

1. Pile Cluster 15'-0" out from end of wale. 6 outside piles to be equally spaced on a 6' diameter circle at top and batter 1 1/2" in 12". Draw the piles together at the top and wrap with 3 strands of 6x19-3/4" galvanized cable. Cable shall be secured with 3/8" galvanized staples.

2. Pile Cluster at end of wales. 6 outside piles to be equally spaced on a 6' diameter circle and drawn together at top. Wrap with 3 strands of 6x19-3/4" galvanized cable. Cable shall be secured with 3/8" galvanized staples.

Note: All ends of cables to be secured with three standard cable clamps at minimum 6" spacings.

Drive piles on 3ft centers and draw together at top with 3 strands of 6x19-3/4" galvanized cables. Cable shall be secured with 3/8" galvanized staples.

DETAIL OF 3-PILE CLUSTER WALES "B" (Typical)

WALE FASTENING DETAIL 3-PILE CLUSTER

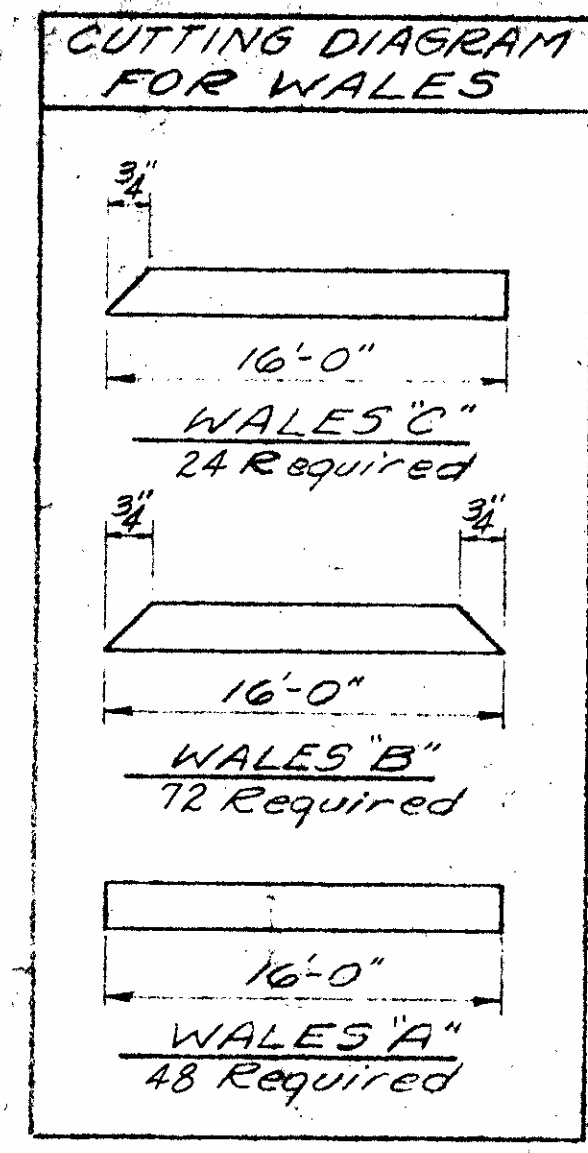
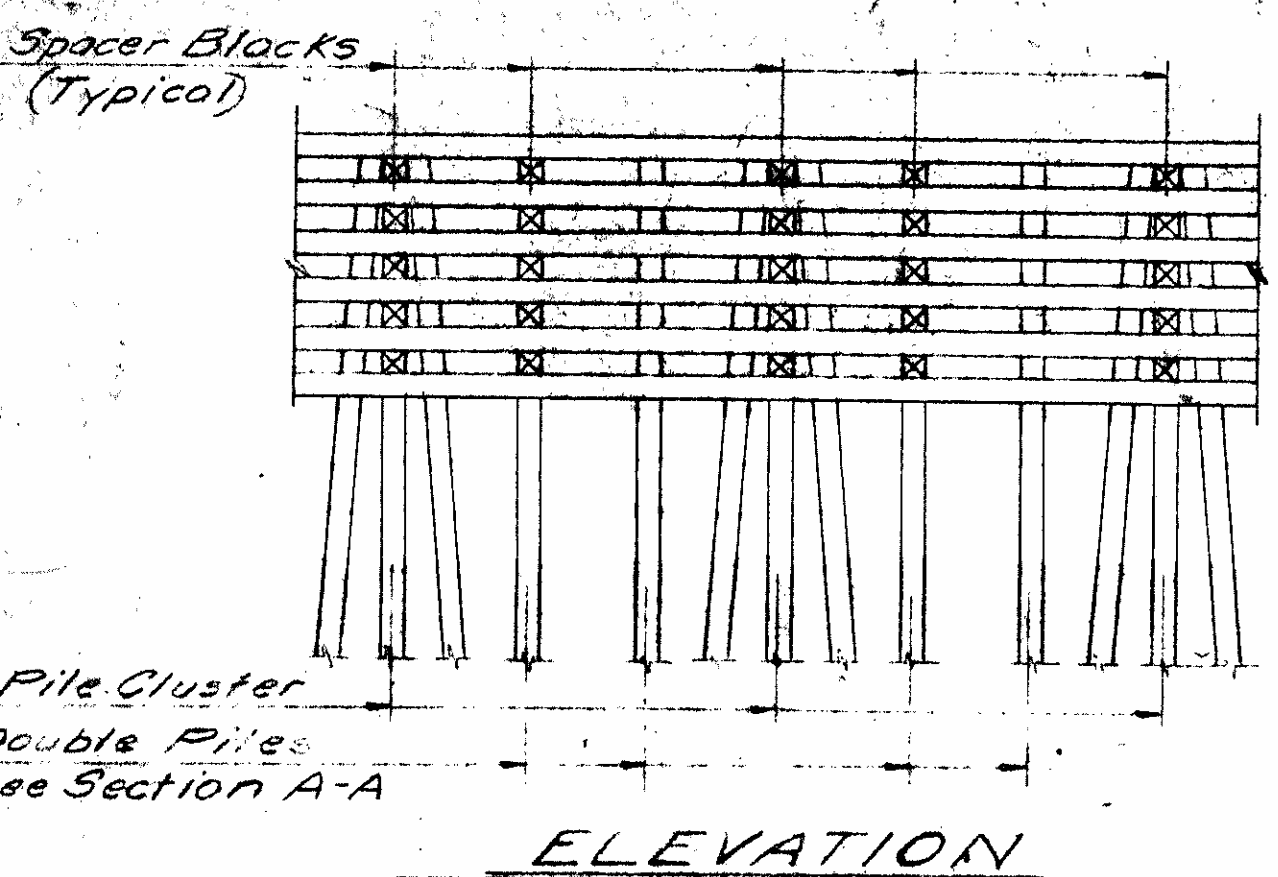
1 1/2" Dome head spike

3 Pile Cluster (Typical)

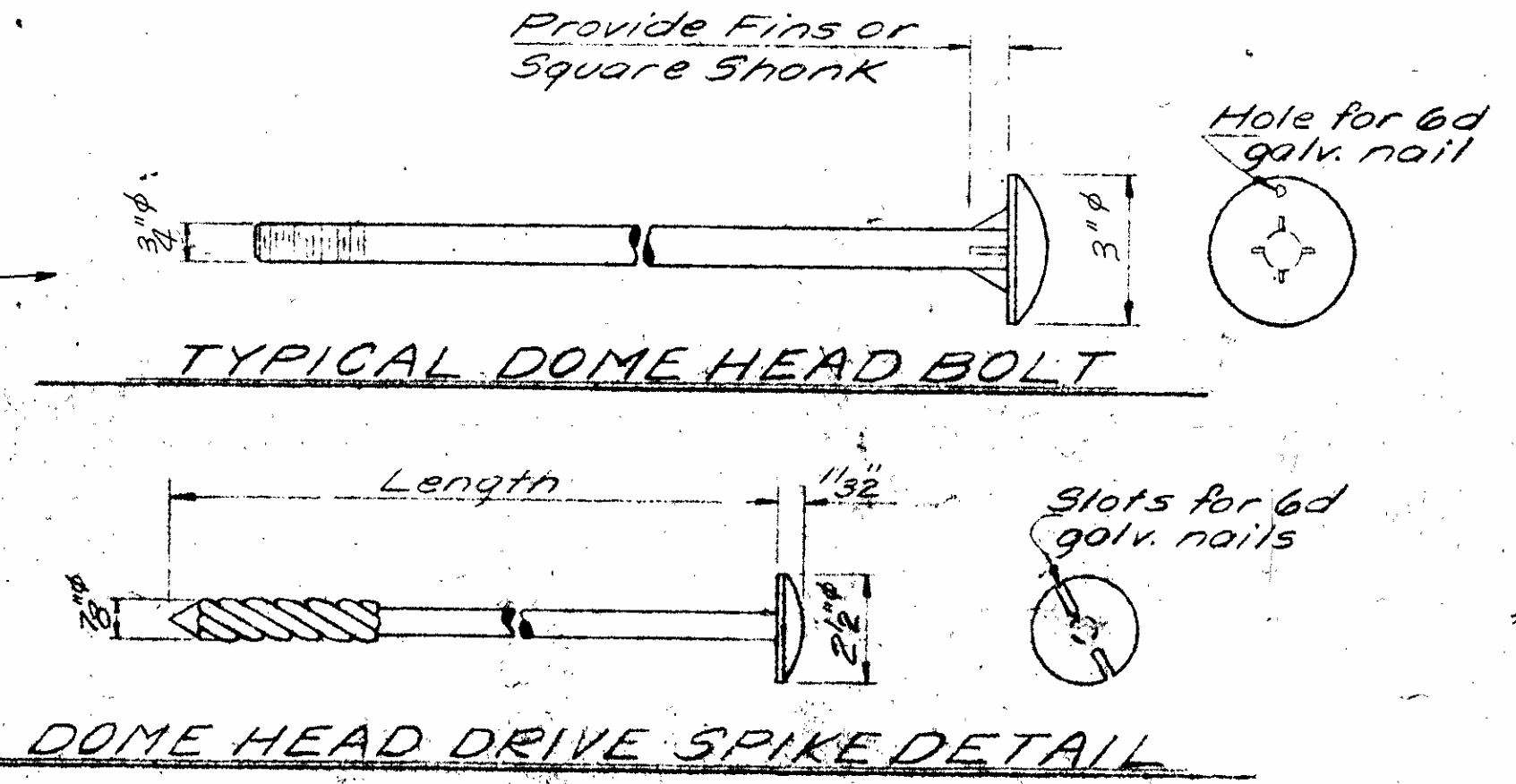
Wales "B" (Typical)

Wales "C" (Typical)

7 Pile Cluster



FENDER TOTAL BILL OF MATERIAL Creosoted Timber					
Item	No.	Size	Surface to	Length	M.B.F.
Wales	144	6x10	6x10	16'-0"	11,520
Spacers	250	6x6	6x6	1'-0"	750
Headers	24	12x12	12x12	7'-0"	2,016
Creosoted Timber Piles					
Item	No.	Length	Total Lin. Ft.		
Piles	218	60	13,080		
* Hardware					
Dome Head Bolts	48	3/4"	2 1/2'	195	
Dome Head Bolts	48	3/4"	2'-9"	238	
Dome Head Bolts	240	3/4"	1'-8"	492	
O.G. Washers	336	3/4"		505	
Dome Head Spikes	48	7/8"	1'-6"	101	
Dome Head Spikes	312	7/8"	1'-0"	697	
3/8" Cable			1955'	1955	
Cable Clamps	360	3/4"		360	
Nails	1056	6d		6 need	
Nails	500	10d		10	
Staples	684	3/8"		342	
*TOTAL WEIGHT				Lbs.	5261
Total Creosoted Timber M.B.F.				14,286	

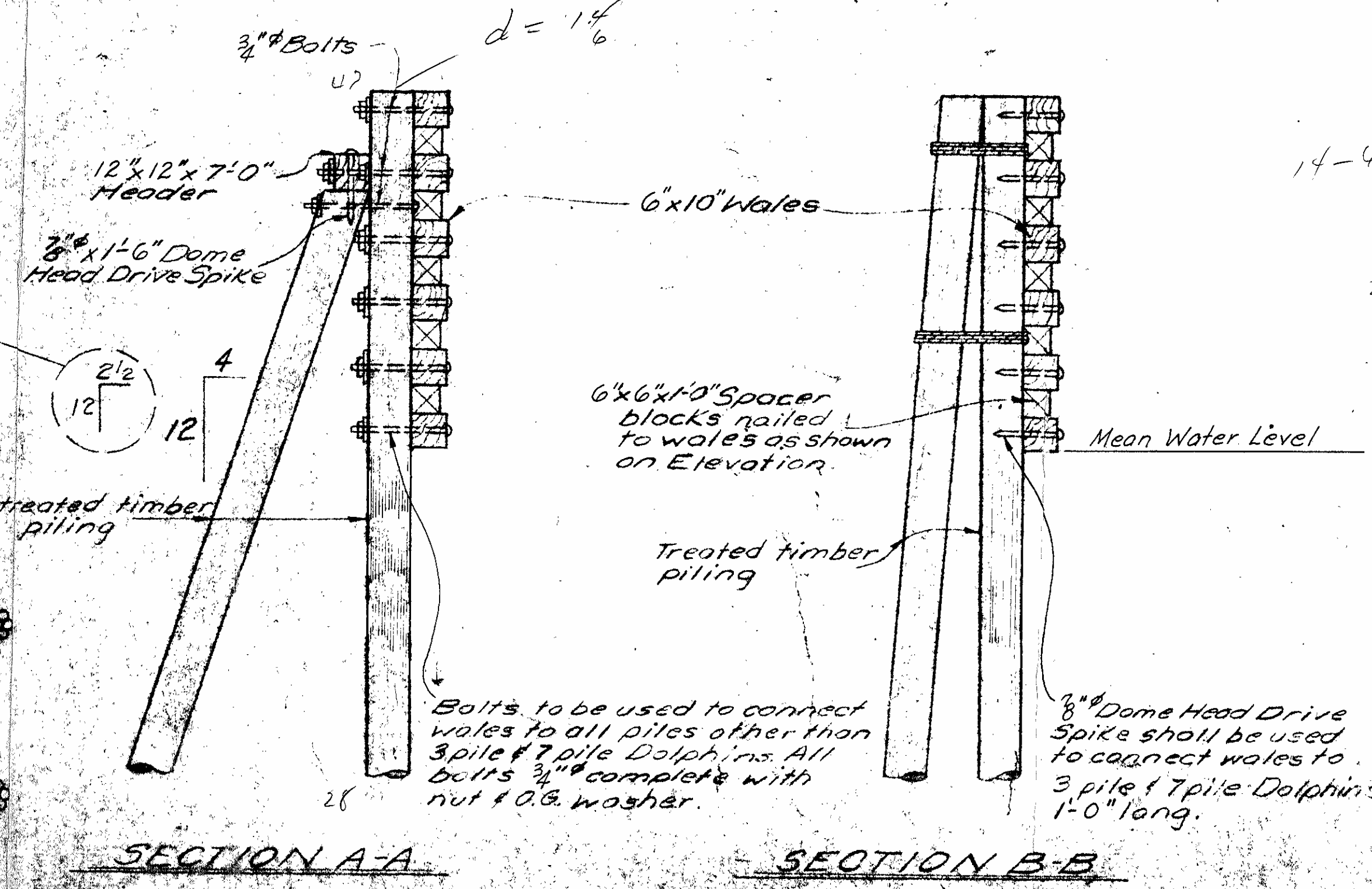


General Notes

All hardware shall be galvanized. All nuts, bolts, washers, and spikes shall be as manufactured by Jersey Bolt & Spike Corp. or Lewis Bolt and Nut Company or Screw Bolt Corp., Pittsburg, Pa., or equal.

All piles in the fender system shall be driven to the elevations shown on plans.

* Galvanized Hardware will not be paid for as a separate item, the entire cost of same to be included in the unit prices bid for the several pay items.



PROJECT No. _____ COUNTY _____

STATION: _____

CROATAN SOUND

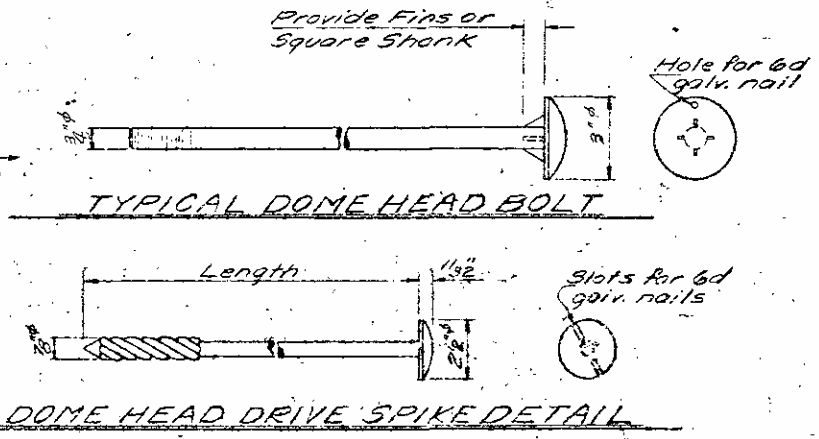
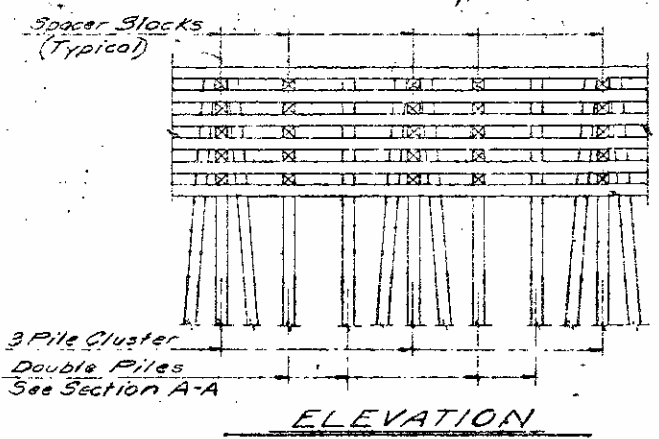
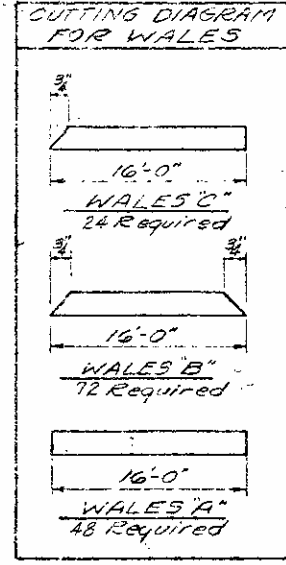
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH
FENDER SYSTEM

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	5-02	
1	RAH	7/1/74	3			TOTAL PAGES 64	
2			4				

NEW FENDER SYSTEM

FED. ROAD DIV. NO.	STATE	PROJECT NO.
4	N.C.	
F. A. PROJECT		

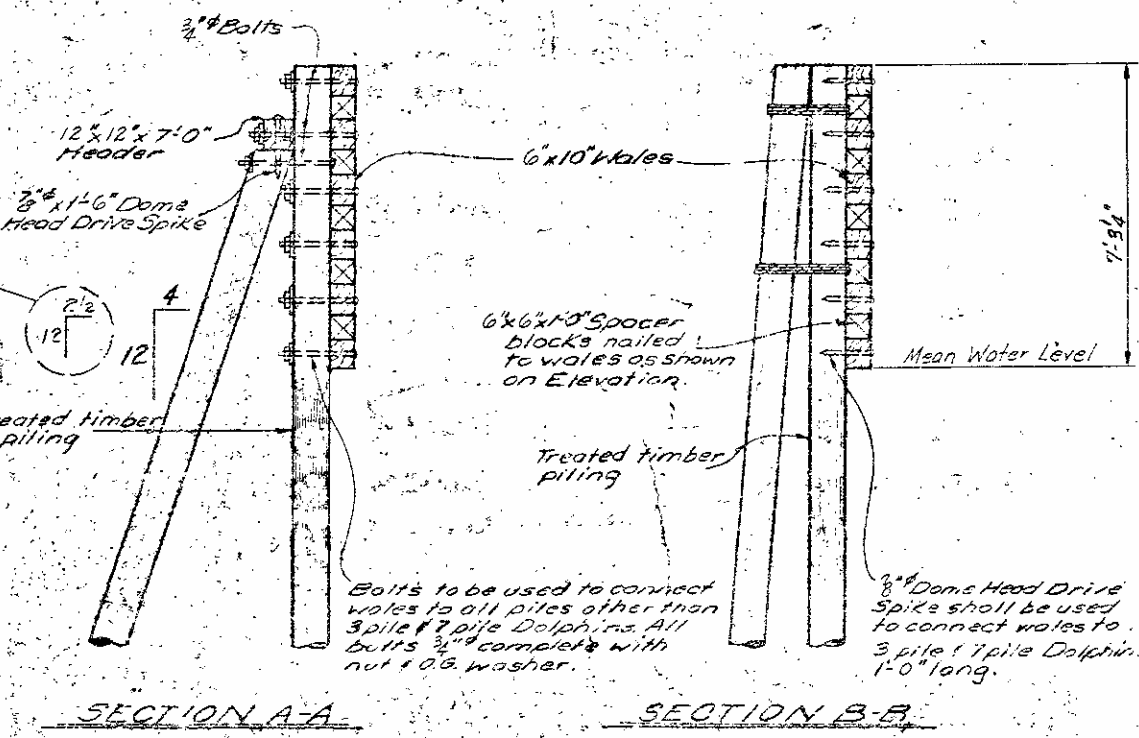
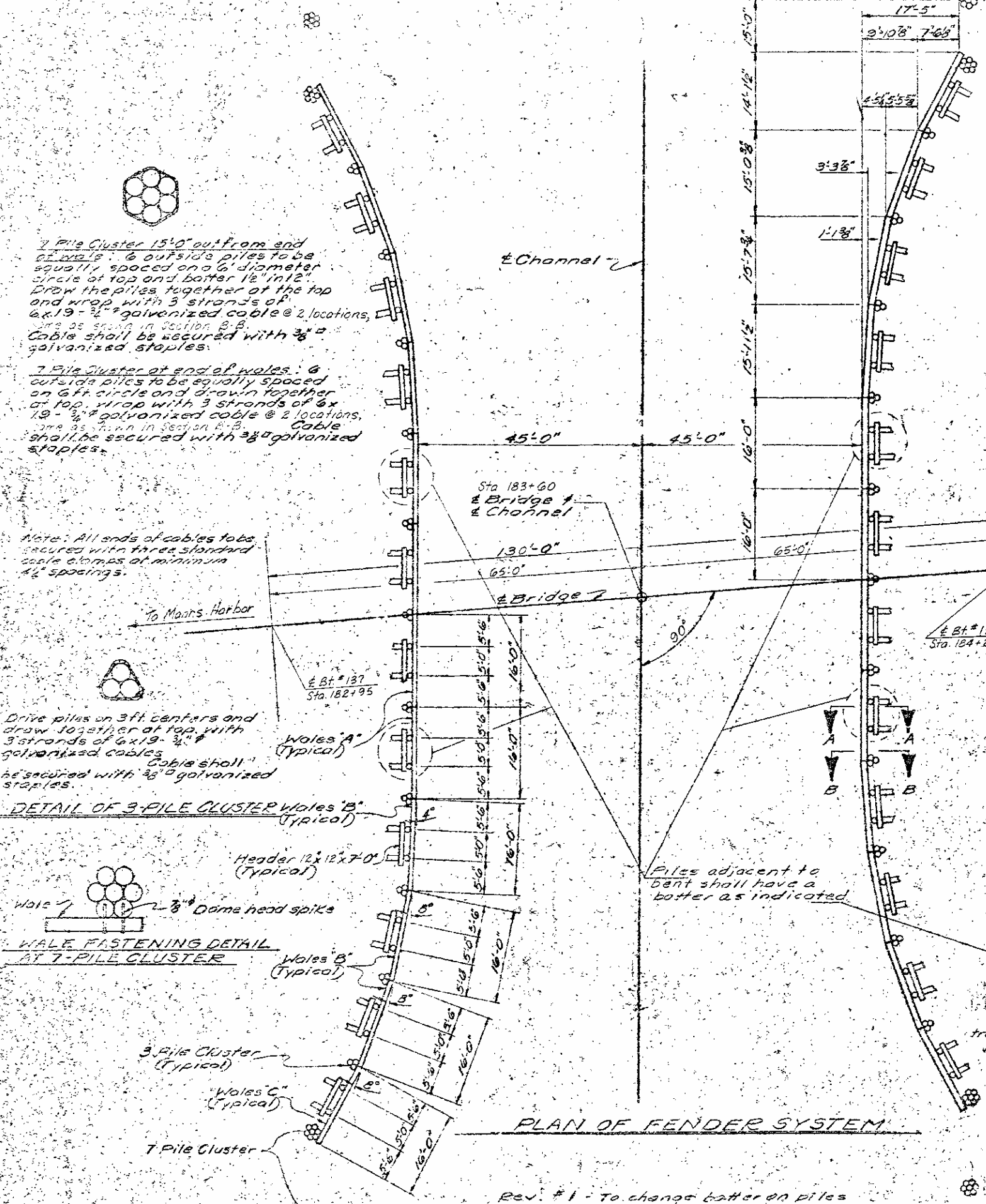
FENDER TOTAL BILL OF MATERIAL					
CCA Treated Timber					
Item	No.	Size	Surf. to Length	M.B.F.	
Wales	144	6x10	5 1/2 x 9 1/2	16'-0"	11,520
Spacers	250	6x6	5 1/2 x 5 1/2	1'-0"	1,500
Headers	24	12x12	11 1/2 x 12	7'-0"	2,016
CCA Treated Timber Piles					
Item	No.	Length	Total Lin. Ft.		
Piles	216	60	13,080		
* Hardware					
Item	No.	Size	Length	Weight (Lbs.)	
Dome Head Bolts	48	3/4"	2'-6"	219	
Dome Head Bolts	48	3/4"	2'-10"	243	
Dome Head Bolts	240	3/4"	1'-10"	852	
O. G. Washers	336	3/4"	-	505	
Dome Head Spikes	48	3/4"	1'-6"	161	
Dome Head Spikes	312	3/4"	1'-0"	697	
3/4" Cable	32	3/4"	19.55'	1,955	
Cable Clamps	360	3/4"	-	360	
Nails	1056	6d	-	6	
Nails	500	16d	-	10	
Staples	684	3/2"	-	342	
TOTAL WEIGHT				4,650	5,350
Total CCA Treated Timber M.B.F.				14,286	



General Notes

All hardware shall be galvanized. All nuts, bolts, washers, and spikes shall be as manufactured by Jersey Bolt & Spike Corp. or Lewis Bolt and Nut Company or Screw Bolt Corp., Pittsburg, Pa. or equal.

All piles in the fender system shall be driven to the elevations shown on plans.



PROJECT No. _____ COUNTY _____

DARE COUNTY

STATION: _____

CECATAN SOUND

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
 RALEIGH
FENDER SYSTEM

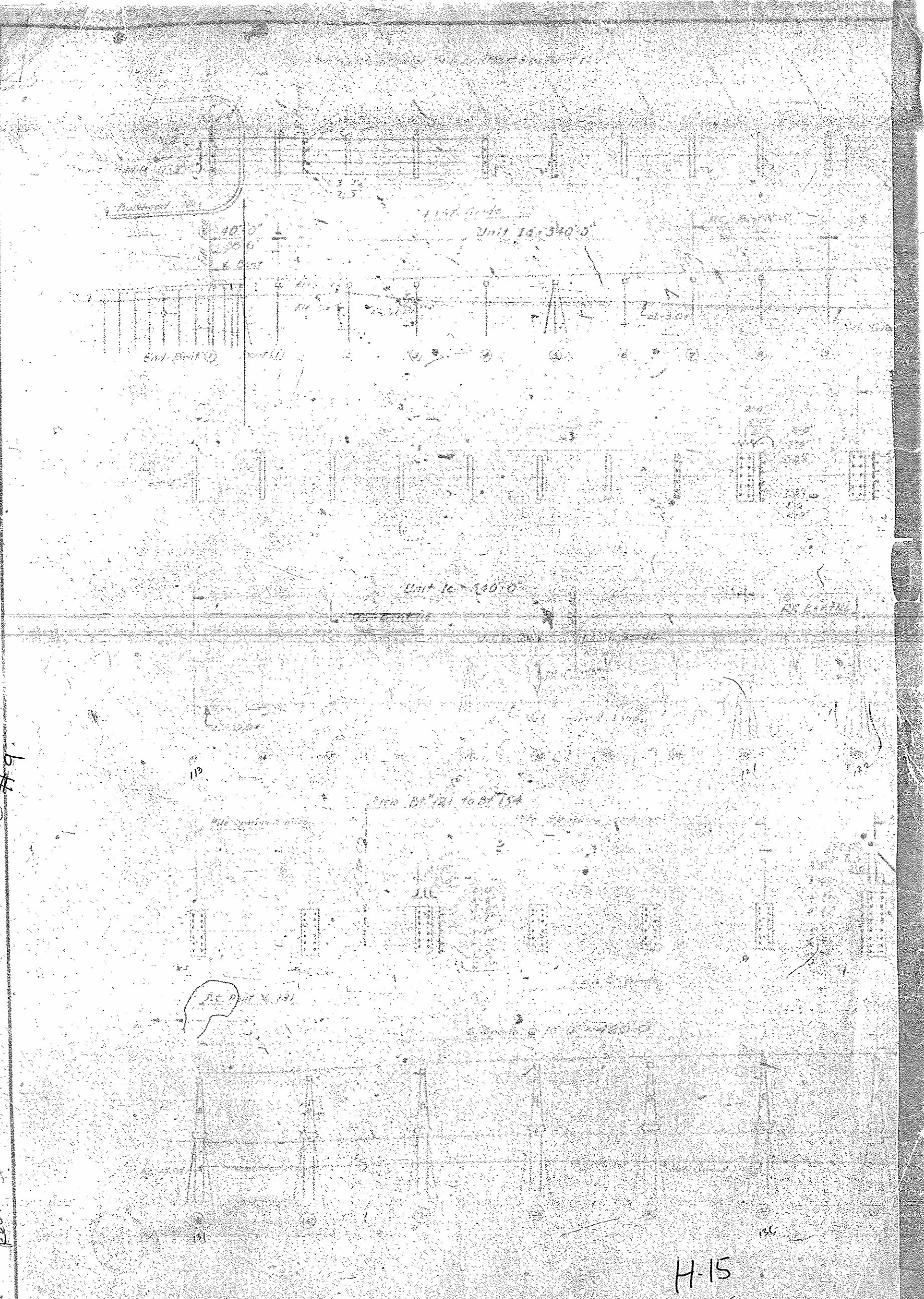
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1	J.H.	7/1/77	3			5-62
2	J.K.P.	12-9-82	4			64

DESIGNED BY: _____ DATE: _____

Rev. #1 - To change batter on piles adjacent to seal. By: J.S.H. / B.Y. P.H.E.

64705-20
DANCE #9

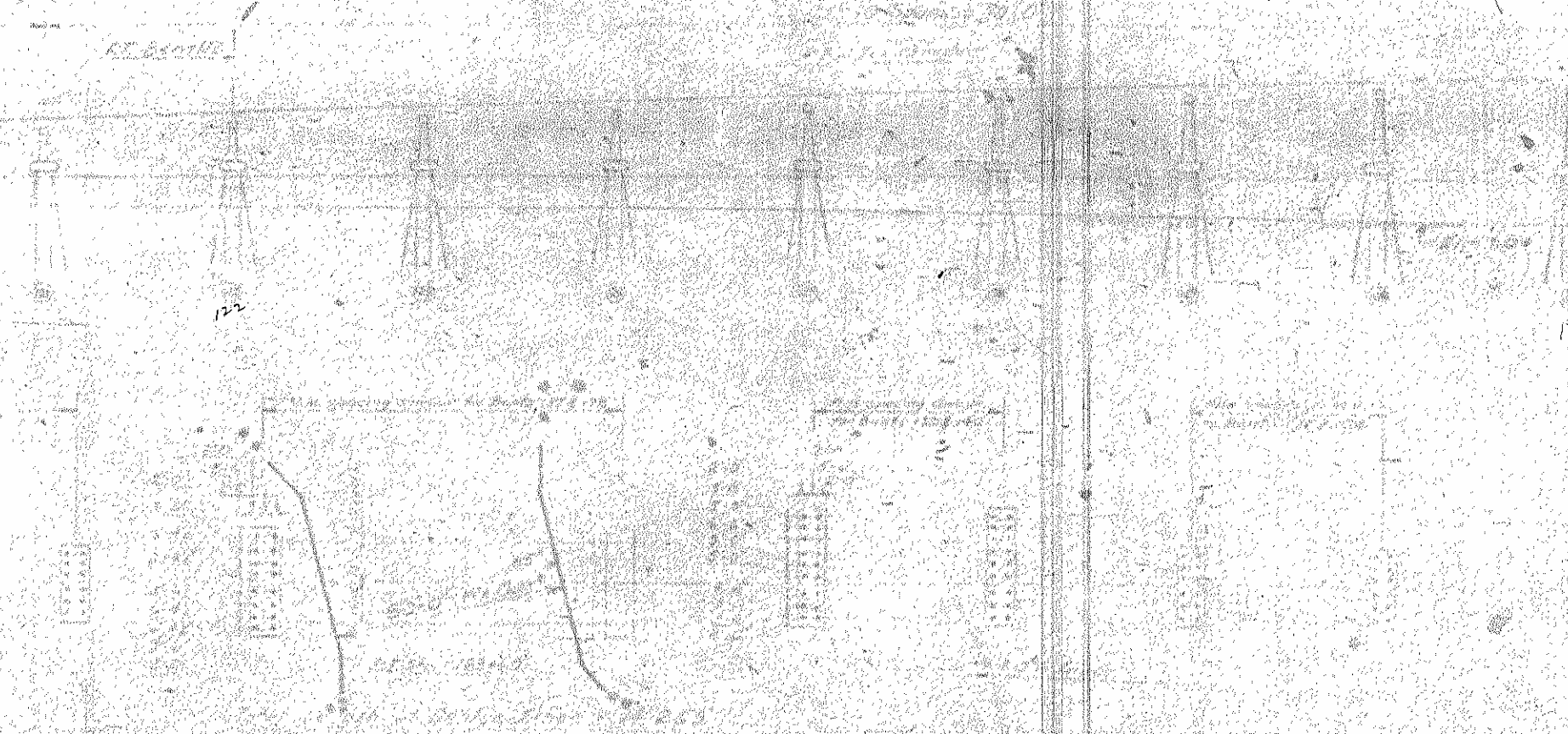
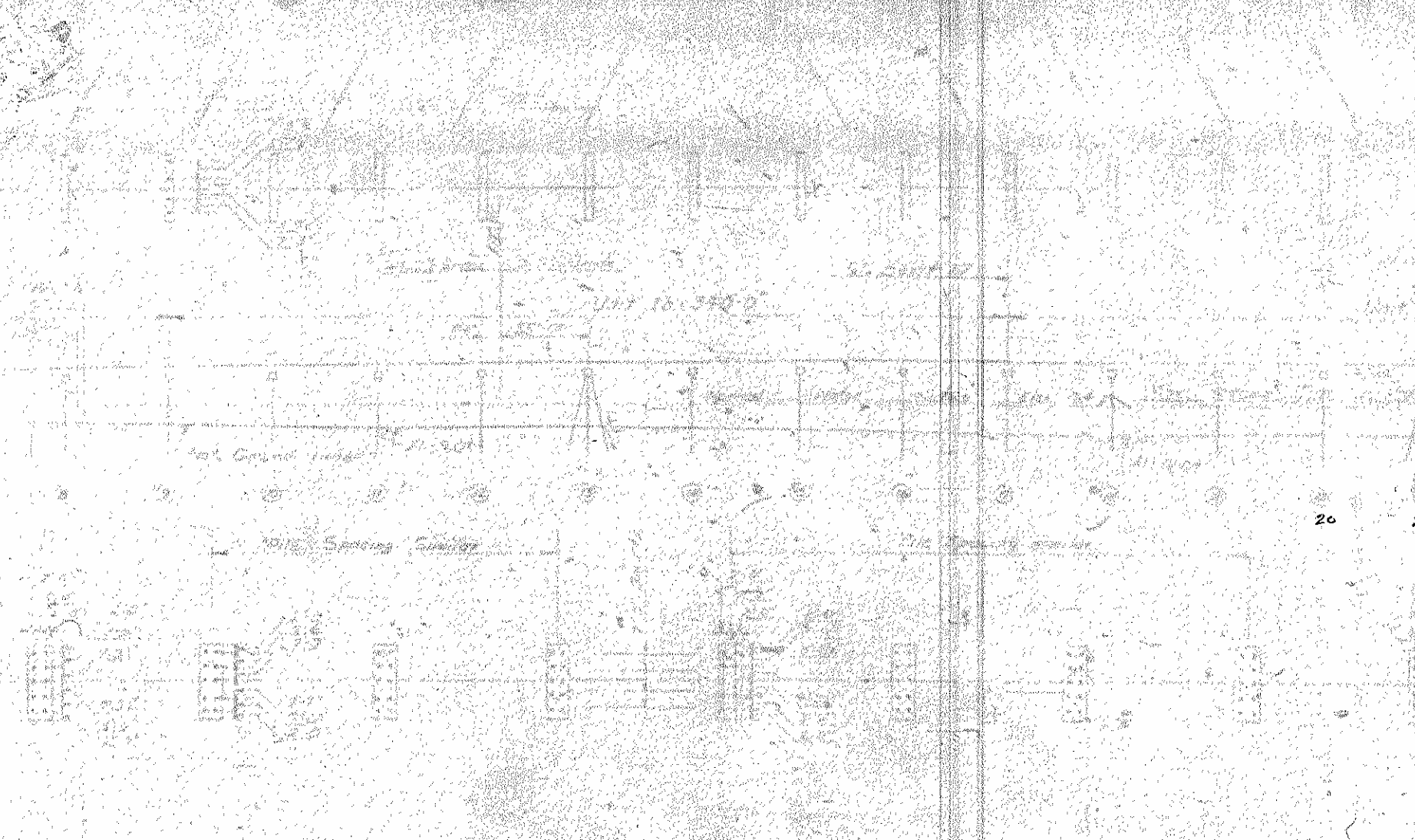
Rep #562
Reel #560
Reel #560



H-15
NA

20

21



Min Vert. Cl.
45'-0"
Min. Vert.
Cl. 45'-0"

136

137

138

141

PROJECT NO. 1231 A
WAKE COUNTY
STATION 1+00.00

STATE OF NORTH CAROLINA
STATE HIGHWAY AND
PUBLIC WORKS COMMISSION

GENERAL DRAWING

AUG 1978
JAT

20

25

125

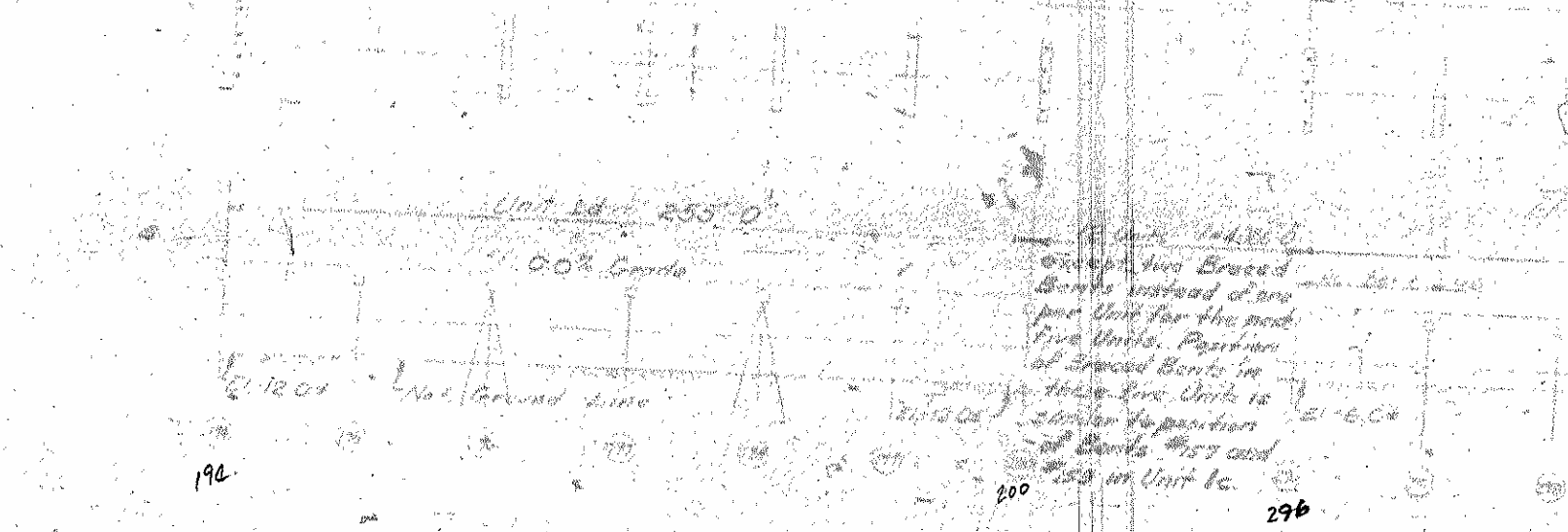
131

141

144



Pit spacing similar to Units 1-120 except two Braced Bents instead of one per Unit as shown in Elevation 144



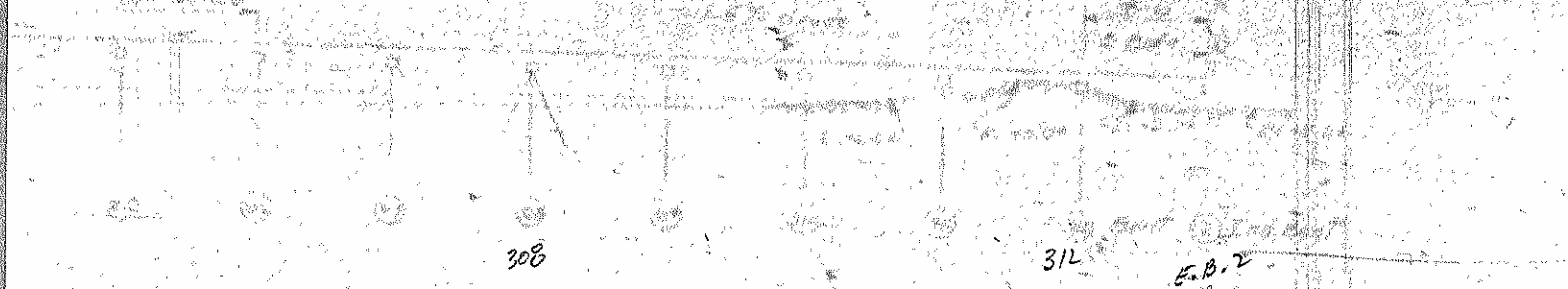
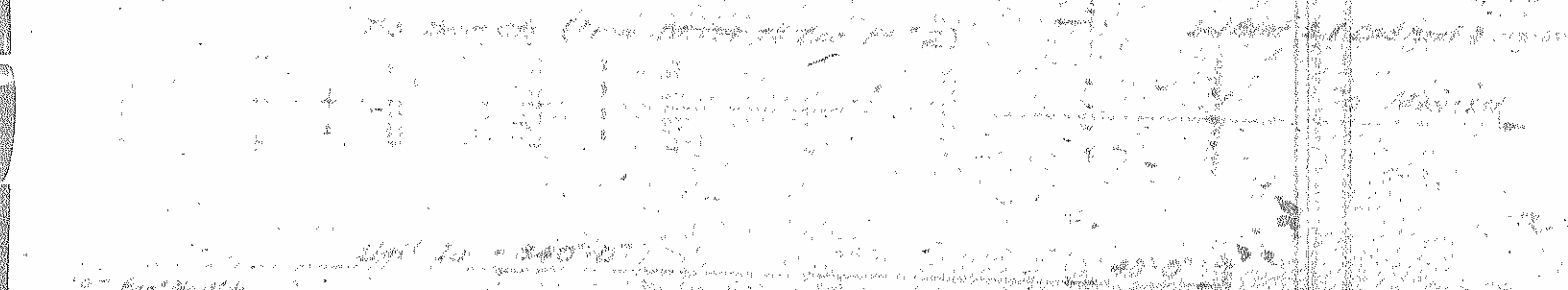
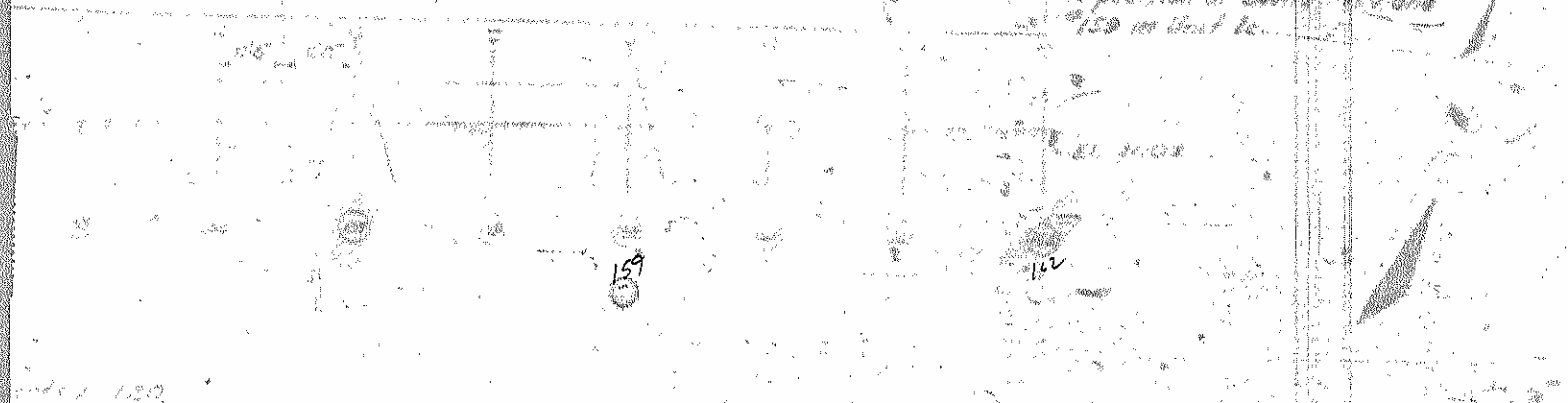
Pit spacing similar to Units 1-120 except two Braced Bents instead of one per Unit for the next five Units. Elevation of Braced Bents in these five Units is similar to positions of Units 157 and 158 in Unit 144

- ① Specifications
- ② Assumed Live
- ③ For other notes
- ④ etc. etc.
- ⑤ etc.
- ⑥ etc.
- ⑦ etc.
- ⑧ etc.
- ⑨ etc.
- ⑩ etc.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Fig. 2
Plan of
Road
No. 120

except two Brass Brads instead of one
per Unit. Position of Brass Brads is similar
to position of Brads #157 and
#159 in Unit 12.



