

JANUARY 7 1958

STATE OF IOWA
 STATE HIGHWAY COMMISSION
 DESIGN FOR
 67'-6" x 20' PRE-STRESSED CONCRETE BEAM BRIDGE
 SECONDARY ROAD SYSTEM PROJ. S-2671(2)
 CRAWFORD COUNTY
 OCTOBER 1957.

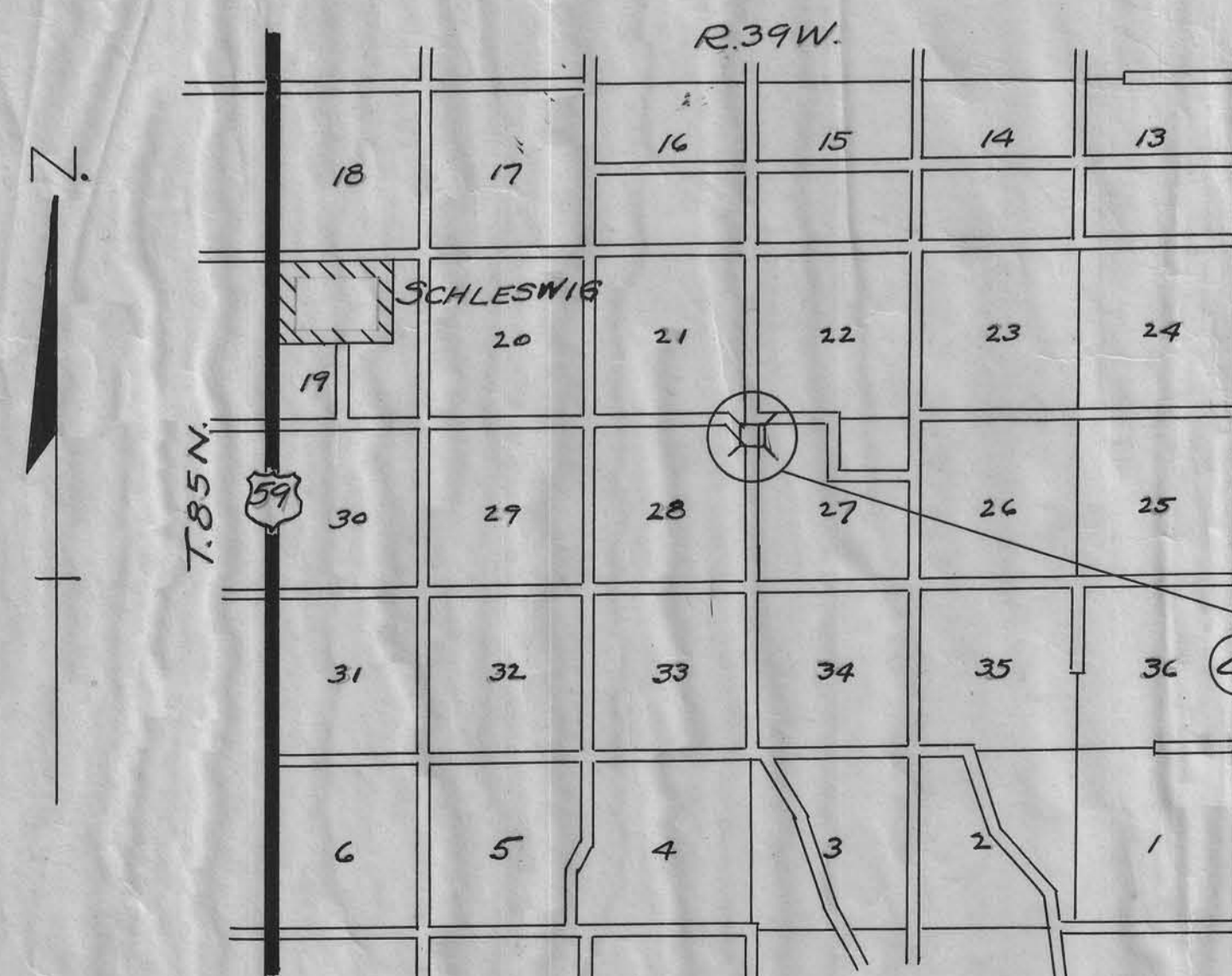
MILEAGE SUMMARY: = 71' - 0 1/2" = 0.01345 MILES.

SPECIFICATIONS:
 Design: A.A.S.H.O. Series of 1953.
 Construction: Standard Specifications of the Iowa State Highway Commission, Series of 1956, plus current Special Provisions except as noted.

DESIGN-1457 OTTER CREEK TWP. CRAWFORD COUNTY SEC. 27-28, STA. 294+16.0 OVER LOCAL CREEK.			
67'-6" x 20' PRESTRESSED CONCRETE BEAM BRIDGE			
DESCRIPTION	ABUTMENTS.	SUPERSTRUCT.	TOTAL
CONCRETE CLASS - "A"	23.00 C.Y.	42.30 C.Y.	65.30 C.Y.
REIN. STEEL	2190 LBS.	7953 LBS.	10,143 LBS.
STRUCT. STEEL	4352 "	1268 "	5,620 "
PRE-STRESSED BEAMS.		5 @ 67'-6"	5 @ 67'-6"
HANDRAIL		155'-0" TYPE "C" L.F.	155'-0" L.F.
WOOD RAIL POSTS 8" x 6'		4	4
TREATED WOOD TRESTLE PILING *	1130 L.F.		1130 L.F.
TREATED LUMBER	7400 F.B.M.		7400 F.B.M.
GALVANIZED HARDWARE	160 LBS.		160 LBS.
EXCAVATION CLASS #20	576 C.Y.		576 C.Y.
" CLASS #10	450 C.Y.		450 C.Y.
" CLASS #21	30 C.Y.		30 C.Y.
REMOVAL OF OLD STRUCTURE			LUMP SUM.

* 14 @ 50'
 6 @ 30'
 10 @ 25'

NOTE: Bridge Sign Assemblies will be furnished & placed by Crawford County to conform with S. & T. Instruction No. 11, revised March-1, 1957.



LOCATION MAP
 SCALE 1" = 1 MILE.

DESIGN NO. - 1457
 PROJECT NO. S-2671(2)

APPROVED

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BOARD OF SUPERVISORS DATE

APPROVED

CHIEF ENGINEER DATE
 IOWA HIGHWAY COMMISSION.

DEPARTMENT OF COMMERCE
 BUREAU OF PUBLIC ROADS.

RECOMMENDED FOR APPROVAL

DISTRICT ENGINEER DATE

APPROVED

DIVISION ENGINEER DATE



Jan 7th 1958 4417-7 C.A. File No 19308

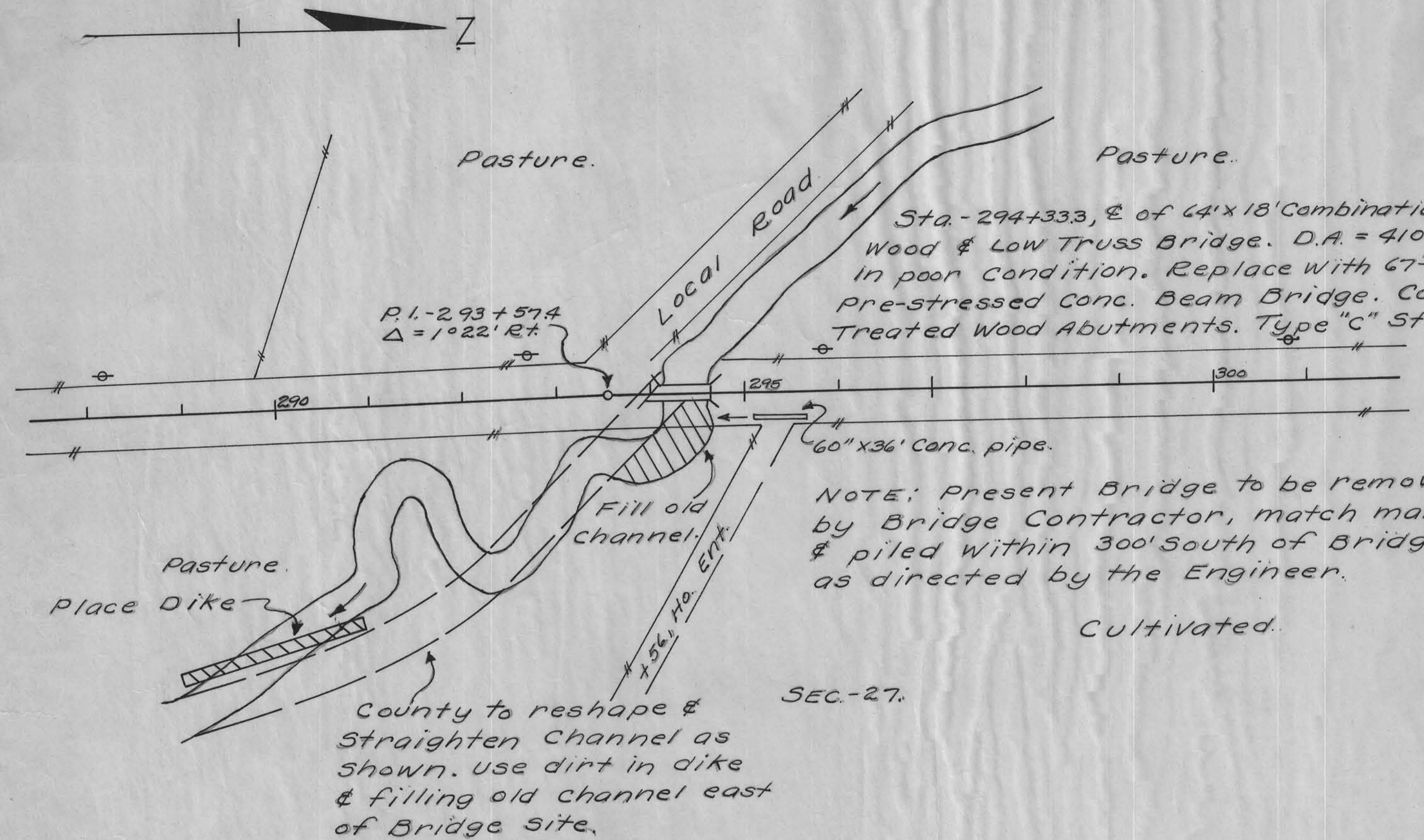
offo done 12/17/57

10 C done.

CRAWFORD COUNTY, Design-1457 PROJ. S-2671(2)

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OTTER CREEK TOWNSHIP
T. 85N. SEC.-28. R. 39W.



