

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	1	1974	1	5
PROJECT NUMBER				
LSN-1273C--73-24				

STATE OF IOWA STATE HIGHWAY COMMISSION

PLANS OF PROPOSED IMPROVEMENT ON THE FARM TO MARKET SYSTEM

CRAWFORD COUNTY

89'-0" x 24'-0" I-BEAM BRIDGE
CONCRETE FLOOR, STEEL RAIL

PROJECT NO. LSN-1273C--73-24
SCALES: AS NOTED

THE IOWA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS
FOR CONSTRUCTION WORK, SERIES OF 1972 SHALL
APPLY TO WORK ON THIS PROJECT, PLUS

CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

INDEX OF SHEETS

SHEET NO.	ITEM
1	TITLE SHEET, MILEAGE SUMMARY, LOCATION, AND ESTIMATE OF QUANTITIES.
2	DETAILS
3	DETAILS
4	ABUTMENT DETAILS
5	PIER DETAILS

MILEAGE SUMMARY
92'-8" = 0.01755 MI.

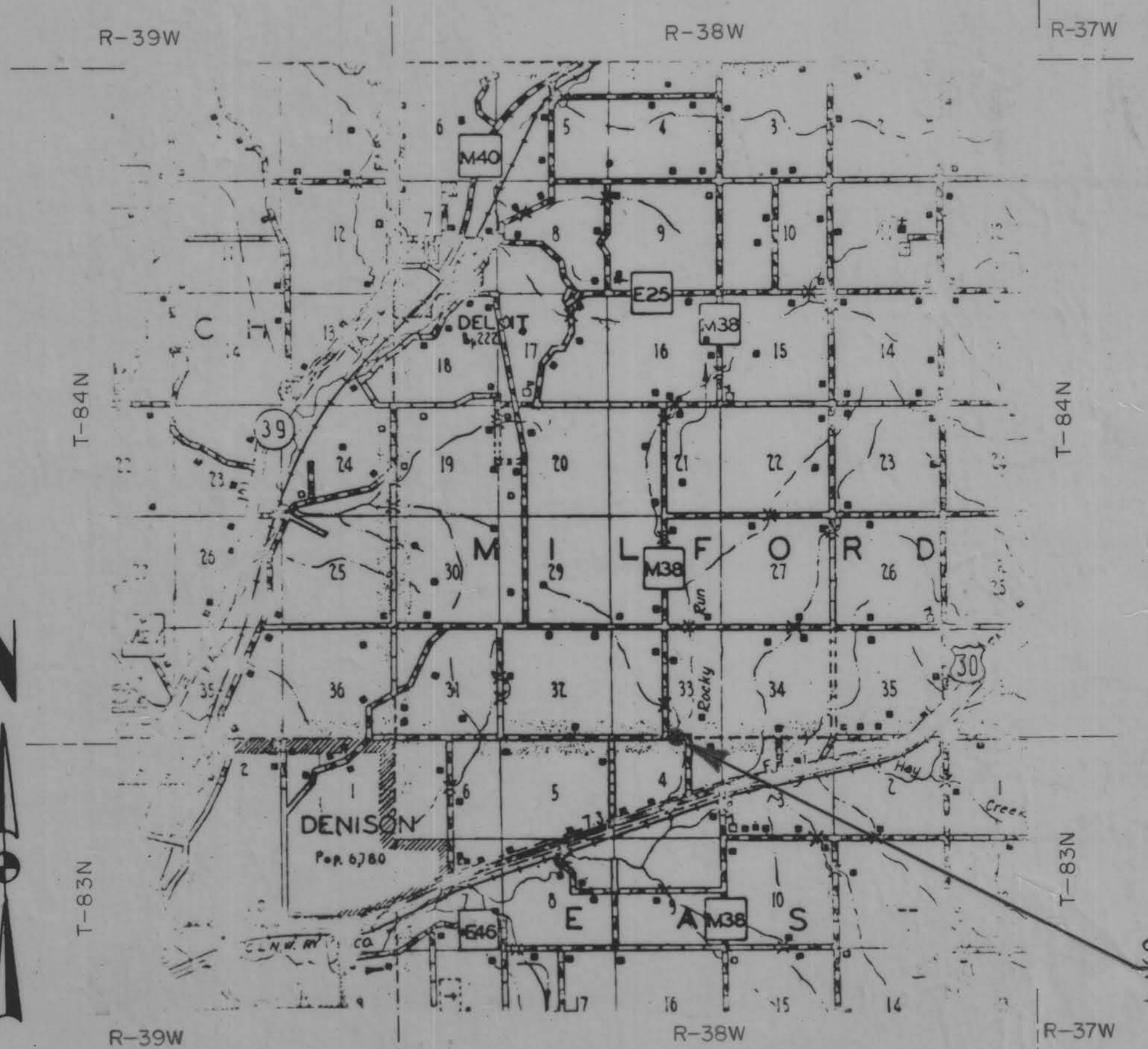
LETTING DATE

CONVENTIONAL SIGNS

State Line
Co. Line
Twp. Line
Sec. Line
Corp. Line
Urban Bdry.
R.O.W. Lines
Survey Line

Sec. Corner
Profile Grade
Railroad
Field Tile
Underground Lines
Culverts
Utility Poles
Fences
Trees Or Brush
Stream
Dike

County Road No.
Primary Road No.
U. S. Road No.
Interstate Road No.



PROJECT NO. LSN-1273C--73-24		STA. 5+10.5			
SEC. 33-84-38, MILFORD		SEC. 4-83-38, EAST BOYER			
89'-0" x 24'-0"		I-BEAM BRIDGE, CONCRETE FLOOR, STEEL RAIL			
ESTIMATE OF QUANTITIES					
ITEM NO.	ITEM	ABUTMENTS	PIERS	SUPERSTRUCTURE	TOTALS
1	STRUCTURAL CONCRETE *	46.6 C.Y.	7.3 C.Y.	66.3 C.Y.	120.2 C.Y.
2	REINFORCING STEEL	3984 LBS.	996 LBS.	18,697 LBS.	23,677 LBS.
3	ERECTION OF STRUCTURAL STEEL ①			LUMP SUM	LUMP SUM
4	CREOSOTED PILES 18 @ 35'	630 L.F.			630 L.F.
5	STEEL PILE DRIVE 8 @ 50'		400 L.F.		400 L.F.
6	10BP42 Sand Blast & Paint 8 @ 15' ③		120 L.F.		120 L.F.
7	EXCAVATION CLASS 1 CHANNEL				94 C.Y.
8	EXCAVATION CLASS 20				LUMP SUM
9	REMOVALS				BY COUNTY
10	STEEL RAILING ②				BY COUNTY

- ① COUNTY TO FURNISH ALL I-BEAMS, DIAPHRAGMS, AND STEEL PILING.
- ② COUNTY TO FURNISH AND PLACE GUARD RAIL AND POSTS.
- ③ ACCORDING TO SECTION 2508.
- B. CONTRACTOR TO CUT TWO W 36" X 230 X 59'-9" I-BEAMS IN HALF, TO BE INCORPORATED INTO SHORT SPAN.
- C. ALL BEAMS AND DIAPHRAGMS TO BE SAND-BLASTED AND PAINTED ACCORDING TO SECTION 2508.
- D. CONTRACTOR TO TRANSPORT ALL BEAMS, DIAPHRAGMS, AND PILING FROM COUNTY YARD AT DENISON TO BRIDGE SITE.
- E. CONTRACTOR TO MATCH DIAPHRAGMS TO I-BEAMS.
- F. ALL DRILLING OF HOLES SHALL BE CONSIDERED INCIDENTAL TO ERECTION OF STRUCTURAL STEEL.
- G. CONTRACTOR TO FURNISH AND PLACE ALL ANCHOR BOLTS, NUTS, AND BEARING PLATES TO BE CONSIDERED INCIDENTAL TO ERECTION OF STRUCTURAL STEEL.
- H. CONTRACTOR TO FURNISH AND PLACE 7/8" Ø X 5" SHEAR STUDS AT ABUTMENTS SHALL BE CONSIDERED INCIDENTAL TO ERECTION OF STRUCTURAL STEEL.
- I. CONTRACTOR TO FURNISH AND PLACE BOLTS FOR HANDRAIL. BOLTS SHALL BE CONSIDERED INCIDENTAL TO ERECTION OF STRUCTURAL STEEL.

* THE FLOOR AND CURBS (66.3 CU.YDS.) PLUS THE WING POSTS (0.8 CU.YDS.) ARE TO BE CLASS "D" CONCRETE. THE REMAINING 53.1 CU.YDS. IS TO BE CLASS "C" CONCRETE.

STA. 5+10.5 BRIDGE 89'-0" x 24'-0"
I-BEAM BRIDGE, CONCRETE FLOOR, STEEL RAIL.

APPROVED

Thomas E. De Witte

John K. Kuse

Charles J. Smith

Morris Arnold

E. Edward ...

BOARD OF SUPERVISORS

Thomas E. De Witte 7-22-74
ASSISTANT DISTRICT ENGINEER DATE
SECONDARY ROADS
IOWA HIGHWAY COMMISSION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY SUPERVISION AND THAT ENGINEERING DECISIONS WITH REGARD TO THE DESIGN WERE MADE BY ME OR BY OTHER DULY REGISTERED PROFESSIONAL ENGINEERS UNDER THE LAWS OF THE STATE OF IOWA.

H. Dale Wright April 16, 1974
IOWA REGISTRATION NUMBER 5798 DATE

APPROVED

DEPUTY CHIEF ENGINEER
IOWA HIGHWAY COMMISSION DATE

NOTE: IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL WHICH IS NOT DESIRABLE TO BE INCORPORATED IN THE WORK INVOLVED ON THIS PROJECT. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES.

NOTE: EXCESS MATERIAL SHALL BECOME THE PROPERTY OF CONTRACTOR.

NOTE: METAL DRIVING SHOES ARE TO BE PROVIDED FOR WOOD PILE. UNIT PRICE BID PER LIN. FOOT FOR THE PILE TO INCLUDE COST OF ALL LABOR AND MATERIAL FOR METAL DRIVING SHOE.

(1971) TRAFFIC COUNT 47 V.P.D.