Notes:
1. All dimensions are in feet.
2. All angles are in degrees.
3. All bearings are in degrees, minutes and seconds.

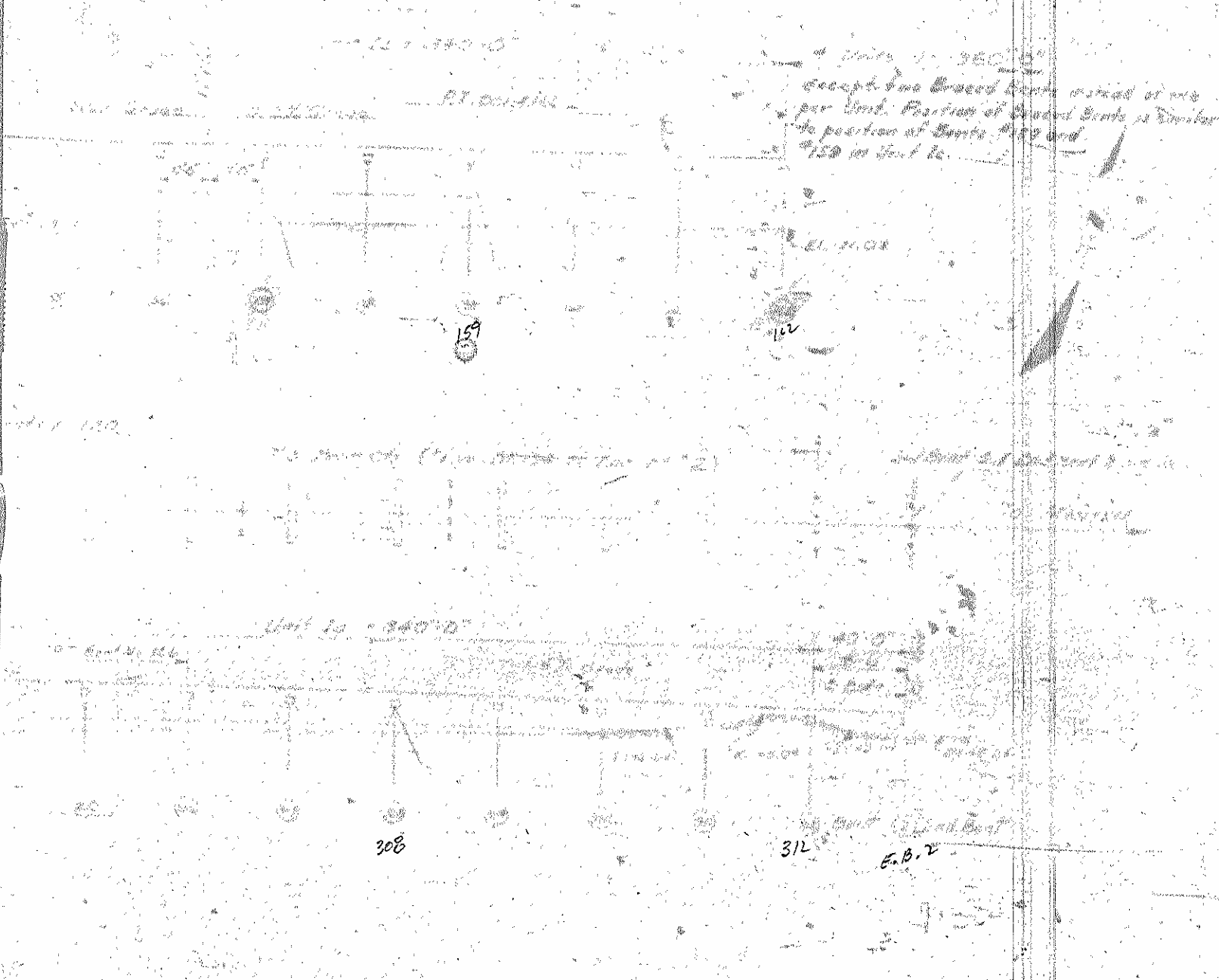
- ① All dimensions are in feet.
- ② Revised to show two Brass Brads per Unit instead of one. See the 11 Brads for Brass Brads #157 and #159. J.A.M.

PROJECT NO. 120
DATE COUNTY
STATION

STATE OF NORTH CAROLINA
STATE HIGHWAY AND
PUBLIC WORKS COMMISSION
GENERAL DRAWING

State of North Carolina
Department of Transportation

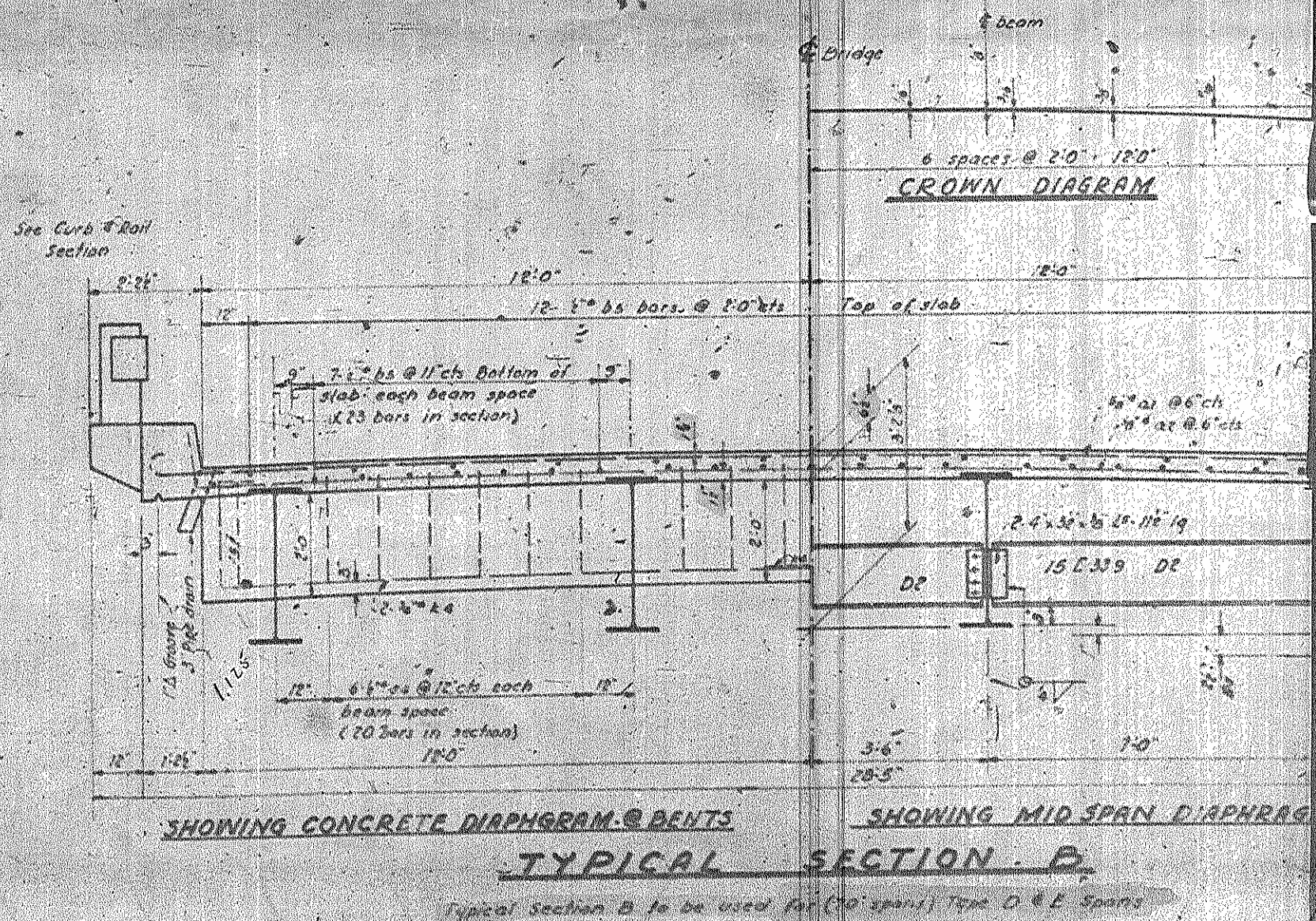
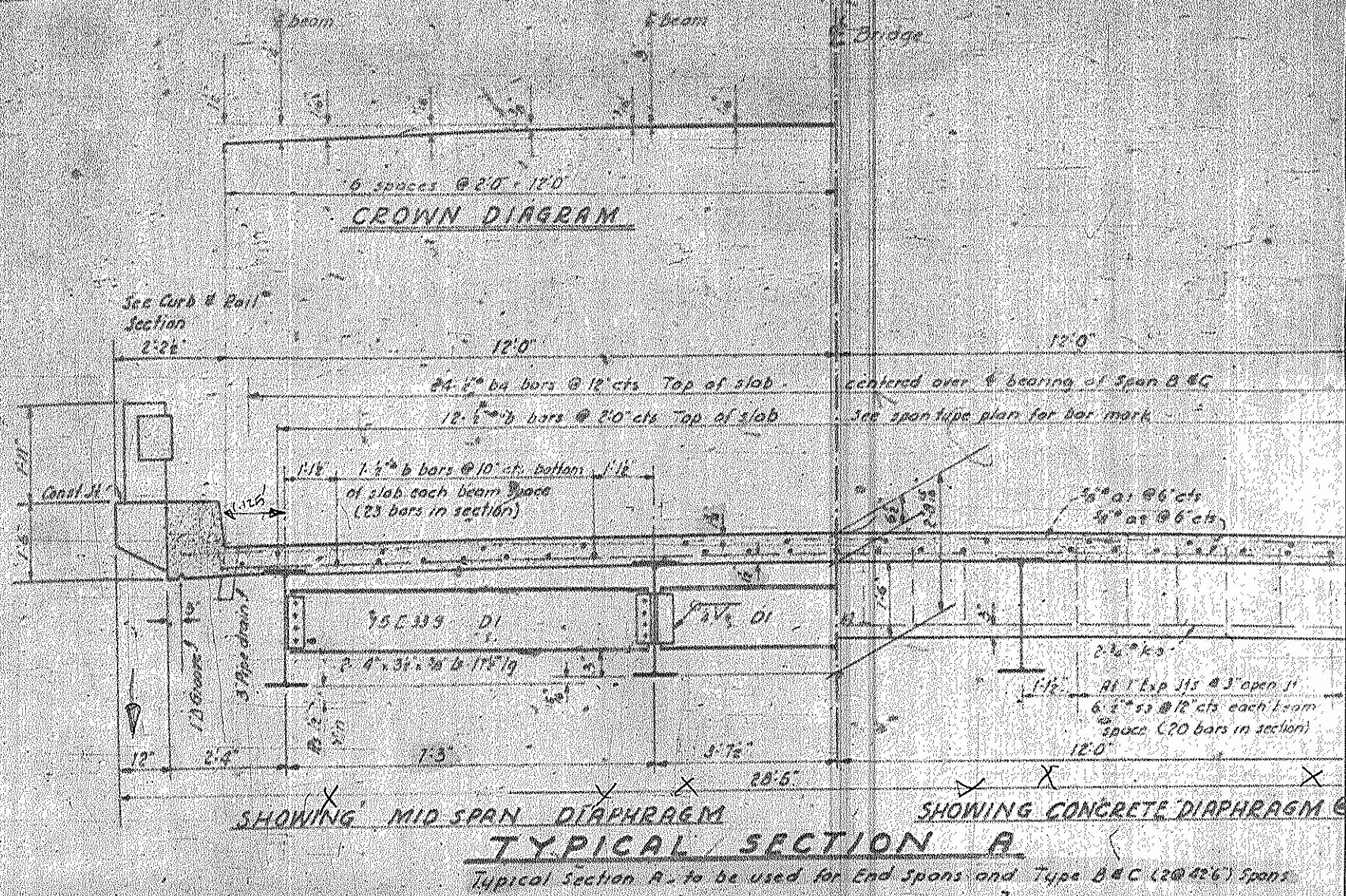
Figure 5
Plan View of
Station 150+00 to 150+50

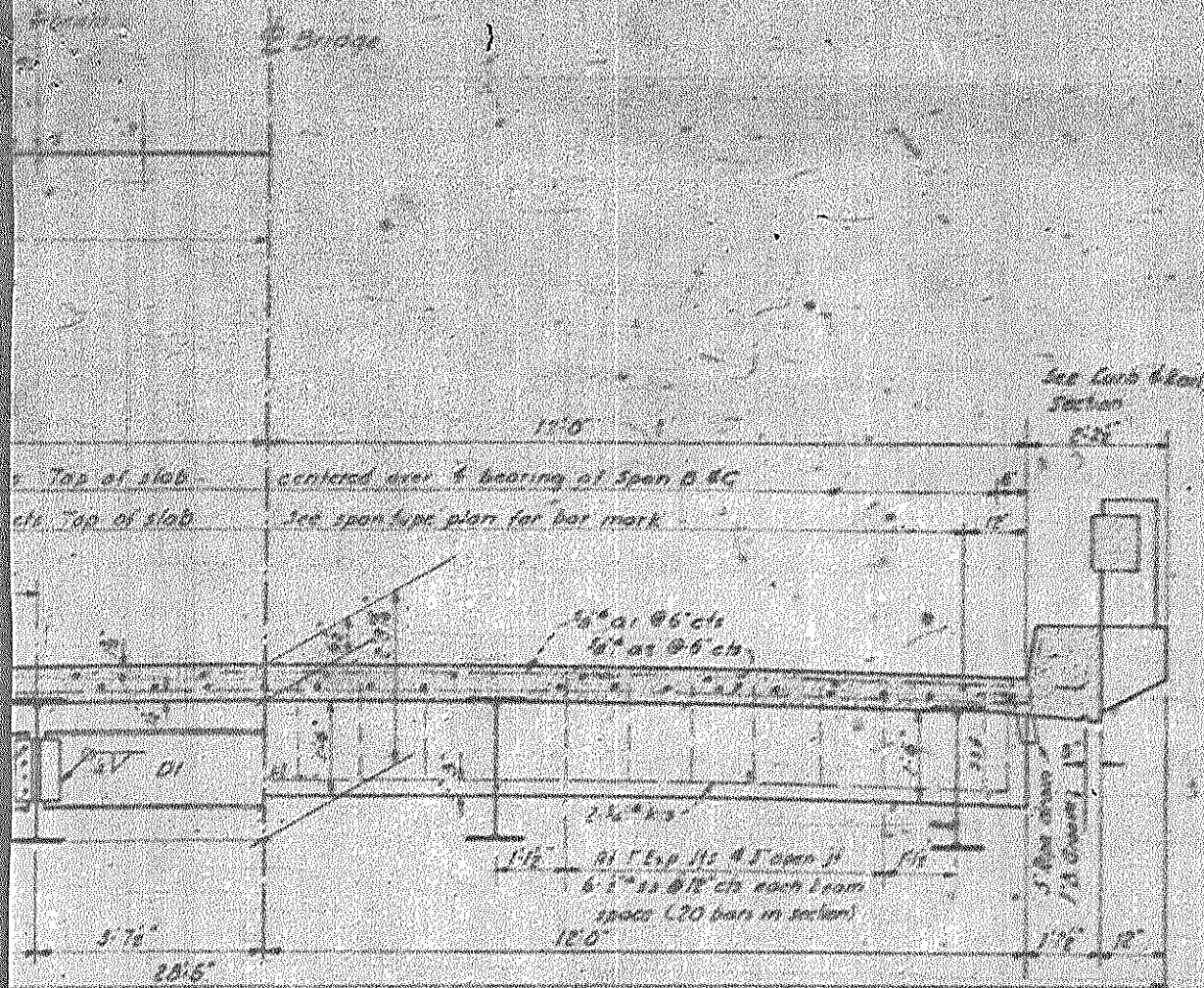


- ① Review to show the broad bands are placed at the same position as the bands in Unit 1.
- ② Revised to show two broad bands per unit instead of one, for the U. S. 101 in Broad Bands #100 and #150. 1/15/54

PROJECT NO. 1231-1-1
CITY COUNTY
STATION: 150+00

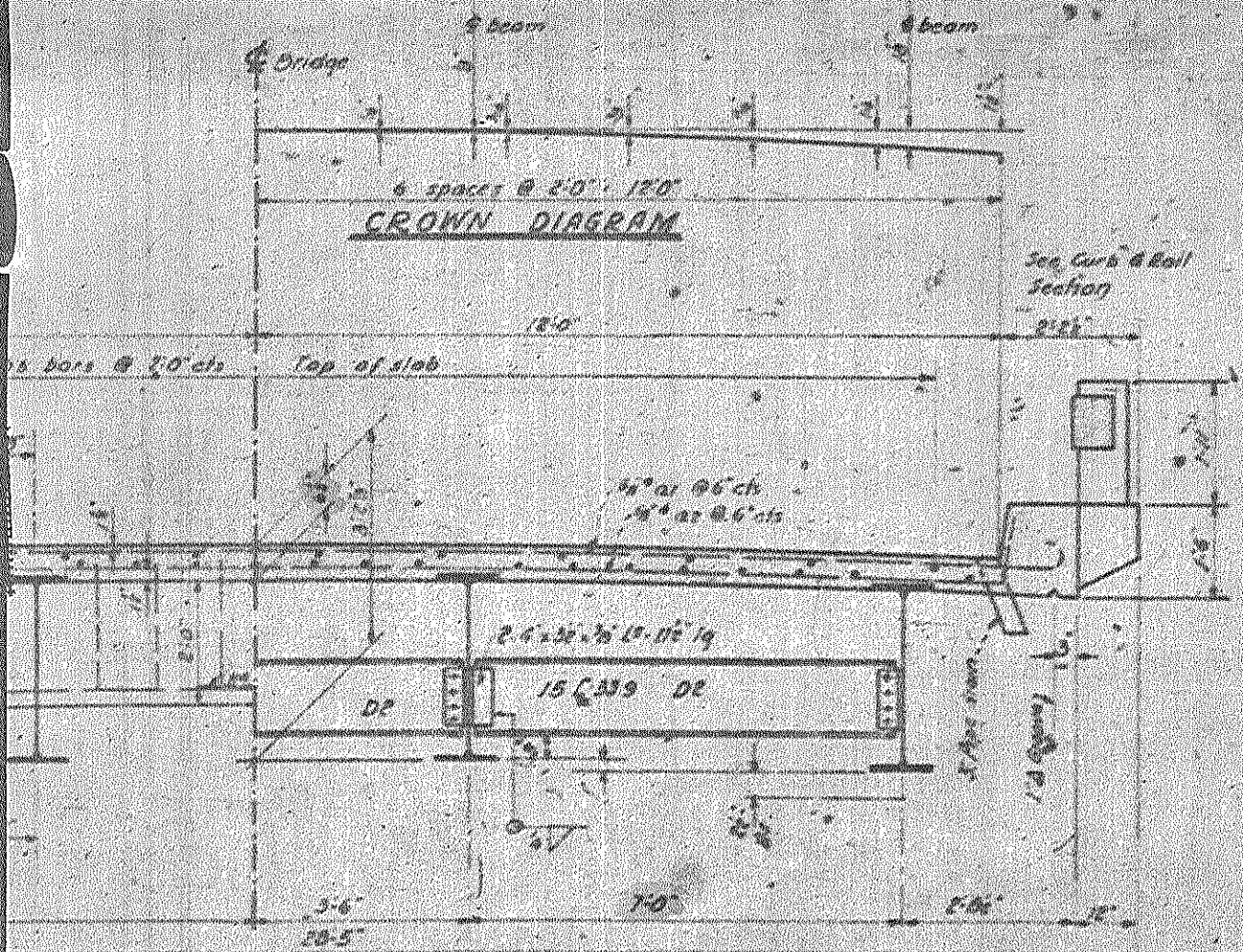
STATE OF NORTH CAROLINA	
STATE HIGHWAY AND	
PUBLIC WORKS COMMISSION	
GENERAL DRAWING	





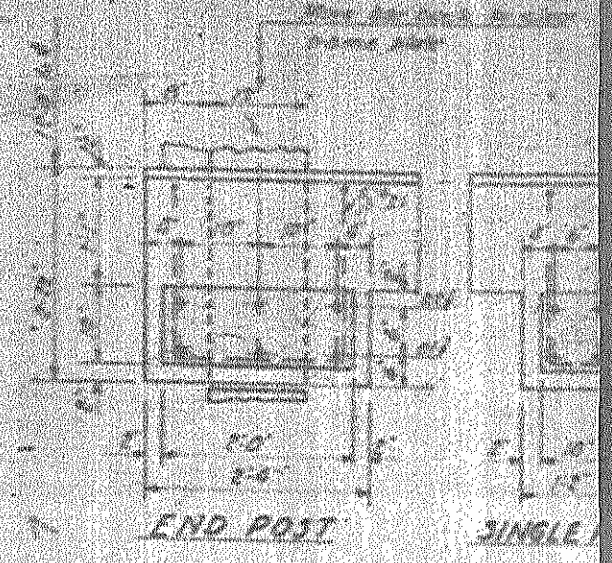
DIAPHRAGM @ BENTS
TYPICAL SECTION A

A to be used for End Spans and Type B & C (20' & 25') Spans



@ BENTS
TYPICAL SECTION B

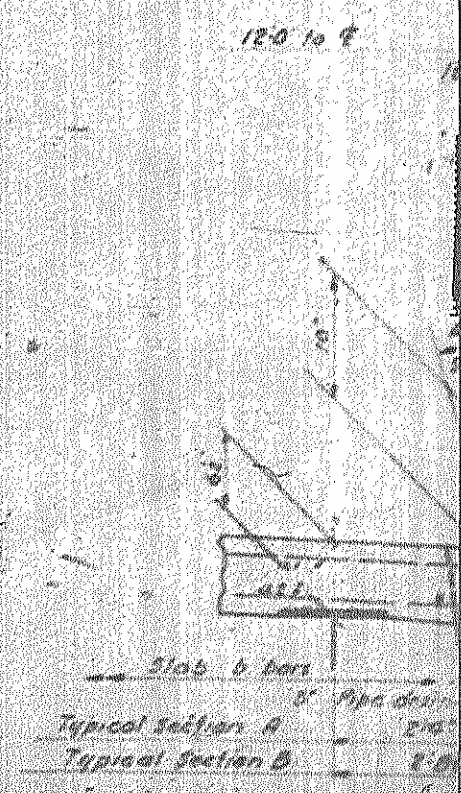
B to be used for (10' spans) Type D & E Spans



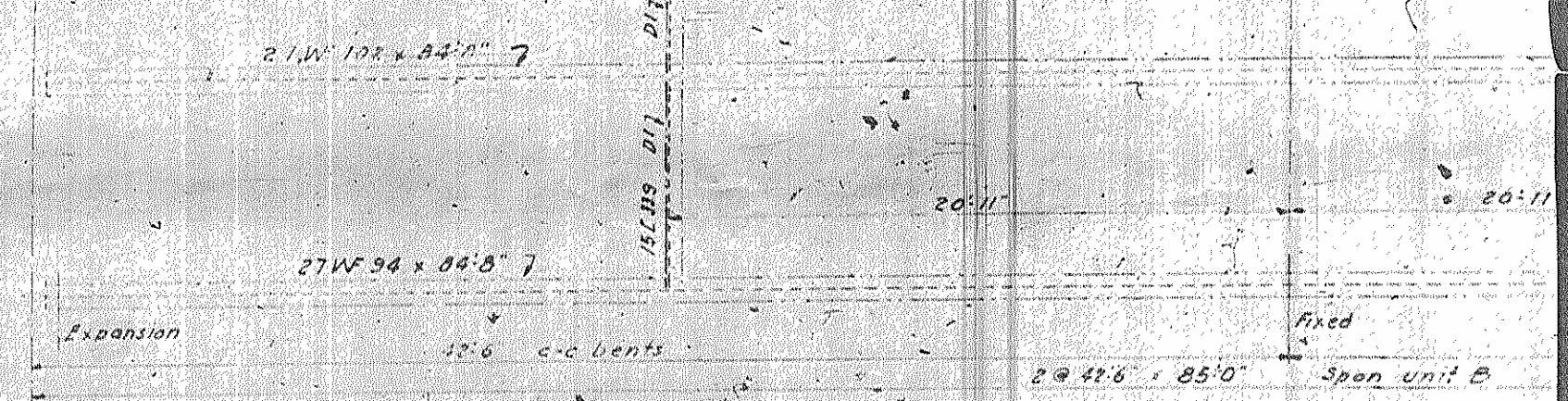
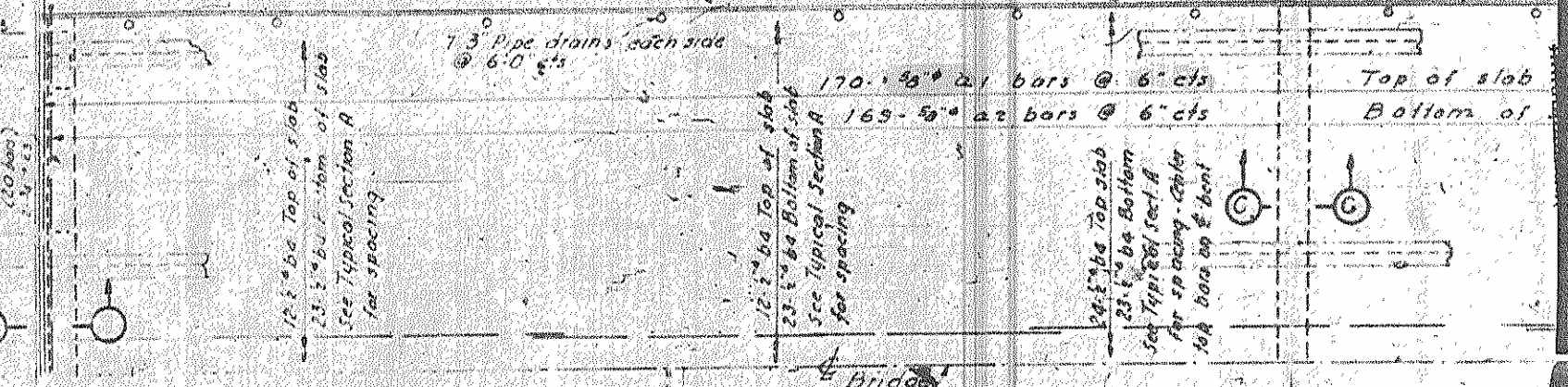
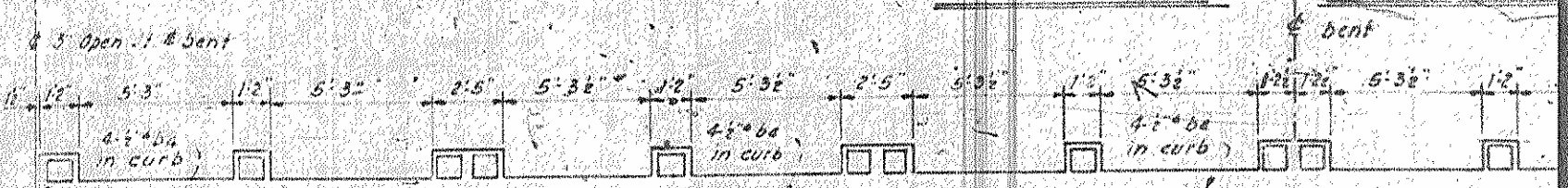
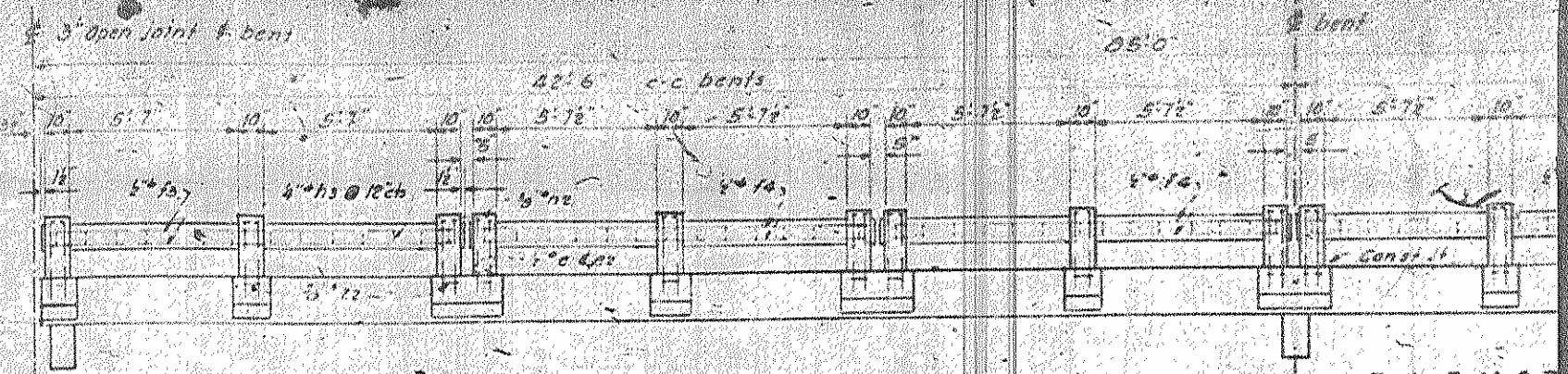
END POST
SINGLE



DETAIL A
POST D



CURB & RAIL

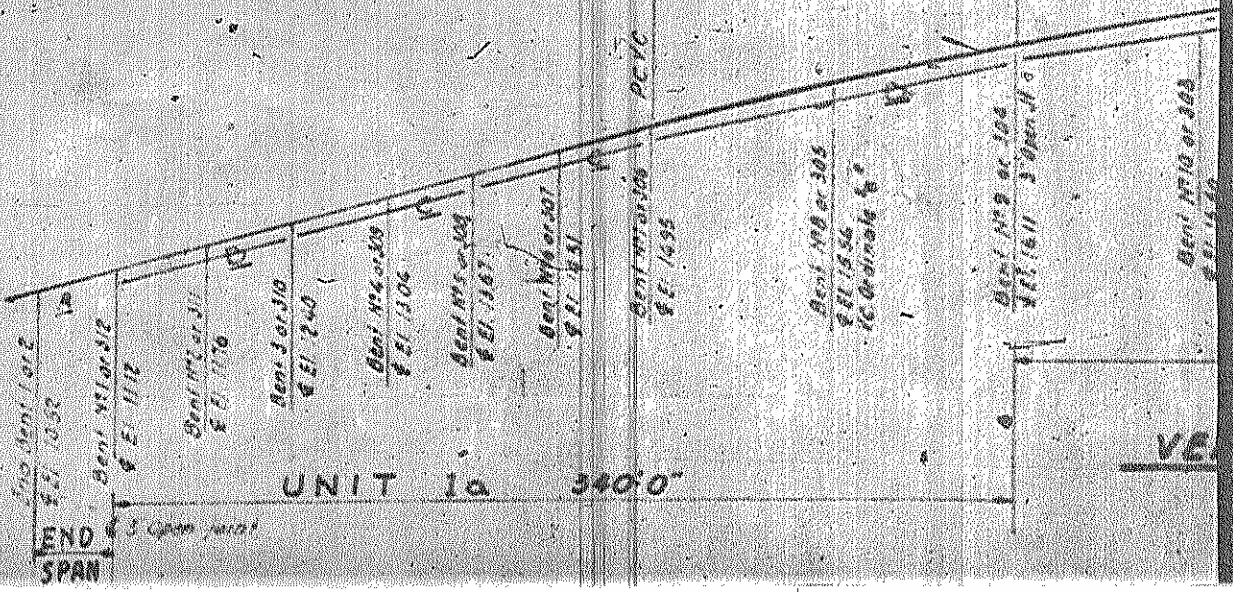


HALF PLAN CONCRETE SLAB & STRUCTURE

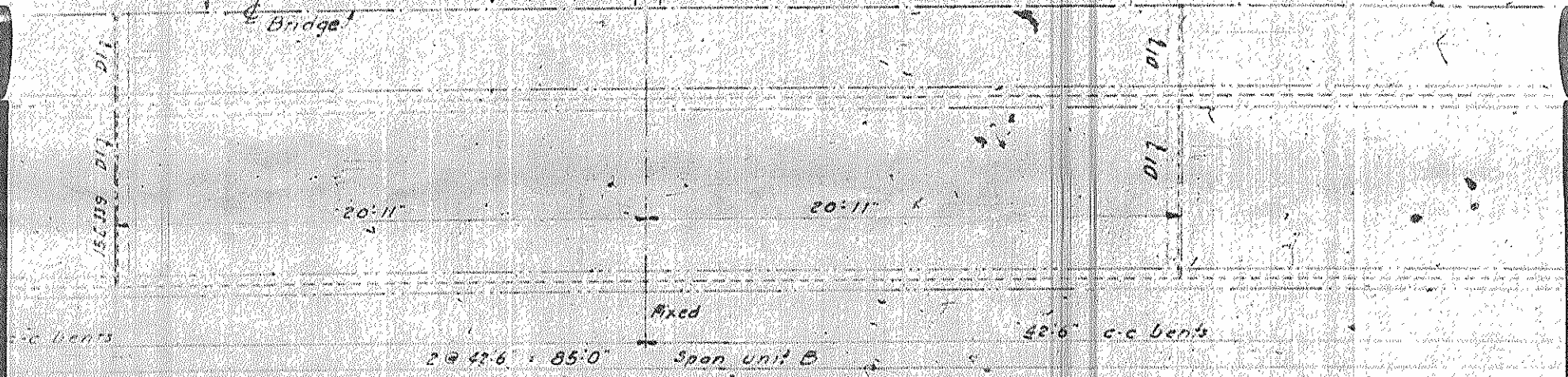
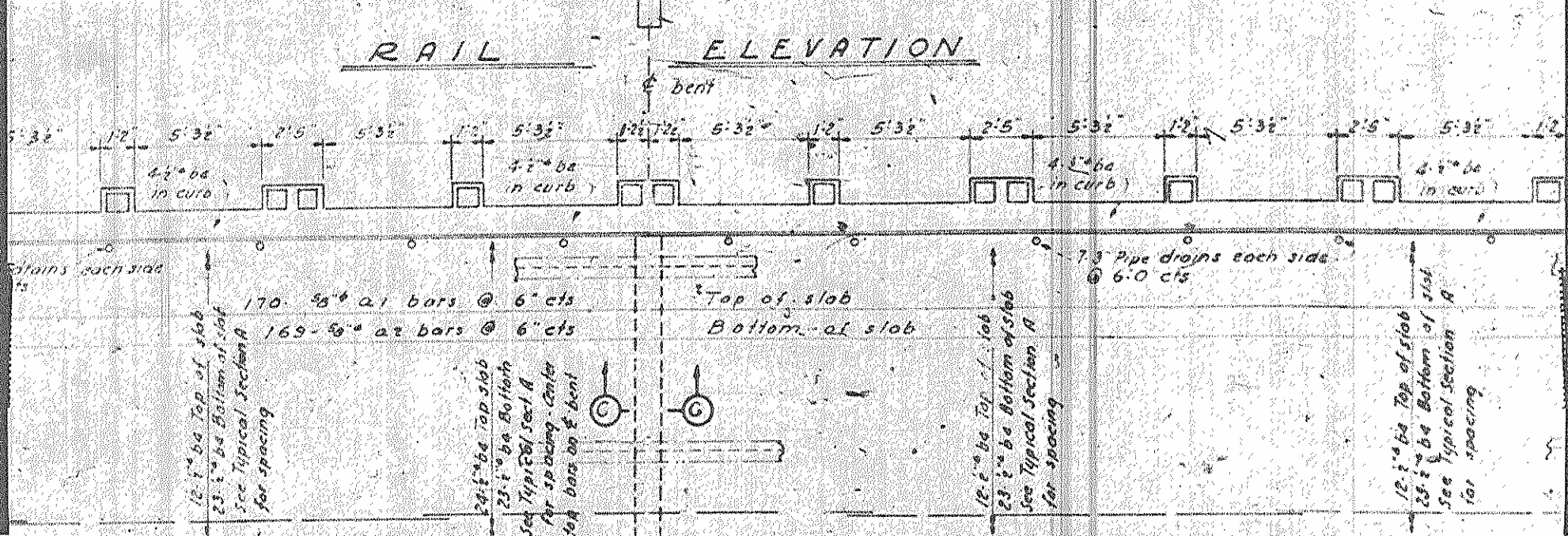
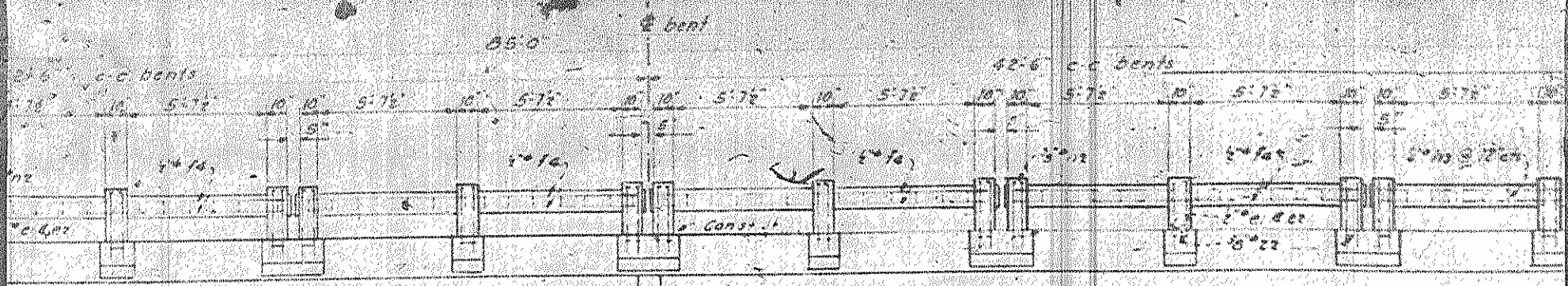
Top of curb elevations 12' 11" from 0