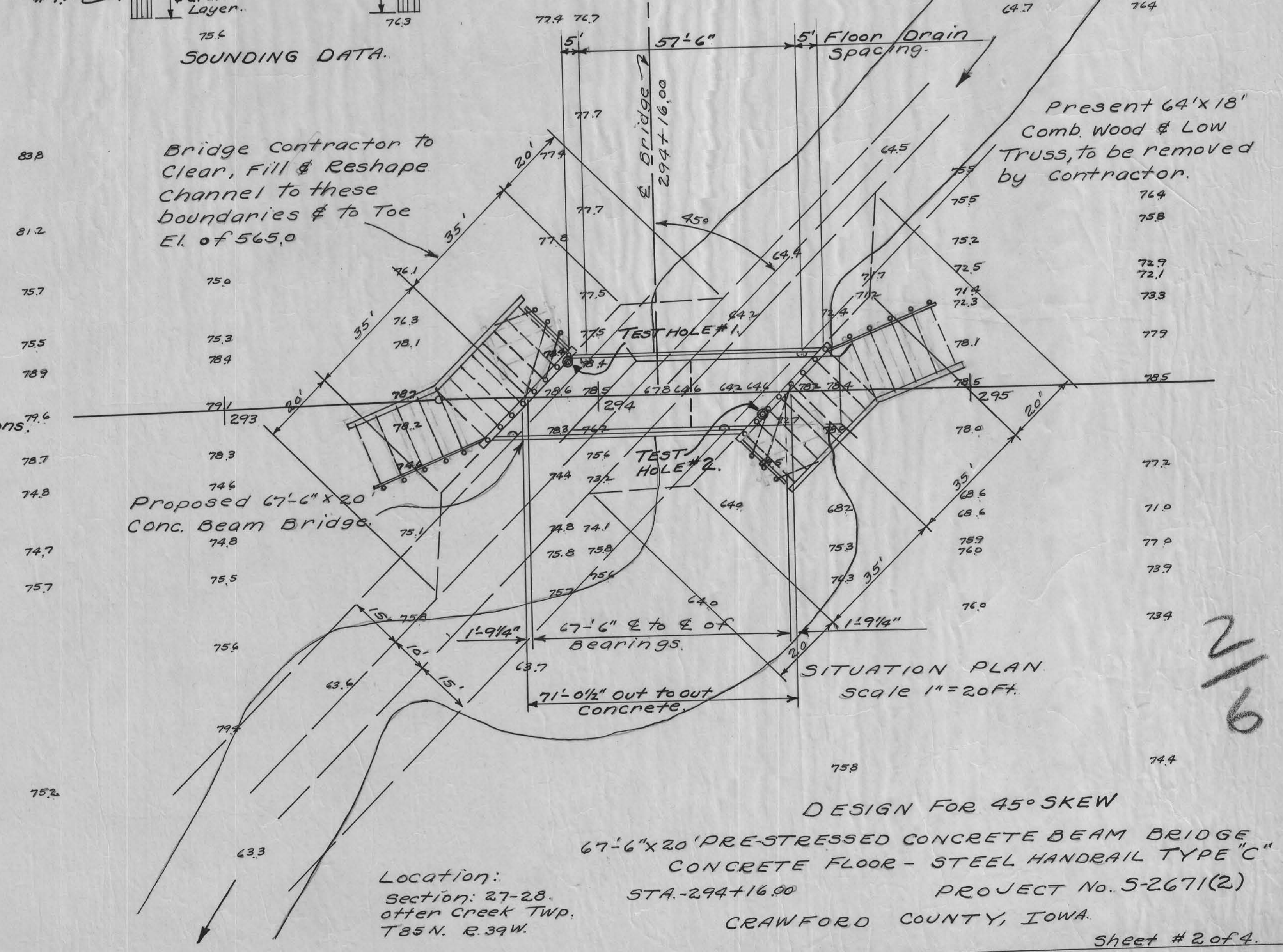
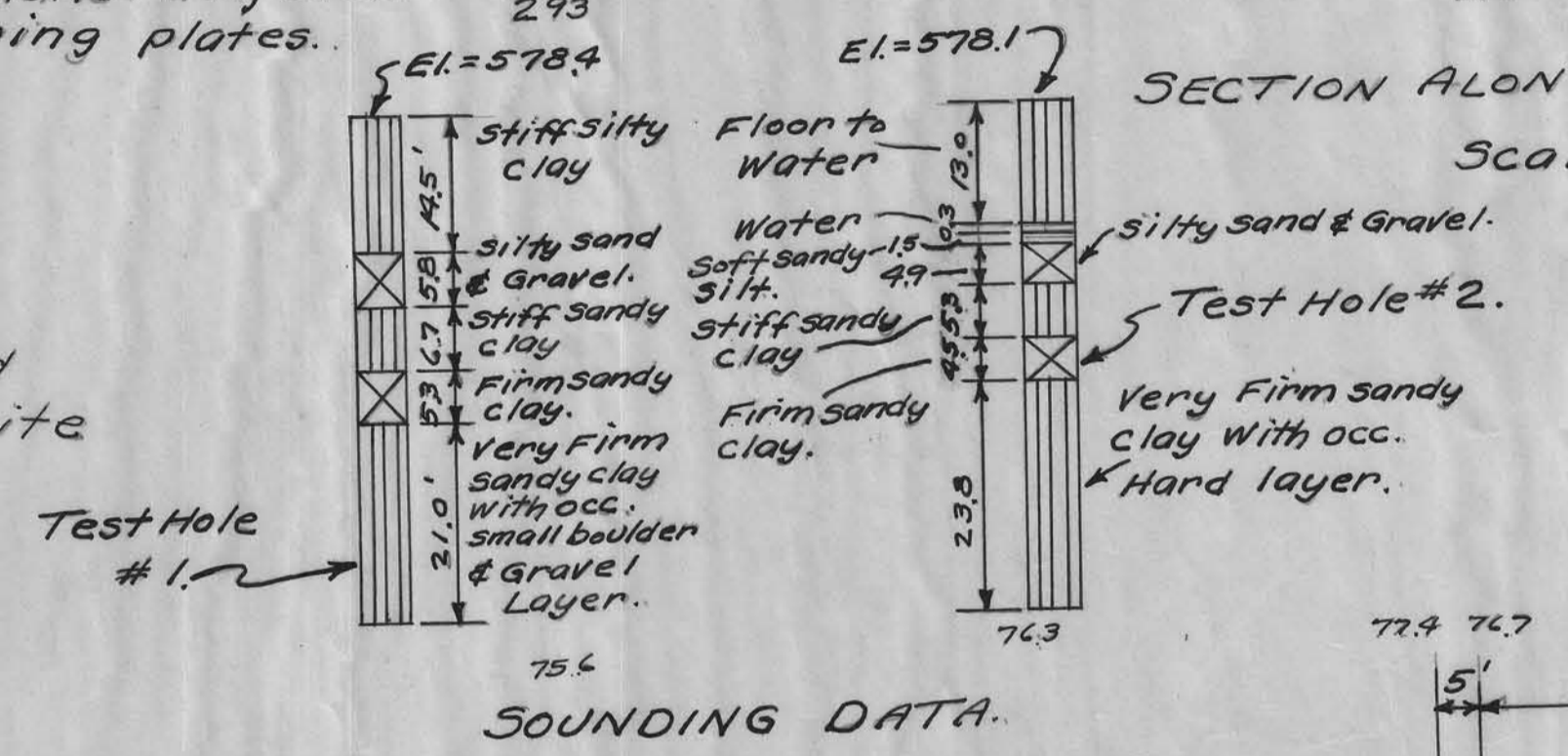
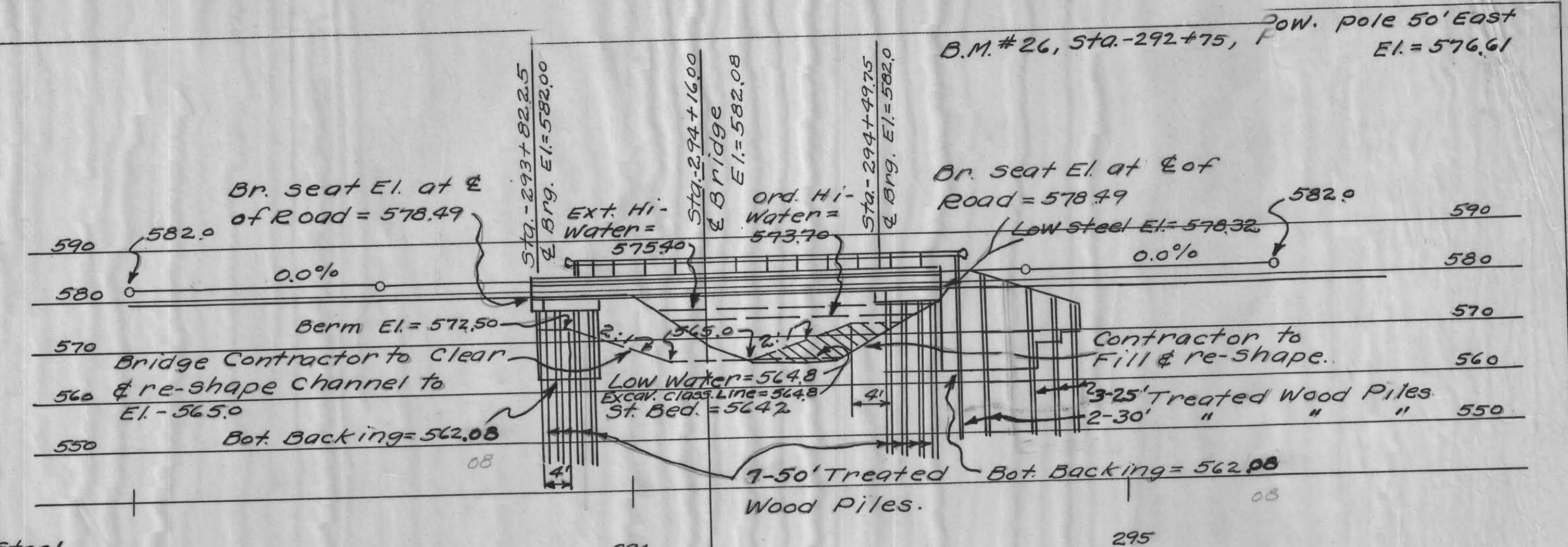
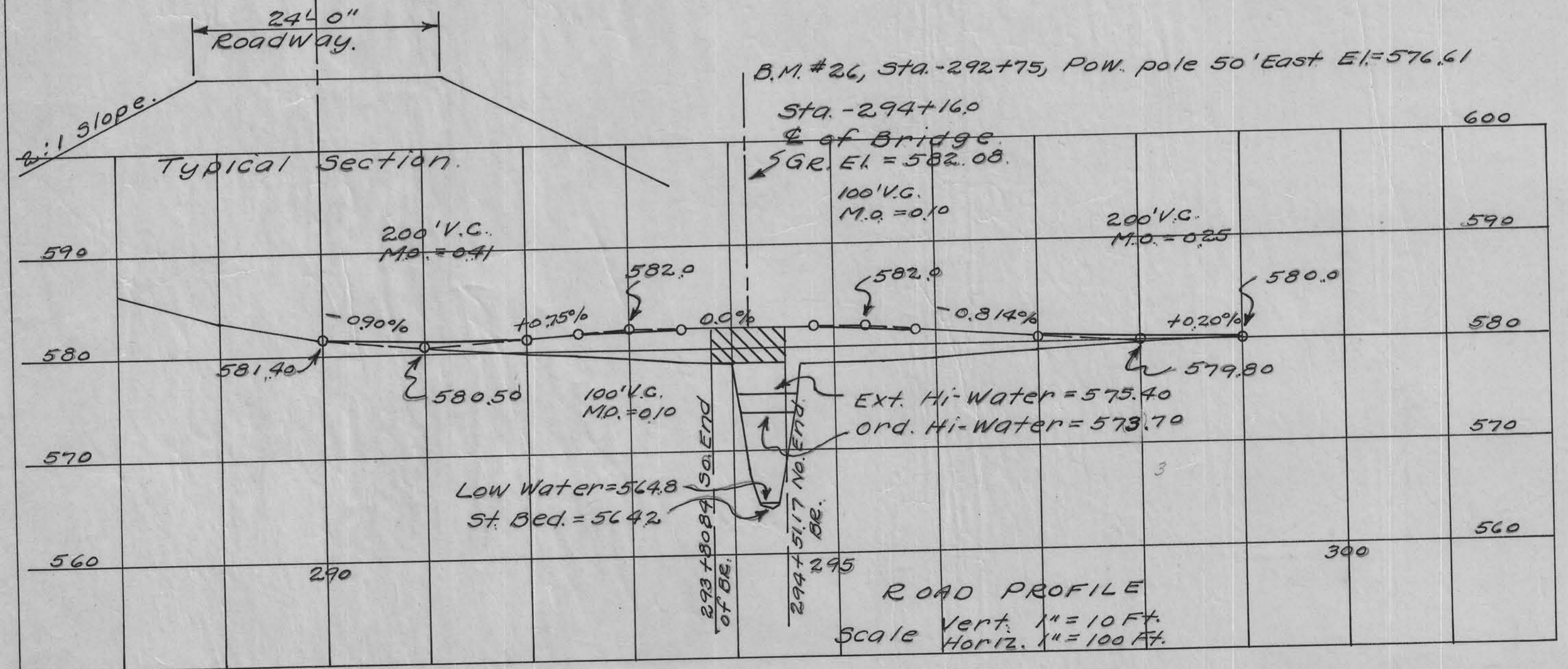
Sta. 294+33.3, E of 64'x18' Combination Wood & Low Truss Bridge. D.A. = 4100 Ac. In poor condition. Replace with 67'-6" x 20' Pre-stressed conc. Beam Bridge. Conc. Floor, Treated Wood Abutments. Type "C" Steel Handrail, Steel Bearing plates.

