CITY OF KANSAS CITY, MISSOURI
CITY WIDE BRIDGE MAINTENANCE REPAIRS
2018-2019 (ADDENDUM #1)
KCMO PROJECT NO. 89005588

INDEX OF SHEETS

NO SCALE

APPROVED BY:

CHAD THOMPSON, ASST. CITY ENGINEER — DATE 4/16/19

CITY ENGINEER — DATE 4/16/19

SHERRI MCINTYRE, DIRECTOR OF PUBLIC WORKS — DATE Apr.16, 2019

DATE

CERTIFICATION

"I HEREBY CERTIFY THAT THIS PROJECT HAS BEEN DESIGNED, AND THESE PLANS PREPARED, TO MEET OR EXCEED THE DESIGN CRITERIA OF KANSAS CITY, MISSOURI, IN CURRENT USAGE EXCEPT AS INDICATED BELOW.

EXCEPTIONS:

1.
2.
3.
4.
5.
6.

CHRISTOPHER HARKER, P.E.

DATE 4/15/19

STATE OF MISSOURI — CHRISTOPHER B. HARKER — NUMBER PE-2007032739 — PROFESSIONAL ENGINEER

DATE 4/15/19

DATE PREPARED 4/15/19

ROUTE --- STATE MO

DISTRICT BR SHEET NO. 1

COUNTY JACKSON

JOB NO.

CONTRACT ID.

PROJECT NO. 89005588

BRIDGE NO.

DESCRIPTION | DATE | REV.

KCMO Public Works
5300 Municipal Avenue
Kansas City, MO 64120

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

Detailed APR 2019
Checked APR 2019

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

Y:\Banner\130600S\00130513.00_KCMO_Minor_Bridge\Eng_Docs\Construction\Bridge Details\KCMO 2019 Bridge Repair Details\Future Addendum Sheets\01_Addendum Cover Sheet.dgn 4:16:05 PM 4/15/2019

ALTERNATE BID ESTIMATED QUANTITIES

ITEM	UNITS	BRIDGE #15 S026822	BRIDGE #16 S026823	BRIDGE #17 S082831	BRIDGE #18 S111841	BRIDGE #19 N228831	TOTAL
Deck Sealing	S.Y.	1280	600	780	220	480	3360
Preformed Compression Seal (Gland Replacement)	L.F.	--	100	80	--	--	180
Strip Seal (Gland Replacement)	L.F.	90	--	--	--	--	90
Asphalt Removal and Replacement	S.Y.	--	--	10	--	--	10

Notes:

For details of Deck Sealing, see Sheet No. 4 of Base Bid plan set dated 3/11/19.

For details of Preformed Compression Seal (Gland Replacement), see Sheet No. 9 of Base Bid plan set dated 3/11/19.

For details of Strip Seal (Gland Replacement), see Sheet Nos. 12 of Base Bid plan set dated 3/11/19.

For details of Asphalt Removal and Replacement, see Sheet No. 4 of Base Bid plan set dated 3/11/19.

GENERAL NOTES

Construction Specifications:
2018 Missouri Standard Specifications for Highway Construction with Contract Technical Specifications (If included in the Project Manual).
Standard Specifications and Design Criteria, City of Kansas City, Missouri.

Traffic Control:
Traffic control plans shall be the responsibility of the Contractor and shall conform to MUTCD. Traffic control plans shall be submitted to the Engineer for review and approval prior to construction. Traffic control shall be completely covered by the contract lump sum "Traffic Control".

Asphalt Removal and Replacement:
Asphalt repairs shall be performed per Contract Technical Specifications, Section 03611.

Deck Sealing:
All work pertaining to deck sealing shall be performed per Contract Technical Specifications, Section 03731.

GENERAL NOTES & ESTIMATED SUMMARY OF QUANTITIES (ADDENDUM #1)

Detailed APR 2019
Checked APR 2019

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

STATE OF MISSOURI
CHRISTOPHER B. HARDEE
NUMBER PE-2007032759
PROFESSIONAL ENGINEER

DATE 4/15/19
DATE PREPARED 4/15/19
ROUTE --- STATE MO
DISTRICT BR SHEET NO. 2
COUNTY JACKSON
JOB NO.
CONTRACT ID.
PROJECT NO. 89005588
BRIDGE NO.

DESCRIPTION | DATE | REV.

KCMO Public Works
5300 Manchester Avenue
Kansas City, MO 64120

benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

Bridge #15	S026B22
Facility Carried	Chestnut Trafficway
Location	N Terrace Park
Feature(s) Indicated	Railroad Tracks

Bridge #16	S026B23
Facility Carried	Chestnut/Guinotte
Location	N Terrace Park
Feature(s) Indicated	N/A

Bridge #17	S082B31
Facility Carried	Elmwood Avenue
Location	0.15 N of Blue Parkway
Feature(s) Indicated	Brush Creek

Bridge #18	S111B41
Facility Carried	Little Blue Road
Location	100' W of Norfleet Rd
Feature(s) Indicated	Small Creek

Bridge #19	N228B31
Facility Carried	Canberra St.
Location	N of Panama City Ave
Feature(s) Indicated	Todd Creek

BRIDGE LOCATIONS (ADDENDUM #1)

Detailed APR 2019
Checked APR 2019

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

STATE OF MISSOURI
CHRISTOPHER B. HAWKINS
NUMBER PE-2007031759
PROFESSIONAL ENGINEER

DATE 4/15/19
DATE PREPARED 4/15/19
ROUTE —
STATE MO
DISTRICT BR
SHEET NO. 3
COUNTY JACKSON
JOB NO.
CONTRACT ID.
PROJECT NO. 89005588
BRIDGE NO.

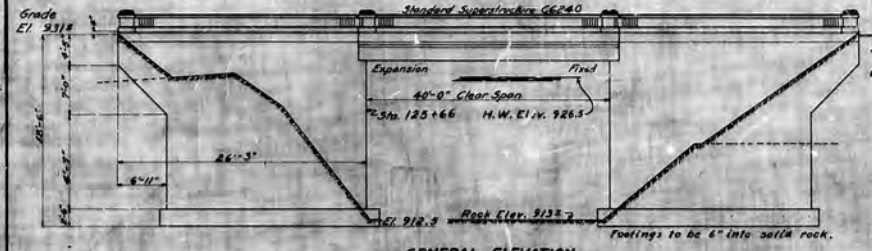
DESCRIPTION
DATE

KCMO Public Works
5300 Municipal Avenue
Kansas City, MO 64120

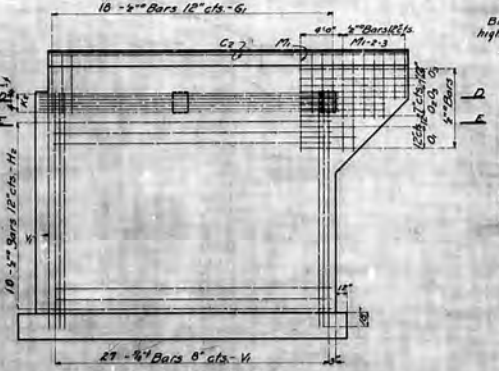
benesch
14 W. 3rd Street, SUITE 220
KANSAS CITY, MO 64105
816/221-4222, FAX 913/441-1468
CERTIFICATE OF AUTHORITY NUMBER F00970024

R.V.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	RI-339	19		



GENERAL ELEVATION



ELEVATION OF WING

SECTION A-A

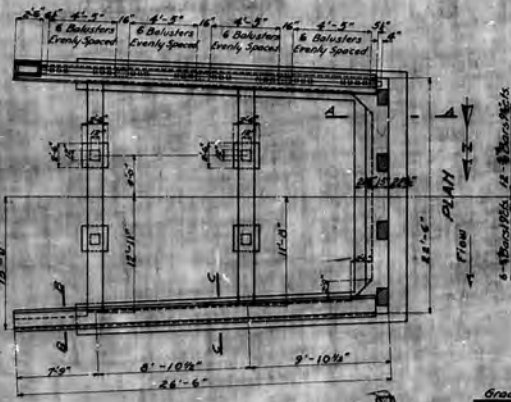
BILL OF REINFORCING STEEL
ABUTMENTS ONLY

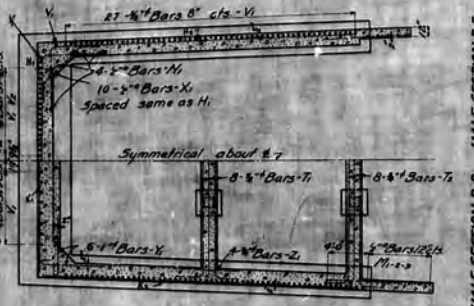
No.	Size	Length	Mark	Bending Sketches
8	⅝"	24'-9"	G_2	
72	½"	6'-6"	G_1	
20	⅝"	30'-3"	H_2	
40	⅝"	23'-1"	H_3	
12	1"	22'-3"	K_1	
16	¾"	19'-2"	K_2	
12	⅝"	9'-2"	M_1	
12	½"	6'-6"	M_2	
8	⅝"	4'-6"	M_3	
16	⅝"	13'-3"	N_1	
12	⅝"	5'-6"	O_1	
12	⅝"	8'-6"	O_2	
20	⅝"	10'-3"	Q_2	
16	¾"	8'-0"	R_1	
16	¾"	4'-6"	R_2	
4	¾"	2'-0"	R	
16	⅝"	24'-9"	R_3	
32	⅝"	8'-7"	R_4	
48	⅝"	1'-0"	R_5	
16	⅝"	4'-0"	R_6	
304	¼"	1'-6"	R_7	
16	⅝"	29'-1"	T_1	
16	⅝"	31'-7"	T_2	
142	¾"	13'-3"	V_1	
24	¾"	13'-10"	V_2	
40	⅝"	7'-0"	X_1	
40	1"	5'-9"	Y_1	
16	¾"	1'-6"	Z_1	

BARS V_2
BARS X.
BARS Y.
BARS H, T, & H_2

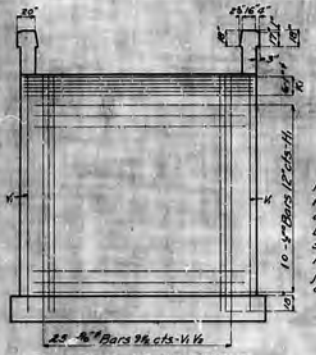
Note:- Bars R_8 R_7 R_6 R_5 & R_4 in railing on abutments correspond to Bars R, R_8 R_7 R_6 & R_5 in railing on superstructure.

Note:- Dimensions of End Post and cross section of railing on wings to be the same as shown on superstructure.



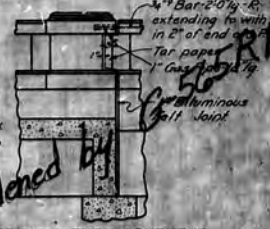


HALF SECTION D-D HALF SECTION E-E

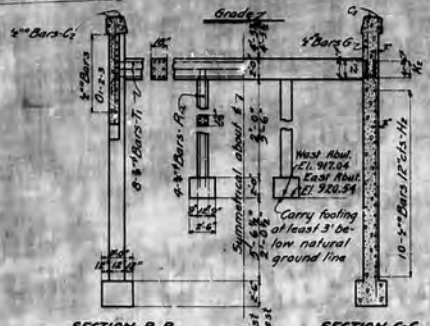


ELEVATION OF ABUTMENT

Note:- Partition joint at fixed end of bridge to be of similar construction as expansion joint with felt omitted.



SECTION THRU ABUTMENT
SHOWING RAIL EXPANSION JOINT



SECTION B-B SECTION C-C

GENERAL NOTES
Concrete in abutments above footings to be 1:2:4 mix.
Concrete in footings to be 1:3:5 mix.
Concrete in railings to be 1:2:3 mix.
Bevel exposed edges ¾" where no other bevel is shown.

ESTIMATED QUANTITIES

	Superstruct.	Abutments	Total
Excavation		220.	220.
Concrete, 1:2:3	4.4	5.2	9.6
Concrete, 1:2:4	64.1	99.2	163.3
Concrete, 1:3:5		45.9	45.9
Reinf. Steel	15420	660.0	23080.

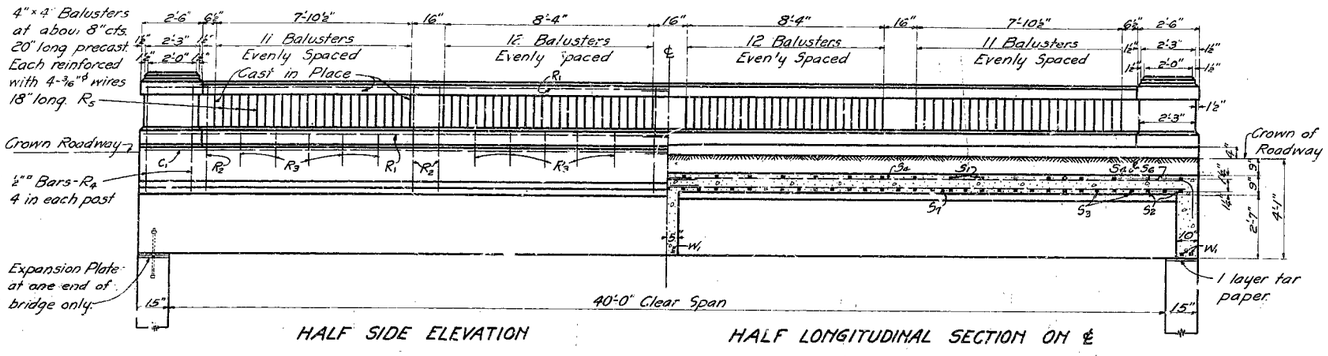
MISSOURI STATE HIGHWAY DEPARTMENT
BRIDGE over SECOND CREEK
STATE ROAD FROM KANSAS CITY TO ST. JOSEPH
ABOUT ½ MI. EAST OF FARRELVIEW
PROJECT NO. RI-339 STA. 125+66
PLATTE COUNTY

SUBMITTED BY: Chas. B. Mann BRIDGE ENGINEER
APPROVED BY: STATE HIGHWAY ENGINEER

STR. C6240
G 565 R

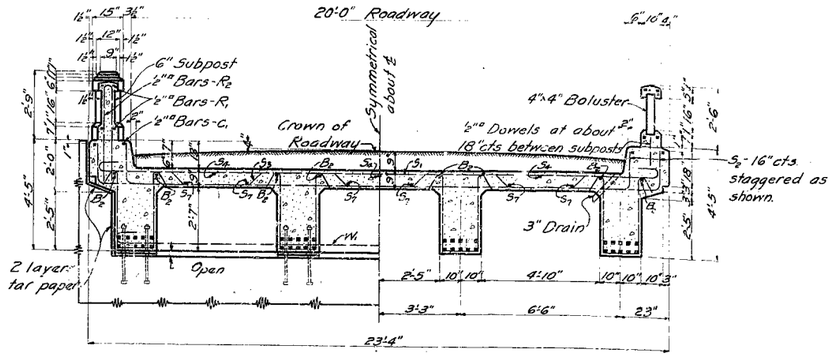
ASM'D Aug. 1923 BY B.J.D.
CH'KD Aug. 1923 BY R.A.S.
DRAWN FEB 1923 BY R&W
CH'KD Feb. 1923 BY K

93-23 A41

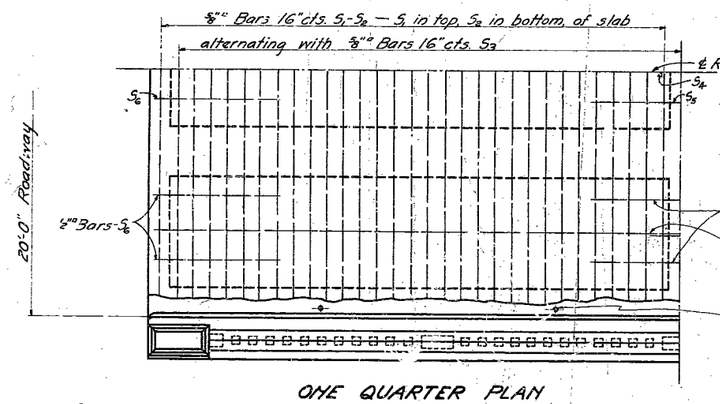


HALF SIDE ELEVATION

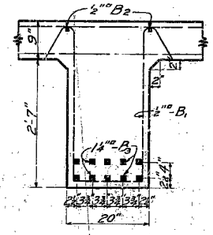
HALF LONGITUDINAL SECTION ON ℄



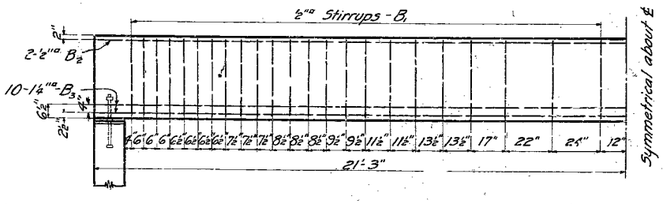
CROSS SECTION



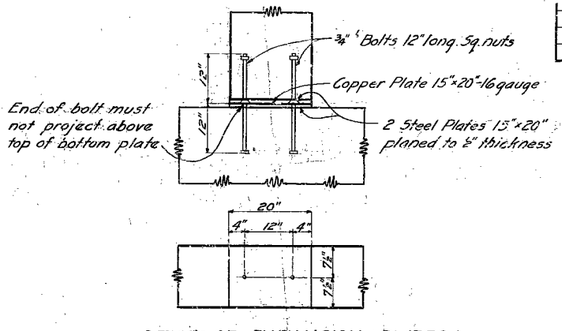
ONE QUARTER PLAN



DETAIL OF GIRDER



GIRDER REINFORCEMENT



DETAIL OF EXPANSION PLATES

8 Steel Expansion Plates 15"×½"×20"
4 Copper Plates 15"×20"-16 gauge
8 ¾"ᵒ Bolts 12" long- Sq. nuts - Csk. Hds.
8 ¾"ᵒ Bolts 12" long - No threads or nuts.

BILL OF REINFORCING STEEL

No.	Size	Length	Mark	Bending Sketch
16	½"ᵒ	22'-0"	R1	
16	½"ᵒ	8'-1"	R2	
40	½"ᵒ	12"	R3	
16	½"ᵒ	4'-0"	R4	
368	3/16"ᵈ	18"	R5	
32	⅝"ᵒ	23'-0"	S1	
32	⅝"ᵒ	24'-2"	S2	
31	⅝"ᵒ	25'-10"	S3	
6	½"ᵒ	23'-7"	S4	
6	½"ᵒ	7'-0"	S5	
12	½"ᵒ	5'-0"	S6	
12	½"ᵒ	22'-0"	S7	
8	½"ᵒ	22'-0"	C1	
34	½"ᵒ	9'-4"	B1	
16	½"ᵒ	22'-0"	B2	
40	1¼"ᵒ	42'-1"	B3	
6	½"ᵒ	22'-6"	W1	

ESTIMATED QUANTITIES

	Cu Yds. 1:2:3 Concrete	Cu Yds. 1:2:4 Concrete	Pounds Reinf. Steel
Handrail	4.4		550
Beams & Slab		64.1	14870
Total	4.4	64.1	15420

Weight of reinforcing steel includes weight of expansion plates and bolts.

GENERAL NOTES

Designed under the specifications of 1922.
Concrete in handrail 1:2:3; in slab, girders, and curbs, 1:2:4 mix.
Construction joints permitted only longitudinally midway between girders. Provide keys. Curbs to be cast monolithic with outside girders.
Bevel exposed edges ¾" where no other bevel is shown.
Provide about 1" of camber at center of finished span.
Shoring is to be removed before handrail is placed.

ORIGINAL PLANS FOR REFERENCE ONLY

MISSOURI
STATE HIGHWAY DEPARTMENT
STANDARD CONCRETE DECK GIRDER BRIDGE
CLEAR SPAN 40'-0" ROADWAY 20'-0"
NOV. 1922

Submitted by Charles D. Mahan Bridge Engineer
Approved by B. K. Hoffmeister Chief Engineer

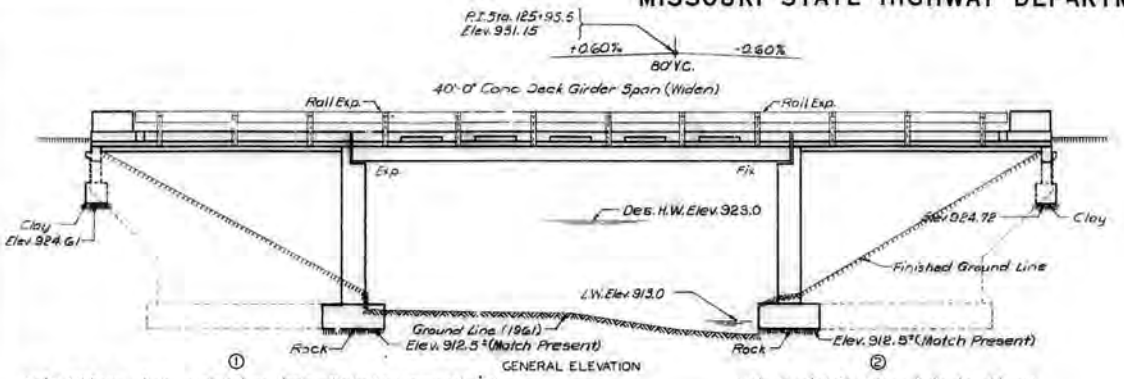
C6240

Drawn by R.W.W. Nov., 922.
Checked by J.W.C. Nov. 1922.

217

MISSOURI STATE HIGHWAY DEPARTMENT

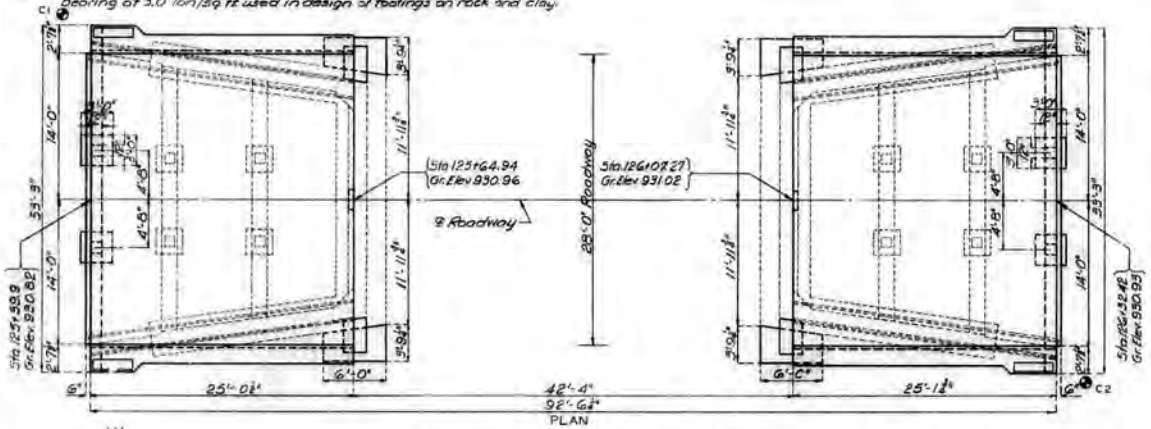
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		19	G	



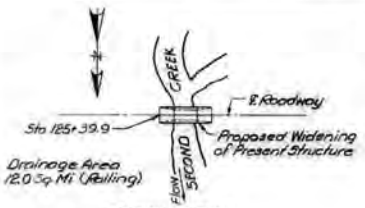
GENERAL ELEVATION

Note: All loose, shelly or disintegrated rock shall be removed and the footings placed on or into hard, solid, undisturbed rock. If soft rock or shale is encountered, the footings shall be carried at least 18" into and cast against vertical faces of same. Bearing of 3.0 Ton/sq ft used in design of footings on rock and clay.

Note: Light dotted lines indicate old work. Heavy lines indicate new work.



PLAN



LOCATION SKETCH

ESTIMATED QUANTITIES

Item		Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu.Yds.	90		90
Class 2 Excavation for Structures	Cu.Yds.	10		10
Class B Concrete	Cu.Yds.	290		290
Class B1 Concrete	Cu.Yds.		102.2	102.2
Reinforcing Steel	Lbs.	2,040	13,150	15,190
Fabricated Structural Carbon Steel	Lbs.		6,030	6,030

Note: Excavation for bridge made above Elev. 914.0 will be paid for as Class 1 Excavation for Structures.
Excavation for bridge made below Elev. 914.0 will be paid for as Class 2 Excavation for Structures.
Weight of 924 sq. ft. of welded wire fabric is included in estimated weight of reinforcing steel. See Special Provisions.

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

Note: For Log of Soundings see Sheet No. 3 of 6.

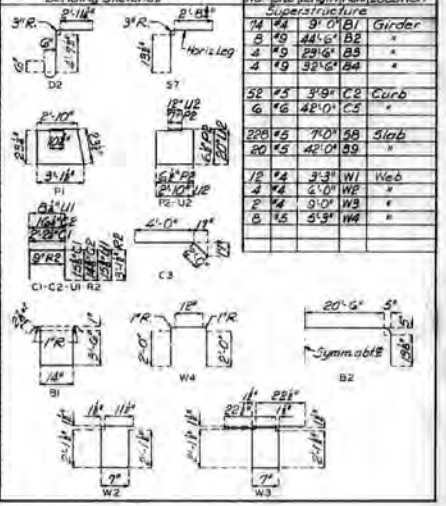
Note: Contractor shall verify all dimensions in field before ordering precast units.
All backfill shall be compacted to 95% of maximum density.

Note: Concrete and reinforcing in end post, slab and curbs on abutments is included in Superstructure Quantities.

COMPLETE BILL OF REINFORCING STEEL

No.	Size	Length	Mark	Location
Substructure Abuts. No. 1 & 2				
28	#6	4'-0"	D1	Footing
16	#6	9'-3"	D2	Hg. Tie Bm.
2	#4	21"	D3	Pad
2	#4	2'-9"	D4	"
32	#4	3'-0"	H1	Backwall
6	#7	17'-0"	H2	Tie Beam
6	#7	18'-3"	H3	" "
48	#6	10'-8"	P1	Front Wall
12	#6	8'-0"	P2	Column
2	#6	10'-0"	U2	Pad
24	#6	11'-6"	V1	Front Wall
16	#6	15'-6"	V2	Backwall
16	#6	6'-0"	V3	"
Superstructure Abuts. No. 1 & 2				
20	#5	4'-9"	C1	Curb
60	#5	3'-9"	C2	"
4	#5	6'-0"	C3	"
12	#5	28'-9"	C4	"
24	#4	3'-9"	R1	End Post
20	#5	7'-0"	R2	" "
140	#4	24'-9"	S1	Slab
68	#5	15'-3"	S2	"
68	#5	17'-3"	S3	"
40	#5	2'-6"	S4	"
4	#6	15'-6"	S5	"
4	#6	19'-3"	S6	"
88	#6	4'-3"	S7	"
136	#4	3'-3"	W1	Tie Beam

Bending Sketches



No.	Size	Length	Mark	Location
Superstructure				
14	#4	31'-0"	B1	Girder
8	#9	44'-6"	B2	"
4	#9	29'-6"	B3	"
4	#9	32'-6"	B4	"
52	#5	3'-9"	C2	Curb
6	#6	42'-0"	C5	"
226	#5	7'-0"	S8	Slab
60	#5	42'-0"	S9	"
12	#4	3'-3"	W1	Web
4	#4	4'-0"	W2	"
2	#4	5'-0"	W3	"
8	#5	5'-9"	W4	"

GENERAL NOTES:

Design Specification A.A.S.H.O. 1961
Loading H20-44 (15#/sq ft future Wearing Surface)
Structural Steel Stress 18,000#/sq inch.
Reinforcing Steel Stress 20,000#/sq inch.
Concrete, Class B Stress 1,200#/sq inch.
Concrete, Class B1 Stress 1,600#/sq inch.
Superstructure concrete shall be Class B1 (Air-Entrained)
Substructure concrete shall be Class B (Air-Entrained)
Superstructure deck to be surface sealed (See Special Provisions)
Bolts 3/4"ø; holes 15/16" except as noted
Qualification of welding operators will be required.
Paint: Shop, none; Field, contact surfaces of bolted field connections one coat of red lead and surfaces inaccessible after erection three coats of red lead. No other paint to be applied by Contractor. Red lead required shall be furnished by Contractor. Payment for cleaning and painting such surfaces will be included in unit price bid for Fabricated Structural Carbon Steel.
Where joint filler is specified on the plans it shall conform with the requirements of Section 1372.4 of the Standard Specifications.
See Special Provisions regarding construction procedure and maintenance of traffic over bridge during construction.

B.M. #20. Elev. 934.81 ± Top of N.W. Rail Post, N.W. Wing Wall, 13' Rt. Sta. 126+30.

BRIDGE OVER SECOND CREEK

STATE ROAD FROM ROUTE 169 WEST TO ROUTE I-29
ABOUT 15.0 MILES N. OF NORTH KANSAS CITY
PROJECT NO. RTE 71BP-SEC 8311 STA. 125+39.9

PLATTE COUNTY

FINISHED

SUBMITTED BY D. B. Jenkins DATE 9-6-1962
APPROVED BY J. J. Corbett DATE 9-6-1962

STD 54.00
G-565 R1

425

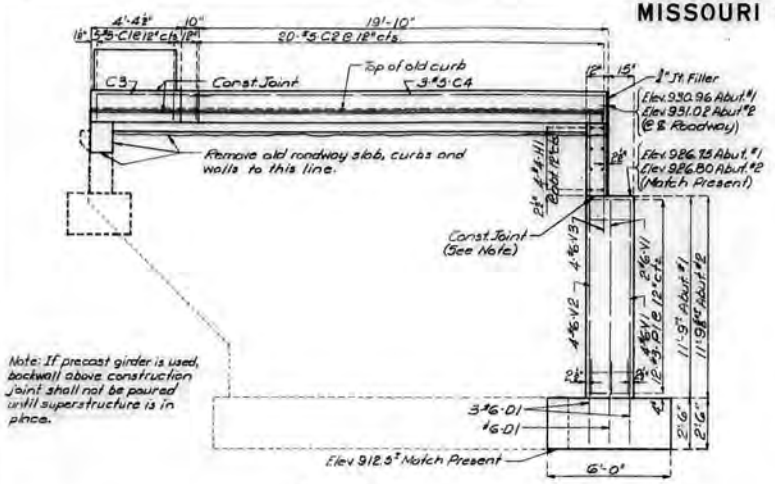
Drawn Jan. 1962 by G.W.P. & R.P.T.
Checked Feb. 1962 by L.E.G.

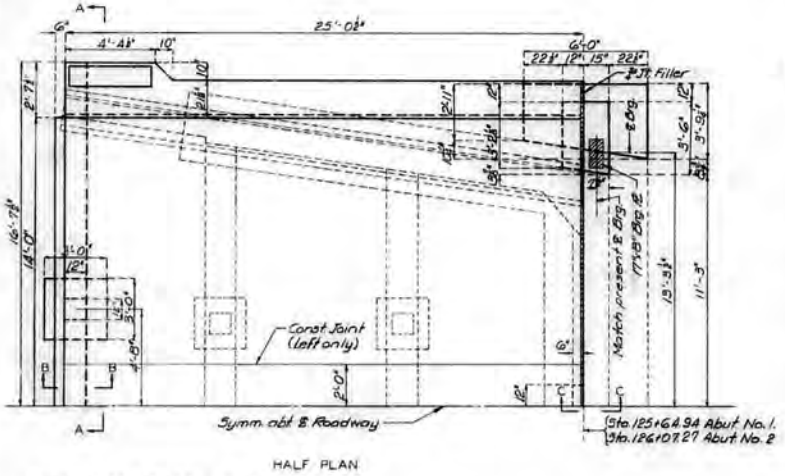
Sheet No. 1 of 6

SEE FINAL

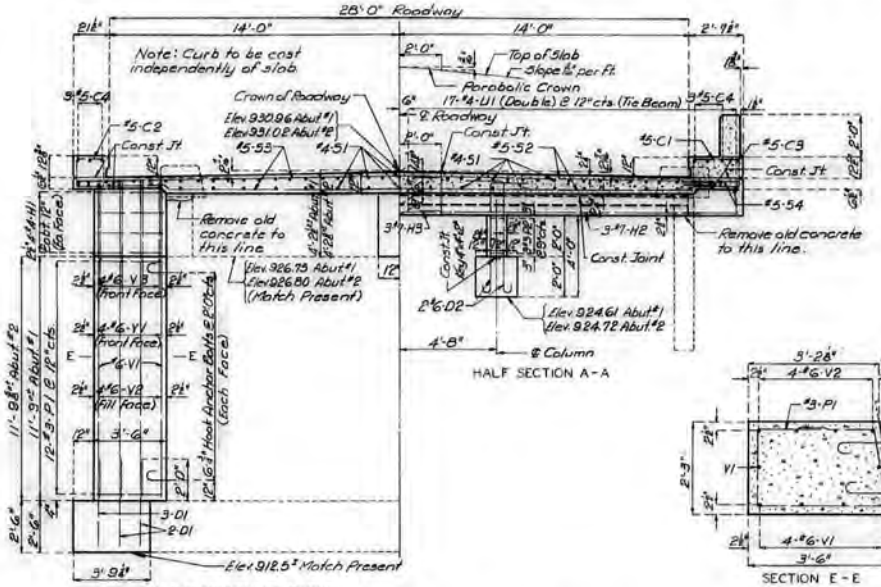
MISSOURI STATE HIGHWAY DEPARTMENT

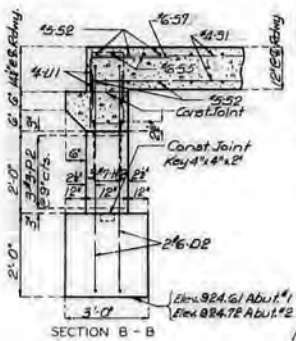
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	7	

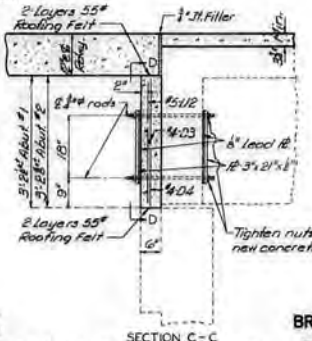


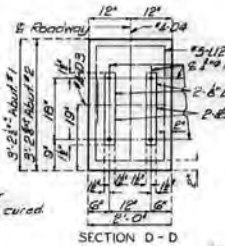


Note: Light dotted lines indicate old work. Heavy lines indicate new work.









Note: 1¼" ø rods shall be 21" long, complete with 2 Hex. Nuts & Washers, threaded 2½" long on both ends, all galvanized.
Cost of plates, fill plates and rods to be included in price bid for concrete.

DETAILS OF ABUTMENT NO. 1
(Abutment No. 2 similar)

BRIDGE OVER SECOND CREEK
STATE ROAD FROM ROUTE 169 WEST TO ROUTE I-29
ABOUT 15.0 MILES N. OF NORTH KANSAS CITY
PROJECT NO. RTE. 71 BP-SEC. 830 **STA.** 125 + 39.9
PLATTE **COUNTY**

G-565R1

Drawn Dec. 1961 by R.P.T.
Checked Feb. 1962 by L.E.G

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

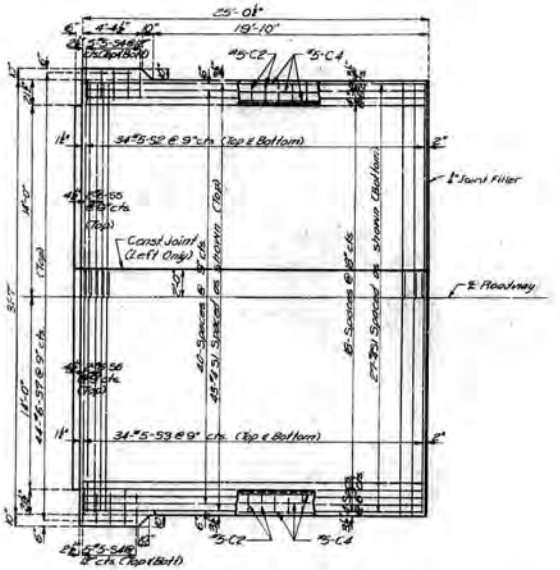
Sheet No. 2 of 6.

426

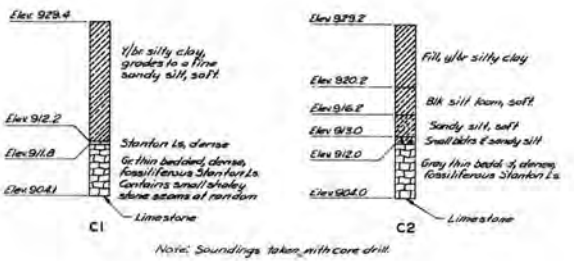
SEE FINAL PLANS BROWN-LINES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	3	



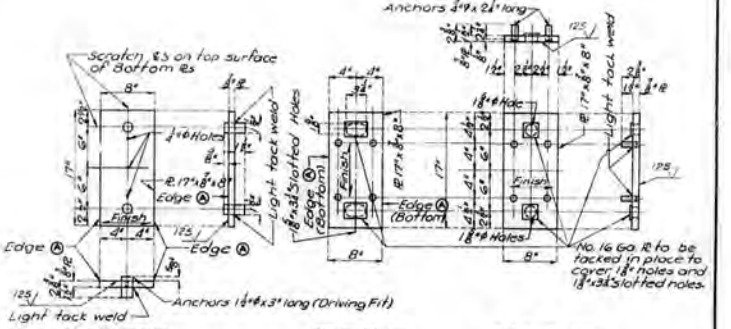
PLAN OF SLAB SHOWING REINFORCING
ABUTMENT NO.1
(Abutment No.2 Similar)



Note: Soundings taken with core drill.

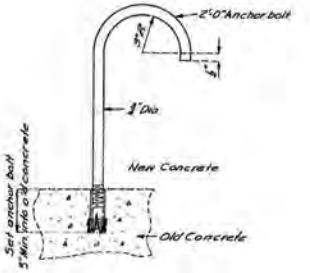
LOG OF SOUNDINGS

Note: See Sheet No. 1 of 6 for location of soundings



Notes for bearings:
Holes in 8" plates for ⅞"ø x 2½" and 1⅛"ø x 3" anchors shall be reside for driving fit. After anchors are driven in place they shall be lightly tack welded to 8" plates.
Surfaces shall be finished as indicated. All finished surfaces shall be coated with white lead and tallow in shop and just prior to placing plates in concrete all finished surfaces shall be thoroughly cleaned and coated with a mixture of graphite and oil.
Edge Ⓐ to be rounded (⅛" to ¾" radius)
Material: A.S.T.M. A7
Bearings will be paid for as Fabricated Structural Carbon Steel

DETAILS OF BEARING PLATES
(Estimated Weight 276 #)



Note: Anchors shall be of the self drilling expension type, made of case hardened and drawn carburizing steel, with self cutting annular breaching grooves equal to Red Head (Phillips Drill Co.) or Bulldog (J.D. Ablis Mfg. Co.) Cost of complete bolt to be included in price bid for concrete.

HOOK ANCHOR BOLT

(Furnished as complete bolt)

FINISHED

FINISHED

BRIDGE OVER SECOND CREEK

STATE ROAD FROM ROUTE 169 WEST TO ROUTE I-29
ABOUT 15.0 MILES N. OF NORTH KANSAS CITY
PROJECT NO. RTE71BP-SEC.830 STA. 125+399

PLATTE COUNTY

FINISHED

G-565-R1

427

No. 5.1	Revised
Dec. 1961	

Assembled Jan 1962 by RPT GWPE RJP
Checked Feb. 1962 by LEG

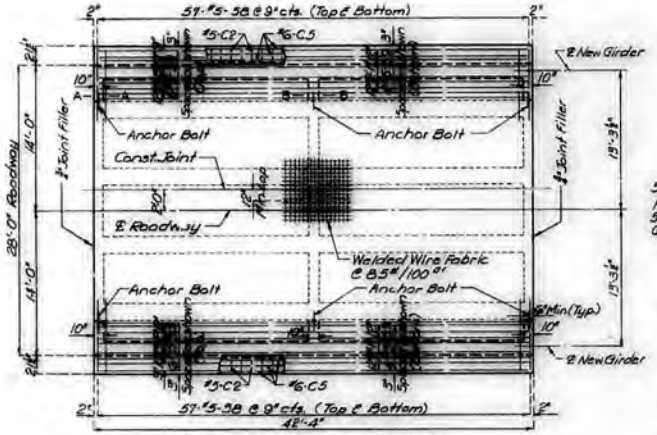
Note: This drawing is not to scale, follow Dimensions.

Sheet No 3 of 6.

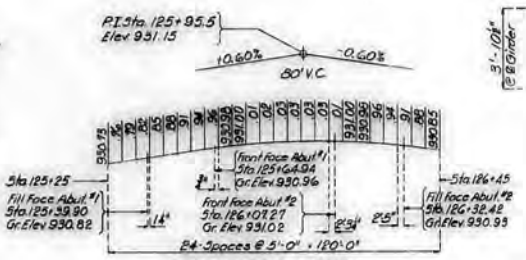
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.		58	4	



PLAN OF SLAB SHOWING REINFORCING



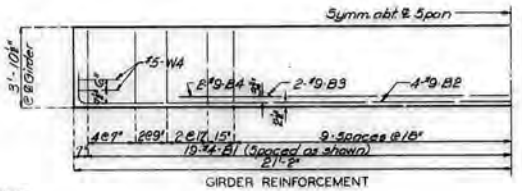
PROFILE GRADE ELEVATION

Note: Welded wire fabric to consist of No. 4 gauge wire of 4" centers transversely and longitudinally, welded at each intersection.

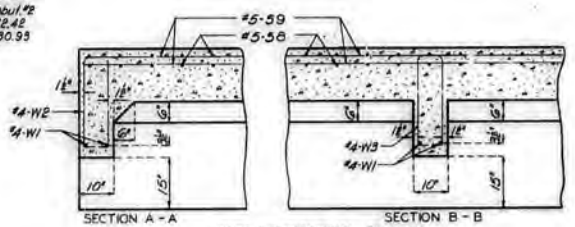
Light dotted lines indicate old work.
Heavy lines indicate new work.

Bars bonded in old concrete not removed shall be cleanly stripped and bent into new concrete where possible. If length is available bars shall extend into new concrete at least 40 diameters.

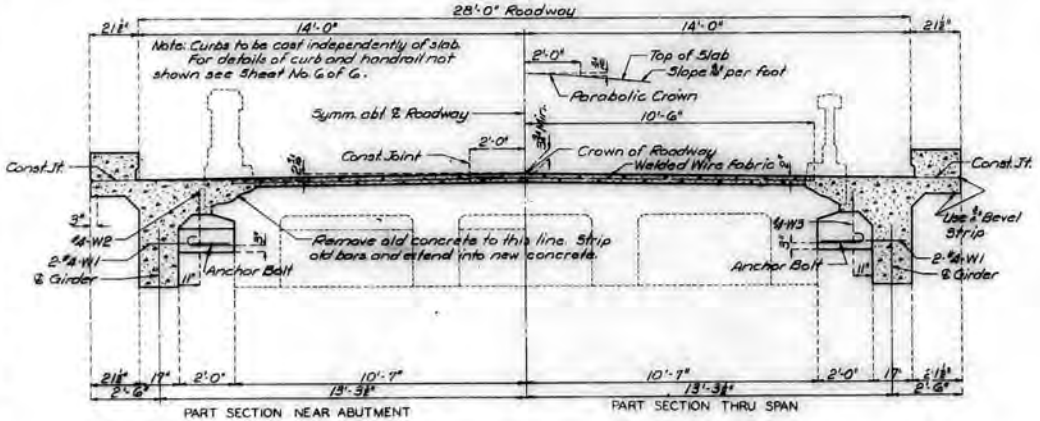
See Sheet No. 3 of 6 for details of hook anchor bolts.



GIRDER REINFORCEMENT

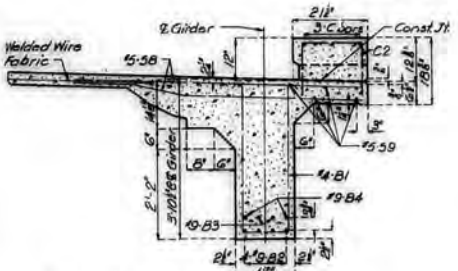


PART LONGITUDINAL SECTION

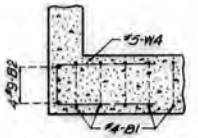


PART SECTION NEAR ABUTMENT

PART SECTION THRU SPAN



TYPICAL SECTION THRU NEW GIRDER



PART HORIZONTAL SECTION THRU END OF GIRDER

Note: See Sheet No. 5 of 6 for permissible alternate method for precasting girder sections.

BRIDGE OVER SECOND CREEK

STATE ROAD FROM ROUTE 169 WEST TO ROUTE I-29

ABOUT 15.0 MILES N. OF NORTH KANSAS CITY

PROJECT NO. RTE 71BP-SEC 83(1) **STA.** 125+39.9

PLATTE **COUNTY**

G-565RI

Drawn Jan. 1962 by RPT
Checked Feb. 1962 by LEG

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

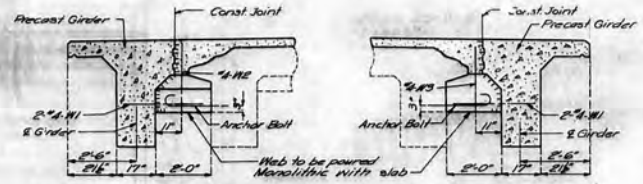
Sheet No. 4 of 6.

NO CONSTRUCTION CHANGES

428

MISSOURI STATE HIGHWAY DEPARTMENT

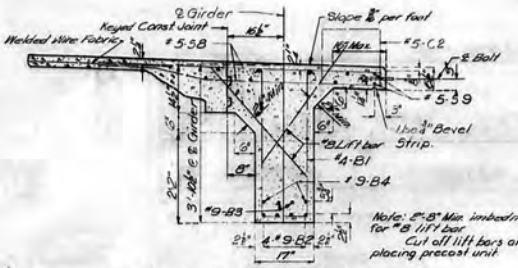
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	10	



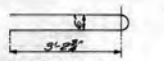
Note: For details not shown see sheet No. 4 of 6

PART SECTION NEAR ABUTMENT

PART SECTION THRU SPAN

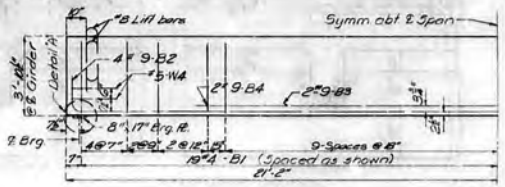


TYPICAL SECTION THRU NEW GIRDER



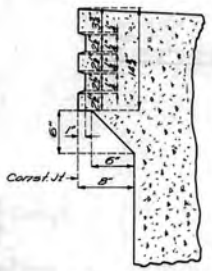
Reqd: 8-#8 Lift Bars

Note: #8 lift bars in place to be included in price bid for other items.



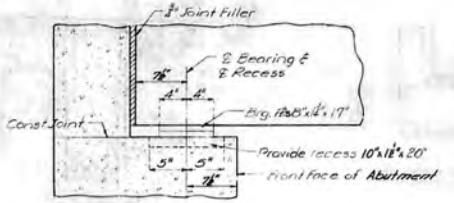
GIRDER REINFORCEMENT
(Approx. weight 2(000)# of one precast unit)

Note: At the option of the contractor, he may precast the 42"-4" girder section as shown above in lieu of casting them in place as shown on Sheet No. 4 of 6.
Payment for Class B1 Concrete will be made on the basis of details shown for cast-in-place girders on Sheet No. 4 of 6.



DETAIL OF CONST. JOINT KEY

Note: Key to extend full length of precast girder.



DETAIL "A"

Note: Top plate of bearing to be cast in girder. Grout bottom plate of bearing in place when girder is erected.
See Sheet No. 3 of 6 for Details of Bearing.
See Sheet No. 6 of 6 for spacing of C2 bars & bolts for rail post.

DETAILS OF PRECAST GIRDER (ALTERNATE)

FINISHED

BRIDGE OVER SECOND CREEK

STATE ROAD FROM ROUTE 169 WEST TO ROUTE I-29
ABOUT 15.0 MILES N. OF NORTH KANSAS CITY
PROJECT NO. RTE. 71 BP-SEC. 83(1) STA. 125+39.9

FINISHED PLATTE COUNTY FINISHED

G-5.65-R1

Drawn Jan 1962 by R.P.T. & R.J.F
Checked Feb 1962 by L.E.G.

Note: This drawing is not to scale, follow dimensions.

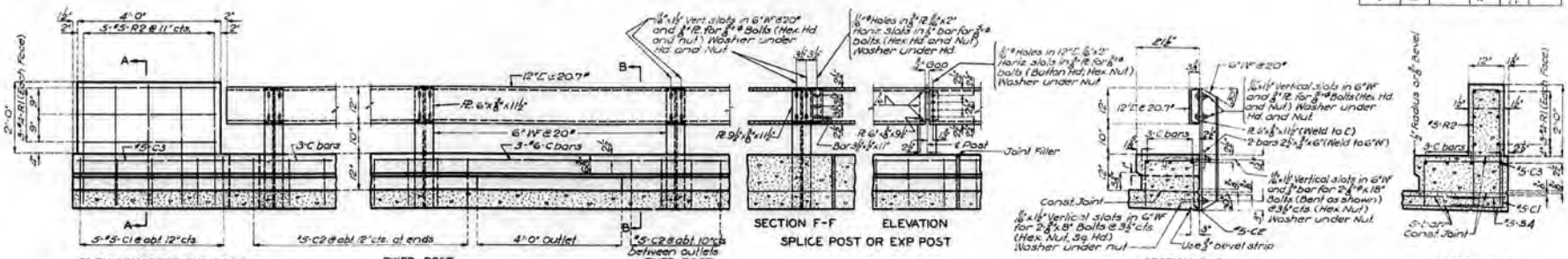
Sheet No. 5 of 6

NO CONSTRUCTION CHANGES

429

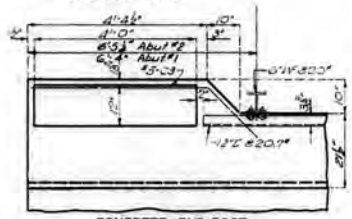
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO		19	11	

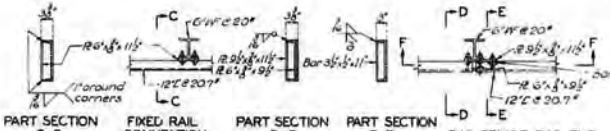


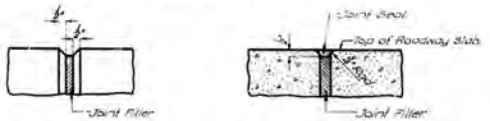
Note: Outlets to be centered between rail posts. For location of outlets if any, see Sheet No. 1 of design plans.
C2 bars in curb to be spaced at abt 12" cts. from end post to end post on bridges having no outlets.

Note: Channel rail to be adjusted for horizontal alignment by use of full size radial shims placed between 6"WF and connection R. Shims of ⅛" and ¼" thickness to be furnished with structural steel. Cost of shims to be included in price bid for other items.



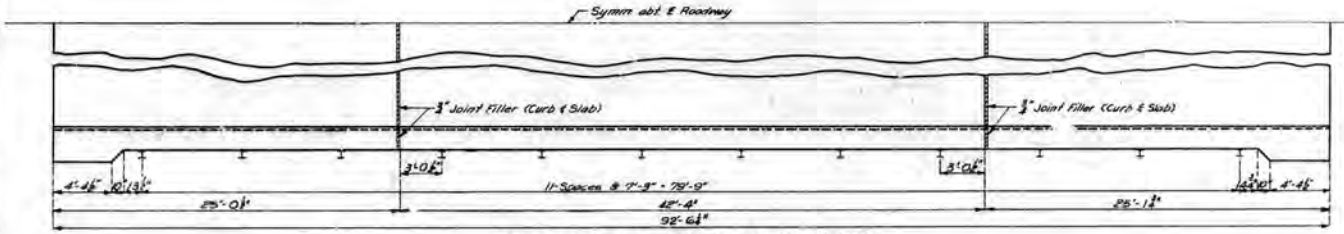
PLAN OF END POST (SQUARE SPANS)





Note: Use bevel as shown for exposed faces of all filled joints, except at top surface of roadway slab. Use edging tool with ¾" radius at top surface of roadway slab each side of joint and fill flush with joint seal as shown.

DETAILS OF BEVEL FOR FILLED JOINTS



PART PLAN OF SLAB SHOWING RAIL POST SPACING

GENERAL NOTES:

Top of curbs and end posts to be built parallel to grade. Vertical faces of end posts to be vertical. All exposed edges of end posts to be beveled ¾" 6"WF posts to be set normal to grade. 12"I rails shall be fabricated to conform to horizontal and vertical alignment of curb.

FINISHED

BRIDGE OVER SECOND CREEK

STATE ROAD FROM ROUTE 169 WEST TO ROUTE I-29
ABOUT 15.0 MILES N. OF NORTH KANSAS CITY
PROJECT NO. RTE. 71BP-SEC. 83(15)TA. 125+39.9

FINISHED PLATTE COUNTY FINISHED

G-565-R1

Assembled Jan 1962 by GMP & RJP
Checked Feb 1962 by LEG

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

Sheet No. 6 of 6

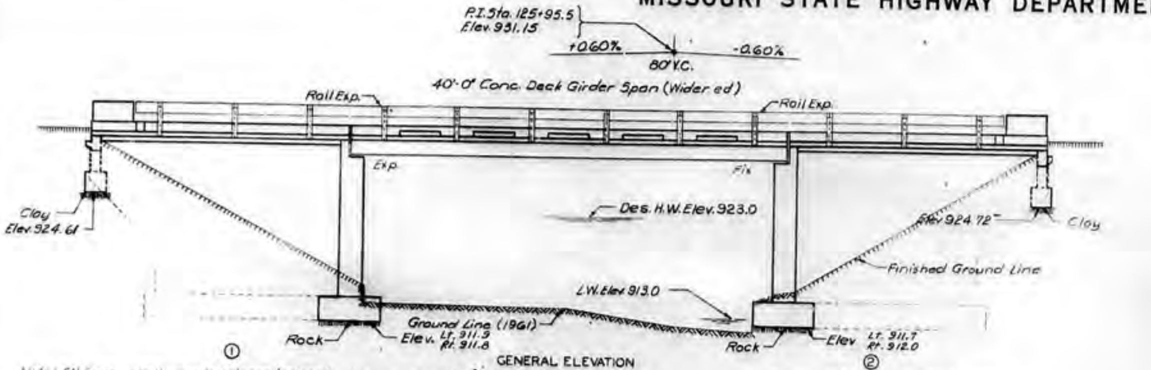
NO CONSTRUCTION CHANGES

430

MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS

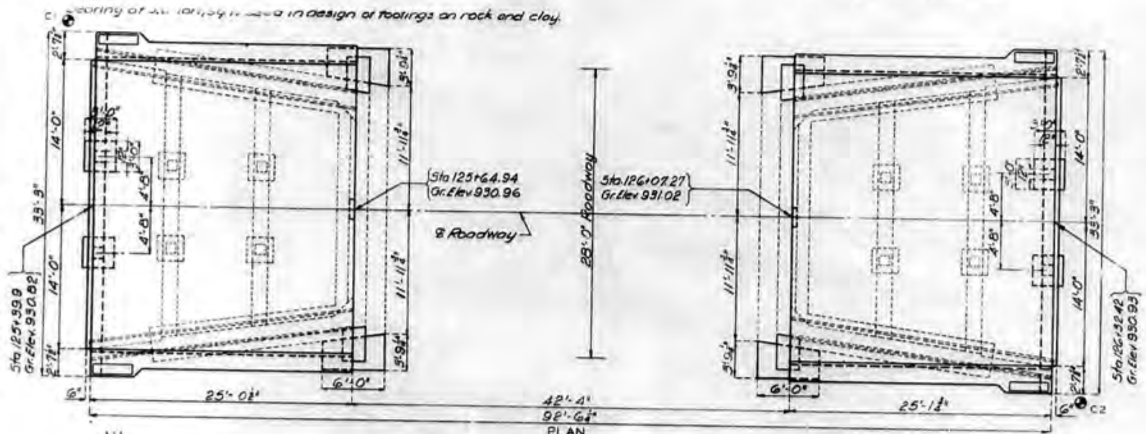
FED. ROAD DIST. NO.	STATE	FED.-AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	[illegible] Sec 83(1)	1963	6	



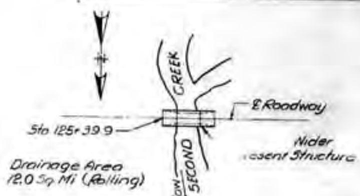
GENERAL ELEVATION

Note: All loose, shelly or disintegrated rock was removed and the footings ... on or into hard, solid, undisturbed rock. ... bearing of ... tons/sq. ft. used in design of footings on rock and clay.

Note: Light dotted lines indicate old work. Heavy lines indicate new work.



PLAN



LOCATION SKETCH

QUANTITIES				
Item		Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu. Yds.	55.5		55.5
Class 2 Excavation for Structures	Cu. Yds.	13.5		13.5
Class B Concrete	Cu. Yds.	30.4		30.4
Class B1 Concrete	Cu. Yds.		102.2	102.2
Reinforcing Steel	Lbs.	2100	15460	17560
Fabricated Structural Carbon Steel	Lbs.		5900	5900

Note: Excavation for bridge made above Elev. 914.0 paid for as Class 1 Excavation for Structures.
Excavation for bridge made below Elev. 914.0 paid for as Class 2 Excavation for Structures.
Weight of 924 sq. ft. of welded wire fabric is included in weight of reinforcing steel. See Special Provisions.

Note: For Log of Soundings See Sheet No. 3 of 6.

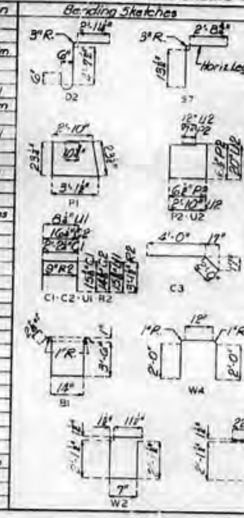
Note: All backfill was compacted to 95% of maximum density.

Note: Concrete and reinforcing in end post, slab and curbs on abutments is included in Superstructure Quantities.

COMPLETE BILL OF REINFORCING STEEL

No.	Size	Length	Mark	Location
Substructure Abuts. No 1 & 2				
28	#6	4'-0"	D1	Footing
16	#6	9'-3"	D2	Ftg Tie Bm.
2	#4	21"	D3	Pad
2	#4	2'-9"	D4	"
32	#4	3'-0"	H1	Backwall
6	#7	17'-0"	H2	Tie Beam
6	#7	12'-3"	H3	" "
48	#3	10'-9"	P1	Front Wall
12	#3	2'-9"	P2	Column
2	#5	10'-0"	U2	Pad
24	#6	11'-6"	V1	Front Wall
16	#6	15'-6"	V2	Backwall
16	#6	6'-0"	V3	"
8 / 8	#6 / #6	2'-6" / 2'-3"	V2	Extensions
Superstructure Abuts. 1 & 2				
20	#5	4'-9"	C1	Curb
80	#5	3'-9"	C2	"
4	#5	6'-0"	C3	"
12	#5	24'-9"	C4	"
24	#4	3'-9"	R1	End Post
20	#5	7'-0"	R2	" "
110	#4	24'-9"	S1	Slab
136	#5	15'-3"	S2	"
136	#5	17'-3"	S3	"
40	#5	2'-6"	S4	"
4	#6	15'-6"	S5	"
4	#6	17'-3"	S6	"
88	#6	4'-3"	S7	"
136	#4	3'-3"	U1	Tie Beam

Bending Sketches



No.	Size	Length	Mark	Location
Superstructure				
14	#4	9'-0"	B1	Girder
8	#9	44'-6"	B2	"
4	#9	29'-6"	B3	"
4	#9	32'-6"	B4	"
52	#5	5'-9"	C2	Curb
6	#6	42'-0"	C5	"
228	#5	7'-0"	S8	Slab
20	#5	42'-0"	S9	"
12	#4	3'-3"	W1	Web
4	#4	6'-0"	W2	"
2	#4	9'-0"	W3	"
8	#5	5'-3"	W4	"

GENERAL NOTES:

Design Specification A.A.S.H.O. 1961
Loading H20-44 (15#/sq. ft. Future Wearing Surface)
Structural Steel Stress 18,000#/sq. inch
Reinforcing Steel Stress 20,000#/sq. inch
Concrete, Class B Stress 1,200#/sq. inch
Concrete, Class B1 Stress 1,600#/sq. inch
Superstructure concrete Class B1 (Air-Entrained)
Substructure concrete Class B (Air-Entrained)
Superstructure deck was surface sealed (See Special Provisions)
Bolts ⅞" ϕ; holes 1⁄16" + except as noted
Qualification of welding operators required.
Paint: Shop, none; Field, contact surfaces of bolted field connections one coat of red lead and surfaces inaccessible after erection three coats of red lead. No other paint was applied by Contractor. Red lead required was furnished by Contractor. Payment for cleaning and painting such surfaces was included in unit price bid for Fabricated Structural Carbon Steel.
Where joint filler is specified on the plans it does conform with the requirements of Section 1572.4 of the Standard Specifications.

FINISHED

B.M. □ on N.E. Corner Lt. Curb 14.3' Lt. Sta. 125+40 Elev. 931.61

BRIDGE OVER SECOND CREEK

STATE ROAD FROM ROUTE 169 WEST TO ROUTE I-29
ABOUT 15.0 MILES N. OF NORTH KANSAS CITY
PROJECT NO. RTE 71BP-SEC 83(1) STA. 125+39.9

PLATTE COUNTY

FINISHED

FINISHED

Drawn Jan. 1962 by G.W.R. & R.P.T.
Checked Feb. 1962 by L.E.G.

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

Sheet No. 1A of 2.

STD 54.00
G-565 R1

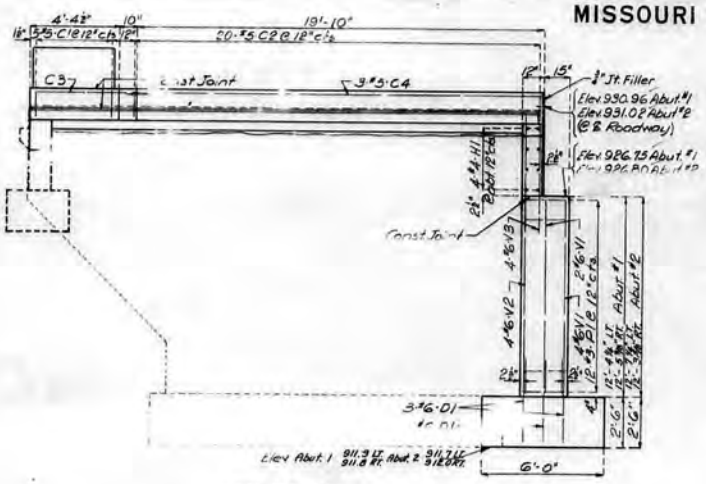
FINAL PLANS

431

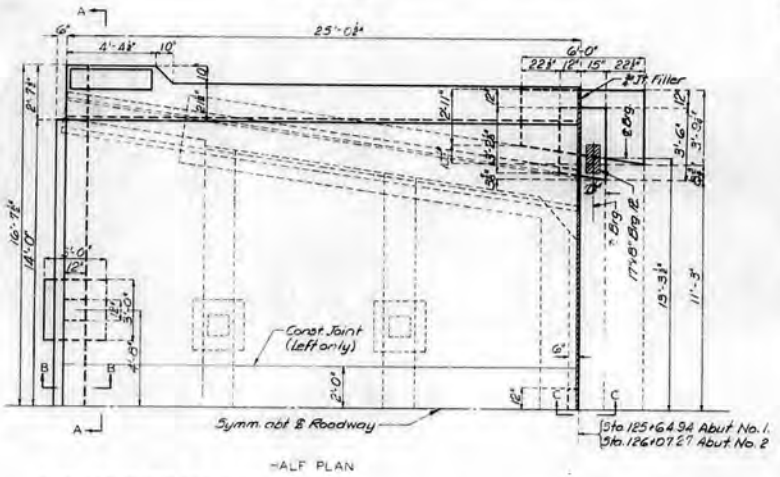
MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS

FED. ROAD DIST. NO.	STATE	FED.-AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	MO.	F-67(7) See 630	19	7	

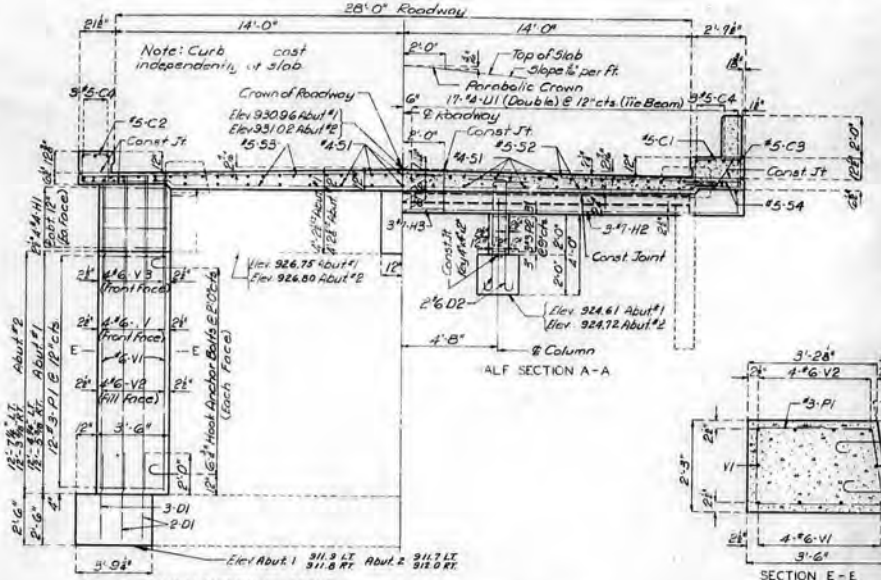


SIDE ELEVATION



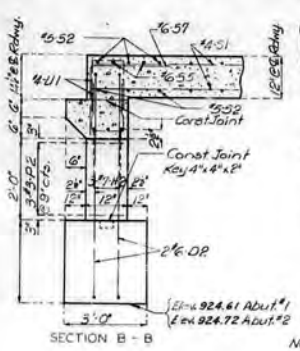
HALF PLAN

Note: Light dotted lines indicate old work, heavy lines indicate new work.

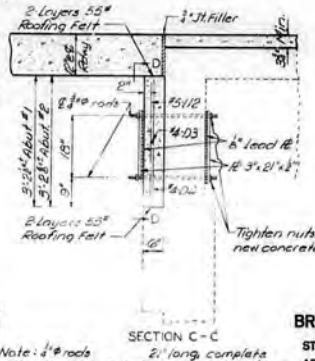


HALF ELEVATION OF FRONT

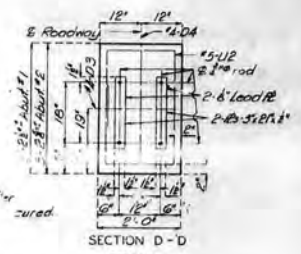
SECTION E-E



SECTION B-B



SECTION C-C



SECTION D-D

FINISHED

Note: ¾" ℄ rods 2'-1" long, complete with 2 Hex. Nuts & Washers, threaded 2½" long on both ends, all galvanized. Cost of plates, fill plates and rods included in price bid for concrete.

FINISHED

DETAILS OF ABUTMENT NO. 1

(Abutment No. 2 similar) Except as Shown

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

BRIDGE OVER SECOND CREEK

STATE ROAD FROM ROUTE 169 WEST TO ROUTE I-29

ABOUT 15.0 MILES N. OF NORTH KANSAS CITY

PROJECT NO. RTE. 71 BP-SEC. P3(10) **STA.** 125+39.9

PLATTE **COUNTY** FINISHED

Drawn Dec. 1961 by R.P.T.
Checked Feb. 1962 by LEG

Sheet No. 2A of 3

G-565RI

FINAL PLANS

432

KANSAS CITY, MISSOURI

DEPARTMENT OF PUBLIC WORKS

BRIDGE NOS. U2220S026B21,
U2220S026B22, U2220S026R22,
U2220S026B23, U2220S026B24
PROJECT NO. 5307
COUNCIL DISTRICT NO. 2

CHESTNUT AVENUE VIADUCT

GEORGE L. SATTERLEE, P.E. – DIRECTOR OF PUBLIC WORKS
GURNIE C. GUNTER P.E. – CITY ENGINEER

DESIGN DESIGNATION

A.D.T. (1986) = 6402
T = 19.6%
V = 40 M.P.H.

UTILITIES LISTING

SOUTHWESTERN BELL TELEPHONE COMPANY
DIAL "0" ASK FOR ENTERPRISE 9800

KANSAS CITY, MISSOURI WATER DEPARTMENT
274 – 1361

KANSAS CITY POWER AND LIGHT COMPANY
556 – 2316

WESTERN UNION
474 – 4330

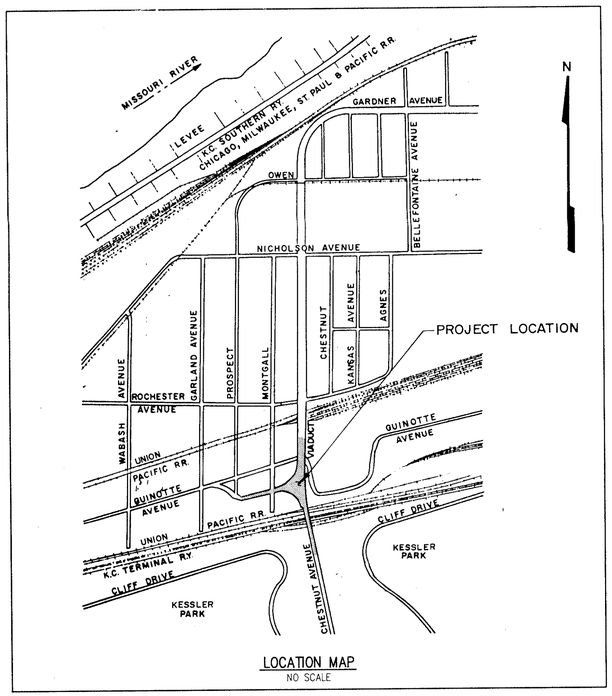
KANSAS CITY, MISSOURI TRANSPORTATION DEPARTMENT
274 – 1625

KANSAS CITY, MISSOURI PUBLIC WORKS DEPARTMENT
274 – 2565

AMERICAN CABLE VISION
231 – 1444

UNION PACIFIC RAILROAD
245 – 2544

KPL GAS SERVICE
221 – 3300



LOCATION MAP
NO SCALE

SCHEDULE OF DRAWINGS

DWG. NO.	TITLE
1.	TITLE SHEET
2.	GENERAL NOTES AND QUANTITIES
3.	GENERAL PLAN AND SURVEY DATA
4.	CHESTNUT AVENUE STA. 0+00 TO STA. 6+00
5.	CHESTNUT AVENUE STA. 6+00 TO STA. 8+58.73
6.	GUINOTTE RAMP STA. 0+00 TO STA. 5+60
7.	MONTGALL STA. 0+00 TO STA. 3+00
8.	CHESTNUT AVENUE CROSS SECTIONS
9.	GRADING – TYPICAL SECTIONS
10.	JUNCTION STRUCTURE DEMOLITION DETAILS
11.	JUNCTION STRUCTURE MODIFICATIONS
12.	JUNCTION STRUCTURE SLAB ON GRADE
13.	JUNCTION STRUCTURE ELEVATED SLAB
14.	JUNCTION STRUCTURE ELEVATED SLAB – SUPPORT BEAM
15.	APPROACH RAMP
16.	APPROACH RAMP – PARTIAL PLAN AND ELEVATIONS
17.	APPROACH RAMP – PARTIAL PLAN AND ELEVATIONS
18.	APPROACH RAMP – SECTIONS
19.	BRIDGE A – SOUTH ABUTMENT
20.	BRIDGE A – NORTH ABUTMENT
21.	BRIDGE A SLAB AND GIRDER PLAN
22.	BRIDGE A DIAPHRAGMS AND DETAILS NO. 1
23.	BRIDGE A DIAPHRAGMS AND DETAILS NO. 2
24	BRIDGE A SLAB REINFORCING PLAN
25.	BRIDGE A CROSS SECTION
26.	BRIDGE A – PIER 1
27.	BRIDGE A – PIER 1 CAP BEAM DETAILS
28.	BRIDGE A – PIER 2
29.	BRIDGE A – PIER 2 CAP BEAM DETAILS
30.	BRIDGE A – VERTICAL CURVE CORRECTION AND DEAD LOAD DEFLECTIONS
31.	BRIDGE B WEST ABUTMENT – PLAN
32.	BRIDGE B WEST ABUTMENT – SECTIONS
33.	BRIDGE B EAST ABUTMENT
34.	BRIDGE B SLAB AND GIRDER PLAN
35.	BRIDGE B DIAPHRAGMS AND DETAILS NO. 1
36.	BRIDGE B DIAPHRAGMS AND DETAILS NO.2
37.	BRIDGE B SLAB REINFORCING PLAN
38.	BRIDGE B CROSS SECTION
39.	BRIDGE B – PIER 1
40.	BRIDGE B – PIER 1 CAP BEAM DETAILS
41.	BRIDGE B – VERTICAL CURVE CORRECTION AND DEAD LOAD DEFLECTIONS
42.	PRECAST PRESTRESSED CONCRETE GIRDERS GENERAL
43.	PRECAST PRESTRESSED CONCRETE GIRDERS TYPE 1
44.	PRECAST PRESTRESSED CONCRETE GIRDERS TYPE 2
45.	PRECAST PRESTRESSED CONCRETE GIRDERS TYPE 3
46.	PRECAST PRESTRESSED CONCRETE GIRDERS TYPE 4
47.	PRECAST PRESTRESSED CONCRETE GIRDERS TYPE 5
48.	FOUNDATION DETAILS
49.	MODIFICATIONS TO EXISTING STEEL BRIDGE
50.	BARRIER CURB ELEVATIONS FOR EXISTING STEEL BRIDGE
51.	BARRIER CURB ELEVATIONS
52.	BARRIER CURB ELEVATIONS
53.	BARRIER CURB ELEVATIONS
54.	BARRIER CURB ELEVATIONS
55.	BARRIER CURB ELEVATIONS
56.	BARRIER CURB DETAILS
57.	APPROACH SLAB DETAILS
58.	DRAINAGE DETAILS
59.	CHAIN LINK FENCE DETAILS
60.	STREET LIGHTING
61.	BORING LOGS
62.	DETOUR PLAN
63.	PRESTRESSED CONCRETE PANEL DETAILS – ALTERNATE A
64.	INTERMEDIATE STEEL DIAPHRAGM DETAILS – ALTERNATE B
65.	APPROACH RAMP – MECHANICALLY STABILIZED EARTH WALL – ALTERNATE C

LEGEND

W	EXISTING WATER LINE
G	EXISTING GAS LINE
S	EXISTING SANITARY SEWER
SS	EXISTING STORM SEWER
T	EXISTING UNDERGROUND TELEPHONE CABLE
E	EXISTING UNDERGROUND ELECTRIC CABLE
	RAILROAD (RR)
x x	FENCE
	POWER POLE
	LIGHT POLE
	FIRE HYDRANT
	WATER METER
WV	WATER VALVE
	GAS METER
GV	GAS VALVE
MH	MANHOLE (E–ELECTRICAL, T–TELEPHONE, SS–STORM SEWER)
	POLE GUY
	TEMPORARY BENCH MARK

DRAWINGS APPROVED –

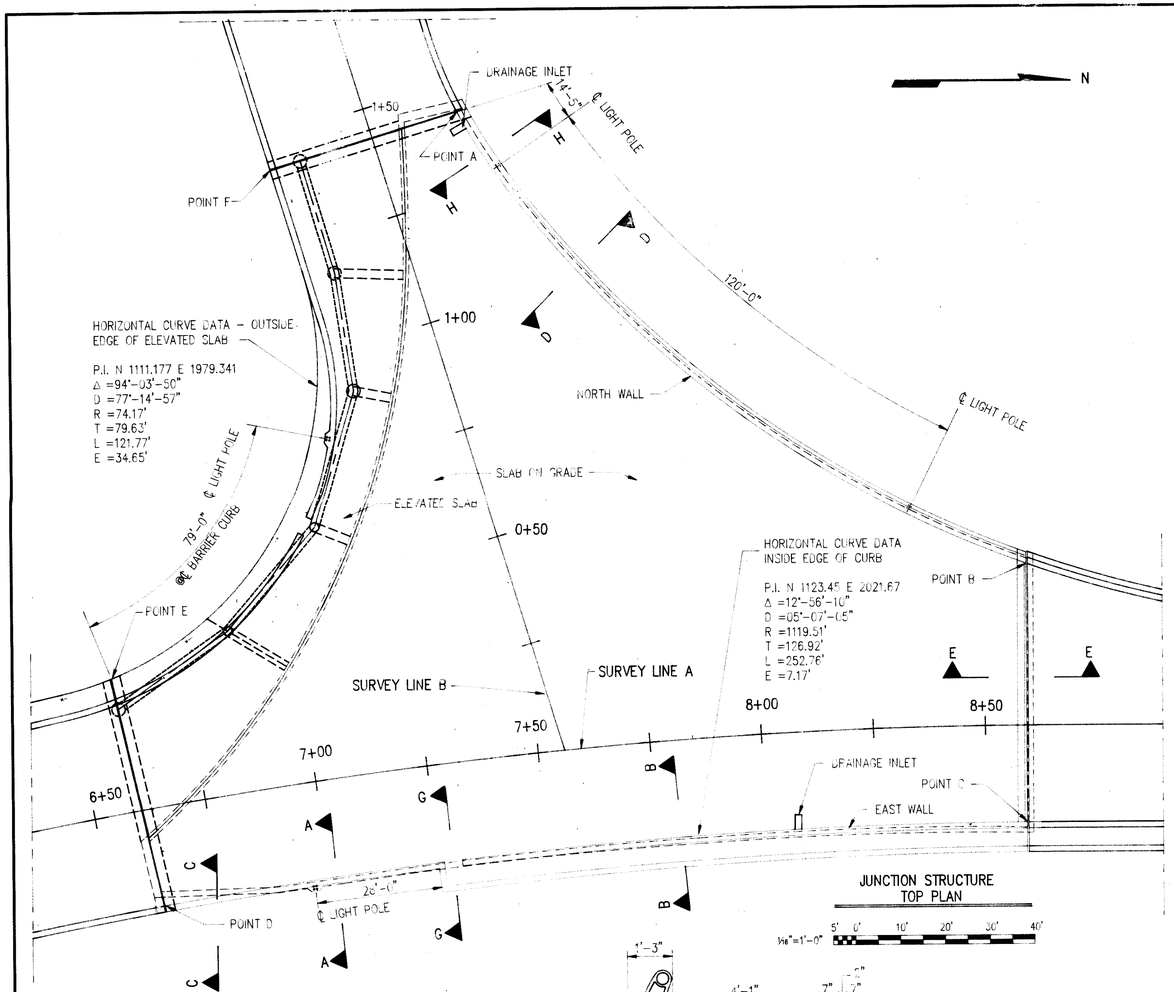
DIRECTOR OF PUBLIC WORKS — DATE 1-26-87

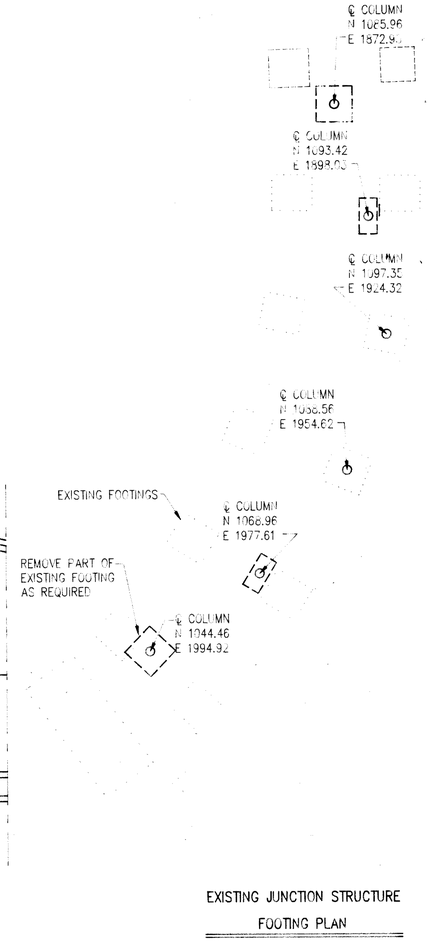
CITY ENGINEER — DATE

890636 S026B22 9B
S026B23 9C
S026B24 9D

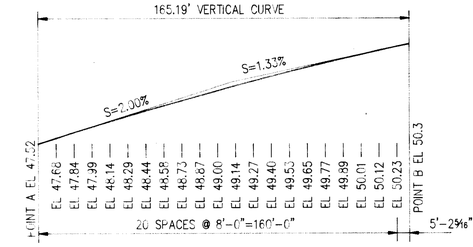
ACkirkwood

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

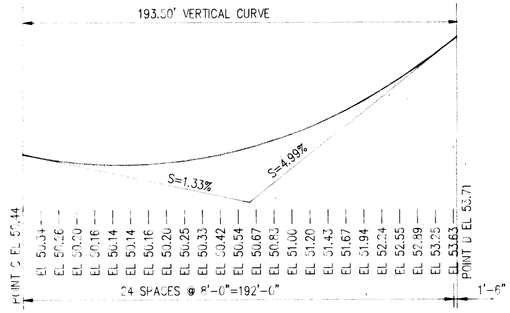




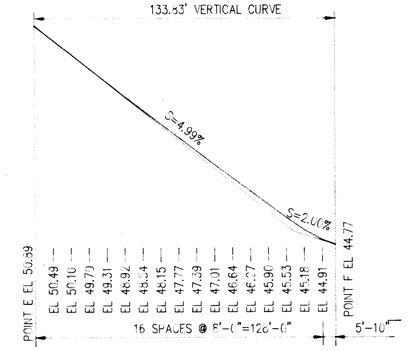
EXISTING JUNCTION STRUCTURE
FOOTING PLAN
1/16"=1'-0"



PROFILE GRADE – NORTH WALL
TOP OF BARRIER CURB ELEVATIONS

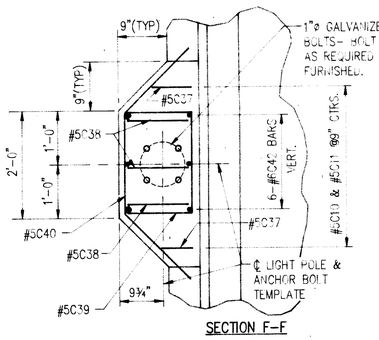


PROFILE GRADE – EAST WALL
TOP OF BARRIER CURB ELEVATIONS

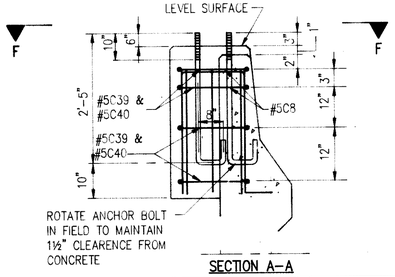


PROFILE GRADE – OUTSIDE EDGE OF ELEVATED SLAB
TOP OF SLAB ELEVATIONS

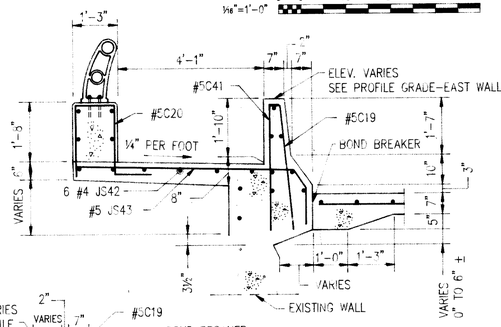
JUNCTION STRUCTURE
TOP PLAN
1/16"=1'-0"



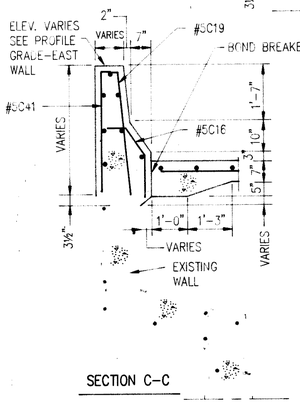
SECTION F–F



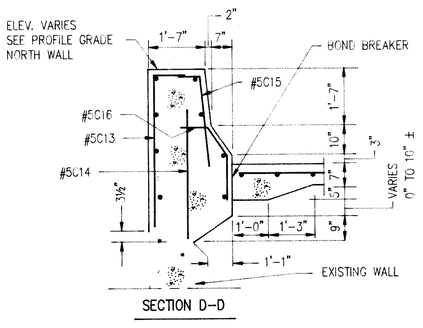
SECTION A–A



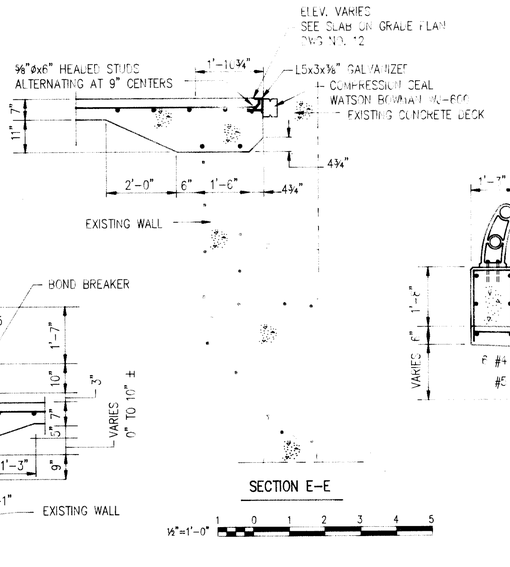
SECTION B–B



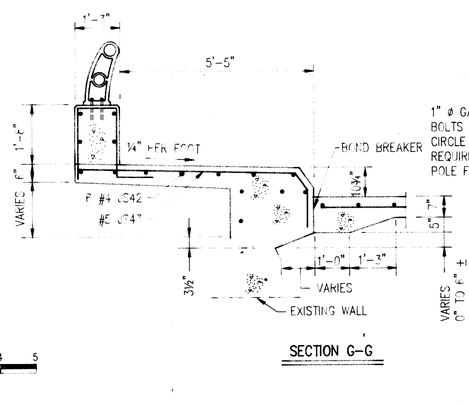
SECTION C–C



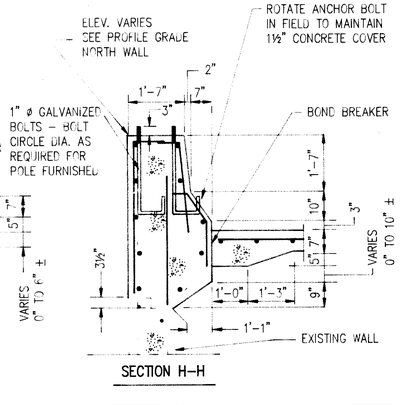
SECTION D–D



SECTION E–E
1/2"=1'-0"



SECTION G–G



SECTION H–H

No.	Revision	By	Date

STATE OF MISSOURI DAVID WARD SEELEY NUMBER E-26131 REGISTERED PROFESSIONAL ENGINEER

Laura Seeley
PROJECT ENGINEER
Date 7/31/09
NOTE: This drawing is PRELIMINARY until approved by project eng.

AC Kirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By DWS
Drawn By MHM
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
JUNCTION STRUCTURE MODIFICATIONS

Dwg. No. 11

JUNCTION STRUCTURE
SLAB ON GRADE PLAN

1⅛"=1'-0" 5' 0' 5' 10' 15' 20'

N

HORIZONTAL CURVE DATA
OUTSIDE EDGE OF ELEVATED SLAB

P.I. N 1111.177 , E 1979.341
Δ =94°-03'-50"
D =77°-14'-57"
R =74.17'
T =79.63'
L =121.77'
E =34.65'

R=61'-2"

N 1108.66
E 1866.02
ELEV 45.06

1+50 3 #4 JS40

1'-2½"

DRAINAGE INLET
(CUT STEEL AS REQUIRED)

N 1120.98
E 1862.32
ELEV 44.85

13 SPA @12" CTRS

N 1122.64
E 1865.30

11 #4 JS39

11 #4 JS38

CJ

N 1126.20
E 1871.23
ELEV 45.06

N 1109.20
E 1881.45
ELEV 44.60

24 #4 JS36

N 1135.33
E 1883.91
ELEV 45.36

24 SPA @12" CTRS

N 1109.38
E 1891.91
ELEV 45.78

24 #4 JS37

11 #4 JS15

14 #4 JS16

N 1145.51
E 1895.94
ELEV 45.66

20 #4 JS17

N 1108.64
E 1898.56

CJ

N 1112.39
E 1901.78
ELEV 45.97

1 #4 JS14

N 1156.37
E 1907.23
ELEV 45.95

N 1108.40
E 1910.92
ELEV 46.19

17 #4 JS35

17 #4 JS34

1+00

CJ

N 1114.99
E 1910.29
ELEV 46.14

17 SPA @12" CTRS

N 1167.54
E 1917.50
ELEV 46.21

N 1178.88
E 1926.75
ELEV 46.46

N 1118.21
E 1920.79
ELEV 46.37

16 #4 JS33

16 #4 JS32

CJ

N 1105.51
E 1925.91

N 1105.87
E 1927.32
ELEV 46.70

16 SPA @12" CTRS

N 1190.28
E 1934.99
ELEV 46.69

N 1120.60
E 1928.63
ELEV 46.52

N 1124.21
E 1940.43
ELEV 46.78

N 1202.08
E 1942.56
ELEV 46.92

N 1214.77
E 1949.71
ELEV 47.14

N 1102.17
E 1942.20
ELEV 47.29

N 1228.30
E 1956.30
ELEV 47.35

EXISTING BRIDGE DECK

N 1242.58
E 1962.21
ELEV 47.57

N 1126.73
E 1948.67
ELEV 46.94

36 #4 JS28

0+50

46 #4 JS11

21 #4 JS10

20 #4 JS9

20 #4 JS8

24 #4 JS7

30 #4 JS31

30 SPA @12" CTRS

N 1247.05
E 1963.86
ELEV 47.63

N 1096.14
E 1957.66

N 1097.68
E 1955.44
ELEV 47.88

10 #4 JS13

8 #4 JS12

1'-4" TYPICAL
LAP SPLICE

7 #4 JS6

N 1092.74
E 1967.04
ELEV 48.43

N 1133.62
E 1971.19
ELEV 47.41

N 1136.90
E 1981.95
ELEV 47.65

N 1087.26
E 1977.76
ELEV 48.89

ELEVATED SLAB
SEE DWG NO. 13

SURVEY LINE B

SURVEY LINE A

N 1079.99
E 1989.92
ELEV 49.46

N 1081.98
E 1985.60

89 #4 JS19

58 #4 JS18

N 1247.63
E 2000.06
ELEV 47.99

58 SPA @12" CTRS

EDGE OF
SLAB ON GRADE

34 #4 JS27

N 1141.54
E 1997.13
ELEV 47.95

8+00

8+50

N 1070.35
E 2003.24
ELEV 50.17

18 #4 JS29

N 1143.66
E 2004.05
ELEV 48.11

N 1059.17
E 2015.91
ELEV 50.95

7+00

7+50

N 1123.22
E 2007.00
ELEV 48.57

CJ IN SLAB ON GRADE
ALONG SURVEY LINES
A AND B

N 1166.03
E 2003.04
ELEV 47.78

N 1187.77
E 2001.67
ELEV 47.62

N 1208.50
E 2000.75
ELEV 47.65

N 1228.34
E 2000.34
ELEV 47.76

7 #4 JS5

18 #4 JS41

N 1247.05
E 2021.66
ELEV 47.77

6+50

19 #4 JS24

N 1076.80
E 2013.08
ELEV 50.18

N 1098.40
E 2010.00
ELEV 49.33

19 #4 JS26

149 #4 JS4

DRAINAGE INLET
(CUT STEEL AS REQUIRED)

N 1202.57
E 2022.69

N 1051.21
E 2023.56
ELEV 51.37

18 #4 JS2

18 #4 JS3

7 #4 JS22

5 #4 JS21

2 #4 JS20

3 #4 JS1

2 #4 JS30

175 #5 JS43

17 SPA @12" CTRS

3"

174 SPA @9" CTRS

6 #4 JS42

4 SPA @12" CTRS

8 #4 JS23

17 #4 JS25

N 1054.57
E 2038.96
ELEV 51.04

191 SPA @12" CTRS

1'-0⅛"

2" TRAP ROCK

3" CLEAR

#4 @12" E.W.

CJ

NEW UNTREATED
COMPACTED
AGGREGATE
AS REQUIRED

EXISTING
AGGREGATE BASE

EXISTING COMPACTED
SAND FILL

TYPICAL SLAB SECTION AND CONSTRUCTION JOINT DETAIL (CJ)
NO SCALE

BILL OF REINFORCING (GRADE 60)
EPOXY COATED REINFORCING
STRAIGHT BARS

MARK	SIZE	NO.	LENGTH
JS1	4	3	4'-3" TO 14'-9" IN 5'-3" INCREMENTS
JS2	4	18	15'-0"
JS3	4	18	30'-0"
JS4	4	149	60'-0"
JS5	4	7	50'-0"
JS6	4	7	9'-1" TO 12'-1" IN 6" INCREMENTS
JS7	4	24	1'-8" TO 13'-2" IN 6" INCREMENTS
JS8	4	20	13'-9" TO 24'-10" IN 7" INCREMENTS
JS9	4	20	25'-10 TO 40'-1" IN 9" INCREMENTS
JS10	4	21	41'-10" TO 60'-0" IN 11⅛" INCREMENTS
JS11	4	46	60'-0"
JS12	4	8	27'-0" TO 57'-11" IN 4'-5" INCREMENTS
JS13	4	10	3'-8" TO 24'-8" IN 2'-4" INCREMENTS
JS14	4	1	7'-4"
JS15	4	11	4'-6" TO 49'-2" IN 2" INCREMENTS
JS16	4	14	27'-3" TO 48'-11" IN 1'-8" INCREMENTS
JS17	4	20	3'-1" TO 25'-3" IN 1'-2" INCREMENTS
JS18	4	58	60'-0"
JS19	4	89	60'-0"
JS20	4	2	17'-4"
JS21	4	5	6'-1" TO 46'-1" IN 10'-0" INCREMENTS
JS22	4	7	60'-0"
JS23	4	8	7'-8"
JS24	4	19	1'-11" TO 18'-5" IN 11" INCREMENTS
JS25	4	7	7'-9" TO 49'-9" IN 7'-0" INCREMENTS
JS26	4	19	60'-0"
JS27	4	34	38'-9" TO 59'-4½" IN 7¼" INCREMENTS
JS28	4	36	28'-3" TO 37'-11" IN 4" INCREMENTS
JS29	4	18	7'-9" TO 31'-10" IN 1'-5" INCREMENTS
JS30	4	2	60'-0"
JS31	4	30	1'-10" TO 58'7½" IN 1'-11⅛" INCREMENTS
JS32	4	16	60'-0"
JS33	4	16	1'-8" TO 24'-2" IN 1'-8" INCREMENTS
JS34	4	17	40'-0"
JS35	4	17	2'-1" TO 20'-3" IN 1'-1" INCREMENTS
JS36	4	24	20'-0"
JS37	4	24	1'-1" TO 21'-1" IN 10" INCREMENTS
JS38	4	11	10'-0"
JS39	4	11	5'-7" TO 11'-5" IN 7" INCREMENTS
JS40	4	3	3'-9⅛" TO 11'-3⅛" IN 3'-9" INCREMENTS
JS41	4	18	5'-6" TO 21'-1" IN 11" INCREMENTS
JS42	4	18	44'-4"
JS43	4	51	10½"

BENT BARS

MARK	SIZE	NO.	LENGTH
JS43	5	165	7'-6⅜"

BENDING DIAGRAMS

5'-11"
1'-6"
#5,JS43

No.	Revision	By	Date

DAVID W. SEELEY NUMBER E-20013 STATE OF MISSOURI REGISTERED PROFESSIONAL ENGINEER

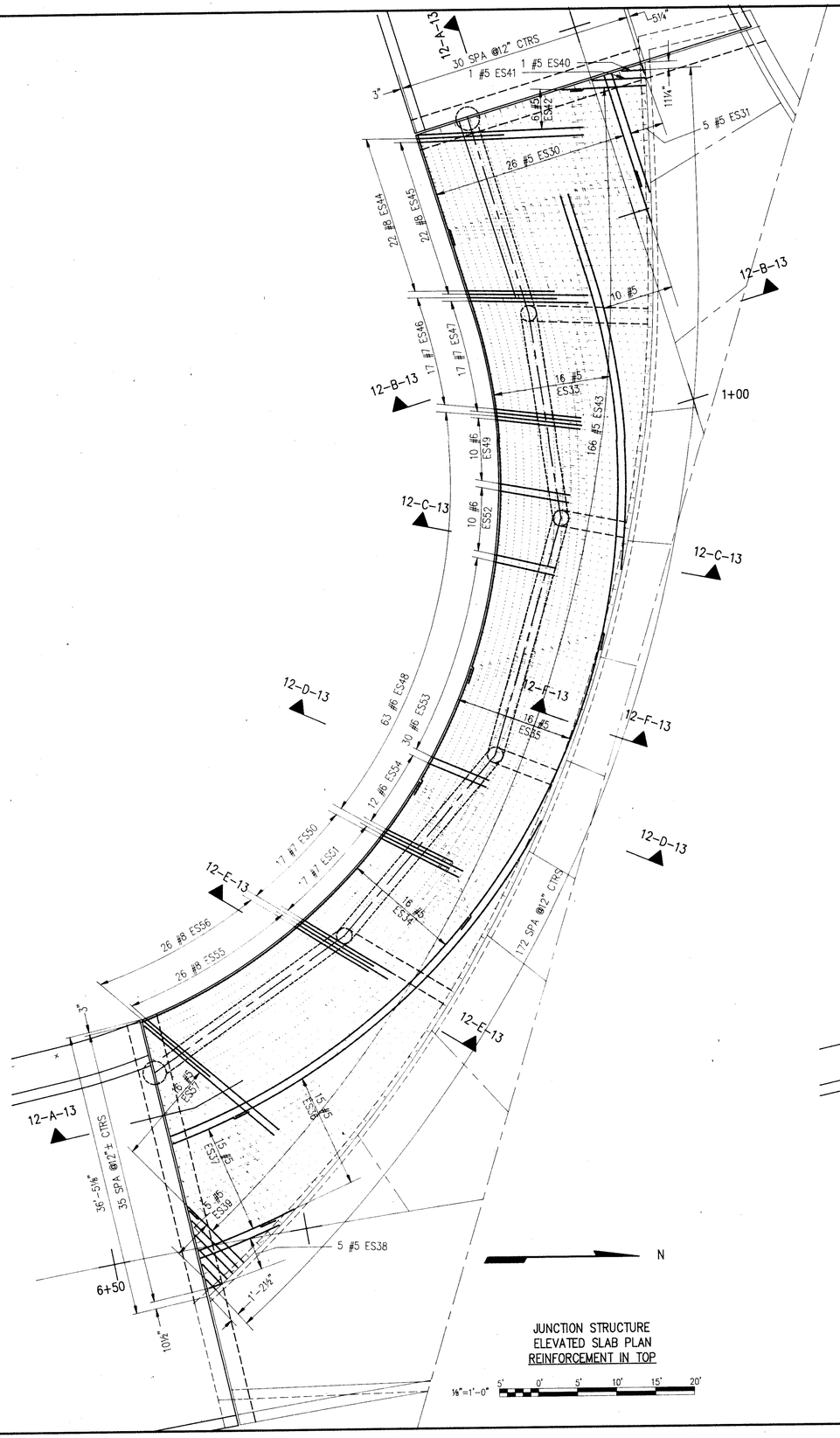
David W. Seeley
PROJECT ENGINEER
Date 7/31/17
NOTE: This drawing is PRELIMINARY until approved by project eng.

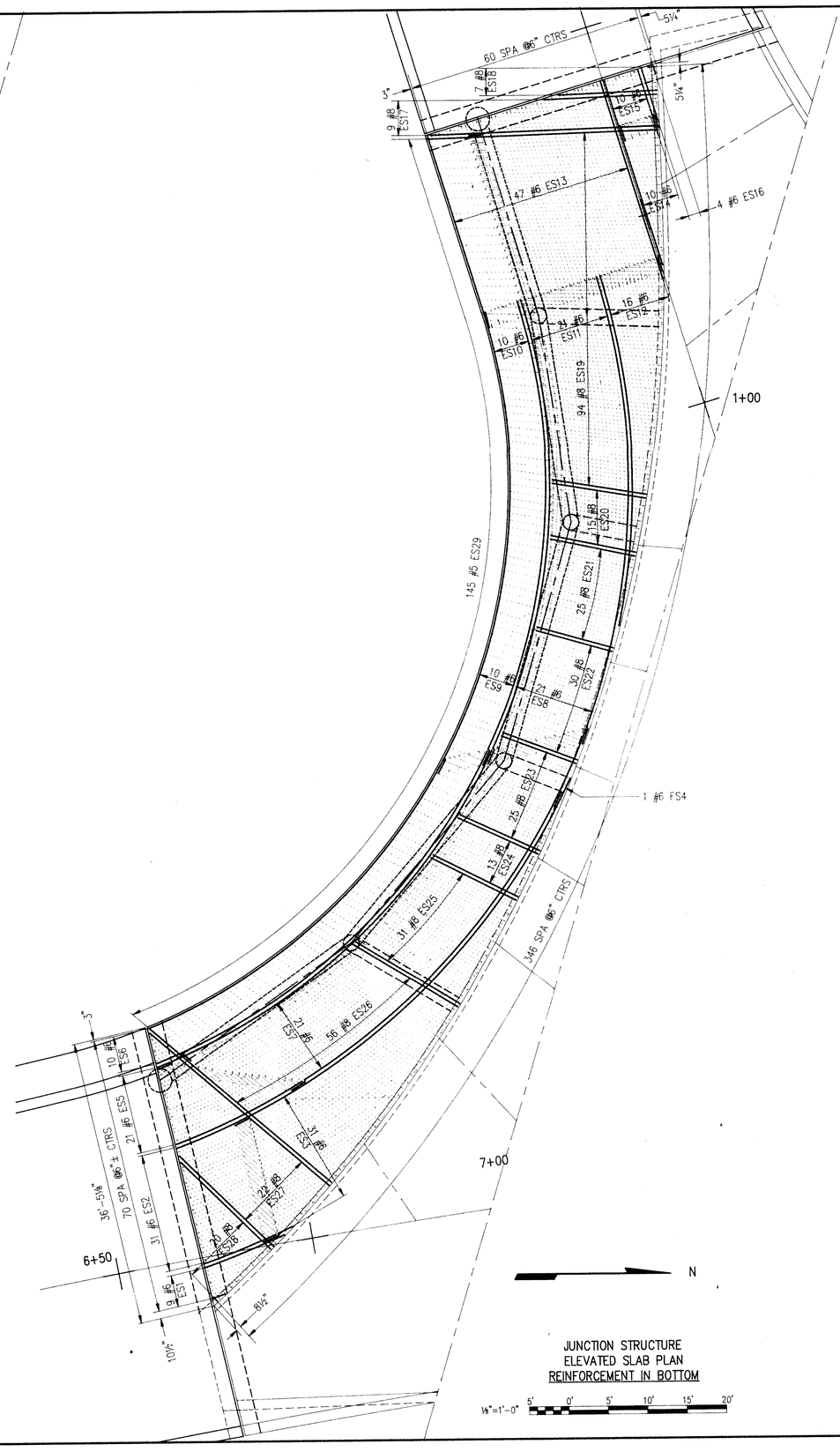
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By DWS
Drawn By DWS
Checked By
Scale 1⅛" = 1'-0"
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
JUNCTION STRUCTURE SLAB ON GRADE

Dwg. No. 12





BILL OF REINFORCING (GRADE 60)

EPOXY COATED REINFORCING

STRAIGHT BARS

MARK	SIZE	NO.	LENGTH
ES1	6	9	1'-5" TO 10'-9" IN 1'-2" INCREMENTS
ES2	6	31	10'-0"
ES3	6	31	3'-7½" TO 59'-10½" IN 1'-10½" INCREMENTS
ES4	6	1	2'-3"
ES5	6	21	1'-10" TO 18'-6" IN 10" INCREMENTS
ES6	6	10	52'-0" TO 59'-6" IN 10" INCREMENTS
ES7	6	21	60'-0"
ES8	6	21	60'-0"
ES9	6	10	60'-0"
ES10	6	10	60'-0"
ES11	6	21	60'-0"
ES12	6	16	2'-10" TO 45'-4" IN 2'-10" INCREMENTS
ES13	6	47	25'-1"
ES14	6	14	4'-3" TO 20'-6" IN 1'-3" INCREMENTS
ES15	6	10	6'-0"
ES16	6	4	1'-0" TO 6'-9" IN 1'-11" INCREMENTS
ES17	8	9	14'-3" TO 28'-11" IN 1'-10" INCREMENTS
ES18	8	7	10½" TO 12'-4½" IN 1'-11" INCREMENTS
ES19	8	94	12'-2½" TO 23'-10" IN 1½" INCREMENTS
ES20	8	15	12'-0"
ES21	8	25	11'-0"
ES22	8	30	10'-0"
ES23	8	25	11'-0"
ES24	8	13	12'-0"
ES25	8	31	12'-4" TO 15'4½" IN 1½" INCREMENTS
ES26	8	56	15'-7" TO 24'-11" IN 2" INCREMENTS
ES27	8	22	16'-8½" TO 29'-10" IN 7½" INCREMENTS
ES28	8	20	10" TO 15'-10½" IN 9½" INCREMENTS
ES29	5	145	6'-7"
ES30	5	26	14'-7"
ES31	5	5	1'-2" TO 16'-0" IN 3'-8½" INCREMENTS
ES32	5	10	6'-8" TO 49'-5" IN 4'-9" INCREMENTS
ES33	5	16	59'-1"
ES34	5	16	48'-2"
ES35	5	16	17'-9" TO 42'-9" IN 1'-8" INCREMENTS
ES36	5	15	5'-2" TO 49'-6" IN 3'-2" INCREMENTS
ES37	5	15	9'-3"
ES38	5	5	1'-6" TO 10'-10" IN 2'-4" INCREMENTS
ES39	5	5	1'-8" TO 8'-4" IN 1'-8" INCREMENTS
ES40	5	1	2'-10"
ES41	5	1	6'-8"
ES42	5	6	2'-6" TO 21'-3" IN 3'-9" INCREMENTS
ES43	5	166	10'-10"
ES44	8	22	11'-0"
ES45	8	22	15'-9" TO 21'-0" IN 3" INCREMENTS
ES46	7	17	11'-0"
ES47	7	17	11'-0" TO 15'-0" IN 3" INCREMENTS
ES48	6	63	11'-0"
ES49	6	10	10'-8"
ES50	7	17	11'-0"
ES51	7	17	9'-8" TO 13'-0" IN 2¾" INCREMENTS
ES52	6	10	8'-11"
ES53	6	30	7'-9"
ES54	6	12	9'-3"
ES55	8	26	13'-8" TO 22'-0" IN 4" INCREMENTS
ES56	8	26	11'-0"
ES57	5	16	3'-2" TO 21'-11" IN 1'-3" INCREMENTS

BENT BARS

MARK	SIZE	NO.	LENGTH

No.	Revision	By	Date

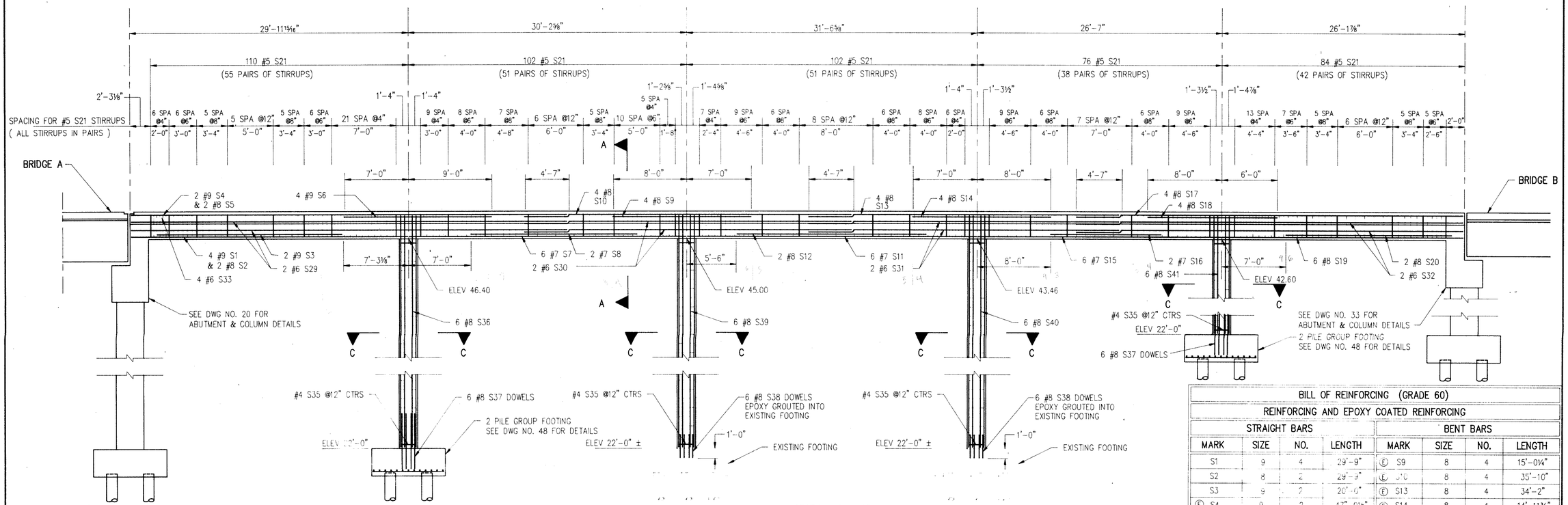
PROJECT ENGINEER
Date 7/31/20
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By DWS
Drawn By DWS
Checked By
Scale AS SHOWN
Job No. 8709
Contract No. 2

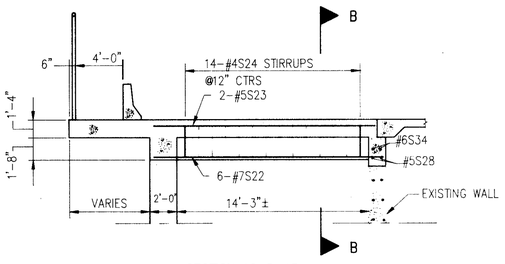
KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
JUNCTION STRUCTURE ELEVATED SLAB

Dwg. No. 13



SECTION 12-A-13

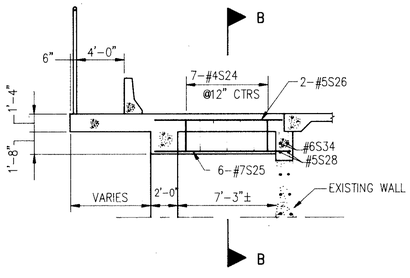
3/16"=1'-0" 5' 0' 5' 10' 15'



SECTION 12-B-13

SECTION 12-E-13

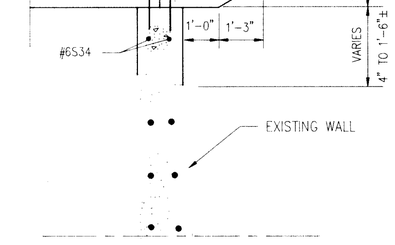
3/16"=1'-0" 5' 0' 5' 10' 15'



SECTION 12-C-13

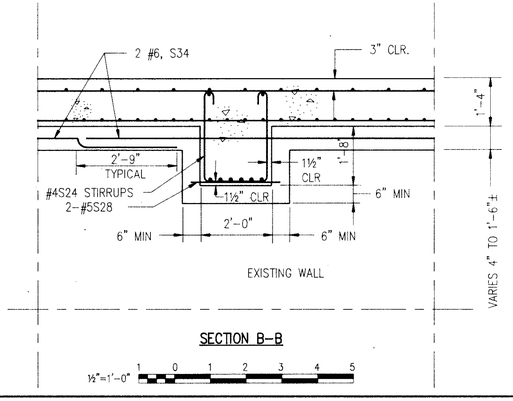
SECTION 12-D-13

3/16"=1'-0" 5' 0' 5' 10' 15'



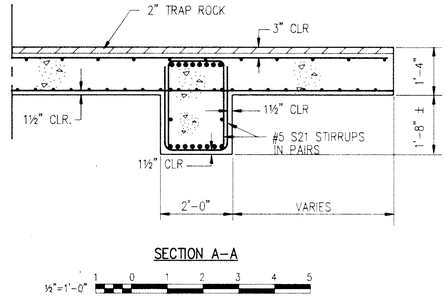
SECTION 12-F-13

1/2"=1'-0" 1 0 1 2 3 4 5



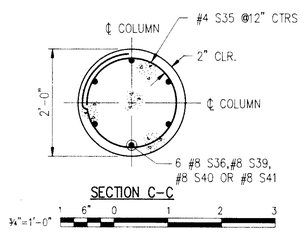
SECTION B-B

1/2"=1'-0" 1 0 1 2 3 4 5



SECTION A-A

1/2"=1'-0" 1 0 1 2 3 4 5



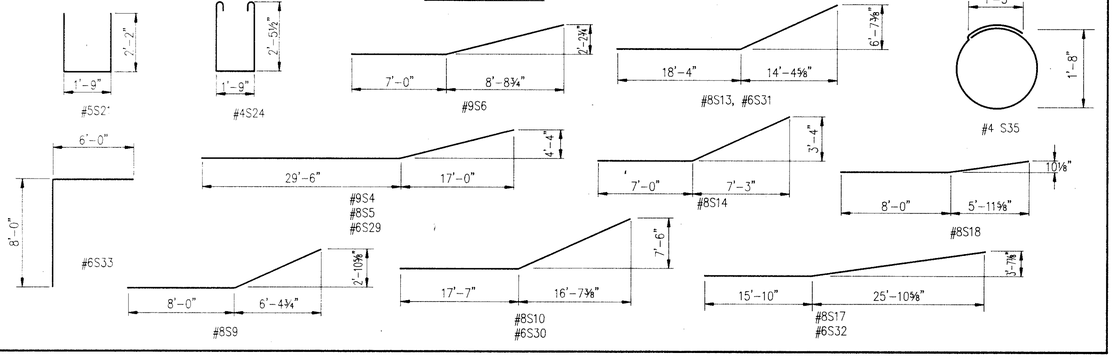
SECTION C-C

3/4"=1'-0" 6" 0 1 2 3

BILL OF REINFORCING (GRADE 60)							
REINFORCING AND EPOXY COATED REINFORCING							
STRAIGHT BARS				BENT BARS			
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
S1	9	4	29'-9"	Ⓔ S9	8	4	15'-0¼"
S2	8	2	29'-3"	Ⓔ S10	8	4	35'-10"
S3	9	2	20'-0"	Ⓔ S13	8	4	34'-2"
Ⓔ S4	9	2	47'-0½"	Ⓔ S14	8	4	14'-11¾"
Ⓔ S5	5	2	47'-0½"	Ⓔ S17	8	4	41'-11¾"
Ⓔ S6	9	4	16'-0"	Ⓔ S18	8	4	14'-0⅜"
S7	7	6	30'-0½"	Ⓔ S21	5	474	6'-1"
S8	7	2	18'-3"	Ⓔ S24	4	42	7'-6"
S11	7	6	31'-4½"	S29	6	4	47'-0½"
S12	8	2	20'-6"	S30	6	4	35'-10"
S15	7	6	26'-5"	S31	6	4	34'-2"
S16	7	2	12'-0"	S32	6	4	41'-11¾"
S19	8	6	25'-10"	S33	6	4	14'-0"
S20	8	2	18'-0"	S35	4	91	6'-7⅞"
S22	7	12	16'-11"				
Ⓔ S23	5	4	16'-4"				
S25	7	12	9'-11"				
Ⓔ S26	5	4	9'-4"				
S27	4	220	1'-4"				
S28	5	8	2'-8"				
S34	6	8	45'-9"				
S36	8	6	26'-9"				
S37	8	12	6'-0"				
S38	8	12	2'-6"				
S39	8	6	25'-4"				
S40	8	6	23'-9"				
S41	8	6	22'-11"				

Ⓔ INDICATES EPOXY COATED REINFORCEMENT

BENDING DIAGRAMS



No.	Revision	By	Date

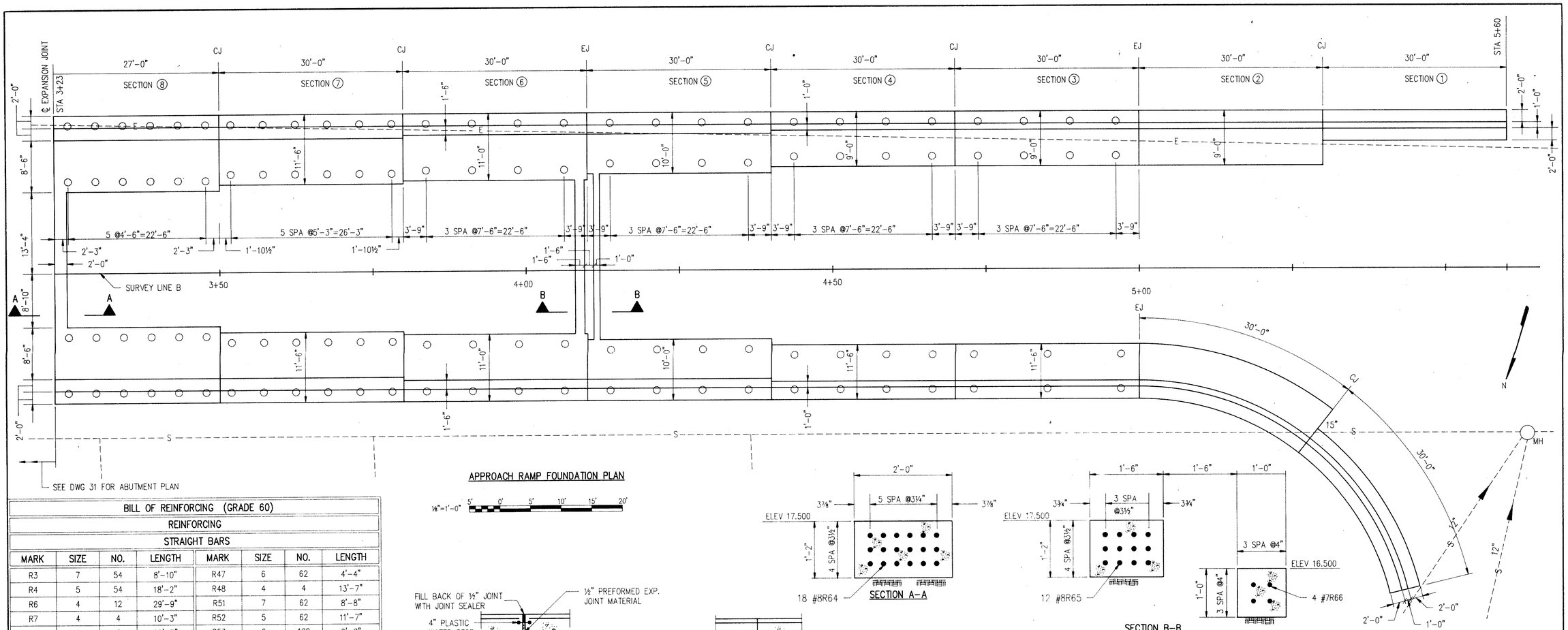
PROJECT ENGINEER
Date 7/21/15
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
JUNCTION STRUCTURE ELEVATED SLAB SUPPORT BEAM

Designed By DWS
Drawn By DWS
Checked By
Scale AS SHOWN
Job No. 8709
Contract No. 2

Dwg. No. 14



BILL OF REINFORCING (GRADE 60)

REINFORCING

STRAIGHT BARS

MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
R3	7	54	8'-10"	R47	6	62	4'-4"
R4	5	54	18'-2"	R48	4	4	13'-7"
R6	4	12	29'-9"	R51	7	62	8'-8"
R7	4	4	10'-3"	R52	5	62	11'-7"
R8	4	4	22'-7"	R53	6	182	9'-8"
R9	4	16	29'-4"	R54	4	4	25'-11"
R10	8	108	12'-2"	R55	4	4	3'-1"
R11	6	56	12'-2"	R56	4	4	15'-5"
R12	6	52	26'-8"	R57	4	4	27'-9"
R13	6	6	29'-4"	R59	6	124	4'-8"
R15	5	56	29'-4"	R60	5	62	4'-2" TO 5'-5" IN ½" INCREMENTS
R16	4	92	29'-8"	R64	8	18	35'-8"
R17	4	4	27'-5"	R65	8	12	38'-8"
R18	4	4	15'-1"	R66	7	4	37'-2"
R19	4	4	6'-8"	R67	7	4	4'-0"
R21	7	60	8'-8"				
R22	5	60	15'-9"				
R23	4	16	32'-6"				
R24	4	8	8'-0"				
R25	4	12	20'-4"				
R26	4	112	32'-4"				
R27	5	48	32'-4"				
R28	7	120	11'-0"				
R29	6	62	11'-0"				
R30	7	242	32'-4"				
R31	7	56	29'-8"				
R32	4	4	19'-0"				
R33	4	4	31'-4"				
R34	6	426	31'-4"				
R35	7	62	8'-8"				
R36	5	62	9'-2½"				
R37	6	62	9'-2½"				
R39	5	62	6'-9"				
R42	7	60	8'-3"				
R43	5	60	13'-4"				
R44	6	182	10'-8"				
R45	6	62	6'-9"				
R46	5	62	4'-4"				

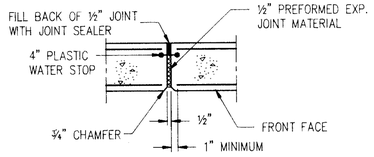
BENT BARS

MARK	SIZE	NO.	LENGTH
R1	7	54	16'-4"
R2	8	54	16'-4"
R5	5	370	4'-10"
R14	6	308	5'-6"
R20	7	120	14'-2"
R38	8	62	7'-7"
R40	6	60	12'-4"
R41	7	60	12'-4"
R49	6	62	4'-3"
R50	8	62	10'-4"
R58	6	62	3'-2"
R61	6	62	VARIES
R62	6	124	6'-8"

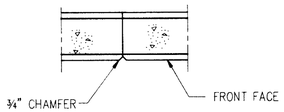
*ALL DIMENSIONS ARE OUT TO OUT

APPROACH RAMP FOUNDATION PLAN

⅛"=1'-0" 5' 0' 5' 10' 15' 20'

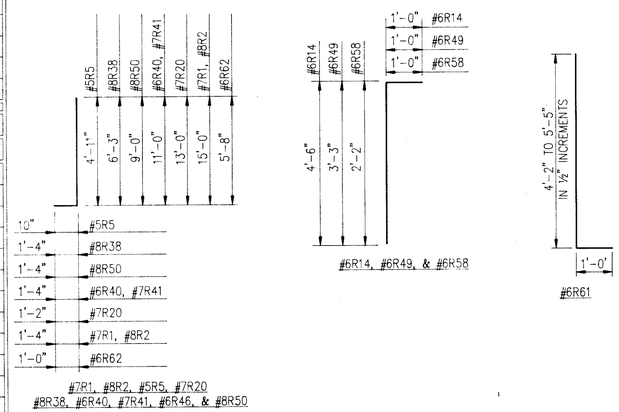


EXPANSION JOINT DETAIL
NO SCALE



CONTRACTION JOINT DETAIL
NO SCALE

BENDING DIAGRAMS



TYPICAL SECTION

¼"=1'-0" 5 0 5 10

No.	Revision	By	Date

STATE OF MISSOURI REGISTERED PROFESSIONAL ENGINEER
DAVID WARD SEELEY NUMBER E-20011

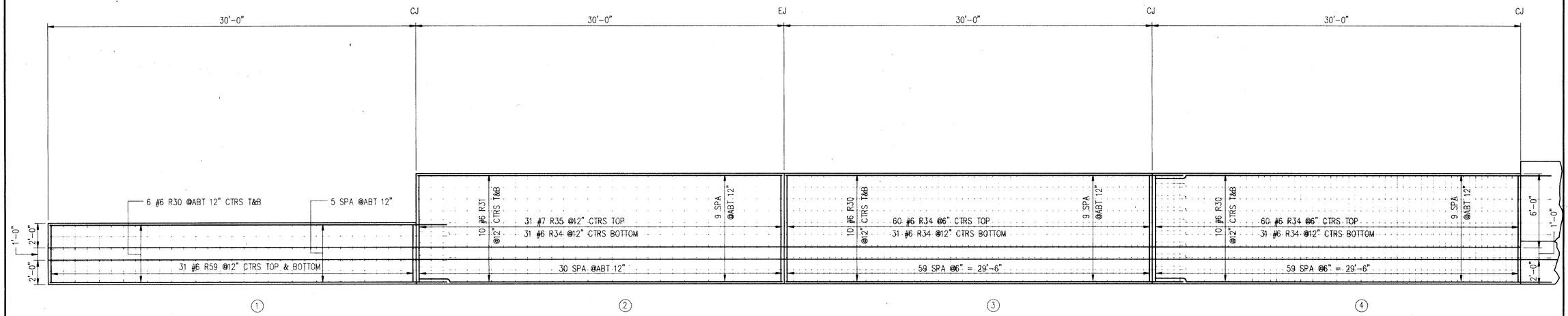
PROJECT ENGINEER
Date 7/21/99
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By GCJ
Drawn By DWS
Checked By
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
APPROACH RAMP

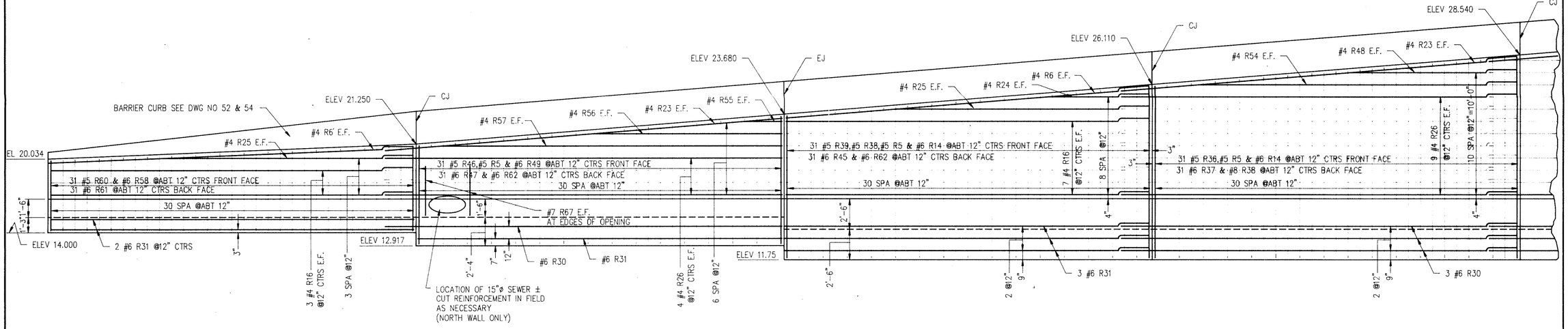
Dwg. No. 15



PLAN – SECTIONS 1 TO 4

(SOUTH WALL SHOWN, NORTH WALL OPPOSITE HAND)

1/4"=1'-0" 5 0 5 10



ELEVATION – SECTIONS 1 TO 4

(SOUTH WALL SHOWN, NORTH WALL OPPOSITE HAND)

1/4"=1'-0" 5 0 5 10

No.	Revision	By	Date

SEAL OF MISSOURI ENGINEER — DAVID WARD SEELEY — NUMBER E-20031 — REGISTERED PROFESSIONAL ENGINEER

David Seeley
PROJECT ENGINEER
Date 7/31/97
NOTE: This drawing is PRELIMINARY until approved by project eng.

