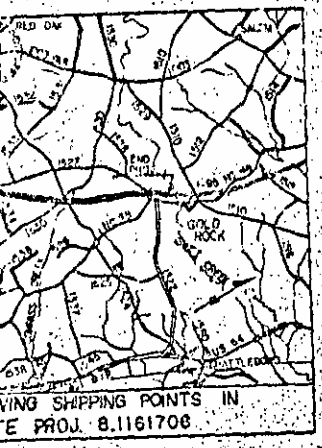
NASH COUNTY

LOCATION: I-95 FROM APPROXIMATELY 317'± SOUTH OF SR.1604 NORTHEASTERLY TO SR.1522, ±1 MILE SOUTH OF GOLD ROCK.

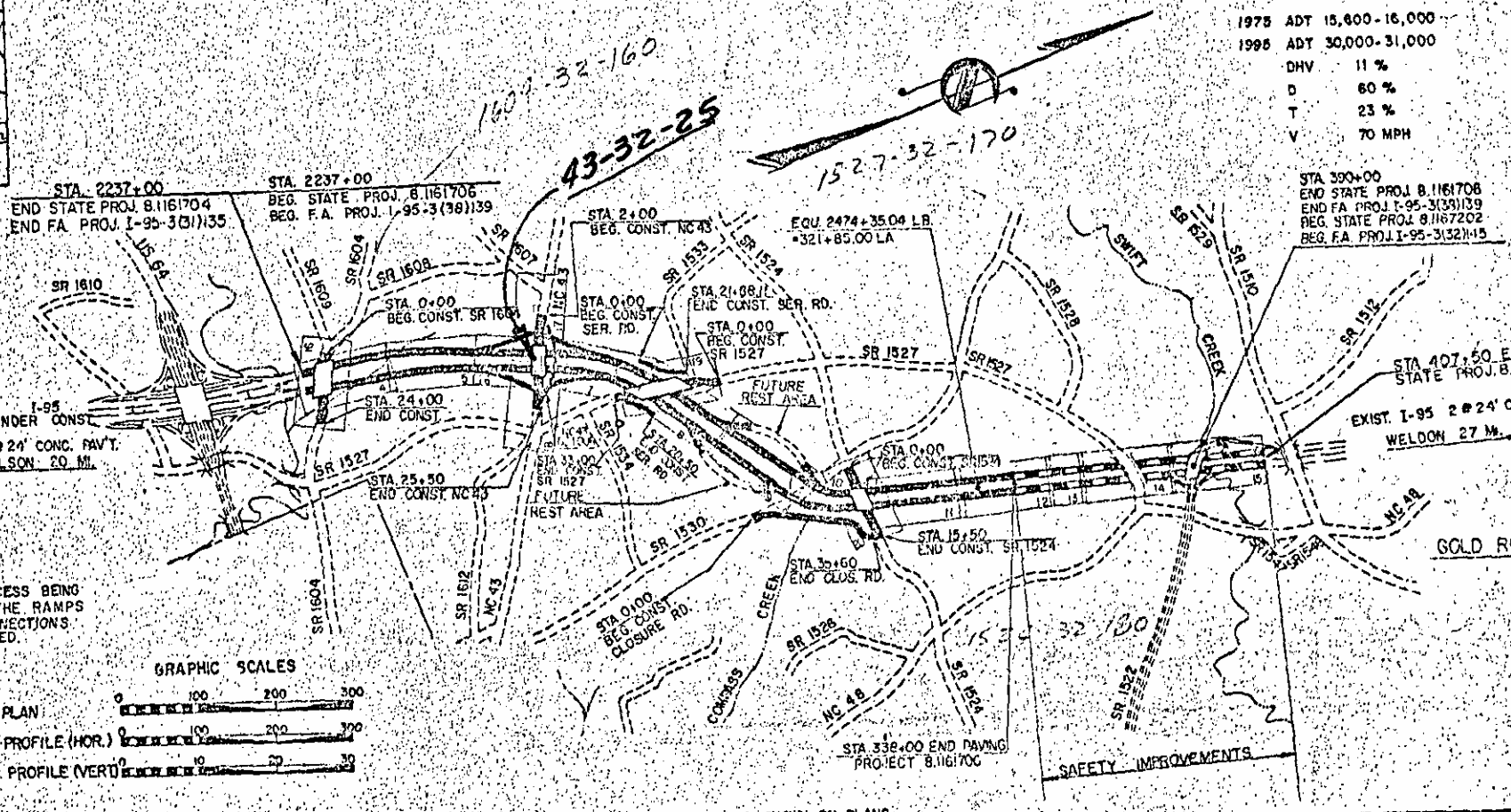
TYPE: THIS CONTRACT INCLUDES GRADING, DRAINAGE, PAVING, STRUCTURES, AND SAFTEY IMPROVEMENTS.



TOTAL LENGTH F.A. PROJECT I-95-3(38)139 = 5.786 MILES
TOTAL LENGTH STATE PROJECT 8.1161706 = 5.786 MILES

DESIGN DATA

1975	ADT	15,600 - 16,000
1995	ADT	30,000 - 31,000
	DHV	11 %
	D	60 %
	T	23 %
	V	70 MPH



A CONTROLLED ACCESS PROJECT ACCESS BEING TO POINTS SHOWN ON PLANS AT THE RAMPS NDE SEPARATIONS. ALL OTHER CONNECTIONS AD CROSSINGS ARE TO BE ELIMINATED.

GRAPHIC SCALES

PLAN 0 100 200 300

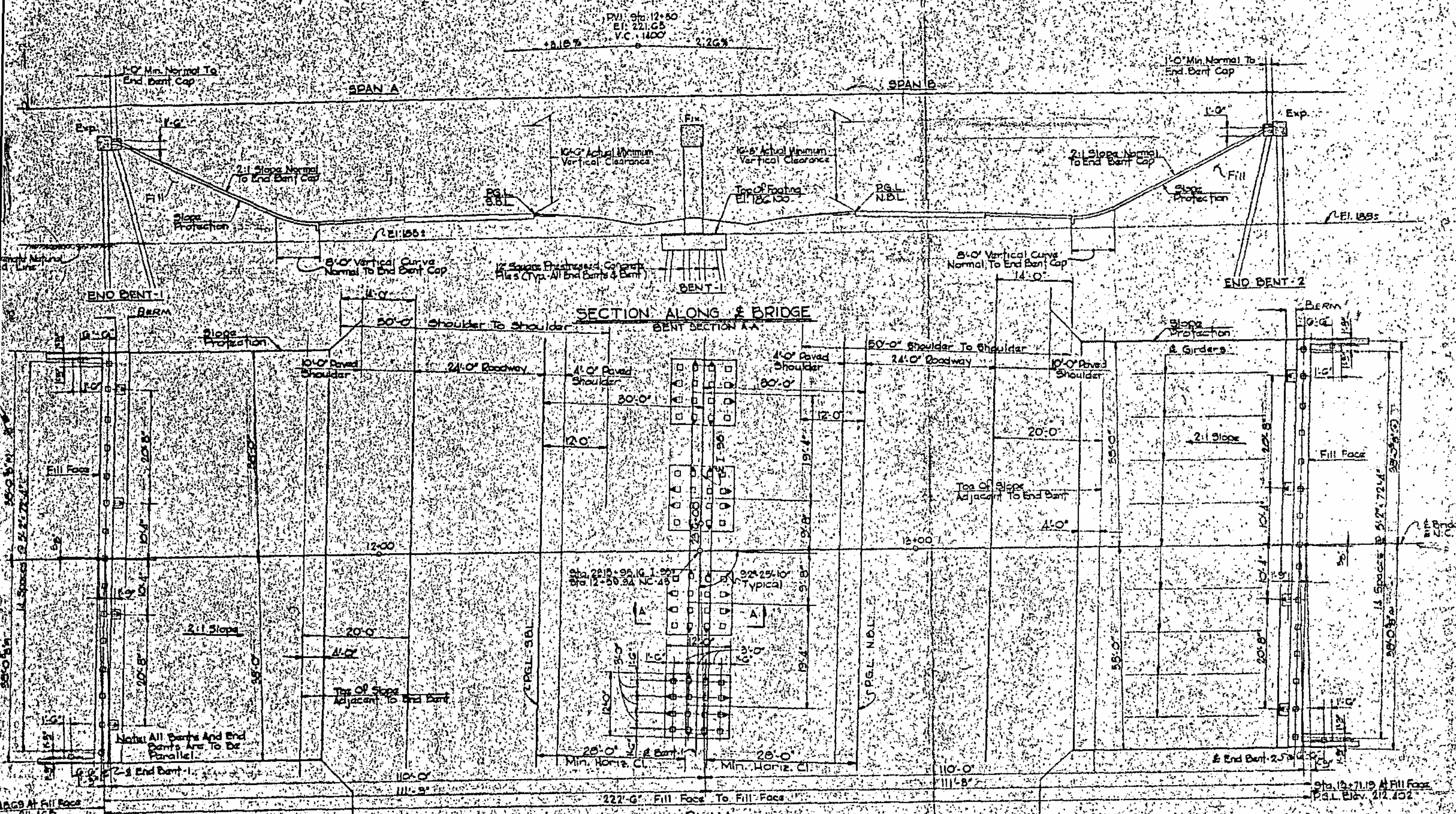
PROFILE (HOR.) 0 100 200 300

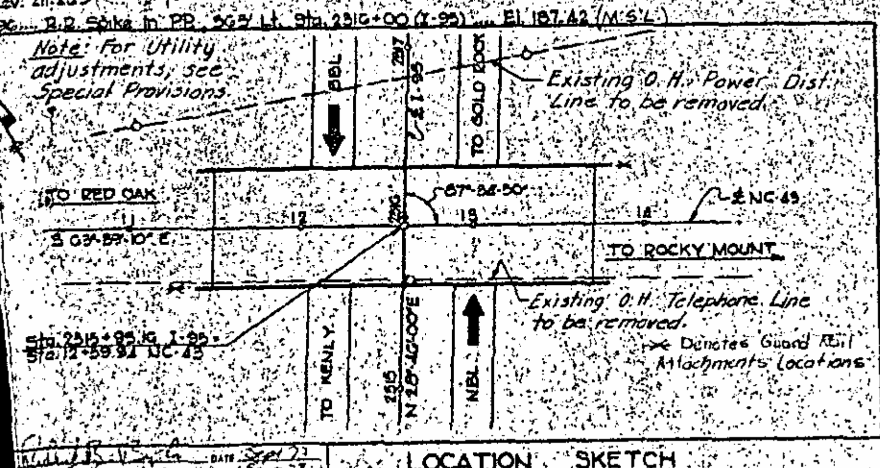
PROFILE (VERT) 0 10 20 30

DOT MORTON
RUMMEL KLEPPER & KAHL

1972 STANDARD SPECIFICATIONS

THE R/W ON THIS PROJECT IS AS SHOWN ON PLANS





FED. ROAD DIST. NO.	STATE	PROJECT NO.
4	N.C.	8.1151706
F. A. PROJECT I-95-3(58)139		

NOTES

ASSUMED LIVE LOAD: HS-20-44 Or Special Loading Of 2 - 24,000 Lb. Axles Spaced 4'-0" Apart, Whichever Is Greater.

REFERENCE TO SHEET S-N: For Other Design Data And General Notes See Sheet S-N.

PILE CAPACITIES: Piles Are Designed For Bearing Capacities Of 30 Tons Per Pile.

EXCAVATION: No Work Shall Be Started On This Bridge Until After The Roadway Section has been Graded. The Roadway Contractor Will Be Required To Remove The Existing Pavement And Scarify The Roadbed To A Minimum Depth Of 2'-0" Within The Area Of End Bent Piles.

PILES DRIVEN THRU FILL: See Specifications.

Structural Steel: All Structural Steel Shall Be ASTM-A36 Grade.

Painting Structural Steel: Structural Steel for this Structure Shall be painted in Accordance With Paint System 4. See Special Provisions. For galvanized High Strength Bolts, See Special Provisions.

Final Accept: 11-1-76 @ this station only

REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SPLICE DISTANCE
# 4	1'-3"
# 5	1'-9"
# 6	2'-0"
# 7	2'-3"
# 8	2'-6"
# 9	2'-9"
# 10	3'-3"
# 11	3'-6"

TOTAL BILL OF MATERIAL

	CLASS AA CONCRETE	CLASS A CONCRETE	REINFORCING STEEL	STRUCTURAL STEEL	12" SQUARE PRESTRESSED CONCRETE PILES		LINSEED OIL CONCRETE PROTECTION	FOUNDATION EXCAVATION	4" SLOPE PROTECTION	1-BAR METAL RAILING	BRIDGE APPROACH SLABS
	CU. YDS.	CU. YDS.	LBS.	APPROX. LBS.	NO.	LIN. FT.	GALLONS	CU. YDS.	SQ. YDS.	LIN. FT.	LUMP SUM
SUPERSTRUCTURE	495.1		123,864	484,400			37			433.67	
END BENT NO. 1		28.4	6,162		21	1,454			346		
BENT NO. 1		130.4	23,738		64	3,131		190			
END BENT NO. 2		28.4	6,162		21	1,453			346		
CURVED END BLOCK	0.4		43								
TOTALS	495.5	187.2	159,969	484,400	106	6,038	37	190	692	433.67	LUMP SUM

PROJECT NO. 8.1151706

NASH COUNTY

STATION: 2315+95.16 I-95 = 12+59.94 N.C. 43

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

GENERAL DRAWING FOR BRIDGE
ON N.C. 43 OVER PROJECT I-95
BETWEEN RED OAK AND ROCKY MOUNT

RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA

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

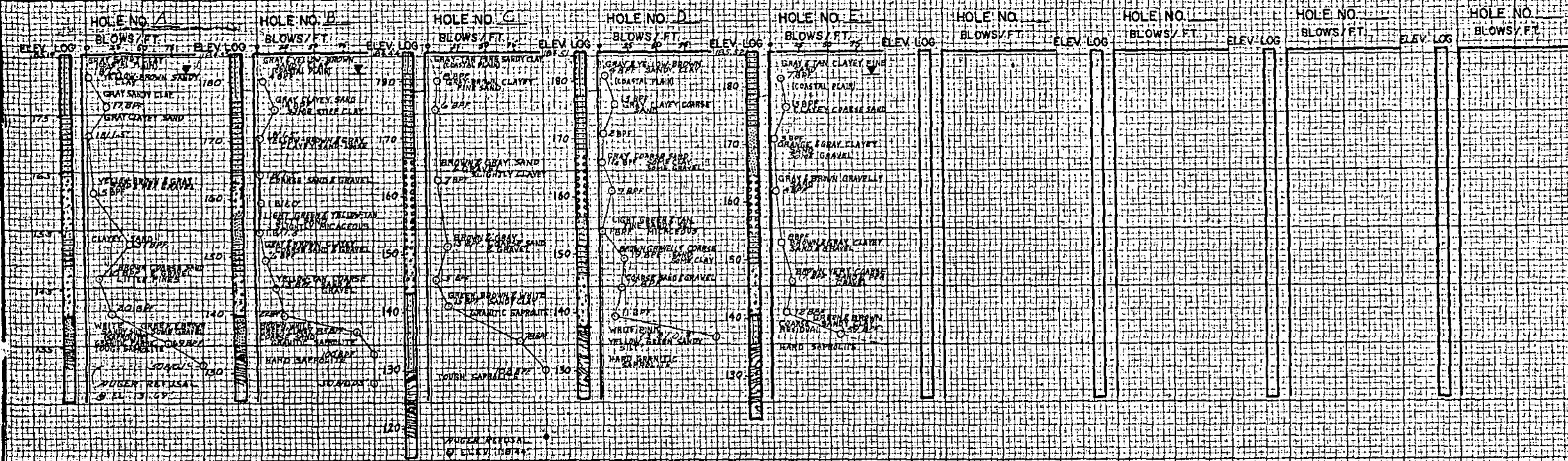
SHEET NO. S-20
TOTAL SHEETS 76

DATE Sept 73
DATE Sept 73

1 of 17

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	8.1161706	5-21	76

(FA PROJ. I-95-3(38)139)



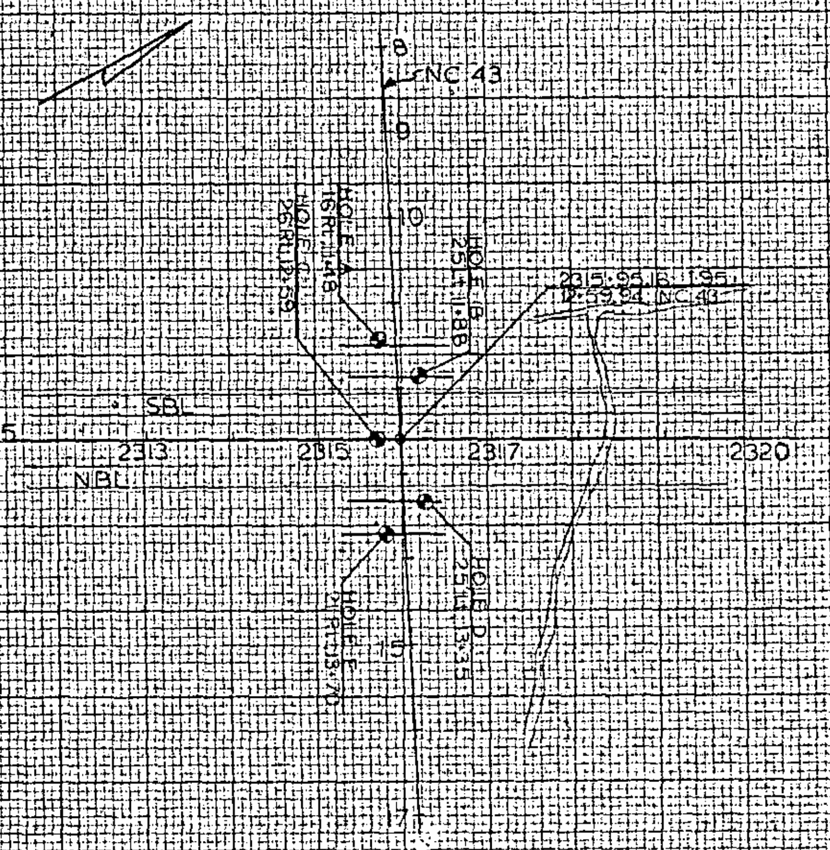
LEGEND

SOIL & ROCK DESCRIPTION & SYMBOLS

- WELL-GRADED GRAVEL SAND MIXTURES A-1-A
- POORLY-GRADED GRAVEL SAND MIXTURES WITH FINES A-1-B
- SILTY SAND CLAYEY SAND A-2-4
- CLAYEY SAND & GRAVEL A-2-6, A-2-7
- SANDY SILT A-4
- SANDY CLAY A-6
- HARD SAPROLITE RIPPABLE ROCK
- WATER LEVEL

NOTES

THE LOGS SHOWN ON THIS PROFILE ARE TAKEN FROM FIELD SURVEY DATA AND REPRESENT THE BEST INFORMATION AVAILABLE. FIELD PROCEDURES ARE BASED ON A.S.T.M. AND A.A.S.H.O. STANDARDS WITH BEARING CAPACITIES DERIVED FROM STANDARD PENETRATION TEST, 140 LB. HAMMER, 30 IN. FALL, 2 IN. SAMPLER.



