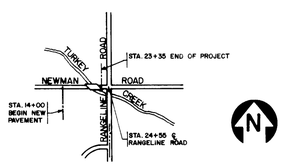
NEWMAN ROAD BRIDGE

OVER

TURKEY CREEK

JOPLIN , MISSOURI

PROJECT M-TM-3201(701)



LOCATION MAP

DESIGN DATA

CURRENT ADT	8,000
DESIGN ADT	11,260
DESIGN HOURLY VOLUME	1,125
DIRECTIONAL DISTRIBUTION	70%
PERCENTAGE OF TRUCKS	24%
DESIGN SPEED	40

PROJECT NO. M-TM-3201(701)

"AS BUILTS"

DRAWING INDEX

TITLE	NO.
TITLE SHEET & INDEX	1
PLAN & GENERAL ELEVATION	2
END BENTS	3
PIERS & BAR LIST	4
GIRDER DETAILS	5 & 6
SLAB REINFORCING PLAN & DECK SECTION	7
DIAPHRAGM DETAILS	8
CURB & RAILING DETAILS	9
EXISTING TOPOGRAPHY & BORING LOGS	10
ROADWAY SECTION & APPROACH SLAB DETAILS	11
PLAN & PROFILE OF ROADWAY	12
CROSS SECTIONS OF NEWMAN ROAD	13 & 14
CROSS SECTIONS OF CHANNEL CHANGE	15 & 16
STANDARD DETAILS	17 & 18
RAIL DETAILS & MID SPAN DIAPHRAM LAYOUT	19

Approved For The City Of Joplin R M Sahm Date 9/3/75

Approved For The Missouri State Highway Department _____ Date _____

Approved For The Federal Highway Administration _____ Date _____

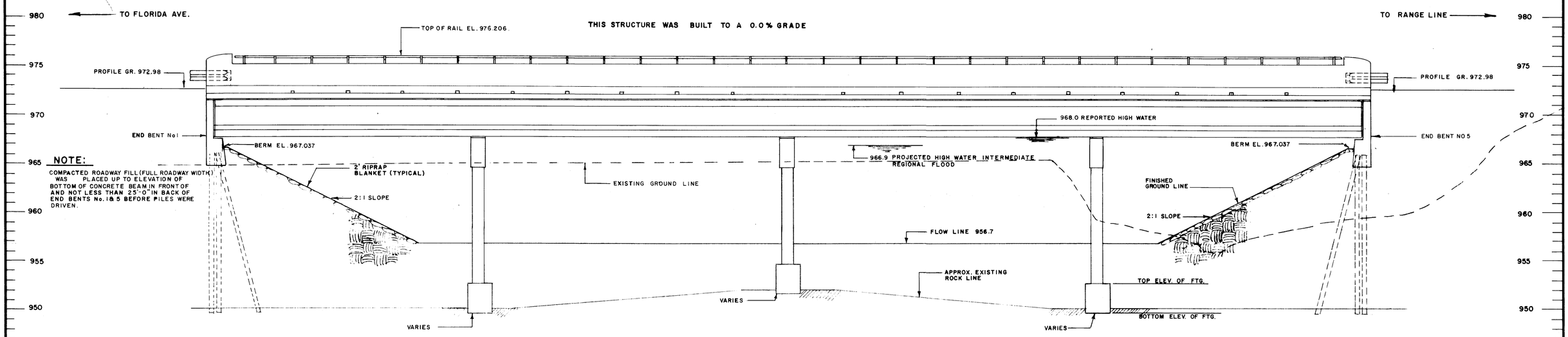
ALLGEIER , MARTIN & ASSOCIATES

ARCHITECTS PLANNERS ENGINEERS

JOPLIN, MISSOURI DALLAS, TEXAS

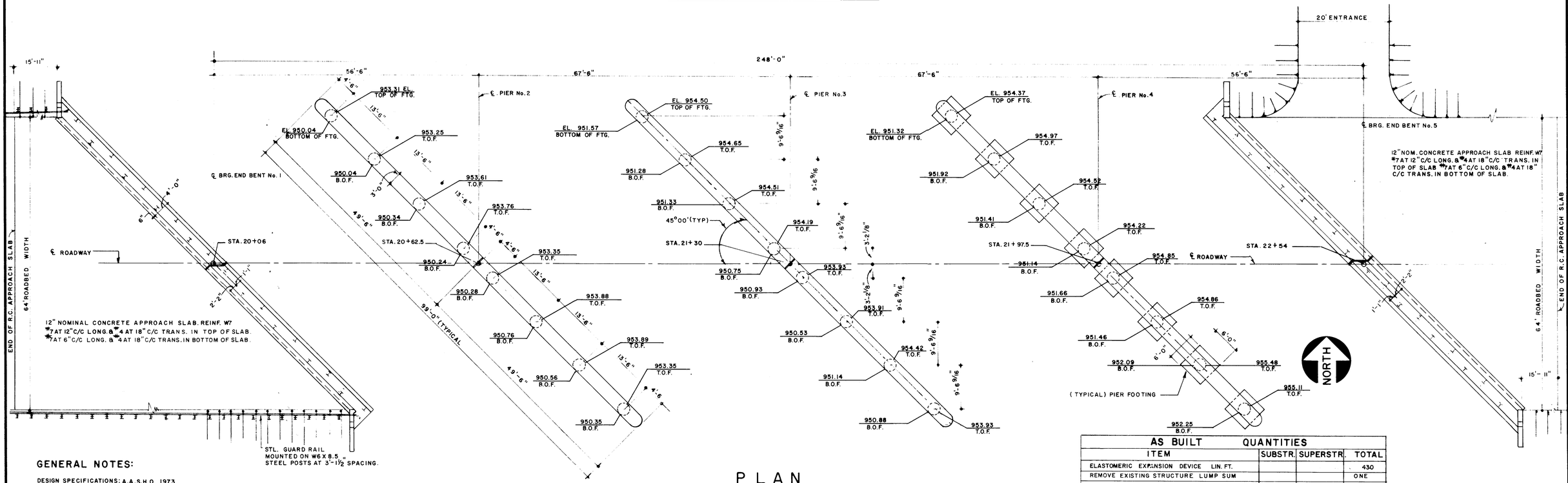
E.M. ALLGEIER

AIA P.E.



NOTE:
COMPACTED ROADWAY FILL (FULL ROADWAY WIDTH) WAS PLACED UP TO ELEVATION OF BOTTOM OF CONCRETE BEAM IN FRONT OF AND NOT LESS THAN 25'-0" IN BACK OF END BENTS No. 1 & 5 BEFORE PILES WERE DRIVEN.

GENERAL ELEVATION



PLAN

STA. OF BRIDGE 21+30 & STA. OF PIER 3

* FOOTINGS BENT 2 THRU BENT 4.

PILE DATA		
	B1	B5
PILE TYPE & SIZE	HP10X42	HP10X42
NUMBER	18	18
DESIGN BEARING TONS	34	34
LENGTH REQ'D. LIN. FT.	733	264
TEST HOLE DRILLING		96 L.F.*

ALL PILES SHALL BE DRIVEN TO PRACTICAL REFUSAL

AS BUILT QUANTITIES			
ITEM	SUBSTR.	SUPERSTR.	TOTAL
ELASTOMERIC EXPANSION DEVICE LIN. FT.			430
REMOVE EXISTING STRUCTURE LUMP SUM			ONE
CLASS I EXCAVATION CU. YD.	337.5		337.5
CLASS 2 EXCAVATION CU. YD.	55		55
STRUCTURAL STEEL PILE LIN. FT.	997		997
CLASS B CONCRETE CU. YD.	363.3		363.3
CLASS B1 CONCRETE CU. YD.		612.3	612.3
66'-10" PRESTRESSED CONCRETE GIRDERS EACH		20	20
57'-8" PRESTRESSED CONCRETE GIRDERS EACH		20	20
REINFORCING STEEL, GRADE 40 LB.	44,853	148,337	193,190
STONE RIPRAP SQ. YD.	858		858
ALUMINUM BRIDGE RAIL LIN. FT.		484	484
PLAIN NEOPRENE BEARING PADS (70 DUR.) EACH	80		80

GENERAL NOTES:

DESIGN SPECIFICATIONS: A.A.S.H.O. 1973
DESIGN LOADING: H20-44; 15 lb/SQ.FT. FUTURE WEARING SURFACE
EARTH - 120 lb/CU.FT. - EQUIVALENT FLUID PRESSURE = 30 lb/CU.FT.

SUPERSTRUCTURE: SIMPLY SUPPORTED NON-COMPOSITE FOR DEAD LOADS, CONTINUOUS COMPOSITE FOR LIVE LOAD.

DESIGN UNIT STRESSES:
CLASS B CONCRETE (SUBSTRUCTURE) Fc = 1200 p.s.i.
CLASS B1 CONCRETE (SUPERSTRUCTURE EXCEPT PRESTRESSED GIRDERS) Fc = 1600 p.s.i.
REINFORCING STEEL Fs = 20,000 p.s.i. FOR GRADE 40; Fs = 24,000 p.s.i FOR GRADE 60
STEEL PILES Fb = 9000 p.s.i.
FOR PRESTRESSED GIRDER STRESSES SEE SHEET No.

MINIMUM CLEARANCE TO REINFORCING STEEL WAS 1 1/2" UNLESS OTHERWISE SHOWN.
SUPERSTRUCTURE DECK WAS SEALED IN ACCORDANCE WITH SECTION 703-3-18 OF MISSOURI STANDARD SPECIFICATIONS.
JOINT FILLER CONFORMED TO SECTION 1057.2.4 OF MISSOURI STANDARD SPECIFICATIONS.

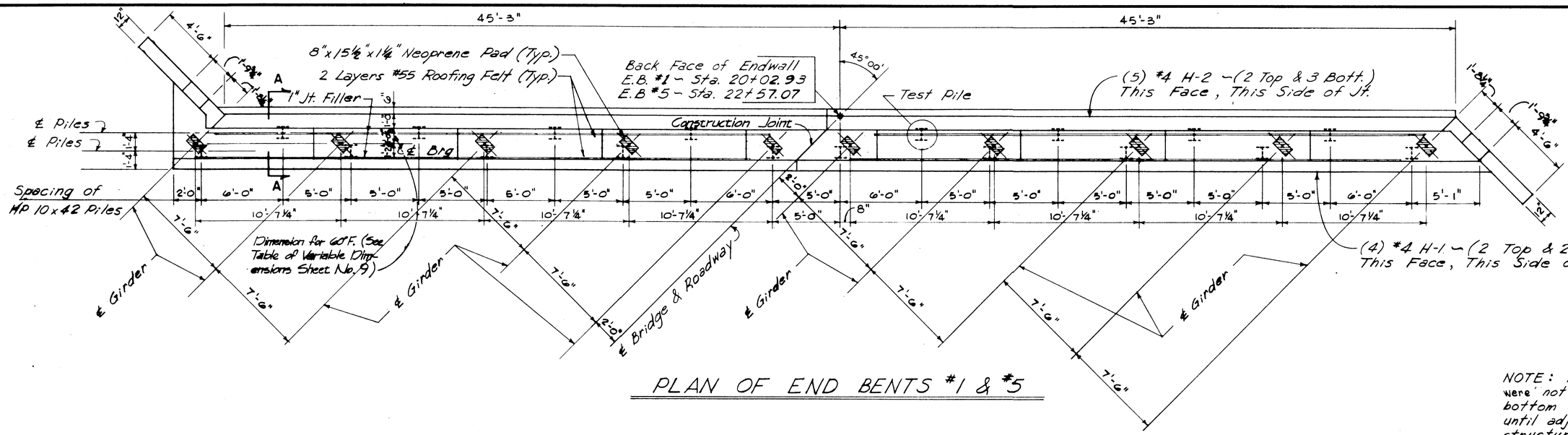
ALLGEIER, MARTIN & ASSOCIATES
ARCHITECTS PLANNERS CONSULTING ENGINEERS
JOPLIN, MISSOURI DALLAS, TEXAS

DWN. BY: J.B.
CKD. BY: P.T.R.
APPD. BY:
DATE: JUNE, 1975

DATE	REVISIONS:
DEC., 1976	AS BUILTS

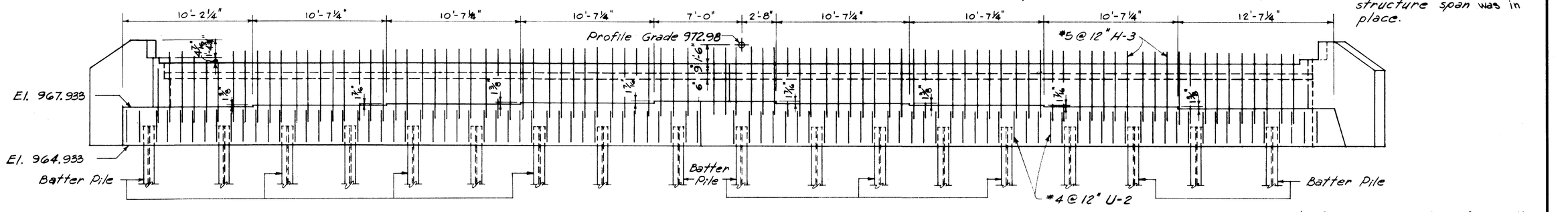
NEWMAN ROAD BRIDGE OVER TURKEY CREEK
JOPLIN, MISSOURI
PLAN & GENERAL ELEVATION

SHEET NO. 2



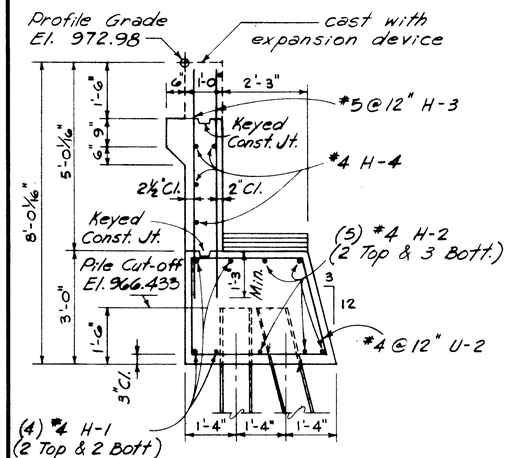
PLAN OF END BENTS #1 & #5

NOTE: Fill at end bents were not be carried above bottom of cap and wings until adjacent superstructure span was in place.

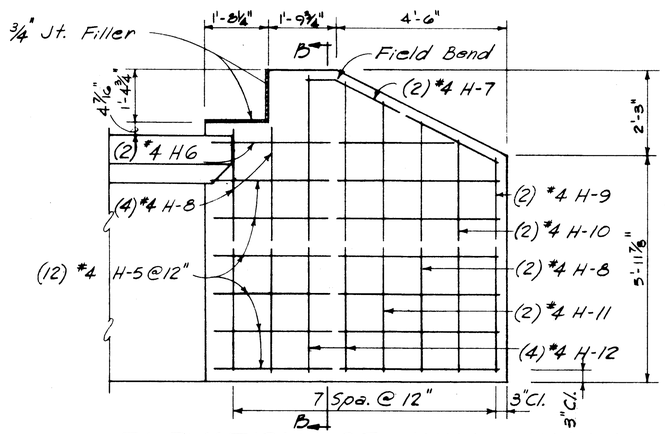


ELEVATION OF END BENT

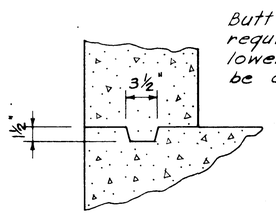
Cost of Jt. Filler and Roofing Felt was included in the unit price bid for Substructure concrete.



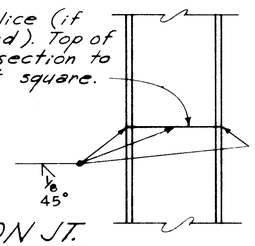
SECTION A-A



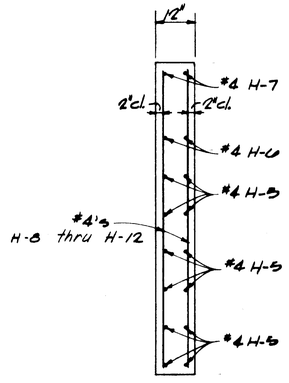
ELEVATION OF WING WALL



KEYED CONSTRUCTION JT.