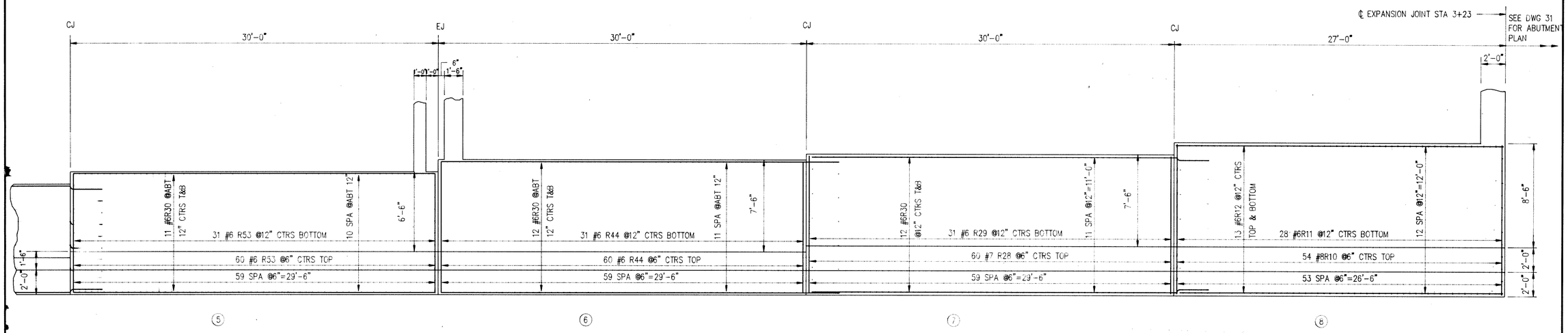
ACKirkwood

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By GCJ
Drawn By DWS
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
APPROACH RAMP
PARTIAL PLAN & ELEVATION

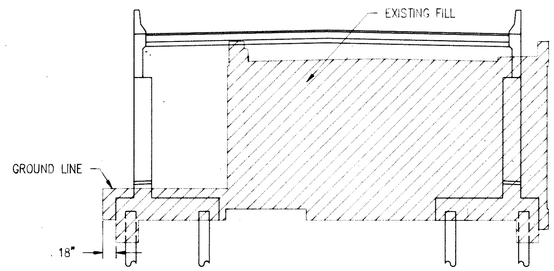
Dwg. No. 16



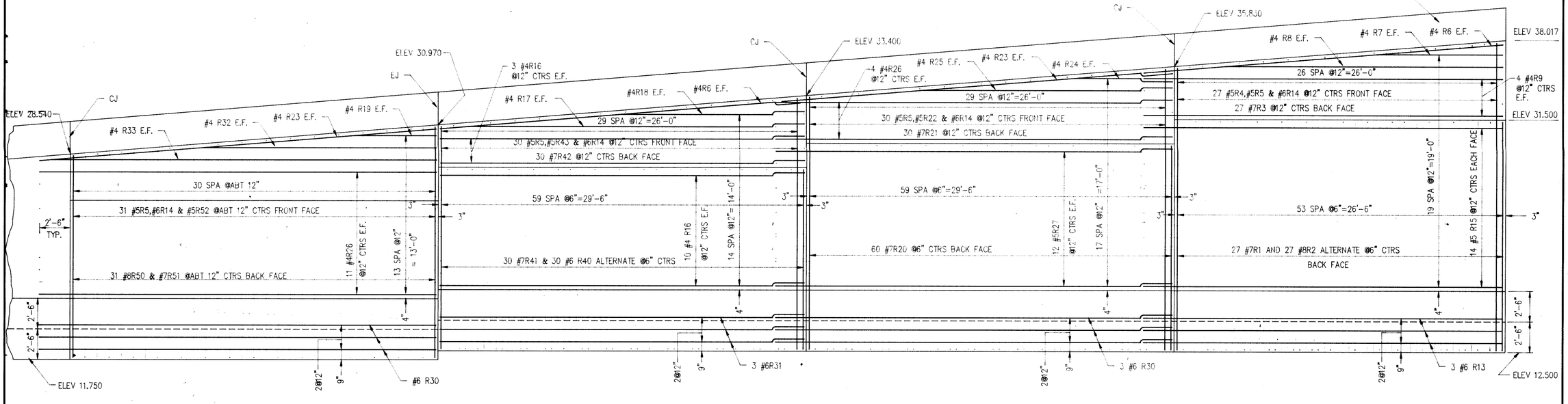
PLAN – SECTIONS 5 TO 8

(SOUTH WALL SHOWN, NORTH WALL OPPOSITE HAND)

¼"=1'-0" 5 0 5 10



LIMITS OF EXCAVATION



ELEVATION – SECTIONS 5 TO 8

(SOUTH WALL SHOWN, NORTH WALL OPPOSITE HAND)

¼"=1'-0" 5 0 5 10

No.	Revision	By	Date

STATE OF MISSOURI REGISTERED DAVID WARD STEELEY NUMBER E-22011 PROFESSIONAL ENGINEER

PROJECT ENGINEER

Date

NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

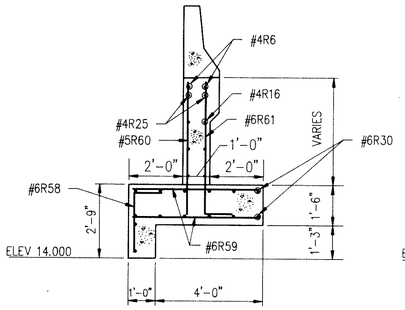
Designed By GCJ
Drawn By DWS
Checked By
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.

CHESTNUT AVENUE VIADUCT

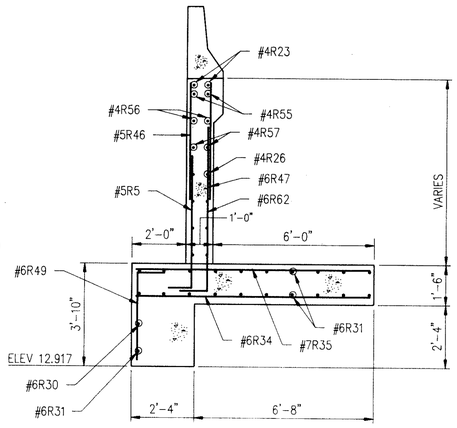
APPROACH RAMP
PARTIAL PLAN & ELEVATION

Dwg. No. 17



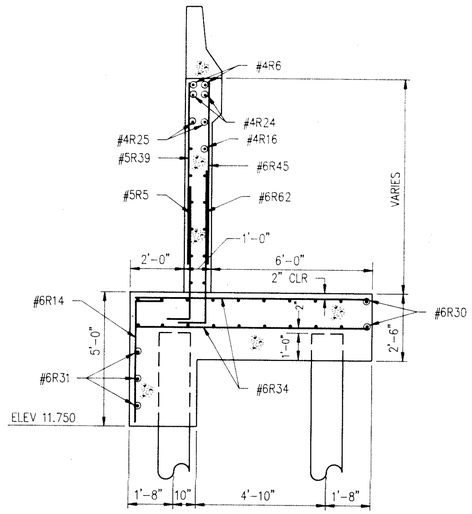
TYPICAL SECTION 1

3/8"=1'-0" 1 0 1 2 3 4 5



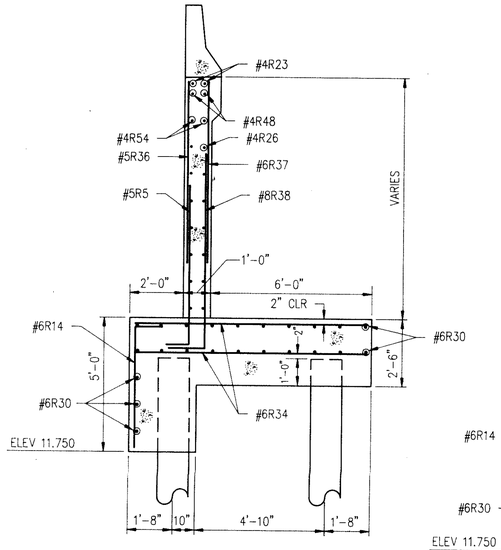
TYPICAL SECTION 2

3/8"=1'-0" 1 0 1 2 3 4 5



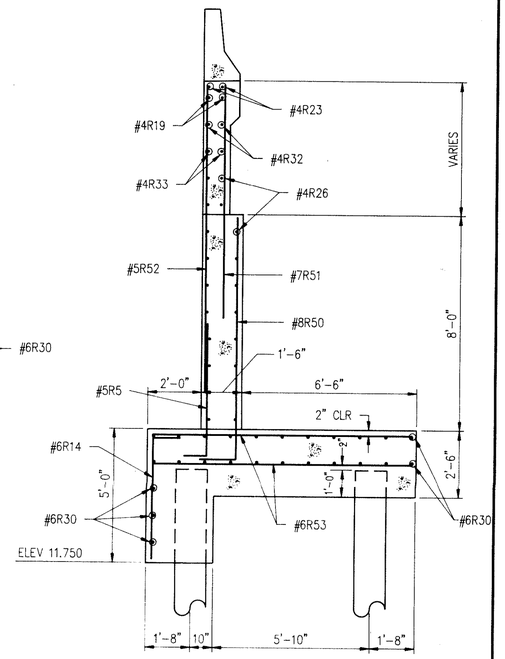
TYPICAL SECTION 3

3/8"=1'-0" 1 0 1 2 3 4 5



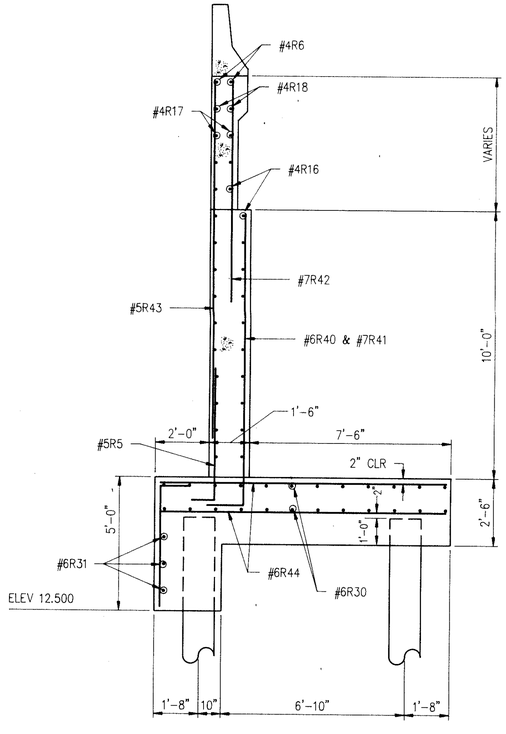
TYPICAL SECTION 4

3/8"=1'-0" 1 0 1 2 3 4 5



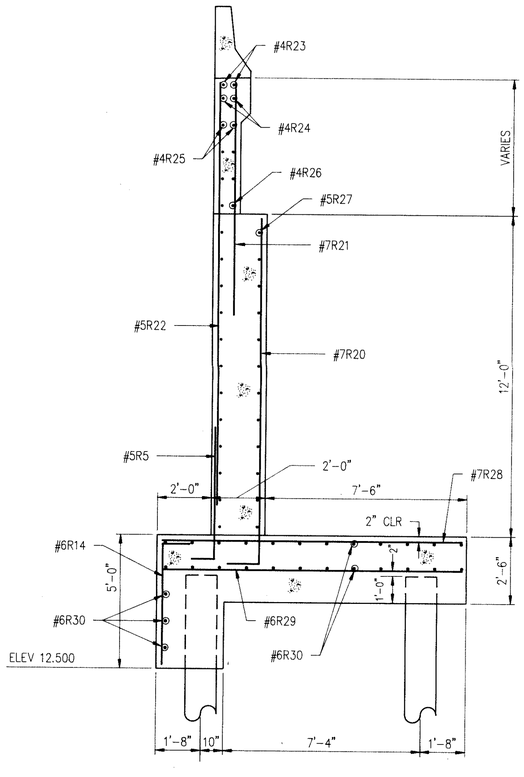
TYPICAL SECTION 5

3/8"=1'-0" 1 0 1 2 3 4 5



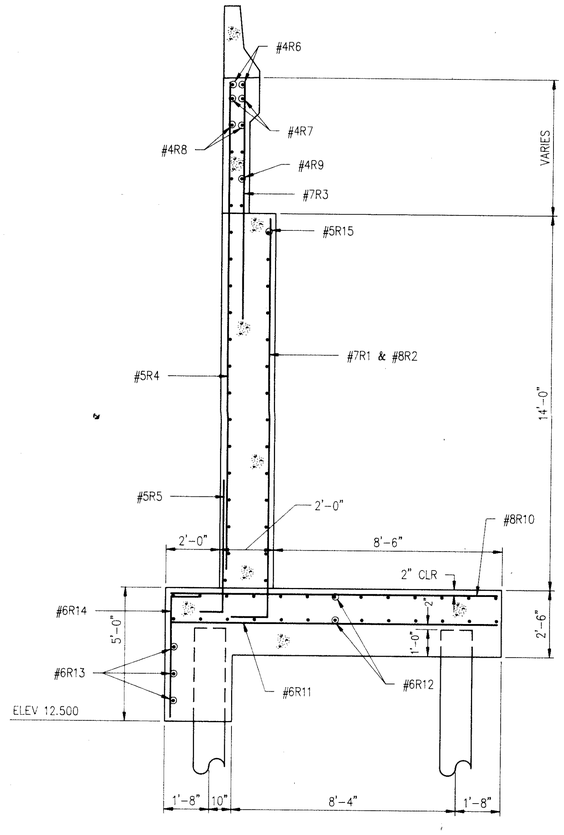
TYPICAL SECTION 6

3/8"=1'-0" 1 0 1 2 3 4 5



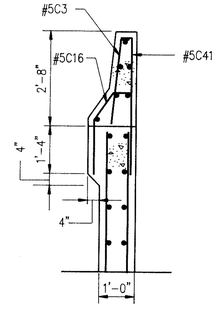
TYPICAL SECTION 7

3/8"=1'-0" 1 0 1 2 3 4 5



TYPICAL SECTION 8

3/8"=1'-0" 1 0 1 2 3 4 5



TYPICAL SECTION – TOP OF WALL

½"=1'-0" 1 0 1 2 3 4 5

No.	Revision	By	Date

STATE OF MISSOURI CIVIL ENGINEER DAVID WARD SEELEY NUMBER E-28031 REGISTERED PROFESSIONAL

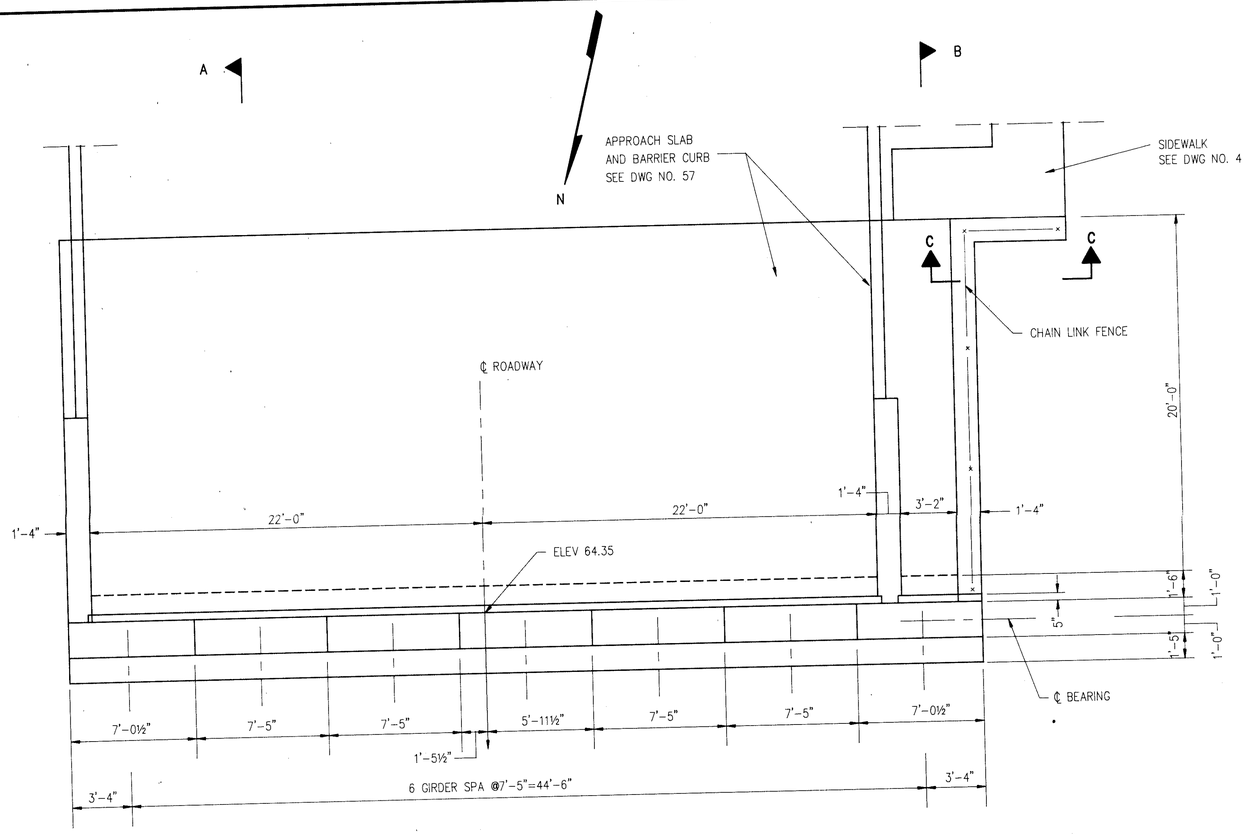
PROJECT ENGINEER
Date 7/31/09
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By GCJ
Drawn By DWS
Checked By
Scale AS SHOWN
Job No. 8709
Contract No. 2

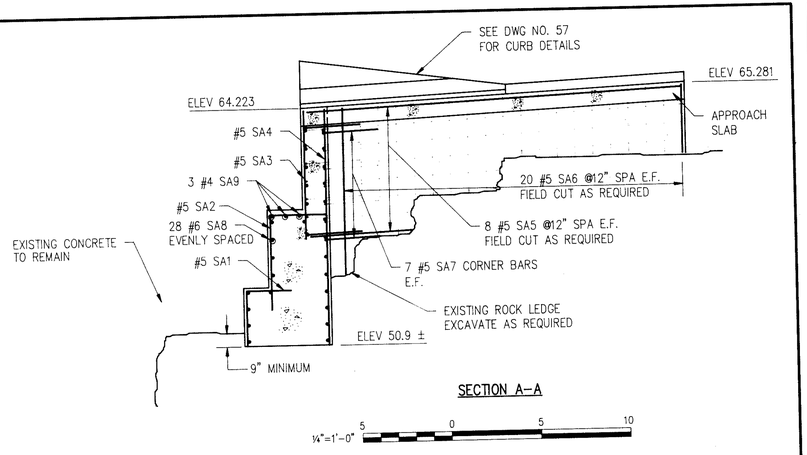
KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
APPROACH RAMP SECTIONS

Dwg. No. 18



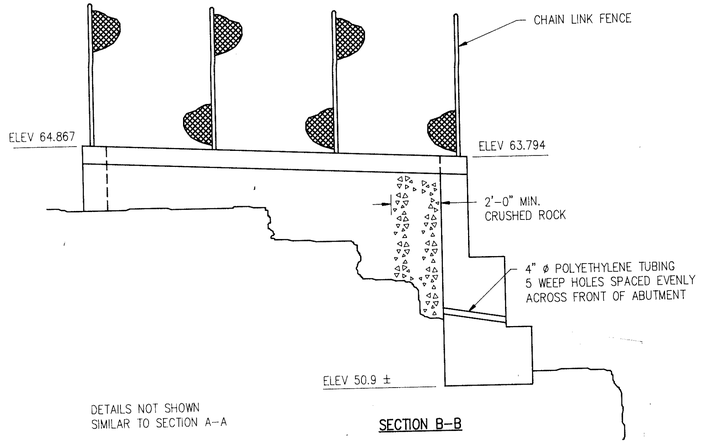
PLAN

¼"=1'-0" 5 0 5 10



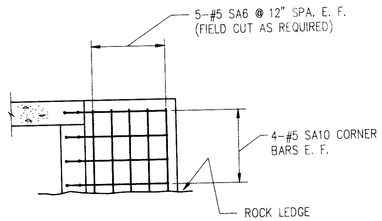
SECTION A–A

¼"=1'-0" 5 0 5 10



SECTION B–B

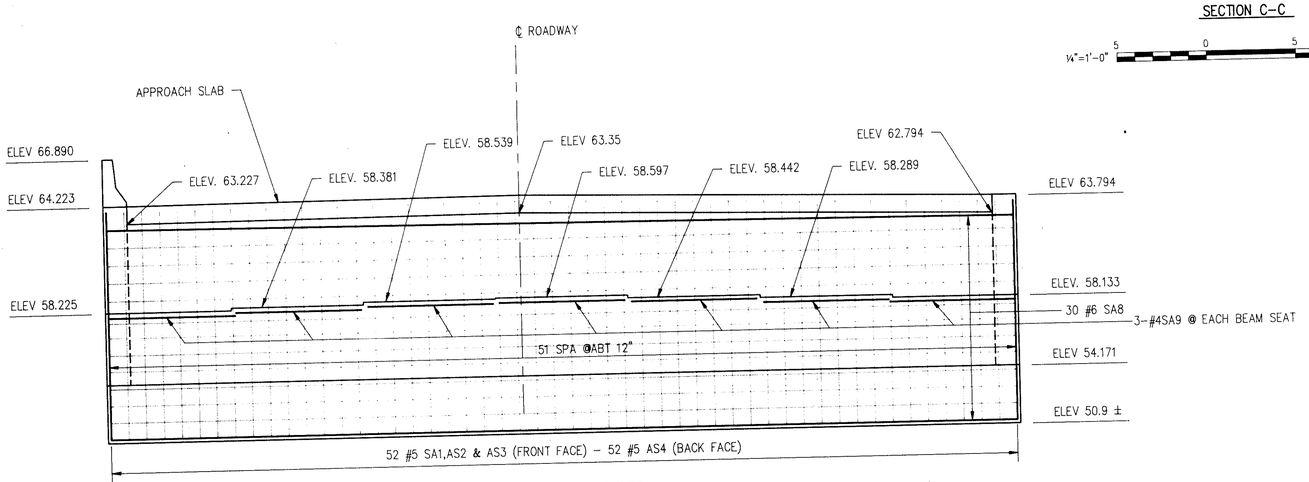
¼"=1'-0" 5 0 5 10



SECTION C–C

¼"=1'-0" 5 0 5 10

DETAILS NOT SHOWN
SIMILAR TO SECTION A–A



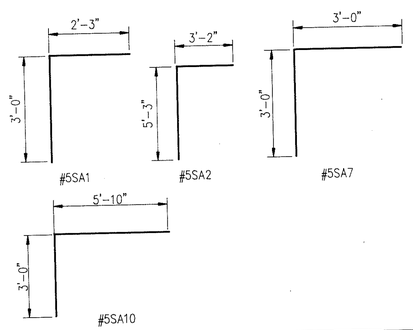
ELEVATION

¼"=1'-0" 5 0 5 10

BILL OF REINFORCING (GRADE 60)

REINFORCING

STRAIGHT BARS				BENT BARS			
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
SA3	5	52	6'–5"	SA1	5	52	5'–3"
SA4	5	52	12'–7"	SA2	5	52	8'–5"
SA5	5	32	21'–3"	SA7	5	28	6'–0"
SA6	5	80	9'–0"	SA10	5	8	8'–10"
SA8	6	28	50'–10"				
SA9	4	21	7'–0"				



No.	Revision	By	Date

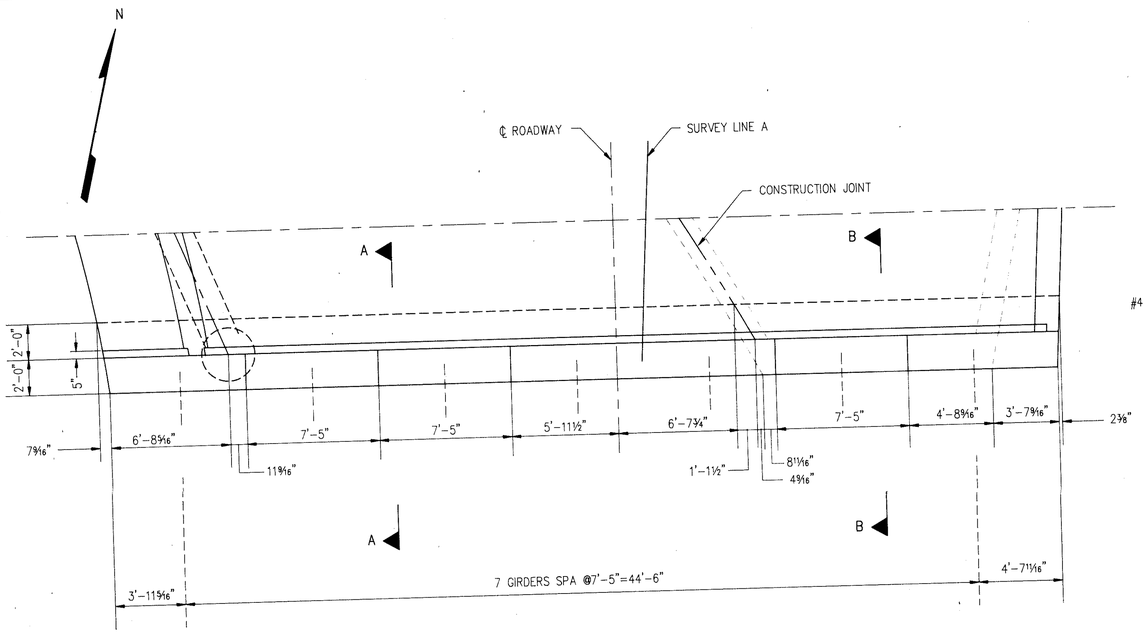
PROJECT ENGINEER
Date 7/3/20
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By DWS
Drawn By DWS
Checked By
Scale AS SHOWN
Job No. 8709
Contract No. 2

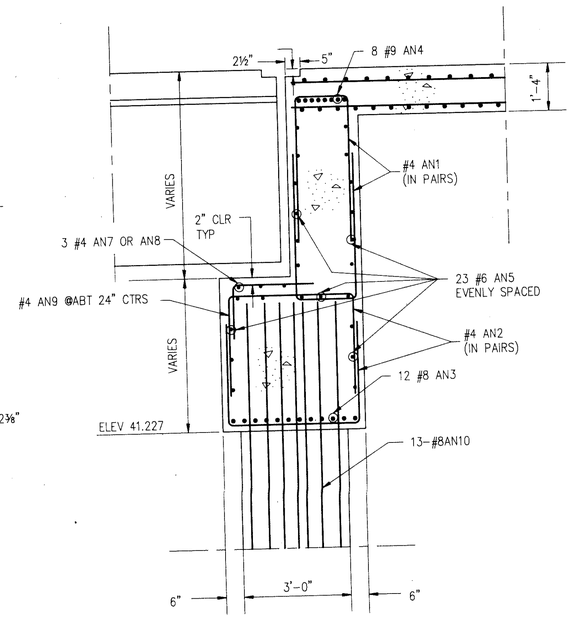
KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BRIDGE A – SOUTH ABUTMENT

Dwg. No. 19



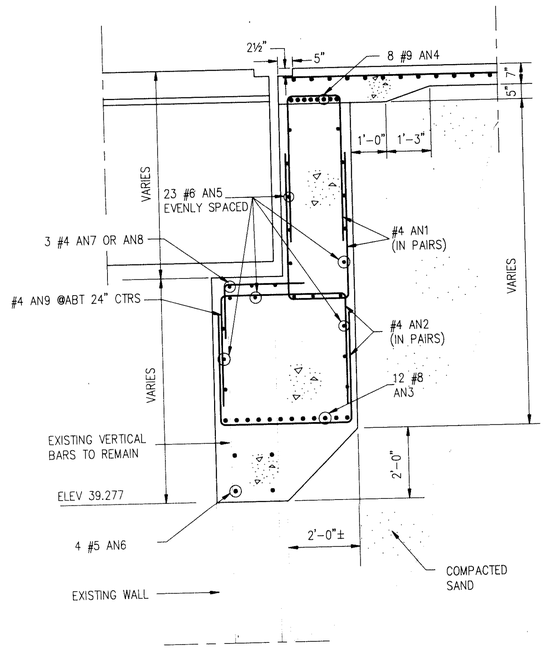
PLAN

¼"=1'-0" 5 0 5 10



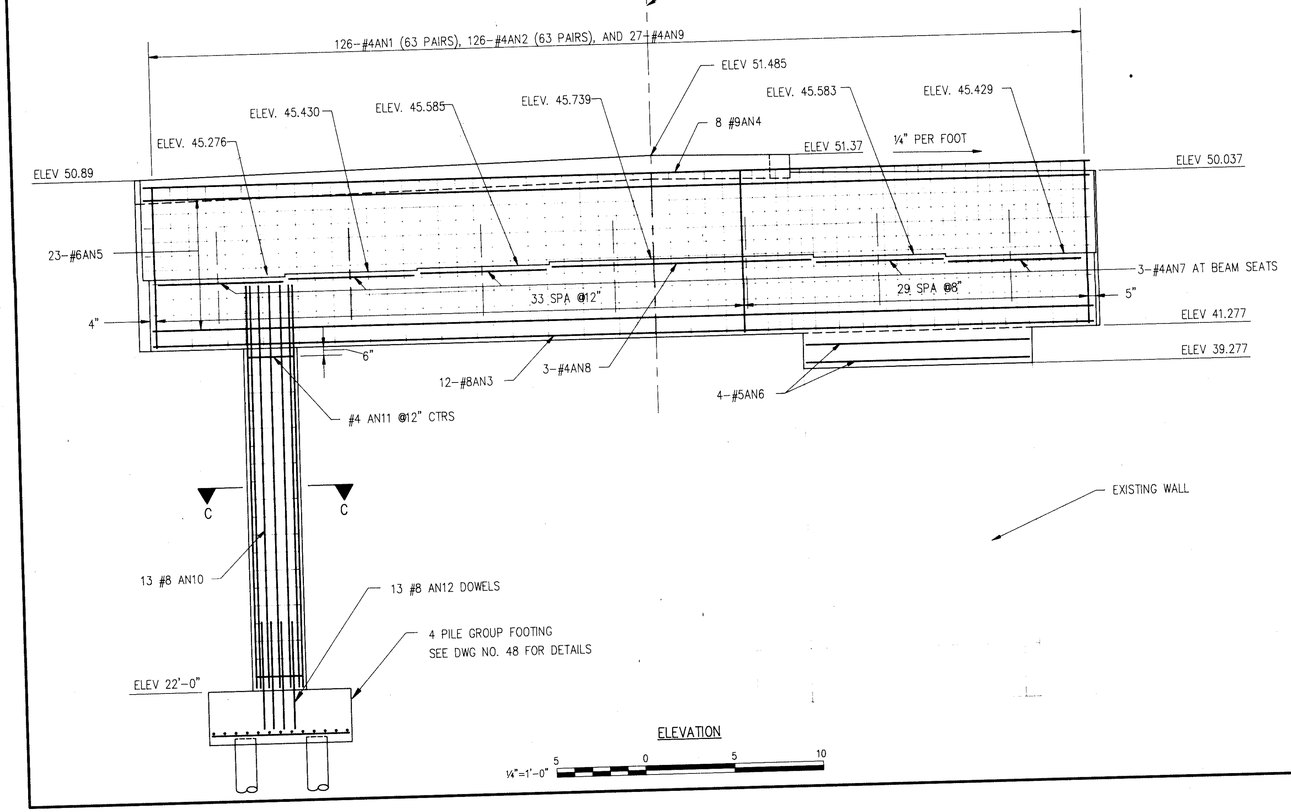
SECTION A-A

½"=1'-0" 1 0 1 2 3 4 5



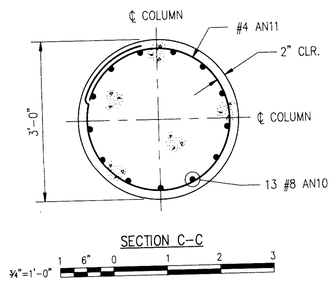
SECTION B-B

½"=1'-0" 1 0 1 2 3 4 5



ELEVATION

¼"=1'-0" 5 0 5 10



SECTION C-C

¾"=1'-0" 1 6" 0 1 2 3

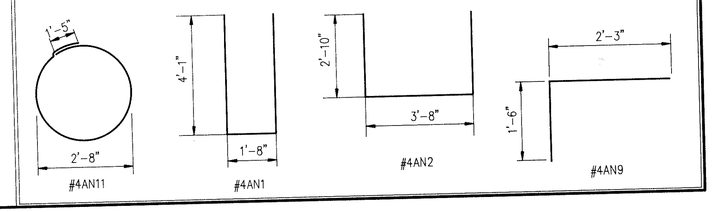
BILL OF REINFORCING (GRADE 60)

EPOXY COATED REINFORCING

STRAIGHT BARS				BENT BARS			
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
AN4	9	8	53'-4"	AN1	4	126	9'-10"

REINFORCING

STRAIGHT BARS				BENT BARS			
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
AN3	8	12	53'-0"	AN2	4	126	9'-4"
AN5	6	23	53'-0"	AN9	4	27	3'-9"
AN6	5	4	12'-6	AN11	4	19	9'-9½"
AN7	4	15	7'-0"				
AN8	4	3	14'-6"				
AN10	8	13	22'-6"				
AN12	8	13	6'-0"				



No.	Revision	By	Date

STATE OF MISSOURI REGISTERED PROFESSIONAL ENGINEER DAVID WARD STEELY NUMBER E-24741

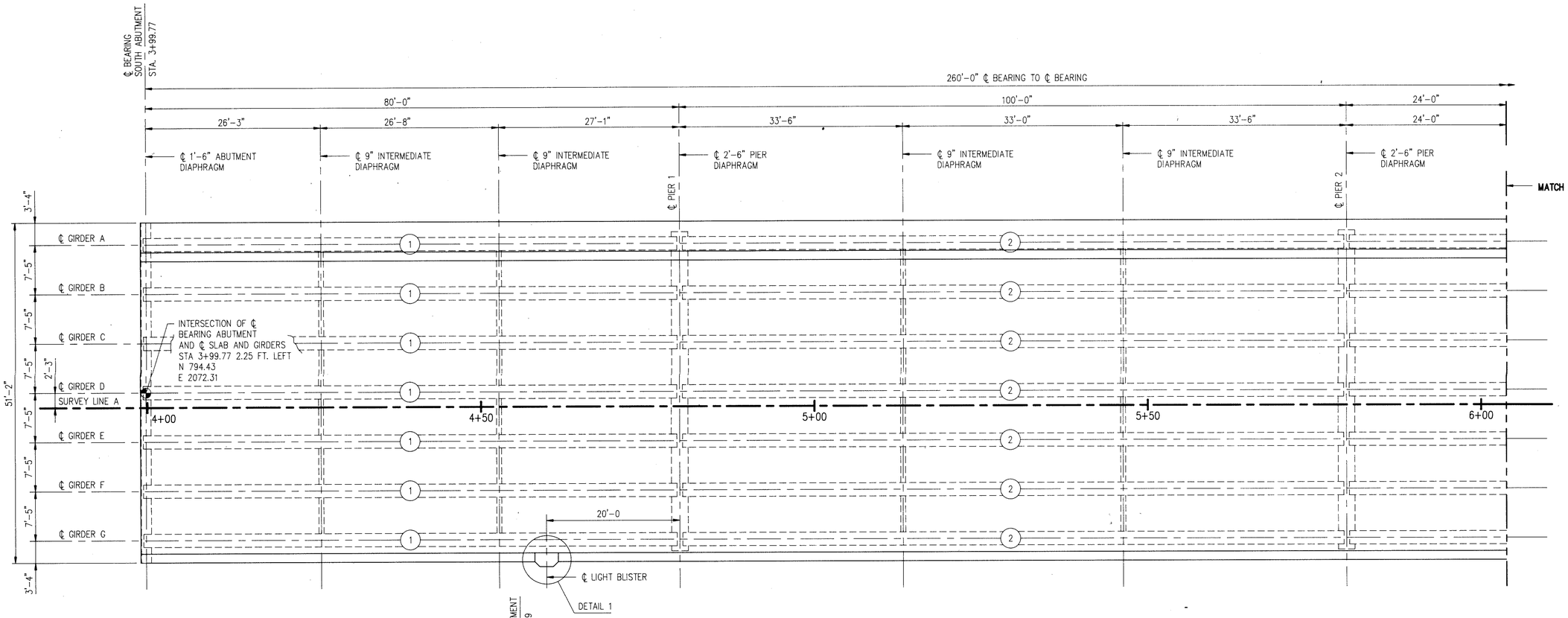
Laura Steely
PROJECT ENGINEER
Date 7/31/09
NOTE: This drawing is PRELIMINARY until approved by project eng.

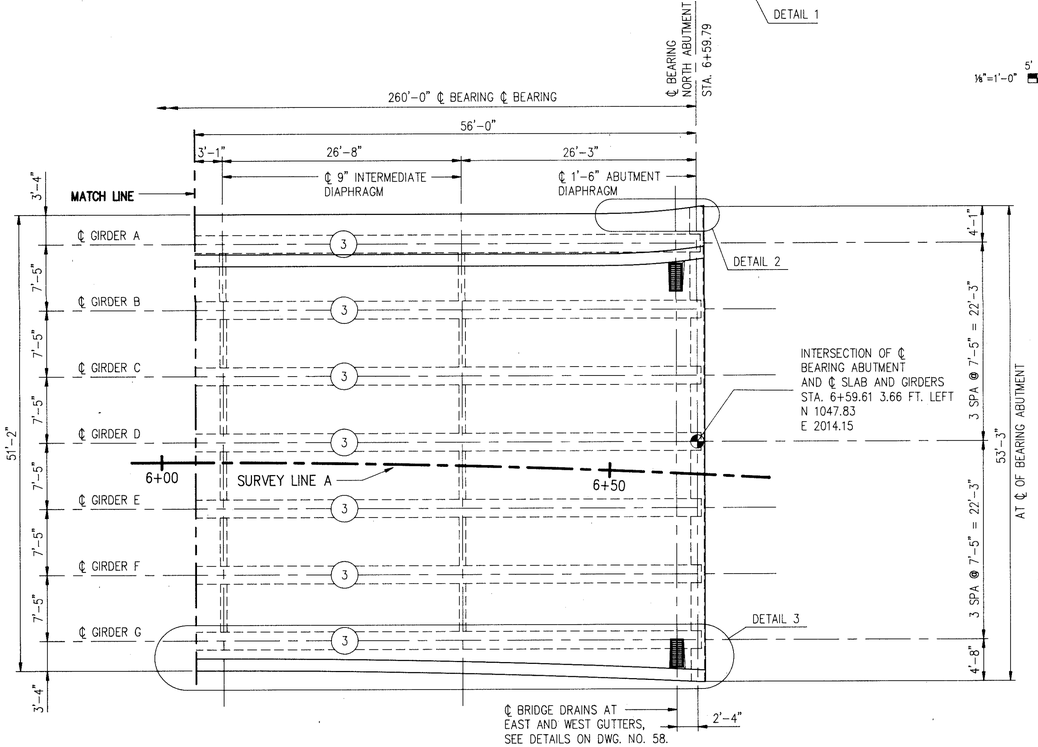
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By DWS
Drawn By DWS
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BRIDGE A – NORTH ABUTMENT

Dwg. No. 20





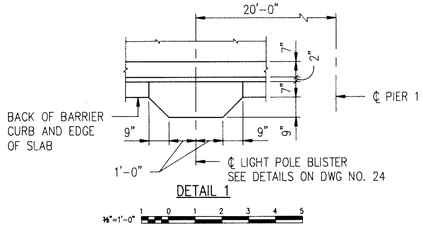
SLAB AND GIRDER PLAN

1⅛"=1'-0" 5' 0' 5' 10' 15' 20'

N

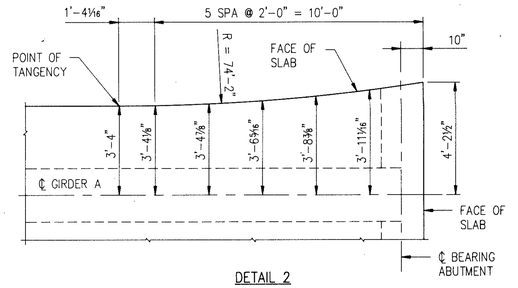
NOTES:

1. FOR GENERAL NOTES AND SUMMARY OF QUANTITIES SEE DRAWING NO. 2
2. FOR GIRDER DETAILS SEE DRAWINGS NO. 43, 44, AND 45
3. FOR DIAPHRAGM DETAILS SEE DRAWINGS NO. 22 AND 23
4. (1) DENOTES THE GIRDER TYPE AND REFERS TO THE DETAILS SHOWN ON DRAWINGS NO. 43, 44, AND 45



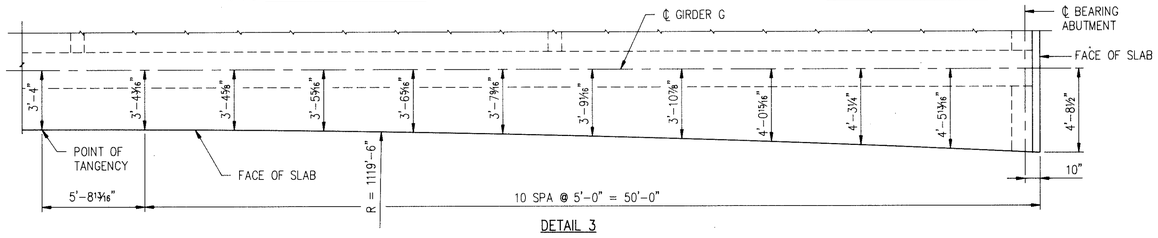
DETAIL 1

⅜"=1'-0" 1 0 1 2 3 4 5



DETAIL 2

⅜"=1'-0" 1 0 1 2 3 4 5



DETAIL 3

¾"=1'-0" 1 6" 0 1 2 3

No.	Revision	By	Date

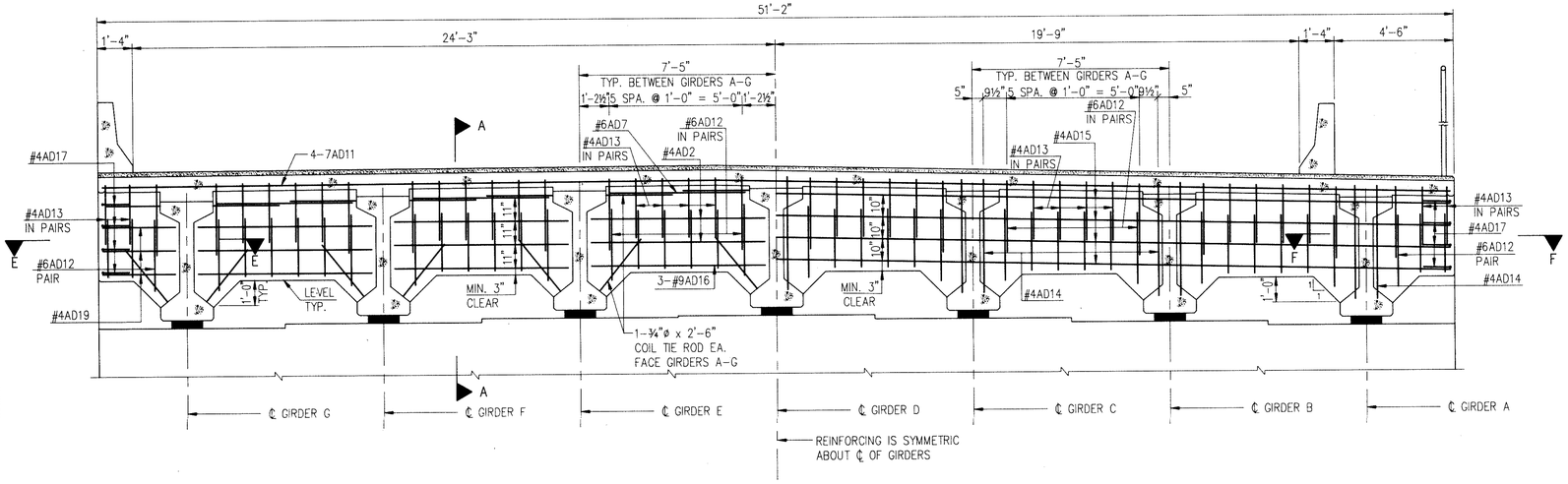
PROJECT ENGINEER
Date 7-1-97
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By	CRD
Drawn By	CRD
Checked By	GCV
Scale	AS SHOWN
Job No.	8709
Contract No.	2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BRIDGE A SLAB AND GIRDER PLAN

Dwg. No. 21

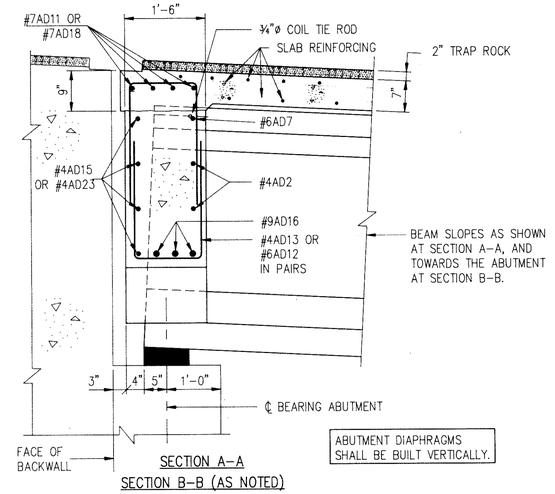


REINFORCING STEEL IN NEAR FACE OF DIAPHRAGM

REINFORCING STEEL IN FAR FACE OF DIAPHRAGM

ELEVATION OF DIAPHRAGM AT SOUTH ABUTMENT
(LOOKING BACK ALONG STATIONING)

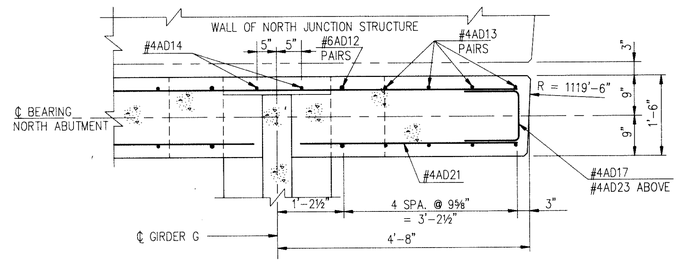
⅜"=1'-0"



SECTION A-A

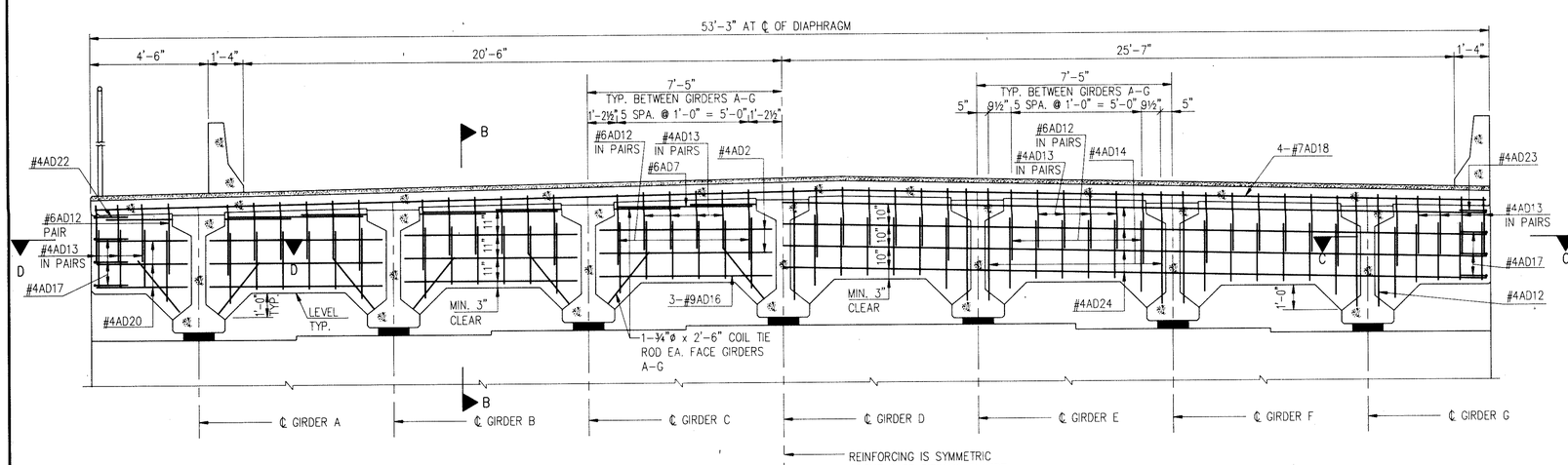
SECTION B-B (AS NOTED)

¾"=1'-0"



SECTION C-C

¾"=1'-0"

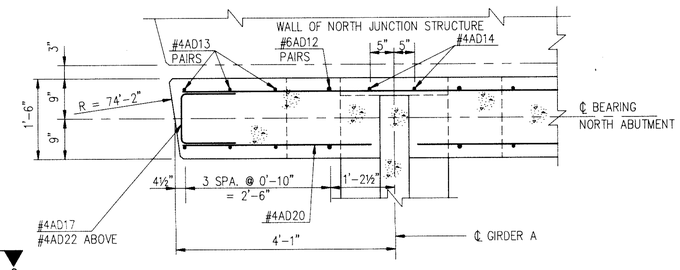


REINFORCING STEEL IN NEAR FACE OF DIAPHRAGM

REINFORCING STEEL IN FAR FACE OF DIAPHRAGM

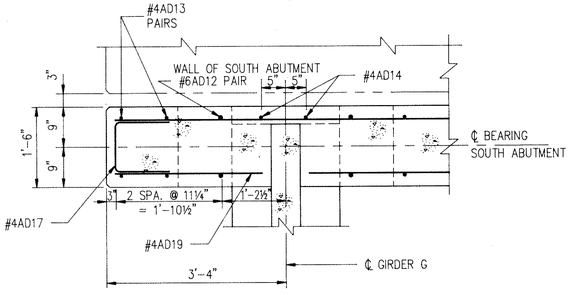
ELEVATION OF DIAPHRAGM AT JUNCTION STRUCTURE (NORTH)
(LOOKING ALONG STATIONING)

⅜"=1'-0"



SECTION D-D

¾"=1'-0"



SECTION E-E
SECTION F-F OPP. HAND

¾"=1'-0"

No.	Revision	By	Date

PROJECT ENGINEER
Date
NOTE: This drawing is PRELIMINARY until approved by project eng.

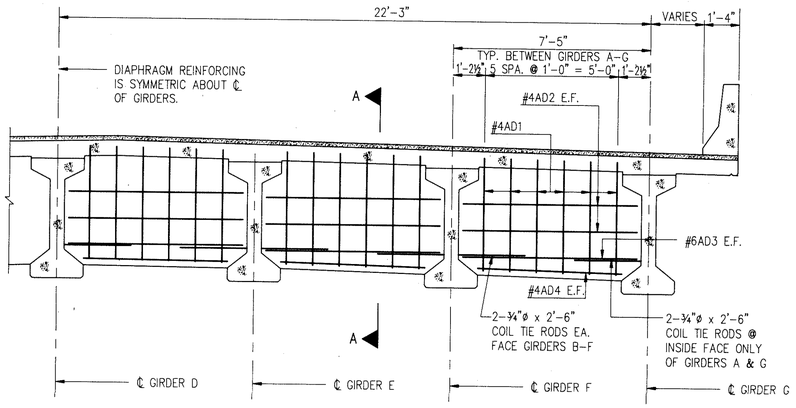
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By	CRD	Job No.	8709
Drawn By	CRD	Contract No.	2
Checked By	GCL		
Scale	AS SHOWN		

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

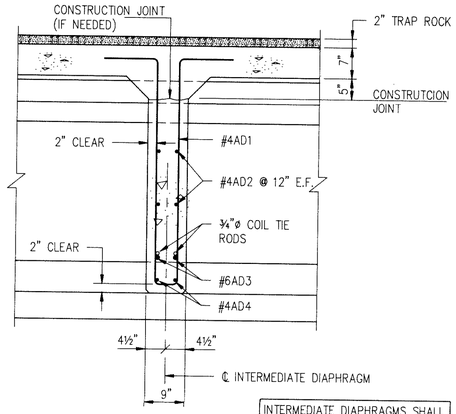
BRIDGE A DIAPHRAGMS AND DETAILS NO. 1

Dwg. No. 22



HALF ELEVATION OF INTERMEDIATE DIAPHRAGMS
(LOOKING ALONG STATIONING)

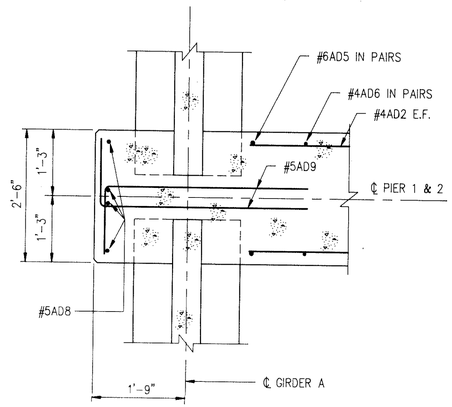
⅜"=1'-0" 1 0 1 2 3 4 5



INTERMEDIATE DIAPHRAGMS SHALL BE CONSTRUCTED NORMAL TO GRADE.

SECTION A-A

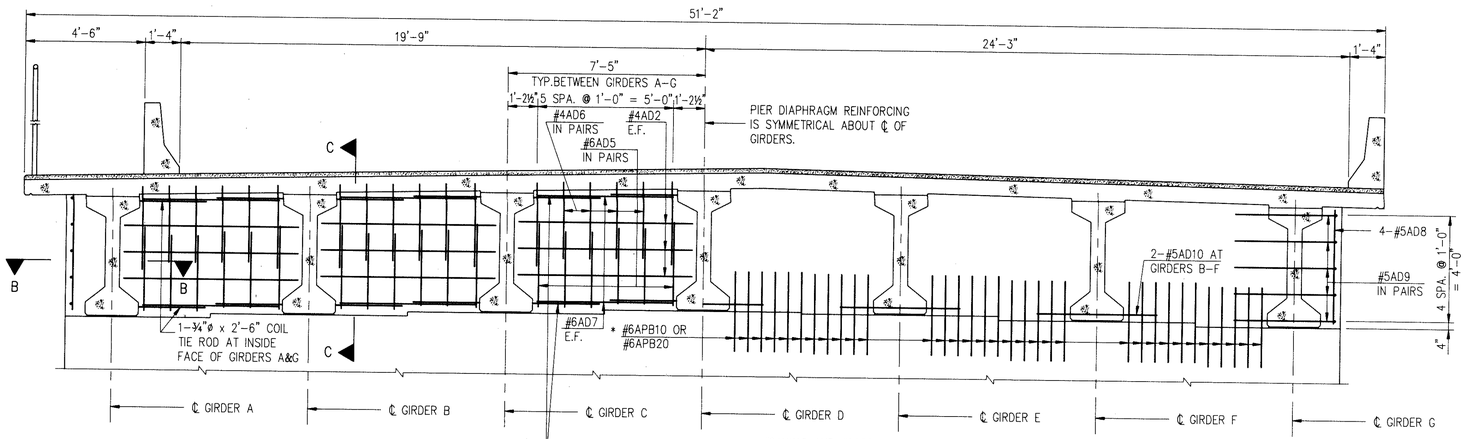
¾"=1'-0" 1 6" 0 1 2 3



SECTION B-B

¾"=1'-0" 1 6" 0 1 2 3

NOTES:
1. E.F. MEANS EACH FACE
2. CL. MEANS CLEAR
3. TYP. MEANS TYPICAL



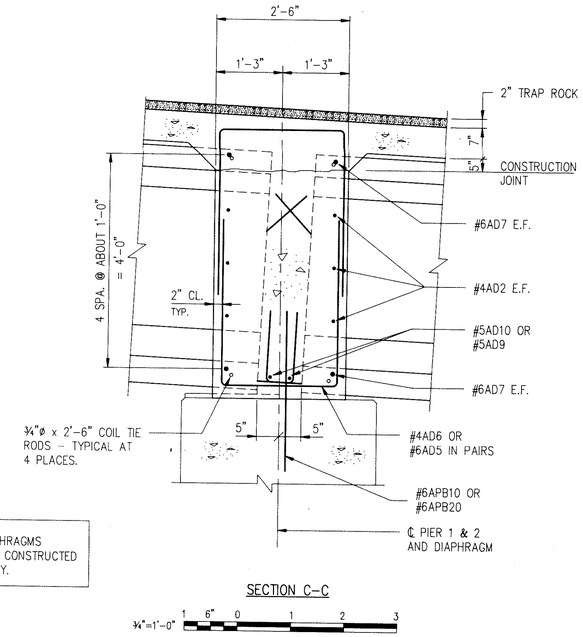
REINFORCING STEEL IN NEAR FACE AND FAR FACE OF DIAPHRAGM

REINFORCING STEEL IN CENTER OF DIAPHRAGM

ELEVATION OF DIAPHRAGM AT PIER 1 & 2
(LOOKING ALONG STATIONING)

⅜"=1'-0" 1 0 1 2 3 4 5

PIER DIAPHRAGMS SHALL BE CONSTRUCTED VERTICALLY.



SECTION C-C

¾"=1'-0" 1 6" 0 1 2 3

No.	Revision	By	Date

PROJECT ENGINEER
Date
NOTE: This drawing is PRELIMINARY until approved by project eng.

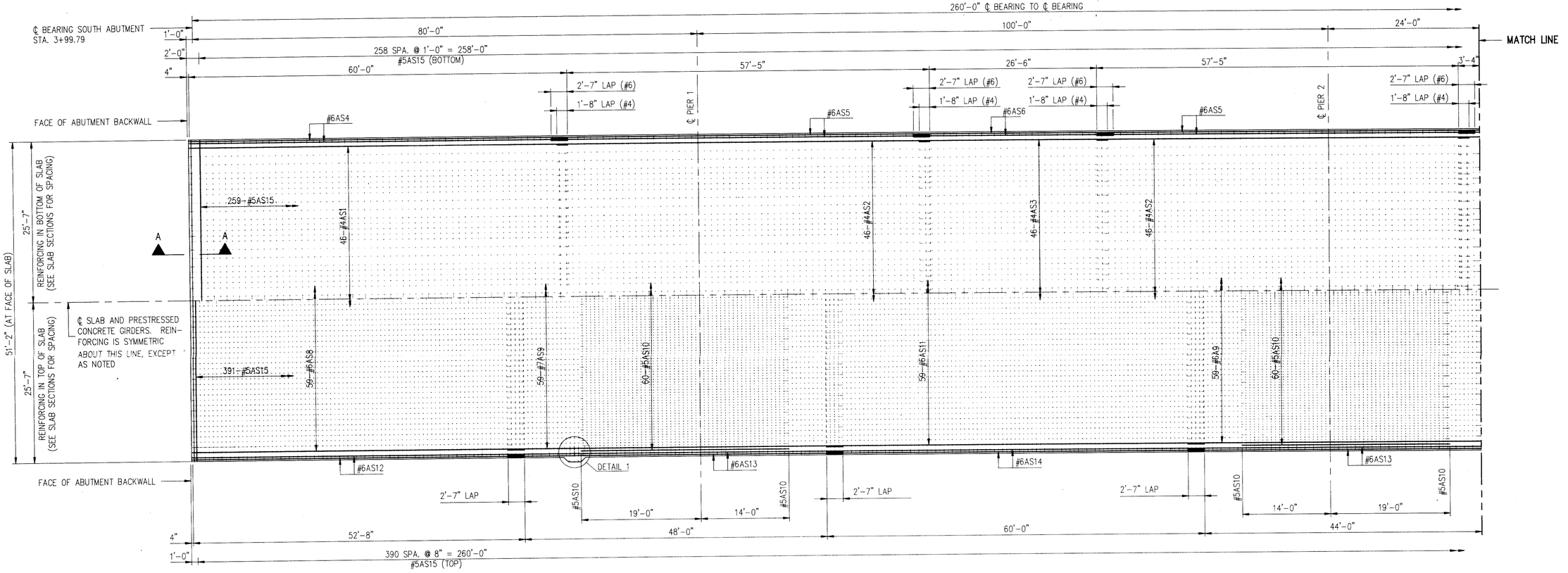
ACKirkwood & Associates PC · ENGINEERS CONSULTANTS

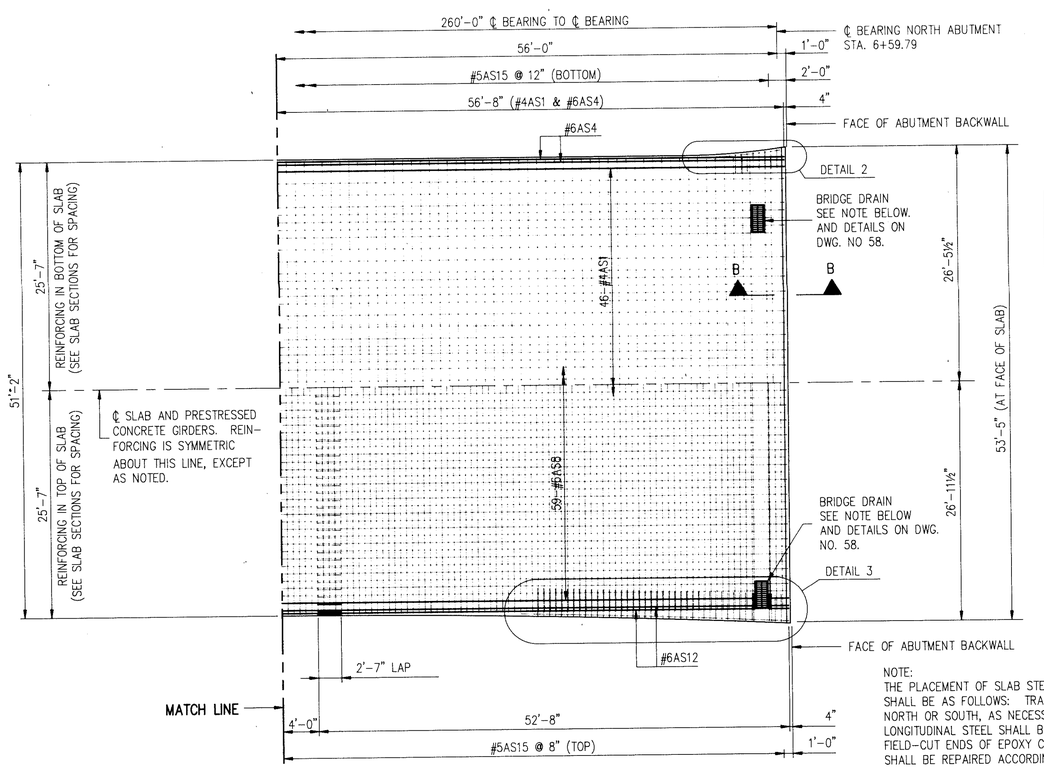
Designed By CRD
Drawn By CRD
Checked By GGJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

BRIDGE A DIAPHRAGMS AND DETAILS NO. 2

Dwg. No. 23

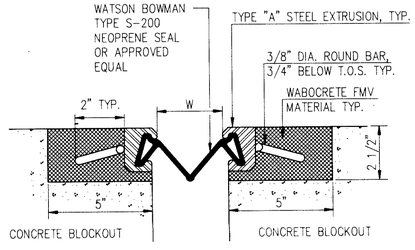




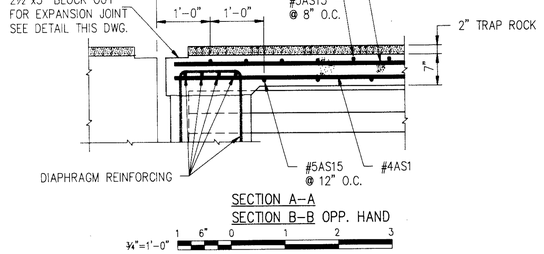
SLAB REINFORCEMENT PLAN

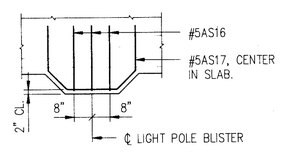
1⁄8"=1'-0"

TEMP. AT TIME OF CONCRETE POUR	W
40°F	2 3⁄16"
47°F	2 1⁄8"
53°F	2 1⁄16"
60°F	2"
67°F	1 15⁄16"
73°F	1 7⁄8"
80°F	1 13⁄16"
87°F	1 3⁄4"
93°F	1 11⁄16"
100°F	1 5⁄8"
107°F	1 9⁄16"
113°F	1½"

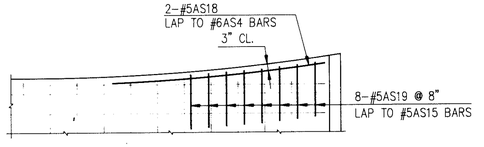


EXPANSION JOINT DETAIL
NO SCALE

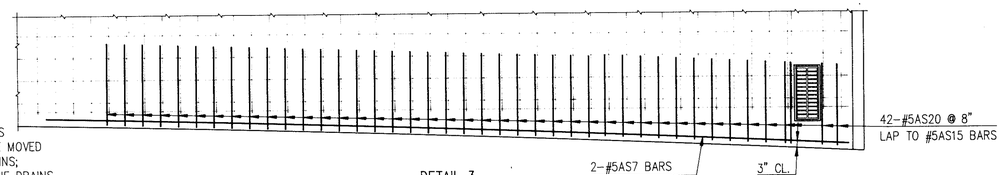




DETAIL 1
NO SCALE



DETAIL 2
NO SCALE



DETAIL 3
NO SCALE

NOTE:
THE PLACEMENT OF SLAB STEEL AT THE BRIDGE DRAINS SHALL BE AS FOLLOWS: TRANSVERSE STEEL SHALL BE MOVED NORTH OR SOUTH, AS NECESSARY, TO CLEAR THE DRAINS; LONGITUDINAL STEEL SHALL BE FIELD CUT TO CLEAR THE DRAINS. FIELD-CUT ENDS OF EPOXY COATED REINFORCING STEEL SHALL BE REPAIRED ACCORDING TO PROJECT SPECIFICATIONS.

No.	Revision	By	Date

STATE OF MISSOURI
DAVID WARD SEELEY
NUMBER E-22531
REGISTERED PROFESSIONAL ENGINEER

PROJECT ENGINEER
Date
NOTE: This drawing is PRELIMINARY until approved by project eng.

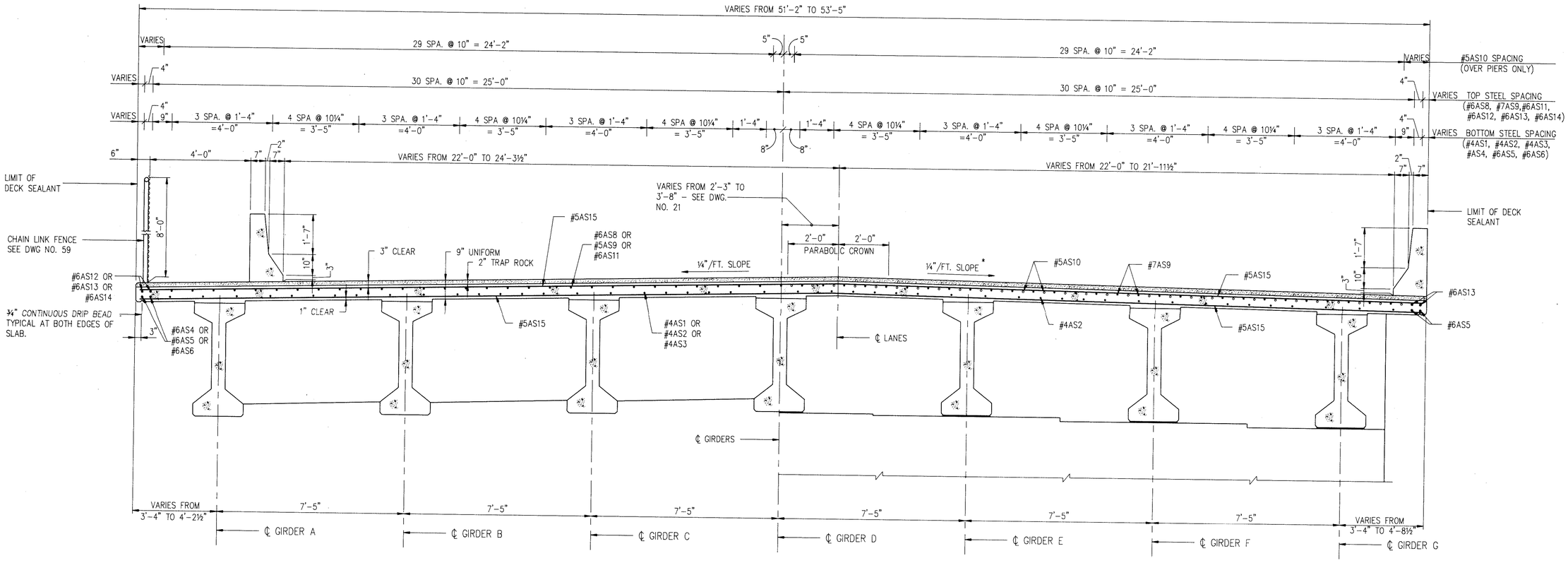
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By	CRD
Drawn By	CRD
Checked By	GCJ
Scale	AS SHOWN
Job No.	8709
Contract No.	2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

BRIDGE A SLAB REINFORCING PLAN

Dwg. No. 24



SECTION NEAR MIDSPAN

* SLOPE VARIES AT SOUTH END OF BRIDGE DUE TO SUPERELEVATION FOR CURVE.

SECTION NEAR PIER

BRIDGE CROSS SECTION

(LOOKING ALONG STATIONING)

½"=1'-0" 1 0 1 2 3 4 5

NOTES:
1. ALL VERTICAL AND HORIZONTAL SURFACES BETWEEN LIMITS OF DECK SEALANT SHALL RECEIVE ONE APPLICATION OF CONSOLIDECK SX AS MANUFACTURED BY PRO SO CO INC. OF KANSAS CITY, KANSAS, OR APPROVED EQUAL.
2. MINIMUM CONCRETE COVER FROM FORMED SURFACE TO EDGE OF REINFORCING STEEL SHALL BE 2" UNLESS SHOWN OTHERWISE.

BILL OF REINFORCING (GRADE 60)

EPOXY COATED REINFORCING

STRAIGHT BARS

MARK	SIZE	NO.	LENGTH
AS1	4	92	60'-0"
AS2	4	92	59'-1"
AS3	4	46	29'-10"
AS4	6	4	60'-0"
AS5	6	4	60'-0"
AS6	6	2	31'-8"
AS7	5	2	30'-0"
AS8	6	118	52'-8"
AS9	7	118	53'-2"
AS10	5	120	33'-0"
AS11	6	59	60'-0'
AS12	6	4	52'-8"
AS13	6	4	53'-2"
AS14	6	2	60'-0"
AS15	5	650	50'-10"
AS18	5	2	8'-0"
AD11	7	4	50'-10"
AD18	7	4	52'-10"

BENT BARS

MARK	SIZE	NO.	LENGTH
AS16	5	3	5'-5"
AS17	5	1	7'-5"
AS19	5	8	4'-5"
AS20	5	42	6'-5"
AD1	4	216	10'-11"
AD5	6	48	8'-8"
AD6	4	96	8'-2"
AD12	6	28	6'-8"
AD13	4	118	5'-8"
AD14	4	14	5'-5"

REINFORCING

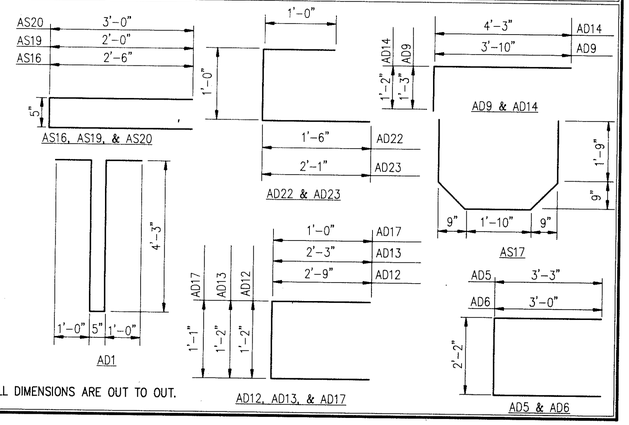
STRAIGHT BARS

MARK	SIZE	NO.	LENGTH
AD2	4	240	6'-6"
AD3	6	72	6'-6"
AD4	4	72	5'-6"
AD7	6	60	5'-1"
AD8	5	16	4'-3"
AD10	5	20	4'-6"
AD15	4	4	50'-10"
AD16	9	36	6'-6"
AD19	4	6	2'-9"
AD20	4	3	3'-5"
AD21	4	3	4'-1"
AD24	4	4	52'-10"

BENT BARS

MARK	SIZE	NO.	LENGTH
AD9	5	40	5'-1"
AD17	4	14	3'-1"
AD22	4	1	3'-6"
AD23	4	1	4'-1"

BENDING DIAGRAMS



ALL DIMENSIONS ARE OUT TO OUT.

No.	Revision	By	Date

PROJECT ENGINEER
Date
NOTE: This drawing is PRELIMINARY until approved by project eng.

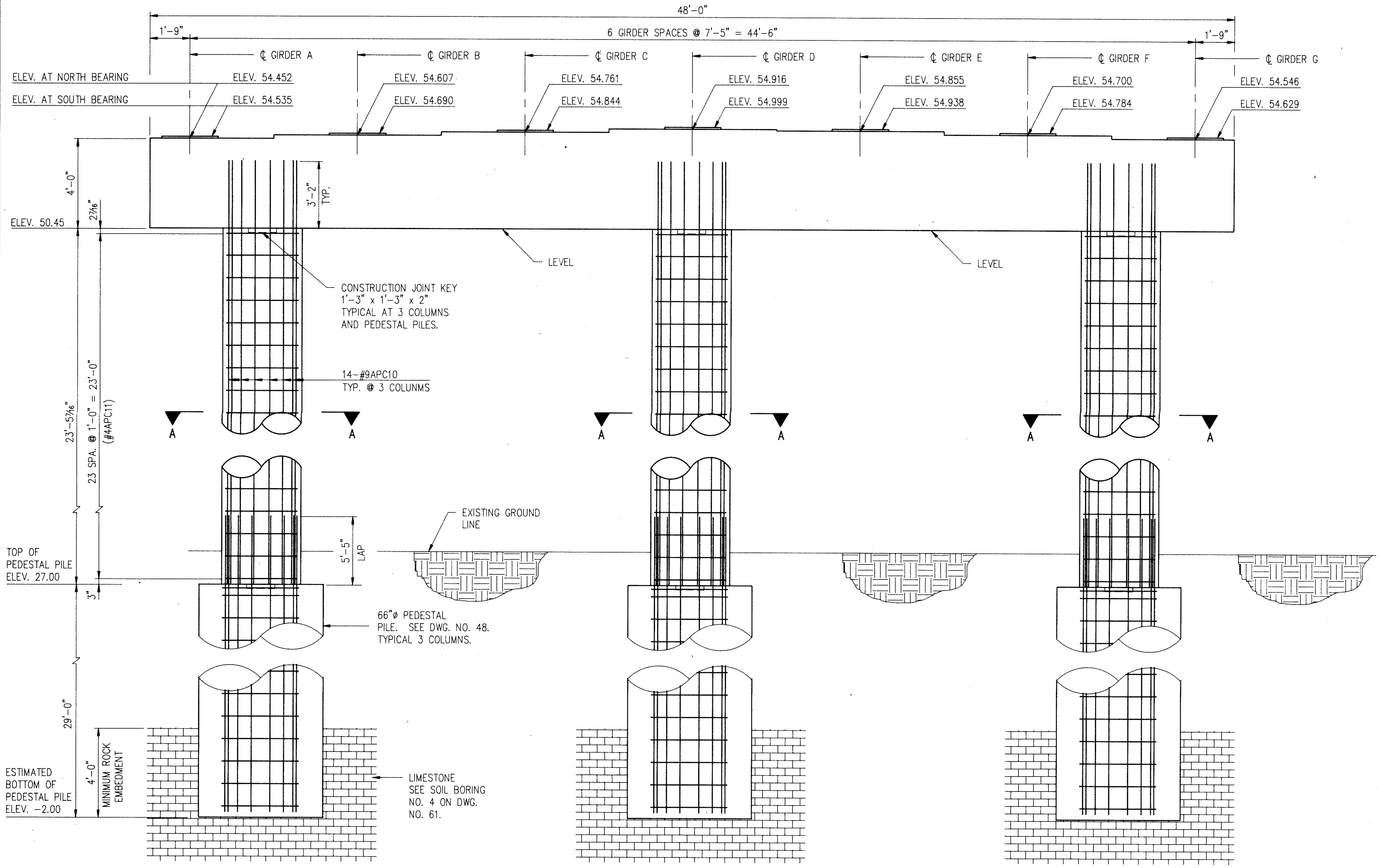
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

BRIDGE A CROSS SECTION

Designed By CRD
Drawn By CRD
Checked By GCJ
Scale ½"=1'-0"
Job No. 8709
Contract No. 2

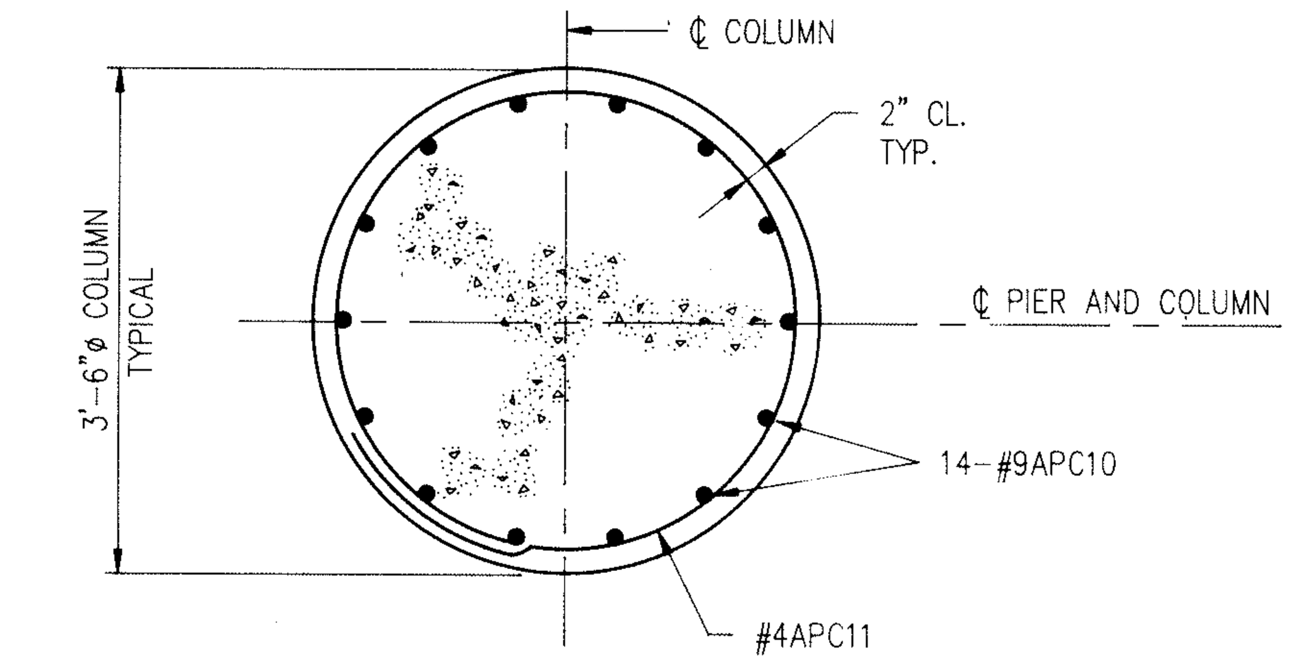
Dwg. No. 25



ELEVATION

(LOOKING ALONG STATIONING)

⅜"=1'-0"

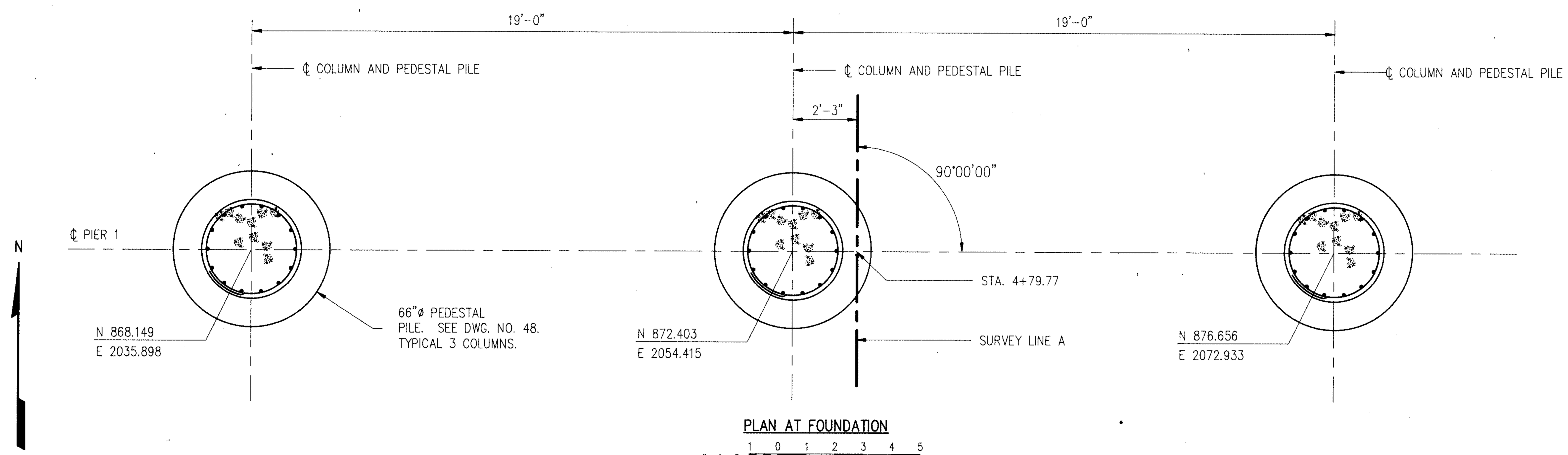


SECTION A–A

¾"=1'-0"

NOTES:

1. FOR GENERAL NOTES AND SUMMARY OF QUANTITIES SEE DWG NO. 2.
2. FOR DETAILS OF THE PIER BEAM, SEE DWG. NO. 27.
3. FOR PEDESTAL PILE DETAILS, SEE DWG. NO. 48.



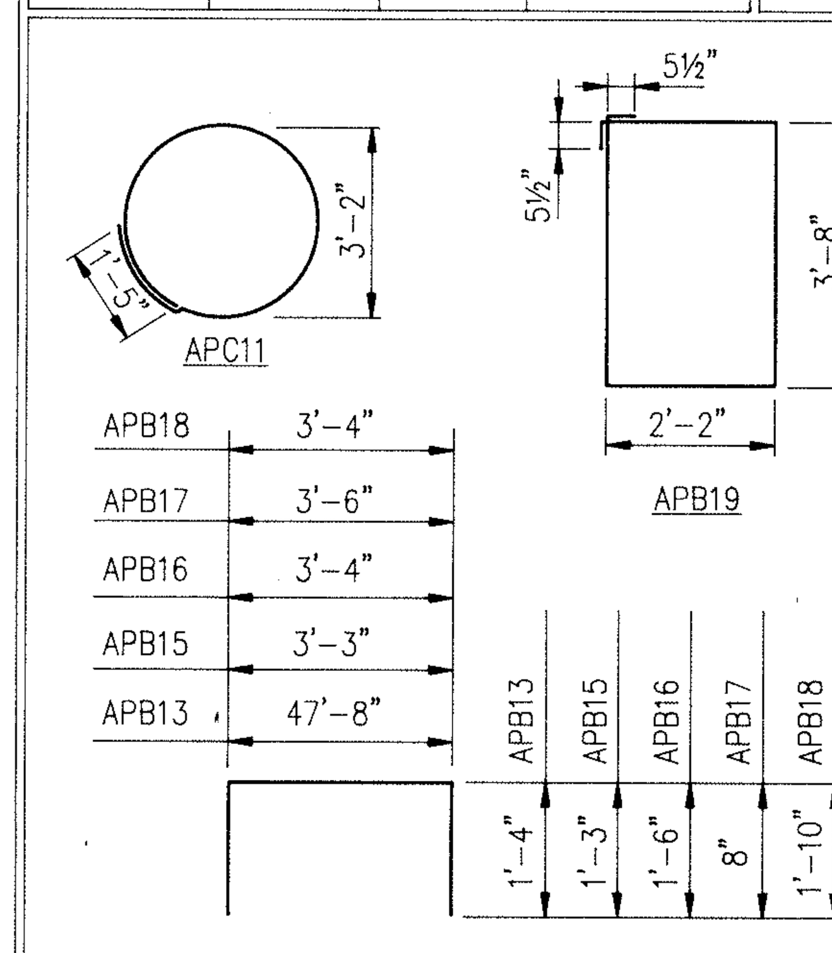
PLAN AT FOUNDATION

⅜"=1'-0"

BILL OF REINFORCING (GRADE 60)

REINFORCING

STRAIGHT BARS				BENT BARS			
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
MARKS APB1 THROUGH APB9 NOT USED				APB13	8	10	50'-4"
APB10	6	66	3'-0"	APB15	5	8	5'-9"
APB11	8	6	47'-8"	APB16	4	56	6'-4"
APB12	8	8	9'-6"	APB17	4	35	4'-10"
APB14	6	4	47'-8"	APB18	4	9	7'-0"
				APB19	4	96	12'-7"
MARKS APC1 THROUGH APC9 NOT USED							
APC10	9	42	26'-8"	APC11	4	72	11'-4"



APB13, APB15, APB16, APB17, & APB18

No.	Revision	By	Date

PROJECT ENGINEER
Date
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood

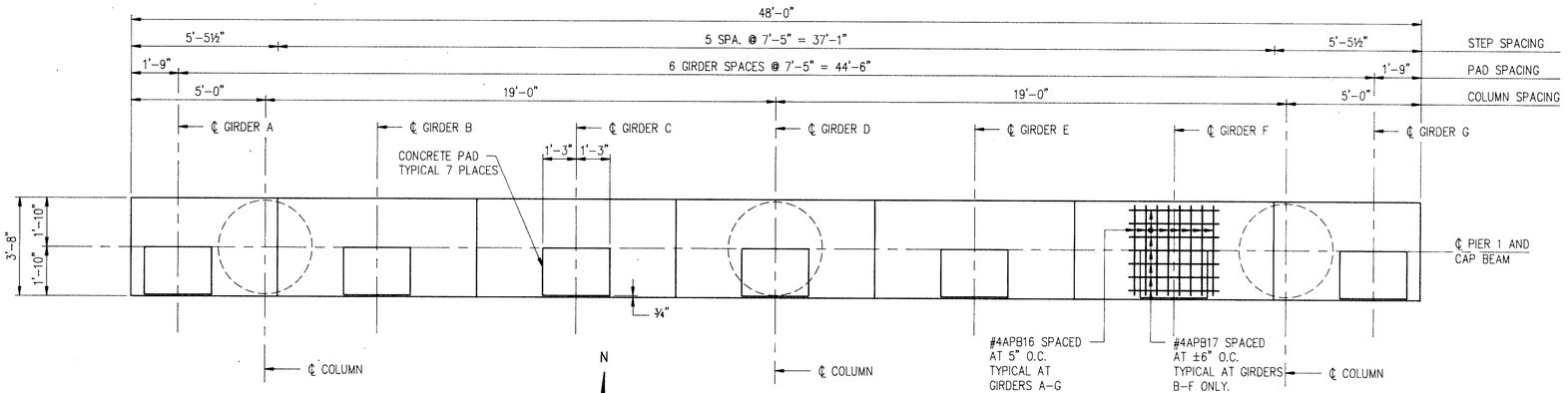
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By CRD
Drawn By CRD
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

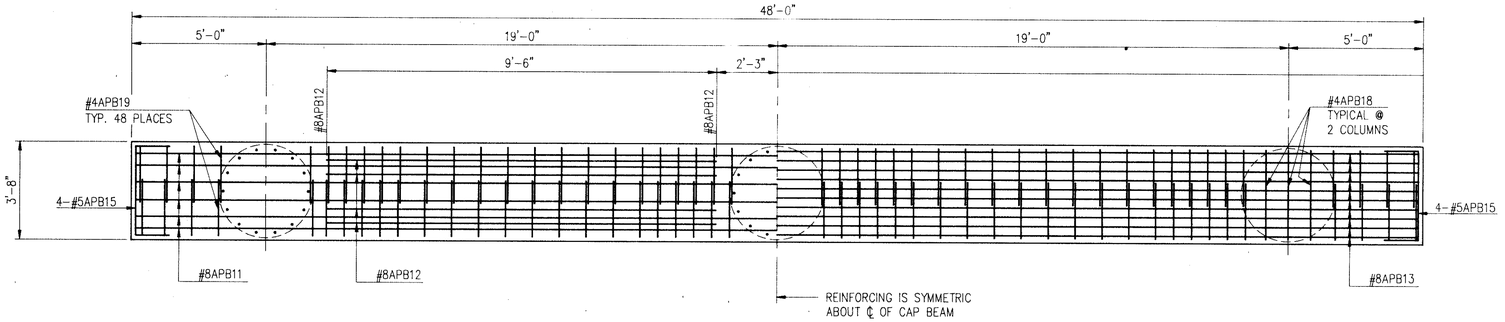
BRIDGE A – PIER 1

Dwg. No. 26



CAP BEAM PLAN

⅜"=1'-0" 1 0 1 2 3 4 5

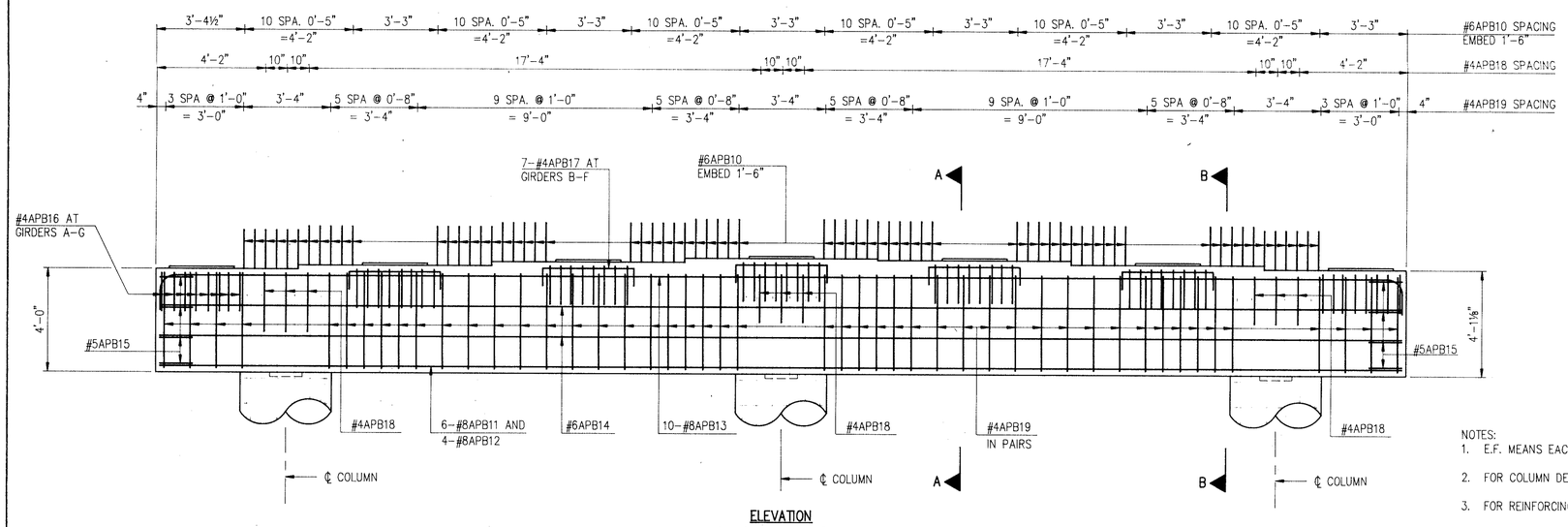


REINFORCING IN BOTTOM OF BEAM

REINFORCING IN TOP OF BEAM

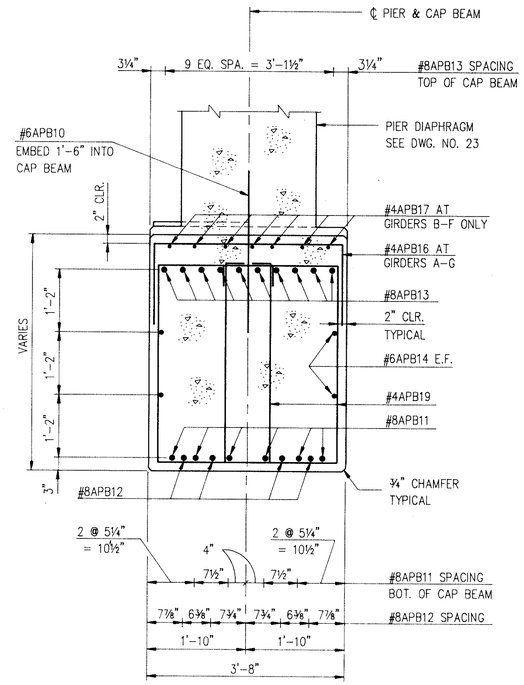
REINFORCING PLAN

⅜"=1'-0" 1 0 1 2 3 4 5



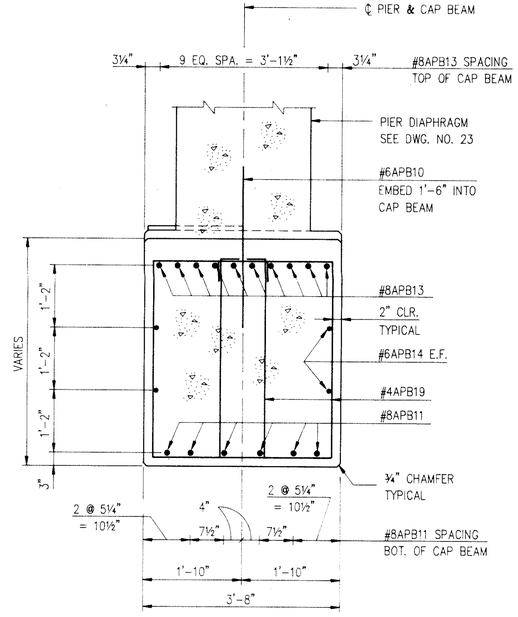
ELEVATION

⅜"=1'-0" 1 0 1 2 3 4 5



SECTION A-A

¾"=1'-0" 1 6" 0 1 2 3



SECTION B-B

¾"=1'-0" 1 6" 0 1 2 3

NOTES:
1. E.F. MEANS EACH FACE
2. FOR COLUMN DETAILS, SEE DWG NO. 26
3. FOR REINFORCING SCHEDULE, SEE DWG. NO 26

No.	Revision	By	Date

DAVID WARD SEELEY NUMBER E-20534 STATE OF MISSOURI REGISTERED PROFESSIONAL ENGINEER

PROJECT ENGINEER
Date 7/9/09
NOTE: This drawing is PRELIMINARY until approved by project eng.

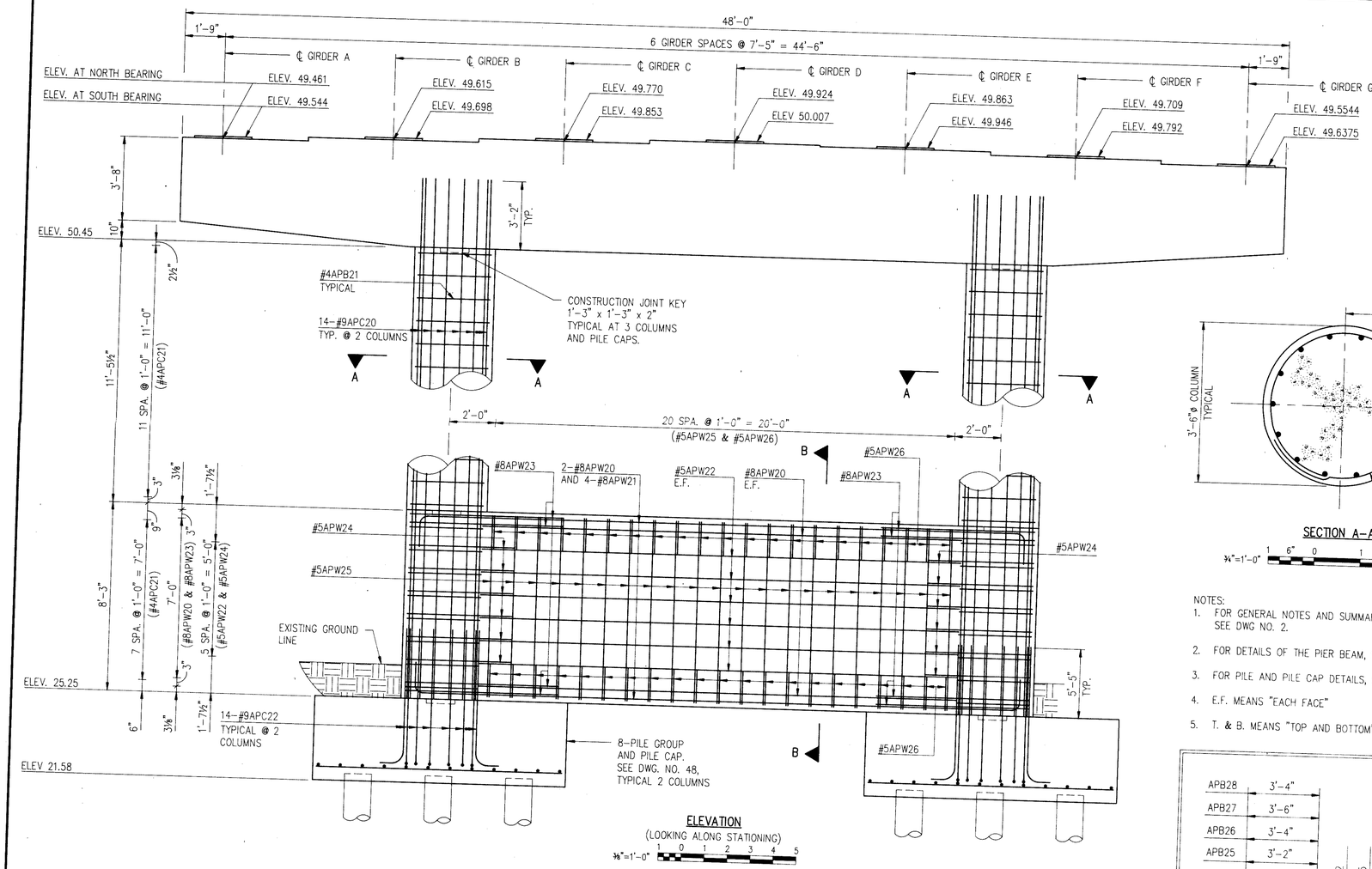
ACKirkwood

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

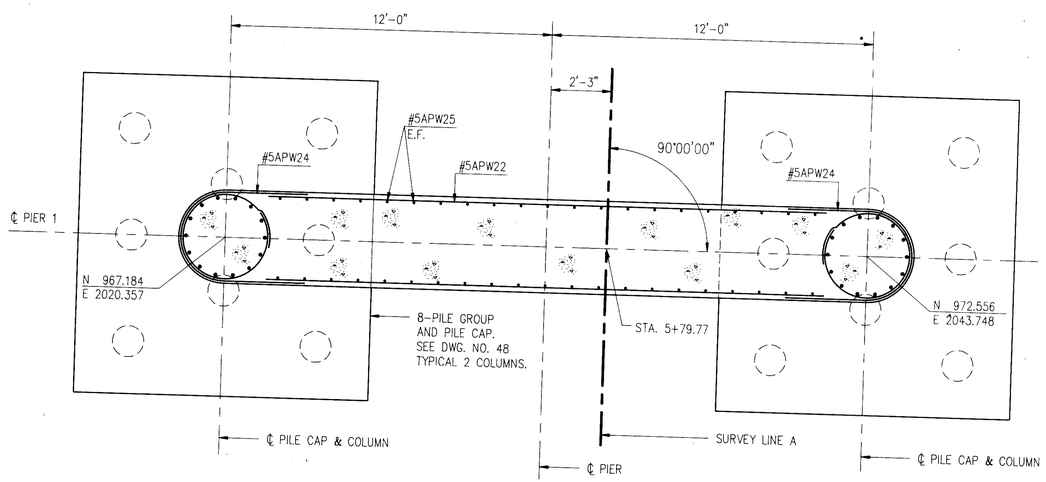
Designed By CRD
Drawn By CRD
Checked By GGL
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BRIDGE A
PIER 1 CAP BEAM DETAILS

Dwg. No. 27

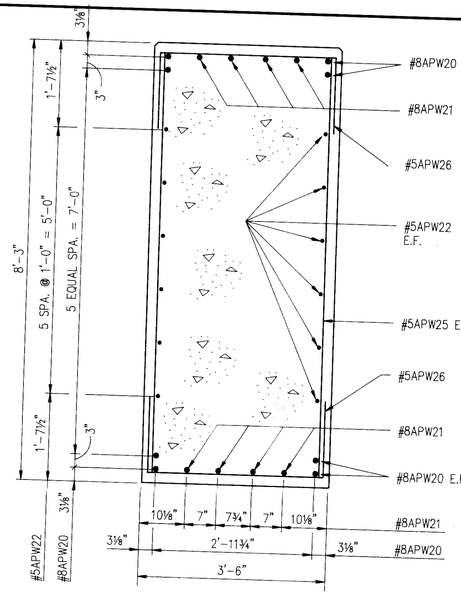


ELEVATION
(LOOKING ALONG STATIONING)
⅜"=1'-0"



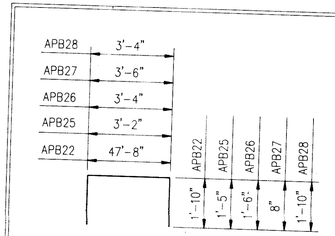
PLAN AT FOUNDATION
⅜"=1'-0"

SECTION A-A
¾"=1'-0"

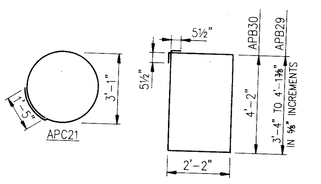


SECTION B-B
¾"=1'-0"

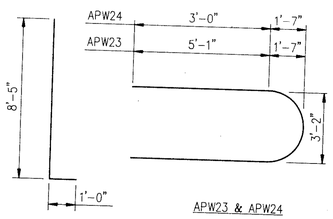
NOTES:
1. FOR GENERAL NOTES AND SUMMARY OF QUANTITIES SEE DWG NO. 2.
2. FOR DETAILS OF THE PIER BEAM, SEE DWG. NO. 29.
3. FOR PILE AND PILE CAP DETAILS, SEE DWG. NO. 48.
4. E.F. MEANS "EACH FACE"
5. T. & B. MEANS "TOP AND BOTTOM"



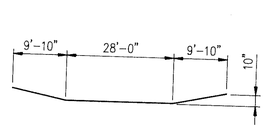
APB22, APB25, APB26, APB27, & APB28



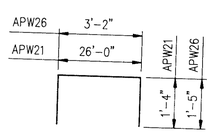
APB29 & APB30



APC22 APW23 & APW24



APB21



APW21 & APW26

BILL OF REINFORCING (GRADE 60)

REINFORCING

STRAIGHT BARS				BENT BARS			
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
APB20	6	66	3'-0"	APB21	9	6	47'-9"
APB23	10	10	14'-6"	APB22	10	11	51'-4"
APB24	6	6	47'-8"	APB25	5	8	6'-0"
				APB26	4	56	6'-4"
				APB27	4	35	4'-10"
				APB28	4	6	7'-0"
				APB29	5	60	* 3'-9"
				APB30	5	52	13'-7"
MARKS APC12 THROUGH APC19 NOT USED							
APC20	9	28	28'-5"	APC21	4	40	11'-2"
				APC22	9	28	9'-5"
MARKS APW1 THROUGH APW19 NOT USED							
APW20	8	16	21'-0"	APW21	8	8	28'-8"
APW22	5	12	21'-0"	APW23	8	8	15'-2"
APW25	5	42	7'-11"	APW24	5	12	11'-0"
				APW26	5	42	6'-0"

* AVERAGE LENGTH OF BARS

No.	Revision	By	Date

DAVID WARD SEELEY NUMBER E-22221 STATE OF MISSOURI REGISTERED ENGINEER

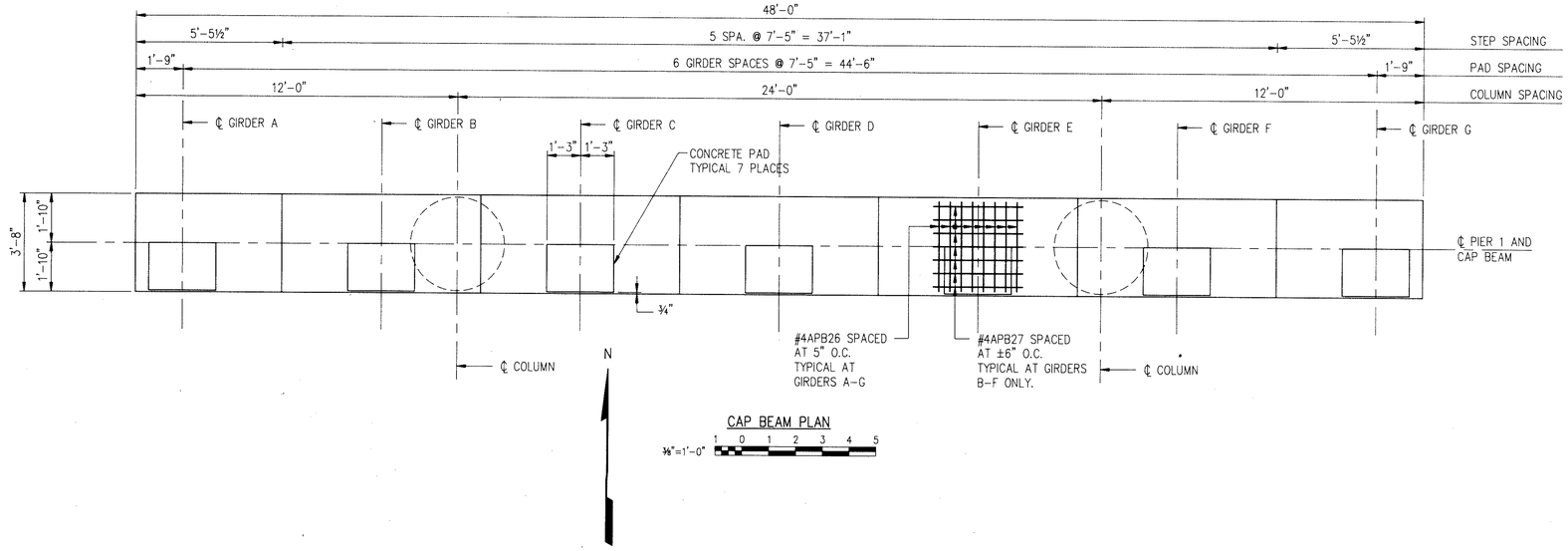
PROJECT ENGINEER
Date 7/31/20
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By CRD
Drawn By CRD
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

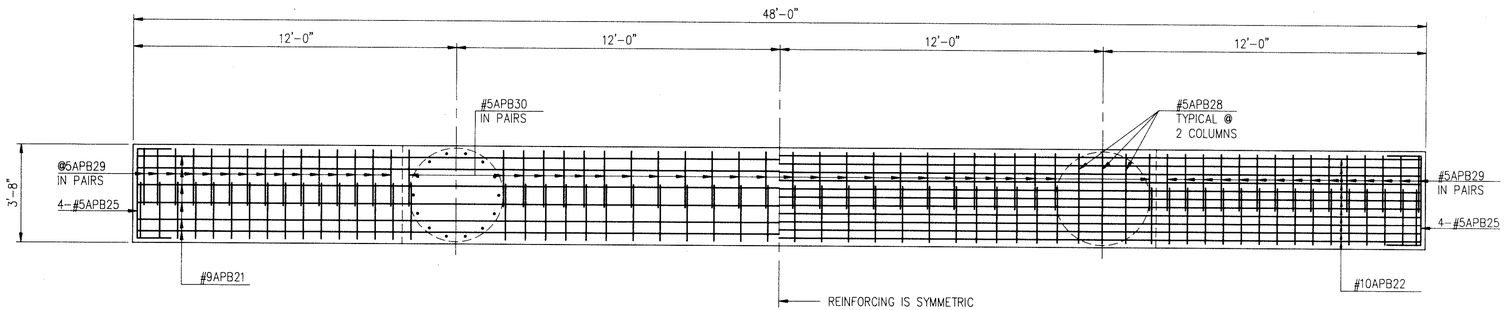
KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BRIDGE A - PIER 2

Dwg. No. 28



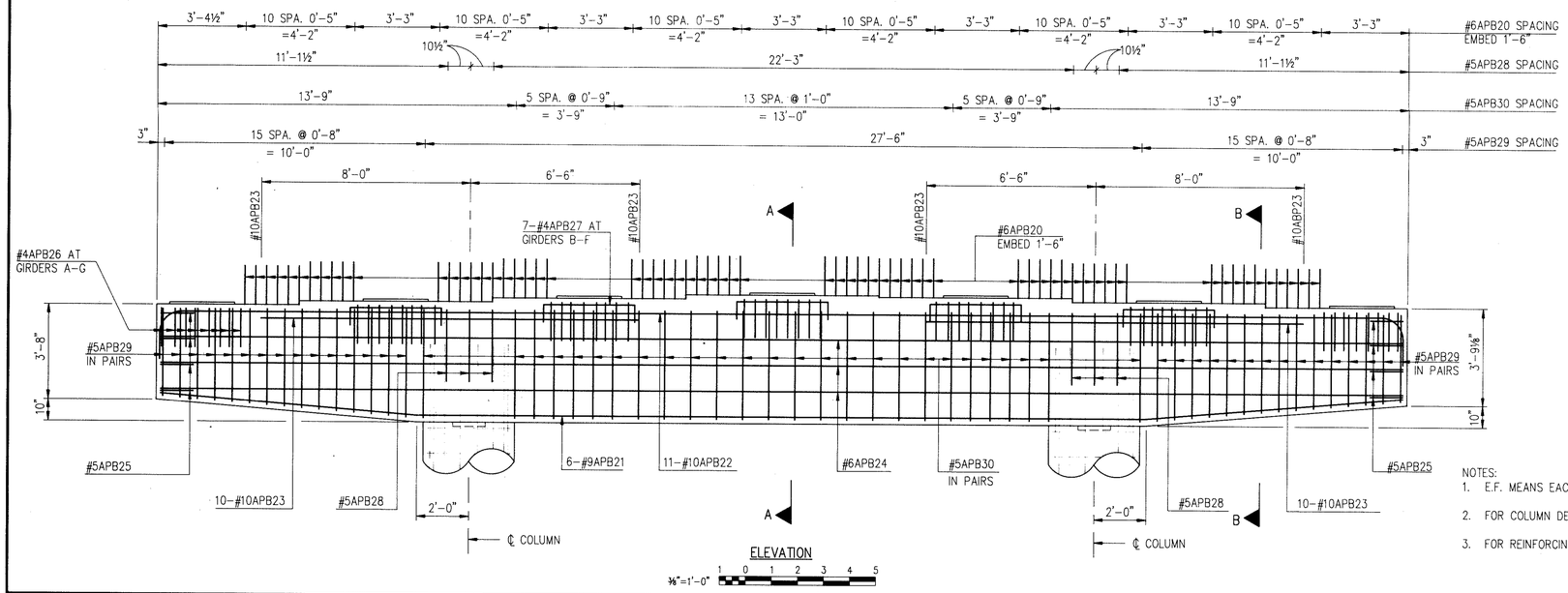
CAP BEAM PLAN

⅜"=1'-0" 1 0 1 2 3 4 5



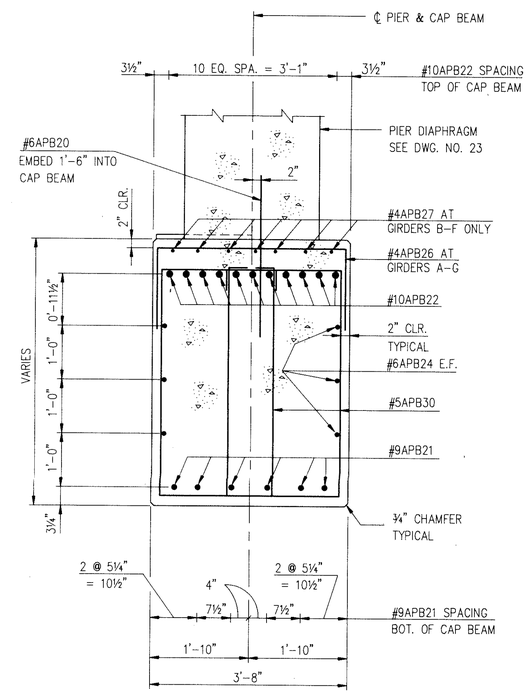
REINFORCING PLAN

⅜"=1'-0" 1 0 1 2 3 4 5



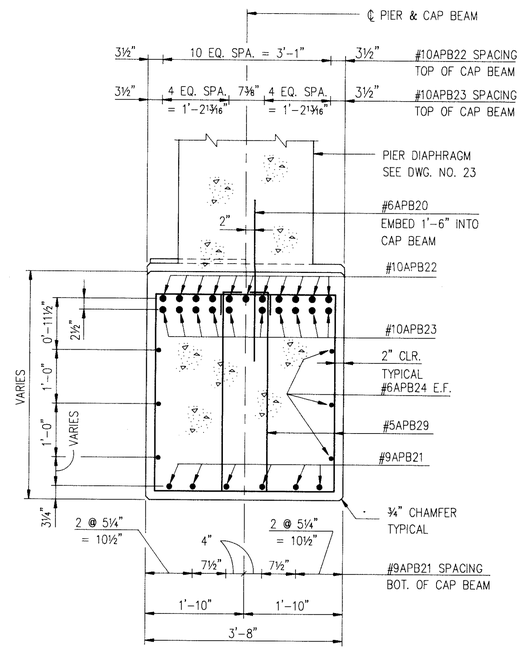
ELEVATION

⅜"=1'-0" 1 0 1 2 3 4 5



SECTION A-A

¾"=1'-0" 1 6" 0 1 2 3



SECTION B-B

¾"=1'-0" 1 6" 0 1 2 3

NOTES:
1. E.F. MEANS EACH FACE
2. FOR COLUMN DETAILS, SEE DWG. NO. 28
3. FOR REINFORCING SCHEDULE, SEE DWG. NO. 28

No.	Revision	By	Date

PROJECT ENGINEER
Date
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood

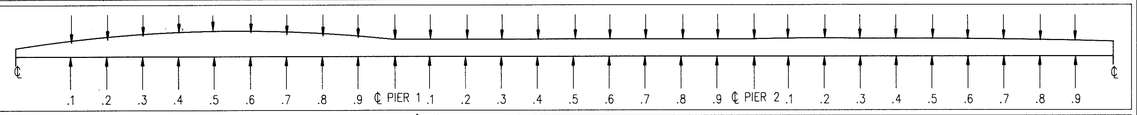
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By CRD
Drawn By CRD
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BRIDGE A
PIER 2 CAP BEAM DETAILS

Dwg. No. 29

VERTICAL CURVE AND SLOPE CORRECTION *

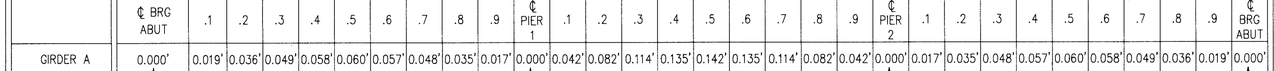


BRIDGE A

LOCATION	SPAN 1											SPAN 2										SPAN 3									
	℄ BRG ABUT	.1	.2	.3	.4	.5	.6	.7	.8	.9	℄ PIER 1	.1	.2	.3	.4	.5	.6	.7	.8	.9	℄ PIER 2	.1	.2	.3	.4	.5	.6	.7	.8	.9	℄ BRG ABUT
GIRDER A	0.087'	0.133'	0.169'	0.185'	0.201'	0.206'	0.202'	0.191'	0.177'	0.163'	0.156'	0.156'	0.156'	0.156'	0.156'	0.156'	0.156'	0.156'	0.156'	0.156'	0.156'	0.157'	0.159'	0.160'	0.160'	0.160'	0.158'	0.155'	0.151'	0.146'	0.139'
GIRDER B																															
GIRDER C																															
GIRDER D	0.087'	0.133'	0.169'	0.185'	0.201'																	0.157'	0.159'	0.160'	0.160'	0.160'	0.158'	0.155'	0.151'	0.146'	
GIRDER E	0.160'	0.189'	0.207'	0.207'	0.205'																	0.151'	0.147'	0.142'	0.138'	0.135'	0.134'	0.133'	0.134'	0.136'	
GIRDER F	0.271'	0.275'	0.268'	0.242'	0.216'																										
GIRDER G	0.380'	0.358'	0.327'	0.276'	0.225'	0.206'	0.202'	0.191'	0.177'	0.163'	0.156'	0.156'	0.156'	0.156'	0.156'	0.156'	0.156'	0.156'	0.156'	0.156'	0.156'	0.151'	0.147'	0.142'	0.138'	0.135'	0.134'	0.133'	0.134'	0.136'	0.139'

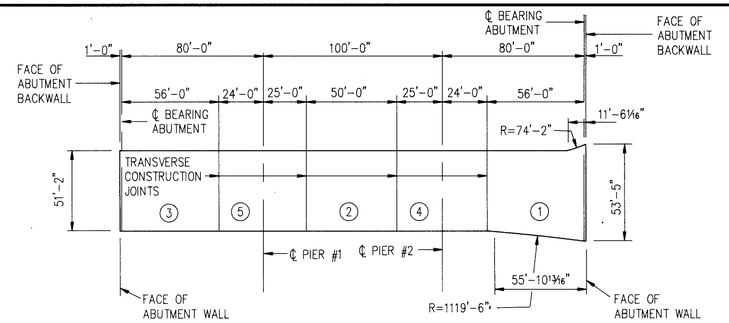
* INCLUDES CORRECTION FOR SUPERELEVATION, SLOPE OF GIRDERS, AND VERTICAL CURVE.

DEAD LOAD DEFLECTIONS



BRIDGE A

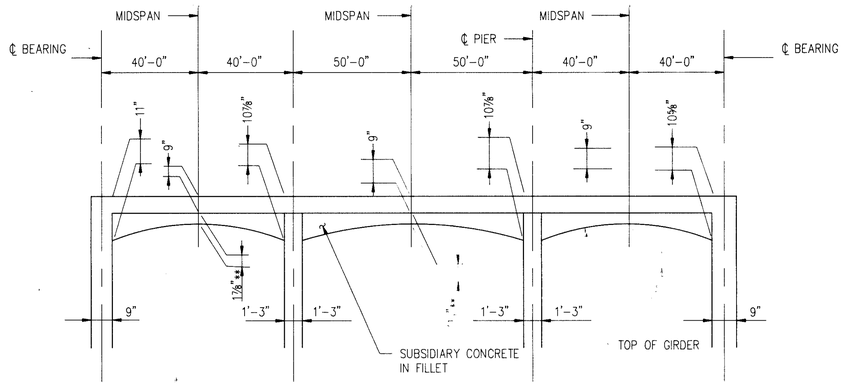
LOCATION	SPAN 1											SPAN 2										SPAN 3									
	℄ BRG ABUT	.1	.2	.3	.4	.5	.6	.7	.8	.9	℄ PIER 1	.1	.2	.3	.4	.5	.6	.7	.8	.9	℄ PIER 2	.1	.2	.3	.4	.5	.6	.7	.8	.9	℄ BRG ABUT
GIRDER A	0.000'	0.019'	0.036'	0.049'	0.058'	0.060'	0.057'	0.048'	0.035'	0.017'	0.000'	0.042'	0.082'	0.114'	0.135'	0.142'	0.135'	0.114'	0.082'	0.042'	0.000'	0.017'	0.035'	0.048'	0.057'	0.060'	0.058'	0.049'	0.036'	0.019'	0.000'
GIRDER B		0.021'	0.040'	0.055'	0.064'	0.067'	0.063'	0.053'	0.038'	0.019'		0.046'	0.090'	0.126'	0.148'	0.156'	0.148'	0.126'	0.090'	0.046'		0.019'	0.038'	0.053'	0.063'	0.067'	0.064'	0.055'	0.040'	0.021'	
GIRDER C																															
GIRDER D																															
GIRDER E																															
GIRDER F		0.021'	0.040'	0.055'	0.064'	0.067'	0.063'	0.053'	0.038'	0.019'		0.046'	0.090'	0.126'	0.148'	0.156'	0.148'	0.126'	0.090'	0.046'		0.019'	0.038'	0.053'	0.063'	0.067'	0.064'	0.055'	0.040'	0.021'	
GIRDER G	0.000'	0.019'	0.036'	0.049'	0.058'	0.060'	0.057'	0.048'	0.035'	0.017'	0.000'	0.042'	0.082'	0.114'	0.135'	0.142'	0.135'	0.114'	0.082'	0.042'	0.000'	0.018'	0.036'	0.050'	0.060'	0.063'	0.061'	0.052'	0.038'	0.020'	0.000'



NOTES:
1. THE POUR SEQUENCE AND TRANSVERSE JOINT SPACING SHALL BE AS SHOWN ABOVE WITH A MINIMUM POUR RATE OF 29 CUBIC YARDS PER HOUR. INDIVIDUAL POURS SHALL PROCEED FROM NORTH TO SOUTH.
2. A RETARDER SHALL BE USED IN ALL DECK CONCRETE.
3. TRANSVERSE CONSTRUCTION JOINTS AND SEQUENCE OF POUR MAY BE ELIMINATED IF THE CONTRACTOR CAN DEMONSTRATE TO THE ENGINEER THAT HE IS CAPABLE OF POURING AND SATISFACTORILY FINISHING THE ROADWAY SLAB AT A RATE OF NOT LESS THAN 43 CUBIC YARDS PER HOUR.

N

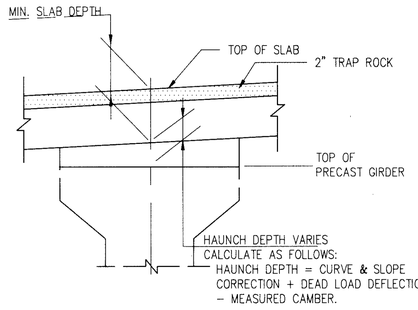
CONCRETE PLACING SEQUENCE (SLAB)
NO SCALE



** ESTIMATED FILLET (SUBSIDIARY)

NOTE: THE CLASS 2 CONCRETE QUANTITY IN THE SUMMARY OF QUANTITIES IS BASED ON THE AVERAGE SLAB

SKETCH SHOWING SUBSIDIARY CONCRETE IN HAUNCH



CONCRETE HAUNCH DETAIL
NO SCALE

NOTE: THE FINISHED DECK SLAB SHALL BE CONSTRUCTED TO PLAN GRADE BY VARYING THE DEPTH OF THE HAUNCH OVER THE GIRDER TO PROVIDE FOR PRESTRESS CAMBER, VERTICAL CURVE AND SLOPE, AND CONCRETE DEAD LOAD DEFLECTION. AFTER THE GIRDERS HAVE BEEN ERECTED, AND PRIOR TO PLACING ANY FORMWORK, THE ACTUAL CAMBER IN EACH GIRDER SHALL BE MEASURED IN THE FIELD. ADJUST THE HAUNCH THICKNESS TO COMPENSATE FOR GIRDER CAMBER AND OBTAIN THE PROPER GRADE LINE. THE MINIMUM DEPTH OVER THE GIRDERS SHALL BE 9". IF NECESSARY, THE PLAN GRADE SHALL BE ADJUSTED IN ORDER TO OBTAIN THE MINIMUM SLAB DEPTH. SEE CONCRETE HAUNCH DETAIL.