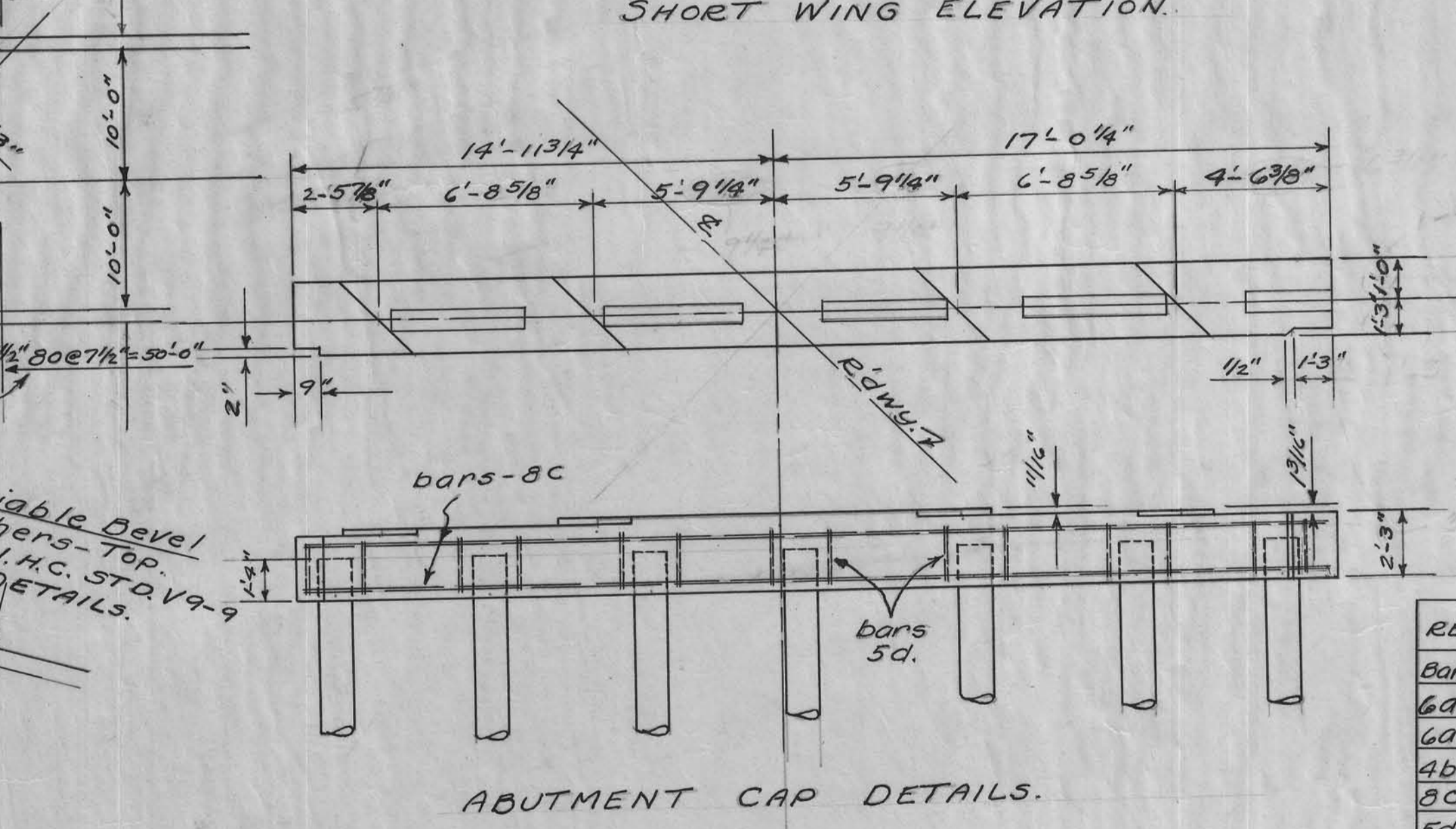
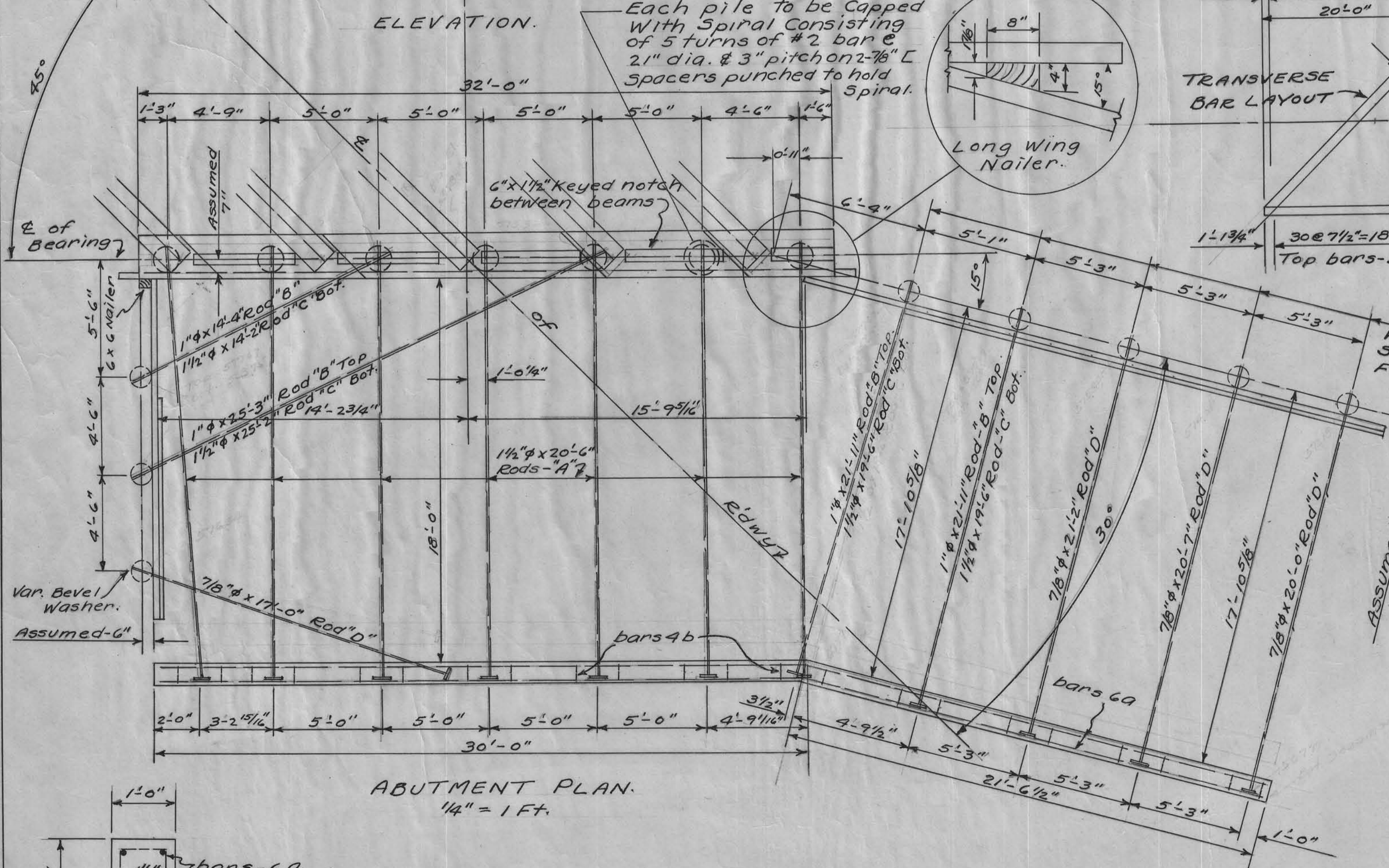
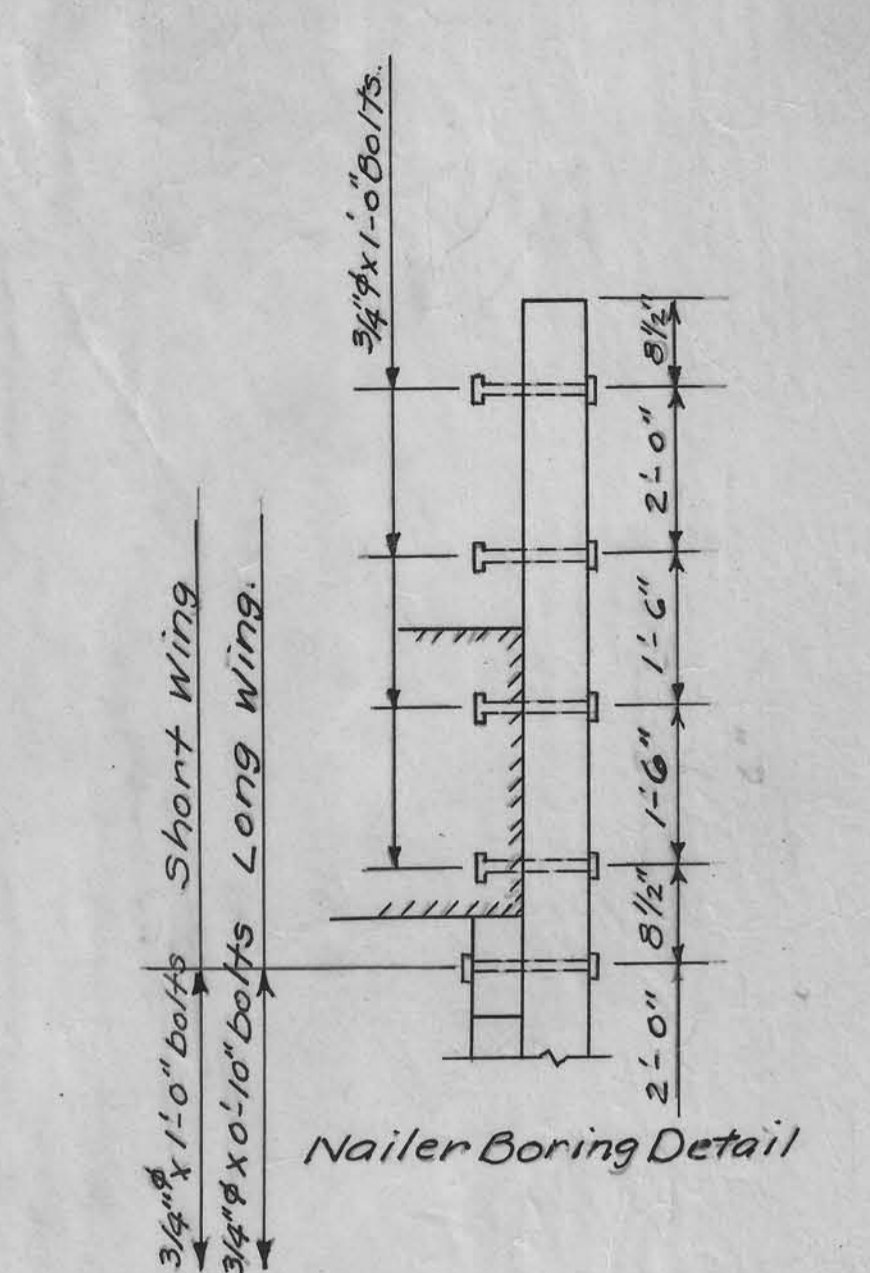
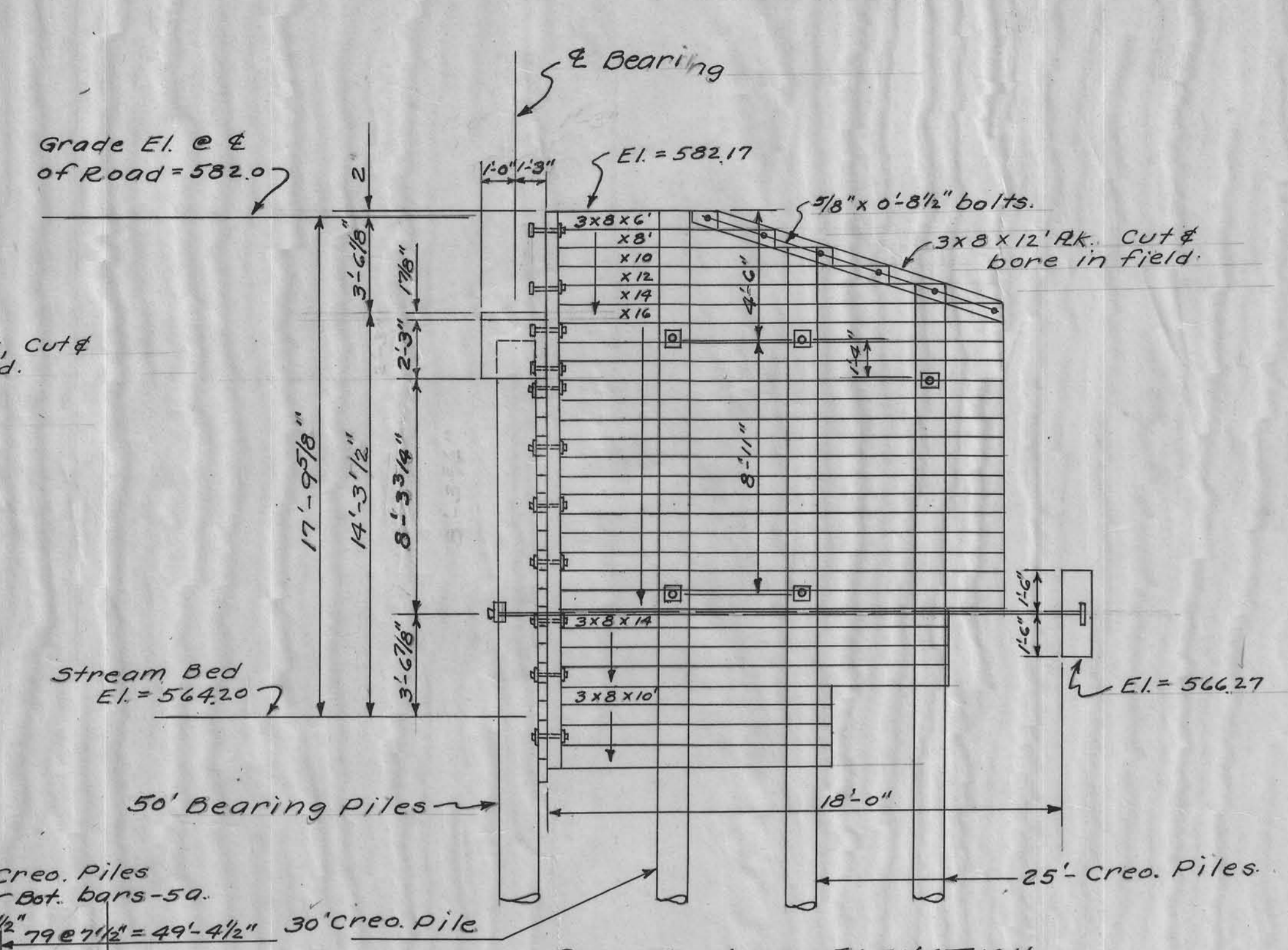
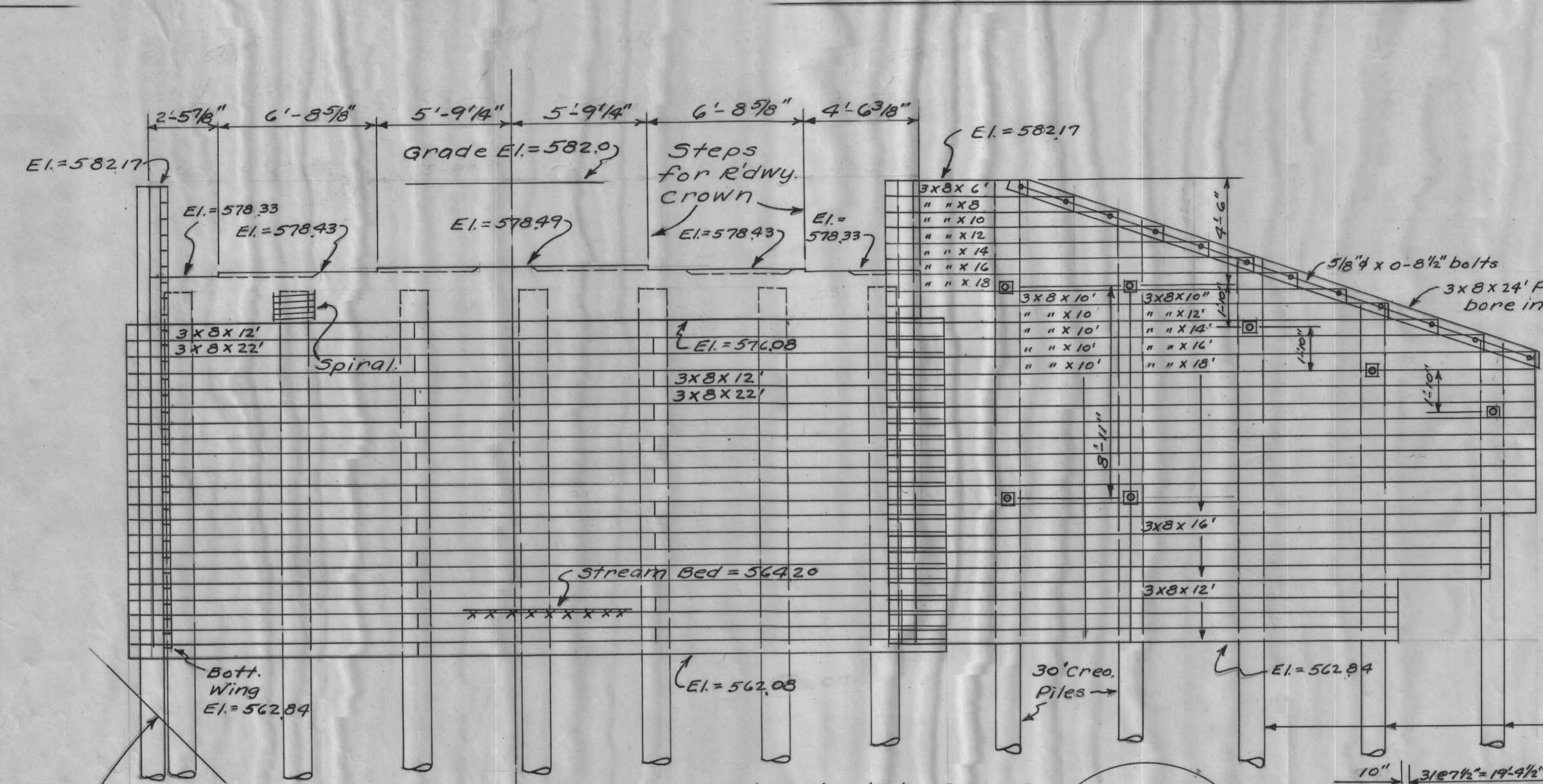
NOTE: Present Bridge to be removed by Bridge Contractor, match marked & piled within 300' South of Bridge Site as directed by the Engineer.

