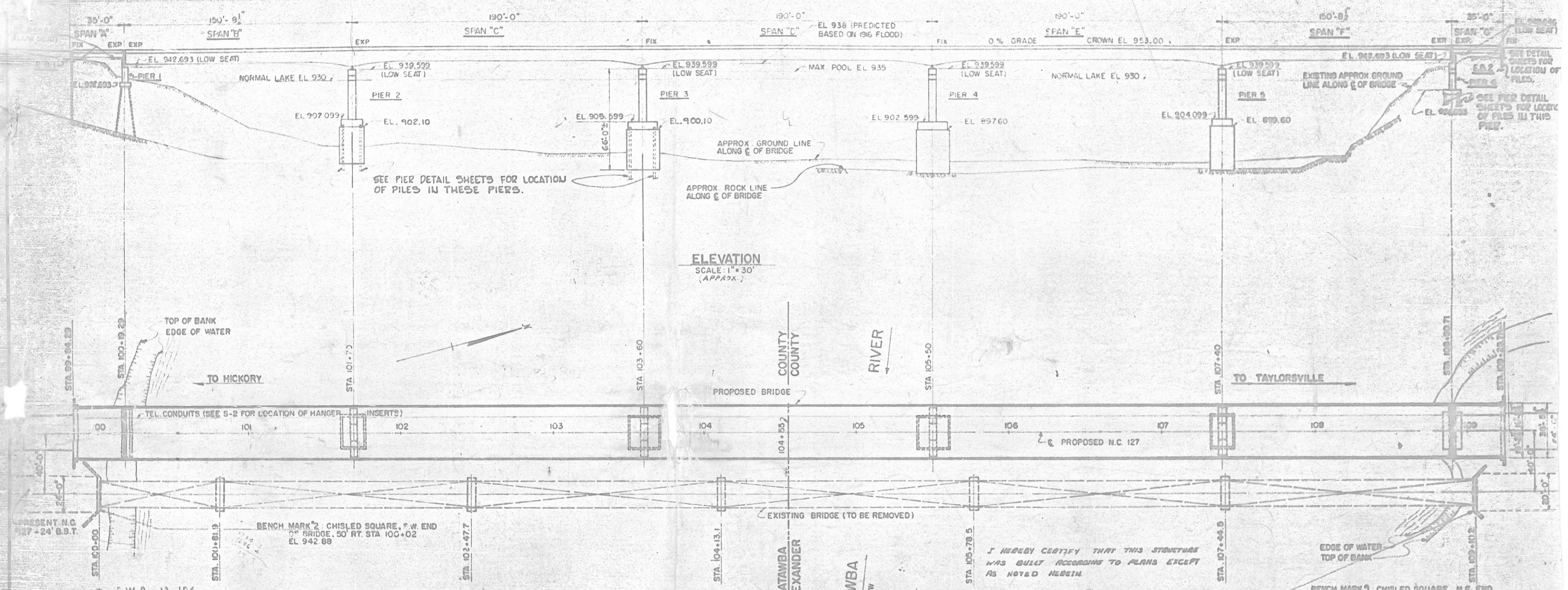


Red 882 Box 3 (127-79-30) CATAWBA

941'-5" (TOTAL LENGTH OF BRIDGE FLOOR FILL FACE TO FILL FACE)



ELEVATION
SCALE: 1" = 30'
(APPROX.)

CATAWBA
FLOW

I HEREBY CERTIFY THAT THIS STRUCTURE
WAS BUILT ACCORDING TO PLANS EXCEPT
AS NOTED HEREIN.

Resident Engineer
RESIDENT ENGINEER

PLAN
SCALE: 1" = 30'
(APPROX.)

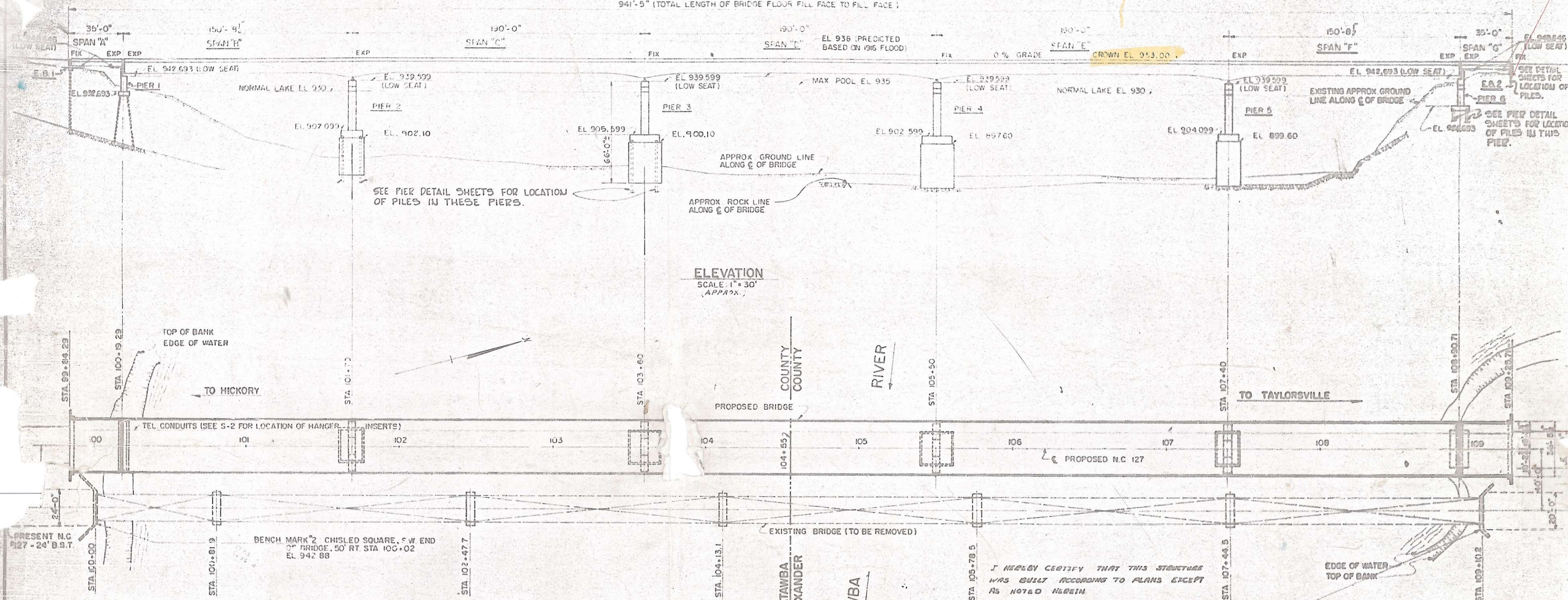
TOTAL BILL OF MATERIAL														
	MSPT3 STEEL PILES	CLASS "A" SEAL CONC. (c = 3000 psi)	CLASS "A" CONCRETE (c = 3000 psi)	REINFORCING STEEL	STRUCTURAL STEEL	12BP33 STEEL PILES	EXCAVATION**		COFFER- DAMS	2 BAR METAL RAIL	LINSEED OIL CONC. PROTECTION	MAIN & REM. OF EXIST. STR.		
	NO.	LIN. FT.	CU. YDS.	CU. YDS.	LBS.	APPROX. LBS.	NO.	LIN. FT.	CU. YDS.	CU. YDS.	EACH	LIN. FT.	GALS.°	LUMP SUM
SUPERSTRUCTURE:														
SPAN "A"				35.0	9,942	24690						1,870.5	3	
SPANS "B," "C," "D," "E," "F"				1,012.0	231,493	137,980							74	
PIER "A"				49.0	3,943	24690							3	
END PENT NO. 1														
PIER NO. 1			1,052.33	118	2,614	3086	6	24.0						
PIER NO. 2			1,052.33	284	3,086	3086	20	60.0	1,047.33					
PIER NO. 3			1,179.5	140.9	19,159									
PIER NO. 4			1,179.5	179.5	24,849									
PIER NO. 5			1,179.5	179.5	27,021									
PIER NO. 6			1,192.7	192.7	20,775									
PIER NO. 7			11.6	11.6	2,003									
END PENT NO. 2														
TOTAL	79	3,000	1,052.33	1,730.7	395,709	137,980	26	84.0	1,047.33			1,870.5	77	

- NOTES
- ASSUMED LIVE LOAD: H20-S16(44) OR ALTERNATE LOADING.
- FOR OTHER DESIGN DATA AND GENERAL NOTE, SEE SHEET S-4. EXCEPT AS NOTED BELOW.
- THE CONTRACTOR SHALL SUBMIT DETAIL DRAWINGS OF THE COFFERDAMS TO THE HIGHWAY COMMISSION FOR APPROVAL. SEE SPECIAL PROVISIONS.
- FOOTINGS FOR PIERS 4 AND 5 TO BE CARRIED AT LEAST 6" INTO ROCK WITH MINIMUM THICKNESS AS SHOWN ON PLANS. MAXIMUM COMPUTED FOUNDATION PRESSURE FOR SPREAD FOOTINGS EQUALS 7.0 TONS PER SQ. FT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LENGTH OF PILES REQUIRED. SEE SPECIAL PROVISIONS.
- PILES FOR END PENT NO. 1, END PENT NO. 2, AND PIER NO. 1 TO BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 36 TONS EACH.
- SEE SPECIAL PROVISIONS FOR METHOD OF CURING BRIDGE DECK AND MIXING AND APPLYING THE LINSEED OIL SOLUTION.
- APPROX. QUANTITIES FOR ESTIMATING COST OF EXCAVATION TO BE INCLUDED IN LUMP SUM CONTRACT PRICES BID FOR THE COFFERDAMS AT THE RESPECTIVE PIERS. EXCAVATION FOR END PENT NO. 2 TO BE DRIVEN FOR AT THE LUMP SUM CONTRACT PRICE.
- PILES FOR PIERS 2 AND 5 TO BE DRIVEN TO PRACTICAL DEPTH (MAXIMUM DESIGN LOAD = 60 TONS PER PILE).
- PILES FOR PIER 6 TO BE DRIVEN TO PRACTICAL DEPTH (MAXIMUM DESIGN LOAD = 45 TONS PER PILE).

PROJECT No. S-750019
CATAWBA-ALEXANDER COUNTY
STATION: 104+55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
GENERAL DRAWING
FOR BRIDGE OVER LAKE HICKORY
ON N.C. 127 BETWEEN
HICKORY & TAYLORSVILLE

941'-5" (TOTAL LENGTH OF BRIDGE FLOOR FILL FACE TO FILL FACE)



ELEVATION
 SCALE: 1" = 30'
 (APPROX.)

CATAWBA
 FLOW

PLAN
 SCALE: 1" = 30'
 (APPROX.)

I HEREBY CERTIFY THAT THIS STRUCTURE
 WAS BUILT ACCORDING TO PLANS EXCEPT
 AS NOTED HEREIN.

Ed. W. Whitehead Jr.
 RESIDENT ENGINEER

BENCH MARK 7 CHISELED SQUARE, N.E. END
 OF BRIDGE, 50' RT. STA 109+10
 EL. 942.84

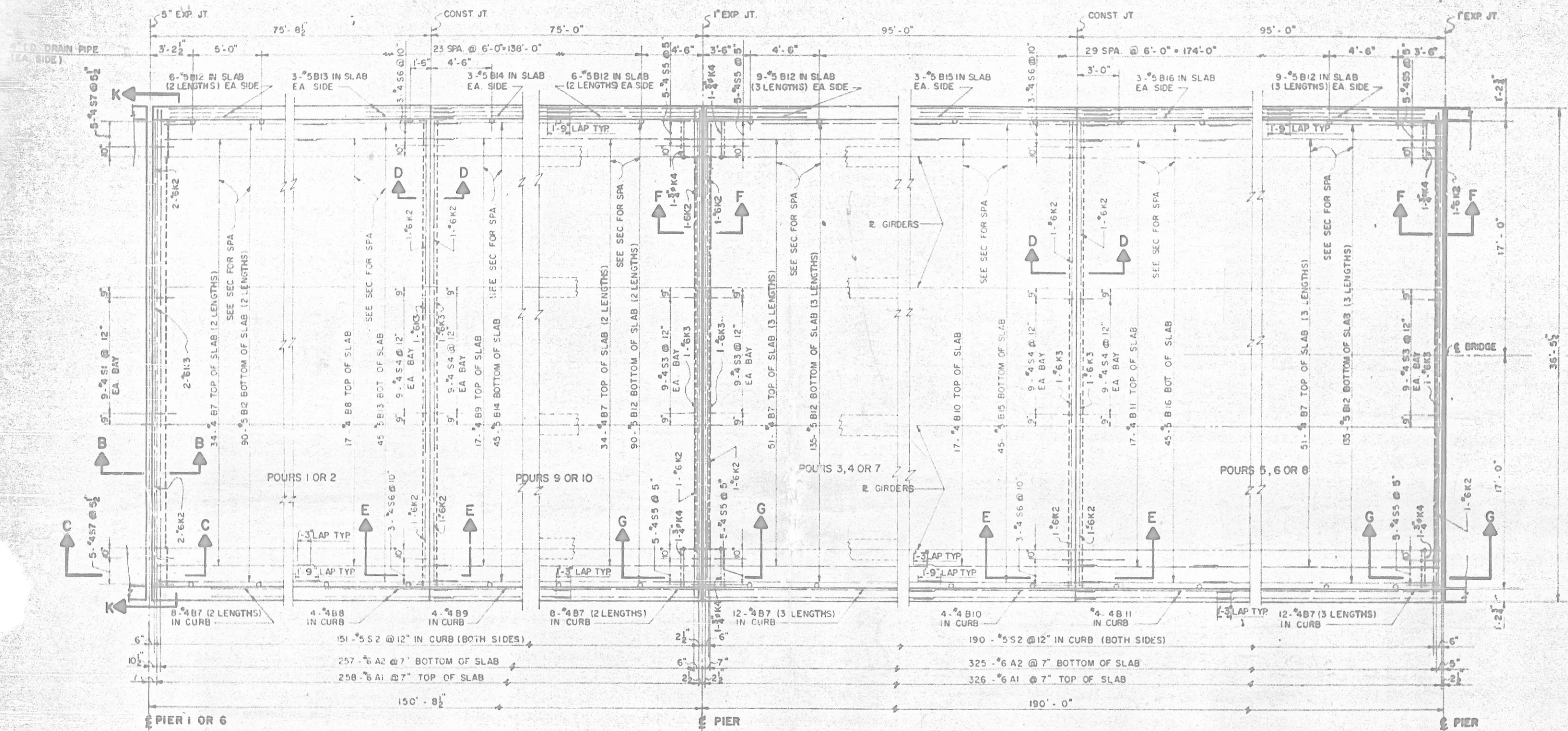
TOTAL BILL OF MATERIAL												
	NO.	LIN. FT.	CLASS "A" STEEL PILES c = 3000 psi	CLASS "A" CONCRETE c = 3000 psi	REINFORCING STEEL LBS.	STRUCTURAL STEEL APPROX. LBS.	NO.	LIN. FT.	EXCAVATION**		COFFER-DAMS EACH	2 BAR METAL RAIL LIN. FT.
									DRY	WET		
			CU. YDS.	CU. YDS.					CU. YDS.	CU. YDS.		GALS. °
SUPERSTRUCTURE:												LUMP SUM
SPAN "A"				45.6	9,942	24,690						3
SPAN "B", "C", "D", "E", "F"				1,012.0	231,495	1,378,920						74
SPAN "G"				45.6	9,942	24,690						3
END BENT NO. 1				11.6	2,003							
PIER NO. 1				11.6	2,003							
PIER NO. 2				11.6	2,003							
PIER NO. 3				11.6	2,003							
PIER NO. 4				11.6	2,003							
PIER NO. 5				11.6	2,003							
PIER NO. 6				11.6	2,003							
END BENT NO. 2				11.6	2,003							
TOTAL				1,168.0	245,705	1,453,300						

- NOTES**
- ASSUMED LIVE LOAD: H20-S16(44) OR ALTERNATE LOADING
 - FOR OTHER DESIGN DATA AND GENERAL NOTE, SEE SHEET S-H EXCEPT AS NOTED BELOW.
 - THE CONTRACTOR SHALL SUBMIT DETAIL DRAWINGS OF THE COFFERDAMS TO THE HIGHWAY COMMISSION FOR APPROVAL. SEE SPECIAL PROVISIONS.
 - FOOTINGS FOR PIERS 4 AND 5 TO BE CARRIED AT LEAST 6" INTO ROCK WITH MINIMUM THICKNESS AS SHOWN ON PLANS. MAXIMUM COMPUTED FOUNDATION PRESSURE FOR SPREAD FOOTINGS EQUALS 7.0 TONS PER SQ. FT.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LENGTH OF PILES REQUIRED. SEE SPECIAL PROVISIONS.
 - PILES FOR END BENT NO. 1, END BENT NO. 2, AND PIER NO. 1 TO BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 36 TONS EACH.
 - SEE SPECIAL PROVISIONS FOR METHOD OF CURING BRIDGE DECK AND MIXING AND APPLYING THE LINSEED OIL SOLUTION.
 - APPROX. QUANTITIES FOR ESTIMATING COST OF EXCAVATION TO BE INCLUDED IN LUMP SUM CONTRACT PRICES BID FOR THE COFFERDAMS AT THE RESPECTIVE PIERS. EXCAVATION FOR END BENT NO. 2 TO BE PAID FOR AT THE UNIT CONTRACT PRICE BID FOR EXCAVATION.
 - PILES FOR PIERS 2 AND 3 TO BE DRIVEN TO PRACTICAL REFUSAL (MAXIMUM DESIGN LOAD - 60 TONS PER PILE).
 - PILES FOR PIER 6 TO BE DRIVEN TO PRACTICAL REFUSAL (MAXIMUM DESIGN LOAD - 40 TONS PER PILE.)

Reel # 882
 Pos # 3
PROJECT NO. 67610019
CATAWBA-ALEXANDER COUNTY
STATION: 104+55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
 GENERAL DRAWING
 FOR BRIDGE OVER LAKE HICKORY
 ON N.C. 127 BETWEEN
 HICKORY & TAYLORSVILLE

REVISION NO. 2 - TO ADD PILES TO FOUNDATIONS OF PIERS 2, 3, 6, AND 5.8%. RAISE GRADE 5%.
 APPROX. 16'-3" TO CHANGE REINFORCING STEEL QUANTITIES IN SPAN 104+55 TO 104+56



NOTE WORK THIS SHEET WITH SHEET NO S2, S3 & S6

SECTION K-K IS SIMILAR TO THE TYPICAL HALF SECTION SHOWING END DIAPHRAGMS AT PIER NO 1 & 5 ON SHEET NO S2

NOTE: #4 ROD #4 INCLUDED IN STRUCTURAL STEEL SHOWN ON SHEET NO S14

4" I.D. DRAIN PIPE INCLUDED IN STRUCTURAL STEEL SHOWN ON SHEET NO S10

SPAN "B"
SPAN "F" SIMILAR BY ROTATION

PART PLAN

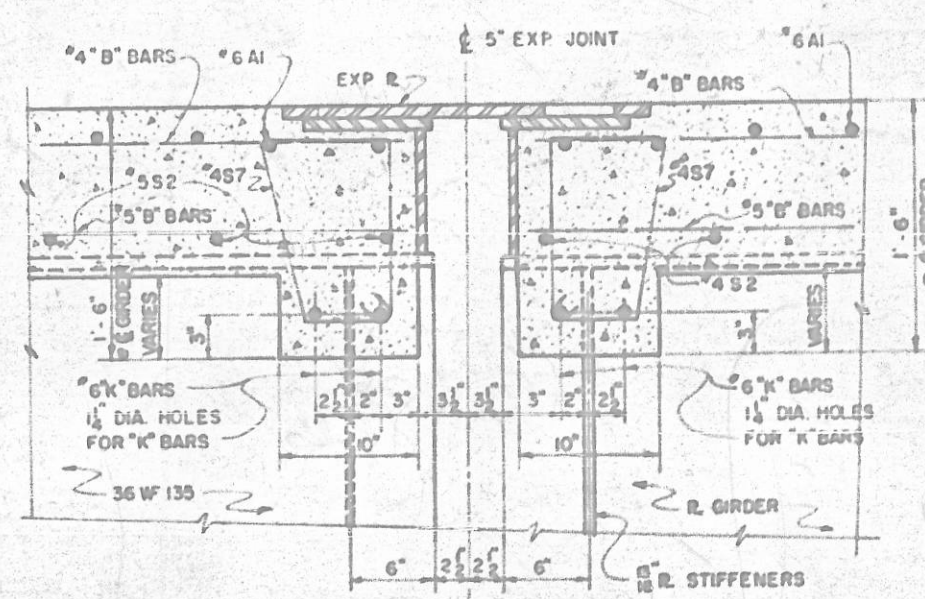
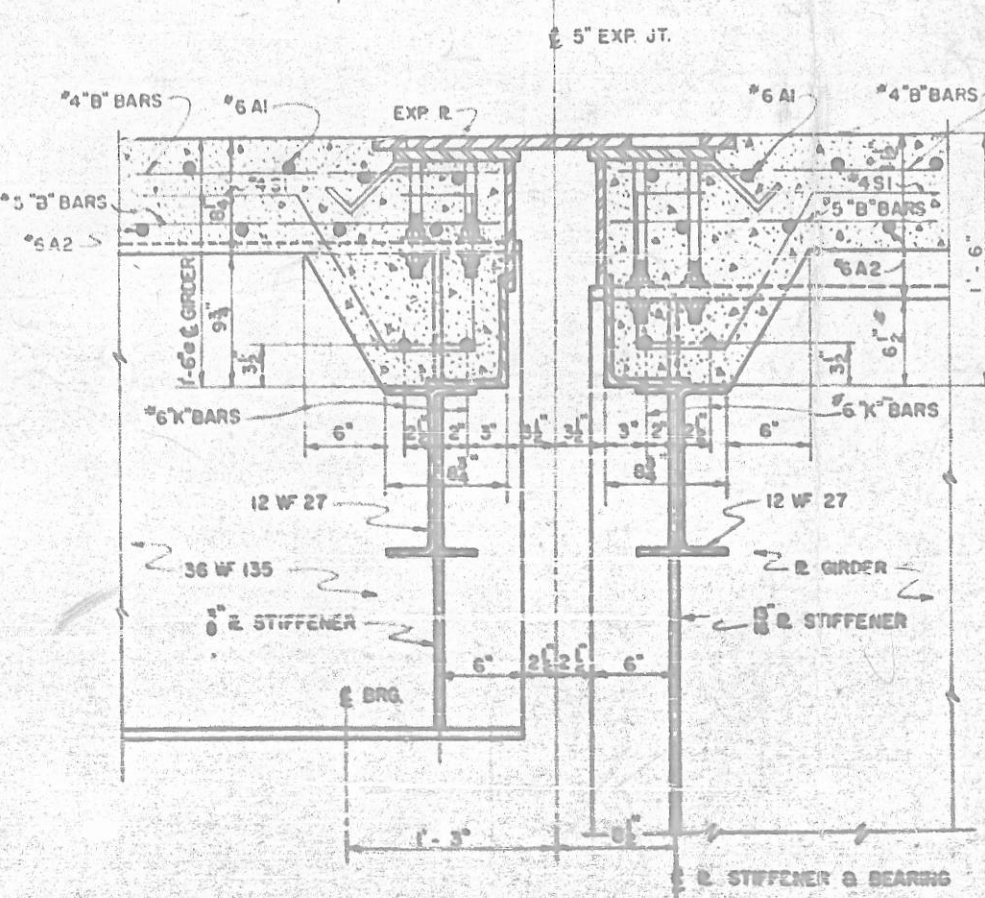
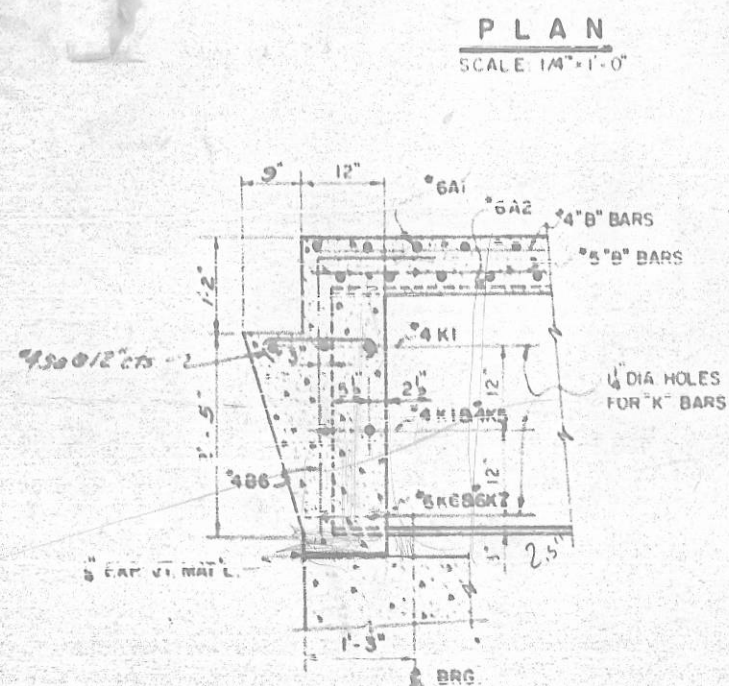
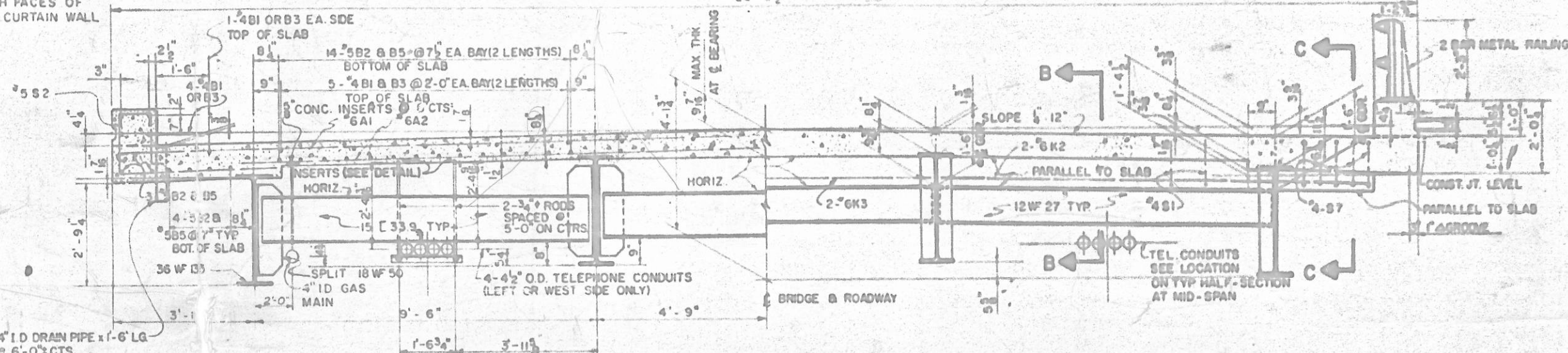
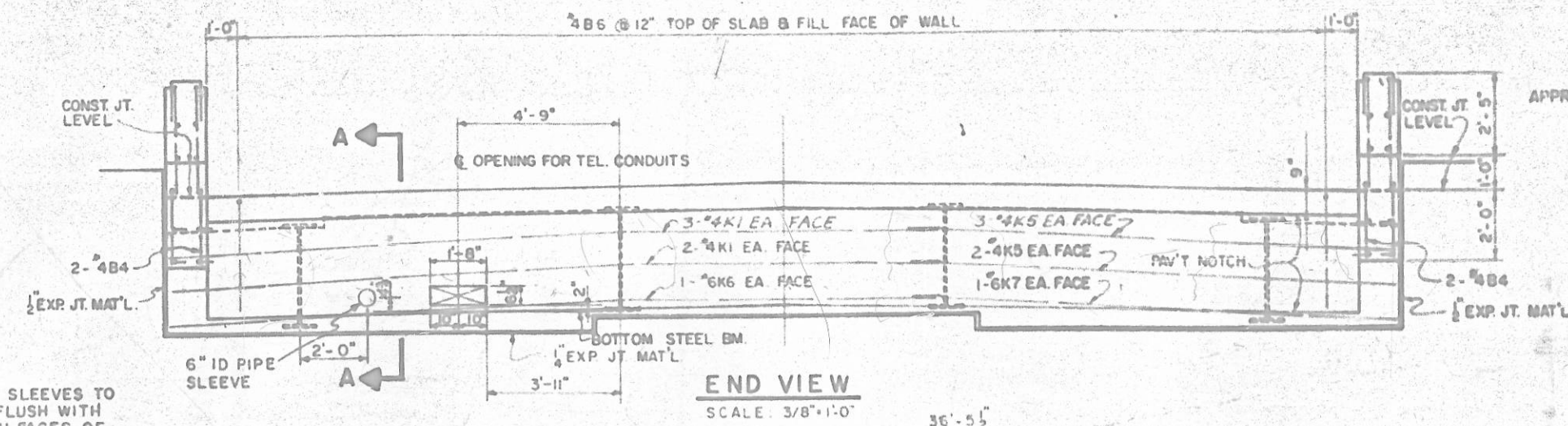
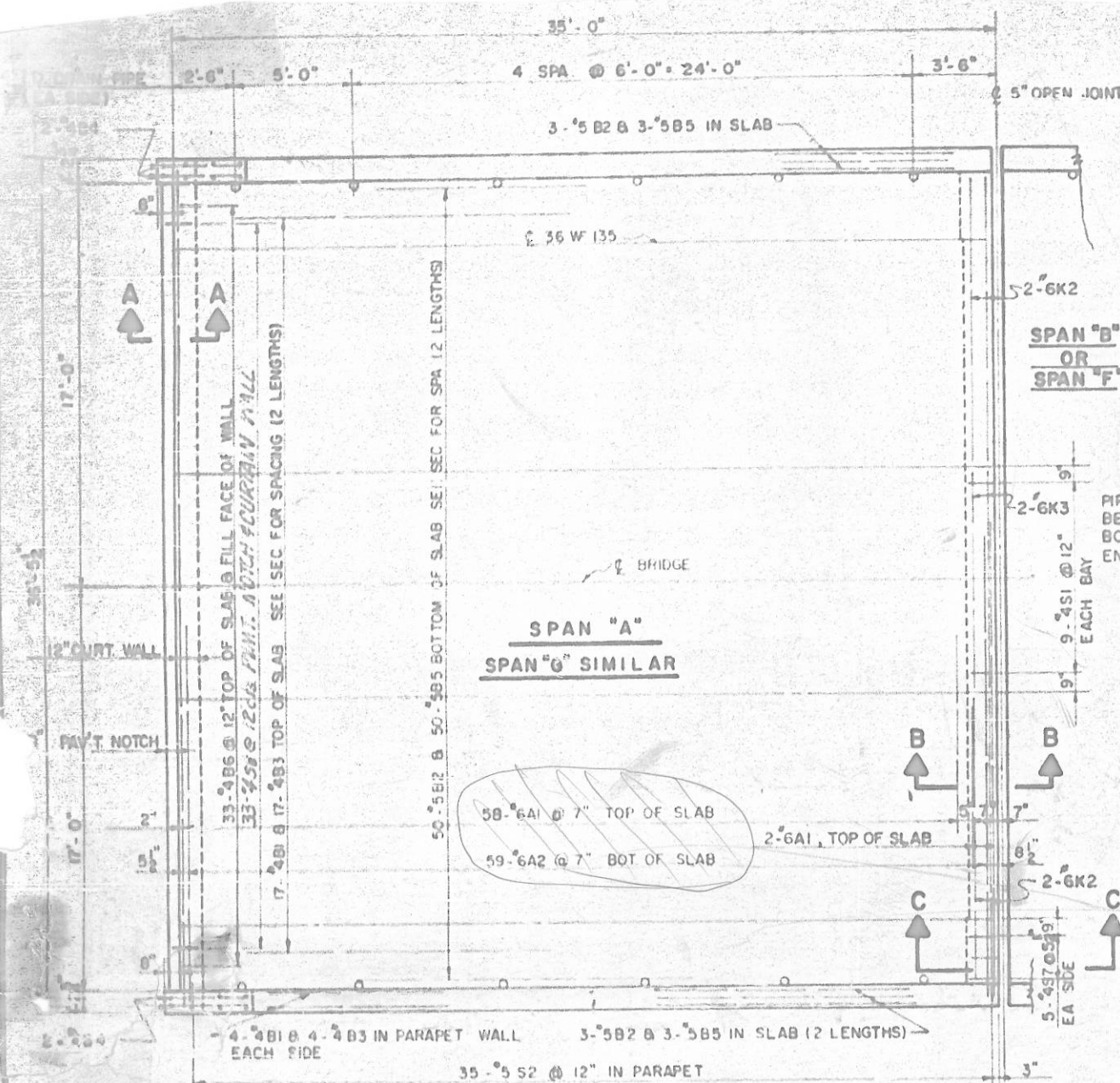
SPANS "C" & "D"
SPAN "E" SIMILAR BY ROTATION