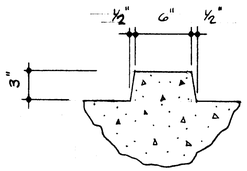
DETAIL OF PILE SPLICE



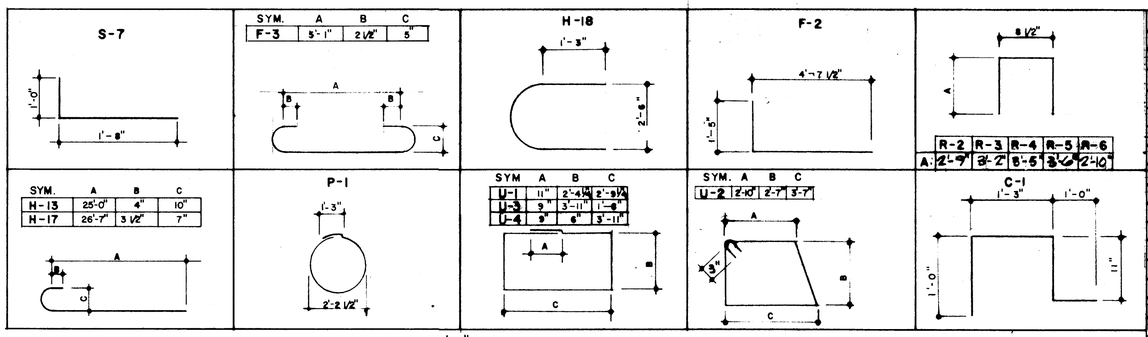
SECTION B-B THRU WING WALL

ALLGEIER, MARTIN & ASSOCIATES ARCHITECTS PLANNERS CONSULTING ENGINEERS JOPLIN, MISSOURI DALLAS, TEXAS	DWN. BY: PTB CKD. BY: ALG APPD. BY: DATE: JUNE, 1975	DATE DEC., 1976	REVISIONS: AS BUILTS	NEWMAN ROAD BRIDGE OVER TURKEY CREEK JOPLIN, MISSOURI END BENTS	SHEET NO. 3

LIST OF REINFORCING STEEL AND BENDING AND CUTTING DIAGRAMS



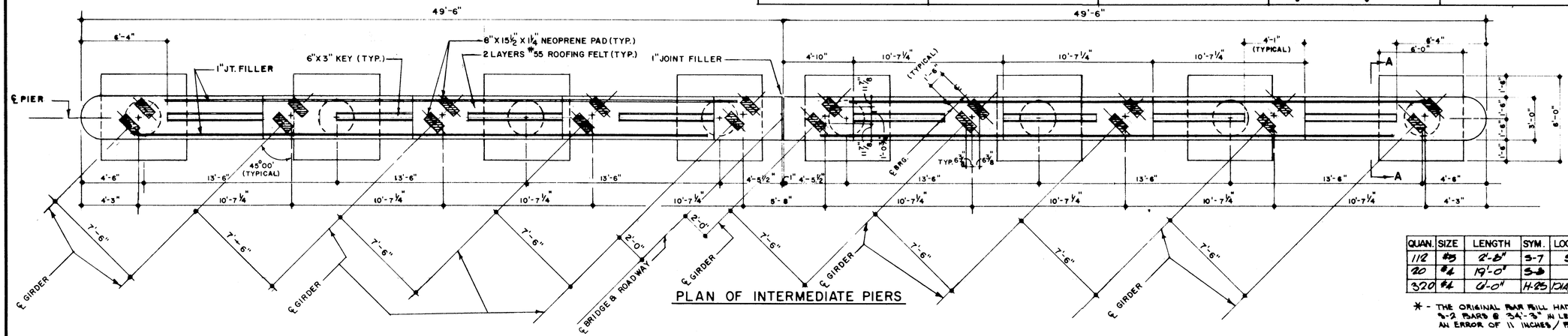
DETAIL OF KEY



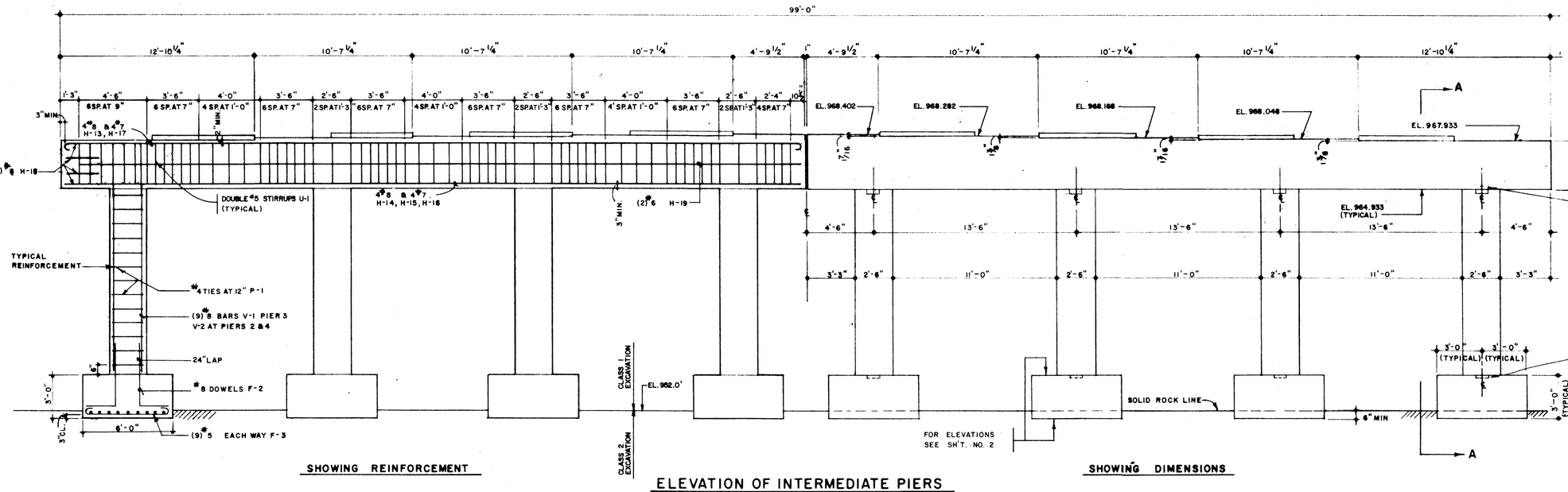
QUAN.	SIZE	LENGTH	SYM.	LOCATION
32	#4	25'-5"	H-1	END BENT
40	#4	23'-5"	H-2	" "
34	#5	6'-0"	H-3	" "
32	#4	23'-5"	H-4	" "
48	#4	7'-8"	H-5	" "
8	#4	6'-6"	H-6	" "
8	#4	5'-6"	H-7	" "
24	#4	6'-7"	H-8	" "
8	#4	5'-7"	H-9	" "
8	#4	6'-1"	H-10	" "
8	#4	7'-1"	H-11	" "
8	#4	7'-7"	H-12	" "
186	#4	12'-0"	U-2	" "
48	#8	26'-1"	H-13	PIER CAP
48	#8	25'-6"	H-14	" "
24	#7	25'-9"	H-15	" "
24	#7	25'-11"	H-16	" "
48	#7	27'-5"	H-17	" "
24	#8	6'-6"	H-18	" "
24	#6	25'-0"	H-19	" "
216	#8	5'-10"	F-2	PIER FTG
432	#5	6'-8"	F-3	" "
72	#8	13'-8"	V-1	PIER COL.
144	#8	15'-8"	V-2	" "
271	#4	8'-2"	P-1	" "
780	#5	11'-2"	U-1	PIER CAP
400	#4	7'-6"	H-20	DIAPHRAGM
42	#5	3'-7"	H-21	"
30	#4	2'-7"	H-22	"
24	#6	8'-0"	H-23	"
48	#4	3'-6"	H-24	"
450	#4	11'-7"	U-3	"
192	#4	9'-7"	U-4	"
240	#6	18'-0"	S-1	SLAB
384	#6	33'-4" *	S-2	"
1128	#5	22'-0"	S-3	"
180	#5	29'-0"	S-4	"
180	#5	26'-0"	S-5	"
742	#5	3'-5"	S-6	"
450	#5	4'-1"	C-1	CURB
45	#6	22'-9"	C-2	"
8	#5	5'-4"	R-1	END POST
4	#5	6'-1"	R-2	" "
4	#5	6'-11"	R-3	" "
4	#5	7'-5"	R-4	" "
12	#5	7'-7"	R-5	" "
486	#5	6'-3"	R-6	PARAPET
144	#4	22'-9"	R-7	"

QUAN.	SIZE	LENGTH	SYM.	LOCATION
112	#5	2'-6"	S-7	SLAB
20	#4	19'-0"	S-8	"
320	#4	6'-0"	H-25	DIAPHRAGM

* - THE ORIGINAL BAR BILL HAD THE 5-2 BARS @ 34'-3" IN LENGTH, AN ERROR OF 11 INCHES / BAR.



PLAN OF INTERMEDIATE PIERS



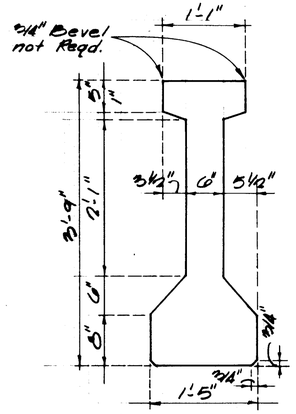
SHOWING REINFORCEMENT

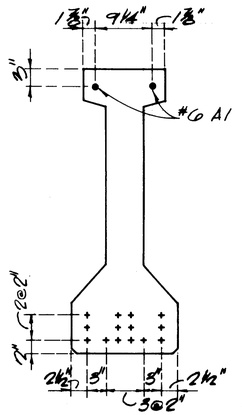
ELEVATION OF INTERMEDIATE PIERS

SHOWING DIMENSIONS

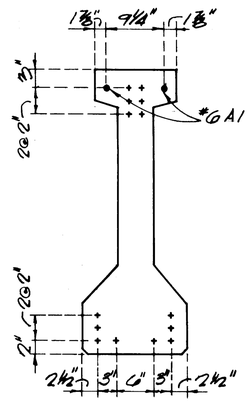
SECTION A—A

ALLGEIER, MARTIN & ASSOCIATES ARCHITECTS PLANNERS CONSULTING ENGINEERS JOPLIN, MISSOURI DALLAS, TEXAS	DWN. BY: J.B. CKD. BY: P.T.R. APPD. BY: DATE: JUNE, 1975	DATE: DEC., 1976 REVISIONS: AS BUILTS	NEWMAN ROAD BRIDGE OVER TURKEY CREEK JOPLIN, MISSOURI PIERS & BAR LIST	SHEET NO. 4



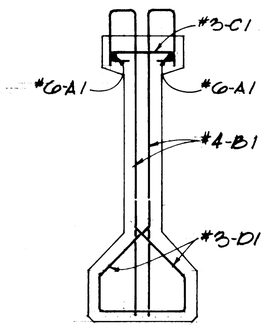


SECTION B-B



SECTION A-A

NOTE: Use 14 strands. Initial Prestress Force = 405 kips.



The strands at the exposed end of girders at end bents were be trimmed to 1/8" of girder end and painted with an emulsified asphalt paint.

Bill of Reinforcing Steel (Each Girder)

No.	Size & Mark	Lenght	Shape	Bending Diagrams
2	#6-A1	56'-5"	Str.	
112	#4-B1	5'-0"	6T	4", 8", 2", 6T 5'-3"
56	#3-C1	13"	10T	10¾", 2", 10T
112	#3-D1	2'-8"	9T	4", 5½", 8", 8", 9T, 13"

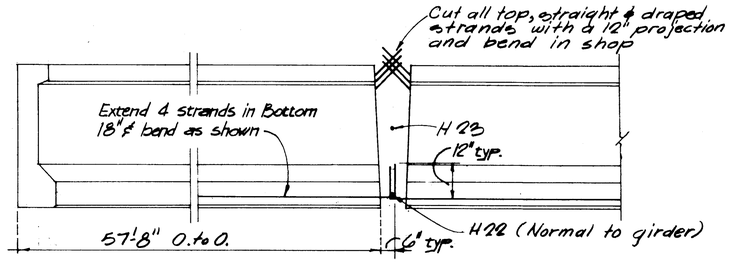
Note: All dimensions are out to out. Where deflecting strands interfere with placement, some in-place bending was necessary.

Hooks & bends were in accordance with the CRSI Manual of Standard Practice for detailing reinforced concrete structures.

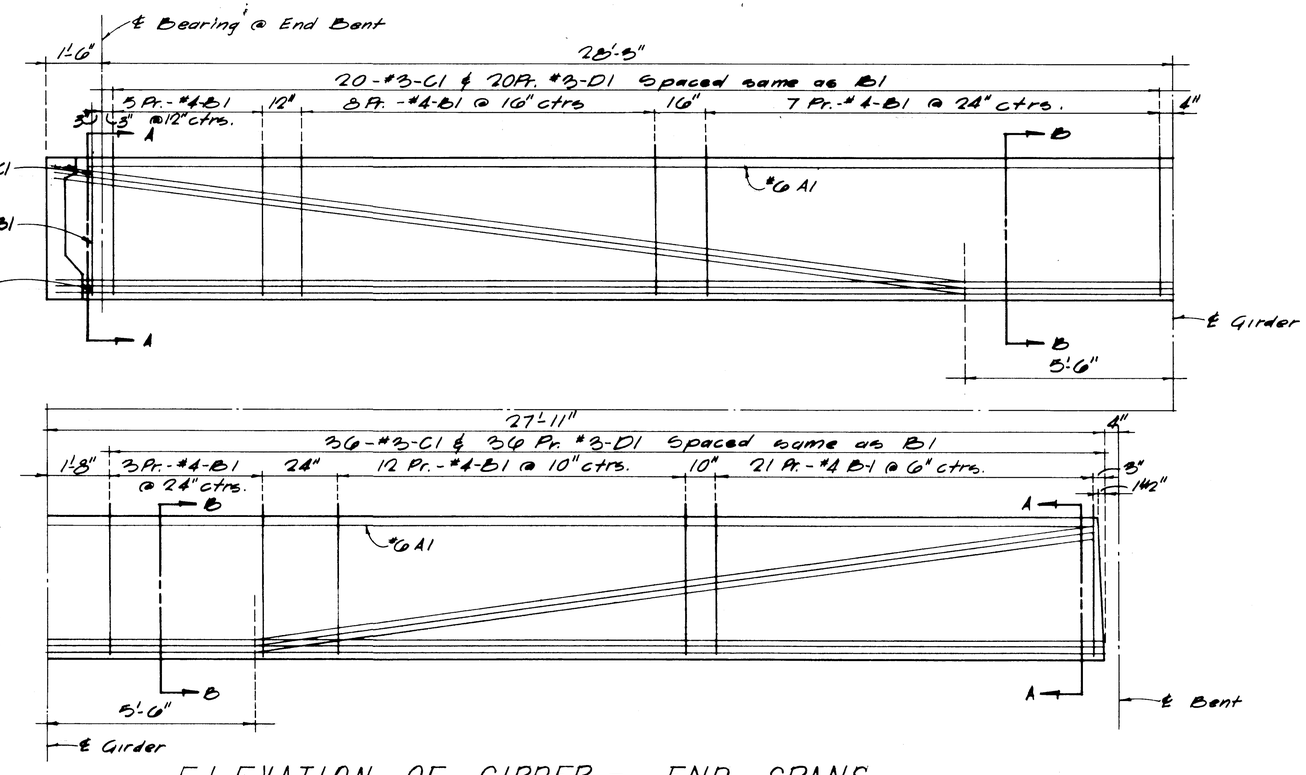
The letter T after the shape number, in bending sketches, indicates bars that are to be bent according to CRSI stirrup and tie dimensions.

Length - Total lengths are measured along centerline bar to nearest inch.

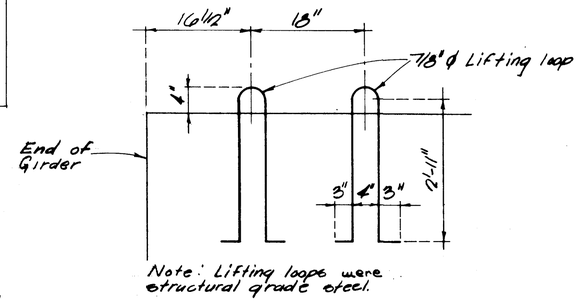
Minimum clearance to reinforcing steel in girders was 1".



STRAND DETAILS AT GIRDER ENDS

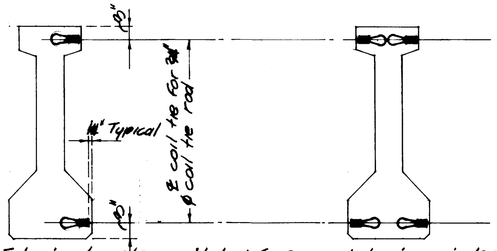


ELEVATION OF GIRDER - END SPANS



Note: Lifting loops were structural grade steel.

LIFTING LOOP DETAIL



Exterior ϕ center girders (all bents)

Note: See Sheet No. 8 for coil tie Locations

Interior girders (all bents)

COIL TIE DETAILS

GENERAL NOTES; PRESTRESSED GIRDERS

Concrete for prestressed girders was Class A with f'_c = 5000 psi.

Minimum compressive strength at transfer was 4000 psi

Prestressing tendons were high-tensile strength uncoated seven-wire stressed relieved strands for Prestressed concrete conforming to ASTM A-416 except that nominal diameter of strand = ½" and nominal area = 0.153 sq. in. and minimum ultimate strength = 41,000 lbs. (= 270 Ksi).

The portions of girders to be embedded in the diaphrams or supports were roughened by sandblasting or other approved methods to provide suitable bond betwteen girder and diaphram.

Coil ties were held in place in the forms by slotted wire setting studs projecting thru forms. Studs were left in place until girders were erected and then replaced by coil tie rods.

Coil ties had a tensile strength of 9,000 psi in 3,000 psi concrete

(+) Indicates prestressed strands. All bottom prestressing strands except those shown to be extended were trimmed to within 1" of concrete.