No.	Revision	By	Date

DAVID W. J. STOLEY NUMBER E-24... STATE OF MISSOURI REGISTERED PROFESSIONAL ENGINEER

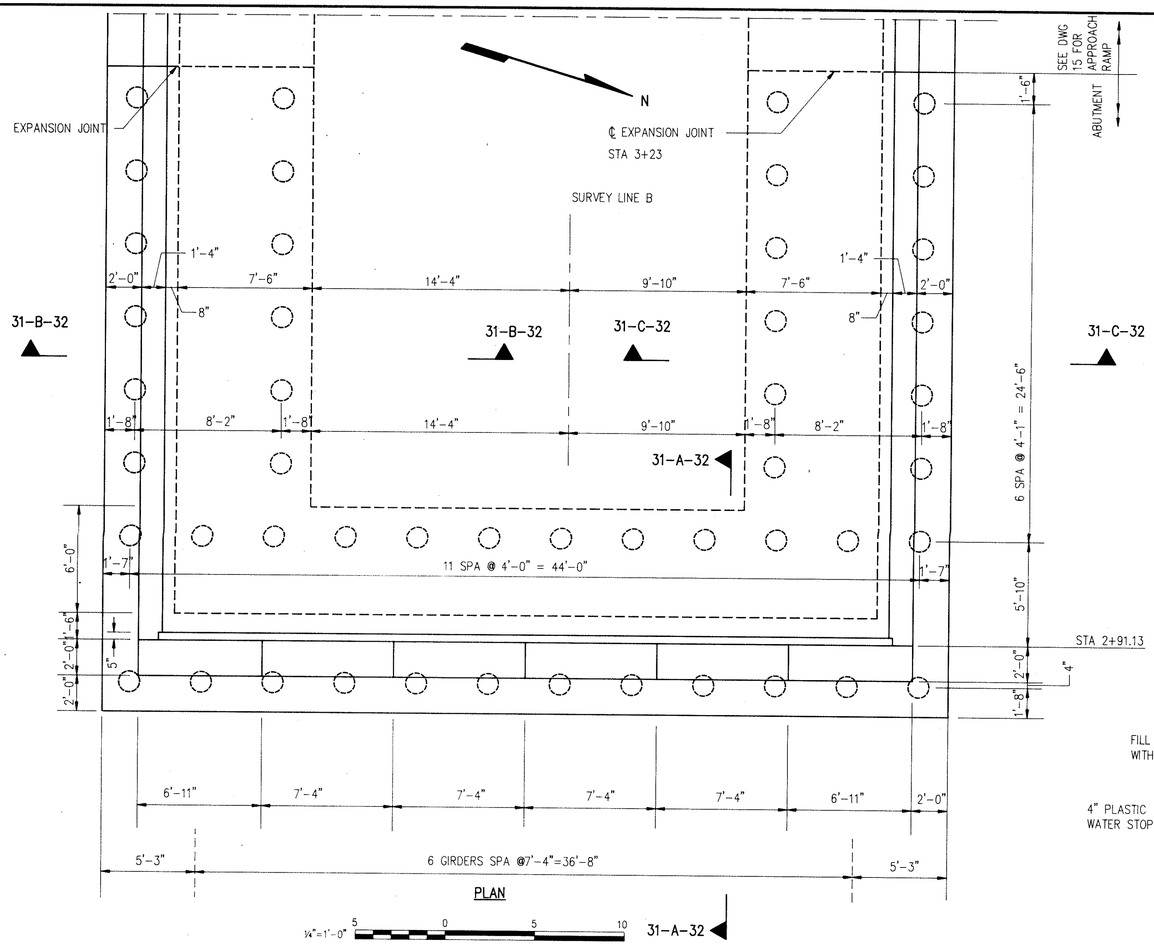
PROJECT ENGINEER
Date
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By CRD
Drawn By RDC
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

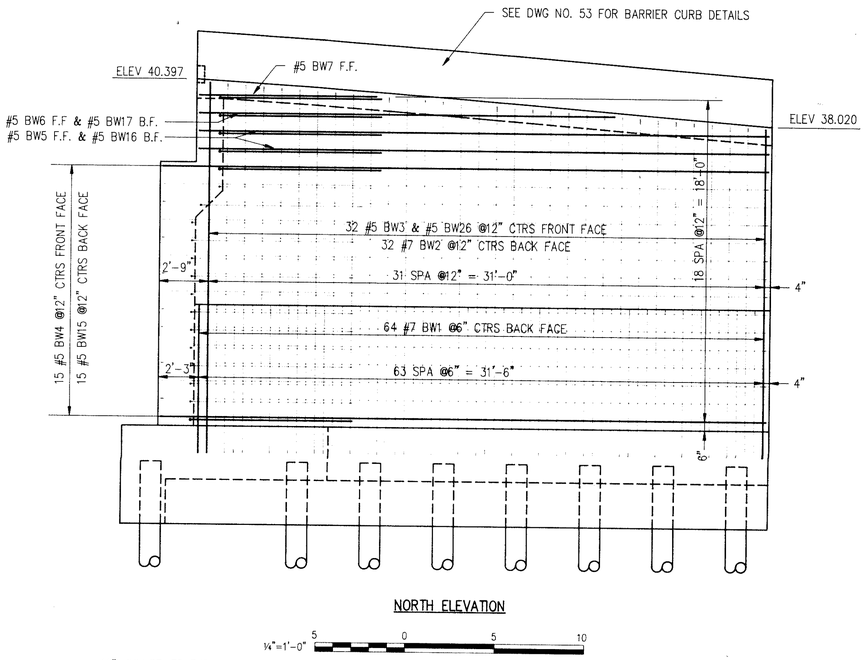
KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
VERTICAL CURVE CORRECTION AND DEAD LOAD DEFLECTIONS–BRIDGE A

Dwg. No. 30



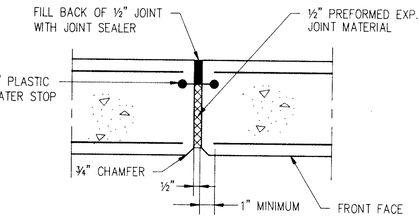
PLAN

¼"=1'-0" 5 0 5 10



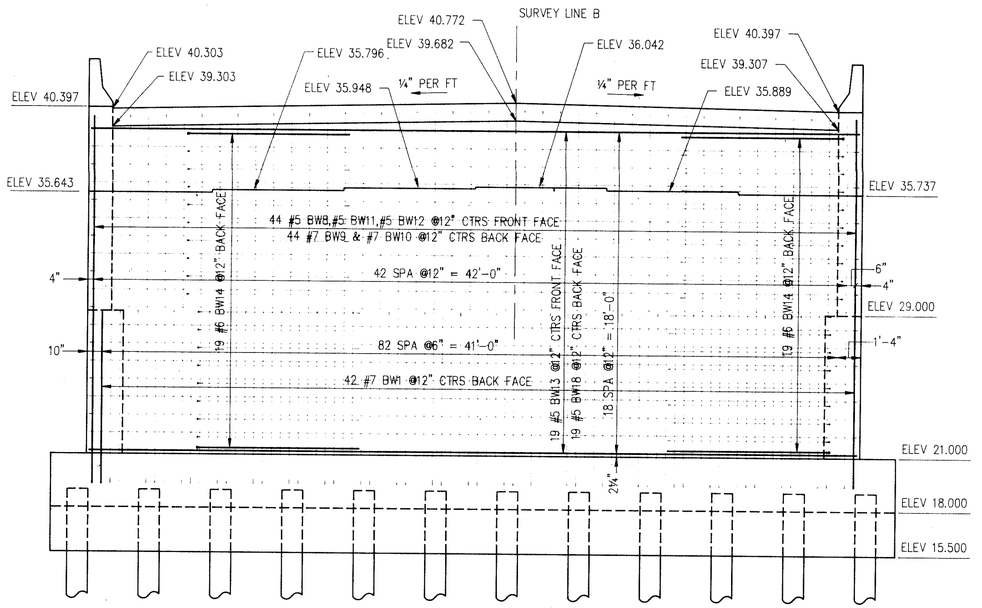
NORTH ELEVATION

¼"=1'-0" 5 0 5 10



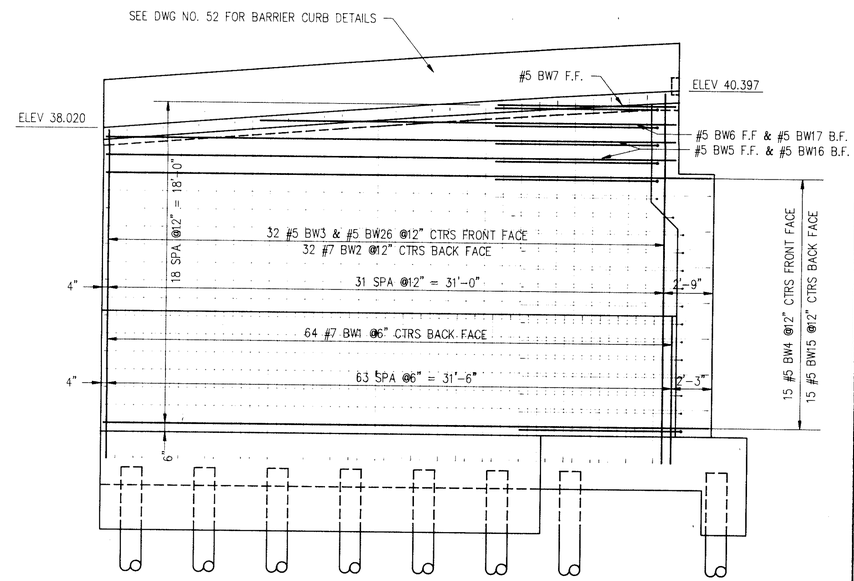
EXPANSION JOINT DETAIL

NO SCALE



ELEVATION

¼"=1'-0" 5 0 5 10



SOUTH ELEVATION

¼"=1'-0" 5 0 5 10

No.	Revision	By	Date

STATE OF MISSOURI PROFESSIONAL ENGINEER
DAVID WARD SEELEY
NUMBER E-20231
REGISTERED PROFESSIONAL

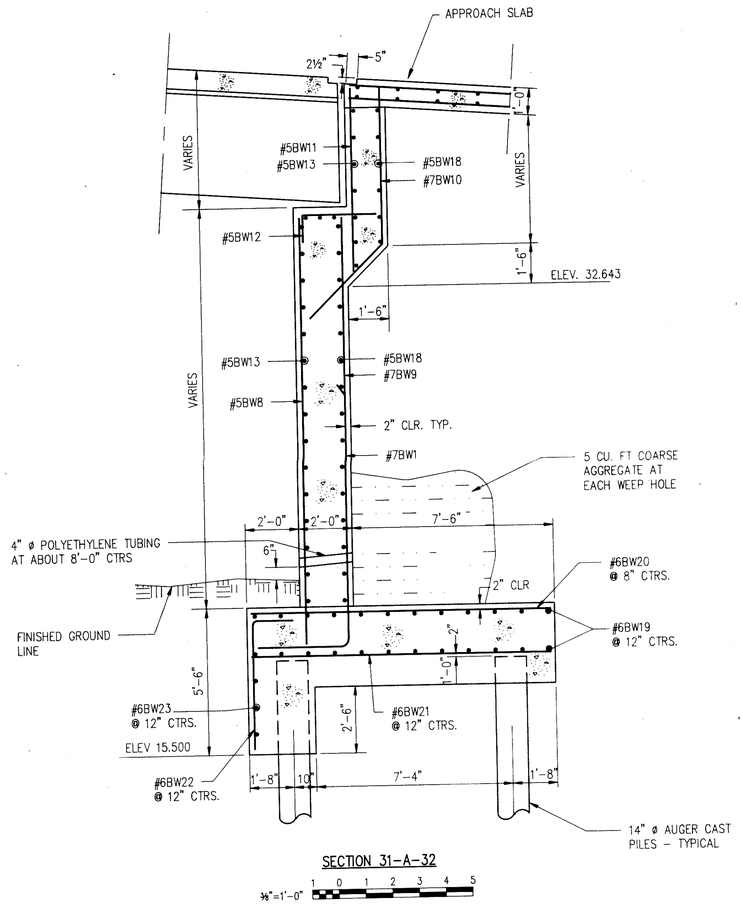
Laurel Lee
PROJECT ENGINEER
Date 7/21/89
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By DWS
Drawn By DWS
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

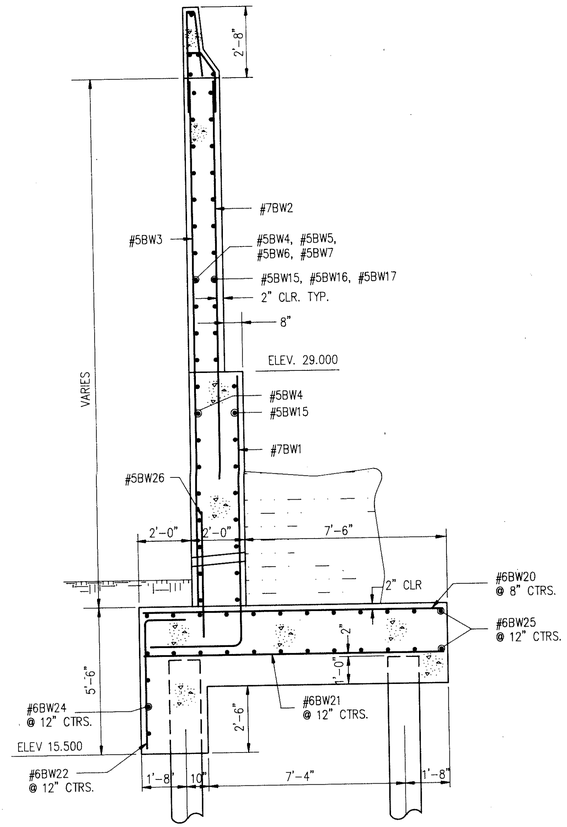
KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BRIDGE B – WEST ABUTMENT
PLAN

Dwg. No. 31



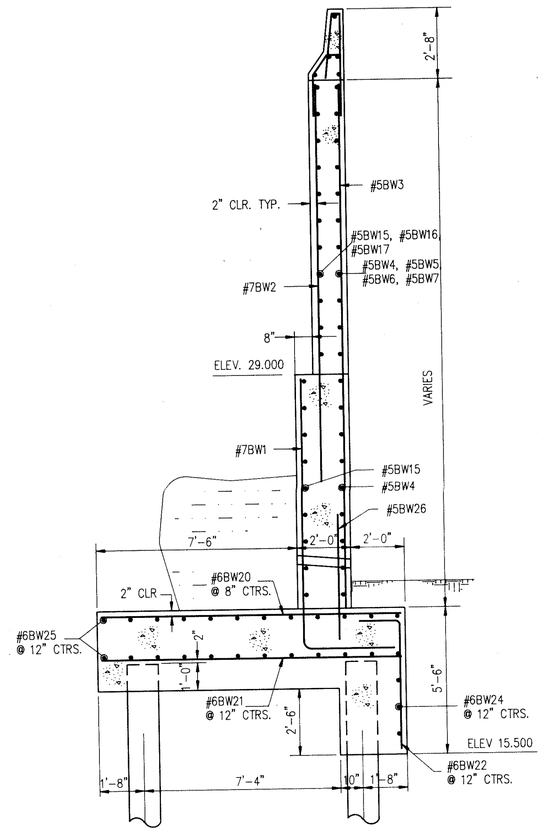
SECTION 31-A-32

3/8"=1'-0" 1 0 1 2 3 4 5



SECTION 31-B-32

3/8"=1'-0" 1 0 1 2 3 4 5



SECTION 31-C-32

3/8"=1'-0" 1 0 1 2 3 4 5

BILL OF REINFORCING (GRADE 60)

REINFORCING

STRAIGHT BARS

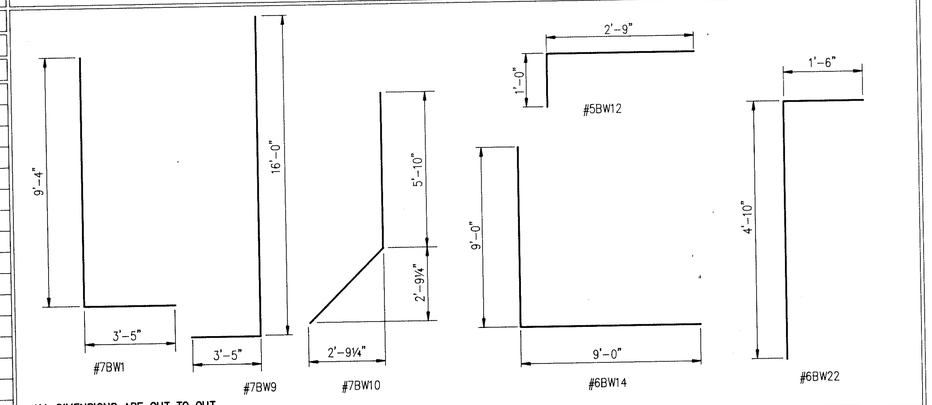
MARK	SIZE	NO.	LENGTH
BW2	7	64	13'-10"
BW3	5	64	16'-10"
BW4	5	30	33'-9"
BW5	5	4	31'-9"
BW6	5	2	23'-2"
BW7	5	4	9'-10"
BW8	5	44	16'-0"
BW11	5	44	6'-10"
BW13	5	19	42'-10"
BW15	5	30	25'-6"
BW16	5	4	24'-0"
BW17	5	2	15'-5"
BW18	5	19	27'-10"
BW19	6	24	46'-10"
BW20	6	147	11'-2"
BW21	6	99	11'-2"

BENT BARS

MARK	SIZE	NO.	LENGTH
BW23	6	3	44'-10"
BW24	6	6	35'-9"
BW25	6	48	35'-9"
BW26	5	64	4'-8"

MARK	SIZE	NO.	LENGTH
BW1	7	170	12'-9"
BW9	7	44	19'-5"
BW10	7	44	9'-9"
BW12	5	44	3'-9"
BW14	6	38	18'-0"
BW22	6	96	6'-4"

BENDING DIAGRAMS



ALL DIMENSIONS ARE OUT TO OUT.

No.	Revision	By	Date

MISSOURI STATE REGISTERED PROFESSIONAL ENGINEER DAVID WARD SEELEY NUMBER E-20531

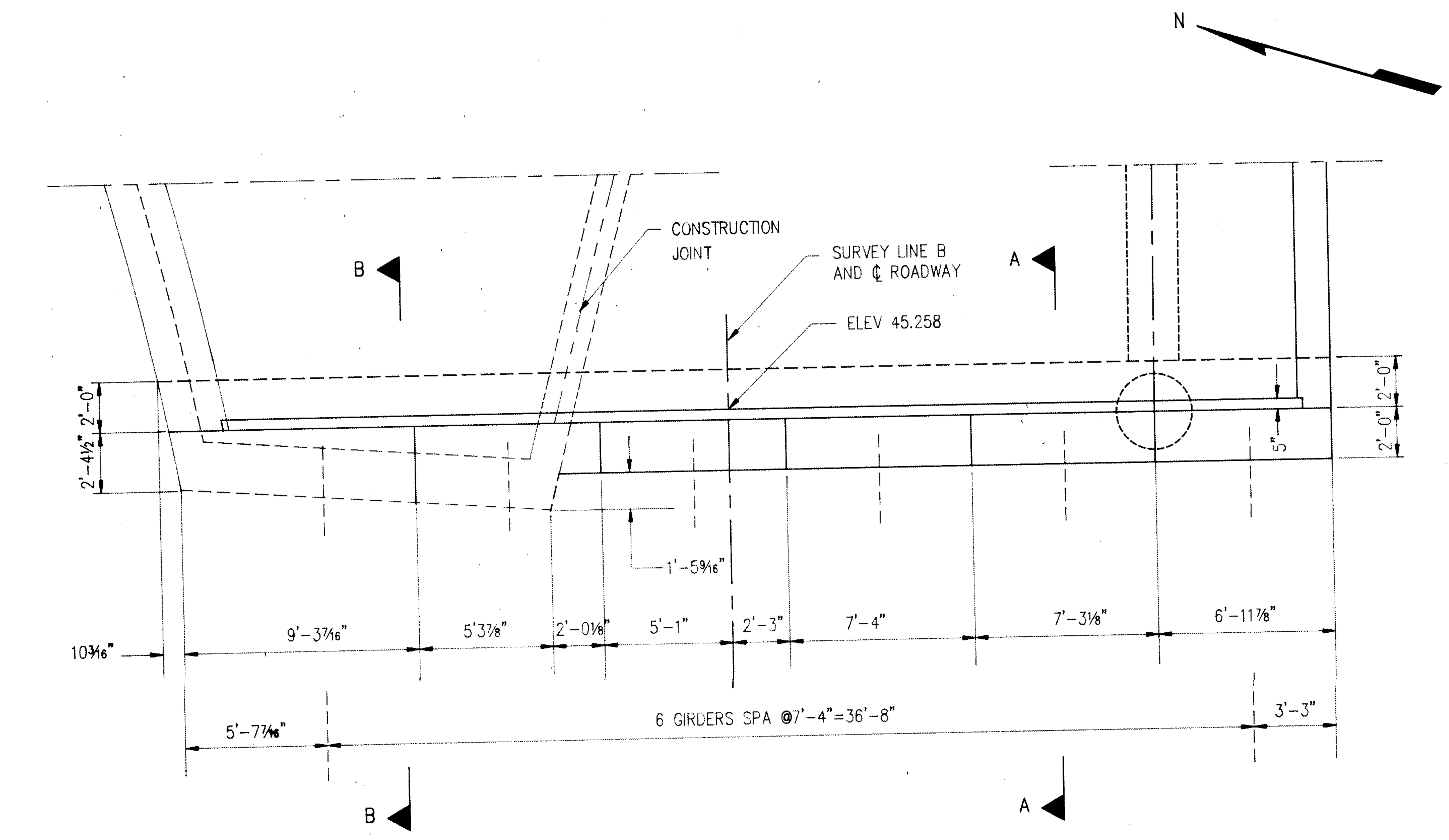
PROJECT ENGINEER
Date 7/21/17
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By DWS
Drawn By DWS
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

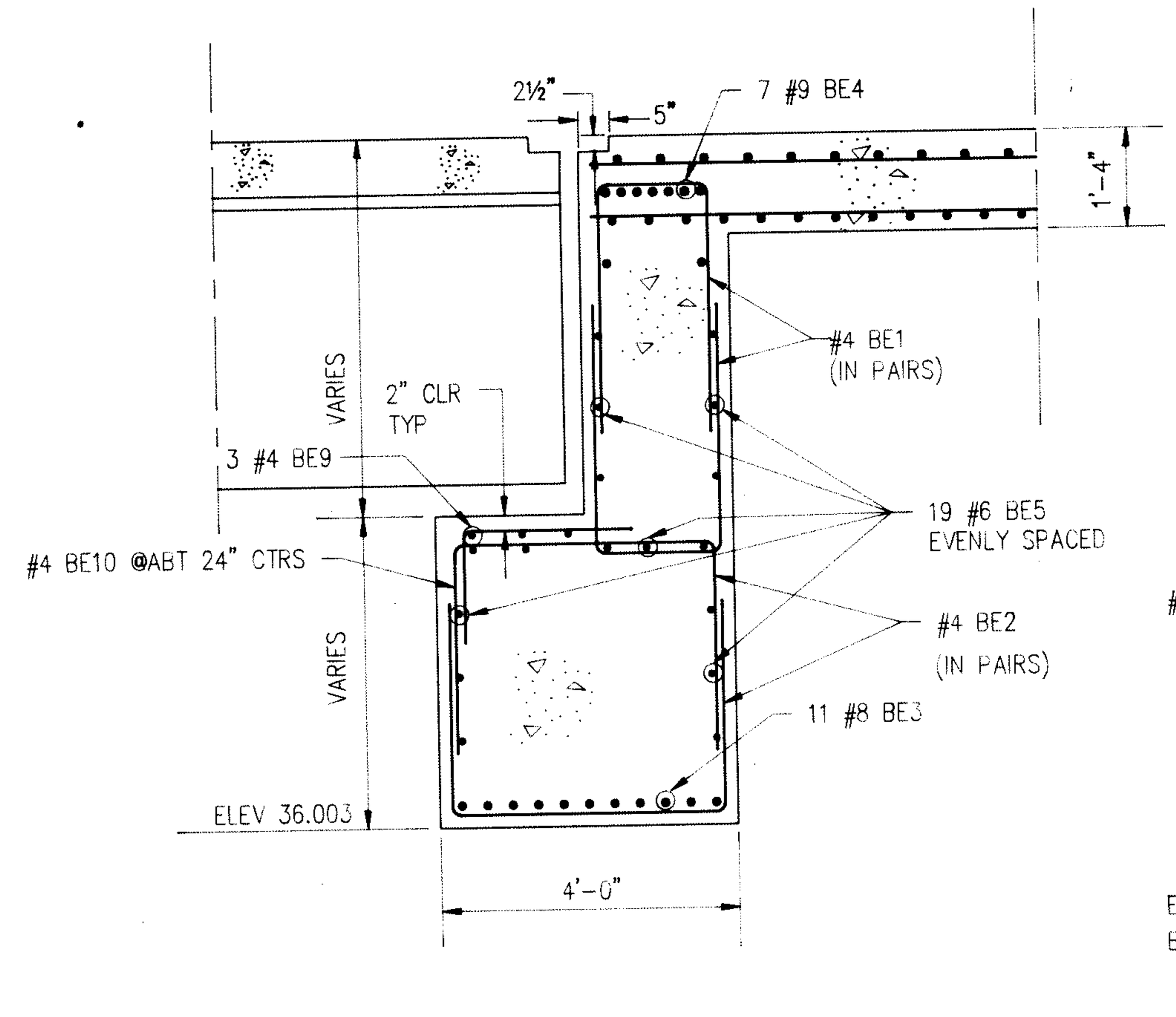
KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BRIDGE B – WEST ABUTMENT SECTIONS

Dwg. No. 32



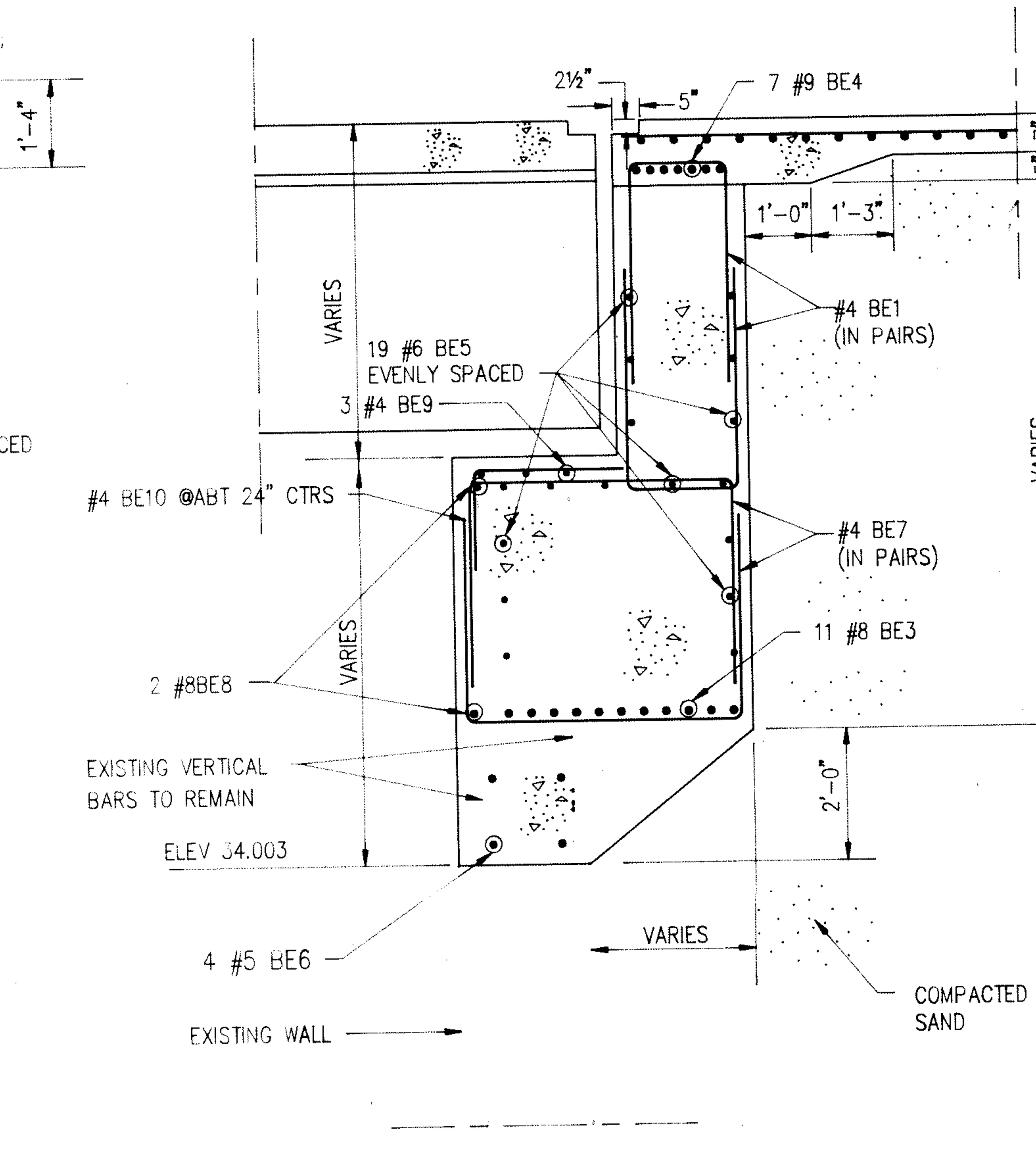
PLAN

¼"=1'-0"



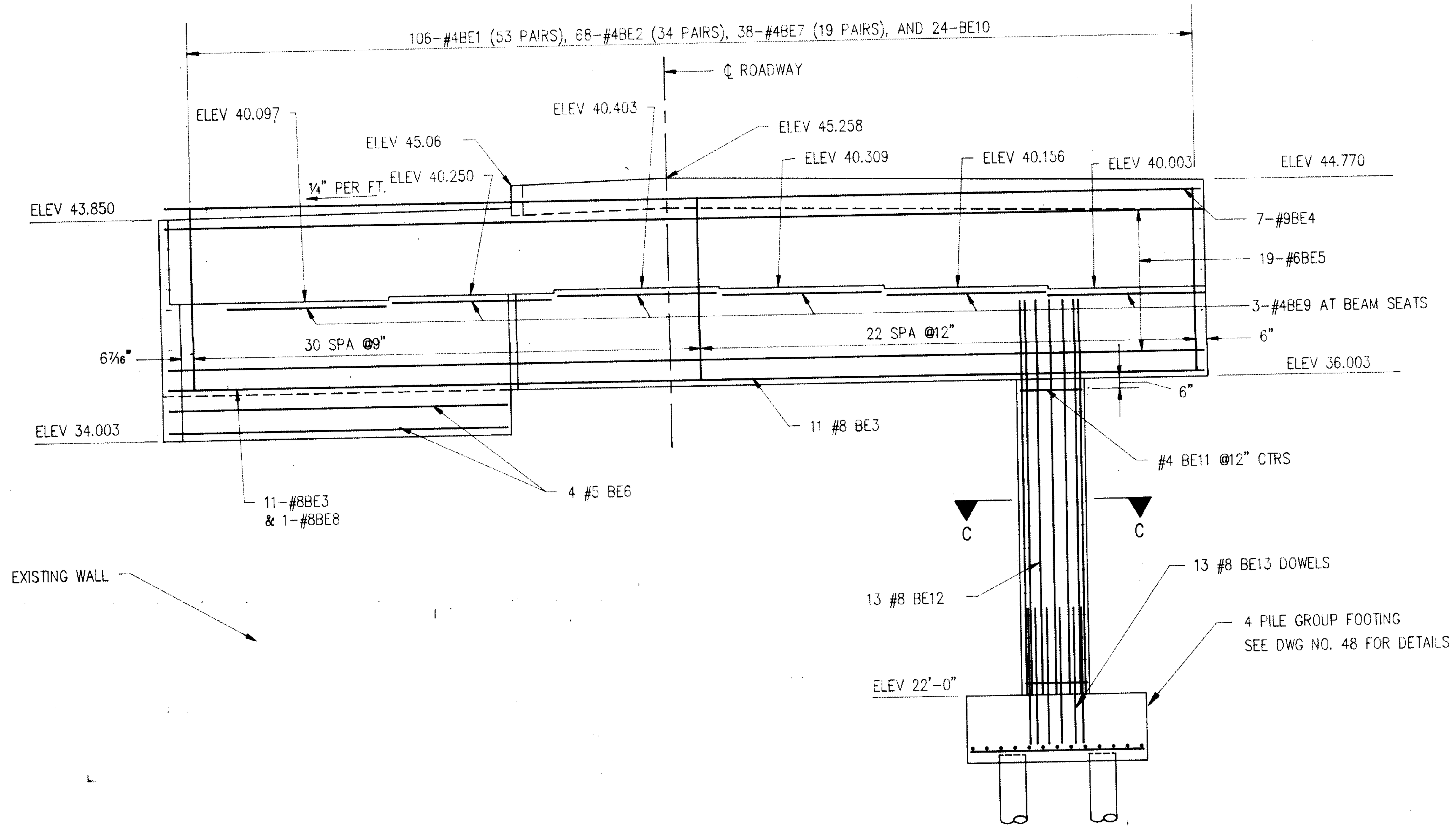
SECTION A–A

½"=1'-0"



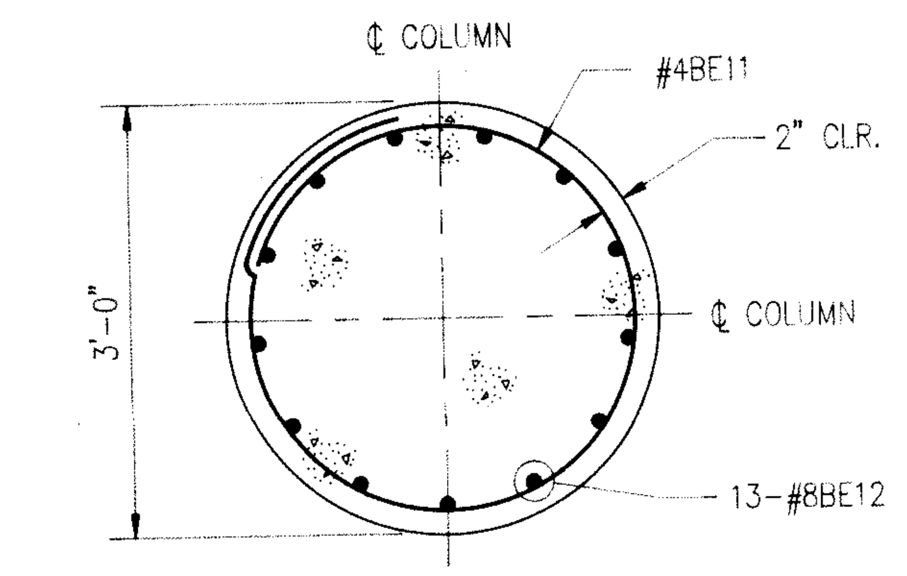
SECTION B–B

½"=1'-0"



ELEVATION

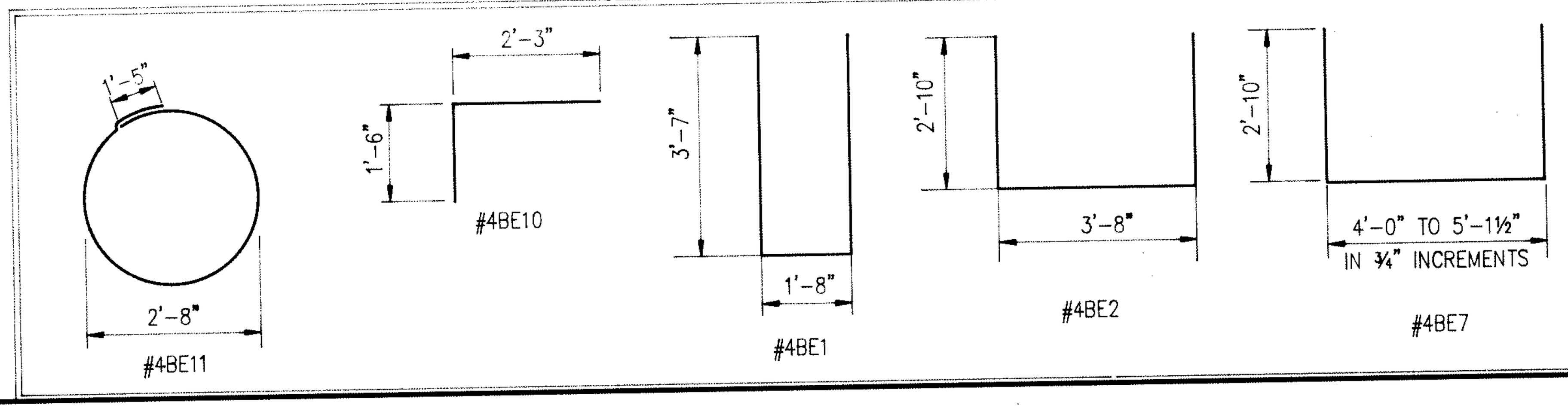
¼"=1'-0"



SECTION C–C

¾"=1'-0"

BILL OF REINFORCING (GRADE 60)							
EPOXY COATED REINFORCING							
STRAIGHT BARS				BENT BARS			
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
BE4	9	7	45'-9"	BE1	4	106	8'-10"
REINFORCING							
STRAIGHT BARS				BENT BARS			
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
BE3	8	11	45'-5"	BE2	4	106	9'-4"
BE5	6	19	45'-5"	BE7	4	38	9'-8" TO 10'-9½" IN ¾" INCREMENTS
BE6	5	4	14'-4"	BE10	4	24	3'-9"
BE8	8	2	14'-4"	BE11	4	14	9'-9½"
BE9	4	18	7'-0"				
BE12	8	13	17'-2"				
BE13	8	13	6'-0"				



No.	Revision	By	Date

PROJECT ENGINEER
Date 7/31/89
NOTE: This drawing is PRELIMINARY until approved by project eng.

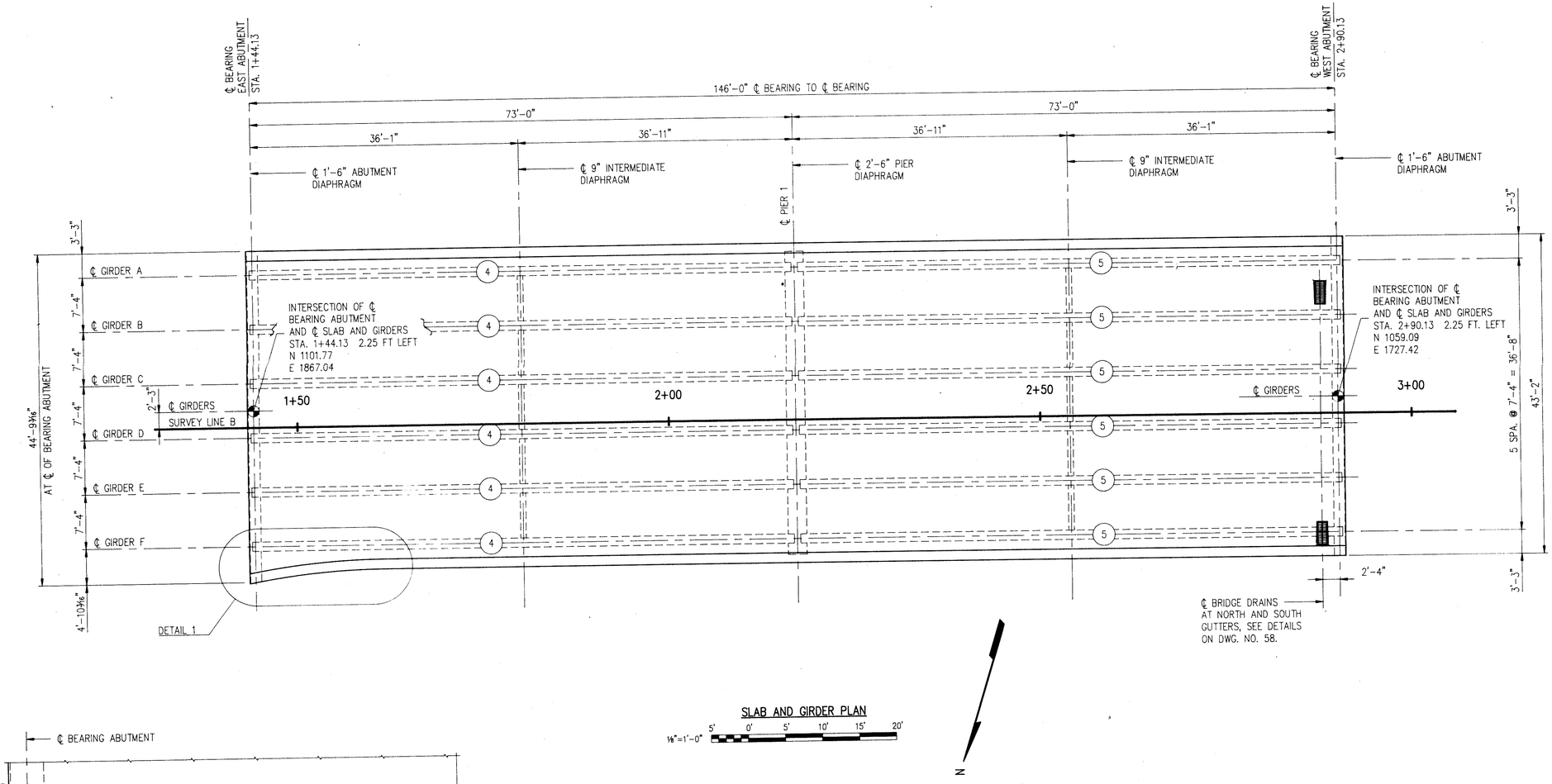
ACKirkwood

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By DWS
Drawn By DWS
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

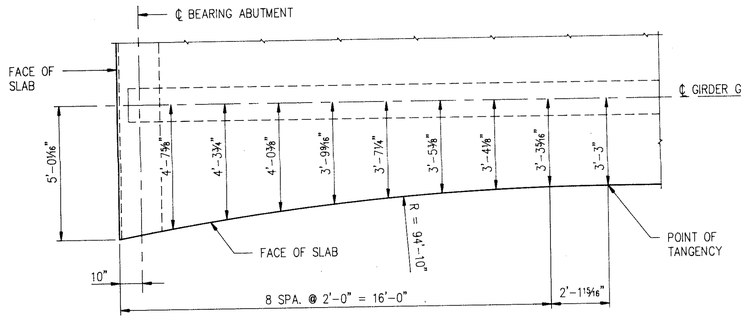
KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BRIDGE B – EAST ABUTMENT

Dwg. No. 33



SLAB AND GIRDER PLAN

1⅛"=1'-0" 5' 0' 5' 10' 15' 20'



DETAIL 1

⅜"=1'-0" 1 0 1 2 3 4 5

NOTES:

1. FOR GENERAL NOTES AND SUMMARY OF QUANTITIES SEE DRAWING NO. 2
2. FOR GIRDER DETAILS, SEE DRAWINGS NO. 46 AND 47
3. FOR DIAPHRAGM DETAILS, SEE DRAWINGS NO. 35 AND 36
4. (4) DENOTES THE GIRDER TYPE AND REFERS TO THE DETAILS SHOWN ON DRAWINGS NO. 46 AND 47

No.	Revision	By	Date

DAVID WARD SELLEY NUMBER E-20,331 REGISTERED PROFESSIONAL ENGINEER STATE OF MISSOURI

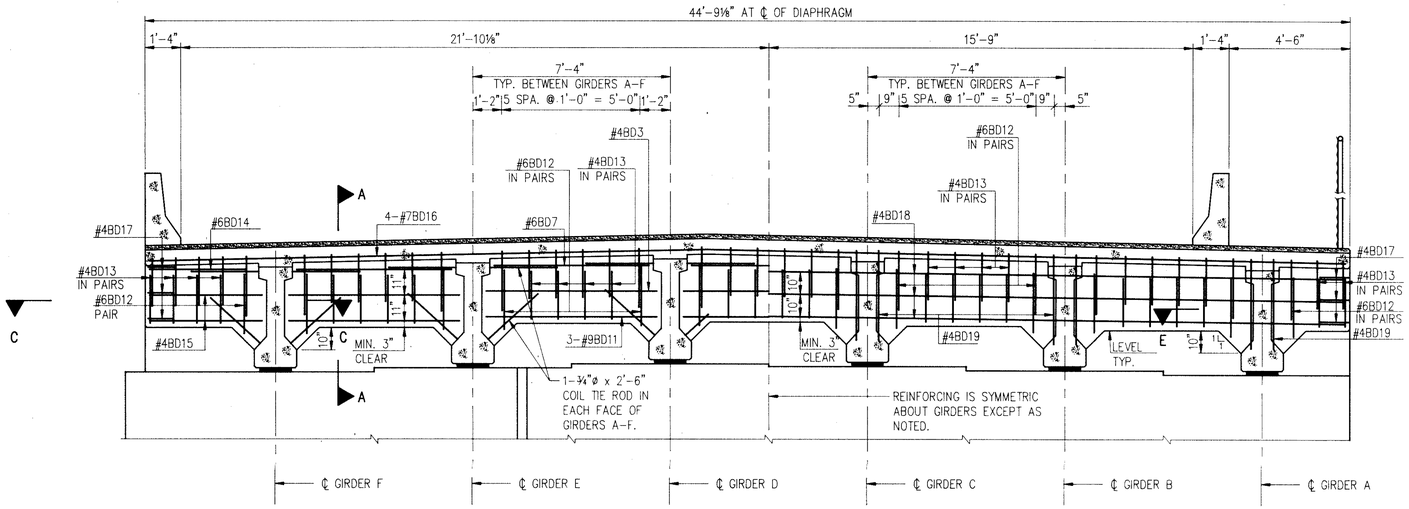
PROJECT ENGINEER
Date 7/21/59
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By	CRD
Drawn By	CRD
Checked By	GCJ
Scale	AS SHOWN
Job No.	8709
Contract No.	2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BRIDGE B SLAB AND GIRDER PLAN

Dwg. No. 34



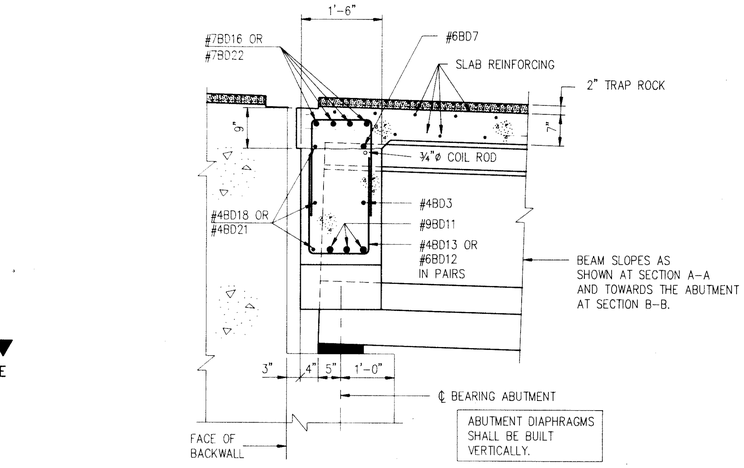
REINFORCING STEEL IN NEAR FACR OF DIAPHRAGM

REINFORCING STEEL IN FAR FACE OF DIAPHRAGM

ELEVATION OF DIAPHRAGM AT JUNCTION STRUCTURE (EAST)

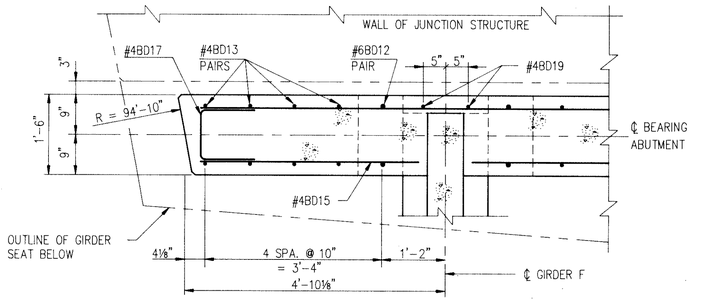
(LOOKING BACK ALONG STATIONING)

⅜"=1'-0"



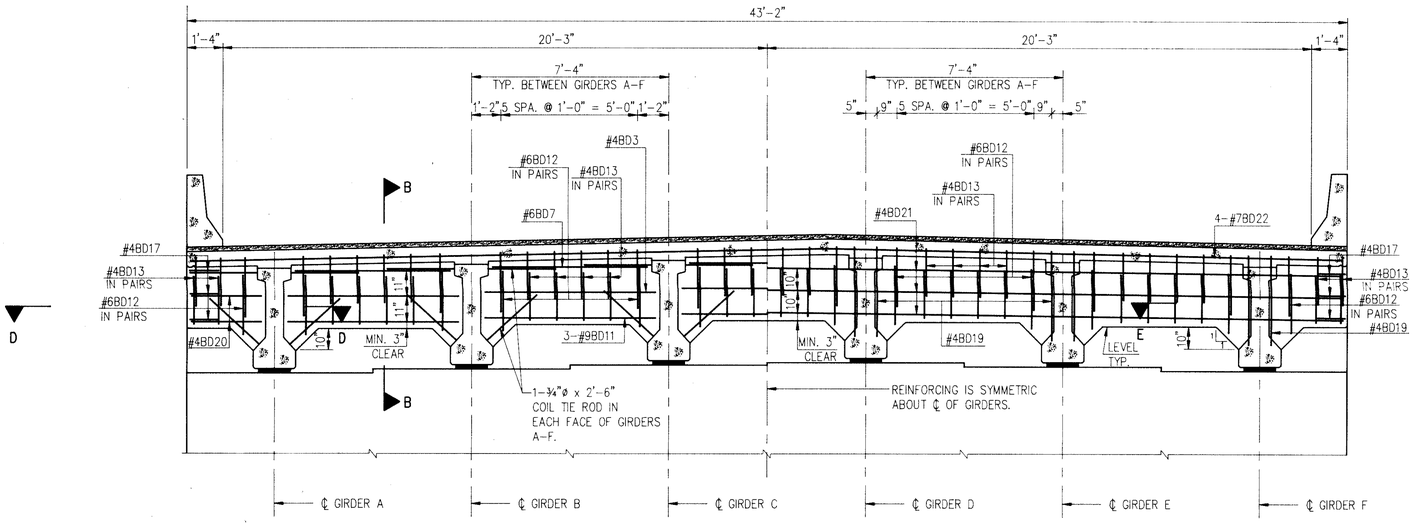
SECTION A-A
SECTION B-B (AS NOTED)

¾"=1'-0"



SECTION C-C

¾"=1'-0"



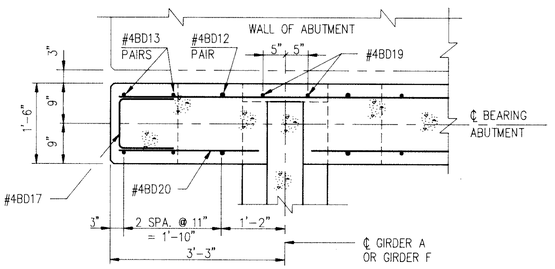
REINFORCING STEEL IN NEAR FACR OF DIAPHRAGM

REINFORCING STEEL IN FAR FACE OF DIAPHRAGM

ELEVATION OF DIAPHRAGM AT WEST ABUTMENT

(LOOKING ALONG STATIONING)

⅜"=1'-0"



SECTION D-D
SECTION E-E OPP. HAND

¾"=1'-0"

No.	Revision	By	Date

STATE OF MISSOURI REGISTERED ENGINEER DAVID WARD SEELEY NUMBER E-26031 PROFESSIONAL

PROJECT ENGINEER
Date 7/31/17
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood

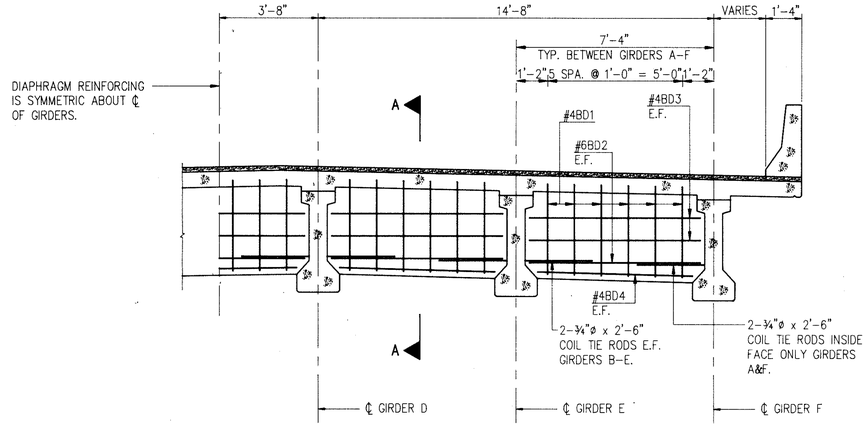
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By CRD
Drawn By CRD
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

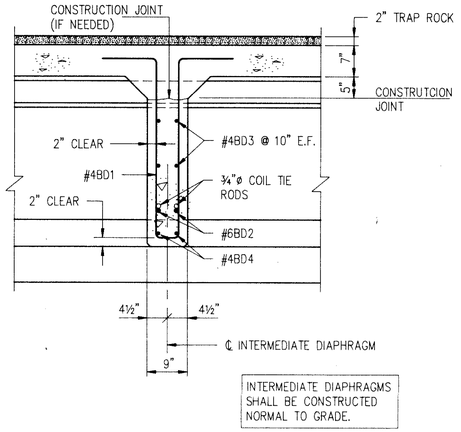
BRIDGE B DIAPHRAGMS AND DETEILS NO.2

Dwg. No. 35



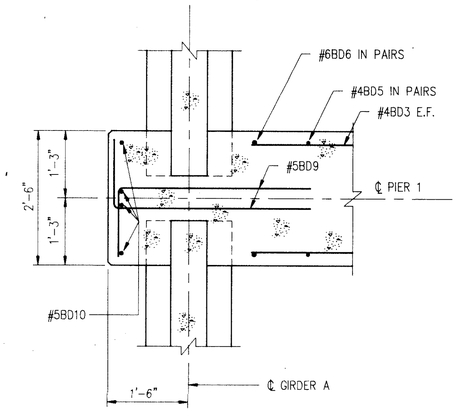
HALF ELEVATION OF INTERMEDIATE DIAPHRAGMS
(LOOKING ALONG STATIONING)

⅜"=1'-0" 1 0 1 2 3 4 5



SECTION A-A

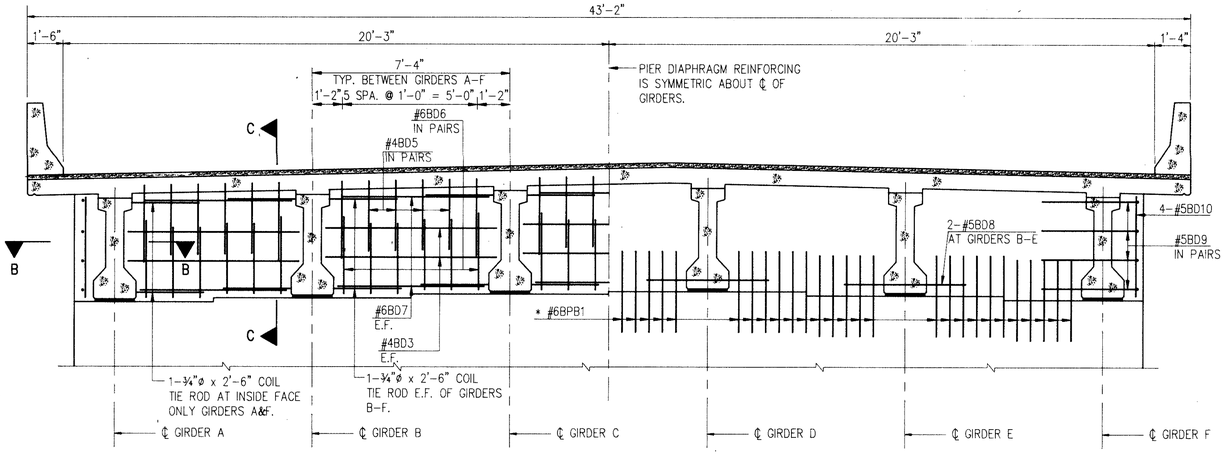
¾"=1'-0" 1 6" 0 1 2 3



SECTION B-B

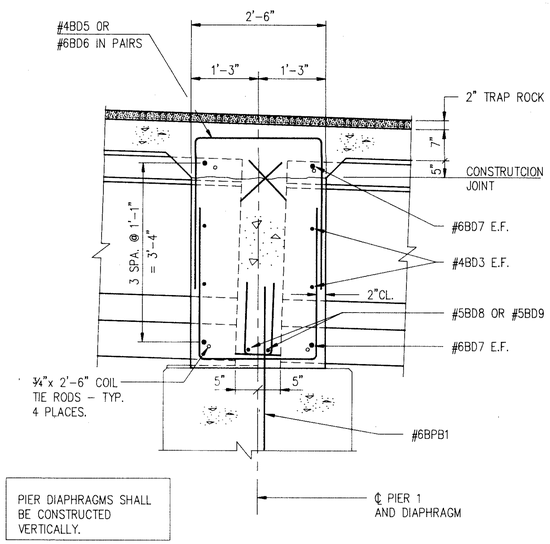
¾"=1'-0" 1 6" 0 1 2 3

NOTES:
1. E.F. MEANS EACH FACE
2. CL. MEANS CLEAR
3. TYP. MEANS TYPICAL



ELEVATION OF DIAPHRAGM AT PIER 1
(LOOKING ALONG STATIONING)

⅜"=1'-0" 1 0 1 2 3 4 5



SECTION C-C

¾"=1'-0" 1 6" 0 1 2 3

No.	Revision	By	Date

STATE OF MISSOURI — DAVID WARD SEELEY — NUMBER E2C 1 — REGISTERED PROFESSIONAL ENGINEER

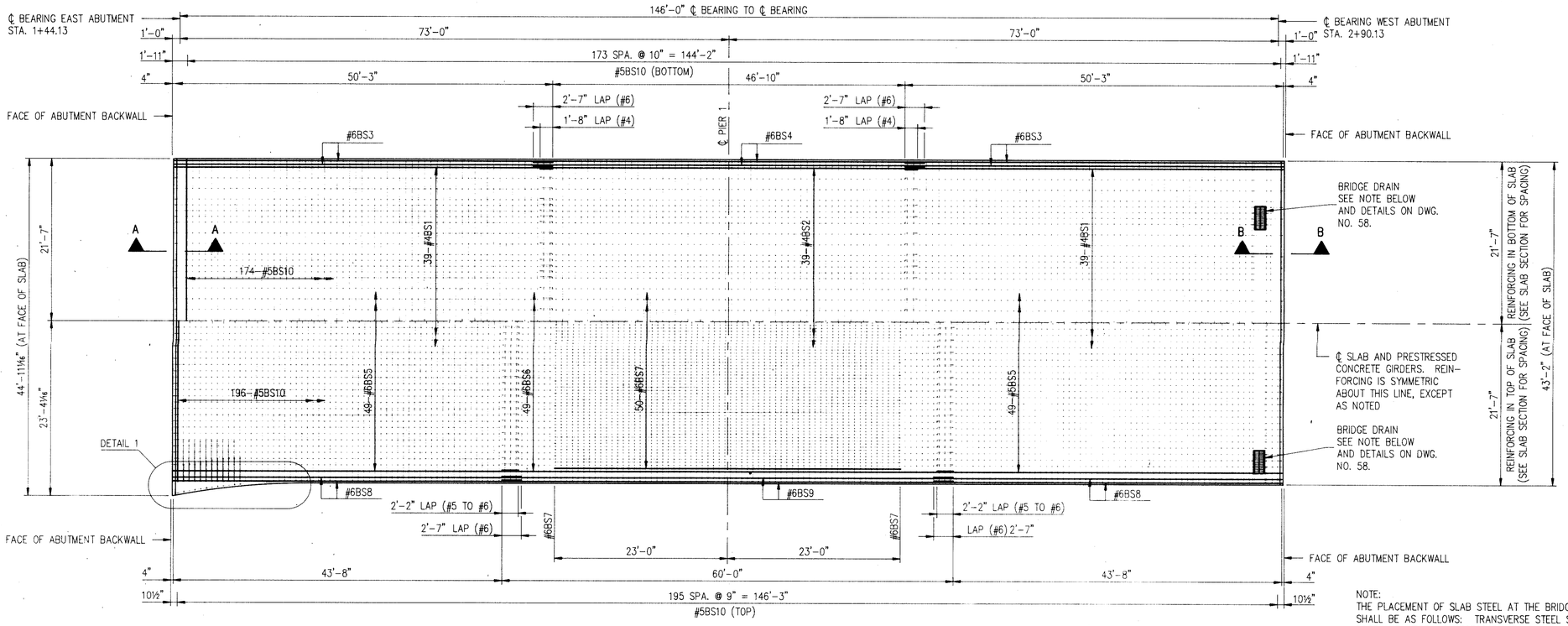
David Seeley
PROJECT ENGINEER
Date 7/31/89
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By	CRD
Drawn By	CRD
Checked By	GCJ
Scale	AS SHOWN
Job No.	8709
Contract No.	2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BRIDGE B DIAPHRAGMS AND DETAILS NO. 2

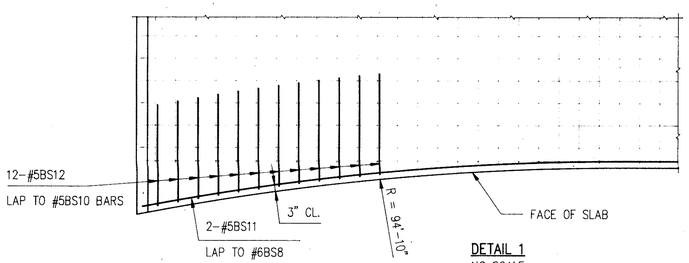
Dwg. No. 36



NOTE:
THE PLACEMENT OF SLAB STEEL AT THE BRIDGE DRAINS SHALL BE AS FOLLOWS: TRANSVERSE STEEL SHALL BE MOVED EAST AND WEST, AS NECESSARY, TO CLEAR THE DRAINS; LONGITUDINAL STEEL SHALL BE FIELD CUT TO CLEAR THE DRAINS. FIELD-CUT ENDS OF EPOXY COATED REINFORCING STEEL SHALL BE REPAIRED ACCORDING TO PROJECT SPECIFICATIONS.

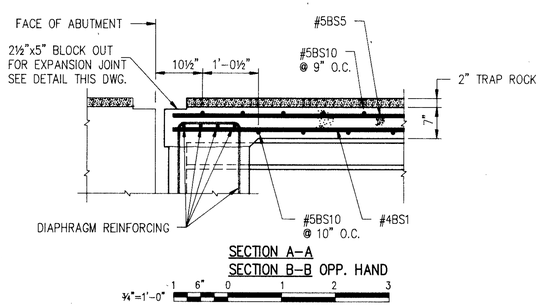
SLAB REINFORCEMENT PLAN

⅛"=1'-0" (5' 0' 5' 10' 15' 20')



DETAIL 1

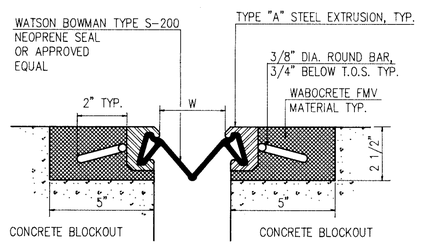
NO SCALE



SECTION A-A
SECTION B-B OPP. HAND

¾"=1'-0" (1 6" 0 1 2 3)

TEMP. AT TIME OF CONCRETE POUR	W
36°F	2⅛"
48°F	2 1/16"
60°F	2"
72°F	1 15/16"
84°F	1⅞"
96°F	1 13/16"
108°F	1¾"
119°F	1 11/16"



EXPANSION JOINT DETAIL

NO SCALE

No.	Revision	By	Date

STATE OF MISSOURI PROFESSIONAL ENGINEER
DAVID HARD CRAWFORD
NUMBER E-27323

PROJECT ENGINEER
Date 7/31/09
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood

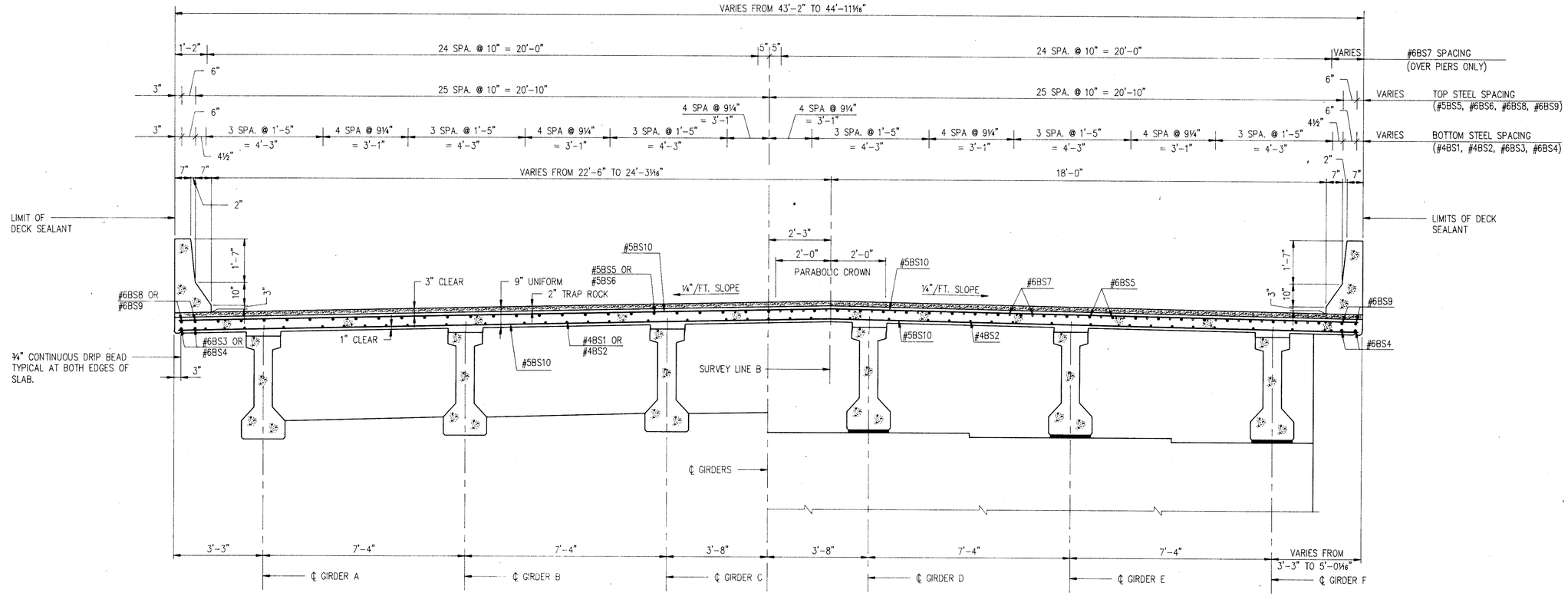
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By CRD
Drawn By CRD
Checked By GGJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

BRIDGE B SLAB REINFORCING PLAN

Dwg. No. 37



SECTION NEAR MIDSPAN

SECTION NEAR PIER

NOTES:

1. ALL VERTICAL AND HORIZONTAL SURFACES BETWEEN LIMITS OF DECK SEALANT SHALL RECEIVE ONE APPLICATION OF CONSOLIDECK SX AS MANUFACTURED BY PRO SO CO INC. OF KANSAS CITY, KANSAS OR APPROVED EQUAL.
2. MINIMUM CONCRETE COVER FROM FORMED SURFACE TO EDGE OF REINFORCING STEEL SHALL BE 2" UNLESS SHOWN OTHERWISE.

BRIDGE CROSS SECTION
(LOOKING ALONG STATIONING)

1/2"=1'-0" 1 0 1 2 3 4 5

BILL OF REINFORCING (GRADE 60)

EPOXY COATED REINFORCING

STRAIGHT BARS

MARK	SIZE	NO.	LENGTH
BS1	4	78	50'-3"
BS2	4	39	50'-4"
BS3	6	4	50'-3"
BS4	6	2	52'-2"
BS5	5	98	46'-0"
BS6	6	49	60'-0"
BS7	6	50	46'-0"
BS8	6	4	46'-5"
BS9	6	2	60'-0"
BS10	5	370	42'-10"
BS11	5	2	18'-0"
BD16	7	4	44'-3"
BD22	7	4	42'-10"

BENT BARS

MARK	SIZE	NO.	LENGTH
BS12	5	12	7'-11"
BD1	4	60	9'-1"
BD5	4	40	7'-4"
BD6	6	20	7'-10"
BD12	6	48	5'-8"
BD13	4	100	4'-8"
BD19	4	24	4'-6"

REINFORCING

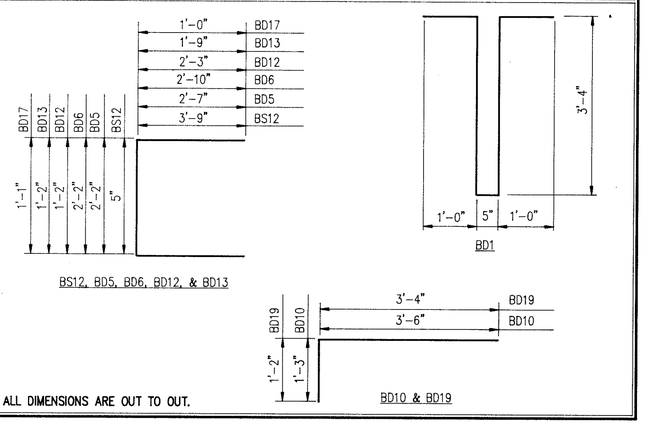
STRAIGHT BARS

MARK	SIZE	NO.	LENGTH
BD2	6	20	6'-4"
BD3	4	50	6'-4"
BD4	4	20	5'-9"
BD7	6	20	5'-5"
BD8	5	8	4'-6"
BD10	5	8	3'-9"
BD11	9	30	6'-4"
BD14	6	1	3'-7"
BD15	4	2	4'-2"
BD18	4	3	44'-3"
BD20	4	6	2'-7"
BD21	4	3	42'-10"

BENT BARS

MARK	SIZE	NO.	LENGTH
BD9	5	16	4'-9"
BD17	4	12	3'-1"

BENDING DIAGRAMS



BS12, BD5, BD6, BD12, & BD13

BD10 & BD19

ALL DIMENSIONS ARE OUT TO OUT.

No.	Revision	By	Date

PROJECT ENGINEER
Date 4/13/89
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood

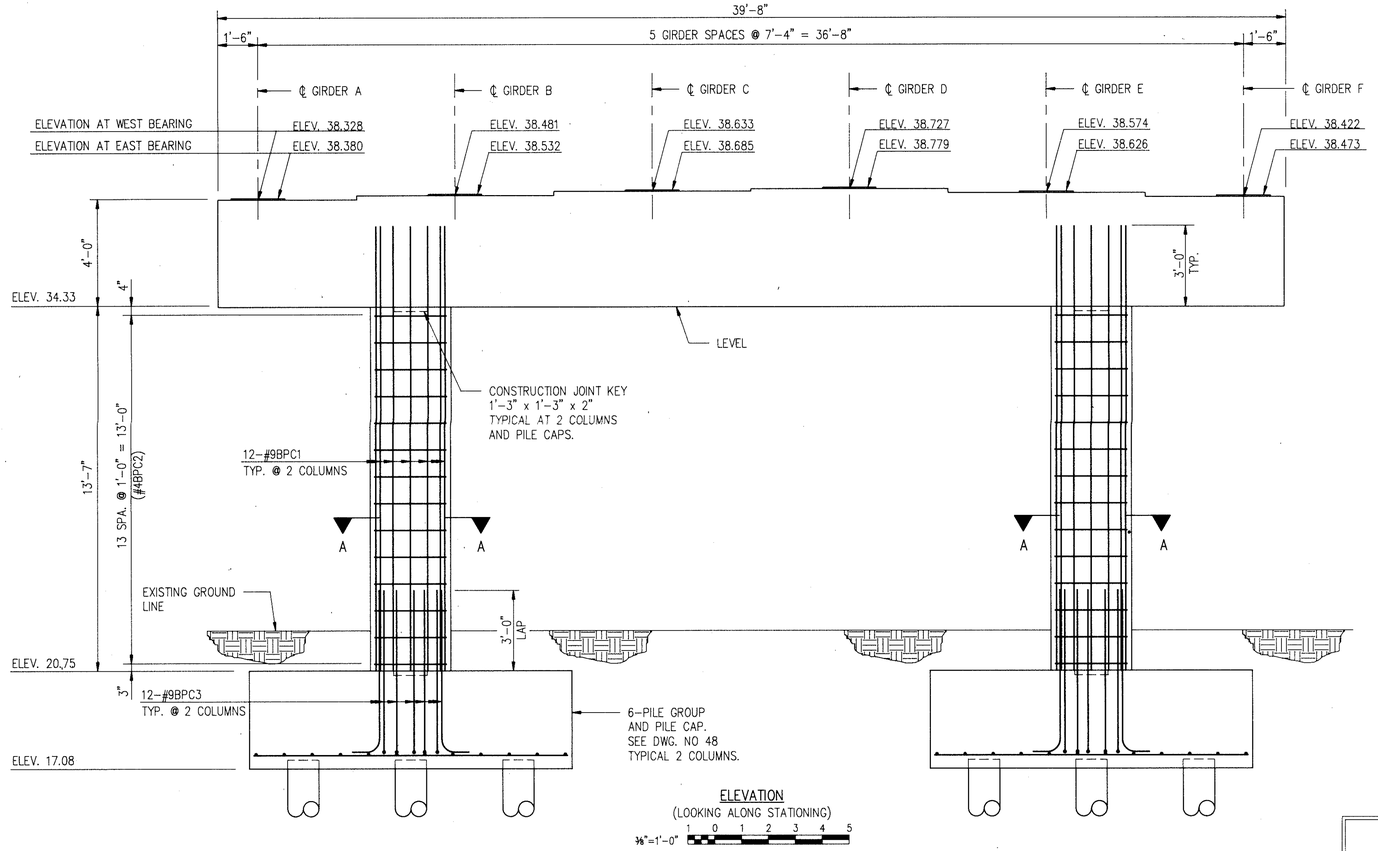
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

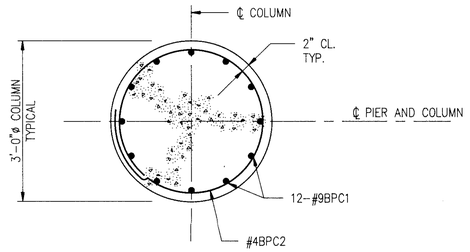
BRIDGE B CROSS SECTION

Designed By CRD
Drawn By CRD
Checked By GCJ
Scale 1/2"=1'-0"
Job No. 8709
Contract No. 2

Dwg. No. 38

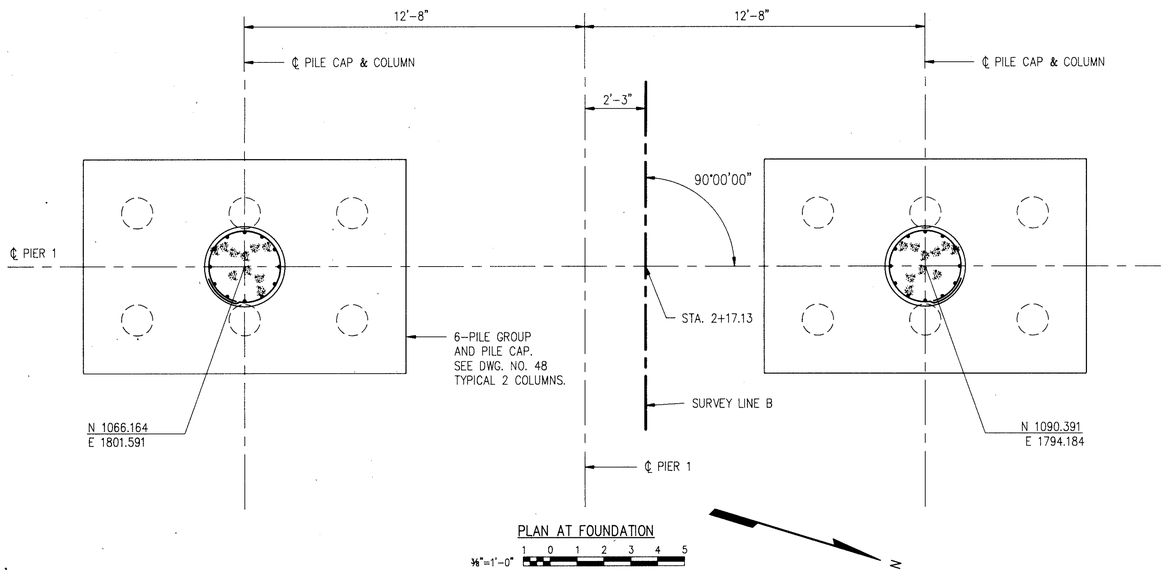


ELEVATION
(LOOKING ALONG STATIONING)
1 0 1 2 3 4 5
⅜"=1'-0"

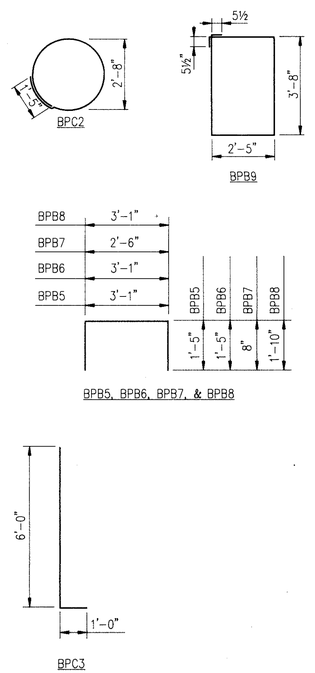


SECTION A–A
1 6" 0 1 2 3
¾"=1'-0"

NOTES:
1. FOR GENERAL NOTES AND SUMMARY OF QUANTITIES SEE DWG NO. 2
2. FOR DETAILS OF THE PIER BEAM, SEE DWG. NO. 40
3. FOR PILE AND PILE CAP DETAILS, SEE DWG. NO. 48



PLAN AT FOUNDATION
1 0 1 2 3 4 5
⅜"=1'-0"



BILL OF REINFORCING (GRADE 60)

REINFORCING

STRAIGHT BARS				BENT BARS			
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
BPB1	6	55	3'–0"	BPB5	5	8	5'–11"
BPB2	9	17	38'–4"	BPB6	4	36	5'–11'
BPB3	9	4	21'–0"	BPB7	4	28	3'–10"
BPB4	6	4	38'–4"	BPB8	4	4	6'–9"
				BPB9	4	70	13'–1"
BPC1	9	24	16'–7'	BPC2	4	28	9'–9"
				BPC3	9	24	7'–0"

No.	Revision	By	Date

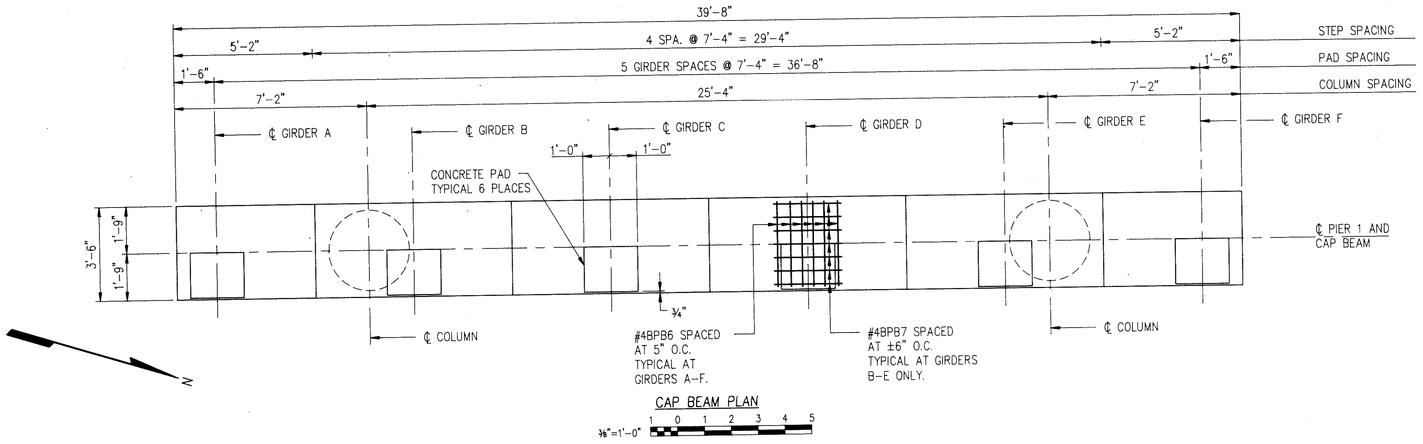
PROJECT ENGINEER
Date 7/15/09
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By	CRD
Drawn By	RDC
Checked By	GCJ
Scale	AS SHOWN
Job No.	8709
Contract No.	2

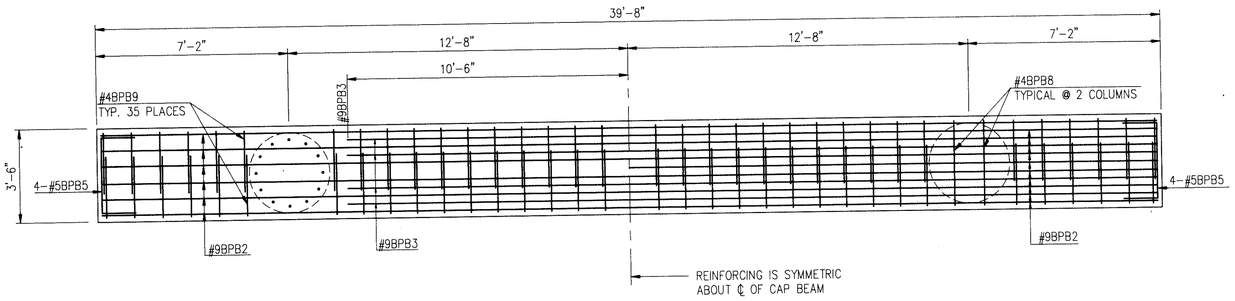
KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BRIDGE B – PIER 1

Dwg. No. 39



CAP BEAM PLAN

⅜"=1'-0"

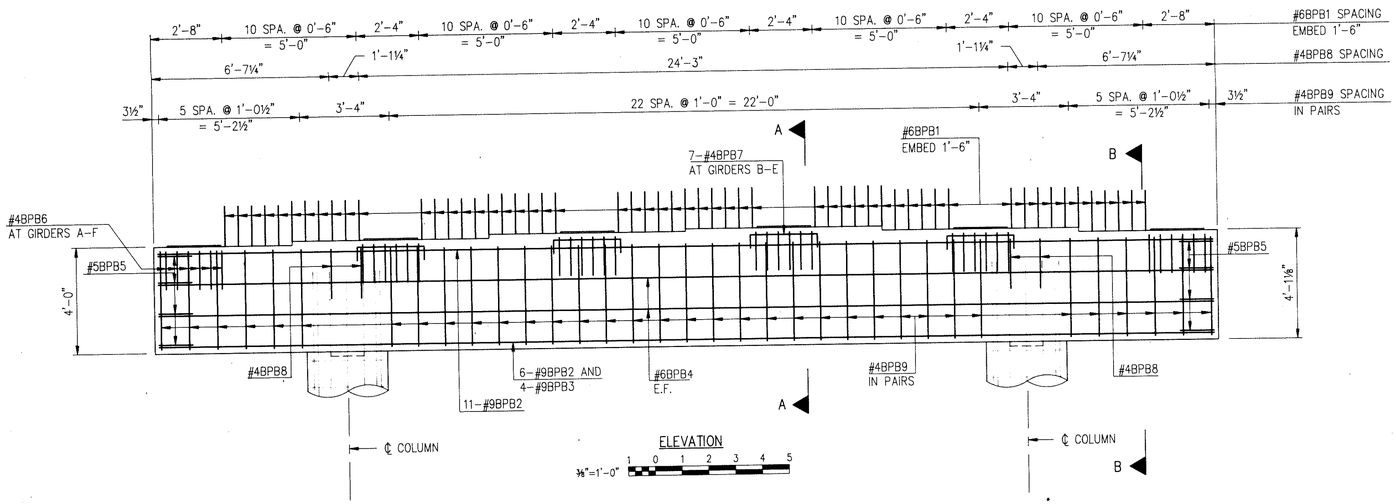


REINFORCING IN BOTTOM OF BEAM

REINFORCING IN TOP OF BEAM

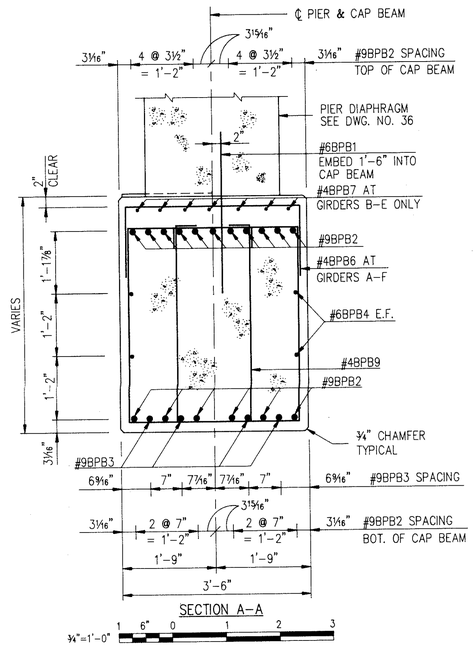
REINFORCING PLAN

⅜"=1'-0"



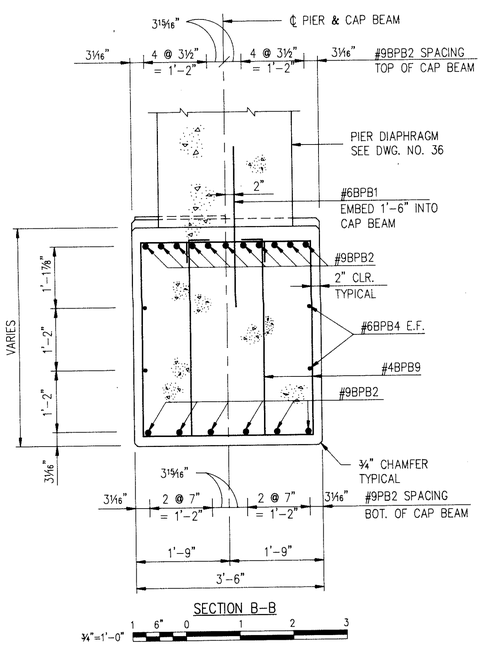
ELEVATION

⅜"=1'-0"



SECTION A-A

¾"=1'-0"



SECTION B-B

¾"=1'-0"

NOTES:
1. E.F. MEANS EACH FACE
2. FOR COLUMN DETAILS, SEE DWG. NO. 39
3. FOR REINFORCING SCHEDULE, SEE DWG. NO. 39

No.	Revision	By	Date

DAVID W. SEIFERT NUFFER E2... REGISTERED PROFESSIONAL ENGINEER

PROJECT ENGINEER
Date
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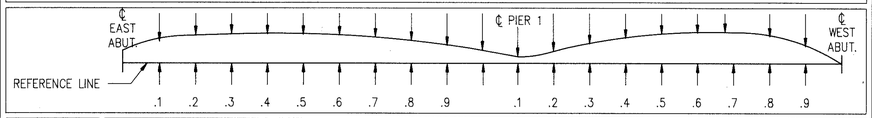
Drawn By	CRD
Checked By	GCJ
Scale	AS SHOWN
Job No.	8709
Contract No.	2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

BRIDGE B
PIER 1 CAP BEAM DETAILS

Dwg. No. 40

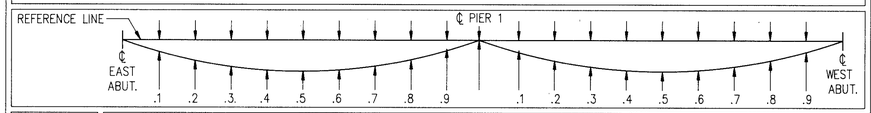
VERTICAL CURVE AND SLOPE CORRECTION *



LOCATION	BRIDGE B																			
	SPAN 1										SPAN 2									
	℄ BRG ABUT	.1	.2	.3	.4	.5	.6	.7	.8	.9	℄ PIER 1	.1	.2	.3	.4	.5	.6	.7	.8	.9	℄ BRG ABUT
GIRDER A	0.089'	0.171'	0.191'	0.200'	0.206'	0.203'	0.198'	0.178'	0.156'	0.127'	0.091'	0.145'	0.189'	0.233'	0.260'	0.290'	0.304'	0.318'	0.302'	0.233'	0.100'
GIRDER B																					
GIRDER C																					
GIRDER D																					
GIRDER E																					
GIRDER F	0.089'	0.171'	0.191'	0.200'	0.206'	0.203'	0.198'	0.178'	0.156'	0.127'	0.091'	0.145'	0.189'	0.233'	0.260'	0.290'	0.304'	0.318'	0.302'	0.233'	0.100'

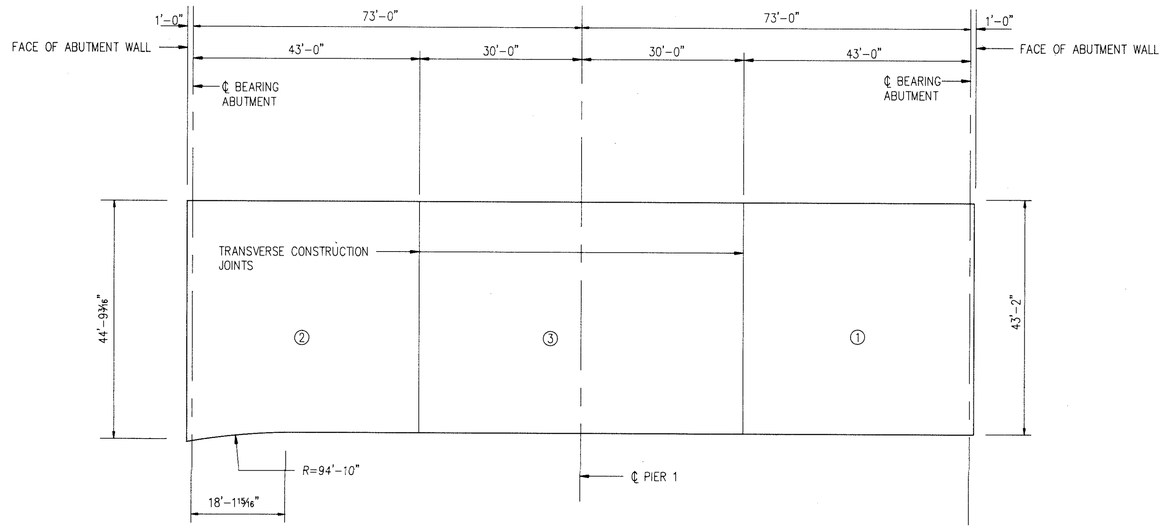
* INCLUDES CORRECTION FOR SLOPE OF GIRDERS AND VERTICAL CURVE.

DEAD LOAD DEFLECTIONS †



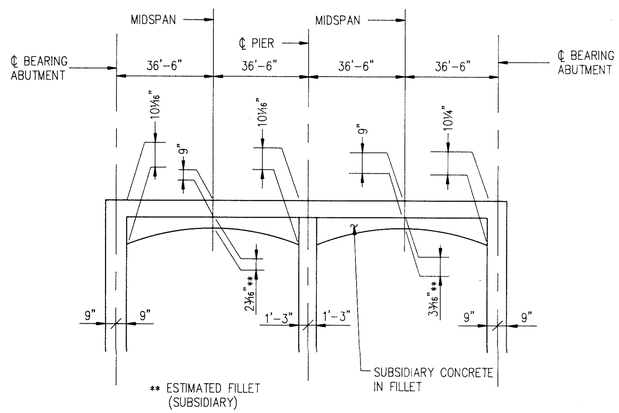
LOCATION	BRIDGE B																			
	SPAN 1										SPAN 2									
	℄ BRG ABUT	.1	.2	.3	.4	.5	.6	.7	.8	.9	℄ PIER 1	.1	.2	.3	.4	.5	.6	.7	.8	.9	℄ BRG ABUT
GIRDER A	0.000'	0.027'	0.051'	0.070'	0.082'	0.086'	0.081'	0.069'	0.049'	0.024'	0.000'	0.024'	0.049'	0.069'	0.081'	0.086'	0.082'	0.070'	0.051'	0.027'	0.000'
GIRDER B		0.030'	0.056'	0.077'	0.090'	0.094'	0.089'	0.075'	0.054'	0.026'		0.026'	0.054'	0.075'	0.089'	0.094'	0.090'	0.077'	0.056'	0.030'	
GIRDER C																					
GIRDER D																					
GIRDER E		0.030'	0.056'	0.077'	0.090'	0.094'	0.089'	0.075'	0.054'	0.026'		0.026'	0.054'	0.075'	0.089'	0.094'	0.090'	0.077'	0.056'	0.030'	
GIRDER F	0.000'	0.027'	0.051'	0.070'	0.082'	0.086'	0.081'	0.069'	0.049'	0.024'	0.000'	0.024'	0.049'	0.069'	0.081'	0.086'	0.082'	0.070'	0.051'	0.027'	0.000'

† DEFLECTION CAUSED BY WEIGHT OF SLAB, HAUNCHES, AND DIAPHRAGMS.



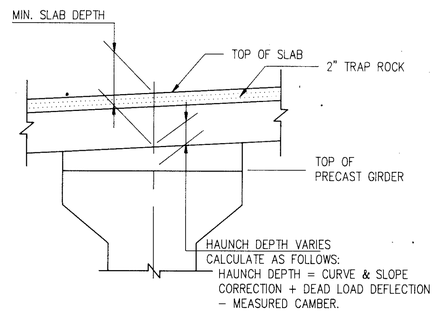
NOTES:
1. THE POUR SEQUENCE AND TRANSVERSE JOINT SPACING SHALL BE AS SHOWN ABOVE WITH A MINIMUM POUR RATE OF 25 CUBIC YARDS PER HOUR. INDIVIDUAL POURS SHALL PROCEED FROM WEST TO EAST.
2. A RETARDER SHALL BE USED IN ALL DECK CONCRETE.
3. TRANSVERSE CONSTRUCTION JOINTS AND SEQUENCE OF POUR MAY BE ELIMINATED IF THE CONTRACTOR CAN DEMONSTRATE TO THE ENGINEER THAT HE IS CAPABLE OF POURING, AND SATISFACTORILY FINISHING THE ROADWAY SLAB AT A RATE OF NOT LESS 27 CUBIC YARDS PER HOUR.

CONCRETE PLACING SEQUENCE (SLAB)
NO SCALE



NOTE: THE CLASS 2 CONCRETE QUANTITY IN THE SUMMARY OF QUANTITIES IS BASED ON THE AVERAGE SLAB THICKNESS OF 7". APPROXIMATELY 8 CUBIC YARDS OF ADDITIONAL CONCRETE WILL BE REQUIRED DUE TO THE VARIANCE IN THE HAUNCH THICKNESS. SEE DETAIL. THE CONCRETE QUANTITY NEEDED TO COMPENSATE FOR BEAM CAMBER IN ORDER TO PROPERLY CONSTRUCT THE BRIDGE TO CROWN GRADE SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE SUBSIDIARY TO THE UNIT PRICE BID FOR CLASS 2 CONCRETE.

SKETCH SHOWING SUBSIDIARY CONCRETE IN HAUNCH
NO SCALE



NOTE: THE FINISHED DECK SLAB SHALL BE CONSTRUCTED TO PLAN GRADE BY VARYING THE DEPTH OF THE HAUNCH OVER THE GIRDER TO PROVIDE FOR PRESTRESS CAMBER, VERTICAL CURVE AND SLOPE, AND CONCRETE DEAD LOAD DEFLECTION. AFTER THE GIRDERS HAVE BEEN ERECTED, AND PRIOR TO PLACING ANY FORMWORK, THE ACTUAL CAMBER IN EACH GIRDER SHALL BE MEASURED IN THE FIELD. ADJUST HAUNCH THICKNESS TO COMPENSATE FOR GIRDER CAMBER AND OBTAIN THE PROPER PROFILE GRADE LINE. THE MINIMUM DEPTH OVER THE GIRDERS SHALL BE 9". IF NECESSARY, THE PLAN GRADE SHALL BE ADJUSTED IN ORDER TO OBTAIN THE MINIMUM SLAB DEPTH. SEE CONCRETE HAUNCH DETAIL.

CONCRETE HAUNCH DETAIL
NO SCALE

No.	Revision	By	Date

PROJECT ENGINEER
Date
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Drawn By RDC
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

VERTICAL CURVE CORRECTION AND DEAD LOAD DEFLECTIONS–BRIDGE B

Dwg. No. 41

GENERAL NOTES

THE MANUFACTURE OF PRECAST PRESTRESSED CONCRETE BEAMS SHALL CONFORM TO THE MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION SPECIFICATIONS.

THE ULTIMATE COMPRESSIVE STRENGTH OF THE CONCRETE AS DETERMINED BY CYLINDER TESTS AT THE AGE OF 28 DAYS IS 5,500 PSI.

GIRDER LENGTH SHALL REASONABLY CONFORM TO THE LINES AND DIMENSIONS SHOWN ON THE DESIGN PLANS AND BE WITHIN THE TOLERANCES SPECIFIED IN THE LATEST PUBLICATION OF A.A.S.H.T.O., "TENTATIVE STANDARDS FOR PRESTRESSED PILES, SLABS, I–BEAMS, AND BOX BRIDGES AND AN INTERIM MANUAL FOR INSPECTION OF SUCH CONSTRUCTION", EXCEPT AS MODIFIED BY THIS SHEET OR AS MODIFIED BY THE M.H.T.C SPECIFICATIONS.

ALL EXPOSED EDGES OF BEAMS EXCEPT THE TOP AND ENDS SHALL BE BEVELED WITH A ¾–INCH TRIANGULAR MOULDING OR ROUNDED TO A ¾–INCH RADIUS. THE ANGLE OF INTERSECTION BETWEEN WEB AND FLANGE SHALL BE ROUNDED.

TOPS OF BEAMS ARE TO BE STRUCK OFF LEVEL AND GIVEN A WIRE BRUSH OR STIFF BROOM FINISH, APPLIED IN THE DIRECTION TRANSVERSE TO THE LENGTH OF THE GIRDER. AT APPROXIMATELY THE TIME OF INITIAL SET, THE TOPS OF THE BEAM SHALL BE BRUSHED TRANSVERSELY WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE.

THE PRESTRESSING STEEL SHALL BE ½–INCH NOMINAL DIAMETER, GRADE 270 "UNCOATED SEVEN WIRE STRESS–RELEIVED STRAND FOR PRESTRESSED CONCRETE", ASTM DESIGNATION A416, LOW RELAXATION STRANDS. MINIMUM ULTIMATE STRENGTH OF STRANDS SHALL BE 41,300 POUNDS.

ULTIMATE COMPRESSIVE CYLINDER STRENGTH OF THE CONCRETE SHALL BE 4,500 PSI MINIMUM BEFORE DETENSIONING OF PRESTRESS STRANDS.

AN INITIAL TENSILE FORCE OF 1,000 TO 3,000 POUNDS SHALL BE APPLIED TO EACH STRAND TO TAKE UP ANY SLACK IN THE CABLES. A TENSILE FORCE OF 30,983 POUNDS SHALL BE APPLIED TO EACH STRAND. STRANDS WHICH ARE TO BE DEFLECTED SHALL BE STRESSED TO A MAGNITUDE SUCH THAT AFTER DEFLECTION, THEY ARE TENSIONED TO 30,983 POUNDS.

ALL MILD STEEL REINFORCEMENT SHALL BE ASTM A615, GRADE 60. ALL CHAIRS AND SPACERS IN PRECAST, PRESTRESSED GIRDERS SHALL BE GALVANIZED. COIL TIES SHALL BE HELD IN PLACE IN THE FORMS BY SLOTTED WIRE–SETTING–STUDS PROJECTING THROUGH THE FORMS. STUDS ARE TO BE LEFT IN PLACE OR REPLACED WITH TEMPORARY PLUGS UNTIL GIRDERS ARE ERECTED AND THEN REPLACED BY COIL TIE RODS.

TRAPPED AIR HOLES AND SURFACE VOIDS ON THE EXTERIOR INCLINED SURFACE OF THE BOTTOM FLANGE OF ALL EXTERIOR BEAMS SHALL BE FILLED WITH CONCRETE GROUT SO AS TO PRODUCE A NON–POROUS SURFACE.

DETENSIONING OF STRANDS SHALL BE PERFORMED IN A SEQUENCE TO MINIMIZE LATERAL ECCENTRICITY. METHOD AND SEQUENCE OF RELEASE SHALL BE SHOWN IN SHOP DETAILS.

EXTREME CARE SHALL BE EXCERCISED IN LIFTING, HANDLING, STORAGE, AND TRANSPORTATION OF THE BEAM TO PREVENT DAMAGE. THEY SHALL BE LIFTED BY MEANS OF THE DEVICE PROVEDED IN AN UPRIGHT POSITION AT ALL TIMES AND SHALL BE SUPPORTED ON BEARING POINTS POSITIONED BELOW THE DESIGNATED LIFTING POINTS OR BELOW THE DESIGNATED BEARING POINTS.

DURING TRANSPORTATION ONLY, THE BEAMS MAY BE SUPPORTED BY BEARING POINTS BELOW THE GIRDERS AT A MAXIMUM OF 4'–0" FROM THE BEAM END.

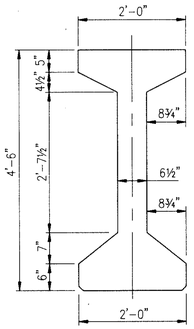
THE GIRDERS SHALL HAVE A MINIMUM AGE OF 35 DAYS BEFORE PLACING OF THE BRIDGE SLAB. THE DIAPHRAGMS SHALL BE POURED AS NOTED ON THE DESIGN PLANS.

ELASTOMERIC BEARING PADS SHALL CONFORM TO M.H.T.C. SPECIFICATIONS. THE PADS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM "PRESTRESSED CONCRETE GIRDERS".

COIL TIES AND BOLTS SHALL HAVE AN ULTIMATE STRENGTH OF 200 PERCENT IN EXCESS OF THE MANUFACTURER'S SAFE LOAD AND SHALL BE APPROVED BY THE ENGINEER. COIL TIES AND BOLTS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM "PRESTRESSED CONCRETE GIRDERS"

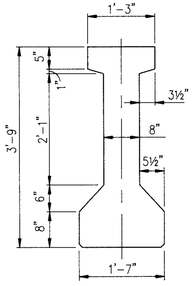
THE FINISHED DECK SLAB SHALL BE CONSTRUCTED TO PLAN GRADE BY VARYING THE DEPTH OF THE CONCRETE FILLETS OVER THE BEAMS TO PROVIDE FOR PRESTRESS CAMBER, CONCRETE DEAD LOAD DEFLECTION, AND VERTICAL CURVE. AFTER THE GIRDERS HAVE BEEN ERECTED AND PRIOR TO PLACING ANY FORMWORK, THE ACTUAL CAMBER IN EACH BEAM SHAL BE MEASURED IN THE FIELD. ANY VARIATION BETWEEN THE ACTUAL CAMBER AND THE ERECTION CAMBER SHOWN ON THE DESIGN PLANS SHALL BE CORRECTED BY VARYING THE FILLET DEPTH.

ALL LIFTING DEVICES SHALL BE REMOVED AFTER ERECTION AND BEFORE SLAB PLACEMENT.



AREA 644.1 SQ. IN.
ICG 236,105 IN⁴
YBOT 25.89 IN.
VOL./SURF. 3.72 IN.
WT./FT. 671 LB./FT.

TYPE 1,2, & 3



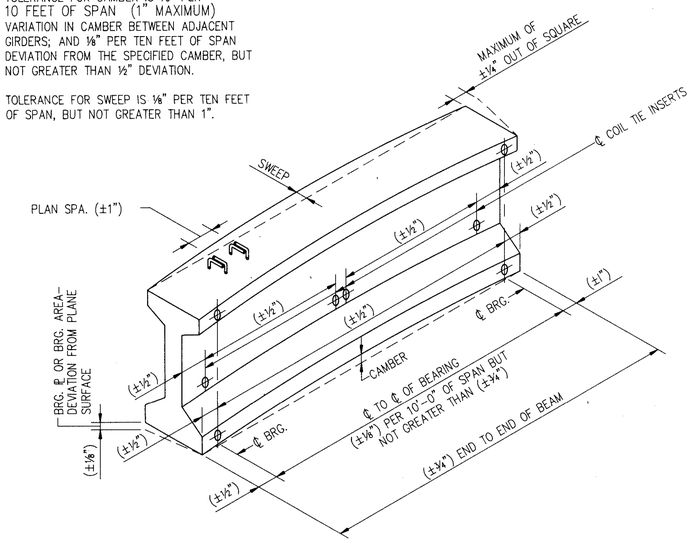
AREA 520 SQ. IN.
ICG 108,507 IN⁴
YBOT 20.04 IN.
VOL./SURF. 3.93 IN.
WT./FT. 541 LB./FT.

TYPE 4 & 5

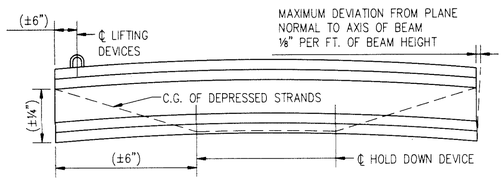
TYPICAL GIRDER SECTIONS
SCALE: ¾"=1'–0"

NOTE:
TOLERANCE FOR CAMBER IS ⅛" PER 10 FEET OF SPAN (1" MAXIMUM)
VARIATION IN CAMBER BETWEEN ADJACENT GIRDERS; AND ⅛" PER TEN FEET OF SPAN DEVIATION FROM THE SPECIFIED CAMBER, BUT NOT GREATER THAN ½" DEVIATION.

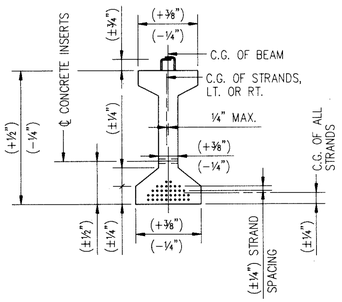
TOLERANCE FOR SWEEP IS ⅛" PER TEN FEET OF SPAN, BUT NOT GREATER THAN 1".

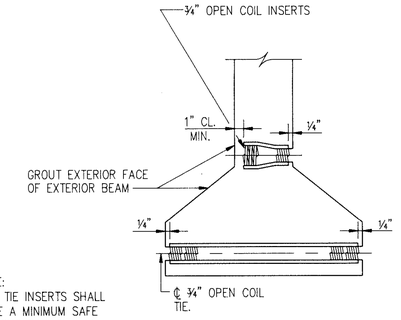


PRESTRESSED CONCRETE GIRDER FABRICATION TOLERANCES
NO SCALE



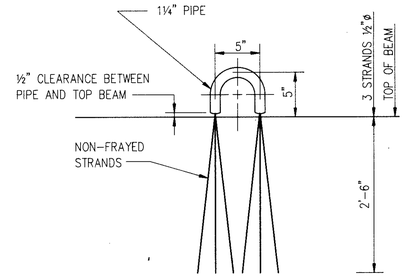
NOTE: DIMENSIONS SHOWN IN PARENTHESIS ARE TOLERANCES ONLY.





NOTE:
COIL TIE INSERTS SHALL HAVE A MINIMUM SAFE WORKING CAPACITY OF 5,000 LBS. WITH A FACTOR OF SAFETY OF 3 TO 1.

DETAIL OF COIL INSERTS
(SEE GIRDER DETAILS DRAWINGS FOR LOCATIONS)
NO SCALE



LIFTING DEVICE
NO SCALE

No.	Revision	By	Date

PROJECT ENGINEER
Date 7/31/09
NOTE: This drawing is PRELIMINARY until approved by project eng.

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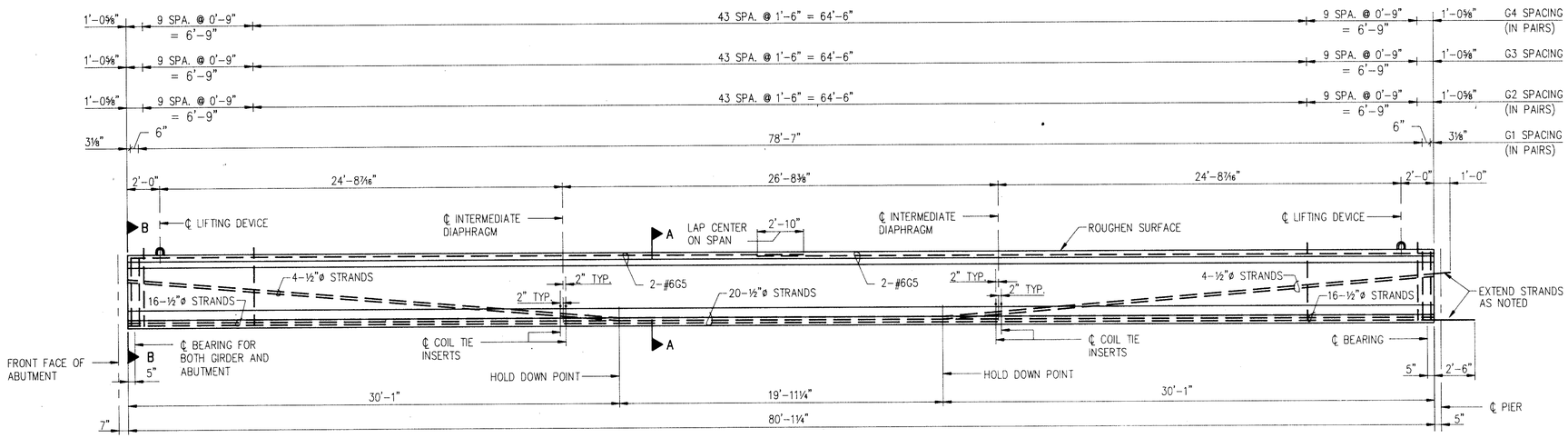
Designed By CRD
Drawn By CRD
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

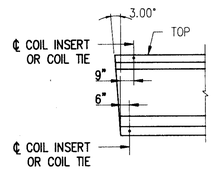
KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
PRECAST PRESTRESSED CONCRETE GIRDERS GENERAL

12

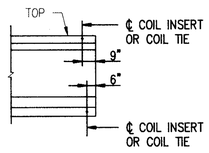


ELEVATION OF TYPE 1 PRESTRESSED CONCRETE GIRDER
(WEIGHT OF ONE GIRDER IS 26.8 TONS, 7 REQUIRED)

¼"=1'-0" 5 0 5 10



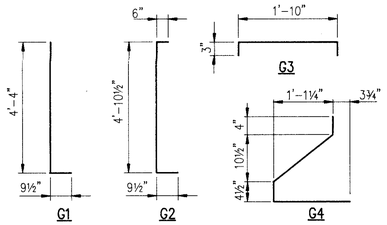
GIRDER END ELEVATION
(SHOWING INSERT LOCATION)
NO SCALE



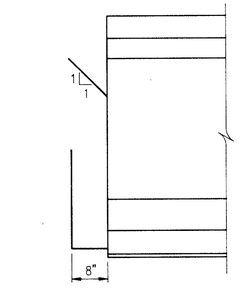
GIRDER END ELEVATION
(SHOWING INSERT LOCATION)
NO SCALE

BILL OF REINFORCING STEEL			
ONE BEAM LISTED (14 REQUIRED)			
STRAIGHT BARS (GR. 60)			
MARK	SIZE	NO.	LENGTH
G5	6	4	40'-8"
BENT BARS (GR. 60)			
G1	5	8	5'-0"
G2●	4	124	6'-0"
G3	4	62	2'-2"
G4	4	124	3'-5"

●EPOXY CODED BARS



BENDING DIAGRAMS
(ALL DIMENSIONS ARE OUT TO OUT OF BARS)
NO SCALE



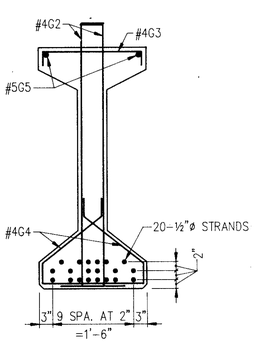
PARTIAL ELEVATION OF GIRDERS AT PIERS
(SHOWS EXTENDED STRANDS AFTER SHOP BENDING)
NO SCALE

SUMMARY OF QUANTITIES	
ITEM	
4'-6" PRESTRESSED CONCRETE GIRDER, 14 @ 80'-0"	560.7 FT.
*THE FOLLOWING QUANTITIES ARE GIVEN FOR INFORMATION ONLY	
¾" OPEN COIL INSERT	52 EA.
CONCRETE IN BEAMS (F'c = 5,500 P.S.I.)	92.2 YD.^{3}
PRESTRESSING STEEL, A416, ½"ø STRAND (LOW RELAX)	11,293 FT.
¾" COIL TIE	27 EA.
ELASTOMERIC BEARING PADS (½"x10"x1'-10½"), 50 DUR.	7 EA.
LAMINATED ELASTOMERIC BEARING PADS (3⅜"x10"x1'-4"), 50 DUR.	7 EA.
¾"øx2'-6" THREADED COIL RODS	100 EA.
REINFORCING STEEL (GR 60)	3499 LBS.
REINFORCING STEEL (GR 60) (EPOXY COATED)	3479 LBS.

*THESE QUANTITIES SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "4'-6" PRESTRESSED CONCRETE GIRDERS".

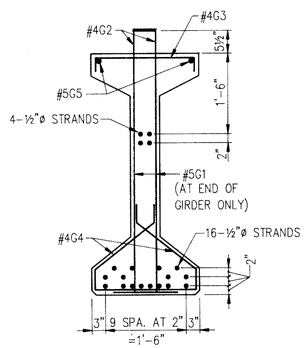
NOTES:

1. FOR GENERAL NOTES, SEE DWG NO. 2
2. THERE SHALL BE 6 STRANDS EXTENDED FROM THE ENDS OF ALL GIRDERS AS SHOWN IN ELEVATIONS. 4 OF THESE STRANDS SHALL BE FROM THE BOTTOM ROW. THEY SHALL PRODUCE NO LATERAL ECCENTRICITY. 2 STRANDS FROM THE TOP ROW SHALL ALSO BE EXTENDED. STRANDS NOT TO BE EXTENDED SHALL BE CUT WITHIN 1 INCH OF THE END OF THE GIRDER.
3. SANDBLAST GIRDER SIDES WHERE CONCRETE COMES IN CONTACT WITH DIAPHRAGMS.
4. FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE DWG NO. 21
5. FOR DIAPHRAGM DETAILS, SEE DWG NO. 22 AND 23
6. DIMENSIONS ARE MEASURED ALONG ℄ OF GIRDER.
7. FOR BEARING PAD DETAILS, SEE DWG NO. 45
8. FOR COIL TIE INSERT DETAILS, SEE DWG NO. 42



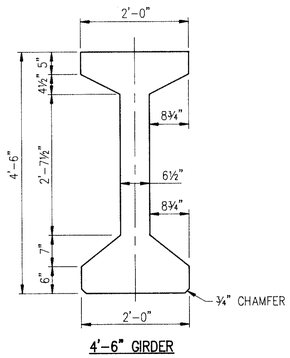
SECTION A–A

¾"=1'-0" 1 6" 0 1 2 3



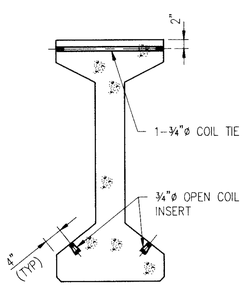
SECTION B–B

¾"=1'-0" 1 6" 0 1 2 3



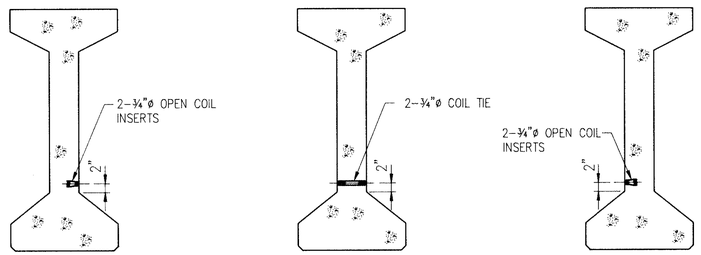
4'-6" GIRDER
TYPICAL SECTION

¾"=1'-0" 1 6" 0 1 2 3



GIRDER A THRU G
COIL TIE INSERT LOCATIONS – ABUTMENT DIAPHRAGMS

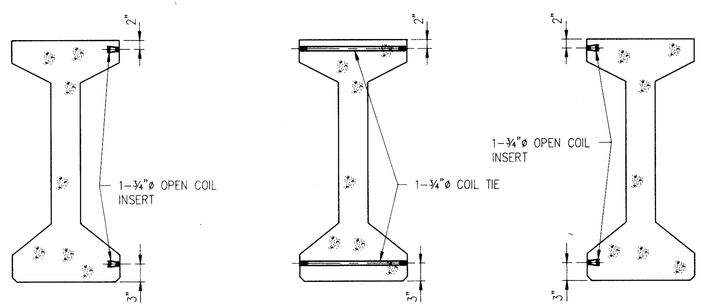
¾"=1'-0" 1 6" 0 1 2 3



GIRDER A | GIRDER B THRU F | GIRDER G

COIL TIE INSERT LOCATIONS – INTERMEDIATE DIAPHRAGMS

¾"=1'-0" 1 6" 0 1 2 3



GIRDER A | GIRDER B THRU F | GIRDER G

COIL TIE INSERT LOCATIONS – PIER DIAPHRAGMS

¾"=1'-0" 1 6" 0 1 2 3

No.	Revision	By	Date

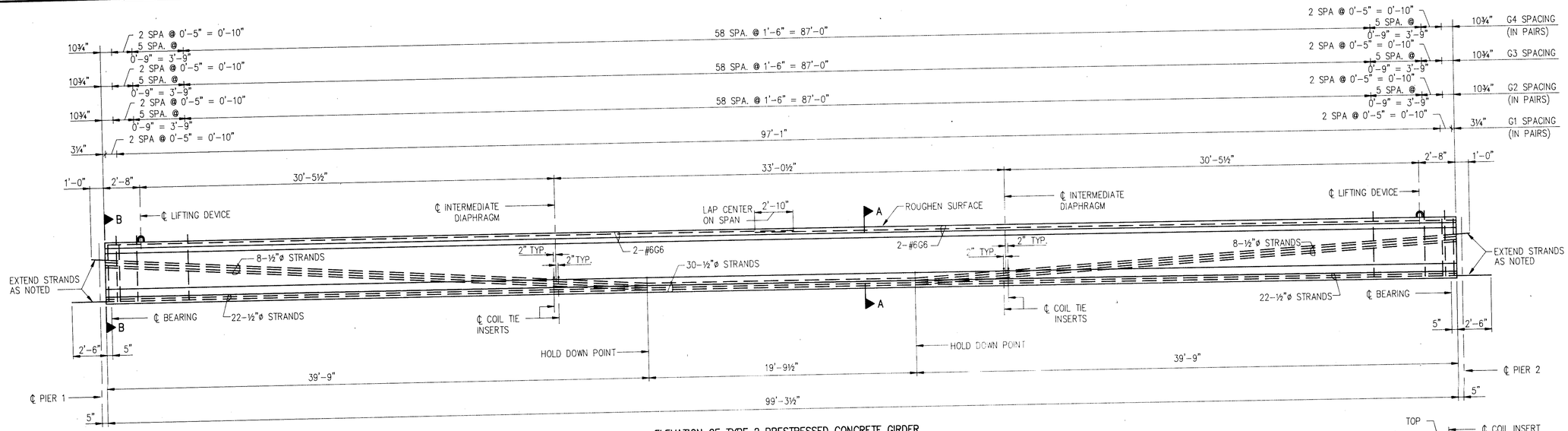
STATE OF MISSOURI DAVID WARD SEELEY NUMBER E-22133 REGISTERED PROFESSIONAL ENGINEER

PROJECT ENGINEER
Date 7/31/19
NOTE: This drawing is PRELIMINARY until approved by project eng.

Designed By CRD
Drawn By MHM
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
PRECAST PRESTRESSED CONCRETE GIRDERS TYPE 1

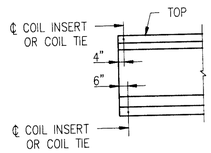
Dwg. No. 43



ELEVATION OF TYPE 2 PRESTRESSED CONCRETE GIRDER

(WEIGHT OF ONE GIRDER IS 33.3 TONS, 7 REQUIRED

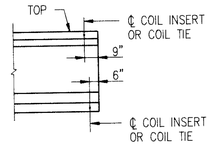
¼"=1'-0" 5 0 5 10



GIRDER END ELEVATION

(SHOWING INSERT LOCATION)

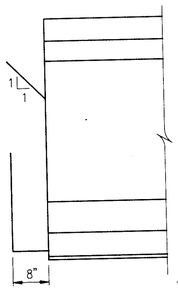
NO SCALE



GIRDER END ELEVATION

(SHOWING INSERT LOCATION)

NO SCALE



PARTIAL ELEVATION OF GIRDERS AT PIERS

(SHOWS EXTENDED STRANDS AFTER SHOP BENDING)

NO SCALE

SUMMARY OF QUANTITIES	
ITEM	
4'-6" PRESTRESSED CONCRETE GIRDER, 7 @ 99'-3½"	695 FT.
*THE FOLLOWING QUANTITIES ARE GIVEN FOR INFORMATION ONLY	
¾" OPEN COIL INSERT	16 EA.
CONCRETE IN BEAMS (F'c = 5,500 P.S.I.)	114 YD.^{3}
PRESTRESSING STEEL, A416, ½"ø STRAND (LOW RELAX)	21,027 FT.
¾" COIL TIE	40 EA.
TAPERED PLAIN ELASTOMERIC BEARING PADS, 50 DUR.	14 EA.
¾"øx2'-6" THREADED COIL RODS	96 EA.
REINFORCING STEEL (GR 60)	4,356 LBS.
REINFORCING STEEL (GR 60) (EPOXY COATED)	4,208 LBS.

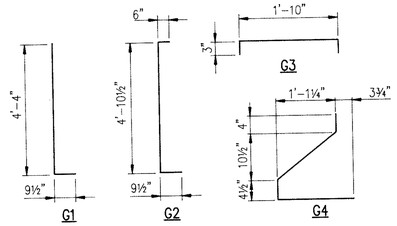
*THESE QUANTITIES SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "4'-6" PRESTRESSED CONCRETE GIRDERS".

NOTES:

1. FOR GENERAL NOTES, SEE DWG NO. 2
2. THERE SHALL BE 6 STRANDS EXTENDED FROM THE ENDS OF ALL GIRDERS AS SHOWN IN ELEVATIONS. 4 OF THESE STRANDS SHALL BE FROM THE BOTTOM ROW. THEY SHALL PRODUCE NO LATERAL ECCENTRICITY. 2 STRANDS FROM THE TOP ROW SHALL ALSO BE EXTENDED. STRANDS NOT TO BE EXTENDED SHALL BE CUT WITHIN 1 INCH OF THE END OF THE GIRDER.
3. SANDBLAST GIRDER SIDES WHERE CONCRETE COMES IN CONTACT WITH DIAPHRAGMS.
4. FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE DWG NO.21
5. FOR DIAPHRAGM DETAILS, SEE DWG NO. 23
6. DIMENSIONS ARE MEASURED ALONG THE BOTTOM FACE OF THE GIRDER.
7. FOR BEARING PAD DETAILS, SEE DWG NO. 45
8. FOR COIL TIE INSERT DETAILS, SEE DWG NO. 42 AND DWG NO. 43

BILL OF REINFORCING STEEL			
ONE BEAM LISTED (7 REQUIRED)			
STRAIGHT BARS (GR. 60)			
MARK	SIZE	NO.	LENGTH
G6	6	4	50'-11"
BENT BARS (GR. 60)			
G1	5	12	5'-0"
G2●	4	150	6'-0"
G3	4	75	2'-2"
G4	4	150	3'-5"

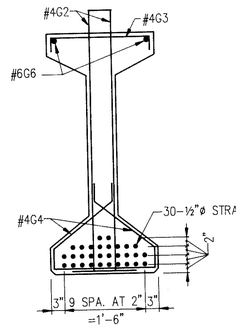
●EPOXY COATED BARS



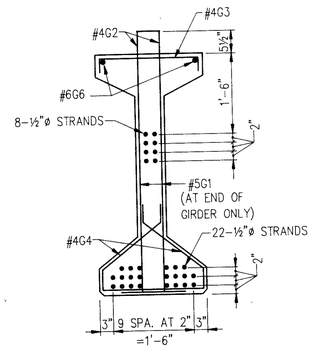
BENDING DIAGRAMS

(ALL DIMENSIONS ARE OUT TO OUT OF BARS)

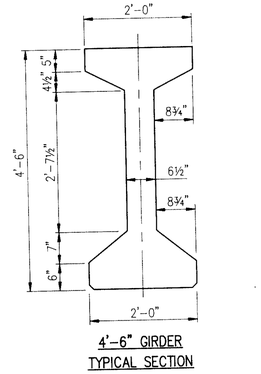
NO SCALE



SECTION A-A



SECTION B-B



4'-6" GIRDER TYPICAL SECTION

¾"=1'-0" 1 6" 0 1 2 3

No.	Revision	By	Date

PROJECT ENGINEER

Date

NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

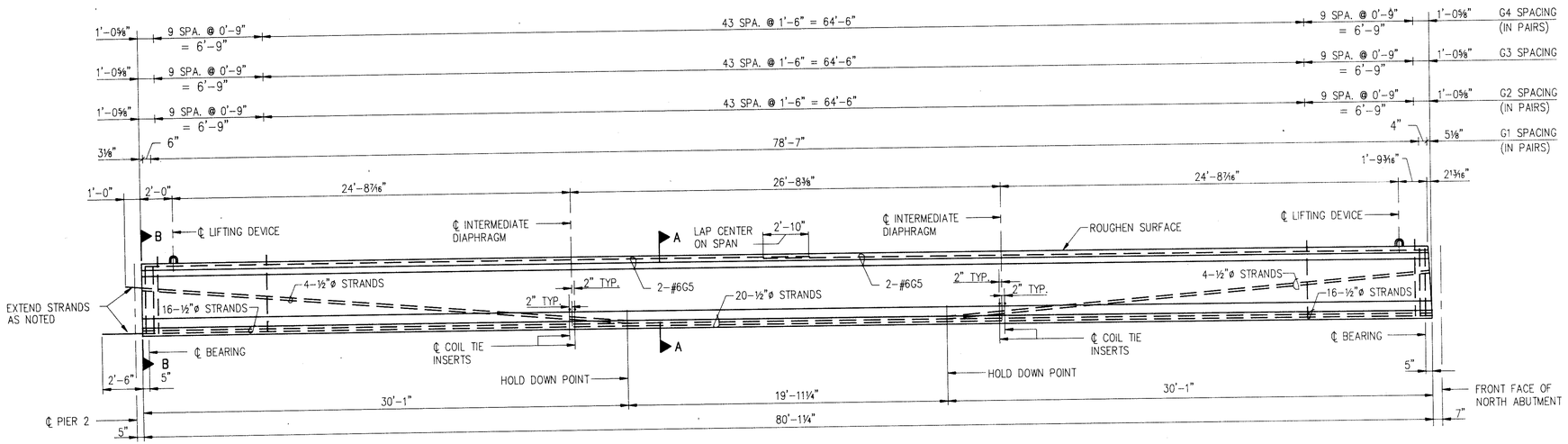
Designed By CRD
Drawn By MHM
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.

CHESTNUT AVENUE VIADUCT

PRECAST PRESTRESSED CONCRETE GIRDERS TYPE 2

Dwg. No. 44



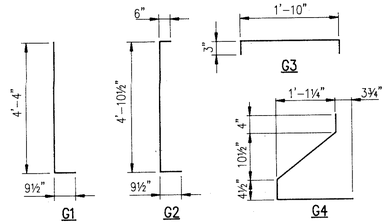
ELEVATION OF TYPE 3 PRESTRESSED CONCRETE GIRDER

(WEIGHT OF ONE GIRDER IS 26.8 TONS, 7 REQUIRED)

¼"=1'-0" 5 0 5 10

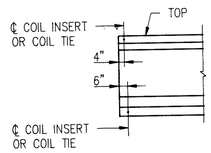
BILL OF REINFORCING STEEL			
ONE BEAM LISTED (14 REQUIRED)			
STRAIGHT BARS (GR. 60)			
MARK	SIZE	NO.	LENGTH
G5	6	4	41'-4"
BENT BARS (GR. 60)			
G1	5	8	5'-0"
G2●	4	124	6'-0"
G3	4	62	2'-2"
G4	4	124	3'-5"

●EPOXY COATED BARS

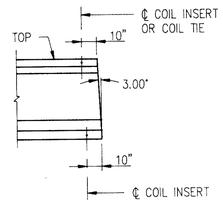


BENDING DIAGRAMS

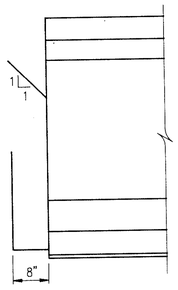
(ALL DIMENSIONS ARE OUT TO OUT OF BARS)
NO SCALE



GIRDER END ELEVATION
(SHOWING INSERT LOCATION)
NO SCALE



GIRDER END ELEVATION
(SHOWING INSERT LOCATION)
NO SCALE



PARTIAL ELEVATION OF GIRDERS AT PIERS

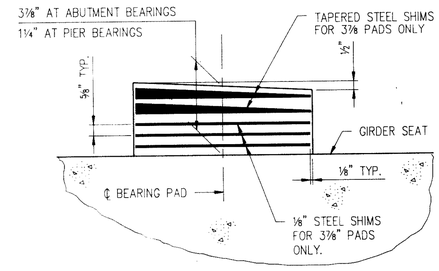
(SHOWS EXTENDED STRANDS AFTER SHOP BENDING)
NO SCALE

SUMMARY OF QUANTITIES	
ITEM	
4'-6" PRESTRESED CONCRETE GIRDER, 7 @ 80'-1¼"	560.7 FT.
*THE FOLLOWING QUANTITIES ARE GIVEN FOR INFORMATION ONLY	
¾" OPEN COIL INSERT	52 EA.
CONCRETE IN BEAMS (F'c = 5,500 P.S.I.)	92.2 YD.^{3}
PRESTRESSING STEEL, A416, ½"ø STRAND (LOW RELAX)	11,293 FT.
¾" COIL TIE	27 EA.
TAPERED PLAIN ELASTOMERIC BEARING PADS, 50 DUR.	7 EA.
TAPERED LAMINATED ELASTOMERIC BEARING PADS, 50 DUR.	7 EA.
¾"øx2'-6" THREADED COIL RODS	100 EA.
REINFORCING STEEL (GR 60)	3,499 LBS.
REINFORCING STEEL (GR 60) (EPOXY COATED)	3,479 LBS.

*THESE QUANTITIES SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "4'-6" PRESTRESSED CONCRETE GIRDERS".

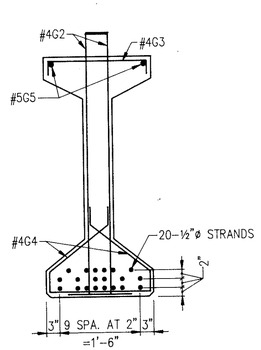
NOTES:

1. FOR GENERAL NOTES, SEE DWG. NO. 2 .
2. THERE SHALL BE 6 STRANDS EXTENDED FROM THE ENDS OF ALL GIRDERS AS SHOWN IN ELEVATIONS. 4 OF THESE STRANDS SHALL BE FROM THE BOTTOM ROW. THEY SHALL PRODUCE NO LATERAL ECCENTRICITY. 2 STRANDS FROM THE TOP ROW SHALL ALSO BE EXTENDED. STRANDS NOT TO BE EXTENDED SHALL BE CUT WITHIN 1 INCH OF THE END OF THE GIRDER.
3. SANDBLAST GIRDER SIDES WHERE CONCRETE COMES IN CONTACT WITH DIAPHRAGMS.
4. FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE DWG NO. 21
5. FOR DIAPHRAGM DETAILS, SEE DWG NO. 22
6. DIMENSIONS ARE MEASURED ALONG THE BOTTOM FACE OF THE GIRDER.
7. FOR COIL TIE INSERT DETAILS, SEE DWG NO. 42 AND DWG NO. 43



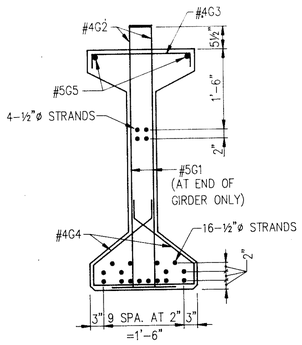
SECTION THROUGH BEVELED BEARING PADS

NO SCALE



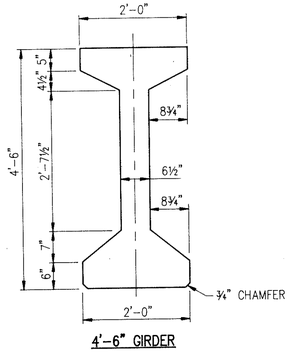
SECTION A-A

¾"=1'-0" 1 6" 0 1 2 3



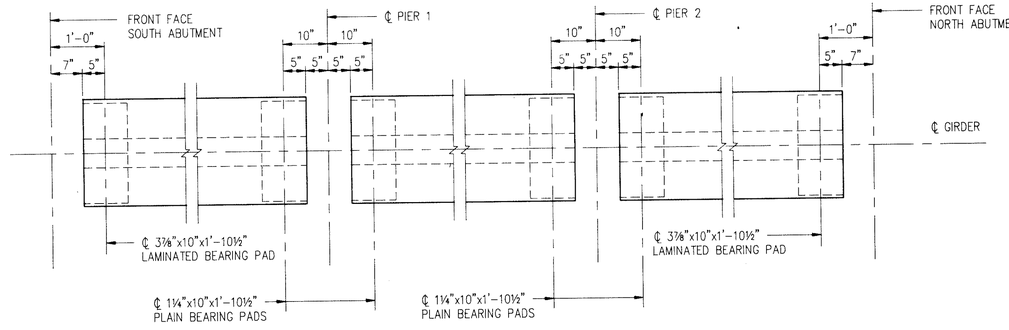
SECTION B-B

¾"=1'-0" 1 6" 0 1 2 3



4'-6" GIRDER TYPICAL SECTION

¾"=1'-0" 1 6" 0 1 2 3



BEARING PAD PLAN (BRIDGE A)

¾"=1'-0" 1 6" 0 1 2 3

No.	Revision	By	Date

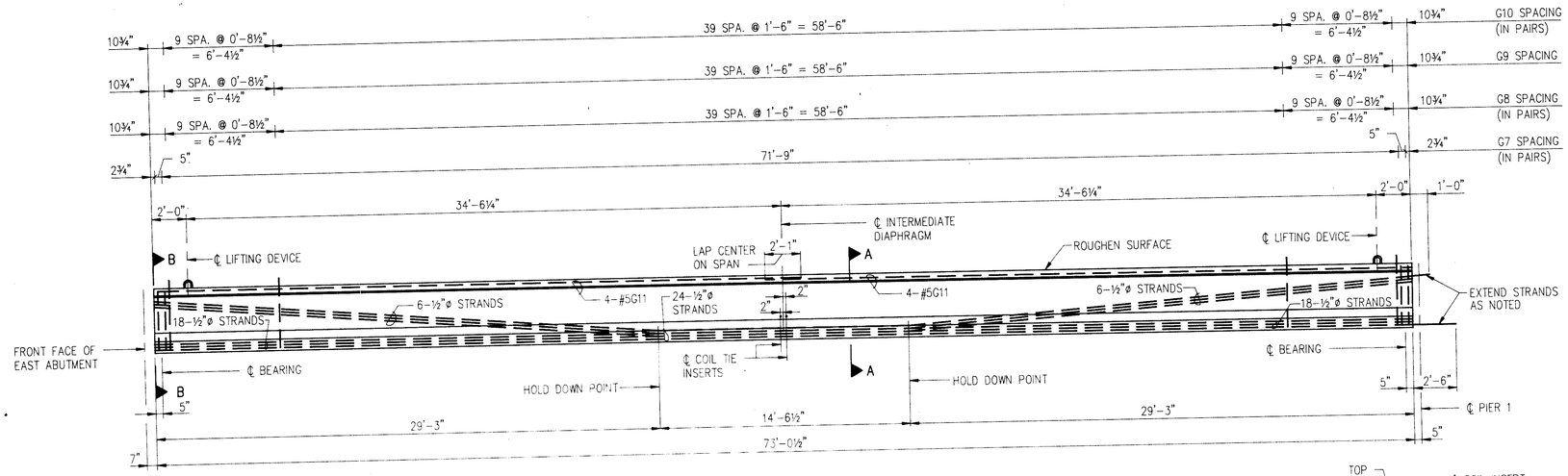
PROJECT ENGINEER
Date 7/31/87
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By CRD
Drawn By MHM
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
PRECAST PRESTRESSED CONCRETE GIRDERS TYPE 3

Dwg. No. 45

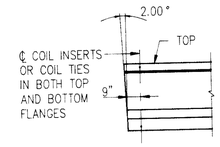


ELEVATION OF TYPE 4 PRESTRESSED CONCRETE GIRDER
(WEIGHT OF 1 GIRDER IS 79.75 TONS, 6 REQUIRED)

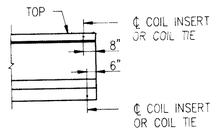
¼"=1'-0" 0 5 10

BILL OF REINFORCING STEEL			
ONE BEAM LISTED (12 REQUIRED)			
STRAIGHT BARS (GR. 60)			
MARK	SIZE	NO.	LENGTH
G11	5	8	37'-5"
BENT BARS (GR. 60)			
G7	6	8	4'-3"
G8 ●	4	116	5'-3"
G9	4	58	1'-3"
G10	4	116	3'-3"

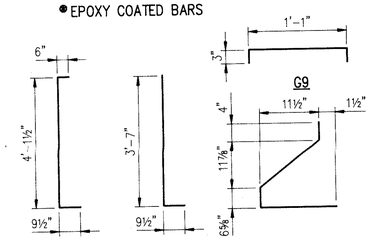
● EPOXY COATED BARS



GIRDER END ELEVATION
(SHOWING INSERT LOCATION)
NO SCALE

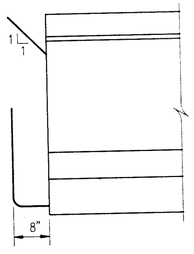


GIRDER END ELEVATION
(SHOWING INSERT LOCATION)
NO SCALE



G8 G7 G10

BENDING DIAGRAMS
(ALL DIMENSIONS ARE OUT TO OUT OF BARS)
NO SCALE



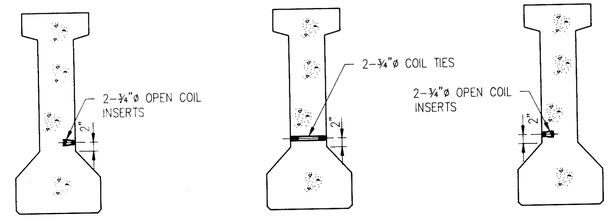
PARTIAL ELEVATION OF GIRDERS AT PIERS
(SHOWS EXTENDED STRANDS AFTER SHOP BENDING)
NO SCALE

SUMMARY OF QUANTITIES	
ITEM	
3'-9" PRESTRESSED CONCRETE GIRDER, 6 @ 79'-½"	478.5 FT.
*THE FOLLOWING QUANTITIES ARE GIVEN FOR INFORMATION ONLY	
¾" OPEN COIL INSERT	24 EA.
CONCRETE IN BEAMS (f'c = 5500 P.S.I.)	68 CU. YD.
PRESTRESSING STEEL, A416, ½"ø STRAND (LOW RELAX)	4,627 FT.
¾" COIL TIE	12 EA.
TAPERED PLAIN ELASTOMERIC BEARING PADS, 50 DUR.	6 EA.
TAPERED LAMINATED ELASTOMERIC BEARING PADS, 50 DUR.	6 EA.
¾"ø x 2'-6" THREADED COIL RODS	64 EA.
REINFORCING STEEL (GR 60)	3,194 LBS.
REINFORCING STEEL (GR 60) (EPOXY COATED)	2,441 LBS.