County to reshape & Straighten Channel as shown. Use dirt in dike & filling old channel east of Bridge site.

GENERAL NOTES:

All Lumber is to be creosoted. Backing & Wing plank in 10" & 12" widths may be substituted for 8" plank shown but payment will be made on basis of quantities shown. All piling are to be creosoted & are to comply with the specifications for Treated Timber Trestle Piles. All hardware is to be galvanized. C.I. ogee or malleable Washers are to be used under all heads & nuts bearing on wood. All bolts to have square heads & nuts. For details of Super-structure refer to Iowa Highway Commission Standard PC-5 and for details of Abutments refer to Standard H10-2 with further details on sheet # 4 of these plans. All materials & Construction to conform with the Iowa Highway Commission Standard Specifications, Series of 1956, plus current special provisions.





LUMBER BILL - ONE ABUTMENT

Item	No.	Size	Len.	F.B.M.
Backing RK.	21	3x8	12'	504
"	21	"	22'	924
Wing RK	2	"	6'	24
"	2	"	8'	32
"	29	"	10'	580
"	7	"	12'	168
"	7	"	14'	196
"	22	"	16'	704
"	11	"	18'	396
Wing Slope	1	"	12'	24
"	1	"	24'	48
Nailers	1	6x6	20'	60
"	1	6x8*	20'	40
TOTAL =				3700

* Cuts Two.

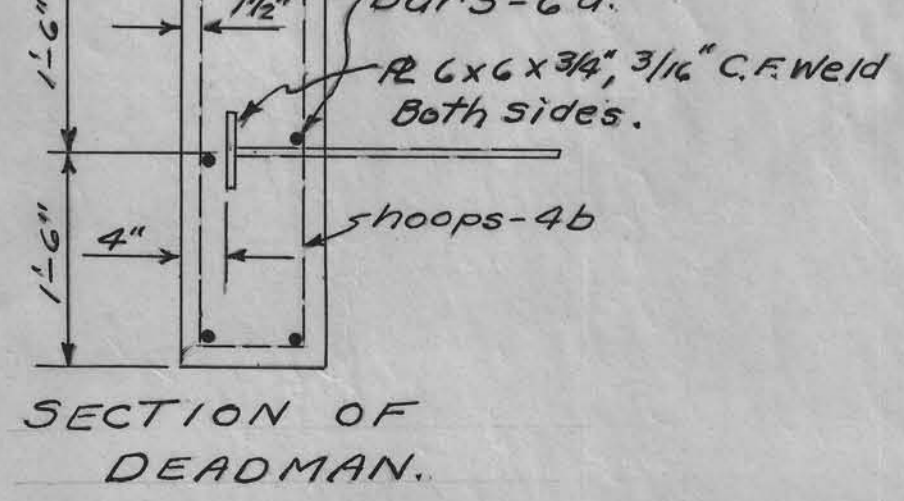
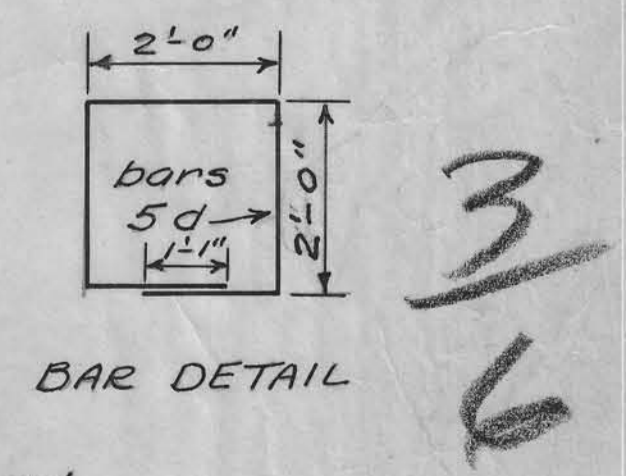
REINFORCING BAR LIST - ONE ABUT.

Bar Location	Shape	Size	Length	No.	Wt.
6a D.M. Long.	—	3/4"	29'-6"	6	266
6a D.M. Long.	—	"	23'-0"	6	207
4b D.M. Hoops	□	1/2"	7'-8"	22	113
8c Cap Long.	—	1"	31'-8"	4	338
5d Cap Hoops.	□	5/8"	8'-9"	14	128
*f Spiral (Cap)	—	1/4"	27'-6"	7	43
Total					1095

*Weight includes Cspacers.

ESTIMATED QUANTITIES - TWO ABUTS.

Creosoted Lumber	7400 F.B.M.
Concrete (Class "A")	2300 C.Y.
Rein. Steel	2190 lbs.
Struct. Steel	4352 "
Hardware	160 #s
Cree. Bearing Piling (Trestle)	14 @ 50' = 700 L.F.
" Wing "	6 @ 30' = 180 "
" " "	10 @ 25' = 250 "

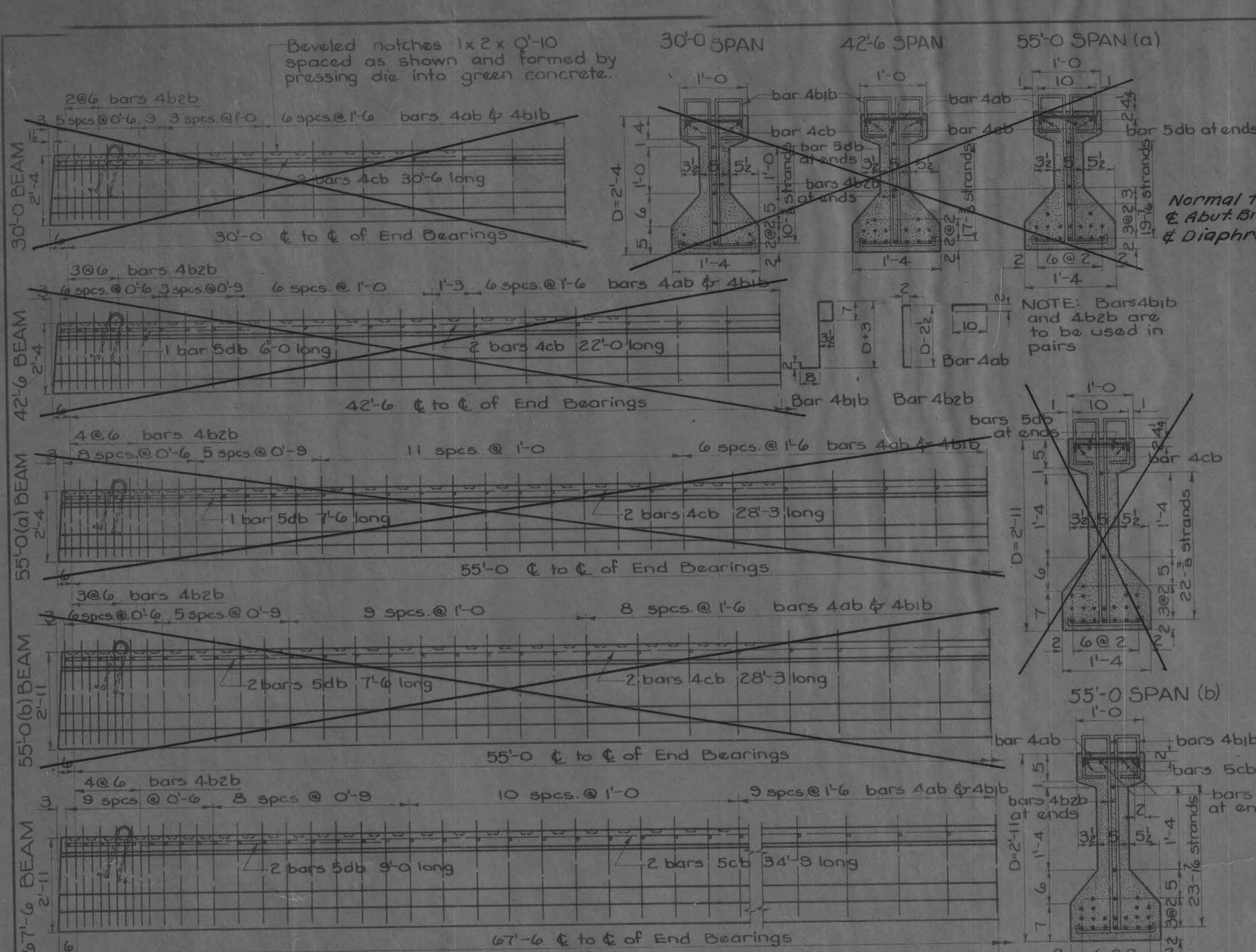


Tie rods to have 6" threaded ends and Am. Standard Heavy 39 nuts. For 7/8" rods use 5x1/2"x5" R Washers. " 1" " " 5x3/8"x5" " " " 1 1/2" " " 8x1"x8" " " Bend all R washers to 6" inside radius.

GENERAL NOTE:
For construction details not shown hereon refer to Iowa Highway Commission Standard H10-2. Abutment Bearing Piles to be driven to Full penetration if Practicable but to not less than 20 ton bearing value.

Location:
Section: 27-28
Offen creek Twp.
T85 N. R.39 W.

DESIGN FOR 45° SKEW
67'-6"x20' PRE-STRESSED CONCRETE BEAM BRIDGE
CONCRETE FLOOR - STEEL HANDRAIL TYPE "C"
STA-294+16.0
PROJECT No. 5-2671(2)
CRAWFORD COUNTY, IOWA.
Sheet #3 of 4.