44 spacing @ 5'0" = 220'0"

15.00
15.05
15.10
15.15
15.20
15.25
15.30
15.35
15.40
15.45
15.50
15.55
15.60
15.65
15.70
15.75
15.80
15.85
15.90
15.95
16.00
16.05
16.10
16.15
16.20
16.25
16.30
16.35
16.40
16.45
16.50
16.55
16.60
16.65
16.70
16.75
16.80
16.85
16.90
16.95
17.00
17.05
17.10
17.15
17.20
17.25
17.30
17.35
17.40
17.45
17.50
17.55
17.60
17.65
17.70
17.75
17.80
17.85
17.90
17.95
18.00
18.05
18.10
18.15
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18.25
18.30
18.35
18.40
18.45
18.50
18.55
18.60
18.65
18.70
18.75
18.80
18.85
18.90
18.95
19.00
19.05
19.10
19.15
19.20
19.25
19.30
19.35
19.40
19.45
19.50
19.55
19.60
19.65
19.70
19.75
19.80
19.85
19.90
19.95
20.00



ASSEMBLED BY	DATE
CHECKED BY	DATE
DESIGNED BY	DATE
DRAWN BY	DATE
TRACED BY	DATE



Top of curb elevations 12 ft from 4

15.06	15.07	15.08	15.09	15.10	15.11	15.12	15.13	15.14	15.15	15.16	15.17	15.18	15.19	15.20	15.21	15.22	15.23	15.24	15.25	15.26	15.27	15.28	15.29	15.30	15.31	15.32	15.33	15.34	15.35	15.36	15.37	15.38	15.39	15.40	15.41	15.42	15.43	15.44	15.45	15.46	15.47	15.48	15.49	15.50	15.51	15.52	15.53	15.54	15.55	15.56	15.57	15.58	15.59	15.60	15.61	15.62	15.63	15.64	15.65	15.66	15.67	15.68	15.69	15.70	15.71	15.72	15.73	15.74	15.75	15.76	15.77	15.78	15.79	15.80	15.81	15.82	15.83	15.84	15.85	15.86	15.87	15.88	15.89	15.90	15.91	15.92	15.93	15.94	15.95	15.96	15.97	15.98	15.99	16.00
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

UNIT 1A 340'-0"

UNIT 1B 340'-0"

VERTICAL CURVE DATA - PI, AS SHOWN

4.5% Grade

0.0% Grade @ 1625'

4250'

Bent #10 or 303
E I 1620
VC ordinate 6'

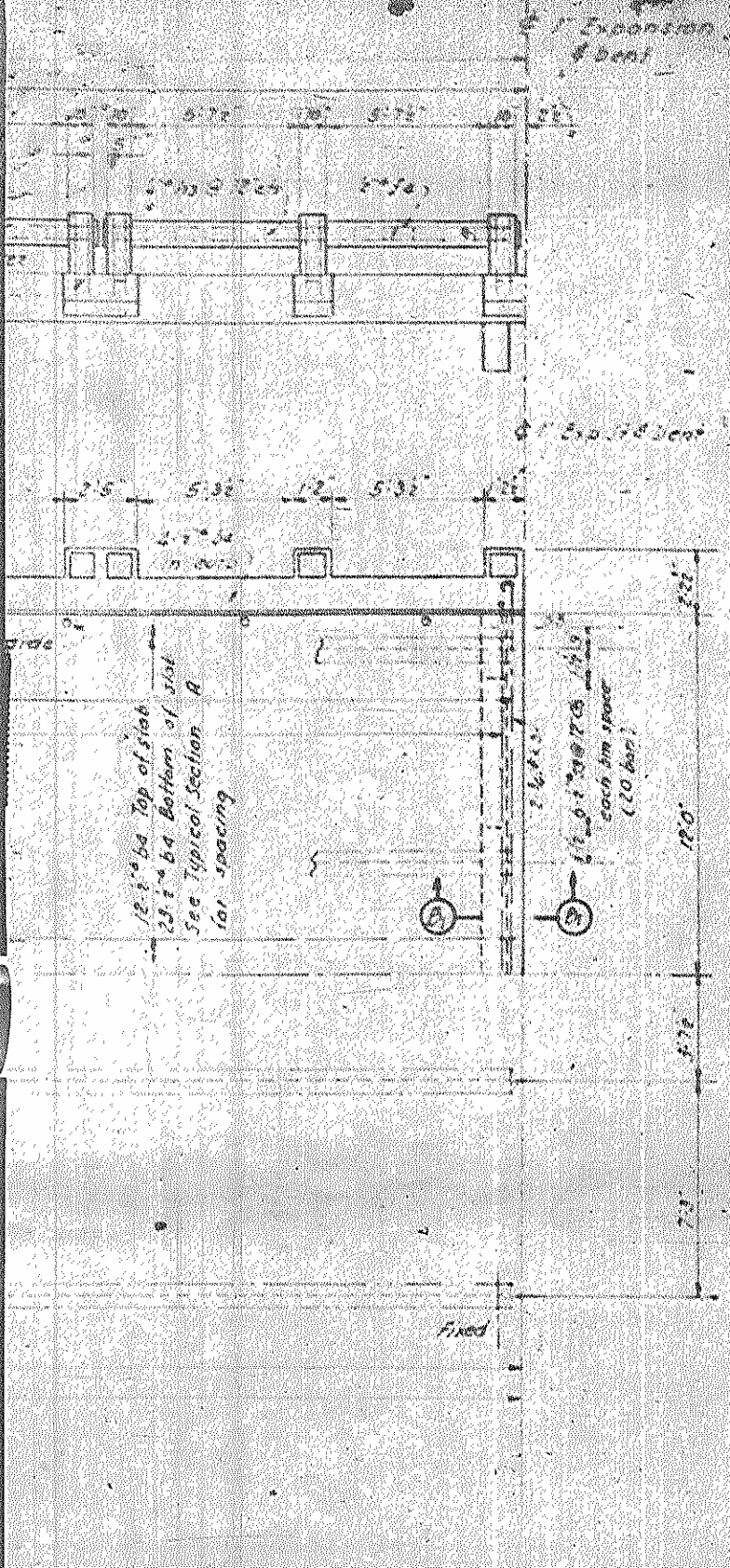
Bent #11 or 302
E I 17.02

Bent #12 or 301
E I 17.60
VC ordinate 6'

Bent #13 or 300
E I 17.70

Bent #14 or 299
E I 17.94
VC ordinate 6'

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
5	N.C.	1231	58	79



NOTE

Type B span is a double 42'-6" span adjacent to 3' Expansion joint.

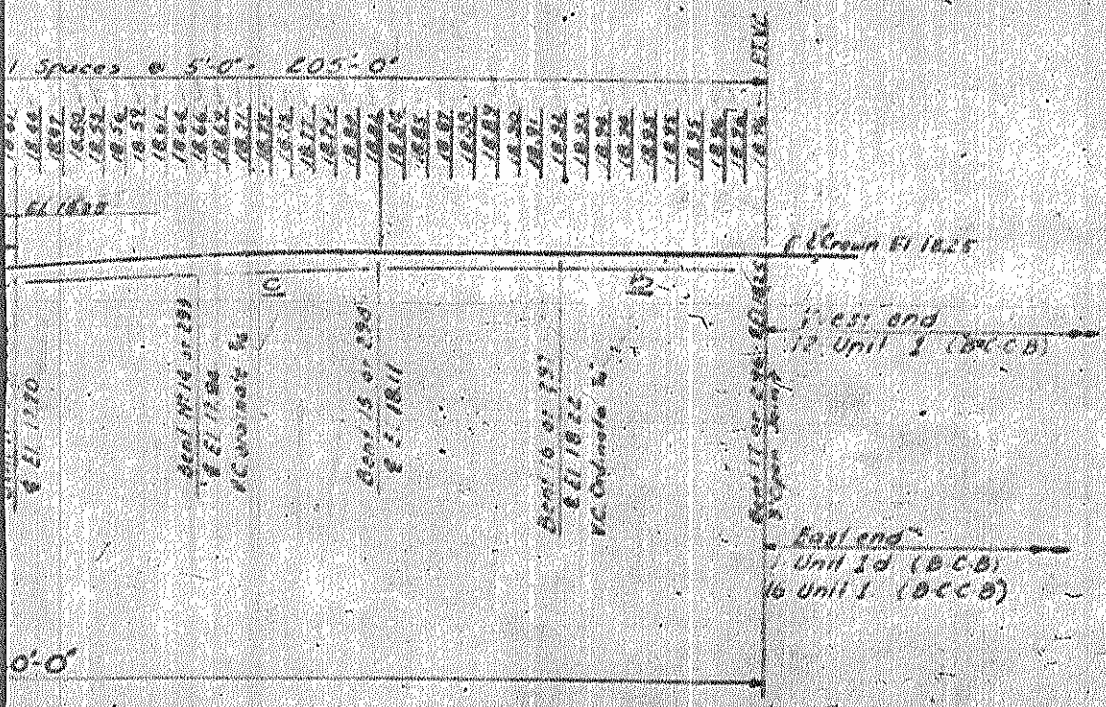
Unit I consists of 2 Type B spans and 2 Type C spans except Unit Id which contains 2 Type B spans & 1 Type C span.

Typical Section A and the following Concrete Sections apply to Type B Spans - Section E1-E7 at 3' open joint of Bent #118, 312 and between any Unit I. Section E1-E7 at 3' inch joint of Bent #118, 312.

Units 1 & 2d are on 0.00% grade.

Units 1a, 1b & 1c are wholly or partially on vertical curves and differ from Unit I in concrete quantity only.

12" pipe drains shall be used on north side of bridge from End Bent #118 to Bent #118.



Revised to raise the Grade from Bent #118 to Bent #118 and from Bent #118 to Bent #118. Sept 27, 1958 by J.B. W.

PROJECT NO. 1231A4B
DARE COUNTY
STATION: 121+67.5

STATE OF NORTH CAROLINA
 STATE HIGHWAY AND
 PUBLIC WORKS COMMISSION

**SUPERSTRUCTURE
 TYPE B SPAN
 V.C. DATA BENT # 302**

JULY 1958

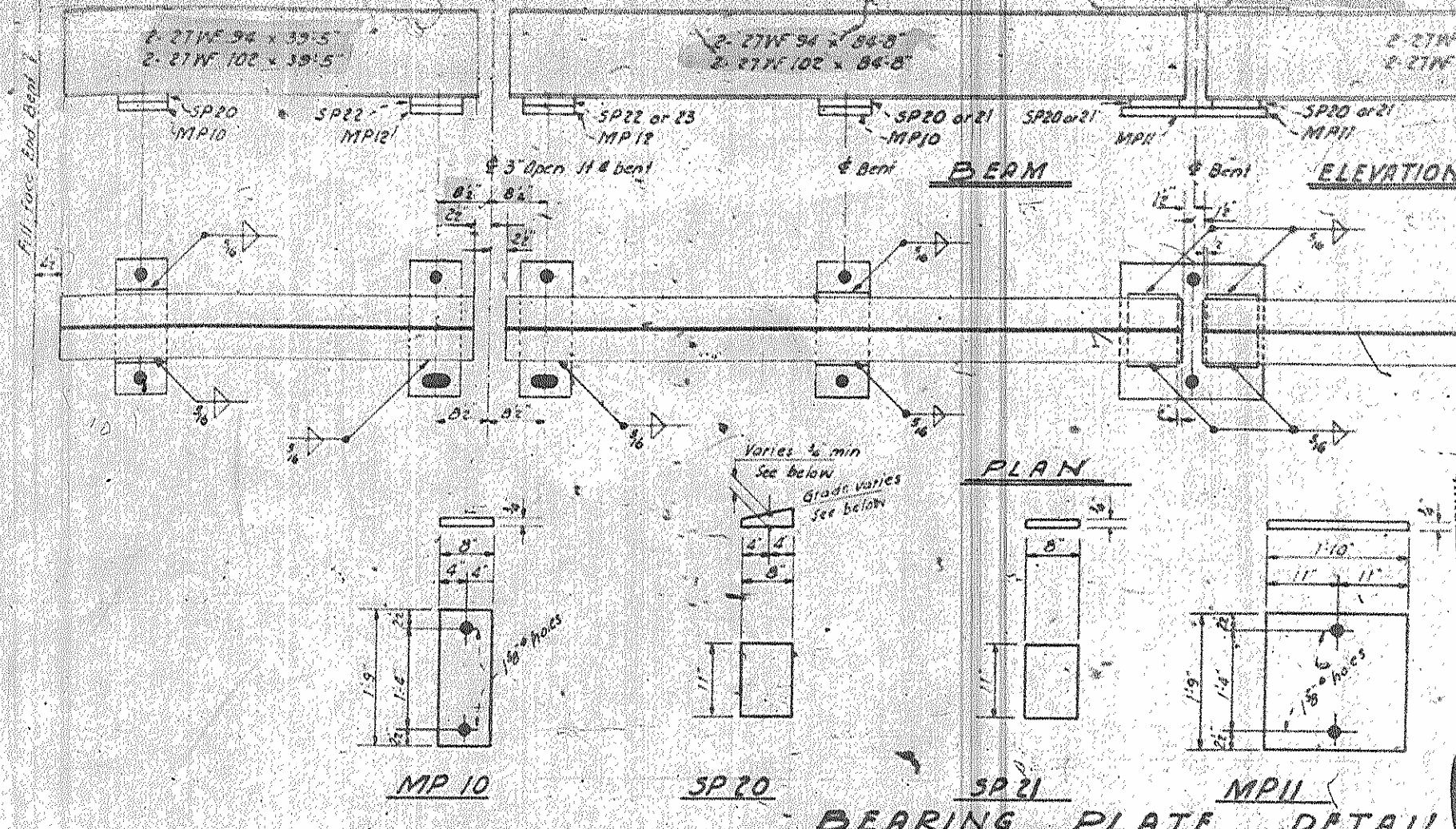
DESIGNED BY: *J.B. W.*

PI AS SHOWN

End Span 40.0

Type B Span 20.42.6

TYPICAL B SPAN

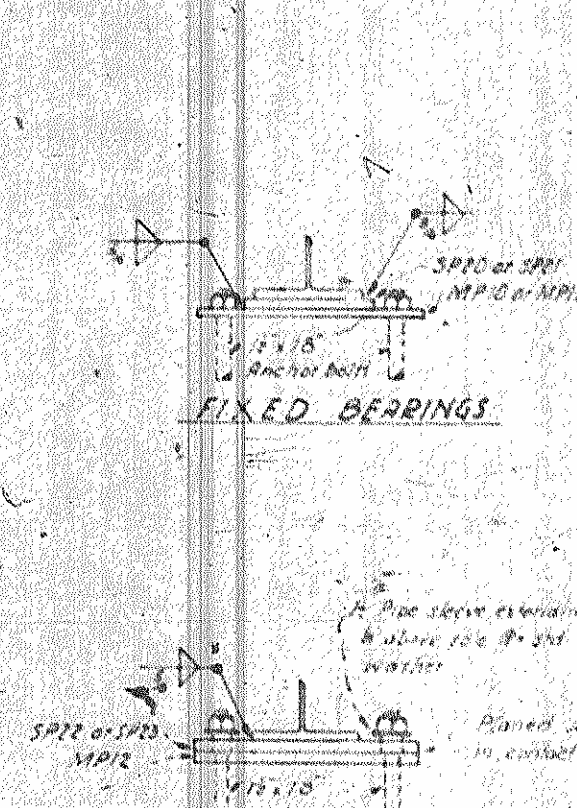
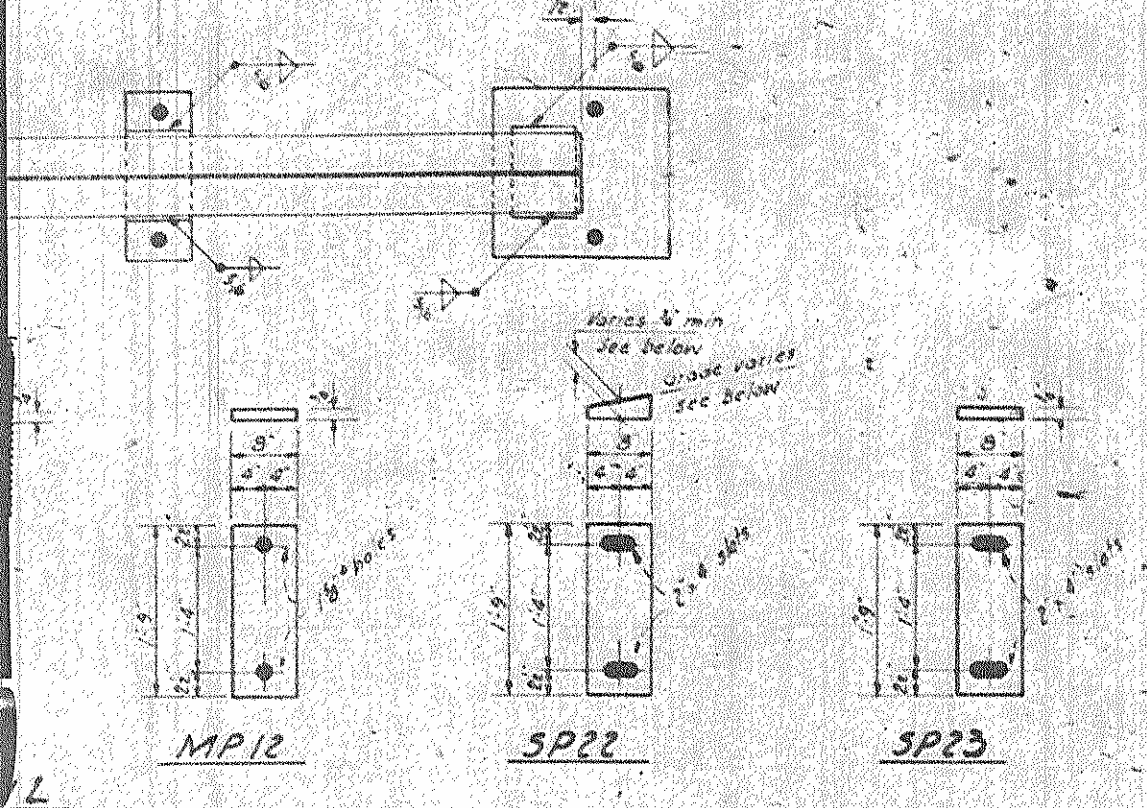
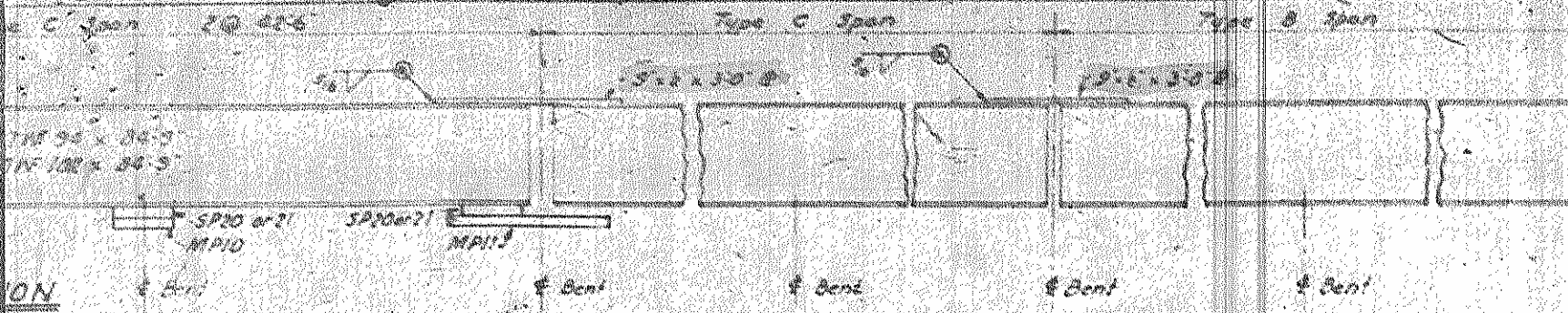


End Span Required 2	End Bent No. or 2	4-MP10	4-SP20 3/4 bevel 150%		
Unit 1a Required 2	Bent No. 1 or 312				
	Bent No. 2 or 311	4-MP10	4-SP20 3/4 bevel 150%		4-MP11
	Bent No. 3 or 310		4-SP20 3/4 bevel 150%		
	Bent No. 4 or 309	4-MP10	4-SP20 3/4 bevel 150%		
	Bent No. 5 or 308		4-SP20 3/4 bevel 150%		4-MP11
	Bent No. 6 or 307	4-MP10	4-SP20 3/4 bevel 150%		
	Bent No. 7 or 306		4-SP20 3/4 bevel 150%		4-MP11
	Bent No. 8 or 305	4-MP10	4-SP20 3/4 bevel 150%		
	Bent No. 9 or 304		4-SP20 3/4 bevel 150%		
Unit 1b Required 2	Bent No. 10 or 303	4-MP10	4-SP20 3/4 bevel 150%		4-MP11
	Bent No. 11 or 302		4-SP20 3/4 bevel 150%		
	Bent No. 12 or 301	4-MP10	4-SP20 3/4 bevel 150%		4-MP11
	Bent No. 13 or 300		4-SP20 3/4 bevel 150%		
	Bent No. 14 or 299	4-MP10	4-SP20 3/4 bevel 150%		4-MP11
	Bent No. 15 or 298		4-SP20 3/4 bevel 150%		
	Bent No. 16 or 297	4-MP10	4-SP20 3/4 bevel 150%		
	Bent No. 17 or 296		4-SP20 3/4 bevel 150%		
	Bent No. 18 or 295	4-MP10	4-SP20 3/4 bevel 150%		4-MP11
Unit 1c Required 2	Bent No. 19 or 294		4-SP20 3/4 bevel 150%	4-SP21	4-MP11
	Bent No. 20 or 293	4-MP10	4-SP20 3/4 bevel 150%		
	Bent No. 21 or 292		4-SP20 3/4 bevel 150%		4-MP11
	Bent No. 22 or 291	4-MP10	4-SP20 3/4 bevel 150%		
	Bent No. 23 or 290		4-SP20 3/4 bevel 150%		4-MP11
	Bent No. 24 or 289	4-MP10	4-SP20 3/4 bevel 150%		
	Bent No. 25 or 288		4-SP20 3/4 bevel 150%		4-MP11
	Bent No. 26 or 287	4-MP10	4-SP20 3/4 bevel 150%		
	Bent No. 27 or 286		4-SP20 3/4 bevel 150%		4-MP11
Required 1	4-Span Unit 1d	12-MP10	28-SP21	8-MP11	
Required 26	4-Span Unit 1e	16-MP10	40-SP21	12-MP11	
Unit 1 Bents No. 108-113 Bents No. 162-170 Required 2	Bent No. 108 or 110	16-MP10	16-SP21		
	Bent No. 109-111 or 163-165-167-169 Bent No. 107-105-111 or 164-166-168 Bent No. 113 or 152		24-SP21	12-MP11	

ASSEMBLED BY
CHECKED BY
DESIGNED BY
DRAWN BY JOCKE WINE
TRACED BY
CHECKED BY A. L. BARNETT

DATE
DATE
DATE
DATE July 14 1954
DATE Aug 9 1954

UNIT I



See MP12 & bearings to be 4' beam & all other are straightened.
See Concrete 14" notes for See Typical Section drawings
All anchor bolts this sheet

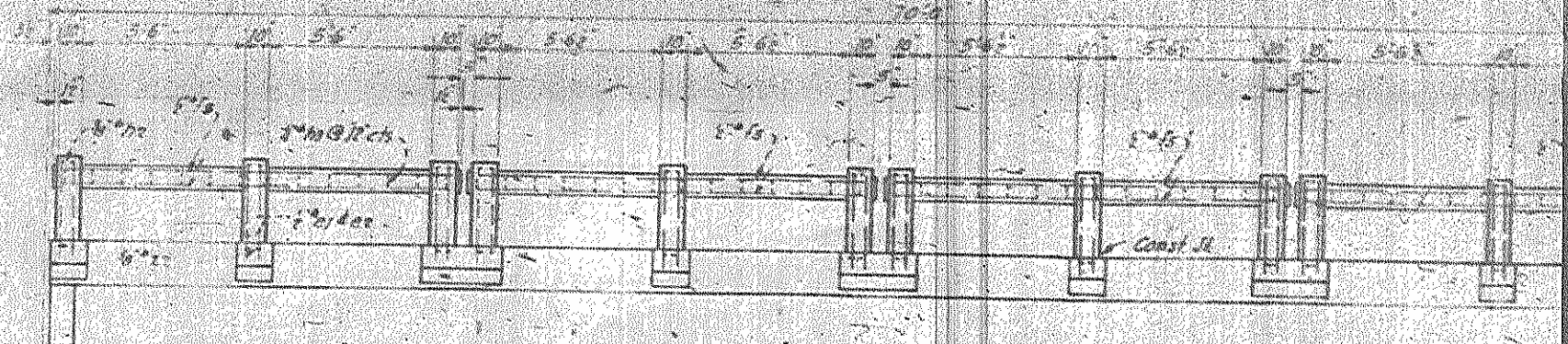
4 MP12	4 SP22 3/4" bevel 150%	
4 MP12	4 SP22 1" bevel 150%	
4 MP12	4 SP22 3/4" bevel 150%	
4 MP12	4 SP22 3/4" bevel 100%	
4 MP12	4 SP22 3/4" bevel 0.16%	4 SP23
8 MP12	4 SP22 3/4" bevel 2.08%	
8 MP12		8 SP23
3 MP12		6 SP23
4 MP12		4 SP23
3 MP12		4 SP23

EXPANSION ENDS
SECTION THRU BEAM

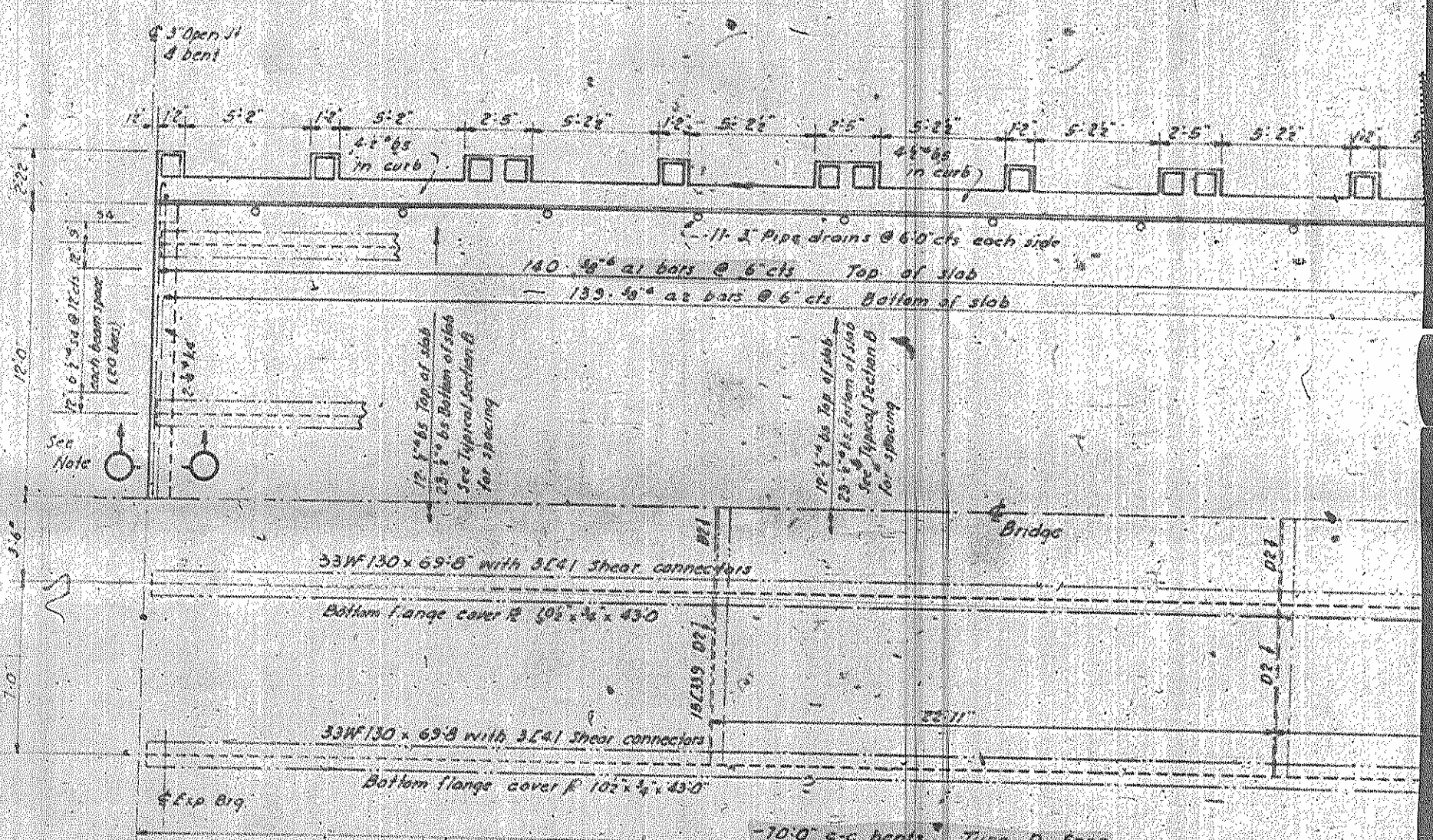
Rev. No. 2 - Revised
enclosed figure
Revised to suit
to Bent No. 127
Bent No. 300

PROJECT
DARE
STATION

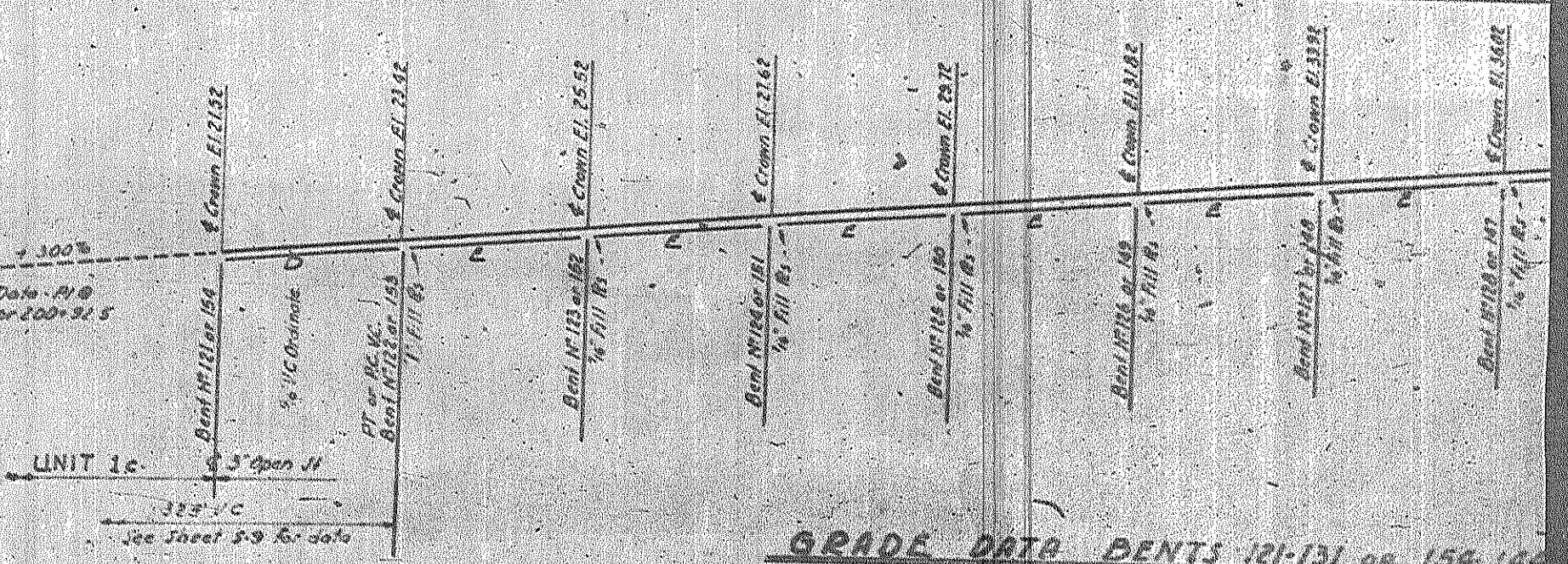
STATE
STATE
PUBLIC WORKS
SUPER
STRUCTURE
BEAM DETAIL
END SPAN



RAIL ELEVATION



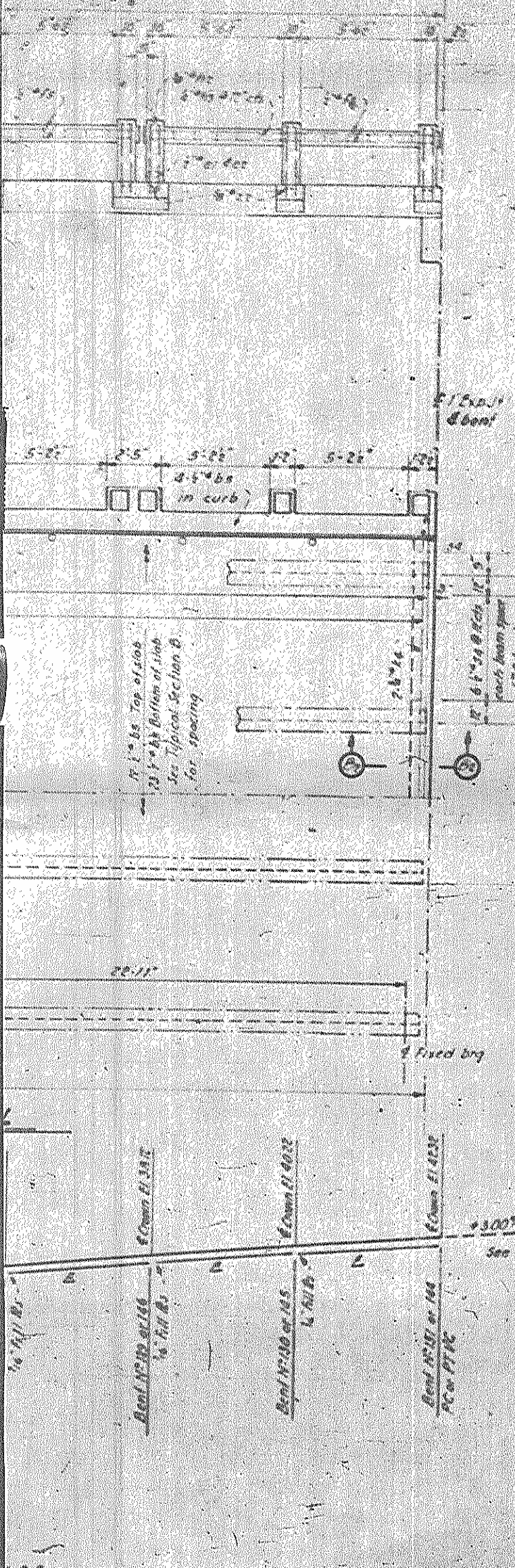
HALF PLAN CONCRETE SLAB & STRUCTURAL STEEL



GRADE DATA BENTS 121-131 OR 154-164

DATE	
DATE	
DATE	
DATE	
DATE	

DATE	NO.	REVISED	BY
7-11-34	1231A		



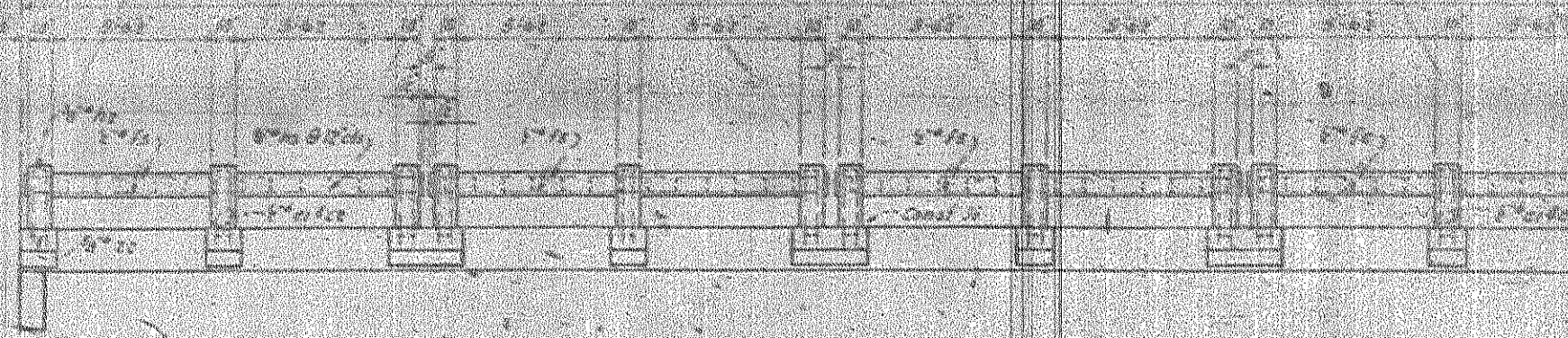
NOTE

Type D span is a simple 10 span
 adjacent to 3 span expansion joint.
 Typical Section B and the following
 Concrete Sections apply to Type D Spans.
 Section E1-E2 at 3" open joint of Bent 127
 Section E3-E4 at 3" open joint of Bent 137.
 18 1/2 size beams shall be used on
 north side of bridge from End Bent 127
 to Bent 129.

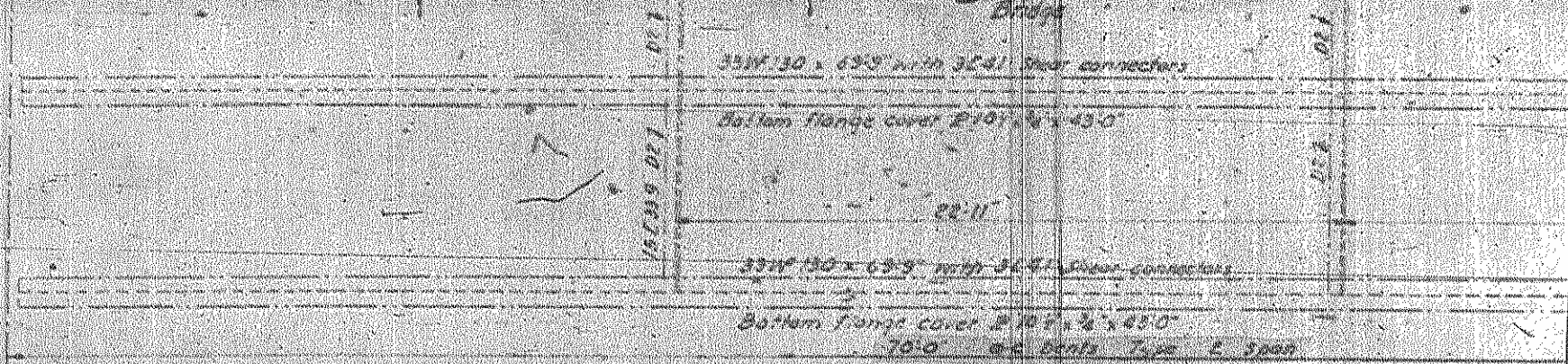
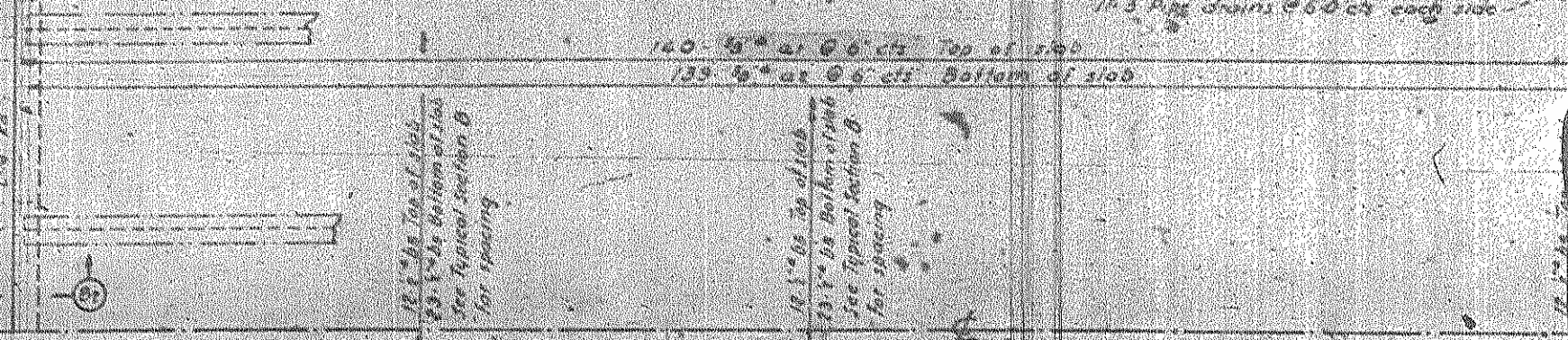
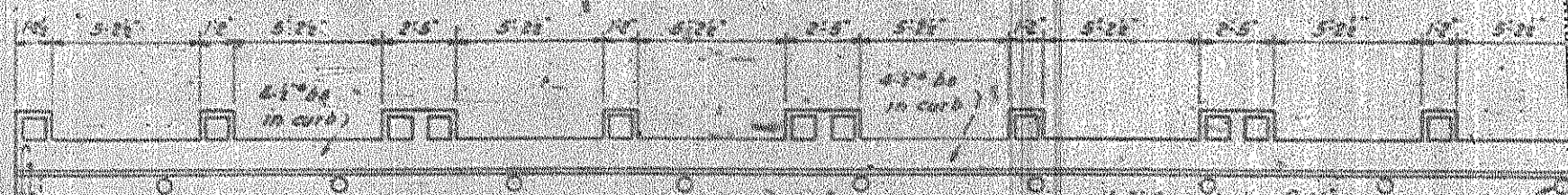
Revised as shown by pencil
 circled figures on Jan. 27, 1934
 J.A.L.S.
 Revised to raise the grade from Bent 127
 to Bent 129 and from Bent 129 to
 Bent 131. July 27, 1934 by J.A.L.S.
 J.A.L.S.