*THESE QUANTITIES SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "3'-9" PRESTRESSED CONCRETE GIRDERS".

NOTES:

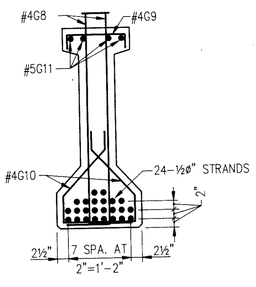
1. FOR GENERAL NOTES, SEE DWG NO. 2
2. THERE SHALL BE 8 STRANDS EXTENDED FROM THE ENDS OF ALL GIRDERS AS SHOWN IN ELEVATIONS. 6 OF THESE STRANDS SHALL BE FROM THE BOTTOM ROW. THEY SHALL PRODUCE NO LATERAL ECCENTRICITY. 2 STRANDS FROM THE TOP ROW SHALL ALSO BE EXTENDED. STRANDS NOT TO BE EXTENDED SHALL BE CUT WITHIN 1 INCH OF THE END OF THE GIRDER.
3. SANDBLAST GIRDER SIDES WHERE CONCRETE COMES IN CONTACT WITH DIAPHRAGMS.
4. FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE DWG NO. 34
5. FOR DIAPHRAGM DETAILS, SEE DWGS. NO. 35 AND 36
6. DIMENSIONS ARE MEASURED ALONG THE BOTTOM FACE OF THE GIRDER.
7. FOR BEARING PAD DETAILS, SEE DWG NO. 47
8. FOR COIL TIE INSERT DETAILS, SEE DWG NO. 42



GIRDER A | GIRDER B THRU E | GIRDER F

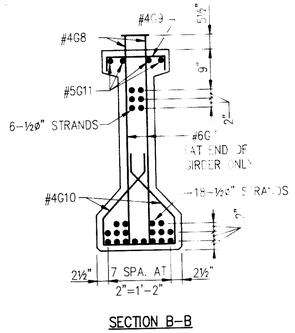
COIL TIE INSERT LOCATIONS – INTERMEDIATE DIAPHRAGMS

¾"=1'-0" 1 6" 0 1 2 3



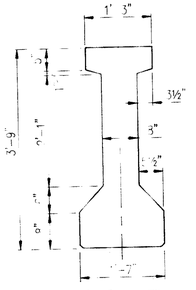
SECTION A–A

¾"=1'-0" 1 6" 0 1 2 3



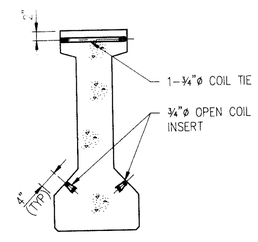
SECTION B–B

¾"=1'-0" 1 6" 0 1 2 3



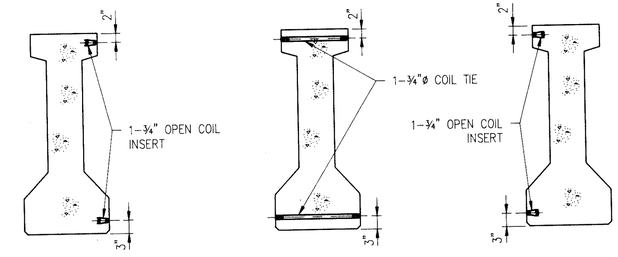
3'-9" GIRDER
TYPICAL SECTION

¾"=1'-0" 1 6" 0 1 2 3



GIRDER A THRU F
COIL TIE INSERT LOCATIONS – ABUTMENT DIAPHRAGMS

¾"=1'-0" 1 6" 0 1 2 3



GIRDER A | GIRDER B THRU E | GIRDER F

COIL TIE INSERT LOCATIONS – PIER DIAPHRAGMS

¾"=1'-0" 1 6" 0 1 2 3

No.	Revision	By	Date

PROJECT ENGINEER
Date
NOTE: This drawing is PRELIMINARY until approved by project eng.

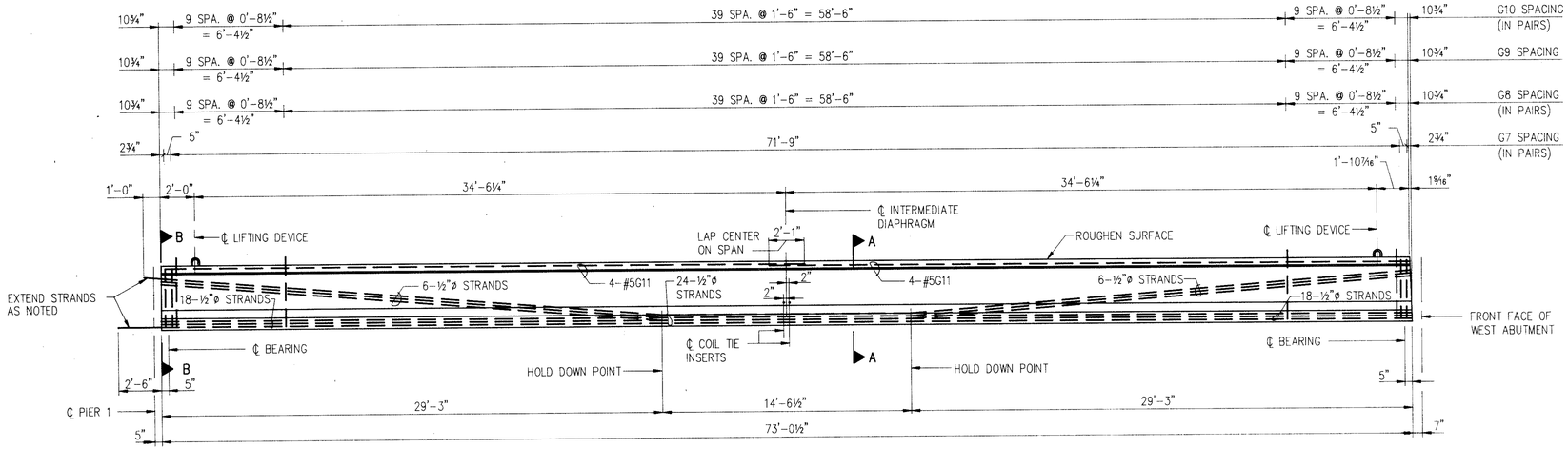
DAVID WARD STANLEY NUMBER E-24251 STATE OF MISSOURI REGISTERED ENGINEER

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By	CRD
Drawn By	MHM
Checked By	GCJ
Scale	AS SHOWN
Job No.	8709
Contract No.	2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
PRECAST PRESTRESSED CONCRETE GIRDERS TYPE 4

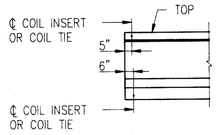
Dwg. No. 46



ELEVATION OF TYPE 5 PRESTRESSED CONCRETE GIRDER

(WEIGHT OF 1 GIRDER IS 19.75 TONS, 6 REQUIRED)

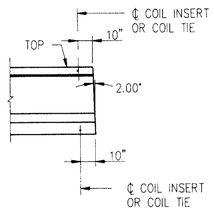
¼"=1'-0" 5 0 5 10



GIRDER END ELEVATION

(SHOWING INSERT LOCATION)

NO SCALE



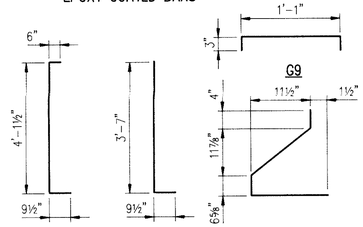
GIRDER END ELEVATION

(SHOWING INSERT LOCATION)

NO SCALE

BILL OF REINFORCING STEEL			
ONE BEAM LISTED (12 REQUIRED)			
STRAIGHT BARS (GR. 60)			
MARK	SIZE	NO.	LENGTH
G11	5	8	37'-5"
BENT BARS (GR. 60)			
G7	6	8	4'-3"
G8 ●	4	116	5'-3"
G9	4	58	1'-3"
G10	4	116	3'-3"

●EPOXY COATED BARS



BENDING DIAGRAMS

(ALL DIMENSIONS ARE OUT TO OUT OF BARS)

NO SCALE

PARTIAL ELEVATION OF GIRDERS AT PIERS

(SHOWS EXTENDED STRANDS AFTER SHOP BENDING)

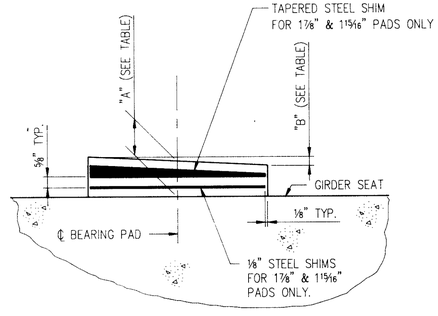
NO SCALE

SUMMARY OF QUANTITIES	
ITEM	
3'-9" PRESTRESSED CONCRETE GIRDER, 6 @ 73'-0½"	438.3 FT.
*THE FOLLOWING QUANTITIES ARE GIVEN FOR INFORMATION ONLY	
¾" OPEN COIL INSERT	20 EA.
CONCRETE IN BEAMS (F'c = 5500 P.S.I.)	58 YD.³
PRESTRESSING STEEL, A416, ½"ø STRAND (LOW RELAX)	10,627 FT.
¾" COIL TIE	22 EA.
TAPERED PLAIN ELASTOMERIC BEARING PADS, 50 DUR.	6 EA.
TAPERED LAMINATED ELASTOMERIC BEARING PADS, 50 DUR.	6 EA.
¾"øx2'-6" THREADED COIL RODS	64 EA.
REINFORCING STEEL (GR 60)	3,194 LBS.
REINFORCING STEEL (GR 60) (EPOXY COATED)	2,441 LBS.

*THESE QUANTITIES SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "3'-9" PRESTRESSED CONCRETE GIRDERS".

NOTES:

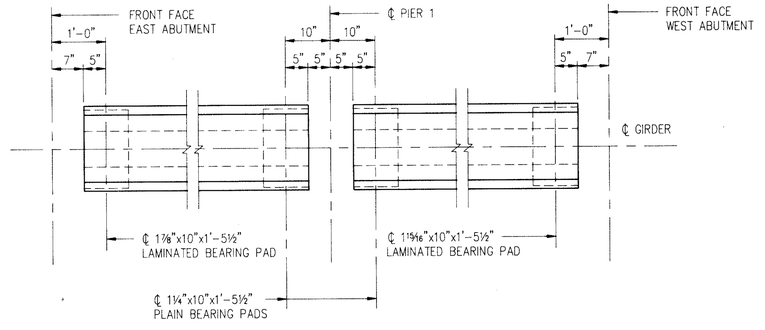
1. FOR GENERAL NOTES, SEE DWG NO. 2
2. THERE SHALL BE 8 STRANDS EXTENDED FROM THE ENDS OF ALL GIRDERS AS SHOWN IN ELEVATIONS. 6 OF THESE STRANDS SHALL BE FROM THE BOTTOM ROW. THEY SHALL PRODUCE NO LATERAL ECCENTRICITY. 2 STRANDS FROM THE TOP ROW SHALL ALSO BE EXTENDED. STRANDS NOT TO BE EXTENDED SHALL BE CUT WITHIN 1 INCH OF THE END OF THE GIRDER.
3. SANDBLAST GIRDER SIDES WHERE CONCRETE COMES IN CONTACT WITH DIAPHRAGMS.
4. FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE DWG NO. 34
5. FOR DIAPHRAGM DETAILS, SEE DWGS. NO. 35 AND 36
6. DIMENSIONS ARE MEASURED ALONG THE BOTTOM FACE OF THE GIRDER.
7. FOR COIL INSERT DETAILS, SEE DWG NO. 42 AND DWG NO. 46



PAD DIMENSIONS		
DIMENSION	A	B
EAST ABUT.	1⅞"	¼"
PIER EAST	1¼"	¼"
PIER WEST	1¼"	⅜"
WEST ABUT.	1¹⁵⁄₁₆"	⅜"

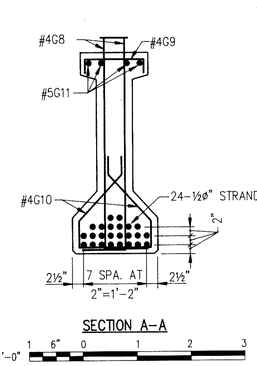
SECTION THROUGH BEVELED BEARING PADS

NO SCALE



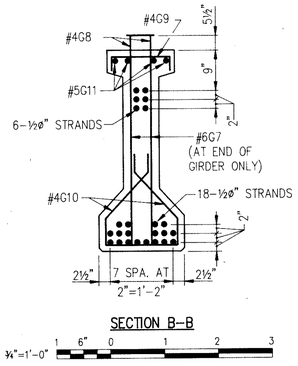
BEARING PAD PLAN (BRIDGE B)

¾"=1'-0" 1 6" 0 1 2 3



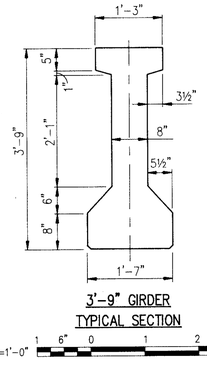
SECTION A-A

¾"=1'-0" 1 6" 0 1 2 3



SECTION B-B

¾"=1'-0" 1 6" 0 1 2 3



3'-9" GIRDER TYPICAL SECTION

¾"=1'-0" 1 6" 0 1 2 3

ACKirkwood & Associates PC ENGINEERS CONSULTANTS

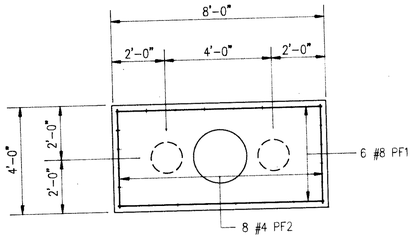
No.	Revision	By	Date

PROJECT ENGINEER
Date 7/15/09
NOTE: This drawing is PRELIMINARY until approved by project eng.

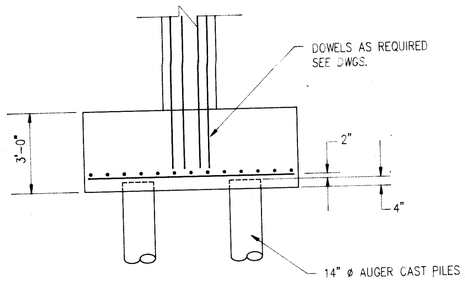
Designed By CRD
Drawn By MHM
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
PRECAST PRESTRESSED CONCRETE GIRDERS TYPE 5

Dwg. No. 47



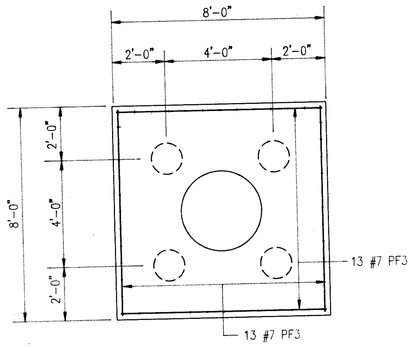
PLAN



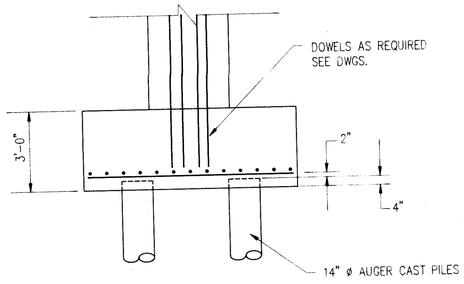
ELEVATION

2 PILE GROUP FOOTING

3/8"=1'-0" 1 0 1 2 3 4 5



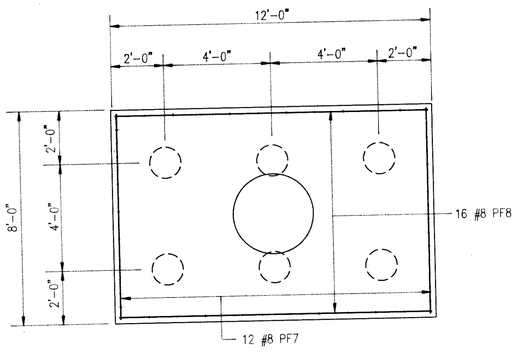
PLAN



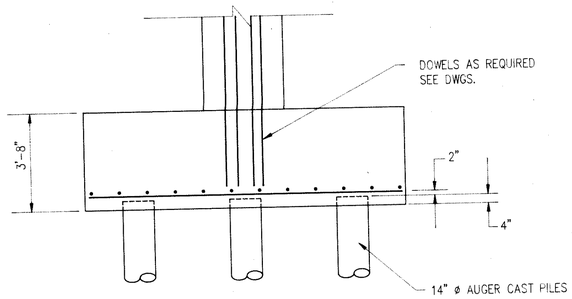
ELEVATION

4 PILE GROUP FOOTING

3/8"=1'-0" 1 0 1 2 3 4 5



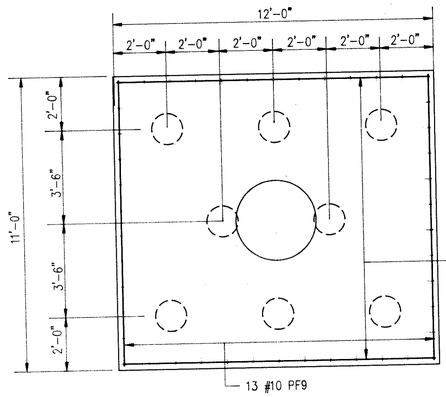
PLAN



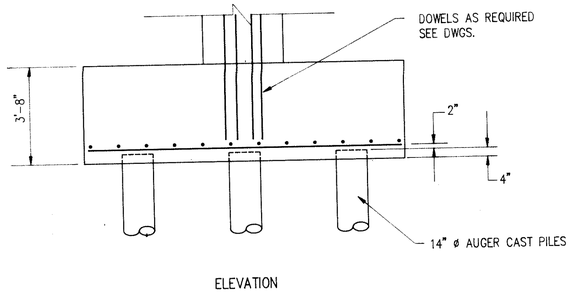
ELEVATION

6 PILE GROUP FOOTING

3/8"=1'-0" 1 0 1 2 3 4 5



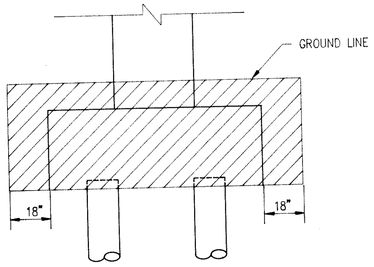
PLAN



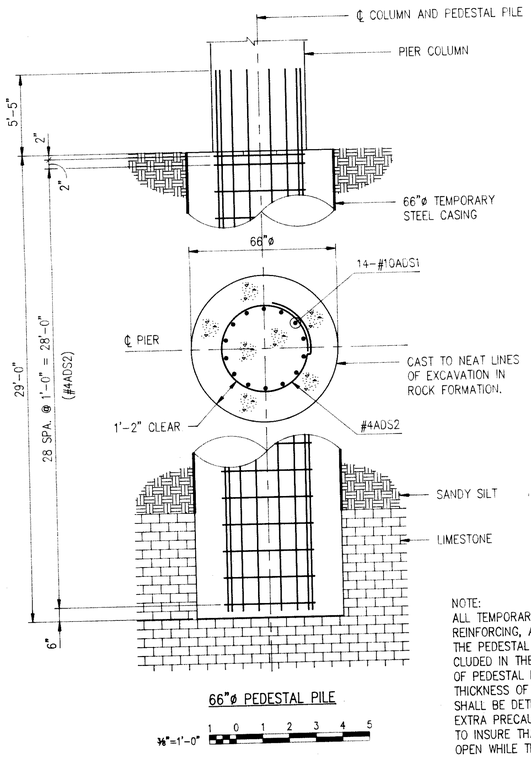
ELEVATION

8 PILE GROUP FOOTING

3/8"=1'-0" 1 0 1 2 3 4 5



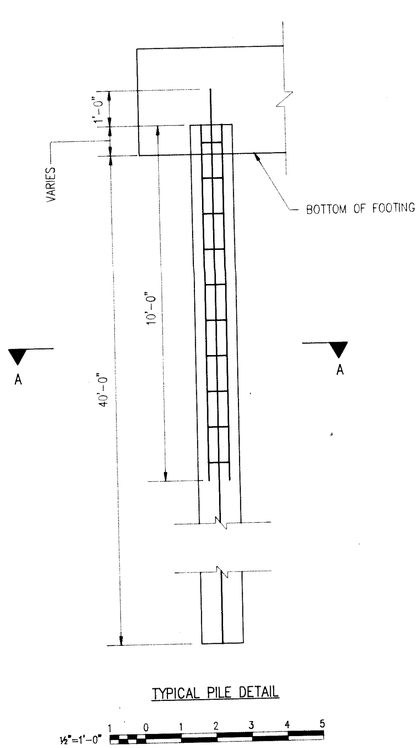
LIMITS OF EXCAVATION



66"ø PEDESTAL PILE

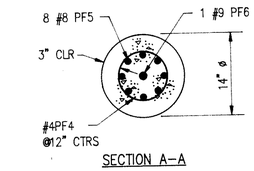
3/8"=1'-0" 1 0 1 2 3 4 5

NOTE:
ALL TEMPORARY CASINGS, CONCRETE, REINFORCING, AND EXCAVATION FOR THE PEDESTAL PILES SHALL BE INCLUDED IN THE PRICE BID PER FOOT OF PEDESTAL PILE. THE SIZE AND THICKNESS OF THE TEMPORARY CASING SHALL BE DETERMINED BY THE CONTRACTOR. EXTRA PRECAUTIONS SHOULD BE TAKEN TO INSURE THAT THE HOLE WILL STAY OPEN WHILE THE CASING IS BEING SET.



TYPICAL PILE DETAIL

1/2"=1'-0" 1 0 1 2 3 4 5



SECTION A–A

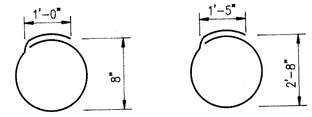
1"=1'-0" 1 0 1 2

NOTE:
PILE REINFORCEMENT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR AUGER CAST PILES.

BILL OF REINFORCING (GRADE 60)

REINFORCING

STRAIGHT BARS				BENT BARS			
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
PF1	8	12	7'-8"	PF4	4	2120	3'-1"
PF2	4	16	3'-8"				
PF3	7	52	7'-8"	ADS2	10	30	9'-9"
PF5	8	1696	10'-0"				
PF6	9	212	42'-0"				
PF7	8	24	7'-8"				
PF8	8	32	11'-8"				
PF9	10	26	10'-8"				
PF10	10	24	11'-8"				
ADS1	10	42	34'-5"				



PF4 ADS2

No.	Revision	By	Date

STATE OF MISSOURI ENGINEER DAVID WARD DIVELEY NUMBER E-28031

PROJECT ENGINEER
Date 7/31/89
NOTE: This drawing is PRELIMINARY until approved by project eng.

ACKirkwood

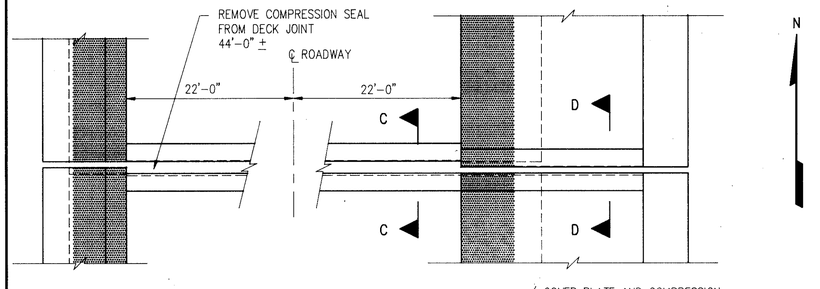
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By DWS
Drawn By DWS
Checked By GGJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

FOUNDATION DETAILS

Dwg. No. 48

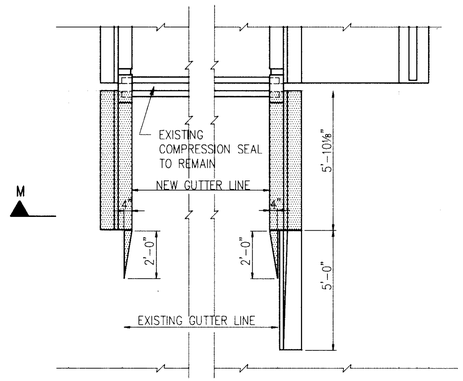


(COVER PLATE AND COMPRESSION SEAL NOT SHOWN)

SHADING DENOTES DEMOLITION

JOINT DEMOLITION PLAN @ BENT 4

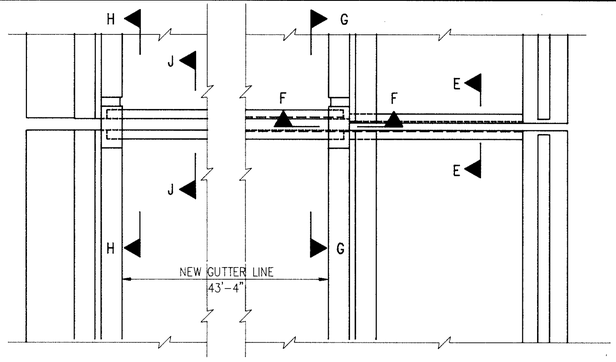
½"=1'-0"



JOINT DEMOLITION PLAN @ BENT 5

½"=1'-0"

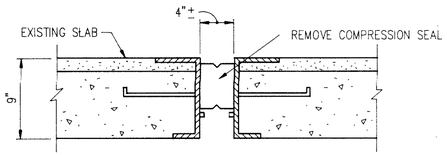
SHADING DENOTES DEMOLITION



(COVER PLATE AND COMPRESSION SEAL NOT SHOWN)

NEW JOINT PLAN @ BENT 4
(NEW JOINT PLAN @ BENT 5 – SIMILAR)

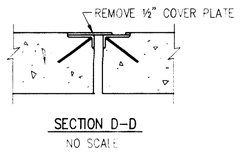
½"=1'-0"



SECTION C–C

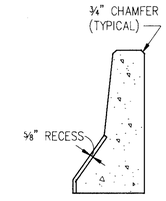
SCALE: 1½"=1'-0"

½"=1'-0"



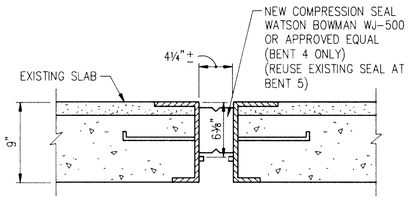
SECTION D–D

NO SCALE



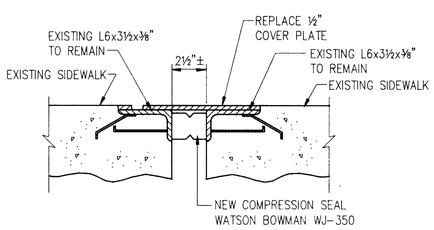
SECTION F–F

¾"=1'-0"



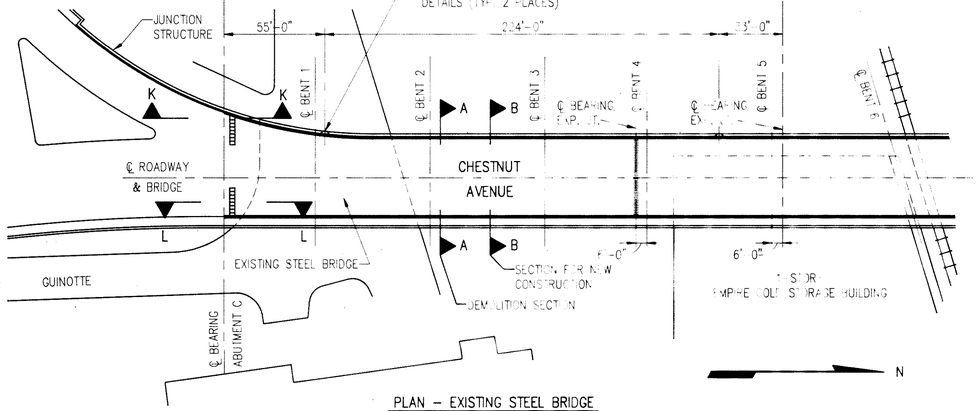
SECTION J–J

SCALE: 1½"=1'-0"



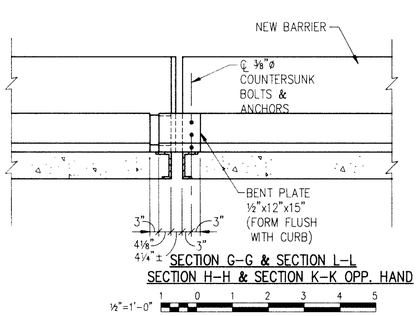
SECTION E–E

1½"=1'-0"



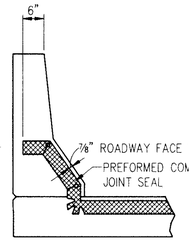
PLAN – EXISTING STEEL BRIDGE

1"=40'



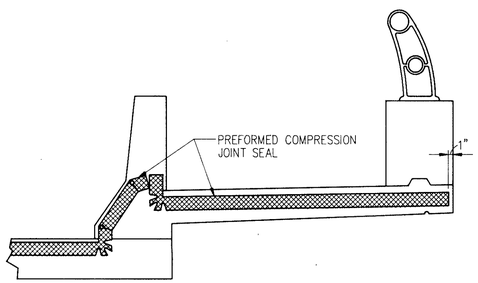
SECTION G–G & SECTION L–L
SECTION H–H & SECTION K–K OPP. HAND

½"=1'-0"



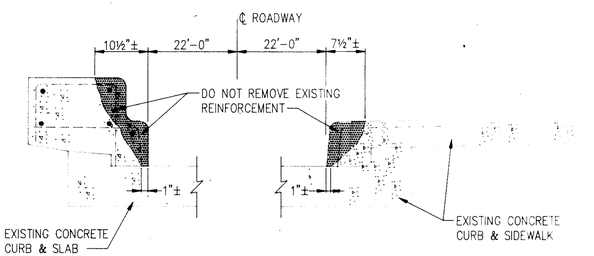
COMPRESSION SEAL AT BARRIER CURB

¾"=1'-0"



COMPRESSION SEAL AT SIDEWALK

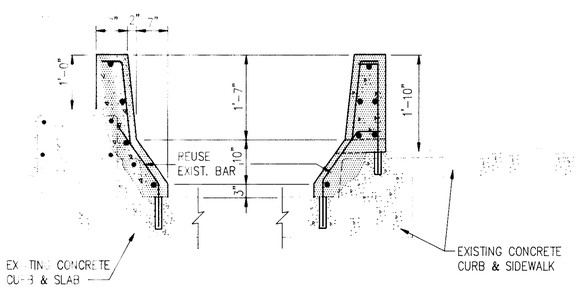
¾"=1'-0"



SECTION A–A

¾"=1'-0"

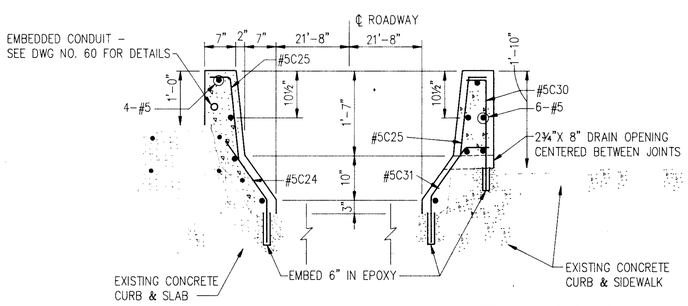
SHADING DENOTES DEMOLITION



SECTION M–M

¾"=1'-0"

SHADING DENOTES DEMOLITION



SECTION B–B

¾"=1'-0"

SEE DWG NO. 50 FOR NEW BARRIER CURB ELEVATIONS

No.	Revision	By	Date

STATE OF MISSOURI
DAVID MARD
STEELER
NUMBER
E-20031
REGISTERED PROFESSIONAL ENGINEER

PROJECT ENGINEER
Date
NOTE: This drawing is PRELIMINARY until approved by project eng.

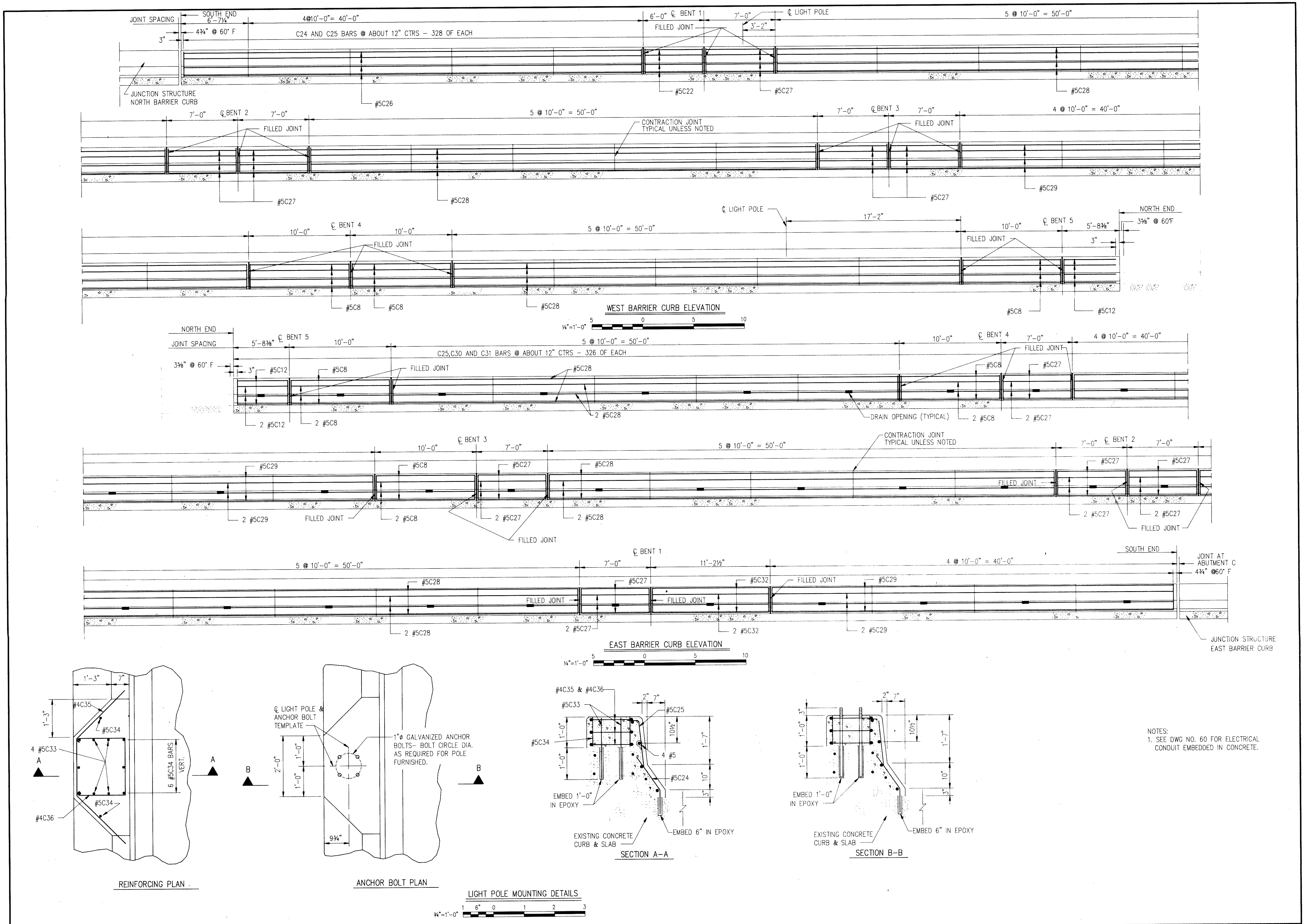
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By DWS
Drawn By MHM
Checked By GCL
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

MODIFICATIONS TO EXISTING STEEL BRIDGE

Dwg. No. 49



No.	Revision	By	Date

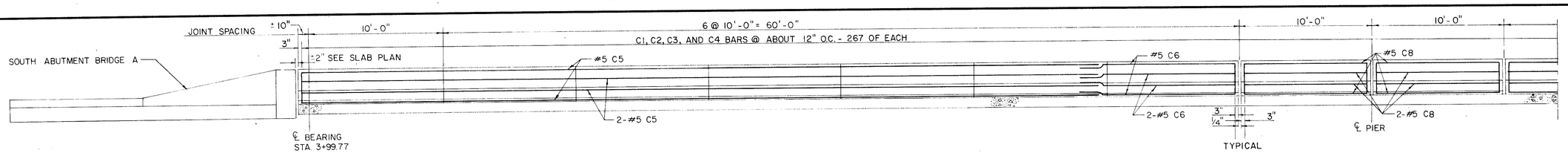
PROJECT ENGINEER
Date 7/31/89
NOTE: This drawing is PRELIMINARY until approved by project eng.

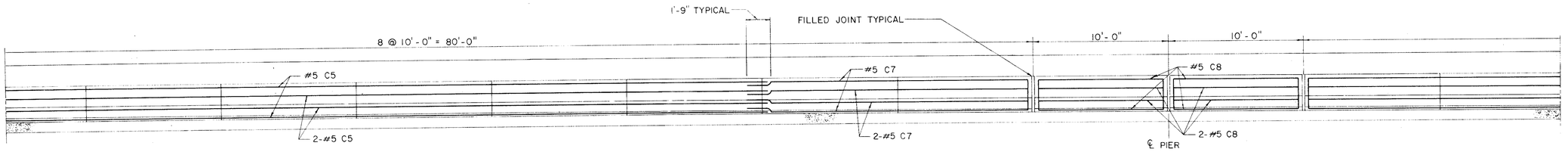
ACKirkwood
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

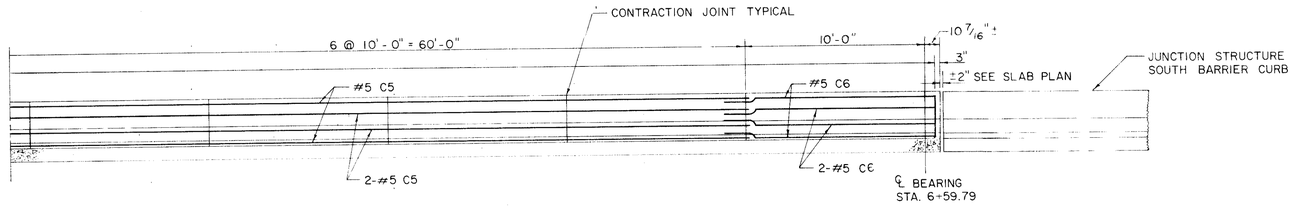
Designed By DWS
Drawn By MHM
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BARRIER CURB DETAILS FOR EXISTING STEEL BRIDGE

Dwg. No. 50



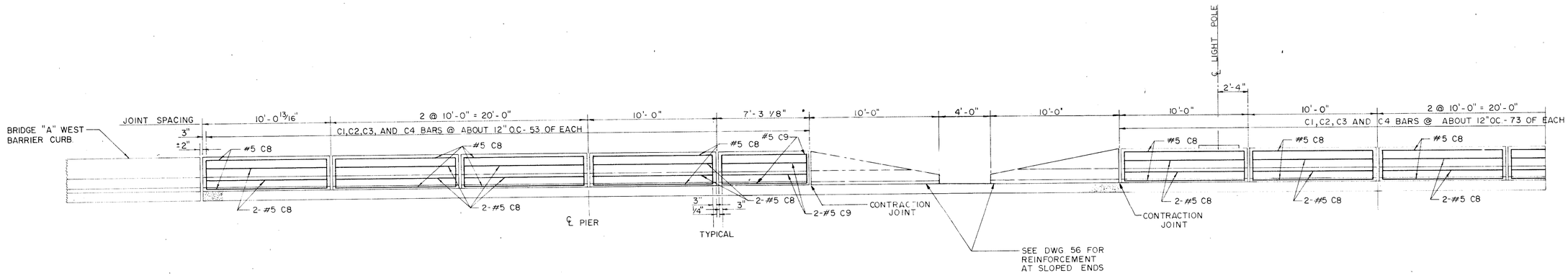


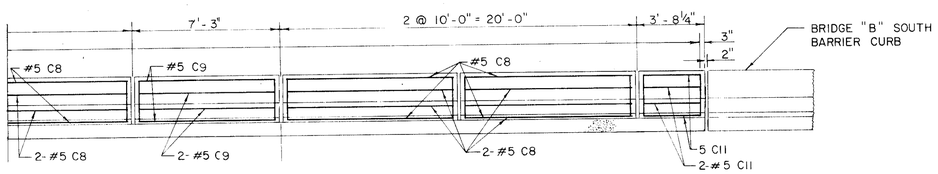


BRIDGE "A" WEST BARRIER CURB ELEVATION

5 0 5 10

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





JUNCTION STRUCTURE SOUTH BARRIER CURB ELEVATION

5 0 5 10

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

No.	Revision	By	Date

DAVID WARD STEELEY NUMBER E-1 REGISTERED ENGINEER

PROJECT ENGINEER
Date 7/7/97
NOTE: This drawing is PRELIMINARY until approved by project eng.

AC Kirkwood & Associates PC ENGINEERS CONSULTANTS

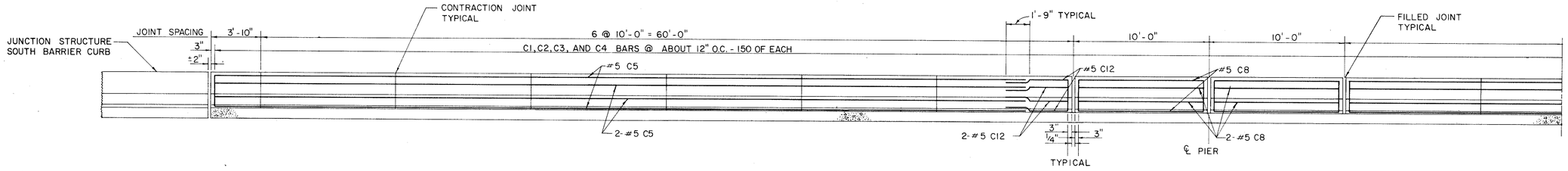
Designed By	D.W.S.
Drawn By	J.D.H.
Checked By	G.C.J.
Scale	AS SHOWN
Job No.	8709
Contract No.	2

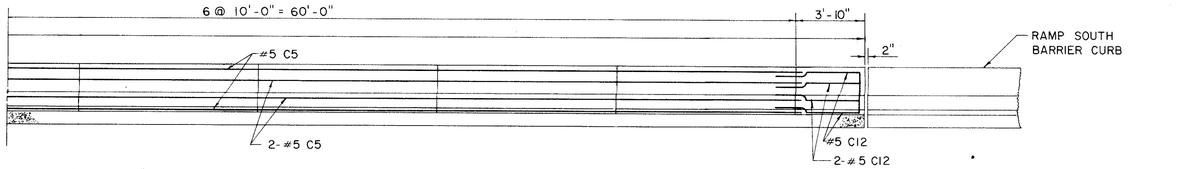
KANSAS CITY MO. PUBLIC WORKS DEPT.

CHESTNUT AVENUE VIADUCT

BARRIER CURB ELEVATIONS

Dwg. No. 51

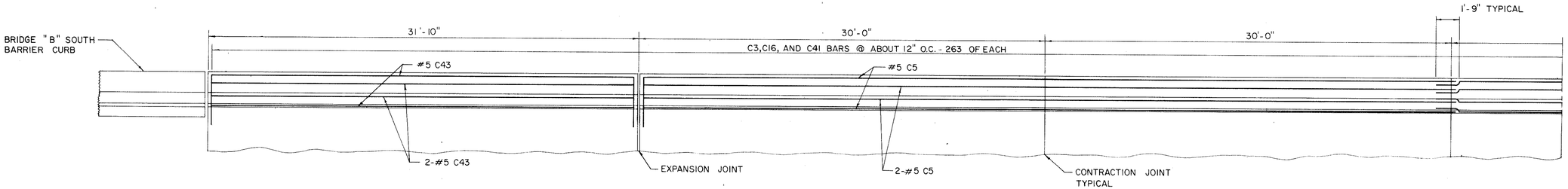




BRIDGE "B" SOUTH BARRIER CURB ELEVATION

5 0 5 10

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



RAMP SOUTH BARRIER CURB ELEVATION

5 0 5 10

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

No.	Revision	By	Date

STATE OF MISSOURI
DAVID WARD KELLEY
NUMBER E-20788
REGISTERED ENGINEER

PROJECT ENGINEER
Date 7-8-09

NOTE: This drawing is PRELIMINARY until approved by project eng.

kirkwood

AC Kirkwood & Associates PC ENGINEERS CONSULTANTS

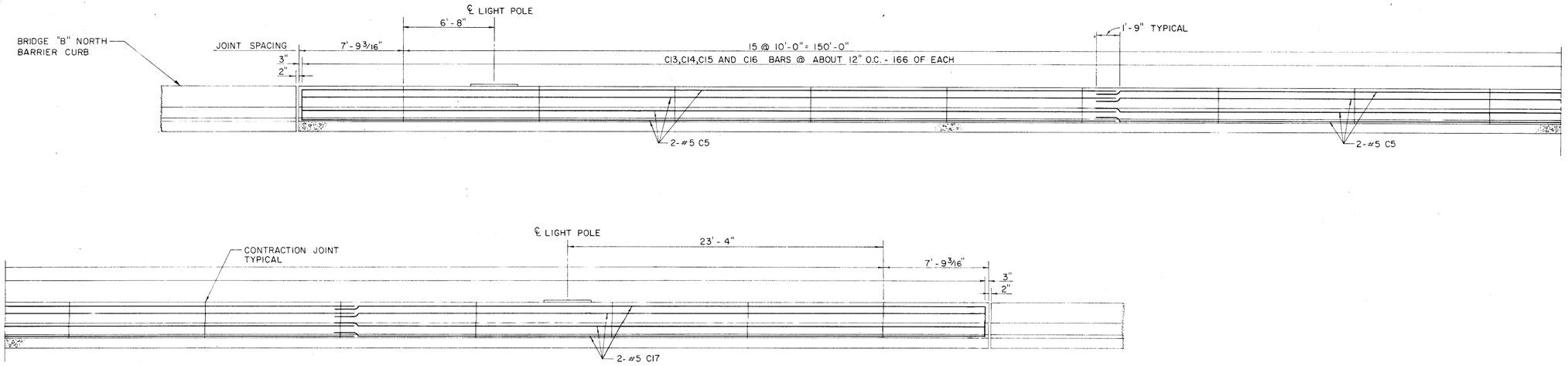
Designed By D.W.S.
Drawn By J.D.H.
Checked By G.C.J.
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.

CHESTNUT AVENUE VIADUCT

BARRIER CURB ELEVATIONS

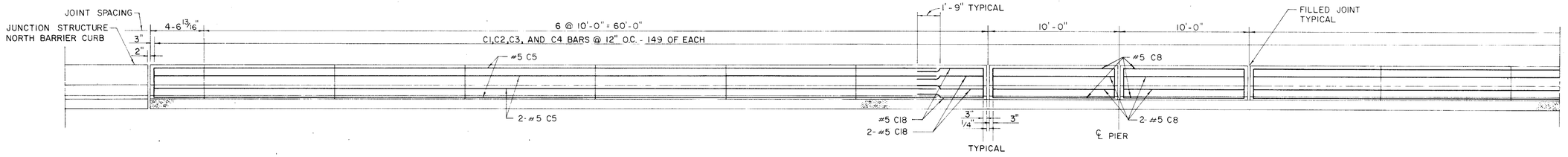
Dwg. No. 52

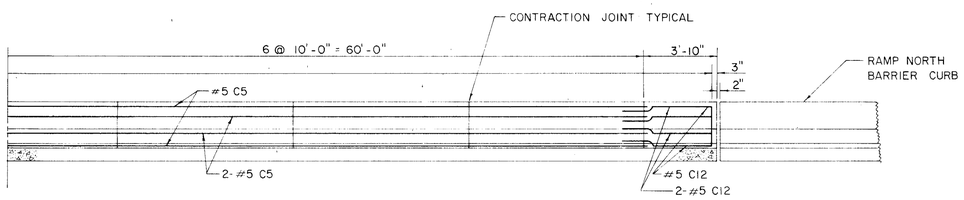


JUNCTION STRUCTURE NORTH BARRIER CURB ELEVATION

5 0 5 10

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





BRIDGE "B" NORTH BARRIER CURB ELEVATION

5 0 5 10

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

No.	Revision	By	Date

STATE OF MISSOURI ENGINEER DAVID WARD SISLEY NUMBER E-26931 REGISTERED PROFESSIONAL

PROJECT ENGINEER
Date
NOTE: This drawing is PRELIMINARY until approved by project eng.

AC Kirkwood & Associates PC ENGINEERS CONSULTANTS

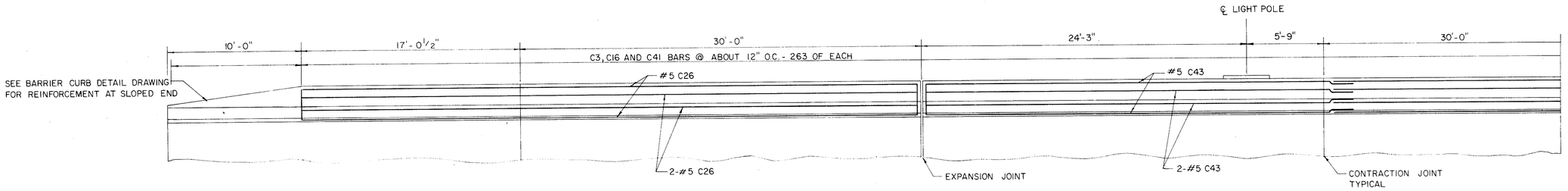
Designed By	D.W.S.
Drawn By	J.D.H.
Checked By	G.C.J.
Scale	AS SHOWN
Job No.	8709
Contract No.	2

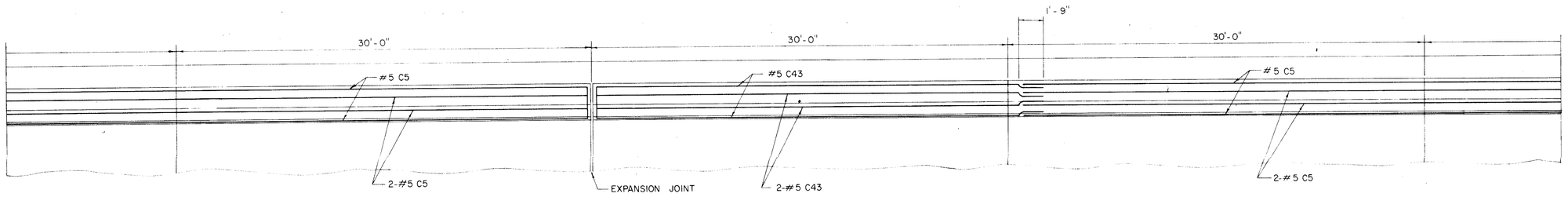
KANSAS CITY MO. PUBLIC WORKS DEPT.

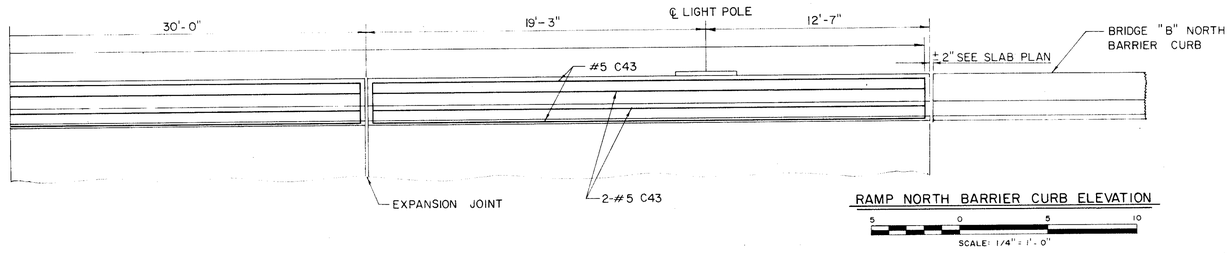
CHESTNUT AVENUE VIADUCT

BARRIER CURB ELEVATIONS

Dwg. No. 53



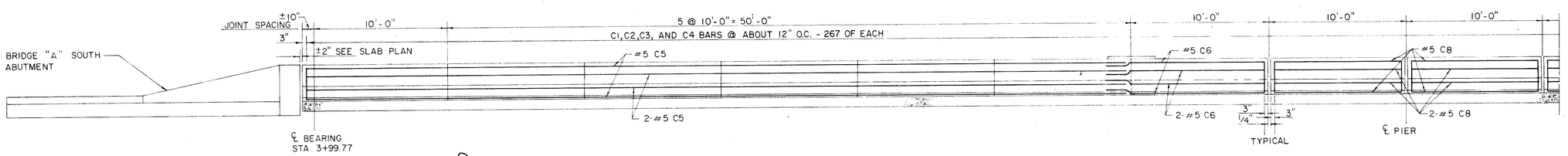


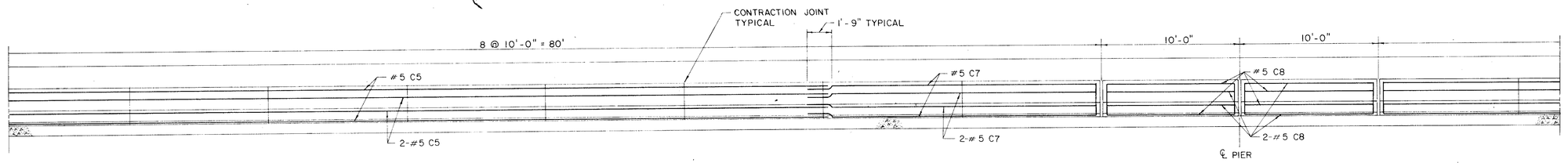


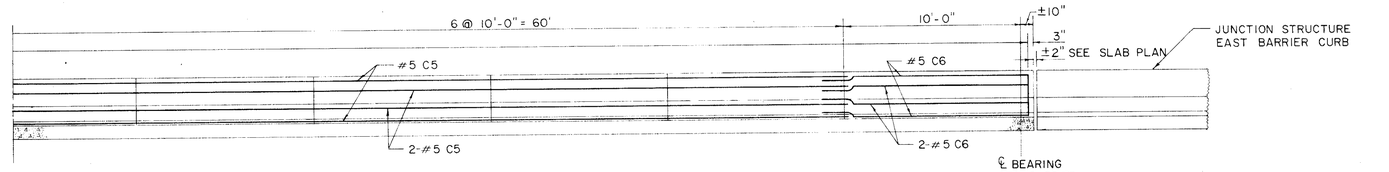
RAMP NORTH BARRIER CURB ELEVATION

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

℄ LIGHT POLE







BRIDGE "A" EAST BARRIER CURB ELEVATION

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

(ELEVATION LOOKING AT OUTSIDE FACE OF BARRIER CURB)

No.	Revision	By	Date

STATE OF MISSOURI — REGISTERED ENGINEER — DEWEY WARD SELBY — NUMBER — EXPIRES

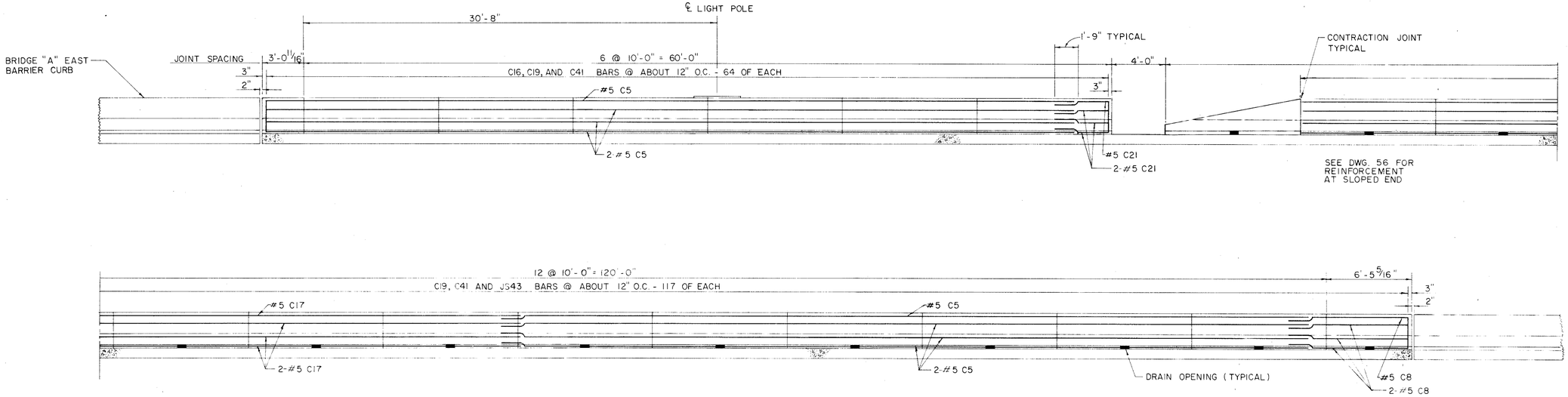
PROJECT ENGINEER
Date 7/1/72
NOTE: This drawing is PRELIMINARY until approved by project eng.

AC Kirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By	D.W.S.
Drawn By	J.D.H.
Checked By	G.C.J.
Scale	AS SHOWN
Job No.	8709
Contract No.	2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT
BARRIER CURB ELEVATIONS

Dwg. No. 54

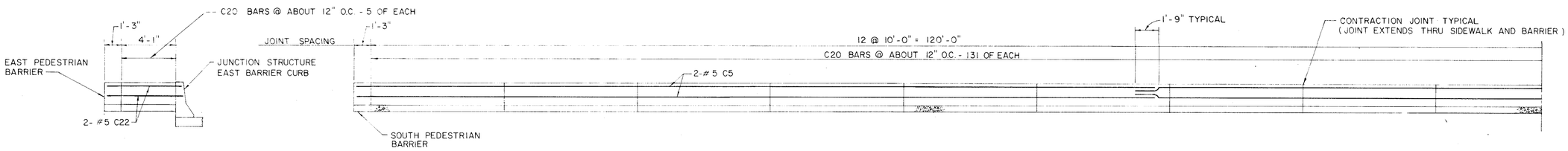


JUNCTION STRUCTURE EAST BARRIER CURB ELEVATION

5 0 5 10

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

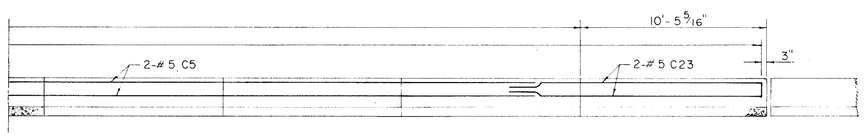
(ELEVATION LOOKING AT OUTSIDE FACE OF BARRIER CURB)



SOUTH PEDESTRIAN BARRIER ELEVATION

5 0 5 10

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



EAST PEDESTRIAN BARRIER ELEVATION

5 0 5 10

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

(ELEVATION LOOKING AT OUTSIDE FACE OF BARRIER CURB)

No.	Revision	By	Date

STATE OF MISSOURI — DAVID M. KIRKWOOD — NUMBER — REGISTERED PROFESSIONAL ENGINEER

PROJECT ENGINEER
Date 7/21/11

NOTE: This drawing is PRELIMINARY until approved by project eng.

AC Kirkwood & Associates PC — ENGINEERS CONSULTANTS

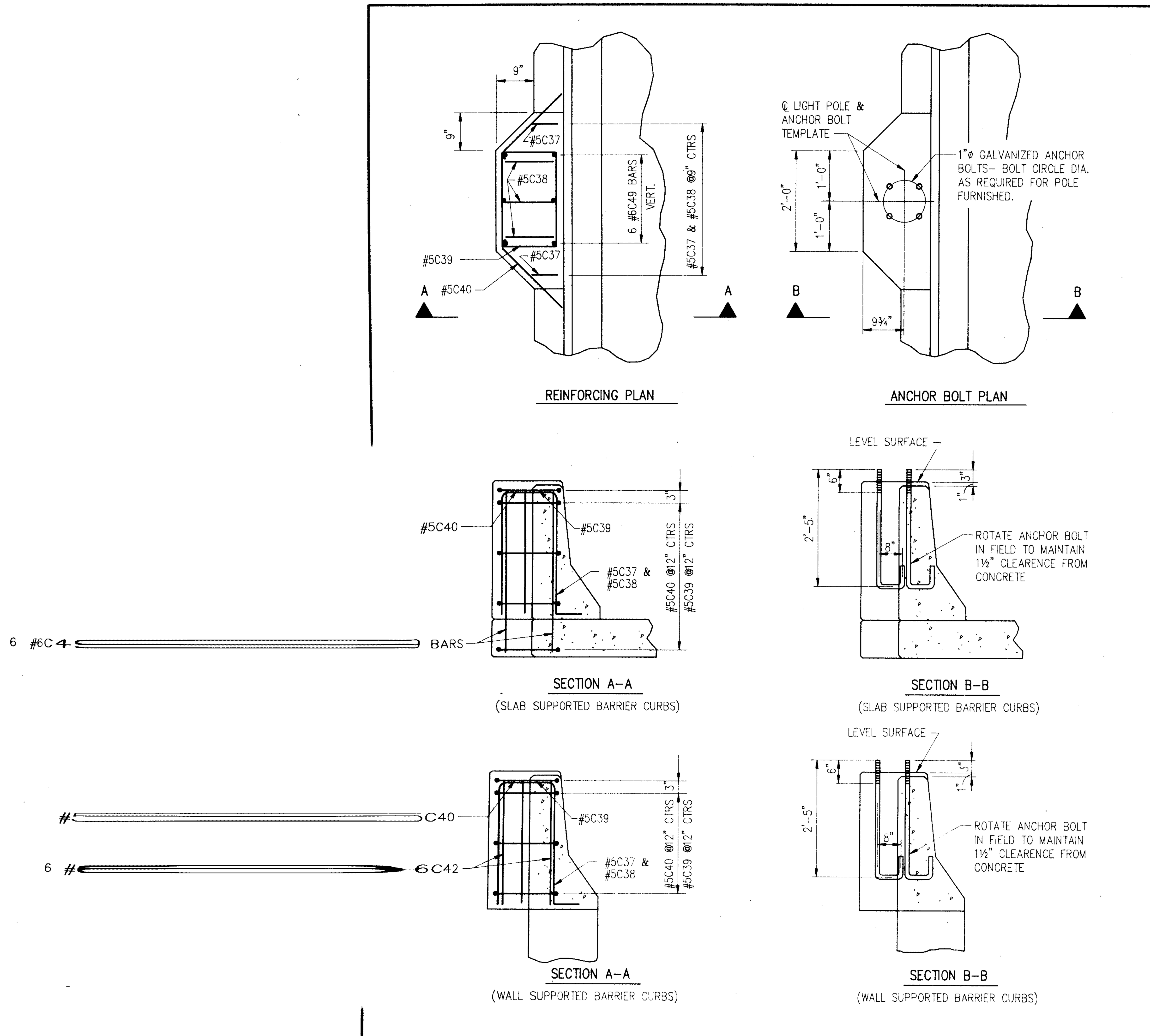
Designed By	D.W.S
Drawn By	J.D.H.
Checked By	G.C.J.
Scale	AS SHOWN
Job No.	8709
Contract No.	2

KANSAS CITY MO. PUBLIC WORKS DEPT.

CHESTNUT AVENUE VIADUCT

BARRIER CURB ELEVATIONS

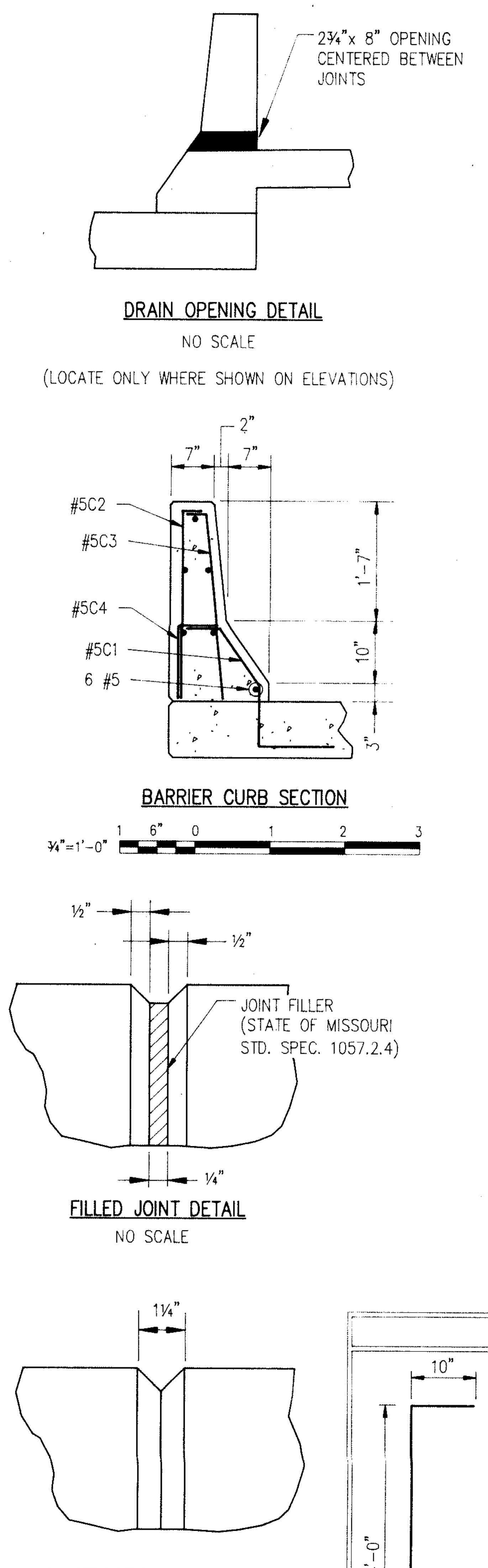
Dwg. No. 55



LIGHT POLE MOUNTING DETAILS

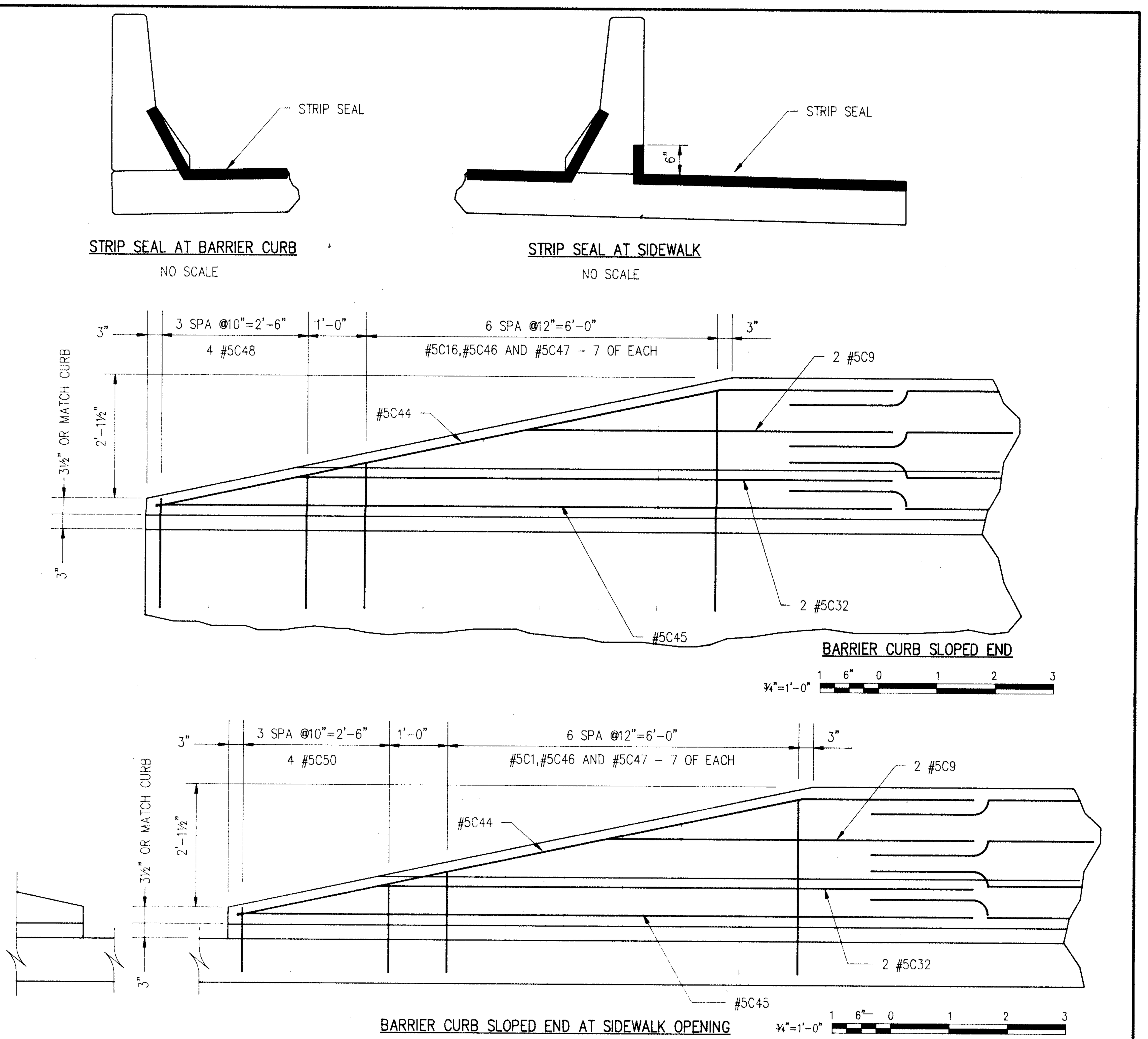
¾"=1'-0"

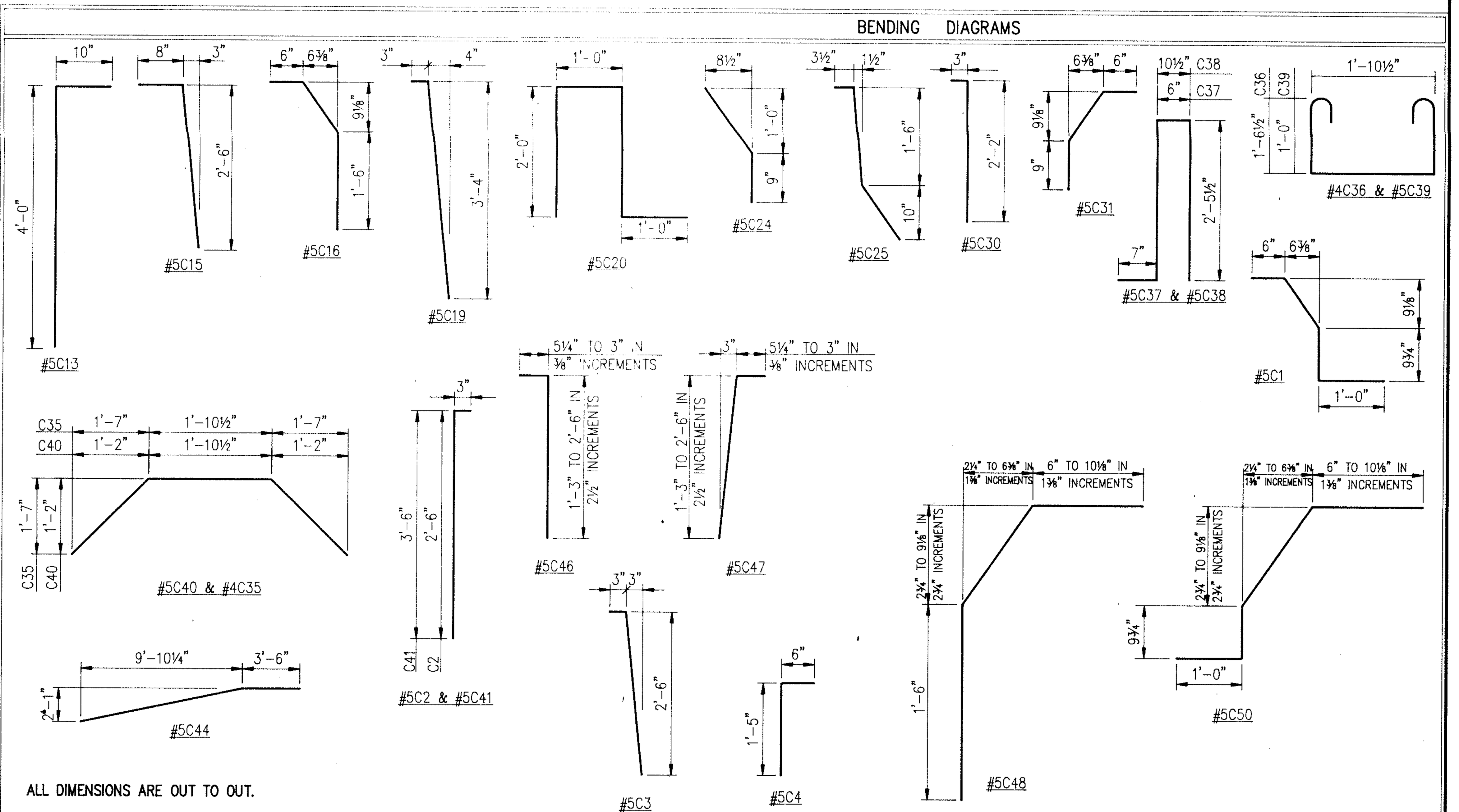
NOTE:
1. CONDUIT NOT SHOWN FOR CLARITY, SEE CONDUIT DETAILS DWG NO. 60
2. SEE DWGS 11 AND 50 FOR OTHER LIGHT POLE MOUNTING DETAILS



CONTRACTION JOINT DETAIL

NO SCALE





ALL DIMENSIONS ARE OUT TO OUT.

BILL OF REINFORCING (GRADE 60)

EPOXY COATED REINFORCING

STRAIGHT BARS								BENT BARS							
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
C5	5	122	60'-0"	C28	5	30	49'-5"	C1	5	980	3'-2⅞"	C38	5	15	6'-4½"
C6	5	24	12'-2"	C29	5	16	39'-5"	C2	5	959	2'-9"	C39	5	22	5'-0½"
C7	5	12	21'-3"	C32	5	16	10'-8"	C3	5	1485	2'-9⅛"	C40	5	22	5'-2"
C8	5	169	9'-5"	C33	5	8	1'-9"	C4	5	959	1'-11"	C41	5	707	3'-9"
C9	5	22	6'-9"	C34	5	16	10"	C13	5	166	4'-10"	C44	5	2	13'-7"
C10	NOT USED			C42	6	12	2'-5"	C15	5	166	3'-2⅛"	C46	5	35	VARIES
C11	5	6	3'-2"	C43	5	36	31'-6"	C16	5	756	2'-11⅛"	C47	5	35	VARIES
C12	5	28	5'-1"	C45	5	5	12'-5"	C19	5	181	3'-7⅛"	C48	5	20	VARIES
C14	5	166	4'-0"	C49	6	12	3'-0"	C20	5	136	6'-0"	C50	5	12	VARIES
C17	5	8	48'-6"					C24	5	328	1'-11¾"				
C18	5	6	5'-10"					C25	5	654	2'-10"				
C21	5	7	4'-4"					C30	5	326	2'-5"				
C22	5	8	5'-6"					C31	5	326	2'-2⅛"				
C23	5	4	14'-8"					C35	4	6	6'-4¼"				
C26	5	22	46'-1"					C36	4	6	6'-3½"				
C27	5	50	6'-5"					C37	5	10	6'-0"				

No.	Revision	By	Date

STATE OF MISSOURI — DAVID WARD SEELEY — NUMBER — REGISTERED PROFESSIONAL ENGINEER

PROJECT ENGINEER
Date 7/31/89
NOTE: This drawing is PRELIMINARY until approved by project eng.

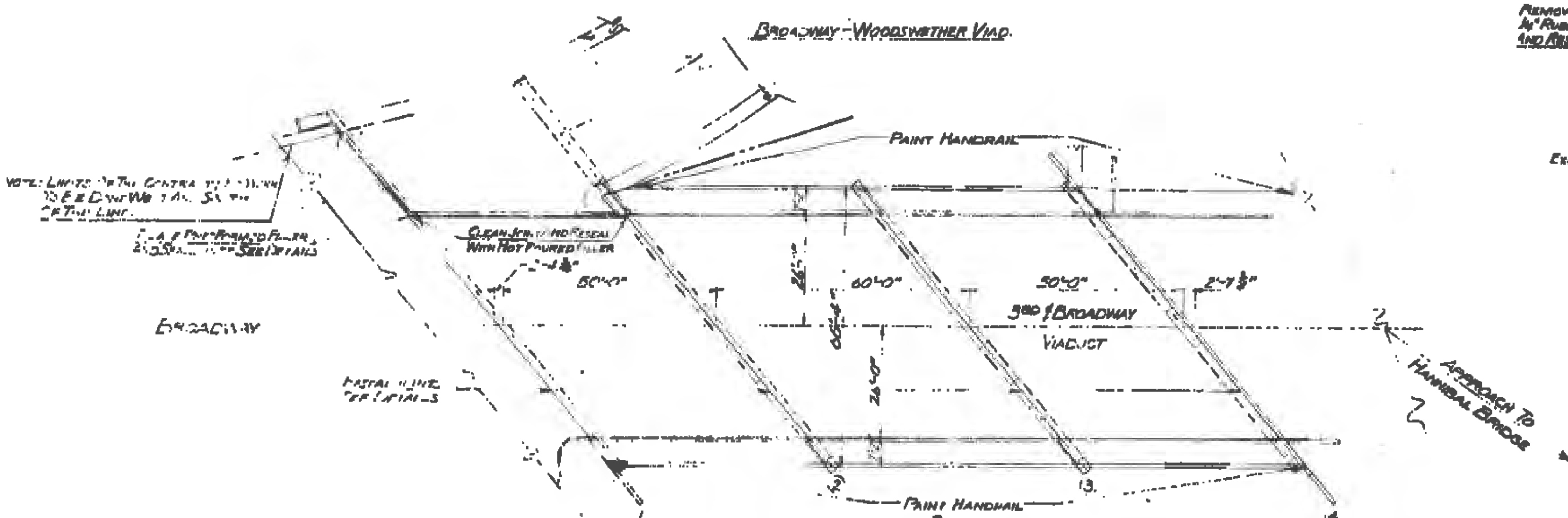
ACKirkwood
ACKirkwood & Associates PC ENGINEERS CONSULTANTS

Designed By DWS
Drawn By DWS
Checked By GCJ
Scale AS SHOWN
Job No. 8709
Contract No. 2

KANSAS CITY MO. PUBLIC WORKS DEPT.
CHESTNUT AVENUE VIADUCT

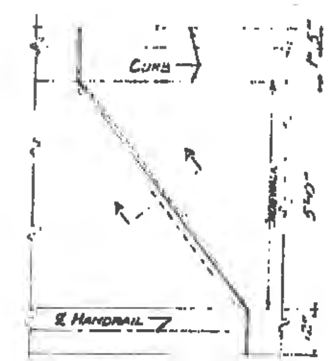
BARRIER CURB DETAILS

Dwg. No. 56

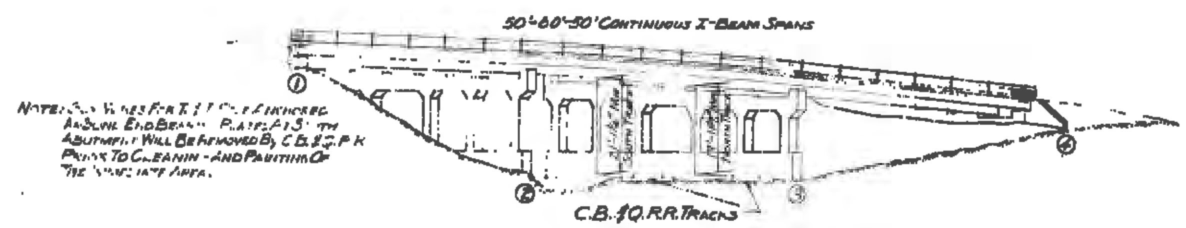


PLAN
Scale: 1"=20'

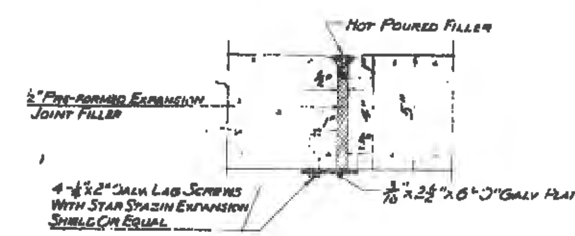
Resealing Roadway And Curb Joints
No Scale



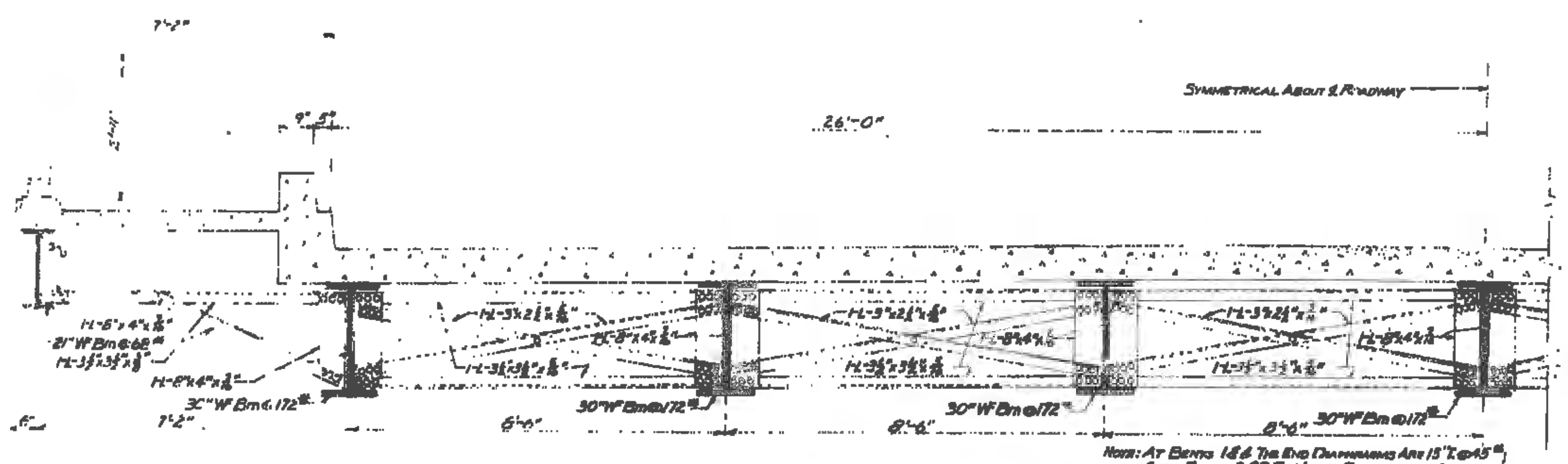
Repairing Sidewalk Joints
In East Sidewalk At Bent #2
In East And West Sidewalks At Bent #3
Scale: 1/2"=1'-0"



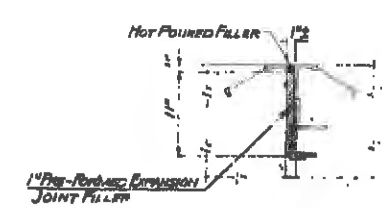
ELEVATION
Scale: Hor. 1"=20'
Ver 1"=20'



Section A - A
Scale: 3"=1'-0"



Section Thru Superstructure
Near Middle Of Span
No Scale



Detail Of
Placing Pre-Formed Filler And Sealing Joint
Scale: 1"=1'-0"

General Notes:
Cleaning And Painting:
All Structural Steel Below The Sidewalk And Roadway Slabs Shall Be Cleaned And Painted As Specified, This Includes Slab Plates, And Exposed Surfaces Of All Bearing Plates And Anchors. All Surfaces Inaccessible To Painting With A Brush Shall Be Painted With A Spray Gun.
Steel Handrail And Posts On The East And West Sidewalks, Including The Handrail On The West Side Of The North Approach Shall Be Cleaned And Painted As Specified.

APPROVED
[illegible]
[illegible]
Director of Public Works
Entry No.

KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

Bridge Over C.B. & Q.R.R. Tracks
Broadway At [illegible]
Painting And Repairing

Drawn By	K.E.B.	5-8-53	Scale: As Shown
Checked By			Sheet No. 1 of 1
Traced By			
Notes			

125-05 sh1 of 1.

5/16/2016 1:34:13 PM

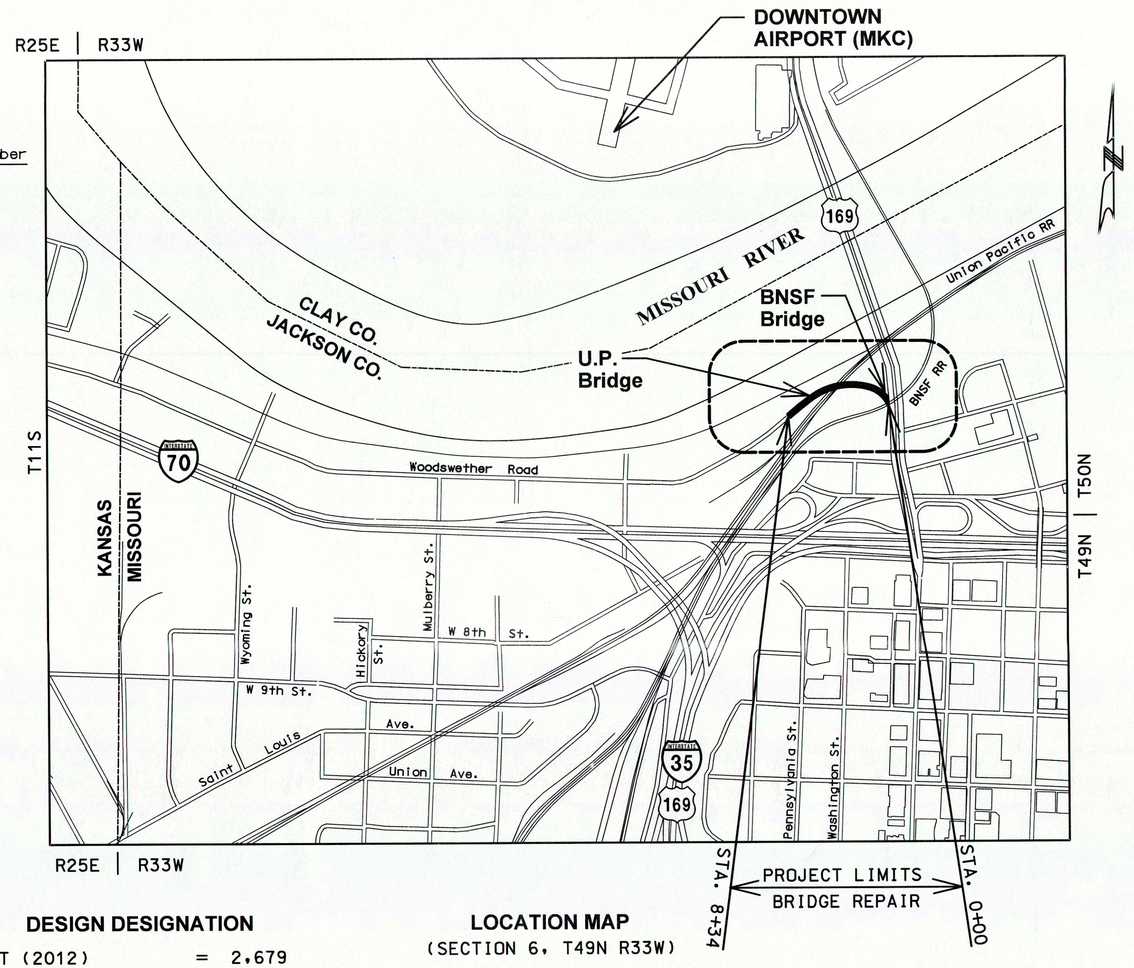
CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS-ENGINEERING DIVISION

WOODSWETHER ROAD VIADUCT REPAIRS

BURLINGTON NORTHERN & SANTA FE RR BRIDGE AND UNION PACIFIC RR BRIDGE

BRIDGE NOS. S029B44 (BNSF BRIDGE) AND S029B45 (U.P. BRIDGE)
JACKSON COUNTY

INDEX OF SHEETS



LOCATION MAP
(SECTION 6, T49N R33W)

NOTICE

PROJECT IS WITHIN THE AIRSPACE OF THE DOWNTOWN AIRPORT (MKC). SUBMISSION OF FORM 7460-1 AND COMPLIANCE WITH FAA STIPULATIONS IS REQUIRED. SEE GENERAL NOTES.

LENGTH OF PROJECT

END OF PROJECT	STA. 0+00
BEGINNING OF PROJECT	STA. 8+34
PROJECT LENGTH	837 FEET

THIS PROJECT HAS BEEN DESIGNED, AND THESE PLANS PREPARED TO MEET OR EXCEED THE DESIGN CRITERIA OF APWA AND KANSAS CITY, MISSOURI. EXCEPT AS NOTED IN PROJECT VARIANCES.

STATE OF MISSOURI
MARK ALLAN HARTEGAN
NUMBER PE-2002025986
PROFESSIONAL ENGINEER

5-16-2016
ENGINEER — DATE

PLANS PREPARED BY:

LOCHNER
16105 W. 113th Street | Suite 107 | Lenexa, KS 66219

APPROVED BY _____
ASSISTANT CITY ENGINEER

_____
CITY ENGINEER

_____
DIRECTOR OF PUBLIC WORKS

N/A
ENTRY NO.

PROJECT NO. 89005520, 89005521 C.D. NO. 4

SHEET 1 OF 25 FILE NO. _____

UTILITY SERVICE NUMBERS

AT&T	800-252-1133
KCMO - TRAFFIC SIGNALS	816-513-1313
KCMO - STREET & TRAFFIC DIVISION	816-513-1313
KCMO - WATER SERVICES DEPARTMENT	816-513-1313
KCP&L	816-471-KCPL
VERIZON	800-837-4966
MISSOURI GAS ENERGY	800-582-0000
TIME WARNER, INC.	816-358-8833

DESIGN DESIGNATION

ADT (2012)	=	2,679
ADT (2032)	=	3,800
DHV	=	8%
T	=	10%
DESIGN SPEED	=	30 M.P.H. *
POSTED SPEED LIMIT	=	35 M.P.H.

* EXCEPT AS NOTED IN PROJECT VARIANCES

FUNCTIONAL CLASSIFICATION

URBAN COLLECTOR

DESIGN CRITERIA:
KCMO INDUSTRIAL/
COMMERCIAL COLLECTOR

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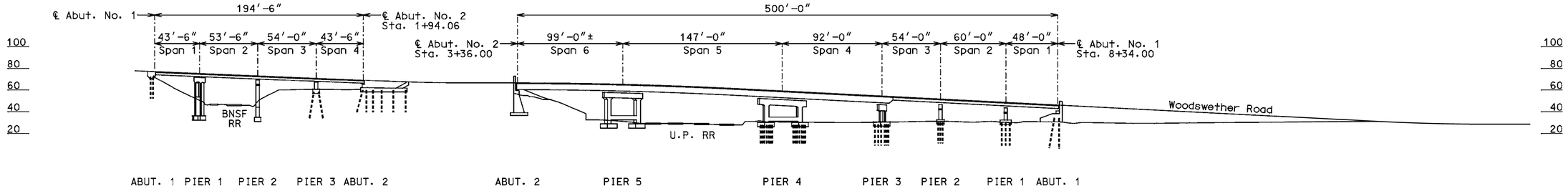
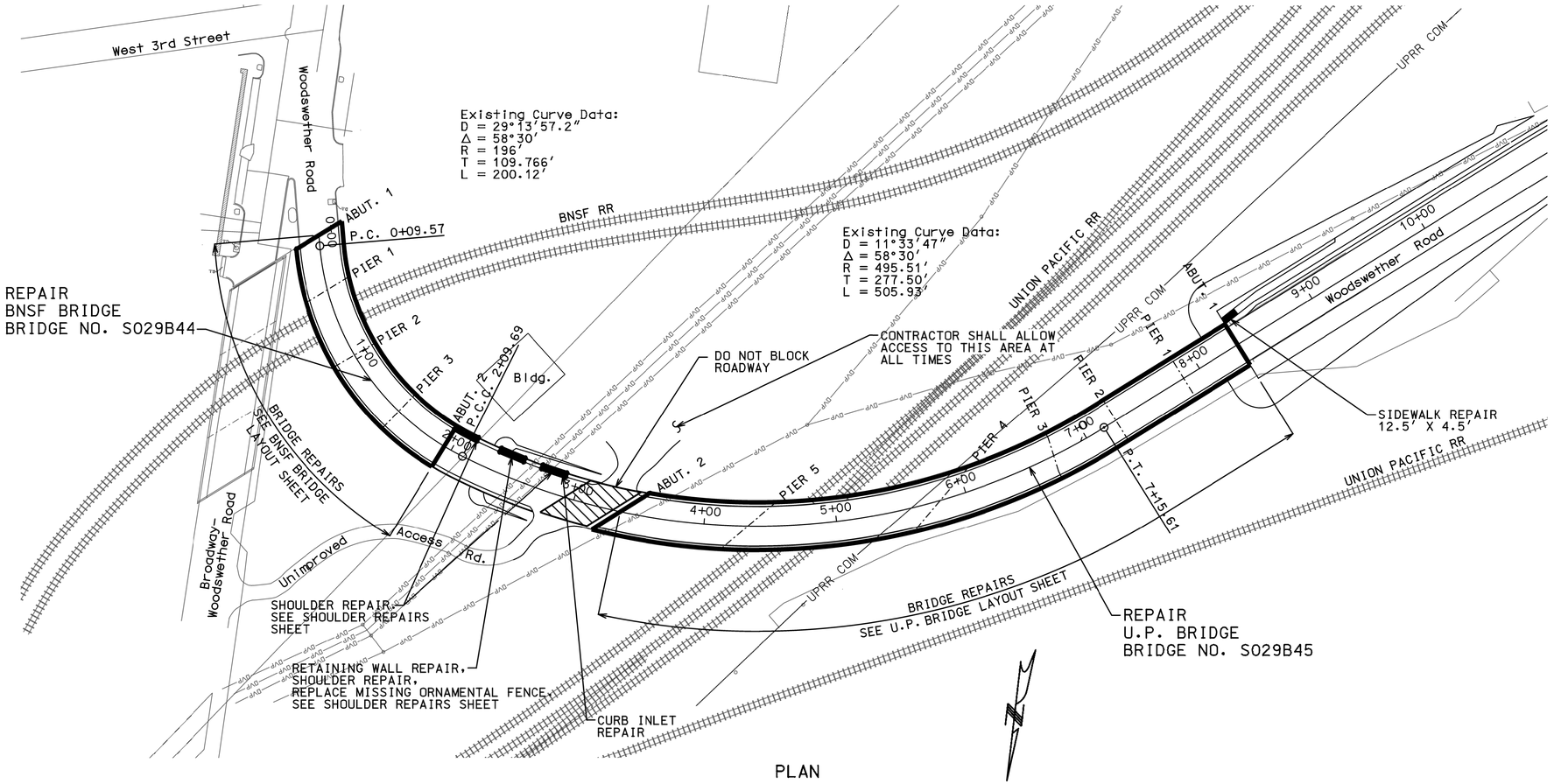


BNSF BRIDGE U.P. BRIDGE

ELEVATION



PLAN

LEGEND

FIRE HYDRANT	FH
POWER POLE	PP
TELEPHONE POLE	T
GUY ANCHOR	GUY
POWER, TELEPHONE & LIGHT POLE	PTCL
STREET LIGHT POLE	
OVERHEAD POWER LINES	OHP
TELEPHONE (UNDERGROUND)	UGT
CABLE TELEVISION (OVERHEAD)	CATV
GAS MAIN	G
WATER MAIN	W
SANITARY SEWER MAIN	SS
CATCH BASIN OR INLET	
MANHOLE, STORM OR SANITARY	MH
GAS OR WATER METER	GM
GAS OR WATER VALVE	GV
STREET SIGN	SIGN
FENCE	
TREE	

STATE OF MISSOURI
MARK ALLAN HARTEGAN
NUMBER PE-2002025986
PROFESSIONAL ENGINEER
5-16-2016

LOCHNER
16105 W. 113th Street | Suite 107 | Lenexa, KS 66219

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS

WOODSWETHER ROAD VIADUCT REPAIRS
OVER BNSF AND U.P. RAILROAD

PROJECT NO.	89005520, 89005521
DRAWN BY	JTC
DATE	11/2015
CHECKED BY	ARB
DATE	12/2015
DESIGNED BY	MAH
DATE	11/2015
REVISIONS	DATE
ISSUE DATE	5/16/2016

GENERAL PLAN
AND ELEVATION

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GENERAL NOTES

Perform all work in accordance with all current Kansas City, Missouri Public Works Department Standard Plans and Specifications, except as noted.

Select sheets of the original bridge plans have been included with project plans "for information only" to provide general details for the bid process.

The Contractor shall submit Form 7460-1, "Notice of Proposed Construction or Alteration" to the Federal Aviation Administration (FAA) prior to commencement of construction activities for any applicable equipment or operational encroachments. This form is used to request approval from the FAA for the Contractor's anticipated obstructions of airspace and method of marking obstruction. Contractor shall comply with FAA stipulations. A copy of the completed Form 7460-1 and any FAA stipulations shall be provided to the owner's representative.

Underground facilities, structures and utilities have been plotted from available survey and records. It is possible there may be others, the existence of which is presently not known or shown. It is the Contractor's responsibility to verify the existence and precise location of all facilities with respective owners prior to construction in order to provide non-interruption of service, to ensure proper clearance, and to avoid damage. See the Project Manual for a list of utility companies on or within the vicinity of the project limits.

Adhere to the provisions of Senate Bill number 583, 78th General Assembly of the State of Missouri. The bill requires that any person or firm doing excavation on public right-of-way shall do so only after filing notice to, and obtaining information from utility companies. State law requires 48 hours advance notice. The name and number of each utility is listed on the title sheet and project manual. The Contractor may utilize the toll free number provided by Missouri one call system, Inc. which is 1-800-DIG-RITE (1-800-344-7483). Prior to commencement of work, the Contractor shall notify all utilities which have facilities in the near vicinity of the construction performed.

Replace all street surfaces removed by this construction in accordance with the Project Manual and the current APWA-KCMO drawing "SR-1, Street Cut Restoration".

Sod grassed areas at U.P. Bridge west approach disturbed by this construction. Seed grassed areas underneath bridge disturbed by this construction.

Maintain existing sewers, utilities, access roadways, trafficways and detour control (signs & devices) during the construction work and at all times under this contract.

Provide temporary signage as needed throughout construction.

Contractor is responsible for all permits, bonds, insurance, etc. as required by the City and State.

The field survey for this project were limited to topographic surveys of the approach roadway.
Surveyed by: Schmitz, King and Associates Inc. 18900 W. 158th Street, Suite G, Olathe, KS. 66062 phone no. (913) 397-6080 survey date: 2010-2011.

All workmanship and materials shall be subject to the inspection and approval of the public Works Department of the City of Kansas City, Missouri.

All removals shall become property of the Contractor, remove from the project site and legally dispose of them and in accordance with the project manual.

Items not listed separately in the recapitulation of quantities are subsidiary to other items in the proposal.

DESIGN SPECIFICATIONS

AASHTO Standard Specifications for Highway Bridges, 17th Edition, Load Factor Design
Standard Specifications and Design Criteria, Kansas City Metropolitan Chapter APWA. (APWA Specs.)
Project Manual
Missouri Standard Specifications for Highway Construction, 2004 Edition, and amendments
(All MoDOT References here will pertain to this specification.)

DESIGN UNIT STRESSES

Concrete for bridges - MCIB Mix. No. A 564-3/4-4 AE: f'c = 4,000 psi
Concrete for sidewalk, shoulders, retaining walls, inlet - MCIB Mix. No. WA610-1-4 AE: f'c = 4,000 psi
Reinforcing Steel (Grade 60): fy = 60,000 psi

RAILROAD NOTES

Construction over the Railroad's right-of-way shall be designed to cause no interruption to any Railroad operations.

No work is allowed within 25 feet of the nearest track unless protected by a Railroad Flagman.

No drainage shall be discharged on Railroad right-of-way during or post-constuction.

The elevation of the existing top-of-rail profile shall be verified before beginning construction.

All permanent clearances shall be verified before project closing.

Use of the hydraulic impact hammer over the railroad right-of-way is prohibited. Saw cut deck over railroad tracks.

The Contractor shall submit a Bridge Demolition Plan to the Railroad. See Project Manual. All demolitions within the Railroad's right-of-way and/or demolition that may impact the Railroad's tracks or operations shall be in compliance with the Railroad's Demolition Guidelines. (See Project Manual)

False-work clearances shall comply with minimum construction clearances.

The contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad.

For Railroad coordination please refer to the Railroad Coordination Requirements as part of the specifications or Project Manual.

SUMMARY OF QUANTITIES

ITEM	UNITS	QUANTITY			
		GENERAL	BNSF BRIDGE, BR. NO. S029B44	U.P. BRIDGE, BR. NO. S029B45	TOTAL
Mobilization	Lump Sum	1			1
Field Office	Lump Sum	1			1
Clearing, Grubbing & Removals	Lump Sum	1			1
Traffic Control	Lump Sum	1			1
Asphaltic Concrete Surface Course (Type 5-01, Recycled)(2")	Sq. Yd.		648	1,669	2,317
Milling	Sq. Yd.		648	1,669	2,317
Sidewalk Repair	Sq. Ft.	56			56
Concrete Retaining Wall Repair	Lin. Ft.	17			17
Curb Inlet Repair	Lump Sum	1			1
Concrete Shoulder Repair	Lin. Ft.	57			57
Substructure Repair (Formed)	Sq. Ft.		220	75	295
Substructure Repair (Unformed)	Sq. Ft.		535		535
BNSF Pier 1 Joint Repair	Lin. Ft.		31		31
U.P. Abutment 2 Joint Repair	Lin. Ft.			43	43
Concrete Curb Repair	Lin. Ft.		41		41
Partial Depth Deck Repair	Sq. Ft.		1,100	40	1,140
Partial Depth Deck Repair (Contingency)	Sq. Ft.		400	20	420
Full Depth Deck Repair	Sq. Ft.		550	90	640
Full Depth Deck Repair (Contingency)	Sq. Ft.		200	40	240
Slab Edge Repair	Lin. Ft.		340	650	990
Reinforcing Steel (Set)	Lb.		1,500	1,500	3,000
Steel Cantilever Bracket Repair	Lb.		542	240	782
Steel Cantilever Bracket Repair (Contingency)	Lb.		190	90	280
Steel Diaphragm Repair	Lb.			631	631
Steel Beam Repair	Lb.			72	72
Steel Ornamental Fence	Lin. Ft.	26			26
Steel Blast Plate Repair	Lump Sum			1	1
Clean Bearing Seat	Lin. Ft.		78	174	252
Silicone Expansion Joint Sealant System	Lin. Ft.			30	30
Structural Steel Painting (Calcium Sulfonate)	Lump Sum	1			1
4" Yellow Solid Thermoplastic Pavement Marking	Lin. Ft.	279	389	1,002	1,670

This project requires the Contractor to enter a separate Construction Agreement with Union Pacific Railroad and with BNSF Railroad.

This project is adjacent to mainline tracks with a high train volume and tracks cannot be taken out of service. The length and availability of work windows for each bridge for areas within 25 feet of the nearest track will be determined by the two railroad companies during the construction period. The Contractor is advised that the individual windows could be of short duration and could occur any time during a 24 hour/7 day period. Form B procedures for flagging are anticipated.

See Railroad Provisions in the Project Manual for more information.

Dimensions of the existing structures are based on old plans or field measurements. It is the responsibility of the Contractor to verify dimensions shown on the Plans prior to ordering materials.

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GENERAL NOTES AND SUMMARY OF QUANTITIES

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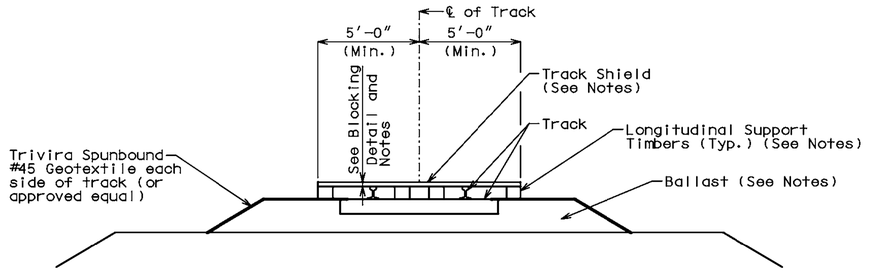
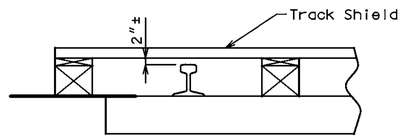


TRACK SHIELD DETAIL
FOR DEBRIS FALLING FROM BRIDGE DECK REMOVAL
(WHEN TRACK TIME WINDOW IS AVAILABLE)



BLOCKING DETAIL

A flagman is required at all times during the use of a track shield.

The track shield shall be designed by the Contractor and shall be of sufficient strength to support the anticipated loads, including impact. The shield shall prevent any materials, equipment or debris from falling onto the railroad track. Additional layers of materials shall be furnished as necessary to prevent fine materials or debris from sifting down upon the track.

The shield should preferably be fabricated and furnished with lifting hooks to simplify removal.

Before removal, the shield shall be cleaned of all debris and fine material.

The track shield shall extend at least 20 feet beyond the limits of demolition transverse to the edge of the bridge.

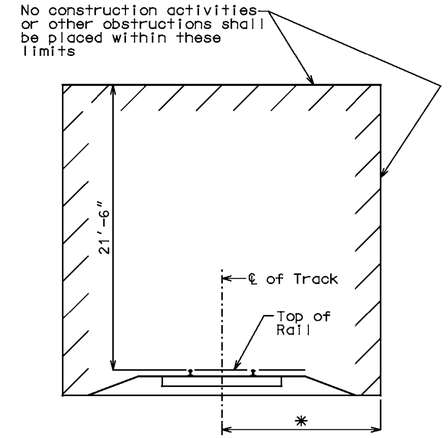
Longitudinal support timbers for the shield shall not extend above the top rail when the shield is removed. Blocking from the top of rail to the bottom of the shield may be attached to the shield. Remaining timbers shall be anchored.

For train passage, the rubble shall be removed to a minimum of 8′-6″ from the nearest rail and to an elevation no higher than the top of rail.

At the end of the day, the rubble shall be removed completely to a minimum of 10′-0″ from the nearest rail and down to original grade.

Care shall be taken to not place metal across the track rails. Railroad communications are sent through the rails and will be disrupted by a short between rails.

Details shown apply for timber ties. Special details are required for concrete ties.



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE
(Normal to Railroad)
* 15′-0″ for BNSF and 12′-0″ for UPRR

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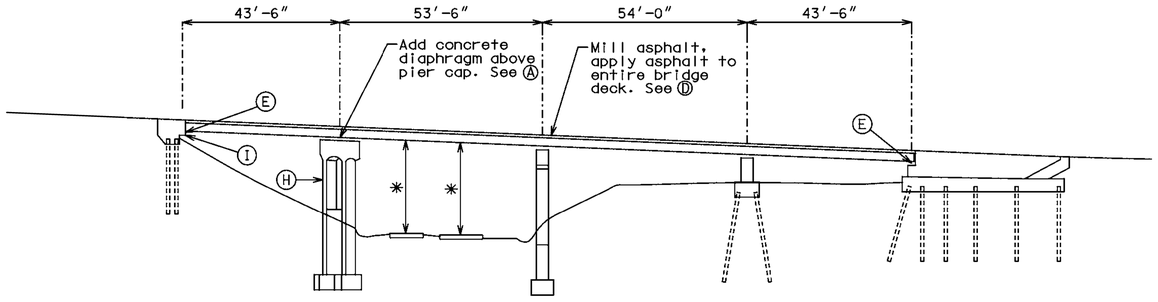
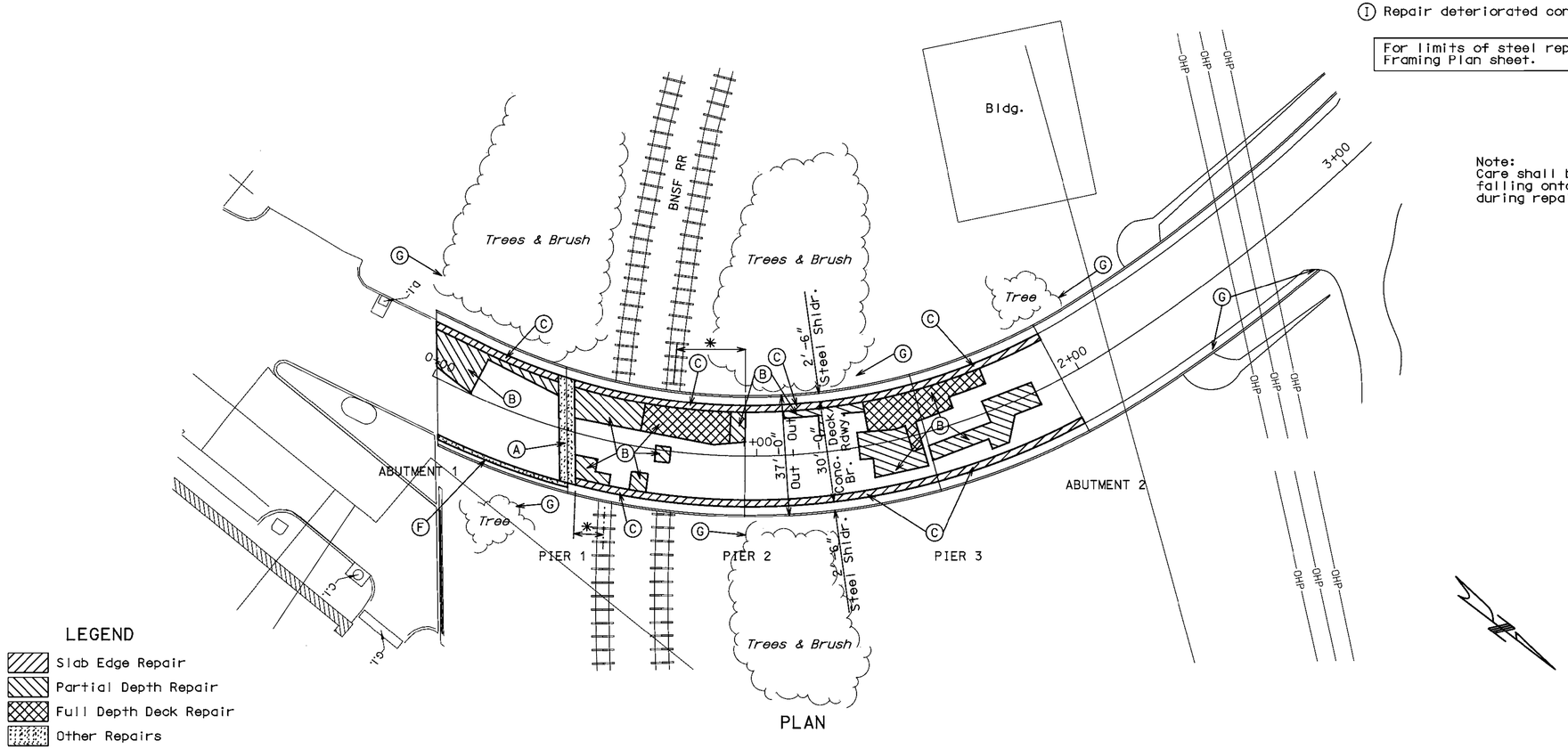
RAILROAD DETAILS



ELEVATION

✳ Existing permanent vertical and horizontal clearances to tracks shall remain as-is after completion of bridge repairs. Under no circumstances shall existing permanent vertical and horizontal clearances be reduced.



LEGEND

- Slab Edge Repair
- Partial Depth Repair
- Full Depth Deck Repair
- Other Repairs

PLAN

Ⓐ Remove existing expansion device. Remove concrete deck over Pier 1. Existing deck longitudinal reinforcing steel shall remain.

Clean the existing beam ends, diaphragms, and bearing devices. Sandblast exposed existing reinforcing steel in deck.

Install reinforcing steel in new concrete diaphragm and deck.

Pour new concrete diaphragm encasement around beams ends and bearing devices, from top of existing pier cap to top of concrete deck.

Ⓑ Remove unsound concrete deck, partial depth or full depth, as designated by the Engineer.

Clean exposed existing reinforcing steel in deck. Install new reinforcing steel in deck as designated by the Engineer.

Place concrete deck patch.

See Deck Repair Details sheet.

Ⓒ Remove unsound concrete deck at edge of deck, partial depth or full depth, as designated by the Engineer.

Clean exposed existing reinforcing steel in deck. Install new reinforcing steel in deck as designated by the Engineer.

Place concrete deck patch at edge of deck.

See Deck Repair Details sheet.

Ⓓ Mill existing 3"± asphalt wearing surface off entire bridge deck. Apply 2" asphalt surface course wearing surface to entire bridge deck.

Ⓔ Clean debris from bearing seat.

Ⓕ Repair front face of concrete curb.

Ⓖ Clear trees within 10 ft. of bridge railing. Remove vegetation along curbs and shoulders.

Ⓗ Repair deteriorated concrete on existing pier cap and columns.

Ⓘ Repair deteriorated concrete on existing bearing seat.

For limits of steel repairs and painting, see BNSF Bridge Framing Plan sheet.

Note:
Care shall be taken to prevent any debris from falling onto BNSF RR tracks or right-of-way during repair procedures.

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BNSF BRIDGE LAYOUT

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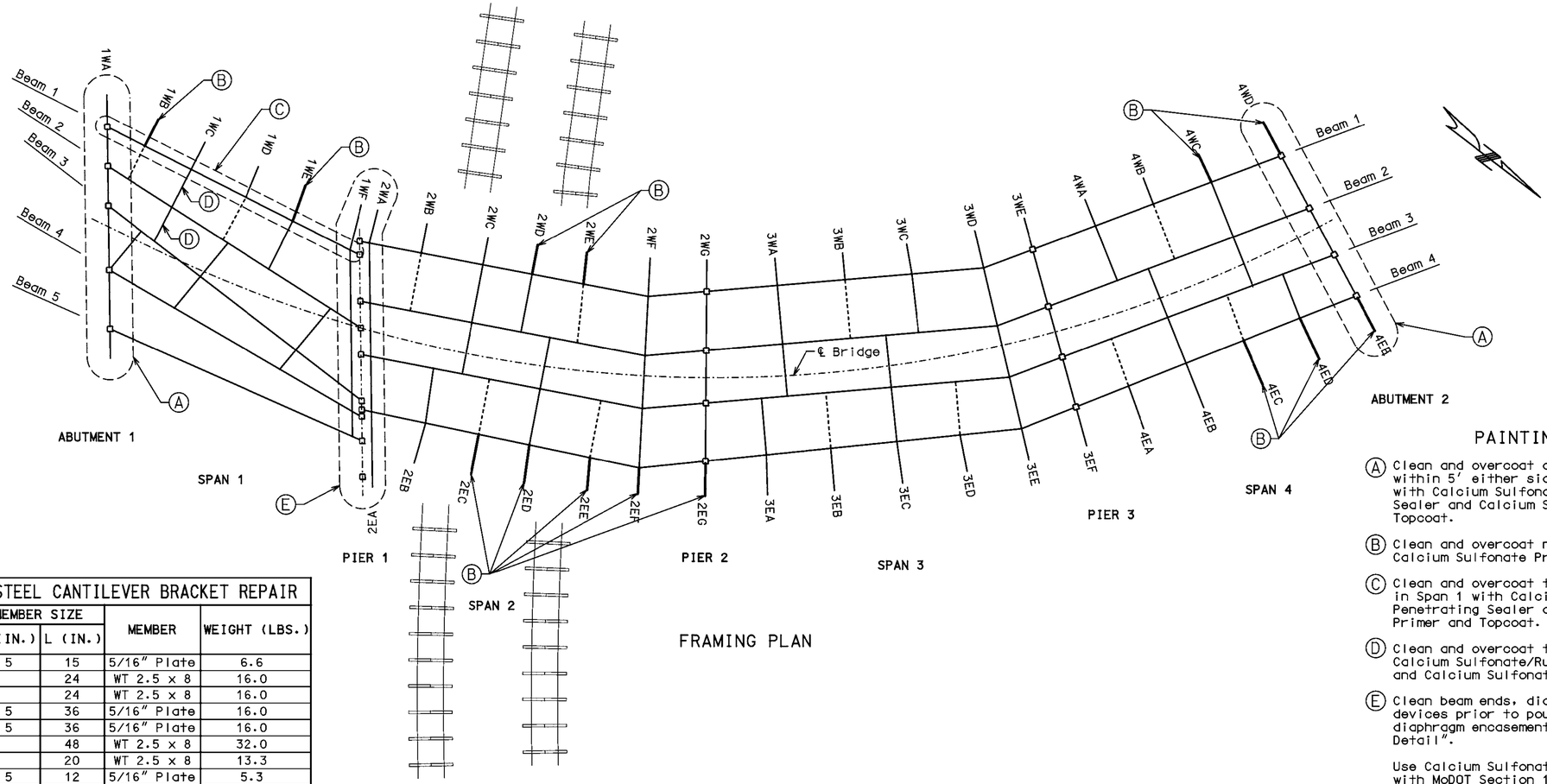

FRAMING PLAN

B.N.S.F. BRIDGE STEEL CANTILEVER BRACKET REPAIR

BRACKET LOCATION	DETAIL TYPE *	MEMBER SIZE W (IN.)	MEMBER SIZE L (IN.)	MEMBER	WEIGHT (LBS.)
1WB	A	5	15	5/16" Plate	6.6
1WE	E		24	WT 2.5 x 8	16.0
1WE	E		24	WT 2.5 x 8	16.0
2EC	B	5	36	5/16" Plate	16.0
2ED	B	5	36	5/16" Plate	16.0
	D		48	WT 2.5 x 8	32.0
			20	WT 2.5 x 8	13.3
2ED	B (Sim.)	5	12	5/16" Plate	5.3
	D		48	WT 2.5 x 8	32.0
			20	WT 2.5 x 8	13.3
2EE	F	5	36	5/16" Plate	16.0
			9	WT 2.5 x 8	6.0
2EE	F		15	WT 2.5 x 8	10.0
2EF	B (Sim.)	5	24	5/16" Plate	10.6
		12	15	5/16" Plate	16.0
	E		36	WT 2.5 x 8	24.0
2EF	E		36	WT 2.5 x 8	24.0
2EG	B	5	36	5/16" Plate	16.0
2WD	E		24	WT 2.5 x 8	16.0
2WD	E		24	WT 2.5 x 8	16.0
2WE	E		24	WT 2.5 x 8	16.0
2WE	E		24	WT 2.5 x 8	16.0
4EC	E		30	WT 2.5 x 8	20.0
	C		20	WT 2.5 x 8	13.3
4EC	E		30	WT 2.5 x 8	20.0
	C		20	WT 2.5 x 8	13.3
4ED	D		40	WT 2.5 x 8	26.7
			12	WT 2.5 x 8	8.0
4ED	D		40	WT 2.5 x 8	26.7
			12	WT 2.5 x 8	8.0
4EE	A	5	14	5/16" Plate	6.2
4WD	A	12	14	5/16" Plate	14.9
4WC	E		24	WT 2.5 x 8	16.0
4WC	E		24	WT 2.5 x 8	16.0
TOTAL CANTILEVER BRACKET REPAIR**					542

Notes:
Locations in the table listed twice indicate repairs on both faces of the bracket.

Contractor shall field verify the plate size and/or length of structural tee needed prior to ordering materials or cutting members.

Pay quantity will be based on the plate size or length of member installed.

* See Steel Repair Details sheets for the Detail Type

** Additional Steel Cantilever Bracket Repairs may be designated by the Engineer during construction which shall be paid for under the bid item "Steel Cantilever Bracket Repair (Contingency)".

PAINTING NOTES

(A) Clean and overcoat all structural steel within 5' either side of a bridge joint with Calcium Sulfonate/Rust Penetrating Sealer and Calcium Sulfonate Primer and Topcoat.

(B) Clean and overcoat new steel repairs with Calcium Sulfonate Primer and Topcoat.

(C) Clean and overcoat the entirety of Beam 1 in Span 1 with Calcium Sulfonate/Rust Penetrating Sealer and Calcium Sulfonate Primer and Topcoat.

(D) Clean and overcoat the diaphragm with Calcium Sulfonate/Rust Penetrating Sealer and Calcium Sulfonate Primer and Topcoat.

(E) Clean beam ends, diaphragms, and bearing devices prior to pouring new concrete diaphragm encasement. See "Pier 1 Repair Detail".

Use Calcium Sulfonate System in accodance with MoDOT Section 1081 and the Project Manual.

Surface preparation of the existing steel shall be in accordance with MoDOT Section 1081 for "Overcoating of Structural Steel (Calcium Sulfonate System)", and the Project Manual.

The cost of surface preparation, rust penetrating sealer, prime coat and top coat will be considered completely covered by the contract lump sum price for "Structural Steel Painting (Calcium Sulfonate)".

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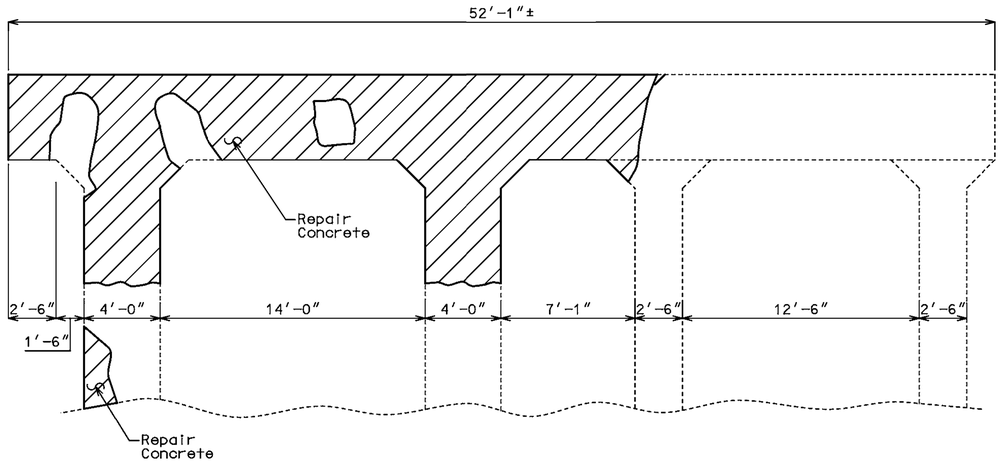
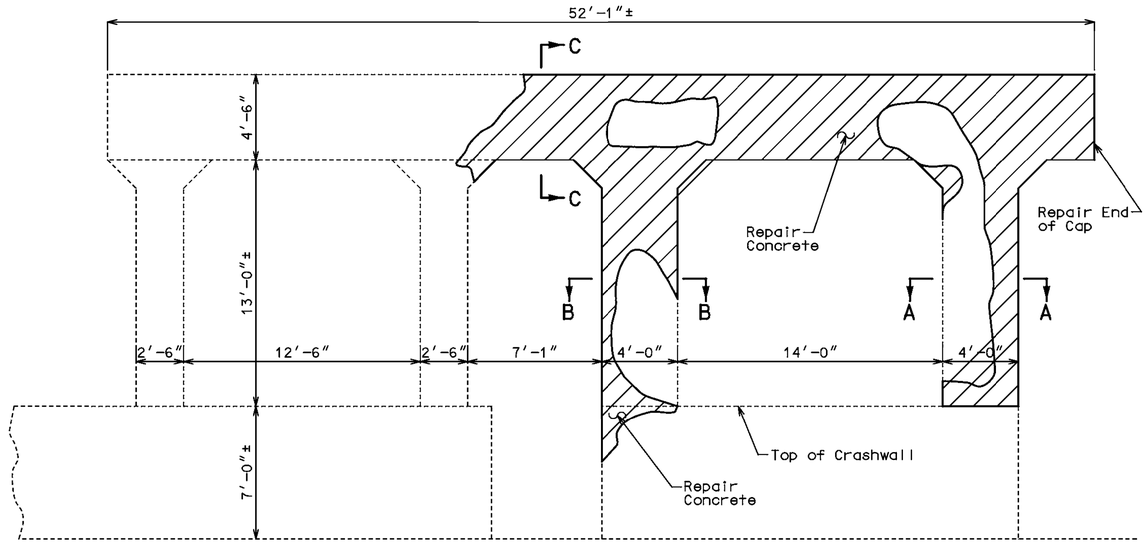
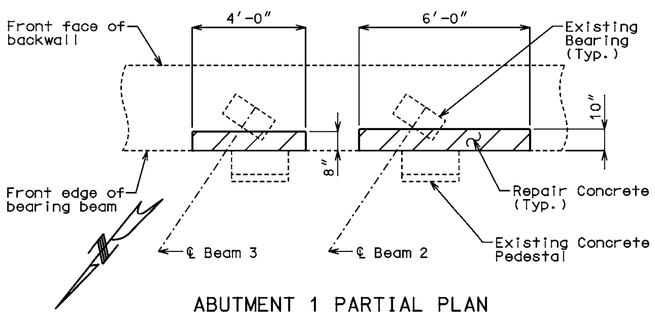
BNSF BRIDGE FRAMING PLAN



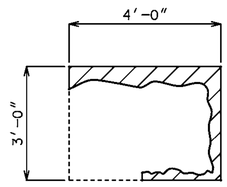
PIER 1 ELEVATION
(Looking North)



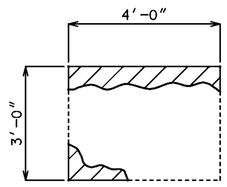
PIER 1 ELEVATION
(Looking South)



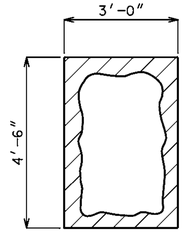
ABUTMENT 1 PARTIAL PLAN



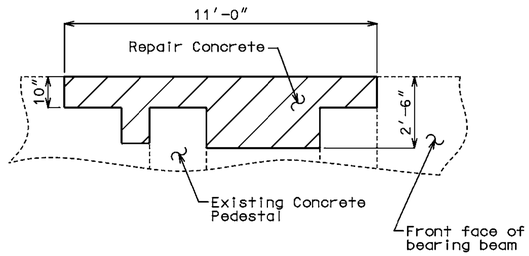
SECTION A–A



SECTION B–B



SECTION C–C



ABUTMENT 1 PARTIAL ELEVATION
(Looking South)

GENERAL SUBSTRUCTURE SURFACE REPAIR PROCEDURE

The substructure surface repair quantity is to include, but is not limited to those areas demarcated in the detailed views above.

