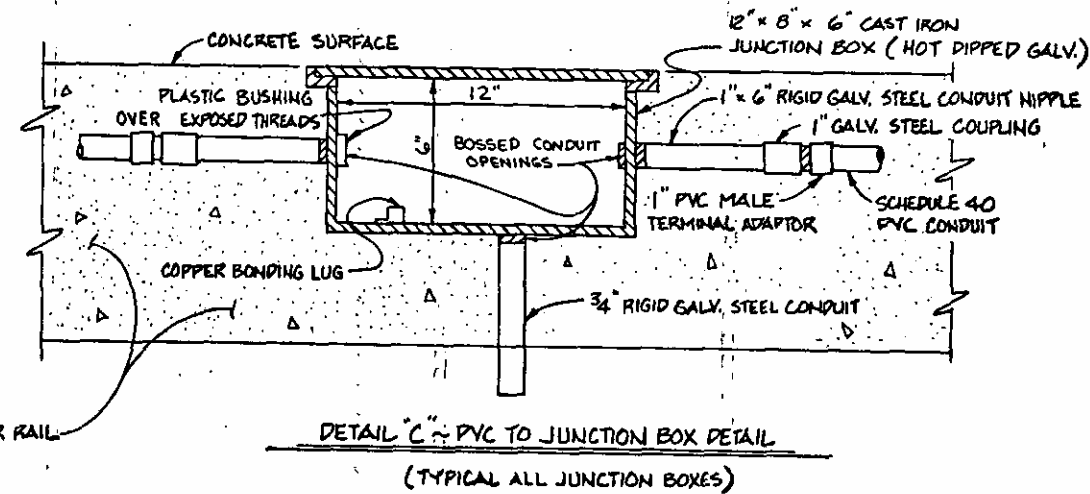
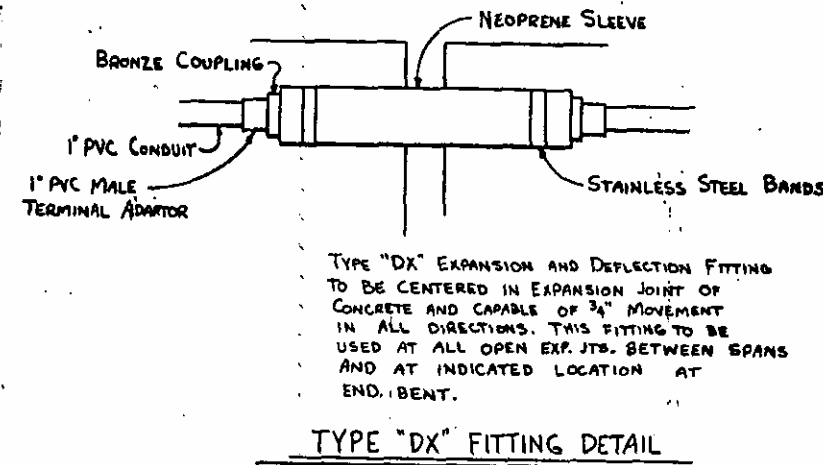