CRAWFORD COUNTY

PROJECT NO. LSN-1273C--73-24

25299

SHEET NO. 1 of 5

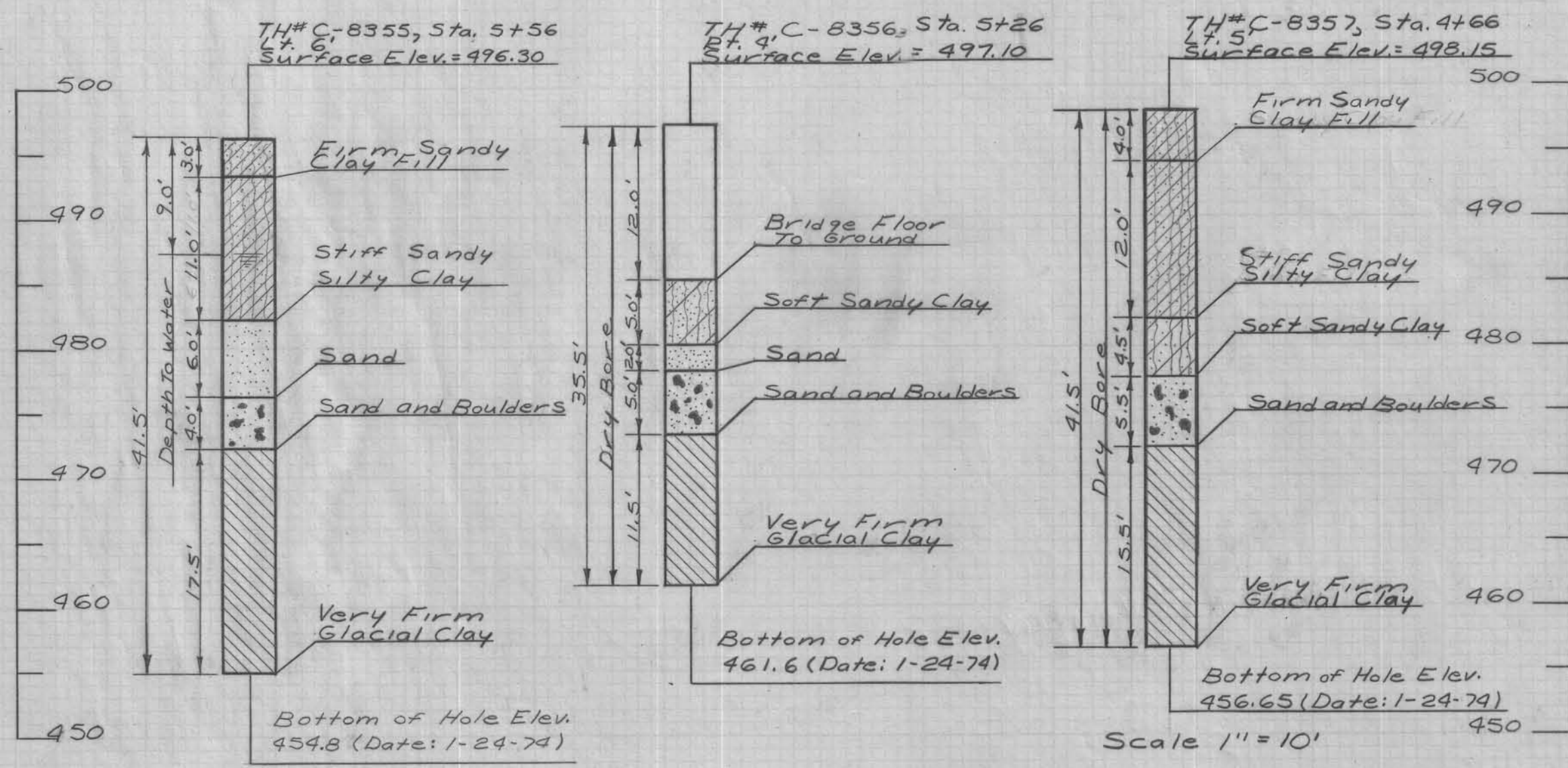
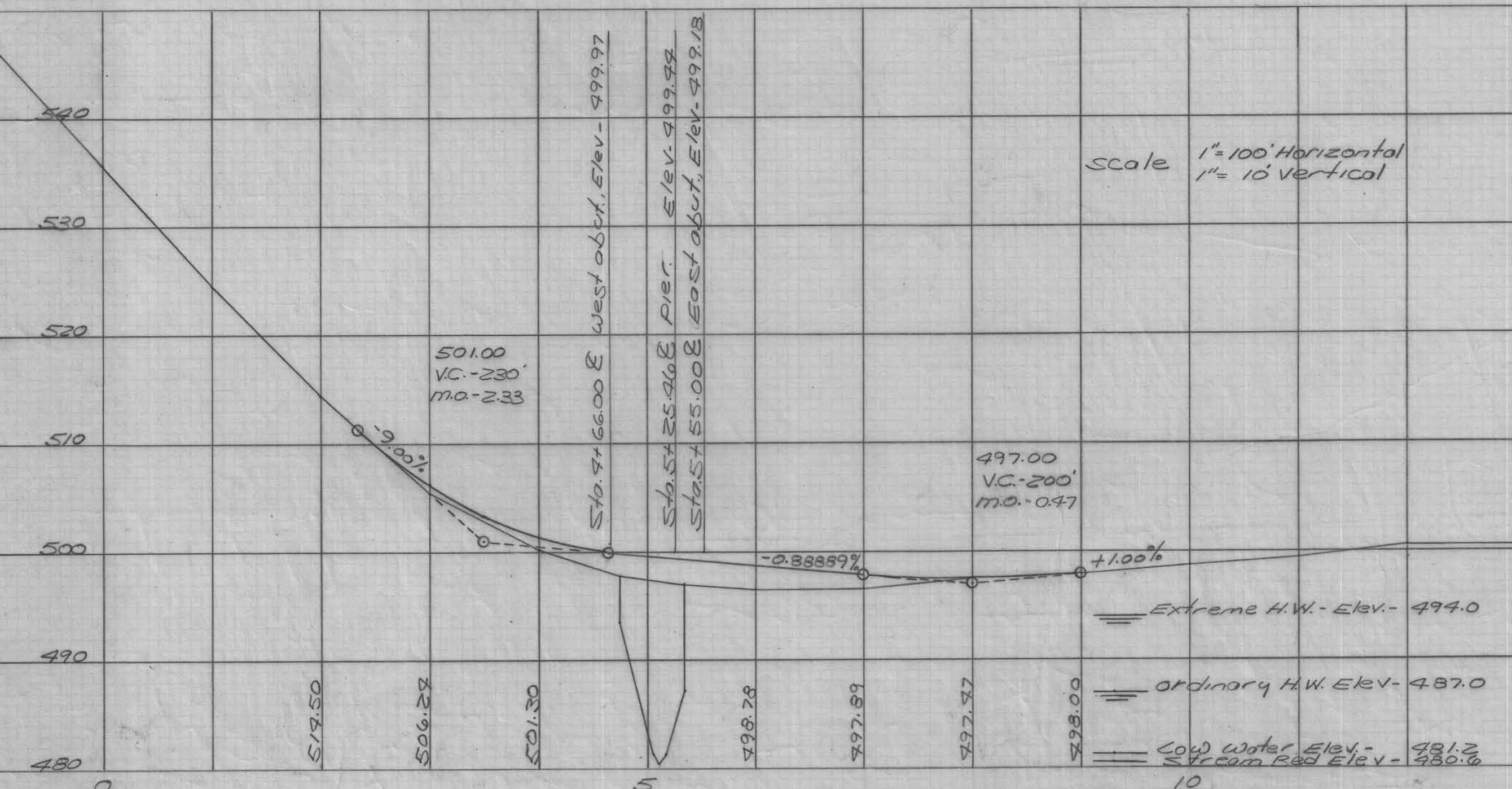
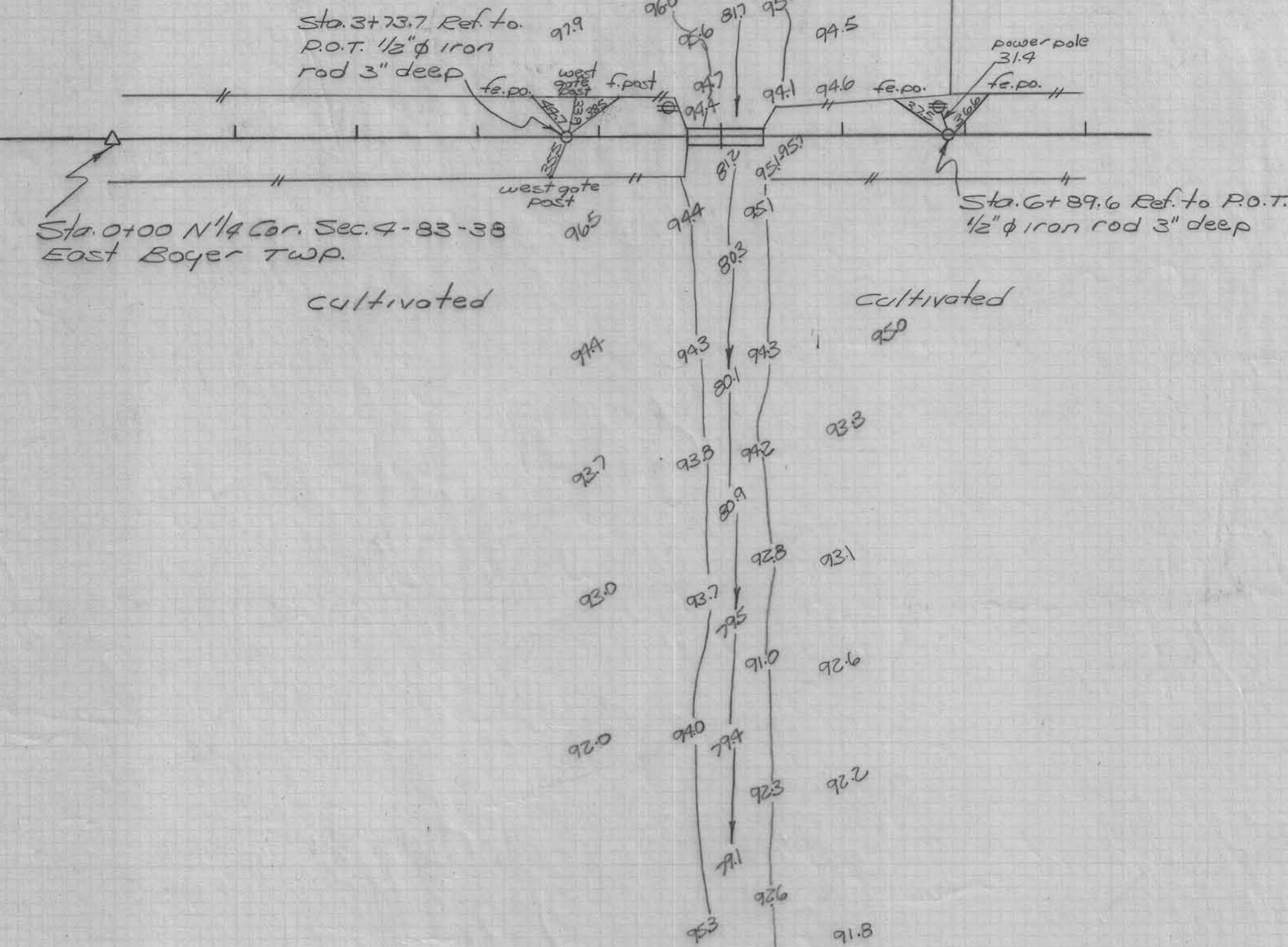
Hydraulic Data

D.A. = 6,450 AC.
 Design Q₅₀ = 3,225 cfs.
 Q₅₀ @ elev. 491.0 = 3,477 cfs.
 Design High Water - 491.0
 Extreme H.W. - 494.0

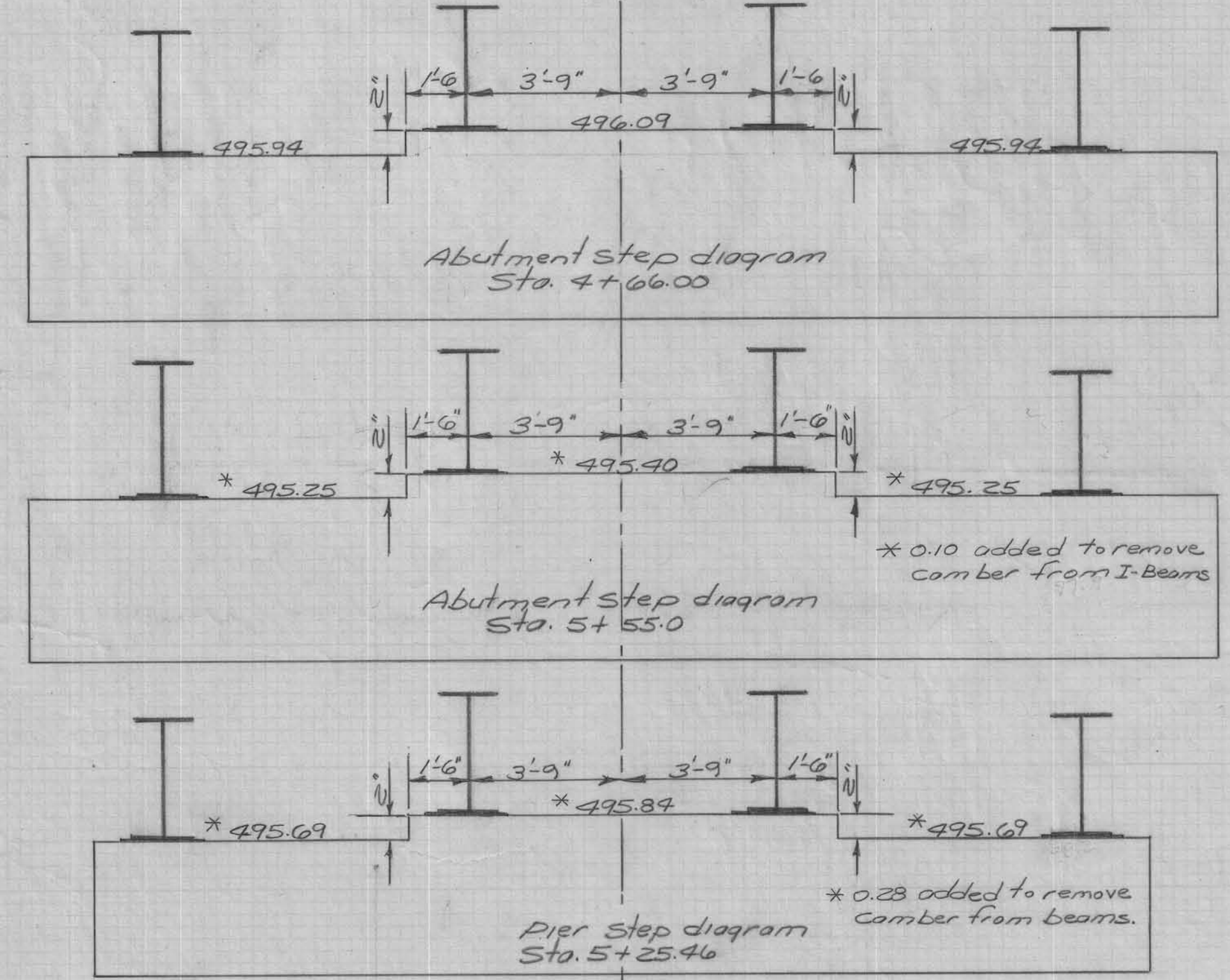
Sta. 5+04.5 @ present structure
 60' x 16' Pin Connected Pony Truss.
 Wood floor, wood piling.

Scale 1" = 100'

Sec. 33-34-38
 Milford Twp.
 pasture



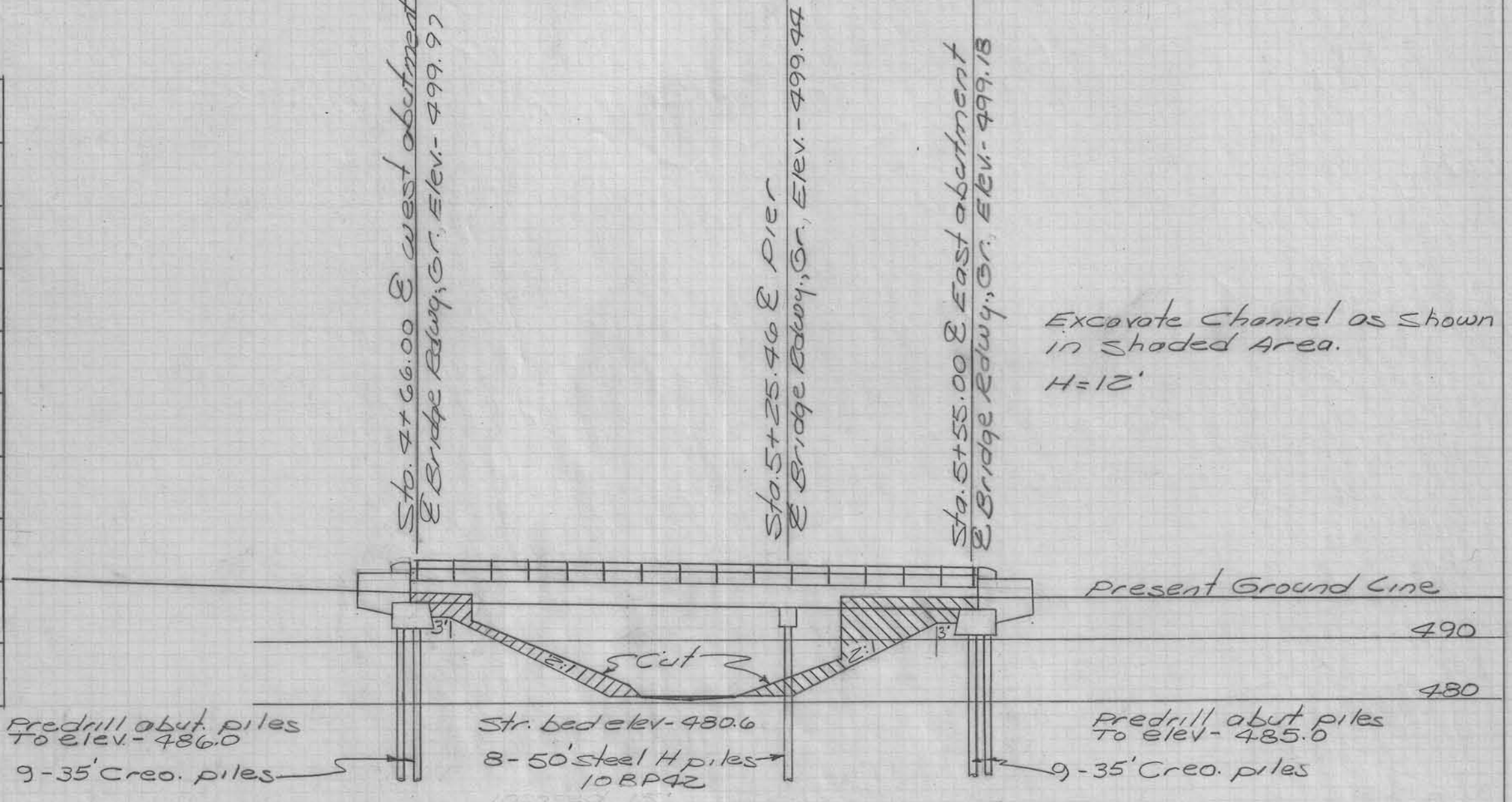
SOUNDING DATA



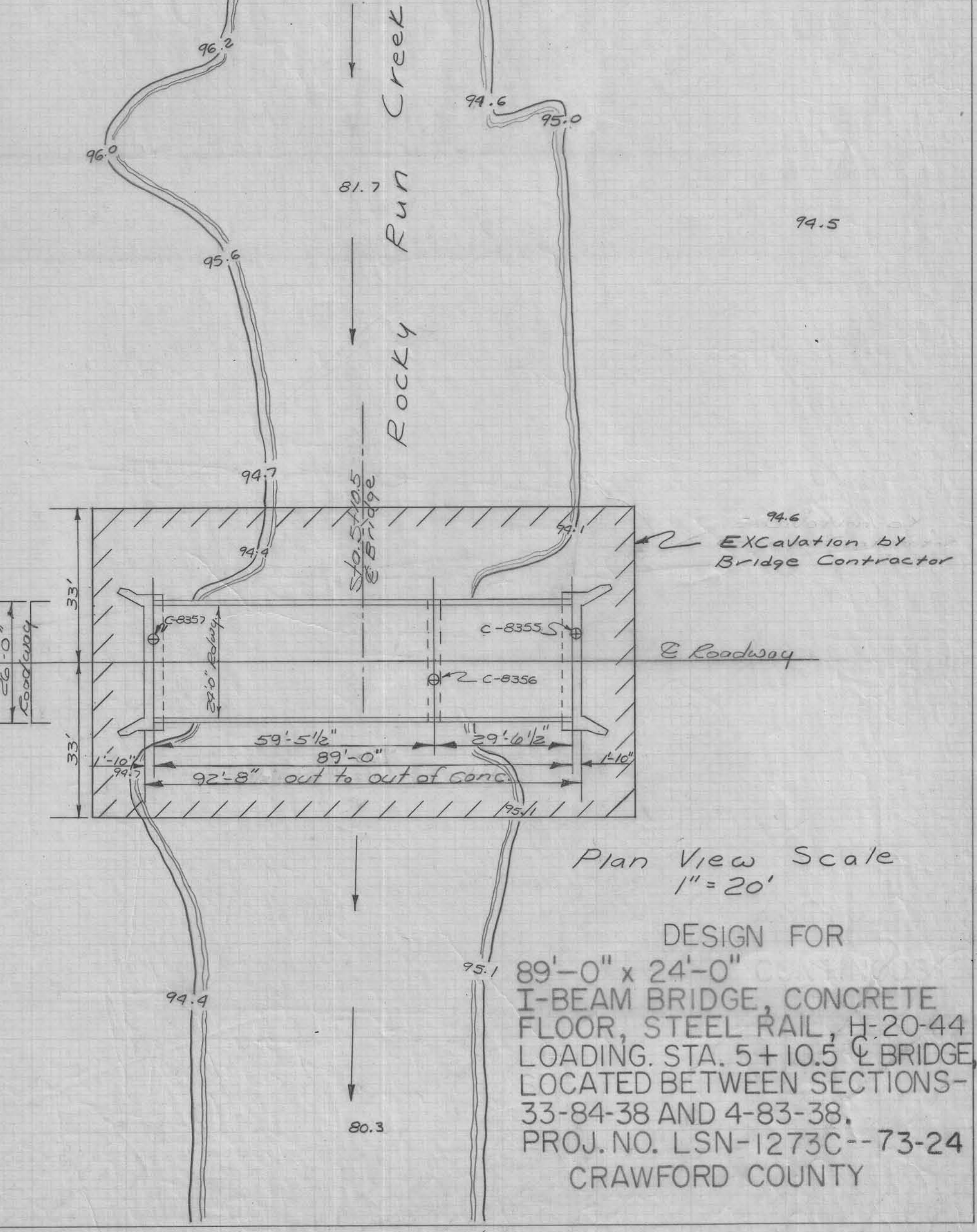
Note:
 I-Beams and diaphragms were salvaged from multiple span overhead crossing of C.M. ST. & P. Railroad and Primary road No. 4 (now U.S. No. 59) Primary Project No. 508 Crawford County, July 1930 Railroad Crossing Project No. 634 Design No. 630 Sec. 14 Washington Township.

Estimate of Quantities - Structural Steel		
No. Bearing Plates	Size	Weight - Lbs.
8	8 1/2 x 1 x 24 1/4	468
3	5 x 3/4 x 24 1/4	206
4	24 x 1 x 24 1/4	660
4	5 x 3/4 x 24 1/4	103
Total Weight		1,437

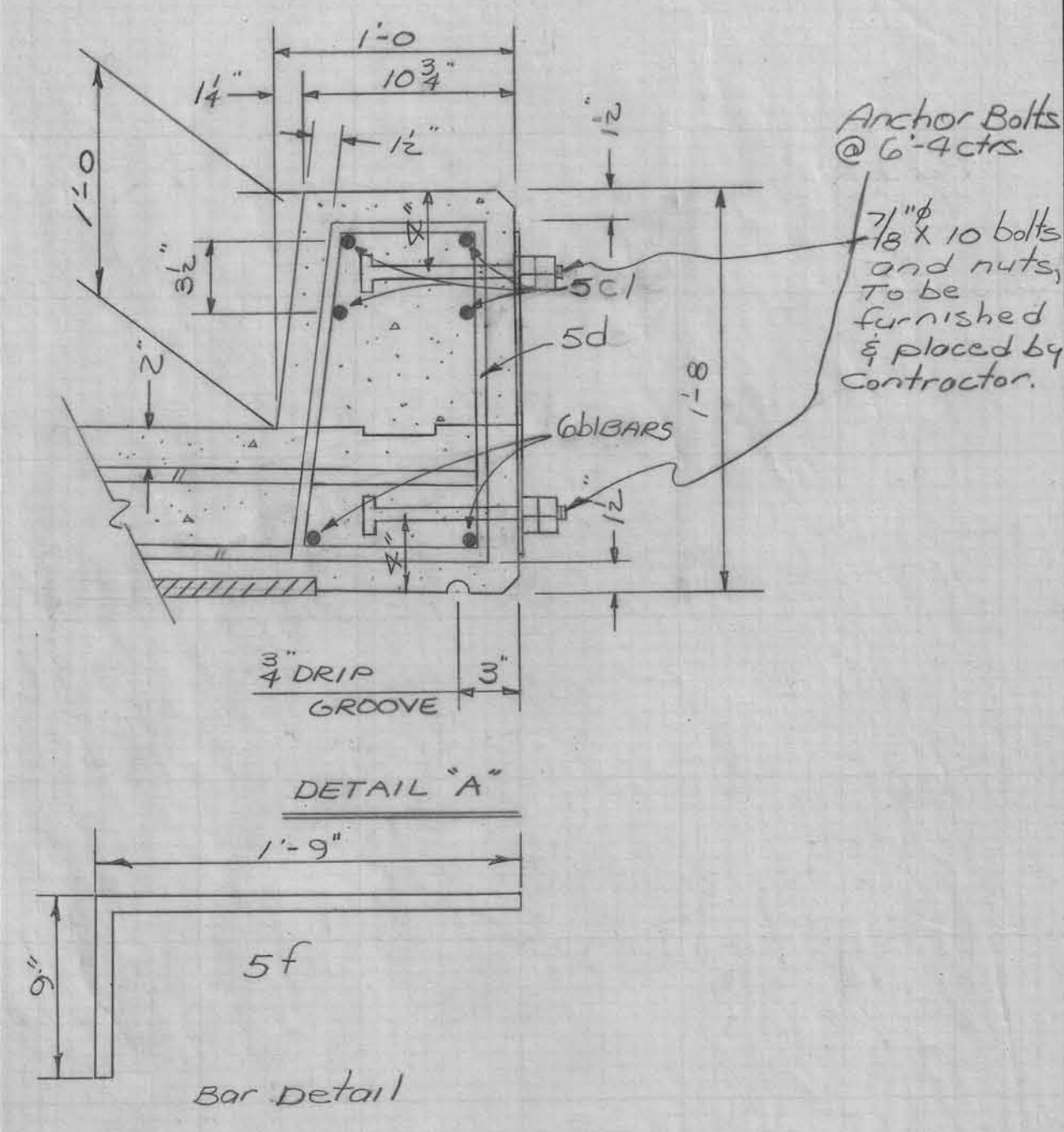
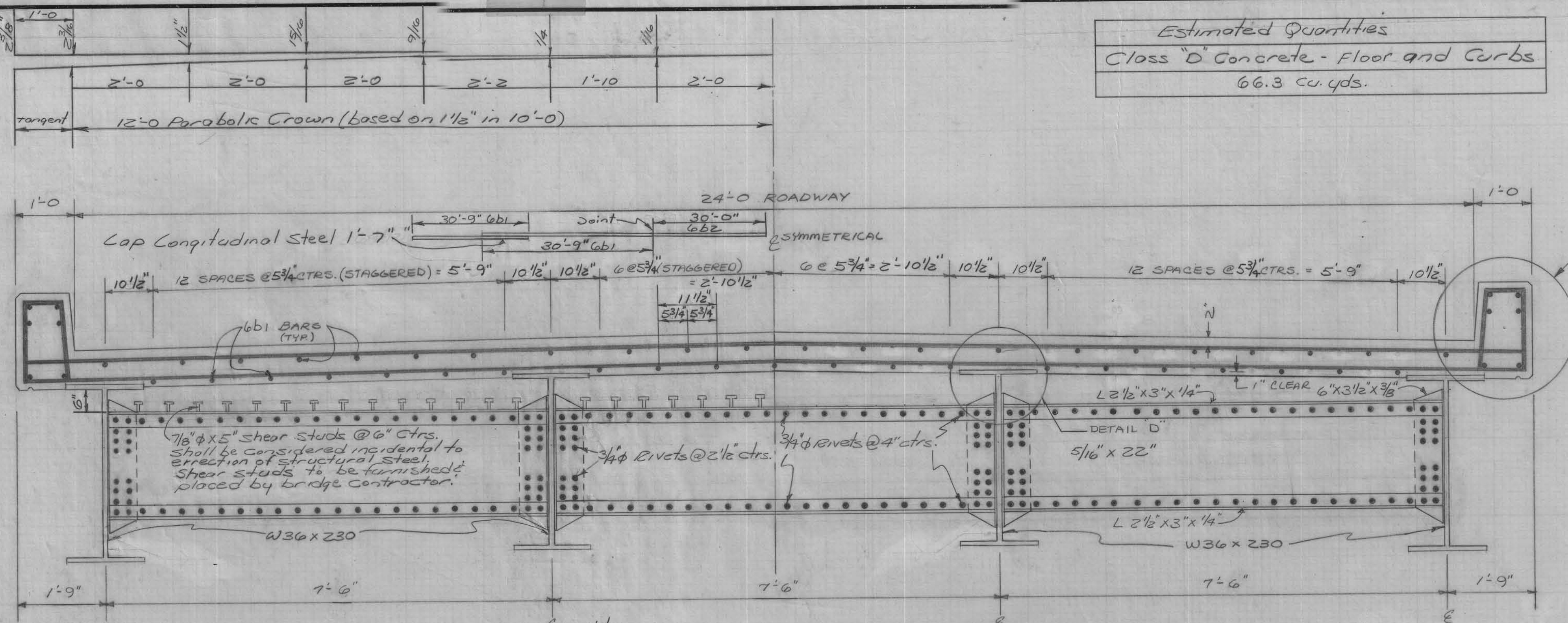
B.M. #1 Spk. in fence Post 34' Et., Sta. 3+60 Elev. - 500.00



Bearing Required Creo. Piles - 20 Ton
 H Piles - 30 Ton
 Longitudinal View Scale 1" = 20'
 Sta. 4+06.00 @ W. abut. Piling cut off - 493.99
 Berm - 499.0
 Bottom abut. - 491.94
 Sta. 5+25.46 @ Pier Piling cut off - 494.19
 Bottom footing - 492.69
 Berm - 493.0
 Bottom abut. - 491.25
 Sta. 5+55.00 @ E. abut. Piling cut off - 493.25
 Berm - 493.0
 Bottom abut. - 491.25



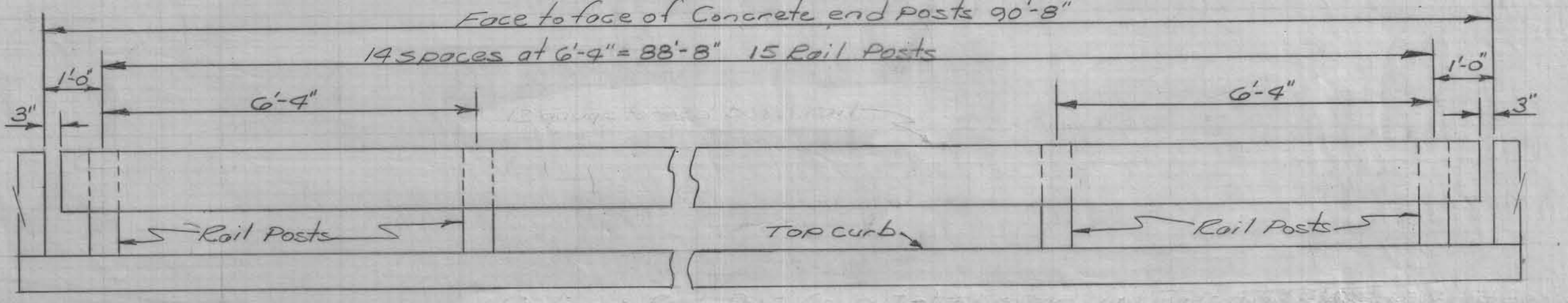
Estimated Quantities
 Class "D" Concrete - Floor and Curbs
 66.3 cu. yds.



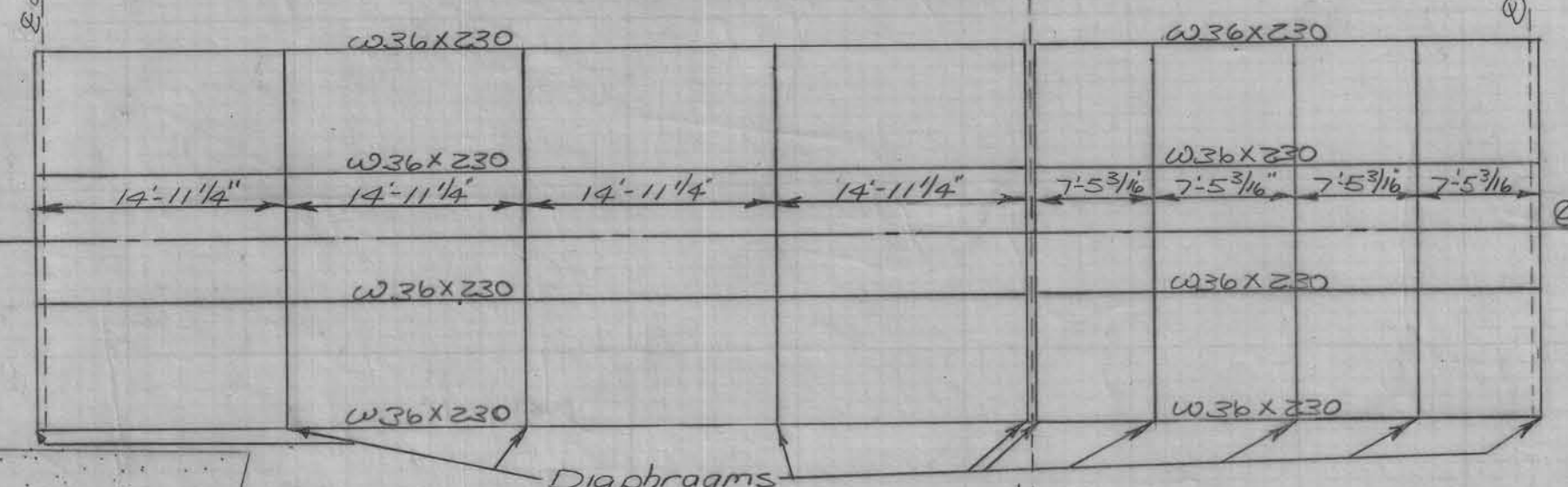
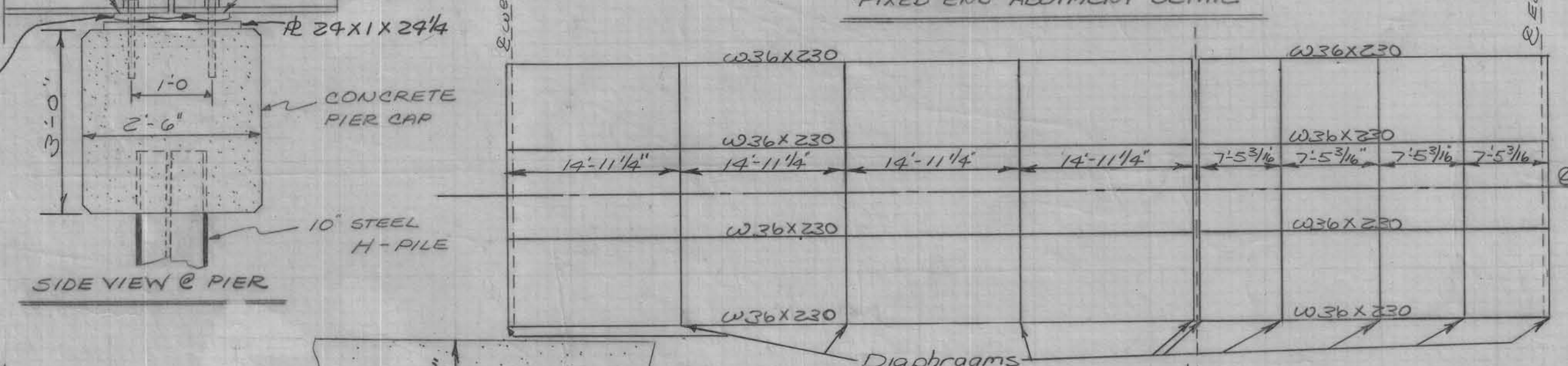
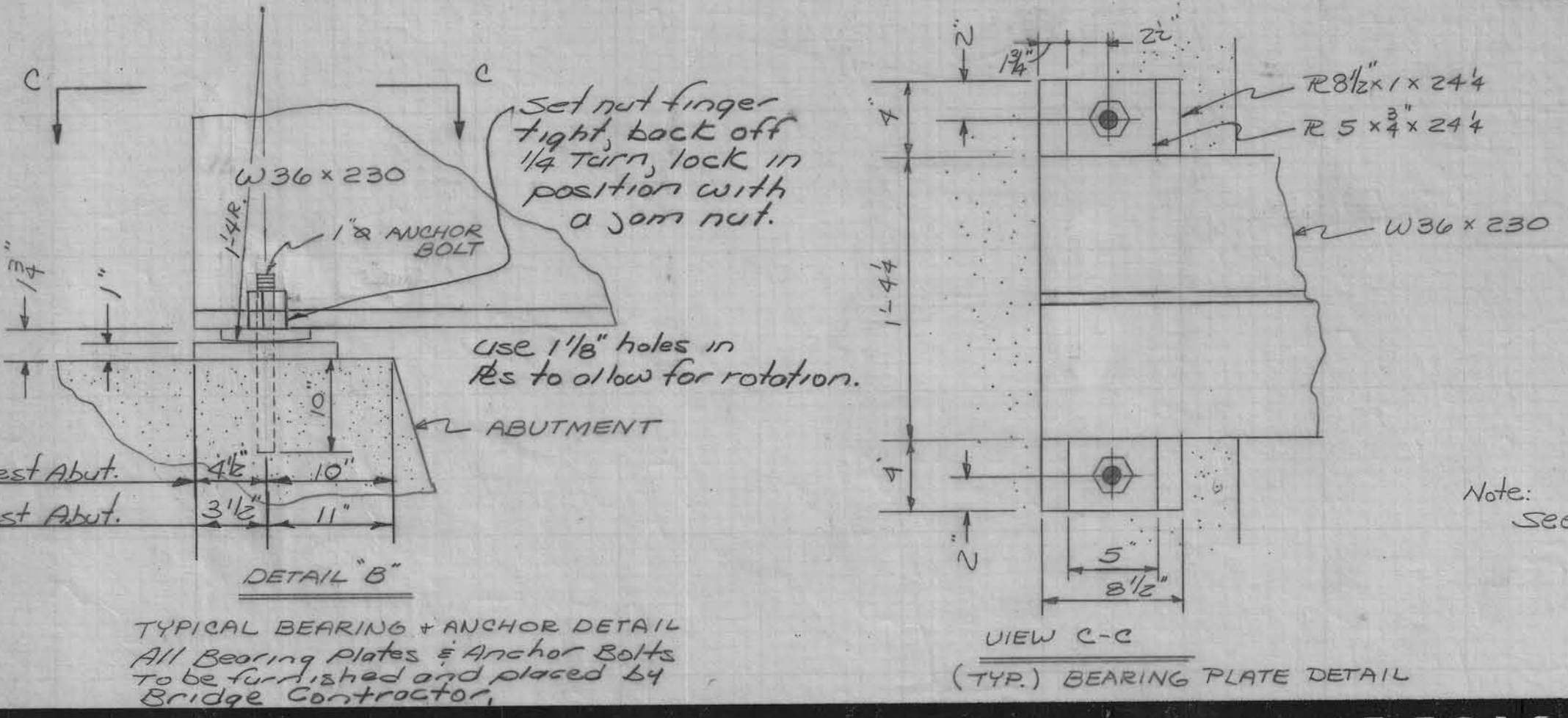
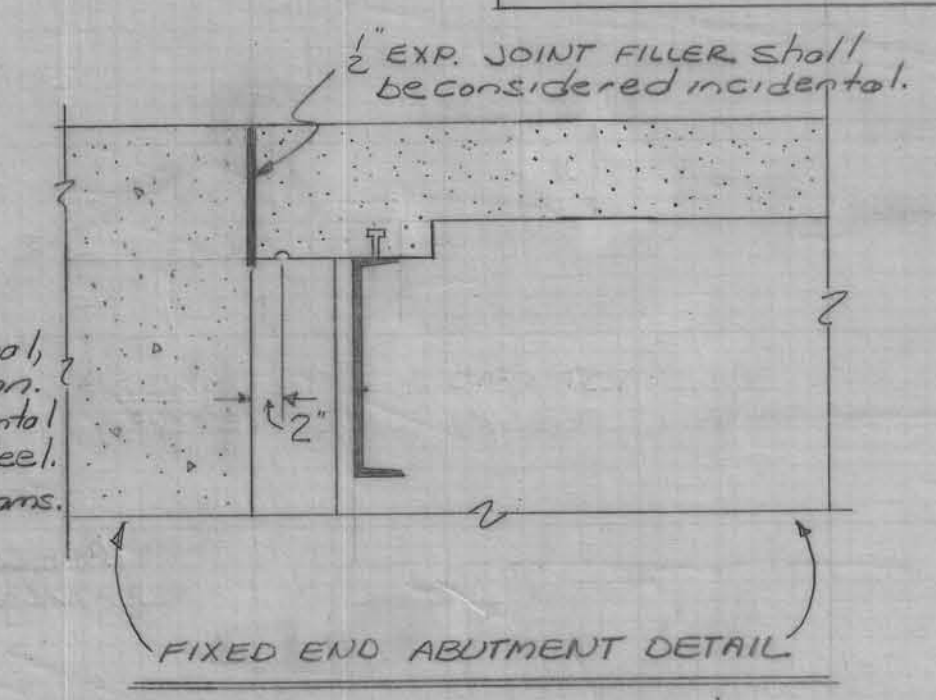
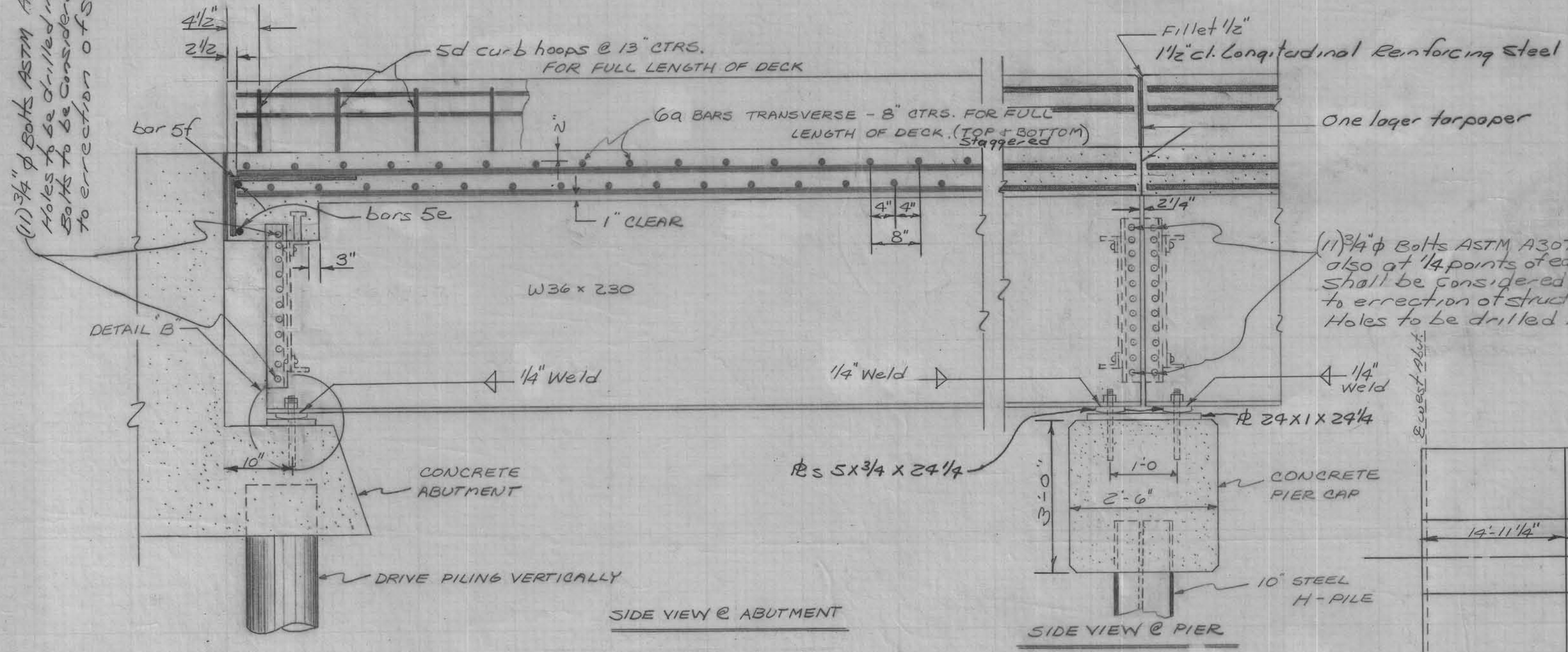
HALF SECTION NEAR ABUTMENT

HALF SECTION NEAR PIER

Note: The handrail & Posts shall be designed, furnished and installed by the County.



(1) 3/4\"/>



- NOTES:**
- CONCRETE SLAB THICKNESS - 8"
 - REINFORCING STEEL:
 - MAIN REINFORCEMENT IS PERPENDICULAR TO TRAFFIC OR TRANSVERSE AND CONSISTS OF #6 BARS @ 8" SPACINGS TOP & BOTTOM.
 - DISTRIBUTION REINFORCEMENT IS LONGITUDINAL AND CONSISTS OF #6 BARS @ 11 1/2" SPACING OR AS SHOWN, TOP & BOTTOM.
 - CURB STEEL CONSISTS OF 4-#5 BARS (TOP), 2-#6 BARS (BOTTOM), AND #5 HOOPS, ALL AS SHOWN.
 - MINIMUM COVER FOR TOP STEEL = 2" AND BOTTOM DISTRIBUTION STEEL = 1" CLEAR
 - NO SHEAR LUGS REQUIRED EXCEPT ON DIAPHRAGMS BETWEEN BEAMS AT ENDS OF SLAB TO PROVIDE EDGE SUPPORT TO SLAB.
 - CONCRETE FORMS TO EXTEND 1/2" (NOMINAL) BELOW TOP EDGE OF STEEL BEAM COMPRESSION FLANGE IN ORDER TO PROVIDE CONTINUOUS LATERAL SUPPORT.
 - END DIAPHRAGMS AND CONNECTION DESIGNED TO CARRY FULL WHEEL LOAD AT EDGE OF SLAB.
 - DESIGN BASED ON H-20-44 LOADING AND ALLOWS 20 PSF FUTURE WEARING SURFACE

- NOTES:**
- ALL ENDS BE FIXED WITH ANCHOR BOLTS SET 10" IN MASONRY.
 - BEARING PLATES WELDED TO BEAMS BE CURVED TO ALLOW FOR BEAM DEFLECTION.
 - ABUTMENT PILING BE DRIVEN VERTICAL TO ALLOW ABUTMENT TO EXPAND WITH SUPERSTRUCTURE
 - DIAPHRAGMS BE INSTALLED AT THE 1/4 POINTS OF EACH SPAN PRIOR TO THE PLACEMENT OF THE CONCRETE DECK

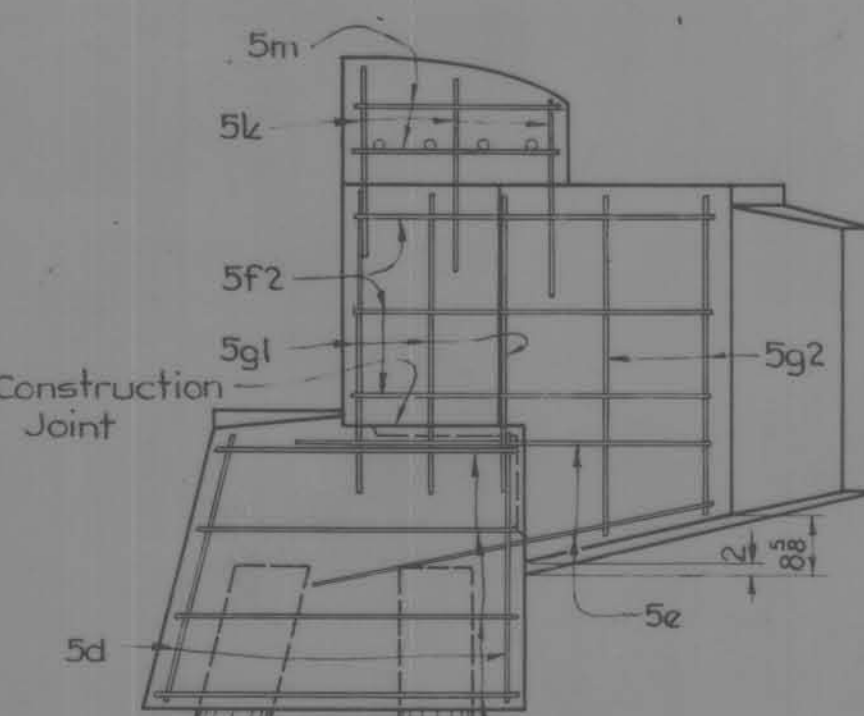
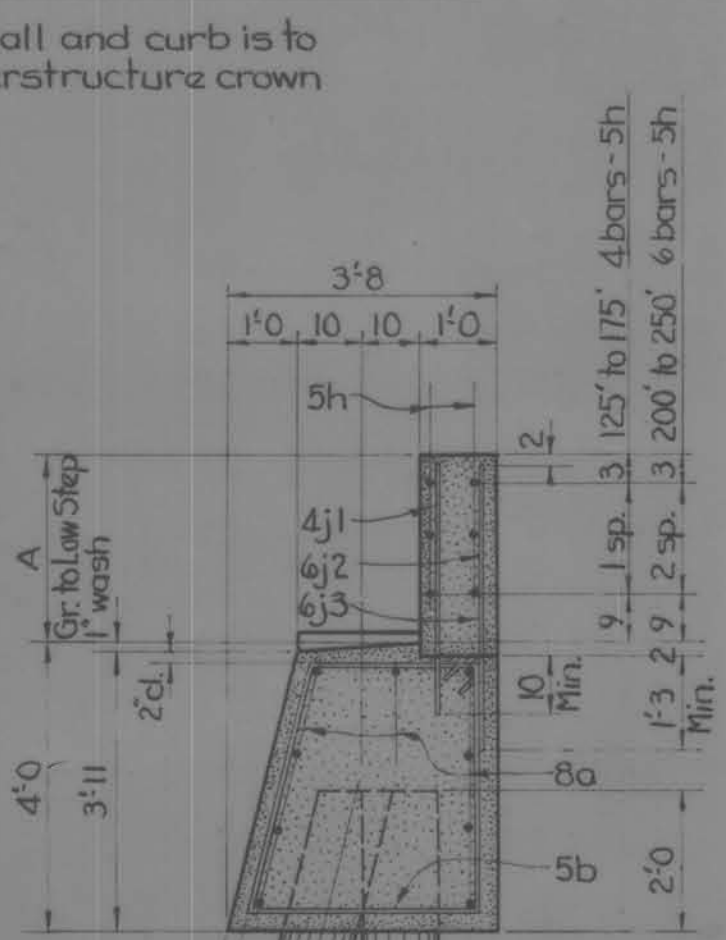
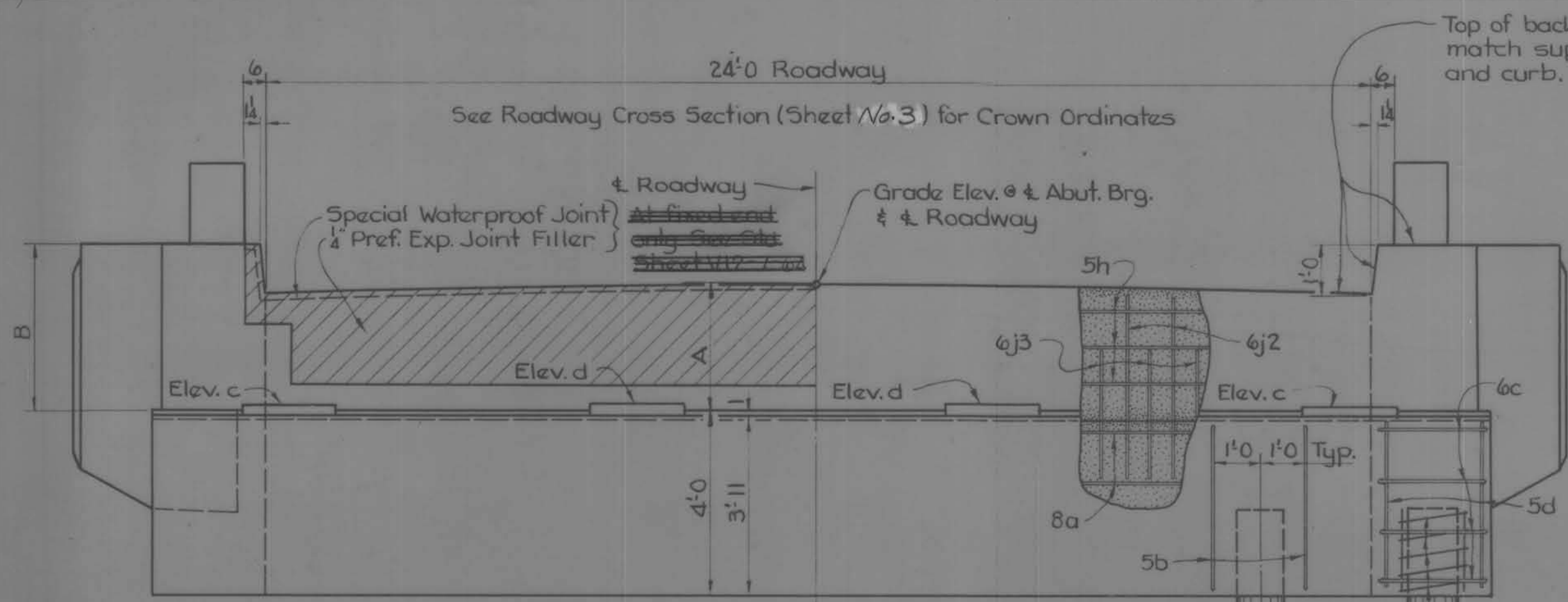
- OTHER:**
- DECK DRAINS HAVE NOT BEEN PROVIDED.
 - ALL CONSTRUCTION TO CONFORM TO LATEST EDITIONS OF AISC, ACI AND IOWA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS WHERE APPLICABLE.
 - Design Specifications, A.A.S.H.O. 1969 with modifications as noted.

Bar	Location	Shape	No.	Length	Weight
6a	Slab transverse top & bottom	—	272	25'-8"	10,486
6b1	Slab longitudinal top & bottom	—	94	30'-9"	4,342
6b2	" " " "	—	47	30'-0"	2,118
5e	Curtain Wall, horiz.	—	4	22'-0"	92
5c1	Curb longitudinal	—	16	30'-9"	513
5c2	" " " "	—	8	30'-0"	250
5d	Curb hoops	□	168	4'-8"	313
5f	Curtain Wall, Vertical	—	30	2'-6"	78
Total Weight lbs.					18,697

Note: See page 2 of 5, step diagrams for Camber note.

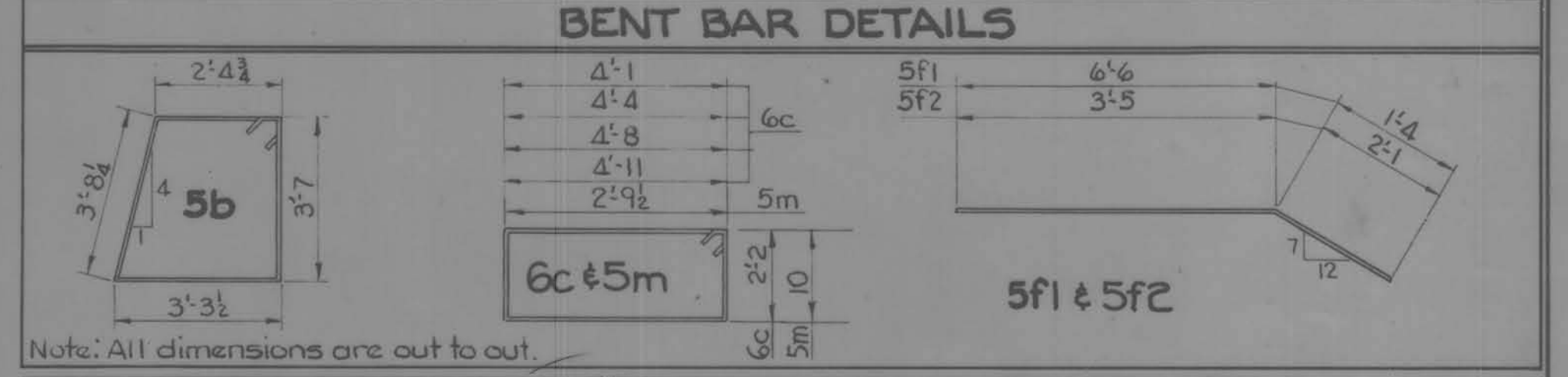
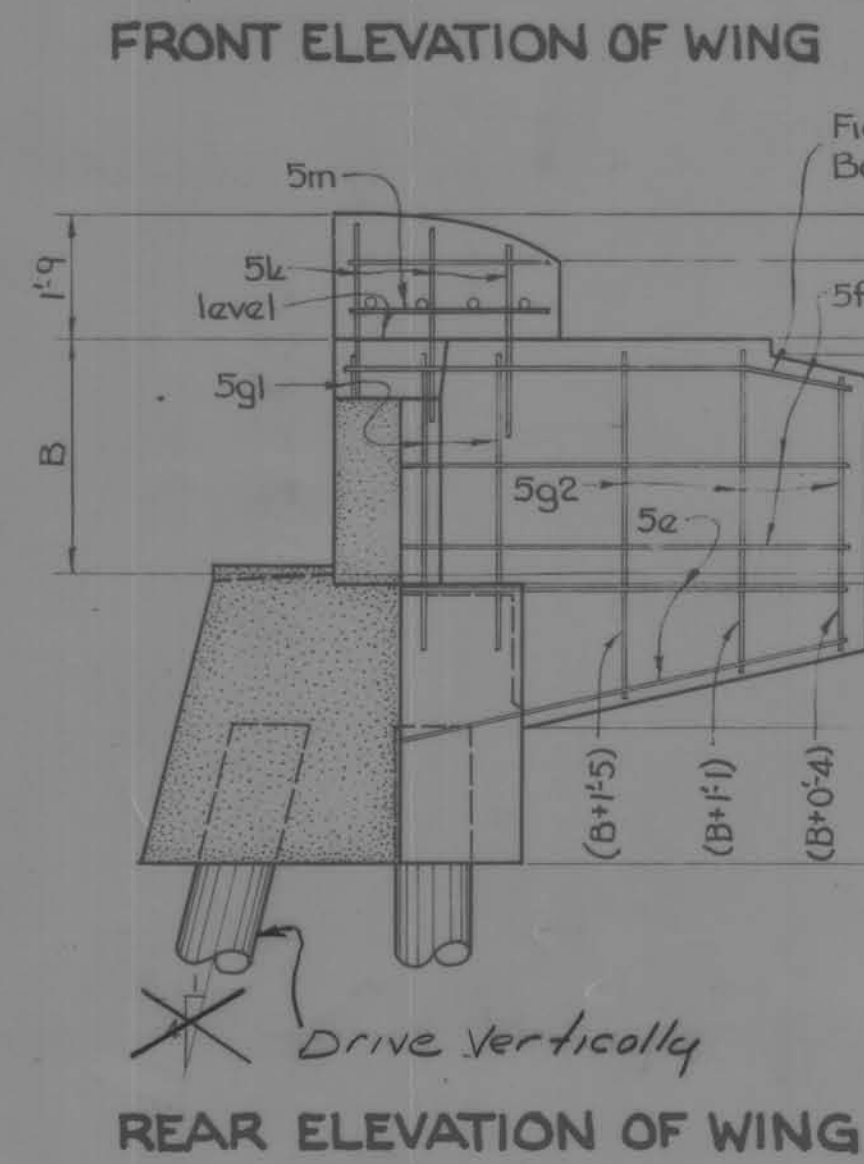
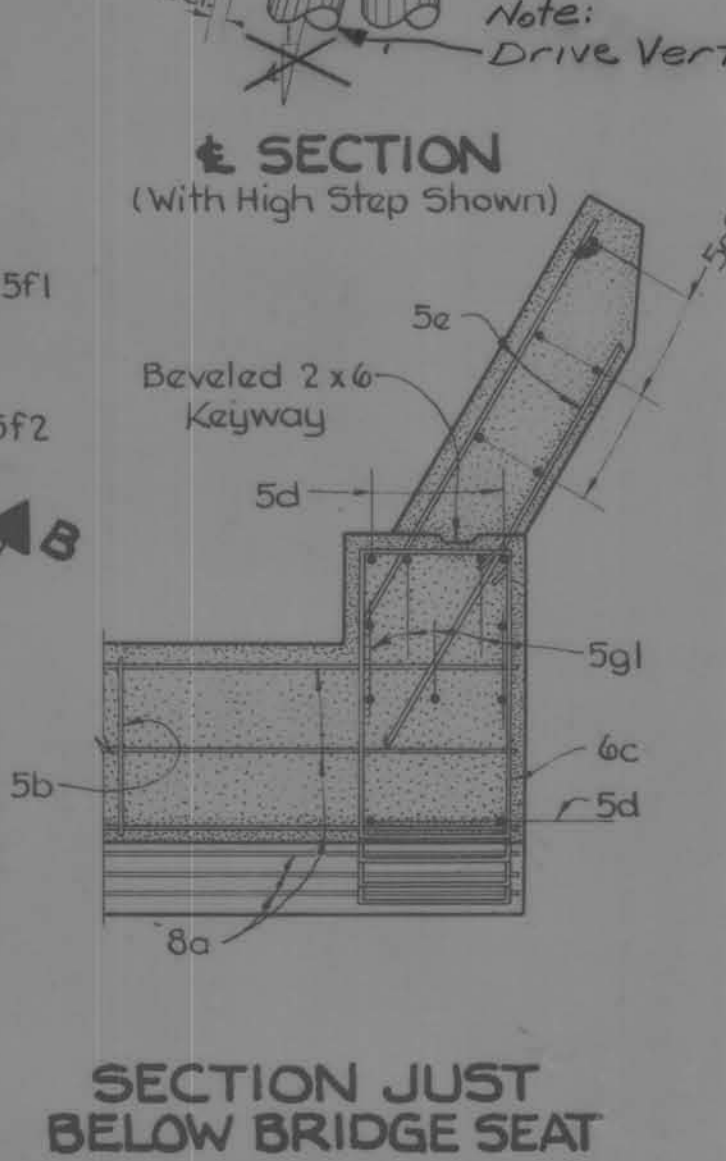
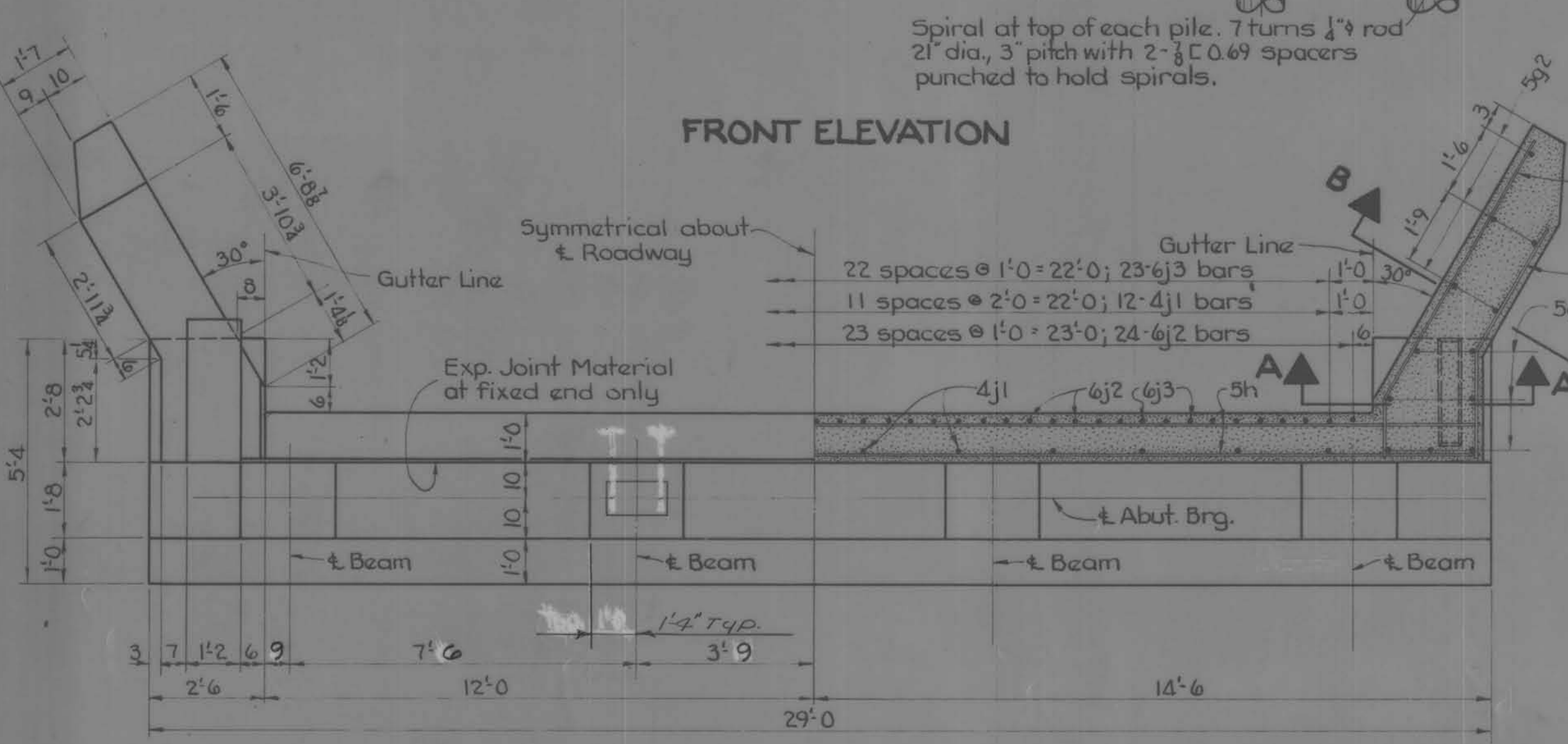
H. GENE MCKEOWN AND ASSOCIATES INC.
 CONSULTING ENGINEERS AND LAND SURVEYORS OFFICES COUNCIL BLUFFS RED OAK DENISON

PROJ. NO. 17174	DRAWN BY JLB	CLIENT CRAWFORD COUNTY	DATE	REVISIONS	TITLE CRAWFORD COUNTY BRIDGE DETAILS	SHT. 3 OF 5
DATE MARCH, 1974	APPD. BY				PROJECT LSN-1273C--73-24 File No. 25299	



BILL OF REINFORCING STEEL - ONE ABUTMENT

Bar	Location	Shape	N ^o	Length	Weight						
					89'	150'	175'	200'	225'	250'	
8a	Pile Cap, Longitudinal	—	9	28'8"	689	689	689	689	689	689	
5b	Pile Cap, Hoops	□	2(N-4)	13'8"	143	143	143	143	143	143	
6c	Pile Cap, Hoops, Ends	□	8	Varies	170	170	170	170	170	170	
5d	Pile Cap, Vertical, Ends	—	8	3'8"	31	31	31	31	31	31	
5e	Wing Post Base, Horizontal, FF & B.F.	—	8	6'6"	54	54	54	54	54	54	
5f1	Wing Post Base, Horizontal, B.F.	—	6	7'10"	49	49	49	49	49	49	
5f2	Wing Post Base, Horizontal, FF	—	6	5'6"	34	34	34	34	34	34	
5g1	Wing Post Base, Vertical	—	14	B+1'1"	87	76	74	75	76	81	
5g2	Wing Post Base, Vertical	—	10	Varies	62	49	52	53	56	56	
5h	Backwall, Horizontal, B.F. & FF	—	Varies	28'2"	176	118	118	176	176	176	
4j1	Backwall, Vertical, FF	—	12	A+0'10"	39	30	32	33	34	36	
6j2	Backwall, Vertical, B.F.	—	24	A+1'3"	191	156	159	162	168	177	
6j3	Backwall, Vertical, B.F.	—	23	A ¹ / ₂ +1'3"	120	—	76	77	102	107	
5k	Wing Post, Vertical	—	12	2'8"	33	33	33	33	33	33	
5m	Wing Post, Hoops	□	4	8'0"	33	33	33	33	33	33	
Pile Spiral 1" Rod					N	38'6"	58	58	58	58	58
Spiral Spacers 3/8" C.O. 69					2N	1'10"	23	23	23	23	23
Total (lbs.)					1992	1645	1850	1915	1931	1952	



VARIABLE DIMENSIONS ESTIMATED QUANTITIES - ONE ABUTMENT

Dimension	DIMENSIONS					ESTIMATED QUANTITIES - ONE ABUTMENT							
	125'	150'	175'	200'	225'	250'	Item	Span	89'	150'	175'	200'	225'
A 4'-0"	2.76	3.16	3.16	3.22	3.42	3.72	Reinforcing Steel in lbs.	1992	1645	1850	1915	1931	1952
B 4'-10 1/2"	3.33	3.33	3.11	4.08	4.78	4.58	Structural Concrete in cu. yds.	23.3	21.4	21.8	21.0	21.2	21.7
* C	7.66	2.89	3.11	3.15	3.20	3.65	Crossed Piling - N	9	8	9	9	9	9
* D	2.52	2.76	2.99	3.23	3.27	3.53	Bearing Required per pile in tons	20	20	18	20	19	20

Note: Elevations c and d for standard symmetrical approach grades are obtained by subtracting the respective variable dimensions C and D from grade elevation at Roadway + Bearing.

* Wing posts (0.4 cu. y. for each abutment) are to be Class D concrete. The remainder of abutment is to be Class C concrete.

* See Sheet No. 2 for step details.

ABUTMENT NOTES:

These abutments are designed for use with Standard V12-11-64 continuous I-beam bridge.

Clear distance from face of concrete to near bar is to be 2" unless otherwise shown.

Backwall and wingwalls are to be placed after floor is placed on superstructure.

Piling is to be driven to full penetration if practicable, but to not less than bearing value shown, nor more than 40 tons.

All piling is to be cross-tied.

When these abutments are specified for use with V12-11-64 pile bent piers, the details and quantities are to be modified as shown on Standard V12-11-64.

The abutment piles are to be driven in oversized holes predrilled 6 feet below the bottom of footing.

voids around piling in the predrilled holes are to be filled with dry sand up to the bottom of the abutment footing.

SPECIFICATIONS:

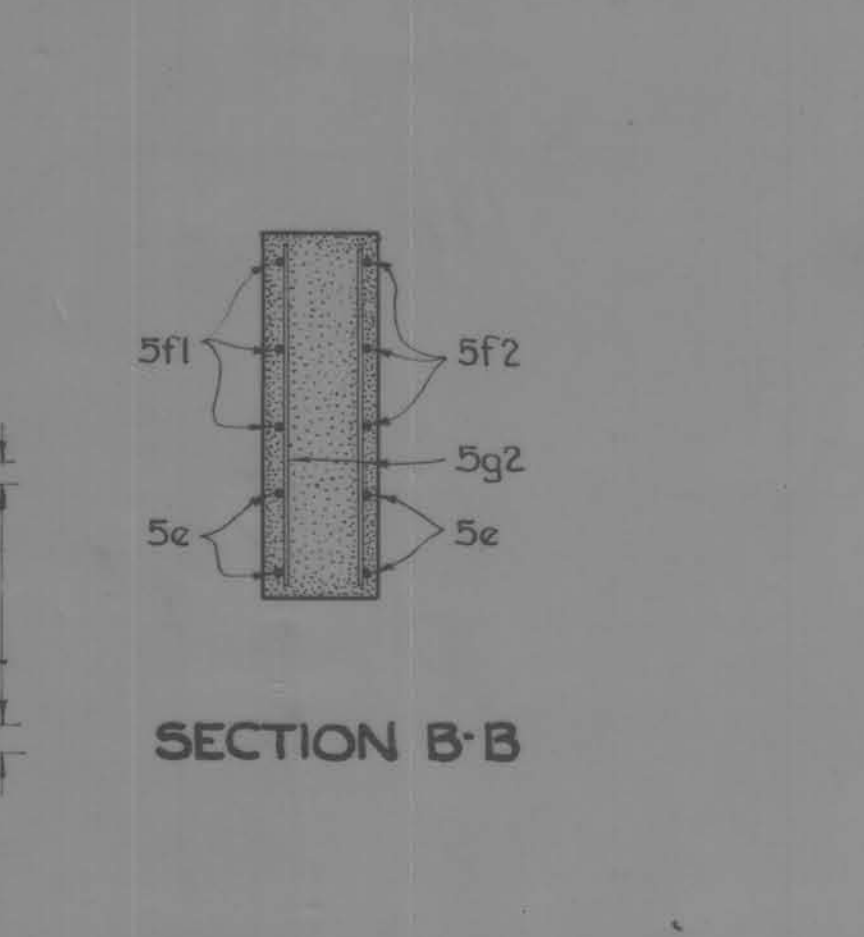
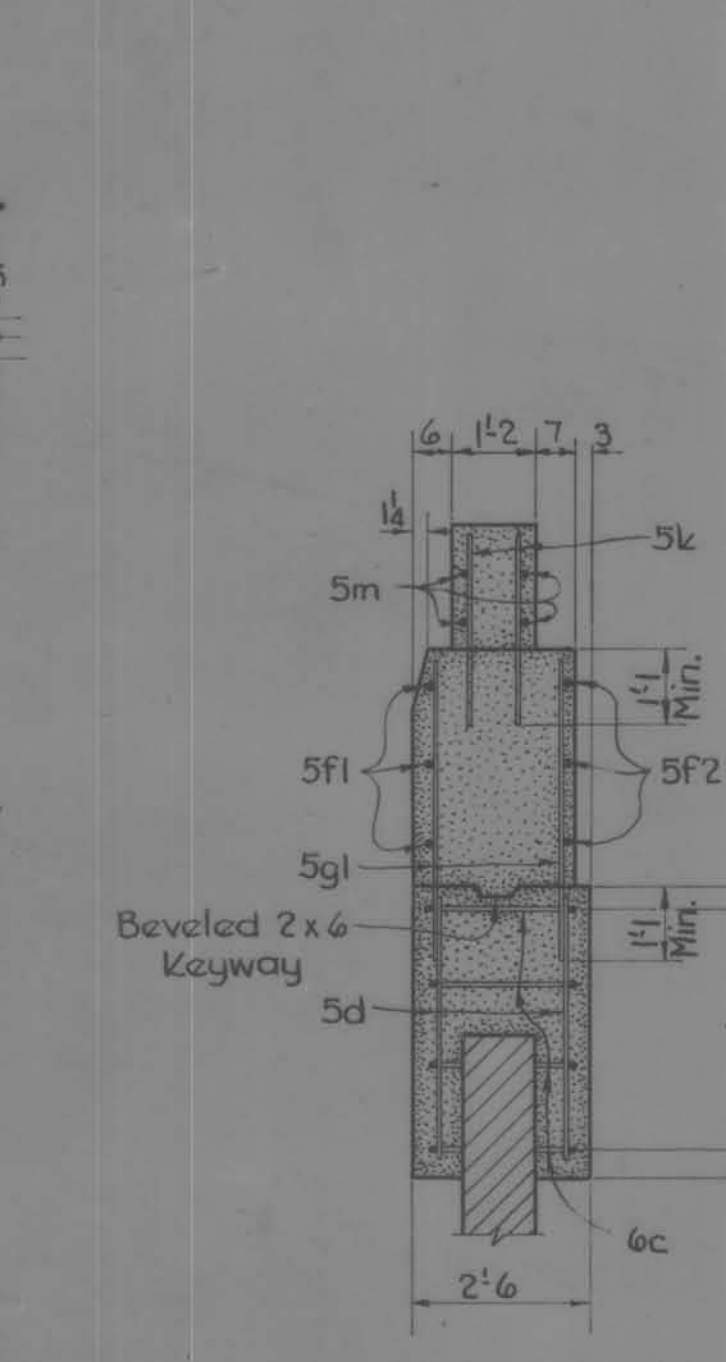
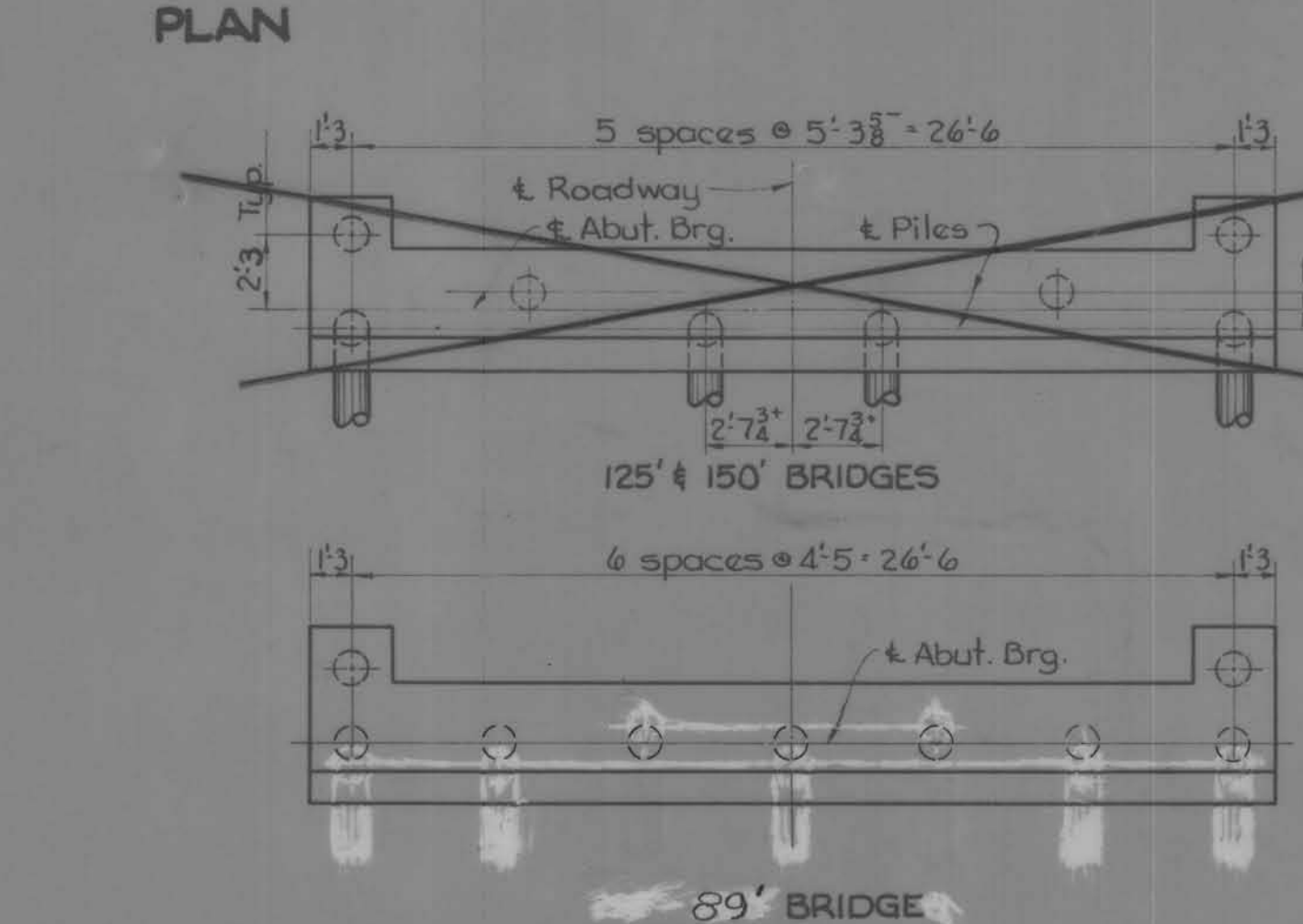
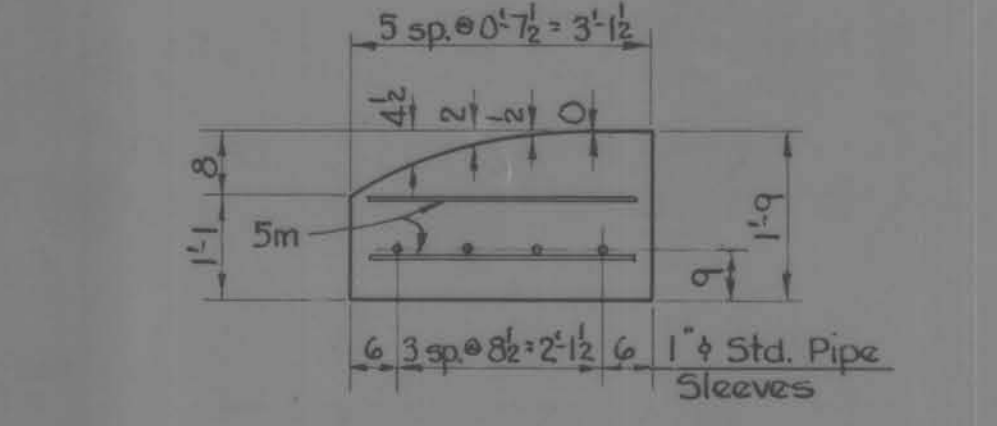
Design: A.A.S.H.O. Standard Specifications for Highway Bridges, Series of 1964.

Design Stresses for the following materials are in accordance with A.A.S.H.O. Standard Specifications for Highway Bridges, Series of 1964.

Concrete in accordance with Section 1.4.11 f - 3000 psi.

Reinforcing Steel in accordance with Section 1.4.12 "Reinforcement" for Intermediate, Hard, or Rail Steel Grade.

Construction: Current Iowa State Highway Commission Standard Specifications, with current supplemental specifications and special provisions.



WING POST NOTE:
Holes for 3/8" bolts are to be formed with 1" (nominal diameter) standard pipe sleeves which are to be galvanized after cutting to proper length. The pipe sleeves are to be secured in exact position as shown before concrete is poured. The cost of the pipe sleeves is to be included in the price bid for concrete. The 3/8" bolts for formed steel beam rail installation are not included in these estimates.

Note: Dimensions shown are at bottom of footing.
Bottom foot rest piles to be driven vertically.
All piling to be driven vertically.
Minimum clear distance from face of concrete to edge of pile is 9".

Revised 6-25-68: Wing Post Details and Quantities Changed.

STANDARD DESIGN
89' X 24' RDWY. I-BEAM BRIDGE
CONCRETE FLOOR STEEL RAIL
H-20-44 LOADING
CONCRETE STUD ABUTMENTS
IOWA STATE HIGHWAY COMMISSION

Approved by *[Signature]*
Chief Engineer

89' X 24' I-BEAM BRIDGE 151251
 125' BRIDGE 151251
 150' BRIDGE 151251
 175' BRIDGE 151251
 200' BRIDGE 151251
 225' BRIDGE 151251
 250' BRIDGE 151251
 WITH 2" TIME 33
 EAST BORE T2A3
 WEST BORE T2A3

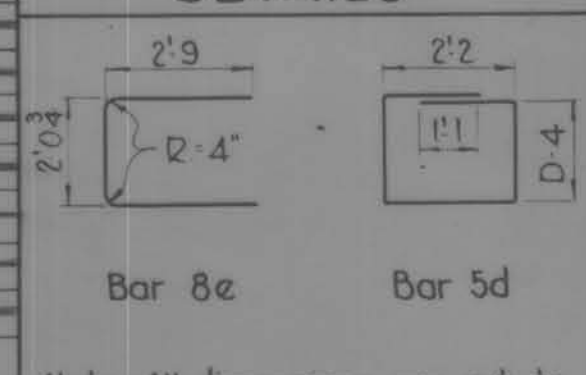
REINFORCING STEEL

	$\alpha = 0^\circ$				$\alpha = 15^\circ$				$\alpha = 30^\circ$				$\alpha = 45^\circ$			
	Bar c	Bar 5d	Bar 8e		Bar c	Bar 5d	Bar 8e		Bar c	Bar 5d	Bar 8e		Bar c	Bar 5d	Bar 8e	
125' Bridge	6	14	25'0"	4	7'2"	6	14	25'0"	4	7'2"	6	14	25'0"	4	7'2"	
150' Bridge	7	14	25'0"	4	7'2"	7	14	25'0"	4	7'2"	7	14	25'0"	4	7'2"	
175' Bridge	7	14	25'0"	4	7'2"	7	14	25'0"	4	7'2"	7	14	25'0"	4	7'2"	
200' Bridge	7	14	25'0"	4	7'2"	7	14	25'0"	4	7'2"	7	14	25'0"	4	7'2"	
225' Bridge	7	14	25'0"	4	7'2"	7	14	25'0"	4	7'2"	7	14	25'0"	4	7'2"	
250' Bridge	7	14	25'0"	4	7'2"	7	14	25'0"	4	7'2"	7	14	25'0"	4	7'2"	

CAP DIMENSIONS

	$\alpha = 0^\circ$				$\alpha = 15^\circ$				$\alpha = 30^\circ$				$\alpha = 45^\circ$			
	L	B	D ₁	D ₂	L	B	D ₁	D ₂	L	B	D ₁	D ₂	L	B	D ₁	D ₂
125' Bridge	26'0"	7'0"	2'9"		26'0"	7'11"	2'9"		26'0"	7'11"	2'9"		26'0"	7'11"	2'9"	
150' Bridge	26'0"	7'0"	2'9"		26'0"	7'11"	2'9"		26'0"	7'11"	2'9"		26'0"	7'11"	2'9"	
175' Bridge	26'0"	7'0"	2'9"		26'0"	7'11"	2'9"		26'0"	7'11"	2'9"		26'0"	7'11"	2'9"	
200' Bridge	26'0"	7'0"	2'9"		26'0"	7'11"	2'9"		26'0"	7'11"	2'9"		26'0"	7'11"	2'9"	
225' Bridge	26'0"	7'0"	2'9"		26'0"	7'11"	2'9"		26'0"	7'11"	2'9"		26'0"	7'11"	2'9"	
250' Bridge	26'0"	7'0"	2'9"		26'0"	7'11"	2'9"		26'0"	7'11"	2'9"		26'0"	7'11"	2'9"	

BENT BAR DETAILS



GRADE TO PIER TOP*

	$\alpha = 0^\circ$				$\alpha = 15^\circ$				$\alpha = 30^\circ$				$\alpha = 45^\circ$			
	U ₁	U ₂	U ₃	U ₄	U ₁	U ₂	U ₃	U ₄	U ₁	U ₂	U ₃	U ₄	U ₁	U ₂	U ₃	U ₄
125' Bridge	2.62	2.76	2.76	—	2.62	2.77	2.76	—	2.62	2.77	2.76	—	2.62	2.77	2.75	—
150' Bridge	2.87	3.00	3.00	—	2.87	3.01	2.99	—	2.87	3.01	2.99	—	2.87	3.02	2.98	—
175' Bridge	3.11	3.25	3.25	—	3.11	3.26	3.24	—	3.11	3.26	3.24	—	3.11	3.27	3.23	—
200' Bridge	—	3.28	3.28	3.37	—	3.28	3.27	3.37	—	3.28	3.27	3.37	—	3.28	3.26	3.37
225' Bridge	3.41	3.54	3.54	—	3.41	3.54	3.53	—	3.41	3.55	3.53	—	3.41	3.56	3.52	—
250' Bridge	3.67	3.79	3.79	—	3.67	3.79	3.78	—	3.67	3.80	3.77	—	3.67	3.81	3.76	—

PILING (See General Notes)

	$\alpha = 0^\circ$				$\alpha = 15^\circ$				$\alpha = 30^\circ$				$\alpha = 45^\circ$				
	Number	Spacing	Pile Brg		Number	Spacing	Pile Brg		Number	Spacing	Pile Brg		Number	Spacing	Pile Brg		
125' Bridge	5	3'9"	30	5	3'11"	30	5	3'11"	30	5	3'11"	30	5	3'11"	30	5	3'11"
150' Bridge	5	3'9"	33	5	3'11"	34	5	3'11"	34	5	3'11"	34	5	3'11"	34	5	3'11"
175' Bridge	6	4'7"	32	6	4'3"	32	6	4'3"	32	6	4'3"	32	6	4'3"	32	6	4'3"
200' Bridge	6	4'7"	36	6	4'3"	36	6	4'3"	36	6	4'3"	36	6	4'3"	36	6	4'3"
225' Bridge	7	3'10"	35	7	3'11"	35	7	3'11"	35	7	3'11"	35	7	3'11"	35	7	3'11"
250' Bridge	8	3'3"	36	8	3'4"	33	8	3'0"	33	8	4'7"	34	8	4'7"	34	8	4'7"

TOTAL EST. QUANTITIES - ONE PIER**

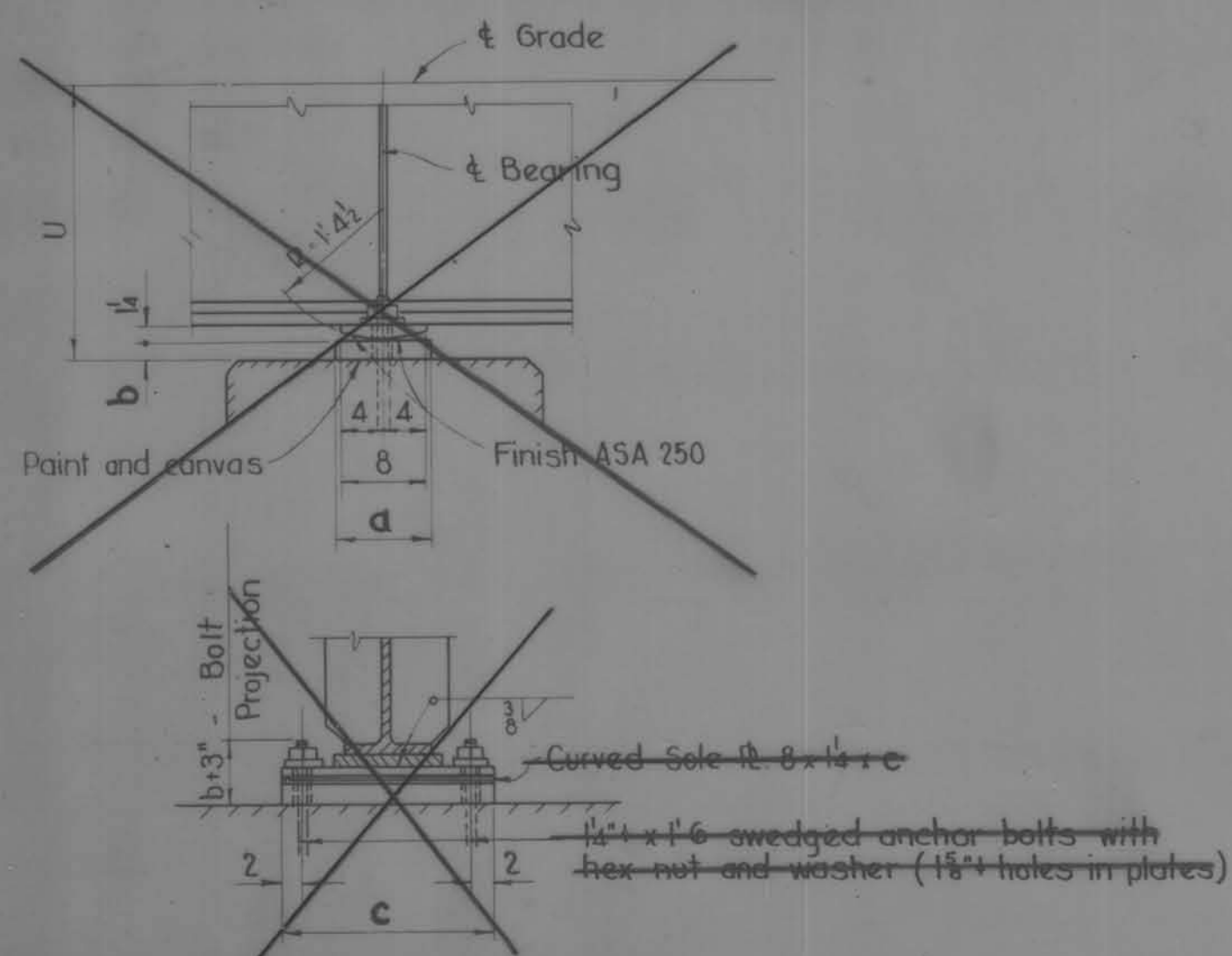
	$\alpha = 0^\circ$		$\alpha = 15^\circ$		$\alpha = 30^\circ$		$\alpha = 45^\circ$	
	Concrete	Rein Steel	Concrete	Rein Steel	Concrete	Rein Steel	Concrete	Rein Steel
125' Bridge	6.5	782	6.7	779	7.2	870	8.5	1311
150' Bridge	6.5	956	6.7	966	7.4	1100	8.5	1311
175' Bridge	7.0	936	7.3	1020	8.0	1099	9.7	1268
200' Bridge	7.0	936	7.2	1020	8.0	1099	9.7	1268
225' Bridge	7.6	910	7.6	994	8.7	1073	10.5	1616
250' Bridge	7.3	996	7.7	1017	8.6	1036	10.4	1650

MASONRY PLATE DIMENSIONS

	$\alpha = 0^\circ$			$\alpha = 15^\circ$			$\alpha = 30^\circ$			$\alpha = 45^\circ$		
	a	b	c	a	b	c	a	b	c	a	b	c
125' Bridge	9	2	1'8"	9	2	1'8"	9	2	1'8"	9	2	1'8"
150' Bridge	9	2	1'8"	9	2	1'8"	9	2	1'8"	9	2	1'8"
175' Bridge	9	2	1'9"	9	2	1'9"	9	2	1'9"	9	2	1'9"
200' Bridge	9	2	1'9"	9	2	1'9"	9	2	1'9"	9	2	1'9"
225' Bridge	9	2	1'9"	9	2	1'9"	9	2	1'9"	9	2	1'9"
250' Bridge	9	2	1'10"	9	2	1'10"	9	2	1'10"	9	2	1'10"

CHANGES IN QUANTITIES FOR STANDARD SUPERSTRUCTURES

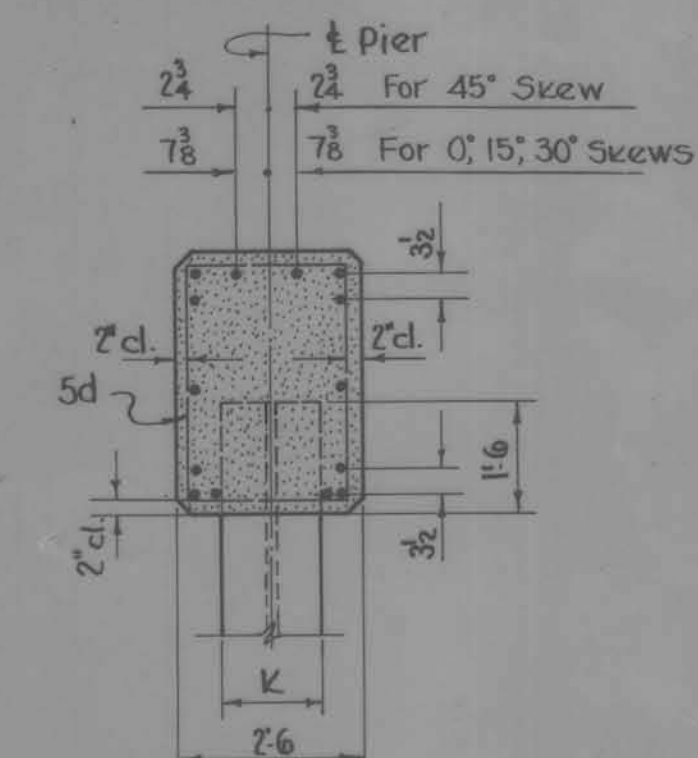
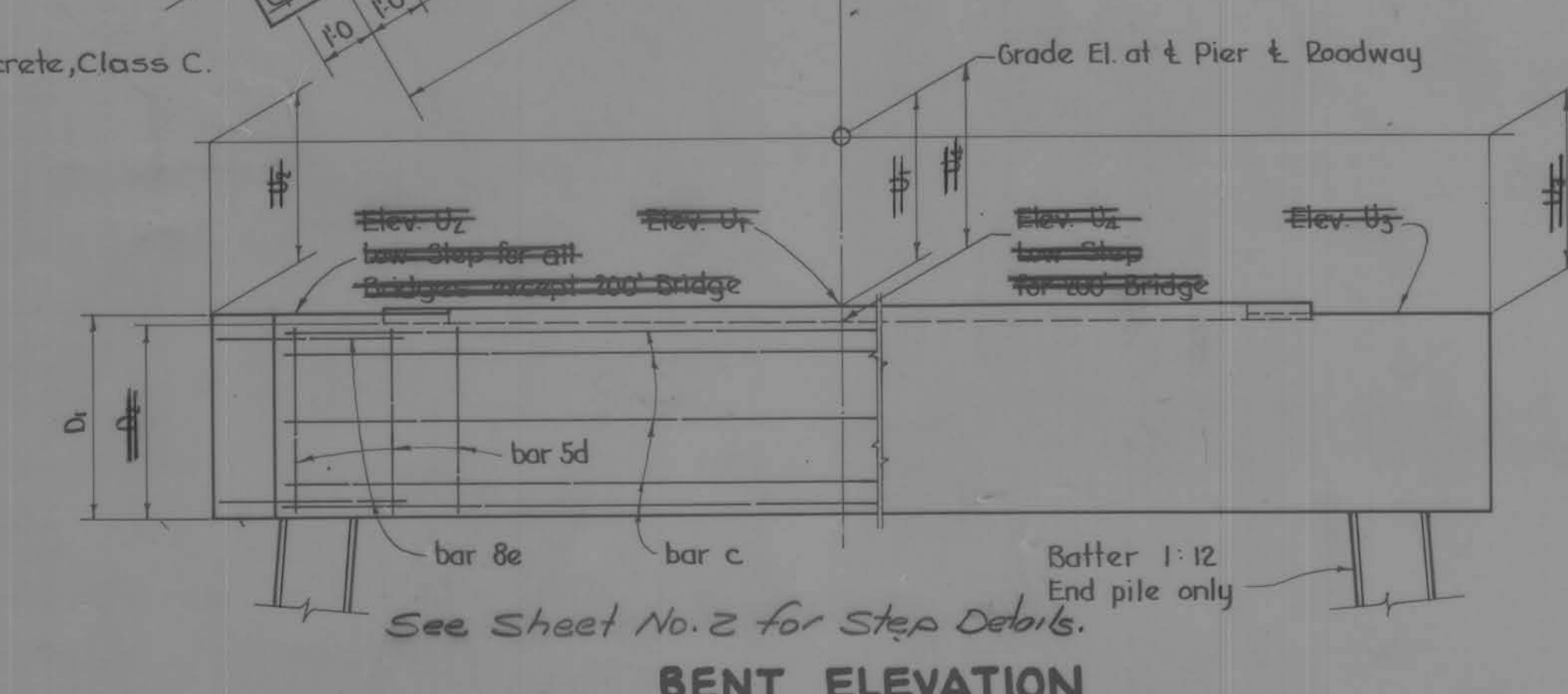
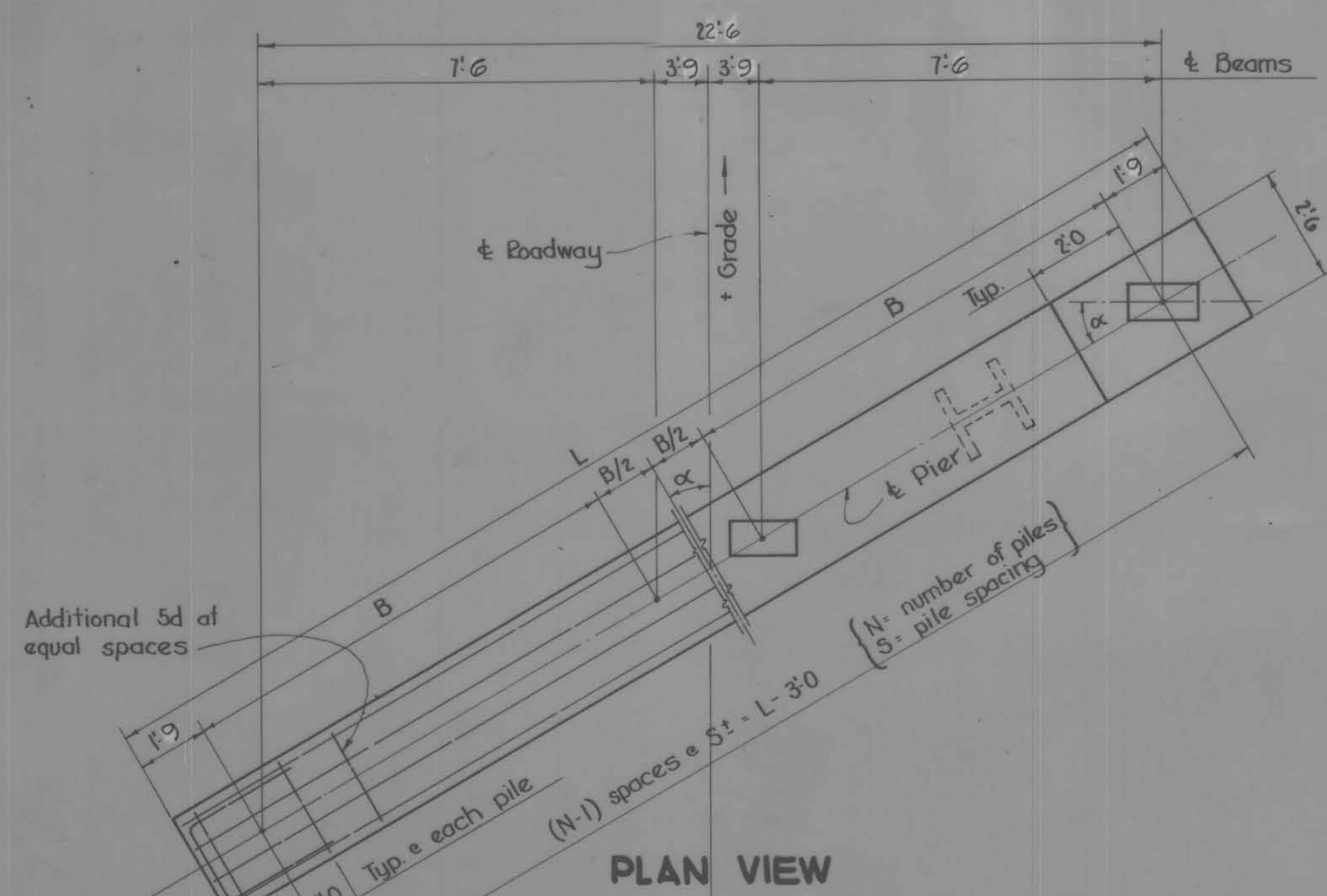
	$\alpha = 0^\circ$		$\alpha = 15^\circ$		$\alpha = 30^\circ$		$\alpha = 45^\circ$	
	Struct. Conc.	Structural Steel	Struct. Conc.	Structural Steel	Struct. Conc.	Structural Steel	Struct. Conc.	Structural Steel
125' Bridge	-5	+4	-5	+4	-5	+4	-5	+4
150' Bridge	-5	+5	-5	+5	-5	+5	-5	+5
175' Bridge	-5	+6	-5	+6	-5	+6	-5	+6
200' Bridge	-5	+7	-5	+7	-5	+7	-5	+7
225' Bridge	-5	+1301	-5	+1301	-5	+1301	-5	+1301
250' Bridge	-5	+1240	-5	+1240	-5	+1240	-5	+1240



BEARING DETAILS AT PILE BENTS

Standard V12-64 bridge details are to be modified for use with these pile bents as follows:

- The bearing details shown at the piers will change to fixed bearings, as shown on this sheet.
- Steel expansion plates shall be furnished at both abutments instead of one as shown for the 125' thru 200' bridges.
- The diaphragm, back wall and bearing material shown at the expansion abutment, shall be used at both abutments for 125' thru 200' bridges.
- The 225' thru 250' bridges do not require any modifications at the abutments for use with these pile bents.



GENERAL NOTES:

- These bents are designed for use with standard V12-64 superstructures in locations where ice or drift are not severe. They may be used with other beam type structures with like roadway and reactions.
- For details of piles to be used with these pile bents see "Concrete Trestle Pile," Standard P-10A. The size of pile (K) shall be determined by the Pile Brg. value given on this sheet and the distance "H" as shown on Standard P10A. The pile bearings given in the piling table are based on H-22'.
- Piles shall be driven to full penetration, if practicable, but to not less than the bearing value shown.
- Pile bearing requirements are based on H-15 Loading without impact. Uniform distribution of loads to all piles is assumed.
- The top longitudinal reinforcing bars "c" are to be accurately spaced with respect to ϵ pier. The contractor shall avoid cutting these bars while drilling for $1/4$ " anchor bolts.
- Minimum clear distance from face of concrete to near reinforcing bar is 2" unless otherwise noted or shown.
- U dimensions shown are for 3 span bridges on standard approach grades. Correction of U dimensions is required for other grade or bridge length.
- Details shown are for a "right ahead" skew. Details for a "left ahead" skew are opposite hand. For actual skew, see the "Situation Plan."

SPECIFICATIONS:

- Design A.A.S.H.O. Standard Specifications for Highway Bridges Series of 1961.
- Design Stresses for the following materials are in accordance with A.A.S.H.O. Standard Specifications for Highway Bridges Series of 1961:
- Reinforcing Steel in accordance with Section 1.4.12 "Reinforcement" for Intermediate, Hard, or Rail Steel Grade.
- Concrete in accordance with Section 1.4.11 fc - 3000 p.s.i.
- Construction: Current Standard Specifications of the Iowa State Highway Commission and current special provisions.

STANDARD DESIGN FOR
CONCRETE AND STEEL PILE BENTS
 FOR
89' X 24' I-BEAM BRIDGE
 H-20-44 LOADING
 IOWA STATE HIGHWAY COMMISSION

Approved by Chief Engineer

V12-11-6E