1. Contractor shall sound and locate limits of the deteriorated concrete shown in the details, as well as any location that shows evidence of efflorescence, delamination, or spalling in the substructure units.
2. Remove delaminated and deteriorated concrete back to "sound concrete". Concrete shall be considered sound for the purposes of this project if it withstands 15 pound chipping hammer without being removed with undue effort.
3. All removal shall terminate at a saw cut perpendicular to the surface of ½ inch minimum depth. Care shall be taken to avoid the unintentional cutting of reinforcement. Any reinforcement damaged during removal shall be replaced at the Engineer's discretion.
4. If reinforcement is exposed during the removal process, concrete shall be removed to allow ¾ inch minimum clearance around the bar. Any reinforcing bar that has section loss greater than or equal to ⅛ inch shall be replaced with a bar of equal or greater area to that of the original bar. Lap replacement reinforcing to the existing reinforcing according the table shown below. If a hooked bar is replaced, the new bar shall have a hook to match.
5. Exposed existing reinforcing to remain shall be cleaned in accordance to the specifications.
6. Concrete removal locations shall be replaced to match the original geometry.
7. All concrete deterioration located on the top surface of Pier 1 cap shall be repaired prior to starting work on "BNSF Joint Repair".

All dimensions shown on this substructure sheet are from field measurements, but may not be exact. All pertinent dimensions shall be field verified by contractor before work begins.

LAP LENGTHS	
Bar Size	Lap Length
#4	23″
#5	29″
#6	35″

QUANTITIES		
Item	Unit	Quantity
Substructure Repair (Formed)	Sq. Ft.	220
Substructure Repair (Unformed)	Sq. Ft.	535

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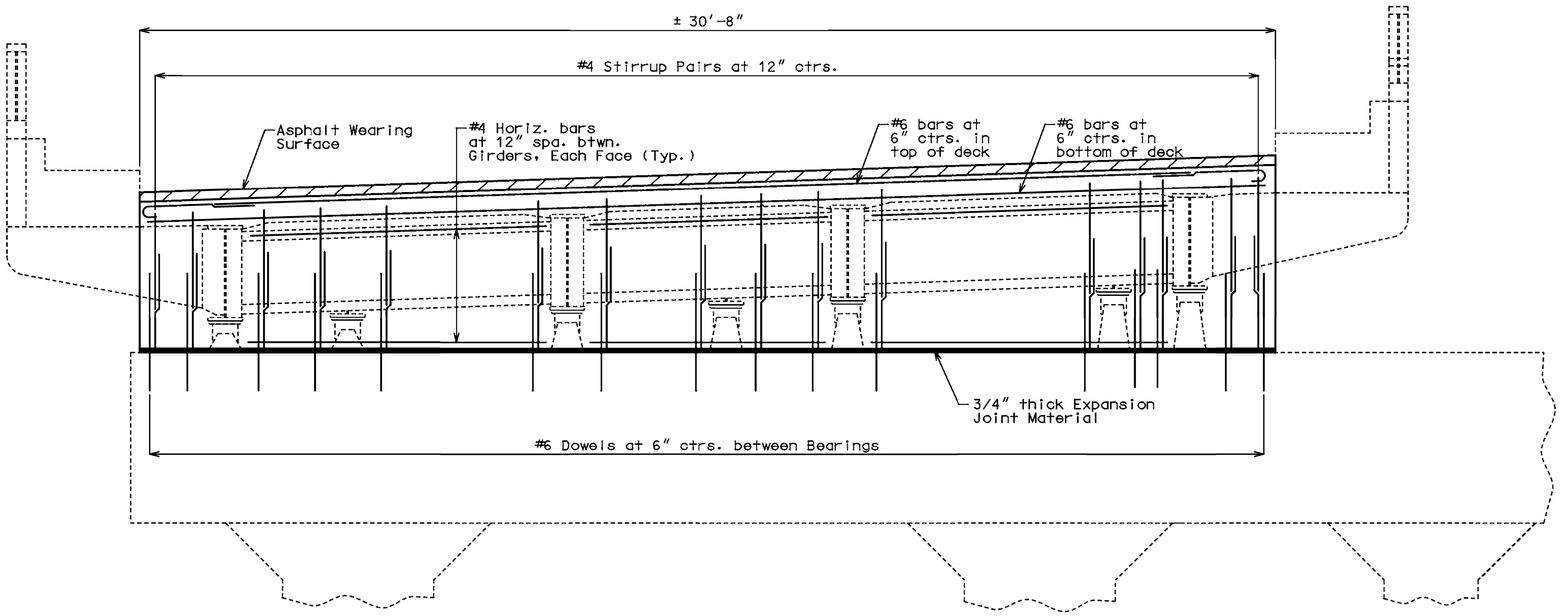
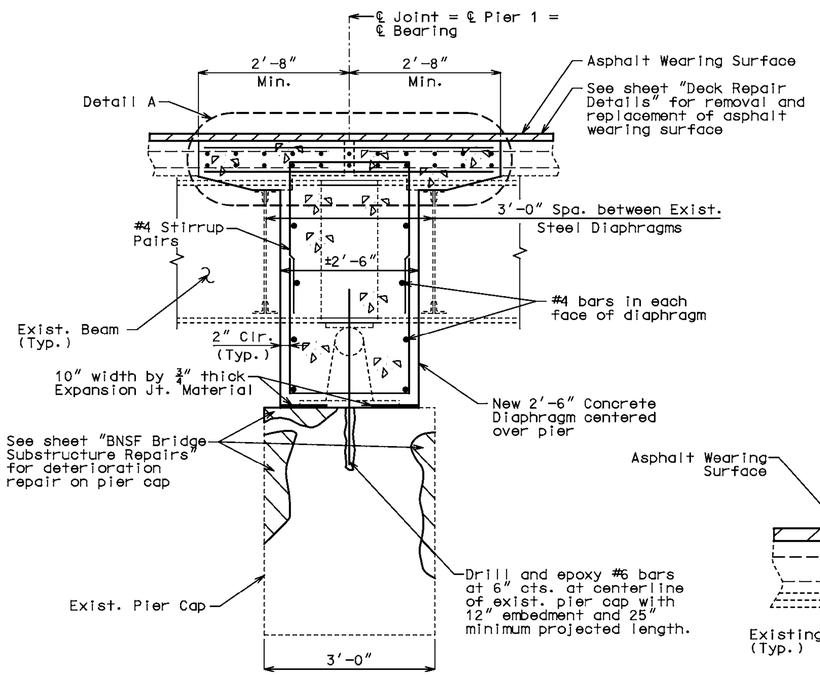
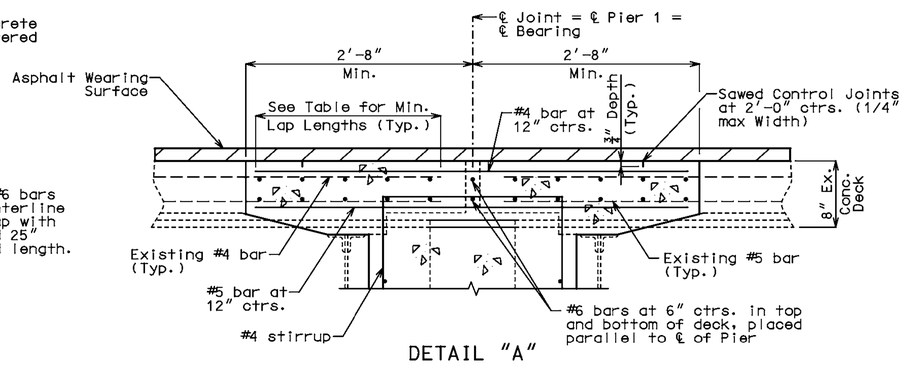
BNSF BRIDGE SUBSTRUCTURE REPAIRS



ELEVATION
(Looking North)



PIER 1 REPAIR DETAIL
(All Dimensions Perpendicular to ℄ of Pier)



DETAIL "A"

BNSF JOINT REPAIR PROCEDURE

1. See sheet "BNSF Bridge Framing Plan" for steel repairs to be performed prior to concrete diaphragm placement.
2. All substructure concrete to be repaired on top surface of existing pier cap shall be completed prior to beginning new construction on the BNSF Joint Repair.
3. Remove existing expansion joint and all concrete a minimum of 2'-8" each side perpendicular to centerline of joint above Pier 1. All removal shall terminate at a saw cut perpendicular to the surface of 1/2 inch minimum depth. Care shall be taken to avoid the unintentional cutting of reinforcement. Any reinforcement damaged during removal shall be replaced at the Engineer's discretion.
4. Existing longitudinal deck reinforcing steel shall project a minimum of a lap length, as shown in the table, beyond the edge of removal limit. Any existing transverse deck steel that is no longer embedded beyond the removal limit shall be discarded. Exposed existing reinforcing to remain shall be cleaned in accordance to the specifications.
5. Construct concrete diaphragm and deck replacement in a monolithic pour. Diaphragm shall extend from edge of deck to edge of deck.
6. Asphalt wearing surface shall be removed and replaced in accordance with details shown on sheet "Deck Repair Details".

LAP LENGTHS	
Bar Size	Lap Length
#4	23"
#5	29"
#6	35"

QUANTITIES		
Item	Unit	Quantity
BNSF Joint Repair	Lin.Ft.	31

QUANTITIES - INFORMATION ONLY*		
Item	Unit	Quantity
Concrete	Cu. Yds.	12.8
Reinforcing Steel	Lbs.	2,200

* These items shall be used to establish the unit price for "BNSF Joint Repair".

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PROFESSIONAL ENGINEER
5-16-2016

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CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS

WOODSWETHER ROAD VIADUCT REPAIRS
OVER BNSF AND U.P. RAILROAD

PROJECT NO.	89005520, 89005521
DRAWN BY	JTC
DATE	11/2015
CHECKED BY	ARB
DATE	12/2015
DESIGNED BY	JCG
DATE	11/2015
REVISIONS	DATE
ISSUE DATE	5/16/2016

BNSF BRIDGE
PIER 1
JOINT REPAIR

8
of 25

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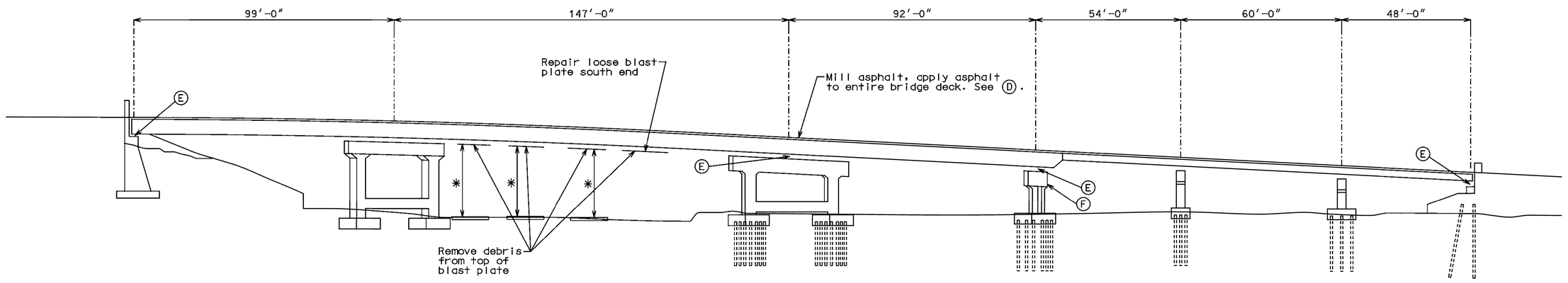


ELEVATION

* Existing permanent vertical and horizontal clearances to tracks shall remain as-is after completion of bridge repairs. Under no circumstances shall existing permanent and horizontal clearances be reduced.

(A) Remove existing expansion device. Remove concrete deck and concrete approach pavement near Abutment 2. Existing longitudinal reinforcing steel shall remain.

Sandblast exposed existing reinforcing steel in deck and approach pavement. Install new reinforcing steel in deck and approach pavement as designated by the Engineer.

Pour new concrete deck across the existing joint.

(B) Remove unsound concrete deck at edge of deck, partial depth or full depth, as designated by the Engineer.

Sandblast exposed existing reinforcing steel in deck. Install new reinforcing steel in deck as designated by the Engineer.

Place concrete deck patch at edge of deck.

See Deck Repair Details sheet.

(C) Remove unsound concrete deck, partial depth or full depth, as designated by the Engineer.

Sandblast exposed existing reinforcing steel in deck. Install new reinforcing steel in deck as designated by the Engineer.

Place concrete deck patch.

See Deck Repair Details sheet.

(D) Mill existing 3"± asphalt wearing surface off entire bridge deck. Apply 2" asphalt surface course wearing surface to entire bridge deck.

(E) Clean debris from bearing seat.

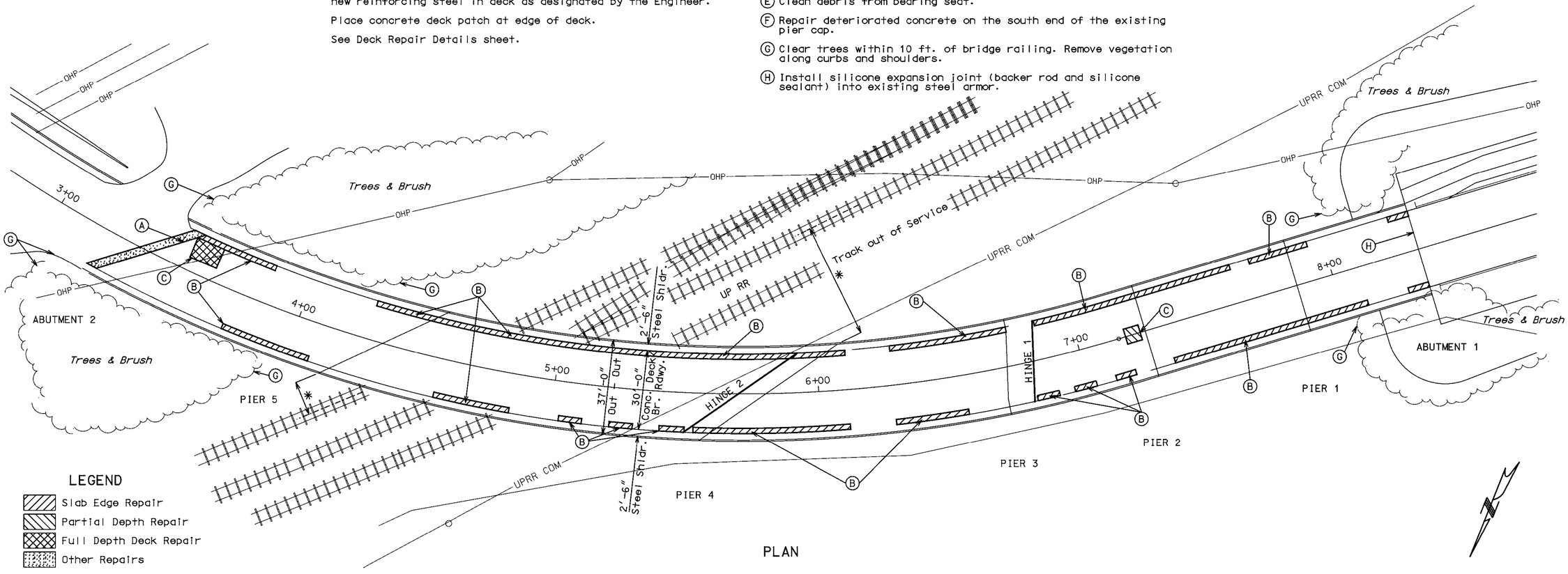
(F) Repair deteriorated concrete on the south end of the existing pier cap.

(G) Clear trees within 10 ft. of bridge railing. Remove vegetation along curbs and shoulders.

(H) Install silicone expansion joint (backer rod and silicone sealant) into existing steel armor.

Note:
Care shall be taken to prevent any debris from falling onto U.P. RR tracks or right-of-way during repair procedures. See Railroad Details sheet.

For limits of steel repairs and painting, see U.P. Bridge Framing Plan sheet.



PLAN

STATE OF MISSOURI
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5-16-2016

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U.P. BRIDGE LAYOUT

9
of 25

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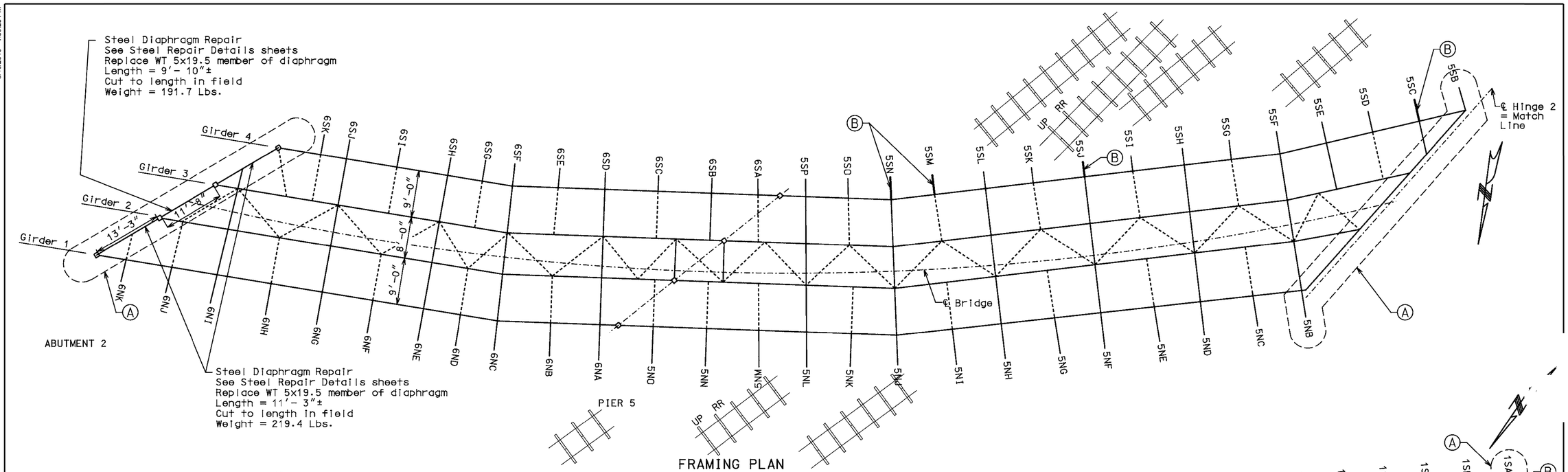
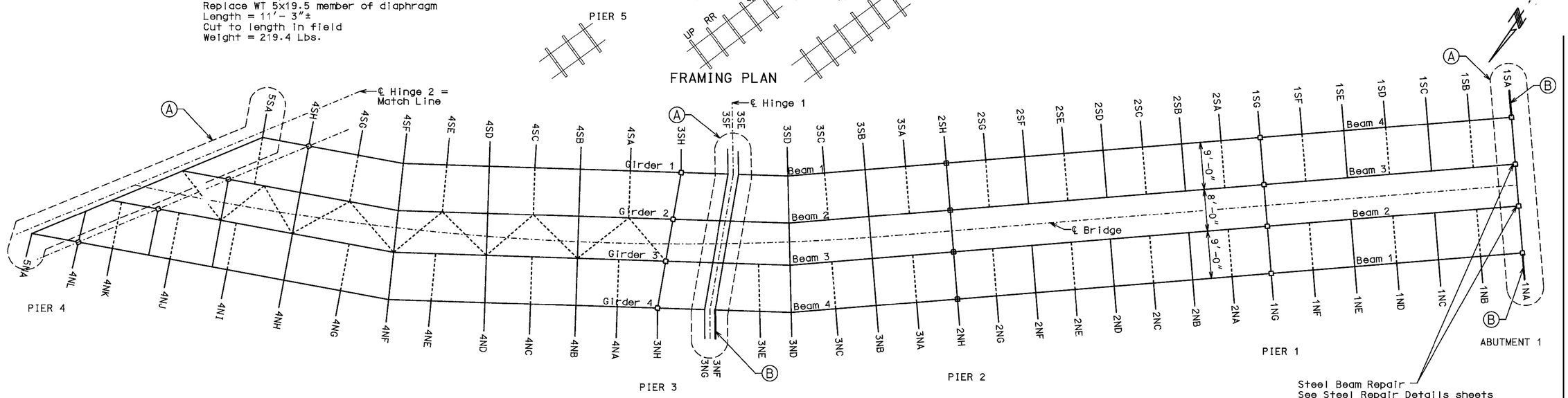


FRAMING PLAN



FRAMING PLAN

U.P. BRIDGE STEEL CANTILEVER BRACKET REPAIR

BRACKET LOCATION	DETAIL TYPE*	MEMBER SIZE W (IN.)	MEMBER SIZE L (IN.)	MEMBER	WEIGHT (LBS.)
1SA	G		27	WT 2.5 x 8	18.0
		15	27	5/16" Plate	35.9
1NA	G		27	WT 2.5 x 8	18.0
		5	14	5/16" Plate	6.2
		5	20	5/16" Plate	8.9
3NF	E		27	WT 2.5 x 8	18.0
3NF	E		27	WT 2.5 x 8	18.0
5SJ	E		30	WT 2.5 x 8	20.0
5SJ	E		30	WT 2.5 x 8	20.0
5SM	E		30	WT 2.5 x 8	20.0
5SM	E		30	WT 2.5 x 8	20.0
5SN	A	5	12	5/16" Plate	5.3
5SC	B (Sim.)	10	36	5/16" Plate	31.9
TOTAL CANTILEVER BRACKET REPAIR**					240

Notes:
Locations in the table listed twice indicate repairs on both faces of the bracket.

Contractor shall field verify the plate size and/or length of structural tee needed prior to ordering materials or cutting members.

Pay quantity will be based on the plate size or length of member installed.

* See Steel Repair Details sheets for the Detail Type.

** Additional Steel Cantilever Bracket Repairs may be designated by the Engineer during construction which shall be paid for under the bid item "Steel Cantilever Bracket Repair (Contingency)".

PAINTING NOTES

(A) Clean and overcoat all structural steel within 5' either side of a bridge joint with Calcium Sulfonate/Rust Penetrating Sealer and Calcium Sulfonate Primer and Topcoat.

(B) Clean and overcoat new steel repairs with Calcium Sulfonate Primer and Topcoat.

Use Calcium Sulfonate System in accodance with MoDOT Section 1081 and the Project Manual.

Surface preparation of the existing steel shall be in accordance with MoDOT Section 1081 for "Overcoating of Structural Steel (Calcium Sulfonate System)", and the Project Manual.

The cost of surface preparation, rust penetrating sealer, prime coat and top coat will be considered completely covered by the contract lump sum price for "Structural Steel Painting (Calcium Sulfonate)".

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U.P. BRIDGE FRAMING PLAN

10
of 25

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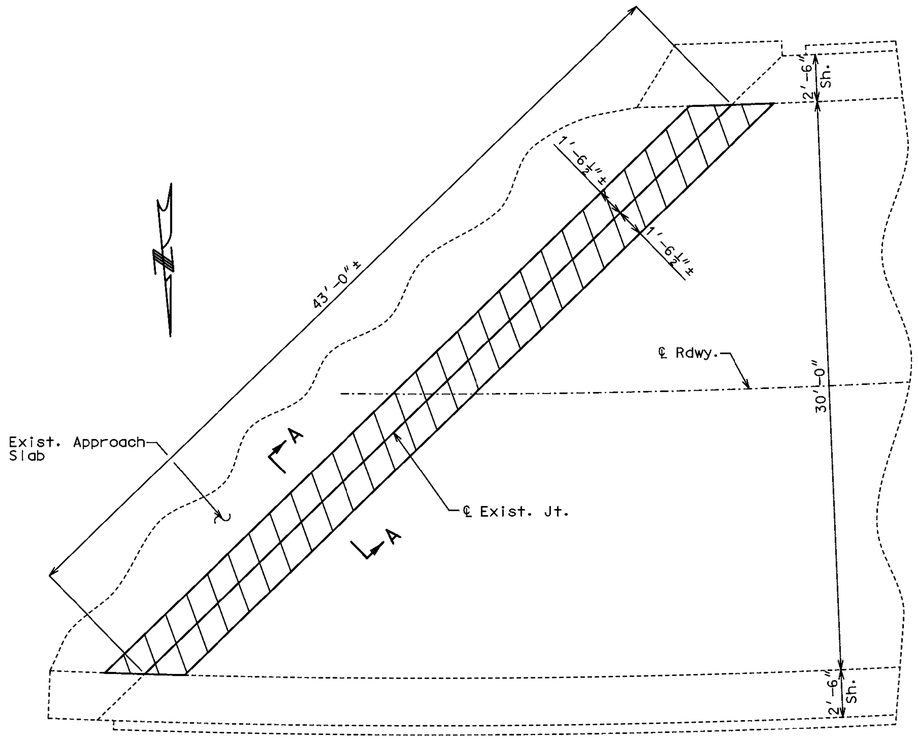
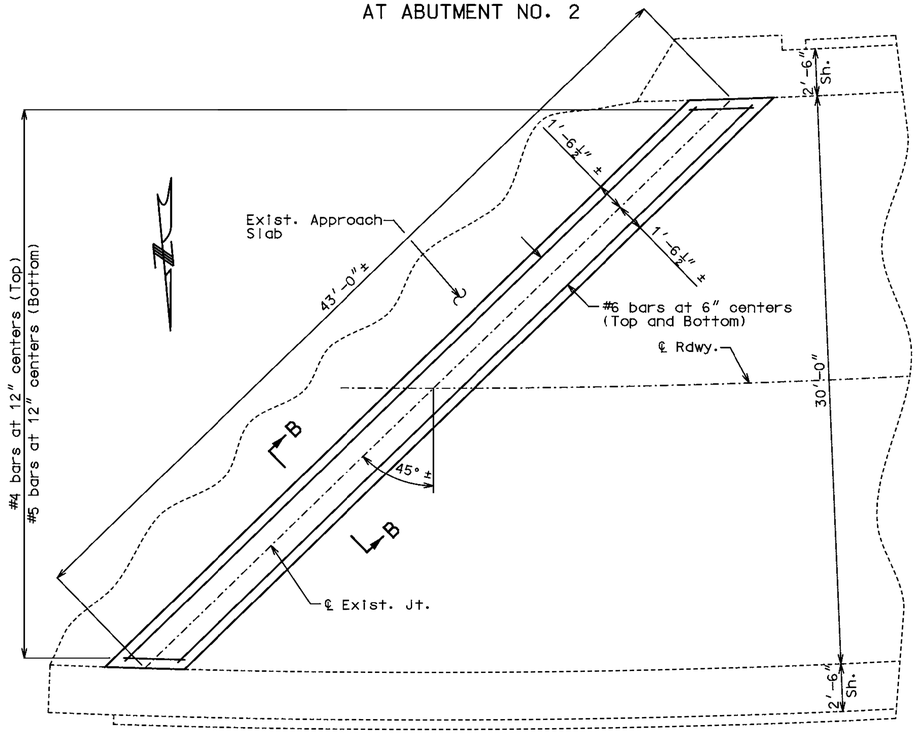
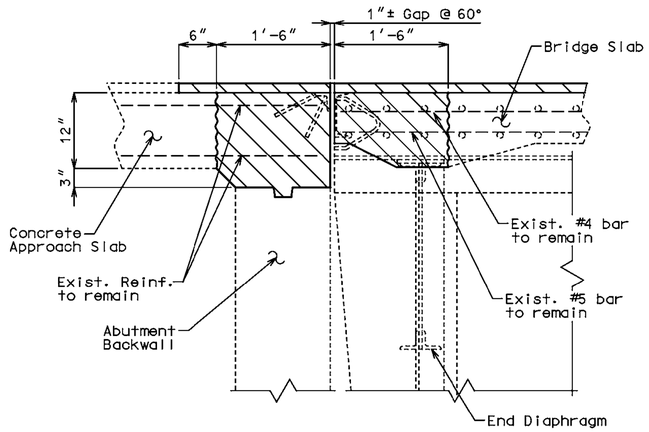


PLAN OF SLAB REMOVAL
AT ABUTMENT NO. 2

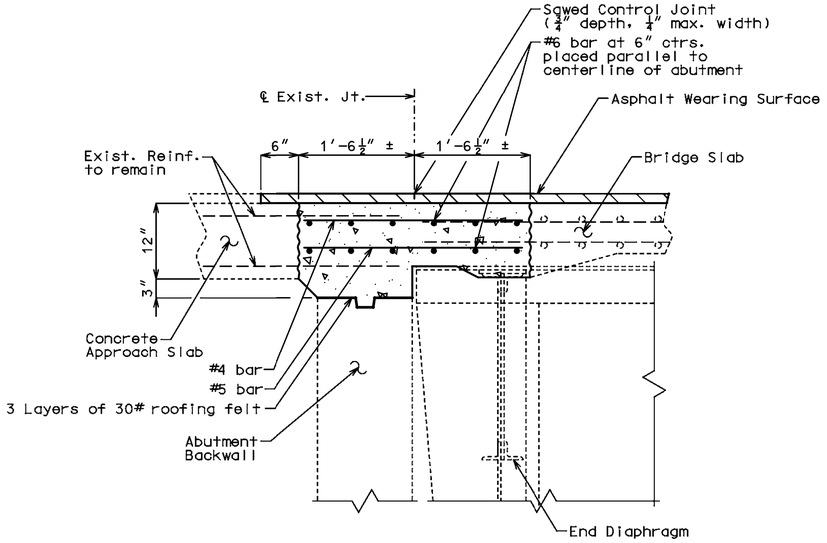


PLAN OF JOINT REPAIR
AT ABUTMENT NO. 2



Removal Limits

SECTION A-A



SECTION B-B

U.P. BRIDGE JOINT REPAIR PROCEDURE

1. Remove existing expansion joint and all concrete a minimum of 1'-6 1/2" each side perpendicular to centerline of joint above Abutment 2. All removal shall terminate at a saw cut perpendicular to the surface of 1/2 inch minimum depth. Care shall be taken to avoid the unintentional cutting of reinforcement. Any reinforcement damaged during removal shall be replaced at the Engineer's discretion.
2. Existing longitudinal deck reinforcing steel shall project a minimum of a lap length, as shown in the table, beyond the edge of removal limit. Any existing transverse deck steel that is no longer embedded beyond the removal limit shall be discarded. Exposed existing reinforcing to remain shall be cleaned in accordance to the specifications.
3. Asphalt wearing surface shall be removed and replaced in accordance with details shown on sheet "Deck Repair Details".

LAP LENGTHS	
Bar Size	Lap Length
#4	23"
#5	29"
#6	35"

QUANTITIES		
Item	Unit	Quantity
U.P. Abutment 2 Joint Repair	Lin.Ft.	46

QUANTITIES - INFORMATION ONLY*		
Item	Unit	Quantity
Concrete	Cu. Yds.	5.0
Reinforcing Steel	Lbs.	1,100
30# Roofing felt	Sq. Yds.	20

* These items shall be used to establish the unit price for "U.P. Abutment 2 Joint Repair".

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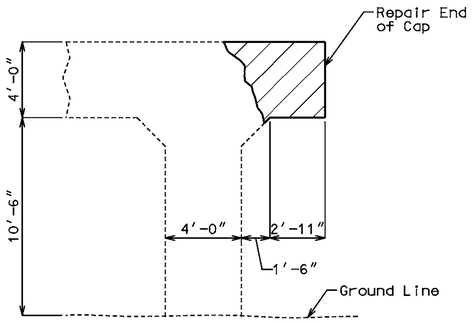
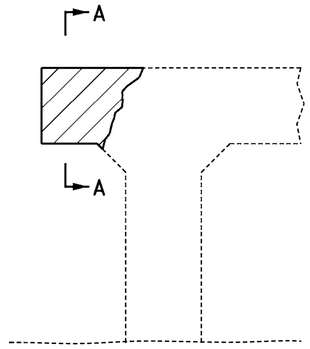
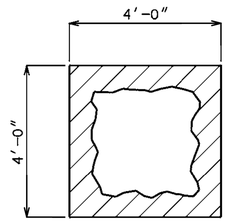
U.P. BRIDGE ABUTMENT 2 JOINT REPAIR



PIER 3 ELEVATION
(Looking East)



PIER 3 ELEVATION
(Looking West)



SECTION A-A

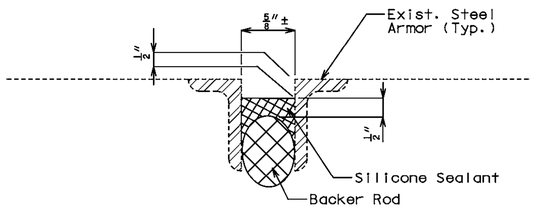
GENERAL SUBSTRUCTURE SURFACE REPAIR PROCEDURE

The substructure surface repair quantity is to include, but is not limited to those area's demarcated in the detailed views on this sheet.

1. Contractor shall sound and locate limits of the deteriorated concrete shown in the details, as well as any location that shows evidence of efflorescence, delamination, or spalling in the substructure units.
2. Remove delaminated and deteriorated concrete back to "sound concrete". Concrete shall be considered sound for the purposes of this project if it withstands 915 pound chipping hammer without being removed with undue effort.
3. All removal shall terminate at a saw cut perpendicular to the surface of ½ inch minimum depth. Care shall be taken to avoid the unintentional cutting of reinforcement. Any reinforcement damaged during removal shall be replaced at the Engineer's discretion.
4. If reinforcement is exposed during the removal process, concrete shall be removed to allow ¾ inch minimum clearance around the bar. Any reinforcing bar that has section loss greater than or equal to ⅛ inch shall be replaced with a bar of equal or greater area to that of the original bar. Lap replacement reinforcing to the existing reinforcing according the table shown below. If a hooked bar is replaced, the new bar shall have a hook to match.
5. Concrete removal locations shall be replaced to match the original geometry.

All dimensions shown on this substructure sheet are from field measurements, but may not be exact. All pertinent dimensions shall be field verified by contractor before work begins.

QUANTITIES		
Item	Unit	Quantity
Substructure Repair (Formed)	Sq. Ft.	75



CROSS SECTION THRU EXPANSION JOINT
AT ABUTMENT 1

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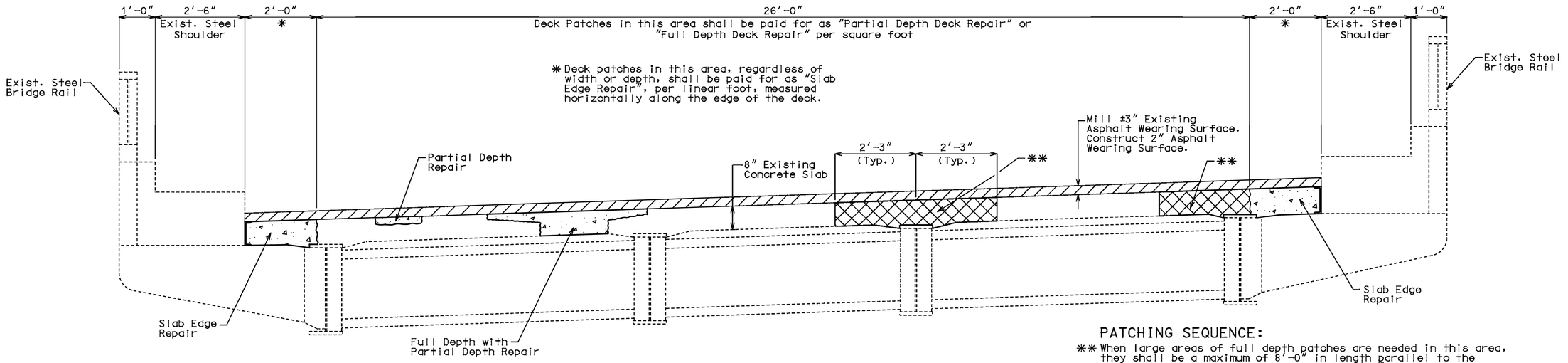
U.P. BRIDGE MISCELLANEOUS DETAILS

12
of 25



SECTION

PATCHING SEQUENCE:

** When large areas of full depth patches are needed in this area, they shall be a maximum of 8'-0" in length parallel to the centerline of bridge with a minimum of 8'-0" between segments. After the patches in the initial segments have cured, the areas between the segments shall be patched.

The segmental patching will not be required if adequate shoring is provided to support the deck and curbs.

DECK PATCHING PROCEDURE:

1. Mill existing asphalt wearing surface from the entire bridge deck. The asphalt wearing surface is estimated to be 3" thick.

   Milling shall be measured and paid by the square yard. No additional compensation will be made for variation in the thickness of asphalt in excess of 3". Existing steel deck repair plates shall be removed by the Contractor as part of this operation and retained by the Contractor.

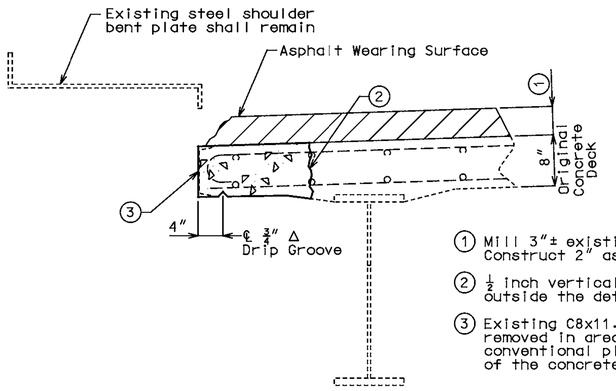
2. Survey the deck to locate and mark out the deck patching areas. Areas shall be confirmed by the Engineer prior to any removal.

3. Saw cut the deck around the perimeter of deck patching areas. Remove deteriorated deck concrete.

4. Replace deteriorated reinforcing bars as directed by the Engineer. This work shall be measured and paid under the bid item Reinforcing Steel (Bridges).

5. Perform concrete deck patching.

6. After concrete has reached strength, place new 2" thick asphalt wearing surface on the entire bridge deck. Vary the wearing surface thickness at the ends of each bridge-see detail on this sheet.

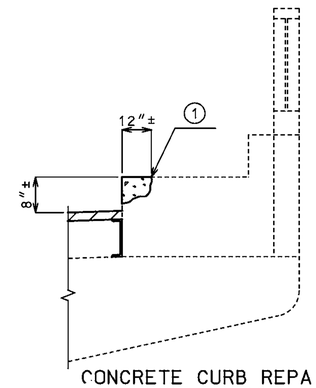


① Mill 3"± existing asphalt wearing surface. Construct 2" asphalt wearing surface.

② ½ inch vertical saw cut side shall be established outside the deteriorated area.

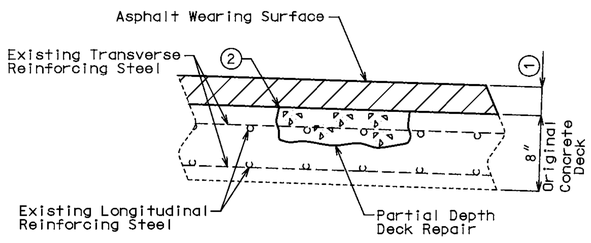
③ Existing C8x11.5 slab edge channel shall be removed in areas of Slab Edge Repair. Use conventional plywood forms for the vertical face of the concrete slab edge repair.

SLAB EDGE REPAIR



CONCRETE CURB REPAIR
BNSF BRIDGE
SOUTH SPAN, EAST CURB

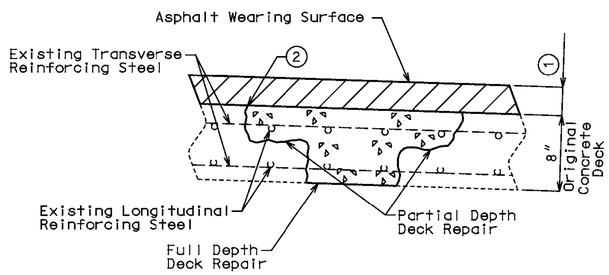
( ) ½ inch saw cut shall be established outside the deteriorated area. Top face to be saw cut and front face may be chipped to ½ inch depth.



PARTIAL DEPTH REPAIR

① Mill 3"± existing asphalt wearing surface. Construct 2" asphalt wearing surface.

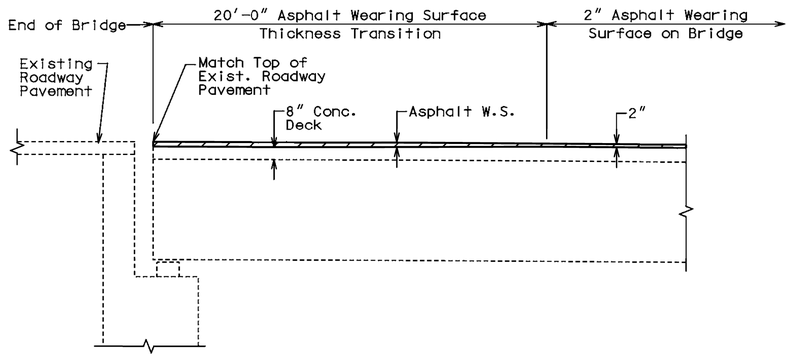
② ½ inch vertical saw cut side shall be established outside the deteriorated area.



FULL DEPTH REPAIR

① Mill 3"± existing asphalt wearing surface. Construct 2" asphalt wearing surface.

② ½ inch vertical saw cut side shall be established outside the deteriorated area.



BRIDGE ASPHALT WEARING SURFACE
THICKNESS TRANSITION

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DECK REPAIR DETAILS

13
of 25

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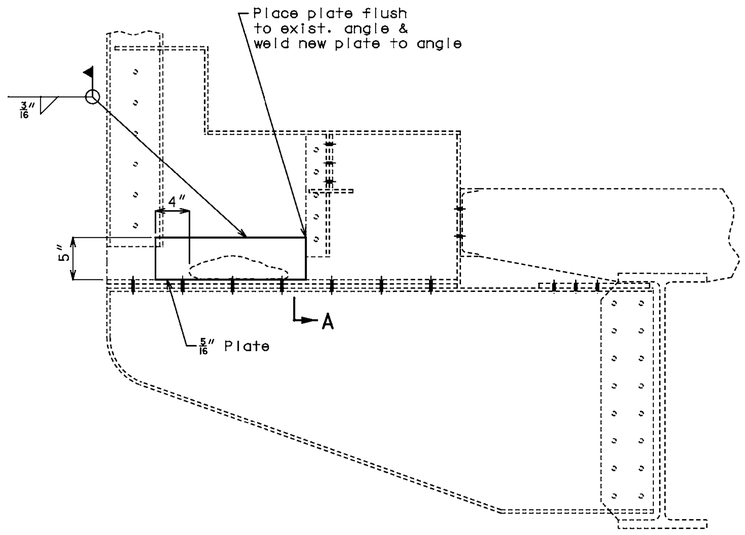
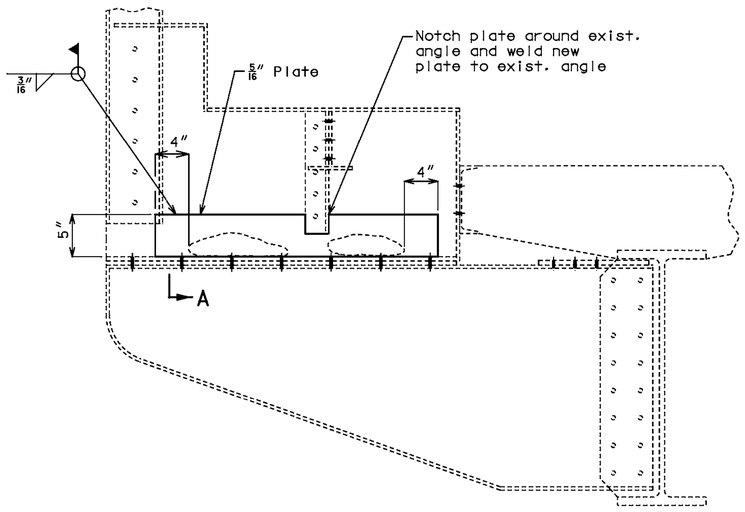
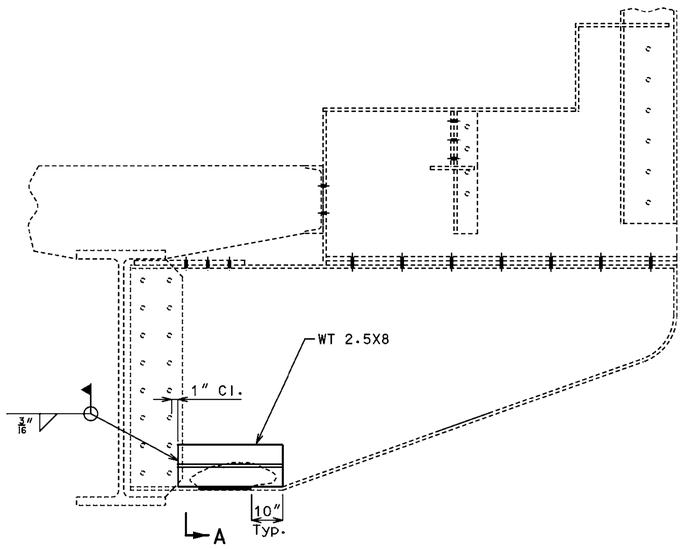


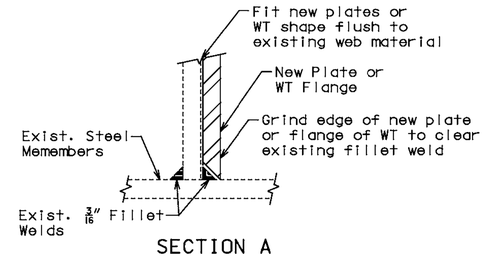
DETAIL "A"



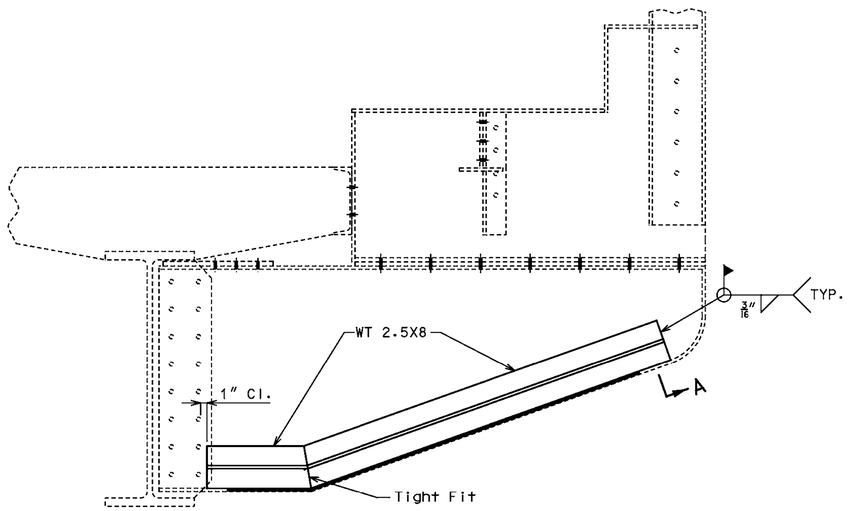
DETAIL "B"



DETAIL "C"



SECTION A



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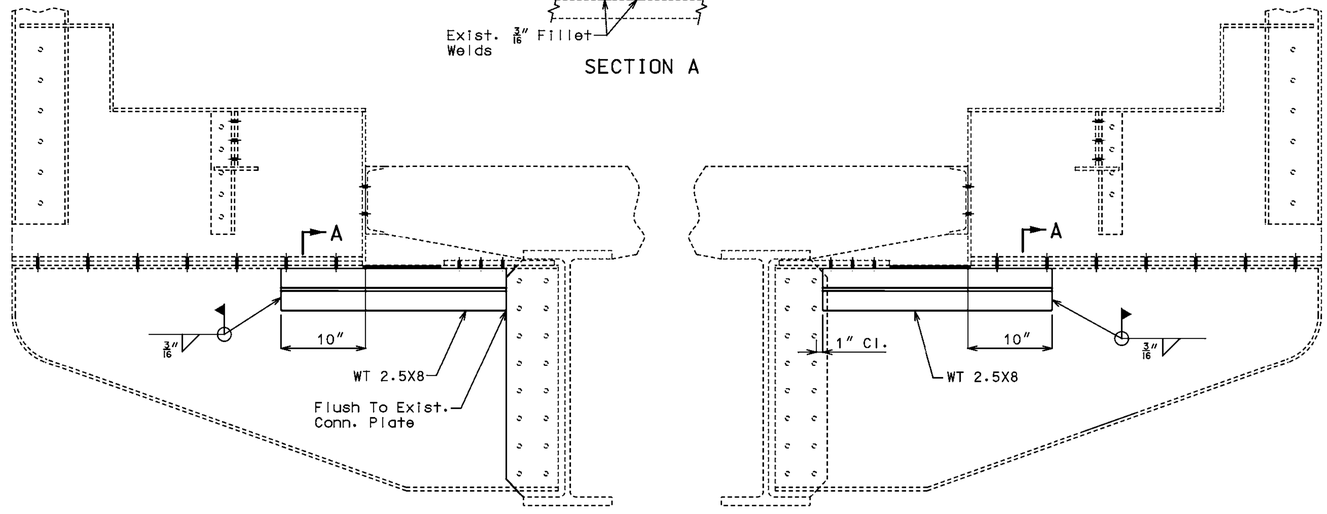

NEAR FACE

FAR FACE

DETAIL "E"

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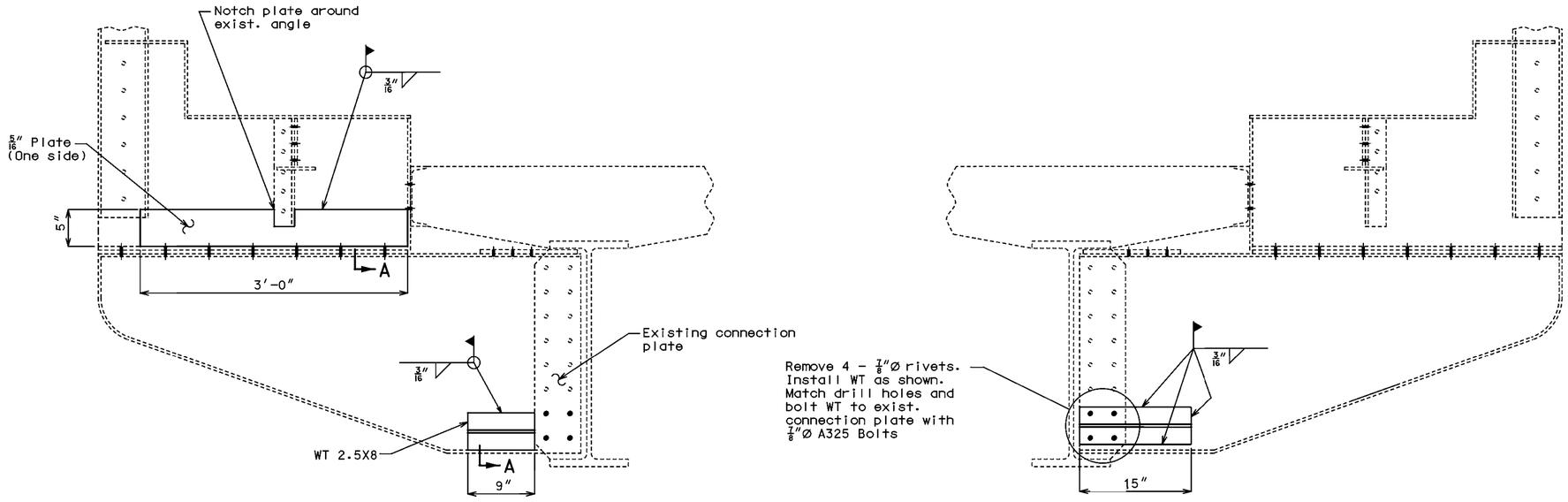
STEEL REPAIRS
DETAILS
1 OF 3

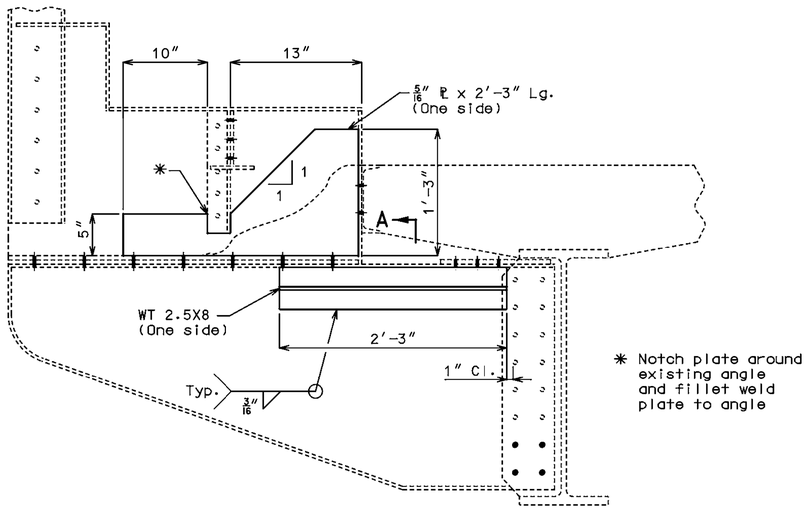
14
of 25



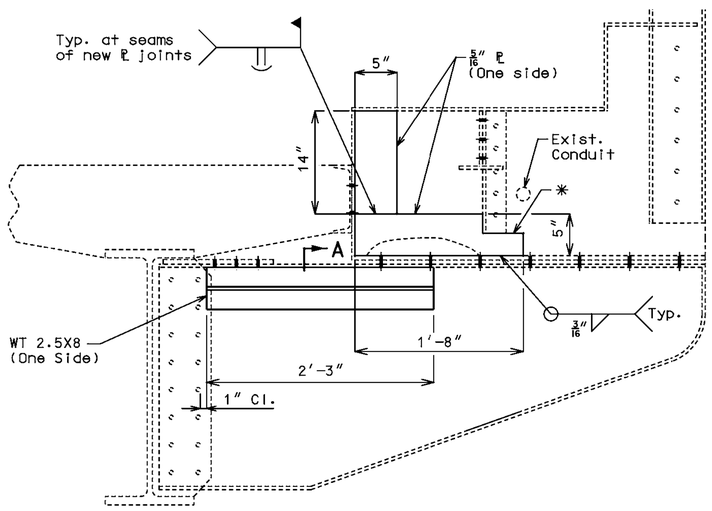
NORTH FACE

SOUTH FACE

DETAIL "F"

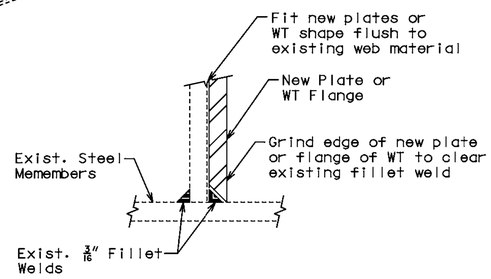


SOUTH BRACKET, EAST FACE



NORTH BRACKET, EAST FACE

DETAIL "G"



SECTION A

STATE OF MISSOURI
MARK ALLAN HARTEGAN
NUMBER PE-2002025986
PROFESSIONAL ENGINEER
5-16-2016

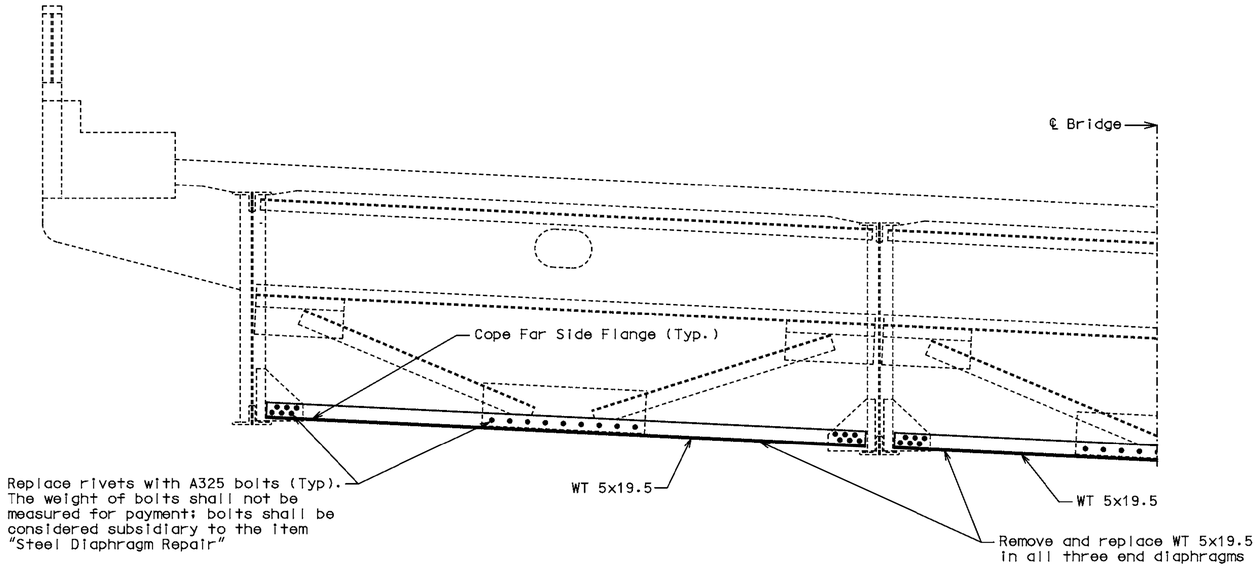
LOCHNER
16105 W. 113th Street | Suite 107 | Lenexa, KS 66219

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS

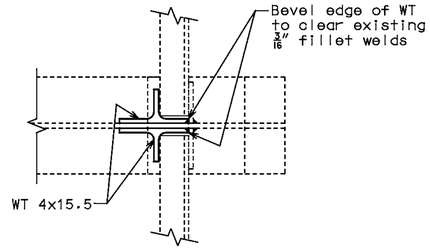
WOODSWETHER ROAD VIADUCT REPAIRS
OVER BNSF AND U.P. RAILROAD

PROJECT NO.	89005520, 89005521
DRAWN BY	JTC
DATE	11/2015
CHECKED BY	ARB
DATE	12/2015
DESIGNED BY	SAC/DMA
DATE	11/2015
REVISIONS	DATE
ISSUE DATE	5/16/2016

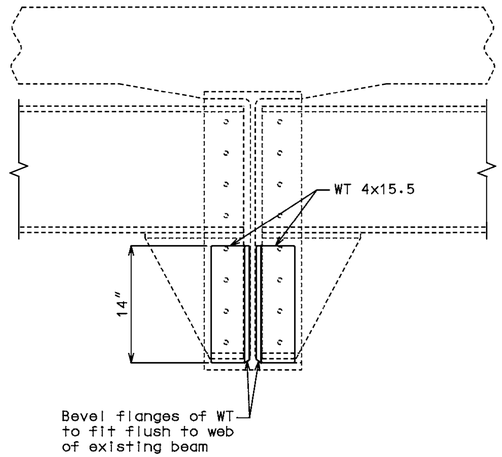
STEEL REPAIRS DETAILS 2 OF 3



STEEL DIAPHRAGM REPAIR
U.P. BRIDGE
THREE END DIAPHRAGMS AT ABUTMENT 2



SECTION B



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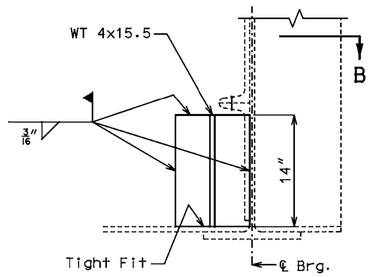

ELEVATION

STEEL BEAM REPAIR
U.P. BRIDGE
BEAMS 2 AND 3 AT ABUTMENT 1

STATE OF MISSOURI
MARK ALLAN HARTEGAN
NUMBER PE-2002025986
PROFESSIONAL ENGINEER
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CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS

WOODSWETHER ROAD VIADUCT REPAIRS
OVER BNSF AND U.P. RAILROAD

PROJECT NO.	89005520, 89005521
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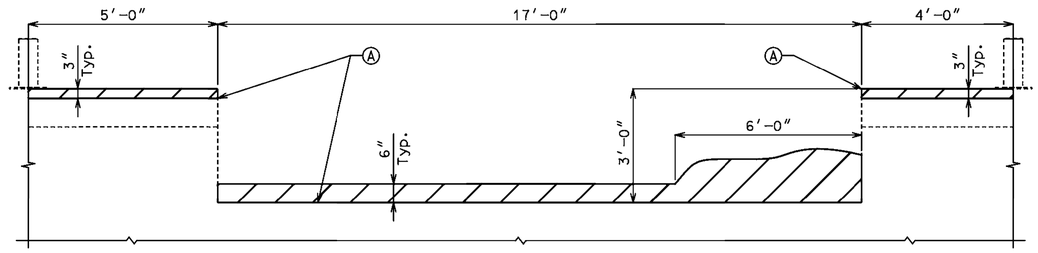
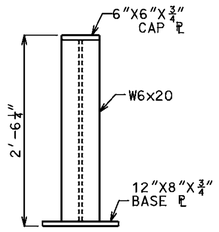
DATE	11/2015
REVISIONS	DATE
ISSUE DATE	5/16/2016

STEEL REPAIRS
DETAILS
3 OF 3

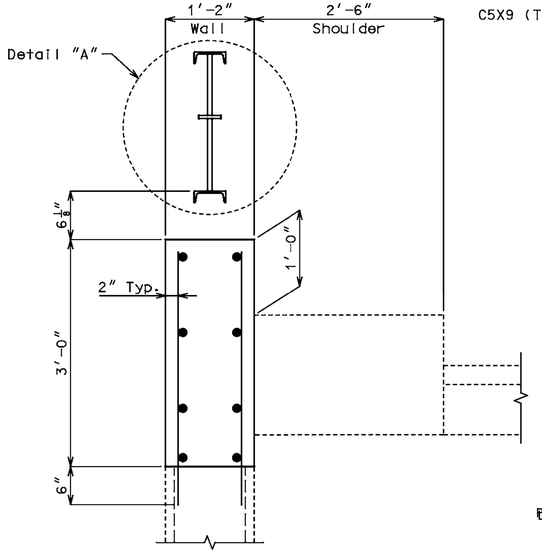
16
of 25



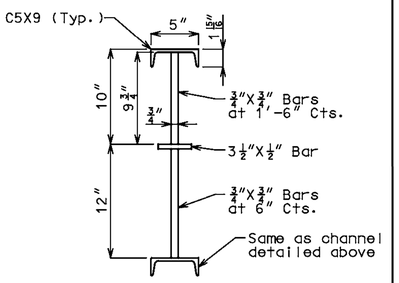
WALL ELEVATION
(LOOKING NORTH)
(SHOWING REMOVAL)



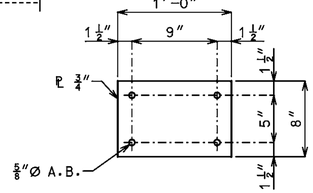
ELEVATION OF
FENCE POST



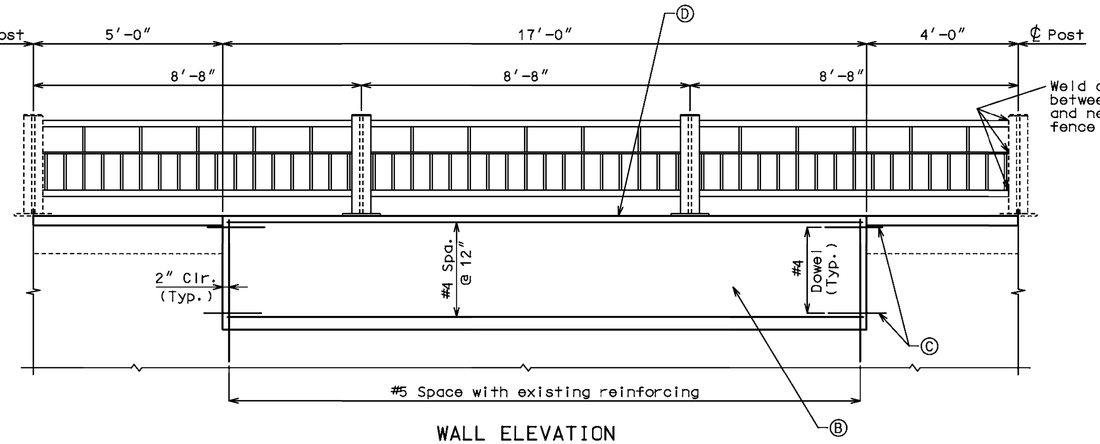
SECTION A-A



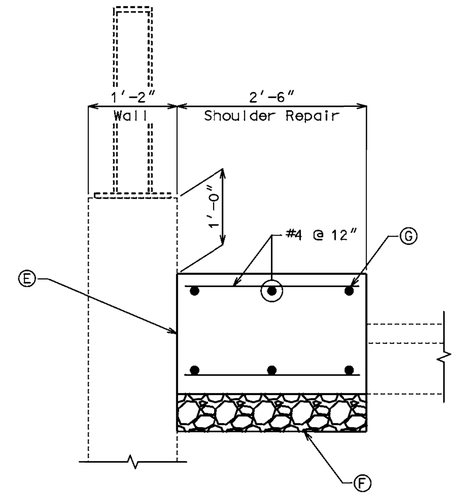
DETAIL "A"
ORNAMENTAL FENCE



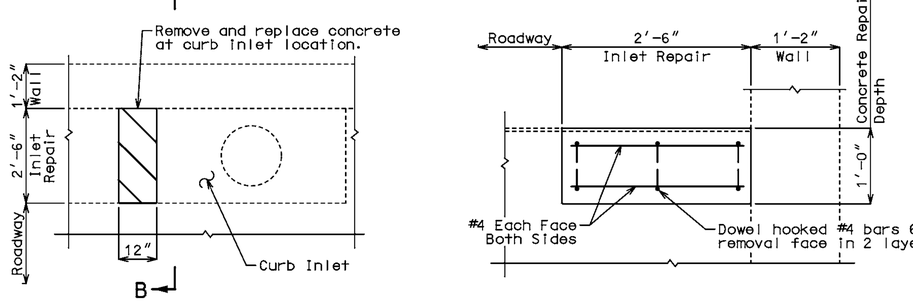
PLAN OF POST BASE PLATE



WALL ELEVATION
(LOOKING NORTH)
(SHOWING REPLACEMENT)

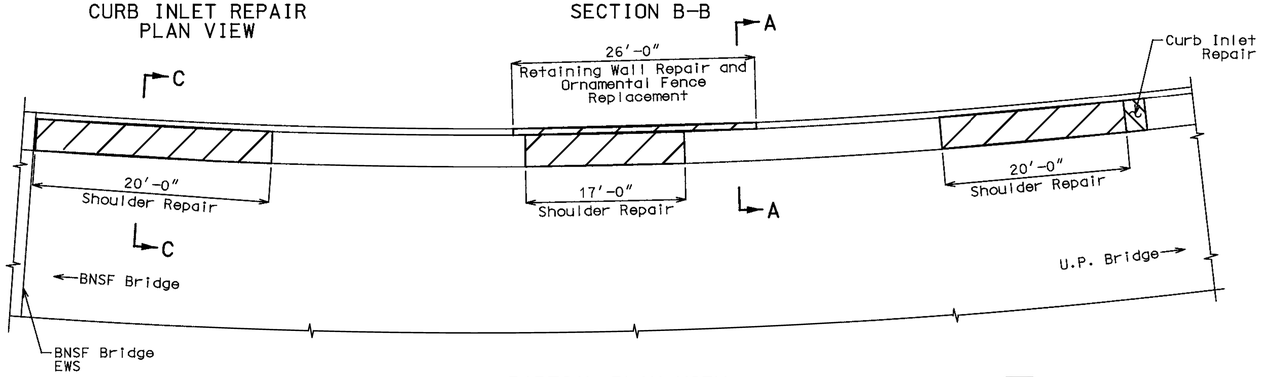


SECTION C-C



CURB INLET REPAIR
PLAN VIEW

SECTION B-B



PARTIAL PLAN VIEW

— Repair Limits

General Notes

Ⓐ Saw cut the existing concrete wall approximately 3′below the top of the adjacent retaining wall. Remove 6″ depth of concrete to provide good concrete for doweled embedment. Remove 3″ depth from top of taller retaining wall section. Care shall be taken to not damage existing reinforcing steel in taller wall section.

Ⓑ Provide and dowel in #5 rebar with 6″ embedment at the existing vertical rebar spacing each face. #4 horizontal rebar should be provided at 12″ spacing max each face.

Ⓒ Dowel #4 horizontal bar 6″ into adjacent retaining wall and extend required lap length into new concrete. Space bars with new #4 horizontal bars each face at both ends of repair.

Ⓓ Place new retaining wall concrete to the limits shown in elevation to be level with adjacent wall sections.

Ⓔ Saw cut and remove existing shoulder full depth and full 2′-6″ shoulder width at locations marked "Shoulder Repair" on the Partial Plan View only.

Ⓕ Place 6″ gravel base below shoulder removal limits before placing concrete. Place concrete to match surrounding shoulder depth and grade.

Ⓖ Place #4 shoulder reinforcing at 12″ in both directions each face. Extend existing shoulder reinforcing steel by required lap length into new shoulder concrete. If no existing reinforcing is present, then dowel new reinforcing bar 6″ into existing shoulder.

QUANTITIES		
Item	Unit	Quantity
Concrete Retaining Wall Repair	Lin.Ft.	26
Curb Inlet Repair	Lump Sum	1
Concrete Shoulder Repair	Lin.Ft.	57
Steel Ornamental Fence	Lin.Ft.	26

QUANTITIES – INFORMATION ONLY		
Item	Unit	Quantity
✱ Concrete	Cu. Yds.	2.3
✱ Reinforcing Steel	Lbs.	230
△ Concrete	Cu. Yds.	0.1
△ Reinforcing Steel	Lbs.	10
□ Concrete	Cu. Yds.	3.5
□ Reinforcing Steel	Lbs.	390
# Rolled Steel	Lbs.	780

LAP LENGTHS	
Bar Size	Lap Length
#4	17″
#5	21″
#6	25″

✱ These items shall be used to establish the unit price for "Concrete Retaining Wall Repair".

△ These items shall be used to establish the unit price for "Curb Inlet Repair".

□ These items shall be used to establish the unit price for "Concrete Shoulder Repair".

These items shall be used to establish the unit price for "Steel Ornamental Fence".

STATE OF MISSOURI
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5-16-2016

LOCHNER
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CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS

WOODSWETHER ROAD VIADUCT REPAIRS
OVER BNSF AND U.P. RAILROAD

PROJECT NO. 89005520, 89005521
DRAWN BY JTC DATE 11/2015
CHECKED BY ARB DATE 12/2015
DESIGNED BY PRY DATE 11/2015
REVISIONS DATE

ISSUE DATE 5/16/2016

SHOULDER REPAIRS

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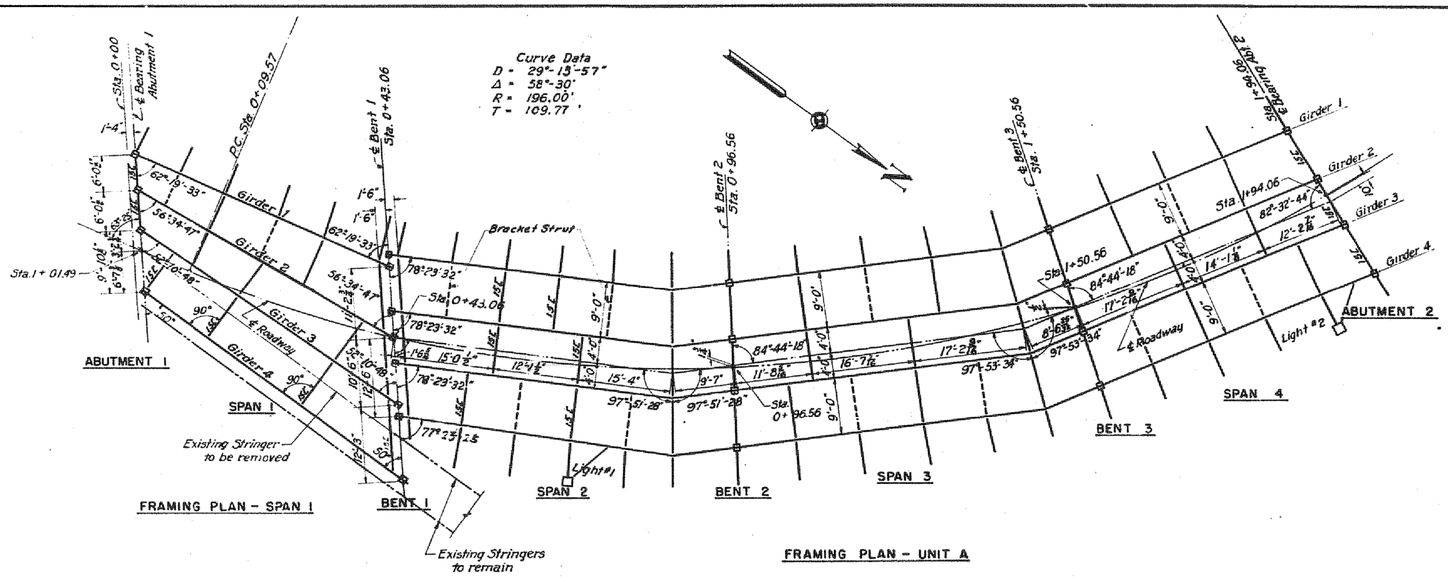
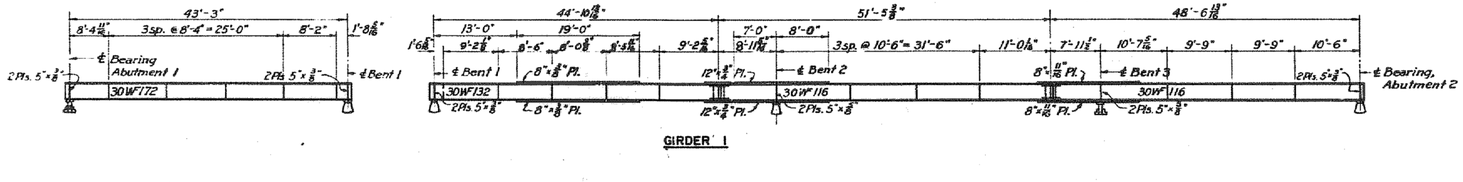
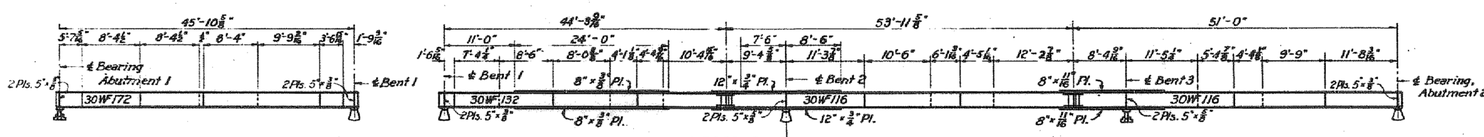


FRAMING PLAN – SPAN 1

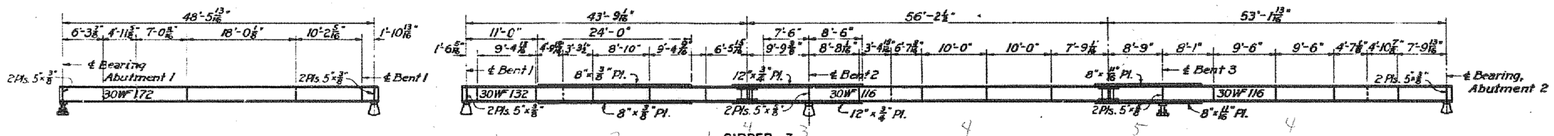
FRAMING PLAN – UNIT A



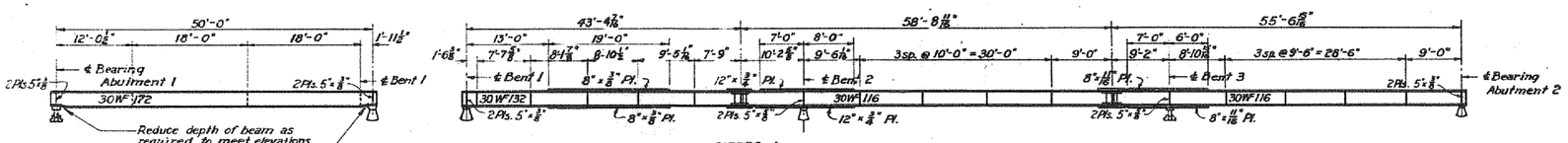
GIRDER 1



GIRDER 2



GIRDER 3



GIRDER 4

DEFLECTION OF GIRDERS DUE TO DEAD LOAD – IN INCHES

POSITIVE DEFLECTIONS ARE DOWNWARD, AND NEGATIVE DEFLECTIONS ARE UPWARD!
DEFLECTIONS ARE FOR ONE-FOURTH POINT, CENTER LINE AND THREE-FOURTH POINT

	SPAN-1			SPAN-2			SPAN-3			SPAN-4		
GIRDER 1	0.172	0.344	0.172	0.374	0.505	0.259	-0.006	0.089	0.034	0.082	0.178	0.196
GIRDER 2	0.218	0.435	0.218	0.349	0.466	0.235	0.019	0.135	0.056	0.093	0.207	0.159
GIRDER 3	0.270	0.540	0.270	0.336	0.445	0.219	0.044	0.194	0.078	0.103	0.238	0.183
GIRDER 4	0.218	0.437	0.218	0.327	0.431	0.204	0.080	0.246	0.108	0.116	0.275	0.218

GENERAL NOTES FOR METALWORK

See specifications for provisions regarding punching, reaming, finishing, assembling, riveting, painting, and other shop and field operations. Such provisions shall be clearly noted on the working drawings.

Unless noted otherwise on the drawings all rivets shall be ⅞". Where not shown on detail drawings, spacing of rivets shall conform to requirements of design specifications.

Plate girders shall be considered for full dead load.

For general requirements for welding see Specifications

All welds not indicated otherwise shall be 5/16" continuous fillet welds.

Fillet welds are generally shown thus:

Butt welds are generally shown thus:

All butt welds shall be continuous. Unless shown otherwise use square cuts on metal ⅜" or less in thickness, single V beval for thickness 5/16" to 9/16", and double V bevels for metal ⅝" or over. Tack welds, plug, slot or seal welds shall be specifically noted if used.

Shop drawings shall show clearly the nature, dimensions and locations of all welds.

Typical Nomenclature:

⅝" C.S.W. indicates a 5/16" continuous shop fillet weld.

½" C.F.W. indicates a ½" continuous field fillet weld.

⅜"×2"@6" S.W. indicates intermittent shop fillet welds 2" long at 6" centers.

S.B.W. indicates a shop butt weld.

F.B.W. indicates a field butt weld.

Sidewalk brackets shall be framed radially except that they may be framed at right angles to the girders where this would make the bracket deviate from a radial line not more than ½" in 12".

Curbs, sidewalks and edge channels shall be fabricated on arcs where mid-ordinate from chord between brackets exceeds ¼". See Specifications.

APPROVED
Director of Public Works
43422
Ordinance No.

DEPT. OF PUBLIC WORKS REVISIONS		
DATE	BY	DESCRIPTION
4-24-56	M.B.	Dimensioning & Deflection Tables
11-30-59	I.C.D.	6"I Angle 8-1 to Bend Pl.

KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION
BROADWAY - WOODSWETHER VIADUCT
FRAMING PLAN AND GIRDER LAYOUT
SPAN 1 AND UNIT A

SCALE F=10'-0" HOWARD, NEEDLES, TAMMEN & BERGENDOFF
DESIGN K.R.S. DATE 3-15-46 CONSULTING ENGINEERS
TRCD. BASIC. KANSAS CITY NEW YORK
CKD. DATE. FILE 117-01 SHEET 18

SHEET 18 OF 36

FOR INFORMATION ONLY

STATE OF MISSOURI
MARK ALLAN HARTEGAN
NUMBER PE-2002025986
PROFESSIONAL ENGINEER
5-16-2016

LOCHNER
16105 W. 113th Street | Suite 107 | Lenexa, KS 66219

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS

WOODSWETHER ROAD VIADUCT REPAIRS
OVER BNSF AND U.P. RAILROAD

PROJECT NO. 89005520, 89005521
DRAWN BY JTC DATE 12/2015
CHECKED BY DATE
DESIGNED BY MAH DATE 12/2015
REVISIONS DATE
ISSUE DATE 5/16/2016

EXISTING PLANS
BNSF BRIDGE
BEAM LAYOUT

21
of 25

5/16/2016 2:05:01 PM

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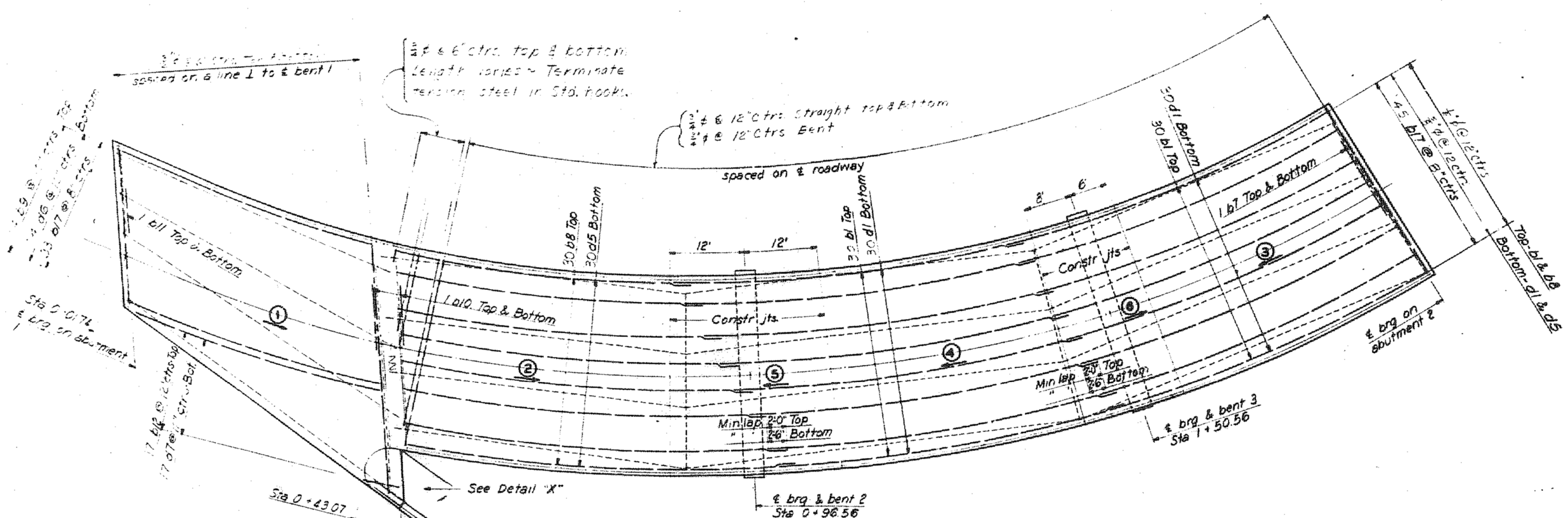
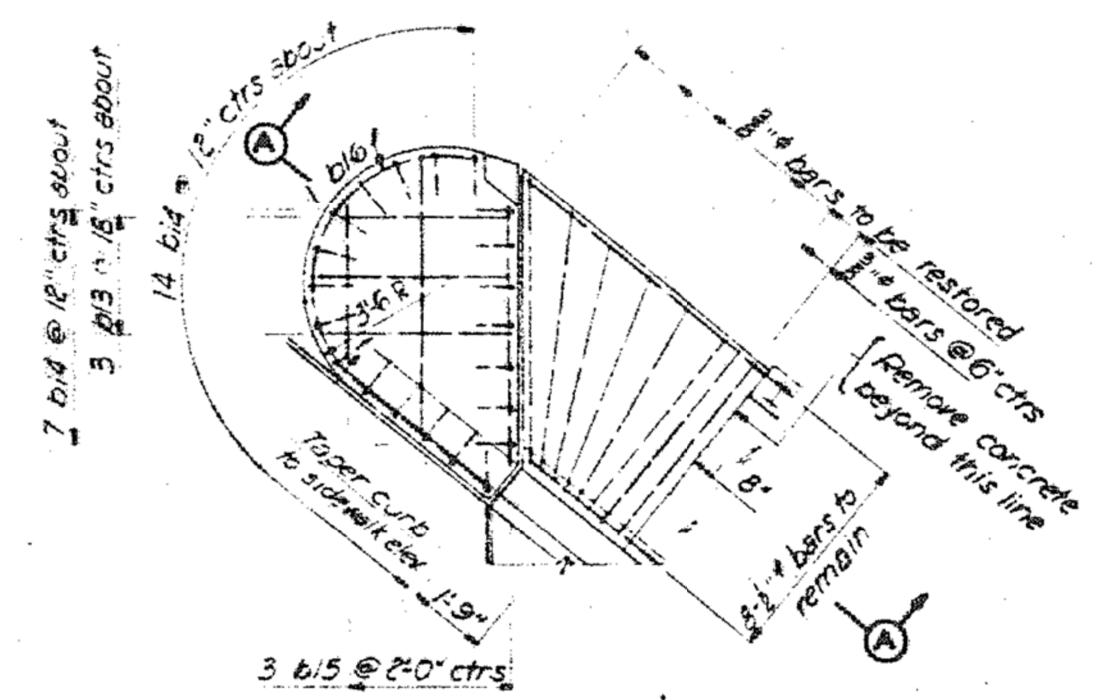


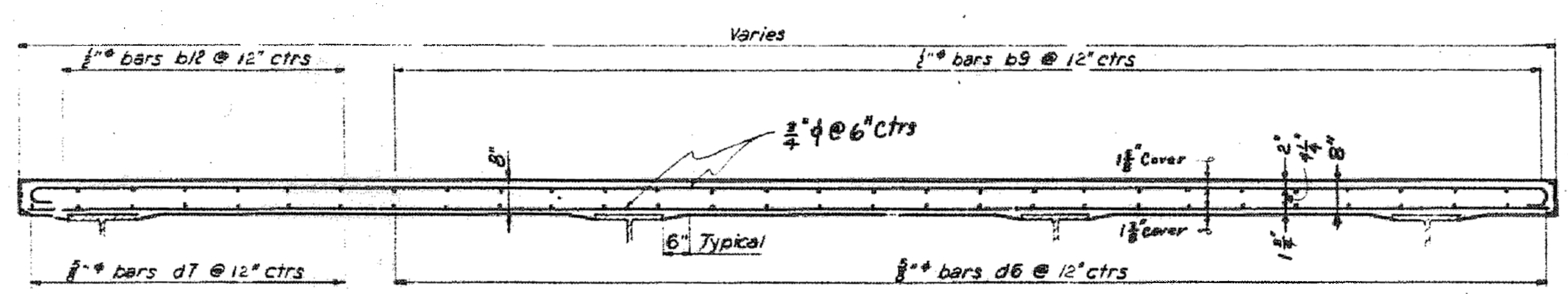
SPAN 1

UNIT A

1"=10'

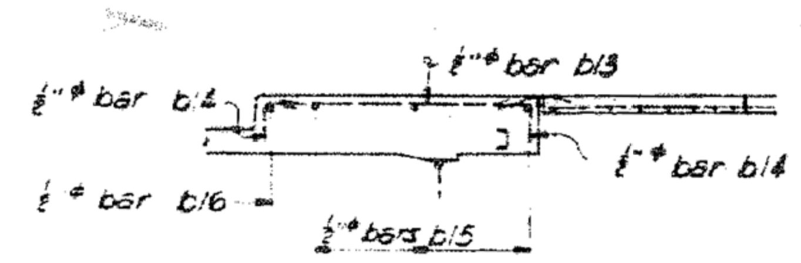


PLAN



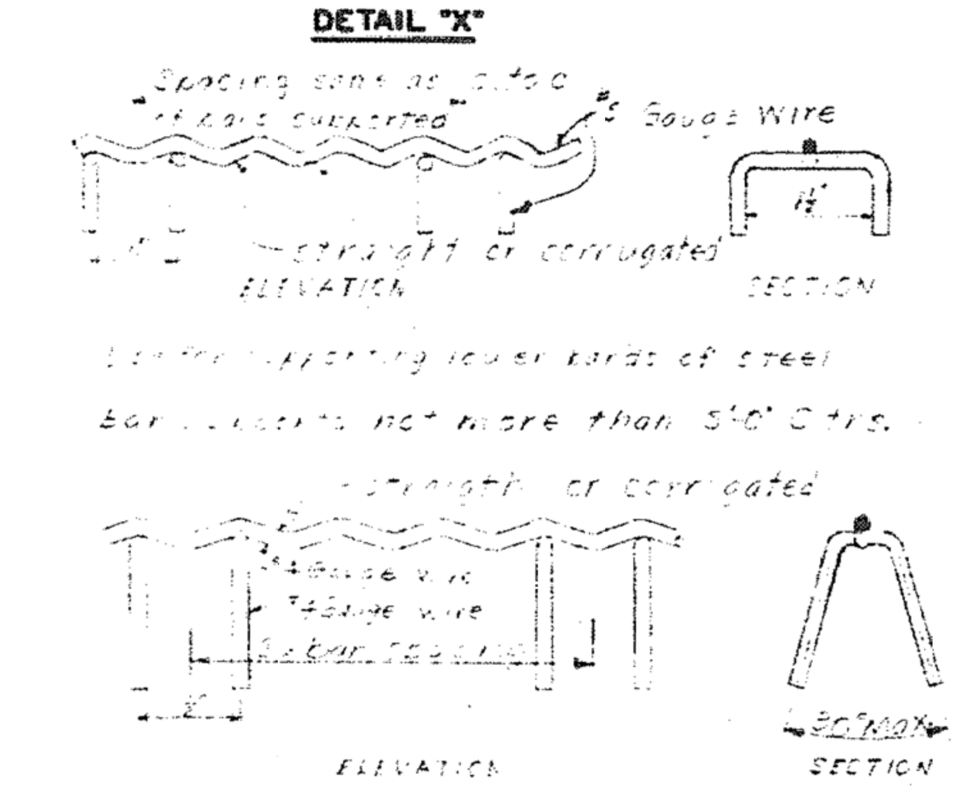
CROSS SECTION SPAN 1

½"=1'-0"

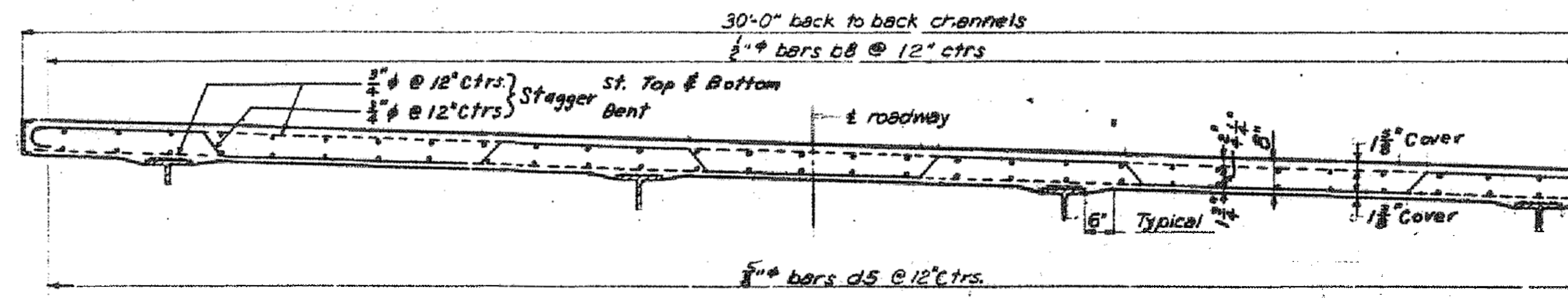


SECTION A-A

DETAIL "X"

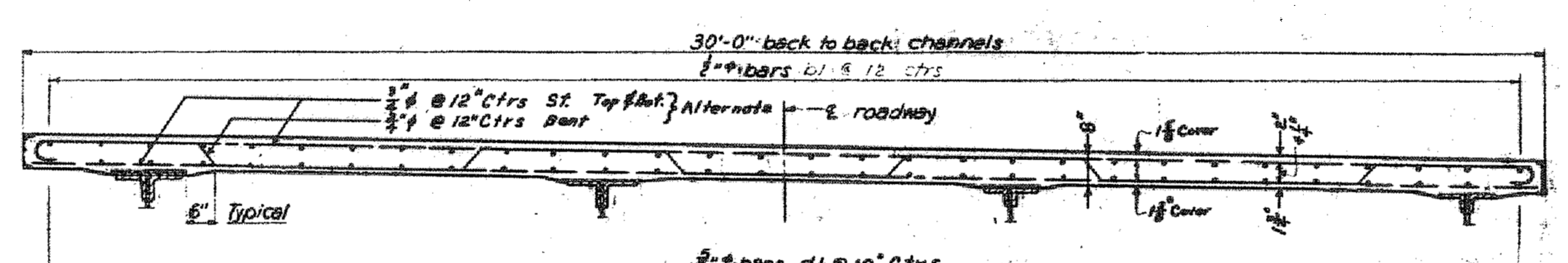


DETAILS OF BAR SPACERS & SUPPORTS



TYPICAL CROSS SECTION UNITS A & D

½"=1'-0"

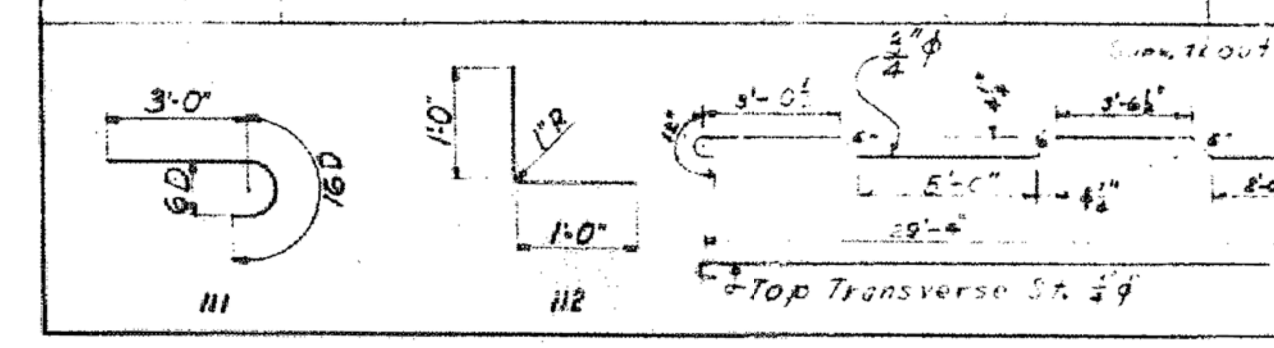


TYPICAL CROSS SECTION UNITS B & C

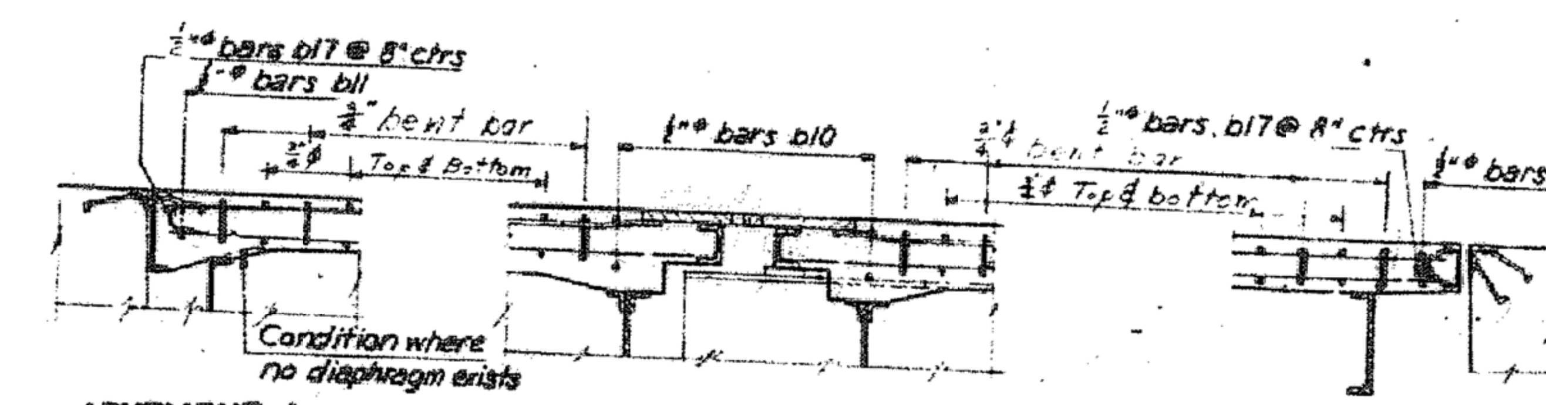
½"=1'-0"

REINFORCEMENT SCHEDULE

Mark	Size	Number Required – Units: Span 1	A	B	C	D	Total	Length	Type
b1	½"φ		46	92		46	184	52'-0"	Str
b2	"			23			23	41'-6" to 43'-0"	"
b3	"			2			2	41'-6"	"
b4	"			2	2		4	51'-6"	"
b5	"				69		69	31'-0" to 44'-10"	"
b6	"					23	23	47'-6" to 54'-3"	"
b7	"		2		2	4	8	29'-6"	"
b8	"		23				23	44'-3" to 58'-0"	"
b9	"	17					17	41'-0"	"
b10	"	2	2				4	30'-3"	"
b11	"	2					2	24'-0"	"
b12	"	13					13	2'-0" to 40'-10	"
b13	"	3					3	Cut in field 4'-10"	"
b14	"	21					21	2'-1"	112
b15	"	3					3	Cut in field 7'-2"	Str
b16	"	1					1	13'-3"	"
b17	"	33	45	45		45	168		111
d1	⅝"φ		102	204		102	408	52'-0"	Str
d2	"			51			51	43'-6" to 45'-0"	"
d3	"				153		153	31'-4" to 45'-2"	"
d4	"					51	51	48'-6" to 55'-3"	"
d5	"		51				51	45'-3" to 59'-0"	
d6	"	38					38	41'-0"	
d7	"	29					29	2'-0" to 40'-10"	



NOTE: Reinforcing Schedule is incomplete.



ABUTMENT 1

BENT 1

ABUTMENT 2

LONGITUDINAL SECTIONS SPAN 1 & UNIT A

⅛"=1'-0"

Notes:
Numbers shown thus ③ indicate the order the slab is placed. Arrows indicate the direction of pour.

For General Notes on Concrete and Reinforcement see sheet 7.

APPROVED
JUL 5 1950
Director of Public Works
Entry No.

DEPT. OF PUBLIC WORKS REVISIONS		
DATE	BY	DESCRIPTION
6-15-50	M.C.S.	SLAB DESIGN

KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION
BROADWAY - WOODSWETHER VIADUCT

SLAB PLAN SPAN 1 AND UNIT A
SLAB REINFORCEMENT

SCALE 1"=10', ⅛" & ½"=1'-0"
MADE B.H.H. DATE 5-16-46
TECH. ___ DATE ___
CKD. ___ DATE ___
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
FILE 117-01 SHEET -31

SHEET 31 OF 36

FOR INFORMATION ONLY

STATE OF MISSOURI
MARK ALLAN HARTEGAN
NUMBER PE-2002025986
PROFESSIONAL ENGINEER
[illegible]
5-16-2016

LOCHNER
16105 W. 113th Street | Suite 107 | Lenexa, KS 66219

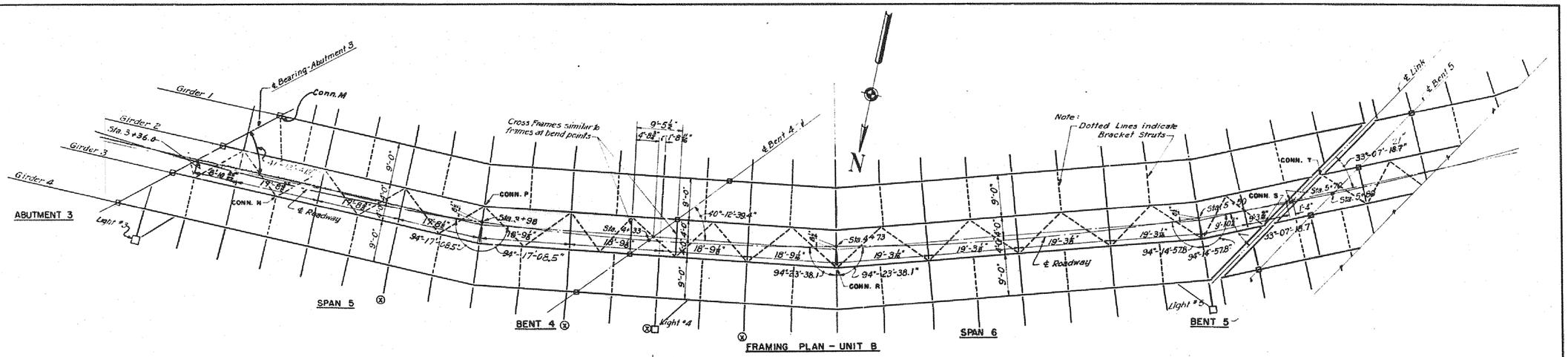
CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS

WOODSWETHER ROAD VIADUCT REPAIRS
OVER BNSF AND U.P. RAILROAD

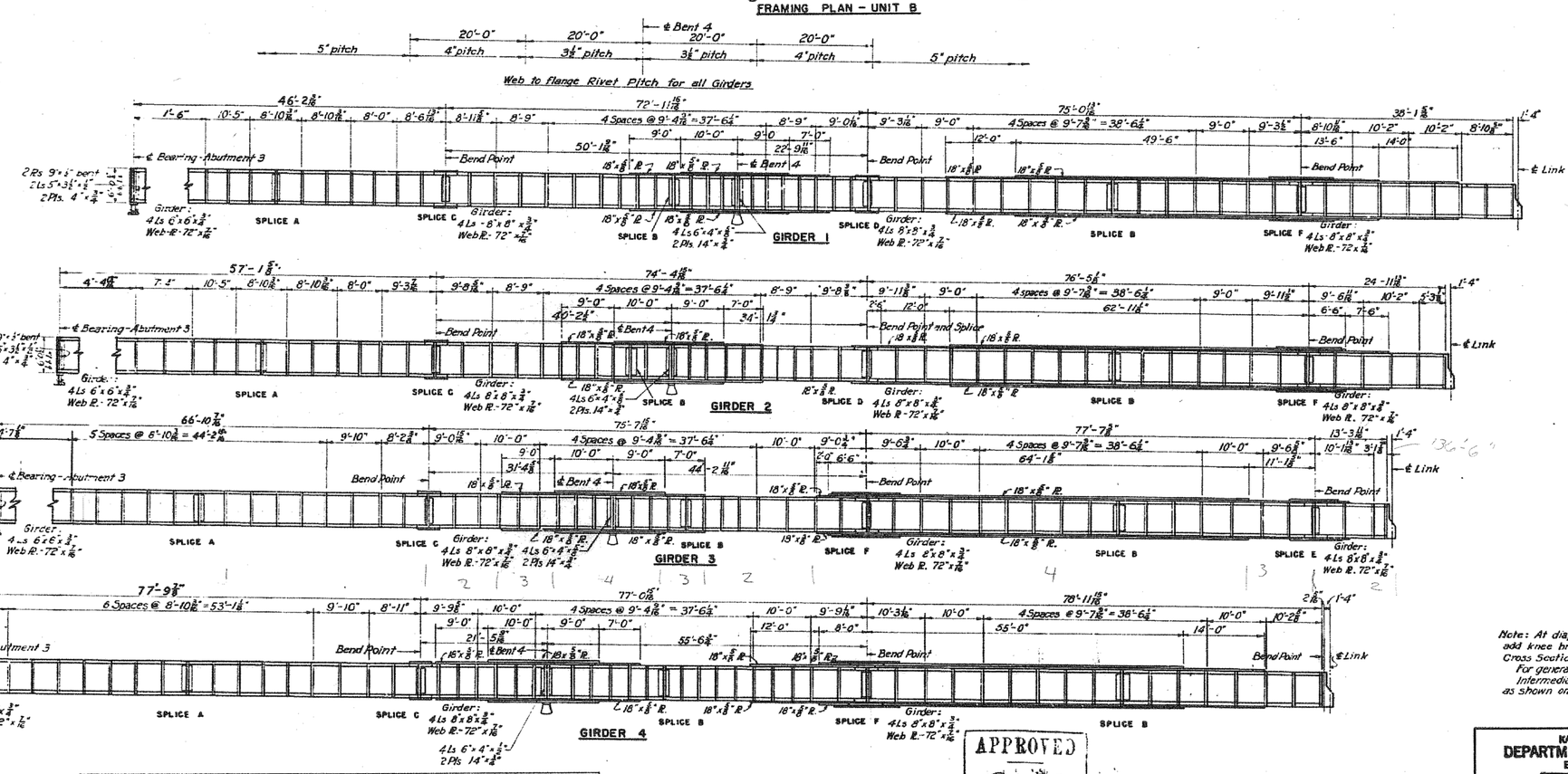
PROJECT NO. 89005520, 89005521
DRAWN BY JTC DATE 12/2015
CHECKED BY DATE
DESIGNED BY MAH DATE 12/2015
REVISIONS DATE

ISSUE DATE 5/16/2016

EXISTING PLANS
BNSF BRIDGE
SLAB PLAN



FRAMING PLAN – UNIT B



DEFLECTION OF GIRDERS DUE TO DEAD LOAD - IN INCHES

Positive Deflections are Downward and Negative are Upward
Deflections are for ¼ pt., ½ pt & ¾ pt.

	SPAN 5			SPAN 6		
	¼ PT.	½ PT.	¾ PT.	¼ PT.	½ PT.	¾ PT.
Girder 1	0.204	0.158	-0.179	1.852	2.28	1.667
Girder 2						
Girder 3						
Girder 4						

Note: At diaphragms marked Ⓢ add knee braces as shown on Cross Section, Sheet 25. For general notes on metalwork see sheet 18. Intermediate stiffeners are 5"x⅜"x⅞" except as shown on cross sections and splice details.

APPROVED
Director of Public Works
Entry No. 49427

DEPARTMENT OF PUBLIC WORKS REVISIONS				
	BY			
	M.C.S	3-13-50	RELOCATION OF ABUTMENT 3	
	M.C.S	5-1-50	DEFLECTION SCHEDULE	
	I.C.D.	12-1-50	Girder Angles	

KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION
BROADWAY - WOODSWETHER VIADUCT
FRAMING PLAN AND GIRDER LAYOUT
UNIT B

SCALE 1" = 10'-0"
MADE M.T.S. DATE 2-28-46
TRCD. ____ DATE ____
CKD. ____ DATE ____
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
FILE 17-01
SHEET 105 19

SHEET 19 OF 36

FOR INFORMATION ONLY

MARK ALLAN HARTEGAN
NUMBER PE-2002025986
PROFESSIONAL ENGINEER
STATE OF MISSOURI
5-16-2016

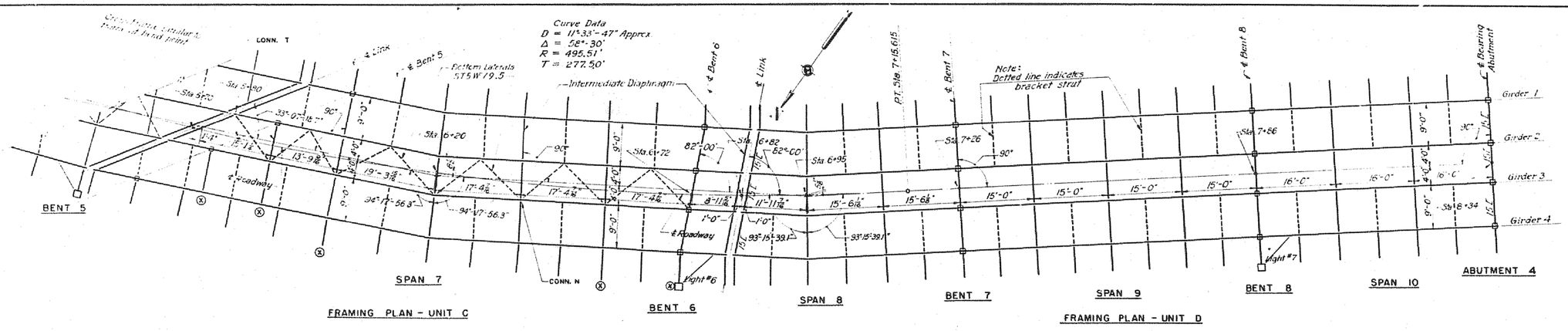
LOCHNER
16105 W. 113th Street | Suite 107 | Lenexa, KS 66219

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
WOODSWETHER ROAD VIADUCT REPAIRS
OVER BNSF AND U.P. RAILROAD

PROJECT NO. 89005520, 89005521
DRAWN BY JTC DATE 12/2015
CHECKED BY DATE
DESIGNED BY MAH DATE 12/2015
REVISIONS DATE
ISSUE DATE 5/16/2016

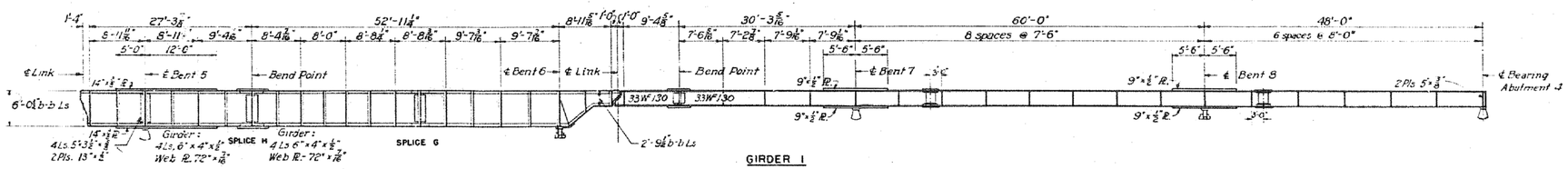
EXISTING PLANS
U.P. BRIDGE
GIRDER LAYOUT

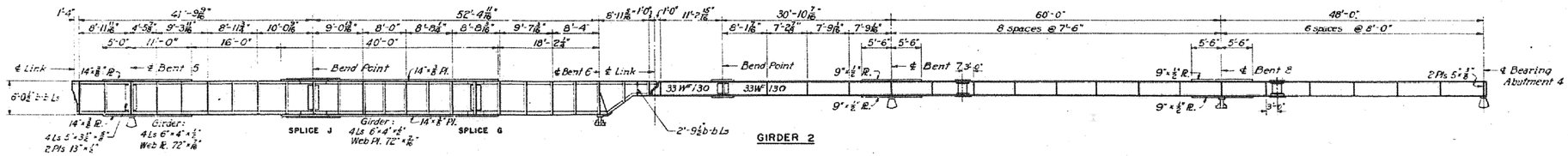
23
of 25

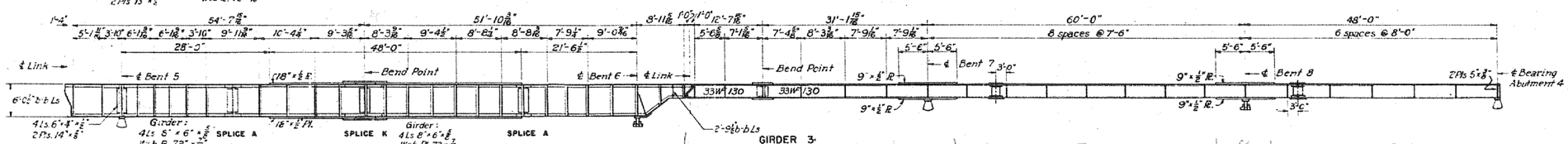


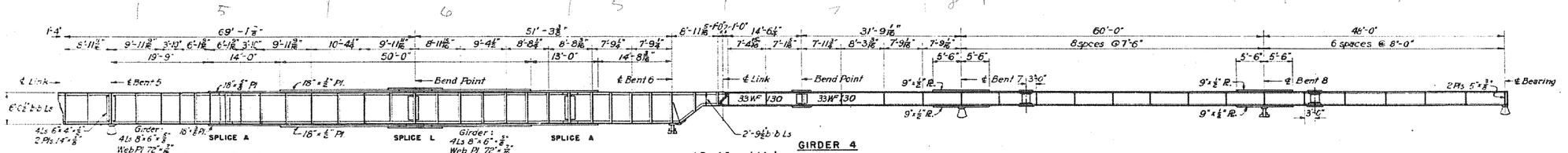
FRAMING PLAN - UNIT C

FRAMING PLAN - UNIT D









Web to Flange Rivet Pitch for all Plate Girders

For General Notes on Metalwork see Sh. 18.

Note: At diaphragms marked Ⓧ add knee braces as shown on Cross Section, Sheet 25

APPROVED
JUL 5 1950
Director of Public Works
Entry No. 49427

DEPARTMENT OF PUBLIC WORKS REVISIONS

DATE	BY	DESCRIPTION
5-1-50	MCL	Deflection Schedule

KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION
BROADWAY - WOODSWETHER VIADUCT
FRAMING PLAN AND GIRDER LAYOUT
UNITS C AND D

SCALE 1"=10'-0" MADE W.F.S. DATE 3-7-46 TRCD ____ DATE ____ CKD ____ DATE ____
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
FILE 117-C1 SHEET 108-20

SHEET 20 OF 36

FOR INFORMATION ONLY

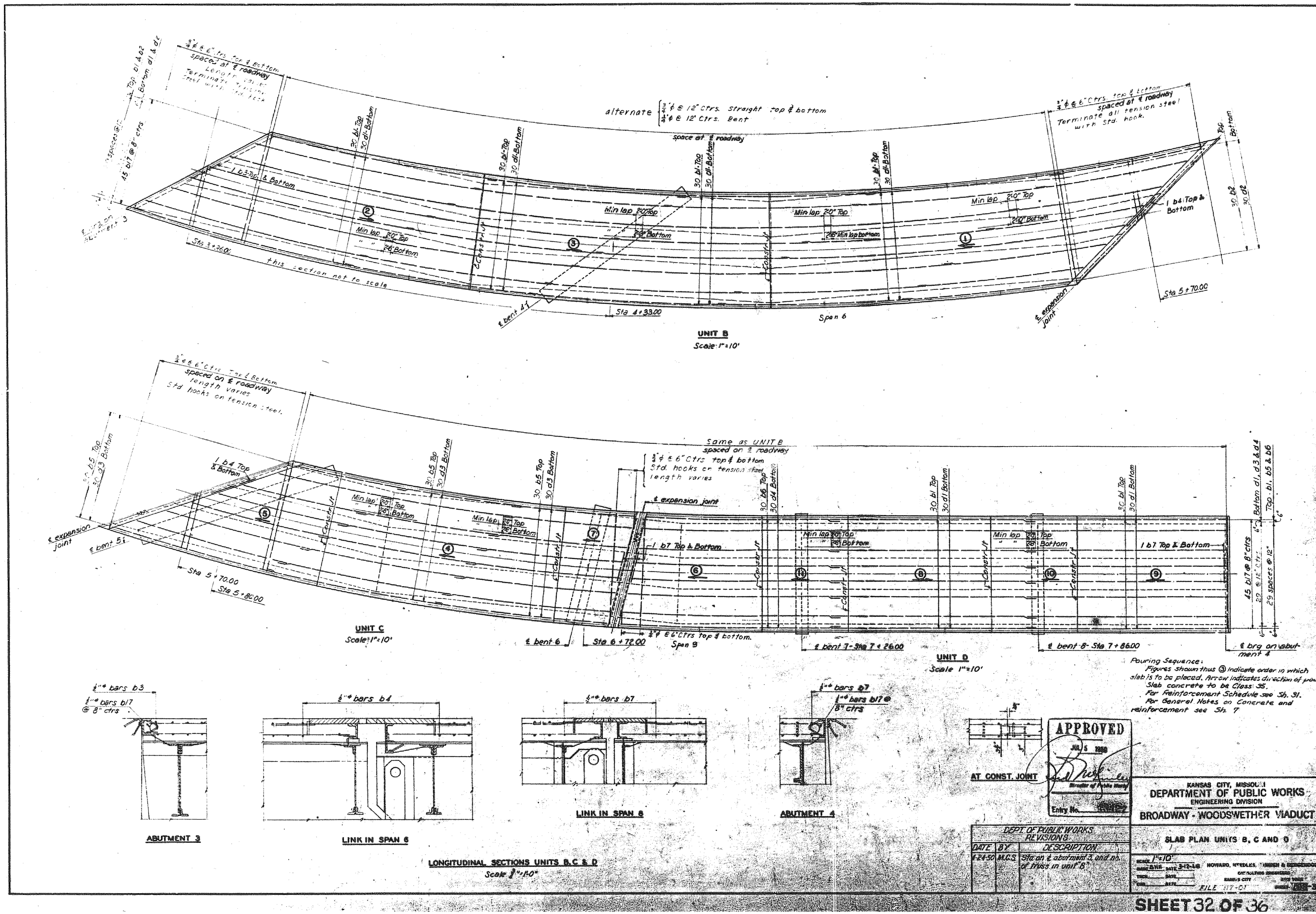
LOCHNER
16105 W. 113th Street | Suite 107 | Lenexa, KS 66219

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
WOODSWETHER ROAD VIADUCT REPAIRS
OVER BNSF AND U.P. RAILROAD

PROJECT NO. 89005520, 89005521
DRAWN BY JTC DATE 12/2015
CHECKED BY DATE
DESIGNED BY MAH DATE 12/2015
REVISIONS DATE
ISSUE DATE 5/16/2016

EXISTING PLANS
U.P. BRIDGE
GIRDER/BEAM LAYOUT

24
of 25



FOR INFORMATION ONLY

STATE OF MISSOURI
MARK ALLAN HARTEGAN
NUMBER PE-2002025986
PROFESSIONAL ENGINEER
5-16-2016

LOCHNER
16105 W. 113th Street | Suite 107 | Lenexa, KS 66219

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS

WOODSWETHER ROAD VIADUCT REPAIRS OVER BNSF AND U.P. RAILROAD

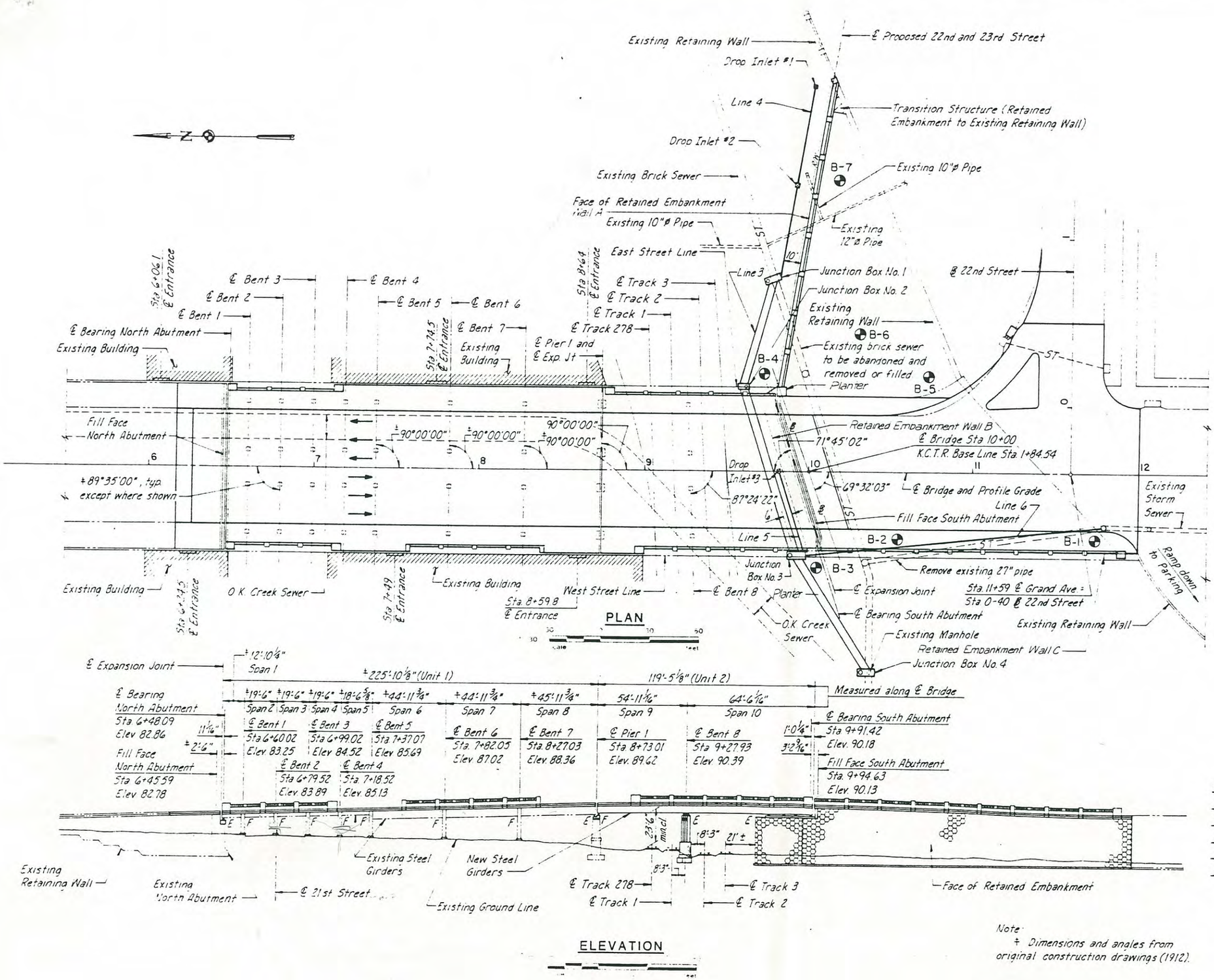
PROJECT NO.	89005520, 89005521	
DRAWN BY	JTC	DATE 12/2015
CHECKED BY		DATE
DESIGNED BY	MAH	DATE 12/2015
REVISIONS		DATE
ISSUE DATE	5/16/2016	

EXISTING PLANS
U.P. BRIDGE
SLAB PLAN

I-D ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		

S052821

VOID



Note:
± Dimensions and angles from original construction drawings (1912).

10-0

● DENOTES BORING

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 213-14
182-A-2

GRAND AVENUE VIADUCT

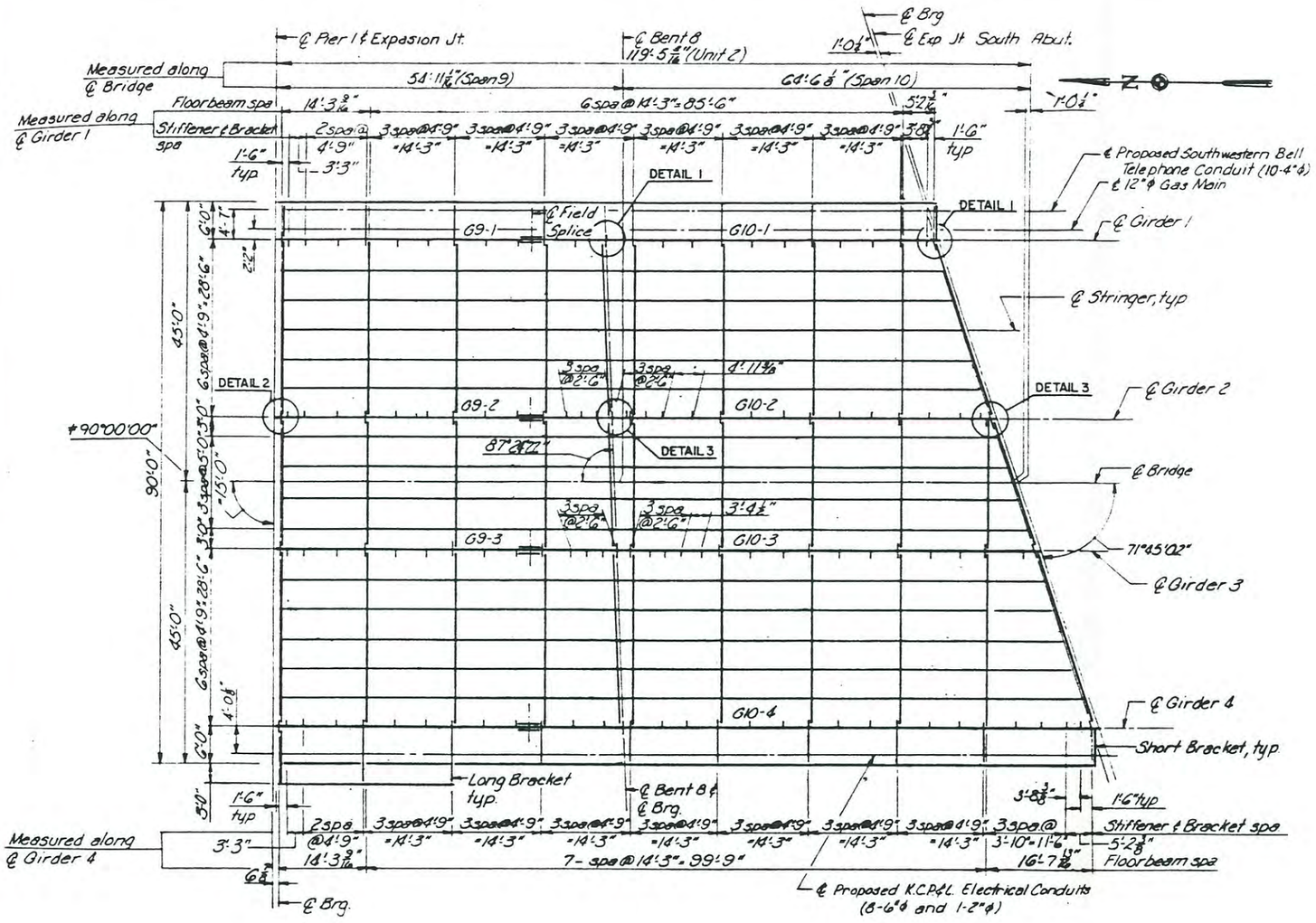
GENERAL PLAN AND ELEVATION

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
DENVER KANSAS CITY

DWN P.T.K.
CKD. E.L.G.
DATE 1-26-87

SHEET 5

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO.		19		



FRAMING PLAN

3/32"=1'-0" 5 0 5 10 Scale feet

Notes
For General Notes and Summary of Quantities see sheets 2, 3 and 4.
For additional details see sheets 40 thru 49

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 213-14

REHABILITATION GRAND AVENUE VIADUCT

OVER KANSAS CITY TERMINAL RAILWAY

FRAMING PLAN - UNIT 2

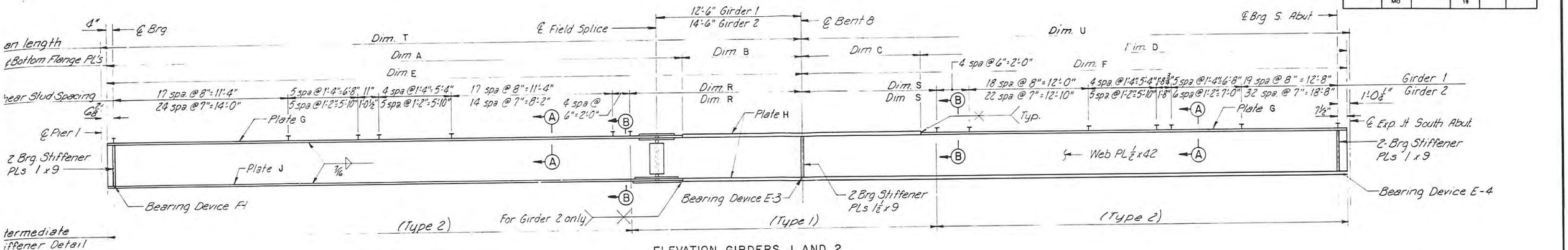
BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DSGN: R.M.S.
CKD: E.L.G.
DATE: 5-15-80

SHEET 29

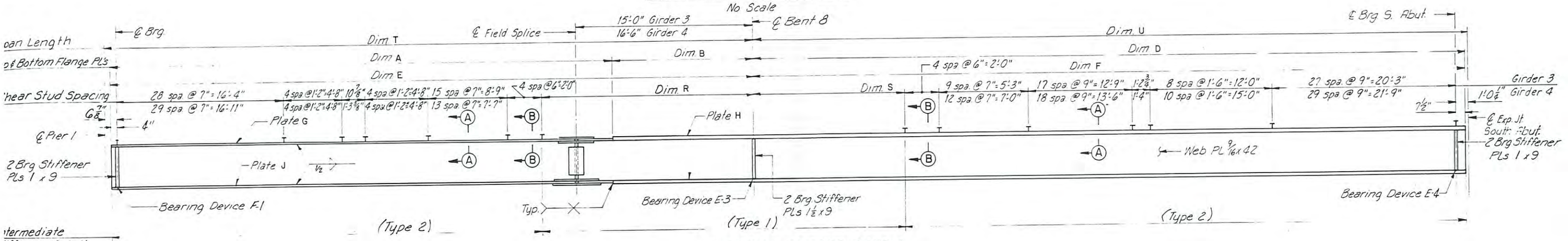
DRAWING 44-132 41987

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		



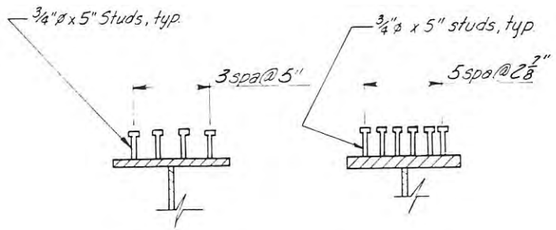
ELEVATION GIRDERS 1 AND 2

No Scale



ELEVATION GIRDERS 3 AND 4

No Scale



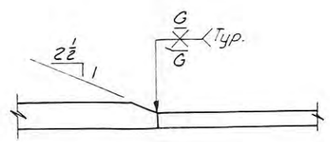
SECTION A-A

No Scale

SECTION B-B

No Scale

Note: ¾"ø Anchor welded studs are to be automatic end welded type.



