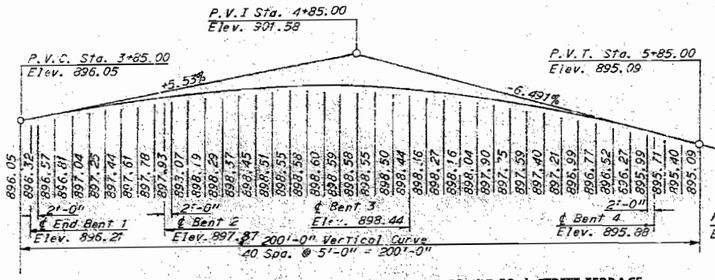
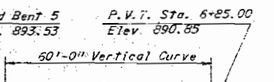
MISSOURI STATE HIGHWAY DEPARTMENT

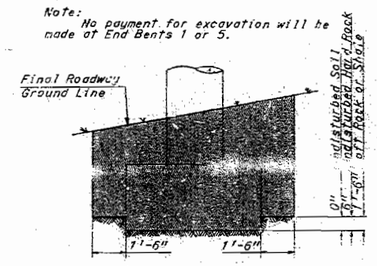
FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO. & SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO				124
DIST. NO.	COUNTY			ROUTE SEC.	
4	CLAY				



PROFILE GRADE 53rd. STREET TERRACE



Note:
No payment for excavation will be made at End Bents 1 or 5.



LIMITS OF EXCAVATION

GENERAL NOTES

Design Specifications: AASHO 1965.

Design Loading: H20-44 with 15#/sq. ft. future wearing surface. Earth 120#/cu.ft. Equivalent fluid pressure 30#/cu. ft.

Construction Specifications: Missouri Standard Specifications for State Roads, Materials, Bridges, Culverts and Incidental Structures - 1961.

Design Stresses:

Class B Concrete (substructure)	fc = 1,200 psi.
Class B1 Concrete (superstructure)	fc = 1,500 psi.
Reinforcing Steel	fs = 20,000 psi.
Steel pile (A.S.T.M A36-66).	fb = 9,000 psi.

Reinforcing Steel: All splices in reinforcing bars shall be 24 bar diameters. Bar sizes are designated on the plan by numbers. The first digit after the letter in three digit marks and the first two digits after the letter in four digit marks indicate the size of the bar.

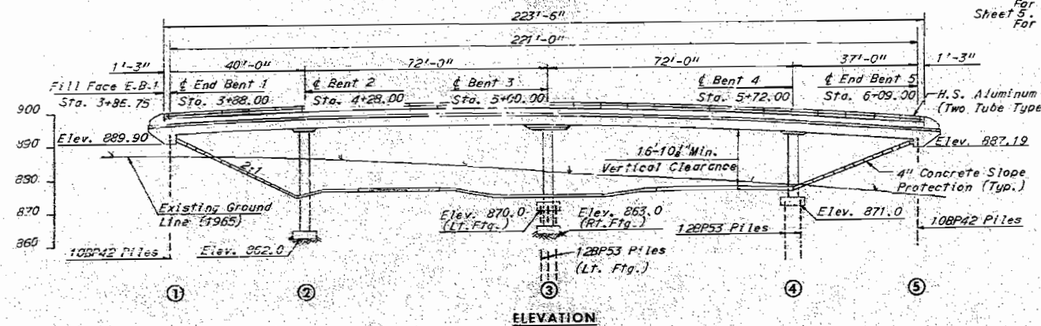
Dimensions shown on the plans from the reinforcing steel to the outside edge of concrete are clear dimensions.

All reinforcing bar bending dimensions are "out to out".

Seeling of Decks: Superstructure deck to be surface sealed.

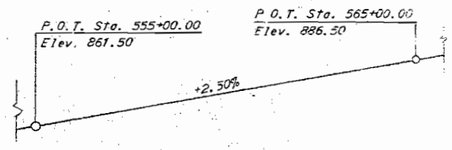
Utilities: All utilities, unless shown otherwise, shall be removed or relocated by others. The Contractor will notify the owner of the utilities of his work schedule sufficiently in advance to allow time for the disposition of utilities.

40'-0", 72'-0", 72'-0", 37'-0" CONTINUOUS CONCRETE VOIDED SLAB SPANS



ELEVATION

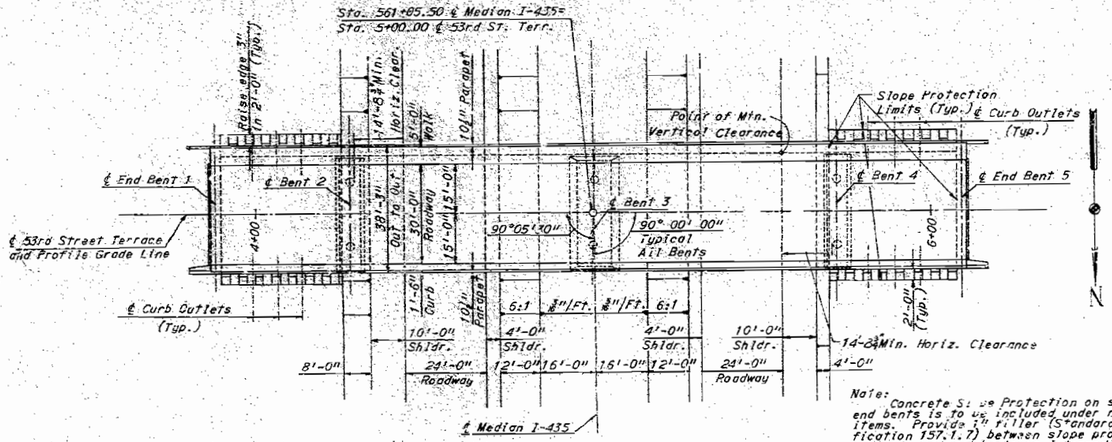
Note:
All dimensions are horizontal. For location of borings, see Sheet 2. For number and length of piles, see Sheet 5. For table of pile loads, see Sheet 5.



PROFILE GRADE I-435
(At Inside Edge of Future Pavement)
(20' Lt. and Rt. of ℄ Median I-435.)

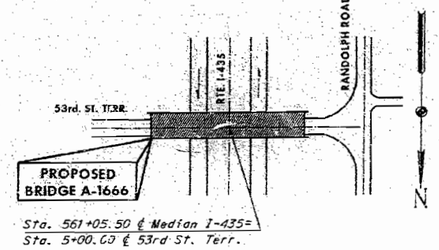
Note:
Compacted roadway fill (full roadway width) shall be placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" back of End Bents before steel piles are driven.

BENCH MARKS
#45 - Elev. 862.68 Spike in Power Pole 200' Rt. Sta. 531+00
#46 - Elev. 903.41 Spike in Power Pole 220' Rt. Sta. 569+00



PLAN

Note:
Concrete Slope Protection on slopes at end bents is to be included under roadway items. Provide ½" filler (Standard Specification 157.1.7) between slope protection concrete and end bents or intermediate bents. See Standard Specification 83.50. For details see Sheet 10 and Roadway Plans.



Sta. 561+05.50 ℄ Median I-435=
Sta. 5+00.00 ℄ 53rd St. Terr.

LOCATION SKETCH

TOTAL ESTIMATED QUANTITIES

ITEM	UNIT	SUBSTR.	SUPRSTR.	TOTAL
Class 1 Excavation for Structures	Cu.Yd.	145		145
Steel Piles in Place (10BP42)	Lin.Ft.	345		345
Steel Piles in Place (12BP53)	Lin.Ft.	246		246
Class B Concrete	Cu.Yd.	22.2		22.2
Class B1 Concrete	Cu.Yd.		676.0	676.0
Reinforcing Steel	Lbs.	3,290	159,230	162,520
H.S. Bridge Rail (Two Tube Type)	Lin.Ft		447	447

Quantity Notes:
All excavation for bridge will be paid for as Class 1 Excavation for Structures. Sketch shows excavation for pay purposes.
All concrete except interior bent footings is included in Class B1 Concrete.
All reinforcing except that in interior bent footings is included in superstructure reinforcing.

SUBMITTED BY R. L. Bergendoff
REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-253

STATE OF MISSOURI R. L. BERGENDOFF NUMBER E-253 REGISTERED PROFESSIONAL ENGINEER

BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(63)(Rte. I-435) STA. 561+05.50
CLAY COUNTY

SUBMITTED BY _____ BRIDGE ENGINEER DATE 2-22-68
APPROVED BY _____ CHIEF ENGINEER DATE 2-23-68

STD. 54.00
A-1666

FOR INFORMATION ONLY

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE G.C.C. DATE 10-21-67 CHECKED JSH DATE 1-2-68

NOTE: This drawing is not to scale. Follow dimensions.

GENERAL PLAN AND ELEVATION

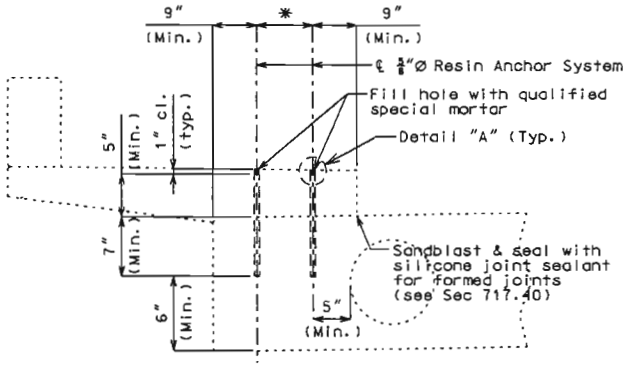
SHEET 1 OF 10

258

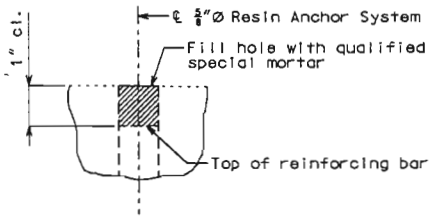
Job No.	Bridge No	New Bridge No.	County	Feature Intersected	Facility Carried
J4S1999	A0655	A06551	BUCHANAN	AGENCY RD S	US 36
J4S1999	A0657	A06571	BUCHANAN	33RD ST S	US 36
J4S1999	A0704	A07041	BUCHANAN	22ND ST S	US 36
J4S1999	A1666	A16662	CLAY	53RD TER E	IS 435
J4S1999	A0622	A06222	JACKSON	US 40 E	CST MANCHESTER TRFY
J4S1999	A0807	A08072	JACKSON	CHARLOTTE ST S	IS 35, RP IS35N TO IS70E
J4S1999	A0825	A08251	JACKSON	HOLMES ST S	IS 35, RP US71N TO IS35S
J4S1999	A1117	A11173	JACKSON	BROADWAY S	IS 35, IS 670, RP IS29S,
J4S1999	A1122	A11224	JACKSON	14TH ST E	IS 29, RP IS29S TO IS35N
J4S1999	A1360	A13602	JACKSON	67TH ST E	IS 435
J4S1999	A1712	A17122	JACKSON	WILSON AVE E	IS 435
J4S1999	L0102	L01021	JACKSON	BLUE RIDGE BLVD S	MO 78
J4S1999	L0971	L09714	JACKSON	PITTMAN RD S	IS 70
J4S1999	L0977	L09771	JACKSON	PHELPS RD	IS 70
J4S1999	A0321	A03211	JOHNSON	HOLDEN ST S	US 50

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

ROUTE	STATE	DISTRICT	SHEET NO.
	MO	BR	
JOB NO. J4S1999			
CONTRACT ID			
PROJECT NO.			
COUNTY VARIES			

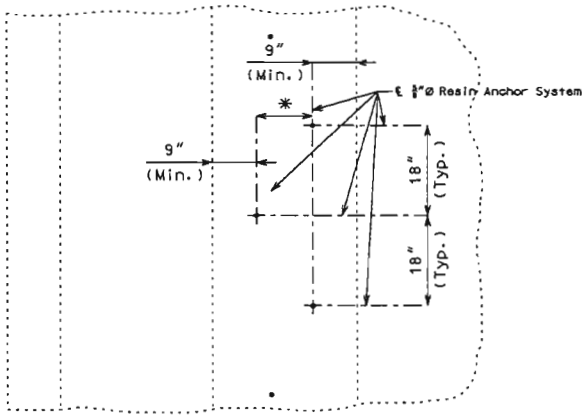


PART SECTION SHOWING RESIN ANCHORS



DETAIL "A"

Estimated Quantities			
Item		Estimated Quantities	Final Quantities
Resin Anchor System (Slab Bridges)	each	1.383	
Silicone Joint Sealant	linear foot	2.069	



PART PLAN SHOWING RESIN ANCHORS

* This dimension may be reduced to 0" to avoid rebar and voids in the slab.

GENERAL NOTES:

See Roadway Plans for traffic control.

Temporary weight shall be placed on the sidewalk in line with the resin anchors. This temporary weight shall be sufficient to balance the cantilevered sidewalk. It shall remain in place until the epoxy bonding agent is cured.

Resin Anchors:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the anchor system complete in place shall be included in the price bid for Resin Anchor System (Slab Bridges) including the qualified special mortar to cap the resin anchor.

The minimum ultimate pullout strength shall be in accordance with Sec 1039 with f'c = 4,000 psi.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the ⅝"Ø threaded rod stud.

The epoxy bonding agent shall extend the full length of reinforcing bar.

The Silicone Joint Sealant will be measured to the nearest linear foot. Silicone Joint Sealant, including all materials, equipment, labor and any other incidental work necessary to complete this work, will be paid for at the contract unit price for Silicone Joint Sealant.

CANTILEVER SIDEWALK RETROFIT FOR SLAB BRIDGES

Detailed Mar. 2007
Checked Mar. 2007

Note: This drawing is not to scale. Follow dimensions.

VARIES REV.

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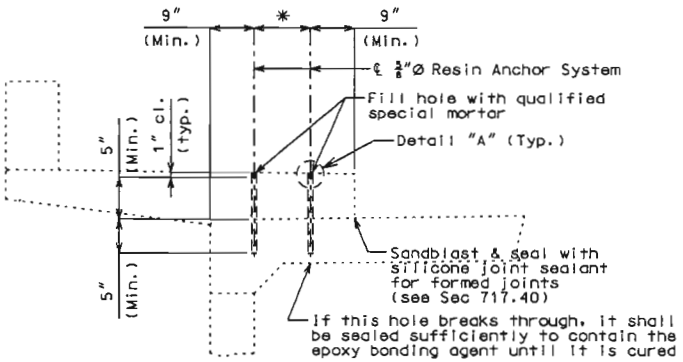
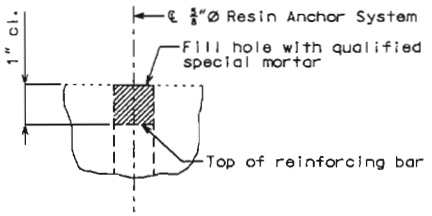
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

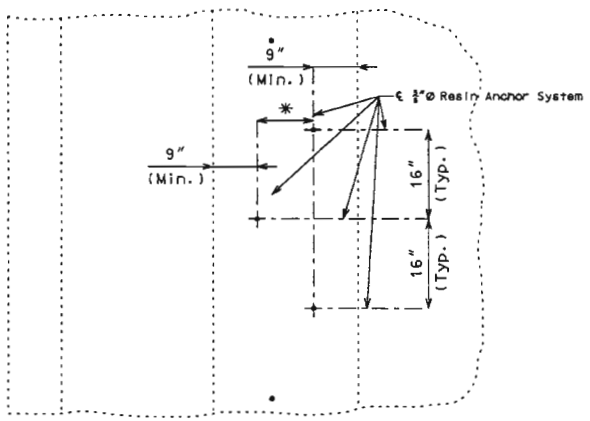
ROUTE	STATE	DISTRICT	SHEET NO.
	MO	BR	
JOB NO. J4S1999			
CONTRACT ID			
PROJECT NO.			
COUNTY VARIES			



PART SECTION SHOWING RESIN ANCHORS



DETAIL "A"



PART PLAN SHOWING RESIN ANCHORS

* This dimension may be reduced to 0" to avoid rebar and voids in the slab.