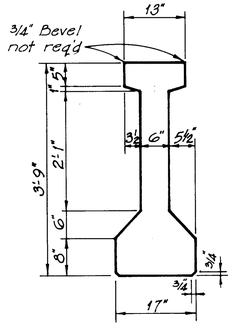
ALLGEIER, MARTIN & ASSOCIATES
ARCHITECTS PLANNERS CONSULTING ENGINEERS
JOPLIN, MISSOURI DALLAS, TEXAS

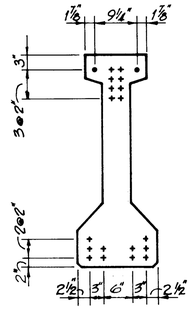
DWN. BY:	DATE	REVISIONS:
CKD. BY: PTR	DEC., 1976	AS BUILTS
APPD. BY:		
DATE: JUNE, 1976		

NEWMAN ROAD BRIDGE OVER TURKEY CREEK
JOPLIN, MISSOURI

GIRDER DETAILS

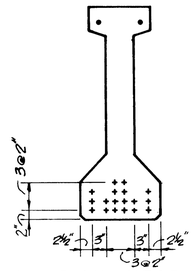
SHEET NO. 5



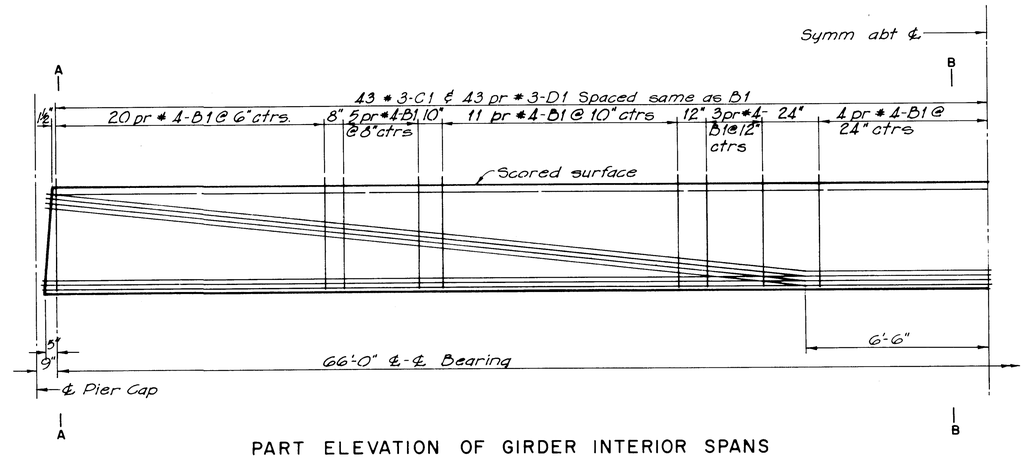


SECTION NEAR A-A

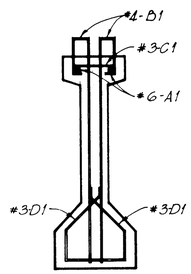
Note: Use 18 strands. Initial prestress force = 520 kips



SECTION NEAR B-B

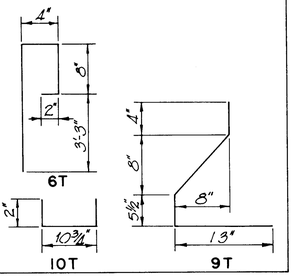


PART ELEVATION OF GIRDER INTERIOR SPANS

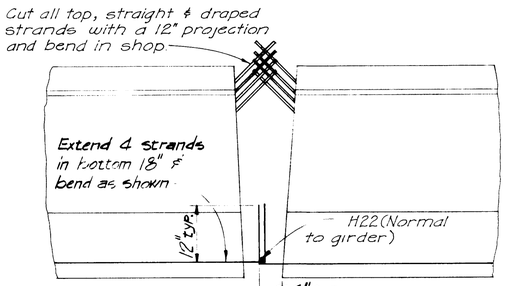


BILL OF REINFORCING STEEL (EACH GIRDER)

NO.	SIZE/MK	LENGTH	SHP.
2	6-A1	66'-3"	Str.
170	4-B1	5'-0"	6T
85	3-C1	13"	10T
170	3-D1	2'-8"	9T



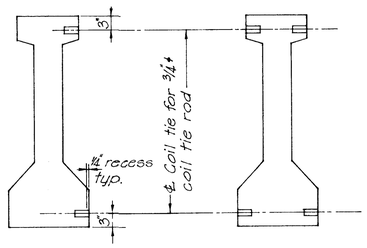
Note: All dimensions are out to out.
Where deflecting strands interfere with placement, some in place bending may be necessary.
Hooks and bends were in accordance with the CRSI Manual of Standard Practice for detailing reinforced concrete structures.
The letter T after the shape number, in bending sketches, indicates bars that were bent according to CRSI stirrup and tie dimensions.
Length ~ Total lengths are measured along centerline bar to nearest inch.
Minimum clearance to reinforcing steel in girders was 1".



STRAND DETAILS AT GIRDER ENDS

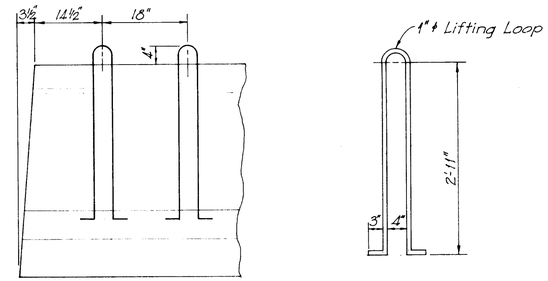
GENERAL NOTES: PRESTRESSED GIRDER

Concrete for prestressed girders was Class A1 with f'_c = 5,000 psi
Minimum compressive strength at transfer shall be 4000 psi
Prestressing tendons were high tensile strength uncoated seven-wire stressed relieved strands for Prestressed concrete conforming to ASTM A-416 except that nominal diameter of strand = ½" and nominal area = 0.153 sq. in. and minimum ultimate strength = 41,000 lbs. (= 270 ksi)
The portions of girders to be embedded in the diaphragms at supports were roughened by sandblasting or other approved methods to provide suitable bond between girder and diaphragm.
Coil ties were held in place in the forms by slotted wire setting studs projecting thru forms. Studs were left in place until girders were erected and then replaced by coil tie rods.
Coil ties had a tensile strength of 9,000 lbs in 3,000 psi concrete.
(+) Indicates Prestressed Strands. All bottom prestressing strands except those shown to be extended were trimmed to within 1" of concrete.



Note: See Sheet No. 8 for location of coil ties.

COIL TIE DETAILS



Note: Lifting loops were structural grade steel.

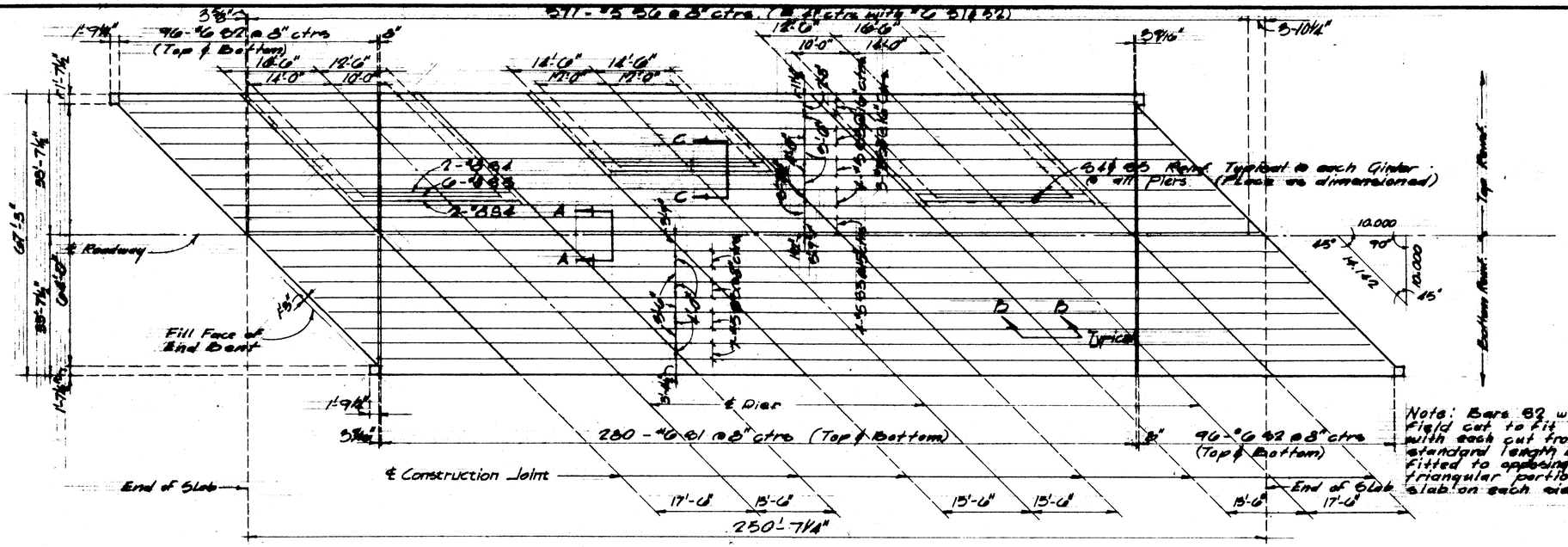
LIFTING LOOP DETAILS

ALLGEIER, MARTIN & ASSOCIATES
ARCHITECTS PLANNERS CONSULTING ENGINEERS
JOPLIN, MISSOURI DALLAS, TEXAS

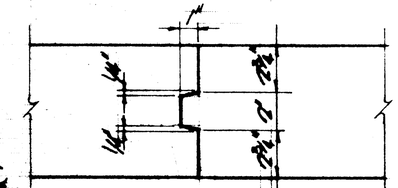
DWN. BY: ALG	DATE	REVISIONS:	
CKD. BY: PTB	DEC., 1976	AS BUILTS	
APPD. BY:			
DATE: JUNE, 1975			

NEWMAN ROAD BRIDGE OVER TURKEY CREEK
JOPLIN, MISSOURI
GIRDER DETAILS

SHEET NO. 6

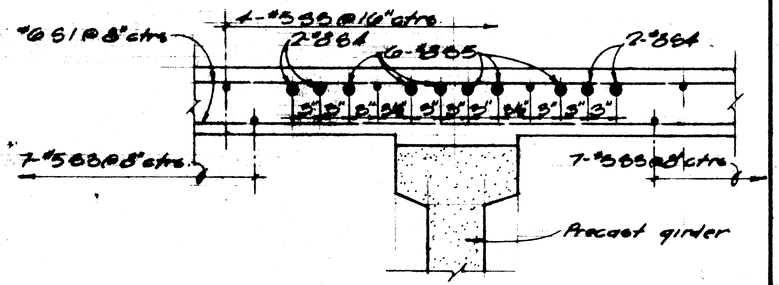


PLAN OF SLAB SHOWING REINFORCEMENT



SECTION B-B

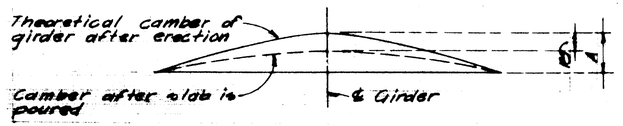
Note: Bars B2 were field cut to fit skew with each cut from a standard length being fitted to opposing triangular portions of slab on each side of ℄.



SECTION C-C

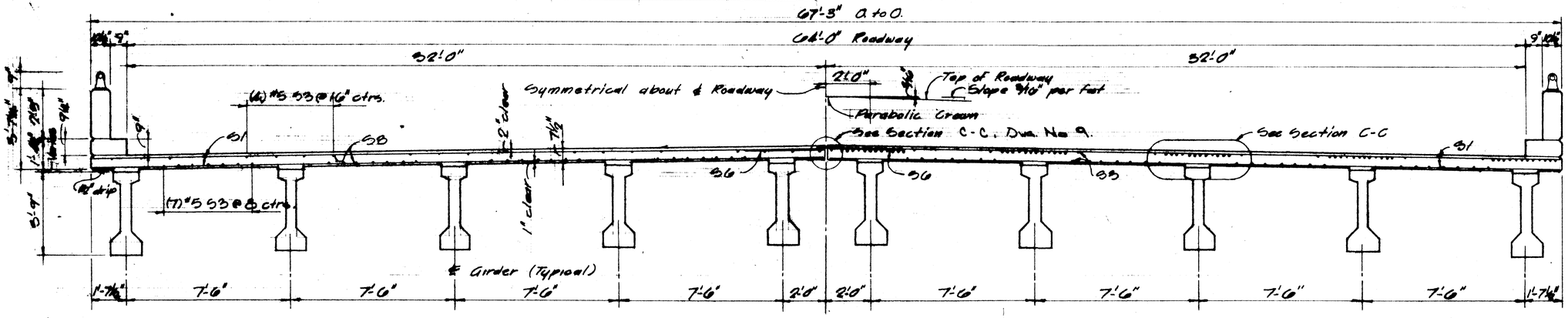
NOTE:

1. The Bridge Deck was poured in two pours. 1/2 of Deck in Ea. Pour.
2. The Contractor furnished an Approved Retarder to retard the set of the concrete to 25 hours and poured and satisfactorily finished the slab pours at a rate in excess of 25 cubic yards per hour.
3. The diaphragm of the intermediate bents were poured a minimum of 30 minutes and a maximum of 2 hours before the slab was poured.



Girders	SPANS (1-2)	(2-5)	(5-6)
EXT. A	3/32"	1 13/32"	
EXT. B	11/32"	21/32"	
INT. A	1/16"	1 3/32"	
INT. B	1/32"	7/32"	
INT @ ℄ A	13/16"	1 3/32"	
INT @ ℄ B	5/16"	5/32"	

GIRDER CAMBER DIAGRAM



HALF SECTION NEAR END BENT

HALF SECTION NEAR INTERIOR BENT

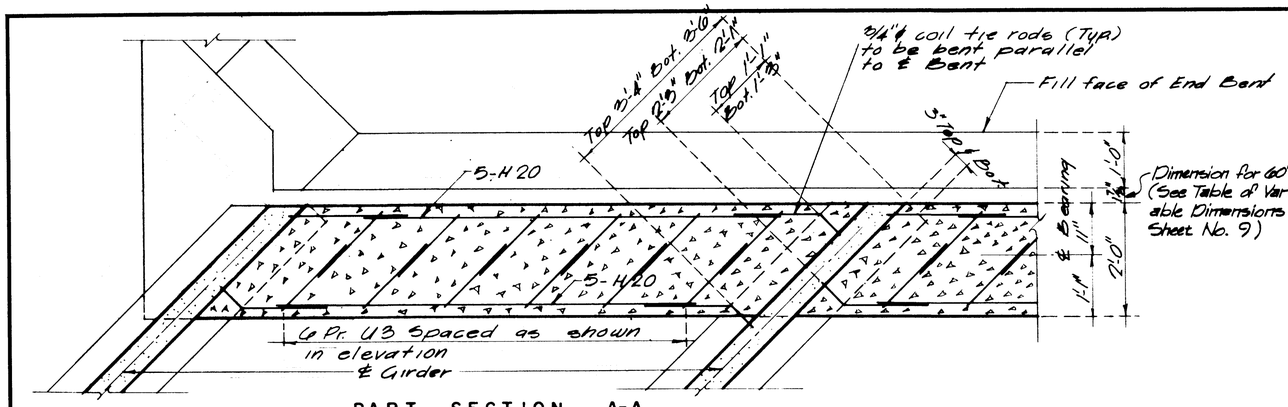
ALLGEIER, MARTIN & ASSOCIATES
ARCHITECTS PLANNERS CONSULTING ENGINEERS
JOPLIN, MISSOURI DALLAS, TEXAS

DWN. BY: P.L.B.	DATE	REVISIONS:
CKD. BY: PTR	DEC., 1976	AS BUILTS
APPD. BY:		
DATE: JUNE, 1975		

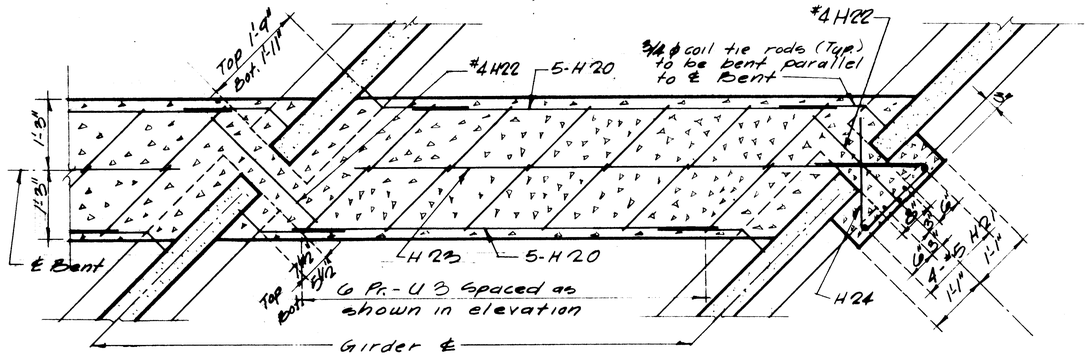
NEWMAN ROAD BRIDGE OVER TURKEY CREEK
JOPLIN, MISSOURI