PROJECT No. 6781009

CATAWBA-ALEXANDER COUNTY

STATION: 04+65

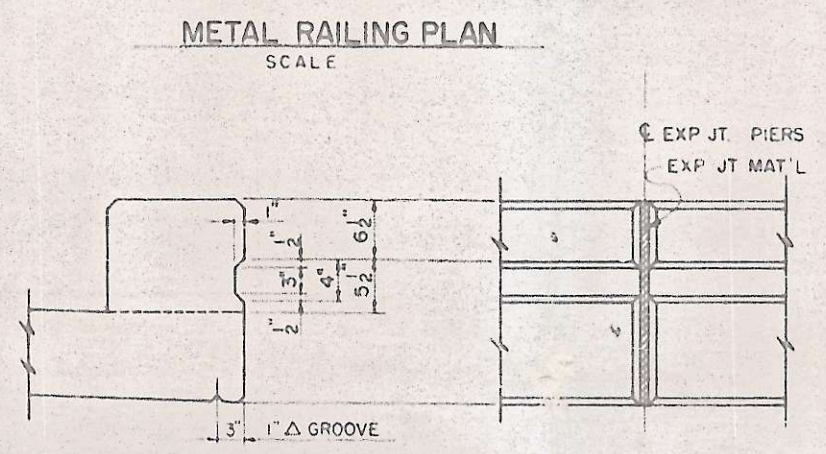
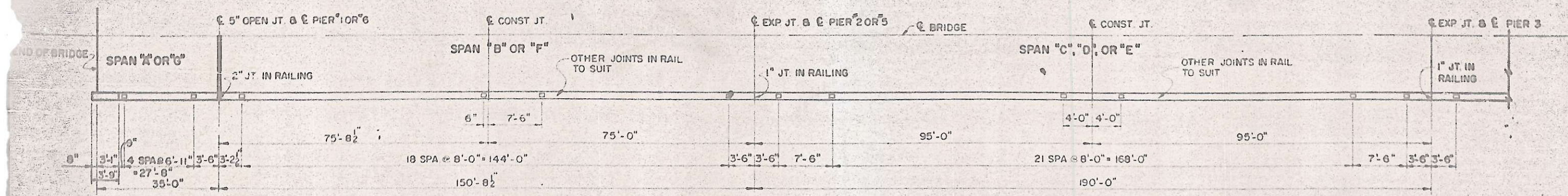
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUPERSTRUCTURE
PLAN OF SPANS B, C, D, E & F



<u>DEAD LOAD DEFLECTION</u>		
<u>SPAN A B C</u>		
	<u>INT.</u>	<u>EXT.</u>
DEFLECTION DUE TO WEIGHT OF BEAM	1/8"	1/8"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	0"	0"
TOTAL DEAD LOAD DEFLECTION	1/8"	1/8"
NO SHOP BEAM CAMBER REQ'D FOR SPAN A B C		

PROJECT NO. 6.7810019
CATMIRA-ALEXANDER COUNTY
STATION: 104+55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SECTION
SUPERSTRUCTURE
PLAN FOR SPANS A & G
SECTIONS FOR SPANS A, B, F, & G



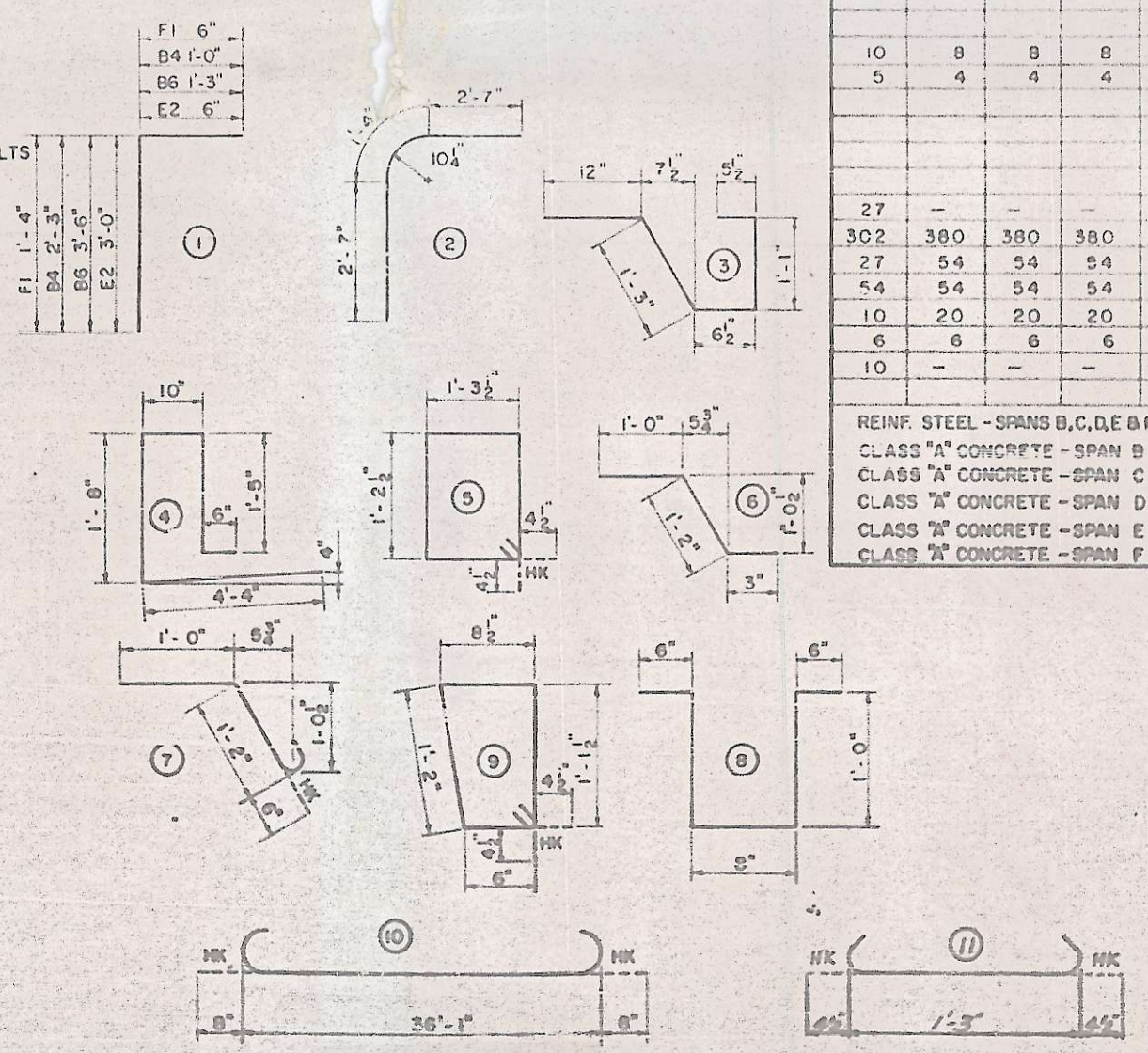
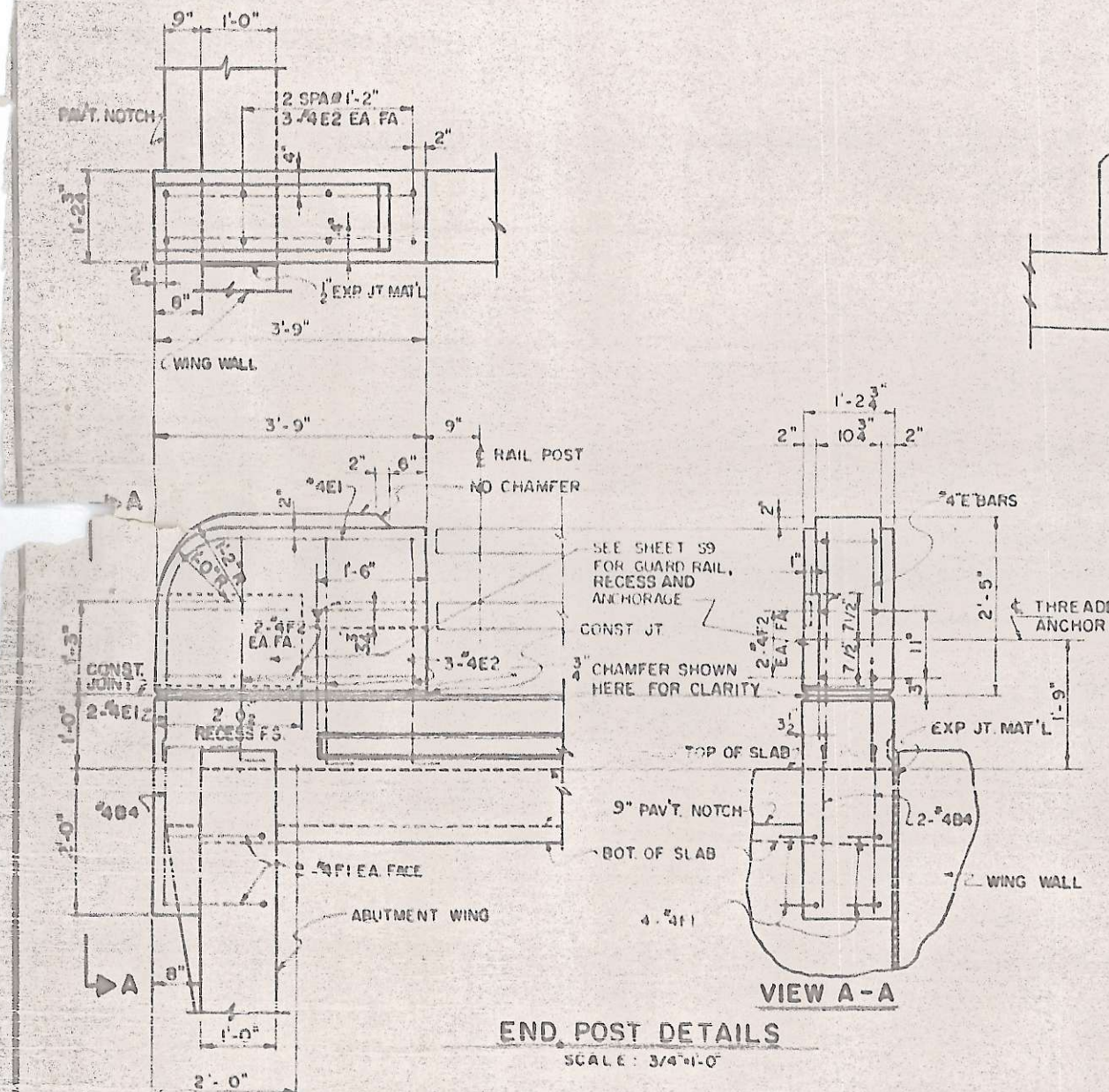
DETAIL RAIL BASE GROOVE
SCALE 1" = 1'-0"

BILL OF MATERIAL

SPAN B	SPAN C	SPAN D	SPAN E	SPAN F	TOTAL	BAR SIZE	TYPE	LENGTH	WEIGHT
258	326	326	326	258	1494	A1	6	10	37'-5"
257	325	325	325	257	1489	A2	6	STR	29'-0"
100	150	150	150	100	650	B7	4		30'-0"
25	-	-	-	25	50	B8	4		19'-0"
25	-	-	-	25	50	B9	4		17'-3"
-	25	25	25	-	75	B10	4		9'-9"
-	25	25	25	-	75	B11	4		8'-6"
204	306	306	306	204	1326	B12	5		30'-0"
51	-	-	-	51	102	B13	5		20'-6"
51	-	-	-	51	102	B14	5		18'-3"
-	51	51	51	-	153	B15	5		11'-9"
-	51	51	51	-	153	B16	5		10'-0"
10	8	8	8	10	44	K2	6	Y	12'-0"
5	4	4	4	5	22	K3	6	STR	9'-3"
27	-	-	-	27	54	S1	4	3	4'-4"
302	380	380	380	302	1744	S2	5	4	8'-9"
27	54	54	54	27	216	S3	4	6	2'-5"
54	54	54	54	54	270	S4	4	7	2'-8"
10	20	20	20	10	80	S5	4	5	5'-9"
6	6	6	6	6	30	S6	4	8	3'-8"
10	-	-	-	10	20	S7	4	9	4'-3"
REINF. STEEL - SPANS B,C,D,E & F					231,495 LBS.	TOTAL			
CLASS "A" CONCRETE - SPAN B CU. YDS.					175.4	PARAPET		SLAB	
CLASS "A" CONCRETE - SPAN C CU. YDS.					220.4	13.4		162.0	
CLASS "A" CONCRETE - SPAN D CU. YDS.					220.4	17.0		202.4	
CLASS "A" CONCRETE - SPAN E CU. YDS.					220.4	17.0		203.4	
CLASS "A" CONCRETE - SPAN F CU. YDS.					175.4	13.4		162.0	

BILL OF MATERIAL

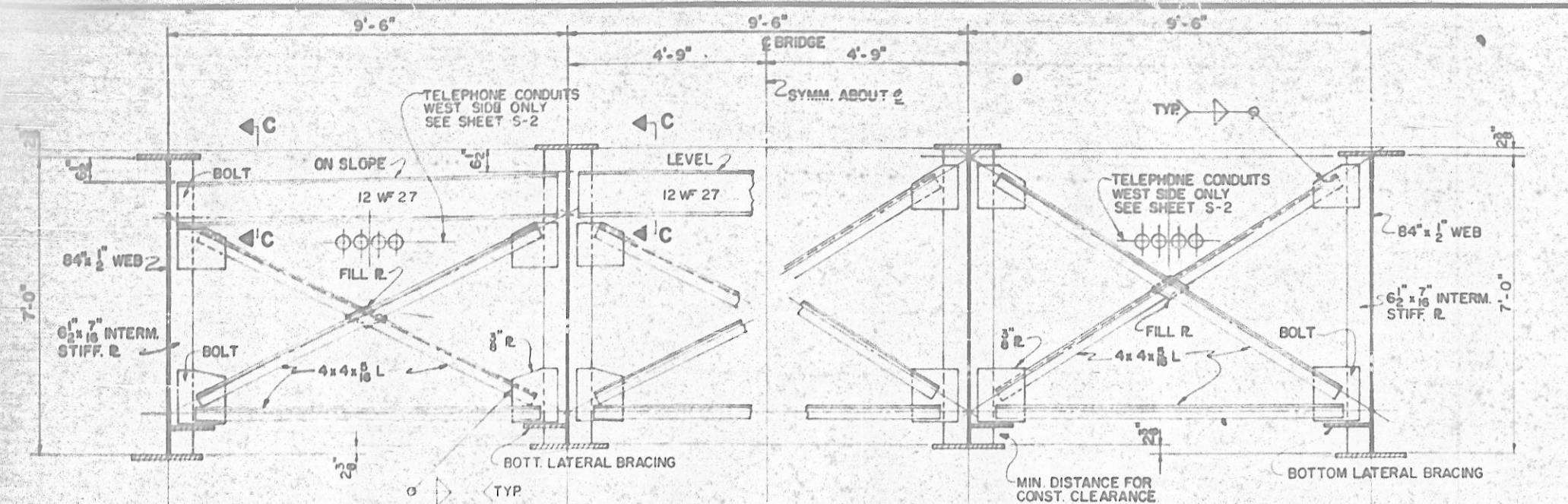
SPAN A	SPAN G	TOTAL	BAR SIZE	TYPE	LENGTH	WEIGHT
60	60	120	A1	6	10	37'-5"
59	59	118	A2	6	STR	29'-0"
25	25	50	B1	4	STR	20'-0"
56	56	112	B2	5	STR	20'-5"
25	25	50	B3	4	STR	15'-9"
4	4	8	B4	4	I	5'-5"
56	56	112	B5	5	STR	16'-5"
53	53	106	B6	4	I	4'-9"
4	4	8	E1	4	2	6'-6"
6	6	12	E2	4	1	5'-6"
4	4	8	F1	4	1	1'-10"
4	4	8	F2	4	STR	5'-5"
5	5	10	K1	4	STR	22'-6"
4	4	8	K2	5	STR	12'-0"
2	2	4	K3	6	STR	9'-3"
5	5	10	K5	4	STR	14'-5"
2	2	4	K6	6	STR	22'-6"
2	2	4	K7	6	STR	15'-6"
27	27	54	S1	4	3	4'-4"
70	70	140	S2	5	4	8'-9"
10	10	20	S7	4	9	4'-3"
33	33	66	S8	4	11	2'-0"
REINF. STEEL - SPANS A & G						23,425 LBS.
CLASS "A" CONCRETE - SPAN A CU. YDS.						155.4
CLASS "A" CONCRETE - SPAN G CU. YDS.						215.4
STRUCTURAL STEEL - SPAN A						24,600 LBS.
STRUCTURAL STEEL - SPANS B,C,D,E & F						177,230 LBS.
STRUCTURAL STEEL - SPAN G						24,600 LBS.



PROJECT No. 9700019
CATAWBA - ALEXANDER COUNTY
STATION: 102+53

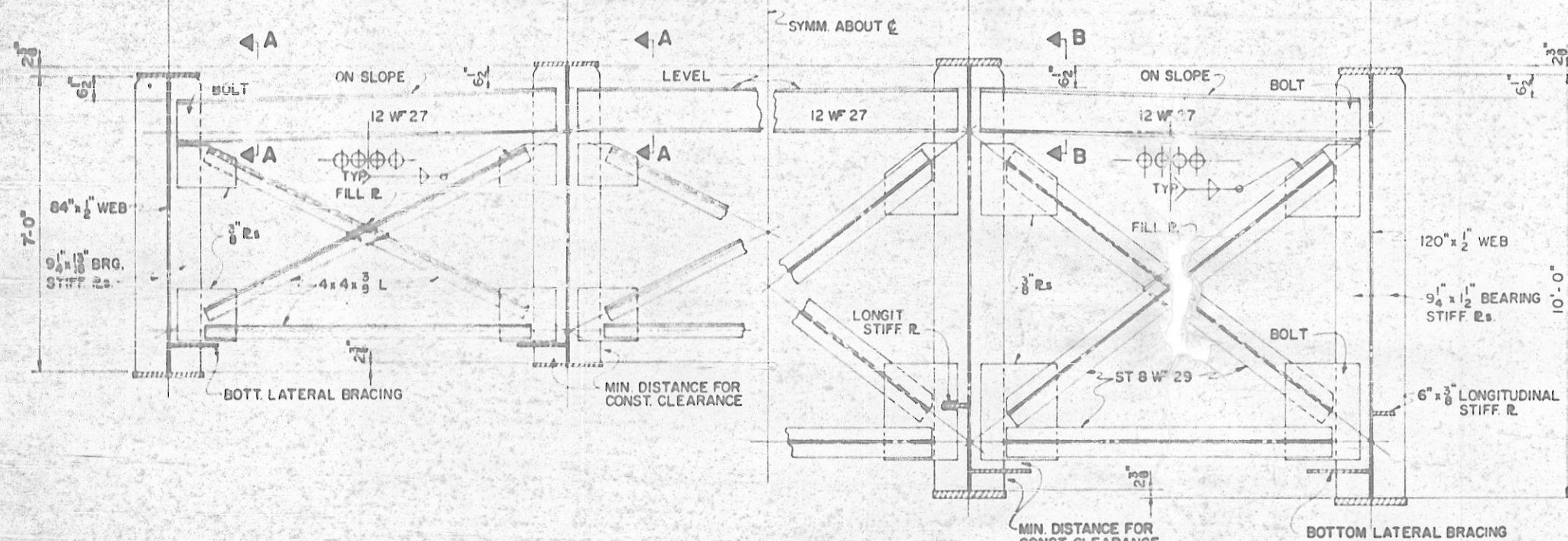
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUPERSTRUCTURE
RAIL POST SPACING
END POST AND PARAPET DETAILS

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
BUREAU
SUPERSTRUCTURE
STRUCTURAL STEEL DETAILS
SPANS A & C



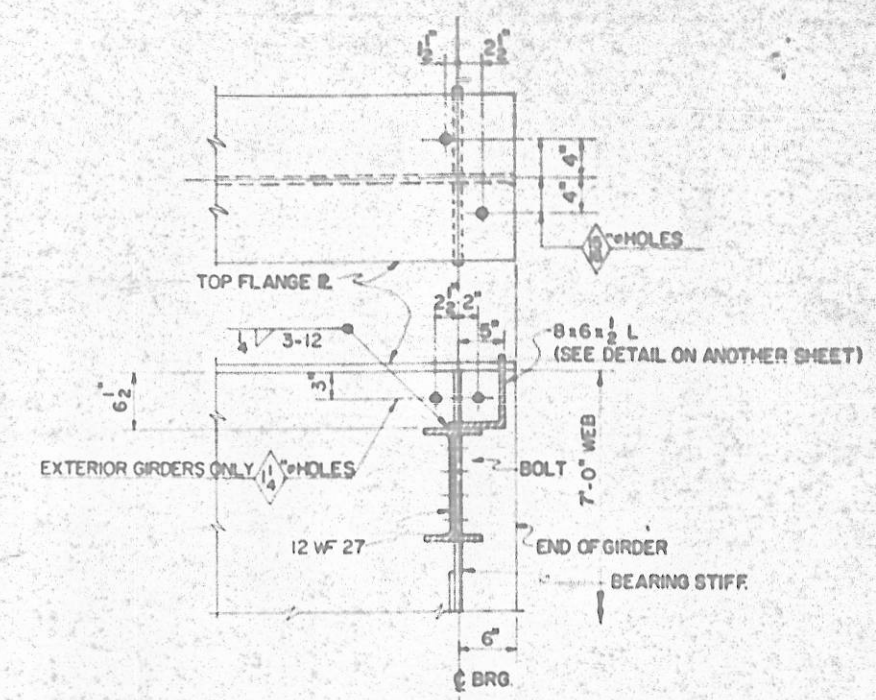
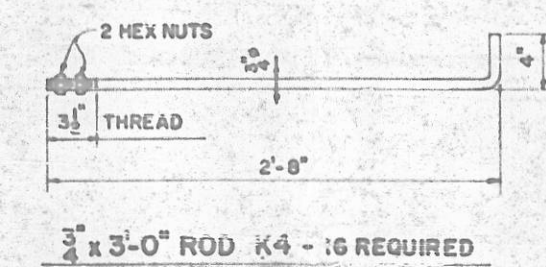
INTERMEDIATE CROSS FRAME "C"

INTERMEDIATE CROSS FRAME "D"

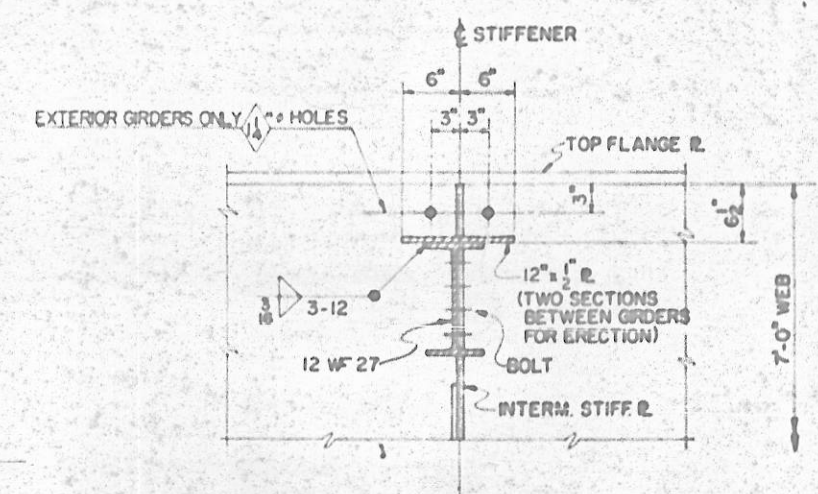


END CROSS FRAME "A"

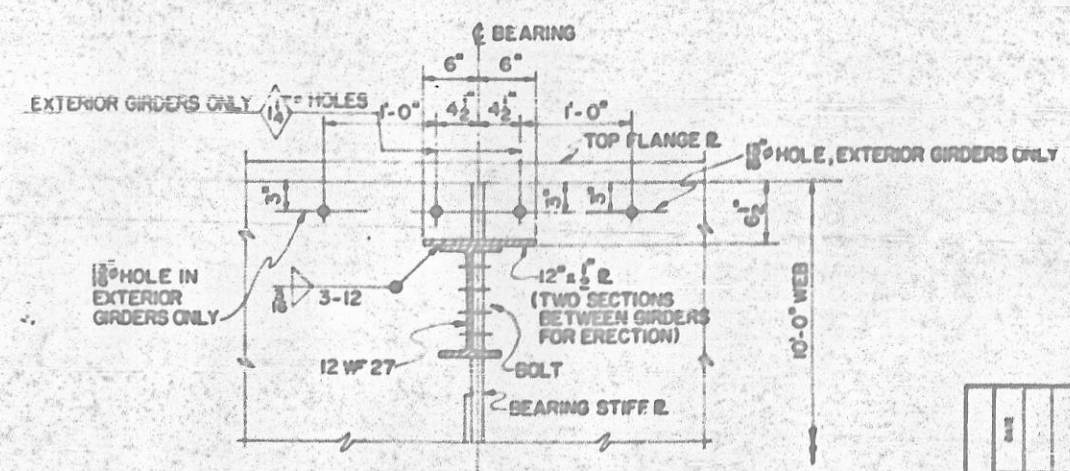
HAUNCH CROSS FRAME "B"



SECTION A-A (CROSS FRAME "A")



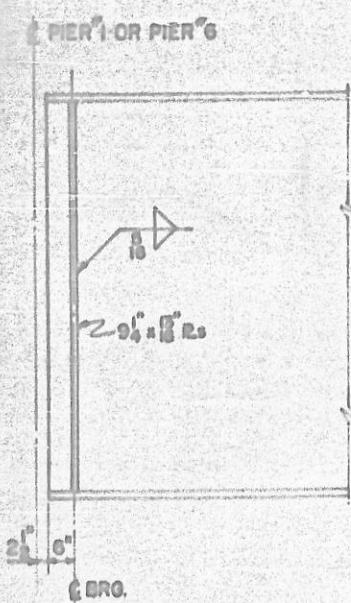
SECTION C-C (CROSS FRAME "C")



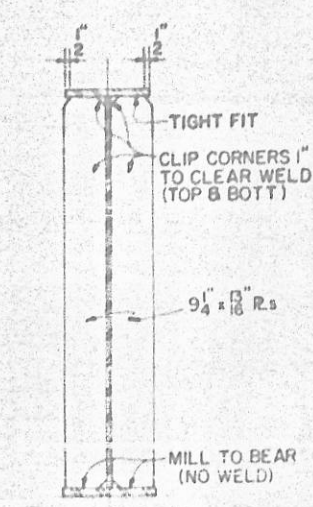
SECTION B-B (CROSS FRAME "B")

PROJECT NO. 07810019
 CATAWBA-ALEXANDER COUNTY
 STATION: 104+55

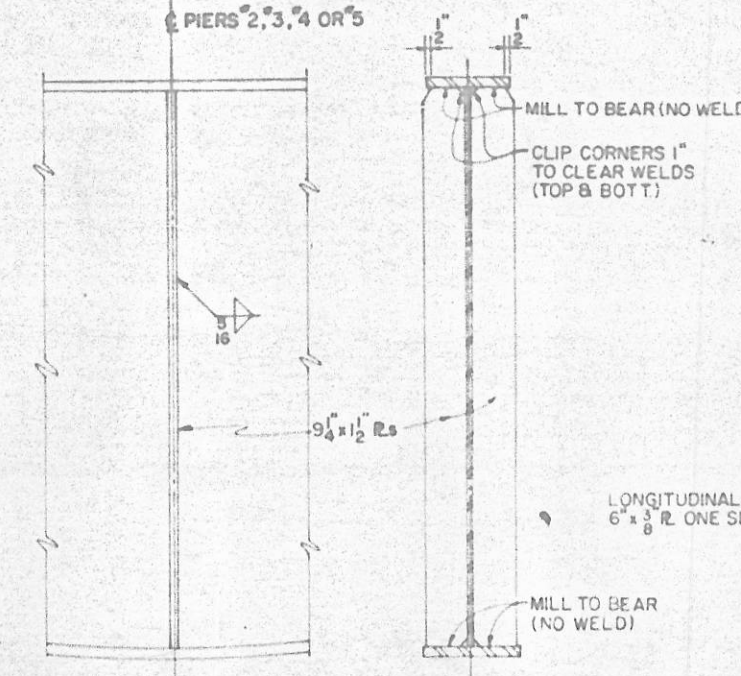
STATE OF NORTH CAROLINA
 STATE HIGHWAY COMMISSION
 SUPERSTRUCTURE
 PLATE GIRDER CROSS FRAME DETAIL
 & MISCELLANEOUS DETAILS



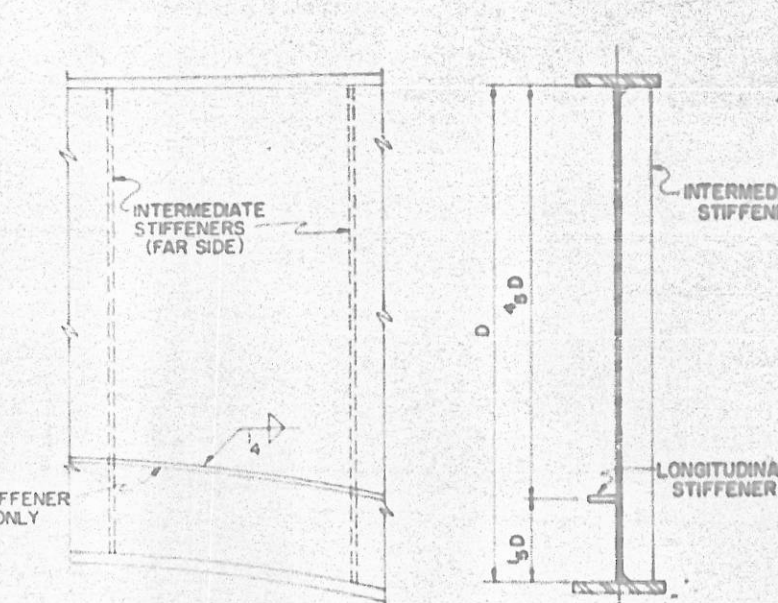
END BEARINGS



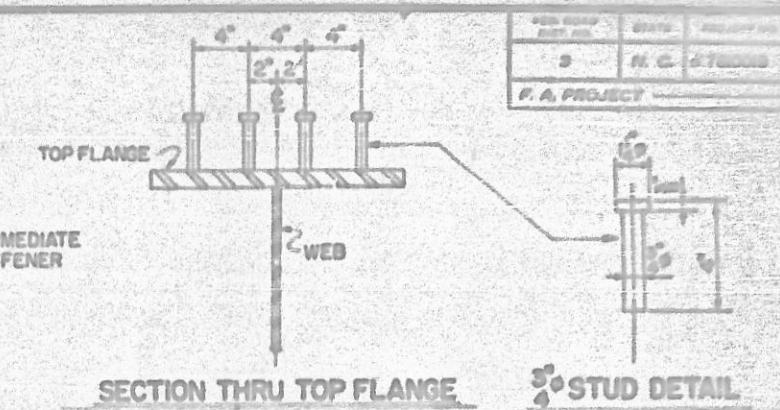
INTERMEDIATE



INTERIOR BEARINGS



LONGITUDINAL STIFFENERS



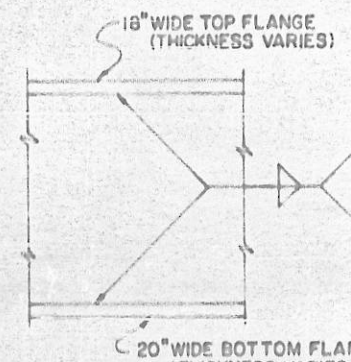
SECTION THRU TOP FLANGE SHOWING STUD SHEAR CONNECTORS

STUD DETAIL

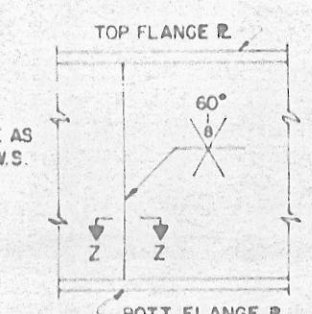
NOTES

1. CONNECTIONS FOR LATERAL BRACING SYSTEM SHALL BE SHOP WELDED AND FIELD BOLTED AS SHOWN.
2. ALL ANGLES TO BE 4" x 4" x 5/16 OR 4" x 4" x 3/8 AS INDICATED ON PLANS.
3. ALL GUSSET PLATES TO BE 3/8" THICK.
4. ALL BEAMS, WEB PLATES AND FLANGE PLATES SHALL BE OF ASTM A36 GRADE STRUCTURAL GRADE STEEL. SEE SHEET S-N.
5. FIELD CONNECTIONS SHALL BE BOLTED USING 3/4" HIGH STRENGTH BOLTS IN ACCORDANCE WITH THE SPECIFICATIONS AND SPECIAL PROVISIONS.
6. ALL FIELD SPLICES IN GIRDERS SHALL BE PINNED AND BOLTED BEFORE TIGHTENING BOLTS. SEE STANDARD SPECIFICATIONS.
7. ALL SHOP SPLICES IN FLANGE AND WEB PLATES SHALL BE MADE PRIOR TO WELDING FLANGE PLATES TO WEB PLATES. NO SPLICE OTHER THAN THOSE SHOWN ON PLANS WILL BE PERMITTED IN THE FLANGE PLATES; HOWEVER TWO SHOP SPLICES WILL BE ALLOWED IN THE WEB PLATES BETWEEN EACH PAIR OF FIELD SPLICES AND BETWEEN THE END OF GIRDER AND THE NEAREST FIELD SPLICE. THE LOCATION OF THESE WEB SPLICES SHALL BE INDICATED ON THE SHOP PLANS.
8. ENDS OF GIRDERS, WEB SPLICES AND ALL STIFFENERS TO BE PLUMB IN FINAL POSITION (AFTER DEFLECTION REMOVED).
9. ALL HOLES TO BE 13/16" UNLESS OTHERWISE NOTED.
10. ALL FILLET WELDS IN THE GIRDERS SHALL BE TESTED BY THE MAGNETIC PARTICLE METHOD IN ACCORDANCE WITH THE SPECIAL PROVISION, "EXCEPTION TO THE 1968 EDITION OF AWS STANDARD SPECIFICATIONS," EXCEPT THAT THE WELDS FOR ONLY ONE OF EVERY TEN STIFFENERS WHICH DO NOT SERVE AS CONNECTORS FOR MAIN MEMBERS SHALL BE INSPECTED BY THIS METHOD. RADIOGRAPHIC INSPECTION IS REQUIRED AT ALL BUTT WELDS IN TENSION FLANGES AND 25% OF COMPRESSION FLANGE BUTT WELDS. (SEE SPECIAL PROVISIONS).
11. SHOP PLANS SHALL BE SUBMITTED FOR APPROVAL. NO UNCHECKED DRAWINGS WILL BE ACCEPTED, OTHER THAN FOR ANCHOR BOLTS AND BEARINGS. PART SETS OF SHOP PLANS WILL NOT BE APPROVED.
12. SPECIFICATIONS: DESIGN: AASHTO (CURRENT), LIVE LOAD: HS 20-44 OR ALT. LOADING. MATERIALS AND FABRICATION: STANDARD SPECIFICATIONS OF THE N.C. STATE HIGHWAY COMMISSION AND SPECIAL PROVISIONS. WELDING: (SEE COMMENTS) AND AS GIVEN IN THE SPECIAL PROVISIONS. MINIMUM FILLET WELD TO BE 1/4".