BM 96 RR Spike in P.P. 365 Lt. Sta. 2316+00 Elev. 187.42

SOIL TEST RESULTS

LINE	STATION	DEPTH	AASHO CLASS	L.L.	P.I.	C. SAND	F. SAND	SILT	CLAY
	HOLE A	[illegible]	A-4	27	13	22	27	23	34
	HOLE B	13-14'	A-2-6	30	13	46	24	7	23
	HOLE B	29-30'	A-2-4	33	NP	4	76	12	[illegible]
	HOLE B	33-34'	A-2-4	31	16	77	9	7	7
	HOLE B	39-40'	A-1-b	22	NP	69	10	6	5
	HOLE B	47-48'	A-2-6	37	9	21	18	19	12

SOIL TEST RESULTS

LINE	STATION	DEPTH	AASHO CLASS	L.L.	P.I.	C. SAND	F. SAND	SILT	CLAY
	HOLE D	7-8'	A-2-6	34	14	46	24	2	28
	HOLE D	12-13'	A-2-6	32	13	74	9	2	15
	HOLE D	17-18'	A-1-b	21	NP	60	10	1	29
	HOLE D	22-23'	A-1-b	18	NP	84	10	2	4
	HOLE D	29-30'	A-4	32	NP	2	67	14	17
	HOLE D	34-35'	A-2-6	32	17	84	6	4	6
	HOLE E	8-9'	A-2-6	34	14	54	16	3	27
	HOLE E	13-14'	A-1-a	24	5	58	25	3	14

NORTH CAROLINA
STATE HIGHWAY COMMISSION
DEPARTMENT OF LOCATIONS & SURVEYS

GEOLOGICAL DIVISION

BRIDGE FOUNDATION SURVEY

PROJECT 8.1161706

COUNTY NASH

ROUTE I-95

BRIDGE ON NC 43

OVER I-95

SCALE: HORIZONTAL 1"=100' VERTICAL 1"=10'

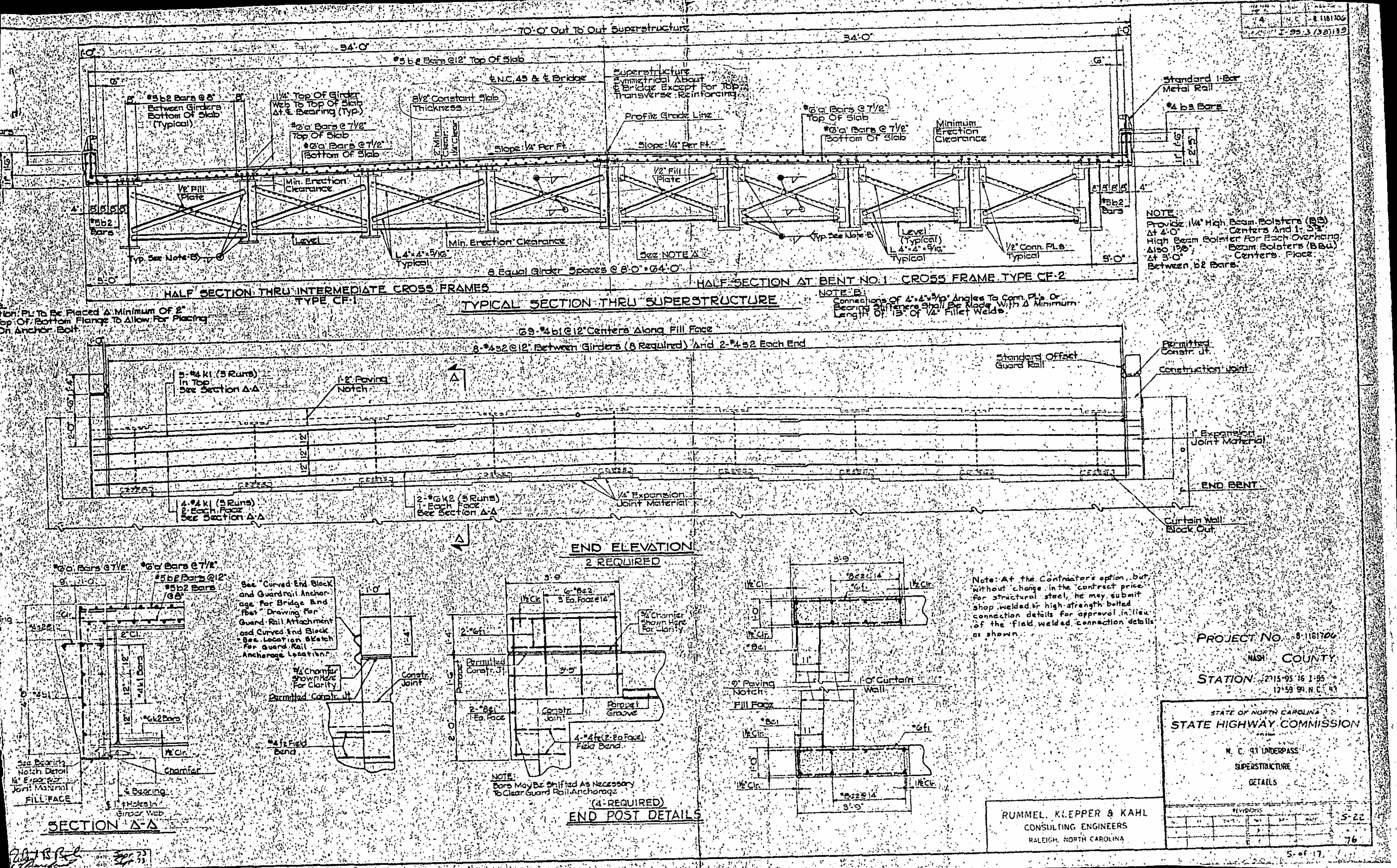
SURVEY BY G.L. BUNCH (PARTY CHIEF)

ANALYSIS & REPORT BY L.E. LEDBETTER (AREA GEOLOGIST)

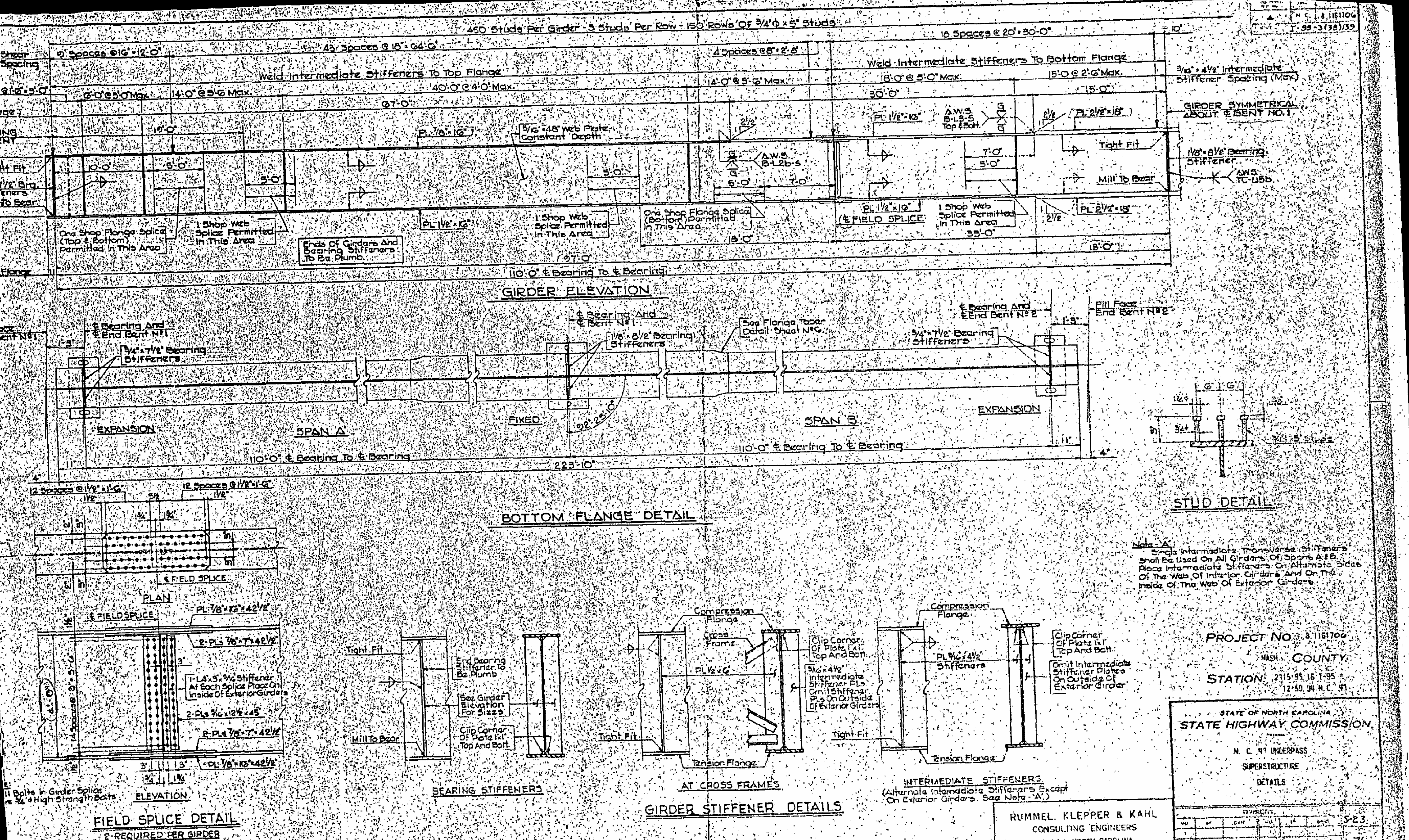
SUBMITTED BY A.C. DODSON (STATE HIGHWAY GEOLOGIST)

DRAWN BY M.D. Stephenson

CHECKED BY L.E. Ledbetter



70'-0" Out To Out Superstructure
34'-0"
34'-0"
#5 b2 Bars @ 12" Top Of Slab
E N.C. 43 & E Bridge
Superstructure Symmetrical About E Bridge Except For Top Transverse Reinforcing
8 1/2" Constant Slab Thickness
Profile Grade Line
Slope 1/4" Per Ft.
Standard I-Bar Metal Rail
#4 b3 Bars
Minimum Erection Clearance
1/2" Fill Plate
Min. Erection Clearance
L 4"x4"x5/16" Typical
8 Equal Girder Spaces @ 8'-0" = 64'-0"
See NOTE A
1/2" Conn. PL's Typical
HALF SECTION THRU INTERMEDIATE CROSS FRAMES TYPE CF-1
HALF SECTION AT BENT NO. 1 CROSS FRAME TYPE CF-2
TYPICAL SECTION THRU SUPERSTRUCTURE
NOTE: Provide 1 1/4" High Beam Bolsters (BB) At 4'-0" Centers And 1-3/4" High Beam Bolster For Each Overhang. Also 1 7/8" Beam Bolsters (BBU) At 3'-0" Centers. Place Between b2 Bars.
NOTE B: Connections Of 4"x4"x5/16" Angles To Conn. PL's Or Bearing Stiffeners Shall Be Made With A Minimum Length Of 13" Of 1/4" Fillet Welds.
69-#4 b1 @ 12" Centers Along Fill Face
8-#4 s2 @ 12" Between Girders (8 Required) And 2-#4 s2 Each End
Standard Offset Guard Rail
Permitted Constr. Jt.
Construction Joint
1" Expansion Joint Material
1/4" Expansion Joint Material
Curtain Wall Block Out
END BENT
END ELEVATION
2 REQUIRED
SECTION A-A
(4 REQUIRED)
END POST DETAILS
NOTE: Bars May Be Shifted As Necessary To Clear Guard Rail Anchorage
Note: At the Contractor's option, but without change in the contract price for structural steel, he may submit shop welded or high strength bolted connection details for approval in lieu of the field welded connection details as shown.
PROJECT NO. 8.1161706
NASH COUNTY
STATION
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
N. C. 43 UNDERPASS
SUPERSTRUCTURE
DETAILS
RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA
S-22
76
5 of 17


450 Studs Per Girder - 3 Studs Per Row - 150 Rows Of 3/4"φ x 5" Studs
9 Spaces @ 16" = 12'-0"
43 Spaces @ 18" = 64'-6"
4 Spaces @ 8" = 2'-8"
18 Spaces @ 20" = 30'-0"
10"
Weld Intermediate Stiffeners To Top Flange
Weld Intermediate Stiffeners To Bottom Flange
6'-0" @ 5'-0" Max.
14'-0" @ 5'-6" Max.
40'-0" @ 4'-0" Max.
14'-0" @ 5'-6" Max.
18'-0" @ 5'-0" Max.
15'-0 @ 2'-6" Max.
5/16" x 4 1/2" Intermediate Stiffener Spacing (Max)
67'-0"
30'-0"
15'-0"
GIRDER SYMMETRICAL ABOUT ℄ BENT NO. 1
PL 7/8" x 16"
5/16" x 48" Web Plate Constant Depth
PL 1 1/2" x 16"
A.W.S. B-L3-S Top & Bott.
PL 2 1/2" x 18"
Tight Fit
1 1/8" x 8 1/2" Bearing Stiffener
A.W.S. TC-U5b
Mill To Bear
A.W.S. B-L2b-S
One Shop Flange Splice (Top & Bottom) Permitted In This Area
1 Shop Web Splice Permitted In This Area
Ends Of Girders And Bearing Stiffeners To Be Plumb.
PL 1 1/2" x 16"
One Shop Flange Splice (Bottom) Permitted In This Area
℄ FIELD SPLICE
97'-0"
18'-0"
35'-0"
110'-0" ℄ Bearing To ℄ Bearing
GIRDER ELEVATION
℄ Bearing And ℄ End Bent No 1
3/4" x 7 1/2" Bearing Stiffeners
℄ Bearing And ℄ Bent No 1
1 1/8" x 8 1/2" Bearing Stiffeners
See Flange Taper Detail Sheet No 6
℄ Bearing And ℄ End Bent No 2
Fill Face End Bent No 2
EXPANSION
SPAN 'A'
FIXED
92°25'10"
SPAN 'B'
EXPANSION
110'-0" ℄ Bearing To ℄ Bearing
110'-0" ℄ Bearing To ℄ Bearing
225'-10"
BOTTOM FLANGE DETAIL
STUD DETAIL
3/4"φ x 5" Studs
12 Spaces @ 1 1/2" = 1'-6"
12 Spaces @ 1 1/2" = 1'-6"
℄ FIELD SPLICE
PLAN
PL 7/8" x 16" x 42 1/2"
2-PLs 7/8" x 7" x 42 1/2"
1-L4" x 3" x 5/16" Stiffener At Each Splice Place On Inside Of Exterior Girders
2-PLs 5/16" x 12 1/2" x 45"
2-PLs 7/8" x 7" x 42 1/2"
PL 7/8" x 16" x 42 1/2"
14 Spaces @ 3" = 3'-6"
ELEVATION
All Bolts In Girder Splice Are 3/4"φ High Strength Bolts
FIELD SPLICE DETAIL
2-REQUIRED PER GIRDER
Tight Fit
End Bearing Stiffener To Be Plumb
See Girder Elevation For Sizes
Clip Corner Of Plate 1x1 Top And Bott.
Mill To Bear
BEARING STIFFENERS
Compression Flange
Cross Frame
PL 1/2" x 6"
Clip Corner Of Plate 1x1 Top And Bott.
5/16" x 4 1/2" Intermediate Stiffener PLs. Omit Stiffener PLs On Outside Of Exterior Girders
Tight Fit
Tension Flange
AT CROSS FRAMES
Compression Flange
PL 5/16" x 4 1/2" Stiffeners
Clip Corner Of Plate 1x1 Top And Bott.
Omit Intermediate Stiffener Plates On Outside Of Exterior Girder
Tight Fit
Tension Flange
INTERMEDIATE STIFFENERS
(Alternate Intermediate Stiffeners Except On Exterior Girders. See Note 'A'.)
GIRDER STIFFENER DETAILS

Note 'A': Single Intermediate Transverse Stiffeners Shall Be Used On All Girders Of Spans A & B. Place Intermediate Stiffeners On Alternate Sides Of The Web Of Interior Girders And On The Inside Of The Web Of Exterior Girders.