SLAB REINFORCING PLAN & DECK SECTION

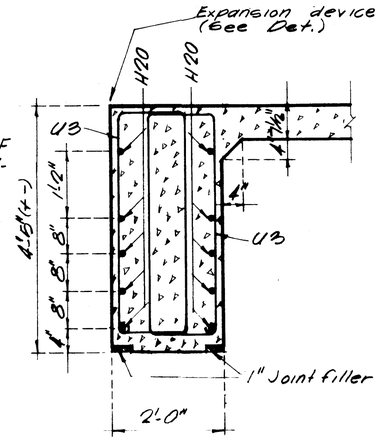
SHEET NO. 7



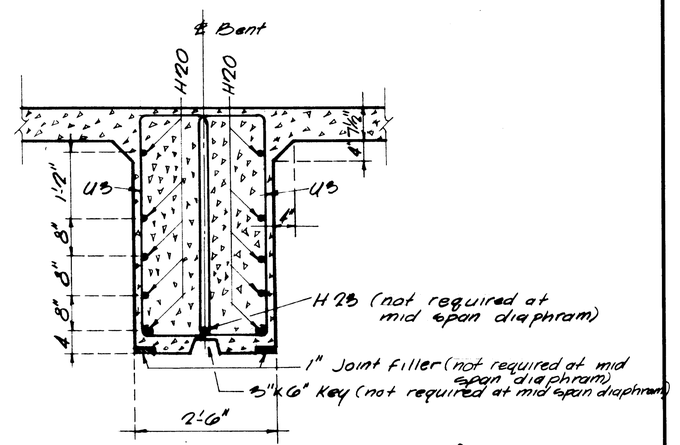
PART SECTION A-A



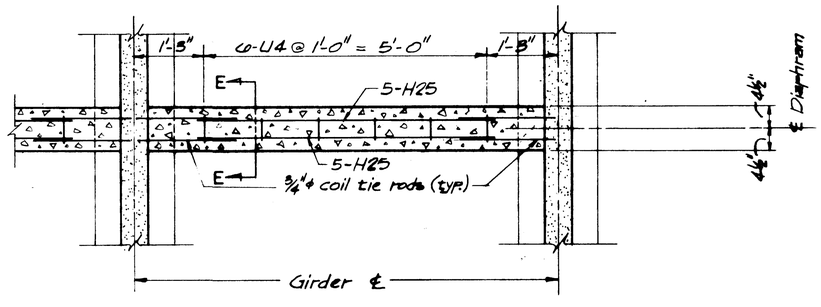
PART SECTION B-B



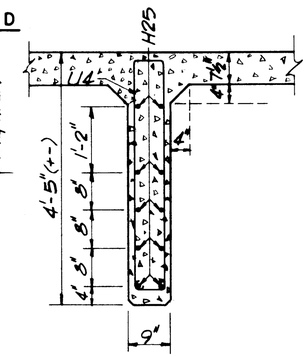
SECTION C-C



SECTION D-D



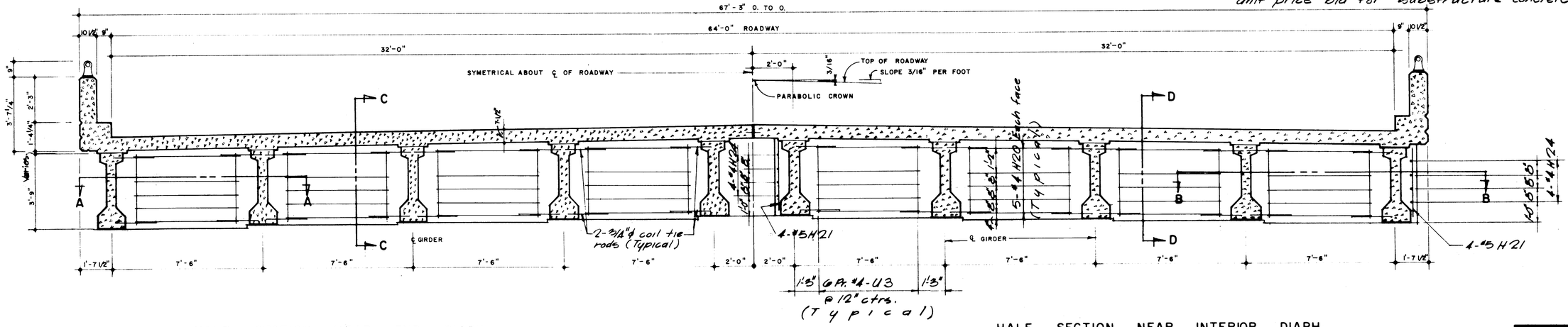
PART SECTION B-B AT MID SPAN DIAPHRAM
(See Sheet No. 19 for Mid Span Diaphram Layout)



SECTION E-E

Note:

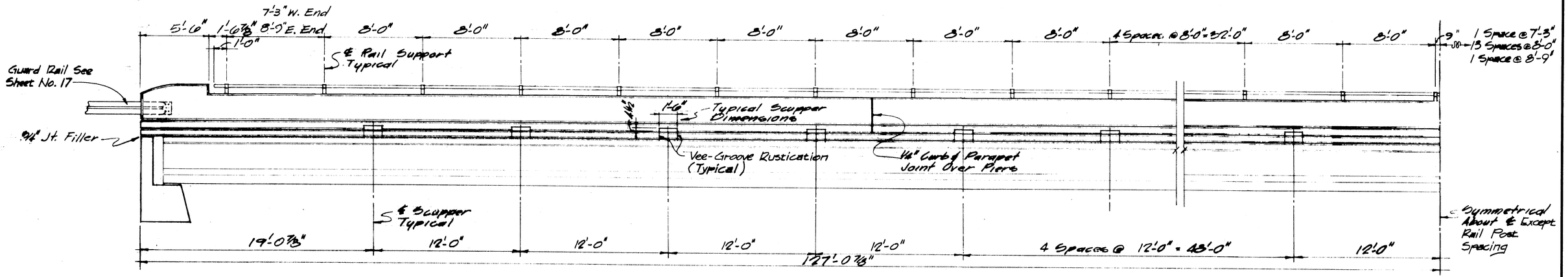
1. Coil tie rods are 3/4"ϕ x 2'-0" Lg. Cost of 3/4" ϕ coil tie rods in place in diaphrams were included in the price bid for other items.
2. Coil ties for outside of the exterior girders and for inside of interior girders nearest the ℄ were omitted.
3. Cost of joint filler was included in unit price bid for substructure concrete.



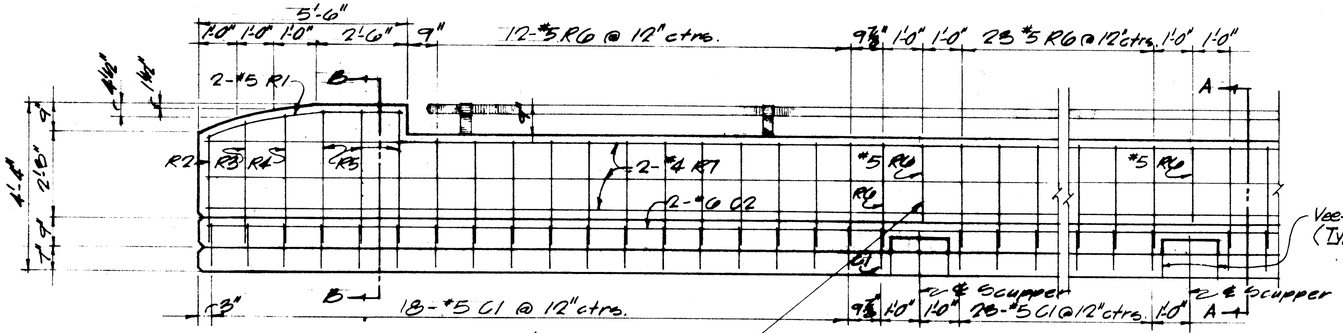
HALF SECTION NEAR END DIAPH.

HALF SECTION NEAR INTERIOR DIAPH.

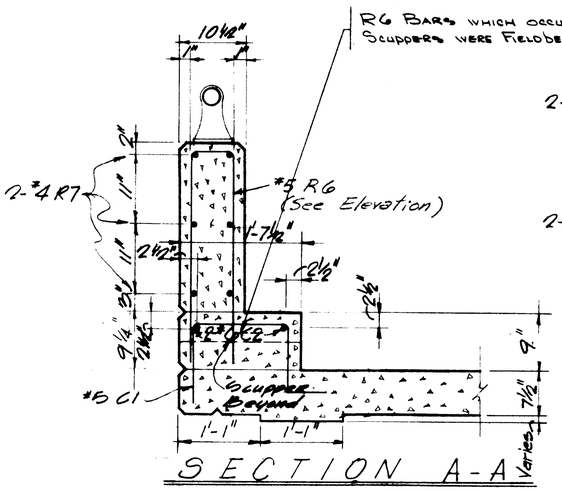
AMA	ALLGEIER, MARTIN & ASSOCIATES ARCHITECTS PLANNERS CONSULTING ENGINEERS JOPLIN, MISSOURI DALLAS, TEXAS	DWN. BY: W.L.S. CKD. BY: PTR APPD. BY: DATE: JUNE, 1976	DATE: DEC., 1976 REVISIONS: AS BUILTS	NEWMAN ROAD BRIDGE OVER TURKEY CREEK JOPLIN, MISSOURI DIAPHRAGM DETAILS	SHEET NO. 8



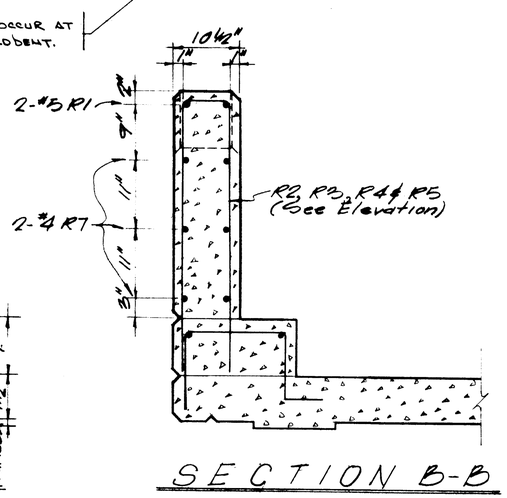
ELEVATION



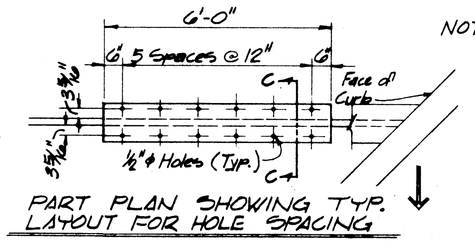
PARAPET & CURB REINF. ELEVATION



SECTION A-A



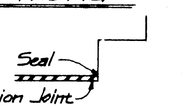
SECTION B-B



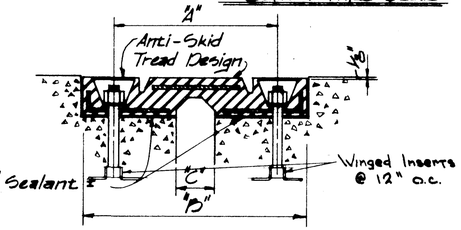
PART PLAN SHOWING TYP. LAYOUT FOR HOLE SPACING

NOTE:

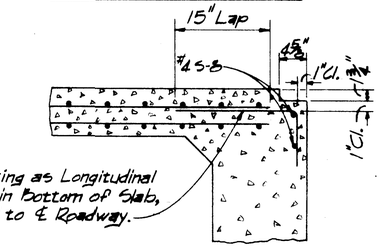
The expansion joint was set, anchored, bonded, and sealed as recommended by the manufacturer and as set forth in the Special Provisions. Payment for furnishing and installing the expansion joint, including anchor bolt assembly, was made under unit price bid per lineal foot of joint.
First section of expansion joint was installed starting at ℄ of roadway.
All nuts were tightened to 40 foot pounds & retightened to 40 foot pounds 30 minutes after initial tightening.
All bolt cavities were wire brushed & coated with sealant.
The cavities were filled with sealant to a depth of 1/2" and plugged down to snap lock. All excess sealant was scraped off.



SECTION THRU CURB



SECTION C-C



SLAB REINFORCEMENT

TABLE OF VARIABLE DIMENSIONS			
TEMP. °F	DIM. "A"	DIM. "B"	DIM. "C" MAX.
110	7-5/8"	9-3/8"	1"
90	8"	9-3/4"	1-3/8"
70	8-1/4"	10"	1-5/8"
60	8-1/2"	10-1/4"	1-7/8"
50	8-5/8"	10-3/8"	2"
40	8-3/4"	10-1/2"	2-1/8"
30	9"	10-3/4"	2-3/8"
10	9-1/4"	11"	2-5/8"
-10	9-5/8"	11-3/8"	3"

Joint Seal for 2" movement

NOTE:
Plan dimensions are based on installation at 60°F. Expansion joint width was adjusted during installation for compliance with the table at left. See Special Provisions.

DETAILS OF EXPANSION JOINT

ALLGEIER, MARTIN & ASSOCIATES
ARCHITECTS PLANNERS CONSULTING ENGINEERS
JOPLIN, MISSOURI DALLAS, TEXAS

DWN. BY:	VLB.
CKD. BY:	PTR
APPD. BY:	
DATE:	JUNE, 1975

DATE	REVISIONS:
DEC., 1976	AS BUILTS

NEWMAN ROAD BRIDGE OVER TURKEY CREEK
JOPLIN, MISSOURI

CURB & RAILING DETAILS

SHEET NO. 9

LOG OF BORING NO. 1

DEPTH	GRAPHIC DESCRIP.	SAMPLE DESCRIPTION	N-VALUE BLOWS/FT.
		BLACK SILTY CLAY TOPSOIL - MOIST & FIRM	SS 15
5		GRAY & BROWN MOTTLED SILTY CLAY - MOIST & FIRM	SS 18
		DARK BROWN SILTY CLAY - WET & SOFT	SS 17
10		LIGHT BROWN SILTY CLAY - WET & SOFT	SS 15
		LIMESTONE ROCK - HARD & DRY	
15			

LOG OF BORING NO. 5

DEPTH	GRAPHIC DESCRIP.	SAMPLE DESCRIPTION	N-VALUE BLOWS/FT.
		BLACK TOPSOIL - MOIST & FIRM - 10 INCHES	
5		DRY & FIRM - BROWN SILTY CLAY WITH 50% LARGE CHERT ROCK	
		BROWN SILTY CLAY - WET & MEDIUM FIRM	
10		LIMESTONE ROCK	
15			

LOG OF BORING NO. 7

DEPTH	GRAPHIC DESCRIP.	SAMPLE DESCRIPTION	N-VALUE BLOWS/FT.
		BLACK FILL TOPSOIL - MOIST & FIRM	
5		BROWN SILTY CLAY - MOIST & FIRM	
		BROWN SILTY CLAY - VERY WET & SOFT	
10		HARD DRY WHITE LIMESTONE	
15			

LOG OF BORING NO. 2

DEPTH	GRAPHIC DESCRIP.	SAMPLE DESCRIPTION	N-VALUE BLOWS/FT.
		BLACK SILTY CLAY TOPSOIL - MOIST & FIRM	SS 17
5			SS 19
		DARK BROWN SILTY CLAY - MOIST & FIRM	
10		HARD WHITE DRY LIMESTONE	
15			

LOG OF BORING NO. 6

DEPTH	GRAPHIC DESCRIP.	SAMPLE DESCRIPTION	N-VALUE BLOWS/FT.
		BLACK TOPSOIL - MOIST & FIRM	
5		REDDISH BROWN SILTY CLAY - MOIST & FIRM	
		DARK BROWN SILTY CLAY - MOIST & FIRM	
10		MEDIUM BROWN SILTY CLAY - VERY WET & SOFT	
		LIMESTONE ROCK - HARD & DRY	
15			

LOG OF BORING NO. 8

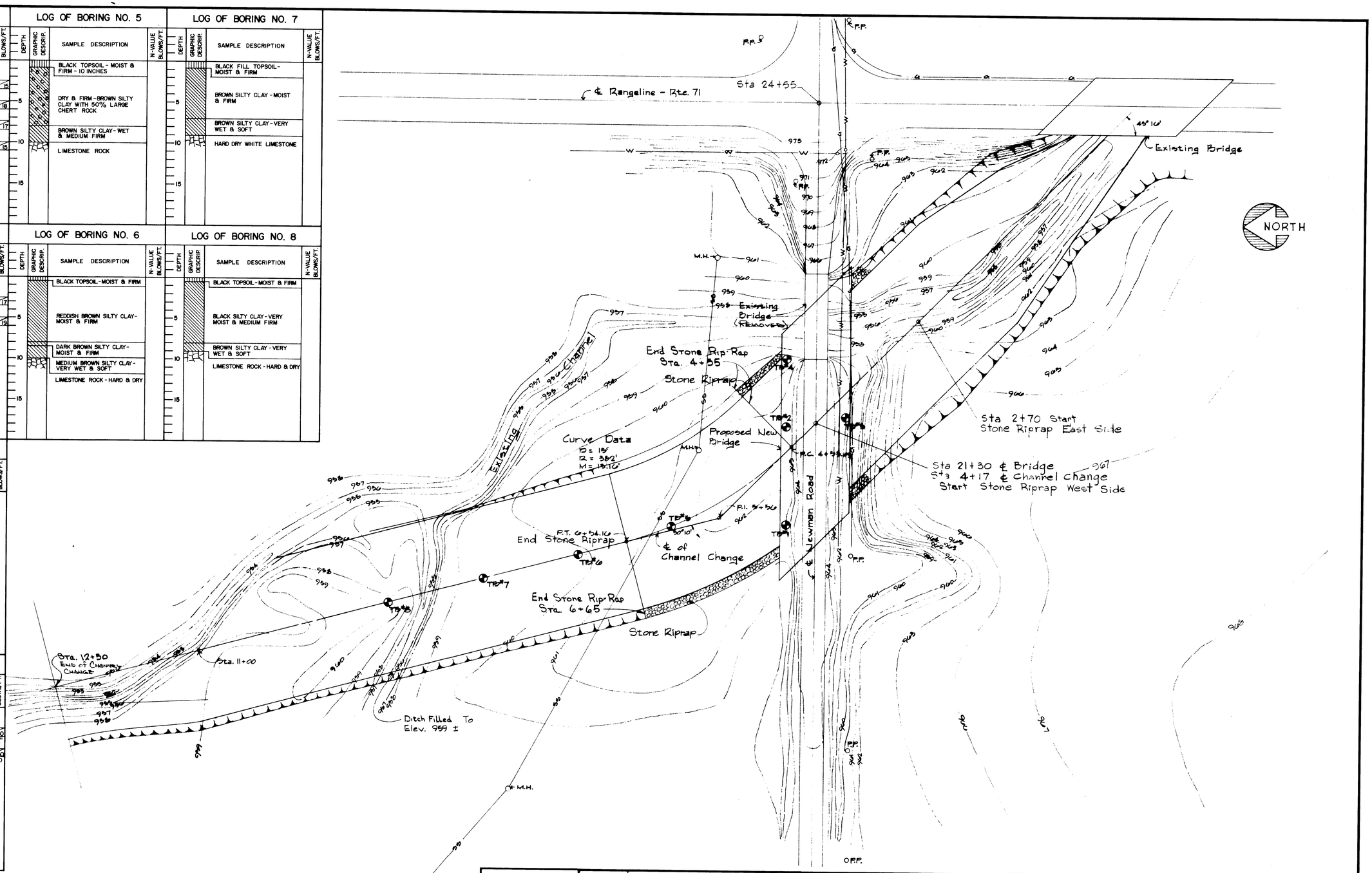
DEPTH	GRAPHIC DESCRIP.	SAMPLE DESCRIPTION	N-VALUE BLOWS/FT.
		BLACK TOPSOIL - MOIST & FIRM	
5		BLACK SILTY CLAY - VERY MOIST & MEDIUM FIRM	
		BROWN SILTY CLAY - VERY WET & SOFT	
10		LIMESTONE ROCK - HARD & DRY	
15			

