

AUFORD COUNTY - Proj. No. SN-827(6) -- 51-24 - Bridge - Letting Date: DEC. 5, 1967
 051081

STATE OF IOWA STATE HIGHWAY COMMISSION BRIDGE ON THE FARM TO MARKET SYSTEM CRAWFORD COUNTY

PROJECT NO. SN-827(6) -- 51-24

DESIGN FOR 75' X 28' CONCRETE SLAB BRIDGE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	IOWA		1967	1	2

PROJECT NO. SN-827(6) -- 51-24

INDEX OF SHEETS

SHEET NO.	ITEM
1	TITLE SHEET AND ESTIMATE OF QUANTITIES
2	DETAILS

MILEAGE SUMMARY

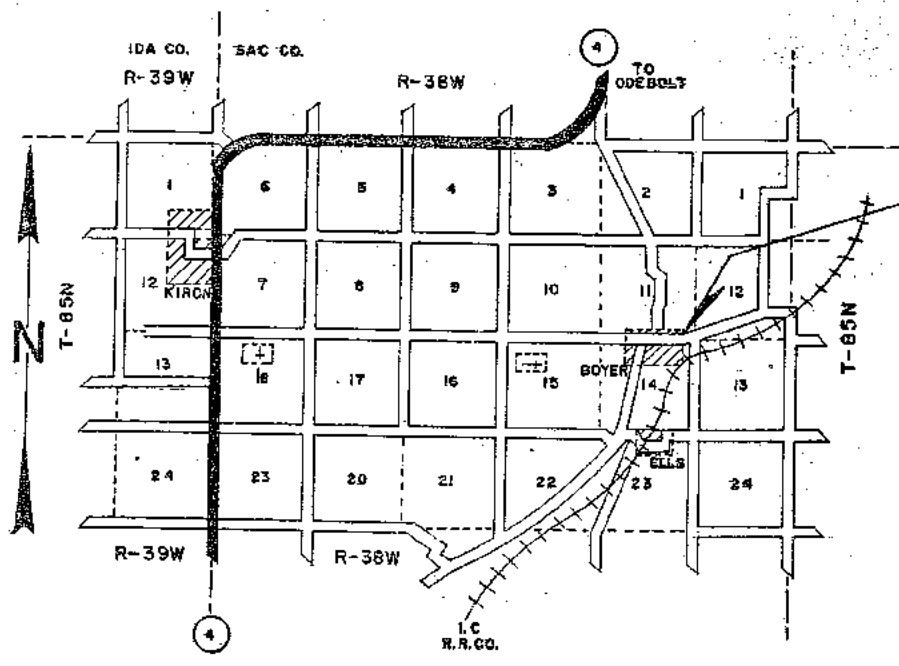
STA. 253+54.5 = 75'-0" = 0.01420 MILES

THE IOWA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR CONSTRUCTION WORK, SERIES OF 1964, SHALL APPLY TO WORK ON THIS PROJECT, PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

PROJECT NO. SN-827(6) -- 51-24		DESIGN NO. 168		STA. 253+54.5
SEC. 11-14		STOCKHOLM, TOWNSHIP		
75' X 28' CONCRETE SLAB BRIDGE				
ESTIMATE OF QUANTITIES				
ITEM	ABUTMENTS	SUPERSTRUCTURES	TOTALS	
*STRUCTURAL CONCRETE	35.8 C.Y.	105.3 C.Y.	141.1 C.Y.	
REINFORCING STEEL	2,694 LBS.	21,452 LBS.	24,146 LBS.	
HANDRAIL, ALUMINUM		155.0 L.F.	155.0 L.F.	
CREOSOTED PILES 20 @ 45'	900 L.F.		900 L.F.	
CONCRETE PILES 14 @ 40' PIOA 16" TYPE III		560 L.F.	560 L.F.	
EXCAV. CLASS 10 CHANNEL			345cy.	
EXCAV. CLASS 20	65cy		65cy	
REMOVAL OF OLD PILING AND WINGS			LUMP SUM	

*THE FLOOR AND CURBS (105.3 C.Y.) PLUS THE WING POSTS (0.8 C.Y.) ARE TO BE CLASS "D" CONCRETE, THE REMAINDER (35.0 C.Y.) IS TO BE CLASS "C" CONCRETE.

DETAIL PLANS
 REDUCED IN SIZE
 (DO NOT SCALE)



STA. 253+54.5 75' X 28' CONCRETE SLAB BRIDGE
DESIGN 168

BRIDGE SIGN ASSEMBLY NOTE:

THIS BRIDGE WILL REQUIRE BRIDGE SIGN ASSEMBLIES (FURNISHED AND PLACED BY OTHERS) IN ACCORDANCE WITH SECTION 2C-5 OF THE ISHC "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", DATED JANUARY 1963.

I HEREBY CERTIFY THESE PLANS WERE MADE UNDER MY SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

DATE: Sept. 19, 1967
William C. Stone, P.E.
 No. R-586
 REG. NO.

APPROVED _____ DATE _____
John Kuss
 CHAIRMAN

APPROVED _____
Clarence Stammer

APPROVED _____
Marvin Arnold

APPROVED _____ DATE _____
Lawrence R. ...
 BOARD OF SUPERVISORS

APPROVED _____ DATE _____
 DEPUTY CHIEF ENGINEER
 IOWA HIGHWAY COMMISSION

APPROVED _____ DATE 11/1/67
Ed Owen

DEPARTMENT OF TRANSPORTATION
 BUREAU OF PUBLIC ROADS

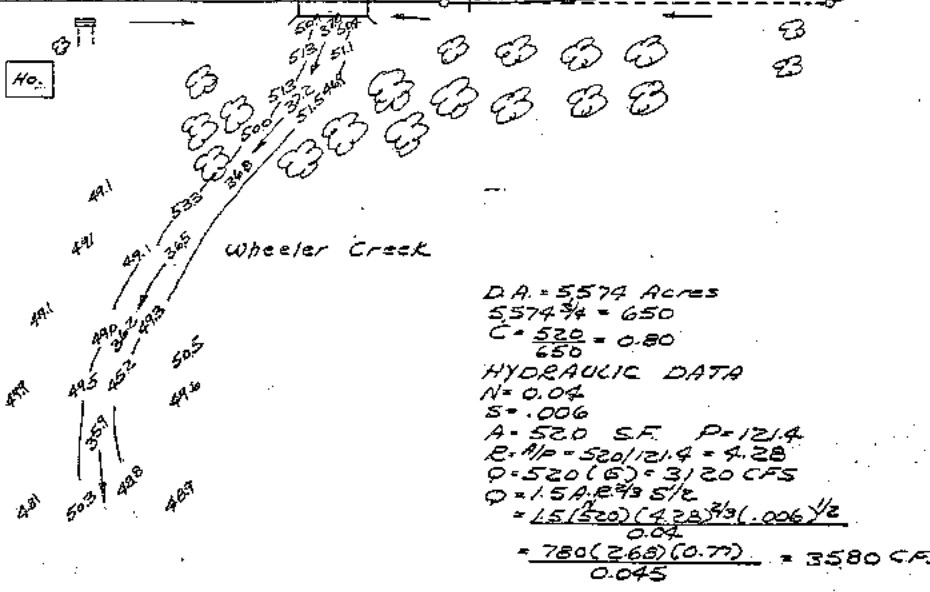
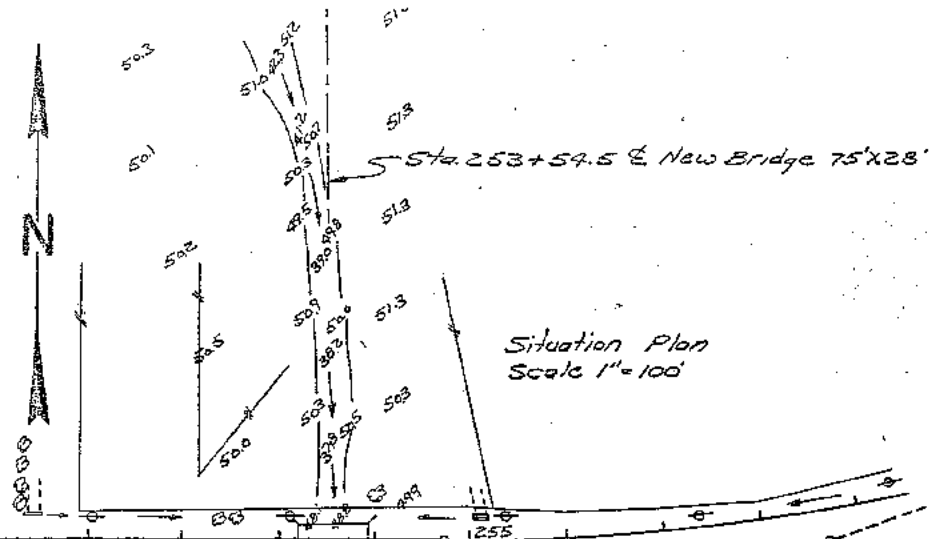
APPROVED _____ DATE _____
 DIVISION ENGINEER

TRAFFIC COUNT 145 V.P.D. (1966)

STOCKHOLM TOWNSHIP
T-85N R-38W
BET. SEC. II AND 14

BM #25 SPK IN TOP FENCE POST 97 FT. STA. 252+75 ELEV. = 354.45

Note: Excavate Channel As Shown In Shaded Area



ESTIMATE OF QUANTITIES			
Description	Abutments	Superstructure	Totals
* Structural Concrete	358 cu yds.	105.3 cu yds.	141.1 cu yds.
Reinforcing Steel	2,694 Lbs.	21,452 Lbs.	24,146 Lbs.
Handrail, Aluminum		155.0 L.F.	155.0 L.F.
Crested Piles 20 @ 45'	900 L.F.		900 L.F.
Concrete Piles 14 @ 40' P10A 16" TYPE III		560 L.F.	560 L.F.
Excav. Class 10 Channel			345 C.Y.
Excav. Class 20			65 C.Y.
Removal of old Piling & Wings			Lump Sum

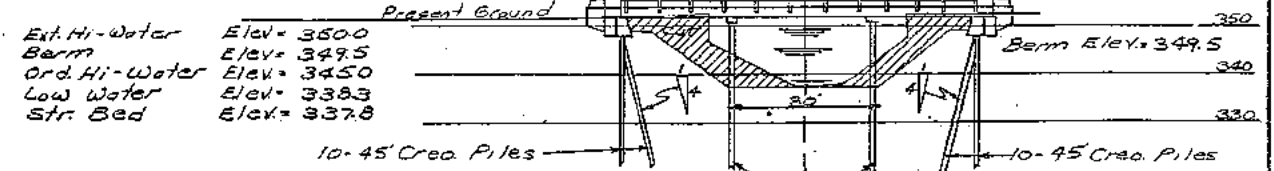
* 106.1 cu yds. class "D" Concrete For Superstructure And 350 cu yds. Class "C" Concrete For Substructure

Sta 253+55.2 Present Piling & Wings, Bridge Contractor To Remove & Pile Within 300' of Bridge Site As Directed By County Engineer. Present Piling & Wings To Be Junked And Construct At Sta. 253+54.5 A 75' X 28' Continuous Concrete Slab Bridge.

Note: Bridge Designed 6" Higher Than Grade To Meet Future Paving Plans.

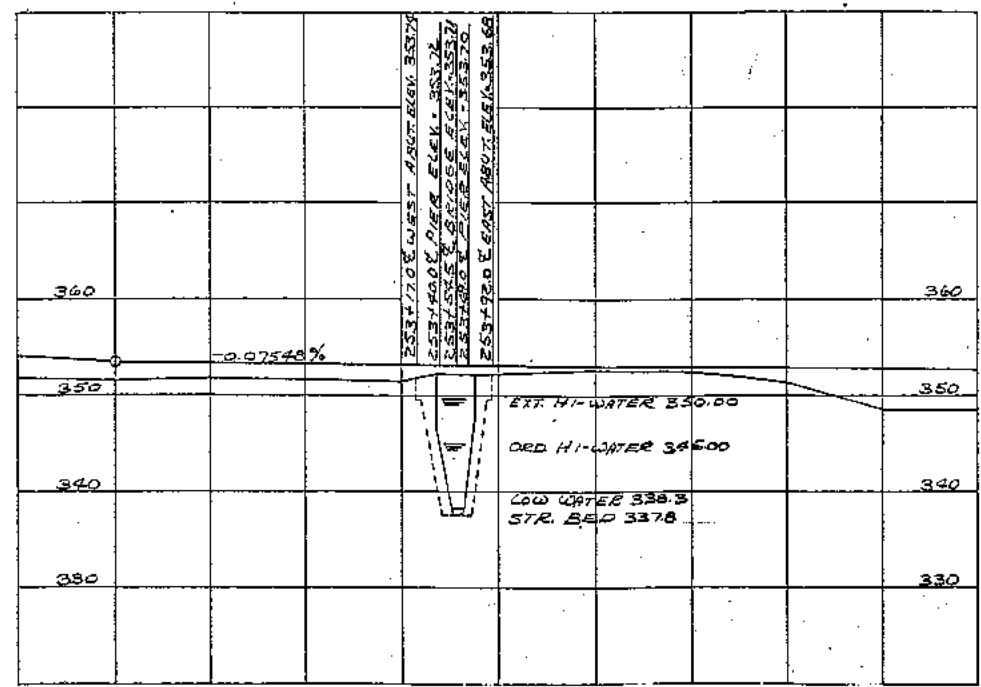
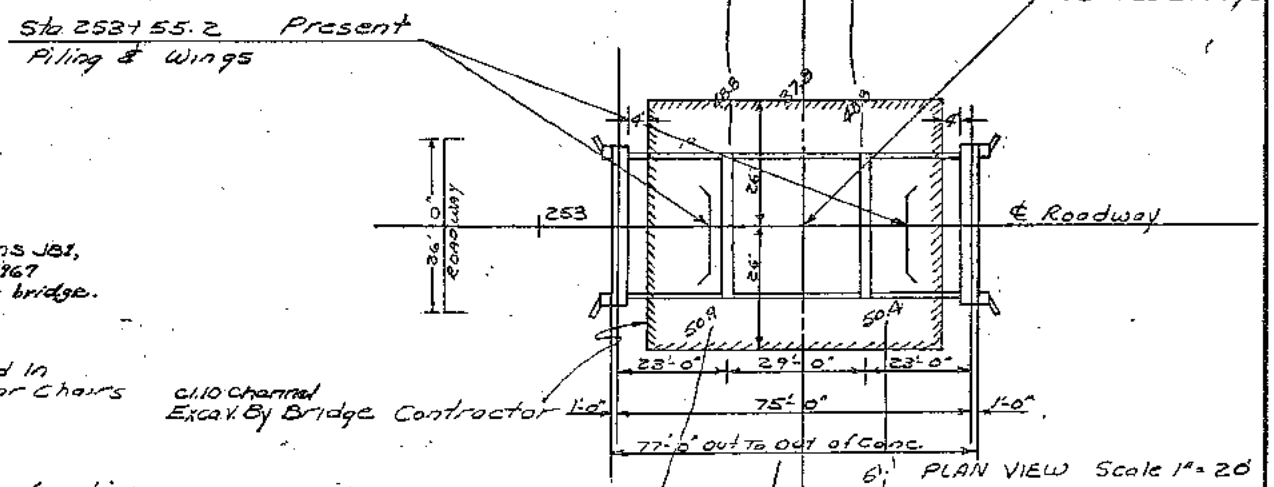
D.A. = 5574 AC.