Estimated Quantities			
Item		Estimated Quantities	Final Quantities
Resin Anchor System (Box Girder Bridges)	each	3.434	
Silicone Joint Sealant	linear foot	4.576	

GENERAL NOTES:

See Roadway Plans for traffic control.

Temporary weight shall be placed on the sidewalk in line with the resin anchors. This temporary weight shall be sufficient to balance the cantilevered sidewalk. It shall remain in place until the epoxy bonding agent is cured.

Resin Anchors:
The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the anchor system complete in place shall be included in the price bid for Resin Anchor System (Box Girder Bridges) including the qualified special mortar to cap the resin anchor.

The minimum ultimate pullout strength shall be in accordance with Sec 1039 with f'c = 4,000 psi.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the ⅜"Ø threaded rod stud.

The epoxy bonding agent shall extend the full length of reinforcing bar.

The Silicone Joint Sealant will be measured to the nearest linear foot. Silicone Joint Sealant, including all materials, equipment, labor and any other incidental work necessary to complete this work, will be paid for at the contract unit price for Silicone Joint Sealant.

CANTILEVER SIDEWALK RETROFIT FOR BOX GIRDER BRIDGES

Detailed Mar. 2007
Checked Mar. 2007

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 2

VARIES REV.

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DIST 4 SLAB STRUCTURES WITH SIDEWALKS
FOR CONTRACT
(Total 7)

Bridge No	County	Feature Intersected	Facility Carried	Bridge Length Ft.	Comment	Resin Anchor System (Slab Bridges)	Silicone Joint Sealant Lin. Ft.
A0495	CLAY	MO 152 E	IS 35	235	Sidewalk on one side only	157	235
A1666	CLAY	53RD TER E	IS 435	224	Sidewalk on one side only	150	224
A0622	JACKSON	US 40 E	CST MANCHESTER TRFY	151		202	302
A1360	JACKSON	67TH ST E	IS 435	243	Conduit	324	486
L0102	JACKSON	BLUE RIDGE BLVD S	MO 78	155	Sidewalk on one side only	104	155
L0971	JACKSON	PITTMAN RD S	IS 70	209	Sidewalk on one side only	140	209
A0321	JOHNSON	HOLDEN ST S	US 50	229		306	458
					SubTotal	**1,383**	**2,069**

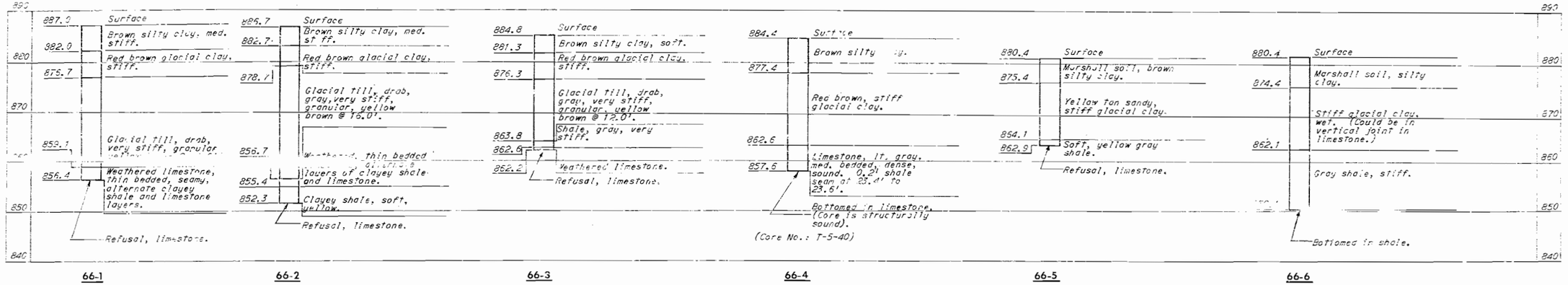
DIST 4 AND DIST 1 BOX GIRDERS WITH SIDEWALKS
FOR CONTRACT
(Total 8)

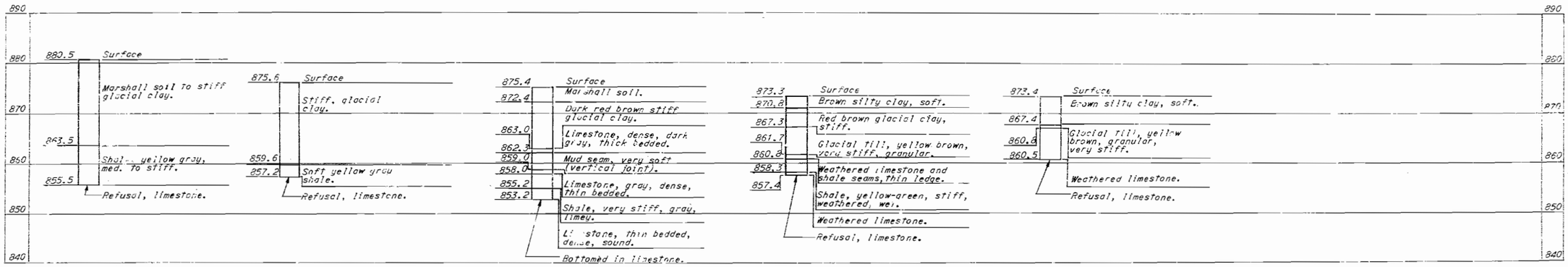
Bridge No	County	Feature Intersected	Facility Carried	Bridge Length Ft.	Comment	Resin Anchor System (Box Girder Bridges)	Silicone Joint Sealant Lin. Ft.
A0655	BUCHANAN	AGENCY RD S	US 36	175	Located in District 1	263	350
A0657	BUCHANAN	33RD ST S	US 36	169	Located in District 1	254	338
A0704	BUCHANAN	22ND ST S	US 36	86	Located in District 1	129	172
A0807	JACKSON	CHARLOTTE ST S	IS 35, RP IS35N TO IS70E	581		872	1162
A0825	JACKSON	HOLMES ST S	IS 35, RP US71N TO IS35S	382		573	764
A1122	JACKSON	14TH ST E	IS 29, RP IS29S TO IS35N	404		606	808
A1117	JACKSON	BROADWAY S	IS 35, IS 670, RP IS29S,	366		549	732
A1712	JACKSON	WILSON AVE E	IS 435	250	Sidewalk on one side only	188	250
					SubTotal	**3,434**	**4,576**

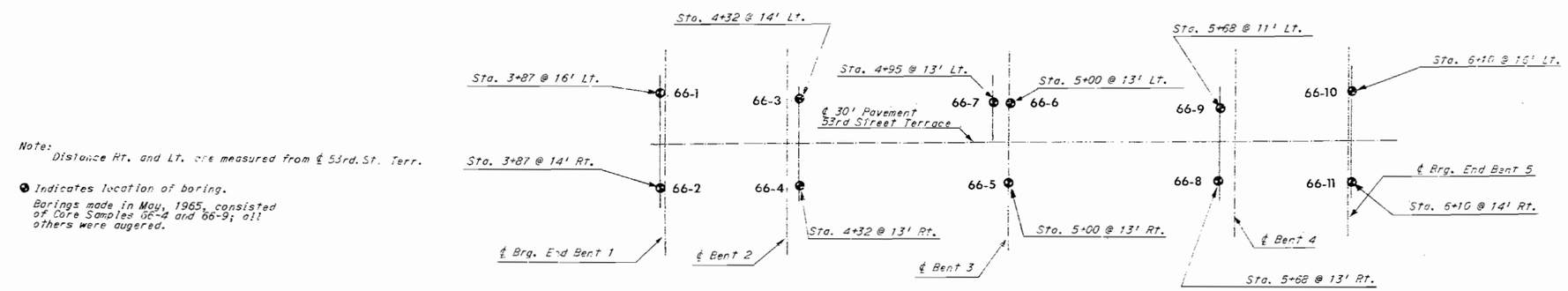
STATE OF MISSOURI
PAUL WAYNE KELLY
NUMBER
E-2011929
REGISTERED PROFESSIONAL ENGINEER

MISSOURI STATE HIGHWAY DEPARTMENT

STATE	FEDERAL PROJECT NO. & SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5 MO				125
DIST. NO.	COUNTY		ROUTE SEC.	
4	CLAY			







Note:
Distance Rt. and Lt. are measured from ℄ 53rd. St. Terr.

● Indicates location of boring.
Borings made in May, 1965, consisted of Core Samples 66-4 and 66-9; all others were augered.

BORING LOCATION SKETCH

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE P.S. DATE 10-27-67 CHECKED C.F.S. DATE 12-28-67

NOTE: This drawing is not to scale. Follow dimensions.

BORINGS

BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(69)(Rte. I-435) STA. 561+05.50
CLAY COUNTY
SHEET 2 OF 10

A-1666

259

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FEDERAL PROJECT NO.	SEC	TYPICAL SHEET NO.	TOTAL SHEETS
5	MO			126	
DIST. NO.	COUNTY			ROUTE NO.	
4	CLAY				

BILL OF REINFORCEMENT

NO.	MARK	LENGTH	SHAPE	LOCATION
		SUBSTRUCTURE		
		BENT 2		
20	F501	5'- 4"	100	Footing
18	F901	9'- 0"	100	Footing
16	F902	5'- 7"	104	Footing
		BENT 3		
10	F701	5'- 8"	100	Footing
8	F902	5'- 7"	104	Footing
8	F903	6'- 1"	104	Footing
10	F1001	7'- 0"	100	Footing
10	F1002	8'- 9"	100	Footing
9	F1003	9'- 9"	100	Footing
		BENT 4		
28	F602	6'-10"	100	Footing
16	F903	6'- 1"	104	Footing
		SUPERSTRUCTURE		
		END BENT 1		
4	H501	5'- 8"	Str.	End Post
12	H601	37'-11"	Str.	End Bent
10	H602	12'- 1"	105	End Post
10	H603	9'-10"	Series	Wingwall
4	H604	14'- 4"	Str.	Wingwall
5	H605	6'- 2"	Str.	Wingwall
1	H606	7'-10"	Str.	Wingwall
4	H607	11'- 4"	107	Wingwall
4	H608	9'-6"	104	Wingwall
12	V401	8'- 9"	Series	Wingwall
3	V501	9'- 6"	105	End Post
3	V502	9'- 1"	112	End Post
1	V503	8'- 9"	112	End Post
1	V504	8'- 7"	112	End Post
1	V505	8'- 1"	112	End Post
1	V506	7'- 1"	112	End Post
1	V507	8'-5"	112	End Post
1	V508	7'-9"	112	End Post
3	V509	9'- 7"	105	End Post
1	V510	9'- 3"	105	End Post
1	V511	9'- 1"	105	End Post
1	V512	8'-9"	105	End Post
1	V513	7'-9"	105	End Post
1	V514	8'-11"	105	End Post
1	V515	8'-3"	105	End Post
1	V516	4'- 2"	105	End Post
38	V601	5'- 6"	Str.	End Bent
72	V602	9'- 8"	105	End Bent
39	V701	8'- 9"	106	End Bent
1	V517	9'-3"	112	End Bent
1	V518	9'-9"	105	End Bent

BILL OF REINFORCEMENT

NO.	MARK	LENGTH	SHAPE	LOCATION
		SUPERSTRUCTURE		
		BENT 2		
70	B502	10'- 7"	110	Cap Beam
4	B1001	34'- 2"	Str.	Cap Beam
8	B1002	13'- 9"	Str.	Cap Beam
8	B1003	12'- 3"	Str.	Cap Beam
8	B1101	33'- 8"	Str.	Cap Beam
4	B1102	17'- 0"	Str.	Cap Beam
2	C401	859'- 8"	Spiral	Column
16	C901	32'-6"	Str.	Column
		BENT 3		
56	B501	13'- 2"	110	Cap Beam
4	B502	10'- 7"	110	Cap Beam
4	B1001	34'- 2"	Str.	Cap Beam
8	B1002	13'- 9"	Str.	Cap Beam
8	B1004	12'- 0"	Str.	Cap Beam
8	B1103	33'- 8"	112	Cap Beam
4	B1102	17'- 0"	Str.	Cap Beam
1	C402	623'- 7"	Spiral	Column
1	C403	831'- 8"	Spiral	Column
8	C902	24'- 0"	Str.	Column
8	C903	31'- 6"	Str.	Column
		BENT 4		
70	B502	10'- 7"	110	Cap Beam
4	B1001	34'- 2"	Str.	Cap Beam
8	B1002	13'- 9"	Str.	Cap Beam
8	B1003	12'- 3"	Str.	Cap Beam
8	B1101	33'- 8"	Str.	Cap Beam
4	B1102	17'- 0"	Str.	Cap Beam
2	C404	540'- 10"	Spiral	Column
16	C904	21'- 0"	Str.	Column
		END BENT 5		
4	H501	5'- 8"	Str.	End Post
12	H601	37'-11"	Str.	End Bent
10	H602	12'- 1"	105	End Post
10	H603	9'-10"	Series	Wingwall
4	H604	14'- 4"	Str.	Wingwall
5	H605	6'- 2"	Str.	Wingwall
1	H606	7'-10"	Str.	Wingwall
4	H607	11'- 4"	107	Wingwall
4	H608	9'-6"	104	Wingwall
12	V401	8'- 9"	Series	Wingwall
3	V501	9'- 6"	105	End Post
3	V502	9'- 1"	112	End Post
1	V503	8'- 9"	112	End Post
1	V504	8'- 7"	112	End Post
1	V505	8'- 1"	112	End Post
1	V506	7'- 1"	112	End Post

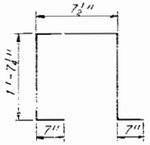
BILL OF REINFORCEMENT

NO.	MARK	LENGTH	SHAPE	LOCATION
		SUPERSTRUCTURE		
1	V507	8'-5"	112	End Post
1	V508	7'-9"	112	End Post
3	V509	9'-7"	105	End Post
1	V510	9'-3"	105	End Post
1	V511	9'-1"	105	End Post
1	V512	8'-9"	105	End Post
1	V513	7'-9"	105	End Post
1	V514	8'-11"	105	End Post
1	V515	8'-3"	105	End Post
1	V516	4'- 2"	105	End Post
1	V517	9'-3"	112	End Bent
39	V601	5'- 6"	Str.	End Bent
72	V602	9'- 8"	105	End Bent
1	V518	9'-9"	105	End Bent
39	V701	8'- 9"	106	End Bent
		SLAB		
34	S501	25'- 4"	Str.	Slab Long.
332	S502	34'- 2"	Str.	Slab Trans.
42	S601	25'- 1"	Str.	Slab Long.
42	S602	40'- 9"	Str.	Slab Long.
42	S603	41'- 3"	Str.	Slab Long.
42	S604	21'- 7"	Str.	Slab Long.
34	S605	30'- 7"	Str.	Slab Long.
75	S801	12'- 3"	Str.	Slab Long.
82	S802	10'- 3"	Str.	Slab Long.
75	S803	13'- 3"	Str.	Slab Long.
35	S804	53'- 4"	Str.	Slab Long.
35	S805	30'- 0"	Str.	Slab Long.
68	S806	12'- 9"	Str.	Slab Long.
35	S807	49'- 4"	Str.	Slab Long.
82	S901	12'- 9"	Str.	Slab Long.
84	S1001	33'- 0"	Str.	Slab Long.
41	S1101	25'- 0"	Str.	Slab Long.
41	S1102	27'- 6"	Str.	Slab Long.
41	S1103	24'- 0"	Str.	Slab Long.
35	S1104	48'- 6"	Str.	Slab Long.
34	S1105	36'- 0"	Str.	Slab Long.
35	S1106	50'- 0"	Str.	Slab Long.
34	S1107	35'- 0"	Str.	Slab Long.
42	S1108	37'- 6"	Str.	Slab Long.
		CURB AND PARAPET		
32	P501	27'- 5"	Str.	Parapet
8	P502	34'-11"	Str.	Parapet
8	P503	31'-11"	Str.	Parapet
22	P504	8'- 8"	Str.	Parapet
16	P505	5'- 8"	Str.	Parapet
257	P506	5'- 0"	102	Parapet
207	P507	5'- 4"	112	Parapet
24	W401	36'- 4"	Str.	Walk
12	W501	21'- 1"	Str.	Walk
6	W502	37'-11"	Str.	Walk
207	W503	7'- 5"	103	Walk
30	W504	5'- 5"	Str.	Walk
12	W505	36'- 7"	Str.	Curb
207	W506	4'- 5"	111	Curb
207	W507	1'- 4"	Str.	Walk