PROJECT NO. 1231A
DARE COUNTY
STATION: 191+67.5

STATE OF NORTH CAROLINA
 STATE HIGHWAY AND
 PUBLIC WORKS COMMISSION
 SUPERSTRUCTURE
 TYPE D SPAN
 GRADE DATA BENT 129-131 & 154-166
 JULY 1934
 J.A.L.S.



RAIL ELEVATION



HALF PLAN CONCRETE SLAB & STRUCTURAL ST

Top of curb elevations 18" from E

33.03	33.18	33.33	33.48	33.62	33.76	33.90	34.04	34.18	34.32	34.46	34.59	34.72	34.85	34.98	35.11	35.24	35.36	35.48	35.60	35.72	35.84	35.96	36.07	36.18	36.29	36.40	36.51	36.62	36.73	36.84	36.95	37.06	37.17	37.28	37.39	37.50	37.61	37.72	37.83	37.94	38.05	38.16	38.27	38.38	38.49	38.60	38.71	38.82	38.93	39.04	39.15	39.26	39.37	39.48	39.59	39.70	39.81	39.92	40.03	40.14	40.25	40.36	40.47	40.58	40.69	40.80	40.91	41.02	41.13	41.24	41.35	41.46	41.57	41.68	41.79	41.90	42.01	42.12	42.23	42.34	42.45	42.56	42.67	42.78	42.89	43.00	43.11	43.22	43.33	43.44	43.55	43.66	43.77	43.88	43.99	44.10	44.21	44.32	44.43	44.54	44.65	44.76	44.87	44.98	45.09	45.20	45.31	45.42	45.53	45.64	45.75	45.86	45.97	46.08	46.19	46.30	46.41	46.52	46.63	46.74	46.85	46.96	47.07	47.18	47.29	47.40	47.51	47.62	47.73	47.84	47.95	48.06	48.17	48.28	48.39	48.50	48.61	48.72	48.83	48.94	49.05	49.16	49.27	49.38	49.49	49.60	49.71	49.82	49.93	50.04	50.15	50.26	50.37	50.48	50.59	50.70	50.81	50.92	51.03	51.14	51.25	51.36	51.47	51.58	51.69	51.80	51.91	52.02	52.13	52.24	52.35	52.46	52.57	52.68	52.79	52.90	53.01	53.12	53.23	53.34	53.45	53.56	53.67	53.78	53.89	54.00	54.11	54.22	54.33	54.44	54.55	54.66	54.77	54.88	54.99	55.10	55.21	55.32	55.43	55.54	55.65	55.76	55.87	55.98	56.09	56.20	56.31	56.42	56.53	56.64	56.75	56.86	56.97	57.08	57.19	57.30	57.41	57.52	57.63	57.74	57.85	57.96	58.07	58.18	58.29	58.40	58.51	58.62	58.73	58.84	58.95	59.06	59.17	59.28	59.39	59.50	59.61	59.72	59.83	59.94	60.05	60.16	60.27	60.38	60.49	60.60	60.71	60.82	60.93	61.04	61.15	61.26	61.37	61.48	61.59	61.70	61.81	61.92	62.03	62.14	62.25	62.36	62.47	62.58	62.69	62.80	62.91	63.02	63.13	63.24	63.35	63.46	63.57	63.68	63.79	63.90	64.01	64.12	64.23	64.34	64.45	64.56	64.67	64.78	64.89	65.00	65.11	65.22	65.33	65.44	65.55	65.66	65.77	65.88	65.99	66.10	66.21	66.32	66.43	66.54	66.65	66.76	66.87	66.98	67.09	67.20	67.31	67.42	67.53	67.64	67.75	67.86	67.97	68.08	68.19	68.30	68.41	68.52	68.63	68.74	68.85	68.96	69.07	69.18	69.29	69.40	69.51	69.62	69.73	69.84	69.95	70.06	70.17	70.28	70.39	70.50	70.61	70.72	70.83	70.94	71.05	71.16	71.27	71.38	71.49	71.60	71.71	71.82	71.93	72.04	72.15	72.26	72.37	72.48	72.59	72.70	72.81	72.92	73.03	73.14	73.25	73.36	73.47	73.58	73.69	73.80	73.91	74.02	74.13	74.24	74.35	74.46	74.57	74.68	74.79	74.90	75.01	75.12	75.23	75.34	75.45	75.56	75.67	75.78	75.89	76.00	76.11	76.22	76.33	76.44	76.55	76.66	76.77	76.88	76.99	77.10	77.21	77.32	77.43	77.54	77.65	77.76	77.87	77.98	78.09	78.20	78.31	78.42	78.53	78.64	78.75	78.86	78.97	79.08	79.19	79.30	79.41	79.52	79.63	79.74	79.85	79.96	80.07	80.18	80.29	80.40	80.51	80.62	80.73	80.84	80.95	81.06	81.17	81.28	81.39	81.50	81.61	81.72	81.83	81.94	82.05	82.16	82.27	82.38	82.49	82.60	82.71	82.82	82.93	83.04	83.15	83.26	83.37	83.48	83.59	83.70	83.81	83.92	84.03	84.14	84.25	84.36	84.47	84.58	84.69	84.80	84.91	85.02	85.13	85.24	85.35	85.46	85.57	85.68	85.79	85.90	86.01	86.12	86.23	86.34	86.45	86.56	86.67	86.78	86.89	87.00	87.11	87.22	87.33	87.44	87.55	87.66	87.77	87.88	87.99	88.10	88.21	88.32	88.43	88.54	88.65	88.76	88.87	88.98	89.09	89.20	89.31	89.42	89.53	89.64	89.75	89.86	89.97	90.08	90.19	90.30	90.41	90.52	90.63	90.74	90.85	90.96	91.07	91.18	91.29	91.40	91.51	91.62	91.73	91.84	91.95	92.06	92.17	92.28	92.39	92.50	92.61	92.72	92.83	92.94	93.05	93.16	93.27	93.38	93.49	93.60	93.71	93.82	93.93	94.04	94.15	94.26	94.37	94.48	94.59	94.70	94.81	94.92	95.03	95.14	95.25	95.36	95.47	95.58	95.69	95.80	95.91	96.02	96.13	96.24	96.35	96.46	96.57	96.68	96.79	96.90	97.01	97.12	97.23	97.34	97.45	97.56	97.67	97.78	97.89	98.00	98.11	98.22	98.33	98.44	98.55	98.66	98.77	98.88	98.99	99.10	99.21	99.32	99.43	99.54	99.65	99.76	99.87	99.98	100.09	100.20	100.31	100.42	100.53	100.64	100.75	100.86	100.97	101.08	101.19	101.30	101.41	101.52	101.63	101.74	101.85	101.96	102.07	102.18	102.29	102.40	102.51	102.62	102.73	102.84	102.95	103.06	103.17	103.28	103.39	103.50	103.61	103.72	103.83	103.94	104.05	104.16	104.27	104.38	104.49	104.60	104.71	104.82	104.93	105.04	105.15	105.26	105.37	105.48	105.59	105.70	105.81	105.92	106.03	106.14	106.25	106.36	106.47	106.58	106.69	106.80	106.91	107.02	107.13	107.24	107.35	107.46	107.57	107.68	107.79	107.90	108.01	108.12	108.23	108.34	108.45	108.56	108.67	108.78	108.89	109.00	109.11	109.22	109.33	109.44	109.55	109.66	109.77	109.88	109.99	110.10	110.21	110.32	110.43	110.54	110.65	110.76	110.87	110.98	111.09	111.20	111.31	111.42	111.53	111.64	111.75	111.86	111.97	112.08	112.19	112.30	112.41	112.52	112.63	112.74	112.85	112.96	113.07	113.18	113.29	113.40	113.51	113.62	113.73	113.84	113.95	114.06	114.17	114.28	114.39	114.50	114.61	114.72	114.83	114.94	115.05	115.16	115.27	115.38	115.49	115.60	115.71	115.82	115.93	116.04	116.15	116.26	116.37	116.48	116.59	116.70	116.81	116.92	117.03	117.14	117.25	117.36	117.47	117.58	117.69	117.80	117.91	118.02	118.13	118.24	118.35	118.46	118.57	118.68	118.79	118.90	119.01	119.12	119.23	119.34	119.45	119.56	119.67	119.78	119.89	120.00
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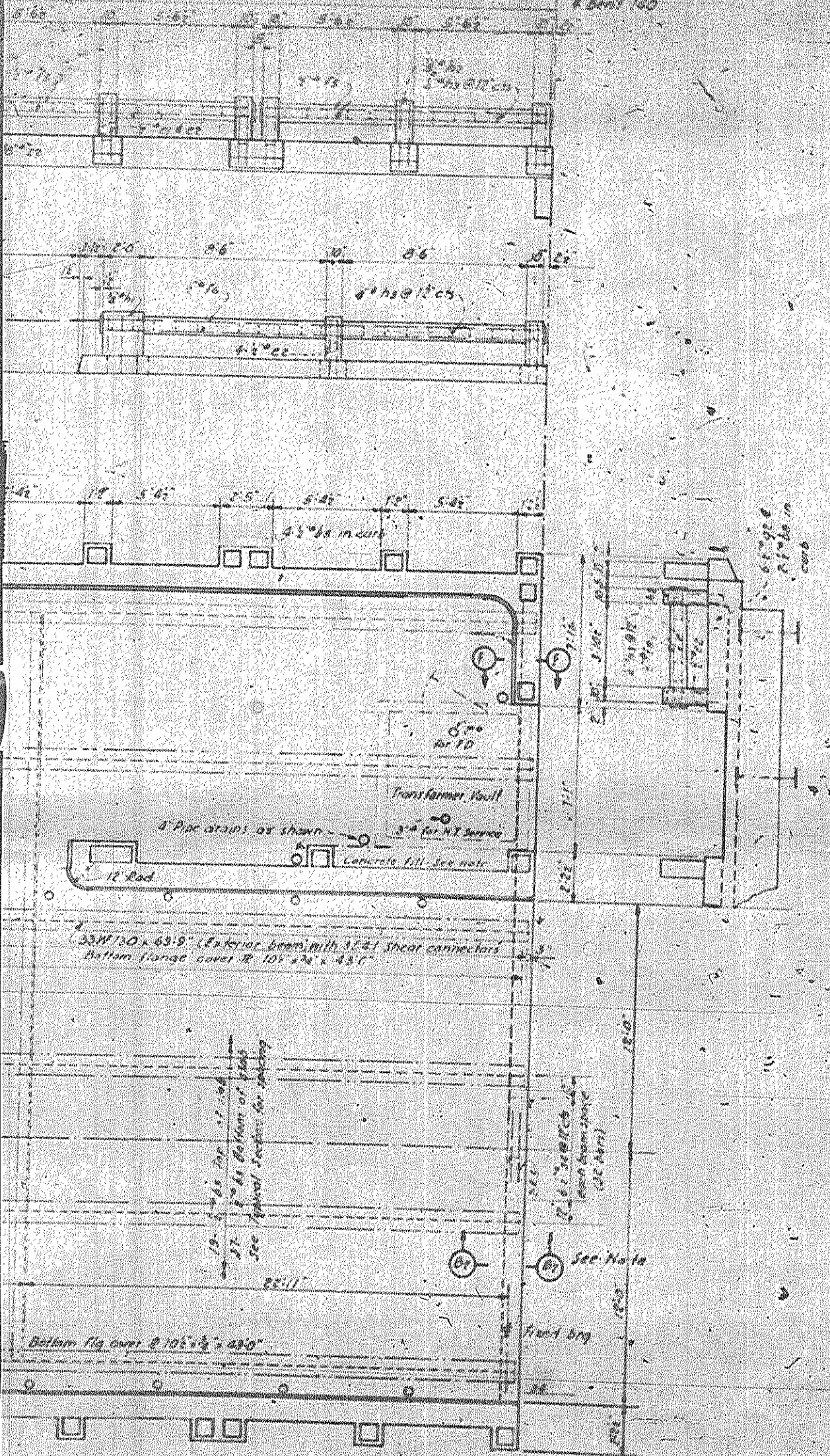
14 spaces @ 50' x 100' Each span

See Grade Data Sheets 12-131 or 150-144

VERTICAL CURVE DATA - PI @ E

Expansion joint
at Bent 100

REV.	DATE	DESCRIPTION
1	7/1/54	513



TRANSFORMER VAULT shown to be built on a separate form cured here in roadway for main supply cable and for 1" dia. or other necessary openings shall be done within the bridge deck as well as setting wall details as shown on Transformer Plan.

Concrete Section Bc-Bc except for bar applies to roadway (normal) section Type F Span

Concrete fill shown on south side of Transformer Vault to be placed after it has been poured. Concrete yardage shown in Transformer Vault.

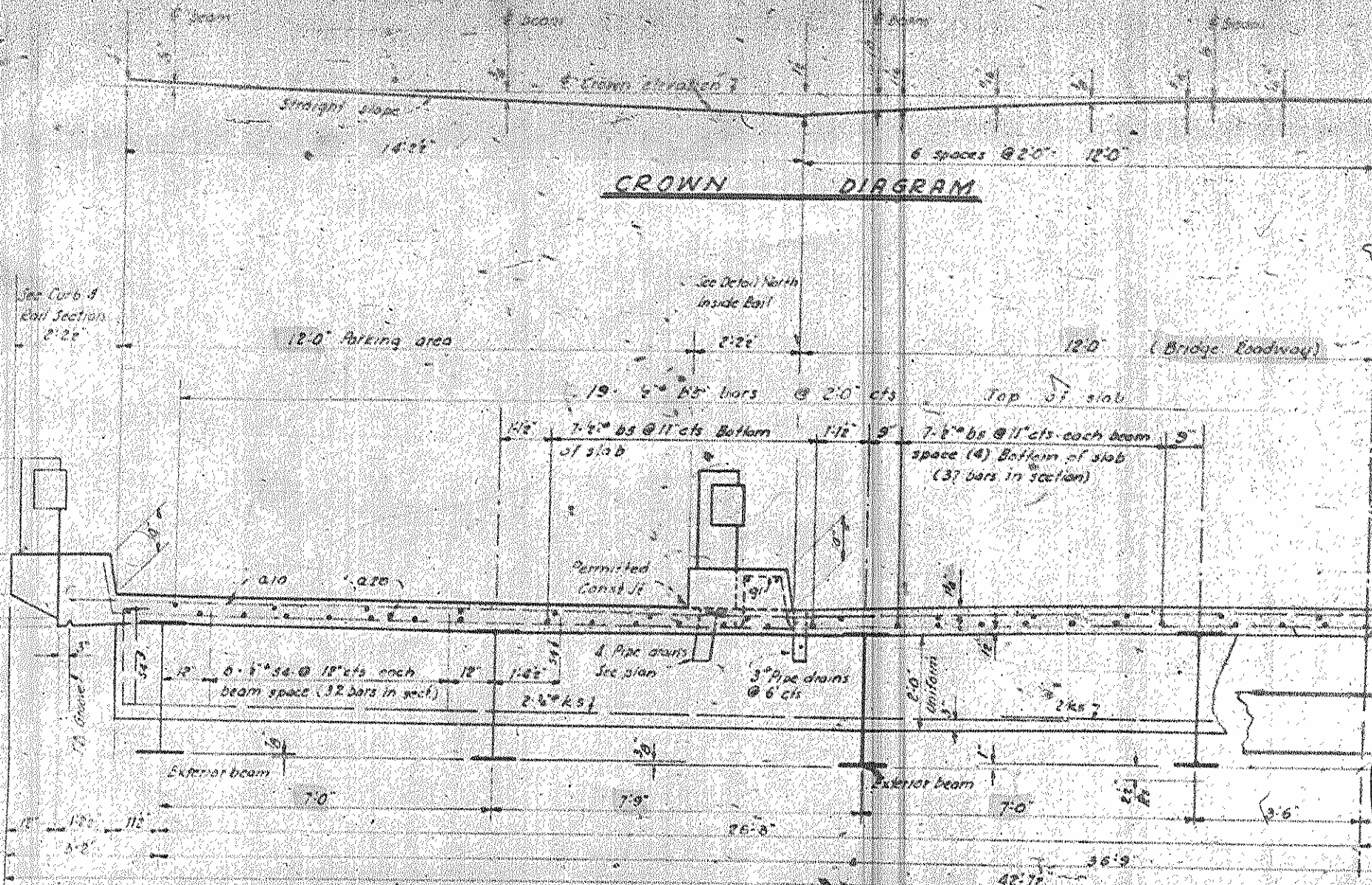
PROJECT NO. 1231-A
DARE COUNTY
STATION: 191+67.5

STATE OF NORTH CAROLINA
STATE HIGHWAY AND
PUBLIC WORKS COMMISSION

SUPERSTRUCTURE
TYPE F SPAN

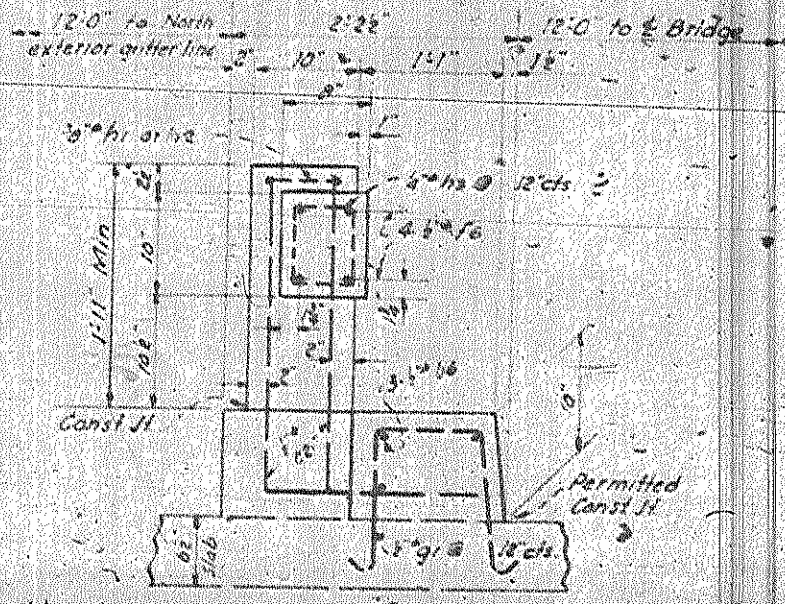
JULY 1954

Handwritten signature

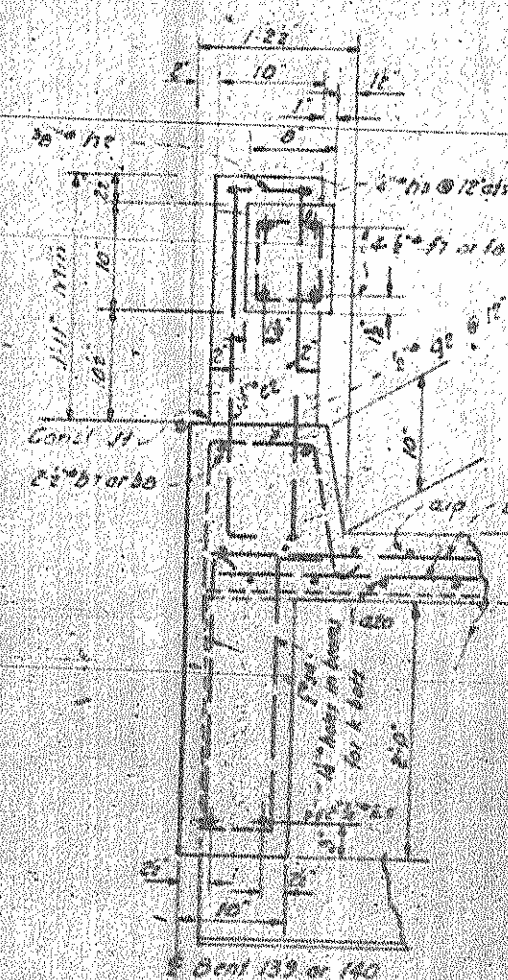


SHOWING CONCRETE DIAPHRAGM @ BENTS SHOWING

TYPICAL SECTION TYPE P SPAN



SECTION NORTH INSIDE CURB



SECTION P-P

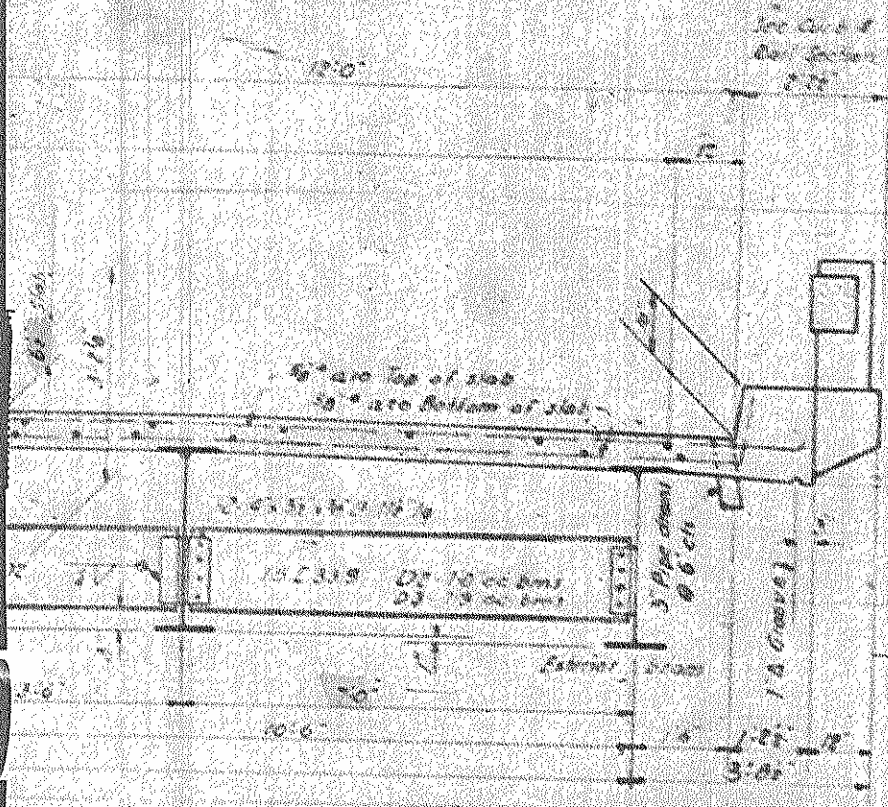
DATE	
DATE	
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DATE	July 28, 1954
DATE	

Permit

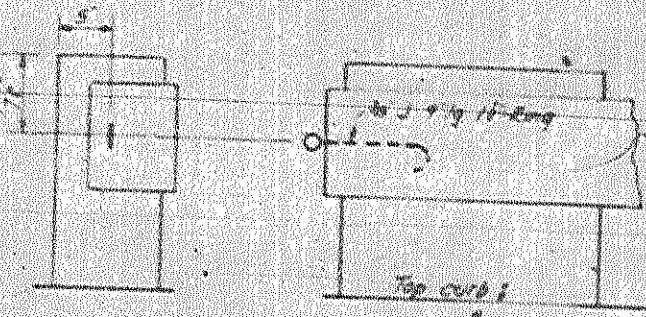
NOTE

Type F Span Sections are 33" x 30" concrete with steel reinforcement and bottom flange cover plates - See Structural Steel Catalog for loads.

Notes shown on Typical Section D&E apply to Spans D&E will apply to Type F Span.



MID SPAN DIAPHRAGMS



CHAIN ANCHORAGE

Fasten chain at one end to ring of anchorage leaving the other end free for locking.

Chain and anchor rings to be galvanized.

Chain to be equipped with a sturdy rustproof padlock with 2 keys.

The entire cost of chain, anchors, and lock complete in place to be included in the unit price bid for Class B Concrete.

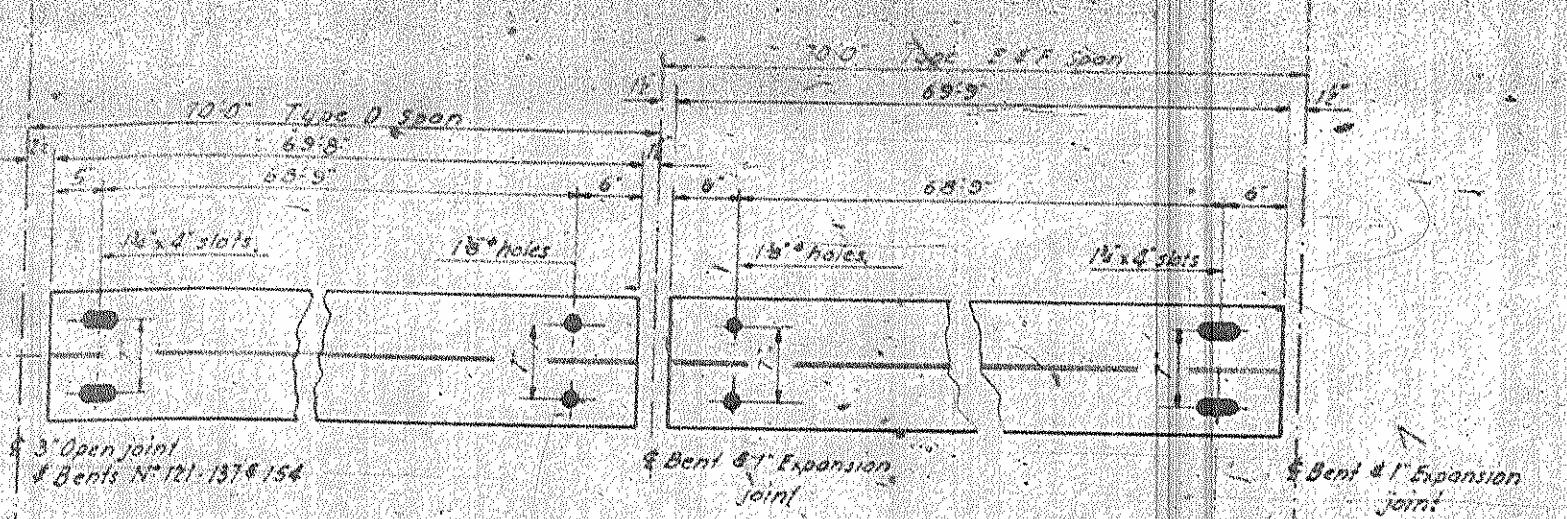
PROJECT NO. 1231A
DARE COUNTY
STATION: 191+67.5

STATE OF NORTH CAROLINA
 STATE HIGHWAY 640
 PUBLIC WORKS COMMISSION

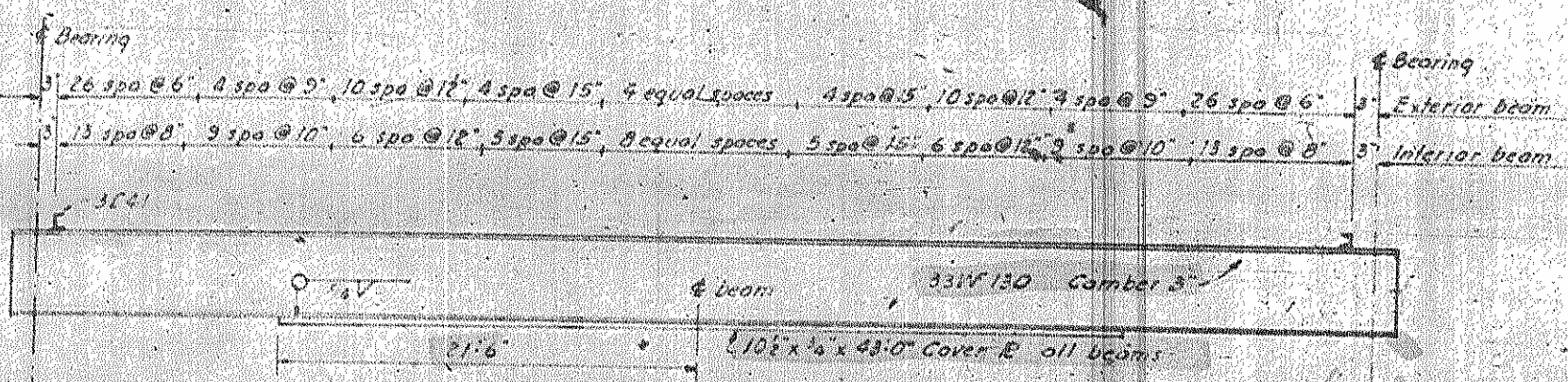
**SUPERSTRUCTURE
 TYPE F SPAN
 SECTIONS**

JULY 1958

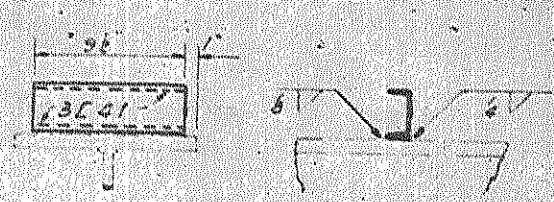
J.M.C.



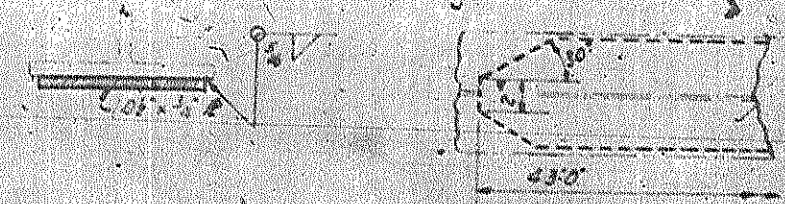
DETAIL BOTTOM FLANGES



BEAM DETAIL
SHEAR CONNECTORS & COVER PLATE



WELDING DETAIL - SHEAR CONNECTORS

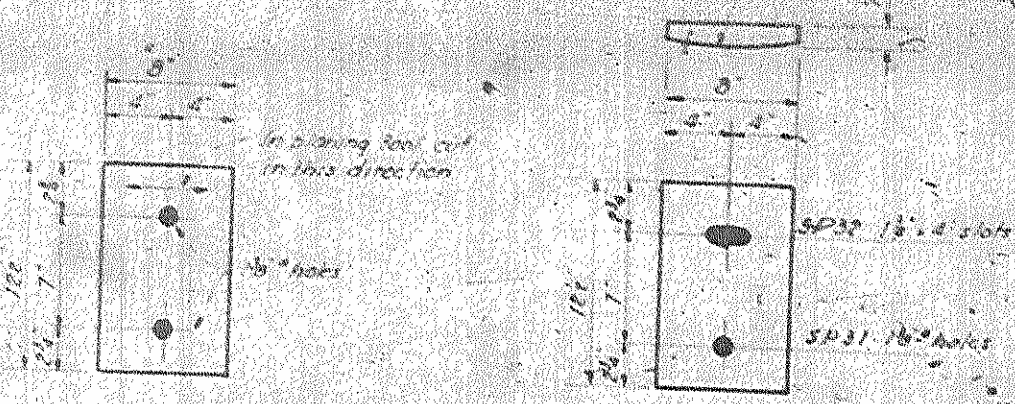


WELDING DETAIL COVER B

ASSEMBLED BY	DATE
CHECKED BY	DATE
DESIGNED BY	DATE
DRAWN BY <i>Jean Gagne</i>	CATSLIP 195-2
TRACED BY	DATE
CHECKED BY <i>A. J. Parrott</i>	DATE

NOTE

All Type D, E & F spans are 20W130 numbered 3'
 for location and size of holes for anchors see Concrete Sections
 for detail of structural steel diaphragms see Typical Section B for Type D, E & F spans and Typical Section of Type F spans
 Riveted connections may be substituted for welded connections shown for cover plates. See Special Provisions
 The Contractor's attention is called to the requirement that where welding is used to connect cover plates to beam the cover plate and beam shall be of weldable steel conforming to ASTM Designation A36 and shall comply to be in accordance with revised AWS Specification for Steel for Welded Bridges
 The top of top flange and shear connection will not be painted



MP30 & ALL R BEARING PLATE DETAIL

Required for 1 Span	SP31 & SP32	
Type D span	4 MP30 - 8" x 1" x 12"	4 SP31 - 8" x 1/2" x 12" Fixed end
Required 3 spans	4 MP30 - 8" x 1" x 12"	4 SP32 - 8" x 1/2" x 12" Expansion end
Type E & F spans	4 MP30 - 8" x 1" x 12"	4 SP31 - 8" x 1/2" x 12" Fixed end
Required 2 spans	4 MP30 - 8" x 1" x 12"	4 SP32 - 8" x 1/2" x 12" Expansion end
Type F span	6 MP30 - 8" x 1" x 12"	6 SP31 - 8" x 1/2" x 12" Fixed end
Required 1 span	6 MP30 - 8" x 1" x 12"	6 SP32 - 8" x 1/2" x 12" Expansion end

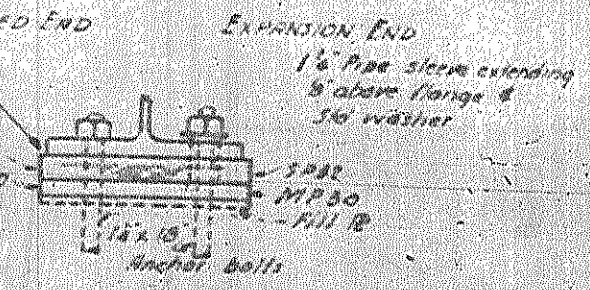
FILL IRs REQUIRED 1 bent

Bent	IRs	Notes
121 - 154	4 - 8" x 1" x 12"	(See Grade Data Bent 121-151 & VC Data PI @ Channel for location of fill IRs)
122 - 153	4 - 8" x 3/4" x 12"	
123 - 152	4 - 8" x 3/4" x 12"	
124 - 151	4 - 8" x 3/4" x 12"	
125 - 150	4 - 8" x 3/4" x 12"	
126 - 149	4 - 8" x 3/4" x 12"	
127 - 148	4 - 8" x 3/4" x 12"	
128 - 147	4 - 8" x 3/4" x 12"	
129 - 146	4 - 8" x 3/4" x 12"	
130 - 145	4 - 8" x 3/4" x 12"	
131 - 144	4 - 8" x 3/4" x 12"	
132 - 143	4 - 8" x 3/4" x 12"	
133 - 142	4 - 8" x 3/4" x 12"	
134 - 141	4 - 8" x 3/4" x 12"	
135 - 140	4 - 8" x 3/4" x 12"	
136 - 139	4 - 8" x 3/4" x 12"	
137 - 138		
Bent 139 - 140	1 - 8" x 3/4" x 12" north interior 3m span F	
	1 - 8" x 3/4" x 12" do	

Fill IRs may be combined with masonry if MP30 with required total thickness after planing

Revised bearing IRs shown by revised enclosed figures by J.E.M. 8/20/64

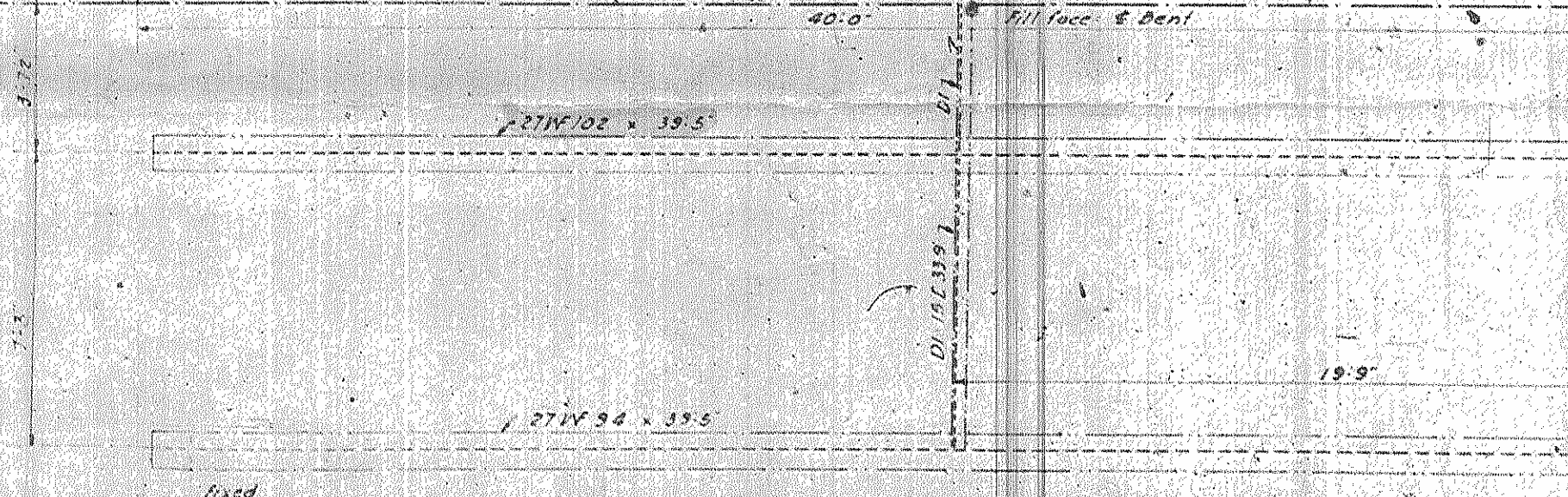
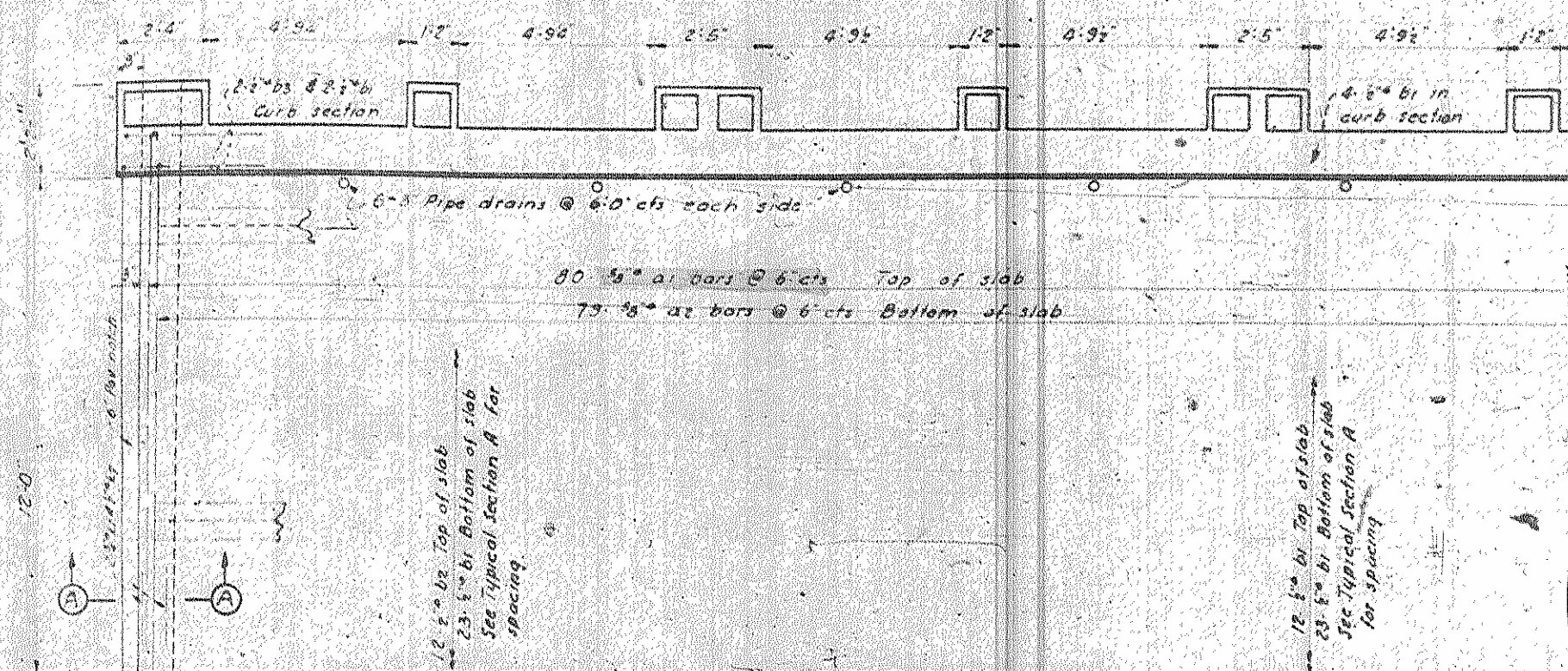
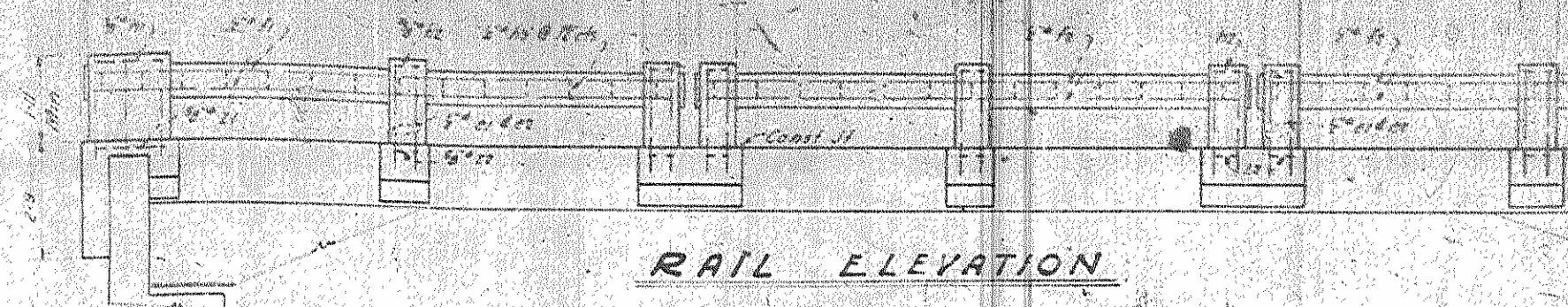
Revised through the grade from Bent 121 to Bent 121-151 and from Bent 121-151 to Bent 121-154 by J.E.M. 8/20/64