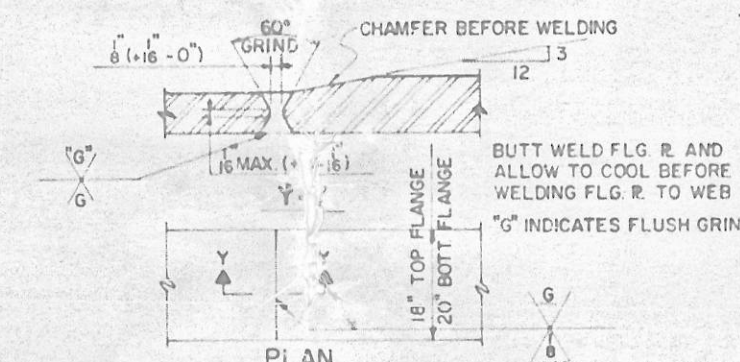
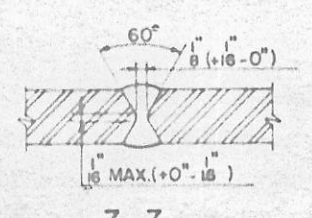
STIFFENER DETAILS



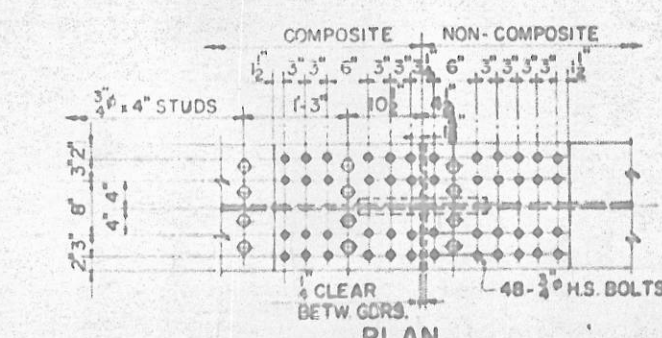
FLANGE TO WEB WELDS



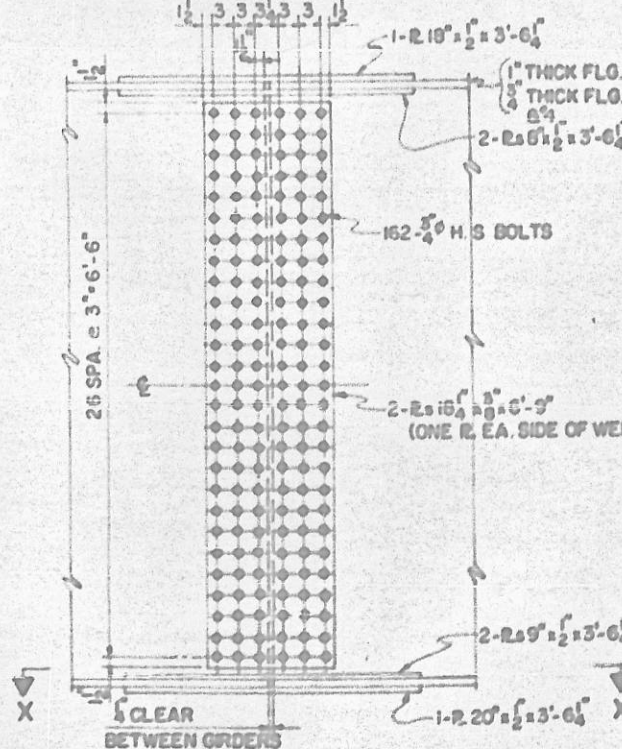
WEB - SHOP SPLICE DETAIL (SEE "NOTES" THIS SHEET)



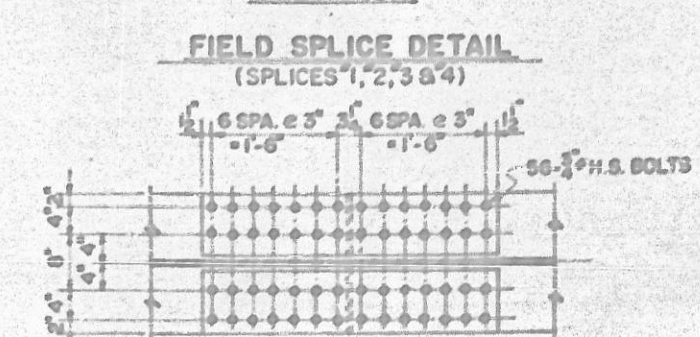
FLANGE PLATE-SHOP SPLICE DETAIL



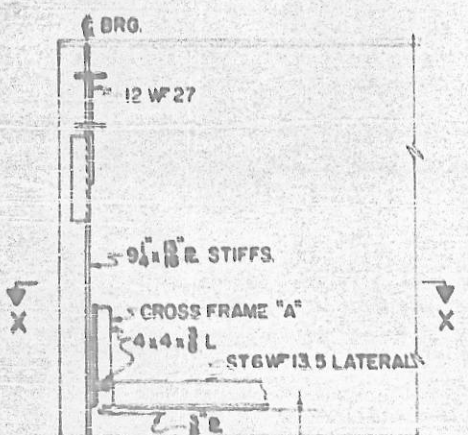
PLAN



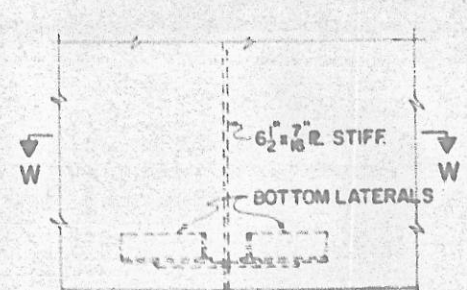
ELEVATION



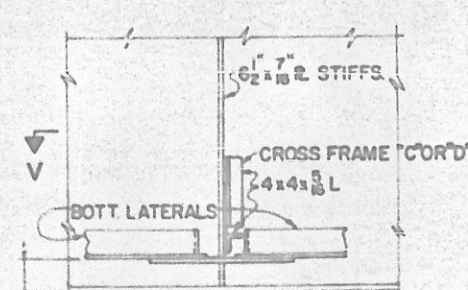
FIELD SPLICE DETAIL (SPLICES 1, 2, 3 & 4)



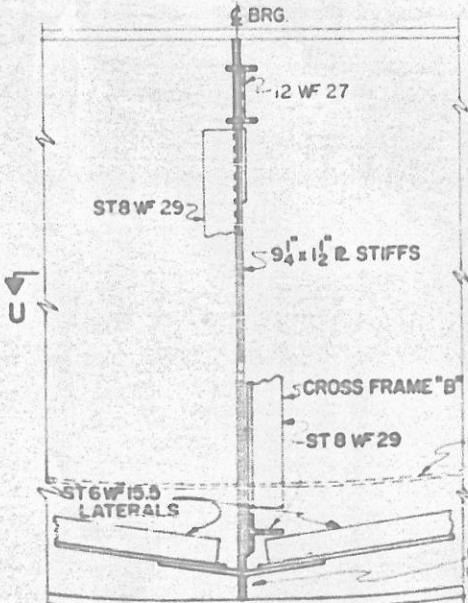
DETAIL I



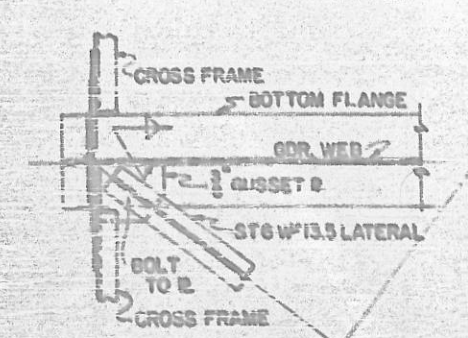
DETAIL II



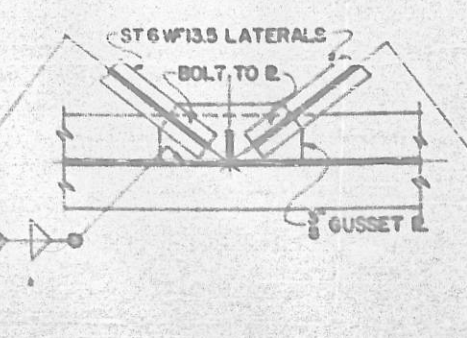
DETAIL III



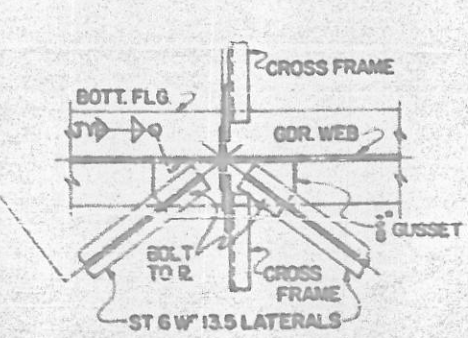
DETAIL IV



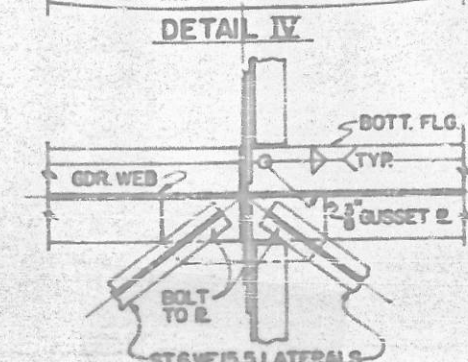
SECTION X-X



SECTION W-W



SECTION V-V

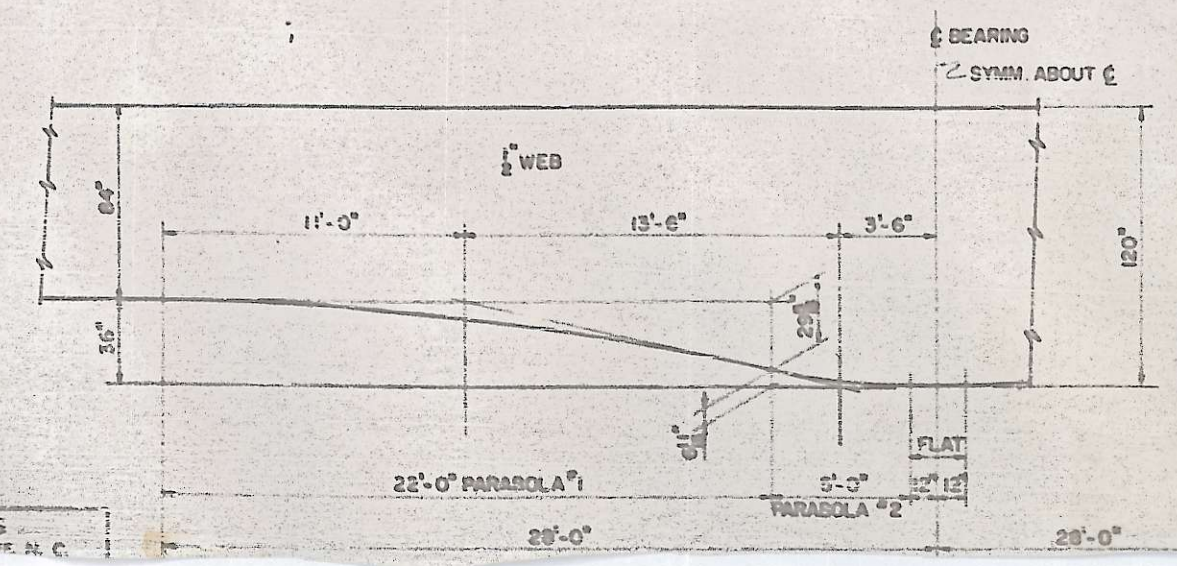
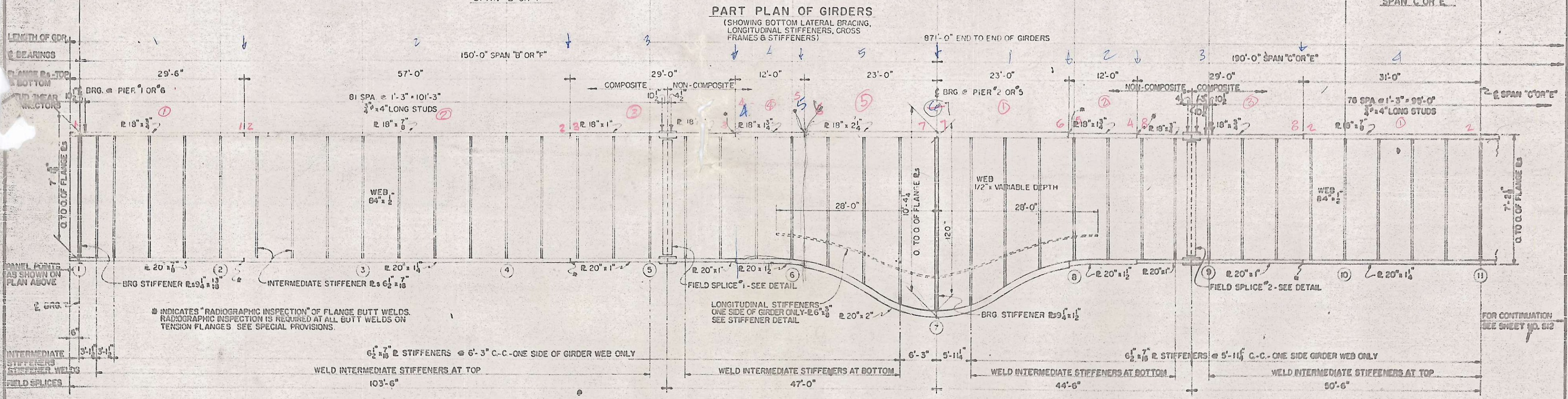
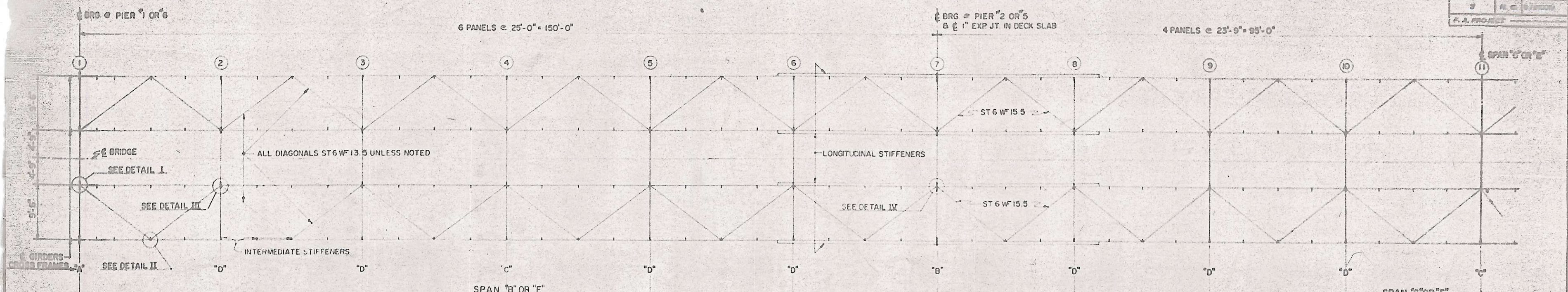


SECTION U-U

(FOR DETAILS I, II, III & IV SEE "PART PLAN OF GIRDERS")

PROJECT No. 67810019
CATAWBA-ALEXANDER...COUNTY
STATION: 104+55

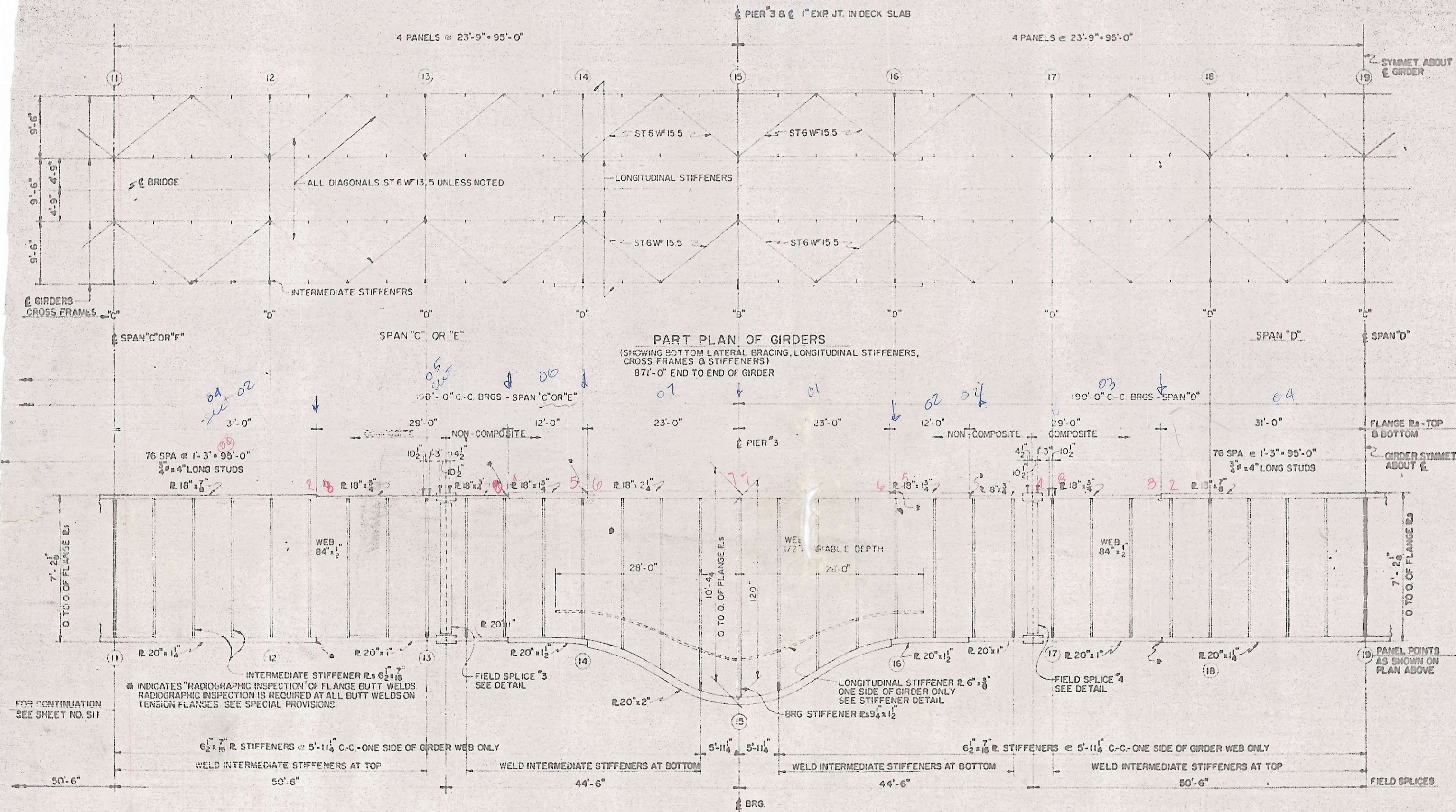
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUPERSTRUCTURE
PLATE GIRDER DETAILS-SPANS B,C,D,E & F



NOTE: WORK THIS SHEET WITH SHEET NO. 512.
 FOR WELD SIZES SEE "PLATE GIRDER DETAILS"
 SEE SHEET NO. 513 FOR 3/4" LONG STUD DETAILS.
 SEE SHEET NO. 513 FOR DETAILS I, II, III & IV.

PROJECT NO. 6.7810019
 CATAWBA-ALEXANDER COUNTY
 STATION: 104 + 55

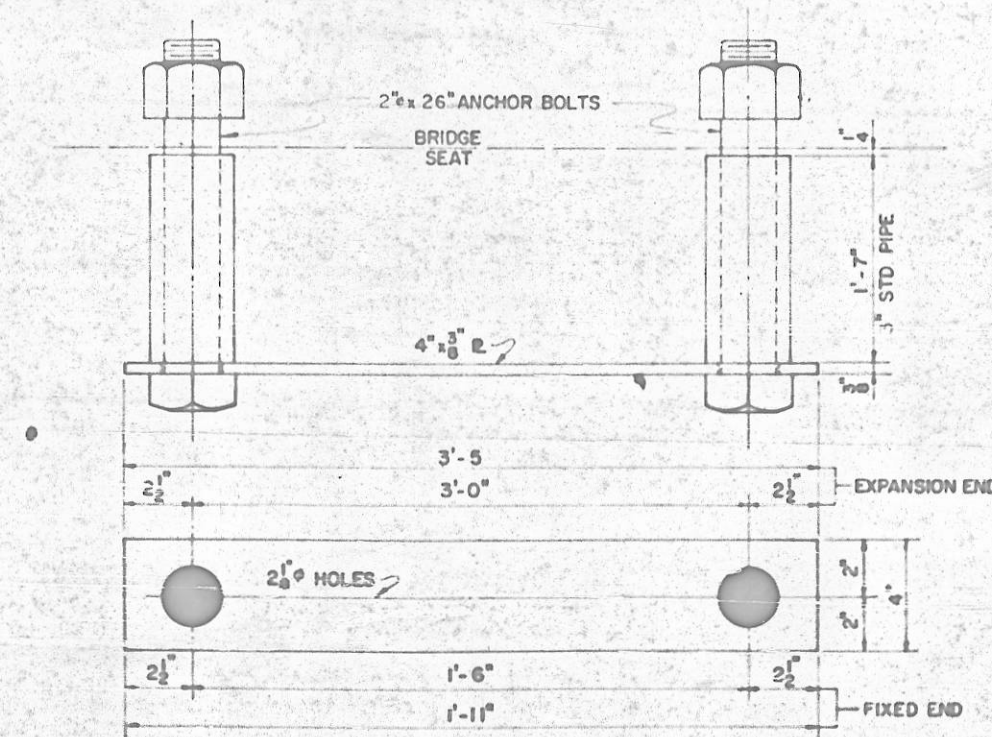
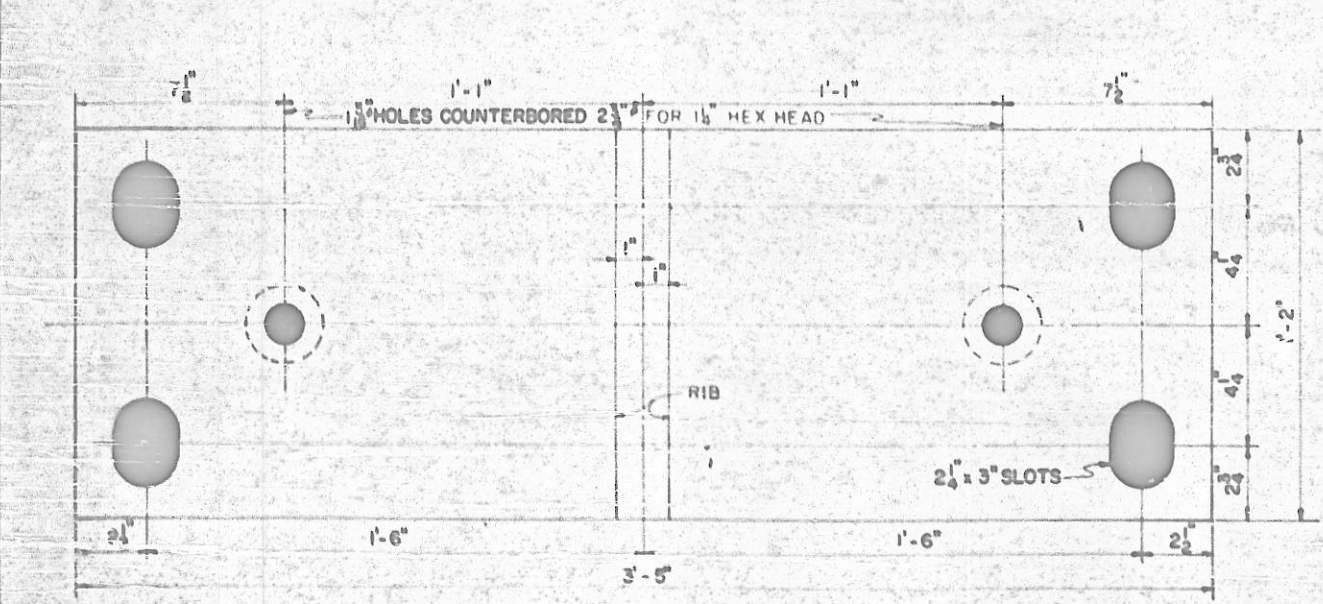
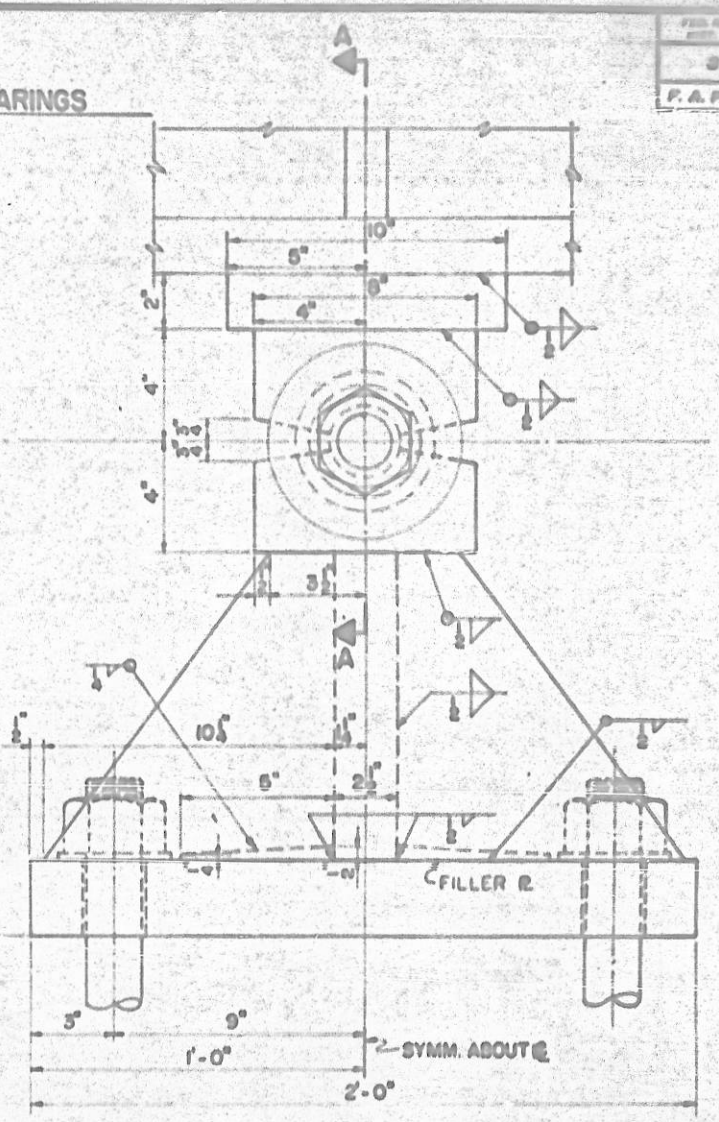
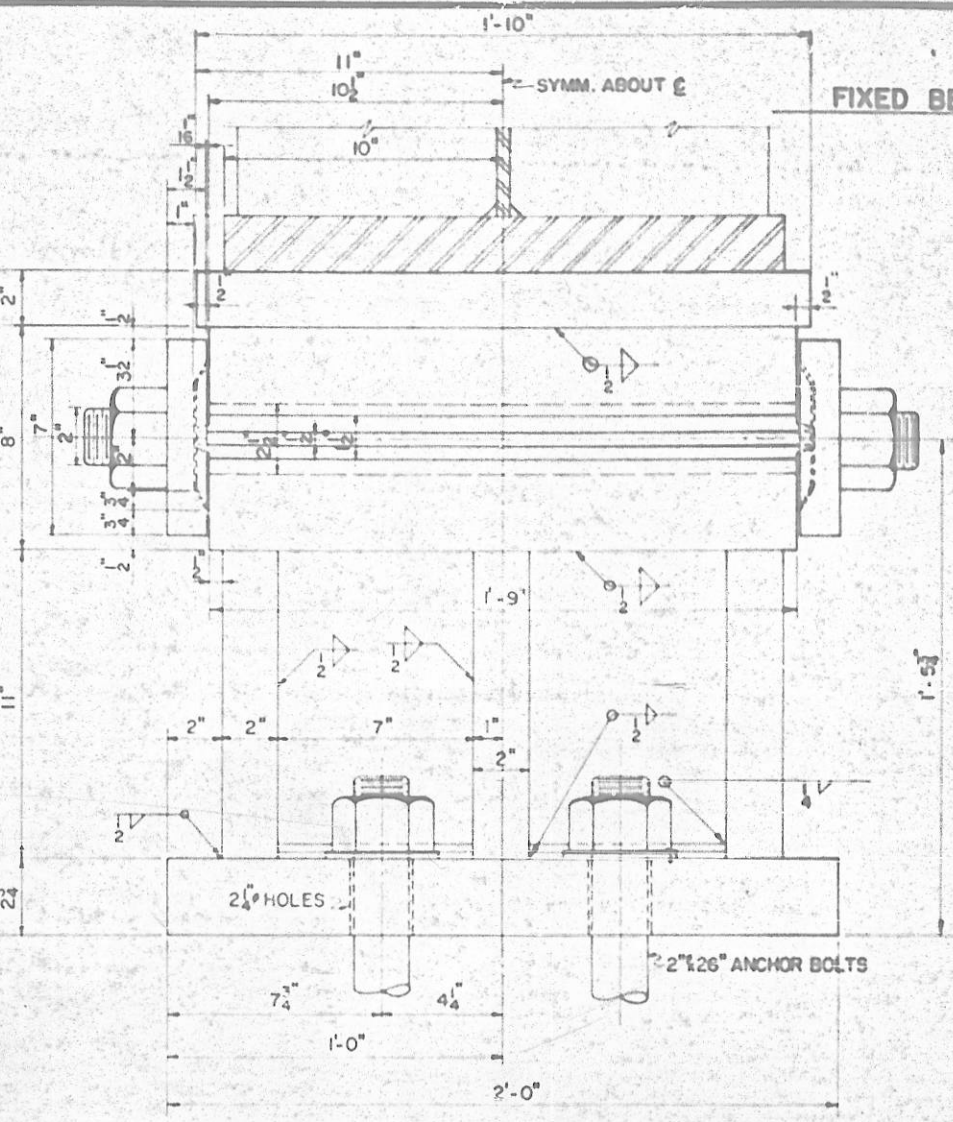
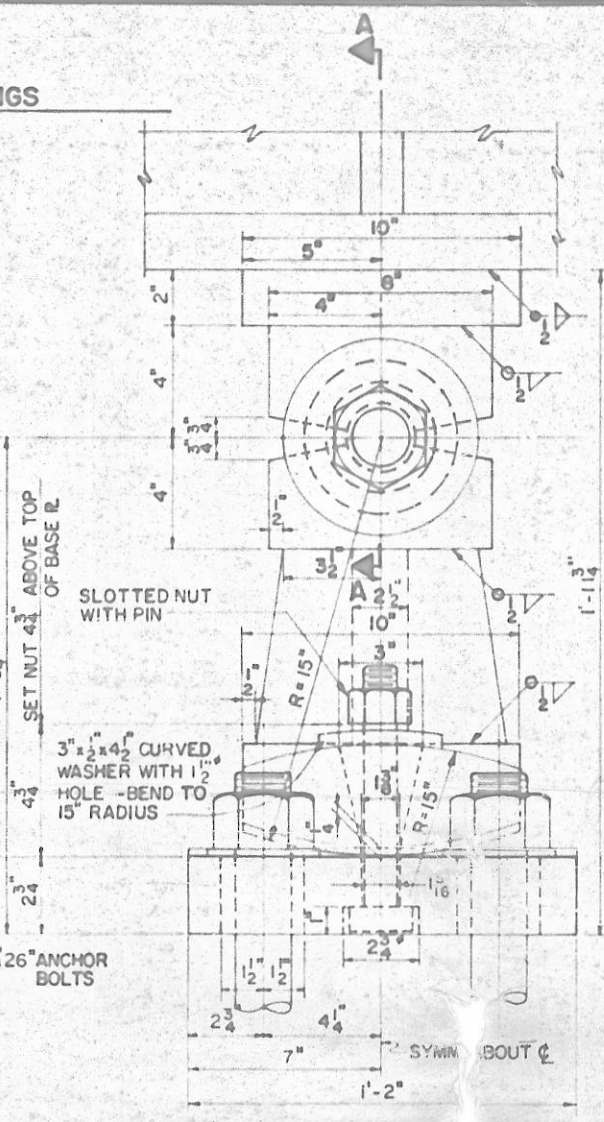
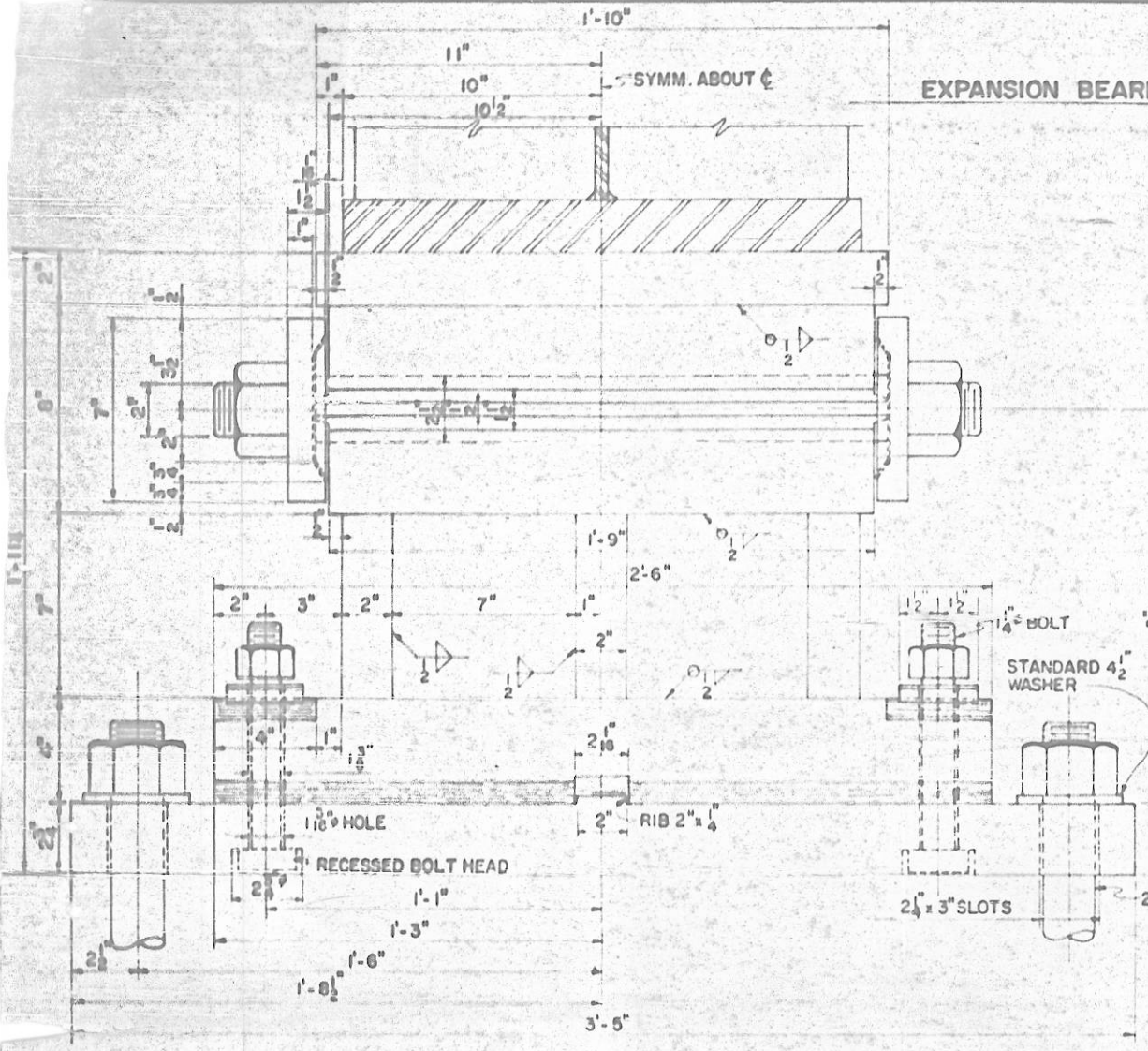
STATE OF NORTH CAROLINA	
STATE HIGHWAY COMMISSION	
SUPERSTRUCTURE	
PLATE GIRDERS—SPANS B, C, E, & F	