LOG OF BORING NO. 3

DEPTH	GRAPHIC DESCRIP.	SAMPLE DESCRIPTION	N-VALUE BLOWS/FT.
		BROWN SILTY CLAY - WET & MEDIUM FIRM	
5			
10		LIMESTONE - DRY - WHITE - HARD	
15			

LOG OF BORING NO. 4

DEPTH	GRAPHIC DESCRIP.	SAMPLE DESCRIPTION	N-VALUE BLOWS/FT.
		BROWN RIVER ROCK & SAND - SOFT & WET	SS 50/2"
5		DARK GRAY CLAYEY SAND MIX 50% RIVER ROCK - SOFT & DRY	SS 50/0
		WHITE LIMESTONE ROCK - HARD & DRY	
10		4 INCH SOFT CLAYEY VOID	
		HARD DRY WHITE LIMESTONE ROCK	
15			



AMA

DATE	REVISIONS
DEC. 1976	REVISED PER MSHD LETTER OF 11-7-76
DEC., 1976	"AS BUILTS"

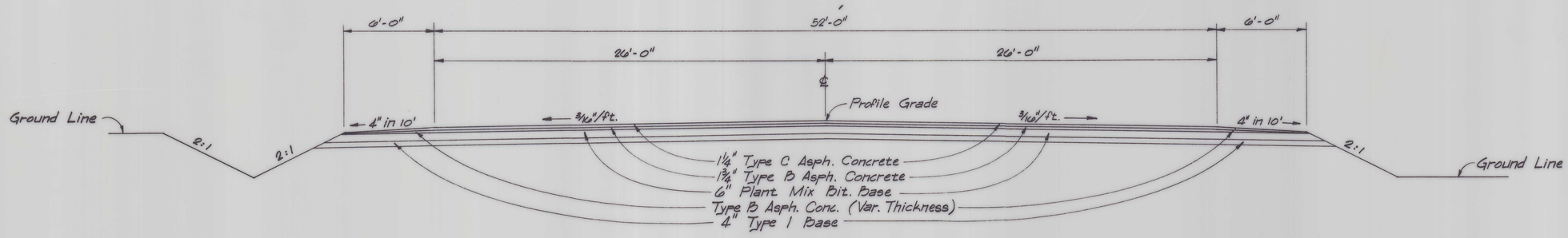
NEWMAN ROAD BRIDGE OVER TURKEY CREEK
JOPLIN, MISSOURI

DWG. NO. 10

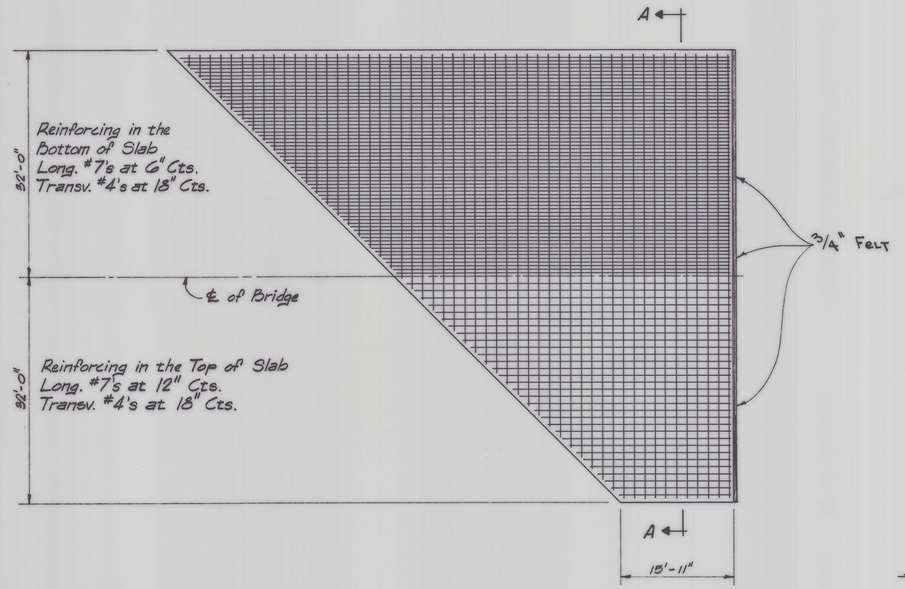
EXISTING TOPOGRAPHY

ALLGEIER, MARTIN & ASSOCIATES
CONSULTING ENGINEERS REGISTERED ARCHITECTS
JOPLIN, MISSOURI

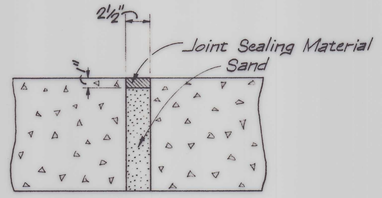
DWN. BY	CKD. BY	APPD. BY	SCALE	DATE
D.L.C.	P.T.R.		1" = 50'-0"	JUNE, 1976



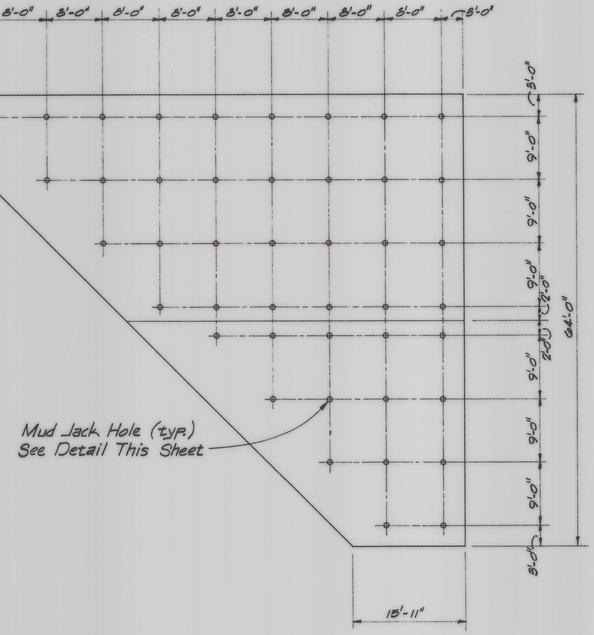
TYPICAL ROADWAY SECTION



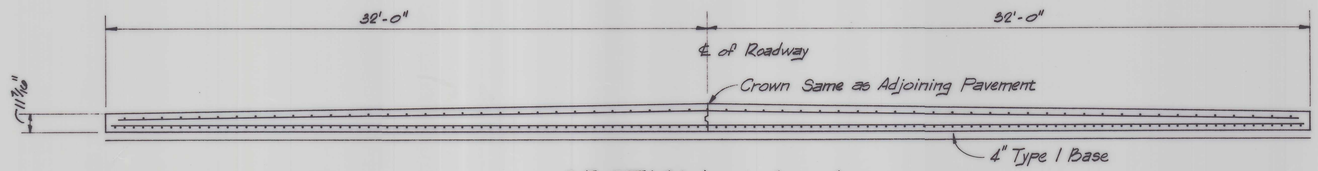
REINF. DETAIL OF BRIDGE APPROACH SLAB



MUD JACK HOLE DETAIL



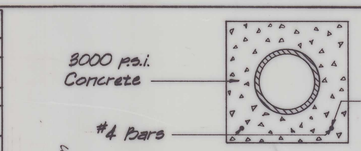
PLAN OF BRIDGE APPROACH SLAB



SECTION A-A

AMA	ALLGEIER, MARTIN & ASSOCIATES ARCHITECTS PLANNERS CONSULTING ENGINEERS JOPLIN, MISSOURI DALLAS, TEXAS	DWN. BY: T.L.C. CKD. BY: PTR APPD. BY: DATE: JUNE, 1975	DATE: DEC., 1976 REVISIONS: AS BUILTS	NEWMAN ROAD BRIDGE OVER TURKEY CREEK JOPLIN, MISSOURI ROADWAY SECTION & APPROACH SLAB DETAILS	SHEET NO. 11

AS BUILT QUANTITIES	
ITEM	QUAN.
REINFORCED CONCRETE APPROACH SLAB (SQ.YD.)	682 SY
GUARD RAIL (LIN. FT.)	325 LF
18" CORRUGATED METAL PIPE 16 GA. (LIN. FT.)	140 LF
SEEDING (ACRE)	1.0 AC.
1-3/4" TYPE B ASPHALTIC PAVEMENT (SQ.YD.)	2539 SY
1-1/4" TYPE C ASPHALTIC PAVEMENT (SQ.YD.)	2512 SY
6" PLANT MIX BITUMINOUS BASE (SQ.YD.)	3214 SY
TYPE B ASPHALTIC CONCRETE SHOULDER VARIABLE THK. (SQ.YD.)	611 SY
4" TYPE I BASE (SQ.YD.)	4018 SY
CHANNEL CHANGE EXCAVATION (CU.YD.)	22,650CY.
ROADWAY EXCAVATION (CU.YD.)	706 CY
COMPACTED ROADWAY FILL (CU.YD.)	13,345 CY.
CONCRETE ENCASEMENT FOR SEWER (LIN.FT.)	225 LF
CLEARING (ACRE)	4.6 AC.
MOVABLE BARRICADES	4 EACH
MULCHING (ACRE)	1.0 AC.
GRUBBING (ACRE)	3.6 AC.



Concrete Encasement

Note : Drainage Esmt continues to existing channel - See Sht 10

Excess material excavated from Channel Change not required for roadway fill was placed in this area as directed by the Engineer

Sanitary Sewer Encased in Concrete See Detail This Sheet.

Sta. 14+00 Begin New Pavement

Spike in PP

Existing 12" R.C.P.

Existing R/W

Removed Existing 24"x36" Arch C.M.P.

Water Valve

Abandoned M.H.

Existing 18" R.C.P.

Sta. 15+00 Begin Transition Of 2 Lane To 4 Lane

Spike in PP

Existing R/W

Provided Movable Barricades

Sta 17+00

200' of Guard Rail Including 25' of Bridge Anchorage Section & 25' of Terminal Section

Drainage Easement

Sta. 18+00

℄ Newman Road

GAS LINE

Spike in PP

Sta. 18+00

125' of Guard Rail Including 25' of Bridge Anchorage Section & 25' of Terminal Section

Sta. 17+55 50' Ent. Rt. w/ 90° 18" C.M.P.

Sta. 19+55 Begin R.C. Approach Slab

Sta. 18+60 Full 4 Lanes

New R/W

Sta. 21+30 ℄ Bridge & Sta. 4+17 ℄ Channel Change

Sta. 5+56 Ch. Ch.

100'-0" Drainage Easement

100'-0" Easement

30°10'

44°41'

10' Rad. Typ.

Sta. 22+50 30' Ent. Lt. w/ 50° 18" C.M.P.

Sta. 23+05 End R.C. Approach Slab Sta. 23+29 End of Project

Spike in PP

Sta. 24+32.45 Movable Barricades Provided

GAS LINE

New R/W

Drainage Easement

Flow

Channel Change

R/W

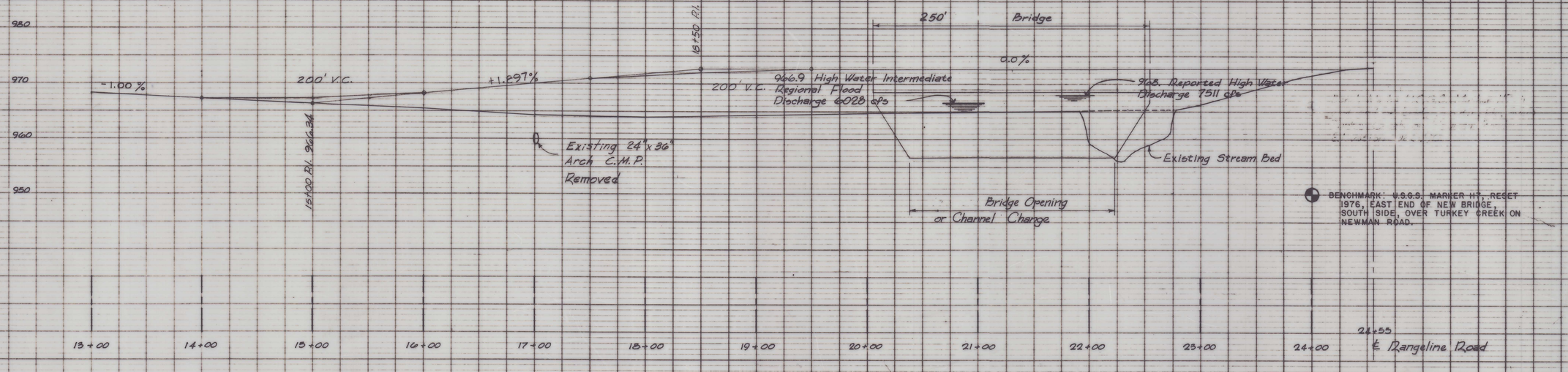
Spike in PP

℄ Rangeline Road

NORTH

All Guard Rail, Posts & Brackets were Galvanized.

Seed and Mulch all roadway fill slopes was in accordance with Missouri State Highway Department Specifications.



BENCHMARK: U.S.G.S. MARKER HT. RESET 1976, EAST END OF NEW BRIDGE, SOUTH SIDE, OVER TURKEY CREEK ON NEWMAN ROAD.

AMA

DATE	REVISIONS
DEC., 1976	"AS BUILTS"

NEWMAN ROAD BRIDGE OVER TURKEY CREEK

JOPLIN, MISSOURI

ALLGEIER, MARTIN & ASSOCIATES
CONSULTING ENGINEERS JOPLIN, MISSOURI

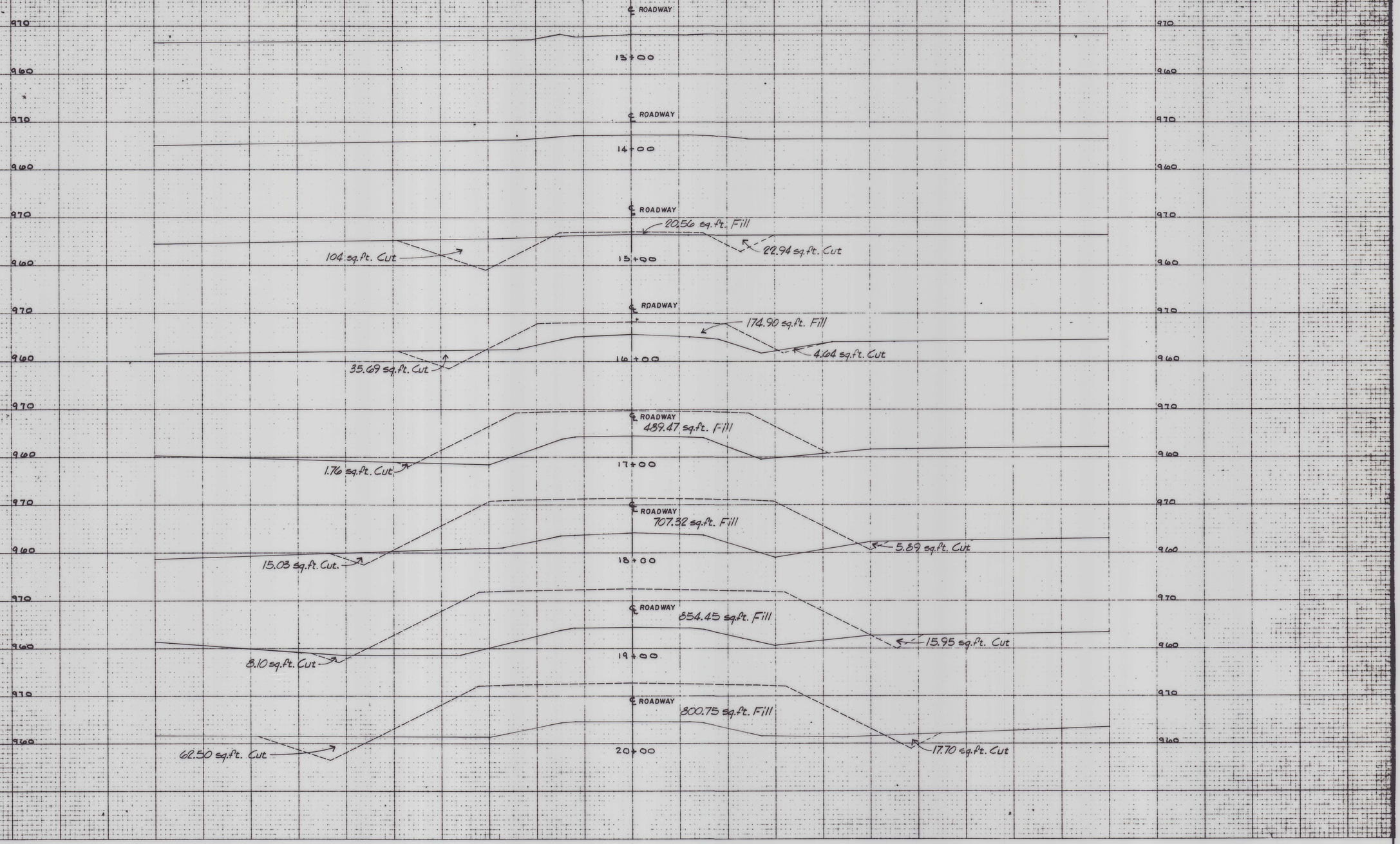
PLAN PROFILE DRAWING NO. 12

PLOTTED BY D.L.C. STRUCTS BY

APPROVED BY P.T.R. DATE JUNE, 1976

SCALE: HORIZ. 1" = 50'-0" VERT 1" = 10'-0"