H = 16'



LONGITUDINAL VIEW Scale 1"=20'	
Bottom Deck Elev. = 352.52	Bottom Deck Elev. = 352.47
Top Abut. Elev. = 352.49	Top Abut. Elev. = 352.44
Piling Cut off Elev. = 350.49	Piling Cut off Elev. = 350.44
Bottom Abut. Elev. = 348.49	Bottom Abut. Elev. = 348.44
W. Pier Cut off Elev. = 352.50	E. Pier Piling Cut off Elev. = 352.48

Bearing Required - Wood = 14 Ton
 Concrete = 23 Ton



SCALE: VERT. 1"=10'
 HOR. 1"=100'

General Notes:
 Iowa Highway Commission Standard Designs JB1, JB-2 And JB-4, July, 1960 (Rev. 9-11-61), JB6 August 1967. CB-10-10-67 and P10A, June 1959 shall apply to this bridge.

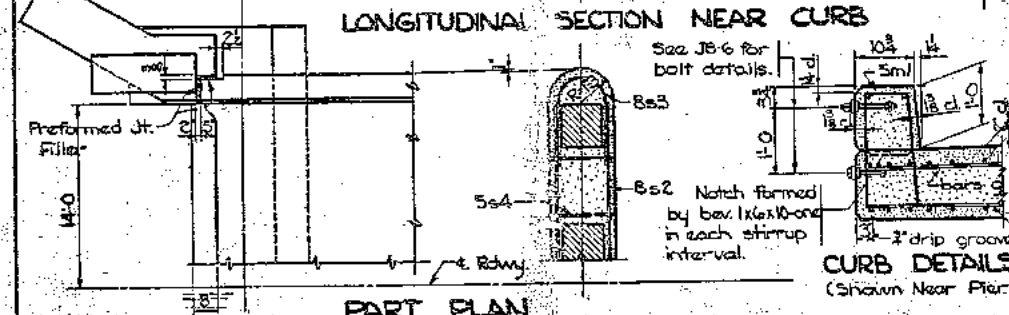
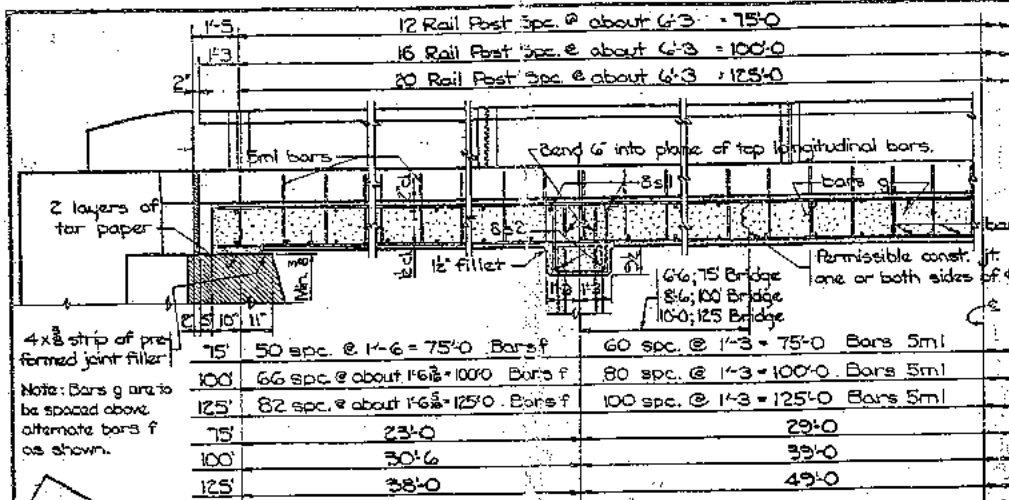
All Reinforcing Bars Shall Be Securely Wired In Place And Adequately Supported On Bar Chairs Before Concrete Is Placed.

Iowa Highway Commission Standard Specifications Series 04 1964, with current special provisions and Supplemental Specifications shall apply.

Bridge Sign Assembly Note:
 This Bridge Will Require Bridge Sign Assemblies (furnished and placed by others) in accordance with Section 20-5 of the ISHC Manual On Uniform Traffic Control Devices, Dated January 1963.

LOCATION
 Between SEC'S 11 & 14 Stockholm Twp
 over Wheeler Creek

DESIGN FOR 75' X 28' CONTINUOUS CONCRETE SLAB BRIDGE
 ALUMINUM HANDRAIL
 STUB ABUTMENTS AND CONCRETE PILE BENTS
 STA. 253+54.5 PROJECT NO. SN-827(6)--51-24
 CRAWFORD COUNTY, IOWA

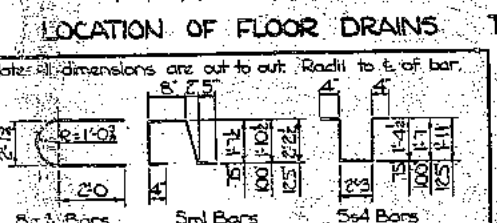


① Cost of 4 floor drains to be included.
 ② For interior bents, * If bottom of cap to stream bed exceeds 13', use 16" piling.

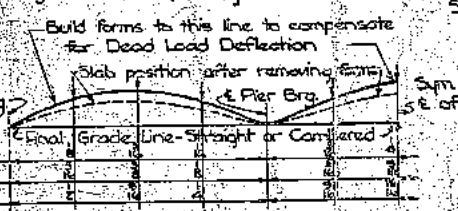
TABLE OF VARIABLES			
VARIABLE	75'-0"	100'-0"	125'-0"
Slab Thickness "T"	12.25	15.5	19.5
Dimension "D"	14.125	17.25	21.625
Abut. React., Kips	144	178	223
Pier React., Kips	299	417	573
Pier Pile Brg. Reqd., Tons	25	30	36

ESTIMATED QUANTITIES - SUPERSTR.			
ITEM	75'-0"	100'-0"	125'-0"
Struct. Concrete, C1-D' CY	105.3	166.5	251.7
Reinforcing Steel, Lbs.	21,452	36,879	55,313
Handrail, Aluminum Lin. Ft.	1550	2050	2550
Concrete Piles	12-14"	14-14"	16-16"

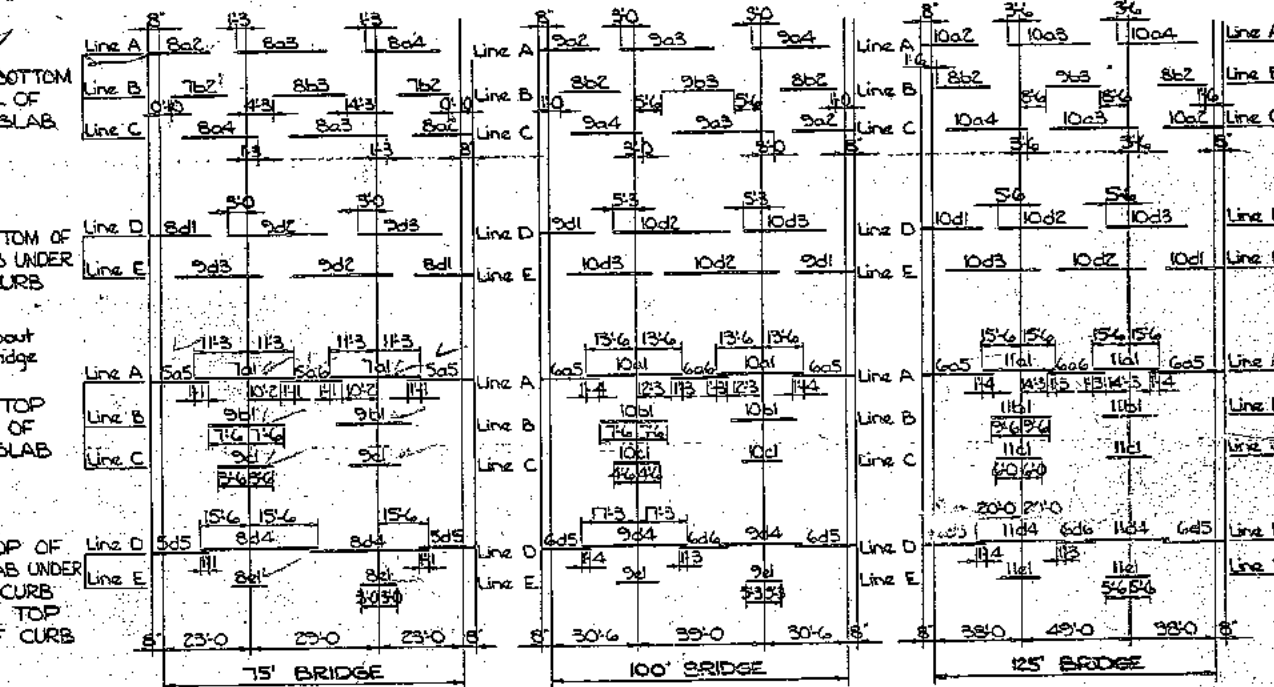
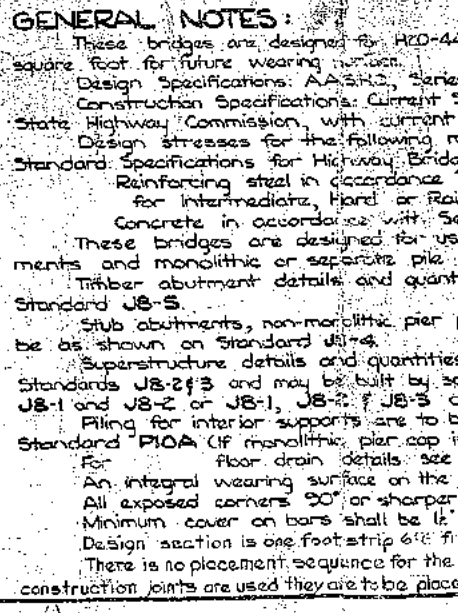
BILL OF REINFORCING STEEL FOR SUPERSTRUCTURES									
LOCATION	SPAN	75' BRIDGE			100' BRIDGE			125' BRIDGE	
		Shape	Bar Length	No. Weight	Bar Length	No. Weight	Bar Length	No. Weight	
Slab Longitudinal - Top	75'	B1a1	22'-6"	38	1748	B1a1	21'-0"	38	1748
		B2a1	17'-3"	37	1704	B2a1	21'-9"	37	1736
Slab Longitudinal - Bottom	75'	B3a1	23'-6"	37	1736	B3a1	23'-0"	37	1704
		B4a1	21'-6"	37	1704	B4a1	30'-0"	37	1736
Slab Transverse - Top	75'	B5a1	13'-6"	38	1748	B5a1	19'-0"	38	1748
		B6a1	8'-9"	19	855	B6a1	14'-6"	19	855
Slab Transverse - Bottom	75'	B7a1	15'-0"	36	1656	B7a1	15'-0"	36	1656
		B8a1	18'-0"	36	1656	B8a1	23'-0"	36	1656
Slab Transverse - Top	100'	B9a1	20'-6"	18	855	B9a1	21'-0"	18	855
		B10a1	7'-0"	36	1656	B10a1	9'-0"	36	1656
Slab Transverse - Bottom	100'	B11a1	16'-6"	8	352	B11a1	22'-0"	8	352
		B12a1	25'-3"	8	352	B12a1	35'-0"	8	352
Slab Transverse - Top	125'	B13a1	24'-3"	8	352	B13a1	33'-0"	8	352
		B14a1	31'-0"	16	704	B14a1	40'-0"	16	704
Slab Transverse - Bottom	125'	B15a1	9'-3"	16	704	B15a1	15'-3"	16	704
		B16a1	6'-0"	8	352	B16a1	10'-6"	8	352
Curb Anchors	75'	C1	29'-8"	51	2273	C1	29'-8"	51	2273
		C2	29'-8"	26	1188	C2	29'-8"	26	1188
Pile Cap - Length - Top	75'	P1	4'-4"	22	905	P1	4'-4"	22	905
		P2	29'-8"	4	157	P2	29'-8"	4	157
Pile Cap - Length - Bottom	75'	P3	27'-4"	4	157	P3	27'-4"	4	157
		P4	7'-3"	4	157	P4	7'-3"	4	157
Pile Cap Stirrups	75'	S1	5'-4"	40	223	S1	5'-4"	40	223
		S2	5'-4"	36	196	S2	5'-4"	36	196



Note: The construction joint between curb and slab is to be as shown. Curb is not to be poured until slab falsework has been removed. The following steps are to be taken to reduce shrinkage stresses:
 1. Slump is to be kept as low as possible and concrete is to be thoroughly vibrated.
 2. Slab concrete is to be kept saturated with water for at least four hours just before placing curb.