PROJECT NO. 8.1161706

NASH COUNTY

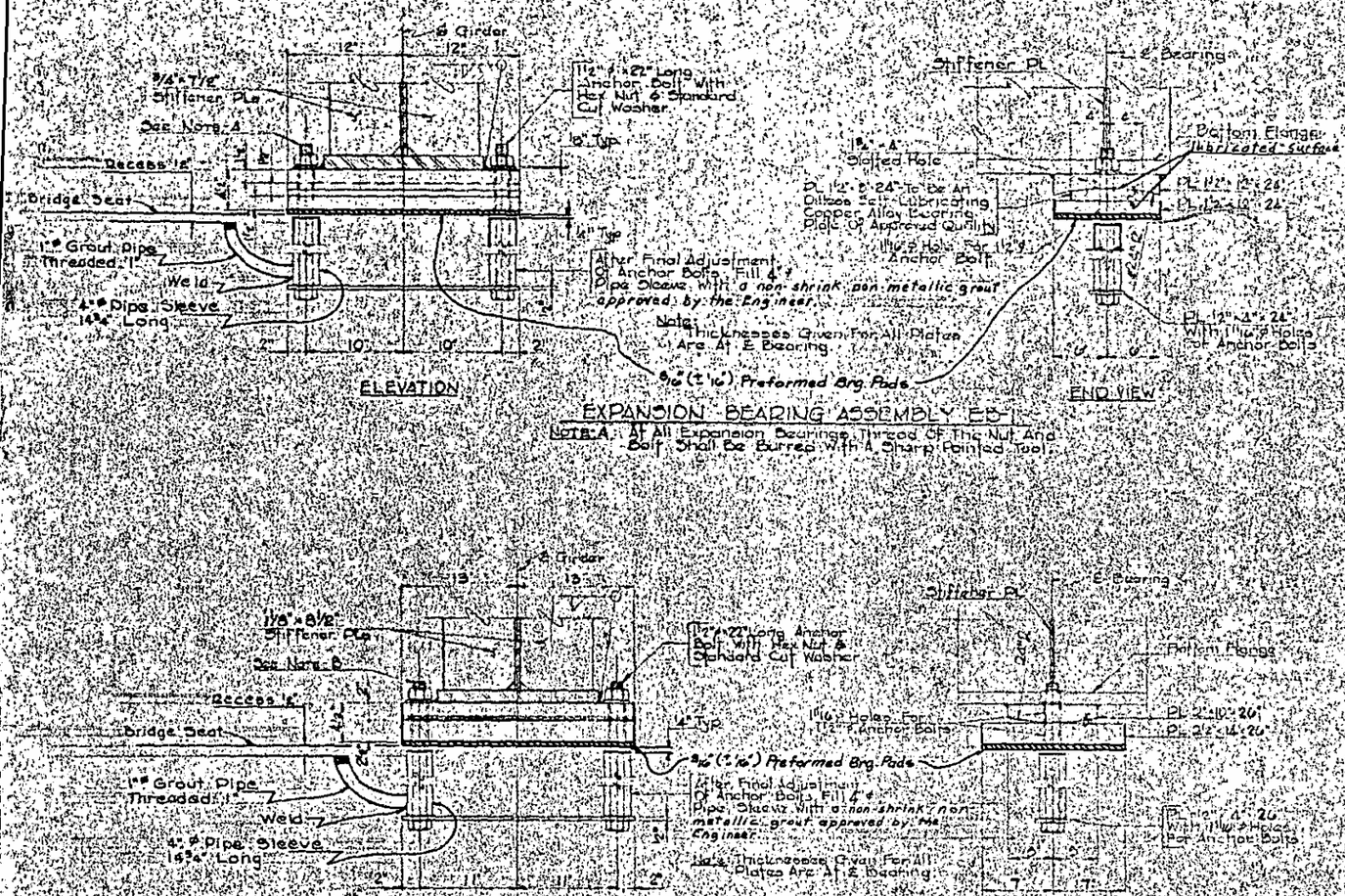
STATION: 2115+95.16 I-95 / 12+50.94 N.C. 97

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

N. C. 97 UNDERPASS
SUPERSTRUCTURE
DETAILS

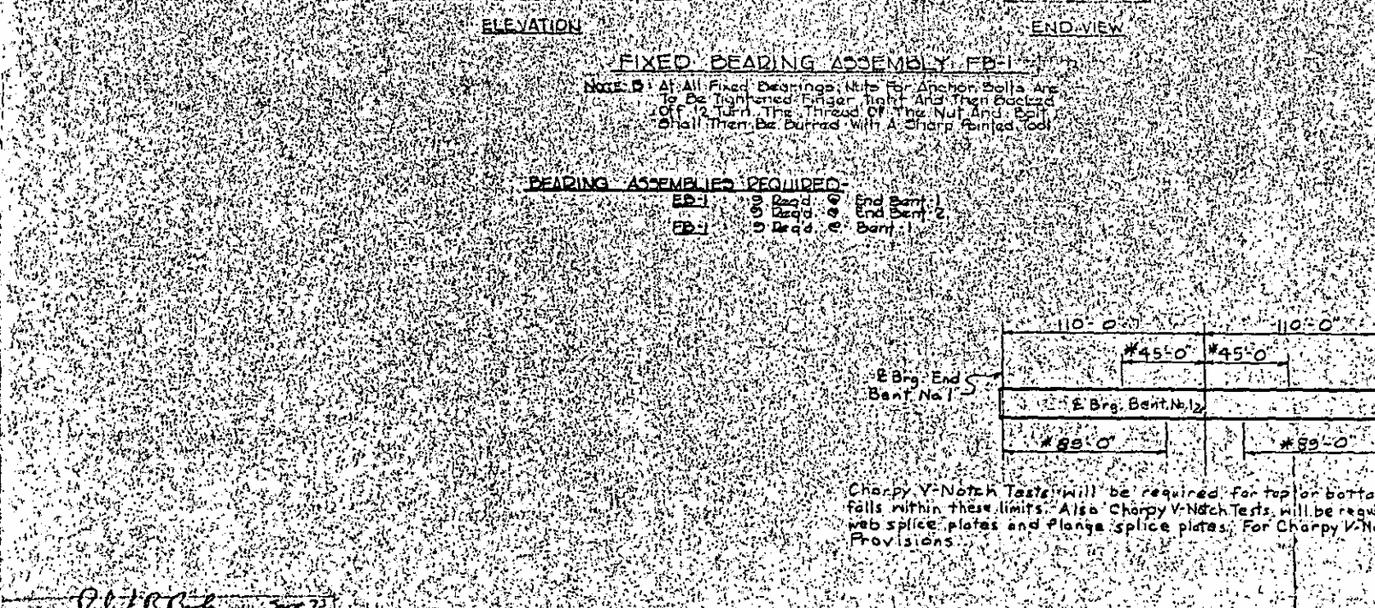
RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
RALEIGH NORTH CAROLINA

S-23



EXPANSION BEARING ASSEMBLY EB-1

NOTE A: At All Expansion Bearings, Thread Of The Nut And Bolt Shall Be Burred With A Sharp Pointed Tool.

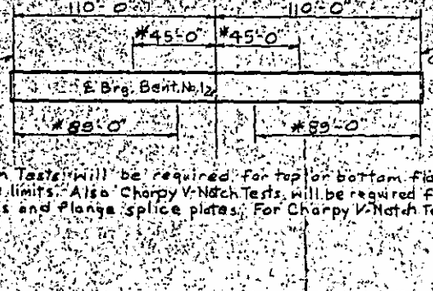


FIXED BEARING ASSEMBLY FB-1

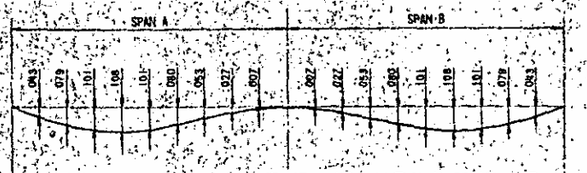
NOTE B: At All Fixed Bearings, Nuts For Anchor Bolts Are To Be Tightened Finger Tight And Then Backed Off 1/2 Turn. The Thread Of The Nut And Bolt Shall Then Be Burred With A Sharp Pointed Tool.

BEARING ASSEMBLIES REQUIRED-

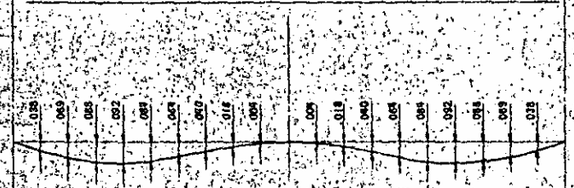
EB-1	8 Req'd.	End Bent 1
	8 Req'd.	End Bent 2
FB-1	2 Req'd.	Bent 1



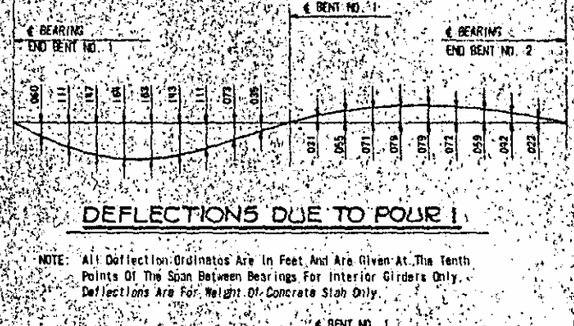
Charpy V-Notch Tests will be required for top or bottom flange plates which falls within these limits. Also Charpy V-Notch Tests will be required for all web plates, web splice plates and flange splice plates. For Charpy V-Notch Tests, See Special Provisions.



DEFLECTIONS DUE TO POURS 1 THRU 3

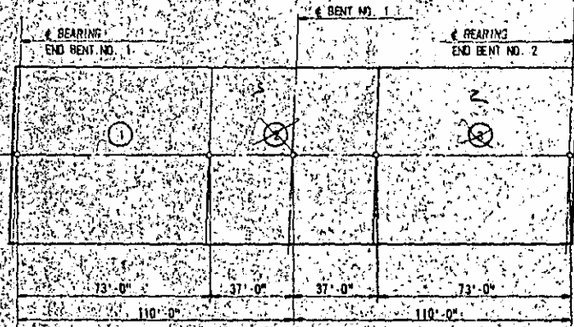


DEFLECTIONS DUE TO POURS 1 & 2



DEFLECTIONS DUE TO POUR 1

NOTE: All Deflection Ordinates Are In Feet And Are Given At The Tenth Points Of The Span Between Bearings For Interior Girders Only. Deflections Are For Weight Of Concrete Slab Only.



ROADWAY SLAB POURING SEQUENCE

Previously Poured Concrete Units Shall Attain A Minimum Compressive Strength Of 3,000 p.s.i. Before Additional Concrete Pours Are Made.

Parapet Concrete Shall Not Be Cast Until All Slab Concrete Has Been Cast And Has Reached A Minimum Compressive Strength Of 3,000 p.s.i.

NOTES

CAMBER: Girders Shall Be Fabricated With Camber To Compensate For The Deflection Caused By The Combined Weights Of Structural Steel And The Superimposed Dead Loads And Vertical Curve Ordinate. Cambered Girder Lengths Shall Be Adjusted And Bearings Are To Be Placed On The Cambered Girder So As To Be Aligned With The Anchors After Dead Load Deflection Has Occurred. Shop Plans Shall Be Prepared Accordingly.

FIELD CONNECTIONS: All Field Connections Not Welded Shall Be Made With 3/4" ø High Strength Bolts Unless Otherwise Noted.

SHOP SPLICES: 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 The Plans Will Be Permitted In The Flange Plates; However, Additional Shop Web Splices Will Be Allowed Within The Areas Shown In The Details. The Location Of These Splices Shall Be Shown On The Shop Plans.

WELDING: All Welding Shall Conform To The Latest AWS Specification For Welded Highway And Railroad Bridges And The Special Provisions.

STUDS: For Description Of Studs See Special Provisions.

FIELD SPLICES: All Bolts In Field Splices Are 3/4" ø High Strength Bolts. Spacing Of Studs On Top Flange Splice Plate May Be Adjusted If Necessary To Clear Bolts. However, The Total Number Of Studs Required On Splice Plate Shall Not Be Less Than That Required By Using Normal Spacing.

STRUCTURAL STEEL: All Structural Steel To Be ASTM - A36.

STRUCTURAL STEEL ERECTION: Erection Of Structural Steel Shall Be Completed For All Spans Before False Work Or Form Work Are Placed.

BEARING ASSEMBLIES: For Requirements Of Self Lubricating Plate, See Special Provisions. All Bearing Assemblies Except Self Lubricating Plate Shall Be Galvanized. Masonry Plates To Be Straight And Smooth On Both Sides. No Surface Finish Required.

FOR LOCATION OF SLOTS IN GIRDER WEB TO ACCOMMODATE K-BARS, SEE SUPERSTRUCTURE SECTION & DETAILS.

SHIPPING DETAILS

Shipping details for beams and Girders shall be submitted for approval, indicating the top flange location during shipment and in all cases showing the web vertical. The method of shipment position on the vehicle and attachments to the beams or girders of any shipping restraints shall be clearly detailed.

℄ BRIDGE

PROJECT NO. 8.1161706

WASH COUNTY

STATION 2315-95.16 I-95
12-59.94 N.C. 93

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

N. C. 93 UNDERPASS
SUPERSTRUCTURE
DETAILS

RUMMEL KLEPPER & KAHL
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA

S-24

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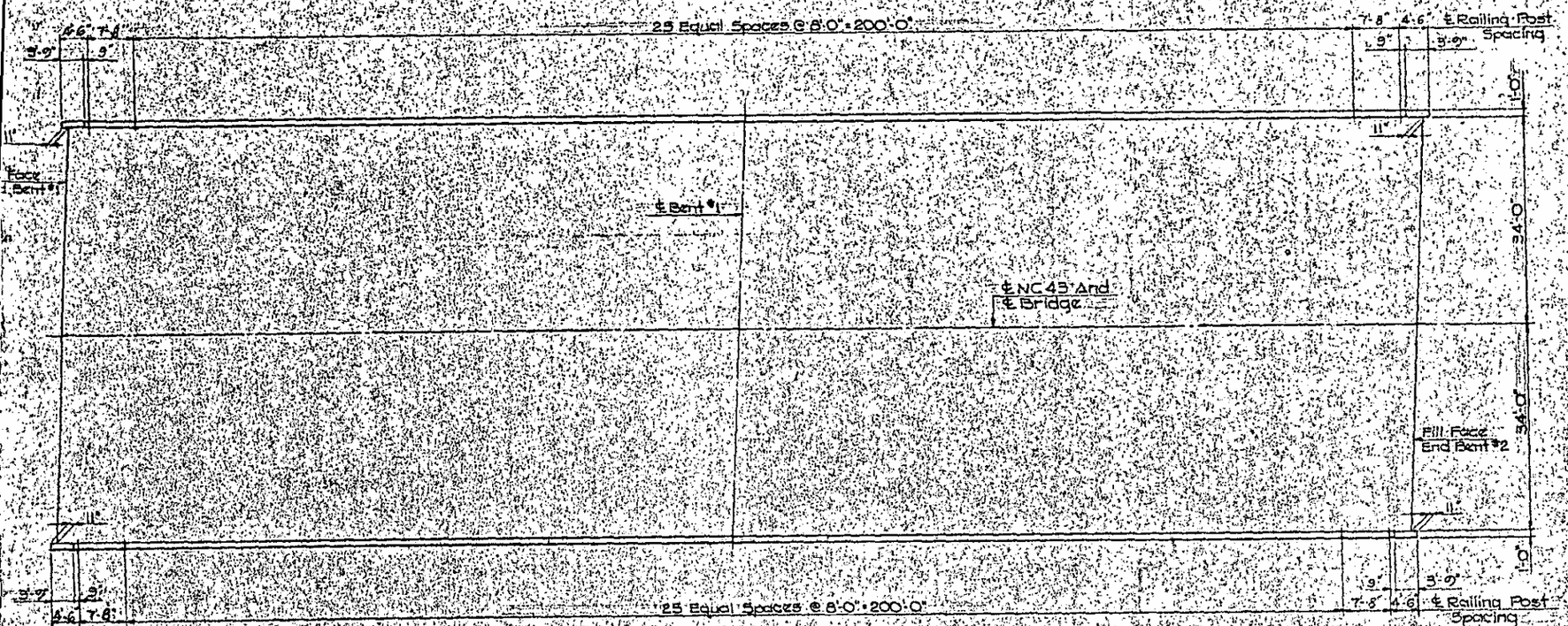
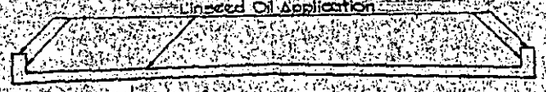


RAILING POST SPACING

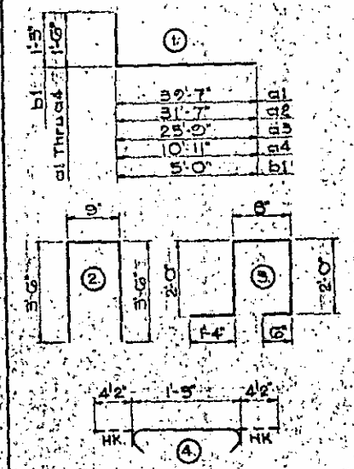
RAILING PAY LENGTH = 433.67 FT.

TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB



SKETCH SHOWING LIMITS OF LINSEED OIL APPLICATION

BAR TYPES



All Bar dimensions are out to out.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
a1	332	#6	1	41'-1"	21,721
a2	556	"	1	33'-1"	17,650
a3	2		1	27'-3"	82
a4	2		1	12'-5"	37
a5	2		Str.	25'-9"	77
a6	2		Str.	10'-11"	33
a7	706		Str.	35'-10"	31,955
a8	2		Str.	29'-1"	87
a9	2		Str.	14'-5"	43
a10	2		Str.	33'-4"	100
a11	2		Str.	18'-6"	56
a12	2	#6	Str.	3'-10"	12
b1	138	#4		6'-5"	570
b2	664	#5	Str.	30'-10"	39,560
b3	64	#4	Str.	20'-2"	1,24
c1	8	#8	Str.	4'-6"	36
c2	24	#8	Str.	2'-8"	171
F1	8	#6	2	7'-9"	93
F2	16	#4	Str.	5'-6"	37
K1	42	#4	Str.	21'-0"	675
K2	12	#6	Str.	24'-8"	442
S1	450	#5	3	6'-6"	5,001
S2	126	#4	4	2'-0"	182
Reinforcing Steel				Pounds	125,964
Class AA Concrete				Cubic Yards	
Pour No. 1				103.1	
Pour No. 2				195.1	
Pour No. 3				143.7	
Parapets				24.5	
End Posts				6.7	
TOTAL				483.1	

PROJECT NO. 8.1161706

NASH COUNTY

STATION: 73+55.95 -L- & -Y-
12+59.99 N.C. 43

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

N. C. 43 UNDERPASS
SUPERSTRUCTURE
DETAILS

RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-25
1			3			TOTAL SHEETS
2			4			76

4	N.C.	B 1161704
F. A. PROJECT I-95-3(38)129		

222'-6" Fill Face To Fill Face

110'-0" ℄ Bearing To ℄ Bearing

20'-7¾" 22'-0" 22'-0" 22'-0" 23'-4¼"

℄ Field Splice

℄ Bent N° 1 & ℄ Bearing

20'-7¾" 22'-0" 22'-0" 22'-0" 23'-4¼"

℄ Field Splice

110'-0" ℄ Bearing To ℄ Bearing

EB-1 CF-1 CF-2 FB-1

STA. 11+48.69

STA. 12+59.94

92° 25' 10" Typical

STA. 13+71.12

℄ NC 43 And ℄ Bridge

FILL FACE

℄ Equal Spaces @ 6'-0" = 84'-0"

℄ End Bent N° 1 & ℄ Bearing

℄ End Bent N° 2 & ℄ Bearing

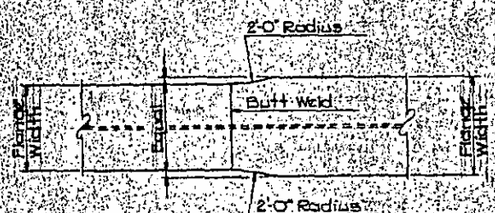
Girder Numbers

25'-4¼" 22'-0" 22'-0" 22'-0" 20'-7¾" 25'-4¼" 22'-0" 22'-0" 22'-0" 20'-7¾"

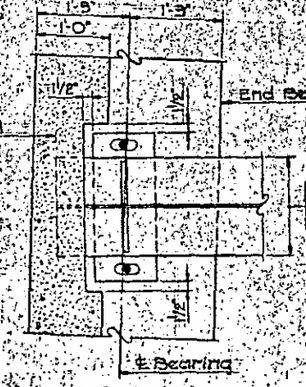
55'-0" 55'-0"

EXPANSION FIXED EXPANSION

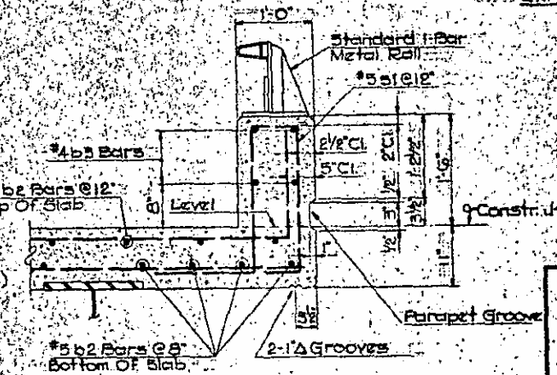
FRAMING PLAN



FLANGE TAPER DETAIL



CURTAIN WALL BLOCK OUT DETAIL



PARAPET AND RAIL DETAIL

DEAD LOAD DEFLECTION AND CAMBER SCHEDULE - SPANS A AND B

	1/10 SPAN		2/10 SPAN		3/10 SPAN		4/10 SPAN		5/10 SPAN		6/10 SPAN		7/10 SPAN		8/10 SPAN		9/10 SPAN		℄ BENT 1	
	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.
DEFLECTION DUE TO WT. OF STEEL	.013	.012	.024	.023	.031	.029	.033	.031	.031	.029	.025	.023	.016	.015	.008	.008	.002	.002	.000	.000
DEFLECTION DUE TO WT. OF SLAB	.043	.042	.078	.078	.101	.098	.109	.106	.101	.098	.080	.078	.053	.052	.026	.025	.007	.007	.000	.000
DEFLECTION DUE TO WT. OF COMPOSITE LOADS	.008	.007	.012	.012	.015	.016	.017	.018	.016	.017	.014	.014	.010	.010	.005	.008	.002	.002	.000	.000
TOTAL DEAD LOAD DEFLECTION	.062	.061	.114	.111	.147	.143	.159	.155	.148	.144	.119	.115	.079	.077	.039	.039	.011	.011	.000	.000
VERTICAL CURVE ORDINATE	.021	.021	.038	.038	.049	.049	.056	.056	.059	.059	.056	.056	.049	.049	.038	.038	.021	.021	.000	.000
REQUIRED BEAM CAMBER	.083	.082	.152	.149	.196	.192	.215	.211	.207	.203	.175	.171	.128	.126	.077	.077	.032	.032	.000	.000

All Deflections Are In Feet; Sign Of The Zero Camber Base Line Varies

PROJECT NO. B 1161704

NASH COUNTY

STATION: 2315+95.19 I-95 12+59.94 N.C. 43

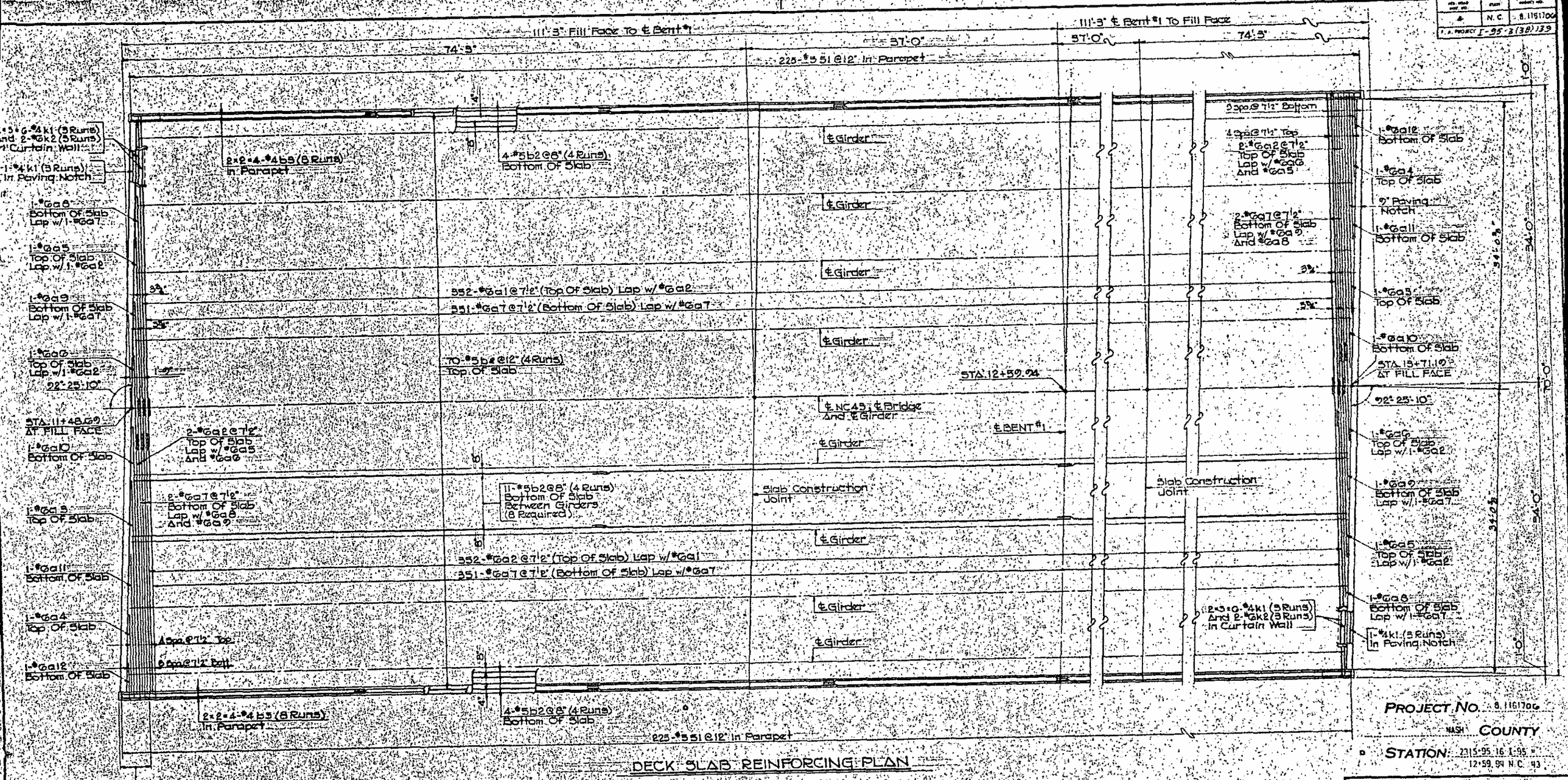
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

N. C. 97 UNDERPASS
SUPERSTRUCTURE
DETAILS

RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA

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

SHEET NO. 5-26
TOTAL SHEETS 76



DECK SLAB REINFORCING PLAN

		N.C.	8.1161706
F.A. PROJECT		I-95-3(38)139	

PROJECT NO. 8.1161706

NASH COUNTY

STATION: 2315+95.16 I-95 "
12+59.94 N.C. 43

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

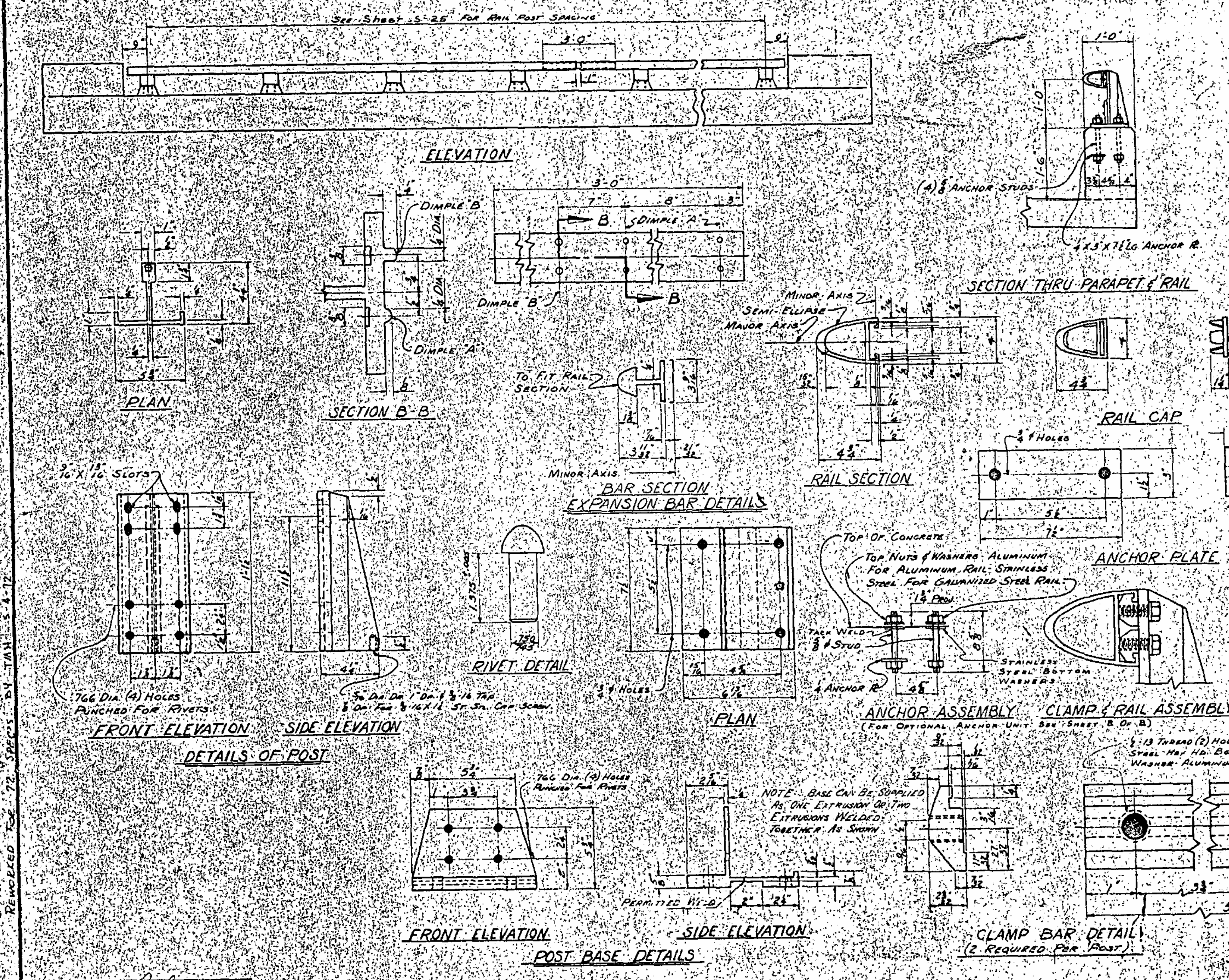
N. C. 43 UNDERPASS
SUPERSTRUCTURE
DECK PLAN

RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-27
1			3			TOTAL SHEETS
2			4			76

FED. ROAD DIST. NO.	STATE	PROJECT NO.
4	N. C.	8.1181706

F. A. PROJECT I-95-3(35)83



AT THE CONTRACTORS OPTION METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES & RAILS, EXPANSION BARS, & CLAMP BARS SHALL BE A.S.T.M. B-221 ALLOY 6061-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. B316 ALLOY 6061-T6. RIVETS SHALL BE STD. BUTTON HEAD & CONE POINT COLD DRIVEN AS PER DRAWING.

MATERIAL FOR ALUMINUM NUTS SHALL BE A.S.T.M. B-211 ALLOY 6061-T6.

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

Material for shims to be A.S.T.M. B-209 Alloy 6061-T6

GALVANIZED STEEL RAILS

MATERIALS AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS.

POSTS, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: A.S.T.M. A36 GRADE STRUCTURAL STEEL – GALVANIZED TO A.S.T.M. A-123.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF A.S.T.M. A502 FOR GRADE 1 RIVETS.

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 RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE I OR OF FEDERAL SPECIFICATION TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE C OR A611 FOR GRADE C, AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123

CLOSURE PLATES: CLOSURE PLATES SHALL MEET THE REQUIREMENTS OF ASTM A246 GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123

PAY LENGTH: 433.67'

GENERAL NOTES

1. RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.
2. END OF RAIL TO CLEAR FACE OF CONCRETE END POST BY 1½".
3. 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 2B THREAD. ANCHOR PLATES SHALL BE A.S.T.M. A-36. MACHINE SCREWS FOR RAIL ATTACHMENT SHALL BE TYPE 430 STAINLESS STEEL.
4. CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS & POSTS. SHOP INSPECTION IS NOT REQUIRED.
5. METAL RAIL POSTS TO BE SET NORMAL TO CURB GRADE.
6. METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR SEE THE 1972 STANDARD SPECIFICATIONS SUB ARTICLE 460-4 (A)
7. CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE, THE CONTRACTOR MAY AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.
8. To insure future identification of the fabricator, a permanent identifying mark shall be placed on each post. The method of marking and location shall be such that it does not detract from the appearance of the post.
9. Shims to be used as necessary for post alignment
10. Alloy 6351-T5 may be substituted for Alloy 6061-T6 where applicable.