PART ELEVATION OF GIRDER

PROJECT No. 67810019
CATAMBA-ALEXANDER COUNTY
STATION: 104 + 55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUPERSTRUCTURE
PLATE GIRDERS - SPANS C, D, E



ROCKER SETTING DATA

	PIER #1	PIER #2	PIER #3	PIER #4	PIER #5	PIER #6
TEMPERATURE AT TIME OF SETTING						
+92° F	+1"	+1"			+1"	+1"
+62° F	0"	0"			0"	0"
+32° F	-1"	-1"			-1"	-1"

+ INDICATES ROCKERS TILTED AWAY FROM PIERS #3 OR #4

APPROXIMATE WEIGHT OF BEARING ASSEMBLIES:

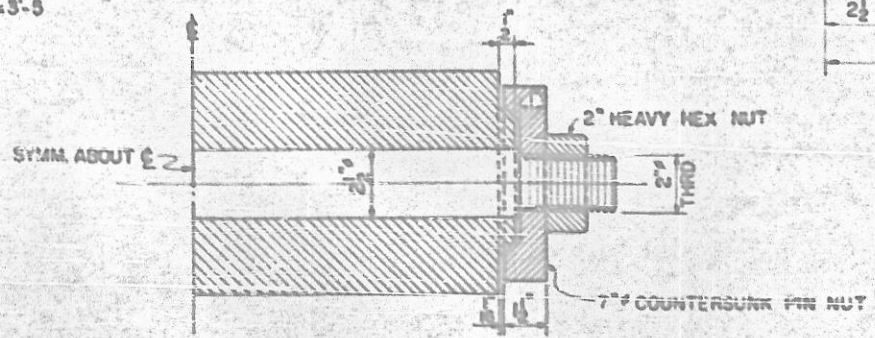
16 - EXPANSION BEARING ASSEMBLIES = 26,244*

8 - FIXED BEARING ASSEMBLIES = 12,491*

* TOTAL = 38,735*

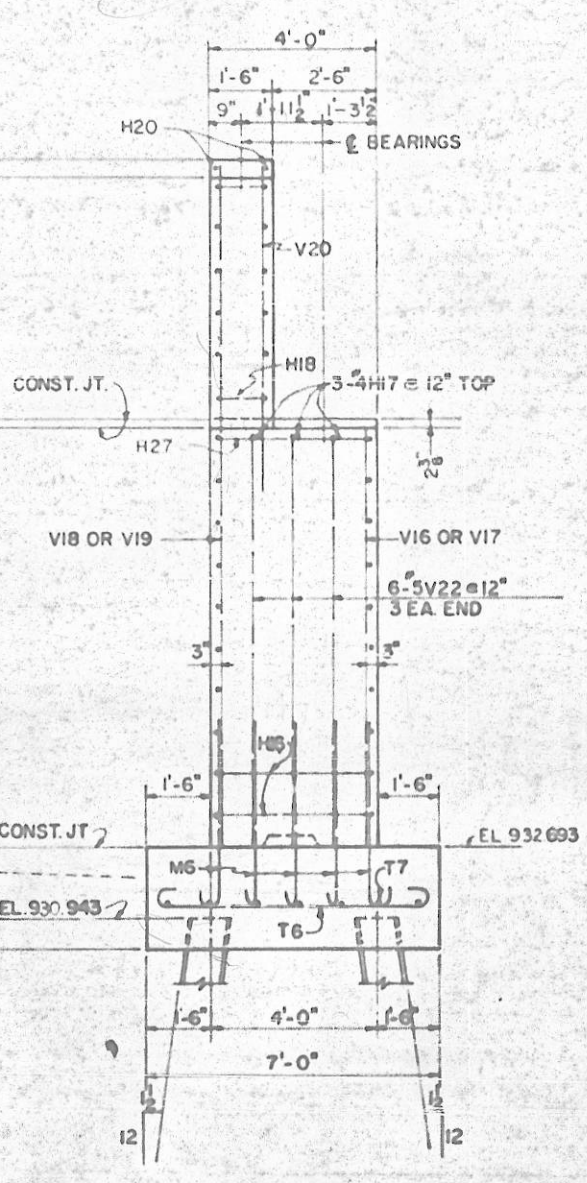
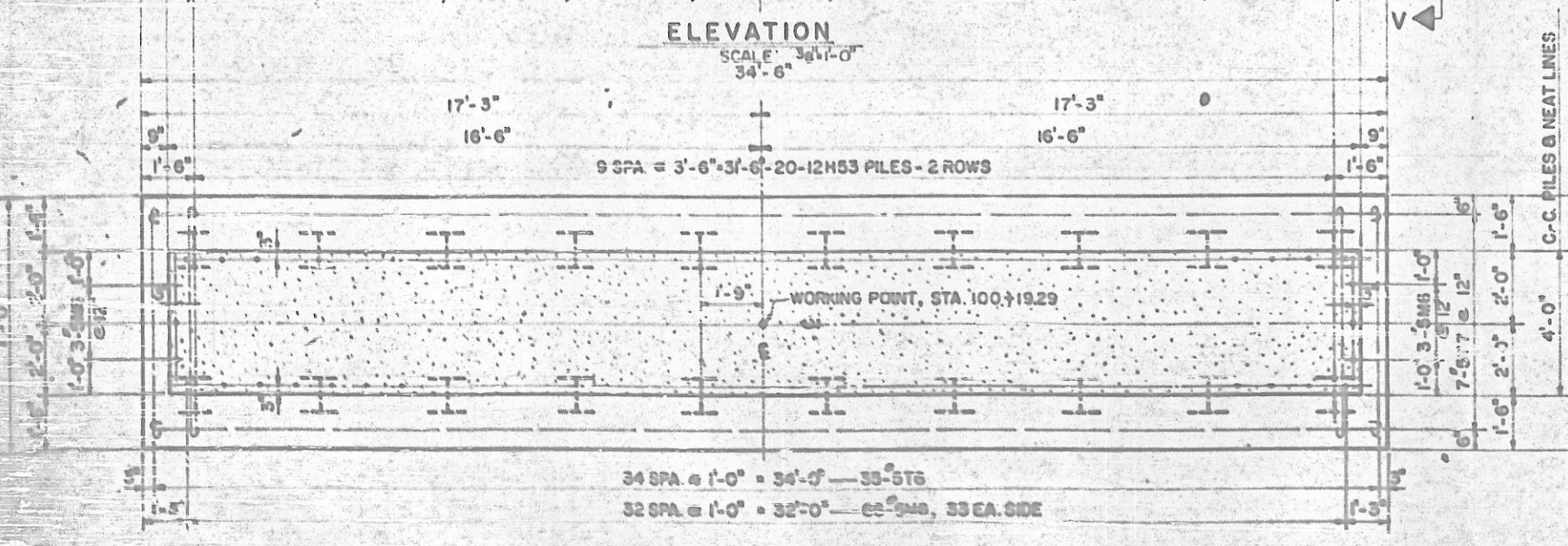
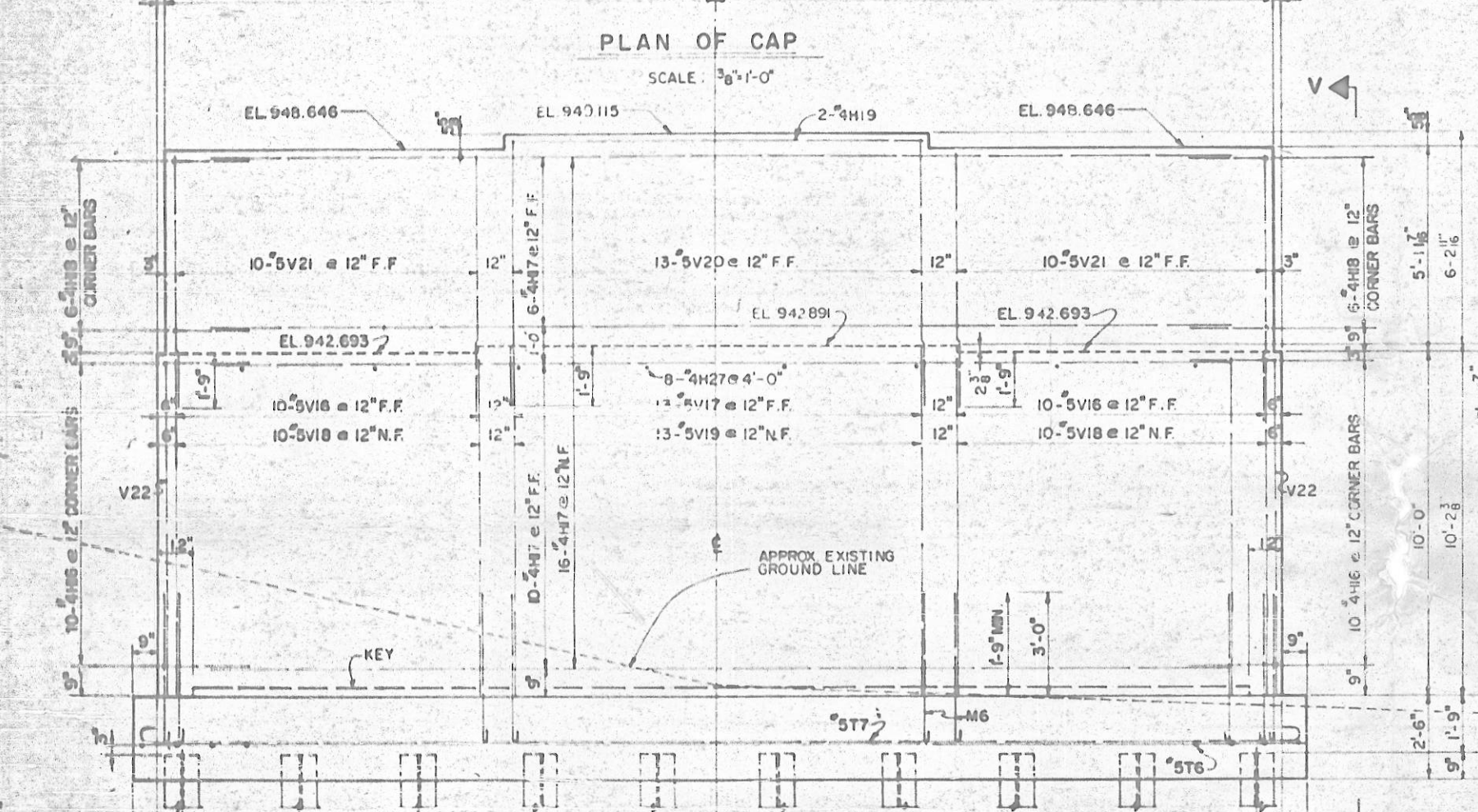
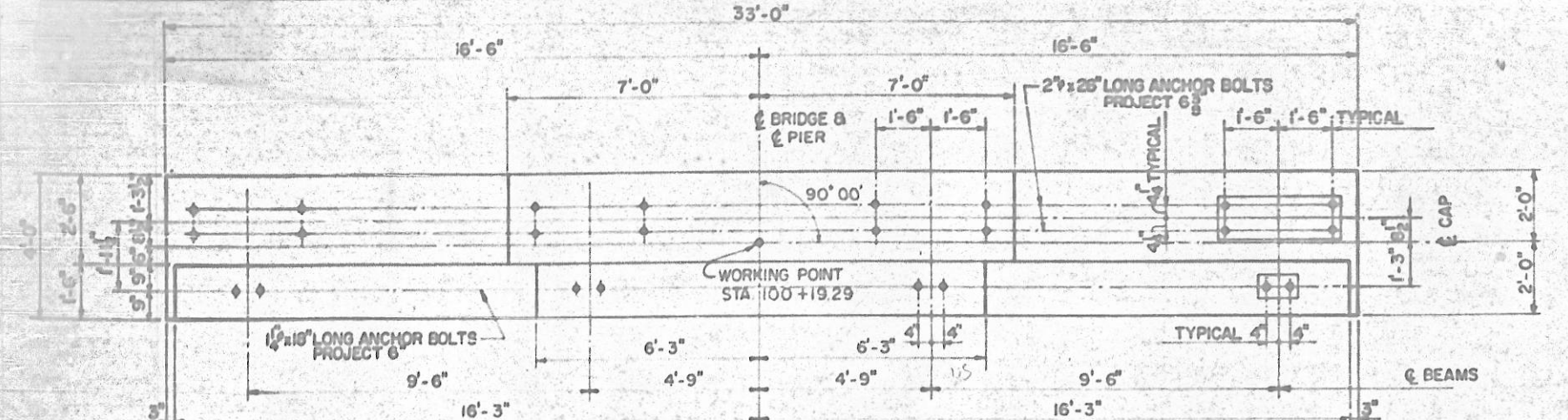
* THE WEIGHT OF THE STEEL FOR THE SHOES IS INCLUDED IN THE STRUCTURAL STEEL FOR THE PLATE GIRDERS

NOTE: PINS SHALL BE OF COLD FINISHED CARBON STEEL SHAFING. BUILD-UP WELDMENTS SHALL BE OF ASTM A36 OR A373 GRADE STEEL WITH 0.2% COPPER. SEE SPECIFICATIONS.

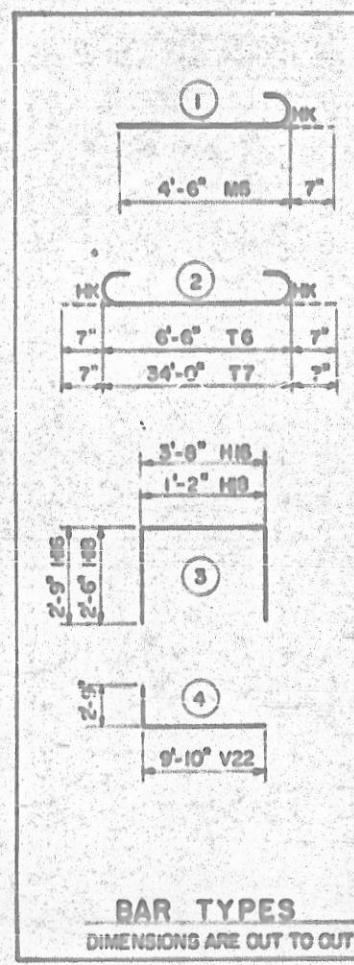


PROJECT NO. 67610019
 CATAWBA-ALEXANDER COUNTY
 STATION: 104+55

STATE OF NORTH CAROLINA
 STATE HIGHWAY COMMISSION
 DETAIL OF BEARING ASSEMBLIES
 SPANS B, C, D, E & F



SEE PAGES 23, 23B & 25 OF STA. ADV. RECORD BOOK



BILL OF MATERIAL FOR PIER NO. 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
M6	72	#6	1	5'-1"	391
T6	35	#6	2	7'-6"	250
T7	7	#6	2	35'-2"	257
V18	20	#5	STR.	9'-10"	205
V17	13	#5	STR.	10'-0"	135
V16	20	#5	STR.	10'-0"	229
V15	13	#5	STR.	10'-3"	220
V20	13	#5	STR.	7'-9"	105
V21	20	#5	STR.	7'-6"	156
V22	6	#5	4	12'-7"	79
H18	20	#4	3	9'-2"	122
H17	35	#4	STR.	30'-0"	701
H19	12	#4	3	6'-2"	49
H19	2	#4	STR.	12'-0"	16
H27	8	#4	STR.	5'-6"	20

REINFORCING STEEL LBS. — 3056
CLASS A CONCRETE CU YDS. — 82.6
12 H53 PILES NO. 20 - LIN. FT. — 380-600
Edu. Cond. Matl. 25.25 tons
* E.W.O. # 12-106

CONCRETE BREAKDOWN

FOOTING	CU YDS.
FOOTING	22.6
STEM	49.1
WALL	10.9
TOTAL	82.6

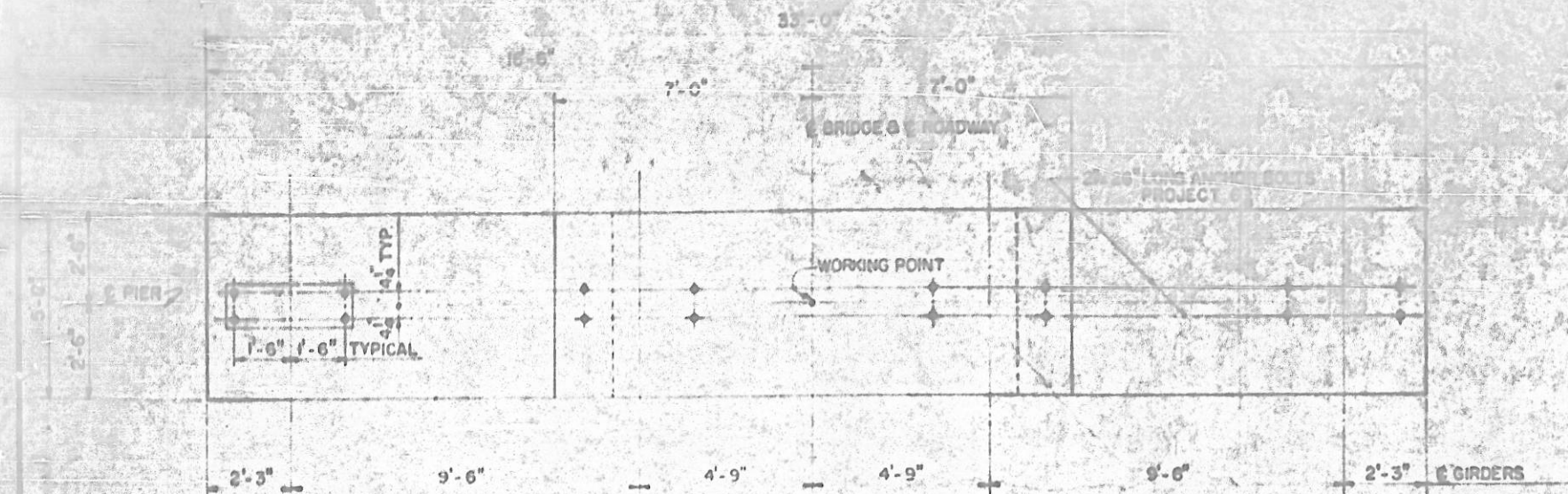
PROJECT No. 6700019
CATAMBA-ALEXANDER COUNTY
STATION: 194+55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUBSTRUCTURE
PIER NO. 1

DATE	BY	REVISION
11/2/57	W. J. H. / J. H. H.	1

RAIM WHITEHEAD & ASSOCIATES
ENGINEERS
CHARLOTTE, N. C.
ENC. 8 WTS.
DWG. NO. 107815

EXCAVATION TO ORIGINAL PLAN ELEVATION FOR PIER NO. 1 WAS COMPLETED PRIOR TO THIS REVISION WHICH NECESSITATED BACKFILL TO REVISED PLAN GRADE WITH STONE
REVISION NO. 1 - REVISED TO RAISE GRADE AND PIER NO. 1 3 FT. 11-3-67 (EXTRA WORK ORDER 12-106)

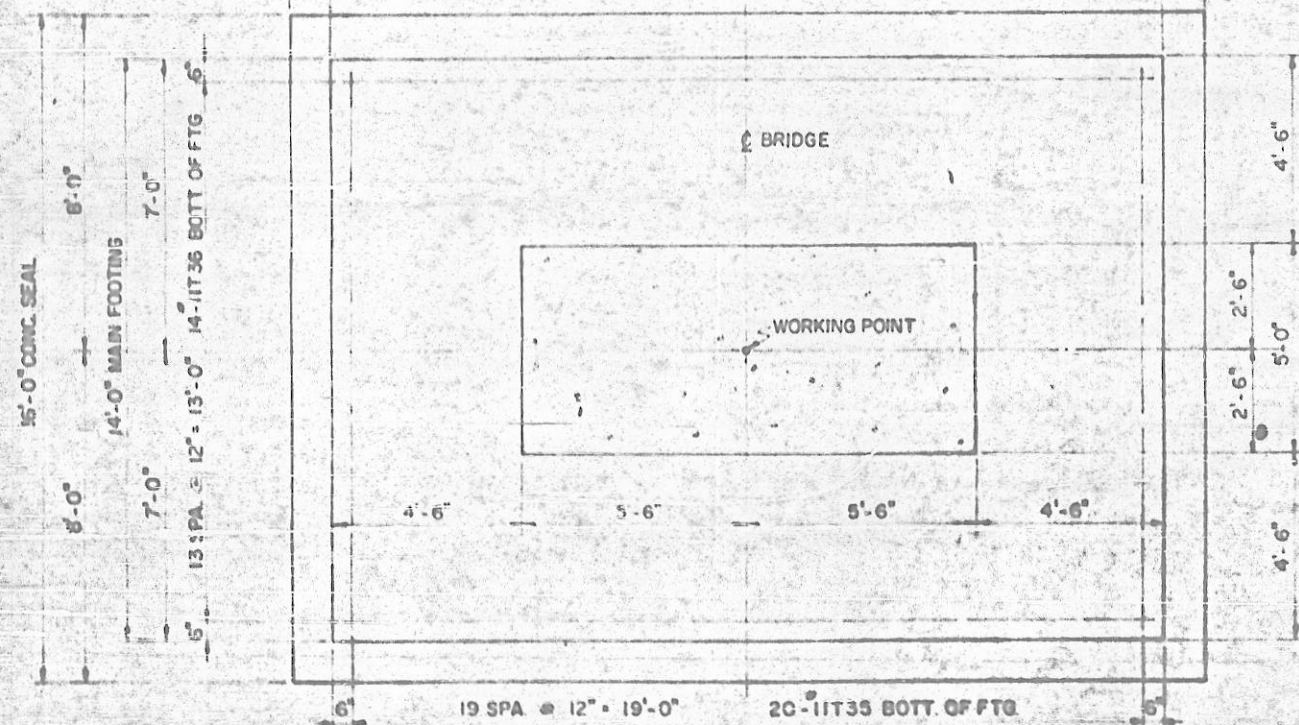


PLAN OF CAP

SCALE 3/8" = 1'-0"

22'-0" CONC SEAL

20'-0" MAIN FOOTING

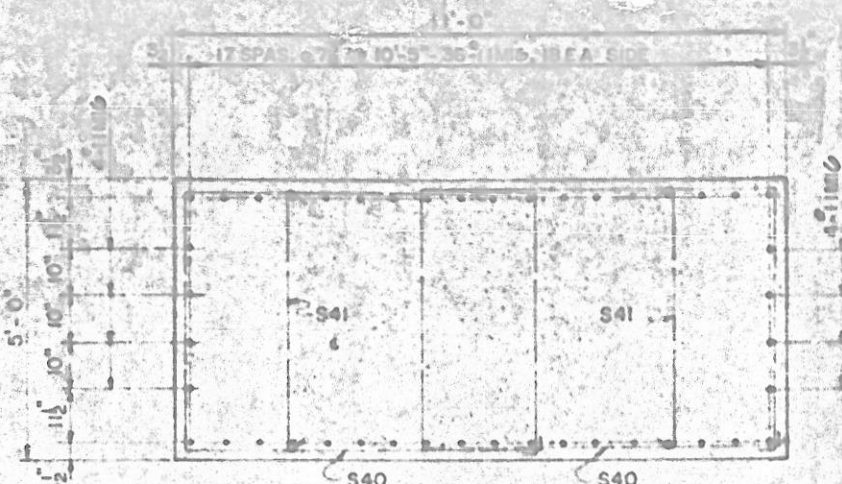


PLAN OF FOOTING

SCALE 3/8" = 1'-0"

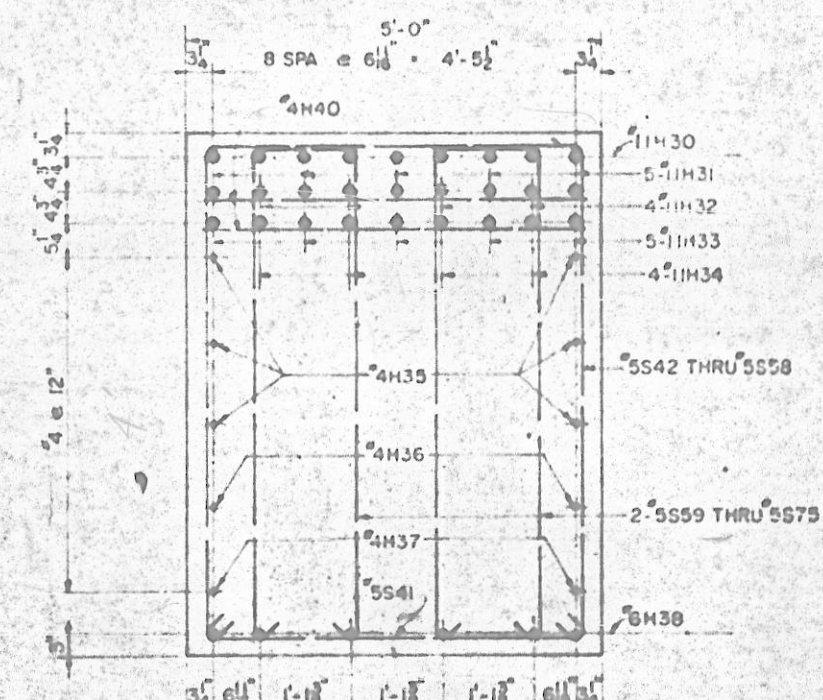
PIER 2

REV. NO. 1 - THIS IS A NEW SHEET, AND REPRESENTS A REVISION FOR PIER 2 TO ADD PILES TO FOUNDATION. 12-106



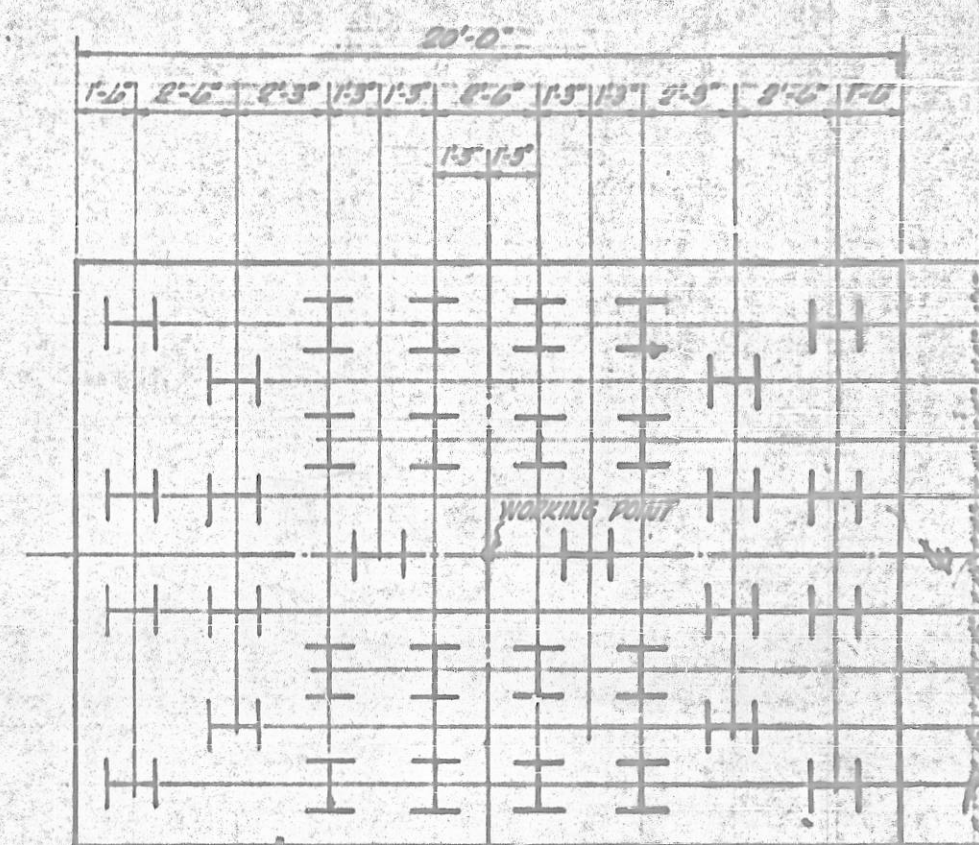
SECTION C-C

SCALE 3/8" = 1'-0"



SECTION A-A

SCALE 3/4" = 1'-0"