FLANGE PLATE SHOP SPLICE

No Scale

Notes:

For General Notes and Summary of Quantities see sheets 2, 3 and 4

For Framing Plan see sheet 29.

For additional details see sheets 41 thru. 43.

For Field Splice details see sheet 44.

For Bearing details see sheets 48 & 49.

For Intermedrate Stiffener Spacing see sheet 29.

TABLE OF DIMENSIONS AND SPACES

GIRDER	DIMENSIONS AND SPACES																				
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U		
1	42'-11"	10'-0"	10'-0"	43'-0¼"	52'-1"	53'-0¼"	1 x 18	1½ x 18	1½ x 18	—	—	—	—	—	—	15'-0"	12'-0"	53'-1⅞"	53'-5"		
2	42'-2½"	12'-0"	10'-0"	51'-1½"	54'-2½"	61'-1½"	1 x 18	1¾ x 18	1½ x 18	—	—	—	—	—	—	17'-0"	12'-6"	54'-5⅜"	61'-6¼"		
3	43'-1⅞"	12'-0"	—	67'-1¼"	55'-1⅞"	67'-1¼"	1 x 18	2 x 18	1½ x 18	—	—	—	—	—	—	17'-6"	13'-0"	55'-4¾"	67'-6"		
4	42'-5⅜"	14'-0"	—	75'-2½"	56'-5⅜"	75'-2½"	1 x 18	2 x 18	1½ x 18	—	—	—	—	—	—	19'-0"	14'-0"	56'-8¼"	75'-7¼"		

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 213-14

REHABILITATION GRAND AVENUE VIADUCT

OVER KANSAS CITY TERMINAL RAILWAY

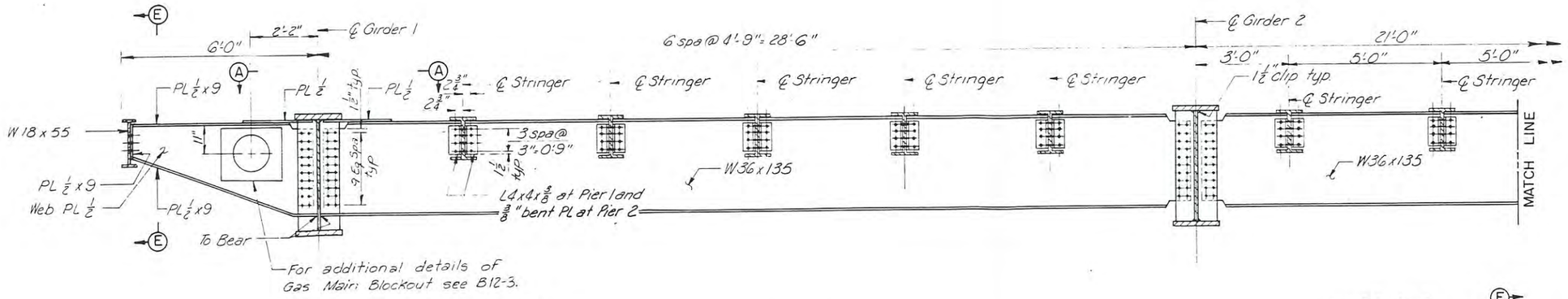
GIRDER DETAILS-UNIT 2

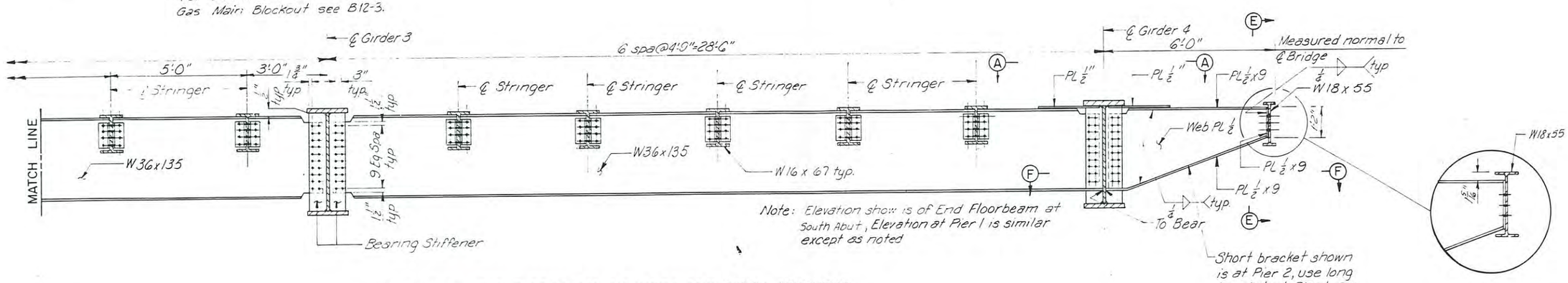
BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: R.M.S
CKD: E.L.G
DATE: 5/1680

SHEET 40

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		

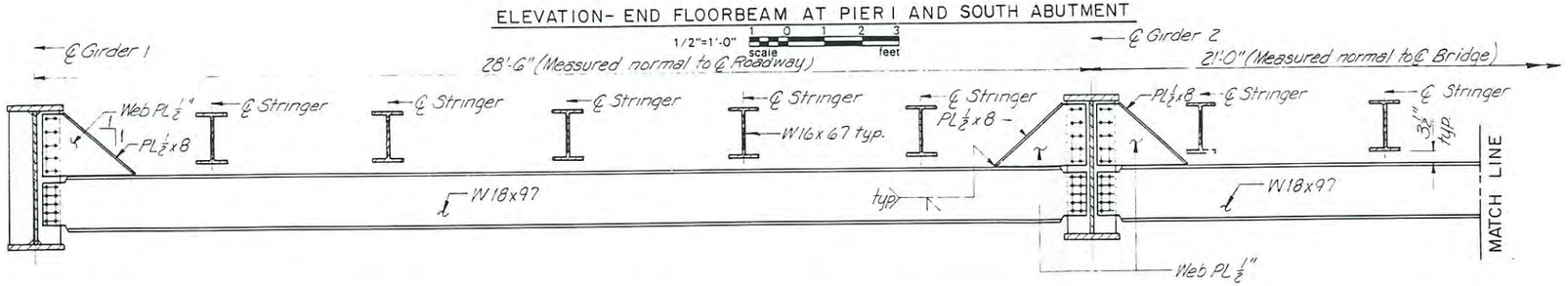


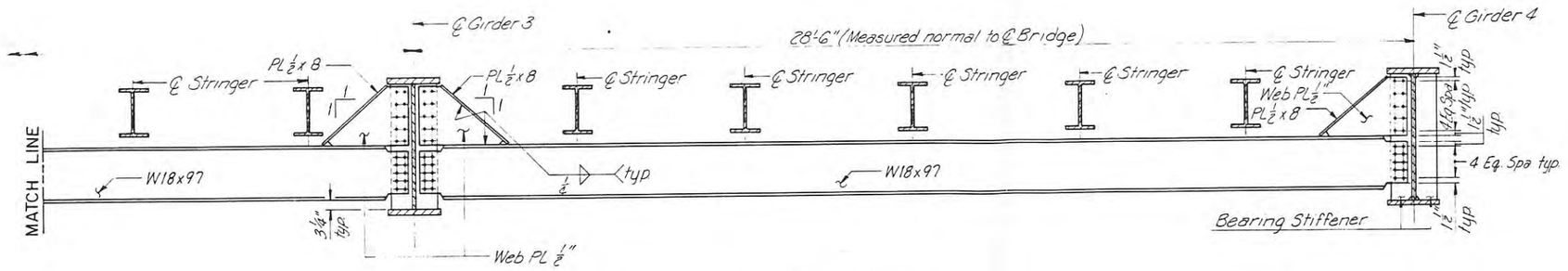


DETAIL H

ELEVATION- END FLOORBEAM AT PIER 1 AND SOUTH ABUTMENT

1/2"=1'-0" scale 1 0 1 2 3 feet





ELEVATION - DIAPHRAGM AT BENT 8

1/2"=1'-0" scale 1 0 1 2 3 feet

Notes:

For General Notes & Summary of Quantities see sh. 2, 3 & 4
For Additional Details see sheets
For location of Floorbeams see sheet 29.
For Sections A-A, C-C, E-E and F-F see sheet 43.
For Long Bracket Details see sheet 42.

NO.	MADE DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 213-14

REHABILITATION GRAND AVENUE VIADUCT

OVER KANSAS CITY TERMINAL RAILWAY

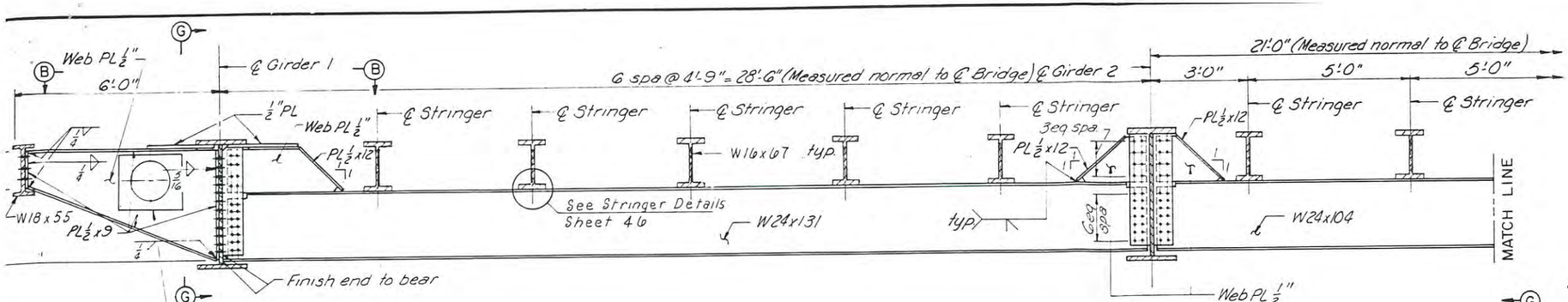
FLOORBEAM DETAILS - UNIT 2

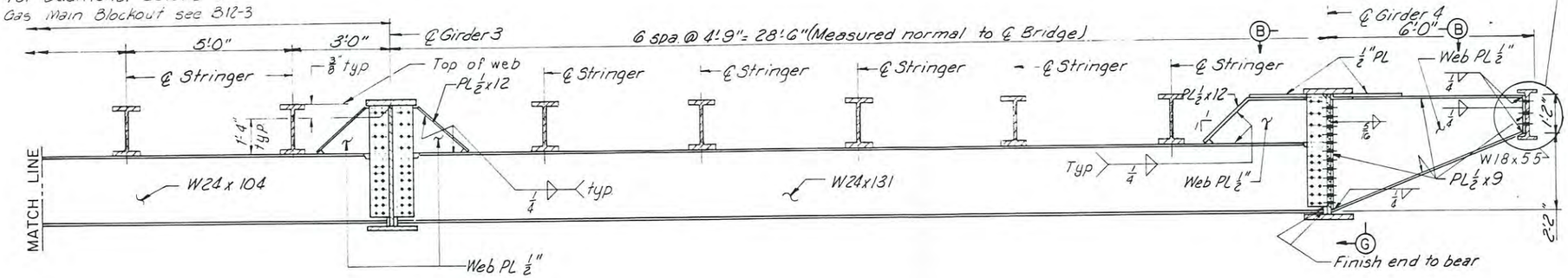
BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

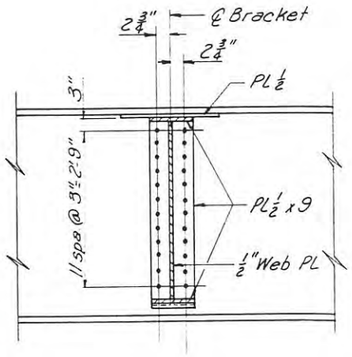
DWN: R.S.
CKD: E.L.G
DATE: 9-12-80

SHEET 41

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		





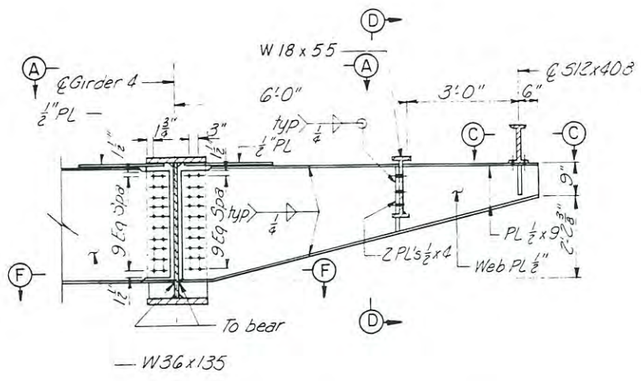


SECTION G-G

1/2"=1'-0" scale 1 0 1 2 3 feet

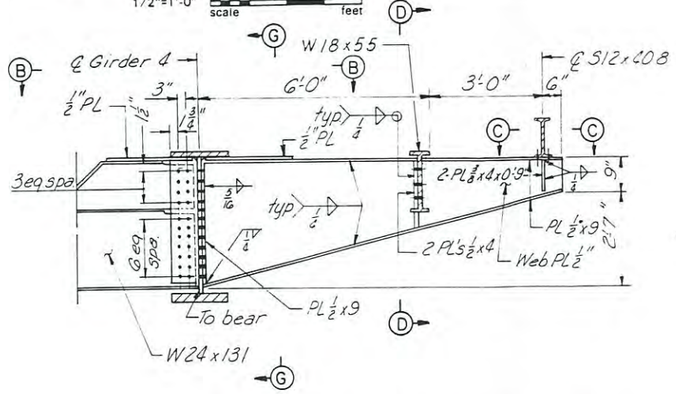
TYPICAL ELEVATION-INTERMEDIATE FLOORBEAM

1/2"=1'-0" scale 1 0 1 2 3 feet



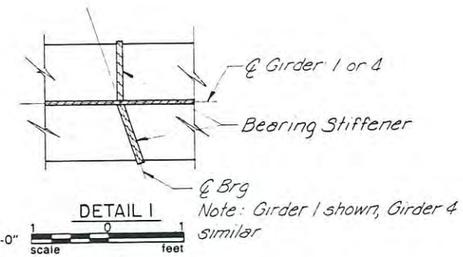
ELEVATION LONG BRACKET AT PIER 1

1/2"=1'-0" scale 1 0 1 2 3 feet



ELEVATION LONG BRACKET AT GIRDER 9-4

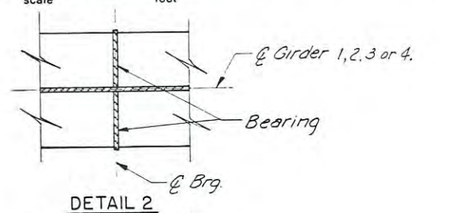
1/2"=1'-0" scale 1 0 1 2 3 feet



DETAIL 1

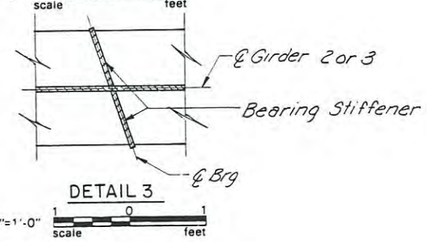
1"=1'-0" scale 1 0 1 feet

Note: Girder 1 shown, Girder 4 similar



DETAIL 2

1"=1'-0" scale 1 0 1 feet



DETAIL 3

1"=1'-0" scale 1 0 1 feet

Notes:

For General Notes & Summary of Quantities see sheets 3 & 4.
For Additional Details see sheets 40 thru 44.
For location of Floorbeam see sheet 29.
For location of Details 1 thru 3 see sheet 29
For Section A-A, B-B, C-C and D-D see sheet 43.

NO.	MADE DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 213-14

REHABILITATION GRAND AVENUE VIADUCT

OVER KANSAS CITY TERMINAL RAILWAY

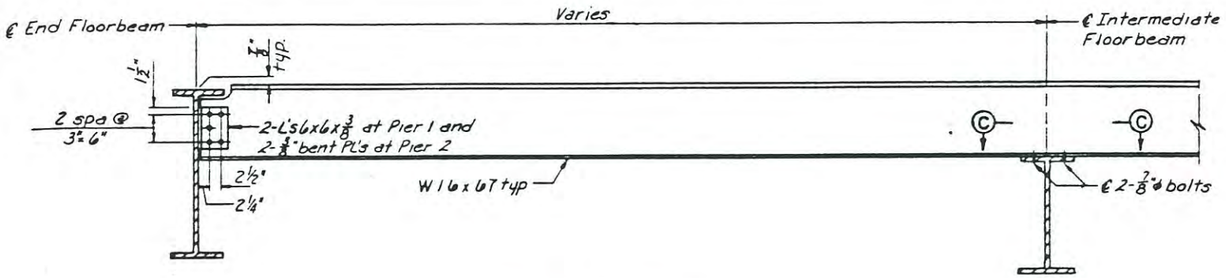
FLOORBEAM AND BRACKET DETAILS - UNIT 2

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: RS
CKD: EJS
DATE: 9/6/81

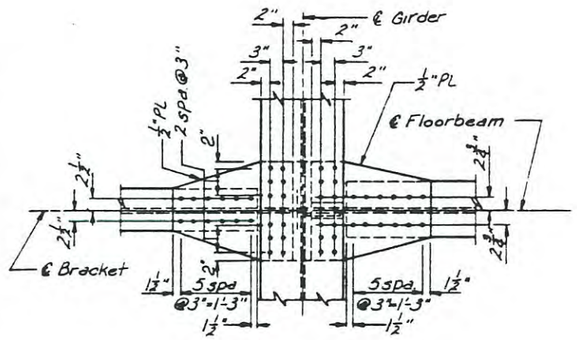
SHEET 42

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		



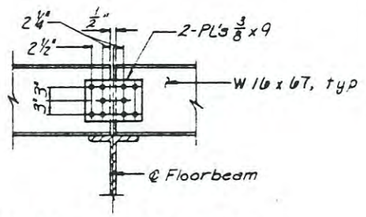
STRINGER DETAILS

3/4"=1'-0" (1 0 1 2 scale feet)



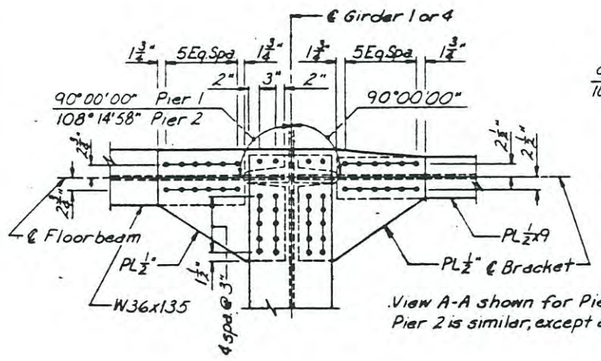
SECTION B-B

3/4"=1'-0" (1 0 1 2 scale feet)



OPTIONAL STRINGER SPLICE

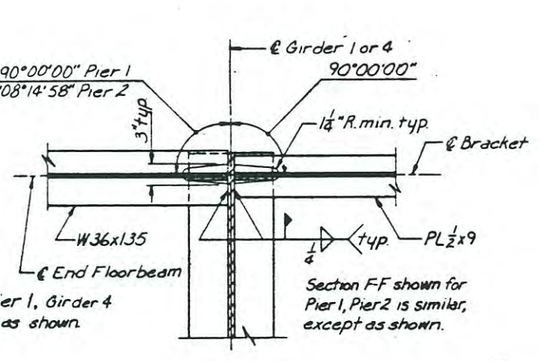
No Scale



View A-A shown for Pier 1, Girder 4
Pier 2 is similar, except as shown.

VIEW A-A

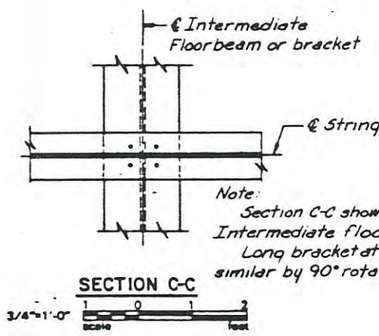
3/4"=1'-0" (1 0 1 2 scale feet)



Section F-F shown for Pier 1, Pier 2 is similar, except as shown.

SECTION F-F

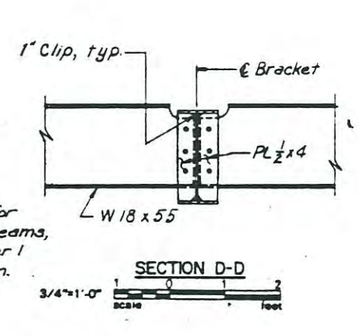
3/4"=1'-0" (1 0 1 2 scale feet)



Note:
Section C-C shown for Intermediate floorbeams, Long bracket at Pier 1 similar by 90° rotation.

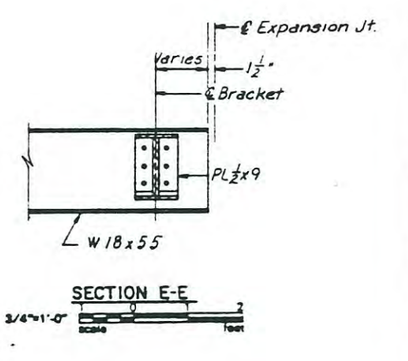
SECTION C-C

3/4"=1'-0" (1 0 1 2 scale feet)



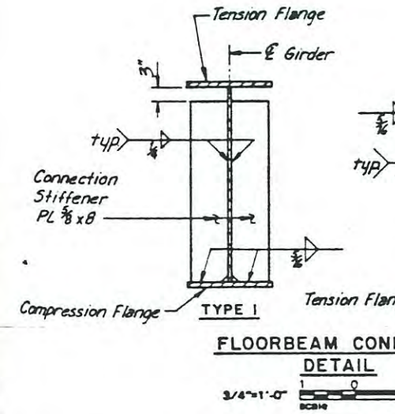
SECTION D-D

3/4"=1'-0" (1 0 1 2 scale feet)



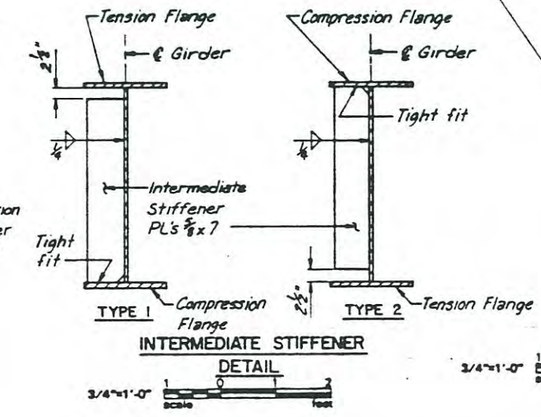
SECTION E-E

3/4"=1'-0" (1 0 1 2 scale feet)



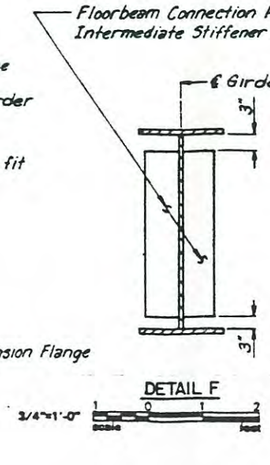
FLOORBEAM CONNECTION DETAIL

3/4"=1'-0" (1 0 1 2 scale feet)



INTERMEDIATE STIFFENER DETAIL

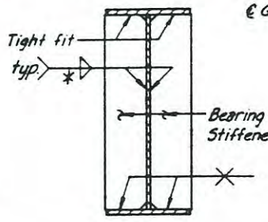
3/4"=1'-0" (1 0 1 2 scale feet)



DETAIL F

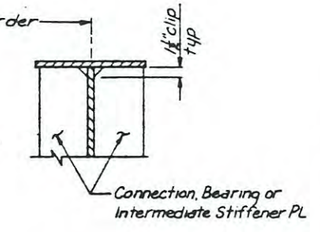
3/4"=1'-0" (1 0 1 2 scale feet)

* ⅜" fillet @ Bent 8
* 7/16" fillet @ Pier 1 & Pier 2



BEARING STIFFENER DETAIL

3/4"=1'-0" (1 0 1 2 scale feet)



CLIP DETAIL

1-1/2"=1'-0" (8" 6" 3" 0 scale feet)

Notes:

For location of additional details see sheets

When intermediate floorbeam connection plates or intermediate stiffener plates interfere with flange splice plates and bolts, clip connection or stiffener plates as shown in Detail F.

Type 1 denotes inter. stiffener to be welded to bottom flange. Type 2 denotes inter. stiffener to be welded to top flange.

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 213-14

REHABILITATION
GRAND AVENUE VIADUCT
OVER KANSAS CITY TERMINAL RAILWAY

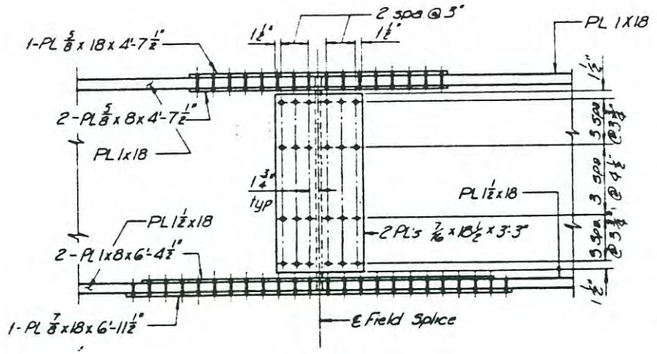
STRINGER AND GIRDER DETAILS-UNIT 2

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

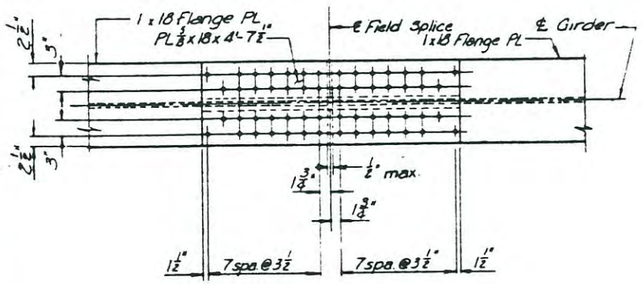
DSGN: A.E.G.
CKD: E.L.G.
DATE: 9-16-80

SHEET 43

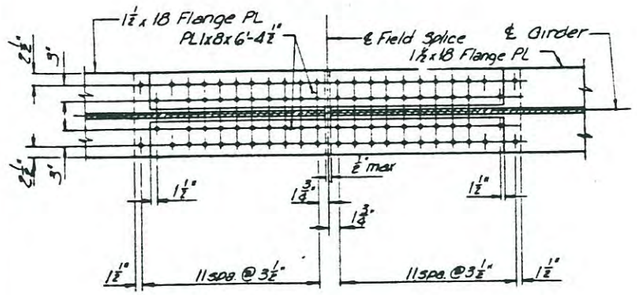
FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		



ELEVATION
GIRDERS 1,2,3 & 4



PLAN OF TOP FLANGE PLATE
GIRDERS 1,2,3 & 4



PLAN OF BOTTOM FLANGE PLATE
GIRDERS 1,2,3 & 4

FIELD SPLICE

3/4"=1'-0"

Notes:
For General Notes and Summary of Quantities see sheets 2, 3 and 4.
For location of Field Splice see sheet 29.
All bolts shall be 7/8" ϕ high strength bolts placed in 15/16" holes, unless otherwise noted.

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 213-14

REHABILITATION
GRAND AVENUE VIADUCT
OVER KANSAS CITY TERMINAL RAILWAY

FIELD SPLICE DETAILS - UNIT 2

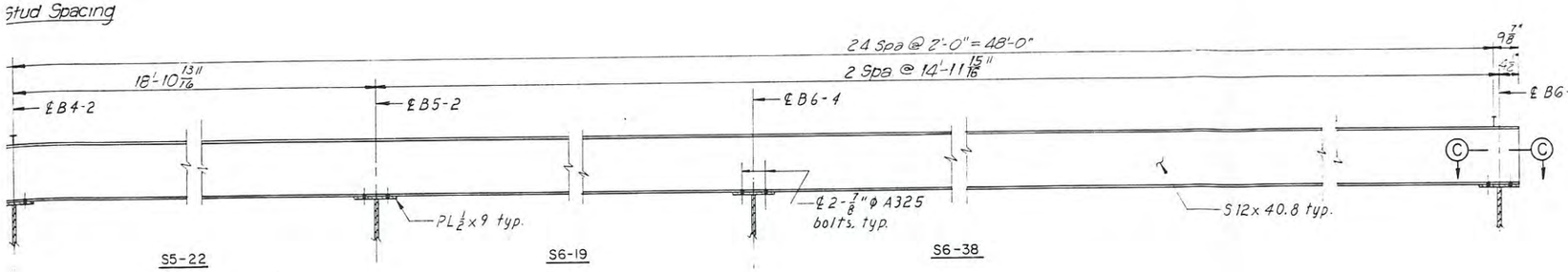
BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

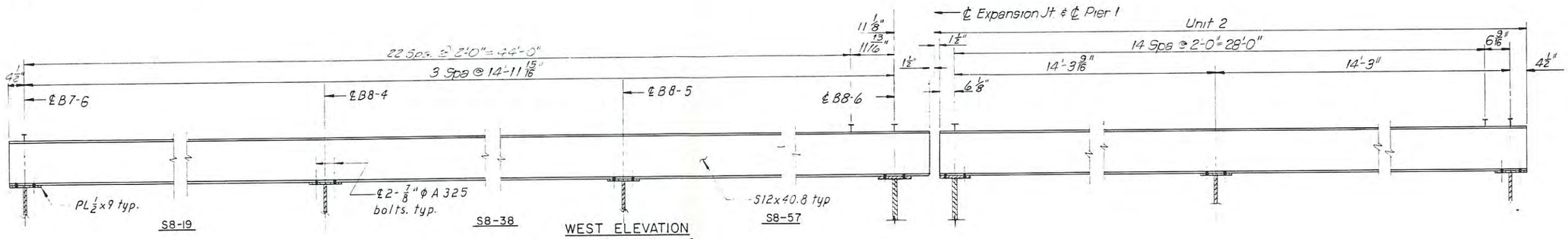
DWN: D.D.S.
CKD: E.L.C.
DATE: 9-10-80

SHEET 44

FED ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	MO.		19		

Stud Spacing

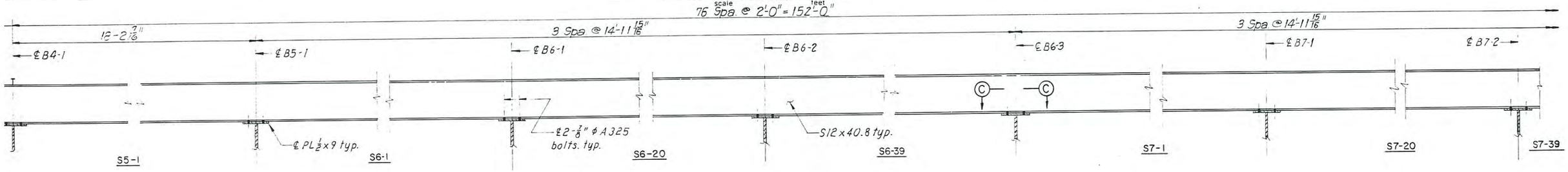


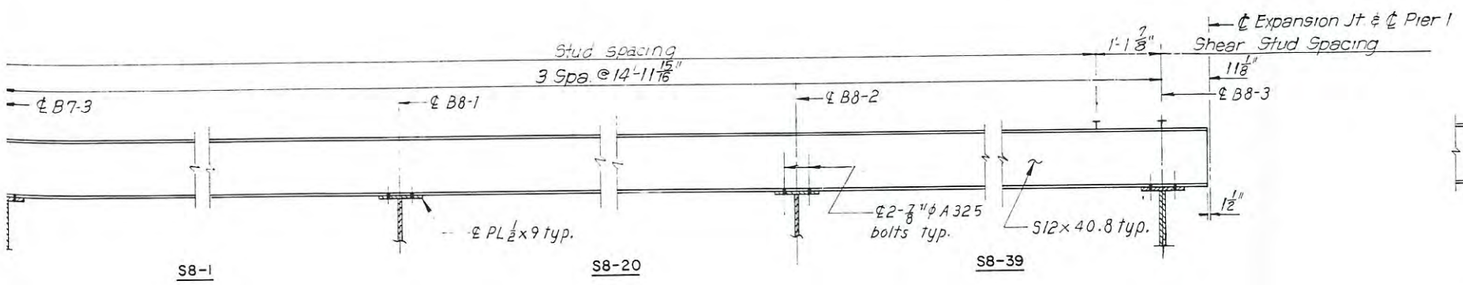


WEST ELEVATION

3 4"=1'-0" scale 1 0 1 2 feet

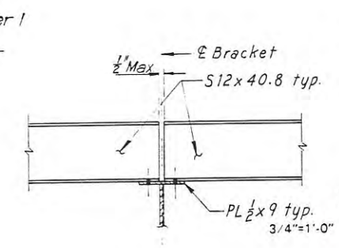
Stud Spacing





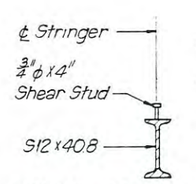
EAST ELEVATION

3/4"=1'-0" scale 1 0 1 2 feet



OPTIONAL FIELD SPLICE

3/4"=1'-0" scale 1 0 1 2 feet



TYPICAL SECTION

scale 1 0 1 2 feet

NOTE: THE CONTRACTOR SHALL FIELD VERIFY ALL CRITICAL ELEVATIONS AND DIMENSIONS OF PORTIONS OF THE EXISTING STRUCTURE TO BE REUSED PRIOR TO FABRICATION OF NEW MEMBERS TO INSURE PROPER FIT.

Notes

For General Notes and Summary of Quantities see sheets 2, 3 and 4.

For additional details see sheets 28 thru 46

For location of stringers see sheets 28 thru 29

The contractor may use optional field splice as shown.

For Section C-C see sheet 43.

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 213-14

REHABILITATION GRAND AVENUE VIADUCT

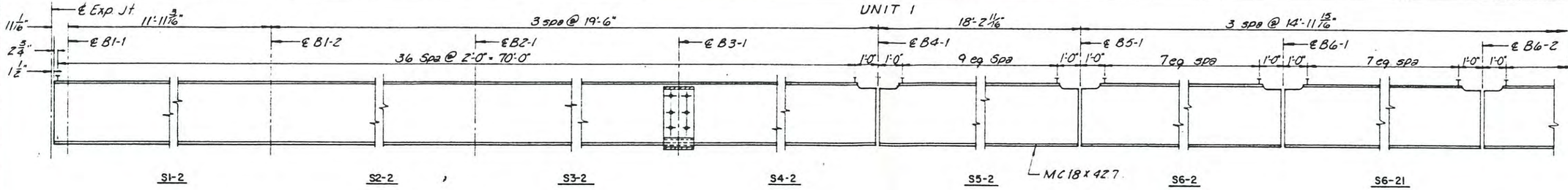
OVER KANSAS CITY TERMINAL RAILWAY

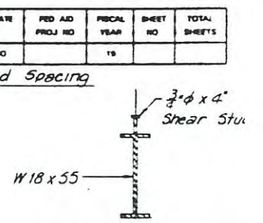
STRINGER DETAILS

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

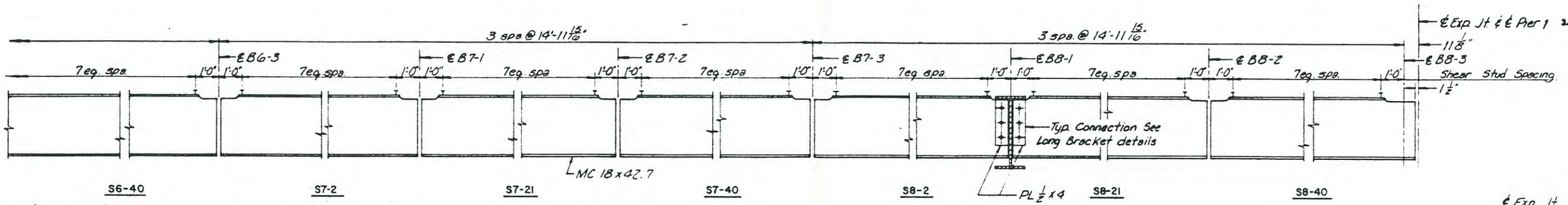
DWN: E.J.M.
CKD: E.L.G.
DATE: 9-2-80

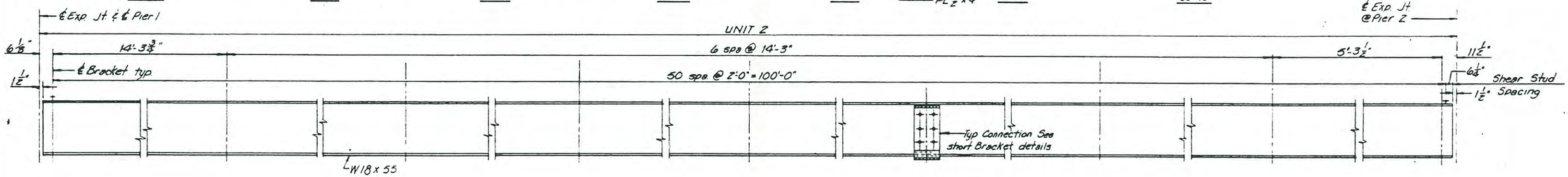
SHEET 45

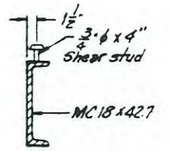




TYPICAL SECTION
FOR W 18x55
3/4"=1'-0"

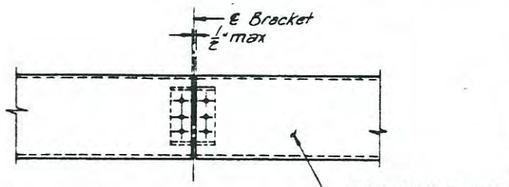






Notes:
For General Notes and Summary of Quantities see sheets 2, 3 and 4.
For additional details see Sheet 47
For Location of Stringers see sheet 28 thru 29.

TYPICAL SECTION FOR MC 18x42.7
3/4"=1'-0"



OPTIONAL FIELD SPLICE
No Scale

LONGITUDINAL SECTION NEAR EAST FASCIA
3/4"=1'-0"

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 213-14

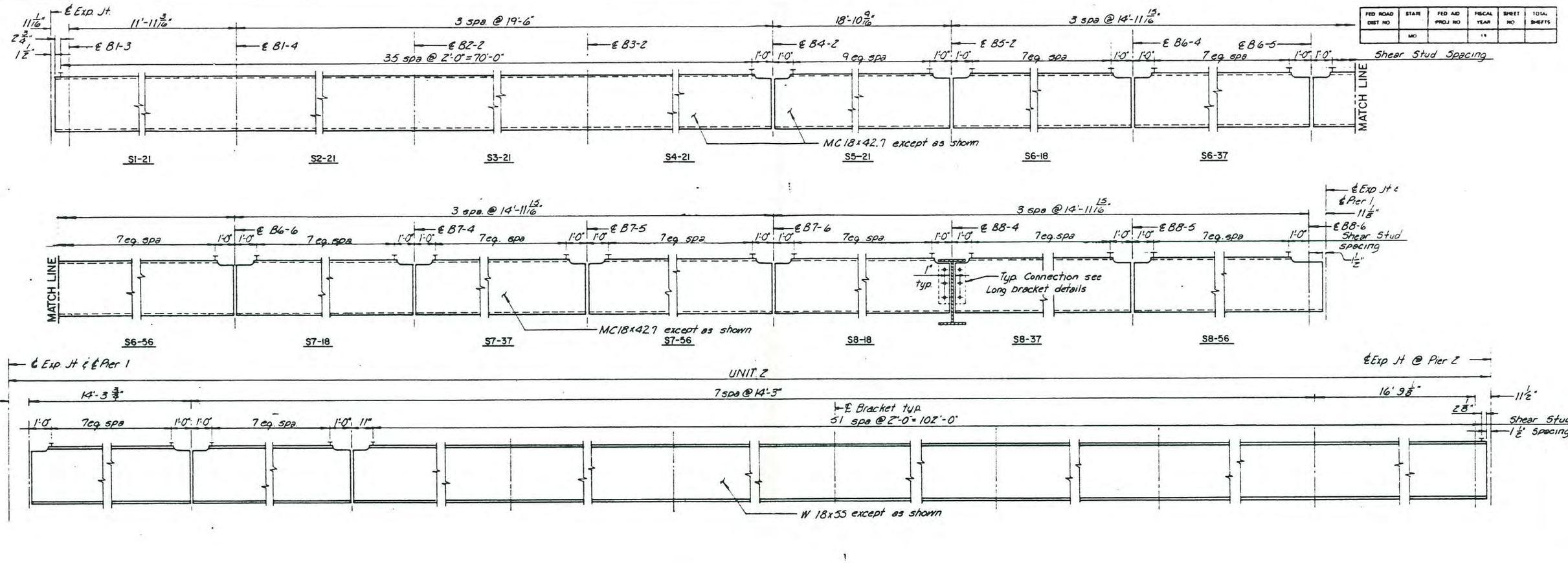
REHABILITATION
GRAND AVENUE VIADUCT
OVER KANSAS CITY TERMINAL RAILWAY

EAST FASCIA BEAM DETAILS

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DRWN: D.D.S.
CKD: E.L.G.
DATE: 9-12-80

SHEET 46



FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		

Notes:

For General Notes and Summary of Quantities see sheets 2, 3 and 4.

For additional details see sheet 46.

For location of stringers see sheets 28 thru. 29.

The Contractor may use optional field splice as shown.

For Optional Field Splice detail see sheet 61.

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 213-14

REHABILITATION GRAND AVENUE VIADUCT

OVER KANSAS CITY TERMINAL RAILWAY

WEST FASCIA BEAM DETAILS

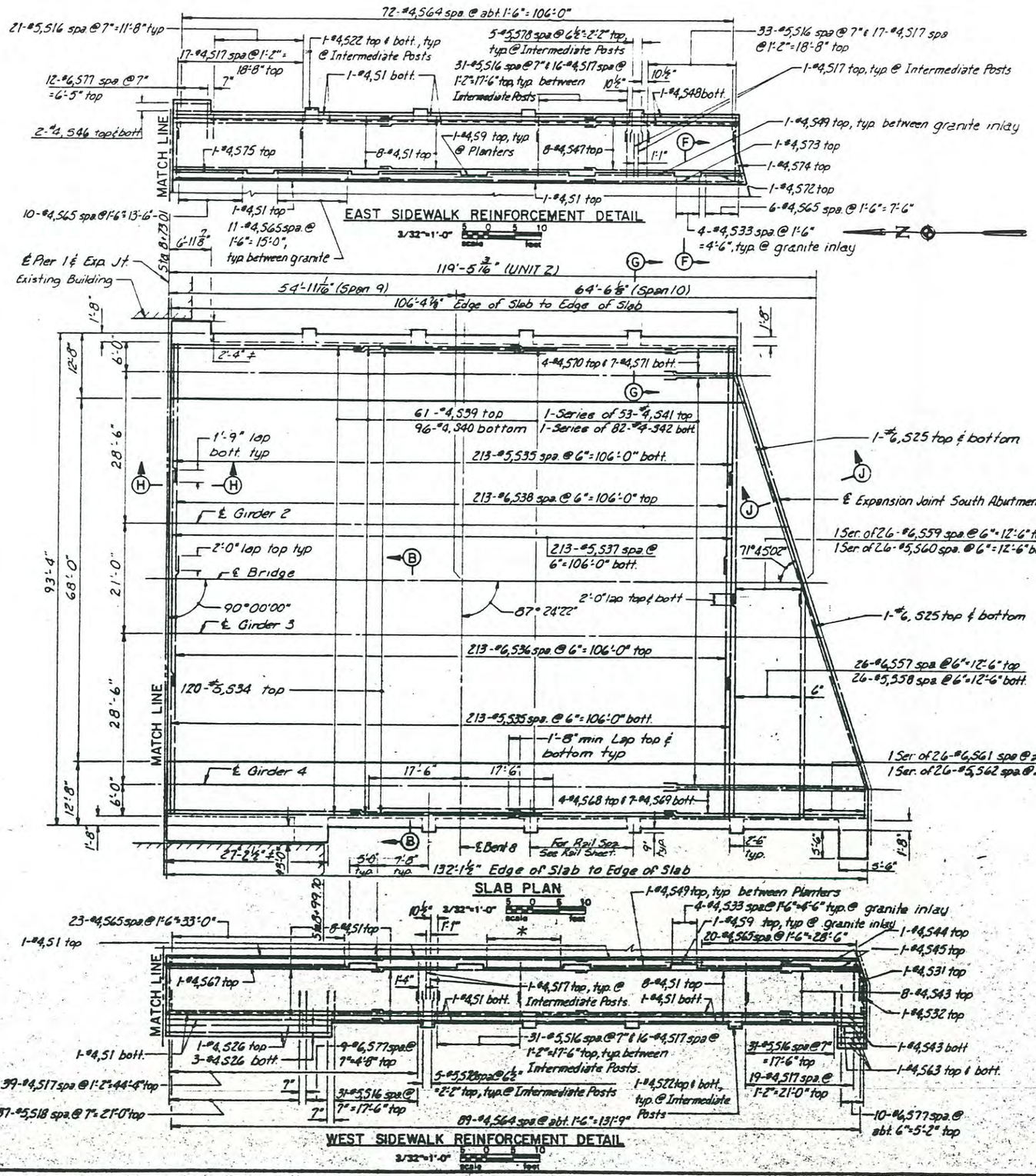
BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

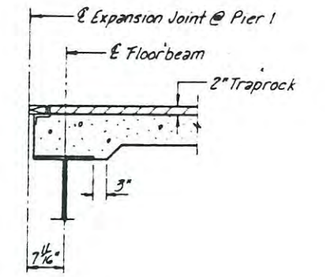
DSN: D.D.S.
CKD: E.L.G.
DATE: 9-11-80

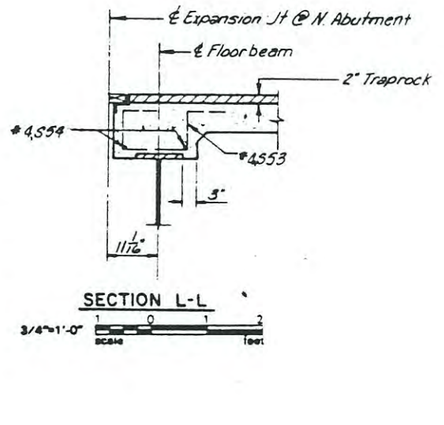
SHEET 47

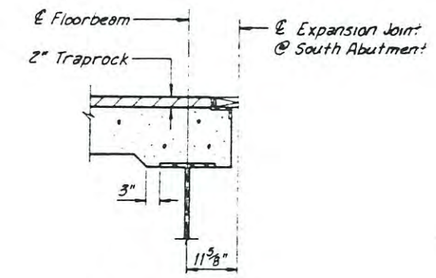
SPRUNG 44 132 41787

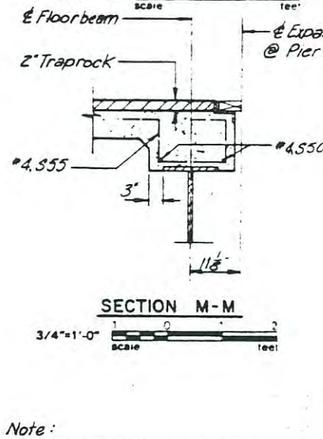
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	MO.		19		











Note:
For additional notes see sheet 53
For Section B-B see sheet 55.
For Section F-F and G-G See Sheet 56

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE no. 213-14

REHABILITATION GRAND AVENUE VIADUCT

OVER KANSAS CITY TERMINAL RAILWAY

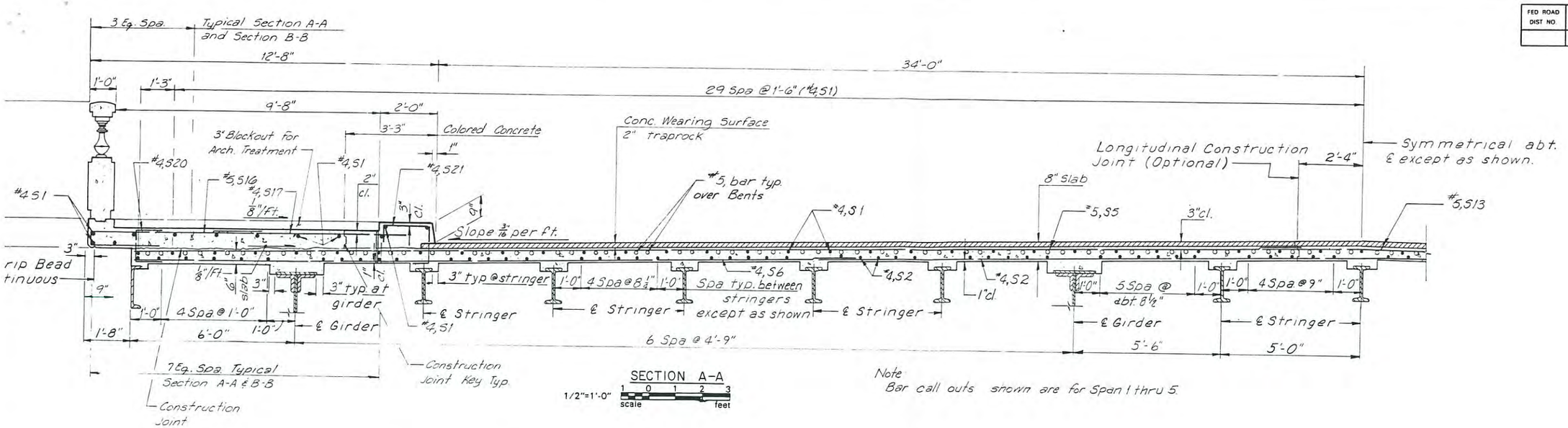
SLAB PLAN UNIT 2

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DRAWN JBH
CHK. T.D.J.
DATE 6-11-71

SHEET 54

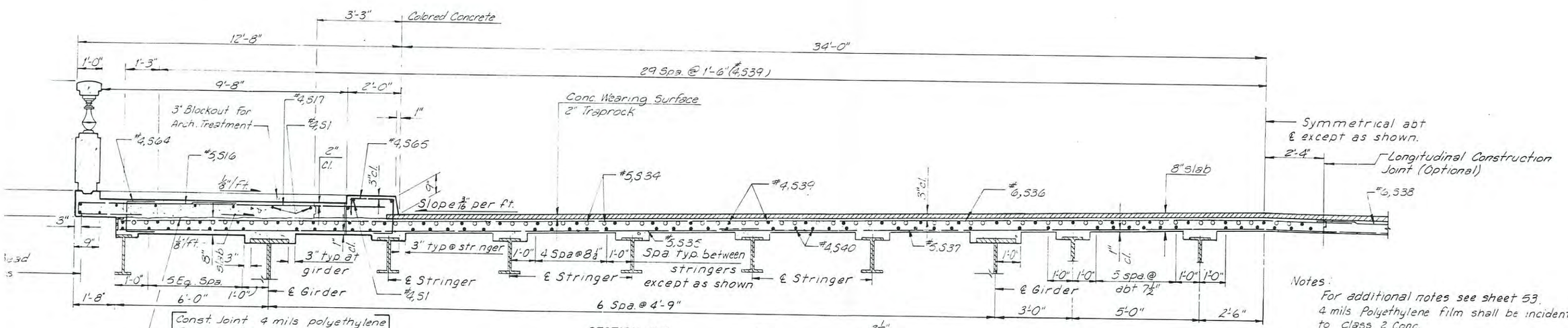
FED ROAD DIST NO.	STATE	FED AID PROJ NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	MO		19		



SECTION A-A

1/2"=1'-0" scale 1 0 1 2 3 feet

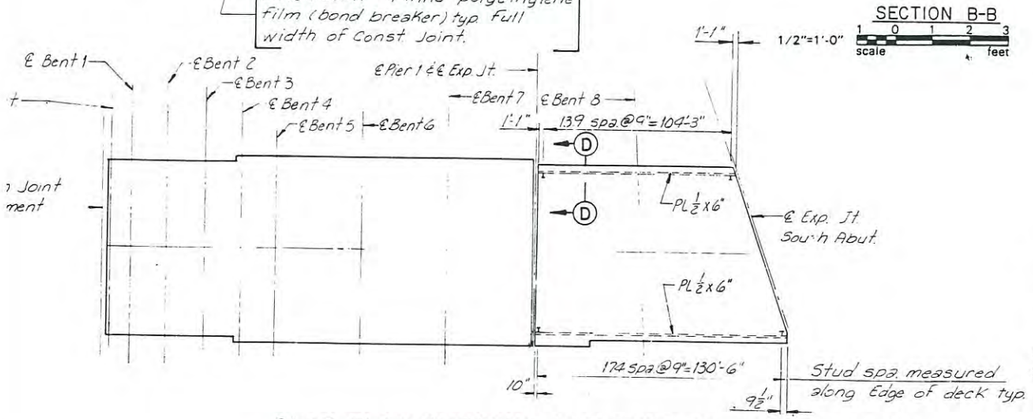
Note
Bar call outs shown are for Span 1 thru 5.



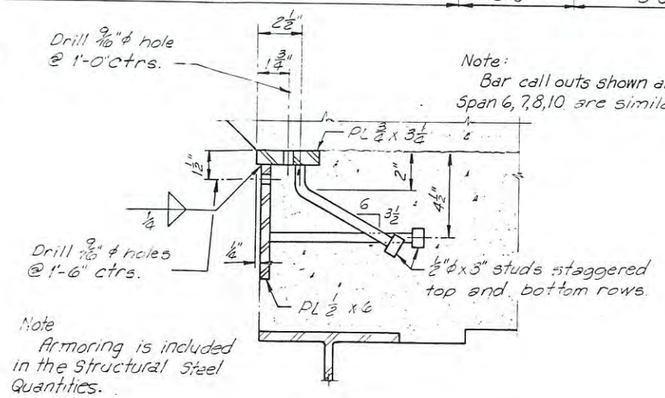
Notes:
For additional notes see sheet 53.
4 mils Polyethylene film shall be incidental to Class 2 Conc.

SECTION B-B

1/2"=1'-0" scale 1 0 1 2 3 feet



SLAB PLAN SHOWING ARMORING ON EDGE OF DECK
No Scale



Note:
Bar call outs shown are for Span 9, Span 6, 7, 8, 10 are similar.

Note
Armoring is included in the Structural Steel Quantities.

SECTION D-D
No Scale

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 213-14

REHABILITATION GRAND AVENUE VIADUCT

OVER KANSAS CITY TERMINAL RAILWAY

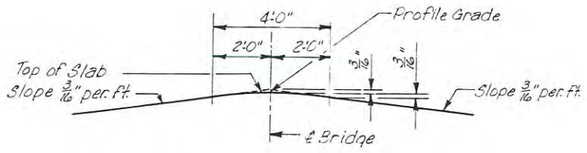
SLAB DETAILS

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

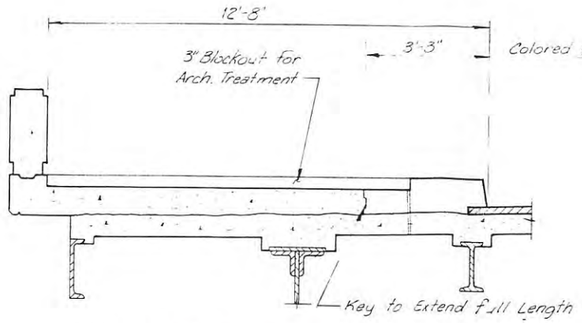
DWN: J.B.H.
CKD: T.D.J.
DATE: 6-11-80

SHEET 55

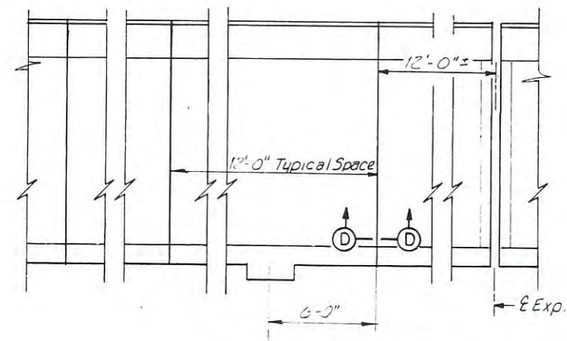
FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		

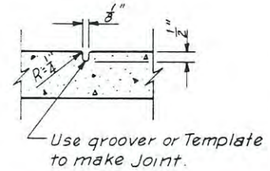


4' PARABOLIC ROUNDING
No Scale



TYPICAL SECTION SHOWING LIMITS OF COLORED CONCRETE
1/2"=1'-0" scale 1 0 1 2 3 feet



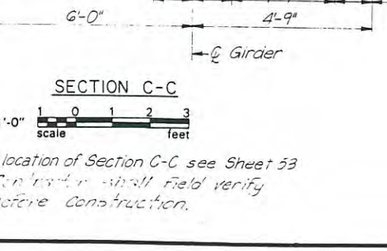


SECTION D-D
No Scale

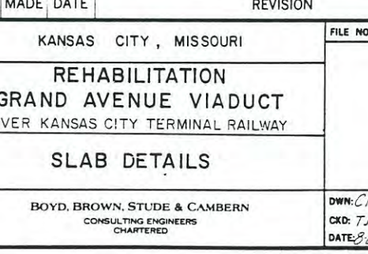
TYPICAL SIDEWALK JOINT DETAIL
1/4"=1'-0" scale 5 0 5 feet

DETAIL OF 8" SLAB CONSTRUCTION JOINT KEY
3"=1'-0" scale 0 3" 6" 9" 1 feet
Sidewalk key to be similar to 8" slab.

CONCRETE POURING RATE	
UNIT	MIN. RATE (CU.YDS PER HR.)
1	25
2	25



SECTION G-G
1/2"=1'-0" scale 1 0 1 2 3 feet



SECTION F-F
1/2"=1'-0" scale 1 0 1 2 3 feet

SLAB POURING SEQUENCE
1" = 40' scale 40 0 40 80 feet

Note
See Slab details for additional dimensions

SECTION C-C
1/2"=1'-0" scale 1 0 1 2 3 feet

For location of Section C-C see Sheet 53
± Contractor shall field verify before construction.

NOTES:

For General Notes, see Sheets 2, 3 and 4.

For Slab Details, see Sheets 53 thru 55.

The Contractor shall pour and satisfactorily finish the roadway slab at a rate given in the Concrete Pouring Rate table. He shall observe the longitudinal and transverse construction joints and sequence of pour shown on plans. Sidewalk may be placed continuously regardless of pour rate.

Dummy joints in sidewalk shall be evenly spaced with approximate spacing equal to the width of the sidewalk. Joint spacing shall be submitted to the Engineer for approval prior to placing sidewalk concrete.

A retarder shall be used in all deck concrete.

Transverse construction joints and sequence of pour may be eliminated if Contractor can demonstrate to the Engineer that he is equipped to pour and satisfactorily finish the roadway slab at a rate of not less than 25 cu. yds. per hour.

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 213-14

REHABILITATION GRAND AVENUE VIADUCT

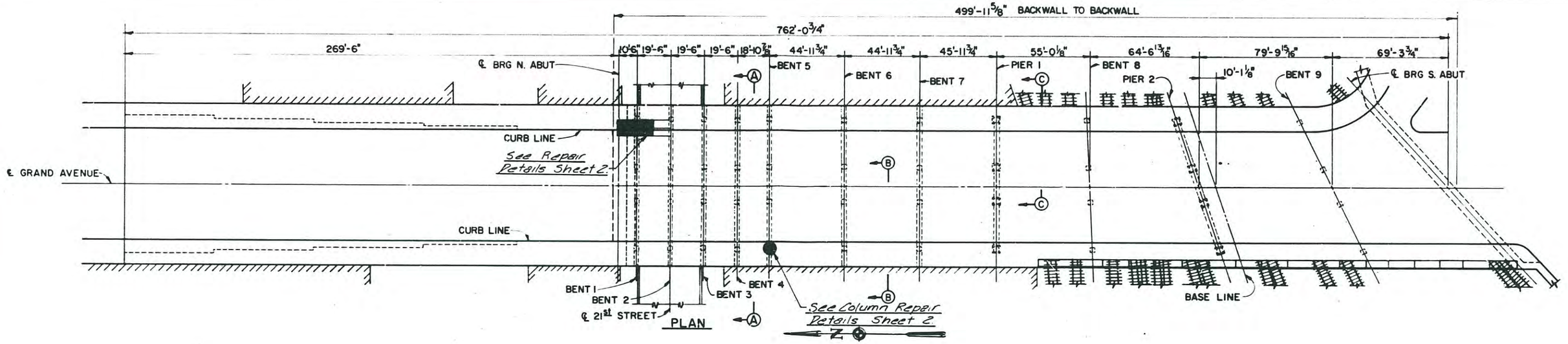
OVER KANSAS CITY TERMINAL RAILWAY

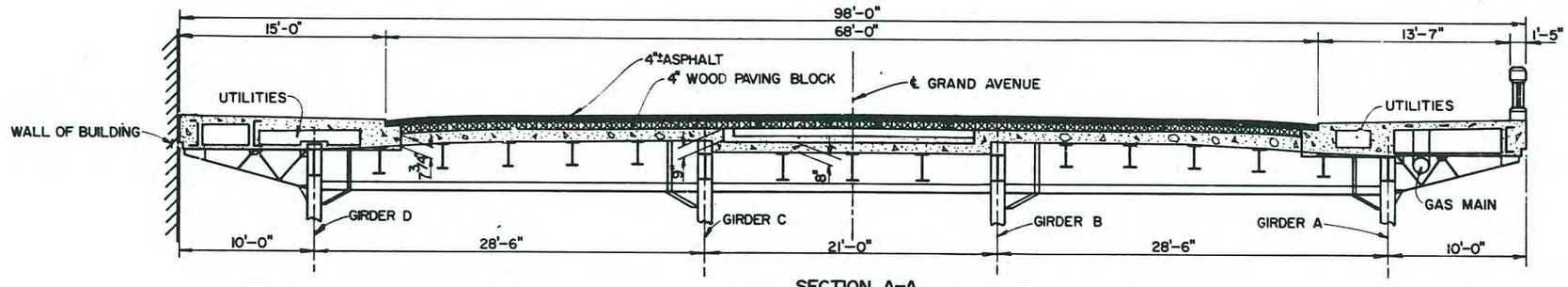
SLAB DETAILS

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

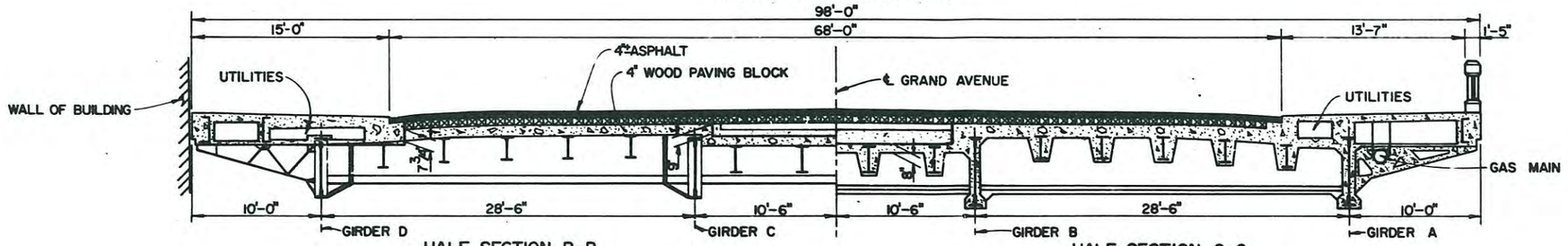
DWN: CFS
CKD: TJR
DATE: 8-2580

SHEET 56





SECTION A-A
(NORTH ABUTMENT TO BENT 5)



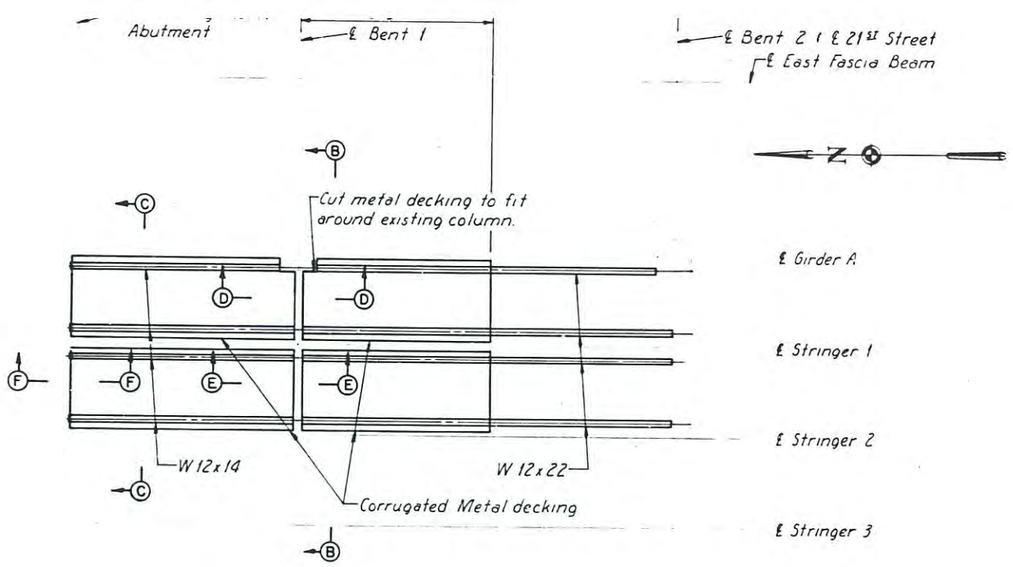
HALF SECTION B-B
(BENT 5 TO PIER 1)

HALF SECTION C-C
(PIER 1 TO SOUTH ABUTMENT)

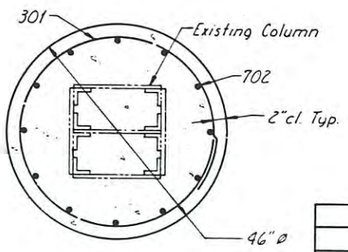
S052B21

1 of 2

KANSAS CITY, MISSOURI	FILE NO. 182-A-2
PHASE I REPAIRS GRAND AVENUE VIADUCT OVER KANSAS CITY TERMINAL RAILROAD	JOHN A. BOYD, JR. NUMBER E-9642 REGISTERED PROFESSIONAL ENGINEER
PLAN, ELEVATION AND SECTIONS	
BOYD, BROWN, STUDE & CAMBERN CONSULTING ENGINEERS CHARTERED	DWN: D.D.S. CKD: E.L.G. DATE: 6-26-78 SHEET 1



PLAN



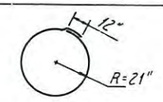
SECTION A-A

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Excavation	Cu. Yd.	2.0
Class "B" Concrete *	Cu. Yd	2.6
Reinforcing Steel †	lb.	190
Structural Steel	lb.	2,436
Corrugated Metal Decking	Sq. Ft.	200
High Slump Concrete	L.S.	Lump Sum

† includes wt. of Welded Wire Fabric.
* includes Epoxy Resin Bonding Agent.

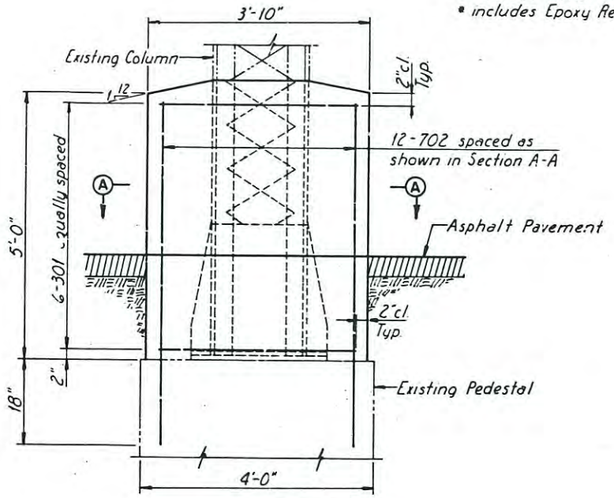
BILL OF REINFORCING STEEL				
MARK	NO.	SIZE	LENGTH	TYPE
301	6	#3	12'-0"	1
702	12	#7	6'-4	str

BENDING DIAGRAMS



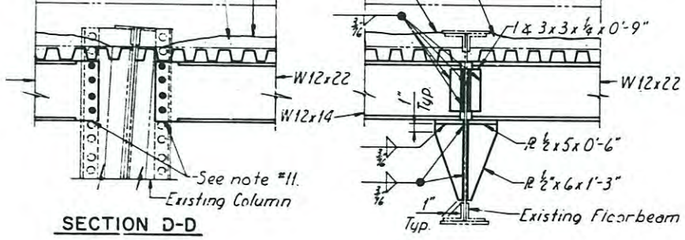
TYPE 1

Bending radius to ℄ of bar.



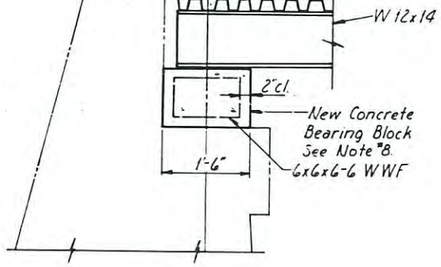
ELEVATION

COLUMN REPAIR DETAILS
West Pedestal Bent 5

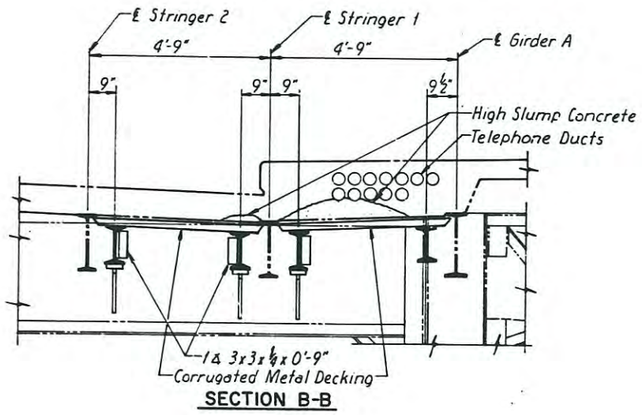


SECTION D-D

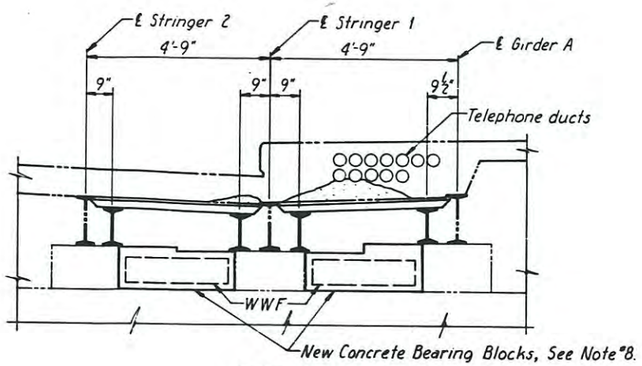
SECTION E-E



SECTION F-F



SECTION B-B



SECTION C-C

GENERAL NOTES

1. All work shall be done in accordance with the current Missouri Standard Specifications for Highway Construction.
2. All structural steel shall conform to the requirements of ASTM A-36.
3. Concrete shall conform to the requirements of Missouri Standard Specifications Class B; f_c = 3,000 p.s.i.
4. Reinforcing steel shall conform to ASTM Specifications A 615 Grade 40.
5. All welds are $\frac{3}{16}$" continuous fillet welds unless otherwise noted. All welds shall use E70 electrodes and shall conform to the latest A.W.S. standards. All surfaces for field welding shall be adequately prepared.
6. Painting of structural steel will not be required.
7. The Corrugated Metal decking shall be "Bethlehem Steel Bridge Form 5-22" or equal. The ends of decking shall be tapered.
8. Before placing new concrete bearing blocks, the contact area between the old and new concrete shall be thoroughly cleaned. Immediately before placing the concrete an Epoxy Resin Bonding Agent shall be applied to the contact surface. The bonding agent shall be Adhesive Engineering Company Concresive #2 (Carter Waters) or approved equal. The bonding agent shall be applied according to the manufactures recommendations. With complete coverage of the exposed surface.
9. Reinforcing steel shall be doweled into the existing pedestal. The holes shall be 1½"ø and 18" minimum deep. The reinforcing steel shall be grouted, using Adhesive Engineering Company Concresive #2 or approved equal.
10. The welded wire fabric shall conform to ASTM A185 "Specifications for Welded Steel Wire Fabric for Concrete Reinforcement.
11. Remove existing rivets from column as necessary to attach new stringers. Drill holes in new stringers to match holes in existing column and install new stringer using ASTM A325 bolts. Remove loose rust from contact area.
12. Prior to erecting the metal decking and new stringers, the contractor shall drill holes through the existing deck to be used to place a high slump concrete into the metal decking forms. The size, location and number of holes shall be determined by the contractor. Cosolidation of the deck concrete shall be accomplished by internal vibration, puddling or pumping as required to fill voids.
13. High slump concrete.- The aggregate shall be of a uniform gradation from 100 % retained on a No. 200 sieve to 100 % passing a No. 4 sieve. Maximum slump shall be 8", with a 28 day strength of f_c = 3,000 p.s.i. Water reducing admixtures which improve the workability may be used with the approval of the engineer.

2 of 2

KANSAS CITY, MISSOURI

FILE NO. 182-A-2

PHASE I REPAIRS
GRAND AVENUE VIADUCT
OVER
KANSAS CITY TERMINAL RAILROAD

REPAIR DETAILS

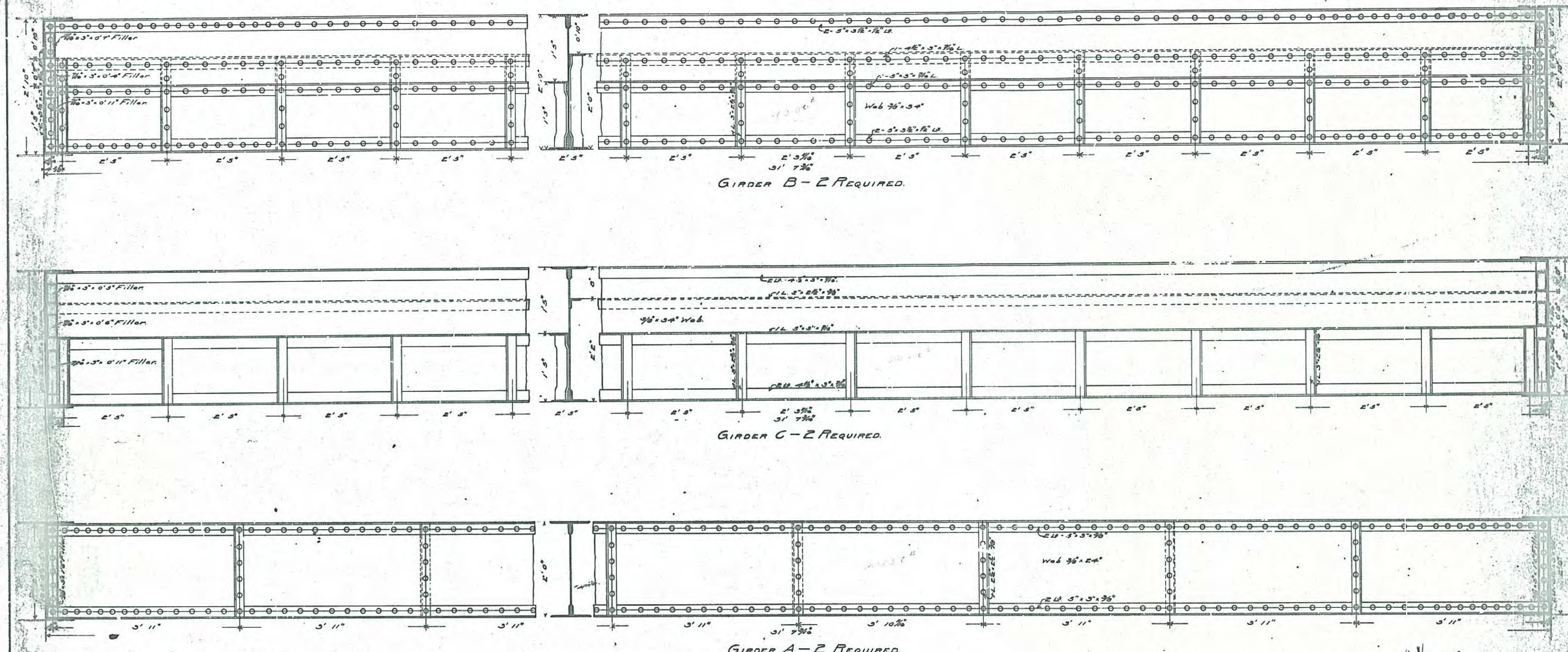
JOHN A. BOYD, JR. NUMBER E-9642 REGISTERED PROFESSIONAL ENGINEER

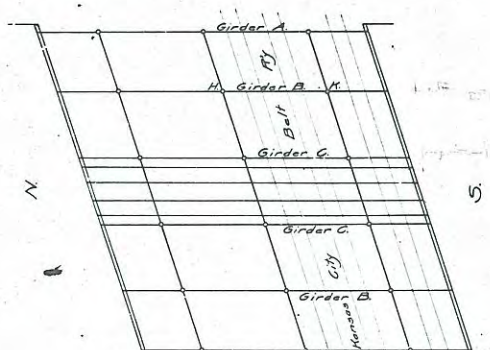
BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS

DWN: P.T.K.

SHEET

10-0





Plan of Structure.

No 1301

Details of New Girders
for
Grand Ave. Bridge
over
Kansas City Belt Railway
Kansas City Mo.
July 3rd 1900.

30-48

SHEET 1 OF 1

10 ϕ

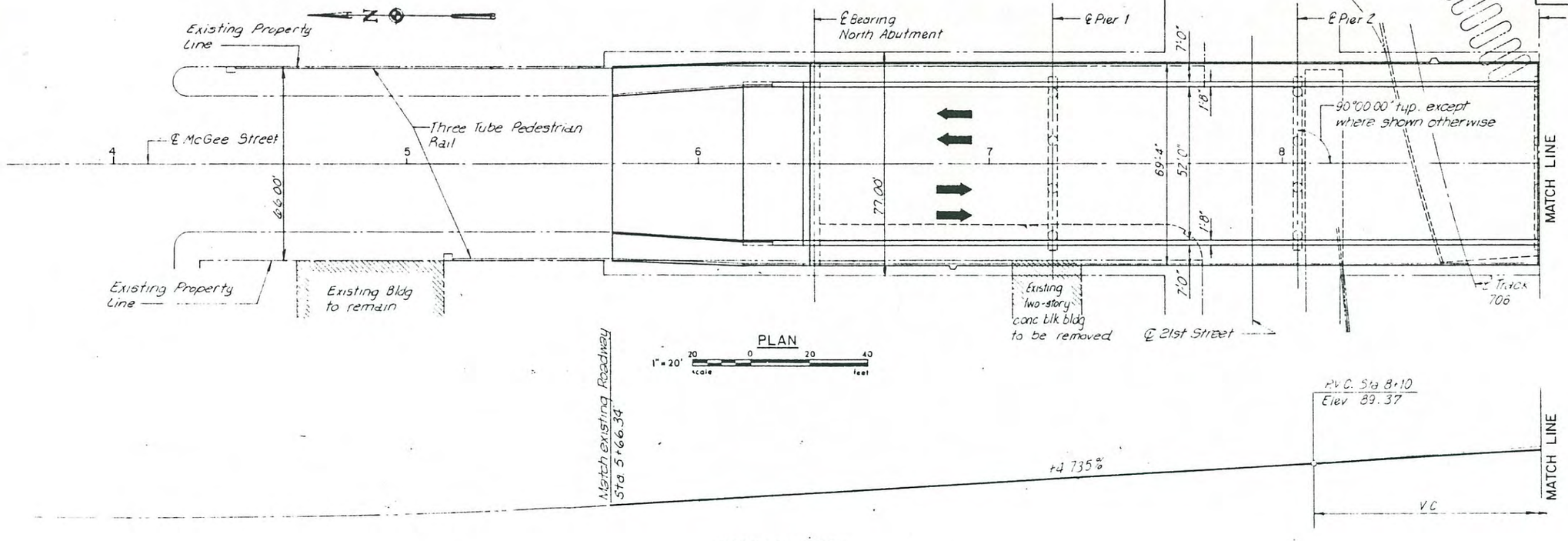
S052B21

10-ϕ

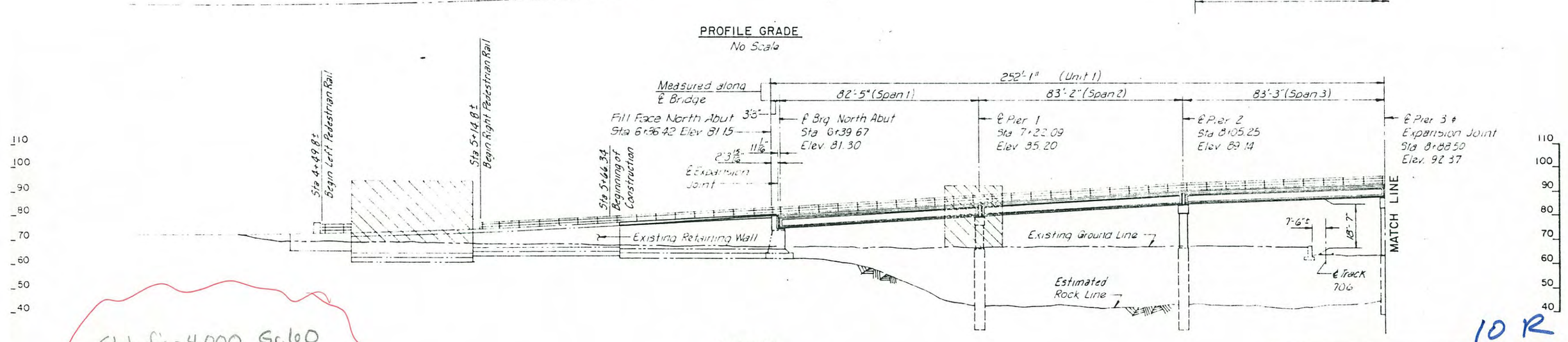
Tom Weller 7-10-72

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		

S052B23



PROFILE GRADE
No Scale



ELEVATION
1" = 20'

Slab f'_c = 4,000 Gr. 60
Pls f_c = 5,000 psi
f'_{ci} = 4,000
f_{init} = 28.92K

A588 Steel

10 R

NO	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

Mc GEE STREET VIADUCT OVER KANSAS CITY TERMINAL RAILWAY

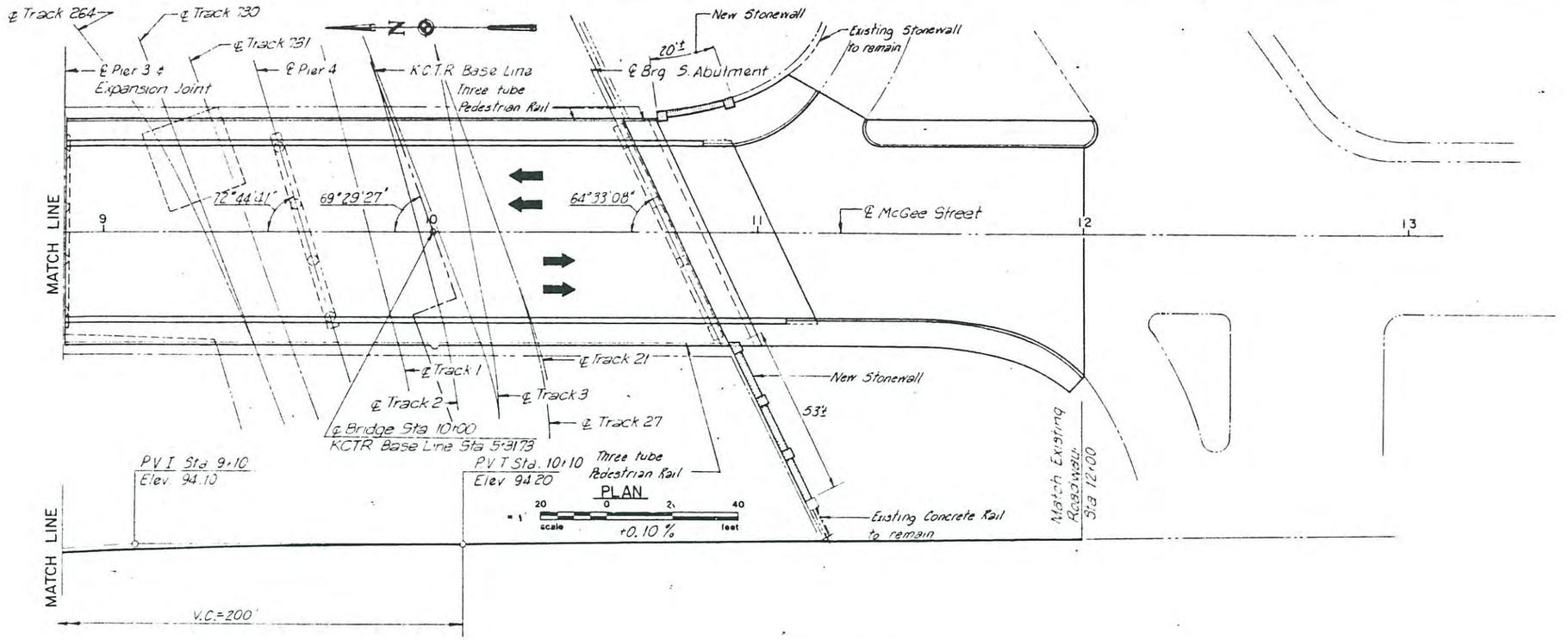
GENERAL PLAN AND ELEVATION

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: CFS
CKD: AW
DATE: 6-30-80

SHEET 5

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		



PROFILE GRADE
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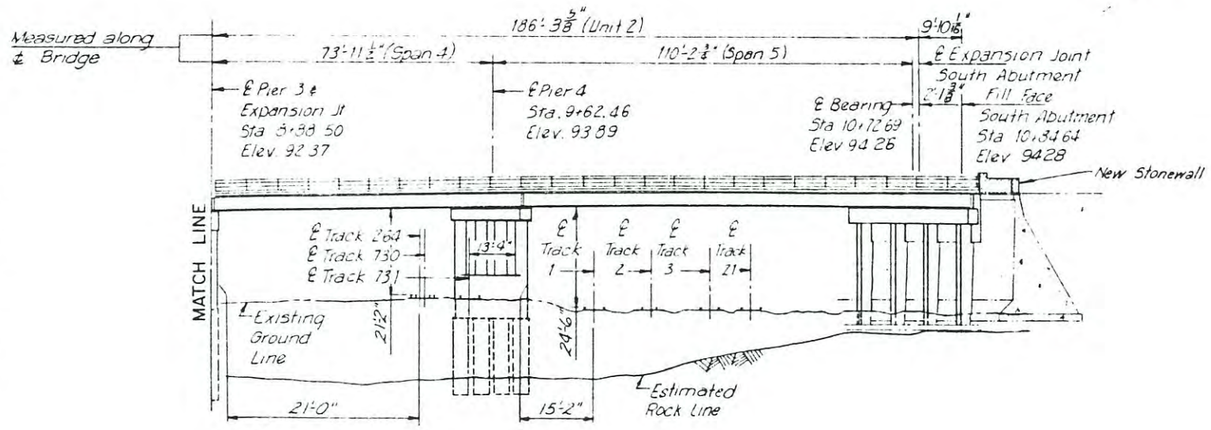


ELEVATION
1"=20' scale
20 0 20 40 feet

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO 196-21

Mc GEE STREET VIADUCT
OVER
KANSAS CITY TERMINAL RAILWAY

GENERAL PLAN AND ELEVATION

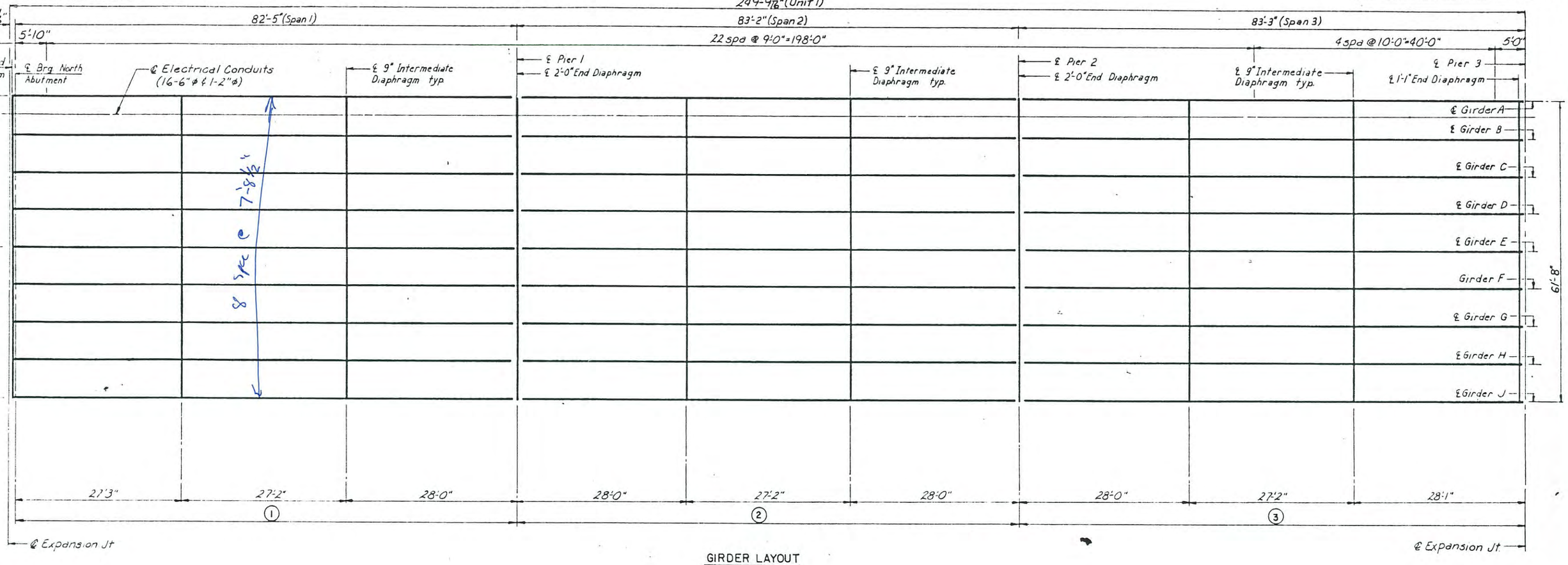
BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: CFS
CKD: AW
DATE: 6 30 88

SHEET 6

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		

Coil tie inserts spacing for
K.C.P.L. Electrical Conduits



GIRDER LAYOUT
No Scale

Notes
For General Notes and Summary of Quantities see sheets 2, 3 and 4.
For Girder Details see sheets 26 and 27.
For Diaphram Details see sheets 29 thru 32
Dimensions for diaphram are given at ℄ of girder and ℄ of diaphram.
○ denotes prestressed concrete girder types.

NO	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO 196-21

Mc GEE STREET VIADUCT
OVER
KANSAS CITY TERMINAL RAILWAY

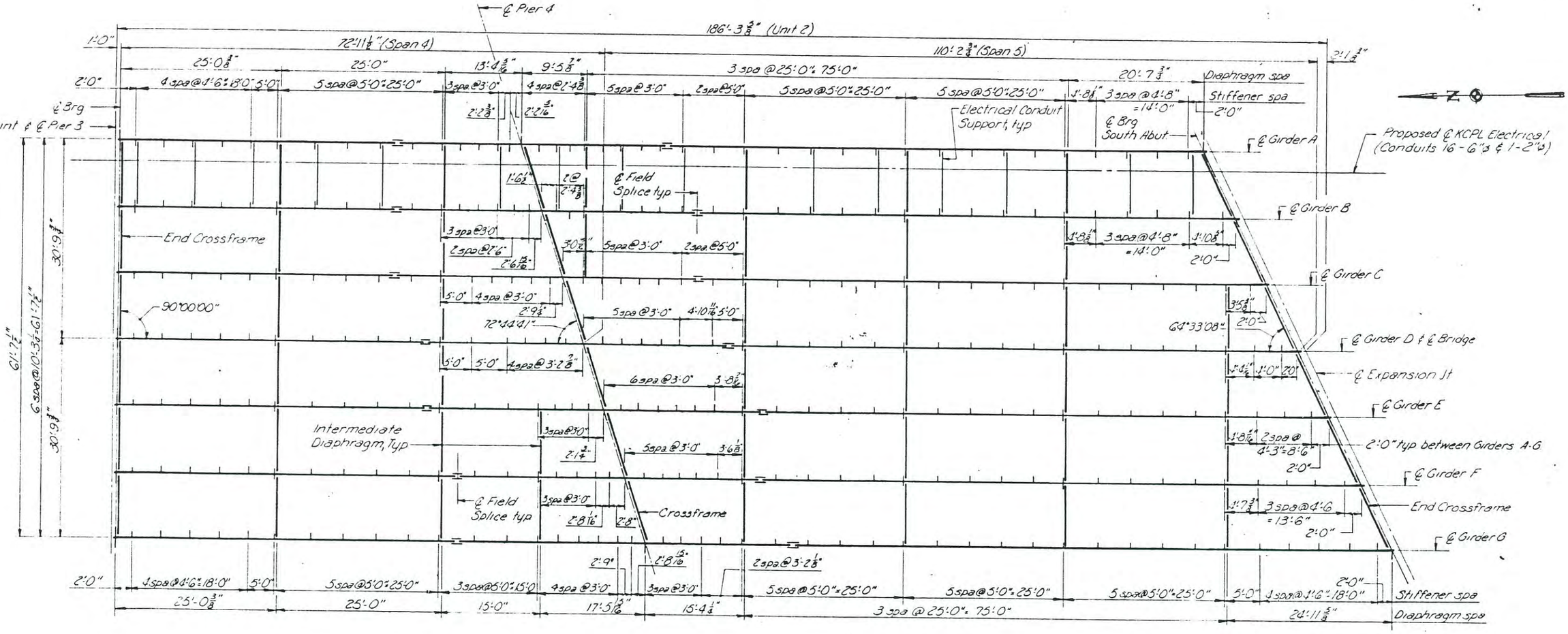
GIRDER LAYOUT - UNIT 1

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: AEG
CKD: ELG
DATE: 5-1-80

SHEET 24

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		18		



FRAMING PLAN

1/8"=1'-0"

Notes:

For General Notes and Summary of Quantities see sheets 2, 3 and 4.

For Crossframe, Intermediate Diaphragm and Common details see sheets 33 thru 36.

For Bearing details see sheet 36.

For Field Splice details see sheet 35.

For Electrical Conduit Support details see sheet 52.

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

McGEE STREET VIADUCT OVER KANSAS CITY TERMINAL RAILWAY

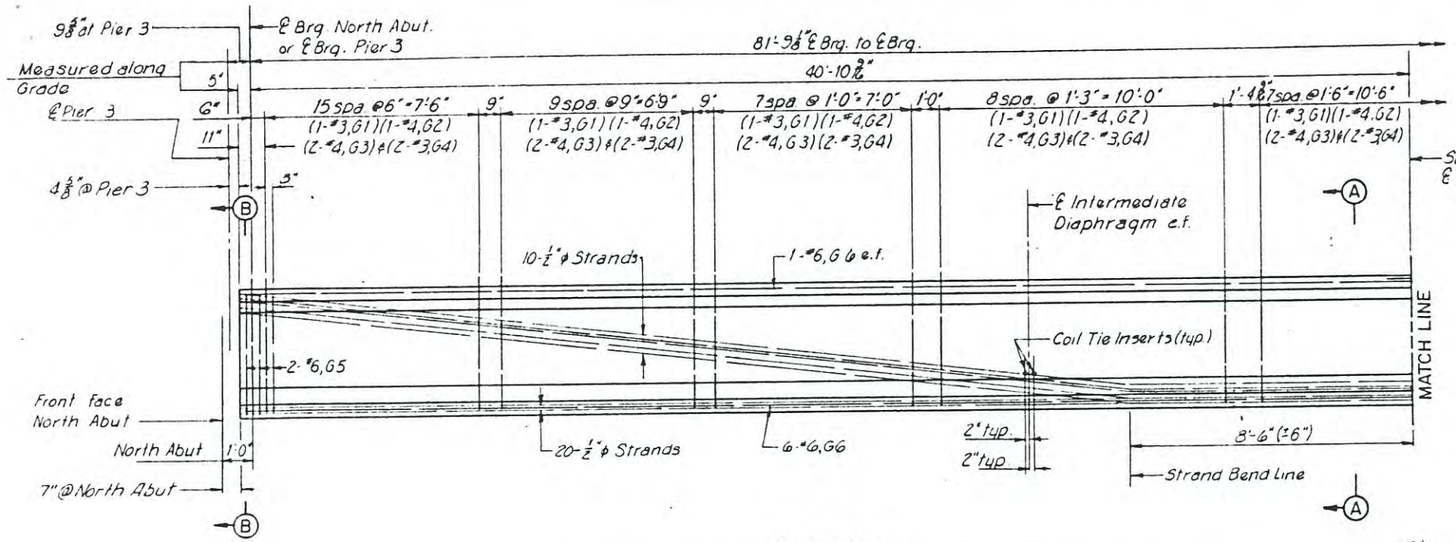
FRAMING PLAN-UNIT 2

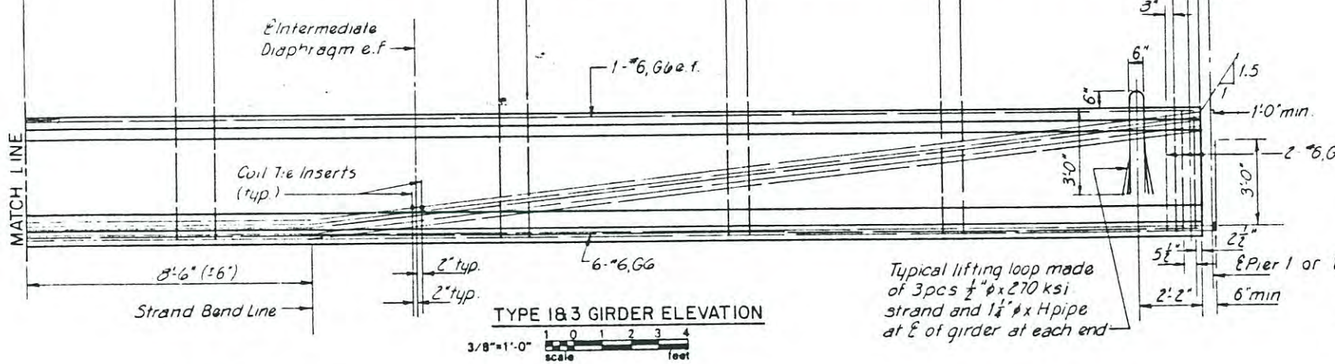
BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: R.M.
CKD: E.L.G
DATE: 4/1/80

SHEET 25

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		

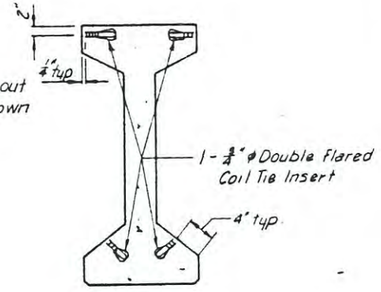




TYPE 1 & 3 GIRDER ELEVATION

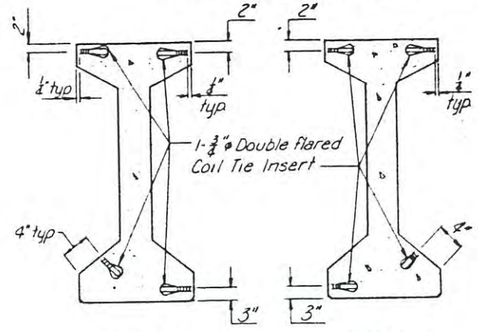
3/8"=1'-0" scale 1 0 1 2 3 4 feet

Note:
Elevation of Type 1 Girder Shown is for Interior Girders looking east, type 3 similar.



SECTION AT END DIAPHRAGM NORTH ABUTMENT

(Girder C thru J)



SECTION AT END DIAPHRAGM NORTH ABUTMENT

(Girder A)

SECTION AT END DIAPHRAGM NORTH ABUTMENT

(Girder B)

Notes:

For General Notes and Summary of Quantities see sheets 2, 3 and 4.

Dimensions are measured along ℄ of Girder

For Diaphragm Details see sheets 29 thru 32.

For Reinforcement Schedule see sheet 61.

Sandblast Girder sides where concrete comes in contact with diaphragm.

Strands shall be ½"ϕ Uncoated Seven-Wire stress relieved strand conforming to A.S.T.M. A416 Grade 270.

For location of Intermediate Diaphragms see sheet 24.

All work shall conform to the Manual for Quality Control for Plants and Products of Precast Prestressed Concrete Products, MNL-70, Prestressed Concrete Institute

Coil Tie inserts at Intermediate Diaphragms are set normal to girder

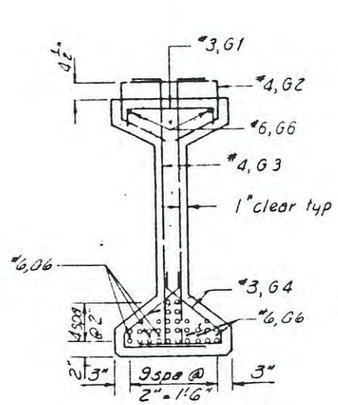
n.f denotes near face

ff. denotes far face

ef denotes each face

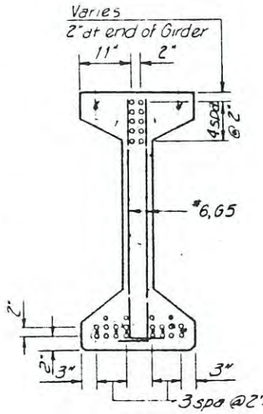
For Bearing Pad and Coil Tie Inserts Details see sheet

For location of coil tie inserts at Electrical Conduit Supports see sheet 24.



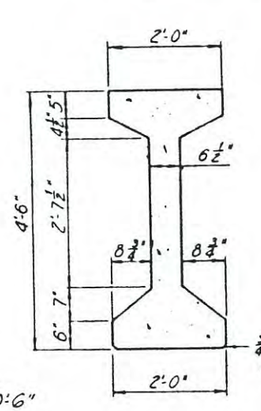
SECTION A-A

3/4"=1'-0" scale 1 0 1 2 feet



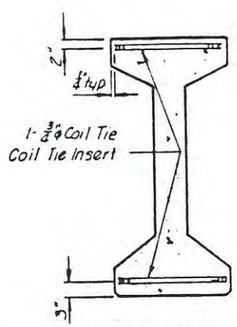
SECTION B-B

3/4"=1'-0" scale 1 0 1 2 feet



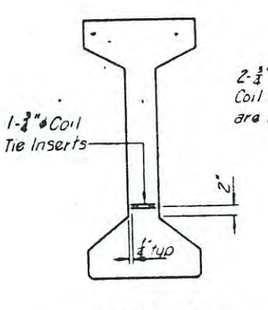
TYPICAL SECTION

3/4"=1'-0" scale 1 0 1 2 feet



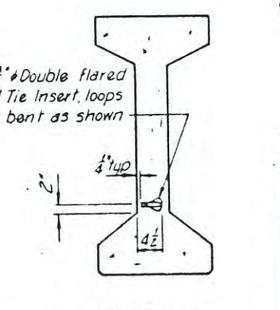
SECTION AT END DIAPHRAGM

Pier 1, 2 and 3



SECTION AT INTERMEDIATE DIAPHRAGM

(Girder C thru H)



SECTION AT INTERMEDIATE DIAPHRAGM

(Girder J)

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

Mc GEE STREET VIADUCT
OVER
KANSAS CITY TERMINAL RAILWAY

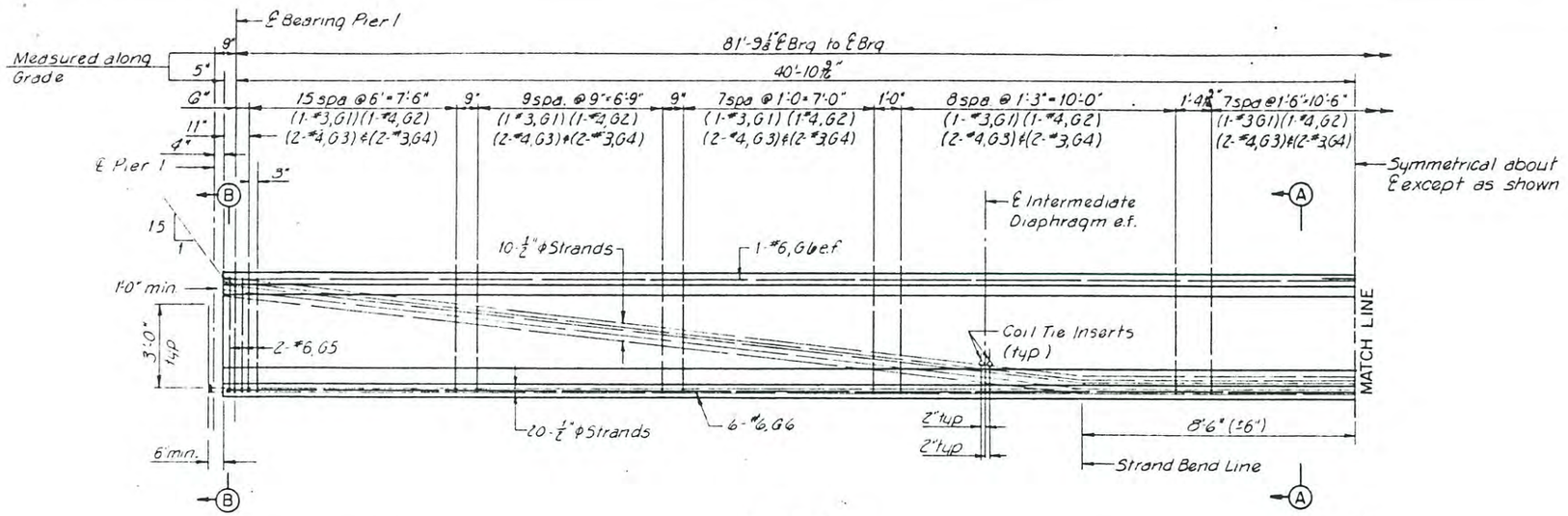
PRECAST PRESTRESSED GIRDER DETAILS - TYPE 1 & 3

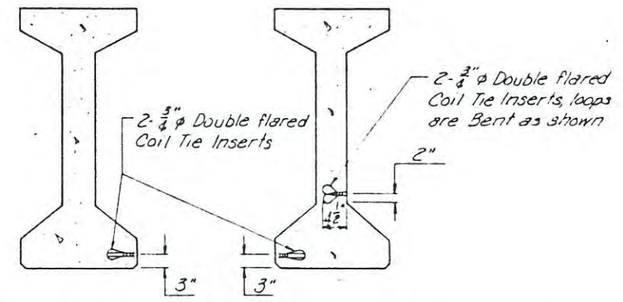
BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: CFS
CKD: ELG
DATE: 2-29-80

SHEET 26

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		

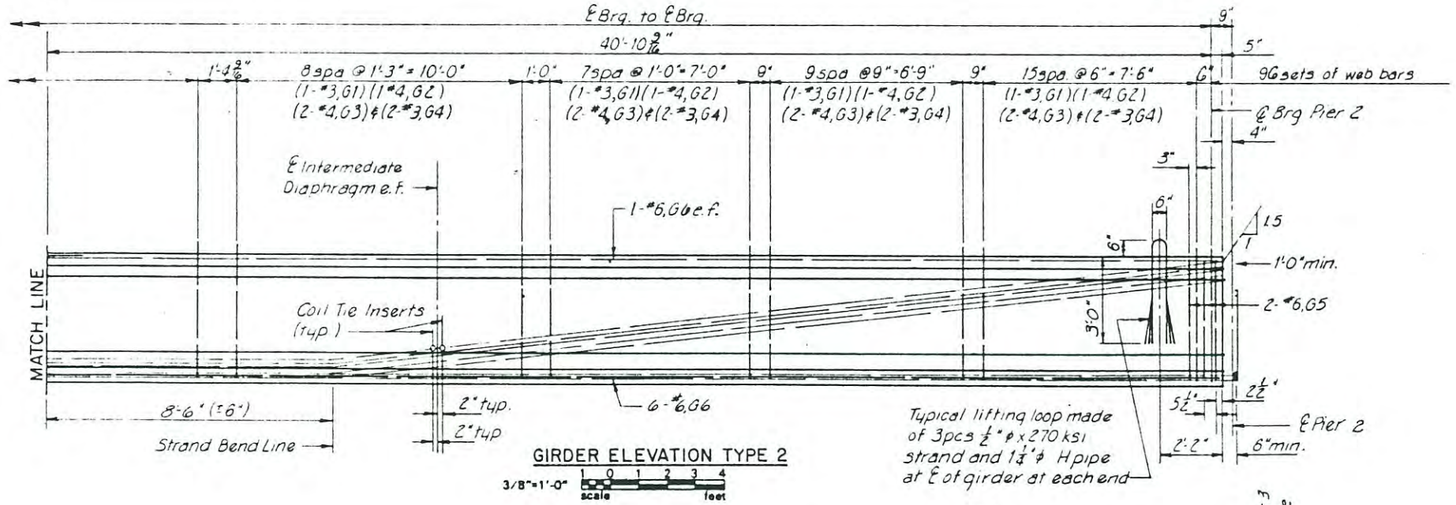




SECTION AT INTERMEDIATE DIAPHRAGM
(Girder A)

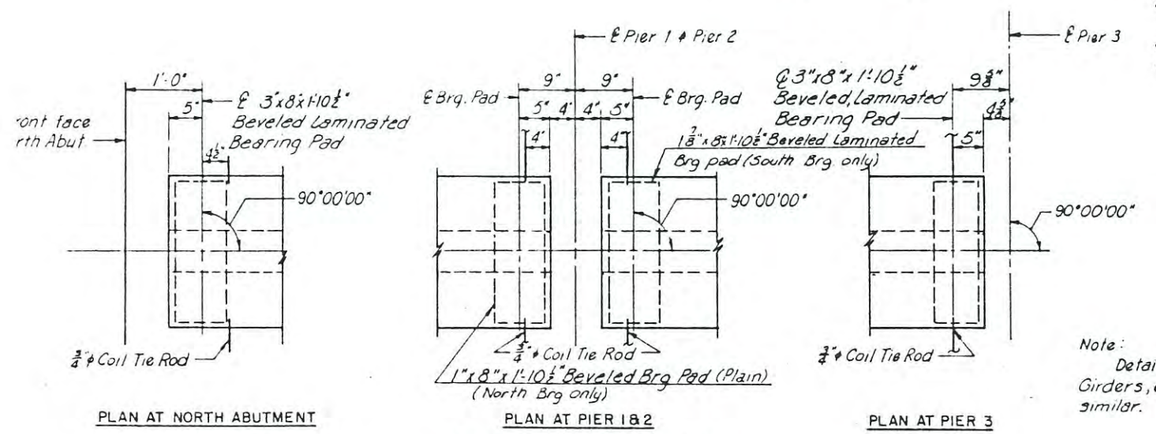
SECTION AT INTERMEDIATE DIAPHRAGM
(Girder B)

COIL TIE INSERT DETAILS
No Scale



GIRDER ELEVATION TYPE 2
3/8"=1'-0" scale 0 1 2 3 4 feet

Note:
Elevation of Type 2 Girder shown is for Interior Girders looking East



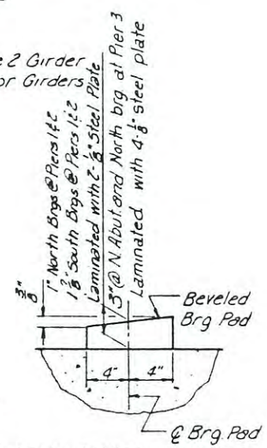
PLAN AT NORTH ABUTMENT

PLAN AT PIER 1 & 2

PLAN AT PIER 3

BEARING PAD AND COIL TIE INSERT DETAIL
1"=1'-0" scale 0 feet

Note:
Details shown for interior Girders, exterior Girders are similar.



ELEVATION AT NORTH ABUTMENT AND PIERS 1 THRU 3
No Scale

Notes:
For additional notes and Coil Tie Insert details see sheet 26.
For Reinforcing Steel Schedule see sheet 61.
℄ denotes each face
For location of coil tie inserts for Electrical Conduit Supports see sheet 24.

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

Mc GEE STREET VIADUCT
OVER
KANSAS CITY TERMINAL RAILWAY

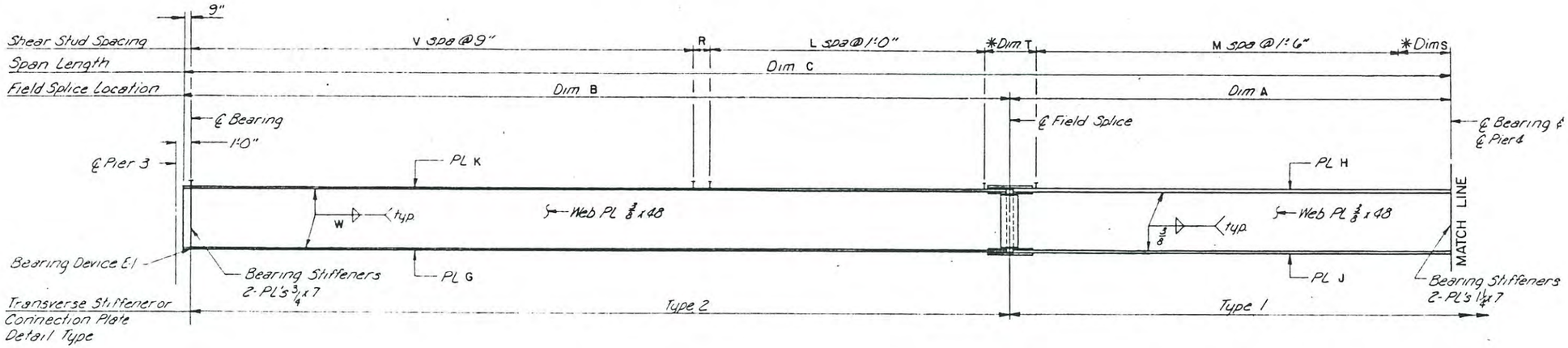
PRECAST PRESTRESSED GIRDER DETAILS – TYPE 2

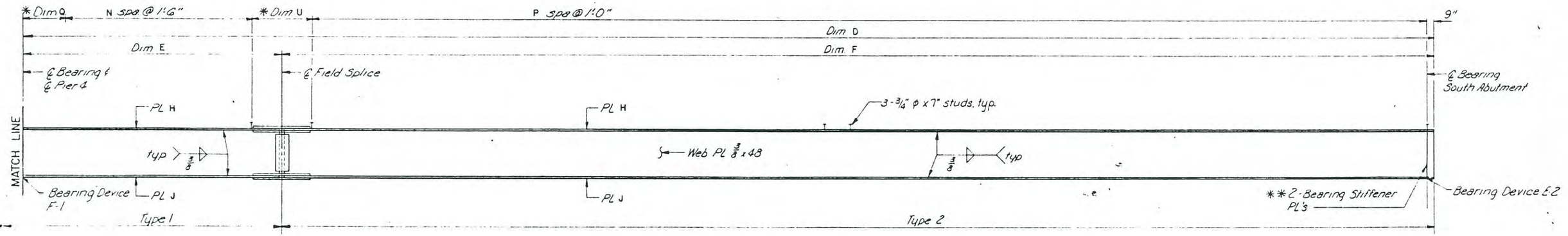
BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS CHARTERED

DWN: CFS
CKD: ELG
DATE: 3-4-80

SHEET 27

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		





GIRDER ELEVATION
No Scale

Note:
Elevation shown for Girder F, Girder A, B, C, D, E & G are similar

TABLE OF DIMENSIONS AND SPACES

GIRDER	DIMENSIONS AND SPACES																				
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W
A	20'-10 3/8"	43'-3 1/16"	64'-1 11/16"	105'-10 3/8"	21'-11 1/2"	83'-11 1/4"	5/8" x 16"	1 7/8" x 12"	1 7/8" x 16"	1/2" x 12"	20	8	8	79	6'-0"	9"	6'-0"	5'-1 11/16"	8'-1 3/8"	26	1/4
B	24'-0 7/8"	43'-3 1/16"	67'-3 15/16"	107'-7"	23'-9 1/4"	83'-9 3/8"	5/8" x 16"	1 7/8" x 12"	1 7/8" x 16"	1/2" x 12"	20	10	9	78	6'-0"	9"	6'-0"	5'-3 15/16"	9'-4"	26	1/4
C	27'-3 3/16"	43'-3 1/16"	70'-6 1/4"	109'-3 5/16"	20'-7"	88'-8 5/16"	3/4" x 16"	2" x 12"	2" x 16"	3/4" x 12"	20	12	6	83	7'-0"	9"	7'-0"	4'-6 1/4"	9'-6 5/16"	26	1/4
D	25'-5 7/16"	48'-3 1/16"	73'-8 1/2"	110'-11 3/4"	22'-4 11/16"	88'-7 1/16"	7/8" x 16"	2 1/8" x 12"	2 1/8" x 16"	7/8" x 12"	23	11	8	83	6'-0"	12"	6'-6"	4'-11 1/2"	9'-2 3/4"	28	5/16
E	28'-7 11/16"	48'-3 1/16"	76'-10 3/4"	112'-8 1/8"	24'-2 7/16"	88'-5 11/16"	1" x 16"	2 1/4" x 12"	2 1/4" x 16"	1" x 12"	23	13	9	83	6'-0"	12"	6'-6"	5'-1 3/4"	9'-5 1/8"	28	5/16
F	26'-10"	53'-3 1/16"	80'-1 1/16"	114'-4 1/2"	21'-0 1/8"	93'-4 3/8"	1 1/8" x 16"	2 1/4" x 12"	2 1/4" x 16"	1 1/8" x 12"	33	12	7	88	6'-0"	9"	6'-0"	5'-10 1/16"	9'-1 1/2"	21	5/16
G	30'-0 1/4"	53'-3 1/16"	83'-3 5/16"	116'-0 7/8"	22'-9 5/8"	93'-3"	1 1/4" x 16"	2 3/8" x 12"	2 3/8" x 16"	1 1/4" x 12"	33	14	8	87	6'-0"	9"	6'-0"	6'-0 5/16"	10'-3 7/8"	21	5/16

Notes:
For General Notes and Summary of Quantities see sheets 2, 3 and 4.
For Framing Plan see sheet 25.
For additional details see sheets 33 thru 36.
For Field Splice Details see sheet 35.
For Bearing Details see sheet 36.
*Denotes no Shear Studs in this area
**PL 1x7 exterior face & PL 1x8 interior face Girders A & G. 2-PL's 1x8 Girders B thru F

NO	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

McGEE STREET VIADUCT
OVER
KANSAS CITY TERMINAL RAILWAY

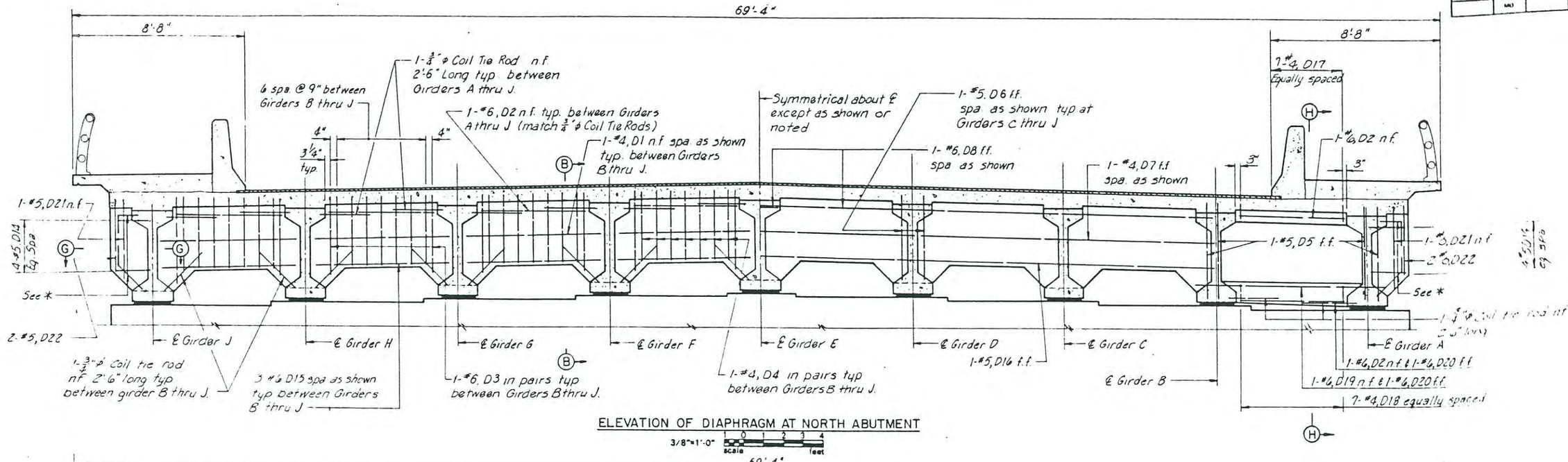
GIRDER DETAILS

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: R.M.
CKD: E.L.G.
DATE: 4/1/80

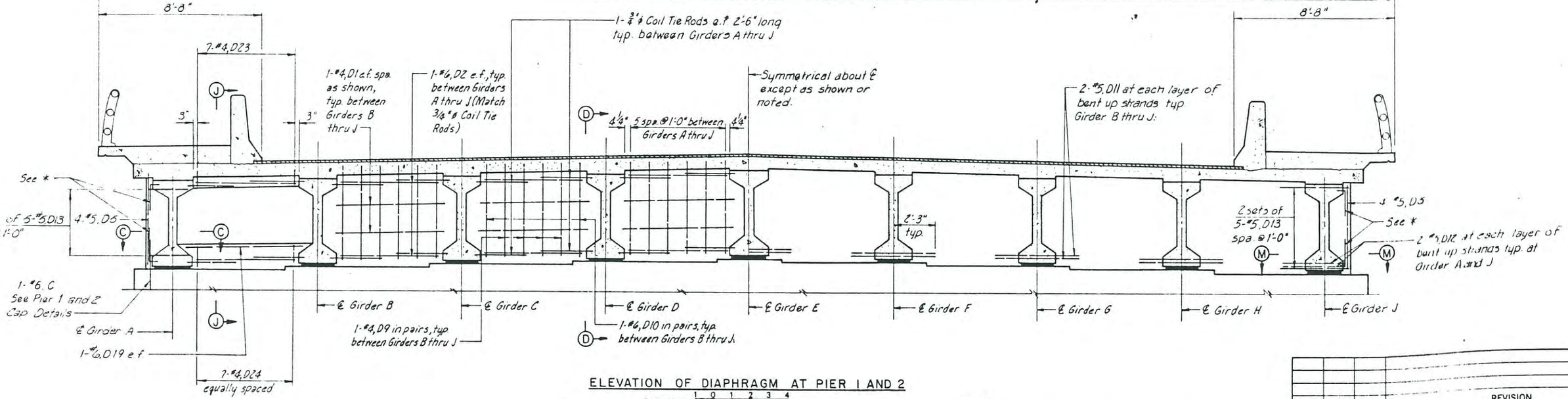
SHEET 28

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		



ELEVATION OF DIAPHRAGM AT NORTH ABUTMENT

3/8"=1'-0" scale 0 1 2 3 4 feet



ELEVATION OF DIAPHRAGM AT PIER 1 AND 2

3/8"=1'-0" scale 1 0 1 2 3 4 feet

* Shop bent 1-¾"ø Coil tie rod, or 1-#6 bar with threaded end.

Notes:

For General Notes and Summary of Quantities see sheets 2, 3 and 4.
For location of diaphragms see sheet 24.
For Reinforcing Steel Schedule see sheet 61.
For Sections see sheets 31 and 32.
n.f. denotes near face
f.f. denotes far face
e.f. denotes each face
For Pier Cap Details see sheet 14.