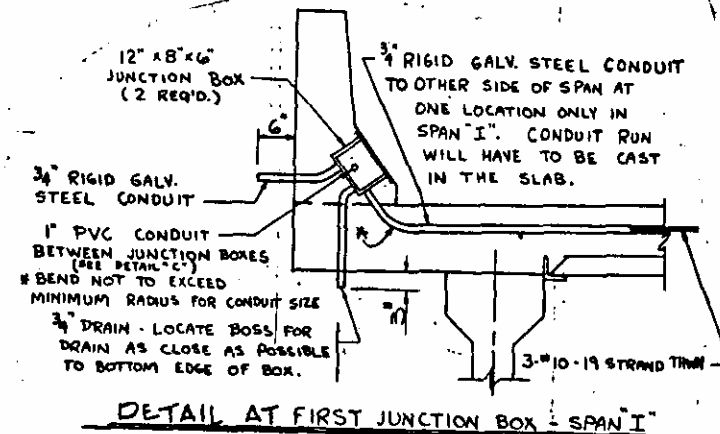
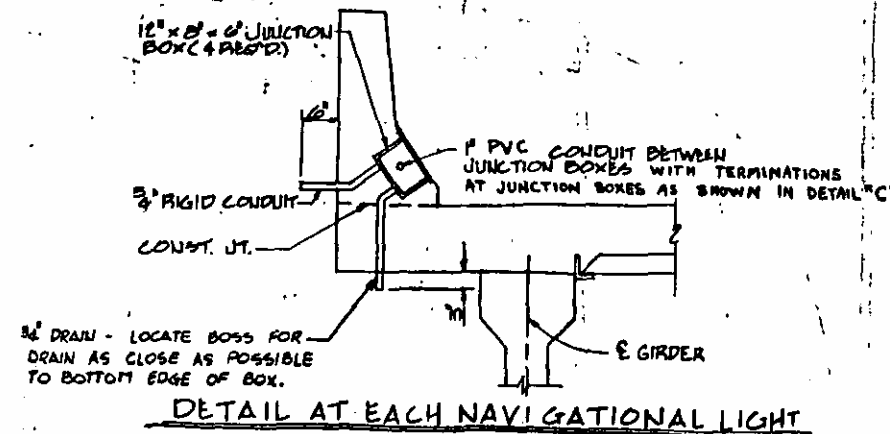
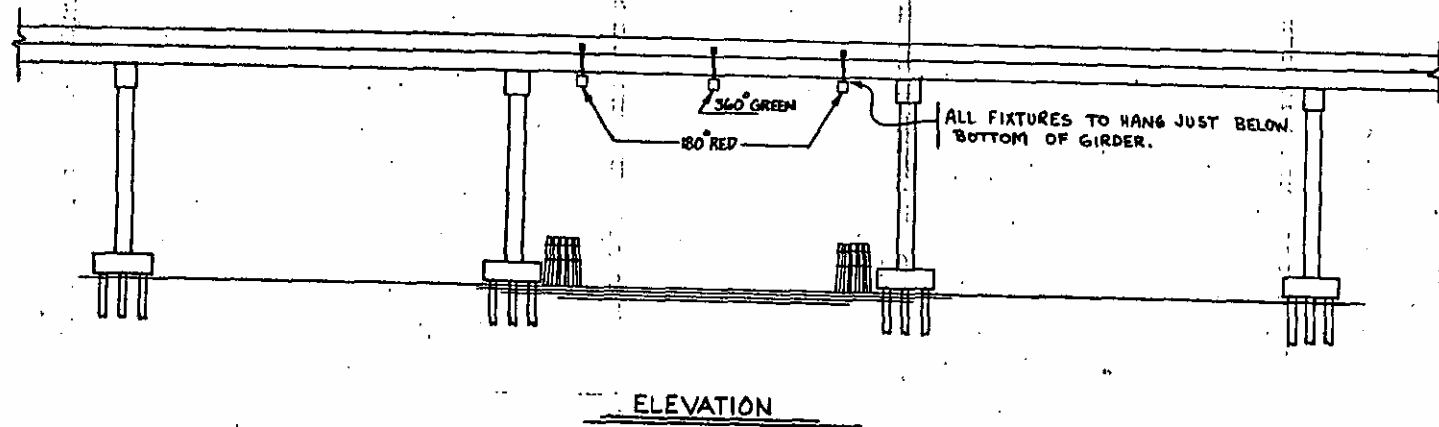