DETAILS OF BEAMS
Scale: 3/8" = 1'-0"

M equal spaces @ 6'-3"
N equal spaces @ 8'-3"

2'-6" TYPE "C" RAIL
0" TYPE "A" RAIL

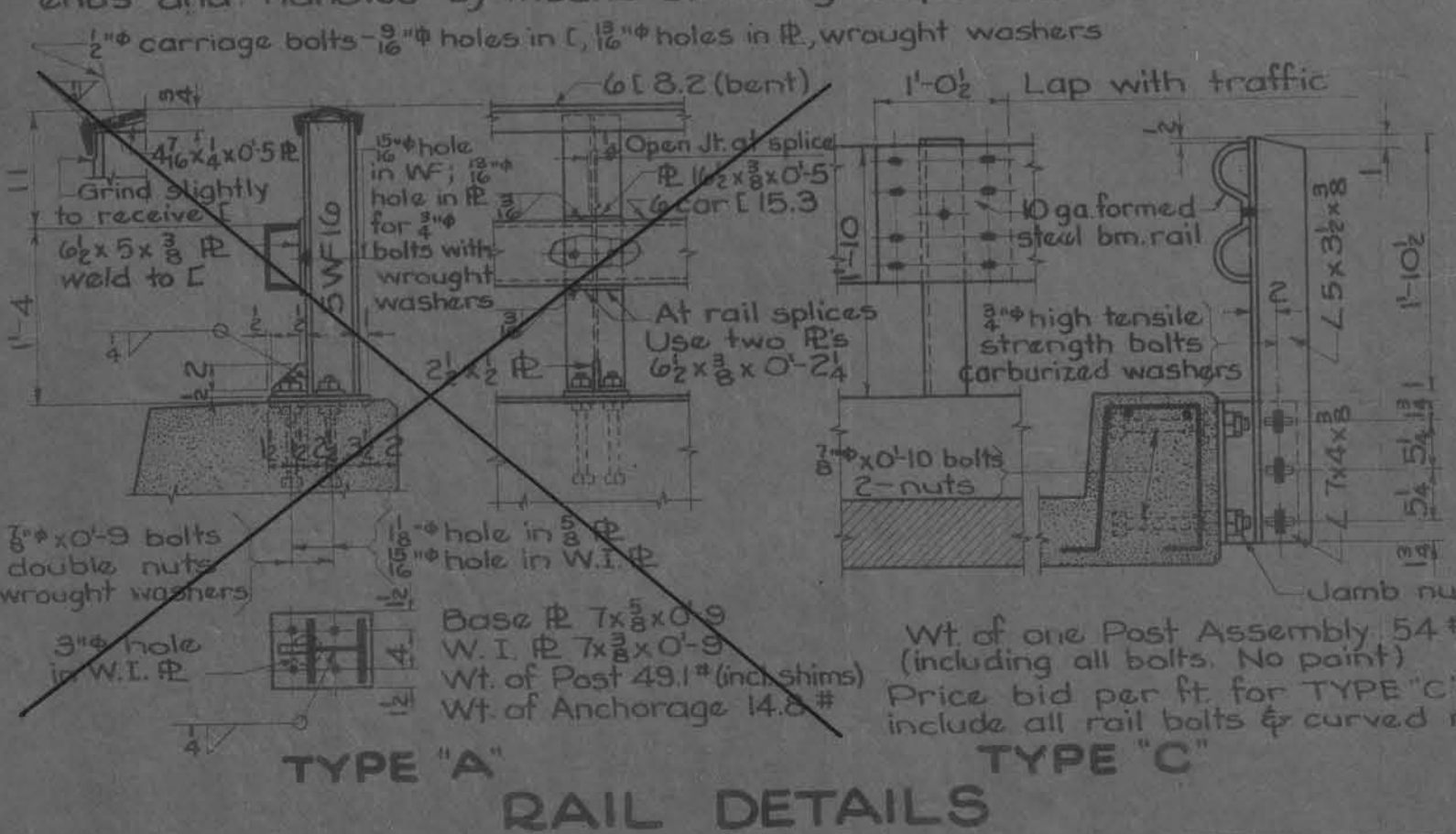
NOTE: Sections of floor over piers and pier diaphragms shown cross-hatched are to be placed last. Curbs may be placed continuously.

MULTIPLE SPAN COMBINATIONS		End Brngs	X	M	N	bars b2
30'-7 1/2	31'-3	30'-7 1/2	4'	14	12 @ 7'-8"	4b2
30'-7 1/2	43'-9	30'-7 1/2	105'-0	5'	16 @ 8'-0"	4b2
43'-1 1/2	43'-9	43'-1 1/2	130'-0	6'	20 @ 8'-1 1/2"	4b2
43'-1 1/2	56'-3 (a)	43'-1 1/2	142'-6	7'	22 @ 7'-1 1/2"	5b2
55'-7 1/2 (a)	56'-3 (a)	55'-7 1/2 (a)	167'-6	8'	26 @ 7'-1 1/2"	5b2
55'-7 1/2 (b)	68'-9	55'-7 1/2 (b)	180'-0	9'	28 @ 7'-9"	6b2
68'-1 1/2	68'-9	68'-1 1/2	205'-0	9'	32 @ 7'-10"	6b2

NOTES ON PRESTRESSED BEAMS:

Concrete in beams shall have a 28 day crushing strength of 5000 psi and a minimum of 4500 psi when stress is released. It shall contain no Class V aggregate. The maximum size of coarse aggregate shall be 1". Prestressing tendons shall be 7 wire strands of high strength uncoated wire, stress relieved after stranding with a modulus of elasticity of about 25,000,000, ultimate breaking strength of 27,000 lbs. for 1/8 strands and 20,000 lbs. for 3/16 strands, yield strength (0.2% offset) of 85% of the ultimate and minimum elongation in 10" of 4%. Strands are to be initially stressed to 70% of the ultimate - 18,900 for 1/8 and 14,000 for 3/16. Stress is to be determined by the measured elongation and checked by gauges on calibrated jacks.

After release of stress, beams are to be supported at all times near ends and handled by means of lifting loops near ends of beams.