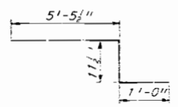
BILL OF REINFORCEMENT

NO.	MARK	LENGTH	SHAPE	LOCATION
		SUPERSTRUCTURE		
6	W501	21'- 3"	Str.	Curb
3	W502	37'-11"	Str.	Curb

100



102



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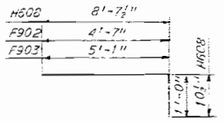
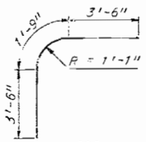


104

BENDING DIMENSIONS SHAPE 100		
MARK	A	B
F601	8"	4'-6"
F602	8"	5'-6"
F701	10"	4'-0"
F901	1'-3"	6'-6"
F1001	1'-7½"	7'-9"
F1002	1'-7½"	5'-6"
F1003	1'-7½"	6'-6"



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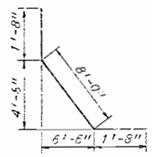

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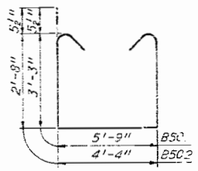

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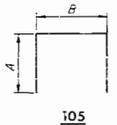

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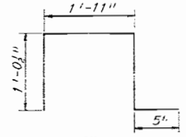

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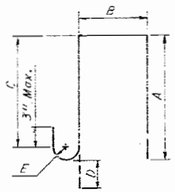

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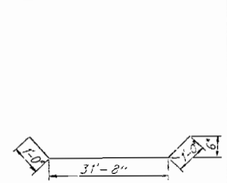
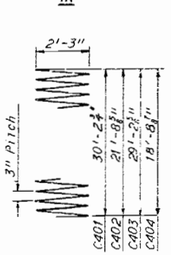


113

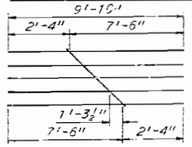
BENDING DIMENSIONS SHAPE 105		
MARK	A	B
H602	5'-8"	9"
V501	1'-6"	1'-4" to 2'-2"
V509	4'-5"	9"
V510	4'-3"	9"
V511	4'-2"	9"
V512	4'-0"	9"
V513	3'-6"	9"
V514	3'-4"	9"
V515	3'-3"	9"
V516	1'-6"	1'-2"
V602	3'-9"	2'-2"
V518	4'-6"	9"



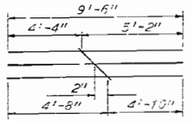
Note:
Make 1½ turns top and bottom and ½ turns at splices. Clip 4 vertical spacers to spiral before placing concrete.

SPIRAL

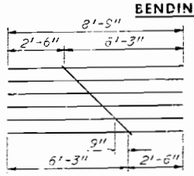
BENDING DIMENSIONS SHAPE 112					
MARK	A	B	C	D	E
V502	3'-10"	9"	3'-7¾"	8"	2¼"
V503	3'- 8"	9"	3'-5¾"	8"	2¼"
V504	3'- 7"	9"	3'-4¾"	8"	2¼"
V505	3'- 4"	9"	3'-1¾"	8"	2¼"
V506	2'-10"	9"	2'-7¾"	8"	2¼"
V507	3'- 6"	9"	3'-3 ¾"	8"	2¼"
V508	3'- 2"	9"	2'-11¾"	8"	2¼"
V517	3'-11"	9"	3'-8 9/16"	8"	2⅝"
P507	2'- 0"	7½"	1'- 9"	8½"	3"



5-V503 Cut 2



3-V501 Cut 6
Bend 12 SHAPE 105



6-V401 Cut 24

CUTTING DIAGRAMS

BENDING DIAGRAMS

Note: Hooks and bends shall be in accordance with the A.C.I. Manual of Standard Practice for Detailing Reinforced Concrete Structures (ACI-315-65). Two diameter bends shall not be used unless specified in bending diagrams.

NOTE: This drawing is not to scale. Follow dimensions.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE J.E.H. DATE 1-9-68 CHECKED JFP DATE 1-10-68

REINFORCEMENT SCHEDULE

BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(23)(Rte. I-435) STA. 561+05.50
CLAY COUNTY

SHEET 3 OF 10

A-1666

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MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO. & SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	5	MO		127	
DIST. NO.		COUNTY		ROUTE SEC.	
4		CLAY			

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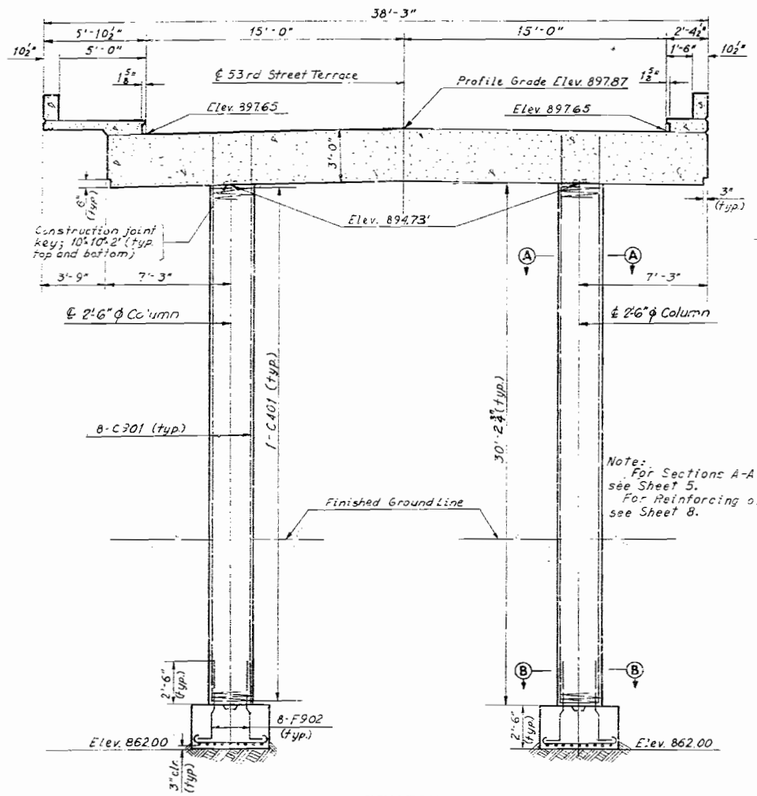
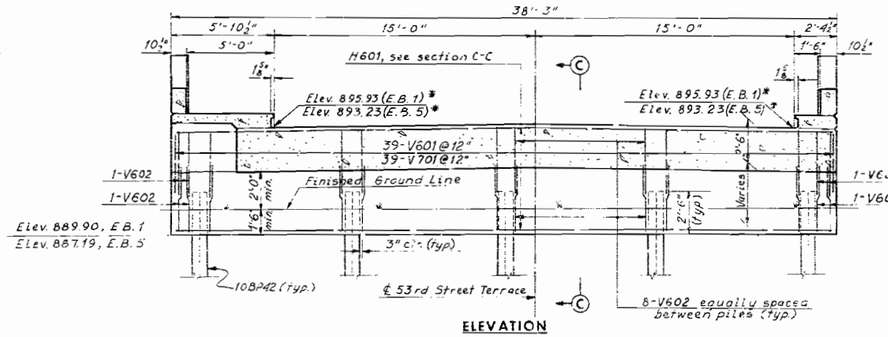
2014-21-00

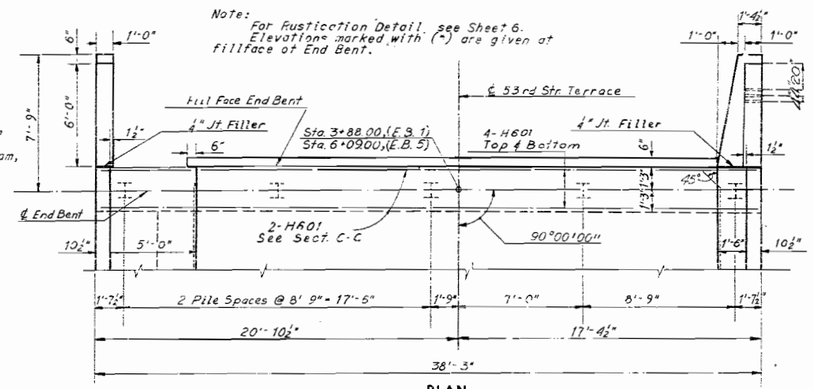


ELEVATION



ELEVATION

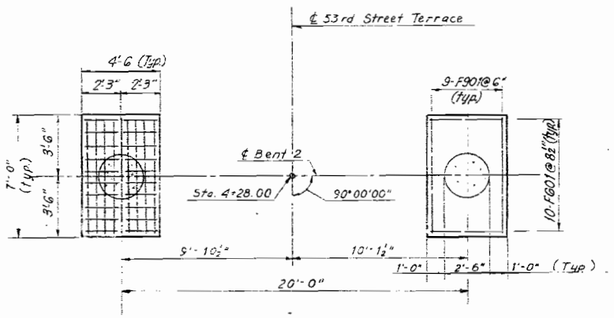
Note:
For Rustication Detail, see Sheet 6.
Elevations marked with (*) are given at fillface of End Bent.



PLAN

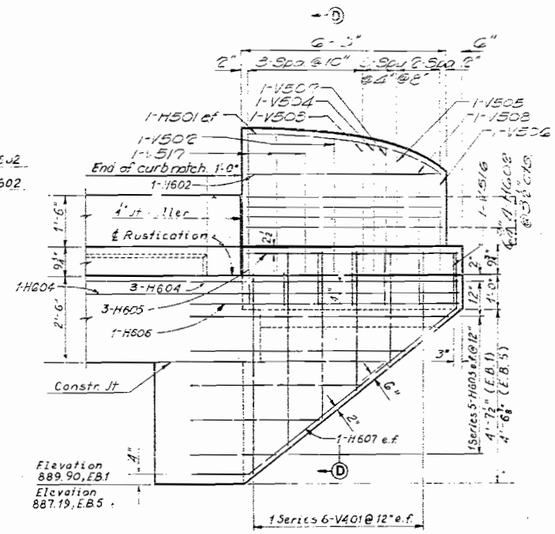
Note:
For Sections A-A and B-B, see Sheet 5.
For Reinforcing of Cap Beam, see Sheet 8.

ELEVATION



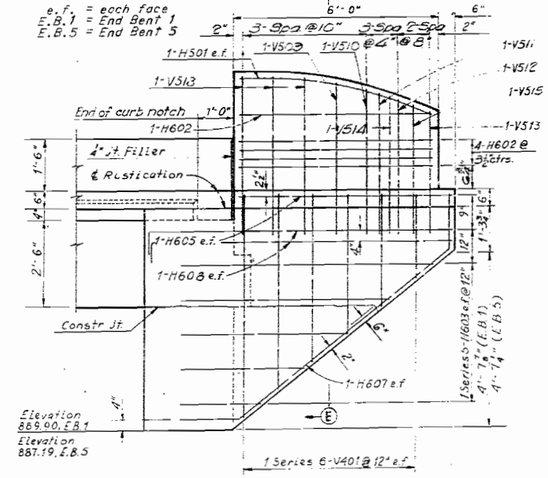
FOOTING PLAN

BENT 2



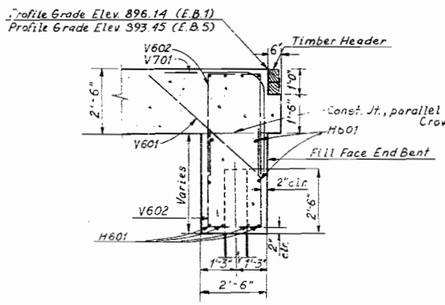
WINGWALL ELEVATION NORTH

Legend:
e.f. = each face
E.B. 1 = End Bent 1
E.B. 5 = End Bent 5

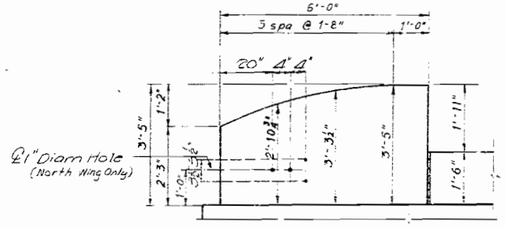


WINGWALL ELEVATION SOUTH

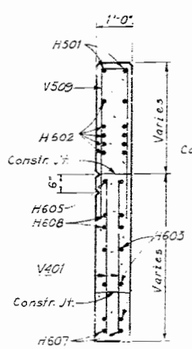
Note:
All End Bent piles are 10BP42 piles.
Concrete End Posts are vertical.
For Timber Header Detail, see Sheet 10.
Dimensions to surfaces receiving joint filler are to face of concrete.
For Reinforcing Schedule, see Sheet 3.
Provide 1½" clear from face of concrete to reinforcing steel in the superstructure, unless otherwise shown.



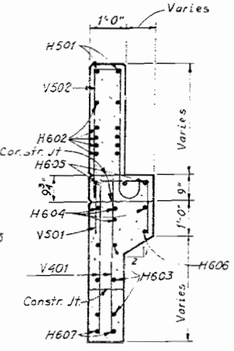
SECTION C-C



CONCRETE END POST ORDINATES



SECTION E-E



SECTION D-D

BENT 2 AND END BENT 1 AND 5

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
MADE C.E.B. DATE 12-30-67 CHECKED J.F.F. DATE 1-5-68

NOTE: This drawing is not to scale. Follow dimensions.

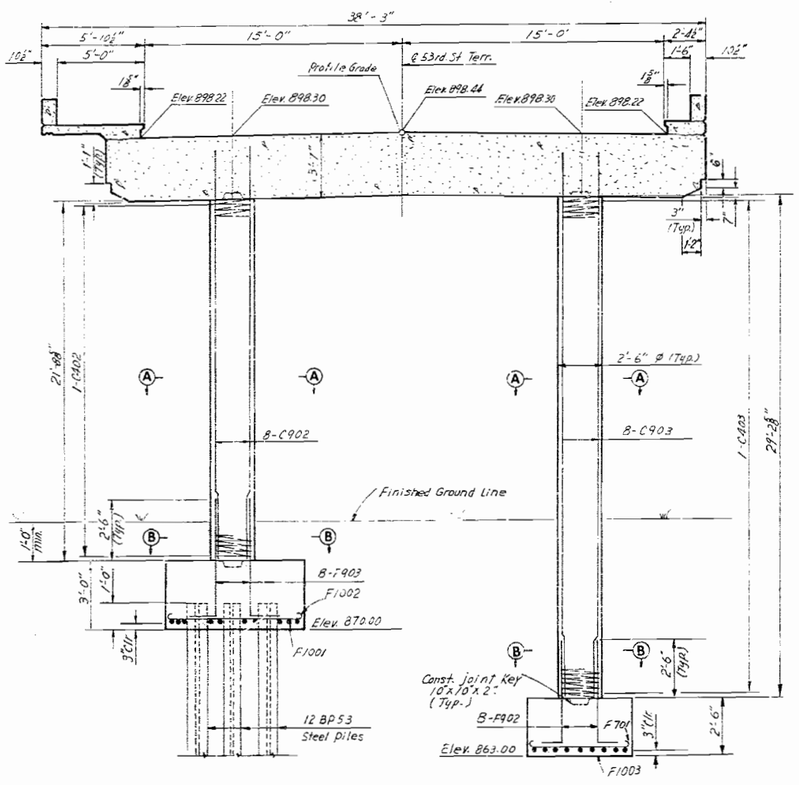
BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(63)(Rte. I-435) STA. 561+05.50
CLAY COUNTY