SECTION STATIONS TO



AMA

DATE	REVISIONS
DEC., 1976	"As Builts"

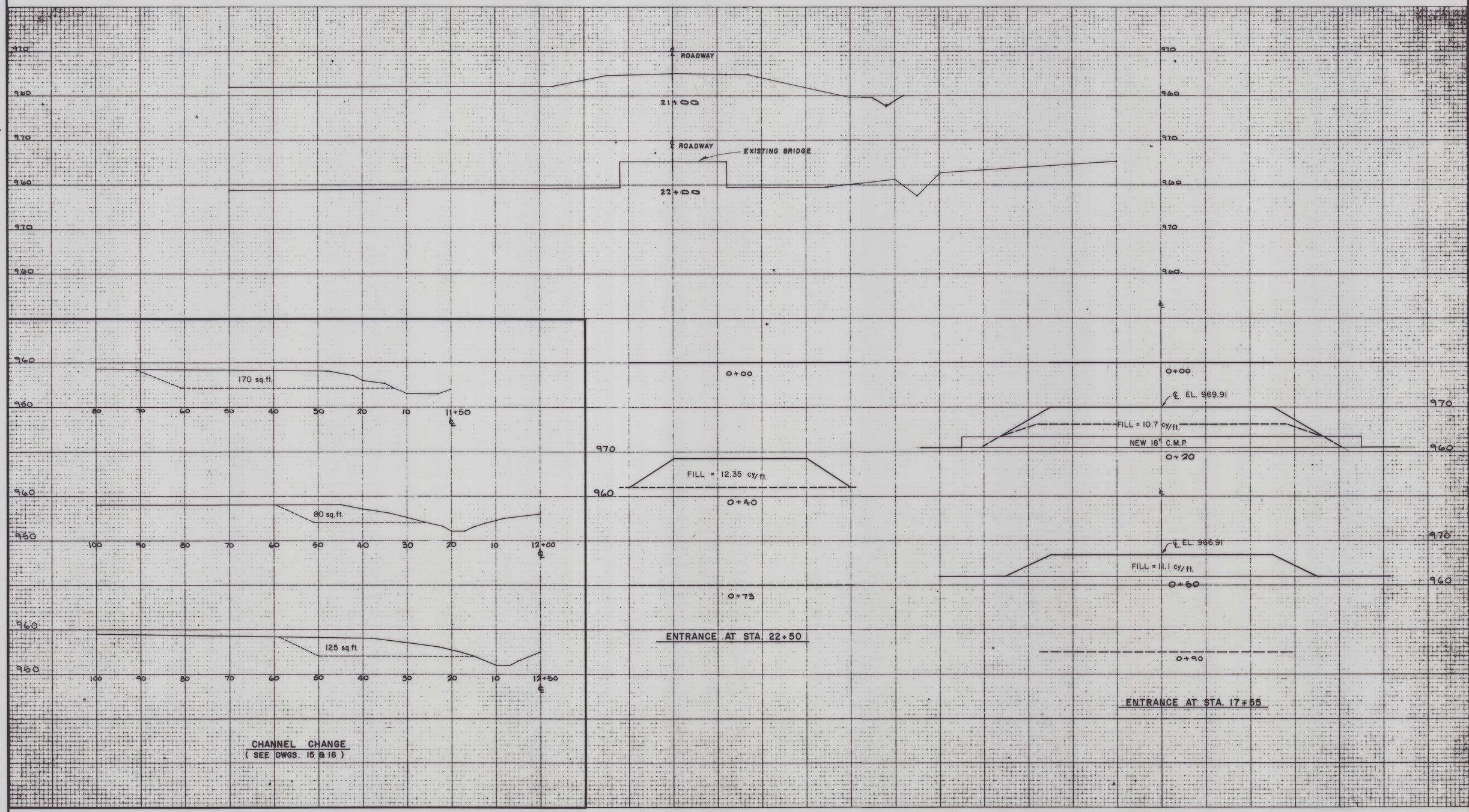
NEWMAN ROAD BRIDGE OVER TURKEY CREEK
JOPLIN, MISSOURI

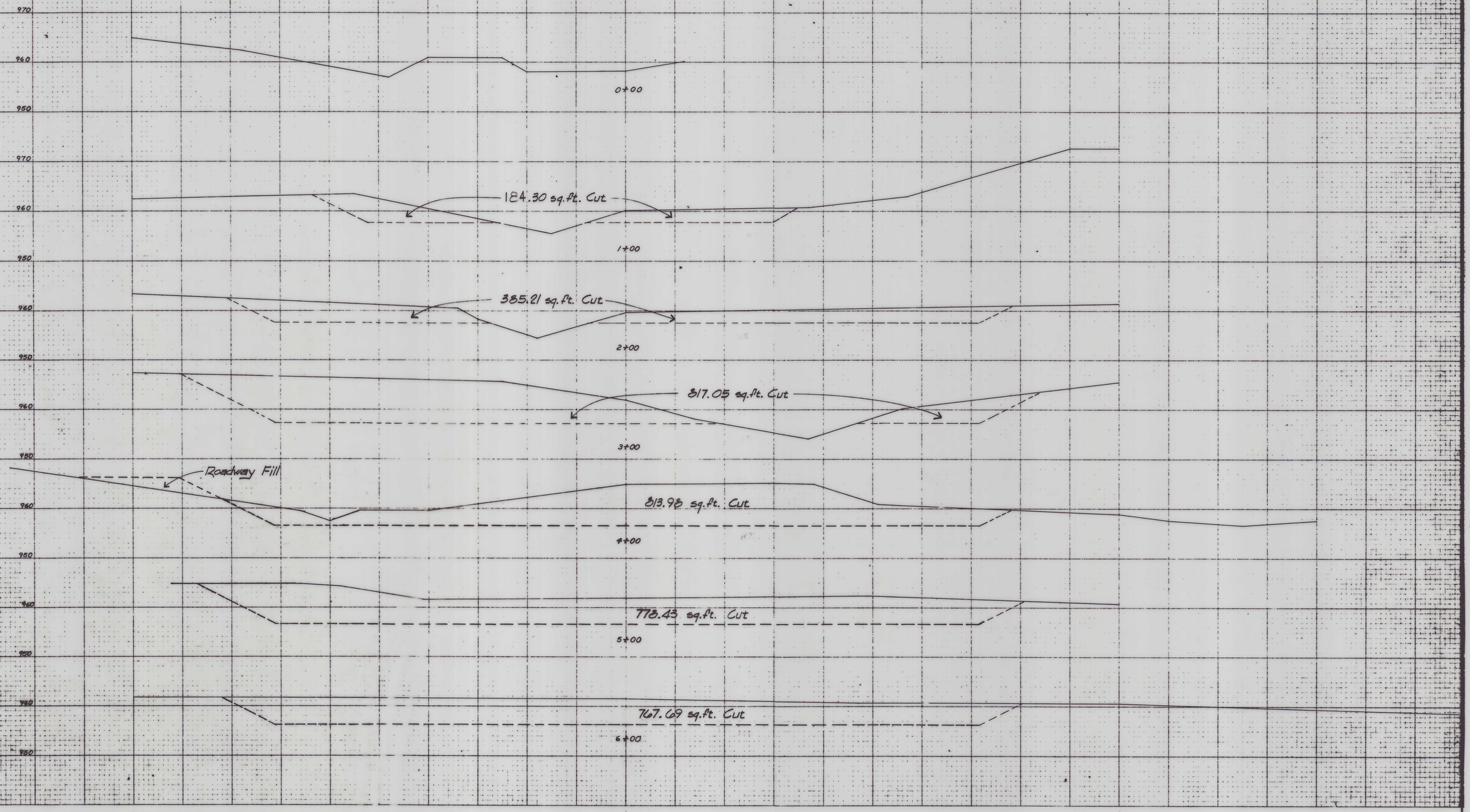
CROSS SECTIONS OF NEWMAN ROAD

ALLGEIER, MARTIN & ASSOCIATES
CONSULTING ENGINEERS REGISTERED ARCHITECTS
JOPLIN, MISSOURI

DWN. BY J.B. | CKD. BY D.T.R. | APPD. BY | SCALE | DATE JUNE, 1975

DWG. NO. 13


970
960
℄ ROADWAY
21+00
℄ ROADWAY
EXISTING BRIDGE
22+00
970
960
970
960
970
960



AMA

DATE	REVISIONS
DEC., 1976	AS BUILTS

NEWMAN ROAD BRIDGE OVER TURKEY CREEK
JOPLIN, MISSOURI

CROSS SECTIONS OF CHANNEL CHANGE

ALLGEIER, MARTIN & ASSOCIATES
CONSULTING ENGINEERS REGISTERED ARCHITECTS
JOPLIN, MISSOURI

DWG. NO. 15

DWN. BY C.R.D.	CKD. BY PTR	APPD. BY	SCALE	DATE June 9, 1975

960
950

673.50 sq.ft. Cut

7+00

960
950

572.05 sq.ft. Cut

8+00

960
950

470.32 sq.ft. Cut

9+00

960
950

410.05 sq.ft. Cut

10+00

960
950

300.08 sq.ft. Cut

11+00

NOTE:
SEE DWG. NO. 14 FOR STATIONS 11+50, 12+00 & 12+50.

AMA

DATE	REVISIONS
DEC., 1976	AS BUILTS

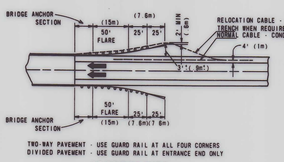
NEWMAN ROAD BRIDGE OVER TURKEY CREEK
JOPLIN, MISSOURI

CROSS SECTIONS OF CHANNEL CHANGE

ALLGEIER, MARTIN & ASSOCIATES
CONSULTING ENGINEERS REGISTERED ARCHITECTS
JOPLIN, MISSOURI

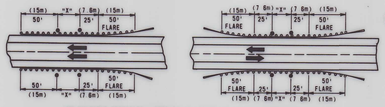
DWN. BY	CKD. BY	APPD. BY	SCALE	DATE
C.R.D.	PTR			JUNE, 1975

DWG. NO 16



TWO-WAY PAVEMENT - USE GUARD RAIL AT ALL FOUR CORNERS
DIVIDED PAVEMENT - USE GUARD RAIL AT ENTRANCE END ONLY

AT BRIDGE ENDS

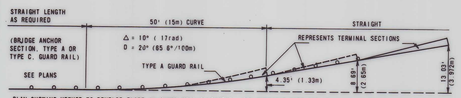


FOR MULTIPLE OBSTACLES - SPECIFY "X" IN 12'-6" (3.81m) INCREMENTS
FOR SINGLE OBSTACLES - "X" = 0

DIVIDED PAVEMENT (SHOULDER INSTALLATION)

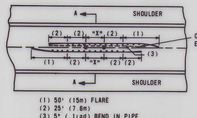
TWO-WAY PAVEMENT (SHOULDER INSTALLATION)

AT OBSTACLES

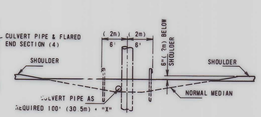


PLAN SHOWING METHOD TO DEVELOP FLARE IN GUARD RAIL ALIGNMENT - SEE SPECIFIC CASE FOR LENGTH OF GUARD RAIL AND LOCATION OF TERMINAL SECTION

GUARD RAIL FLARE
ROADWAY WITH SAFETY ZONES



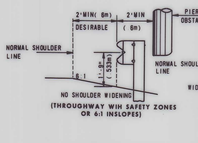
(1) 50' (15m) FLARE
(2) 25' (7.6m)
(3) 5° (.1rad) BEND IN PIPE
(4) RAMP SLOPE AS REQUIRED TO FIT CULVERT AND MEDIAN SLOPE



SECTION A-A

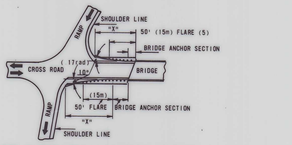
FOR MULTIPLE OBSTACLES - SPECIFY "X" IN 12'-6" (3.81m) INCREMENTS
FOR SINGLE OBSTACLES "X" = 0

PIER AT ℄ OF MEDIAN
WITH OR WITHOUT SAFETY ZONES



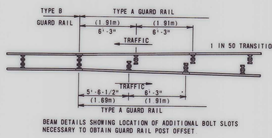
SHOULDER ENCROACHMENT WILL BE PERMITTED TO OBTAIN 2' MINIMUM CLEARANCE AT OBSTACLES TO OBTAIN CLEARANCE WHEN ENCROACHMENT ON THE SHOULDER WITH CONTINUOUS GUARD RAIL - USE 50 TO 1 TAPER. FOR ISOLATED GUARD RAIL USE FLARE

LATERAL PLACEMENT OF GUARD RAIL FOR SHOULDER INSTALLATION
LOCATION OTHER THAN ℄ MEDIAN

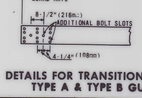


LENGTH "X" ESTABLISHED BY USING STANDARD FLARE PLAN AND EXTENDING GUARD RAIL TOWARD BUT NOT ENCROACHING ON THE RAMP SHOULDER
(5) 25' (7.6m) STRAIGHT ALIGNMENT MAY BE OMITTED FROM STANDARD GUARD RAIL PLAN AND 20° (65 6"/100m) CURVE BEGUN AT BRIDGE END

GUARD RAIL LOCATION AT INTERCHANGE BRIDGE ENDS
WITH OR WITHOUT SAFETY ZONES

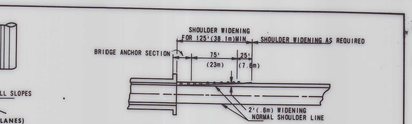


BEAM DETAILS SHOWING LOCATION OF ADDITIONAL BOLT SLOTS NECESSARY TO OBTAIN GUARD RAIL POST OFFSET



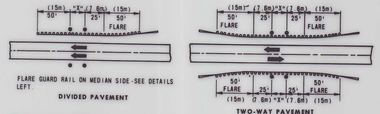
NOTE
PORTION OF BEAM WITH UNUSED BOLT - SLOTS TO BE LAPPED BEHIND

DETAILS FOR TRANSITIONING BETWEEN
TYPE A & TYPE B GUARD RAIL



TWO-WAY PAVEMENT - USE GUARD RAIL AT ALL FOUR CORNERS
DIVIDED PAVEMENT - USE GUARD RAIL AT ENTRANCE ENDS ONLY (UNLESS REQUIRED AT EXIT END FOR HIGH FILL IN WHICH CASE A BRIDGE ANCHOR SECTION WILL BE REQUIRED ALSO)
FLARE GUARD RAIL ON MEDIAN SIDE - SEE DETAILS LEFT

AT BRIDGE ENDS



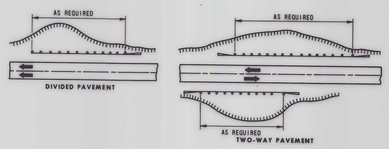
FLARE GUARD RAIL ON MEDIAN SIDE-SEE DETAILS LEFT

DIVIDED PAVEMENT

TWO-WAY PAVEMENT

FOR MULTIPLE OBSTACLES - SPECIFY "X" IN 12'-6" (3.81m) INCREMENTS. FOR SINGLE OBSTACLES "X" = 0

AT OBSTACLES



HIGH FILLS

GUARD RAIL AND TERMINAL SECTIONS MAY BE FLARED UP TO THE MAXIMUM ALLOWED BY THIS STANDARD WHERE THE END SLOPE WILL PERMIT

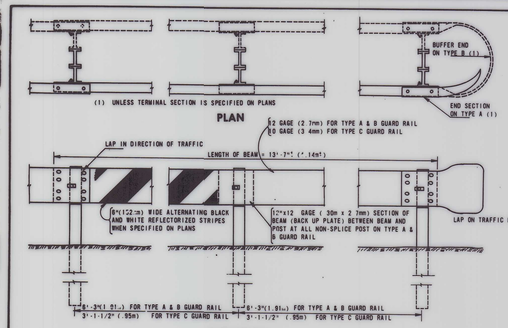
ROADWAY WITHOUT SAFETY ZONES

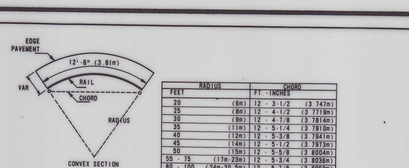
GENERAL NOTE:
NUMBERS IN PARENTHESIS, FOLLOWING THE ENGLISH UNITS REPRESENT CONVERSION TO THE INTERNATIONAL SYSTEM OF UNITS (SI). THE (SI) UNITS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY.