PLAN OF FOOTING SHOWING PILE LOCATION

PILES TO BE DRIVEN TO PRACTICAL REFUSAL (MAXIMUM DESIGN LOAD = 20 TONS PER PILE.) 14BP73 STEEL PILES

SEE PAGES 84, 25A, 25B, 25C, 25D, 25E, 25F, 25G, 25H, 25I, 25J, 25K, 25L, 25M, 25N, 25O, 25P, 25Q, 25R, 25S, 25T, 25U, 25V, 25W, 25X, 25Y, 25Z, 26A, 26B, 26C, 26D, 26E, 26F, 26G, 26H, 26I, 26J, 26K, 26L, 26M, 26N, 26O, 26P, 26Q, 26R, 26S, 26T, 26U, 26V, 26W, 26X, 26Y, 26Z, 27A, 27B, 27C, 27D, 27E, 27F, 27G, 27H, 27I, 27J, 27K, 27L, 27M, 27N, 27O, 27P, 27Q, 27R, 27S, 27T, 27U, 27V, 27W, 27X, 27Y, 27Z, 28A, 28B, 28C, 28D, 28E, 28F, 28G, 28H, 28I, 28J, 28K, 28L, 28M, 28N, 28O, 28P, 28Q, 28R, 28S, 28T, 28U, 28V, 28W, 28X, 28Y, 28Z, 29A, 29B, 29C, 29D, 29E, 29F, 29G, 29H, 29I, 29J, 29K, 29L, 29M, 29N, 29O, 29P, 29Q, 29R, 29S, 29T, 29U, 29V, 29W, 29X, 29Y, 29Z, 30A, 30B, 30C, 30D, 30E, 30F, 30G, 30H, 30I, 30J, 30K, 30L, 30M, 30N, 30O, 30P, 30Q, 30R, 30S, 30T, 30U, 30V, 30W, 30X, 30Y, 30Z, 31A, 31B, 31C, 31D, 31E, 31F, 31G, 31H, 31I, 31J, 31K, 31L, 31M, 31N, 31O, 31P, 31Q, 31R, 31S, 31T, 31U, 31V, 31W, 31X, 31Y, 31Z, 32A, 32B, 32C, 32D, 32E, 32F, 32G, 32H, 32I, 32J, 32K, 32L, 32M, 32N, 32O, 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78T, 78U, 78V, 78W, 78X, 78Y, 78Z, 79A, 79B, 79C, 79D, 79E, 79F, 79G, 79H, 79I, 79J, 79K, 79L, 79M, 79N, 79O, 79P, 79Q, 79R, 79S, 79T, 79U, 79V, 79W, 79X, 79Y, 79Z, 80A, 80B, 80C, 80D, 80E, 80F, 80G, 80H, 80I, 80J, 80K, 80L, 80M, 80N, 80O, 80P, 80Q, 80R, 80S, 80T, 80U, 80V, 80W, 80X, 80Y, 80Z, 81A, 81B, 81C, 81D, 81E, 81F, 81G, 81H, 81I, 81J, 81K, 81L, 81M, 81N, 81O, 81P, 81Q, 81R, 81S, 81T, 81U, 81V, 81W, 81X, 81Y, 81Z, 82A, 82B, 82C, 82D, 82E, 82F, 82G, 82H, 82I, 82J, 82K, 82L, 82M, 82N, 82O, 82P, 82Q, 82R, 82S, 82T, 82U, 82V, 82W, 82X, 82Y, 82Z, 83A, 83B, 83C, 83D, 83E, 83F, 83G, 83H, 83I, 83J, 83K, 83L, 83M, 83N, 83O, 83P, 83Q, 83R, 83S, 83T, 83U, 83V, 83W, 83X, 83Y, 83Z, 84A, 84B, 84C, 84D, 84E, 84F, 84G, 84H, 84I, 84J, 84K, 84L, 84M, 84N, 84O, 84P, 84Q, 84R, 84S, 84T, 84U, 84V, 84W, 84X, 84Y, 84Z, 85A, 85B, 85C, 85D, 85E, 85F, 85G, 85H, 85I, 85J, 85K, 85L, 85M, 85N, 85O, 85P, 85Q, 85R, 85S, 85T, 85U, 85V, 85W, 85X, 85Y, 85Z, 86A, 86B, 86C, 86D, 86E, 86F, 86G, 86H, 86I, 86J, 86K, 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NOTE: WORK THIS SHEET WITH SHEET 520A

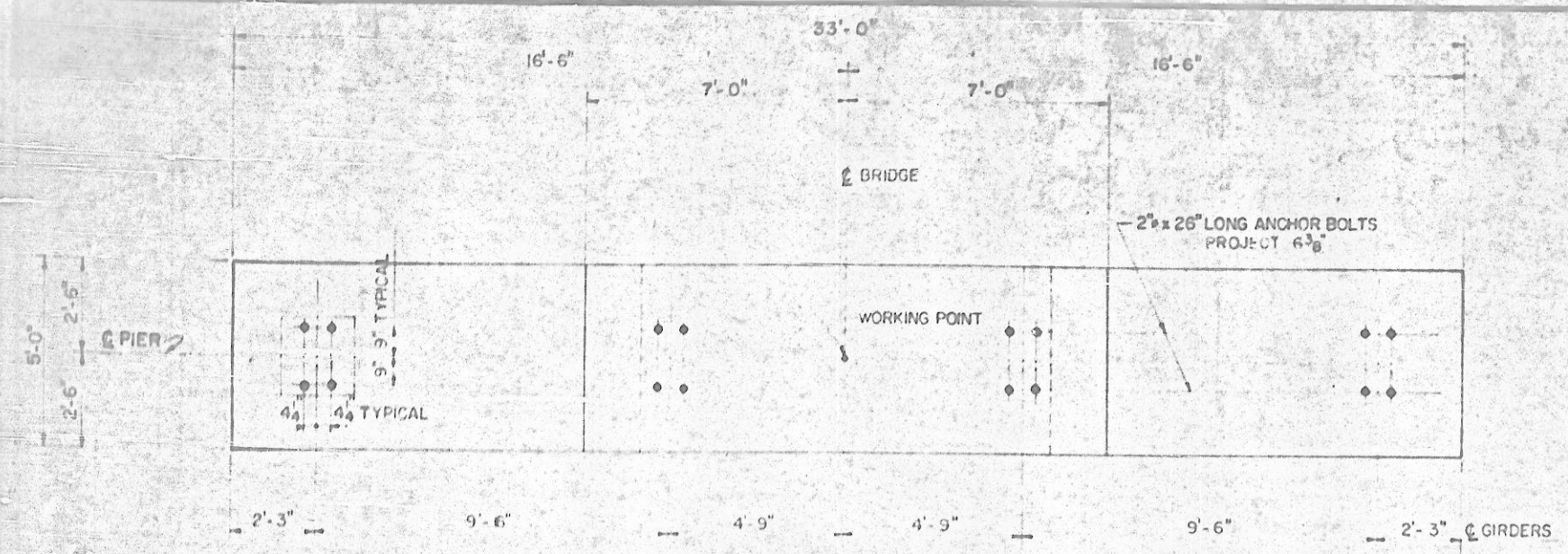
PROJECT NO. 67810019
CATANBA-ALEXANDER COUNTY
STATION: 104+55

E - E.W.O. # 12-106

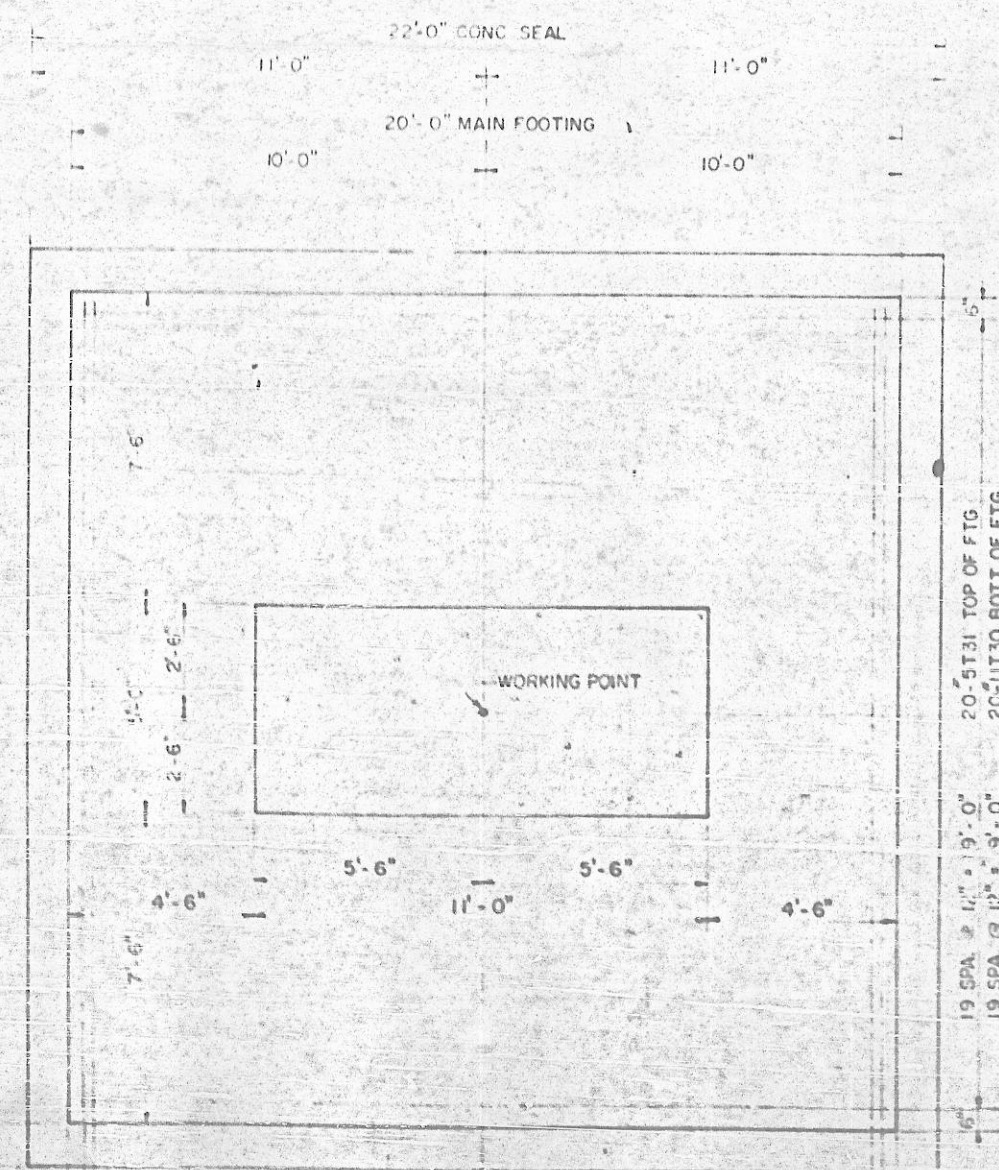
FINAL PAY QUANTITIES

Class A Seal Concrete - Cu Yds.	248.5
Class A Concrete - Cu Yds.	126.9
Reinforcing Steel - lbs.	19,959
14-BP73 Piles - Lbs. Ft.	24
Foundation Conditioning Material - Tons	1,262.25
Test Pile - Each	2

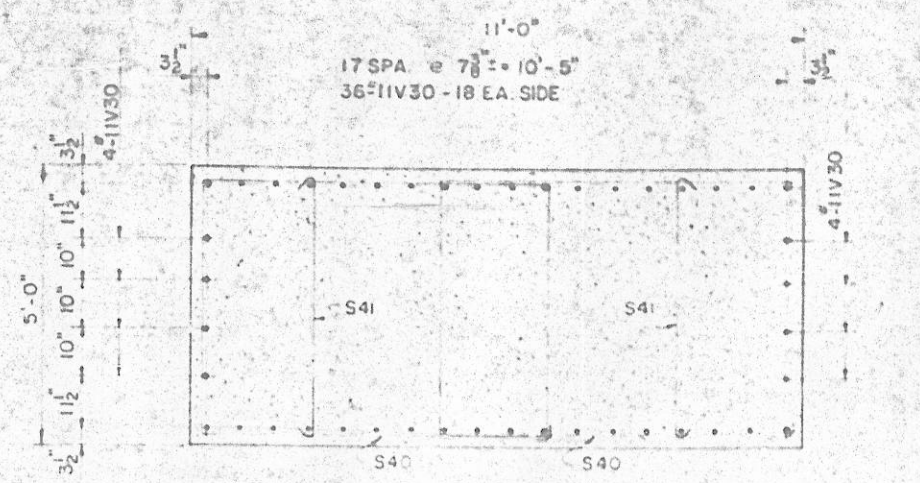
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUBSTRUCTURE
PIER 2



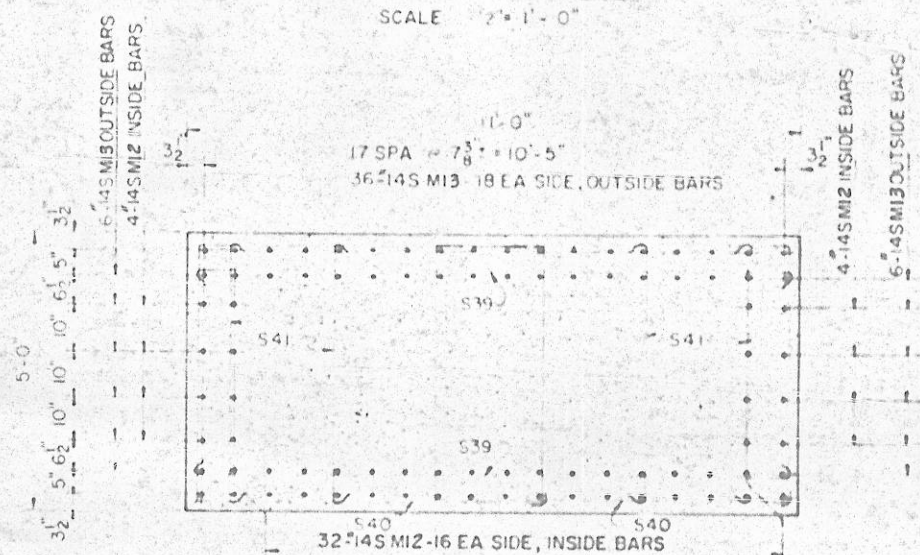
PLAN OF CAP
SCALE 3/8" = 1'-0"



PLAN OF FOOTING

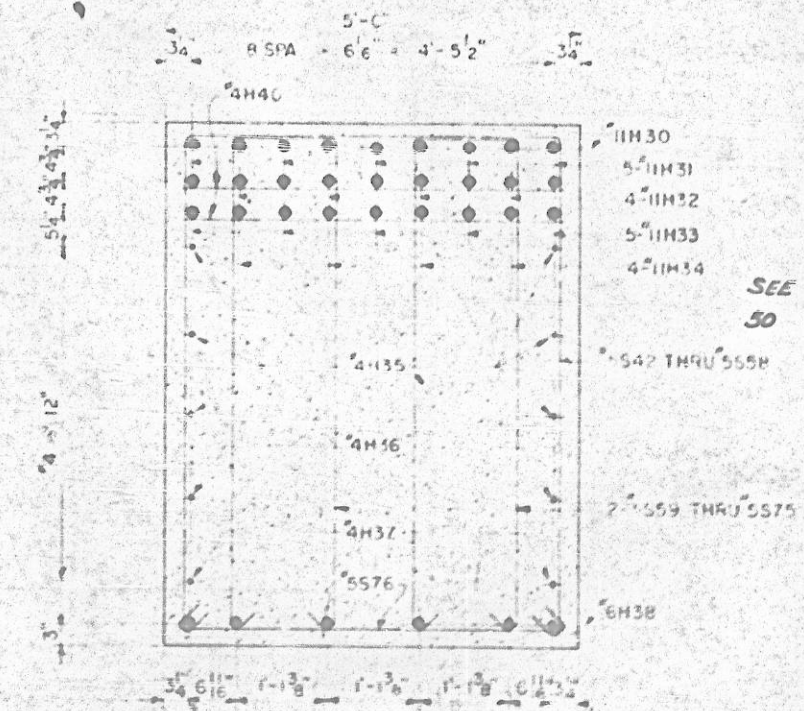


SECTION D-D
SCALE 1/2" = 1'-0"

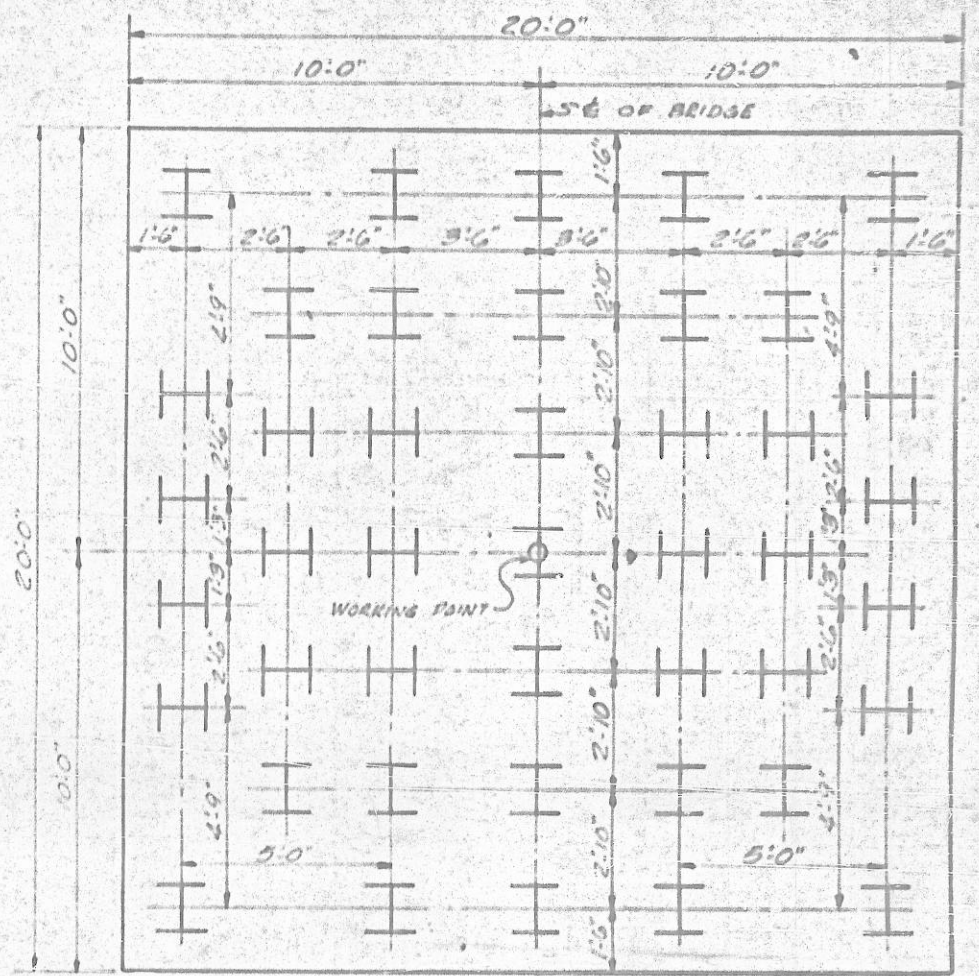


SECTION E-E
SCALE 1/2" = 1'-0"

PIER 3



SECTION A-A
SCALE 3/8" = 1'-0"



PLAN OF FOOTING
SHOWING PILES LOCATION

NOTE: PILES TO BE DRIVEN TO PRACTICAL REFUSAL
(MAXIMUM DESIGN LOAD = 60 TONS PER PILE)
14 BP 73 STEEL PILES

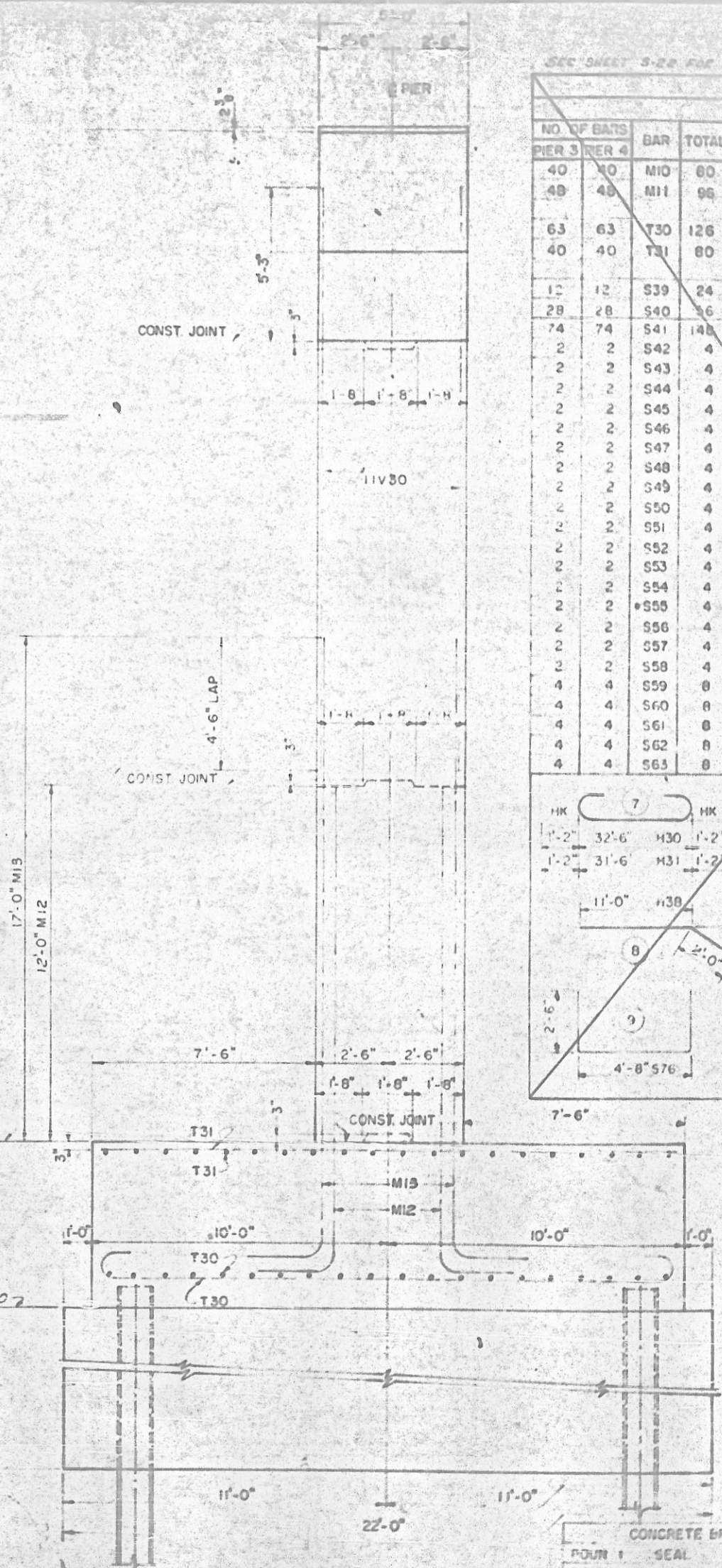
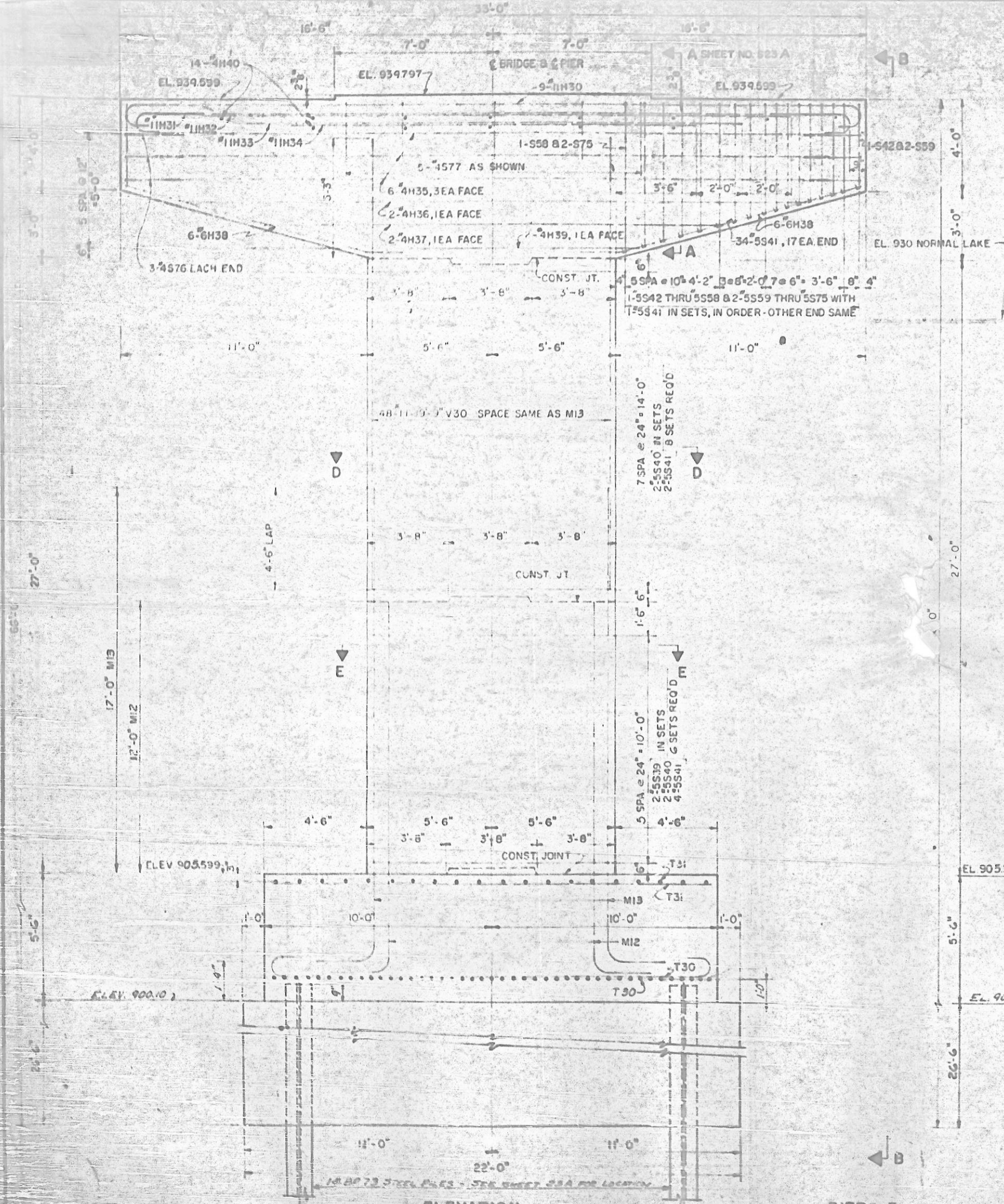
SEE PAGES 47, 48A, 48B, 49A, 49B &
50 OF SITE PAY RECORD BOOK.

NOTE: WORK THIS SHEET WITH SHEET S22A

PROJECT No. 6.7810019
CATAWBA-ALEXANDER COUNTY
STATION: 104+55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUBSTRUCTURE
PIER 3

REV. NO. 1 - THIS IS A NEW SHEET AND REPRESENTS A REVISION
FOR PIER 3 TO ADD PILES TO FOUNDATION. S.S.T. 10/31/47
E.E.P.



SEC SHEET 3-22 FOR BILL OF MATERIALS

P.A.

BILL OF MATERIALS FOR PIERS NO. 3 & NO. 4

PIER 3						PIER 4						
NO. OF BARS	BAR	TOTAL	SIZE	TYPE	LENGTH	NO. OF BARS	BAR	TOTAL	SIZE	TYPE	LENGTH	WEIGHT
40	M10	80	149	1	18'-11"	4	S34	8	6	11'-3"	94	
48	M11	96	149	1	23'-5"	4	S65	8	6	11'-3"	96	
63	T30	126	11	2	21'-10"	4	S65	8	6	11'-9"	98	
40	T31	80	15	STR	19'-6"	4	S67	8	6	12'-1"	101	
12	S39	24	15	4	11'-7"	4	S68	8	6	12'-5"	104	
28	S40	56	15	3	22'-10"	4	S69	8	6	12'-9"	106	
74	S41	148	15	4	5'-7"	4	S70	8	6	13'-1"	109	
2	S42	4	15	5	13'-1"	4	S71	8	6	13'-7"	113	
2	S43	4	15	5	13'-5"	4	S72	8	6	14'-1"	118	
2	S44	4	15	5	13'-9"	4	S73	8	6	14'-5"	121	
2	S45	4	15	5	14'-0"	11	S74	8	6	14'-11"	124	
2	S46	4	15	5	14'-3"	11	S75	8	6	15'-5"	129	
2	S47	4	15	5	14'-7"	9	S76	22	4	9'-8"	142	
2	S48	4	15	5	14'-10"	9	H30	18	11	7	34'-10"	3331
2	S49	4	15	5	15'-1"	9	H31	10	11	7	33'-10"	1799
2	S50	4	15	5	15'-5"	4	H32	8	11	STR	26'-0"	1105
2	S51	4	15	5	15'-9"	4	H33	10	11	STR	22'-0"	1169
2	S52	4	15	5	16'-1"	6	H34	8	11	STR	18'-0"	765
2	S53	4	15	5	16'-5"	6	H35	12	4	STR	30'-0"	240
2	S54	4	15	5	16'-11"	2	H36	4	4	STR	27'-4"	73
2	S55	4	15	5	17'-5"	2	H37	4	4	STR	27'-0"	53
2	S56	4	15	5	17'-10"	12	H38	24	6	8	13'-0"	469
2	S57	4	15	5	18'-3"	4	H39	4	4	STR	12'-8"	34
2	S58	4	15	5	18'-9"	14	STR	28	4	STR	4'-8"	87
4	S59	8	6	5	9'-9"	8	V30	96	11	STR	19'-0"	10073
4	S60	8	6	6	10'-1"	8						
4	S61	8	6	6	10'-5"	8						
4	S62	8	6	6	10'-8"	8						
4	S63	8	6	6	10'-11"	8						

REINFORCING STEEL

LBS. (2 PIERS)

62625

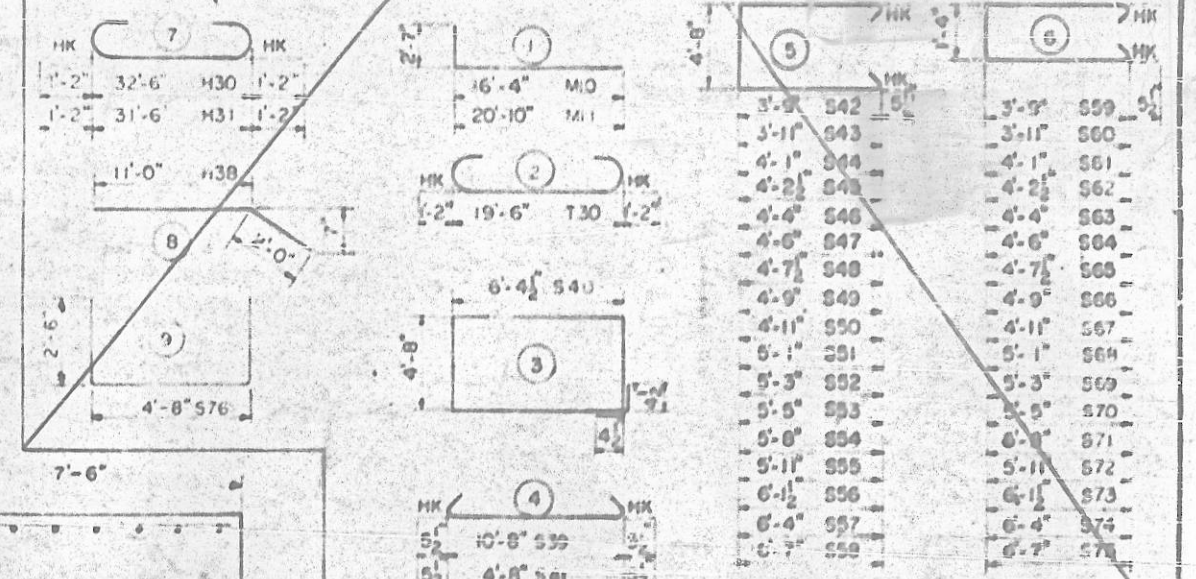
CLASS A CONCRETE

CU YDS. (2 PIERS)

334.8

CLASS A SEAL CONCRETE CU YDS. (2 PIERS)

100.4



BAR TYPES
 DIMENSIONS ARE OUT TO OUT

PROJECT NO. 67810019
 CATAWBA-ALEXANDER COUNTY
 STATION: 104+55

STATE OF NORTH CAROLINA
 STATE HIGHWAY COMMISSION
 SUBSTRUCTURE
 PIER 3

SEE PAGES 97, 100, 101, 102, 103
 50 OF 578, ANY RECORD ENR

2-636

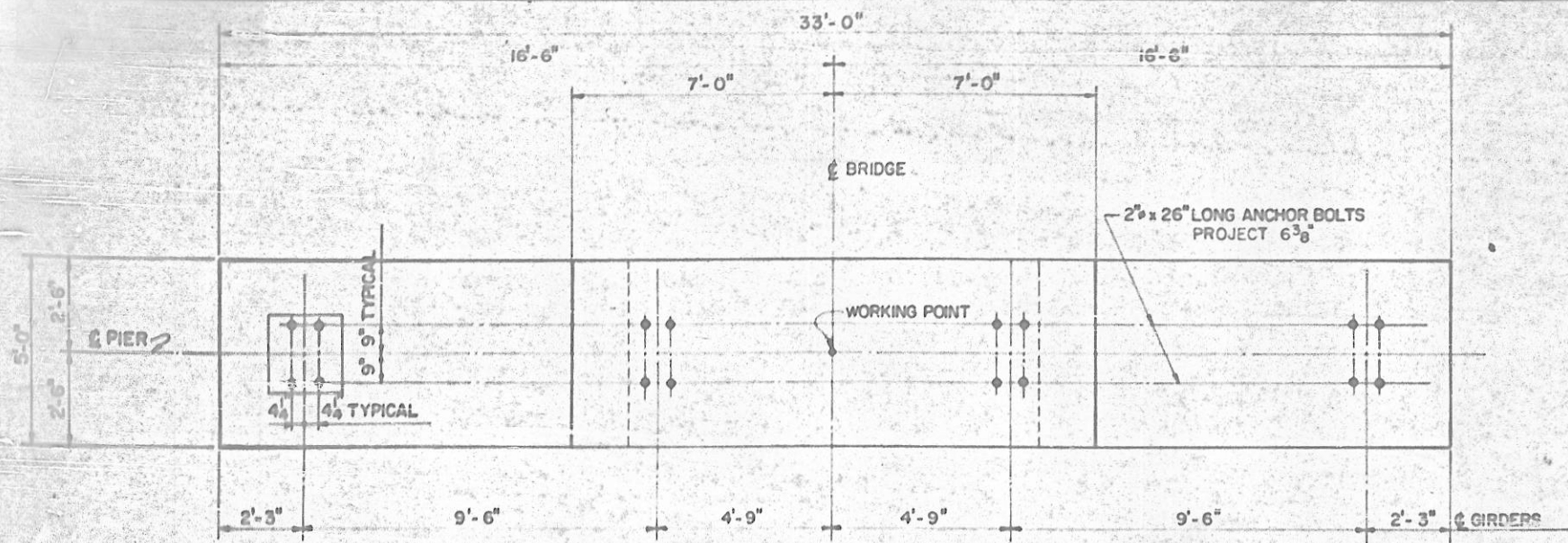
W. H. WHITEHEAD & ASSOCIATES
 CONSULTING ENGINEERS
 CHARLOTTE, N. C.