SHEET 4 OF 10

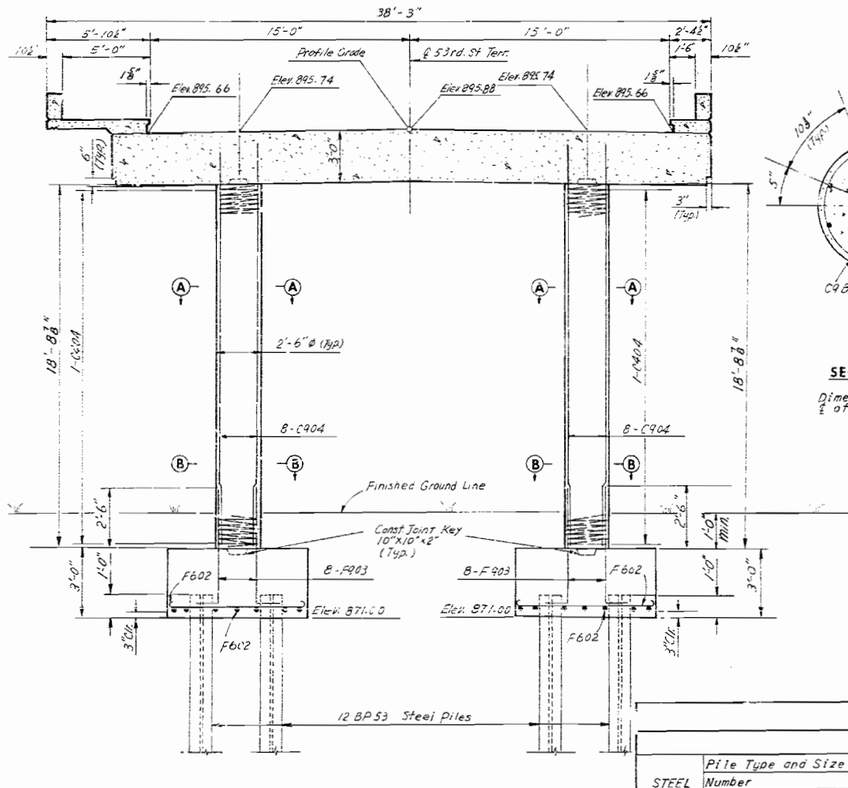
A-1666

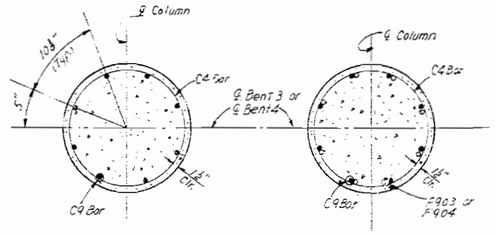
MISSOURI STATE HIGHWAY DEPARTMENT

Sheet No. 128



ELEVATION





SECTION A-A **SECTION B-B**

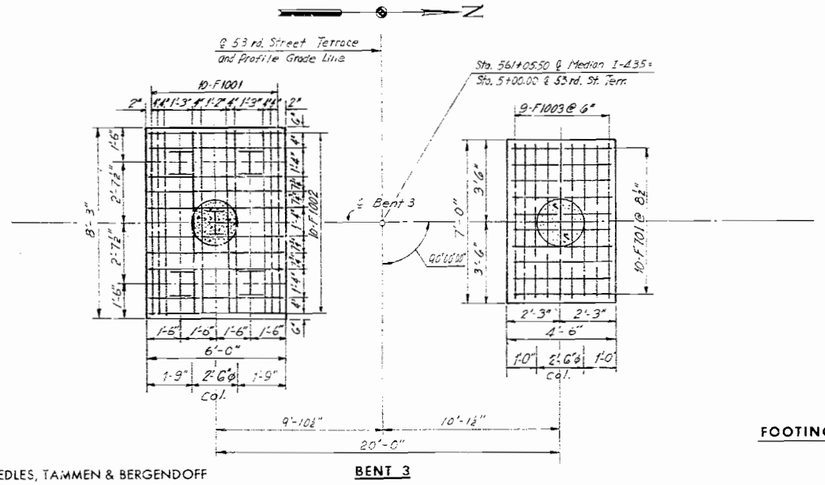
Dimensions shown are along ℄ of C4 Bar

Note:
For dimensions not shown, see Section A-A, sheet 6.
For reinforcement schedule, see Sheet 3.
For capbeam reinforcing, see Sheet 7.

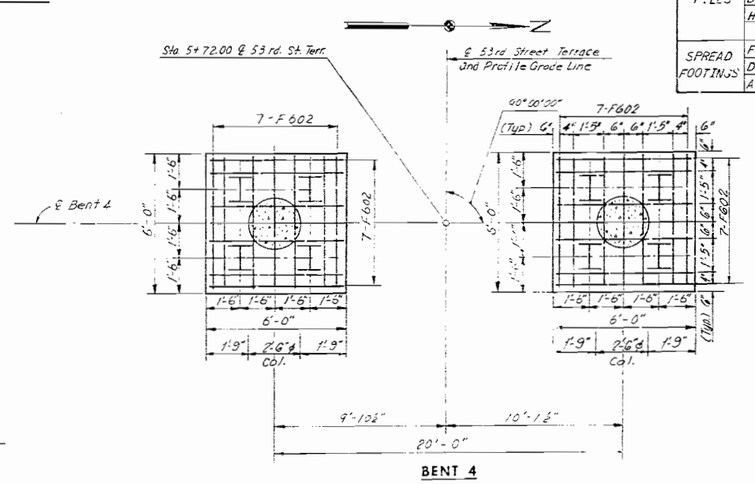
FOOTING DATA

	BENT	1	2	3S	3N	4	5
STEEL BEARING PILES	Pile Type and Size	10BP42		12BP53		12BP53	10BP42
	Number	5		5		8	5
	Approximate Length (ft.)	37		27		17	32
	Design Bearing Value (tons)	41.1		59.0		62.5	41.1
	Hammer Energy Required (ft. lbs.)	9,200		13,300		14,100	9,200
SPREAD FOOTINGS	Founding Material		Limestone		Limestone		
	Design Bearing (tons sq. ft.)		10		10		
	Actual Bearing (tons sq. ft.)		8.9		9.8		

Note:
Minimum Energy Requirement of hammer based on plan length and design bearing value of piles. Increase by the factor (W+xP)/W when the weight of the ram (W) is less than the weight of the pile (W). All pile shall be driven to practical refusal.



FOOTING PLAN



BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(65)(Rte. I-435) STA. 561+05.50
CLAY COUNTY
SHEET 5 OF 10

A-1666

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
MADE G.S.H DATE 12-15-67 CHECKED JFP DATE 12-28-67

NOTE: This drawing is not to scale. Follow dimensions.

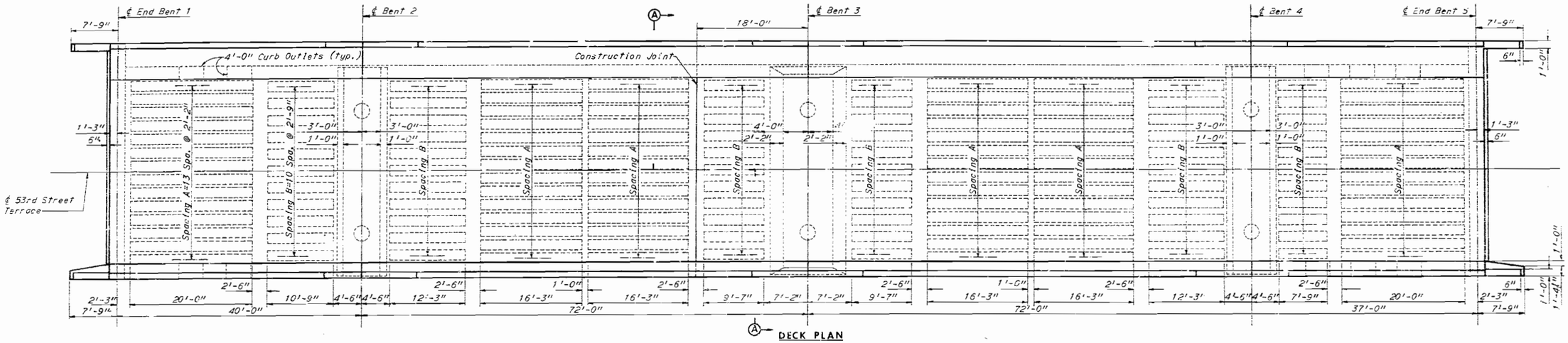
BENTS 3 AND 4

262

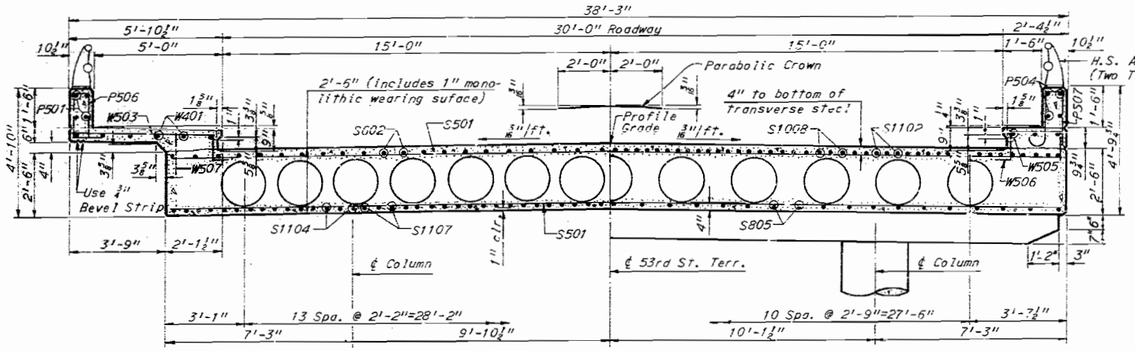
2014-21-00 1667

MISSOURI STATE HIGHWAY DEPARTMENT

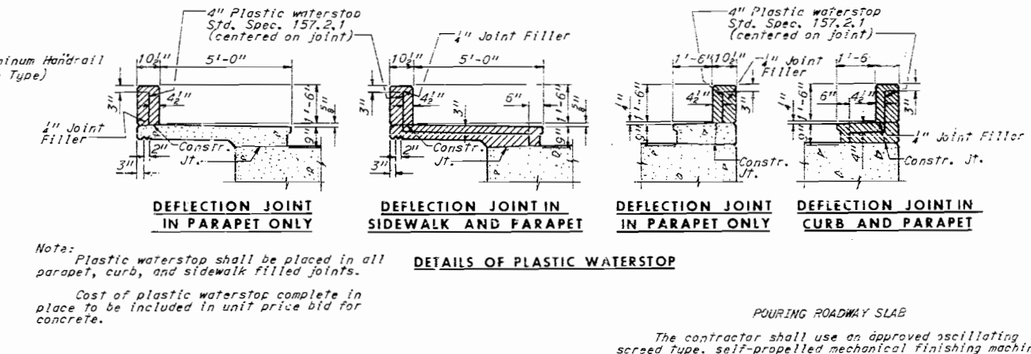
FED. DIV. NO.	STATE	FEDERAL PROJECT NO. & SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	5 MO			129	
DIST. NO.	COUNTY	ROUTE SEC.			
4	CLAY				



A DECK PLAN



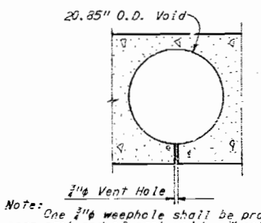
SECTION A-A



Note: Plastic waterstop shall be placed in all parapet, curb, and sidewalk filled joints.

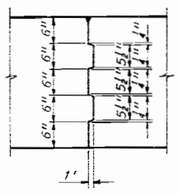
Cost of plastic waterstop complete in place to be included in unit price bid for concrete.

DETAILS OF PLASTIC WATERSTOP



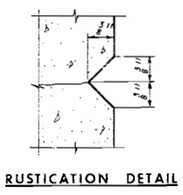
Note: One ¾"ϕ weephole shall be provided near each end of each void. Weepholes shall be placed in straight lines parallel to bents.

VOID WEEPHOLE DETAIL



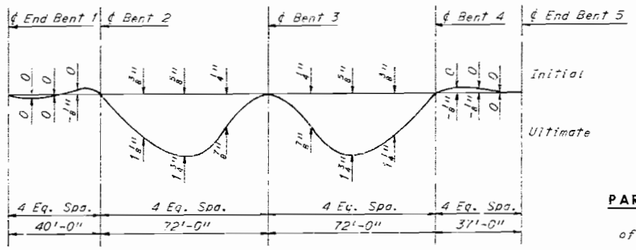
Note: Finish each side of joint with ¼" radius edging tool.

CONSTRUCTION JOINT DETAIL



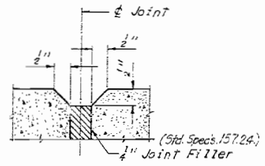
RUSTICATION DETAIL

Note: Fiber tubes for producing voids shall have an outside diameter of 20.85" and a wall thickness of 0.350" and shall be anchored to joists carrying the floor form at not more than 2'-0" centers. See Special Provisions for metal tube alternate for voids.



Note: Forms shall be constructed for ultimate deflection.

DEAD LOAD DEFLECTION DIAGRAM



DEFLECTION JOINT IN PARAPET AND IN CURB AND PARAPET

All reinforcing to stop 2" clear of deflection joints.

POURING ROADWAY SLAB

The contractor shall use an approved oscillating screed type, self-propelled mechanical finishing machine and shall pour and satisfactorily finish the roadway slab at a rate of not less than 47 cubic yards per hour. He shall observe the transverse construction joint shown on the plans unless he can demonstrate to the satisfaction of the engineer that he is equipped to pour and satisfactorily finish the roadway slab at a rate which will permit a continuous pouring through the joint. Finishing machine load will not be permitted on concrete less than 48 hours old.

No longitudinal construction joints will be permitted.

Note:
All dimensions are horizontal.
For Timber Header Detail, see Sheet 10.
For Handrail Details, see Sheet 10.
Provide 1½" clear from face of concrete to reinforcing steel in the superstructure, unless otherwise shown.

BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(69)(Rte. I-435) STA. 561+05.50
CLAY COUNTY

PLAN AND CROSS SECTION

SHEET 6 OF 10

A-1666

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
MADE JSH DATE 12-14-67 CHECKED JFP DATE 12-18-67

NOTE: This drawing is not to scale. Follow dimensions.

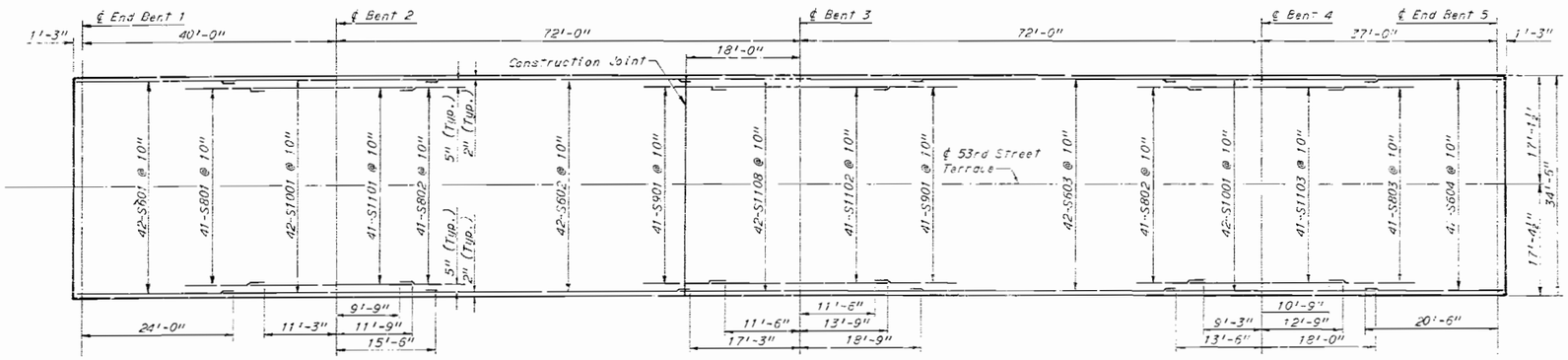
263

20M-2-70

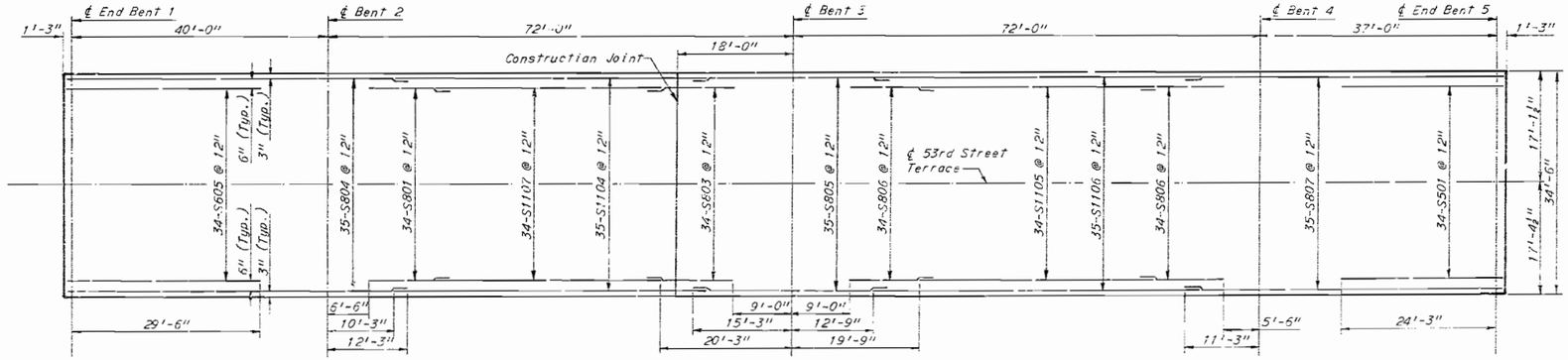
MISSOURI STATE HIGHWAY DEPARTMENT

STATE	FEDERAL PROJECT NO. & SEC	FISCAL YEAR	TOTAL NO. SHEETS
5	230		

DIST. NO.	COUNTY	ROUTE SEC
4	CLAY	



TOP OF SLAB LONGITUDINAL REINFORCEMENT



BOTTOM OF SLAB LONGITUDINAL REINFORCEMENT

Note:
For Reinforcemunt Schedule, see Sheet 3.
For Transverse Slab Reinforcement, see Sheet 8.

BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(29)(Rte.I-435) STA. 561+05.50
CLAY COUNTY

LONGITUDINAL REINFORCEMENT SHEET 7 OF 10

A-1666

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE J.E.H. DATE 12-15-67 CHECKED J.S.H. DATE 1-5-68

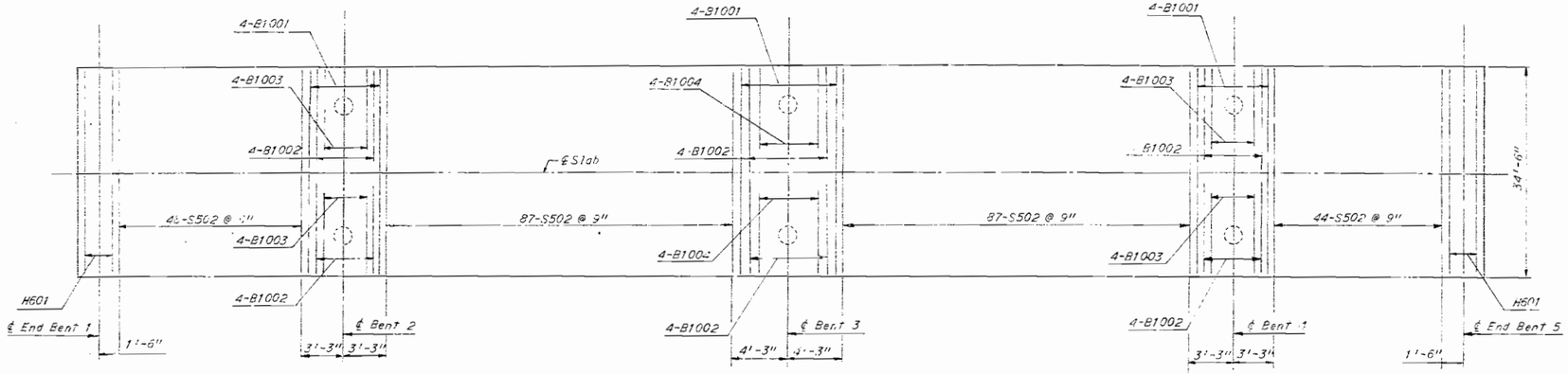
NOTE: This drawing is not to scale. Follow dimensions

364

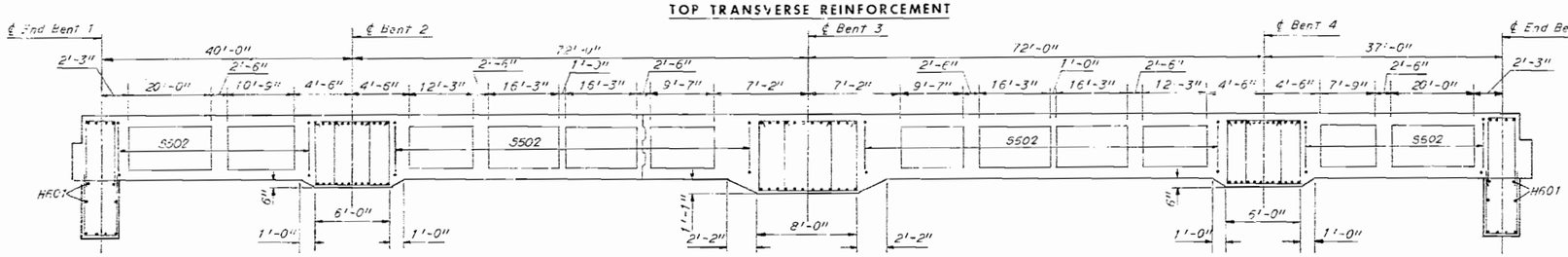
2014-21-00

MISSOURI STATE HIGHWAY DEPARTMENT

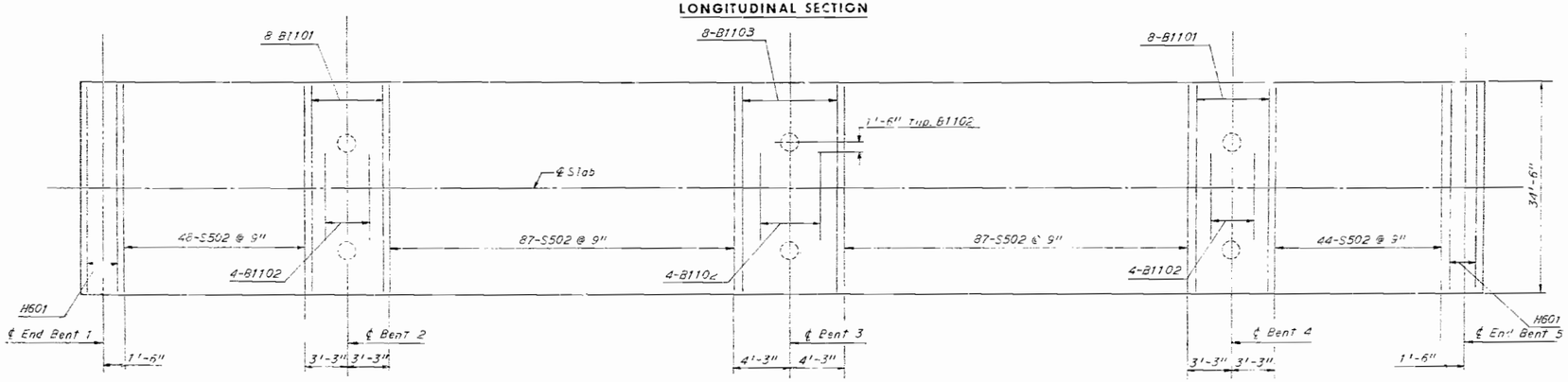
DIST NO	STATE	FEDERAL PROJECT NO. & SEC.	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO			31	
DIST NO	COUNTY			ROUTE	SEC
4	CLAY				



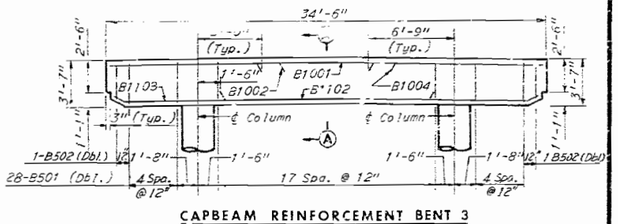
TOP TRANSVERSE REINFORCEMENT



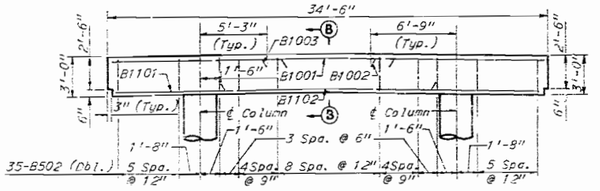
LONGITUDINAL SECTION



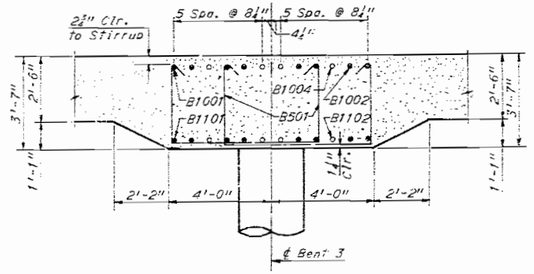
BOTTOM TRANSVERSE REINFORCEMENT



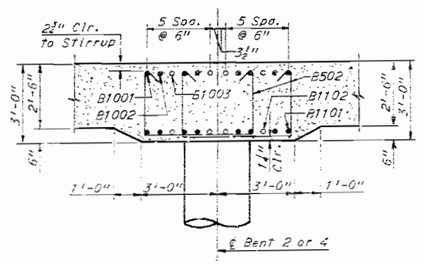
CAPBEAM REINFORCEMENT BENT 3



CAPBEAM REINFORCEMENT BENTS 2 AND 4



SECTION A-A



SECTION B-B

Note:
For Reinforcement Schedule, see Sheet 3.
For Longitudinal Reinforcement see Sheet 7.
For End Bent Reinforcement, see Sheet 4.
All dimensions are horizontal, unless otherwise noted.

BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(29)(Rte. I-435) STA. 561+05.50
CLAY COUNTY
SHEET 8 OF 10

TRANSVERSE REINFORCEMENT

A-1665

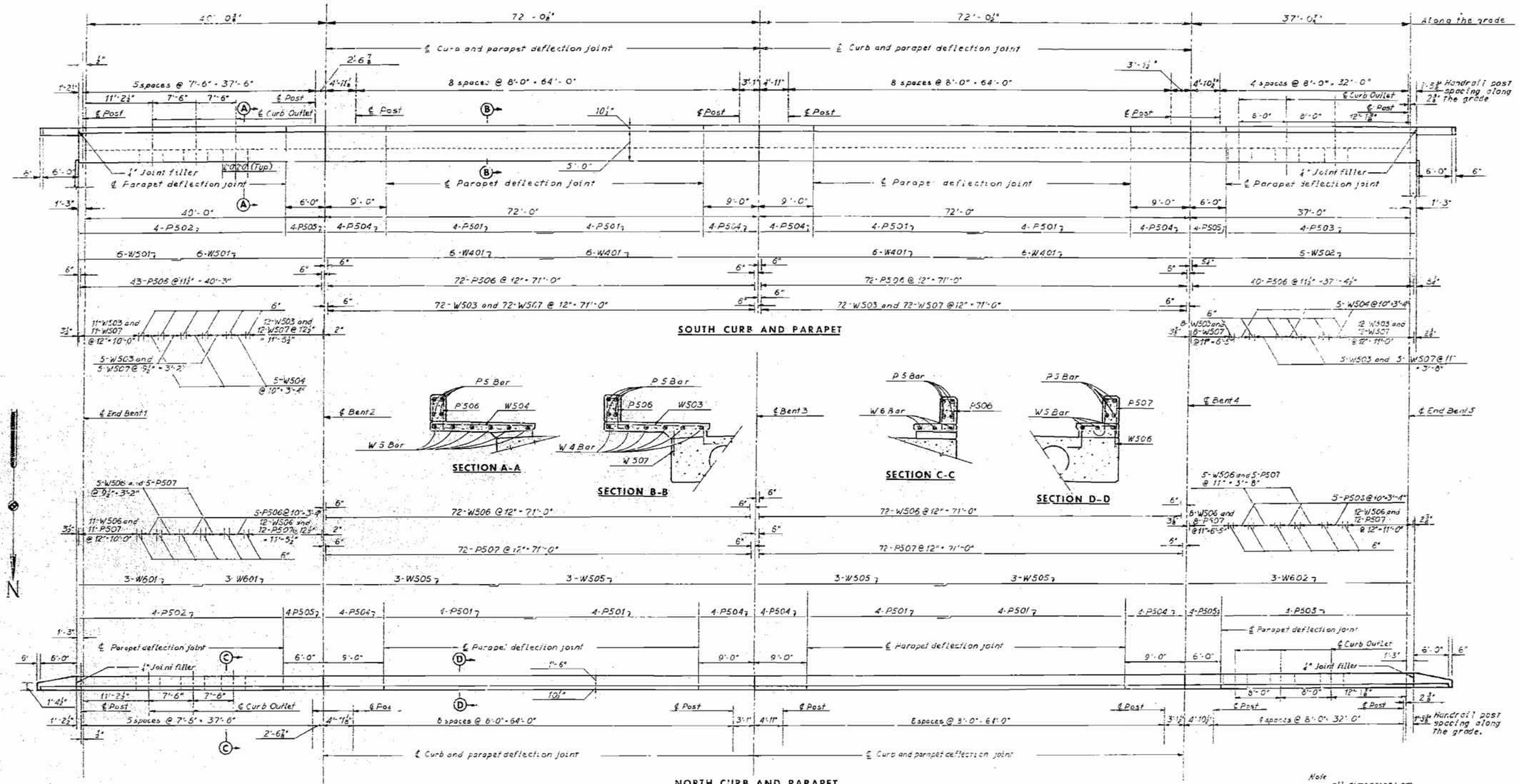
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
MADE G.S.H. DATE 12-19-67 CHECKED J.F.P. DATE 12-28-67

NOTE: This drawing is not to scale. Follow dimensions.

265

MISSOURI STATE HIGHWAY DEPARTMENT

NO. ROAD SYS.	NO.	STATE	FEDERAL PROJECT NO. & SEC	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5		MO			132	
DIST.	NO.	COUNTY			ROUTE	SEC
4		CLAY				



Note
all dimensions are horizontal except as shown.

FOR INFORMATION ONLY

BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(65)(Rte. I-435) STA. 561+05.50
CLAY COUNTY
SHEET 9 OF 10

A-1666

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
MADE CSD DATE 9-29-67 CHECKED J.E.H. DATE 1-9-68

NOTE: This drawing is not to scale. Follow dimensions.