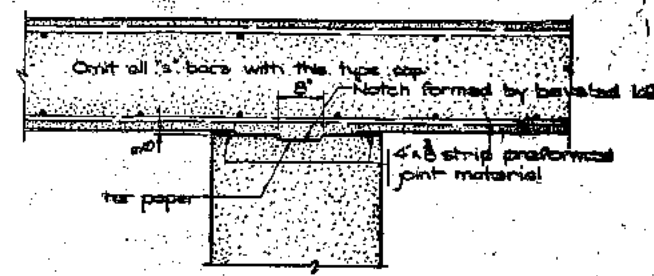
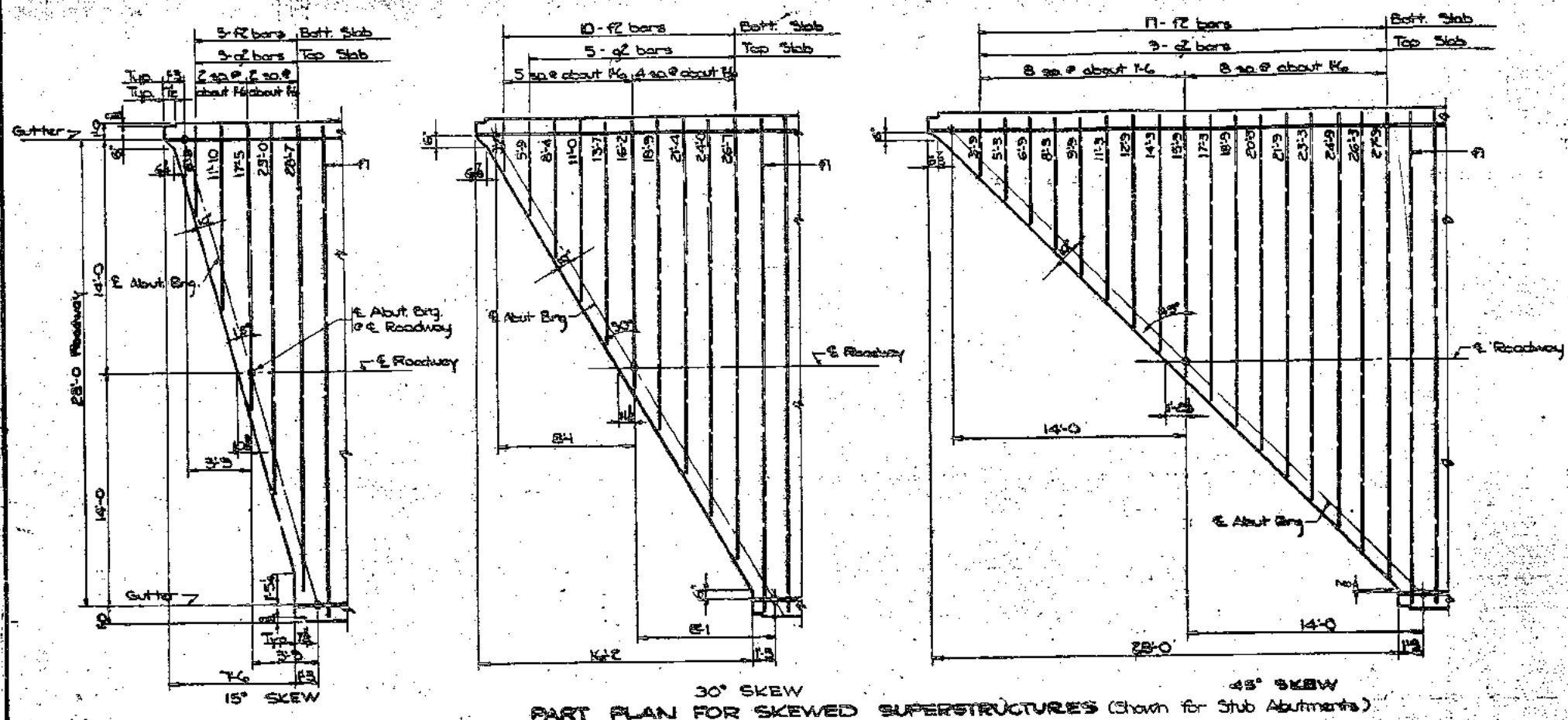


GENERAL NOTES:
 These bridges are designed for H20-44 loading plus an allowance of 10 lbs. per square foot for future wearing surface.
 Design Specifications: AASHTO, Series of 1957.
 Construction Specifications: Current Standard Specifications of the Iowa State Highway Commission, with current Special Provisions applicable.
 Design stresses for the following materials are in accordance with AASHTO Standard Specifications for Highway Bridges, Series of 1957.
 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, f'c = 3000 psi.
 These bridges are designed for use with concrete slab or timber abutments and monolithic or separate pile caps at interior supports.
 Timber abutment details and quantities are to be as shown on Standard JB-5.
 Slab abutments, non-monolithic pier pile cap details and quantities are to be as shown on Standard JB-4.
 Superstructure details and quantities for 15°, 30°, and 45° skews are shown on Standards JB-2f3 and may be built by specifying the skew and referring to Standards JB-1 and JB-2 or JB-1, JB-2, f JB-3 depending on abutment type.
 Piling for interior supports are to be concrete trestle pile as detailed on Standard P10A (if monolithic pier cap is used, cap steel will be required).
 For floor drain details see Standard JB-2.
 An integral wearing surface on the slab of 2" was provided in this design.
 All exposed corners 90° or sharper are to be filleted.
 Minimum cover on bars shall be 1" unless shown otherwise.
 Design section is one foot strip 6" from gutter.
 There is no placement sequence for the slab, however if transverse approved by: Chief Engineer construction joints are used they are to be placed at location shown on this sheet.



INDEX FOR JB STANDARD	
JB-1	Square superstructure details and quantities to use for bridges having concrete slab abutments & monolithic pier caps.
JB-2	Modifications necessary to show superstructures and/or to fit pile bent pier; superstructure quantities for square or skewed bridges having slab abutments of either type of pier.
JB-3	Superstructure modifications necessary to accommodate timber abutments; superstructure quantities for square and skewed bridges having timber abutments of either type of pier.
JB-4	Slab abutments and pile bent piers (both square & skewed).
JB-5	Square timber abutments (H-6 through 20).
JB-6	Details for aluminum handrail.

Design For
3-SPAN CONTINUOUS SLAB BRIDGE
 28'-0" ROADWAY
 75', 100' & 125' Between End Bearings
 H20-44 LOADING
 Iowa State Highway Commission
 July 1960
 Chief Engineer
 JB-1



NON-MONOLITHIC PIER PILE CAP DETAIL

Note:
When these Superstructures are used with non-monolithic Pier Pile Caps, change details as shown above and omit all #2 bars. Use Superstructure quantities shown on this sheet. Pier details and pier quantities will be as shown on JB-4.

BILL OF REINFORCING STEEL FOR SKEWED SUPERSTRUCTURES (ON STUB ABUTMENTS)

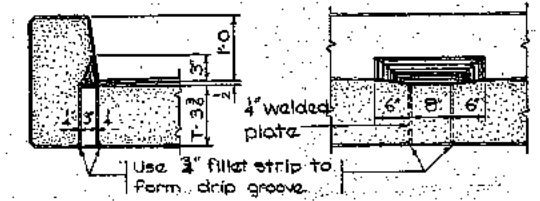
SKEW ANGLE	15°				30°				45°			
	75'	100'	125'	150'	75'	100'	125'	150'	75'	100'	125'	150'
All reinforcing bars are to be as listed on JB-1 except as follows:												
With Monolithic Pier Cap	Bars #1 @ 20'8 Omit:	267	364	475	446	606	792	802	1091	1426		
	Bars #1 @ 20'8 Omit:	124	178	243	186	267	364	309	446	606		
	Bars #2 (Shown) Add:	262	356	465	447	608	794	804	1095	1430		
	Bars #2 (Shown) Add:	109	157	214	109	143	190	236	311	406		
	Bars #2 Lengthen to 30'9	12	12	12	12	12	12	12	12	12		
	Bars #2 Lengthen to 28'4	11	11	11	11	11	11	11	11	11		
	Net Change	+3	-6	-16	+78	+72	+62	+241	+236	+229		
All reinforcing bars are to be as listed on JB-1 except as follows:												
With Non-monolithic Pier Cap	Bars #1 @ 20'8 Omit:	267	364	475	446	606	792	802	1091	1426		
	Bars #1 @ 20'8 Omit:	124	178	243	186	267	364	309	446	606		
	Bars #2 (Shown) Add:	262	356	465	447	608	794	804	1095	1430		
	Bars #2 (Shown) Add:	109	157	214	109	143	190	236	311	406		
	Omit all #2 bars	-909	-902	-967	-909	-902	-967	-909	-902	-967		
	Net Change	-929	-931	-1006	-925	-924	-999	-920	-918	-990		

ESTIMATED QUANTITIES FOR SUPERSTRUCTURES

TYPE OF SUBSTRUCTURE	ITEMS	STUB ABUTMENTS / MONOLITHIC PIER PILE CAPS			STUB ABUTMENTS / NON-MONOLITHIC PIER PILE CAPS		
		75'	100'	125'	75'	100'	125'
Structural Concrete (Cu. yd.)	0°	105.6	146.9	252.1	101.5	162.8	248.3
	15°	105.6	146.9	252.1	101.5	162.8	248.3
	30°	105.6	146.9	252.1	101.5	162.8	248.3
	45°	107.9	149.3	254.7	102.5	163.2	249.6
Reinforcing Steel (lbs.)	0°	21,455	36,873	55,297	20,523	35,948	54,307
	15°	21,455	36,873	55,297	20,523	35,948	54,307
	30°	21,530	36,951	55,375	20,523	35,955	54,314
	45°	21,693	37,115	55,542	20,532	35,961	54,323
Handrail, Aluminum (LF)	ALL	155.0	205.0	255.0	155.0	205.0	255.0
Concrete Piling	ALL	12-14'	14-14'	16-16'	Piling included with Substructure		

Cost of 4 floor drains is to be included.
 Net change to be applied to Reinforcing Steel Quantities on Standard JB-1.
 For interior bents, * If bottom of cap to stream bed exceeds 15' use 16" piling.

GENERAL NOTES:
 This sheet shows details of floor drains, non-monolithic pier pile cap details and modifications necessary to skew the JB-1 Superstructure. This sheet also provides estimated superstructure quantities and reinforcing steel lists for skewed superstructures having concrete stub abutments.



FLOOR DRAIN DETAILS
 Scale: 3" = 1'-0"
 Note: 4" x 8" outside dimension rolled tube with 1/2" wall thickness may be substituted for the welded floor drain shown.
 Wt. of floor drains: 100' = 23 lbs, 125' = 30 lbs
 Include cost of floor drains in with cost of concrete.