LEGEND

GUARD RAIL
TERMINAL SECTION
OBSTACLE (PIER, POST OR POLE LOCATION IN THE SAFETY ZONE AND NOT HAVING THE BREAKAWAY FEATURE)

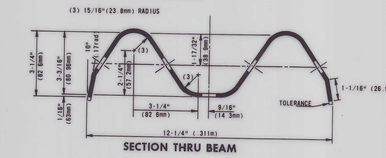
GUARD RAIL TYPICAL LOCATIONS	DRAWING 606.00F
REVISED: 6-1-75	



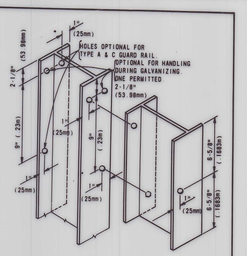


FEET	RADIUS	FT - INCHES
20	(6m)	12 - 3-1/2 (3.747m)
25	(8m)	12 - 4-1/2 (3.771m)
30	(9m)	12 - 4-7/8 (3.781m)
35	(11m)	12 - 5-1/4 (3.791m)
40	(12m)	12 - 5-3/8 (3.794m)
45	(14m)	12 - 5-1/2 (3.797m)
50	(15m)	12 - 5-5/8 (3.800m)
55 - 75	(17m-23m)	12 - 5-3/4 (3.803m)
80 - 100	(24m-30.5m)	12 - 5-7/8 (3.806m)
105 - 150	(32.0m-45.7m)	12 - 5-15/16 (3.808m)

LENGTH OF CHORDS FOR 12'-6" (3.81m) ARC
WITH VARIOUS RADII



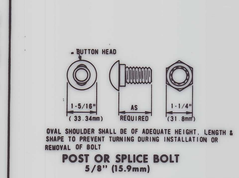
SECTION THRU BEAM



HOLE PUNCHING DETAILS
FOR STEEL POST & BLOCKS

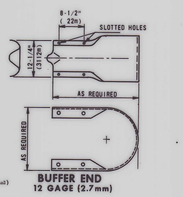


SETTING POST IN SOLID ROCK

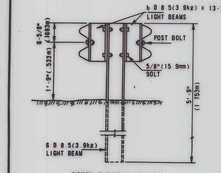


OVAL SHOULDER SHALL BE OF ADEQUATE HEIGHT, LENGTH & SHAPE TO PREVENT TURNING DURING INSTALLATION OR REMOVAL OF BOLT

POST OR SPLICE BOLT
5/8" (15.9mm)

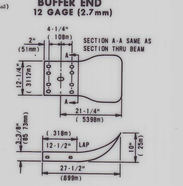


BUFFER END
12 GAGE (2.7mm)

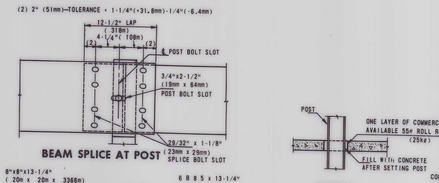


STEEL POST & BLOCK

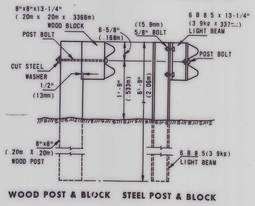
TYPE B GUARD RAIL



END SECTION
12 GAGE (2.7mm)



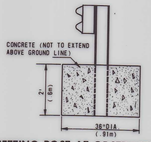
BEAM SPLICE AT POST



WOOD POST & BLOCK STEEL POST & BLOCK

TYPE A & TYPE C GUARD RAIL

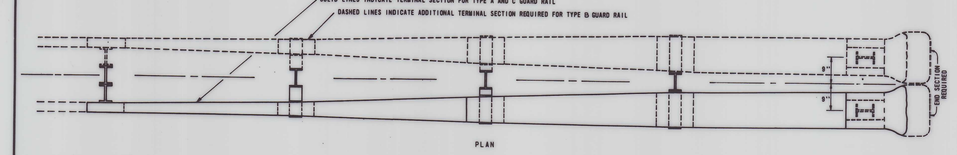
SETTING POST THRU CONCRETE
DRAIN BASINS, MEDIANS, ETC.



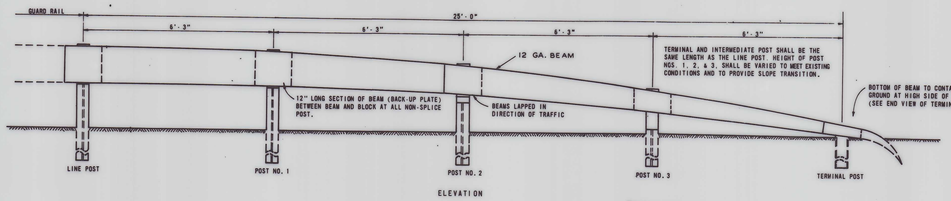
SETTING POST AT OBSTRUCTIONS
WHERE POST CANNOT BE SET TO
REQUIRED DEPTH DUE TO OBSTRUCTIONS

GENERAL NOTES:
POST MAY BE WOOD OR STEEL WITH ONLY ONE MATERIAL ALLOWED WITHIN A SINGLE PROJECT.
WOOD POSTS AND BLOCKS SHALL BE DOUGLAS FIR "DENSE NO. 1 STRUCTURAL GRADE" PARAGRAPH 131.16, STANDARD GRADING RULES FOR WEST COAST LUMBER, NO. 10 SEPTEMBER 1, 1970, OR SOUTHERN PINE "NO. 1 DEX" PARAGRAPH 297, STANDARD GRADING RULES FOR SOUTHERN PINE, LUMBER, SEPTEMBER 1, 1970.
WASHERS SHALL BE USED AT ALL POST BOLTS (BETWEEN BOLT HEAD AND BEAM) THEY SHALL BE RECTANGULAR IN SHAPE (3" X 1-3/4" X 3/16") CURVED TO FIT THE CONTOUR OF THE BEAM, OR WHEN NECESSARY OF SUCH DESIGN TO FIT THE CONTOUR OF THE BEAM. WASHER SHALL HAVE 11/16" X 1" (17mm X 26mm) HOLE.
CONCRETE WHERE REQUIRED SHALL BE CLASS B OR OF A COMMERCIAL MIXTURE MEETING THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND NO DIRECT PAYMENT WILL BE MADE FOR THIS MATERIAL OR ANY ADDITIONAL WORK INVOLVED.
ALL DIMENSIONS SHOWN ARE SUBJECT TO MANUFACTURING TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.
NUMBERS IN PARENTHESIS FOLLOWING THE ENGLISH UNITS REPRESENT CONVERSION TO THE INTERNATIONAL SYSTEM OF UNITS (SI). THE (SI) UNITS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY.
HOLES IN SOLID ROCK SHALL PROVIDE A DIAMETER OF NOT LESS THAN 2 INCHES (51 mm) GREATER THAN THE MAXIMUM TRANSVERSE DIMENSION OF THE POST.
POSTS MAY BE SHORTENED WHEN PLACED IN 2 FEET (.6 m) OF SOLID ROCK. STEEL POSTS MAY BE FLAME OR SAW CUT. HOLES OR CUT WILL BE IN ACCORDANCE WITH SEC. 712.13 OF THE STANDARD SPECIFICATIONS.

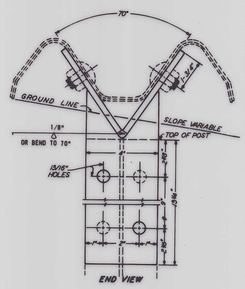
GUARD RAIL	DRAWING 606.00F
REVISED: 6-1-75	



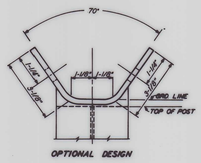
PLAN



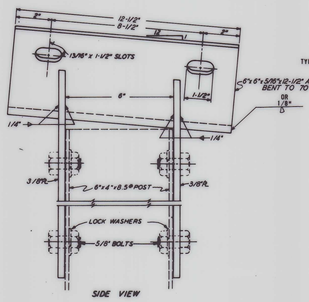
ELEVATION

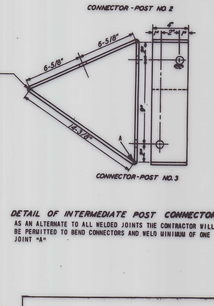


NOTE ALL WELDS AS SHOWN. CONNECTORS WILL BE CONSTRUCTED OF 4"x 3/8" BAR. ALL HOLES IN CONNECTORS WILL BE 13/16".

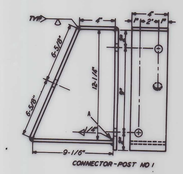


DETAIL OF TERMINAL POST CONNECTOR

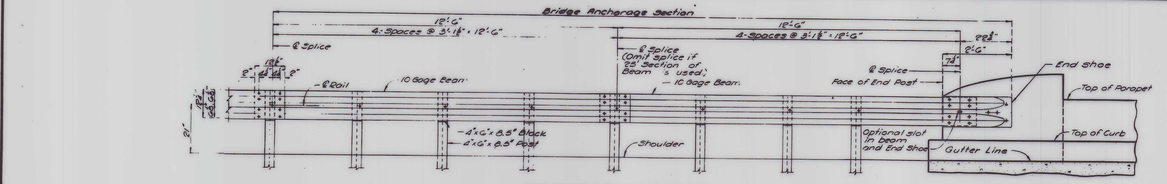




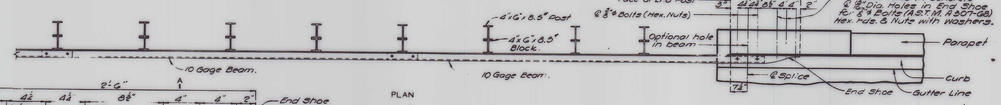
DETAIL OF INTERMEDIATE POST CONNECTORS
AS AN ALTERNATE TO ALL WELDED JOINTS THE CONTRACTOR WILL BE PERMITTED TO BEND CONNECTORS AND WELD MINIMUM OF ONE JOINT "A"

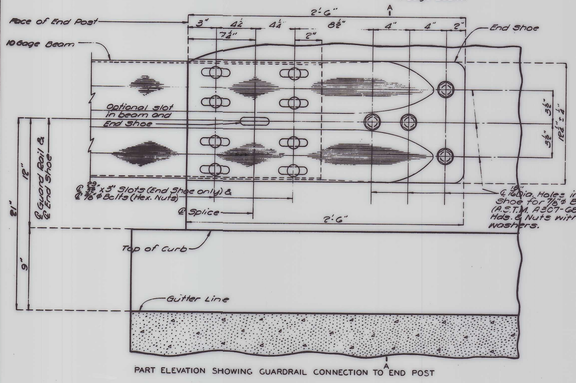


TERMINAL SECTION	DRAWING 606.30B
REVISED: 4-1-75	

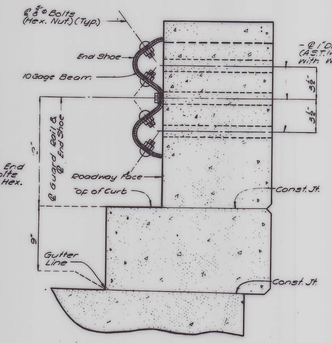


PART SECTION THRU SLAB AT END POST





PART ELEVATION SHOWING GUARDRAIL CONNECTION TO END POST



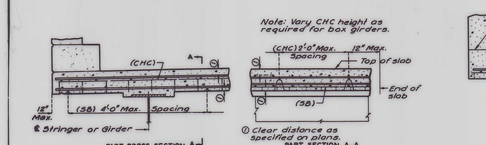
SECTION A-A

Note: End Shoe shall be 10 gage steel. All parts of Bridge Anchor Section shall be galvanized. Material and Galvanizing shall conform to the requirements for Beams.

CONVERSION FACTORS (SI) EQUIVALENTS			
1/8 in.	3.175 mm	M.P.H.	1.609344 km/hr*
1 in.	25.4 mm	1 Cu. in.	16.387064 mm^3
1 Ft.	0.3048 m	1 Cu. Ft.	28.316847 dm^3
1 Yd.	0.9144 m	1 Cu. Yd.	0.764554 M^3
1 Sq. in.	645.16 mm^2	1 Y.P.M.	0.45359 m/m
1 Sq. Ft.	0.0092304 m^2	1 Lb. (Mass)	0.45359237 kg
1 Sq. Yd.	0.836127 m^2	Lb./Ft. (mass)	1.488160 kg/m
p.s.i. (force)	6.894757 kPa	Ton (mass)	0.907185 Mg
p.s.i. (mass)	703.0696 kg/m^2	*Exact	

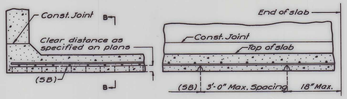
BRIDGE ANCHOR SECTION (BRUSH CURB)	DRAWING 606.20C
REVISED: 12-1-74	

ALLGEIER, MARTIN & ASSOCIATES	DWN. BY:	DATE	REVISIONS:	NEWMAN ROAD BRIDGE OVER TURKEY CREEK JOPLIN, MISSOURI	SHEET NO. 17
ARCHITECTS PLANNERS CONSULTING ENGINEERS	CKD. BY:	DEC., 1976	AS BUILTS	STANDARD DETAILS	
JOPLIN, MISSOURI DALLAS, TEXAS	APPD. BY:				
	DATE:				

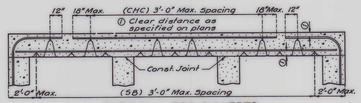


W BEAM SPANS PRE-STRESSED GIRDER DECK GIRDERS BOX GIRDERS (TOP SLAB ONLY)
AND
℄ GIRDER SPANS

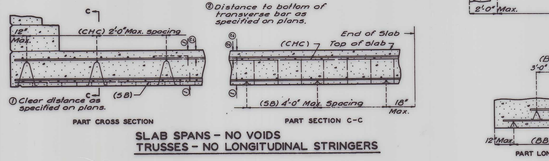
SLABS ON STRINGERS AND GIRDERS



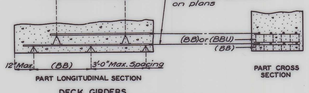
BOX GIRDER — BOTTOM SLAB



TYPICAL — BOX CULVERTS



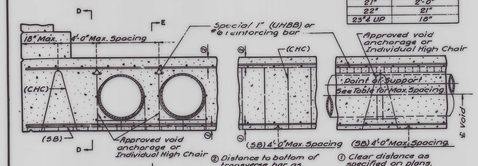
SLAB SPANS — NO VOIDS
TRUSSES — NO LONGITUDINAL STRINGERS



DECK GIRDERS
SUBSTRUCTURE BEAMS
VOIDED SLAB DROP PANELS } RECOMMENDED METHOD
BOX GIRDER CROSS BEAMS

TYPICAL — BEAMS & GIRDERS

VOIDS	MAX. SPACING
14"ℓ Less	4'-0"
16"ℓ to 17"	3'-0"
19"	2'-6"
21"	2'-0"
23"	2'-"
25"ℓ UP	18"



SLAB SPANS — WITH VOIDS

GENERAL NOTES:

All gauges given are American Steel and Wire gauges. All contact points to be securely welded.

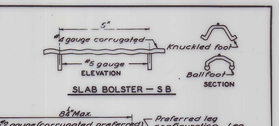
Use a ball or knuckled foot on all bar supports bearing on forms. Where bar supports are used on earth or aggregate subgrades suitable plates or continuous bars shall be provided to prevent displacement of the support foot.

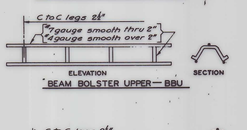
All dimensions to reinforcing steel are to ℄ bar except where clear distance from face of concrete is indicated.

Height of bar supports to be that required to support bars in exact positions shown on plans.

Spiral reinforcing shall be supported by use of approved spiral spacers at not more than 3'-0" centers. Payment for the spacers and all other bar supports will be covered under contract price paid for reinforcing steel.

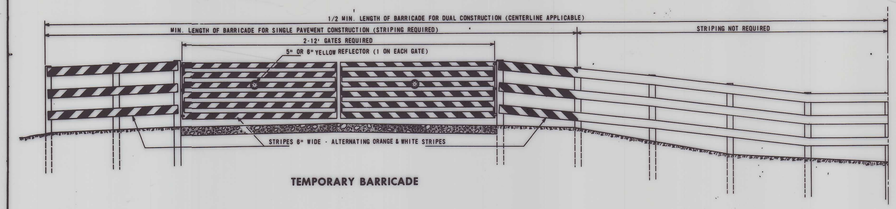
When bars of different sizes are used in the same members, the selection of bar supports shall be based on the largest size. Supports for upper layers need not be directly over the supports below.