PROJECT NO. 8.1161706

NASH COUNTY

STATION: 2315+95.16 I-95 / 12+59.94 N.C. 43

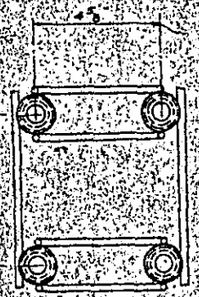
NOTE: MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

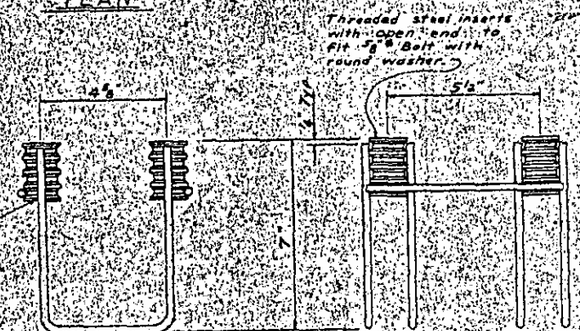
Sheet 1 of 2

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

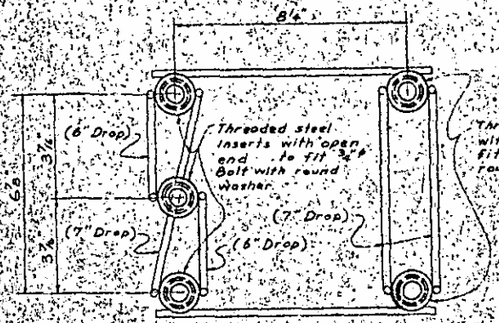
STANDARD
1 BAR
METAL RAIL

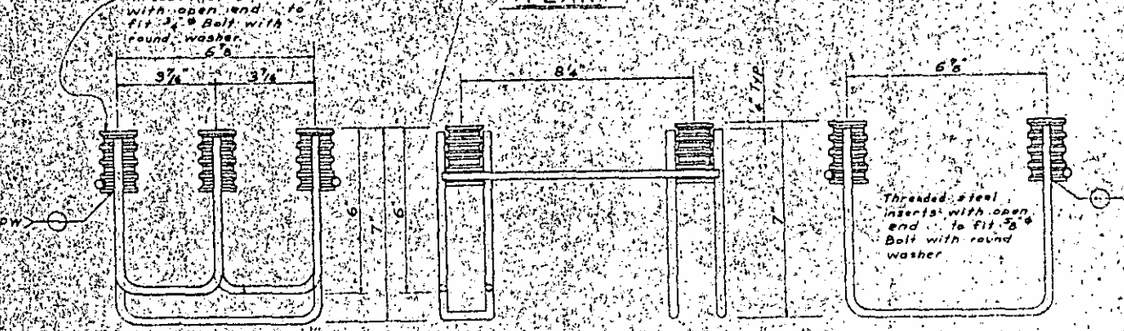
JULY 1964



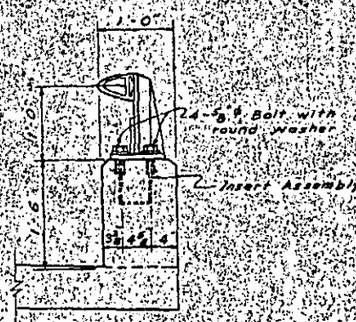


4-BOLT PRESET ANCHOR
FOR 4 BAR METAL RAIL

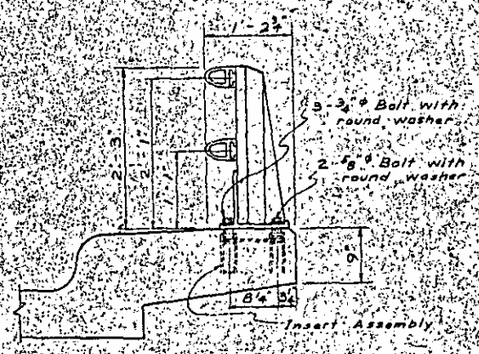




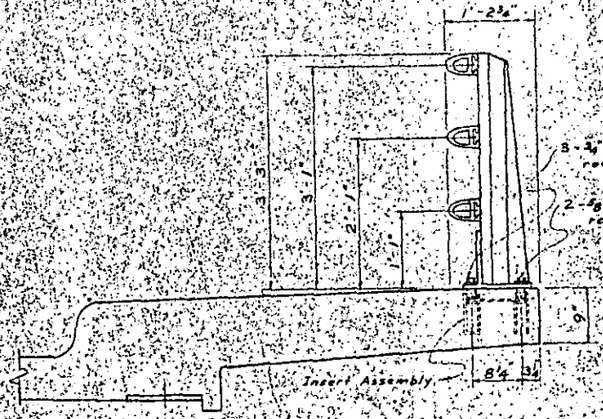
5-BOLT PRESET ANCHOR
FOR 2 OR 3 BAR METAL RAIL



SECTION THRU PARAPET & RAIL



SECTION THRU CURB & RAIL



SECTION THRU SIDEWALK & RAIL

Revision No 1: Revised to change Preset Anchor for 1 Bar Metal Rail. 2-4-71 By J.A.J. √By J.L.S.
Revision No 2: Revised to change note concerning tightening of bolts. 3-15-71 By J.A.J. √ by J.L.S.
Revision No 3: Revised to change weld symbol. 3-19-71 By J.A.J. √By J.L.S.

ASSEMBLED [illegible] SPECIAL

GENERAL NOTES

This Preset Anchor Assembly may be used in lieu of the anchorage shown on the Standard Metal Rail Sheet.
The cost of the Preset Anchor Assembly with bolts and washers complete in place shall be included in the price bid for Lin. Ft. Metal Rail.
The wire gage and threaded steel inserts to be of sufficient strength to insure load anchoring capacity as specified in the AASHO Specifications.
The Preset Anchor Units to be hot dipped galvanized to conform to requirements of A.S.T.M. A 123.

Anchor Bolts to be either high tensile steel conforming to A.S.T.M. A 449 and galvanized to conform to A.S.T.M. 153 or stainless steel Type 430 with a minimum 70,000 p.s.i. ultimate strength.

Bolts to be tightened one half turn with the wrench from a finger tight position.

F.A. PROJECT I-95-3(39) 30

PROJECT NO. B-1161706
NASH COUNTY
STATION 2315-95, 16, 1-95
SHEET 2 OF 2

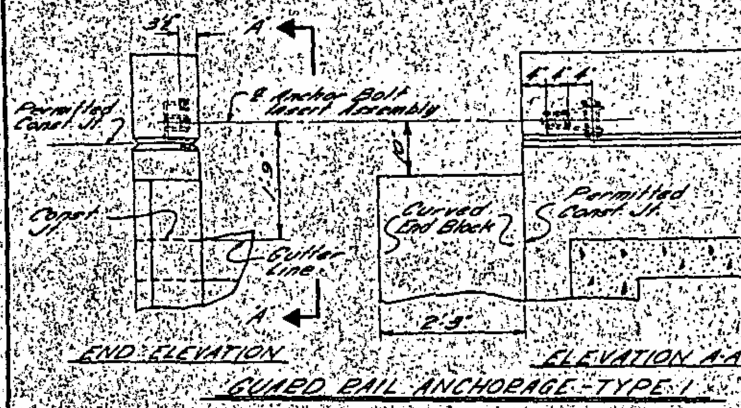
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

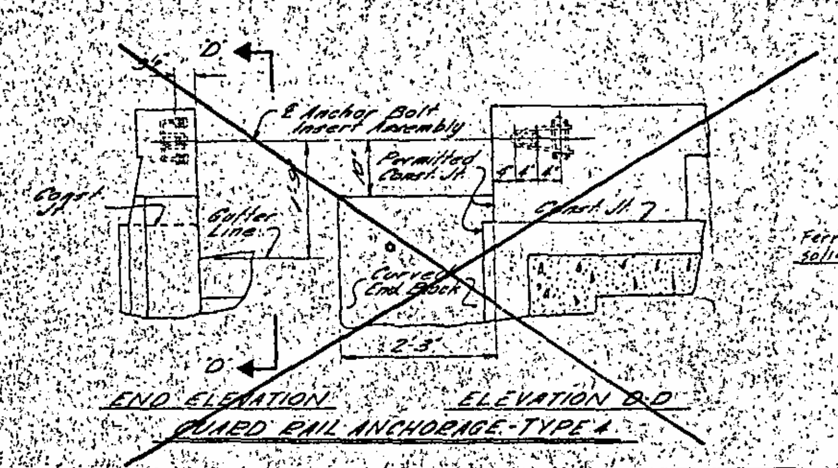
STANDARD METAL RAIL OPTIONAL PRESET ANCHOR UNITS

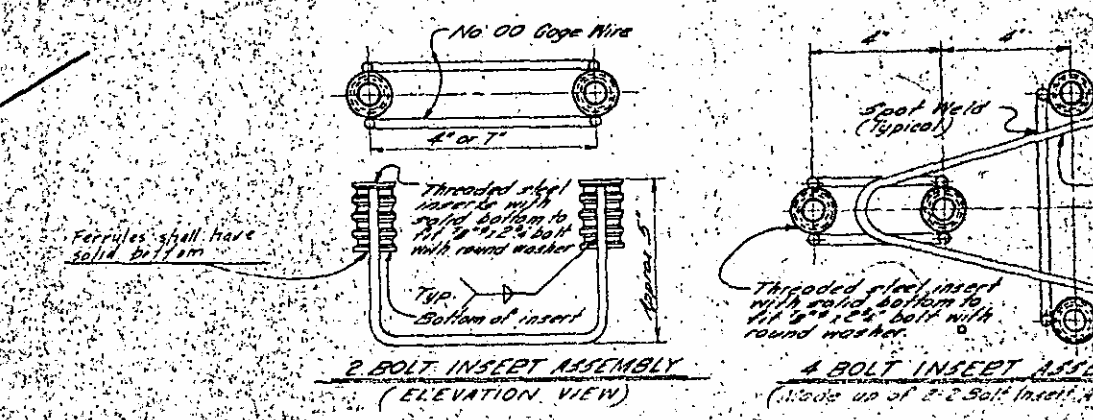
DECEMBER 1970

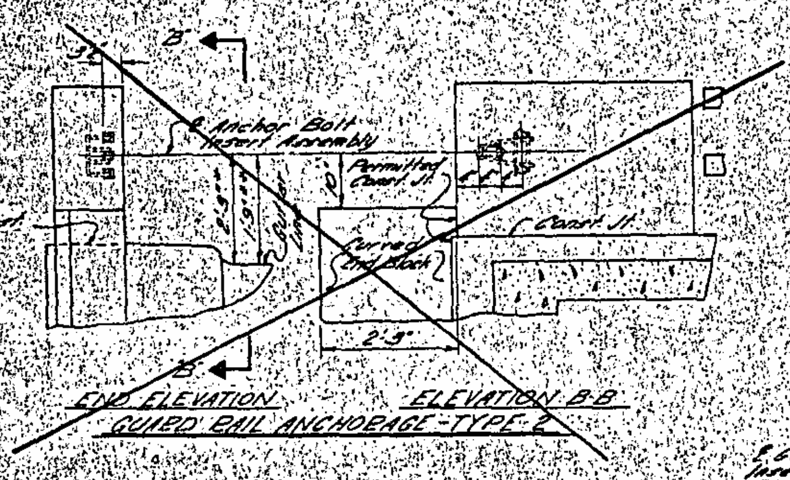
NO	BY	DATE	NO	BY	DATE
1	J.A.J.	2-4-71			
2	J.A.J.	3-15-71			
3	J.A.J.	3-19-71			

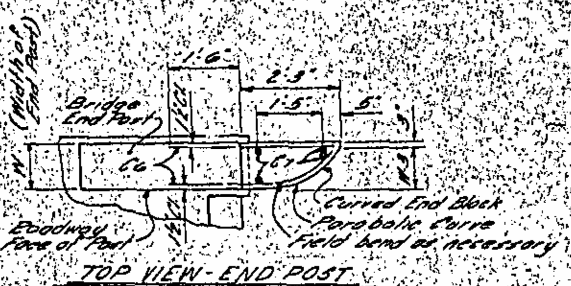
FED. ROAD DIV. NO.	STATE	PROJECT NO.
4	N.C.	8116106
F.A. PROJECT	I-95-3(32)139	

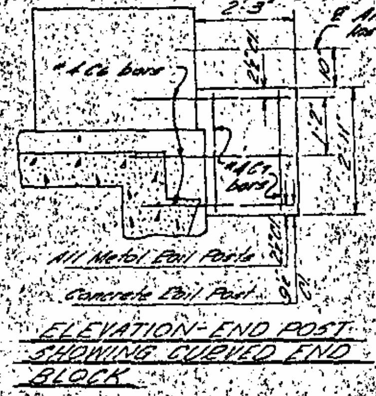






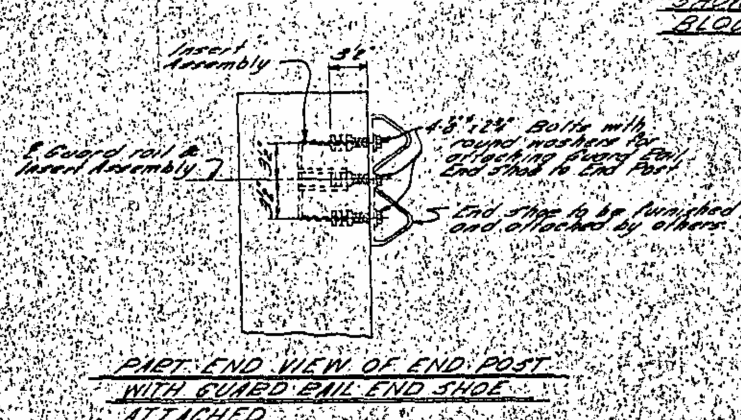


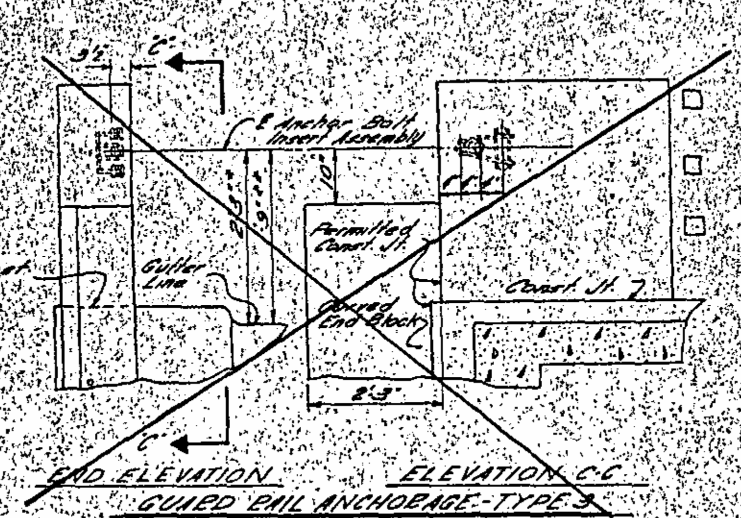




BILL OF MATERIAL FOR 1-CURVED END BLOCK				
Bar	No.	Size	Length	Weight
C6	6	#4	3'-7"	14
C7	4	#4	2'-7"	7
	Reinforcing Steel			21 lbs.
	Class AA Concrete			.2 C.Y.
Quantities for 2 Curved End Blocks	Reinforcing Steel			43 lbs.
	Class AA Concrete			.4 C.Y.
Quantities for 3 Curved End Blocks	Reinforcing Steel			64 lbs.
	Class AA Concrete			.6 C.Y.
Quantities for 4 Curved End Blocks	Reinforcing Steel			85 lbs.
	Class AA Concrete			.8 C.Y.

NOTE: CURVED END BLOCKS ARE TO BE CAST ONLY AT END POSTS WHERE GUARDRAIL IS TO BE ATTACHED.





2'-3" * For 6" Curb & Gutter approaching bridge when offset distance from bridge end post to face of curb is over 9".

1'-9" ** For no Curb & Gutter and 5" curb & Gutter approaching bridge when offset distance from bridge end post to face of curb is 9" or less.

GENERAL NOTES

The cost of the 4 Bolt Insert Assembly Unit consisting of the Insert Assembly and 4-⅞"×2¼" bolts with washers complete in place shall be included in the unit contract price bid for Class "AA" Concrete.

The excavation and backfill for curved end block will not be measured or paid for as a separate item. The entire cost of this work shall be included in the unit price bid for Class "AA" Concrete.

The anchor unit shall be assembled in the shop. Bolt threads may be recut as necessary to insure fit.

The ⅞" bolts and washers shall conform to the requirements of A.S.T.M. A307 and shall be galvanized to conform to the requirements of A.S.T.M. A153.

At the contractors option stainless steel bolts and washers may be used as an alternate for the ⅞" 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.

The threaded steel inserts shall conform to the requirements of A.S.T.M. A108 with a minimum tensile strength of 60000 psi.

For location & Guard Rail attachment See General Drawing.