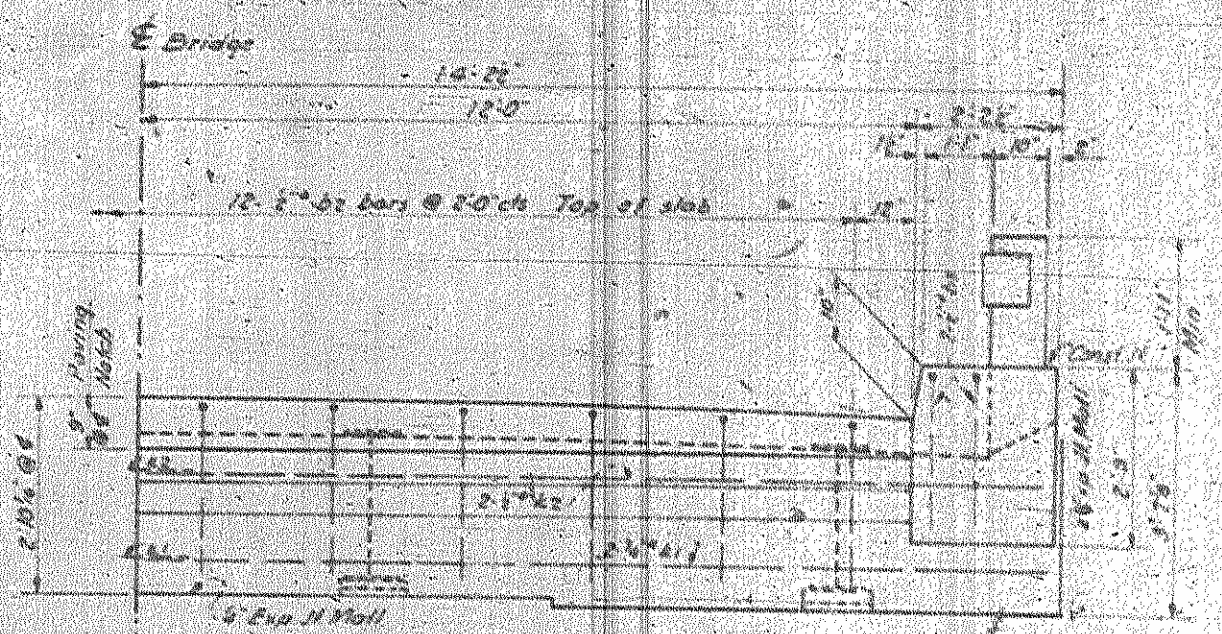
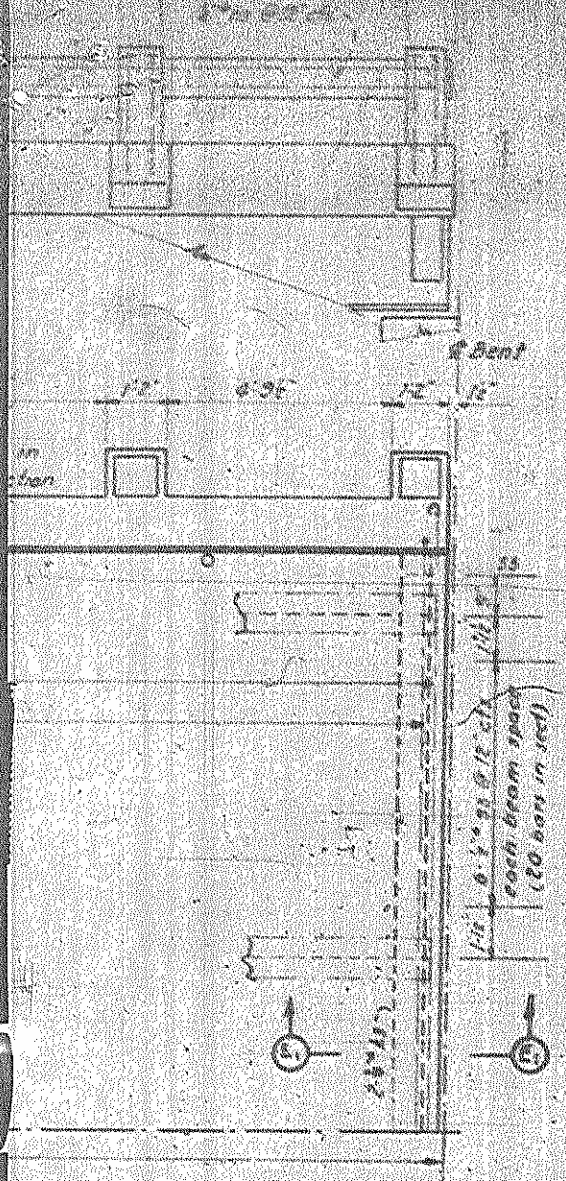
THRU BEAM

PROJECT NO. 1231-A
DARE COUNTY
STATION: 191+67.5

STATE OF NORTH CAROLINA
 STATE HIGHWAY AND
 PUBLIC WORKS COMMISSION
 SUPERSTRUCTURE
 STRUCTURAL STEEL
 BEAM DETAILS & BEARING IRs
 TYPE D-E & F SPANS
 AUGUST 1964



SPECIAL	APPROVED BY	DATE
	CHECKED BY	DATE
STANDARD	DESIGNED BY	DATE
	DRAWN BY <i>John Glenn</i>	DATE <i>July 1954</i>
	CHECKED BY <i>L. J. Barnett</i>	DATE <i>Aug. 1954</i>

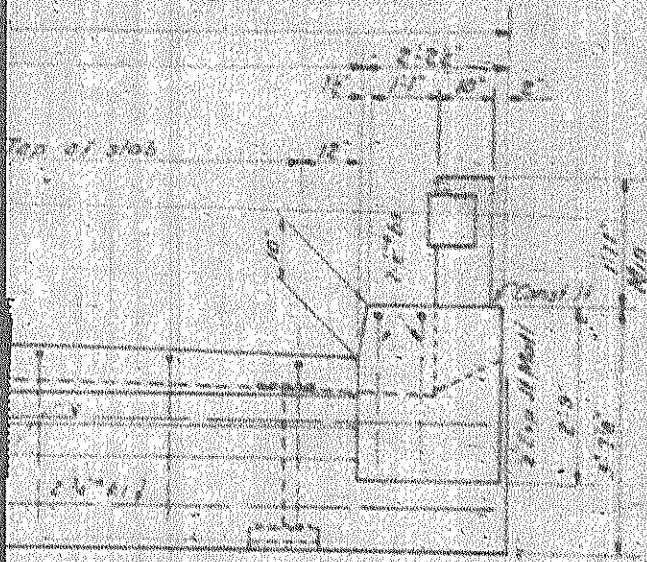


HALF END ELEVATION

NOTE

Each end shall be on 12" bearing grade to center of abutment. The end to be parallel to the g grade.

2" x 2" pipe drains shall be used on north side of bridge from end joint 10' to 20' 10' 10'



ELEVATION

PROJECT NO. 1231 A+B
DARE COUNTY
STATION: 131+67.5

STATE OF NORTH CAROLINA
STATE HIGHWAY AND
PUBLIC WORKS COMMISSION

**SUPERSTRUCTURE
END SPAN
TYPE A**

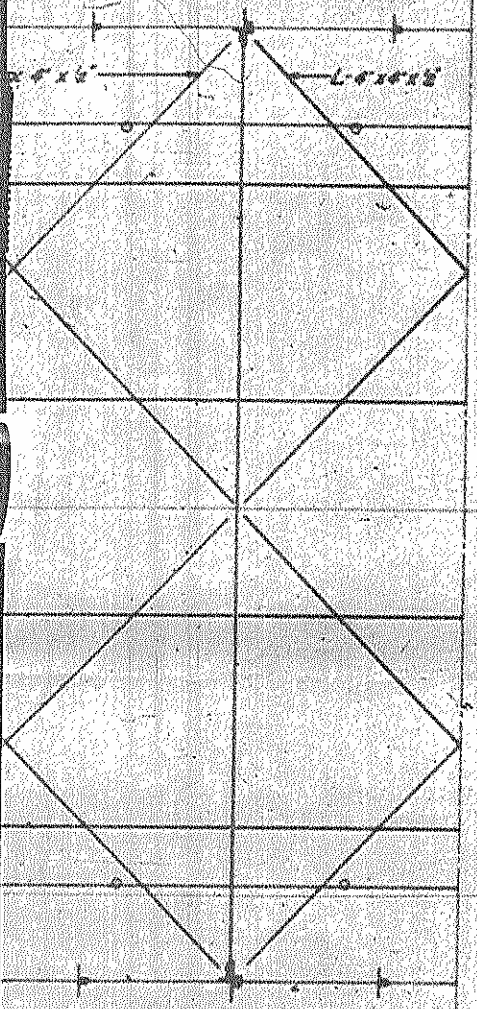
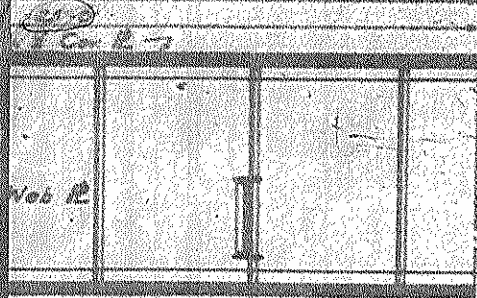
JULY 1954

[Signature]
[Signature]

SHEET 5 OF 39

SPECIAL
STANDARD

DESIGN NO.	1231	DATE	5/7
PROJECT NO.	1231 A	BY	



DESIGN DATA

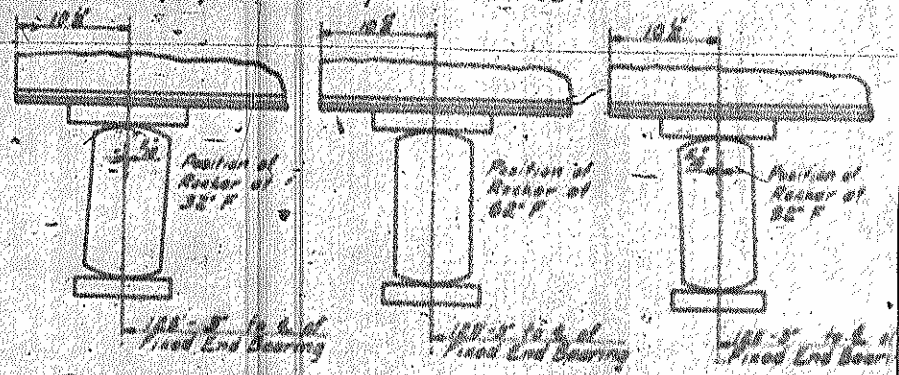
Assumed Live Load Specifications H-15(44)
A.A.S.H.O. (1953)

GENERAL NOTES

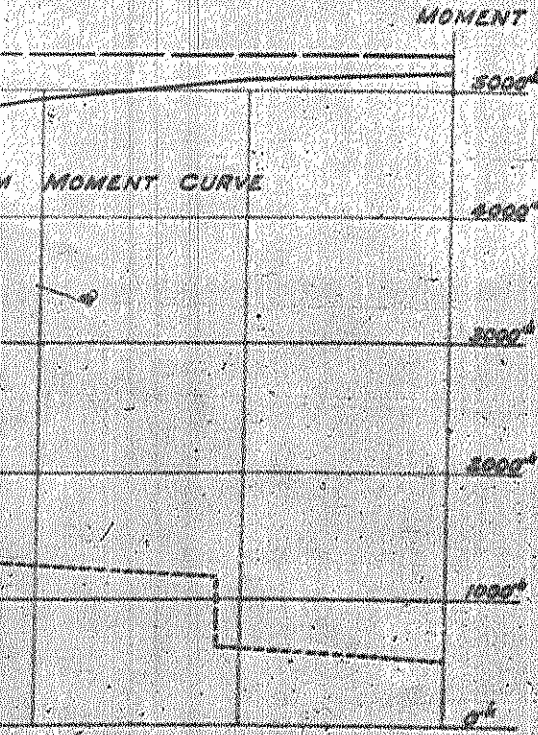
- Structural steel shall meet all the requirements of the specifications.
- All rivets shall be $\frac{3}{4}$ " unless otherwise noted.
- General rooming will be required.
- Splices may be shop or field riveted.
- Maximum cover plate rivet spacing is 3'.
- Checked shop drawings shall be submitted to the Bridge Engineer for approval.
- For additional General Notes see Sheet S-N.

PAINT FOR STRUCTURAL STEEL: Structural steel including the under side of I-Bm-Lok floor shall be given one shop coat and one field coat of red lead and finally two field coats of aluminum.

Note: For temperature variations other than those shown below adjustments are proportional to departure from 62° F.



ROCKER ADJUSTMENTS FOR TEMPERATURE VARIATIONS



PROJECT NO. 1231 A

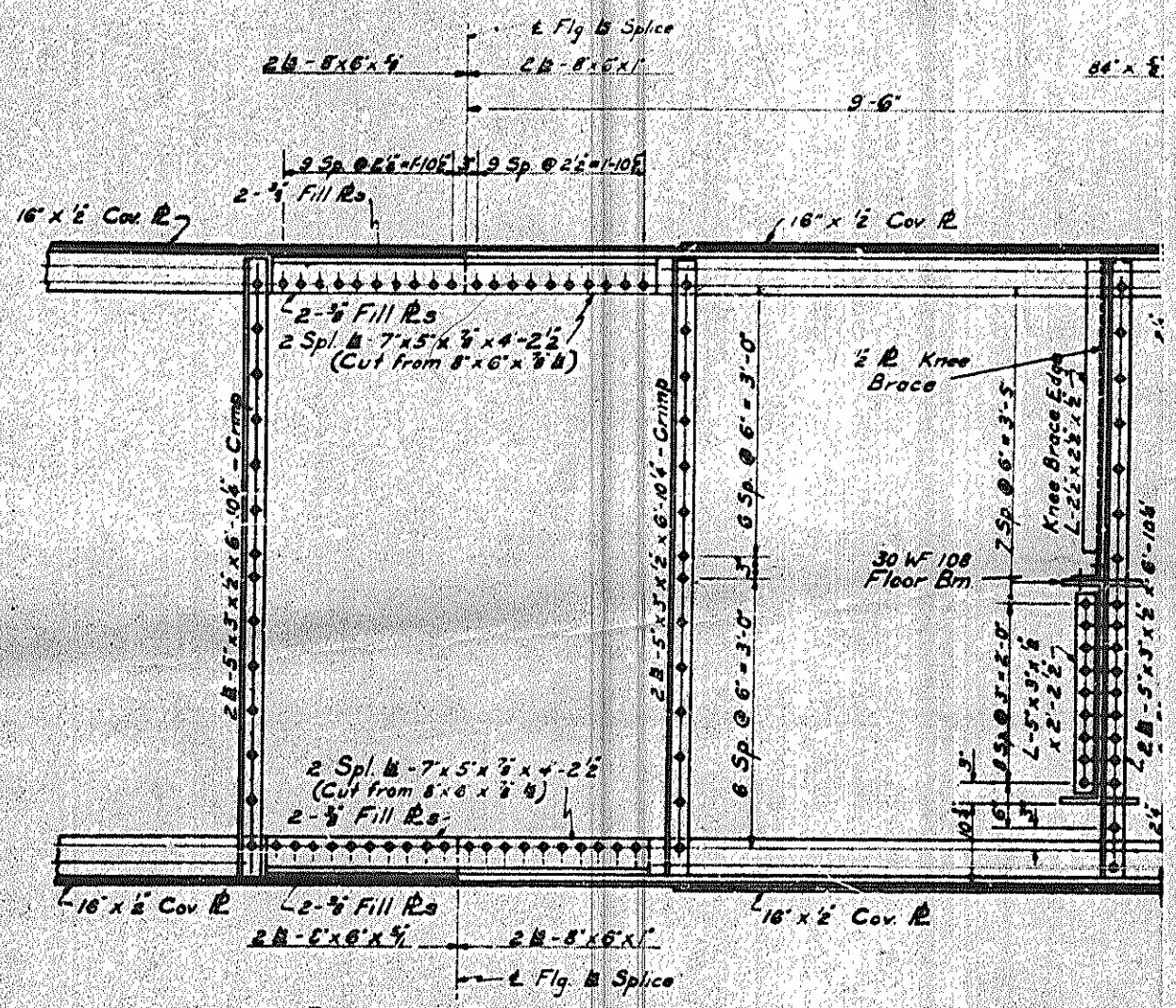
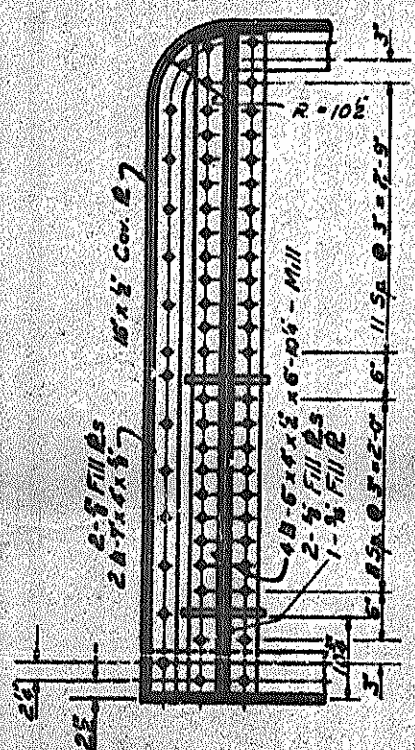
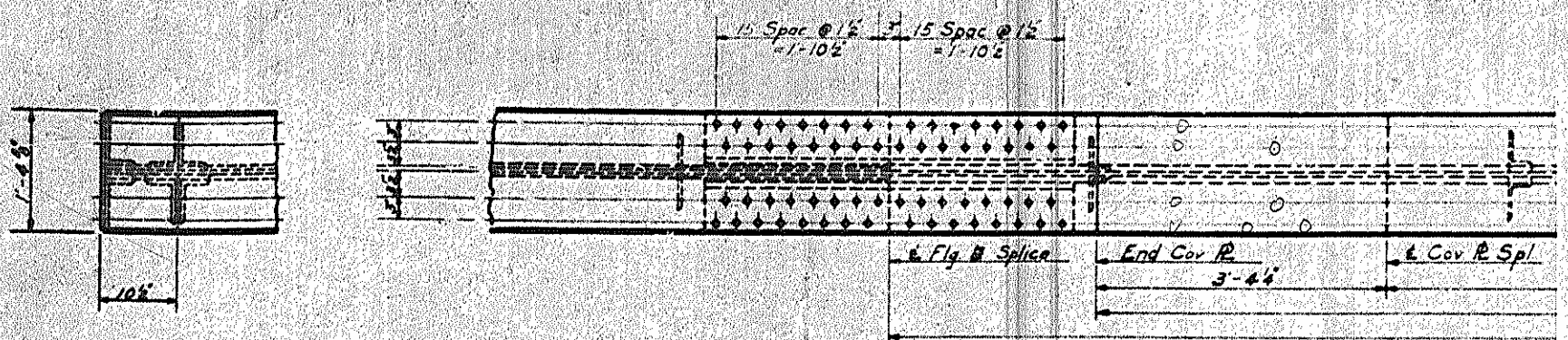
DARE COUNTY

STATION: 191+67.5

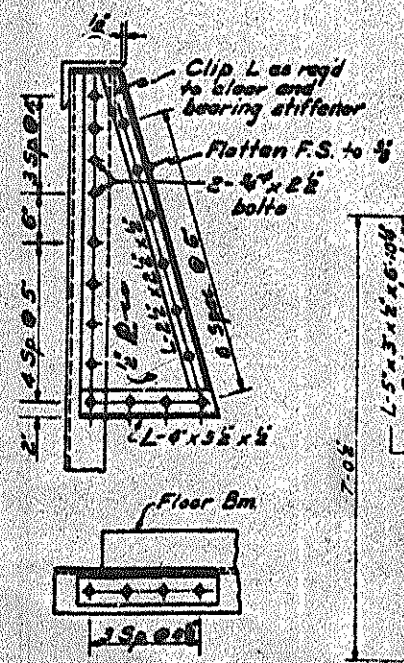
STATE OF NORTH CAROLINA
STATE HIGHWAY AND
PUBLIC WORKS COMMISSION

STRESS SHEET
130' THROUGH GIRDER SPAN

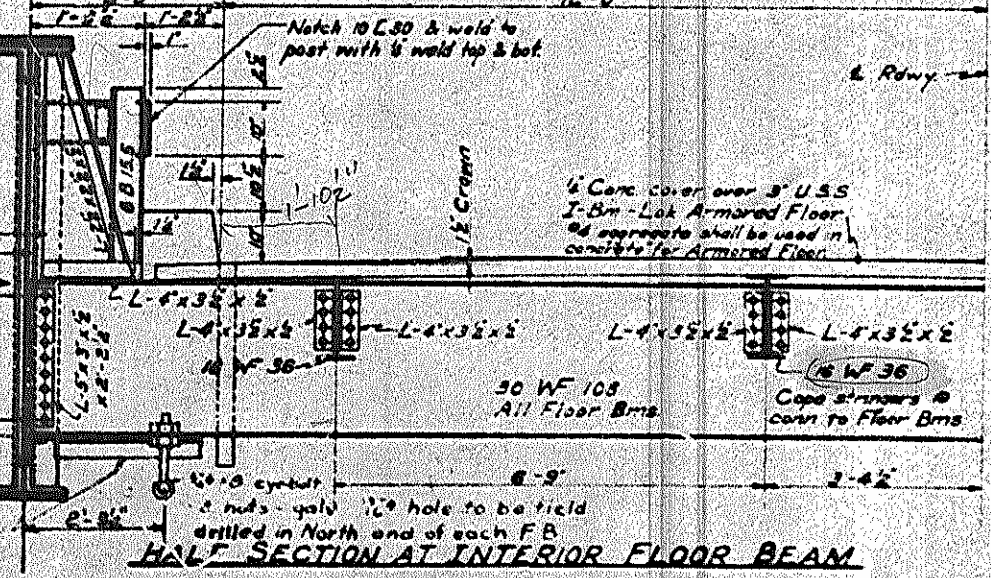
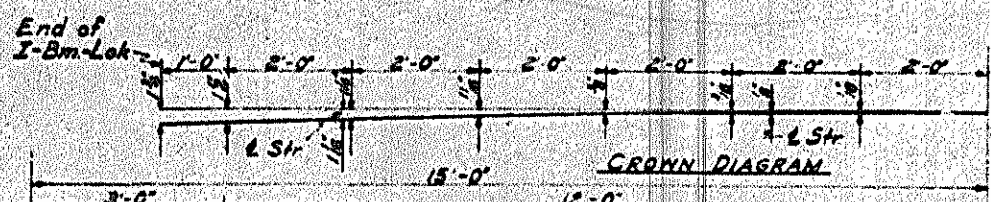
AUGUST, 1954



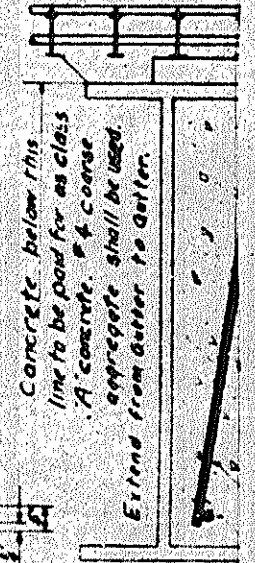
PART ELEVATION



DETAILS OF KNEE BRACE



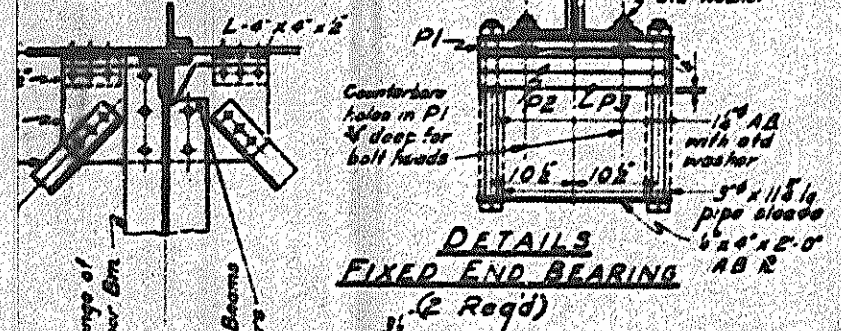
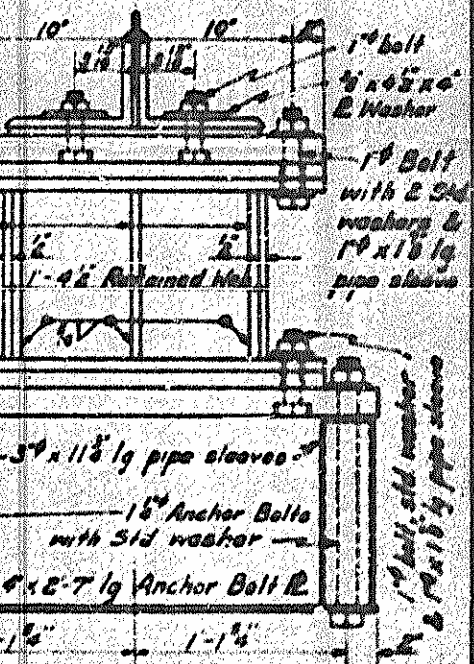
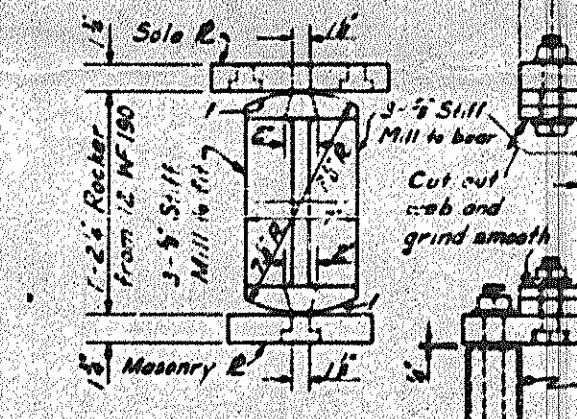
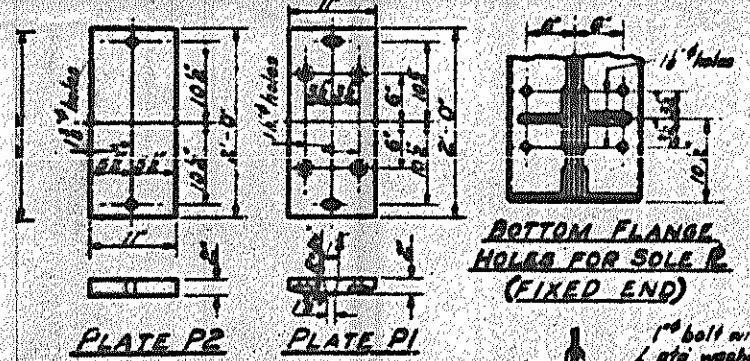
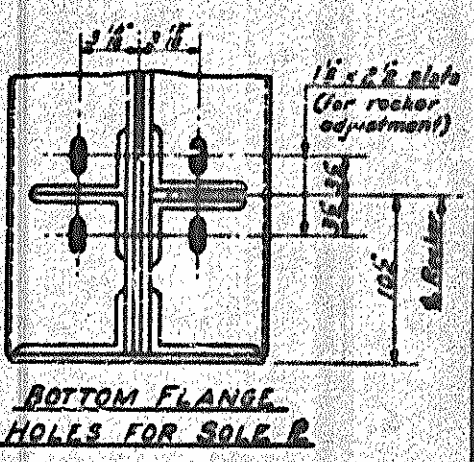
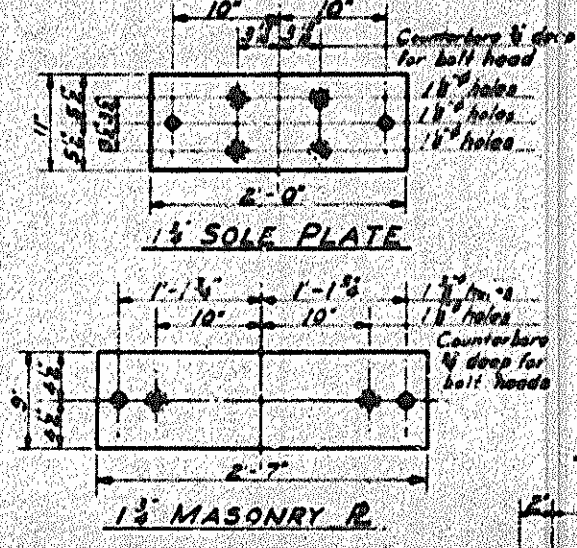
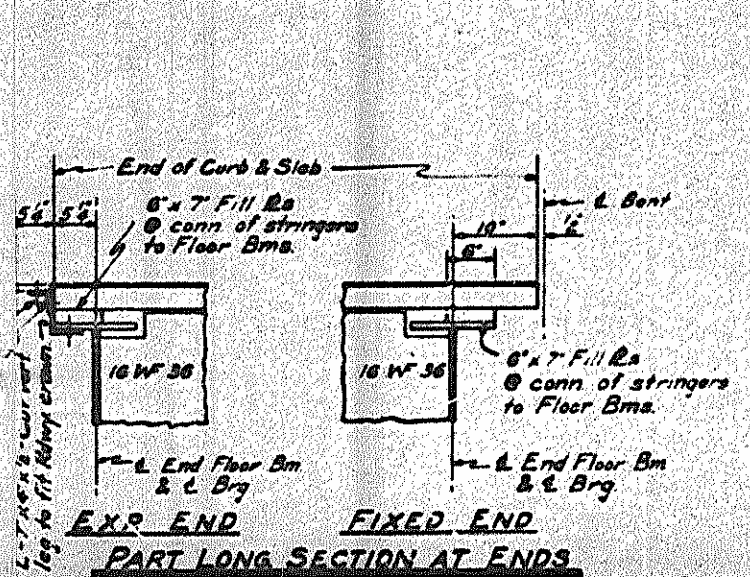
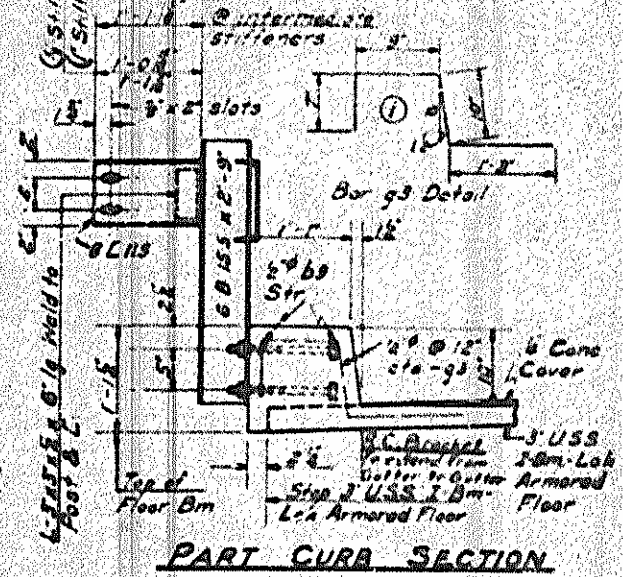
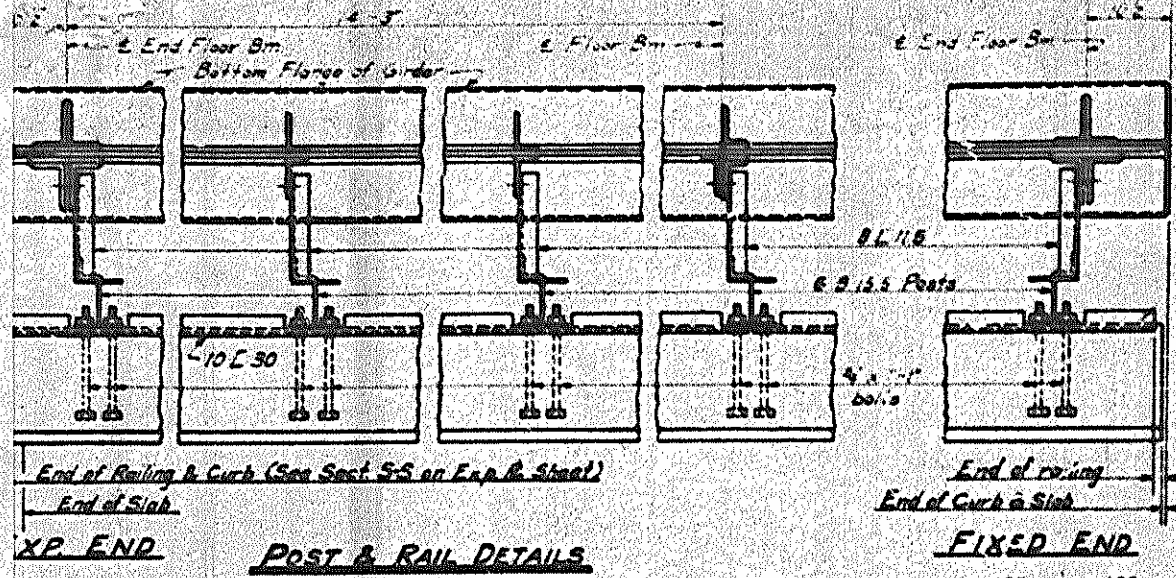
HALF SECTION AT INTERIOR FLOOR BEAM



SECTION SHOWING R.C. BRACKET AT FIXED END FLOOR BEAM

SPECIAL	ASSEMBLED BY	DATE
	CHECKED BY	DATE
STANDARD	DESIGNED BY	DATE
	DRAWN BY <i>John C. Engel</i>	DATE <i>Aug. 1954</i>
	TRACED BY	DATE
	CHECKED BY <i>G. J. Parrott</i>	DATE <i>March 1955</i>

Revision No. 4 to add R.C. at Fixed End Floor Beam



Total Reinf Steel: 116 + 985 = 1071 lbs

PROJECT NO. 1231A
DARE COUNTY
STATION: 191 + 675

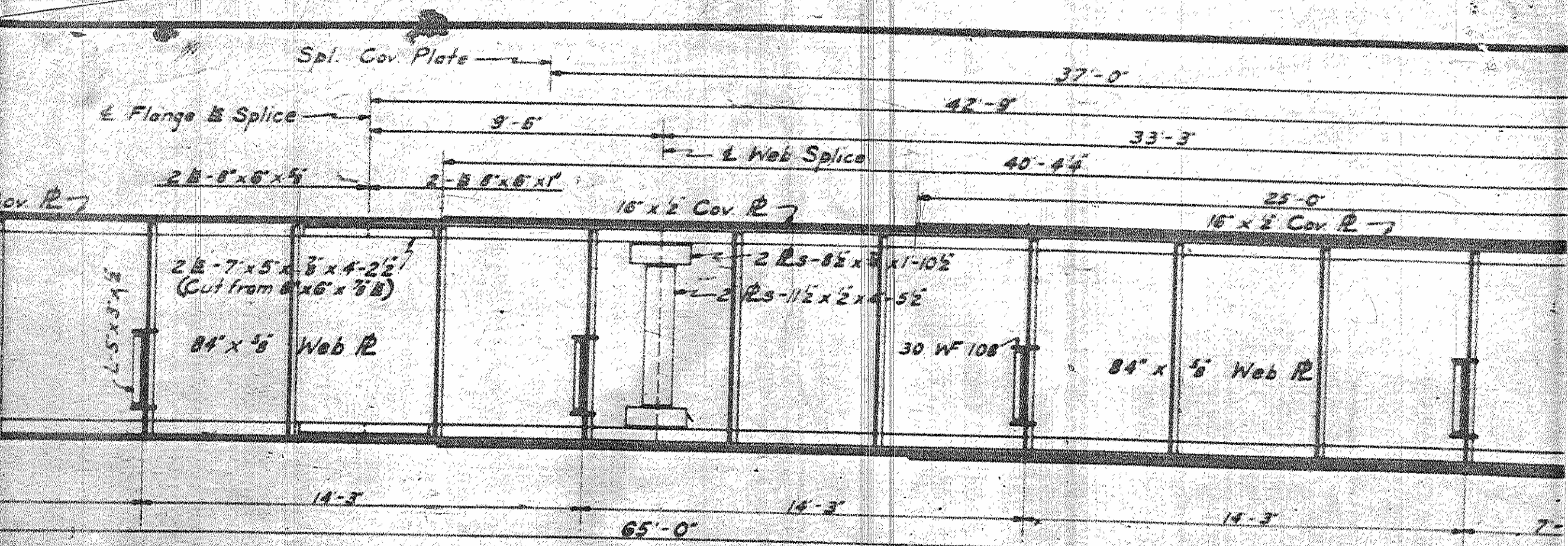
ADDITIONAL BILL FOR Rev No. 4					
Bar No.	Size	Type	Length	Weight	
v. 19	1/2"	Z	3'	68	
Dis 3	1/2"	str	23' 0"	48	
Reinforcing Steel				lbs	116
Class A Concrete				C.Y.	1.3

BILL OF MATERIAL					
Bar No.	Size	Type	Length	Weight	
b9	24	2"	Str	22-7	362
g3	260	2"	1	3-5	593
Reinf Steel					955 Lbs
Class A Conc. (in curbs)					99 C.Y.
3" I-Bm-Lok Floor					3300 SF
Struct Steel					219,100 Lbs (Approx)

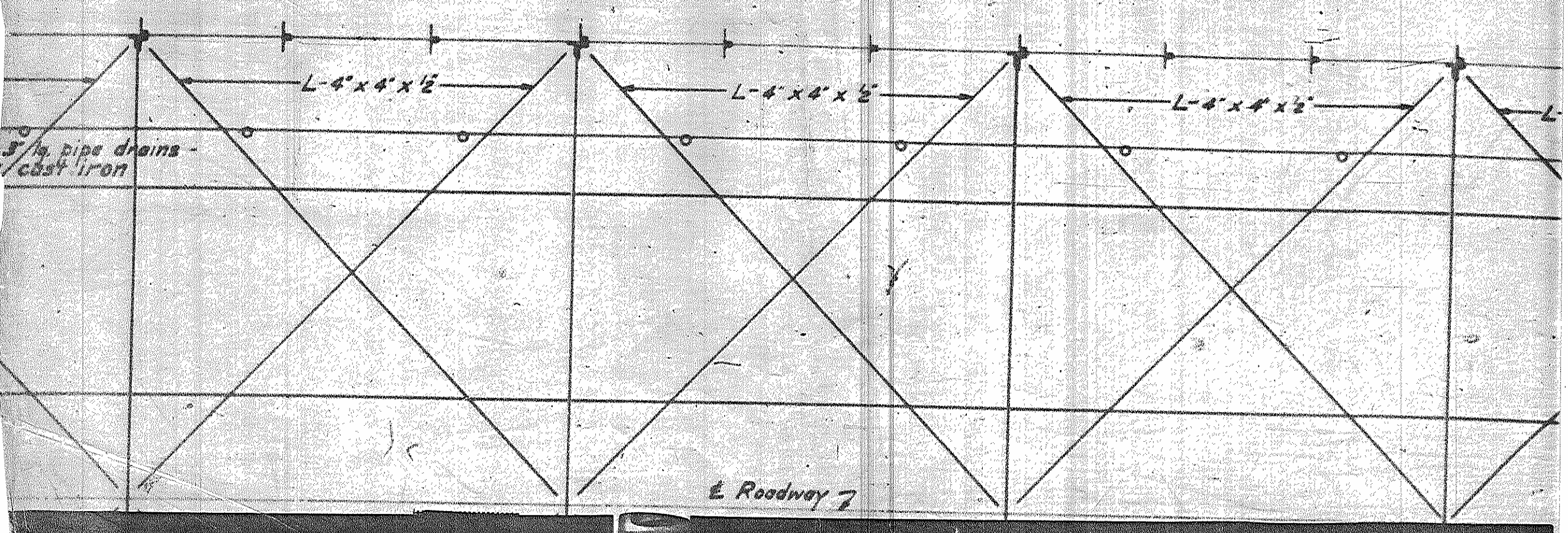
*Cost of concrete in curbs shall be included in cost per sq ft of 3" I-Bm-Lok floor. See Special Provisions

REV.	DATE	BY	DESCRIPTION
1	8-1-54	W.H.	Initial
2	8-1-54	W.H.	Revised
3	8-1-54	W.H.	Revised

STATE OF NORTH CAROLINA
STATE HIGHWAY AND
PUBLIC WORKS COMMISSION
GENERAL DETAILS
130' THROUGH GIRDER SPAN
AUGUST, 1954
W.H. [Signature]
W.H. [Signature]

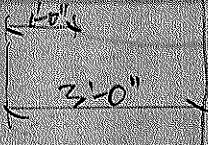


HALF ELEVATION

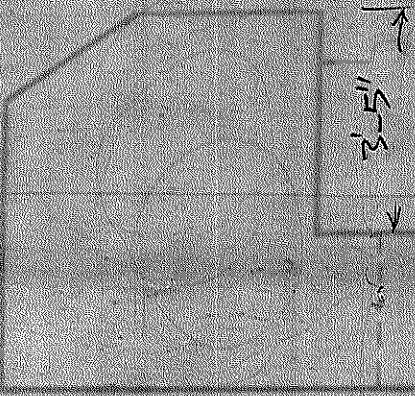


1'-0"