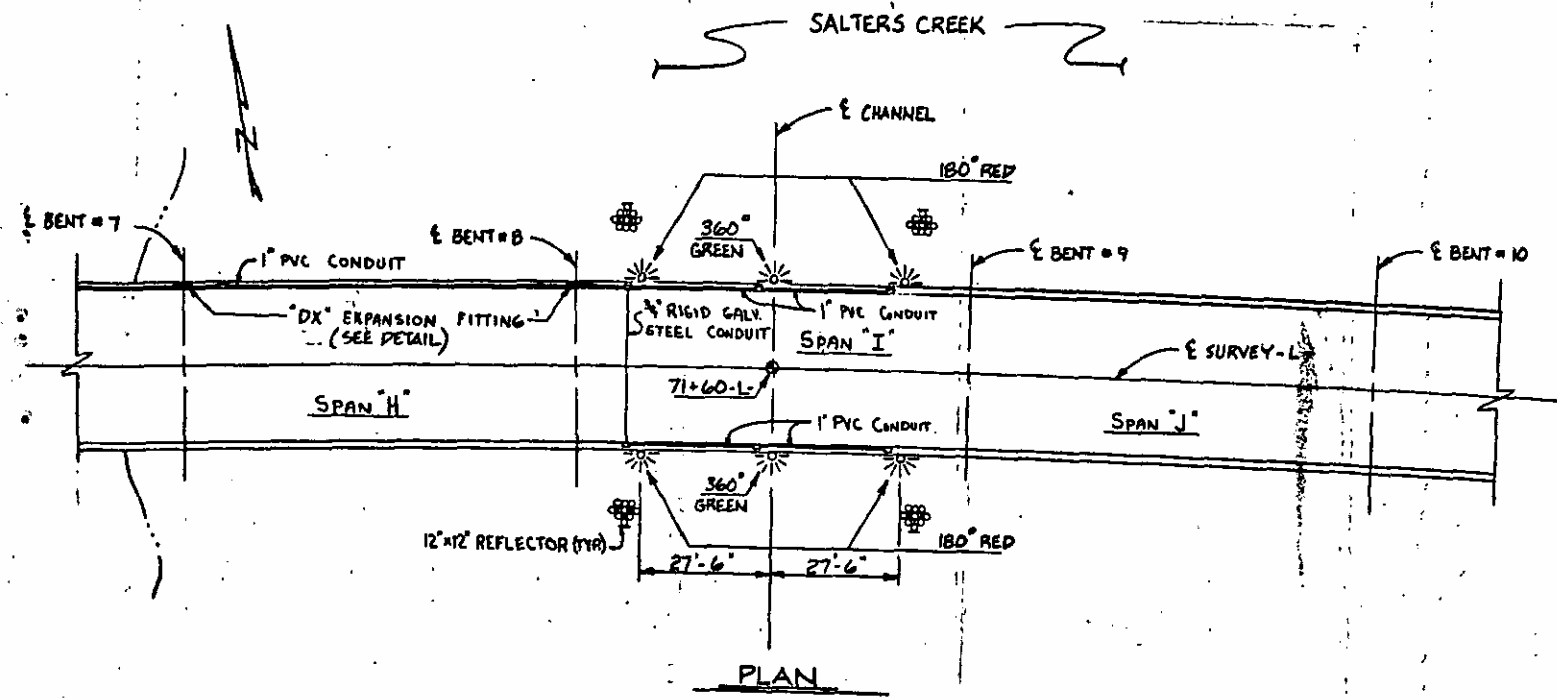
NARROW SLOT FLAT GRATES AND FRAME (RDWY DET 10020)