No change May 1972

PROJECT NO. 8116106

NASH COUNTY

STATION: 2315+95.16 I-95; 12+59.94 NC 43

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

STANDARD GUARD RAIL ANCHORAGE FOR BRIDGE END POST

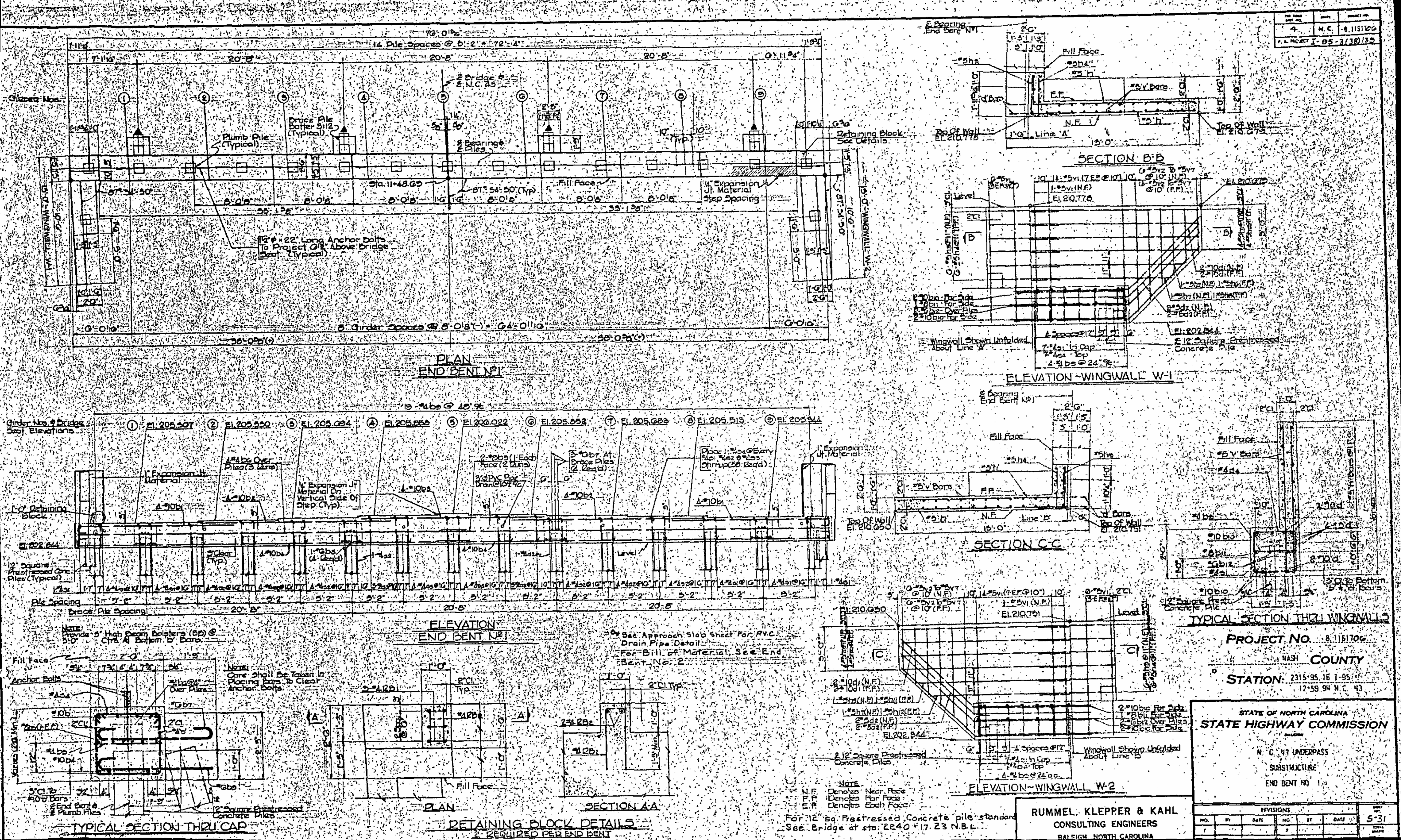
OCTOBER 1970

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-30
1	M.L.H.	10-22-70	3			TOTAL SHEETS

Rev. #1 - Revised to change notes concerning

Version No 5

ASSEMBLED BY Jim Capps 4-18-75
CHECKED BY
DRAWN BY H.L. Hoffman DATE 10-70



PLAN
END BENT Nº1
14 Pile Spaces @ 5'-2" = 72'-4"
8 Girder Spaces @ 8'-0 1/8"(-) = 64'-0 11/16"
Plumb Pile (Typical)
Brace Pile Batter 3:12 (Typical)
℄ Bridge
℄ N.C. 43
℄ Bearing ℄ Piles
Retaining Block See Details
Fill Face
1" Expansion Jt. Material Step Spacing
Sta. 11+48.69
1 1/2"φ × 22" Long Anchor Bolts To Project 6 1/2" Above Bridge Seat (Typical)
WINGWALL W-2
WINGWALL W-1
SECTION B-B
Fill Face
Top Of Wall El. 210.775
Top Of Wall El. 210.673
Line 'A'
ELEVATION-WINGWALL W-1
Wingwall Shown Unfolded About Line 'A'
El. 210.673
El. 210.778
El. 202.844
℄ 12" Square Prestressed Concrete Pile
ELEVATION
END BENT Nº1
Girder Nos. & Bridge Seat Elevations
① El. 205.507
② El. 205.550
③ El. 205.094
④ El. 205.858
⑤ El. 206.022
⑥ El. 205.852
⑦ El. 205.686
⑧ El. 205.513
⑨ El. 205.344
1'-0" Retaining Block
1" Expansion Jt. Material
El. 202.844
12" Square Prestressed Conc. Piles (Typical)
Pile Spacing
Brace Pile Spacing
Level
Note: Provide 3" High Beam Bolsters (BB) @ 3'-0" Ctrs. At Bottom 'b' Bars.
SECTION C-C
Top Of Wall El. 210.650
Top Of Wall El. 210.751
Line 'B'
TYPICAL SECTION THRU WINGWALLS
12" Square Prestressed Concrete Pile
ELEVATION-WINGWALL W-2
Wingwall Shown Unfolded About Line 'B'
El. 210.650
El. 210.751
El. 202.844
℄ 12" Square Prestressed Concrete Piles
TYPICAL SECTION THRU CAP
Fill Face
Anchor Bolts
℄ End Bent & ℄ Plumb Piles
12" Square Prestressed Concrete Piles
Note: Care Shall Be Taken In Placing Bars To Clear Anchor Bolts.
PLAN
SECTION A-A
RETAINING BLOCK DETAILS
2 REQUIRED PER END BENT
See Approach Slab Sheet For P.V.C. Drain Pipe Details.
For Bill of Material, See End Bent No. 2.
Note:
N.F. Denotes Near Face
F.F. Denotes Far Face
E.F. Denotes Each Face
For 12" Sq. Prestressed Concrete pile standard See Bridge at sta. 2240+17.23 N.B.L.

PROJECT NO. 8.1151706

NASH COUNTY

STATION: 2315+95.16 I-95 / 12+59.94 N.C. 43

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

N.C. 43 UNDERPASS

SUBSTRUCTURE

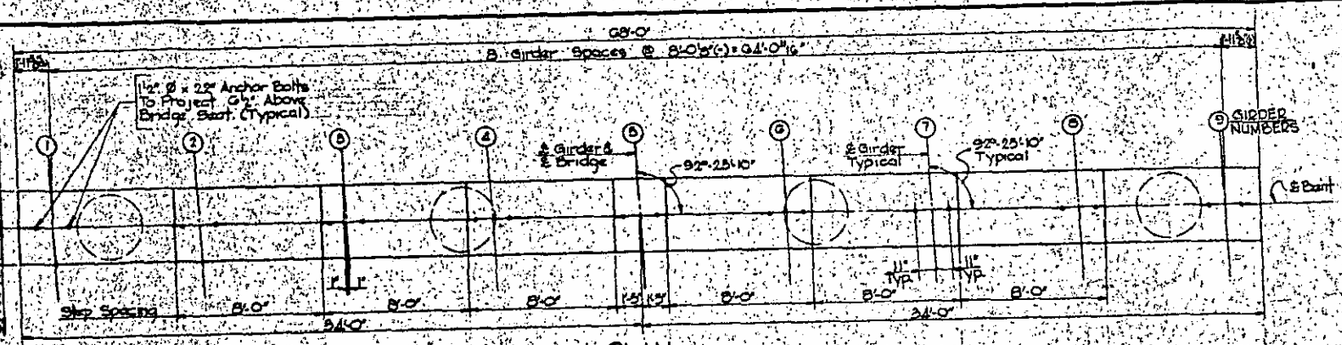
END BENT NO. 1

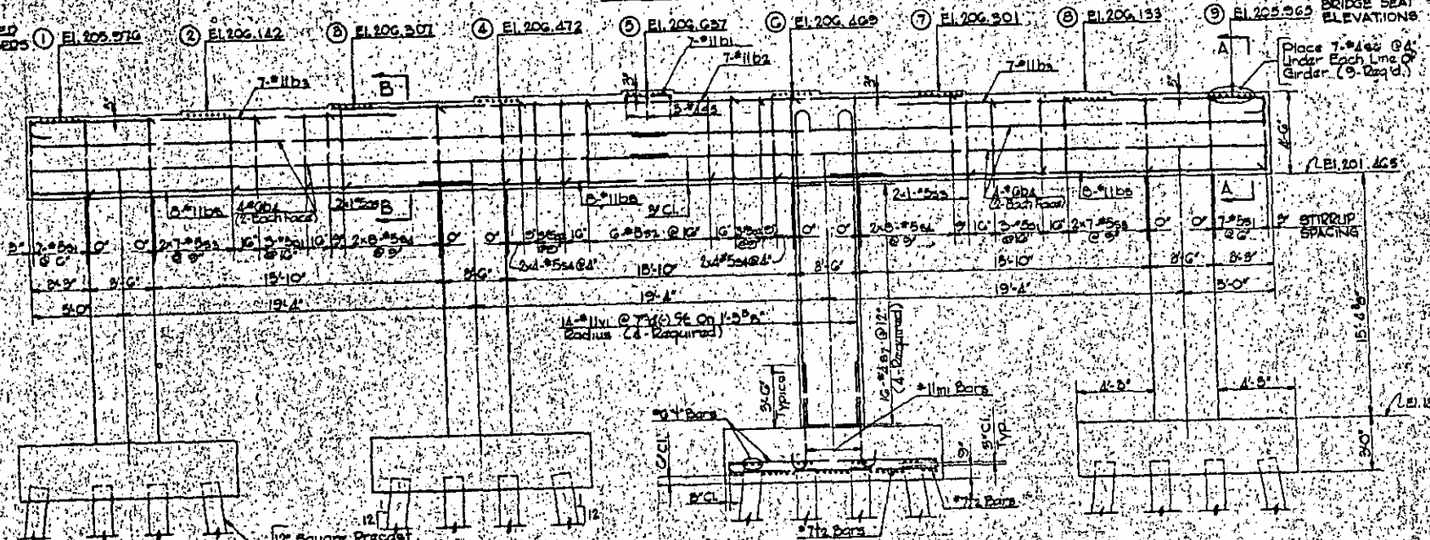
RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA

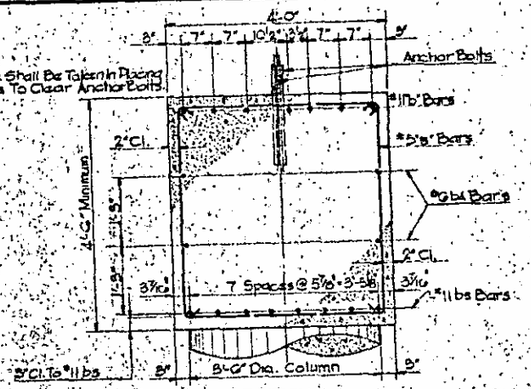
REVISIONS

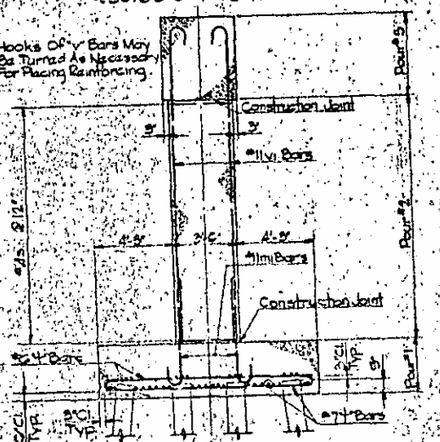
S-31

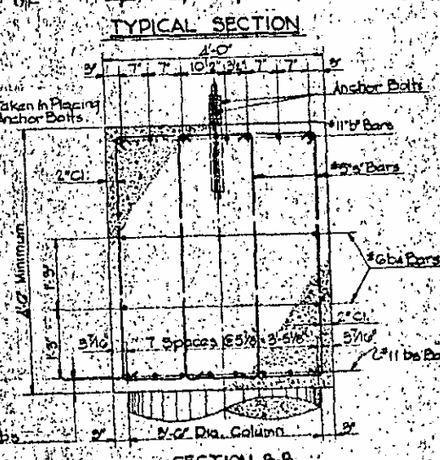
4	N.C.	8.1161706	
F.A. PROJECT	7-95-3(38)139		



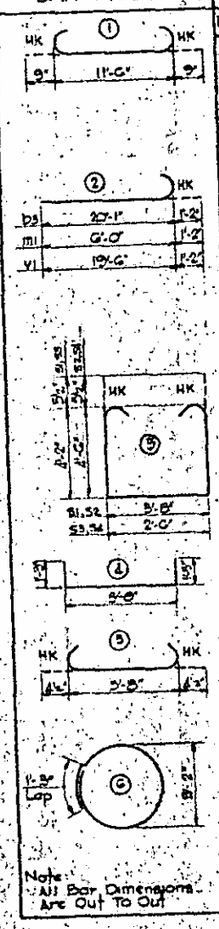








BAR TYPES



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
b7	7	#11	Str.	21'-4"	97
b3	7	#11	Str.	54'-4"	1,277
b9	14	#11	⑤	21'-8"	508
b4	8	#6	Str.	22'-8"	417
b5	24	#11	Str.	24'-11"	3,177
m1	50	#11	②	7'-2"	2,132
91	20	#5	③	12'-4"	205
92	12	#5	④	13'-7"	170
93	52	#5	⑤	11'-9"	382
94	48	#5	⑥	12'-5"	622
98	9	#4	⑦	6'-2"	12
99	72	#4	⑧	4'-8"	212
97	60	#4	⑨	11'-3"	451
T	36	#6	Str.	11'-0"	1,668
T2	192	#7	①	19'-0"	5,102
VI	50	#11	⑩	20'-8"	6,145
Reinforcing Steel		Lbs.			23,725
12" Square Prestressed Concrete Piles		NO.			64
		L.F.			3151

CLASS 'A' CONCRETE BREAKDOWN		
Pour No. 1 Footing	C.Y.	64.0
Pour No. 2 Columns	C.Y.	18.3
Pour No. 3 Cap	C.Y.	48.1
TOTAL	C.Y.	130.4

PROJECT NO. 8.1161706

NASH COUNTY

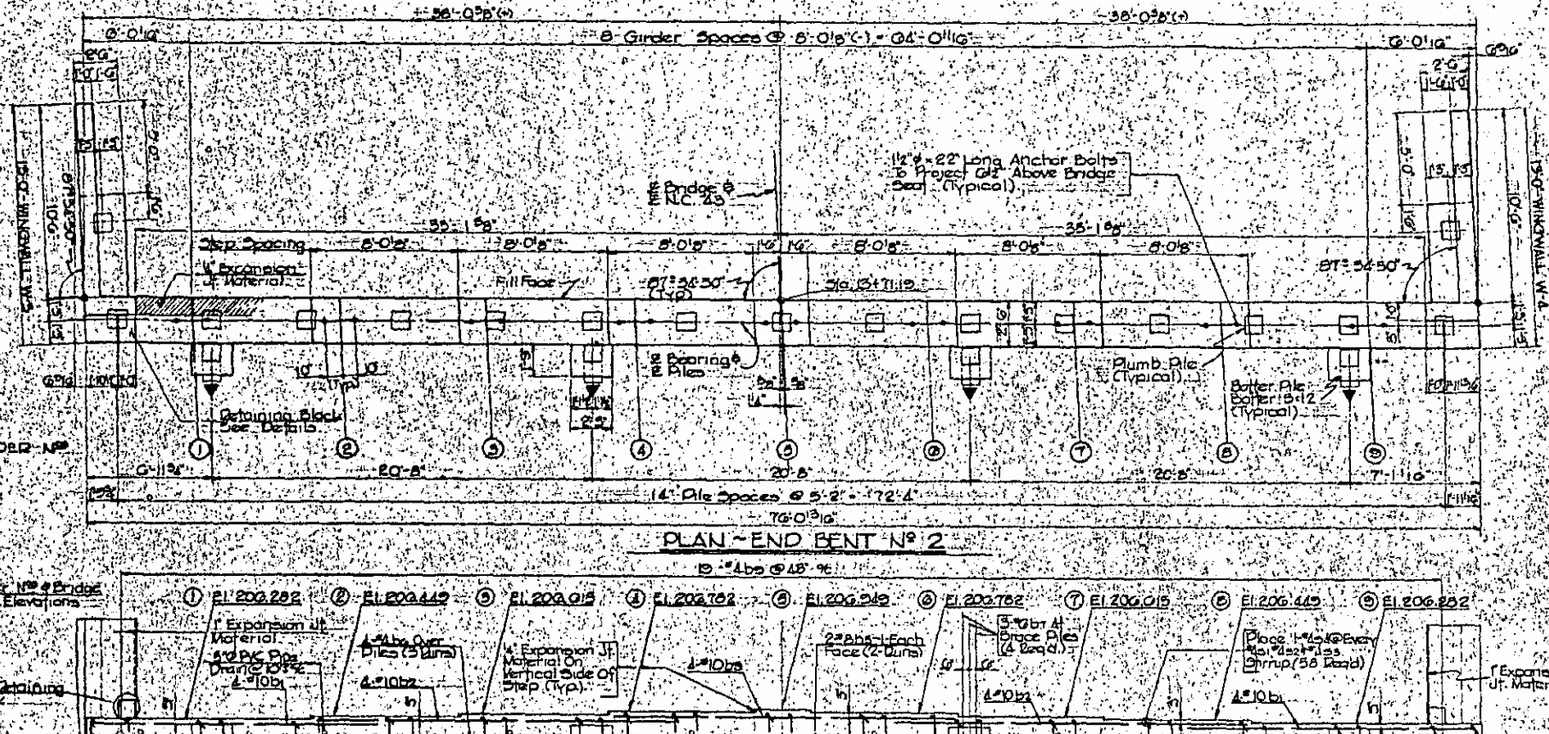
STATION: 2315+95.16 I-95
12+59.94 N.C. 43