CURB AND PARAPET REINFORCEMENT

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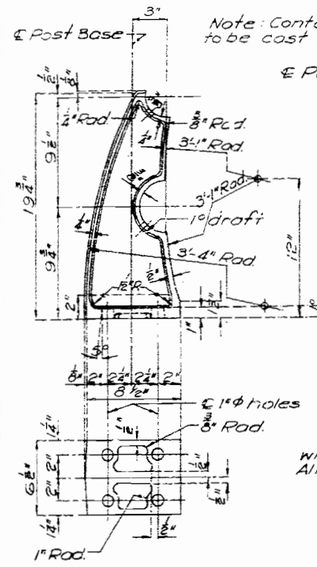
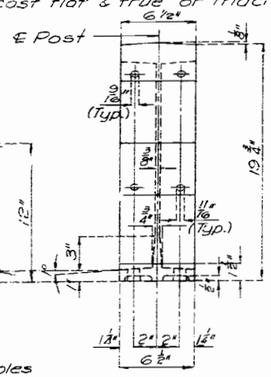
2018-21-00 A-1666

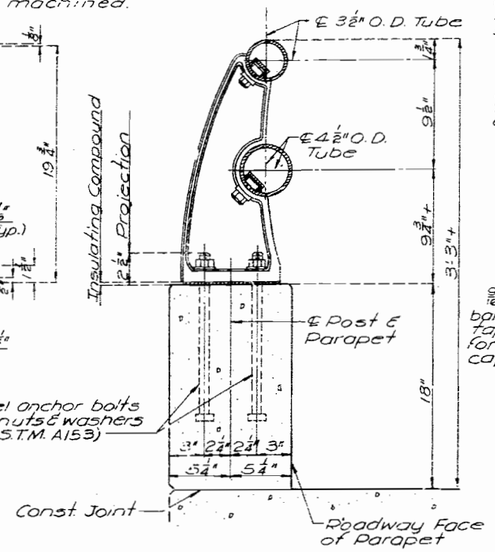
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO. & SEC	FISCAL SHEET TOTAL YEAR NO. SHEETS
	5	MO	33
DIST. NO.	COUNTY		ROUTE SEC.
	4	CLAY	

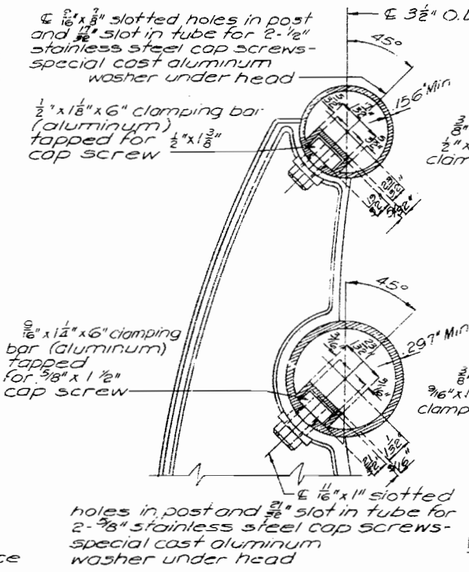




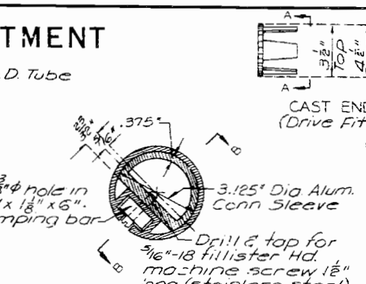
HANDRAIL POST



SECTION THRU HANDRAIL

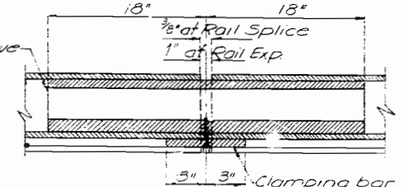


RAIL ATTACHMENT TO POST

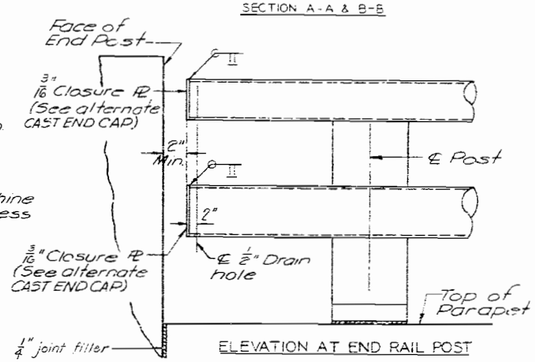


RAIL SPLICE OR EXPANSION DETAILS

CAST END CAP
(Drive Fit Type)

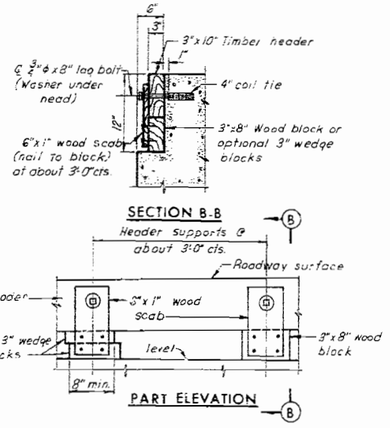


SECTION A-A & B-B



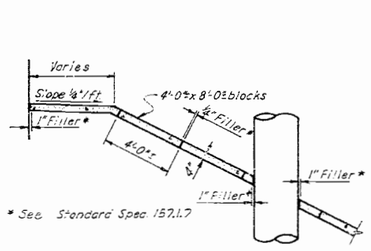
ELEVATION AT END RAIL POST

TWO TUBE ALUMINUM RAIL

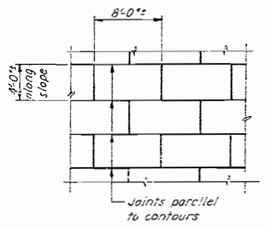


TIMBER HEADER DETAILS

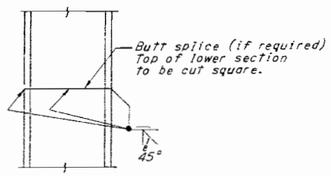
Note:
Cost of Timber Header, complete in place, to be included in price bid for concrete.



ELEVATION



PLAN



PILE SPLICE DETAIL

SLOPE PROTECTION DETAILS

GENERAL NOTES:

Top of curbs and parapets to be built parallel to grade with curb and parapet joints (except at end posts) normal to grade.
All exposed edges of end posts shall have ½" bevel. All exposed edges of curbs and parapets shall have ½" radius or ½" bevel.
All handrail posts shall be set normal to grade.
Aluminum tube handrail shall be bent to conform to vertical and horizontal alignment of parapet.
Rail to be fabricated in a minimum of 2 panel lengths.
All rail splices shall be located near the ¼ point between rail posts.
All outside corners of aluminum posts to have ¼" radius except as noted.
All drafts 3° except as noted.
If the Contractor desires, he may use drive fit cast aluminum end caps in lieu of welded aluminum closure plates.
See Special Provisions.
Concrete end posts to be vertical.
All fillets ½" except as noted.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

DRAWN J.E.H. DATE 12-16-67 CHECKED J.F.P. DATE 12-19-67

NOTE: This drawing is not to scale. Follow dimensions.

BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(65)(Rte. I-435) STA. 561+05.50
CLAY COUNTY

HANDRAIL DETAILS

SHEET 10 OF 10

A-1566

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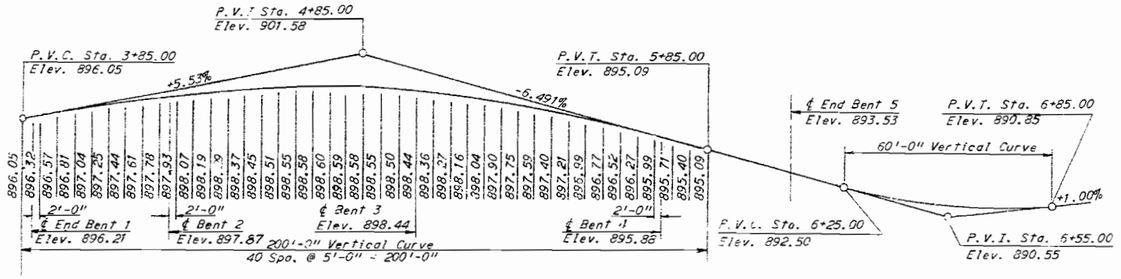
2014-21-20

MISSOURI STATE HIGHWAY DEPARTMENT

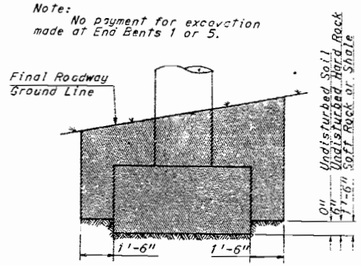
FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO. & SEC	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	I-435-1(60)9		124	
DIST. NO.		COUNTY		ROUTE SEC.	
4		CLAY			

FINAL PLANS



PROFILE GRADE 53rd. STREET TERRACE

Note:
No payment for excavation made at End Bents 1 or 5.



LIMITS OF EXCAVATION

GENERAL NOTES

Design Specifications: AASHO 1965.

Design Loading: H20-44 with 15#/sq. ft. future wearing surface. Earth 120#/cu.ft. Equivalent fluid pressure 30#/cu. ft.

Construction Specifications: Missouri Standard Specifications for State Roads, Materials, Bridges, Culverts and Incidental Structures - 1961.

Design Unit Stresses:

Class B Concrete (substructure)	fc = 1,200 psi.
Class B1 Concrete (superstructure)	fc = 1,600 psi.
Reinforcing Steel	fs = 20,000 psi.
Steel pile (A.S.T.M A36-66).	fb = 9,000 psi.

Reinforcing Steel: All splices in reinforcing bars were 24 bar diameters. Bar sizes are designated on the plan by numbers. The first digit after the letter in three digit marks and the first two digits after the letter in four digit marks indicate the size of the bar.

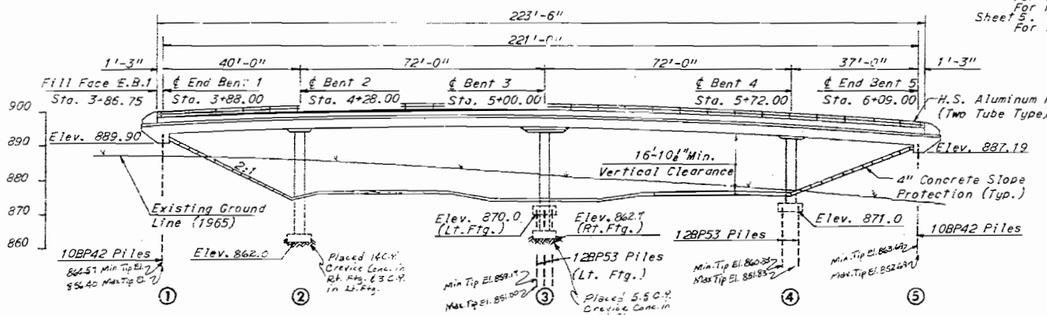
Dimensions shown on the plans from the reinforcing steel to the outside edge of concrete are clear dimensions.

All reinforcing bar bending dimensions are "out to out".

Sealing of Deck: Superstructure deck was surface sealed.

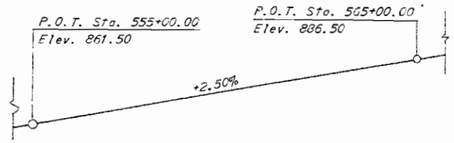
Utilities: All utilities, unless shown otherwise, were removed or relocated by others. The Contractor did notify the owner of the utilities of his work schedule sufficiently in advance to allow time for the disposition of utilities.

40'-0", 72'-0", 72'-0", 37'-0" CONTINUOUS CONCRETE VOIDED SLAB SPANS



ELEVATION

Note:
All dimensions are horizontal. For location of borings, see Sheet 2. For number and lengths of piles, see Sheet 5. For table of pile loads, see Sheet 5.

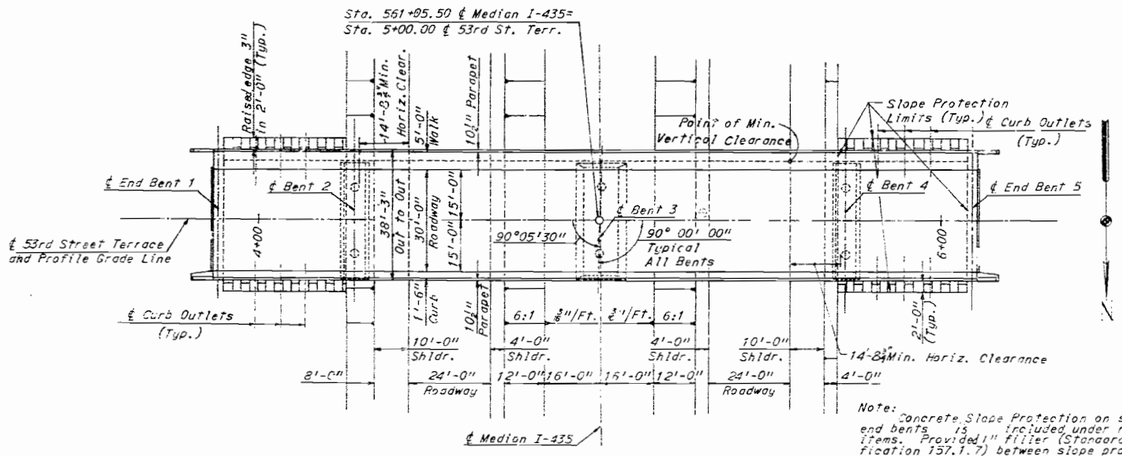


PROFILE GRADE I-435
(At Inside Edge of Future Pavement)
(20' Lt. and Rt. of ℄ Median I-435.)

Note:
Compacted roadway fill (full roadway width) was placed up to elevation of bottom of concrete beam in front of and not less than 25'-0" back of End Bents before steel piles were driven.

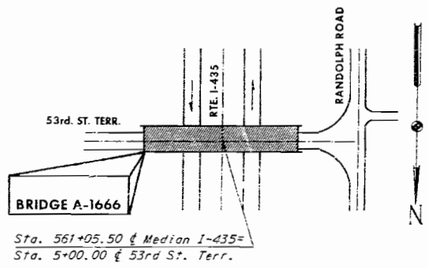
BENCH MARKS

B.M. Elev. 896.34, "T" on Wing Lt. Bt.1



PLAN

Note:
Concrete Slope Protection on slopes at end bents is included under roadway items. Provided 1" filler (Standard Specification 157.1.7) between slope protection concrete and end bents or intermediate bents. See Standard Specification 63.50. For details see Sheet 10 and Roadway Plans.



LOCATION SKETCH

QUANTITIES

ITEM	UNIT	SUBSTR.	SUPRSTR.	TOTAL
Class 1 Excavation for Structures	Cu.Yd.	148.5	-	148.5
Steel Piles in Place (10BP42)	Lin.Ft.	311	-	311
Steel Piles in Place (12BP53)	Lin.Ft.	200	-	200
Class B Concrete	Cu.Yd.	22.2	-	22.2
Class B1 Concrete	Cu.Yd.	-	676.1	676.1
Reinforcing Steel	Lbs.	3290	159230	162520
H.S. Bridge Rail (Two Tube Type)	Lin.Ft.	-	447	447
Handling Charge (12BP53)	Lin.Ft.	21	-	21
Crevice Concrete	Cu.Yd.	22.5	-	22.5
Class 1 Excav. +25% (Below Plan Elev.)	Cu.Yd.	22.5	-	22.5
Test Holes	Lin.Ft.	62	-	62

Quantity Notes:
All Excavation for Bridge was paid for as Class 1 Excavation for Structures. Sketch shows excavation for pay purposes.
All Concrete except interior bent footings is included in Class B1 Concrete.
All reinforcing except that in interior bent footings is included in superstructure reinforcing.

SUBMITTED BY: R. E. Bergendoff

REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-253

BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(23)(Rte. I-435) STA. 561+05.50
CLAY COUNTY

SUBMITTED BY _____ BRIDGE ENGINEER DATE _____
APPROVED BY _____ CHIEF ENGINEER DATE _____

STD. 54.00
A-1665

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE GCC DATE 10-21-67 CHECKED JSH DATE 1-2-68

NOTE: This drawing is not to scale. Follow dimensions.