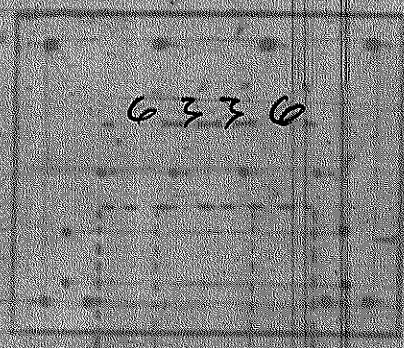
2'-0" 3'-0"



1'-4"

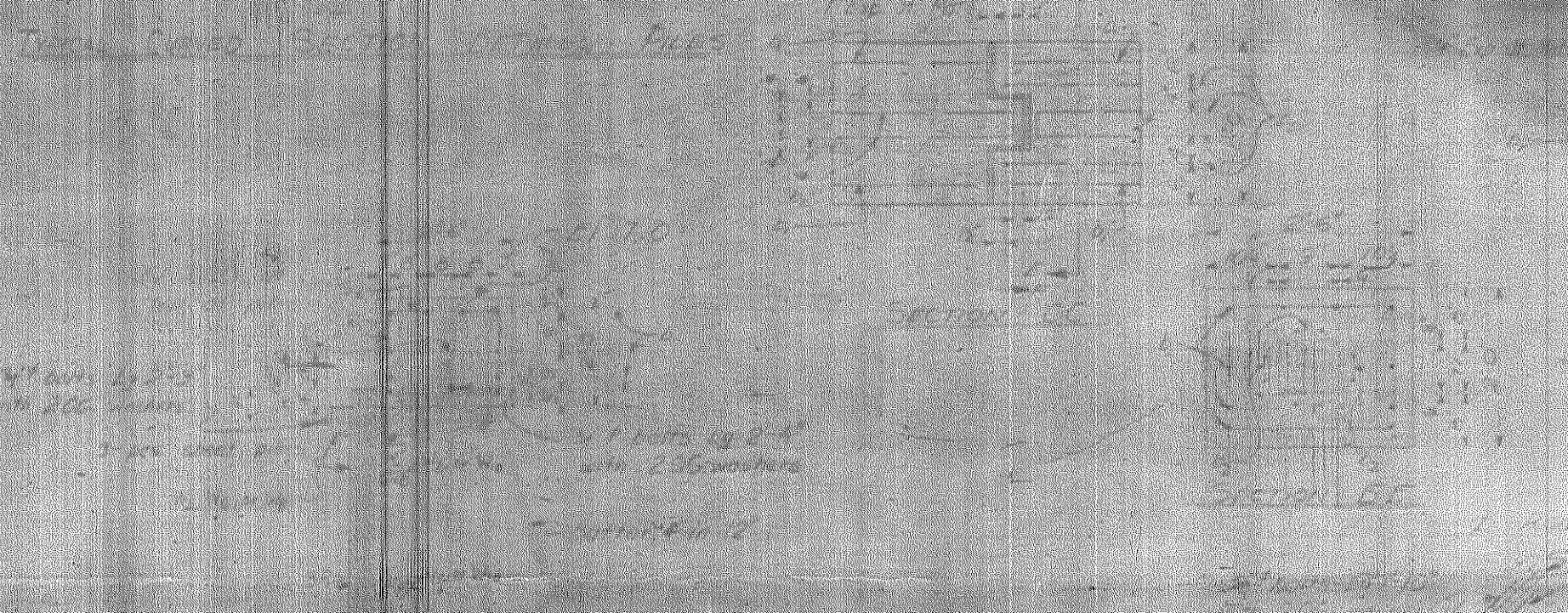


3'-5"

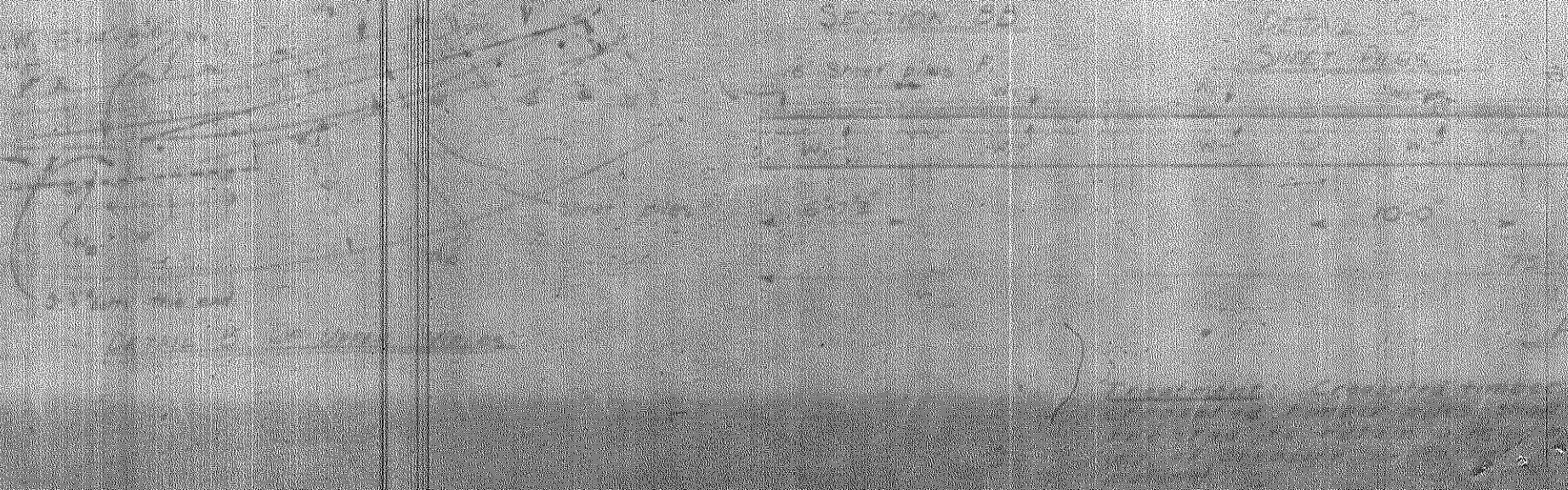


6330

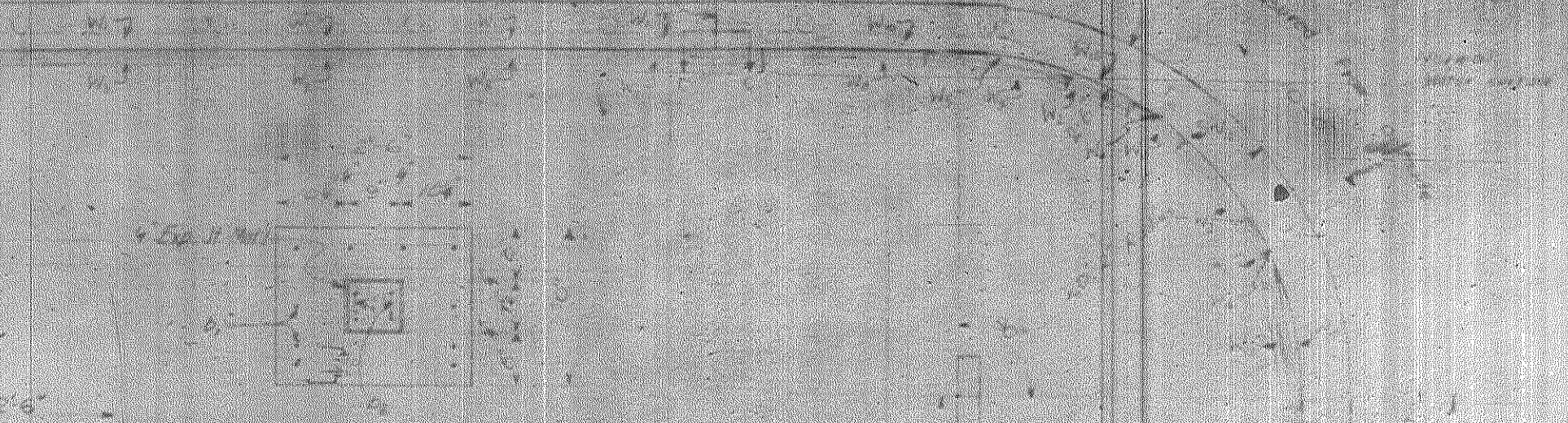
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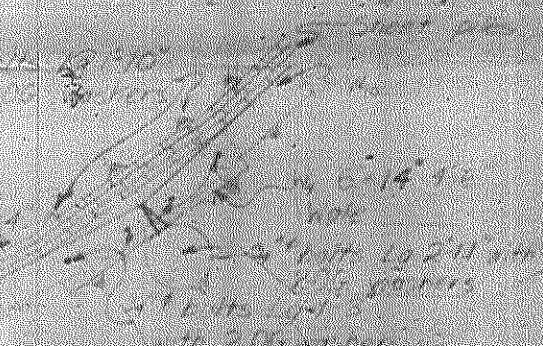
Section 50
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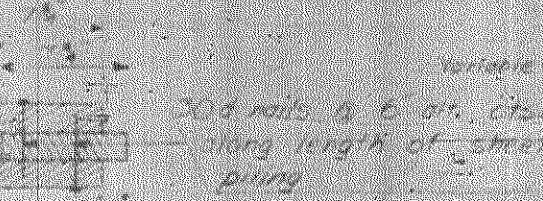
SECTION FF



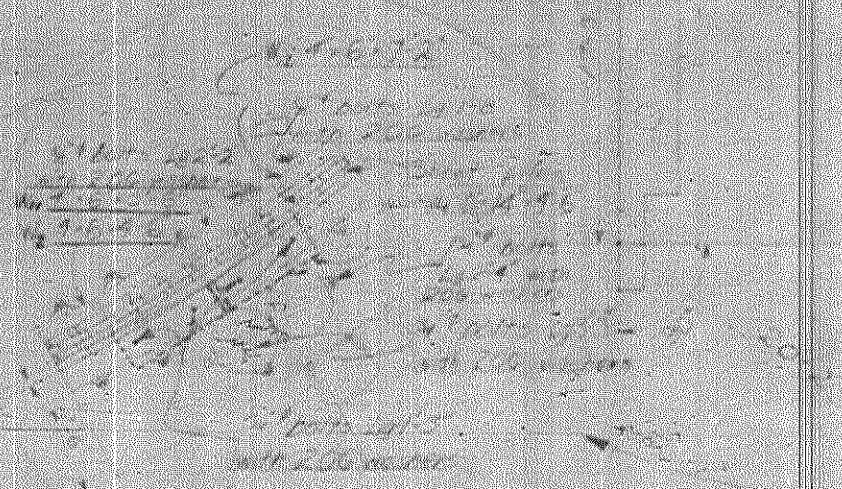
SECTION EE



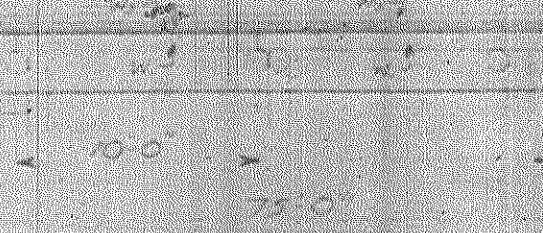
DETAIL A OF LOWER WALL



DETAIL A OF UPPER WALL



DETAIL B



PLAN



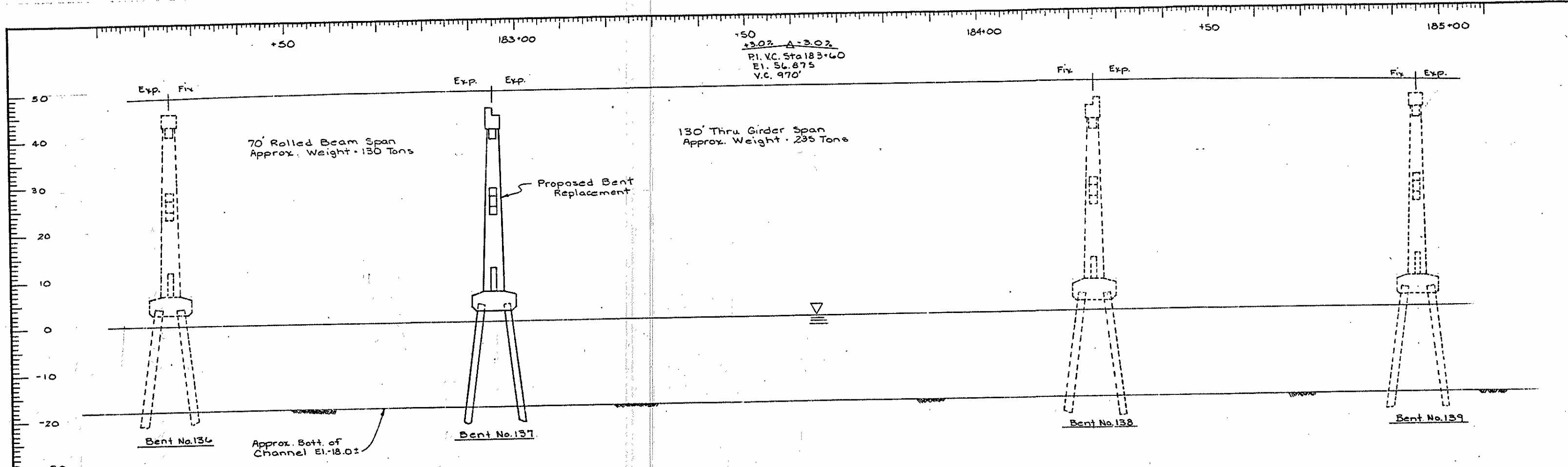
Crushed timber and
lumber piles shall be
a minimum of 18
inches in diameter.

1. All masonry shall be
laid in a minimum of 2
courses. The
length of masonry
shall be 10 feet.
* Concrete, designed by
other engineer.

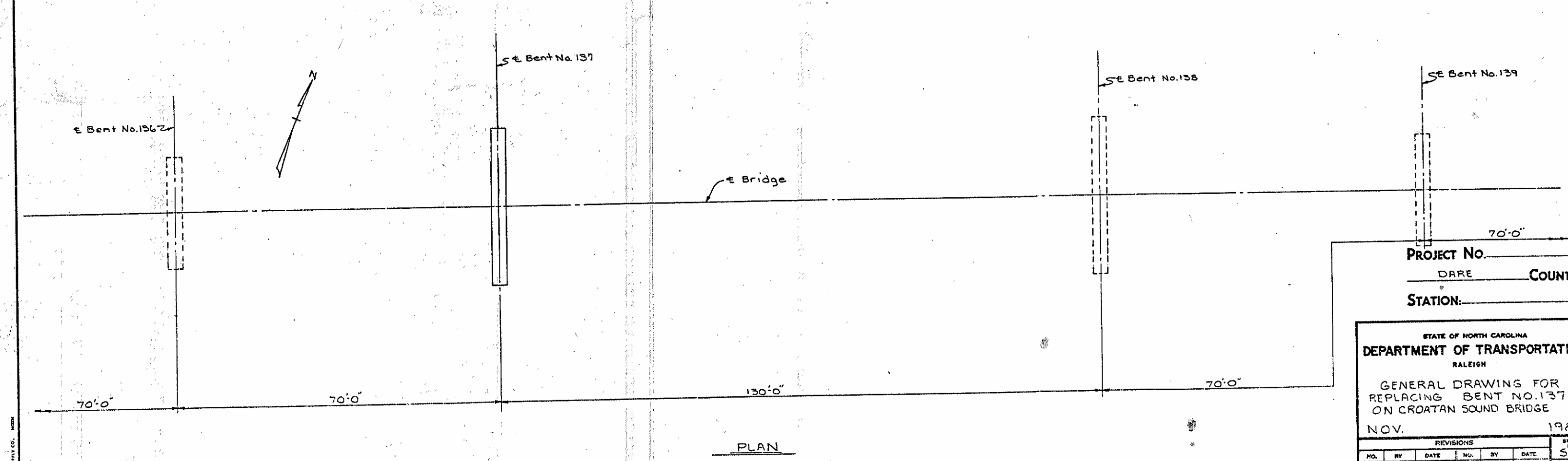


ONE TYPED

All other details to be
shown.



SECTION ALONG & BRIDGE



PLAN

PROJECT No. _____
 DARE COUNTY
 STATION: _____

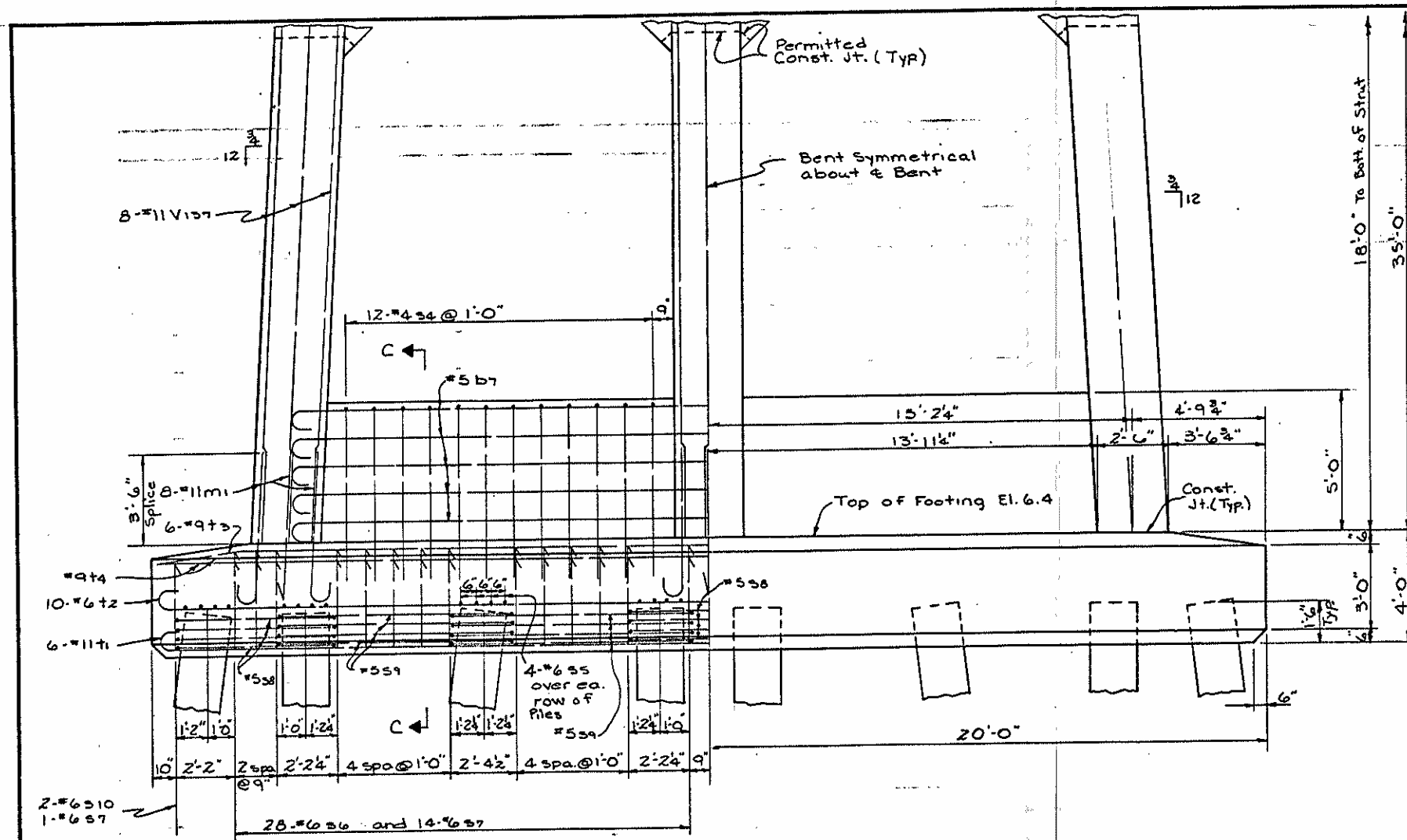
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING FOR
 REPLACING BENT NO. 137
 ON CROATAN SOUND BRIDGE

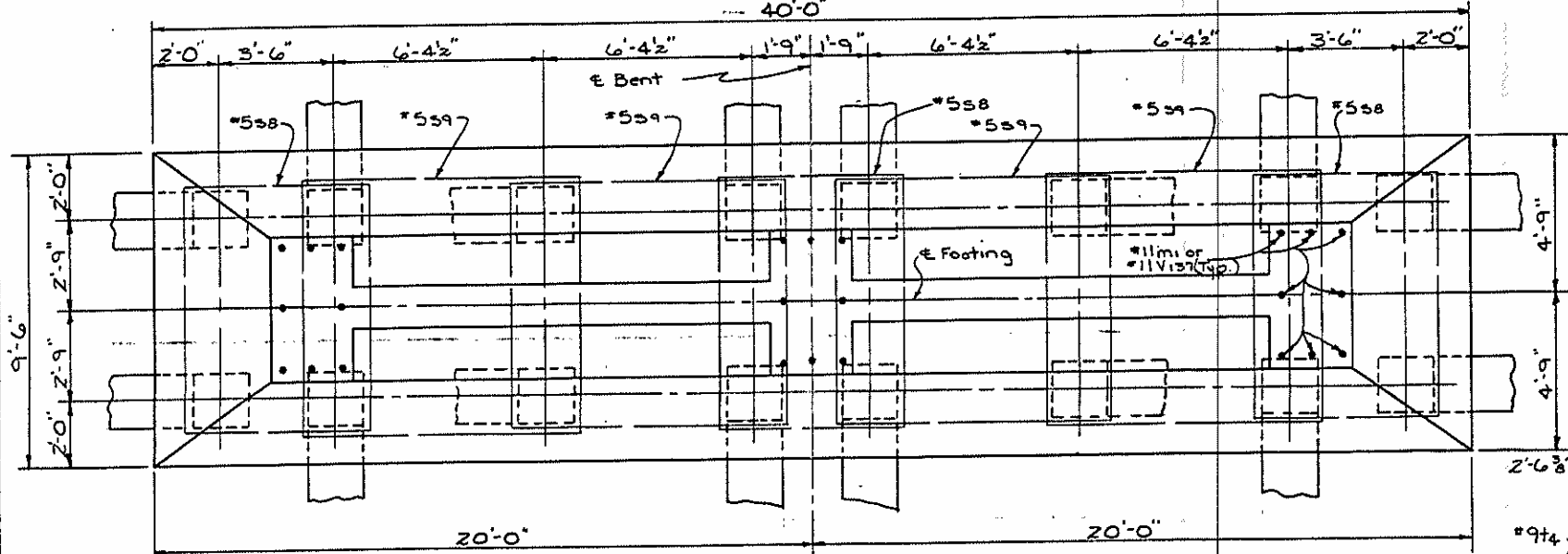
NOV. 1982

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

DRAWN BY E.B. ROBERTS DATE 11-11-82
 CHECKED BY D.D. HICKS DATE 11/12/82

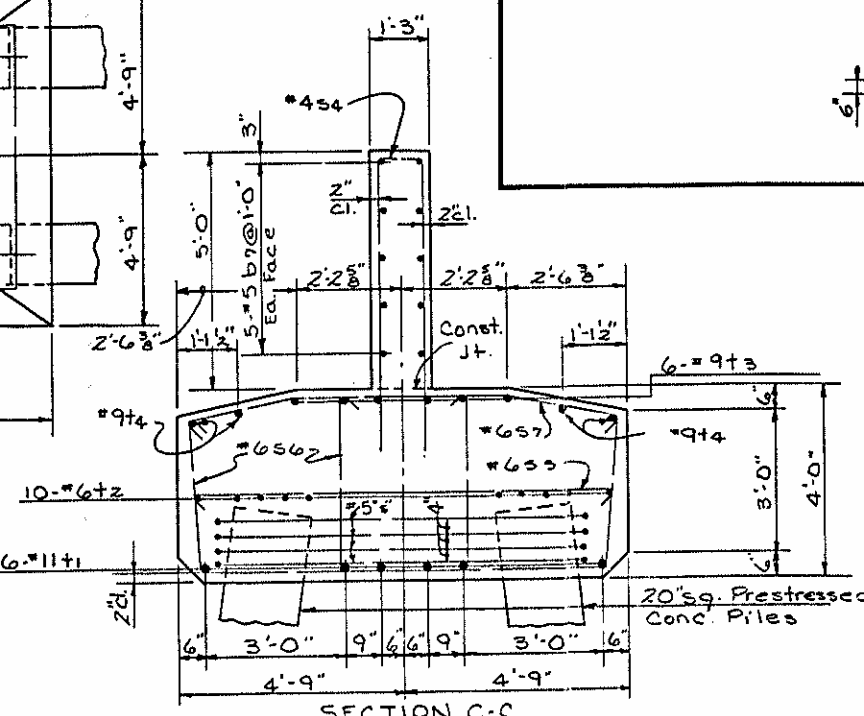


PART ELEVATION

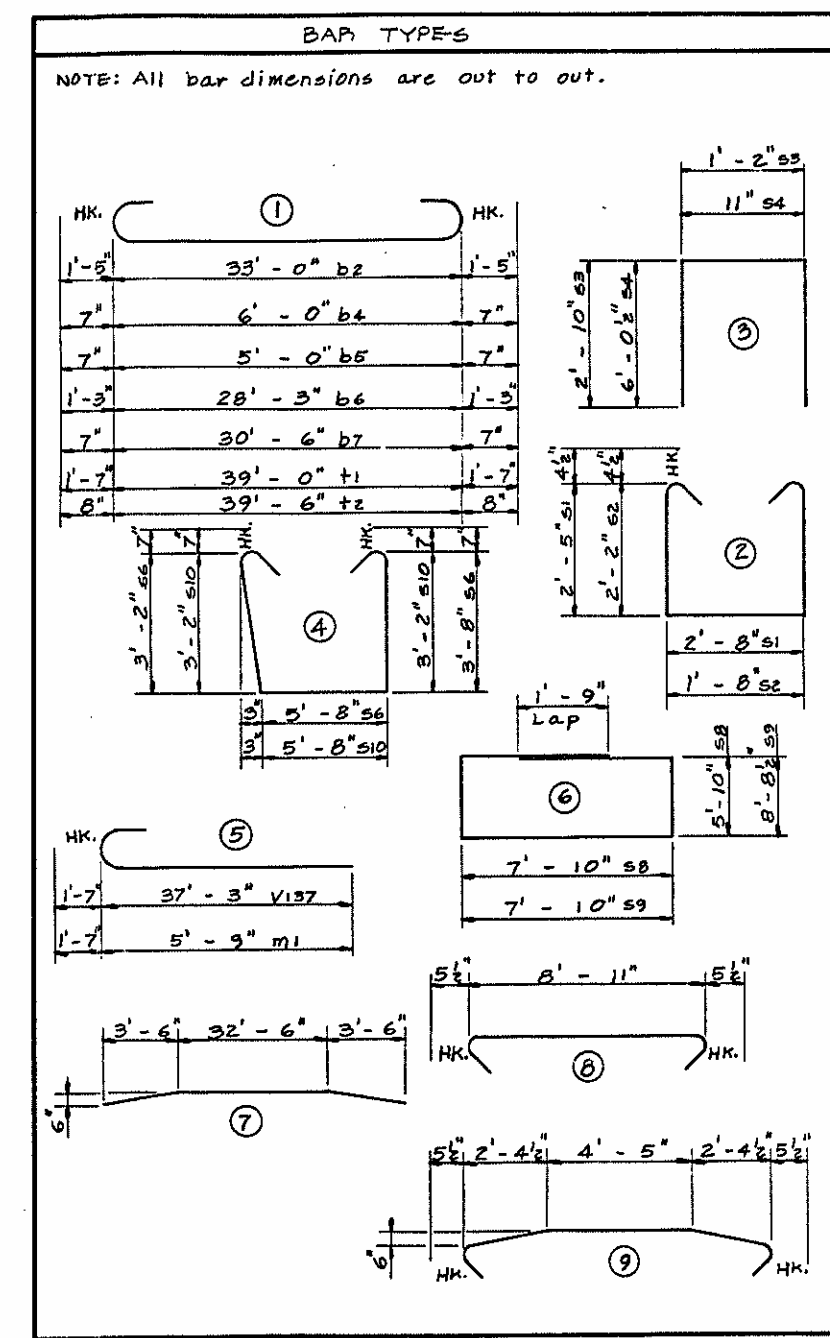


PLAN OF FOOTINGS

Note: All Piles are 20" Square Prestressed Concrete Piles
 Note: Batter All Piles 1/2/12 in Direction Indicated



SECTION C-C



BAR TYPES
 NOTE: All bar dimensions are out to out.

BILL OF MATERIAL					
BENT NO. 137					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
b1	2	#5	str.	25'-6"	49
b2	4	#10	1	35'-10"	617
b3	4	#10	str.	33'-0"	568
b4	18	#5	1	7'-2"	135
b5	24	#5	1	6'-2"	154
b6	8	#9	1	30'-9"	836
b7	10	#5	1	31'-8"	330
m1	24	#11	5	7'-4"	935
s1	36	#4	2	8'-3"	198
s2	18	#4	2	6'-9"	81
s3	38	#4	3	6'-10"	173
s4	24	#4	3	13'-0"	208
s5	32	#6	8	9'-10"	473
s6	56	#6	4	13'-8"	1,150
s7	30	#6	9	10'-1"	454
s8	12	#5	6	29'-1"	364
s9	16	#5	6	34'-10"	581
s10	4	#6	4	13'-2"	79
t1	6	#11	1	42'-2"	1,344
t2	10	#6	1	40'-10"	613
t3	6	#9	7	39'-6"	806
t4	4	#9	str.	39'-6"	537
v137	24	#11	5	38'-10"	4,952

Reinforcing Steel, Lbs. = 15,637
 Class "A" Concrete, C.Y. = 108.0
 20" Sq. Prestressed Conc. Piles
 NR. 16 L.F. 1,168
 Division of Concrete
 Pour No. Cu. Yds.
 1 (Footing) 51.2
 2 (Col. & Pedestal) 24.5
 3 (Col. & Strut) 19.7
 4 (Cap) 12.6
 Total 108.0

PROJECT NO. _____
 DARE COUNTY

STATION: _____
 Sheet 2 of 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 CROATAN SOUND
 SUBSTRUCTURE
 BENT NO. 137
 REPLACEMENT

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

NOTES

CONCRETE DESIGN DATA: $f'_c = 5,000$ PSI $f_c = 2,000$ PSI

IMPACT IN HANDLING = 50%

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

DEVICES FOR LIFTING THE PILES SHALL BE APPROVED BY THE ENGINEER. LOOPS OF STRAND CAST IN THE PILES WILL NOT BE PERMITTED. INSERTS, CAST IN THE PILES TO RECEIVE THREADED EYE-BOLTS OR SIMILAR APPROVED DEVICES, MAY BE USED; OR WHERE IT IS PRACTICABLE, SATISFACTORY CLAMPS OR SLINGS MAY BE USED. WHERE PILES WILL BE EXPOSED TO VIEW IN THE STRUCTURE AND INSERTS ARE CAST IN THE PILES, THE OPENINGS SHALL BE REPAIRED AFTER THE EYE-BOLTS OR OTHER ATTACHMENTS HAVE BEEN REMOVED. THE OPENINGS SHALL BE REPAIRED IN A SATISFACTORY MANNER IN ORDER TO OBTAIN A UNIFORM APPEARANCE.

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE STRANDS AS PRESCRIBED IN THE SPECIFICATIONS. THE CONTRACTOR MAY, AT HIS OPTION, USE EITHER OF THE TWO GRADES OF STRAND LISTED BELOW:

SIZE	GRADE	NO. OF STRANDS	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
7/16"	250	20	6.108"	27,000# PER STRAND	18,900# PER STRAND
7/16"	270	16	6.115"	31,000# PER STRAND	21,700# PER STRAND

STRANDS SHALL BE EQUALLY SPACED AS SHOWN IN THE "TYPICAL SECTION".

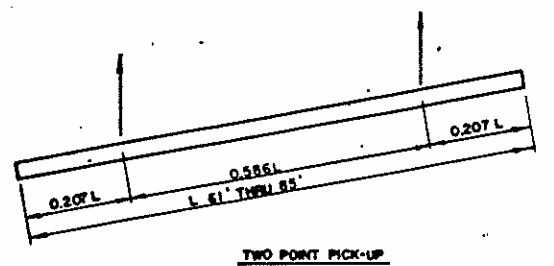
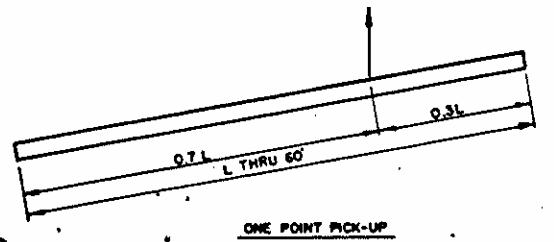
THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF STRANDS BURN IN OPPOSITE PAIRS AND SYMMETRICAL ABOUT BOTH VERTICAL AND HORIZONTAL AXES. STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS, SAY 5-5 AND 6-6, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

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

THIS STANDARD SHOWS DESIGN, DETAIL AND PROPERTIES OF STRAND BASED ON STRESS RELIEVED STRANDS. HOWEVER, THE CONTRACTOR, AT HIS OPTION, MAY USE LOW-RELAXATION STRANDS IN LIEU OF STRESS RELIEVED STRANDS. DESIGN AND STRAND PATTERN MUST PROVIDE AT LEAST THE SAME NET COMPRESSIVE STRESS AFTER THE LOSSES. THE CAPACITY OF THE PILE SHALL NOT BE LESS THAN THAT PROVIDED WITH STRESS RELIEVED STRANDS AND MUST MEET THE REQUIREMENTS OF THE APPLICABLE AASHTO SPECIFICATIONS. LOW RELAXATION STRANDS SHALL BE TENSIONED AND ANCHORED AT A LOAD EQUAL TO 75% OF ITS ULTIMATE STRENGTH. THIS APPLIED PRESTRESSED FORCE SHALL BE SHOWN ON THE PLANS. LOW-RELAXATION STRANDS SHALL CONFORM TO ASTM A-416 EXCEPT FOR THE SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. SIZE OF LOW-RELAXATION STRANDS SHALL NOT BE LARGER THAN 1/2" DIAMETER. DESIGN AND DETAIL PLANS USING LOW-RELAXATION STRANDS MUST BE SUBMITTED TO THE HEAD OF STRUCTURE DESIGN UNIT FOR APPROVAL. ANY ADDITIONAL COST DUE TO THE USE OF LOW-RELAXATION STRANDS WILL BE PAID FOR BY THE CONTRACTOR.

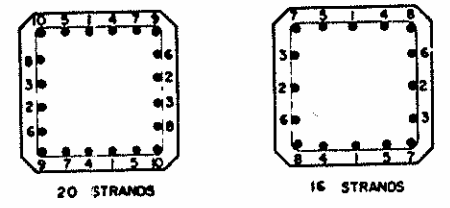
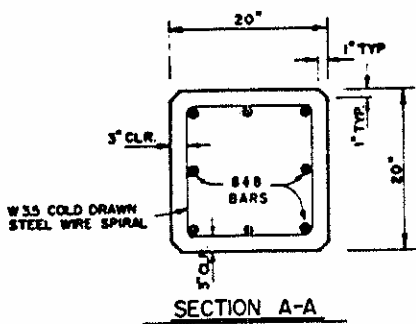
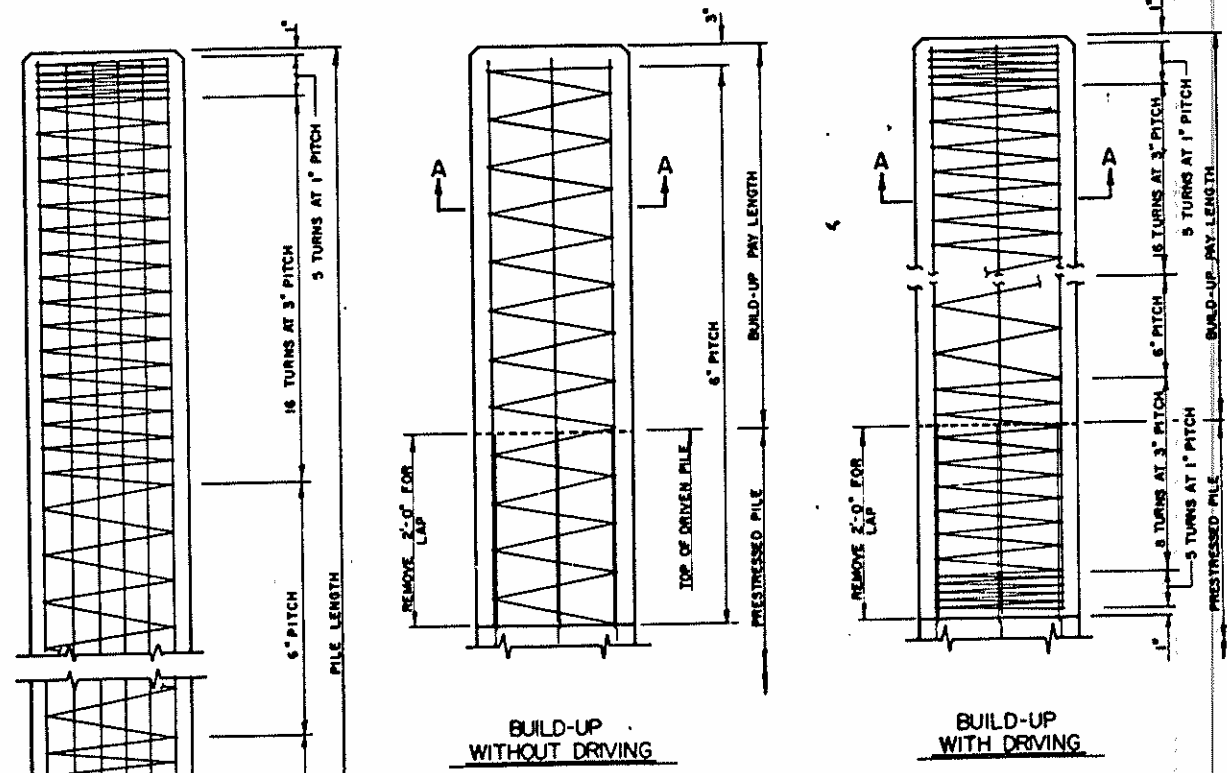
THE SAME TYPE AND SAME GRADE STRANDS SHALL BE USED FOR ALL 20" SQUARE PILES IN THE STRUCTURE.



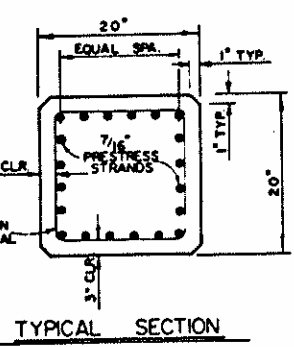
PICK-UP POINTS

QUANTITIES FOR ONE 20" SQUARE PILE

LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE PICK-UP POINT 0.3 L	ONE PICK-UP POINT 0.7 L	TWO PICK-UP POINTS 0.207 L	TWO PICK-UP POINTS 0.586 L
25'-0"	2.54	5.18	7'-6"	17'-6"		
30'-0"	3.07	6.22	9'-0"	21'-0"		
35'-0"	3.58	7.26	10'-6"	24'-6"		
40'-0"	4.09	8.29	12'-0"	28'-0"		
45'-0"	4.61	9.33	13'-6"	31'-6"		
50'-0"	5.12	10.36	15'-0"	35'-0"		
55'-0"	5.63	11.40	16'-6"	38'-6"		
60'-0"	6.14	12.44	18'-0"	42'-0"		
65'-0"	6.65	13.47		13'-5 1/2"	38'-1"	
70'-0"	7.17	14.51		14'-6"	41'-0"	
75'-0"	7.68	15.55		15'-6 1/2"	43'-11"	
80'-0"	8.19	16.58		16'-6 1/2"	46'-11"	
85'-0"	8.70	17.62		17'-7"	49'-10"	



TYPICAL PATTERN FOR BURNING STRANDS



TYPICAL SECTION

PROJECT NO. _____

DATE _____ COUNTY _____

STATION: _____

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 20" SQUARE PRESTRESSED
 CONCRETE PILE
 CROATAN SOUND
 BENT NO. 137
 REPLACEMENT

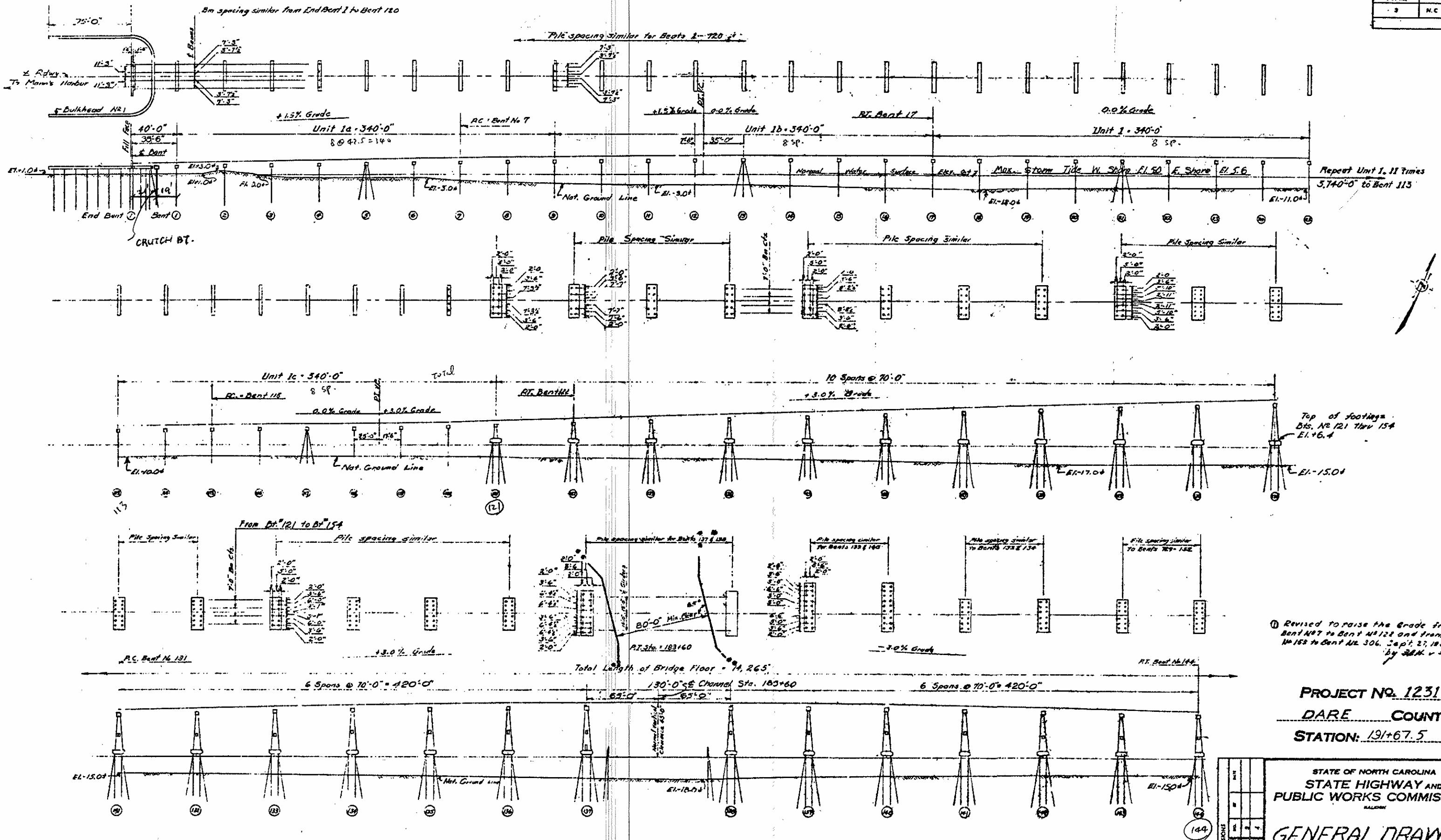
NOV. 1982

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

Revised 7-13-82 By: E.R.L. V.B. R.G.F.
 Revised 6-18-82 By: E.R.L. V.B. R.G.F.
 Revised 1-31-82 By: E.R.L. V.B. R.D.U.