PROJECT No. 8120130Z  
 CARRIET COUNTY  
 STATION: 71+60 -L-  
 SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GRATES AND FRAMES FOR  
 APPROACH DRAINAGE SLAB

REVISIONS		DATE		BY	

STD DRAWN BY: R. P. Parnell 2-13-76 BY: K.G.P.  
 F. G. WETHERILL 5/11/80



NOTES

THE NAVIGATION LIGHTING SYSTEM SHALL BE INSTALLED TO AND CONFORM WITH THE REQUIREMENTS OF THE FOLLOWING:

- (A) STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, NORTH CAROLINA DEPARTMENT OF TRANSPORTATION - 1978
- (B) NFPA NO. 70, NATIONAL ELECTRIC CODE 1981
- (C) CODE OF FEDERAL REGULATIONS, TITLE 33, PART 118, (LIGHTING OF BRIDGES) LATEST EDITION
- (D) ELECTRIC INSPECTION, IF REQUIRED BY LOCAL REGULATIONS, SHALL BE REQUESTED AND PAID FOR BY THE CONTRACTOR.

THE ELECTRICAL CONTRACTOR SHALL CONTACT THE POWER COMPANY AND ENGINEER AS TO LOCATION OF SERVICE POINT.

THE NEUTRAL CONDUIT AND ALL NON-CURRENT CARRYING PARTS OF THE NAVIGATION LIGHTING SYSTEM SHALL BE INTERCONNECTED BY A GROUND WIRE (AS SPECIFIED ON THE PLANS) AND GROUNDED AT THE EQUIPMENT POLE. THE GROUNDING POINT AT THE EQUIPMENT POLE SHALL BE THE ONLY INTERCONNECTION BETWEEN THE EQUIPMENT GROUND WIRE AND THE SYSTEM GROUND AND NEUTRAL.

A #10 - 19 STRAND COPPER CONDUCTOR TYPE THWN - COLOR GREEN IS TO BE PULLED IN ALL CONDUIT RUNS TO PROVIDE A CONTINUOUS EQUIPMENT GROUND THROUGHOUT THE ENTIRE SYSTEM.

FOR NAVIGATIONAL LIGHTING SYSTEM, SEE SPECIAL PROVISIONS.