DATE: 10/1/67
 DRAWING NO.: 104-55

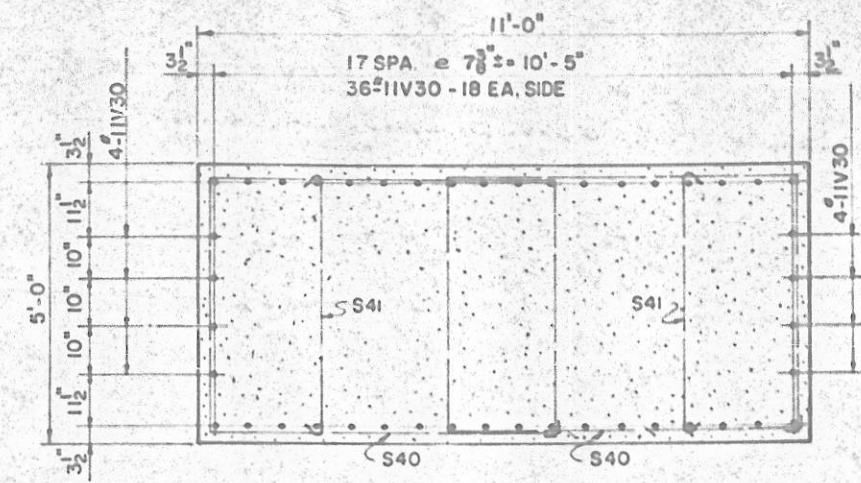
REV. NO. 1 - THIS IS A NEW SHEET AND REPRESENTS A REVISION FOR
 FILE 3 TO ADD PIER 3 TO FOUNDATION. KEEP
 EXIST. 5005 3 FT. (5-51-1967) 1-5-68

CONCRETE BREAKDOWN - PIER 3

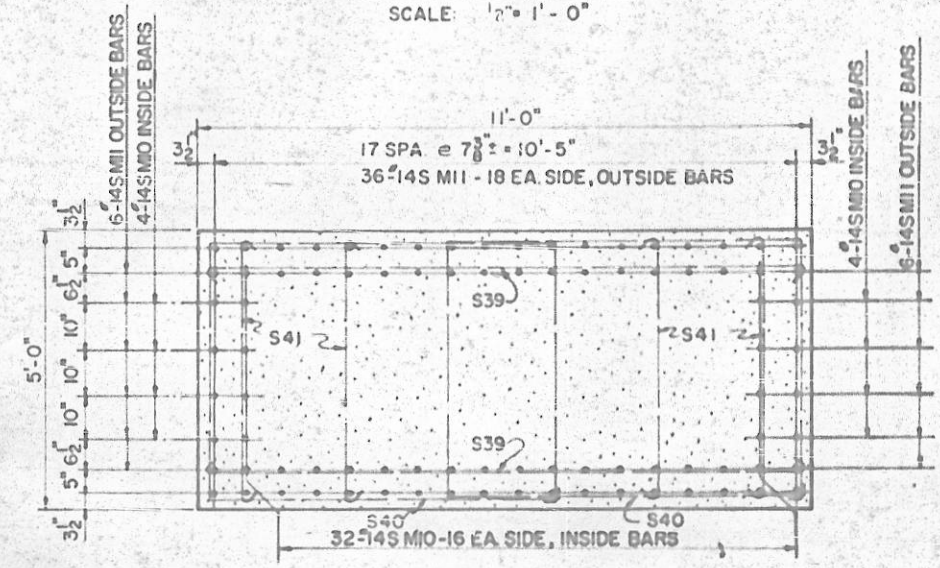
POUR	SEAL	CU YDS.	FOOTING	CU YDS.	STEM	CU YDS.	STEM	CU YDS.	CAP	CU YDS.
1		475.0		81.5		24.4		20.4		37.2
2										
3										
4										
5										
TOTAL		475.0	81.5	24.4	20.4	37.2				



PLAN OF CAP
SCALE: 3/8" = 1'-0"

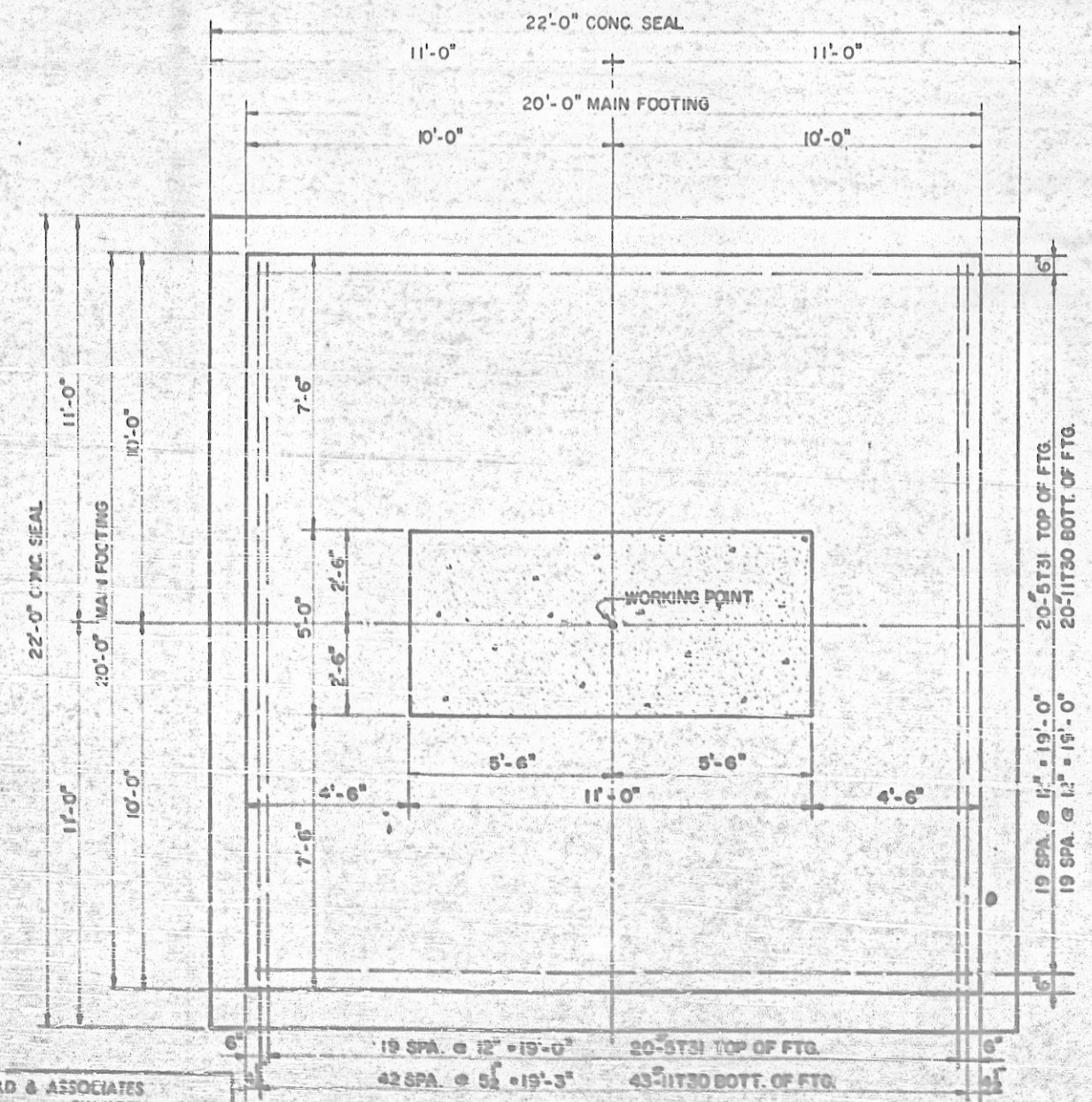


SECTION D-D
SCALE: 1/2" = 1'-0"



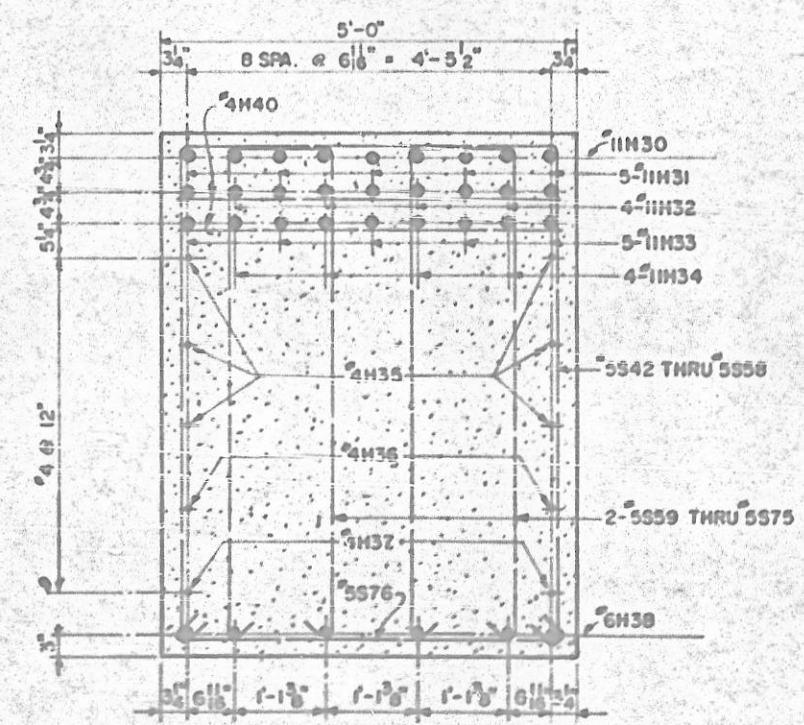
SECTION E-E
SCALE: 1/2" = 1'-0"

SEE PAGES 52A, 52B, 53 & 54
OF STD. PAY RECORD BOOK.



PLAN OF FOOTING
SCALE: 3/8" = 1'-0"

PIER 4



SECTION A-A
SCALE: 3/8" = 1'-0"

NOTE: WORK THIS SHEET WITH SHEET 822.

PROJECT No. 6.7810019
CATAWBA-ALEXANDER COUNTY
STATION: 104+55

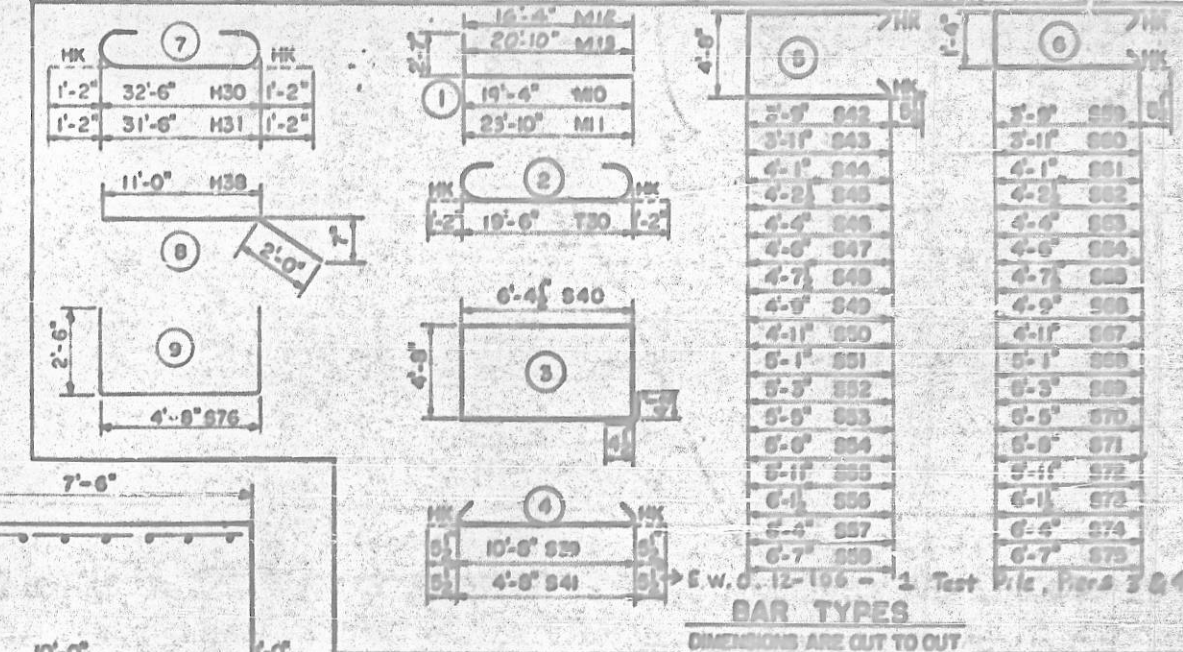
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUBSTRUCTURE
PIER 4

RALPH WHITEHEAD & ASSOCIATES
CHARLOTTE, N. C.
DATE: 10-10-67
DRAWN BY: D-107523

REV. NO. 1 - REVISED TO MAKE DETAILS APPLICABLE TO PIER 4 ONLY. 5/87, 10-31-67

10

END VIEW B-B

[illegible]

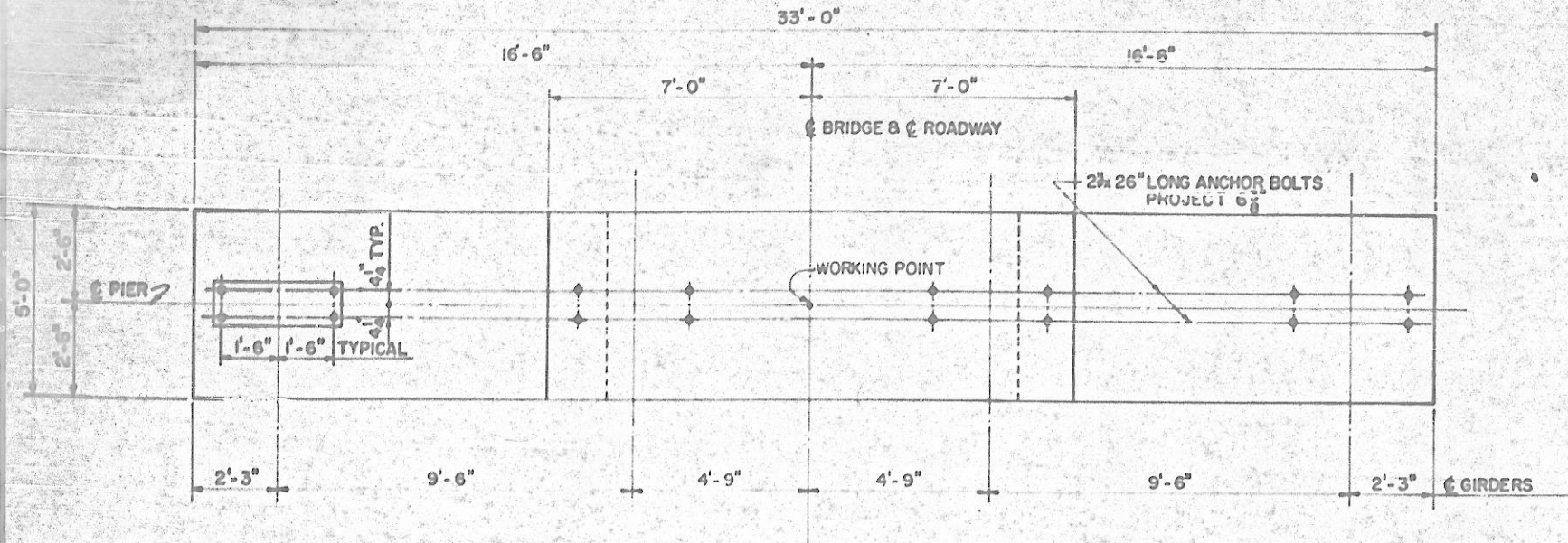
**NOTE: WORK THIS SHEET
WITH SHEET 923**

PROJECT No. 67810019
CATAMBA-ALEXANDER COUNTY
STATION: 104 + 55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH
SUBSTRUCTURE*,
PIER 4 DETAILS
BILL OF MATERIALS FOR
PIERS 3 & 4

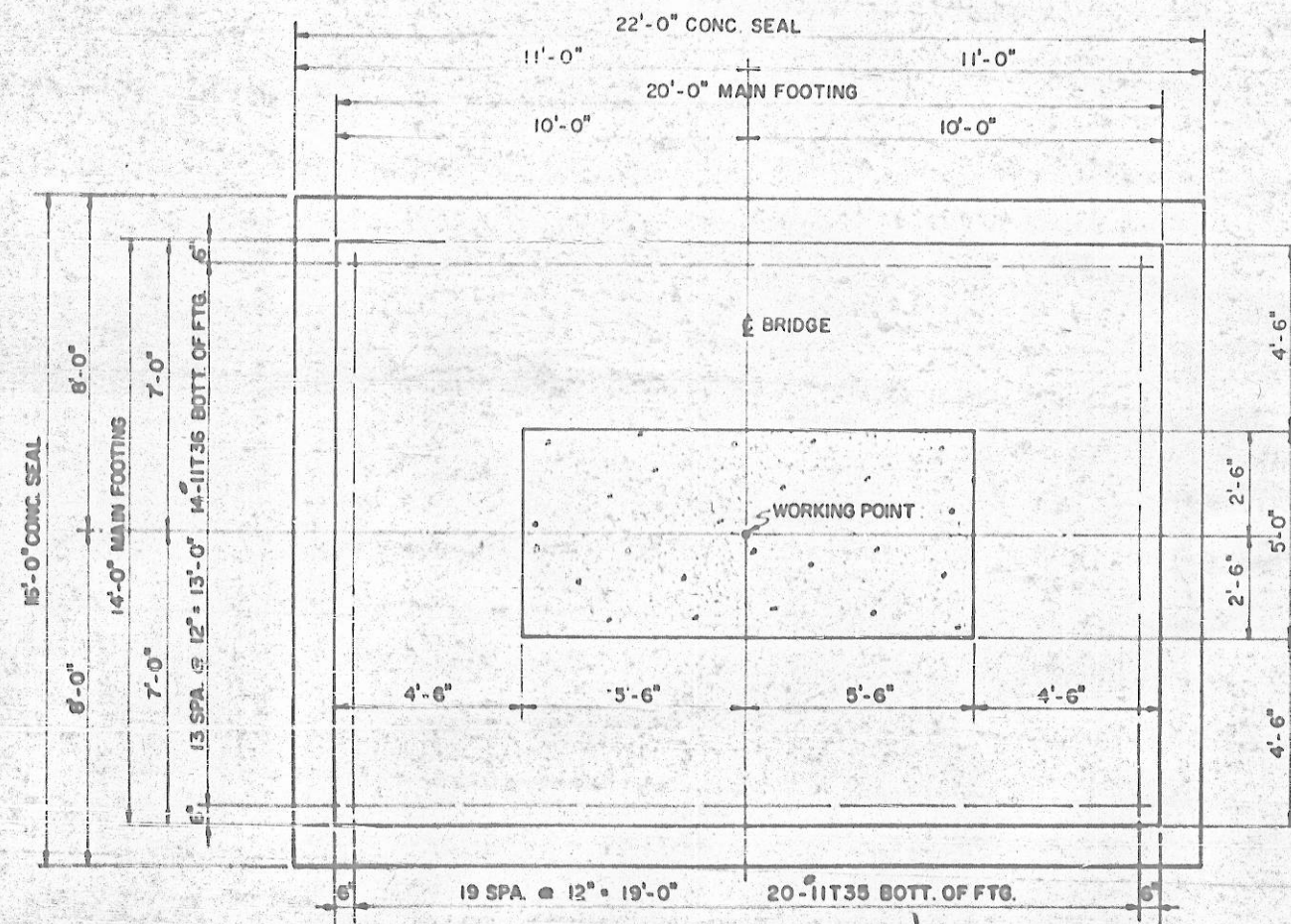
CONCRETE BREAKDOWN - PIER 4		
POUR 1.	SEAL	CU YDS
POUR 2.	FOOTING	CU YDS 75.3
POUR 3.	STEM	CU YDS 30.5
POUR 4.	STEM	CU YDS 30.4
POUR 5.	CAP	CU YDS 37.2
TOTAL		CU YDS 173.4

SEE PHOTOS 97, 98A, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 91



PLAN OF CAP

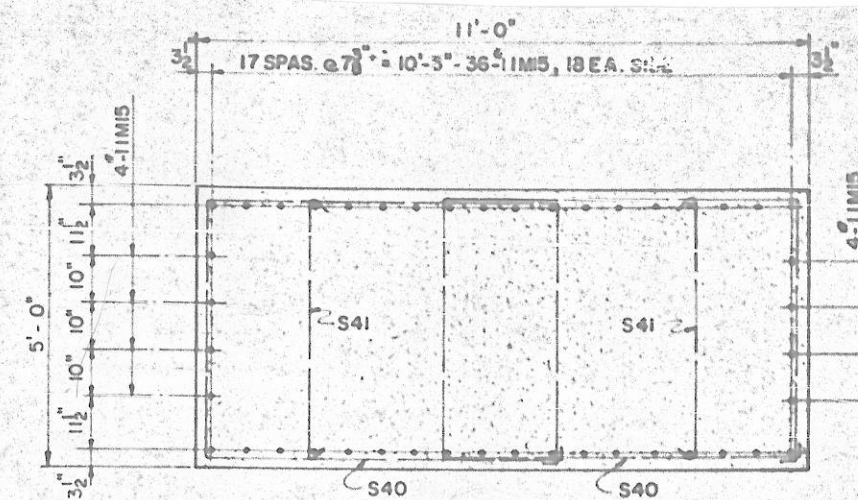
SCALE: 3/8" = 1'-0"



PLAN OF FOOTING

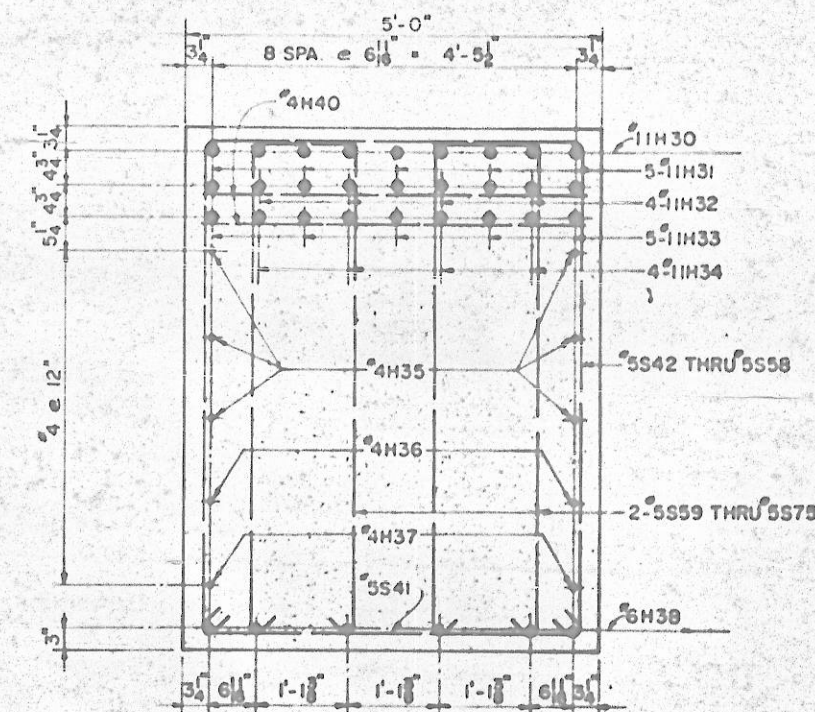
SCALE: 3/8" = 1'-0"

PIER 5



SECTION C-C

SCALE: 3/8" = 1'-0"



SECTION A-A

SCALE: 3/4" = 1'-0"

SEE PAGES 57A, 57B, 57C, 57D
OF 57E FOR RECORD BOOK

NOTE: WORK THIS SHEET WITH SHEET 520.

PROJECT No. 67810015

CATAWBA-ALEXANDER COUNTY

STATION: 104+55

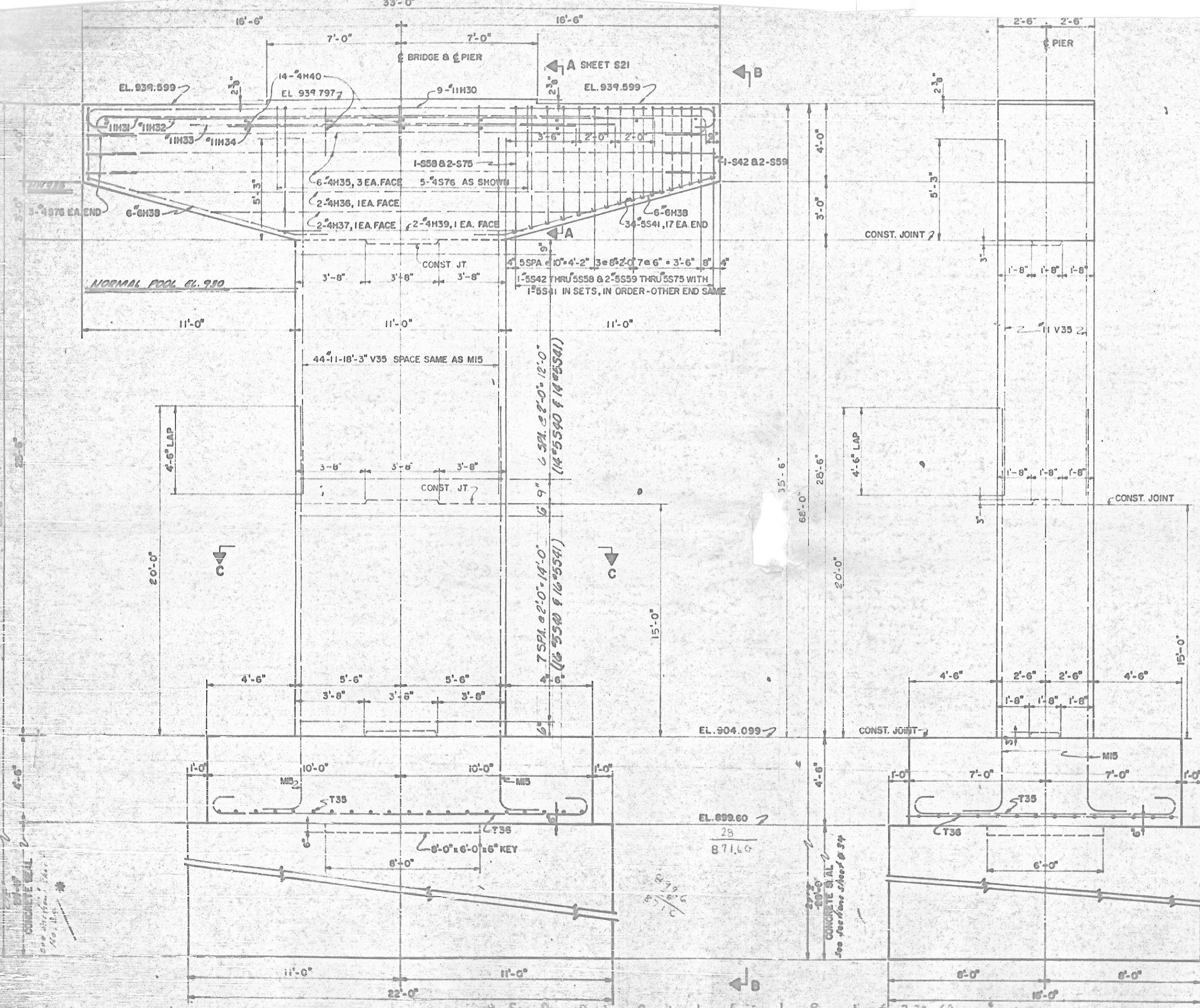
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

SUBSTRUCTURE
PIER 5

REVISION NO. 1 REVISED TO MAKE DETAILS APPLICABLE TO PIER 5 ONLY. V. 8/11/04

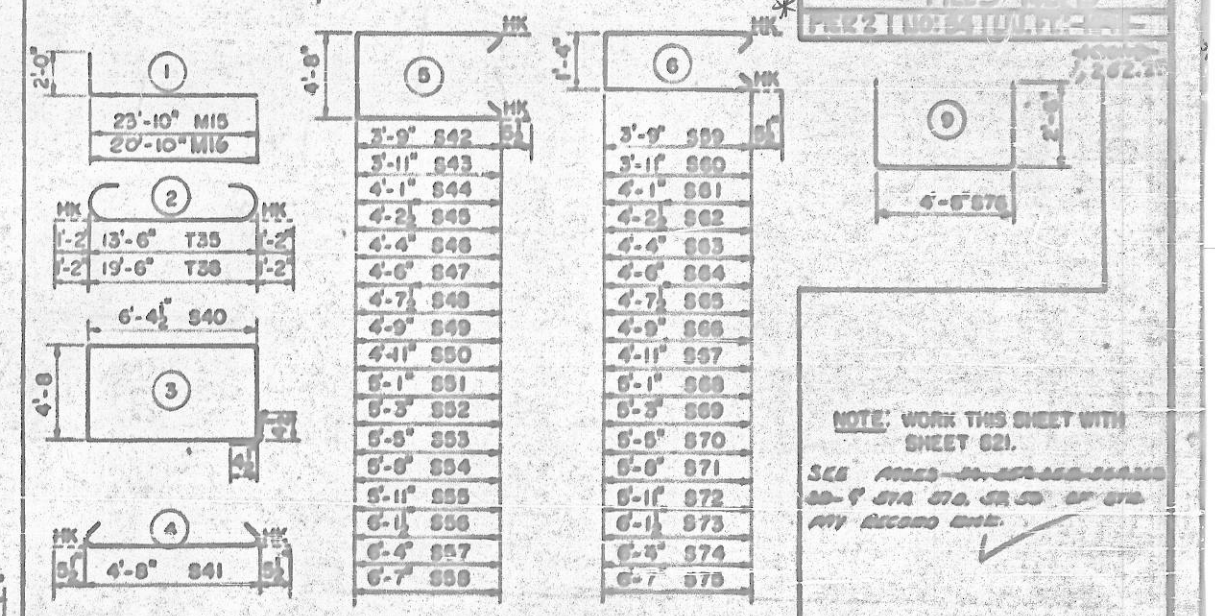
RALPH WHITHEAD & ASSOCIATES	
CONSULTING ENGINEERS	
CHARLOTTE, N. C.	
DATE: 8/11/04	DWG. NO.: 520-5
DATE: 8/11/04	REVISION: 1

REVISION	NO.	DATE	BY
1	1	8/11/04	V



BILL OF MATERIALS FOR PIERS NO. 2 & NO. 5

NO. OF BARS PER 2 PER 5		BAR	TOTAL	SIZE	TYPE	LENGTH	WEIGHT	NO. OF BARS PER 2 PER 5		BAR	TOTAL	SIZE	TYPE	LENGTH	WEIGHT
44	44	M15	44	"11	1	25'-10"	6025	4	4	S63	8	"9	6	10'-11"	91
44	44	M19	44	"11	1	22'-10"	5938	4	4	S64	8	"9	6	11'-5"	95
20	20	T35	40	"11	2	15'-10"	8385	4	4	S65	8	"9	6	11'-5"	95
14	14	T36	28	"11	2	21'-10"	3248	4	4	S66	8	"9	6	11'-5"	95
44	44	V35	88	"11	STR	18'-3"	6533	4	4	S67	8	"9	6	12'-1"	101
26	50	S40	86	"8	3	22'-10"	1854	4	4	S68	8	"9	6	12'-5"	106
20	64	S41	124	"8	4	6'-7"	722	4	4	S69	8	"9	6	12'-5"	106
2	2	S42	4	"8	5	13'-1"	85	4	4	S70	8	"9	6	12'-5"	106
2	2	S43	4	"8	5	13'-5"	86	4	4	S71	8	"9	6	12'-5"	106
2	2	S44	4	"8	5	13'-9"	87	4	4	S72	8	"9	6	12'-5"	106
2	2	S45	4	"8	5	14'-0"	88	4	4	S73	8	"9	6	12'-5"	106
2	2	S46	4	"8	5	14'-3"	89	4	4	S74	8	"9	6	12'-5"	106
2	2	S47	4	"8	5	14'-7"	91	11	11	S75	22	"4	9	6'-5"	142
2	2	S48	4	"8	5	14'-10"	92	9	9	H30	18	"11	7	34'-10"	333
2	2	S49	4	"8	5	15'-1"	93	5	5	H31	10	"11	7	35'-10"	1785
2	2	S50	4	"8	5	15'-5"	94	4	4	H32	8	"11	STR	26'-0"	1105
2	2	S51	4	"8	5	15'-9"	95	5	5	H33	10	"11	STR	22'-0"	1169
2	2	S52	4	"8	5	16'-1"	96	4	4	H34	8	"11	STR	18'-0"	765
2	2	S53	4	"8	5	16'-5"	98	6	6	H35	12	"4	STR	30'-0"	240
2	2	S54	4	"8	5	16'-11"	99	2	2	H36	4	"4	STR	27'-6"	73
2	2	S55	4	"8	5	17'-5"	101	2	2	H37	4	"4	STR	20'-0"	83
2	2	S56	4	"8	5	17'-10"	102	12	12	H38	24	"8	STR	12'-0"	400
2	2	S57	4	"8	5	18'-3"	103	2	2	H39	4	"4	STR	12'-0"	34
2	2	S58	4	"8	5	18'-9"	104	14	14	H40	28	"4	STR	4'-0"	67
4	4	S59	8	"8	6	9'-9"	81	REINFORCING STEEL, LBS CLASS "A" CONCRETE, CUYDS CLASS "B" SEAL CONCRETE, CUYDS							
4	4	S60	8	"8	6	10'-1"	84								
4	4	S61	8	"8	6	10'-5"	87								
4	4	S62	8	"8	6	10'-9"	89								



PROJECT No. 5700019
CATAWBA-ALEXANDER COUNTY
STATION: 104+55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUBSTRUCTURE
PIER 5 DETAILS

BILL OF MATERIALS FOR PIERS 2 & 5

SAINT WHITEHEAD & ASSOCIATES
CONSULTING ENGINEERS
CHARLOTTE, N. C.