ASSEMBLED BY <u>J.M. STANLEY</u> DATE <u>Nov. 1982</u>	SPECIAL
CHECKED BY <u>F.B. DUMMS</u> DATE <u>11-82</u>	
DRAWN BY <u>Bobby T. Shank</u> DATE <u>June 22, 1977</u>	STANDARD
CHECKED BY <u>Robert J. Fabian</u> DATE <u>July 29, 1977</u>	

REV. NO.	DATE	BY
3	N.C.	1231



PROJECT No. 1231 A
DARE COUNTY
STATION: 191+67.5

STATE OF NORTH CAROLINA STATE HIGHWAY AND PUBLIC WORKS COMMISSION	
GENERAL DRAWING	
AUG 1954	
DESIGNED BY DRAWN BY CHECKED BY	DATE DATE DATE
 W.J. R.	
DATE	NO.
AUG 1954	S2
APPROVED BY	DATE
W.J. R.	AUG 1954
STATE HIGHWAY ENGINEER	39

SPECIAL
 DESIGNED BY: M. L. ...
 DRAWN BY: W. J. ...
 CHECKED BY: C. L. ...
 DATE: Aug. 1954

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	N.C.	1231	S6	39

NOTE

STRUCTURAL STEEL DIAPHRAGMS of the contractors option when connection of channel to angles may be either welded or riveted using 3/4" rivets. Field connection of diaphragm to beams to be bolts using 3/4" turned bolts or 1/2" high tension bolts.

Dimensions shown in Typical Section A and which are affected by dead load deflection are dimension of 1/4 of bearing. Depth of slab between bearings to be increased to compensate for the dead load deflection shown below. Additional increase in slab thickness will be required in spans affected by vertical curves and this increase is shown in Vertical Curve Data for units affected and may be maximum of 1/4 of span or over 1/4 of bearing (beam) as indicated on V.C. Data.

MAXIMUM DEAD LOAD DEFLECTION
 END SPAN Exterior beams 1/4"
 Interior beams 3/8"
 TYPE B & C SPANS Exterior beams 1/4"
 Interior beams 3/8"
 TYPE D-E & F Exterior beams 1/4"
 Interior beams 1/8"

VERTICAL CURVE ORDINATES shown on the V.C. Data

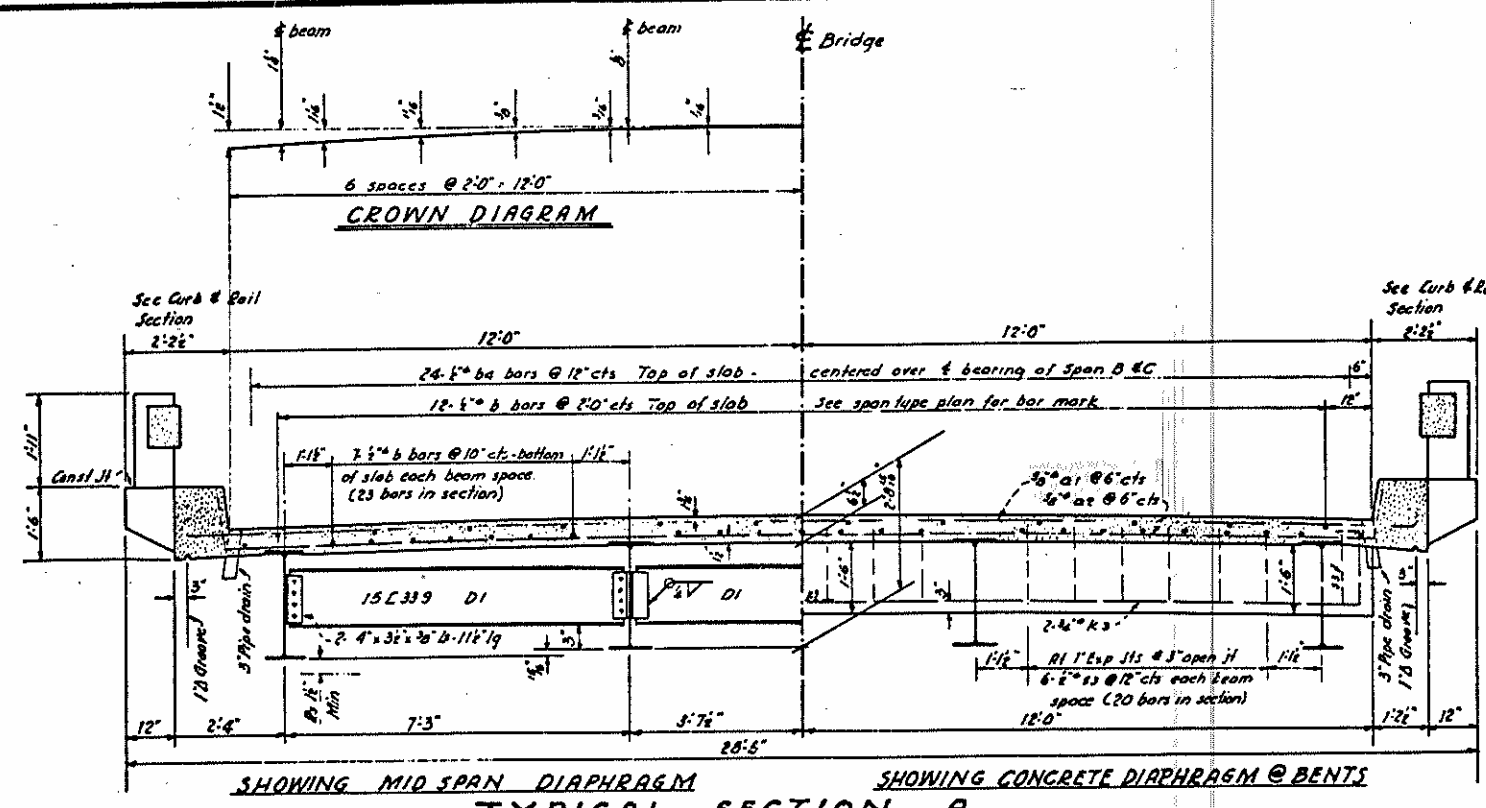
Dimensions shown in Typical Section B and which are affected by dead load deflection are dimensions of 1/4 of span. Depth of slab at 1/4 of bearing shall be increased to compensate for dead load deflection, beam camber and the vertical curve and equals 6 1/2" slab plus camber minus dead load deflection minus vertical curve ordinate where required. Any deviation from the specified 3" camber must be taken into account.

PROJECT NO. 1231-A-68
 DARE COUNTY
 STATION: 191+67.5

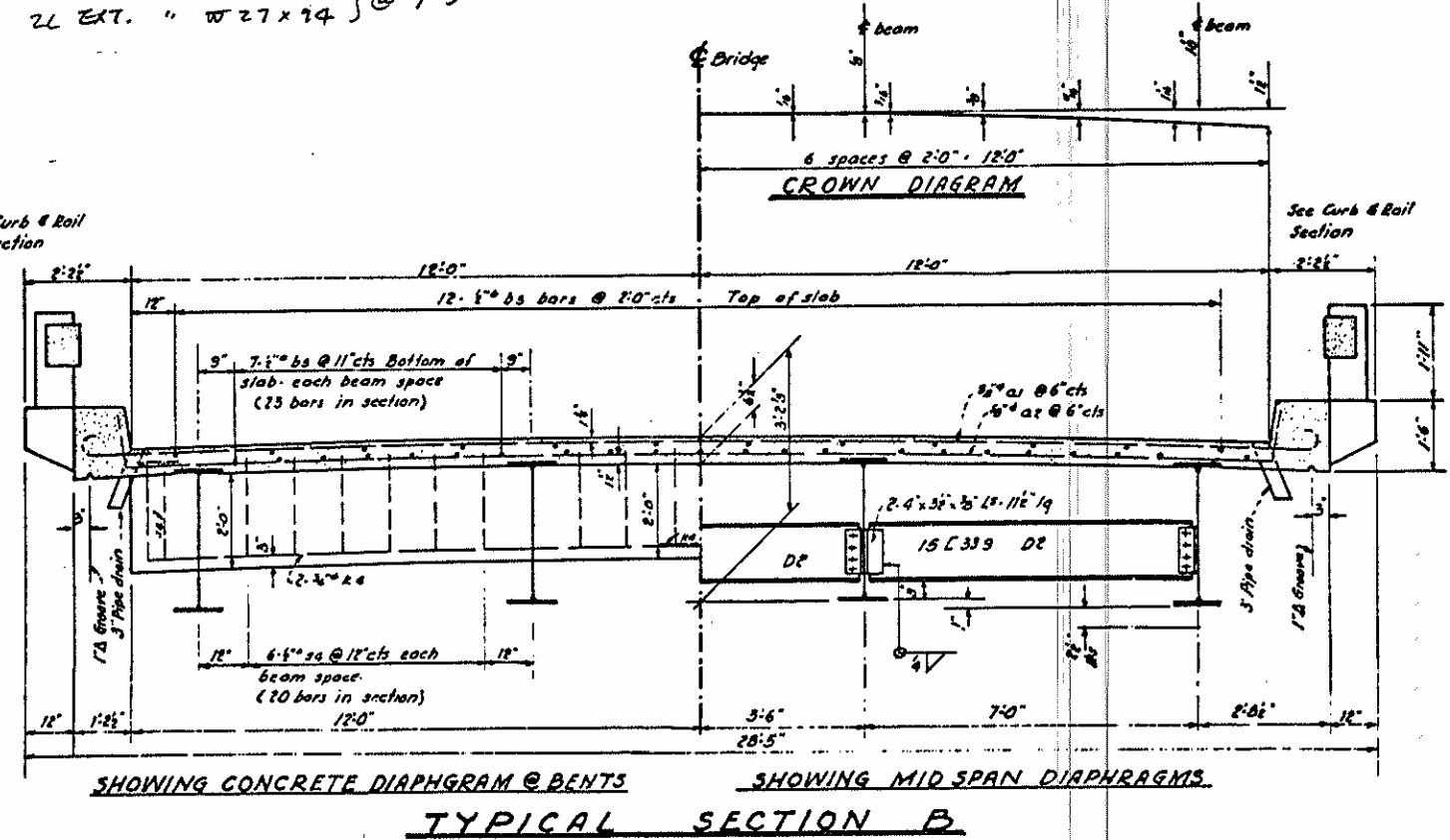
STATE OF NORTH CAROLINA
 STATE HIGHWAY AND
 PUBLIC WORKS COMMISSION
 SUPERSTRUCTURE
 TYPICAL SECTION A & B
 POST & RAIL DETAILS

JULY 1954

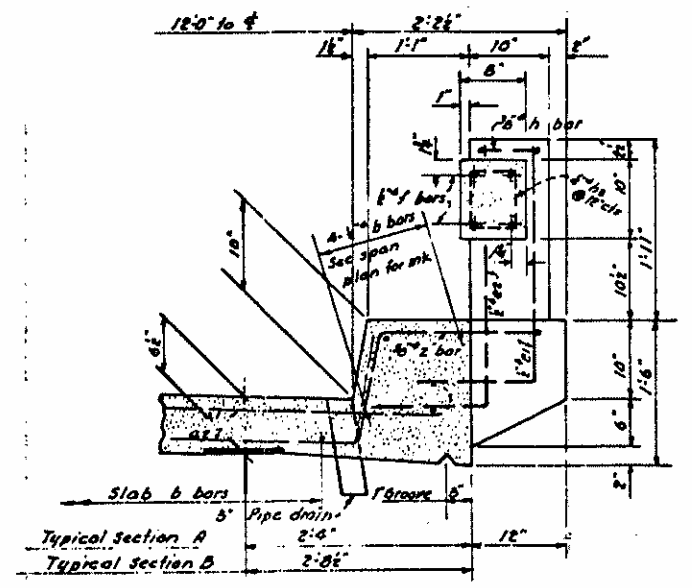
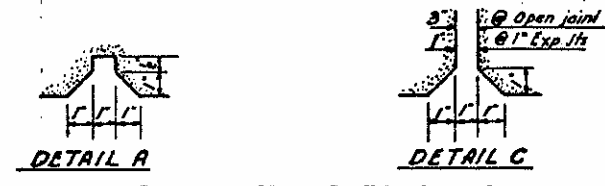
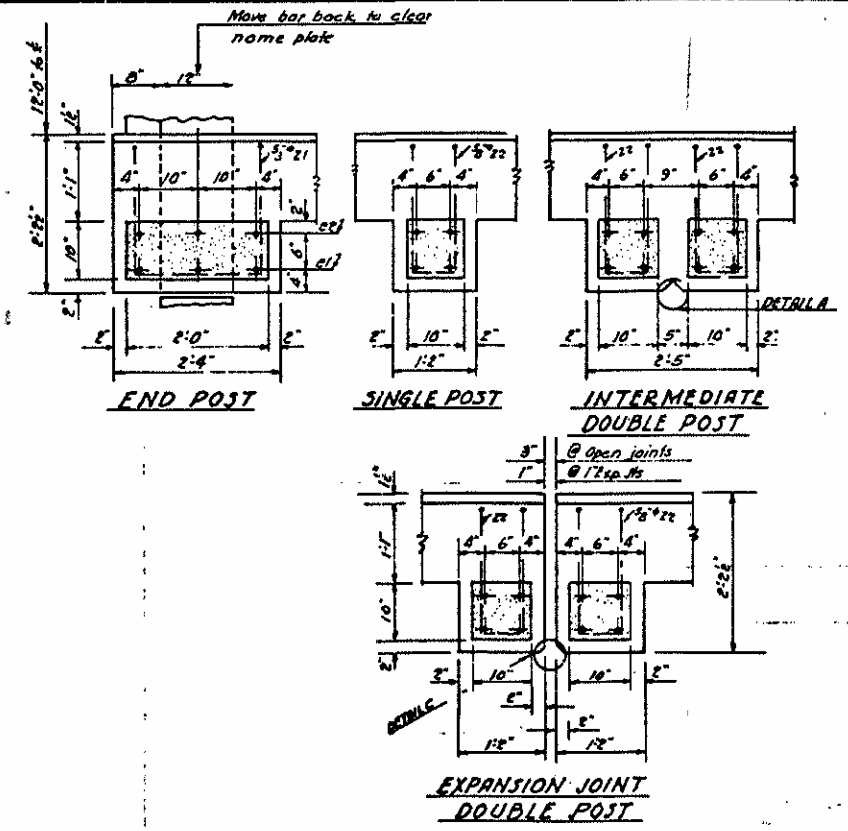
DESIGNED BY: [Signature]
 CHECKED BY: [Signature]
 DATE: July 15, 1954



2L INT. BM W 27x104 } @ 7'-3" CTS.
 2L EXT. " W 27x94 }

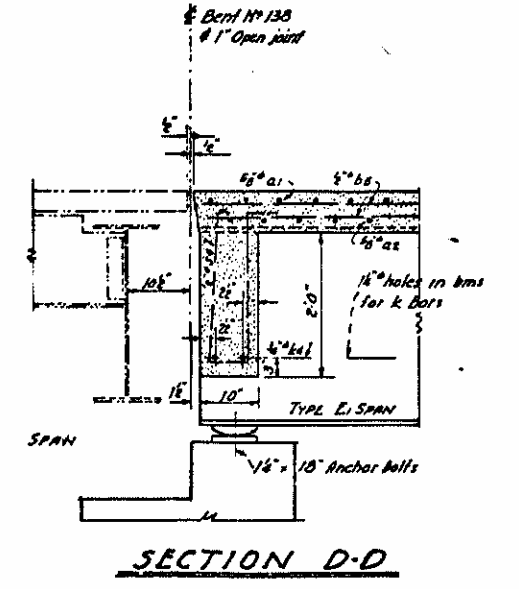
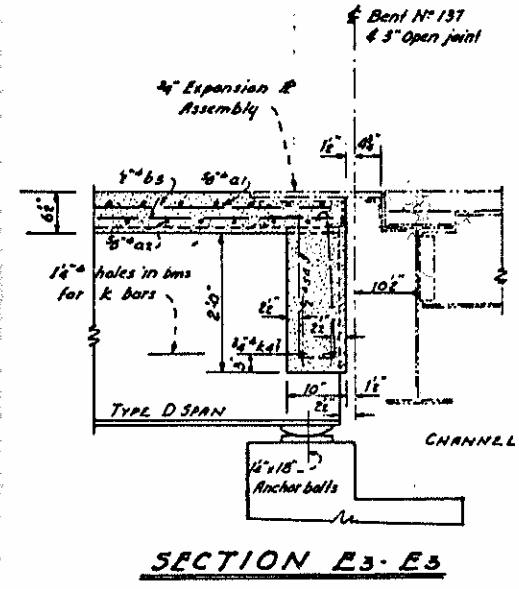
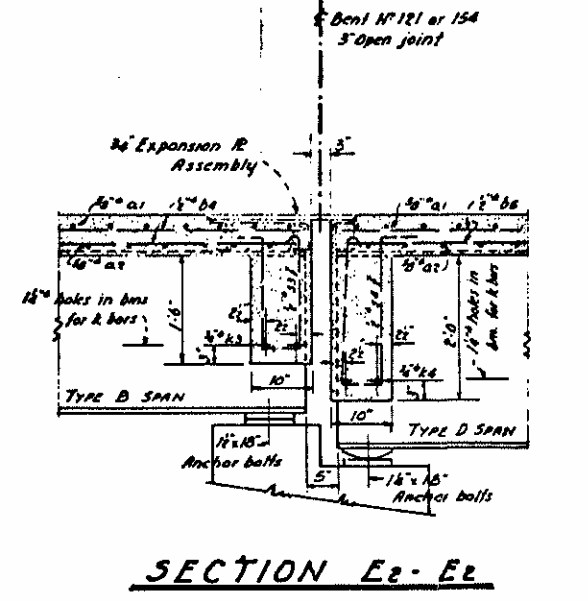
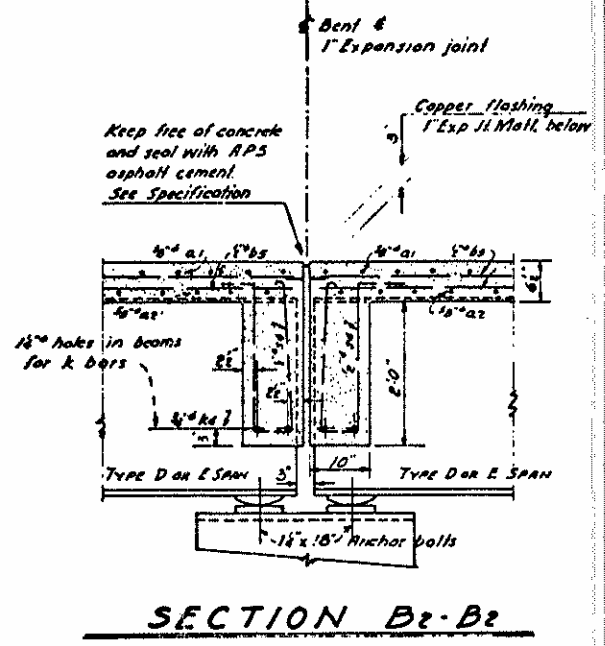
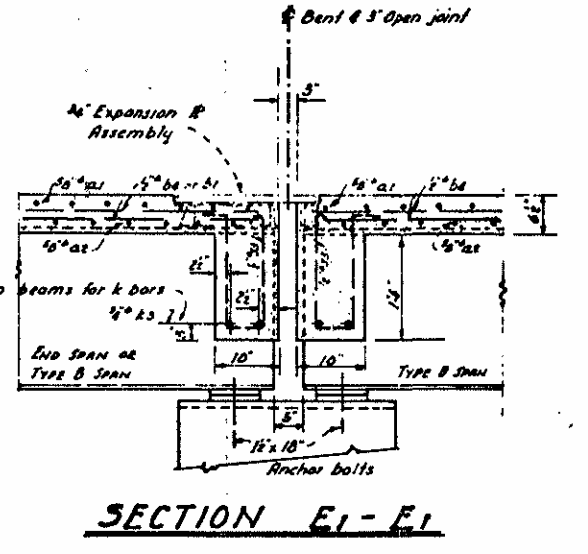
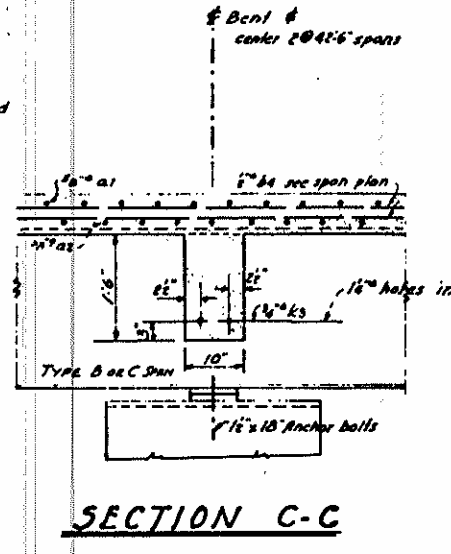
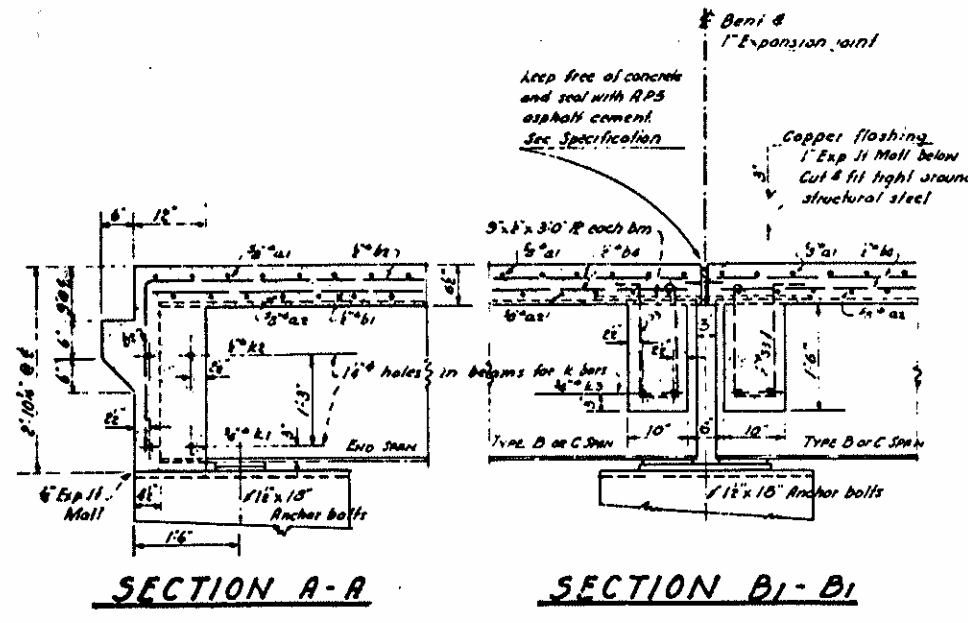


4L W 33x130 w/ cover @ 7' CTS.



SPECIAL	APPROVED BY	DATE
DESIGNED BY	[Signature]	July 15, 1954
CHECKED BY	[Signature]	July 15, 1954
DATE		July 15, 1954

NO. 1231	DATE	REVISION NO.	DATE	BY
5	M. G.	125	5-7	39



PROJECT NO. 1231 A & B
 DARE COUNTY
 STATION: 191 + 67.5

STATE OF NORTH CAROLINA
 STATE HIGHWAY AND
 PUBLIC WORKS COMMISSION
 SUPERSTRUCTURE
 CONCRETE SECTIONS
 AUGUST 1954
 DESIGNED BY: [Signature] DATE: 8-17-54
 CHECKED BY: [Signature] DATE: 8-17-54

SPECIAL	DESIGNED BY	DATE
STANDARD	CHECKED BY	DATE

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	N. C.	1231	5-11	39

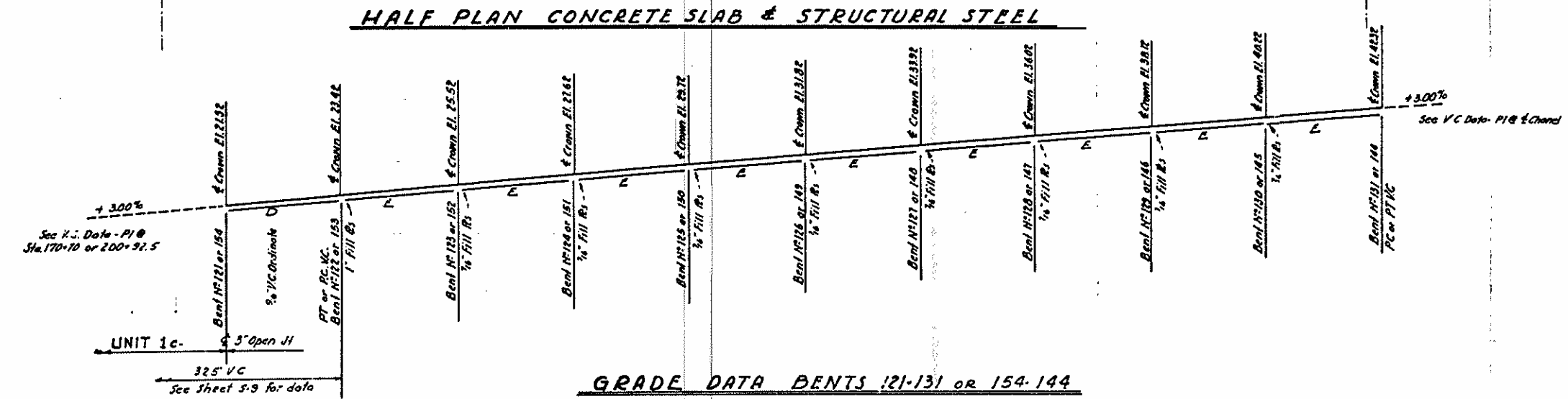
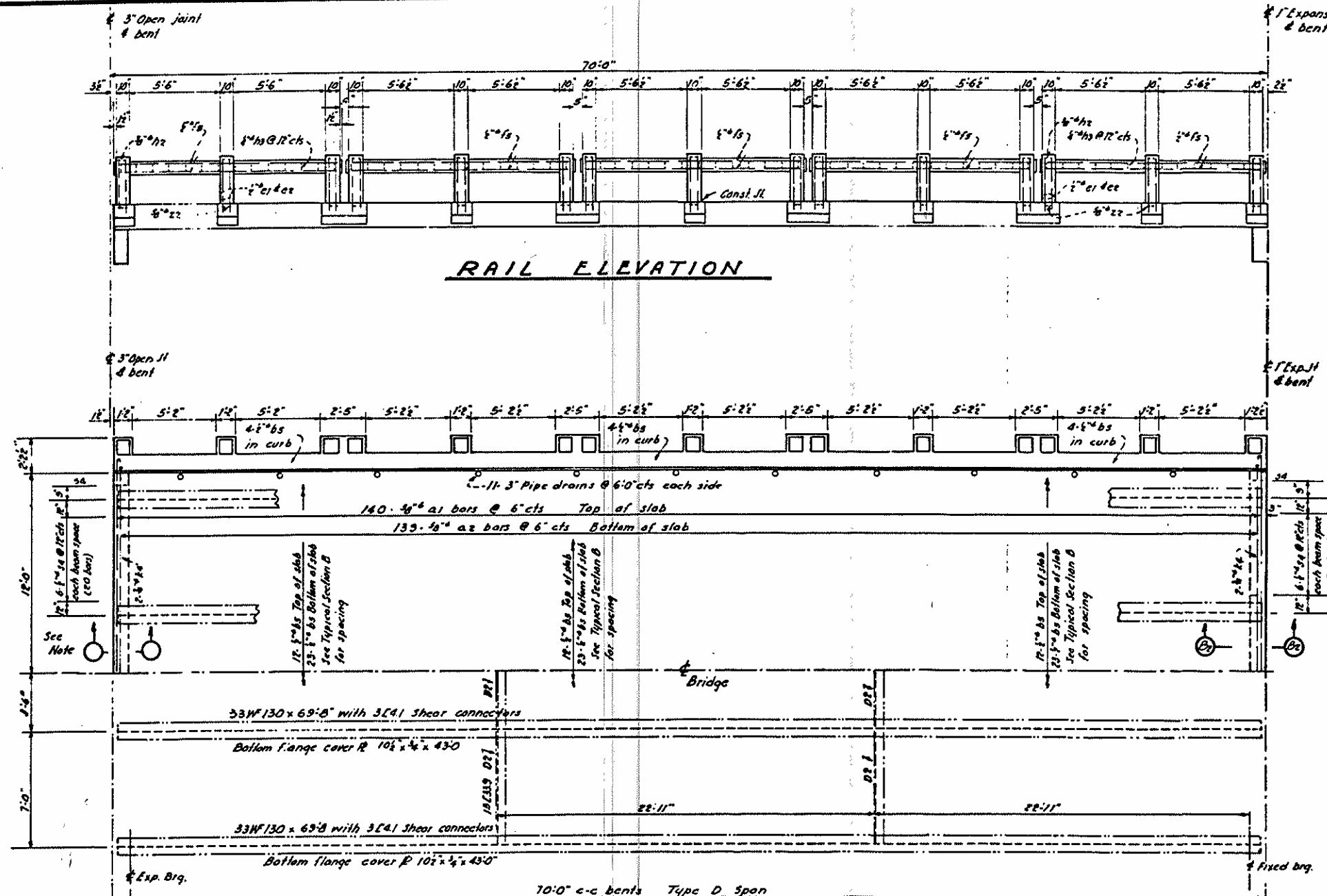
NOTE

Type D span is a simple 70' span adjacent to 3" open joint

Typical Section B and the following Concrete Sections apply to Type D Spans - Section E2-E2 at 3" open joint of Bent 121 & 124

Section E3-E3 at 3" open joint of Bent 127

18" Iq pipe drains shall be used on north side of bridge from End Bent 122 to Bent 127 MG



Rev #2 - Revised as shown by pencil circled figures. by J.B.H. Oct. 21, 1954 J.A.C.B.

Revised to raise the Grade from Bent 127 to Bent 122 and from Bent 127 to Bent 122. Sept 27, 1954 by J.B.H. J.A.C.B.

PROJECT NO. 1231-A
DARE COUNTY
STATION: 191+67.5

STATE OF NORTH CAROLINA
 STATE HIGHWAY AND
 PUBLIC WORKS COMMISSION
 BUREAU
SUPERSTRUCTURE
TYPE D SPAN
GRADE DATA BENT 121-131 or 154-144

JULY 1954

DESIGNED BY: *[Signature]* ENGINEER
 DRAWN BY: *[Signature]* DATE: 7-1-54
 CHECKED BY: *[Signature]* DATE: 7-1-54

SHEET 11 OF 39

SPECIAL	ASSEMBLED BY	DATE
STANDARD	DESIGNED BY	DATE
	Jack [Signature]	7-1-54
	DRAWN BY	DATE
	<i>[Signature]</i>	7-1-54
	CHECKED BY	DATE
	<i>[Signature]</i>	7-1-54

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	N. C.	1231	5-12	39

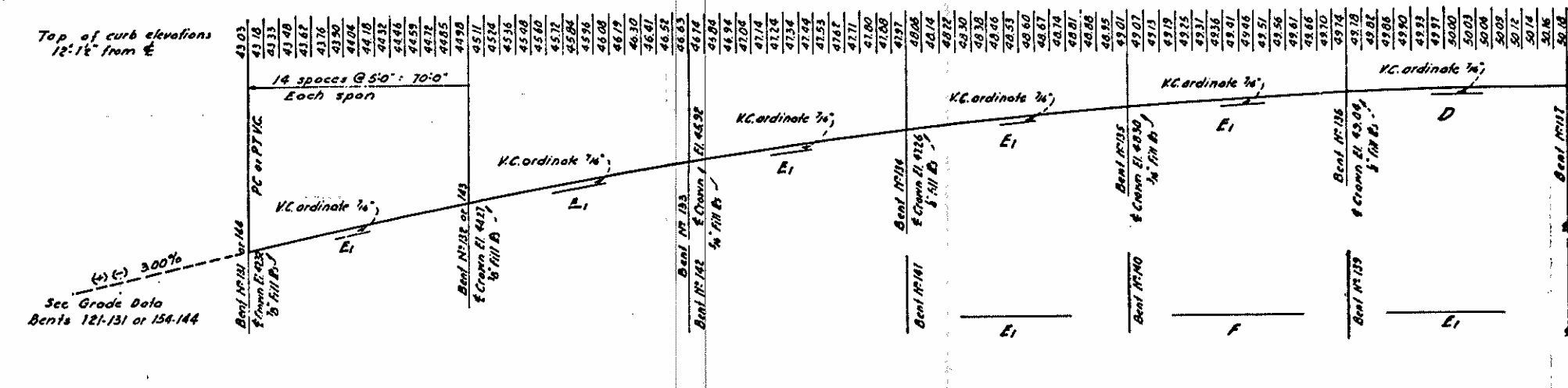
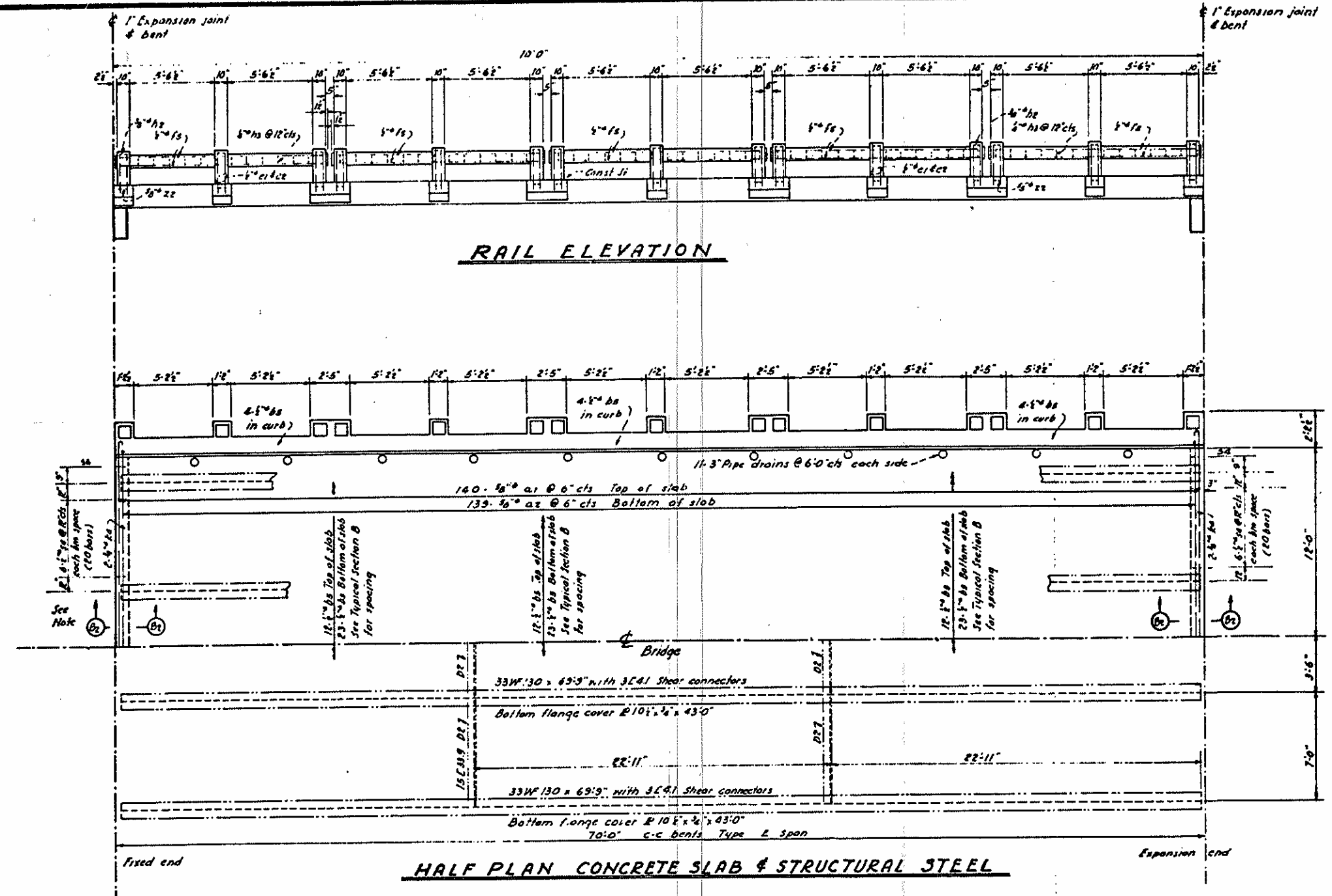
NOTE

Type E Span is a normal 70' span. Type E1 spans are identical to Type E except for concrete quantity due to the vertical curve.

Typical Section B applies to Type E & E1 spans.

At Bent #138 Section D-D applies to 1' Open joint in lieu of Sect B-B indicated on plan

18" lg pipe drains shall be used on north side of bridge from End Bent #12 to Bent #140



At VC & Channel Span (Sta 183+60) Crown Elev. 56.875 970' VC.

PROJECT NO. 1231-A
DARE COUNTY
STATION: 191+67.5

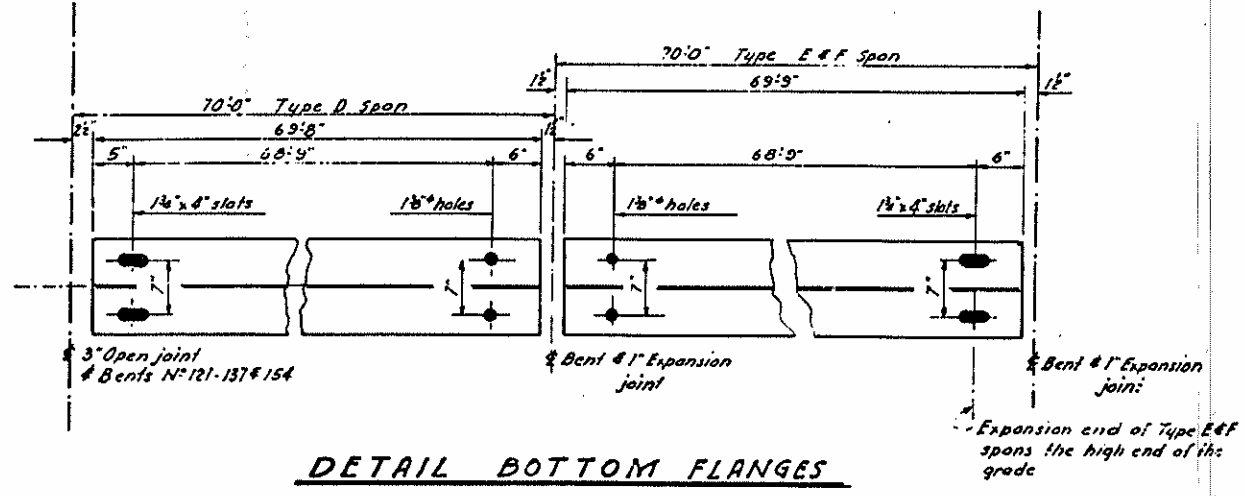
STATE OF NORTH CAROLINA
STATE HIGHWAY AND
PUBLIC WORKS COMMISSION
SUPERSTRUCTURE
TYPE E SPAN
V.C. DATA - PI @ CHANNEL SPAN

JULY 1954

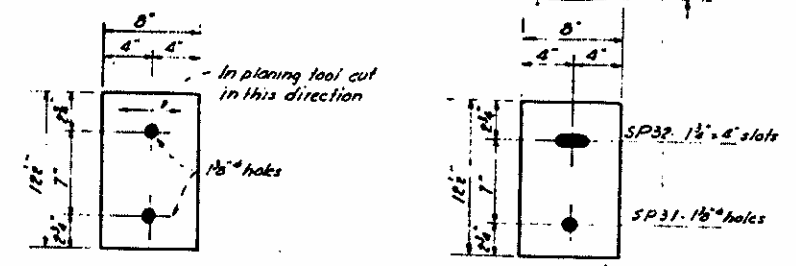
SHEET 12 OF 39

SPECIAL	ASSEMBLED BY.....	DATE.....
	CHECKED BY.....	DATE.....
STANDARD	DESIGNED BY.....	DATE.....
	DRAWN BY.....	DATE.....
	CHECKED BY.....	DATE.....