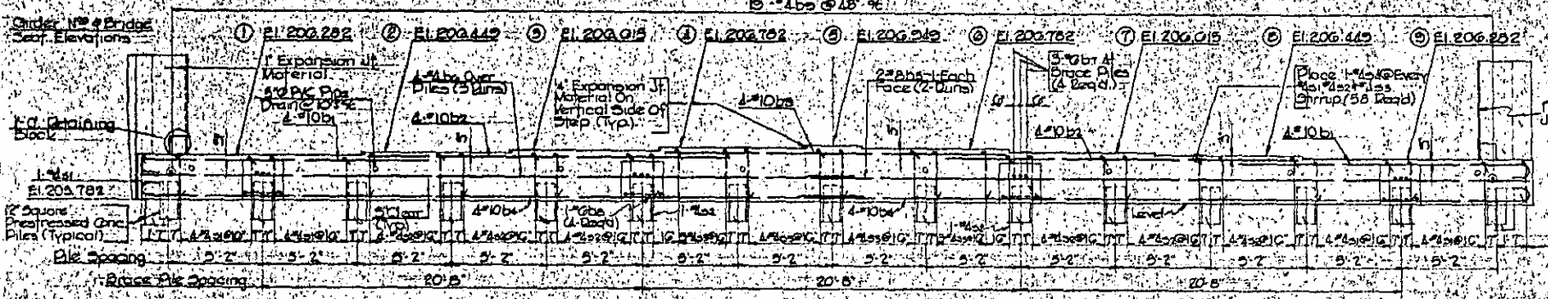
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

N. C. 43 UNDERPASS
SUBSTRUCTURE
BENT NO. 1

RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-32
1			3			TOTAL SHEETS
2			4			76





4	N.C.	8.1161706
F.A. PROJECT I-95-3(38)139		

PLAN ~ END BENT No 2

ELEVATION ~ END BENT No 2

SECTION D-D

See Approach Slab Sheet For PVC Drain Pipe Details

SECTION E-E

ELEVATION ~ WINGWALL W-3

Note: N.F. Denotes Near Face
F.F. Denotes Far Face
E.F. Denotes Each Face

ELEVATION ~ WINGWALL W-4

BAR TYPES

Note: All Bar Dimensions Are Out To Out.

BILL OF MATERIAL

END BENTS ~ No 1 & No 2

BAR	NUMBER EB#1	NUMBER EB#2	SIZE	TYPE	LENGTH	WEIGHT E.B.#1	WEIGHT E.B.#2
b1	8	8	#10	1	16'-11"	582	582
b2	8	8	#10	Str.	19'-4"	666	666
b3	4	4	#10	Str.	16'-6"	316	316
b4	8	8	#10	1	40'-7"	1,397	1,397
b5	4	4	#8	Str.	39'-2"	418	418
b6	12	12	#4	Str.	25'-1"	209	209
b7	12	12	#6	2	5'-3"	95	95
b8	4	4	#6	3	11'-1"	67	67
b9	27	27	#4	Str.	2'-2"	39	39
b10	8	8	#10	1	8'-11"	307	307
b11	2	2	#8	Str.	7'-10"	42	42
b12	4	4	#6	Str.	7'-10"	47	47
d1	8	8	#10	4	14'-7"	502	502
d2	8	8	#5	4	14'-7"	122	122
h1	8	8	#5	Str.	11'-2"	93	93
h2	4	4	#5	5	12'-11"	54	54
h3	6	6	#5	5	4'-4"	27	27
h4	12	12	#5	Str.	2'-7"	32	32
h5	2	2	#5	Str.	10'-8"	21	21
h6	1	1	#5	5	12'-0"	13	13
h7	2	2	#5	Str.	9'-4"	19	19
h8	1	1	#5	5	11'-1"	12	12
h9	6	6	#5	4	4'-4"	27	27
h10	4	4	#5	4	12'-11"	54	54
h11	1	1	#5	4	12'-0"	13	13
h12	1	1	#5	4	11'-1"	12	12
s1	52	52	#4	6	7'-2"	155	155
s2	26	26	#4	6	7'-6"	130	130
s3	14	14	#4	6	8'-2"	76	76
s4	72	72	#4	7	2'-11"	140	140
v1	42	42	#5	Str.	7'-6"	329	329
v2	4	4	#5	Str.	7'-0"	29	29
v3	4	4	#5	Str.	6'-2"	26	26
v4	4	4	#5	Str.	5'-4"	22	22
v5	4	4	#5	Str.	4'-7"	19	19
v6	4	4	#5	Str.	3'-9"	16	16
v7	4	4	#5	Str.	2'-11"	12	12
BB1	6	6	#4	8	4'-10"	19	19
BB2	4	4	#4	Str.	1'-2"	3	3
Reinforcing Steel					Lbs.	6,122	6,122

		EB#1	EB#2
Class 'A' Concrete *	C.Y.	28.4	28.4
12" Square Prestressed Concrete Piles	No.	21	21
	L.F.	1,454	1,455

* Concrete Displaced By Pile Heads Has Been Deducted

For Typical Section Thru Cap, See End Bent No. 1

PROJECT NO. 8.1161706

NASH **COUNTY**

STATION: 2315+95.16 I-95 = 12+59.94 N.C. 93

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

N. C. 93 UNDERPASS
SUBSTRUCTURE
END BENT NO. 2

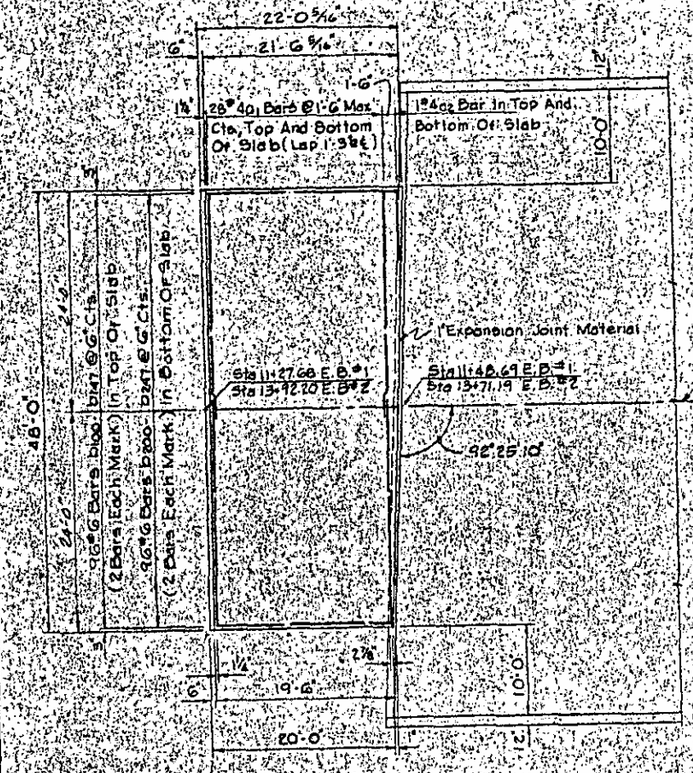
RUMMEL, KLEPPER & KAHL
CONSULTING ENGINEERS
RALEIGH, NORTH CAROLINA

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

SHEET NO. S-33
TOTAL SHEETS 76

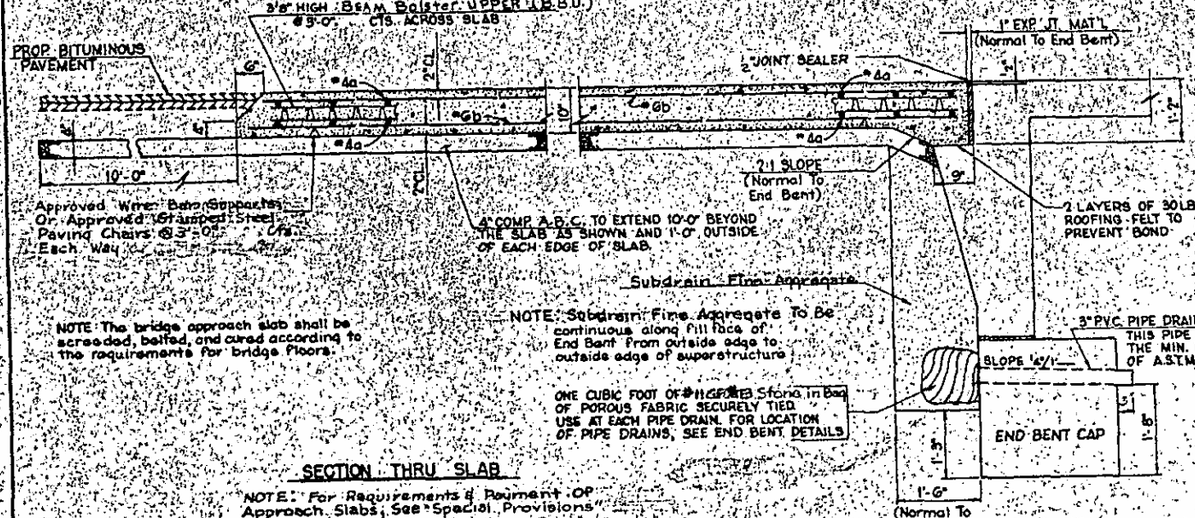
CHECKED BY DATE Sept 73
DRAWN BY DATE Sept 73

DIV NO.	STATE	PROJECT NO.
4	N.C.	8.1161706
F.A. PROJECT	T-95-3(61)139	



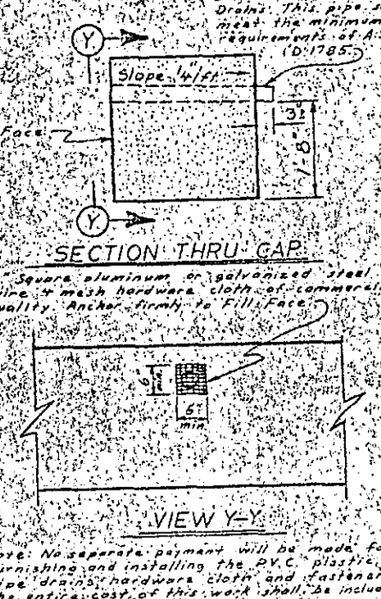
PLAN @ END BENT NO. 1

Approach Slab @ End Bent No. 2 Similar By Rotation



SECTION THRU SLAB

NOTE: For Requirements & Payment OF Approach Slabs, See "Special Provisions"



Note: No separate payment will be made for furnishing and installing the P.V.C. plastic pipe drains, hardware cloth and fasteners. The entire cost of this work shall be included in the unit contract price bid for the several pay items.

PIPE DRAIN DETAILS

VIEW Y-Y

NOTE: No scale

BILL OF MATERIAL

FOR ONE UNIT — TWO REQUIRED

BAR	NO	SIZE	TYPE	LENGTH	WEIGHT
a1	56	4	Str.	24-6	916
a2	2	4	Str.	12-3	16
b100	2	6	Str.	19-3"	28
b101				19-5"	28
b102				19-4"	58
b103				19-4"	58
b104				19-5"	58
b105				19-5"	58
b106				19-6"	58
b107				19-6"	58
b108				19-7"	59
b109				19-7"	59
b110				19-8"	59
b111				19-8"	59
b112				19-9"	59
b113				19-9"	59
b114				19-10"	59
b115				19"10	59
b116				19-11"	60
b117				19-11"	60
b118				20-0"	60
b119				20-0"	60
b120				20-1"	60
b121				20-1"	60
b122				20-2"	60
b123				20-2"	60
b124				20-3"	61
b125				20-3"	61
b126				20-4"	61
b127				20-4"	61
b128				20-5"	61
b129				20-5"	61
b130				20-6"	61
b131				20-7"	62
b132				20-7"	62
b133				20-8"	62
b134				20-8"	62
b135				20-9"	62
b136				20-9"	62
b137				20-10"	62
b138				20-10"	62
b139				20-11"	63
b140				21-0"	63
b141				21-0"	63
b142				21-1"	63
b143				21-1"	63
b144				21-2"	63
b145				21-2"	63
b146				21-3"	64
b147	2	6	Str.	21-3"	64
b200	2	6	Str.	19-8"	59
b201	1	4	Str.	19-8"	59
b202				19-9"	59
b203				19-9"	59
b204				19-10"	60
b205				20-0"	60
b206				20-1"	60
b207				20-1"	60
b208				20-2"	61
b209				20-2"	61
b210				20-3"	61
b211				20-3"	61
b212				20-4"	61
b213				20-4"	61
b214				20-5"	61
b215				20-5"	61
b216				20-6"	62
b217				20-6"	62
b218				20-7"	62
b219				20-7"	62
b220				20-8"	62
b221				20-8"	62
b222				20-9"	62
b223				20-9"	62
b224				20-10"	62
b225				20-10"	62
b226				20-11"	63
b227				21-0"	63
b228				21-0"	63
b229				21-1"	63
b230				21-1"	63
b231				21-2"	63
b232				21-2"	63
b233				21-3"	64
b234				21-3"	64
b235				21-4"	64
b236				21-4"	64
b237				21-5"	64
b238				21-5"	64
b239				21-6"	65
b240				21-6"	65
b241				21-7"	65
b242				21-7"	65
b243				21-8"	65
b244				21-8"	65
b245				21-9"	65
b246				21-9"	65
b247	2	6	Str.	21-10"	66

Quantities For One Unit
Reinforcing Steel Lbs. = 6811
Class A-A Conc. Cu. Yds. = 51.6
Two Units Read: @ This Structure Location
Total Quantities
Reinforcing Steel Lbs. = 13,634
Class A-A Conc. Cu. Yds. = 103.2