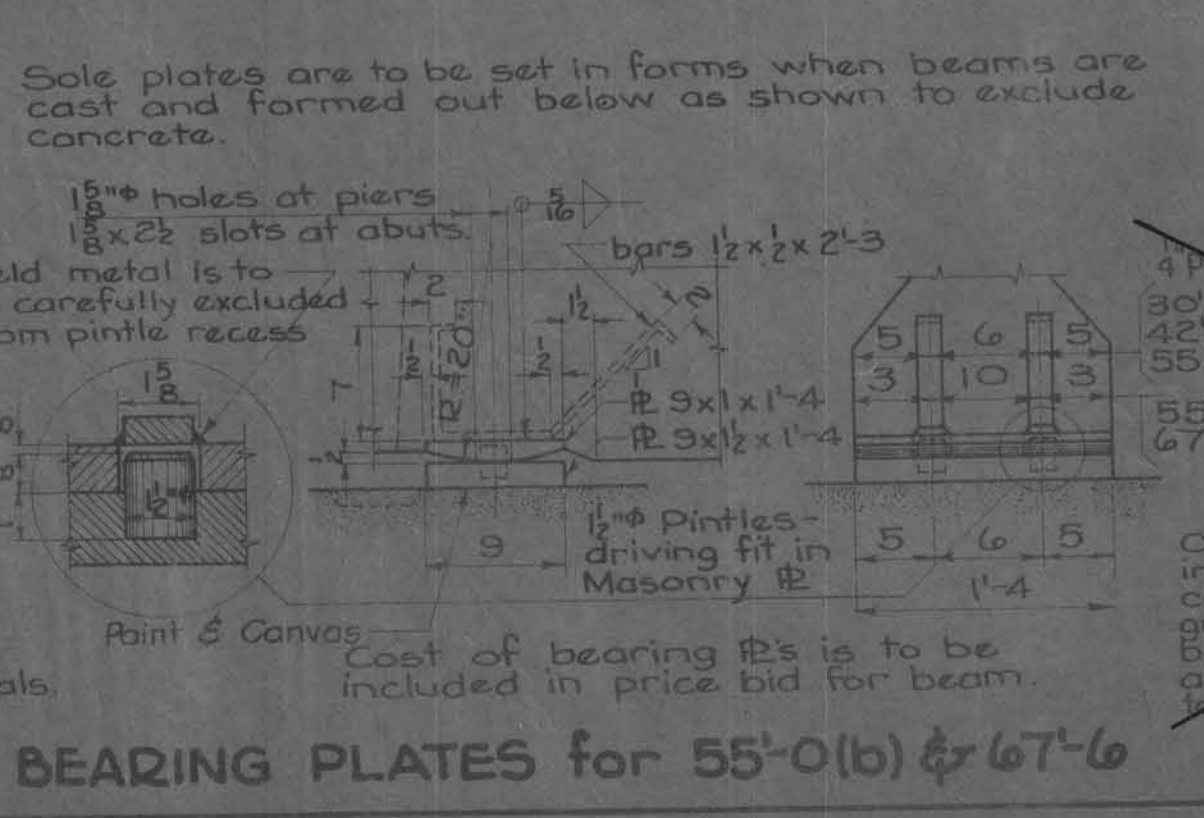
RAIL DETAILS

BEAM DATA

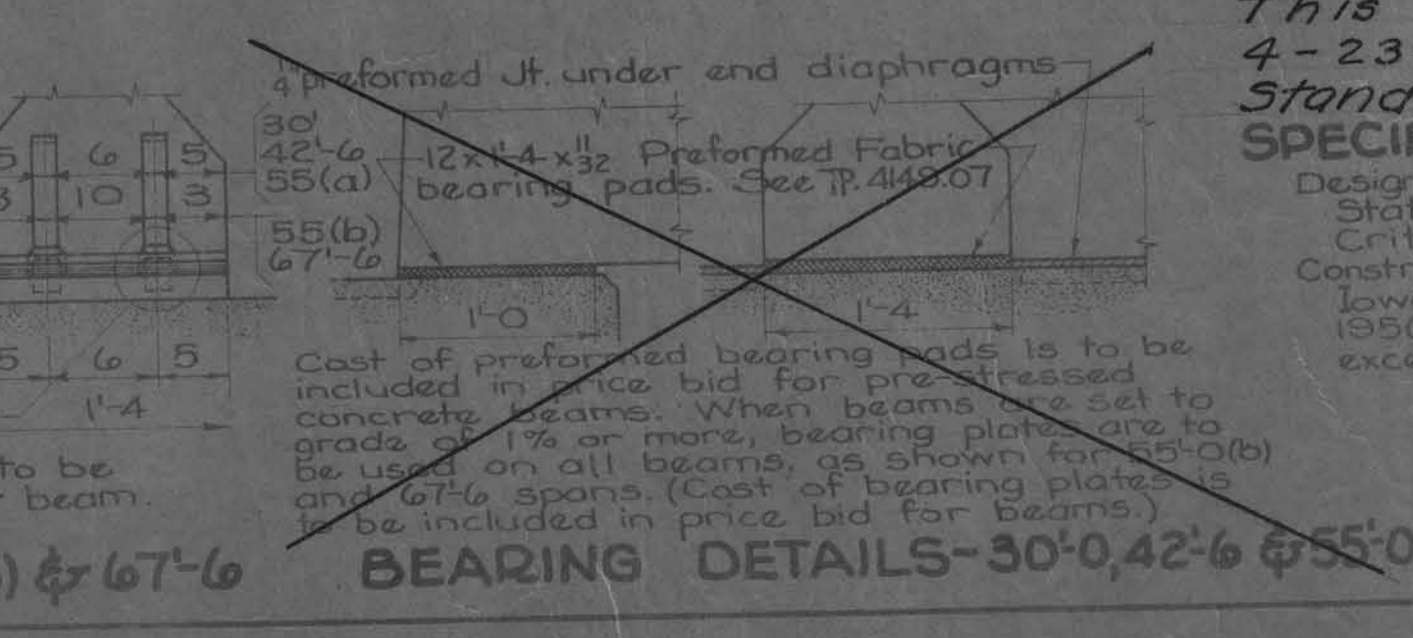
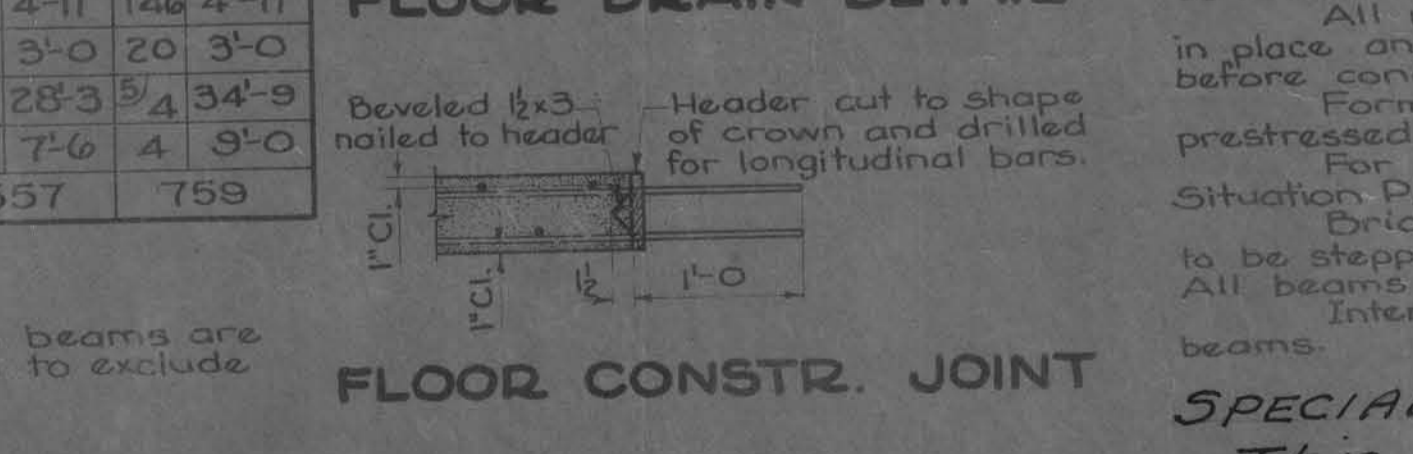
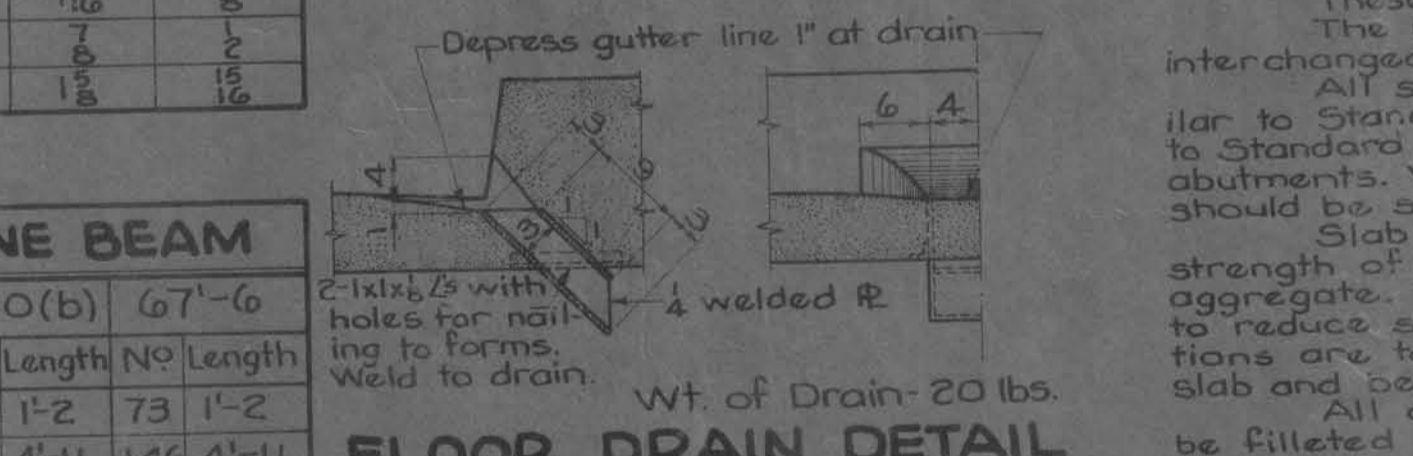
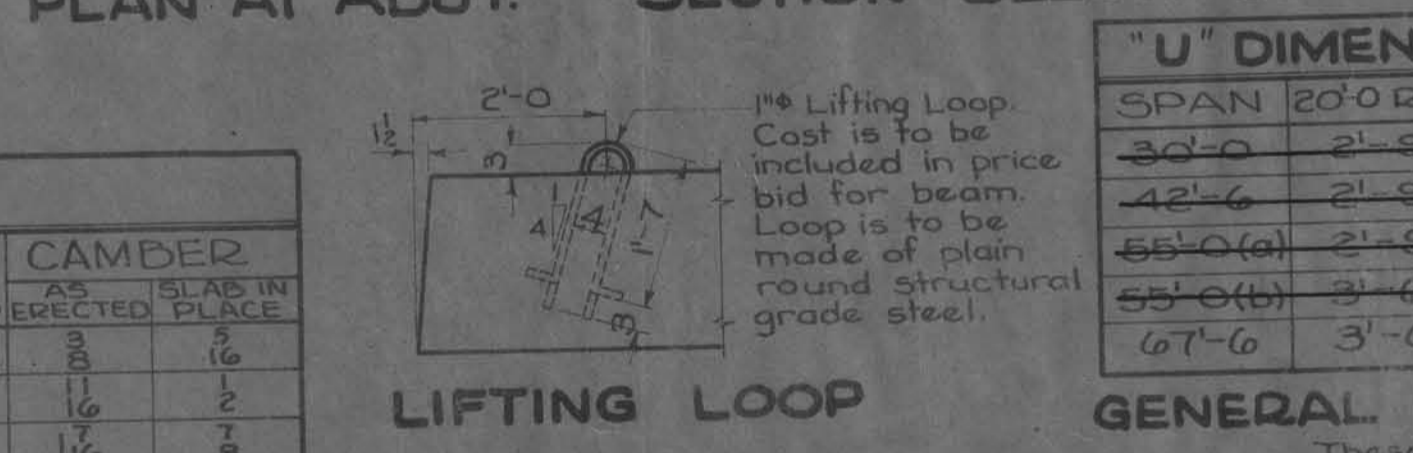
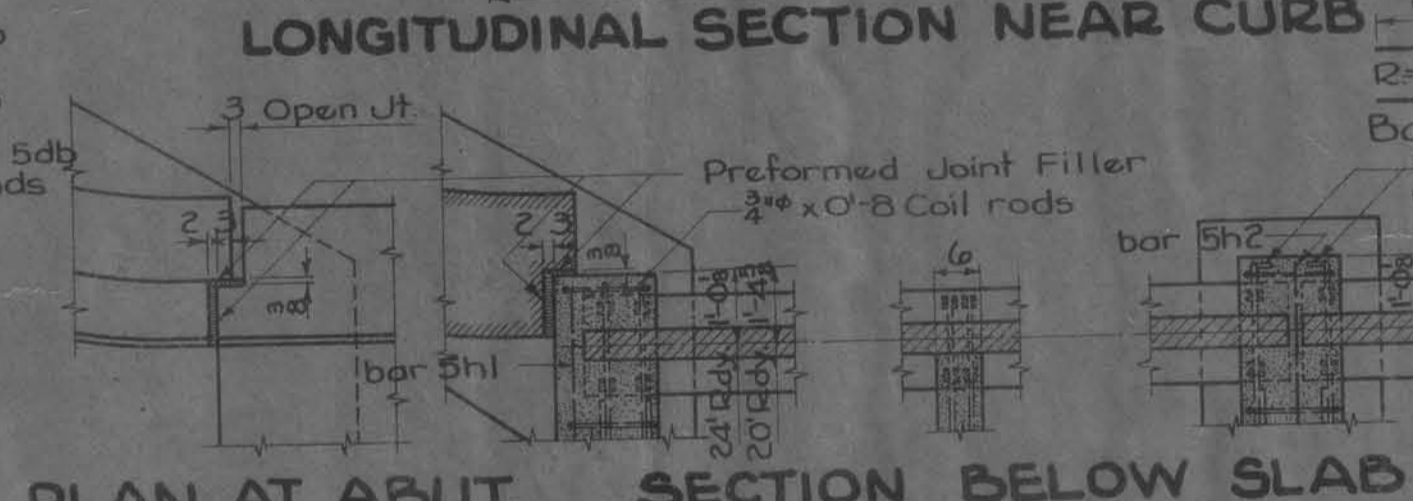
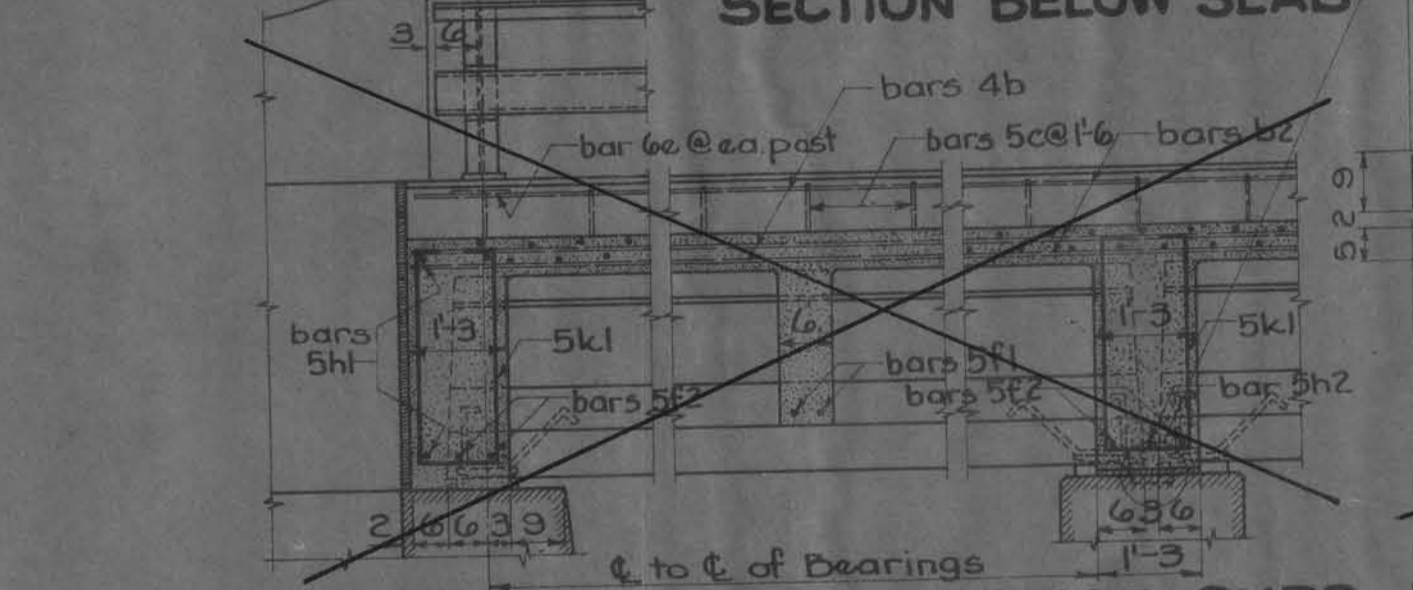
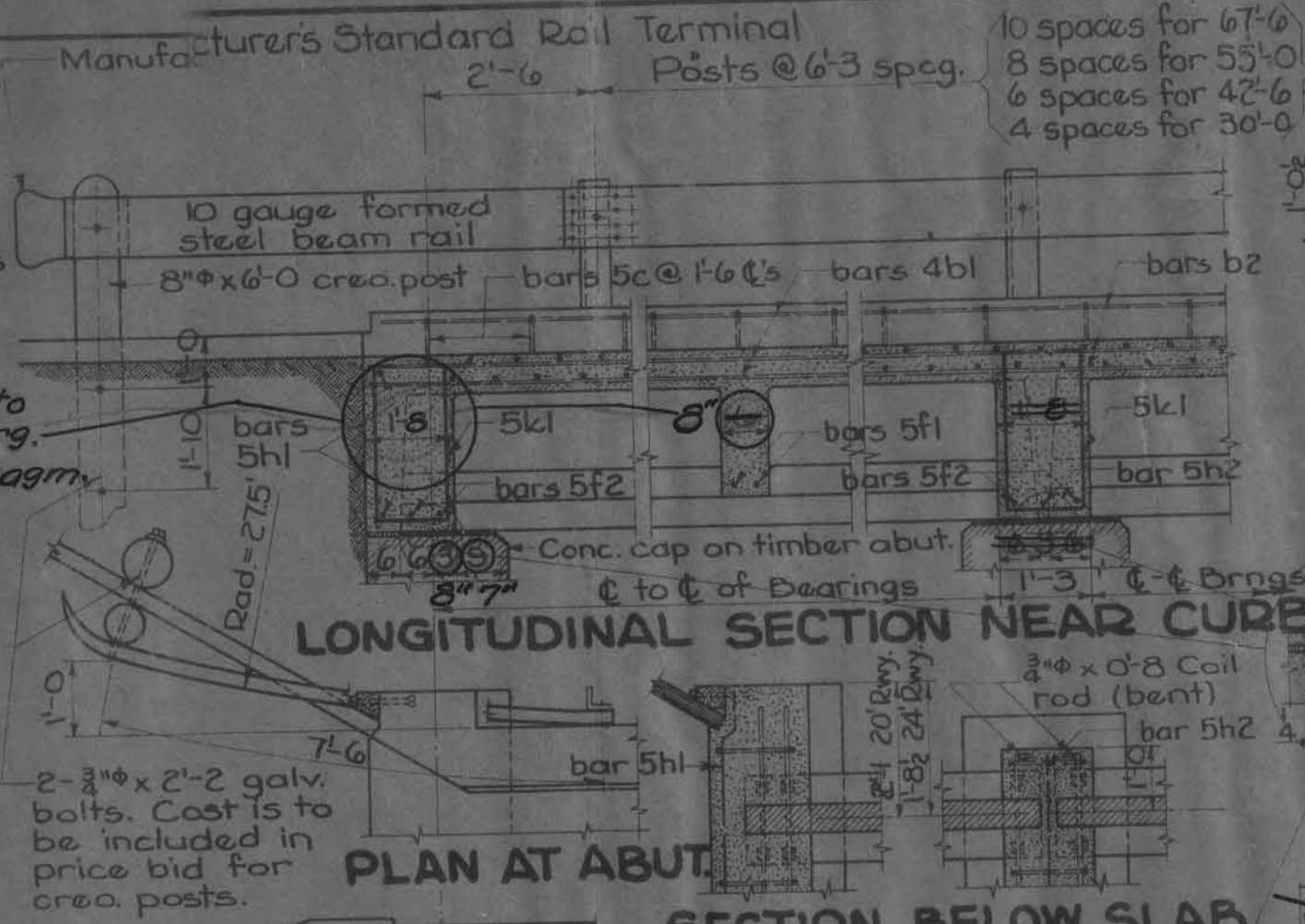
SPAN	DEPTH	STRANDS	CONC. CY.	REINF. STEEL lbs.	STRUCT. STEEL lbs.	INITIAL PRE-STRESS lbs.	CAMBER AS SLAB IN PLACE
30'-0	2'-4	10-3/8	2.06	262	140	140	1/8
42'-6	2'-4	17-3/8	2.90	393	238	140	1/8
55'-0(a)	2'-4	19-1/8	3.73	524	360	140	1/8
55'-0(b)	2'-11	22-3/8	4.66	557	190	308	1/8
67'-6	2'-11	23-1/8	5.70	759	190	434	1/8