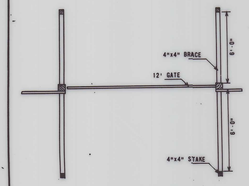


CONVERSION FACTORS (SI) EQUIVALENTS			
1 ft. in.	3.175 mm*	M.P.H.	1.609344 km/hr*
1 in.	25.4 mm*	1 Cu. in.	16.387064 cm³
1 Yd.	0.3048 m*	1 Cu. Yd.	28.316847 m³
1 Sq. in.	6.4516 cm²*	1 Lb./Cu. Ft.	0.062428 g/cm³
1 Sq. ft.	0.0929030 m²*	Cu. Yd./Ft.	3.06836 m³/m
1 Sq. Yd.	0.836127 m²	1 Lb. (mass)	0.45359 kg
p.s.i. (force)	6.894757 kPa	Lb./Ft. (mass)	1.48816 kg/m
p.s.i. (mass)	703.0696 kg/m²	Ton (mass)	0.907185 Mg
		*Exact	

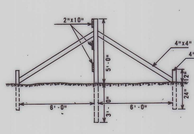
REINFORCING BAR SUPPORTS	
REVISED: 9-7-5	DRAWING 706.30B



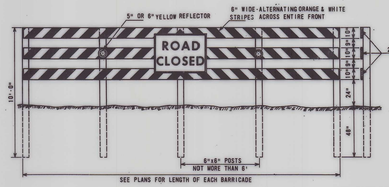
TEMPORARY BARRICADE



BRACING AT GATES

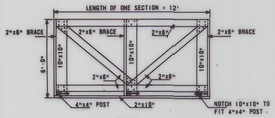


END VIEW

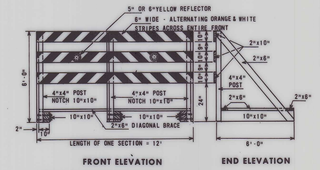


FRONT ELEVATION END ELEVATION

PERMANENT BARRICADE

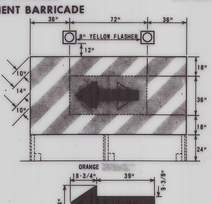


PLAN



FRONT ELEVATION END ELEVATION

MOVABLE BARRICADE UNIT



STRIPES IN FLASHER SIGNS ARE SLOPED DOWN IN THE DIRECTION OF ARROW

FLASHER SIGN

TO BE RE-LECTORIZED IN ACCORDANCE WITH STANDARD SPECIFICATION

GENERAL NOTES:

REFLECTORS AND REFLECTORIZED ORANGE AND WHITE STRIPES WILL NOT BE REQUIRED FOR THOSE BARRICADES THAT HAVE FLASHER SIGNS MOUNTED ON THEM.

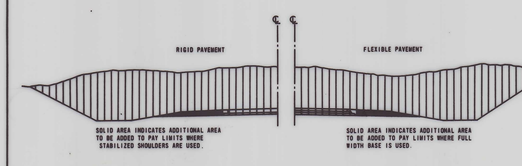
FLASHER SIGNS, WHEN PROVIDED FOR IN THE CONTRACT, ARE MOUNTED ON MOVABLE BARRICADES AS SHOWN HEREIN UNLESS OTHERWISE SPECIFIED.

SHOULDER BARRICADES CONSISTING OF 2, 8" X 8" X 10' POSTS AND 3, 2" X 10" PLANKS SHALL BE CONSTRUCTED ACROSS SHOULDERS ADJACENT TO MOVABLE BARRICADES WHEN DIRECTED BY THE ENGINEER OR SPECIFIED IN THE PLANS. THE LENGTH OF THE 2" X 10" PLANKS SHALL EQUAL THE WIDTH OF SHOULDER AT THE LOCATION OF THE BARRICADE.

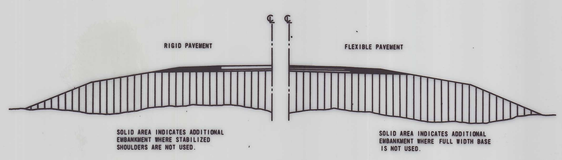
EACH BARRICADE, EXCEPT SHOULDER BARRICADES AND THOSE BARRICADES WITH FLASHER SIGNS MOUNTED ON THEM, SHALL HAVE AT LEAST 2, 5" OR 8" YELLOW REFLECTORS ATTACHED. THESE REFLECTORS SHALL BE MOUNTED ON THE FRONT OF THE BARRICADE AND SHALL BE AS NEAR AS MAY BE ROUND AS SHOWN OR MAY BE SQUARE. THE MINIMUM AREA OF A REFLECTOR SHALL BE EQUIVALENT TO A 5" OR 6" ROUND REFLECTOR.

NO DIRECT PAYMENT WILL BE MADE FOR CUTTING HOLES FOR POSTS THROUGH CONCRETE PAVEMENTS. NO DIRECT PAYMENT WILL BE MADE FOR SHOULDER BARRICADE INSTALLED ON SHOULDERS ADJACENT TO MOVABLE BARRICADES.

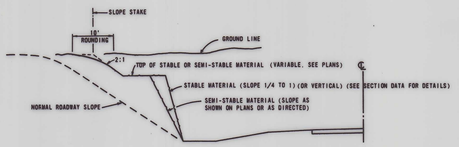
BARRICADES (AND FLASHER SIGNS)	
REVISED: 9-1-75	DRAWING 612.10E



EXCAVATION PAY LIMITS



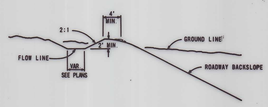
EMBANKMENT LIMITS



BACKSLOPES IN STABLE AND SEMI-STABLE MATERIAL



LEVEE



LEVEE AND DITCH

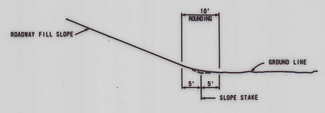
LEVEE AND/OR DITCH MAY BE LOCATED BACK OF BACKSLOPE WHEN CONDITIONS REQUIRE. USE DITCH ONLY WHERE INDICATED OR WHERE REQUIRED FOR DRAINAGE.

INTERCEPTION DITCH AND/OR LEVEE

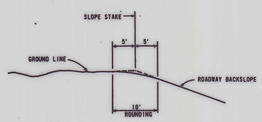
GENERAL NOTES:

SUBSURFACE LOGS OF MATERIALS OBTAINED DURING THE SOIL SURVEY FOR THE PURPOSE OF CUT CLASSIFICATION MAY BE ACQUIRED FROM THE DISTRICT OFFICE UPON REQUEST.

NUMBERS IN PARENTHESIS FOLLOWING THE ENGLISH UNITS REPRESENT CONVERSION TO THE INTERNATIONAL SYSTEM OF UNITS (SI). THE (SI) UNITS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY.



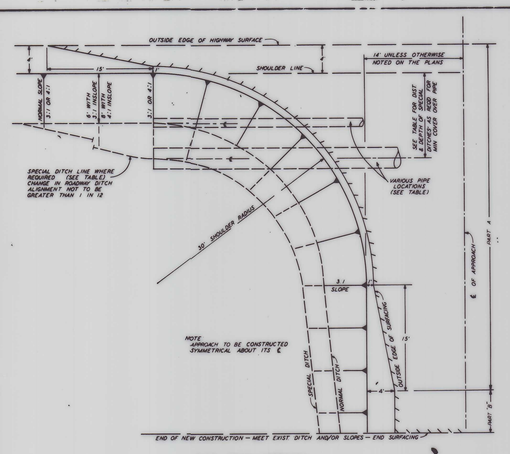
AT TOE OF ROADWAY-FILL SLOPE



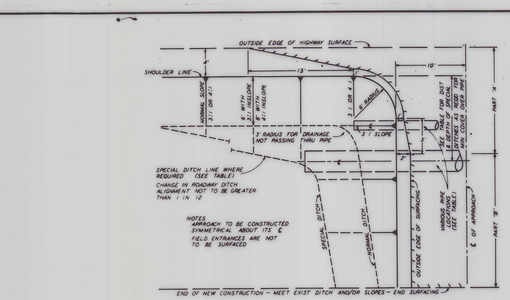
AT TOP OF ROADWAY BACKSLOPES

PARABOLIC ROUNDING

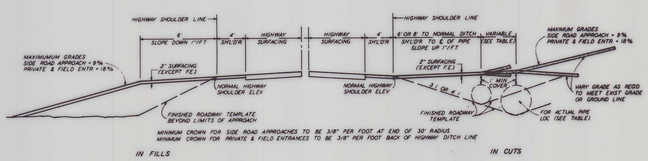
TYPICAL DETAILS EXCAVATION AND EMBANKMENT	
REVISED: 3-1-74	DRAWING 203.09



SIDE ROAD APPROACH
HALF PLAN VIEW



PRIVATE ENTRANCES AND FIELD ENTRANCES
HALF PLAN VIEW



SECTIONS SHOWING PROFILE OF APPROACHES

TABLE OF STAKING DATA AND PIPE LENGTH						
DIAMETER OF PIPE	4 : 1 HIGHWAY INSLOPE		3 : 1 HIGHWAY INSLOPE		LENGTH OF PIPE REQD FOR SIDE ROAD APPR 28' WIDTH	LENGTH OF PIPE REQD FOR PRIVATE & FIELD ENT 20' WIDTH
	MIN DEPTH OF DITCH	DIST FROM SHOULDER TO ℄ PIPE	MIN DEPTH OF DITCH	DIST FROM SHOULDER TO ℄ PIPE		
12"	2'0"	8'0"	2'0"	6'0"	88'	36'
15"	2'0"	8'0"	2'0"	6'0"	88'	36'
18"	2'0"	8'0"	2'1"	6'4"	88'	36'
24"	2'4"	9'6"	2'5"	7'6"	88'	40'
30"	2'8"	11'0"	2'9"	8'8"	88'	42'
36"	3'1"	12'5"	3'3"	10'0"	88'	46'

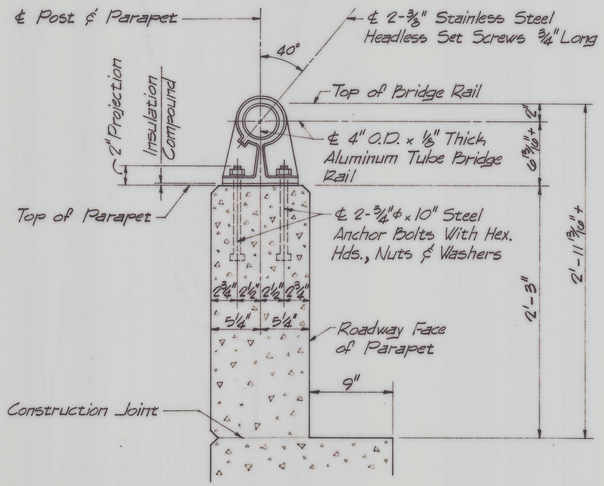
SURFACING QUANTITIES				
TYPE OF APPROACH	PART "A"		PART "B"	
	C.Y.	TON	C.Y.	TON
SIDE ROAD (28' WIDTH)	11.6	16.2	0.123	0.172
PRIVATE ENTRANCE (20' WIDTH)	2.3	3.2	0.099	0.139

EXAMPLE
WHEN 1 ℄ APPROACH ENDS 55 FEET FROM HIGHWAY SHOULDER LINE,
TOTAL SURFACING = 11.6 + (0.123 × 10) + 12# CUBIC YDS
OR 16.2 + (0.172 × 10) + 18# TONS

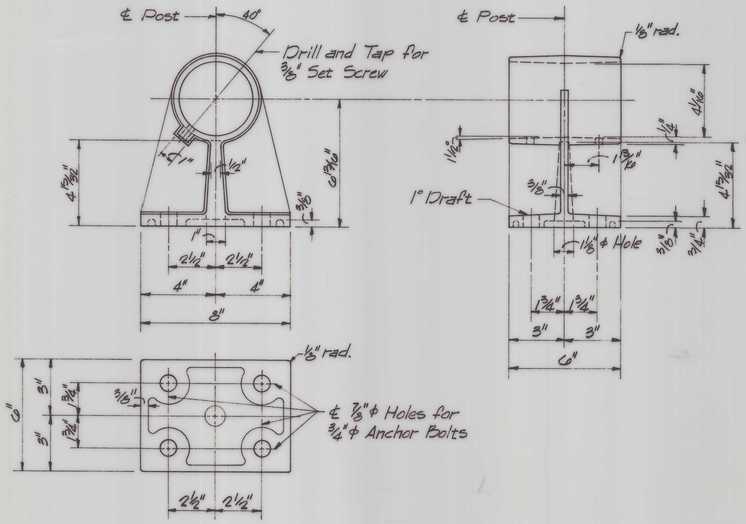
NOTE
USE NEAREST WHOLE UNIT FOR EACH APPROACH

NOTES
SHOULDER RADIUS AND GRADE CONTROLS SHALL BE AS INDICATED UNLESS OTHERWISE SHOWN ON PLANS.
FOR PROJECTS REQUIRING AN OILED EARTH SURFACE, THE SURFACING AREAS INDICATED ON THIS DRAWING SHALL BE OILED INSTEAD OF BEING SURFACED WITH GRANULAR MATERIAL.
LOCATIONS OF PIPE WHEN APPROACH IS IN FILL TO BE SHOWN ON PLANS.
DETAILS ON THIS DRAWING ARE FOR RIGHT ANGLE APPROACHES TO HIGHWAY. SEE PLANS FOR SKEWED APPROACHES.

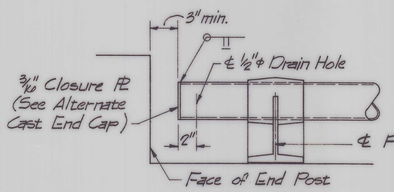
ENTRANCES AND APPROACHES	
	DRAWING 203.30



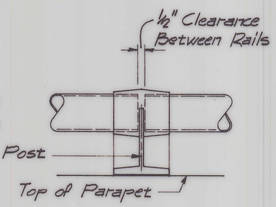
SECTION THRU BRIDGE RAIL



POST DETAIL



POST



RAIL SPLICE



CAST END CAP
(Drive Fit Type)

GENERAL BRIDGE RAIL NOTES:

All bridge rail posts were set normal to grade.

Aluminum tube bridge rail was bent to conform to vertical and horizontal alignment of parapet.

Aluminum washer shims between top of parapet and post base were used for adjusting bridge rail alignment. Maximum thickness of shims were 1/8".

All parts of bridge rail, except anchor bolts, nuts, washers, and set screws were of aluminum material.

All fillets 1/4" except as noted.

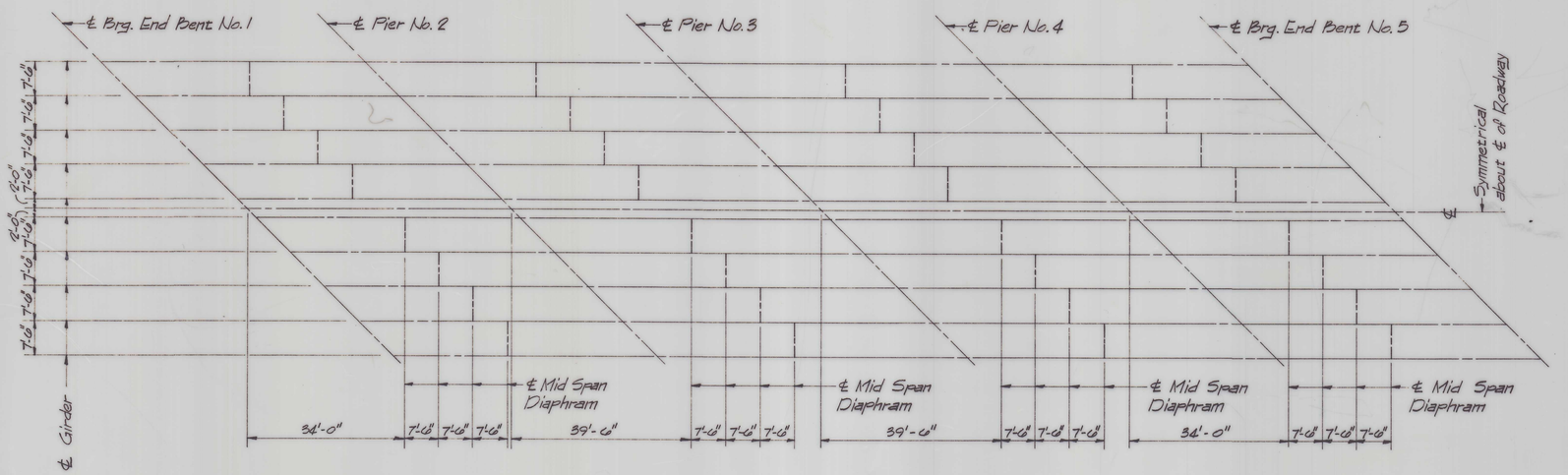
All drafts 3° except as noted.

Set screw in side of rail posts adjacent to filled joints in curb and parapet at rail expansion points was omitted. Set screw in each side of rail post on end bents except where a gap is shown in rail over an expansion device was omitted.

Top of curbs and parapet was built parallel to grade with curb and parapet joints (except at end bents) normal to grade.

Concrete end posts were vertical.

All exposed edges of end posts had 1/2" bevel. All exposed edges of curbs and parapets had 1/2" radius or 3/8" bevel unless otherwise noted.



MID SPAN DIAPHRAM LAYOUT

(See Sheet No. 8 for Mid Span Diaphram Details)

AMA	ALLGEIER, MARTIN & ASSOCIATES ARCHITECTS PLANNERS CONSULTING ENGINEERS JOPLIN, MISSOURI DALLAS, TEXAS	DWN. BY: D.L.C. CKD. BY: APPD. BY: DATE:	DATE DEC., 1976	REVISIONS: AS BUILTS	NEWMAN ROAD BRIDGE OVER TURKEY CREEK JOPLIN, MISSOURI RAIL DETAILS & MID SPAN DIAPHRAM LAYOUT	SHEET NO. 19