VERTICAL CURVE DATA - PI @ CHANNEL SPAN



DETAIL BOTTOM FLANGES



BEARING PLATE DETAIL

- Required for 1 Span**
- Type D span: 4-MP30-8"x1"x12 1/2" & 4-SP31-8"x1 1/2"x12 1/2" Fixed end
 - Required 3 spans: 4-MP30-8"x1"x12 1/2" & 4-SP32-8"x1 1/2"x12 1/2" Expansion end
 - Type E & F spans: 4-MP30-8"x1"x12 1/2" & 4-SP31-8"x1 1/2"x12 1/2" Fixed end
 - Required 20 spans: 4-MP30-8"x1"x12 1/2" & 4-SP32-8"x1 1/2"x12 1/2" Expansion end
 - Type F span: 6-MP30-8"x1"x12 1/2" & 6-SP31-8"x1 1/2"x12 1/2" Fixed end
 - Required 1 span: 6-MP30-8"x1"x12 1/2" & 6-SP32-8"x1 1/2"x12 1/2" Expansion end

- FILL IRs REQUIRED 1 bent**
- | | |
|--------------|---|
| Bent 121-154 | |
| 122-153 | 4-8"x1"x12 1/2" |
| 123-152 | 4-8"x 3/4"x12 1/2" |
| 124-151 | 4-8"x 3/4"x12 1/2" |
| 125-150 | 4-8"x 3/4"x12 1/2" |
| 126-149 | 4-8"x 3/4"x12 1/2" |
| 127-148 | 4-8"x 3/4"x12 1/2" |
| 128-147 | 4-8"x 3/4"x12 1/2" |
| 129-146 | 4-8"x 3/4"x12 1/2" |
| 130-145 | 4-8"x 3/4"x12 1/2" |
| 131-144 | 4-8"x 3/4"x12 1/2" |
| 132-143 | 4-8"x 3/4"x12 1/2" |
| 133-142 | 4-8"x 3/4"x12 1/2" |
| 134-141 | 4-8"x 3/4"x12 1/2" |
| 135-140 | 4-8"x 3/4"x12 1/2" |
| 136-139 | 4-8"x 3/4"x12 1/2" |
| 137-138 | |
| Bent 139 | 1-8"x 3/4"x12 1/2" north interior bm span F |
| 140 | 1-8"x 3/4"x12 1/2" do |
- (See Gratic Data Bent 121-131 & V.C. Data PI & Channel for location of fill IRs)

Fill IRs may be combined with masonry IR MP30 with required total thickness after planing

See Note Revised as shown by pencil circled figures by ASCE Oct. 21, 1954 J.H.C.

MP30 @ Exp end span D changed to MP30 @ Exp end

Revised from the Grade from Bent 127 to Bent 121-122 and from Bent 121-153 to Bent 121-308. Sept. 27, 1954 by J.H.C.

PROJECT NO. 1231-A
DARE COUNTY
STATION: 191+675

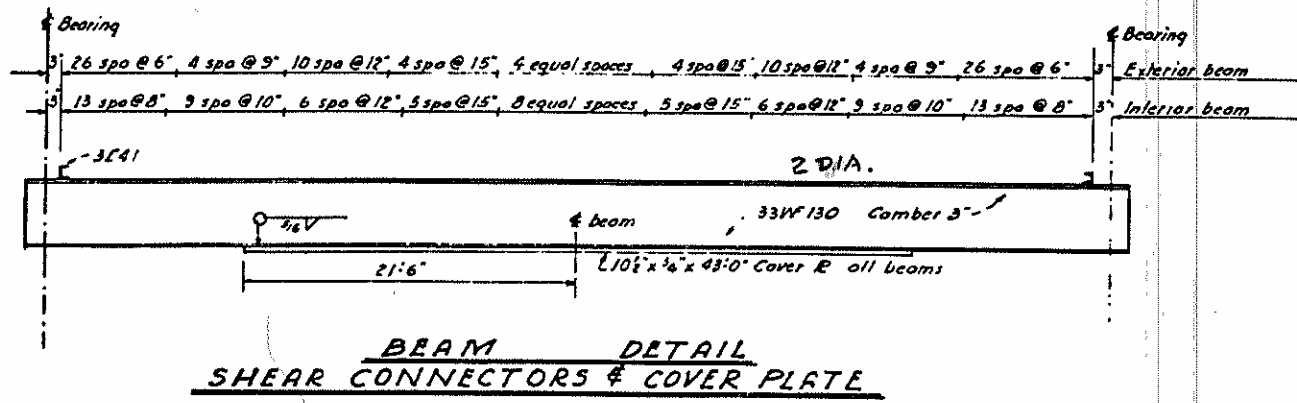
STATE OF NORTH CAROLINA
STATE HIGHWAY AND PUBLIC WORKS COMMISSION

SALESMAN

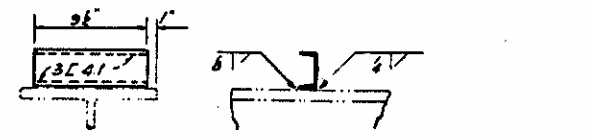
**SUPERSTRUCTURE
STRUCTURAL STEEL
BEAM DETAILS & BEARING IRs
TYPE D-E & F SPANS**

AUGUST 1954

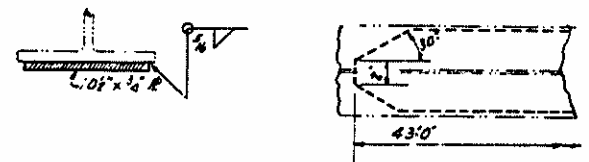
SUBMITTED BY: *W.H. Reynolds* BRIDGE ENGINEER
APPROVED BY: *W.H. Reynolds* STATE HIGHWAY ENGINEER DATE: 8-17-54



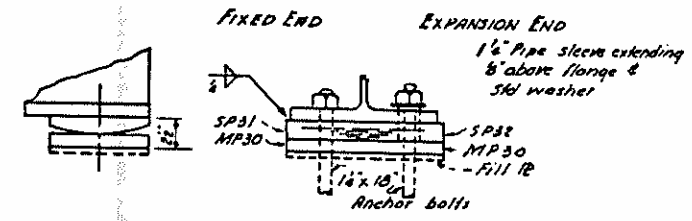
BEAM DETAIL SHEAR CONNECTORS & COVER PLATE



WELDING DETAIL SHEAR CONNECTORS



WELDING DETAIL COVER IR



SECTION THRU BEAM

SPECIAL	APPROVED BY	DATE
STANDARD	CHECKED BY	DATE
	DESIGNED BY <i>Joan Linn</i>	DATE <i>July 1954</i>
	TRACED BY	DATE
	CHECKED BY <i>P.L. Parrott</i>	DATE <i>Aug 1954</i>

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	N. C.	1231	5-16	39

NOTE

Flame cut fingers in $\frac{1}{4}$ " Roadway R from 24" 1g plate taking out cut to leave 4" clearance after finish between sections in closed position

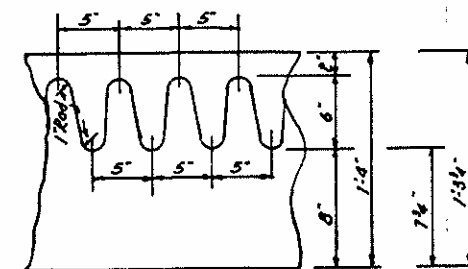
The full length of roadway section shall be completely shop fabricated. It and its bent to crown and then may be cut into not more than three sections at the Contractor's option. Each cut made under this option shall be beveled for field welding.

$\frac{1}{2}$ " Curb R's to be cut in a similar manner and shipped as separate assembly

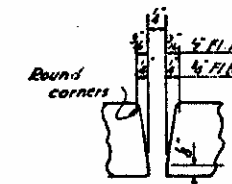
Where field welding is called for edges shall be prepared for the indicated weld in the shop.

FLOOR R's to be checked. ALLWAY GRIP as manufactured by the Central Iron & Steel Co. Harrisburg, Penna., or approved equal.

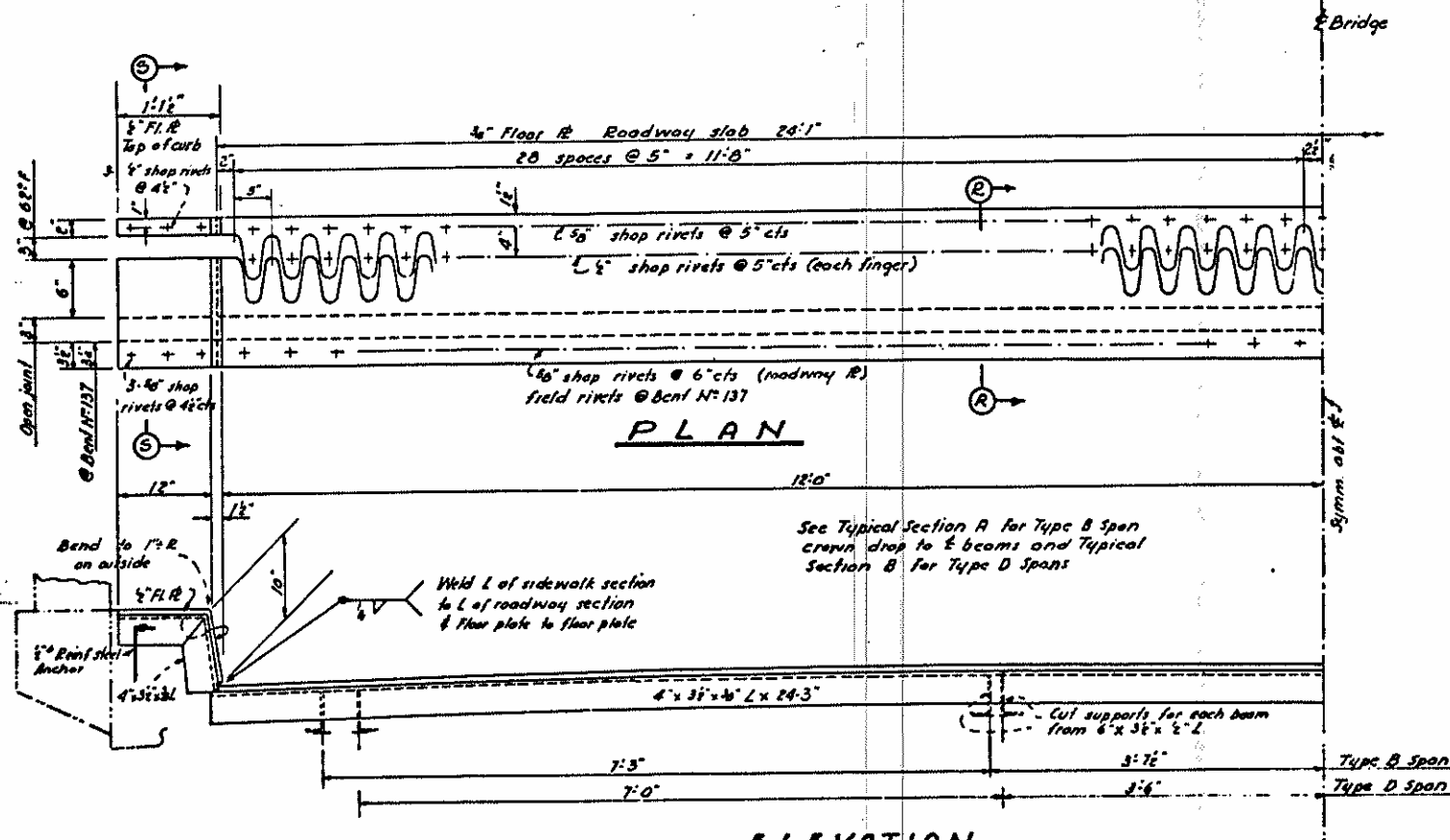
See Concrete Sections E-1 - E-4 & E-5



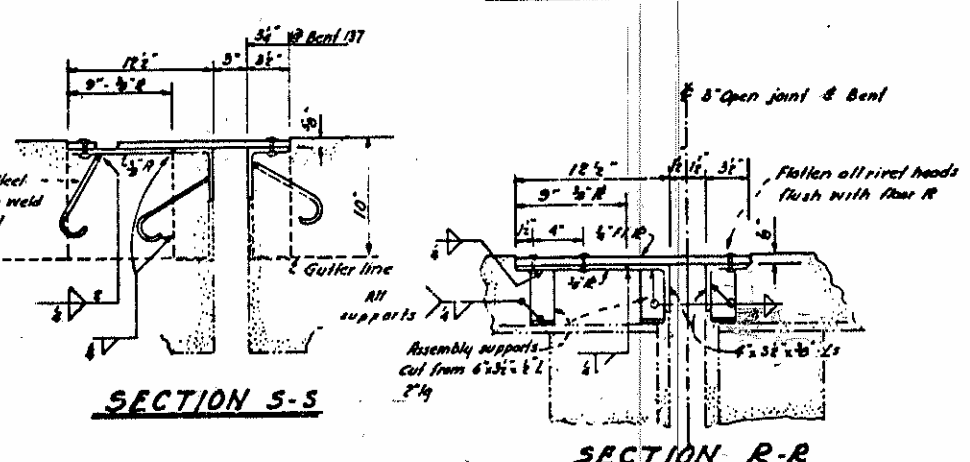
DETAIL OF FINGERS



SECTION THRU FINGERS

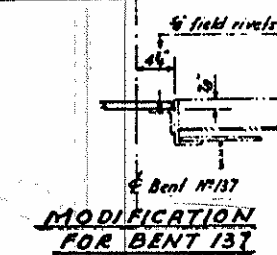


ELEVATION



SECTION S-S

SECTION R-R



MODIFICATION FOR BENT 137

Expansion R Assembly required of the following

Part	Quantity
PART A	Bent No. 1
	9
	17
	25
	33
	41
	49
	57
	65
	73
	81
	89
	97
	105
	113
	121
	127 Modified
PART B	Bent No. 158
	170
	178
	186
	194
	200
	208
	216
	224
	232
	240
	248
	256
	264
	272
280	
288	
296	
304	
312	

Approximate weight of 1-Expansion R Assembly consisting of $\frac{1}{4}$ " Roadway Section for 24" roadway & 2" Curb Sections

Required PART A - 17	2002 Lbs
PART B - 20	40040 Lbs
1 Modified Assembly for Bent No. 137 - PART A	
Approximate weight	1763 Lbs
Approximate Total Weight	PART A 55797 Lbs
	PART B 40040 Lbs

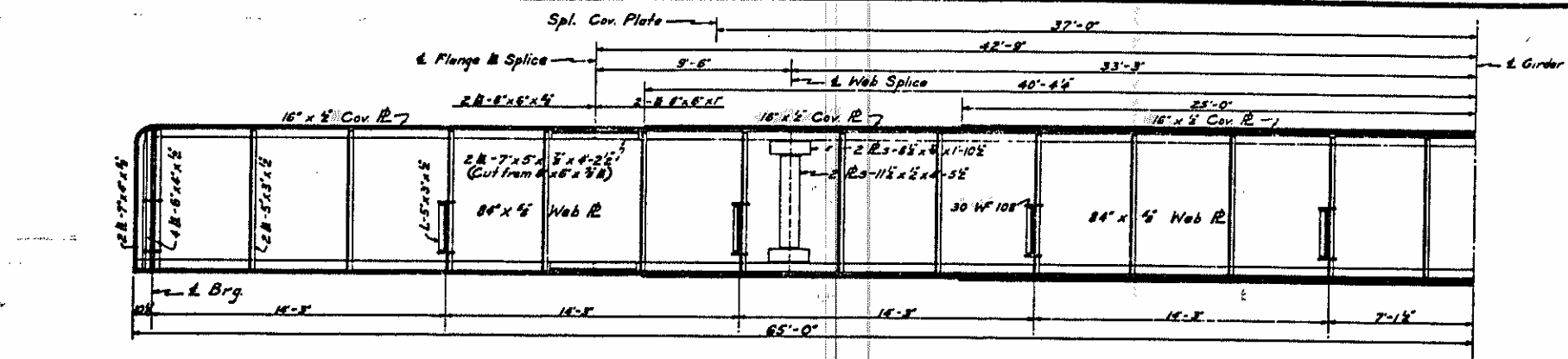
PROJECT NO. 1231-ARB
DARE COUNTY
STATION: 191+67.5

STATE OF NORTH CAROLINA
STATE HIGHWAY AND PUBLIC WORKS COMMISSION
SUPERSTRUCTURE EXPANSION R ASSEMBLY

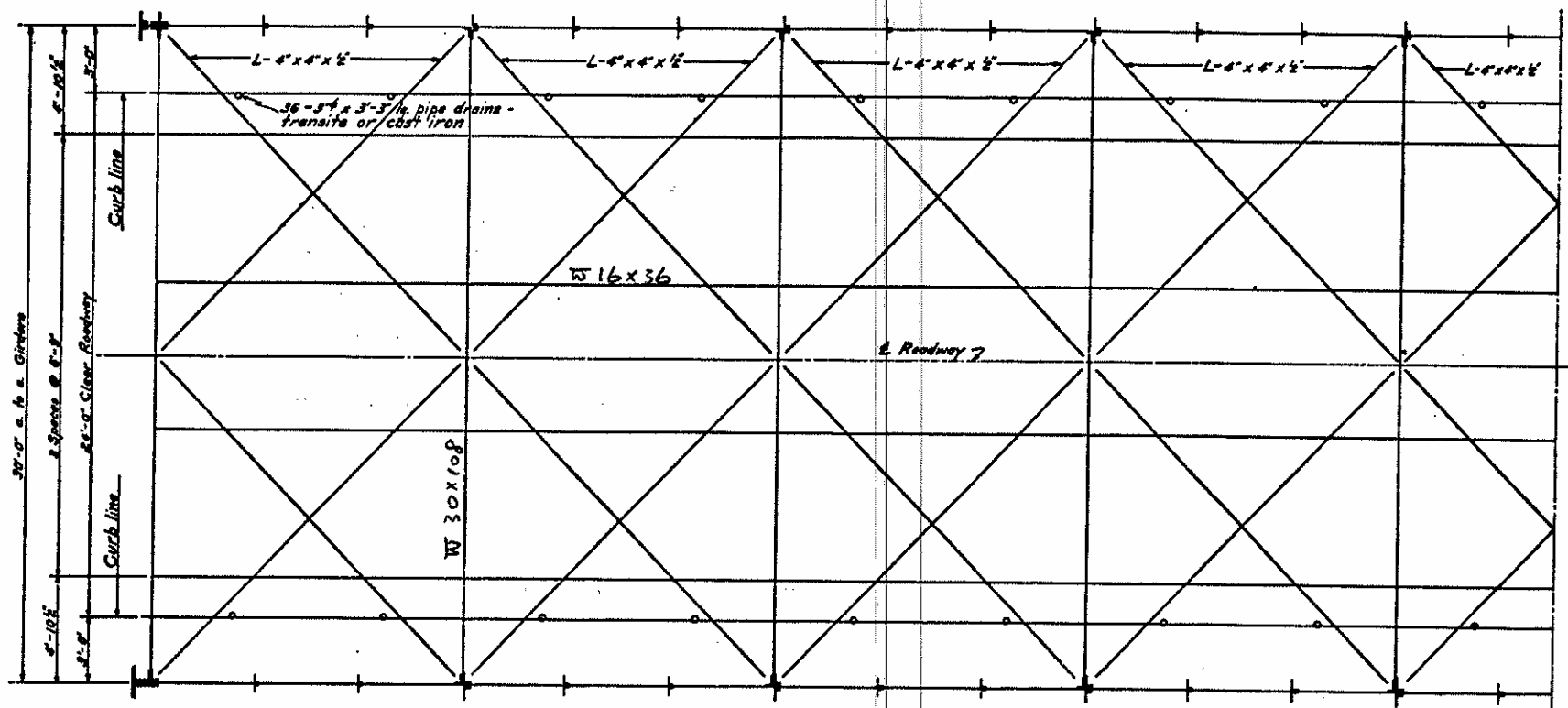
AUGUST 1954

SPECIAL	APPROVED BY	DATE
DESIGNED BY		
CHECKED BY		

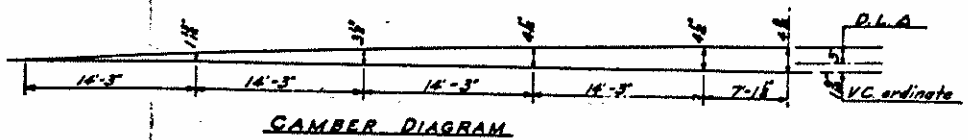
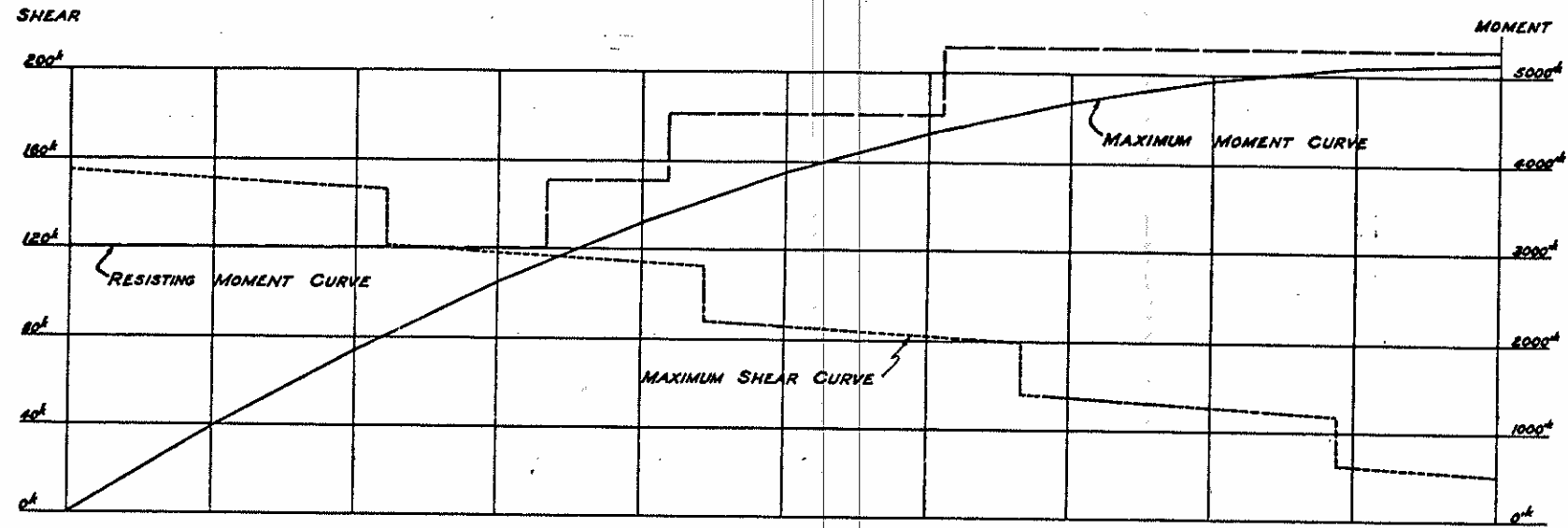
FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	N. C.	1231	519	39



HALF ELEVATION



HALF FLOOR PLAN

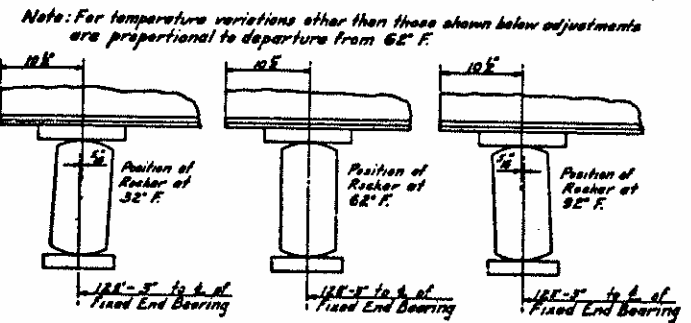


GAMBER DIAGRAM

DESIGN DATA
 Assumed Live Load Specifications H-15(44) A.A.S.H.O. (195)

GENERAL NOTES
 Structural steel shall meet all the requirements of the specifications. All rivets shall be 3/4" unless otherwise noted. General reaming will be required. Splices may be shop or field riveted. Maximum cover plate rivet spacing = 5". Checked shop drawings shall be submitted to the Bridge Engineer for approval. For additional General Notes see Sheet S-N.

PAINT FOR STRUCTURAL STEEL: Structural steel including the under side of I-Bm.-Lok floor shall be given one shop coat and one field coat of red lead and finally two field coats of aluminum.



ROCKER ADJUSTMENTS FOR TEMPERATURE VARIATIONS

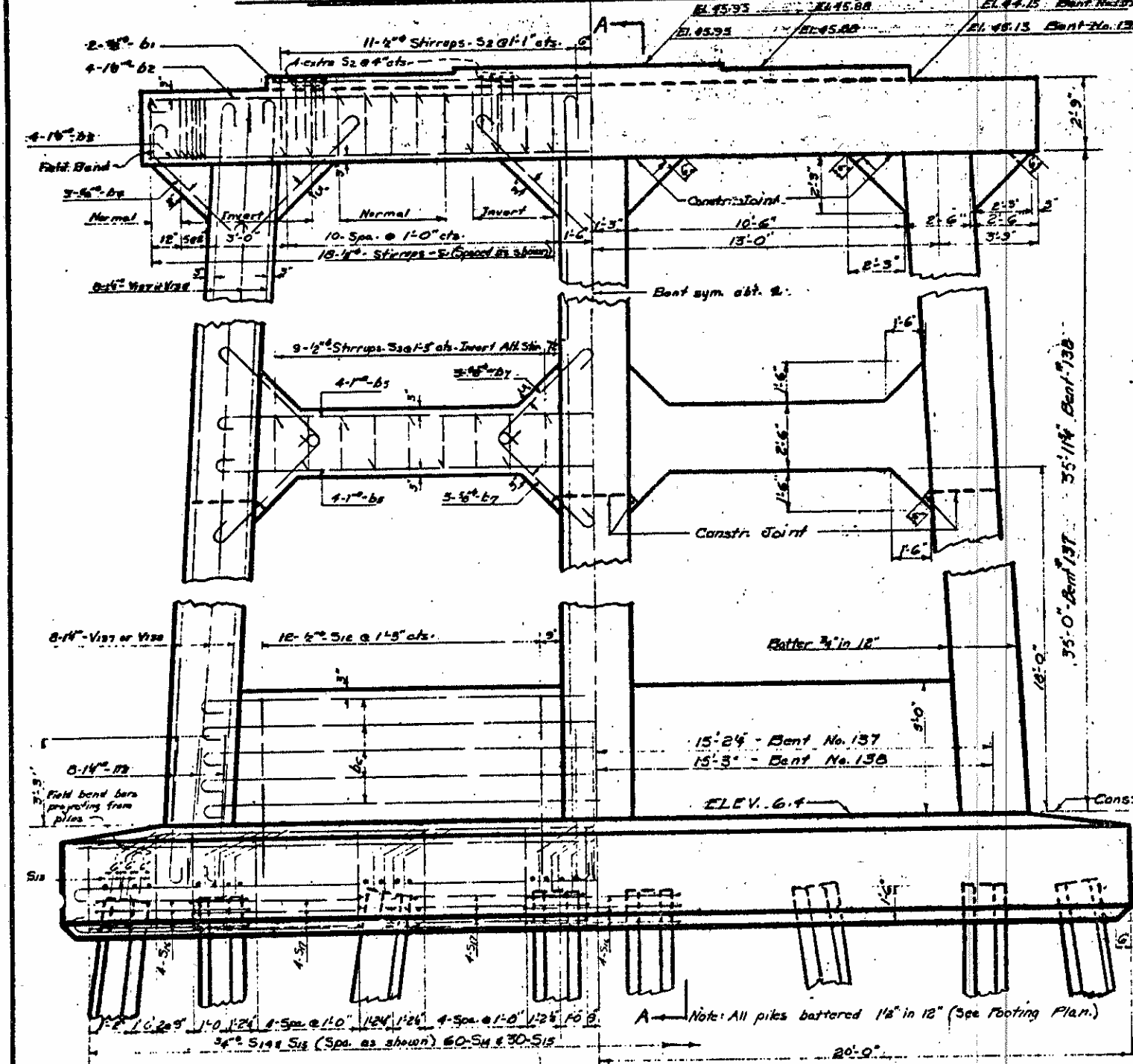
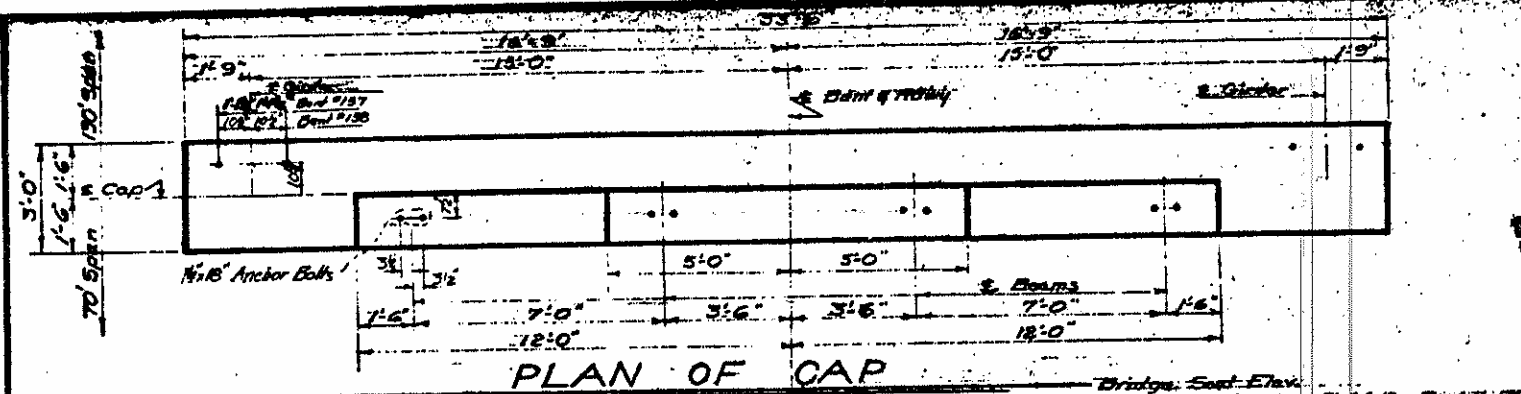
PROJECT NO. 1231A
 DARE COUNTY
 STATION: 191+67.5

STATE OF NORTH CAROLINA
 STATE HIGHWAY AND
 PUBLIC WORKS COMMISSION
 RALEIGH
 STRESS SHEET
 130' THROUGH GIRDER SPAN

AUGUST, 1954

SUBMITTED BY: [Signature]
 APPROVED BY: [Signature] DATE: 8.7.54

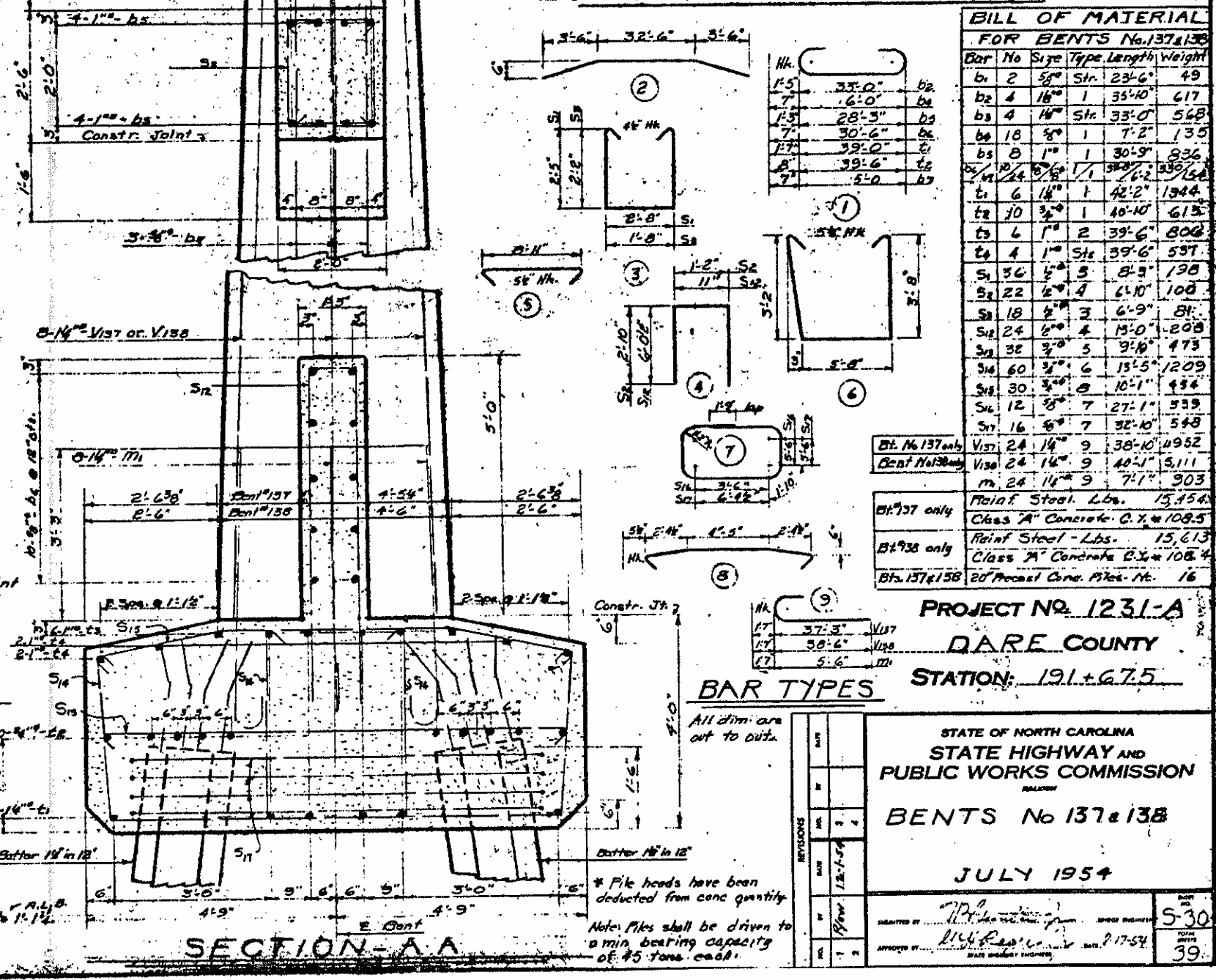
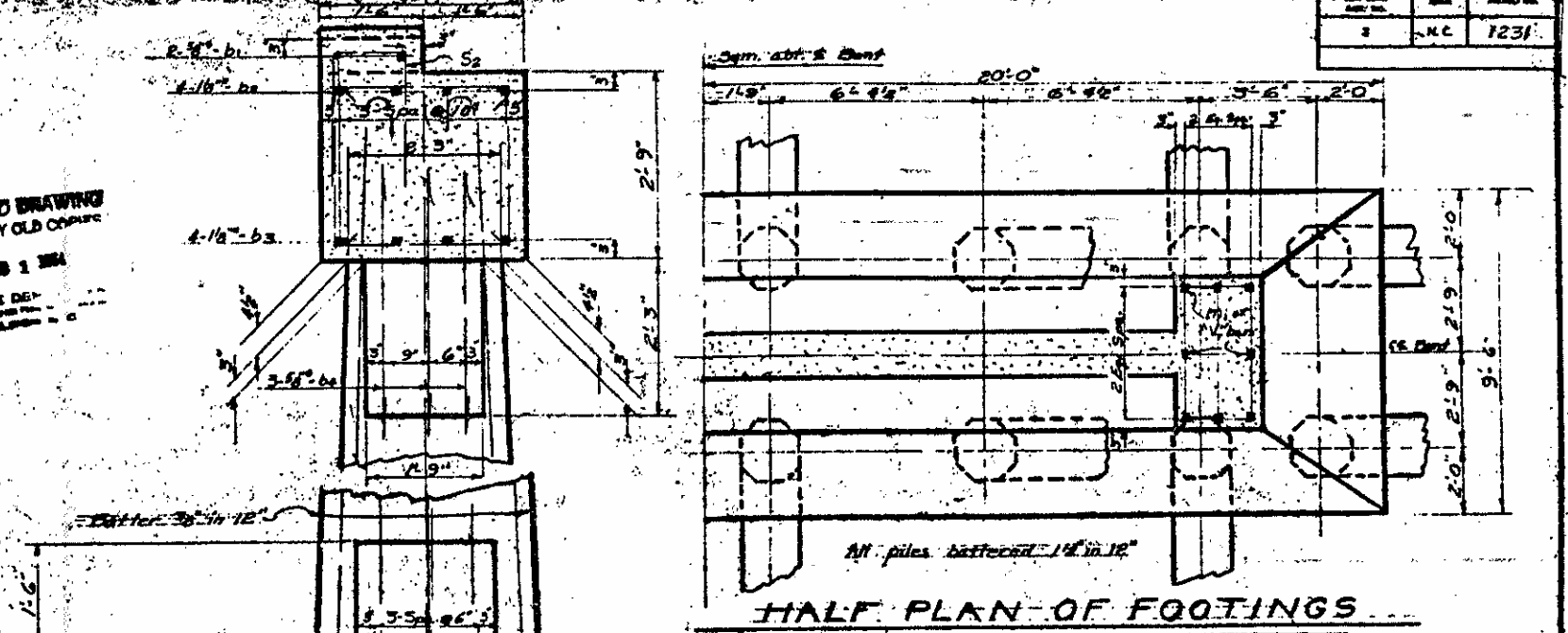
SPECIAL	DESIGNED BY: [Signature]	DATE: [Date]
STANDARD	CHECKED BY: [Signature]	DATE: [Date]



REVISION DRAWING
DESTROY OLD COPY

NO. 1 1954

BRIDGE DEPT.
DIVISION OF HIGHWAYS
DURHAM, N.C.



BILL OF MATERIAL FOR BENTS No. 137 & 138

Bar No	Size	Type	Length	Weight
b1	2 5/8"	Str	23'-6"	49
b2	4 1/8"	1	35'-10"	617
b3	4 1/8"	Str	33'-0"	568
b4	18 5/8"	1	7'-2"	135
b5	8 1/2"	1	30'-9"	836
b6	24 1/8"	1/1	33'-1/2"	837
b7	6 1/8"	1	42'-2"	1344
b8	10 3/8"	1	10'-10"	613
b9	6 1/8"	2	39'-6"	806
b10	4 1/8"	Str	39'-6"	537
S1	3/8"	5	8'-9"	198
S2	22 1/8"	4	6'-10"	108
S3	18 1/8"	3	6'-9"	81
S4	24 1/8"	4	13'-0"	208
S5	38 1/8"	5	9'-10"	173
S6	60 1/8"	6	13'-5"	1209
S7	30 1/8"	8	10'-1"	454
S8	12 1/8"	7	27'-1"	539
S9	16 1/8"	7	32'-10"	548
Vis	24 1/4"	9	38'-10"	14952
Vis	24 1/4"	9	40'-1"	5111
M	24 1/4"	9	7'-1"	903
Total Steel - Lbs. 15,454				
Class A Concrete - C.Y. 108.5				
Total Steel - Lbs. 15,613				
Class A Concrete - C.Y. 108.4				
20' Precast Conc. Piles - 16				

PROJECT NO. 1231-A
DARE COUNTY
STATION: 191+6.75

BAR TYPES



STATE OF NORTH CAROLINA
STATE HIGHWAY AND
PUBLIC WORKS COMMISSION
BENTS No 137 & 138
JULY 1954

Revision NY, Change d. Anchor Bolt spacing for Channel span @ Bent 137 from 11-1/2" to 11-1/4"

DESIGNED BY: W.B. Patton
DATE: Aug. 1954
CHECKED BY: W.M. Gardner
DATE: 11-19-54

APPROVED BY: [Signature]
DATE: 7-17-54
5-30
39

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - A.S.T.M. A36	GRADE -----	20,000 LBS. PER SQ. IN.
	A.S.T.M. A588 -----	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	GRADE 40 -----	20,000 LBS. PER SQ. IN.
	GRADE 60 -----	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESSES	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN IN TIMBER	---	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

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

CONCRETE:

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

DOWELS:

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

WATERSTOPS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

"PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED JULY 1, 1978. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORD WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 972-11."

HANDRAILS AND POSTS:

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

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

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SPECIAL NOTES:

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

Rev. #2: To Add Grade 60 Reinforcing Steel By F.B.J. VBY:TKR. 11-19-81
 Rev. #1 DELETE EXCAVATION NOTE By: G.L.B. VBY:TKR. 10-27-81 JULY 1, 1978

STD. NO.: SN

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - A.S.T.M. A36 GRADE	-----	20,000 LBS. PER SQ. IN.
A.S.T.M. A508	-----	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 40	-----	20,000 LBS. PER SQ. IN.
GRADE 60	-----	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESSES	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN IN TIMBER	-----	375 LBS. PER SQ. IN.
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		(MINIMUM)

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Rev. #2: To Add Grade 60 Reinforcing Steel By E.B.Jr. VBS:TKR. 11-19-81
R# 01 DELETE EXCAVATION NOTE By: G.L.B. / By: T.K.R. 10-27-81 JULY 1, 1978

STD. NO.: SN