DATE: 10-1-68
DWG. NO. 5-1075-20

PLAN

6'-9" 5'-5" 6'-3" 6'-0" 6'-7" 3'-3 1/2" 3'-3 1/2" 6'-7" 6'-7" 6'-7" 6'-12 IN 53 PILES

8" EXP. JT. MAT'L EXP. JT. MAT'L 8"

4" JOINT MAT'L ON FACE OF BUILD-UPS 4" 4852

EL. 948.646

6'-0" 9'-4567 @ 1'-6" %

EL. 949.115

4" 4H6 3"

3" 10B51 & 1" 10B50

EL. 948.646

4" 4853

566 567 565

10" 4H12 @ 4'-0"

9" 6" 4565 9" 4566 9" 4567 9" 4568 10" PAIRS EA. END

3" 4565 1" 10B50

5' 9" 9" 3" 4565 9" 4566 10" PAIRS EA. END

APPROX. EXIST. GROUND LINE

APPROX. EXIST
GROUND LINE

Hand-drawn diagram of a rectangular structure, possibly a wall or foundation, with dimensions and labels. The diagram is oriented vertically. The left side is labeled "FULL FACE" with an arrow pointing to the left edge. The right side is labeled "2'-9\"/>

Hand-drawn structural diagram of a building section, likely a wall or foundation, showing reinforcement details. The diagram includes dimensions and labels for various components:

- Dimensions:**
 - Left side: 3'
 - Top: 6.5' H, 1.1' W, 4.4'
 - Right side: 3'
- Reinforcement Bars:**
 - Top left: 2-#4V10, 1-#4V9, 2-#4V9, 1-#4V9
 - Top right: 6-#4V11, 3-#4V11
- Labels and Components:**
 - HB (Horizontal Bar)
 - H9 (Horizontal Bar)
 - HT (Horizontal Bar)
 - BS (Bolt)
 - CHOKS (Choke)

[illegible]

SURPLUS REINFORCING:

REINFORCING STEEL NOT USED
FROM REINFORCING FURNISHED
FOR ORIGINAL PLANS FOR END
BENT NO. 2 = 877 POUNDS.

SEE PAGES 70A, 70B & 71
OF STR. PAY RECORD BOOK

REVISION No. 1: THIS SHEET REPLACES
PREVIOUS SHEET 585.
END BENT #2 HAS BEEN REDESIGNED
AND ELEVATED 3'-0". THE DETAILS AND
ELEVATIONS SHOWN WILL REPLACE ANY PREVIOUS
DETAILS AND ELEVATIONS. E. G. A. V

REINFORCING STEEL LBS. 2,003
CLASS "A" CONCRETE CU. YDS. 11.6
18" DIAM PILES - NO. 6 LIN. FT. 78.0 141.2

DIMENSIONS ARE OUT TO OUT

1. OBTAIN NEW BARS.
2. USE 4 #4H7 FROM STEEL ORIGINALLY SUPPLIED FOR END BENT #2
3. CUT 4 BARS X 7'-6" FROM ONE EXISTING #4H7
4. USE STEEL ORIGINALLY SUPPLIED FOR END BENT #2 WITH THIS BAR MARK.
5. CUT AND REFABRICATE. CUT 4 BARS X 7'-3" OUT OF EACH EXISTING #4T3. (9 #4T3 REQ'D)
6. CUT AND REFABRICATE. CUT 10 BARS X 8'-11" OUT OF EACH EXISTING #4H7 (3 #4H7 REQ'D). CUT 6 BARS X 8'-11" OUT OF #4H7 (1 #4H7 REQ'D) [4 #4H7 REQ'D TOTAL FOR 36 STIRRUPS]
7. CUT AND REFABRICATE. CUT 9 BARS X 3'-6" OUT OF EXISTING 1 #4H7 AND FABRICATE BAR 367.
8. CUT ONLY. CUT 4 BARS X 7'-0" OUT OF EACH EXISTING #4H7 (2 #4H7 REQ'D FOR 8 PIECES OF HTG)

PROJECT No. 6.7510019

CATAWBA-ALEXANDER County

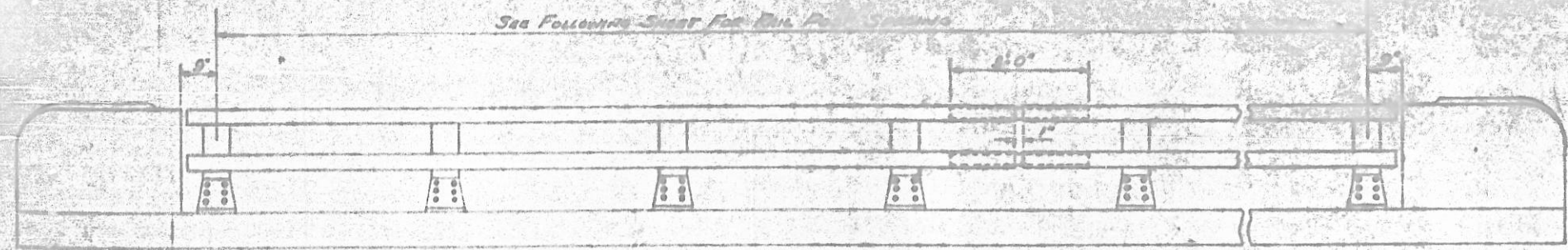
STATION 104+55

STATE HIGHWAY COMMISSION

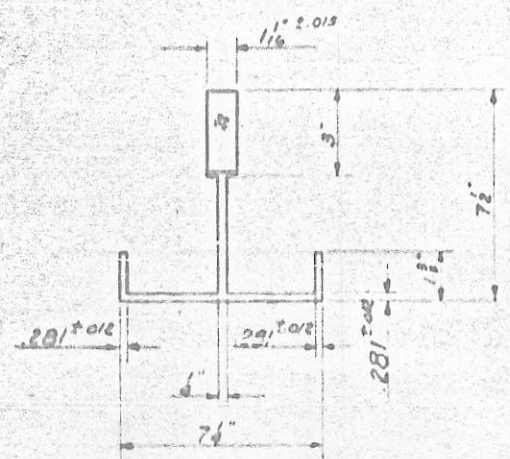
SUBSTRUCTURE

END BENT NO. 2

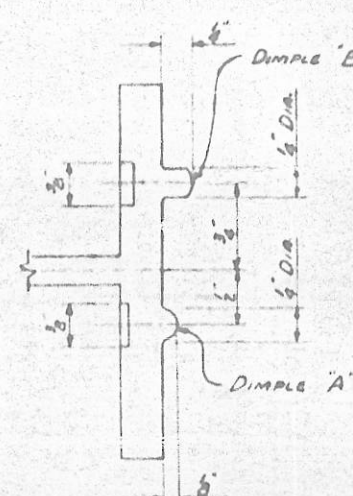
APR 1967



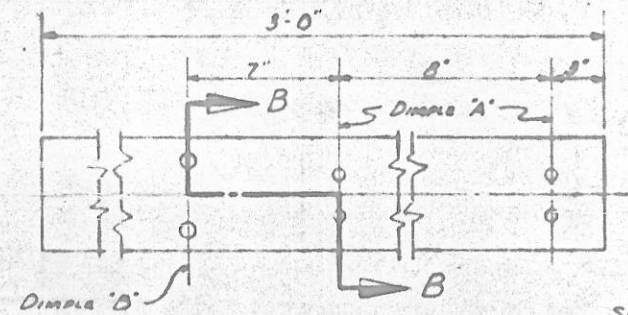
ELEVATION



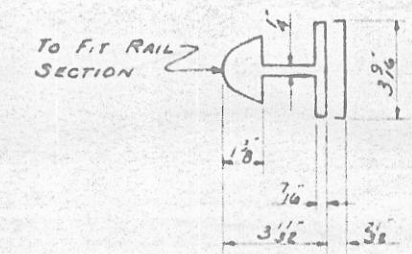
PLAN



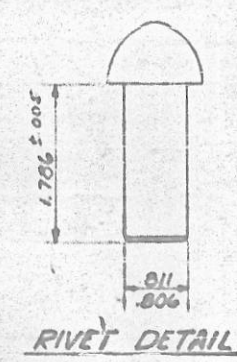
SECTION B-B



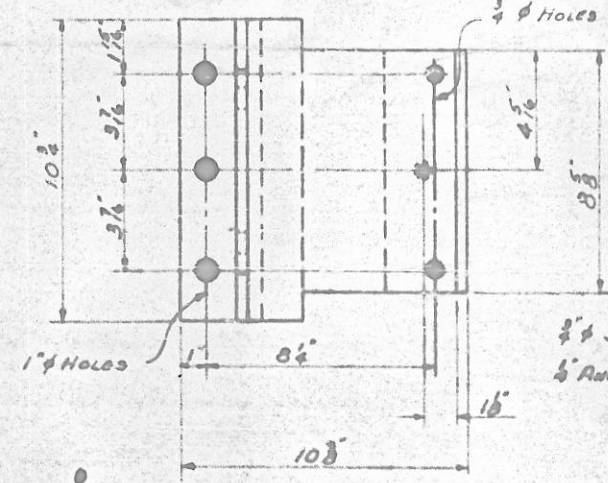
BACK ELEVATION



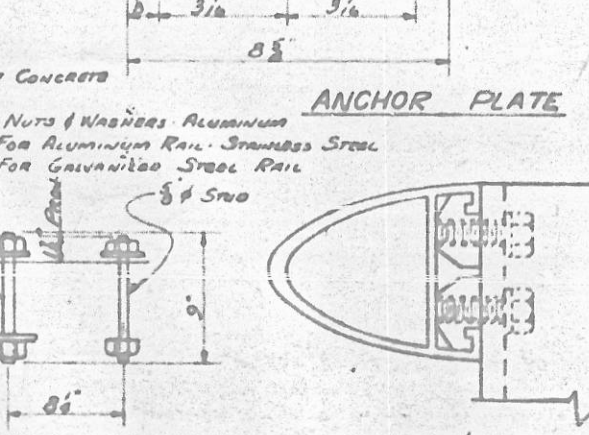
BAR SECTION
EXPANSION BAR DETAILS



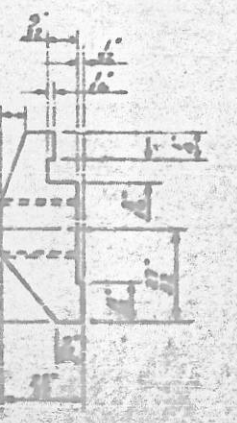
RIKET DETAIL



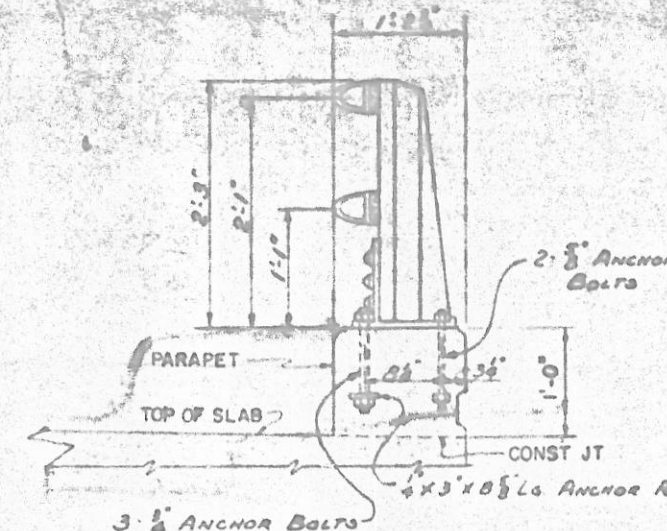
ANCHOR ASSEMBLY



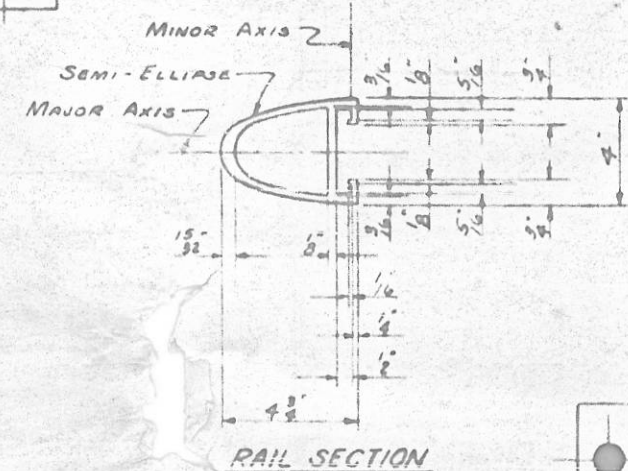
CLAMP & RAIL ASSEMBLY



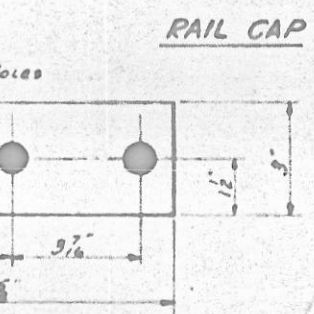
CLAMP BAR DETAIL
(CLAMP BAR FOR POST)



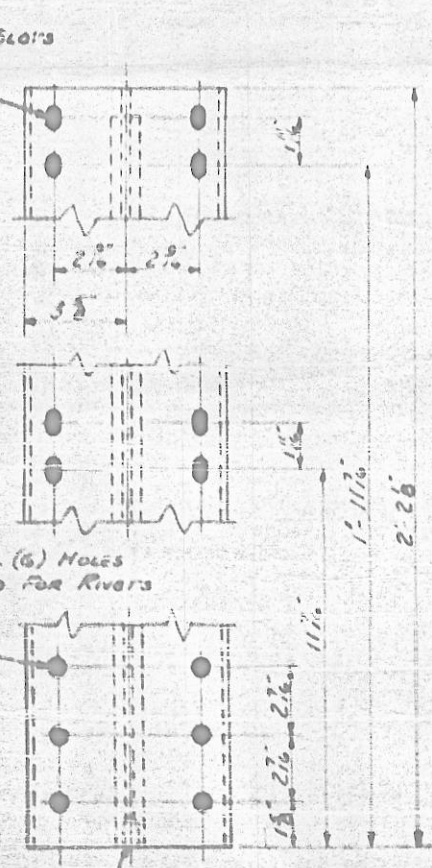
SECTION THRU CURB & RAIL



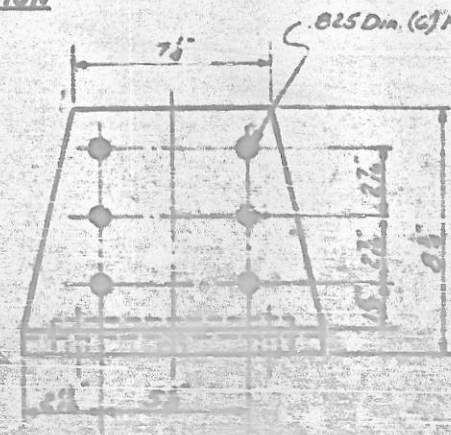
RAIL SECTION



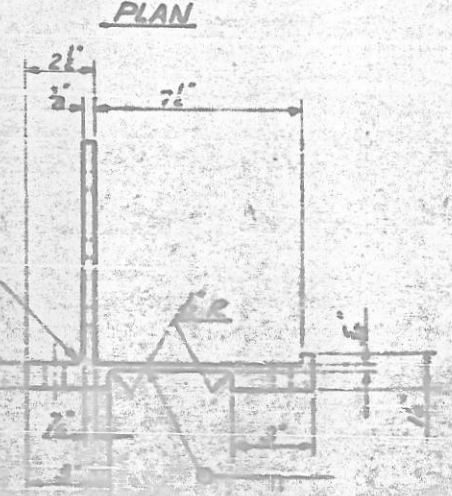
RAIL CAP



FRONT ELEVATION
DETAILS OF POST



SIDE ELEVATION



PLAN

At the Contractor's Option, Metal Rail May Be Either Aluminum or Galvanized Steel in Accordance With The Requirements On The General Notes. The Following Specifications For The Alternative Materials Apply: The Contractor Will Be Required To Use The Same Rail Material On All Structures On The Project For Which Metal Rail Is Designated.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES & RAILS, EXPANSION BARS, & CLAMP BARS SHALL BE A.S.T.M. B-221 ALLOY 6061 OR 6062-T6.
MATERIAL FOR ALUMINUM WASHER SHALL BE A.S.T.M. B-209 ALLOY ALCLAD 2024-T3.
MATERIAL FOR RIVETS SHALL BE A.S.T.M. B-316 ALLOY 6061 OR 6062-T6. RIVETS SHALL BE STD. BUTT WELD & CONE POINT COLD DRIVEN AS PER DRAWING.
MATERIAL FOR ALUMINUM NUTS SHALL BE A.S.T.M. B-211 ALLOY 6061 OR 6062-T6. THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGATED CAULKING COMPOUND OF APPROVED QUALITY.

GENERAL NOTES

1. RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF EACH. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAIL. RAIL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF FOUR POSTS. END OF RAIL TO CLEAR FACE OF CURB END POST BY 18".
2. MATERIAL FOR ANCHOR STUDS SHALL BE TYPE 430 STAINLESS STEEL WITH MINIMUM 70,000 P.S.I. ULTIMATE STRENGTH. STUDS TO BE EMBEDDED 7" IN CONCRETE. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK NUTS, CLASS 2 D THREAD. ANCHOR PLATES SHALL BE A.S.T.M. A-7 OR A-36 MACHINE STEEL FOR RAIL ATTACHMENT SHALL BE STAINLESS STEEL.
3. CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS & POSTS. SPECIFICATION IS NOT REQUIRED.
4. METAL RAIL POSTS TO BE SET NORMAL TO CURB GRADE.
5. METHOD OF MEASUREMENT FOR METAL RAILS: UNLESS OTHERWISE STATED, THE LENGTH OF METAL RAILS TO BE PAID FOR SHALL BE THE CONTINUOUS HORIZONTAL LENGTH MEASURED FROM INSIDE TO INSIDE OF CONCRETE FILL.
6. CURVED RAIL USED: WHEN RAILS ARE TO BE USED ON BRIDGES OR HORIZONTAL AND/OR VERTICAL CURVATURE, THE CONTRACTOR MAY AT HIS OPTION HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT THE RAIL SHALL CONFORM, WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

GALVANIZED STEEL RAILS

MATERIALS AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS.
RAIL POST & POST BASE: A.S.T.M. A-36 GRADE STRUCTURAL STEEL - GALVANIZED TO A.S.T.M. A-123.
RAIL & EXPANSION BAR: A.S.T.M. A-36 GRADE STRUCTURAL STEEL - GALVANIZED TO A.S.T.M. A-123.
CLOSURE PLATES & SHIMS: A.S.T.M. A-36 GRADE C GALVANIZED TO A.S.T.M. A-123.
NUTS & WASHERS FOR TOP END OF ANCHOR ASSEMBLY FOR STEEL RAIL SHALL BE TYPE 430 STAINLESS STEEL.
THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH, SHALL BE GIVEN TWO COATS OF ZINC PRIMER MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL P-86915 USAF TYPE 1.

PAY LENGTH: 15705'

PROJECT NO. 67E1003

CATAWBA - ALEXANDER COUNTY

STATION: 104+55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

STANDARD
2 BAR
METAL RAIL

JULY

ELEVATION SHOWING CORRECT WORDING
NAME PLATE USING FOUR LINES

ELEVATION SHOWING CORRECT WORDING
NAME PLATE USING THREE LINES

GENERAL NOTES

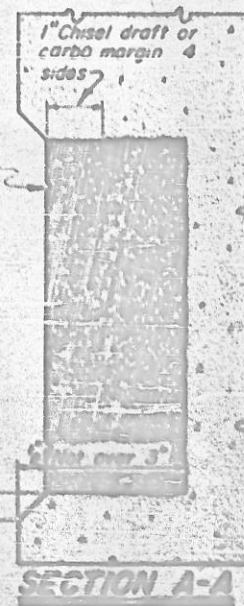
For bridges on which there will be two way traffic, two name plates are required for each bridge. For bridges on which there will be one way traffic, one name plate is required for each bridge. Name plate to be placed on the right hand end post approaching the bridge, and shall be placed parallel to grade of curb. See "LOCATION DETAIL".

The name plates are to be made of granite. Granite shall be light gray, fine or medium grained, sound in quality and free from defects that would mar its appearance. Exposed face of plates to have a fine rubbed finish.

Lettering shall be sandblast sunk, 1/4" high, vertical, Modern Roman style. The wording shall be as shown in the "ELEVATION SHOWING CORRECT WORDING".

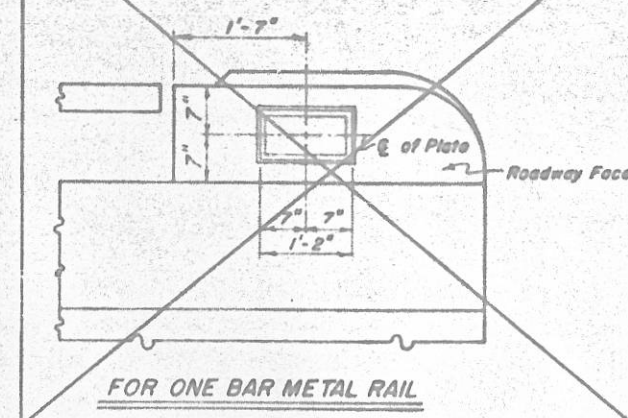
The entire cost of the name plates, complete in place; shall be included in the contract price bid for Class "A" Concrete.

Alexander County on north end and **Catawba County** on south end
Bridge. One name plate of each required.

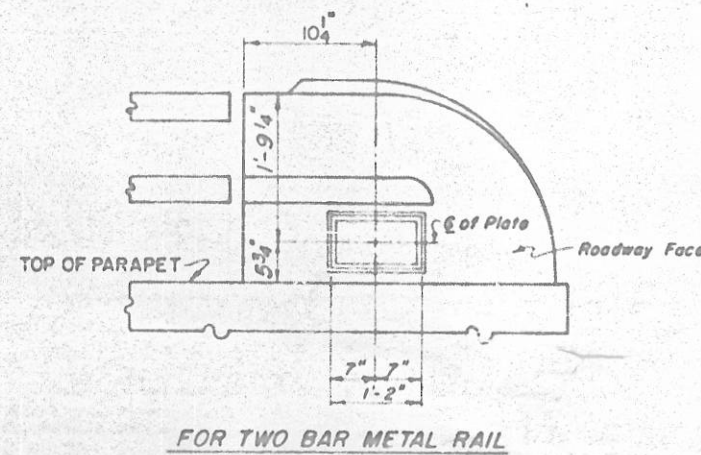


SECTION A-A

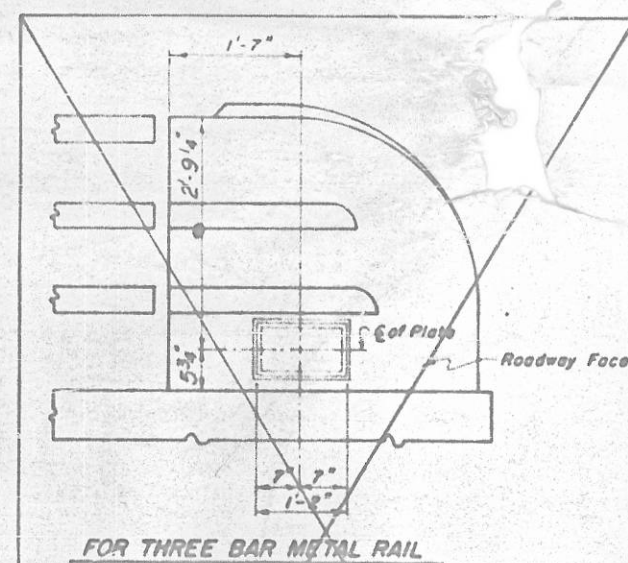
NAME PLATES



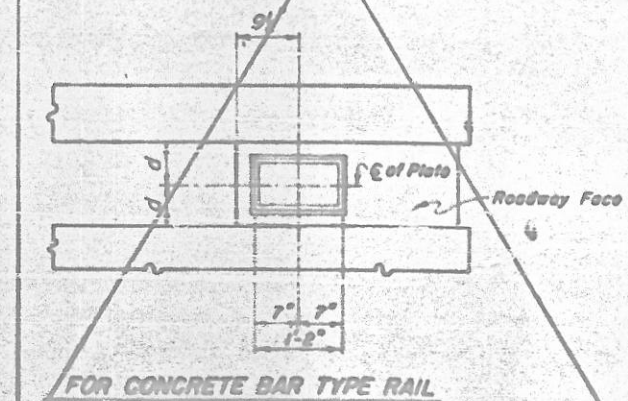
FOR ONE BAR METAL RAIL



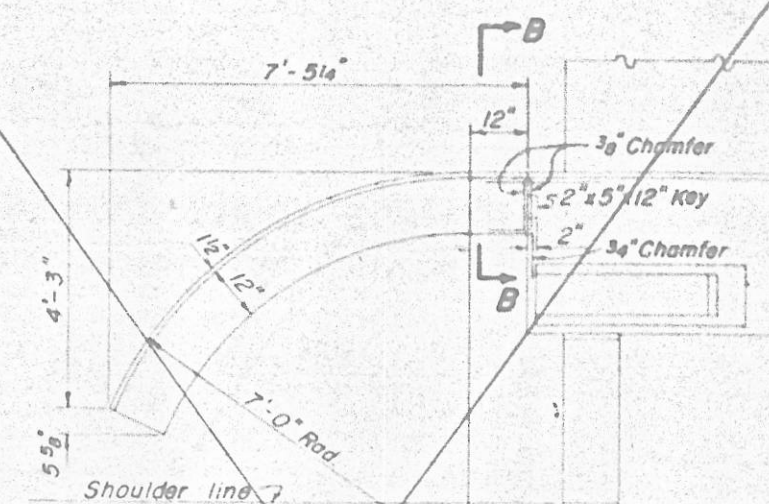
FOR TWO BAR METAL RAIL



FOR THREE BAR METAL RAIL

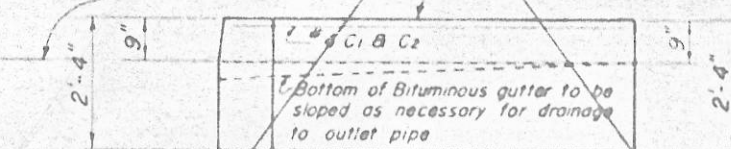


FOR CONCRETE BAR TYPE RAIL



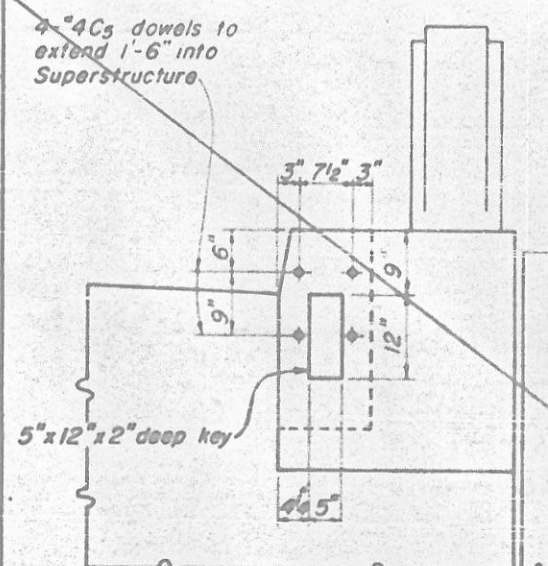
PLAN

Shoulder line at roadway face of curb

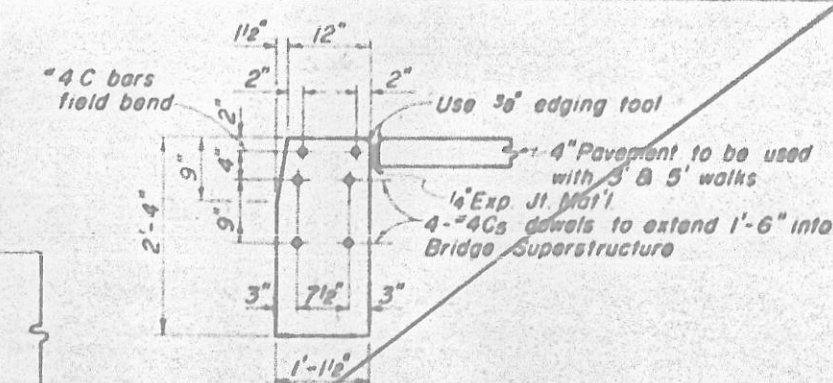
ELEVATION

BILL OF MATERIAL FOR 4 CURBS				
Bar	No	Size	Length	Weight
C ₁	4	" 4	7'-2"	21
C ₂	4	" 4	8'-6"	23
C ₃	16	" 4	3'-0"	32
Reinforcing Steel				76 Lb
Class "A" Concrete				3.26 Cu Yds

TO BE USED WITH 18" CURBS



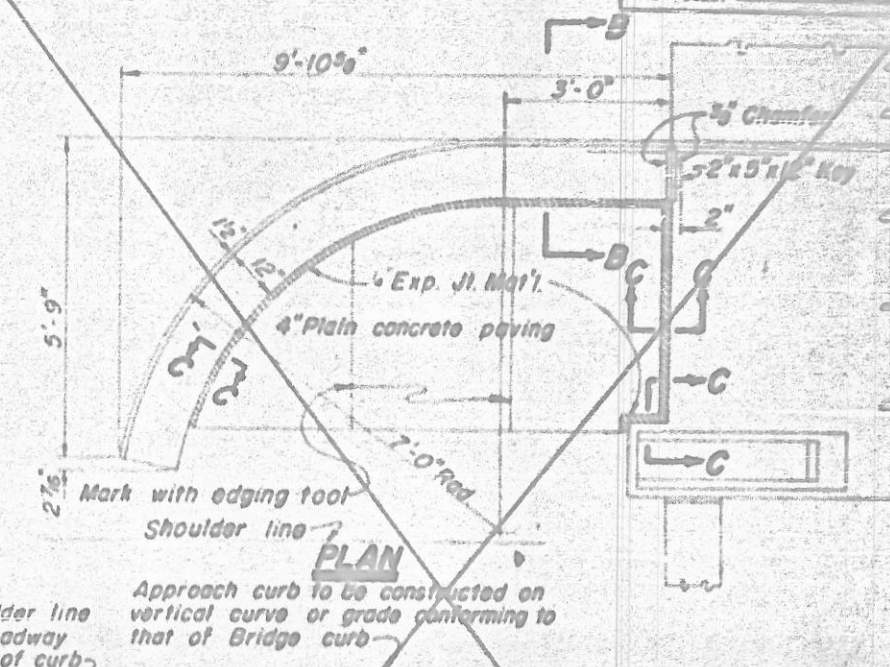
**END ELEVATION SHOWING KEY IN
SUPERSTRUCTURE**



SECTION B-B

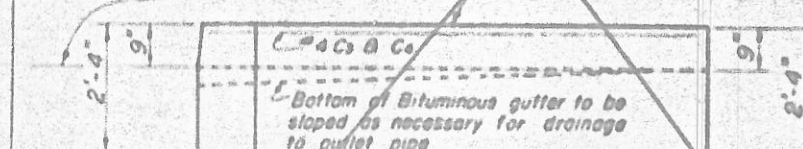
~~NOTE: The excavation for curbs will not be measured or paid for as a separate item. The entire cost for same is to be included in the unit price bid for Class "A" Concrete~~

Drains and Bituminous surfacing at ends of Bridge to be furnished and placed by the Roadway Contractor.