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

McGEE STREET VIADUCT OVER KANSAS CITY TERMINAL RAILWAY

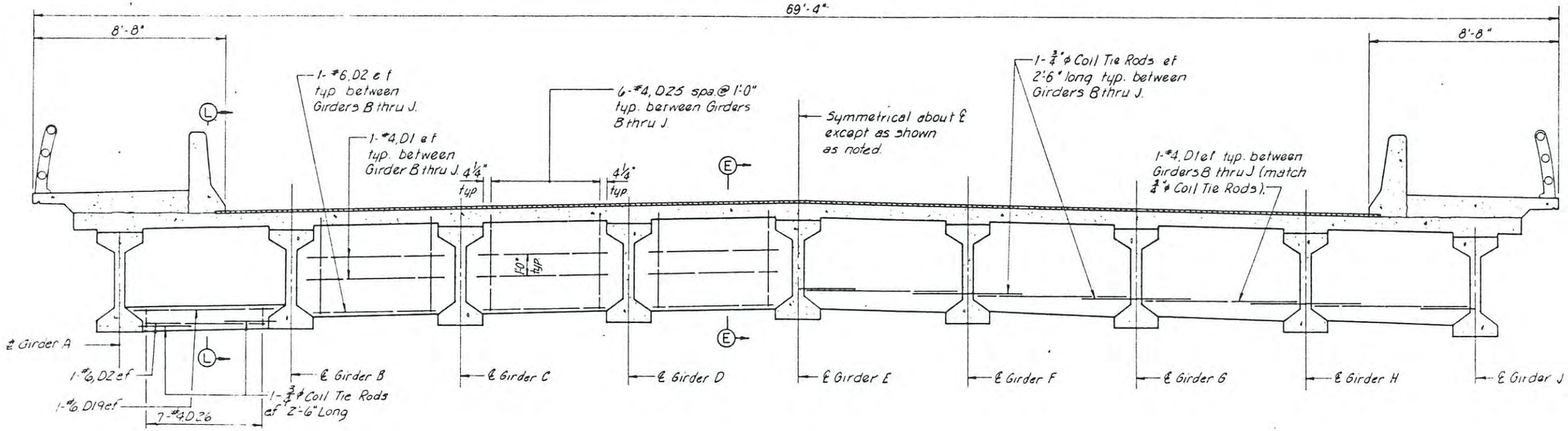
DIAPHRAGM DETAILS

BOYD, BROWN, STUDER & CAMBERN
CONSULTING ENGINEERS CHARTERED

DWN: CFS
CKD: FLG
DATE: 3-17-80

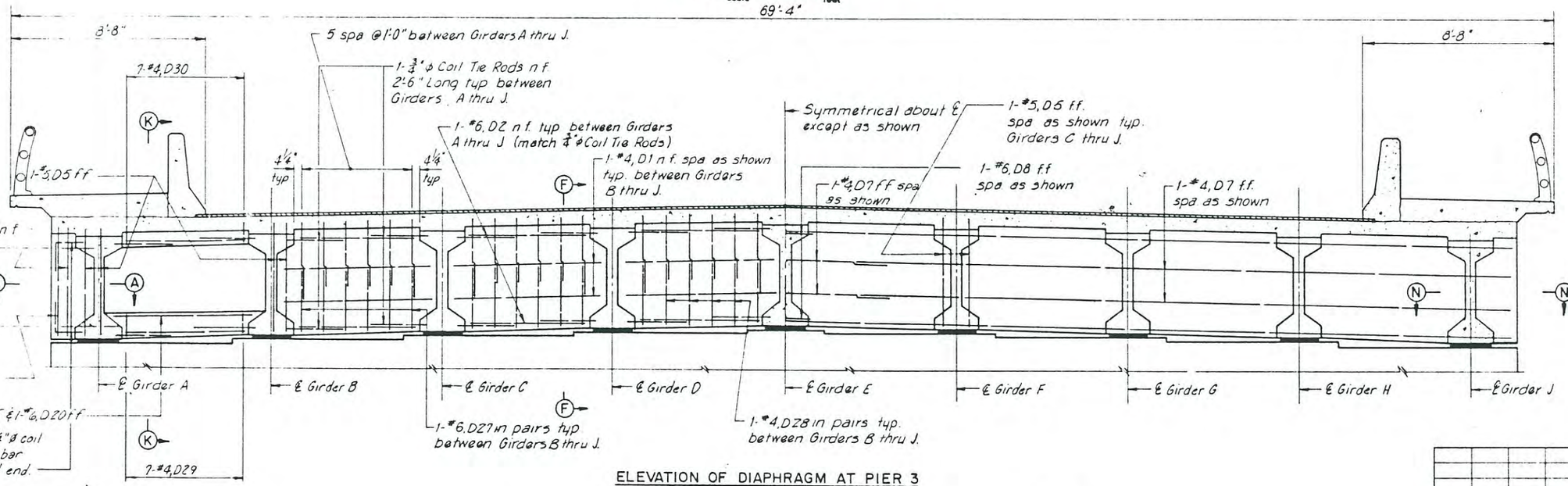
SHEET 29

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		



ELEVATION OF INTERMEDIATE DIAPHRAGM

3/8"=1'-0" Scale 1 0 1 2 3 4 feet



ELEVATION OF DIAPHRAGM AT PIER 3

3/8"=1'-0" Scale 1 0 1 2 3 4 feet

Notes:
For General Notes and Summary of Quantities see sheets 2, 3 and 4.
For location of diaphragms see sheet 24.
For Reinforcing Steel Schedule see sheet 61.
For Sections see sheet 31 and 32.
n f denotes near face
f.f. denotes far face
e f. denotes each face

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

McGEE STREET VIADUCT
OVER
KANSAS CITY TERMINAL RAILWAY

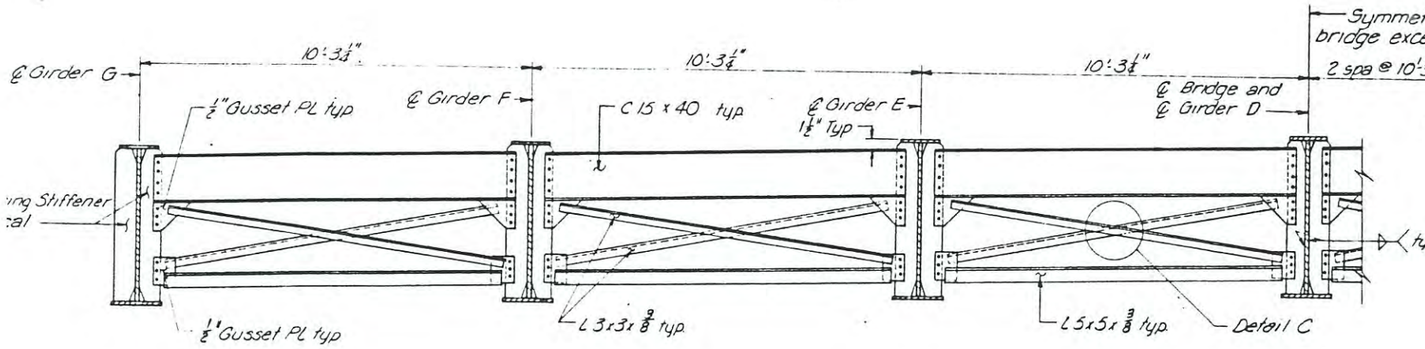
DIAPHRAGM DETAILS

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: CFS
CKD: ELG
DATE: 3/1880

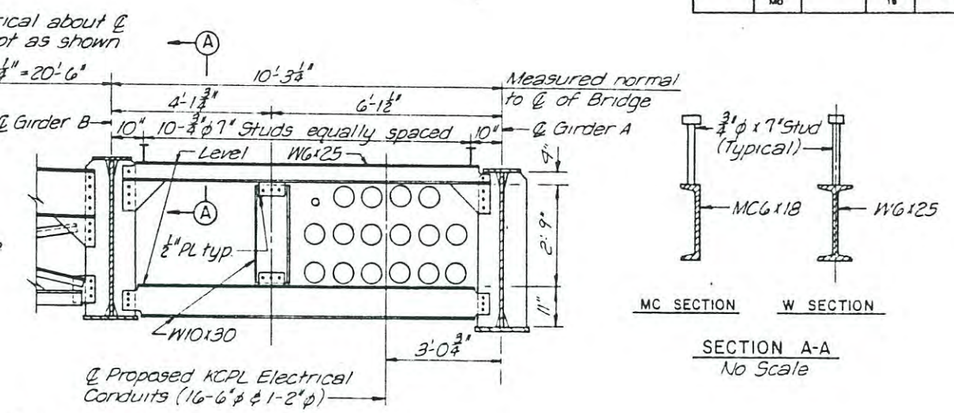
SHEET 30

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		



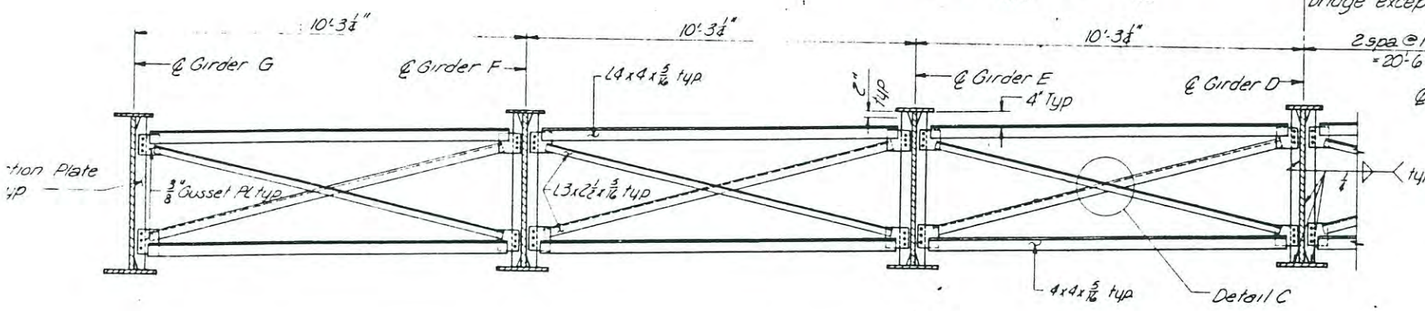
END CROSSFRAME AT PIER 3 AND SOUTH ABUTMENT

1/2"=1'-0" Scale 1 0 1 2 3 feet



MC SECTION W SECTION

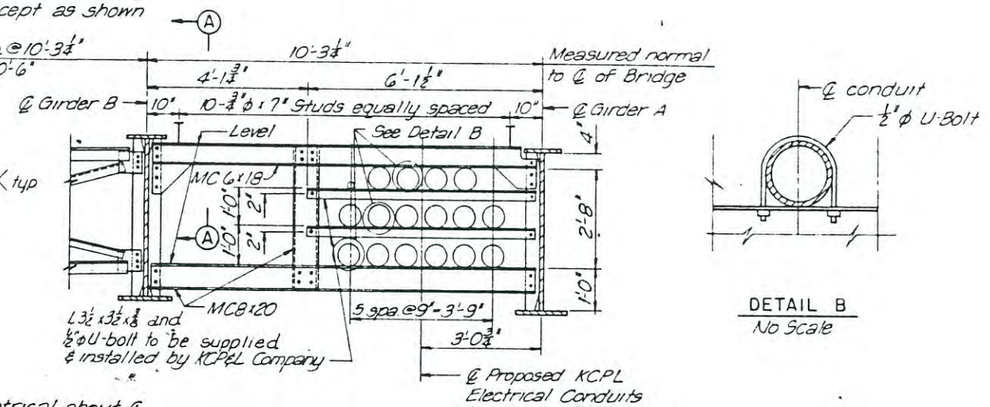
SECTION A-A
No Scale



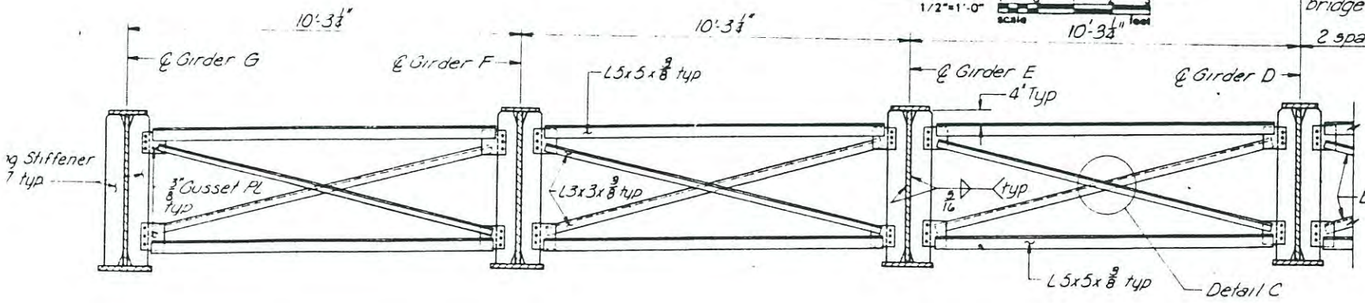
Note:
Type 1 Intermediate diaphragm shown, Type 2 similar

INTERMEDIATE DIAPHRAGM

1/2"=1'-0" Scale 1 0 1 2 3 feet

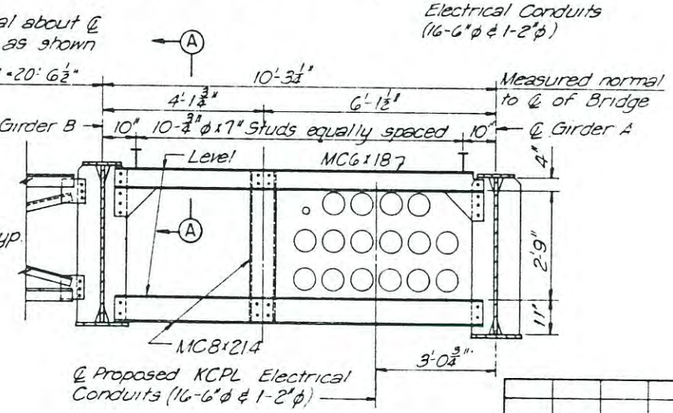


DETAIL B
No Scale



CROSSFRAME AT PIER 4

1/2"=1'-0" Scale 1 0 1 2 3 feet



Notes:
For location of Crossframes and Diaphragms see sheet 25.
For additional details see sheet 34.
For Bearing details see sheet 36.
Contractor shall provide 13/16"ϕ holes for the L 3½ x 3½ x ⅜ conduit supports and 9/16"ϕ holes in the MC 8 x 20 for the ½"ϕ U-bolts

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

McGEE STREET VIADUCT
OVER
KANSAS CITY TERMINAL RAILWAY

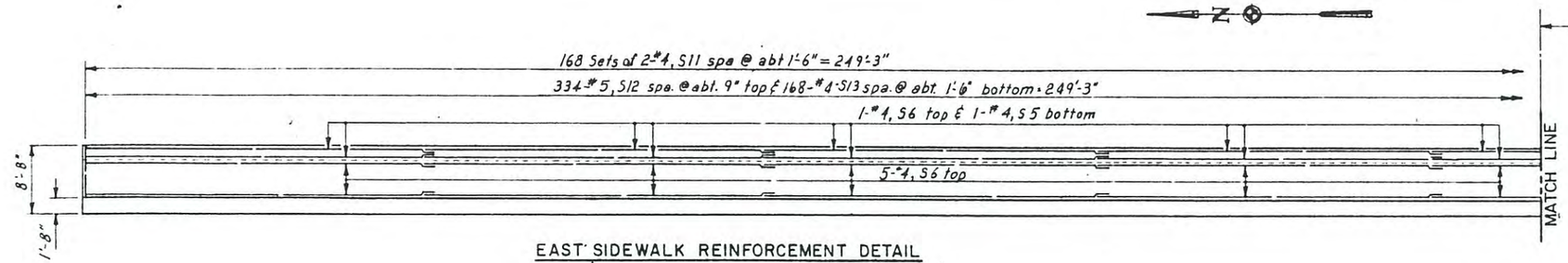
DIAPHRAGM AND CROSSFRAME DETAILS

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN. A.M.
CKD: E.L.G.
DATE 4/1980

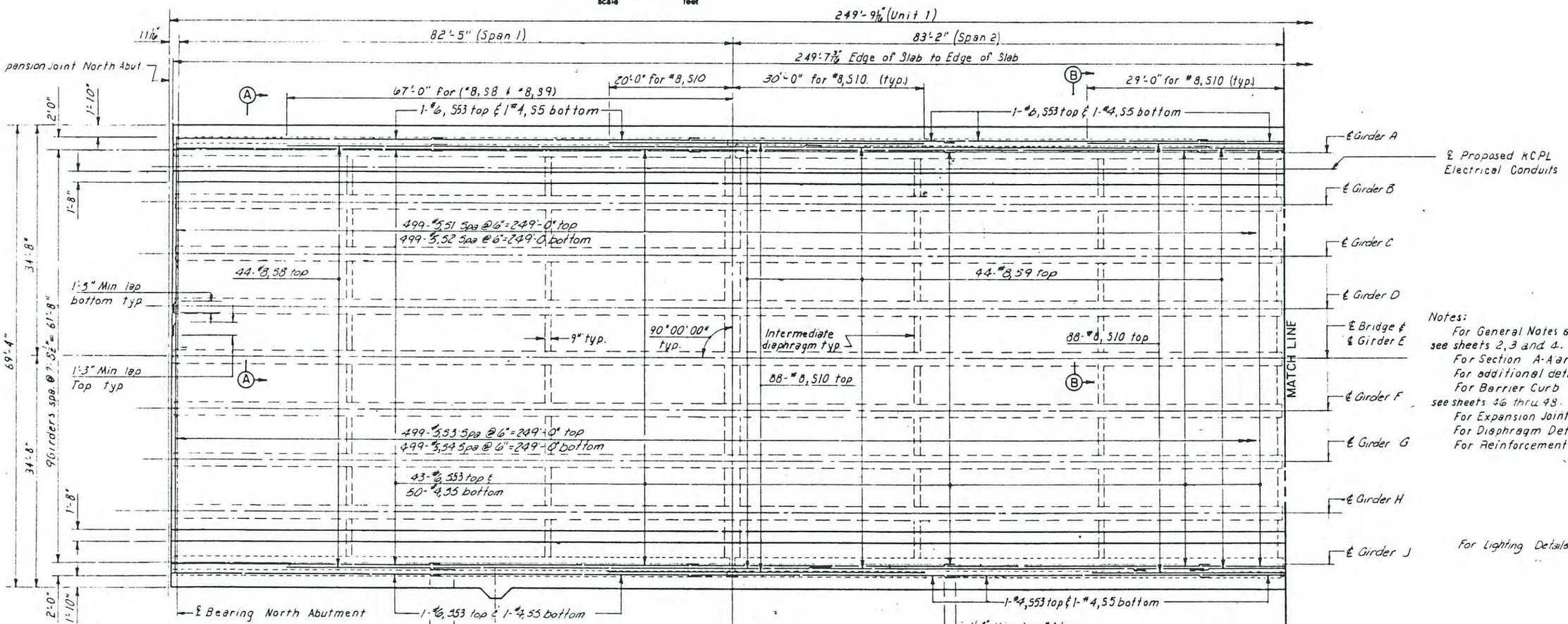
SHEET 33

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		



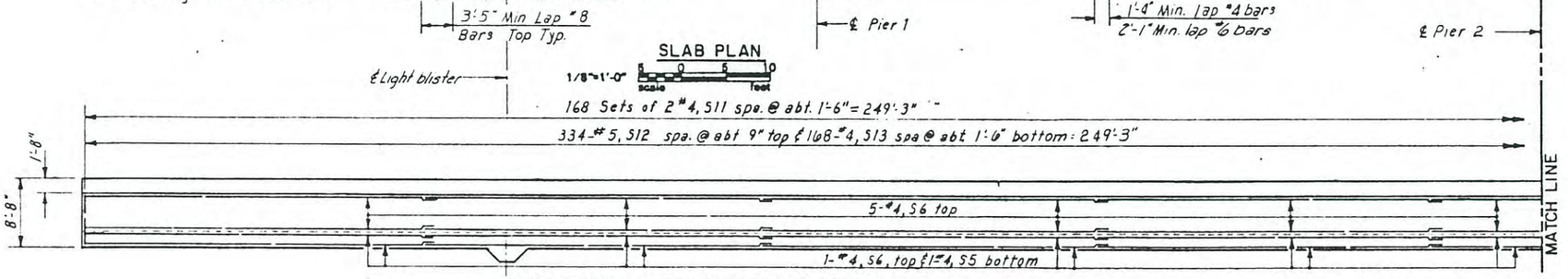
EAST SIDEWALK REINFORCEMENT DETAIL

1/8"=1'-0" Scale 5 0 5 10 Feet



SLAB PLAN

1/8"=1'-0" Scale 5 0 5 10 Feet



WEST SIDEWALK REINFORCEMENT DETAIL

1/8"=1'-0" Scale 5 0 5 10 Feet

Notes:

For General Notes and Summary of Quantities see sheets 2, 3 and 4.
For Section A-A and B-B see sheet 43.
For additional details of Slab see sheet 45.
For Barrier Curb and Pedestrian Rail Details see sheets 46 thru 48.
For Expansion Joint Details see sheets 37 thru 39.
For Diaphragm Details see sheets 29 thru 32.
For Reinforcement Schedule see sheet 60.

For Lighting Details see sheets 49 & 50

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

McGEE STREET VIADUCT OVER KANSAS CITY TERMINAL RAILWAY

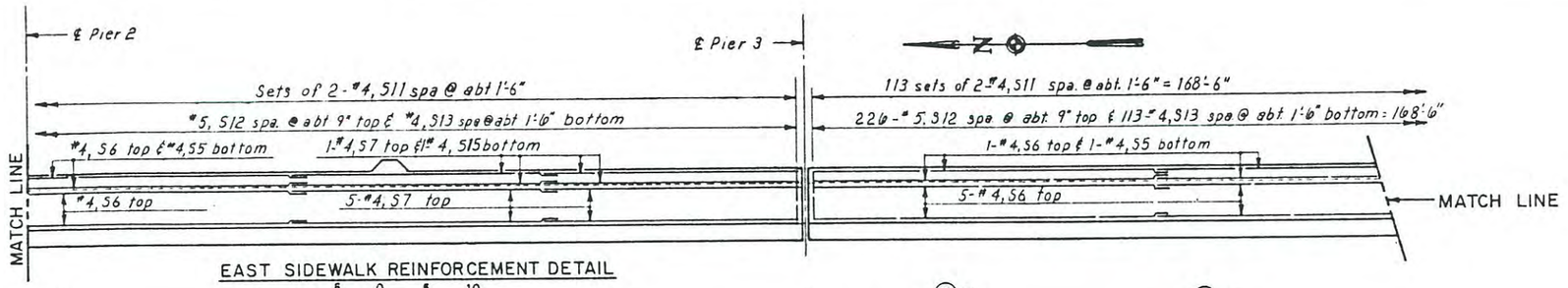
SLAB PLAN-UNIT I

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: E J M.
CKD: E W B
DATE: 5-2-80

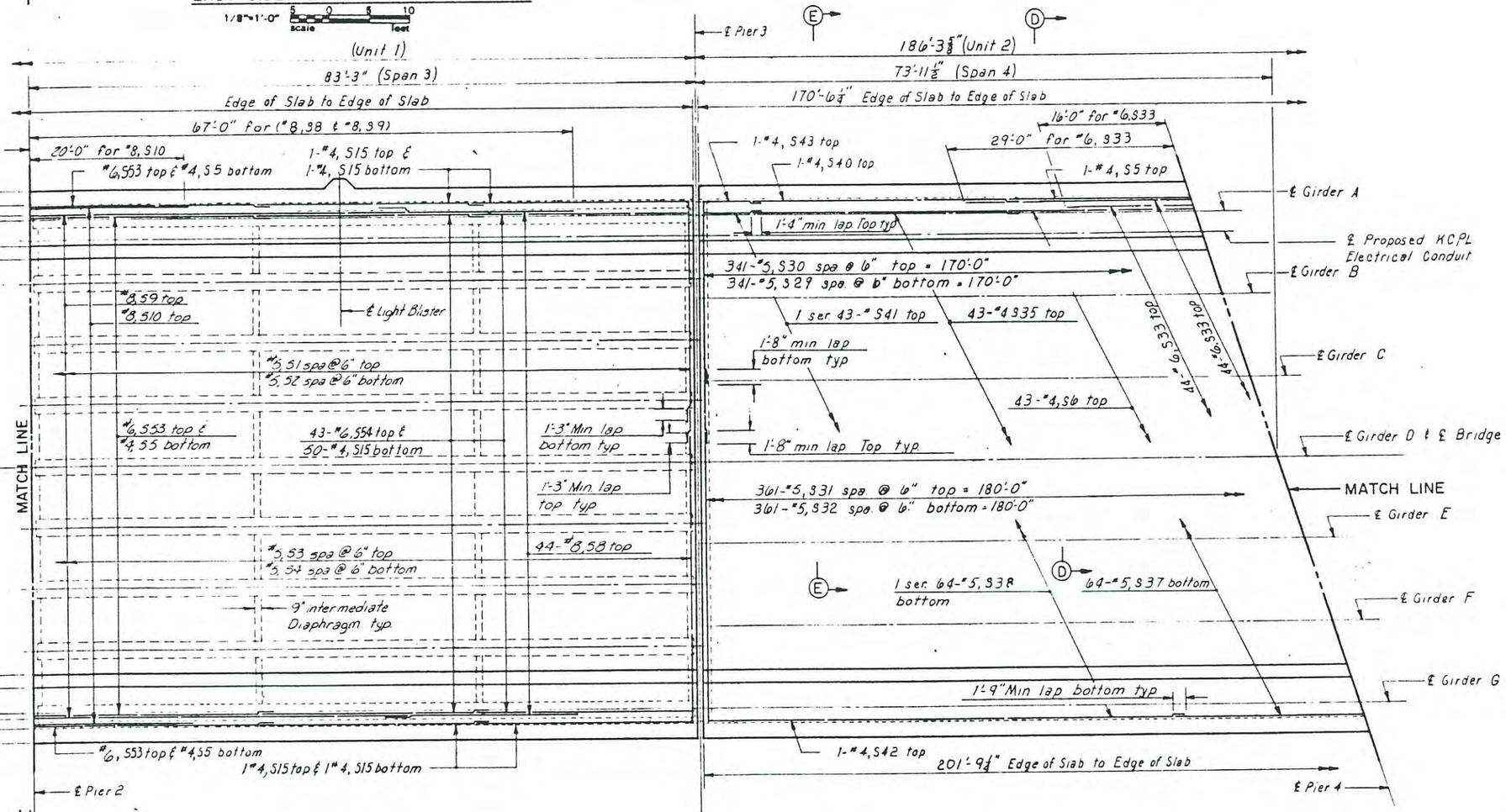
SHEET 40

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		



EAST SIDEWALK REINFORCEMENT DETAIL

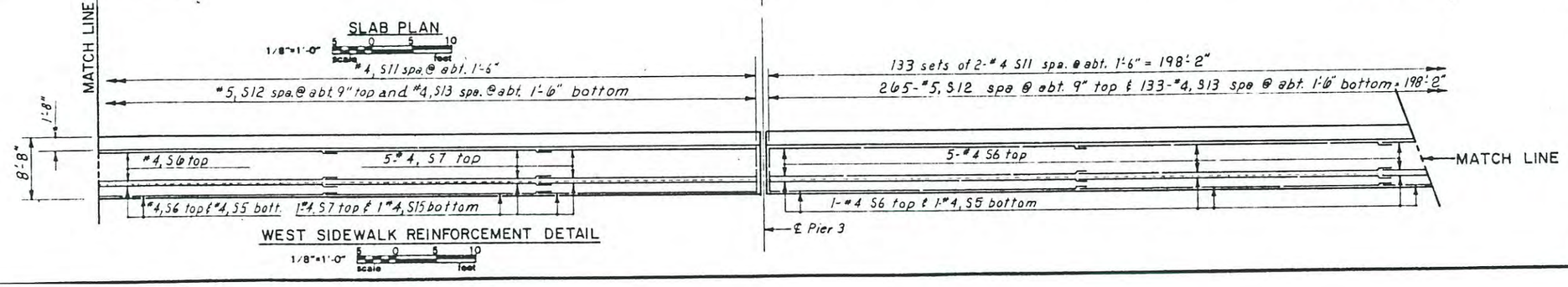
1/8"=1'-0" Scale 5 0 5 10 Feet



Notes:
For General Notes and Summary of Quantities see sheets 2, 3 and 4.
For Reinforcement Schedule see sheet 60.
For Lighting Details see sheets 49 & 50.

SLAB PLAN

1/8"=1'-0" Scale 5 0 5 10 Feet



WEST SIDEWALK REINFORCEMENT DETAIL

1/8"=1'-0" Scale 5 0 5 10 Feet

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

McGEE STREET VIADUCT OVER KANSAS CITY TERMINAL RAILWAY

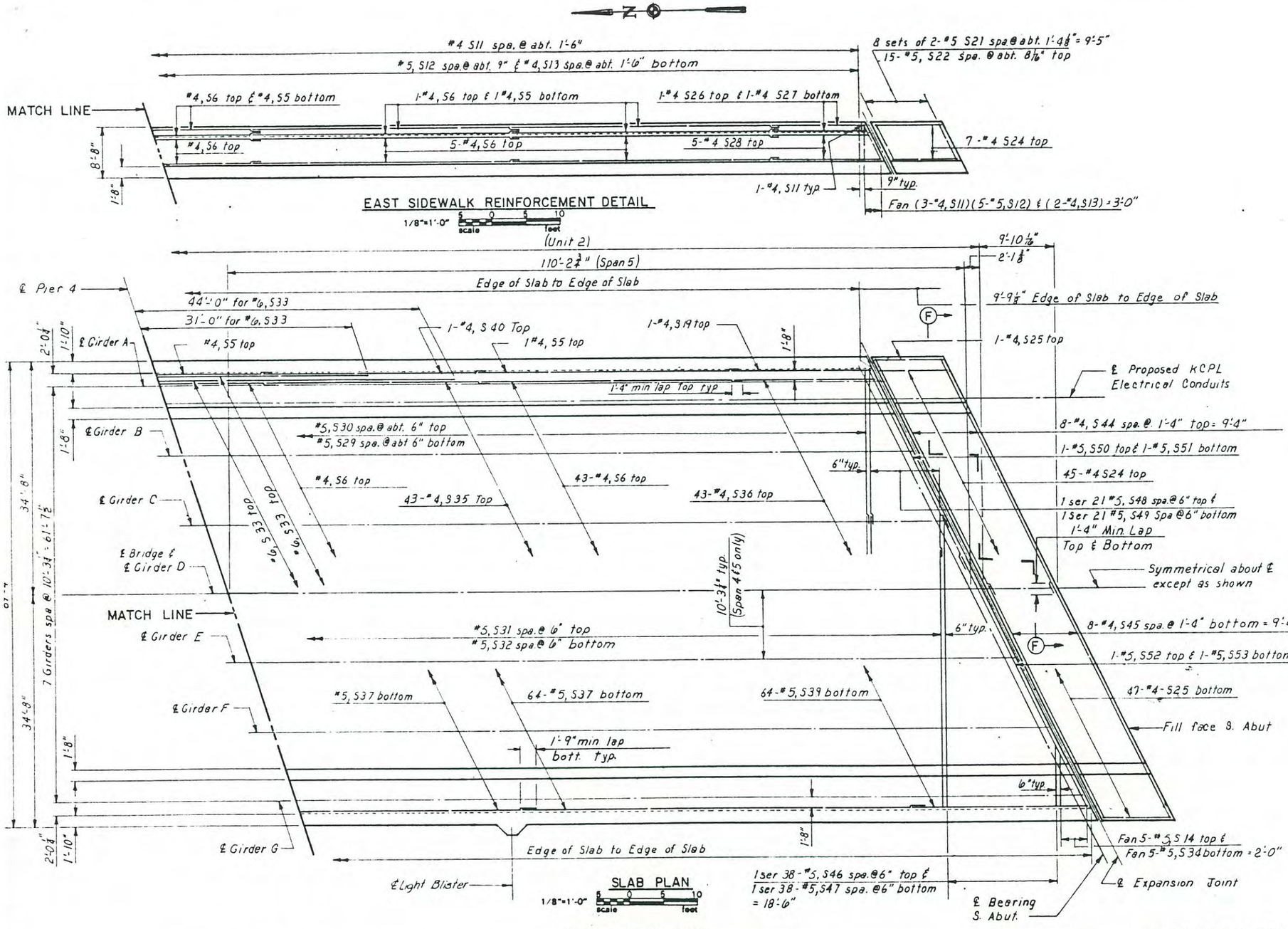
SLAB PLAN — UNIT 1 AND 2

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: EJM
CKD: EWB
DATE: 5-280

SHEET 41

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		



Notes:
For General notes and Summary of Quantities see sheets 2, 3 & 4.
For Lighting Details see sheets 49 & 50.
For Reinforcement Schedule see sheet 60.

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

McGEE STREET VIADUCT OVER KANSAS CITY TERMINAL RAILWAY

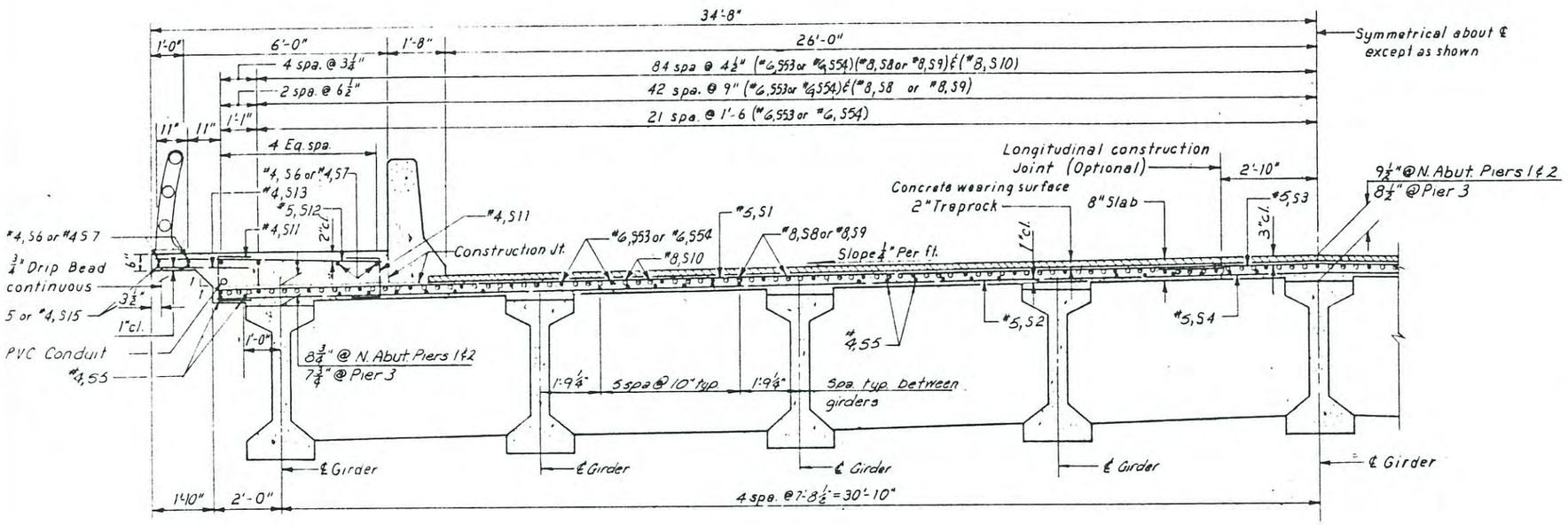
SLAB PLAN — UNIT 2

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: F.J.M
CKD: E.N.B
DATE: 5-2-80

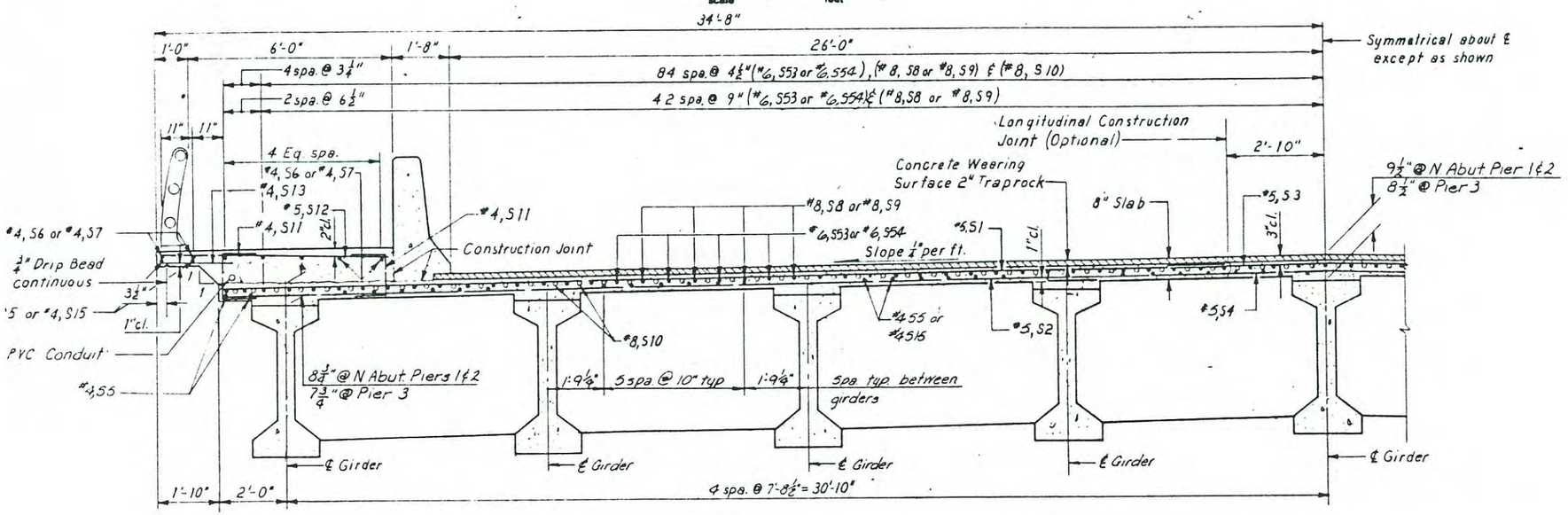
SHEET 42

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		



SECTION A-A

1/2"=1'-0" scale 1 0 1 2 3 feet



SECTION B-B

1/2"=1'-0" scale 1 0 1 2 3 feet

Notes.

For additional Notes see sheet 40.

For location of Section A-A and B-B see sheet 40.

For Barrier Curb and Pedestrian Rail details see sheets 46 thru. 48.

For notes on optional Precast Prestressed Concrete Deck Panel See Sheet 3.

For Lighting details see sheet 49 & 50

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

McGEE STREET VIADUCT OVER KANSAS CITY TERMINAL RAILWAY

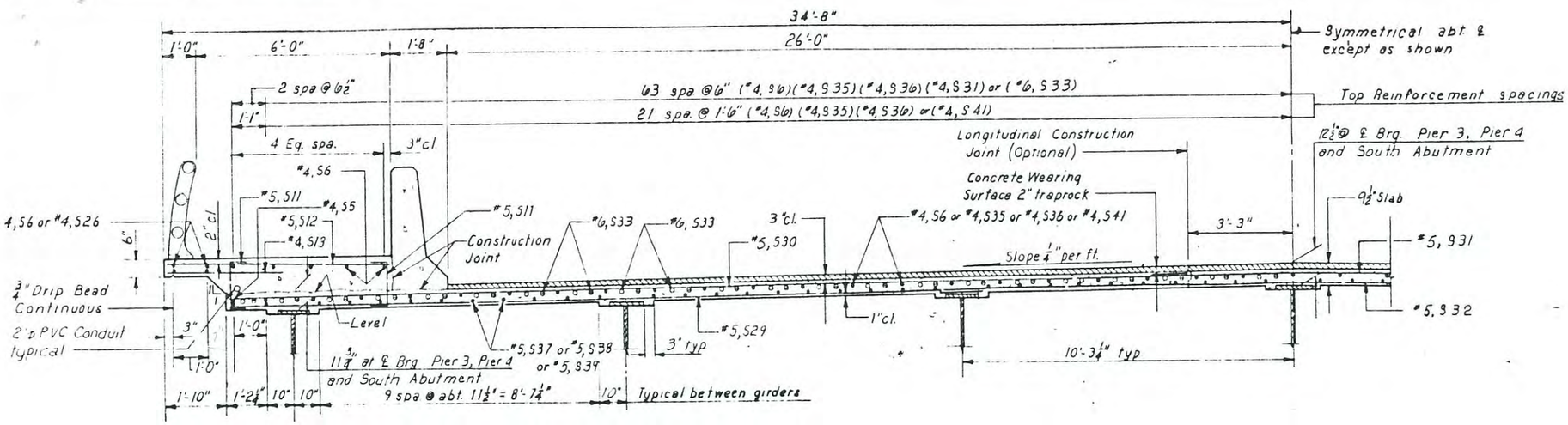
SLAB DETAILS – UNIT 1

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: E.J.M.
CKD: T.J.R.
DATE: 5-2-80

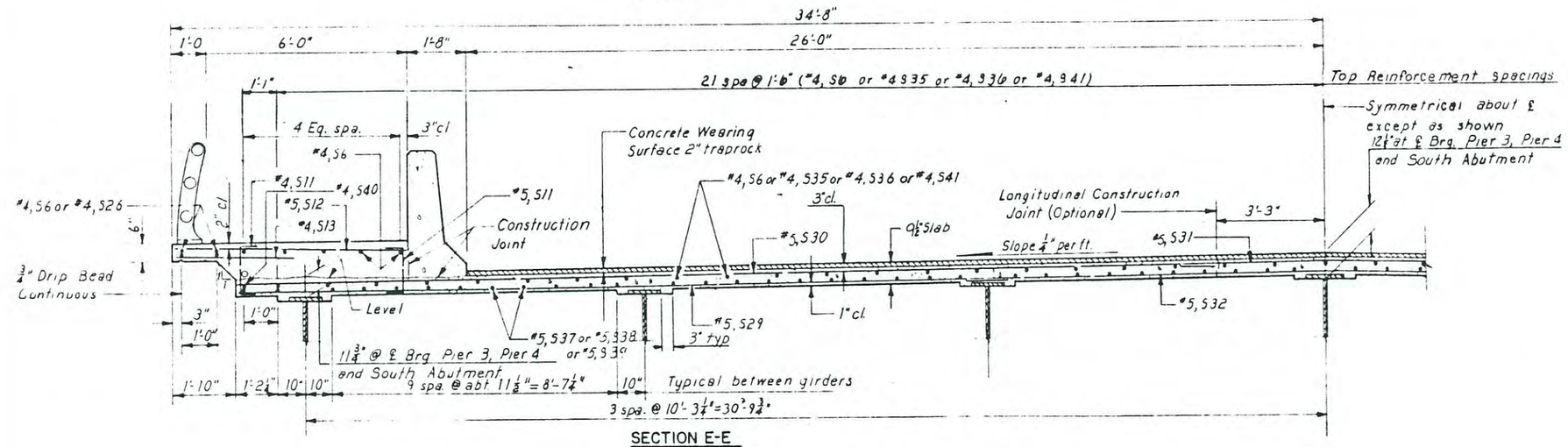
SHEET 43

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO.		19		



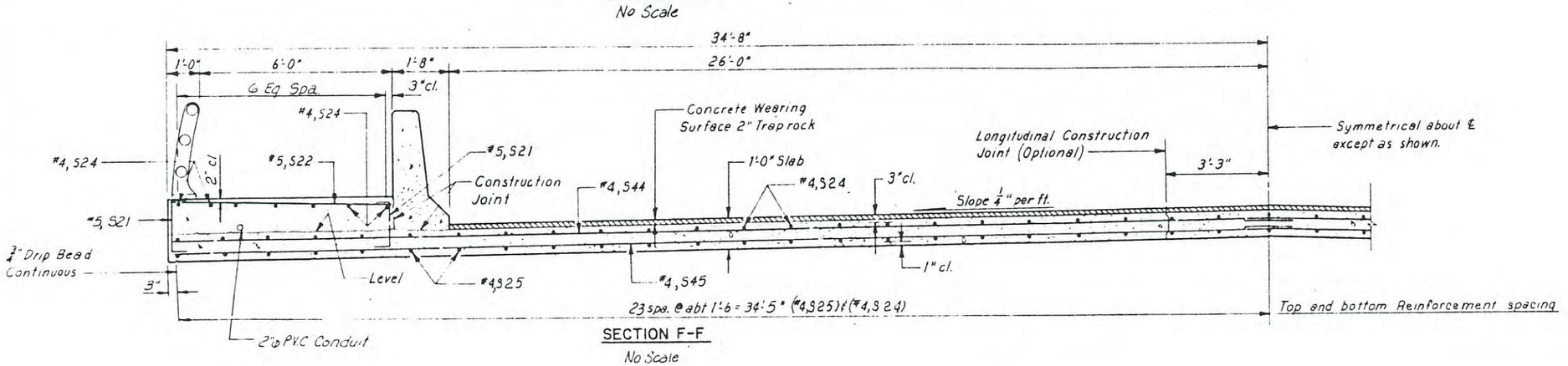
SECTION D-D

No Scale



SECTION E-E

No Scale



SECTION F-F

No Scale

Notes:

For General Notes and Summary of Quantities see sheets 2, 3 and 4.

For additional details of Slab see sheet 45.

Barrier Curb and Pedestrian Rail Details See sheets 46 thru 48.

For Reinforcement Schedule see sheet 60.

For Lighting details see sheets 49 & 50

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

McGEE STREET VIADUCT OVER KANSAS CITY TERMINAL RAILWAY

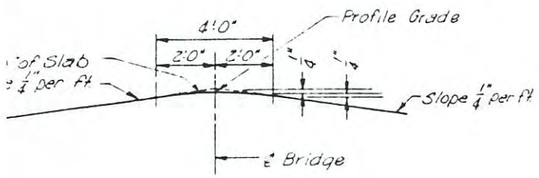
SLAB DETAILS – UNIT 2

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

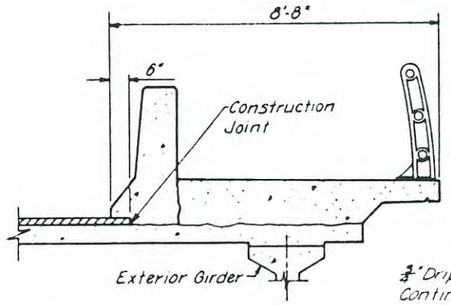
DWN: E.J.M.
CKD: T.J.R.
DATE: 5-2-80

SHEET 44

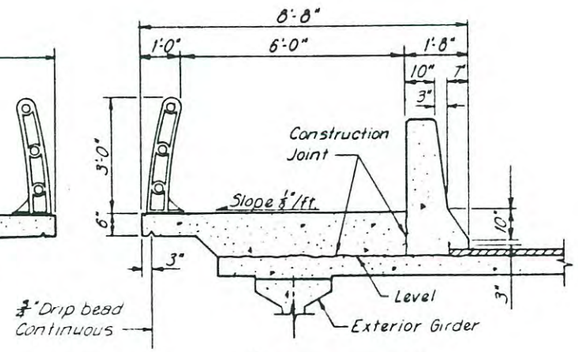
FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	MO		19		



4' PARABOLIC ROUNDING
No Scale

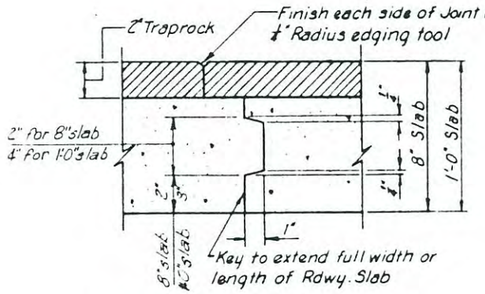


✳ CONSTRUCTION JOINT DETAIL
1/2"=1'-0" Scale 0 1 2 3 feet

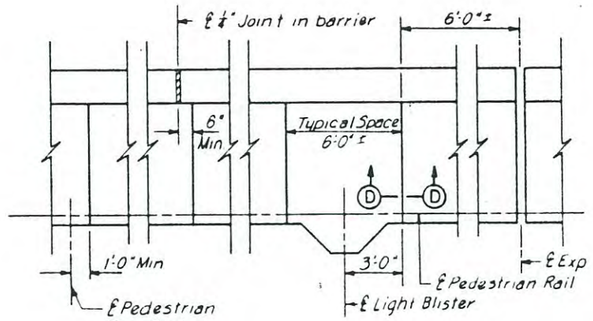


✳ TYPICAL SECTION
1/2"=1'-0" Scale 0 1 2 3 feet

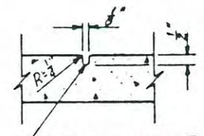
✳ Section shown for Unit 1 slab.
Unit 2 similar.



CONSTRUCTION JOINT KEY DETAIL
No Scale

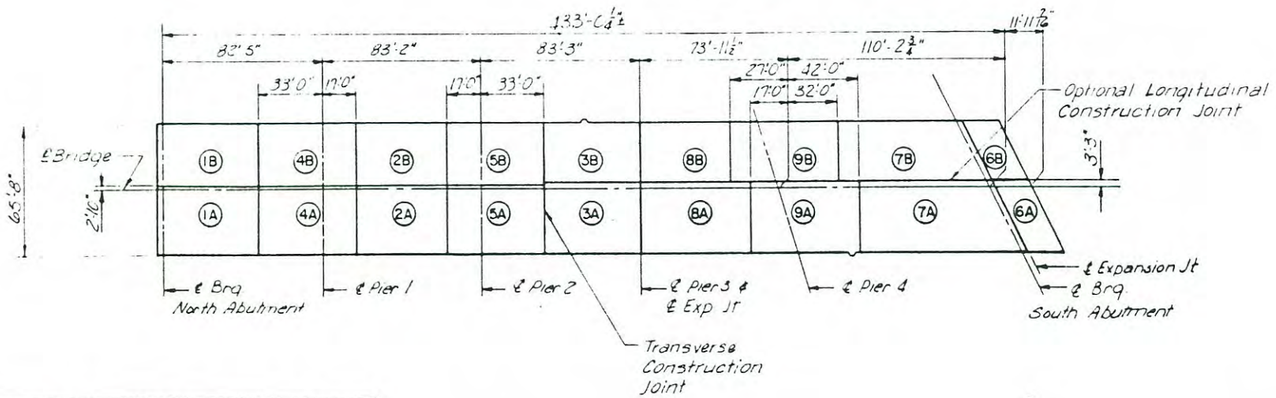


TYPICAL SIDEWALK JOINT DETAIL
1/4"=1'-0" Scale 5 0 5 feet



SECTION D-D
No Scale

Notes:
For General Notes see sheets 2 and 3.
For Slab Details see sheets 10 thru 44.
The Contractor shall pour and satisfactorily finish the roadway slab at rate given in the Concrete Pouring Rate table. He shall observe the longitudinal and transverse construction joints and sequence of pour shown on plans unless he can demonstrate to the satisfaction of the Engineer that he is equipped to pour and satisfactorily finish the entire Unit at the given rate of pour. Curb and sidewalk may be placed continuously regardless of pour rate.
Dummy joints in sidewalk shall be evenly spaced with approximate spacing equal to the width of the sidewalk. Joint spacing shall be submitted to the Engineer for approval prior to placing sidewalk concrete.
A retarder shall be used in all deck concrete.



SLAB POURING SEQUENCE
1" = 40' Scale 40 0 40 80 feet

CONCRETE POURING RATE		
UNIT	MIN. RATE (CU. YDS. PER HR) WITH LONG CONST. JT.	MIN. RATE (CU. YDS. PER. HR.) WITHOUT LONG CONST JT.)
1	25	30
2	37	40
3	25	25

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 196-21

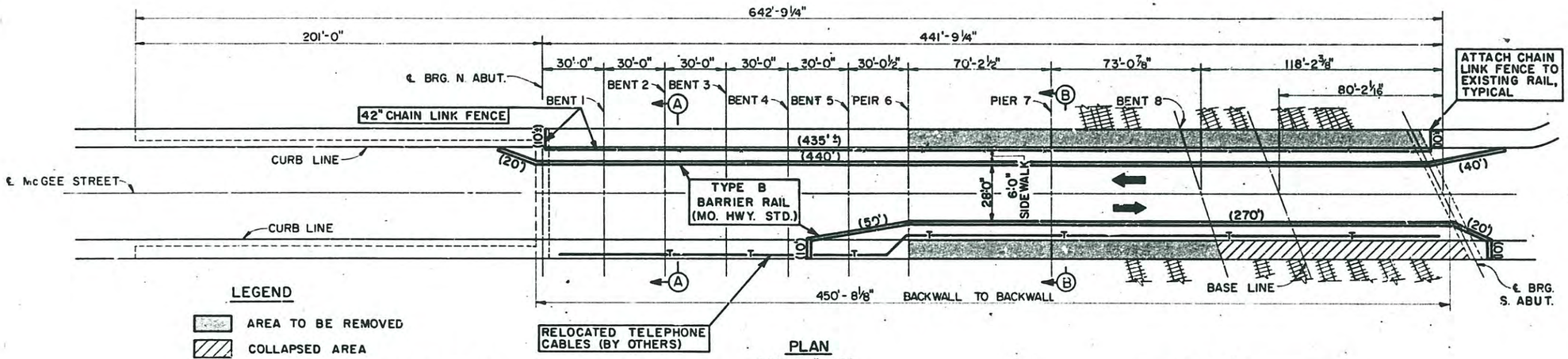
McGEE STREET VIADUCT OVER KANSAS CITY TERMINAL RAILWAY

SLAB DETAILS

BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS CHARTERED

DWN: CFS
CKD: TJR
DATE: 8 2280

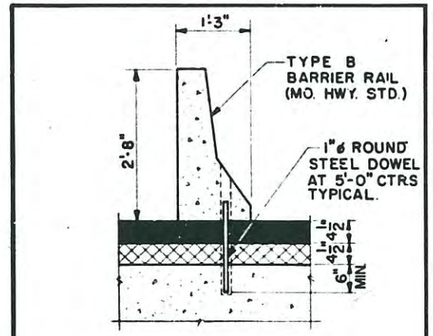
SHEET 45



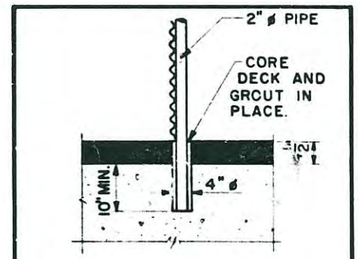
PLAN
SCALE: 1" = 30'

ELEVATION
SCALE: 1" = 30'

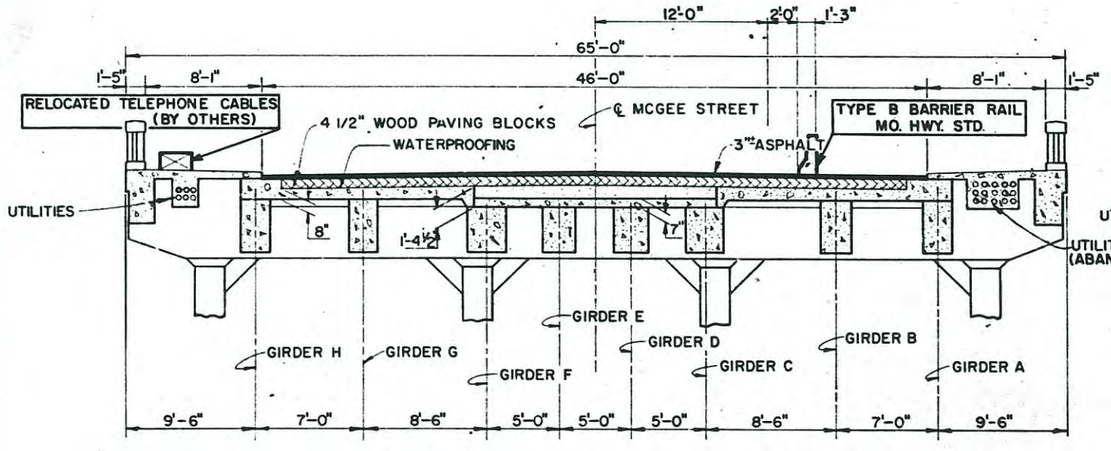
*MINIMUM HORIZONTAL CLEARANCE MEASURED PERPENDICULAR TO ℄ TRACKS.



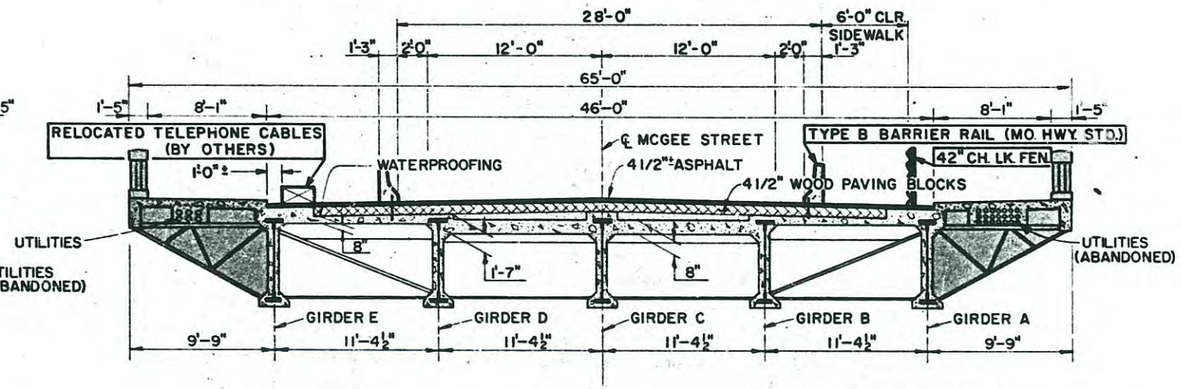
BARRIER RAIL ANCHOR DETAIL
NO SCALE



CHAIN LINK FENCE POST DETAIL
NO SCALE



SECTION A-A
(NORTH ABUTMENT TO PIER 6)



SECTION B-B
(PIER 6 TO SOUTH ABUTMENT)

NOTE:
LIGHT POLES WITHIN THE SIDEWALK REMOVAL AREAS WILL BE REMOVED BY K.C.P.&L.

NO.	MADE	DATE	REVISION

KANSAS CITY, MISSOURI

FILE NO. 197-E-45

McGEE STREET VIADUCT OVER KANSAS CITY TERMINAL RAILWAY

EMERGENCY SIDEWALK REMOVAL

THEODORE J. CAMBERN, JR. NUMBER E-15618 REGISTERED PROFESSIONAL ENGINEER STATE OF MISSOURI

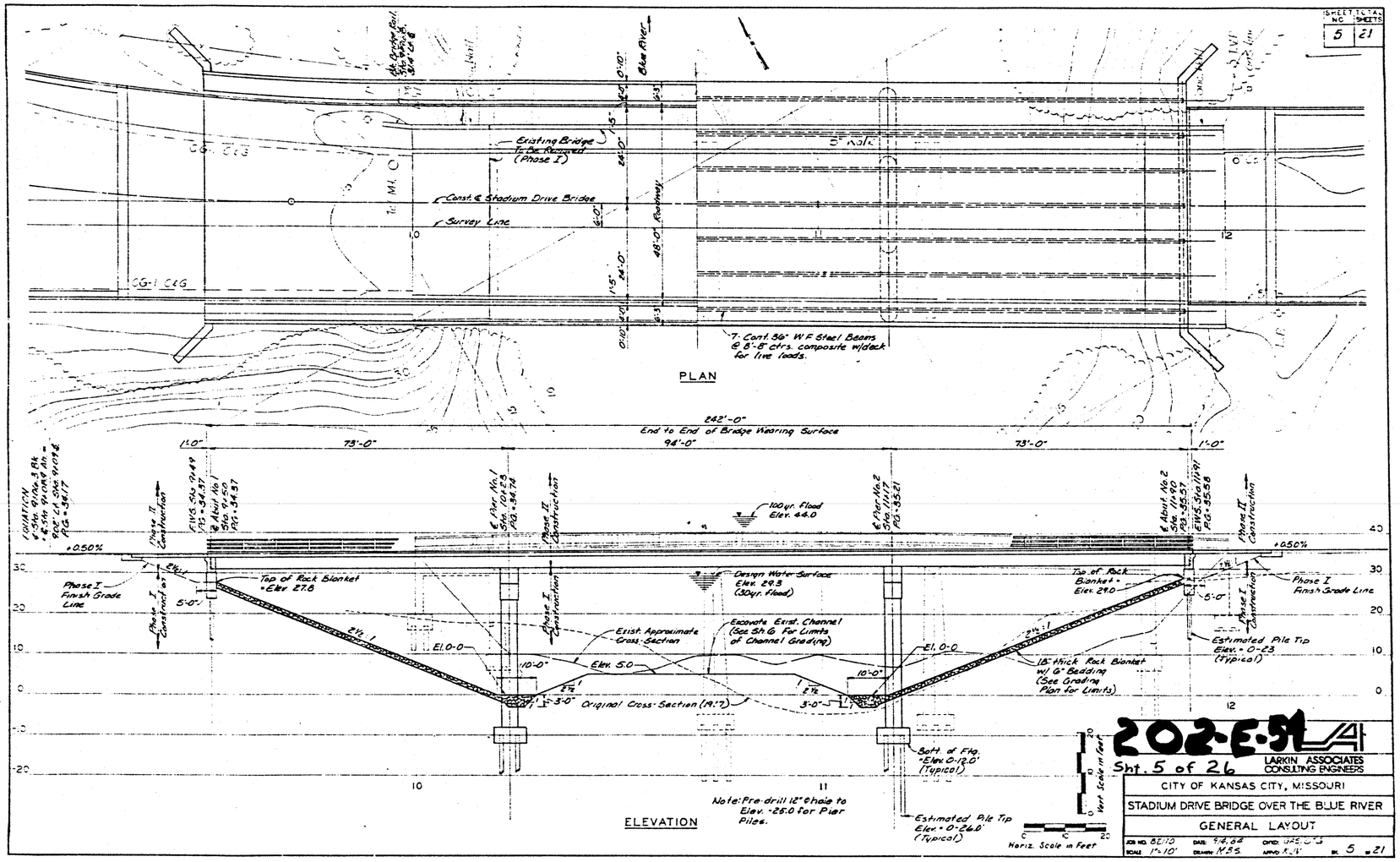
BOYD, BROWN, STUDE & CAMBERN
CONSULTING ENGINEERS
CHARTERED

DWN: EAW
CKD:
DATE 6-29-83

SHEET 1

197-E-45 SHT 1 of 1

SHEET NO. 5 | TOTAL SHEETS 21



202-E-91A1

Sht. 5 of 26

LARKIN ASSOCIATES CONSULTING ENGINEERS

CITY OF KANSAS CITY, MISSOURI

STADIUM DRIVE BRIDGE OVER THE BLUE RIVER

GENERAL LAYOUT

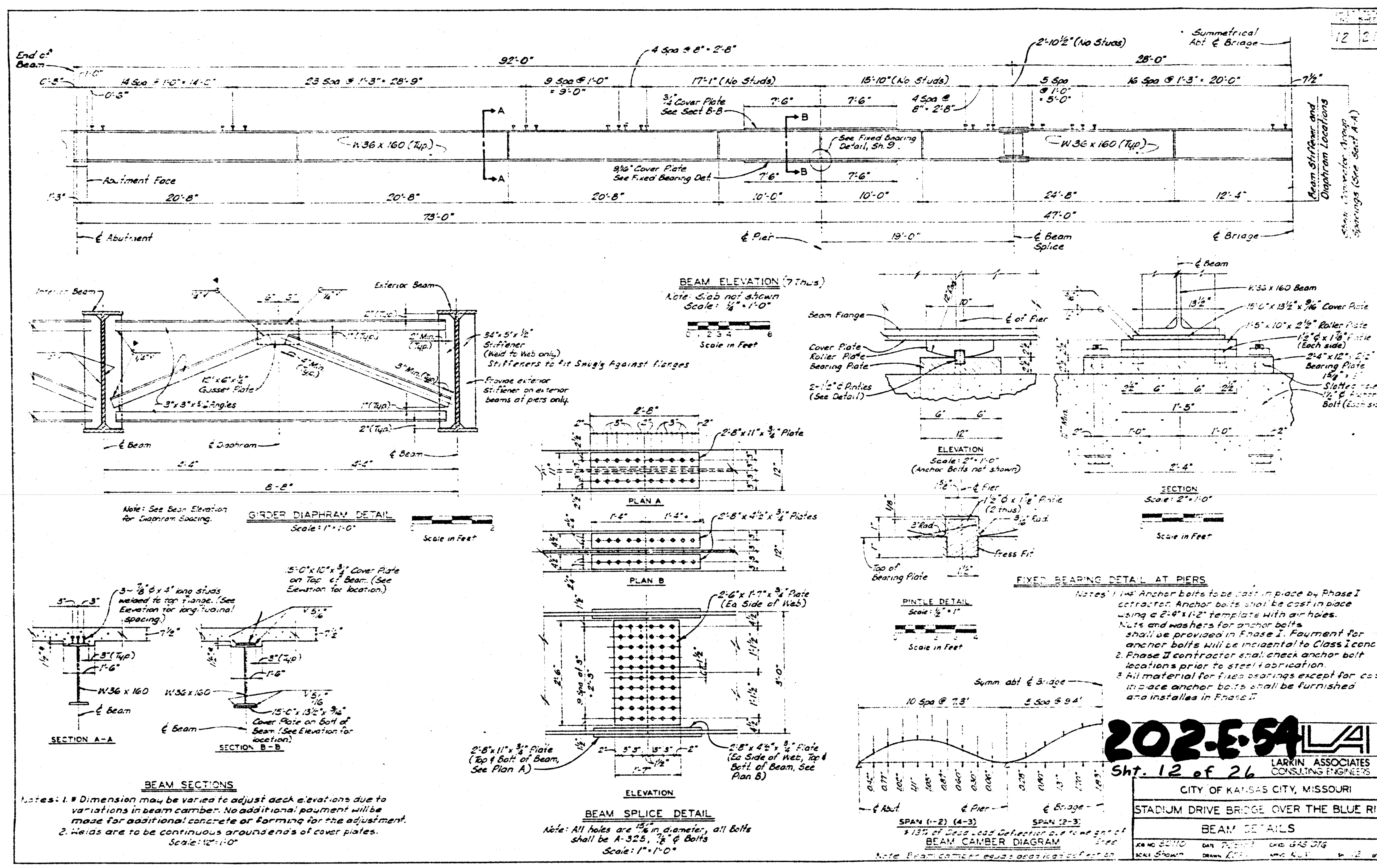
JOB NO. 8E110 | DATE: 9-4-84 | CHKD: JAE, D.J.S.

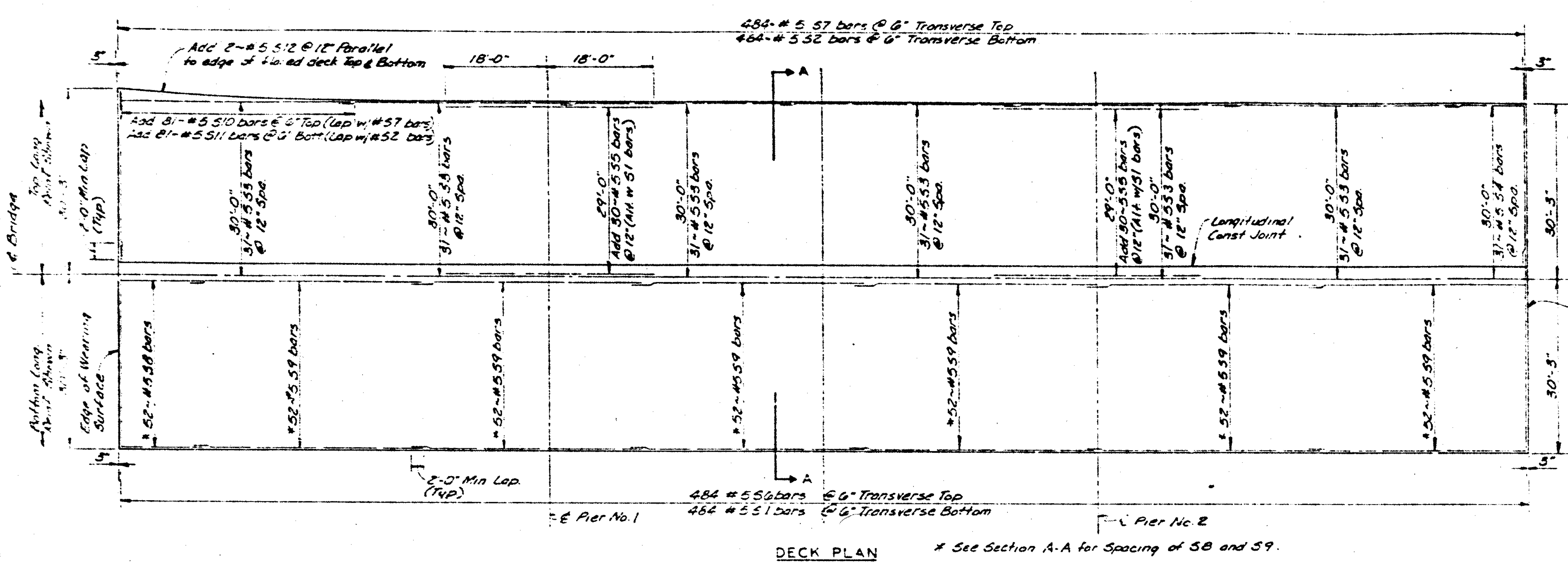
SCALE 1"=10' | DRAWN: M.S.S. | APPVD: R.N. | SK. 5 of 21

A572 steel

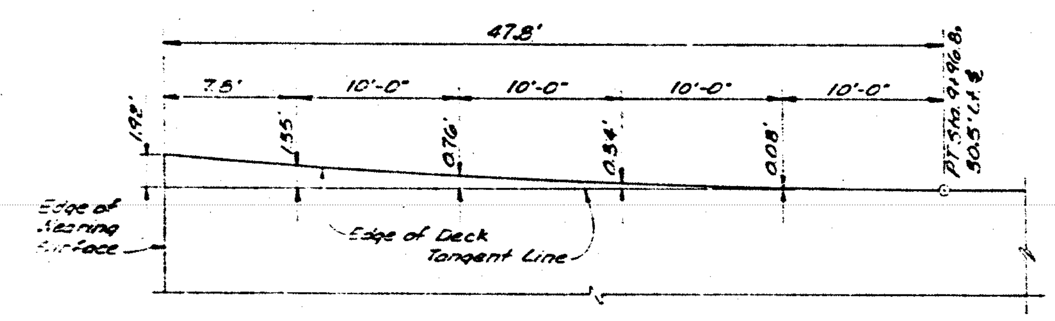
S072B21

11-L





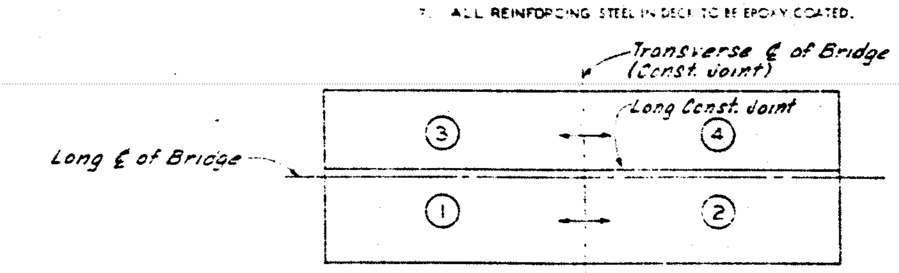
DECK PLAN
No Scale



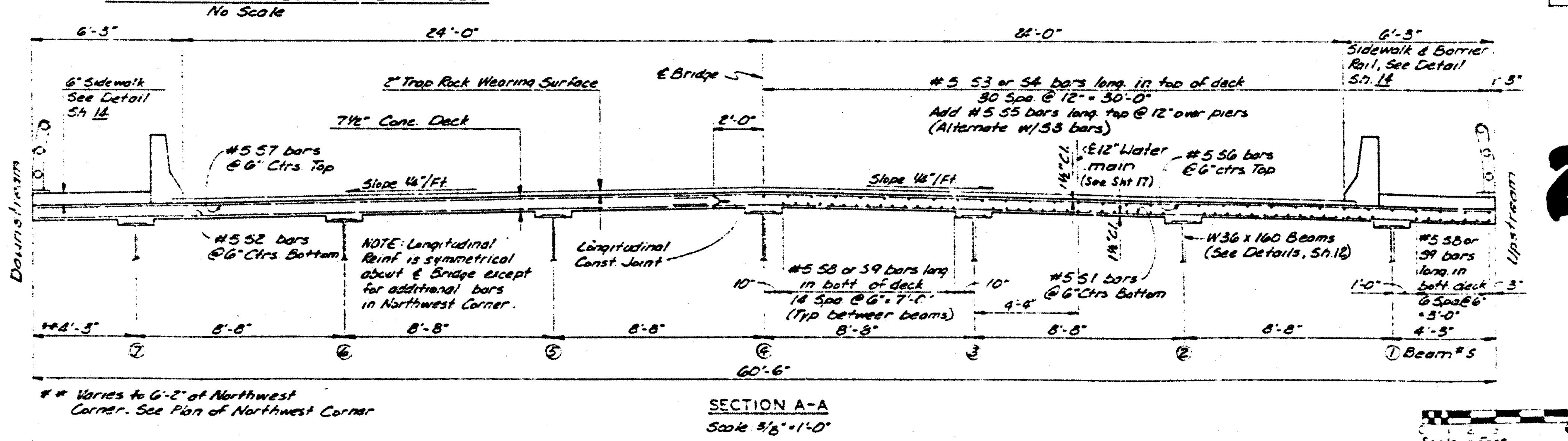
PLAN OF NORTHWEST CORNER OF DECK
No Scale

NOTES

1. CONTRACTOR, AT HIS OPTION, MAY POUR THE DECK IN ONE DAY OR TWO SEPARATE DAYS. TWO CONCRETE FINISHING MACHINES SHALL BE REQUIRED IF THE ENTIRE DECK IS POURED IN ONE DAY.
2. TRAP ROCK WEARING SURFACE SHALL BE WET BONDED TO DECK CONCRETE I.E. SAME DAY POUR.
3. THE DECK SHALL BE POURED IN THE SEQUENCE SHOWN IN THE POURING SEQUENCE DIAGRAM. THE DECK POURS SHALL BEGIN AT THE TRANSVERSE CENTERLINE AND PROGRESS TO THE END OF THE BRIDGE. THE CONTRACTOR MAY SUBMIT AN ALTERNATE POURING SEQUENCE BUT IT WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
4. THE MINIMUM POURING RATE WITHOUT RETARDERS SHALL BE 45 CUBIC YARDS PER HOUR.
5. THE MINIMUM POURING RATE WITH AN APPROVED RETARDER SHALL BE 25 CUBIC YARDS PER HOUR.
6. IF A RETARDER IS USED, IT SHALL BE CAPABLE OF RETARDING THE SET OF THE CONCRETE 2.5 HOURS AND SHALL BE APPROVED BY THE ENGINEER.
7. ALL REINFORCING STEEL IN DECK TO BE EPOXY COATED.



POURING SEQUENCE
No Scale
(See Notes Above)



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

Scale in Feet

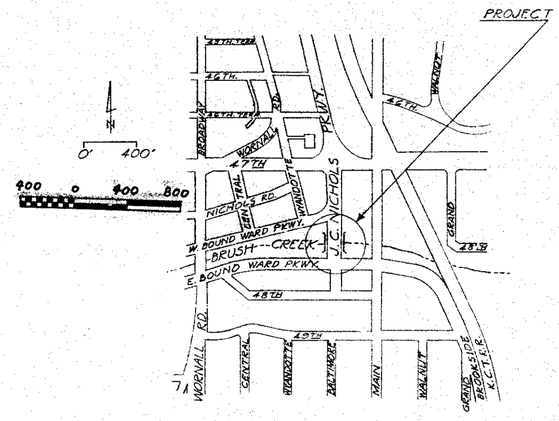
202-E-54
Sht. 13 of 26

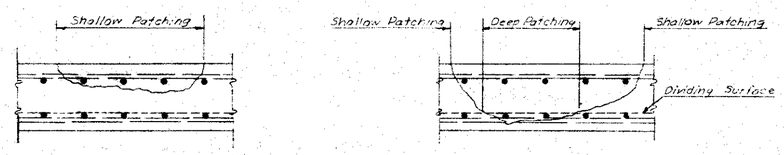
LARKIN ASSOCIATES
CONSULTING ENGINEERS

CITY OF KANSAS CITY, MISSOURI
STADIUM DRIVE BRIDGE OVER THE BLUE RIVER
SUPERSTRUCTURE DETAILS

JOB NO. 83-13 DATE 8-31-84 CHKD GAS/DTG
SCALE Shown DRAWN MAK APPVD KJV SH. 13 of 21

DECK REPAIR AND PROTECTION
ON J. C. NICHOLS PARKWAY
OVER BRUSH CREEK





SHALLOW PATCHING

DEEP PATCHING
LESS THAN FULL DEPTH

GENERALIZED SECTIONS OF BRIDGE DECK PATCHING

"No Scale"

Kansas City, Mo.
Public Works Department
Engineering Division

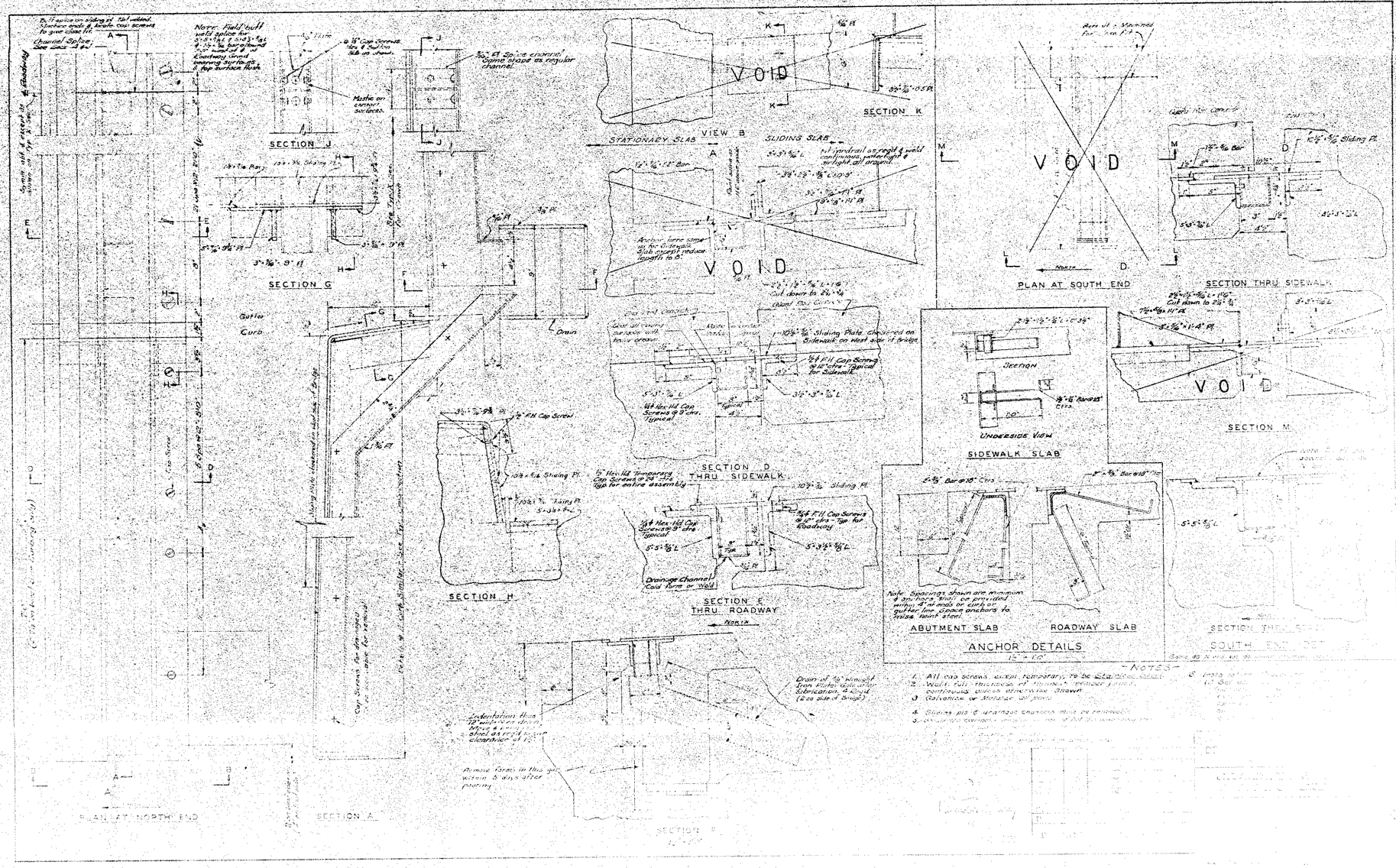
Ordinance No. _____ Ord. Book No. _____
Passed _____ 19__

SCALE As Shown

	MADE	DATE	CHECKED	DATE
Design				
Drawing				73
Notes			Book	Page

Approved _____ Assistant City Engineer
_____ City Engineer
Adopted this 29th day of April 1973
68138
Ord. No. _____ Director of Public Works
Sheet 1 of 4 Sheets File No. 12-4-52

5079B33


SECTION J
SECTION G
SECTION K
STATIONARY SLAB VIEW B
SLIDING SLAB
VOID
PLAN AT SOUTH END
SECTION THRU SIDEWALK
SECTION M
SECTION H
SECTION D THRU SIDEWALK
SECTION E THRU ROADWAY
UNDERSIDE VIEW
SIDEWALK SLAB
ABUTMENT SLAB
ROADWAY SLAB
ANCHOR DETAILS
PLAN AT NORTH END
SECTION A
SECTION F
- NOTES -

Ronna Cook

ELEVATION ALONG CROWN (℄ ROADWAY)

Scale: Horiz. 1/8"=1'-0" Vert. 1/2"=1'-0"

HALF LONGITUDINAL SECTION OF GIRDER "1"

HALF LONGITUDINAL SECTION OF GIRDER "6"

LOG OF BORINGS

Vert. Scale 1/8"=1'-0"

PARTIAL BENDING DIAGRAM

No Scale

KANSAS CITY MISSOURI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

J.C. NICHOLS PARKWAY
OVER BRUSH CREEK

Reinforcing Steel Details #2

SCALE 1"=1'-0" KENNETH H LARKIN & A.
MADE E.R.B. CONSULTING ENGINEERS
TR'CD E.R.M. KANSAS CITY MO.
CHK'D R.A.L. 12102 SHT.
DATE 8-52

168-M-52 Sh 4 of 4

47103

DEPARTMENT OF PUBLIC WORKS REVISIONS

NO.	BY	DESCRIPTION
7-52	E.R.	Bars in End Post

Donna Cook 2-20-7

CROSS SECTION OF GIRDER #1 NEAR B OR C
Scale ½"=1'-0"

CROSS SECTION OF GIRDER #6 NEAR CENTER OF SPAN
Scale ½"=1'-0"

CROSS SECTION NEAR CENTER OF ANY SPAN
Scale ½"=1'-0"

CROSS SECTION NEAR B OR C
Scale ½"=1'-0"

HALF LONGITUDINAL SECTION OF GIRDER #2, #3, #4, OR #5
Scale 1"=10'-0"

PLAN LAYOUT OF TOP REINF. BARS GIRDER 2, 3, 4, OR 5

SEQUENCE OF PLACING CONCRETE

DIAPHRAGM AT A & D
2 REQU.

DIAPHRAGM AT B & C
2 REQU.

DIMENSIONS AT TOP OF PIER
Scale ½"=1'-0"

SECTION C-B
Scale ½"=1'-0"

SECTION B-B
Scale ½"=1'-0"

SECTION A-B

INTERMED. PIER & FOOTING
12 REQU.

Note: Intermed. piers shall be poured before placing steel in girders & diaphragms.

6-30-52	HLB	Revise Col Ties Col.-66
DATE	BY	DESCRIPTION

DEPARTMENT OF PUBLIC WORKS
REVISIONS

47103

KANSAS CITY MISSOURI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

J.C. NICHOLS PARKWAY OVER BRUSH CREEK 168-H-52

Piers & Reinforcing Detail

SCALE As Indicated
MADE F.R.H.
TR'D F.R.H.
CH'KD R.A.V.
DATE 6-29-52

KENNETH H. LARKIN & ASSOCIATES
CONSULTING ENGINEERS
KANSAS CITY, MO.

SHT. 3

168-H-52 Sh 3 of 4

Donna Cook 2-20-74

2-Light Poles by K.C. Power & Light Co. - On west side

In future - 8 - 3"Ø white electric cables to be installed by K.C. Power & Light Co. in first slab span East of center @ ea. end of bridge (not part of this contract)

Crown Grade

2" Fiber Duct

El. 116'-8½"

Present Grade

Fill to be made prior to driving the piles

Exist. riprap on each side to be replaced to existing conditions after piers are placed

Exist Concrete Paving

Top of Cap Rock

Hard Shale

Top of Bed Rock

Set Invert 0.2' above paved creek bottom. Trim pipe neatly flush with slope of bank. Replace all stone on bank and grout all joints full for 2' all around outside of pipe and between pipe outlet and concrete paving.

Exist. M.H. To Be Removed

Crown Grade

Present Grade

2" Fiber Duct

3.00% ± Slope

Exist 12" V.C.P. To Remain

Exist 12" V.C. Pipe to be removed

Remove Exist 12" V.C. Pipe

Construct Std M.H. Style "X"

Install New 12" Pipe Sewer

Strata shown developed from actual borings See Sht 3 For log of borings

62' ± to S. ft. of Ward Parkway Sewer Plans)

Station 7+46.5

Present 33" R.C.P. Sewer Inv. 87.8 ± Sewer Plans)

Station 5+25

Station 5+80

Station 6+60

Station 7+15

Discharge End of Exist. 8" v.c.p. 27' East ℄ Contractor to protect unit to replace if damaged

2-16" Low trees, branches overhanging bridge Contractor to leave in place to protect against damage and to do minimum of trimming to clear east line of bridge by 4'.

55'-0"

80'-0"

55'-0"

16' R.

16' R.

16' R.

16' R.

Boring #2

Boring #4

Boring #6

Boring #8

Flow Dry Weather Channel

℄ of Baltimore Ave = ℄ of Roadway

Exist 12" v.c.p. Storm Drain - See above To Be Removed

Set inv. 0.5' below inv. of incoming line

Exist M.H. @ Sta 7+20 To Be Removed

Inv. of Exist 113 ± L.F. Field Chan.

℄ M.H. Sta. 7+40 To Be Constructed

Construct New Manhole Style "A" Connect to exist 12" v.c.p. Cut top portion of exist. M.H. & ring to be flush with grade & to be established for street.

North Gutter Line of Ward Parkway (To West) 7+57.8 ±

Outline of Girders

Boring #1

Boring #3

Conduit & A.Bs. for Light Poles installed by this Contractor. See Sht. 5 for Details.

Boring #5

Note: See Sheet 9 for Log of Borings

Boring #7

Paved creek bottom

Install Temporary Plug in Conduit

Install Temporary Plug in Conduit

2-30" Dia trees Contractor to leave in place and protect against damage

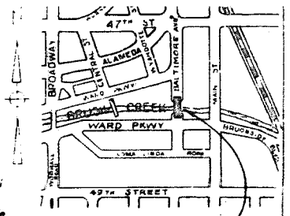
WEST ELEVATION
SCALE - 1/8" = 1'-0"
EAST ELEVATION SIMILAR

PLAN
SCALE - 1/8" = 1'-0"

N

8 0 8 16

LOCATION OF PROJECT



APPROVED

47103

DATE	BY	DESCRIPTION
C-30-51	HLR	Guard Rails, Conduits, & Drainage

DEPARTMENT OF PUBLIC WORKS
REVISIONS

KANSAS CITY MISSOURI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

BALTIMORE BRIDGE OVER BRUSH CREEK

General Layout

SCALE As Shown
MADE F.H.H.
TR'C'D E.R.H.
CH'K'D R.A.V.
DATE 9-5-51

KENNETH H. LARKIN & ASSOC.
CONSULTING ENGINEERS
KANSAS CITY, MO.

121-02 SHT 2

51 Bof9

KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
· ENGINEERING · DIVISION ·

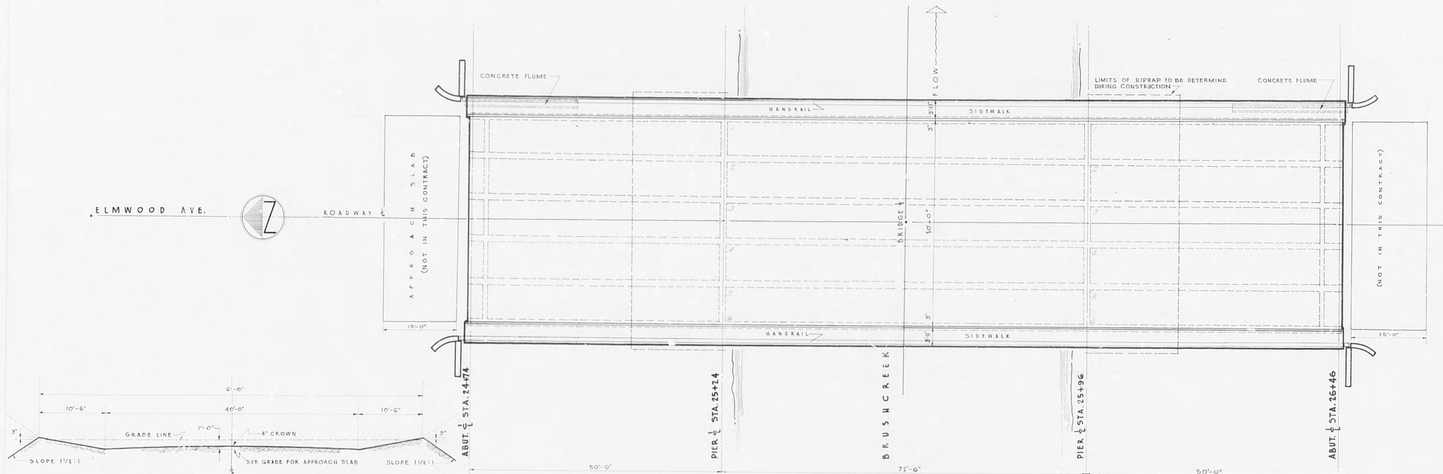
ELMWOOD · BRIDGE
OVER BRUSH CREEK

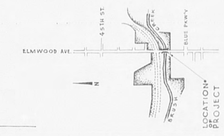
L.P. COOKINGHAM ~ CITY MANAGER ·

REED Mc. KINLEY ~ DIRECTOR OF PUBLIC WORKS ·

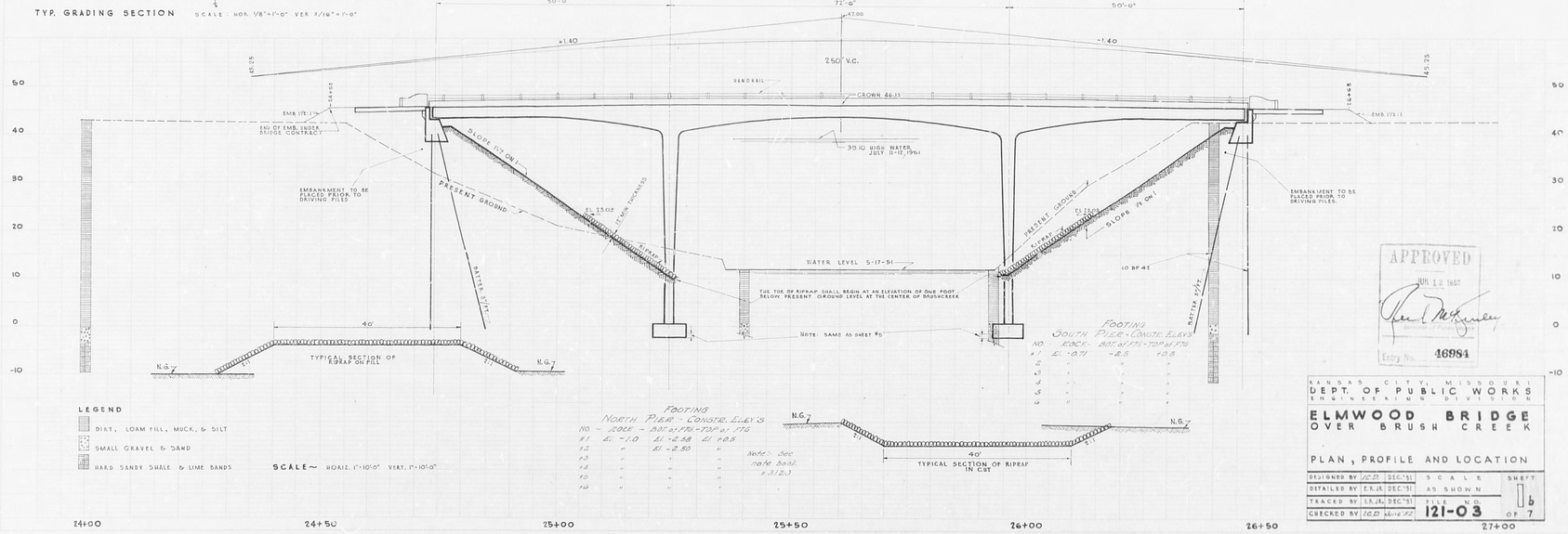
JOHN E. MARING ~ CITY ENGINEER ·

FILE NO.
121-03
Sh 1 of 7





TYP. GRADING SECTION SCALE: HOR. 1/8"=1'-0" VER. 3/16"=1'-0"



FOOTING — NORTH PIER - CONSTR. ELEV'S

NO.	ROCK	BOT. of FTG.	TOP of FTG.
#1	El. -1.0	El. -2.58	El. 10.5
#2	"	El. -2.50	"
#3	"	"	"
#4	"	"	"
#5	"	"	"
#6	"	"	"

Note: See note bot. p. 3/20

FOOTING — SOUTH PIER - CONSTR. ELEV'S

NO.	ROCK	BOT. of FTG.	TOP of FTG.
#1	El. -9.71	-8.5	+0.5
#2	"	"	"
#3	"	"	"
#4	"	"	"
#5	"	"	"
#6	"	"	"

LEGEND
- DIRT, LOAM FILL, MUCK, & SILT
- SMALL GRAVEL & SAND
- HARD SANDY SHALE & LIME BANDS

SCALE~ HORIZ. 1"=100'-0" VERT. 1"=10'-0"

APPROVED
JUN 12 1952
Entry No. 46984

KANSAS CITY, MISSOURI
DEPT. OF PUBLIC WORKS
ENGINEERING DIVISION

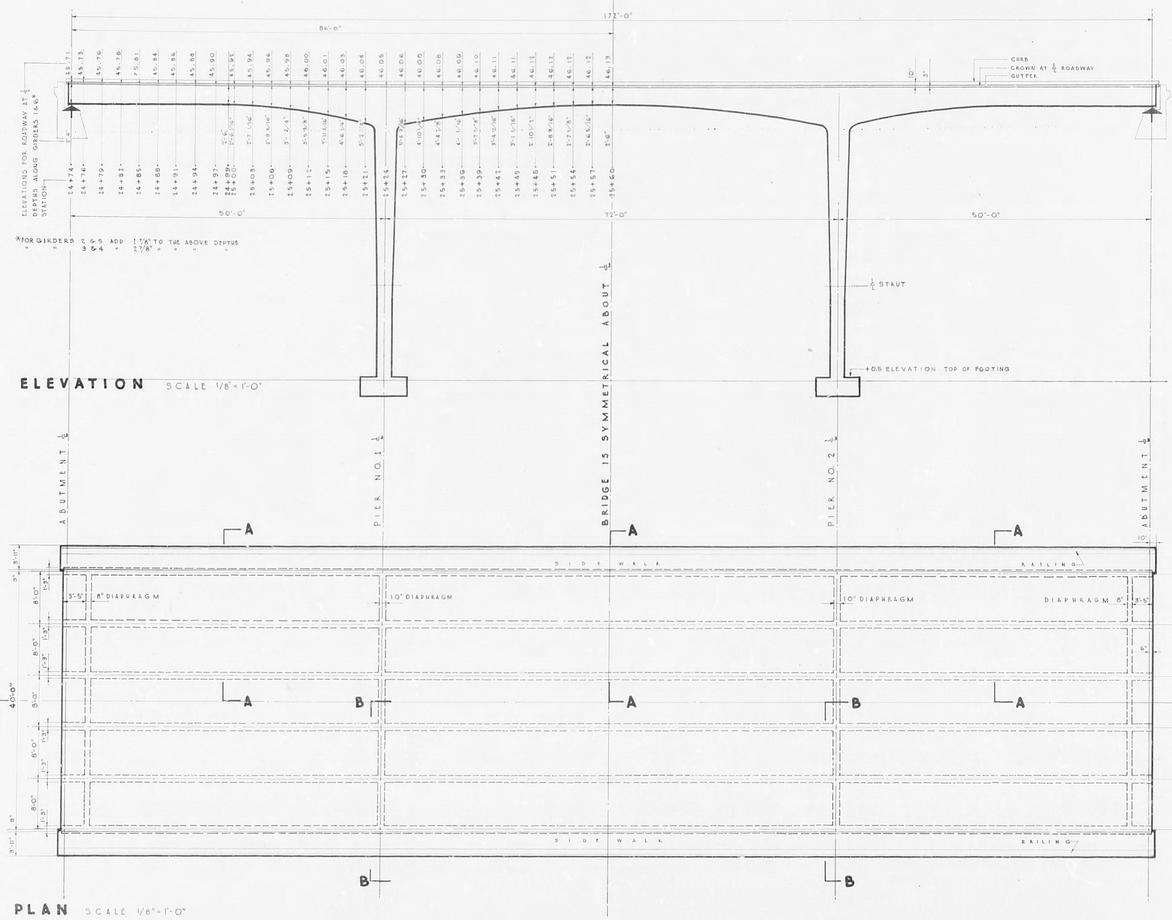
ELMWOOD BRIDGE OVER BRUSH CREEK

PLAN, PROFILE AND LOCATION

DESIGNED BY	ICD	DEC-'51	SCALE: AS SHOWN
DETAILED BY	E.R.H.	DEC-'51	SHEET 6
TRACED BY	E.R.H.	DEC-'51	FILE NO. 121-03
CHECKED BY	ICD	12-14-52	OF 7

24+00 24+50 25+00 25+50 26+00 26+50 27+00

323-25-A-312



GENERAL NOTES

DESIGN SPECIFICATIONS A.A.S.H.O., 1949,-H-20-44

- REINFORCING STEEL
  REINFORCING STEEL SHALL BE THE NEW TYPE DEFORMED BARS FOR CONCRETE REINFORCEMENT, A.S.T.M. DESIGNATION A305-50T. THE REINFORCING STEEL SHALL ALSO CONFORM TO THE STANDARD SPECIFICATIONS FOR BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT, A.S.T.M. DESIGNATION A15-50T, OR FOR RAIL STEEL BARS FOR CONCRETE REINFORCEMENT, A.S.T.M. DESIGNATION A16-50T.
  ALLOWABL STRESS FOR REINFORCING STEEL SHALL BE 20,000 #/□". ALL BAR LAPS FOR SPLICES SHALL BE TWENTY (20) BAR DIAMETERS UNLESS NOTED ON THE PLANS. FABRICATION OF THE REINFORCING BARS SHALL NOT BE COMMENCED UNTIL A BENDING, PLACING PLAN AND SCHEDULE HAVE BEEN APPROVED BY THE DEPARTMENT OF PUBLIC WORKS. CHAIRS AND SPACERS SHALL MEET THE STANDARDS OF THE CONCRETE REINFORCING STEEL INSTITUTE, NO SEPARATE PAYMENT WILL BE MADE FOR CHAIRS OR SPACERS. PAYMENT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR REINFORCING STEEL.
- CONCRETE
  PORTLAND CEMENT CONCRETE SHALL SHOW A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 POUNDS PER SQUARE INCH AT 28 DAYS. ALL EXPOSED EDGES SHALL BE CHAMFERED OR FILLETED 3/4"X 3/4" UNLESS NOTED ON THE PLANS. CONSTRUCTION JOINTS SHALL BE MADE ONLY AT THE POINTS INDICATED ON THE PLANS.
- FALSE WORK
  CAMBER SHALL BE PROVIDED AS PER CAMBER DIAGRAM SHEET 6
  ALL GIRDER SOFFIT SHORING MUST BE LEFT IN PLACE UNTIL ENTIRE BRIDGE HAS BEEN POURED AND HAS ATTAINED ITS DESIGN STRENGTH. SIDEWALK SHORING SHALL BE LEFT IN PLACE, THEN STRUCK AT THE SAME TIME AS GIRDER SOFFIT SHORING.
  ALL SHORING SHALL BE STRUCK BEFORE HANDRAIL CONCRETE IS PLACED.
  STRIKING OF THE SHORING MUST BE DONE IN SUCH A MANNER AS TO PREVENT UNBALANCED STRESSES ON THE BRIDGE.
- CONSTRUCTION JOINTS
  HORIZONTAL CONSTRUCTION JOINTS SHALL BE PREPARED BY AIR-WATER CUTTING OR WET SANDBLASTING. VERTICAL CONSTRUCTION JOINTS AS SHOWN FOR GIRDERS AND ROADWAY SLAB SHALL BE PREPARED BY WET SANDBLASTING. THE BULKHEAD OR HEADERS FOR THE VERTICAL CONSTRUCTION JOINTS SHALL NOT BE REMOVED UNTIL 48 HOURS AFTER THE CONCRETE IS PLACED. (SEE SPECIFICATIONS)
- WELDING
  ALL WELDING SHALL BE DONE BY THE ELECTRIC ARC PROCESS AND SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE AMERICAN WELDING SOCIETY SPECIFICATION FOR WELDED HIGHWAY AND RAILWAY BRIDGES, DESIGN, CONSTRUCTION AND REPAIR.

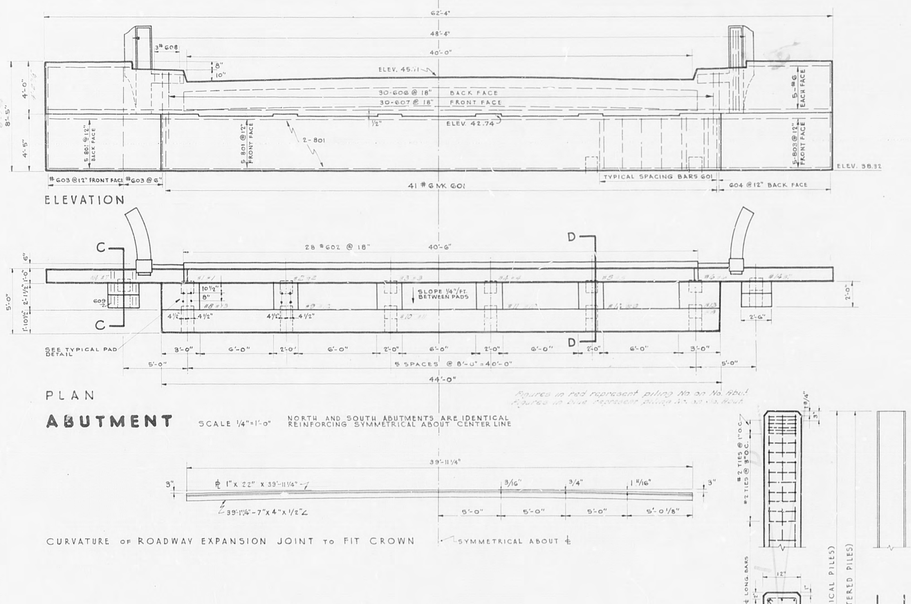
APPROVED
JAN 15 1952
46984

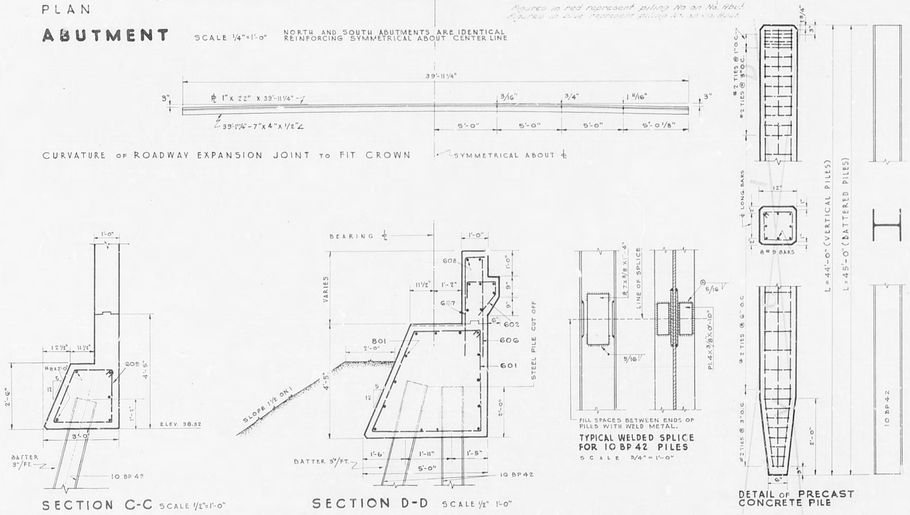
KANSAS CITY, MISSOURI
DEPT. OF PUBLIC WORKS
ENGINEERING DIVISION

ELMWOOD BRIDGE
OVER BRUSH CREEK

PLAN AND ELEVATION

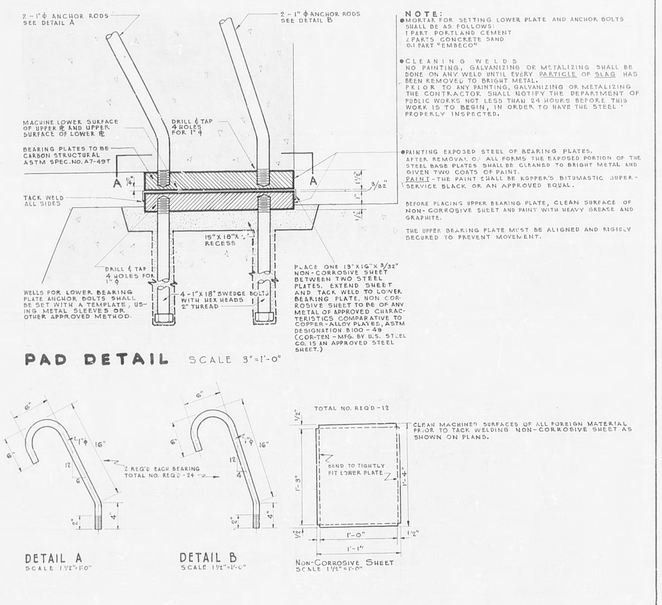
DESIGNED BY	E.R.J.K.	DEC.'51	SCALE	SHEET 2
DETAILED BY	E.R.J.K.	DEC.'51	AS SHOWN	
TRACED BY	E.R.J.K.	JAN.'52	FILE NO. 121-05	OF 7
CHECKED BY	[illegible]	[illegible]		





DRIVEN PILING LENGTHS					
NO.	NO. ABUT.	SO. ABUT.	NO.	NO. ABUT.	SO. ABUT.
1	41'-3"	43'-1"	9	43'-3"	43'-1"
2	41'-3"	42'-10"	10	43'-3"	42'-10"
3	41'-3"	42'-7"	11	43'-3"	42'-7"
4	41'-3"	42'-4"	12	43'-3"	42'-4"
5	41'-3"	42'-1"	13	43'-3"	42'-1"
6	41'-3"	41'-10"	14	43'-3"	41'-10"
7	41'-3"	41'-7"	15	43'-3"	41'-7"
8	41'-3"	41'-4"			

See DL 3/20 to 21-24



PAD DETAIL SCALE 3"=1'-0"

NOTE:

- MORTAR FOR SETTING LOWER PLATE AND ANCHOR BOLTS SHALL BE AS FOLLOWS: 1 PART PORTLAND CEMENT 2 PARTS CONCRETE SAND 0.1 PART "EMBECO"
- CLEANING, WELDING. NO PAINTING, GALVANIZING OR METALIZING SHALL BE DONE ON ANY WELD UNTIL EVERY PARTICLE OF SLAG HAS BEEN REMOVED TO BRIGHT METAL. PRIOR TO ANY PAINTING, GALVANIZING OR METALIZING THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS NOT LESS THAN 24 HOURS BEFORE THIS WORK IS TO BEGIN, IN ORDER TO HAVE THE STEEL PROPERLY INSPECTED.
- PAINTING EXPOSED STEEL OF BEARING PLATES. AFTER REMOVAL O. ALL FORMS THE EXPOSED PORTION OF THE STEEL BASE PLATES SHALL BE CLEANED TO BRIGHT METAL AND GIVEN TWO COATS OF PAINT. PAINT - THE PAINT SHALL BE KOPPERS BITUMASTIC JUPER-SERVICE BLACK, OR AN APPROVED EQUAL.

BEFORE PLACING UPPER BEARING PLATE, CLEAN SURFACE OF NON-CORROSIVE SHEET AND PAINT WITH HEAVY GREASE AND GRAPHITE.

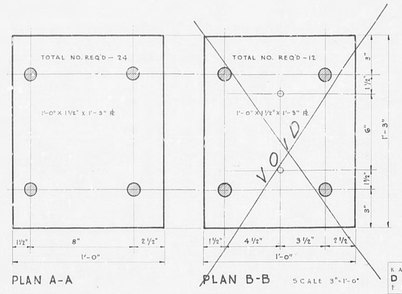
THE UPPER BEARING PLATE MUST BE ALIGNED AND RIGIDLY DEGREED TO PREVENT MOVEMENT.

DETAIL A SCALE 1½"=1'-0"

DETAIL B SCALE 1½"=1'-0"

NON-CORROSIVE SHEET SCALE 1½"=1'-0"

CLEAN MACHINED SURFACES OF ALL FERROUS MATERIAL PRIOR TO TACK WELDING NON-CORROSIVE SHEET AS SHOWN ON PLANS.



PLAN A-A

PLAN B-B SCALE 3"=1'-0"

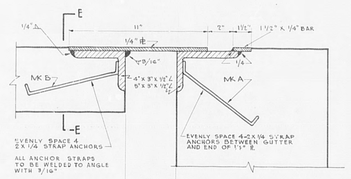
APPROVED
JUL 12 1952
Director of Public Works
Permit No. 46984

KANSAS CITY, MISSOURI
DEPT. OF PUBLIC WORKS
ENGINEERING DIVISION

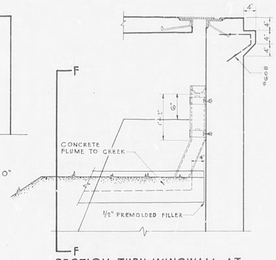
ELMWOOD BRIDGE OVER BRUSH CREEK

NORTH AND SOUTH ABUTMENTS

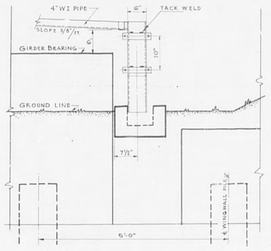
DESIGNED BY	MW	MARCH '52	SCALE: AS SHOWN
DETAILED BY	MW	MARCH '52	SHEET 3
TRACED BY	E.R.J.K.	APRIL '52	FILE NO. 121-03
CHECKED BY	WCD	MARCH '52	OF 7



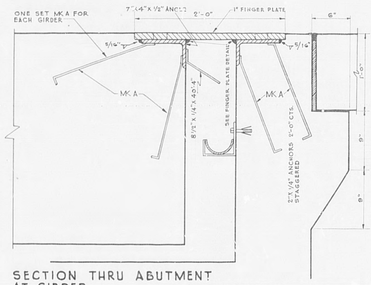
EXPANSION JOINT AT SIDEWALK SCALE 3"=1'-0"



SECTION THRU WINGWALL AT DOWN SPOUT SCALE 3/4"=1'-0"



SECTION F-F SCALE 3/4"=1'-0"

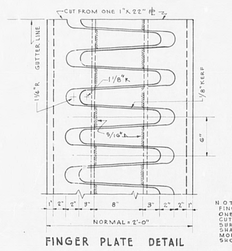


SECTION THRU ABUTMENT AT GIRDER SCALE 1½"=1'-0"

NOTE:
GALVANIZING EXPANSION JOINTS —
AFTER THE EXPANSION JOINT ASSEMBLIES FOR THE ROADWAY AND SIDEWALKS HAVE BEEN WELDED AND ASSEMBLED, THEY SHALL BE HOT DIPPED GALVANIZED OR METALLIZED WITH ALUMINUM OR ZINC. (SEE SPECIFICATIONS)

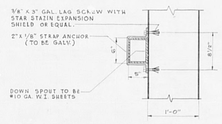
SHOULD THE CONTRACTOR METALIZE IN PLACE OF HOT DIP GALVANIZING THE FOLLOWING STEEL SURFACES WILL NOT REQUIRE METALIZING.
1. ALL STEEL ENCASED IN CONCRETE.
2. ALL STEEL SUBJECT TO ABRASION FROM WHEEL TREADS.

ALL ANCHOR STRAPS TO BE WELDED TO ANGLES WITH 3/16" WELD ALL AROUND.



FINGER PLATE DETAIL

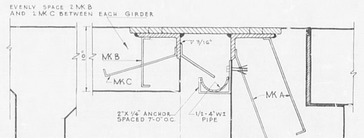
NOTE:
FINGER PLATES SHALL BE CUT FROM ONE PLATE SO THAT SURFACE OF DIE CUT SHALL BE PERPENDICULAR TO SURFACE OF PLATE. THE KERF SHALL NOT EXCEED 1/8" NOR VARY MORE THAN 1/16" FROM PATTERN SHOWN.



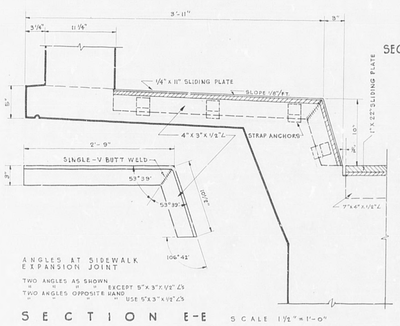
DOWN SPOUT SUPPORT SCALE 1"=1'-0"

STRAP ANCHOR NO SCALE

No.	"a"	MARK
122	17"	A
36	9"	B
20	13"	C



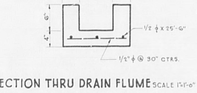
SECTION THRU ABUTMENT AT SLAB SCALE 1½"=1'-0"



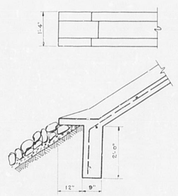
ANGLES AT SIDEWALK EXPANSION JOINT

TWO ANGLES AS SHOWN — EXCEPT 8"X 3½"X ⅜" L'S
TWO ANGLES OPPOSITE HAND — USE 5"X 3"X ⅜" L'S

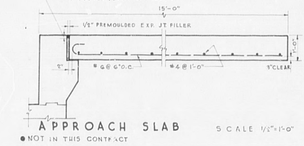
SECTION E-E SCALE 1½"=1'-0"



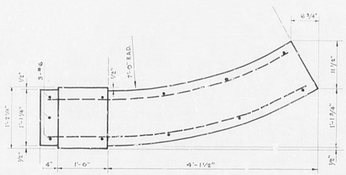
SECTION THRU DRAIN FLUME SCALE 1"=1'-0"



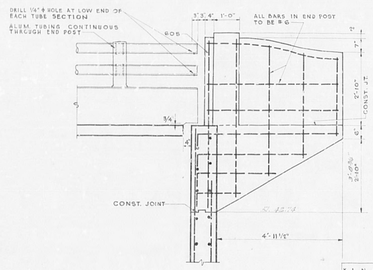
APRON FOR DRAIN FLUME SCALE 1½"=1'-0"



APPROACH SLAB SCALE ½"=1'-0"
● NOT IN THIS CONTRACT



END POST DETAIL SCALE 1"=1'-0"



END POST ELEVATION SCALE 1½"=1'-0"

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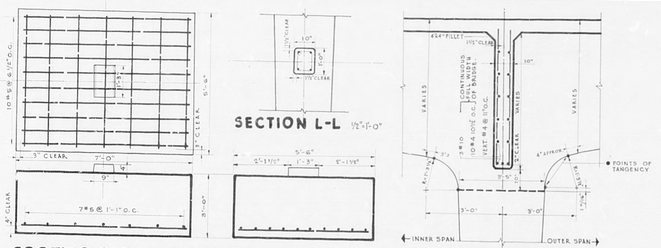
KANSAS CITY, MISSOURI
DEPT. OF PUBLIC WORKS
ENGINEERING DIVISION

ELMWOOD BRIDGE
OVER BRUSH CREEK

ABUTMENT DETAILS, END POST, AND APPROACH SLAB

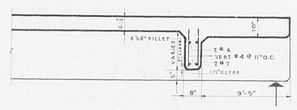
DESIGNED BY	[illegible]	AUGUST '51	SCALE AS SHOWN	SHEET 4
DETAILED BY	[illegible]	AUGUST '51		
TRACED BY	C.R.H.	APRIL '52	FILE NO. 121-03	OF 7
CHECKED BY	[illegible]	[illegible]		



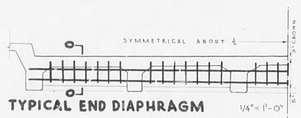
FOOTING PLAN & ELEVATIONS NO SCALE

SECTION L-L 1/2"=1'-0"

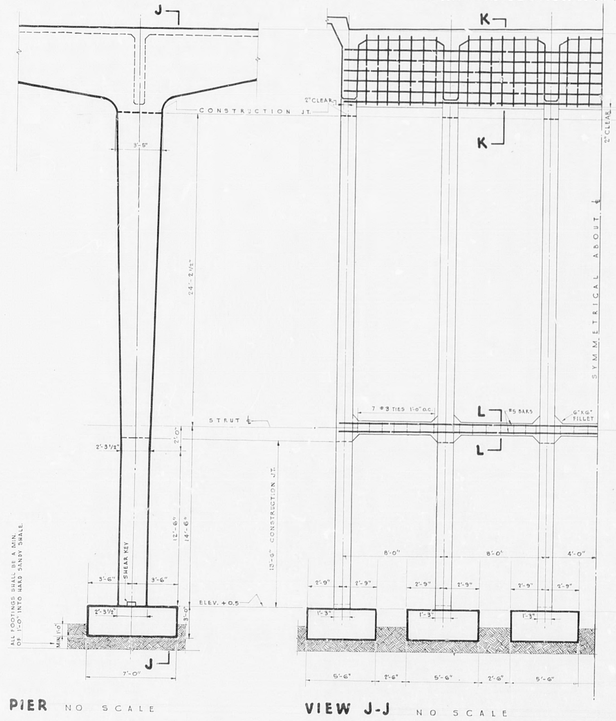
DIAPHRAGM SECTION K-K 1/2"=1'-0"



DIAPHRAGM SECTION O-O 1/2"=1'-0"

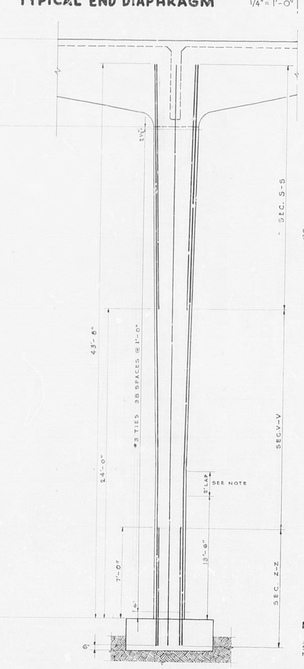


TYPICAL END DIAPHRAGM 1/4"=1'-0"



PIER NO SCALE

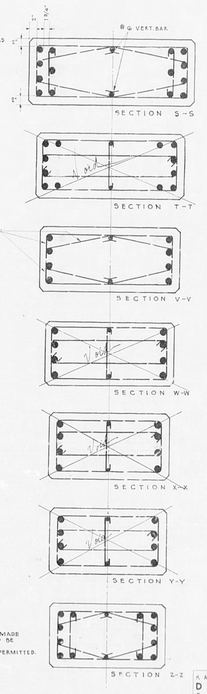
VIEW J-J NO SCALE



PIER REINFORCING NO SCALE

NOTE
THE ONLY BAR LAP WILL BE MADE UNLESS SHOWN. BARS ARE TO BE SPLICE WELDED. NO SHORT DOWELS WILL BE PERMITTED.

ALL LONGITUDINAL REINF. BARS ARE #10 EXCEPT WHERE NOTED



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JUN 12 1952
Entry No. 46984

KANSAS CITY, MISSOURI
DEPT. OF PUBLIC WORKS
ENGINEERING DIVISION

ELMWOOD BRIDGE OVER BRUSH CREEK

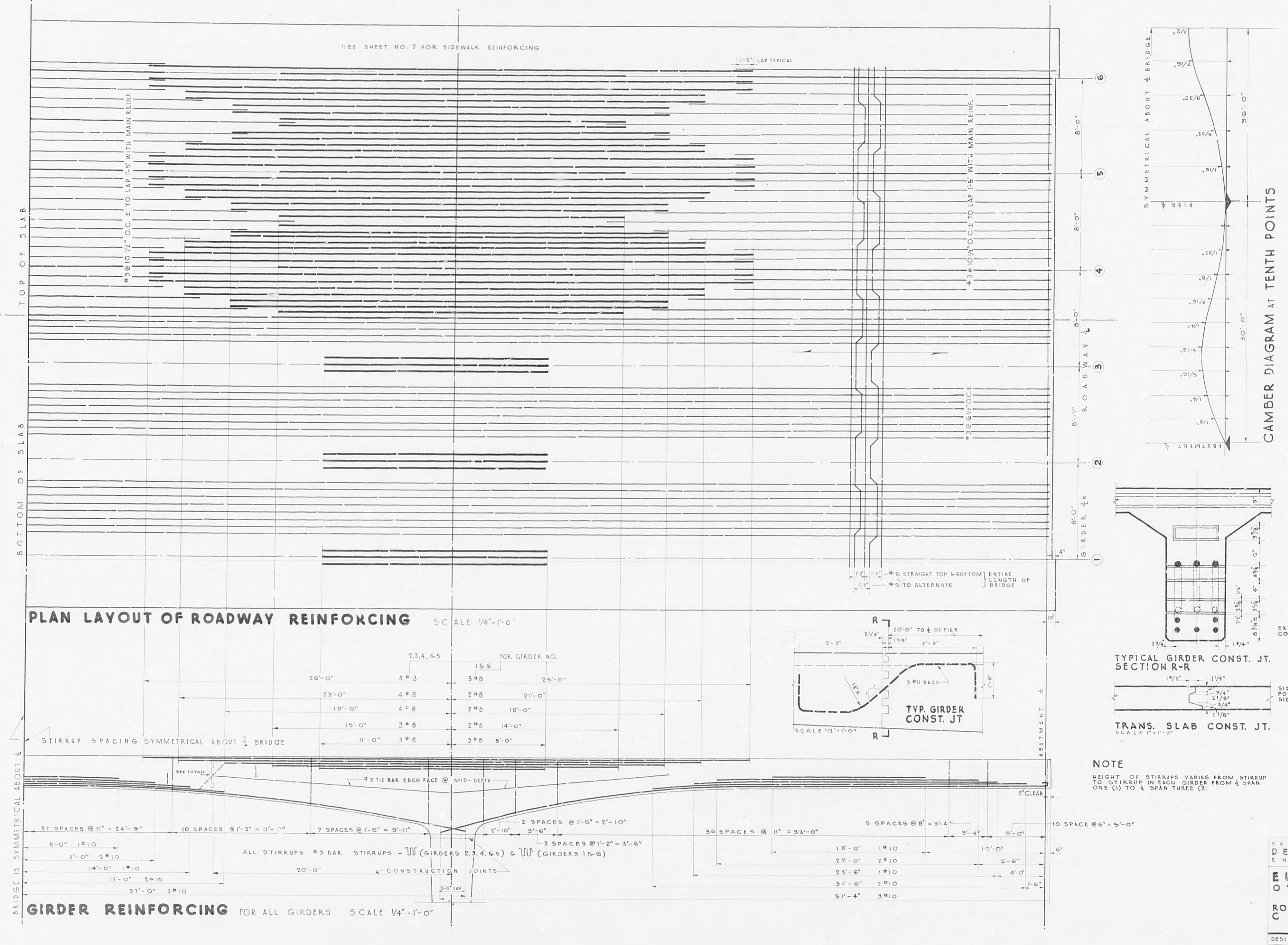
PIERS, FOOTINGS, AND DIAPHRAGMS

DATE	BY	DESCRIPTION
1/23/52	I.C.D.	ADDITIONAL CONSTRUCTION JT. ADDED
2/19/52	I.C.D.	REVISED TIES IN SEC. S-S, V-V, & Z-Z

REVISIONS

DESIGNED BY	B.K.J.K.	JAN '52	SCALE: AS SHOWN
DETAILED BY	B.K.J.K.	FEB '52	
TRACED BY	B.K.J.K.	FEB '52	FILE NO. 121-03
CHECKED BY	I.C.D.	JUNE '52	

SHEET 5 OF 7



EXTEND ALL NORMALLY CONTINUOUS BARS THROUGH ALL CONSTRUCTION JOINTS WITHOUT SPLICING.

SIDEWALK SLAB CONSTRUCTION JOINT SAME EXCEPT FOR SLAB THICKNESS. STEP KEYWAY 1 3/4" FROM OUTSIDE EDGES OF SIDEWALK.

NOTE

HEIGHT OF STIRRUPS VARIES FROM STIRRUP TO STIRRUP IN EACH GIRDER FROM ℄ SPAN ONE (1) TO ℄ SPAN THREE (3).

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JUN 12 1952
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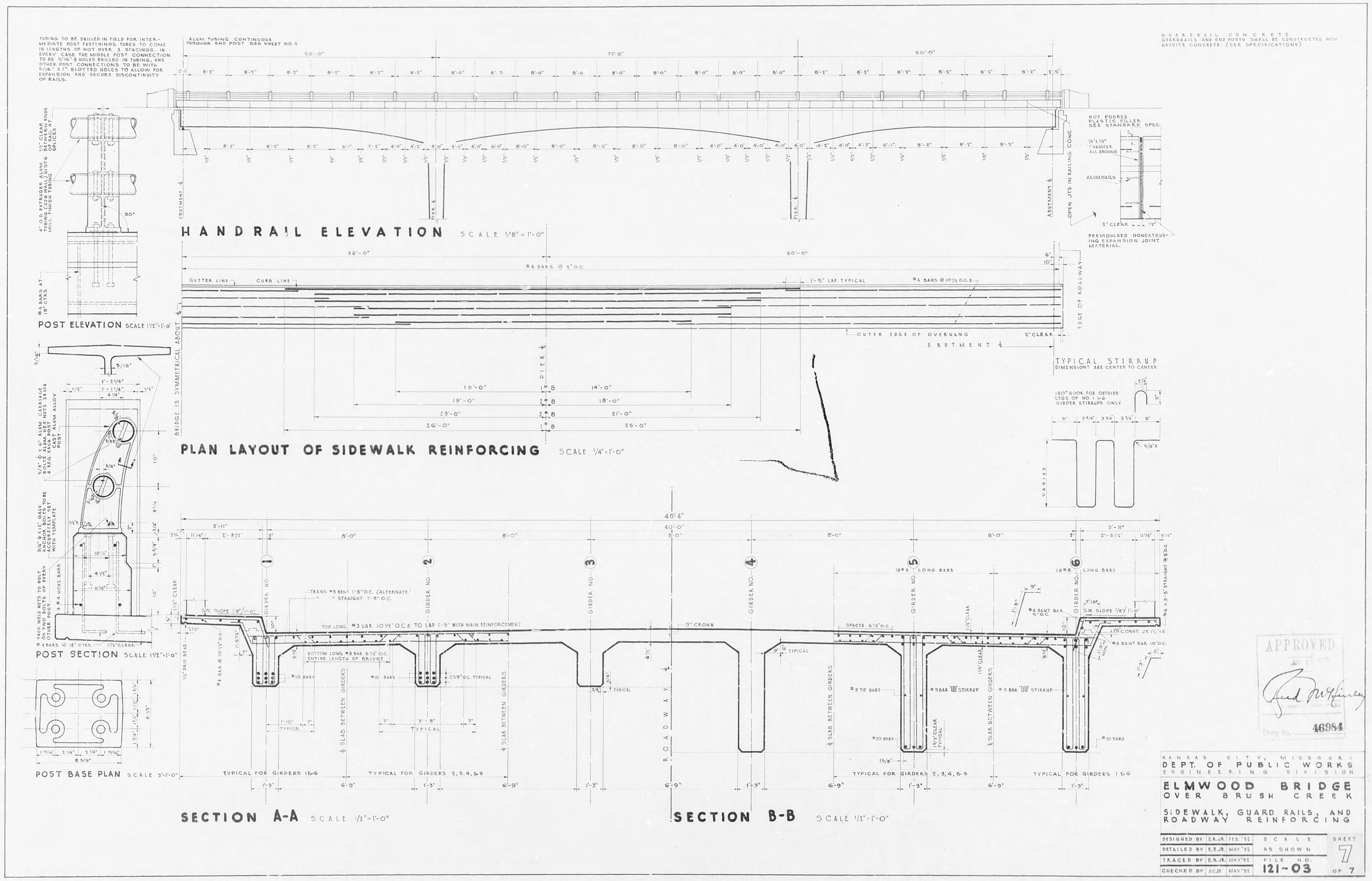
KANSAS CITY, MISSOURI
DEPT. OF PUBLIC WORKS
ENGINEERING DIVISION

ELMWOOD BRIDGE
OVER BRUSH CREEK

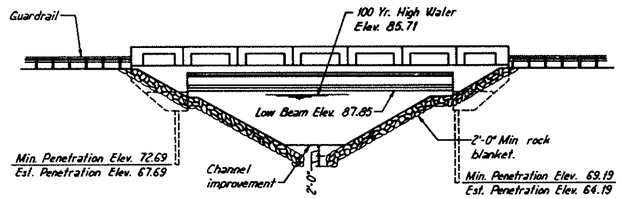
ROADWAY AND GIRDER REINFORCING
CAMBER DIAGRAM

DESIGNED BY	E.R.JR.	APRIL '52	SCALE	SHEET
DETAILED BY	E.R.JR.	APRIL '52	AS SHOWN	6
TRACED BY	E.R.JR.	MAY '52	FILE NO.	
CHECKED BY	I.G.D.	May 52	121-03	OF 7

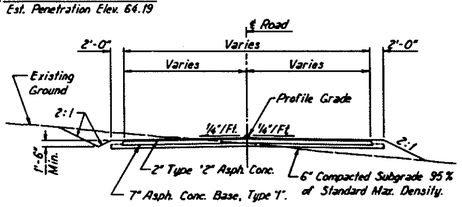
323-35-K-32



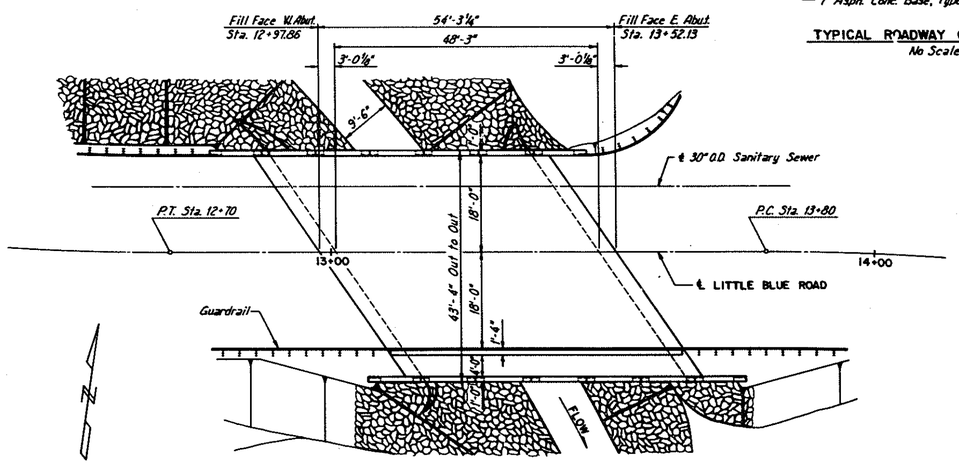
TUBING TO BE DRILLED IN FIELD FOR INTERMEDIATE POST FASTENINGS. TUBES TO COME IN LENGTHS OF NOT OVER 3 SPACINGS. IN EVERY CASE THE MIDDLE POST CONNECTION TO BE 11/16" ϕ HOLES DRILLED IN TUBING, AND OTHER POST CONNECTIONS TO BE WITH 11/16" X 1" SLOTTED HOLES TO ALLOW FOR EXPANSION AND SECURE DISCONTINUITY OF RAILS.
ALUM. TUBING CONTINUOUS THROUGH END POST SEE SHEET NO. 4
GUARDRAIL CONCRETE
GUARDRAILS AND END POSTS SHALL BE CONSTRUCTED WITH HAYDITE CONCRETE. (SEE SPECIFICATIONS)
HANDRAIL ELEVATION SCALE 1/8" = 1'-0"
HOT POURED PLASTIC FILLER. SEE STANDARD SPEC.
1/4" X 1/4" CHAMFER ALL AROUND
ALUM. NAILS
OPEN JTS. IN RAILING CONC.
2" CLEAR
PREMOULDED NONEXTRUDING EXPANSION JOINT MATERIAL.
4" O.D. EXTRUDED ALUM. TUBING (.226 WALL) 61ST6 MILL FINISH TUBING
1/2" CLEAR BETWEEN ENDS OF RAIL AT SPLICES
#4 BARS AT 18" CTRS.
POST ELEVATION SCALE 1 1/2" = 1'-0"
PLAN LAYOUT OF SIDEWALK REINFORCING SCALE 1/4" = 1'-0"
BRIDGE IS SYMMETRICAL ABOUT ℄
GUTTER LINE
CURB LINE
#4 BARS @ 5" O.C.
1'-5" LAP TYPICAL
#4 BARS @ 10 1/2 O.C. ±
OUTER EDGE OF OVERHANG
ABUTMENT ℄
EDGE OF ROADWAY
TYPICAL STIRRUP
DIMENSIONS ARE CENTER TO CENTER
180° HOOK FOR OUTSIDE LEGS OF NO. 1 & 6 GIRDER STIRRUPS ONLY
5/8" ϕ X 6" ALUM. CARRIAGE BOLTS ALUM. HEX NUTS 24ST4 4 REQ. EACH POST
CAST ALUM. ALLOY POST
3/4" ϕ X 12" GALV. ANCHOR BOLTS TO BE ACCURATELY SET WITH TEMPLATE
TACK WELD NUTS TO BOLT ON TWO BOLTS OF EVERY OTHER POST.
4 #4 HORZ. BARS
#4 BARS @ 18" CTRS.
POST SECTION SCALE 1 1/2" = 1'-0"
POST BASE PLAN SCALE 3" = 1'-0"
TRANS. #5 BENT 1'-3" O.C. (ALTERNATE) " STRAIGHT 1'-3" O.C.
TOP LONG. #3 BAR 10 1/2" O.C. ± TO LAP 1'-5" WITH MAIN REINFORCEMENT
BOTTOM LONG. #3 BAR 6 1/2" O.C. ENTIRE LENGTH OF BRIDGE
3" CROWN
ROADWAY
18 #8 LONG BARS
#4 BENT BAR 5" O.C.
S.W. SLOPE 1/8"/1'-0"
1 1/2" CONST. JT. 1 1/2" X 4"
#4 BENT BAR 10" O.C.
#4 X 3'-8" STRAIGHT @ 5" O.C.
#3 TIE BARS
#3 BAR STIRRUP
#10 BARS
℄ SLAB BETWEEN GIRDERS
TYPICAL FOR GIRDERS 1 & 6
TYPICAL FOR GIRDERS 2, 3, 4, & 5
SECTION A-A SCALE 1/2" = 1'-0"
SECTION B-B SCALE 1/2" = 1'-0"
APPROVED JUN 1952
Director of Public Works
Entry No. 46984
KANSAS CITY, MISSOURI
DEPT. OF PUBLIC WORKS
ENGINEERING DIVISION
ELMWOOD BRIDGE
OVER BRUSH CREEK
SIDEWALK, GUARD RAILS, AND ROADWAY REINFORCING
DESIGNED BY E.R.JR. FEB. '52
DETAILED BY E.R.JR. MAY '52
TRACED BY E.R.JR. MAY '52
CHECKED BY J.C.D. MAY '52
SCALE AS SHOWN
FILE NO. 121-03
SHEET 7 OF 7



ELEVATION
Scale: 1"=10'



TYPICAL ROADWAY CROSS SECTION
No Scale



PLAN
Scale: 1"=10'

DETAILED: J.K.G.
CHECKED: D.H.M.