GENERAL PLAN AND ELEVATION

SHEET 1A of 4

FINAL PLANS

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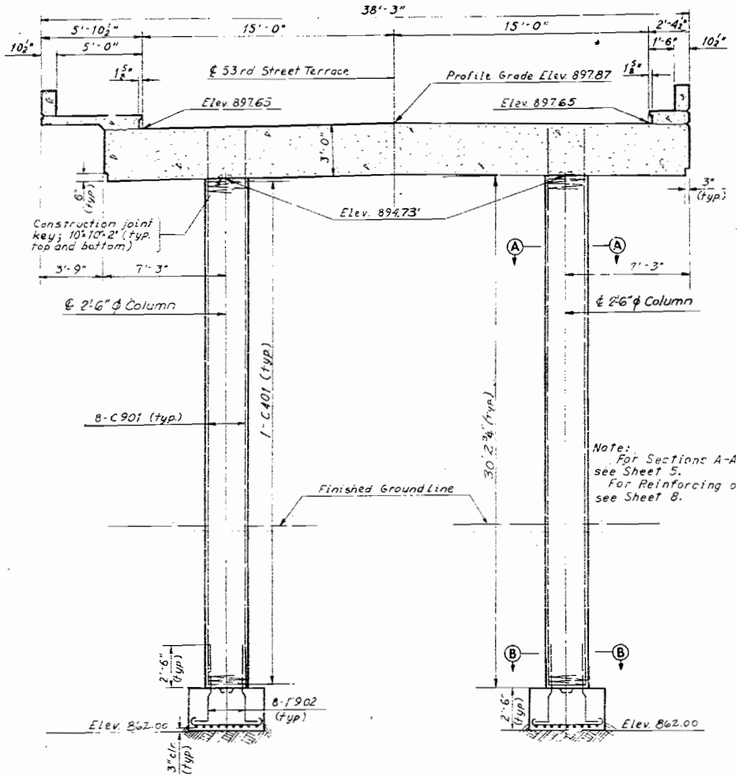
204-21.00

MISSOURI STATE HIGHWAY DEPARTMENT

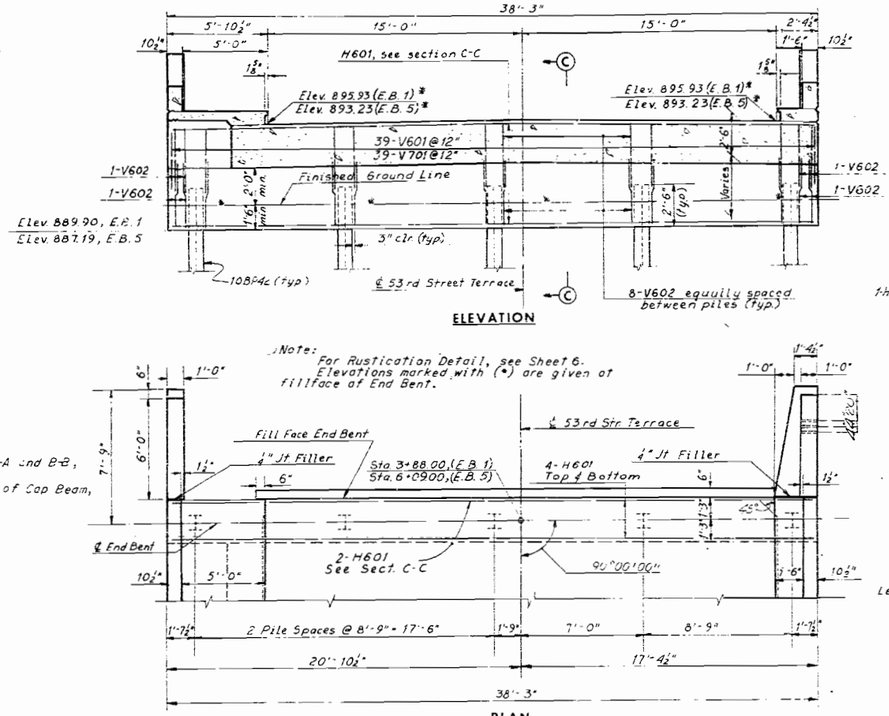
FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.	F.A.P. NO.	DISCONT. YEAR	SHEET NO.	TOTAL SHEETS
5	MO	I-435-1(69)9			127	
DIST. NO.	COUNTY				ROUTE NO.	
4	CLAY				I-435	

FINAL PLANS



ELEVATION

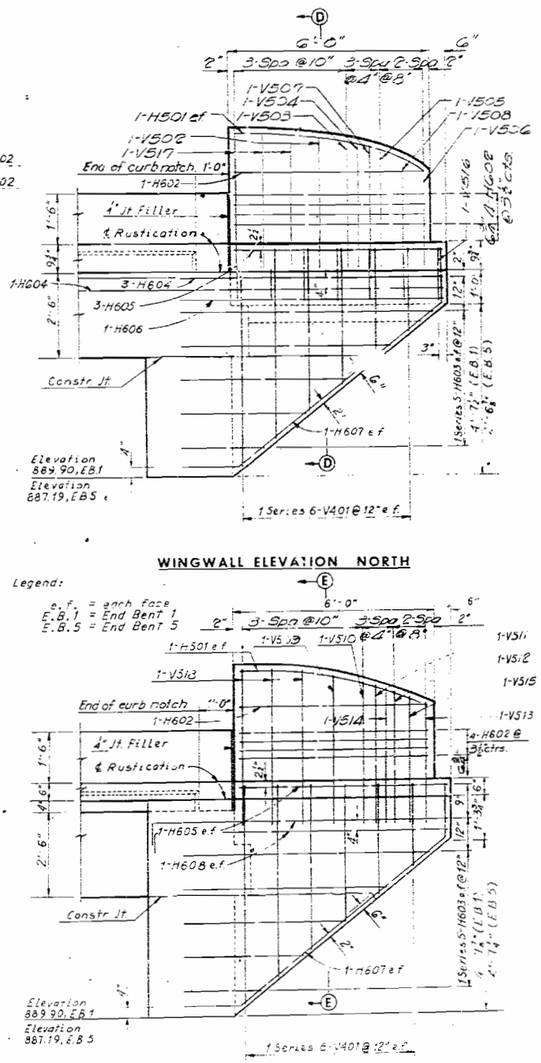
Note:
For Sections A-A and B-B, see Sheet 5.
For Reinforcing of Cap Beam, see Sheet 8.



ELEVATION

Note:
For Rustication Detail, see Sheet 6.
Elevations marked with (*) are given at fillface of End Bent.

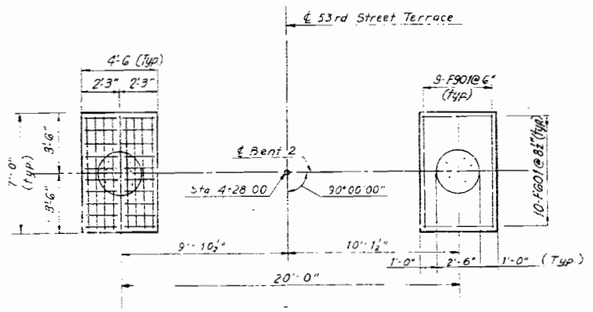
PLAN



WINGWALL ELEVATION NORTH

Legend:
e.f. = each face
E.B.1 = End Bent 1
E.B.5 = End Bent 5

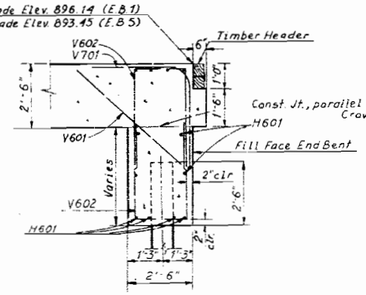
WINGWALL ELEVATION SOUTH



FOOTING PLAN

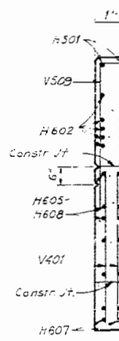
BENT 2

Profile Grade Elev. 896.14 (E.B.1)
Profile Grade Elev. 893.45 (E.B.5)

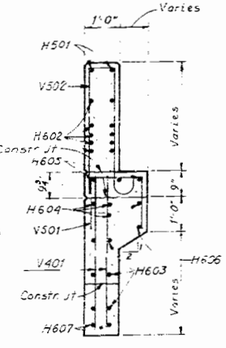


SECTION C-C

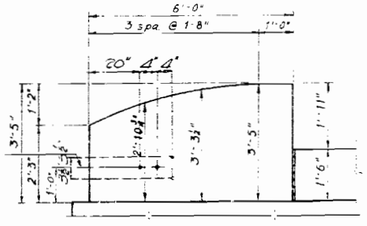
Note:
All End Bent piles are 10BP42 piles.
Concrete End Posts are vertical.
For Timber Header Detail, see Sheet 10.
Dimensions to surfaces receiving joint filler are to face of concrete.
For Reinforcing Schedule, see Sheet 3.
Provided 1½" clear from face of concrete to reinforcing steel in the superstructure, unless otherwise shown.



SECTION E-E



SECTION D-D



CONCRETE END POST ORDINATES

BENT 2 AND END BENTS 1 AND 5

BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(69)(Rte. I-435) STA. 561+05.50
CLAY COUNTY
SHEET 4A of 4

A-1666

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
MADE CEB DATE 12-30-67 CHECKED JFD DATE 1-3-68

NOTE: This drawing is not to scale. Follow dimensions.

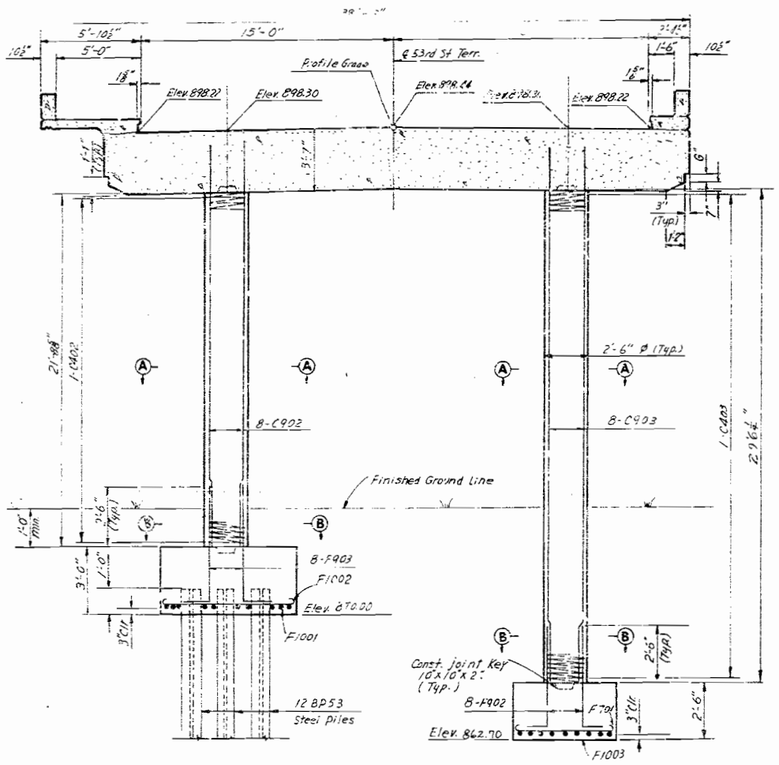
259

2014-21-00

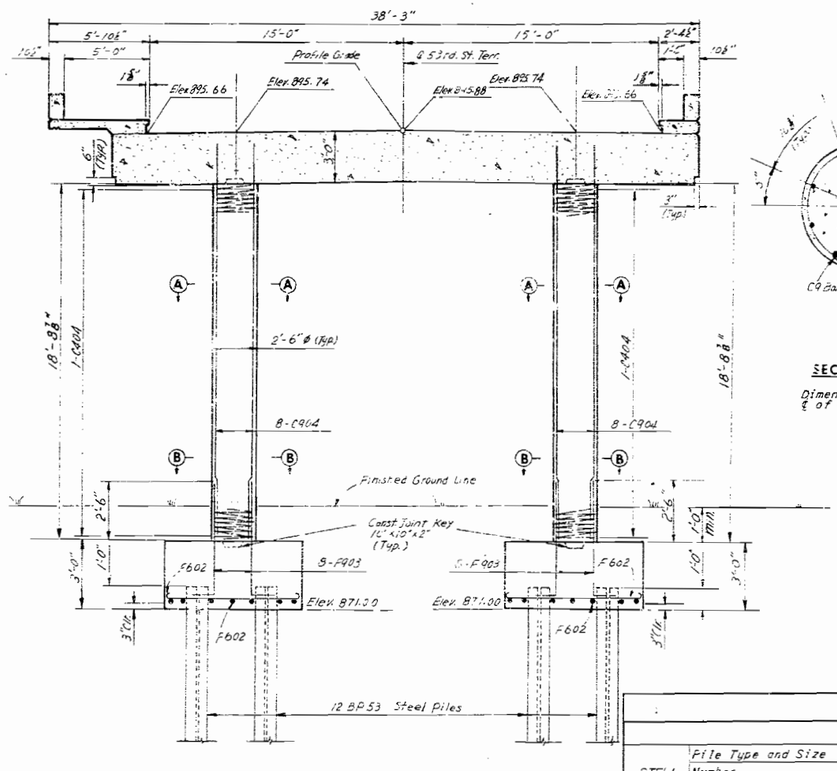
MISSOURI STATE HIGHWAY DEPARTMENT

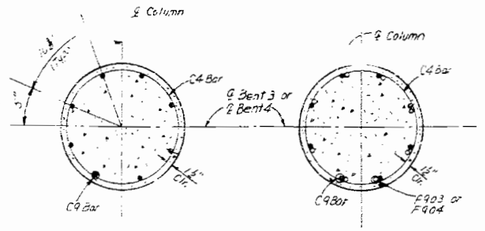
Fed. Aid Proj. No.	STATE	FEDERAL PROJ. NO. & SEC.	Sheet No.	No. of Sheets
5	MO.	I-435-1(6S)9		128
DIST. NO.	COUNTY			
4	CLAY			

FINAL PLANS



ELEVATION





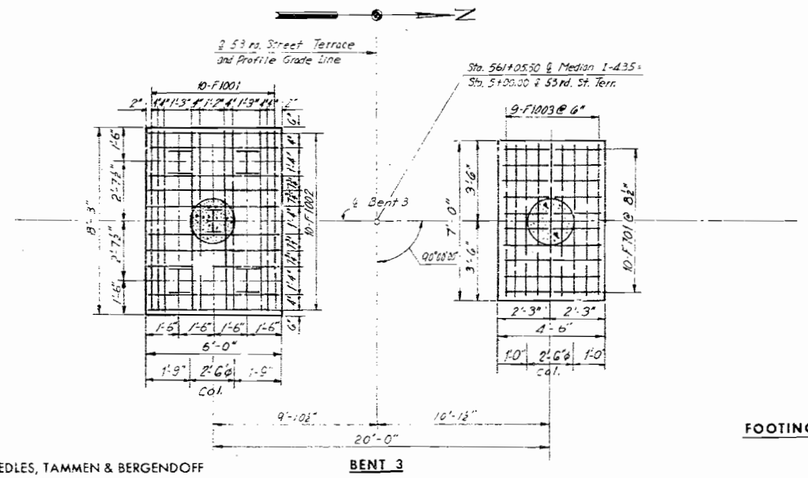
SECTION A-A **SECTION B-B**

Dimensions shown are along ℄ of Cc Bar

Note:
For dimensions not shown, see Section A-A, sheet 6.
For reinforcement schedule, see Sheet 3.
For capbeam reinforcing, see Sheet 7.

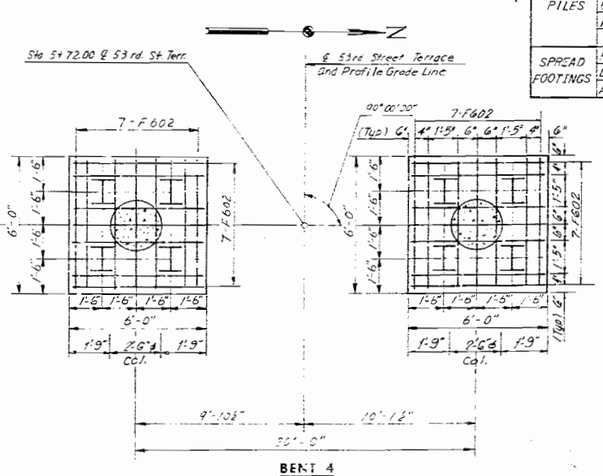
FOOTING DATA							
	BENT	1	2	3S	3N	4	5
STEEL BEARING PILES	Pile Type and Size	10BP42		12BP53		12BP53	10BP42
	Number	5		5		8	5
	Approximate Length (ft.)	32		16		15	25
	Design Bearing Value (tons)	41.1		59.0		52.5	41.1
	Hammer Energy Required (ft. lbs.)	9,200		13,300		14,100	9,200
SPREAD FOOTINGS	Foundinn Material		Limestone		Limestone		
	Design Bearing (tons sq. ft.)		10		10		
	Actual Bearing (tons sq. ft.)		8.9		9.8		

Note:
---Minimum Energy Requirement of hammer based on plan length and design bearing value of piles. Increased by the factor (W+w)/2w when the weight of the ram (W) was less than the weight of the pile (w). All pile were driven to practical refusal.



BENT 3

FOOTING PLAN



BENT 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE G.S.H. DATE 12-15-67 CHECKED JFP DATE 12-28-67

NOTE. This drawing is not to scale. Follow dimensions.