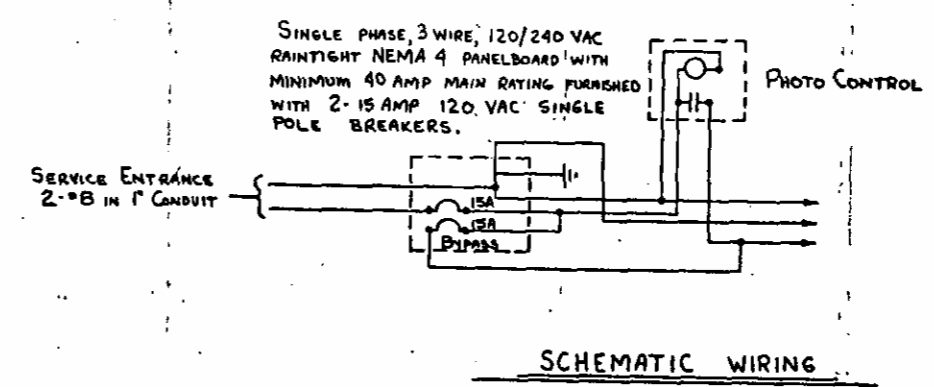
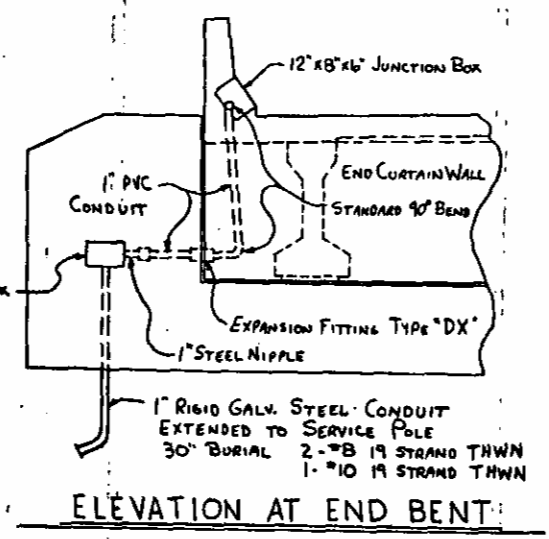
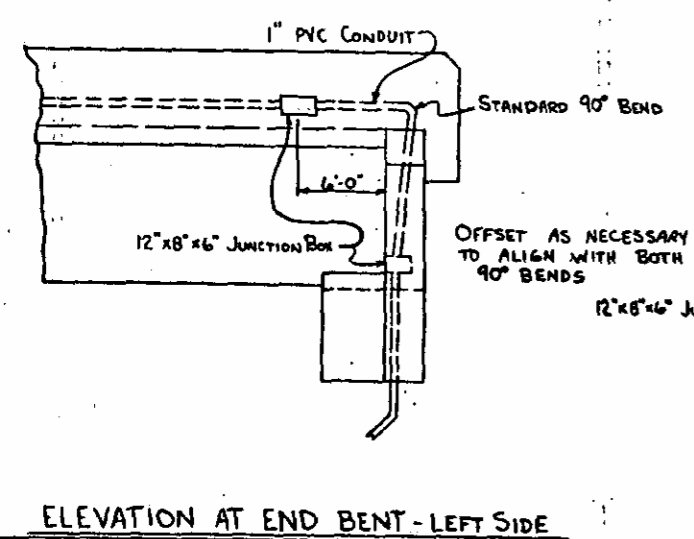