DEPTH		ELEV.
		91.1
	0.8' Asphalt	90.3
Water Level Elev. 82.0	2.2' Baserock & Riprap	88.9
	13.1' Brown silty clay, moist, stiff	78.0
	15.8' Brown silty clay with weathered limestone, moist, stiff	75.3
Core Recovery = 5.0'	41.9' Gray shale, moist, hard	49.2
Core Recovery = 4.2'	46.9' Gray limy shale, hard	44.2
	51.9' Gray shale, hard	39.2

BORING NO. 1

DEPTH		ELEV.
		91.8
	0.7' Asphalt	91.1
Water Level Elev. 83.2	5.3' Baserock riprap (toe of bridge)	86.5
	8.1' Brown silty clay, moist, stiff	83.7
	9.3' Weathered limestone, very seamy	82.5
	11.9' Brown shaly clay, moist, stiff	79.9
	16.1' Tan clayey shale, moist, medium stiff	75.7
	19.7' Red Brown shale, moist, hard with limestone seams	72.1
Core Recovery = 4.0'	41.5' Gray shale, moist, hard	50.3
	46.5' Gray limy shale, hard	45.3

BORING NO. 2

GENERAL NOTES

DESIGN SPECIFICATIONS: 1978 Edition of AASHTO Std. Specifications for Highway Bridges and all current Interim Specifications.

LOADING: H320-44 and 15 psf for future wearing surface.

CONCRETE: Bridge Superstructure (above beam seats, except prestressed concrete members) f'_c = 4,000 psi; Bridge Substructure (below beam seats) f'_c = 3,000 psi; Prestressed Concrete Members f'_c = 6,000 psi.

REINFORCING STEEL: ASTM-A615, Grade 60, f_s = 24,000 psi.

PRESTRESSING STRANDS: ASTM-A416, Grade 270, with ½" nominal diameter.

PRESTRESSED CONCRETE SUPERSTRUCTURE: Simply supported non-composite for dead load of prestressed members and slab. Continuous composite for sidewalk dead load, railings and future wearing surface and for live loads.

STEEL PILES: ASTM-A36, f_b = 9,000 psi.

HYDRAULIC DATA: Drainage Area = 505 Acres, Design Discharge = 1,600 cfs, Design High Water = 85.71, Frequency = 100 yrs., Hydraulic Opening = 184.3 sq. ft.

0 1/2 1 (INCH)

KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

LITTLE BLUE ROAD OVER TRIBUTARY OF LITTLE BLUE RIVER

BRIDGE PLAN & ELEVATION

HARRINGTON & CORTELYOU, INC. Consulting Engineers

SHEET 2 OF 12
OCTOBER 1981

FILE NO. 192-F-25

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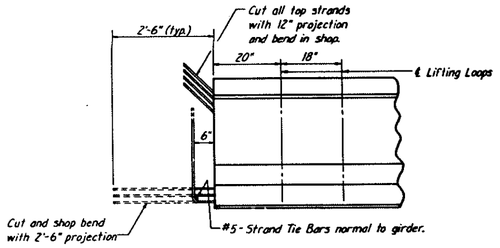
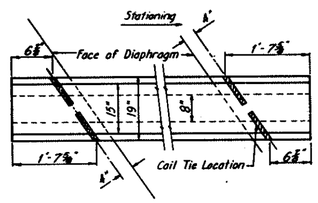
14-0



STRAND DETAIL AT GIRDER END



LOCATION OF COIL TIES

BILL OF REINFORCING STEEL - EACH GIRDER				
MARK	SIZE	NO.	LENGTH	BENDING DIAGRAMS
A1	5	2	51'-11"	
B1	5	102	4'-11"	
B2	6	8	3'-11"	
C1	3	102	1'-5"	
D1	3	102	3'-3"	

Notes:

All dimensions are out to out.

Where deflecting strands interfere with placement, some inplace bending may be necessary.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures.

The letter S after the shape number, in bending sketches, indicates bars that are to be bent according to CRSI stirrup and tie dimensions.

Length - Total lengths are measured along centerline bar to the nearest inch.

Minimum clearance to reinforcing shall be 1".

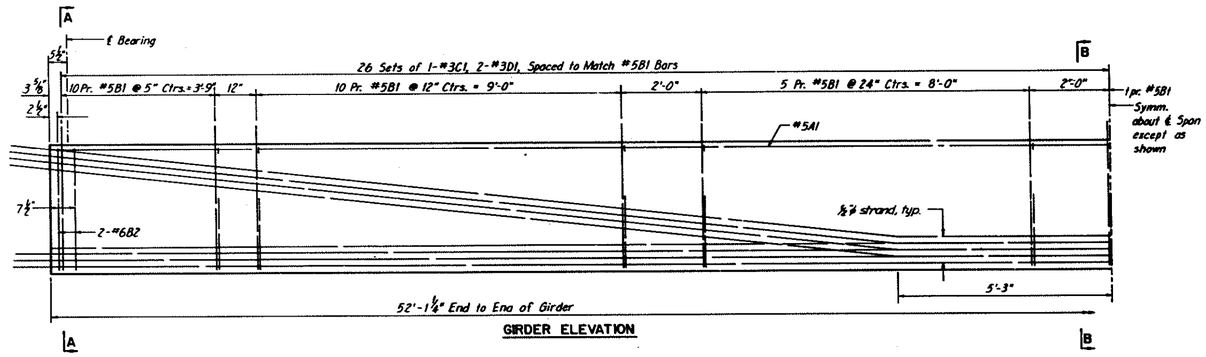
Concrete for prestressed girders shall be class A1 with f'c = 6,000 psi.

Use 24 strands with an initial prestress force of 694 kips.

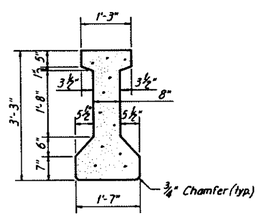
Coil ties shall be held in place in the forms by slotted wire-setting-studs projecting thru forms. Studs are to be left in place or replaced with temporary plug until girders are erected and then replaced by coil tie rods.

(+) indicates prestressed strand.

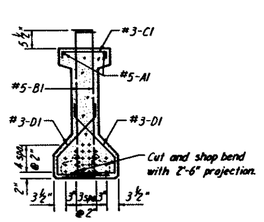
Distance from edge of beam to edge of bearing pad measured along ℄ of beam is 1".



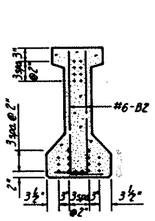
GIRDER ELEVATION



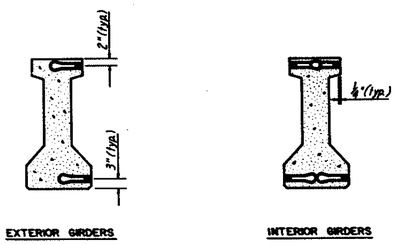
TYPICAL SECTION



SECTION B-B



SECTION A-A



EXTERIOR GIRDERS

INTERIOR GIRDERS

COIL TIE INSERT DETAILS

DETAILED: AKB

CHECKED: DHM

0 1/2 1 (INCH)

KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

LITTLE BLUE ROAD OVER
TRIBUTARY OF LITTLE BLUE RIVER

PRESTRESS GIRDER DETAILS

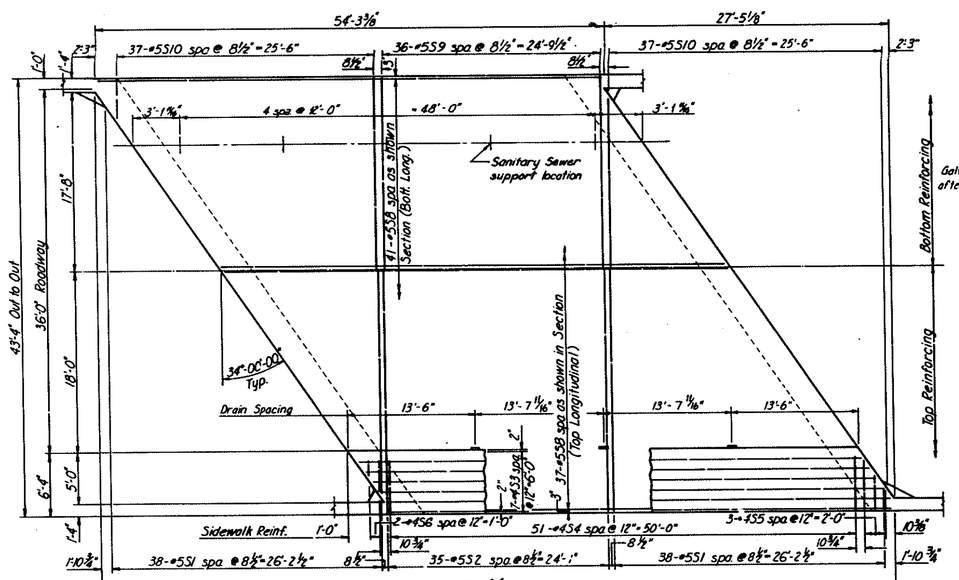
HARRINGTON & CORTELYOU, INC. Consulting Engineers

SHEET 5 OF 12

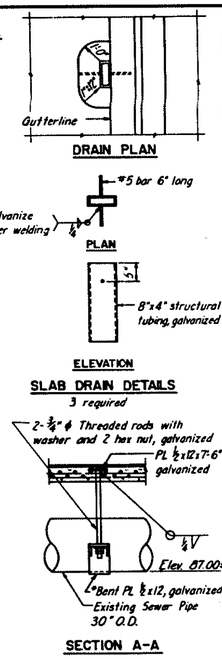
OCTOBER 1981

FILE NO. 192-F-25

Note: Cost of drains incidental to superstructure concrete.



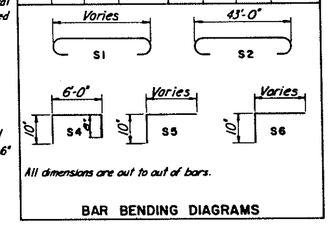
PLAN



SECTION A-A

BILL OF REINFORCING STEEL

STRAIGHT BARS				BENT BARS			
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH
S3	#4	6	53'-11"	S1	#5	76	4'-10" to
					Incr.=	1'-0⅜"	43'-8"
S8	#5	83	53'-11"	S2	#5	35	44'-2"
S9	#5	36	43'-0"	S4	#4	51	7'-4"
S10	#5	76	4'-2" to	S5	#4	3	2'-0" to
	Incr.=	1'-0⅜"	41'-11"		Incr.=	1'-6"	5'-0"
				S6	#4	2	3'-4" to
					Incr.=	1'-0"	4'-10"



All dimensions are cut to cut of bars.

BAR BENDING DIAGRAMS

Notes:

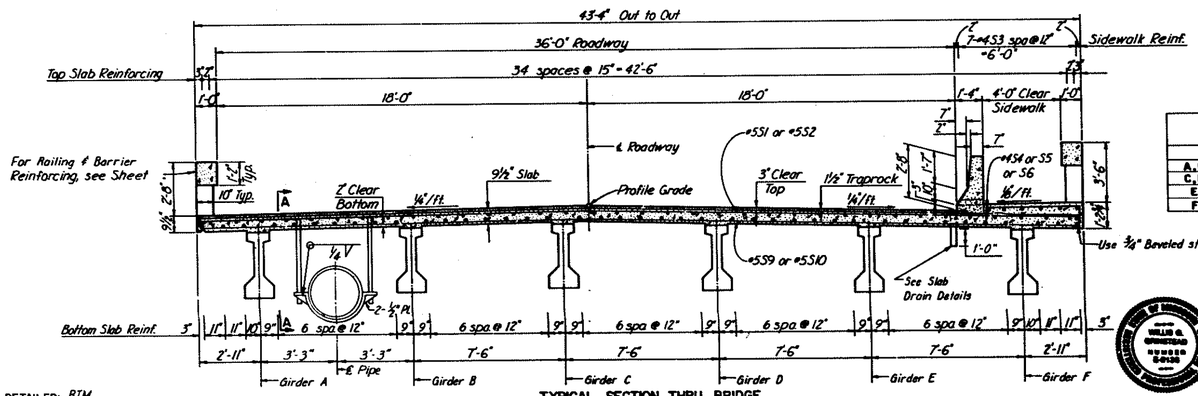
Bevel all exposed edges with a ¾" triangular moulding unless otherwise noted.

All reinforcing steel spacings are center to center of bars unless otherwise noted.

The slab shall not be placed earlier than three days after the placement of the abutment diaphragms. The slab shall be placed in one continuous pour.

Railings, sidewalks and barriers shall not be poured until the concrete in the slab has attained a compressive strength of 3000 psi.

*No separate payment will be made for slab hanger assemblies to support the existing sanitary sewer pipe, See Specifications.



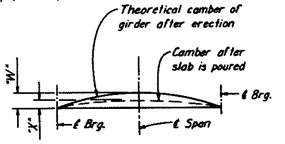
TYPICAL SECTION THRU BRIDGE

DETAILED: BTM

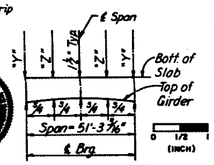
CHECKED: LL

GIRDER CAMBER AND SLAB HAUNCH TABLE

	W	X	Y	Z
A,B	1¼"	9⅝"	2⅝"	1⅝"
C,D	1¼"	8⅝"	2⅝"	1⅝"
E	1¼"	4⅝"	2⅝"	1⅝"
F	1¼"	8"	2"	1⅝"



GIRDER CAMBER DIAGRAM



THEORETICAL SLAB HAUNCH

KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

LITTLE BLUE ROAD OVER TRIBUTARY OF LITTLE BLUE RIVER

SLAB DETAILS

HARRINGTON & CORTELYOU INC. Consulting Engineers

SHEET 6 OF 12

OCTOBER 1981

FILE NO. 192-F-25

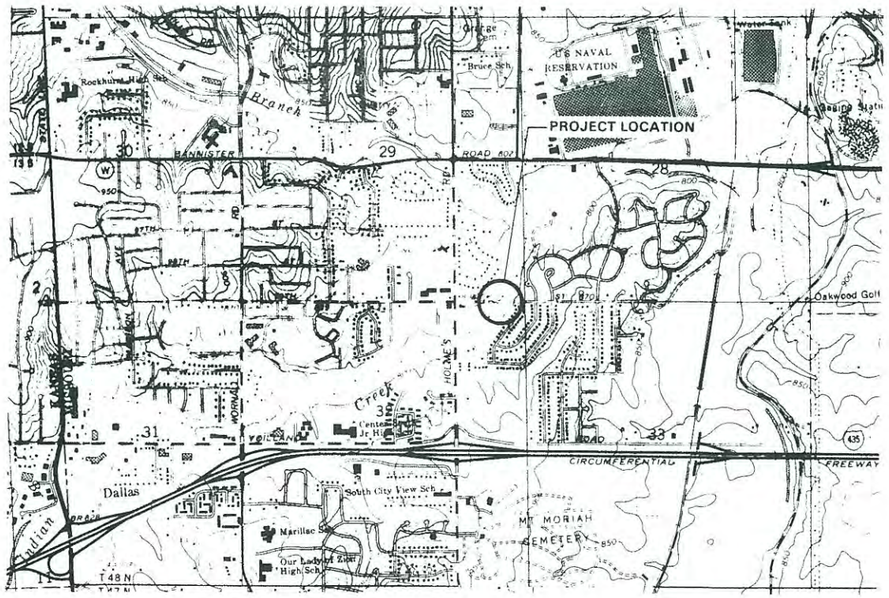
CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

DON D. HURLBERT - CITY ENGINEER
MYRON D. CALKINS - DIRECTOR OF PUBLIC WORKS

CONSTRUCTION PLANS FOR

99TH STREET BRIDGE
OVER INDIAN CREEK

INDEX OF SHEETS



VICINITY MAP

STANDARD LEGEND

EXISTING		PROPOSED
	CATCH BASIN OR INLET	
—E— E—	ELECTRIC CABLE	—E— E—
—X— X— X—	FENCE	—X— X— X—
	FIRE HYDRANT	
—G—	GAS - MAIN	—G—
—G—	GAS OR WATER METER	—W—
—G—	GAS OR WATER VALVE	—W—
	GUY ANCHOR	
	MANHOLE	
	POWER POLE	
	POWER POLE WITH TELEPHONE	
— SAN —	SANITARY SEWER	— SAN —
	SHRUB	
	SPAN GUY	
— ST —	STORM SEWER	— ST —
	STREET LIGHT POLE	
	STREET SIGN	
	STUMP	
—T— T—	TELEPHONE DUCT	—T— T—
—T— T—	TELEPHONE OR POWER (OVERHEAD)	—F— P—
	TELEPHONE POLE	
	TELEPHONE WITH POWER	
	TRAFFIC SIGNAL	
	TREE	
— W —	WATERMAIN	— W —

RECOMMENDED BY

CITY ENGINEER

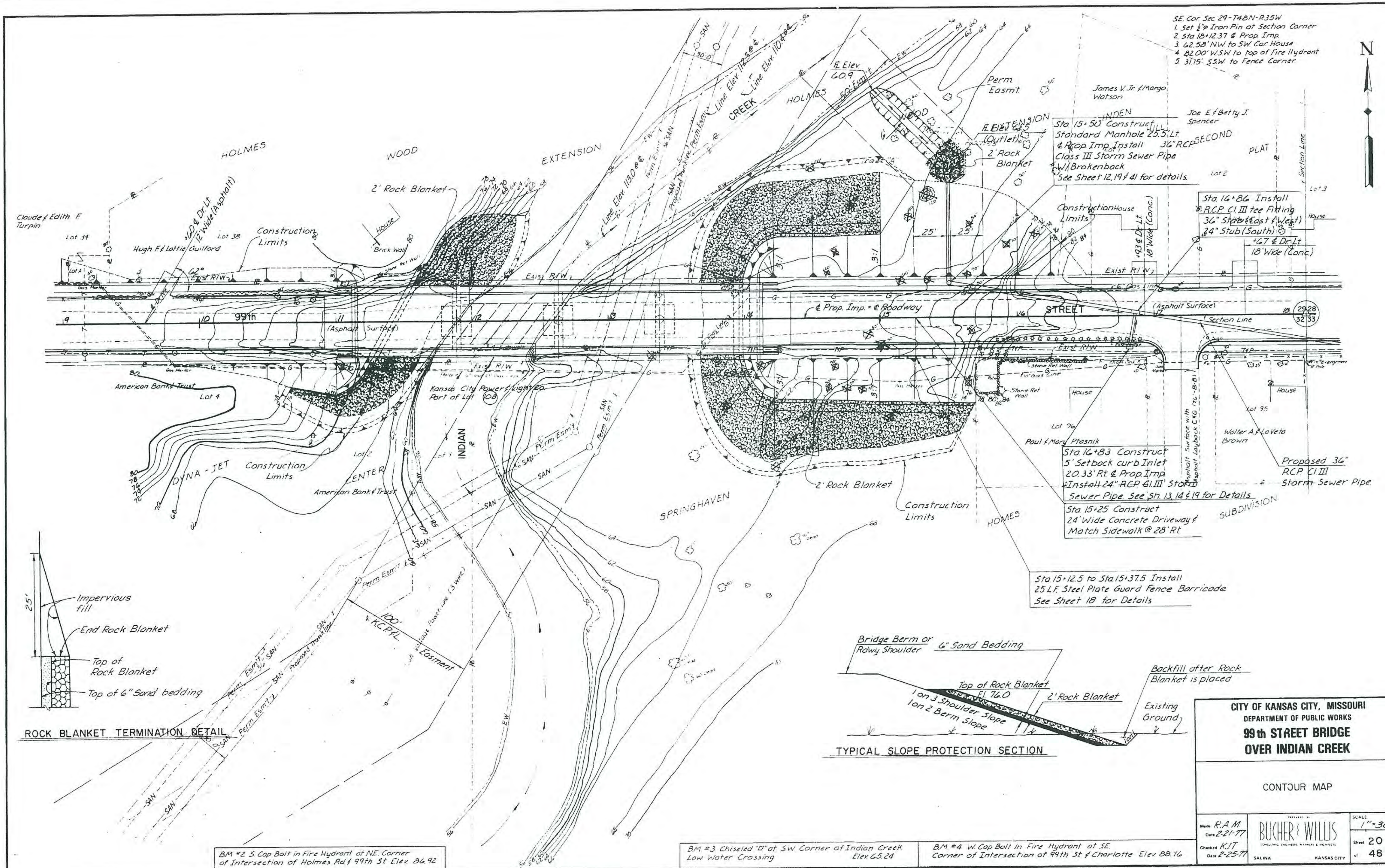
APPROVED BY

DIRECTOR OF PUBLIC WORKS

179-A-1
FILE NUMBER

ENTRY NUMBER

BUCHER & WILLIS CONSULTING ENGINEERS · PLANNERS · ARCHITECTS
SALINA, KANSAS KANSAS CITY, MISSOURI



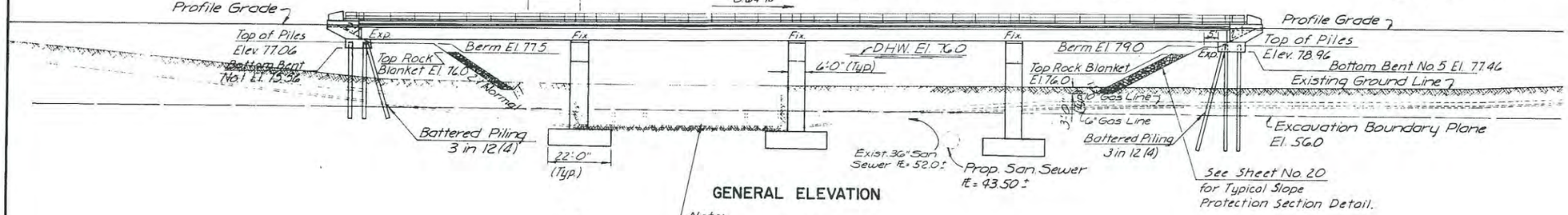
FILE NO. 179-A-1

(73.5'-75'-75'-73.5') Prestressed Concrete Beam Spans

B.M. #2
S. Cap Bolt in Fire Hydrant at N.E. Corner of Intersection of Holmes Road & 99th Street
Elev. 86.92

B.M. #3
Chiseled "a" at S.W. Cor. of Indian Creek Low Water Crossing
Elev. 65.24

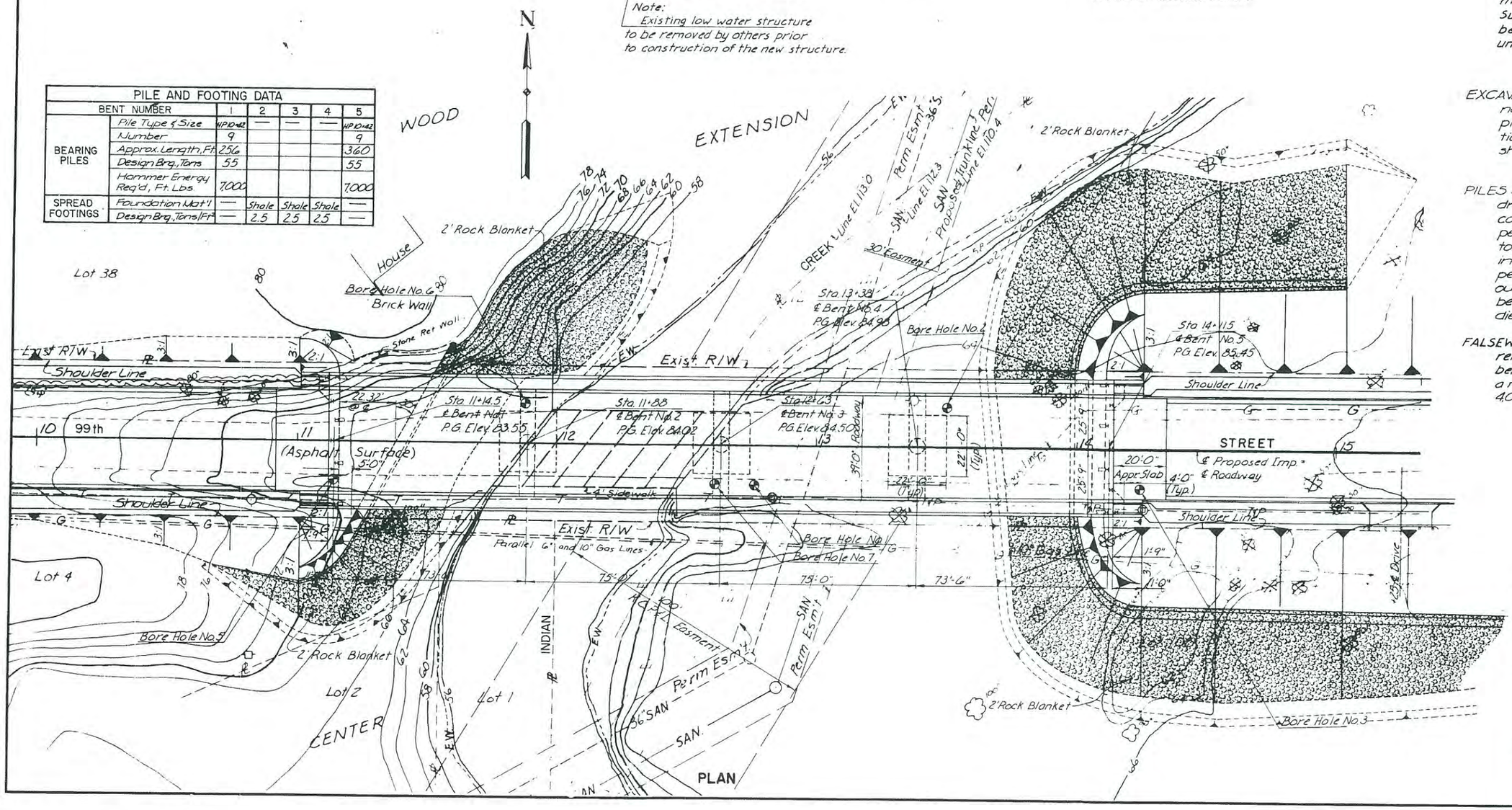
B.M. # 4
W. Cap Bolt in Fire Hydrant at S.E. Cor. of Intersection of 99th Street & Charlotte.
Elev. 88.76



GENERAL ELEVATION

Note:
Existing low water structure to be removed by others prior to construction of the new structure.

PILE AND FOOTING DATA						
BENT NUMBER		1	2	3	4	5
BEARING PILES	Pile Type & Size	HP10×42	—	—	—	HP10×42
	Number	9				9
	Approx. Length, Ft.	256				360
	Design Brg., Tons	55				55
	Hammer Energy Req'd, Ft. Lbs.	7000				7000
SPREAD FOOTINGS	Foundation Mat'l	—	Shale	Shale	Shale	—
	Design Brg., Tons/Ft²	—	2.5	2.5	2.5	—



GENERAL NOTES

LOADING: H 20-44 A.A.S.H.O Specifications, 1973 Edition

UNIT STRESSES: Class B1 Concrete: f'c = 4000 p.s.i.; fc = 1,600 p.s.i

Prestress Beam Concrete: f'c = 5,000 p.s.i. f'ci = 4,000 p.s.i.
Reinforcing Steel: fy = 40,000 p.s.i.; fs = 20,000 p.s.i.
Prestress strands: ½" Φ Nominal Grade 270 uncoated 7 wire stress-relieved strands

CONCRETE: Class B1 Concrete shall be used throughout entire Structure. All exposed edges of the bridge rail end posts shall be beveled with a ½" triangular moulding. All other exposed edges of the Superstructure and Substructure shall be beveled with a ¾" triangular moulding unless otherwise noted.

EXCAVATION: Elevation 56.00 shall designate the excavation boundary plane of Class I and Class II Excavation. All excavation above this plane shall be Class I and all below Class II.

PILES: All piles in abutments shall be driven to a designated minimum computed bearing value of 55 tons per pile. All piles shall be driven to a penetration into shale unless in the opinion of the Engineer such penetration cannot be obtained without injury to the piles. All piles shall be driven with a steam, air, or diesel hammer.

FALSEWORK: All falsework for the Bents shall remain in place until the concrete in the bent caps and diaphragms has reached a minimum compressive strength of 4,000 p.s.i.

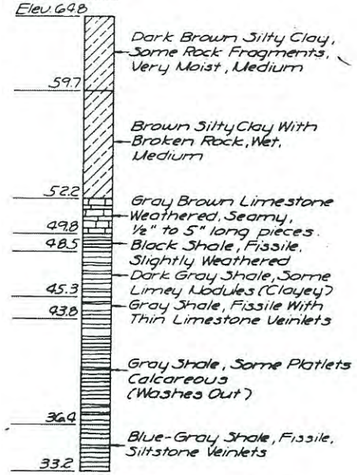
CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
99th STREET BRIDGE OVER INDIAN CREEK

GENERAL PLAN AND ELEVATION

Made RAM Date 2-21-77
Checked KJT Date 2-25-77
Prepared by BUCHER & WILLIS CONSULTING ENGINEERS PLANNERS & ARCHITECTS SALINA KANSAS CITY
SCALE 1"=20'
Sheet 21 of 48

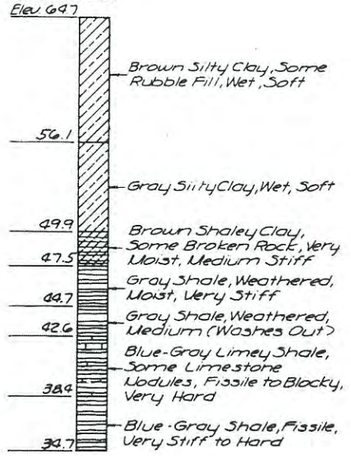
FILE NO. 179-A-1

STA. 12+76 (15' Rt.)
BORING NO. 1
Exist. Ground
Elev. 69.8



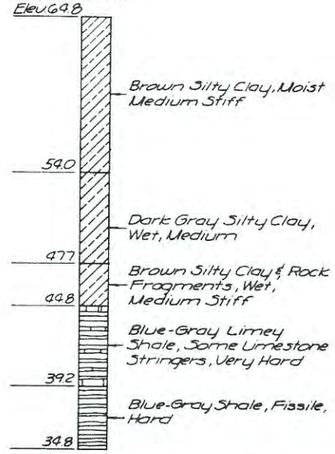
Water Level: 9.8' below Exist. Grade
1-26-77

STA. 13+50 (15' Lt.)
BORING NO. 2
Exist. Ground
Elev. 69.7



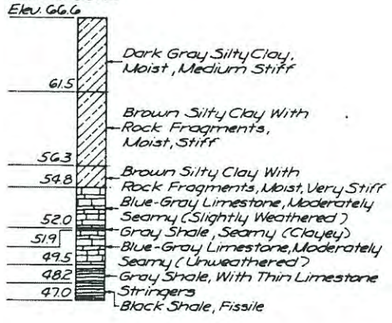
Water Level: Prior to Coring, 10.2 below
Exist. Grade
1-27-77

STA. 14+84 (15' Rt.)
BORING NO. 3
Exist. Ground
Elev. 69.8



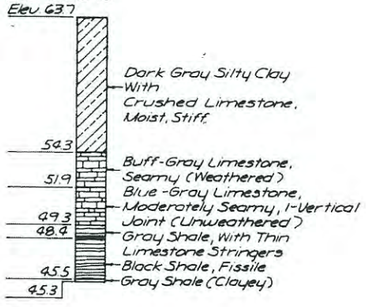
Water Level: Prior to Coring, 9.8' below
Exist. Grade
1-26-77

STA. 11+14 (15' Rt.)
BORING NO. 5
Exist. Ground
Elev. 66.6



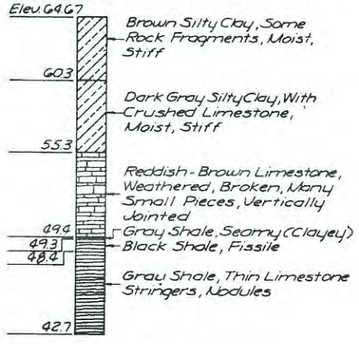
Water Level: Dry Prior to Coring
2-11-77

STA. 11+87 (15' Lt.)
BORING NO. 6
Exist. Ground
Elev. 63.7



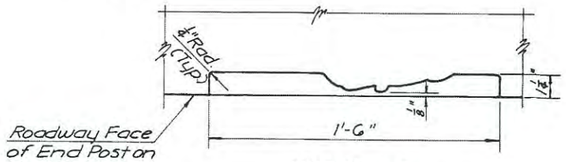
Water Level: Dry Prior to Coring
2-12-77

STA. 12+61 (15' Rt.)
BORING NO. 7
Exist. Ground
Elev. 69.7

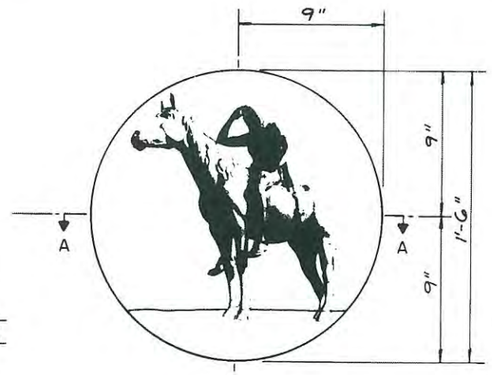


Water Level: Dry Prior to Coring
2-12-77

Note: The geological information shown on these plans is general, from studies made in the field and data collected from other sources. It represents the best information available to the City. Any additional information required must be obtained by the Contractor.



ESTIMATED BRIDGE QUANTITIES				
ITEM NO.	ITEM	UNIT	QUANTITY	
4.	Class I Excavation	C.Y.	541	
5.	Class II Excavation	C.Y.	645	
9	Steel Piles, HP 10x42	L.F.	616	
10.	Class B-1 Concrete	C.Y.	1158	
11.	Reinforcing Steel	Lbs.	232,230	
12.	Preformed Expansion Joints	L.F.	107	
13.	Prestressed Concrete Beams	L.F.	2044	
14.	Structural Steel, A36	Lbs.	3493	
15.	Trap Rock Wearing Surface	C.Y.	73.7	
16	Bridge Approach Slab	S.Y.	176.9	
17	Aluminum Handrail (Three Tube)	L.F.	620	
18	Polyethylene Conduit	L.F.	341	
19	Rigid Steel Conduit	L.F.	45	



DECORATIVE SYMBOL DETAIL
(No Scale)

Note: See Sheet No's. 24 & 25 for location placement of the decorative symbol.
The symbol is to be placed on all four end posts of the bridge.

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
99th STREET BRIDGE OVER INDIAN CREEK

SOIL BORING LOGS AND ESTIMATED QUANTITIES

Made RAM. Date 2-23-77
Checked LGN Date 2-24-77
BUCHER & WILLIS CONSULTING ENGINEERS, PLANNERS & ARCHITECTS SALINA KANSAS CITY
SCALE None
Sheet 22 of 48

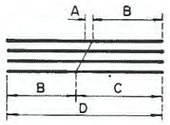
FILE NO. 179-A-1

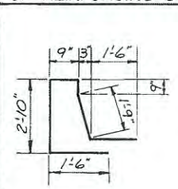
COMPLETE BILL OF REINFORCING STEEL

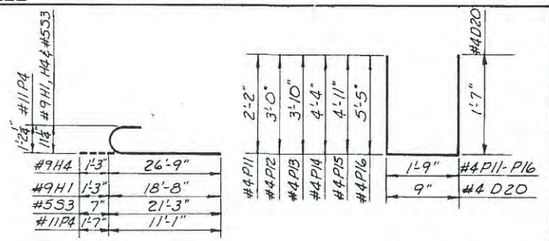
NO.	SIZE	LENGTH	MARK	LOCATION
END BENTS NO. 1 & 5				
16	#9	19'-11"	H1	Beam
8	#9	18'-4"	H2	"
8	#6	26'-4"	H3	"
16	#9	28'-0"	H4	"
24	#4	26'-3"	H5	Backwall
8	#6	26'-5"	H6	"
16	#6	10'-6"	H7	Wingwall
8	#6	4'-8"	H8	Backwall
8	#6	16'-6"	H9	Wingwall
8	#6	16'-9"	H10	"
8	#6	17'-4"	H11	"
8	#6	17'-1"	H12	"
16	#6	11'-8"	H13	"
4	#4	39'-0"	H14	"
8	#4	3'-9"	H15	Haunch
16	#4	10'-6"	H16	"
16	#6	7'-4"	F1	Wingwall
24	#6	7'-0"	F2	"
8	#5	8'-8"	R5	End Post
4	#5	8'-6"	R6	"
4	#5	7'-10"	R7	"
4	#5	7'-0"	R8	"
4	#5	5'-10"	R9	"
8	#5	5'-0"	R10	"
4	#5	8'-4"	R11	"
8	#5	10'-0"	R12	"
8	#5	10'-8"	R13	Curb
8	#5	6'-0"	R14	"
8	#5	10'-6"	R15	"
4	#6	13'-6"	T1	Wingwall
4	#6	13'-7"	T2	"
4	#6	14'-7"	T3	"
4	#6	14'-8"	T4	"
20	#7	19'-8"	U1	Beam
76	#4	11'-11"	U2	"
36	#4	12'-3"	U3	"
42	#4	3'-8"	U4	"
44	#4	3'-9"	C8	Haunch
92	#4	4'-0"	C9	"
44	#4	3'-9"	C10	"
16	#4	10'-5"	C11	"
44	#4	3'-7"	C12	"
168	#5	5'-3"	V1	Backwall
40	#5	6'-6"	V2	"
16	#4	14'-8"	V3	Wingwall
12	#6	2'-8"	V4	Beam
14	#4	16'-10"	V5	Wingwall
4	#4	3'-6"	V6	"
4	#4	4'-10"	V7	"
4	#4	6'-4"	V8	"
4	#4	7'-8"	V9	"
4	#4	9'-0"	V10	"
4	#4	10'-6"	V11	"
4	#4	12'-0"	V12	"
4	#4	16'-2"	V13	"
24	#6	5'-5"	D16	Diaphragm
24	#4	4'-4"	D17	"
28	#6	3'-6"	D18	"
64	#4	8'-11"	D19	"
28	#4	3'-11"	D20	"
8	#6	1'-2"	D21	"
16	#4	1'-5"	D22	"
48	#4	5'-5"	D23	"
8	#4	0'-11"	D24	"
6	#4	7'-3"	P27	Light Bracket
4	#4	7'-0"	P28	"
4	#4	6'-4"	P29	"
BENT NO. 2				
24	4	29'-2"	D1	Cap
14	4	56'-11"	D2	"
12	4	48'-7"	D3	"

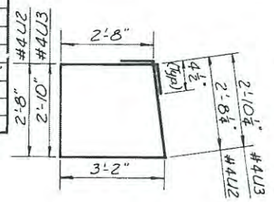
BENDING SKETCHES AND CUTTING DIAGRAMS

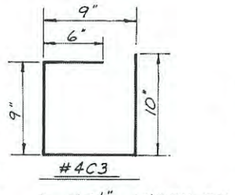
REMARKS	A	B	C	D
7-V5 Cut 28	1'-1"	5'-2"	11'-8"	16'-10"
4-H9 Cut 16	1'-10"	5'-6"	11'-0"	16'-6"
4-H10 Cut 16	1'-9"	5'-9"	11'-0"	16'-9"
4-H11 Cut 16	2'-0"	5'-8"	11'-8"	17'-4"
4-H12 Cut 16	1'-11"	5'-8"	11'-5"	17'-1"
7-D2 Cut 84	2"	27'-10"	29'-1"	56'-11"
6-D3 Cut 72	2"	22'-3"	26'-4"	48'-7"
5-D4 Cut 60	4"	23'-11"	25'-0"	50'-11"
9-D5 Cut 108	4"	19'-8"	22'-3"	41'-11"
2-D6 Cut 24	4"	17'-11"	18'-6"	36'-5"
6-D8 Cut 36	2"	20'-10"	21'-1"	42'-9"
3-D9 Cut 18	4"	17'-0"	17'-8"	34'-8"
3-D10 Cut 18	4"	12'-11"	13'-7"	26'-6"
6-D12 Cut 72	2"	19'-9"	20'-10"	40'-7"
3-D13 Cut 36	4"	15'-11"	16'-7"	32'-6"
3-D14 Cut 36	4"	11'-11"	12'-7"	24'-6"
6-P24 Cut 72	6'-2"	10'-4"	41'-2"	51'-6"

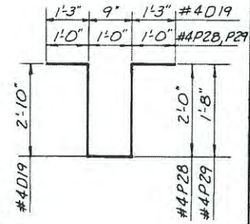


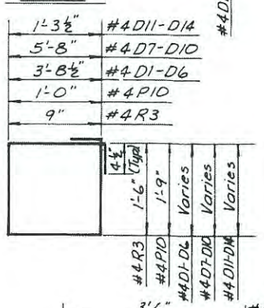


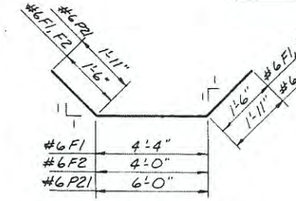


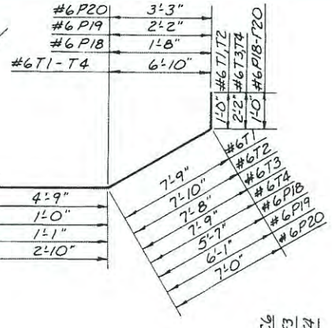


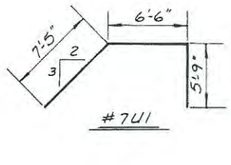


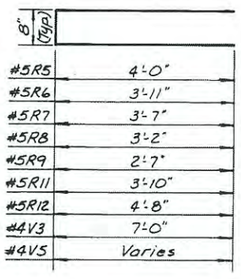


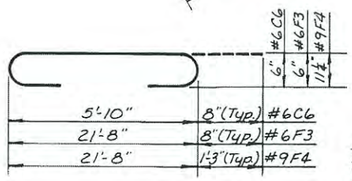


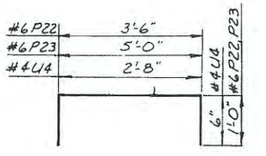


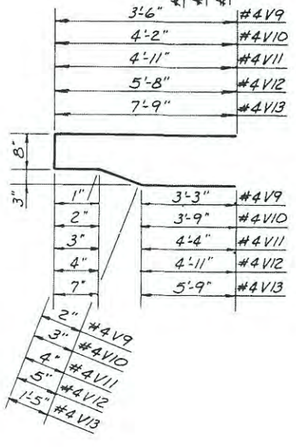


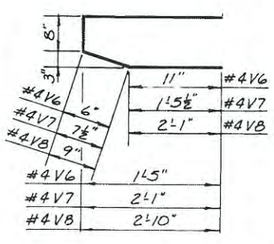


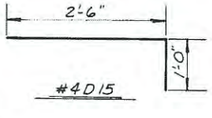


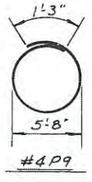


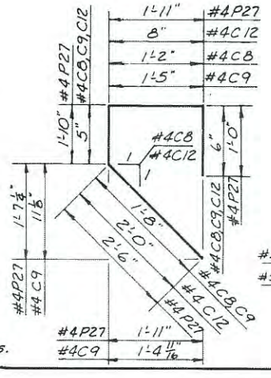


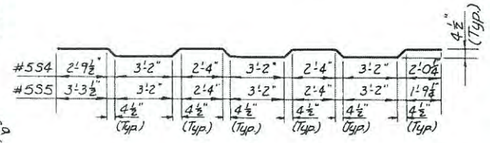












Note:
All dimensions are out to out of bars.

NO.	SIZE	LENGTH	MARK	LOCATION
10	#4	58'-11"	D4	Cap
18	#4	41'-11"	D5	"
4	#4	36'-5"	D6	"
6	#4	25'-5"	D7	"
6	#4	42'-9"	D8	"
3	#4	34'-8"	D9	"
3	#4	26'-6"	D10	"
6	#4	24'-4"	D11	"
12	#4	40'-7"	D12	"
6	#4	32'-6"	D13	"
6	#4	24'-6"	D14	"
252	#4	3'-6"	D15	"
50	#11	30'-3"	P1	Column
50	#11	11'-1"	P4	"
23	#4	19'-0"	P9	"
6	#6	9'-10"	P21	Cap
42	#6	5'-6"	P22	"
63	#6	7'-0"	P23	"
12	#6	51'-6"	P24	"
12	#6	18'-6"	P26	"
12	#6	41'-2"	P30	"
18	#11	41'-2"	P31	"
12	#6	4'-3"	P32	"
12	#6	5'-5"	P33	"
44	#6	23'-0"	F3	Footing
86	#9	24'-2"	F4	"
BENT NO. 3				
24	#4	29'-2"	D1	Cap
14	#4	56'-11"	D2	"
12	#4	48'-7"	D3	"

NO.	SIZE	LENGTH	MARK	LOCATION
10	#4	58'-11"	D4	Cap
18	#4	41'-11"	D5	"
4	#4	36'-5"	D6	"
6	#4	25'-5"	D7	"
6	#4	42'-9"	D8	"
3	#4	34'-8"	D9	"
3	#4	26'-6"	D10	"
6	#4	24'-4"	D11	"
12	#4	40'-7"	D12	"
6	#4	32'-6"	D13	"
6	#4	24'-6"	D14	"
252	#4	3'-6"	D15	"
50	#11	33'-9"	P3	Column
50	#11	11'-1"	P4	"
25	#4	19'-0"	P9	"
6	#6	9'-10"	P21	Cap
42	#6	5'-6"	P22	"
63	#6	7'-0"	P23	"
12	#6	51'-6"	P24	"
12	#6	18'-6"	P26	"
12	#6	41'-2"	P30	"
18	#11	41'-2"	P31	"
12	#6	4'-3"	P32	"
12	#6	5'-5"	P33	"
44	#6	23'-0"	F3	Footing
86	#9	24'-2"	F4	"
SUPERSTRUCTURE				
328	#4	38'-8"	S1	Slab
352	#5	38'-8"	S2	"
604	#5	21'-10"	S3	"
300	#5	22'-2"	S4	"
300	#5	22'-2"	S5	"
604	#5	21'-3"	S6	"
246	#8	25'-0"	S7	"
16	#4	38'-2"	C1	Sidewalk
16	#4	38'-0"	C2	"
596	#4	2'-10"	C3	"
80	#4	38'-2"	C4	"
80	#4	38'-0"	C5	"
600	#6	7'-2"	C6	"
600	#4	5'-10"	C7	"
64	#5	38'-2"	R1	Curb
64	#5	38'-0"	R2	"
336	#4	5'-3"	R3	"
864	#6	9'-1"	R4	"

NO.	SIZE	LENGTH	MARK	LOCATION
BENT NO. 4				
24	#4	29'-2"	D1	Cap
14	#4	56'-11"	D2	"
12	#4	48'-7"	D3	"

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
99th STREET BRIDGE OVER INDIAN CREEK

BILL OF REINFORCING STEEL

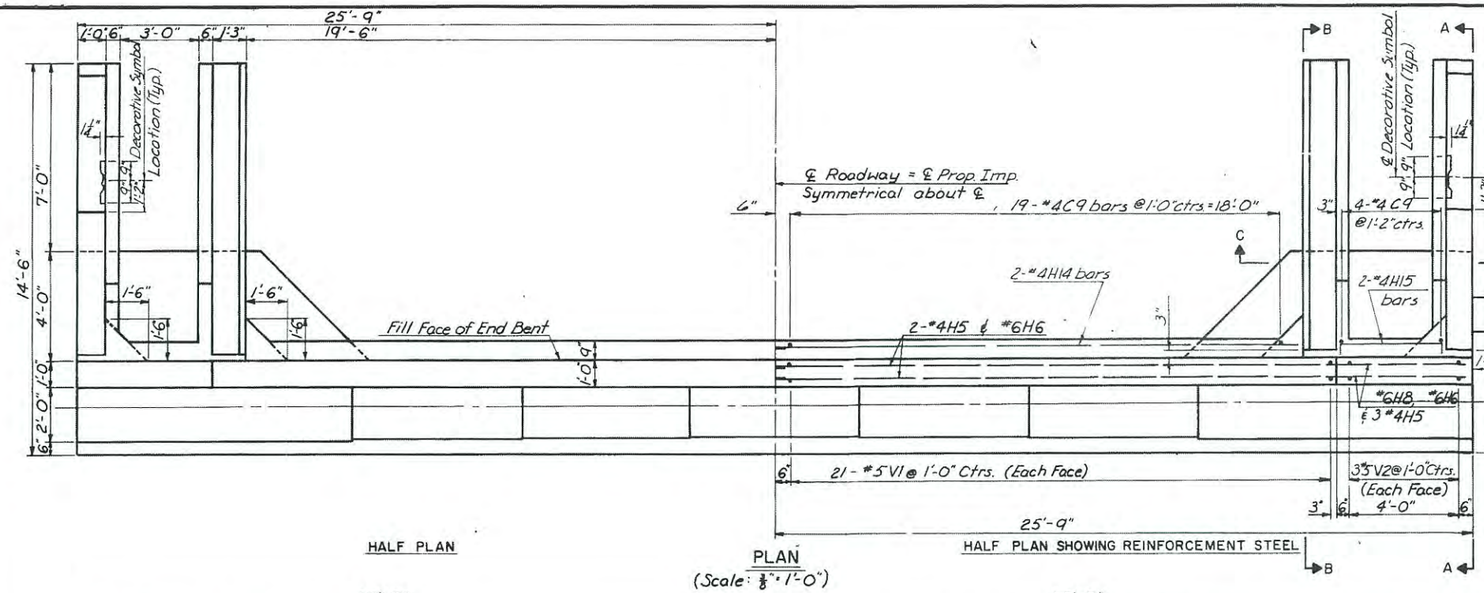
Made R.A.M. Date 2-25-77
Checked J.T.M. Date 2-28-77

PREPARED BY BUCHER & WILLIS CONSULTING ENGINEERS, PLANNERS & ARCHITECTS SALINA KANSAS CITY

SCALE NONE

Sheet 23 of 48

FILE NO. 179-A-1



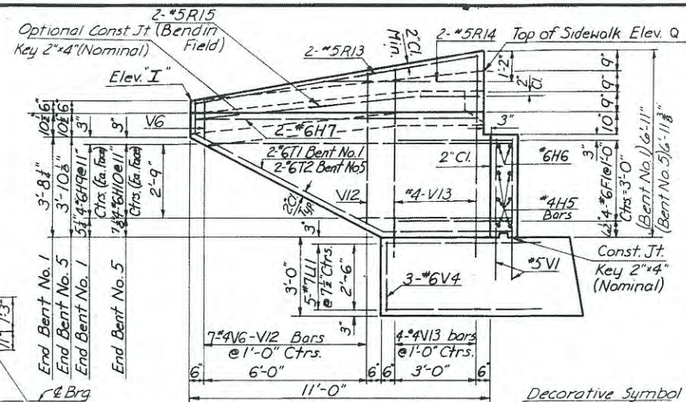
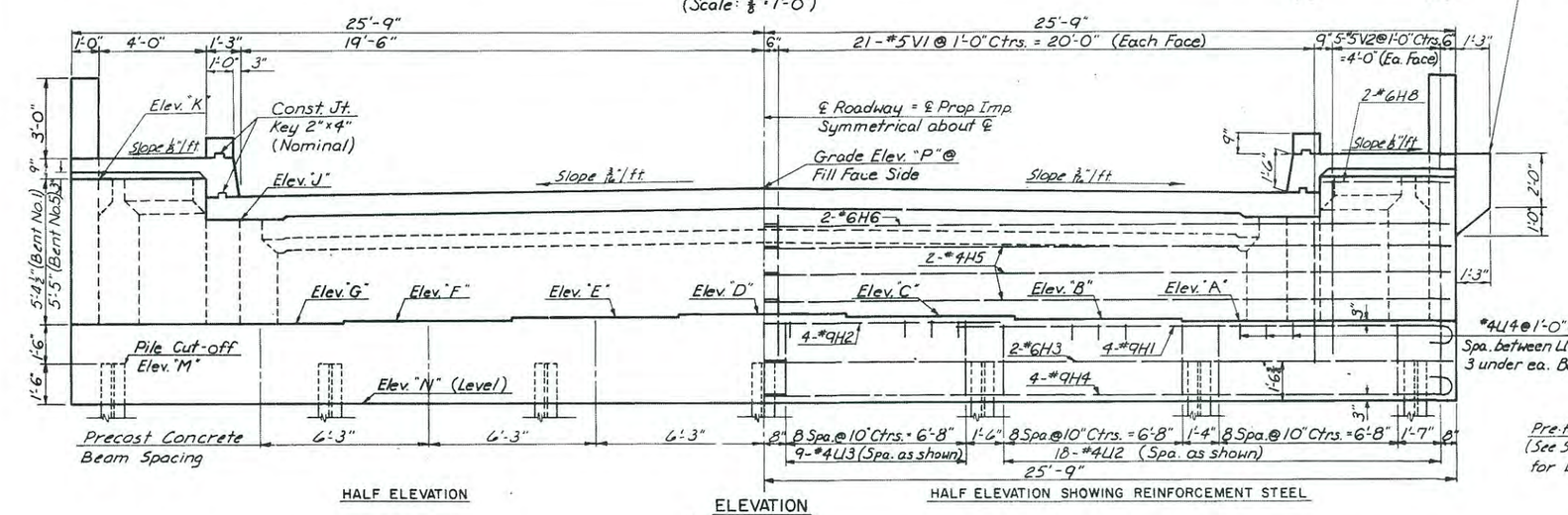
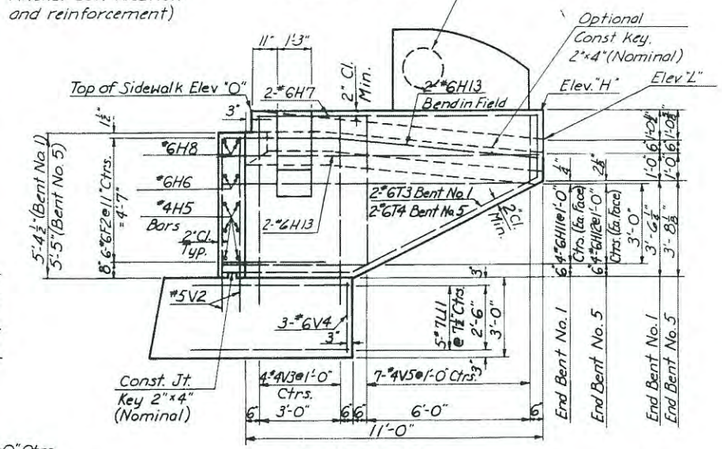
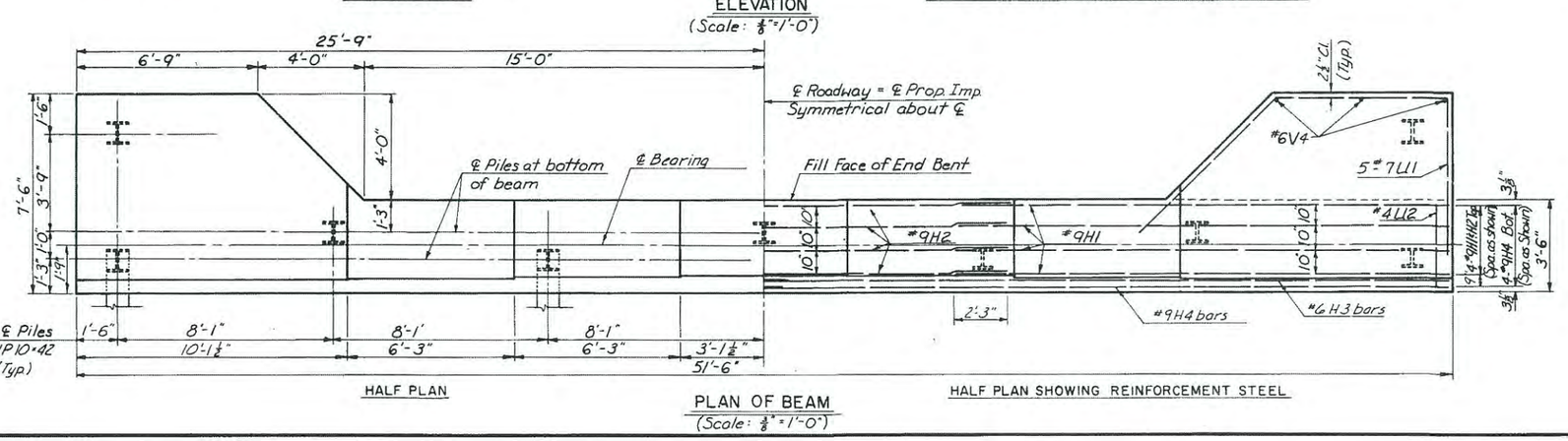


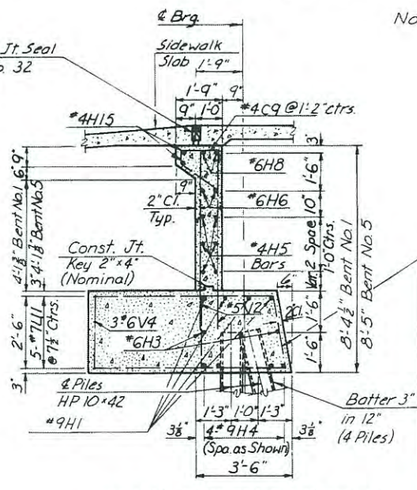
TABLE OF ELEVATIONS		
	BENT 1	BENT 5
A	78.56	80.46
B	78.73	80.73
C	78.83	80.63
D	78.93	80.83
E	78.83	80.73
F	78.73	80.63
G	78.56	80.46
H	84.62	86.69
I	83.62	85.68
J	82.39	84.29
K	83.94	85.87
L	83.58	85.64
M	77.06	78.96
N	75.56	77.46
O	84.69	86.62
P	83.54	85.46
Q	84.73	86.66





Note: For General Notes, see Sheet No. 25





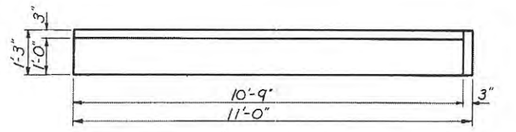
CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS

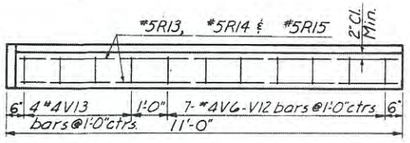
99th STREET BRIDGE OVER INDIAN CREEK

END BENT DETAILS

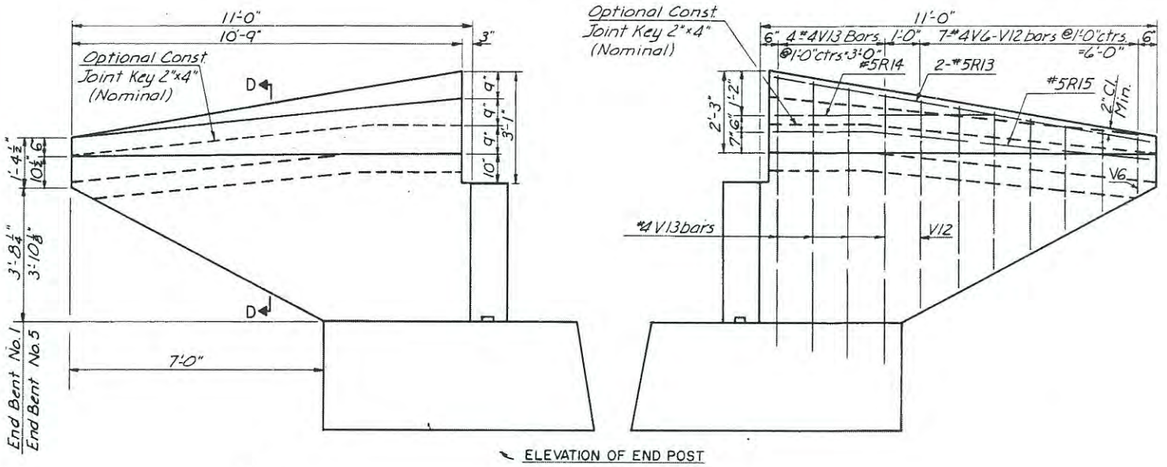
Made J.R.S. Date 2-10-77
Checked L.G.N. Date 2-22-77
PREPARED BY BUCHER & WILLIS CONSULTING ENGINEERS, PLANNERS & ARCHITECTS SALINA KANSAS CITY
SCALE As Noted
Sheet 24 of 48

FILE NO. 179-A-1



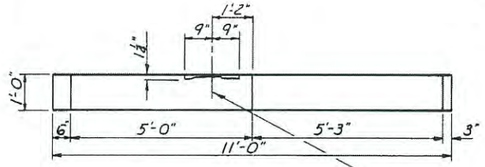


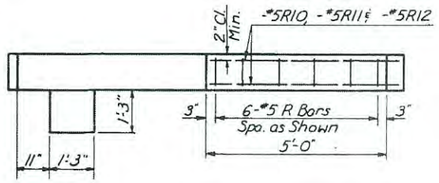
PLAN OF END POST



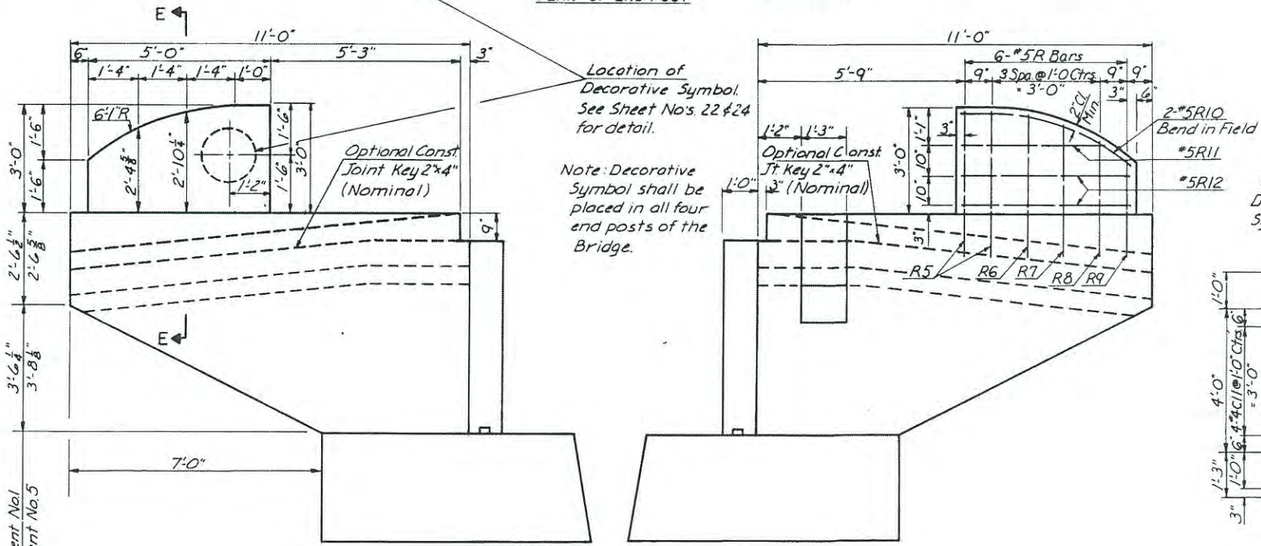
ELEVATION OF END POST

ROADWAY END POST
(Scale: ½" = 1'-0")



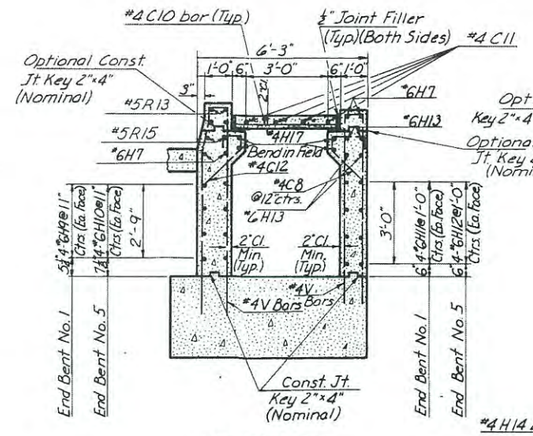


PLAN OF END POST

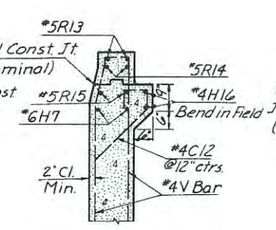


ELEVATION OF END POST

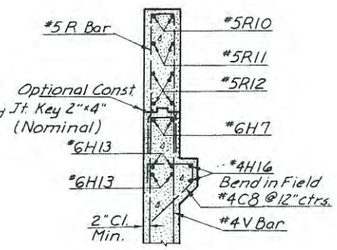
SIDEWALK END POST
(Scale: ½" = 1'-0")



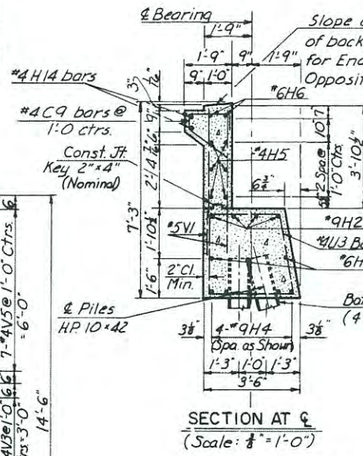
*SECTION C-C
(Scale: ⅜" = 1'-0")
*See Sheet No. (24)



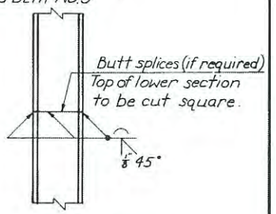
SECTION D-D
(Scale: ½" = 1'-0")



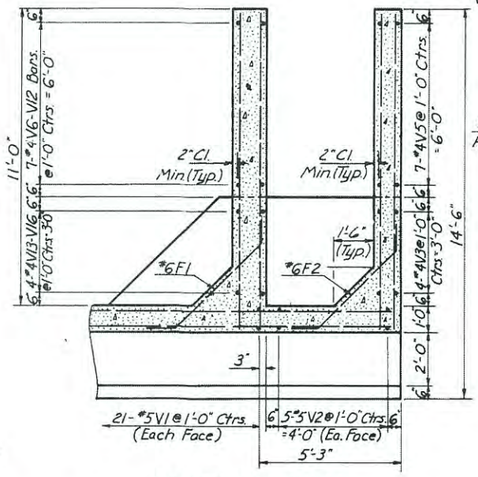
SECTION E-E
(Scale: ½" = 1'-0")



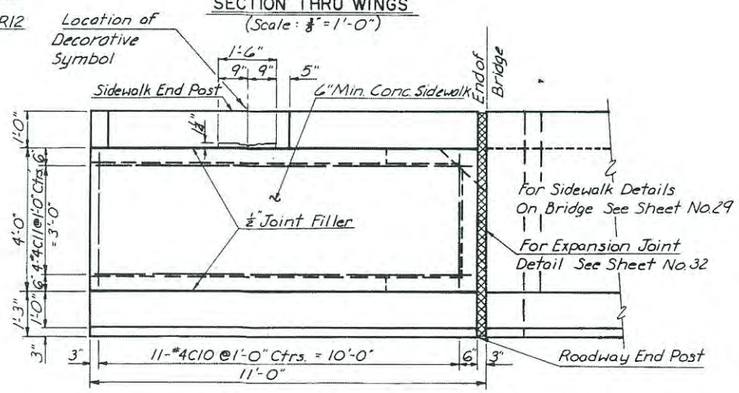
SECTION AT ℄
(Scale: ⅜" = 1'-0")



PILE SPLICE DETAIL
(No scale)



SECTION THRU WINGS
(Scale: ⅜" = 1'-0")



PLAN OF SIDEWALK AT END POST
(Scale: ½" = 1'-0")

NOTES:

. End Bent No. 1 has been detailed. End Bent No. 5 is similar by opposite hand, except as noted.

All Concrete in End Bents Shall be Class "B-1" including end posts, sidewalks, curbs and parapets.

All exposed edges of end posts shall have ½" bevel. All exposed edges of curbs, sidewalks and parapets shall have a ¾" bevel unless otherwise noted.

For Reinforcement of End Posts See Sh. No. 25.

For Reinforcement of Sidewalks and parapets see Sheet No. 30

For Expansion Joint Detail, See Sheet No. 32.

All bar laps shall be 24 bar diameters minimum.

Top of backwall and expansion device to conform to crown of roadway slab on bridge.

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS

99th STREET BRIDGE OVER INDIAN CREEK

END POST AND END BENT DETAILS

Made J.R.S. Date 2-16-77
Checked L.G.N. Date 2-22-77

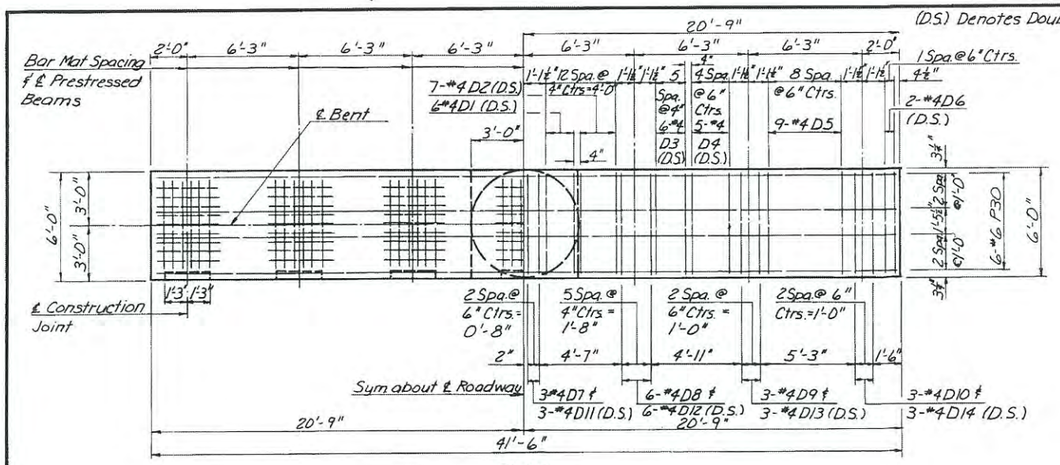
PREPARED BY BUCHER & WILLIS
CONSULTING ENGINEERS, PLANNERS & ARCHITECTS
SALINA KANSAS CITY

SCALE As Noted

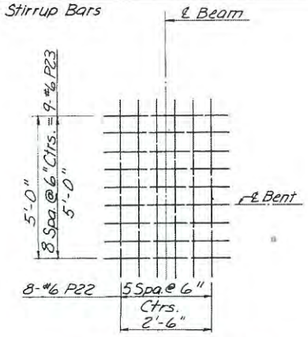
Sheet 25 of 48

FILE NO. 179-A-1

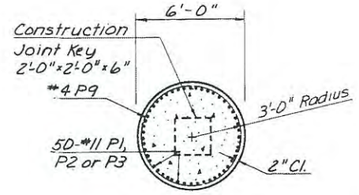
(D.S.) Denotes Double Stirrup Bars



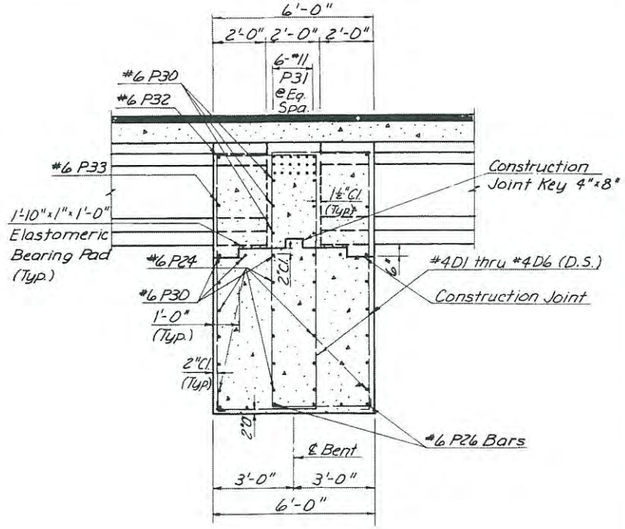
PLAN
(Scale: ♯"=1'-0")



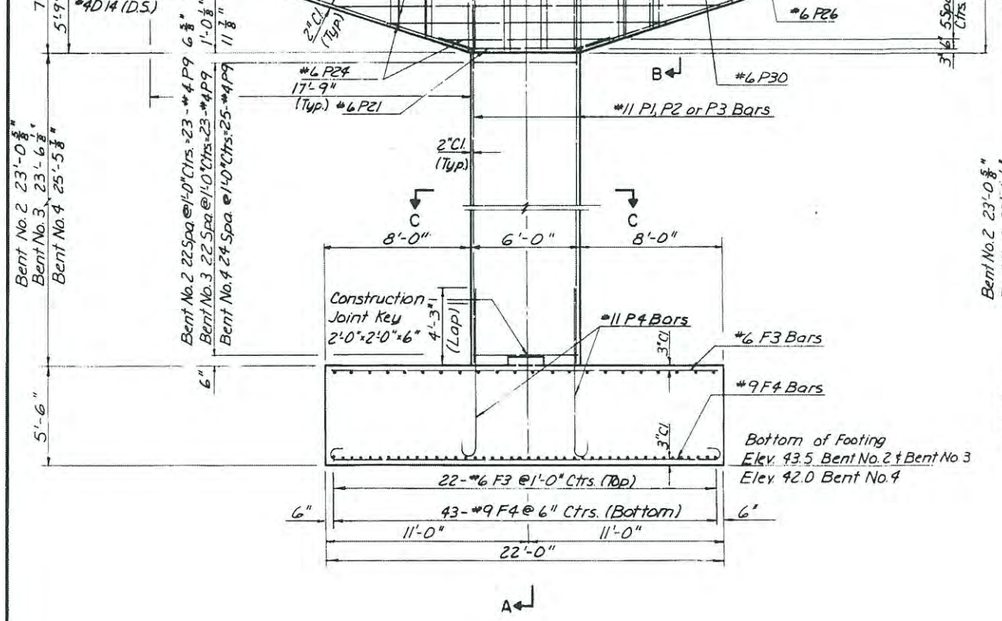
TYPICAL BAR MAT DETAIL
(Scale: ½"=1'-0")



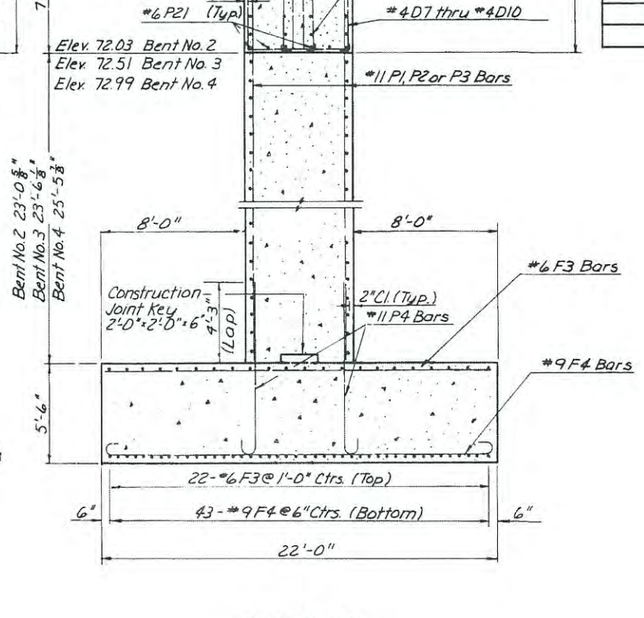
SECTION C-C
(Scale: ♯"=1'-0")



SECTION B-B
(Scale: ♯"=1'-0")



ELEVATION
(Scale: ♯"=1'-0")



SECTION A-A
(Scale: ♯"=1'-0")

TABLE OF ELEVATIONS							
BOTTOM OF BEAM	A	B	C	D	E	F	G
BENT NO. 2	79.11	79.28	79.38	79.48	79.38	79.28	79.11
BENT NO. 3	79.59	79.76	79.86	79.96	79.86	79.76	79.59
BENT NO. 4	80.07	80.24	80.34	80.44	80.34	80.24	80.07

Note:

Chamfer corners of concrete with a ¾" dressed and beveled strip.

All bar laps shall be 24 bar diameters minimum, unless otherwise noted.

Use Class B-1 Concrete throughout all substructure bents.

See Sheet No. 28 for additional diaphragm details at the cap portion of the bents.

All falsework for the bents shall remain in place until the concrete in the bent caps and diaphragms have reached a minimum compressive strength of 4,000 p.s.i..

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS

99th STREET BRIDGE OVER INDIAN CREEK

BENT NO.2, NO.3 & NO.4 DETAILS

Made G.E.B. Date 2-18-77
Checked C.E.L. Date 2-26-77

PREPARED BY BUCHER & WILLIS
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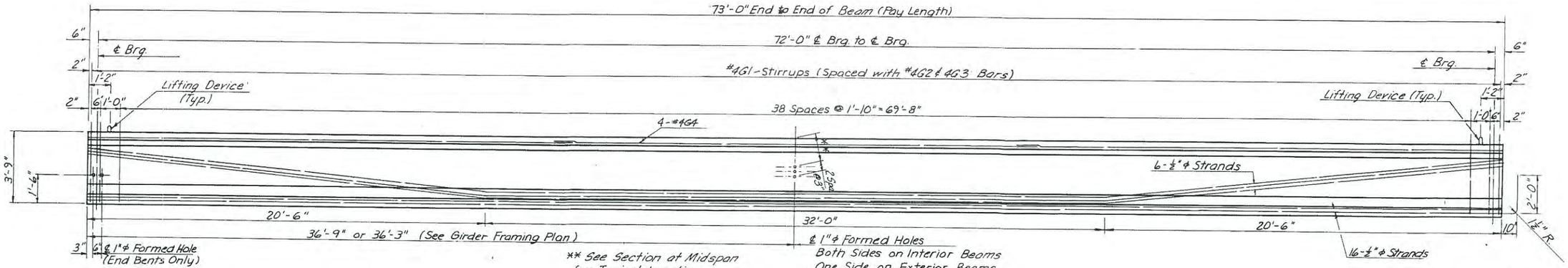
SALINA KANSAS CITY

SCALE As Noted

Sheet 26 of 48

FILE NO. 179-A-1



ELEVATION AT END BENT NO'S. 1&5

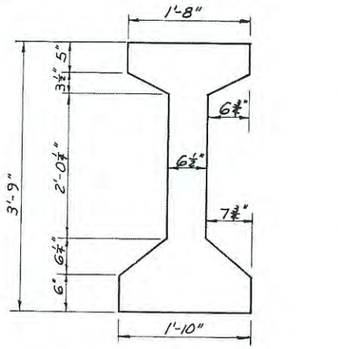
** See Section at Midspan for Typical Location. See Sheet No. 28 for additional details.

℄ 1"ϕ Formed Holes Both Sides on Interior Beams One Side on Exterior Beams

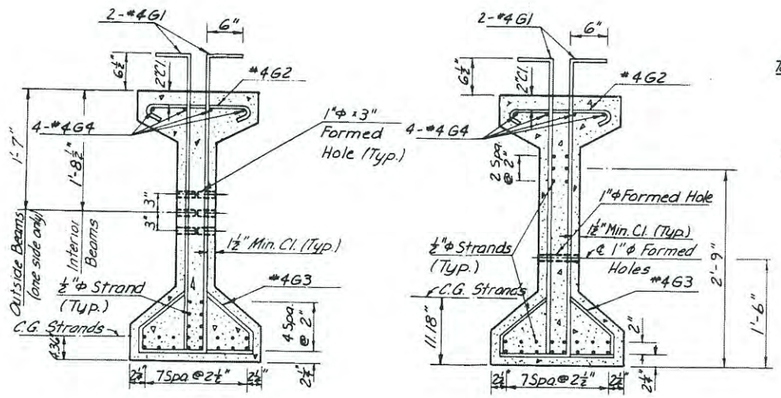
ELEVATION
(Scale: ⅜" = 1'-0")

ELEVATION AT BENT NO'S. 2,3 & 4

Note: Extend bottom 8 strands of each beam, except as shown a length of 2'-10". These strands shall be bent at a 1½" radius as shown before the beam is transported to the bridge site. The strand extensions shall not be frayed.

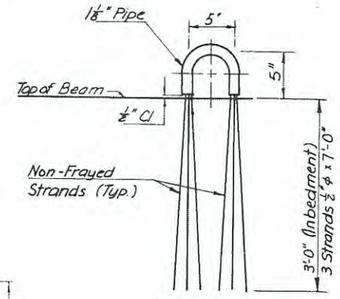


TYPICAL BEAM SECTION
(Scale: 1" = 1'-0")



SECTION AT MIDSPAN
(Scale: 1" = 1'-0")

SECTION AT END
(Scale: 1" = 1'-0")



SUGGESTED LIFTING DEVICE
(No Scale)

GENERAL NOTES

LOADING: H20-44, A.A.S.H.O. Specifications 1973 Edition.
CONCRETE: f'_c = 5,000 p.s.i. at 28 days.
f'_{ci} = 4,000 p.s.i. (Minimum release strength)

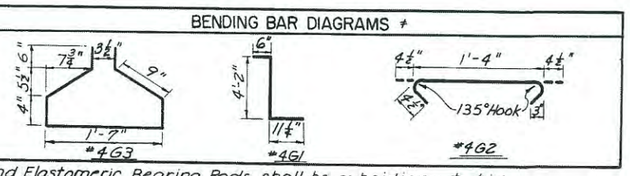
The manufacture of precast prestressed concrete beams shall conform to Section 7 of the Specifications. The beams shall reasonably conform to the lines and dimensions shown on the design plans and be within the tolerances specified in the latest publication of A.A.S.H.T.O., "Tentative Standards for Prestressed Piles, Slabs, I-Beams and Box Bridges and an Interim Manual for Inspection of Such Construction." All exposed edges of beams, except top and ends shall be beveled with a ¾ inch triangular moulding or rounded to a ¾ inch radius. The angle of intersection between web and flange shall be rounded. Tops of beams are to be struck off level and given a wire brush or stiff broom finish, applied in a direction transverse to the length of the beam. At approximately the time of initial set, the tops of beam shall be brushed transversely with a coarse wire brush to remove all laitance.

PRESTESSING STEEL: ½" nominal diameter, Grade 270, uncoated, seven wire, stress relieved strand for prestressed concrete, A.S.T.M. designation A416.
Minimum Ultimate Strength = 270,000 p.s.i.
Initial Stress = 70% of Ultimate = 189,000 p.s.i.
Initial Tension per Strand = 28.9 kips
REINFORCING STEEL: f_s = 20,000 p.s.i. Grade 40 A.S.T.M.
DIAPHRAGMS: The pier diaphragm and abutment diaphragm concrete shall not be placed prior to 28 days after release of the prestress concrete beam strands.
HANDLING: Prestressed beams shall be at all times handled in an upright position. Points of support shall be within 1'-2" of the ends during transportation and storage.
MARKING: Each beam shall have the following information stencilled by painting on the webs approximately 5ft. from the end.
Date of concrete placement ____
Date of strand release ____

BILL OF REINFORCING STEEL *

Mark	No.	Size	Shape	Length
G1	2408	#4	⌐	5'-7½"
G2	1204	#4	▭	2'-1"
G3	1204	#4	⌂	4'-9"
G4	336	#4	—	24'-11"

BENDING BAR DIAGRAMS #



*Note: All Reinforcing Steel, Strands, and Elastomeric Bearing Pads shall be subsidiary to bid items "Prestressed Concrete Beams."

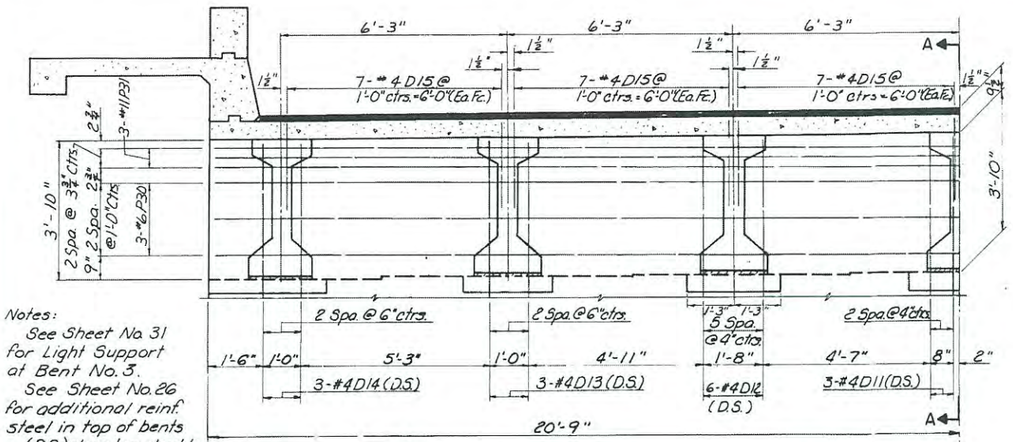
#Note: All dimensions shown in the bending diagram are out to out.

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
99th STREET BRIDGE OVER INDIAN CREEK

PRESTRESSED BEAM DETAILS

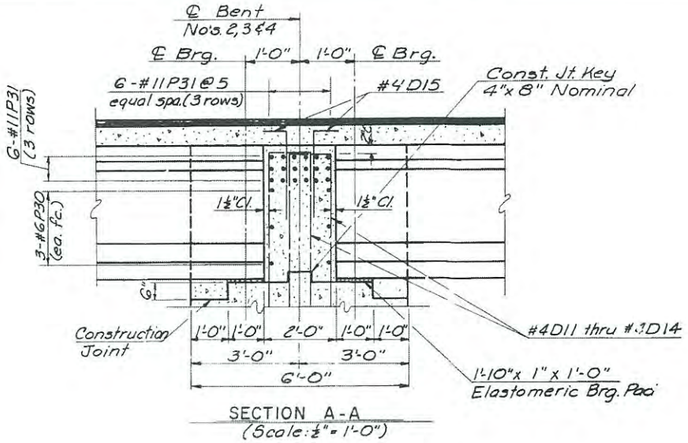
Made G.E.B. Date 1-28-77
Checked L.G.N. Date 2-24-77
PREPARED BY BUCHER & WILLIS CONSULTING ENGINEERS, PLANNERS & ARCHITECTS SALINA KANSAS CITY
SCALE As Noted
Sheet 27 of 48

FILE NO. 179-A-1



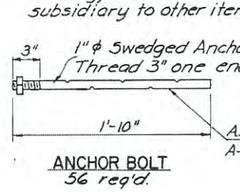
Notes:
See Sheet No. 31 for Light Support at Bent No. 3.
See Sheet No. 26 for additional reinf. steel in top of bents
(D.S.) denotes double stirrups.

PART HALF ELEVATION OF BENT NO'S. 2, 3 AND 4
(Scale: 1/2" = 1'-0")

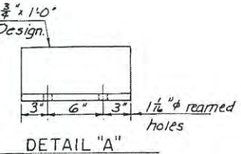


SECTION A-A
(Scale: 1/2" = 1'-0")

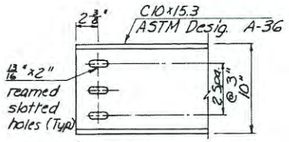
Note: Swedged Anchor bolts shall not be paid for directly, but shall be subsidiary to other items.



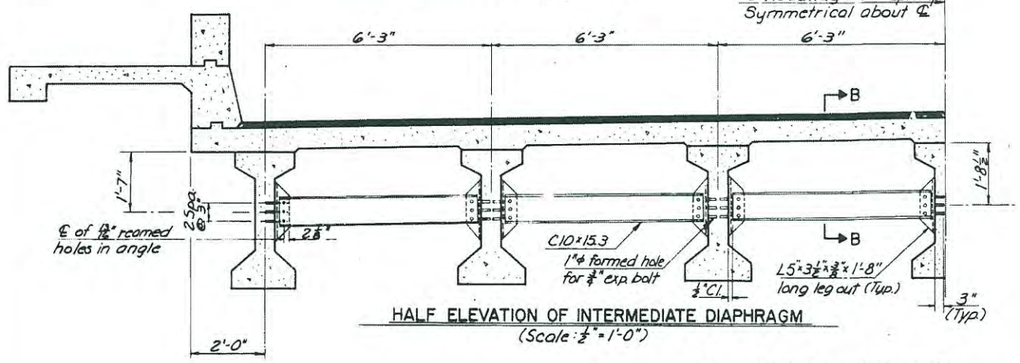
ANCHOR BOLT
56 req'd.



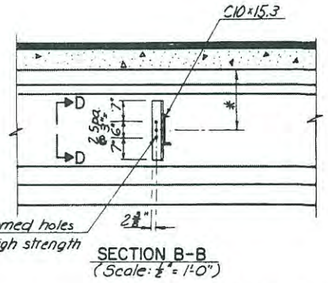
DETAIL "A"
(Scale: 1 1/2" = 1'-0")



SECTION D-D
(Scale: 1 1/2" = 1'-0")

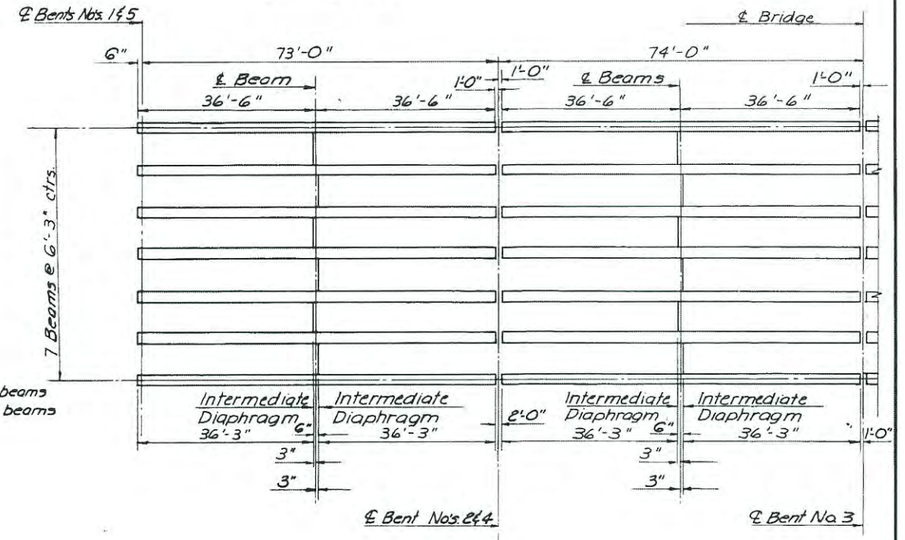


HALF ELEVATION OF INTERMEDIATE DIAPHRAGM
(Scale: 1/2" = 1'-0")



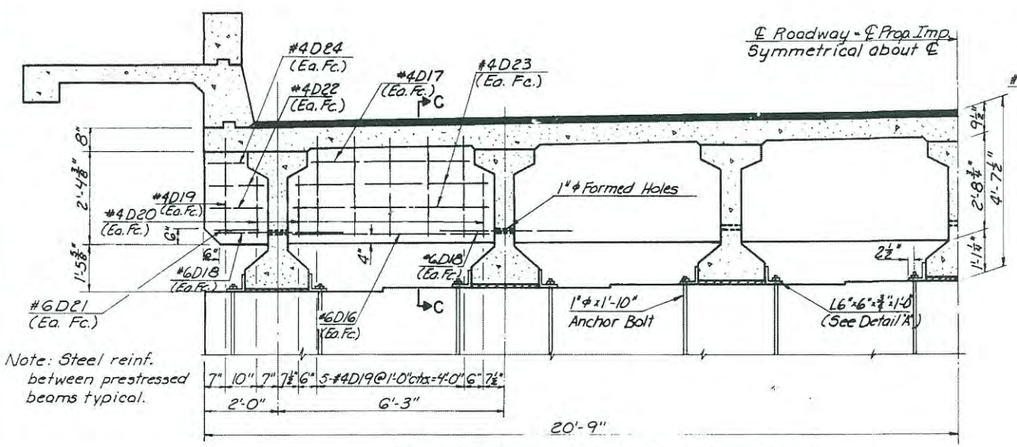
SECTION B-B
(Scale: 1/2" = 1'-0")

Note: All structural steel for intermediate diaphragms shall be ASTM Designation A-36, except High Strength 3/4" ϕ bolts shall be ASTM Designation A 325, Type 3.

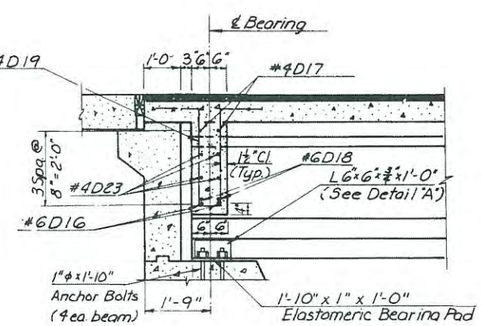


* 1'-8 1/2" for all interior beams
1'-7" for all exterior beams
(one side only)

BEAM FRAMING PLAN
No Scale



HALF ELEVATION OF END BENT DIAPHRAGM
(Scale: 1/2" = 1'-0")



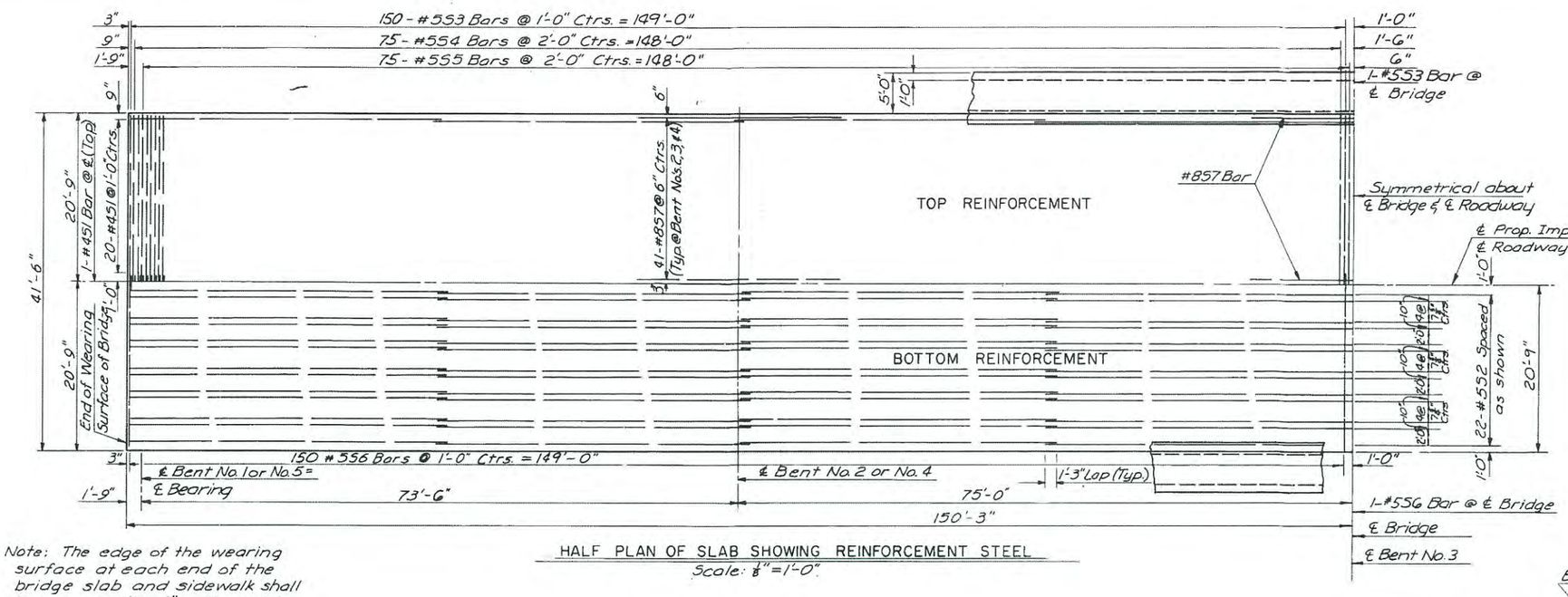
SECTION C-C
(Scale: 1/2" = 1'-0")

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
99th STREET BRIDGE OVER INDIAN CREEK

DIAPHRAGM DETAILS

Made G.E.B. Date 2-2-77
Checked L.G.N. Date 2-26-77
BUCHER & WILLIS CONSULTING ENGINEERS, PLANNERS & ARCHITECTS SALINA KANSAS CITY
SCALE As Noted
Sheet 28 of 48

FILE NO. 179-A-1

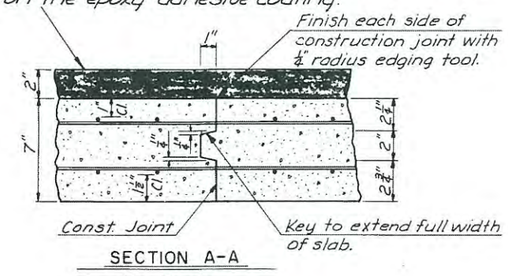


HALF PLAN OF SLAB SHOWING REINFORCEMENT STEEL

Scale: $\frac{1}{8}$" = 1'-0"

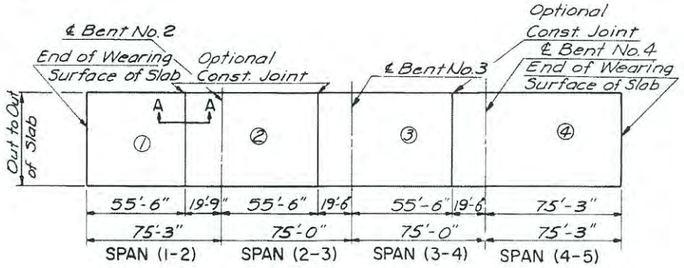
Note: The edge of the wearing surface at each end of the bridge slab and sidewalk shall be edged with a $\frac{1}{4}$" radius edging tool.

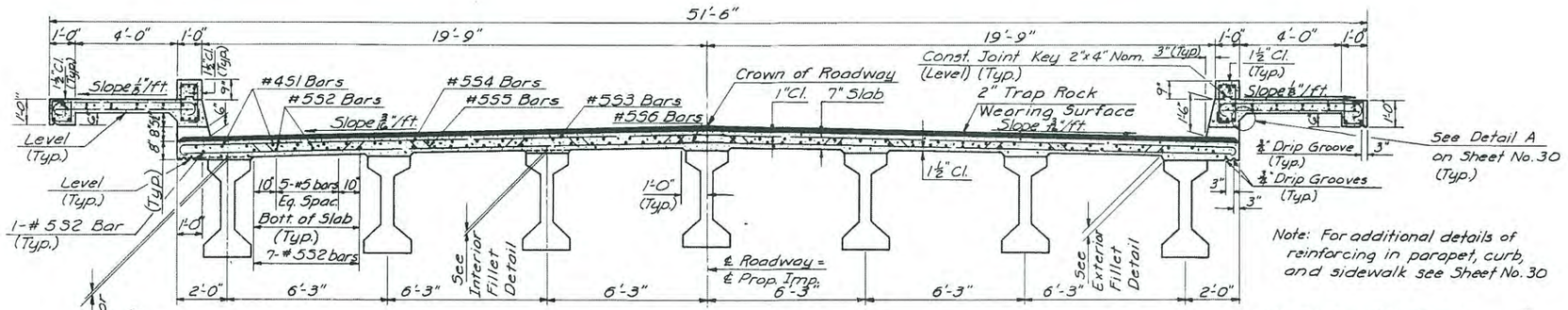
Note: Traprock wearing surface shall be wet bonded to the 7" structural concrete bridge slab, or by sandblasting the previously cured structural bridge slab and applying an epoxy adhesive to the structural concrete bridge slab and constructing the trap-rock wearing surface on the epoxy adhesive coating.



SECTION A-A

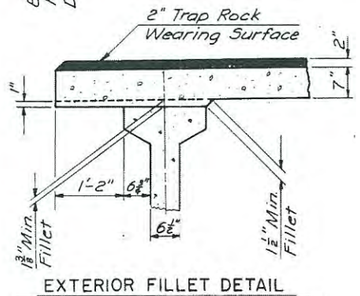
No Scale





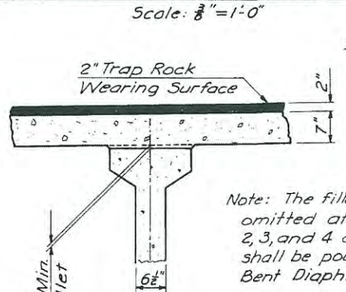
TYPICAL ROADWAY CROSS SECTION

Scale: $\frac{3}{8}$" = 1'-0"



EXTERIOR FILLET DETAIL

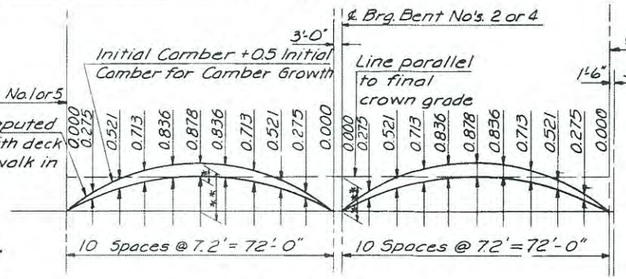
Scale: $\frac{3}{4}$" = 1'-0"



Note: The fillets shall be omitted at Bent Nos. 2, 3, and 4 and the slab shall be poured onto the Bent Diaphragms.

INTERIOR FILLET DETAIL

Scale: $\frac{3}{4}$" = 1'-0"



CAMBER DIAGRAM

* Deflection in inches due to cast in place deck, curbs, parapets and sidewalks.

** Initial camber + 0.5 initial camber for camber growth. Computed as 1.19", confirm in field.

*** Slab thickening at supports as required due to initial camber. Computed as 0.32", confirm in field.

POURING SEQUENCE				
	Sequence of Pours			
	Direction			
Basic Sequence	1	2	3	4
	End to 2	3 to 1	2 to 4	3 to End
Alternate Sequence "A"	1+2		3+4	
	End to 3		2 to End	
Alternate Sequence "B"	1+2+3+4			
	End to End			

The Contractor shall use a finishing machine and shall pour and satisfactorily finish the slab pours at a rate of not less than 50.5 cubic yards per hour. The Contractor shall observe the basic pouring sequence unless he can demonstrate to the Engineer that he can pour and satisfactorily finish one of the longer alternate pours.

* Dimensions may vary if beam camber after erection differs from plan camber by more than the % of D.L. deflection due to weight of pre-stressed girders. No payment will be made for additional forming or concrete required for variable haunching.

Note: All concrete in deck, parapet and sidewalks shall be Class B-1 concrete.

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
99th STREET BRIDGE OVER INDIAN CREEK

SLAB AND SIDEWALK DETAILS

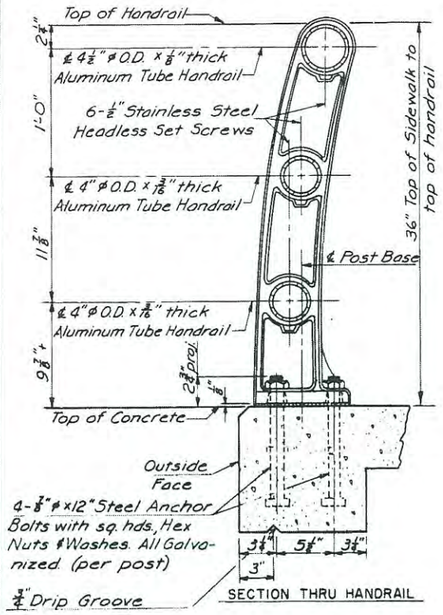
Made J.T.M. Date 1-28-77
Checked C.E.L. Date 2-23-77

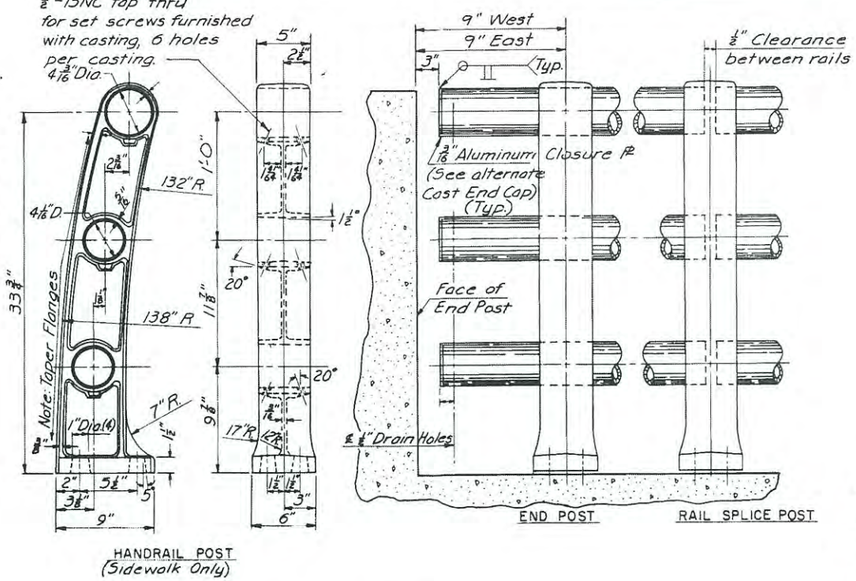
PREPARED BY BUCHER & WILLIS CONSULTING ENGINEERS, PLANNERS & ARCHITECTS
SALINA KANSAS CITY

SCALE AS NOTED

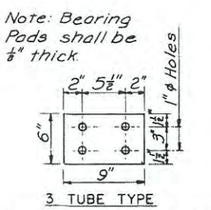
Sheet 29 of 48

FILE NO. 179-A-1

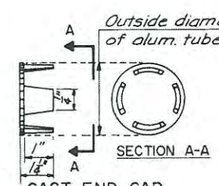




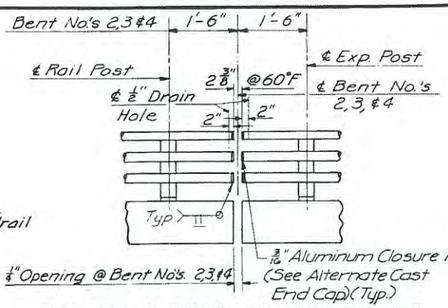
TYPICAL HANDRAIL DETAILS
(3 TUBE TYPE)
(Sidewalk only)
(No Scale)



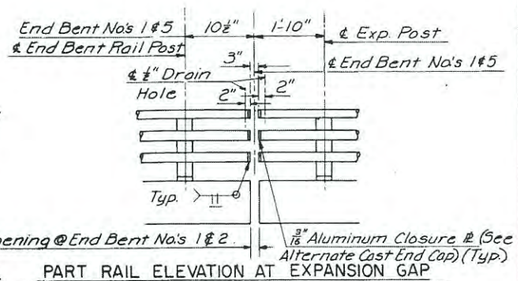
BEARING PAD DETAILS
(No Scale)



CAST END CAP



PART RAIL ELEVATION AT EXPANSION GAP AT BENTS



PART RAIL ELEVATION AT EXPANSION GAP AT END BENTS

GENERAL BRIDGE RAIL NOTES

All bridge rail posts shall be set normal to grade.

Aluminum washer shims between top of sidewalk and post base may be used for adjusting bridge rail allignment. Maximum thickness of shims to be ½". Where more tilting of posts is required for proper alignment, concrete bearing areas shall be ground down.

All parts of bridge rail, except anchor bolts, nuts, washers and set screws are to be made of aluminum material.

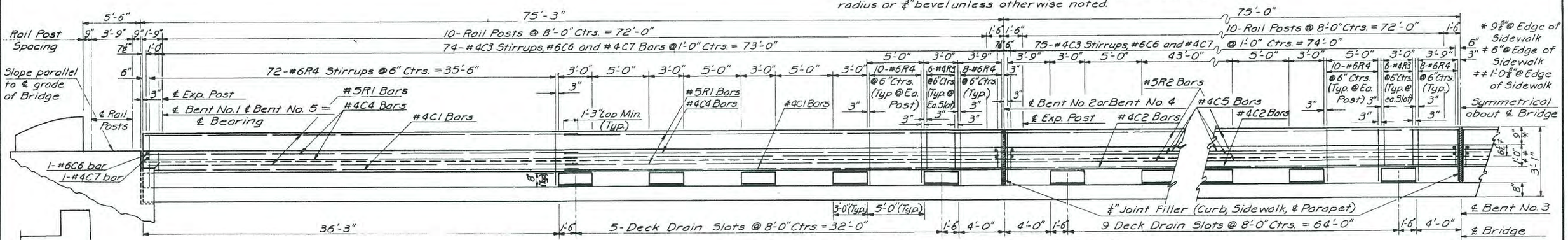
All fillets ¼" except as noted.

All drafts 3° except as noted.

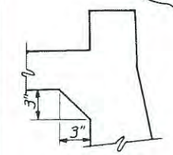
Omit set screws in side of rail posts adjacent to filled joints in curb and parapet at rail expansion posts.

Top of curbs and parapet to be built parallel to grade with curb and parapet joints (except of end bents) normal to grade.

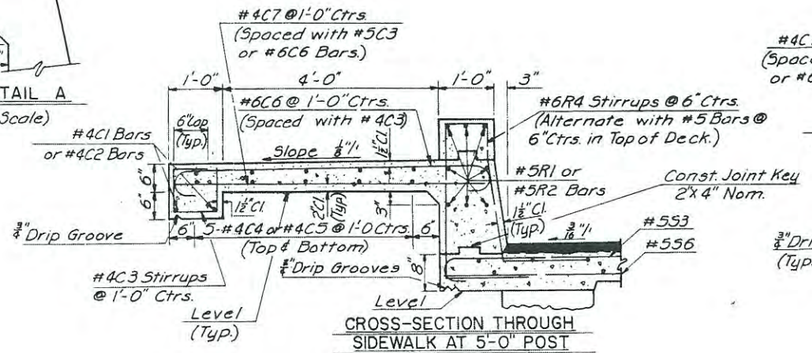
All exposed edges of end posts shall have ¼" bevel. All exposed edges of sidewalks, curbs, and parapets shall have ¼" radius or ¾" bevel unless otherwise noted.

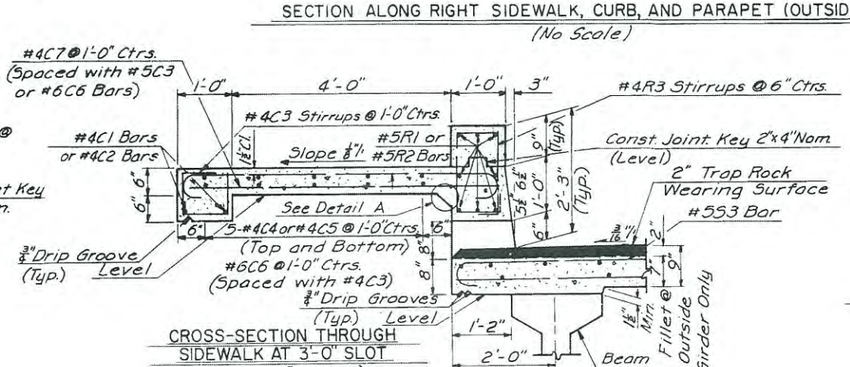


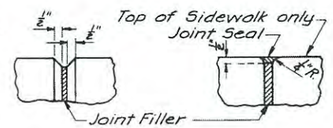
SECTION ALONG RIGHT SIDEWALK, CURB, AND PARAPET (OUTSIDE FACE)
(No Scale)



DETAIL A
(No Scale)







FILLED JOINT DETAIL
(No Scale)

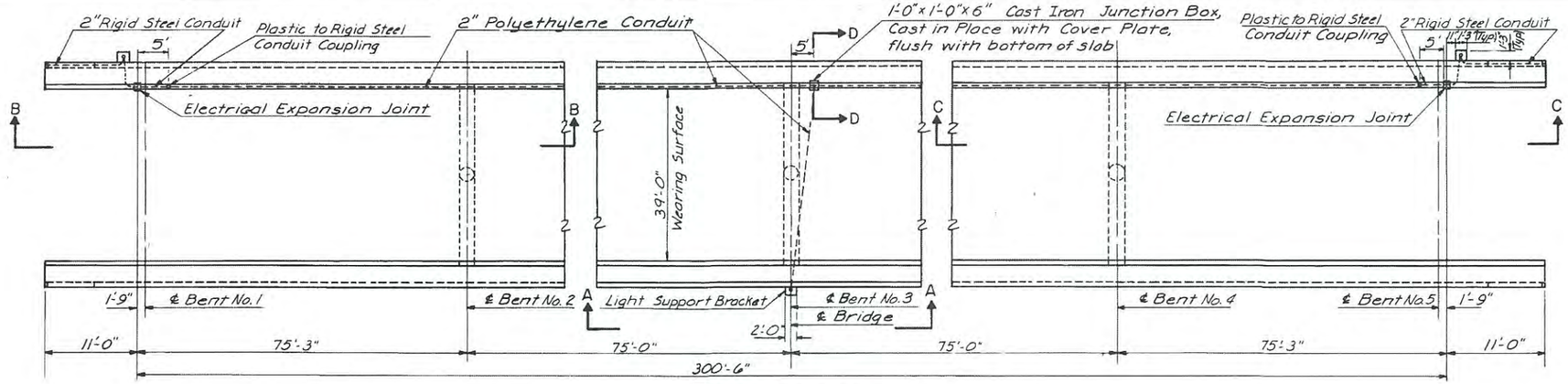
NOTE
See Sheet No. 29 for section thru bridge slab.
See Sheet No. 25 for end post details.

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
99th STREET BRIDGE OVER INDIAN CREEK

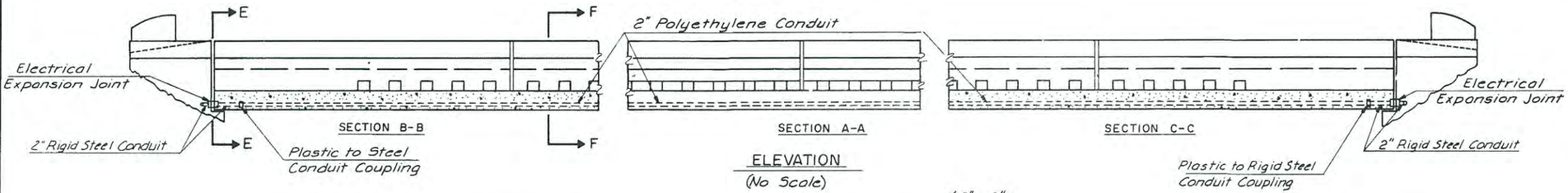
SIDEWALK, CURB, PARAPET AND HANDRAIL DETAILS

Made J.T.M. Date 2-9-77
Checked C.E.L. Date 2-23-77
Prepared by BUCHER & WILLIS CONSULTING ENGINEERS, PLANNERS & ARCHITECTS SALINA KANSAS CITY
SCALE As Noted
Sheet 30 of 48

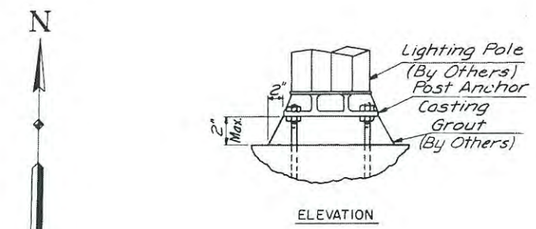
FILE NO. 179-A-1



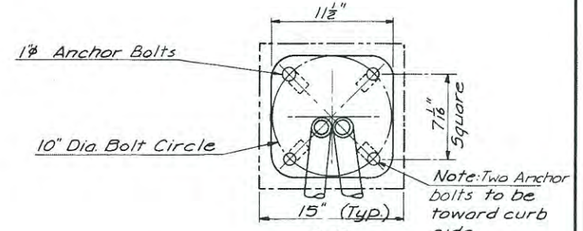
STREET LIGHT PLAN
(No Scale)



ELEVATION
(No Scale)

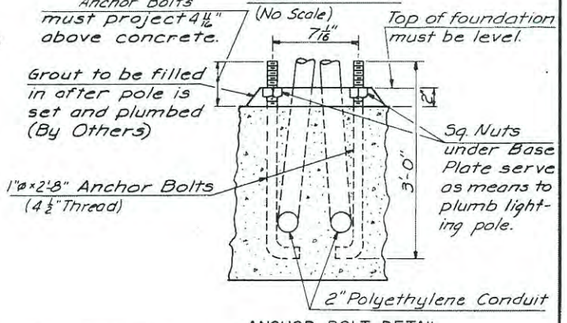


ELEVATION

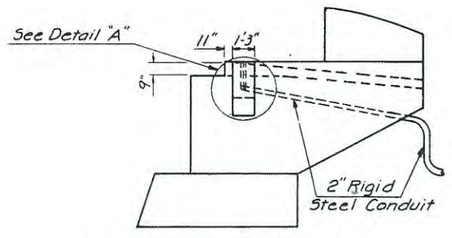


PLAN

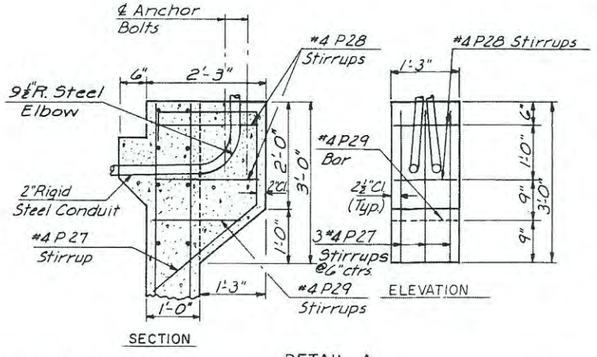
BASE DETAIL
(No Scale)



ANCHOR BOLT DETAIL
AT BENT NO'S 1 & 5

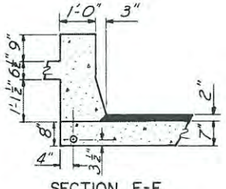


SIDEWALK END POST
(Scale: ½"=1'-0")

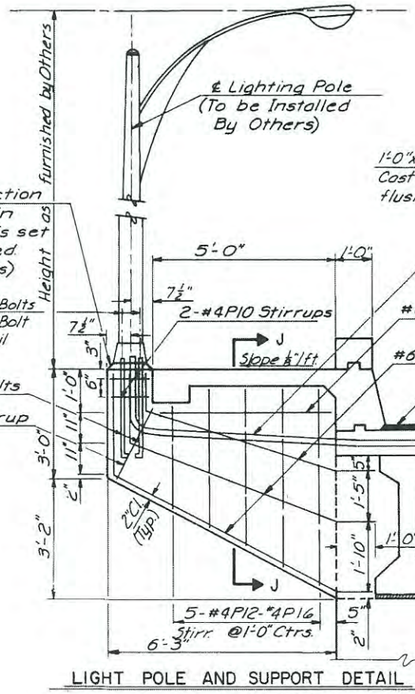


DETAIL A
(Scale: ¾"=1'-0")

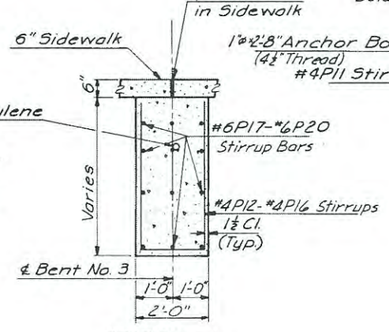
Note: See Sheet No's. 24 & 25 for additional information and details of light support bracket.



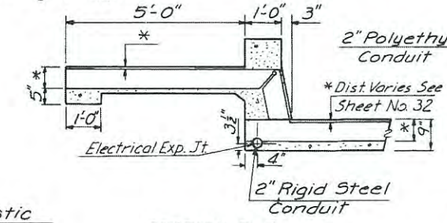
SECTION F-F
(Scale: ½"=1'-0")



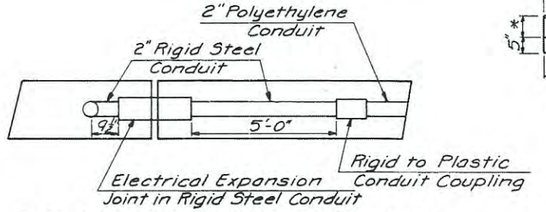
LIGHT POLE AND SUPPORT DETAIL
AT BENT NO. 3
(Scale: ½"=1'-0")



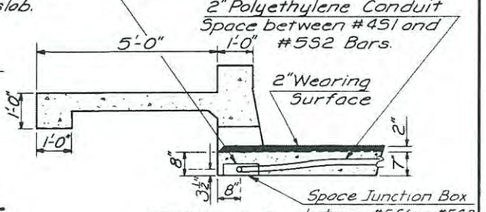
SECTION J-J



SECTION E-E
(Scale: ½"=1'-0")



ELECTRICAL EXPANSION JOINT AT END BENTS
(No Scale)



SECTION D-D
(Scale: ½"=1'-0")

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
99th STREET BRIDGE OVER INDIAN CREEK

STREET LIGHT DETAILS

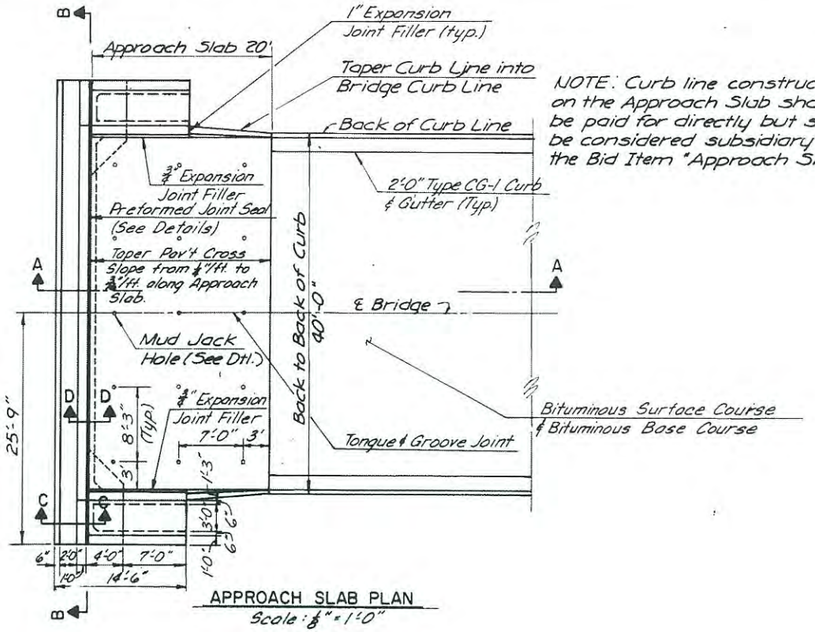
Made J.T.M.
Date 2-15-77
Checked C.E.L.
Date 2-24-77

PREPARED BY BUCHER & WILLIS CONSULTING ENGINEERS, PLANNERS & ARCHITECTS SALINA KANSAS CITY

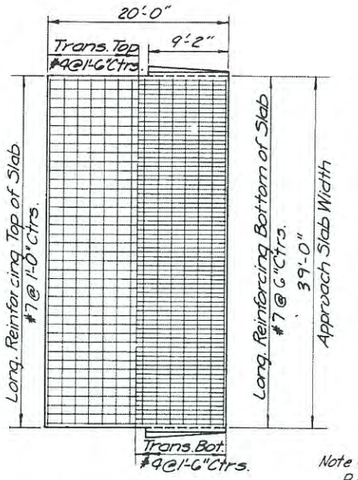
SCALE As Noted

Sheet 31 of 48

FILE NO. 179-A-1

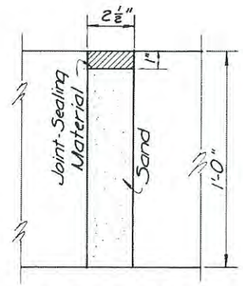


APPROACH SLAB PLAN
Scale: ⅛" = 1'-0"

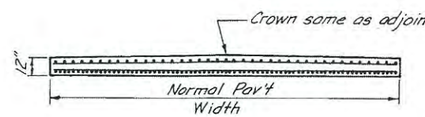


APPROACH SLAB PLAN
SHOWING REINFORCING
Scale: ⅛" = 1'-0"

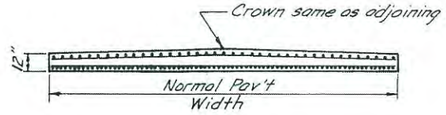
Note:
Bar Supports & spacers req'd
Bar Support spacing 4'-0" Maximum



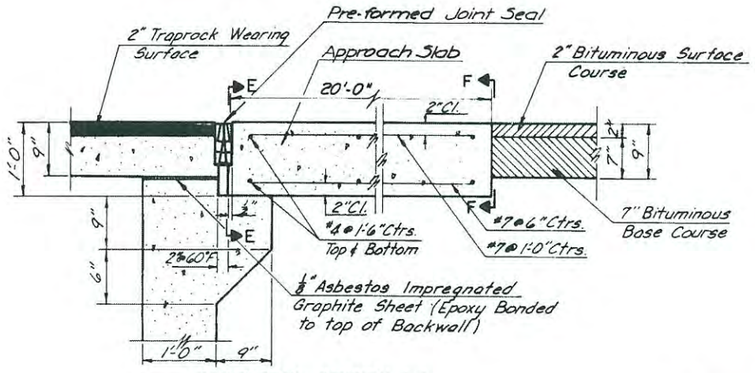
MUD JACK HOLE
No Scale



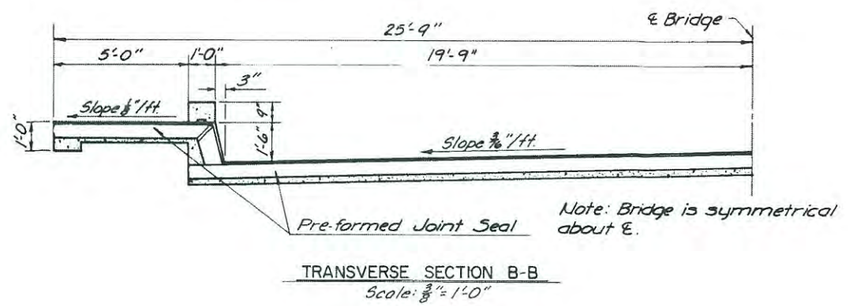
SECTION E-E
Scale: ⅛" = 1'-0"



SECTION F-F
Scale: ⅛" = 1'-0"

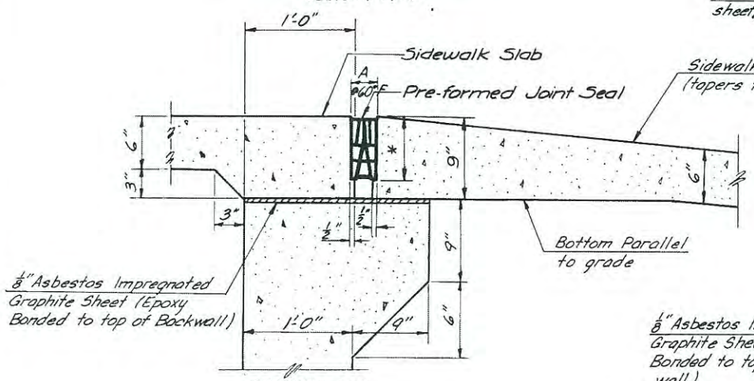


LONGITUDINAL SECTION A-A
Scale: 1" = 1'-0"

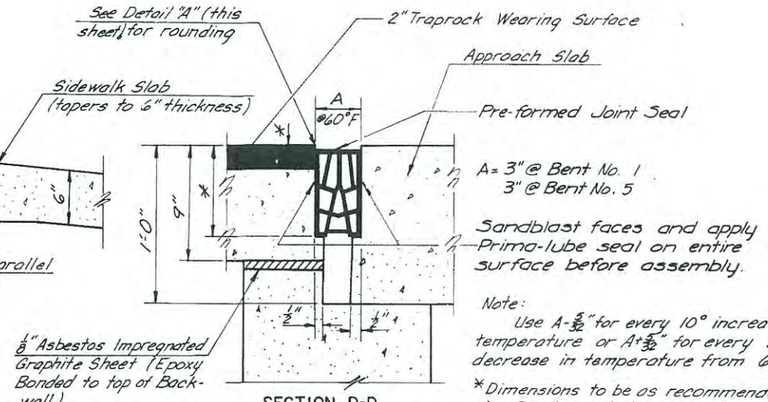


Note: Bridge is symmetrical about ℄.

TRANSVERSE SECTION B-B
Scale: ⅜" = 1'-0"



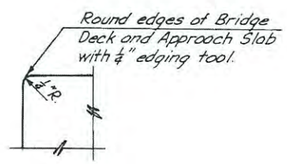
SECTION C-C
Scale: 1½" = 1'-0"



SECTION D-D
No Scale

Note:
Use A-$\frac{5}{32}$" for every 10° increase in temperature or A+$\frac{5}{32}$" for every 10° decrease in temperature from 60°F.

* Dimensions to be as recommended by Pre-formed Joint Seal Manufacturer and approved by the Engineer.



DETAIL A
No Scale

CITY OF KANSAS CITY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
99th STREET BRIDGE OVER INDIAN CREEK

APPROACH SLAB & EXPANSION JOINT DETAILS

Made R.A.M. Date 2-21-77
Checked K.J.T. Date 2-24-77

PREPARED BY BUCHER & WILLIS
CONSULTING ENGINEERS, PLANNERS & ARCHITECTS
SALINA KANSAS CITY

SCALE As Noted

Sheet 32 of 48

FILE NO. 179-A-1