BENTS 3 AND 4

BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(6S)(Rte. I-435) STA. 561+05.50
CLAY COUNTY
SHEET 5A of 4

A-1666

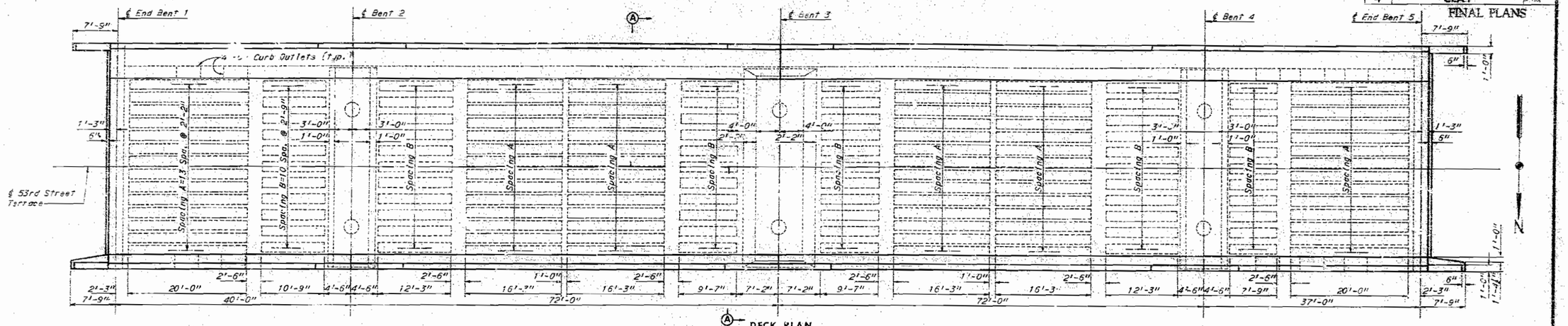
FINAL PLANS

2014 21-00

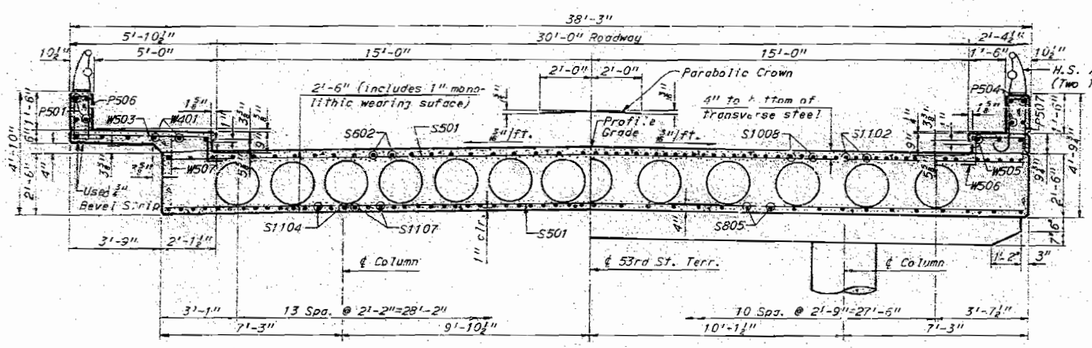
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FEDERAL PROJECT NO. & SEC.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	I-435-1(66)9		271	
DIST. NO.		COUNTY		PROJECT NO.	
4		CLAY		54X	

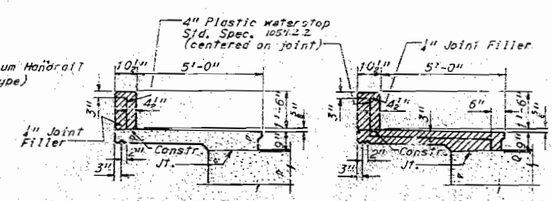
FINAL PLANS



A DECK PLAN

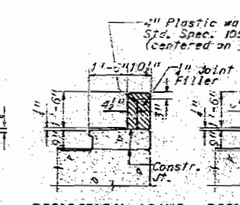


SECTION A-A

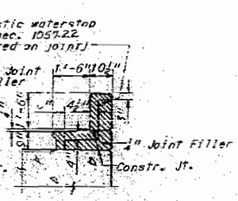


DEFLECTION JOINT IN PARAPET ONLY

DEFLECTION JOINT IN SIDEWALK AND PARAPET



DEFLECTION JOINT IN PARAPET ONLY

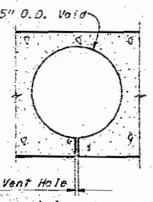


DEFLECTION JOINT IN CURB AND PARAPET

Note: Plastic waterstop W25 placed in all parapet, curb, and sidewalk filled joints.

Cost of plastic waterstop complete in place was included in unit price bid for concrete.

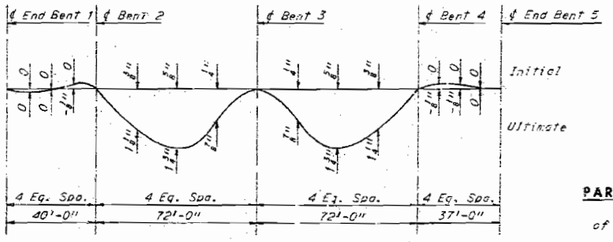
DETAILS OF PLASTIC WATERSTOP



Note: One ¾" ø weephole was provided near each end of each void. Weepholes were placed in straight lines parallel to bents.

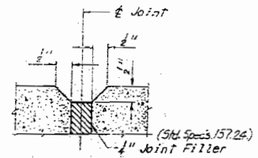
VOID WEEPHOLE DETAIL

RUSTICATION DETAIL



Note: Forms were constructed for ultimate deflection.

DEAD LOAD DEFLECTION DIAGRAM



DEFLECTION JOINT IN PARAPET AND IN CURB AND PARAPET

All reinforcing placed 2" clear of deflection joints.

POURING ROADWAY SLAB

The contractor used an approved oscillating screed type, self propelled mechanical finish machine, he poured and satisfactorily finished the entire roadway slab at a rate of 80 cubic yards per hour.

Finishing machine load was not permitted on concrete less than 48 hours old. There are no transverse or longitudinal joints in the roadway slab.

FOR INFORMATION ONLY

Note: All dimensions are horizontal. For Timber Header Detail, see Sheet 19. For Handrail Details, see Sheet 10. Provided 1½" clear from face of concrete to reinforcing steel in the superstructure, unless otherwise shown.

Note: Fiber tubes for producing voids have an outside diameter of 20.85" and a wall thickness of 0.350" and were anchored to joists carrying the floor form at not more than 2'-0" centers.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK

MADE JEH DATE 12-14-67 CHECKED JAP DATE 12-18-67

NOTE: This drawing is not to scale. Follow dimensions.

PLAN AND CROSS SECTION

BRIDGE: 53rd ST. TERRACE UNDERPASS
STATE ROAD - INTERSTATE ROUTE 435
IN KANSAS CITY NORTH
PROJECT NO. I-435-1(66)(Rte. I-435) STA. 561+05.50
CLAY COUNTY
SHEET 6 OF 4

A-1666

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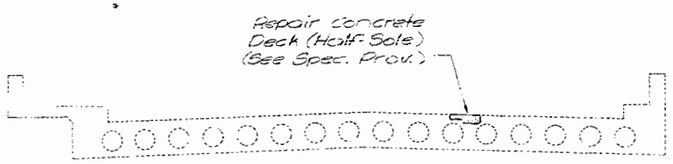
FINAL PLANS

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.	IR-435-1(215)	38
SEC./SUR. 34	TWP. 51N	RGE. 32W



SECTION THRU SLAB

ESTIMATED QUANTITIES		
ITEM		TOTAL
Repair Concrete Deck (Half-Soling)	Sq. Ft.	601
Slab Edge Repair	Lin. Ft.	100

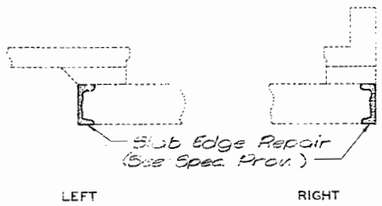
Note: Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

Sequence for repair; Zone A, Zone B then Zone C.

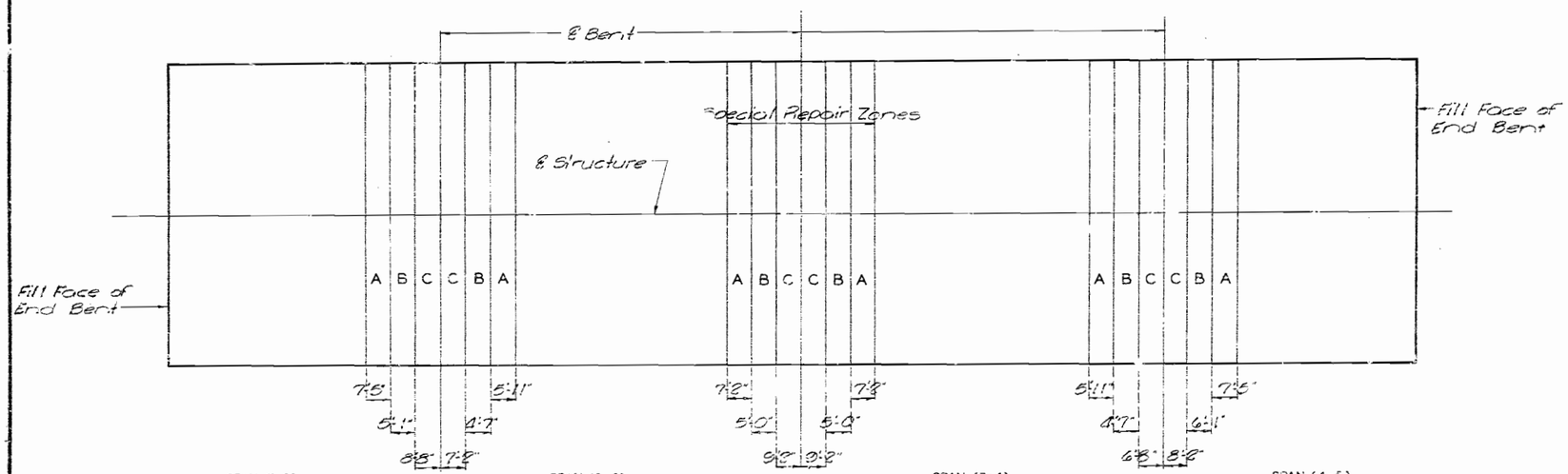
Any repair in the remainder of the bridge that is within 3'-0" of Zone A shall be completed before removing old concrete in Zones A.

Zones with the same letter designation may be repaired at the same time.

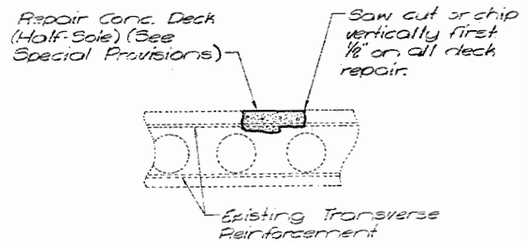
One lane of traffic is to be maintained over structure during construction. (See Road Plans)



SECTION THRU CURB NEAR OUTLET



PLAN OF SLAB SHOWING SPECIAL REPAIR ZONES



HALF-SOLED AREA

REPAIRS TO

BRIDGE: 53RD ST. OVER ROUTE I-435

STATE ROAD FROM MISSOURI RIVER TO ROUTE I-35 SOUTH OF ROUTE I-35 INTERCHANGE

PROJECT NO. IR-435-1(215) STA. 561+05.50 I-435

JOB NO. 4-I435-702 RTE. I-435

CLAY COUNTY

DATE 10/25/85

STD.
STD.
A-1666R

DESIGNED Sept 1985
DETAILED Sept 1985
CHECKED Sept 1985

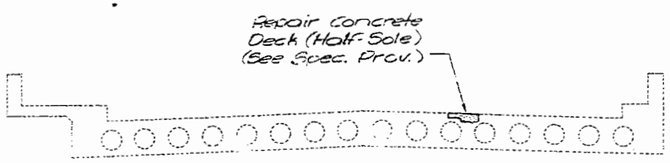
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 1

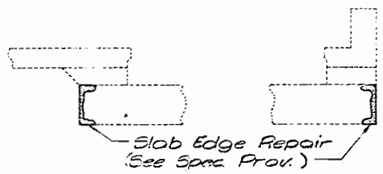
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.	IR-435-1(215)	38
SEC./SUR. 34	TWP. 51N	RGE. 32W

FINAL PLANS



SECTION THRU SLAB



SECTION THRU CURB NEAR OUTLET

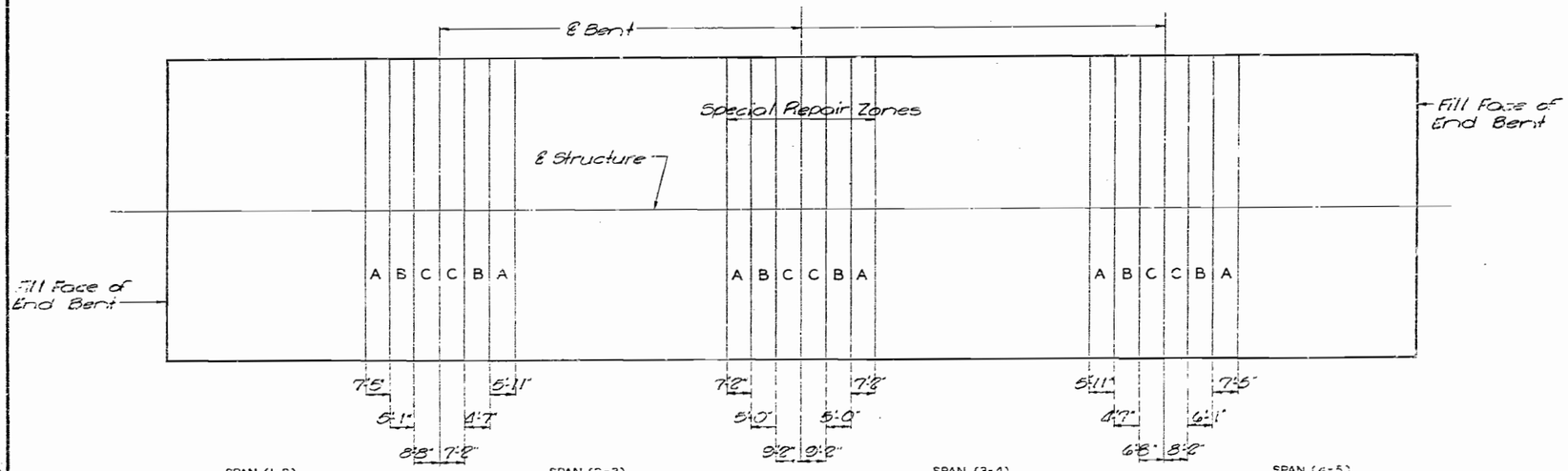
ESTIMATED QUANTITIES		
ITEM		TOTAL
Repair Concrete Deck (Half-Soling)	Sq. Ft.	112
Slab Edge Repair	Lin. Ft.	121

Note: Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

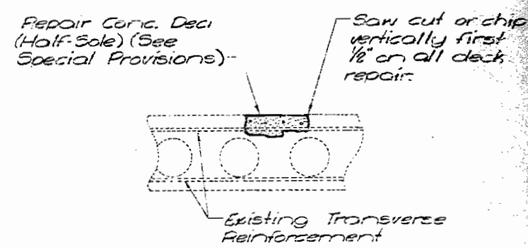
Sequence for repair; Zone A, Zone B then Zone C. Any repair in the remainder of the bridge that is within 3'0" of Zone A shall be completed before removing old concrete in Zones A.

Zones with the same letter designation may be repaired at the same time.

One lane of traffic is to be maintained over structure during construction. (See Road Plans)



PLAN OF SLAB SHOWING SPECIAL REPAIR ZONES



HALF-SOLED AREA

REPAIRS TO

BRIDGE: 53RD ST. OVER ROUTE I-435

STATE ROAD FROM MISSOURI RIVER TO ROUTE I-35

SOUTH OF ROUTE I-35 INTERCHANGE

PROJECT NO. IR-435-1(215) STA. 561+05.50 I-435

JOB NO. 4-I-J35-702 RTE. I-435

CLAY COUNTY

DATE 10/25/85

DESIGNED Sept 1985
DETAILED Sept 1985
CHECKED Sept 1985

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1A

STD.
STD.
IA-1666R

435