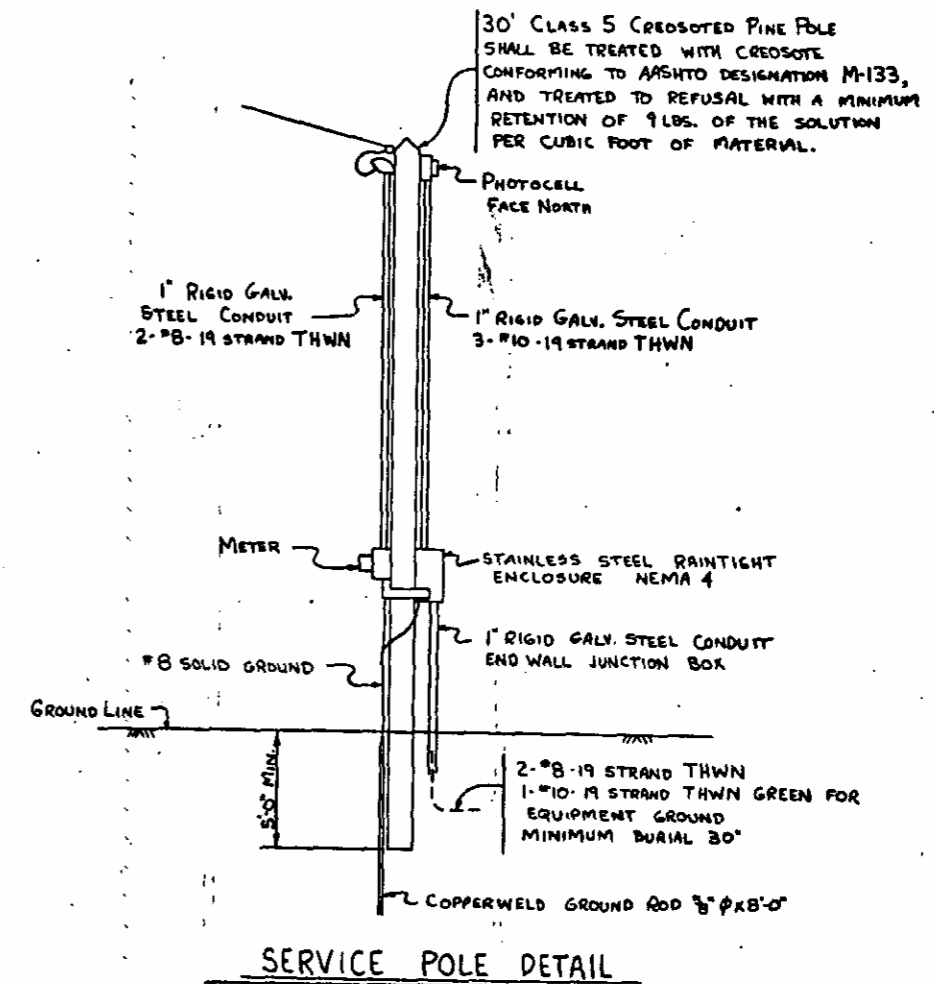
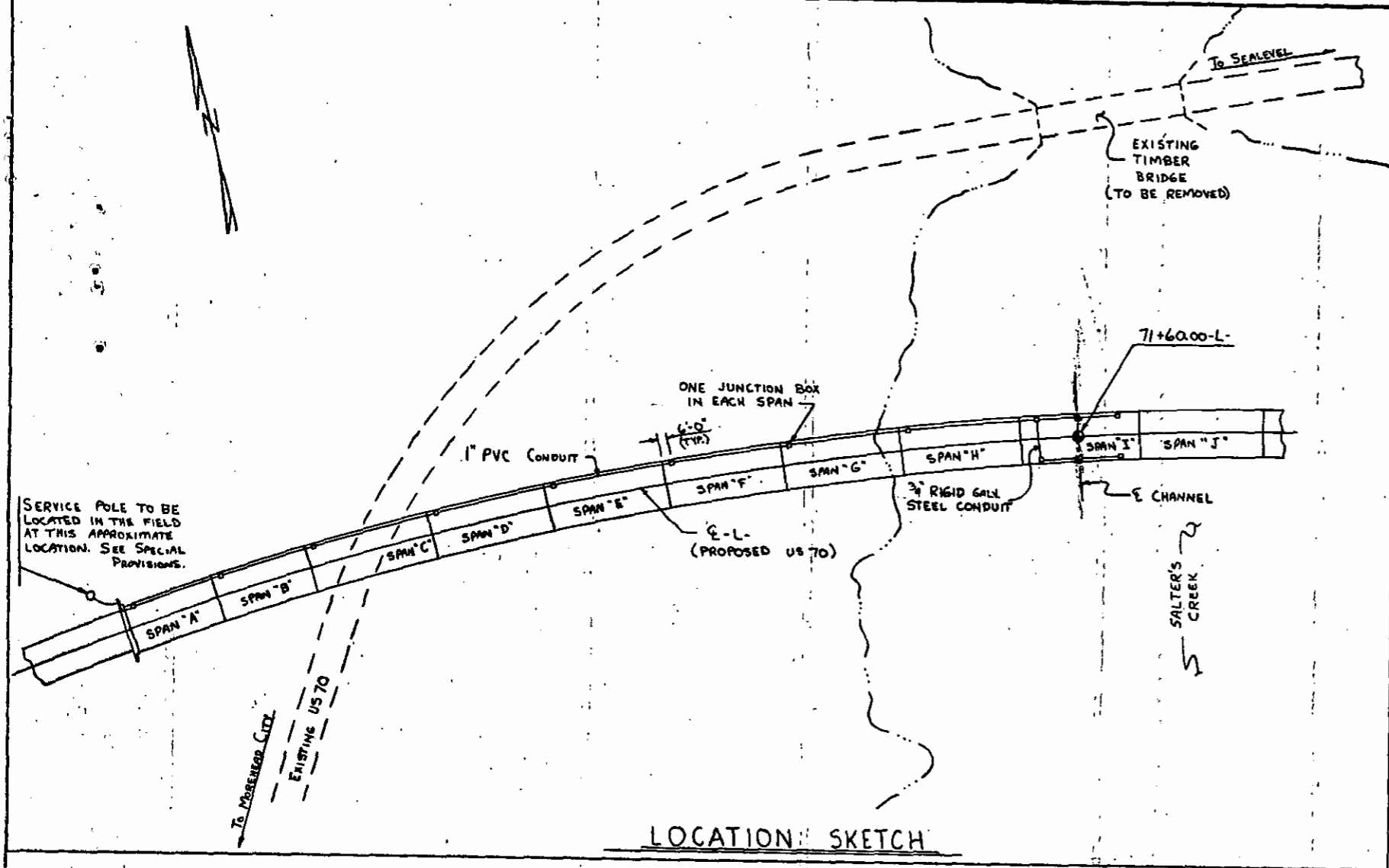
PROJECT No. B.120130Z  
 CARTERET COUNTY  
 STATION: 71+60-L