PLAN

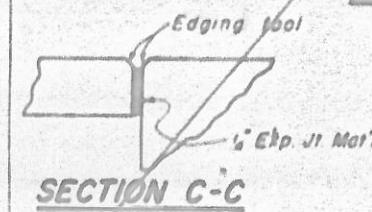
Shoulder line
of roadway
face of curb



ELEVATION

BILL OF MATERIAL FOR 4 CURRS & PILING				
Bar	No	Size	Length	Weight
C5	4	"4	11'-0"	29
C6	4	"4	12'-0"	32
C6	16	"4	3'-0"	32
Reinforcing Steel				93 Lbs
For 3 walls - Class "A" Concrete				4.1 CY
For 5' Walls - Class "A" Concrete				5.0 CY

TO BE USED WITH 3' & 5' WALKS



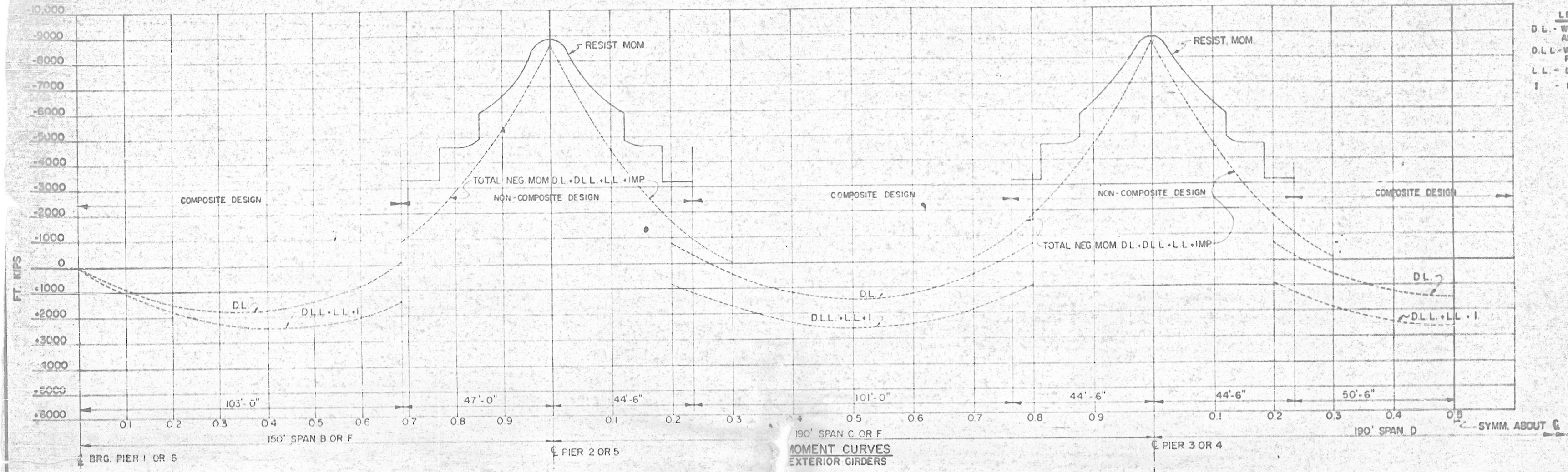
SECTION C-C

PROJECT No. 6700019
CATAWBA-ALEXANDER COUNTY
STATION: 104 + 55

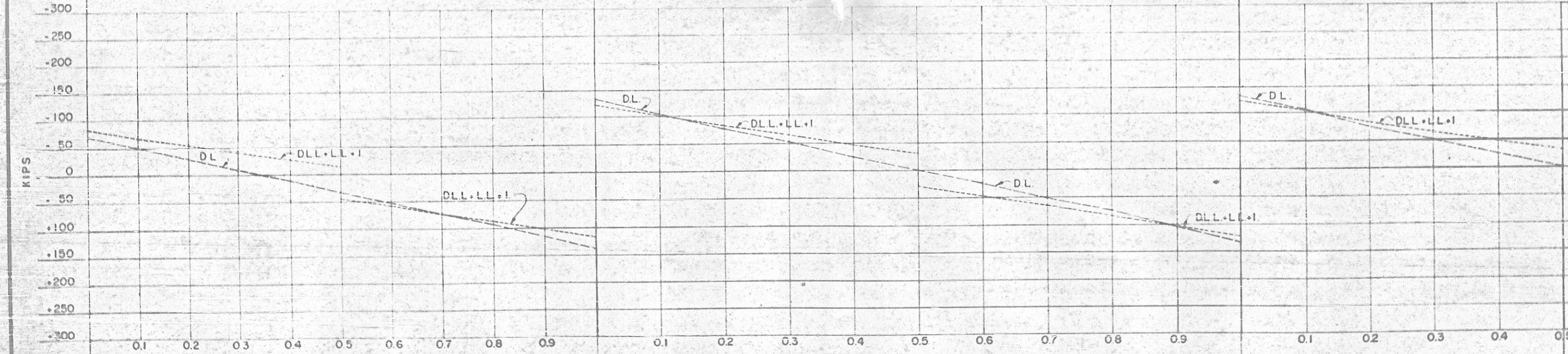
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH
STANDARD
NAME PLATES
AND
APPROACH CURBS

AUGUST 1968

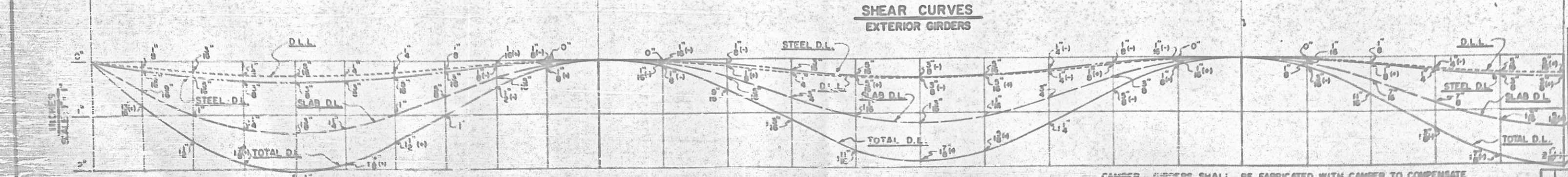
REVISIONS					
NO	BY	DATE	NO	BY	DATE
1			2		
3			4		



LEGEND
 D.L. - WEIGHT OF GIRDER, BRACING AND CONCRETE SLAB.
 D.L.L. - WEIGHT OF PARAPET, POST & RAIL, FUTURE WEARING SURFACE.
 L.L. - LIVE LOAD.
 I - IMPACT.

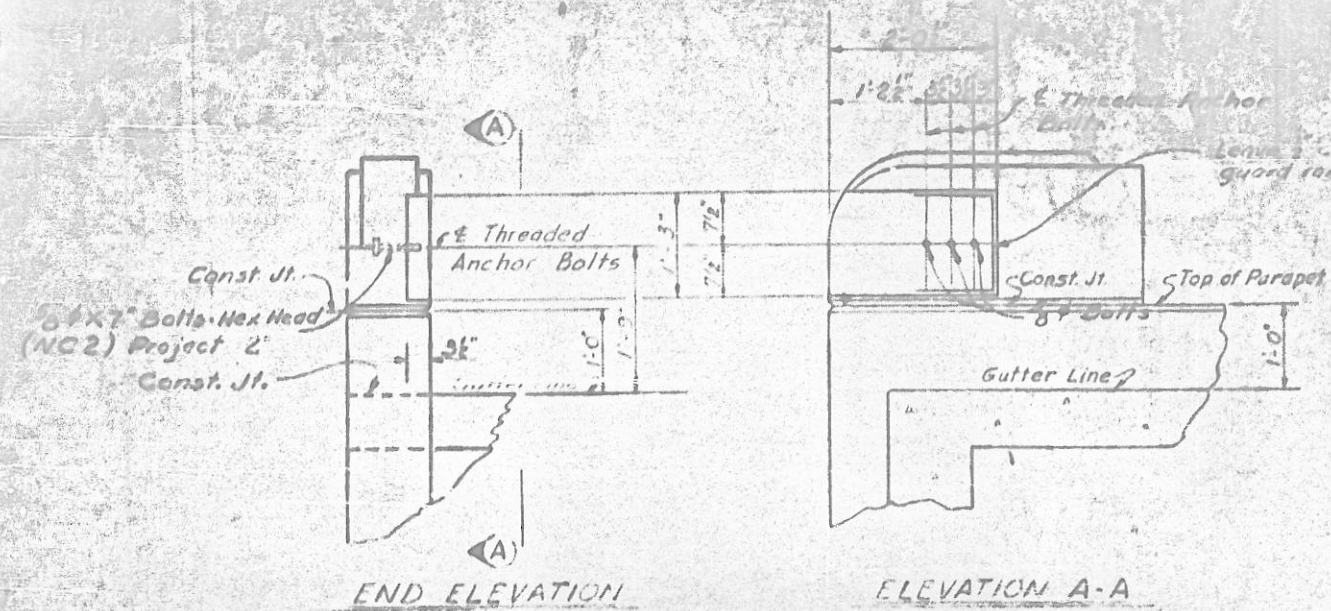


REACTIONS-EXTERIOR GIRDERS			
PIER NO	PIER 1 & 6	PIER 2 & 5	PIER 3 & 4
D.L.	70.3 ^K	274.3 ^K	268.9 ^K
D.L.L.	22.3 ^K	77.3 ^K	77.4 ^K
L.L.+I	62.2 ^K	139.7 ^K	143.4 ^K
TOTAL	154.8 ^K	490.3 ^K	489.8 ^K



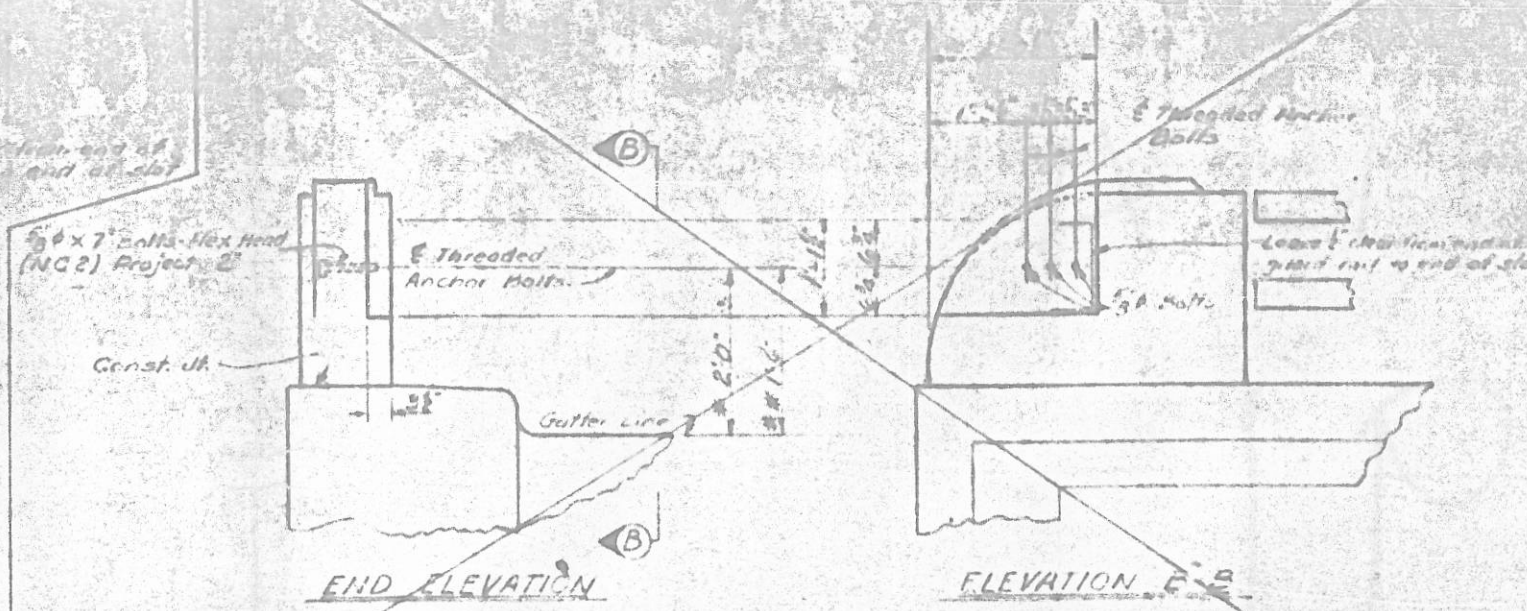
PROJECT No. 67810019
 CANADA-ALEXANDER COUNTY
 STATION: 104+55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
 SUPERSTRUCTURE
 SHEAR, MOMENT & DEFLECTION CURVES
 SPANS B, C, D, E & F



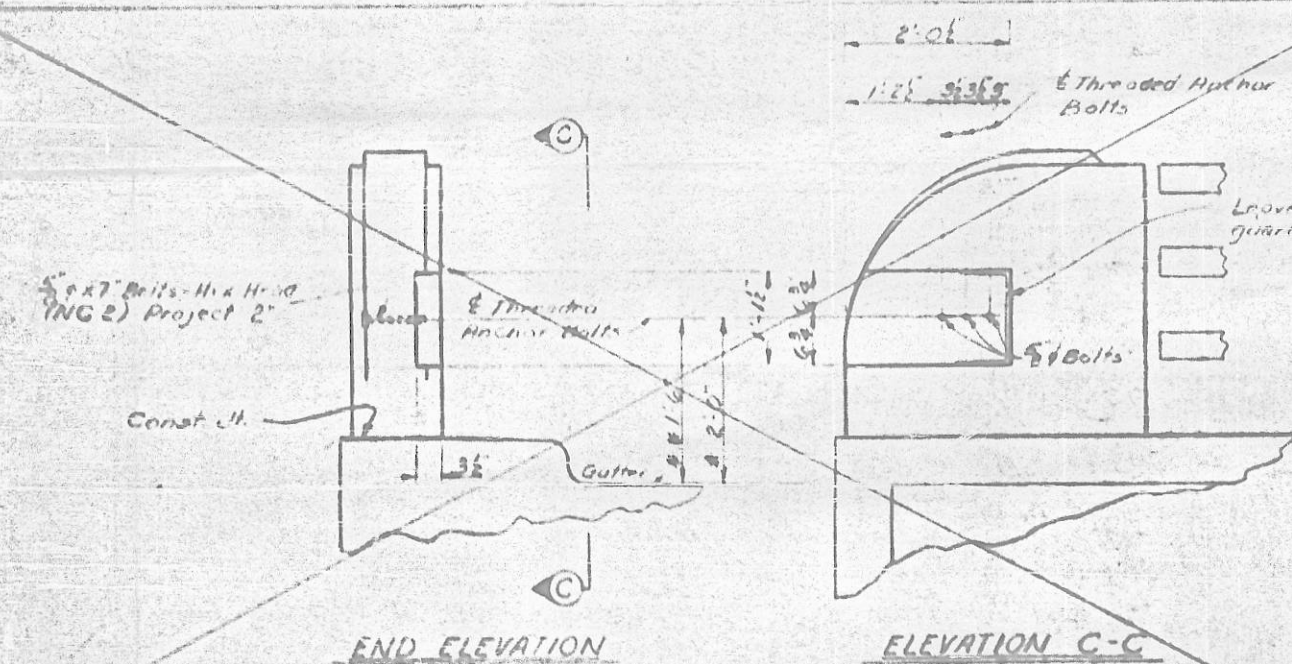
GUARD RAIL ANCHORAGE-TYPE 1

SEE END POST DETAILS ON SHEET NO 56

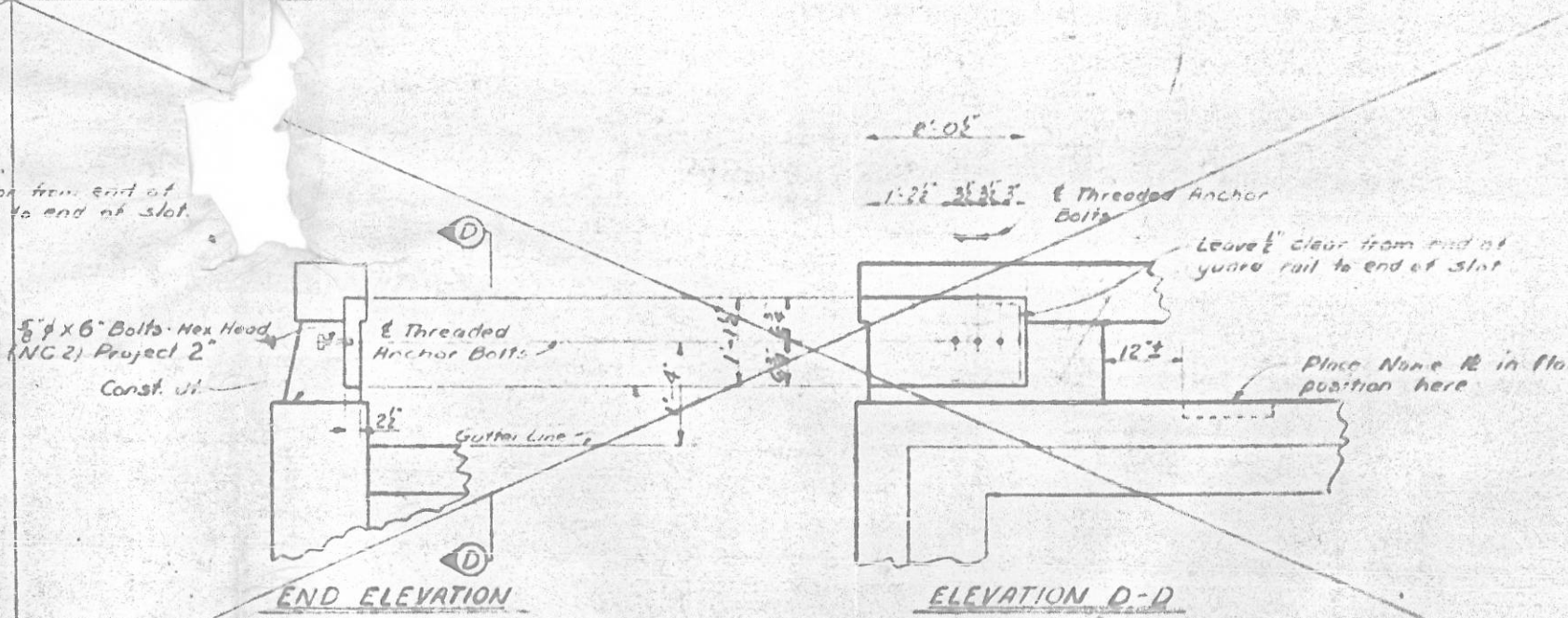


GUARD RAIL ANCHORAGE-TYPE 2

- * For Curb and gutter approaching bridge.
- * * For no curb and gutter approaching bridge.

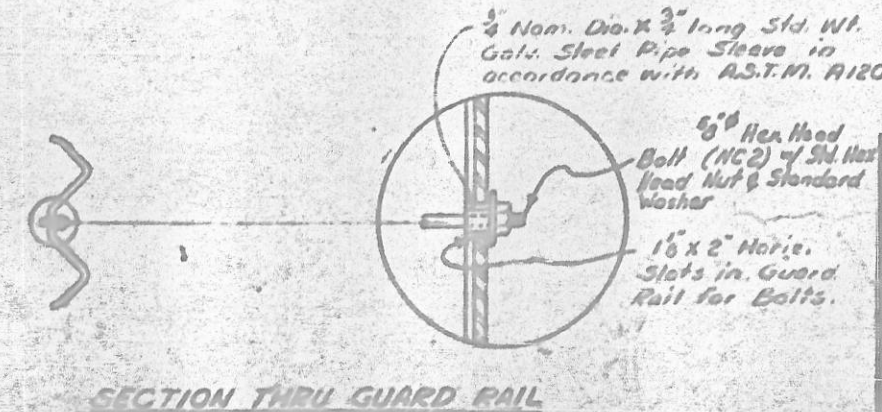


GUARD RAIL ANCHORAGE-TYPE 3



GUARD RAIL ANCHORAGE-TYPE 4

-NOTES-
 End of guard rail anchor bolts complete in place shall be included in the unit contract price bid for class "N" concrete.
 Note: Bolts and nuts are to conform to the requirements of A.S.T.M. A-307 and are to be galvanized to conform to the requirements of A.S.T.M. A-153.



SECTION THRU GUARD RAIL

PROJECT No. 6701009
CATAWBA - ALEXANDER COUNTY
STATION: 104+55

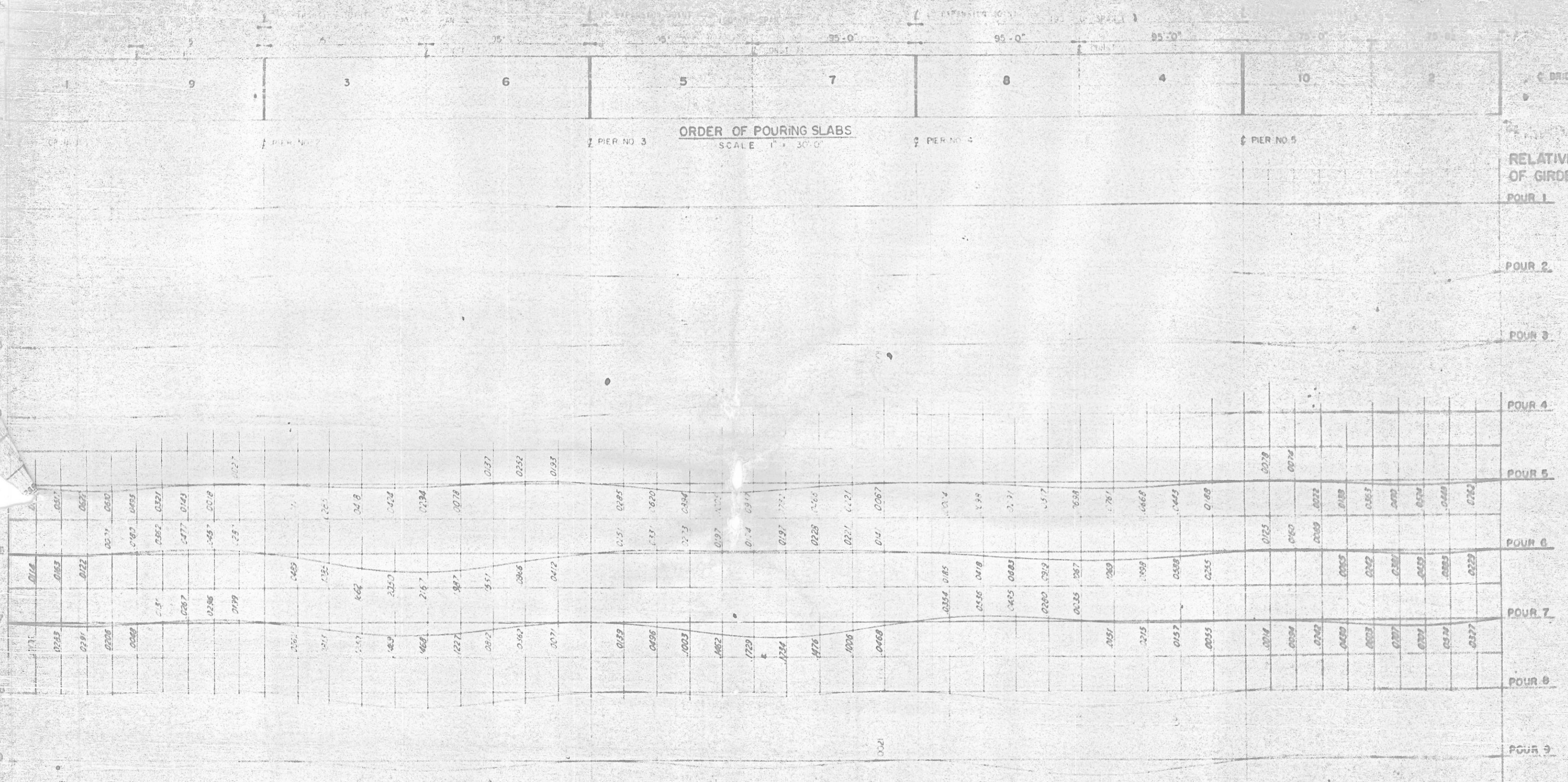
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH
STANDARD
GUARD RAIL ANCHORAGE
AT END POSTS

NO.	BY	DATE	NO.	BY	DATE
1	DEC	1954	2	DEC	1954
3	RDW	5-7-61	4		

Rev. #3 To change Anchor Bolt Detail in End Post to 5/8" x 7" Bolts-Hex Head (NC2) Project 2.
 Rev. #2 To change Anchor Bolt projection to 1'-3" from 1'-0" and change Rail Length of pipe sleeve to 1'-0".

DWG. NO.
 5-10759

SPECIAL



DEAD LOAD DEFLECTION OF GIRDERS BY POURS

SCALE VERT 1" = 50'
HORIZ 1" = 30'

NOTE: DEFLECTIONS SHOWN IN DECIMALS OF ONE FOOT
VALUES AT TENTH POINTS BETWEEN BEARINGS

PROJECT NO. 6.7810019
POUR 10
CATAWA-ALEXANDER COUNTY
STATION: 104+55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUPERSTRUCTURE
ORDER OF POURING SLABS
DEAD LOAD DEFLECTION OF GIRDERS BY POURS
SPANS B, C, D, E, F

REVISION 2-5-21-68 REVISED TO CHANGE ORDER OF POURING SLAB
BY W.K.C. CHECKED BY J.L.S.

100-5-21-68

ORDER OF POURING SLABS SCALE 1" = 30'-0"

RELATIVE MOVEMENT
OF GIRDERS AFTER
POUR 1

POUR 2

POUR 3

POUR 4

POUR 5

POUR 6

POUR 7

POUR 8

POUR 9

PROJECT NO. 67810019
COUNTY ALEXANDER
STATION 104+55

DEAD LOAD DEFLECTION OF GIRDERS BY POURS

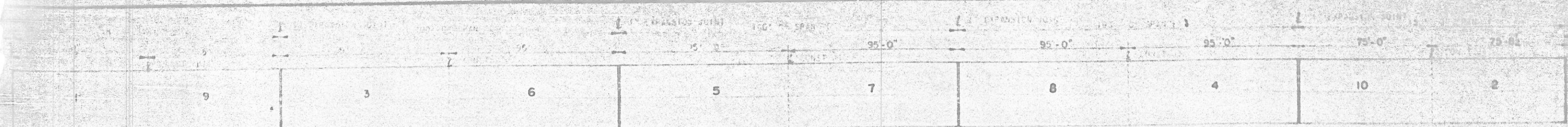
SCALE 1" = 1/8" VERT.
1" = 20' HORIZ.

NOTE: DEFLECTIONS SHOWN IN DECIMALS OF ONE FOOT.
VALUES AT TENTH EIGHTS BETWEEN BEARINGS.

REVISION 2-5-68 REVISED TO CHANGE ORDER OF POURING SLAB
BY M.K.C. CHECKED BY J.L.J.

REVISION 4-9-68 REVISED TO CHANGE DIMENSIONS OF SLAB
GEOMETRY C.D. AND E.D. BY M.K.C. CHECKED BY J.L.J.

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUPERSTRUCTURE
ORDER OF POURING SLABS
DEAD LOAD DEFLECTIONS
SPANS B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z



ORDER OF POURING SLABS
SCALE 1" = 30'-0"

RELATIVE MOVEMENT
OF GIRDERS AFTER
POUR 1

POUR 2

POUR 3

POUR 4

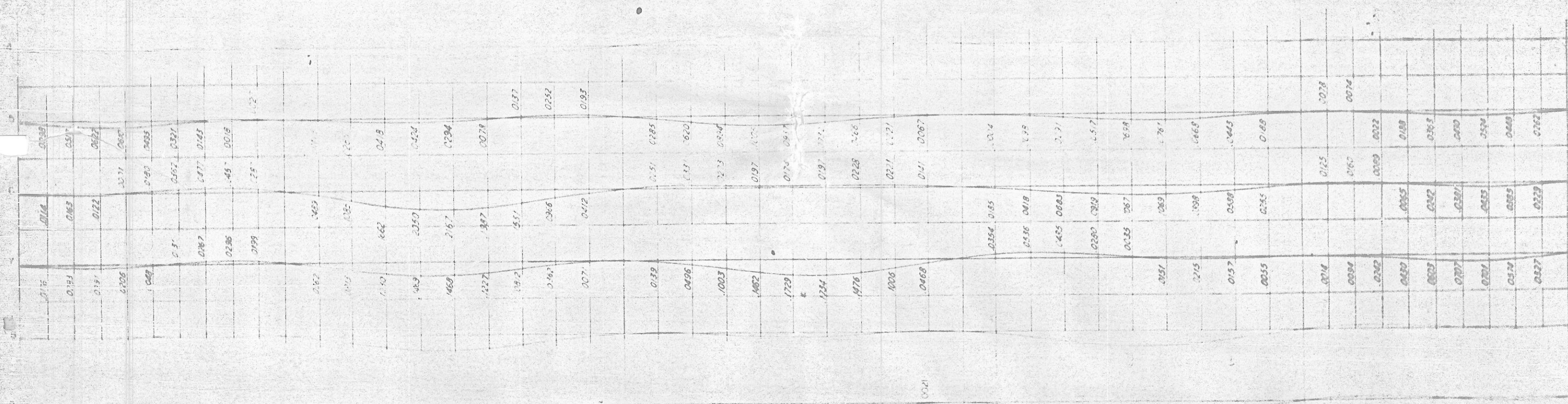
POUR 5

POUR 6

POUR 7

POUR 8

POUR 9



PROJECT NO. 67810019
CATAWA-ALEXANDER COUNTY
STATION: 104+55

DEAD LOAD DEFLECTION OF GIRDERS BY POURS

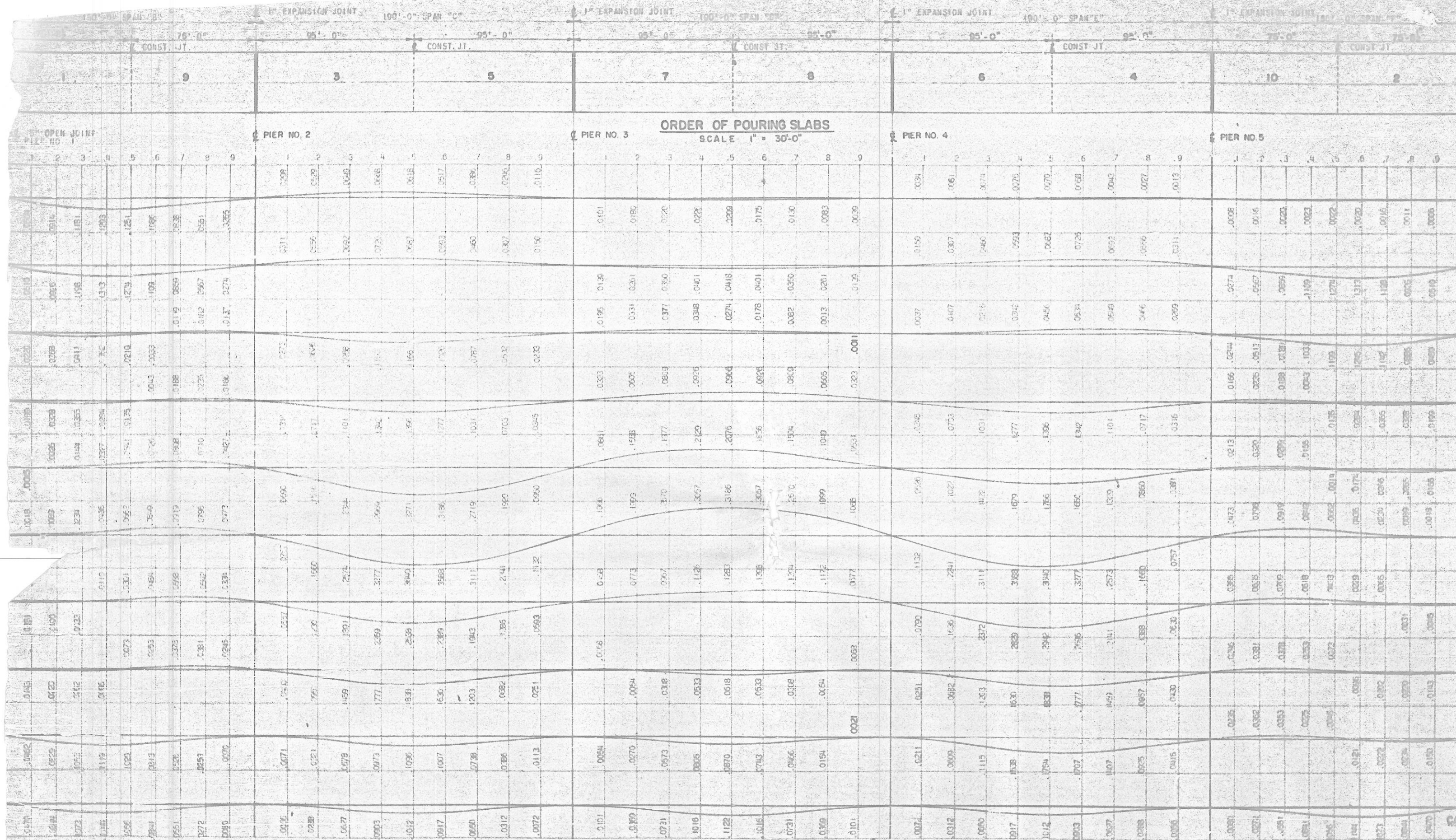
SCALE VERT 1" = 50'
HORIZ 1" = 30'

NOTE: DEFLECTIONS SHOWN IN DECIMALS OF ONE FOOT
VALUES AT TENTH POINTS BETWEEN BEARINGS.

REVISION #2 5-21-68 REVISED TO CHANGE ORDER OF POURING SLAB
BY W.K.C. CHECKED BY J.L.S.

REVISION #1 4-3-68 REVISED TO CHANGE DIMENSIONS LOCATING E. CONST. PT.
ON SPANS C, D AND E BY R.W.M. CHECKED BY J.L.S.

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUPERSTRUCTURE
ORDER OF POURING SLABS
DEAD LOAD DEFLECTION OF GIRDERS BY POURS
SPANS B, C, D, E & F



DEAD LOAD DEFLECTION OF GIRDERS BY POURS

SCALE: VERT. 1" = 50'
HORIZ. 1" = 30'

NOTE: DEFLECTIONS SHOWN IN DECIMALS OF ONE FOOT.
VALUES AT TENTH POINTS BETWEEN BEARINGS.

PROJECT NO. 670001
CARMA-ALEXANDER COUNTY
STATION: 104+55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUPERSTRUCTURE
ORDER OF POURING SLABS
DEAD LOAD DEFLECTION OF GIRDERS BY POURS
SPANS B, C, D, E, F

REVISION 4-9-68 REVISED TO CHANGE DIMENSIONS LOCATING E-CONST. JT.
ON SPANS C,D AND E. BY R.W.M. CHECKED BY J.P.

RAIM WHITEHEAD & ASSOCIATES
ENGINEERS
P.O. BOX 100
RICHMOND, N.C. 28804
PHONE 843-741-1111