PROJECT NO. 8.1161706

NASH COUNTY

STATION 231+95.16 -L- 95

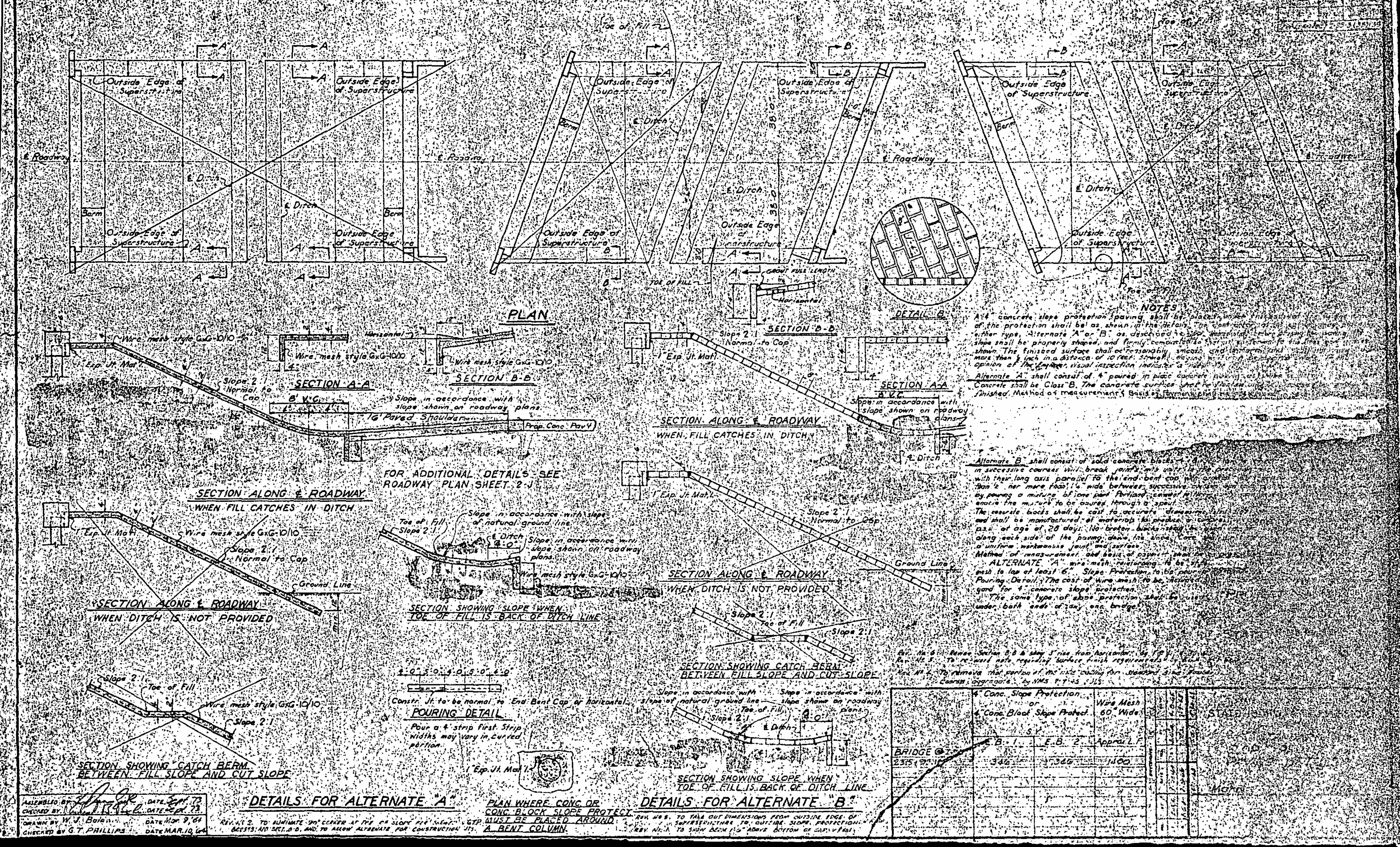
112+51.94 N.C. 43

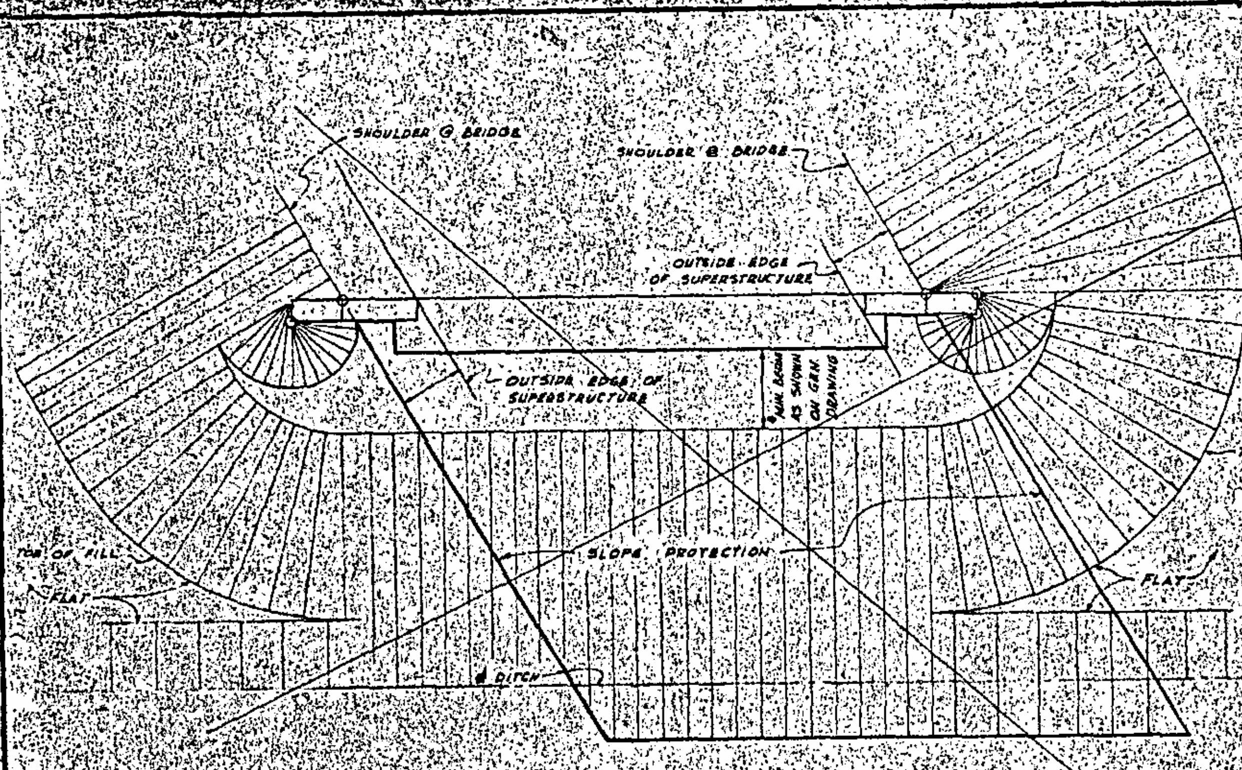
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT OVERPASS @ N.C. 43

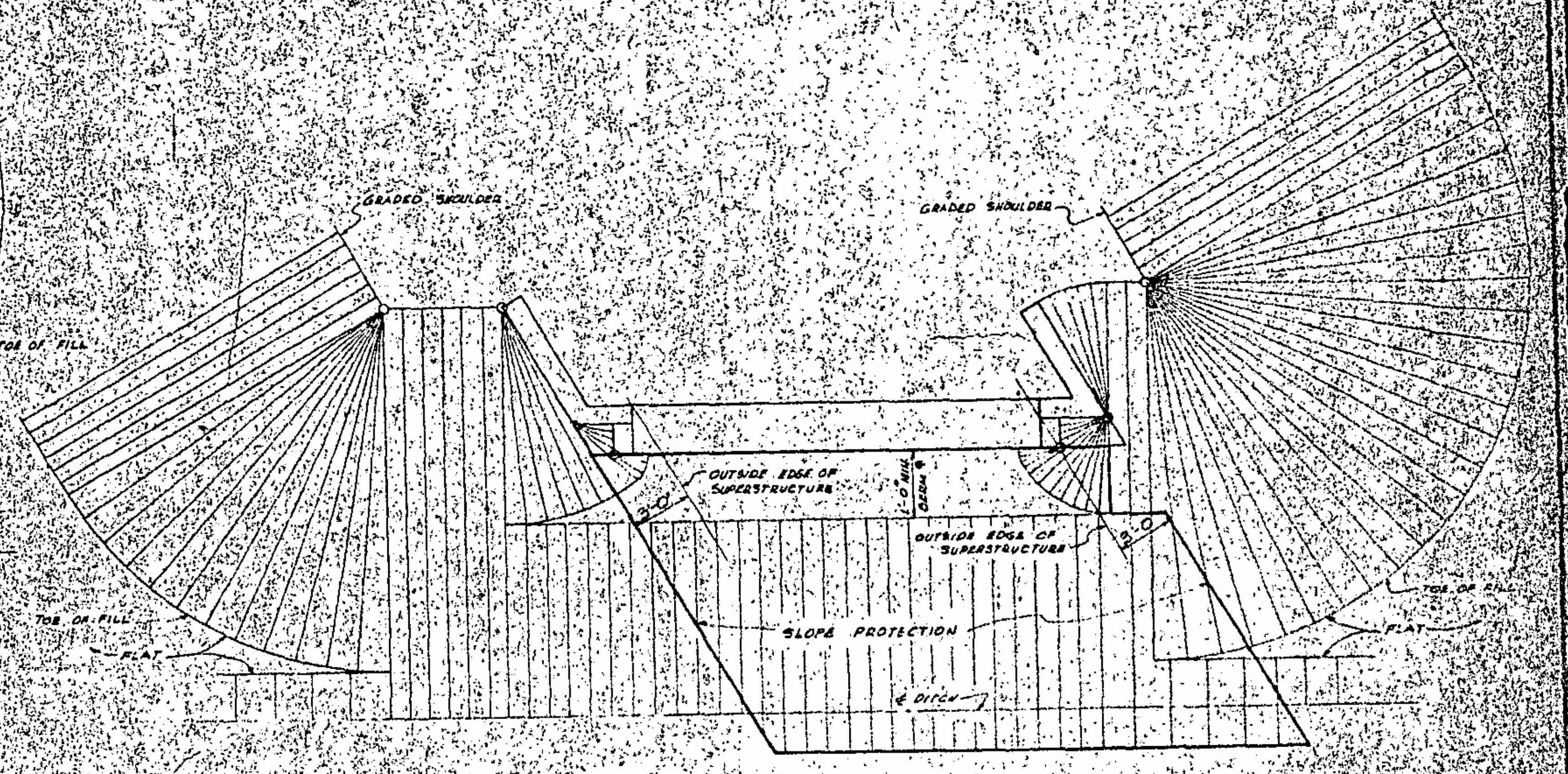
REVISIONS						SHEET NO.
NO	BY	DATE	NO	BY	DATE	5-34
1			3			TOTAL SHEETS
2			4			76

CHECKED BY: R. Grant DATE: 7-12-73


Toe of Fill
Outside Edge of Superstructure
Berm
℄ Roadway
℄ Ditch
38.0'
1'-0" Min.
PLAN
DETAIL B
SECTION A-A
SECTION B-B
Wire mesh style GxG-10/10
Exp. Jt. Mat'l
Slope 2:1 Normal to Cap
Horizontal
Grout full length
Slope in accordance with slope shown on roadway plans.
16' Paved Shoulder
Prop. Conc. Pav't
SECTION ALONG ℄ ROADWAY
WHEN FILL CATCHES IN DITCH
WHEN DITCH IS NOT PROVIDED
Ground Line
FOR ADDITIONAL DETAILS SEE ROADWAY PLAN SHEET 2-J
Slope in accordance with slope of natural ground line
SECTION SHOWING SLOPE WHEN TOE OF FILL IS BACK OF DITCH LINE
SECTION SHOWING CATCH BERM BETWEEN FILL SLOPE AND CUT SLOPE
4'-0" 5'-0" 4'-0" 5'-0" 4'-0"
Constr. Jt. to be normal to End Bent Cap or horizontal.
POURING DETAIL
Pour a 4' strip first. Strip widths may vary in curved portion.
NOTES
A 4" concrete slope protection paving shall be placed [illegible] of the protection shall be as shown in the details. The contractor [illegible] either type, Alternate "A" or "B" as described [illegible] slope shall be properly shaped and firmly compacted so that [illegible] shown. The finished surface shall be reasonably smooth and uniform [illegible] more than ½ inch in a distance of 10 feet. [illegible] opinion of the Engineer visual inspection indicates a [illegible]
Alternate "A" shall consist of 4" poured in place concrete [illegible] Concrete shall be Class "B". The concrete surface shall be [illegible] finished. Method of measurement & Basis of Payment shall [illegible]
Alternate "B" shall consist of solid concrete blocks [illegible] in successive courses will break joints with [illegible] with their long axis parallel to the end bent cap [illegible] than ½" nor more than 1¼" wide between successive [illegible] by pouring a mixture of one part Portland cement [illegible] enable the mixture to be poured through a spout.
The concrete blocks shall be cast to accurate dimensions [illegible] and shall be manufactured of materials to produce a compressive [illegible] p.s.i. at age of 28 days. No broken blocks shall be used [illegible] along each side of the paving, done the slope. Care [illegible] a uniform workmanlike joint and surface.
Method of measurement and basis of payment shall be [illegible]
ALTERNATE "A" wire mesh reinforcing to be [illegible] mesh to lap at least 6". Slope Protection to be poured [illegible] Pouring Detail. The cost of wire mesh to be included [illegible] yard for 4" concrete slope protection.
The same type of slope protection shall be used under both ends of any one bridge.
Rev. No. 6 Revise Section B-B to show 3" rise from horizontal. By T.F.[illegible]
Rev. No. 5 To re-word note regarding surface finish requirements [illegible]
Rev. No. 4 To remove that portion of the note calling for standard size coarse aggregate. By HMS 7-7-65 JLS
4" Conc. Slope Protection or 4" Conc. Block Slope Protect.
Wire Mesh 60" Wide
E.B. 1
E.B. 2
Appro. L.F.
BRIDGE
346
346
1400
ASSEMBLED BY
CHECKED BY
DATE Sept. 73
DRAWN BY W. J. Bales
DATE Mar. 9, '64
CHECKED BY G. T. PHILLIPS
DATE MAR. 10, '64
DETAILS FOR ALTERNATE "A"
PLAN WHERE CONC. OR CONC. BLOCK SLOPE PROTECT. MUST BE PLACED AROUND A BENT COLUMN
DETAILS FOR ALTERNATE "B"
REV. NO. 2 TO ELIMINATE 90° CORNER AT TOE OF SLOPE [illegible] AND TO ALLOW ALTERNATE FOR CONSTRUCTION JTS. GTP
REV. NO. 3 TO TAKE OUT DIMENSIONS FROM OUTSIDE EDGE OF SUPERSTRUCTURE TO OUTSIDE SLOPE PROTECTION
REV. NO. 1 TO SHOW BERM 1'-0" ABOVE BOTTOM OF CAP

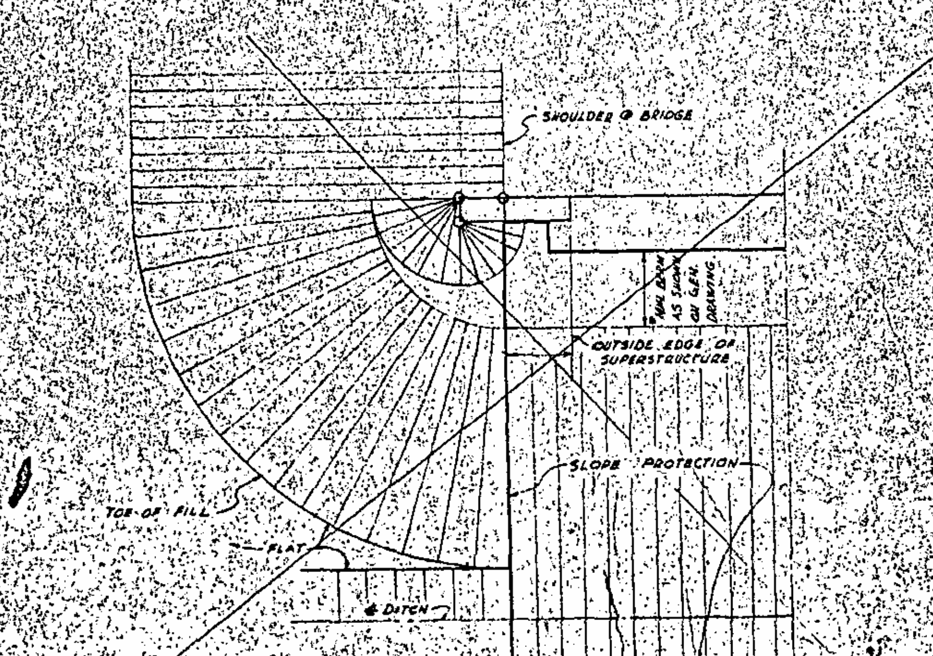


END BENT WITH EAR WALLS - SKEWED



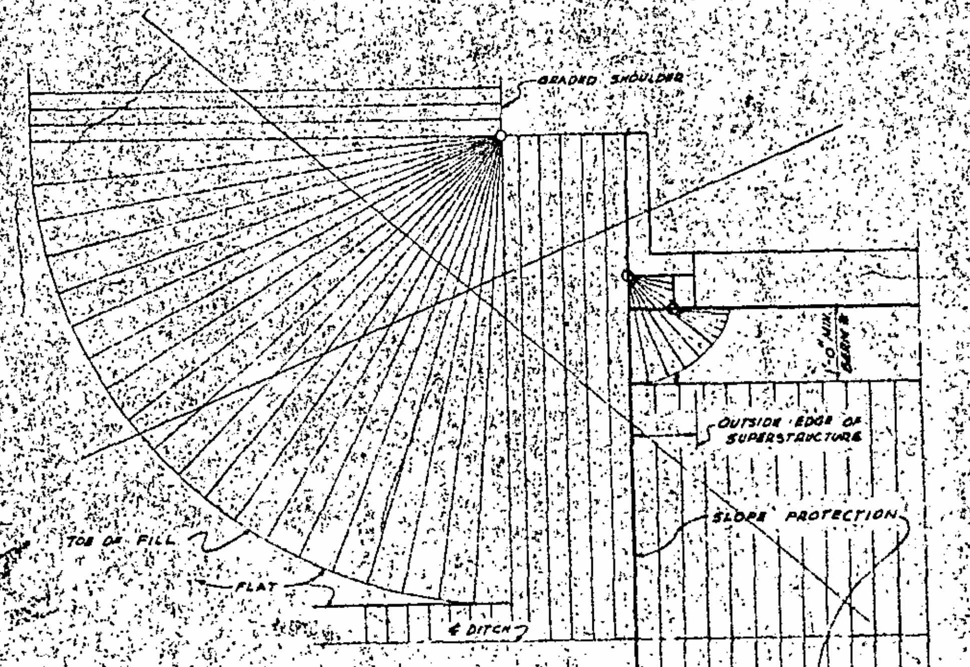
END BENT WITH SWEPT BACK WINGS - SKEWED

* NOTE: VARY BERM WIDTH AS NECESSARY TO FIT DITCH ALIGNMENT.



HALF PLAN END BENT WITH EAR WALLS - 90°

NOTE: OTHER SIDE SIMILAR.



HALF PLAN END BENT WITH SWEPT BACK WINGS - 90°

NOTE: OTHER SIDE SIMILAR.

PROJECT NO. 8.1161705

NASH COUNTY

STATION 2315-95 16.1 ... 12+50.94

SHEET 2 OF 2

ASSEMBLED BY	[signature]	DATE	Sept. 73
CHECKED BY	[signature]	DATE	Sept. 73
DRAWN BY	B.G. ALFORD, JR.	DATE	FEB. '64

Rev. No. 3 To change min. berm from 3'-6" to 1'-0" on End Bents with Swept Back Wings. ✓O.W.R.
REV. NO. 2 TO ELIMINATE 90° CORNER AT TOE OF SLOPE FOR SKEWED BRIDGES. ✓G.T.P.
REV. NO. 1 TO TAKE OUT DIMENSIONS FROM OUTSIDE EDGE OF SUPERSTRUCTURE TO OUTSIDE SLOPE PROTECTION. ✓E.G.A.

REVISIONS			
NO.	BY	DATE	
1	E.G.A.	10-27-64	
2	E.G.A.	2-5-65	
3	P.H.E.	10-31-66	

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

STANDARD
SLOPE PROTECTION PAVING
DETAILS

FEBRUARY 1964