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 NAVIGATIONAL LIGHTING PLAN

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			2		

SHEET NO. S-A-5



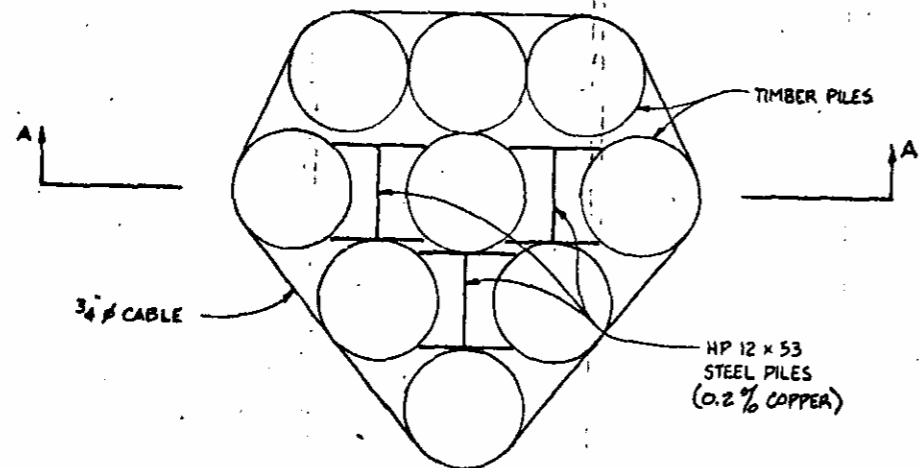
PROJECT No. B.1201302  
 CARTERET COUNTY  
 STATION: 71+60.0-L-

SHEET 2 of 2

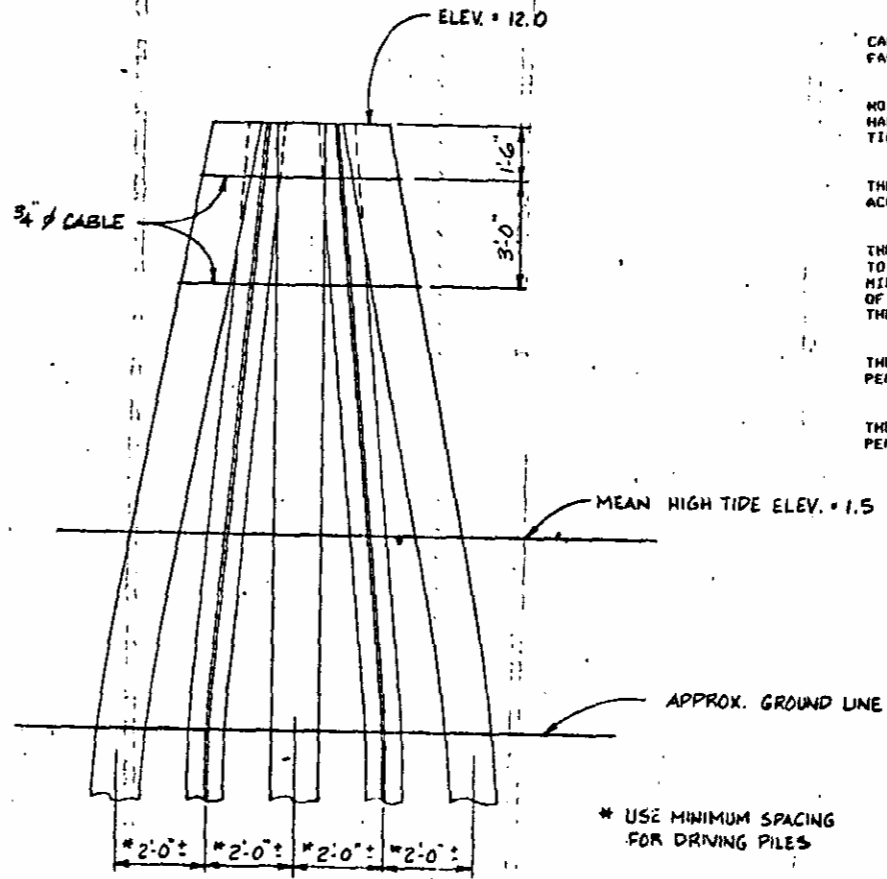
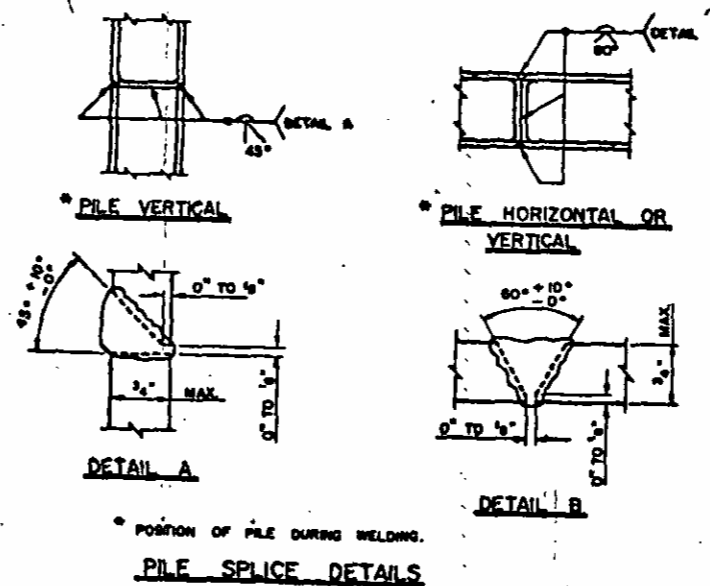
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 NAVIGATIONAL LIGHTING  
 DETAILS