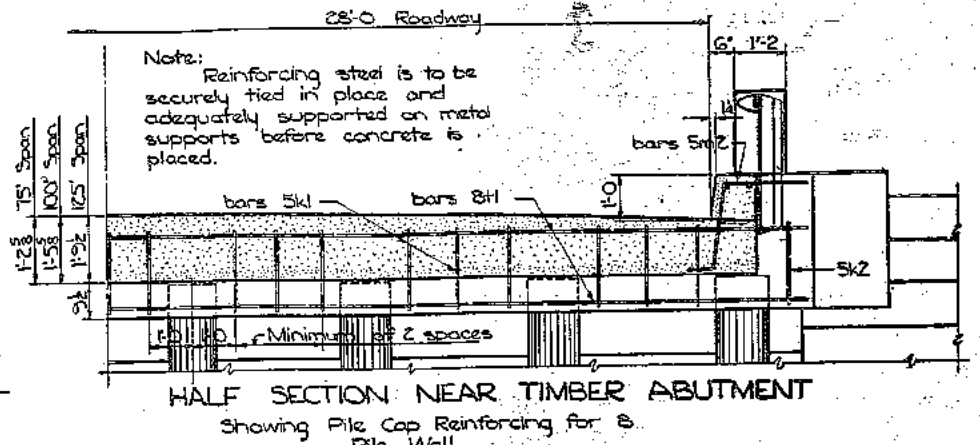
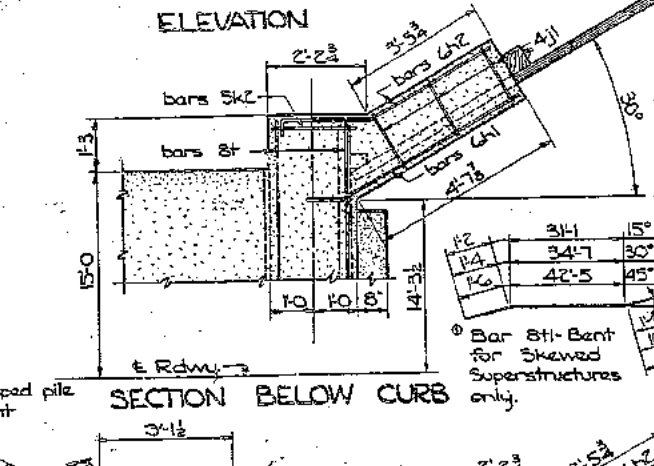
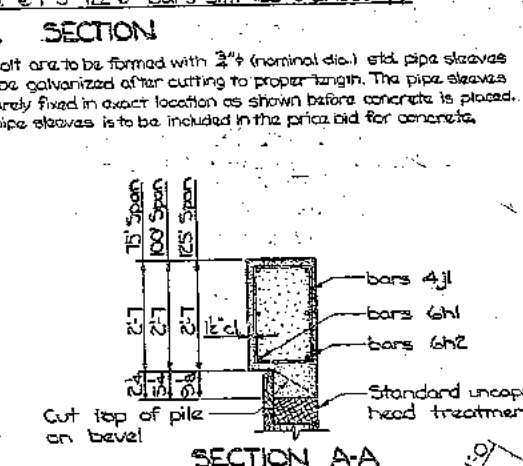
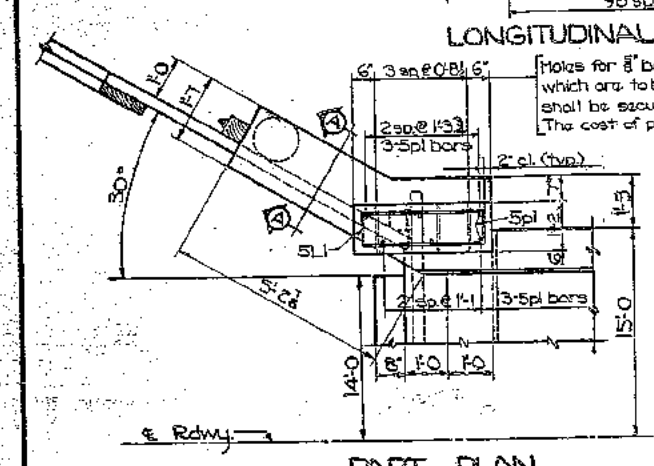
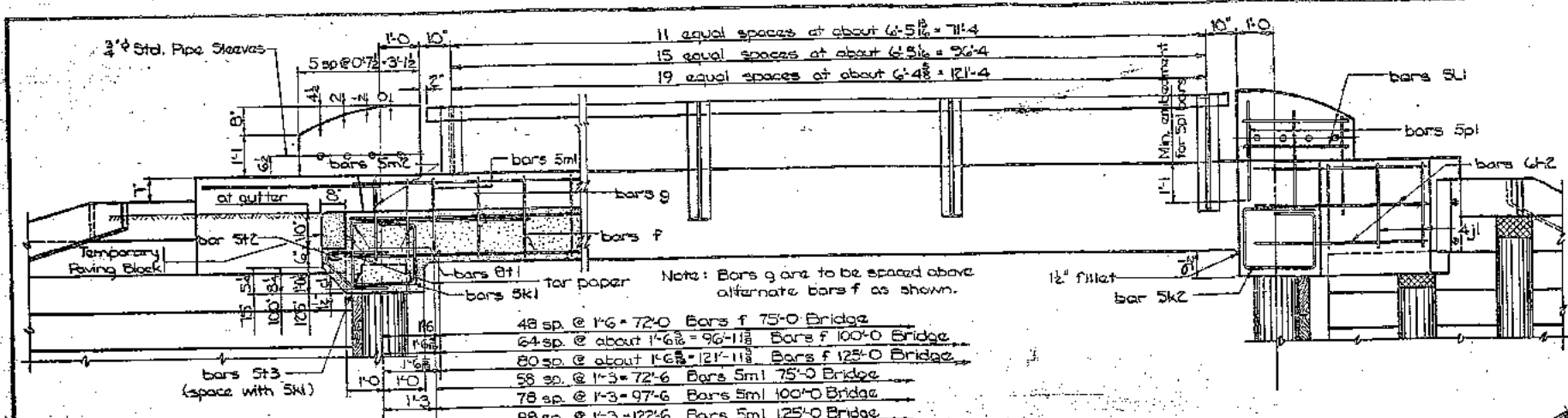
Design for
3-SPAN CONTINUOUS SLAB BRIDGE

28'-0" ROADWAY
 75', 100' & 125' Between End Bearings
 H2O-44 LOADING
 Iowa State Highway Commission
 July 1960

Approved by: *L. M. Clauson*
 Chief Engineer

JB-2

Revised 7-19-67 Concrete and posts, horizontal & affected quantities changed.



BILL OF REINFORCING STEEL FOR SKEWED SUPERSTRUCTURES

SKEW ANGLE	15°			30°			45°		
	75' Span	100' Span	125' Span	75' Span	100' Span	125' Span	75' Span	100' Span	125' Span
Bars f1 @ 2'-8 Omit:	178	243	317	356	485	634	719	970	1267
Bars g1 @ 2'-8 Omit:	62	89	121	124	178	243	248	356	485
Bars f2 (W-2) Add:	262	356	465	447	608	794	804	1095	1430
Bars g2 (W-2) Add:	109	151	214	169	243	330	336	476	639
Bars 5k1 Add:	None	0	6-5k1	14-5k1	18-5k1	24-5k1	24-5k1	34-5k1	45-5k1
Bars 5s1; Lengthen to:	30'-9	+12	34'-3	+49	** 41'-11	+131			
Bars 5s2; Lengthen to:	28'-4	+11	31'-7	+45	38'-8	+121			
Bars 5t1; Lengthen to:	33'-3	+23	36'-9	+98	** 44'-7	+265			
Bars 5t2; Lengthen to:	28'-8	+2	32'-0	+9	39'-5	+24			
Bars 5t3; Add:	None	0	6-5t3	13-5t3	18-5t3	24-5t3	30-5t3	40-5t3	54-5t3
Net change for skewed superstructures with Monolithic pier cap:	75' Span +179	100' Span +229	125' Span +289	75' Span +424	100' Span +481	125' Span +545	75' Span +1010	100' Span +1088	125' Span +1088
Net change for skewed superstructures with Non-monolithic pier cap:	75' Span +156	100' Span +206	125' Span +266	75' Span +330	100' Span +387	125' Span +451	75' Span +689	100' Span +758	125' Span +836

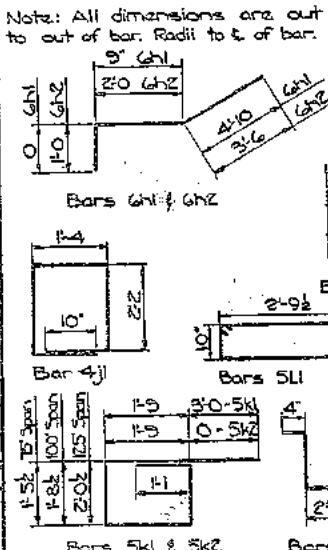
** These bars may be spliced using 18" lap. No additional payment will be made for extra weight required for splicing. Apply to sq superstr. w/non-monolithic pier cap.

BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE (0° SKEW)

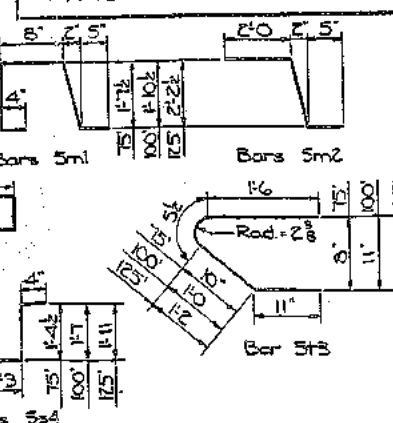
LOCATION	SPAN	75'-0 SPAN			100'-0 SPAN			125'-0 SPAN					
		Shape	Bar No.	Length	Weight	Bar No.	Length	Weight	Bar No.	Length	Weight		
Slab f Curb Longitudinal Same as on J8-1		7al thru 7al	24	2'-8	16,914	10al thru 10al	24	2'-8	23,532	11al thru 11al	24	2'-8	44,068
Slab Transverse, Bott.		6f1	49	2'-8	2,183	7f1	65	2'-8	3,942	8f1	81	2'-8	6,416
Wing Post Base		6h1	12	5'-7	101	6h1	12	5'-7	101	6h1	12	5'-7	101
Abut. Pile Cap Hoops		5k1	42	10'-2	445	5k1	42	10'-8	467	5k1	42	11'-4	496
Wing Post Horizontal		5l1	8	8'-0	67	5l1	8	8'-0	67	5l1	8	8'-0	67
Curb Anchors at Abuts.		5m1	118	4'-4	533	5m1	158	4'-10	796	5m1	198	5'-6	1,136
Wing Post Vertical		5p1	24	2'-8	67	5p1	24	2'-8	67	5p1	24	2'-8	67
Pier Pile Cap Longit. Top		8s1	4	2'-8	317	8s1	4	2'-8	317	8s1	4	2'-8	317
Pier Pile Cap Longit. Bott		8s2	4	2'-4	292	8s2	4	2'-4	292	8s2	4	2'-4	292
Stirrups		5s4	40	5'-4	223	5s4	36	5'-9	216	5s4	42	6'-5	231
Abut. Pile Cap, Longit.		8t1	8	32'-2	687	8t1	8	32'-2	687	8t1	8	32'-2	687
Abut. Raving Support, Hor.		5t2	2	2'-8	58	5t2	2	2'-8	58	5t2	2	2'-8	58
Totals for Square Superstr. with Monolithic Pier Caps					23,111				38,517				56,915
Totals for Square Superstr. w/Non-monolithic Pier Caps					22,202				37,609				55,948

*Note: For non-monolithic pier cap omit all "s" bars. See J8-1.
 *Bent bar detail on J8-1.

BENT BAR DETAILS



TYPICAL SKEW LAYOUT



GENERAL NOTES:

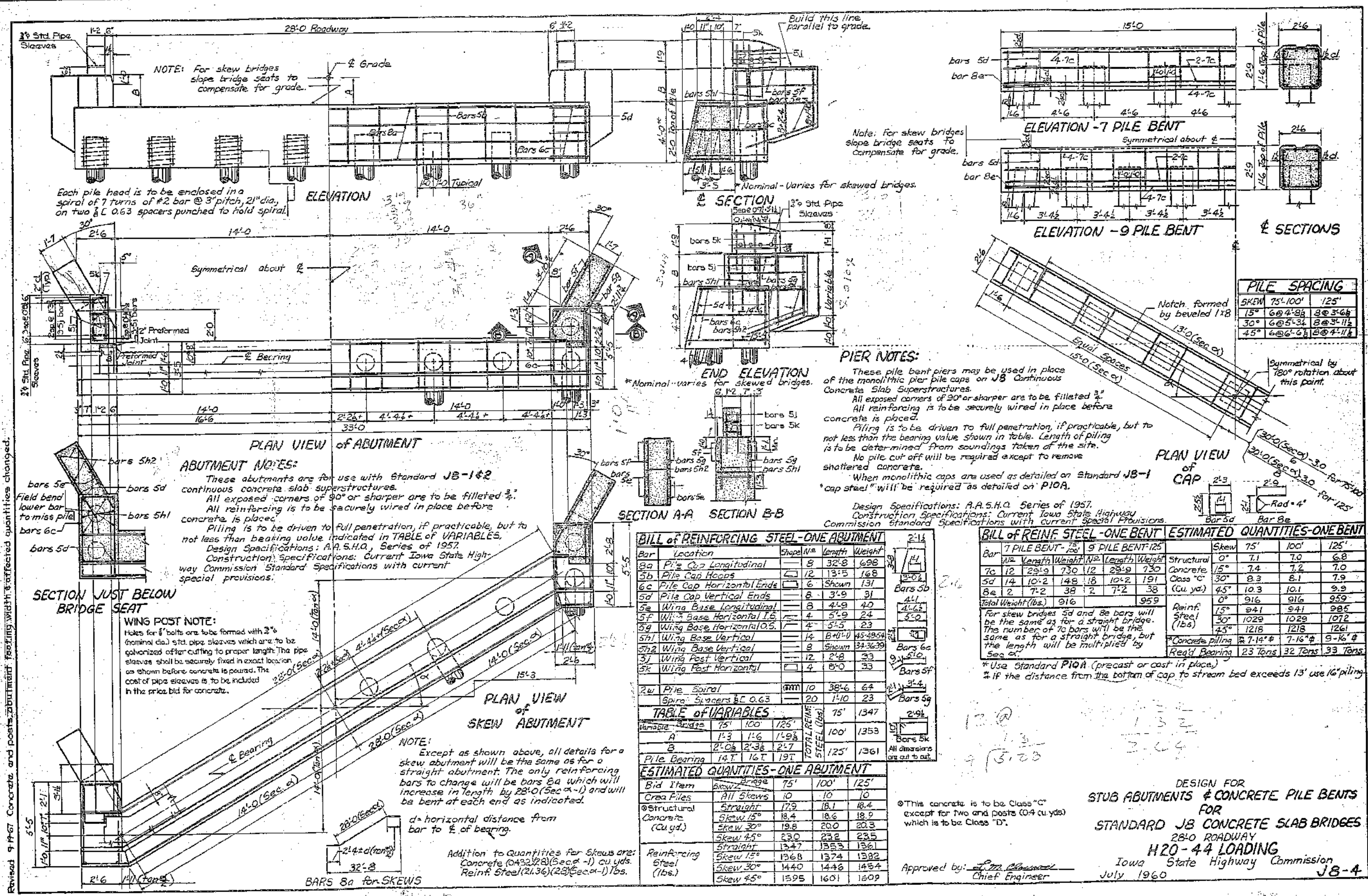
Refer to this sheet only when using timber abutments. When using timber abutments, the superstructure details are to be as shown on Standards J8-1 & 2 except near the abutments. Superstructure details near the abutments are to be as shown on this sheet. This sheet also provides estimated superstructure quantities and reinforcing steel lists for square and skewed bridges.

Cost of 8 floor drains is to be included.
 For interior bents, if bottom of cap to stream bed exceeds 13', use 16" piling.
 Design for
3-SPAN CONTINUOUS SLAB BRIDGE

28'-0 ROADWAY
 75', 100' & 125' Between End Bearings
H20-44 LOADING
 Iowa State Highway Commission
 July 1960

Approved by: *L. M. Houston*
 Chief Engineer
 J8-3

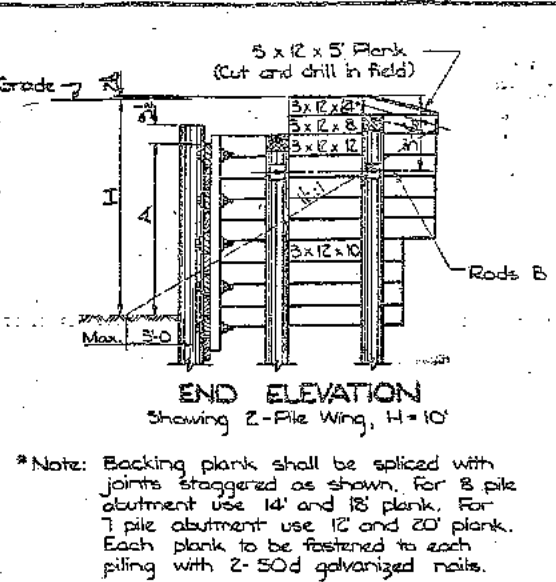
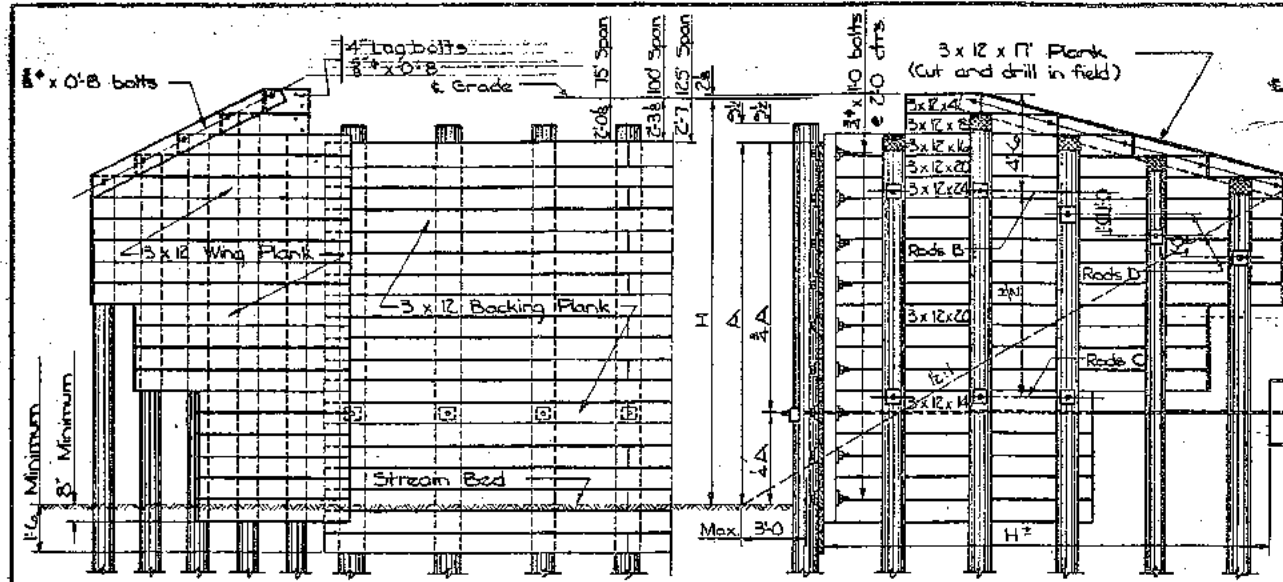
Revised 9-17-67 Concrete and posts, horizontal & affected quantities changed.



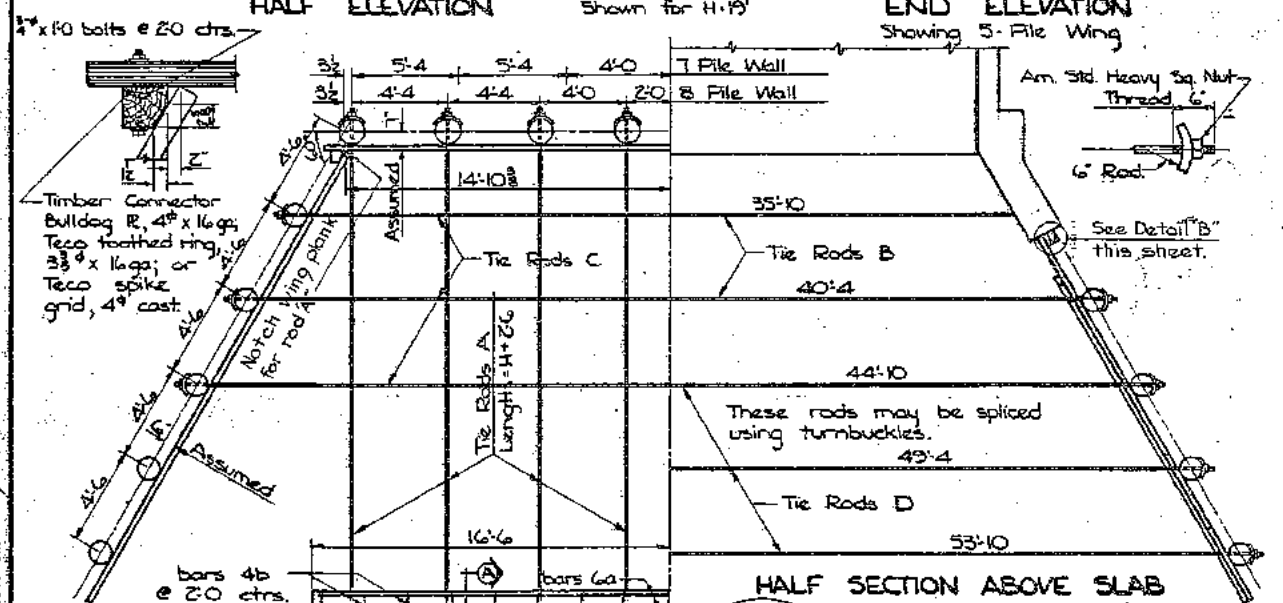
Revised 9-19-67 Concrete and posts abutment featuring width affected quantities changed.

DESIGN FOR
STUB ABUTMENTS & CONCRETE PILE BENTS
 FOR
STANDARD JB CONCRETE SLAB BRIDGES
 28'-0" ROADWAY
 H20-44 LOADING
 Iowa State Highway Commission
 July 1960
 JB-4

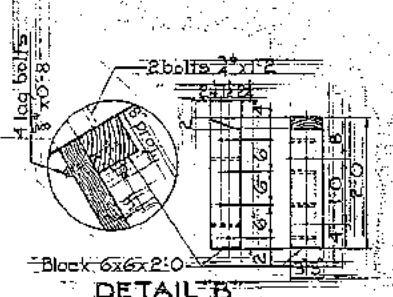
Approved by: *[Signature]*
 Chief Engineer



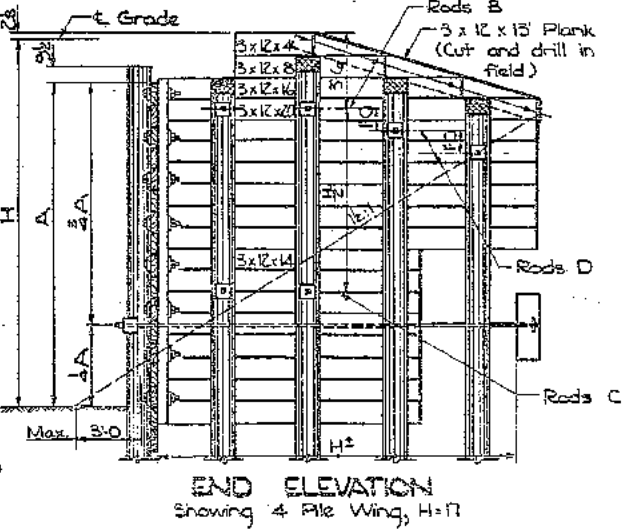
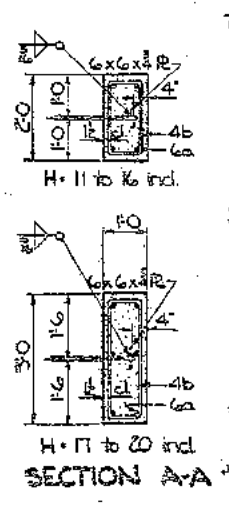
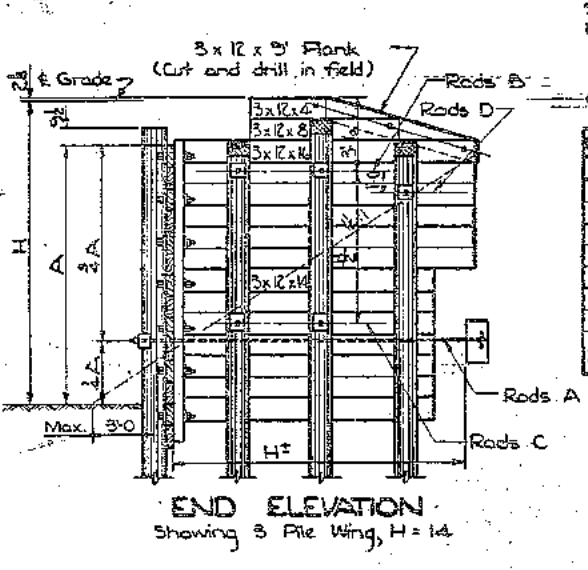
*Note: Backing plank shall be spliced with joints staggered as shown. For 8 pile abutment use 14' and 18' plank. For 7 pile abutment use 12' and 20' plank. Each plank to be fastened to each piling with 2-50d galvanized nails.



Before backfill is placed against abutments, nuts on rods A are to be drawn up finger tight, backed off one full turn, locked with a jam nut and not changed thereafter.



Note: Above holes are to be field drilled.



BILL OF MATERIAL FOR ONE ABUTMENT																				
H: Grade to Stream Bed	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					
Breast Wall	8 Pile Wall																			
Wing Wall	2 Pile Wing								3 Pile Wing				4 Pile Wing				5 Pile Wing			
Number of Bearing Piles	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8					
Min. Butt Diameter (in.)	12	12	13	14	14	12	12	12	12	12	12	13	13	14	14					
Min. Pile Bearing (tons)	17	17	17	17	15	15	15	15	15	15	15	15	15	15	15					
Number of Wing Piles	4	4	4	4	4	6	6	6	6	8	8	8	10	10	10					
Backing Plank 3x12x32	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					
Wing Plank 4' and 8' each	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2					
Wing Plank 10'	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					
Wing Plank 14'	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					
Wing Plank 16'	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					
Wing Plank 20'	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					
Wing Plank 24'	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					
Wing Steps 2-5x12x	5	5	5	5	5	9	9	9	9	13	13	13	17	17	17					
Nails 6x6 (R.F.L.) x	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22					
Rods A-8 total	—																			
Rods B-2 total	—																			
Rods C-2, H=11-17, 3, H=18-20	—																			
Rods D-1-3 Pile, 2-4 Pile and 3-5 Pile Wings	—																			

ESTIMATED QUANTITIES - ONE ABUTMENT																
Concrete (cu. yd.)	—	—	—	—	—	2.4	2.4	2.4	2.4	2.4	2.4	3.7	3.7	3.7	3.7	
Reinforcing Steel (lbs.)	—	—	—	—	—	238	238	238	238	238	238	378	378	378	378	
Structural Steel (lbs.)	130	172	172	224	224	224	224	224	224	224	224	248	248	248	248	
Crossed Lumber (F.B.M.)	1086	1254	1434	1566	1734	2166	2358	2538	2718	3126	3318	3498	4002	4182	4374	
Hardware (lbs.)	39	39	45	45	50	53	59	59	64	67	72	72	81	81	86	

Structural Steel item includes tie rods with nuts and plate washers. Hardware item includes all bolts, nuts, washers and timber connectors. Quantities based on square heads and nuts, malleable washers and bulldog plate connectors.

Rod	Washer
3"	5 x 2 x 0.5
4"	5 x 2 x 0.5
6"	6 x 2 x 0.6
8"	6 x 2 x 0.6
10"	7 x 2 x 0.7
12"	8 x 2 x 0.8
14"	9 x 2 x 0.9

REINFORCING STEEL - ONE ABUTMENT				
Bar	Location	Shape No.	Len.	Weight
6a	Deadman Longitudinal	—	—	—
4b	Deadman Hoops	—	—	—

GENERAL NOTES:
 These abutments are designed for use with Standard J8-5. All lumber shall be crosscut. Backing plank in 8' or 10' widths may be substituted, but payment will be on the basis of the quantities shown.
 All piling shall be crosscut and shall meet the requirements for treated timber trestle piling. Where butt diameter shown indicates oversize, the same oversize shall continue uniformly to the tip of the pile.
 Piling shall be driven to full penetration if practicable, but to not less than the minimum bearing value shown in the table.
 All hardware shall be galvanized. C.I. Ogee or malleable washers shall be used under all bolt heads and nuts bearing on wood.

All tie rods shall have shop coat and first field coat of paint. Where minimum butt diameter of pile shown in table is less than the specification requirement for the length under consideration, the later shall govern.
 Abutment backfill shall not be placed until after superstructure is in place and permanently fastened to the abutment.
 Abutment for skewed bridges will need to be drawn for each design.

SPECIFICATIONS:
 Design: AASHTO, Series of R57.
 Construction: Current Standard Specifications of the Iowa State Highway Commission, with current special provisions.

Design for
TIMBER ABUTMENTS
 for
STANDARD J8 CONCRETE SLAB BRIDGES
 28'-0" Roadway
H20-44 LOADING
 Iowa State Highway Commission
 July 1960

Approved by: _____
 Chief Engineer

Revised 7-19-67. Water added to wing and abutment quantities changed.

ALUMINUM HANDRAIL NOTES:

The aluminum handrail is to be bid on a lineal foot basis measured from end to end of rail. The price bid for "Aluminum Handrail" shall be full compensation for furnishing all material including the anchor bolts and all of the equipment and labor required to erect the railing in accordance with these plans and specifications.

Each rail section must be attached to as many posts as possible but to at least three posts before being spliced.

Material for rails, handrail splice sections and plate clamps shall be A.S.T.M. B-221 Alloy 6061-T6. Material for aluminum plate washers "W", washers, rail end caps and shims shall be A.S.T.M. B-209; Alloy Alclad 2024-T3 for washers and Alloy 1100-0 for shims.

Material for anchor studs, B1 and B2, shall be an ASTM A-276 stainless steel with a minimum ultimate strength of 100,000 psi, minimum elongation in two inches of 12% and a minimum reduction in area of 40%. Stud thread shall conform to A.S.A. B-11 for UNC threads series, class 2A fit. Threads may be rolled or cut. Diameter of stud shall be not less than pitch diameter of threads. The aluminum nuts shall be thick, hexagonal, finished and shall comply with A.S.A. B-18.2. Threads shall comply with A.S.A. B-11 for UNC threads series, class 2B fit.

The aluminum engaging nuts, EN1 and EN2, shall comply with A.S.A. B-18.2 and threads with A.S.A. B-11 for UNC threads series, class 2B fit.

Material for all aluminum nuts shall be A.S.T.M. B-211 Alloy 6061-T6 or 6262-T9.

Material for steel nuts shall be A.S.T.M. A-307 Grade A, and shall conform to A.S.A. B-18.2. Threads shall comply with A.S.A. B-11 for UNC threads series, class 2B fit.

The entire surfaces of the engaging nuts, EN1 and EN2, and shims are to be given one shop coat of zinc chromate shop coat paint or red lead shop coat paint.

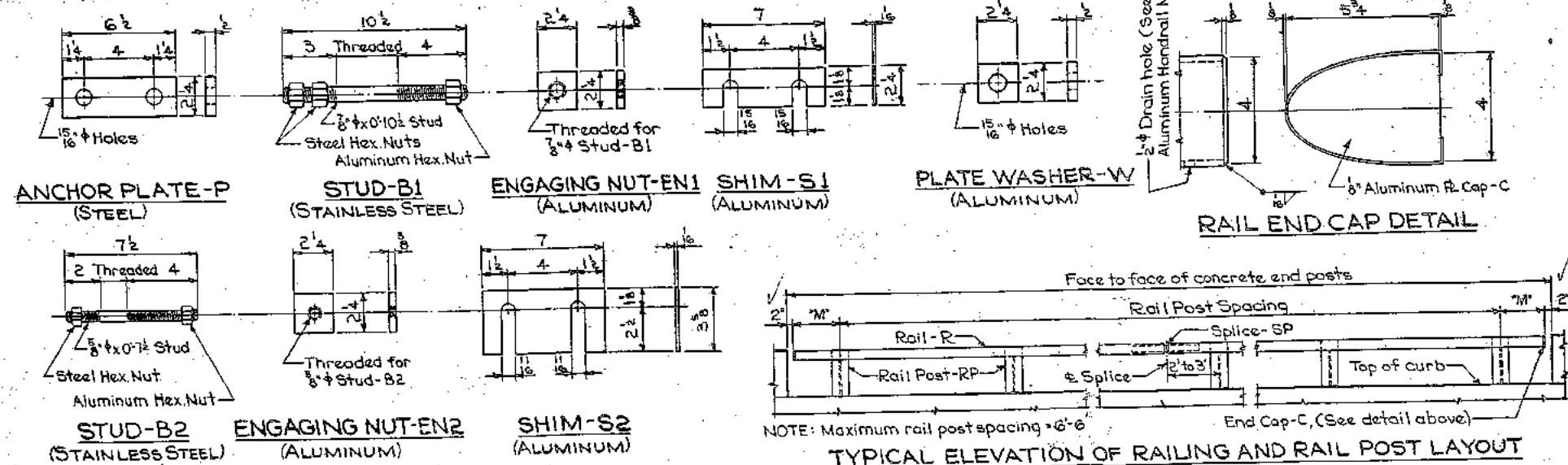
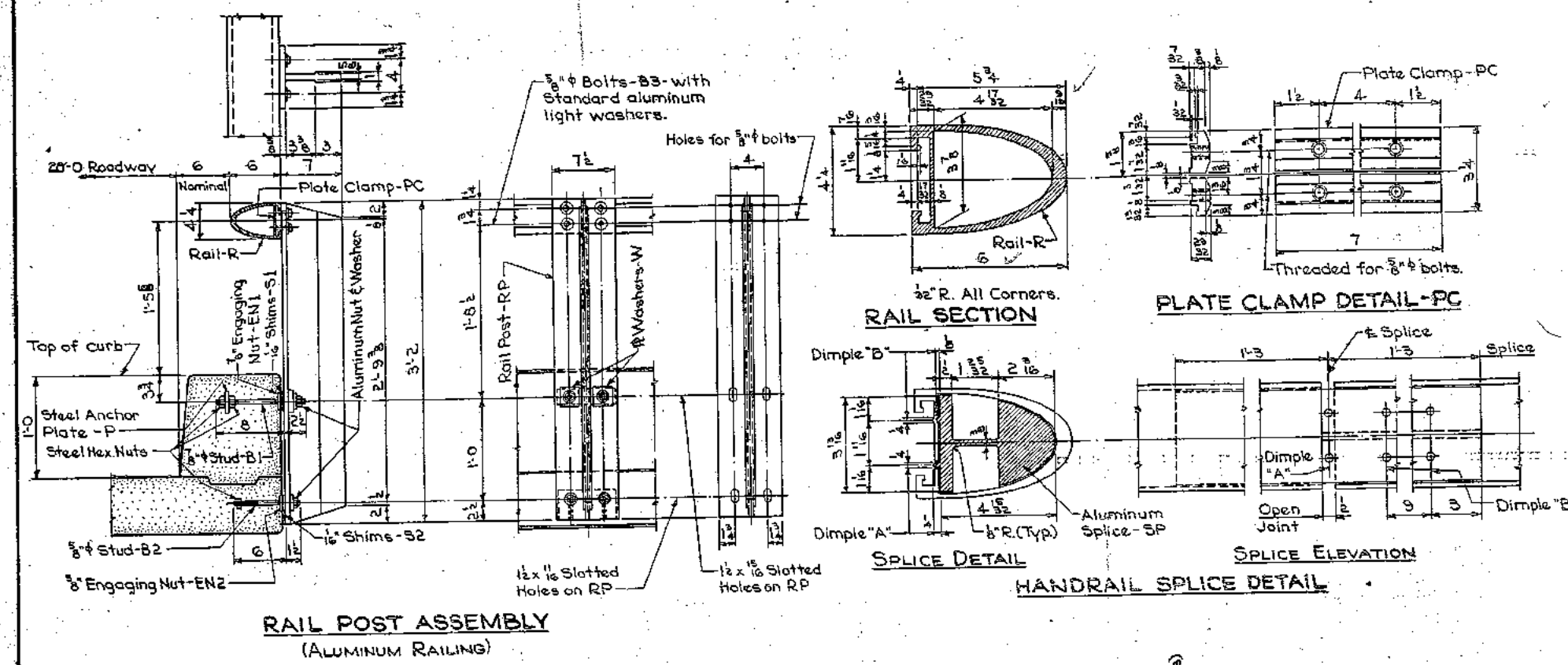
Four shims S1 and S2 are to be furnished for each post, to be used as required.

Material for Plate Clamp Bolts, B3, shall be stainless steel A.S.T.M. A-193, Grade B8.

Ends of rail sections to be saved or milled. Cut ends to be true, smooth and free from burrs or ragged edges.

A 1/2" drain hole is to be provided, 3 inches from the end, at the bottom side of the end sections of all rails.

Handling, storage and installation of aluminum handrail shall be in accordance with Section 2414.06 of the Standard Specifications, except that no caulking will be required.



NOTE: For bridges with stub abutments "M" equals 1'-3"; see J8-4 for rail post spacing.
For bridges with timber abutments "M" equals 8"; see J8-3 for rail post spacing.

Design for
ALUMINUM HANDRAIL DETAILS
For
STANDARD J8 CONCRETE SLAB BRIDGES
28'-0" Roadway
H20-44 LOADING
Iowa State Highway Commission
August, 1967

Approved by: *[Signature]*
Bridge Engineer

Revised: 9/19/67. This sheet outdated.

130150

BRIDGE DECK OVERLAY

LETTING DATE
01-19-05

FM-C024(74)--55-24

CRAWFORD COUNTY

TRAFFIC CONTROL PLAN

THIS ROAD WILL BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. LOCAL TRAFFIC TO ADJACENT PROPERTIES WILL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.08 OF THE CURRENT STANDARD SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES, LAYOUTS, SIGNING, AND PAVEMENT MARKINGS INSTALLED WITHIN THE LIMITS OF THIS PROJECT SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE DEPARTMENT PER 761 OF THE IOWA ADMINISTRATIVE CODE (IAC) CHAPTER 130."

DRAWING APPROVAL

ALL SHOP DRAWINGS THAT REQUIRE APPROVAL SHALL BE APPROVED BY SUNDQUIST ENGINEERING, P.C.
ADDRESS: 120 SOUTH MAIN, P.O. BOX 220 DENISON, IOWA 51442-0220 TELEPHONE: (712)263-8118
THESE SHOP DRAWINGS SHALL NOT BE SENT TO IOWA D.O.T. OFFICE OF BRIDGE DESIGN.



Iowa Department of Transportation Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

FARM-TO-MARKET SYSTEM CRAWFORD COUNTY

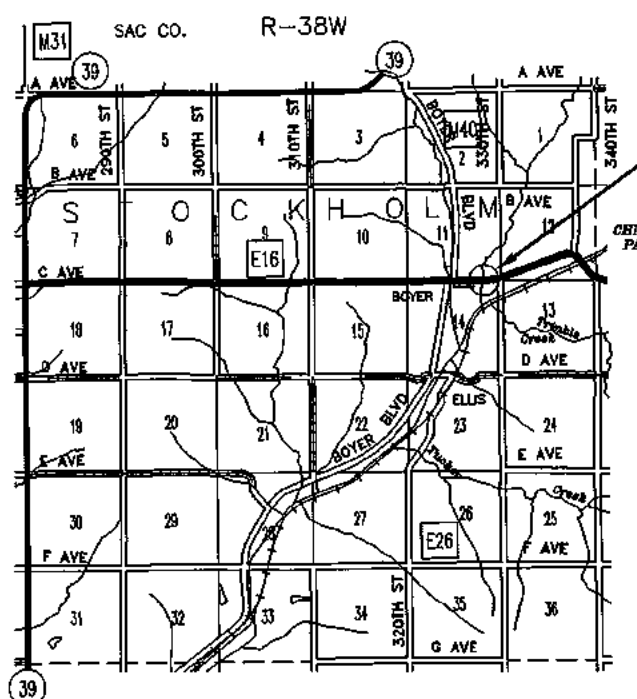
PROJECT NO. FM-C024(74)--55-24 BRIDGE DECK OVERLAY ON COUNTY HIGHWAY E-16 OVER WHEELER CREEK

SCALES: AS NOTED

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2001, plus the applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions, shall apply to construction work on this project.

TOTAL SHEETS	5
PROJECT NUMBER	FM-C024(74)--55-24
R.O.W. PROJECT NUMBER	
PROJECT IDENTIFICATION NUMBER	

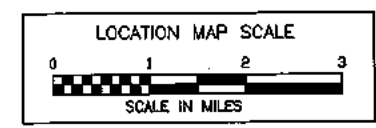
INDEX OF SHEETS	
NO.	DESCRIPTION
A1	TITLE SHEET
B1	ESTIMATE SHEET, GENERAL NOTES AND ESTIMATE REFERENCE INFORMATION
C1-2	TABULATIONS, TYPICALS
V1	BRIDGE SITUATION PLAN



MILEAGE SUMMARY		
LOCATION	LIN. FT.	MILES
BRIDGE AT STA. 253+54.5	77.00	0.015

STANDARD ROAD PLANS					
The following Standard Road Plans shall be considered applicable to construction work on this project.					
NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
RE-2B	04-03-01	RE-27B	10-19-04	RE-68	10-19-04
RE-7	04-15-03	RE-47	10-19-04	RE-76	10-21-03
RE-12A	10-19-04	RE-48A	10-19-04	RG-6	10-02-01
RE-12B	10-19-04	RE-64B	10-19-04	RS-27	10-28-97
RE-12C	10-19-04				

SUNDQUIST ENGINEERING, P.C.
CONSULTING ENGINEERS
HIGHWAYS • MUNICIPAL • MAPPING • SURVEYING
120 S. MAIN, P.O. BOX 220, DENISON, IOWA 51442-0220
PHONE: (712)263-8118 FAX: (712)263-2181



Approved
Mark Schubert
Steve Clemens
MaDea Hingers
Robert Lohmann
John P. Hawley
BOARD OF SUPERVISORS

Approved
[Signature] 10/19/04
CRAWFORD COUNTY ENGINEER DATE

Iowa Department of Transportation
Highway Division
Accepted for Letting
[Signature] 10/19/04
DISTRICT 3 LOCAL SYSTEMS ENGINEER DATE

430	101-4
2000 AADT	430 V.P.D.
2020 AADT	X V.P.D.
201X DHV	X V.P.H.
TRUCKS	X %
TOTAL	
DESIGN ESALS	

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.
[Signature] 10/18/04
TROY J. GROTH, P.E. #14450 DATE
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2005.
PAGES OR SHEETS COVERED BY THIS SEAL:
ALL SHEETS

GENERAL NOTES

THIS DESIGN IS FOR REPAIRS TO THE EXISTING 75'-0 X 28' CONTINUOUS CONCRETE SLAB BRIDGE ON COUNTY HIGHWAY E-16 OVER WHEELER CREEK. COPIES OF THE ORIGINAL DESIGN AND REPAIR PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - PROJECT DEVELOPMENT DIVISION - IOWA D.O.T. - AMES.

REPAIR SHALL CONSIST OF:

1. BRIDGE FLOOR REPAIR, CLASS "A"
2. BRIDGE FLOOR REPAIR, CLASS "B"
3. BRIDGE FLOOR OVERLAY
4. REPAIRING DETEIORATED CONCRETE IN CURBS
5. INSTALLATION OF HMA LEVELING COURSES AT EACH APPROACH
6. INSTALLATION OF GUARDRAIL

ALL DIMENSIONS AND DETAILS SHOWN ON THESE PLANS PERTINENT TO NEW CONSTRUCTION IN RELATION TO EXISTING PORTIONS OF THE STRUCTURE SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING CONSTRUCTION.

BRIDGE FLOOR OVERLAY SHALL CONSIST OF REMOVING THE FLOOR CONCRETE TO A DEPTH OF 1/4" BELOW THE EXISTING SURFACE, EXCEPT AT DRAINS AND ELSEWHERE AS NOTED, TRANSPORTING THE CONCRETE REMOVED FROM THE PROJECT, AND OVERLAYING WITH 1 3/4" OF PCC.

UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR ARE KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE STARTING DATE.

CONTRACTOR SHALL NOTIFY ONE-CALL (1-800-292-8989) FOR UTILITY LOCATES PRIOR TO COMMENCING WORK.

PRESENT FLOOR THICKNESS IS ABOUT 11 3/4 INCHES. THE CONTRACTOR SHALL EXERCISE CARE IN ORDER TO PREVENT UNNECESSARY REMOVAL OF CONCRETE BELOW THE TOP OF THE TOP LAYER OF REINFORCING. THE ENERGY OF HAND TOOLS SHALL BE RESTRICTED NEAR THE BOTTOM OF THE DESIGNATED CLASS A REPAIR AREAS IN ORDER TO PREVENT UNBONDING OF REINFORCING. NO CONCRETE SHALL BE REMOVED BELOW THE TOP OF THE TOP LONGITUDINAL REINFORCING WITHOUT PRIOR PERMISSION FROM THE COUNTY ENGINEER.

AREAS OF CURB INDICATED ON THE "PLOT OF BRIDGE DECK DELAMINATIONS" OR DESIGNATED BY THE ENGINEER ARE TO BE REPAIRED USING CONCRETE REPAIR NOTES AND DETAILS INCLUDED IN THESE PLANS.

SURFACE RAISE, AS SHOWN ON THE PLANS, SHALL BE A MINIMUM. IN ORDER TO LIMIT THE ADDITIONAL DEAD LOAD SURFACE RAISE SHALL BE RESTRICTED TO A MAXIMUM OF 1/2" MORE THAN SHOWN ON THE PLANS. PROFILE MAY BE ADJUSTED TO THE EXTENT POSSIBLE WITHIN THESE LIMITS.

PLAN QUANTITY OF FLOOR REPAIR IS BASED ON THE "PLOT OF BRIDGE DECK DELAMINATIONS" AS SHOWN IN THESE PLANS. HATCHED PORTIONS REPRESENT CLASS B BRIDGE FLOOR REPAIR. ACTUAL SPALLED AND HOLLOW AREAS, AS DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION SHALL BE REPAIRED.

213-1

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL (EXCAVATED MATERIAL OR BROKEN CONCRETE) WHICH IS NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT. THESE AREAS SHALL NOT IMPACT WETLANDS OR "WATERS OF THE U.S." NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES. NO MATERIAL SHALL BE PLACED WITHIN THE RIGHT-OF-WAY, UNLESS SPECIFICALLY STATED IN THE PLANS.

213-7

UNLESS OTHERWISE DIRECTED OR AUTHORIZED, ALL HOT MIX ASPHALT AND OTHER BITUMINOUS MATERIALS WHICH ARE NOT SPECIFICALLY ADDRESSED OR DESCRIBED IN THE CONTRACT DOCUMENTS SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

THE CONTRACTOR, IN ACCORDANCE WITH CURRENT RULES AND REGULATIONS OF THE IOWA DEPARTMENT OF NATURAL RESOURCES, MAY:

1. WITH THE APPROVAL OF THE ENGINEER, BLEND OR OTHERWISE PROCESS THE MATERIAL FOR USE WITH SHOULDER OR SPECIAL BACKFILL AGGREGATE, FOR USE ON THE PROJECT.
2. WITH THE APPROVAL OF THE ENGINEER, PLACE WITH MATERIAL IN AREAS DESIGNATED BY THE ENGINEER AS SOIL AGGREGATE SUBBASE WITHOUT EXTRA CHARGE.
3. REMOVE THE MATERIAL FROM THE PROJECT AND STOCKPILE FOR THE CONTRACTOR'S FUTURE USE.

232-5

THE CONTRACTOR SHALL NOT DISTURB DESIRABLE GRASS AREAS AND DESIRABLE TREES OUTSIDE THE CONSTRUCTION LIMITS. THE CONTRACTOR WILL NOT BE PERMITTED TO PARK OR SERVICE VEHICLES AND EQUIPMENT OR USE THESE AREAS FOR STORAGE OF MATERIALS. STORAGE, PARKING AND SERVICE AREA(S) WILL BE SUBJECT TO THE APPROVAL OF THE COUNTY ENGINEER.

ESTIMATE REFERENCE INFORMATION

DATA LISTED BELOW IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT CONSTITUTE A BASIS FOR ANY EXTRA WORK ORDERS.

2303-0000100 HOT MIX ASPHALT MIXTURE, COMMERCIAL MIX (INCLUDES ASPHALT BINDER), AS PER PLAN

CONTRACTOR SHALL PLACE TYPICAL ASPHALT LEVELING COURSES AT BRIDGE APPROACH SECTIONS AS NOTED AND SHOWN ON STANDARD ROAD PLAN RG-6. SHOULDER MATERIAL FOR AREAS AFFECTED BY LEVELING COURSES WILL BE PROVIDED AND PLACED BY COUNTY.

2413-0698071 BRIDGE FLOOR OVERLAY
INCLUDES COST OF FURNISHING AND PLACING CONCRETE SEALER.

2413-0698072 BRIDGE FLOOR REPAIR, CLASS A
CONCRETE SHALL BE PLACED MONOLITHICALLY WITH CONCRETE FOR BRIDGE FLOOR OVERLAY.

2413-0698072 BRIDGE FLOOR REPAIR, CLASS A
2413-0698073 BRIDGE FLOOR REPAIR, CLASS B
CARE SHALL BE EXERCISED TO PREVENT DAMAGING EXISTING REINFORCING STEEL DURING CONCRETE REMOVAL AND ALL OTHER OPERATIONS. CARE SHALL ALSO BE EXERCISED DURING ANY SAW CUTTING TO ENSURE DEPTH OF SAW CUT DOES NOT EXCEED THAT WHICH IS NECESSARY TO REMOVE UNSOUND CONCRETE.

2426-6772016 CONCRETE REPAIR
FOR CONCRETE REPAIR OF BRIDGE CURBS REFER TO DETAIL PROVIDED IN THESE PLANS.

2505-4008200 INSTALLATION OF GUARDRAIL
REFER TO TABULATION ON DRAWING SHEET C2.

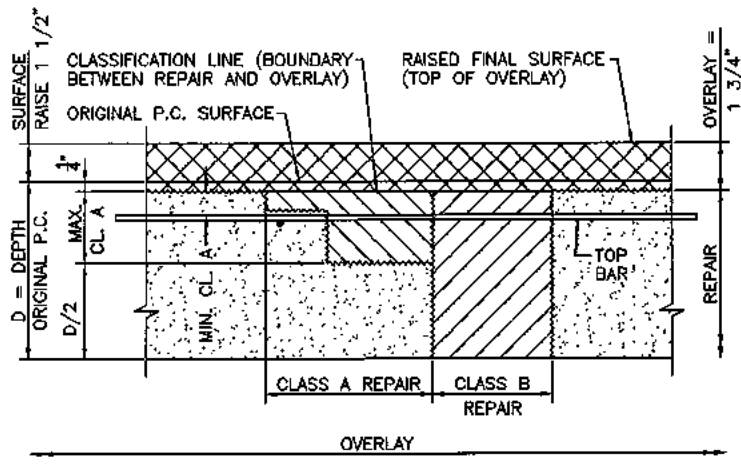
ESTIMATED PROJECT QUANTITIES

100-1A
07-15-97

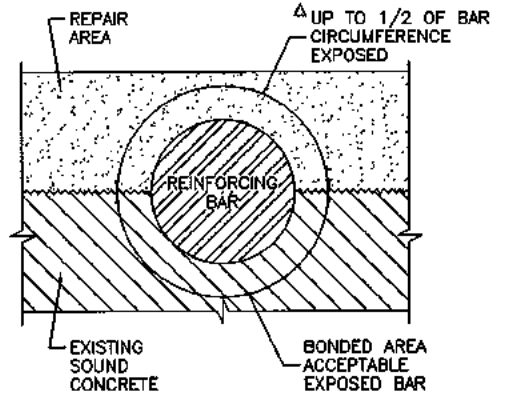
ITEM NUMBER	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2303-0000100	HOT MIX ASPHALT MIXTURE, COMMERCIAL MIX (INCLUDES ASPHALT BINDER), AS PER PLAN	TON	15.4	
2	2413-0698071	BRIDGE FLOOR OVERLAY	SY	239.56	
3	2413-0698072	BRIDGE FLOOR REPAIR, CLASS A	SY	25.15	
4	2413-0698073	BRIDGE FLOOR REPAIR, CLASS B	SY	5.7	
5	2426-6772016	CONCRETE REPAIR	SF	12.5	
6	2505-4008200	INSTALLATION OF GUARDRAIL	LF	375	
7	2505-4021272	GUARDRAIL, END ANCHORAGE, BEAM, RE-27B	EACH	4	
8	2505-4021262	GUARDRAIL TERMINAL, BEAM, FLARED, RE-76	EACH	4	
9	2518-6910000	SAFETY CLOSURE	EACH	2	
10	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	9.08	
11	2528-8445110	TRAFFIC CONTROL	LS	1	
12	2533-4980005	MOBILIZATION	LS	1	

ESTIMATED PROJECT QUANTITIES
AND GENERAL INFORMATION
FHWA NO. 130150

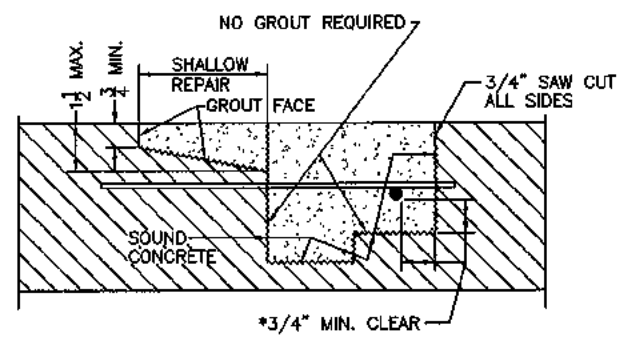
REV:



REPAIR AND OVERLAY DEFINITION

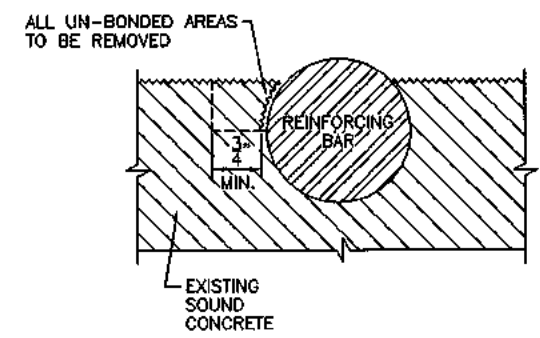


Δ IF MORE THAN 1/2 OF THE REBAR IS EXPOSED IT SHALL BE TREATED AS AN UN-BONDED REBAR.

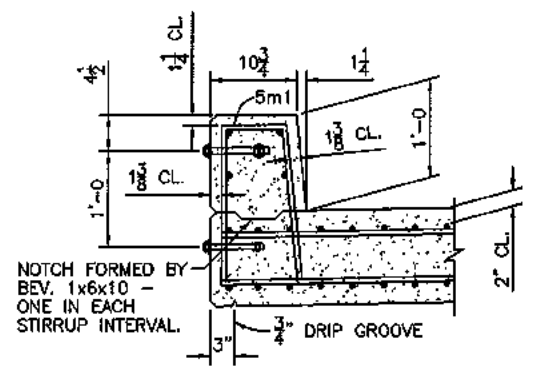


REPAIR DEFINITION

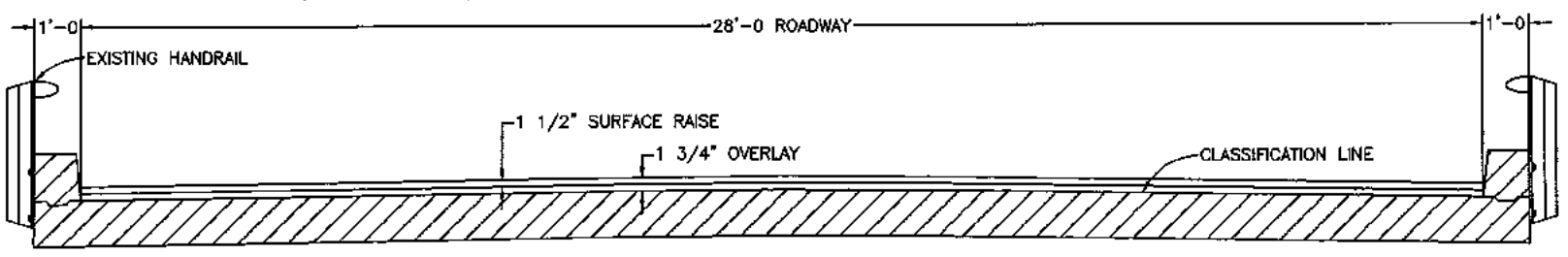
*INDICATES CLEARANCE FOR AN UN-BONDED REBAR



CONCRETE REMOVAL ADJACENT TO REINFORCING



CURB DETAIL (SHOWN NEAR PIER)



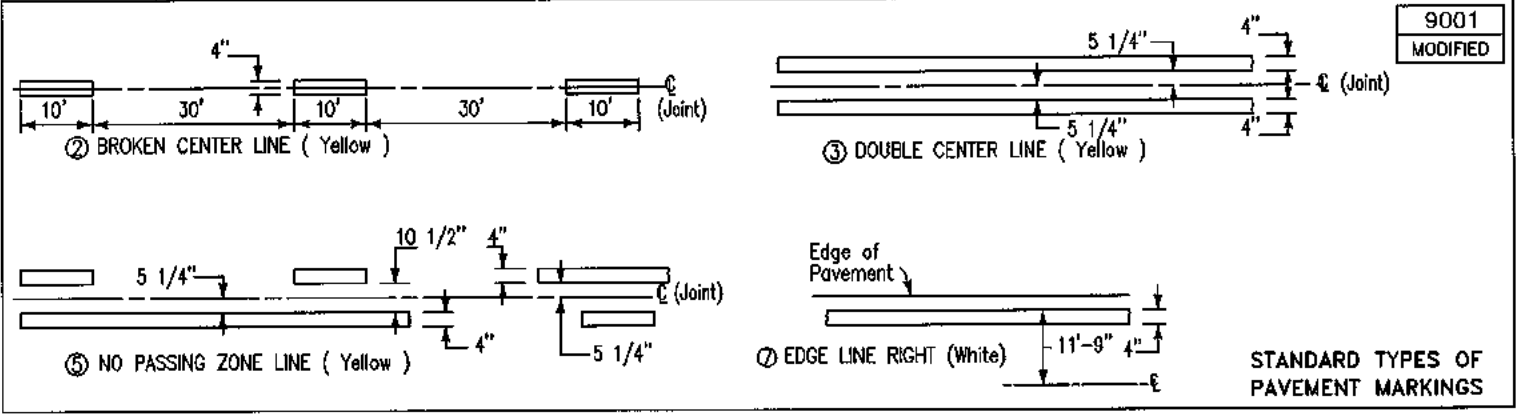
TYPICAL CROSS SECTION

TABULATION OF PAVEMENT MARKINGS

108-22
 MODIFIED

② Broken Center Line (Yellow) ③ Double Center Line (Yellow) ⑤ No-Passing Zone Line (Yellow) ⑦ Edge Line Right (White)

ROAD IDENTIFICATION	LOCATION		LENGTH (In Stations)				REMARKS
	STATION TO STATION	SIDE L R	②	③	⑤	⑦	
	252+41 - 254+68			2.270		4.540	
	LENGTH SUBTOTALS			2.270		4.540	
	QUANTITY FACTORS		.25	2	1	1	
	TOTALS			4.540		4.540	



9001
 MODIFIED

TABULATION OF RESURFACING RUNOUTS

106-3
 10-29-02

MILEPOST	LOCATION		TYPE	LENGTH (Lin. Ft.)	REMARKS
	From	To			
	252+41	253+16		75	
	253+93	254+68		75	

TABULATION OF SAFETY CLOSURES

108-13A
 10-28-97

Refer to Section 2518 of the St'd. Specifications

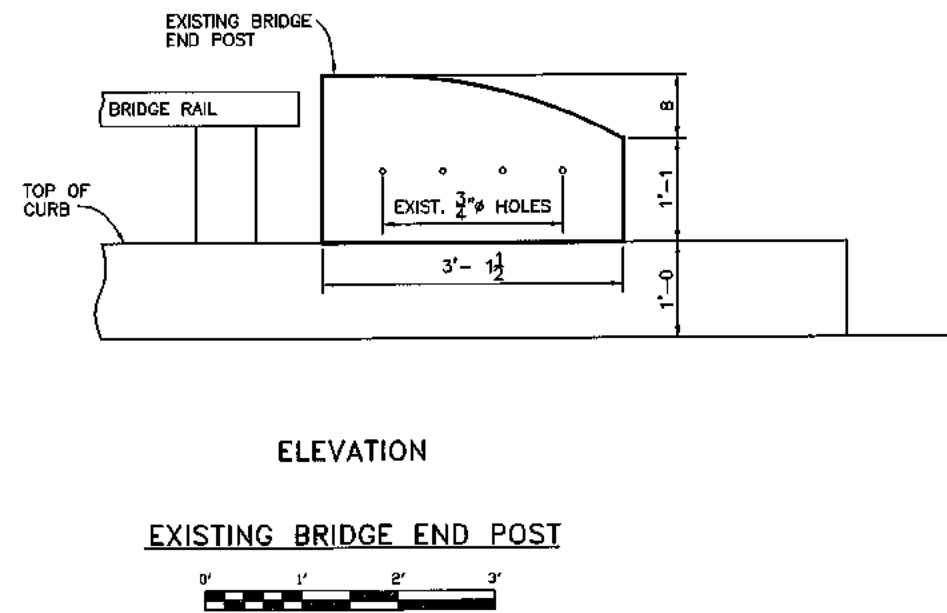
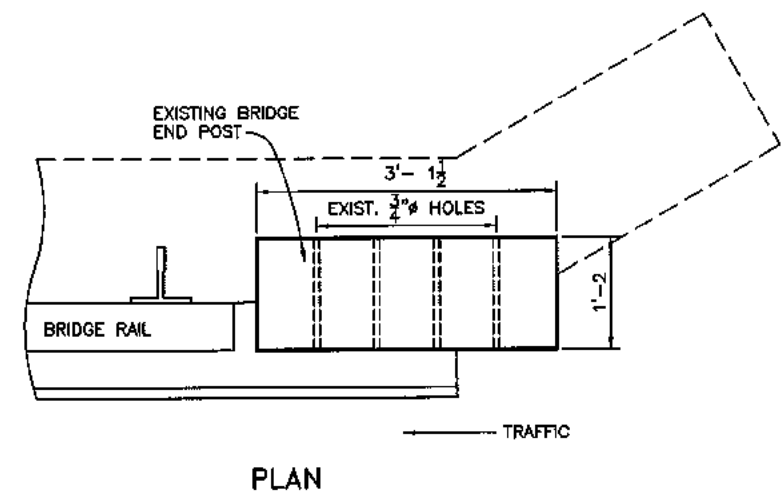
STATION	CLOSURE TYPE		REMARKS
	Road Qty.	Hazard Qty.	
251+90	1	-	WEST END
255+20	1	-	EAST END

TABULATION OF STEEL BEAM GUARDRAIL AT BRIDGE END POST, CONCRETE BARRIER AND RAILROAD SIGNALS
 Refer to Standard Road Plans RE-48A-B, RE-63, RE-64A(1), RE-64A(2) and RE-65B

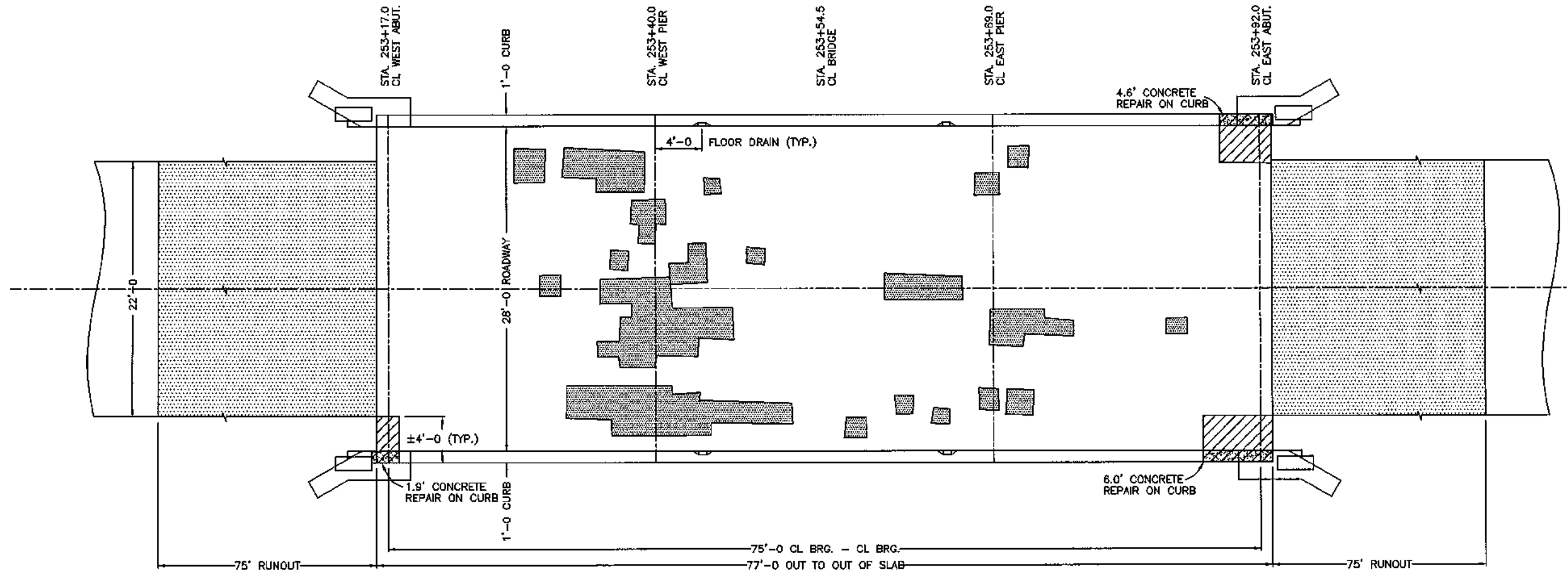
108-8A
 MODIFIED

NO.	LOCATION			STANDARD ROAD PLAN	LAYOUT LENGTHS					MATERIALS REQUIRED					DELINEATORS AND OBJECT MARKERS				BID ITEMS					REMARKS					
	DIRECTION OF TRAFFIC	END	SIDE		STATION	②	③	④	⑤	⑥	STS		⑦	⑧	⑨	⑩	Type	Object Marker			Installation of Guardrail (STS)+(VT1)+(VF) +(VT2)+(ET)	Anchorage and Terminal Systems							
											Three Beam (25.0')	Transition Section (6.25')						Single White D-1W	Type 2 OM2-3YW	Type 3 OM-3L OM-3R		RE-27B	RE-69A		RE-69B	RE-69C	RE-76		
1	EB	A	-	253+54.5	RE-64B	-	18.75	0	37.5	0	37.5	25.0	6.25	75.0	7	7	5	1	7	3	---	1	93.75	1	-	-	-	1	
2	EB	T	-	253+54.5	RE-64B	-	18.75	0	37.5	0	37.5	25.0	6.25	75.0	7	7	5	1	---	3	1	---	---	93.75	1	-	-	-	1
3	WB	T	-	253+54.5	RE-64B	-	18.75	0	37.5	0	37.5	25.0	6.25	75.0	7	7	5	1	---	3	1	---	---	93.75	1	-	-	-	1
4	WB	A	-	253+54.5	RE-64B	-	18.75	0	37.5	0	37.5	25.0	6.25	75.0	7	7	5	1	7	3	---	1	93.75	1	-	-	-	1	

- ① Lane(s) to which the obstacle is adjacent.
- ② Applies to Standard Road Plan RE-63 only.
- ③ Includes (1) special 12.5' section of 'W' Beam, see RE-76.
- ④ (6) 6"x8"x7" posts required when RE-63 or RE-69C is specified.
- ⑤ The last two posts of the RE-76 Terminal section are included as part of that bid item.






TABULATIONS, TYPICALS
 FHWA NO. 130150



PLOT OF BRIDGE
DECK DELAMINATIONS



-  BRIDGE FLOOR REPAIR, CLASS A
-  BRIDGE FLOOR REPAIR, CLASS B
-  CURB REPAIR

SITUATION PLAN
 75'-0 x 28' CONTINUOUS CONCRETE SLAB BRIDGE
 ALUMINUM HANDRAIL
 STUB ABUTMENTS AND CONCRETE PILE BENTS
 STA. 253+54.5
 CRAWFORD COUNTY
 FHWA NO. 130150

REV:

SUNDQUIST ENGINEERING, P.C.
 CONSULTING ENGINEERS

HIGHWAYS • MUNICIPAL • MAPPING • SURVEYING
 120 S. MAIN, P.O. BOX 220, DENISON, IOWA 51442
 PHONE: (712)263-8118 FAX: (712)263-2181

SE PROJECT NO.: 04404E DATE: 07/04 DRAWN BY: TTK REVIEWED BY: SAS APPROVED BY: TJG

DESIGN NO. .

FILE NO. .

CRAWFORD COUNTY PROJECT NO. FM-C024(74)-55-24

SHEET VI