BILL OF REINF. STEEL for ONE BEAM

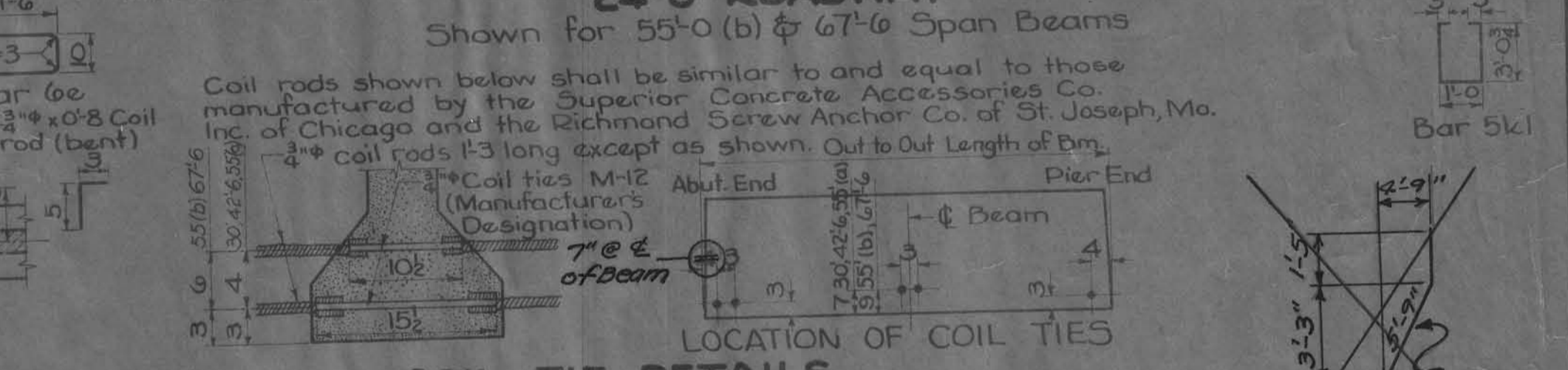
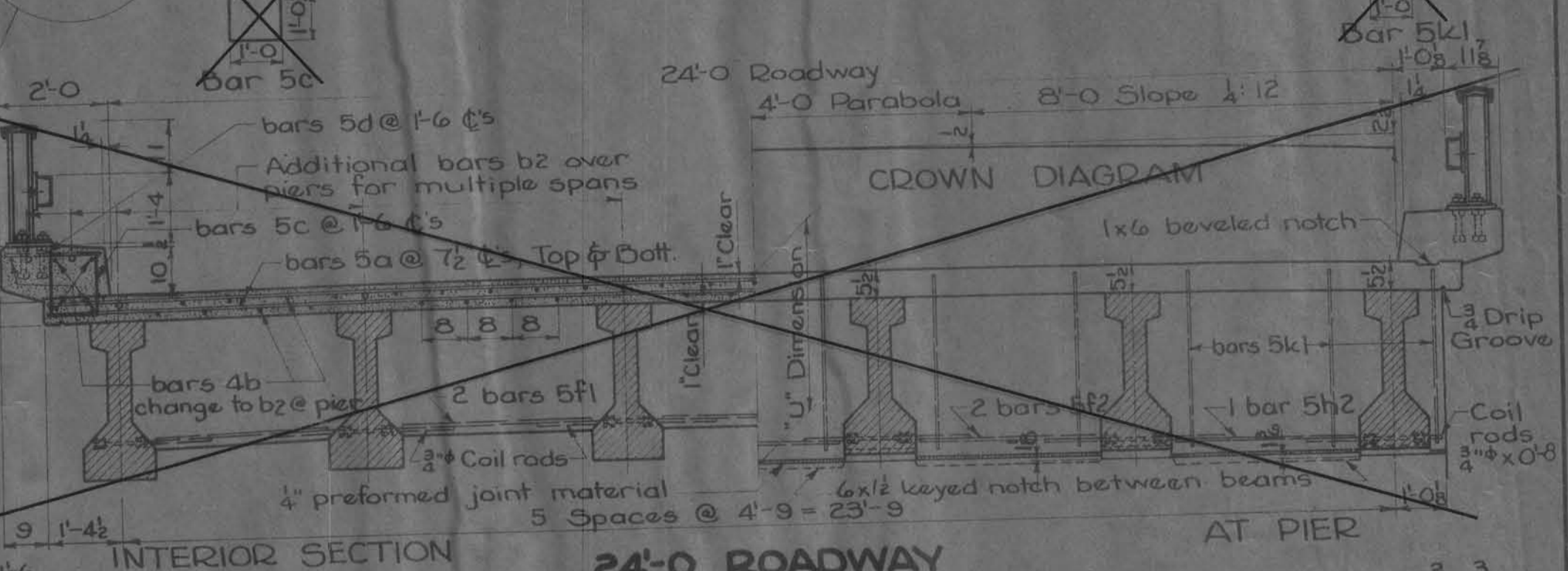
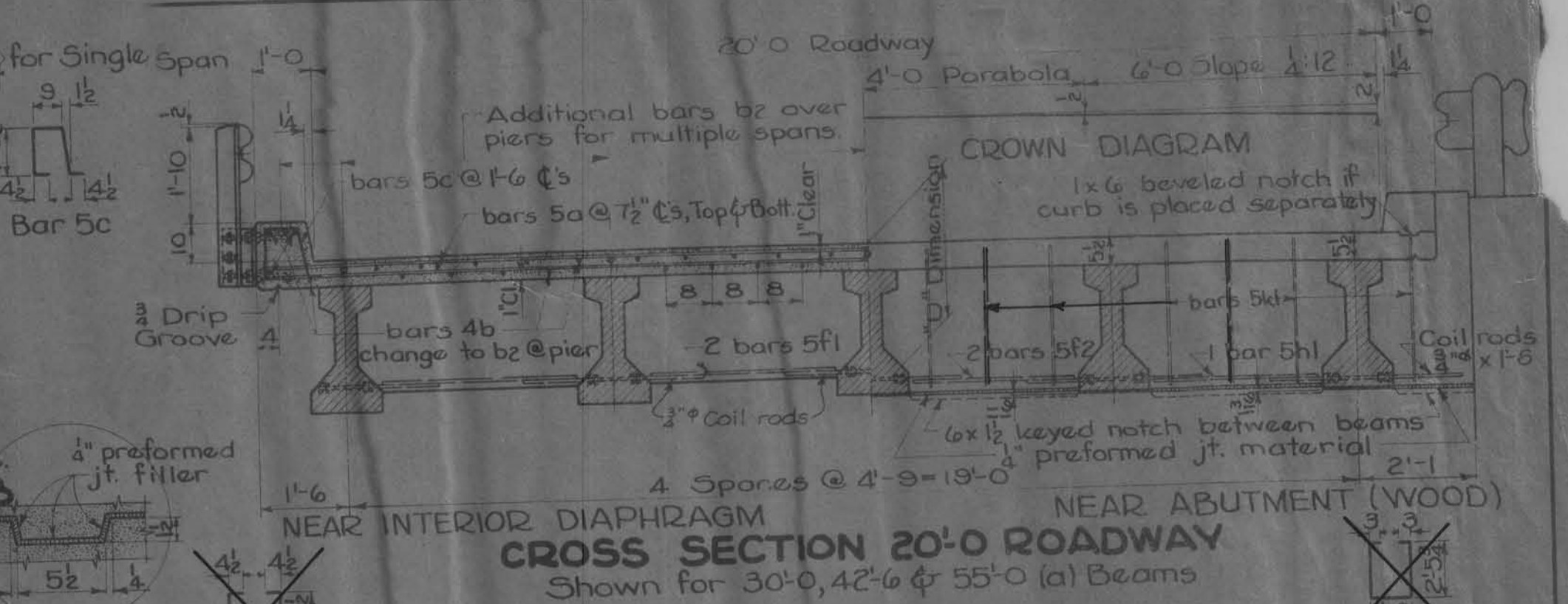
BAR SHAPE	30'-0	42'-6	55'-0(a)	55'-0(b)	67'-6
4ab	31	1-2	45	1-2	61
4bib	62	4-4	90	4-4	122
4b2b	12	2-5	16	2-5	20
cb	2	30-6	34	22-0	44
5db	—	—	2	6-0	2
TOTAL WT.	262	393	524	557	759



BEARING PLATES for 55'-0(b) & 67'-6



BEARING DETAILS-30'-0, 42'-6 & 55'-0(a)



"U" DIMENSION

SPAN	20'-0 Rdy	24'-0 Rdy
30'-0	2'-9 3/8	2'-10
42'-6	2'-9 3/8	2'-10
55'-0(a)	2'-9 3/8	2'-10
55'-0(b)	3'-6 3/8	3'-6 3/8
67'-6	3'-6 3/8	3'-6 3/8

BILL OF REINF. STEEL-SUPERSTRUCTURE

BAR	LOCATION	SHAPE	NO	LENGTH	WEIGHT
5a	Slab Transverse	1/2"	161	19'-8"	5061
4b1	Slab Longitudinal	3/8"	34	31'-8"	2106
b2	Slab Long. Over Piers	—	—	—	—
4b3	Slab Longitudinal	—	—	—	—
5c	Curb Dowels	1/2"	94	3'-3"	319
5d	Curb Transv. (Type "A" Rail)	—	—	—	—
6e	Rail Post Anchor (Type "A" Rail)	—	—	—	—
5f1	Intermediate Diaphragm	—	8	4'-9"	40
5f2	Abut. & Pier Diaphs. Short	—	16	4'-6"	75
5h1	Abutment Diaphs. Long	—	4	31'-8"	133
5h2	Pier Diaphragms Long	—	—	—	—
5k1	Abutment & Pier Hoops	—	28	7'-6"	219
TOTAL =				7953	

ESTIMATED QUANTITIES-SUPERSTRUCTURE

ITEM	UNIT	QUANTITY
Concrete	cuyd	42.30
Reinforcing Steel	lbs.	7953
Structural Steel	lbs.	1268
Pre-stressed Conc. Beams	Beam	5 @ 67'-6"
Pre-stressed Conc. Beams	Beam	—
Formed Steel Beam Rail	L.F.	155'-0"
Crossed Wood Rail Posts 8"x6'-0" Post	—	4

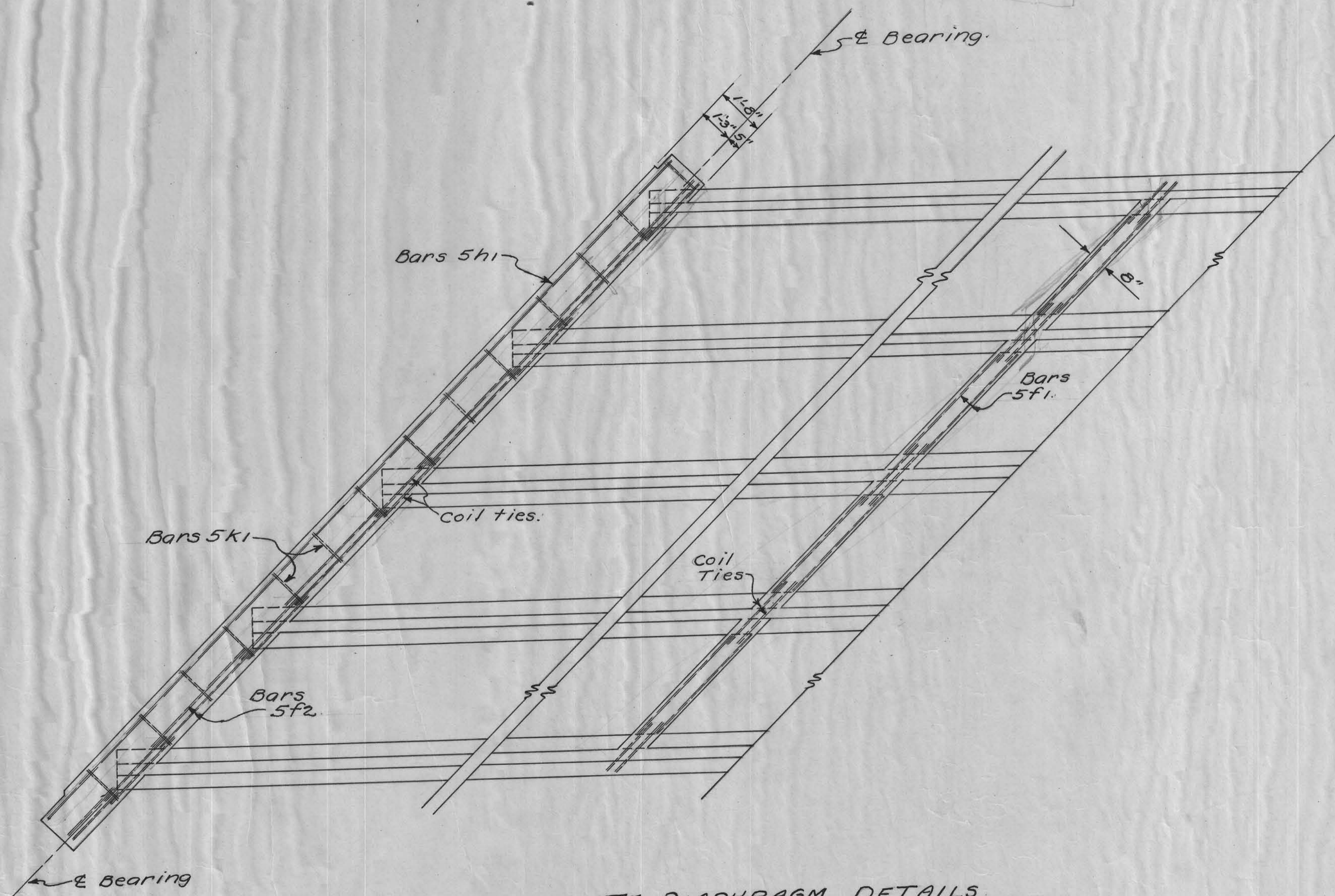
SPECIAL NOTE TO CONTRACTOR:

This Standard Was Revised 4-23-1957. Please refer to Revised Standard for Strand Changes.

SPECIFICATIONS:
Design: A.A.S.H.O. Series of 1953, and United States Bureau of Public Roads Design Criteria for Pre-stressed Conc. Bridges, 1955 Construction: Standard Specifications of the Iowa State Highway Commission, Series of 1956, plus current Special Provisions except as noted.

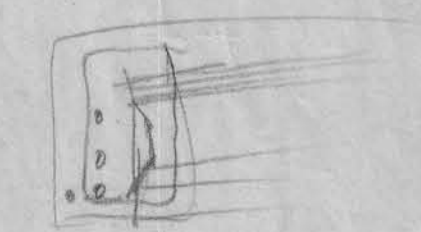
Location
Section: 27-28
Other Creek TWP
T85N. R. 39W.

Design for PRE-TENSIONED PRE-STRESSED CONCRETE BEAM BRIDGES
30'-0, 42'-6, 55'-0 & 67'-6 SPANS
20'-0 AND 24'-0 ROADWAYS
LH-5-44 LOADING
67'-6"x20' CONCRETE BEAM BRIDGE
STA. 294+16.0 PROJECT No. 5-2671(2)
Iowa State Highway Commission
December 1956 Sheet PC-3



Void

ABUTMENT & INTERMEDIATE DIAPHRAGM DETAILS
Scale 3/8" = 1 Ft.



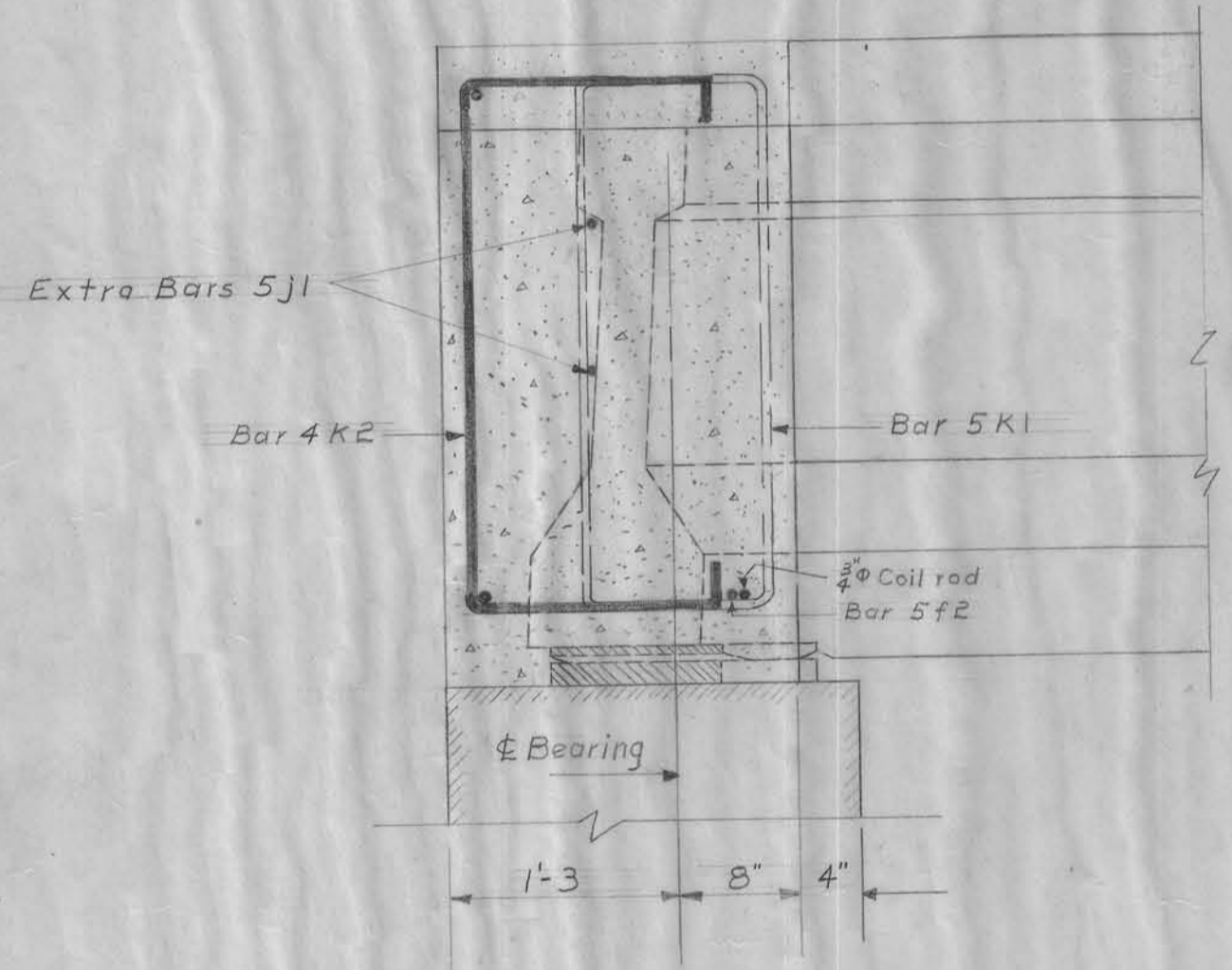
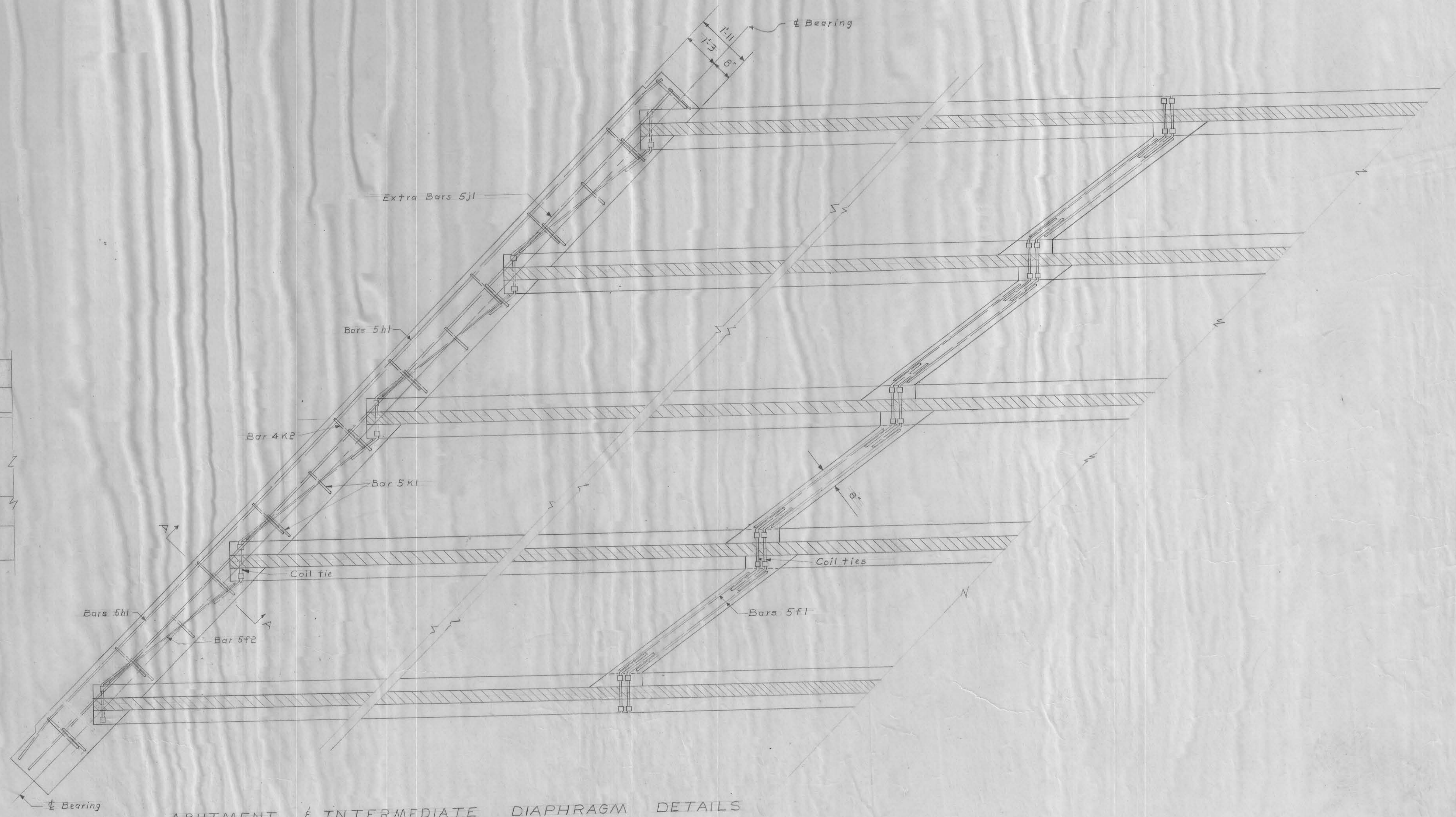
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DESIGN FOR 45° SKEW
 67'-6" x 20' PRE-STRESSED CONCRETE BEAM BRIDGE
 CONCRETE FLOOR - STEEL HANDRAIL TYPE "C"
 Location: Section: 27-28 STA. 294+16.00 PROJECT No. S-2671(2)
 Otter Creek TWP. CRAWFORD COUNTY, IOWA.
 T85N. R. 39W. Supplementary Sheet # 4A
 CRAWFORD COUNTY. DESIGN No-1457 PROJ. # S-2671(2)
 File No. 19308
 Schreier Federal 7-9213 Clear Lake

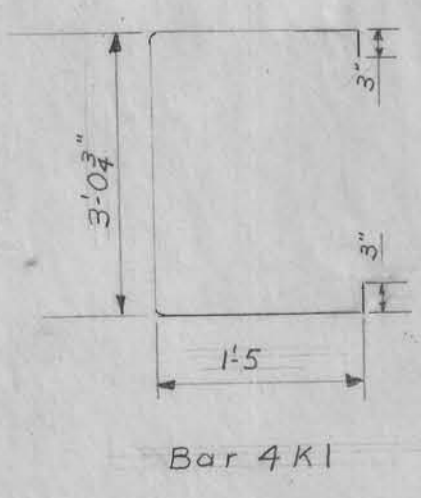
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SECTION A-A
Scale: 1"=1'-0"



ABUTMENT & INTERMEDIATE DIAPHRAGM DETAILS
Scale: 1/2"=1'-0"

LOCATION:
Section 27-28
Otter Creek Twp.
T85N. R.39W

Design for 45° Skew
67'-6" x 20' PRE-STRESSED CONCRETE BEAM BRIDGE
CONCRETE FLOOR STEEL HANDRAIL TYPE C
Sta. 294+16.00 Project No. S-2671(2)
CRAWFORD COUNTY
Supplementary Sheet No. 4b

Supersedes Sheet No. 4a 4-18-59