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE

DRAWN BY: L. LOUISA, JR. DATE: 8-29-80  
 CHECKED BY: W.S.Z. DATE: 8-80



DETAIL OF 12 PILE CLUSTER



SECTION A-A

BILL OF MATERIAL FOR HARDWARE				
ITEM	NO.	SIZE	LENGTH	WEIGHT
STAPLES	192	3/8" O	-	96
3/4" CABLE	-	3/4"	430'-0"	430
CABLE CLAMPS	16	-	-	12
TOTAL HARDWARE LBS.				538*

\* GALVANIZED

PILES REQUIRED	
TREATED TIMBER PILES	NO. = 36 LIN. FT. = 1080
HP 12 x 53 STEEL PILES (0.2% COPPER)	NO. = 12 LIN. FT. = 480

NOTES

ALL PILES SHALL BE DRIVEN VERTICALLY WITH MINIMUM SPACING FOR DRIVING PILES. PILES SHALL BE DRAWN TOGETHER AT TOP AND WRAPPED WITH 3 TURNS OF 3/4" CABLE AT TWO POINTS. CABLE SHALL BE SECURED WITH 3/8" STAPLES AND TWO CABLE CLAMPS PER CABLE. CABLES AND FASTENINGS TO BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A-153.

CARE SHALL BE TAKEN TO PROVIDE 55'-0" CLEAR FROM FACE OF PILES TO FACE OF PILES AS SHOWN ON THE GENERAL DRAWING.

NO SEPARATE PAYMENT WILL BE ALLOWED FOR HARDWARE. COST OF HARDWARE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR TREATED TIMBER PILES.

THE STEEL PILES IN THE PILE CLUSTERS ARE TO BE PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE TIMBER PILES SHALL BE TREATED WITH CREOSOTE CONFORMING TO AASHTO DESIGNATION M-133, AND TREATED TO RETENTION WITH A MINIMUM RETENTION OF 22 LBS. OF THE SOLUTION PER CUBIC FOOT OF MATERIAL. PRESERVATIVE RETENTION WILL BE DETERMINED BY THE ASSAY METHOD.

THE HP12X53 STEEL PILES SHALL BE DRIVEN TO A MINIMUM PENETRATION OF AT LEAST EL. -28.0.

THE TREATED TIMBER PILES SHALL BE DRIVEN TO A MINIMUM PENETRATION OF AT LEAST EL. -18.0.

CONTRACTOR SHALL NOT BE PERMITTED TO USE FOREIGN HP 12 x 53 (0.2% COPPER) STEEL PILES.

\* USE MINIMUM SPACING FOR DRIVING PILES

PROJECT No. 8.1201302  
 CARTERET COUNTY  
 STATION: 71+60-1

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 DETAIL OF PILE CLUSTER

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE